

**NEW MEXICO OFFICE OF THE STATE ENGINEER
WELL PLUGGING PLAN OF OPERATIONS
CONDITIONS OF APPROVAL**

This plugging plan is approved subject to the following conditions of approval:

Well File No. G-00191 POD 1

Permittee: U.S. Army

Locations:

Well ID	Latitude	Longitude	Well Depth (feet)	Theoretical Grout Volume (gallons)
G-00191 POD 1 (68)	35° 30' 56.09"	-108° 35' 14.35"	1,125'	3,414.5

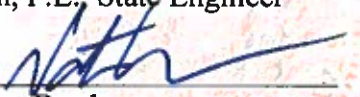
1. In accordance with Subsection A of 19.27.4.29 NMAC, on-site supervision of well drilling/plugging by the holder of a New Mexico Well Driller License or a NMOSE-registered Drill Rig Supervisor is required. The New Mexico licensed Well Driller shall ensure that well drilling activities are completed in accordance with 19.27.4.29, 19.27.4.30, and 19.27.4.31 NMAC, and all specific conditions of approval. While conducting the well plugging activities, the Well Driller shall maintain a copy of the approved permit, conditions and Artesian Well Plan of Operations on-site and available for inspection upon request.
2. The NMOSE District I Office shall be notified 48 hours in advance of the anticipated start time for all well plugging activities, so that an NMOSE representative has the opportunity to witness the procedures if deemed necessary. To the extent possible, the NMOSE District 1 office shall be provided with an anticipated work schedule and timely updates for any changes to the schedule.
 - a. If OSE personnel are unable to be on site, the driller shall collect the following information:
 - i. Depth to water after perforations and before the first cement squeeze
 - ii. Photographs of the wellhead before and after the first squeeze
 - iii. Photograph of the mud balance showing the weight of cement pumped
 - iv. Full cementing report, including a pressure and density chart
 - v. Tag depth after the first squeeze
 - b. Depending on events during the first squeeze, the OSE may require downhole video and/or a spinner tool to identify flowing water within the well. Neither perforations nor pumping of cement for the second and third lift will begin without prior approval by the OSE.

- c. The driller shall contact OSE representative Nathan Lopez-Brody at the beginning and end of pumping operations and in the event of any changes or unexpected occurrences.
 - d. The driller shall swear and attest to the accuracy of all of the information outlined above, using the attached form.
3. Theoretical volume of sealant required for abandonment of the 8 5/8-inch casing is approximately 3.04 gallons per vertical foot. The reported depth of the well was obtained from the applicant, and the theoretical volume of sealant necessary to plug the well is specified on the table above. In the absence of a well record, the total minimum volume of necessary sealant shall be calculated upon sounding the actual pluggable depth of the well.
4. The applicants propose to use either Type I/II cement grout OR API Class C cement grout, mixed with 6 gallons of water per 94 pound sack of cement. No more than 6 gallons of water per 94 pound sack of cement shall be used, so that the cement weight will not fall below 15 pounds per gallon of grout.
 - a. If API Class C cement is used, it shall be specified to have moderate or high sulfate resistance. Normal or low sulfate resistance Class C cement **IS NOT** acceptable as a sealant for these wells.
5. The applicants propose to place the cement grout in three lifts:
 - a. The casing shall be perforated from a depth of 740' bgl to 720' bgl, and then a cement retainer or packer shall be installed at the lowest practical depth at or above 720' bgl and cement will be pumped via tremie at sufficient pressure to stop the flow of water and infiltrate the formation.
 - i. The cement shall be pumped at a pressure sufficient to infiltrate the formation.
 - ii. A cement sample shall be retained to monitor gel time.
 - iii. Following this squeeze, the well shall be monitored to confirm that water is not flowing past the cement. If flow is not stopped, further plugging activities must be approved separately by the OSE.
 - b. A cement retainer or packer shall be installed at a depth of 500' and cement will be pumped via tremie until 500 psi is attained.
 - c. Cement shall be tremied from 500' bgl to the ground surface.
6. The applicant proposes to perforate the casing using a star wheel perforator with 90° phasing. 1" long perforations shall be spaced 1.5" apart, or 4.8 perforations per foot. Perforation of the casing above 720' bgl **SHALL NOT** begin until the first lift of cement has cured as described above. Two casing intervals shall be perforated:
 - a. from 750' to 500'

- b. from 100' to ground surface.
- 7. Should the NMED or another regulatory agency sharing jurisdiction of the project authorize, or by regulation require, a more stringent well plugging procedure than herein acknowledged, the more-stringent procedure should be followed. This, in part, includes provisions regarding pre-authorization to proceed, contaminant remediation, inspection, pulling/perforating of casing, or prohibition of free discharge of any fluid from the borehole during or related to the plugging process.
- 8. The well driller shall file a complete plugging record with the State Engineer and the permit holder no later than 30 days after completion of the plugging.

Witness my hand and seal this 24 day of August, 2023.

Mike A. Hamman, P.E., State Engineer

By: 
Nathan Lopez-Brody
Water Resources Professional III
District 1