

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

11964
45-35539
45-35538

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 **OIL CONS. DIV DIST. 3**
Facility or well name: Heros 2H and Heros 3H
API Number: 30-045-35539 and 30-045-35538 OCD Permit Number: JUN 24 2014
U/L or Qtr/Qtr L Section 03 Township 23N Range 08W County: San Juan
Center of Proposed Design: Latitude 36.2553958°N Longitude 107.677637°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 75' x D 12'

3.
☐ **Below-grade tank:** Subsection I of 19.15.17.11 NMAC **OIL CONS. DIV DIST. 3**
Volume: _____ bbl Type of fluid: _____
Tank Construction material: _____ **JUN 24 2014**
☐ 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 _____ 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 (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 H₂S, 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 (below-grade tank)
☐ 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 checked="" 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.
- 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 | |

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

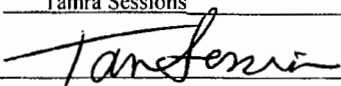
17.

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: 6-23-14

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: 6/27/2014

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 for Temporary Pits**

OIL CONS. DIV DIST. 3

JUN 27 2014

All requested variances provide equal or better protection of fresh water, public health and the environment.

C-144 Temporary Pit Placement

Per walk through with NMOCD inspector on 5/28/14 the temporary pit location was moved from the east side of the location to the north side of location to keep the edge of pit a minimum of 100' from the wash on the east side of the location. The edge of pit is now approximately 130' from the wash and it was determined erosion should not be an issue. During construction of the location we were able to move the hole an additional ~60' to the west, which will move the edge of the pit to approximately 190' from the wash. Drilling fluids will be low chloride. This variance will provide equal of better protection of fresh water, public health and the environment as it was determined erosion should not be an issue.

C-144 Item #5 Fencing

Logos is requesting a variance to rule 19.15.17.11 D (3) and shall construct all new fences utilizing 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.

Public Entity Closure Notification -Temporary Pit Closure Plan Attachment Item #3.

Rule 19.15.17.13 E. If the surface owner is a public entity (BLM/State/Tribal) then an email notification will be sent, of plans to close the temporary pit at least 72 hours, but no more than 1 week, prior to any closure operation. The notice will include the well name, API number, and location.

Temporary Pit Closure Plan Attachment Item #4

Logos has requested a variance on the pit closure timing as Logos will be utilizing this temporary pit for two new drills on the same location. The dual pad drilling will be a continuous operation with approximately 4 days from rig down on the 1st well to rig up on the 2nd well. If Drilling has not commenced within 30 days from first rig release date, the rig release date from the first rig will be used for pit closure timing.

Visible Marker - Temporary Pit Closure Plan Attachment Item #13 a.

Logos has requested a variance for the visible marker that should 'extend at least four feet above mean ground level'. Logos plans to use a steel plate at least 12" x 12", flush with ground level and contain the same information as the four foot riser would have as per the rule. 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 per the rule.

DISTRICT I

1825 N. French Dr., Hobbs, N.M. 88240
Phone: (575) 393-6181 Fax: (575) 393-0720

DISTRICT II

811 S. First St., Artesia, N.M. 88210
Phone: (575) 748-1283 Fax: (575) 748-9720

DISTRICT III

1000 Rio Brazos Rd., Aztec, N.M. 87410
Phone: (505) 334-8178 Fax: (505) 334-8170

DISTRICT IV

1220 S. St. Francis Dr., Santa Fe, N.M. 87505
Phone: (505) 476-3480 Fax: (505) 476-3482

State of New Mexico
Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION

1220 South St. Francis Dr.
Santa Fe, N.M. 87505

Form C-102

Revised August 1, 2011

Submit one copy to appropriate

District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number	² Pool Code	³ Pool Name
⁴ Property Code	⁵ Property Name HEROS	⁶ Well Number 002H
⁷ OGRID No. 289408	⁸ Operator Name LOGOS OPERATING, LLC	⁹ Elevation 6885

¹⁰ Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
L	3	23 N	8 W		2268	SOUTH	70	WEST	SAN JUAN

¹¹ 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
E	4	23 N	8 W		2150	NORTH	250	WEST	SAN JUAN

¹² Dedicated Acres	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.

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

BOTTOM HOLE

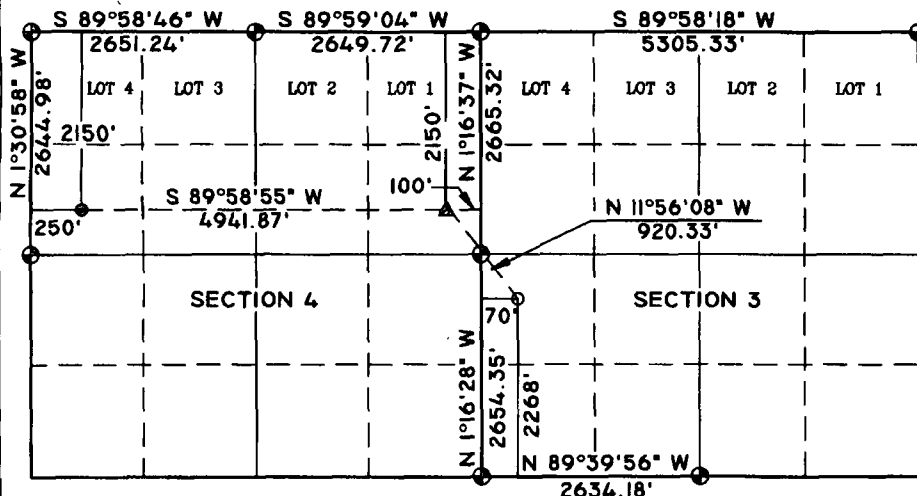
LAT: 36.2576801° N
LONG: 107.6951904° W
NAD 83
LAT: 36°15.46005' N
LONG: 107°41.67472' W
NAD 27

LANDING POINT

LAT: 36.2576638° N
LONG: 107.6784283° W
NAD 83
LAT: 36°15.45907' N
LONG: 107°40.66903' W
NAD 27

SURFACE

LAT: 36.2551894° N
LONG: 107.6777876° W
NAD 83
LAT: 36°15.31060' N
LONG: 107°40.63059' W
NAD 27



LEGEND:

- = SURFACE LOCATION
- = BOTTOM HOLE LOCATION
- ⊕ = FOUND 1947 U.S.G.L.O. BRASS CAP
- △ = LANDING POINT

BEARINGS & DISTANCES SHOWN
ARE REFERENCED TO THE
NEW MEXICO COORDINATE
SYSTEM, WEST ZONE, NAD 83,
UNLESS OTHERWISE NOTED.

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 _____ Date _____

Printed Name _____

E-mail Address _____

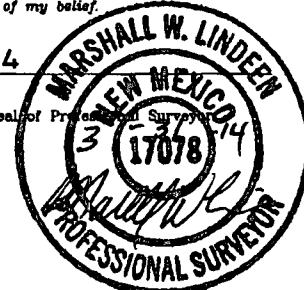
¹⁸ SURVEYOR CERTIFICATION

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.

03/27/14

Date of Survey

Signature and Seal of Professional Surveyor



17078
Certificate Number
United Field Services, Inc.

DISTRICT I
1625 N. French Dr., Hobbs, N.M. 88240
Phone: (575) 393-8181 Fax: (575) 393-0720

DISTRICT II
811 S. First St., Artesia, N.M. 88210
Phone: (575) 748-1283 Fax: (575) 748-9720

DISTRICT III
1000 Rio Brazos Rd., Aztec, N.M. 87410
Phone: (505) 334-6178 Fax: (505) 334-6170

DISTRICT IV
1220 S. St. Francis Dr., Santa Fe, N.M. 87505
Phone: (505) 476-3460 Fax: (505) 476-3482

State of New Mexico
Energy, Minerals & Natural Resources Department

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

Form C-102

Revised August 1, 2011

Submit one copy to appropriate

District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

*API Number		*Pool Code	*Pool Name
*Property Code	*Property Name HEROS		*Well Number 003H
*OGRID No. 289408	*Operator Name LOGOS OPERATING, LLC		*Elevation 6881

¹⁰ Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
L	3	23 N	8 W		2216	SOUTH	74	WEST	SAN JUAN

¹¹ 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
L	4	23 N	8 W		2216	SOUTH	330	WEST	SAN JUAN

¹² Dedicated Acres	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.
-------------------------------	-------------------------------	----------------------------------	-------------------------

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

BOTTOM HOLE

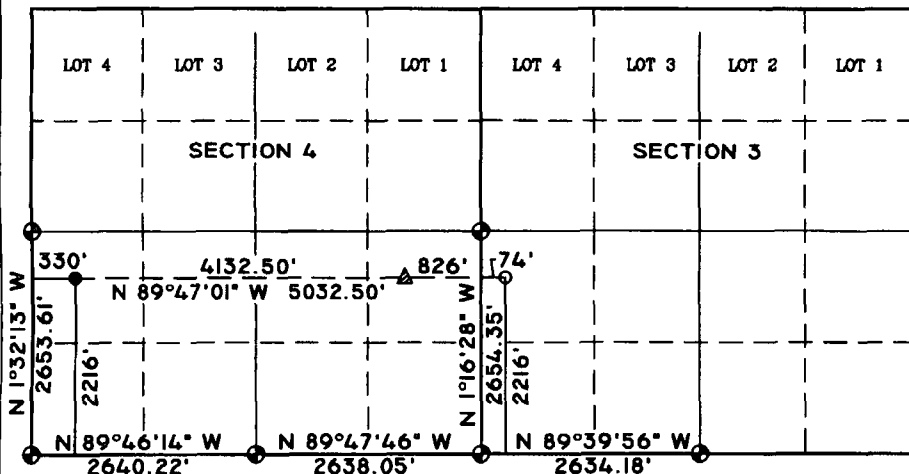
LAT: 36.2551197° N
LONG: 107.6948393° W
NAD 83
LAT: 36°15.30642' N
LONG: 107°41.65366' W
NAD 27

LANDING POINT

LAT: 36.2550597° N
LONG: 107.6808238° W
NAD 83
LAT: 36°15.30282' N
LONG: 107°40.81276' W
NAD 27

SURFACE

LAT: 36.2550465° N
LONG: 107.6777705° W
NAD 83
LAT: 36°15.30203' N
LONG: 107°40.62957' W
NAD 27



LEGEND:

- = SURFACE LOCATION
- = BOTTOM HOLE LOCATION
- ⊕ = FOUND 1947 U.S.G.L.O. BRASS CAP
- △ = LANDING POINT

BEARINGS & DISTANCES SHOWN
ARE REFERENCED TO THE
NEW MEXICO COORDINATE
SYSTEM, WEST ZONE, NAD 83,
UNLESS OTHERWISE NOTED.

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 _____ Date _____
Printed Name _____
E-mail Address _____

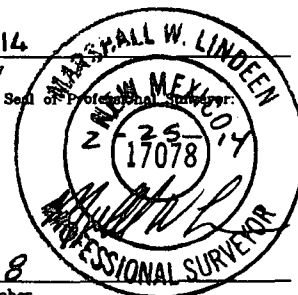
¹⁸ SURVEYOR CERTIFICATION

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.

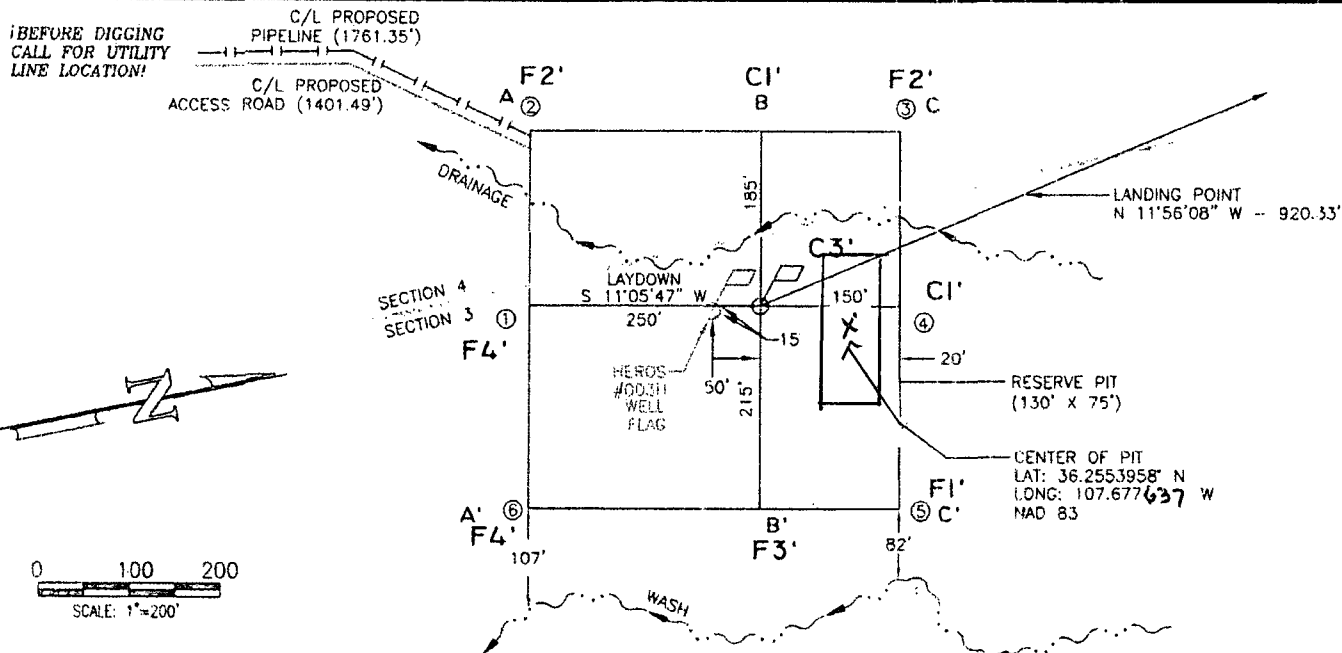
02/12/14

Date of Survey

Signature and Seal of Professional Surveyor



17078
Certificate Number
United Field Services, Inc.



ELEVATION A-A'

6900				
6890				
6880				
6870				
6860				

B-B'

6900				
6890				
6880				
6870				
6860				

C-C'

6900				
6890				
6880				
6870				
6860				

CROSS SECTIONS

HORIZONTAL: 1"=200'

VERTICAL: 1"=50'

LEASE: HEROS #002H

2268' FSL, 70' FWL (SURFACE) SEC. 3

FOOTAGES: 2150' FNL, 250' FWL (BOTTOM HOLE) SEC. 4

SEC. 3 & 4 TWN. 23 N RNG. 8 W N.M.P.M.

LAT: 36.2551894° N LONG: 107.6777876° W (NAD83)

PROPOSED ELEVATION: 6881



LOGOS
OPERATING, LLC

SURVEYED: 03/27/14

REV. DATE: 06/02/14

APP. BY M.W.L.

DRAWN BY: V.C.

DATE DRAWN: 03/31/14

FILE NAME: 10696C02



P.O. BOX 3651
FARMINGTON, NM 87499
OFFICE: (505) 334-0408



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 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
SJ 02686			SJ	3	4	2	32	24N	08W	257502	4017472*	2874	690	690	0
SJ 00960			SJ	3	3	3	36	24N	08W	262730	4016518*	3303			
SJ 00960 S			SJ	3	1	3	36	24N	08W	262744	4016920*	3461			
SJ 00960 S-2			SJ	3	2	3	36	24N	08W	263147	4016909*	3828			
SJ 00960 S-3			SJ	2	4	3	36	24N	08W	263336	4016707*	3938			
SJ 03978 POD1			SJ	1	2	1	22	23N	08W	259816	4011541	3959	500	260	240
SJ 00870			SJ		2	3	36	24N	08W	263248	4017010*	3960	250		
SJ 01304			SJ			2	01	23N	08W	263823	4015987*	4262	100		
SJ 01334			SJ			2	01	23N	08W	263823	4015987*	4262	90	40	50
SJ 01335			RA			1	31	24N	07W	264672	4017581*	5494	185		
SJ 01709			SJ		1	1	27	23N	08W	259451	4009831*	5665	317	225	92
SJ 00001			SJ		4	1	12	23N	09W	253534	4014427*	6148	695	630	65
SJ 01131			RA		1	4	19	24N	07W	265313	4020131*	7365	1700	400	1300
SJ 01712			SJ		2	4	27	24N	09W	251195	4018933*	9070	528	515	13
SJ 01710			SJ		1	3	25	23N	09W	252985	4009203*	9121	550	173	377
SJ 00681 39			RA	4	2	2	18	24N	07W	265824	4022392*	9297	1825	500	1325

Average Depth to Water: **381 feet**

Minimum Depth: **40 feet**

Maximum Depth: **690 feet**

Record Count: 16

UTMNAD83 Radius Search (in meters):

Easting (X): 259589

Northing (Y): 4015495

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.

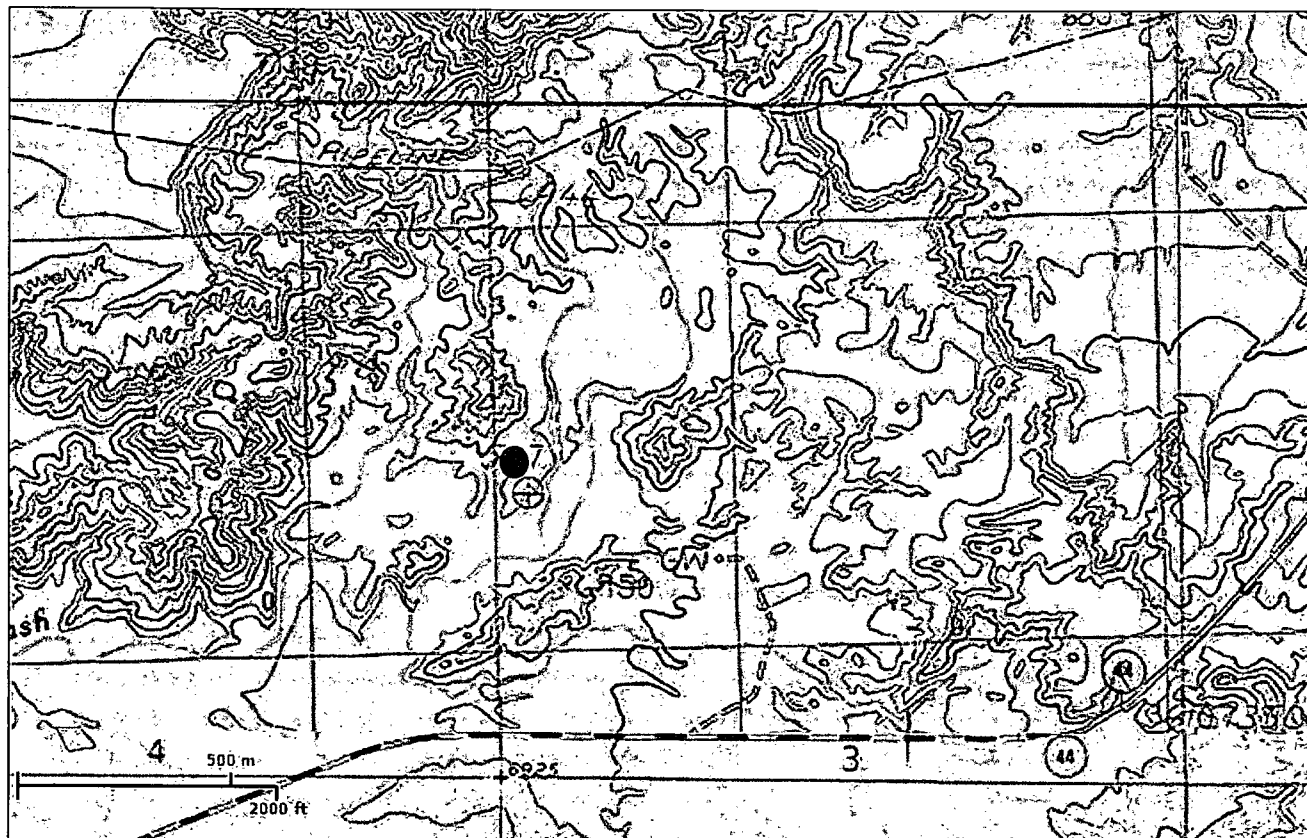


U.S. Fish and Wildlife Service

National Wetlands Inventory

HEROS 2H &
HEROS 3H
Wetlands Topo

June 23, 2014



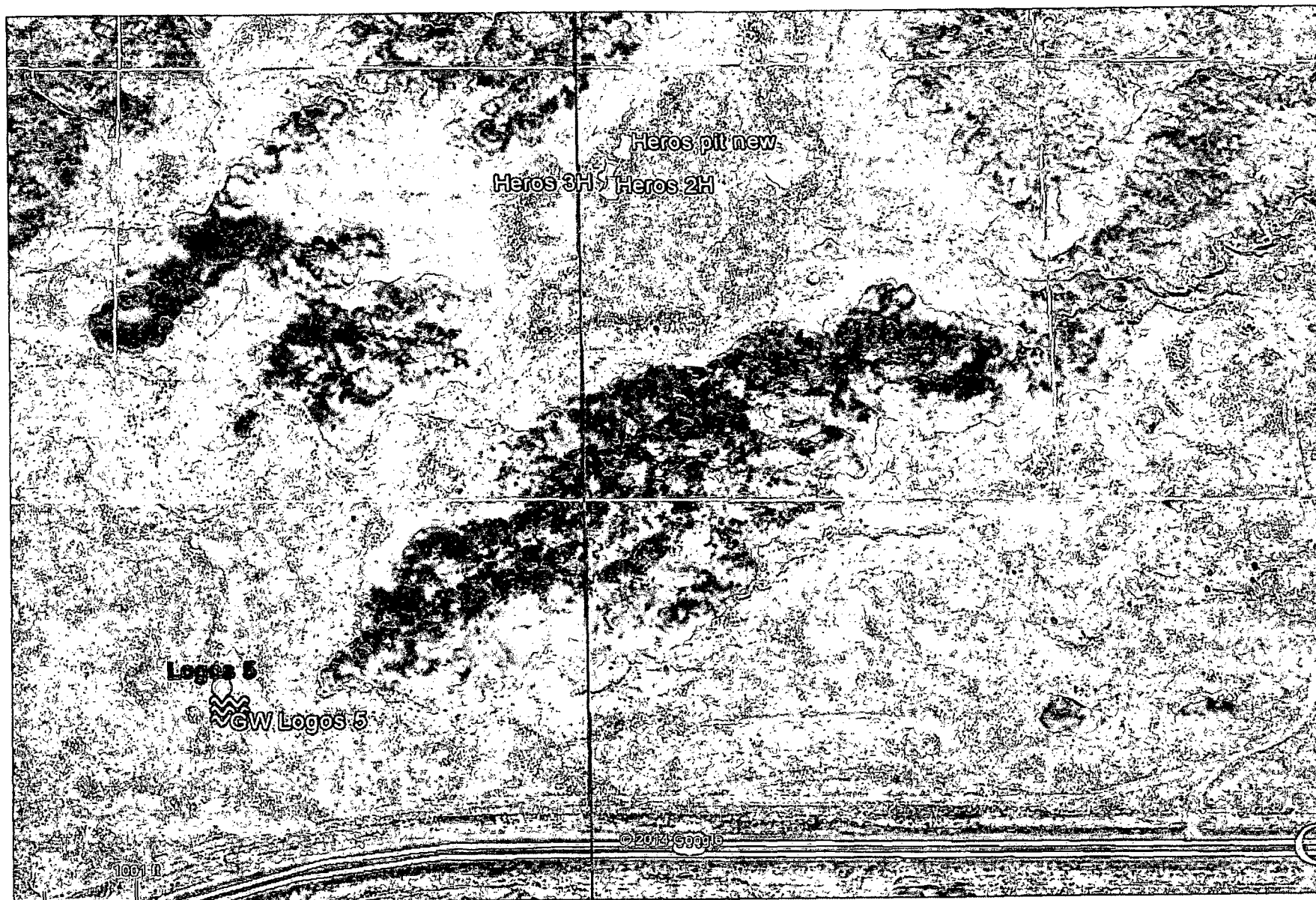
Wetlands

- ☐ 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.

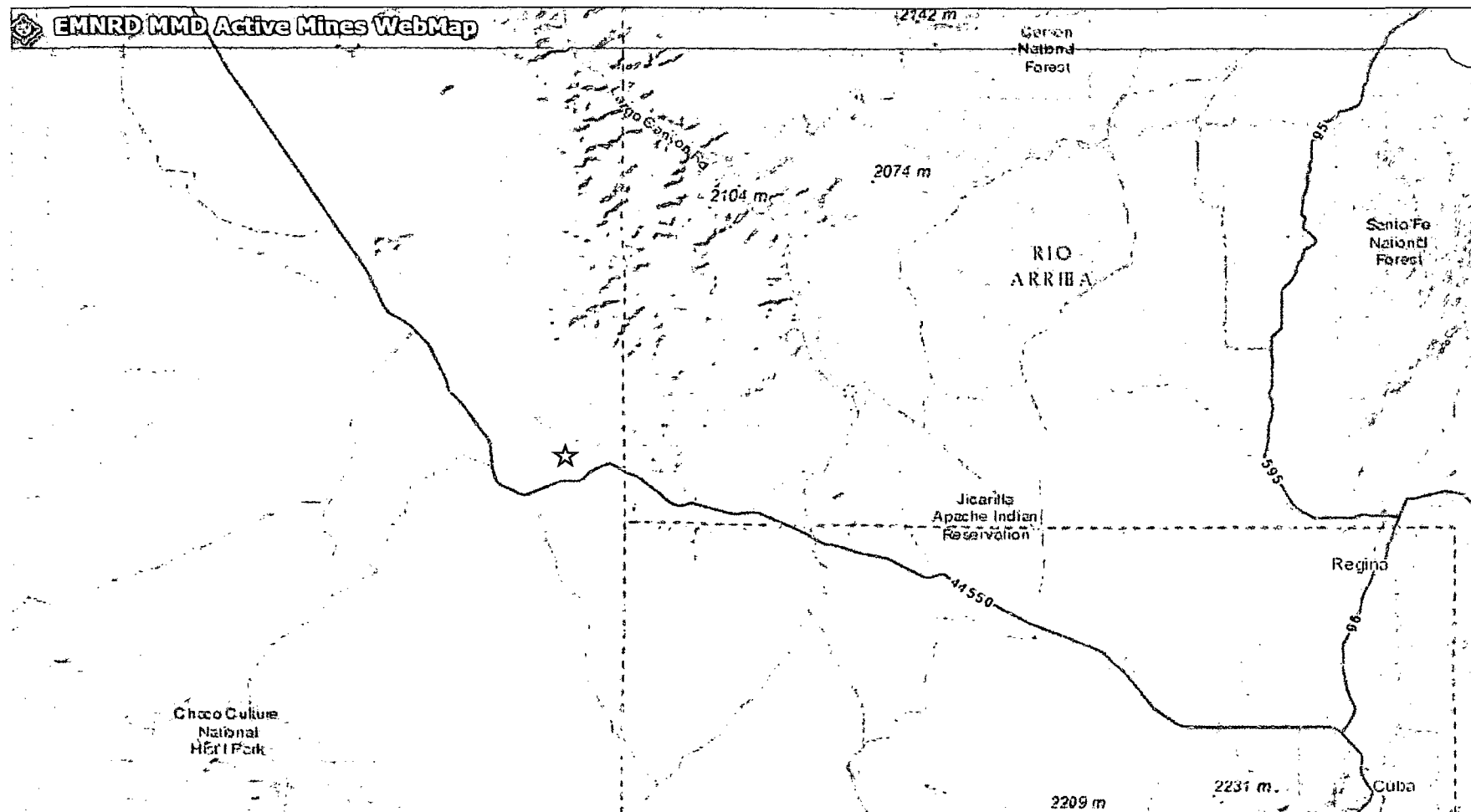
User Remarks:

UL L, Section 3, T23N, R08W - No wetlands within 100' of drill site.



MINES, MILLS & QUARRIES MAP

HEROS 2H & HEROS 3H



HEROS 2H & HEROS 3H - Latitude 36.2552764° N / Longitude 107.6771958° W (NAD83)

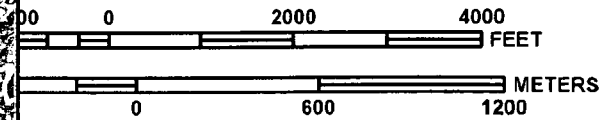
There are no mines, mills or quarries within any close distance.

Data Source: New Mexico Active Mines, Feb 2012 spreadsheet

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



MAP SCALE 1" = 2000'



NFP

PANEL 2100F

FIRM

FLOOD INSURANCE RATE MAP

SAN JUAN COUNTY,
NEW MEXICO

AND INCORPORATED AREAS

PANEL 2100 OF 2750

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
SAN JUAN COUNTY	350064	2100	F

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
35045C2100F

EFFECTIVE DATE
AUGUST 5, 2010

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

MO-TE DRILLING, INC.

30-045-35423

DAY Thur

DRILLER <u>Zack M</u>	LEFT TOWN <u>↑</u>	ARRIVED FIELD
HELPER <u>Bob H.</u>	LEFT FIELD	ARRIVED TOWN
HELPER <u>Tom H.</u>	TOTAL FOOTAGE TODAY	

RIG NO. 207 DATE 1-17-13 CLIENT Logos Operating

BEGIN WORK ON HOLE NO. Logos #5 AT FEET

BEGIN WORK ON HOLE NO. Test hole G/4 AT FEET

TIME		ACTIVITY
FROM	TO	
8 ⁴⁵	9 ³⁰	Drive to location
9 ³⁰	10 ⁰⁰	Rig Up
10 ⁰⁰	10 ¹⁵	Drill G/4 from 0' to 65'
10 ¹⁵	11 ¹⁵	Trip out wait 1 hour test for water
11 ¹⁵	11 ³⁰	Drill G/4 from 65' to <u>120</u>
11 ³⁰	1 ⁰⁰	Trip out ^{RMD} wait 1 hour test for water
10¹⁵	11¹⁵	back fill hole.
1 ⁰⁰	2 ¹⁵	Drive back to yard
		NO WATER
		0-10' SAND 50-60' shale
		10'-20' SAND SAND 60'-70' shale/clay
		20'-30' SAND/clay 70'-80' shale
		30'-40' Clay 80'-90' Clay
		40'-50' Sandstone/clay 90'-100' Clay

BIT RECORD			
SIZE & MAKE	SERIAL NO.	FOOTAGE	
			100'-110' Sandstone/Clay
			110'-120' Sand Clay Mix
			1 Day Rig 3500 ⁰⁰
CIRCULATION MATERIAL			
QUAN	UNIT	MATERIAL	
		Water	Level Meter 100 ⁰⁰
		Tax	311 ⁷²
NO. OF LOADS OF WATER			SOURCE Total 4686 ⁷²

Hydro geological report for Heros 2H and Heros 3H

Referenced Well Location:

The Heros 2H and Heros 3H are located on public lands managed by the BLM in San Juan County, New Mexico. The proposed development is situated near the headwaters of Kimbeto Wash in gently rolling terrain north of U.S. Highway 550. Elevation of the referenced well is 6881'.

General Regional Groundwater Description:

As a portion of the San Juan Basin, the FFO region is underlain by sandstone aquifers of the Colorado Plateau. The primary aquifer of potential concern at this location is the Uinta-Animas Aquifer, composed primarily of Lower Tertiary rocks in the San Juan Basin. The aquifer consists of the San Jose Formation; the underlying Animas formation and its lateral equivalent, the Nacimiento formation; and the Ojo Alamo Sandstone. The thickness of the Uinta-Animas aquifer generally increases toward the central part of the basin. In this region, the maximum thickness of the aquifer is approximately 3500 feet (USGS, 2001). This aquifer contains fresh to moderately saline water. Groundwater generally flows toward the San Juan River and its tributaries, where it becomes alluvial groundwater or is discharged to stream flow.

Site Specific Information:

Surface Hydrology: The temporary pit is located on hilly terrain with moderate to steep slopes to the northwest draining into Kimbeto Wash.

1st Water Bearing Formation: San Jose, Tertiary; Formation Thickness: Approximately 1,900 ft.

Underlying Formation: Nacimiento, Tertiary

Depth to Groundwater:

Depth to groundwater is estimated at greater than 100' below bottom of the temporary pit.

**Logos Operating, LLC
Herros 2H & Herros 3H
Temporary Reserve Pit Application
Siting Criteria**

1. According to the iWaters Database from the State Engineers Office, the closest known water well is 2874 meters (1.78miles) away in Section 32 of T24N R8W. The depth of the well is 690, and water depth is 690'. A test water well drilled to 120' on the Logos 5, elevation 6867', found no water. The Herros 2H and Herros 3H elevation is 6881', so ground water depth is greater than than 134'.
2. As shown on the attached topographic map and aerial photos, there are no continuously flowing watercourses within 100' of the temporary pit, or lakebeds, sinkholes or playa lakes within 200' of the temporary pit. There is a significant watercourse (Kimbeto Wash) that is approximately 190' from the edge of the proposed temporary pit.
 - a. Per walk through with NMOCD inspector on 5/28/14 the temporary pit location was moved from the east side of the location to the north side of location to keep the edge of pit a minimum of 100' from the wash on the east side of the location. The edge of pit is now approximately 130' from the wash and it was determined erosion should not be an issue. During construction of the location we were able to move the hole an additional ~60' to the west, which will move the edge of the pit to approximately 190' from the wash. Drilling fluids will be low chloride. This variance will provide equal of better protection of fresh water, public health and the environment as it was determined erosion should not be an issue.
3. There are no permanent residences, schools, hospitals, institutions, or churches within 300' of the temporary pit.
4. There are no domestic water wells or springs within 200' of the temporary pit. See iWaters Database printout.
5. The temporary pit is not located within any municipal boundaries.
6. The temporary pit is not within 100' of any wetlands. See attached topographic map and aerial photos.
7. There are no subsurface mines in Section 3, T23N, R8W. See attached map from the NM EMNRD Mining and Mineral Division.
8. The temporary pit 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. The stockpile will be on location and will meet the criteria.
9. The attached FEMA Map indicates that the proposed location is well outside 100 year floodplain.
10. 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).

PLEASE NOTE: THE HEROS 2H AND HEROS 3H WILL BE SHARING THE SAME WELL PAD. PLANS ARE TO DRILL THESE TWO WELLS BACK TO BACK AND UTILIZE THE SAME TEMPORARY PIT.

Tamra Sessions

From: Tamra Sessions
Sent: Wednesday, May 21, 2014 3:57 PM
To: Mark Kelly (mkelly@blm.gov)
Cc: Kristina Graham; Wayne Ritter
Subject: Heros 2H_Heros 3H_Surface Owner Notification for Temporary Pit 05-21-14

According to NMOCD rules, Logos Operating, LLC is notifying you that there will be 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. Please let me know if I need to add anyone else to this notification.

Thank you,

Tamra Sessions
Logos Resources, LLC
Operations Technician
tsessions@logosresourcesllc.com
(c) 505-330-9333
(o) 505-436-3790 ext 103

**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, LLC (Logos) locations; this is Logos 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 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 will post a well sign, in compliance with 19.15.17.11C 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 range, and emergency telephone numbers
- 4 Logos shall construct all new fences utilizing 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. If the temporary pit is within 1000' of an occupied residence, it will be enclosed with a chain link fence, at least six feet in height with at least two strands of barbed wire at the top. 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 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 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 will minimize liner seams and orient them up and down, not across a slope. Factory seams will be used whenever possible. Logos 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 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-on 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 will not allow freestanding liquids to remain on the unlined portion of temporary blow pit

JUN 27 2014

**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, LLC (Logos) locations. This is Logos 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 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 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 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 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 shall remove all liquids above the damaged liner within 48 hours and repair the damage or replace the liner. Logos shall notify the Aztec Division office by phone or email within 48 hours of the discovery pursuant to 19.15.29 NMAC.
- 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-on by constructing and maintaining diversion ditches around the location or around the perimeter of the pit in some cases
- 8 Logos 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 will maintain the temporary pit free of miscellaneous solid waste or debris
- 11 During drilling or workover operations, Logos will inspect the temporary pit at least once daily to ensure compliance with this plan. Inspections will be logged in the IADC reports. Logos will file this log with the Aztec Division office upon closure of the pit
- 12 After drilling or workover operations, Logos 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 office electronically and will be filed with the Aztec Division office upon closure of the pit
- 13 Logos shall maintain at least two feet of freeboard for a temporary pit
- 14 Logos 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 shall remove all free liquids from cavitation pits within 48 hours after completing cavitations. Logos may request additional time to remove liquids from Aztec Division office if it is not feasible to remove liquids within 48 hours

JUN 27 2014

**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, LLC (Logos) locations. This is Logos 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 Logos will notify the surface owner by certified mail, return receipt requested, unless surface owner is a public entity (BLM/State/Tribal) then an email notification will be sent, of plans to close the temporary pit at least 72 hours, but no more than 1 week, prior to any closure operation. The notice will include the well name, API number, and location
- 4 Within 6 months of the Rig Off status occurring on the continuous drilling of dual pad wells, Logos 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. Well name and API Number
 - iii. Location by Unit Letter, Section, Township, and Range.
- 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

Components	Tests Method	Limit (mg/Kg)
		>100' bottom of pit to GW
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; and contents are below concentrations listed in TABLE II, 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 and impervious resistance to ultra violet light, hydrocarbons, salts, alkaline.
- 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 shall seed the disturbed areas the first favorable 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 mix 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
 - a. On Federal/Tribal/Forest lands we will comply with their stipulations as they are more stringent
- 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 pursuant to 19.15.17.13.H.5D.