

Form 3160-5
(June 2019)UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENTFORM APPROVED
OMB No. 1004-0137
Expires: October 31, 2021**SUNDRY NOTICES AND REPORTS ON WELLS**
Do not use this form for proposals to drill or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals.5. Lease Serial No.
NMSF 077972A
6. If Indian, Allottee or Tribe Name**SUBMIT IN TRIPLICATE - Other instructions on page 2**

1. Type of Well

☐ Oil Well ☒ Gas Well ☐ Other2. Name of Operator
LOGOS Operating, LLC3a. Address
2010 Afton Place
Farmington NM 874013b. Phone No. (include area code)
505-419-84204. Location of Well (Footage, Sec., T., R., M., or Survey Description)
840 FSL & 1720 FEL, O Sec 02 T27N R13W

7. If Unit of CA/Agreement, Name and/or No.

8. Well Name and No.
Richardson 1E9. API Well No.
30-045-2490910. Field and Pool or Exploratory Area
Basin Dakota11. Country or Parish, State
San Juan County, NM

12. CHECK THE APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT OR OTHER DATA

| TYPE OF SUBMISSION | TYPE OF ACTION | | | | |
|--|---|--|--|---|--|
| <input checked="" type="checkbox"/> Notice of Intent | <input type="checkbox"/> Acidize | <input type="checkbox"/> Deepen | <input type="checkbox"/> Production (Start/Resume) | <input type="checkbox"/> Water Shut-Off | |
| <input type="checkbox"/> Subsequent Report | <input type="checkbox"/> Alter Casing | <input type="checkbox"/> Hydraulic Fracturing | <input type="checkbox"/> Reclamation | <input type="checkbox"/> Well Integrity | |
| <input type="checkbox"/> Final Abandonment Notice | <input type="checkbox"/> Casing Repair | <input type="checkbox"/> New Construction | <input type="checkbox"/> Recomplete | <input type="checkbox"/> Other | |
| | <input type="checkbox"/> Change Plans | <input checked="" type="checkbox"/> Plug and Abandon | <input type="checkbox"/> Temporarily Abandon | | |
| | <input type="checkbox"/> Convert to Injection | <input type="checkbox"/> Plug Back | <input type="checkbox"/> Water Disposal | | |

13. Describe Proposed or Completed Operation: Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recompleat horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports must be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompleat in a new interval, a Form 3160-4 must be filed once testing has been completed. Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed and the operator has detennined that the site is ready for final inspection.)

Reference: RBDMA MPK 1819454857

In order to comply with NMOCD BH remediation per rule 19.15.16.11 to prevent waste and protect freshwater.

LOGOS request to perform a plug and abandon per the attached procedure, current, proposed and wellbore diagram.

Attached is the reclamation plan per the onsite visit on June 16, 2021 with Bob Switzer (BLM) and LOGOS.

14. I hereby certify that the foregoing is true and correct. Name (Printed/Typed)

Marie E. Florez

Title Regulatory Specialist

Signature



Date 06/18/2021

THE SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by

Title

Date

Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

Office

Title 18 U.S.C Section 1001 and Title 43 U.S.C Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Instructions on page 2)

| | | |
|----------------------------|---|---------------------------------------|
| Well Name: RICHARDSON | Well Location: T27N / R13W / SEC 2 / SWSE / 36.599228 / -108.184738 | County or Parish/State: SAN JUAN / NM |
| Well Number: 1E | Type of Well: CONVENTIONAL GAS WELL | Allottee or Tribe Name: |
| Lease Number: NMSF077972A | Unit or CA Name: | Unit or CA Number: NMNM73533 |
| US Well Number: 3004524909 | Well Status: Producing Gas Well | Operator: LOGOS OPERATING LLC |

Notice of Intent

Sundry ID: 2504943

| | |
|--|--------------------------------------|
| Type of Submission: Notice of Intent | Type of Action: Plug and Abandonment |
| Date Sundry Submitted: 06/24/2021 | Time Sundry Submitted: 06:35 |
| Date proposed operation will begin: 06/24/2021 | |

Procedure Description: Reference: RBDMA MPK 1819454857 In order to comply with NMOCD BH remediation per rule 19.15.16.11 to prevent waste and protect freshwater. LOGOS request to perform a plug and abandon per the attached procedure, current, proposed and wellbore diagram. Attached is the reclamation plan per the onsite visit on June 16, 2021 with Bob Switzer (BLM) and LOGOS.

Surface Disturbance

Is any additional surface disturbance proposed?: No

NOI Attachments

Procedure Description

3160_5_Richardson_1E_NOI_Plug_and_Abandon_20200618_20210624063525.pdf

| | | |
|-----------------------------------|--|---|
| Well Name: RICHARDSON | Well Location: T27N / R13W / SEC 2 / SWSE / 36.599228 / -108.184738 | County or Parish/State: SAIN JUAN / NM |
| Well Number: 1E | Type of Well: CONVENTIONAL GAS WELL | Allottee or Tribe Name: |
| Lease Number: NMSF077972A | Unit or CA Name: | Unit or CA Number: NMNM73533 |
| US Well Number: 3004524909 | Well Status: Producing Gas Well | Operator: LOGOS OPERATING LLC |

Conditions of Approval

Additional Reviews

2504943_NOIA_1E_3004524909_KR_11162021_20211116161142.pdf
General_Requirement_PxA_20211116161134.pdf
Richardson_1E_Geo_Rpt_20211116093216.pdf

Operator Certification

I certify that the foregoing is true and correct. Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction. Electronic submission of Sundry Notices through this system satisfies regulations requiring a submission of Form 3160-5 or a Sundry Notice.

Operator Electronic Signature: MARIE FLOREZ
Signed on: JUN 24, 2021 06:35 AM
Name: LOGOS OPERATING LLC
Title: Regulatory Specialist
Street Address: 2010 Afton Place
City: Farmington **State:** NM
Phone: (505) 419-8420
Email address: MFLOREZ@LOGOSRESOURCESLLC.COM

Field Representative

Representative Name:
Street Address:
City: **State:** **Zip:**
Phone:
Email address:

BLM Point of Contact

BLM POC Name: KENNETH G RENNICK
BLM POC Title: Petroleum Engineer
BLM POC Phone: 5055647742
BLM POC Email Address: krennick@blm.gov
Disposition: Approved
Disposition Date: 11/16/2021
Signature: Kenneth Rennick



Plug & Abandon Procedure

Richardson 1E

API: 30-045-24909

1. Release packer and trip out of hole with production tubing.
2. Run in hole with cement retainer and set within 50' of top Dakota perforation.
3. Roll hole with fresh water and pressure test casing to 560 psi for 15 minutes.
 - a. **If pressure test fails, tag and record each plug top** and top off with more cement if necessary.
4. Conduct cement bond log from cement retainer to surface.
5. **Send cement bond log results to NMOCD and BLM to verify cement volumes and inside/outside plugs.**
6. **Plug #1: 5870'-5920' (Dakota perforation top: 5951' / Dakota top: 5946')**: Mix & spot 8 sx of Class B cement on cement retainer.
7. **Plug #2: 5230'-5330' (Gallup top: 5280')**: Mix and spot 12 sx of Class B cement.
8. **Plug #3: 2895'-2995' (Mesaverde top: 2945')**: Mix and spot 12 sx of Class B cement.
9. With wireline unit perforate at 2305' and set cement retainer at 2255'.
10. **Plug #4: 2205'-2305' (Chacra top: 2255')**: Sting into cement retainer, mix and spot 44 sx Class B cement.
Sting out of cement retainer and pump remaining 8 sx of Class B cement.
11. **Plug #5: 1250'-1429' (Fruitland Coal top: 1300' / Pictured Cliffs top: 1379')**: Mix and spot 18 sx of Class B cement.
12. **Plug #6: 440'-570' (Ojo Alamo top: 490' / Kirtland top: 520')**: Mix and spot 14 sx of Class B cement.
13. **Plug #7: Surface-331' (surface casing shoe at 281')**: Mix and spot 30 sx of Class B cement.
14. Wait on cement and tag top of cement at surface. Top off as required.
15. Cut off wellhead below surface casing flange per regulation. Top off with cement if needed. Install P&A marker with cement per regulation.
16. Cut off anchors and restore location per BLM stipulations.



Plug & Cement Table Planning

Richardson 1E P&A Planning

| <u>Tops</u> | <u>(ft)</u> | <u>(ft+50)</u> | <u>(ft-50)</u> |
|-------------|-------------|----------------|----------------|
| Ojo Alamo | 490 | 540 | 440 |
| Kirtland | 520 | 570 | 470 |
| Fruitland | 1300 | 1350 | 1250 |
| PC | 1379 | 1429 | 1329 |
| Chacra | 2255 | 2305 | 2205 |
| Mesaverde | 2945 | 2995 | 2895 |
| Gallup | 5280 | 5330 | 5230 |
| Dakota | 5946 | 5996 | 5896 |

| <u>Top Perf</u> | <u>Bottom Perf</u> | <u>Surf Shoe</u> |
|-----------------|--------------------|------------------|
| 6080 | 5951 | 281 |

| <u>Yield</u> | <u>CR DK perfs</u> | <u>CR CH top</u> |
|--------------|--------------------|------------------|
| 1.15 | 5920 | 2255 |

| <u>4.5" CSA</u> | <u>4.5" CSA OH</u> |
|-----------------|--------------------|
| 0.0896 | 0.2278 |

| <u>Plug</u> | <u>Reason</u> | <u>Perf</u> | <u>Tool</u> | <u>Top</u> | <u>Bottom</u> | <u>In/Out</u> | <u>Volume sx</u> | <u>Excess</u> |
|--------------|---------------|-------------|-------------|------------|---------------|---------------|------------------|---------------|
| 1 | DK Perfs | n/a | CR @ 5920' | 5870 | 5920 | In | 8 | 50' |
| 2 | GL Top | n/a | n/a | 5230 | 5330 | In | 12 | 50' |
| 3 | MV Top | n/a | n/a | 2895 | 2995 | In | 12 | 50' |
| 4 | CH Top | 2305' | CR @ 2255' | 2205 | 2305 | In/Out | 52 | 50' and 100% |
| 5 | FC/PC Top | n/a | n/a | 1250 | 1429 | in | 18 | 50' |
| 6 | Ojo/KL Top | n/a | n/a | 440 | 570 | in | 14 | 50' |
| 7 | Surface | n/a | n/a | 0 | 331 | In | 30 | 50' |
| TOTAL | | | | | | | 146 | |

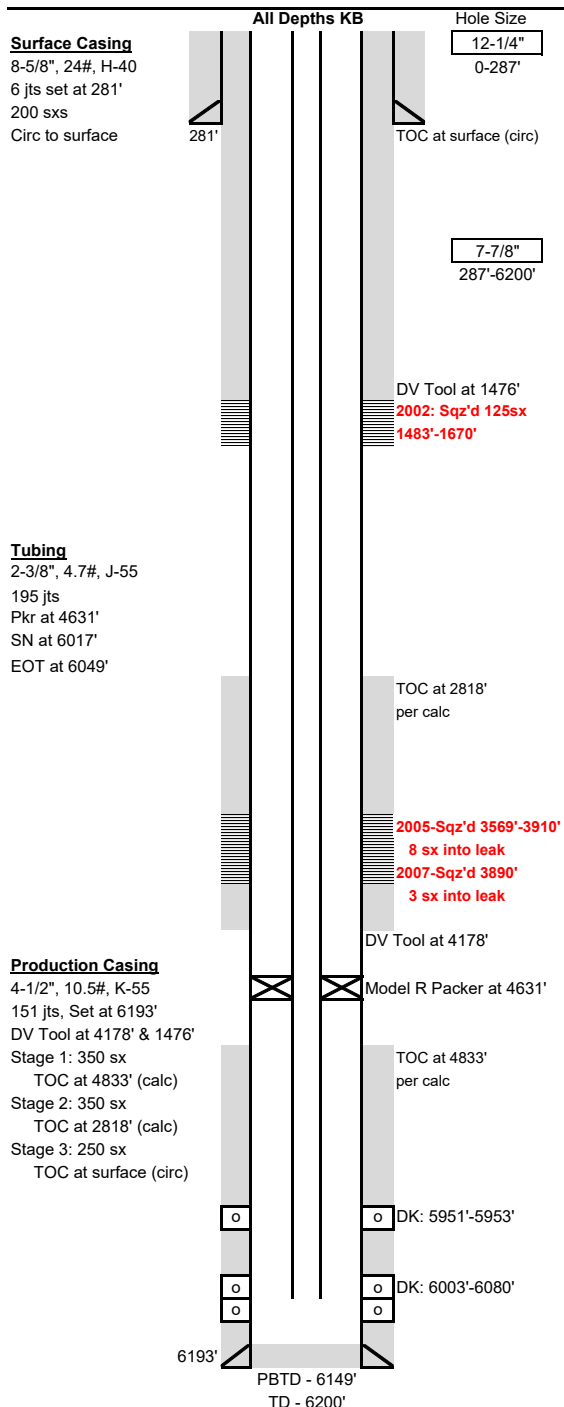
| <u>Plug #4</u> | <u>Perf</u> | <u>CR</u> | <u>Top</u> | <u>Bottom</u> | <u>Excess</u> | <u>Volume sx</u> | <u>Below CR sx</u> | <u>Above CR sx</u> |
|----------------|-------------|-----------|------------|---------------|---------------|------------------|--------------------|--------------------|
| Out | 2305 | 2255 | 2205 | 2305 | 100% | 40 | 44 | |
| Inside | 2305 | 2255 | 2205 | 2305 | 50' | 12 | | 8 |



Wellbore Schematic

Well Name: Richardson 1E
 Location: Sec 2, T27N, R13W 840' FSL & 1720' FEL
 County: San Juan
 API #: 30-045-24909
 Co-ordinates: Lat 36.5993156 Long -108.854172
 Elevations: GROUND: 5881'
 KB: 5894.5'
 PBDT: 6149'
 TD: 6200'

Date Prepared: 2/18/2019 Hespe
 Last Updated: 2/5/2020 Moss
 Spud Date: 4/29/1981
 Completion Date: 8/15/1981
 Last Workover Date: 10/12/2007
 Reviewed: 4/28/2021 Hespe

**Surface Casing: (4/29/1981)**

Drilled a 12-1/4" surface hole to 287'. Set 6 jts 8-5/8", 24#, H-40 casing at 281'.
 Cemented w/ 200 sxs Class 'B' cmt w/ 3% CaCl and 1/4# flocele/sk. Circulated 5 bbl to surface.

Production Casing: (5/7/1981)

Drilled a 7-7/8" production hole to 6200'. Set 151 jts 4-1/2", 10.5#, K-55 casing at 6193'.
 Float Collar set at 6145'. Stage Collars set at 4178' & 1476'.
 Stage 1: 350 sx 50/50 POZ w/ 2% gel, 0.6% FLA & 10% salt.
 TOC at 4833' per calc. Assuming 1.18 yld & 75% efficiency.
 Stage 2: Lead w/ 300 sx 50/50 POZ w/ 8%gel & 10 lb gilsonite/sk. Tailed w/ 50 sxs
 Class B. TOC at 2818' per calc. Assuming 1.18 yld & 75% efficiency.
 Stage 3: Lead w/ 200 sxs 65/35 POZ w/ 12% gel & 12.5# gilsonite/sk. Tailed w/ 50 sxs Class B w/
 2% CaCl. Circulated good cmt to surface.

Tubing: (10/16/2007)

| | Length (ft) |
|--------------------------------------|-------------|
| KB | 13.5 |
| (148) 2-3/8" 4.7# J-55 tubing joints | 4617.21 |
| (1) Model R Packer @ 4630.7' | 6 |
| (46) 2-3/8" 4.7# J-55 tubing joints | 1378.78 |
| (1) SN | 1.1 |
| (1) 2-3/8" 4.7# J-55 tail joint | 31.87 |

Set at: 6048.5 ft

Artificial Lift Type:

Plunger Lift

Perforations:

Dakota (8/14/81): 0.42", 26 holes, 5951, 52, 53, 6003, 04, 05, 26, 28, 30, 32, 34, 36, 38,
 40, 42, 44, 46, 48, 66, 68, 70, 72, 74, 76, 78, 80'.
 Acidized w/ 1500 gal 15% HCL.
 Frac w/ 130000# 20/40, 96000gal 30# x-linked gel.

Formations:

| | | | |
|------------------|-------|----------------|-------|
| Ojo Alamo- | 490' | Cliff House- | 2945' |
| Kirtland- | 520' | Point Lookout- | 3890' |
| Fruitland- | 1300' | Gallup- | 5280' |
| Pictured Cliffs- | 1379' | Dakota- | 5946' |
| Chacra- | 2255' | | |

Additional Notes:

11/25/2002- **Casing repair** - Isolated csg leak at 1483'-1670' / sqz'd csg leak w/ 125 sx Class B cmt
 (1.18 yld) / D/O cmt & PT to 500 psi, bled off to 350 psi and held
 10/19/2004- **Casing hole identification** - Isolated csg leak 3927'-3942' / Landed tbg as follows: (1) tbg jt
 w/ collar, SN, (58) tbg jts, R-3 pkr, (128) tbg jts // EOT at 6014'
 While identifying hole 4-1/2: fullbore packer kept sticking near the DV tool at 4629'
 Found part of DV tool in slips of pkr / "small amounts of metal"
 6/13/2005- **Casing repair** - Isolated csg leak 3569'-3910' / Spotted 40 sx cmt & hesitate sqz 8 sx
 into casing leak / D/O cmt 3400' - 3920' / PT passed
 10/5/2007- **Casing repair** - Isolated csg leak at 3892' / Could not establish circulation into leak
 Set RBP at 5850' / 1050# sand on RBP / TIH 3900' / Establish circulation, pump 25 sx poz 50/50
 50/50 w/ Halad-322 / TOOH 10 jts & pressure up to 800 psi to displace cmt into csg
 Pulled 50K# on tbg / Free point tbg at 3500' & chem cut at 3500' / Retrieved tbg
 D/O cmt F/ 3736' - T/ 3901' / C/O to PBDT

See Operations tab for additional information.

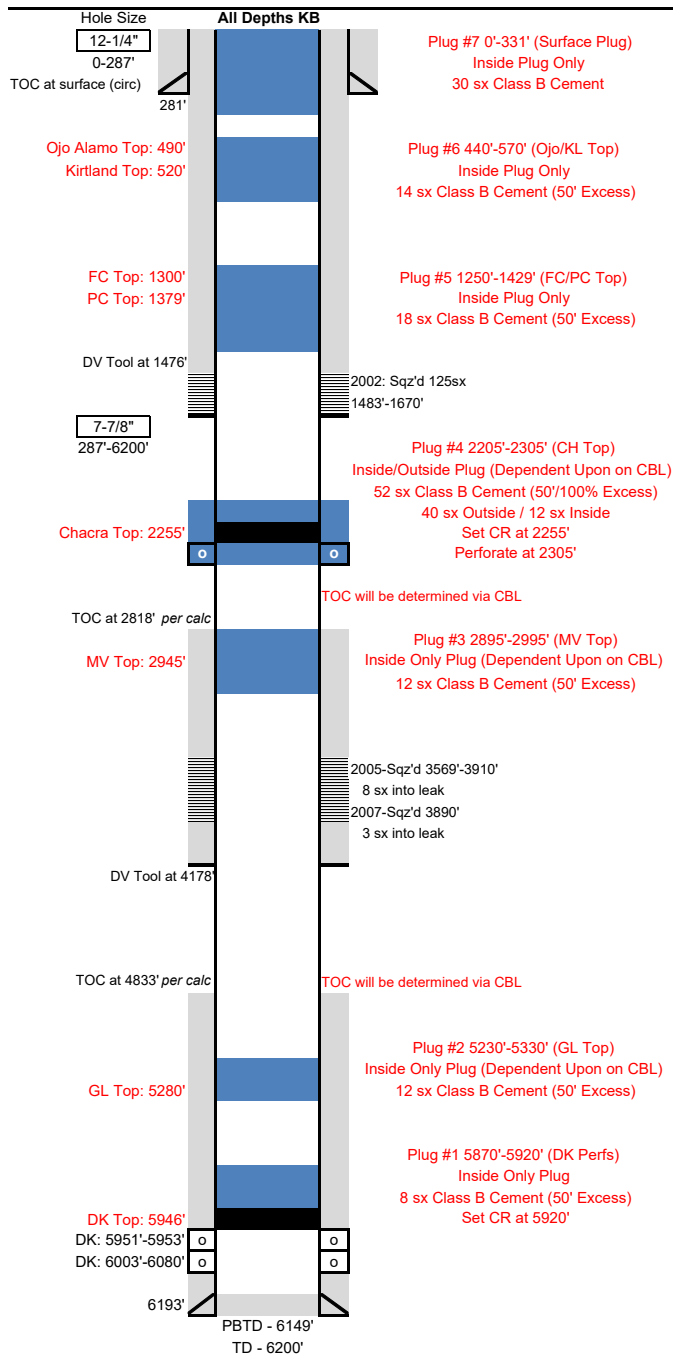
*Max deviation 1 degree.



Proposed P&A Wellbore Schematic

Well Name: Richardson 1E
 Location: Sec 2, T27N, R13W 840' FSL & 1720' FEL
 County: San Juan
 API #: 30-045-24909
 Co-ordinates: Lat 36.5993156 Long -108.854172
 Elevations: GROUND: 5881'
 KB: 5894.5'
 Depths (KB): PBTD: 6149'
 TD: 6200'

Date Prepared: 5/6/2021 Hespe
 Reviewed: 5/12/2021 Moss
 Spud Date: 4/29/1981
 Completion Date: 8/15/1981
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 Drilled a 12-1/4" surface hole to 287'. Set 6 jts 8-5/8", 24#, H-40 casing at 281'.
 Cemented w/ 200 sxs Class 'B' cmt w/ 3% CaCl and 1/4# flocele/sk. Circulated 5 bbl to surface.

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 Float Collar set at 6145'. Stage Collars set at 4178' & 1476'.
 Stage 1: 350 sx 50/50 POZ w/ 2% gel, 0.6% FLA & 10% salt.
 TOC at 4833' per calc. Assuming 1.18 yld & 75% efficiency.
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 Class B. TOC at 2818' per calc. Assuming 1.18 yld & 75% efficiency.
 Stage 3: Lead w/ 200 sxs 65/35 POZ w/ 12% gel & 12.5# gilsonite/sk. Tailed w/ 50 sxs Class B w/ 2% CaCl. Circulated good cmt to surface.

Perforations:
 Dakota (8/14/81): 0.42", 26 holes, 5951, 52, 53, 6003, 04, 05, 26, 28, 30, 32, 34, 36, 38,
 40, 42, 44, 46, 48, 66, 68, 70, 72, 74, 76, 78, 80'.
 Acidized w/ 1500 gal 15% HCL.
 Frac w/ 130000# 20/40, 96000gal 30# x-linked gel.

Formations:

| | |
|------------------|-------|
| Ojo Alamo- | 490' |
| Kirtland- | 520' |
| Fruitland Coal- | 1300' |
| Pictured Cliffs- | 1379' |
| Chacra- | 2255' |
| Mesaverde- | 2945' |
| Gallup- | 5280' |
| Dakota- | 5946' |

Additional Notes:
 11/25/2002- **Casing repair** - Isolated csg leak at 1483'-1670' / sqz'd csg leak w/ 125 sx Class B cmt (1.18 yld) / D/O cmt & PT to 500 psi, bled off to 350 psi and held
 10/19/2004- **Casing hole identification** - Isolated csg leak 3927'-3942' / Landed tbq as follows: (1) tbq jt w/ collar, SN, (58) tbq jts, R-3 pkr, (128) tbq jts // EOT at 6014'
 While identifying hole 4-1/2: fullbore packer kept sticking near the DV tool at 4629'
 Found part of DV tool in slips of pkr / "small amounts of metal"
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 Set RBP at 5850' / 1050# sand on RBP / TIH 3900' / Establish circulation, pump 25 sx poz 50/50 50/50 w/ Halad-322 / TOOH 10 jts & pressure up to 800 psi to displace cmt into csg
 Pulled 50K# on tbq / Free point tbq at 3500' & chem cut at 3500' / Retrieved tbq
 D/O cmt F/ 3736' - T/ 3901' / C/O to PBTD

P&A Notes:
Set CR at 5940' (<50' of top perf)
Run CBL from CR to surface
Plug #1 Pump 50' cement (50' excess) above CR set at 5920'
Plug #2 Option A If CBL shows cement at or above 5230' spot balance plug, 50' below & 50' above GL top
Plug #2 Option B If CBL shows TOC below 5230' Perf sqz holes at 5330' (or TOC) set CR at 5280'.
Plug #3 Option A If CBL shows cement at or above 2895' spot balance plug, 50' below & 50' above MV top
Plug #3 Option B If CBL shows TOC below 2895' Perf sqz holes at 2945' (or TOC) set CR at 2945'
Plug #4 Perf sqz holes at 2305', set CR at 2255'
Plug #5 spot balance plug 50' above FC and 50' below PC (50' Excess)
Plug #6 spot balance plug 50' above Ojo and 50' below KL (50' Excess)
Plug #7 spot balance plug 50' below casing shoe to surface

Excess: 50' Inside Plug / 100% Outside Plug

**UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
FARMINGTON DISTRICT OFFICE
6251 COLLEGE BLVD.
FARMINGTON, NEW MEXICO 87402**

Attachment to notice of
Intention to Abandon

Re: Permanent Abandonment
Well: Richardson 1E

CONDITIONS OF APPROVAL

1. Plugging operations authorized are subject to the attached "General Requirements for Permanent Abandonment of Wells on Federal and Indian Lease."
2. The following modifications to your plugging program are to be made:
 - a) The top and/or bottom of Plugs 3, 5 and 6 must be modified to cover the BLM formation picks. BLM formation tops are different than the operator tops at Kirtland, Fruitland, and Dakota.
3. Farmington Office is to be notified at least 24 hours before the plugging operations commence (505) 564-7750.

You are also required to place cement excesses per 4.2 and 4.4 of the attached General Requirements.

Office Hours: 7:45 a.m. to 4:30 p.m.

K. Rennick 11/16/2021

**GENERAL REQUIREMENTS FOR
PERMANENT ABANDONMENT OF WELLS ON FEDERAL AND INDIAN LEASES
FARMINGTON FIELD OFFICE**

1.0 The approved plugging plans may contain variances from the following minimum general requirements.

1.1 Modification of the approved plugging procedure is allowed only with the prior approval of the Authorized Officer, Farmington Field Office.

1.2 Requirements may be added to address specific well conditions.

2.0 Materials used must be accurately measured. (densometer/scales)

3.0 A tank or lined pit must be used for containment of any fluids from the wellbore during plugging operations and all pits are to be fenced with woven wire. These pits will be fenced on three sides and once the rig leaves location, the fourth side will be fenced.

3.1 Pits are not to be used for disposal of any hydrocarbons. If hydrocarbons are present in the pit, the fluids must be removed prior to filling in.

4.0 All cement plugs are to be placed through a work string. Cement may be bull-headed down the casing with prior approval. Cement caps on top of bridge plugs or cement retainers may be placed by dump bailer.

4.1 The cement shall be as specified in the approved plugging plan.

4.2 All cement plugs placed inside casing shall have sufficient volume to fill a minimum of 100' of the casing, or annular void(s) between casings, plus an excess volume sufficient to provide for 50 linear feet of fill above the plug.

4.3 Surface plugs may be no less than 50' in length.

4.4 All cement plugs placed to fill annular void(s) between casing and the formation shall be of sufficient volume to fill a minimum of 100' of the annular space plus 100% excess, calculated using the bit size, or 100' of annular capacity, determined from a caliper log, plus an excess volume sufficient to provide for 50 linear feet of fill above the plug.

4.5 All cement plugs placed to fill an open hole shall be of sufficient volume to fill a minimum of 100' of hole, as calculated from a caliper log, plus an excess volume sufficient to provide for 50 linear feet of fill above the plug. In the absence of a caliper log, an excess of 100% shall be required.

4.6 A cement bond log or other accepted cement evaluation tool is required to be run if one had not been previously ran or cement did not circulate to surface during the original casing cementing job or subsequent cementing jobs.

5.0 All cement plugs spotted across, or above, any exposed zone(s), when; the wellbore is not full of fluid or the fluid level will not remain static, and in the case of lost circulation or partial returns during cement placement, shall be tested by tagging with the work string.

- 5.1 The top of any cement plug verified by tagging must be at or above the depth specified in the approved plan, without regard to any excess.
- 5.2 Testing will not be required for any cement plug that is mechanically contained by use of a bridge plug and/or cement retainer, if casing integrity has been established.
- 5.3 Any cement plug which is the only isolating medium, for a fresh water interval or a zone containing a prospectively valuable deposit of minerals, shall be tested by tagging.
- 5.4 If perforations are required below the surface casing shoe, a 30 minute minimum wait time will be required to determine if gas and/or water flows are present. If flow is present, the well will be shut-in for a minimum of one hour and the pressure recorded. Short or long term venting may be necessary to evacuate trapped gas. **If only a water flow occurs with no associated gas, shut well in and record the pressures. Contact the Engineer as it may be necessary to change the cement weight and additives.**

6.0 Before setting any cement plugs the hole needs to be rolled. All wells are to be controlled by means of a fluid that is to be of a weight and consistency necessary to stabilize the wellbore. This fluid shall be left in place as filler between all plugs.

- 6.1 Drilling mud may be used as the wellbore fluid in open hole plugging operations.
- 6.2 The wellbore fluid used in cased holes shall be of sufficient weight to balance known pore pressures in all exposed formations.

7.0 A blowout preventer and related equipment (BOPE) shall be installed and tested prior to working in a wellbore with any exposed zone(s); (1) that are over pressured, (2) where the pressures are unknown, or (3) known to contain H₂S.

8.0 Within 30 days after plugging work is completed, file a Sundry Notice, Subsequent Report of Abandonment (Form 3160-5), five copies, with the Field Manager, Bureau of Land Management, 6251 College Blvd., Suite A, Farmington, NM 87402. The report should show the manner in which the plugging work was carried out, the extent, by depth(s), of cement plugs placed, and the size and location, by depth(s), of casing left in the well. Show date well was plugged.

9.0 All permanently abandoned wells are to be marked with a permanent monument as specified in 43 CFR 3162.6(d). Unless otherwise approved.

10.0 If this well is located in a Specially Designated Area (SDA), compliance with the appropriate seasonal closure requirements will be necessary.

All of the above are minimum requirements. Failure to comply with the above conditions of approval may result in an assessment for noncompliance and/or a Shut-in Order being issued pursuant to 43 CFR 3163.1. You are further advised that any instructions, orders or decisions issued by the Bureau of Land Management are subject to administrative review pursuant to 43 CFR 3165.3 and appeal pursuant to 43 CFR 3165.4 and 43 CFR 4.700.

BLM - FFO - Geologic Report**Date Completed**

9/22/2021

| | | | | | | | |
|-----------|---------------------|------|------------|-----------|-----------|------------|------|
| Well No. | Richardson | # 1E | Surf. Loc. | 840 | FSL | 1720 | FEL |
| | | | Sec. | 2 | T27N | | R13W |
| Lease No. | NMSF077972A | | | | | | |
| Unit No. | NMNM73533 | | | | | | |
| Operator | LOGOS Operating LLC | | County | San Juan | State | New Mexico | |
| TVD | 6200 | PBTD | 6149 | Formation | Dakota SS | | |
| Elevation | GL | 5881 | Elevation | Est. KB | 5895 | | |

| Geologic Formations | Est. tops | Subsea Elev. | Remarks |
|----------------------------|------------------|---------------------|----------------------------|
| Nacimiento Fm. | Surface | 5881 | Surface /fresh water sands |
| Ojo Alamo Ss | 490 | 5405 | Fresh water aquifer |
| Kirtland Fm. | 650 | 5245 | |
| Fruitland Fm. | 950 | 4945 | Coal/gas/possible water |
| Pictured Cliffs | 1379 | 4516 | Possible water |
| Lewis Shale (Main) | 1510 | 4385 | Source rock |
| Huerfanito Bentonite | 1810 | 4085 | Reference bed |
| Chacra (upper) | 1880 | 4015 | Possible gas/water |
| Lewis Shale Stringer | 1930 | 3965 | Source rock |
| Chacra (lower) | 2255 | 3640 | Possible gas/water |
| Lewis Shale Stringer | 2338 | 3557 | Source rock |
| La Ventana Member | 2395 | 3500 | Possible gas/water |
| Cliff House Ss | 2892 | 3003 | Water |
| Menefee Fm. | 2945 | 2950 | Coal/water/possible gas |
| Point Lookout Fm. | 3810 | 2085 | Possible gas/water |
| Mancos Shale | 4150 | 1745 | Source rock |
| El Vado Ss | 5080 | 815 | Possible gas/water |
| Tocito Ss Lentils | 5150 | 745 | Possible gas/water |
| Gallup | 5280 | 615 | Oil & gas |
| Mancos Stringer | 5440 | 455 | Oil & gas |
| Juana Lopez | 5489 | 406 | |
| Mancos Stringer | 5615 | 280 | |
| Brdge Crk/Grnhn | 5800 | 95 | |
| Graneros Shale | 5900 | -5 | |
| Dakota Ss | 6025 | -130 | Possible gas/water |

Remarks:

Vertical wellbore, all formation depths are TVD

-The Cliff House should be used as the top of the Mesa Verde for plugging purposes.

-Note that there are some significant differences between the BLM geologist's picks for the Kirtland, Fruitland and Dakota formation tops and the Operators picks.

-The top and/or bottom of Plugs 3, 5, and 6 must be modified to cover the BLM formation depths.

Reference Wells:

1) Fm Tops
LOGOS Operating LLC
Same

Prepared by: Walter Gage

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Action 64136

CONDITIONS

| | |
|---|---|
| Operator: LOGOS OPERATING, LLC 2010 Afton Place Farmington, NM 87401 | OGRID: 289408 |
| | Action Number: 64136 |
| | Action Type: [C-103] NOI Plug & Abandon (C-103F) |

CONDITIONS

| Created By | Condition | Condition Date |
|------------|---|----------------|
| kpickford | CBL required | 12/7/2021 |
| kpickford | Notify NMOCD 24 Hours Prior to beginning operations | 12/7/2021 |
| kpickford | Adhere to BLM approved plugs (See GEO report) | 12/7/2021 |