

District I  
1625 N. French Dr., Hobbs, NM 88240  
District II  
811 S. First St., Artesia, NM 88210  
District III  
1000 Rio Brazos Road, Aztec, NM 87410  
District IV  
1220 S. St. Francis Dr., Santa Fe, NM 87505

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

Form C-144  
Revised June 6, 2013

For temporary pits, below-grade tanks, and multi-well fluid management pits, submit to the appropriate NMOCD District Office.  
For permanent pits submit to the Santa Fe Environmental Bureau office and provide a copy to the appropriate NMOCD District Office.

Pit, Below-Grade Tank, or  
Proposed Alternative Method Permit or Closure Plan Application

11401

- Type of action:
- Below grade tank registration
  - Permit of a pit or proposed alternative method
  - Closure of a pit, below-grade tank, or proposed alternative method
  - Modification to an existing permit/or registration
  - Closure plan only submitted for an existing permitted or non-permitted pit, below-grade tank, or proposed alternative method

**Instructions: Please submit one application (Form C-144) per individual pit, below-grade tank or alternative request**

Please be advised that approval of this request does not relieve the operator of liability should operations result in pollution of surface water, ground water or the environment. Nor does approval relieve the operator of its responsibility to comply with any other applicable governmental authority's rules, regulations or ordinances.

1.  
Operator: Logos Operating, LLC. OGRID #: 289408  
Address: 4001 North Butler Ave, Building 7101, Farmington, NM 87401  
Facility or well name: Jicarilla O 3E  
API Number: 30-043-21165 OCD Permit Number: \_\_\_\_\_  
U/L or Qtr/Qtr O Section 10 Township 22N Range 03W County: Sandoval  
Center of Proposed Design: Latitude 36.14648°N Longitude 107.14091°W NAD:  1927  1983  
Surface Owner:  Federal  State  Private  Tribal Trust or Indian Allotment

2.  
 **Pit:** Subsection F, G or J of 19.15.17.11 NMAC  
Temporary:  Drilling  Workover  
 Permanent  Emergency  Cavitation  P&A  Multi-Well Fluid Management Low Chloride Drilling Fluid  yes  no  
 Lined  Unlined Liner type: Thickness 20 mil  LLDPE  HDPE  PVC  Other \_\_\_\_\_  
 String-Reinforced  
Liner Seams:  Welded  Factory  Other \_\_\_\_\_ Volume: 8,000 bbl Dimensions: L 130' x W 60' x D 10'

RCVD SEP 11 '13  
OIL CONS. DIV.  
DIST. 3

3.  
 **Below-grade tank:** Subsection I of 19.15.17.11 NMAC  
Volume: \_\_\_\_\_ bbl Typ \_\_\_\_\_  
Tank Construction material: \_\_\_\_\_  
 Secondary containment with leak detection  
 Visible sidewalls and liner  Visible sidewalls only  Other \_\_\_\_\_  
Liner type: Thickness \_\_\_\_\_ mil  HDPE  PVC  Other \_\_\_\_\_

**DENIED**  
Due to being within 160ft of water course.  
BY: Jonathan Kelly  
DATE: 9/16/2013 (505) 334-6178 Ext. 122  
0-inch lift and automatic overflow shut-off

4.  
 **Alternative Method:**  
Submittal of an exception request is required. Exceptions must be submitted to the Santa Fe Environmental Bureau office for consideration of approval.

5.  
**Fencing:** Subsection D of 19.15.17.11 NMAC (Applies to permanent pits, temporary pits, and below-grade tanks)  
 Chain link, six feet in height, two strands of barbed wire at top (Required if located within 1000 feet of a permanent residence, school, hospital, institution or church)  
 Four foot height, four strands of barbed wire evenly spaced between one and four feet  
 Alternate. Please specify: 4' hog wire with one strand of barbed wire on top

6.

**Netting:** Subsection E of 19.15.17.11 NMAC (*Applies to permanent pits and permanent open top tanks*)

- Screen  Netting  Other \_\_\_\_\_
- Monthly inspections (If netting or screening is not physically feasible)

7.

**Signs:** Subsection C of 19.15.17.11 NMAC

- 12"x 24", 2" lettering, providing Operator's name, site location, and emergency telephone numbers
- Signed in compliance with 19.15.16.8 NMAC

8.

**Variations and Exceptions:**

Justifications and/or demonstrations of equivalency are required. Please refer to 19.15.17 NMAC for guidance.

**Please check a box if one or more of the following is requested, if not leave blank:**

- Variance(s): Requests must be submitted to the appropriate division district for consideration of approval.
- Exception(s): Requests must be submitted to the Santa Fe Environmental Bureau office for consideration of approval.

9.

**Siting Criteria (regarding permitting):** 19.15.17.10 NMAC

**Instructions:** The applicant must demonstrate compliance for each siting criteria below in the application. Recommendations of acceptable source material are provided below. Siting criteria does not apply to drying pads or above-grade tanks.

**General siting**

**Ground water is less than 25 feet below the bottom of a low chloride temporary pit or below-grade tank.**

- NM Office of the State Engineer - iWATERS database search;  USGS;  Data obtained from nearby wells

- Yes  No
- NA

**Ground water is less than 50 feet below the bottom of a Temporary pit, permanent pit, or Multi-Well Fluid Management pit.**

- NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells

- Yes  No
- NA

Within incorporated municipal boundaries or within a defined municipal fresh water well field covered under a municipal ordinance adopted pursuant to NMSA 1978, Section 3-27-3, as amended. **(Does not apply to below grade tanks)**

- Written confirmation or verification from the municipality; Written approval obtained from the municipality

- Yes  No

Within the area overlying a subsurface mine. **(Does not apply to below grade tanks)**

- Written confirmation or verification or map from the NM EMNRD-Mining and Mineral Division

- Yes  No

Within an unstable area. **(Does not apply to below grade tanks)**

- Engineering measures incorporated into the design; NM Bureau of Geology & Mineral Resources; USGS; NM Geological Society; Topographic map

- Yes  No

Within a 100-year floodplain. **(Does not apply to below grade tanks)**

- FEMA map

- Yes  No

**Below Grade Tanks**

Within 100 feet of a continuously flowing watercourse, significant watercourse, lake bed, sinkhole, wetland or playa lake (measured from the ordinary high-water mark).

- Topographic map; Visual inspection (certification) of the proposed site

- Yes  No

Within 200 horizontal feet of a spring or a fresh water well used for public or livestock consumption;

- NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site

- Yes  No

**Temporary Pit using Low Chloride Drilling Fluid** (maximum chloride content 15,000 mg/liter)

Within 100 feet of a continuously flowing watercourse, or any other significant watercourse or within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark). (Applies to low chloride temporary pits.)

- Topographic map; Visual inspection (certification) of the proposed site

- Yes  No

Within 300 feet from a occupied permanent residence, school, hospital, institution, or church in existence at the time of initial application.

- Visual inspection (certification) of the proposed site; Aerial photo; Satellite image

- Yes  No

Within 200 horizontal feet of a spring or a private, domestic fresh water well used by less than five households for domestic or stock watering purposes, or 300feet of any other fresh water well or spring, in existence at the time of the initial application.

- NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site

- Yes  No

Within 100 feet of a wetland.

- US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site

Yes  No

**Temporary Pit Non-low chloride drilling fluid**

Within 300 feet of a continuously flowing watercourse, or any other significant watercourse, or within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark).

- Topographic map; Visual inspection (certification) of the proposed site

Yes  No

Within 300 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application.

- Visual inspection (certification) of the proposed site; Aerial photo; Satellite image

Yes  No

Within 500 horizontal feet of a spring or a private, domestic fresh water well used by less than five households for domestic or stock watering purposes, or 1000 feet of any other fresh water well or spring, in the existence at the time of the initial application;

- NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site

Yes  No

Within 300 feet of a wetland.

- US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site

Yes  No

**Permanent Pit or Multi-Well Fluid Management Pit**

Within 300 feet of a continuously flowing watercourse, or 200 feet of any other significant watercourse, or lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark).

- Topographic map; Visual inspection (certification) of the proposed site

Yes  No

Within 1000 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application.

- Visual inspection (certification) of the proposed site; Aerial photo; Satellite image

Yes  No

Within 500 horizontal feet of a spring or a fresh water well used for domestic or stock watering purposes, in existence at the time of initial application.

- NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site

Yes  No

Within 500 feet of a wetland.

- US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site

Yes  No

10.

**Temporary Pits, Emergency Pits, and Below-grade Tanks Permit Application Attachment Checklist:** Subsection B of 19.15.17.9 NMAC

**Instructions:** Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the documents are attached.

- Hydrogeologic Report (Below-grade Tanks) - based upon the requirements of Paragraph (4) of Subsection B of 19.15.17.9 NMAC
- Hydrogeologic Data (Temporary and Emergency Pits) - based upon the requirements of Paragraph (2) of Subsection B of 19.15.17.9 NMAC
- Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC
- Design Plan - based upon the appropriate requirements of 19.15.17.11 NMAC
- Operating and Maintenance Plan - based upon the appropriate requirements of 19.15.17.12 NMAC
- Closure Plan (Please complete Boxes 14 through 18, if applicable) - based upon the appropriate requirements of Subsection C of 19.15.17.9 NMAC and 19.15.17.13 NMAC

Previously Approved Design (attach copy of design) API Number: \_\_\_\_\_ or Permit Number: \_\_\_\_\_

11.

**Multi-Well Fluid Management Pit Checklist:** Subsection B of 19.15.17.9 NMAC

**Instructions:** Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the documents are attached.

- Design Plan - based upon the appropriate requirements of 19.15.17.11 NMAC
- Operating and Maintenance Plan - based upon the appropriate requirements of 19.15.17.12 NMAC
- A List of wells with approved application for permit to drill associated with the pit.
- Closure Plan (Please complete Boxes 14 through 18, if applicable) - based upon the appropriate requirements of Subsection C of 19.15.17.9 NMAC and 19.15.17.13 NMAC
- Hydrogeologic Data - based upon the requirements of Paragraph (4) of Subsection B of 19.15.17.9 NMAC
- Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC

Previously Approved Design (attach copy of design) API Number: \_\_\_\_\_ or Permit Number: \_\_\_\_\_

12.

**Permanent Pits Permit Application Checklist:** Subsection B of 19.15.17.9 NMAC

**Instructions:** Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the documents are attached.

- Hydrogeologic Report - based upon the requirements of Paragraph (1) of Subsection B of 19.15.17.9 NMAC
- Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC
- Climatological Factors Assessment
- Certified Engineering Design Plans - based upon the appropriate requirements of 19.15.17.11 NMAC
- Dike Protection and Structural Integrity Design - based upon the appropriate requirements of 19.15.17.11 NMAC
- Leak Detection Design - based upon the appropriate requirements of 19.15.17.11 NMAC
- Liner Specifications and Compatibility Assessment - based upon the appropriate requirements of 19.15.17.11 NMAC
- Quality Control/Quality Assurance Construction and Installation Plan
- Operating and Maintenance Plan - based upon the appropriate requirements of 19.15.17.12 NMAC
- Freeboard and Overtopping Prevention Plan - based upon the appropriate requirements of 19.15.17.11 NMAC
- Nuisance or Hazardous Odors, including H<sub>2</sub>S, Prevention Plan
- Emergency Response Plan
- Oil Field Waste Stream Characterization
- Monitoring and Inspection Plan
- Erosion Control Plan
- Closure Plan - based upon the appropriate requirements of Subsection C of 19.15.17.9 NMAC and 19.15.17.13 NMAC

13.

**Proposed Closure:** 19.15.17.13 NMAC

**Instructions:** Please complete the applicable boxes, Boxes 14 through 18, in regards to the proposed closure plan.

- Type:  Drilling  Workover  Emergency  Cavitation  P&A  Permanent Pit  Below-grade Tank  Multi-well Fluid Management Pit  
 Alternative
- Proposed Closure Method:  Waste Excavation and Removal  
 Waste Removal (Closed-loop systems only)  
 On-site Closure Method (Only for temporary pits and closed-loop systems)  
 In-place Burial  On-site Trench Burial  
 Alternative Closure Method

14.

**Waste Excavation and Removal Closure Plan Checklist:** (19.15.17.13 NMAC) **Instructions:** Each of the following items must be attached to the closure plan. Please indicate, by a check mark in the box, that the documents are attached.

- Protocols and Procedures - based upon the appropriate requirements of 19.15.17.13 NMAC
- Confirmation Sampling Plan (if applicable) - based upon the appropriate requirements of Subsection C of 19.15.17.13 NMAC
- Disposal Facility Name and Permit Number (for liquids, drilling fluids and drill cuttings)
- Soil Backfill and Cover Design Specifications - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC
- Re-vegetation Plan - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC
- Site Reclamation Plan - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC

15.

**Siting Criteria (regarding on-site closure methods only):** 19.15.17.10 NMAC

**Instructions:** Each siting criteria requires a demonstration of compliance in the closure plan. Recommendations of acceptable source material are provided below. Requests regarding changes to certain siting criteria require justifications and/or demonstrations of equivalency. Please refer to 19.15.17.10 NMAC for guidance.

Ground water is less than 25 feet below the bottom of the buried waste. - NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA
Ground water is between 25-50 feet below the bottom of the buried waste - NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA
Ground water is more than 100 feet below the bottom of the buried waste. - NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA
Within 100 feet of a continuously flowing watercourse, or 200 feet of any other significant watercourse, lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark). - Topographic map; Visual inspection (certification) of the proposed site	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Within 300 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application. - Visual inspection (certification) of the proposed site; Aerial photo; Satellite image	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Within 300 horizontal feet of a private, domestic fresh water well or spring used for domestic or stock watering purposes, in existence at the time of initial application. - NM Office of the State Engineer - iWATERS database; Visual inspection (certification) of the proposed site	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Written confirmation or verification from the municipality; Written approval obtained from the municipality	<input type="checkbox"/> Yes <input type="checkbox"/> No
Within 300 feet of a wetland. US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Within incorporated municipal boundaries or within a defined municipal fresh water well field covered under a municipal ordinance	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

adopted pursuant to NMSA 1978, Section 3-27-3, as amended.

- Written confirmation or verification from the municipality; Written approval obtained from the municipality

Yes  No

Within the area overlying a subsurface mine.

- Written confirmation or verification or map from the NM EMNRD-Mining and Mineral Division

Yes  No

Within an unstable area.

- Engineering measures incorporated into the design; NM Bureau of Geology & Mineral Resources; USGS; NM Geological Society; Topographic map

Yes  No

Within a 100-year floodplain.

- FEMA map

Yes  No

16. **On-Site Closure Plan Checklist:** (19.15.17.13 NMAC) *Instructions: Each of the following items must be attached to the closure plan. Please indicate, by a check mark in the box, that the documents are attached.*

- Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC
- Proof of Surface Owner Notice - based upon the appropriate requirements of Subsection E of 19.15.17.13 NMAC
- Construction/Design Plan of Burial Trench (if applicable) based upon the appropriate requirements of Subsection K of 19.15.17.11 NMAC
- Construction/Design Plan of Temporary Pit (for in-place burial of a drying pad) - based upon the appropriate requirements of 19.15.17.11 NMAC
- Protocols and Procedures - based upon the appropriate requirements of 19.15.17.13 NMAC
- Confirmation Sampling Plan (if applicable) - based upon the appropriate requirements of 19.15.17.13 NMAC
- Waste Material Sampling Plan - based upon the appropriate requirements of 19.15.17.13 NMAC
- Disposal Facility Name and Permit Number (for liquids, drilling fluids and drill cuttings or in case on-site closure standards cannot be achieved)
- Soil Cover Design - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC
- Re-vegetation Plan - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC
- Site Reclamation Plan - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC

17. **Operator Application Certification:**

I hereby certify that the information submitted with this application is true, accurate and complete to the best of my knowledge and belief.

Name (Print): Tamra Sessions Title: Operations Technician

Signature:  Date: 9-9-13

e-mail address: tsessions@logosresourcesllc.com Telephone: 505-330-9333

18. **OCD Approval:**  Permit Apply

**DENIED**

ly)  OCD Conditions (see attachment)

OCD Representative Signature: \_\_\_\_\_ Approval Date: \_\_\_\_\_

Title: \_\_\_\_\_ D Permit Number: \_\_\_\_\_

19. **Closure Report (required within 60 days of closure completion):** 19.15.17.13 NMAC

*Instructions: Operators are required to obtain an approved closure plan prior to implementing any closure activities and submitting the closure report. The closure report is required to be submitted to the division within 60 days of the completion of the closure activities. Please do not complete this section of the form until an approved closure plan has been obtained and the closure activities have been completed.*

Closure Completion Date: \_\_\_\_\_

20. **Closure Method:**

- Waste Excavation and Removal  On-Site Closure Method  Alternative Closure Method  Waste Removal (Closed-loop systems only)
- If different from approved plan, please explain.

21. **Closure Report Attachment Checklist:** *Instructions: Each of the following items must be attached to the closure report. Please indicate, by a check mark in the box, that the documents are attached.*

- Proof of Closure Notice (surface owner and division)
- Proof of Deed Notice (required for on-site closure for private land only)
- Plot Plan (for on-site closures and temporary pits)
- Confirmation Sampling Analytical Results (if applicable)
- Waste Material Sampling Analytical Results (required for on-site closure)
- Disposal Facility Name and Permit Number
- Soil Backfilling and Cover Installation
- Re-vegetation Application Rates and Seeding Technique
- Site Reclamation (Photo Documentation)

On-site Closure Location: Latitude \_\_\_\_\_ Longitude \_\_\_\_\_ NAD:  1927  1983

22.

**Operator Closure Certification:**

I hereby certify that the information and attachments submitted with this closure report is true, accurate and complete to the best of my knowledge and belief. I also certify that the closure complies with all applicable closure requirements and conditions specified in the approved closure plan.

Name (Print): \_\_\_\_\_ Title: \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

e-mail address: \_\_\_\_\_ Telephone: \_\_\_\_\_



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*New Mexico Office of the State Engineer*  
**Water Column/Average Depth to Water**

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No records found.

**PLSS Search:**

**Section(s):** 4-14

**Township:** 22N

**Range:** 03W

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The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.

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7/30/13 8:43 AM

Page 1 of 1

WATER COLUMN/ AVERAGE  
DEPTH TO WATER



# New Mexico Office of the State Engineer

## Water Column/Average Depth to Water

(A CLW##### in the POD suffix indicates the POD has been replaced & no longer serves a water right file.)

(R=POD has been replaced, O=orphaned, C=the file is closed)

(quarters are 1=NW 2=NE 3=SW 4=SE)  
(quarters are smallest to largest)

(NAD83 UTM in meters) (In feet)

POD Number	POD Sub-Code	basin	County	Q Q Q	64 16 4	Sec	Tws	Rng	X	Y	Depth Well	Depth Water	Water Column
SJ 00403			SA		3	2	2	15	23N	03W		1403	

Average Depth to Water: --

Minimum Depth: --

Maximum Depth: --

**Record Count: 1**

**PLSS Search:**

**Township: 23N**

**Range: 03W**

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.



# New Mexico Office of the State Engineer

## Point of Diversion Summary

(quarters are 1=NW 2=NE 3=SW 4=SE)

(quarters are smallest to largest)

(NAD83 UTM in meters)

**POD Number**

**Q64 Q16 Q4 Sec Tws Rng**

**X**

**Y**

SJ 00403

3 2 2 15 23N 03W

**Driller License:** MANESS, INC.

**Driller Name:** J.W. MANESS

**Drill Start Date:**

**Drill Finish Date:** 12/07/1977

**Plug Date:**

**Log File Date:**

**PCW Rcv Date:** 02/01/1982

**Source:** Artesian

**Pump Type:** SUBMER

**Pipe Discharge Size:** 2

**Estimated Yield:**

**Casing Size:** 6.63

**Depth Well:** 1403 feet

**Depth Water:**

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.



# New Mexico Office of the State Engineer

## Water Column/Average Depth to Water

(A CLW##### in the POD suffix indicates the POD has been replaced & no longer serves a water right file.)

(R=POD has been replaced, O=orphaned, C=the file is closed)

(quarters are 1=NW 2=NE 3=SW 4=SE)

(quarters are smallest to largest) (NAD83 UTM in meters)

(In feet)

POD Number	POD Sub-Code	basin	County	Q	Q	Q	Sec	Tws	Rng	X	Y	Depth Well	Depth Water	Water Column
SJ 00809			SA	2	3	09	22N	04W				322	145	177

Average Depth to Water: **145 feet**

Minimum Depth: **145 feet**

Maximum Depth: **145 feet**

**Record Count: 1**

**PLSS Search:**

**Township: 22N**

**Range: 04W**

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.



# New Mexico Office of the State Engineer

## Point of Diversion Summary

(quarters are 1=NW 2=NE 3=SW 4=SE)

(quarters are smallest to largest)

(NAD83 UTM in meters)

**POD Number**

SJ 00809

**Q64 Q16 Q4 Sec Tws Rng**

2 3 09 22N 04W

**X**

**Y**

**Driller License:** NEW MEXICO STATE HIGHWAY DEPT.

**Driller Name:**

**Drill Start Date:** 11/28/1978

**Drill Finish Date:** 04/19/1979

**Plug Date:**

**Log File Date:** 05/15/1979

**PCW Rcv Date:**

**Source:** Shallow

**Pump Type:**

**Pipe Discharge Size:**

**Estimated Yield:**

**Casing Size:** 6.75

**Depth Well:** 322 feet

**Depth Water:** 145 feet

**Water Bearing Stratifications:**

**Top Bottom Description**

145 300 Sandstone/Gravel/Conglomerate

**Casing Perforations:**

**Top Bottom**

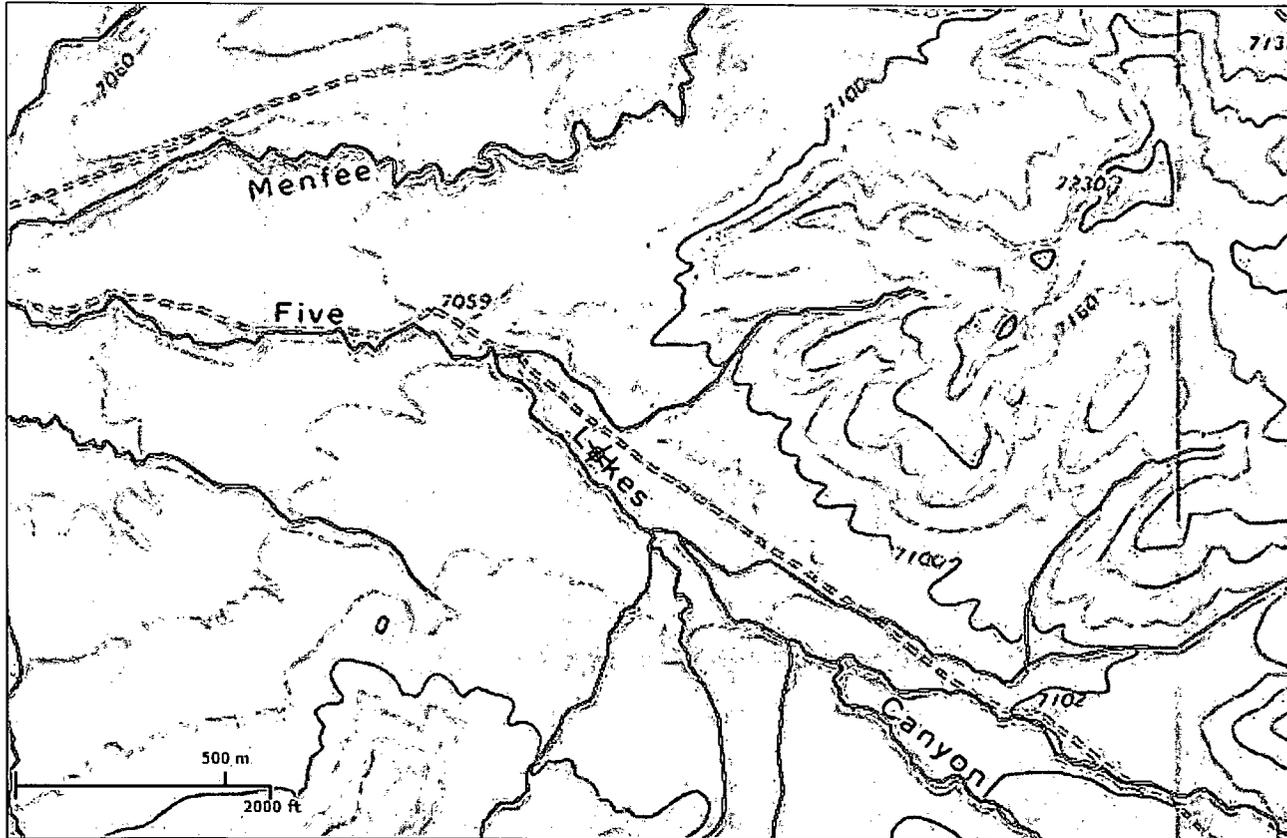
264 322



U.S. Fish and Wildlife Service  
**National Wetlands Inventory**

Jicarilla O 3E

Jul 30, 2013



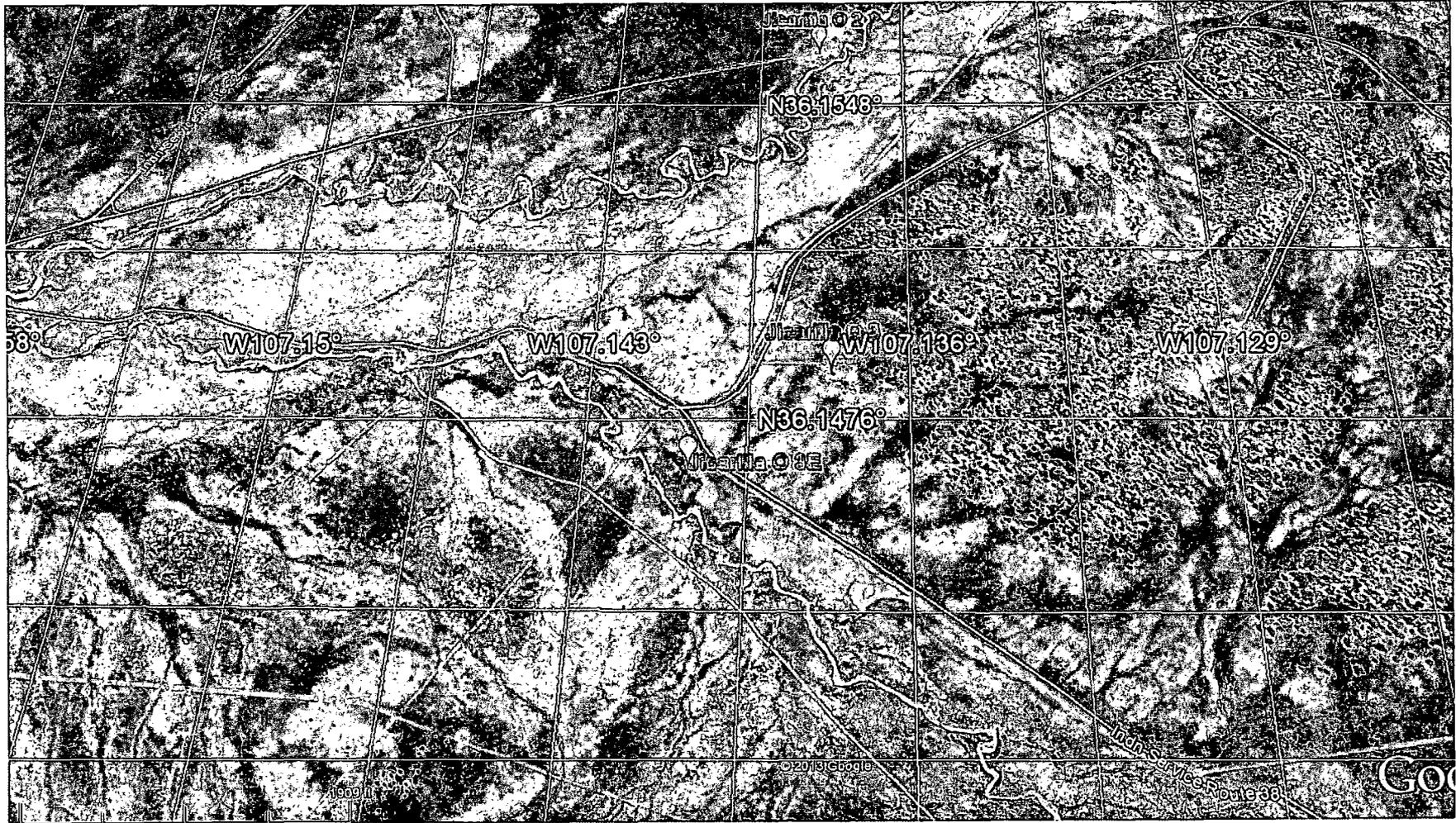
**Wetlands**

- Freshwater Emergent
- Freshwater Forested/Shrub
- Estuarine and Marine Deepwater
- Estuarine and Marine
- Freshwater Pond
- Lake
- Riverine
- Other

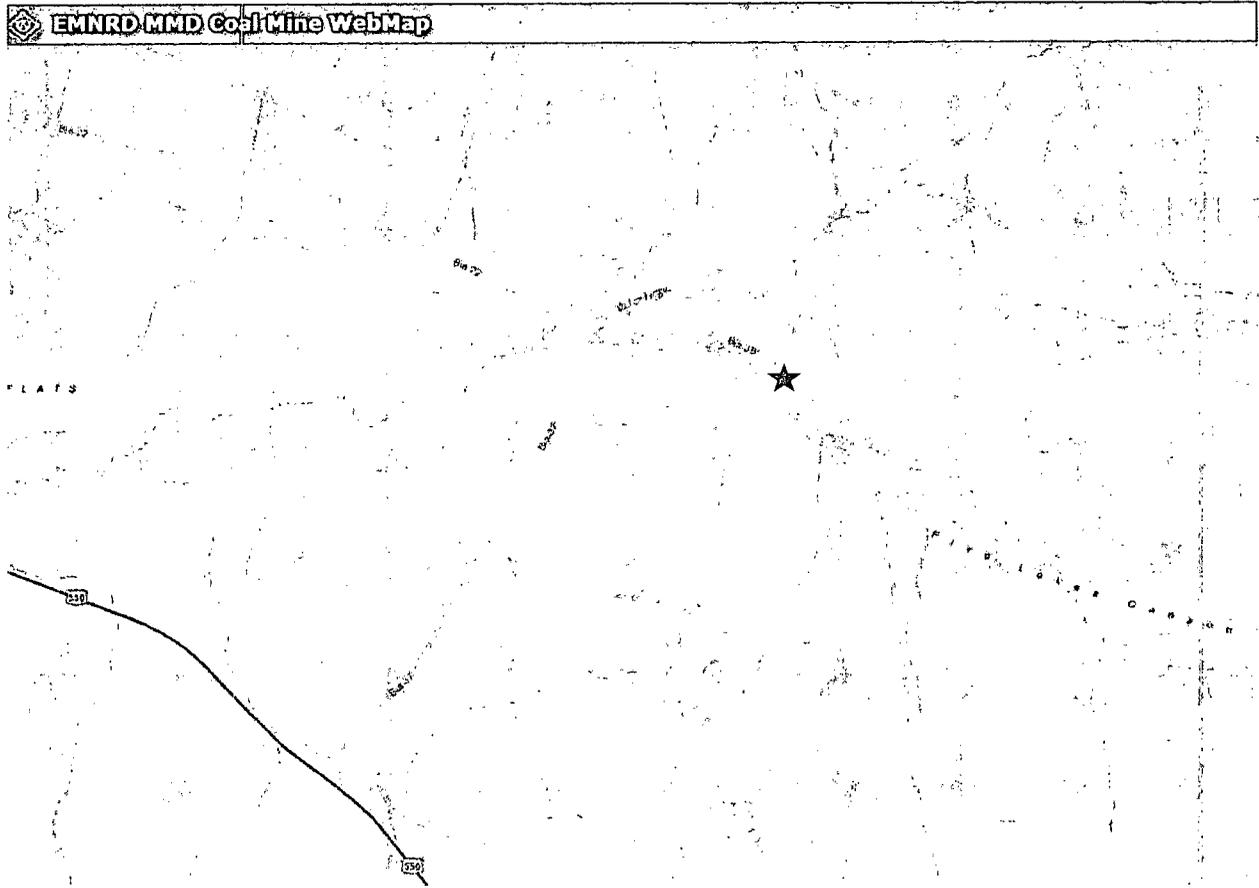
This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

**User Remarks:**

Unit Letter O, Section 10, T22N, R03W – No wetlands within 500' of drill sit



Mines, Mills & Quarries



Jicarilla O 3E - Latitude 3.14648° N / Longitude 107.14091° W (NAD83)

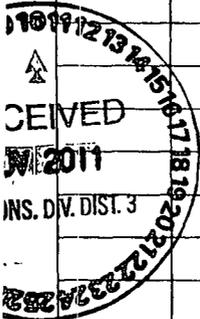
No mines, mills or quarries

# MO-TE DRILLING, INC.

DAY

DRILLER <u>Tim</u>		LEFT TOWN	ARRIVED FIELD
HELPER <u>Cameron</u>		LEFT FIELD	ARRIVED TOWN
HELPER		TOTAL FOOTAGE TODAY	
RIG NO. <u>209</u>	DATE <u>10/12/11</u>	CLIENT <u>Elm Ridge</u>	
BEGIN WORK ON HOLE NO. <u>Sharon Amigo's #10</u>	AT	FEET	
BEGIN WORK ON HOLE NO.	AT	FEET	

TIME		ACTIVITY
FROM	TO	
		Move to location, Rig-up. Drill 6 1/4" to 98', bridged off. <del>87'</del> Drilled out of hole. Ran water probe to 87', No water detected. THT. Drill 6 1/4" to 115', bridged off. Drilled out of hole. Ran water probe. water detected @ 115'. R.O.M.O. Filled in hole.
		0-115' - sand/sandstone.



BIT RECORD			
SIZE & MAKE	SERIAL NO	FOOTAGE	
		Water	1750'
		Survey tool	100'
		Tax	116'
		Total	1966'
CIRCULATION MATERIAL			
QUAN	UNIT	MATERIAL	

NO. OF LOADS OF WATER \_\_\_\_\_ SOURCE \_\_\_\_\_

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

(See other instructions on reverse side)

OMB NO 1004-0137  
Expires February 28, 1995

WELL COMPLETION OR RECOMPLETION REPORT AND LOG

RECEIVED

1a. TYPE OF WORK OIL WELL  GAS WELL  DRY  Other \_\_\_\_\_

1b. TYPE OF WELL NEW WELL  WORK OVER  DEEPEN  PLUG BACK  DIFF RESVR.  Other \_\_\_\_\_

DEC 21 2011

2 NAME OF OPERATOR Elm Ridge Exploration Co. LLC

Farmington Field Office  
Bureau of Land Management

5 LEASE DESIGNATION AND SERIAL NO BIA 360  
6 IF INDIAN, ALLOTTEE OR TRIBE NAME Jicarilla Apache  
7 UNIT AGREEMENT NAME

3 ADDRESS AND TELEPHONE NO

Po Box 156 Bloomfield NM 87413

8 FARM OR LEASE NAME, WELL NO

Chacon Amgios 10

30-043-21006-0051

4 LOCATION OF WELL (Report locations clearly and in accordance with any State requirements \*)

At Surface 675' FNL X 675' FWL

10 FIELD AND POOL OR WILDCAT

Lindirth Gallup Dakota West

At top prod. Interval reported below

At total depth

OR AREA

"D" Sec. 12-T22N-R3W

14 PERMIT NO \_\_\_\_\_ DATE ISSUED \_\_\_\_\_  
12 COUNTY OR PARISH Sandoval 13 STATE NM

15 DATE SPUNDED 11-2-11 16 DATE 1 D REACHED 11-16-11 17 DATE COMPL (Ready to prod) 12-21-11 18 ELEVATIONS (OF, RKB, RT, OR ETO) 7169' GL 19 ELEV CASING HEAD \_\_\_\_\_

20 TOTAL DEPTH, MD & TVD 7310' MD TVD 21 PLUG BACK T D, MD & TVD 7265' MD TVD 22 IF MULTIPLE COMPL. HOW MANY\* \_\_\_\_\_ 23 INTERVALS DRILLED BY \_\_\_\_\_ ROTARY TOOLS X CABLE TOOLS \_\_\_\_\_

24 PRODUCING INTERVAL(S), OF THIS COMPLETION--TOP, BOTTOM, NAME (MD AND TVD)\* (6799' - 6918') Dakota 25 WAS DIRECTIONAL SURVEY MADE

RCVD DEC 22 '11

26 TYPE ELECTRIC AND OTHER LOGS RUN Spectral Density, high Resolution Induction Log, CBL LOG 27 WAS WELL CORED OIL CONS. DIV.

23 CASING RECORD (Report all strings set in well)

CASING SIZE/GRADE	WEIGHT, LB/FT	DEPTH SET (MD)	HOLE SIZE	TOP OF CEMENT, CEMENTING RECORD	AMOUNT PULLED
8 5/8"	24# J55	378'	12 1/4"	260 sks	DIST. 3
5 1/2"	15.5# J55	7308'	7 7/8"	1120 sks	

29 LINER RECORD				30 TUBING RECORD		
SIZE	TOP (MD)	BOTTOM (MD)	SACKS CEMENT*	SCREEN (MD)	SIZE	DEPTH SET (MD)
					2 3/8"	6802'

31 PERFORATION RECORD (Interval, size and number)			32 ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.	
INTERVAL	SIZE	NUMBER	DEPTH INTERVAL (MD)	AMOUNT AND KIND OF MATERIAL USED
6799' - 6918'	.46	250	6799' - 6918'	ACID - 7000 gals of 7.5% MCA w/ Additives FRAC - 2843 gals MSCF N2. 47619 gal of 17CP Delta 140 followed by 127969 gal of 17CP 700 Delta Frac Fluid Followed by 1035 sks of 20/40 CRC sand.

33.\* PRODUCTION

DATE FIRST PRODUCTION	PRODUCTION METHOD (Flowing, gas lift, pumping--size and type of pump)	1. STATUS (Producing or shut in)					
12-10-11	Flowing	Producing					
DATE OF TEST	HOURS TESTED	CHOKE SIZE	PROD'N. FOR TEST PERIOD	OIL--BBL.	GAS--MCF.	WATER--BBL.	GAS-OIL RATIO
12-15-11	24	3/8"		94		94	
FLOW. TUBING PRESS	CASING PRESS	CALCULATE 24-HOUR RATE	OIL--BBL.	GAS--MCF.	WATER--BBL.	OIL GRAVITY-API (CORR)	
	50		94		94		

34. DISPOSITION OF GAS (Sold, used for fuel, vented, etc.) TEST WITNESSED BY \_\_\_\_\_

35. LIST OF ATTACHMENTS

ACCEPTED FOR RECORD

36 I hereby certify that the foregoing and attached information is complete and correct as determined from all available records

SIGNED \_\_\_\_\_ TITLE Administrative Manager

DATE 12/21/2011

FARMINGTON FIELD OFFICE

See for Additional Data on Reverse Side

Title 18 U.S.C. Section 1001 makes 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.

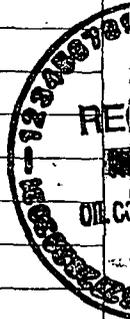
A NMOCD

# MO-TE DRILLING, INC.

DAY \_\_\_\_\_

DRILLER <u>Tim</u>	LEFT TOWN _____	ARRIVED FIELD _____
HELPER <u>Cameron</u>	LEFT FIELD _____	ARRIVED TOWN _____
HELPER _____	TOTAL FOOTAGE TODAY _____	
RIG NO <u>2129</u>	DATE <u>10/12/11</u>	CLIENT <u>Elm Ridge</u>
BEGIN WORK ON HOLE NO. <u>Chacon Amigos #9</u>	AT _____	FEET _____
BEGIN WORK ON HOLE NO. _____	AT _____	FEET _____

TIME		ACTIVITY
FROM	TO	
		Move to location, Rig-up. Drill 6 1/4" to 65', TOH. Wait 1 hr. Run water probe. Hit bridge @ 37'.
		TOH. Clean-out to 65', Run water probe. Hit bridge @ 18'. RDMO
		<u>No water detected.</u> Filled in hole.
		0-30' sand
		30-35' clay
		35-65' sand/sandstone.



BIT RECORD				
SIZE & MAKE	SERIAL NO	FOOTAGE		
		Water	1/2 day rig	1750''
			Survey tool	100''
			Tax	116''
			Total	1966''
CIRCULATION MATERIAL				
QUAN	UNIT	MATERIAL		

NO OF LOADS OF WATER \_\_\_\_\_ SOURCE \_\_\_\_\_

**RECEIVED**

OMB NO 1004-0137  
February 28, 1995

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

NOV 21 2011

PLEASE DESIGNATION AND SERIAL NO

BIA 360

**WELL COMPLETION OR RECOMPLETION REPORT AND LOG\***

6 IF INDIAN, ALLOTTEE OR TRIBE NAME

Jicarilla Apache

1a. TYPE OF WORK

OIL WELL

GAS WELL

1b. TYPE OF WELL

NEW WELL

WORK OVER

DEEPEN

PLUG BACK

DIFF RESVR

Other

2 NAME OF OPERATOR

Elm Ridge Exploration Co. LLC

7 UNIT AGREEMENT NAME

Chacon Amgios 9

8 FARM OR LEASE NAME, WELL NO

30-043-21005

3 ADDRESS AND TELEPHONE NO

Po Box 156 Bloomfield NM 87413

9 API WELL NO

10 FIELD AND POOL, OR WILDCAT

4 LOCATION OF WELL (Report locations clearly and in accordance with any State requirements \*)

At Surface

1615' FNL X 820' FEL

Lindrith Gallup Dakota West

At top prod. Interval reported below

At total depth

OR AREA

"H" Sec. 2-T22N-R3W

14 PERMIT NO

DATE ISSUED

11 COUNTY OR PARISH

13 STATE

Sandoval

NM

15 DATE SPUDDED

10-14-11

16 DATE T D REACHED

10-29-11

17 DATE COMPL. (Ready to prod.)

11-19-11

18 ELEVATIONS OF RKB, RT, GR, ETC\*

7138'

GL

19 ELEV CASING HEAD

20 TOTAL DEPTH, MD & TVD

7273'

21 PLUG BACK T D, MD & TVD

7216'

22 IF MULTIPLE COMPL., HOW MANY\*

1

23 INTERVALS

DRILLED BY

X

ROTARY TOOLS

CABLE TOOLS

24 PRODUCING INTERVAL(S), OF THIS COMPLETION--TOP, BOTTOM, NAME (MD AND TVD)\*

(6846' - 6959') Lindrith Gallup Dakota West

25 WAS DIRECTIONAL SURVEY MADE

26 TYPE ELECTRIC AND OTHER LOGS RUN

Spectral Density, high Resolution Induction Log, CBL LOG

27 WAS WELL CORED

23 CASING RECORD (Report all strings set in well)

CASING SIZE GRADE	WEIGHT, LB/FT	DEPTH SET (MD)	HOLE SIZE	TOP OF CEMENT, CEMENTING RECORD	AMOUNT USED
8 5/8"	24#	375' - 384'	12 1/4"	260 sks	
5 1/2"	15.5#	7267'	7 7/8"	1120 sks	

29 LINER RECORD

SIZE	TOP (MD)	BOTTOM (MD)	SACKS CEMENT*	SCREEN (MD)

30 TUBING RECORD

SIZE	DEPTH SET (MD)	PACKER SET (MD)
2 3/8"	6837'	

31 PERFORATION RECORD (Interval, size and number)

INTERVAL	SIZE	NUMBER
6846' - 6959'	.46	250

32 ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.

DEPTH INTERVAL (MD)	AMOUNT AND KIND OF MATERIAL USED
6846' - 6959'	ACID . 6000 gals of 7 1/2% MCA acid w/ double inhibitor. iron seq. flowback surfactant, clay stabilizer, and MUSOL FRAC . Pumped 8500 gals of N2 followed by 38368 gal of 17 CP 70Q Delta w/ BBC frac fluid. Pumped 1054 sks of 20/40 CRC w/ max BH concentration

33.\* PRODUCTION

DATE FIRST PRODUCTION	PRODUCTION METHOD (Flowing, gas lift, pumping--size and type of pump)	FL STATUS (Producing or shut in)
11-12-11	Flowing	producing

DATE OF TEST	HOURS TESTED	CHOKE SIZE	PROD'N. FLOW TEST PERIOD	OIL--BBL.	GAS--MCF.	WATER--BBL.	GAS-OIL RATIO
		3/4"		49d	532	212	

FLOW. TUBING PRESS	CASING PRESS	CALCULATE! 24-HOUR RATE	OIL--BBL.	GAS--MCF.	WATER--BBL.	OIL GRAVITY-API (CORR)
150	500					

34. DISPOSITION OF GAS (Sold, used for fuel, vented, etc.)

Vented

TEST WITNESSED BY

Monty Strigel

35. LIST OF ATTACHMENTS

36 I hereby certify that the foregoing and attached information is complete and correct as determined from all available records

SIGNED

TITLE

Administrative Manager

DATE

11/21/2011

ACCEPTED FOR RECORD

NOV 21 2011

See for Additional Data on Reverse Side

Take 10 U.S. Census (1001), makes 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.

NMOCD

FARMINGTON FIELD OFFICE

## ***Hydro geological report for Jicarilla O 3E***

### **Regional Hydro geological context:**

The Jicarilla O 3E is located on tribal land in Sandoval County, New Mexico. The proposed project area is located in a valley with a drainage directly south of the project in the Five Lakes Canyon area. The water drains west from this valley. A sandy loam serves as support for the project.

A records search of the NM Office of the State Engineer – iWATERS database indicates that the closest known water well is approximately 4.5 miles to the north, SJ00403 located in Section 15, T23N, R3W. The depth to ground water is unknown and the drilled depth is 1403'.

According to the U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS) Web Soil Survey the proposed action area overlies Elias-Canyada-Sparank fine sandy loam, 0 to 3 percent slope.

The Elias-Canyada-Sparank complex is composed of approximately 45 percent Elias and similar soils, 30 percent Canyada and similar soils, 20 percent Sparank and similar soils, and 2 percent Riverwash. The Elias series consists of deep, well drained, moderately slowly permeable soils that formed in alluvium materials derived from shale and sandstone in stream terraces and tread. The Canyada series consists of very deep, well drained soils that formed in alluvium derived from shale and sandstone on stream terraces and tread. The Sparank series consists of very deep, well drained soils that formed in clayey alluvium derived from shale and sandstone on stream terraces, alluvial fans, valley sides, and flood plains. Riverwash consists of areas of sandy, loamy, clayey, or gravelly sediment on flood plains, streambeds, and riverbeds and in arroyos.

### **FEMA Map – 100 year floodplain**

The FEMA map for the subject well is unavailable due to its location being on the reservation. FEMA does not provide floodplain information for Reservation Land.

### **Siting Criteria Compliance Demonstrations**

The Jicarilla O 3E is not located in an unstable area. The location is not over a mine and is not on the side of a hill. The location of the excavated pit material will not be located within 100' of any continuously flowing watercourse or 200' from any other watercourse.

**Logos Operating, LLC**  
**Jicarilla O 3E**  
**Temporary Reserve Pit Application**  
**Siting Criteria**

1. According to the iWaters Database from the State Engineers Office, the closest known water well is approximately 4.5 miles to the north, SJ00403 located in Section 15, T23N, R3W. The depth to ground water is unknown and the drilled depth is 1403'. A test water hole was drilled on the Chacon Amigos 10 to a depth of 115' and water was detected at 115'. This well is located 1.5 miles to the northeast in D – Sec 12 – T22N – R03W with ground elevation of 7169'. Another test water hole was drilled on the Chacon Amigos 9 to a depth of 65' and no water was detected. This well is located 1.8 miles to the northeast in H – Sec 12 – T22N – R03W with ground elevation of 7138'.
2. To meet the proof of ground water, Logos Operating will test for water depths at 65' and 115' prior to drilling operations with air drill. NMOCD will be provided the results to determine if the pit can be utilized. Changes if needed will be reported at that time and paperwork provided as necessary.
3. As shown on the attached topographic map and aerial photos, there are no continuously flowing watercourses within 100' of the well, or any significant watercourses, lakebeds, sinkholes or playa lakes within 200' of the well.
4. There are no permanent residences, schools, hospitals, institutions, or churches within 300' of the well.
5. There are no domestic water wells or springs within 200' of the well. See iWaters Database printout.
6. The well is not located within any municipal boundaries.
7. The well is not within 100' of any wetlands. See attached topographic map and aerial photos.
8. There are no subsurface mines in Section 5, T22N, R5W. See attached map from the NM EMNRD Mining and Mineral Division.
9. The Jicarilla O 3E is not located in an "unstable" area. The location is not over a mine and is not on the side of a hill. The location of the excavated pit material will not be located within 100' of a continuously flowing watercourse or 200' from any other watercourse.
10. The FEMA map for the subject well is unavailable due to its location being on the reservation. FEMA does not provide floodplain information for Reservation Land.
11. In the event that the composite pit sample that is mixed 3:1 with native soils does not meet the requirements for onsite burial, the pit contents will be removed and disposed of at the Envirotech Land Farm #2 (NMOCD Permit #11).



4001 N. Butler Ave  
Farmington, NM 87401  
Phone: (505) 436-2627  
Fax: (505) 832-3095

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Date: September 6, 2013

To: Jicarilla Apache Nation

Re: Surface Owner Notification for On-Site Burial

---

Ms. Merldine Oka  
Jicarilla Apache Nation  
Oil and Gas Administration  
#6 Dulce Rock Road  
Dulce, NM 87528

Re: Jicarilla O 3E  
O - Sec 10 - T22N - R03W  
919' FSL & 1738' FEL

Dear Ms. Oka,

According to NMOCD rules, Logos Operating, LLC is notifying you that there will be a temporary pit on the subject well and that they intend to bury the drill cuttings in the reserve pit, assuming that they qualify as per Subsection D of 19.15.17.13 NMAC. No action is required on your part. If you have any questions, please do not hesitate to call me.

Regards,

*Tamra Sessions*

Tamra Sessions  
Operations Technician

**DISTRICT I**  
 1635 N. French Dr., Hobbs, N.M. 88240  
 Phone: (575) 393-6181 Fax: (575) 393-0720

**DISTRICT II**  
 811 E. First St., Artesia, N.M. 88210  
 Phone: (505) 748-1883 Fax: (505) 748-0720

**DISTRICT III**  
 1000 Rio Brazos Rd., Artesia, N.M. 87410  
 Phone: (505) 334-8179 Fax: (505) 334-8170

**DISTRICT IV**  
 1520 E. St. Francis Dr., Santa Fe, NM 87505  
 Phone: (505) 476-3490 Fax: (505) 476-3488

State of New Mexico  
 Energy, Minerals & Natural Resources Department

Form C-102  
 Revised August 1, 2011

Submit one copy to appropriate  
 District Office

OIL CONSERVATION DIVISION

1220 South St. Francis Dr.  
 Santa Fe, NM 87505

AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

*API Number		*Pool Code	*Pool Name
		39189	Lindriith Gallup-Dakota, West
*Property Code	*Property Name		*Well Number
311962	JICARILLA O		3E
*GRID No.	*Operator Name		*Elevation
289408	LOGOS RESOURCES, LLC		7072'

<sup>10</sup> Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
0	10	22N	3W		919'	SOUTH	1738'	EAST	SANDOVAL

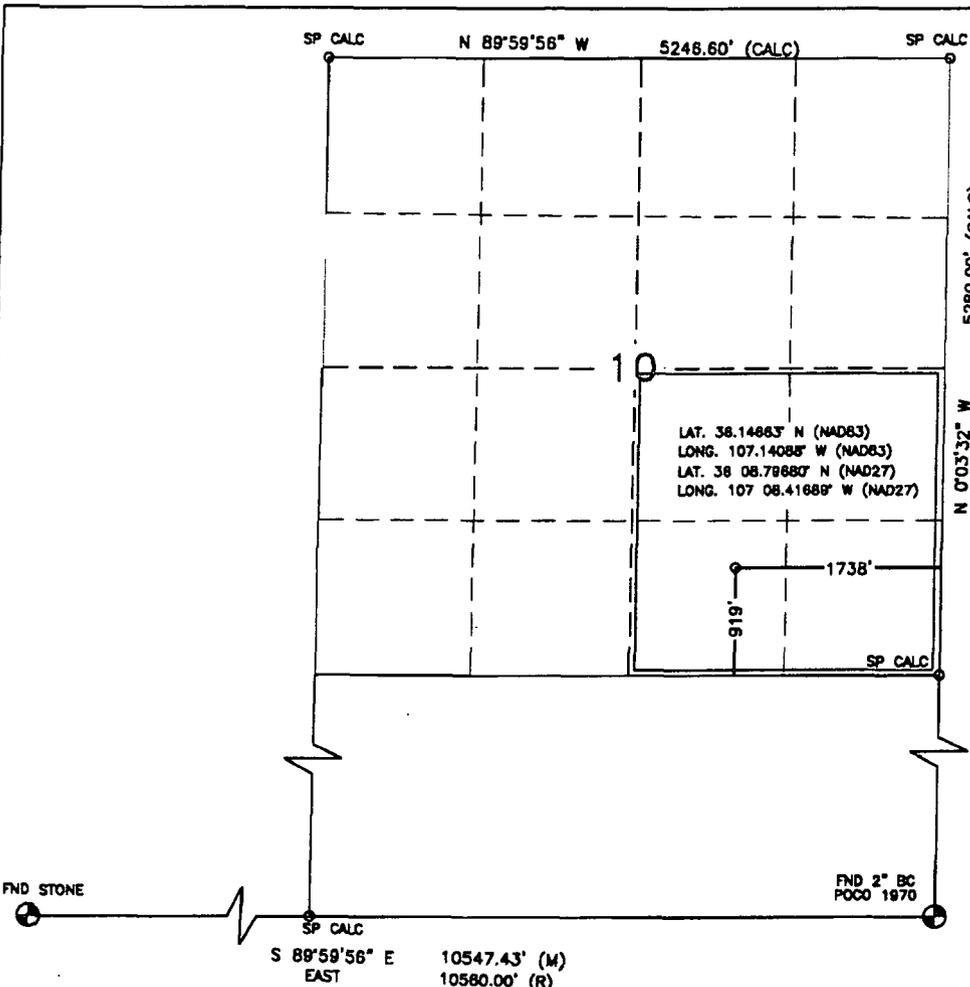
<sup>11</sup> Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County

<sup>12</sup> Dedicated Acres	<sup>13</sup> Joint or Infill	<sup>14</sup> Consolidation Code	<sup>15</sup> Order No.
160 acres			

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

16



<sup>17</sup> OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

*Tamra Sessions* 07/09/13  
 Signature Date

Tamra Sessions  
 Printed Name  
 tsessions@logosresourcesllc.com  
 E-mail Address

<sup>18</sup> SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

AUGUST 14, 2012  
 Date of Survey

Signature and Seal of Professional Surveyor:  
*David Russell*



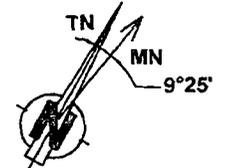
DAVID RUSSELL  
 Certificate Number 10201

### WELL FLAG

LATITUDE: 36.14663° N  
LONGITUDE: 107.14088° W  
**CENTER OF PIT**  
LATITUDE: 36.14648° N  
LONGITUDE: 107.14091° W  
ELEVATION: 7060.8'  
DATUM: NAD83 & NAVD88

### LOGOS RESOURCES, LLC

JICARILLA O #3E  
919' FSL & 1738' FEL  
LOCATED IN THE SW/4 SE/4 OF SECTION 10,  
T22N, R3W, N.M.P.M.,  
SANDAVOL COUNTY, NEW MEXICO  
GROUND ELEVATION: 7072', NAVD 88  
FINISHED PAD ELEVATION: 7072.8', NAVD 88



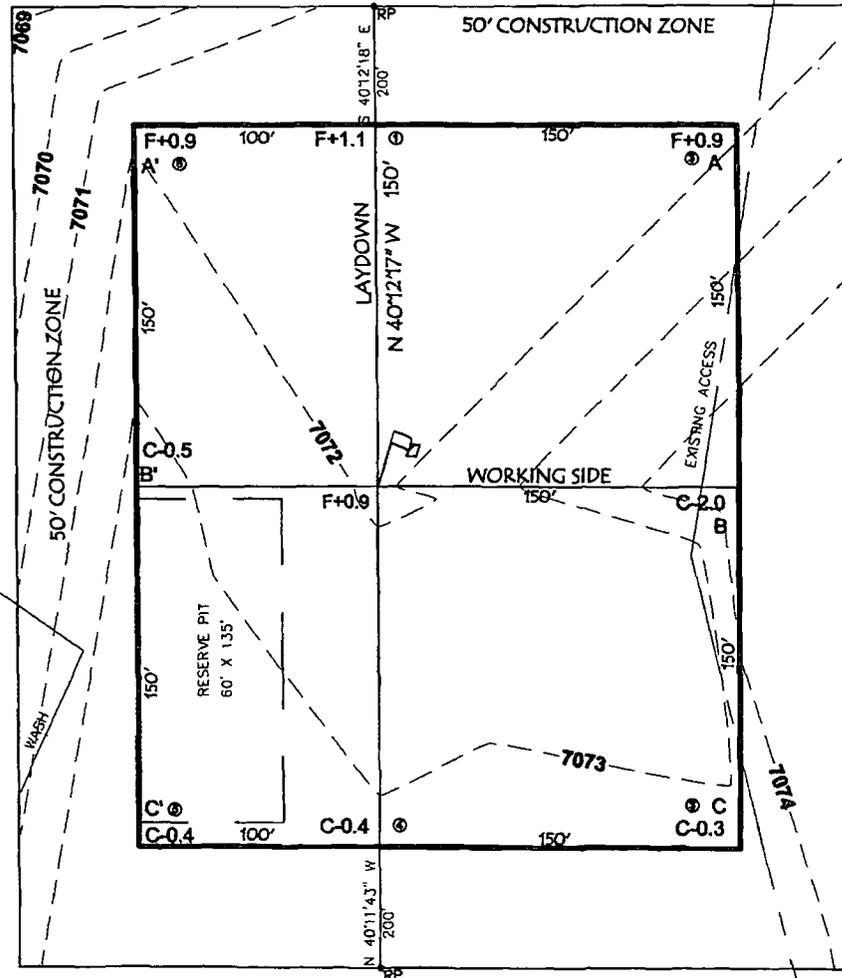
SCALE = 80'

#### NOTES:

1.) BASIS OF BEARING: BETWEEN FOUND MONUMENTS AT THE NORTHWEST CORNER AND THE NORTH QUARTER CORNER OF SECTION 27, TOWNSHIP 24 NORTH, RANGE 7 WEST, N.M.P.M. SANDAVOL COUNTY, NEW MEXICO.  
LINE BEARS: S 89°59'569" E A DISTANCE OF 10547.43 FEET AS MEASURED BY G.P.S.

2.) LATITUDE, LONGITUDE AND ELLIPSOIDAL HEIGHT BASED ON AZTEC CORS L1 PHASE CENTER.  
DISTANCES SHOWN ARE GROUND DISTANCES USING A TRAVERSE MERCATOR PROJECTION FROM A WGS84 ELLIPSOID, CONVERTED TO NAD83.  
NAVD88 ELEVATIONS AS PREDICTED BY GEOID03.

3.) LOCATION OF UNDERGROUND UTILITIES DEPICTED ARE APPROXIMATE. PRIOR TO EXCAVATION UNDERGROUND UTILITIES SHOULD BE FIELD VERIFIED. ALL CONSTRUCTION ACTIVITIES SHOULD BE FIELD VERIFIED WITH NEW MEXICO ONE-CALL AUTHORITIES AT LEAST 48 HOURS PRIOR TO CONSTRUCTION.



SLOPES TO BE CONSTRUCTED TO MATCH THE ORIGINAL CONTOURS AS CLOSE AS POSSIBLE.

TOTAL PERMITTED AREA  
350' x 400' = 3.21 ACRES  
SCALE: 1" = 80'  
JOB No.: LGS004  
DATE: 09/04/12  
DRAWN BY: TWT

#### NOTE:

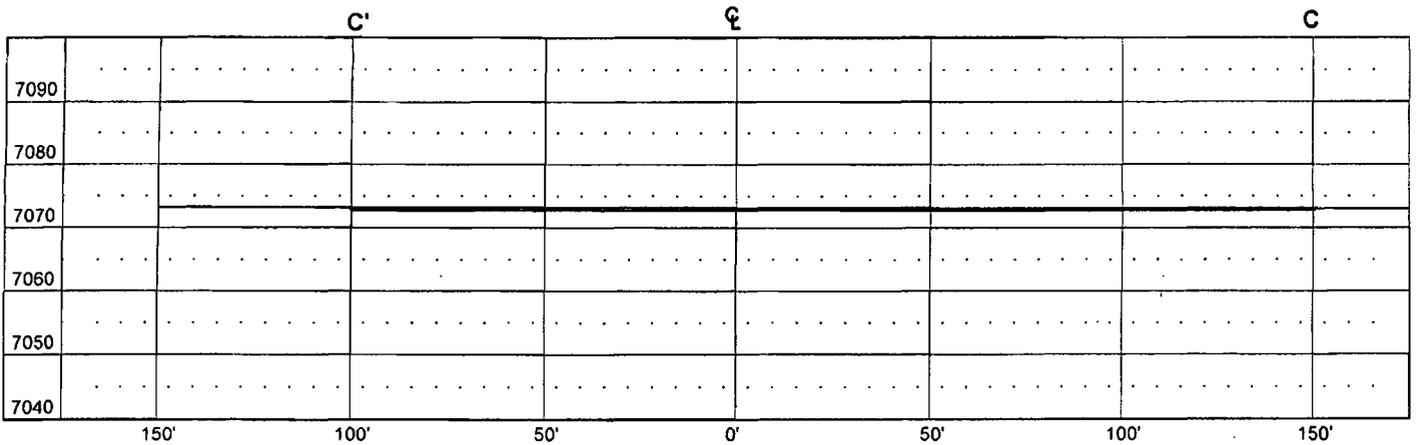
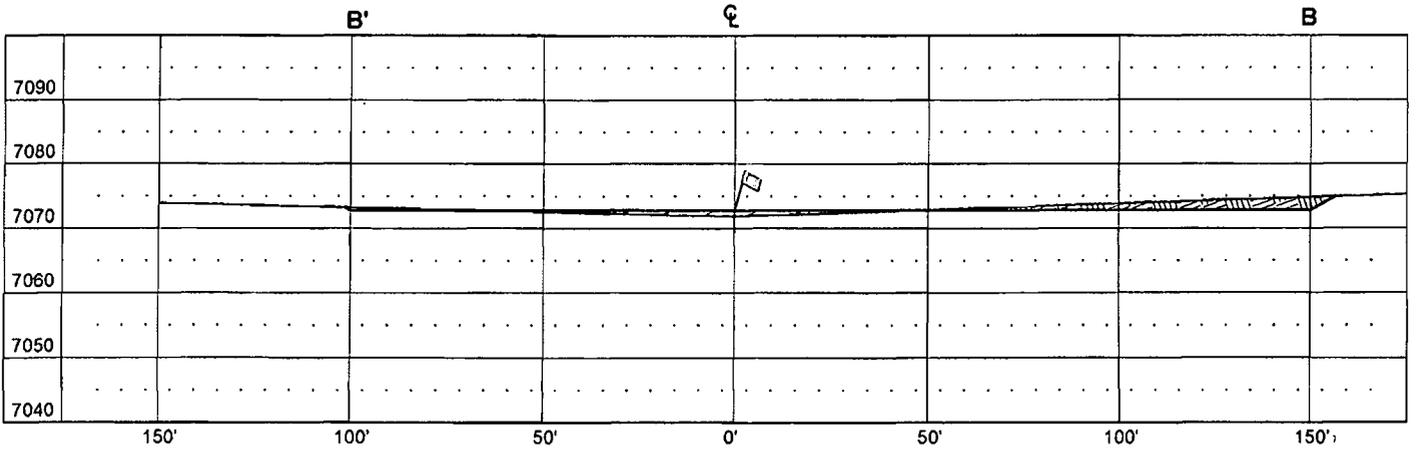
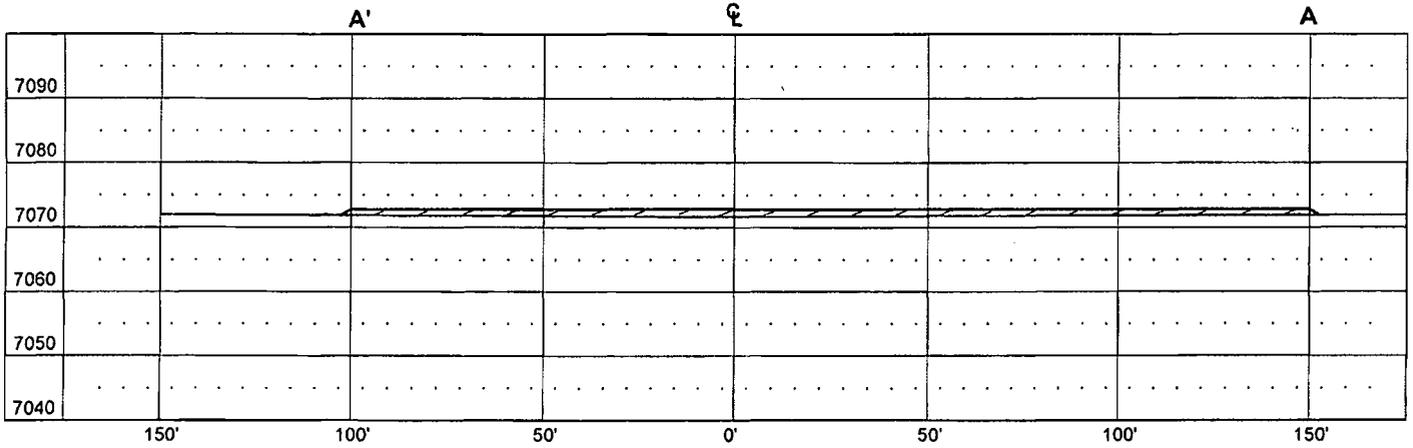
Scorpion Survey & Consulting, L.L.C., INC. IS NOT LIABLE FOR UNDERGROUND UTILITIES OR PIPELINES. CONTRACTOR SHOULD CALL ONE-CALL FOR LOCATION OF ANY MARKED OR UNMARKED, BURIED PIPELINES OR CABLES ON WELL PAD, IN CONSTRUCTION ZONE AND/OR ACCESS ROAD AT LEAST TWO (2) WORKING DAYS PRIOR TO CONSTRUCTION.



**Scorpion Survey & Consulting, L.L.C.**  
1409 W. Aztec Blvd. #2  
Aztec, New Mexico 87410  
(505) 334-8637

LATITUDE: 36.14663° N  
 LONGITUDE: 107.14088° W  
 DATUM: NAD 83

**LOGOS RESOURCES, LLC**  
 JICARILLA O #3E  
 919' FSL & 1738' FEL  
 LOCATED IN THE SW/4 SE/4 OF SECTION 10,  
 T22N, R3W, N.M.P.M.,  
 SANDAVOL COUNTY, NEW MEXICO  
 GROUND ELEVATION: 7072', NAVD 88  
 FINISHED PAD ELEVATION: 7072.8', NAVD 88



VERT. SCALE: 1" = 30'  
 HORZ. SCALE: 1" = 50'  
 JOB No.: LGS004  
 DATE: 04/24/10

THIS DIAGRAM IS AN ESTIMATE  
 OF DIRT BALANCE AND IS NOT  
 INTENDED TO BE AN EXACT  
 MEASURE OF VOLUME



FILL



CUT



**Scorpion Survey &  
 Consulting, L.L.C.**  
 1409 W. Aztec Blvd. #2  
 Aztec, New Mexico 87410  
 (505) 334-8637

**Logos Operating, LLC**  
**San Juan Basin**  
**Temporary Pit Design and Construction Plan**

In accordance with Rule 19 15 17 the following information describes the design and construction for temporary pits on Logos Operating Company's locations; this is Logos Operating's standard procedure for all temporary pits. A separate plan will be submitted for any temporary pit that does not conform to this plan.

**General Plan**

- 1 Logos Operating will design and construct a temporary pit to contain liquids and solids and prevent contamination of fresh water and protect public health and environment
- 2 Prior to constructing the pit, topsoil will be stockpiled in the construction zone for later use in restoration
- 3 Logos Operating will post a well sign, not less than 12' by 14', on the well site prior to construction of the temporary pit. The sign will list the operator on record as the operator, the location of the well by unit letter, section, township rang, and emergency telephone numbers
- 4 Logos Operating shall construct all new fences unitizing 48' steel mesh field-fence (hogwire) on the bottom with a single strand of barbed wire on top. T-posts shall be installed every 12 feet and corners shall be anchored utilizing a secondary T-post. Temporary pits will be fenced at all times excluding drilling or overwork operations, when the front side of the fence will be temporarily removed for operational purposes
- 5 Logos Operating shall construct the temporary pit so that the foundation and interior slopes are firm and free of rocks, debris, sharp edges or irregularities to prevent liner failure
- 6 Logos Operating shall construct the pit so that the slopes are no steeper than two horizontal feet to 1 vertical foot
- 7 Pit walls will be walked down by a crawler type tractor following construction
- 8 All temporary pits will be lined with a 20-mil, string reinforced, LLDPE liner, complying with EPA SW-846 method 9090A requirements
- 9 Geotextile will be installed beneath the liner when rocks, debris, sharp edges or irregularities cannot be avoided
- 10 All liners will be anchored in the bottom of a compacted earth-filled trench at least 18 inches deep
- 11 Logos Operating will minimize liner seams and orient them up and down, not across a slope. Factory seams will be used whenever possible. Logos Operating will ensure all field seams are welded by qualified personnel. Field seams will be overlapped four to six inches and will be oriented parallel to the line of maximum slope. Logos Operating will minimize the number of field seams in corners and irregularly shaped areas
- 12 The liner shall be protected from any fluid force or mechanical damage through the use of mud pit slides, or a manifold system
- 13 The pit shall be protected from run-off by constructing and maintaining diversion ditched around the location or around the perimeter of the pit in some cases
- 14 The volume of the pit shall not exceed 10 acre-feet, including freeboard
- 15 Temporary blow pits will be constructed to allow gravity flow to discharge into lined drill pit
- 16 The lower half of the blow pit (nearest lined pit) will be lined with the same 20 mil liner. The upper half of the blow pit will remain unlined as allowed in Rule 19 15 17 11 F 11
- 17 Logos Operating will not allow freestanding liquids to remain on the unlined portion of temporary blow pit

**Logos Operating, LLC**  
**San Juan Basin**  
**Temporary Pit Maintenance and Operating Plan**

In accordance with Rule 19 15 17 the following information described the operation and maintenance of temporary pits on Logos Operating Company locations. This is Logos Operating's standard procedure for all temporary pits. A separate plan will be submitted for any temporary pit that does not conform to this plan.

**General Plan**

- 1 Logos Operating will operate and maintain a temporary pit to contain liquids and solids and prevent contamination of fresh water and protect public health and environment
- 2 Logos Operating will conserve drilling fluids by transferring liquids to pits ahead of the rigs whenever possible. All other drilling fluids will be disposed at Basin Disposal, Inc. Permit # NM-01-005
- 3 Logos Operating will not discharge or store any hazardous waste in any temporary pit
- 4 If any pit liner's integrity is compromised or if any penetration of the liner occurs above the liquid's surface, then Logos Operating shall notify the Aztec Division office by phone or email within 48 hours of the discovery and repair the damage or replace the liner
- 5 If a leak develops below the liquid's level, Logos Operating shall remove all liquids above the damaged liner within 48 hours and repair the damage or replace the liner. Logos Operating shall notify the Aztec Division office by phone or email within 48 hours of the discovery for leaks less than 25 barrels. Logos Operating shall notify the Aztec division office as required pursuant to Subsection B of 19 15 3 116 NMAC shall be reported within twenty-four (24) hours of discovery of leaks greater than 25 barrels. In addition, immediate verbal notification pursuant to Subsection B, Paragraph (1) and Subparagraph (d) of 19 15 3 116 NMAC shall be reported to the division's Environmental Bureau Chief
- 6 The liner shall be protected from any fluid force or mechanical damage through the use of mud pit slides, or manifold system
- 7 The pit shall be protected from run-off by constructing and maintaining diversion ditches around the location or around the perimeter of the pit in some cases
- 8 Logos Operating shall immediately remove any visible layer of oil from the surface of temporary pit after cessation of a drilling or workover operation. Oil absorbent booms will be utilized to contain and remove oil from the pit's surface. An oil absorbent boom will be stored on-site until closure of pit
- 9 Only fluids generated during the drilling or workover process may be discharged into a temporary pit
- 10 Logos Operating will maintain the temporary pit free of miscellaneous solid waste or debris
- 11 During drilling or workover operations, Logos Operating will inspect the temporary pit at least once daily to ensure compliance with this plan. Inspections will be logged in the IADC reports. Logos Operating will file this log with the Aztec Division office upon closure of the pit
- 12 After drilling or workover operations, Logos Operating will inspect the temporary pit weekly so long as liquids remain in the temporary pit. A log of the inspections will be stored at Logos Operating's office electronically and will be filed with the Aztec Division office upon closure of the pit
- 13 Logos Operating shall maintain at least two feet of freeboard for a temporary pit
- 14 Logos Operating shall remove all free liquids from a temporary pit within 60 days from the date the operator releases the drilling or workover rig
- 15 Logos Operating shall remove all free liquids from cavitations put within 48 hours after completing cavitations. Logos Operating may request additional time to remove liquids from Aztec Division office if it is not feasible to remove liquids within 48 hours

**Logos Operating, LLC  
San Juan Basin  
Temporary Pit Closure Plan**

In accordance with Rule 19.15.17.13 NMAC the following information describes the closure requirements of temporary pits on Logos Operating Company's locations. This is Logos Operating's standard procedure for all temporary pits. A Separate plan will be submitted for any temporary pit that does not conform to this plan.

All closure activities will include proper documentation and be available for review upon request and will be submitted to OCD within 60 days of the pit closure. Closure report will be filed on C-144 and incorporated the following:

- Detail on Capping and Covering, where applicable
- Plot Plan (Pit diagram)
- Inspection reports
- Sampling Results
- C-105
- Copy of Deed Notice will be filed with County Clerk

**General Plan**

- 1 All free standing liquids will be removed at the start of the pit closure process from the pit and disposed of in a division-approved facility or recycle, reuse or reclaim the liquids in a manner that the appropriate division district office approves
- 2 The preferred method of closure for all temporary pits will be on-site burial, assuming that all criteria listed in sub-section (D) of 19.15.17.13 are met
- 3 The surface owner shall be notified of Logos Operating's proposed closure plan using a means that provides proof of notice i.e., certified mail, return receipt requested
- 4 Within 6 months of the Rig Off status occurring Logos Operating will ensure that temporary pits are closed, re-contoured, and reseeded
- 5 Notice of Closure will be given to the Aztec Division office between 72 hours and one week of closure via email, or verbally, The notification of closure will include the following:
  - i. Operator's name
  - ii. Location by Unit Letter, Section, Township, and Range. Well name and API Number
- 6 Pit contents shall be mixed with non-waste containing, earthen material in order to achieve the solidification process. The solidification process will be accomplished using a combination of natural drying and mechanically mixing. Pit contents will be mixed with non-waste, earthen material to a consistency that is deemed a safe and stable. The mixing ratio shall not exceed 3 parts clean soil to 1 part pit contents
- 7 A five point composite sample will be taken of the pit using sampling tools and all samples tested per 19.15.17.13 (D)(5). In the event that the criteria are not met, all contents will be handled per 19.15.17.13 (D)(7) i.e., Dig and haul

<b>Components</b>	<b>Tests Method</b>	<b>Limit (mg/Kg)</b>
Benzene	EPA SW-846 8021B or 8015M	10
BTEX	EPA SW-846 8021B or 8260B	50
TPH	EPA SW-846 418.1	2500
GRO/DRO	EPA SW-846 8015M	1000
Chlorides	EPA 300.0	80,000

- 8 Upon completion of solidification and testing, Logos will fold the outer edges of the trench liner to overlap the waste material in the pit area, then install a geomembrane cover over the waste material in the pit to prevent collections of infiltration water after the soil cover is in place; geomembrane a 20-mil, string reinforced, LLDPE liner, or equivalent complying with EPA SW-846 method 9090A requirements.
- 9 Pit area will be backfilled with compacted, non-waste containing, earthen material with chloride concentrations less than 600 mg/kg as analyzed by EPA Method 300.0. A minimum of four feet of cover shall be achieved and the cover shall include one foot of suitable material to establish vegetation at the site, or the background thickness of topsoil, whichever is greater
- 10 Re-contouring of location will match fit, shape, line, form and texture of the surrounding area. Re-shaping will include drainage control, prevent ponding, and prevent erosion. Natural drainages will be unimpeded and water bars and/or silt traps will be placed in areas where needed to prevent erosion on a large scale. Final re-contour shall have a uniform appearance with smooth surface, fitting the natural landscape
- 11 Notification will be sent to OCD when the reclaimed area is seeded
- 12 Logos Operating shall seed the disturbed areas the first growing season after the operator closes the pit. Seeding will be accomplished via drilling on the contour whenever practical or by other division-approved methods. BLM or Forest Service stipulated seed mixed will be used on federal lands. Vegetative cover will be established that will reflect a life-form ratio of plus or minus fifty percent (50%) of pre-disturbance levels and will equal seventy (70%) of the native perennial vegetative cover (un-impacted) consisting of at least three native plant species, including at least one grass, but not including noxious weeds, and maintain that cover thorough two successive growing seasons. Repeat seeding or planting will be continued until successful vegetative growth occurs
- 13 The temporary pit will be located with a steel marker, no less than four inches in diameter, cemented in a hole three feet deep in the center of the onsite burial upon the abandonment of all the wells on the pad. The marker will be a four foot tall riser with the operator's information at the time of all wells on the pad are abandoned. The operator's information will include the following: Operator Name, Lease Name, Well Name and Number, unit Number, Section, Township, Range and an indicator that the marker is an onsite burial location
  - a. If the well goes into production, then an alternate interim marking system will be used to allow for safer and more efficient operations. A minimum 4" O.D. steel pipe will be set at least 36" deep at the center of the pit. A threaded collar will be on the top of the pipe. A minimum 12" x 12" steel plate will be welded atop the threaded collar. Top of the plate will be flush with ground level. The steel plate will contain the Operator Name, Lease Name, Well Number, and location information including unit letter, section, township and range, and that the marker designates an onsite burial location. This information will be welded, stamped or otherwise permanently engraved into the metal of the plate. Upon the abandonment of all the wells on the pad, the plate will be removed and replaced with a four foot tall riser containing the same information as described for the steel plate.