

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

11465  
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: Logos 3  
API Number: 30-043-21135 OCD Permit Number: \_\_\_\_\_  
U/L or Qtr/Qtr P Section 05 Township 22N Range 06W County: Sandoval  
Center of Proposed Design: Latitude 36.162557°N Longitude 107.48672°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 \_\_\_\_\_ mil ☐ LLDPE ☐ HDPE ☐ PVC ☐ Other \_\_\_\_\_  
☐ String-Reinforced  
Liner Seams: ☐ Welded ☐ Factory ☐ Other \_\_\_\_\_ Volume: \_\_\_\_\_ bbl Dimensions: L \_\_\_\_\_ x W \_\_\_\_\_ x D \_\_\_\_\_

RCVD NOV 21 '13  
OIL CONS. DIV.  
DIST. 3

3.  
☒ **Below-grade tank:** Subsection I of 19.15.17.11 NMAC  
Volume: 120 bbl Type of fluid: Produced Water  
Tank Construction material: Metal  
☐ Secondary containment with leak detection ☐ Visible sidewalls, liner, 6-inch lift and automatic overflow shut-off  
☒ Visible sidewalls and liner ☐ Visible sidewalls only ☐ Other \_\_\_\_\_  
Liner type: Thickness 22 mil ☐ HDPE ☐ PVC ☐ Other \_\_\_\_\_

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.

**Variances 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 (I) 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.<br>- NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells   | <input type="checkbox"/> Yes <input type="checkbox"/> No<br><input type="checkbox"/> NA |
| Ground water is between 25-50 feet below the bottom of the buried waste<br>- NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells   | <input type="checkbox"/> Yes <input type="checkbox"/> No<br><input type="checkbox"/> NA |
| Ground water is more than 100 feet below the bottom of the buried waste.<br>- NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells  | <input type="checkbox"/> Yes <input type="checkbox"/> No<br><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).<br>- Topographic map; Visual inspection (certification) of the proposed site                        | <input type="checkbox"/> Yes <input type="checkbox"/> No                                |
| Within 300 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application.<br>- Visual inspection (certification) of the proposed site; Aerial photo; Satellite image  | <input type="checkbox"/> Yes <input 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.<br>- NM Office of the State Engineer - iWATERS database; Visual inspection (certification) of the proposed site | <input type="checkbox"/> Yes <input 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.<br>US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site   | <input type="checkbox"/> Yes <input 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 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	<input type="checkbox"/> Yes <input type="checkbox"/> No
Within the area overlying a subsurface mine. - Written confirmation or verification or map from the NM EMNRD-Mining and Mineral Division	<input type="checkbox"/> Yes <input type="checkbox"/> No
Within an unstable area. - Engineering measures incorporated into the design; NM Bureau of Geology & Mineral Resources; USGS; NM Geological Society; Topographic map	<input type="checkbox"/> Yes <input type="checkbox"/> No
Within a 100-year floodplain. - FEMA map	<input type="checkbox"/> Yes <input type="checkbox"/> 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.*

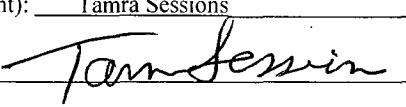
☐ Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC  
☐ Proof of Surface Owner Notice - based upon the appropriate requirements of Subsection E of 19.15.17.13 NMAC  
☐ Construction/Design Plan of Burial Trench (if applicable) based upon the appropriate 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.

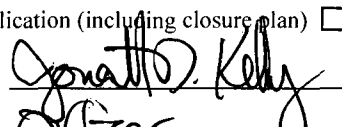
Name (Print): Tamra Sessions Title: Operations Technician

Signature:  Date: 11/20/13

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

18.

**OCD Approval:** ☒ Permit Application (including closure plan) ☐ Closure Plan (only) ☐ OCD Conditions (see attachment)

OCD Representative Signature:  Approval Date: 11/25/2013

Title: Compliance Officer OCD 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

**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: \_\_\_\_\_

**Logos Operating, LLC  
San Juan Basin  
Variance Explanation**

**C-144 Item #5 Fencing**

*Per 19.15.17.11 D (3) The operator shall fence any other pit or below-grade tank to exclude livestock with a 'four foot fence that has at least four strands of barbed wire' evenly spaced in the interval between one foot and four feet above ground level.*

Logos Operating has requested a variance on the fencing material and plans to use 4' hog wire with one strand of barbed wire on top.



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**Logos Operating  
Below Grade Tank Application**

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Siting criteria, hydrological report, proof of ground water >100', C-102, Cut-n-Fill diagram and maps were provided in the Temporary Pit Application submitted on 11/27/12 and approved on 12/10/12 per OCD permit #10667.

Please see attached Below Grade Tank Design Plans, Below Grade Tank Operation and Maintenance Plan, and Below Grade Tank Closure Plan.





# 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 Code	Subbasin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
SJ 01506			SA	1	1	3	22	23N	06W	278535	4010015*	5450	280		
SJ 01156			RA	2	2	1	18	23N	06W	274330	4012555*	7777	1500	200	1300
Average Depth to Water:													200 feet		
Minimum Depth:													200 feet		
Maximum Depth:													200 feet		

Record Count: 2

### Basin/County Search:

Basin: San Juan

### UTMNAD83 Radius Search (in meters):

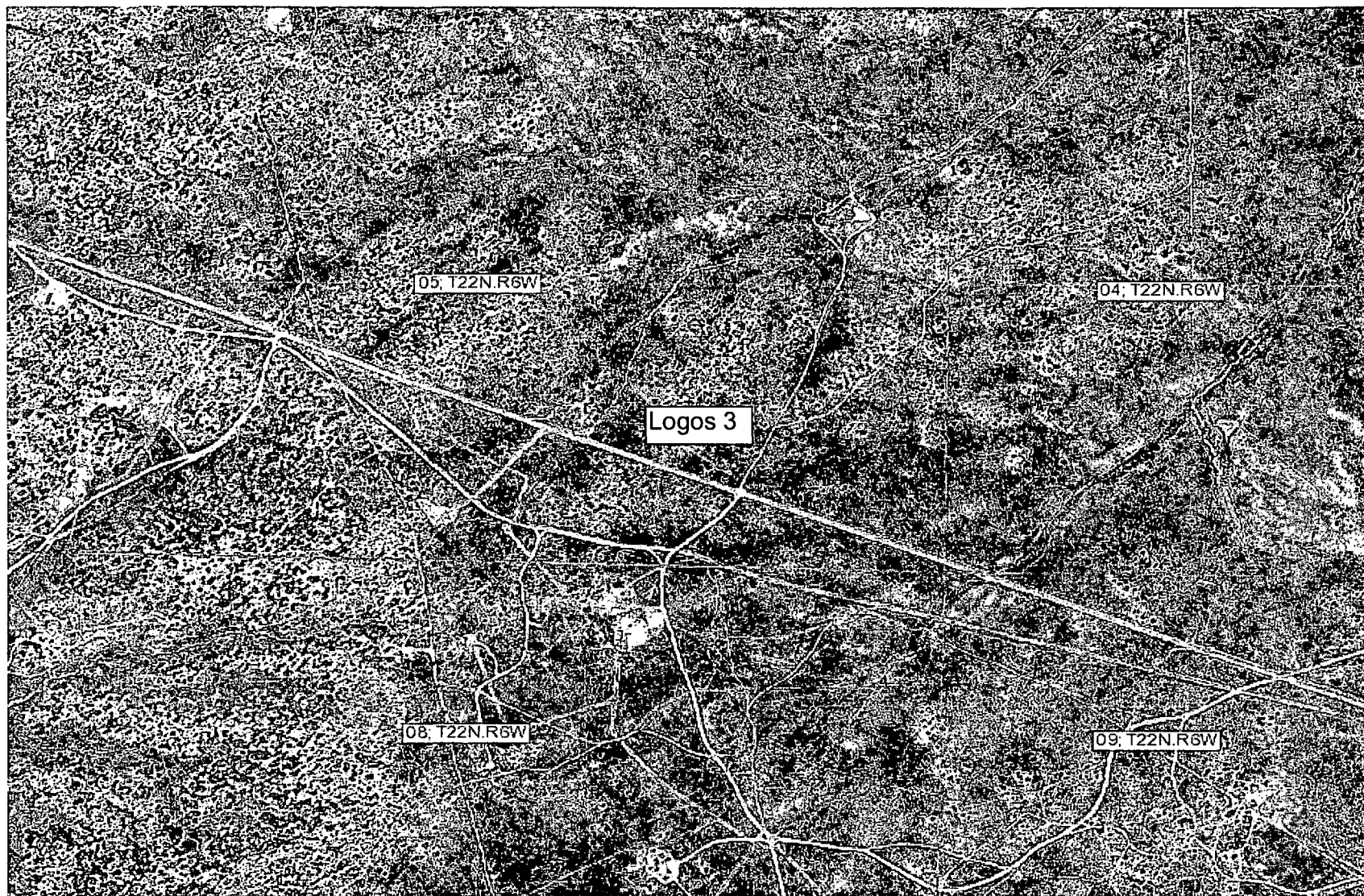
Easting (X): 276318

Northing (Y): 4005036

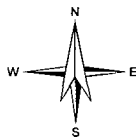
Radius: 10000

\*UTM location was derived from PLSS - see Help

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.



0 500 1000ft



Petroleum Recovery  
Research Center

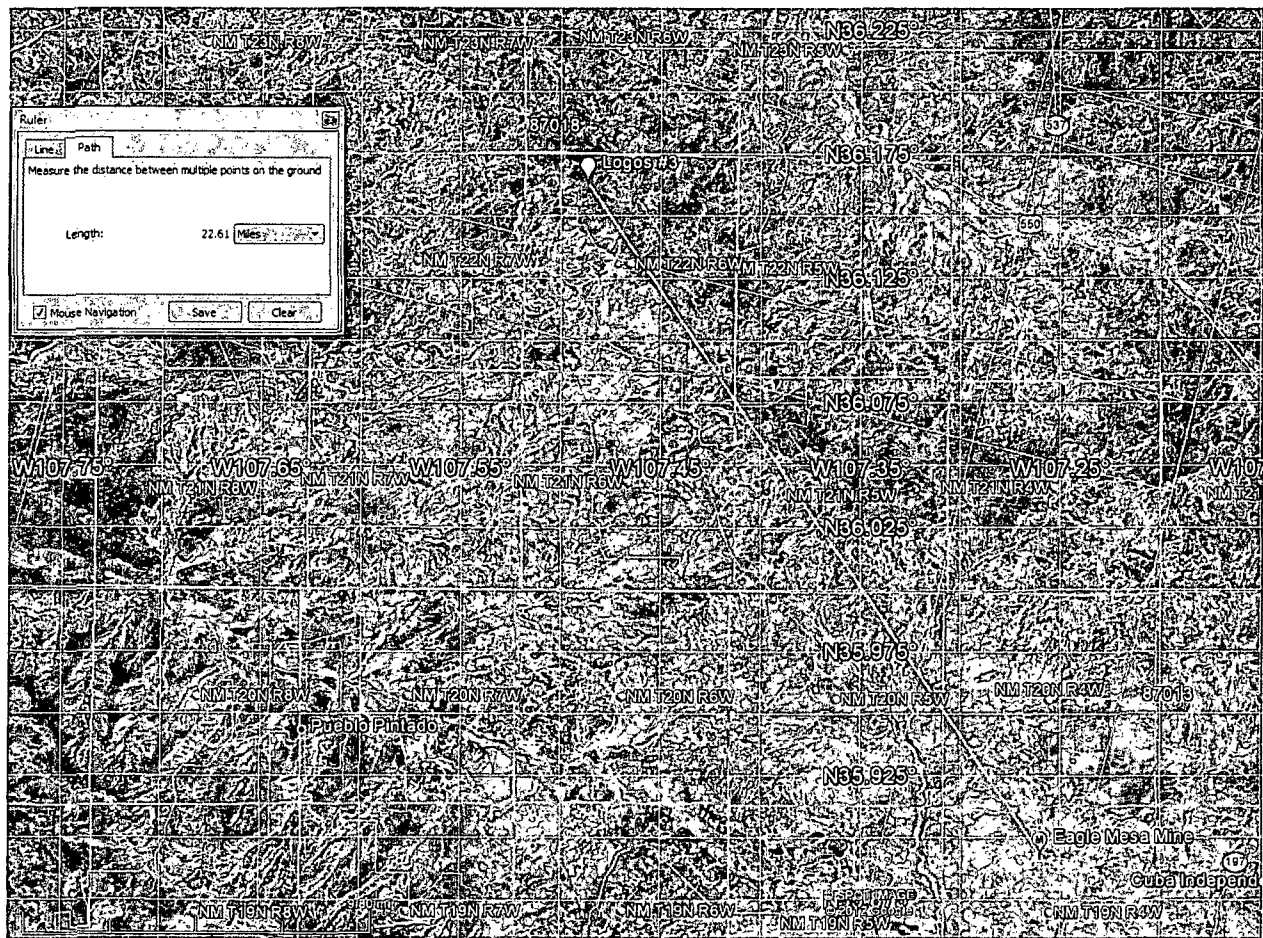
Logos #3

Figure: ##

Logos Operating, LLC

Nov 08, 2012

## Mines, Mills & Quarries



Logos #3 - Latitude 36.16253° N / Longitude 107.48650° W (NAD83)

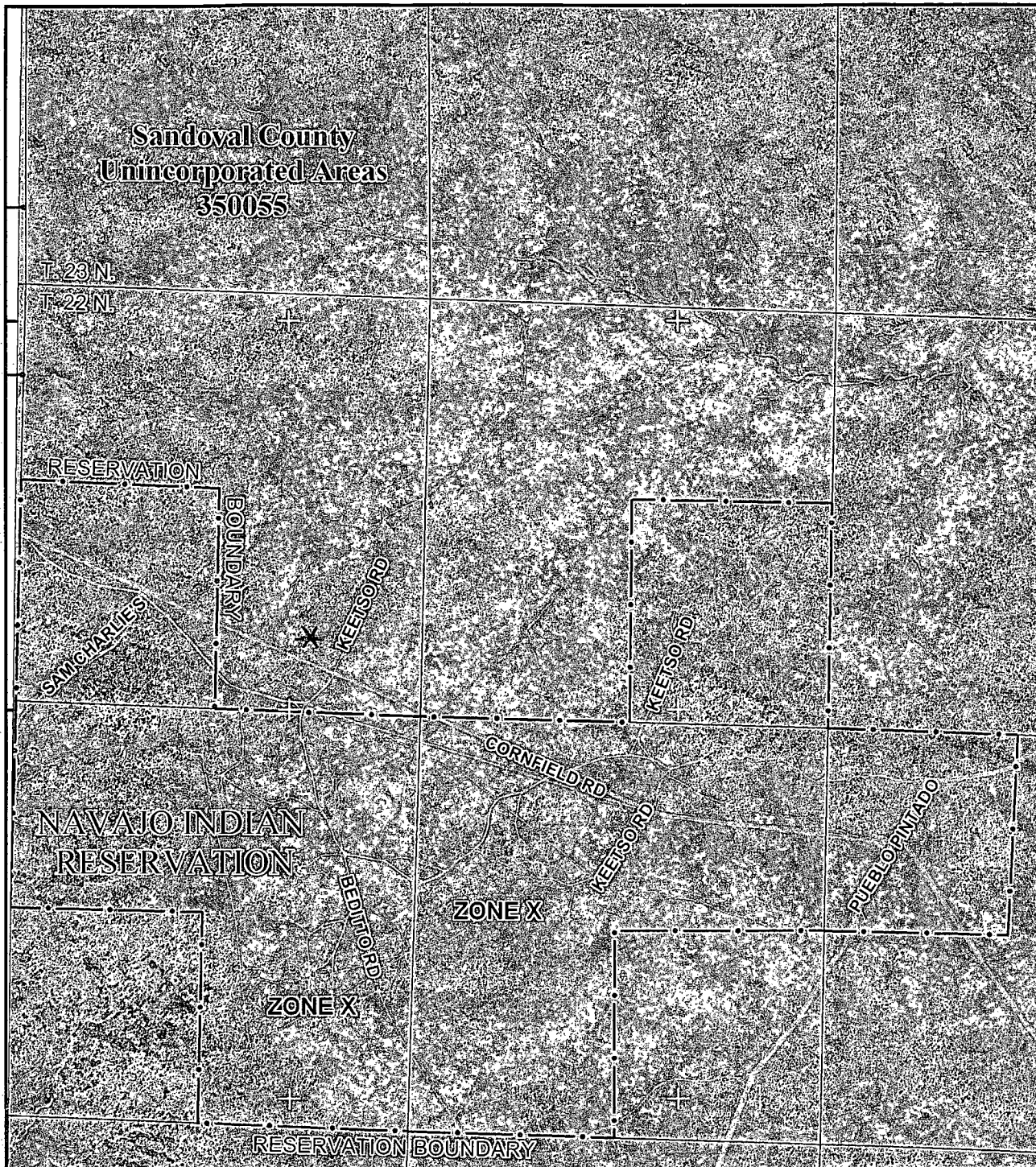
Eagle Mesa Mine (Latitude 35.891403° N / Longitude 107.260122° W (NAD83) is closest to the Logos #3 @ 22.61 miles away.

Data Source: New Mexico Active Mines, Feb 2012 spreadsheet

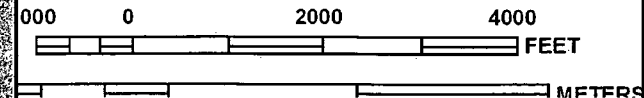
<http://www.emnrd.state.nm.us/MMD/gismapminedata.html>

Name	County	Commodities	Quads	LatitudeDDNAD83	LongitudeDDNAD83
Bernalillo Pit	Sandoval	Aggregate	Bernalillo	35.311183	106.540252
American Gypsum					
Bernalillo Plant	Sandoval	Gypsum	Bernalillo	35.329920	106.528010
Placitas Pit	Sandoval	Aggregate, Clay & Shale	Bernalillo, Placitas	35.332000	106.505220
Santa Ana Pit	Sandoval	Aggregate, Other	Bernalillo, Placitas	35.354613	106.497892
Baca Pit	Sandoval	Aggregate	Placitas	35.361341	106.466132
Bar J Pit	Sandoval	Aggregate	San Felipe Pueblo NE	35.408843	106.414142
Santo Domingo Pit	Sandoval	Aggregate	San Felipe Pueblo NE	35.457187	106.274943
White Mesa Mine	Sandoval	Gypsum	San Ysidro	35.534694	106.799204
Pena Blanca Ulibarri Pit	Sandoval	Aggregate	Santo Domingo Pueblo	35.567481	106.336330
Cochiti Pumice Pit No. 1	Sandoval	Pumice	Canada	35.665224	106.364162
San Luis Mine	Sandoval	Humate	San Luis	35.690455	107.086325
U.S. Forest Service Mine	Sandoval	Pumice	Bear Springs Peak	35.738118	106.612346
Eagle Mesa Mine	Sandoval	Humate	Ojo Encino Mesa	35.891403	107.260122
Menefee Mill	Sandoval	Humate	San Pablo	35.989027	106.956868





MAP SCALE 1" = 2000'



NFIP

PANEL 0075D

**FIRM**

FLOOD INSURANCE RATE MAP

**SANDOVAL COUNTY,  
NEW MEXICO  
AND INCORPORATED AREAS**

**PANEL 75 OF 2225**

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
SANDOVAL COUNTY, UNINCORPORATED AREAS	350055	0075	D

Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.



**MAP NUMBER  
35043C0075D**

**MAP REVISED  
MARCH 18, 2008**

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at [www.msc.fema.gov](http://www.msc.fema.gov)

**Logos Operating, LLC**  
**Logos #3**  
**Below Grade Tank Registration**  
**Siting Criteria**

1. According to the iWaters Database from the State Engineers Office, the closest known water well is 5450 meters from the Logos #3 location in Section 22, T23N, R6W and was drilled to a depth of 280'. See attached printout.
2. 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 100' of the well.
3. There are no permanent residences, schools, hospitals, institutions, or churches within 300' of the well.
4. There are no domestic water wells or springs within 200' of the well. See iWaters Database printout.
5. The well is not located within any municipal boundaries.
6. The well is not within 100' of any wetlands. See attached topographic map and aerial photos.
7. There are no subsurface mines in Section 5, T22N, R6W. See attached map from the NM EMNRD Mining and Mineral Division.
8. The Logos #3 is not located in an "unstable" area. The location is not over a mine and is not on the side of a hill.
9. The well is not located in a 100-year floodplain as visible on the topographic map and the FEMA Flood Insurance Rate Map.

## ***Hydro geological report for Logos #3***

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

The Logos #3 is located on federal land in Sandoval County, New Mexico. The well location is on the valley floor between two very minor drainages that run north and eventually drain into Largo Wash. The area around the location is mainly gently rolling sage brush covered hillsides of primarily dry, sandy soil with occasional boulders. Numerous small arroyos drain to the north.

A records search of the NM Office of the State Engineer – iWATERS database indicates that the closest known water well is 5450 meters away in Section 22, T23N, R6W. The depth to ground water is not listed but the well was drilled to 280'. The next well is 7777 meters away in Section 18, T23N, R6W. The depth to ground water is 200' and the well was drilled to 1500'.

Geologic maps of the area indicate that the surface formation at the proposed well site is the San Jose formation. The San Jose Formation of Eocene age occurs in New Mexico and Colorado and its outcrop forms the land surface over much of the eastern half of the central basin. It overlies the Nacimiento Formation in the area generally south of the Colorado – New Mexico State line and overlies the Animas Formation in the area generally north of the State line.

The San Jose Formation was deposited in various fluvial-type environments. In general, the unit consists of an interbedded sequence of sandstone, siltstone and variegated shale. Thickness of the San Jose Formation generally increases from west to east (200 feet in the west and south to almost 2,700 feet in the center of the structural basin).

Ground water is associated with alluvial and fluvial sandstone aquifers. Thus, the occurrence of ground water is mainly controlled by the distribution of sandstone in the formation. The distribution of such sandstone is the result of original depositional extent plus any post-depositional modification, namely erosion and structural deformation. Transmissivity data for San Jose Formation are minimal. Values of 40 and 120 feet squared or measured discharge from 46 water wells completed in San Jose Formation ranges from 0.15 to 61 gallons per minute and the median is 5 gallons per minute. Most of the wells provide water for livestock and domestic use.

The San Jose Formation is a very suitable unit for recharge from precipitation because soils that form on the unit are sandy and highly permeable and therefore readily absorb precipitation. However, low annual precipitation, relatively high transpiration and evaporation rates, and deep dissection of the San Jose Formation by the San Juan River and its tributaries all tend to reduce the effective recharge of the unit.

Stone et al, 1983, Hydrogeology and Water Resources of the San Juan Basin, New Mexico Socorro, New Mexico Bureau of Mines and Mineral Resources Hydrologic Report 6, 70p

### **Site specific information:**

<b><i>Surface hydrology:</i></b>	The site is located at the upper end of the Largo Wash drainage and is drained by a number of small intermittent drainages
<b><i>1<sup>st</sup> water-bearing formation:</i></b>	San Jose, tertiary
<b><i>Formation thickness:</i></b>	200 - 700 feet
<b><i>Underlying formation:</i></b>	Nacimiento, Tertiary
<b><i>Depth to ground water:</i></b>	Unknown. Due to the elevation difference of greater than 115' between the Logos #3 and the north branch of the Venado Canyon, we believe the depth to ground water is greater than 100' below the bottom of the pit.

DISTRICT II  
811 E. First St., Astoria, H.M. 00210  
Phone: (576) 740-1233 Fax: (576) 740-0720

**DISTRICT III**  
1000 Rio Bravos Rd., Arbo, N.H. 07410  
Phone: (605) 334-6170 Fax: (605) 334-6170

**DISTRICT IV**  
1820 R. St. Francis Dr., Santa Fe, NM 87505  
Phone: (505) 470-3460 Fax: (505) 470-3468

OIL CONSERVATION DIVISION  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

Submit one copy to appropriate  
District Office

☐ AMENDED REPORT

## WELL LOCATION AND ACREAGE DEDICATION PLAT

'API Number	" Pool Code	" Pool Name WILDCAT DAKOTA
'Property Code	"Property Name LOGOS	" Well Number 3
'UGRD No.	"Operator Name LOGOS OPERATING, LLC	" Elevation 7181'

### <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
P	5	22N	6W		741'	SOUTH	1263'	EAST	SANDOVAL

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

UL or lot no.	Section	Township	Range	Lot Idn	Foot from the	North/South line	Foot from the	East/West line	County
<sup>12</sup> Dedicated Across			<sup>13</sup> Joint or Infill		<sup>14</sup> Consolidation Code		<sup>15</sup> Order No.		

T 23 N  
T 22 N

4                      3                      2                      1

5

LEASE # NM-109387

WELL FLAG  
LAT. 30.10255° N (NAD83)  
LONG. 107.40850° W (NAD83)  
LAT. 30°00.75200' N (NAD27)  
LONG. 107°20.22020' W (NAD27)

1203'

741'

FND 2.5" BC  
GLO 1040

FND 1.5"  
REDAR

N 88°49'38" W      2021.17' (M)  
N 88°49' W      2020.06' (R)

BASIS OF BEARINGS

FND 2.5" BC  
GLO 1040

5365.87' (M)  
5365.14' (R)

N 0°30'18" E  
N 0°28' E

### 17 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.

*[Signature]*      10/17/2012  
Signature      Date

John C. Thompson  
Printed Name

john.c.thompson@nrc.gov  
E-mail Address

### 18 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.

OCTOBER 1, 2012

Date of Survey

Signature and Seal of Professional Surveyor:  
*[Signature]*      **DAVID R. RUSSELL**  
NEW MEXICO  
REGISTERED PROFESSIONAL LAND SURVEYOR  
10201

DAVID RUSSELL  
Certificate Number      10201



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## Logos Operating Below Grade Tank Design and Construction Plan

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In accordance with NMAC 19.15.17, the following information describes the design and construction plan for below grade tanks (BGT) for Logos Operating, LLC (Logos). This is a standard design and construction plan for Logos.

### **General Plan in Accordance with 19.15.17.11**

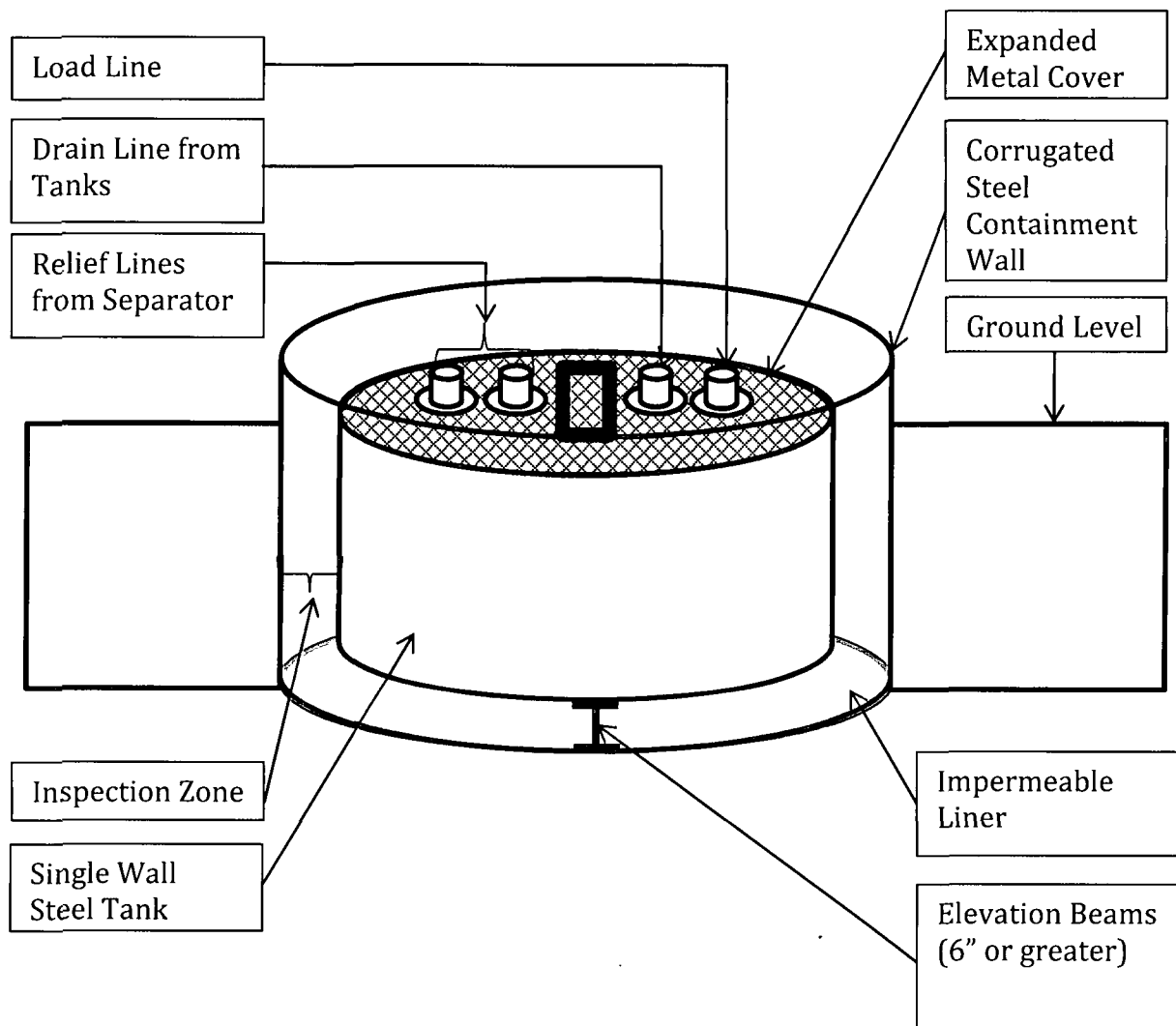
1. Logos will design and construct a BGT to contain liquids and solids that is designed to prevent contamination of fresh water and protect public health and the environment.
2. The location of the BGT will be at a battery or well location which contains proper upright signs (in compliance with 19.15.16.8 NMCA).
3. The BGT will be contained within the operating berm and will be protected with fencing to deter unauthorized access. The BGT will have an expanded metal cover.
4. The BGT will be constructed out of steel which is resistant to the particular contents and resistant to damage from sunlight. The pit will be painted to minimize rust and corrosion.
5. The foundation will be level, free of rocks, debris, sharp edges or irregularities to prevent punctures, cracks, indentations of the liner or tank bottom.
6. The BGT will be designed and constructed to prevent surface water run-on from entering the tank. The corrugated steel wall surrounding the pit will be above grade and will prevent water from running into the BGT.
7. The BGT will have a single wall that is capable of being inspected. The BGT will have a corrugated steel wall barrier that prevents the ground from collapsing around the BGT and allows for the BGT to be thoroughly inspected by providing a direct sight line to the BGT bottom and to the BGT impermeable liner.
8. The BGT will be set on beams, six inches or greater, on the liner in way that will protect the bottom of the BGT from sharp objects.
9. The BGT will only be used under manual conditions to drain tank bottoms or to relieve pressure off of separators. Fluid will not be continuously pumped into this tank, therefore, this design is based on 19.15.17.11.I.4.c. The BGT's are located at batteries that have primary water tanks so that the BGT is not used as a primary water pit, it is only used as a drain pit.
10. An impermeable liner will be installed below the BGT so that any leak in the BGT will flow to a visible point on top of the impermeable liner.



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**Logos Operating  
Below Grade Tank Design**

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## **Logos Operating Below Grade Tank Operation and Maintenance Plan**

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In accordance with NMAC 19.15.17, the following information describes the operation and maintenance plan for below grade tanks (BGT) for Logos Operating, LLC (Logos). This is a standard procedure for Logos.

### **General Plan in Accordance with 19.15.17.12**

1. Logos will operate and maintain the BGT to contain liquids and solids while maintaining the integrity of the liner, BGT, and corrugated steel wall. The operation and maintenance are plan are designed to prevent contamination of fresh water and protect public health and safety.
2. Logos will not store or discharge hazardous waste into the BGT.
3. If the BGT develops a leak, Logos will remove all of the fluids from the BGT within 48 hours and notify the appropriate division office pursuant to 19.15.29 NMAC. Logos will immediately take the BGT out of service until it is properly repaired or replaced.
4. The BGT will be operated and designed to prevent the collection of surface water run-on.
5. The BGT will be bounded by a corrugated steel wall which will contain an unanticipated release. The BGT and corrugated steel wall are also located inside of the berm which will act as a secondary containment barrier in the event of an unanticipated release.
6. Logos will not allow the BGT to overflow or collect surface water run on.
7. Logos will remove any measurable layer of oil from the BGT.
8. The BGT will be inspected at least monthly and the integrity will be documented annually with records maintained for at least 5 years.
9. The BGT will be operated with adequate freeboard to prevent overtopping of the BGT.



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## Logos Operating Below Grade Tank Closure Plan

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In accordance with NMAC 19.15.17.13, the following information describes the closure plan for below grade tanks (BGT) for Logos Operating, LLC (Logos).

### **General Plan in Accordance with 19.15.17.13**

1. Logos will obtain approval of a closure plan prior to commencing closure operations.
2. Logos will close the BGT by first removing all contents and liners and disposing the contents at an approved facility as necessary.
3. The soils beneath the BGT will be tested as follows:
  - a. A five point composite sample including any obvious staining shall be taken under BGT and will be analyzed for constituents listed in Table I of 19.15.17.13 NMAC.
  - b. Based on the results of the soil test, Logos will obtain approval prior to completing any necessary additional delineation for closure. If the soil tests are at or below the standards of closure, Logos will proceed with closure.
4. Logos will notify the surface owner by certified mail, return receipt requested, of plans to close the BGT with at least 72 hour notice, but no more than 1 week, prior to any closure operation. The notice will include the well name, API number, and location.
5. Logos will notify the appropriate district office verbally and in writing with at least 72 hours of notice but no more than 1 week. The notice will include well name and API number as well as the location containing unit letter, section, township, and range.
6. Logos will submit a closure report on form C-144 within 60 days of closure completion. The closure report will contain back filling details, capping and covering where applicable, all necessary attachments, certification that all information contained in the report is correct and that the operator has complied with all applicable closure requirements to the best of its knowledge.
7. Logos will remove liquids and sludge from the BGT within 60 days of cessation of operations and dispose of those at a division approved facility.
8. Within 6 months of cessation of operations, Logos will remove the BGT and all associated equipment associated with only the BGT. Equipment that is required for other purposes will remain in place.
9. Upon closing of the BGT, Logos will reclaim the unused BGT location to a safe and stable condition that blends with the surrounding undisturbed area as provided in

Paragraph 2 of subsection H of 19.15.17.13 as well as recontouring the area in accordance with paragraph 5 in subsection H of 19.15.17.13 NMAC. The soil cover will be constructed to prevent ponding of water and erosion of the cover material.

10. Areas needed for production operations will be compacted, stabilized, and maintained to minimize dust and erosion as much as practicable.
11. The reclamation of the BGT area will contain a uniform vegetative cover that reflects a life-form ratio of plus or minus fifty (50%) of pre-disturbance levels and a total percent plant cover of at least seventy (70%) of pre-disturbance levels, excluding noxious weeds. The re-vegetation and reclamation obligations imposed by other applicable federal or tribal agencies that manage the lands will supersede these provisions and govern the obligations.
12. Logos will notify the division when reclamation and re-vegetation is complete.



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## Logos Operating Below Grade Tank Closure Plan

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In accordance with NMAC 19.15.17.13, the following information describes the closure plan for below grade tanks (BGT) for Logos Operating, LLC (Logos).

### **General Plan in Accordance with 19.15.17.13**

RCVD NOV 25 '13  
OIL CONS. DIV.  
DIST. 3

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  - b. Based on the results of the soil test, Logos will obtain approval prior to completing any necessary additional delineation for closure. If the soil tests are at or below the standards of closure, Logos will proceed with closure.

Components	Tests Method	Limit (mg/Kg)
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	10,000

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