

Form 3160-3
(June 2015)UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

FORM APPROVED
OMB No. 1004-0137
Expires: January 31, 20185. Lease Serial No.
NMSF078769

6. If Indian, Allottee or Tribe Name

7. If Unit or CA Agreement, Name and No.
NMNM078407E8. Lease Name and Well No.
ROSA UNIT

716H

9. API Well No.
30-039-3147410. Field and Pool, or Exploratory
BASIN MANCOS/BASIN MANCOS11. Sec., T. R. M. or Blk. and Survey or Area
SEC 17/T31N/R5W/NMP1a. Type of work: ☒ DRILL ☐ REENTER
1b. Type of Well: ☐ Oil Well ☒ Gas Well ☐ Other
1c. Type of Completion: ☐ Hydraulic Fracturing ☒ Single Zone ☐ Multiple Zone2. Name of Operator
LOGOS OPERATING LLC3a. Address
2010 AFTON PLACE, FARMINGTON, NM 874013b. Phone No. (include area code)
(505) 278-87204. Location of Well (Report location clearly and in accordance with any State requirements. *)
At surface SWNW / 2180 FNL / 551 FWL / LAT 36.900795 / LONG -107.392837
At proposed prod. zone SENE / 1939 FNL / 1305 FEL / LAT 36.901437 / LONG -107.34508914. Distance in miles and direction from nearest town or post office*
38 miles12. County or Parish
RIO ARRIBA13. State
NM15. Distance from proposed*
location to nearest
property or lease line, ft.
(Also to nearest drig. unit line, if any)
551 feet

16. No of acres in lease

17. Spacing Unit dedicated to this well
960.018. Distance from proposed location*
to nearest well, drilling, completed,
applied for, on this lease, ft. 15 feet19. Proposed Depth
6935 feet / 20579 feet20. BLM/BIA Bond No. in file
FED:21. Elevations (Show whether DF, KDB, RT, GL, etc.)
6300 feet22. Approximate date work will start*
05/01/202323. 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
(Electronic Submission)Name (Printed/Typed)
ETTA TRUJILLO / Ph: (505) 324-4145Date
03/22/2023Title
Regulatory SpecialistApproved by (Signature)
(Electronic Submission)Name (Printed/Typed)
DAVE J MANKIEWICZ / Ph: (505) 564-7761Date
08/06/2024Title
AFM-MineralsOffice
Farmington Field OfficeApplication 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.

(Continued on page 2)

*(Instructions on page 2)



INSTRUCTIONS

GENERAL: This form is designed for submitting proposals to perform certain well operations, as indicated on Federal and Indian lands and leases for action by appropriate Federal agencies, pursuant to applicable Federal laws and regulations. Any necessary special instructions concerning the use of this form and the number of copies to be submitted, particularly with regard to local, area, or regional procedures and practices, either are shown below or will be issued by, or may be obtained from local Federal offices.

ITEM I: If the proposal is to redrill to the same reservoir at a different subsurface location or to a new reservoir, use this form with appropriate notations. Consult applicable Federal regulations concerning subsequent work proposals or reports on the well.

ITEM 4: Locations on Federal or Indian land should be described in accordance with Federal requirements. Consult local Federal offices for specific instructions.

ITEM 14: Needed only when location of well cannot readily be found by road from the land or lease description. A plat, or plats, separate or on the reverse side, showing the roads to, and the surveyed location of, the well, and any other required information, should be furnished when required by Federal agency offices.

ITEMS 15 AND 18: If well is to be, or has been directionally drilled, give distances for subsurface location of hole in any present or objective productive zone.

ITEM 22: Consult applicable Federal regulations, or appropriate officials, concerning approval of the proposal before operations are started.

ITEM 24: If the proposal will involve hydraulic fracturing operations, you must comply with 43 CFR 3162.3-3, including providing information about the protection of usable water. Operators should provide the best available information about all formations containing water and their depths. This information could include data and interpretation of resistivity logs run on nearby wells. Information may also be obtained from state or tribal regulatory agencies and from local BLM offices.

NOTICES

The Privacy Act of 1974 and regulation in 43 CFR 2.48(d) provide that you be furnished the following information in connection with information required by this application.

AUTHORITY: 30 U.S.C. 181 et seq., 25 U.S.C. 396; 43 CFR 3160

PRINCIPAL PURPOSES: The information will be used to: (1) process and evaluate your application for a permit to drill a new oil, gas, or service well or to reenter a plugged and abandoned well; and (2) document, for administrative use, information for the management, disposal and use of National Resource Lands and resources including (a) analyzing your proposal to discover and extract the Federal or Indian resources encountered; (b) reviewing procedures and equipment and the projected impact on the land involved; and (c) evaluating the effects of the proposed operation on the surface and subsurface water and other environmental impacts.

ROUTINE USE: Information from the record and/or the record will be transferred to appropriate Federal, State, and local or foreign agencies, when relevant to civil, criminal or regulatory investigations or prosecution, in connection with congressional inquiries and for regulatory responsibilities.

EFFECT OF NOT PROVIDING INFORMATION: Filing of this application and disclosure of the information is mandatory only if you elect to initiate a drilling or reentry operation on an oil and gas lease.

The Paperwork Reduction Act of 1995 requires us to inform you that:

The BLM connects this information to a new evaluation of the technical, safety, and environmental factors involved with drilling for oil and/or gas on Federal and Indian oil and gas leases. This information will be used to analyze and approve applications. Response to this request is mandatory only if the operator elects to initiate drilling or reentry operations on an oil and gas lease. The BLM would like you to know that you do not have to respond to this or any other Federal agency-sponsored information collection unless it displays a currently valid OMB control number.

BURDEN HOURS STATEMENT: Public reporting burden for this form is estimated to average 8 hours per response, including the time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding the burden estimate or any other aspect of this form to U.S. Department of the Interior, Bureau of Land Management (1004-0137), Bureau Information Connection Clearance Officer (WO-630), 1849 C Street, N.W., Mail Stop 401 LS, Washington, D.C. 20240.

Additional Operator Remarks

Location of Well

0. SHL: SWNW / 2180 FNL / 551 FWL / TWSP: 31N / RANGE: 5W / SECTION: 17 / LAT: 36.900795 / LONG: -107.392837 (TVD: 0 feet, MD: 0 feet)

PPP: SWNW / 0 FNL / 0 FWL / TWSP: 31N / RANGE: 5W / SECTION: 16 / LAT: 0.0 / LONG: 0.0 (TVD: 0 feet, MD: 0 feet)

PPP: SWNW / 0 FNL / 0 FWL / TWSP: 31N / RANGE: 5W / SECTION: 15 / LAT: 0.0 / LONG: 0.0 (TVD: 0 feet, MD: 0 feet)

PPP: SWNW / 1881 FNL / 1219 FWL / TWSP: 31N / RANGE: 5W / SECTION: 17 / LAT: 36.901616 / LONG: -107.390551 (TVD: 6950 feet, MD: 7286 feet)

BHL: SENE / 1939 FNL / 1305 FEL / TWSP: 31N / RANGE: 5W / SECTION: 15 / LAT: 36.901437 / LONG: -107.345089 (TVD: 6935 feet, MD: 20579 feet)

BLM Point of Contact

Name: JEFFREY J TAFOYA

Title: Assistant Field Manager

Phone: (505) 564-7672

Email: JTAFOYA@BLM.GOV

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Review and Appeal Rights

A person contesting a decision shall request a State Director review. This request must be filed within 20 working days of receipt of the Notice with the appropriate State Director (see 43 CFR 3165.3). The State Director review decision may be appealed to the Interior Board of Land Appeals, 801 North Quincy Street, Suite 300, Arlington, VA 22203 (see 43 CFR 3165.4). Contact the above listed Bureau of Land Management office for further information.

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Conditions of Approval

Operator: LOGOS Operating, LLC
Well Names: Rosa Unit Pad 26 (Rosa Unit 710H, 712H, 714H, 716H, 720H, 724H, 726H, and 4 futures)
Legal Location: Sec 17, T31N, R05W, Rio Arriba County, NM
NEPA Log Number: DOI-BLM-NM-F010-2023-0039-EA
Inspection Date: November 2, 2022
Lease Number: NMSF078769E

The following conditions of approval will apply to LOGOS Operating LLC's Rosa Unit Pad 26 Project, and other associated facilities, unless a particular Surface Managing Agency or private surface owner has supplied to Bureau of Land Management and the operator a contradictory environmental stipulation. The failure of the operator to comply with these requirements may result in an assessment or civil penalties pursuant to 43 CFR 3163.1 or 3163.2.

Disclaimers: BLM's approval of the APD does not relieve the lessee and operator from obtaining any other authorizations that may be required by the BIA, BOR, Tribes, State, or other jurisdictional entities.

Copy of Plans: A complete copy of the APD package, including Surface Use Plan of Operations, Bare Soil Reclamation Plan, Plan of Development (if required), and Conditions of Approval be at the project area at all times and available to all persons.

Review of NEPA documents: It is the responsibility of the operator to follow all the design features, best management practices, and mitigation measures as contained in the Environmental Assessment DOI-BLM-NM-F010-2023-0039-EA, which contains additional design features and best management practices that must be followed. Copies of the EA, Decision Record, and Finding of No Significant Impact may be obtained from the BLM FFO public room, or online at: [EplanningUi \(blm.gov\)](https://www.blm.gov/eplanningui).

Best Management Practices (BMPs): Farmington Field Office established environmental Best Management Practices (BMP's) will be followed during construction and reclamation of well site pads, access roads, pipeline ties, facility placement or any other surface disturbing activity associated with this project. Bureau wide standard BMP's are found in the Gold Book, Fourth Edition-Revised 2007 and at <https://www.blm.gov/programs/energy-and-minerals/oil-and-gas/operations-and-production/the-gold-book>. Farmington Field Office BMPs are integrated into the Environmental Assessment, Surface Use Plan of Operations, Bare Soil Reclamation Plan, and COAs.

Construction, Production, Facilities, Reclamation & Maintenance

Construction & Reclamation Notification: The operator or their contractor will contact the Farmington Field Office Surface and Environmental Protection Staff by phone at (505) 564-7600 or by email at least 48 hours prior to any construction or reclamation on this project.

Production Facilities: design and layout of facilities will be deferred until an onsite with BLM-FFO surface protection staff is conducted to determine the best location. LOGOS or their contractor will contact the Farmington Field Office Surface and Environmental Protection Staff by phone at (505) 564-7600 or by email to schedule a facility layout onsite.

Berms: Berms or firewalls will be constructed around all storage facilities sufficient in size to contain the storage capacity of 110% of the largest tank, or 110% of the combined capacity of tanks if a rupture could drain more than one tank. Berm walls will be compacted with appropriate equipment to assure proper construction. Metal containment barriers, used for secondary containment, will be properly installed, per the manufacturer directions.

Painting of Equipment: Within 90 days of installation, all above ground structures not subject to safety requirements shall be painted by the Holder to blend with the natural color of the landscape. A reflective material may be used to reduce hazards that may occur when such structures are near roads. Otherwise, the paint use shall be a non-glare, non-reflective, non-chalking color of: **Juniper Green.**

Staking: The holder shall place slope stakes, culvert location and grade stakes, and other construction control stakes as deemed necessary by the authorized officer to ensure construction in accordance with the application. If stakes are disturbed, they shall be replaced before proceeding with construction.

Weather: No construction or routine maintenance activities shall be performed during periods when the soil is too wet to adequately support construction equipment. If such equipment creates ruts more than 6 inches deep, the soil shall be deemed too wet.

Stockpile of Soil: The top 6 inches of soil material will be stripped and stockpiled in the construction zones around the pad [construction zones may be restricted or deleted to provide resource avoidance]. The stockpiled soil will be free of brush and tree limbs, trunks, and roots. The stockpiled soil material will be spread on the reclaimed portions of the pad [including the reserve pit, cut and fill slopes] prior to re-seeding. Spreading shall not be done when the ground or topsoil is frozen or wet.

Storage Tanks: All open top permanent production or storage tanks regardless of diameter made of fiberglass, steel, or other material used for the containment of oil, condensate, produced or recycled water and or other production waste shall be screened, netted, or otherwise covered to protect migratory birds and other wildlife from access.

Compressors: Compressor units on this well location not equipped with a drip pan for containment of fluids shall be lined with an impervious material at least 8 mils thick and a 12-inch berm. The compressor will be painted to match the well facilities. Any variance to this will be approved by the Authorized Officer (AO). Noise mitigation may be required at the time of compressor installation.

Culverts: Silt Traps/Bell Holes will be built upstream of all culvert locations.

Driving Surface Area: All activities associated within the construction, operation, maintenance, and abandonment of the well location is limited to areas approved in the APD or ROW permit. During the production of the well, vehicular traffic is limited to the daily driving surface area established during interim reclamation construction operations. This area typically forms a keyhole or teardrop driving surface from which all production facilities may be serviced or inspected. A v-type ditch will be constructed on the outside of the driving surface to further define the driving surface and to deter vehicular traffic from entering onto the interim reclamation areas.

Contouring of Cut and Fill Slopes: The interim cut and fill slope grade shall be as close to the original contour as possible. To obtain this ratio, pits and slopes shall be back sloped into the pad during interim reclamation. Only subsurface soil and material shall be utilized in the contouring of the cut and fill slopes. Under no circumstances shall topsoil be utilized as substrate material for contouring of cut and fill slopes.

Maintenance: In order to perform subsequent well operations, right-of-way (ROW) operations, or install new/additional equipment, it may be necessary to drive, park, and operate on restored, interim vegetation within the previously disturbed area. This is generally acceptable provided damage is promptly repaired and reclaimed following use. Where vehicular travel has occurred as a “convenience” and interim reclamation/vegetation has been compromised, immediate remediation of the affected areas is required. Additionally, where erosion has occurred and compromised the reclamation of the well location, the affected area must be promptly remediated so that future erosion is prevented, and the landform is stabilized.

Layflat Lines: Layflat lines used for development of the wells may be on the ground for a maximum of 6 months and shall be retrieved within 30 days of ending completion operations. If the layflat lines are needed for longer than 6 months or cannot be retrieved within 30 days of ending completion operations, a Sundry NOI shall be submitted to the BLM FFO for review and decision that includes a rationale for the time extension.

“Hotwork” and Construction Affecting Fire Safety: The holder or its contractors will notify the BLM of any fires and comply with all rules and regulations administered by the BLM concerning the use, prevention and suppression of fires on federal lands, including any fire prevention orders that may be in effect at the time of the permitted activity. The holder or its contractors may be held liable for the cost of fire suppression, stabilization and rehabilitation. In the event of a fire, personal safety will be the first priority of the holder or its contractors. The holder or its contractors shall:

1. Operate all internal and external combustion engines (including off-highway vehicles, chainsaws, generators, heavy equipment, etc.) with a qualified spark arrester. Qualified spark arresters are maintained and not modified, and meet the Society of Automotive Engineers (SAE) Recommended Practices J335 or J350. Refer to 43 CFR §8343.1.
 - a. *Refueling of any combustible engine equipment must be minimum of 3 meters away from any ignition source (open flame, smoking, etc.).*

2. Maintain and clean all equipment regularly to remove flammable debris buildup and prevent fluid leaks that can lead to ignitions.
3. Carry at least one shovel or wildland fire hand tool (combi, Pulaski, McLeod) per person working, minimum 5 gallons of water, and a fire extinguisher rated at a minimum as ABC - 10 pound on each piece of equipment and each vehicle.
4. When conducting "hotwork" such as, but not limited to welding, grinding, cutting, spark-producing work with metal, work that creates hot material or slag; choose an area large enough to contain all hot material that is naturally free of all flammable vegetation or remove the flammable vegetation in a manner compliant with the permitted activity. If adequate clearance cannot be made, wet an area large enough to contain all hot material prior to the activity and periodically throughout the activity to reduce the risk of wildfire ignition. Regardless of clearance, maintain readiness to respond to an ignition at all times. In addition, keep one hand tool per person and at least one fire extinguisher ready, minimum, as specified earlier (#3) during this activity.
5. Keep apprised of current and forecasted weather at <https://www.weather.gov/abq/forecasts-fireweather-links> and fire conditions at www.wfas.net and take additional fire precautions when fire danger is rated High or greater. Red Flag Warnings are issued by the National Weather Service when fire conditions are most dangerous, and ignitions escape control quickly. Extra precautions are required during these warnings such as additional water, designate a fire watch/patrol and tools. If work is being conducted in an area that is not clear of vegetation within 50 feet of work area; then, when fire danger is rated High or greater and 1. There is a predicted Red Flag warning for your area or 2. If winds are predicted to be greater than 10 mph, stop all hotwork activities for the day at 10 am.
6. In the event of an ignition, initiate fire suppression actions in the work area to prevent fire spread to or on federally administered lands. If a fire spreads beyond the capability of workers with the stipulated tools, all will cease fire suppression action and leave the area immediately via pre-identified escape routes.
7. Call **911** or the **Taos Interagency Fire Dispatch Center (575-758-6208)** immediately of the location and status of any fire.

AND

Notify the respective BLM field office for which the permit or contract was issued immediately of the incident.

Farmington Field Office at 505-564-7600

Noxious Weeds

Inventory the proposed site for the presence of noxious and invasive weeds. Noxious weeds are those listed on the New Mexico Noxious Weed List and USDA's Federal Noxious Weed List. The New Mexico Noxious Weed List or USDA's Noxious Weed List can be updated at any time and should be regularly check for any changes. Invasive species may or may not be listed as a noxious weed but have been identified to likely cause economic or environmental harm or harm to human health. The following noxious weeds have been identified as occurring on lands within

the boundaries of the Farmington Field Office (FFO). There are numerous invasive species on the FFO such as Russian thistle (*Salsola spp.*) and field bindweed (*Convolvulus arvensis*).

Russian Knapweed (<i>Centaurea repens</i>)	Musk Thistle (<i>Carduus nutans</i>)
Bull Thistle (<i>Cirsium vulgare</i>)	Canada Thistle (<i>Cirsium arvense</i>)
Scotch Thistle (<i>Onopordum acanthium</i>)	Hoary Cress (<i>Cardaria draba</i>)
Perennial Pepperweed (<i>Lepidium latifolium</i>)	Halogeton (<i>Halogeton glomeratus</i>)
Spotted Knapweed (<i>Centaurea maculosa</i>)	Dalmation Toadflax (<i>Linaria genistifolia</i>)
Yellow Toadflax (<i>Linaria vulgaris</i>)	Camelthorn (<i>Alhagi pseudalhagi</i>)
African Rue (<i>Peganum harmala</i>)	Salt Cedar (<i>Tamarix spp.</i>)
Diffuse Knapweed (<i>Centaurea diffusa</i>)	Leafy Spurge (<i>Euphorbia esula</i>)

- a. Identified weeds will be treated prior to new surface disturbance if determined by the FFO Noxious Weed Coordinator. A Pesticide Use Proposal (PUP) must be submitted to and approved by the FFO Noxious Weed Coordinator prior to application of pesticide. The FFO Noxious Weeds Coordinator (505-564-7600) can provide assistance in the development of the PUP.
- b. Vehicles and equipment should be inspected and cleaned prior to coming onto the work site. This is especially important on vehicles from out of state or if coming from a weed-infested site.
- c. Fill dirt or gravel may be needed for excavation, road construction/repair, or for spill remediation. If fill dirt or gravel will be required, the source shall be noxious weed free and approved by the FFO Noxious Weed Coordinator.
- d. The site shall be monitored for the life of the project for the presence of noxious weeds (includes maintenance and construction activities). If weeds are found the FFO Coordinator shall be notified at (505) 564-7600 and provided with a Weed Management Plan and if necessary, a Pesticide Use Proposal (PUP). The FFO Coordinator can provide assistance developing the Weed Management Plan and/or the Pesticide Use Proposal.
- e. Only pesticides authorized for use on BLM lands would be used and applied by a licensed pesticide applicator. The use of pesticides would comply with federal and state laws and used only in accordance with their registered use and limitations. Logos's weed-control contractor would contact the BLM-FFO prior to using these chemicals.
- f. Noxious/invasive weed treatments must be reported to the FFO Noxious Weed Coordinator. A Pesticide Use Report (PUR) is required to report any mechanical, chemical, biological, or cultural treatments used to eradicate, and/or control noxious or invasive species. Reporting will be required quarterly and annually or per request from the FFO Noxious Weed Coordinator.

Bare ground vegetation trim-out: If bare ground vegetation treatment (trim-out) is desired around facility structures, the operator will submit a bare ground/trim-out design included in their Surface Use Plan of Operations (SUPO). The design will address vegetation safety concerns of the operator and BLM while minimizing impacts to interim reclamation efforts. The design must include what structures to be treated and buffer distances of trim-out. Pesticide use for vegetation control around anchor structures is not approved. If pesticides are used for bare ground trim-out, the trim-out will not exceed three feet from the edge of any eligible permanent structure (i.e., well heads, fences, tanks). Additional distance/areas may be requested and must be approved by the FFO authorized officer. The additional information below must also be provided to the FFO:

- a. Pesticide use for trim out will require a Pesticide Use Proposal (PUP). A PUP is required *prior* to any treatment and must be approved by the FFO Noxious Weed Coordinator. Only pesticides authorized for use on BLM lands would be used and applied by a licensed pesticide applicator. The use of pesticides would comply with federal and state laws and used only in accordance with their registered use and limitations. Logos's weed-control contractor would contact the BLM-FFO prior to using these chemicals and provide Pesticide Use Reports (PURs) post treatment.
- b. A Pesticide Use Report (PUR) or a Biological Use Report (BUR) is required to report any chemical, or biological treatments used to eradicate, or control vegetation on site. Reporting will be required quarterly and annually or per request from the FFO Noxious Weed Coordinator.

Paleontology

Any paleontological resource discovered by the Operator, or any person working on his behalf, on public or Federal land shall be immediately reported to the Authorized Officer. Holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery will be made by the Authorized Officer to determine appropriate actions to prevent the loss of significant scientific values. The Holder will be responsible for the cost of evaluation and any decision as to proper mitigation measures will be made by the Authorized Officer after consulting with the Holder.

Visual Resources

All permanent lighting will use full cutoff luminaires, which are fully shielded (i.e., not emitting direct or indirect light above an imaginary horizontal plane passing through the lowest part of the light source). All permanent lighting will be pointed straight down at the ground in order to prevent light spill to the sides. All permanent lighting will be 4000° Kelvin or less with 3000° Kelvin preferred. Warmer light colors are less noticeable by humans and cause less impact to wildlife. All permanent lighting will be controlled by a switch and/or timer which allows the lights to be turned on when workers are on location during dark periods but will keep the lights off the majority of the time.

Wildlife Resources

Wildlife: Rosa Mesa Wildlife SDA. No surface use (outside of routine operation) is allowed during the following time period: December 1 - March 31.

Hazards: Wildlife hazards associated with the proposed project would be fenced, covered, and/or contained in covered storage tanks, as necessary.

Migratory Bird: Any new disturbance over 4.0 acres within nesting season (5/15-7/31) will require a migratory bird nest survey to be conducted by BLM FFO biologist. Once drilling and completion activities are complete, any open water that could be harmful to birds and wildlife must be covered, screened, or netted to prevent entry.

Threatened, Endangered or Sensitive Species: If, in operations the operator/holder discovers any Threatened, Endangered, or Sensitive species, work in the vicinity of the discovery will be suspended and the discovery promptly reported to the BLM-FFO T&E specialist at (505) 564-7600. The BLM-FFO will then specify what action is to be taken. Failure to notify the BLM-FFO about a discovery may result in civil or criminal penalties in accordance with The Endangered Species Act (as amended).

Nesting: If a bird nest containing eggs or young is encountered in the path of construction the operator will cease construction and consult with BLM to determine appropriate actions.

Grazing Permittee Notification and Concerns: The operator will notify the grazing lease operator(s) at least ten business days prior to beginning any construction activity to ensure there will be no conflicts between construction activities and livestock grazing operations. The operator is not obligated to cease or delay construction unless directed by the Authorized Officer (AO). Any range improvement (fences, pipelines, ponds, etc.) disturbed by construction activities will be repaired immediately following construction and will be repaired to the condition the improvement was in prior to disturbance. Cattle guards will be installed to replace any livestock fencing or gates removed for road construction.

Soil, Air, Water

Land Farming: No excavation, remediation or closure activities will be authorized without prior approval, on any federal or Indian mineral estate, federal surface, or federal ROW. A Sundry Notice (DOI, BLM Form 3160-5) must be submitted with an explanation of the remediation or closure plan for on-lease actions.

Emission Control Standard: Compressor engines 300 horsepower or less used during well production must be rated by the manufacturer as emitting NOx at 2 grams per horsepower hour or less to comply with the New Mexico Environmental Department, Air Quality Bureau's guidance.

Waste Disposal: All fluids (i.e., scrubber cleaners) used during washing of production equipment, including compressors, will be properly disposed of to avoid ground contamination, or hazard to livestock or wildlife.

Cultural Resources

Non-Permitted Disturbance: Construction, construction maintenance or any other activity outside the areas permitted by the APD will require additional approval and may require a new cultural survey and clearance.

Employee Education: All employees of the project, including the Project Sponsor and its contractors and sub-contractors will be informed that cultural sites are to be avoided by all personnel, personal vehicles, and company equipment. They will also be notified that it is illegal to collect, damage, or disturb cultural resources, and that such activities are punishable by criminal and or administrative penalties under the provisions of the Archaeological Resources Protection Act (16 U.S.C. 470aa-mm) when on federal land and the New Mexico Cultural Properties Act NMSA 1978 when on state land.

Discovery of Cultural Resources in the Absence of Monitoring: Discovery of Cultural Resources in the Absence of Monitoring: If, in its operations, operator/holder discovers any previously unidentified historic or prehistoric cultural resources, then work in the vicinity of the discovery will be suspended and the discovery promptly reported to BLM Field Manager. BLM will then specify what action is to be taken. If there is an approved "discovery plan" in place for the project, then the plan will be executed. In the absence of an approved plan, the BLM will evaluate the significance of the discovery in accordance with 36 CFR Section 800.13, in consultation with the appropriate State or Tribal Historic Preservation Officer(s) and Indian tribe(s) that might attach religious and cultural significance to the affected property, **or in accordance with an approved program alternative.** Minor recordation, stabilization, or data recovery may be performed by BLM or a third party acting on its behalf, such as a permitted cultural resources consultant. If warranted, more extensive **archaeological or alternative mitigation**, likely implemented by a permitted cultural resources consultant, may be required of the operator/holder prior to allowing the project to proceed. Further damage to significant cultural resources will not be allowed until any **mitigations determined appropriate through the agency's Section 106 consultation are completed.** Failure to notify the BLM about a discovery may result in civil or criminal penalties in accordance with the Archeological Resources Protection Act (ARPA) of 1979, as amended, **the Native American Graves Protection and Repatriation Act (NAGRPA) of 1990, as amended, and other applicable laws.**

Discovery of Cultural Resources during Monitoring: If monitoring confirms the presence of previously unidentified historic or prehistoric cultural resources, then work in the vicinity of the discovery will be suspended and the monitor will promptly report the discovery to the BLM Field Manager. BLM will then specify what action is to be taken. **If there is an approved "discovery plan" in place for the project, then the plan will be executed. In the absence of an approved plan, the BLM will evaluate the significance of the discovery in accordance with 36 CFR Section 800.13, in consultation with the appropriate State or Tribal Historic Preservation Officer(s) and Indian tribe(s) that might attach religious and cultural significance to the affected property, or in accordance with an approved program alternative. Minor recordation, stabilization, or data recovery may be performed by BLM**

or a third party acting on its behalf, such as a permitted cultural resources consultant. If warranted, more extensive archaeological or alternative mitigation, likely implemented by a permitted cultural resources consultant, may be required of the operator/holder prior to allowing the project to proceed. Further damage to significant cultural resources will not be allowed until any mitigations determined appropriate through the agency's Section 106 consultation are completed.

Damage to Sites: If, in its operations, operator/holder damages, or is found to have damaged any previously documented or undocumented historic or prehistoric cultural resources, excluding "discoveries" as noted above, the operator/holder agrees at his/her expense to have a permitted cultural resources consultant prepare a BLM approved damage assessment and/or data recovery plan. The operator/holder agrees at his/her expense to implement a **mitigation** that the agency finds appropriate given the significance of the site, which the agency determines in consultation with the appropriate State or Tribal Historic Preservation Officer(s) and Indian tribe(s) that might attach religious and cultural significance to the affected property. **This mitigation may entail execution of the data recovery plan by a permitted cultural resources consultant and/or alternative mitigations.** Damage to cultural resources may result in **civil or criminal penalties in accordance with the Archeological Resources Protection Act (ARPA) of 1979, as amended, the Native American Graves Protection and Repatriation Act (NAGRPA) of 1990, as amended, and other applicable laws.**

See additional cultural stipulations below.



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

#716H ROSA UNIT

Lease: NMSF078769 Unit: NMNM78407E
SH: SW $\frac{1}{4}$ NW $\frac{1}{4}$ Section 17, T.31 N., R.5 W.
Rio Arriba County, New Mexico
BH: SE $\frac{1}{4}$ NE $\frac{1}{4}$ Section 15, T.31 N., R.5 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 all casing strings below the conductor 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. If pressure declines more than 10 percent in 30 minutes, corrective action shall be taken.
- D. ☐ Communitization Agreement covering the acreage dedicated to this well must be filed for approval with the Bureau of Land Management, New Mexico State Office, Reservoir Management Group, 301 Dinosaur Trail, Santa Fe, New Mexico 87508.
The effective date of the agreement must be **prior** to any sales.
- E. ☐ 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.

INTERIOR REGION 7 • UPPER COLORADO BASIN

COLORADO, NEW MEXICO, UTAH, WYOMING

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 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. BOP equipment (except the annular preventer) shall be tested utilizing a test plug to full working pressure for 10 minutes. No bleed-off of pressure is acceptable. (OO2 III.A.2.i.i.)
- G. The operator shall have sufficient weighting materials and lost circulation materials on location in the event of a pressure kick or in the event of lost circulation (OO2 III.C.7.)
- H. The flare line(s) discharge shall be located not less than 100 feet from the well head, having straight lines unless turns are targeted with running tees, and shall be positioned downwind of the prevailing wind direction and shall be anchored. The flare system shall have an effective method for ignition. Where noncombustible gas is likely or expected to be vented, the system shall be provided supplemental fuel for ignition and to maintain a continuous flare. (OO2 III.C.7.)
- I. 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 sundry within three business days. **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 Virgil Lucero at 505-793-1836.**
- J. **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.**

- K. Unless drilling operations are commenced within two years, approval of the Application for Permit to Drill will expire. A written request for a two-year extension may be granted if submitted prior to expiration.
- L. 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 times, unless the well is secured with blowout preventers or cement plugs.
- M. 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.
- N. **Commingling:** No production (oil, gas, and water) from the subject well should start until Sundry Notices (if necessary) granting variances from applicable regulations as related to commingling and off-lease measurement are approved by this office.

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. Provide 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 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 way 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 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.
- C. Production Startup Notification is required no later than the 5th business day after any well begins production on which royalty is due anywhere on a lease site or allocated to a lease site or resumes production in the case of a well which has been off production for more than 90 days. The operator shall notify the Authorized Officer by letter or Sundry Notice, Form 3160-5, or orally to be followed

by a letter or Sundry Notice, of the date on which such production has begun or resumed. CFR 43 3162.4-1(c).

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 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.

District I
1625 N. French Drive, Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720District II
811 S. First Street, Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170District IV
1220 S. St. Francis Drive, Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462Submit one copy to
Appropriate District OfficeOIL CONSERVATION DIVISION
1220 South St. Francis Drive
Santa Fe, NM 87505☐ AMENDED REPORT17 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.

Etta Trujillo 2/23/2023

Signature Date
Etta TrujilloPrinted Name
etrujillo@logosresourcecellc.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.

Date Revised: FEBRUARY 13, 2023
Date of Survey: JUNE 22, 2022

Signature and Seal of Professional Surveyor



JASON C. EDWARDS

Certificate Number 15269

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-039-31474	² Pool Code 97232	³ Pool Name BASIN MANCOS
⁴ Property Code 320608	⁵ Property Name ROSA UNIT	⁶ Well Number 716H
⁷ GRID No. 289408	⁸ Operator Name LOGOS OPERATING, LLC	⁹ Elevation 6300'

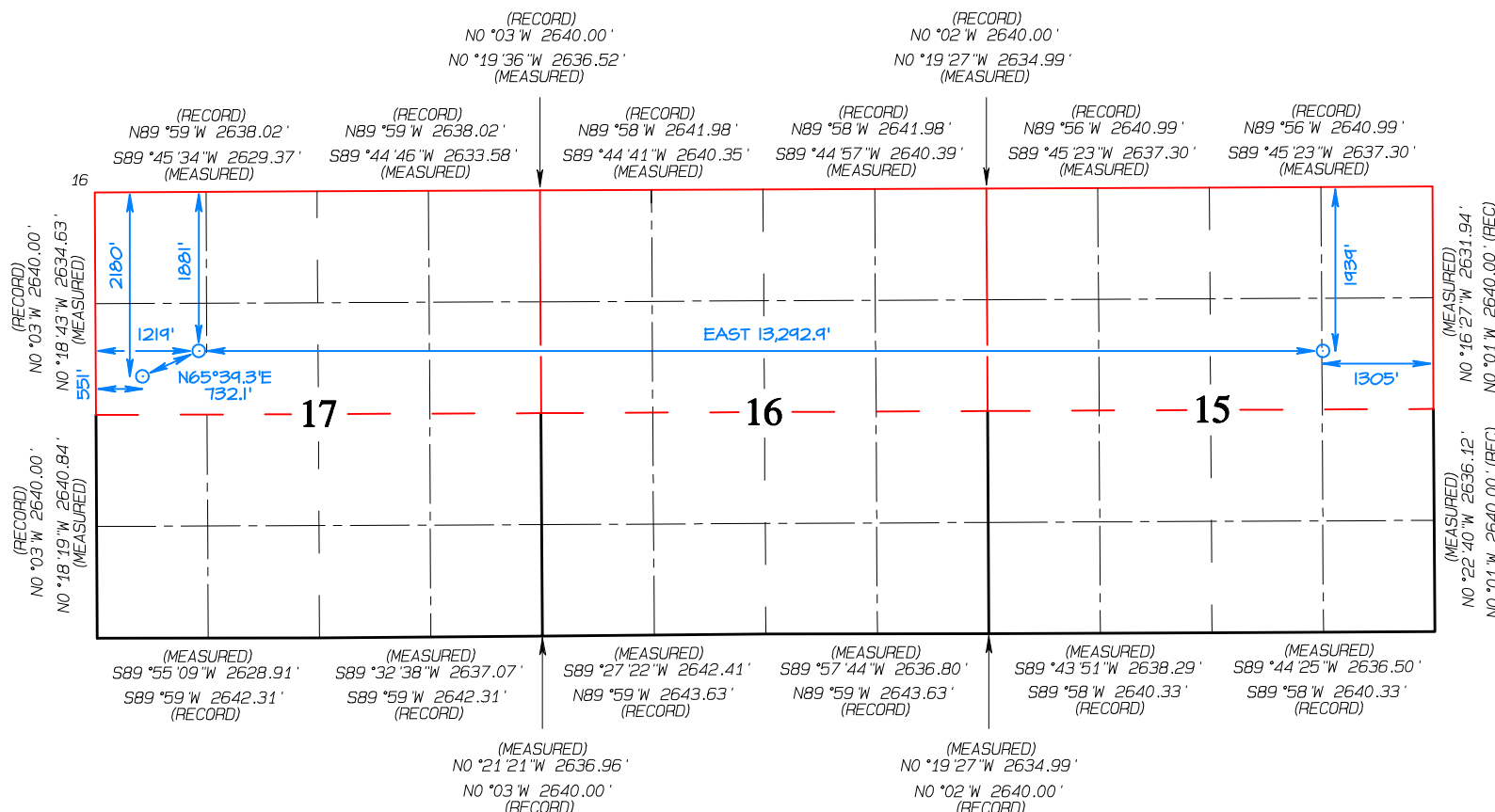
¹⁰ Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
E	17	31N	5W		2180	NORTH	551	WEST	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
H	15	31N	5W		1939	NORTH	1305	EAST	RIO ARriba
¹² Dedicated Acres 960.00	N/2 - Section 15 N/2 - Section 16 N/2 - Section 17				¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No. R-13457		

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

SURFACE LOCATION
2180' FNL 551' FWL
SEC 17, T31N, R5W
LAT: 36.900789°N
LONG: 107.392235°W
DATUM: NAD1927LAT: 36.900795°N
LONG: 107.392837°W
DATUM: NAD1983FIRST TAKE POINT
1881' FNL 1219' FWL
SEC 17, T31N, R5W
LAT: 36.901610°N
LONG: 107.389949°W
DATUM: NAD1927LAT: 36.901616°N
LONG: 107.390551°W
DATUM: NAD1983LAST TAKE POINT
1939' FNL 1305' FEL
SEC 15, T31N, R6W
LAT: 36.901431°N
LONG: 107.344488°W
DATUM: NAD1927LAT: 36.901437°N
LONG: 107.345089°W
DATUM: NAD1983

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:** 03 / 02 / 2023

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
Rosa Unit 710H	30-039-pending	E-17-T31N-R5W	2137 FNL, 539 FWL	N/A	15,847	508
Rosa Unit 712H	30-039-pending	E-17-T31N-R5W	2151 FNL, 543 FWL	N/A	15,847	507
Rosa Unit 714H	30-039-pending	E-17-T31N-R5W	2166 FNL, 547 FWL	N/A	16,997	551
Rosa Unit 716H	30-039-pending	E-17-T31N-R5W	2180 FNL, 551 FWL	N/A	17,381	557
Rosa Unit 720H	30-039-pending	E-17-T31N-R5W	2195 FNL, 555 FWL	N/A	16,230	526
Rosa Unit 722H	30-039-pending	E-17-T31N-R5W	2209 FNL, 558 FWL	N/A	14,696	526
Rosa Unit 724H	30-039-pending	E-17-T31N-R5W	2224 FNL, 562 FWL	N/A	16,230	525
Rosa Unit 726H	30-039-pending	E-17-T31N-R5W	2238 FNL, 566 FWL	N/A	14,696	523

IV. Central Delivery Point Name: 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
Rosa Unit 710H	30-039-pending	Pending	Pending	Pending	Pending	Pending
Rosa Unit 712H	30-039-pending	Pending	Pending	Pending	Pending	Pending
Rosa Unit 714H	30-039-pending	Pending	Pending	Pending	Pending	Pending
Rosa Unit 716H	30-039-pending	Pending	Pending	Pending	Pending	Pending
Rosa Unit 720H	30-039-pending	Pending	Pending	Pending	Pending	Pending
Rosa Unit 722H	30-039-pending	Pending	Pending	Pending	Pending	Pending
Rosa Unit 724H	30-039-pending	Pending	Pending	Pending	Pending	Pending
Rosa Unit 726H	30-039-pending	Pending	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 2 – Enhanced Plan **EFFECTIVE APRIL 1, 2022**

Beginning April 1, 2022, an operator that is not in compliance with its statewide natural gas capture requirement for the applicable reporting area must complete this section.

☒ Operator certifies that it is not required to complete this section because Operator is in compliance with its statewide natural gas capture requirement for the applicable reporting area.

IX. Anticipated Natural Gas Production:

Well	API	Anticipated Average Natural Gas Rate MCF/D	Anticipated Volume of Natural Gas for the First Year MCF

X. Natural Gas Gathering System (NGGS):

Operator	System	ULSTR of Tie-in	Anticipated Gathering Start Date	Available Maximum Daily Capacity of System Segment Tie-in

XI. Map. ☐ Attach an accurate and legible map depicting the location of the well(s), the anticipated pipeline route(s) connecting the production operations to the existing or planned interconnect of the natural gas gathering system(s), and the maximum daily capacity of the segment or portion of the natural gas gathering system(s) to which the well(s) will be connected.

XII. Line Capacity. The natural gas gathering system ☐ will ☐ will not have capacity to gather 100% of the anticipated natural gas production volume from the well prior to the date of first production.

XIII. Line Pressure. Operator ☐ does ☐ does not anticipate that its existing well(s) connected to the same segment, or portion, of the natural gas gathering system(s) described above will continue to meet anticipated increases in line pressure caused by the new well(s).

☐ Attach Operator's plan to manage production in response to the increased line pressure.

XIV. Confidentiality: ☐ Operator asserts confidentiality pursuant to Section 71-2-8 NMSA 1978 for the information provided in Section 2 as provided in Paragraph (2) of Subsection D of 19.15.27.9 NMAC, and attaches a full description of the specific information for which confidentiality is asserted and the basis for such assertion.

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

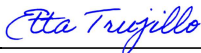
1. If, at any time after Operator submits this Natural Gas Management Plan and before the well is spud:

(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: 
Printed Name: Etta Trujillo
Title: Regulatory Specialist
E-mail Address: etrujillo@logosresourcesllc.com
Date: 3/2/2023
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 Operations Plan

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

Date:	February 22, 2023	Pool:	Basin Mancos
Well Name:	Rosa Unit 716H	GL Elevation:	6,300'
Surface Location:	Sec 17, T31N, R5W 2180 FNL, 551 FWL (36.900795° N, 107.392837° W – NAD83)	Measured Depth:	20,579' (KB)
Bottom Hole Location:	Sec 15, T31N, R5W 1939 FNL, 1305 FEL (36.901437° N, 107.345089° W – NAD83)	County:	Rio Arriba

Lease Serial #NMSF078769 CA Serial #NMNM78407E

I. GEOLOGY

A. Formation Tops (Based on KB Elevation): Estimated top of important geological markers:
SURFACE FORMATION – NACIMIENTO

NAME	MD	TVD	NAME	MD	TVD
OJO ALAMO	2,434'	2,432'	*POINT LOOKOUT	5,637'	5,631'
KIRTLAND	2,544'	2,542'	*MANCOS	6,175'	6,168'
*FRUITLAND	3,011'	3,008'	KICKOFF POINT	6,394'	6,387'
*PICTURED CLIFFS	3,357'	3,354'	LANDING POINT	7,286'	6,950'
LEWIS	3,463'	3,459'			
CHACRA	4,589'	4,584'			
*CLIFF HOUSE	5,367'	5,361'			
MENEFEE	5,408'	5,402'	TD	20,579'	6,935'

* 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 17-1/2" surface hole as well as the 12-1/4" directional vertical hole. A LSND (WBM) or (OBM) will be used to drill the 8-1/2" curve and lateral portion of the wellbore. 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.

ROSA UNIT 716H



- B. BOP TESTING:** 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. BOP equipment will be tested every 30 days, after any repairs are made to the BOP equipment, and after the BOP equipment is subjected to pressure. Annular preventers will be functionally operated at least once per week. Pipe and blind rams shall be activated each trip or but not more than once a day. The New Mexico Oil & Gas Conservation Commission and the BLM will be notified 24 hours in advance of testing of BOPE. **All tests and inspections will be recorded and logged with time and results.** A full BOP test will be conducted when initially installed for the first well on the pad or if seals subject to test pressure are broken, following related repairs and at a minimum of 30 day intervals. A BOPE Shell Test only will be conducted for subsequent wells on the pad when seals subject to pressure have not been broken or repaired and fall within the 30 day interval of first full test.
- C. GeoHazards:** There are no Geohazards
- D. Maximum Anticipated Pressure:** 6950' TVD x 0.43 = 2989 psi
- E. H2S Concerns:** There is no record of any naturally occurring H2S in any formation in the Rosa Unit. No H2S is anticipated in this formation or this well.

III. MATERIALS

A. CASING EQUIPMENT:

CASING TYPE	OH SIZE (IN)	DEPTH (MD)	CSG SIZE	WEIGHT	GRADE	CONN
SURFACE	17.5"	320' or greater	13.375"	54.5 LBS	J-55 or equiv	LTC/BTC
INTERMEDIATE	12.25"	6,250'	9.625"	43.5 LBS	N-80 or equiv	LTC/BTC
PRODUCTION	8.5"	20,579'	5.5"	20 LBS	P-110 or equiv	LTC/BTC

NOTE: All casing depths are approximate, based on GL elevation 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:

- SURFACE CASING:** 13-3/8" notched regular pattern guide shoe. Run (1) standard centralizer on each of the bottom (3) joints of Surface Casing.
- INTERMEDIATE CASING:** 9-5/8" 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. Optional use of DV Tools (2) will be strategically placed above loss circulation zones anticipated in the Mesaverde and Fruitland Coal. Optional use of cancellation plugs for DV tools may be used if losses while cementing are not encountered.
- PRODUCTION CASING:** Run 5-1/2" casing with cement nose guide Float Shoe, 5-1/2" full or pup joints as necessary, Landing Collar, 5-1/2" full or pup joints as necessary, at least (1) one Toe Sleeve (Sliding Sleeve) positioned inside the applicable production area. Centralizer program will be determined by wellbore conditions. Production casing to be pressure tested during completion operations with frac stack installed.

**C. CEMENTING:**

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

1. SURFACE: Casing shall be set at ~ 320' and cemented to surface. TOC at Surface.
263 sks of 15.8 ppg Type Neat G, 1.18 cuf/sk yield or equivalent 223 sks of 14.6 ppg Type III with 1.39 cuf/sk yield, 30% excess.
2. INTERMEDIATE: Intermediate casing shall be kept fluid filled while running in to the hole to meet BLM minimum collapse requirements. The intermediate casing will be cemented in 2 or 3 stages using DV/STAGE tools in order to reduce cement losses and maximize cement coverage. Operator proposes optional DV tools above anticipated loss circulation zones in the Mesaverde and in the Fruitland coal. If losses are not observed during the second stage a cancelation plug will be pumped and the remaining cement will be pumped during stage 2. If cement does not circulate to the DV tool(s) or to surface, a CBL will be run to determine TOC.

	Top	Footage	Cement (ft3/ft) Annular Capacity	Excess (30%)	Total (ft3)	Total (bbl)	Slurry Yield (ft3/sk)	Sacks Cement	Density (PPG)
Stage 1 Tail	5,087	1,163	0.3132	1.3	491	87	1.15	427	15.8
Stage 1 Lead	4,639	448	0.31318	1.3	182	32	2.30	79	12.3
					673	120		506	
Stage 2 Tail	3,464	1,175	0.31318	1.3	478	85	1.50	319	13.5
Stage 2 Lead	3,041	423	0.31318	1.3	172	31	2.30	75	12.3
					651	116		394	
Stage 3 Tail	2,391	650	0.31318	1.3	265	47	1.99	133	12.8
Stage 3 Lead	320	2,071	0.31318	1.3	843	150	2.53	333	12
Stage 3 Lead	-	320	0.36268	1	116	21	2.53	46	12
					1,224	218		512	
All Stage Totals					2,548	454		1,412	

Calculations based on 30% excess for open hole and cement to surface. Actual excess pumped will be determined by well conditions.

3. PRODUCTION: Production casing will be cemented in 1 stage with 100' of cement overlap above intermediate shoe. A CBL, or alternatively, a Temperature Survey will be used to determine TOC.

	Top	ft	Cement (ft3/ft) Annular Capacity	Excess (15%)	Total (ft3)	Total (bbl)	Slurry Yield (ft3/sk)	Sacks Cement	Density (PPG)
Cased Lead	5,250	100	0.2531	1	25	5	1.56	16	13
Open Hole Lead	6,250	14,329	0.2291	1.15	3,786	674	1.56	2,427	13
					3,811	679		2,443	

Calculations based on 15% excess for open hole and 100' overlap into intermediate casing. Actual volumes will vary.

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 to determine cement top if cement is not circulated.

B. PRESSURE TEST

C. Pressure test 5-1/2" casing to 0.22 psi/ft *6935'TVD=1526 psi for 30 minutes. Increase pressure to Open RSI sleeves.

D. STIMULATION

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

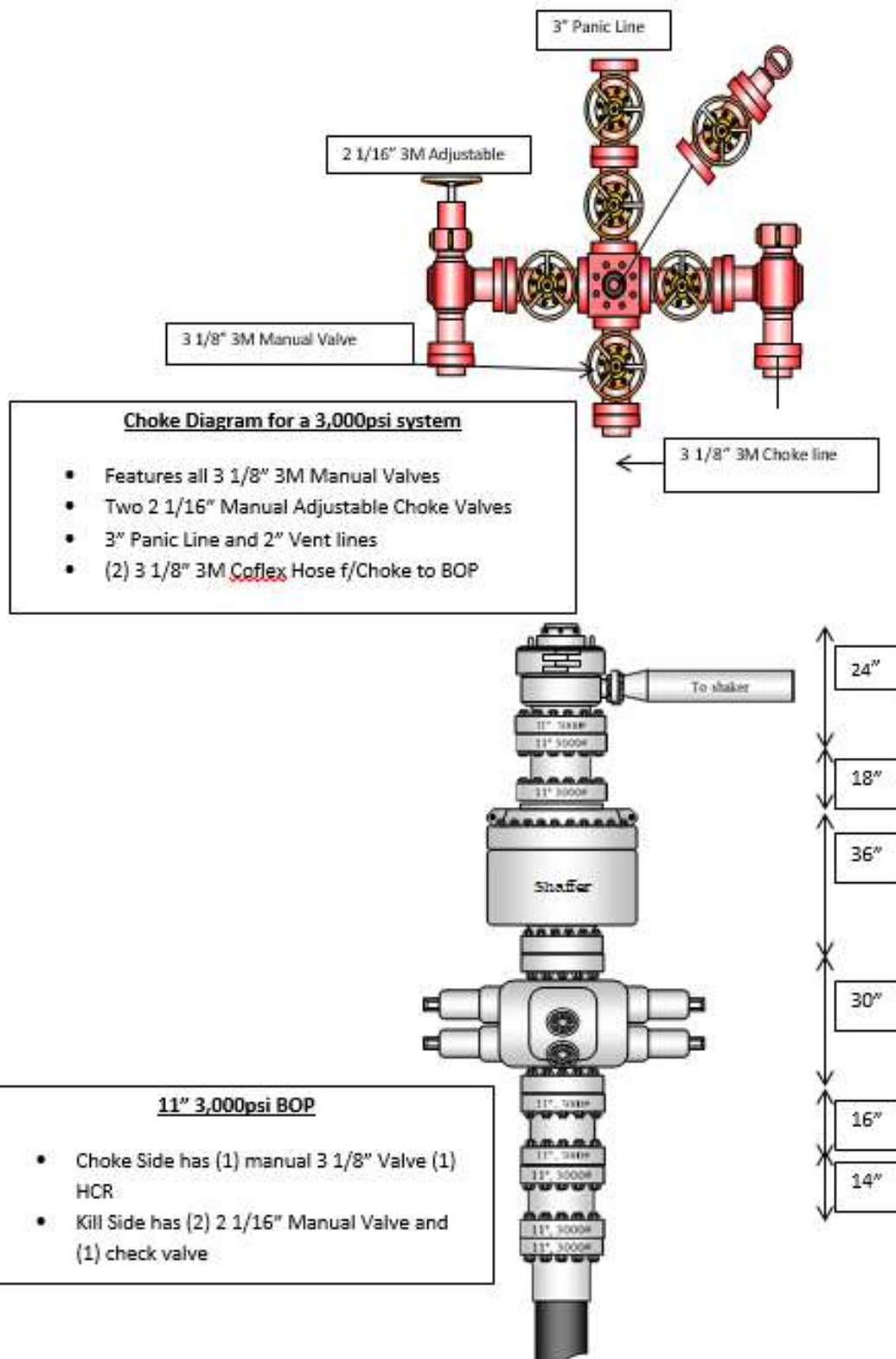
E. PRODUCTION TUBING

2-7/8", 6.5#, J-55 or L-80, EUE tubing will be run once volumes and pressures dictate. Due to the extremely high initial flow rates and pressures seen in offset wells, tubing will be installed once it is safe to do so, typically 12-36 months after completion.

*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.



3M 11" B.O.P.E Diagram



ROSA UNIT 716H

Logos Operating LLC

Rio Arriba, NM NAD83

Rosa Pad 26

Rosa Unit #716H - Slot 716H

OH

Plan: Prelim #1

Standard Planning Report

21 January, 2023

Planning Report

Database:	Well Planning	Local Co-ordinate Reference:	Well Rosa Unit #716H - Slot 716H
Company:	Logos Operating LLC	TVD Reference:	6300+24.5 @ 6324.50usft (Ensign T223)
Project:	Rio Arriba, NM NAD83	MD Reference:	6300+24.5 @ 6324.50usft (Ensign T223)
Site:	Rosa Pad 26	North Reference:	True
Well:	Rosa Unit #716H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Prelim #1		

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	Rosa Pad 26				
Site Position:		Northing:	2,147,556.27 usft	Latitude:	36.900914
From:	Lat/Long	Easting:	2,851,875.56 usft	Longitude:	-107.392877
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.26 °

Well	Rosa Unit #716H - Slot 716H					
Well Position	+N/-S	-43.33 usft	Northing:	2,147,513.00 usft	Latitude:	36.900795
	+E/-W	11.70 usft	Easting:	2,851,887.45 usft	Longitude:	-107.392837
Position Uncertainty	0.00 usft		Wellhead Elevation:		Ground Level:	6,300.00 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	1/11/2023	8.55	63.46	49,574.19488559

Design	Prelim #1			
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	90.26

Plan Survey Tool Program	Date	1/19/2023		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	20,577.99 Prelim #1 (OH)	MWD-SDI	

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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00	
643.02	2.86	19.01	642.96	3.37	1.16	2.00	2.00	0.00	19.01	
6,394.09	2.86	19.01	6,386.86	274.71	94.66	0.00	0.00	0.00	0.00	
7,285.54	90.06	90.26	6,950.00	298.73	668.31	10.00	9.78	7.99	71.27	Rosa 26 716H POE
20,578.49	90.06	90.26	6,935.00	237.38	13,961.11	0.00	0.00	0.00	0.00	Rosa 26 716H PBHL

Planning Report

Database:	Well Planning	Local Co-ordinate Reference:	Well Rosa Unit #716H - Slot 716H
Company:	Logos Operating LLC	TVD Reference:	6300+24.5 @ 6324.50usft (Ensign T223)
Project:	Rio Arriba, NM NAD83	MD Reference:	6300+24.5 @ 6324.50usft (Ensign T223)
Site:	Rosa Pad 26	North Reference:	True
Well:	Rosa Unit #716H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Prelim #1		

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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 2.00									
600.00	2.00	19.01	599.98	1.65	0.57	0.56	2.00	2.00	0.00
643.02	2.86	19.01	642.96	3.37	1.16	1.15	2.00	2.00	0.00
Start 5751.07 hold at 643.02 MD									
700.00	2.86	19.01	699.87	6.06	2.09	2.06	0.00	0.00	0.00
800.00	2.86	19.01	799.75	10.78	3.72	3.67	0.00	0.00	0.00
900.00	2.86	19.01	899.62	15.50	5.34	5.27	0.00	0.00	0.00
1,000.00	2.86	19.01	999.50	20.22	6.97	6.87	0.00	0.00	0.00
1,100.00	2.86	19.01	1,099.37	24.93	8.59	8.48	0.00	0.00	0.00
1,200.00	2.86	19.01	1,199.25	29.65	10.22	10.08	0.00	0.00	0.00
1,300.00	2.86	19.01	1,299.12	34.37	11.84	11.69	0.00	0.00	0.00
1,400.00	2.86	19.01	1,399.00	39.09	13.47	13.29	0.00	0.00	0.00
1,500.00	2.86	19.01	1,498.87	43.81	15.10	14.90	0.00	0.00	0.00
1,600.00	2.86	19.01	1,598.75	48.52	16.72	16.50	0.00	0.00	0.00
1,700.00	2.86	19.01	1,698.62	53.24	18.35	18.11	0.00	0.00	0.00
1,800.00	2.86	19.01	1,798.50	57.96	19.97	19.71	0.00	0.00	0.00
1,900.00	2.86	19.01	1,898.37	62.68	21.60	21.31	0.00	0.00	0.00
2,000.00	2.86	19.01	1,998.25	67.40	23.22	22.92	0.00	0.00	0.00
2,100.00	2.86	19.01	2,098.13	72.11	24.85	24.52	0.00	0.00	0.00
2,200.00	2.86	19.01	2,198.00	76.83	26.48	26.13	0.00	0.00	0.00
2,300.00	2.86	19.01	2,297.88	81.55	28.10	27.73	0.00	0.00	0.00
2,400.00	2.86	19.01	2,397.75	86.27	29.73	29.34	0.00	0.00	0.00
2,434.29	2.86	19.01	2,432.00	87.89	30.29	29.89	0.00	0.00	0.00
Ojo Alamo									
2,500.00	2.86	19.01	2,497.63	90.99	31.35	30.94	0.00	0.00	0.00
2,544.43	2.86	19.01	2,542.00	93.08	32.08	31.65	0.00	0.00	0.00
Kirtland									
2,600.00	2.86	19.01	2,597.50	95.70	32.98	32.55	0.00	0.00	0.00
2,700.00	2.86	19.01	2,697.38	100.42	34.61	34.15	0.00	0.00	0.00
2,800.00	2.86	19.01	2,797.25	105.14	36.23	35.75	0.00	0.00	0.00
2,900.00	2.86	19.01	2,897.13	109.86	37.86	37.36	0.00	0.00	0.00
3,000.00	2.86	19.01	2,997.00	114.58	39.48	38.96	0.00	0.00	0.00
3,011.01	2.86	19.01	3,008.00	115.09	39.66	39.14	0.00	0.00	0.00
Fruitland									
3,100.00	2.86	19.01	3,096.88	119.29	41.11	40.57	0.00	0.00	0.00
3,200.00	2.86	19.01	3,196.75	124.01	42.73	42.17	0.00	0.00	0.00
3,300.00	2.86	19.01	3,296.63	128.73	44.36	43.78	0.00	0.00	0.00
3,357.44	2.86	19.01	3,354.00	131.44	45.29	44.70	0.00	0.00	0.00
Pictured Cliffs									
3,400.00	2.86	19.01	3,396.51	133.45	45.99	45.38	0.00	0.00	0.00
3,462.57	2.86	19.01	3,459.00	136.40	47.00	46.38	0.00	0.00	0.00
Lewis									
3,500.00	2.86	19.01	3,496.38	138.16	47.61	46.98	0.00	0.00	0.00
3,600.00	2.86	19.01	3,596.26	142.88	49.24	48.59	0.00	0.00	0.00
3,700.00	2.86	19.01	3,696.13	147.60	50.86	50.19	0.00	0.00	0.00
3,800.00	2.86	19.01	3,796.01	152.32	52.49	51.80	0.00	0.00	0.00
3,900.00	2.86	19.01	3,895.88	157.04	54.12	53.40	0.00	0.00	0.00

Planning Report

Database:	Well Planning	Local Co-ordinate Reference:	Well Rosa Unit #716H - Slot 716H
Company:	Logos Operating LLC	TVD Reference:	6300+24.5 @ 6324.50usft (Ensign T223)
Project:	Rio Arriba, NM NAD83	MD Reference:	6300+24.5 @ 6324.50usft (Ensign T223)
Site:	Rosa Pad 26	North Reference:	True
Well:	Rosa Unit #716H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Prelim #1		

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)	
4,000.00	2.86	19.01	3,995.76	161.75	55.74	55.01	0.00	0.00	0.00	
4,100.00	2.86	19.01	4,095.63	166.47	57.37	56.61	0.00	0.00	0.00	
4,200.00	2.86	19.01	4,195.51	171.19	58.99	58.22	0.00	0.00	0.00	
4,300.00	2.86	19.01	4,295.38	175.91	60.62	59.82	0.00	0.00	0.00	
4,400.00	2.86	19.01	4,395.26	180.63	62.24	61.42	0.00	0.00	0.00	
4,500.00	2.86	19.01	4,495.14	185.34	63.87	63.03	0.00	0.00	0.00	
4,588.98	2.86	19.01	4,584.00	189.54	65.32	64.46	0.00	0.00	0.00	
Chacra										
4,600.00	2.86	19.01	4,595.01	190.06	65.50	64.63	0.00	0.00	0.00	
4,700.00	2.86	19.01	4,694.89	194.78	67.12	66.24	0.00	0.00	0.00	
4,800.00	2.86	19.01	4,794.76	199.50	68.75	67.84	0.00	0.00	0.00	
4,900.00	2.86	19.01	4,894.64	204.22	70.37	69.45	0.00	0.00	0.00	
5,000.00	2.86	19.01	4,994.51	208.93	72.00	71.05	0.00	0.00	0.00	
5,100.00	2.86	19.01	5,094.39	213.65	73.63	72.65	0.00	0.00	0.00	
5,200.00	2.86	19.01	5,194.26	218.37	75.25	74.26	0.00	0.00	0.00	
5,300.00	2.86	19.01	5,294.14	223.09	76.88	75.86	0.00	0.00	0.00	
5,366.94	2.86	19.01	5,361.00	226.25	77.97	76.94	0.00	0.00	0.00	
Cliff House										
5,400.00	2.86	19.01	5,394.01	227.81	78.50	77.47	0.00	0.00	0.00	
5,408.00	2.86	19.01	5,402.00	228.18	78.63	77.60	0.00	0.00	0.00	
Menefee										
5,500.00	2.86	19.01	5,493.89	232.52	80.13	79.07	0.00	0.00	0.00	
5,600.00	2.86	19.01	5,593.76	237.24	81.75	80.68	0.00	0.00	0.00	
5,637.28	2.86	19.01	5,631.00	239.00	82.36	81.27	0.00	0.00	0.00	
Point Lookout										
5,700.00	2.86	19.01	5,693.64	241.96	83.38	82.28	0.00	0.00	0.00	
5,800.00	2.86	19.01	5,793.52	246.68	85.01	83.89	0.00	0.00	0.00	
5,900.00	2.86	19.01	5,893.39	251.40	86.63	85.49	0.00	0.00	0.00	
6,000.00	2.86	19.01	5,993.27	256.11	88.26	87.09	0.00	0.00	0.00	
6,100.00	2.86	19.01	6,093.14	260.83	89.88	88.70	0.00	0.00	0.00	
6,174.95	2.86	19.01	6,168.00	264.37	91.10	89.90	0.00	0.00	0.00	
Mancos										
6,200.00	2.86	19.01	6,193.02	265.55	91.51	90.30	0.00	0.00	0.00	
6,300.00	2.86	19.01	6,292.89	270.27	93.13	91.91	0.00	0.00	0.00	
6,394.09	2.86	19.01	6,386.86	274.71	94.66	93.42	0.00	0.00	0.00	
Start DLS 10.00 TFO 71.27										
6,400.00	3.10	29.42	6,392.77	274.98	94.79	93.54	10.00	4.07	176.02	
6,450.00	7.05	67.77	6,442.57	277.33	98.30	97.04	10.00	7.90	76.69	
6,500.00	11.82	77.20	6,491.89	279.62	106.14	104.87	10.00	9.54	18.86	
6,550.00	16.72	81.20	6,540.33	281.86	118.25	116.97	10.00	9.81	8.01	
6,600.00	21.67	83.42	6,587.53	284.02	134.54	133.25	10.00	9.89	4.44	
6,650.00	26.64	84.85	6,633.14	286.08	154.89	153.59	10.00	9.93	2.85	
6,700.00	31.61	85.85	6,676.81	288.04	179.14	177.83	10.00	9.95	2.01	
6,750.00	36.60	86.61	6,718.19	289.87	207.10	205.79	10.00	9.96	1.51	
6,800.00	41.58	87.20	6,756.99	291.56	238.58	237.25	10.00	9.97	1.19	
6,850.00	46.57	87.69	6,792.90	293.10	273.31	271.98	10.00	9.98	0.98	
6,900.00	51.56	88.11	6,825.65	294.48	311.05	309.71	10.00	9.98	0.83	
6,950.00	56.55	88.47	6,854.99	295.68	351.50	350.15	10.00	9.98	0.72	
7,000.00	61.55	88.79	6,880.69	296.70	394.35	393.00	10.00	9.98	0.64	
7,050.00	66.54	89.08	6,902.57	297.53	439.28	437.93	10.00	9.99	0.59	
7,100.00	71.53	89.36	6,920.46	298.17	485.96	484.60	10.00	9.99	0.54	
7,150.00	76.53	89.61	6,934.21	298.60	534.01	532.65	10.00	9.99	0.51	
7,200.00	81.52	89.86	6,943.73	298.82	583.08	581.72	10.00	9.99	0.49	

Planning Report

Database:	Well Planning	Local Co-ordinate Reference:	Well Rosa Unit #716H - Slot 716H
Company:	Logos Operating LLC	TVD Reference:	6300+24.5 @ 6324.50usft (Ensign T223)
Project:	Rio Arriba, NM NAD83	MD Reference:	6300+24.5 @ 6324.50usft (Ensign T223)
Site:	Rosa Pad 26	North Reference:	True
Well:	Rosa Unit #716H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Prelim #1		

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)
7,250.00	86.51	90.10	6,948.94	298.84	632.79	631.43	10.00	9.99	0.48
7,285.54	90.06	90.26	6,950.00	298.73	668.31	666.95	10.00	9.99	0.47
Start 13292.95 hold at 7285.54 MD									
7,300.00	90.06	90.26	6,949.98	298.67	682.77	681.41	0.00	0.00	0.00
7,400.00	90.06	90.26	6,949.87	298.20	782.77	781.41	0.00	0.00	0.00
7,500.00	90.06	90.26	6,949.76	297.74	882.77	881.41	0.00	0.00	0.00
7,600.00	90.06	90.26	6,949.65	297.28	982.76	981.40	0.00	0.00	0.00
7,700.00	90.06	90.26	6,949.53	296.82	1,082.76	1,081.40	0.00	0.00	0.00
7,800.00	90.06	90.26	6,949.42	296.36	1,182.76	1,181.40	0.00	0.00	0.00
7,900.00	90.06	90.26	6,949.31	295.90	1,282.76	1,281.40	0.00	0.00	0.00
8,000.00	90.06	90.26	6,949.19	295.43	1,382.76	1,381.40	0.00	0.00	0.00
8,100.00	90.06	90.26	6,949.08	294.97	1,482.76	1,481.40	0.00	0.00	0.00
8,200.00	90.06	90.26	6,948.97	294.51	1,582.76	1,581.40	0.00	0.00	0.00
8,300.00	90.06	90.26	6,948.86	294.05	1,682.76	1,681.40	0.00	0.00	0.00
8,400.00	90.06	90.26	6,948.74	293.59	1,782.76	1,781.40	0.00	0.00	0.00
8,500.00	90.06	90.26	6,948.63	293.13	1,882.75	1,881.40	0.00	0.00	0.00
8,600.00	90.06	90.26	6,948.52	292.67	1,982.75	1,981.40	0.00	0.00	0.00
8,700.00	90.06	90.26	6,948.40	292.20	2,082.75	2,081.40	0.00	0.00	0.00
8,800.00	90.06	90.26	6,948.29	291.74	2,182.75	2,181.40	0.00	0.00	0.00
8,900.00	90.06	90.26	6,948.18	291.28	2,282.75	2,281.40	0.00	0.00	0.00
9,000.00	90.06	90.26	6,948.07	290.82	2,382.75	2,381.40	0.00	0.00	0.00
9,100.00	90.06	90.26	6,947.95	290.36	2,482.75	2,481.40	0.00	0.00	0.00
9,200.00	90.06	90.26	6,947.84	289.90	2,582.75	2,581.40	0.00	0.00	0.00
9,300.00	90.06	90.26	6,947.73	289.44	2,682.74	2,681.40	0.00	0.00	0.00
9,400.00	90.06	90.26	6,947.61	288.97	2,782.74	2,781.40	0.00	0.00	0.00
9,500.00	90.06	90.26	6,947.50	288.51	2,882.74	2,881.40	0.00	0.00	0.00
9,600.00	90.06	90.26	6,947.39	288.05	2,982.74	2,981.40	0.00	0.00	0.00
9,700.00	90.06	90.26	6,947.28	287.59	3,082.74	3,081.40	0.00	0.00	0.00
9,800.00	90.06	90.26	6,947.16	287.13	3,182.74	3,181.40	0.00	0.00	0.00
9,900.00	90.06	90.26	6,947.05	286.67	3,282.74	3,281.40	0.00	0.00	0.00
10,000.00	90.06	90.26	6,946.94	286.20	3,382.74	3,381.40	0.00	0.00	0.00
10,100.00	90.06	90.26	6,946.82	285.74	3,482.74	3,481.40	0.00	0.00	0.00
10,200.00	90.06	90.26	6,946.71	285.28	3,582.73	3,581.40	0.00	0.00	0.00
10,300.00	90.06	90.26	6,946.60	284.82	3,682.73	3,681.40	0.00	0.00	0.00
10,400.00	90.06	90.26	6,946.49	284.36	3,782.73	3,781.40	0.00	0.00	0.00
10,500.00	90.06	90.26	6,946.37	283.90	3,882.73	3,881.40	0.00	0.00	0.00
10,600.00	90.06	90.26	6,946.26	283.44	3,982.73	3,981.40	0.00	0.00	0.00
10,700.00	90.06	90.26	6,946.15	282.97	4,082.73	4,081.40	0.00	0.00	0.00
10,800.00	90.06	90.26	6,946.03	282.51	4,182.73	4,181.40	0.00	0.00	0.00
10,900.00	90.06	90.26	6,945.92	282.05	4,282.73	4,281.40	0.00	0.00	0.00
11,000.00	90.06	90.26	6,945.81	281.59	4,382.73	4,381.40	0.00	0.00	0.00
11,100.00	90.06	90.26	6,945.70	281.13	4,482.72	4,481.40	0.00	0.00	0.00
11,200.00	90.06	90.26	6,945.58	280.67	4,582.72	4,581.40	0.00	0.00	0.00
11,300.00	90.06	90.26	6,945.47	280.20	4,682.72	4,681.40	0.00	0.00	0.00
11,400.00	90.06	90.26	6,945.36	279.74	4,782.72	4,781.40	0.00	0.00	0.00
11,500.00	90.06	90.26	6,945.24	279.28	4,882.72	4,881.40	0.00	0.00	0.00
11,600.00	90.06	90.26	6,945.13	278.82	4,982.72	4,981.40	0.00	0.00	0.00
11,700.00	90.06	90.26	6,945.02	278.36	5,082.72	5,081.40	0.00	0.00	0.00
11,800.00	90.06	90.26	6,944.91	277.90	5,182.72	5,181.40	0.00	0.00	0.00
11,900.00	90.06	90.26	6,944.79	277.44	5,282.72	5,281.40	0.00	0.00	0.00
12,000.00	90.06	90.26	6,944.68	276.97	5,382.71	5,381.40	0.00	0.00	0.00
12,100.00	90.06	90.26	6,944.57	276.51	5,482.71	5,481.40	0.00	0.00	0.00
12,200.00	90.06	90.26	6,944.45	276.05	5,582.71	5,581.40	0.00	0.00	0.00

Planning Report

Database:	Well Planning	Local Co-ordinate Reference:	Well Rosa Unit #716H - Slot 716H
Company:	Logos Operating LLC	TVD Reference:	6300+24.5 @ 6324.50usft (Ensign T223)
Project:	Rio Arriba, NM NAD83	MD Reference:	6300+24.5 @ 6324.50usft (Ensign T223)
Site:	Rosa Pad 26	North Reference:	True
Well:	Rosa Unit #716H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Prelim #1		

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)
12,300.00	90.06	90.26	6,944.34	275.59	5,682.71	5,681.40	0.00	0.00	0.00
12,400.00	90.06	90.26	6,944.23	275.13	5,782.71	5,781.40	0.00	0.00	0.00
12,500.00	90.06	90.26	6,944.12	274.67	5,882.71	5,881.40	0.00	0.00	0.00
12,600.00	90.06	90.26	6,944.00	274.20	5,982.71	5,981.40	0.00	0.00	0.00
12,700.00	90.06	90.26	6,943.89	273.74	6,082.71	6,081.40	0.00	0.00	0.00
12,800.00	90.06	90.26	6,943.78	273.28	6,182.71	6,181.40	0.00	0.00	0.00
12,900.00	90.06	90.26	6,943.66	272.82	6,282.70	6,281.40	0.00	0.00	0.00
13,000.00	90.06	90.26	6,943.55	272.36	6,382.70	6,381.40	0.00	0.00	0.00
13,100.00	90.06	90.26	6,943.44	271.90	6,482.70	6,481.40	0.00	0.00	0.00
13,200.00	90.06	90.26	6,943.33	271.44	6,582.70	6,581.40	0.00	0.00	0.00
13,300.00	90.06	90.26	6,943.21	270.97	6,682.70	6,681.40	0.00	0.00	0.00
13,400.00	90.06	90.26	6,943.10	270.51	6,782.70	6,781.40	0.00	0.00	0.00
13,500.00	90.06	90.26	6,942.99	270.05	6,882.70	6,881.40	0.00	0.00	0.00
13,600.00	90.06	90.26	6,942.87	269.59	6,982.70	6,981.40	0.00	0.00	0.00
13,700.00	90.06	90.26	6,942.76	269.13	7,082.70	7,081.40	0.00	0.00	0.00
13,800.00	90.06	90.26	6,942.65	268.67	7,182.69	7,181.40	0.00	0.00	0.00
13,900.00	90.06	90.26	6,942.54	268.21	7,282.69	7,281.40	0.00	0.00	0.00
14,000.00	90.06	90.26	6,942.42	267.74	7,382.69	7,381.40	0.00	0.00	0.00
14,100.00	90.06	90.26	6,942.31	267.28	7,482.69	7,481.40	0.00	0.00	0.00
14,200.00	90.06	90.26	6,942.20	266.82	7,582.69	7,581.40	0.00	0.00	0.00
14,300.00	90.06	90.26	6,942.08	266.36	7,682.69	7,681.40	0.00	0.00	0.00
14,400.00	90.06	90.26	6,941.97	265.90	7,782.69	7,781.40	0.00	0.00	0.00
14,500.00	90.06	90.26	6,941.86	265.44	7,882.69	7,881.40	0.00	0.00	0.00
14,600.00	90.06	90.26	6,941.75	264.97	7,982.69	7,981.40	0.00	0.00	0.00
14,700.00	90.06	90.26	6,941.63	264.51	8,082.68	8,081.40	0.00	0.00	0.00
14,800.00	90.06	90.26	6,941.52	264.05	8,182.68	8,181.40	0.00	0.00	0.00
14,900.00	90.06	90.26	6,941.41	263.59	8,282.68	8,281.40	0.00	0.00	0.00
15,000.00	90.06	90.26	6,941.30	263.13	8,382.68	8,381.40	0.00	0.00	0.00
15,100.00	90.06	90.26	6,941.18	262.67	8,482.68	8,481.40	0.00	0.00	0.00
15,200.00	90.06	90.26	6,941.07	262.21	8,582.68	8,581.40	0.00	0.00	0.00
15,300.00	90.06	90.26	6,940.96	261.74	8,682.68	8,681.40	0.00	0.00	0.00
15,400.00	90.06	90.26	6,940.84	261.28	8,782.68	8,781.40	0.00	0.00	0.00
15,500.00	90.06	90.26	6,940.73	260.82	8,882.68	8,881.40	0.00	0.00	0.00
15,600.00	90.06	90.26	6,940.62	260.36	8,982.67	8,981.40	0.00	0.00	0.00
15,700.00	90.06	90.26	6,940.51	259.90	9,082.67	9,081.40	0.00	0.00	0.00
15,800.00	90.06	90.26	6,940.39	259.44	9,182.67	9,181.40	0.00	0.00	0.00
15,900.00	90.06	90.26	6,940.28	258.97	9,282.67	9,281.40	0.00	0.00	0.00
16,000.00	90.06	90.26	6,940.17	258.51	9,382.67	9,381.40	0.00	0.00	0.00
16,100.00	90.06	90.26	6,940.05	258.05	9,482.67	9,481.40	0.00	0.00	0.00
16,200.00	90.06	90.26	6,939.94	257.59	9,582.67	9,581.40	0.00	0.00	0.00
16,300.00	90.06	90.26	6,939.83	257.13	9,682.67	9,681.40	0.00	0.00	0.00
16,400.00	90.06	90.26	6,939.72	256.67	9,782.66	9,781.40	0.00	0.00	0.00
16,500.00	90.06	90.26	6,939.60	256.21	9,882.66	9,881.40	0.00	0.00	0.00
16,600.00	90.06	90.26	6,939.49	255.74	9,982.66	9,981.40	0.00	0.00	0.00
16,700.00	90.06	90.26	6,939.38	255.28	10,082.66	10,081.40	0.00	0.00	0.00
16,800.00	90.06	90.26	6,939.26	254.82	10,182.66	10,181.40	0.00	0.00	0.00
16,900.00	90.06	90.26	6,939.15	254.36	10,282.66	10,281.40	0.00	0.00	0.00
17,000.00	90.06	90.26	6,939.04	253.90	10,382.66	10,381.40	0.00	0.00	0.00
17,100.00	90.06	90.26	6,938.93	253.44	10,482.66	10,481.40	0.00	0.00	0.00
17,200.00	90.06	90.26	6,938.81	252.97	10,582.66	10,581.40	0.00	0.00	0.00
17,300.00	90.06	90.26	6,938.70	252.51	10,682.65	10,681.40	0.00	0.00	0.00
17,400.00	90.06	90.26	6,938.59	252.05	10,782.65	10,781.40	0.00	0.00	0.00
17,500.00	90.06	90.26	6,938.47	251.59	10,882.65	10,881.40	0.00	0.00	0.00
17,600.00	90.06	90.26	6,938.36	251.13	10,982.65	10,981.40	0.00	0.00	0.00

Planning Report

Database:	Well Planning	Local Co-ordinate Reference:	Well Rosa Unit #716H - Slot 716H
Company:	Logos Operating LLC	TVD Reference:	6300+24.5 @ 6324.50usft (Ensign T223)
Project:	Rio Arriba, NM NAD83	MD Reference:	6300+24.5 @ 6324.50usft (Ensign T223)
Site:	Rosa Pad 26	North Reference:	True
Well:	Rosa Unit #716H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Prelim #1		

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)	
17,700.00	90.06	90.26	6,938.25	250.67	11,082.65	11,081.40	0.00	0.00	0.00	
17,800.00	90.06	90.26	6,938.14	250.21	11,182.65	11,181.40	0.00	0.00	0.00	
17,900.00	90.06	90.26	6,938.02	249.74	11,282.65	11,281.40	0.00	0.00	0.00	
18,000.00	90.06	90.26	6,937.91	249.28	11,382.65	11,381.40	0.00	0.00	0.00	
18,100.00	90.06	90.26	6,937.80	248.82	11,482.65	11,481.40	0.00	0.00	0.00	
18,200.00	90.06	90.26	6,937.68	248.36	11,582.64	11,581.40	0.00	0.00	0.00	
18,300.00	90.06	90.26	6,937.57	247.90	11,682.64	11,681.40	0.00	0.00	0.00	
18,400.00	90.06	90.26	6,937.46	247.44	11,782.64	11,781.40	0.00	0.00	0.00	
18,500.00	90.06	90.26	6,937.35	246.98	11,882.64	11,881.40	0.00	0.00	0.00	
18,600.00	90.06	90.26	6,937.23	246.51	11,982.64	11,981.40	0.00	0.00	0.00	
18,700.00	90.06	90.26	6,937.12	246.05	12,082.64	12,081.40	0.00	0.00	0.00	
18,800.00	90.06	90.26	6,937.01	245.59	12,182.64	12,181.40	0.00	0.00	0.00	
18,900.00	90.06	90.26	6,936.89	245.13	12,282.64	12,281.40	0.00	0.00	0.00	
19,000.00	90.06	90.26	6,936.78	244.67	12,382.64	12,381.40	0.00	0.00	0.00	
19,100.00	90.06	90.26	6,936.67	244.21	12,482.63	12,481.40	0.00	0.00	0.00	
19,200.00	90.06	90.26	6,936.56	243.74	12,582.63	12,581.40	0.00	0.00	0.00	
19,300.00	90.06	90.26	6,936.44	243.28	12,682.63	12,681.40	0.00	0.00	0.00	
19,400.00	90.06	90.26	6,936.33	242.82	12,782.63	12,781.40	0.00	0.00	0.00	
19,500.00	90.06	90.26	6,936.22	242.36	12,882.63	12,881.40	0.00	0.00	0.00	
19,600.00	90.06	90.26	6,936.10	241.90	12,982.63	12,981.40	0.00	0.00	0.00	
19,700.00	90.06	90.26	6,935.99	241.44	13,082.63	13,081.40	0.00	0.00	0.00	
19,800.00	90.06	90.26	6,935.88	240.98	13,182.63	13,181.40	0.00	0.00	0.00	
19,900.00	90.06	90.26	6,935.77	240.51	13,282.63	13,281.40	0.00	0.00	0.00	
20,000.00	90.06	90.26	6,935.65	240.05	13,382.62	13,381.40	0.00	0.00	0.00	
20,100.00	90.06	90.26	6,935.54	239.59	13,482.62	13,481.40	0.00	0.00	0.00	
20,200.00	90.06	90.26	6,935.43	239.13	13,582.62	13,581.40	0.00	0.00	0.00	
20,300.00	90.06	90.26	6,935.31	238.67	13,682.62	13,681.40	0.00	0.00	0.00	
20,400.00	90.06	90.26	6,935.20	238.21	13,782.62	13,781.40	0.00	0.00	0.00	
20,500.00	90.06	90.26	6,935.09	237.74	13,882.62	13,881.40	0.00	0.00	0.00	
20,578.49	90.06	90.26	6,935.00	237.38	13,961.11	13,959.89	0.00	0.00	0.00	
TD at 20578.49										

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude		Longitude
Rosa 26 716H SHL - plan hits target center - Point	0.00	0.00	0.00	0.00	0.00	2,147,513.00	2,851,887.45	36.900795		-107.392837
Rosa 26 716H PBHL - plan hits target center - Point	0.00	0.00	6,935.00	237.38	13,961.11	2,147,814.83	2,865,847.32	36.901438		-107.345089
Rosa 26 716H POE - plan hits target center - Point	0.00	0.00	6,950.00	298.73	668.31	2,147,814.81	2,852,554.38	36.901616		-107.390552

Planning Report

Database:	Well Planning	Local Co-ordinate Reference:	Well Rosa Unit #716H - Slot 716H
Company:	Logos Operating LLC	TVD Reference:	6300+24.5 @ 6324.50usft (Ensign T223)
Project:	Rio Arriba, NM NAD83	MD Reference:	6300+24.5 @ 6324.50usft (Ensign T223)
Site:	Rosa Pad 26	North Reference:	True
Well:	Rosa Unit #716H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Prelim #1		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
2,434.29	2,432.00	Ojo Alamo				
2,544.43	2,542.00	Kirtland				
3,011.01	3,008.00	Fruitland				
3,357.44	3,354.00	Pictured Cliffs				
3,462.57	3,459.00	Lewis				
4,588.98	4,584.00	Chacra				
5,366.94	5,361.00	Cliff House				
5,408.00	5,402.00	Menefee				
5,637.28	5,631.00	Point Lookout				
6,174.95	6,168.00	Mancos				

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
500.00	500.00	0.00	0.00	Start Build 2.00	
643.02	642.96	3.37	1.16	Start 5751.07 hold at 643.02 MD	
6,394.09	6,386.86	274.71	94.66	Start DLS 10.00 TFO 71.27	
7,285.54	6,950.00	298.73	668.31	Start 13292.95 hold at 7285.54 MD	
20,578.49	6,935.00	237.38	13,961.11	TD at 20578.49	

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 371453

CONDITIONS

Operator: LOGOS OPERATING, LLC 2010 Afton Place Farmington, NM 87401	OGRID:
	289408
	Action Number:
	371453
Action Type:	
[C-101] BLM - Federal/Indian Land Lease (Form 3160-3)	

CONDITIONS

Created By	Condition	Condition Date
ward.rikala	Notify OCD 24 hours prior to casing & cement	8/16/2024
ward.rikala	Will require a File As Drilled C-102 and a Directional Survey with the C-104	8/16/2024
ward.rikala	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	8/16/2024
ward.rikala	Cement is required to circulate on both surface and intermediate1 strings of casing	8/16/2024
ward.rikala	If cement does not circulate on any string, a CBL is required for that string of casing	8/16/2024
ward.rikala	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	8/16/2024