



# WELL PLUGGING PLAN OF OPERATIONS



**NOTE:** A Well Plugging Plan of Operations shall be filed with and accepted by the Office of the State Engineer prior to plugging. This form may be used to plug a single well, or if you are plugging multiple monitoring wells on the same site using the same plugging methodology.

**Alert!** Your well may be eligible to participate in the Aquifer Mapping Program (AMP)-NM Bureau of Geology [geoinfo.nmt.edu/resources/water/cgmn/](http://geoinfo.nmt.edu/resources/water/cgmn/) if within an area of interest and meets the minimum construction requirements, such as there is still water in your well, and the well construction reflected in a well record and log is not compromised, contact AMP at 575-835-5038 or -6951, or by email [nmbg-waterlevels@nmt.edu](mailto:nmbg-waterlevels@nmt.edu), prior to completing this prior form. Showing proof to the OSE that your well was accepted in this program, may delay the plugging of your well until a later date.

**I. FILING FEE:** There is no filing fee for this form.

**II. GENERAL / WELL OWNERSHIP:**  Check here if proposing one plan for multiple monitoring wells on the same site and attaching WD-08m

Existing Office of the State Engineer POD Number (Well Number) for well to be plugged: G-0068 67-191 POD 1  
Name of well owner: U.S. Army  
Mailing address: 4101 Jefferson Plaza NE County: Bernalillo County  
City: Albuquerque State: New Mexico Zip code: 87109-3435  
Phone number: 817-789-0453 E-mail: Alan.J.Soicher@usace.army.mil

**III. WELL DRILLER INFORMATION:**

Well Driller contracted to provide plugging services: Layne Christensen Company  
New Mexico Well Driller License No.: 1808 Expiration Date: 7-15-24

**IV. WELL INFORMATION:**  Check here if this plan describes method for plugging multiple monitoring wells on the same site and attach supplemental form WD-08m and skip to #2 in this section.

Note: A copy of the existing Well Record for the well(s) to be plugged should be attached to this plan.

1) GPS Well Location: Latitude: 35 deg, 30 min, 56.09 sec  
Longitude: 108 deg, 35 min, 14.35 sec, NAD 83

2) Reason(s) for plugging well(s):

In July 2019, the Army conducted downhole video surveys and identified thick scaling and rust on the insides of well casings, the severity of which increases with depth. Well #68 is in poor condition and is causing localized groundwater mounding as a result which could influence existing contamination in the shallow aquifer.

3) Was well used for any type of monitoring program? NO If yes, please use section VII of this form to detail what hydrogeologic parameters were monitored. If the well was used to monitor contaminated or poor quality water, authorization from the New Mexico Environment Department may be required prior to plugging.

4) Does the well tap brackish, saline, or otherwise poor quality water? NO If yes, provide additional detail, including analytical results and/or laboratory report(s):

5) Static water level: 9.24 feet below land surface / feet above land surface (circle one)

6) Depth of the well: 1,125 feet

Received  
MAR 13 2023  
State Engineer Office  
District 7

- 7) Inside diameter of innermost casing: 8 5/8 inches.
- 8) Casing material: Steel
- 9) The well was constructed with:  
 an open-hole production interval, state the open interval: \_\_\_\_\_  
 a well screen or perforated pipe, state the screened interval(s): N/A
- 10) What annular interval surrounding the artesian casing of this well is cement-grouted? Unknown
- 11) Was the well built with surface casing? NO If yes, is the annulus surrounding the surface casing grouted or otherwise sealed? N/A If yes, please describe:  
 \_\_\_\_\_  
 \_\_\_\_\_
- 12) Has all pumping equipment and associated piping been removed from the well? No If not, describe remaining equipment and intentions to remove prior to plugging in Section VII of this form.

**V. DESCRIPTION OF PLANNED WELL PLUGGING:**  If plugging method differs between multiple wells on same site, a separate form must be completed for each method.

Note: If this plan proposes to plug an artesian well in a way other than with cement grout, placed bottom to top with a tremie pipe, a detailed diagram of the well showing proposed final plugged configuration shall be attached, as well as any additional technical information, such as geophysical logs, that are necessary to adequately describe the proposal. Attach a copy of any signed OSE variance to this plugging plan.

Also, if this planned plugging plan requires a variance to 19.27.4 NMAC, attach a detailed variance request signed by the applicant.

- 1) Describe the method by which cement grout shall be placed in the well, or describe requested plugging methodology proposed for the well:

Grout will be pumped via tremie to the bottom of the well (or top of the obstruction if it cannot be removed) and a pressure control head will be used prevent upward flow. See section VII for further details.

- 2) Will well head be cut-off below land surface after plugging? Yes

**VI. PLUGGING AND SEALING MATERIALS:**

Note: The plugging of a well that taps poor quality water may require the use of a specialty cement or specialty sealant. Attach a copy of the batch mix recipe from the cement company and/or product description for specialty cement mixes or any sealant that deviates from the list of OSE approved sealants.

- 1) For plugging intervals that employ cement grout, complete and attach Table A.
- 2) For plugging intervals that will employ approved non-cement based sealant(s), complete and attach Table B.
- 3) Theoretical volume of grout required to plug the well to land surface: Well 68-24 yards
- 4) Type of Cement proposed: ASTM Type I/II or API Class C Cement
- 5) Proposed cement grout mix: 6 gallons of water per 94 pound sack of Portland cement.
- 6) Will the grout be: x batch-mixed and delivered to the site  
 \_\_\_\_\_ mixed on site

Received  
 MAR 2 2023  
 State Engineer Office  
 District 1

7) Grout additives requested, and percent by dry weight relative to cement:

None.

8) Additional notes and calculations:

Type I/II Cement or API Class C Cement pumped via tremmi – 6 gallons water per sack cement  
-note, we are currently planning on mixing onsite.

**VII. ADDITIONAL INFORMATION:** List additional information below, or on separate sheet(s):

During the October 2022 condition assessment, an obstruction (possibly a pump) was identified at 760 ft bgs. Scaling will be removed from the well to the top of the obstruction. If the object can be removed, the well will be cleaned and sediment removed to the total depth. A tremie will be installed to the bottom of the well, using a pressure control head to stop the upward flow of water. Cement will be pumped from the total depth to approximately 850 ft bgs and the tremie will be removed. Pressure will be held on the cement for four hours.

Following this, or if the obstruction can not be removed, the casing will be perforated from 500 to 750 ft bgs, and from 0 to 100 ft bgs. A bridge plug or packer will be installed at 500 ft bgs and cement will be pumped via tremie and an oil field pump until the pressure reaches approximately 500 psi. The tremie will then be disconnected and cement will be pumped to the surface.

*Amended to procedure detailed in attached email  
NB 5/11/23*

**VIII. SIGNATURE:**

I, Christopher Cicerale, PG, CSP, say that I have carefully read the foregoing Well Plugging Plan of Operations and any attachments, which are a part hereof; that I am familiar with the rules and regulations of the State Engineer pertaining to the plugging of wells and will comply with them, and that each and all of the statements in the Well Plugging Plan of Operations and attachments are true to the best of my knowledge and belief.

*Chris C*  
Digitally signed by Christopher Cicerale  
Date: 2023.03.13 15:02:13-04'00'

Signature of Applicant

Date

**IX. ACTION OF THE STATE ENGINEER:**

This Well Plugging Plan of Operations is:

- Approved subject to the attached conditions.
- Not approved for the reasons provided on the attached letter.

Witness my hand and official seal this 11 day of May, 2023

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

By: *Nathan*  
Nathan Lopez-Brody  
Water Resources Professional

Received  
MAR 13 2023  
State Engineer Office

**TABLE A - For plugging intervals that employ cement grout. Start with deepest interval.**

	<b>Interval 1 – deepest</b>	<b>Interval 2</b>	<b>Interval 3 – most shallow</b>
			Note: if the well is non-artesian and breaches only one aquifer, use only this column.
Top of proposed interval of grout placement (ft bgl)	Ground surface		
Bottom of proposed interval of grout placement (ft bgl)	1,125 ft bgs		
Theoretical volume of grout required per interval (gallons)	24 yards		
Proposed cement grout mix gallons of water per 94-lb. sack of Portland cement	6 gallons of water per sack cement		
Mixed on-site or batch-mixed and delivered?	batch-mixed and delivered		
Grout additive 1 requested	N/A		
Additive 1 percent by dry weight relative to cement	N/A		
Grout additive 2 requested	N/A		
Additive 2 percent by dry weight relative to cement	N/A		

**Received**  
 MAR 13 2023  
 State Engineer Office

Mike A. Howard, P.E.  
 State Engineer

**TABLE B - For plugging intervals that will employ approved non-cement based sealant(s). Start with deepest interval.**

	<b>Interval 1 – deepest</b>	<b>Interval 2</b>	<b>Interval 3 – most shallow</b>
			Note: if the well is non-artesian and breaches only one aquifer, use only this column.
Top of proposed interval of sealant placement (ft bgl)	N/A		
Bottom of proposed sealant of grout placement (ft bgl)	N/A		
Theoretical volume of sealant required per interval (gallons)	N/A		
Proposed abandonment sealant (manufacturer and trade name)	N/A		

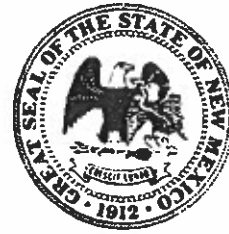
Received

MAR 13 2023

State Engineer Office  
 310111



# WELL PLUGGING PLAN OF OPERATIONS



NOTE: A Well Plugging Plan of Operations shall be filed with and accepted by the Office of the State Engineer prior to plugging. This form may be used to plug a single well, or if you are plugging multiple monitoring wells on the same site using the same plugging methodology.

Alert! Your well may be eligible to participate in the Aquifer Mapping Program (AMP)-NM Bureau of Geology [geoinfo.nmt.edu/resources/water/cgmn/](http://geoinfo.nmt.edu/resources/water/cgmn/) if within an area of interest and meets the minimum construction requirements, such as there is still water in your well, and the well construction reflected in a well record and log is not compromised, contact AMP at 575-835-5038 or -6951, or by email [nmbg-waterlevels@nmt.edu](mailto:nmbg-waterlevels@nmt.edu), prior to completing this prior form. Showing proof to the OSE that your well was accepted in this program, may delay the plugging of your well until a later date.

**I. FILING FEE:** There is no filing fee for this form.

**II. GENERAL / WELL OWNERSHIP:**  Check here if proposing one plan for multiple monitoring wells on the same site and attaching WD-08m

Existing Office of the State Engineer POD Number (Well Number) for well to be plugged: ~~6-0069~~ G-191 POD 2

Name of well owner: U.S. Army

Mailing address: 4101 Jefferson Plaza NE County: Bernalillo County

City: Albuquerque State: New Mexico Zip code: 87109-3435

Phone number: 817-789-0453 E-mail: Alan.J.Soicher@usace.army.mil

### III. WELL DRILLER INFORMATION:

Well Driller contracted to provide plugging services: Layne Christianson Company

New Mexico Well Driller License No.: 1808 Expiration Date: 7-15-24

**IV. WELL INFORMATION:**  Check here if this plan describes method for plugging multiple monitoring wells on the same site and attach supplemental form WD-08m and skip to #2 in this section.

Note: A copy of the existing Well Record for the well(s) to be plugged should be attached to this plan.

1) GPS Well Location: Latitude: 35 deg, 30 min, 55.93 sec  
Longitude: 108 deg, 35 min, 15.55 sec, NAD 83

2) Reason(s) for plugging well(s):

In July 2019, the Army conducted downhole video surveys and identified thick scaling and rust on the insides of well casings, the severity of which increases with depth. Well #68 is in poor condition and is causing localized groundwater mounding as a result which could influence existing contamination in the shallow aquifer.

3) Was well used for any type of monitoring program? No If yes, please use section VII of this form to detail what hydrogeologic parameters were monitored. If the well was used to monitor contaminated or poor quality water, authorization from the New Mexico Environment Department may be required prior to plugging.

4) Does the well tap brackish, saline, or otherwise poor quality water? NO If yes, provide additional detail, including analytical results and/or laboratory report(s):

5) Static water level: 9.24 feet below land surface / feet above land surface (circle one)

6) Depth of the well: 1,350 feet

Received  
MAR 13 2023  
State Engineer Office

- 7) Inside diameter of innermost casing: 8 5/8 inches.
- 8) Casing material: Steel
- 9) The well was constructed with:  
 an open-hole production interval, state the open interval: \_\_\_\_\_  
 a well screen or perforated pipe, state the screened interval(s): N/A
- 10) What annular interval surrounding the artesian casing of this well is cement-grouted? Unknown
- 11) Was the well built with surface casing? NO If yes, is the annulus surrounding the surface casing grouted or otherwise sealed? N/A If yes, please describe:  
 \_\_\_\_\_
- 12) Has all pumping equipment and associated piping been removed from the well? No If not, describe remaining equipment and intentions to remove prior to plugging in Section VII of this form.

**V. DESCRIPTION OF PLANNED WELL PLUGGING:**  If plugging method differs between multiple wells on same site, a separate form must be completed for each method.

Note: If this plan proposes to plug an artesian well in a way other than with cement grout, placed bottom to top with a tremie pipe, a detailed diagram of the well showing proposed final plugged configuration shall be attached, as well as any additional technical information, such as geophysical logs, that are necessary to adequately describe the proposal. Attach a copy of any signed OSE variance to this plugging plan.

Also, if this planned plugging plan requires a variance to 19.27.4 NMAC, attach a detailed variance request signed by the applicant.

- 1) Describe the method by which cement grout shall be placed in the well, or describe requested plugging methodology proposed for the well:  
 \_\_\_\_\_  
 Grout will be pumped via tremie to the bottom of the well (or top of the obstruction if it cannot be removed) and a pressure control head will be used prevent upward flow. See section VII for further details.

- 2) Will well head be cut-off below land surface after plugging? Yes

**VI. PLUGGING AND SEALING MATERIALS:**

Note: The plugging of a well that taps poor quality water may require the use of a specialty cement or specialty sealant. Attach a copy of the batch mix recipe from the cement company and/or product description for specialty cement mixes or any sealant that deviates from the list of OSE approved sealants.

- 1) For plugging intervals that employ cement grout, complete and attach Table A.
- 2) For plugging intervals that will employ approved non-cement based sealant(s), complete and attach Table B.
- 3) Theoretical volume of grout required to plug the well to land surface: Well 69-24 yards
- 4) Type of Cement proposed: ASTM Type I/II or API Class C Cement
- 5) Proposed cement grout mix: 6 gallons of water per 94 pound sack of Portland cement.
- 6) Will the grout be: X batch-mixed and delivered to the site  
 \_\_\_\_\_ mixed on site

Received  
 MAR 13 2023  
 State Engineer Office

Received

MAR 13 2023

State Engineer Office  
District 1

7) Grout additives requested, and percent by dry weight relative to cement:

[Empty box for grout additives information]

8) Additional notes and calculations:

Type I/II Cement or API Class C Cement pumped via tremmi – 6 gallons water per sack cement  
-note, we are currently planning on mixing onsite.

**VII. ADDITIONAL INFORMATION:** List additional information below, or on separate sheet(s):

An obstruction (pump and piping) was identified at 893 ft bgs. Scaling will be removed from the well to the top of the obstruction. If the object can be removed, the well will be cleaned and sediment removed to the total depth. A tremie will be installed to the bottom of the well, using a pressure control head to stop the upward flow of water. Cement will be pumped from the total depth to approximately 850 ft bgs and the tremie will be removed. Pressure will be held on the cement for four hours.

Following this, or if the obstruction can not be removed, the casing will be perforated from 500 to 750 ft bgs, and from 0 to 100 ft bgs. A bridge plug or packer will be installed at 500 ft bgs and cement will be pumped via tremie and an oil field pump until the pressure reaches approximately 500 psi. The tremie will then be disconnected and cement will be pumped to the surface.

*Amended to procedure detailed in attached email  
N/B 5/11/23*

**VIII. SIGNATURE:**

I, Christopher Cicerale, PG, CSP, say that I have carefully read the foregoing Well Plugging Plan of Operations and any attachments, which are a part hereof; that I am familiar with the rules and regulations of the State Engineer pertaining to the plugging of wells and will comply with them, and that each and all of the statements in the Well Plugging Plan of Operations and attachments are true to the best of my knowledge and belief.

*Chris Cicerale*

Digitally signed by Christopher Cicerale  
Date: 2023.03.13 15:02:35-04'00'

Signature of Applicant

Date

**IX. ACTION OF THE STATE ENGINEER:**

This Well Plugging Plan of Operations is:

- Approved subject to the attached conditions.
- Not approved for the reasons provided on the attached letter.

Witness my hand and official seal this 11 day of May, 2023

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

By: Nathan Lopez-Brady

*Nathan Lopez-Brady  
Water Resources Professional*



**TABLE A - For plugging intervals that employ cement grout. Start with deepest interval.**

	<b>Interval 1 – deepest</b>	<b>Interval 2</b>	<b>Interval 3 – most shallow</b>
			Note: if the well is non-artesian and breaches only one aquifer, use only this column.
Top of proposed interval of grout placement (ft bgl)	Ground surface		
Bottom of proposed interval of grout placement (ft bgl)	1,350 ft bgs		
Theoretical volume of grout required per interval (gallons)	24 yards		
Proposed cement grout mix gallons of water per 94-lb. sack of Portland cement	6 gallons water per sack cement		<p align="center"><b>Received</b> MAR 13 2023 State Engineer Office District 1</p>
Mixed on-site or batch-mixed and delivered?	batch-mixed and delivered		
Grout additive 1 requested	N/A		
Additive 1 percent by dry weight relative to cement	N/A		
Grout additive 2 requested	N/A		
Additive 2 percent by dry weight relative to cement	N/A		

**TABLE B - For plugging intervals that will employ approved non-cement based sealant(s). Start with deepest interval.**

	<b>Interval 1 – deepest</b>	<b>Interval 2</b>	<b>Interval 3 – most shallow</b>
			Note: if the well is non-artesian and breaches only one aquifer, use only this column.
Top of proposed interval of sealant placement (ft bgl)	N/A		
Bottom of proposed sealant of grout placement (ft bgl)	N/A		
Theoretical volume of sealant required per interval (gallons)	N/A		
Proposed abandonment sealant (manufacturer and trade name)	N/A		

Received  
 MAR 13 2023  
 State Engineer Office  
 S. Carter

## **Lopez-Brody, Nathan, OSE**

---

**From:** Chris Cicerale <ccicerale@dawsonohana.com>  
**Sent:** Tuesday, May 2, 2023 11:52 AM  
**To:** Lopez-Brody, Nathan, OSE; Angel, Christopher, OSE  
**Cc:** Soicher, Alan J CIV USARMY CESPA (USA); Moayyad, Behnaum CIV USARMY CESPA (USA); Emily McRee; O'Neill, Charles  
**Subject:** RE: [EXTERNAL] Fort Wingate Revised Well Plugging Plans

Aloha Nathan,

This email details the revised procedure for abandoning the two wells at FWDA, as discussed on our call last week.

To complete the well abandonment, the following tasks will be performed:

### **WELL 68**

1. A four-person team will remove and dispose of the well covering.
2. Prior to commencing well decommissioning operations, accumulated water in the cistern will be pumped out and discharged to the concrete swale on Palomino Drive to maximize storage capacity in the cistern.
3. Using a wire brush assembly on a 5.5-inch outer-diameter reverse circulation drill pipe, DAWSON subcontractor, Layne Christensen (Layne) will simultaneously brush and airlift within the 500 to 750-foot depth intervals. The removed sediment and water will flow to a baffled holding tank prior to discharge to Palomino Drive.
4. Layne will lower tooling to the obstruction at 760 feet bgs (see Figure 1) and complete a TV survey to determine its orientation and identify appropriate fishing tools.
5. Attempts will be made to remove the obstruction from Well #68 using grapples and/or spears. Recovery operations will cease after 20 hours or if loss of equipment is a significant risk.
6. If the obstruction is removed, repeat step 3 to brush the inside casing and remove sediment to the bottom of the well (1,215 feet bgs). If the obstruction is not removed, proceed to Step 7.
  - a. Install a bridge plug at 850 ft bgs. The tremie will be stabbed into the bridge plug. This will allow a valve to be installed at the bridge plug which will prevent loss of pressure that would lead to channeling and backflow. ASTM Type I/II or API Class C cement will be pumped at sufficient pressure to squeeze cement into the formation and stop the flow of water. Layne will wait up to 1 hour to allow the cement to begin to set before removing tooling and equipment to proceed to the next step. .
7. Using a star wheel perforator and the RD20 rig, Layne will perforate the well casing from 500 to 750 feet bgs (see Figure 3). Layne has allocated 250 feet of perforations (i.e., four passes of the perforator over each 250-foot interval). Layne will then perforate the casing from 0 to 100 feet bgs.

- a. A bridge plug or packer will be installed at 500 ft bgs and ASTM Type I/II or API Class C cement will be pumped via tremie and an oilfield cement pump until the pressure reaches approximately 500 psi. The tremie will then be disconnected and cement will be pumped to surface.
  - b. Cementitious water will be diverted to the nearby cistern for settling and discharged to Palomino Drive. Once grouting operations begin, water will not be discharged directly to the ground and will instead be diverted to the cistern. If needed, the cistern will first be dewatered by pumping to create capacity. The amount of water in the cistern will be managed and the pH of the water discharged during grouting will be neutralized with water already in the cistern. A pH meter will be on-site to collect field measurements of water discharged from grouting operations. A pH neutralizer will be available on site and may be used if pH remains too high (above 8) after mixing with water in the cistern.
8. The grout volume used in the well will be compared to the anticipated volume of 24 cubic yards based on the volume inside the casing. If needed, the well will be topped off with grout after removing the plug, tremie line, and any other tooling.
  9. DAWSON will remove the well vault using a backhoe and transport the material for off-site disposal as construction waste; the former well vault void will be backfilled with clean fill from an off-site source.

## WELL 69

1. A four-person team will remove and dispose of the well covering.
2. Prior to commencing well decommissioning operations, accumulated water in the cistern will be pumped out and discharged to the concrete swale on Palomino Drive to maximize storage capacity in the cistern.
3. Using a wire brush assembly on a 5.5-inch outer-diameter reverse circulation drill pipe, DAWSON will simultaneously brush and airlift within 500 to 750-foot, and as required to pass tooling through the well to the top of the obstruction at 893 ft bgs. The removed sediment and water will flow to a baffled holding tank prior to discharge to Palomino Drive.
4. Layne will lower tooling to the obstruction at 893 feet and complete a TV survey to determine its orientation and identify appropriate fishing tools.
5. Attempts will be made to remove the obstruction from Well #68 using grapples and/or spears. Recovery operations will cease after 20 hours or if loss of equipment is a significant risk.
6. If the obstruction is removed, repeat step 3 to clean casing and remove sediment to the bottom of the well (1,350 ft bgs). If the obstruction is not removed, proceed to Step 7.
7. Install a bridge plug at 850 ft bgs. The tremie will be stabbed into the bridge plug. This will allow a valve to be installed at the bridge plug which will prevent loss of pressure that would lead to channeling and backflow. ASTM Type I/II or API Class C cement will be pumped at sufficient pressure to squeeze cement into the formation and stop the flow of water. Layne will wait up to 1 hour to allow the cement to begin to set before removing tooling and equipment to proceed to the next step. Using a star wheel perforator, the RD20 rig will perforate the well casing from 500 to 750 feet. Layne has allocated 250 feet of perforations (i.e., four passes of the perforator over each 250-foot interval). The casing will then be perforated from 0 to 100 feet bgs.

- a. A bridge plug or packer will be installed at approximately 500 ft bgs and ASTM Type I/II or API Class C cement will be pumped via tremie and an oilfield cement pump until the pressure reaches 500 psi. The tremie will then be disconnected and cement will be pumped to surface.
  - b. Cementitious water will be diverted to the nearby cistern for settling and discharged to Palomino Drive. Once grouting operations begin, water will not be discharged directly to the ground and will instead be diverted to the cistern. If needed, the cistern will first be pumped to create capacity. The amount of water in the cistern will be managed and the pH of the water discharged during grouting will be neutralized with water already in the cistern. A pH meter will be on-site to collect field measurements of water discharged from grouting operations. A pH neutralizer will be available on site and may be used if pH remains too high (above 8) after mixing with water in the cistern.
8. The grout volume used in the well will be compared to the anticipated volume of 24 cubic yards based on the volume inside the casing. If needed, the well will be topped off with grout after removing the plug, tremie line, and any other tooling.
  9. DAWSON will remove the well vault using a backhoe and transport the material for off-site disposal as construction waste; the former well vault void will be backfilled with clean fill from an off-site source.

Please let us know if you have any additional questions or concerns.

Thanks,  
Chris  
**Christopher Cicerale, PG, CIH, CSP, ASP**  
Project Manager/Senior Geologist  
**DAWSON**  
Mobile: 973-803-2128

**From:** Lopez-Brody, Nathan, OSE <Nathan.Lopez-Brody@ose.nm.gov>  
**Sent:** Thursday, April 27, 2023 10:31 AM  
**To:** Chris Cicerale <ccicerale@dawsonohana.com>; Angel, Christopher, OSE <Christopher.Angel@ose.nm.gov>  
**Cc:** Soicher, Alan J CIV USARMY CESPA (USA) <alan.j.soicher@usace.army.mil>; Moayyad, Behnaum CIV USARMY CESPA (USA) <Behnaum.Moayyad@usace.army.mil>; Emily McRee <emcree@dawsonohana.com>; O'Neill, Charles <charles.oneill@hdrinc.com>  
**Subject:** RE: [EXTERNAL] Fort Wingate Revised Well Plugging Plans

**CAUTION:** This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hi Chris,

Sounds good, I'll keep an eye out for it.

Nathan

**From:** Chris Cicerale <ccicerale@dawsonohana.com>  
**Sent:** Thursday, April 27, 2023 8:15 AM  
**To:** Lopez-Brody, Nathan, OSE <Nathan.Lopez-Brody@ose.nm.gov>; Angel, Christopher, OSE

**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 PODs 1 & 2

**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
G-00191 POD 2 (69)	35° 30' 55.93"	-108° 35' 15.55"	1,350'	4,097.4

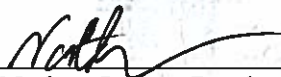
1. In accordance with Subsection A of 19.27.4.29 NMAC, on-site supervision of well drilling/plugging by the holder of a New Mexico Well Driller License or a NMOSE-registered Drill Rig Supervisor is required. The New Mexico licensed Well Driller shall ensure that well drilling activities are completed 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.
3. Every effort shall be made to remove all scaling and other debris scrubbed from the interior of the casing. NMOSE does not regulate disposal of hazardous waste or construction material- all materials removed from the subject wells shall be disposed of in accordance with regulations set out by relevant regulatory agency(ies).
4. Every effort shall be made to clear all pumps, pipes, or other obstructions from the wells prior to any well plugging activity. This may be accomplished by removing obstructions or pushing obstructions to the bottom of the well. Video logs of the well may be used to assess the viability of removing obstructions.
  - a. Given the deterioration of casing observed in these wells, it may be preferable to push the obstructions to the bottom of the wells.

5. If the Applicant, DAWSON or another agent for the Applicant determines the pump and associated piping cannot be removed or pushed to the bottom of the wellbore, then a written request for variance according to NMAC 19.27.4.37 shall be submitted to the NMOSE District 1 Office along with all supporting documentation **prior** to pumping any sealant into the wellbore. **No plugging activities shall take place** until written approval of the variance request is received from NMOSE
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. Two casing intervals shall be perforated:
  - a. from 750’ to 500’
  - b. from 100’ to ground surface.
7. Theoretical volume of sealant required for abandonment of the 8 5/8-inch casing is approximately 3.04 gallons per vertical foot. The reported depths of each well were 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.
8. 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.
9. The applicants propose to place the cement grout in three lifts:
  - a. A bridge plug or packer shall be installed at a depth of 850’ and cement will be pumped via tremie at sufficient pressure to stop the flow of water and infiltrate the formation. The formation pressure has been estimated by the OSE to be approximately **647 psi**.
    - 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. This pressure shall be maintained **at least** until the cement sample shows gelling. Depending on ambient and downhole conditions, a longer wait time may be necessary.
    - iv. 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 bridge plug 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' to the surface.
10. 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.
11. 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 11 day of May 2023.

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

By:   
Nathan Lopez-Brody  
Water Resources Professional II  
District I