Form 3160-3
(June 2015)

FORM APPROVED
OMB No. 1004-0137
Expires: January 31, 2018

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No.: NMSF78924

6. If Indian, Allotee or Tribe Name:

1a. Type of work: ☑ DRILL ☐ REENTER

1b. Type of Well: ☑ Oil Well ☐ Gas Well ☐ Other

1c. Type of Completion: ☐ Hydraulic Fracturing ☑ Single Zone ☐ Multiple Zone

7. If Unit or CA Agreement, Name and No.:

8. Lease Name and Well No.: OTERO 2407 28O 1H

2. Name of Operator: LOGOS OPERATING LLC

9. API Well No.: 30 039 31409

3a. Address: , ,

3b. Phone No. *(include area code)*:

10. Field and Pool, or Exploratory: ESCRITO/GALLUP

4. Location of Well *(Report location clearly and in accordance with any State requirements.*)*

At surface: SWSE / 910 FSL / 2515 FEL / LAT 36.279825 / LONG -107.580139

At proposed prod. zone: NWSW / 2417 FSL / 525 FWL / LAT 36.298725 / LONG -107.605113

11. Sec., T. R. M. or Blk. and Survey or Area: SEC 28/T24N/R07W/NMP

14. Distance in miles and direction from nearest town or post office*: 47 miles

12. County or Parish: RIO ARRIBA

13. State: NM

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any): 525 feet

16. No of acres in lease:

17. Spacing Unit dedicated to this well: 640.0

18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.: 30 feet

19. Proposed Depth: 6161 feet / 15994 feet

20. BLM/BIA Bond No. in file: FED: NMB001820

21. Elevations (Show whether DF, KDB, RT, GL, etc.): 7346 feet

22. Approximate date work will start*: 05/01/2021

23. Estimated duration: 45 days

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, and the Hydraulic Fracturing rule per 43 CFR 3162.3-3 (as applicable)

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

25. Signature	Name *(Printed/Typed)*	Date
(Electronic Submission)	ETTA TRUJILLO / Ph: (505) 324-4145	06/04/2021

Title: Regulatory Specialist

Approved by *(Signature)*	Name *(Printed/Typed)*	Date
(Electronic Submission)	DAVE J MANKIEWICZ / Ph: (505) 564-7761	09/29/2021

Title	Office
AFM-Minerals	Farmington Field Office

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.

APPROVED WITH CONDITIONS

(Continued on page 2)

*(Instructions on page 2)

Approval Date: 09/29/2021

DISTRICT I
1625 N. French Dr., Hobbs, N.M. 88240
Phone: (575) 393-6161 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, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 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
30 039 31409	22619	ESCRITO GALLUP

[4] Property Code	[5] Property Name	[6] Well Number
331642	OTERO 2407 28O	1H

[7] OGRID No.	[8] Operator Name	[9] Elevation
289408	LOGOS OPERATING, LLC	7346

[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
O	28	24-N	7-W		910	SOUTH	2515	EAST	RIO ARRIBA

[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	20	24-N	7-W		2417	SOUTH	525	WEST	RIO ARRIBA

[12] Dedicated Acres	[13] Joint or Infill	[14] Consolidation Code	[15] Order No.
SEE DETAIL BELOW			

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 (BH)
2417'FSL, 525'FWL SEC. 20
LAT.: 36°17.9228' N
LONG.: 107°36.2703' W
NAD27

LAT.: 36.298725° N
LONG.: 107.605113° W
NAD83

FIRST PERFERATION (FP)
2362'FSL, 580'FWL SEC. 20
LAT.: 36°17.9134' N
LONG.: 107°36.2588' W
NAD27

LAT: 36.298569° N
LONG: 107.604923° W
NAD83

LAST PERFERATION (LP)
1170'FSL, 1825'FWL SEC. 28
LAT.: 36°16.8325' N
LONG.: 107°34.9414' W
NAD27

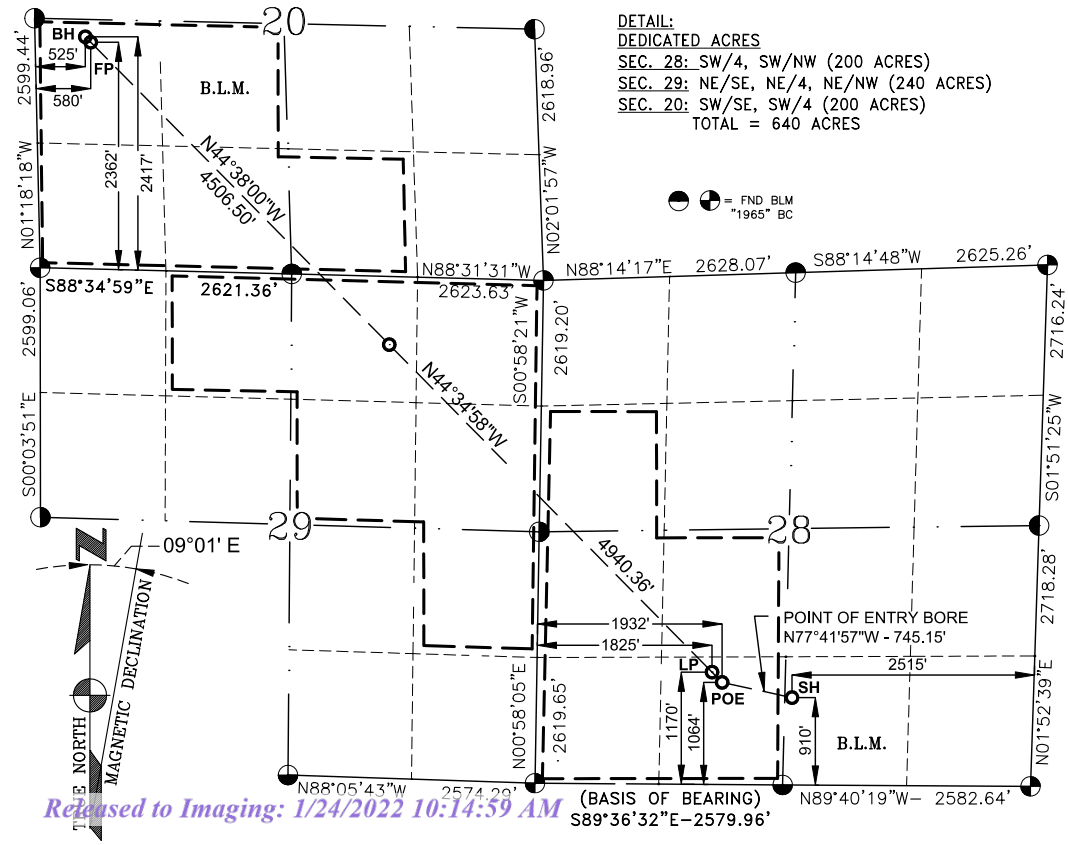
LAT.: 36.280554° N
LONG.: 107.582965° W
NAD83

POINT OF ENTRY (POE)
1064'FSL, 1932'FWL SEC. 28
LAT.: 36°16.8149' N
LONG.: 107°34.9200' W
NAD27

LAT.: 36.280261° N
LONG.: 107.582608° W
NAD83

SURFACE (SH)
910'FSL, 2515'FEL SEC. 28
LAT.: 36°16.7888' N
LONG.: 107°34.7719' W
NAD27

LAT.: 36.279825° N
LONG.: 107.580139° W
NAD83



= FND BLM "1965" BC

DETAIL:
DEDICATED ACRES
SEC. 28: SW/4, SW/NW (200 ACRES)
SEC. 29: NE/SE, NE/4, NE/NW (240 ACRES)
SEC. 20: SW/SE, SW/4 (200 ACRES)
TOTAL = 640 ACRES

[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.

Etta Trujillo — 04/27/2021
Signature — Date

Etta Trujillo
Printed Name

etrujillo@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.

NOVEMBER 11, 2020
Date of Survey

Signature and Seal of Professional Surveyor:

GLEN W. RUSSELL
NEW MEXICO
15703
LICENSED PROFESSIONAL SURVEYOR

GLEN W. RUSSELL
Certificate Number 15703

State of New Mexico
Energy, Minerals and Natural Resources Department

Submit Electronically
Via E-permitting

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

NATURAL GAS MANAGEMENT PLAN

This Natural Gas Management Plan must be submitted with each Application for Permit to Drill (APD) for a new or recompleted well.

Section 1 – Plan Description
Effective May 25, 2021

I. Operator: LOGOS Operating, LLC **OGRID:** 289408 **Date:** 10/04 2021

II. Type: ☒ Original ☐ Amendment due to ☐ 19.15.27.9.D(6)(a) NMAC ☐ 19.15.27.9.D(6)(b) NMAC ☐ Other.

If Other, please describe: _____

III. Well(s): Provide the following information for each new or recompleted well or set of wells proposed to be drilled or proposed to be recompleted from a single well pad or connected to a central delivery point.

Well Name	API	ULSTR	Footages	Anticipated Oil BBL/D	Anticipated Gas MCF/D	Anticipated Produced Water BBL/D
Otero 2407 28O 1H	30-039-	O 28 T24N R7W	904FSL 2485FEL	26120	19590	4964
Otero 2407 28O 2H	30-039-31381	O 28 T24N R7W	910FSL 2515FEL	18521	13891	3354
Otero 2407 28O 3H	30-039-	O 28 T24N R7W	897FSL 2456FEL	21333	15850	3952
Otero 2407 28O 4H	30-039-	O 28 T24N R7W	890FSL 2426FEL	15672	11754	2823

IV. Central Delivery Point Name: Whiptail/Harvest Gathering System [See 19.15.27.9(D)(1) NMAC]

V. Anticipated Schedule: Provide the following information for each new or recompleted well or set of wells proposed to be drilled or proposed to be recompleted from a single well pad or connected to a central delivery point.

Well Name	API	Spud Date	TD Reached Date	Completion Commencement Date	Initial Flow Back Date	First Production Date
Otero 2407 28O 1H	30-039-	2022	Pending	Pending	Pending	Pending
Otero 2407 28O 2H	30-039-31381	2022	Pending	Pending	Pending	Pending
Otero 2407 28O 3H	30-039-	2022	Pending	Pending	Pending	Pending
Otero 2407 28O 4H	30-039-	2022	Pending	Pending	Pending	Pending

VI. Separation Equipment: ☒ Attach a complete description of how Operator will size separation equipment to optimize gas capture.

VII. Operational Practices: ☒ Attach a complete description of the actions Operator will take to comply with the requirements of Subsection A through F of 19.15.27.8 NMAC.

VIII. Best Management Practices: ☒ Attach a complete description of Operator's best management practices to minimize venting during active and planned maintenance.

Section 3 - Certifications

Effective May 25, 2021

Operator certifies that, after reasonable inquiry and based on the available information at the time of submittal:

☒ Operator will be able to connect the well(s) to a natural gas gathering system in the general area with sufficient capacity to transport one hundred percent of the anticipated volume of natural gas produced from the well(s) commencing on the date of first production, taking into account the current and anticipated volumes of produced natural gas from other wells connected to the pipeline gathering system; or

☐ Operator will not be able to connect to a natural gas gathering system in the general area with sufficient capacity to transport one hundred percent of the anticipated volume of natural gas produced from the well(s) commencing on the date of first production, taking into account the current and anticipated volumes of produced natural gas from other wells connected to the pipeline gathering system. ***If Operator checks this box, Operator will select one of the following:***

Well Shut-In. ☐ Operator will shut-in and not produce the well until it submits the certification required by Paragraph (4) of Subsection D of 19.15.27.9 NMAC; or

Venting and Flaring Plan. ☐ Operator has attached a venting and flaring plan that evaluates and selects one or more of the potential alternative beneficial uses for the natural gas until a natural gas gathering system is available, including:

- **(a)** power generation on lease;
- **(b)** power generation for grid;
- **(c)** compression on lease;
- **(d)** liquids removal on lease;
- **(e)** reinjection for underground storage;
- **(f)** reinjection for temporary storage;
- **(g)** reinjection for enhanced oil recovery;
- **(h)** fuel cell production; and
- **(i)** other alternative beneficial uses approved by the division.

Section 4 - Notices

1. If, at any time after Operator submits this Natural Gas Management Plan and before the well is spud:

(a) Operator becomes aware that the natural gas gathering system it planned to connect the well(s) to has become unavailable or will not have capacity to transport one hundred percent of the production from the well(s), no later than 20 days after becoming aware of such information, Operator shall submit for OCD's approval a new or revised venting and flaring plan containing the information specified in Paragraph (5) of Subsection D of 19.15.27.9 NMAC; or

(b) Operator becomes aware that it has, cumulatively for the year, become out of compliance with its baseline natural gas capture rate or natural gas capture requirement, no later than 20 days after becoming aware of such information, Operator shall submit for OCD's approval a new or revised Natural Gas Management Plan for each well it plans to spud during the next 90 days containing the information specified in Paragraph (2) of Subsection D of 19.15.27.9 NMAC, and shall file an update for each Natural Gas Management Plan until Operator is back in compliance with its baseline natural gas capture rate or natural gas capture requirement.

2. OCD may deny or conditionally approve an APD if Operator does not make a certification, fails to submit an adequate venting and flaring plan which includes alternative beneficial uses for the anticipated volume of natural gas produced, or if OCD determines that Operator will not have adequate natural gas takeaway capacity at the time a well will be spud.

I certify that, after reasonable inquiry, the statements in and attached to this Natural Gas Management Plan are true and correct to the best of my knowledge and acknowledge that a false statement may be subject to civil and criminal penalties under the Oil and Gas Act.

Signature:	Etta Trujillo
Printed Name:	Etta Trujillo
Title:	Regulatory Specialist
E-mail Address:	etrujillo@logosresourcesllc.com
Date:	10/04/2021
Phone:	(505) 324-4154

OIL CONSERVATION DIVISION
(Only applicable when submitted as a standalone form)

Approved By:	
Title:	
Approval Date:	
Conditions of Approval:	

LOGOS Operating, LLC

VI. Separation Equipment

The operator will select separation equipment for the maximum anticipated throughput and pressure to optimize gas capture. Separation equipment is sized according to manufacturer's design specifications. Separation vessels are built following the A.S.M.E. section VII division 1 codes for pressure vessel design, fabrication, inspection, testing and certification. Anticipated well pressures and production rates are evaluated to select separation equipment according to the equipment's designed operating pressure and throughput.

After completion, the operator utilizes flowback equipment, including separators, to manage wellbore fluids and solids during the initial separation period. After the initial flowback period is complete the operator utilizes iterative facility separation equipment to ensure that optimal separation is achieved.

VII. Operational Practices 19.15.27.8 NMAC A through F

A. The operator will maximize the recovery of natural gas and minimize the amount of gas vented or flared when technically and safely feasible as further described and detailed within the following subsections (B-F of 19.15.27.8). In all cases where natural gas venting and flaring requires regulatory reporting, reporting will be submitted accurately and within the required time frames.
B. Venting and flaring during drilling operations:
    a. New Drill HZ Gas Wells: The operator drills wells in the area by utilizing a balanced mud to safely drill the wellbore. This technique prevents gas from coming to surface during the drilling process. If there is an emergency or malfunction and natural gas does come to surface the natural gas will be captured and routed to sales if technically and safely feasible.
C. Venting and flaring during completion or recompletion operations:
    a. New Drill HZ Gas Wells: The operator's facilities are designed to handle the maximum throughput and pressures from the newly drilled and completed wellbores. The amount of gas vented and flared will be minimized when technically and safely feasible. During initial flowback and initial separation flowback the operator will utilize contracted flowback equipment, including separators, to manage wellbore fluids and solids. The initial flowback period will be minimized and flow will be sent to separation equipment as soon as possible to reduce the amount of gas that is vented to atmosphere. The natural gas will be utilized on site as needed for fuel gas and natural gas will be sold.

D. Venting and flaring during production operations:
    a. New Drill HZ Gas Wells: The operator's facilities are designed to handle the maximum throughput and pressures from producing wellbores. The amount of gas vented and flared will be minimized when technically and safely feasible.

    Operations will effectively manage the following scenarios to minimize the quantity of natural gas that is vented or flared:

(a) If there is an emergency or malfunction vented or flared natural gas will be reported, if required, and the emergency or malfunction will be resolved as soon as technically and safely feasible.
(b) If the wellbore needs to be unloaded to atmosphere the operator will not vent the well after the well has achieved a stabilized rate and pressure. The operator will remain on site during unloading. Plunger lift systems will be optimized to reduce the amount of natural gas venting. Downhole maintenance, such as workovers, swabbing, etc. will only be conducted as needed and best management practices will be utilized to reduce venting of natural gas.
(c) The operator will minimize the amount of time that natural gas is vented to atmosphere from gauging and sampling a storage tank or low-pressure vessel, automatic tank gauges will be the primary means of gauging. The formation is only anticipated to produce water and therefore tank emissions are anticipated to be negligible.
(d) The operator will reduce the amount of time needed for loading out liquids from a storage tanks or other low-pressure vessels whenever feasible. Operations will always utilize the water transfer systems when available. Water loading emissions are anticipated to be negligible.
(e) Equipment will be repaired and maintained routinely to minimize the venting or flaring of natural gas. Repairs and maintenance will be conducted in a manner that minimizes the amount of natural gas vented to atmosphere through the isolation of the equipment that is being repaired or maintained.
(f) Electric controllers and pumps will be installed to replace pneumatic controllers whenever feasible. Pneumatic controllers and pumps will be inspected frequently to ensure that no excess gas is vented to atmosphere.
(g) No dehydration or amine units are anticipated to be set on location.
(h) Compressors, compressor engines, turbines, flanges, connectors, valves, storage tanks, and other low-pressure vessels and flanges will be routinely inspected to ensure that no excess venting occurs outside of normal operations.
(i) Regulatory required testing, such as bradenhead and packer testing will be performed in a manner that minimizes the amount of natural gas vented to atmosphere.
(j) If natural gas does not meet gathering pipeline specifications gas samples will be collected twice per week to determine when pipeline specification gas content has been achieved. During this time frame gas will be flared and not vented to atmosphere. Natural gas that meets pipeline specifications will be sold via pipeline and natural gas that can be utilized for fuel gas will be used during this time.
(k) If pipeline, equipment, or facilities need purged of impurities gas losses will be minimized as much as technically and safely feasible.

E. Performance standards:
    a. The production facilities are designed to handle the maximum throughput and pressures from producing wellbores and will be designed to minimize waste. The amount of gas vented and flared will be minimized when technically and safely feasible.
    b. All tanks that are routed to a control device that is installed after 5/25/2021 will have an automatic gauging system to minimize the amount of vented natural gas.
    c. If a flare stack is installed or replaced after 5/25/2021 it will be equipped with an automatic ignitor or continuous pilot. The flare stack will be properly sized and designed to ensure proper combustion efficiency. The flare stack will be located 100 feet away from the nearest wellhead or storage tank.
    d. AVO inspections will be conducted weekly for the year after completion and for all wells producing greater than 60,000 cubic feet of natural gas daily. The AVO inspection will include all components, including flare stacks, thief hatches, closed vent systems, pumps, compressors, pressure relief devices, valves, lines, flanges, connectors, and associated pipeline to identify any leaks and releases by comprehensive auditory, visual, and olfactory inspection. The AVO inspection records will be maintained for 5 years which will be available at the department's request. Identified leaks will be repaired as soon as feasible to minimize the amount of vented natural gas.

F. Measurement or estimation of vented and flared natural gas.
    a. The volume of natural gas that is vented, flared or consumed for beneficial use will be measured when possible, or estimated, during drilling, completions, or production operations.
    b. Equipment will be installed to measure the volume of natural gas flared for all APD's issued after 5/25/2021 on facilities that will have an average daily gas rate greater than 60,000 cubic feet of natural gas. Measurement equipment will conform to API MPMS Chapter 14.10 regulations. The measurement equipment will not have a manifold that allows the diversion of natural gas around the metering element except for the sole purpose of inspecting and servicing the measurement equipment. If metering is not practical then the volume of gas will be estimated.

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Farmington District Office
6251 College Blvd, Suite A
Farmington, New Mexico 87402

In Reply Refer To:
3162.3-1(NMF0110)

* LOGOS OPERATING LLC

#1H OTERO 2407 28O

Lease: NMSF78924
SH: SW¼SE¼ Section 28, T.24 N., R.7 W.
Rio Arriba County, New Mexico
BH: NW¼SW¼ Section 20, T.24 N., R.7 W.
Rio Arriba County, New Mexico
***Above Data Required on Well Sign**

GENERAL REQUIREMENTS FOR OIL AND GAS OPERATIONS ON FEDERAL AND INDIAN LEASES

The following special requirements apply and are effective when **checked**:

A. ☒ Note all surface/drilling conditions of approval attached.

B. ☒ The required wait on cement (WOC) time will be a minimum of 500 psi compressive strength at 60 degrees. Blowout preventor (BOP) nipple-up operations may then be initiated

C. ☐ Test the surface casing to a minimum of _____ psi for 30 minutes.

D. ☐ Test all casing strings below the surface casing to .22 psi/ft. of casing string length or 1500 psi, whichever is greater, but not to exceed 70% of the minimum internal yield burst) for a minimum of 30 minutes.

E. ☒ Communitization Agreement covering the acreage dedicated to this well must be filed for approval with the Bureau of Land Management, Farmington District Office, Branch of Reservoir Management, 6251 College Blvd. Suite A, Farmington, New Mexico 87402. The effective date of the agreement must be **prior** to any sales.

F. ☒ The use of co-flex hose is authorized contingent upon the following:
1. From the BOP to the choke manifold: the co-flex hose must be hobbled on both ends and saddle to prevent whip.
2. From the choke manifold to the discharge tank: the co-flex hoses must be as straight as practical, hobbled on both ends and anchored to prevent whip.
3. The co-flex hose pressure rating must be at least commensurate with approved BOPE.

I. GENERAL

A. Full compliance with all applicable laws, regulations, and Onshore Orders, with the approved Permit to drill, and with the approved Surface Use and Operations Plan is required. Lessees and/or operators are fully accountable for the actions of their contractors and subcontractors. Failure to comply with these requirements and the filing of required reports will result in strict enforcement pursuant to 43 CFR 3163.1 or 3163.2.

B. Each well shall have a well sign in legible condition from spud date to final abandonment. The sign should show the operator's name, lease serial number, or unit name, well number, location of the well, and whether lease is Tribal or Allotted, (See 43 CFR 3162.6(b)).

C. A complete copy of the approved Application for Permit to Drill, along with any conditions of approval, shall be available to authorized personnel at the drill site whenever active drilling operations are under way.

D. For Wildcat wells only, a drilling operations progress report is to be submitted, to the BLM-Field Office, weekly from the spud date until the well is completed and the Well Completion Report (Form 3160-4) is filed. The report should be on 8-1/2 x 11 inch paper, and each page should identify the well by; operator's name, well number, location and lease number.

E. As soon as practical, notice is required of all blowouts, fires and accidents involving life-threatening injuries or loss of life. (See NTL-3A).

F. Prior approval by the BLM-Authorized Office (Drilling and Production Section) is required for variance from the approved drilling program and before commencing plugging operations, plug back work casing repair work, corrective cementing operations, or suspending drilling operations indefinitely. Emergency approval may be obtained orally, but such approval is contingent upon filing of a notice of intent (on a Sundry Notice, Form 3160-5) within three business days (original and three copies of Federal leases and an original and four copies on Indian leases). **Any changes to the approved plan or any questions regarding drilling operations should be directed to BLM during regular business hours at 505-564-7600. Emergency program changes after hours should be directed to at Virgil Lucero at 505-793-1836.**

G. The Inspection and Enforcement Section (I&E), phone number (505-564-7750) is to be notified at least 24 hours in advance of BOP test, spudding, cementing, or plugging operations so that a BLM representative may witness the operations.

H. Unless drilling operations are commenced within two years, approval of the Application for Permit to Drill will expire. A written request for a two years extension may be granted if submitted prior to expiration.

I. From the time drilling operations are initiated and until drilling operations are completed, a member of the drilling crew or the tool pusher shall maintain rig surveillance at all time, unless the well is secured with blowout preventers or cement plugs.

J. If for any reason, drilling operations are suspended for more than 90 days, a written notice must be provided to this office outlining your plans for this well.

II. REPORTING REQUIREMENTS

A. For reporting purposes, all well Sundry notices, well completion and other well actions shall be referenced by the appropriate lease, communitization agreement and/or unit agreement numbers.

B. The following reports shall be filed with the BLM-Authorized Officer within 30 days after the work is completed.

1 .Original and three copies on Federal and an Original and five copies on Indian leases of Sundry Notice (Form 3150-5), giving complete information concerning.

a. Setting of each string of casing. Show size and depth of hole, grade and weight of casing, depth set, depth of any and all cementing tools that are used, amount (in cubic feet) and types of cement used, whether cement circulated to surface and all cement tops in the casing annulus, casing test method and results, and the date work was done. Show spud date on first report submitted.

b. Intervals tested, perforated (include; size, number and location of perforations), acidized, or fractured; and results obtained. Provide date work was done on well completion report and completion sundry notice.

c. Subsequent Report of Abandonment, show the manner in which the well was plugged, including depths where casing was cut and pulled, intervals (by depths) where cement plugs were replaced, and dates of the operations.

2. Well Completion Report (Form 3160-4) will be submitted with 30 days after well has been completed.

a. Initial Bottom Hole Pressure (BHP) for the producing formations. Show the BHP on the completion report. The pressure may be: 1) measured with a bottom hole bomb, or; 2) calculated based on shut in surface pressures (minimum seven day buildup) and fluid level shot.

3. Submit a cement evaluation log, if cement is not circulated to surface.

III. DRILLER'S LOG

The following shall be entered in the daily driller's log: 1) Blowout preventer pressures tests, including test pressures and results. 2) Blowout preventer tests for proper functioning, 3) Blowout prevention drills conducted, 4) Casing run, including size, grade, weight, and depth set, 5) How pipe was cemented, including amount of cement, type, whether cement circulated to surface, location of cementing tools, etc., 6) Waiting on cement time for each casing string, 7) Casing pressure tests after cementing, including test pressure and results and 8) Estimated amounts of oil and gas recovered and/or produced during drill stem test.

IV. GAS FLARING

Gas produced from this well may not be vented or flared beyond an initial, authorized test period of * Days or 50 MMCF following its (completion)(recompletion), whichever first occurs, without the prior, written approval of the authorized officer. Should gas be vented or flared without approval beyond the test period authorized above, you may be directed to shut-in the well until the gas can be captured or approval to continue venting or flaring as uneconomic is granted. You shall be required to compensate the lessor for the portion of the gas vented or flared without approval which is determined to have been avoidably lost.

*30 days, unless a longer test period is specifically approved by the authorized officer. The 30-day period will commence upon the first gas to surface.

V. SAFETY

A. All rig heating stoves are to be of the explosion-proof type.

B. Rig safety lines are to be installed.

C. Hard hats and other Personal Protective Equipment (PPE) must be utilized.

VI. CHANGE OF PLANS OR ABANDONMENT

A. Any changes of plans required in order to mitigate unanticipated conditions encountered during drilling operations, will require approval as set forth in Section 1.F.

B. If the well is dry, it is to be plugged in accordance with 43 CFR 3162.3-4, approval of the proposed plugging program is required as set forth in Section 1.F. The report should show the total depth reached, the reason for plugging, and the proposed intervals, by depths, where cement plugs are to be placed, type of plugging mud, etc. A Subsequent Report of Abandonment is required as set forth in Section II.B.1c.

C. Unless a well has been properly cased and cemented, or properly plugged, the drilling rig must not be moved from the drill site without prior approval from the BLM-Authorized Officer.

VII. PHONE NUMBERS

A. For BOPE tests, cementing, and plugging operations the phone number is 505-564-7750 and must be called 24 hours in advance in order that a BLM representative may witness the operations.

B. Emergency program changes after hours contact:

Virgil Lucero (505) 793-1836

LOGOS Operating, LLC
Operations Plan

Note: This procedure will be adjusted onsite based upon actual conditions

Date:	June 22, 2020	Pool:	Escrito Gallup
Well Name:	**Otero 2407 28O 1H**	Elevation:	7,346'
Surface Location:	Sec 28, T24N, R7W 910 FSL, 2515 FEL (36.279825º N, 107.580139º W – NAD83)	Measured Depth:	15,994'
Bottom Hole Location:	Sec 20, T24N, R7W 2417 FSL, 525 FWL (36.298725º N, 107.605113º W – NAD83)	County:	Rio Arriba

Lease Serial #NMSF0078924

I. GEOLOGY

A. Formation Tops (GL): Estimated top of important geological markers:
SURFACE FORMATION - NACIMIENTO

NAME	MD	TVD	NAME	MD	TVD
OJO ALAMO	1,843	1,843	MENEFEE	4,071	4,060
KIRTLAND	1,995	1,995	*POINT LOOKOUT	4,843	4,829
*FRUITLAND	2,159	2,158	*MANCOS	5,084	5,068
*PICTURED CLIFFS	2,512	2,509	GALLUP	5,900	5,847
LEWIS	2,605	2,602	KICKOFF POINT	5,407	5,390
CHACRA	3,375	3,368	LANDING POINT	6,551	6,122
*CLIFF HOUSE	4,023	4,013	TD	15,994	6,161

* indicates depth at which anticipated water, oil, gas or other mineral bearing formations are expected to be encountered.

B. MUD LOGGING PROGRAM: Mudlogger on location from KOP to TD.

C. LOGGING PROGRAM: LWD GR from surface casing to TD.

D. NATURAL GAUGES: Gauge any noticeable increases in gas flow. Record all gauges in Tour book and on morning reports.

II. DRILLING

A. MUD PROGRAM: LSND mud (WBM) will be used to drill the 12-1/4" Surface hole, the 8 ¾" Directional Vertical hole, and the curve portion of the wellbore. A LSND (WBM) or (OBM) will be used to drill the lateral portion of well. Treat for lost circulation as necessary. Obtain 100% returns prior to cementing. Notify Engineering of any mud losses.

Above ground steel pits will be used for fluid and cuttings while drilling. In the unlikely event that a tank develops a leak, upon immediate visual discovery, the fluid would be transferred to another tank and contaminated soil would be removed and disposed. Any leaks, spills or other undesirable events will be reported in accordance with BLM NTL 3A. Rig crews will monitor the tanks at all times.

B. **BOP TESTING:** While drill pipe is in use, the pipe rams and the blind rams will be function tested once each trip. The BOPE will be tested to **250 psi (Low) for 5 minutes** and **1500 psi (High) for 10 minutes.** Pressure test surface casing to **600 psi for 30 minutes** and intermediate casing to **1500 psi for 30 minutes.** Utilize a BOPE Testing Unit with a recording chart and appropriate test plug for testing. The drum brakes will be inspected and tested each tour. **All tests and inspections will be recorded and logged with time and results.**

III. MATERIALS

A. CASING EQUIPMENT:

CASING TYPE	OH SIZE (IN)	DEPTH (MD)	CSG SIZE	WEIGHT	GRADE	CONN
SURFACE	12.25"	320'	9.625"	36 LBS	J-55 or equiv	LTC
INTERMEDIATE	8.75"	6,551'	7"	23 LBS	J-55 or equiv	LTC
PRODUCTION	6.125"	6,451' – 15,994'	4.5"	11.6 LBS	P-110 or equiv	LTC or BTC
TIE BACK	6.125"	Surf. -6,451	4.5"	11.6 LBS	P-110 or equiv	LTC or BTC

NOTE: All casing depths are approximate and will be based on drilling conditions +/- 50'. Weights, grades and connections will be based on availability and may vary but will be equivalent or greater.

B. FLOAT EQUIPMENT:

1. SURFACE CASING: 9-5/8" notched regular pattern guide shoe. Run (1) standard centralizer on each of the bottom (4) joints of Surface Casing.
2. INTERMEDIATE CASING: 7" cement nose guide shoe with a self-fill insert float. Place float collar one joint above the shoe. Install (1) centralizer on each of the bottom (3) joints and one standard centralizer every (3) joints to 2,500 ft. Run (1) centralizer at 2,500 ft., 2,300ft., 2,000ft., 1,500 ft., and 1,000 ft.
3. PRODUCTION LINER: Run 4-1/2" Liner with cement nose guide Float Shoe+ 2jts. of 4- 1/2" casing+ Landing Collar+ 4-1/2" pup joint+ 1 RSI (Sliding Sleeve). Centralizer program will be determined by wellbore condition. Set seals on Liner Hanger. Liner to be pressure tested during completion operations.

NOTE: Use of DV tool would be considered by operator as back up in case we experience heavy losses and are concerned with cement not reaching surface. If major losses are not encountered we will not run DV tool. Optional use of cancelation plugs for DV tools may be used if losses while cementing are not encountered.

C. **CEMENTING:**

(Note: Cement type and volumes may be adjusted onsite due to actual conditions and availability)

1. SURFACE: 5 bbl Fresh Water Spacer, 100 sx (161 cu.ft.) of 14.5 ppg Type 1-11 (Neat G) + 20% Fly Ash cement w/ 7.41 gal/sack mix water ratio @ 1.61 cu ft/sx yield. Calculated @volume+ 50% excess. WOC 12 hours. Test csg to 600 psi. Total Volume: (160 cu-ft/100 sx/ Bbls). TOC at Surface.

2. INTERMEDIATE: Stage 1: Spacer #1: 20 bbl (112 cuft) Chemwash. Lead Cement: 228 bbls, 657 sks (1282 cu.ft.), 12.3 ppg@ 1.95 cuft/sk yield. Tail Cement: 50.5 bbls, 218 sks, (283.5 cuft), 13.5 ppg@ 1.3 cu'ft/sk yield. Displacement: Displace w/ +/- 256.8 bbl Drilling mud or water. Total Cement: 278.7 bbls, 875.2 sks, (1565 cuft)

3. PRODUCTION LINER: Spacer #1:10 bbl (56.cu-ft) Water Spacer. Spacer #2: 40 bbl 9.5 ppg (224.6 cu-ft) Tuned Spacer Ill. Spacer #3: 10 bbl Water Spacer. Lead Cement: Extencem TM System. Yield 1.36 cuft/sk 13.3 ppg (865 sx / 1176.6 cuft /209.6 bbls). Tail Spacer: 40 BBL of MMCR. Displacement: Displace w/ +/- 218 bbl.

Cement calculations are used for volume estimation. Well conditions will dictate final cement job design. Actual volumes will be calculated and determined by conditions onsite. All cement slurries will meet or exceed minimum BLM and New Mexico Oil Conservation Division requirements. Slurries used will be the slurries listed above or equivalent slurries depending on service provider selected. Cement yields may change depending on slurries selected. All waiting on cement times shall be a minimum of 8 hours or adequate to achieve a minimum of 500 psi compressive strength at the casing shoe prior to drilling out.

IV. COMPLETION

A. CBL

CBLs and/or Temperature Surveys Will Be Performed as Needed or Required

B. PRESSURE TEST

With frac stack installed on wellhead, pressure test 4-1/2" casing to 4000 psi max, hold at 1500 psi for 30 minutes. Increase pressure to Open RSI sleeves.

C. STIMULATION

Stimulate with sand, water and N2. Isolate stages with flow through frac plugs. Drill out frac plugs and flowback lateral.

D. PRODUCTION TUBING

Run 2-7/8", 6.5#, J-55, EUE tubing

*NOTE: Although this horizontal well may be drilled past the applicable setbacks, an unorthodox location application is not required because the completed interval in this well, as defined by 19.15.16.7 8(1) NMAC, will be entirely within the applicable setbacks. This approach complies with all applicable rules,

including 19.15.16.14 A(3) NMAC, 19.15.16.14 8(2) NMAC, 19.15.16.15 8(2)NMAC, and 19.15.16.15. 8(4) NMAC.

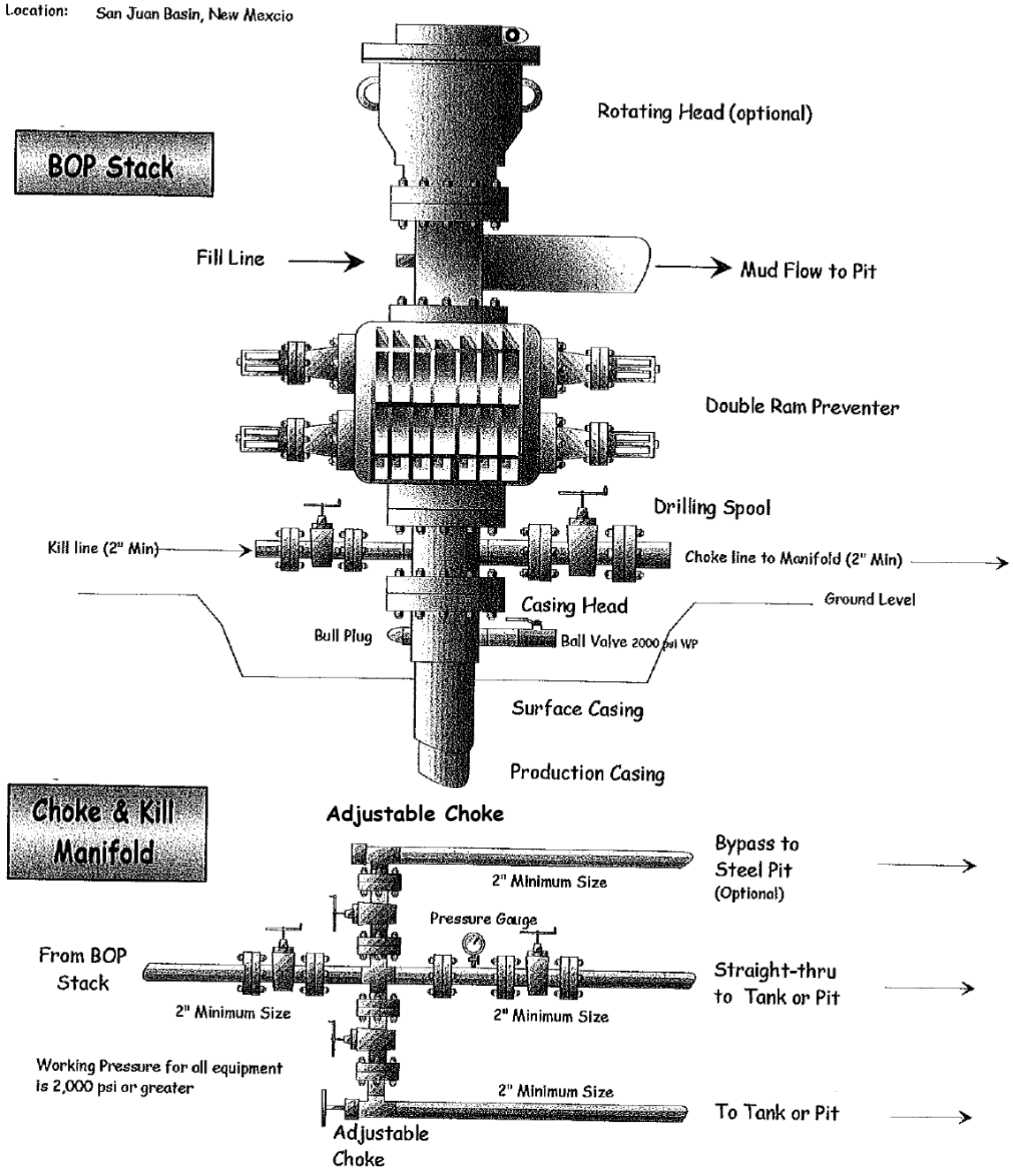
OTERO 2407 28O 1H

Well Control Equipment Schematic for 2M Service

Attachment to Drilling Technical Program

Exhibit #1
Typical BOP setup

Location: San Juan Basin, New Mexcio



OTERO 2407 28O 1H

Liner Casing Design - Evacuation/Max Mud Wt (collaspe), Max Frac Pres (burst) & 100k overpull (tension)

Otero 2407 28O 1H

Liner	Size	Weight	Grade	Conn	Collapse	Burst	Tension	Notes
Interval 1	4.5	11.6	P-110	LTC	7,560	10,690	278,000	TD 15994', TVD 6161'
					1.125	1.000	1.200	

Collapse	**Casing Depth (TVD)**	**MW in**	**MW out**	**Pres in**	**Pres out**	**SF**		
	6161	0.00	9.00	0	2883	2.62		
Burst	**6161**	9.00	0.00	2883	0	1.14	6500	6500 psi frac pressure + no backup
				9383				Burst pressure = Hyd + frac pressure
Tension		**Mud Wt**	**Air Wt**	**Bouy Wt**	**BW +100k**			100k over pull
	6161	8.80	71,468	61,866	161,866	1.72		
		BF						BF= 1- (MW)/65.5
		0.8656						

Surface Casing Design - Evacuated/Max SICP (collaspe & burst), 100k overpull (tension)

Otero 2407 28O 1H

	Size	Weight	Grade	Conn	Collapse	Burst	Tension	Notes
Surface	9.625	36	J55	STC	2,020	3,520	394,000	0' - 320'
					1.125	1.000	1.200	

341 psi (Maximum Estimated SIP)

36 ppf K55 STC

	Casing Depth	MW in	MW out	Pres in	Pres out	SF	
Collapse	**320**	0	9	0	146	13.79	
Burst	**320**	9	0	146	0	24.04	
		Mud Wt	**Air Wt**	**Bouy Wt**	**BW +100k**	**SF**	100k over pull
Tension	**320**	9	11,520	9,937	109,937	3.58	
		BF					BF= 1- (MW)/65.5
		0.8626					

Intermediate Casing Design - Evacuated/Max Mud Wt (collaspe & burst), 100k overpull (tension)

Otero 2407 28O 1H

Intermediate	Top Interval	Btm Interval	Size	Weight	Grade	Conn	Collapse	Burst	Tension	Notes
Interval 1	**0**	**6551**	7	23	J55	LTC	3,270	4,360	313,000	0'-6552'
							1.125	1.000	1.200	

Collapse

			Depth TVD	MW in	MW out	Pres in	Pres out	SF - 1.125
Interval 1	**0**	**6551**	**5984.97**	0	9	0	2865	1.14
23	J55							

Burst

			Depth TVD	MW in	MW out	Pres in	Pres out	SF - 1.0	Frac Pres
Interval 1	**0**	**6551**	**5984.97**	9	0	2865	0	1.52	0
23	J55					**2865**			

Tension

			Depth TVD	Mud Wt	Air Wt	Bouy Wt	BW +100k	SF - 1.2
Interval 1	**0**	**6551**	**5984.97**	9	140,806	121,459	221,459	1.41
23	J55			**BF**				
				0.8626				

BF= 1- (MW)/65.5

LOGOS RESOURCES II, LLC

Company: Logos Operating LLC
Project: Rio Arriba, NM NAD83
Site: Otero 2407-28O
Well: Otero 2407-28O Com 1H
Wellbore: OH
Design: Plan #3

PROJECT DETAILS: Rio Arriba, NM NAD83

Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: New Mexico Western Zone
System Datum: Mean Sea Level
Local North: True

Azimuths to True North
Magnetic North: 8.[illegible]°
Magnetic Field Strength: 49493.[illegible]nT
Dip Angle: 62.[illegible]°
Date: 12/18/2[illegible]
Model: HDGM

WELL DETAILS: Otero 2407-28O Com 1H

GL 7346' @ 7346.00usft

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	1921253.09	2797717.96	36.2798250	-107.5801390

Plan: Plan #3 (Otero 2407-28O Com 1H/OH)

CASING DETAILS

No casing data is available

DESIGN TARGET DETAILS

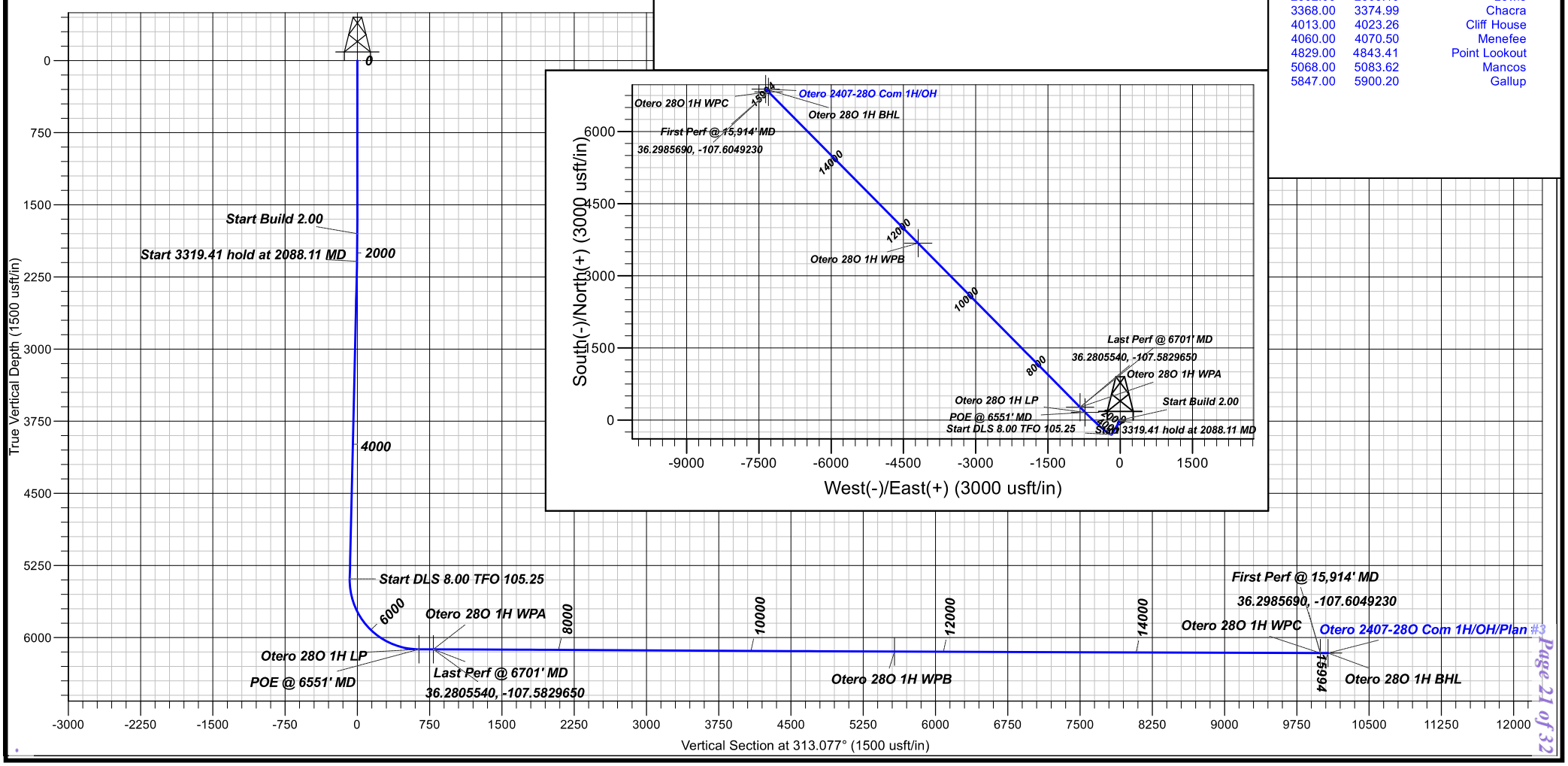
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Otero 28O 1H LP	6122.00	158.73	-727.71	1921409.91	2796989.84	36.2802610	-107.5826080
Otero 28O 1H WPA	6122.00	265.39	-832.93	1921516.30	2796884.34	36.2805540	-107.5829650
Otero 28O 1H WPB	6146.00	3675.89	-4194.21	1924918.00	2793514.15	36.2899220	-107.5943710
Otero 28O 1H WPC	6161.00	6824.26	-7303.11	1928058.23	2790397.03	36.2985690	-107.6049230
Otero 28O 1H BHL	6161.00	6881.06	-7359.08	1928114.89	2790340.91	36.2987250	-107.6051130

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00	
1800.00	0.00	0.000	1800.00	0.00	0.00	0.00	0.00	0.00	
2088.11	5.76	210.067	2087.62	-12.53	-7.25	2.00	210.07	-3.26	
5407.52	5.76	210.067	5390.26	-300.95	-174.22	0.00	0.00	-78.29	
6551.52	90.00	315.390	6122.00	158.73	-727.71	8.00	105.25	639.95	Otero 28O 1H LP
6701.35	90.00	315.390	6122.00	265.39	-832.93	0.00	0.00	789.65	Otero 28O 1H WPA
6715.79	89.71	315.417	6122.04	275.67	-843.07	2.00	174.83	804.08	
11489.91	89.71	315.417	6146.00	3675.89	-4194.21	0.00	0.00	5574.16	Otero 28O 1H WPB
11495.33	89.81	315.361	6146.02	3679.75	-4198.02	2.00	-30.53	5579.58	
15914.58	89.81	315.361	6161.00	6824.26	-7303.11	0.00	0.00	9995.29	Otero 28O 1H WPC
15925.49	90.01	315.426	6161.02	6832.03	-7310.77	2.00	17.24	10006.20	
15994.32	90.01	315.426	6161.00	6881.06	-7359.08	0.00	0.00	10074.97	Otero 28O 1H BHL

FORMATION DETAILS

TVDPath	MDPath	Formation
1843.00	1843.00	Ojo Alamo
1995.00	1995.15	Kirtland
2158.00	2158.84	Fruitland
2509.00	2511.63	Pictured Cliffs
2602.00	2605.10	Lewis
3368.00	3374.99	Chacra
4013.00	4023.26	Cliff House
4060.00	4070.50	Menefee
4829.00	4843.41	Point Lookout
5068.00	5083.62	Mancos
5847.00	5900.20	Gallup



Logos Operating LLC

Rio Arriba, NM NAD83
Otero 2407-28O
Otero 2407-28O Com 1H

OH

Plan: Plan #3

Standard Planning Report

14 April, 2020

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Otero 2407-28O Com 1H
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	GL 7346' @ 7346.00usft
Site:	Otero 2407-28O	**MD Reference:**	GL 7346' @ 7346.00usft
Well:	Otero 2407-28O Com 1H	**North Reference:**	True
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	Plan #3		

Project Rio Arriba, NM NAD83

Map System:	US State Plane 1983	**System Datum:**	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Western Zone		

Site Otero 2407-28O

Site Position:		**Northing:**	1,921,253.10 usft	**Latitude:**	36.2798250
From:	Lat/Long	**Easting:**	2,797,717.96 usft	**Longitude:**	-107.5801390
Position Uncertainty:	0.00 usft	**Slot Radius:**	13.20 in	**Grid Convergence:**	0.15 °

Well Otero 2407-28O Com 1H

Well Position	**+N/-S**	0.00 usft	**Northing:**	1,921,253.10 usft	**Latitude:**	36.2798250
	+E/-W	0.00 usft	**Easting:**	2,797,717.96 usft	**Longitude:**	-107.5801390
Position Uncertainty		0.00 usft	**Wellhead Elevation:**	0.00 usft	**Ground Level:**	7,346.00 usft

Wellbore OH

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	12/18/2018	8.75	62.87	49,493.50000000

Design Plan #3

Audit Notes:

Version:		**Phase:**	PLAN	**Tie On Depth:**	0.00

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	313.077

Plan Survey Tool Program **Date** 4/14/2020

	Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	15,994.32	Plan #3 (OH)	MWD+HDGM	
				OWSG MWD + HDGM	

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Otero 2407-28O Com 1H
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	GL 7346' @ 7346.00usft
Site:	Otero 2407-28O	**MD Reference:**	GL 7346' @ 7346.00usft
Well:	Otero 2407-28O Com 1H	**North Reference:**	True
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	Plan #3		

Plan Sections

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,800.00	0.00	0.000	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,088.11	5.76	210.067	2,087.62	-12.53	-7.25	2.00	2.00	0.00	210.07	
5,407.52	5.76	210.067	5,390.26	-300.95	-174.22	0.00	0.00	0.00	0.00	
6,551.52	90.00	315.390	6,122.00	158.73	-727.71	8.00	7.36	9.21	105.25	Otero 28O 1H LP
6,701.35	90.00	315.390	6,122.00	265.39	-832.93	0.00	0.00	0.00	0.00	Otero 28O 1H WPA
6,715.79	89.71	315.416	6,122.04	275.67	-843.07	2.00	-1.99	0.18	174.83	
11,489.91	89.71	315.416	6,146.00	3,675.89	-4,194.21	0.00	0.00	0.00	0.00	Otero 28O 1H WPB
11,495.33	89.81	315.361	6,146.02	3,679.75	-4,198.02	2.00	1.72	-1.02	-30.53	
15,914.58	89.81	315.361	6,161.00	6,824.26	-7,303.11	0.00	0.00	0.00	0.00	Otero 28O 1H WPC
15,925.49	90.01	315.426	6,161.02	6,832.03	-7,310.77	2.00	1.91	0.59	17.24	
15,994.32	90.01	315.426	6,161.00	6,881.06	-7,359.08	0.00	0.00	0.00	0.00	Otero 28O 1H BHL

LOGOS RESOURCES II, LLC

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Otero 2407-28O Com 1H
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	GL 7346' @ 7346.00usft
Site:	Otero 2407-28O	**MD Reference:**	GL 7346' @ 7346.00usft
Well:	Otero 2407-28O Com 1H	**North Reference:**	True
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	Plan #3		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.000	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.000	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.000	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.000	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.000	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.000	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.000	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.000	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.000	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.000	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.000	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.000	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.000	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.000	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.000	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.000	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.000	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.000	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	2.00	210.067	1,899.98	-1.51	-0.87	-0.39	2.00	2.00	0.00
2,000.00	4.00	210.067	1,999.84	-6.04	-3.50	-1.57	2.00	2.00	0.00
2,088.11	5.76	210.067	2,087.62	-12.53	-7.25	-3.26	2.00	2.00	0.00
2,100.00	5.76	210.067	2,099.45	-13.56	-7.85	-3.53	0.00	0.00	0.00
2,200.00	5.76	210.067	2,198.95	-22.25	-12.88	-5.79	0.00	0.00	0.00
2,300.00	5.76	210.067	2,298.44	-30.94	-17.91	-8.05	0.00	0.00	0.00
2,400.00	5.76	210.067	2,397.94	-39.63	-22.94	-10.31	0.00	0.00	0.00
2,500.00	5.76	210.067	2,497.43	-48.32	-27.97	-12.57	0.00	0.00	0.00
2,600.00	5.76	210.067	2,596.93	-57.01	-33.00	-14.83	0.00	0.00	0.00
2,700.00	5.76	210.067	2,696.42	-65.69	-38.03	-17.09	0.00	0.00	0.00
2,800.00	5.76	210.067	2,795.92	-74.38	-43.06	-19.35	0.00	0.00	0.00
2,900.00	5.76	210.067	2,895.41	-83.07	-48.09	-21.61	0.00	0.00	0.00
3,000.00	5.76	210.067	2,994.91	-91.76	-53.12	-23.87	0.00	0.00	0.00
3,100.00	5.76	210.067	3,094.40	-100.45	-58.15	-26.13	0.00	0.00	0.00
3,200.00	5.76	210.067	3,193.90	-109.14	-63.18	-28.39	0.00	0.00	0.00
3,300.00	5.76	210.067	3,293.39	-117.83	-68.21	-30.65	0.00	0.00	0.00
3,400.00	5.76	210.067	3,392.89	-126.52	-73.24	-32.91	0.00	0.00	0.00
3,500.00	5.76	210.067	3,492.38	-135.21	-78.27	-35.17	0.00	0.00	0.00
3,600.00	5.76	210.067	3,591.88	-143.90	-83.30	-37.43	0.00	0.00	0.00
3,700.00	5.76	210.067	3,691.37	-152.58	-88.33	-39.69	0.00	0.00	0.00
3,800.00	5.76	210.067	3,790.86	-161.27	-93.36	-41.95	0.00	0.00	0.00
3,900.00	5.76	210.067	3,890.36	-169.96	-98.39	-44.21	0.00	0.00	0.00
4,000.00	5.76	210.067	3,989.85	-178.65	-103.42	-46.47	0.00	0.00	0.00
4,100.00	5.76	210.067	4,089.35	-187.34	-108.45	-48.73	0.00	0.00	0.00
4,200.00	5.76	210.067	4,188.84	-196.03	-113.48	-50.99	0.00	0.00	0.00
4,300.00	5.76	210.067	4,288.34	-204.72	-118.51	-53.25	0.00	0.00	0.00
4,400.00	5.76	210.067	4,387.83	-213.41	-123.54	-55.51	0.00	0.00	0.00
4,500.00	5.76	210.067	4,487.33	-222.10	-128.57	-57.77	0.00	0.00	0.00
4,600.00	5.76	210.067	4,586.82	-230.79	-133.61	-60.03	0.00	0.00	0.00
4,700.00	5.76	210.067	4,686.32	-239.47	-138.64	-62.29	0.00	0.00	0.00
4,800.00	5.76	210.067	4,785.81	-248.16	-143.67	-64.55	0.00	0.00	0.00
4,900.00	5.76	210.067	4,885.31	-256.85	-148.70	-66.81	0.00	0.00	0.00
5,000.00	5.76	210.067	4,984.80	-265.54	-153.73	-69.07	0.00	0.00	0.00
5,100.00	5.76	210.067	5,084.30	-274.23	-158.76	-71.34	0.00	0.00	0.00
5,200.00	5.76	210.067	5,183.79	-282.92	-163.79	-73.60	0.00	0.00	0.00

LOGOS RESOURCES II, LLC

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Otero 2407-28O Com 1H
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	GL 7346' @ 7346.00usft
Site:	Otero 2407-28O	**MD Reference:**	GL 7346' @ 7346.00usft
Well:	Otero 2407-28O Com 1H	**North Reference:**	True
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	Plan #3		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,300.00	5.76	210.067	5,283.29	-291.61	-168.82	-75.86	0.00	0.00	0.00
5,400.00	5.76	210.067	5,382.78	-300.30	-173.85	-78.12	0.00	0.00	0.00
5,407.52	5.76	210.067	5,390.26	-300.95	-174.22	-78.29	0.00	0.00	0.00
5,500.00	8.08	272.137	5,482.18	-304.73	-183.06	-74.41	8.00	2.51	67.11
5,600.00	14.93	293.983	5,580.15	-299.22	-201.89	-56.90	8.00	6.85	21.85
5,700.00	22.54	301.829	5,674.80	-283.86	-229.99	-25.88	8.00	7.61	7.85
5,800.00	30.34	305.820	5,764.27	-258.92	-266.81	18.05	8.00	7.80	3.99
5,900.00	38.22	308.292	5,846.84	-224.92	-311.65	74.02	8.00	7.88	2.47
6,000.00	46.14	310.024	5,920.89	-182.49	-363.62	140.96	8.00	7.92	1.73
6,100.00	54.07	311.347	5,984.97	-132.48	-421.72	217.56	8.00	7.94	1.32
6,200.00	62.02	312.427	6,037.85	-75.85	-484.81	302.32	8.00	7.95	1.08
6,300.00	69.98	313.358	6,078.49	-13.70	-551.67	393.60	8.00	7.95	0.93
6,400.00	77.94	314.199	6,106.11	52.75	-620.99	489.62	8.00	7.96	0.84
6,500.00	85.90	314.991	6,120.16	122.21	-691.43	588.51	8.00	7.96	0.79
6,551.52	90.00	315.390	6,122.00	158.73	-727.71	639.95	8.00	7.96	0.78
6,600.00	90.00	315.390	6,122.00	193.24	-761.76	688.39	0.00	0.00	0.00
6,700.00	90.00	315.390	6,122.00	264.43	-831.98	788.31	0.00	0.00	0.00
6,701.35	90.00	315.390	6,122.00	265.39	-832.93	789.65	0.00	0.00	0.00
6,715.79	89.71	315.416	6,122.04	275.67	-843.07	804.08	2.00	-1.99	0.18
6,800.00	89.71	315.416	6,122.46	335.65	-902.18	888.22	0.00	0.00	0.00
6,900.00	89.71	315.416	6,122.96	406.87	-972.37	988.14	0.00	0.00	0.00
7,000.00	89.71	315.416	6,123.46	478.09	-1,042.57	1,088.06	0.00	0.00	0.00
7,100.00	89.71	315.416	6,123.96	549.31	-1,112.76	1,187.97	0.00	0.00	0.00
7,200.00	89.71	315.416	6,124.47	620.54	-1,182.96	1,287.89	0.00	0.00	0.00
7,300.00	89.71	315.416	6,124.97	691.76	-1,253.15	1,387.80	0.00	0.00	0.00
7,400.00	89.71	315.416	6,125.47	762.98	-1,323.34	1,487.72	0.00	0.00	0.00
7,500.00	89.71	315.416	6,125.97	834.20	-1,393.54	1,587.63	0.00	0.00	0.00
7,600.00	89.71	315.416	6,126.47	905.42	-1,463.73	1,687.55	0.00	0.00	0.00
7,700.00	89.71	315.416	6,126.98	976.65	-1,533.93	1,787.46	0.00	0.00	0.00
7,800.00	89.71	315.416	6,127.48	1,047.87	-1,604.12	1,887.38	0.00	0.00	0.00
7,900.00	89.71	315.416	6,127.98	1,119.09	-1,674.31	1,987.29	0.00	0.00	0.00
8,000.00	89.71	315.416	6,128.48	1,190.31	-1,744.51	2,087.21	0.00	0.00	0.00
8,100.00	89.71	315.416	6,128.98	1,261.53	-1,814.70	2,187.13	0.00	0.00	0.00
8,200.00	89.71	315.416	6,129.49	1,332.76	-1,884.90	2,287.04	0.00	0.00	0.00
8,300.00	89.71	315.416	6,129.99	1,403.98	-1,955.09	2,386.96	0.00	0.00	0.00
8,400.00	89.71	315.416	6,130.49	1,475.20	-2,025.28	2,486.87	0.00	0.00	0.00
8,500.00	89.71	315.416	6,130.99	1,546.42	-2,095.48	2,586.79	0.00	0.00	0.00
8,600.00	89.71	315.416	6,131.49	1,617.64	-2,165.67	2,686.70	0.00	0.00	0.00
8,700.00	89.71	315.416	6,132.00	1,688.87	-2,235.87	2,786.62	0.00	0.00	0.00
8,800.00	89.71	315.416	6,132.50	1,760.09	-2,306.06	2,886.53	0.00	0.00	0.00
8,900.00	89.71	315.416	6,133.00	1,831.31	-2,376.25	2,986.45	0.00	0.00	0.00
9,000.00	89.71	315.416	6,133.50	1,902.53	-2,446.45	3,086.36	0.00	0.00	0.00
9,100.00	89.71	315.416	6,134.00	1,973.75	-2,516.64	3,186.28	0.00	0.00	0.00
9,200.00	89.71	315.416	6,134.51	2,044.97	-2,586.83	3,286.19	0.00	0.00	0.00
9,300.00	89.71	315.416	6,135.01	2,116.20	-2,657.03	3,386.11	0.00	0.00	0.00
9,400.00	89.71	315.416	6,135.51	2,187.42	-2,727.22	3,486.03	0.00	0.00	0.00
9,500.00	89.71	315.416	6,136.01	2,258.64	-2,797.42	3,585.94	0.00	0.00	0.00
9,600.00	89.71	315.416	6,136.51	2,329.86	-2,867.61	3,685.86	0.00	0.00	0.00
9,700.00	89.71	315.416	6,137.02	2,401.08	-2,937.80	3,785.77	0.00	0.00	0.00
9,800.00	89.71	315.416	6,137.52	2,472.31	-3,008.00	3,885.69	0.00	0.00	0.00
9,900.00	89.71	315.416	6,138.02	2,543.53	-3,078.19	3,985.60	0.00	0.00	0.00
10,000.00	89.71	315.416	6,138.52	2,614.75	-3,148.39	4,085.52	0.00	0.00	0.00
10,100.00	89.71	315.416	6,139.02	2,685.97	-3,218.58	4,185.43	0.00	0.00	0.00
10,200.00	89.71	315.416	6,139.53	2,757.19	-3,288.77	4,285.35	0.00	0.00	0.00

LOGOS RESOURCES II, LLC

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Otero 2407-28O Com 1H
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	GL 7346' @ 7346.00usft
Site:	Otero 2407-28O	**MD Reference:**	GL 7346' @ 7346.00usft
Well:	Otero 2407-28O Com 1H	**North Reference:**	True
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	Plan #3		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
10,300.00	89.71	315.416	6,140.03	2,828.42	-3,358.97	4,385.26	0.00	0.00	0.00
10,400.00	89.71	315.416	6,140.53	2,899.64	-3,429.16	4,485.18	0.00	0.00	0.00
10,500.00	89.71	315.416	6,141.03	2,970.86	-3,499.36	4,585.10	0.00	0.00	0.00
10,600.00	89.71	315.416	6,141.53	3,042.08	-3,569.55	4,685.01	0.00	0.00	0.00
10,700.00	89.71	315.416	6,142.04	3,113.30	-3,639.74	4,784.93	0.00	0.00	0.00
10,800.00	89.71	315.416	6,142.54	3,184.53	-3,709.94	4,884.84	0.00	0.00	0.00
10,900.00	89.71	315.416	6,143.04	3,255.75	-3,780.13	4,984.76	0.00	0.00	0.00
11,000.00	89.71	315.416	6,143.54	3,326.97	-3,850.33	5,084.67	0.00	0.00	0.00
11,100.00	89.71	315.416	6,144.04	3,398.19	-3,920.52	5,184.59	0.00	0.00	0.00
11,200.00	89.71	315.416	6,144.54	3,469.41	-3,990.71	5,284.50	0.00	0.00	0.00
11,300.00	89.71	315.416	6,145.05	3,540.64	-4,060.91	5,384.42	0.00	0.00	0.00
11,400.00	89.71	315.416	6,145.55	3,611.86	-4,131.10	5,484.33	0.00	0.00	0.00
11,489.91	89.71	315.416	6,146.00	3,675.89	-4,194.21	5,574.16	0.00	0.00	0.00
11,495.33	89.81	315.361	6,146.02	3,679.75	-4,198.02	5,579.58	2.00	1.72	-1.02
11,500.00	89.81	315.361	6,146.04	3,683.07	-4,201.30	5,584.25	0.00	0.00	0.00
11,600.00	89.81	315.361	6,146.38	3,754.23	-4,271.56	5,684.17	0.00	0.00	0.00
11,700.00	89.81	315.361	6,146.72	3,825.38	-4,341.83	5,784.09	0.00	0.00	0.00
11,800.00	89.81	315.361	6,147.06	3,896.54	-4,412.09	5,884.01	0.00	0.00	0.00
11,900.00	89.81	315.361	6,147.39	3,967.69	-4,482.35	5,983.93	0.00	0.00	0.00
12,000.00	89.81	315.361	6,147.73	4,038.85	-4,552.61	6,083.85	0.00	0.00	0.00
12,100.00	89.81	315.361	6,148.07	4,110.00	-4,622.88	6,183.77	0.00	0.00	0.00
12,200.00	89.81	315.361	6,148.41	4,181.16	-4,693.14	6,283.69	0.00	0.00	0.00
12,300.00	89.81	315.361	6,148.75	4,252.31	-4,763.40	6,383.61	0.00	0.00	0.00
12,400.00	89.81	315.361	6,149.09	4,323.47	-4,833.67	6,483.53	0.00	0.00	0.00
12,500.00	89.81	315.361	6,149.43	4,394.62	-4,903.93	6,583.45	0.00	0.00	0.00
12,600.00	89.81	315.361	6,149.77	4,465.78	-4,974.19	6,683.37	0.00	0.00	0.00
12,700.00	89.81	315.361	6,150.11	4,536.93	-5,044.45	6,783.29	0.00	0.00	0.00
12,800.00	89.81	315.361	6,150.44	4,608.09	-5,114.72	6,883.21	0.00	0.00	0.00
12,900.00	89.81	315.361	6,150.78	4,679.24	-5,184.98	6,983.13	0.00	0.00	0.00
13,000.00	89.81	315.361	6,151.12	4,750.40	-5,255.24	7,083.05	0.00	0.00	0.00
13,100.00	89.81	315.361	6,151.46	4,821.55	-5,325.51	7,182.97	0.00	0.00	0.00
13,200.00	89.81	315.361	6,151.80	4,892.71	-5,395.77	7,282.89	0.00	0.00	0.00
13,300.00	89.81	315.361	6,152.14	4,963.86	-5,466.03	7,382.81	0.00	0.00	0.00
13,400.00	89.81	315.361	6,152.48	5,035.02	-5,536.29	7,482.73	0.00	0.00	0.00
13,500.00	89.81	315.361	6,152.82	5,106.17	-5,606.56	7,582.65	0.00	0.00	0.00
13,600.00	89.81	315.361	6,153.16	5,177.33	-5,676.82	7,682.57	0.00	0.00	0.00
13,700.00	89.81	315.361	6,153.49	5,248.48	-5,747.08	7,782.49	0.00	0.00	0.00
13,800.00	89.81	315.361	6,153.83	5,319.64	-5,817.35	7,882.41	0.00	0.00	0.00
13,900.00	89.81	315.361	6,154.17	5,390.79	-5,887.61	7,982.33	0.00	0.00	0.00
14,000.00	89.81	315.361	6,154.51	5,461.95	-5,957.87	8,082.25	0.00	0.00	0.00
14,100.00	89.81	315.361	6,154.85	5,533.10	-6,028.13	8,182.17	0.00	0.00	0.00
14,200.00	89.81	315.361	6,155.19	5,604.26	-6,098.40	8,282.09	0.00	0.00	0.00
14,300.00	89.81	315.361	6,155.53	5,675.41	-6,168.66	8,382.01	0.00	0.00	0.00
14,400.00	89.81	315.361	6,155.87	5,746.57	-6,238.92	8,481.93	0.00	0.00	0.00
14,500.00	89.81	315.361	6,156.21	5,817.72	-6,309.19	8,581.85	0.00	0.00	0.00
14,600.00	89.81	315.361	6,156.54	5,888.88	-6,379.45	8,681.77	0.00	0.00	0.00
14,700.00	89.81	315.361	6,156.88	5,960.03	-6,449.71	8,781.69	0.00	0.00	0.00
14,800.00	89.81	315.361	6,157.22	6,031.19	-6,519.97	8,881.61	0.00	0.00	0.00
14,900.00	89.81	315.361	6,157.56	6,102.34	-6,590.24	8,981.53	0.00	0.00	0.00
15,000.00	89.81	315.361	6,157.90	6,173.50	-6,660.50	9,081.45	0.00	0.00	0.00
15,100.00	89.81	315.361	6,158.24	6,244.65	-6,730.76	9,181.37	0.00	0.00	0.00
15,200.00	89.81	315.361	6,158.58	6,315.81	-6,801.03	9,281.29	0.00	0.00	0.00
15,300.00	89.81	315.361	6,158.92	6,386.96	-6,871.29	9,381.21	0.00	0.00	0.00
15,400.00	89.81	315.361	6,159.26	6,458.11	-6,941.55	9,481.13	0.00	0.00	0.00

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Otero 2407-28O Com 1H
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	GL 7346' @ 7346.00usft
Site:	Otero 2407-28O	**MD Reference:**	GL 7346' @ 7346.00usft
Well:	Otero 2407-28O Com 1H	**North Reference:**	True
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	Plan #3		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
15,500.00	89.81	315.361	6,159.60	6,529.27	-7,011.81	9,581.05	0.00	0.00	0.00
15,600.00	89.81	315.361	6,159.93	6,600.42	-7,082.08	9,680.97	0.00	0.00	0.00
15,700.00	89.81	315.361	6,160.27	6,671.58	-7,152.34	9,780.89	0.00	0.00	0.00
15,800.00	89.81	315.361	6,160.61	6,742.73	-7,222.60	9,880.81	0.00	0.00	0.00
15,900.00	89.81	315.361	6,160.95	6,813.89	-7,292.87	9,980.73	0.00	0.00	0.00
15,914.58	89.81	315.361	6,161.00	6,824.26	-7,303.11	9,995.29	0.00	0.00	0.00
15,925.49	90.01	315.426	6,161.02	6,832.03	-7,310.77	10,006.20	2.00	1.91	0.59
15,994.32	90.01	315.426	6,161.00	6,881.06	-7,359.08	10,074.97	0.00	0.00	0.00

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Otero 28O 1H LP - plan hits target center - Point	0.00	0.000	6,122.00	158.73	-727.71	1,921,409.92	2,796,989.84	36.2802610	-107.5826080
Otero 28O 1H WPA - plan hits target center - Point	0.00	0.000	6,122.00	265.39	-832.93	1,921,516.30	2,796,884.34	36.2805540	-107.5829650
Otero 28O 1H WPB - plan hits target center - Point	0.00	0.000	6,146.00	3,675.89	-4,194.21	1,924,918.01	2,793,514.16	36.2899220	-107.5943710
Otero 28O 1H BHL - plan hits target center - Point	0.00	0.000	6,161.00	6,881.06	-7,359.08	1,928,114.89	2,790,340.91	36.2987250	-107.6051130
Otero 28O 1H WPC - plan hits target center - Point	0.00	0.000	6,161.00	6,824.26	-7,303.11	1,928,058.24	2,790,397.04	36.2985690	-107.6049230

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,843.00	1,843.00	Ojo Alamo		0.00	0.000
1,995.15	1,995.00	Kirtland		0.00	0.000
2,158.84	2,158.00	Fruitland		0.00	0.000
2,511.63	2,509.00	Pictured Cliffs		0.00	0.000
2,605.10	2,602.00	Lewis		0.00	0.000
3,374.99	3,368.00	Chacra		0.00	0.000
4,023.26	4,013.00	Cliff House		0.00	0.000
4,070.50	4,060.00	Menefee		0.00	0.000
4,843.41	4,829.00	Point Lookout		0.00	0.000
5,083.62	5,068.00	Mancos		0.00	0.000
5,900.21	5,847.00	Gallup		0.00	0.000

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Otero 2407-28O Com 1H
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	GL 7346' @ 7346.00usft
Site:	Otero 2407-28O	**MD Reference:**	GL 7346' @ 7346.00usft
Well:	Otero 2407-28O Com 1H	**North Reference:**	True
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	Plan #3		

Plan Annotations

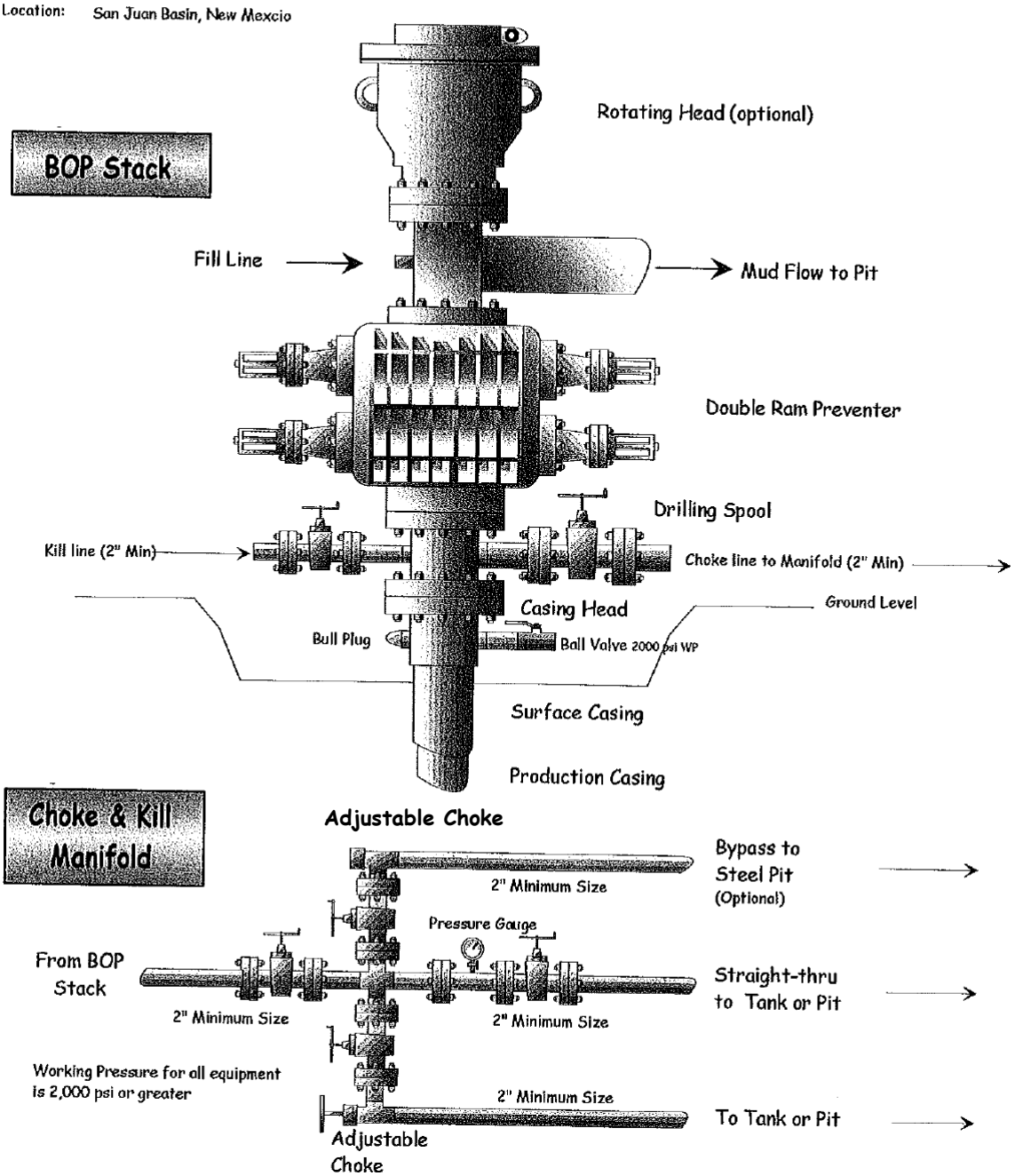
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
1,800.00	1,800.00	0.00	0.00	Start Build 2.00
2,088.11	2,087.62	-12.53	-7.25	Start 3319.41 hold at 2088.11 MD
5,407.52	5,390.26	-300.95	-174.22	Start DLS 8.00 TFO 105.25
6,551.52	6,122.00	158.73	-727.71	POE @ 6551' MD
6,701.35	6,122.00	265.39	-832.93	Last Perf @ 6701' MD
6,701.35	6,122.00	265.39	-832.93	36.2805540, -107.5829650
6,715.79	6,122.04	275.67	-843.07	Start 4774.12 hold at 6715.79 MD
11,489.91	6,146.00	3,675.89	-4,194.21	Start DLS 2.00 TFO -30.53
11,495.33	6,146.02	3,679.75	-4,198.02	Start 4419.25 hold at 11495.33 MD
15,914.58	6,161.00	6,824.26	-7,303.11	First Perf @ 15,914' MD
15,914.58	6,161.00	6,824.26	-7,303.11	36.2985690, -107.6049230
15,925.49	6,161.02	6,832.03	-7,310.77	Start 68.83 hold at 15925.49 MD
15,994.32	6,161.00	6,881.06	-7,359.08	TD at 15994.32

Well Control Equipment Schematic for 2M Service

Attachment to Drilling Technical Program

Exhibit #1
Typical BOP setup

Location: San Juan Basin, New Mexcio



OTERO 2407 28O 1H

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

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

COMMENTS

Action 54915

COMMENTS

Operator: LOGOS OPERATING, LLC 2010 Afton Place Farmington, NM 87401	OGRID: 289408
	Action Number: 54915
	Action Type: [C-101] BLM - Federal/Indian Land Lease (Form 3160-3)

COMMENTS

Created By	Comment	Comment Date
kpickford	KP GEO Review 10/13/2021	10/13/2021

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

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

CONDITIONS

Action 54915

CONDITIONS

Operator:	OGRID:
LOGOS OPERATING, LLC 2010 Afton Place Farmington, NM 87401	289408
	Action Number: 54915
	Action Type: [C-101] BLM - Federal/Indian Land Lease (Form 3160-3)

CONDITIONS

Created By	Condition	Condition Date
kpickford	Notify OCD 24 hours prior to casing & cement	10/13/2021
kpickford	Will require a File As Drilled C-102 and a Directional Survey with the C-104	10/13/2021
kpickford	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	10/13/2021
kpickford	Cement is required to circulate on both surface and intermediate1 strings of casing	10/13/2021
kpickford	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	10/13/2021