APPENDIX C

Plugging and Abandonment Plans

ATTACHMENT C

CORRECTIVE ACTION PLAN AND WELL DATA

TABLE OF CONTENTS

TABLES

FIGURES

ATTACHMENTS

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 Attachment[1]. 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)
221519	D(15-23) 31CBD	NSH-006	EXCELSIOR MINING GROUP	738463.33	394237.3	4833	No	2012	ENV - MONITOR OR PIEZOMETER	680	Yes	4.5	640	Yes	0-615
221520	D(15-23) 31CBD	NSH-003	EXCELSIOR MINING GROUP	738201.82	394344.15	4846	No	2012	ENV - MONITOR OR PIEZOMETER	1432	Yes	4.0	1232	Yes	0-1206
221521	D(15-23) 31CBD	NSH-001	EXCELSIOR MINIING CORP	738265.2	393874.58	4834	No	2012	ENV - MONITOR OR PIEZOMETER	1114	Yes	6.5	700	Yes	660-700
221603	D(15-23) 31CCA	NSH-004B	EXCELSIOR MINIING CORP	738406.35	393880.07	4834	No	2012	ENV - MONITOR OR PIEZOMETER	1031	Yes	4.5	705	Yes	0-685
221604	D(15-23) 31CBD	NSH-005	EXCELSIOR MINING GROUP	738525.68	394033.38	4830	No	2012	ENV - MONITOR OR PIEZOMETER	1024	Yes	4.5	747	Yes	0-724
223835	D(15-23) 31	NSM-007	EXCELSIOR MINING GROUP	737986.92	394488.9	4844	No	2014	SPCL - MINERAL EXPLORATION	1167.9	Yes	4.5	600	No	N/A
224029	D(15-23) 31CCC	NSH-015	EXCELSIOR MINIING CORP	737606.14	393140.05	4808	No	2014	ENV - MONITOR OR PIEZOMETER	820	Yes	8.5	585	Yes	0-577
224030	D(15-23) 31CCC	NSH-016	EXCELSIOR MINIING CORP	737458.64	393175.02	4812	No	2014	ENV - MONITOR OR PIEZOMETER	820	Yes	8.5	579	Yes	90-571
224031	D(15-23) 31CCB	NSH-019	EXCELSIOR MINIING CORP	738155.23	393436.53	4814	No	2014	ENV - MONITOR OR PIEZOMETER	1410	Yes	8.5	638	Yes	65-631
224032	D(15-23) 31CCA	NSH-021C	EXCELSIOR MINIING CORP	738178.3	393503.73	4815	No	2015	ENV - MONITOR OR PIEZOMETER	1400	Yes	5.5	624	Yes	313-617
224033	D(15-23) 31CCA	NSH-024	EXCELSIOR MINIING CORP	738342.91	393552.51	4819	No	2015	ENV - MONITOR OR PIEZOMETER	1445	Yes	8.5	625	Yes	109-612
224034	D(15-23) 31CCA	NSH-023	EXCELSIOR MINIING CORP	738405.09	393587.65	4820	No	2015	ENV - MONITOR OR PIEZOMETER	1446	Yes	5.5	645	Yes	154-631
224035	D(15-23) 31CAD	NSH-020	EXCELSIOR MINIING CORP	739685.67	394225.67	4791	No	2014	ENV - MONITOR OR PIEZOMETER	1600	Yes	4.5	1060	Yes	340-1035
224036	D(15-23) 31CDC	NSH-026	EXCELSIOR MINIING CORP	739146.28	392899.09	4794	No	2015	ENV - MONITOR OR PIEZOMETER	905	Yes	8.5	625	Yes	?-612
224059	D(15-23) 31BCC	NSD-037	EXCELSIOR MINIING CORP	737845.93	395606.72	4751	No	2014	SPCL - MINERAL EXPLORATION	1284.4	Yes	4.5	524	Yes	513-522
224097	D(15-23) 31CDC	NSH-022	EXCELSIOR MINIING CORP	739140.53	393037.93	4784	No	2015	ENV - MONITOR OR PIEZOMETER	1170	Yes	6.5	1010	Yes	209-972
224099	D(15-23) 31CCC	NSH-017	EXCELSIOR MINIING CORP	737758.07	393157.78	4807	No	2014	ENV - MONITOR OR PIEZOMETER	1200	Yes	6.5	940	Yes	382-919
224100	D(15-23) 31CAD	NSH-018	EXCELSIOR MINIING CORP	739687.04	394387.46	4780	No	2014	ENV - MONITOR OR PIEZOMETER	997	Yes	4.5	610	No	N/A
224154	D(15-22) 36DAA	NSD-026	EXCELSIOR MINIING CORP	737356.24	394752.25	4847	No	2012	SPCL - MINERAL EXPLORATION	1168	Yes	4.5	436	No	N/A
224155	D(15-22) 36ADD	NSD-031	EXCELSIOR MINIING CORP	737024.7	395487.5	4770	No	2012	SPCL - MINERAL EXPLORATION	1008	Yes	4.5	415	No	N/A
224158	D(15-23) 31CDC	NSH-025	EXCELSIOR MINIING CORP	738294.61	393685.78	4825	No	2015	ENV - MONITOR OR PIEZOMETER	1596	Yes	4.5	1480	Yes	20-1461
224159	D(15-23) 31BCC	CS-13	EXCELSIOR MINIING CORP	737558.77	395152.18	4768	No	1971	SPCL - MINERAL EXPLORATION	1251	No	N/A	N/A	Yes	394-461
224160	D(15-23) 31BCC	CS-14	EXCELSIOR MINIING CORP	737557.34	395698.82	4758	No	1971	SPCL - MINERAL EXPLORATION	1375	No	N/A	N/A	Yes	323-461
224840	D(15-23) 31CBC	NSM-006	EXCELSIOR MINING GROUP	737927.87	394038.78	4847	No	2014	SPCL - MINERAL EXPLORATION	1217	Yes	4.5	529	No	N/A
224841	D(15-23) 31CCD	NSM-005A	EXCELSIOR MINING GROUP	738781.26	393106.74	4787	No	2014	SPCL - MINERAL EXPLORATION	1171.5	Yes	5.0	593	No	N/A
224842	D(15-23) 31CBD	NSM-004	EXCELSIOR MINING GROUP	738506.71	393990.27	4829	No	2014	SPCL - MINERAL EXPLORATION	1114.5	Yes	4.5	596	No	N/A
224844	D(15-23) 31CCB	NSM-008	EXCELSIOR MINING GROUP	738095.92	393386.62	4816	No	2014	SPCL - MINERAL EXPLORATION	1273	Yes	5.0	546	No	N/A
224845	D(15-23) 31CDC	NSM-009	EXCELSIOR MINING GROUP	738954.82	392689.54	4794	No	2014	SPCL - MINERAL EXPLORATION	1349.1	Yes	5.0	586	No	N/A
224846	D(15-23) 31CCC	NSD-033	EXCELSIOR MINING GROUP	737855.83	392788.24	4809	No	2014	SPCL - MINERAL EXPLORATION	1579	Yes	4.5	500	No	N/A
224847	D(15-22) 36DAC	NSM-013	EXCELSIOR MINING GROUP	736785.02	394382.74	4881	No	2014	SPCL - MINERAL EXPLORATION	953	Yes	4.5	404	Yes	402-404
224848	D(15-22) 36DBA	NSD-030	EXCELSIOR MINING GROUP	736012.13	394822.54	4785	No	2012	SPCL - MINERAL EXPLORATION	767	Yes	4.5	256	No	N/A
224854	D(15-22) 36DBD	NSD-036	EXCELSIOR MINIING CORP	735758.93	394267.19	4888	No	2014	SPCL - MINERAL EXPLORATION	793.3	Yes	4.5	501	Yes	501-502
224860	D(15-23) 31CDB	NSD-043	EXCELSIOR MINIING CORP	739255.99	393741	4802	No	2014	SPCL - MINERAL EXPLORATION	1736	Yes	4.5	627	Yes	618-628
224930	D(15-23) 31CBC	NSD-023	EXCELSIOR MINIING CORP	737808.48	394173.78	4857	No	2012	SPCL - MINERAL EXPLORATION	1546	Yes	4.5	552	No	N/A
224931	D(15-23) 31CAC	NSD-024	EXCELSIOR MINIING CORP	738799.08	394051.36	4823	No	2012	SPCL - MINERAL EXPLORATION	1972	Yes	4.5	671	No	N/A
224932	D(15-23) 31CDC	NSD-025	EXCELSIOR MINIING CORP	738697.88	393061.4	4790	No	2012	SPCL - MINERAL EXPLORATION	1643.5	Yes	4.5	637	No	N/A
224933	D(15-23) 31CBD	NSM-001	EXCELSIOR MINIING CORP	738051.78	394181.02	4851	No	2012	SPCL - MINERAL EXPLORATION	1150	Yes	3.5	590	No	N/A
224934	D(15-23) 31CCD	NSM-002	EXCELSIOR MINIING CORP	738195.42	392736.92	4809	No	2012	SPCL - MINERAL EXPLORATION	1000	Yes	4.5	507	No	N/A
224935	D(15-23) 31CCC	NSM-003	EXCELSIOR MINIING CORP	737701.35	392934.29	4810	No	2012	SPCL - MINERAL EXPLORATION	1028	Yes	4.5	608	No	N/A
224936	D(15-22) 36DAD	NSD-027	EXCELSIOR MINIING CORP	736806.45	394419.15	4883	No	2012	SPCL - MINERAL EXPLORATION	1004.5	Yes	4.5	404	No	N/A
224937	D(15-22) 36DAC	NSD-028	EXCELSIOR MINIING CORP	736291.67	394433.4	4881	No	2012	SPCL - MINERAL EXPLORATION	755	Yes	4.5	396	No	N/A
224938	D(15-22) 36DAB	NSD-029	EXCELSIOR MINIING CORP	736101.29	395247.79	4785	No	2012	SPCL - MINERAL EXPLORATION	260	Yes	4.5	279	No	N/A
224939	D(15-22) 36DAB	NSD-032	EXCELSIOR MINIING CORP	736626.53	395306.53	4772	No	2012	SPCL - MINERAL EXPLORATION	686	Yes	N/I	N/I	N/I	N/I
224940	D(15-23) 31CCB	NSD-001	EXCELSIOR MINIING CORP	737801.3	393537.11	4827	No	2011	SPCL - MINERAL EXPLORATION	1505.5	Yes	4.5	460	No	N/A
224941	D(15-23) 31CCC	NSD-002	EXCELSIOR MINIING CORP	737726.8	392950.87	4810	No	2011	SPCL - MINERAL EXPLORATION	1907	Yes	4.5	560	Yes	564-574
224942	D(15-23) 31CCD	NSD-003	EXCELSIOR MINIING CORP	738449.28	392692.12	4805	No	2011	SPCL - MINERAL EXPLORATION	2008	Yes	4.5	563	No	N/A
224943	D(15-23) 31CDD	NSD-009	EXCELSIOR MINIING CORP	739417.77	393047.95	4788	No	2011	SPCL - MINERAL EXPLORATION	1793	Yes	4.5	620	No	N/A
224944	D(15-23) 31CCA	NSD-011	EXCELSIOR MINIING CORP	738326.23	393923.43	4834	No	2011	SPCL - MINERAL EXPLORATION	1438	Yes	4.5	650	No	N/A
224945	D(15-23) 31CCB	NSD-019	EXCELSIOR MINIING CORP	737674.27	393873.59	4848	No	2011	SPCL - MINERAL EXPLORATION	1454	Yes	4.5	620	No	N/A
224946	D(15-23) 31CDB	NSD-020	EXCELSIOR MINIING CORP	738950.33	393545.51	4800	No	2011	SPCL - MINERAL EXPLORATION	660	Yes	4.5	660	No	N/A
225068	D(15-22) 36ADA	DC-09	EXCELSIOR MINIING CORP	737203.44	396082.94	4765	No	N/I	SPCL - MINERAL EXPLORATION	1500	N/I	N/I	N/I	N/I	N/I
225070	D(15-22) 36DAA	JS-05	EXCELSIOR MINIING CORP	736922.48	394882.63	4765	No	1989	SPCL - MINERAL EXPLORATION	588	N/I	N/I	N/I	N/I	N/I
225071	D(15-22) 36DAA	JS-06	EXCELSIOR MINIING CORP	736941.08	394790.93	4773	No	1989	SPCL - MINERAL EXPLORATION	599	N/I	N/I	N/I	N/I	N/I
225072	D(15-22) 36DAA	JS-07	EXCELSIOR MINIING CORP	736922.17	394976	4768	No	1989	SPCL - MINERAL EXPLORATION	478.5	N/I	N/I	N/I	N/I	N/I
225076	D(15-22) 36DAA	S-01	EXCELSIOR MINIING CORP	737274.78	395034.29	4769	Yes	1973	SPCL - MINERAL EXPLORATION	1211	N/A	N/A	N/A	N/A	N/A
225077	D(15-22) 36ADC	S-03	EXCELSIOR MINIING CORP	736599.02	395756.74	4777	Yes	N/I	SPCL - MINERAL EXPLORATION	1223	N/A	N/A	N/A	N/A	N/A
225078	D(15-22) 36DAB	S-04	EXCELSIOR MINIING CORP	736497.89	394892.23	4776	Yes	1973	SPCL - MINERAL EXPLORATION	966	N/A	N/A	N/A	N/A	N/A
225087	D(15-23) 31CCD	CS-03	EXCELSIOR MINIING CORP	738647.21	393212.04	4794	No	1971	SPCL - MINERAL EXPLORATION	2038	No	N/A	N/A	Yes	458-486
225088	D(15-23) 31CDB	CS-04	EXCELSIOR MINIING CORP	739134.38	393245.21	4780	No	1971	SPCL - MINERAL EXPLORATION	2209	No	N/A	N/A	Yes	137-631

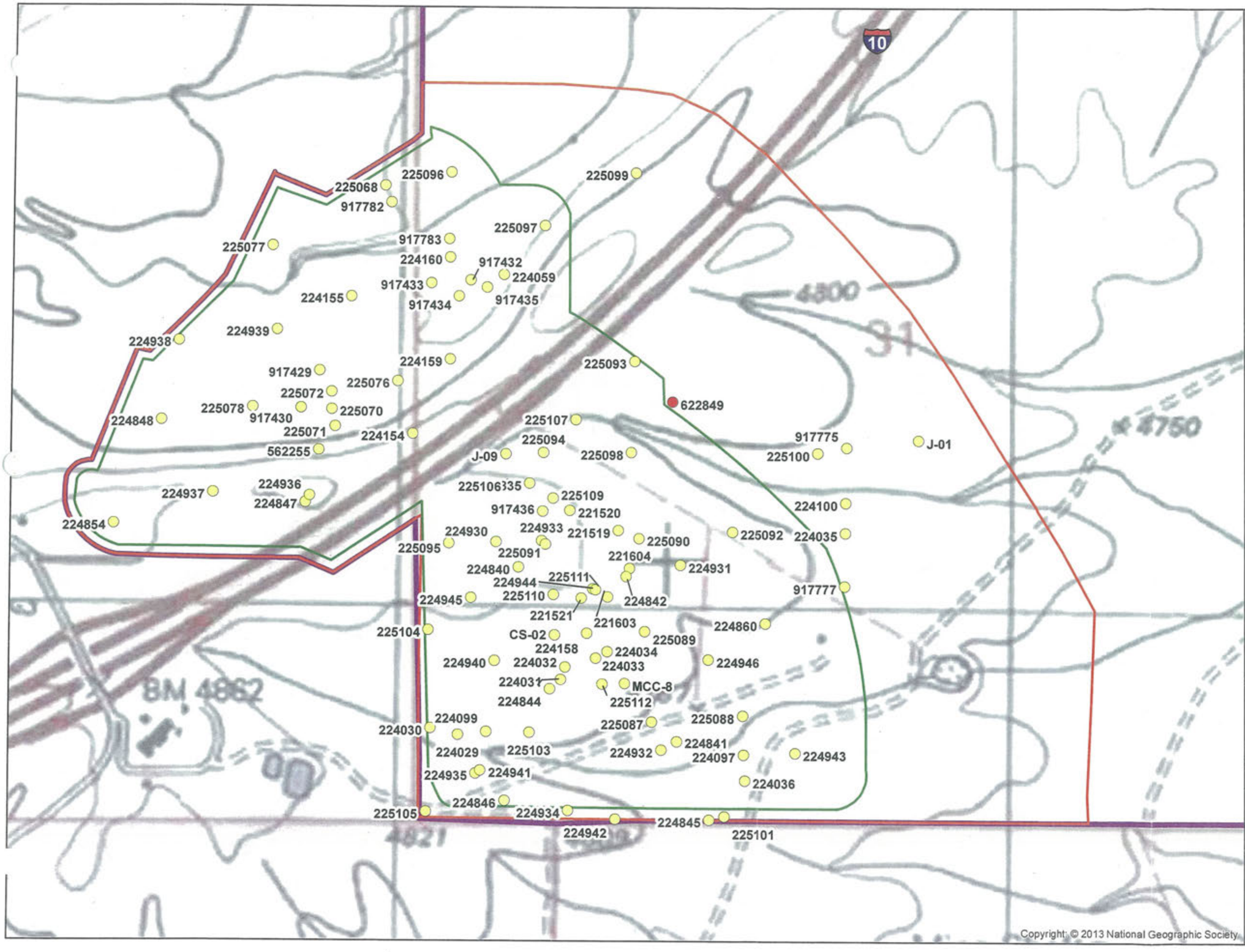
CLEAR CREEK ASSOCIATES

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 MINIING 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 MINIING 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 MINIING 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 MINIING 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 MINIING 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 MINIING 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 MINIING CORP	737554.82	394166.14	4863	No	1971	SPCL - MINERAL EXPLORATION	2084	No	N/A	N/A	Yes	416-480
225096	D(15-23) 31BCB	CS-15	EXCELSIOR MINIING 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 MINIING 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 MINIING 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 MINIING 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 MINIING CORP	739537.3	394653.69	4793	No	1971	SPCL - MINERAL EXPLORATION	448	Yes	4.0	448	Yes	408-448
225101	D(15-23) 31CDC	CS-51	EXCELSIOR MINIING 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 MINIING 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 MINIING 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 MINIING 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 MINIING 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 MINIING 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 MINIING 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 MINIING 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 MINIING 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 MINIING 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	737550.79	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 MINIING 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 MINIING 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 MINIING 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 MINIING 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

CLEAR CREEK ASSOCIATES



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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.

0 250 500 1,000
Feet

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

Date	File ID
6/15/17	373-053

CLEAR CREEK ASSOCIATES

FIGURE C-1
Well Locations
within the Area of Review

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

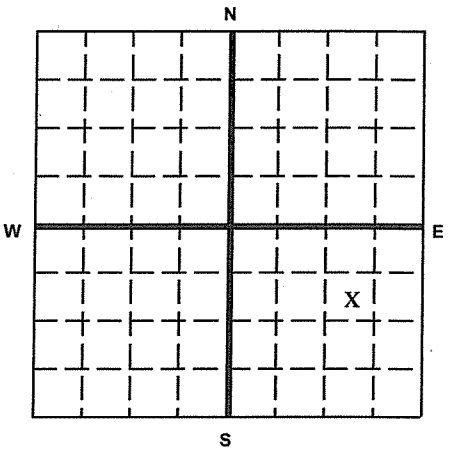
United States Environmental Protection Agency
Washington, DC 20460

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	County	Permit Number
AZ	Cochise	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
- [x] 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

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
- [x] The Balance Method
- [ ] The Dump Bailer Method
- [ ] The Two-Plug Method
- [ ] Other

CEMENTING TO PLUG AND ABANDON DATA:	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (inche	4.5						
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 possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

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

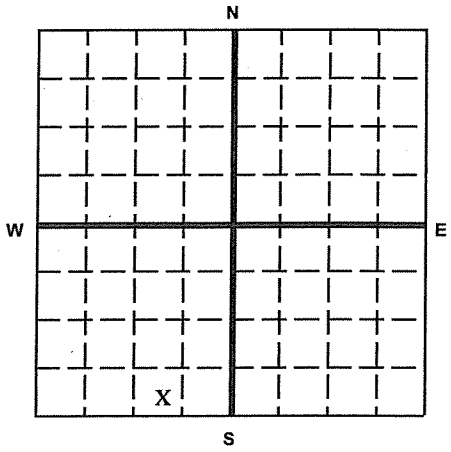
OMB No. 2040-0042 Approval Expires 11/30/2014

United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility	Name and Address of Owner/Operator
EXCELSIOR MINING CORP GUNNISON PROJECT	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	County	Permit Number
AZ	Cochise	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. frm (N/S) S Line of quarter section and 949 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 55-224845, NSM-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
5	Unknown	0	586	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	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	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 possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

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

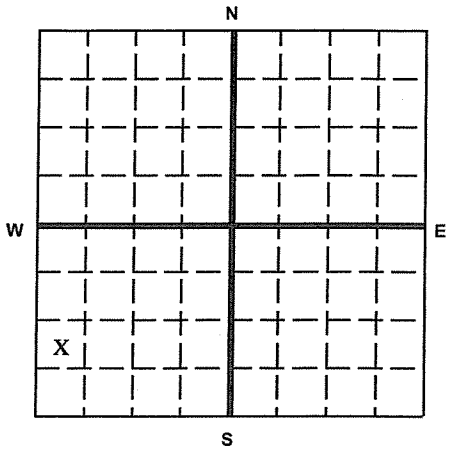
OMB No. 2040-0042 Approval Expires 11/30/2014

United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility	Name and Address of Owner/Operator
EXCELSIOR MINING CORP GUNNISON PROJECT	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	County	Permit Number
AZ	Cochise	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

- ☐ 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 55-224844, 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

- ☑ 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	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 possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

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

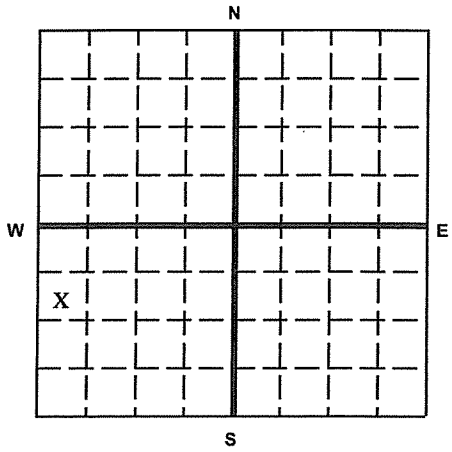
OMB No. 2040-0042 Approval Expires 11/30/2014

United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility	Name and Address of Owner/Operator
EXCELSIOR MINING CORP GUNNISON PROJECT	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	County	Permit Number
AZ	Cochise	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

- ☐ 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 55-223835, NSM-007

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	600	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	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
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 possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

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

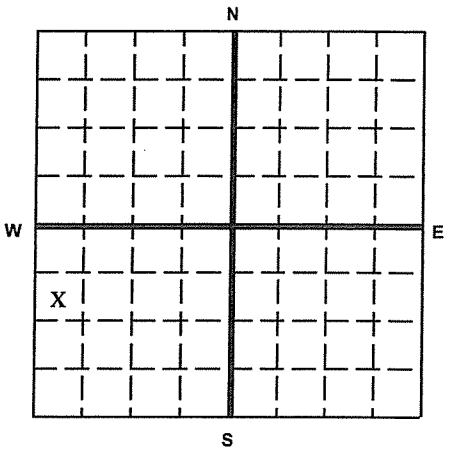
OMB No. 2040-0042 Approval Expires 11/30/2014

United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility	Name and Address of Owner/Operator
EXCELSIOR MINING CORP GUNNISON PROJECT	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	County	Permit Number
AZ	Cochise	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

- [ ] Individual Permit
- [x] 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 55-224840, NSM-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	529	4.5

METHOD OF EMPLACEMENT OF CEMENT PLUGS

- [x] The Balance Method
- [ ] The Dump Bailer Method
- [ ] The Two-Plug Method
- [ ] Other

CEMENTING TO PLUG AND ABANDON DATA:	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (inche	4.5						
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 possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

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

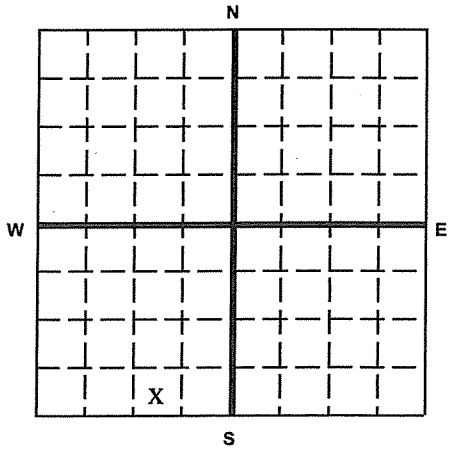
OMB No. 2040-0042 Approval Expires 11/30/2014

United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility	Name and Address of Owner/Operator
EXCELSIOR MINING CORP GUNNISON PROJECT	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	County	Permit Number
AZ	Cochise	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
- ☐ 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 55-224841, 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
- ☑ 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	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 possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

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

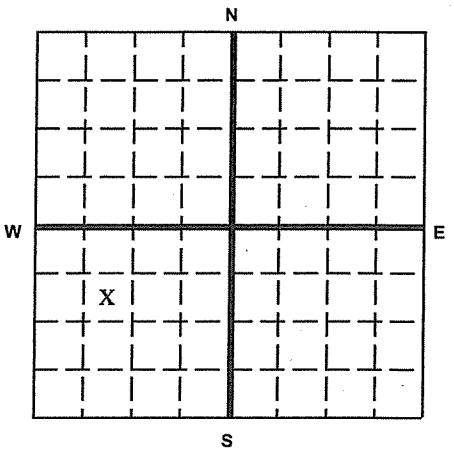
OMB No. 2040-0042 Approval Expires 11/30/2014

United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility	Name and Address of Owner/Operator
EXCELSIOR MINING CORP GUNNISON PROJECT	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	County	Permit Number
AZ	Cochise	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. frm (N/S) N Line of quarter section and 914 ft. from (E/W) W Line of quarter section.

TYPE OF AUTHORIZATION

- [ ] Individual Permit
- [x] 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 55-224842, NSM-004

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	596	4.5

METHOD OF EMPLACEMENT OF CEMENT PLUGS

- [x] The Balance Method
- [ ] The Dump Bailer Method
- [ ] The Two-Plug Method
- [ ] Other

CEMENTING TO PLUG AND ABANDON DATA:	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (inche	4						
Depth to Bottom of Tubing or Drill Pipe (ft	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	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 possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

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

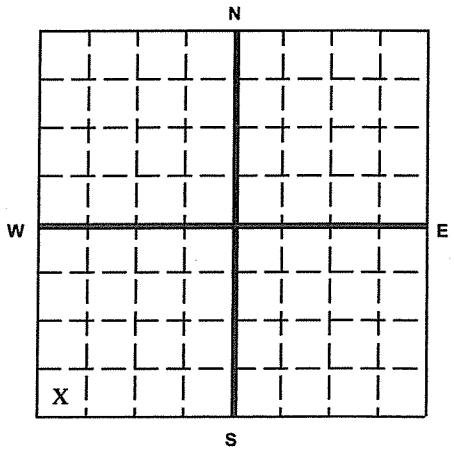
OMB No. 2040-0042 Approval Expires 11/30/2014

United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility	Name and Address of Owner/Operator
EXCELSIOR MINING CORP GUNNISON PROJECT	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	County	Permit Number
AZ	Cochise	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 possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

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

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

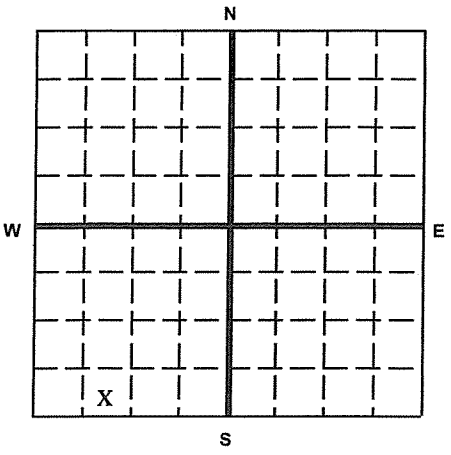
United States Environmental Protection Agency
Washington, DC 20460

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	County	Permit Number
AZ	Cochise	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
- ☐ 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 55-224934, NSM-002

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	507	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	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	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 possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

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

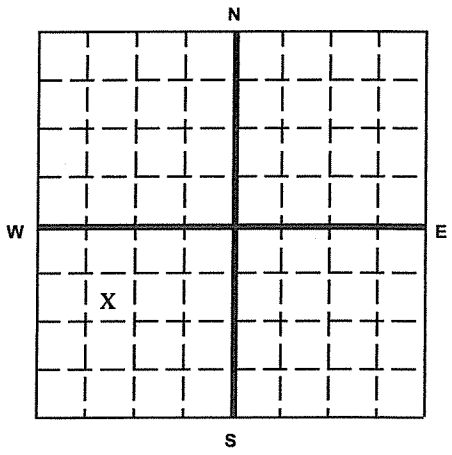
OMB No. 2040-0042 Approval Expires 11/30/2014

United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility	Name and Address of Owner/Operator
EXCELSIOR MINING CORP GUNNISON PROJECT	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	County	Permit Number
AZ	Cochise	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. frm (N/S) N Line of quarter section and 709 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 55-224933, 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

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

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

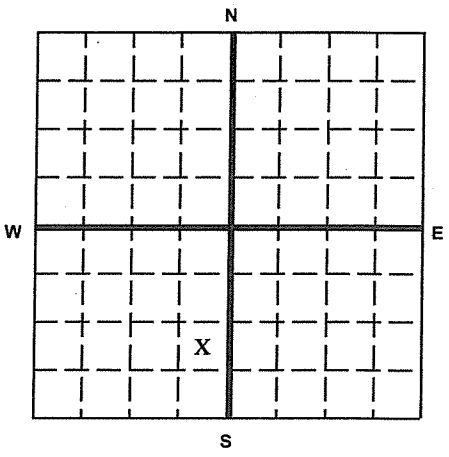
OMB No. 2040-0042 Approval Expires 11/30/2014

United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility	Name and Address of Owner/Operator
EXCELSIOR MINING CORP GUNNISON PROJECT	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	County	Permit Number
AZ	Cochise	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

- ☐ 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 55-917783, NSH-032

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

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

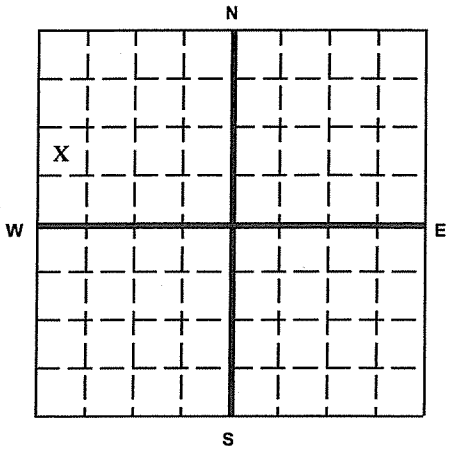
OMB No. 2040-0042 Approval Expires 11/30/2014

United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility	Name and Address of Owner/Operator
EXCELSIOR MINING CORP GUNNISON PROJECT	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	County	Permit Number
AZ	Cochise	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
- [x] 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 [55-917782, 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

- [x] The Balance Method
- [ ] The Dump Bailer Method
- [ ] The Two-Plug Method
- [ ] Other

CEMENTING TO PLUG AND ABANDON DATA:	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (inche	2.375						
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 possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

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

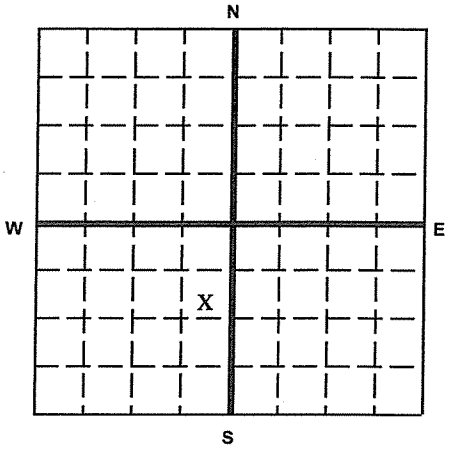
OMB No. 2040-0042 Approval Expires 11/30/2014

United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility	Name and Address of Owner/Operator
EXCELSIOR MINING CORP GUNNISON PROJECT	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	County	Permit Number
AZ	Cochise	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

- [ ] Individual Permit
- [x] 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 55-917775, NSH-030

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	706	2.375

METHOD OF EMPLACEMENT OF CEMENT PLUGS

- [x] The Balance Method
- [ ] The Dump Bailer Method
- [ ] The Two-Plug Method
- [ ] Other

CEMENTING TO PLUG AND ABANDON DATA:	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (inche	2.375						
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 possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

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

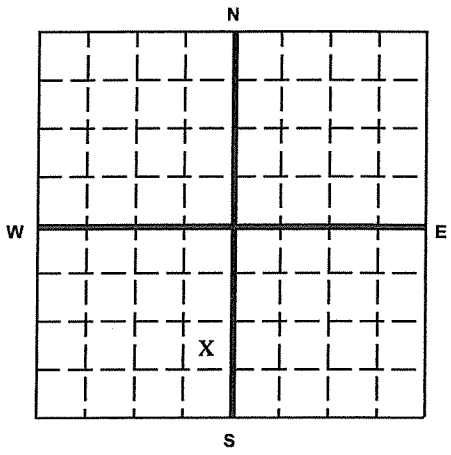
OMB No. 2040-0042 Approval Expires 11/30/2014

United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility	Name and Address of Owner/Operator
EXCELSIOR MINING CORP GUNNISON PROJECT	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	County	Permit Number
AZ	Cochise	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 (inche	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 possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

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

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

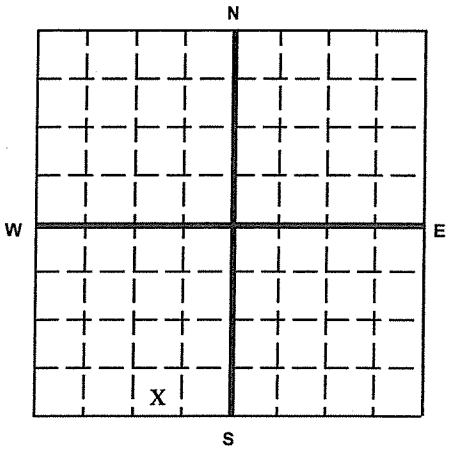
United States Environmental Protection Agency
Washington, DC 20460

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	County	Permit Number
AZ	Cochise	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
- ☐ 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 55-224036, NSH-026

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	625	8.625

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

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

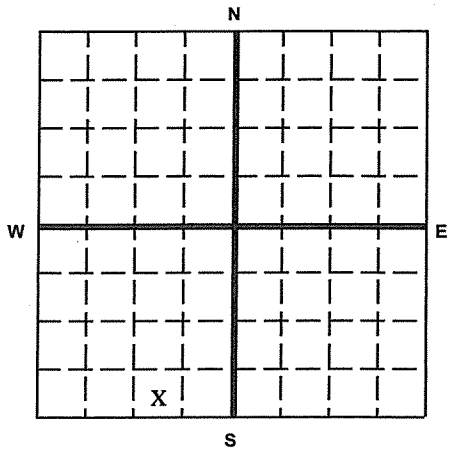
OMB No. 2040-0042 Approval Expires 11/30/2014

United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility	Name and Address of Owner/Operator
EXCELSIOR MINING CORP GUNNISON PROJECT	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	County	Permit Number
AZ	Cochise	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
- [ ] Individual Permit
- [x] 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 55-224158, 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
- [x] The Balance Method
- [ ] The Dump Bailer Method
- [ ] The Two-Plug Method
- [ ] Other

CEMENTING TO PLUG AND ABANDON DATA:	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (inche	4.5						
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 possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

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

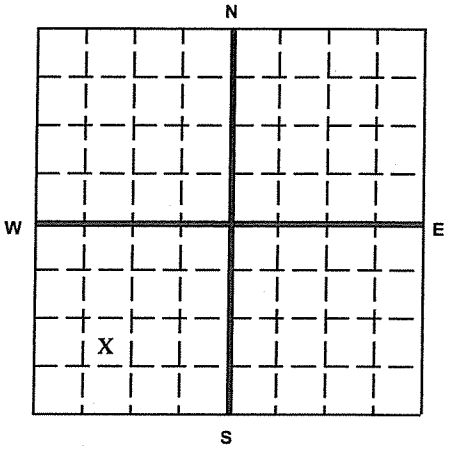
OMB No. 2040-0042 Approval Expires 11/30/2014

United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility	Name and Address of Owner/Operator
EXCELSIOR MINING CORP GUNNISON PROJECT	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	County	Permit Number
AZ	Cochise	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 858 ft. frm (N/S) S Line of quarter section
and 993 ft. from (E/W) E Line of quarter section.

TYPE OF AUTHORIZATION

- [ ] Individual Permit
- [x] 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 55-224033, NSH-024

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	625	8.625

METHOD OF EMPLACEMENT OF CEMENT PLUGS

- [x] The Balance Method
- [ ] The Dump Bailer Method
- [ ] The Two-Plug Method
- [ ] Other

CEMENTING TO PLUG AND ABANDON DATA:	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (inche	8.625	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	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 possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

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

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

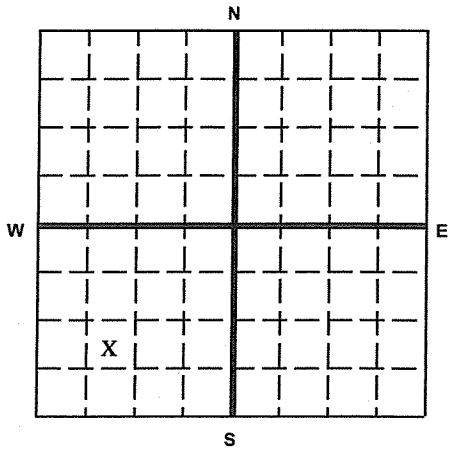
United States Environmental Protection Agency
Washington, DC 20460

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	County	Permit Number
AZ	Cochise	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 893 ft. frm (N/S) S Line of quarter section
and 1055 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 55-224034, NSH-023

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	645	8.625

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	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					

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

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

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

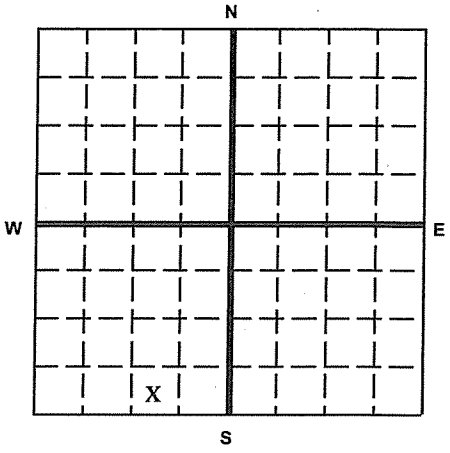
OMB No. 2040-0042 Approval Expires 11/30/2014

United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility	Name and Address of Owner/Operator
EXCELSIOR MINING CORP GUNNISON PROJECT	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	County	Permit Number
AZ	Cochise	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

- ☐ 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 55-224097, NSH-022

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	1131	6.625

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	6.625						
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 possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

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

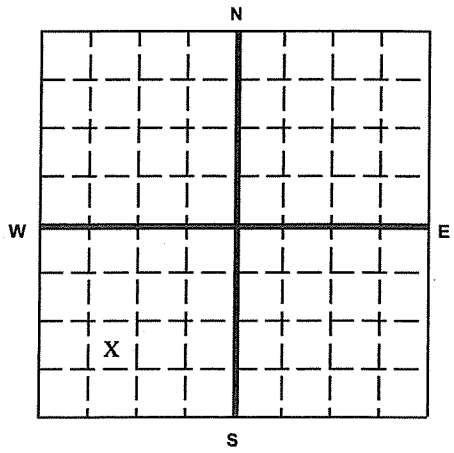
OMB No. 2040-0042 Approval Expires 11/30/2014

United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility	Name and Address of Owner/Operator
EXCELSIOR MINING CORP GUNNISON PROJECT	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	County	Permit Number
AZ	Cochise	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 806 ft. frm (N/S) S Line of quarter section and 839 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 55-224032, NSH-021C

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	624	8.625

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	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					

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

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

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

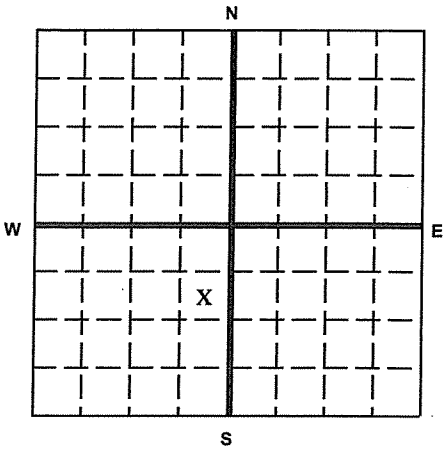
OMB No. 2040-0042 Approval Expires 11/30/2014

United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility	Name and Address of Owner/Operator
EXCELSIOR MINING CORP GUNNISON PROJECT	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	County	Permit Number
AZ	Cochise	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 1096 ft. frm (N/S) N Line of quarter section and 208 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 55-224035, NSH-020

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	1582	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	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 possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

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

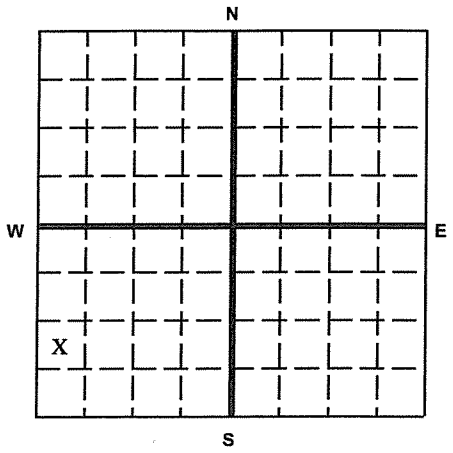
OMB No. 2040-0042 Approval Expires 11/30/2014

United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility	Name and Address of Owner/Operator
EXCELSIOR MINING CORP GUNNISON PROJECT	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	County	Permit Number
AZ	Cochise	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 734 ft. frm (N/S) S Line of quarter section and 804 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 55-224031, NSH-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
8.625	Unknown	0	638	8.625

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

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

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

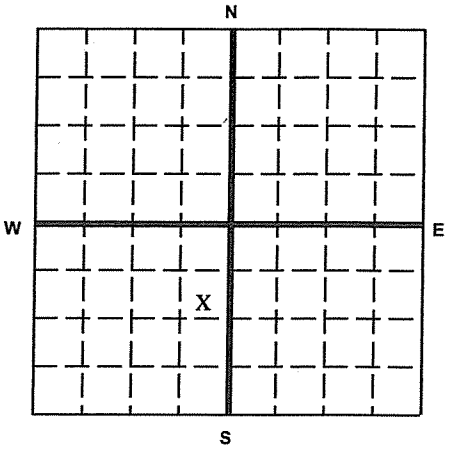
United States Environmental Protection Agency
Washington, DC 20460

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	County	Permit Number
AZ	Cochise	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
- ☐ 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 55-224100, NSH-018

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	992	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	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 possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

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

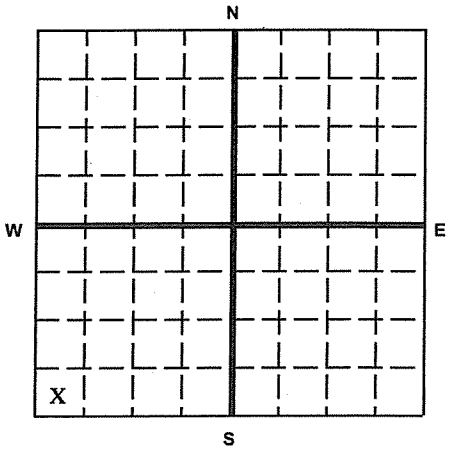
OMB No. 2040-0042 Approval Expires 11/30/2014

United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility	Name and Address of Owner/Operator
EXCELSIOR MINING CORP GUNNISON PROJECT	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	County	Permit Number
AZ	Cochise	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 459 ft. frm (N/S) S Line of quarter section
and 413 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 55-224099, 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
- ☑ 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	6.625						
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 possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

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

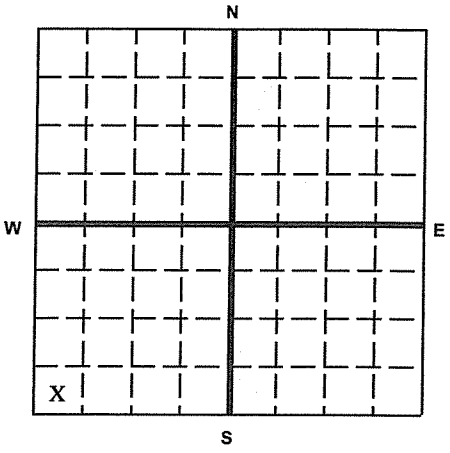
OMB No. 2040-0042 Approval Expires 11/30/2014

United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility	Name and Address of Owner/Operator
EXCELSIOR MINING CORP GUNNISON PROJECT	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	County	Permit Number
AZ	Cochise	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 483 ft. frm (N/S) S Line of quarter section
and 118 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 55-224030, NSH-016

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	579	8.625

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

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

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

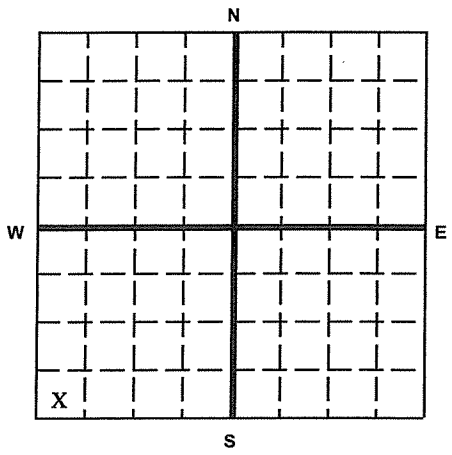
United States Environmental Protection Agency
Washington, DC 20460

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	County	Permit Number
AZ	Cochise	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
- ☐ 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 55-224029, 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
- ☑ The Balance Method
- ☐ The Dump Bailer Method
- ☐ The Two-Plug Method
- ☐ Other

CEMENTING TO PLUG AND ABANDON DATA:	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (inche	8.625	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 possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

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

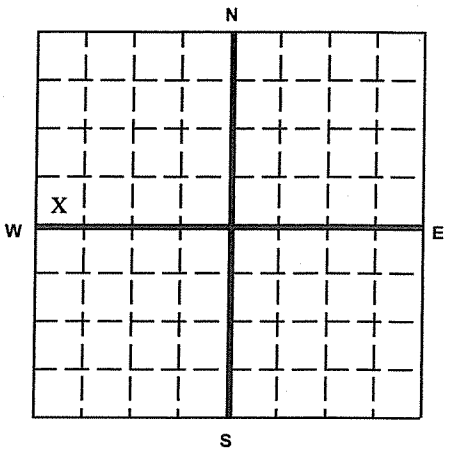
OMB No. 2040-0042 Approval Expires 11/30/2014

United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility	Name and Address of Owner/Operator
EXCELSIOR MINING CORP GUNNISON PROJECT	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	County	Permit Number
AZ	Cochise	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

- [ ] Individual Permit
- [x] 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 55-917432, NSH-014B

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	1260	4.5

METHOD OF EMPLACEMENT OF CEMENT PLUGS

- [x] The Balance Method
- [ ] The Dump Bailer Method
- [ ] The Two-Plug Method
- [ ] Other

CEMENTING TO PLUG AND ABANDON DATA:	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (inche	4.5						
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 possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

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

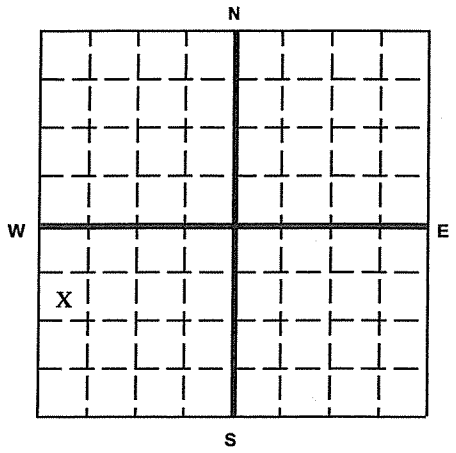
OMB No. 2040-0042 Approval Expires 11/30/2014

United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility	Name and Address of Owner/Operator
EXCELSIOR MINING CORP GUNNISON PROJECT	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	County	Permit Number
AZ	Cochise	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

- [ ] Individual Permit
- [x] 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 [55-917436, NSH-013]

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	646	8.625

METHOD OF EMPLACEMENT OF CEMENT PLUGS

- [x] The Balance Method
- [ ] The Dump Bailer Method
- [ ] The Two-Plug Method
- [ ] Other

CEMENTING TO PLUG AND ABANDON DATA:	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (inche	8.625	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					

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

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

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

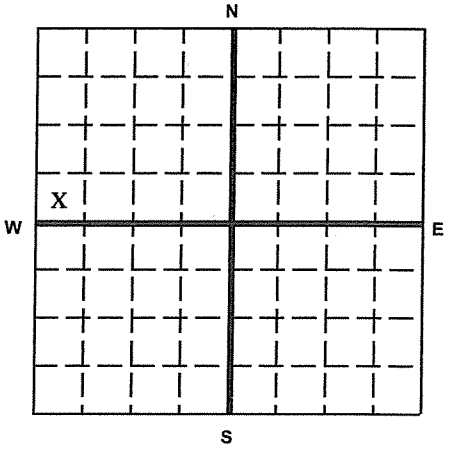
OMB No. 2040-0042 Approval Expires 11/30/2014

United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility	Name and Address of Owner/Operator
EXCELSIOR MINING CORP GUNNISON PROJECT	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	County	Permit Number
AZ	Cochise	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

- ☐ 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 55-917435, NSH-012

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

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

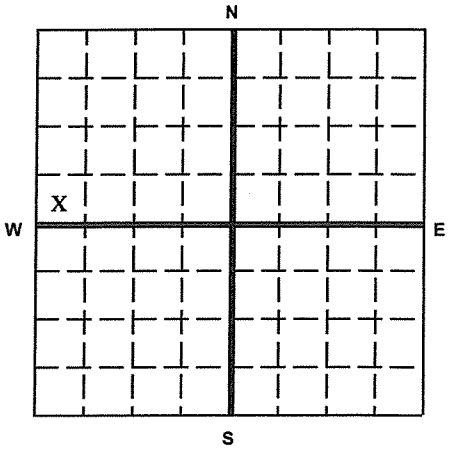
OMB No. 2040-0042 Approval Expires 11/30/2014

United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility	Name and Address of Owner/Operator
EXCELSIOR MINING CORP GUNNISON PROJECT	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	County	Permit Number
AZ	Cochise	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
- ☐ 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 55-917434, 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
- ☑ The Balance Method
- ☐ The Dump Bailer Method
- ☐ The Two-Plug Method
- ☐ Other

CEMENTING TO PLUG AND ABANDON DATA:	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (inche	8.625	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 possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

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

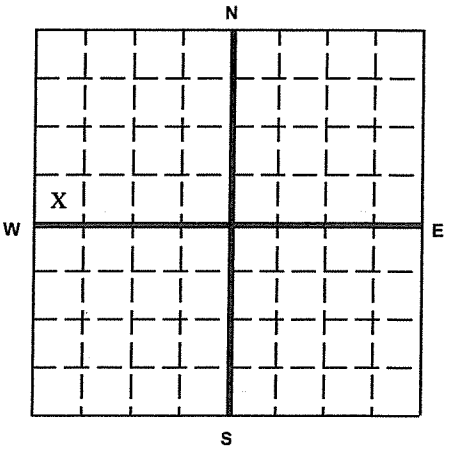
OMB No. 2040-0042 Approval Expires 11/30/2014

United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility	Name and Address of Owner/Operator
EXCELSIOR MINING CORP GUNNISON PROJECT	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	County	Permit Number
AZ	Cochise	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

- ☐ 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 55-917433, NSH-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	995	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	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 possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

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

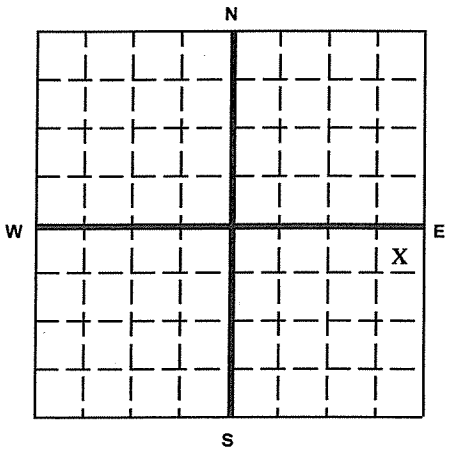
OMB No. 2040-0042 Approval Expires 11/30/2014

United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility	Name and Address of Owner/Operator
EXCELSIOR MINING CORP GUNNISON PROJECT	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	County	Permit Number
AZ	Cochise	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 275 ft. frm (N/S) N Line of quarter section and 483 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 55-917429, NSH-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
4.5	Unknown	0	840	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	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						

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

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

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

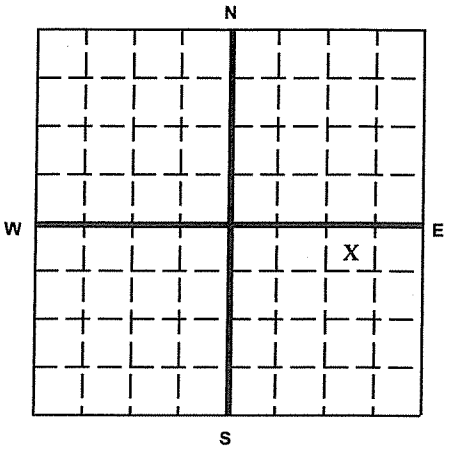
OMB No. 2040-0042 Approval Expires 11/30/2014

United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility	Name and Address of Owner/Operator
EXCELSIOR MINING CORP GUNNISON PROJECT	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	County	Permit Number
AZ	Cochise	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

- [ ] Individual Permit
- [x] 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 55-917430, NSH-007

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	469	8.625

METHOD OF EMPLACEMENT OF CEMENT PLUGS

- [x] The Balance Method
- [ ] The Dump Bailer Method
- [ ] The Two-Plug Method
- [ ] Other

CEMENTING TO PLUG AND ABANDON DATA:	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (inche	8.625	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 possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

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

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

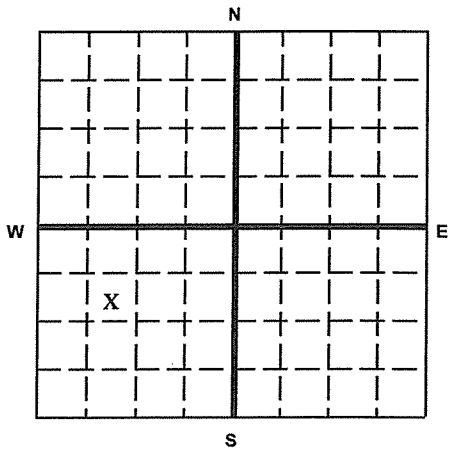
United States Environmental Protection Agency
Washington, DC 20460

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	County	Permit Number
AZ	Cochise	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 1143 ft. frm (N/S) N Line of quarter section
and 1228 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 55-221519, 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 possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

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

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

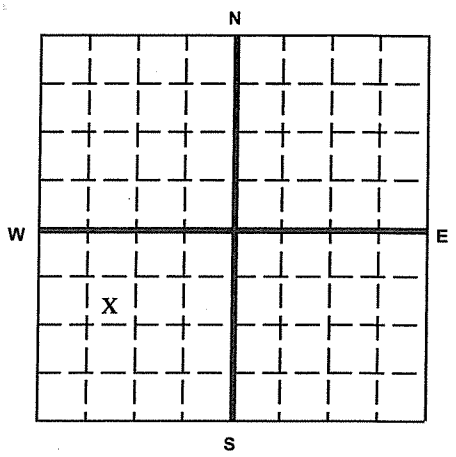
United States Environmental Protection Agency
Washington, DC 20460

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	County	Permit Number
AZ	Cochise	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 1304 ft. frm (N/S) N Line of quarter section
and 1173 ft. from (E/W) W Line of quarter section.

TYPE OF AUTHORIZATION
- [ ] Individual Permit
- [x] 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 55-221604, NSH-005

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	1019	4.5

METHOD OF EMPLACEMENT OF CEMENT PLUGS
- [x] The Balance Method
- [ ] The Dump Bailer Method
- [ ] The Two-Plug Method
- [ ] Other

CEMENTING TO PLUG AND ABANDON DATA:	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (inche	4.5						
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 possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

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

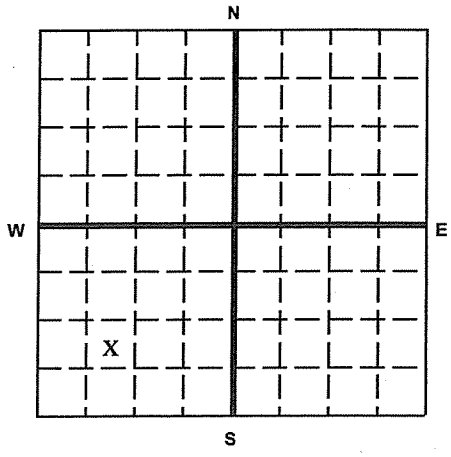
OMB No. 2040-0042 Approval Expires 11/30/2014

United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility	Name and Address of Owner/Operator
EXCELSIOR MINING CORP GUNNISON PROJECT	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	County	Permit Number
AZ	Cochise	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 1216 ft. frm (N/S) S Line of quarter section and 1039 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 55-221603, NSH-004B

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	1009	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	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 possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

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

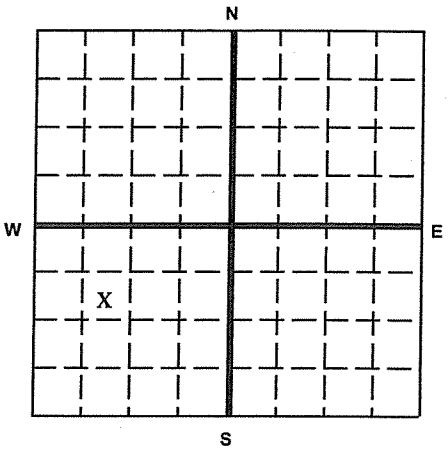
OMB No. 2040-0042 Approval Expires 11/30/2014

United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility	Name and Address of Owner/Operator
EXCELSIOR MINING CORP GUNNISON PROJECT	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	County	Permit Number
AZ	Cochise	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 993 ft. frm (N/S) N Line of quarter section and 1046 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 55-221520, NSH-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	1432	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	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

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

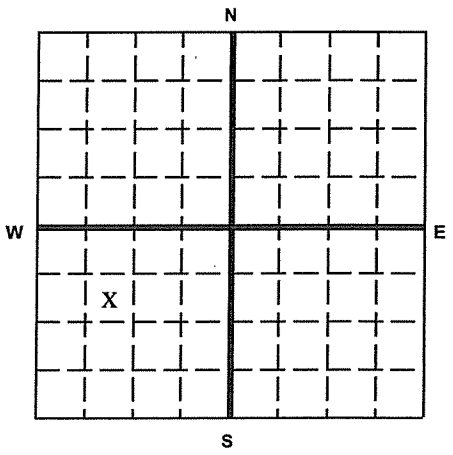
OMB No. 2040-0042 Approval Expires 11/30/2014

United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility	Name and Address of Owner/Operator
EXCELSIOR MINING CORP GUNNISON PROJECT	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	County	Permit Number
AZ	Cochise	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. frm (N/S) [S] Line of quarter section and [914] ft. from (E/W) [W] Line of quarter section.

TYPE OF AUTHORIZATION

- [ ] Individual Permit
- [x] 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 [55-221521, 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

- [x] The Balance Method
- [ ] The Dump Bailer Method
- [ ] The Two-Plug Method
- [ ] Other

CEMENTING TO PLUG AND ABANDON DATA:	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (inche	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

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

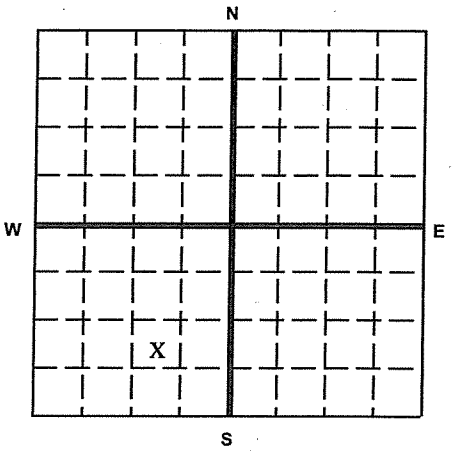
OMB No. 2040-0042 Approval Expires 11/30/2014

United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility	Name and Address of Owner/Operator
EXCELSIOR MINING CORP GUNNISON PROJECT	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	County	Permit Number
AZ	Cochise	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

- [ ] Individual Permit
- [x] 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 55-224860, NSD-043

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	628	4.5

METHOD OF EMPLACEMENT OF CEMENT PLUGS

- [x] The Balance Method
- [ ] The Dump Bailer Method
- [ ] The Two-Plug Method
- [ ] Other

CEMENTING TO PLUG AND ABANDON DATA:	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (inche	4.5						
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 possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

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

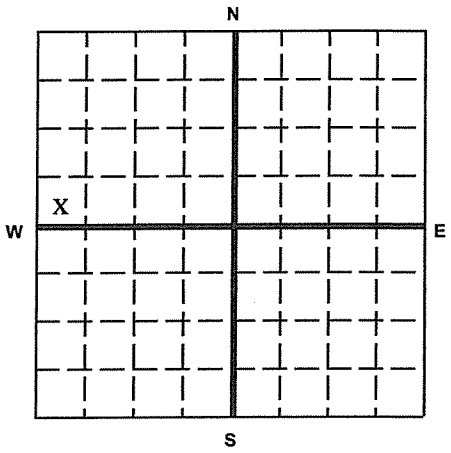
OMB No. 2040-0042 Approval Expires 11/30/2014

United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility	Name and Address of Owner/Operator
EXCELSIOR MINING CORP GUNNISON PROJECT	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	County	Permit Number
AZ	Cochise	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 possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

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

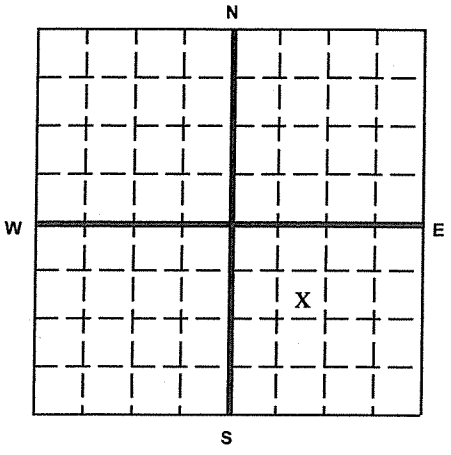
OMB No. 2040-0042 Approval Expires 11/30/2014

United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility	Name and Address of Owner/Operator
EXCELSIOR MINING CORP GUNNISON PROJECT	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	County	Permit Number
AZ	Cochise	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

- ☐ 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 55-224854, NSD-036

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	501	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	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 possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

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

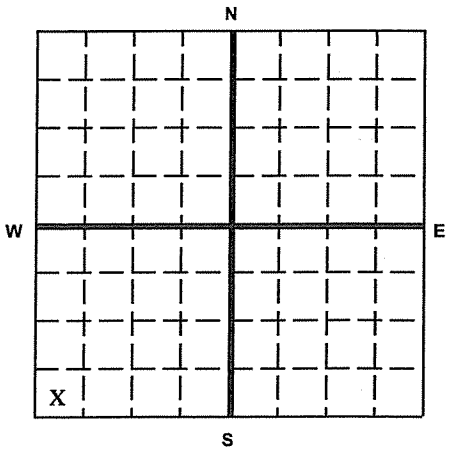
OMB No. 2040-0042 Approval Expires 11/30/2014

United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility	Name and Address of Owner/Operator
EXCELSIOR MINING CORP GUNNISON PROJECT	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	County	Permit Number
AZ	Cochise	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 80 ft. frm (N/S) S Line of quarter section and 514 ft. from (E/W) W Line of quarter section.

TYPE OF AUTHORIZATION

- [ ] Individual Permit
- [x] 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 55-224846, NSD-033

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

- [x] The Balance Method
- [ ] The Dump Bailer Method
- [ ] The Two-Plug Method
- [ ] Other

CEMENTING TO PLUG AND ABANDON DATA:	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (inche	4.5						
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 possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

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

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

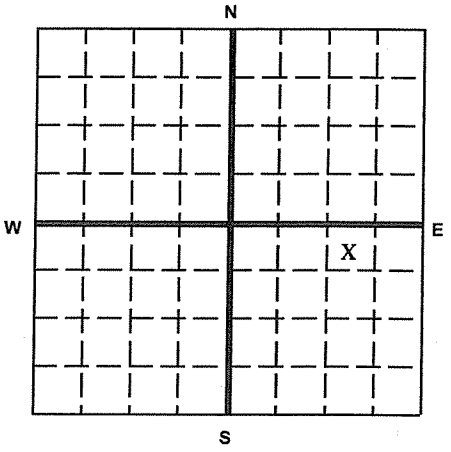
United States Environmental Protection Agency
Washington, DC 20460

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	County	Permit Number
AZ	Cochise	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
- ☐ 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 55-224939, NSD-032

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	686	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	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 possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

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

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

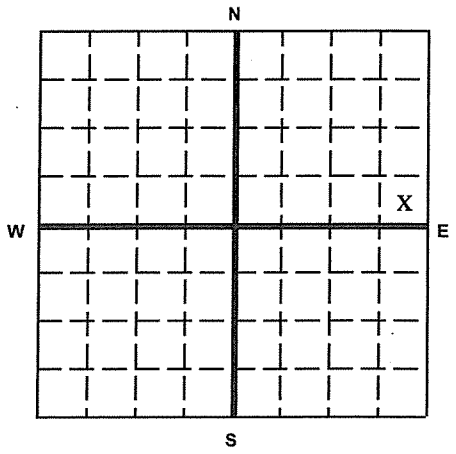
United States Environmental Protection Agency
Washington, DC 20460

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	County	Permit Number
AZ	Cochise	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
- ☐ 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 55-224155, NSD-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
4.5	Unknown	0	415	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	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	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 possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

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

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

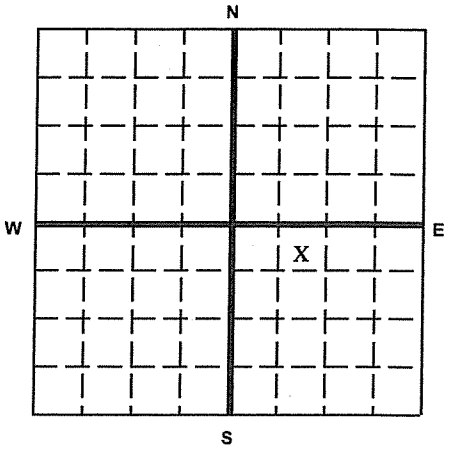
United States Environmental Protection Agency
Washington, DC 20460

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	County	Permit Number
AZ	Cochise	TBD

Surface Location Description
1/4 of ne 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 551 ft. frm (N/S) N Line of quarter section
and 1219 ft. from (E/W) W Line of quarter section.

TYPE OF AUTHORIZATION
- [ ] Individual Permit
- [x] 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 55-224848, NSD-030

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	256	4.5

METHOD OF EMPLACEMENT OF CEMENT PLUGS
- [x] The Balance Method
- [ ] The Dump Bailer Method
- [ ] The Two-Plug Method
- [ ] Other

CEMENTING TO PLUG AND ABANDON DATA:	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (inche	4.5						
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 possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

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

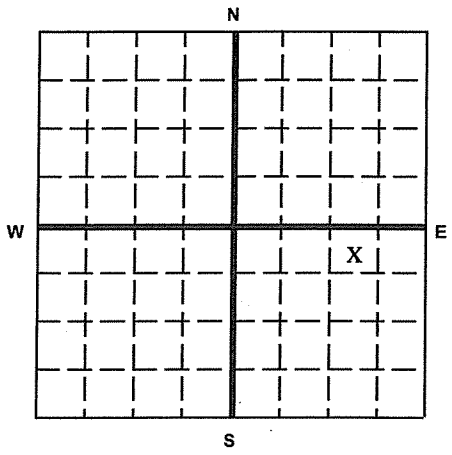
OMB No. 2040-0042 Approval Expires 11/30/2014

United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility	Name and Address of Owner/Operator
EXCELSIOR MINING CORP GUNNISON PROJECT	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	County	Permit Number
AZ	Cochise	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

- ☐ 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 55-224938, 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

- ☑ 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	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 possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

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

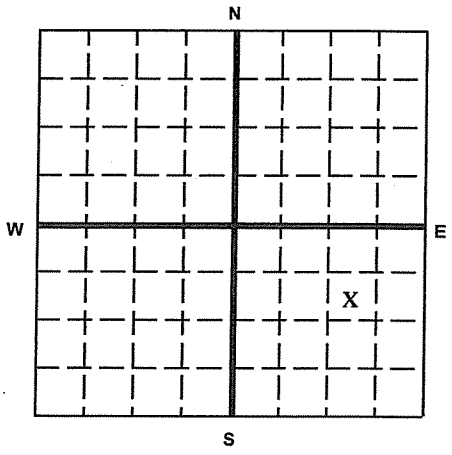
OMB No. 2040-0042 Approval Expires 11/30/2014

United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility	Name and Address of Owner/Operator
EXCELSIOR MINING CORP GUNNISON PROJECT	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	County	Permit Number
AZ	Cochise	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

- ☐ 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 55-224937, NSD-028

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	396	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	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	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 possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

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

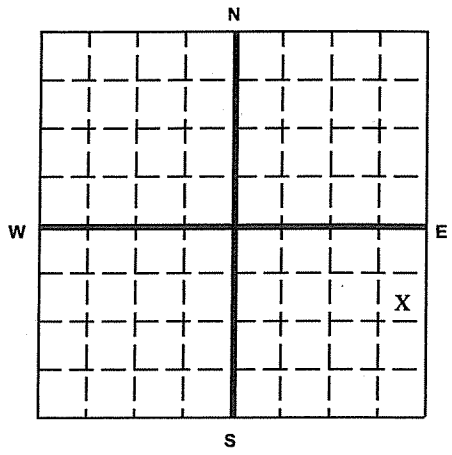
OMB No. 2040-0042 Approval Expires 11/30/2014

United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility	Name and Address of Owner/Operator
EXCELSIOR MINING CORP GUNNISON PROJECT	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	County	Permit Number
AZ	Cochise	TBD

Surface Location Description

1/4 of se 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 537 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 55-224936, NSD-027

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

- ☑ 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	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 possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

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

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

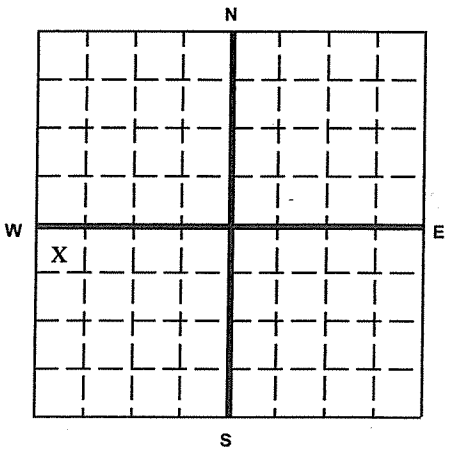
United States Environmental Protection Agency
Washington, DC 20460

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	County	Permit Number
AZ	Cochise	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 591 ft. frm (N/S) N Line of quarter section
and 1 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 55-224154, NSD-026

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	436	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	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 possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

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

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

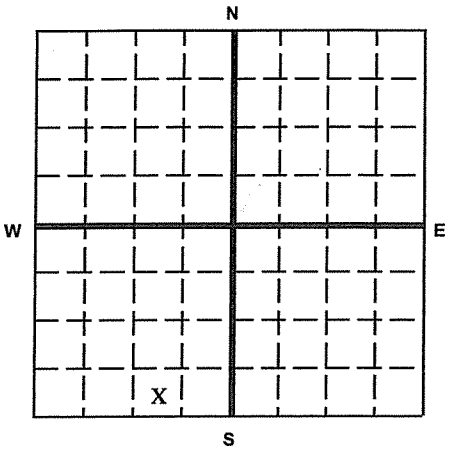
United States Environmental Protection Agency
Washington, DC 20460

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	County	Permit Number
AZ	Cochise	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

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

Lease Name
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 (inche	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 possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

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

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

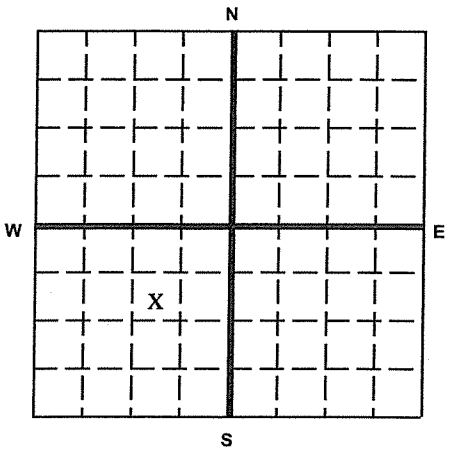
United States Environmental Protection Agency
Washington, DC 20460

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	County	Permit Number
AZ	Cochise	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
- ☐ 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 55-224931, NSD-024

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	671	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	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	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 possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

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

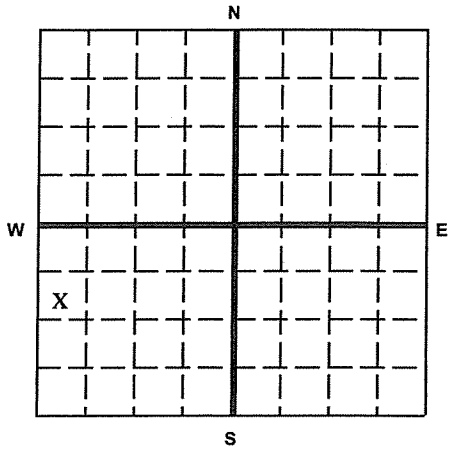
OMB No. 2040-0042 Approval Expires 11/30/2014

United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility	Name and Address of Owner/Operator
EXCELSIOR MINING CORP GUNNISON PROJECT	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	County	Permit Number
AZ	Cochise	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 1170 ft. frm (N/S) N Line of quarter section and 455 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 55-224930, NSD-023

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
- ☑ 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	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 possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

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

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

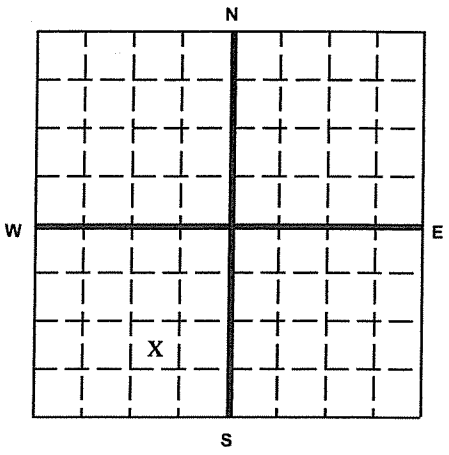
United States Environmental Protection Agency
Washington, DC 20460

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	County	Permit Number
AZ	Cochise	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 858 ft. frm (N/S) S Line of quarter section
and 934 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 55-224946, NSD-020

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	660	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	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 possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

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

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

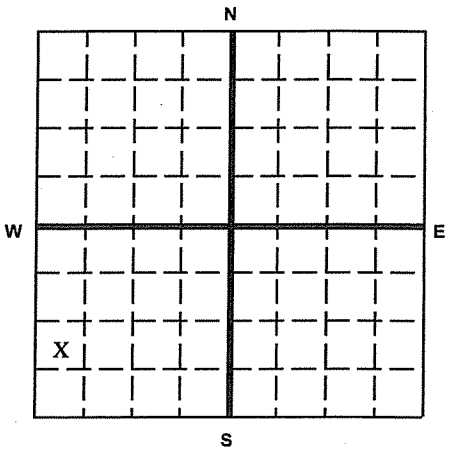
United States Environmental Protection Agency
Washington, DC 20460

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	County	Permit Number
AZ	Cochise	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. frm (N/S) S Line of quarter section
and 324 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 55-224945, 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
- ☑ 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	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 possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

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

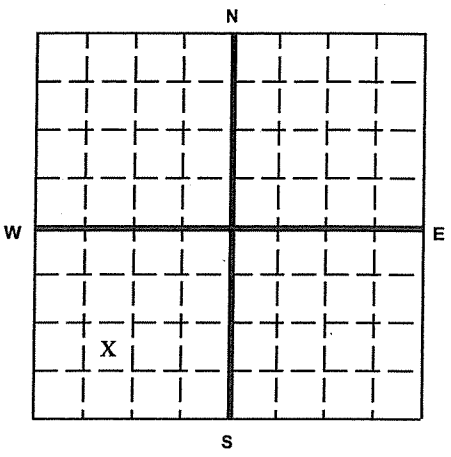
OMB No. 2040-0042 Approval Expires 11/30/2014

United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility	Name and Address of Owner/Operator
EXCELSIOR MINING CORP GUNNISON PROJECT	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	County	Permit Number
AZ	Cochise	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 1222 ft. frm (N/S) S Line of quarter section and 980 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 55-224944, NSD-011

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	650	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	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 possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

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

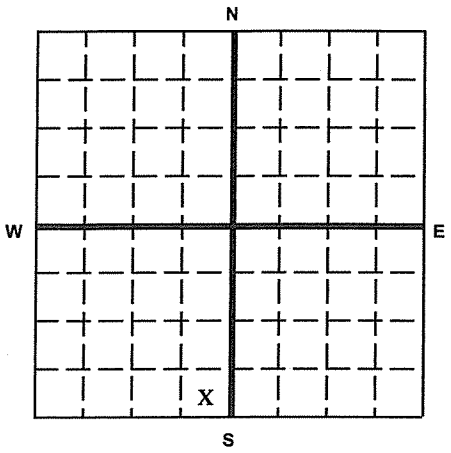
OMB No. 2040-0042 Approval Expires 11/30/2014

United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility	Name and Address of Owner/Operator
EXCELSIOR MINING CORP GUNNISON PROJECT	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	County	Permit Number
AZ	Cochise	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 possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

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

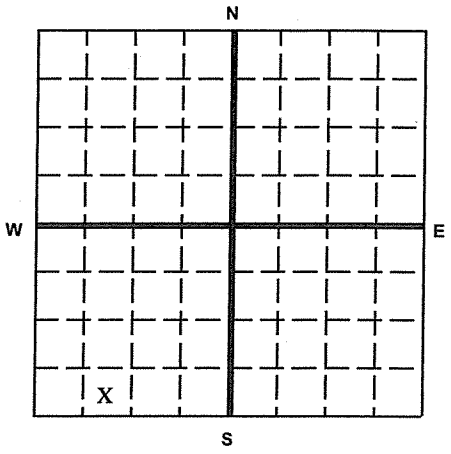
OMB No. 2040-0042 Approval Expires 11/30/2014

United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility	Name and Address of Owner/Operator
EXCELSIOR MINING CORP GUNNISON PROJECT	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	County	Permit Number
AZ	Cochise	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

- [ ] Individual Permit
- [x] 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 55-224942, NSD-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	563	4.5

METHOD OF EMPLACEMENT OF CEMENT PLUGS

- [x] The Balance Method
- [ ] The Dump Bailer Method
- [ ] The Two-Plug Method
- [ ] Other

CEMENTING TO PLUG AND ABANDON DATA:	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (inche	4.5						
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 possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

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

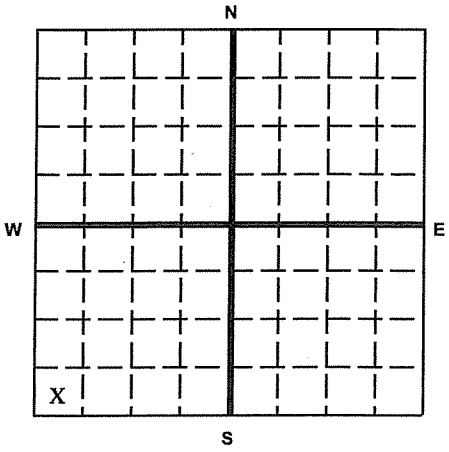
OMB No. 2040-0042 Approval Expires 11/30/2014

United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility	Name and Address of Owner/Operator
EXCELSIOR MINING CORP GUNNISON PROJECT	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	County	Permit Number
AZ	Cochise	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 256 ft. frm (N/S) S Line of quarter section and 387 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 55-224941, NSD-002

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

- ☑ 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	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 possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

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

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

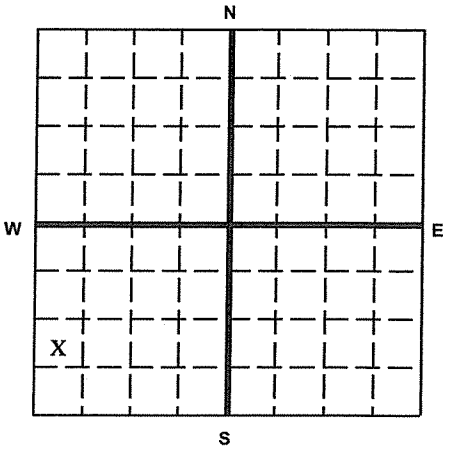
United States Environmental Protection Agency
Washington, DC 20460

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	County	Permit Number
AZ	Cochise	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 843 ft. frm (N/S) S Line of quarter section
and 455 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 55-224940, NSD-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
4.5	Unknown	0	460	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	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 possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

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

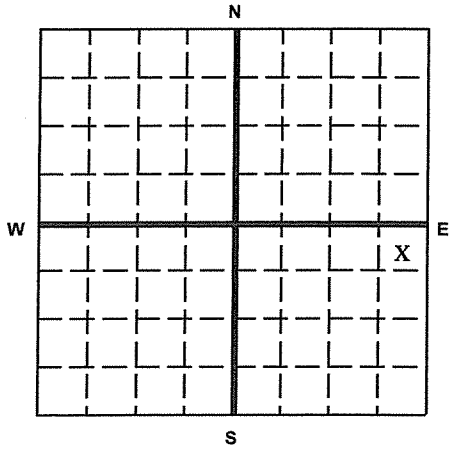
OMB No. 2040-0042 Approval Expires 11/30/2014

United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility	Name and Address of Owner/Operator
EXCELSIOR MINING CORP GUNNISON PROJECT	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	County	Permit Number
AZ	Cochise	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 375 ft. frm (N/S) N Line of quarter section and 420 ft. from (E/W) E Line of quarter section.

TYPE OF AUTHORIZATION

- [ ] Individual Permit
- [x] 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 55-225072, JS-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	~369	4.5

METHOD OF EMPLACEMENT OF CEMENT PLUGS

- [x] The Balance Method
- [ ] The Dump Bailer Method
- [ ] The Two-Plug Method
- [ ] Other

CEMENTING TO PLUG AND ABANDON DATA:	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (inche	4.5						
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 possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

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

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

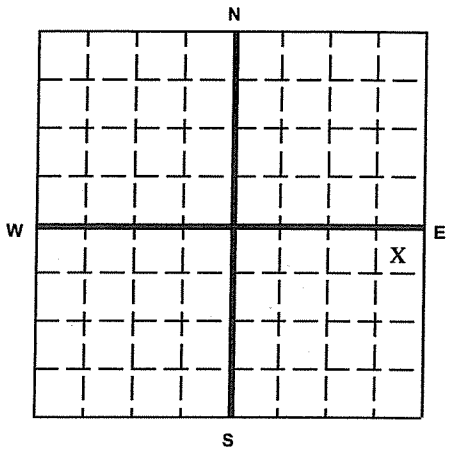
United States Environmental Protection Agency
Washington, DC 20460

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	County	Permit Number
AZ	Cochise	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 551 ft. frm (N/S) N Line of quarter section
and 406 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 55-225071, JS-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	4.5

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

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

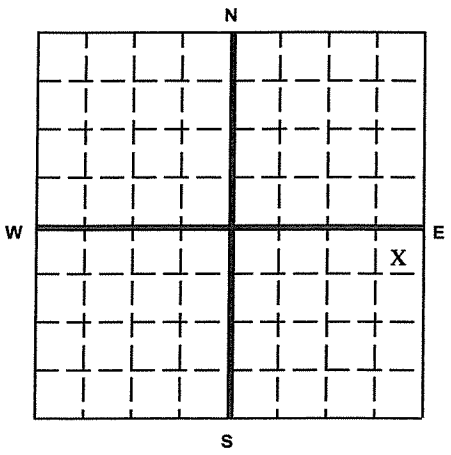
OMB No. 2040-0042 Approval Expires 11/30/2014

United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility	Name and Address of Owner/Operator
EXCELSIOR MINING CORP GUNNISON PROJECT	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	County	Permit Number
AZ	Cochise	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

- [ ] Individual Permit
- [x] 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 55-225070, JS-05

CASING AND TUBING RECORD AFTER PLUGGING

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

METHOD OF EMPLACEMENT OF CEMENT PLUGS

- [x] The Balance Method
- [ ] The Dump Bailer Method
- [ ] The Two-Plug Method
- [ ] Other

CEMENTING TO PLUG AND ABANDON DATA:	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (inche	4.5						
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 possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

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

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

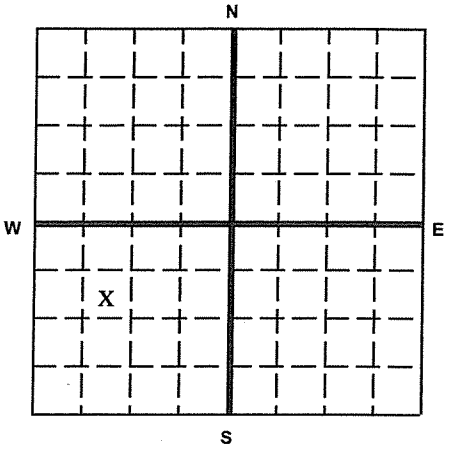
United States Environmental Protection Agency
Washington, DC 20460

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	County	Permit Number
AZ	Cochise	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
- ☐ 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 55-225109, J-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	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	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 possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

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

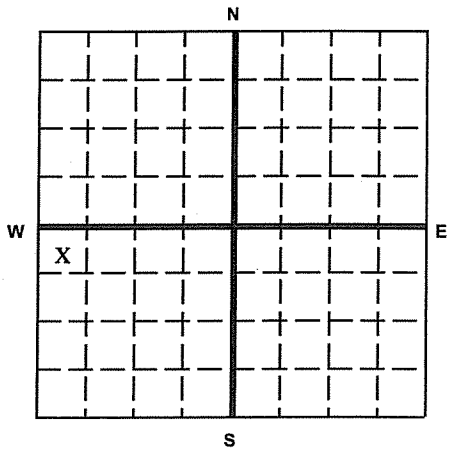
OMB No. 2040-0042 Approval Expires 11/30/2014

United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility	Name and Address of Owner/Operator
EXCELSIOR MINING CORP GUNNISON PROJECT	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	County	Permit Number
AZ	Cochise	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

- ☐ 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, 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

- ☑ 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	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 possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

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

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

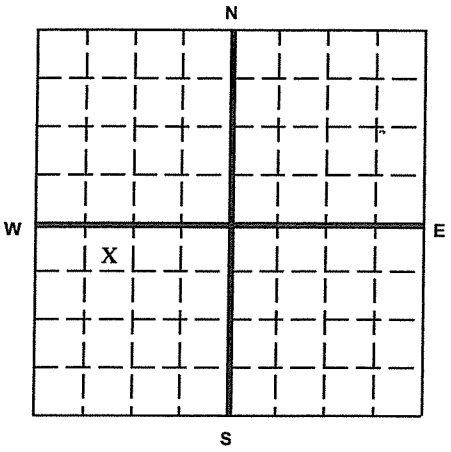
United States Environmental Protection Agency
Washington, DC 20460

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	County	Permit Number
AZ	Cochise	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

Lease Name

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

Well Number 55-225107, J-08

CASING AND TUBING RECORD AFTER PLUGGING

SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
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 (inche	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 possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

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

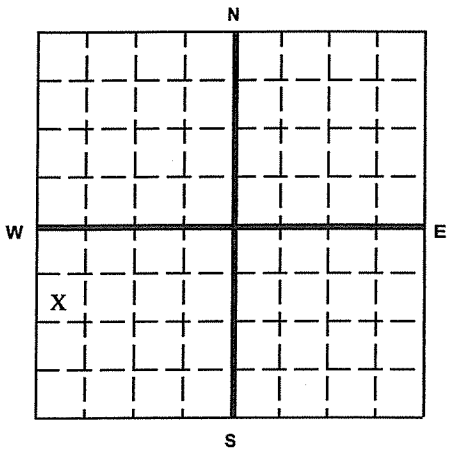
OMB No. 2040-0042 Approval Expires 11/30/2014

United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility	Name and Address of Owner/Operator
EXCELSIOR MINING CORP GUNNISON PROJECT	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	County	Permit Number
AZ	Cochise	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

- ☐ 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 55-225106, 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

- ☑ 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	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 possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

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

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

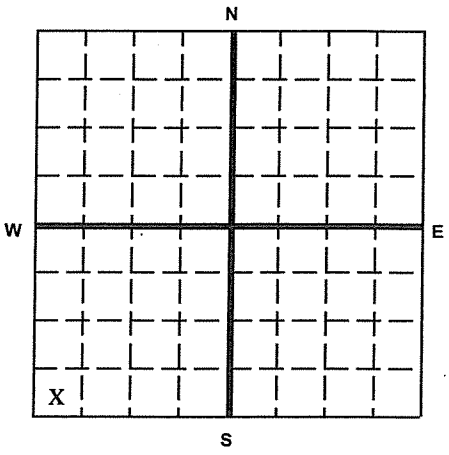
United States Environmental Protection Agency
Washington, DC 20460

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	County	Permit Number
AZ	Cochise	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
- [ ] Individual Permit
- [x] 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 55-225105, J-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
- [x] The Balance Method
- [ ] The Dump Bailer Method
- [ ] The Two-Plug Method
- [ ] Other

CEMENTING TO PLUG AND ABANDON DATA:	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (inche	4						
Depth to Bottom of Tubing or Drill Pipe (ft	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 possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

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

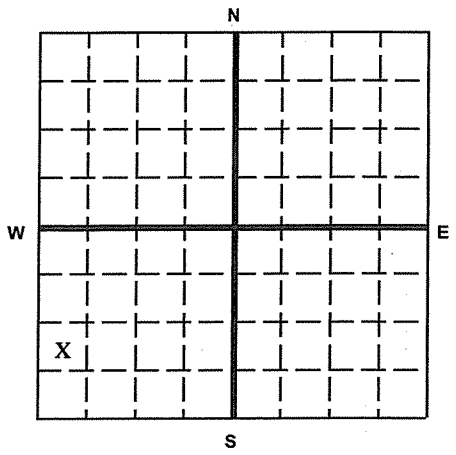
OMB No. 2040-0042 Approval Expires 11/30/2014

United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility	Name and Address of Owner/Operator
EXCELSIOR MINING CORP GUNNISON PROJECT	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	County	Permit Number
AZ	Cochise	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 459 ft. frm (N/S) S Line of quarter section and 621 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 55-225104, J-05

CASING AND TUBING RECORD AFTER PLUGGING

SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
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 (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 possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

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

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

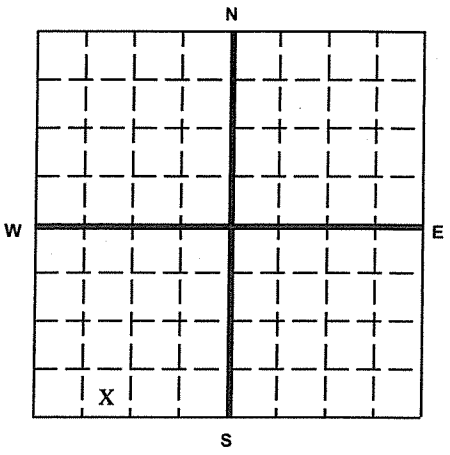
United States Environmental Protection Agency
Washington, DC 20460

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	County	Permit Number
AZ	Cochise	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 462 ft. frm (N/S) S Line of quarter section
and 645 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 55-225103, J-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 (inche	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 possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

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

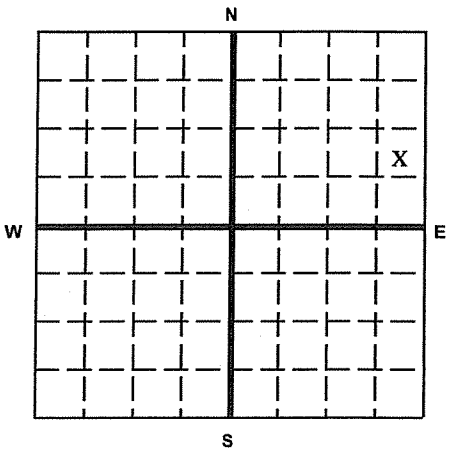
OMB No. 2040-0042 Approval Expires 11/30/2014

United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility	Name and Address of Owner/Operator
EXCELSIOR MINING CORP GUNNISON PROJECT	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	County	Permit Number
AZ	Cochise	TBD

Surface Location Description

1/4 of ne 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 722 ft. frm (N/S) S Line of quarter section and 150 ft. from (E/W) E Line of quarter section.

TYPE OF AUTHORIZATION

- [ ] Individual Permit
- [x] 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 55-225068, DC-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

METHOD OF EMPLACEMENT OF CEMENT PLUGS

- [x] The Balance Method
- [ ] The Dump Bailer Method
- [ ] The Two-Plug Method
- [ ] Other

CEMENTING TO PLUG AND ABANDON DATA:	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (inche	4						
Depth to Bottom of Tubing or Drill Pipe (ft	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 possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

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

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

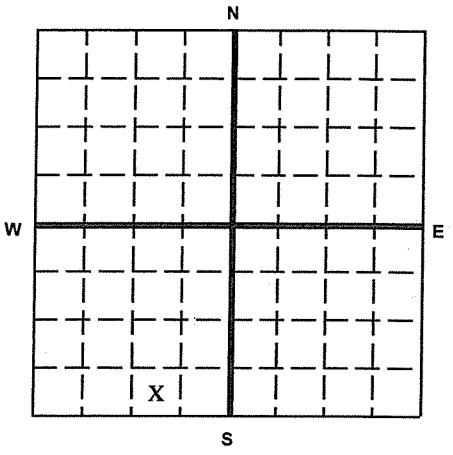
United States Environmental Protection Agency
Washington, DC 20460

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	County	Permit Number
AZ	Cochise	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
- ☐ 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 55-225101, CS-51

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 (inche	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 possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

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

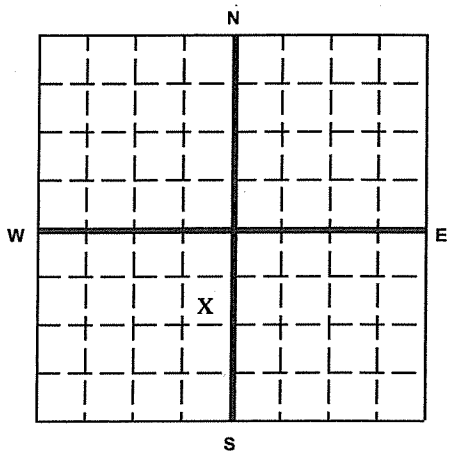
OMB No. 2040-0042 Approval Expires 11/30/2014

United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility	Name and Address of Owner/Operator
EXCELSIOR MINING CORP GUNNISON PROJECT	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	County	Permit Number
AZ	Cochise	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 possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

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

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

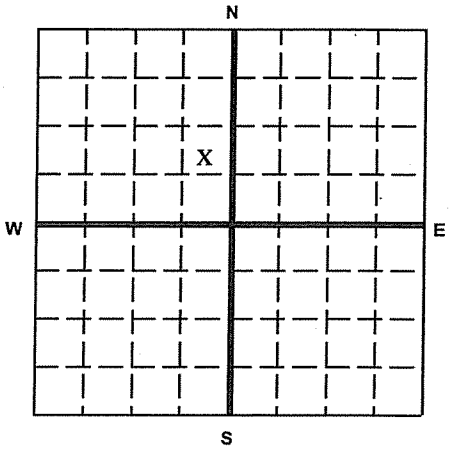
United States Environmental Protection Agency
Washington, DC 20460

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	County	Permit Number
AZ	Cochise	TBD

Surface Location Description
1/4 of ne 1/4 of se 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 830 ft. frm (N/S) S Line of quarter section
and 1156 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 55-225099, CS-23

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	622	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	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 possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

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

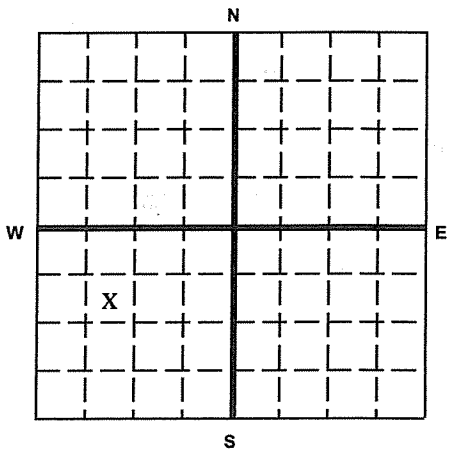
OMB No. 2040-0042 Approval Expires 11/30/2014

United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility	Name and Address of Owner/Operator
EXCELSIOR MINING CORP GUNNISON PROJECT	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	County	Permit Number
AZ	Cochise	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 (inche	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 possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

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

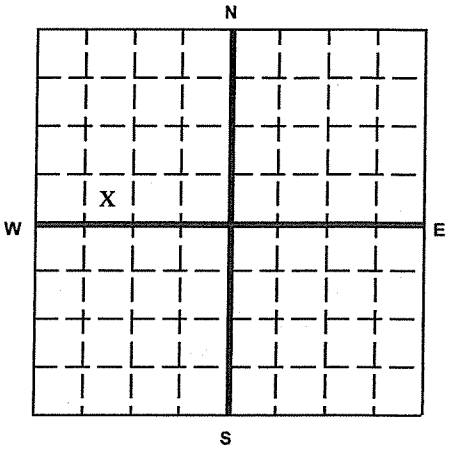
OMB No. 2040-0042 Approval Expires 11/30/2014

United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility	Name and Address of Owner/Operator
EXCELSIOR MINING CORP GUNNISON PROJECT	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	County	Permit Number
AZ	Cochise	TBD

Surface Location Description

1/4 of se 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 519 ft. frm (N/S) S Line of quarter section and 709 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 55-225097, CS-19

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	580	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	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 possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

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

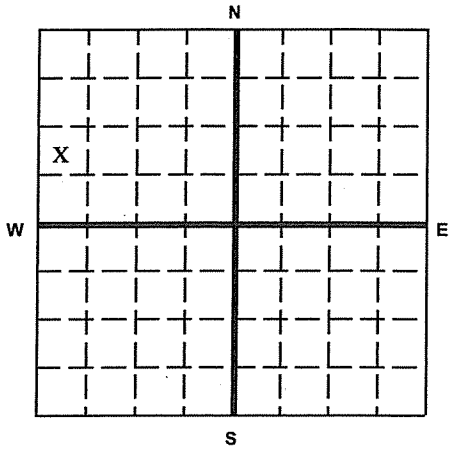
OMB No. 2040-0042 Approval Expires 11/30/2014

United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility	Name and Address of Owner/Operator
EXCELSIOR MINING CORP GUNNISON PROJECT	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	County	Permit Number
AZ	Cochise	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

Lease Name

WELL ACTIVITY

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

Well Number 55-225096, CS-15

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 (inche	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 possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

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

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

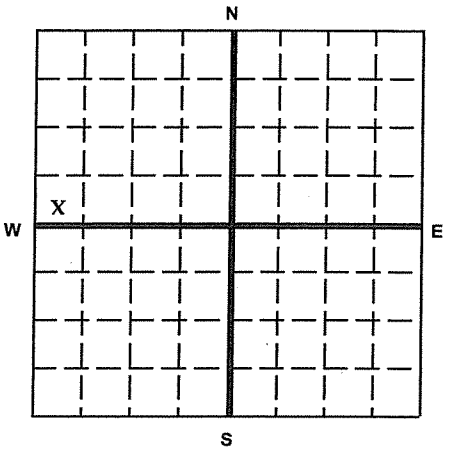
United States Environmental Protection Agency
Washington, DC 20460

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	County	Permit Number
AZ	Cochise	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 339 ft. frm (N/S) S 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 55-224160, CS-14

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 (inche	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 possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

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

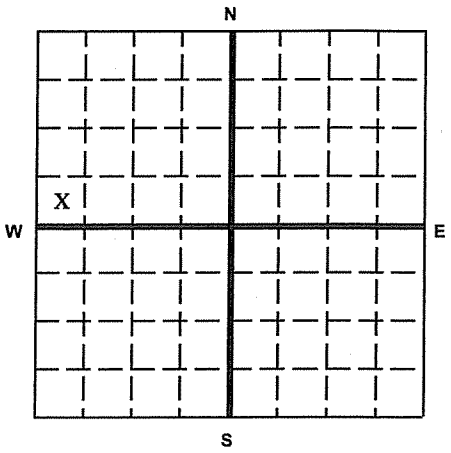
OMB No. 2040-0042 Approval Expires 11/30/2014

United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility	Name and Address of Owner/Operator
EXCELSIOR MINING CORP GUNNISON PROJECT	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	County	Permit Number
AZ	Cochise	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 possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

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

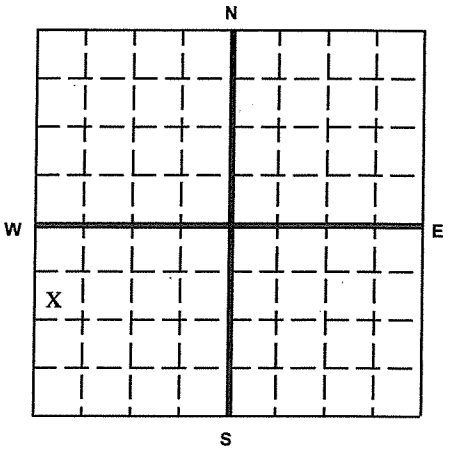
OMB No. 2040-0042 Approval Expires 11/30/2014

United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility	Name and Address of Owner/Operator
EXCELSIOR MINING CORP GUNNISON PROJECT	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	County	Permit Number
AZ	Cochise	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

- [ ] Individual Permit
- [x] 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 55-225095, CS-11

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

- [x] The Balance Method
- [ ] The Dump Bailer Method
- [ ] The Two-Plug Method
- [ ] Other

CEMENTING TO PLUG AND ABANDON DATA:	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (inche	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 possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

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

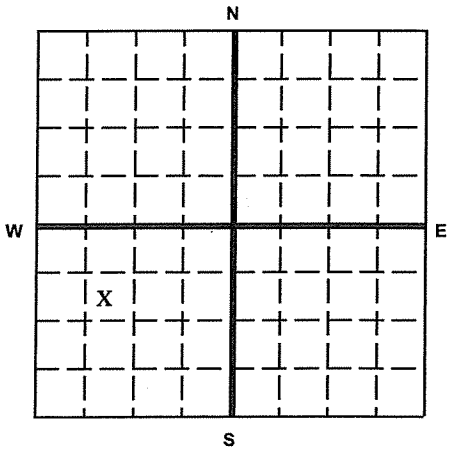
OMB No. 2040-0042 Approval Expires 11/30/2014

United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility	Name and Address of Owner/Operator
EXCELSIOR MINING CORP GUNNISON PROJECT	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	County	Permit Number
AZ	Cochise	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

- ☐ 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 55-225094, 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

- ☑ 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	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 possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

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

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

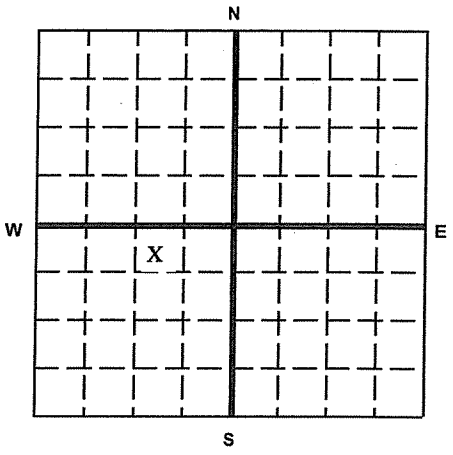
United States Environmental Protection Agency
Washington, DC 20460

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	County	Permit Number
AZ	Cochise	TBD

Surface Location Description
1/4 of nw 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 199 ft. frm (N/S) N Line of quarter section
and 1196 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 55-225093, CS-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	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	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 possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

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

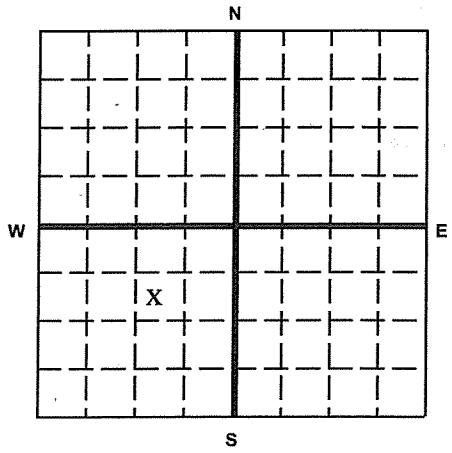
OMB No. 2040-0042 Approval Expires 11/30/2014

United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility	Name and Address of Owner/Operator
EXCELSIOR MINING CORP GUNNISON PROJECT	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	County	Permit Number
AZ	Cochise	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
- ☐ 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 55-225092, CS-08

CASING AND TUBING RECORD AFTER PLUGGING

SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
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 (inche	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 possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

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

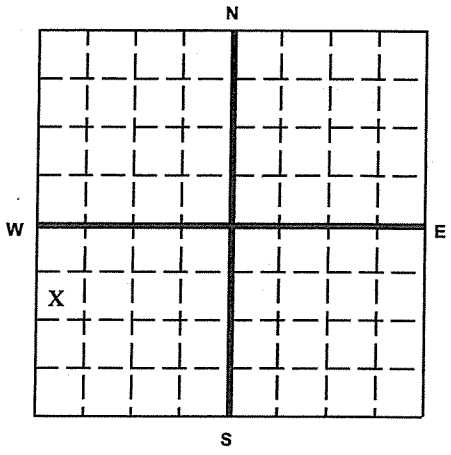
OMB No. 2040-0042 Approval Expires 11/30/2014

United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility	Name and Address of Owner/Operator
EXCELSIOR MINING CORP GUNNISON PROJECT	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	County	Permit Number
AZ	Cochise	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 1183 ft. frm (N/S) N Line of quarter section and 723 ft. from (E/W) W Line of quarter section.

TYPE OF AUTHORIZATION

- [ ] Individual Permit
- [x] 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 55-225091, CS-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
4.5	Unknown	0	~596	4.5

METHOD OF EMPLACEMENT OF CEMENT PLUGS

- [x] The Balance Method
- [ ] The Dump Bailer Method
- [ ] The Two-Plug Method
- [ ] Other

CEMENTING TO PLUG AND ABANDON DATA:	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (inche	4.5						
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 possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

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

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

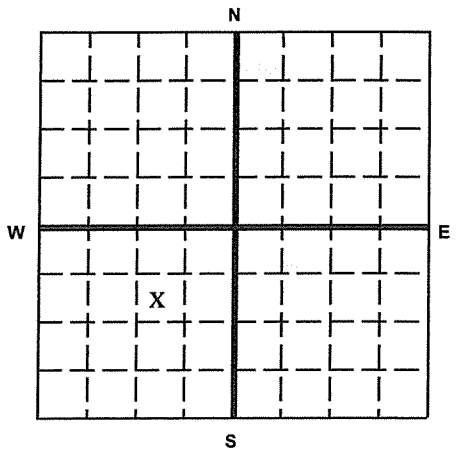
United States Environmental Protection Agency
Washington, DC 20460

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	County	Permit Number
AZ	Cochise	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 1140 ft. frm (N/S) N Line of quarter section
and 1228 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 55-225090, 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
- ☑ 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	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 possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

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

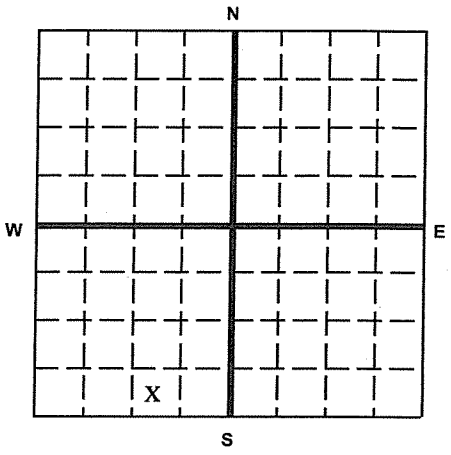
OMB No. 2040-0042 Approval Expires 11/30/2014

United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility	Name and Address of Owner/Operator
EXCELSIOR MINING CORP GUNNISON PROJECT	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	County	Permit Number
AZ	Cochise	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

Lease Name

WELL ACTIVITY

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

Well Number 55-225089, CS-05

CASING AND TUBING RECORD AFTER PLUGGING

SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
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 (inche	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 possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

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

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

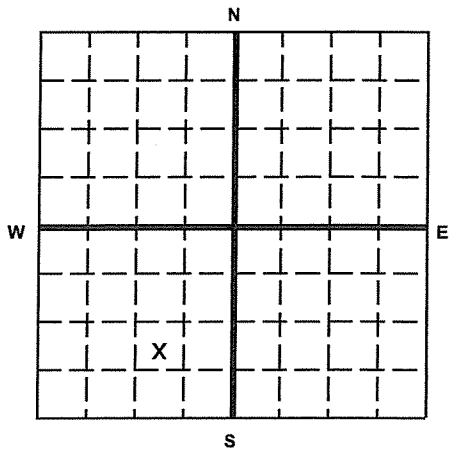
United States Environmental Protection Agency
Washington, DC 20460

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	County	Permit Number
AZ	Cochise	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

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

Lease Name
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 (inche	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 possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

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

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

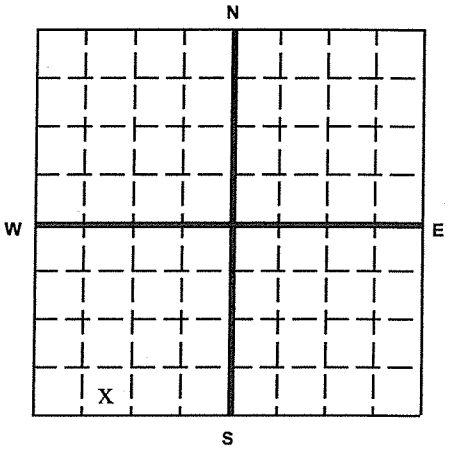
United States Environmental Protection Agency
Washington, DC 20460

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	County	Permit Number
AZ	Cochise	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
- ☐ 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 55-225087, CS-03

CASING AND TUBING RECORD AFTER PLUGGING

SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
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 (inche	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 possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

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

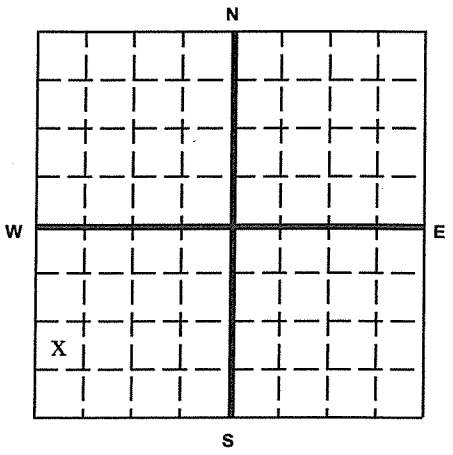
OMB No. 2040-0042 Approval Expires 11/30/2014

United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility	Name and Address of Owner/Operator
EXCELSIOR MINING CORP GUNNISON PROJECT	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	County	Permit Number
AZ	Cochise	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

WELL ACTIVITY

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

Lease Name

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 (inche	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 possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

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

ATTACHMENT Q-1

PLUGGING AND ABANDONMENT PLAN

TABLE OF CONTENTS

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.

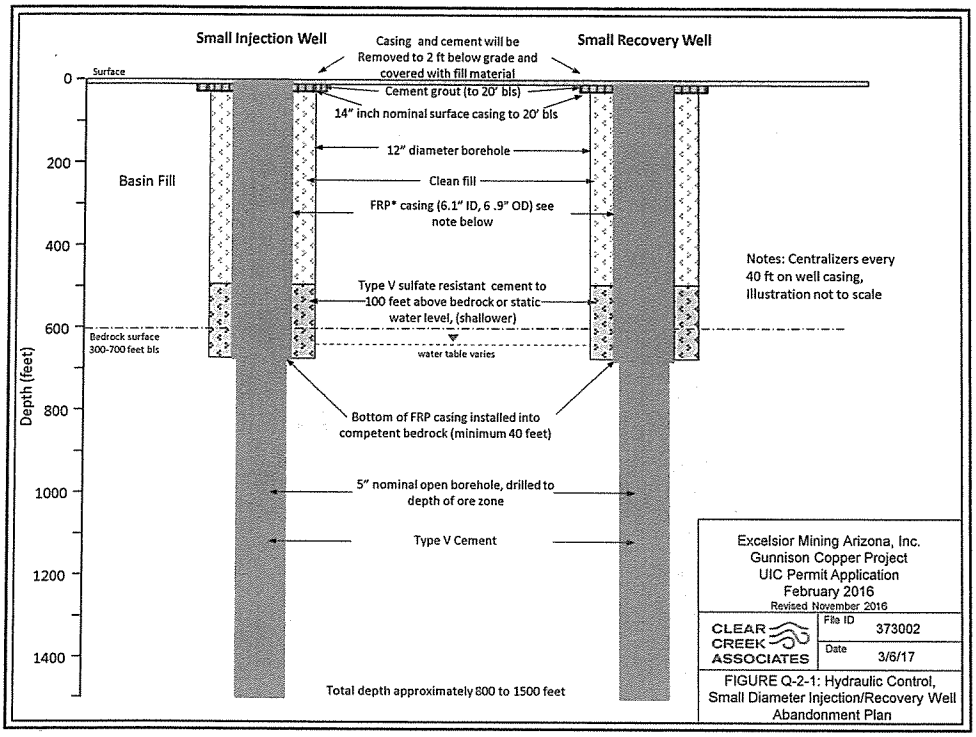
ADWR: Within 30 days of the completion of plugging and abandonment the drilling contractor will submit a Well Abandonment Completion Report (Form 55-58) to ADWR. Within 30 days of completion of plugging and abandonment Excelsior or their designee will submit a Well Owner's Notification of Abandonment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

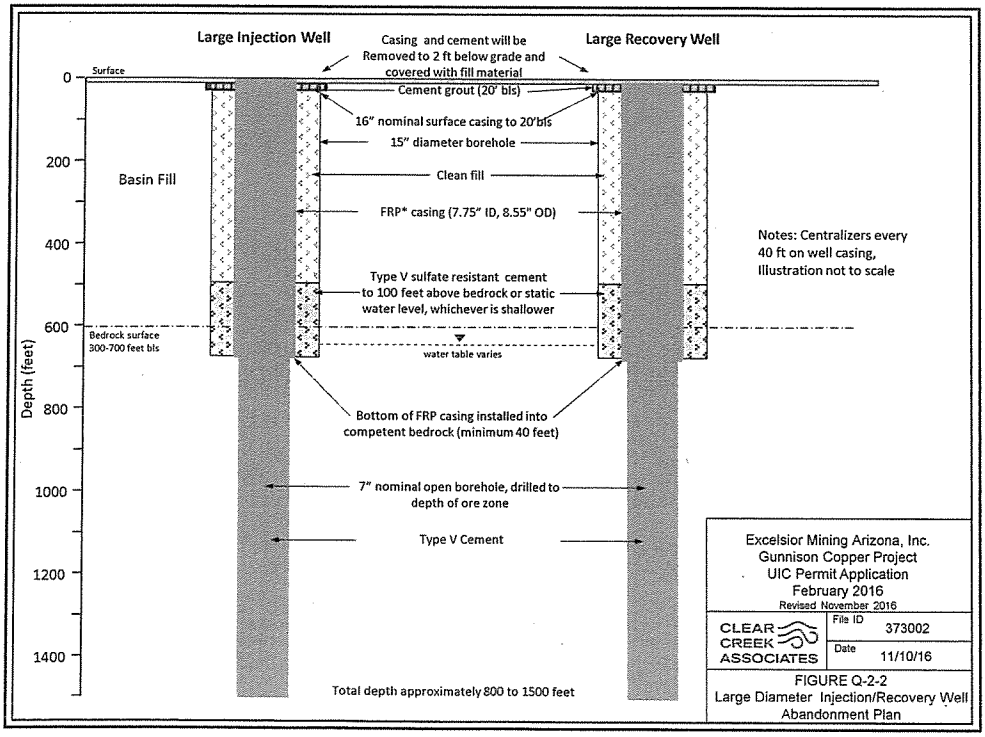
USEPA: Excelsior will report plugging and abandonment activities in the quarterly monitoring reports sent to the USEPA Director. The plugging and abandonment will be included in the quarterly report for the quarter in which the activities were completed. Reporting data will include an updated version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

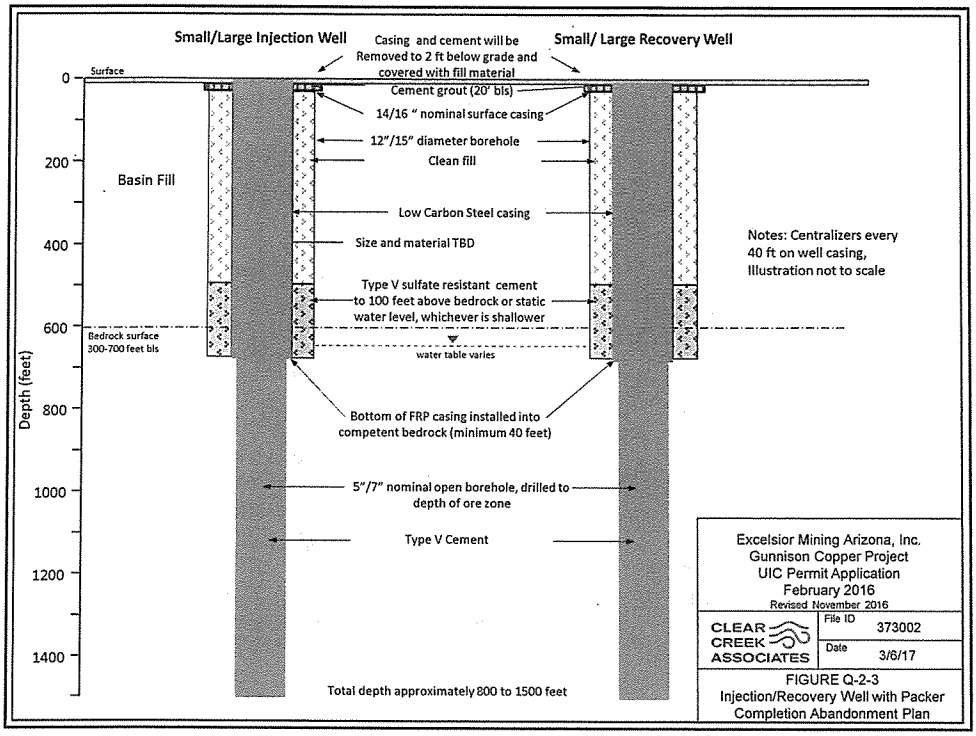
ADEQ: will also be notified, as plugging and abandonment is an element of "Best Available Demonstrated Control Technology" (BADCT) for the wellfield.

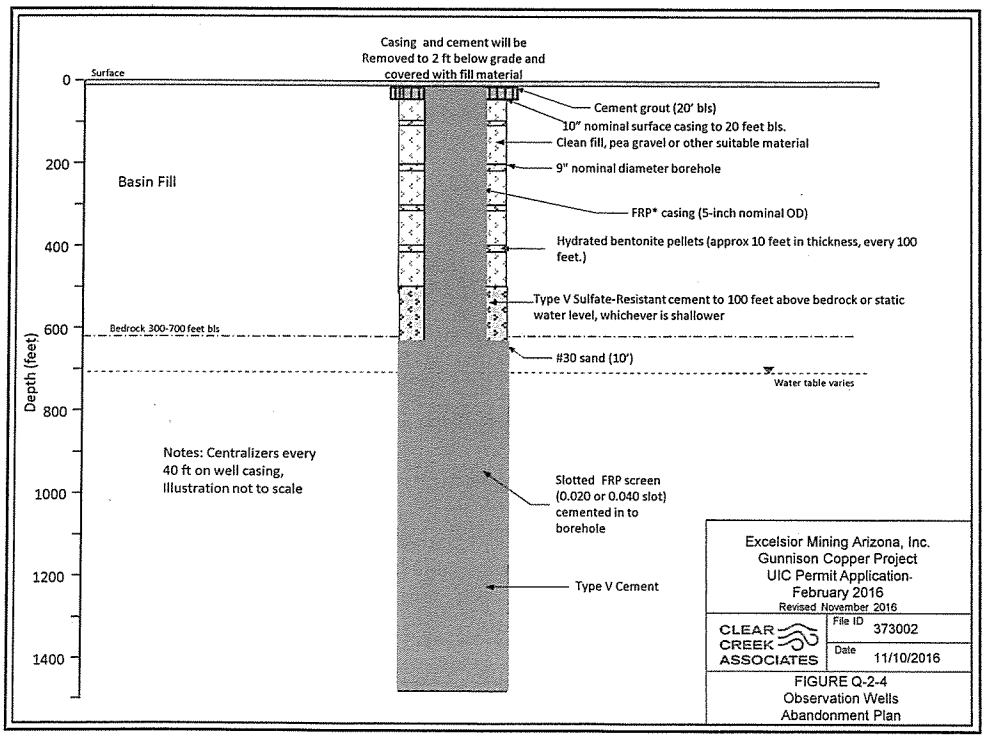
ATTACHMENT Q-2

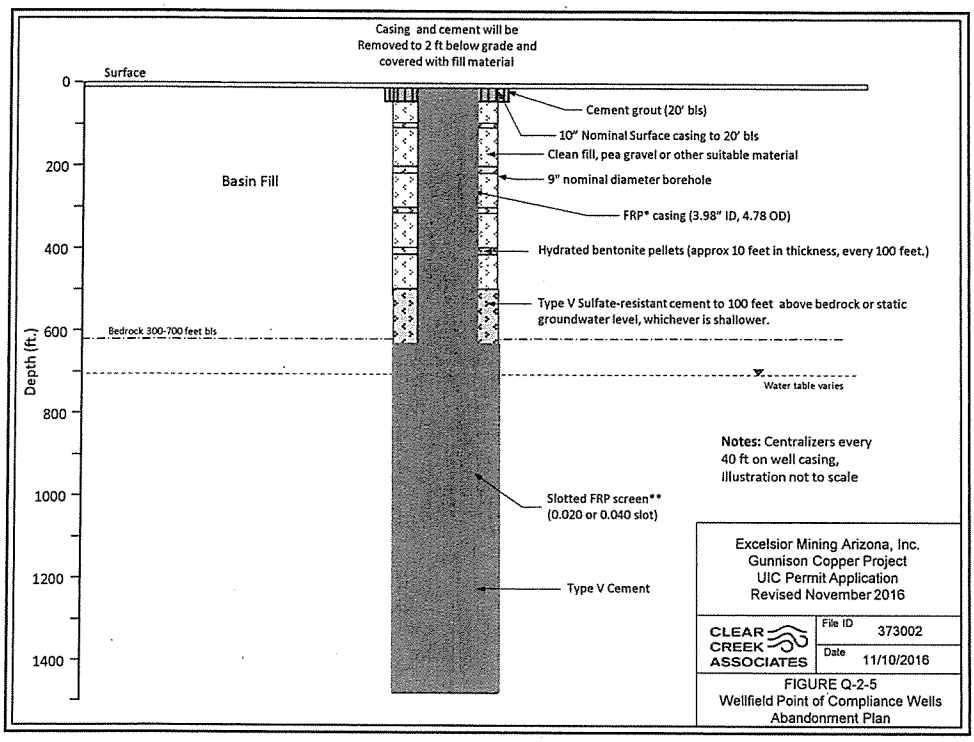
ADWR WELL ABANDONMENT HANDBOOK AND EXAMPLE ADWR NOTICE OF INTENT TO ABANDON FORM


Small Injection Well
Casing and cement will be Removed to 2 ft below grade and covered with fill material
Small Recovery Well
Surface
Cement grout (to 20' bls)
14" inch nominal surface casing to 20' bls
12" diameter borehole
Clean fill
FRP* casing (6.1" ID, 6 .9" OD) see note below
Basin Fill
Type V sulfate resistant cement to 100 feet above bedrock or static water level, (shallower)
Bedrock surface 300-700 feet bls
water table varies
Depth (feet)
0
200
400
600
800
1000
1200
1400
Bottom of FRP casing installed into competent bedrock (minimum 40 feet)
5" nominal open borehole, drilled to depth of ore zone
Type V Cement
Total depth approximately 800 to 1500 feet
Notes: Centralizers every 40 ft on well casing, Illustration not to scale
Excelsior Mining Arizona, Inc.
Gunnison Copper Project
UIC Permit Application
February 2016
Revised November 2016
CLEAR CREEK ASSOCIATES
File ID 373002
Date 3/6/17
FIGURE Q-2-1: Hydraulic Control, Small Diameter Injection/Recovery Well Abandonment Plan


Large Injection Well
Casing and cement will be Removed to 2 ft below grade and covered with fill material
Large Recovery Well
Surface
Cement grout (20' bls)
16" nominal surface casing to 20'bls
15" diameter borehole
Clean fill
FRP* casing (7.75" ID, 8.55" OD)
Basin Fill
Type V sulfate resistant cement to 100 feet above bedrock or static water level, whichever is shallower
Bedrock surface 300-700 feet bls
water table varies
Depth (feet)
0
200
400
600
800
1000
1200
1400
Bottom of FRP casing installed into competent bedrock (minimum 40 feet)
7" nominal open borehole, drilled to depth of ore zone
Type V Cement
Total depth approximately 800 to 1500 feet
Notes: Centralizers every 40 ft on well casing, Illustration not to scale
Excelsior Mining Arizona, Inc.
Gunnison Copper Project
UIC Permit Application
February 2016
Revised November 2016
CLEAR CREEK ASSOCIATES
File ID 373002
Date 11/10/16
FIGURE Q-2-2
Large Diameter Injection/Recovery Well Abandonment Plan


Small/Large Injection Well
Casing and cement will be Removed to 2 ft below grade and covered with fill material
Small/ Large Recovery Well
Surface
Cement grout (20' bls)
14/16 " nominal surface casing
12"/15" diameter borehole
Clean fill
Basin Fill
Low Carbon Steel casing
Size and material TBD
Notes: Centralizers every 40 ft on well casing, Illustration not to scale
Type V sulfate resistant cement to 100 feet above bedrock or static water level, whichever is shallower
Bedrock surface 300-700 feet bls
water table varies
Depth (feet)
Bottom of FRP casing installed into competent bedrock (minimum 40 feet)
5"/7" nominal open borehole, drilled to depth of ore zone
Type V Cement
Total depth approximately 800 to 1500 feet
0
200
400
600
800
1000
1200
1400
Excelsior Mining Arizona, Inc.
Gunnison Copper Project
UIC Permit Application
February 2016
Revised November 2016
CLEAR CREEK ASSOCIATES
File ID 373002
Date 3/6/17
FIGURE Q-2-3
Injection/Recovery Well with Packer Completion Abandonment Plan


Casing and cement will be Removed to 2 ft below grade and covered with fill material
Surface
Cement grout (20' bls)
10" nominal surface casing to 20 feet bls.
Clean fill, pea gravel or other suitable material
9" nominal diameter borehole
Basin Fill
FRP* casing (5-inch nominal OD)
Hydrated bentonite pellets (approx 10 feet in thickness, every 100 feet.)
Type V Sulfate-Resistant cement to 100 feet above bedrock or static water level, whichever is shallower
Bedrock 300-700 feet bls
#30 sand (10')
Water table varies
Depth (feet)
Notes: Centralizers every 40 ft on well casing, Illustration not to scale
Slotted FRP screen (0.020 or 0.040 slot) cemented in to borehole
Type V Cement
0
200
400
600
800
1000
1200
1400
Excelsior Mining Arizona, Inc.
Gunnison Copper Project
UIC Permit Application-
February 2016
Revised November 2016
CLEAR CREEK ASSOCIATES
File ID 373002
Date 11/10/2016
FIGURE Q-2-4
Observation Wells Abandonment Plan


Casing and cement will be
Removed to 2 ft below grade and
covered with fill material
Surface
0
200
400
600
800
1000
1200
1400
Depth (ft.)
Basin Fill
Bedrock 300-700 feet bls
Water table varies
Cement grout (20' bls)
10" Nominal Surface casing to 20' bls
Clean fill, pea gravel or other suitable material
9" nominal diameter borehole
FRP* casing (3.98" ID, 4.78 OD)
Hydrated bentonite pellets (approx 10 feet in thickness, every 100 feet.)
Type V Sulfate-resistant cement to 100 feet above bedrock or static groundwater level, whichever is shallower.
Slotted FRP screen**
(0.020 or 0.040 slot)
Type V Cement
Notes: Centralizers every
40 ft on well casing,
Illustration not to scale
Excelsior Mining Arizona, Inc.
Gunnison Copper Project
UIC Permit Application
Revised November 2016
CLEAR CREEK ASSOCIATES
File ID 373002
Date 11/10/2016
FIGURE Q-2-5
Wellfield Point of Compliance Wells
Abandonment Plan

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

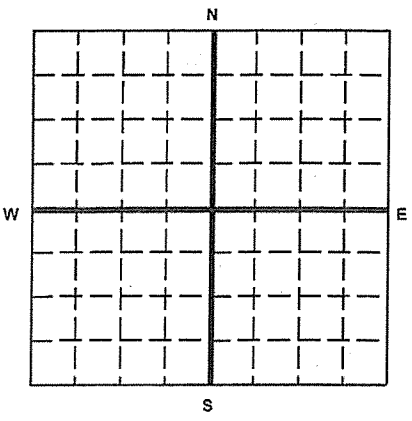
EPA

United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility	Name and Address of Owner/Operator
EXCELSIOR MINING CORP GUNNISON PROJECT	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	County	Permit Number
AZ	Cochise	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

Lease Name

WELL ACTIVITY

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

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 (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)*	Signature	Date Signed
Roland Goodgame, Executive Vice President		3-16-17

EPA Form 7520-14 (Rev. 12-11)

Sample 7520-14 form for large diameter injection/recovery wells

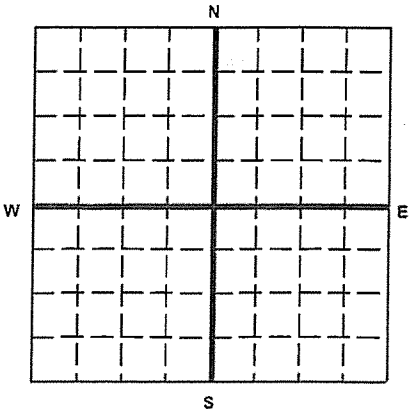
OMB No. 2040-0042 Approval Expires 11/30/2014

United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility	Name and Address of Owner/Operator
EXCELSIOR MINING CORP GUNNISON PROJECT	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	County	Permit Number
AZ	Cochise	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

Lease Name

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

Well Number Large 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
7.75	Unknown	0	Unknown: ~300-700	7.75

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	7.75	7.0					
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
$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 possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

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

EPA Form 7520-14 (Rev. 12-11)

Sample 7520-14 form for observation wells

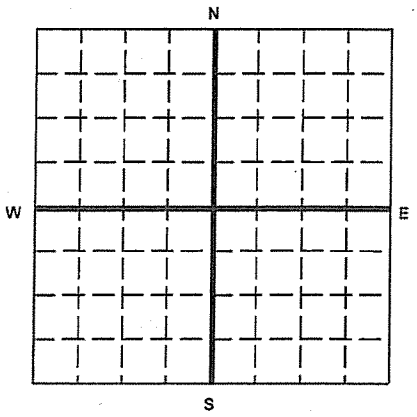
OMB No. 2040-0042 Approval Expires 11/30/2014

United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility	Name and Address of Owner/Operator
EXCELSIOR MINING CORP GUNNISON PROJECT	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	County	Permit Number
AZ	Cochise	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

Lease Name

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

Well Number Observation Well

CASING AND TUBING RECORD AFTER PLUGGING

SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
3.98	Unknown	0	Unknown: ~1400-1500	3.98

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	3.98						
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)*	Signature	Date Signed
Roland Goodgame, Executive Vice President		3-16-17

EPA Form 7520-14 (Rev. 12-11)

Sample 7520-14 form for POC Wells

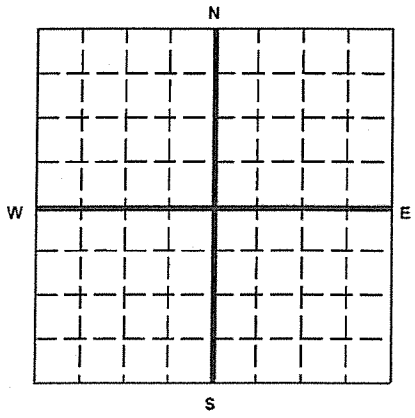
OMB No. 2040-0042 Approval Expires 11/30/2014

United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility	Name and Address of Owner/Operator
EXCELSIOR MINING CORP GUNNISON PROJECT	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	County	Permit Number
AZ	Cochise	TBD

Surface Location Description

1/4 of ___ 1/4 of ___ 1/4 of ___ 1/4 of 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

Lease Name

WELL ACTIVITY

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

Well Number POC

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	0	Unknown: ~300-700	9

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	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)*	Signature	Date Signed
Roland Goodgame, Executive Vice President		3-16-11

EPA Form 7520-14 (Rev. 12-11)

Sample 7520-14 form for small diameter injection/recovery wells

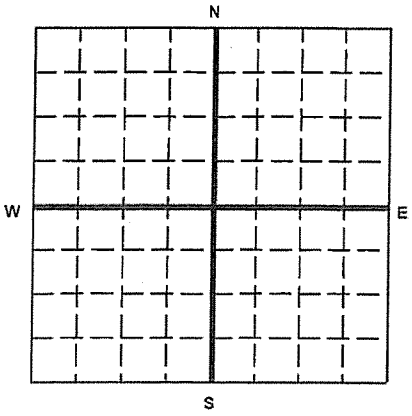
OMB No. 2040-0042 Approval Expires 11/30/2014

United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility	Name and Address of Owner/Operator
EXCELSIOR MINING CORP GUNNISON PROJECT	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	County	Permit Number
AZ	Cochise	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

Lease Name

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

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		

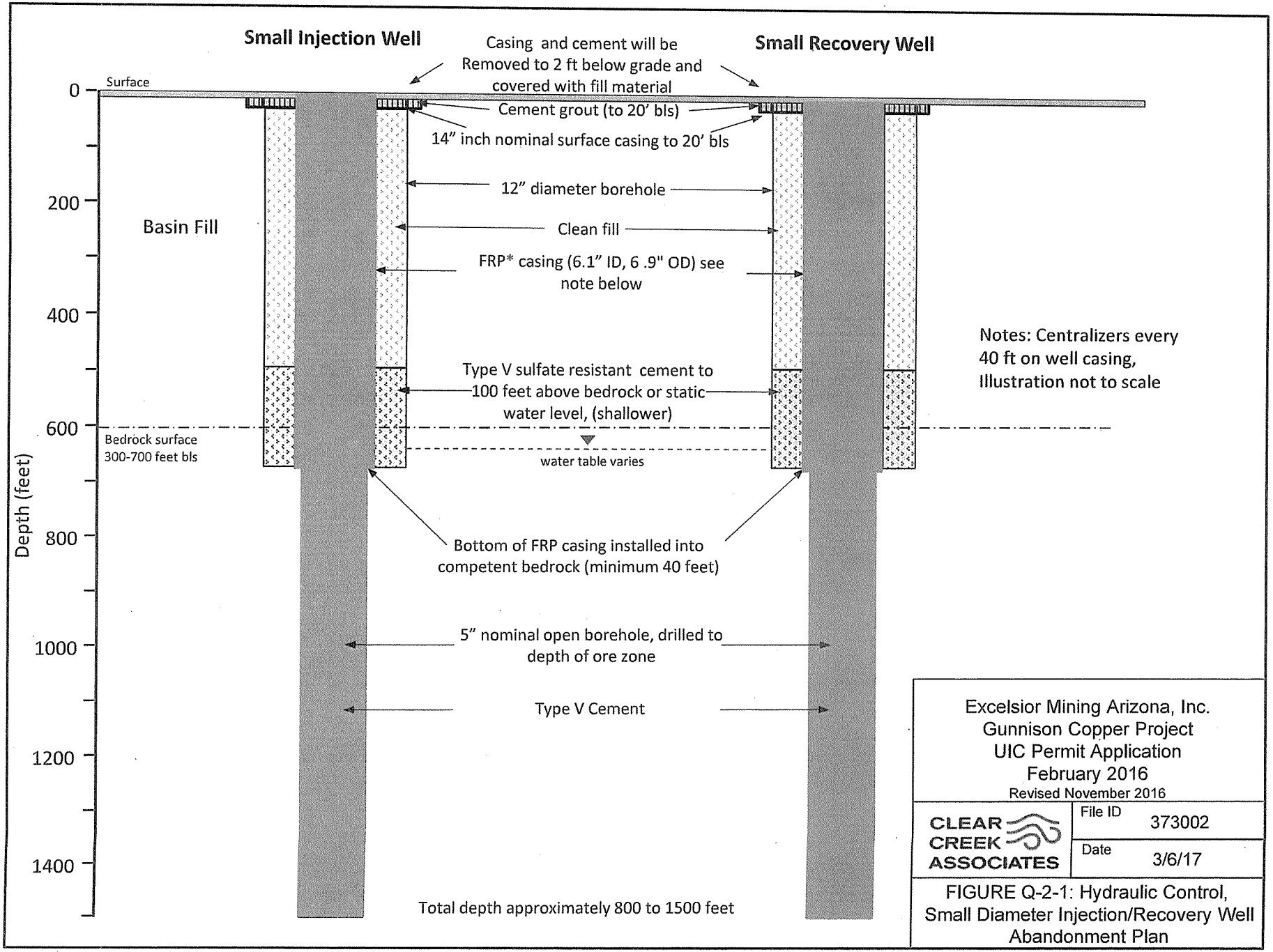
Estimated Cost to Plug Wells
$10,300

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)*	Signature	Date Signed
Roland Goodgame, Executive Vice President		3-16-17

EPA Form 7520-14 (Rev. 12-11)



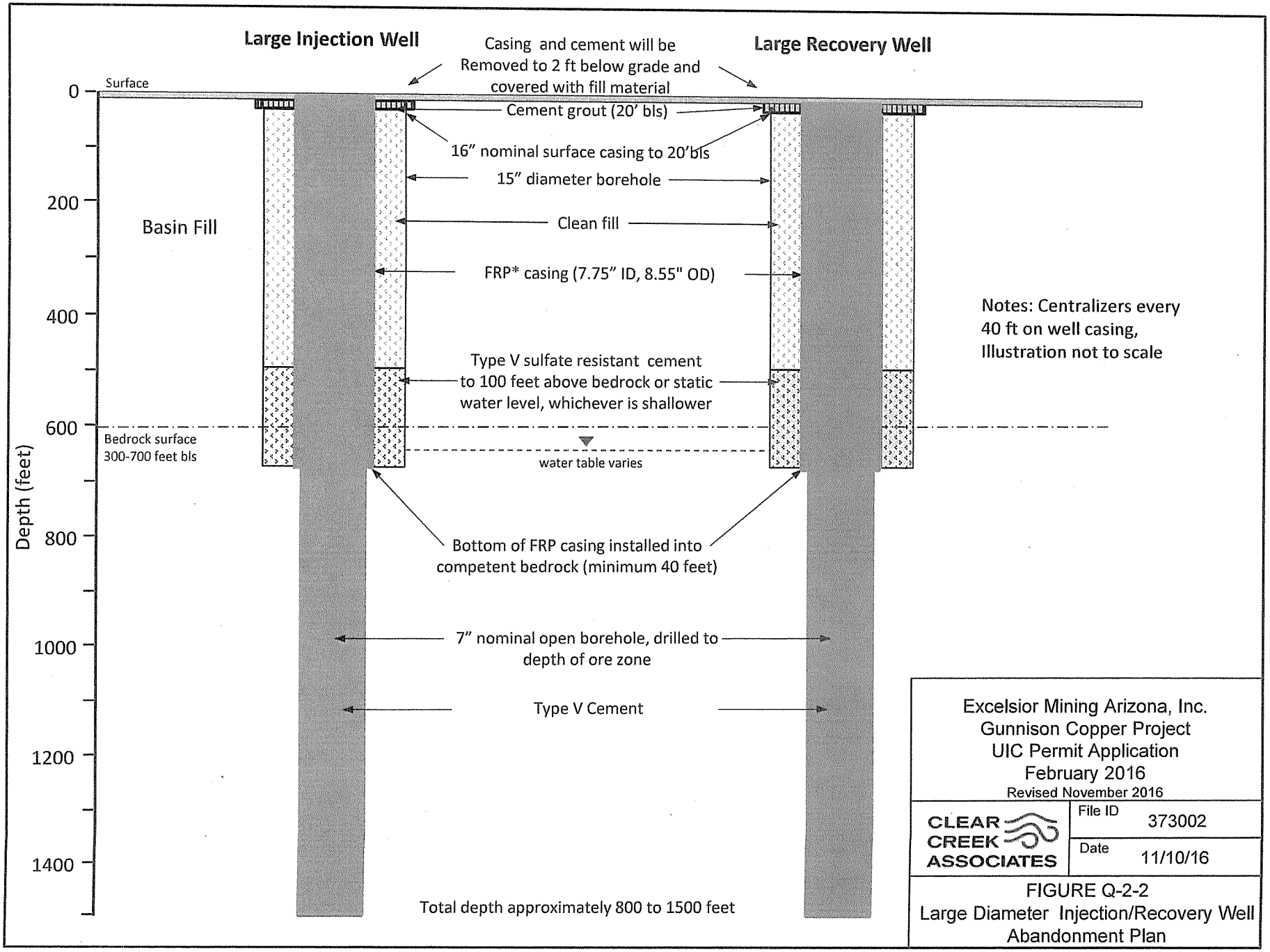
Excelsior Mining Arizona, Inc.
Gunnison Copper Project
UIC Permit Application
February 2016
Revised November 2016

CLEAR CREEK ASSOCIATES

File ID 373002

Date 3/6/17

FIGURE Q-2-1: Hydraulic Control, Small Diameter Injection/Recovery Well Abandonment Plan



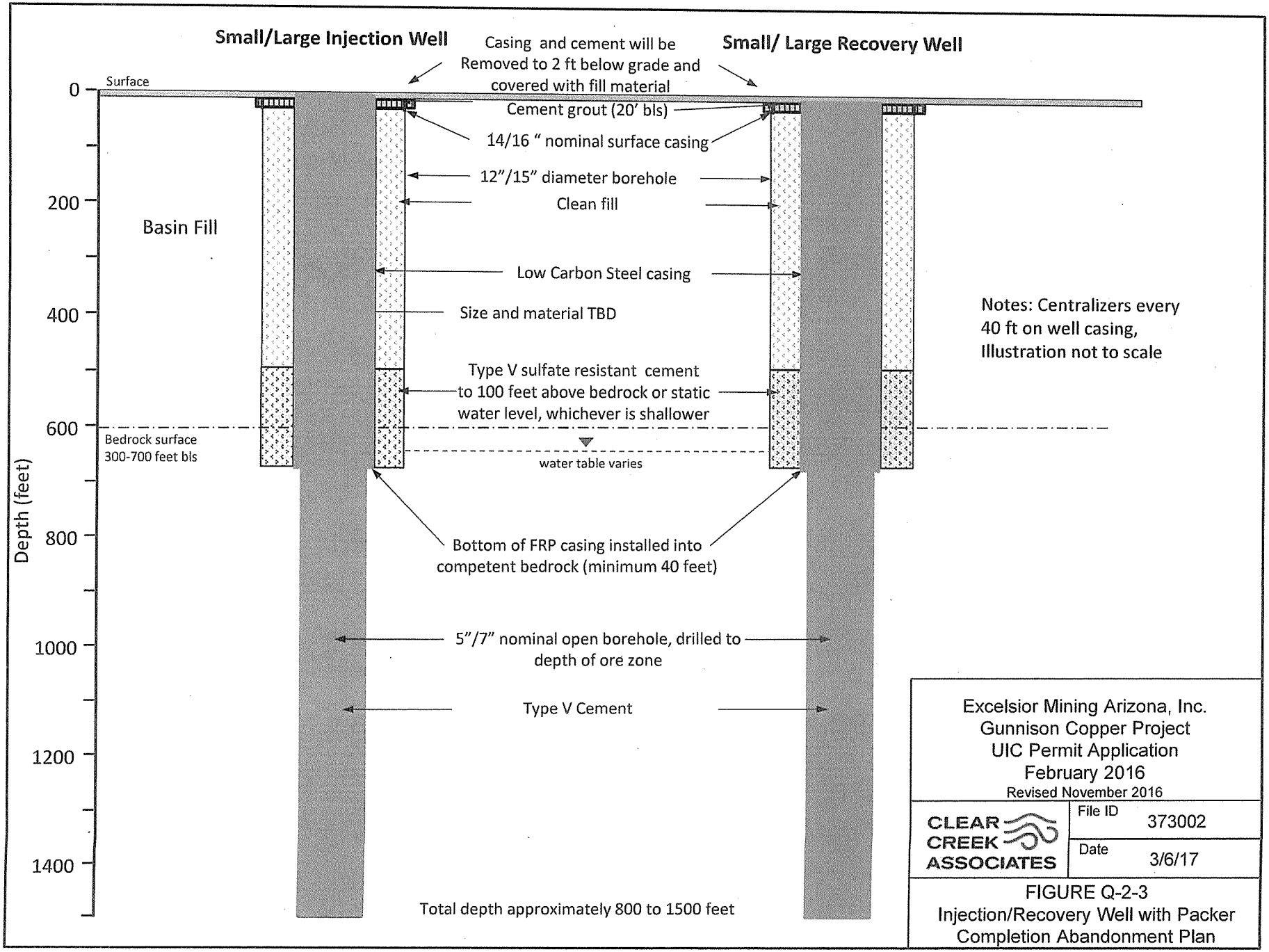
Excelsior Mining Arizona, Inc.
Gunnison Copper Project
UIC Permit Application
February 2016
Revised November 2016

CLEAR CREEK ASSOCIATES

File ID 373002

Date 11/10/16

FIGURE Q-2-2
Large Diameter Injection/Recovery Well Abandonment Plan



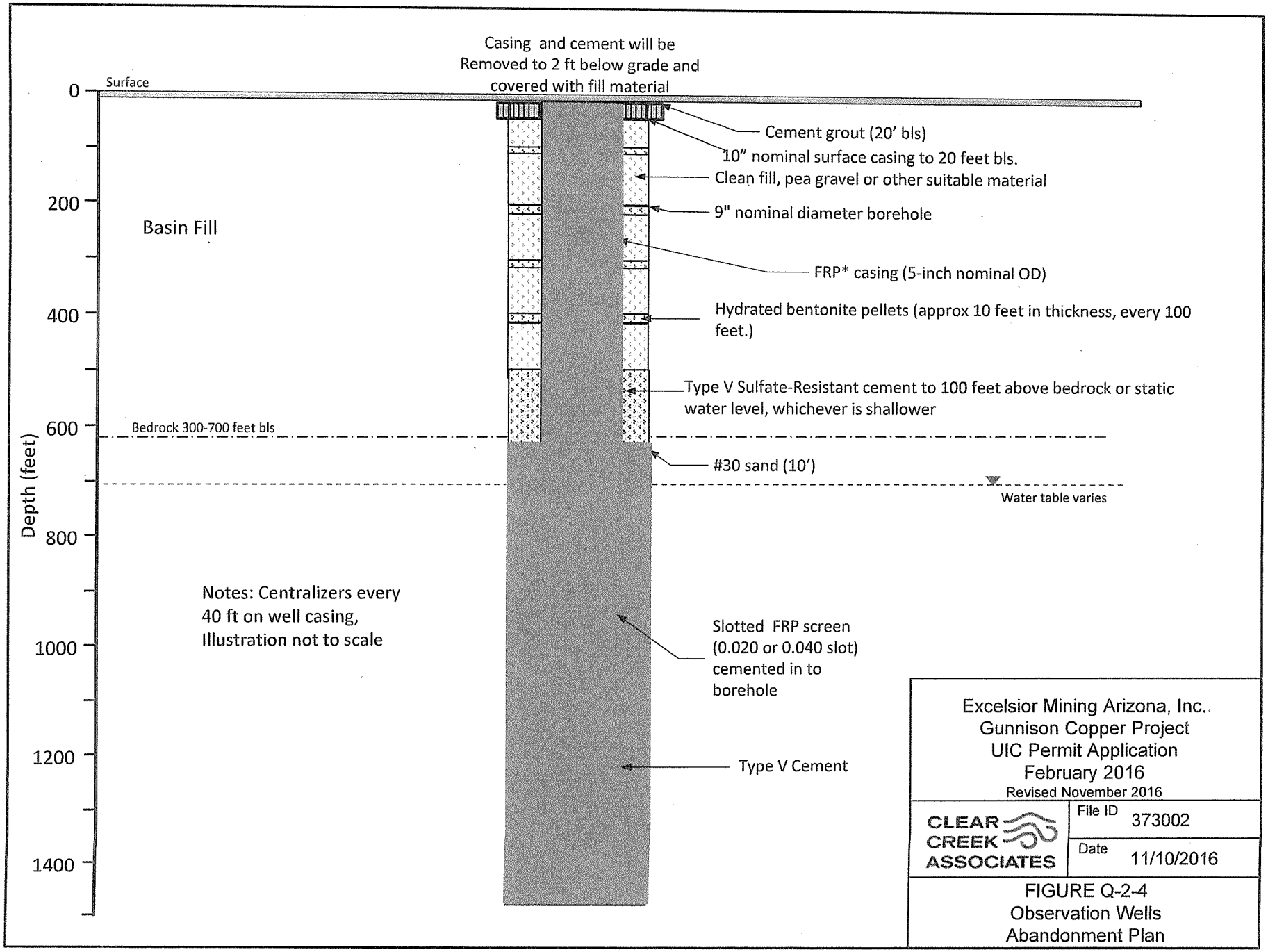
Excelsior Mining Arizona, Inc.
Gunnison Copper Project
UIC Permit Application
February 2016
Revised November 2016

CLEAR CREEK ASSOCIATES

File ID 373002

Date 3/6/17

FIGURE Q-2-3
Injection/Recovery Well with Packer
Completion Abandonment Plan



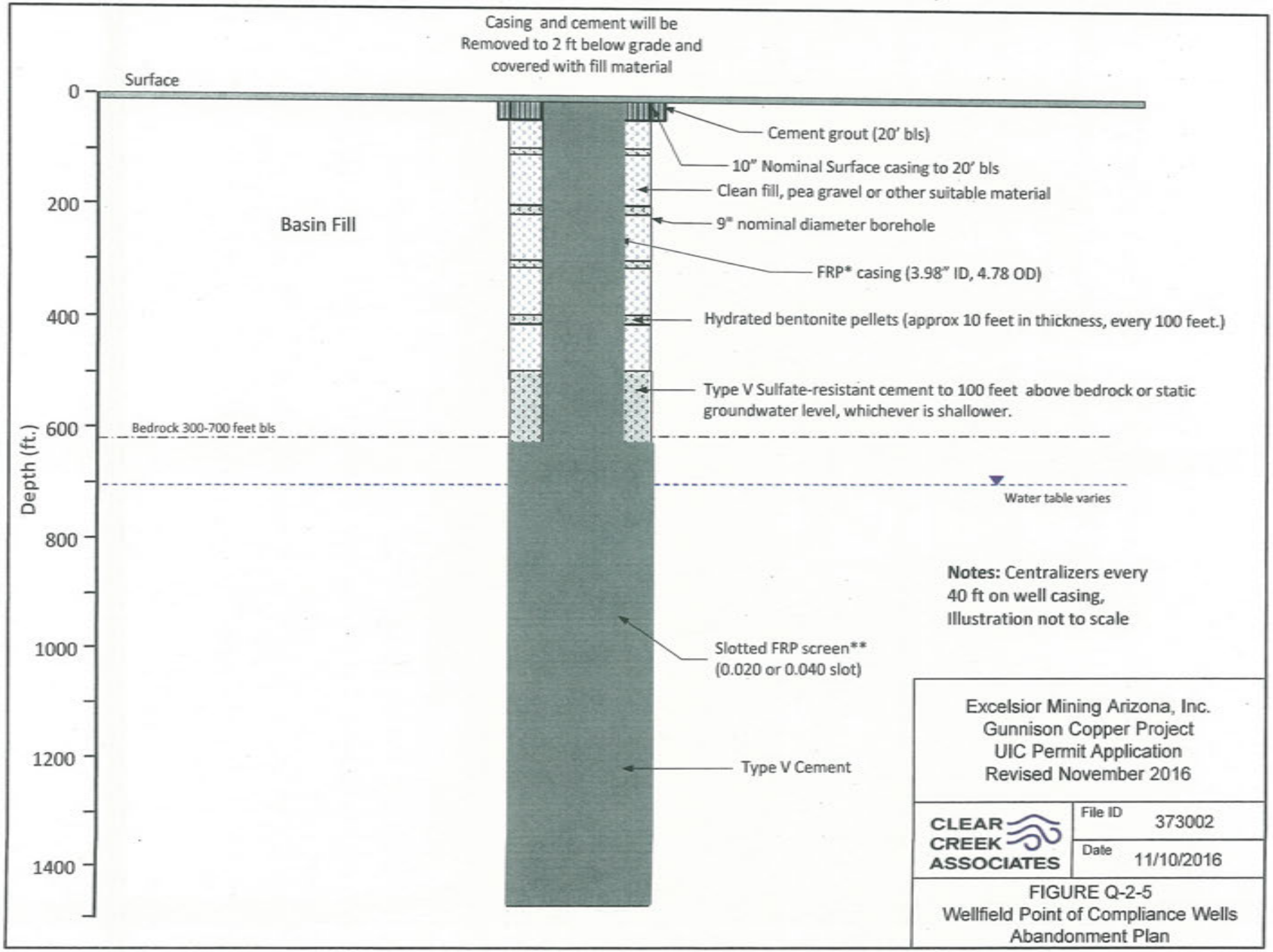
Excelsior Mining Arizona, Inc.
Gunnison Copper Project
UIC Permit Application
February 2016
Revised November 2016

CLEAR CREEK ASSOCIATES

File ID 373002

Date 11/10/2016

FIGURE Q-2-4
Observation Wells
Abandonment Plan


Casing and cement will be
Removed to 2 ft below grade and
covered with fill material
Surface
0
200
400
600
800
1000
1200
1400
Depth (ft.)
Basin Fill
Bedrock 300-700 feet bls
Water table varies
Cement grout (20' bls)
10" Nominal Surface casing to 20' bls
Clean fill, pea gravel or other suitable material
9" nominal diameter borehole
FRP* casing (3.98" ID, 4.78 OD)
Hydrated bentonite pellets (approx 10 feet in thickness, every 100 feet.)
Type V Sulfate-resistant cement to 100 feet above bedrock or static groundwater level, whichever is shallower.
Slotted FRP screen**
(0.020 or 0.040 slot)
Type V Cement
Notes: Centralizers every
40 ft on well casing,
Illustration not to scale
Excelsior Mining Arizona, Inc.
Gunnison Copper Project
UIC Permit Application
Revised November 2016
CLEAR CREEK ASSOCIATES
File ID 373002
Date 11/10/2016
FIGURE Q-2-5
Wellfield Point of Compliance Wells
Abandonment Plan

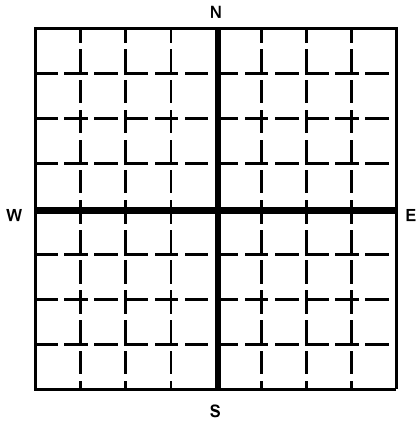
OMB No. 2040-0042 Approval Expires 12/31/2018

United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

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

Locate Well and Outline Unit on Section Plat - 640 Acres



State	County	Permit Number

Surface Location Description

___ 1/4 of ___ 1/4 of ___ 1/4 of ___ 1/4 of Section ___ Township ___ Range ___

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 ___

Lease Name

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

Well Number

CASING AND TUBING RECORD AFTER PLUGGING

SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE

METHOD OF EMPLACEMENT OF CEMENT PLUGS
- ☐ The Balance Method
- ☐ The Dump Bailer Method
- ☐ The Two-Plug Method
- ☐ Other

CEMENTING TO PLUG AND ABANDON DATA:	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (inche							
Depth to Bottom of Tubing or Drill Pipe (ft.							
Sacks of Cement To Be Used (each plug)							
Slurry Volume To Be Pumped (cu. ft.)							
Calculated Top of Plug (ft.)							
Measured Top of Plug (if tagged ft.)							
Slurry Wt. (Lb./Gal.)							
Type Cement or Other Material (Class III)							

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

From	To	From	To

Estimated Cost to Plug Wells

Certification

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

Name and Official Title *(Please type or print)*	Signature	Date Signed

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

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

ARIZONA DEPARTMENT OF WATER RESOURCES
3550 N. Central Ave., Suite 200, Phoenix, Arizona 85012
Telephone 602 771-8500 • Fax 602 771-8691

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.

Herbert R. Guenther
Director
Arizona Department of Water Resources

Table of Contents

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

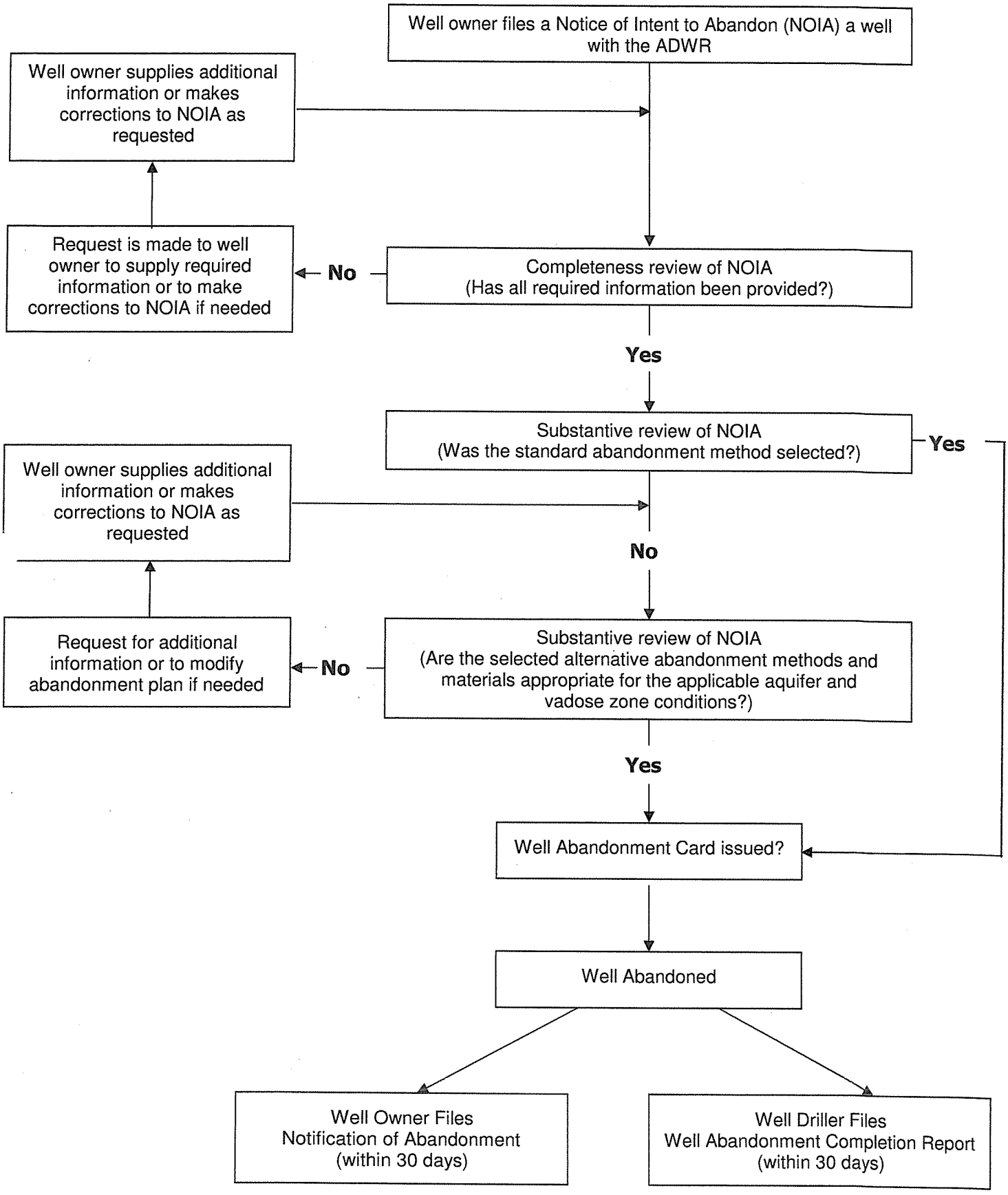
well falls within the condition to which the alternative method applies and whether appropriate fill materials were chosen. During the review process ADWR may contact the well owner to request additional information or discuss modifications to the proposed abandonment plan, if necessary.

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 reperforated (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.*

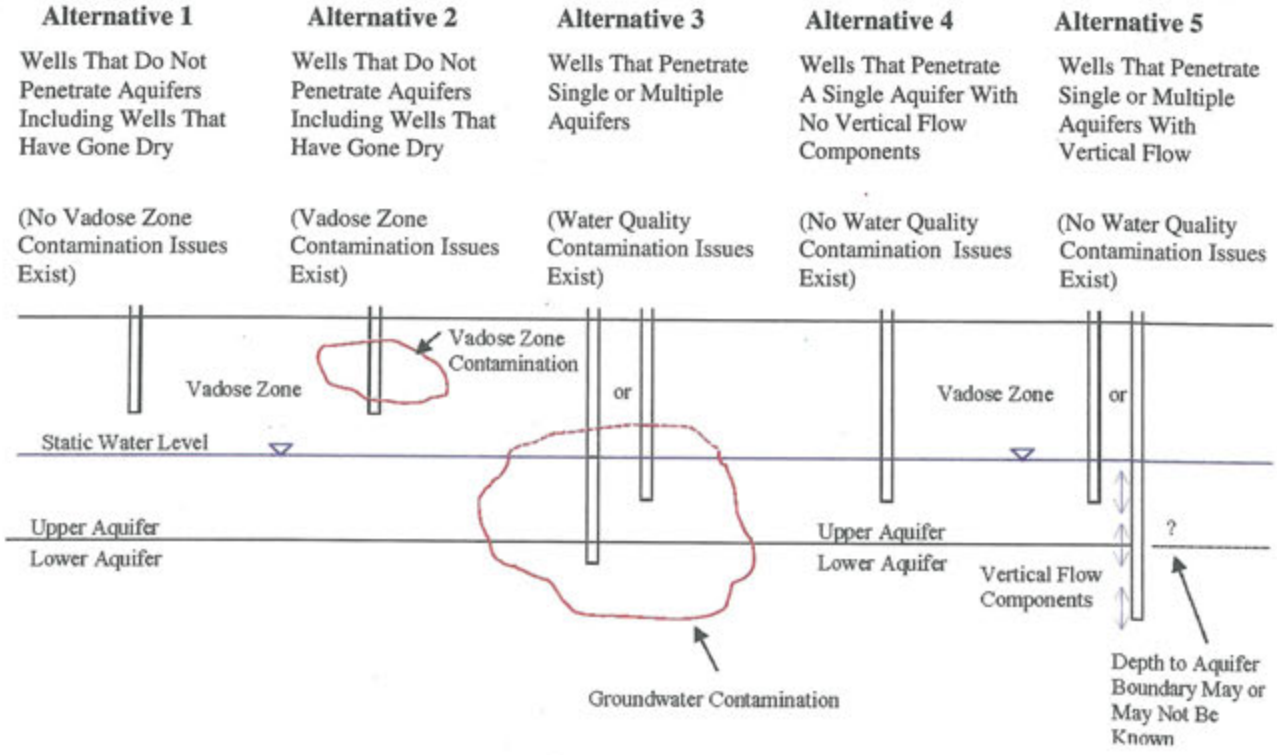
If the well does not penetrate an aquifer or has gone dry, and vadose zone contamination issues exist, but there is no free-product contamination, the well must be filled with one or more of the following materials or mixtures: cement grout (including neat cement grout, cement-bentonite grout and sand-cement 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 reperforated (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.

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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)**

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 <u>generally required</u> 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 <u>recommended</u>, 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)


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