

APPENDIX C

Plugging and Abandonment Plans

ATTACHMENT C
CORRECTIVE ACTION PLAN AND WELL DATA

TABLE OF CONTENTS

1.	INTRODUCTION	1
2.	WELLS WITHIN THE AREA OF REVIEW	2
3.	CORRECTIVE ACTION PLAN.....	3

TABLES

C-1 Wells within the Area of Review

FIGURES

C-1 Well Locations within the Area of Review

ATTACHMENTS

7520-14 Forms

1. INTRODUCTION

This Attachment was prepared in support of Excelsior Mining Arizona, Inc.'s (Excelsior's) Underground Injection Control (UIC) Permit application to the United States Environmental Protection Agency (USEPA). Excelsior is applying for an area Class III UIC permit to install a wellfield for in-situ recovery (ISR) of copper at the Gunnison Copper Project (Project), located in Cochise County, Arizona.

Attachment C *Corrective Action Plan and Well Data* was prepared in support of Excelsior's UIC Permit application. This attachment identifies existing wells within the Area of Review (AOR) in accordance with the UIC Application Instructions (EPA Form 7520-6). According to Chapter 40 of the Code of Federal Regulations (CFR) §144.55, the applicant

“shall identify the location of all known wells within the injection well's area of review which penetrate the injection zone. For such wells which are improperly sealed, completed, or abandoned, the applicant shall also submit a plan consisting of such steps or modifications as are necessary to prevent movement of fluid into underground sources of drinking water (“corrective action”).

2. WELLS WITHIN THE AREA OF REVIEW

Well data were compiled for wells inside the AOR. Well information was compiled from the Arizona Department of Water Resources (ADWR) Well Registry Database and from data provided to Clear Creek by Excelsior. The most recent version of the ADWR Well Registry Database was downloaded from the ADWR website on July 15, 2015. The database was last updated in January 2015 according to the website.

There are 99 known borings within the AOR, 11 of which have been plugged and abandoned. Of the remaining 88 wells, one is classified as non-exempt by ADWR. The remaining wells are generally considered piezometer-monitor wells, although many of them were initially installed as exploration boreholes. Available information for each of the boring/well is included in Table C-1. Locations provided by Excelsior are shown on Figure C-1.

Plugging and Abandonment Plan forms (From 7520-14) for each well are provided in this Attachment¹. Excelsior will provide signed copies prior to the actual abandonment after they are able to investigate the well construction.

¹ Estimated costs are based on the total depth and diameter of the borings. For the estimated cost of abandonment of the NSH wells, we used the average cost of \$14,420 to agree with closure costs in Attachment R-3.

3. CORRECTIVE ACTION PLAN

Excelsior will plug and abandon existing wells within each mine block prior to beginning injection and recovery in that mine block. This corrective action will be conducted according to the following procedures:

3.1 General Procedure for Plugging and Abandonment

Plugging and abandonment will be conducted based on the “Standard Abandonment Method” in the ADWR Well Abandonment Handbook (Attachment Q-2).

3.1.1 Well and Borehole Preparation

The following tasks will be completed prior to well and borehole abandonment to ensure the success of the plugging procedures that are proposed in the next sub-section.

1. Inspect and Document Well: The well will be inspected from the surface. The condition will be documented and recorded and the site will be photographed.
2. A static water level will be measured.
3. Remove Equipment (if any): Equipment including pumps, wiring, tubing, and transducers will be removed from the well. Some of the wells have PVC liners that can be removed. Any equipment that cannot be retrieved will be documented.

3.1.2 Plugging Procedure

Each well or borehole will be filled as completely as possible with Type V neat cement using the following procedure.

1. The area around the well will be cleared and the casing will be cut at two or more feet below grade. Cement or steel resulting from cutting casing will be removed from the site.
2. The steel casing and screen will be perforated from 50 feet above the static water level down to the bottom of the casing (or screened interval, if there is one).
3. If the well is an open hole completion (i.e. no screen), tremie pipe will be installed to within 20 feet of the bottom of the well. For wells that are determined to be obstructed during preparation, the contractor will try to push the tremie pipe through the obstruction. If the tremie cannot be installed through the obstruction, the contractor will try to install

drill pipe through the obstruction. If both of those options fail, the well will be abandoned from the obstruction to the surface.

4. Type V cement will be installed through the tremie pipe with the end of the tremie pipe below the top surface of the cement to ensure that there are no gaps in the cement seal. The cement will be installed under enough pressure to fill voids in the borehole wall and casing.
5. The site will be leveled and the abandoned well will be covered with soil.

4. DOCUMENTATION AND REPORTING

4.1 Documentation

Field personnel will record types and quantities of materials used and emplacement depths of each material. Each site will be photographed after completion and covering of the borehole. Copies of field data and the forms described below will be maintained at the Project site for inspection until closure is completed.

4.2 Reporting

Following the plugging and abandonment of existing wells, reports will be filed with state and federal agencies as described below.

ADWR: Within 30 days of the completion of plugging and abandonment the drilling contractor will submit a Well Abandonment Completion Report (Form 55-58) to ADWR. Within 30 days of completion of plugging and abandonment Excelsior or their designee will submit a Well Owner's Notification of Abandonment (Form 55-36). The forms are included as Exhibit B.

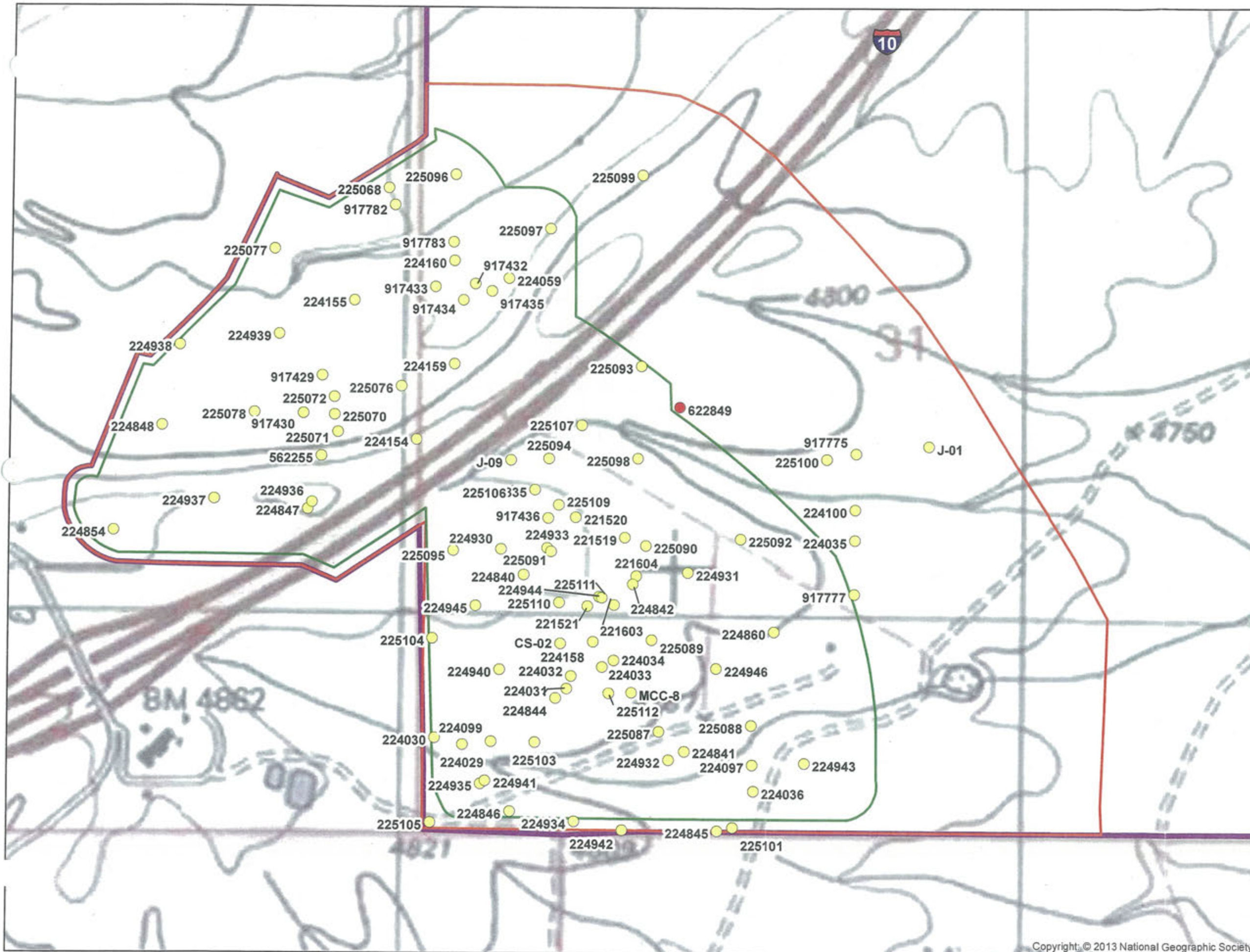
USEPA: Excelsior will report plugging and abandonment activities in the quarterly monitoring reports sent to the USEPA Director. The plugging and abandonment will be included in the quarterly report for the quarter in which the activities were completed. Reporting data will include an updated version of Form 7520-14 and copies of the forms sent to ADWR described above.

ADEQ: will also be notified, as plugging and abandonment is an element of "Best Available Demonstrated Control Technology" (BADCT) for the wellfield.

TABLE C-1
Wells within the Area of Review

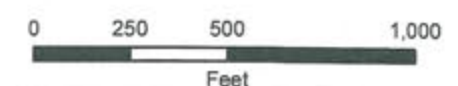
ADWR Registry Number 55-	Cadastral Location	Well Name	Owner Name	Easting NAD 83 (ft)	Northing NAD 83 (ft)	Measuring Point Elevation (ft amsl)	Abandoned	Drill Date	Well Type	Well Depth (ft)	Casing in Hole	Casing Diameter (in)	Casing Depth (ft)	Cemented	Cemented Depth (ft)
225089	D(15-23) 31CDC	CS-05	EXCELSIOR MINING CORP	738608.92	393694.89	4818	No	1971	SPCL - MINERAL EXPLORATION	2034	No	N/A	N/A	Yes	628-640
225090	D(15-23) 31CAC	CS-06	EXCELSIOR MINING CORP	738576.3	394194.54	4831	No	1971	SPCL - MINERAL EXPLORATION	2160	No	N/A	N/A	Yes	630-715
225091	D(15-23) 31CBC	CS-07	EXCELSIOR MINING CORP	738071.33	394162.26	4850	No	1971	SPCL - MINERAL EXPLORATION	1796	Yes	4.5	596	Yes	506-596
225092	D(15-23) 31CAC	CS-08	EXCELSIOR MINING CORP	739077.57	394231.13	4809	No	1971	SPCL - MINERAL EXPLORATION	2304	No	N/A	N/A	Yes	250-648
225093	D(15-23) 31CAB	CS-09	EXCELSIOR MINING CORP	738551.02	395144.23	4833	No	1971	SPCL - MINERAL EXPLORATION	2337	No	N/A	N/A	Yes	360-715
225094	D(15-23) 31CBD	CS-10	EXCELSIOR MINING CORP	738060.5	394653.38	4829	No	1971	SPCL - MINERAL EXPLORATION	1656	No	N/A	N/A	Yes	720-730
225095	D(15-23) 31CBC	CS-11	EXCELSIOR MINING CORP	737554.82	394166.14	4863	No	1971	SPCL - MINERAL EXPLORATION	2084	No	N/A	N/A	Yes	416-480
225096	D(15-23) 31CBC	CS-15	EXCELSIOR MINING CORP	737561.5	396153.55	4757	No	1971	SPCL - MINERAL EXPLORATION	492	No	N/A	N/A	No	N/A
225097	D(15-23) 31BCD	CS-19	EXCELSIOR MINING CORP	738065.04	395870.87	4757	No	1971	SPCL - MINERAL EXPLORATION	580	Yes	3.5	580	Yes	480-580
225098	D(15-23) 31CBD	CS-21	EXCELSIOR MINING CORP	738532.95	394655.34	4810	No	1971	SPCL - MINERAL EXPLORATION	2171	No	N/A	N/A	Yes	605-687
225099	D(15-23) 31BDA	CS-23	EXCELSIOR MINING CORP	738556.65	396154.06	4792	No	1971	SPCL - MINERAL EXPLORATION	622	Yes	3.5	622	Yes	522-622
225100	D(15-23) 31CAD	CS-41	EXCELSIOR MINING CORP	739537.3	394653.69	4793	No	1971	SPCL - MINERAL EXPLORATION	448	Yes	4.0	448	Yes	408-448
225101	D(15-23) 31CDD	CS-51	EXCELSIOR MINING CORP	739035.96	392707.85	4792	No	1972	SPCL - MINERAL EXPLORATION	1838	No	N/A	N/A	Yes	552-639
225103	D(15-23) 31CCD	J-04	EXCELSIOR MINING CORP	737987.71	393154.24	4804	No	1970	SPCL - MINERAL EXPLORATION	1509	N/I	N/I	N/I	N/I	N/I
225104	D(15-23) 31CCB	J-05	EXCELSIOR MINING CORP	737444.95	393699.86	4837	No	1974	SPCL - MINERAL EXPLORATION	1475	N/I	N/I	N/I	N/I	N/I
225105	D(15-23) 31CCC	J-06	EXCELSIOR MINING CORP	737434.29	392728.1	4824	No	1970	SPCL - MINERAL EXPLORATION	937	N/I	N/I	N/I	N/I	N/I
225106	D(15-23) 31CBC	J-07	EXCELSIOR MINING CORP	737878.08	394483.65	4846	No	N/I	SPCL - MINERAL EXPLORATION	988	N/I	N/I	N/I	N/I	N/I
225107	D(15-23) 31CBA	J-08	EXCELSIOR MINING CORP	738233.34	394829.84	4810	No	N/I	SPCL - MINERAL EXPLORATION	1350	N/I	N/I	N/I	N/I	N/I
225109	D(15-23) 31CBD	J-10	EXCELSIOR MINING CORP	738111.75	394409.48	4855	No	N/I	SPCL - MINERAL EXPLORATION	1062	N/I	N/I	N/I	N/I	N/I
225110	D(15-23) 31CCA	MCC-1	EXCELSIOR MINING CORP	738115.44	393891.8	4836	Yes	1994	SPCL - MINERAL EXPLORATION	1346	N/A	N/A	N/A	N/A	N/A
225111	D(15-23) 31CCA	MCC-2	EXCELSIOR MINING CORP	738341.25	393919.23	4834	Yes	1994	SPCL - MINERAL EXPLORATION	1232	N/A	N/A	N/A	N/A	N/A
225112	D(15-23) 31CCA	MCC-3	EXCELSIOR MINING CORP	738377.4	393414.04	4812	Yes	1994	SPCL - MINERAL EXPLORATION	1346	N/A	N/A	N/A	N/A	N/A
562255	D(15-22) 36DAD	SULLY 97-7	EXCELSIOR MINING CORP	736854.35	394663.73	4800	Yes	N/I	SPCL - MINERAL EXPLORATION	396	N/A	N/A	N/A	N/A	N/A
622849	D(15-23) 31CBA	HIGGINBOTHAM	RONALD B & VENICE J HIGGINBOTHAM FAMILY TRUST	738756.28	394926.73	4830	N/I	N/I	NON-EXEMPT	1350	N/I	N/I	N/I	N/I	N/I
917429	D(15-22) 36DAA	NSH-008	EXCELSIOR MINING CORP	736856.77	395088.59	4772	No	2014	ENV - MONITOR OR PIEZOMETER	900	Yes	4.5	720	Yes	191-700
917430	D(15-22) 36DAB	NSH-007	EXCELSIOR MINING CORP	736757.42	394889.08	4773	No	2014	ENV - MONITOR OR PIEZOMETER	640	Yes	8.5	469	Yes	30-463
917432	D(15-23) 31BCC	NSH-014B	EXCELSIOR MINING CORP	737667.63	395577	4749	No	2014	ENV - MONITOR OR PIEZOMETER	1277	Yes	4.5	1180	Yes	65-1160
917433	D(15-23) 31BCC	NSH-009	EXCELSIOR MINING CORP	737455.53	395561.03	4754	No	2014	ENV - MONITOR OR PIEZOMETER	1060	Yes	4.5	813	Yes	353-785
917434	D(15-23) 31BCC	NSH-010	EXCELSIOR MINING CORP	737605.1	395490.01	4750	No	2014	ENV - MONITOR OR PIEZOMETER	720	Yes	8.5	546	Yes	0-546
917435	D(15-23) 31BCC	NSH-012	EXCELSIOR MINING CORP	737755.85	395538.41	4750	No	2014	ENV - MONITOR OR PIEZOMETER	504	Yes	4.5	430	Yes	0-409
917436	D(15-23) 31CBC	NSH-013	EXCELSIOR MINING CORP	738056.78	394338.52	4850	No	2014	ENV - MONITOR OR PIEZOMETER	1070	Yes	8.5	646	Yes	75-646
917775	D(15-23) 31CAD	NSH-030	EXCELSIOR MINING CORP	739691.19	394683.79	4792	No	2015	ENV - MONITOR OR PIEZOMETER	740	Yes	2.5	600	No	N/A
917777	D(15-23) 31CDA	NSH-029	EXCELSIOR MINING CORP	739681.74	393940.42	4797	No	2015	ENV - MONITOR OR PIEZOMETER	710	Yes	2.5	604	No	N/A
917782	D(15-23) 31BCB	NSH-031	EXCELSIOR MINING CORP	737236.87	395991.56	4763	No	2015	ENV - MONITOR OR PIEZOMETER	820	Yes	2.5	721	Yes	0-683
917783	D(15-23) 31CDA	NSH-032	EXCELSIOR MINING CORP	737530.79	395796.75	4759	No	2015	ENV - MONITOR OR PIEZOMETER	820	Yes	2.5	720	Yes	0-690
N/I	D(15-23) 31CCB	CS-02	EXCELSIOR MINING CORP	738122.13	393675.99	4821	No	1971	SPCL - MINERAL EXPLORATION	1770	No	N/A	N/A	Yes	440-508
N/I	D(15-23) 31DBB	J-01	EXCELSIOR MINING CORP	740078.54	394723.65	4786	Yes	1970	SPCL - MINERAL EXPLORATION	1800	N/A	N/A	N/A	N/A	N/A
N/I	D(15-23) 31CBB	J-09	EXCELSIOR MINING CORP	737859.91	394645.39	4824	No	N/I	SPCL - MINERAL EXPLORATION	1158	N/I	N/I	N/I	N/I	N/I
N/I	D(15-23) 31CCA	MCC-8	EXCELSIOR MINING CORP	738499.34	393416.72	4808	Yes	1995	SPCL - MINERAL EXPLORATION	1013	N/A	N/A	N/A	N/A	N/A

Notes: ADWR = Arizona Department of Water Resources; ft amsl = feet above mean sea level; N/A = Not Applicable; N/I = No Information



- Legend**
- Gunnison Copper Project
 - ISR Wellfield
 - Area of Review
 - Non-Exempt* Well (From ADWR Well Registry Database)
 - Exploration or Environmental Well (55-Registry Number or Name)

* Groundwater rules are set in Arizona Revised Statutes Title 45 Chapter 2. Wells that are installed for non-irrigation purpose and that have pumps with a capacity less than 35 gallons per minute are exempt from certain requirements of Chapter 2 pursuant to Section 45-454. Exempt wells are generally domestic drinking water and stock wells. The wells are exempt from certain rules because of their limited withdrawal and small number of users. Non-Exempt wells are subject to the requirements of Chapter 2.



Excelsior Mining Arizona, Inc.
Gunnison Copper Project
UIC Permit Application
June 2017

Date	6/15/17	File ID	373-053
------	---------	---------	---------



FIGURE C-1
Well Locations
within the Area of Review



United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

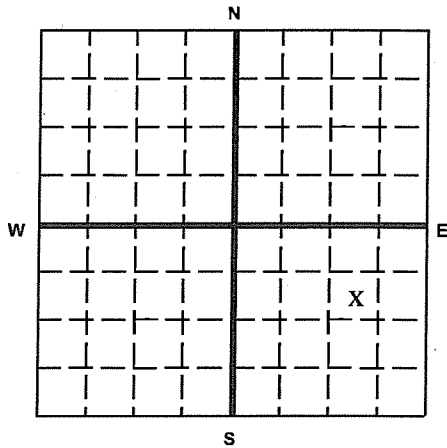
Name and Address of Facility

EXCELSIOR MINING CORP
GUNNISON PROJECT

Name and Address of Owner/Operator

EXCELSIOR MINING CORP
CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018

Locate Well and Outline Unit on
Section Plat - 640 Acres



State
AZ

County
Cochise

Permit Number
TBD

Surface Location Description
1/4 of SW 1/4 of NE 1/4 of SE 1/4 of Section 36 Township 15S Range 22E

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface
Location 966 ft. frm (N/S) N Line of quarter section
and 551 ft. from (E/W) E Line of quarter section.

TYPE OF AUTHORIZATION

- Individual Permit
- Area Permit
- Rule

Number of Wells 1

WELL ACTIVITY

- CLASS I
- CLASS II
 - Brine Disposal
 - Enhanced Recovery
 - Hydrocarbon Storage
- CLASS III

Lease Name

Well Number 55-224847, NSM-013

CASING AND TUBING RECORD AFTER PLUGGING

METHOD OF EMPLACEMENT OF CEMENT PLUGS

SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
4.5	Unknown	0	404	4.5

- 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:	4.5						
Depth to Bottom of Tubing or Drill Pipe (ft)	953						
Sacks of Cement To Be Used (each plug)	89						
Slurry Volume To Be Pumped (cu. ft.)	105						
Calculated Top of Plug (ft.)	2						
Measured Top of Plug (if tagged ft.)							
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
404	953		

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells

\$6,671

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 possiblity of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print)

Vit Kuhnel, Hydrology Manager

Signature

Date Signed



United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility EXCELSIOR MINING CORP GUNNISON PROJECT	Name and Address of Owner/Operator EXCELSIOR MINING CORP CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018
--	--

Locate Well and Outline Unit on Section Plat - 640 Acres 	State AZ	County Cochise	Permit Number TBD
Surface Location Description 1/4 of SW 1/4 of SE 1/4 of SW 1/4 of Section 31 Township 15S Range 23E			
Locate well in two directions from nearest lines of quarter section and drilling unit Surface Location 10 ft. from (N/S) S Line of quarter section and 949 ft. from (E/W) E Line of quarter section.			
TYPE OF AUTHORIZATION <input type="checkbox"/> Individual Permit <input checked="" type="checkbox"/> Area Permit <input type="checkbox"/> Rule Number of Wells 1		WELL ACTIVITY <input type="checkbox"/> CLASS I <input type="checkbox"/> CLASS II <input type="checkbox"/> Brine Disposal <input type="checkbox"/> Enhanced Recovery <input type="checkbox"/> Hydrocarbon Storage <input type="checkbox"/> CLASS III	
Lease Name _____		Well Number 55-224845, NSM-009	

CASING AND TUBING RECORD AFTER PLUGGING					METHOD OF EMPLACEMENT OF CEMENT PLUGS	
SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE		
5	Unknown	0	586	5	<input checked="" type="checkbox"/> The Balance Method <input type="checkbox"/> The Dump Bailer Method <input type="checkbox"/> The Two-Plug Method <input type="checkbox"/> 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:				5						
Depth to Bottom of Tubing or Drill Pipe (ft)				1349						
Sacks of Cement To Be Used (each plug)				189						
Slurry Volume To Be Pumped (cu. ft.)				223						
Calculated Top of Plug (ft.)				2						
Measured Top of Plug (if tagged ft.)										
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	
586		1349	

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells
\$9,443

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 possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) Vit Kuhnel, Hydrology Manager	Signature _____	Date Signed _____
--	---------------------------	-----------------------------



United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility EXCELSIOR MINING CORP GUNNISON PROJECT	Name and Address of Owner/Operator EXCELSIOR MINING CORP CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018
--	--

Locate Well and Outline Unit on Section Plat - 640 Acres 	State AZ	County Cochise	Permit Number TBD
Surface Location Description 1/4 of NW 1/4 of SW 1/4 of SW 1/4 of Section 31 Township 15S Range 23E			
Locate well in two directions from nearest lines of quarter section and drilling unit Surface Location 695 ft. frm (N/S) S Line of quarter section and 750. ft. from (E/W) W Line of quarter section.			
TYPE OF AUTHORIZATION <input type="checkbox"/> Individual Permit <input checked="" type="checkbox"/> Area Permit <input type="checkbox"/> Rule Number of Wells 1		WELL ACTIVITY <input type="checkbox"/> CLASS I <input type="checkbox"/> CLASS II <input type="checkbox"/> Brine Disposal <input type="checkbox"/> Enhanced Recovery <input type="checkbox"/> Hydrocarbon Storage <input type="checkbox"/> CLASS III	
Lease Name		Well Number 55-224844, NSM-008	

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	Unknown	0	546	5

METHOD OF EMPLACEMENT OF CEMENT PLUGS
<input checked="" type="checkbox"/> The Balance Method <input type="checkbox"/> The Dump Bailer Method <input type="checkbox"/> The Two-Plug Method <input type="checkbox"/> 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:	5						
Depth to Bottom of Tubing or Drill Pipe (ft)	1273						
Sacks of Cement To Be Used (each plug)	178						
Slurry Volume To Be Pumped (cu. ft.)	210						
Calculated Top of Plug (ft.)	2						
Measured Top of Plug (if tagged ft.)							
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
546	1273		

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells
\$8,911

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 possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) Vit Kuhnel, Hydrology Manager	Signature	Date Signed
--	------------------	--------------------



United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility EXCELSIOR MINING CORP GUNNISON PROJECT	Name and Address of Owner/Operator EXCELSIOR MINING CORP CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018
--	--

Locate Well and Outline Unit on Section Plat - 640 Acres 	State AZ	County Cochise	Permit Number TBD
	Surface Location Description 1/4 of SW 1/4 of NW 1/4 of SW 1/4 of Section 31 Township 15S Range 23E		
	Locate well in two directions from nearest lines of quarter section and drilling unit Surface Location 849 ft. frm (N/S) N Line of quarter section and 632 ft. from (E/W) W Line of quarter section.		
	TYPE OF AUTHORIZATION <input type="checkbox"/> Individual Permit <input checked="" type="checkbox"/> Area Permit <input type="checkbox"/> Rule Number of Wells 1		WELL ACTIVITY <input type="checkbox"/> CLASS I <input type="checkbox"/> CLASS II <input type="checkbox"/> Brine Disposal <input type="checkbox"/> Enhanced Recovery <input type="checkbox"/> Hydrocarbon Storage <input type="checkbox"/> CLASS III Well Number 55-223835, NSM-007

CASING AND TUBING RECORD AFTER PLUGGING					METHOD OF EMPLACEMENT OF CEMENT PLUGS	
SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE		
4.5	Unknown	0	600	4.5	<input checked="" type="checkbox"/> The Balance Method <input type="checkbox"/> The Dump Bailer Method <input type="checkbox"/> The Two-Plug Method <input type="checkbox"/> 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 (inches)				4.5						
Depth to Bottom of Tubing or Drill Pipe (ft)				1168						
Sacks of Cement To Be Used (each plug)				109						
Slurry Volume To Be Pumped (cu. ft.)				129						
Calculated Top of Plug (ft.)				2						
Measured Top of Plug (if tagged ft.)										
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	
600		1168	

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells
\$8,176

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 possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) Vit Kuhnel, Hydrology Manager	Signature	Date Signed
--	------------------	--------------------



United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility EXCELSIOR MINING CORP GUNNISON PROJECT	Name and Address of Owner/Operator EXCELSIOR MINING CORP CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018
--	--

Locate Well and Outline Unit on Section Plat - 640 Acres 	State AZ	County Cochise	Permit Number TBD
Surface Location Description 1/4 of SW 1/4 of NW 1/4 of SW 1/4 of Section 31 Township 15S Range 23E			
Locate well in two directions from nearest lines of quarter section and drilling unit Surface Location 1304 ft. frm (N/S) N Line of quarter section and 577 ft. from (E/W) W Line of quarter section.			
TYPE OF AUTHORIZATION <input type="checkbox"/> Individual Permit <input checked="" type="checkbox"/> Area Permit <input type="checkbox"/> Rule Number of Wells 1		WELL ACTIVITY <input type="checkbox"/> CLASS I <input type="checkbox"/> CLASS II <input type="checkbox"/> Brine Disposal <input type="checkbox"/> Enhanced Recovery <input type="checkbox"/> Hydrocarbon Storage <input type="checkbox"/> CLASS III	
Lease Name		Well Number 55-224840, NSM-006	

CASING AND TUBING RECORD AFTER PLUGGING					METHOD OF EMPLACEMENT OF CEMENT PLUGS	
SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE		
4.5	Unknown	0	529	4.5	<input checked="" type="checkbox"/> The Balance Method <input type="checkbox"/> The Dump Bailer Method <input type="checkbox"/> The Two-Plug Method <input type="checkbox"/> 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 (inches)	4.5						
Depth to Bottom of Tubing or Drill Pipe (ft)	1217						
Sacks of Cement To Be Used (each plug)	114						
Slurry Volume To Be Pumped (cu. ft.)	134						
Calculated Top of Plug (ft.)	2						
Measured Top of Plug (if tagged ft.)							
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
529	1217		

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells
\$8,519

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 possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) Vit Kuhnel, Hydrology Manager	Signature	Date Signed
--	------------------	--------------------



United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility EXCELSIOR MINING CORP GUNNISON PROJECT	Name and Address of Owner/Operator EXCELSIOR MINING CORP CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018
--	--

Locate Well and Outline Unit on Section Plat - 640 Acres 	State AZ	County Cochise	Permit Number TBD
	Surface Location Description 1/4 of SE 1/4 of SW 1/4 of SW 1/4 of Section 31 Township 15S Range 23E		
	Locate well in two directions from nearest lines of quarter section and drilling unit Surface Location 419 ft. frm (N/S) S Line of quarter section and 1088 ft. from (E/W) E Line of quarter section.		
	TYPE OF AUTHORIZATION <input type="checkbox"/> Individual Permit <input checked="" type="checkbox"/> Area Permit <input type="checkbox"/> Rule Number of Wells 1		WELL ACTIVITY <input type="checkbox"/> CLASS I <input type="checkbox"/> CLASS II <input type="checkbox"/> Brine Disposal <input type="checkbox"/> Enhanced Recovery <input type="checkbox"/> Hydrocarbon Storage <input type="checkbox"/> CLASS III
Lease Name		Well Number 55-224841, NSM-005A	

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	Unknown	0	593	5

METHOD OF EMPLACEMENT OF CEMENT PLUGS
<input checked="" type="checkbox"/> The Balance Method
<input type="checkbox"/> The Dump Bailer Method
<input type="checkbox"/> The Two-Plug Method
<input type="checkbox"/> 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:	5						
Depth to Bottom of Tubing or Drill Pipe (ft)	1172						
Sacks of Cement To Be Used (each plug)	164						
Slurry Volume To Be Pumped (cu. ft.)	193						
Calculated Top of Plug (ft.)	2						
Measured Top of Plug (if tagged ft.)							
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
593	1172		

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells
\$8,204

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 possiblity of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) Vit Kuhnel, Hydrology Manager	Signature	Date Signed
--	------------------	--------------------



United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility EXCELSIOR MINING CORP GUNNISON PROJECT	Name and Address of Owner/Operator EXCELSIOR MINING CORP CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018
--	--

Locate Well and Outline Unit on Section Plat - 640 Acres 	State AZ	County Cochise	Permit Number TBD
	Surface Location Description 1/4 of SE 1/4 of NW 1/4 of SW 1/4 of Section 31 Township 15S Range 23E		
	Locate well in two directions from nearest lines of quarter section and drilling unit Surface Location: 1330 ft. from (N/S) N Line of quarter section and 914 ft. from (E/W) W Line of quarter section.		
	TYPE OF AUTHORIZATION <input type="checkbox"/> Individual Permit <input checked="" type="checkbox"/> Area Permit <input type="checkbox"/> Rule Number of Wells 1		WELL ACTIVITY <input type="checkbox"/> CLASS I <input type="checkbox"/> CLASS II <input type="checkbox"/> Brine Disposal <input type="checkbox"/> Enhanced Recovery <input type="checkbox"/> Hydrocarbon Storage <input type="checkbox"/> CLASS III
Lease Name		Well Number 55-224842, NSM-004	

CASING AND TUBING RECORD AFTER PLUGGING					METHOD OF EMPLACEMENT OF CEMENT PLUGS	
SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE		
4.5	Unknown	0	596	4.5	<input checked="" type="checkbox"/> The Balance Method <input type="checkbox"/> The Dump Bailer Method <input type="checkbox"/> The Two-Plug Method <input type="checkbox"/> 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 (inches)	4						
Depth to Bottom of Tubing or Drill Pipe (ft)	1115						
Sacks of Cement To Be Used (each plug)	65						
Slurry Volume To Be Pumped (cu. ft.)	77						
Calculated Top of Plug (ft.)	2						
Measured Top of Plug (if tagged ft.)							
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	
596		1115	

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells
\$7,805

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 possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) Vit Kuhnel, Hydrology Manager	Signature	Date Signed
--	------------------	--------------------



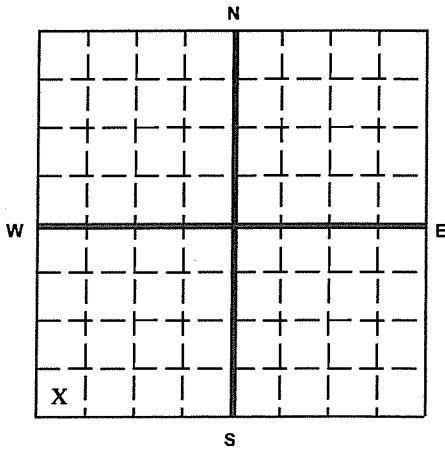
United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility
EXCELSIOR MINING CORP
GUNNISON PROJECT

Name and Address of Owner/Operator
EXCELSIOR MINING CORP
CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018

Locate Well and Outline Unit on Section Plat - 640 Acres



State AZ County Cochise Permit Number TBD

Surface Location Description
1/4 of SW 1/4 of SW 1/4 of SW 1/4 of Section 31 Township 15S Range 23E

Locate well in two directions from nearest lines of quarter section and drilling unit
Surface Location 259 ft. frm (N/S) S Line of quarter section and 354 ft. from (E/W) W Line of quarter section.

TYPE OF AUTHORIZATION
 Individual Permit
 Area Permit
 Rule
 Number of Wells 1

WELL ACTIVITY
 CLASS I
 CLASS II
 Brine Disposal
 Enhanced Recovery
 Hydrocarbon Storage
 CLASS III

Lease Name _____ Well Number 55-224935, NSM-003

CASING AND TUBING RECORD AFTER PLUGGING				
SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
4.5	Unknown	0	608	4.5

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:	4.5						
Depth to Bottom of Tubing or Drill Pipe (ft)	1028						
Sacks of Cement To Be Used (each plug)	97						
Slurry Volume To Be Pumped (cu. ft.)	114						
Calculated Top of Plug (ft.)	2						
Measured Top of Plug (if tagged ft.)							
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
608	1028		

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells
\$7,196

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 possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) Vit Kuhnel, Hydrology Manager Signature _____ Date Signed _____



United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility EXCELSIOR MINING CORP GUNNISON PROJECT	Name and Address of Owner/Operator EXCELSIOR MINING CORP CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018
--	--

Locate Well and Outline Unit on Section Plat - 640 Acres 	State AZ	County Cochise	Permit Number TBD
Surface Location Description 1/4 of SE 1/4 of SW 1/4 of SW 1/4 of Section 31 Township 15S Range 23E			
Locate well in two directions from nearest lines of quarter section and drilling unit Surface Location 56 ft. frm (N/S) S Line of quarter section and 782 ft. from (E/W) W Line of quarter section.			
TYPE OF AUTHORIZATION <input type="checkbox"/> Individual Permit <input checked="" type="checkbox"/> Area Permit <input type="checkbox"/> Rule Number of Wells 1		WELL ACTIVITY <input type="checkbox"/> CLASS I <input type="checkbox"/> CLASS II <input type="checkbox"/> Brine Disposal <input type="checkbox"/> Enhanced Recovery <input type="checkbox"/> Hydrocarbon Storage <input type="checkbox"/> CLASS III	
Lease Name		Well Number 55-224934, NSM-002	

CASING AND TUBING RECORD AFTER PLUGGING					METHOD OF EMPLACEMENT OF CEMENT PLUGS	
SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE		
4.5	Unknown	0	507	4.5	<input checked="" type="checkbox"/> The Balance Method <input type="checkbox"/> The Dump Bailer Method <input type="checkbox"/> The Two-Plug Method <input type="checkbox"/> 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 (inches)	4.5						
Depth to Bottom of Tubing or Drill Pipe (ft)	1000						
Sacks of Cement To Be Used (each plug)	97						
Slurry Volume To Be Pumped (cu. ft.)	110						
Calculated Top of Plug (ft.)	2						
Measured Top of Plug (if tagged ft.)							
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	
507		1000	

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells
\$7,000

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 possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) Vit Kuhnel, Hydrology Manager	Signature	Date Signed
--	------------------	--------------------



United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility EXCELSIOR MINING CORP GUNNISON PROJECT	Name and Address of Owner/Operator EXCELSIOR MINING CORP CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018
--	--

Locate Well and Outline Unit on Section Plat - 640 Acres 	State AZ	County Cochise	Permit Number TBD
Surface Location Description 1/4 of SE 1/4 of NW 1/4 of SW 1/4 of Section 31 Township 15S Range 23E			
Locate well in two directions from nearest lines of quarter section and drilling unit Surface Location 1170 ft. from (N/S) N Line of quarter section and 709 ft. from (E/W) W Line of quarter section.			
TYPE OF AUTHORIZATION <input type="checkbox"/> Individual Permit <input checked="" type="checkbox"/> Area Permit <input type="checkbox"/> Rule Number of Wells 1		WELL ACTIVITY <input type="checkbox"/> CLASS I <input type="checkbox"/> CLASS II <input type="checkbox"/> Brine Disposal <input type="checkbox"/> Enhanced Recovery <input type="checkbox"/> Hydrocarbon Storage <input type="checkbox"/> CLASS III	
Lease Name		Well Number 55-224933, NSM-001	

CASING AND TUBING RECORD AFTER PLUGGING				
SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
3.5	Unknown	0	590	3.5

METHOD OF EMPLACEMENT OF CEMENT PLUGS
<input checked="" type="checkbox"/> The Balance Method
<input type="checkbox"/> The Dump Bailer Method
<input type="checkbox"/> The Two-Plug Method
<input type="checkbox"/> 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 (inches)	2					
Depth to Bottom of Tubing or Drill Pipe (ft)	1150						
Sacks of Cement To Be Used (each plug)	65						
Slurry Volume To Be Pumped (cu. ft.)	77						
Calculated Top of Plug (ft.)	2						
Measured Top of Plug (if tagged ft.)							
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
590	1150		

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells
\$8,050

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 possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) Vit Kuhnel, Hydrology Manager	Signature	Date Signed
--	------------------	--------------------



United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility EXCELSIOR MINING CORP GUNNISON PROJECT	Name and Address of Owner/Operator EXCELSIOR MINING CORP CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018
--	--

Locate Well and Outline Unit on Section Plat - 640 Acres 	State AZ	County Cochise	Permit Number TBD
Surface Location Description 1/4 of NE 1/4 of SE 1/4 of SW 1/4 of Section 31 Township 15S Range 23E			
Locate well in two directions from nearest lines of quarter section and drilling unit Surface Location 438 ft. frm (N/S) S Line of quarter section and 194 ft. from (E/W) W Line of quarter section.			
TYPE OF AUTHORIZATION <input type="checkbox"/> Individual Permit <input checked="" type="checkbox"/> Area Permit <input type="checkbox"/> Rule Number of Wells 1		WELL ACTIVITY <input type="checkbox"/> CLASS I <input type="checkbox"/> CLASS II <input type="checkbox"/> Brine Disposal <input type="checkbox"/> Enhanced Recovery <input type="checkbox"/> Hydrocarbon Storage <input type="checkbox"/> CLASS III	
Lease Name		Well Number 55-917783, NSH-032	

CASING AND TUBING RECORD AFTER PLUGGING					METHOD OF EMPLACEMENT OF CEMENT PLUGS	
SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE		
2.375	Unknown	0	804	2.375	<input checked="" type="checkbox"/> The Balance Method <input type="checkbox"/> The Dump Bailer Method <input type="checkbox"/> The Two-Plug Method <input type="checkbox"/> 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 (inches)	2.375						
Depth to Bottom of Tubing or Drill Pipe (ft)	804						
Sacks of Cement To Be Used (each plug)	21						
Slurry Volume To Be Pumped (cu. ft.)	25						
Calculated Top of Plug (ft.)	2						
Measured Top of Plug (if tagged ft.)							
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
720	804		

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells
\$14,420

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 possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) Vit Kuhnel, Hydrology Manager	Signature	Date Signed
--	------------------	--------------------



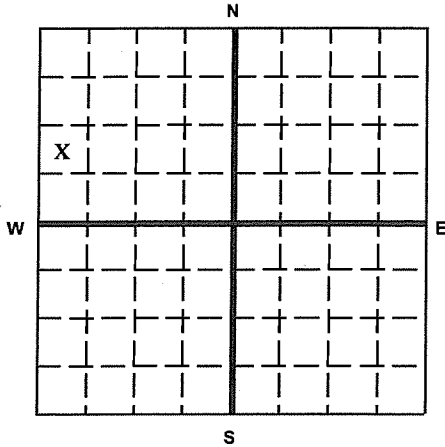
United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility
EXCELSIOR MINING CORP
GUNNISON PROJECT

Name and Address of Owner/Operator
EXCELSIOR MINING CORP
CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018

Locate Well and Outline Unit on Section Plat - 640 Acres



State AZ County Cochise Permit Number TBD

Surface Location Description
1/4 of NW 1/4 of SW 1/4 of NW 1/4 of Section 31 Township 15S Range 23E

Locate well in two directions from nearest lines of quarter section and drilling unit
Surface Location 627 ft. frm (N/S) S Line of quarter section and 117 ft. from (E/W) E Line of quarter section.

TYPE OF AUTHORIZATION
 Individual Permit
 Area Permit
 Rule
Number of Wells 1
Lease Name _____

WELL ACTIVITY
 CLASS I
 CLASS II
 Brine Disposal
 Enhanced Recovery
 Hydrocarbon Storage
 CLASS III
Well Number 55-917782, NSH-031

CASING AND TUBING RECORD AFTER PLUGGING				
SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
2.375	Unknown	0	805	2.375

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:	2.375						
Depth to Bottom of Tubing or Drill Pipe (ft)	805						
Sacks of Cement To Be Used (each plug)	21						
Slurry Volume To Be Pumped (cu. ft.)	25						
Calculated Top of Plug (ft.)	2						
Measured Top of Plug (if tagged ft.)							
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
721	805		

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells
\$14,420

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 possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) Vit Kuhnel, Hydrology Manager Signature _____ Date Signed _____



United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility EXCELSIOR MINING CORP GUNNISON PROJECT	Name and Address of Owner/Operator EXCELSIOR MINING CORP CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018
--	--

Locate Well and Outline Unit on Section Plat - 640 Acres 	State AZ	County Cochise	Permit Number TBD
	Surface Location Description 1/4 of SE 1/4 of NE 1/4 of SW 1/4 of Section 31 Township 15S Range 23E		
	Locate well in two directions from nearest lines of quarter section and drilling unit Surface Location 631 ft. frm (N/S) N Line of quarter section and 212 ft. from (E/W) E Line of quarter section.		
TYPE OF AUTHORIZATION <input type="checkbox"/> Individual Permit <input checked="" type="checkbox"/> Area Permit <input type="checkbox"/> Rule Number of Wells 1		WELL ACTIVITY <input type="checkbox"/> CLASS I <input type="checkbox"/> CLASS II <input type="checkbox"/> Brine Disposal <input type="checkbox"/> Enhanced Recovery <input type="checkbox"/> Hydrocarbon Storage <input type="checkbox"/> CLASS III	
Lease Name		Well Number 55-917775, NSH-030	

CASING AND TUBING RECORD AFTER PLUGGING					METHOD OF EMPLACEMENT OF CEMENT PLUGS	
SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE		
2.375	Unknown	0	706	2.375	<input checked="" type="checkbox"/> The Balance Method <input type="checkbox"/> The Dump Bailer Method <input type="checkbox"/> The Two-Plug Method <input type="checkbox"/> 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:	2.375							
Depth to Bottom of Tubing or Drill Pipe (ft)	706							
Sacks of Cement To Be Used (each plug)	19.5							
Slurry Volume To Be Pumped (cu. ft.)	23							
Calculated Top of Plug (ft.)	2							
Measured Top of Plug (if tagged ft.)								
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
600	706		

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells
\$14,420

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 possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) Vit Kuhnel, Hydrology Manager	Signature	Date Signed
---	-----------	-------------



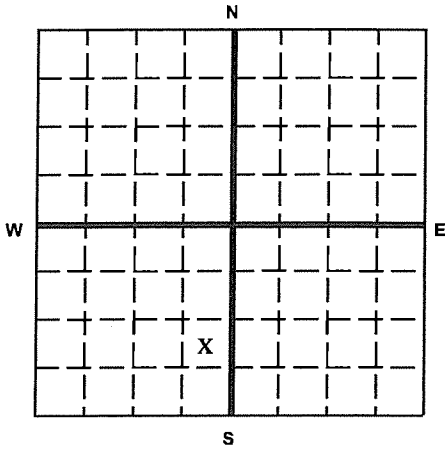
United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility
EXCELSIOR MINING CORP
GUNNISON PROJECT

Name and Address of Owner/Operator
EXCELSIOR MINING CORP
CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018

Locate Well and Outline Unit on Section Plat - 640 Acres



State AZ County Cochise Permit Number TBD

Surface Location Description
1/4 of NE 1/4 of SE 1/4 of SW 1/4 of Section 31 Township 15S Range 23E

Locate well in two directions from nearest lines of quarter section and drilling unit
Surface
Location 1254 ft. frm (N/S) S Line of quarter section
and 225 ft. from (E/W) E Line of quarter section.

TYPE OF AUTHORIZATION
 Individual Permit
 Area Permit
 Rule
Number of Wells 1
Lease Name _____

WELL ACTIVITY
 CLASS I
 CLASS II
 Brine Disposal
 Enhanced Recovery
 Hydrocarbon Storage
 CLASS III
Well Number 55-917777, NSH-029

CASING AND TUBING RECORD AFTER PLUGGING				
SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
2.375	Unknown	0	709	2.375

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 (inches)	2.375						
Depth to Bottom of Tubing or Drill Pipe (ft)	709						
Sacks of Cement To Be Used (each plug)	18.6						
Slurry Volume To Be Pumped (cu. ft.)	22						
Calculated Top of Plug (ft.)	2						
Measured Top of Plug (if tagged ft.)							
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
604	709		

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells
\$14,420

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 possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) Vit Kuhnel, Hydrology Manager Signature _____ Date Signed _____



United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility EXCELSIOR MINING CORP GUNNISON PROJECT	Name and Address of Owner/Operator EXCELSIOR MINING CORP CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018
--	--

Locate Well and Outline Unit on Section Plat - 640 Acres 	State AZ	County Cochise	Permit Number TBD
Surface Location Description 1/4 of SW 1/4 of SE 1/4 of SW 1/4 of Section 31 Township 15S Range 23E			
Locate well in two directions from nearest lines of quarter section and drilling unit Surface Location 213 ft. frm (N/S) S Line of quarter section and 731 ft. from (E/W) E Line of quarter section.			
TYPE OF AUTHORIZATION <input type="checkbox"/> Individual Permit <input checked="" type="checkbox"/> Area Permit <input type="checkbox"/> Rule Number of Wells 1		WELL ACTIVITY <input type="checkbox"/> CLASS I <input type="checkbox"/> CLASS II <input type="checkbox"/> Brine Disposal <input type="checkbox"/> Enhanced Recovery <input type="checkbox"/> Hydrocarbon Storage <input type="checkbox"/> CLASS III	
Lease Name		Well Number 55-224036, NSH-026	

CASING AND TUBING RECORD AFTER PLUGGING					METHOD OF EMPLACEMENT OF CEMENT PLUGS	
SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE		
8.625	Unknown	0	625	8.625	<input checked="" type="checkbox"/> The Balance Method <input type="checkbox"/> The Dump Bailer Method <input type="checkbox"/> The Two-Plug Method <input type="checkbox"/> 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)		8.625	7.875					
Depth to Bottom of Tubing or Drill Pipe (ft)		625	900					
Sacks of Cement To Be Used (each plug)		214	79					
Slurry Volume To Be Pumped (cu. ft.)		253	93					
Calculated Top of Plug (ft.)		2	625					
Measured Top of Plug (if tagged ft.)								
Slurry Wt. (Lb./Gal.)		15.6	15.6					
Type Cement or Other Material (Class III)		V	V					

LIST ALL OPEN HOLE AND/OR PERFORATED INTERVALS AND INTERVALS WHERE CASING WILL BE VARIED (if any)			
From		To	
625		900	

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells
\$14,420

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 possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) Vit Kuhnel, Hydrology Manager	Signature	Date Signed
--	------------------	--------------------



United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility EXCELSIOR MINING CORP GUNNISON PROJECT	Name and Address of Owner/Operator EXCELSIOR MINING CORP CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018
--	--

Locate Well and Outline Unit on Section Plat - 640 Acres 	State AZ	County Cochise	Permit Number TBD
	Surface Location Description 1/4 of SW 1/4 of SE 1/4 of SW 1/4 of Section 31 Township 15S Range 23E		
	Locate well in two directions from nearest lines of quarter section and drilling unit Surface Location 993 ft. frm (N/S) S Line of quarter section and 947 ft. from (E/W) E Line of quarter section.		
	TYPE OF AUTHORIZATION <input type="checkbox"/> Individual Permit <input checked="" type="checkbox"/> Area Permit <input type="checkbox"/> Rule Number of Wells 1		WELL ACTIVITY <input type="checkbox"/> CLASS I <input type="checkbox"/> CLASS II <input type="checkbox"/> Brine Disposal <input type="checkbox"/> Enhanced Recovery <input type="checkbox"/> Hydrocarbon Storage <input type="checkbox"/> CLASS III
Lease Name		Well Number 55-224158, NSH-025	

CASING AND TUBING RECORD AFTER PLUGGING				
SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
4.5	Unknown	0	1551	4.5

METHOD OF EMPLACEMENT OF CEMENT PLUGS
<input checked="" type="checkbox"/> The Balance Method
<input type="checkbox"/> The Dump Bailer Method
<input type="checkbox"/> The Two-Plug Method
<input type="checkbox"/> 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)	4.5						
Depth to Bottom of Tubing or Drill Pipe (ft)	1551						
Sacks of Cement To Be Used (each plug)	145						
Slurry Volume To Be Pumped (cu. ft.)	171						
Calculated Top of Plug (ft.)	2						
Measured Top of Plug (if tagged ft.)							
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
1480	1551		

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells
\$14,420

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 possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) Vit Kuhnel, Hydrology Manager	Signature	Date Signed
---	-----------	-------------



United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility EXCELSIOR MINING CORP GUNNISON PROJECT	Name and Address of Owner/Operator EXCELSIOR MINING CORP CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018
--	--

Locate Well and Outline Unit on Section Plat - 640 Acres 	State AZ	County Cochise	Permit Number TBD
	Surface Location Description 1/4 of NE 1/4 of SW 1/4 of SW 1/4 of Section <u>31</u> Township <u>15S</u> Range <u>23E</u>		
	Locate well in two directions from nearest lines of quarter section and drilling unit Surface Location <u>858</u> ft. frm (N/S) <u>S</u> Line of quarter section and <u>993</u> ft. from (E/W) <u>E</u> Line of quarter section.		
TYPE OF AUTHORIZATION <input type="checkbox"/> Individual Permit <input checked="" type="checkbox"/> Area Permit <input type="checkbox"/> Rule Number of Wells <u>1</u>		WELL ACTIVITY <input type="checkbox"/> CLASS I <input type="checkbox"/> CLASS II <input type="checkbox"/> Brine Disposal <input type="checkbox"/> Enhanced Recovery <input type="checkbox"/> Hydrocarbon Storage <input type="checkbox"/> CLASS III	
Lease Name _____		Well Number <u>55-224033, NSH-024</u>	

CASING AND TUBING RECORD AFTER PLUGGING					METHOD OF EMPLACEMENT OF CEMENT PLUGS	
SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE		
8.625	Unknown	0	625	8.625	<input checked="" type="checkbox"/> The Balance Method <input type="checkbox"/> The Dump Bailer Method <input type="checkbox"/> The Two-Plug Method <input type="checkbox"/> 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 (inches):		8.625	7.875					
Depth to Bottom of Tubing or Drill Pipe (ft)		625	1440					
Sacks of Cement To Be Used (each plug)		214	234					
Slurry Volume To Be Pumped (cu. ft.)		253	276					
Calculated Top of Plug (ft.)		2	625					
Measured Top of Plug (if tagged ft.)								
Slurry Wt. (Lb./Gal.)		15.6	15.6					
Type Cement or Other Material (Class III)		V	V					

LIST ALL OPEN HOLE AND/OR PERFORATED INTERVALS AND INTERVALS WHERE CASING WILL BE VARIED (if any)			
From		To	
625		1440	

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells
\$14,420

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 possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) Vit Kuhnel, Hydrology Manager	Signature _____	Date Signed _____
---	-----------------	-------------------



United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility EXCELSIOR MINING CORP GUNNISON PROJECT	Name and Address of Owner/Operator EXCELSIOR MINING CORP CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018
--	--

Locate Well and Outline Unit on Section Plat - 640 Acres 	State AZ	County Cochise	Permit Number TBD
	Surface Location Description 1/4 of <u>NE</u> 1/4 of <u>SW</u> 1/4 of <u>SW</u> 1/4 of Section <u>31</u> Township <u>15S</u> Range <u>23E</u>		
	Locate well in two directions from nearest lines of quarter section and drilling unit Surface Location <u>893</u> ft. frm (N/S) <u>S</u> Line of quarter section and <u>1055</u> ft. from (E/W) <u>E</u> Line of quarter section.		
	TYPE OF AUTHORIZATION <input type="checkbox"/> Individual Permit <input checked="" type="checkbox"/> Area Permit <input type="checkbox"/> Rule Number of Wells <u>1</u>		WELL ACTIVITY <input type="checkbox"/> CLASS I <input type="checkbox"/> CLASS II <input type="checkbox"/> Brine Disposal <input type="checkbox"/> Enhanced Recovery <input type="checkbox"/> Hydrocarbon Storage <input type="checkbox"/> CLASS III
Lease Name		Well Number <u>55-224034, NSH-023</u>	

SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
8.625	Unknown	0	645	8.625

<input checked="" type="checkbox"/> The Balance Method
<input type="checkbox"/> The Dump Bailer Method
<input type="checkbox"/> The Two-Plug Method
<input type="checkbox"/> Other

	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)	8.625	7.875					
Depth to Bottom of Tubing or Drill Pipe (ft)	645	1442					
Sacks of Cement To Be Used (each plug)	221	228					
Slurry Volume To Be Pumped (cu. ft.)	261	270					
Calculated Top of Plug (ft.)	2	645					
Measured Top of Plug (if tagged ft.)							
Slurry Wt. (Lb./Gal.)	15.6	15.6					
Type Cement or Other Material (Class III)	V	V					

From	To	From	To
645	1442		

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells
\$14,420

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 possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) Vit Kuhnel, Hydrology Manager	Signature	Date Signed
---	-----------	-------------



United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility EXCELSIOR MINING CORP GUNNISON PROJECT	Name and Address of Owner/Operator EXCELSIOR MINING CORP CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018
--	--

Locate Well and Outline Unit on Section Plat - 640 Acres 	State AZ	County Cochise	Permit Number TBD
	Surface Location Description 1/4 of SW 1/4 of SE 1/4 of SW 1/4 of Section 31 Township 15S Range 23E		
	Locate well in two directions from nearest lines of quarter section and drilling unit Surface Location 354 ft. frm (N/S) S Line of quarter section and 731 ft. from (E/W) E Line of quarter section.		
TYPE OF AUTHORIZATION <input type="checkbox"/> Individual Permit <input checked="" type="checkbox"/> Area Permit <input type="checkbox"/> Rule Number of Wells 1		WELL ACTIVITY <input type="checkbox"/> CLASS I <input type="checkbox"/> CLASS II <input type="checkbox"/> Brine Disposal <input type="checkbox"/> Enhanced Recovery <input type="checkbox"/> Hydrocarbon Storage <input type="checkbox"/> CLASS III	
Lease Name		Well Number 55-224097, NSH-022	

CASING AND TUBING RECORD AFTER PLUGGING					METHOD OF EMPLACEMENT OF CEMENT PLUGS	
SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE		
6.625	Unknown	0	1131	6.625	<input checked="" type="checkbox"/> The Balance Method <input type="checkbox"/> The Dump Bailer Method <input type="checkbox"/> The Two-Plug Method <input type="checkbox"/> 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)	6.625							
Depth to Bottom of Tubing or Drill Pipe (ft)	1131							
Sacks of Cement To Be Used (each plug)	229							
Slurry Volume To Be Pumped (cu. ft.)	270							
Calculated Top of Plug (ft.)	2							
Measured Top of Plug (if tagged ft.)								
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
1010	1131		

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells
\$14,420

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 possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) Vit Kuhnel, Hydrology Manager	Signature	Date Signed
---	-----------	-------------



United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility EXCELSIOR MINING CORP GUNNISON PROJECT	Name and Address of Owner/Operator EXCELSIOR MINING CORP CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018
--	--

Locate Well and Outline Unit on Section Plat - 640 Acres 	State AZ	County Cochise	Permit Number TBD
Surface Location Description 1/4 of <u>ne</u> 1/4 of <u>SW</u> 1/4 of <u>SW</u> 1/4 of Section <u>31</u> Township <u>15S</u> Range <u>23E</u>			
Locate well in two directions from nearest lines of quarter section and drilling unit Surface Location <u>806</u> ft. frm (N/S) <u>S</u> Line of quarter section and <u>839</u> ft. from (E/W) <u>W</u> Line of quarter section.			
TYPE OF AUTHORIZATION <input type="checkbox"/> Individual Permit <input checked="" type="checkbox"/> Area Permit <input type="checkbox"/> Rule Number of Wells <u>1</u>		WELL ACTIVITY <input type="checkbox"/> CLASS I <input type="checkbox"/> CLASS II <input type="checkbox"/> Brine Disposal <input type="checkbox"/> Enhanced Recovery <input type="checkbox"/> Hydrocarbon Storage <input type="checkbox"/> CLASS III	
Lease Name		Well Number <u>55-224032, NSH-021C</u>	

SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
8.625	Unknown	0	624	8.625

<input checked="" type="checkbox"/> The Balance Method
<input type="checkbox"/> The Dump Bailer Method
<input type="checkbox"/> The Two-Plug Method
<input type="checkbox"/> Other

	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 (inches):	8.625	7.875					
Depth to Bottom of Tubing or Drill Pipe (ft)	624	1372					
Sacks of Cement To Be Used (each plug)	214	214					
Slurry Volume To Be Pumped (cu. ft.)	252	253					
Calculated Top of Plug (ft.)	2	624					
Measured Top of Plug (if tagged ft.)							
Slurry Wt. (Lb./Gal.)	15.6	15.6					
Type Cement or Other Material (Class III)	V	V					

From	To	From	To
624	~1372		

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells
\$14,420

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 possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) Vit Kuhnel, Hydrology Manager	Signature	Date Signed
--	------------------	--------------------



United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility EXCELSIOR MINING CORP GUNNISON PROJECT	Name and Address of Owner/Operator EXCELSIOR MINING CORP CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018
--	--

Locate Well and Outline Unit on Section Plat - 640 Acres 	State AZ	County Cochise	Permit Number TBD
	Surface Location Description 1/4 of SE 1/4 of DE 1/4 of SW 1/4 of Section 31 Township 15S Range 23E		
	Locate well in two directions from nearest lines of quarter section and drilling unit Surface Location: 1096 ft. from (N/S) N Line of quarter section and 208 ft. from (E/W) E Line of quarter section.		
TYPE OF AUTHORIZATION <input type="checkbox"/> Individual Permit <input checked="" type="checkbox"/> Area Permit <input type="checkbox"/> Rule Number of Wells 1		WELL ACTIVITY <input type="checkbox"/> CLASS I <input type="checkbox"/> CLASS II <input type="checkbox"/> Brine Disposal <input type="checkbox"/> Enhanced Recovery <input type="checkbox"/> Hydrocarbon Storage <input type="checkbox"/> CLASS III	
Lease Name		Well Number 55-224035, NSH-020	

CASING AND TUBING RECORD AFTER PLUGGING					METHOD OF EMPLACEMENT OF CEMENT PLUGS	
SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE		
4.5	Unknown	0	1582	4.5	<input checked="" type="checkbox"/> The Balance Method <input type="checkbox"/> The Dump Bailer Method <input type="checkbox"/> The Two-Plug Method <input type="checkbox"/> 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 (inches)	4.5						
Depth to Bottom of Tubing or Drill Pipe (ft)	1582						
Sacks of Cement To Be Used (each plug)	150						
Slurry Volume To Be Pumped (cu. ft.)	177						
Calculated Top of Plug (ft.)	2						
Measured Top of Plug (if tagged ft.)							
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
1060	1202	1241	1402
1472	1595		

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells
\$14,420

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 possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) Vit Kuhnel, Hydrology Manager	Signature	Date Signed
--	------------------	--------------------



United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility EXCELSIOR MINING CORP GUNNISON PROJECT	Name and Address of Owner/Operator EXCELSIOR MINING CORP CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018
--	--

Locate Well and Outline Unit on Section Plat - 640 Acres 	State AZ	County Cochise	Permit Number TBD
Surface Location Description 1/4 of <u>NW</u> 1/4 of <u>SW</u> 1/4 of <u>SW</u> 1/4 of Section <u>31</u> Township <u>15S</u> Range <u>23E</u>			
Locate well in two directions from nearest lines of quarter section and drilling unit Surface Location <u>734</u> ft. frm (N/S) <u>S</u> Line of quarter section and <u>804</u> ft. from (E/W) <u>W</u> Line of quarter section.			
TYPE OF AUTHORIZATION <input type="checkbox"/> Individual Permit <input checked="" type="checkbox"/> Area Permit <input type="checkbox"/> Rule Number of Wells <u>1</u>		WELL ACTIVITY <input type="checkbox"/> CLASS I <input type="checkbox"/> CLASS II <input type="checkbox"/> Brine Disposal <input type="checkbox"/> Enhanced Recovery <input type="checkbox"/> Hydrocarbon Storage <input type="checkbox"/> CLASS III	
Lease Name		Well Number <u>55-224031, NSH-019</u>	

CASING AND TUBING RECORD AFTER PLUGGING				
SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
8.625	Unknown	0	638	8.625

METHOD OF EMPLACEMENT OF CEMENT PLUGS
<input checked="" type="checkbox"/> The Balance Method
<input type="checkbox"/> The Dump Bailer Method
<input type="checkbox"/> The Two-Plug Method
<input type="checkbox"/> 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:	8.625	7.875					
Depth to Bottom of Tubing or Drill Pipe (ft)	638	1300					
Sacks of Cement To Be Used (each plug)	219	190					
Slurry Volume To Be Pumped (cu. ft.)	258	224					
Calculated Top of Plug (ft.)	2	638					
Measured Top of Plug (if tagged ft.)							
Slurry Wt. (Lb./Gal.)	15.6	15.6					
Type Cement or Other Material (Class III)	V	V					

LIST ALL OPEN HOLE AND/OR PERFORATED INTERVALS AND INTERVALS WHERE CASING WILL BE VARIED (if any)			
From	To	From	To
638	~1300		

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells
\$14,420

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 possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) Vit Kuhnel, Hydrology Manager	Signature	Date Signed
---	-----------	-------------



United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility EXCELSIOR MINING CORP GUNNISON PROJECT	Name and Address of Owner/Operator EXCELSIOR MINING CORP CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018
--	--

Locate Well and Outline Unit on Section Plat - 640 Acres 	State AZ	County Cochise	Permit Number TBD
	Surface Location Description 1/4 of SE 1/4 of NE 1/4 of SW 1/4 of Section 31 Township 15S Range 23E		
	Locate well in two directions from nearest lines of quarter section and drilling unit Surface Location 926 ft. frm (N/S) N Line of quarter section and 208 ft. from (E/W) E Line of quarter section.		
TYPE OF AUTHORIZATION <input type="checkbox"/> Individual Permit <input checked="" type="checkbox"/> Area Permit <input type="checkbox"/> Rule Number of Wells 1		WELL ACTIVITY <input type="checkbox"/> CLASS I <input type="checkbox"/> CLASS II <input type="checkbox"/> Brine Disposal <input type="checkbox"/> Enhanced Recovery <input type="checkbox"/> Hydrocarbon Storage <input type="checkbox"/> CLASS III	
Lease Name		Well Number 55-224100, NSH-018	

CASING AND TUBING RECORD AFTER PLUGGING					METHOD OF EMPLACEMENT OF CEMENT PLUGS	
SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE		
4.5	Unknown	0	992	4.5	<input checked="" type="checkbox"/> The Balance Method <input type="checkbox"/> The Dump Bailer Method <input type="checkbox"/> The Two-Plug Method <input type="checkbox"/> 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 (inches)	4.5						
Depth to Bottom of Tubing or Drill Pipe (ft)	992						
Sacks of Cement To Be Used (each plug)	93.2						
Slurry Volume To Be Pumped (cu. ft.)	110						
Calculated Top of Plug (ft.)	2						
Measured Top of Plug (if tagged ft.)							
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
610	992		

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells
\$14,420

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 possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) Vit Kuhnel, Hydrology Manager	Signature	Date Signed
---	-----------	-------------



United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility EXCELSIOR MINING CORP GUNNISON PROJECT	Name and Address of Owner/Operator EXCELSIOR MINING CORP CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018
--	--

Locate Well and Outline Unit on Section Plat - 640 Acres 	State AZ	County Cochise	Permit Number TBD
	Surface Location Description 1/4 of SW 1/4 of SW 1/4 of SW 1/4 of Section 31 Township 15S Range 23E		
	Locate well in two directions from nearest lines of quarter section and drilling unit Surface Location Location 459 ft. frm (N/S) S Line of quarter section and 413 ft. from (E/W) W Line of quarter section.		
	TYPE OF AUTHORIZATION <input type="checkbox"/> Individual Permit <input checked="" type="checkbox"/> Area Permit <input type="checkbox"/> Rule Number of Wells 1		WELL ACTIVITY <input type="checkbox"/> CLASS I <input type="checkbox"/> CLASS II <input type="checkbox"/> Brine Disposal <input type="checkbox"/> Enhanced Recovery <input type="checkbox"/> Hydrocarbon Storage <input type="checkbox"/> CLASS III
Lease Name		Well Number 55-224099, NSH-017	

CASING AND TUBING RECORD AFTER PLUGGING				
SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
6.625	Unknown	0	1181	6.625

METHOD OF EMPLACEMENT OF CEMENT PLUGS
<input checked="" type="checkbox"/> The Balance Method
<input type="checkbox"/> The Dump Bailer Method
<input type="checkbox"/> The Two-Plug Method
<input type="checkbox"/> 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:	6.625						
Depth to Bottom of Tubing or Drill Pipe (ft)	1181						
Sacks of Cement To Be Used (each plug)	239						
Slurry Volume To Be Pumped (cu. ft.)	282						
Calculated Top of Plug (ft.)	2						
Measured Top of Plug (if tagged ft.)							
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
940	1181		

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells
\$14,420

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 possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) Vit Kuhnel, Hydrology Manager	Signature	Date Signed
--	------------------	--------------------



United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility EXCELSIOR MINING CORP GUNNISON PROJECT	Name and Address of Owner/Operator EXCELSIOR MINING CORP CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018
--	--

Locate Well and Outline Unit on Section Plat - 640 Acres 	State AZ	County Cochise	Permit Number TBD
	Surface Location Description 1/4 of SW 1/4 of SW 1/4 of SW 1/4 of Section <u>31</u> Township <u>15S</u> Range <u>23E</u>		
	Locate well in two directions from nearest lines of quarter section and drilling unit Surface Location <u>483</u> ft. frm (N/S) <u>S</u> Line of quarter section and <u>118</u> ft. from (E/W) <u>W</u> Line of quarter section.		
TYPE OF AUTHORIZATION <input type="checkbox"/> Individual Permit <input checked="" type="checkbox"/> Area Permit <input type="checkbox"/> Rule Number of Wells <u>1</u>		WELL ACTIVITY <input type="checkbox"/> CLASS I <input type="checkbox"/> CLASS II <input type="checkbox"/> Brine Disposal <input type="checkbox"/> Enhanced Recovery <input type="checkbox"/> Hydrocarbon Storage <input type="checkbox"/> CLASS III	
Lease Name _____		Well Number <u>55-224030, NSH-016</u>	

CASING AND TUBING RECORD AFTER PLUGGING					METHOD OF EMPLACEMENT OF CEMENT PLUGS	
SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE		
8.625	Unknown	0	579	8.625	<input checked="" type="checkbox"/> The Balance Method <input type="checkbox"/> The Dump Bailer Method <input type="checkbox"/> The Two-Plug Method <input type="checkbox"/> 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:	8.625	7.875					
Depth to Bottom of Tubing or Drill Pipe (ft)	579	702					
Sacks of Cement To Be Used (each plug)	198	35					
Slurry Volume To Be Pumped (cu. ft.)	234	41					
Calculated Top of Plug (ft.)	2	579					
Measured Top of Plug (if tagged ft.)							
Slurry Wt. (Lb./Gal.)	15.6	15.6					
Type Cement or Other Material (Class III)	V	V					

LIST ALL OPEN HOLE AND/OR PERFORATED INTERVALS AND INTERVALS WHERE CASING WILL BE VARIED (if any)			
From		To	
579		702	

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells
\$14,420

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 possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) Vit Kuhnel, Hydrology Manager	Signature _____	Date Signed _____
--	---------------------------	-----------------------------



United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility EXCELSIOR MINING CORP GUNNISON PROJECT	Name and Address of Owner/Operator EXCELSIOR MINING CORP CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018
--	--

Locate Well and Outline Unit on Section Plat - 640 Acres 	State AZ	County Cochise	Permit Number TBD
	Surface Location Description 1/4 of SW 1/4 of SW 1/4 of SW 1/4 of Section 31 Township 15S Range 23E		
	Locate well in two directions from nearest lines of quarter section and drilling unit Surface Location 436 ft. frm (N/S) S Line of quarter section and 265 ft. from (E/W) W Line of quarter section.		
	TYPE OF AUTHORIZATION <input type="checkbox"/> Individual Permit <input checked="" type="checkbox"/> Area Permit <input type="checkbox"/> Rule Number of Wells 1		WELL ACTIVITY <input type="checkbox"/> CLASS I <input type="checkbox"/> CLASS II <input type="checkbox"/> Brine Disposal <input type="checkbox"/> Enhanced Recovery <input type="checkbox"/> Hydrocarbon Storage <input type="checkbox"/> CLASS III
Lease Name		Well Number 55-224029, NSH-015	

CASING AND TUBING RECORD AFTER PLUGGING				
SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
8.625	Unknown	0	585	8.625

METHOD OF EMPLACEMENT OF CEMENT PLUGS
<input checked="" type="checkbox"/> The Balance Method <input type="checkbox"/> The Dump Bailer Method <input type="checkbox"/> The Two-Plug Method <input type="checkbox"/> 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:	8.625	7.875					
Depth to Bottom of Tubing or Drill Pipe (ft)	585	820					
Sacks of Cement To Be Used (each plug)	200	67					
Slurry Volume To Be Pumped (cu. ft.)	237	79					
Calculated Top of Plug (ft.)	2	585					
Measured Top of Plug (if tagged ft.)							
Slurry Wt. (Lb./Gal.)	15.6	15.6					
Type Cement or Other Material (Class III)	V	V					

LIST ALL OPEN HOLE AND/OR PERFORATED INTERVALS AND INTERVALS WHERE CASING WILL BE VARIED (if any)			
From	To	From	To
585	820		

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells
\$14,420

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 possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) Vit Kuhnel, Hydrology Manager	Signature	Date Signed
--	------------------	--------------------



United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility EXCELSIOR MINING CORP GUNNISON PROJECT	Name and Address of Owner/Operator EXCELSIOR MINING CORP CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018
--	--

Locate Well and Outline Unit on Section Plat - 640 Acres 	State AZ	County Cochise	Permit Number TBD
	Surface Location Description 1/4 of SW 1/4 of SW 1/4 of NW 1/4 of Section 31 Township 15S Range 23E		
	Locate well in two directions from nearest lines of quarter section and drilling unit Surface Location 221 ft. frm (N/S) S Line of quarter section and 307 ft. from (E/W) W Line of quarter section.		
TYPE OF AUTHORIZATION <input type="checkbox"/> Individual Permit <input checked="" type="checkbox"/> Area Permit <input type="checkbox"/> Rule Number of Wells 1		WELL ACTIVITY <input type="checkbox"/> CLASS I <input type="checkbox"/> CLASS II <input type="checkbox"/> Brine Disposal <input type="checkbox"/> Enhanced Recovery <input type="checkbox"/> Hydrocarbon Storage <input type="checkbox"/> CLASS III	
Lease Name		Well Number 55-917432, NSH-014B	

CASING AND TUBING RECORD AFTER PLUGGING					METHOD OF EMPLACEMENT OF CEMENT PLUGS	
SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE		
4.5	Unknown	0	1260	4.5	<input checked="" type="checkbox"/> The Balance Method <input type="checkbox"/> The Dump Bailer Method <input type="checkbox"/> The Two-Plug Method <input type="checkbox"/> Other	

CEMENTING TO PLUG AND ABANDON DATA:							
Size of Hole or Pipe in which Plug Will Be Placed (inche)	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
4.5							
Depth to Bottom of Tubing or Drill Pipe (ft)	1260						
Sacks of Cement To Be Used (each plug)	118						
Slurry Volume To Be Pumped (cu. ft.)	139						
Calculated Top of Plug (ft.)	2						
Measured Top of Plug (if tagged ft.)							
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
1180	1260		

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells
\$14,420

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 possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) Vit Kuhnel, Hydrology Manager	Signature	Date Signed
--	------------------	--------------------



United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility EXCELSIOR MINING CORP GUNNISON PROJECT	Name and Address of Owner/Operator EXCELSIOR MINING CORP CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018
--	--

Locate Well and Outline Unit on Section Plat - 640 Acres 	State AZ	County Cochise	Permit Number TBD
	Surface Location Description 1/4 of SW 1/4 of NW 1/4 of SW 1/4 of Section 31 Township 15S Range 23E		
	Locate well in two directions from nearest lines of quarter section and drilling unit Surface Location 100 ft. frm (N/S) N Line of quarter section and 702 ft. from (E/W) W Line of quarter section.		
	TYPE OF AUTHORIZATION <input type="checkbox"/> Individual Permit <input checked="" type="checkbox"/> Area Permit <input type="checkbox"/> Rule Number of Wells 1		WELL ACTIVITY <input type="checkbox"/> CLASS I <input type="checkbox"/> CLASS II <input type="checkbox"/> Brine Disposal <input type="checkbox"/> Enhanced Recovery <input type="checkbox"/> Hydrocarbon Storage <input type="checkbox"/> CLASS III
Lease Name		Well Number 55-917436, NSH-013	

SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
8.625	Unknown	0	646	8.625

<input checked="" type="checkbox"/> The Balance Method
<input type="checkbox"/> The Dump Bailer Method
<input type="checkbox"/> The Two-Plug Method
<input type="checkbox"/> Other

	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)	8.625	7.875					
Depth to Bottom of Tubing or Drill Pipe (ft)	646	1070					
Sacks of Cement To Be Used (each plug)	221	122					
Slurry Volume To Be Pumped (cu. ft.)	261	143					
Calculated Top of Plug (ft.)	2	646					
Measured Top of Plug (if tagged ft.)							
Slurry Wt. (Lb./Gal.)	15.6	15.6					
Type Cement or Other Material (Class III)	V	V					

From	To	From	To
646	1070		

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells
\$14,420

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 possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) Vit Kuhnel, Hydrology Manager	Signature	Date Signed
---	-----------	-------------



United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility EXCELSIOR MINING CORP GUNNISON PROJECT	Name and Address of Owner/Operator EXCELSIOR MINING CORP CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018
--	--

Locate Well and Outline Unit on Section Plat - 640 Acres 	State AZ	County Cochise	Permit Number TBD
	Surface Location Description 1/4 of SW 1/4 of SW 1/4 of NW 1/4 of Section 31 Township 15S Range 23E		
	Locate well in two directions from nearest lines of quarter section and drilling unit Surface Location 190 ft. frm (N/S) S Line of quarter section and 411 ft. from (E/W) W Line of quarter section.		
TYPE OF AUTHORIZATION <input type="checkbox"/> Individual Permit <input checked="" type="checkbox"/> Area Permit <input type="checkbox"/> Rule Number of Wells 1		WELL ACTIVITY <input type="checkbox"/> CLASS I <input type="checkbox"/> CLASS II <input type="checkbox"/> Brine Disposal <input type="checkbox"/> Enhanced Recovery <input type="checkbox"/> Hydrocarbon Storage <input type="checkbox"/> CLASS III	
Lease Name		Well Number 55-917435, NSH-012	

CASING AND TUBING RECORD AFTER PLUGGING					METHOD OF EMPLACEMENT OF CEMENT PLUGS	
SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE		
4.5	Unknown	0	490	4.5	<input checked="" type="checkbox"/> The Balance Method <input type="checkbox"/> The Dump Bailer Method <input type="checkbox"/> The Two-Plug Method <input type="checkbox"/> 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.)	4.5						
Depth to Bottom of Tubing or Drill Pipe (ft)	490						
Sacks of Cement To Be Used (each plug)	46						
Slurry Volume To Be Pumped (cu. ft.)	54						
Calculated Top of Plug (ft.)	2						
Measured Top of Plug (if tagged ft.)							
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	
430	490		

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells
\$14,420

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 possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) Vit Kuhnel, Hydrology Manager	Signature	Date Signed
---	-----------	-------------



United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility EXCELSIOR MINING CORP GUNNISON PROJECT	Name and Address of Owner/Operator EXCELSIOR MINING CORP CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018
--	--

Locate Well and Outline Unit on Section Plat - 640 Acres 	State AZ	County Cochise	Permit Number TBD
Surface Location Description 1/4 of SW 1/4 of SW 1/4 of NW 1/4 of Section 31 Township 15S Range 23E			
Locate well in two directions from nearest lines of quarter section and drilling unit Surface Location 135 ft. frm (N/S) S Line of quarter section and 248 ft. from (E/W) W Line of quarter section.			
TYPE OF AUTHORIZATION <input type="checkbox"/> Individual Permit <input checked="" type="checkbox"/> Area Permit <input type="checkbox"/> Rule Number of Wells 1		WELL ACTIVITY <input type="checkbox"/> CLASS I <input type="checkbox"/> CLASS II <input type="checkbox"/> Brine Disposal <input type="checkbox"/> Enhanced Recovery <input type="checkbox"/> Hydrocarbon Storage <input type="checkbox"/> CLASS III	
Lease Name _____		Well Number 55-917434, NSH-010	

CASING AND TUBING RECORD AFTER PLUGGING				
SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
8.625	Unknown	0	546	8.625

METHOD OF EMPLACEMENT OF CEMENT PLUGS
<input checked="" type="checkbox"/> The Balance Method
<input type="checkbox"/> The Dump Bailer Method
<input type="checkbox"/> The Two-Plug Method
<input type="checkbox"/> 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:	8.625	7.875					
Depth to Bottom of Tubing or Drill Pipe (ft)	546	720					
Sacks of Cement To Be Used (each plug)	187	50					
Slurry Volume To Be Pumped (cu. ft.)	221	59					
Calculated Top of Plug (ft.)	2	546					
Measured Top of Plug (if tagged ft.)							
Slurry Wt. (Lb./Gal.)	15.6	15.6					
Type Cement or Other Material (Class III)	V	V					

LIST ALL OPEN HOLE AND/OR PERFORATED INTERVALS AND INTERVALS WHERE CASING WILL BE VARIED (if any)			
From	To	From	To
546	720		

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells
\$14,420

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 possiblity of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) Vit Kuhnel, Hydrology Manager	Signature _____	Date Signed _____
--	---------------------------	-----------------------------



United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility EXCELSIOR MINING CORP GUNNISON PROJECT	Name and Address of Owner/Operator EXCELSIOR MINING CORP CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018
--	--

Locate Well and Outline Unit on Section Plat - 640 Acres 	State AZ	County Cochise	Permit Number TBD
	Surface Location Description 1/4 of SW 1/4 of SW 1/4 of NW 1/4 of Section 31 Township 15S Range 23E		
	Locate well in two directions from nearest lines of quarter section and drilling unit Surface Location 203 ft. frm (N/S) S Line of quarter section and 95 ft. from (E/W) W Line of quarter section.		
TYPE OF AUTHORIZATION <input type="checkbox"/> Individual Permit <input checked="" type="checkbox"/> Area Permit <input type="checkbox"/> Rule Number of Wells 1		WELL ACTIVITY <input type="checkbox"/> CLASS I <input type="checkbox"/> CLASS II <input type="checkbox"/> Brine Disposal <input type="checkbox"/> Enhanced Recovery <input type="checkbox"/> Hydrocarbon Storage <input type="checkbox"/> CLASS III	
Lease Name		Well Number 55-917433, NSH-009	

CASING AND TUBING RECORD AFTER PLUGGING					METHOD OF EMPLACEMENT OF CEMENT PLUGS	
SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE		
4.5	Unknown	0	995	4.5	<input checked="" type="checkbox"/> The Balance Method <input type="checkbox"/> The Dump Bailer Method <input type="checkbox"/> The Two-Plug Method <input type="checkbox"/> Other	

CEMENTING TO PLUG AND ABANDON DATA:							
Size of Hole or Pipe in which Plug Will Be Placed (inche)	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Depth to Bottom of Tubing or Drill Pipe (ft)	4.5						
Depth to Bottom of Tubing or Drill Pipe (ft)	995						
Sacks of Cement To Be Used (each plug)	93						
Slurry Volume To Be Pumped (cu. ft.)	110						
Calculated Top of Plug (ft.)	2						
Measured Top of Plug (if tagged ft.)							
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
813	995		

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells
\$14,420

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 possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) Vit Kuhnel, Hydrology Manager	Signature _____	Date Signed _____
--	---------------------------	-----------------------------



United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility EXCELSIOR MINING CORP GUNNISON PROJECT	Name and Address of Owner/Operator EXCELSIOR MINING CORP CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018
--	--

Locate Well and Outline Unit on Section Plat - 640 Acres 	State AZ	County Cochise	Permit Number TBD
	Surface Location Description 1/4 of <u>ne</u> 1/4 of <u>ne</u> 1/4 of <u>se</u> 1/4 of Section <u>36</u> Township <u>15S</u> Range <u>22E</u>		
	Locate well in two directions from nearest lines of quarter section and drilling unit Surface Location <u>275</u> ft. frm (N/S) <u>N</u> Line of quarter section and <u>483</u> ft. from (E/W) <u>E</u> Line of quarter section.		
	TYPE OF AUTHORIZATION <input type="checkbox"/> Individual Permit <input checked="" type="checkbox"/> Area Permit <input type="checkbox"/> Rule Number of Wells <u>1</u>		WELL ACTIVITY <input type="checkbox"/> CLASS I <input type="checkbox"/> CLASS II <input type="checkbox"/> Brine Disposal <input type="checkbox"/> Enhanced Recovery <input type="checkbox"/> Hydrocarbon Storage <input type="checkbox"/> CLASS III
Lease Name		Well Number <u>55-917429, NSH-008</u>	

SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
4.5	Unknown	0	840	4.5

<input checked="" type="checkbox"/> The Balance Method
<input type="checkbox"/> The Dump Bailer Method
<input type="checkbox"/> The Two-Plug Method
<input type="checkbox"/> Other

	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)	4.5						
Depth to Bottom of Tubing or Drill Pipe (ft)	840						
Sacks of Cement To Be Used (each plug)	78						
Slurry Volume To Be Pumped (cu. ft.)	93						
Calculated Top of Plug (ft.)	2						
Measured Top of Plug (if tagged ft.)							
Slurry Wt. (Lb./Gal.)	15.6						
Type Cement or Other Material (Class III)	V						

From	To	From	To
720	840		

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells
\$14,420

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 possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) Vit Kuhnel, Hydrology Manager	Signature	Date Signed
---	-----------	-------------



United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility EXCELSIOR MINING CORP GUNNISON PROJECT	Name and Address of Owner/Operator EXCELSIOR MINING CORP CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018
--	--

Locate Well and Outline Unit on Section Plat - 640 Acres 	State AZ	County Cochise	Permit Number TBD
	Surface Location Description 1/4 of NW 1/4 of NE 1/4 of SE 1/4 of Section 36 Township 15S Range 22E		
	Locate well in two directions from nearest lines of quarter section and drilling unit Surface Location 456 ft. frm (N/S) N Line of quarter section and 578 ft. from (E/W) E Line of quarter section.		
TYPE OF AUTHORIZATION <input type="checkbox"/> Individual Permit <input checked="" type="checkbox"/> Area Permit <input type="checkbox"/> Rule Number of Wells 1		WELL ACTIVITY <input type="checkbox"/> CLASS I <input type="checkbox"/> CLASS II <input type="checkbox"/> Brine Disposal <input type="checkbox"/> Enhanced Recovery <input type="checkbox"/> Hydrocarbon Storage <input type="checkbox"/> CLASS III	
Lease Name		Well Number 55-917430, NSH-007	

CASING AND TUBING RECORD AFTER PLUGGING					METHOD OF EMPLACEMENT OF CEMENT PLUGS	
SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE	<input checked="" type="checkbox"/> The Balance Method <input type="checkbox"/> The Dump Bailer Method <input type="checkbox"/> The Two-Plug Method <input type="checkbox"/> Other	
8.625	Unknown	0	469	8.625		

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 (inches)	8.625	7.875					
Depth to Bottom of Tubing or Drill Pipe (ft)	469	640					
Sacks of Cement To Be Used (each plug)	161	49					
Slurry Volume To Be Pumped (cu. ft.)	189	58					
Calculated Top of Plug (ft.)	2	469					
Measured Top of Plug (if tagged ft.)							
Slurry Wt. (Lb./Gal.)	15.6	15.6					
Type Cement or Other Material (Class III)	V	V					

LIST ALL OPEN HOLE AND/OR PERFORATED INTERVALS AND INTERVALS WHERE CASING WILL BE VARIED (if any)			
From	To	From	To
484	640		

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells
\$14,420

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 possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) Vit Kuhnel, Hydrology Manager	Signature	Date Signed
---	-----------	-------------



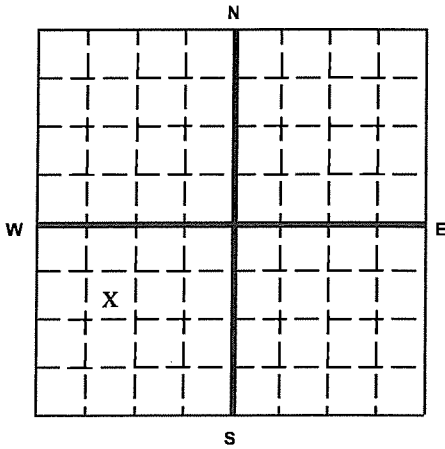
United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility
EXCELSIOR MINING CORP
GUNNISON PROJECT

Name and Address of Owner/Operator
EXCELSIOR MINING CORP
CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018

Locate Well and Outline Unit on Section Plat - 640 Acres



State AZ County Cochise Permit Number TBD

Surface Location Description
1/4 of SE 1/4 of NW 1/4 of SW 1/4 of Section 31 Township 15S Range 23E

Locate well in two directions from nearest lines of quarter section and drilling unit
Surface Location 1143ft. frm (N/S) N Line of quarter section and 1228ft. from (E/W) W Line of quarter section.

TYPE OF AUTHORIZATION
 Individual Permit
 Area Permit
 Rule
Number of Wells 1
Lease Name _____

WELL ACTIVITY
 CLASS I
 CLASS II
 Brine Disposal
 Enhanced Recovery
 Hydrocarbon Storage
 CLASS III
Well Number 55-221519, NSH-006

CASING AND TUBING RECORD AFTER PLUGGING				
SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
4.5	Unknown	0	680	4.5

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:	4.5						
Depth to Bottom of Tubing or Drill Pipe (ft)	684						
Sacks of Cement To Be Used (each plug)	64						
Slurry Volume To Be Pumped (cu. ft.)	76						
Calculated Top of Plug (ft.)	2						
Measured Top of Plug (if tagged ft.)							
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

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells
\$14,420

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 possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) Vit Kuhnel, Hydrology Manager Signature _____ Date Signed _____



United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility EXCELSIOR MINING CORP GUNNISON PROJECT	Name and Address of Owner/Operator EXCELSIOR MINING CORP CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018
--	--

Locate Well and Outline Unit on Section Plat - 640 Acres 	State AZ	County Cochise	Permit Number TBD
Surface Location Description 1/4 of <u>SE</u> 1/4 of <u>NW</u> 1/4 of <u>SW</u> 1/4 of Section <u>31</u> Township <u>15S</u> Range <u>23E</u>			
Locate well in two directions from nearest lines of quarter section and drilling unit Surface Location <u>1304</u> ft. frm (N/S) <u>N</u> Line of quarter section and <u>1173</u> ft. from (E/W) <u>W</u> Line of quarter section.			
TYPE OF AUTHORIZATION <input type="checkbox"/> Individual Permit <input checked="" type="checkbox"/> Area Permit <input type="checkbox"/> Rule Number of Wells <u>1</u>		WELL ACTIVITY <input type="checkbox"/> CLASS I <input type="checkbox"/> CLASS II <input type="checkbox"/> Brine Disposal <input type="checkbox"/> Enhanced Recovery <input type="checkbox"/> Hydrocarbon Storage <input type="checkbox"/> CLASS III	
Lease Name		Well Number <u>55-221604, NSH-005</u>	

CASING AND TUBING RECORD AFTER PLUGGING					METHOD OF EMPLACEMENT OF CEMENT PLUGS	
SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE		
4.5	Unknown	0	1019	4.5	<input checked="" type="checkbox"/> The Balance Method <input type="checkbox"/> The Dump Bailer Method <input type="checkbox"/> The Two-Plug Method <input type="checkbox"/> 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:		4.5						
Depth to Bottom of Tubing or Drill Pipe (ft)		1040						
Sacks of Cement To Be Used (each plug)		97						
Slurry Volume To Be Pumped (cu. ft.)		115						
Calculated Top of Plug (ft.)		2						
Measured Top of Plug (if tagged ft.)								
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

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells
\$14,420

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 possiblity of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) Vit Kuhnel, Hydrology Manager	Signature	Date Signed
--	------------------	--------------------



United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility EXCELSIOR MINING CORP GUNNISON PROJECT	Name and Address of Owner/Operator EXCELSIOR MINING CORP CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018
--	--

Locate Well and Outline Unit on Section Plat - 640 Acres 	State AZ	County Cochise	Permit Number TBD
	Surface Location Description 1/4 of NE 1/4 of SW 1/4 of SW 1/4 of Section 31 Township 15S Range 23E		
	Locate well in two directions from nearest lines of quarter section and drilling unit Surface Location 1216ft. frm (N/S) S Line of quarter section and 1039ft. from (E/W) W Line of quarter section.		
	TYPE OF AUTHORIZATION <input type="checkbox"/> Individual Permit <input checked="" type="checkbox"/> Area Permit <input type="checkbox"/> Rule Number of Wells 1		WELL ACTIVITY <input type="checkbox"/> CLASS I <input type="checkbox"/> CLASS II <input type="checkbox"/> Brine Disposal <input type="checkbox"/> Enhanced Recovery <input type="checkbox"/> Hydrocarbon Storage <input type="checkbox"/> CLASS III
Lease Name		Well Number 55-221603, NSH-004B	

CASING AND TUBING RECORD AFTER PLUGGING					METHOD OF EMPLACEMENT OF CEMENT PLUGS	
SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE		
4.5	Unknown	0	1009	4.5	<input checked="" type="checkbox"/> The Balance Method <input type="checkbox"/> The Dump Bailer Method <input type="checkbox"/> The Two-Plug Method <input type="checkbox"/> 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:							4.5						
Depth to Bottom of Tubing or Drill Pipe (ft)							1040						
Sacks of Cement To Be Used (each plug)							97						
Slurry Volume To Be Pumped (cu. ft.)							115						
Calculated Top of Plug (ft.)							2						
Measured Top of Plug (if tagged ft.)													
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

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells
\$14,420

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 possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) Vit Kuhnel, Hydrology Manager	Signature	Date Signed
---	-----------	-------------



United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility EXCELSIOR MINING CORP GUNNISON PROJECT	Name and Address of Owner/Operator EXCELSIOR MINING CORP CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018
--	--

Locate Well and Outline Unit on Section Plat - 640 Acres 	State AZ	County Cochise	Permit Number TBD
	Surface Location Description 1/4 of <u>SE</u> 1/4 of <u>NW</u> 1/4 of <u>SW</u> 1/4 of Section <u>31</u> Township <u>15S</u> Range <u>23E</u>		
	Locate well in two directions from nearest lines of quarter section and drilling unit Surface Location <u>993</u> ft. frm (N/S) <u>N</u> Line of quarter section and <u>1046</u> ft. from (E/W) <u>W</u> Line of quarter section.		
TYPE OF AUTHORIZATION <input type="checkbox"/> Individual Permit <input checked="" type="checkbox"/> Area Permit <input type="checkbox"/> Rule Number of Wells <u>1</u>		WELL ACTIVITY <input type="checkbox"/> CLASS I <input type="checkbox"/> CLASS II <input type="checkbox"/> Brine Disposal <input type="checkbox"/> Enhanced Recovery <input type="checkbox"/> Hydrocarbon Storage <input type="checkbox"/> CLASS III	
Lease Name		Well Number <u>55-221520, NSH-003</u>	

CASING AND TUBING RECORD AFTER PLUGGING					METHOD OF EMPLACEMENT OF CEMENT PLUGS	
SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE		
4.5	Unknown	0	1432	4.5	<input checked="" type="checkbox"/> The Balance Method <input type="checkbox"/> The Dump Bailer Method <input type="checkbox"/> The Two-Plug Method <input type="checkbox"/> 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:	4.5							
Depth to Bottom of Tubing or Drill Pipe (ft)	1432							
Sacks of Cement To Be Used (each plug)	134							
Slurry Volume To Be Pumped (cu. ft.)	158							
Calculated Top of Plug (ft.)	2							
Measured Top of Plug (if tagged ft.)								
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

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells
\$14,420

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 possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) Vit Kuhnel, Hydrology Manager	Signature _____	Date Signed _____
--	---------------------------	-----------------------------



United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility EXCELSIOR MINING CORP GUNNISON PROJECT	Name and Address of Owner/Operator EXCELSIOR MINING CORP CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018
--	--

Locate Well and Outline Unit on Section Plat - 640 Acres 	State AZ	County Cochise	Permit Number TBD
Surface Location Description 1/4 of SE 1/4 of NW 1/4 of SW 1/4 of Section 31 Township 15S Range 23E			
Locate well in two directions from nearest lines of quarter section and drilling unit Surface Location 1176 ft. from (N/S) S Line of quarter section and 914 ft. from (E/W) W Line of quarter section.			
TYPE OF AUTHORIZATION <input type="checkbox"/> Individual Permit <input checked="" type="checkbox"/> Area Permit <input type="checkbox"/> Rule Number of Wells 1		WELL ACTIVITY <input type="checkbox"/> CLASS I <input type="checkbox"/> CLASS II <input type="checkbox"/> Brine Disposal <input type="checkbox"/> Enhanced Recovery <input type="checkbox"/> Hydrocarbon Storage <input type="checkbox"/> CLASS III	
Lease Name		Well Number 55-221521, NSH-001	

CASING AND TUBING RECORD AFTER PLUGGING				
SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
6.625	Unknown	0	702	9.5
4.5	Unknown	0	394	6.125

METHOD OF EMPLACEMENT OF CEMENT PLUGS
<input checked="" type="checkbox"/> The Balance Method
<input type="checkbox"/> The Dump Bailer Method
<input type="checkbox"/> The Two-Plug Method
<input type="checkbox"/> 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:	9.5	6.125					
Depth to Bottom of Tubing or Drill Pipe (ft)	702	1096					
Sacks of Cement To Be Used (each plug)	292	68					
Slurry Volume To Be Pumped (cu. ft.)	345	81					
Calculated Top of Plug (ft.)	2	702					
Measured Top of Plug (if tagged ft.)							
Slurry Wt. (Lb./Gal.)	15.6	15.6					
Type Cement or Other Material (Class III)	V	V					

LIST ALL OPEN HOLE AND/OR PERFORATED INTERVALS AND INTERVALS WHERE CASING WILL BE VARIED (if any)			
From	To	From	To
692	1096		

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells
\$14,420

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 possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) Vit Kuhnel, Hydrology Manager	Signature	Date Signed
--	------------------	--------------------



United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility EXCELSIOR MINING CORP GUNNISON PROJECT	Name and Address of Owner/Operator EXCELSIOR MINING CORP CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018
--	--

Locate Well and Outline Unit on Section Plat - 640 Acres 	State AZ	County Cochise	Permit Number TBD
Surface Location Description 1/4 of NW 1/4 of SE 1/4 of SW 1/4 of Section 31 Township 15S Range 23E			
Locate well in two directions from nearest lines of quarter section and drilling unit Surface Location 1055 ft. frm (N/S) S Line of quarter section and 626 ft. from (E/W) E Line of quarter section.			
TYPE OF AUTHORIZATION <input type="checkbox"/> Individual Permit <input checked="" type="checkbox"/> Area Permit <input type="checkbox"/> Rule Number of Wells 1		WELL ACTIVITY <input type="checkbox"/> CLASS I <input type="checkbox"/> CLASS II <input type="checkbox"/> Brine Disposal <input type="checkbox"/> Enhanced Recovery <input type="checkbox"/> Hydrocarbon Storage <input type="checkbox"/> CLASS III	
Lease Name		Well Number 55-224860, NSD-043	

CASING AND TUBING RECORD AFTER PLUGGING					METHOD OF EMPLACEMENT OF CEMENT PLUGS	
SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE		
4.5	Unknown	0	628	4.5	<input checked="" type="checkbox"/> The Balance Method <input type="checkbox"/> The Dump Bailer Method <input type="checkbox"/> The Two-Plug Method <input type="checkbox"/> 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 (inches)	4.5						
Depth to Bottom of Tubing or Drill Pipe (ft)	628						
Sacks of Cement To Be Used (each plug)	163						
Slurry Volume To Be Pumped (cu. ft.)	192						
Calculated Top of Plug (ft.)	2						
Measured Top of Plug (if tagged ft.)							
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

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells
\$4,396

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 possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) Vit Kuhnel, Hydrology Manager	Signature	Date Signed
--	------------------	--------------------



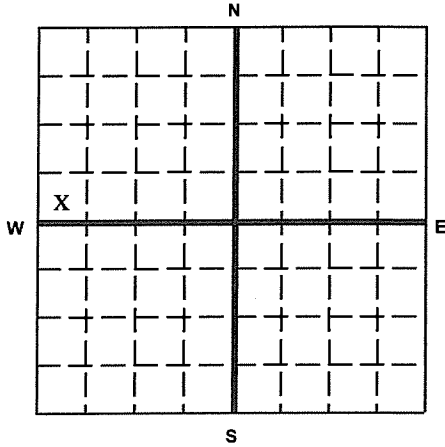
United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility
EXCELSIOR MINING CORP
GUNNISON PROJECT

Name and Address of Owner/Operator
EXCELSIOR MINING CORP
CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018

Locate Well and Outline Unit on
Section Plat - 640 Acres



State AZ County Cochise Permit Number TBD

Surface Location Description
1/4 of SW 1/4 of SW 1/4 of NW 1/4 of Section 31 Township 15S Range 23E

Locate well in two directions from nearest lines of quarter section and drilling unit
Surface
Location 257 ft. frm (N/S) S Line of quarter section
and 488 ft. from (E/W) W Line of quarter section.

TYPE OF AUTHORIZATION
 Individual Permit
 Area Permit
 Rule
Number of Wells 1
Lease Name _____

WELL ACTIVITY
 CLASS I
 CLASS II
 Brine Disposal
 Enhanced Recovery
 Hydrocarbon Storage
 CLASS III
Well Number 55-224059, NSD-037

CASING AND TUBING RECORD AFTER PLUGGING				
SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
4.5	Unknown	0	524	4.5

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:	4.5						
Depth to Bottom of Tubing or Drill Pipe (ft)	1284						
Sacks of Cement To Be Used (each plug)	120						
Slurry Volume To Be Pumped (cu. ft.)	142						
Calculated Top of Plug (ft.)	2						
Measured Top of Plug (if tagged ft.)							
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
524	1284		

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells
\$8,988

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 possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) Vit Kuhnel, Hydrology Manager Signature _____ Date Signed _____



United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility EXCELSIOR MINING CORP GUNNISON PROJECT	Name and Address of Owner/Operator EXCELSIOR MINING CORP CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018
--	--

Locate Well and Outline Unit on Section Plat - 640 Acres 	State AZ	County Cochise	Permit Number TBD
Surface Location Description 1/4 of SE 1/4 of NW 1/4 of SE 1/4 of Section 36 Township 15S Range 22E			
Locate well in two directions from nearest lines of quarter section and drilling unit Surface Location 1083 ft. frm (N/S) N Line of quarter section and 966 ft. from (E/W) W Line of quarter section.			
TYPE OF AUTHORIZATION <input type="checkbox"/> Individual Permit <input checked="" type="checkbox"/> Area Permit <input type="checkbox"/> Rule Number of Wells 1		WELL ACTIVITY <input type="checkbox"/> CLASS I <input type="checkbox"/> CLASS II <input type="checkbox"/> Brine Disposal <input type="checkbox"/> Enhanced Recovery <input type="checkbox"/> Hydrocarbon Storage <input type="checkbox"/> CLASS III	
Lease Name		Well Number 55-224854, NSD-036	

CASING AND TUBING RECORD AFTER PLUGGING					METHOD OF EMPLACEMENT OF CEMENT PLUGS	
SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE		
4.5	Unknown	0	501	4.5	<input checked="" type="checkbox"/> The Balance Method <input type="checkbox"/> The Dump Bailer Method <input type="checkbox"/> The Two-Plug Method <input type="checkbox"/> 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 (inches)	4.5						
Depth to Bottom of Tubing or Drill Pipe (ft)	793						
Sacks of Cement To Be Used (each plug)	75						
Slurry Volume To Be Pumped (cu. ft.)	88						
Calculated Top of Plug (ft.)	2						
Measured Top of Plug (if tagged ft.)							
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
501	793		

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells
\$5,551

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 possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) Vit Kuhnel, Hydrology Manager	Signature	Date Signed
--	------------------	--------------------



United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility EXCELSIOR MINING CORP GUNNISON PROJECT	Name and Address of Owner/Operator EXCELSIOR MINING CORP CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018
--	--

Locate Well and Outline Unit on Section Plat - 640 Acres 	State AZ	County Cochise	Permit Number TBD
	Surface Location Description 1/4 of SW 1/4 of SW 1/4 of SW 1/4 of Section <u>31</u> Township <u>15S</u> Range <u>23E</u>		
	Locate well in two directions from nearest lines of quarter section and drilling unit Surface Location Location <u>80</u> ft. frm (N/S) <u>S</u> Line of quarter section and <u>514</u> ft. from (E/W) <u>W</u> Line of quarter section.		
	TYPE OF AUTHORIZATION <input type="checkbox"/> Individual Permit <input checked="" type="checkbox"/> Area Permit <input type="checkbox"/> Rule Number of Wells <u>1</u>		WELL ACTIVITY <input type="checkbox"/> CLASS I <input type="checkbox"/> CLASS II <input type="checkbox"/> Brine Disposal <input type="checkbox"/> Enhanced Recovery <input type="checkbox"/> Hydrocarbon Storage <input type="checkbox"/> CLASS III
Lease Name _____		Well Number <u>55-224846, NSD-033</u>	

CASING AND TUBING RECORD AFTER PLUGGING				
SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
4.5	Unknown	0	500	4.5

METHOD OF EMPLACEMENT OF CEMENT PLUGS
<input checked="" type="checkbox"/> The Balance Method
<input type="checkbox"/> The Dump Bailer Method
<input type="checkbox"/> The Two-Plug Method
<input type="checkbox"/> 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:	4.5						
Depth to Bottom of Tubing or Drill Pipe (ft)	1579						
Sacks of Cement To Be Used (each plug)	147						
Slurry Volume To Be Pumped (cu. ft.)	174						
Calculated Top of Plug (ft.)	2						
Measured Top of Plug (if tagged ft.)							
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
500	1579		

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells
\$11,053

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 possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) Vit Kuhnel, Hydrology Manager	Signature _____	Date Signed _____
---	-----------------	-------------------



United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility EXCELSIOR MINING CORP GUNNISON PROJECT	Name and Address of Owner/Operator EXCELSIOR MINING CORP CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018
--	--

Locate Well and Outline Unit on Section Plat - 640 Acres 	State AZ	County Cochise	Permit Number TBD
	Surface Location Description 1/4 of NW 1/4 of NE 1/4 of SE 1/4 of Section 36 Township 15S Range 22E		
	Locate well in two directions from nearest lines of quarter section and drilling unit Surface Location 47 ft. frm (N/S) N Line of quarter section and 708 ft. from (E/W) E Line of quarter section.		
TYPE OF AUTHORIZATION <input type="checkbox"/> Individual Permit <input checked="" type="checkbox"/> Area Permit <input type="checkbox"/> Rule Number of Wells 1		WELL ACTIVITY <input type="checkbox"/> CLASS I <input type="checkbox"/> CLASS II <input type="checkbox"/> Brine Disposal <input type="checkbox"/> Enhanced Recovery <input type="checkbox"/> Hydrocarbon Storage <input type="checkbox"/> CLASS III	
Lease Name		Well Number 55-224939, NSD-032	

CASING AND TUBING RECORD AFTER PLUGGING					METHOD OF EMPLACEMENT OF CEMENT PLUGS	
SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE		
4.5	Unknown	0	686	4.5	<input checked="" type="checkbox"/> The Balance Method <input type="checkbox"/> The Dump Bailer Method <input type="checkbox"/> The Two-Plug Method <input type="checkbox"/> 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:	4.5						
Depth to Bottom of Tubing or Drill Pipe (ft)	686						
Sacks of Cement To Be Used (each plug)	66						
Slurry Volume To Be Pumped (cu. ft.)	76						
Calculated Top of Plug (ft.)	2						
Measured Top of Plug (if tagged ft.)							
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

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells
\$4,802

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 possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) Vit Kuhnel, Hydrology Manager	Signature	Date Signed
--	------------------	--------------------



United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility EXCELSIOR MINING CORP GUNNISON PROJECT	Name and Address of Owner/Operator EXCELSIOR MINING CORP CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018
--	--

Locate Well and Outline Unit on Section Plat - 640 Acres 	State AZ	County Cochise	Permit Number TBD
	Surface Location Description 1/4 of SE 1/4 of SE 1/4 of NE 1/4 of Section 36 Township 15S Range 22E		
	Locate well in two directions from nearest lines of quarter section and drilling unit Surface Location 136 ft. frm (N/S) S Line of quarter section and 316 ft. from (E/W) E Line of quarter section.		
TYPE OF AUTHORIZATION <input type="checkbox"/> Individual Permit <input checked="" type="checkbox"/> Area Permit <input type="checkbox"/> Rule Number of Wells 1		WELL ACTIVITY <input type="checkbox"/> CLASS I <input type="checkbox"/> CLASS II <input type="checkbox"/> Brine Disposal <input type="checkbox"/> Enhanced Recovery <input type="checkbox"/> Hydrocarbon Storage <input type="checkbox"/> CLASS III	
Lease Name		Well Number 55-224155, NSD-031	

CASING AND TUBING RECORD AFTER PLUGGING					METHOD OF EMPLACEMENT OF CEMENT PLUGS	
SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE		
4.5	Unknown	0	415	4.5	<input checked="" type="checkbox"/> The Balance Method <input type="checkbox"/> The Dump Bailer Method <input type="checkbox"/> The Two-Plug Method <input type="checkbox"/> 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:				4.5						
Depth to Bottom of Tubing or Drill Pipe (ft)				1008						
Sacks of Cement To Be Used (each plug)				94						
Slurry Volume To Be Pumped (cu. ft.)				111						
Calculated Top of Plug (ft.)				2						
Measured Top of Plug (if tagged ft.)										
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	
415		1008	

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells
\$7,056

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 possiblity of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) Vit Kuhnel, Hydrology Manager	Signature	Date Signed
--	------------------	--------------------



United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility EXCELSIOR MINING CORP GUNNISON PROJECT	Name and Address of Owner/Operator EXCELSIOR MINING CORP CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018
--	--

Locate Well and Outline Unit on Section Plat - 640 Acres 	State AZ	County Cochise	Permit Number TBD
	Surface Location Description 1/4 of <u>ne</u> 1/4 of <u>NW</u> 1/4 of <u>SE</u> 1/4 of Section <u>36</u> Township <u>15S</u> Range <u>22E</u>		
	Locate well in two directions from nearest lines of quarter section and drilling unit Surface Location <u>551</u> ft. frm (N/S) <u>N</u> Line of quarter section and <u>1219</u> ft. from (E/W) <u>W</u> Line of quarter section.		
	TYPE OF AUTHORIZATION <input type="checkbox"/> Individual Permit <input checked="" type="checkbox"/> Area Permit <input type="checkbox"/> Rule Number of Wells <u>1</u>		WELL ACTIVITY <input type="checkbox"/> CLASS I <input type="checkbox"/> CLASS II <input type="checkbox"/> Brine Disposal <input type="checkbox"/> Enhanced Recovery <input type="checkbox"/> Hydrocarbon Storage <input type="checkbox"/> CLASS III
Lease Name _____		Well Number <u>55-224848, NSD-030</u>	

CASING AND TUBING RECORD AFTER PLUGGING					METHOD OF EMPLACEMENT OF CEMENT PLUGS	
SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE		
4.5	Unknown	0	256	4.5	<input checked="" type="checkbox"/> The Balance Method <input type="checkbox"/> The Dump Bailer Method <input type="checkbox"/> The Two-Plug Method <input type="checkbox"/> 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 (inches):	4.5							
Depth to Bottom of Tubing or Drill Pipe (ft)	767							
Sacks of Cement To Be Used (each plug)	72							
Slurry Volume To Be Pumped (cu. ft.)	85							
Calculated Top of Plug (ft.)	2							
Measured Top of Plug (if tagged ft.)								
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
256	767		

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells
\$5,369

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 possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) Vit Kuhnel, Hydrology Manager	Signature	Date Signed
---	-----------	-------------



United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility EXCELSIOR MINING CORP GUNNISON PROJECT	Name and Address of Owner/Operator EXCELSIOR MINING CORP CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018
--	--

Locate Well and Outline Unit on Section Plat - 640 Acres 	State AZ	County Cochise	Permit Number TBD
	Surface Location Description 1/4 of NW 1/4 of NE 1/4 of SE 1/4 of Section 36 Township 15S Range 22E		
	Locate well in two directions from nearest lines of quarter section and drilling unit Surface Location 108 ft. frm (N/S) N Line of quarter section and 1246 ft. from (E/W) E Line of quarter section.		
	TYPE OF AUTHORIZATION <input type="checkbox"/> Individual Permit <input checked="" type="checkbox"/> Area Permit <input type="checkbox"/> Rule Number of Wells 1		WELL ACTIVITY <input type="checkbox"/> CLASS I <input type="checkbox"/> CLASS II <input type="checkbox"/> Brine Disposal <input type="checkbox"/> Enhanced Recovery <input type="checkbox"/> Hydrocarbon Storage <input type="checkbox"/> CLASS III
Lease Name		Well Number 55-224938, NSD-029	

CASING AND TUBING RECORD AFTER PLUGGING				
SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
4.5	Unknown	0	279	4.5

METHOD OF EMPLACEMENT OF CEMENT PLUGS
<input checked="" type="checkbox"/> The Balance Method
<input type="checkbox"/> The Dump Bailer Method
<input type="checkbox"/> The Two-Plug Method
<input type="checkbox"/> 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:	4.5						
Depth to Bottom of Tubing or Drill Pipe (ft)	279						
Sacks of Cement To Be Used (each plug)	75						
Slurry Volume To Be Pumped (cu. ft.)	31						
Calculated Top of Plug (ft.)	2						
Measured Top of Plug (if tagged ft.)							
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

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells
\$1,953

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 possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) Vit Kuhnel, Hydrology Manager	Signature	Date Signed
--	------------------	--------------------



United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility EXCELSIOR MINING CORP GUNNISON PROJECT	Name and Address of Owner/Operator EXCELSIOR MINING CORP CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018
--	--

Locate Well and Outline Unit on Section Plat - 640 Acres 	State AZ	County Cochise	Permit Number TBD
	Surface Location Description 1/4 of SW 1/4 of NE 1/4 of SE 1/4 of Section 36 Township 15S Range 22E		
	Locate well in two directions from nearest lines of quarter section and drilling unit Surface Location 930 ft. frm (N/S) N Line of quarter section and 1061 ft. from (E/W) E Line of quarter section.		
	TYPE OF AUTHORIZATION <input type="checkbox"/> Individual Permit <input checked="" type="checkbox"/> Area Permit <input type="checkbox"/> Rule Number of Wells 1		WELL ACTIVITY <input type="checkbox"/> CLASS I <input type="checkbox"/> CLASS II <input type="checkbox"/> Brine Disposal <input type="checkbox"/> Enhanced Recovery <input type="checkbox"/> Hydrocarbon Storage <input type="checkbox"/> CLASS III
Lease Name		Well Number 55-224937, NSD-028	

CASING AND TUBING RECORD AFTER PLUGGING					METHOD OF EMPLACEMENT OF CEMENT PLUGS	
SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE		
4.5	Unknown	0	396	4.5	<input checked="" type="checkbox"/> The Balance Method <input type="checkbox"/> The Dump Bailer Method <input type="checkbox"/> The Two-Plug Method <input type="checkbox"/> 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 (inches):	4.5							
Depth to Bottom of Tubing or Drill Pipe (ft)	755							
Sacks of Cement To Be Used (each plug)	70							
Slurry Volume To Be Pumped (cu. ft.)	83							
Calculated Top of Plug (ft.)	2							
Measured Top of Plug (if tagged ft.)								
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	
396	755		

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells
\$5,285

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 possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) Vit Kuhnel, Hydrology Manager	Signature	Date Signed
--	------------------	--------------------



United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility EXCELSIOR MINING CORP GUNNISON PROJECT	Name and Address of Owner/Operator EXCELSIOR MINING CORP CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018
--	--

Locate Well and Outline Unit on Section Plat - 640 Acres 	State AZ	County Cochise	Permit Number TBD
	Surface Location Description 1/4 of <u>SE</u> 1/4 of <u>SE</u> 1/4 of <u>SE</u> 1/4 of Section <u>36</u> Township <u>15S</u> Range <u>22E</u>		
	Locate well in two directions from nearest lines of quarter section and drilling unit Surface Location Location <u>930</u> ft. frm (N/S) <u>N</u> Line of quarter section and <u>537</u> ft. from (E/W) <u>E</u> Line of quarter section.		
	TYPE OF AUTHORIZATION <input type="checkbox"/> Individual Permit <input checked="" type="checkbox"/> Area Permit <input type="checkbox"/> Rule Number of Wells <u>1</u> Lease Name _____		WELL ACTIVITY <input type="checkbox"/> CLASS I <input type="checkbox"/> CLASS II <input type="checkbox"/> Brine Disposal <input type="checkbox"/> Enhanced Recovery <input type="checkbox"/> Hydrocarbon Storage <input type="checkbox"/> CLASS III Well Number <u>55-224936, NSD-027</u>

CASING AND TUBING RECORD AFTER PLUGGING				
SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
4.5	Unknown	0	404	4.5

METHOD OF EMPLACEMENT OF CEMENT PLUGS
<input checked="" type="checkbox"/> The Balance Method
<input type="checkbox"/> The Dump Bailer Method
<input type="checkbox"/> The Two-Plug Method
<input type="checkbox"/> 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)	4.5						
Depth to Bottom of Tubing or Drill Pipe (ft)	1005						
Sacks of Cement To Be Used (each plug)	94						
Slurry Volume To Be Pumped (cu. ft.)	111						
Calculated Top of Plug (ft.)	2						
Measured Top of Plug (if tagged ft.)							
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
404	1005		

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells
\$7,035

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 possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) Vit Kuhnel, Hydrology Manager	Signature _____	Date Signed _____
--	---------------------------	-----------------------------



United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility EXCELSIOR MINING CORP GUNNISON PROJECT	Name and Address of Owner/Operator EXCELSIOR MINING CORP CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018
--	--

Locate Well and Outline Unit on Section Plat - 640 Acres 	State AZ	County Cochise	Permit Number TBD
	Surface Location Description 1/4 of <u>ne</u> 1/4 of <u>ne</u> 1/4 of <u>se</u> 1/4 of Section <u>36</u> Township <u>15S</u> Range <u>22E</u>		
	Locate well in two directions from nearest lines of quarter section and drilling unit Surface Location <u>591</u> ft. frm (N/S) <u>N</u> Line of quarter section and <u>1</u> ft. from (E/W) <u>W</u> Line of quarter section.		
	TYPE OF AUTHORIZATION <input type="checkbox"/> Individual Permit <input checked="" type="checkbox"/> Area Permit <input type="checkbox"/> Rule Number of Wells <u>1</u>		WELL ACTIVITY <input type="checkbox"/> CLASS I <input type="checkbox"/> CLASS II <input type="checkbox"/> Brine Disposal <input type="checkbox"/> Enhanced Recovery <input type="checkbox"/> Hydrocarbon Storage <input type="checkbox"/> CLASS III
Lease Name _____		Well Number <u>55-224154, NSD-026</u>	

CASING AND TUBING RECORD AFTER PLUGGING					METHOD OF EMPLACEMENT OF CEMENT PLUGS	
SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE		
4.5	Unknown	0	436	4.5	<input checked="" type="checkbox"/> The Balance Method <input type="checkbox"/> The Dump Bailer Method <input type="checkbox"/> The Two-Plug Method <input type="checkbox"/> 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:	4.5							
Depth to Bottom of Tubing or Drill Pipe (ft)	1168							
Sacks of Cement To Be Used (each plug)	109							
Slurry Volume To Be Pumped (cu. ft.)	129							
Calculated Top of Plug (ft.)	2							
Measured Top of Plug (if tagged ft.)								
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
436	1168		

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells
\$8,176

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 possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) Vit Kuhnel, Hydrology Manager	Signature _____	Date Signed _____
--	---------------------------	-----------------------------



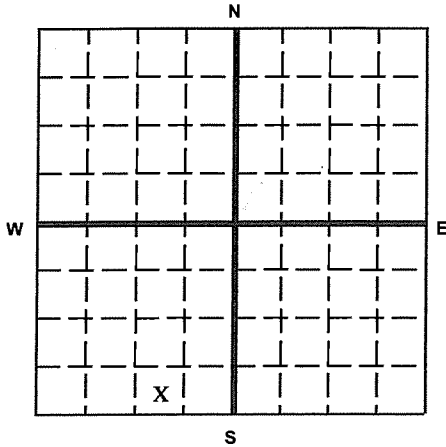
United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility
EXCELSIOR MINING CORP
GUNNISON PROJECT

Name and Address of Owner/Operator
EXCELSIOR MINING CORP
CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018

Locate Well and Outline Unit on Section Plat - 640 Acres



State AZ County Cochise Permit Number TBD

Surface Location Description
 1/4 of SW 1/4 of SE 1/4 of SW 1/4 of Section 31 Township 15S Range 23E

Locate well in two directions from nearest lines of quarter section and drilling unit
Surface Location 364 ft. frm (N/S) S Line of quarter section and 1173 ft. from (E/W) E Line of quarter section.

TYPE OF AUTHORIZATION
 Individual Permit
 Area Permit
 Rule
Number of Wells 1
Lease Name _____

WELL ACTIVITY
 CLASS I
 CLASS II
 Brine Disposal
 Enhanced Recovery
 Hydrocarbon Storage
 CLASS III
Well Number 55-224932, NSD-025

CASING AND TUBING RECORD AFTER PLUGGING				
SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
4.5	Unknown	0	637	4.5

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 (inches)	4.5						
Depth to Bottom of Tubing or Drill Pipe (ft)	1644						
Sacks of Cement To Be Used (each plug)	154						
Slurry Volume To Be Pumped (cu. ft.)	182						
Calculated Top of Plug (ft.)	2						
Measured Top of Plug (if tagged ft.)							
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
637	1644		

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells
\$11,508

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 possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) Vit Kuhnel, Hydrology Manager Signature _____ Date Signed _____



United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility EXCELSIOR MINING CORP GUNNISON PROJECT	Name and Address of Owner/Operator EXCELSIOR MINING CORP CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018
--	--

Locate Well and Outline Unit on Section Plat - 640 Acres 	State AZ	County Cochise	Permit Number TBD
	Surface Location Description 1/4 of SW 1/4 of NE 1/4 of SW 1/4 of Section 31 Township 15S Range 23E		
	Locate well in two directions from nearest lines of quarter section and drilling unit Surface Location 1278 ft. frm (N/S) N Line of quarter section and 1081 ft. from (E/W) E Line of quarter section.		
TYPE OF AUTHORIZATION <input type="checkbox"/> Individual Permit <input checked="" type="checkbox"/> Area Permit <input type="checkbox"/> Rule Number of Wells 1		WELL ACTIVITY <input type="checkbox"/> CLASS I <input type="checkbox"/> CLASS II <input type="checkbox"/> Brine Disposal <input type="checkbox"/> Enhanced Recovery <input type="checkbox"/> Hydrocarbon Storage <input type="checkbox"/> CLASS III	
Lease Name		Well Number 55-224931, NSD-024	

CASING AND TUBING RECORD AFTER PLUGGING					METHOD OF EMPLACEMENT OF CEMENT PLUGS	
SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE		
4.5	Unknown	0	671	4.5	<input checked="" type="checkbox"/> The Balance Method <input type="checkbox"/> The Dump Bailer Method <input type="checkbox"/> The Two-Plug Method <input type="checkbox"/> 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 (inches)	4.5							
Depth to Bottom of Tubing or Drill Pipe (ft)	1972							
Sacks of Cement To Be Used (each plug)	185							
Slurry Volume To Be Pumped (cu. ft.)	218							
Calculated Top of Plug (ft.)	2							
Measured Top of Plug (if tagged ft.)								
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	
671		1972	

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells
\$13,804

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 possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) Vit Kuhnel, Hydrology Manager	Signature	Date Signed
--	------------------	--------------------



United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility EXCELSIOR MINING CORP GUNNISON PROJECT	Name and Address of Owner/Operator EXCELSIOR MINING CORP CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018
--	--

Locate Well and Outline Unit on Section Plat - 640 Acres 	State AZ	County Cochise	Permit Number TBD
Surface Location Description <input type="checkbox"/> 1/4 of SW 1/4 of NW 1/4 of SW 1/4 of Section <u>31</u> Township <u>15S</u> Range <u>23E</u>			
Locate well in two directions from nearest lines of quarter section and drilling unit Surface Location <u>1170</u> ft. frm (N/S) <u>N</u> Line of quarter section and <u>455</u> ft. from (E/W) <u>W</u> Line of quarter section.			
TYPE OF AUTHORIZATION <input type="checkbox"/> Individual Permit <input checked="" type="checkbox"/> Area Permit <input type="checkbox"/> Rule Number of Wells <u>1</u>		WELL ACTIVITY <input type="checkbox"/> CLASS I <input type="checkbox"/> CLASS II <input type="checkbox"/> Brine Disposal <input type="checkbox"/> Enhanced Recovery <input type="checkbox"/> Hydrocarbon Storage <input type="checkbox"/> CLASS III	
Lease Name		Well Number <u>55-224930, NSD-023</u>	

CASING AND TUBING RECORD AFTER PLUGGING				
SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
4.5	Unknown	0	552	4.5

METHOD OF EMPLACEMENT OF CEMENT PLUGS
<input checked="" type="checkbox"/> The Balance Method <input type="checkbox"/> The Dump Bailer Method <input type="checkbox"/> The Two-Plug Method <input type="checkbox"/> 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:	4.5						
Depth to Bottom of Tubing or Drill Pipe (ft)	1546						
Sacks of Cement To Be Used (each plug)	145						
Slurry Volume To Be Pumped (cu. ft.)	171						
Calculated Top of Plug (ft.)	2						
Measured Top of Plug (if tagged ft.)							
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
552	1546		

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells
\$10,822

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 possiblity of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) Vit Kuhnel, Hydrology Manager	Signature	Date Signed
---	-----------	-------------



United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility EXCELSIOR MINING CORP GUNNISON PROJECT	Name and Address of Owner/Operator EXCELSIOR MINING CORP CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018
--	--

Locate Well and Outline Unit on Section Plat - 640 Acres 	State AZ	County Cochise	Permit Number TBD
	Surface Location Description 1/4 of <u>NW</u> 1/4 of <u>SE</u> 1/4 of <u>SW</u> 1/4 of Section <u>31</u> Township <u>15S</u> Range <u>23E</u>		
	Locate well in two directions from nearest lines of quarter section and drilling unit Surface Location <u>858</u> ft. frm (N/S) <u>S</u> Line of quarter section and <u>934</u> ft. from (E/W) <u>E</u> Line of quarter section.		
	TYPE OF AUTHORIZATION <input type="checkbox"/> Individual Permit <input checked="" type="checkbox"/> Area Permit <input type="checkbox"/> Rule Number of Wells <u>1</u>		WELL ACTIVITY <input type="checkbox"/> CLASS I <input type="checkbox"/> CLASS II <input type="checkbox"/> Brine Disposal <input type="checkbox"/> Enhanced Recovery <input type="checkbox"/> Hydrocarbon Storage <input type="checkbox"/> CLASS III
Lease Name _____		Well Number <u>55-224946, NSD-020</u>	

CASING AND TUBING RECORD AFTER PLUGGING					METHOD OF EMPLACEMENT OF CEMENT PLUGS	
SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE		
4.5	Unknown	0	660	4.5	<input checked="" type="checkbox"/> The Balance Method <input type="checkbox"/> The Dump Bailer Method <input type="checkbox"/> The Two-Plug Method <input type="checkbox"/> 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 (inches)	4.5							
Depth to Bottom of Tubing or Drill Pipe (ft)	660							
Sacks of Cement To Be Used (each plug)	62							
Slurry Volume To Be Pumped (cu. ft.)	73							
Calculated Top of Plug (ft.)	2							
Measured Top of Plug (if tagged ft.)								
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

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells
\$4,620

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 possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) Vit Kuhnel, Hydrology Manager	Signature _____	Date Signed _____
--	---------------------------	-----------------------------



United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility EXCELSIOR MINING CORP GUNNISON PROJECT	Name and Address of Owner/Operator EXCELSIOR MINING CORP CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018
--	--

Locate Well and Outline Unit on Section Plat - 640 Acres 	State AZ	County Cochise	Permit Number TBD
Surface Location Description 1/4 of NW 1/4 of SW 1/4 of SW 1/4 of Section 31 Township 15S Range 23E			
Locate well in two directions from nearest lines of quarter section and drilling unit Surface Location 1174 ft. from (N/S) S Line of quarter section and 324 ft. from (E/W) W Line of quarter section.			
TYPE OF AUTHORIZATION <input type="checkbox"/> Individual Permit <input checked="" type="checkbox"/> Area Permit <input type="checkbox"/> Rule Number of Wells 1		WELL ACTIVITY <input type="checkbox"/> CLASS I <input type="checkbox"/> CLASS II <input type="checkbox"/> Brine Disposal <input type="checkbox"/> Enhanced Recovery <input type="checkbox"/> Hydrocarbon Storage <input type="checkbox"/> CLASS III	
Lease Name		Well Number 55-224945, NSD-019	

CASING AND TUBING RECORD AFTER PLUGGING				
SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
4.5	Unknown	0	620	4.5

METHOD OF EMPLACEMENT OF CEMENT PLUGS
<input checked="" type="checkbox"/> The Balance Method
<input type="checkbox"/> The Dump Bailer Method
<input type="checkbox"/> The Two-Plug Method
<input type="checkbox"/> 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 (inches):	4.5						
Depth to Bottom of Tubing or Drill Pipe (ft)	1454						
Sacks of Cement To Be Used (each plug)	136						
Slurry Volume To Be Pumped (cu. ft.)	161						
Calculated Top of Plug (ft.)	2						
Measured Top of Plug (if tagged ft.)							
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
620	1454		

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells
\$10,178

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 possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) Vit Kuhnel, Hydrology Manager	Signature	Date Signed
--	------------------	--------------------



United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility EXCELSIOR MINING CORP GUNNISON PROJECT	Name and Address of Owner/Operator EXCELSIOR MINING CORP CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018
--	--

Locate Well and Outline Unit on Section Plat - 640 Acres 	State AZ	County Cochise	Permit Number TBD
	Surface Location Description 1/4 of ne 1/4 of SW 1/4 of SW 1/4 of Section 31 Township 15S Range 23E		
	Locate well in two directions from nearest lines of quarter section and drilling unit Surface Location 1222ft. frm (N/S) S Line of quarter section and 980 ft. from (E/W) W Line of quarter section.		
TYPE OF AUTHORIZATION <input type="checkbox"/> Individual Permit <input checked="" type="checkbox"/> Area Permit <input type="checkbox"/> Rule Number of Wells 1		WELL ACTIVITY <input type="checkbox"/> CLASS I <input type="checkbox"/> CLASS II <input type="checkbox"/> Brine Disposal <input type="checkbox"/> Enhanced Recovery <input type="checkbox"/> Hydrocarbon Storage <input type="checkbox"/> CLASS III	
Lease Name		Well Number 55-224944, NSD-011	

CASING AND TUBING RECORD AFTER PLUGGING					METHOD OF EMPLACEMENT OF CEMENT PLUGS	
SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE		
4.5	Unknown	0	650	4.5	<input checked="" type="checkbox"/> The Balance Method <input type="checkbox"/> The Dump Bailer Method <input type="checkbox"/> The Two-Plug Method <input type="checkbox"/> 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 (inches):		6.25	3.75					
Depth to Bottom of Tubing or Drill Pipe (ft)		650	1440					
Sacks of Cement To Be Used (each plug)		117	51					
Slurry Volume To Be Pumped (cu. ft.)		138	61					
Calculated Top of Plug (ft.)		2	650					
Measured Top of Plug (if tagged ft.)								
Slurry Wt. (Lb./Gal.)		15.6	15.6					
Type Cement or Other Material (Class III)		V	V					

LIST ALL OPEN HOLE AND/OR PERFORATED INTERVALS AND INTERVALS WHERE CASING WILL BE VARIED (if any)			
From	To	From	To
-620	1440		

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells
\$10,080

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 possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) Vit Kuhnel, Hydrology Manager	Signature	Date Signed
--	------------------	--------------------



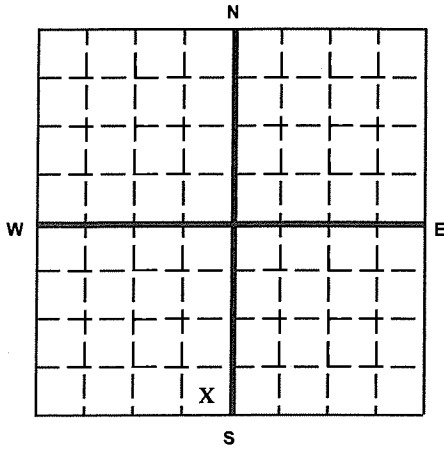
United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility
EXCELSIOR MINING CORP
GUNNISON PROJECT

Name and Address of Owner/Operator
EXCELSIOR MINING CORP
CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018

Locate Well and Outline Unit on Section Plat - 640 Acres



State AZ County Cochise Permit Number TBD

Surface Location Description
1/4 of SE 1/4 of SE 1/4 of SW 1/4 of Section 31 Township 15S Range 23E

Locate well in two directions from nearest lines of quarter section and drilling unit
Surface
Location 366 ft. frm (N/S) S Line of quarter section
and 449 ft. from (E/W) E Line of quarter section.

TYPE OF AUTHORIZATION
 Individual Permit
 Area Permit
 Rule
Number of Wells 1
Lease Name _____

WELL ACTIVITY
 CLASS I
 CLASS II
 Brine Disposal
 Enhanced Recovery
 Hydrocarbon Storage
 CLASS III
Well Number 55-224943, NSD-009

CASING AND TUBING RECORD AFTER PLUGGING				
SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
4.5	Unknown	0	620	4.5

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:	4.5						
Depth to Bottom of Tubing or Drill Pipe (ft)	1793						
Sacks of Cement To Be Used (each plug)	168						
Slurry Volume To Be Pumped (cu. ft.)	198						
Calculated Top of Plug (ft.)	2						
Measured Top of Plug (if tagged ft.)							
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
620	1793		

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells
\$12,551

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 possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) Vit Kuhnel, Hydrology Manager Signature _____ Date Signed _____



United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility EXCELSIOR MINING CORP GUNNISON PROJECT	Name and Address of Owner/Operator EXCELSIOR MINING CORP CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018
--	--

Locate Well and Outline Unit on Section Plat - 640 Acres 	State AZ	County Cochise	Permit Number TBD
	Surface Location Description 1/4 of SE 1/4 of SW 1/4 of SW 1/4 of Section 31 Township 15S Range 23E		
	Locate well in two directions from nearest lines of quarter section and drilling unit Surface Location 10 ft. frm (N/S) S Line of quarter section and 1032 ft. from (E/W) W Line of quarter section.		
TYPE OF AUTHORIZATION <input type="checkbox"/> Individual Permit <input checked="" type="checkbox"/> Area Permit <input type="checkbox"/> Rule Number of Wells 1		WELL ACTIVITY <input type="checkbox"/> CLASS I <input type="checkbox"/> CLASS II <input type="checkbox"/> Brine Disposal <input type="checkbox"/> Enhanced Recovery <input type="checkbox"/> Hydrocarbon Storage <input type="checkbox"/> CLASS III	
Lease Name		Well Number 55-224942, NSD-003	

CASING AND TUBING RECORD AFTER PLUGGING					METHOD OF EMPLACEMENT OF CEMENT PLUGS	
SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE		
4.5	Unknown	0	563	4.5	<input checked="" type="checkbox"/> The Balance Method <input type="checkbox"/> The Dump Bailer Method <input type="checkbox"/> The Two-Plug Method <input type="checkbox"/> 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 (inches)	4.5							
Depth to Bottom of Tubing or Drill Pipe (ft)	2008							
Sacks of Cement To Be Used (each plug)	188							
Slurry Volume To Be Pumped (cu. ft.)	222							
Calculated Top of Plug (ft.)	2							
Measured Top of Plug (if tagged ft.)								
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
563	2008		

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells
\$14,056

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 possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) Vit Kuhnel, Hydrology Manager	Signature	Date Signed
--	------------------	--------------------



United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility EXCELSIOR MINING CORP GUNNISON PROJECT	Name and Address of Owner/Operator EXCELSIOR MINING CORP CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018
--	--

Locate Well and Outline Unit on Section Plat - 640 Acres 	State AZ	County Cochise	Permit Number TBD
	Surface Location Description <input type="checkbox"/> 1/4 of SW 1/4 of SW 1/4 of SW 1/4 of Section <u>31</u> Township <u>15S</u> Range <u>23E</u>		
	Locate well in two directions from nearest lines of quarter section and drilling unit Surface Location <u>256</u> ft. frm (N/S) <u>S</u> Line of quarter section and <u>387</u> ft. from (E/W) <u>W</u> Line of quarter section.		
	TYPE OF AUTHORIZATION <input type="checkbox"/> Individual Permit <input checked="" type="checkbox"/> Area Permit <input type="checkbox"/> Rule Number of Wells <u>1</u>		WELL ACTIVITY <input type="checkbox"/> CLASS I <input type="checkbox"/> CLASS II <input type="checkbox"/> Brine Disposal <input type="checkbox"/> Enhanced Recovery <input type="checkbox"/> Hydrocarbon Storage <input type="checkbox"/> CLASS III Well Number <u>55-224941, NSD-002</u>
Lease Name _____			

CASING AND TUBING RECORD AFTER PLUGGING				
SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
4.5	Unknown	0	560	4.5

METHOD OF EMPLACEMENT OF CEMENT PLUGS
<input checked="" type="checkbox"/> The Balance Method
<input type="checkbox"/> The Dump Bailer Method
<input type="checkbox"/> The Two-Plug Method
<input type="checkbox"/> 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:	4.5						
Depth to Bottom of Tubing or Drill Pipe (ft)	1907						
Sacks of Cement To Be Used (each plug)	179						
Slurry Volume To Be Pumped (cu. ft.)	211						
Calculated Top of Plug (ft.)	2						
Measured Top of Plug (if tagged ft.)							
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
560	1907		

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells
\$13,349

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 possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) Vit Kuhnel, Hydrology Manager	Signature	Date Signed
---	-----------	-------------



United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility EXCELSIOR MINING CORP GUNNISON PROJECT	Name and Address of Owner/Operator EXCELSIOR MINING CORP CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018
--	--

Locate Well and Outline Unit on Section Plat - 640 Acres 	State AZ	County Cochise	Permit Number TBD
	Surface Location Description 1/4 of <u>NW</u> 1/4 of <u>SW</u> 1/4 of <u>SW</u> 1/4 of Section <u>31</u> Township <u>15S</u> Range <u>23E</u>		
	Locate well in two directions from nearest lines of quarter section and drilling unit Surface Location <u>843</u> ft. frm (N/S) <u>S</u> Line of quarter section and <u>455</u> ft. from (E/W) <u>W</u> Line of quarter section.		
TYPE OF AUTHORIZATION <input type="checkbox"/> Individual Permit <input checked="" type="checkbox"/> Area Permit <input type="checkbox"/> Rule Number of Wells <u>1</u>		WELL ACTIVITY <input type="checkbox"/> CLASS I <input type="checkbox"/> CLASS II <input type="checkbox"/> Brine Disposal <input type="checkbox"/> Enhanced Recovery <input type="checkbox"/> Hydrocarbon Storage <input type="checkbox"/> CLASS III	
Lease Name _____		Well Number <u>55-224940, NSD-001</u>	

CASING AND TUBING RECORD AFTER PLUGGING					METHOD OF EMPLACEMENT OF CEMENT PLUGS	
SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE		
4.5	Unknown	0	460	4.5	<input checked="" type="checkbox"/> The Balance Method <input type="checkbox"/> The Dump Bailer Method <input type="checkbox"/> The Two-Plug Method <input type="checkbox"/> 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:	4.5							
Depth to Bottom of Tubing or Drill Pipe (ft)	1506							
Sacks of Cement To Be Used (each plug)	141							
Slurry Volume To Be Pumped (cu. ft.)	166							
Calculated Top of Plug (ft.)	2							
Measured Top of Plug (if tagged ft.)								
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
460	1506		

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells
\$10,542

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 possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) Vit Kuhnel, Hydrology Manager	Signature _____	Date Signed _____
---	-----------------	-------------------



United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility EXCELSIOR MINING CORP GUNNISON PROJECT	Name and Address of Owner/Operator EXCELSIOR MINING CORP CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018
--	--

Locate Well and Outline Unit on Section Plat - 640 Acres 	State AZ	County Cochise	Permit Number TBD
	Surface Location Description 1/4 of <u>NE</u> 1/4 of <u>NE</u> 1/4 of <u>SE</u> 1/4 of Section <u>36</u> Township <u>15S</u> Range <u>22E</u>		
	Locate well in two directions from nearest lines of quarter section and drilling unit Surface Location <u>375</u> ft. frm (N/S) <u>N</u> Line of quarter section and <u>420</u> ft. from (E/W) <u>E</u> Line of quarter section.		
TYPE OF AUTHORIZATION <input type="checkbox"/> Individual Permit <input checked="" type="checkbox"/> Area Permit <input type="checkbox"/> Rule Number of Wells <u>1</u>		WELL ACTIVITY <input type="checkbox"/> CLASS I <input type="checkbox"/> CLASS II <input type="checkbox"/> Brine Disposal <input type="checkbox"/> Enhanced Recovery <input type="checkbox"/> Hydrocarbon Storage <input type="checkbox"/> CLASS III	
Lease Name _____		Well Number <u>55-225072, JS-07</u>	

CASING AND TUBING RECORD AFTER PLUGGING				
SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
NA	Unknown	0	~369	4.5

METHOD OF EMPLACEMENT OF CEMENT PLUGS
<input checked="" type="checkbox"/> The Balance Method
<input type="checkbox"/> The Dump Bailer Method
<input type="checkbox"/> The Two-Plug Method
<input type="checkbox"/> 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:	4.5						
Depth to Bottom of Tubing or Drill Pipe (ft)	~369						
Sacks of Cement To Be Used (each plug)	45						
Slurry Volume To Be Pumped (cu. ft.)	53						
Calculated Top of Plug (ft.)	2						
Measured Top of Plug (if tagged ft.)							
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

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells
\$2,583

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 possiblity of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) Vit Kuhnel, Hydrology Manager	Signature _____	Date Signed _____
--	---------------------------	-----------------------------



United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility EXCELSIOR MINING CORP GUNNISON PROJECT	Name and Address of Owner/Operator EXCELSIOR MINING CORP CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018
--	--

Locate Well and Outline Unit on Section Plat - 640 Acres 	State AZ	County Cochise	Permit Number TBD
	Surface Location Description 1/4 of <u>ne</u> 1/4 of <u>ne</u> 1/4 of <u>se</u> 1/4 of Section <u>36</u> Township <u>15S</u> Range <u>22E</u>		
	Locate well in two directions from nearest lines of quarter section and drilling unit Surface Location <u>551</u> ft. frm (N/S) <u>N</u> Line of quarter section and <u>406</u> ft. from (E/W) <u>E</u> Line of quarter section.		
	TYPE OF AUTHORIZATION <input type="checkbox"/> Individual Permit <input checked="" type="checkbox"/> Area Permit <input type="checkbox"/> Rule Number of Wells <u>1</u>	WELL ACTIVITY <input type="checkbox"/> CLASS I <input type="checkbox"/> CLASS II <input type="checkbox"/> Brine Disposal <input type="checkbox"/> Enhanced Recovery <input type="checkbox"/> Hydrocarbon Storage <input type="checkbox"/> CLASS III	
Lease Name _____		Well Number <u>55-225071, JS-06</u>	

CASING AND TUBING RECORD AFTER PLUGGING					METHOD OF EMPLACEMENT OF CEMENT PLUGS	
SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE		
NA	Unknown	0	0	4.5	<input checked="" type="checkbox"/>	The Balance Method
					<input type="checkbox"/>	The Dump Bailer Method
					<input type="checkbox"/>	The Two-Plug Method
					<input type="checkbox"/>	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 (inches)	4.5						
Depth to Bottom of Tubing or Drill Pipe (ft)	599						
Sacks of Cement To Be Used (each plug)	56						
Slurry Volume To Be Pumped (cu. ft.)	66						
Calculated Top of Plug (ft.)	2						
Measured Top of Plug (if tagged ft.)							
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
0	599		

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells
\$4,193

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 possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) Vit Kuhnel, Hydrology Manager	Signature _____	Date Signed _____
--	---------------------------	-----------------------------



United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility EXCELSIOR MINING CORP GUNNISON PROJECT	Name and Address of Owner/Operator EXCELSIOR MINING CORP CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018
--	--

Locate Well and Outline Unit on Section Plat - 640 Acres 	State AZ	County Cochise	Permit Number TBD
Surface Location Description 1/4 of ne 1/4 of ne 1/4 of se 1/4 of Section 36 Township 15S Range 22E			
Locate well in two directions from nearest lines of quarter section and drilling unit Surface Location 460 ft. frm (N/S) N Line of quarter section and 429 ft. from (E/W) E Line of quarter section.			
TYPE OF AUTHORIZATION <input type="checkbox"/> Individual Permit <input checked="" type="checkbox"/> Area Permit <input type="checkbox"/> Rule Number of Wells 1		WELL ACTIVITY <input type="checkbox"/> CLASS I <input type="checkbox"/> CLASS II <input type="checkbox"/> Brine Disposal <input type="checkbox"/> Enhanced Recovery <input type="checkbox"/> Hydrocarbon Storage <input type="checkbox"/> CLASS III	
Lease Name		Well Number 55-225070, JS-05	

CASING AND TUBING RECORD AFTER PLUGGING					METHOD OF EMPLACEMENT OF CEMENT PLUGS	
SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE		
NA	Unknown	0	0	4.5	<input checked="" type="checkbox"/> The Balance Method <input type="checkbox"/> The Dump Bailer Method <input type="checkbox"/> The Two-Plug Method <input type="checkbox"/> 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:	4.5						
Depth to Bottom of Tubing or Drill Pipe (ft)	588						
Sacks of Cement To Be Used (each plug)	55						
Slurry Volume To Be Pumped (cu. ft.)	65						
Calculated Top of Plug (ft.)	2						
Measured Top of Plug (if tagged ft.)							
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
0	588		

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells
\$4,116

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 possiblity of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) Vit Kühnel, Hydrology Manager	Signature	Date Signed
--	------------------	--------------------



United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility EXCELSIOR MINING CORP GUNNISON PROJECT	Name and Address of Owner/Operator EXCELSIOR MINING CORP CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018
--	--

Locate Well and Outline Unit on Section Plat - 640 Acres 	State AZ	County Cochise	Permit Number TBD
	Surface Location Description 1/4 of SE 1/4 of NW 1/4 of SW 1/4 of Section 31 Township 15E Range 23S		
	Locate well in two directions from nearest lines of quarter section and drilling unit Surface Location 928 ft. frm (N/S) N Line of quarter section and 758 ft. from (E/W) W Line of quarter section.		
TYPE OF AUTHORIZATION <input type="checkbox"/> Individual Permit <input checked="" type="checkbox"/> Area Permit <input type="checkbox"/> Rule Number of Wells 1		WELL ACTIVITY <input type="checkbox"/> CLASS I <input type="checkbox"/> CLASS II <input type="checkbox"/> Brine Disposal <input type="checkbox"/> Enhanced Recovery <input type="checkbox"/> Hydrocarbon Storage <input type="checkbox"/> CLASS III	
Lease Name		Well Number 55-225109, J-10	

CASING AND TUBING RECORD AFTER PLUGGING					METHOD OF EMPLACEMENT OF CEMENT PLUGS	
SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE		
NA	Unknown	0	0	4.5	<input checked="" type="checkbox"/> The Balance Method <input type="checkbox"/> The Dump Bailer Method <input type="checkbox"/> The Two-Plug Method <input type="checkbox"/> 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:				4.5						
Depth to Bottom of Tubing or Drill Pipe (ft)				1062						
Sacks of Cement To Be Used (each plug)				99						
Slurry Volume To Be Pumped (cu. ft.)				117						
Calculated Top of Plug (ft.)				2						
Measured Top of Plug (if tagged ft.)										
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

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells
\$7,434

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 possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) Vit Kuhnel, Hydrology Manager	Signature	Date Signed
--	------------------	--------------------



United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility EXCELSIOR MINING CORP GUNNISON PROJECT	Name and Address of Owner/Operator EXCELSIOR MINING CORP CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018
--	--

Locate Well and Outline Unit on Section Plat - 640 Acres 	State AZ	County Cochise	Permit Number TBD
Surface Location Description 1/4 of NW 1/4 of NW 1/4 of SW 1/4 of Section 31 Township 15S Range 23E			
Locate well in two directions from nearest lines of quarter section and drilling unit Surface Location 698 ft. frm (N/S) N Line of quarter section and 508 ft. from (E/W) W Line of quarter section.			
TYPE OF AUTHORIZATION <input type="checkbox"/> Individual Permit <input checked="" type="checkbox"/> Area Permit <input type="checkbox"/> Rule Number of Wells 1		WELL ACTIVITY <input type="checkbox"/> CLASS I <input type="checkbox"/> CLASS II <input type="checkbox"/> Brine Disposal <input type="checkbox"/> Enhanced Recovery <input type="checkbox"/> Hydrocarbon Storage <input type="checkbox"/> CLASS III	
Lease Name		Well Number N/A, J-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
NA	Unknown	0	0	4.5

METHOD OF EMPLACEMENT OF CEMENT PLUGS
<input checked="" type="checkbox"/> The Balance Method
<input type="checkbox"/> The Dump Bailer Method
<input type="checkbox"/> The Two-Plug Method
<input type="checkbox"/> 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:	4.5						
Depth to Bottom of Tubing or Drill Pipe (ft)	1158						
Sacks of Cement To Be Used (each plug)	108						
Slurry Volume To Be Pumped (cu. ft.)	128						
Calculated Top of Plug (ft.)	2						
Measured Top of Plug (if tagged ft.)							
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
0	1158		

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells
\$8,106

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 possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) Vit Kuhnel, Hydrology Manager	Signature	Date Signed
--	------------------	--------------------



United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

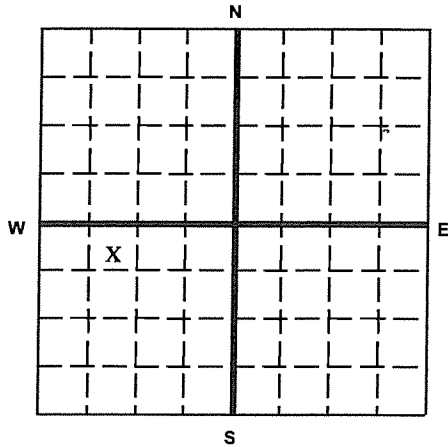
Name and Address of Facility

EXCELSIOR MINING CORP
GUNNISON PROJECT

Name and Address of Owner/Operator

EXCELSIOR MINING CORP
CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018

Locate Well and Outline Unit on
Section Plat - 640 Acres



State

AZ

County

Cochise

Permit Number

TBD

Surface Location Description

1/4 of NE 1/4 of NW 1/4 of SW 1/4 of Section 31 Township 15S Range 23E

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface

Location 513 ft. frm (N/S) N Line of quarter section
and 875 ft. from (E/W) W Line of quarter section.

TYPE OF AUTHORIZATION

- Individual Permit
- Area Permit
- Rule

Number of Wells 1

WELL ACTIVITY

- CLASS I
- CLASS II
 - Brine Disposal
 - Enhanced Recovery
 - Hydrocarbon Storage
- CLASS III

Lease Name

Well Number 55-225107, J-08

CASING AND TUBING RECORD AFTER PLUGGING

METHOD OF EMPLACEMENT OF CEMENT PLUGS

SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
NA	Unknown	0	0	4.5

- 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 (inches)	4.5						
Depth to Bottom of Tubing or Drill Pipe (ft)	1062						
Sacks of Cement To Be Used (each plug)	126						
Slurry Volume To Be Pumped (cu. ft.)	149						
Calculated Top of Plug (ft.)	2						
Measured Top of Plug (if tagged ft.)							
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

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells

\$7,434

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 possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print)

Vit Kuhnel, Hydrology Manager

Signature

Date Signed



United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility EXCELSIOR MINING CORP GUNNISON PROJECT	Name and Address of Owner/Operator EXCELSIOR MINING CORP CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018
--	--

Locate Well and Outline Unit on Section Plat - 640 Acres 	State AZ	County Cochise	Permit Number TBD
Surface Location Description 1/4 of SW 1/4 of NW 1/4 of SW 1/4 of Section 31 Township 15S Range 23E			
Locate well in two directions from nearest lines of quarter section and drilling unit Surface Location 855 ft. frm (N/S) N Line of quarter section and 521 ft. from (E/W) W Line of quarter section.			
TYPE OF AUTHORIZATION <input type="checkbox"/> Individual Permit <input checked="" type="checkbox"/> Area Permit <input type="checkbox"/> Rule Number of Wells 1		WELL ACTIVITY <input type="checkbox"/> CLASS I <input type="checkbox"/> CLASS II <input type="checkbox"/> Brine Disposal <input type="checkbox"/> Enhanced Recovery <input type="checkbox"/> Hydrocarbon Storage <input type="checkbox"/> CLASS III	
Lease Name		Well Number 55-225106, J-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
NA	Unknown	0	0	3.5

METHOD OF EMPLACEMENT OF CEMENT PLUGS
<input checked="" type="checkbox"/> The Balance Method
<input type="checkbox"/> The Dump Bailer Method
<input type="checkbox"/> The Two-Plug Method
<input type="checkbox"/> 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):	3.5						
Depth to Bottom of Tubing or Drill Pipe (ft)	938						
Sacks of Cement To Be Used (each plug)	56						
Slurry Volume To Be Pumped (cu. ft.)	66						
Calculated Top of Plug (ft.)	2						
Measured Top of Plug (if tagged ft.)							
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
0	938		

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells
\$6,566

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 possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) Vit Kuhnel, Hydrology Manager	Signature	Date Signed
--	------------------	--------------------



United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility EXCELSIOR MINING CORP GUNNISON PROJECT	Name and Address of Owner/Operator EXCELSIOR MINING CORP CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018
--	--

Locate Well and Outline Unit on Section Plat - 640 Acres 	State AZ	County Cochise	Permit Number TBD
Surface Location Description 1/4 of SW 1/4 of SW 1/4 of SW 1/4 of Section 31 Township 15S Range 23E			
Locate well in two directions from nearest lines of quarter section and drilling unit Surface Location 24 ft. frm (N/S) S Line of quarter section and 30 ft. from (E/W) W Line of quarter section.			
TYPE OF AUTHORIZATION <input type="checkbox"/> Individual Permit <input checked="" type="checkbox"/> Area Permit <input type="checkbox"/> Rule Number of Wells 1		WELL ACTIVITY <input type="checkbox"/> CLASS I <input type="checkbox"/> CLASS II <input type="checkbox"/> Brine Disposal <input type="checkbox"/> Enhanced Recovery <input type="checkbox"/> Hydrocarbon Storage <input type="checkbox"/> CLASS III	
Lease Name		Well Number 55-225105, J-06	

CASING AND TUBING RECORD AFTER PLUGGING					METHOD OF EMPLACEMENT OF CEMENT PLUGS	
SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE		
NA	Unknown	0	0	4	<input checked="" type="checkbox"/> The Balance Method <input type="checkbox"/> The Dump Bailer Method <input type="checkbox"/> The Two-Plug Method <input type="checkbox"/> 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)	937						
Sacks of Cement To Be Used (each plug)	70						
Slurry Volume To Be Pumped (cu. ft.)	82						
Calculated Top of Plug (ft.)	2						
Measured Top of Plug (if tagged ft.)							
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
0	937		

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells
\$6,559

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 possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) Vit Kuhnel, Hydrology Manager	Signature	Date Signed
--	------------------	--------------------



United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility EXCELSIOR MINING CORP GUNNISON PROJECT	Name and Address of Owner/Operator EXCELSIOR MINING CORP CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018
--	--

Locate Well and Outline Unit on Section Plat - 640 Acres 	State AZ	County Cochise	Permit Number TBD
Surface Location Description 1/4 of <u>NW</u> 1/4 of <u>SW</u> 1/4 of <u>SW</u> 1/4 of Section <u>31</u> Township <u>15S</u> Range <u>23E</u>			
Locate well in two directions from nearest lines of quarter section and drilling unit Surface Location <u>459</u> ft. frm (N/S) <u>S</u> Line of quarter section and <u>621</u> ft. from (E/W) <u>E</u> Line of quarter section.			
TYPE OF AUTHORIZATION <input type="checkbox"/> Individual Permit <input checked="" type="checkbox"/> Area Permit <input type="checkbox"/> Rule Number of Wells <u>1</u>		WELL ACTIVITY <input type="checkbox"/> CLASS I <input type="checkbox"/> CLASS II <input type="checkbox"/> Brine Disposal <input type="checkbox"/> Enhanced Recovery <input type="checkbox"/> Hydrocarbon Storage <input type="checkbox"/> CLASS III	
Lease Name		Well Number <u>55-225104, J-05</u>	

CASING AND TUBING RECORD AFTER PLUGGING				
SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
NA	Unknown	0	0	4

METHOD OF EMPLACEMENT OF CEMENT PLUGS
<input checked="" type="checkbox"/> The Balance Method
<input type="checkbox"/> The Dump Bailer Method
<input type="checkbox"/> The Two-Plug Method
<input type="checkbox"/> 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)	1475						
Sacks of Cement To Be Used (each plug)	109						
Slurry Volume To Be Pumped (cu. ft.)	129						
Calculated Top of Plug (ft.)	2						
Measured Top of Plug (if tagged ft.)							
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
0	1475		

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells
\$10,325

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 possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) Vit Kuhnel, Hydrology Manager	Signature	Date Signed
---	-----------	-------------



United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility EXCELSIOR MINING CORP GUNNISON PROJECT	Name and Address of Owner/Operator EXCELSIOR MINING CORP CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018
--	--

Locate Well and Outline Unit on Section Plat - 640 Acres 	State AZ	County Cochise	Permit Number TBD
	Surface Location Description 1/4 of <u>SE</u> 1/4 of <u>SW</u> 1/4 of <u>SW</u> 1/4 of Section <u>31</u> Township <u>15S</u> Range <u>23E</u>		
	Locate well in two directions from nearest lines of quarter section and drilling unit Surface Location <u>462</u> ft. frm (N/S) <u>S</u> Line of quarter section and <u>645</u> ft. from (E/W) <u>W</u> Line of quarter section.		
TYPE OF AUTHORIZATION <input type="checkbox"/> Individual Permit <input checked="" type="checkbox"/> Area Permit <input type="checkbox"/> Rule Number of Wells <u>1</u>		WELL ACTIVITY <input type="checkbox"/> CLASS I <input type="checkbox"/> CLASS II <input type="checkbox"/> Brine Disposal <input type="checkbox"/> Enhanced Recovery <input type="checkbox"/> Hydrocarbon Storage <input type="checkbox"/> CLASS III	
Lease Name _____		Well Number <u>55-225103, J-04</u>	

CASING AND TUBING RECORD AFTER PLUGGING					METHOD OF EMPLACEMENT OF CEMENT PLUGS	
SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE		
NA	Unknown	0	0	4	<input checked="" type="checkbox"/> The Balance Method <input type="checkbox"/> The Dump Bailer Method <input type="checkbox"/> The Two-Plug Method <input type="checkbox"/> 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 (inches)	4							
Depth to Bottom of Tubing or Drill Pipe (ft)	1509							
Sacks of Cement To Be Used (each plug)	112							
Slurry Volume To Be Pumped (cu. ft.)	132							
Calculated Top of Plug (ft.)	2							
Measured Top of Plug (if tagged ft.)								
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
0	1509		

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells
\$10,563

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 possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) Vit Kuhnel, Hydrology Manager	Signature _____	Date Signed _____
--	---------------------------	-----------------------------



United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility EXCELSIOR MINING CORP GUNNISON PROJECT	Name and Address of Owner/Operator EXCELSIOR MINING CORP CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018
--	--

Locate Well and Outline Unit on Section Plat - 640 Acres 	State AZ	County Cochise	Permit Number TBD
	Surface Location Description 1/4 of <u>NE</u> 1/4 of <u>SE</u> 1/4 of <u>NE</u> 1/4 of Section <u>36</u> Township <u>15S</u> Range <u>22E</u>		
	Locate well in two directions from nearest lines of quarter section and drilling unit Surface Location <u>722</u> ft. frm (N/S) <u>S</u> Line of quarter section and <u>150</u> ft. from (E/W) <u>E</u> Line of quarter section.		
TYPE OF AUTHORIZATION <input type="checkbox"/> Individual Permit <input checked="" type="checkbox"/> Area Permit <input type="checkbox"/> Rule Number of Wells <u>1</u>		WELL ACTIVITY <input type="checkbox"/> CLASS I <input type="checkbox"/> CLASS II <input type="checkbox"/> Brine Disposal <input type="checkbox"/> Enhanced Recovery <input type="checkbox"/> Hydrocarbon Storage <input type="checkbox"/> CLASS III	
Lease Name _____		Well Number <u>55-225068, DC-09</u>	

CASING AND TUBING RECORD AFTER PLUGGING					METHOD OF EMPLACEMENT OF CEMENT PLUGS	
SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE		
NA	Unknown	0	0	4	<input checked="" type="checkbox"/> The Balance Method <input type="checkbox"/> The Dump Bailer Method <input type="checkbox"/> The Two-Plug Method <input type="checkbox"/> 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)	1500						
Sacks of Cement To Be Used (each plug)	111						
Slurry Volume To Be Pumped (cu. ft.)	131						
Calculated Top of Plug (ft.)	2						
Measured Top of Plug (if tagged ft.)							
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
0	1500		

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells
\$10,500

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 possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) Vit Kuhnel, Hydrology Manager	Signature _____	Date Signed _____
--	---------------------------	-----------------------------



United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility EXCELSIOR MINING CORP GUNNISON PROJECT	Name and Address of Owner/Operator EXCELSIOR MINING CORP CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018
--	--

Locate Well and Outline Unit on Section Plat - 640 Acres 	State AZ	County Cochise	Permit Number TBD
	Surface Location Description 1/4 of SW 1/4 of SE 1/4 of SW 1/4 of Section 31 Township 15S Range 23E		
	Locate well in two directions from nearest lines of quarter section and drilling unit Surface Location 20 ft. frm (N/S) S Line of quarter section and 867 ft. from (E/W) E Line of quarter section.		
	TYPE OF AUTHORIZATION <input type="checkbox"/> Individual Permit <input checked="" type="checkbox"/> Area Permit <input type="checkbox"/> Rule Number of Wells 1		WELL ACTIVITY <input type="checkbox"/> CLASS I <input type="checkbox"/> CLASS II <input type="checkbox"/> Brine Disposal <input type="checkbox"/> Enhanced Recovery <input type="checkbox"/> Hydrocarbon Storage <input type="checkbox"/> CLASS III
Lease Name		Well Number 55-225101, CS-51	

CASING AND TUBING RECORD AFTER PLUGGING					METHOD OF EMPLACEMENT OF CEMENT PLUGS	
SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE		
NA	Unknown	0	0	4	<input checked="" type="checkbox"/> The Balance Method <input type="checkbox"/> The Dump Bailer Method <input type="checkbox"/> The Two-Plug Method <input type="checkbox"/> 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 (inches):	4							
Depth to Bottom of Tubing or Drill Pipe (ft)	1838							
Sacks of Cement To Be Used (each plug)	189							
Slurry Volume To Be Pumped (cu. ft.)	160							
Calculated Top of Plug (ft.)	2							
Measured Top of Plug (if tagged ft.)								
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
0	1838		

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells
\$12,866

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 possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) Vit Kuhnel, Hydrology Manager	Signature	Date Signed
--	------------------	--------------------



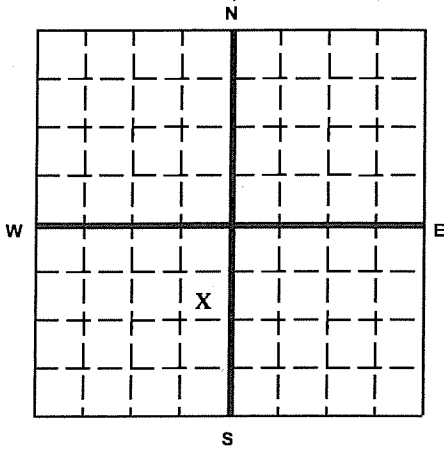
United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility
EXCELSIOR MINING CORP
GUNNISON PROJECT

Name and Address of Owner/Operator
EXCELSIOR MINING CORP
CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018

Locate Well and Outline Unit on
Section Plat - 640 Acres



State AZ County Cochise Permit Number TBD

Surface Location Description
1/4 of SE 1/4 of NE 1/4 of SW 1/4 of Section 31 Township 15S Range 23E

Locate well in two directions from nearest lines of quarter section and drilling unit
Surface
Location 665 ft. frm (N/S) N Line of quarter section
and 365 ft. from (E/W) E Line of quarter section.

TYPE OF AUTHORIZATION
 Individual Permit
 Area Permit
 Rule
Number of Wells 1
Lease Name _____

WELL ACTIVITY
 CLASS I
 CLASS II
 Brine Disposal
 Enhanced Recovery
 Hydrocarbon Storage
 CLASS III
Well Number 55-225100, CS-41

CASING AND TUBING RECORD AFTER PLUGGING				
SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
4	Unknown	448	448	4

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:	4						
Depth to Bottom of Tubing or Drill Pipe (ft)	448						
Sacks of Cement To Be Used (each plug)	33						
Slurry Volume To Be Pumped (cu. ft.)	39.1						
Calculated Top of Plug (ft.)	2						
Measured Top of Plug (if tagged ft.)							
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

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells
\$3,136

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 possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) Vit Kuhnel, Hydrology Manager Signature _____ Date Signed _____



United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility EXCELSIOR MINING CORP GUNNISON PROJECT	Name and Address of Owner/Operator EXCELSIOR MINING CORP CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018
--	--

Locate Well and Outline Unit on Section Plat - 640 Acres 	State AZ	County Cochise	Permit Number TBD
	Surface Location Description 1/4 of <u>NE</u> 1/4 of <u>SE</u> 1/4 of <u>NW</u> 1/4 of Section <u>31</u> Township <u>15S</u> Range <u>23E</u>		
	Locate well in two directions from nearest lines of quarter section and drilling unit Surface Location <u>830</u> ft. frm (N/S) <u>S</u> Line of quarter section and <u>1156</u> ft. from (E/W) <u>W</u> Line of quarter section.		
TYPE OF AUTHORIZATION <input type="checkbox"/> Individual Permit <input checked="" type="checkbox"/> Area Permit <input type="checkbox"/> Rule Number of Wells <u>1</u>		WELL ACTIVITY <input type="checkbox"/> CLASS I <input type="checkbox"/> CLASS II <input type="checkbox"/> Brine Disposal <input type="checkbox"/> Enhanced Recovery <input type="checkbox"/> Hydrocarbon Storage <input type="checkbox"/> CLASS III	
Lease Name _____		Well Number <u>55-225099, CS-23</u>	

CASING AND TUBING RECORD AFTER PLUGGING					METHOD OF EMPLACEMENT OF CEMENT PLUGS	
SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE		
3.5	Unknown	0	622	3.5	<input checked="" type="checkbox"/> The Balance Method <input type="checkbox"/> The Dump Bailer Method <input type="checkbox"/> The Two-Plug Method <input type="checkbox"/> 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 (inches)	3.5							
Depth to Bottom of Tubing or Drill Pipe (ft)	622							
Sacks of Cement To Be Used (each plug)	32							
Slurry Volume To Be Pumped (cu. ft.)	41.56							
Calculated Top of Plug (ft.)	2							
Measured Top of Plug (if tagged ft.)								
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

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells
\$4,354

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 possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) Vit Kuhnel, Hydrology Manager	Signature _____	Date Signed _____
--	---------------------------	-----------------------------



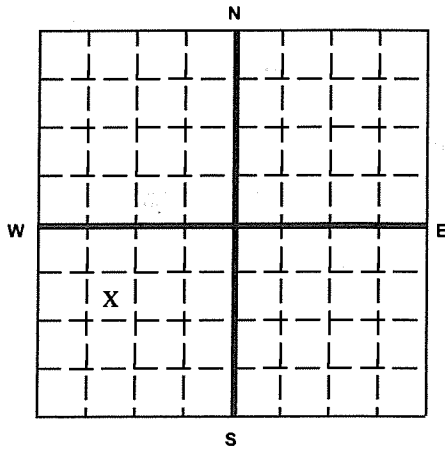
United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility
EXCELSIOR MINING CORP
GUNNISON PROJECT

Name and Address of Owner/Operator
EXCELSIOR MINING CORP
CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018

Locate Well and Outline Unit on
Section Plat - 640 Acres



State AZ County Cochise Permit Number TBD

Surface Location Description
1/4 of SE 1/4 of NW 1/4 of SW 1/4 of Section 31 Township 15S Range 23E

Locate well in two directions from nearest lines of quarter section and drilling unit
Surface
Location ft. frm (N/S) Line of quarter section
and ft. from (E/W) Line of quarter section.

TYPE OF AUTHORIZATION
 Individual Permit
 Area Permit
 Rule
Number of Wells 1
Lease Name

WELL ACTIVITY
 CLASS I
 CLASS II
 Brine Disposal
 Enhanced Recovery
 Hydrocarbon Storage
 CLASS III
Well Number 55-225098, CS-21

CASING AND TUBING RECORD AFTER PLUGGING				
SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
NA	Unknown	0	0	3.5

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 (inches)	3.5						
Depth to Bottom of Tubing or Drill Pipe (ft)	2171						
Sacks of Cement To Be Used (each plug)	123						
Slurry Volume To Be Pumped (cu. ft.)	145						
Calculated Top of Plug (ft.)	2						
Measured Top of Plug (if tagged ft.)							
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
0	2171		

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells
\$15,197

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 possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) Vit Kuhnel, Hydrology Manager Signature Date Signed



United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility EXCELSIOR MINING CORP GUNNISON PROJECT	Name and Address of Owner/Operator EXCELSIOR MINING CORP CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018
--	--

Locate Well and Outline Unit on Section Plat - 640 Acres 	State AZ	County Cochise	Permit Number TBD
	Surface Location Description 1/4 of <u>Se</u> 1/4 of <u>SW</u> 1/4 of <u>11W</u> 1/4 of Section <u>31</u> Township <u>15S</u> Range <u>23E</u>		
	Locate well in two directions from nearest lines of quarter section and drilling unit Surface Location <u>519</u> ft. frm (N/S) <u>S</u> Line of quarter section and <u>709</u> ft. from (E/W) <u>W</u> Line of quarter section.		
TYPE OF AUTHORIZATION <input type="checkbox"/> Individual Permit <input checked="" type="checkbox"/> Area Permit <input type="checkbox"/> Rule Number of Wells <u>1</u>		WELL ACTIVITY <input type="checkbox"/> CLASS I <input type="checkbox"/> CLASS II <input type="checkbox"/> Brine Disposal <input type="checkbox"/> Enhanced Recovery <input type="checkbox"/> Hydrocarbon Storage <input type="checkbox"/> CLASS III	
Lease Name _____		Well Number <u>55-225097, CS-19</u>	

CASING AND TUBING RECORD AFTER PLUGGING					METHOD OF EMPLACEMENT OF CEMENT PLUGS	
SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE		
3.5	Unknown	0	580	3.5	<input checked="" type="checkbox"/> The Balance Method <input type="checkbox"/> The Dump Bailer Method <input type="checkbox"/> The Two-Plug Method <input type="checkbox"/> 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:	3.5							
Depth to Bottom of Tubing or Drill Pipe (ft)	580							
Sacks of Cement To Be Used (each plug)	33							
Slurry Volume To Be Pumped (cu. ft.)	39							
Calculated Top of Plug (ft.)	2							
Measured Top of Plug (if tagged ft.)								
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

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells
\$4,060

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 possiblity of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) Vit Kuhnel, Hydrology Manager	Signature _____	Date Signed _____
--	---------------------------	-----------------------------



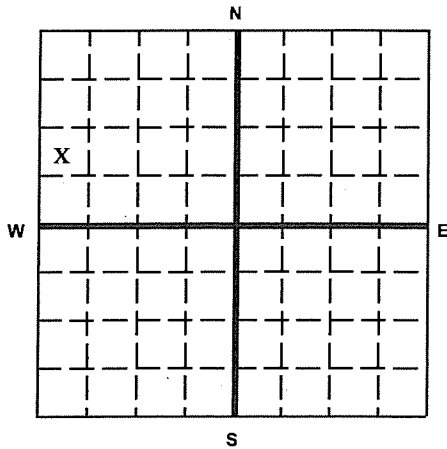
United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility
EXCELSIOR MINING CORP
GUNNISON PROJECT

Name and Address of Owner/Operator
EXCELSIOR MINING CORP
CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018

Locate Well and Outline Unit on Section Plat - 640 Acres



State AZ County Cochise Permit Number TBD

Surface Location Description
 1/4 of NW 1/4 of SW 1/4 of NW 1/4 of Section 31 Township 15S Range 23E

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface Location 808 ft. frm (N/S) S Line of quarter section and 208 ft. from (E/W) W Line of quarter section.

TYPE OF AUTHORIZATION
 Individual Permit
 Area Permit
 Rule
Number of Wells 1

WELL ACTIVITY
 CLASS I
 CLASS II
 Brine Disposal
 Enhanced Recovery
 Hydrocarbon Storage
 CLASS III
Well Number 55-225096, CS-15

Lease Name _____

CASING AND TUBING RECORD AFTER PLUGGING				
SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
NA	Unknown	0	0	5

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 (inches)	5						
Depth to Bottom of Tubing or Drill Pipe (ft)	492						
Sacks of Cement To Be Used (each plug)	57						
Slurry Volume To Be Pumped (cu. ft.)	67						
Calculated Top of Plug (ft.)	2						
Measured Top of Plug (if tagged ft.)							
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
0	492		

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells
\$3,444

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 possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) Vit Kuhnel, Hydrology Manager Signature _____ Date Signed _____



United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility EXCELSIOR MINING CORP GUNNISON PROJECT	Name and Address of Owner/Operator EXCELSIOR MINING CORP CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018
--	--

Locate Well and Outline Unit on Section Plat - 640 Acres 	State AZ	County Cochise	Permit Number TBD
	Surface Location Description 1/4 of SW 1/4 of SW 1/4 of NW 1/4 of Section <u>31</u> Township <u>15S</u> Range <u>23E</u>		
	Locate well in two directions from nearest lines of quarter section and drilling unit Surface Location <u>339</u> ft. frm (N/S) <u>S</u> Line of quarter section and <u>203</u> ft. from (E/W) <u>W</u> Line of quarter section.		
TYPE OF AUTHORIZATION <input type="checkbox"/> Individual Permit <input checked="" type="checkbox"/> Area Permit <input type="checkbox"/> Rule Number of Wells <u>1</u>		WELL ACTIVITY <input type="checkbox"/> CLASS I <input type="checkbox"/> CLASS II <input type="checkbox"/> Brine Disposal <input type="checkbox"/> Enhanced Recovery <input type="checkbox"/> Hydrocarbon Storage <input type="checkbox"/> CLASS III	
Lease Name _____		Well Number <u>55-224160, CS-14</u>	

CASING AND TUBING RECORD AFTER PLUGGING					METHOD OF EMPLACEMENT OF CEMENT PLUGS	
SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE		
NA	Unknown	0	0	4	<input checked="" type="checkbox"/> The Balance Method <input type="checkbox"/> The Dump Bailer Method <input type="checkbox"/> The Two-Plug Method <input type="checkbox"/> 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 (inches)	4							
Depth to Bottom of Tubing or Drill Pipe (ft)	1375							
Sacks of Cement To Be Used (each plug)	102							
Slurry Volume To Be Pumped (cu. ft.)	120							
Calculated Top of Plug (ft.)	2							
Measured Top of Plug (if tagged ft.)								
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
0	1375		

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells
\$9,625

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 possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) Vit Kuhnel, Hydrology Manager	Signature	Date Signed
---	-----------	-------------



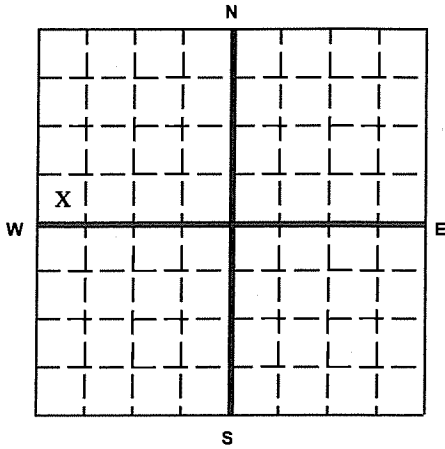
United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility
EXCELSIOR MINING CORP
GUNNISON PROJECT

Name and Address of Owner/Operator
EXCELSIOR MINING CORP
CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018

Locate Well and Outline Unit on
Section Plat - 640 Acres



State AZ County Cochise Permit Number TBD

Surface Location Description
1/4 of SW 1/4 of SW 1/4 of NW 1/4 of Section 31 Township 15S Range 23E

Locate well in two directions from nearest lines of quarter section and drilling unit
Surface
Location 199 ft. frm (N/S) N Line of quarter section
and 203 ft. from (E/W) W Line of quarter section.

TYPE OF AUTHORIZATION
 Individual Permit
 Area Permit
 Rule
Number of Wells 1
Lease Name _____

WELL ACTIVITY
 CLASS I
 CLASS II
 Brine Disposal
 Enhanced Recovery
 Hydrocarbon Storage
 CLASS III
Well Number 55-224159, CS-13

CASING AND TUBING RECORD AFTER PLUGGING				
SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
NA	Unknown	0	0	3.5

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:	3.5						
Depth to Bottom of Tubing or Drill Pipe (ft)	1251						
Sacks of Cement To Be Used (each plug)	71						
Slurry Volume To Be Pumped (cu. ft.)	84						
Calculated Top of Plug (ft.)	2						
Measured Top of Plug (if tagged ft.)							
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
0	1251		

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells
\$8,757

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 possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) Vit Kuhnel, Hydrology Manager Signature _____ Date Signed _____



United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility EXCELSIOR MINING CORP GUNNISON PROJECT	Name and Address of Owner/Operator EXCELSIOR MINING CORP CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018
--	--

Locate Well and Outline Unit on Section Plat - 640 Acres 	State AZ	County Cochise	Permit Number TBD
Surface Location Description 1/4 of SW 1/4 of NW 1/4 of SW 1/4 of Section 31 Township 15S Range 23E			
Locate well in two directions from nearest lines of quarter section and drilling unit Surface Location 1176 ft. frm (N/S) N Line of quarter section and 203 ft. from (E/W) W Line of quarter section.			
TYPE OF AUTHORIZATION <input type="checkbox"/> Individual Permit <input checked="" type="checkbox"/> Area Permit <input type="checkbox"/> Rule Number of Wells 1		WELL ACTIVITY <input type="checkbox"/> CLASS I <input type="checkbox"/> CLASS II <input type="checkbox"/> Brine Disposal <input type="checkbox"/> Enhanced Recovery <input type="checkbox"/> Hydrocarbon Storage <input type="checkbox"/> CLASS III	
Lease Name		Well Number 55-225095, CS-11	

CASING AND TUBING RECORD AFTER PLUGGING					METHOD OF EMPLACEMENT OF CEMENT PLUGS	
SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE		
NA	Unknown	0	0	3.5	<input checked="" type="checkbox"/> The Balance Method <input type="checkbox"/> The Dump Bailer Method <input type="checkbox"/> The Two-Plug Method <input type="checkbox"/> 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 (inches):	3.5						
Depth to Bottom of Tubing or Drill Pipe (ft)	2084						
Sacks of Cement To Be Used (each plug)	118						
Slurry Volume To Be Pumped (cu. ft.)	139						
Calculated Top of Plug (ft.)	2						
Measured Top of Plug (if tagged ft.)							
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
0	2084		

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells
\$14,588

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 possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) Vit Kuhnel, Hydrology Manager	Signature	Date Signed
--	------------------	--------------------



United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility EXCELSIOR MINING CORP GUNNISON PROJECT	Name and Address of Owner/Operator EXCELSIOR MINING CORP CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018
--	--

Locate Well and Outline Unit on Section Plat - 640 Acres 	State AZ	County Cochise	Permit Number TBD
Surface Location Description 1/4 of SE 1/4 of NW 1/4 of SW 1/4 of Section 31 Township 15S Range 23E			
Locate well in two directions from nearest lines of quarter section and drilling unit Surface Location 686 ft. frm (N/S) N Line of quarter section and 699 ft. from (E/W) W Line of quarter section.			
TYPE OF AUTHORIZATION <input type="checkbox"/> Individual Permit <input checked="" type="checkbox"/> Area Permit <input type="checkbox"/> Rule Number of Wells 1		WELL ACTIVITY <input type="checkbox"/> CLASS I <input type="checkbox"/> CLASS II <input type="checkbox"/> Brine Disposal <input type="checkbox"/> Enhanced Recovery <input type="checkbox"/> Hydrocarbon Storage <input type="checkbox"/> CLASS III	
Lease Name		Well Number 55-225094, CS-10	

CASING AND TUBING RECORD AFTER PLUGGING				
SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
NA	Unknown	0	0	3.5

METHOD OF EMPLACEMENT OF CEMENT PLUGS
<input checked="" type="checkbox"/> The Balance Method
<input type="checkbox"/> The Dump Bailer Method
<input type="checkbox"/> The Two-Plug Method
<input type="checkbox"/> 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 (inches)	3.5						
Depth to Bottom of Tubing or Drill Pipe (ft)	1656						
Sacks of Cement To Be Used (each plug)	94						
Slurry Volume To Be Pumped (cu. ft.)	111						
Calculated Top of Plug (ft.)	2						
Measured Top of Plug (if tagged ft.)							
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
0	1656		

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells
\$11,592

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 possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) Vit Kuhnel, Hydrology Manager	Signature	Date Signed
--	------------------	--------------------



United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility EXCELSIOR MINING CORP GUNNISON PROJECT	Name and Address of Owner/Operator EXCELSIOR MINING CORP CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018
--	--

Locate Well and Outline Unit on Section Plat - 640 Acres 	State AZ	County Cochise	Permit Number TBD
Surface Location Description 1/4 of <u>nw</u> 1/4 of <u>ne</u> 1/4 of <u>sw</u> 1/4 of Section <u>31</u> Township <u>15S</u> Range <u>23E</u>			
Locate well in two directions from nearest lines of quarter section and drilling unit Surface Location <u>199</u> ft. frm (N/S) <u>N</u> Line of quarter section and <u>1196</u> ft. from (E/W) <u>W</u> Line of quarter section.			
TYPE OF AUTHORIZATION <input type="checkbox"/> Individual Permit <input checked="" type="checkbox"/> Area Permit <input type="checkbox"/> Rule Number of Wells <u>1</u>		WELL ACTIVITY <input type="checkbox"/> CLASS I <input type="checkbox"/> CLASS II <input type="checkbox"/> Brine Disposal <input type="checkbox"/> Enhanced Recovery <input type="checkbox"/> Hydrocarbon Storage <input type="checkbox"/> CLASS III	
Lease Name		Well Number <u>55-225093, CS-09</u>	

CASING AND TUBING RECORD AFTER PLUGGING					METHOD OF EMPLACEMENT OF CEMENT PLUGS	
SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE		
NA	Unknown	0	0	3.5	<input checked="" type="checkbox"/> The Balance Method <input type="checkbox"/> The Dump Bailer Method <input type="checkbox"/> The Two-Plug Method <input type="checkbox"/> 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)	3.5						
Depth to Bottom of Tubing or Drill Pipe (ft)	2337						
Sacks of Cement To Be Used (each plug)	132						
Slurry Volume To Be Pumped (cu. ft.)	156						
Calculated Top of Plug (ft.)	2						
Measured Top of Plug (if tagged ft.)							
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
0	2337		

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells
\$16,359

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 possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) Vit Kuhnel, Hydrology Manager	Signature	Date Signed
--	------------------	--------------------



United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility EXCELSIOR MINING CORP GUNNISON PROJECT	Name and Address of Owner/Operator EXCELSIOR MINING CORP CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018
--	--

Locate Well and Outline Unit on Section Plat - 640 Acres 	State AZ	County Cochise	Permit Number TBD
	Surface Location Description 1/4 of SW 1/4 of NE 1/4 of SW 1/4 of Section 31 Township 15S Range 23E		
	Locate well in two directions from nearest lines of quarter section and drilling unit Surface Location 1087 ft. frm (N/S) N Line of quarter section and 806 ft. from (E/W) E Line of quarter section.		
	TYPE OF AUTHORIZATION <input type="checkbox"/> Individual Permit <input checked="" type="checkbox"/> Area Permit <input type="checkbox"/> Rule Number of Wells 1		WELL ACTIVITY <input type="checkbox"/> CLASS I <input type="checkbox"/> CLASS II <input type="checkbox"/> Brine Disposal <input type="checkbox"/> Enhanced Recovery <input type="checkbox"/> Hydrocarbon Storage <input type="checkbox"/> CLASS III
Lease Name		Well Number 55-225092, CS-08	

CASING AND TUBING RECORD AFTER PLUGGING					METHOD OF EMPLACEMENT OF CEMENT PLUGS	
SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE		
NA	Unknown	0	0	4	<input checked="" type="checkbox"/> The Balance Method <input type="checkbox"/> The Dump Bailer Method <input type="checkbox"/> The Two-Plug Method <input type="checkbox"/> 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 (inches)	4						
Depth to Bottom of Tubing or Drill Pipe (ft)	2304						
Sacks of Cement To Be Used (each plug)	170						
Slurry Volume To Be Pumped (cu. ft.)	201						
Calculated Top of Plug (ft.)	2						
Measured Top of Plug (if tagged ft.)							
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
0	2304		

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells
\$16,128

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 possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) Vit Kuhnel, Hydrology Manager	Signature	Date Signed
---	-----------	-------------



United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

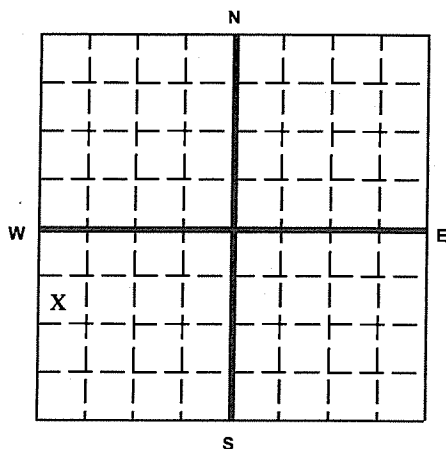
Name and Address of Facility

EXCELSIOR MINING CORP
GUNNISON PROJECT

Name and Address of Owner/Operator

EXCELSIOR MINING CORP
CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018

Locate Well and Outline Unit on
Section Plat - 640 Acres



State

AZ

County

Cochise

Permit Number

TBD

Surface Location Description

1/4 of SW 1/4 of NW 1/4 of SW 1/4 of Section 31 Township 15S Range 23E

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface

Location 1183ft. frm (N/S) N Line of quarter section
and 723 ft. from (E/W) W Line of quarter section.

TYPE OF AUTHORIZATION

- Individual Permit
- Area Permit
- Rule

Number of Wells 1

WELL ACTIVITY

- CLASS I
- CLASS II
 - Brine Disposal
 - Enhanced Recovery
 - Hydrocarbon Storage
- CLASS III

Lease Name

Well Number

55-225091, CS-07

CASING AND TUBING RECORD AFTER PLUGGING

METHOD OF EMPLACEMENT OF CEMENT PLUGS

SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
4.5	Unknown	0	~596	4.5

- 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 (inches)	4.5						
Depth to Bottom of Tubing or Drill Pipe (ft)	~596						
Sacks of Cement To Be Used (each plug)	168						
Slurry Volume To Be Pumped (cu. ft.)	198						
Calculated Top of Plug (ft.)	2						
Measured Top of Plug (if tagged ft.)							
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

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells

\$4,172

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 possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print)

Vit Kuhnel, Hydrology Manager

Signature

Date Signed



United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility EXCELSIOR MINING CORP GUNNISON PROJECT	Name and Address of Owner/Operator EXCELSIOR MINING CORP CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018
--	--

Locate Well and Outline Unit on Section Plat - 640 Acres 	State AZ	County Cochise	Permit Number TBD
	Surface Location Description 1/4 of SW 1/4 of NE 1/4 of SW 1/4 of Section 31 Township 15S Range 23E		
	Locate well in two directions from nearest lines of quarter section and drilling unit Surface Location 1140ft. frm (N/S) N Line of quarter section and 1228ft. from (E/W) W Line of quarter section.		
	TYPE OF AUTHORIZATION <input type="checkbox"/> Individual Permit <input checked="" type="checkbox"/> Area Permit <input type="checkbox"/> Rule Number of Wells 1		WELL ACTIVITY <input type="checkbox"/> CLASS I <input type="checkbox"/> CLASS II <input type="checkbox"/> Brine Disposal <input type="checkbox"/> Enhanced Recovery <input type="checkbox"/> Hydrocarbon Storage <input type="checkbox"/> CLASS III
Lease Name		Well Number 55-225090, CS-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
NA	Unknown	0	0	4

METHOD OF EMPLACEMENT OF CEMENT PLUGS
<input checked="" type="checkbox"/> The Balance Method
<input type="checkbox"/> The Dump Bailer Method
<input type="checkbox"/> The Two-Plug Method
<input type="checkbox"/> 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)	2160						
Sacks of Cement To Be Used (each plug)	159						
Slurry Volume To Be Pumped (cu. ft.)	188						
Calculated Top of Plug (ft.)	2						
Measured Top of Plug (if tagged ft.)							
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
0	2160		

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells
\$15,120

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 possiblity of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) Vit Kuhnel, Hydrology Manager	Signature	Date Signed
--	------------------	--------------------



United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

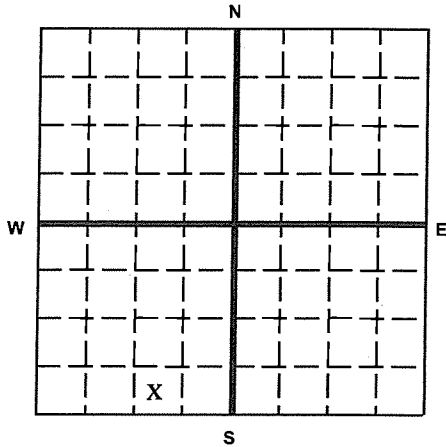
Name and Address of Facility

EXCELSIOR MINING CORP
GUNNISON PROJECT

Name and Address of Owner/Operator

EXCELSIOR MINING CORP
CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018

Locate Well and Outline Unit on
Section Plat - 640 Acres



State

AZ

County

Cochise

Permit Number

TBD

Surface Location Description

1/4 of SW 1/4 of SE 1/4 of SW 1/4 of Section 31 Township 15S Range 23E

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface

Location 323 ft. frm (N/S) N Line of quarter section
and 1271 ft. from (E/W) E Line of quarter section.

TYPE OF AUTHORIZATION

- Individual Permit
- Area Permit
- Rule

Number of Wells 1

WELL ACTIVITY

- CLASS I
- CLASS II
 - Brine Disposal
 - Enhanced Recovery
 - Hydrocarbon Storage
- CLASS III

Lease Name

Well Number

55-225089, CS-05

CASING AND TUBING RECORD AFTER PLUGGING

METHOD OF EMPLACEMENT OF CEMENT PLUGS

SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
NA	Unknown	0	0	4

- 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 (inches)	4						
Depth to Bottom of Tubing or Drill Pipe (ft)	2034						
Sacks of Cement To Be Used (each plug)	150						
Slurry Volume To Be Pumped (cu. ft.)	177						
Calculated Top of Plug (ft.)	2						
Measured Top of Plug (if tagged ft.)							
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
0	2034		

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells

\$14,238

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 possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print)

Vit Kuhnel, Hydrology Manager

Signature

Date Signed



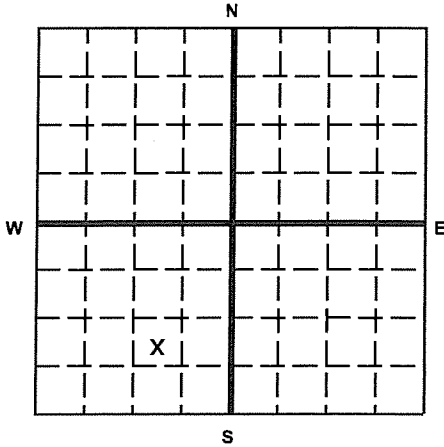
United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility
EXCELSIOR MINING CORP
GUNNISON PROJECT

Name and Address of Owner/Operator
EXCELSIOR MINING CORP
CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018

Locate Well and Outline Unit on
Section Plat - 640 Acres



State AZ County Cochise Permit Number TBD

Surface Location Description
1/4 of NW 1/4 of SE 1/4 of SW 1/4 of Section 31 Township 15S Range 23E

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface
Location 564 ft. frm (N/S) S Line of quarter section
and 747 ft. from (E/W) E Line of quarter section.

TYPE OF AUTHORIZATION
 Individual Permit
 Area Permit
 Rule
Number of Wells 1
Lease Name _____

WELL ACTIVITY
 CLASS I
 CLASS II
 Brine Disposal
 Enhanced Recovery
 Hydrocarbon Storage
 CLASS III
Well Number 55-225088, CS-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
NA	Unknown	0	0	4

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 (inches)	4						
Depth to Bottom of Tubing or Drill Pipe (ft)	2209						
Sacks of Cement To Be Used (each plug)	164						
Slurry Volume To Be Pumped (cu. ft.)	193						
Calculated Top of Plug (ft.)	2						
Measured Top of Plug (if tagged ft.)							
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

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells

\$15,463

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 possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) Vit Kuhnel, Hydrology Manager	Signature	Date Signed
---	-----------	-------------



United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility EXCELSIOR MINING CORP GUNNISON PROJECT	Name and Address of Owner/Operator EXCELSIOR MINING CORP CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018
--	--

Locate Well and Outline Unit on Section Plat - 640 Acres 	State AZ	County Cochise	Permit Number TBD
	Surface Location Description 1/4 of SE 1/4 of SW 1/4 of SW 1/4 of Section 31 Township 15S Range 23E		
	Locate well in two directions from nearest lines of quarter section and drilling unit Surface Location 514 ft. frm (N/S) S Line of quarter section and 1233 ft. from (E/W) W Line of quarter section.		
TYPE OF AUTHORIZATION <input type="checkbox"/> Individual Permit <input checked="" type="checkbox"/> Area Permit <input type="checkbox"/> Rule Number of Wells 1		WELL ACTIVITY <input type="checkbox"/> CLASS I <input type="checkbox"/> CLASS II <input type="checkbox"/> Brine Disposal <input type="checkbox"/> Enhanced Recovery <input type="checkbox"/> Hydrocarbon Storage <input type="checkbox"/> CLASS III	
Lease Name		Well Number 55-225087, CS-03	

CASING AND TUBING RECORD AFTER PLUGGING					METHOD OF EMPLACEMENT OF CEMENT PLUGS	
SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE		
NA	Unknown	0	0	4	<input checked="" type="checkbox"/> The Balance Method <input type="checkbox"/> The Dump Bailer Method <input type="checkbox"/> The Two-Plug Method <input type="checkbox"/> 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 (inches)	4						
Depth to Bottom of Tubing or Drill Pipe (ft)	2038						
Sacks of Cement To Be Used (each plug)	151						
Slurry Volume To Be Pumped (cu. ft.)	178						
Calculated Top of Plug (ft.)	2						
Measured Top of Plug (if tagged ft.)							
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
0	2038		

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells
\$14,266

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 possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) Vit Kuhnel, Hydrology Manager	Signature	Date Signed
--	------------------	--------------------



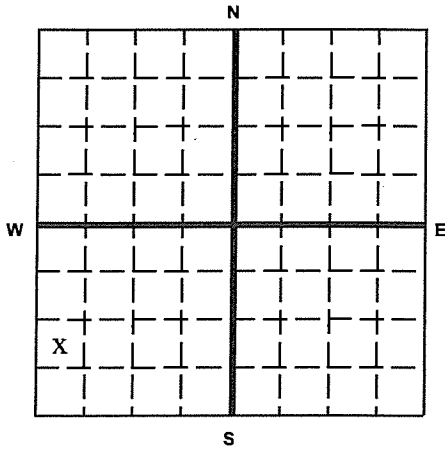
United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility
EXCELSIOR MINING CORP
GUNNISON PROJECT

Name and Address of Owner/Operator
EXCELSIOR MINING CORP
CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018

Locate Well and Outline Unit on Section Plat - 640 Acres



State AZ County Cochise Permit Number TBD

Surface Location Description
 1/4 of NW 1/4 of SW 1/4 of SW 1/4 of Section 31 Township 15S Range 23E

Locate well in two directions from nearest lines of quarter section and drilling unit
Surface
Location 992 ft. frm (N/S) S Line of quarter section
and 712 ft. from (E/W) W Line of quarter section.

TYPE OF AUTHORIZATION
 Individual Permit
 Area Permit
 Rule
Number of Wells 1
Lease Name _____

WELL ACTIVITY
 CLASS I
 CLASS II
 Brine Disposal
 Enhanced Recovery
 Hydrocarbon Storage
 CLASS III
Well Number N/A, CS-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
NA	Unknown	0	0	4.5

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 (inches)	4.5						
Depth to Bottom of Tubing or Drill Pipe (ft)	1770						
Sacks of Cement To Be Used (each plug)	165						
Slurry Volume To Be Pumped (cu. ft.)	195						
Calculated Top of Plug (ft.)	2						
Measured Top of Plug (if tagged ft.)							
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
0	1770		

Water level will be measured prior to abandonment. Casing will be perforated from 50 feet above water level to bottom of casing.

Estimated Cost to Plug Wells
\$12,390

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 possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print)
Vit Kuhnel, Hydrology Manager

Signature _____

Date Signed _____

ATTACHMENT Q-1
PLUGGING AND ABANDONMENT PLAN

TABLE OF CONTENTS

1.	INTRODUCTION	1
1.1	Regulatory Requirements and Applicability.....	1
1.2	Protection of Underground Sources of Drinking Water	1
2.	LICENSURE AND PERMITTING.....	3
2.1	Licensed Drillers.....	3
2.2	Abandonment Notification and Authorization.....	3
3.	WELL AND BOREHOLE ABANDONMENT PROCEDURES	4
3.1	General Procedure for Plugging and Abandonment	4
3.1.1	Well and Borehole Preparation.....	4
3.1.2	Plugging Procedure.....	4
4.	DOCUMENTATION AND REPORTING	6
4.1	Documentation.....	6
4.2	Reporting.....	6

1. INTRODUCTION

This Attachment was prepared in support of Excelsior Mining Arizona, Inc.'s (Excelsior's) Underground Injection Control (UIC) Permit application to the United States Environmental Protection Agency (USEPA). Excelsior is applying for an area Class III UIC permit to install a wellfield for in-situ recovery (ISR) of copper at the Gunnison Copper Project (Project), located in Cochise County, Arizona.

1.1 Regulatory Requirements and Applicability

The plugging and abandonment plan is applicable to proposed Class III injection wells. Wells used for fluid injection are required to be abandoned under Chapter 40 of the Code of Federal Regulations (CFR) 146.10. The statute requires that the wells or boreholes are abandoned in such a way that fluid will not move into underground sources of drinking water (USDWs). In addition to the federal requirements, Arizona Administrative Code (A.A.C.) R12-15-816 contains abandonment requirements and additional guidance is provided in the Arizona Department of Water Resources Well Abandonment Handbook (AWDR, 2008) attached as Attachment Q-2. The handbook states that the abandonment of a well be accomplished "through filling or sealing the well so as to prevent the well, including the annular outside casing, from being a channel allowing the vertical movement of water."

1.2 Protection of Underground Sources of Drinking Water

An aquifer exemption for the oxide zone within the bounds of the Area of Review (AOR) is provided as Attachment S. The proposed aquifer exemption includes the following units within the AOR:

- Saturated Basin Fill (basin fill below an elevation of 4185 feet),
- Bedrock in the oxide zone (zone of injection),
- The top 200 feet of the sulfide zone,
- Tertiary quartz monzonite down to an elevation of 3100 feet above mean sea level (as shown on Figure D-5).

The following elements of the wellfield operation, design, and abandonment are protective of USDWs:

- Hydraulic control wells will operate during ISR operations to prevent excursions into USDWs outside of the AOR.
- After ISR is complete in a given block of the wellfield, the block will be rinsed to restore groundwater quality. Hydraulic control will be maintained until aquifer groundwater quality standards are achieved.
- Injection, recovery, observation, and hydraulic control wells located within the AOR will be constructed according to Class III requirements (as discussed in Attachments L and M) and plugged and abandoned according to procedures in this attachment.

2. LICENSURE AND PERMITTING

2.1 Licensed Drillers

Plugging and abandonment must be conducted by a licensed well driller pursuant to A.A.C R12-15-816A. Well Drillers are licensed by Arizona Department of Water Resources (ADWR) pursuant to Arizona Revised Statute (A.R.S.) R45-595B. Excelsior will contract with a driller that meets these specifications for all plugging and abandonment conducted under this plan.

2.2 Abandonment Notification and Authorization

Examples of Plugging and Abandonment Plan (USEPA Form 7520-14) form are included for a typical injection/recovery well, a hydraulic control well, and an observation well, as described in Attachment K. The example forms are included in Attachment Q-2. Prior to the abandonment of each well, Excelsior will submit a Notice of Intent to Abandon a Well (ADWR Form 55-28). A blank Form 55-28 is included as in Attachment Q-2. Plugging and abandonment at each site will not start until authorization for the abandonment is issued to the drilling contractor by ADWR and to Excelsior by USEPA.

3. WELL AND BOREHOLE ABANDONMENT PROCEDURES

3.1 General Procedure for Plugging and Abandonment

Plugging and abandonment will be conducted based on the “Standard Abandonment Method” in the ADWR Well Abandonment Handbook (Attachment Q-2). Refer to figures Q-2-1 through Q-2-5 for abandonment illustrations.

3.1.1 Well and Borehole Preparation

The following tasks will be completed prior to well and borehole abandonment to ensure the success of the plugging procedures that are proposed in the next sub-section.

1. Inspect and Document Well : The well will be inspected from the surface. The condition will be documented and recorded and the site will be photographed.
2. Remove Equipment: Equipment including pumps, wiring, tubing, and transducers will be removed from the well. Any equipment that cannot be retrieved will be documented.
3. Casing: Annular spaces outside of the solid casing of injection and recovery wells will be grouted to 100 feet above the bedrock contact or groundwater surface, whichever is shallower, when the well is constructed. Therefore, no perforation of the casing will be required for abandonment due to this design.
4. Screened interval: If the well is constructed using steel slotted well screen, the screened interval will be perforated prior to cementing the well.

3.1.2 Plugging Procedure

Each well or borehole will be filled as completely as possible with Type V neat cement using the following procedure.

1. The area around the well will be cleared and the casing will be cut at two or more feet below grade. Cement or steel resulting from cutting casing will be removed from the site.
2. Tremie pipe will be installed to within 20 feet of the bottom of the well. For wells that are determined to be obstructed during preparation, the contractor will try to push the tremie pipe through the obstruction. If the tremie cannot be installed through the obstruction, the contractor will try to install drill pipe through the obstruction. If both of those options fail, the well will be abandoned from the obstruction to the surface.
3. Type V cement will be installed through the tremie pipe with the end of the tremie pipe below the top surface of the cement to ensure that there are no gaps in the cement seal.

The cement will be installed under enough pressure to fill voids in the borehole wall and casing.

4. The site will be levelled and the abandoned well will be covered with soil.

4. DOCUMENTATION AND REPORTING

4.1 Documentation

Field personnel will record types and quantities of materials used and emplacement depths of each material. Each site will be photographed after completion and covering of the borehole. Copies of field data and the forms described below will be maintained at the Project site for inspection until closure is completed.

4.2 Reporting

Following the plugging and abandonment of existing or injection wells, reports will be filed with state and federal agencies as described below.

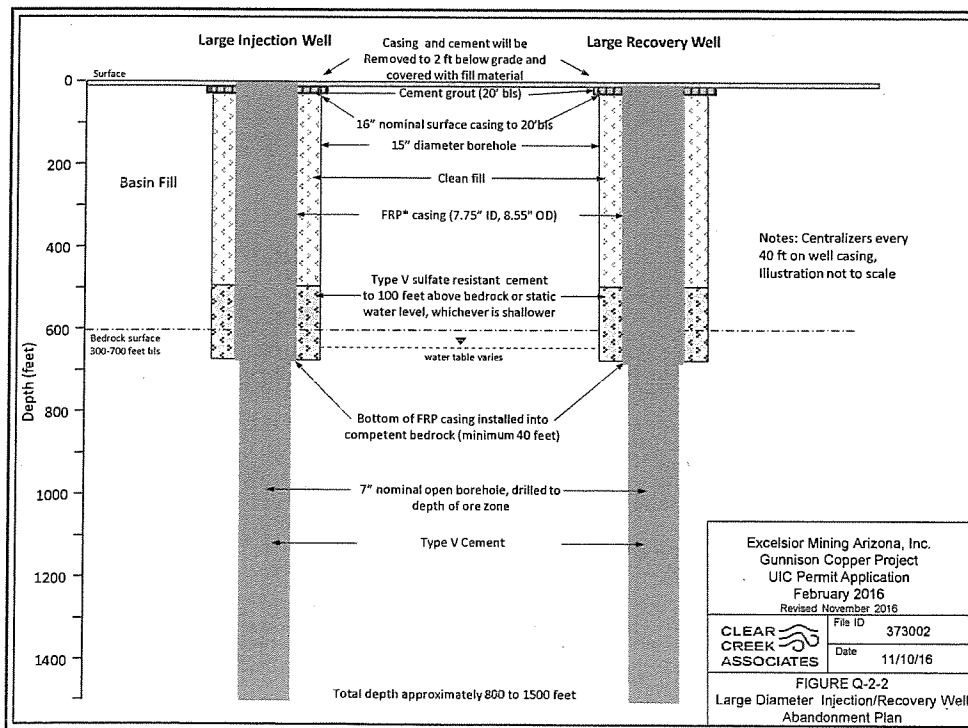
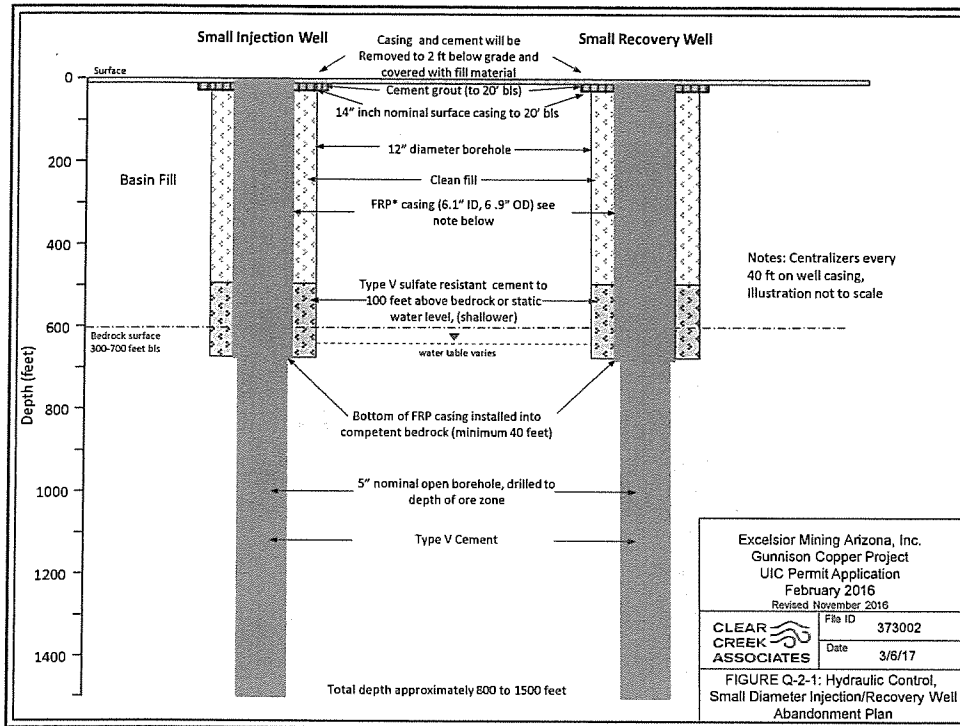
ADWR: Within 30 days of the completion of plugging and abandonment the drilling contractor will submit a Well Abandonment Completion Report (Form 55-58) to ADWR. Within 30 days of completion of plugging and abandonment Excelsior or their designee will submit a Well Owner's Notification of Abandonment (Form 55-36). The forms are included as Exhibit B.

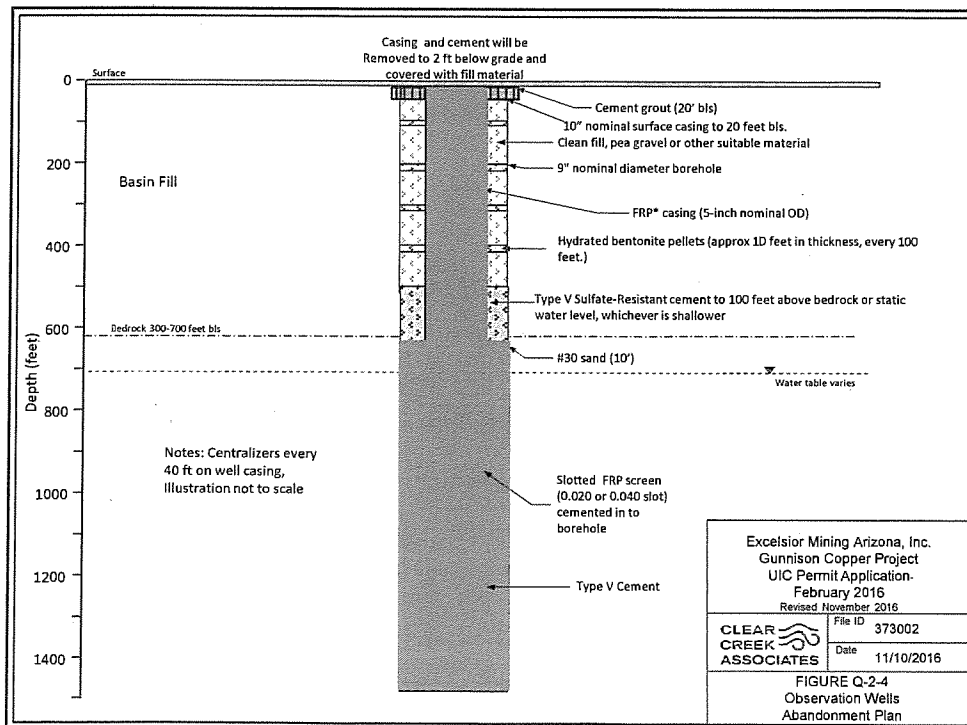
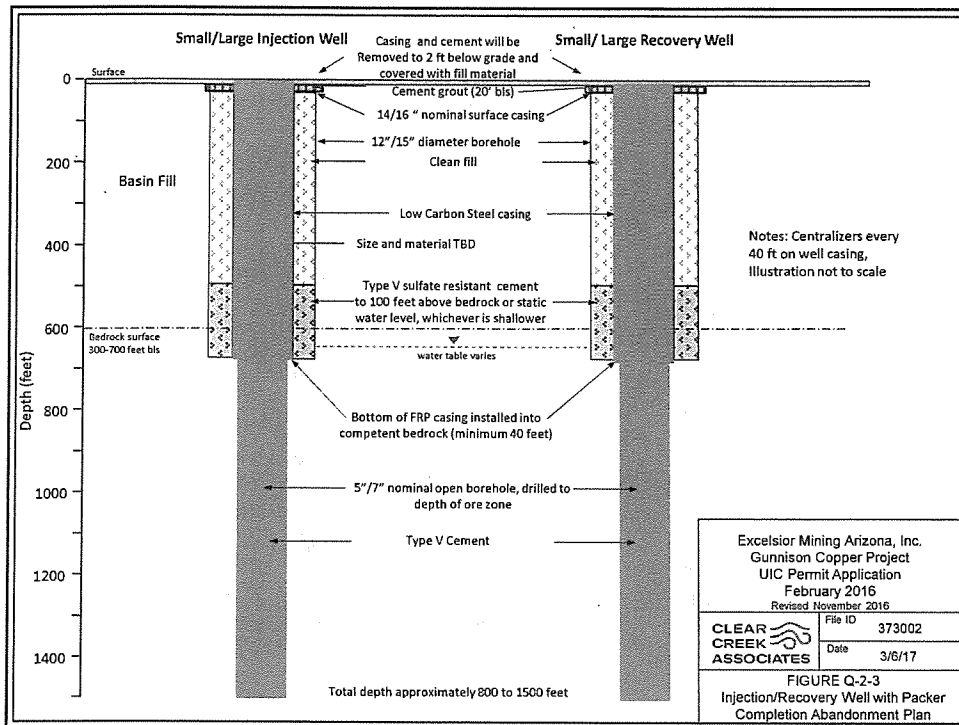
USEPA: Excelsior will report plugging and abandonment activities in the quarterly monitoring reports sent to the USEPA Director. The plugging and abandonment will be included in the quarterly report for the quarter in which the activities were completed. Reporting data will include an updated version of Form 7520-14 and copies of the forms sent to ADWR described above.

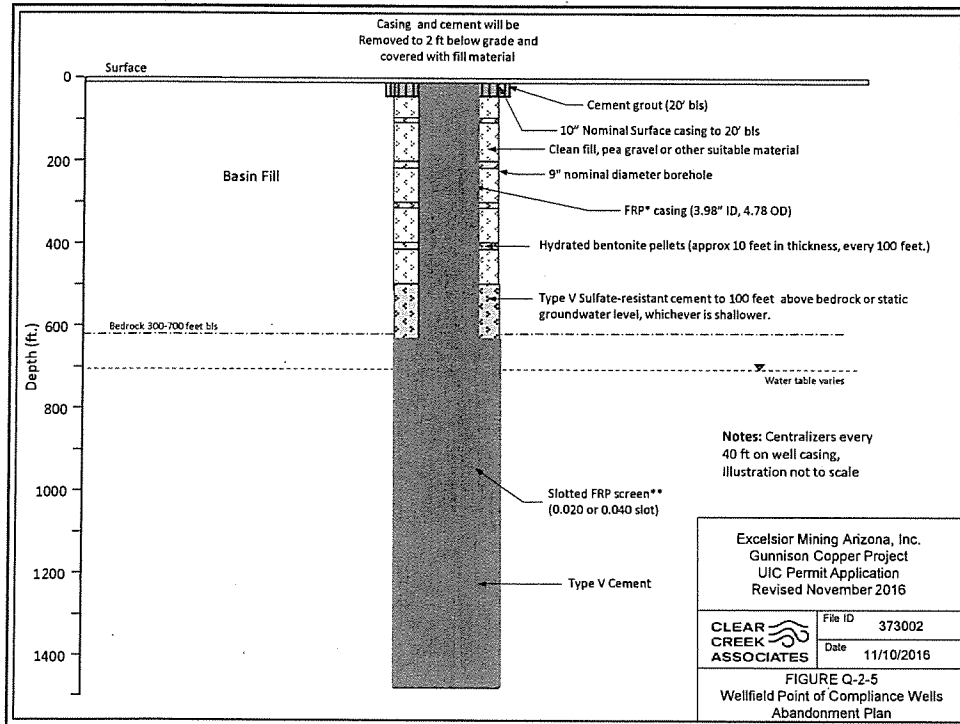
ADEQ: will also be notified, as plugging and abandonment is an element of "Best Available Demonstrated Control Technology" (BADCT) for the wellfield.

ATTACHMENT Q-2

**ADWR WELL ABANDONMENT HANDBOOK AND EXAMPLE ADWR
NOTICE OF INTENT TO ABANDON FORM**







Sample 7520-14 form for hydraulic control wells--A completed form will be provided to EPA prior to abandonment

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



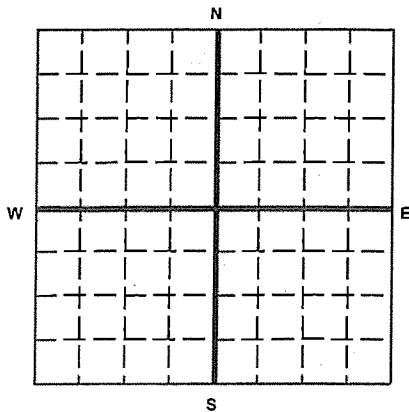
United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility
EXCELSIOR MINING CORP
GUNNISON PROJECT

Name and Address of Owner/Operator
EXCELSIOR MINING CORP
CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018

Locate Well and Outline Unit on
Section Plat - 640 Acres



State: AZ County: Cochise Permit Number: TBD

Surface Location Description: Section 36 Township 15S Range 22E OR
1/4 of ___ 1/4 of ___ 1/4 of ___ 1/4 of Section 31 Township 15S Range 23E

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface
Location ___ ft. frm (N/S) ___ Line of quarter section
and ___ ft. from (E/W) ___ Line of quarter section.

TYPE OF AUTHORIZATION
 Individual Permit
 Area Permit
 Rule
Number of Wells TBD

WELL ACTIVITY
 CLASS I
 CLASS II
 Brine Disposal
 Enhanced Recovery
 Hydrocarbon Storage
 CLASS III

Lease Name _____ Well Number _____ Hydraulic Control Wells

CASING AND TUBING RECORD AFTER PLUGGING

SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
6.1	Unknown	0	Unknown: ~300-700	6.1

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 (inches):	6.1	5.0					
Depth to Bottom of Tubing or Drill Pipe (ft.)	TBD	TBD					
Sacks of Cement To Be Used (each plug)	TBD	TBD					
Slurry Volume To Be Pumped (cu. ft.)	TBD	TBD					
Calculated Top of Plug (ft.)	2	TBD					
Measured Top of Plug (if tagged ft.)							
Slurry Wt. (Lb./Gal.)	15.6	15.6					
Type Cement or Other Material (Class III)	V	V					

LIST ALL OPEN HOLE AND/OR PERFORATED INTERVALS AND INTERVALS WHERE CASING WILL BE VARIED (If any)

From	To	From	To
TBD	TBD		

Estimated Cost to Plug Wells
\$10,300


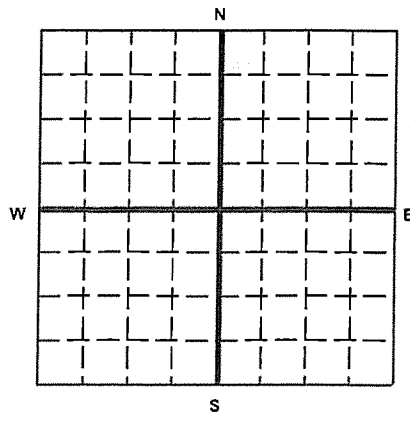

Certification

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 possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print)
Roland Goodgame, Executive Vice President

Signature

Date Signed
3-16-17

 United States Environmental Protection Agency Washington, DC 20460																							
PLUGGING AND ABANDONMENT PLAN																							
Name and Address of Facility EXCELSIOR MINING CORP GUNNISON PROJECT	Name and Address of Owner/Operator EXCELSIOR MINING CORP CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018																						
Locate Well and Outline Unit on Section Plat - 640 Acres <div style="text-align: center;">  </div>	State AZ	County Cochise	Permit Number TBD																				
	Surface Location Description 1/4 of ___ 1/4 of ___ 1/4 of ___ 1/4 of ___ Section <u>36</u> Township <u>15S</u> Range <u>22E</u> OR Section <u>31</u> Township <u>15S</u> Range <u>23E</u>																						
	Locate well in two directions from nearest lines of quarter section and drilling unit Surface Location ___ ft. frm (N/S) ___ Line of quarter section and ___ ft. from (E/W) ___ Line of quarter section.																						
	TYPE OF AUTHORIZATION <input type="checkbox"/> Individual Permit <input checked="" type="checkbox"/> Area Permit <input type="checkbox"/> Rule Number of Wells <u>TBD</u>		WELL ACTIVITY <input type="checkbox"/> CLASS I <input type="checkbox"/> CLASS II <input type="checkbox"/> Brine Disposal <input type="checkbox"/> Enhanced Recovery <input type="checkbox"/> Hydrocarbon Storage <input checked="" type="checkbox"/> CLASS III Well Number <u>Large Injection/Recovery</u>																				
CASING AND TUBING RECORD AFTER PLUGGING																							
<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>SIZE</th> <th>WT (LB/FT)</th> <th>TO BE PUT IN WELL (FT)</th> <th>TO BE LEFT IN WELL (FT)</th> <th>HOLE SIZE</th> </tr> </thead> <tbody> <tr> <td>7.75</td> <td>Unknown</td> <td>0</td> <td>Unknown: ~300-700</td> <td>7.75</td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE	7.75	Unknown	0	Unknown: ~300-700	7.75											METHOD OF EMPLACEMENT OF CEMENT PLUGS <input checked="" type="checkbox"/> The Balance Method <input type="checkbox"/> The Dump Bailer Method <input type="checkbox"/> The Two-Plug Method <input type="checkbox"/> Other		
SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE																			
7.75	Unknown	0	Unknown: ~300-700	7.75																			
CEMENTING TO PLUG AND ABANDON DATA:																							
Size of Hole or Pipe in which Plug Will Be Placed (inche):	PLUG #1 7.75	PLUG #2 7.0	PLUG #3 	PLUG #4 	PLUG #5 	PLUG #6 	PLUG #7 																
Depth to Bottom of Tubing or Drill Pipe (ft.)	TBD	TBD																					
Sacks of Cement To Be Used (each plug)	TBD	TBD																					
Slurry Volume To Be Pumped (cu. ft.)	TBD	TBD																					
Calculated Top of Plug (ft.)	2	TBD																					
Measured Top of Plug (if tagged ft.)																							
Slurry Wt. (Lb./Gal.)	15.6	15.6																					
Type Cement or Other Material (Class III)	V	V																					
LIST ALL OPEN HOLE AND/OR PERFORATED INTERVALS AND INTERVALS WHERE CASING WILL BE VARIED (if any)																							
From TBD	To TBD	From 	To 																				
Estimated Cost to Plug Wells \$17,000																							
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 possibility of fine and imprisonment. (Ref. 40 CFR 144.32)																							
Name and Official Title (Please type or print) Roland Goodgame, Executive Vice President			Signature 			Date Signed 3-16-17																	



United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility EXCELSIOR MINING CORP GUNNISON PROJECT	Name and Address of Owner/Operator EXCELSIOR MINING CORP CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018
--	--

Locate Well and Outline Unit on Section Plat - 640 Acres 	State AZ	County Cochise	Permit Number TBD
	Surface Location Description Section 36 Township 15S Range 22E OR 1/4 of ___ 1/4 of ___ 1/4 of ___ 1/4 of Section 31 Township 15S Range 23E		
	Locate well in two directions from nearest lines of quarter section and drilling unit Surface Location ___ ft. frm (N/S) ___ Line of quarter section and ___ ft. from (E/W) ___ Line of quarter section.		
TYPE OF AUTHORIZATION <input type="checkbox"/> Individual Permit <input checked="" type="checkbox"/> Area Permit <input type="checkbox"/> Rule Number of Wells <u>TBD</u>		WELL ACTIVITY <input type="checkbox"/> CLASS I <input type="checkbox"/> CLASS II <input type="checkbox"/> Brine Disposal <input type="checkbox"/> Enhanced Recovery <input type="checkbox"/> Hydrocarbon Storage <input checked="" type="checkbox"/> CLASS III Well Number Observation Well	
Lease Name _____			

CASING AND TUBING RECORD AFTER PLUGGING					METHOD OF EMPLACEMENT OF CEMENT PLUGS	
SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE		
3.98	Unknown	0	Unknown: ~1400-1500	3.98	<input checked="" type="checkbox"/> The Balance Method <input type="checkbox"/> The Dump Bailer Method <input type="checkbox"/> The Two-Plug Method <input type="checkbox"/> 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 (inches):	3.98						
Depth to Bottom of Tubing or Drill Pipe (ft.)	TBD						
Sacks of Cement To Be Used (each plug)	TBD						
Slurry Volume To Be Pumped (cu. ft.)	TBD						
Calculated Top of Plug (ft.)	2						
Measured Top of Plug (if tagged ft.)							
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
TBD	TBD		

Estimated Cost to Plug Wells
\$25,000

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 possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) Roland Goodgame, Executive Vice President	Signature 	Date Signed 3-16-17
---	---------------	------------------------



United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility EXCELSIOR MINING CORP GUNNISON PROJECT	Name and Address of Owner/Operator EXCELSIOR MINING CORP CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018
--	--

Locate Well and Outline Unit on Section Plat - 640 Acres 	State AZ	County Cochise	Permit Number TBD
Surface Location Description Section <u>36</u> Township <u>15S</u> Range <u>22E</u> OR 1/4 of ___ 1/4 of ___ 1/4 of ___ 1/4 of Section <u>31</u> Township <u>15S</u> Range <u>23E</u>			
Locate well in two directions from nearest lines of quarter section and drilling unit Surface Location ___ ft. frm (N/S) ___ Line of quarter section and ___ ft. from (E/W) ___ Line of quarter section.			
TYPE OF AUTHORIZATION <input type="checkbox"/> Individual Permit <input checked="" type="checkbox"/> Area Permit <input type="checkbox"/> Rule Number of Wells <u>TBD</u>		WELL ACTIVITY <input type="checkbox"/> CLASS I <input type="checkbox"/> CLASS II <input type="checkbox"/> Brine Disposal <input type="checkbox"/> Enhanced Recovery <input type="checkbox"/> Hydrocarbon Storage <input checked="" type="checkbox"/> CLASS III	
Lease Name		Well Number <u>POC</u>	

CASING AND TUBING RECORD AFTER PLUGGING					METHOD OF EMPLACEMENT OF CEMENT PLUGS	
SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE		
4	Unknown	0	Unknown: ~300-700	9	<input checked="" type="checkbox"/> The Balance Method <input type="checkbox"/> The Dump Bailer Method <input type="checkbox"/> The Two-Plug Method <input type="checkbox"/> 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 (inches)		4	9					
Depth to Bottom of Tubing or Drill Pipe (ft.)		TBD	TBD					
Sacks of Cement To Be Used (each plug)		TBD	TBD					
Slurry Volume To Be Pumped (cu. ft.)		TBD	TBD					
Calculated Top of Plug (ft.)		2	TBD					
Measured Top of Plug (if tagged ft.)								
Slurry Wt. (Lb./Gal.)		15.6	15.6					
Type Cement or Other Material (Class III)		V	V					

LIST ALL OPEN HOLE AND/OR PERFORATED INTERVALS AND INTERVALS WHERE CASING WILL BE VARIED (if any)			
From	To	From	To
TBD	TBD		

Estimated Cost to Plug Wells
\$25,000

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 possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print) Roland Goodgame, Executive Vice President	Signature 	Date Signed 3-16-77
--	----------------------	-------------------------------



United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

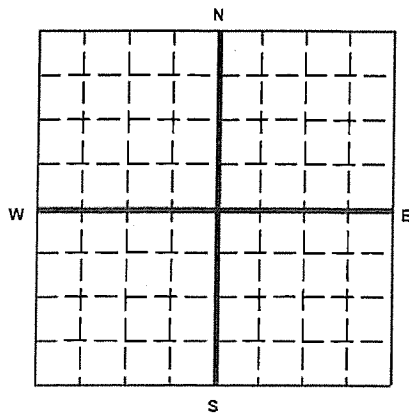
Name and Address of Facility

EXCELSIOR MINING CORP
GUNNISON PROJECT

Name and Address of Owner/Operator

EXCELSIOR MINING CORP
CONCORD PL, 2999 N 44TH ST, STE 300, PHOENIX, AZ 85018

Locate Well and Outline Unit on
Section Plat - 640 Acres



State

AZ

County

Cochise

Permit Number

TBD

Surface Location Description

Section 36 Township 15S Range 22E OR

1/4 of ___ 1/4 of ___ 1/4 of ___ 1/4 of Section 31 Township 15S Range 23E

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface

Location ___ ft. frm (N/S) ___ Line of quarter section

and ___ ft. from (E/W) ___ Line of quarter section.

TYPE OF AUTHORIZATION

- Individual Permit
- Area Permit
- Rule

Number of Wells TBD

WELL ACTIVITY

- CLASS I
- CLASS II
 - Brine Disposal
 - Enhanced Recovery
 - Hydrocarbon Storage
- CLASS III

Lease Name

Well Number Small Injection/Recovery

CASING AND TUBING RECORD AFTER PLUGGING

SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
6.1	Unknown	0	Unknown: ~300-700	6.1

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:	6.1	5.0					
Depth to Bottom of Tubing or Drill Pipe (ft.	TBD	TBD					
Sacks of Cement To Be Used (each plug)	TBD	TBD					
Slurry Volume To Be Pumped (cu. ft.)	TBD	TBD					
Calculated Top of Plug (ft.)	2	TBD					
Measured Top of Plug (if tagged ft.)							
Slurry Wt. (Lb./Gal.)	15.6	15.6					
Type Cement or Other Material (Class III)	V	V					

LIST ALL OPEN HOLE AND/OR PERFORATED INTERVALS AND INTERVALS WHERE CASING WILL BE VARIED (if any)

From	To	From	To
TBD	TBD		

Estimated Cost to Plug Wells

\$10,300

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 possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

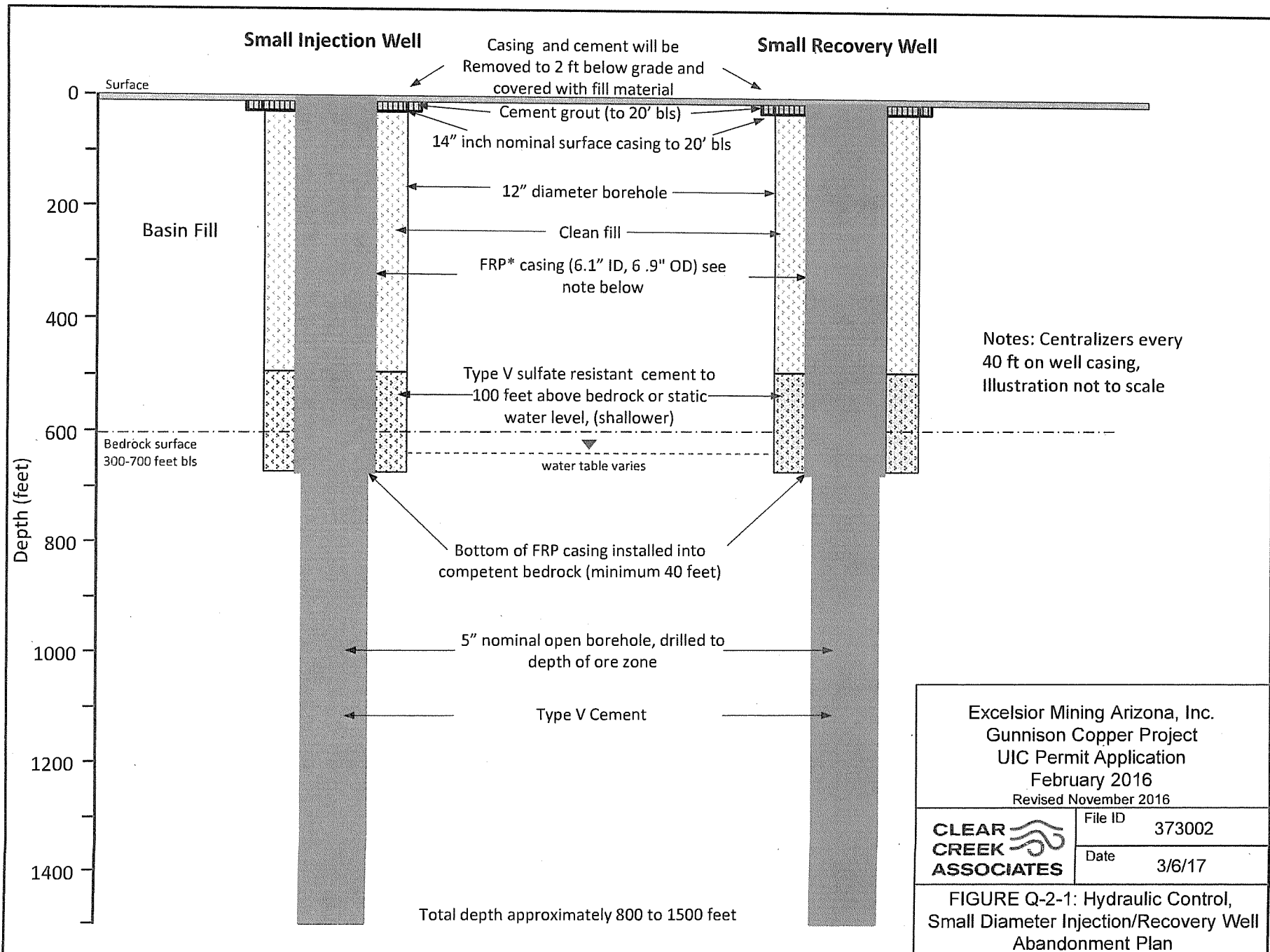
Name and Official Title (Please type or print)

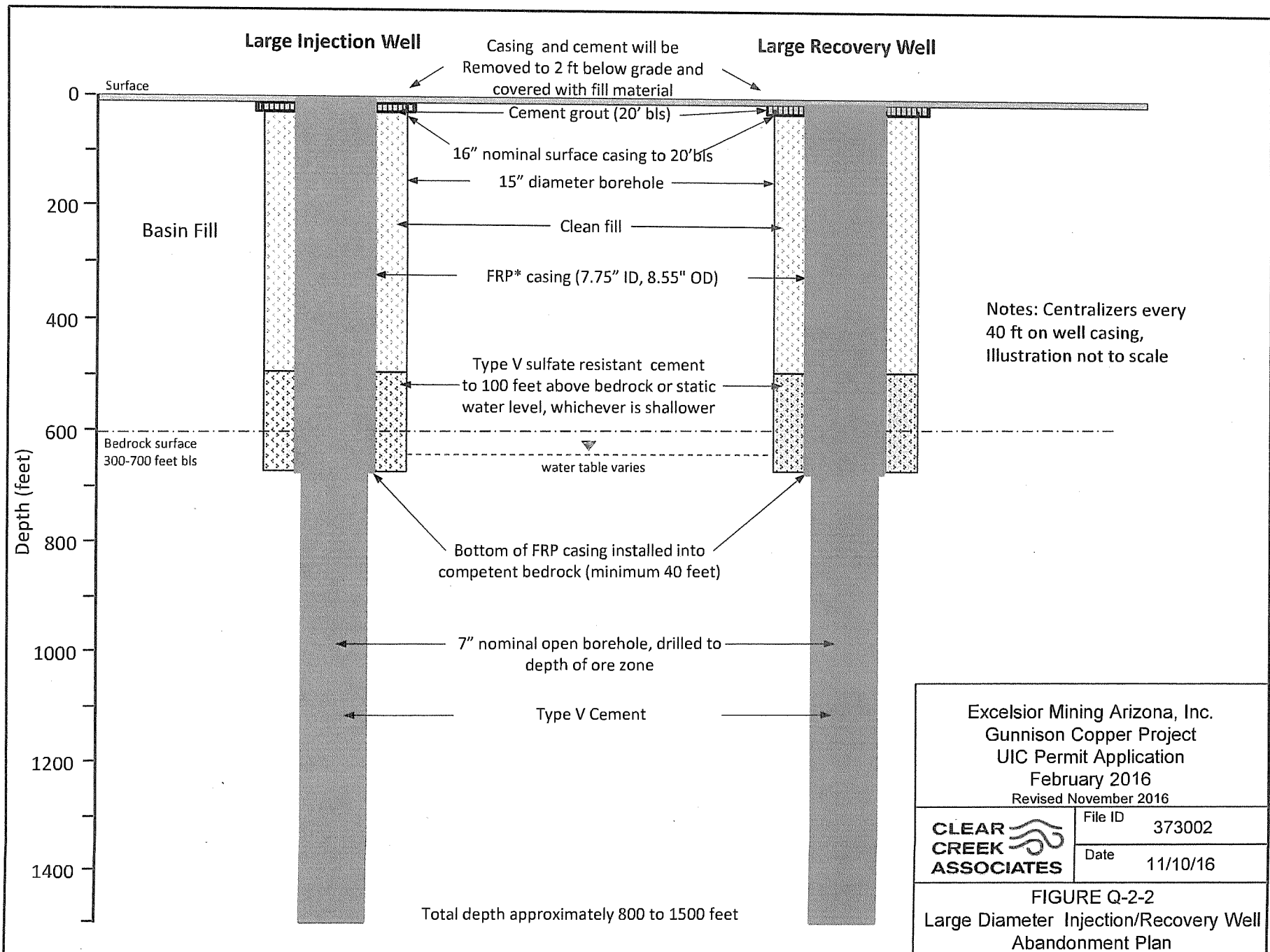
Roland Goodgame, Executive Vice President

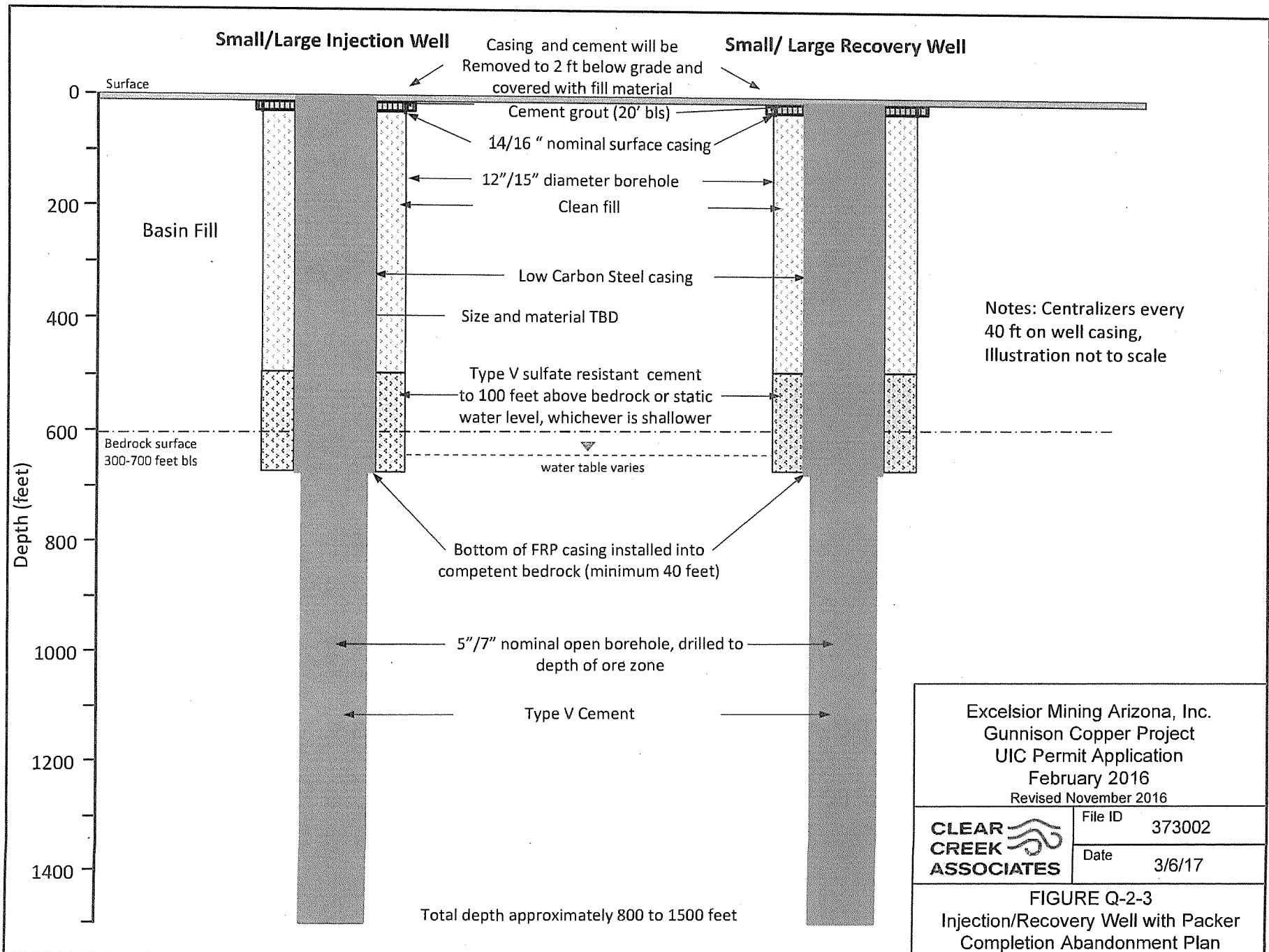
Signature

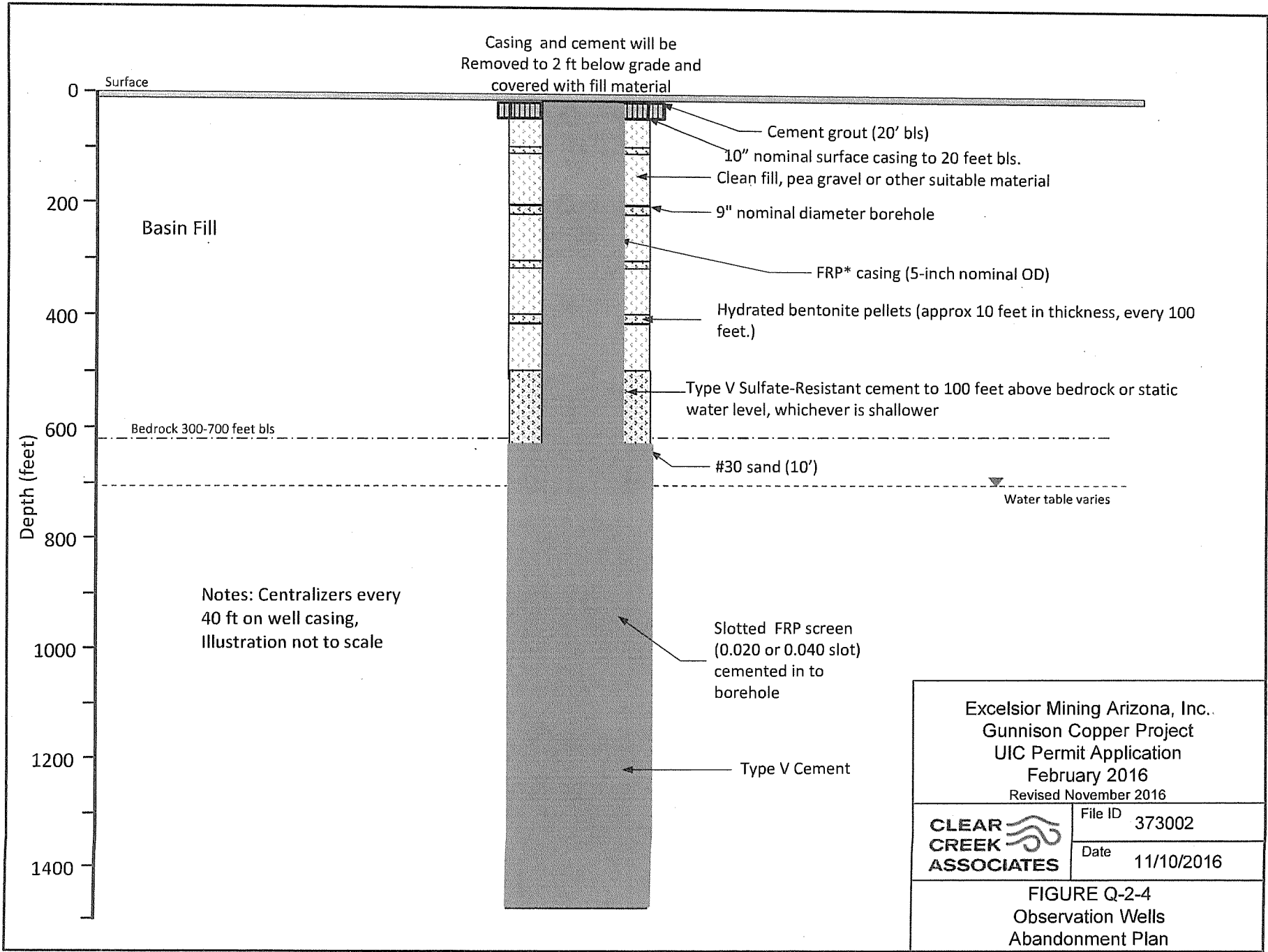
Date Signed

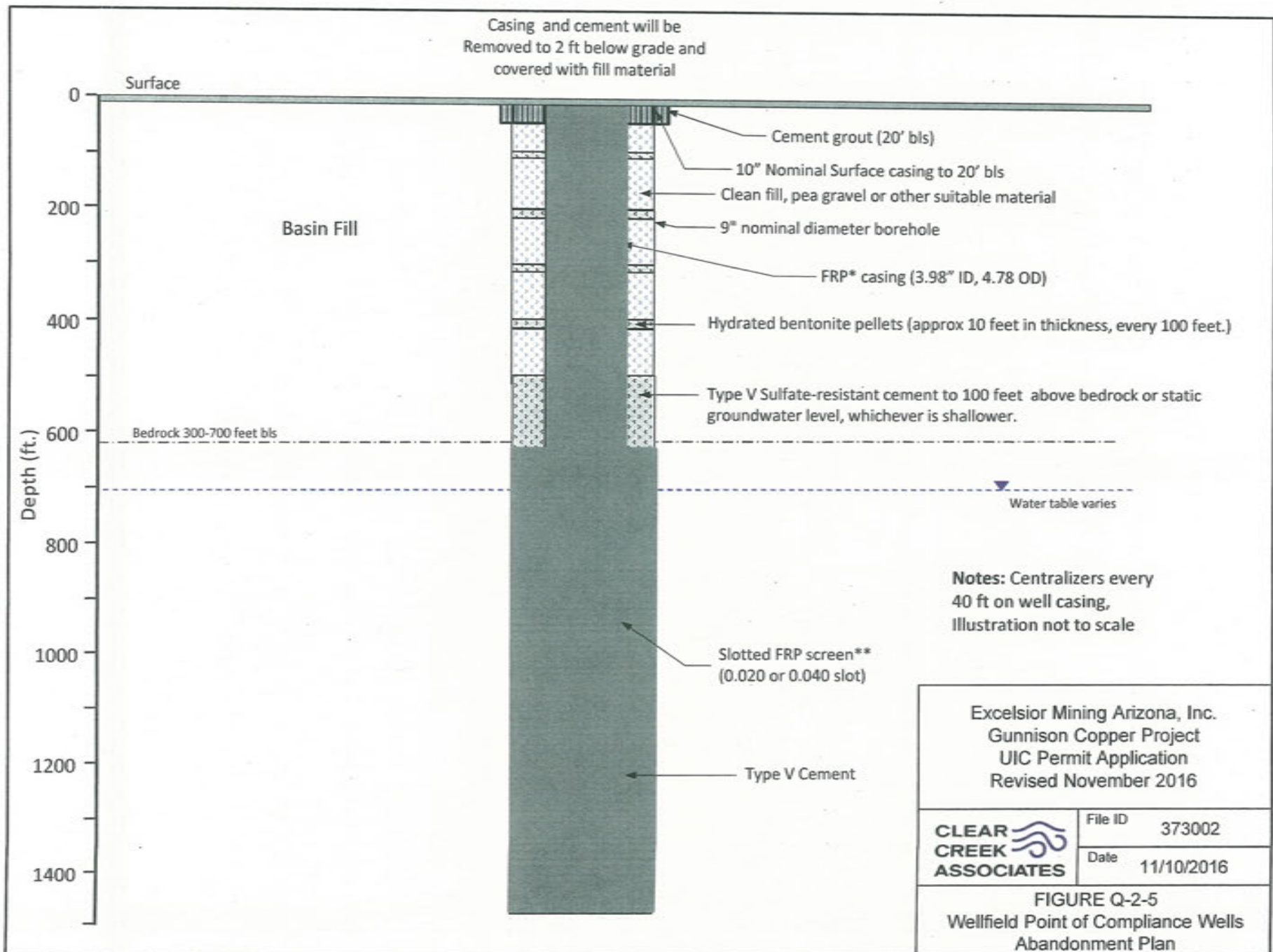
3-16-17













United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility	Name and Address of Owner/Operator
------------------------------	------------------------------------

<p>Locate Well and Outline Unit on Section Plat - 640 Acres</p>	State	County	Permit Number
	Surface Location Description		
	Locate well in two directions from nearest lines of quarter section and drilling unit Surface Location <input type="text"/> ft. frm (N/S) <input type="text"/> Line of quarter section and <input type="text"/> ft. from (E/W) <input type="text"/> Line of quarter section.		
	TYPE OF AUTHORIZATION <input type="checkbox"/> Individual Permit <input type="checkbox"/> Area Permit <input type="checkbox"/> Rule Number of Wells <input type="text"/> Lease Name <input type="text"/>	WELL ACTIVITY <input type="checkbox"/> CLASS I <input type="checkbox"/> CLASS II <input type="checkbox"/> Brine Disposal <input type="checkbox"/> Enhanced Recovery <input type="checkbox"/> Hydrocarbon Storage <input type="checkbox"/> CLASS III Well Number <input type="text"/>	

CASING AND TUBING RECORD AFTER PLUGGING					METHOD OF EMPLACEMENT OF CEMENT PLUGS	
SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE		
					<input type="checkbox"/> The Balance Method	
					<input type="checkbox"/> The Dump Bailer Method	
					<input type="checkbox"/> The Two-Plug Method	
					<input type="checkbox"/> 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 (inches)							
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

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 possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title <i>(Please type or print)</i>	Signature	Date Signed

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.

SECURING ARIZONA'S WATER FUTURE

ADWR

ARIZONA DEPARTMENT OF WATER RESOURCES

WELL ABANDONMENT HANDBOOK

SEPTEMBER 2008



3550 NORTH CENTRAL AVENUE, SUITE #200
PHOENIX, ARIZONA 85012-2105

PHONE: 602-771-8500
1-800-352-8488

FAX: 602-771-8691

WEB SITE: [HTTP://WWW.AZWATER.GOV](http://www.azwater.gov)



WELL ABANDONMENT HANDBOOK

September 2008

Janet Napolitano, Governor
State of Arizona

Herbert R. Guenther, Director
Arizona Department of Water Resources

Arizona Department of Water Resources
3550 North Central Avenue, Suite #200
Phoenix, Arizona 85012-2105
(602) 771-8500
(800) 352-8488

www.azwater.gov

*Permission to quote from or reproduce materials from this publication
is granted when due acknowledgement is made.*



Janet Napolitano
Governor

Herbert R. Guenther
Director

September 25, 2008

SUBSTANTIVE POLICY STATEMENT WELL ABANDONMENT HANDBOOK

I. BACKGROUND

The Arizona Department of Water Resources ("Department") is required by Arizona Revised Statute (A.R.S.) § 45-594(A) to adopt rules establishing construction standards for wells, including the abandonment of existing wells. The Department adopted such rules effective March 5, 1984, and amended the rules effective June 18, 1990. The well abandonment rule is set forth in Arizona Administrative Code ("A.A.C.") R12-15-816.

Pursuant to A.A.C. R12-15-816(G), the Department's well abandonment rule requires that the abandonment of a well be accomplished "through filling or sealing the well so as to prevent the well, including the annular space outside the casing, from being a channel allowing the vertical movement of water." Although the rule specifies the materials that must be used to fill or seal the well if it penetrates a single or multiple aquifer, the rule does not specify the materials that should be used if the well does not penetrate an aquifer or if groundwater or vadose zone contamination exists at or near the well site. Additionally, the rule does not prescribe a method for emplacing fill or seal materials in a well to ensure that water does not move vertically through the well after abandonment.

The Director has determined that the Department should provide additional written guidance to the public on well abandonment. The purpose of the written guidance is not to change any of the requirements in the Department's well abandonment rule or to impose any additional requirements. Instead the written guidance is intended to assist well owners and well drillers in complying with A.A.C. R12-15-816(G) by informing them of fill materials and emplacement methods the Department considers to be adequate to seal a well in a manner that will prevent the well from being a channel allowing the vertical movement of water under various aquifer and vadose zone conditions. By following the written guidance, a person will be assured of complying with A.A.C. R12-15-816(G).

II. WELL ABANDONMENT THAT CONFORMS WITH THE APPLICABLE PROCEDURES IN THE ATTACHED WELL ABANDONMENT HANDBOOK WILL BE DEEMED TO BE IN COMPLIANCE WITH A.A.C. R12-15-816(G)

To assist well owners and well drillers in complying with A.A.C. R12-15-816, the Director issues the attached Well Abandonment Handbook as a substantive policy statement. The Handbook sets forth procedures for abandoning a well under most aquifer and vadose zone conditions, including special conditions not addressed in the Department's well abandonment rule. A person who abandons a well in conformance with the applicable procedures outlined in the Handbook will be deemed to be in compliance with A.A.C. R12-15-816(G).

III. EFFECTIVE DATE

This substantive policy statement rescinds and replaces the previous substantive policy statement dated September 20, 2001, and shall become effective immediately. The Director may modify or revoke this policy at any time.

Dated this 3rd day of October, 2008.

A handwritten signature in blue ink, appearing to read "Herbert R. Guenther".

Herbert R. Guenther
Director
Arizona Department of Water Resources

Table of Contents

I.	Introduction	1
II.	Overview of the Well Abandonment Process	2
III.	Surface Seal Requirements Applicable to the Upper 20 Feet of All Wells to be Abandoned and Special Requirements for Debris-Filled or Obstructed Wells	5
A.	Surface Seal Requirements	5
	Surface Casing Removal Option	5
	Surface Casing Non-Removal Option	5
B.	Special Requirements for Debris Filled or Obstructed Wells	5
IV.	Abandonment Methods	5
A.	Standard Abandonment Method	5
B.	Alternative Abandonment Methods	6
	Alternative 1 – <i>Applies to wells that do not penetrate aquifers, including wells that have gone dry, and no vadose zone contamination issues exist</i>	6
	Alternative 2 – <i>Applies to wells that do not penetrate aquifers, including wells that have gone dry, and vadose zone contamination issues exist</i>	6
	Alternative 3 – <i>Applies to wells that penetrate single or multiple aquifers, and water quality contamination issues exist</i>	6
	Alternative 4 – <i>Applies to wells that penetrate a single aquifer only without vertical flow components, and no water quality contamination issues exist</i>	8
	Alternative 4 (Variance Option)	8
	Alternative 5 – <i>Applies to wells that penetrate single or multiple aquifers with vertical flow components, and no water quality</i>	9
	Alternative 5 (Variance Option 1)	9
	Alternative 5 (Variance Option 2)	9
	References	12
	APPENDIX A – A.A.C. R12-15-816, The ADWR Well Abandonment Rule	13
	APPENDIX B – Definitions	15
	APPENDIX C – Questions and Answers about the Abandonment Handbook	19
Figure 1	Well Abandonment Process	4
Figure 2	Alternative Abandonment Methods Applicable to Five Commonly Occurring Vadose Zone and Aquifer Conditions	7
Table 1	Acceptable Well Abandonment Materials and Mixtures	11

I. Introduction

The Arizona Department of Water Resources ("ADWR") regulates the abandonment of wells in Arizona. ADWR adopted a rule setting forth requirements for well abandonment in 1984 and amended the rule in 1990. The amended rule is published in the Arizona Administrative Code ("A.A.C.") as Rule R12-15-816. A copy of the rule is attached to this Handbook as Appendix A.

ADWR's well abandonment rule requires that well abandonment be accomplished "through filling or sealing the well so as to prevent the well, including the annular space outside the casing, from being a channel allowing the vertical movement of water." A.A.C. R12-15-816(G). The rule prescribes the fill materials that must be used in certain aquifer conditions. A.A.C. R12-15-816(H). The rule also requires the filing of a pre-abandonment notice with ADWR (unless the well is a new well being abandoned in the course of drilling the well) and the filing of post-abandonment reports. A.A.C. R12-15-816(B), (E) and (F).

The purpose of this Handbook is to provide a step-by-step guide to the abandonment of a well in a manner that complies with ADWR's well abandonment rule. The Handbook describes the abandonment process from the filing of a Notice of Intention to Abandon with ADWR prior to commencing abandonment, to the filing of post-abandonment reports by the well owner and well driller. Most importantly, the Handbook describes procedures that may be used to adequately abandon a well, including fill materials and emplacement methods.

A standard abandonment method is described that may be used for any well, regardless of the aquifer and vadose zone conditions applicable to the well. Five alternative abandonment methods are also

described for five different vadose zone and aquifer conditions. In most cases, the alternative abandonment method will be less expensive than the standard method. However, a well owner may need to demonstrate to ADWR that the well to be abandoned falls within the condition to which the alternative method applies before that method may be used. For that reason, the abandonment process may take longer if an alternative abandonment method is requested.

The well abandonment methods described in this Handbook are presented in much greater detail than in ADWR's well abandonment rule. However, the Handbook is not intended to change any of the requirements in the rule or to impose any additional requirements. The purpose of including the abandonment methods in the Handbook is to assist well owners and well drillers in complying with A.A.C. R12-15-816(G) by informing them of fill materials and emplacement methods ADWR considers to be adequate to seal a well in a manner that will prevent the well from being a channel allowing the vertical movement of water. A person who abandons a well in accordance with the applicable well abandonment method described in this Handbook will be assured of complying with A.A.C. R12-15-816(G).

The next section presents an overview of the abandonment process. Section III describes surface seal requirements for the upper 20 feet of all wells and special requirements for debris-filled or obstructed wells. Section IV describes the standard abandonment method and the five alternative methods. Appendix B contains definitions of terms used in this Handbook and Appendix C contains questions and answers regarding this Handbook.

II. Overview of the Well Abandonment Process

Legal authorization from the ADWR is required to abandon most types of wells in the State of Arizona. The types of wells for which abandonment authority from ADWR is required are described in the question and answer section of this Handbook (Appendix C).

The process that must be followed to obtain well abandonment authority starts with the filing of a notice of intention to abandon a well (NOIA) (see Figure 1). NOIA forms may be obtained from the ADWR Groundwater Management Support Section office in Phoenix, or at local ADWR offices located in Prescott, Casa Grande, Tucson and Nogales. The NOIA form must be signed and filed by the well owner. However, the licensed well driller or a consultant may assist the well owner in filling out and filing the NOIA.

Information that must be submitted in the NOIA form includes the following:

- A well construction diagram showing all existing well construction features and the proposed abandonment specifications.
- A description of the type and condition of the casing. Although this information may not be completely known prior to abandonment, this description should be a “best estimate” of the conditions.
- A description of the proposed method of abandonment. The casing removal techniques (such as pulling by hydraulic jacks, overdrilling, etc.), or casing non-removal techniques (such as casing perforations, brushing, sonar jetting, etc.) must be described. If the casing is to be perforated, the perforation method, size, and intervals to be perforated must be described.

- A description of the method of emplacing the sealing or fill materials (such as “tremie pumped” or “pressure grouting”, etc.).
- The specific type and estimated amount of grout material to be used, and the ratios of water, cement, and/or other grout materials.

If the well owner or well driller has any questions during the abandonment planning stages prior to submittal of the NOIA, it is recommended that they contact the ADWR Hydrology Division. ADWR will gladly work with the well owner or well driller to answer any questions and conduct a preliminary review of the proposed abandonment plan. ADWR may be contacted at:

602-771-8500

(Phoenix metro area)

1-800-352-8488

(outside metro Phoenix)

After the NOIA is filed, ADWR performs a completeness review of the notice (See Figure 1). The completeness review entails the examination of the NOIA to determine if all required information has been properly submitted. After the ADWR determines that the NOIA is complete, a substantive review is performed to determine whether the proposed abandonment methods and materials meet the requirements of the ADWR well abandonment rule (See Figure 1). If the standard method of abandonment described on page 5 of this Handbook is selected, which may be used for any well regardless of the aquifer and vadose zone conditions applicable to the well, the NOIA will be approved without further review.

If an alternative abandonment method is selected, the NOIA will receive additional substantive review to determine whether the

well falls within the condition to which the alternative method applies and whether appropriate fill materials were chosen. During the review process ADWR may contact the well owner to request additional information or discuss modifications to the proposed abandonment plan, if necessary.

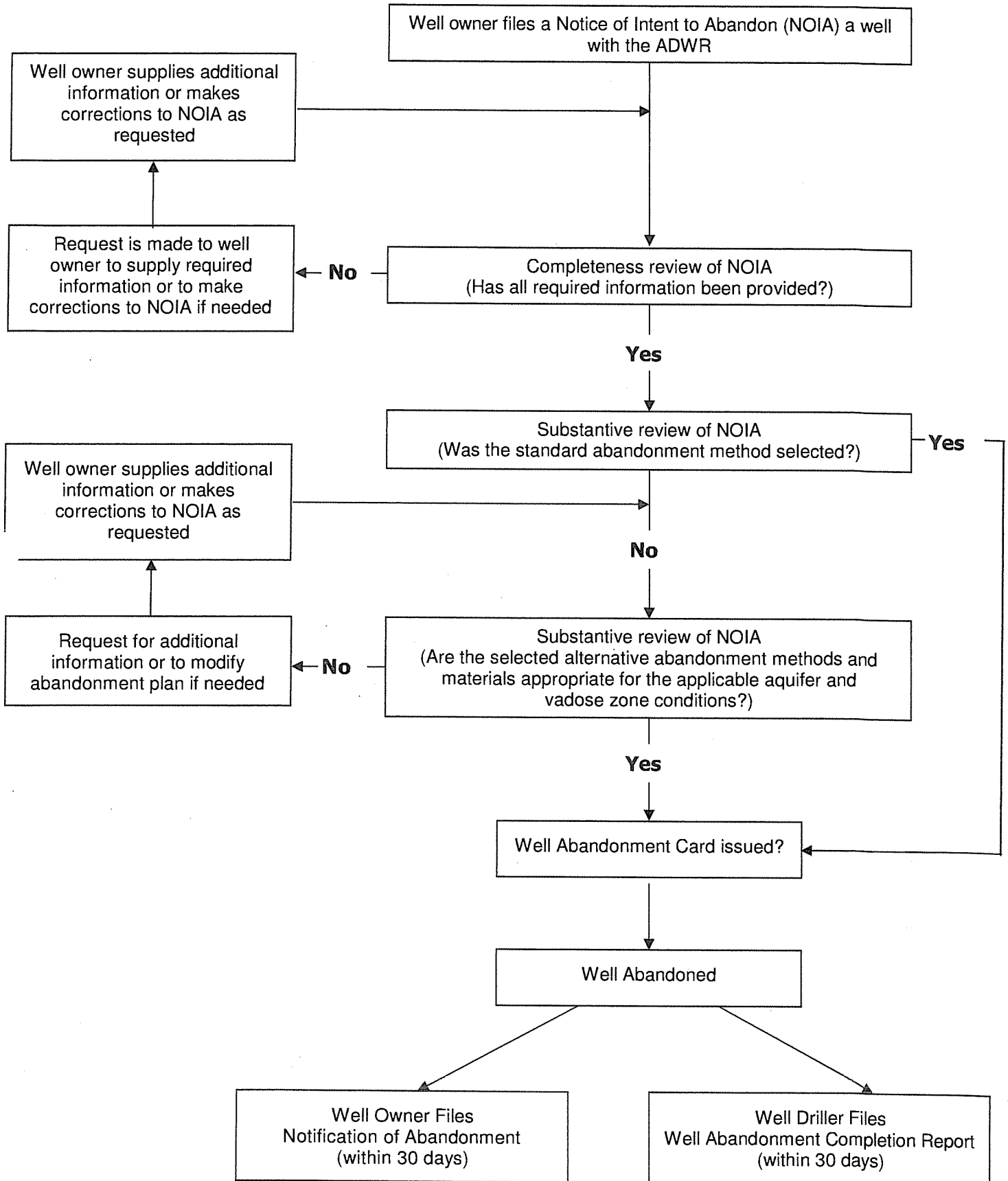
Once the proposed well abandonment methods and materials meet the requirements of the abandonment rule, a well abandonment authorization card is mailed to the designated well driller and well abandonment operations may begin (See Figure 1).

Within 30 days after a well is abandoned, the well owner is required to file a Well Owner's Notification of Abandonment; and the well drilling contractor is required to file a Well Abandonment Completion Report with ADWR which describes the actual methods and materials used to abandon the well (See Figure 1). Information that must be submitted in the Well Abandonment Completion Report includes the following:

- The specific type and amount of grout and/or fill materials used as well as the mixing ratio of water, cement and/or other grout materials used.
- A description of the type and condition of the casing.
- A description of the actual method of abandonment. The casing removal techniques (such as pulling by hydraulic jacks, overdrilling, etc.), or casing non-removal techniques (such as casing perforations, brushing, sonar jetting, etc.) must be described. If the casing was perforated, the perforation method, size, and intervals must be described.
- A description of the method of emplacing the sealing or fill materials (such as "tremie pumped" or "pressure grouting", etc.).

- The latitude, longitude and well elevation of the abandoned well, and the method used to determine these data. Latitude and longitude coordinates determined from readily available Global Positioning System (GPS) equipment are preferred because of the high level of accuracy and comparative ease of measurement. If GPS equipment is used to determine these coordinates, the general grade of equipment should be specified (for example: survey grade or hand-held). Latitude, longitude and well elevation coordinates may also be obtained from conventional surveying methods or through estimation from a topographic map.

**Figure 1
Well Abandonment Process**



III. Surface Seal Requirements Applicable to the Upper 20 Feet of All Wells to be Abandoned and Special Requirements for Debris-Filled or Obstructed Wells

In addition to the well sealing and abandonment methods and materials that are discussed in the following section, ADWR's well abandonment rule requires a cement grout surface seal (plug) to be installed in the upper 20 feet of any well that is abandoned. Special requirements may also be necessary if casing obstructions and/or debris hamper the abandonment of a well. These requirements are described below:

A. Surface Seal Requirements

Surface Casing Removal Option

If the casing is removed from the top 20 feet of the well, a cement grout plug must be set extending from two feet below the land surface to a minimum of twenty feet below the land surface, and the well must be backfilled above the top of the cement grout plug to the original land surface.

Surface Casing Non-Removal Option

If the casing is not removed from the top 20 feet of the well, a cement grout plug must be set extending from the top of the casing to a minimum of twenty feet below the land surface, and the annular space outside the casing must be filled with cement from the land surface to a minimum of twenty feet below the land surface.

B. Special Requirements for Debris Filled or Obstructed Wells

In situations where casing obstructions and/or debris hamper well abandonment, the problems should be indicated on the NOIA form. In most instances a reasonable attempt to clear debris and obstructions from the well will be required. However, site-

specific conditions will determine the actual method of abandonment.

IV. Abandonment Methods

A. Standard Abandonment Method

The ADWR standard abandonment method meets the requirements of ADWR's well abandonment rule under any given combination of aquifer and vadose zone conditions. The standard abandonment method may be followed to obtain expedited processing of an NOIA and issuance of a well abandonment authority.

Under the standard abandonment method, the entire length of well casing must be removed or the entire length of the casing must be re-perforated (from 20 feet above the highest historic water level to the total depth of the well) with a minimum of two cuts per foot. If it is determined that the disturbance of the casing and/or gravel packed zones would negatively influence the sealing of the well, then an appropriate alternative abandonment method must be used (see Figure 2 for examples).

The well must be completely filled with neat cement, cement-bentonite grout or, except where free-product contamination is present, high-solids bentonite grout (granular or powder mixtures) with a minimum of 25% solids by weight. Materials or mixtures must be emplaced under sufficient pressure to fill all voids, including all annular space(s), and displace water from the well. A tremie pipe must be used to emplace the grout from the bottom up. The end of the tremie pipe must remain in close proximity to the rising grout surface, as the grout is pumped into the well.

In order to receive expedited processing, the NOIA should be filled out completely, and the "Standard method" should be selected in the proposed well abandonment method section of the NOIA form. The specific type

and estimated volume of grout material should be specified on the NOIA form. Any discrepancies between the estimated volume of grout to be used, and the actual amount of grout that was used for abandonment should be reported and explained on the Well Abandonment Completion Report.

B. Alternative Abandonment Methods

There are five alternatives to the standard abandonment method described above. Each alternative method is designed for a different vadose zone or aquifer condition, and only one alternative method is appropriate for a specific well. The conditions described at the beginning of each alternative and the depictions in Figure 2 should be carefully reviewed to determine the appropriate alternative method if the standard abandonment method is not selected. If an alternative method is selected, the method must be identified by number in the NOIA and the well owner may be required to submit information demonstrating that the applicable vadose zone or aquifer conditions exist for the well.

Alternative 1 – Applies to wells that do not penetrate aquifers, including wells that have gone dry, and no vadose zone contamination issues exist.

If the well does not penetrate an aquifer or has gone dry, and vadose zone contamination issues do not exist, the well must be filled with one or more of the following materials or mixtures: clean fine sand, cement grout (including neat cement grout, cement-bentonite grout and sand-cement grout), concrete grout, sand-bentonite grout, high-solids bentonite grout (granular or powder mixtures) with a minimum of 15% solids by weight, high-solids bentonite chips or high-solids bentonite pellets. See Table 1 for mixing ratios. High-solids bentonite chips and high-solids bentonite pellets must be hydrated to manufacturer's specifications.

The materials or mixtures are recommended to exceed the casing volume by approximately 30 percent.

In the course of drilling a new well, the well may be abandoned using drill cuttings from the well being drilled if the well does not penetrate an aquifer, and no vadose zone contamination issues exist.

Alternative 2 – Applies to wells that do not penetrate aquifers, including wells that have gone dry, and vadose zone contamination issues exist.

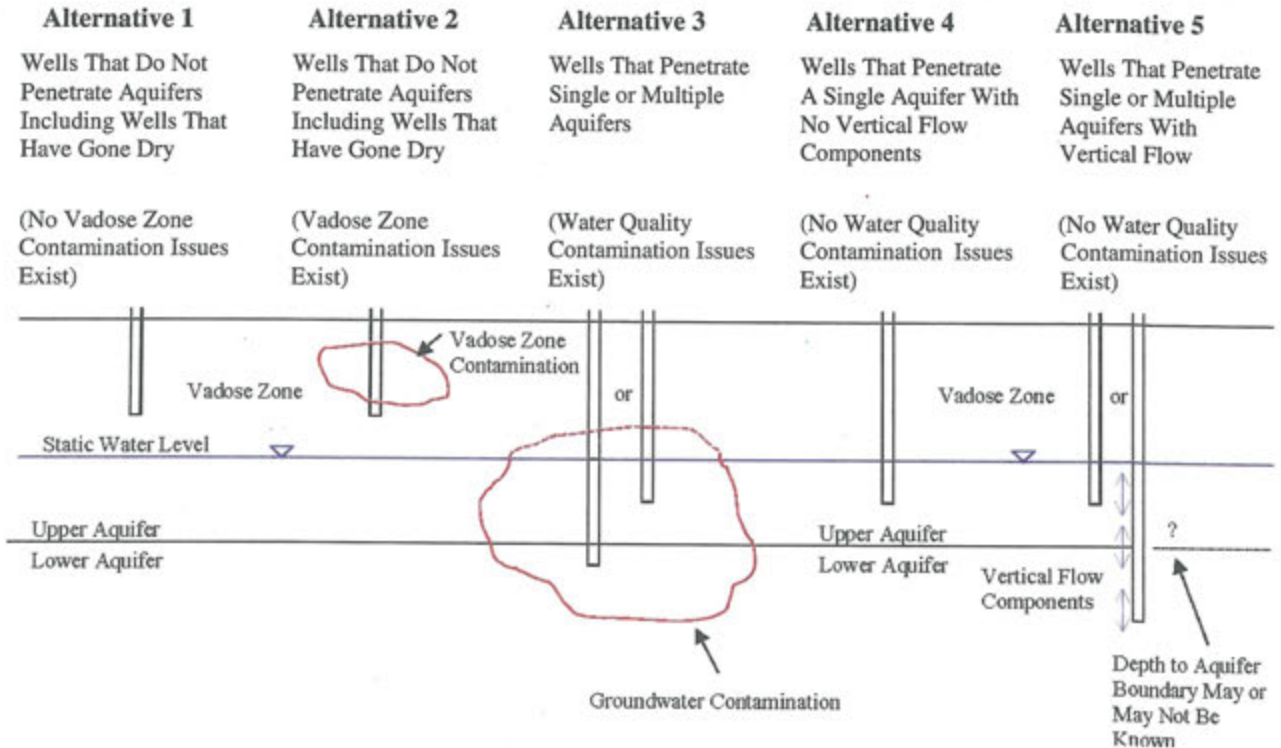
If the well does not penetrate an aquifer or has gone dry, and vadose zone contamination issues exist, but there is no free-product contamination, the well must be filled with one or more of the following materials or mixtures: cement grout (including neat cement grout, cement-bentonite grout and sand-cement grout), concrete grout, sand-bentonite grout, high-solids bentonite grout (granular or powder mixtures) with a minimum of 15% solids by weight, high-solids bentonite chips or high-solids bentonite pellets. See Table 1 for mixing ratios. High-solids bentonite chips and high-solids bentonite pellets must be hydrated to manufacturer's specifications. The materials or mixtures are recommended to exceed the casing volume by approximately 30 percent.

If free-product contamination issues exist, the entire well must be sealed with neat cement grout.

Alternative 3 – Applies to wells that penetrate single or multiple aquifers, and water quality contamination issues exist.

If the well penetrates a single or multiple aquifer system and water quality contamination issues exist, then site-specific conditions will determine the appropriate seal material and emplacement method. The seal material must be no more permeable than the formation being sealed. A target

Figure 2
Alternative Abandonment Methods Applicable to
Five Commonly Occurring Vadose Zone
and Aquifer Conditions



hydraulic conductivity of 10^{-7} cm/s may be used for sealant materials. The types of acceptable materials or mixtures are: cement grout (including neat cement grout and cement bentonite grout), high-solids bentonite grout (granular or powder mixtures) with a minimum of 15% solids by weight, high-solids bentonite chips or high-solids bentonite pellets. See Table 1 for mixing ratios. A minimum of 15% bentonite solids will be acceptable in most cases. However, a higher minimum of bentonite solids may be required in areas of high water quality contamination. Acid resistant cement (see definitions) may be required in certain areas where corrosive (low pH) groundwater conditions are encountered. The materials or mixtures are recommended to exceed the casing volume by approximately 30 percent.

If there is no free-product contamination at the well site, the vadose zone portion of the

well may be sealed with the same material that is used to seal the well below the water level. High-solids bentonite chips and high-solids bentonite pellets must be hydrated to manufacturer's specifications if used in the vadose zone. If free-product contamination issues exist, the vadose zone portion of the well must be sealed with neat cement grout.

Materials or mixtures must be emplaced under sufficient pressure to fill all voids, including all annular space(s), and displace water from the well. A tremie pipe must be used to emplace the grout from the bottom up. The end of the tremie pipe shall remain in close proximity to the rising grout surface as the grout is pumped into the well.

Except as provided below for recently constructed monitor wells, if the casing is not removed, either the entire length of the casing must be reperfored (from 20 feet

above the highest historic water level to the total depth of the well), or the condition of the casing perforations must be determined by running a video log that must be submitted to the ADWR for review. If a video log demonstrates that the existing perforations are sufficiently open for grout to enter the annular space outside the casing, no additional perforations or casing treatments will be required. If the video log demonstrates that the existing perforations are not sufficiently open for grout to enter the annular space outside the casing, additional perforations and/or casing treatments such as mechanical brushing, scraping or sonic cleaning will be required, unless it is determined that disturbance of the casing and/or gravel packed zones would negatively influence the sealing of the well. Casing perforation and/or casing cleaning requirements for wells with water quality contamination issues will be made by ADWR on a case-by-case basis.

Wells requiring additional perforations must be perforated a minimum of two cuts per foot and sealed by pressure grouting. The intervals to be perforated must be determined based on site-specific information. However, if no vadose zone contamination issues exist, the perforations need only extend 20 feet above the static water level in the well.

Video logging and/or casing re-perforation may not be required in the case of the abandonment of recently constructed monitor wells. However, that determination must be made by ADWR on a case-by-case basis.

Alternative 4 – Applies to wells that penetrate a single aquifer only without vertical flow components, and no water quality contamination issues exist.

If the well penetrates an aquifer and hydrogeologic and stratigraphic information is available for the well at an acceptable

level of confidence to determine that no aquifer boundaries and no vertical flow components exist within the length of the well, and if water quality contamination issues do not exist, the well must be filled with one or more of the following materials or mixtures: cement grout (including neat cement grout, cement-bentonite grout and sand-cement grout), concrete, high-solids bentonite grout (granular or powder mixtures) with a minimum of 15% solids by weight, high-solids bentonite chips, high-solids bentonite pellets, and sand-bentonite grout. See Table 1 for mixing ratios.

In the course of drilling a new well, the well may be abandoned using drill cuttings from the well being drilled if the well does not penetrate an aquifer, and no vadose zone contamination issues exist.

The vadose zone portion of these types of wells may be filled with any of the mixtures or materials described above or allowed in Alternative 1. High-solids bentonite chips and high-solids bentonite pellets must be hydrated to manufacturer's specifications if used in the vadose zone. The materials or mixtures are recommended to exceed the casing volume by approximately 30 percent.

Materials or mixtures must be emplaced under sufficient pressure to fill all voids, including all annular space(s), and displace water from the well. A tremie pipe must be used to emplace the grout from the bottom up. The end of the tremie pipe shall remain in close proximity to the rising grout surface as the grout is pumped into the well.

Alternative 4 (Variance Option)

A variance option is available to abandon wells that are 8 inches or greater in diameter and that fall under Alternative 4 aquifer conditions. Alternative 4 (Variance Option) allows the use of clean fine sand to fill the well.

Please note that anyone wishing to use this alternative abandonment method must first apply to ADWR for a variance from the well abandonment rule.

Alternative 5 – Applies to wells that penetrate single or multiple aquifers with vertical flow components, and no water quality contamination issues exist.

If the well penetrates a single or multiple aquifer system with vertical flow components, and if water quality contamination issues do not exist, the well must be sealed to prevent the vertical migration of fluids with cement grout (including neat cement grout, cement-bentonite grout and sand-cement grout), high-solids bentonite grout (granular or powder mixtures) with a minimum of 15% solids by weight, high-solids bentonite chips or high-solids bentonite pellets of sufficient volume, density, and viscosity to prevent fluid communication between aquifers. See Table 1 for mixing ratios.

The vadose zone portion of this type of well may be filled with any of the mixtures or materials described above or allowed in Alternative 1. High-solids bentonite chips and high-solids bentonite pellets must be hydrated to manufacturer's specifications if used in the vadose zone. The materials or mixtures are recommended to exceed the casing volume by approximately 30 percent.

Materials or mixtures must be emplaced under sufficient pressure to fill all voids, including all annular space(s), and displace water from the well. A tremie pipe must be used to emplace the grout from the bottom up. The end of the tremie pipe shall remain in close proximity to the rising grout surface as the grout is pumped into the well.

If the casing is not removed, it is recommended, but not required, that the condition of the casing perforations be determined by running a video log. If the

video log demonstrates that the existing perforations are sufficiently open for grout to enter the annular space between the casing and the well bore, no additional perforations or casing treatments are necessary. If the video log demonstrates that the existing perforations are not sufficiently open for grout to enter the annular space outside the casing, additional perforations and/or casing treatments such as mechanical brushing, scraping or sonic cleaning are recommended, unless it is determined that disturbance of the casing and/or gravel packed zones would negatively influence the sealing of the well. A well requiring additional perforations should be perforated a minimum of two cuts per foot and sealed by pressure grouting.

Alternative 5 (Variance Option 1)

Alternative 5 (Variance Option 1) is available to abandon wells that are 8 inches or greater in diameter and that fall under Alternative 5 aquifer conditions. Alternative 5 (Variance option 1) allows the use of alternating layers of 50 feet of clean, fine sand and 10 feet of one of the approved Alternative 5 materials or mixtures mentioned above.

Please note that anyone wishing to use this alternative abandonment method must first apply to ADWR for a variance from ADWR's well abandonment rule.

Alternative 5 (Variance Option 2)

Alternative 5 (Variance Option 2) is available to abandon wells that are 8 inches or greater in diameter and that fall under Alternative 5 aquifer conditions. Alternative 5 (Variance Option 2) allows the installation of seals at aquifer boundaries if boundaries exist and if hydrogeologic and stratigraphic information is available for the well at an acceptable level of confidence to determine the depth(s) of aquifer boundaries. Aquifer boundary seals must be composed of one of the approved Alternative 5 materials or mixtures mentioned above.

Aquifer boundary seals must extend at least 50 feet above and 50 feet below aquifer boundaries to provide a reasonable level of confidence that the boundaries will be sealed. The intervals of the well above and below the seals must be filled with clean, fine sand or one of the approved Alternative 5 materials or mixtures mentioned above.

Please note that anyone wishing to use this alternative abandonment method must first apply to ADWR for a variance from ADWR's well abandonment rule.

Table 1
Acceptable Well Abandonment Materials and Mixtures

Category	Specific Material	Mixing Ratio		Permeability (cm/sec)	Applicable Abandonment Methods	Special Considerations
		Solids	Water			
Cement, Sand, Concrete & Bentonite Mixtures 1	Neat Cement or Neat Cement Grout	One 94 pound sack of cement	Not more than six (6) gallons water	10 ⁻⁵ To 10 ⁻⁷	Standard Method and Alts. 1-5	Must be pumped with tremie pipe. Not for use in low pH environments.
	Concrete or Concrete Grout	Cement, sand and aggregate with no less than seven (7) 94 lb. sacks of cement per cubic yard of concrete	Not more than seven (7) gallons water per sack of cement	—	Alts. 1,2,4,5	Cannot be used under Alternative 2 if free-product contamination issues exist.
	Sand-Cement Grout	One part cement and no more than one part sand by volume	Not more than six (6) gallons water	2x10 ⁻⁵ to 5x10 ⁻⁸	Alts. 1,2,4,5	Cannot be used under Alternative 2 if free-product contamination issues exist.
	Cement-Bentonite Grout	One sack of cement (94 lb.) & 3-5 lbs. bentonite	Not more than six and one-half (6.5) gallons water	10 ⁻⁵ to 10 ⁻¹¹	Standard Method and Alts. 1-5	Cannot be used under Alternative 2 if free-product contamination issues exist. Also cannot be used in vadose zone portion of an Alternative 3 well if free-product contamination issues exist.
	Sand-Bentonite Grout	Equal parts sand and bentonite by volume	Slightly more than one (1) gallon water per pound of sand	—	Alts. 1,2,4	May be difficult to pump; the sand may be dumped into place while the bentonite slurry is pumped via tremie pipe. Cannot be used under Alternative 2 if free-product contamination issues exist.
	Acid Resistant Cement (Pozzolanic Cement)	One sack of cement (94 lb.) and seventy-four (74) lbs. pozzolans (fly-ash, perlites, etc.) 2% to 6% of bentonite by weight is needed if perlites are used	Not more than ten (10) gallons of water per sack of cement	—	See special considerations	Typically used in areas where low pH groundwater is encountered. If perlites are used bentonite is needed to keep perlites from floating. Chemical admixtures and plastizers may be used to reduce viscosity.
Well Cuttings	Clean cuttings from the well being drilled and abandoned	NA	NA	—	Alts. 1,4	Only permissible for wells that do not penetrate aquifers or wells that only penetrate a single aquifer with no vertical flow components. No vadose zone and no water quality contamination issues may exist.
Forms of Bentonite _{1,2}	High-Solids Bentonite Grout (powder or granular mixture) with a minimum 15% solids by weight Minimum grout density = 9.2 lbs./gallon	Fifty (50) lbs. dry bentonite powder (powder mixture) or One hundred fifty (150) lbs. granular bentonite & 1 qt. Polymer (granular mixture)	Thirty-four (34) gallons (powder mixture) or One hundred (100) gallons (granular mixture)	10 ⁻⁷ to 10 ⁻⁸	Alts. 1-5	A minimum of 15% solids bentonite will be acceptable in most cases. However, a higher minimum of bentonite solids may be required in areas of high water quality contamination. Cannot be used under Alternative 2 if free-product contamination issues exist. Also cannot be used in vadose zone portion of an Alternative 3 well if free-product contamination issues exist. Granular mixtures generally require the addition of polymers.
	High-Solids Bentonite Grout (powder or granular mixture) with a minimum 25% solids by weight Minimum grout density = 10.0 lbs./gallon	Fifty (50) lbs. dry bentonite powder (powder mixture) or One hundred fifty (150) lbs. granular bentonite & 1 qt. Polymer (granular mixture)	Eighteen (18) gallons (powder mixture) or Fifty-four (54) gallons (granular mixture)	10 ⁻⁸ to 10 ⁻⁹	Standard Method	Cannot be used if free-product contamination issues exist. Granular mixtures generally require the addition of polymers.
	High-Solids Bentonite Chips and Pellets	NA	NA	—	Alts. 1-5	Rate of pour should not exceed 50 lbs. / 5 minutes. Must be hydrated to manufacturer's specifications if used in vadose zone. Cannot be used under Alternative 2 if free-product contamination issues exist. Also cannot be used in vadose zone portion of an Alternative 3 well if free-product contamination issues exist.

Notes: 1) Additives will be considered on a case by case basis (i.e., fly ash, CaCl, etc.).
2) Manufacturer's specifications should be followed to achieve a minimum 15% and 25% solids mixtures—mixing ratios listed in this table are approximate.

References

1. Alsay-Pippin Corporation, 1980, Handbook of Industrial Drilling Procedures and Techniques, 40 pp.
2. American Water Works Association, 1998, AWWA Standard for Water Wells, ANSI/AWWA A100-97, 73 pp.
3. Arizona Department of Water Resources, 2001, Statutes and Rules Governing Minimum Well Construction Standards and the Licensing of Well Drillers, 32 pp.
4. American Society for Testing and Materials (ASTM) Standard D5299-92, 1993, Standard Guide for Decommissioning of Ground Water Wells, Vadose Zone Monitoring Devices, Boreholes, and Other Devices for Environmental Activities, ASTM 1993 Annual Book of Standards, vol. 04-08, p. 1318-1333.
5. Baroid Drilling Fluids, Inc., 1999, Industrial Drilling Products Brochures, Houston, Texas.
6. Burgin, M. J., et. al., 1988, Grouting and Plugging of Domestic Water Wells in Georgia, Department of Natural Resources, Circular #13, 14 pp.
7. Driscoll, F.G., 1986, *Groundwater and Wells*. 2nd edition, Johnson Filtration Systems, St. Paul, Minnesota.
8. Eversoll, D.A., Hay, D. L., and Tremblay, R. J, September 15, 1995, Guidelines for Decommissioning Water Wells, How to Plug Water Wells, Nebraska Department of Health, Misc. Publ #37, 22 pp.
9. Kurt, C.E. and Johnson, R.C., Jr., 1982, Permeability of Grout Seals Surrounding Thermoplastic Well Casing: Ground Water, Vol. 20, no. 4, p. 415 - 419.
10. Lamb, B. and T. Kinney, 1989, Decommissioning Wells - Techniques and Pitfalls *in* Proceedings of the Third National Outdoor Action Conference on Aquifer Restoration, Ground Water Monitoring and Geophysical Methods, National Water Well Association, Dublin, Ohio, p.217 - 228.
11. Lutenege, A. J., and DeGroot, D. J., 1994, Hydraulic Conductivity of Borehole Sealants *in* D.E. Daniel and S.J. Trautwein (eds.), Hydraulic Conductivity and Waste Contaminant Transport in Soils, ASTM STP 1142, Philadelphia, Pennsylvania, p. 439-460.
12. Michigan Department of Public Health, Michigan Water Well Grouting Manual, 1988, 83 pp.
13. Portland Cement Association, 1988. Design and Control of Concrete Mixtures. 205 pp.
14. Smith, S.A., 1994. Well and Borehole Sealing: Importance, Materials, Methods, and Recommendations for Decommissioning. EPA - 542/K94/005. Wisconsin Water Well Association. 69 pp.
15. U.S. Environmental Protection Agency, 1975, Manual of Water Well Construction Practices, EPA - 570/9-75-001. 156 pp.
16. U.S. Environmental Protection Agency, March 1991, Handbook of Suggested Practices for the Design and Installation of Ground-Water Monitoring Wells, EPA- 600/4-89/034. 221 pp.
17. Wyo-Ben Inc., 1999, Groundwater & Mineral Exploration Products Brochure. Billings, Montana.

APPENDIX A – A.A.C. R12-15-816, The ADWR Well Abandonment Rule

R12-15-816. Abandonment

- A. Well abandonment shall be performed only by a licensed well drilling contractor or single well licensee.
- B. Except as provided in subsection (F) of this Section, the owner of a well shall file a notice of intent to abandon the well prior to abandonment, on a form prescribed and furnished by the Director, which shall include:
 - 1. The name and mailing address of the person filing the notice.
 - 2. The legal description of the land upon which the proposed well to be abandoned is located and the name and mailing address of the owner of the land.
 - 3. The legal description of the location of the well on the land.
 - 4. The depth, diameter and type of casing of the well.
 - 5. The well registration number.
 - 6. The materials and methods to be used to abandon the well.
 - 7. When abandonment is to begin.
 - 8. The name and well drilling license of the well drilling contractor or single well licensee who is to abandon the well.
 - 9. The reason for abandonment.
 - 10. Such other information as the Director may require.
- C. The Director shall, upon receipt of a proper notice of intent to abandon, mail a well abandonment authorization card to the designated well drilling contractor or single well licensee.
- D. Except as described in subsection (F) of this section, a well drilling contractor or a single well licensee may commence abandoning a well only if the driller has possession of an abandonment card at the well site, issued by the Director in the name of the driller, authorizing the abandonment of that specific well or wells in that specific location.
- E. Within 30 days after a well is abandoned pursuant to this Section, the well drilling contractor or single well licensee shall file with the Director a Well Abandonment Completion Report on a form prescribed and furnished by the Director which shall include the date the abandonment of the well was completed and such other information as the Director may require.
- F. In the course of drilling a new well, the well may be abandoned without first filing a notice of intent to abandon and without an abandonment card. If the well is abandoned pursuant to this subsection without first filing a notice of intent to abandon and without an abandonment card, the well drilling contractor or single well licensee shall provide the following information in the Well Abandonment Completion Report:
 - 1. The legal description of the land upon which the well was abandoned and the name and the mailing address of the owner of the land.
 - 2. The legal description of the location of the well on the land.
 - 3. The depth, diameter and type of casing prior to abandonment.
 - 4. The well registration number.
 - 5. The materials and methods used to abandon the well.

6. The name and well drilling license number of the well drilling contractor or single well licensee who abandoned the well.
 7. The date of completion of the abandonment of the well.
 8. The reason for abandonment.
 9. Such other information as the Director may require.
- G. The abandonment of a well shall be accomplished through filing or sealing the well so as to prevent the well, including the annular space outside the casing, from being a channel allowing the vertical movement of water.
- H. A well not penetrating an aquifer shall include a surface seal which shall be accomplished as follows:
1. If the casing is removed from the top 20 feet of the well, a cement grout plug shall be set extending from two feet below the land surface to a minimum of twenty feet below the land surface, and the well shall be backfilled above the top of the cement grout plug to the original land surface.
 2. If the casing is not removed from the top ten feet of the well, a cement grout plug shall be set extending from the top of the casing to a minimum of twenty feet below the land surface, and the annular space outside the casing shall be filled with cement from the land surface to a minimum of twenty feet below the land surface.
- I. In addition to the surface seal required in subsection (H):
1. A well penetrating a single aquifer system shall be filled with cement grout, concrete, bentonite drilling muds, clean sand with bentonite, or cuttings from the well.
2. A well penetrating a single or multiple aquifer system with vertical flow components shall be sealed with cement grout or a column of bentonite drilling mud of sufficient volume, density, and viscosity to prevent fluid communication between aquifers.
- J. Materials containing organic or toxic matter shall not be used in the abandonment of a well.
- K. The owner or operator of the well shall notify the Director in writing no later than 30 days after abandonment has been completed. The notification shall include the well owner's name, the location of the well, and the method of abandonment.

APPENDIX B – Definitions

For the purposes of this Handbook, the following terms have the following meanings:

Acid Resistant Cement (also known as Pozzolanic cement) (generic mixture):

means a cement mixture that has improved resistance to corrosive fluids. Acid resistant cement is developed by adding silicious materials, pozzolans, to Portland cement. Pozzolans from both natural materials of volcanic origin such as perlites (volcanic ashes), heat treated clays, shales, tuffs, opaline cherts and diatomaceous earth, and artificial materials consisting of by-products from glass factories, furnace slag, and fly ash may be used. A common mixing ratio is 74 pounds of pozzolans per 94 pound sack of cement and not more than ten (10) gallons of water per sack of cement. If perlites are used, 2 to 6 percent of bentonite by weight is needed to keep the perlite from floating. Acid resistant cement is typically recommended for well abandonment material in areas where low pH groundwater is encountered (such as near some mine sites).

Aggregate (generic mixture): means sand or gravel with particle size up to ¼ inch.

Annular Space: “means the space between the outer well casing and the borehole wall. An annular space also means the space between an inner well casing and an outer well casing.” A.A.C. R12-15-801(1)

Aquifer: “means an underground formation capable of yielding or transmitting usable quantities of water.” A.A.C. R12-15-801(2)

Aquifer Boundary: means a vertical change in aquifer properties indicated by a difference in hydraulic conductivity between aquifer layers that is at least greater than two orders of magnitude (100 times greater).

Bentonite “means a colloidal clay composed mainly of sodium montmorillonite, a hydrated aluminum silicate.” A.A.C. R12-15-801(5)

Cement Grout or Grout: “means cement mixed with no more than 50 percent sand by volume, and containing no more than six gallons of water per 94 pound sack of cement.” A.A.C. R12-15-801(15)

Cement grout is sometimes referred to as “sand-cement grout”, when sand is in the mixture.

Grout is often used as a synonym for slurry which is a generic term that means a thin mixture of liquid, commonly water, and any of several finely divided substances such as cement or clay particles.

Cement-Bentonite Grout (generic mixture): means a mixture of cement, bentonite and water at a ratio of 6.5 gallons of water per each 94 pound sack of cement with not more than 3 to 5 pounds of bentonite per sack of cement.

Concrete or Concrete Grout (generic mixture): means a mixture of cement, sand, coarse aggregate and water, with not less than seven (7) 94 pound sacks of cement per cubic yard of mixture and not more than seven (7) gallons of water per sack of cement.

Exploration Well: “means a well drilled in search of geophysical, mineralogical, or geotechnical data”. A.A.C. R12-15-801(13)

Free-Product Contamination: means any known hazardous substance that is essentially immiscible (non-soluble) in water. Some typical examples of free-product contamination are gasoline and carbon tetrachloride.

Hazardous Substance: has the same meaning prescribed by A.R.S. § 49-201.

High-Solids Bentonite Grout (granular or powder mixture) with a minimum of 15% solids by weight: means a mixture of granular bentonite or powder bentonite that yields a grout that has a minimum 15% bentonite solids by weight.

High-solids bentonite grout with a minimum of 15% solids by weight can be prepared from a mixture of granular bentonite (nominal 8 to 20-mesh particle size), water and polymer at a ratio of one hundred-fifty (150) pounds of granular bentonite and one hundred (100) gallons of water premixed with one (1) quart of polymer.

High-solids bentonite grout with a minimum of 15% solids by weight can also be prepared from a mixture of bentonite powder (nominal 200-mesh particle size) and water at a ratio of fifty (50) pounds of dry bentonite powder and thirty-four (34) gallons of water.

High-Solids Bentonite Grout (granular or powder mixture) with a minimum of 25% solids by weight: means a mixture of granular bentonite or powder bentonite that yields a grout that has a minimum 25% bentonite solids by weight.

High-solids bentonite grout with a minimum of 25% solids by weight can be prepared from a mixture of granular bentonite (nominal 8 to 20-mesh particle size), water and polymer at a ratio of one hundred-fifty (150) pounds of granular bentonite and fifty-four (54) gallons of water premixed with one (1) quart of polymer.

High-solids bentonite grout with a minimum of 25% solids by weight can also be prepared from a mixture of bentonite powder (nominal 200-mesh particle size) and water at a ratio of fifty (50) pounds of

dry bentonite powder and eighteen (18) gallons of water.

High-Solids Bentonite Chips: means chips of coarse bentonite ranging in size from 0.25 to 0.75 inch.

High-Solids Bentonite Pellets: means pellets of fine compressed bentonite (200-mesh) ranging in size from 0.25 to 0.50 inch.

Neat Cement or Neat Cement Grout (generic mixture): means a mixture of one (1) 94 pound sack of cement with not more than six (6) gallons of clean water.

Pressure Grouting “means a process by which a grout is confined within the borehole or casing of a well by the use of retaining plugs, packers, or a displacing fluid by which sufficient pressure is applied to drive the grout into and within the annular space or interval to be grouted.” A.A.C. R12-15-801(23)

Sand-Bentonite Grout (generic mixture): means a mixture of equal parts sand and bentonite by volume with slightly more than one (1) gallon of water per pound of sand.

Sand-Cement Grout (generic mixture): means a mixture of one 94 pound sack of Portland cement, sand and water in the proportion of not more than one (1) part by volume of sand to one (1) part of cement with not more than six (6) gallons of water per 94 pound sack of cement.

Sealing: means the conscious effort to construct a positive permanent barrier within a well that restricts or prohibits the vertical movement of groundwater and/or any other fluids or materials.

Vadose Zone Well “means a well constructed in the interval between the land surface and the top of the static water level. A.A.C. R12-15-801(26)

Vadose Zone Contamination Issue: means any hazardous substance that is found in the vadose zone at or in the vicinity of the well at concentrations that exceed established state or federal standards.

Water Quality Contamination Issue: means any known hazardous substance that is found in groundwater at or in the vicinity of the well at concentrations that exceed established state or federal standards.

Well: means any man-made opening in the earth through which water may be withdrawn or obtained from beneath the surface of the earth including: 1) all water wells, monitor wells and piezometer wells; 2) geothermal wells for which the rules of the Arizona Oil and Gas Commission do not require the reinjection of all water associated with the geothermal resource to the producing strata; and 3) all exploration wells and grounding or cathodic protection holes, except those that are less than 100 feet in depth and do not encounter groundwater.

The question and answer section of this Handbook contains additional information concerning the types of wells that are subject to ADWR's well abandonment rule.

Well Abandonment "means the modification of the structure of a well by filling or sealing the borehole so that water may not be withdrawn or obtained from the well." A.A.C. R12-15-801(28)

Well Abandonment Handbook

APPENDIX C – Questions and Answers about the Abandonment Handbook

Why was it necessary to provide a separate well abandonment Handbook when there is an existing well abandonment rule?

ADWR has become aware of some misunderstanding among well owners and well drillers concerning the requirements of the well abandonment rule, A.C.C. R12-15-816. This Handbook is intended to provide guidance to well owners and well drillers on what is required by the rule.

In addition, this Handbook describes the procedures and materials that should be used to abandon wells not detailed in the rule. The well abandonment rule requires a person abandoning a well to fill or seal the well in order to prevent the well, including the annular space outside the casing, from being a channel allowing the vertical movement of water. Any well owner or well driller who abandons a well in compliance with this Handbook will be deemed to be in compliance with this requirement.

Q. *What types of wells are subject to ADWR's well abandonment rule?*

- A. The well abandonment rule applies to man-made openings in the earth through which water may be withdrawn or obtained from beneath the surface of the earth, including all water wells, monitor wells and piezometer wells.

The well abandonment rule also applies to geothermal wells for which the rules and regulations of the Arizona Oil and Gas Commission do not require the reinjection of all waters associated with the geothermal resource to the producing strata, as well as exploration wells and grounding or cathodic protection holes greater than 100 feet in depth (regardless of whether they intercept groundwater).

Q. *What types of openings in the earth are not subject to ADWR's well abandonment rule?*

- A. The well abandonment rule does not apply to:
1. man-made openings in the earth not commonly considered to be wells, such as construction and mining blast holes, underground mines and mine shafts, open pit mines, tunnels, septic tank systems, caissons, basements, and natural gas storage cavities;
 2. an injection well or vadose zone well that is subject to regulation by the Arizona Department of Environmental Quality (ADEQ), provided that ADEQ has issued a letter or other document asserting explicit regulatory authority over the well;
 3. oil, gas, and helium wells drilled pursuant to the provisions of Title 27, Arizona Revised Statutes (wells regulated by the Arizona Oil and Gas Commission); and
 4. boreholes in the earth less than 100 feet in depth which are made for purposes other than withdrawing or encountering groundwater (such as exploration wells and grounding or cathodic protection holes less than 100 feet in depth), except that if groundwater is encountered in the drilling of the borehole, the well abandonment rule will apply.

Although the well abandonment rule does not apply to these types of wells and boreholes, it is nevertheless recommended that unused wells or

boreholes that are not regulated under ADWR's well abandonment rule be abandoned in a manner that will protect the aquifer.

Q. *What is the benefit of abandoning an unused well, as opposed to capping the well (which is also allowed under ADWR's rules)?*

A. Proper well abandonment is favored over well capping for both environmental and safety reasons.

Unused and unabandoned wells constitute actual or potential environmental hazards because they can serve as vertical conduits for hazardous substances to cross-contaminate aquifers. For example, during the last several decades, serious and costly vertical cross-contamination of a multiple aquifer system has occurred through unabandoned conduit wells at the Indian Bend Wash Superfund site in Scottsdale, Arizona. Owners of unused, unabandoned wells should also realize that they may be held legally responsible for secondary contamination if it is demonstrated that their well served as a conduit for vertical cross-contamination of an aquifer system.

Public safety issues also favor well abandonment over well capping. Capped wells are often tampered with, and once the well cap is removed there is a real danger for humans or animals to fall into the well, or for the well to be used for the illegal disposal of hazardous materials.

Q. *Why is it generally required to run a video log to determine the condition of the casing perforations in areas where water quality contamination exists if the casing is not ripped?*

A. Because significant conduit flow can occur through the annular space outside the casing, it is essential to seal this pathway to prevent potential vertical cross-contamination. Therefore, when water quality contamination issues exist, unless the well casing is removed or the casing is re-perforated over its entire length from 20 feet above the highest historic water level to the total depth of the well, the well owner must run a video log to determine whether the grout material can flow through the casing perforations and seal the annular space outside the casing.

Video logging and/or casing re-perforation may not be required in the case of the abandonment of recently constructed monitor wells. However, that determination must be made on a case-by-case basis.

In areas where water quality contamination issues do not exist, if the casing is not ripped, a video log is recommended, although not required, to determine perforation conditions. It is important to make sure that the well and the annular space outside the casing are properly abandoned even when there are no current water quality contamination issues. This is because the water could become contaminated in the future.

It should also be pointed out that additional benefits can be derived from running a video log. Those benefits may include: the determination of the structural integrity of the well casing, the presence of casing anomalies and obstructions, the presence of perched or cascading water, etc. This information can be very important in developing an effective abandonment design.

Q. *Under what circumstances is it permissible to use drill cuttings to abandon a well?*

A. In the course of drilling a new well, the well may be abandoned using drill cuttings from the well being drilled only if the well does not penetrate an aquifer or the well penetrates a single aquifer only, with no vertical flow components. Drill cuttings may only be used to abandon the well from which they were originally removed. Drill cuttings may not be used to abandon wells or boreholes that have water quality and/or vadose zone contamination issues.

Q. *How can it be determined whether vertical flow components exist in an aquifer or aquifer system?*

A. The determination of vertical flow conditions in an aquifer can be a challenging task. However, vertical flow conditions can be assessed by evaluating water level data collected in piezometers or monitor wells that are completed at different depths within an aquifer or aquifer system at the same location. Vertical fluid movement can also be evaluated in non-pumping wells using various geophysical logging techniques such as flowmeter logging, spinner logging or tracer logging. The observation of cascading water or water seeping into a non-pumping well below static level is a clear indication of vertical flow conditions within the well.

Because unit-specific water level data are typically unavailable, and geophysical logging may be impractical or too costly, it is best to assume that most aquifers or aquifer systems have some component of vertical flow, and well abandonment methods and materials should be chosen accordingly.

Q. *What should I do if I have further questions concerning a well abandonment project?*

A. Contact ADWR Hydrology Division at:

602-771-8500
(Phoenix metro area)

1-800-352-8488
(outside metro Phoenix)



SECURING ARIZONA'S WATER FUTURE



3550 N CENTRAL AVENUE, SUITE 200
PHOENIX, ARIZONA
85012-2105

PHONE: 602-771-8500
1-800-352-8488

FAX: 602-771-8691

WEBSITE: <http://www.azwater.gov>



ATTACHMENT R-3
WELLFIELD CLOSURE COSTS

Contents

Executive Summary	ii
Closure Plan for the ISR Wellfield	1
ISR Wellfield Closure Liability	2
Closure Cost Estimation for Bonding	3
Work Plans and Mobilization	3
Labor Costs	4
Pump Replacement Costs	4
Quarterly Reporting	5
Power Costs	5
Wellfield Rinsing Credits	8
Rinsing Verification Sampling	9
Well Abandonment Costs	10
Post-Closure Monitoring.....	12
Cumulative Closure Liability.....	13

Tables

Table R3-1: Closure Costs and Closure Credits by Year
Table R3-2: Labor Hourly Costs
Table R3-3: Power Cost for Fresh Water Supply Pumping for Rinsing
Table R3-4: Power Cost for Rinse Recovery Well Pumping
Table R3-5: Power Cost for Hydraulic Control Well Pumping
Table R3-6: Power Cost for Mechanical Evaporation
Table R3-7: Wellfield Rinsing Credits by Year
Table R3-8: Worksheet used to Calculate Rinsing Verification Unit Costs
Table R3-9: Year-By-Year Well Abandonment Cost Summary
Table R3-10: Cost for Five Years of Post-Closure Monitoring
Table R3-11: Closure Cost Detail
Table R3-12: Well Abandonment Cost Detail

Executive Summary

A closure strategy and cost estimate for the Stage 1 Gunnison ISR wellfield has been developed in accordance with ADEQ, ADWR, EPA UIC, and BADCT guidelines. The closure activities will include ISR wellfield rinsing, pullback pumping, rinsing verification monitoring, well abandonment, and post-closure monitoring.

An Aquifer Protection Permit (APP) from ADEQ will be required in addition to the Underground Injection Control (UIC) permit from the EPA. Separate bonds will be held for closure costs associated with the APP and the UIC. The APP bond will consist of pond closure and POC well abandonment costs. The UIC bond will consist of all other costs including rinsing, well abandonment (excluding POCs) pullback pumping, work plans, mobilization, reporting and post closure monitoring.

The closure cost details presented in this attachment are the same as those provided to ADEQ for the APP except for the ponds and the abandonment of the POC wells which have been excluded.

The most extensive closure activity will be the rinsing of the wellfield that will require flushing the leached formations with clean water, the extraction of the impacted rinse water, and evaporating it in the Gunnison Evaporation Pond #1. Costs have been developed for general administration, wellfield labor and maintenance, power for wellfield pumps needed for rinsing, mechanical evaporators, rinsing verification monitoring, and post-closure monitoring.

Well abandonment will be conducted according to ADWR guidelines by removing the wellhead piping and pumps followed by grouting the boreholes in accordance with EPA UIC requirements. Wells scheduled for abandonment include injection and recovery wells, hydraulic control wells, observation wells, intermediate monitor wells (IMWs), rinse verification wells, and Point-of-Compliance (POC) wells. Costs for abandonment were developed using third party contractor costs and include labor and supervision, pre-grouting activities, grouting, perforation (where applicable), casing removal to two feet below the surface, and debris removal.

The costs for ISR wellfield closure by each year are presented in Table R3-1 for the ten years covering Stage 1 production. Credits have also been tabulated for the cost of closure activities that will have been completed by a given year. From the table, the maximum liability (\$8.47 million) occurs in Year 10. The closure costs will be re-evaluated in Year 6. From Table R-1, the difference in cost between Year 10 and Year 6 is approximately \$700,000 that can be used as a contingency for additional pullback pumping if required in Years 1 through 6.

Table R3-1: Summary of Closure Costs and Closure Credits by Year (\$Millions)

Table: Summary of Closure Costs and Closure Credits by Year (\$Millions)										
Item	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10
Rinsing	1.708	2.175	2.623	3.013	3.041	3.159	3.039	3.091	2.962	2.993
Well Abandonment	1.091	1.496	1.754	2.150	2.518	2.878	3.499	3.554	3.556	3.626
Other**	0.336	0.340	0.343	0.345	0.345	0.346	0.345	0.345	0.345	0.345
Pullback Pumping	1.850	1.539	1.254	0.995	0.902	0.834	0.897	0.865	0.933	0.923
Contingency (10%)	0.499	0.555	0.597	0.650	0.681	0.722	0.778	0.785	0.779	0.789
Total (no credit)	5.484	6.104	6.571	7.153	7.486	7.939	8.558	8.640	8.574	8.676
Credit	0.000	0.000	0.000	0.000	-0.132	-0.085	-0.164	-0.123	-0.136	-0.120
Total with credit	5.484	6.104	6.571	7.153	7.353	7.854	8.394	8.517	8.439	8.556
**Costs for work plans, mobilization, reporting, and post closure monitoring										

Closure Plan for the ISR Wellfield

Closure of the ISR wellfield will consist of rinsing and neutralization of the portions of the formation that have been exposed to leach solution. The wells will be closed and abandoned in accordance with UIC regulations and Arizona Department of Water Resources (ADWR) guidance after rinsing has reduced all constituents to primary MCLs and Arizona Aquifer Water Quality Standards (AWQSS).

Metallurgical test results and geochemical modeling indicate that neutralization and constituent concentration reduction to appropriate levels can be accomplished by a three-step process (as described in Attachment H-2). First, the acidified leaching solution is replaced with clean water to dilute the concentration of leach solution in the formation to approximately 5 percent (Attachment H-3). Second, active circulation of solutions within the subject portion of the wellfield is suspended for approximately 200 days to neutralize the acid. Geochemical modeling based on mineralogy indicates that the leached formation will have sufficient acid neutralizing potential to raise the pH to near neutral. The third step is additional flushing with clean water to reduce regulated constituents to acceptable concentrations. The first rinsing step will require three pore volumes and the second rinse (third step) will require two pore volumes (Attachment H-2). AWQSSs and primary MCLs are expected to be met after the rest period (except for a possible minor exceedance of the fluoride AWQS/MCL); the two additional pore volumes are a contingency to provide extra confidence in the expected results.

Clean water for rinsing during Stage 1 production will be provided by water supply wells and unimpacted hydraulic control water. Water for rinsing Stage 2 and Stage 3 wells is anticipated to also include recycled water from a water treatment plant constructed in later stages. For Stage 1, rinse water will directly flow by gravity from the Fresh Water Tank on the Johnson Camp Mine property. In Stages 2 and 3, water for rinsing will be pumped from the Clean Water Pond. Rinse water will be injected into the production wellfield. Extracted water will be pumped to the Evaporation Pond for natural and mechanical evaporation. The “first flush”, which can be considered the first pore volume, from Step 1 rinsing will contain sufficient copper grade for economical extraction in the SX-EW plant. After the copper concentration drops below the economic threshold, the remainder of rinsate extracted will be sent to the Evaporation Pond.

Rinsing is considered complete when the concentrations of all constituents are at or below AWQSSs and primary MCLs. Wells that are accepted as being sufficiently rinsed¹ will be abandoned in accordance with EPA and ADWR criteria. The wells will be grouted from bottom upward using a tremie pipe to eliminate its ability to act as a conduit for solution migration.

¹ With the exception of wells that will be used as Rinse Verification and Closure Verification wells. These will be left open for monitoring and abandoned later according to the closure strategy.

ISR Wellfield Closure Liability

When wells are added and put into production, they are assumed to accrue a liability for the complete three step rinsing, as described above. This liability includes all the components of rinsing, verification, and abandonment. This liability continues to grow until rinsing begins. As the rinsing and closure of wells progresses, the liability is reduced in the year that operations are completed in the form of rinsing credits and the removal of wells from the number that need to be abandoned for the subject year. For example, if 183 wells are present at the beginning of the year, 16 are closed (abandoned), and 14 are added, the year-end liability for well abandonment is 181.

The process of rinsing the production wellfield is expected to take approximately two years, since the time duration is dominated by the need to "rest" the wells in order to neutralize the solution. If there are 40 cells (five spot patterns) that need to be rinsed, the first 20 are rinsed for approximately 200 days to achieve three pore volumes of rinsing. The first 20 cells are put into "resting mode" while the second group of 20 cells is rinsed with three pore volumes. The second group is rested while the first group is rinsed with the final two pore volumes for approximately 130 days. After 70 more days of "resting," the second group of wells is rinsed for the final 130 days with an elapsed time of 730 days or 2 years. The volume of cumulative rinsing liability (in gallons) is divided by 576,000 gallons (400 gpm x 60 min x 24 hrs) to approximate the time (in days) for rinsing all of the wells. An additional 10% is added to the time to account for overlaps and inefficiencies in moving from one group of cells to the next.

Costs to complete the wellfield closure and abandonment process have been estimated for each year of Stage 1. Closure of the spent portions of the wellfield is planned to take place throughout the life of the operation beginning in Year 5 when rinsing will begin of the first wells that are anticipated to produce copper concentrations that fall below economic cutoff. These costs are based on evaluating the annual closure liability for each year of Stage 1 operation if the project were to shut down.

Pullback Pumping

Pullback pumping costs are included in the closure costs to allow for the capture of potential solution excursions from the active mining blocks. The pullback pumping will draw down the water table and "pull back" solutions into the mining area. The pullback pumping will be conducted in conjunction with rinsing of the wellfield.

In the model simulations, particles initially migrate away from mining blocks during operations but then the paths are reversed and particles are captured when recovery or pullback pumping

operations begin after a mining year. The modeling shows that all particles are captured within 3 years after pullback pumping starts, with most being captured within one year of pullback pumping. Model simulations were made to evaluate capture in Years 1 and 5 and used to estimate the costs for pullback pumping for all of Stage 1. Excelsior does not believe modeling closure scenarios after year 5 is necessary given that Excelsior will be reviewing the model performance as compared to actual operations as part of the planned review of closure cost bonding after year 6. Modeling at that time will incorporate updates based on operations and monitoring data.

The assumptions used for the pullback pumping simulations are conservative because normal mine operations will create a “sweep” effect outside the perimeter of a mining block specifically to recapture mining solutions as part of the normal recovery operations (i.e. without pullback pumping). Also, no control strategies are simulated, such as local over-pumping to control detected excursions. Pullback pumping will draw in clean water which will naturally rinse the mining area.

It was assumed that after Year 1 and Year 5 of mining, recovery wells around the perimeter of the blocks would be operated to pull back any potential solutions as represented by particles in the model. For the Year 5 scenario, the two hydraulic control (HC) wells along the southern boundary of the wellfield also need to be operated.

Costs for the pullback pumping have been estimated for each year of Stage 1. The additional labor and power costs for pullback pumping have been included with the closure costs.

Closure Cost Estimation for Bonding

The following sections provide details on the various cost categories shown in **Table R3-11**.

Work Plans and Mobilization

In the event that the operators of the project default on their obligations under the permit, it is assumed that the EPA and/or the State of Arizona would have the responsibility of completing closure and post-closure operations. The State would likely hire a remediation contractor to conduct the necessary closure and post-closure operations, using subcontractors where necessary to perform such services as rinsing, well abandonment, and pump replacement. It is also assumed that the contractor would have to prepare work plans, assemble a team and mobilize to the site to begin rinsing and closure operations. A lump sum estimate of \$75,000 has been allocated for the

preparation of work plans. An additional \$20,000 has been allocated for mobilization and demobilization from the site.

Labor Costs

The process of rinsing the production wellfield and the pullback pumping is estimated to take three years. The rinsing is rested for a year to naturally neutralize the solution and the pullback pumping occurs throughout the three years. Therefore, three years of wellfield operation, maintenance, and general and administrative costs are included in the closure costs regardless of the mining year in Stage 1 that the mining operations cease.

The operation of the wellfield can be managed by a supervisor, two operators, an electrician and site security personnel during the rinsing and pullback pumping cycle. Hourly rates for wellfield rinsing staff are shown in Table R3-2 and unit costs are shown in Table R3-11 on Lines 58-62.

Table R3-2: Labor Hourly Costs

Position	Quantity	Hourly Rate
Project Manager	1	\$125
Rinsing Supervisor	1	\$72
Wellfield Operator	2	\$56
Wellfield Electrician	1	\$44
Site Security	1	\$30
Overhead	10%	

Hourly rates were obtained by using R.S. Means conversions of local, published salaries for specific positions. Labor costs were developed by taking the rinsing duration in days and dividing them by 7 to determine number of weeks. The project manager was assigned 10 hours per week while the field personnel were assigned 40 hours per week and site security 60 hours per week. An overhead charge of 10% was applied to all labor rates to cover such things as vehicle use and administrative and field expenses.

Pump Replacement Costs

Before rinsing can begin, submersible pumps in the recovery wells need to be changed for similar pumps with a smaller discharge rate. Rinsing operations are limited by the supply of fresh water available at the Johnson Camp Mine (approximately 400 gpm), so it is impractical to rinse the wellfield at production-level injection rates. A subcontractor with well maintenance experience will be used to change the pumps.

During production, the recovery wells will typically be sized to pump approximately 80 gpm. During rinsing, the recovery pumping rates for rinsate will be typically 25% of that rate, or 20 gpm, requiring a change in the pumps to operate efficiently. Costs for pump replacement and well maintenance have been estimated on a contract basis using a quote from Verdad, Inc. in Tucson. The cost for a replacement pump for 20 gpm recovery is estimated at \$2,990. Labor, rig costs, and per diem are estimated at 4 hours per well for rig and labor costs, and ½ day of per diem per well. A single mobilization charge of \$1,500 is estimated for pump replacement. It was assumed that a new submersible well pump would be capable of recovering rinsate for the estimated 330 days of pumping required without significant maintenance costs.

Quarterly Reporting

As mentioned above, in the event that the operators of the project default on their obligations under the permit, it is assumed that the EPA and/or the State of Arizona would have the responsibility of completing closure and post-closure operations for purposes of calculating the closure bond. The remediation contractor will prepare quarterly reports. In any given year, the number of reports that it will take to complete rinsing will vary, depending on how many cells must be rinsed. For example, in Year 4, the duration of rinsing needed for existing wells is 676 days (Line 5 of Table R3-1) so there will be 8 quarterly reports prepared (Line 22).

Power Costs

The primary cost of rinsing is power. Power costs are based on the cost of power (\$0.08/kWh) from Sulphur Springs Valley Electric Co-operative to the Johnson Camp Mine during recent operation before the mine went into care and maintenance. Unit power costs (\$/Mgal) are discussed below for the following:

- Water Supply Pumping for Rinsing
- Rinse Recovery Pumping
- Hydraulic control Pumping
- Mechanical Evaporation

Water supply costs for rinsing are based on the existing wells at the Johnson Camp Mine and the estimated power cost to pump 400 gallons per minute (gpm) divided by the flow rate requirement to accomplish the rinsing. Water supply is provided by two 60 hp pumps capable of producing 400 gpm. The cost per gallon of water supply for rinsing is \$0.0002685, or \$268.45 per million gallons (/Mgal) as shown in Table R3-3.

Table R3-3: Power Cost for Fresh Water Supply Pumping for Rinsing

Description	Units	Quantity
Water Supply output	gpm	400
Conversion	gph	24,000
Water Supply Pump motors	hp	120
Conversion	kW/hp	0.746
Power Factor	%	90
Power usage	kW	80.5
Cost per kW-hr	\$	0.080
Pumping Cost per hour	\$	6.44
Water Supply Power Cost	\$/gal	0.0002685
Water Supply Power Cost	\$/Mgal	\$268.45

Rinsate from the recovery wells is pumped up to the Gunnison Evaporation Pond. Maintenance for these pumps is included in wellfield maintenance. The rinse recovery pumping liability assumes a 5 hp motor capable of pumping 15 gpm per well against a total dynamic head of over 600 feet with a power cost of \$0.08 per kilowatt-hour (kW-hr) to extract rinse water. The cost per gallon of rinse recovery pumping is \$0.0002983, or \$298.28/Mgal as shown in Table R3-4.

Table R3-4: Power Cost for Rinse Recovery Well Pumping

Description	Units	Quantity
Rinse Recovery Pumping	gpm	15
Conversion	gph	900
Recovery Pump motors	hp	5
Conversion	kW/hp	0.746
Power Factor	%	90
Power usage	kW	3.4
Cost per kW-hr	\$	0.080
Pumping Cost per hour	\$	0.27
Rinse Recovery Pumping Cost	\$/gal	0.0002983
Rinse Recovery Pumping Cost	\$/Mgal	\$298.28

Hydraulic control wells are outfitted with 5 HP pumps. These pumps must be utilized throughout the rinsing process to ensure that hydraulic control is maintained to prevent excursions of impacted rinse solutions until the formations are adequately rinsed. Table R3-5 summarizes the power consumption and cost of power for hydraulic control wells during closure.

Table R3-5: Power Cost for Hydraulic Control Well Pumping

Description	Units	Quantity
Hydraulic Control Pumping	gpm	15
Conversion	gph	900
Recovery Pump motors	hp	5
Conversion	kW/hp	0.746
Power Factor	%	90
Power usage	kW	3.4
Cost per kW-hr	\$	0.080
Pumping Cost per hour	\$	0.27
Hydraulic Control Pumping Cost	\$/gal	0.0002983
Hydraulic Control Pumping Cost	\$/Mgal	\$298.28

Power costs for mechanical evaporation of the rinsate are based on vendor information using climatic data for the Johnson Camp mine. The annual average evaporation required is 37.6 million gallons. The evaporator model that has been selected for purposes of this estimate is the Mega Polecat model from SMI Evaporative Systems. One operating evaporator and one standby evaporator are needed in Years 1 and 2. The number of evaporators reaches a maximum seven operating and one standby in Year 7. However, in full-scale rinsing during closure the available rinse water flow heading to evaporation will be 440 gpm, requiring 11 evaporators total. The capital cost for adding 9 evaporators (11 total) at \$91,000 per evaporator (with controls, based on a quote from SMI Evaporative Solutions) is held constant throughout the closure cost estimate to provide for the additional units required during closure.

The capacity of one evaporator is 130 gpm with an average evaporation efficiency calculated from manufacturer's data of 55% for an evaporation rate of 71.5 gpm, or 4,290 gallons per hour. The fan motor and pump to supply water to the unit total 90 hp. The unit rate for evaporation is \$0.001129 per gallon, or \$1,126.83 per million gallons as shown in Table R3-6.

Table R3-6: Power Cost for Mechanical Evaporation

Description	Units	Quantity
Evaporation Rate	gpm	71.5
Conversion	gph	4,290
Fan Pump	hp	60
Feed Pump	hp	30
Conversion	kW/hp	0.746
Power Factor	%	90
Power usage (fan+pump)	kW	60.4
Cost per kW-hr	\$	0.080
Evaporator Power Cost per hour	\$/hr	4.83
Evaporation Power Cost	\$/gal	0.0011268
Evaporation Power Cost	\$/Mgal	\$1,126.83

Wellfield Rinsing Credits

The process of closing production wells is scheduled to begin in Year 5 of production. The first step in well closure is early rinsing in which the leach solution is replaced with clean water to dilute the pore water in the formation approximately 95 percent. Geochemical studies (Attachment H-2) indicate that this will require injection of approximately three pore volumes of clean water. Once complete, the closure liability is reduced by the cost of that rinsing and is shown as a credit (Line 103 of Table R3-11 and Table R3-7). The early rinsing credit is calculated as three-fifths of the rinsing liability, since it takes three of the five pore volumes necessary to complete the rinsing.

The second step of rinsing involves shutting down the wellfield for approximately 200 days. Rinse water injection and rinsate recovery is stopped to allow the remaining solution to be neutralized by the formation. The natural acid neutralizing potential of the formation has been shown by metallurgical test work to bring the rinse water resting in the formation to near neutral pH in approximately 200 days. After the rest phase, the geochemical model indicates that only fluoride will exceed the AWQS/primary MCL.

Additional rinsing is conducted in step three to flush out constituents remaining in the formation after neutralization. Geochemical modeling indicates that an additional two pore volumes of rinse water needs to be injected and recovered to reduce all constituents (specifically fluoride—all others are expected to meet AWQSs and primary MCLs at the end of the rest phase) to AWQSs/MCLs. In the rinsing schedule this 200 days is approximated by one year. The rinsing

credit for this late rinsing is the remaining two-fifths of the water supply, rinsate extraction pumping, rinsate pumping, and evaporation liability.

Table R3-7: Wellfield Rinsing Credits by Year

Category	Rate	Unit	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10
Early Rinse cells		5-Spot					14	9	8	7	9	8
Pore volume @ 3% porosity per cell	1.863	Mgal					26.077	16.764	14.901	13.039	16.764	14.901
Early Rinse volume	3 pore volumes	Mgal					78.231	50.292	44.704	39.116	50.292	44.704
Water Supply Power Credits	\$268	\$/Mgal					\$21,001	\$13,501	\$12,001	\$10,501	\$13,501	\$12,001
Rinse Recovery Pumping Power Credits	\$298	\$/Mgal					\$23,335	\$15,001	\$13,334	\$11,667	\$15,001	\$13,334
Early Rinsate Pumping Credits	\$0	\$/Mgal					\$0	\$0	\$0	\$0	\$0	\$0
Evaporation Power Credits	\$1,127	\$/Mgal					\$88,153	\$56,670	\$50,373	\$44,076	\$56,670	\$50,373
Yearly Early Rinse Credits							\$132,489	\$85,172	\$75,708	\$66,245	\$85,172	\$75,708
Late Rinse Blocks		block							14	9	8	7
Pore volume @ 3% porosity per cell	1.863	Mgal							26.077	16.764	14.901	13.039
Late Rinse volume	2 pore volumes	Mgal							52.154	33.528	29.802	26.077
Water Supply Power Credits	\$268	\$/Mgal							\$14,001	\$9,001	\$8,001	\$7,000
Rinse Recovery Pumping Power Credits	\$298	\$/Mgal							\$15,557	\$10,001	\$8,889	\$7,778
Late Rinsate Pumping Credits	\$0	\$/Mgal							\$0	\$0	\$0	\$0
Evaporation Power Credits	\$1,127	\$/Mgal							\$58,769	\$37,780	\$33,582	\$29,384
Yearly Late Rinse Credits							\$0	\$0	\$88,326	\$56,781	\$50,472	\$44,163
Total Yearly Wellfield Rinsing Credits							\$132,489	\$85,172	\$164,034	\$123,026	\$135,644	\$119,871

Rinsing Verification Sampling

Rinsing verification consists of groundwater monitoring of injection/recovery wells after rinsing is completed. The cost was calculated for each year of Stage 1 (Years 1-10) based on the number of injection and recovery wells in existence during that year (Table R3-8). The following assumptions were made:

- Labor costs are based on Clear Creek Associates’ Staff 1 billing rate, which is the appropriate staffing level for this task.
- After rinsing of Block 1, 100% of extraction wells (24 wells per Attachment A-1 Section 3.2.8.1) will be sampled for rinse verification. For subsequent blocks, 10% of extraction wells will be monitored for rinse verification, if it can be shown that 10% is representative of the overall groundwater quality within the block (based on the Block 1 results).
- Current pricing from Turner Laboratories in Tucson, AZ was used to calculate analytical laboratory costs.
- No purging is required as the wells will be sampled at the end of rinsing steps so they will already be purged.
- Assumed 1.5 hours of collection time per sample.

Sampling of 10% of the recovery wells is justifiable based on the spacing and number of wells. The entire wellfield is approximately 192 acres. During the life of the project there will be

approximately 1,400 injection/recovery wells operating within the wellfield. Sampling 10% of the wells equates to one well for every 0.73 acres. The dimensions of a 1.4-acre square block are less than 250 feet by 250 feet. Excelsior considers this to be a high sample density that will adequately characterize the effectiveness of rinsing. A sample size of 10% is typically considered statistically significant for quality assurance (QA) verification by ADEQ and other governmental agencies.

Table R3-8: Worksheet used to Calculate Rinsing Verification Unit Costs

Description	Qty	Rate	Unit	YEAR										
				Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	
Sample collection (1 hours per sample--no purging required)	1.5	\$95.00	hr	\$ 3,420	\$ 570	\$ 713	\$ 855	\$ 855	\$ 855	\$ 855	\$ 855	\$ 855	\$ 855	\$ 855
Field Parameters Meter (Clear Creek Rate)	2	\$25.00	day	\$ 50	\$ 50	\$ 50	\$ 50	\$ 50	\$ 50	\$ 50	\$ 50	\$ 50	\$ 50	\$ 50
Misc. field costs per well (2)	1	\$25.00	each	\$ 600	\$ 100	\$ 125	\$ 150	\$ 150	\$ 150	\$ 150	\$ 150	\$ 150	\$ 150	\$ 150
Mileage (from Tucson) based on 2 trips per year	280	\$0.55	each	\$ 154	\$ 154	\$ 154	\$ 154	\$ 154	\$ 154	\$ 154	\$ 154	\$ 154	\$ 154	\$ 154
Field Truck (Clear Creek Rate)	2	\$95.00	daily	\$ 190	\$ 190	\$ 190	\$ 190	\$ 190	\$ 190	\$ 190	\$ 190	\$ 190	\$ 190	\$ 190
Generator Rental (trailer mounted, from Sunstate Rentals)(3)	1	\$713.00	week	\$ 713	\$ 713	\$ 713	\$ 713	\$ 713	\$ 713	\$ 713	\$ 713	\$ 713	\$ 713	\$ 713
Laboratory Costs (TURNER)(1)														
Dissolved Metals ICP (Sb, As, Ba, Be, Cd, Cr, Pb, Se, Th, Ni)	1	\$80.00	sample	\$ 1,920	\$ 320	\$ 400	\$ 480	\$ 480	\$ 480	\$ 480	\$ 480	\$ 480	\$ 480	\$ 480
Mercury dissolved	1	\$41.00	sample	\$ 984	\$ 164	\$ 205	\$ 246	\$ 246	\$ 246	\$ 246	\$ 246	\$ 246	\$ 246	\$ 246
Fluoride	1	\$20.00	sample	\$ 480	\$ 80	\$ 100	\$ 120	\$ 120	\$ 120	\$ 120	\$ 120	\$ 120	\$ 120	\$ 120
VOCs	1	\$150.00	sample	\$ 3,600	\$ 600	\$ 750	\$ 900	\$ 900	\$ 900	\$ 900	\$ 900	\$ 900	\$ 900	\$ 900
TDS	1	\$21.00	sample	\$ 504	\$ 84	\$ 105	\$ 126	\$ 126	\$ 126	\$ 126	\$ 126	\$ 126	\$ 126	\$ 126
pH--field	1	\$0.00	sample	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
nitrate+nitrite	1	\$30.00	sample	\$ 720	\$ 120	\$ 150	\$ 180	\$ 180	\$ 180	\$ 180	\$ 180	\$ 180	\$ 180	\$ 180
dissolved U	1	\$150.00	sample	\$ 3,600	\$ 600	\$ 750	\$ 900	\$ 900	\$ 900	\$ 900	\$ 900	\$ 900	\$ 900	\$ 900
Ra226 + Ra 228	1	\$195.00	sample	\$ 4,680	\$ 780	\$ 975	\$ 1,170	\$ 1,170	\$ 1,170	\$ 1,170	\$ 1,170	\$ 1,170	\$ 1,170	\$ 1,170
gross alpha	1	\$85.00	sample	\$ 2,040	\$ 340	\$ 425	\$ 510	\$ 510	\$ 510	\$ 510	\$ 510	\$ 510	\$ 510	\$ 510
Data Management, Reporting per sample	2	\$95.00	hr	\$ 4,560	\$ 760	\$ 950	\$ 1,140	\$ 1,140	\$ 1,140	\$ 1,140	\$ 1,140	\$ 1,140	\$ 1,140	\$ 1,140
Annual Cost				\$ 28,215	\$ 5,625	\$ 6,755	\$ 7,884	\$ 7,884	\$ 7,884	\$ 7,884	\$ 7,884	\$ 7,884	\$ 7,884	\$ 7,884
Unit Cost per Sample				\$ 1,176	\$ 1,406	\$ 1,351	\$ 1,314	\$ 1,314	\$ 1,314	\$ 1,314	\$ 1,314	\$ 1,314	\$ 1,314	\$ 1,314
Notes:														
(1) Unit Costs from Turner Laboratories in Tucson, AZ														
(2) Ice, disposables, fuel for generator.														
(3) weekly unit rate is marked up by 15%. Rate from SunState														

The annual costs were divided by the number of samples per year to arrive at a unit cost (Table R3-8). The highest unit cost is in Year 1 (\$1,406 per sample in Year 2). This unit cost was used each year to calculate the closure costs for each year.

Well Abandonment Costs

Clear Creek obtained unit costs from three licensed drilling companies in Arizona to compile well abandonment costs. Unit costs (i.e. cost per well to abandon) were calculated for the different types of wells: injection/recovery, hydraulic control, point of compliance, observation, and Intermediate Monitor wells (IMWs). Unit costs for abandonment of each well type are based on the well depth and diameter (volume of grout needed), and whether or not perforation will be required. Injection and recovery wells and hydraulic control wells will be open hole completion so the abandonment costs are relatively low because perforation is not necessary. Observation wells, point of compliance wells and the IMWs with screen and annular materials will be more expensive to abandon because they will require perforation. The average depth of wells in this

portion of the mineralization is expected to be approximately 1,435 feet below land surface, so a depth of 1450 feet was used to calculate the well abandonment costs using third party unit costs provided by Yellow Jacket Drilling, a licensed well driller in Arizona.

Table R3-9 below provides a summary of year-by-year abandonment costs for all wells in existence during each year of Stage 1 operations. Table R3-10 (provided at the end of this text) provides detailed post closure monitoring costs.

Table R3-9: Year-By-Year Well Abandonment Cost Summary

Year	Wellfield		HC Wells		Obs Wells		IMWs		RVWs		TOTAL
	Quantity	Cost	Quantity	Cost	Quantity	Cost	Quantity	Cost	Quantity	Cost	
Y1	38	\$ 648,660	3	\$ 30,900	2	\$ 83,240	31	\$ 329,220	0	\$ -	\$ 1,092,020
Y2	58	\$ 970,660	5	\$ 51,500	4	\$ 166,480	29	\$ 307,980	0	\$ -	\$ 1,496,620
Y3	78	\$ 1,249,760	5	\$ 51,500	4	\$ 166,480	27	\$ 286,740	0	\$ -	\$ 1,754,480
Y4	95	\$ 1,562,600	6	\$ 61,800	6	\$ 249,720	26	\$ 276,120	0	\$ -	\$ 2,150,240
Y5	116	\$ 1,899,920	9	\$ 92,700	6	\$ 250,020	26	\$ 276,120	0	\$ -	\$ 2,518,760
Y6	132	\$ 2,156,240	11	\$ 113,300	8	\$ 332,960	26	\$ 276,120	0	\$ -	\$ 2,878,620
Y7	150	\$ 2,445,200	19	\$ 195,700	14	\$ 582,380	26	\$ 276,120	0	\$ -	\$ 3,499,400
Y8	150	\$ 2,442,200	19	\$ 195,700	14	\$ 582,380	25	\$ 265,500	4	\$ 64,600	\$ 3,550,380
Y9	148	\$ 2,410,160	19	\$ 195,700	14	\$ 582,380	25	\$ 265,500	6	\$ 102,000	\$ 3,555,740
Y10	152	\$ 2,468,240	19	\$ 195,700	14	\$ 582,380	23	\$ 244,260	8	\$ 136,000	\$ 3,626,580

Abandonment costs are provided for wells, including injection/recovery wells, observation wells, hydraulic control wells, and the IMWs. NOTE: The POC wells will be installed for the purposes of the APP and the bonding for abandonment will be held by ADEQ.

Assumptions used in calculating abandonment costs are provided at the bottom of the spreadsheet and are linked to the appropriate line items. Some of the key assumptions are:

1. Average total depth of wells is 1450 feet.
2. Average of 1150 feet of grout will be used to abandon each well to meet ADWR/UIC requirements for the grouted interval.
3. Injection/recovery wells will be open hole completion with a 7-inch diameter borehole.
4. Hydraulic control wells will be open hole completion with a 5-inch diameter borehole.
5. Observation and some of the IMW wells will be constructed with screen and annular materials. Perforation costs are included for these wells.
6. One mobilization is included for all wells (excluding the POC wells)
7. Consultant labor rates are based on Clear Creek Associates' billing rates, which are consistent with the industry standard in Arizona.

The highest year for well abandonment in Stage 1 is Year 10, with a total cost of approximately 3.63 million.

Post-Closure Monitoring

The post-closure monitoring will comprise 5 years of annual monitoring at three POC wells 8 outer Observation Wells and within the wellfield at Closure Verification Wells (CVWs). The wellfield will be considered closed when five consecutive annual rounds of monitoring at the CVWs outer OWs and the POCs meet AWQs and MCLs. While this monitoring is scheduled to take place over 5 years at the end of mining, the total cost is included for Years 1 to 10 in the event of premature cessation of operations. Costs for 5 years of post-closure monitoring are estimated to be \$236,548. as shown in Table R3-10:

Table R3-10: Cost for Five Years of Post-Closure Monitoring

	Quantity	Rate	Unit	markup %	Total	NOTE
Sample collection (8 hours per sample, 95 samples)	760	\$95.00	hr	0	\$72,200.00	(2)(3)
Field Parameters Meter	95	\$25.00	day		\$2,375.00	
Misc. field costs--5 events	5	\$500.00	lumpsum		\$2,500.00	(5)
Mileage (from Tucson) (90 days at 140 miles per day)	12600	\$0.55	mile		\$6,930.00	(8)
Field Truck	95	\$95.00	daily		\$9,025.00	
Generator Rental (trailer mounted, from Sunstate Rentals)	15	\$713.00	week	15	\$12,299.25	(7)
Laboratory Costs						
Dissolved Metals ICP (Sb, As, Ba, Be, Cd, Cr, Pb, Se, Th, Ni)	105	\$80.00	sample	15	\$9,660.00	(1) (4)
Mercury dissolved	105	\$41.00	sample	15	\$4,950.75	(1) (4)
Fluoride	105	\$20.00	sample	15	\$2,415.00	(1) (4)
VOCs	105	\$150.00	sample	15	\$18,112.50	(1) (4)
TDS	105	\$21.00	sample	15	\$2,535.75	(1) (4)
pH --field	105	\$0.00	sample	0	\$0.00	(1) (4)
nitrate+nitrite	105	\$30.00	sample	15	\$3,622.50	(1) (4)
dissolved U	105	\$150.00	sample	15	\$18,112.50	(1) (4)
Ra226 + Ra 228	105	\$195.00	sample	15	\$23,546.25	(1) (4)
gross alpha	105	\$85.00	sample	15	\$10,263.75	(1) (4)
Data Management, Reporting, 5 annual reports	400	\$95.00	hr		\$38,000.00	
POC well plugging and abandonment						(6)
Oversight for well plugging and abandonment (5 POC wells)						(6)
Post-Closure Costs Total					\$236,548.25	
NOTES:				Yearly average	\$47,309.65	
This is for 5 years post closure monitoring starting at end of Stage 1 (Year 10)						
Assumptions						
(1) Total of 105 samples will be collected. ((3 POC wells+ 8 Closure Verification Wells+8 outer OWs) x (5 annual events) + (10 Duplicates))= 105 samples						
(2) 95 samples x 8 hours/sample = 440 hours						
(3) Duplicates not included in sampling time.						
(4) Unit Costs from Turner Laboratories in Tucson, AZ						
(5) Ice, disposables, fuel for generator.						
(6) Included in well abandonment spreadsheet						
(7) weekly unit rate is marked up by 15%. Rate from SunState						

Cumulative Closure Liability

The final row in Table R3-1 shows the cumulative wellfield liability with deductions for closure expenses projected to have been accrued to that point on a year-by-year basis. The closure liability for Stage 1 production peaks in Year 10 at \$8.55 million. Without taking credit for scheduled closure items, the maximum closure liability is \$8.67 million, also occurring in Year 10. These closure costs are the same as those provided to the Arizona Department of Environmental Quality (ADEQ) for the Aquifer Protection Permit (APP) except that the APP closure costs also include closure costs for impoundments and POC wells.

References

M3 Engineering & Technology Corp., 2014. Gunnison Copper Project, N143-1 01 Technical Report, Prefeasibility Study, Cochise County, Arizona, USA. February 14, 2014.

December 2016 Attachment R-3
by M-3 Engineering

March, May and July 2017 Revisions
by Axelrod, Inc.

TABLE R3-11
CLOSURE COST DETAIL

LINE	Closure Costs	Unit	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10
2	Mining Block Area	ft ²	140,000	90,000	80,000	70,000	90,000	80,000	80,000	90,000	60,000	80,000
3	Rinsing Volume (5 pore volumes)	Mgal	130.4	83.8	74.5	65.2	83.8	74.5	74.5	83.8	55.9	74.5
4	Cumulative Rinsing Volume	Mgal	130.4	214.2	288.7	353.9	359.5	383.7	361.4	372.5	348.3	352.0
5	Duration of Rinsing @ 400 gpm	days	249	409	551	676	687	733	690	711	665	672
6	Pullback Pumping Volume	Mgal	513	448	384	319	255	255	255	255	255	255
7			Quantities									
8	Prepare Work Plans	lump sum	1	1	1	1	1	1	1	1	1	1
9	Mobilization	lump sum	1	1	1	1	1	1	1	1	1	1
10	Labor											
11	Project Manager	hour	356	584	788	966	981	1,047	986	1,016	950	960
12	Wellfield Supervisor	hour	1,423	2,338	3,151	3,862	3,923	4,187	3,943	4,065	3,801	3,842
13	Wellfield Operators (2)	hour	2,846	4,675	6,301	7,724	7,846	8,375	7,887	8,131	7,602	7,683
14	Wellfield Electrician	hour	1,423	2,338	3,151	3,862	3,923	4,187	3,943	4,065	3,801	3,842
15	Site Security	hour	2,134	3,506	4,726	5,793	5,885	6,281	5,915	6,098	5,702	5,763
16												
17	Changing Pumps											
18	Recovery Wells		24	35	47	57	56	53	53	51	51	54
19	Mobilization	lump sum	1	2	2	2	2	2	2	2	2	2
20	Service Rig and Crew (2)	hour	96	140	188	228	224	212	212	204	204	216
21	Per diem	day	12	17.5	23.5	28.5	28	26.5	26.5	25.5	25.5	27
22												
23	Quarterly Reporting	quarter	3	5	7	8	8	9	8	8	8	8
24												
25	Volumes for Power Costs											
26	Water Supply	Mgal	130	214	289	354	359	384	361	373	348	352
27	Rinse Recovery Pumping	Mgal	130	214	289	354	359	384	361	373	348	352
28	Early Rinsate Pumping	Mgal	78	129	173	212	216	230	217	224	209	211
29	Late Rinsate Pumping	Mgal	52	86	115	142	144	153	145	149	139	141
30	Pullback Pumping	Mgal	513	448	384	319	255	255	255	255	255	255
31	Evaporation Volume Rinsate	Mgal	130	214	289	354	359	384	361	373	348	352
32	Evaporation Volume Pullback	Mgal	513	448	384	319	255	255	255	255	255	255
33	Hydraulic Control Pumping (4 yrs)	Mgal	50	56	61	67	73	73	73	73	73	73
34												
35	Rinsing Verification Sampling	sample	24	4	5	6	6	6	6	6	6	6
36												
37	Pond Closure											
38	Evaporation Pond Closure	each	1	1	1	1	1	1	1	1	1	1
39	Evaporation Pond Post Closure	each	1	1	1	1	1	1	1	1	1	1
40	Pipeline Drain Pond Closure	each	1	1	1	1	1	1	1	1	1	1
41	Pipeline Drain Pond Post Closure	each	1	1	1	1	1	1	1	1	1	1
42												
43	Well Abandonment											
44	Wellfield	each	38	58	78	95	116	132	150	150	148	152
45	HC wells	each	3	5	5	6	9	11	19	19	19	19
46	Observation wells	each	2	4	4	6	6	8	14	14	14	14
47	POC wells	each	3	3	3	3	3	3	3	3	3	3
48	IMW	each	31	29	27	26	26	26	26	25	25	23
49	Rinse Verification wells	each	0	0	0	0	0	0	0	4	6	8
50												
51	Post Closure Monitoring (3 POCs, 8 RVWs, 5 years)	Sample rounds	5	5	5	5	5	5	5	5	5	5
52												
53												

TABLE R3-11
CLOSURE COST DETAIL

LINE	Closure Costs	Unit	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10
54			Estimated Costs									
55	Prepare Work Plans	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000
56	Mobilization	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000
57	Labor											
58	Project Manager	\$125	\$44,464	\$73,048	\$98,457	\$120,689	\$122,594	\$130,852	\$123,230	\$127,041	\$118,783	\$120,054
59	Wellfield Supervisor	\$72	\$102,446	\$168,304	\$226,844	\$278,067	\$282,457	\$301,483	\$283,921	\$292,702	\$273,676	\$276,603
60	Wellfield Operators (2)	\$56	\$159,360	\$261,806	\$352,869	\$432,549	\$439,378	\$468,974	\$441,655	\$455,314	\$425,719	\$430,272
61	Wellfield Electrician	\$44	\$62,606	\$102,852	\$138,627	\$169,930	\$172,613	\$184,240	\$173,507	\$178,873	\$167,247	\$169,035
62	Site Security	\$30	\$64,029	\$105,190	\$141,778	\$173,792	\$176,536	\$188,427	\$177,451	\$182,939	\$171,048	\$172,877
63	Overhead, Vehicles, & Expenses	10%	\$43,290	\$71,120	\$95,857	\$117,503	\$119,358	\$127,398	\$119,976	\$123,687	\$115,647	\$116,884
64	Labor for pullback pumping	\$	\$1,235,039	\$1,001,358	\$793,641	\$611,889	\$596,310	\$528,802	\$591,117	\$559,959	\$627,467	\$617,082
65												
66	Changing Pumps											
67	Capital Cost for pump replacements	\$2,990	\$71,760	\$104,650	\$140,530	\$170,430	\$167,440	\$158,470	\$158,470	\$152,490	\$152,490	\$161,460
68	Mobilization	\$1,500	\$1,500	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000
69	Service Rig and Crew (2)	\$180	\$17,280	\$25,200	\$33,840	\$41,040	\$40,320	\$38,160	\$38,160	\$36,720	\$36,720	\$38,880
70	Per diem	\$350	\$4,200	\$6,125	\$8,225	\$9,975	\$9,800	\$9,275	\$9,275	\$8,925	\$8,925	\$9,450
71												
72												
73	Quarterly Reporting	\$1,620	\$4,860	\$8,100	\$11,340	\$12,960	\$12,960	\$14,580	\$12,960	\$12,960	\$12,960	\$12,960
74												
75	Rinsing, Pullback, Capital & Power Costs											
76	Mechanical Evaporator Capital (9 units)	91,000	\$819,000	\$819,000	\$819,000	\$819,000	\$819,000	\$819,000	\$819,000	\$819,000	\$819,000	\$819,000
77	Water Supply Power	\$268	\$35,002	\$57,504	\$77,505	\$95,006	\$96,506	\$103,007	\$97,006	\$100,006	\$93,506	\$94,506
78	Rinse Recovery Pumping Power	\$298	\$38,891	\$63,893	\$86,117	\$105,562	\$107,229	\$114,452	\$107,785	\$111,118	\$103,896	\$105,007
81	Pullback Pumping Power	\$72	\$36,723	\$32,105	\$27,486	\$22,867	\$18,249	\$18,249	\$18,249	\$18,249	\$18,249	\$18,249
82	Evaporation Power	\$1,127	\$146,922	\$241,371	\$325,326	\$398,787	\$405,084	\$432,369	\$407,183	\$419,776	\$392,491	\$396,688
83	Hydraulic Control Pumping Power (4 yrs)	\$298	\$14,894	\$16,579	\$18,264	\$19,950	\$21,635	\$21,635	\$21,635	\$21,635	\$21,635	\$21,635
84	Evaporation Power Pullback	\$1,127	\$578,045	\$505,345	\$432,645	\$359,946	\$287,246	\$287,246	\$287,246	\$287,246	\$287,246	\$287,246
85												
86	Rinsing Verification Sampling	\$1,350	\$32,400	\$5,400	\$6,750	\$8,100	\$8,100	\$8,100	\$8,100	\$8,100	\$8,100	\$8,100
87												
88	Maintenance: Evaporators, Pumps, Rigs		\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000
89												
90	Well Abandonment											
91	Wellfield	\$16,448	\$648,660	\$970,660	\$1,249,760	\$1,562,600	\$1,899,920	\$2,156,240	\$2,445,200	\$2,442,200	\$2,410,160	\$2,468,240
92	HC wells	\$10,300	\$30,900	\$51,500	\$51,500	\$61,800	\$92,700	\$113,300	\$195,700	\$195,700	\$195,700	\$195,700
93	Observation wells	\$41,620	\$83,240	\$166,480	\$166,480	\$249,720	\$249,720	\$332,960	\$582,680	\$582,680	\$582,680	\$582,680
94	POC wells (bonded in with ADEQ for APP)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
95	IMW closure	\$10,600	\$328,600	\$307,400	\$286,200	\$275,600	\$275,600	\$275,600	\$275,600	\$265,000	\$265,000	\$243,800
96	RVW Closure	\$17,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$68,000	\$102,000	\$136,000
97												
98	Post Closure Monitoring (3 POCs, 8 RVWs, 5 years)	\$47,310	\$236,548	\$236,548	\$236,548	\$236,548	\$236,548	\$236,548	\$236,548	\$236,548	\$236,548	\$236,548
99												
100	Subtotal of Closure Liability by Year of Shutdown		\$4,985,659	\$5,549,538	\$5,973,589	\$6,502,309	\$6,805,304	\$7,217,366	\$7,779,653	\$7,854,869	\$7,794,893	\$7,886,956
101	Contingency for Unanticipated Costs	10%	\$498,566	\$554,954	\$597,359	\$650,231	\$680,530	\$721,737	\$777,965	\$785,487	\$779,489	\$788,696
102	Closure Liability by Year of Shutdown		\$5,484,225	\$6,104,491	\$6,570,948	\$7,152,540	\$7,485,834	\$7,939,102	\$8,557,618	\$8,640,356	\$8,574,382	\$8,675,652
103	Less Rinsing Credits		\$0	\$0	\$0	\$0	-\$132,489	-\$85,172	-\$164,034	-\$123,026	-\$135,644	-\$119,871
104	Net Closure Liability by Year of Shutdown		\$5,484,225	\$6,104,491	\$6,570,948	\$7,152,540	\$7,353,345	\$7,853,930	\$8,393,584	\$8,517,331	\$8,438,738	\$8,555,781

WELLFIELD INJECTION/RECOVERY WELLS

			Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10
Injection Wells in Production			\$ 14	\$ 23	\$ 31	\$ 38	\$ 33	\$ 32	\$ 32	\$ 34	\$ 33	\$ 33
Recovery Wells in Production			\$ 24	\$ 35	\$ 47	\$ 57	\$ 56	\$ 53	\$ 53	\$ 51	\$ 51	\$ 54
Injection Wells in Rinsing			\$ -	\$ -	\$ -	\$ -	\$ 14	\$ 23	\$ 31	\$ 24	\$ 24	\$ 24
Recovery Wells in Rinsing			\$ -	\$ -	\$ -	\$ -	\$ 13	\$ 24	\$ 34	\$ 36	\$ 35	\$ 30
Dormant Wells			\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 5	\$ 5	\$ 11
Total existing Injection/Recovery Wells			\$ 38	\$ 58	\$ 78	\$ 95	\$ 116	\$ 132	\$ 150	\$ 150	\$ 148	\$ 152
Unit cost			Quantity	Quantity	Quantity	Quantity	Quantity	Quantity	Quantity	Quantity	Quantity	Quantity
Mobilization and Demobilization (1)	\$ 10,000.00	lump sum	1 \$ 10,000	1 \$ 10,000	1 \$ 10,000	1 \$ 10,000	1 \$ 10,000	1 \$ 10,000	1 \$ 10,000	1 \$ 10,000	1 \$ 10,000	1 \$ 10,000
ADWR Closure Notification	\$ 150.00	each	38 \$ 5,700	58 \$ 8,700	78 \$ 11,700	95 \$ 14,250	116 \$ 17,400	132 \$ 19,800	150 \$ 22,500	150 \$ 22,500	148 \$ 22,200	152 \$ 22,800
Pump Removal (1)	\$ 1,200.00	each	24 \$ 28,800	35 \$ 42,000	47 \$ 56,400	57 \$ 68,400	69 \$ 82,800	77 \$ 92,400	87 \$ 104,400	87 \$ 104,400	86 \$ 103,200	84 \$ 100,800
Injection Well Port Removal (1)	\$ 600.00	each	14 \$ 8,400	23 \$ 13,800	31 \$ 18,600	38 \$ 22,800	47 \$ 28,200	55 \$ 33,000	63 \$ 37,800	58 \$ 34,800	57 \$ 34,200	57 \$ 34,200
Perforation of Well Casing (2)	\$ 25.00	ft	0 \$ -	0 \$ -	0 \$ -	0 \$ -	0 \$ -	0 \$ -	0 \$ -	0 \$ -	0 \$ -	0 \$ -
Abandonment of Boring with Type V Cement (1)(9)(10)	\$ 12.00	ft	43700 \$ 524,400	66700 \$ 800,400	89700 \$ 1,076,400	109250 \$ 1,311,000	133400 \$ 1,600,800	151800 \$ 1,821,600	172500 \$ 2,070,000	172500 \$ 2,070,000	170200 \$ 2,042,400	174800 \$ 2,097,600
Removal of casing 2 feet below grade (1)	\$ 150.00	each	38 \$ 5,700	58 \$ 8,700	78 \$ 11,700	95 \$ 14,250	116 \$ 17,400	132 \$ 19,800	150 \$ 22,500	150 \$ 22,500	148 \$ 22,200	152 \$ 22,800
Disposal of Construction Debris (1) (6)	\$ 25,000.00	lump sum	1 \$ 25,000	1 \$ 25,000	1 \$ 25,000	1 \$ 25,000	1 \$ 25,000	1 \$ 25,000	1 \$ 25,000	1 \$ 25,000	1 \$ 25,000	1 \$ 25,000
Oversight of well abandonments by Consultant (13)	\$ 75.00	hr	380 \$ 28,500	580 \$ 43,500	780 \$ 58,500	950 \$ 71,250	1160 \$ 87,000	1320 \$ 99,000	1500 \$ 112,500	1500 \$ 112,500	1480 \$ 111,000	1520 \$ 114,000
Project management by Consultant (14)	\$ 125.00	hr	38 \$ 4,750	58 \$ 7,250	78 \$ 9,750	95 \$ 11,875	116 \$ 14,500	132 \$ 16,500	150 \$ 18,750	150 \$ 18,750	148 \$ 18,600	152 \$ 19,000
Per Diem Consultant (15)	\$ 195.00	each	38 \$ 7,410	58 \$ 11,310	78 \$ 15,210	95 \$ 18,525	116 \$ 22,620	132 \$ 25,740	150 \$ 29,250	150 \$ 29,250	148 \$ 28,860	152 \$ 29,640
average cost per well			\$ 17,070	\$ 16,736	\$ 16,023	\$ 16,448	\$ 16,379	\$ 16,335	\$ 16,301	\$ 16,281	\$ 16,285	\$ 16,238

HYDRAULIC CONTROL WELLS

			Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10
Unit Cost			Quantity	Quantity	Quantity	Quantity	Quantity	Quantity	Quantity	Quantity	Quantity	Quantity
Mobilization and Demobilization (3)	\$ 10,000.00	lump sum	0 \$ -	0 \$ -	0 \$ -	0 \$ -	0 \$ -	0 \$ -	0 \$ -	0 \$ -	0 \$ -	0 \$ -
ADWR Closure Notification	\$ 150.00	each	3 \$ 450	5 \$ 750	5 \$ 750	6 \$ 900	9 \$ 1,350	11 \$ 1,650	19 \$ 2,850	19 \$ 2,850	19 \$ 2,850	19 \$ 2,850
Pump Removal (1)	\$ 1,200.00	each	3 \$ 3,600	5 \$ 6,000	5 \$ 6,000	6 \$ 7,200	9 \$ 10,800	11 \$ 13,200	19 \$ 22,800	19 \$ 22,800	19 \$ 22,800	19 \$ 22,800
Perforation of Well Casing (2)	\$ 25.00	ft	0 \$ -	0 \$ -	0 \$ -	0 \$ -	0 \$ -	0 \$ -	0 \$ -	0 \$ -	0 \$ -	0 \$ -
Abandonment of Boring with Type V Cement (9)(11)	\$ 7.00	ft	3450 \$ 24,150	5750 \$ 40,250	5750 \$ 40,250	6900 \$ 48,300	10350 \$ 72,450	12650 \$ 88,550	21850 \$ 152,950	21850 \$ 152,950	21850 \$ 152,950	21850 \$ 152,950
Removal of casing 2 feet below grade (1)	\$ 150.00	each	3 \$ 450	5 \$ 750	5 \$ 750	6 \$ 900	9 \$ 1,350	11 \$ 1,650	19 \$ 2,850	19 \$ 2,850	19 \$ 2,850	19 \$ 2,850
Disposal of Construction Debris (1) (6)	\$ 25,000.00	lump sum	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Oversight of well abandonments by Consultant (13)	\$ 75.00	hr	30 \$ 2,250	50 \$ 3,750	50 \$ 3,750	60 \$ 4,500	90 \$ 6,750	110 \$ 8,250	190 \$ 14,250	190 \$ 14,250	190 \$ 14,250	190 \$ 14,250
Project management by Consultant (14)	\$ 125.00	hr	3 \$ 375	5 \$ 625	5 \$ 625	6 \$ 750	9 \$ 1,125	11 \$ 1,375	19 \$ 2,375	19 \$ 2,375	19 \$ 2,375	19 \$ 2,375
Per Diem Consultant (15)	\$ 195.00	each	3 \$ 585	5 \$ 975	5 \$ 975	6 \$ 1,170	9 \$ 1,755	11 \$ 2,145	19 \$ 3,705	19 \$ 3,705	19 \$ 3,705	19 \$ 3,705
avg cost per well			\$ 10,300	\$ 10,300	\$ 10,300	\$ 10,300	\$ 10,300	\$ 10,300	\$ 10,300	\$ 10,300	\$ 10,300	\$ 10,300

OBSERVATION WELLS

			Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10
Unit cost			Quantity	Quantity	Quantity	Quantity	Quantity	Quantity	Quantity	Quantity	Quantity	Quantity
Mobilization and Demobilization (3)	\$ 10,000.00	lump sum	0 \$ -	0 \$ -	0 \$ -	0 \$ -	0 \$ -	0 \$ -	0 \$ -	0 \$ -	0 \$ -	0 \$ -
ADWR Closure Notification	\$ 150.00	each	2 \$ 300	4 \$ 600	4 \$ 600	6 \$ 900	8 \$ 1,200	8 \$ 1,200	12 \$ 1,800	12 \$ 1,800	12 \$ 1,800	12 \$ 1,800
Pump Removal (7)	\$ 1,200.00	each	0 \$ -	0 \$ -	0 \$ -	0 \$ -	0 \$ -	0 \$ -	0 \$ -	0 \$ -	0 \$ -	0 \$ -
Perforation of Well Casing (1) (8)	\$ 25.00	ft	2300 \$ 57,500	4600 \$ 115,000	4600 \$ 115,000	6900 \$ 172,500	6900 \$ 172,500	9200 \$ 230,000	16100 \$ 402,500	16100 \$ 402,500	16100 \$ 402,500	16100 \$ 402,500
Abandonment of Boring with Type V Cement (5)(9)(12)	\$ 10.00	ft	2300 \$ 23,000	4600 \$ 46,000	4600 \$ 46,000	6900 \$ 69,000	6900 \$ 69,000	9200 \$ 92,000	16100 \$ 161,000	16100 \$ 161,000	16100 \$ 161,000	16100 \$ 161,000
Removal of casing 2 feet below grade (1)	\$ 150.00	each	2 \$ 300	4 \$ 600	4 \$ 600	6 \$ 900	6 \$ 900	8 \$ 1,200	14 \$ 2,100	14 \$ 2,100	14 \$ 2,100	14 \$ 2,100
Disposal of Construction Debris (1) (6)	\$ 25,000.00	lump sum	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Oversight of well abandonments by Consultant (13)	\$ 75.00	hr	20 \$ 1,500	40 \$ 3,000	40 \$ 3,000	60 \$ 4,500	60 \$ 4,500	80 \$ 6,000	140 \$ 10,500	140 \$ 10,500	140 \$ 10,500	140 \$ 10,500
Project management by Consultant (14)	\$ 125.00	hr	2 \$ 250	4 \$ 500	4 \$ 500	6 \$ 750	6 \$ 750	8 \$ 1,000	14 \$ 1,750	14 \$ 1,750	14 \$ 1,750	14 \$ 1,750
Per Diem Consultant (15)	\$ 195.00	each	2 \$ 390	4 \$ 780	4 \$ 780	6 \$ 1,170	6 \$ 1,170	8 \$ 1,560	14 \$ 2,730	14 \$ 2,730	14 \$ 2,730	14 \$ 2,730
average cost per well			\$ 41,620	\$ 41,620	\$ 41,620	\$ 41,620	\$ 41,670	\$ 41,620	\$ 41,599	\$ 41,599	\$ 41,599	\$ 41,599

TABLE R3-12
WELL ABANDONMENT COST DETAIL

Intermediate Monitoring wells(19)			31		29		27		26		26		26		26		25		25		23	
	Unit Cost		Quantity		Quantity		Quantity		Quantity		Quantity		Quantity		Quantity		Quantity		Quantity		Quantity	
Mobilization and Demobilization (3)	\$ 10,000.00	lump sum	0		0		0		0		0		0		0		0		0		0	
ADWR Closure Notification	\$ 150.00	each	31	\$ 4,650	29	\$ 4,350	27	\$ 4,050	26	\$ 3,900	26	\$ 3,900	26	\$ 3,900	26	\$ 3,900	25	\$ 3,750	25	\$ 3,750	23	\$ 3,450
Pump Removal (1)	\$ 1,200.00	each	31	\$ 37,200	29	\$ 34,800	27	\$ 32,400	26	\$ 31,200	26	\$ 31,200	26	\$ 31,200	26	\$ 31,200	25	\$ 30,000	25	\$ 30,000	23	\$ 27,600
Perforation of Well Casing (2)	\$ 25.00	ft	0	\$ -	0	\$ -	0	\$ -	0	\$ -	0	\$ -	0	\$ -	0	\$ -	0	\$ -	0	\$ -	0	\$ -
Abandonment of Boring with Type V Cement (9)(11)	\$ 7.00	ft	35650	\$ 249,550	33350	\$ 233,450	31050	\$ 217,350	29900	\$ 209,300	29900	\$ 209,300	29900	\$ 209,300	29900	\$ 209,300	28750	\$ 201,250	28750	\$ 201,250	26450	\$ 185,150
Removal of casing 2 feet below grade (1)	\$ 150.00	each	31	\$ 4,650	29	\$ 4,350	27	\$ 4,050	26	\$ 3,900	26	\$ 3,900	26	\$ 3,900	26	\$ 3,900	25	\$ 3,750	25	\$ 3,750	23	\$ 3,450
Disposal of Construction Debris (1) (6)	\$ 25,000.00	lump sum		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -
Oversight of well abandonments by Consultant (13)	\$ 75.00	hr	310	\$ 23,250	290	\$ 21,750	270	\$ 20,250	260	\$ 19,500	260	\$ 19,500	260	\$ 19,500	260	\$ 19,500	250	\$ 18,750	250	\$ 18,750	230	\$ 17,250
Project management by Consultant (14)	\$ 125.00	hr	31	\$ 3,875	29	\$ 3,625	27	\$ 3,375	26	\$ 3,250	26	\$ 3,250	26	\$ 3,250	26	\$ 3,250	25	\$ 3,125	25	\$ 3,125	23	\$ 2,875
Per Diem Consultant (15)	\$ 195.00	each	31	\$ 6,045	29	\$ 5,655	27	\$ 5,265	26	\$ 5,070	26	\$ 5,070	26	\$ 5,070	26	\$ 5,070	25	\$ 4,875	25	\$ 4,875	23	\$ 4,485
				\$ 329,220		\$ 307,980		\$ 286,740		\$ 276,120		\$ 276,120		\$ 276,120		\$ 276,120		\$ 265,500		\$ 265,500		\$ 244,260
avg cost per well				\$ 10,620		\$ 10,620		\$ 10,620		\$ 10,620		\$ 10,620		\$ 10,620		\$ 10,620		\$ 10,620		\$ 10,620		\$ 10,620
Rinse Verificaton wells Quantity (Recovery wells left open until end of LOM) (20)(21)			0		0		0		0		0		0		0		4		6		8	
Cost per well(20)				\$ 17,000		\$ 17,000		\$ 17,000		\$ 17,000		\$ 17,000		\$ 17,000		\$ 17,000		\$ 17,000		\$ 17,000		\$ 17,000
total liability for RVW abandonment				\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ 64,600.00		\$ 102,000.00		\$ 136,000.00
Abandonment Costs by year--Summary				Y1		Y2		Y3		Y4		Y5		Y6		Y7		Y8		Y9		Y10
Wellfield				\$ 648,660		\$ 970,660		\$ 1,249,760		\$ 1,562,600		\$ 1,899,920		\$ 2,156,240		\$ 2,445,200		\$ 2,442,200		\$ 2,410,160		\$ 2,468,240
HC wells				\$ 30,900		\$ 51,500		\$ 51,500		\$ 61,800		\$ 92,700		\$ 113,300		\$ 195,700		\$ 195,700		\$ 195,700		\$ 195,700
Observation wells				\$ 83,240		\$ 166,480		\$ 166,480		\$ 249,720		\$ 250,020		\$ 332,960		\$ 582,380		\$ 582,380		\$ 582,380		\$ 582,380
IMW Wells				\$ 329,220		\$ 307,980		\$ 286,740		\$ 276,120		\$ 276,120		\$ 276,120		\$ 276,120		\$ 265,500		\$ 265,500		\$ 244,260
Rinse Verification Wells/Closure Verification Wells				\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ 64,600		\$ 102,000		\$ 136,000
TOTAL ABANDONMENT COST-all well types				\$ 1,092,020	\$ -	\$ 1,496,620	\$ -	\$ 1,754,480	\$ -	\$ 2,150,240	\$ -	\$ 2,518,760	\$ -	\$ 2,878,620	\$ -	\$ 3,499,400	\$ -	\$ 3,550,380	\$ -	\$ 3,555,740	\$ -	\$ 3,626,580

NOTES:

- (1) from Yellow Jacket Drilling quote 7/29/16
- (2) Injection/recovery and Hydraulic control wells will be open hole construction. Casing will be grouted to minimum of 100 feet above bedrock surface. If a well is screened (with no annular materials), the screen will be removed prior to grouting. No perforation will be necessary for injection/recovery and hydraulic control wells.
- (3) Single mobilization/demobilization cost applies to all well types. The cost is Included in Injection/recovery well abandonment mob/demob
- (4) Most HC wells will be open hole construction, and casing will be grouted to minimum of 100 feet above bedrock surface. If a well is screened, the screen will be removed prior to grouting. There will be no annular materials in these wells. No perforation will be necessary.
- (5) It is assumed that annular materials have a porosity of 35% for grout volume calculations.
- (6) Single lump sum for all wells is included under the injection/recovery well costs.
- (7) Observation wells are piezometers and will not be equipped with pumps
- (8) POC and Observation wells will be installed with screen and annular materials. Perforations (2 per foot) are required under ADWR's standard abandonment method. Cost assumes average 1150 feet of perforation per well, which will bring peforations well above the historical water levels, as required by the
- (9) assumes average well depth of 1450 feet, average 1150 feet of grout
- (10) assumes 7-inch open borehole, per Yellow Jacket quote per foot cost of \$12
- (11) assumes 5-inch open borehole, pro-rated abandonment cost of \$7 per foot per conversation with Yellow Jacket.
- (12) assumes 4-inch diameter well in 9 inch diameter borehole, 35% annular materials porosity, pro-rated cost of \$10 per foot, per conversation with Yellow Jacket.
- (13) assumes 10 hours of oversight per well, using Clear Creek Technician I rate for this task.
- (14) assumes 1 hour of project management per well. Includes documentation and reporting of well abandonment.
- (15) assumes \$195 per well which includes perdiem (\$100) and truck rental (\$95)
- (16) Perforation only in low carbon steel casing (16 NSH wells), to a minimum of 20 feet above static water level. Total footage was compiled from as-built drawings for each well.
- (17) There are 16 wells with LCS casing and screen. Assumes 4-inch diameter well in 10 inch diameter borehole, 35% annular materials porosity, pro-rated cost of \$12 per foot.
- (18) 31 IMWs are planned for years 1-15 of operation. IMWs will be plugged and abandoned when their location is in an active mining block. In year 1 there will be 31 IMWs. By year 10, eight IMWs will have been abandoned, leaving 23.
- (19) RVWs were previously used as recovery wells. Cost to abandon is same as recovery well. Approximately 10% wellfield injection recovery wells will have pumps removed and will be left open as rinse verification wells. The first RVWs will be in Year 8, representing 10% of the injection/recovery wells from year 1..
- (20) Closure verifaciton wells are a subset of the RVWs. So no additional costs for closure of CVWs. They are included in the RVW closure costs.