

State of New Mexico
Energy, Minerals and Natural Resources Department

Susana Martinez
Governor

David Martin
Cabinet Secretary-Designate

Brett F. Woods, Ph.D.
Deputy Cabinet Secretary

Jami Bailey, Division Director
Oil Conservation Division



New Mexico Oil Conservation Division approval and conditions listed below are made in accordance with OCD Rule 19.15.7.11 and are in addition to the actions approved by BLM on the following 3160-3 APD form.

Operator Signature Date: 4/24/14

Well information;

Operator Lojo, Well Name and Number HEROS 4 0

API# 30-045-35541, Section 4, Township 23 NS, Range 8 E/W

Conditions of Approval:

(See the below checked and handwritten conditions)

- ☒ Notify Aztec OCD 24hrs prior to casing & cement.
- ☐ Hold C-104 for directional survey & "As Drilled" Plat
- ☒ Hold C-104 for NSL, NSH, DHC
- ☐ Spacing rule violation. Operator must follow up with change of status notification on other well to be shut in or abandoned
- ☐ Regarding the use of a pit, closed loop system or below grade tank, the operator must comply with the following as applicable:
 - A pit requires a complete C-144 be submitted and approved prior to the construction or use of the pit, pursuant to 19.15.17.8.A
 - A closed loop system requires notification prior to use, pursuant to 19.15.17.9.A
 - A below grade tank requires a registration be filed prior to the construction or use of the below grade tank, pursuant to 19.15.17.8.C
- ☐ Once the well is spud, to prevent ground water contamination through whole or partial conduits from the surface, the operator shall drill without interruption through the fresh water zone or zones and shall immediately set in cement the water protection string
- ☐ Oil base muds are not to be used until fresh water zones are cased and cemented providing isolation from the oil or diesel. This includes synthetic oils. Oil based mud, drilling fluids and solids must be contained in a steel closed loop system.

Charles Herr
NMOCD Approved by Signature

8-7-2014
Date

RECEIVED

FORM APPROVED
OMB No. 1004-0137
Expires October 31, 2014

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APR 24 2014

APPLICATION FOR PERMIT TO DRILL OR REENTER Field Office

1a. Type of work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5. Lease Serial No. NM109398
1b. Type of Well: <input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other <input type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone		6. If Indian, Allottee or Tribe Name
2. Name of Operator Logos Operating, LLC		7. If Unit or CA Agreement, Name and No.
3a. Address 4001 N. Butler Ave, Bldg 7101 Farmington, NM 87401	3b. Phone No. (include area code) 505-330-9333	8. Lease Name and Well No. Heros 40
4. Location of Well (Report location clearly and in accordance with any State requirements.)* At surface 734' FSL & 1833' FEL (SW/SE) At proposed prod. zone same		9. API Well No. 30-045-35541
14. Distance in miles and direction from nearest town or post office* 5 miles southeast of Nageezi		10. Field and Pool, or Exploratory Basin Mancos
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 734' from south edge of Sec 4	16. No. of acres in lease 639.60 acres	11. Sec., T. R. M. or Blk. and Survey or Area Sec 4, T23N, R08W, UL O
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 880' from Logos 5 S4 T23N R8W	19. Proposed Depth Approx. 6400'	12. County or Parish San Juan
21. Elevations (Show whether DF, KDB, RT, GL, etc.) GL 6862'	22. Approximate date work will start* 06/30/2014	13. State NM
17. Spacing Unit dedicated to this well 40 acres SW4/SE4		
20. BLM/BIA Bond No. on file BLM NMB000917		
23. Estimated duration 40 days		

OIL CONS. DIV DIST. 3

AUG 05 2014

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, must be attached to this form:

- Well plat certified by a registered surveyor.
- A Drilling Plan.
- A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office).
- Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
- Operator certification
- Such other site specific information and/or plans as may be required by the BLM.

25. Signature <i>Tamra Sessions</i>	Name (Printed/Typed) Tamra Sessions	Date 4-24-14
Title Operations Technician		
Approved by (Signature) <i>Troy Salyers</i>	Name (Printed/Typed) Troy Salyers	Date 7/31/2014
Title Petroleum Engineer (Acting AFM)	Office FFO	

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

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

BLM'S APPROVAL OR ACCEPTANCE OF THIS

ACTION DOES NOT RELIEVE THE LESSEE AND OPERATOR FROM OBTAINING ANY OTHER AUTHORIZATION REQUIRED FOR OPERATIONS ON FEDERAL AND INDIAN LANDS

*(Instructions on page 2)

DRILLING OPERATIONS
AUTHORIZED ARE SUBJECT TO
COMPLIANCE WITH ATTACHED
"GENERAL REQUIREMENTS"

This action is subject to technical and procedural review pursuant to 43 CFR 3165.3 and appeal pursuant to 43 CFR 3165.4

NHCOOAV

CONFIDENTIAL

DISTRICT I
1635 N. French Dr., Hobbs, N.M. 88240
Phone: (575) 398-6161 Fax: (575) 398-0720

DISTRICT II
611 S. First St., Artesia, N.M. 88210
Phone: (575) 748-1255 Fax: (575) 748-0720

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

DISTRICT IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3452

State of New Mexico
Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION

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

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APR 24 2014

Form C-102
Revised August 1, 2011
Submit one copy to appropriate
District Office

Farmington Field Office
Bureau of Land Management
AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-045-35541	² Pool Code 97232	³ Pool Name BASIN MANCOS
⁴ Property Code 313147	⁵ Property Name HEROS	⁶ Well Number 0040
⁷ OGRID No. 289408	⁸ Operator Name LOGOS OPERATING, LLC	⁹ Elevation 6862'

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
0	4	23-N	8-W		734	SOUTH	1833	EAST	SAN JUAN

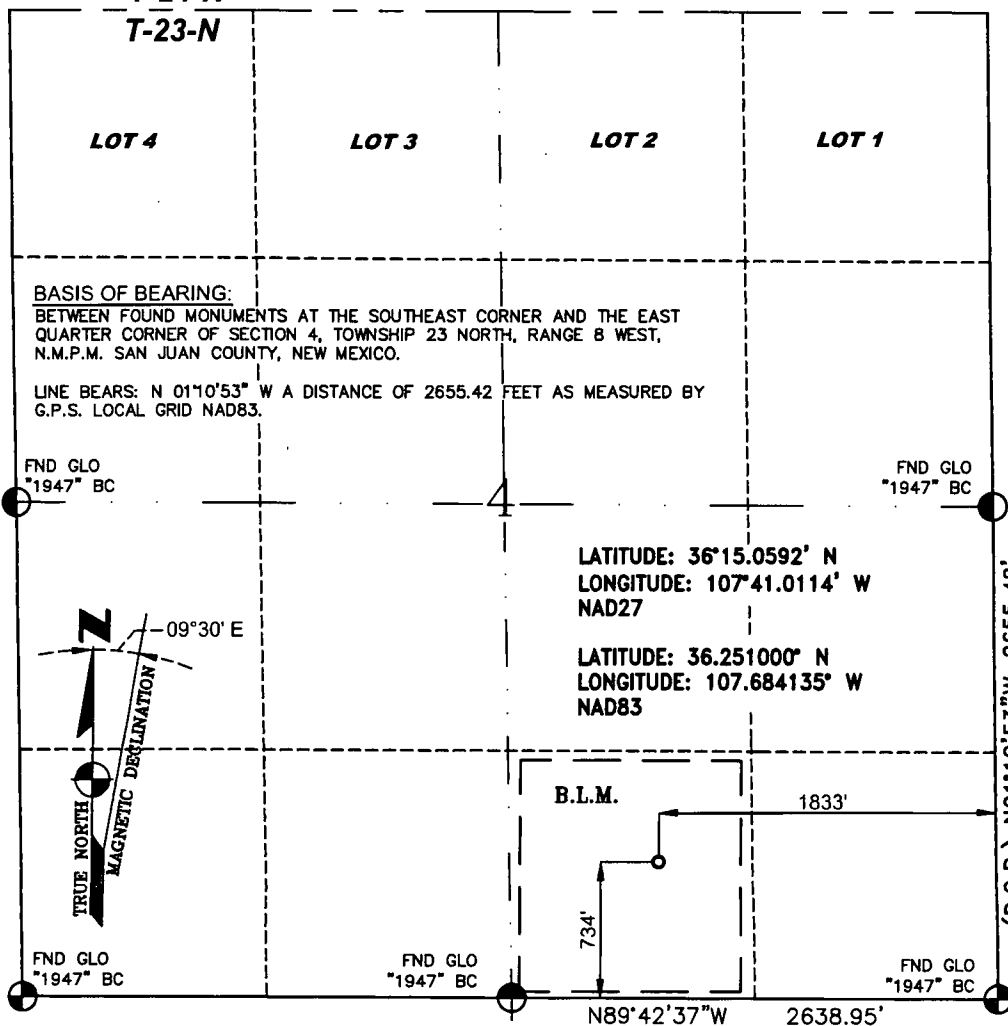
¹¹ Bottom Hole Location If Different From Surface

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

¹² Dedicated Acres 40.00 ACRES SW/SE	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.
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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 T-24-N



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 a working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

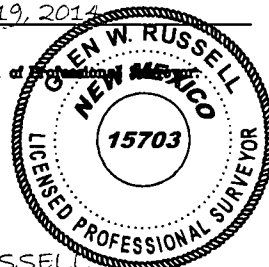
Tamra Sessions 4-24-14
Signature Date
Tamra Sessions
Printed Name
+sessions@logosresourcesllc.com
E-mail Address

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.

FEBRUARY 19, 2014
Date of Survey

Signature and Seal of Surveyor



GLEN W. RUSSELL
Certificate Number 15703

**Logos Operating, LLC
Operations Plan
Heros 40**

Note: This procedure will be adjusted on site based on actual conditions.

- I. Location: 734' FSL & 1833' FEL Date: April 23, 2014
Sec 4, T23N R08W
San Juan County, NM

Field: Mancos Elev: GL 6,862'
Surface: Federal
Minerals: Federal

- II. Geology: Surface formation: Nacimiento

- a. (Note: tops estimated from Warner-Caldwell 1A)

Formation Tops	Depths
Ojo Alamo	867'
Kirtland	1083'
Fruitland	1501'
Pictured Cliffs	----
Lewis	----
Chacra	----
Cliff House	----
Menefee	----
Point Lookout	3971'
Mancos	4098'
Niobrara Member	----
Sanostee Member-Mancos	5702'
Greenhorn Member-Mancos	5943'
Ganeros Member-Mancos	6014'
Total Depth	6400'

Estimated depths of anticipated water, oil, gas, and other mineral bearing formations, which are expected to be encountered:

Water and gas- 1504' and 3971'
Water, gas, and oil- 4098' and 5702'

- b. Logging Program: Induction/GR and density/neutron logs from TD to the surface casing point. Mud logs will be run from below the surface casing to TD. No DST's or cores are planned for this well. Cased hole GR/CCI and CBL logs will be run from PBTD to surface.
- c. No over pressured zones are expected in this well. No H₂S zones will be penetrated in this well. Max BHP = 2850 psig. Lost circulation zones may be encountered in the Mesa Verde group and Niobrara sections.

III. Drilling

a. Contractor:

b. Mud Program:

The surface hole will be drilled with a fresh water mud.

The production hole will be drilled with a fresh water mud and will use bentonite to increase the viscosity. The weighting material will be drill solids or if conditions dictate, barite. The maximum mud weight expected in 9.2 ppg. The water loss will be controlled to a 6-8 cc/30 min. and loss circulation will be controlled with cedar fiber, paper, etc.

The Mancos and Gallup formations will all be considered for completion in this well. A completion procedure will be developed after evaluating the wireline and mud logs.

c. Minimum Blowout Control Specifications:

Double ram type 2000 psi working pressure BOP with a rotating head. See the attached Exhibit #1 for details on the BOP equipment. All ram type preventers and related equipment will be hydraulically tested at nipple-up to 250 psi (Low) for 5 minutes and 1,500 psi (High) for 10 minutes. All tests and inspections will be recorded in the daily drilling tour book.

The blind rams will be hydraulically activated and checked for operational readiness each time pipe is pulled out of the hole. All checks of the BOP stack and equipment will be noted on the daily drilling report. The BOP equipment will include a kelly cock, floor safety valve, and choke manifold all rated to 2000 psi.

IV. Materials

a. Casing Program

Hole Size	Depth	Casing Size	Wt. & Grade
12-1/4"	330'	9-5/8"	36# J-55
7-7/8"	6400'	5-1/2"	17# P-110

b. Float Equipment:

i. Surface Casing: Notched collar, aluminum insert float in the first collar, and 3 centralizers on the bottom 3 joints.

ii. Production Casing: 5-1/2" cement float shoe and self-fill insert float collar. Place float one joint above shoe. **Place DV tool at 4248'.** Place ten centralizers spaced every other joint above the shoe, two turbolizers on the collars below the DV tool and two turbolizers above the DV tool. Place five turbolizers every third joint from the top of the well.

V. Cementing:

Note: Cement volumes will be adjusted based on actual conditions.

Surface casing: 9-5/8" – use 225 sx (266 cu. ft.) of Type V with 2% CaCl₂ and ¼ #/sk celloflake (Yield = 1.18 cu. ft./sk; slurry weight = 15.6 PPG). 100% excess to circulate cement to surface. WOC 12 hours. Pressure test surface casing to 1500 psi.

Production casing: 5-1/2" – Before cementing circulate hole with at least 1-1/2 hole volumes of mud. Precede cement with 30 bbls of fresh water. **1st stage: Lead** with 260 sx (458 cu. ft.) of Cl "B" 65/35 poz with 6% gel, 1% CaCl₂, 4% phenoseal, and ¼ #/sx celloflake (Yield = 1.6 cu. ft./sk; slurry weight = 12.8 PPG) > **Tail** with 100 sx (146 cu. ft.) of Cl "B" 50/50 poz with 0.15% dispersant, 1% CaCl₂ and ¼ #/sk. Celloflake. (Yield 1.46 cu.ft./sk; slurry weight = 13.0 PPG). **2nd stage:** Precede cement with 20 bbls of water. **Lead** with 600 sx (1056 cu. ft.) Cl "B" 65/35 poz with 6% gel, 1% CaCl₂, and ¼ #/sx celloflake (Yield = 1.76 cu. ft./sk; slurry weight = 12.8 PPG). **Tail** with 100 sx (146 cu. ft.) of Cl "B" 50/50 poz with 0.15% dispersand, 1% CaCl₂, and ¼ #/sk. Celloflake. (Yield = 1.46 cu. ft./sk; slurry weight = 13.0 PPG). Total cement volume is 1806 cu. ft. (50% excess to hole volume to circulate cement to surface).

4-23-14
Date

Tamra Sessions
Tamra Sessions
Operations Technician

additional fill or surfacing material is required, it will be obtained from existing permitted or private sources and will be hauled in by trucks over existing access roads to the area.

c. The proposed well pad is situated at the confluence of an unnamed, intermittent/ephemeral watercourse and Kimbeto Wash. The proposed project would be designed to avoid discharge into watercourses that are potentially USACE jurisdictional.

d. Construction of the well pad will take approximately 1 week.

3. Well-tie Pipeline

a. Logos would construct, operate, maintain, and terminate an up to 3-inch outside diameter, buried, steel well connect pipeline to transport produced natural gas to existing pipeline infrastructure at the Logos #5 well site. The pipeline would be constructed on Lease #NM 109398 in Section 4, T23N, R8W, NMPM. The proposed pipeline is 798.39 feet in length. The pipeline would be constructed parallel to the proposed Heros #40 resource road for approximately 653 feet and would overlap existing Logos #5 well pad disturbance for approximately 146 feet.

b. Within the proposed pipeline corridor, all vegetation would be cleared, the top 6 inches of topsoil would be salvaged and stockpiled, and the pipeline trench would be excavated.

c. Trenching activity would be conducted using a trencher or backhoe. Where a pipeline trench would be required, it would be 4 to 5 feet in depth. The trench would be 16 inches in width if a trencher is used or 24 inches in width if a backhoe is used.

d. After trenching and pipe placement in the trench, the soils excavated from the trench would be returned and compacted to prevent subsidence. The trench would be compacted after approximately 2 feet of fill is placed within the trench and after the ground surface has been leveled.

e. Construction of the pipeline will take approximately 3-5 days.

G. Methods for Handling Waste Disposal:

1. Cuttings

a. The drill cuttings and drilling fluids will be placed in a reserve pit. The reserve pit will be lined with a 20 mil string re-enforced material and constructed to meet the NMOCDC pit guidelines. The reserve pit will be fenced prior to drilling. After drilling, any free liquids in the pit will be disposed of at the appropriate waste disposal facilities. The solids in the

reserve pit will be allowed to dry, tested, and buried according to NMOCD pit rules.

2. Flowback Water

- a. The water-based solution that flows back to the surface during and after completion operations will be placed in storage tanks on location.
 - b. Flowback water will be confined to a storage tank for a period not to exceed 90 days after initial production and will be disposed of at Basin Disposal, Inc. and/or Industrial Ecosystem, Inc. waste disposal facilities, or recycled.
3. Spills - any spills of non-freshwater fluids will be immediately cleaned up and removed to an approved disposal site.
 4. Sewage - self-contained, chemical toilets will be provided for human waste disposal. The toilet holding tanks will be pumped, as needed, and the contents thereof disposed of in an approved sewage disposal facility. The toilets will be onsite during all operations.
 5. Garbage and other waste material - garbage, trash, and other waste materials will be collected in a portable, self-contained and fully-enclosed trash container during drilling and completion operations. The accumulated trash will be removed, as needed, and will be disposed of at an authorized sanitary landfill. No trash will be buried or burned on location.
 6. Immediately after removal of the drilling rig, all debris and other waste materials not contained in the trash container will be cleaned up and removed from the well location.
 7. No chemicals subject to reporting under SARA Title III in an amount equal to or greater than 10,000 pounds will be used, produced, stored, transported, or disposed of in association with the drilling, testing, or completion of this well.
 8. No extremely hazardous substances, as defined in 40 CFR 355, in threshold planning quantities, will be used, produced, stored, transported, or disposed of in association with the drilling, testing, or completion of this well.

H. Ancillary Facilities:

1. Standard drilling operation equipment that will be on location includes: drilling rig with associated equipment, temporary office trailers equipped with sleeping quarters for essential company personnel, toilet facilities, and trash containers.

**Directions from the Intersection of Highway 550 and Highway
64 in Bloomfield, NM**

to

LOGOS OPERATING, LLC

HEROS #0040

734' FSL 1833' FEL,

**Section 4, T23N, R8W, N.M.P.M., San Juan County,
New Mexico**

Latitude: 36° 15' 03.600" N

Longitude: 107° 41' 02.887" W

Nad 1983

From the Intersection of Highway 550 & Highway 64

**Go South on Hwy 550 for 40.7 miles,
turn left (north-northwesterly) for 400 feet
to the west side of the existing location LOGOS #5,
From which the new access begins and
continues (northwesterly) for 628.74'
to the new location.**

Well Control Equipment Schematic for 2M Service

Attachment to Drilling Technical Program

Exhibit #1

Typical BOP setup

Location: San Juan Basin, New Mexico

Date: August 20, 2001

By: John Thompson (Walsh E&P)

