

State of New Mexico
Energy, Minerals and Natural Resources Department

Michelle Lujan Grisham
Governor

Sarah Cottrell Propst
Cabinet Secretary

Todd E. Leahy, JD, PhD
Deputy Secretary

Adrienne Sandoval, Division Director
Oil Conservation Division



New Mexico Oil Conservation Division approval and conditions listed below are made in accordance with OCD Rule 19.15.7.11 and are in addition to the actions approved by BLM on the following 3160-4 or 3160-5 form.

Operator Signature Date: 11/1/2019

Well information:

30-039-21298 JICARILLA 123 C #024

LOGOS OPERATING, LLC

Application Type:

☒ P&A ☐ Drilling/Casing Change ☐ Location Change

☐ Recomplete/DHC (For hydraulic fracturing operations review EPA Underground injection control Guidance #84; Submit Gas Capture Plan form prior to spudding or initiating recompletion operations)

☐ Other:

Conditions of Approval:

- Notify NMOCD 24hrs prior to beginning operations.
- Install plug #1 as proposed in submitted plugging plan (3320' – 3119') to ensure the Fruitland top is covered. OCD Fruitland top pick @ 3170'.
- In addition to BLM plug for Nacimiento, install a plug from 1270' – 1170' to cover the Nacimiento top. OCD Nacimiento pick @ 1220'.


NMOCD Approved by Signature

12/23/19
Date

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENTFORM APPROVED
OMB NO. 1004-0137
Expires: January 31, 2018**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.**SUBMIT IN TRIPLICATE - Other instructions on page 2**

1. Type of Well <input type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input checked="" type="checkbox"/> Other: COAL BED METHANE	8. Well Name and No. JICARILLA 123 C 24
2. Name of Operator LOGOS OPERATING LLC	9. API Well No. 30-039-21298-00-S2
3a. Address 2010 AFTON PLACE FARMINGTON, NM 87401	3b. Phone No. (include area code) Ph: 505-787-2218
4. Location of Well (Footage, Sec., T., R., M., or Survey Description) Sec 7 T25N R4W SWNE 1630FNL 1525FEL 36.416824 N Lat, 107.289113 W Lon	11. County or Parish, State RIO ARriba 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 determined that the site is ready for final inspection.

LOGOS Operating request to plug and abandon the following well per the attached procedure, wellbore schematic and reclamation plan.

Reclamation will be conducted in accordance to the pre-onsite discussed on 10/30/2019.

NMOC

DEC 11 2019

DISTRICT III

14. I hereby certify that the foregoing is true and correct. Electronic Submission #490801 verified by the BLM Well Information System For LOGOS OPERATING LLC, sent to the Rio Puerco Committed to AFMSS for processing by ALBERTA WETHINGTON on 11/04/2019 (20AMW0012SE)	
Name (Printed/Typed) MARIE E FLOREZ	Title REGULATORY SPECIALIST
Signature (Electronic Submission)	Date 11/01/2019

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By <u>JOE KILLINS</u>	Title <u>PETROLEUM ENGINEER</u>	Date <u>12/06/2019</u>
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 <u>Rio Puerco</u>

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)

**** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ****

NMOC



PLUG & ABANDON PROCEDURE

Jicarilla 123 C 24
30-039-21298

1630' FNL & 1525' FEL
7-25N-04W
Rio Arriba County, New Mexico
36.41695°, -107.28852° NAD83
Fruitland Coal
SLIMHOLE

KD: Kaitlyn Dickens Preparer/Associate Engineer
Kaitlyn Dickens (Oct 30, 2019) _____
Date

CR: Catlain Richardson Production Engineer
Catlain Richardson (Oct 30, 2019) _____
Date

KM: Krista McWilliams Engineering Manager
Krista McWilliams (Oct 30, 2019) _____
Date

DB: RD Bixler Production/Workover Manager
RD Bixler (Oct 30, 2019) _____
Date

PROJECT OBJECTIVE:

Permanently plug & abandon the well from 3320' to surface utilizing 3 cement plugs.

EQUIPMENT REQUESTED ON LOCATION:

1.	Cement Wash-up Tank & Fresh Water Tank – Aztec Well Service
2.	Rig pump
3.	1-1/2" Work string (~3140') – Cave Enterprises
4.	Wireline Unit (Perf Gun) – Basin Well Logging
5.	~95 sx Class G cement, mixed at 15.6 ppg, w/ 1.15 cf/sx yield – Aztec Well Service
6.	Fresh Water for cementing, CBL, & MIT
7.	P&A Marker – Aztec Well Service
8.	Wellcheck pen recorder- Big Red Tool

PERTINENT DATA:

KB	12'
PBTD	3320'
EOT	SLIMHOLE
Last workover	1990 Set CIBP at 3320' and plugged back PC
Last tag	N/A
Production casing specs	2-7/8" 6.4# J-55

NOTES:

- All cement volumes use 100% excess outside casing. Stabilizing wellbore fluid will be 8.3 ppg, sufficient to balance all exposed formation pressures. All cement will be ASTM Class G neat 1.15 ft³/sk or equivalent.
 - Cement volumes for Plug 1 use 100% excess for inside casing.
 - Cement volumes for Plug 2 use 50' excess for inside casing,
 - Cement volumes for Plug 3 use 0% excess for inside casing and use 100% excess for outside casing.
- Prior to Rig: Notify BLM, NMOCD, & Jicarilla, and verify all cement volumes based on actual slurry to be pumped, see attached COA's from BLM & NMOCD.
- **Will have to tag Plug 1 whether or not casing pressure tests.** If casing pressure tests, tagging plugs 2 & 3 will not be required.
- The project requires a NMOCD C-144 CLEZ Closed-Loop System Permit for the use of a steel tank to handle waste fluids circulated from the well and cement wash up.
- Cement plugs may change based on results of CBL.

WORKOVER PROCEDURE:

1. Comply with all NMOCD, BLM, and Jicarilla regulations. Prepare a lined waste fluid pit. Conduct safety meeting for all personnel on location. MIRU workover rig. Place fire and safety equipment in strategic locations.
2. Lay flow lines. Check and record bradenhead and casing pressures. RU blow lines from casing valves to rig pit. Blow casing pressure down and kill well if necessary.
3. Load casing with water and roll hole.
4. RU wireline and conduct CBL to determine TOC. TOOH and LD wireline. Send results of CBL to engineer.
5. PU 1-1/2" work string and RIH to top of CIBP at 3320'.
6. **Plug #1 3119' – 3320' (Pictured Cliffs Top: 3318', Fruitland Top: 3169', FC Perfs: 3169' – 3316'):** Mix & spot 11 sx of Class G neat cement. PU 100' above plug and reverse circulate tubing clean.
7. WOC, tag and record TOC. Notify engineer with results of tag depth.
 - a. **If TOC is below 3119'** top off with more cement. WOC, tag, and record new TOC. Notify engineer with results of new tag depth.
8. RU Wellcheck pen recorder and pressure test casing to 560psi. Circulate well clean.
9. **Plug #2 2597'-3050' (Ojo Alamo Top: 2647', Kirtland Top: 3000')** RIH to 3050'. Mix & spot 14 sx of Class G neat cement. PU 100' above plug and reverse circulate tubing clean.
 - a. **If casing did not pressure test,** WOC, tag and record TOC.
10. TOOH and LD tubing.
11. RU wireline and perforate at 185'. Establish injection rate and pressure into holes. Notify engineer of rate and pressure. Rig down wireline.
12. **Plug #3, 185' – Surface (Surface & Casing Shoe): Bullhead cement from 185' to surface.** Pump 69 sx Class G neat cement down casing and circulate out BH until good cement returns to surface. If unable to circulate, top off cement as necessary.
 - a. **If casing did not pressure test,** WOC and then spot TOC.
13. ND BOP and cut off wellhead below surface casing flange per regulation. Top off w/ cement if needed. Install P&A marker w/ cement to comply w/ regulations. RD, MOL and cut off anchors. Restore location per BLM stipulations.

CONTACTS:

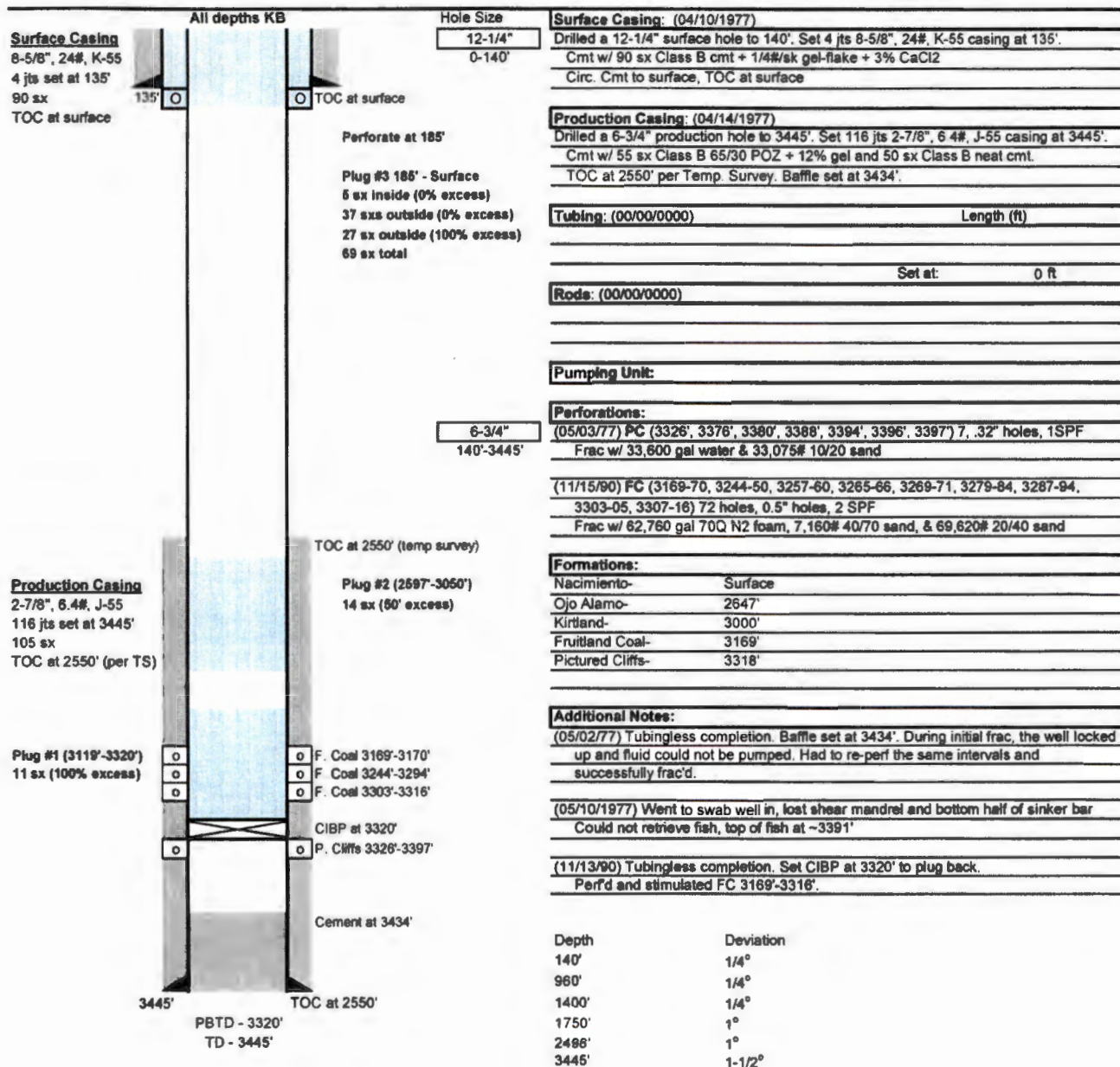
Catlain Richardson – Production Engineer	Ray Granillo- Aztec Well Service
Cell (505) 320-3499	Cell (505) 419-6758
Krista McWilliams – Engineering Manager	Basin Well Logging
Cell (505) 419-1627	(505) 327-5244
Duane Bixler – Workover Rig Supervisor	Big Red Tool
Cell (505) 635-1663	(505) 325-5045
Eugene Burbank- Production Foreman	Cave Enterprises
Cell (505) 320-9082	(505) 325-3401
Jason Meechan – Area Lead	
Cell (505) 486-2612	



Wellbore Schematic

Well Name: Jicarilla 123 C #024
Location: Sec 07, T25N, R04W 1630' FNL & 1525' FEL
County: Rio Arriba
API #: 30-039-21298
Co-ordinates: Lat 36.41695 Long -107.26852
Elevations: GROUND: 6946'
KB: 6958'
PBDT: 3320'
TD: 3445'

Date Prepared: 4/27/2017
Last Updated: 10/21/2019 Dickens
Spud Date: 4/9/1977
Completion Date: 6/14/1977
Last Workover Date: 11/13/1990





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 Completion Date: 6/14/1977
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Surface Casing

8-5/8", 24#, K-55
 4 jts set at 135'
 90 sx
 TOC at surface



Hole Size

12-1/4"
 0-140'

TOC at surface (circ)

Surface Casing: (04/10/1977)

Drilled a 12-1/4" surface hole to 140'. Set 4 jts 8-5/8", 24#, K-55 casing at 135'.
 Cmt w/ 90 sx Class B cmt + 1/4#/sk gel-flake + 3% CaCl2
 Circ. Cmt to surface, TOC at surface

Production Casing: (04/14/1977)

Drilled a 6-3/4" production hole to 3445'. Set 116 jts 2-7/8", 6.4#, J-55 casing at 3445'.
 Cmt w/ 55 sx Class B 65/30 POZ + 12% gel and 50 sx Class B neat cmt.
 TOC at 2550' per Temp. Survey. Baffle set at 3434'.

Tubing: Length (ft)

Set at: 0 ft

Rods:

Pumping Unit:

Perforations:

(05/03/77) PC (3326', 3376', 3380', 3388', 3394', 3396', 3397') 7, .32" holes, 1SPF
 Frac w/ 33,600 gal water & 33,075# 10/20 sand

(11/15/90) FC (3169-70, 3244-50, 3257-60, 3265-66, 3269-71, 3279-84, 3287-94,
 3303-05, 3307-16) 72 holes, 0.5" holes, 2 SPF
 Frac w/ 62,760 gal 70Q N2 foam, 7,160# 40/70 sand, & 69,620# 20/40 sand

Formations:

Nacimiento-	Surface
Ojo Alamo-	2647'
Kirtland-	3000'
Fruitland Coal-	3169'
Pictured Cliffs-	3318'

Additional Notes:

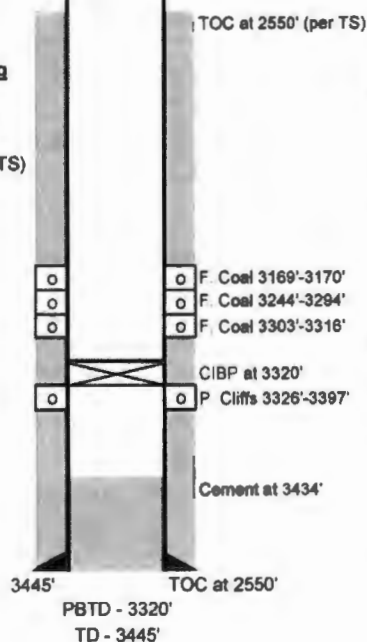
(05/02/77) Tubingless completion. Baffle set at 3434'. During initial frac, the well locked up and fluid could not be pumped. Had to re-perf the same intervals and successfully frac'd.

(05/10/1977) Went to swab well in, lost shear mandrel and bottom half of sinker bar. Could not retrieve fish, top of fish at ~3391'.

(11/13/90) Tubingless completion. Set CIBP at 3320' to plug back.
 Perfd and stimulated FC 3169'-3316'.

Production Casing

2-7/8", 6.4#, J-55
 116 jts set at 3445'
 105 sx
 TOC at 2550' (per TS)



Depth	Deviation
140'	1/4°
960'	1/4°
1400'	1/4°
1750'	1°
2498'	1°
3445'	1-1/2°

BLM FLUID MINERALS Geologic Report

12/6/2019

Date Completed: ~~10/8/19~~

Well No.	Jicarilla 123 C # 24	Location	1630'	FNL &	1525'	FEL
Lease No.	JIC 123	Sec. 7	T25N			R4W
Operator	Logos Resources II	County	Rio Arriba	State		New Mexico
Total Depth	3445'	PBTD 3220'	Formation	Pictured Cliffs/Fruitland Coal		
Elevation (GL)	6946'		Elevation (KB)	6959' (est.)		

Geologic Formations	Est. Top	Est. Bottom	Log Top	Log Bottom	Remarks
San Jose Fm			Surface	1970'	Surface/Fresh water sands
Nacimiento Fm			1970'	2647'	Fresh water sands
Ojo Alamo Ss			2647'	3000'	Aquifer (fresh water)
Kirtland Shale			3000'	3240'	
Fruitland Fm			3240'	3318'	Coal/Gas/Possible water
Pictured Cliffs Ss			3318'		Gas
Lewis Shale					
Chacra					Probable water or dry
Cliff House Ss					Water/Possible gas
Menefee Fm					Coal/Ss/Water/Possible O&G
Point Lookout Ss					Probable water/Possible O&G
Mancos Shale					
Gallup					O&G/Water
Graneros Shale					
Dakota Ss					O&G/Water

Remarks:

P & A

- Log analysis of reference well #2 (attached worksheet) indicates the Ojo Alamo and San Jose Formations contain fresh water ($\leq 5,000$ ppm TDS). The Nacimiento formation contains useable water ($\leq 10,000$ ppm TDS).

- Please ensure that the tops of the Pictured Cliffs and Fruitland formations, as well as the entire Ojo Alamo aquifer, identified in this report, are isolated by proper placement of cement plugs. This will protect the fresh water sands in this well bore.

Reference Well:

1) Logos Fm. Tops
Same

2) DJR Operating LLC Water
Jicarilla Apache F # 10 Analysis
1190' FNL, 1980' FWL
Sec 16, T25N, R5W
GL 6704', KB 6717'

Prepared by: Walter Gage *WAG*

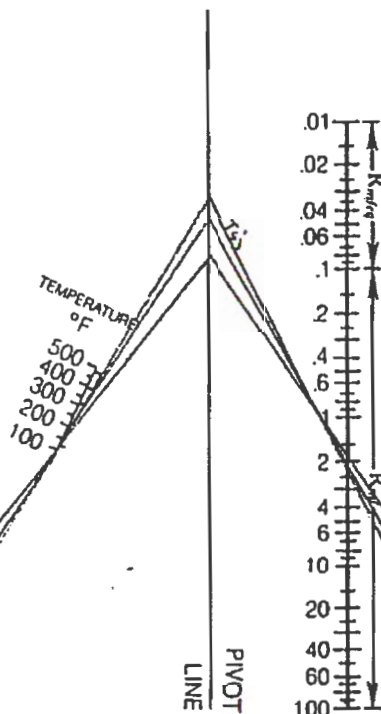
$R_{mf} = 3.0 @ 52^\circ$

DJR Operating LLC
~~Amerada Pet. Corp.~~
 Jic. Ap. #F-10
 1190' FNL, 1980' FWL
 Sec. 16 -25N-5W
 GL 6704' KB 6717'

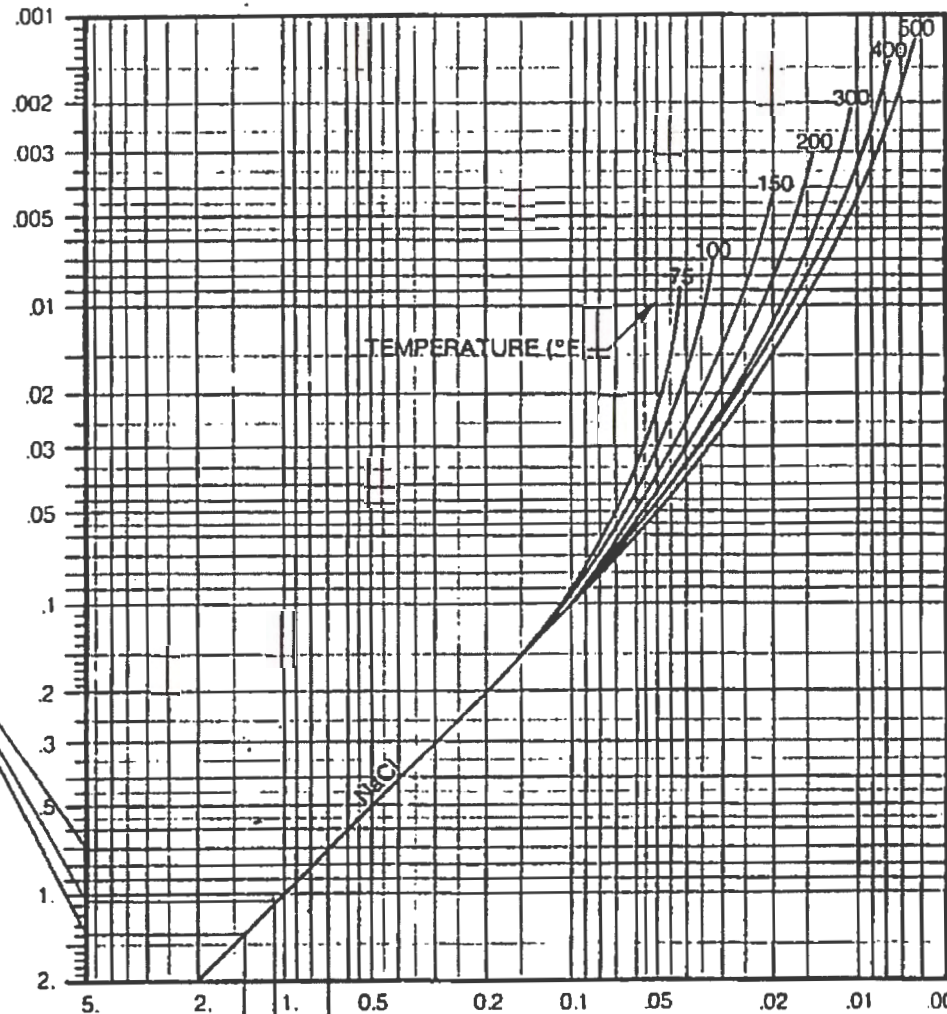
R_{weq} or $R_{mf/eq}$ at T_f (ohm-m)

STATIC SP
(mV)

-200
-180
-160
-140
-120
-100
-80
-60
-40
-20
0
+20
+40



0.01
0.02
0.04
0.06
0.1
0.2
0.4
0.6
1
2
4
6
10
20
40
60
100



R_w or R_{mf} at T_f (ohm-m)

T_s
1.4

T_n T_{oa}
1.1 .7

	T_{oa}	T_n	T_s
FORMATION			
DEPTH (BH)	7430'	7430'	7430'
T (BH)	154°	154°	154°
GEO. GRADIENT	1.2	1.2	1.2
DEPTH (F)	2367' 2278'-2478'	1512' 1458'-1546'	833' 501'-896'
T (F)	90°	80°	72°
$R_{mf} @ T(F)$	1.85	2.1	2.3
$R_m @ T(F)$			
$R(s)$			
SP			
$R(s)/R_m$	-34mv	-24mv	-18mv
h			
SSP			
$R_w @ T(F)$.7	1.1	1.4
$R_w @ 77^\circ F$			
R_w (corr)	.9	1.2	1.3
TDS	$\approx 870 ppm$	$\approx 960 ppm$	$\approx 6,600 ppm$

**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: Jicarilla 123 C 24

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. Farmington Office is to be notified at least 24 hours before the plugging operations commence (505) 564-7750.
3. Submit electronic copy of the log for verification to the following addresses: jkillins@blm.gov, jhoffman@blm.gov and Brandon.Powell@state.nm.us . Based on CBL results inside/outside plugs and volumes will be adjusted accordingly. Please review the General Requirements document to ensure volumes meet required excess inside and outside casing.
4. BLM Nacimiento top picked at 1970' md. Add an additional plug (1920 - 1820) and required excess.

**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.