



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX

75 Hawthorne Street
San Francisco, CA 94105-3901

MAJOR MODIFICATION TO THE CLASS III IN-SITU PRODUCTION OF COPPER PERMIT NO. R9UIC-AZ3-FY16-1 ISSUED TO EXCELSIOR MINING ARIZONA, INC.

In accordance with 40 CFR §144.39, this Permit is hereby modified to include conditions for well stimulation activities as requested by the Permittee, which includes increasing formation pressures beyond operational permit limits and hydraulic fracturing authorized under 40 CFR §146.33(a)(1).

Pages 5, 25, 35, and 37 of the Permit are modified to incorporate the additional language in the Permit Sections noted as follows (for clarity, added language is shown with new additions emboldened and underlined):

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Permit Section II.E., Well Operation

7. **Well Stimulation Activities**

The permittee must submit the proposed plan and procedures for all stimulation activities to EPA in writing at least 30 days in advance of the stimulation activities. The Permittee shall also notify EPA of the well(s) to be stimulated and the proposed schedule at least thirty (30) days prior to performing the procedure. This requirement may be modified if the Permittee submits a standard operating procedure for multiple stimulations of a well for EPA approval. If the standard operating procedure is approved by EPA in writing for a well as described below, the Permittee may provide at least fifteen (15) days notice to EPA prior to proceeding with an additional well stimulation, provided each procedure does not deviate in any way from the EPA-approved procedure, including any conditions as set forth by EPA.

Within the 30-day notice period, EPA may: deny the stimulation; approve the stimulation as proposed; or approve the stimulation with conditions. Any stimulation activities performed at the discretion of the Permittee shall be performed as described in Appendix J to this permit. The permittee must follow the stimulation procedures, including any conditions, as approved or set forth by EPA. Any revisions to the approved stimulation procedures shall be proposed and submitted to EPA for approval. The Permittee may not commence stimulation activities without prior written approval to proceed from EPA.

- a. **With the 30 days advance notice of proposed stimulation activities, the Permittee shall submit a report for EPA approval that includes a**

detailed list of the name, grade, and maximum quantities of stimulation additives or chemicals proposed to be used and a Safety Data Sheet for each. The report shall also contain recommendations with justifications of which constituents of the reported additives or chemicals should or should not be included in the Level 1 or Level 2 groundwater monitoring program defined at Part II.F.2 of this permit.

- b. **The Permittee shall expand the groundwater monitoring program defined at Part II.F.2 and the injectate monitoring program defined at Part II.F.7 as necessary to conform to the EPA's conditions of approval of reports submitted pursuant to 7(a) above.**
- c. **Diesel or its derivatives shall not be used in the Permittee's well stimulation activities.**
- d. **In no case shall injection pressure during stimulation cause the migration of injection or formation fluids into an underground source of drinking water.**

Permit Section II.G.1., Recordkeeping

- c. Records and results of MITs, any other tests required by EPA, and any well work-overs completed **or well stimulation activities performed.**

Permit Section II.G.2., Reporting of Results

- m. **Reports of any well stimulation activities performed, including narrative description, well(s) name, range of depth, changes to injection well configuration, summary of collected data and stimulation results, stimulation fluids, quantity of each injected material, total stimulation volume and pressure, method(s) to demonstrate that the well has mechanical integrity (as applicable); and any deviations from the approved plan (as applicable).**

Permit Section II.G., Recordkeeping and Reporting

- 6. **Public Website. Within thirty (30) days after this Permit modification becomes effective, the Permittee shall establish a website or portal for the Project accessible to the general public (the "Website") and shall provide to EPA the Website IP address. EPA will share the IP address of the Website with the public on EPA's website. The Permittee shall post on the Website copies of the proposed and approved stimulation plans and procedures with any EPA conditions and reporting of results, as described in Part II.G.2.m of this Permit, including appendices and exhibits, within 15 days of submission to or receipt from EPA.**

APPENDICES

APPENDIX J: STIMULATION PROGRAM

**Facility Name: EXCELSIOR MINING ARIZONA, INC.
AREA PERMIT, CLASS III IN-SITU PRODUCTION OF COPPER
PERMIT NUMBER R9UIC-AZ3-FY16-1**

Facility Location: GUNNISON COPPER PROJECT COCHISE COUNTY, ARIZONA

Stimulation to enhance the injectivity potential of the injection zone may be necessary throughout the life of each well in the Area Permit. Stimulation is defined to include several processes used to clean the well bore, enlarge channels, and increase pore space in the interval to be injected thus making it possible for fluids to move more readily into the formation, and includes (1) surging, (2) jetting, (3) blasting, (4) acidizing, or (5) hydraulic fracturing, as defined in 40 CFR §146.3. Stimulation may involve but is not limited to flowing fluids into or out of the well, increasing or connecting pore spaces in the injection formation, or other activities that are intended to allow the injectate to move more readily between injection and recovery wells and to move more readily into the injection formation.

Well stimulation will not be proposed on an “area” basis. Well stimulation will be proposed on a per-well basis. Multiple wells in one area may need stimulation, or just a single well. Well stimulation will not occur in wells on the outer edge of the wellfield. Only wells in the center of a 5-spot pattern will undergo well stimulation. Well stimulation may be needed multiple times in a well to address wellfield performance. It is expected that when a stimulated feature in the injection interval reaches an adjacent well, stimulation will terminate due to the bleed-off of pressure into that adjacent well.

Advance notice and plan of all proposed stimulation activities must be provided to EPA, as detailed in Part II.E.7 of the Permit, prior to conducting the stimulation. The permittee must describe any fluids to be utilized for stimulation activities and the permittee must demonstrate that the stimulation will not interfere with hydraulic containment.

Modeling shall be included in the initial test proposal predicting the extent and orientation of fracture propagation and containment of injected materials to the intended area from the well stimulation. Sufficient data shall also be collected to demonstrate containment of the stimulation to the intended area. EPA may require additional modeling as warranted for other well stimulation locations.

Notwithstanding Part II.E.4, 5, and 6 of the Permit, EPA-approved well stimulation before a new well is placed into service and periodically throughout the life of the well thereafter is allowed pursuant to 40 CFR § 146.33(a), except during standard well operations.

Reporting may be made on EPA Form 7520-19.

All other permit conditions remain unchanged. This major modification is issued on April 21, 2023 and effective on May 26, 2023.

Tomás Torres, Director
Water Division, EPA Region 9