**Well Name:** ROSA UNIT

**Well Location:** T31N / R5W / SEC 17 / SWNW / 36.900649 / -107.392788

**County or Parish/State:** RIO ARRIBA / NM

**Well Number:** 724H

**Type of Well:** CONVENTIONAL GAS WELL

**Allottee or Tribe Name:**

**Lease Number:** NMSF078764

**Unit or CA Name:** ROSA UNIT

**Unit or CA Number:** NMNM78407E

**US Well Number:** 300393147100X1

**Operator:** LOGOS OPERATING LLC

## Notice of Intent

**Sundry ID:** 2844853

**Type of Submission:** Notice of Intent

**Type of Action:** Other

**Date Sundry Submitted:** 04/01/2025

**Time Sundry Submitted:** 12:52

**Date proposed operation will begin:** 04/01/2025

**Procedure Description:** LOGOS Operating request a change in plans for the following (based on KB elevation): New bottom-hole location 2588' FNL & 1302' FEL New TD @ 20,576' (MD) 6,938' (TVD). Geology tops have been updated per changes. New KOP @ 6,321' MD 6320' TVD New Landing point @ 7,315' MD 6,950' TVD New 20" Conductor casing @ 320' MD New 13.375" Surface casing @ 3,406' MD New 9.625" Intermediate casing @ 6,284' MD New 5.5" Production casing @ 20,576' MD All cementing bbls and sacks have been update per casing depth changes. Attached: New C102, Operation and Directional Drill plans.

## Surface Disturbance

**Is any additional surface disturbance proposed?:** No

## NOI Attachments

**Procedure Description**

Rosa_Unit_724H_Operations_Plan_4_string_Prelim5_3.28.2025_20250401125152.pdf

Logos___Rosa_Unit__724H_AC_Report_Prelim_5_20250401124119.pdf

Logos___Rosa_Unit__724H_Wall_Prelim_5_20250401124118.pdf

Logos___Rosa_Unit__724H_Plan_Data_Prelim_5_20250401124118.pdf

Rosa_Unit_724H_C102_Plat_Revised_3.28.2025_signed_20250401124041.pdf

**Well Name:** ROSA UNIT

**Well Location:** T31N / R5W / SEC 17 / SWNW / 36.900649 / -107.392788

**County or Parish/State:** RIO ARRIBA / NM

**Well Number:** 724H

**Type of Well:** CONVENTIONAL GAS WELL

**Allottee or Tribe Name:**

**Lease Number:** NMSF078764

**Unit or CA Name:** ROSA UNIT

**Unit or CA Number:** NMNM78407E

**US Well Number:** 300393147100X1

**Operator:** LOGOS OPERATING LLC

## Conditions of Approval

**Additional**

LOGOS_Operating_LLC_Rosa_Unit_724H_APD_Change_ID_2844853_MHK_20250402142539.pdf

## Operator

*I certify that the foregoing is true and correct. 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. Electronic submission of Sundry Notices through this system satisfies regulations requiring a*

**Operator Electronic Signature:** ETTA TRUJILLO

**Signed on:** APR 01, 2025 12:53 PM

**Name:** LOGOS OPERATING LLC

**Title:** Regulatory Specialist

**Street Address:** 2010 AFTON PLACE

**City:** Farmington **State:** NM

**Phone:** (505) 324-4154

**Email address:** ETRUJILLO@LOGOSRESOURCESLLC.COM

## Field

**Representative Name:**

**Street Address:**

**City:** **State:** **Zip:**

**Phone:**

**Email address:**

## BLM Point of Contact

**BLM POC Name:** MATTHEW H KADE

**BLM POC Title:** Petroleum Engineer

**BLM POC Phone:** 5055647736

**BLM POC Email Address:** MKADE@BLM.GOV

**Disposition:** Approved

**Disposition Date:** 04/02/2025

**Signature:** Matthew Kade

# United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Farmington District Office
6251 College Boulevard, Suite A
Farmington, New Mexico 87402
http://www.blm.gov/nm

April 2, 2025

## CONDITIONS OF APPROVAL

**Sundry Notice of Intent ID # 2844853**
**Request for APD Change**

---

| | |
|---|---|
| **Operator:** | LOGOS Operating LLC |
| **Lease:** | NMSF 078769 |
| **Agreement:** | NMNM 78407E |
| **Well:** | Rosa Unit 724H (API # 30-039-31471) |
| **Location:** | SWNW Sec 17 T31N R5W (Rio Arriba County, NM) |

The requested change to the Application for Permit to Drill is approved with the following Conditions of Approval:

1. This approval is only for the sundry notice and well listed above.

2. No changes to the original APD or COA are granted with the approval of this Sundry Notice other than bottomhole location change, directional plan change, casing changes, and cement volume changes.

If you have any questions regarding this, please feel free to contact Matthew Kade of this office at (505) 564-7736 or mkade@blm.gov.

C-102

Submit Electronically Via OCD Permitting

# State of New Mexico
## Energy, Minerals & Natural Resources Department
# OIL CONSERVATION DIVISION

Revised July 9, 2024

Submittal Type: ☐ Initial Submittal ☒ Amended Report ☐ As Drilled

## WELL LOCATION INFORMATION

| API Number | Pool Code | Pool Name |
|---|---|---|
| 30-039-31471 | 97232 | BASIN MANCOS |

| Property Code | Property Name | Well Number |
|---|---|---|
| 320608 | ROSA UNIT | 724H |

| OGRID No. | Operator Name | Ground Level Elevation |
|---|---|---|
| 289408 | LOGOS OPERATING, LLC | 6300' |

Surface Owner: ☐ State ☐ Fee ☐ Tribal ☒ Federal

Mineral Owner: ☐ State ☐ Fee ☐ Tribal ☒ Federal

### Surface Location

| UL | Section | Township | Range | Lot | Feet from N/S Line | Feet from E/W Line | Latitude | Longitude | County |
|---|---|---|---|---|---|---|---|---|---|
| E | 17 | 31N | 5W | | 2233' NORTH | 565' WEST | 36.900649 °N | -107.392788 °W | RIO ARRIBA |

### Bottom Hole Location

| UL | Section | Township | Range | Lot | Feet from N/S Line | Feet from E/W Line | Latitude | Longitude | County |
|---|---|---|---|---|---|---|---|---|---|
| H | 15 | 31N | 5W | | 2588' NORTH | 1302' EAST | 36.899656 °N | -107.345081 °W | RIO ARRIBA |

Penetrated Spacing Unit:

| Dedicated Acres | | Infill or Defining Well | Defining Well API | Overlapping Spacing Unit | Consolidation Code |
|---|---|---|---|---|---|
| 960.00 | N/2 - Section 15, T31N, R5W<br>N/2 - Section 16, T31N, R5W<br>N/2 - Section 17, T31N, R5W | INFILL | | ☐ Yes ☒ No | UNITIZATION |

Order Numbers: R-13457

Well setbacks are under Common Ownership: ☐ Yes ☒ No

### Kick Off Point (KOP)

| UL | Section | Township | Range | Lot | Feet from N/S Line | Feet from E/W Line | Latitude | Longitude | County |
|---|---|---|---|---|---|---|---|---|---|
| E | 17 | 31N | 5W | | 2148' NORTH | 623' WEST | 36.900885 °N | -107.392588 °W | RIO ARRIBA |

### First Take Point (FTP)

| UL | Section | Township | Range | Lot | Feet from N/S Line | Feet from E/W Line | Latitude | Longitude | County |
|---|---|---|---|---|---|---|---|---|---|
| E | 17 | 31N | 5W | | 2159' NORTH | 1260' WEST | 36.900852 °N | -107.390409 °W | RIO ARRIBA |

### Last Take Point (LTP)

| UL | Section | Township | Range | Lot | Feet from N/S Line | Feet from E/W Line | Latitude | Longitude | County |
|---|---|---|---|---|---|---|---|---|---|
| H | 15 | 31N | 5W | | 2588' NORTH | 1302' EAST | 36.899656 °N | -107.345081 °W | RIO ARRIBA |

| Unitized Area or Area of Uniform Interest | Spacing Unit Type | Ground Floor Elevation |
|---|---|---|
| ROSA UNIT | ☒ Horizontal ☐ Vertical ☐ Directional | |

### OPERATOR CERTIFICATION

*I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and, if the well is a vertical or directional well, 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 a working interest or unleased mineral interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.*

*If this well is a horizontal well, I further certify that this organization has received the consent of at least one lessee or owner of a working interest or unleased mineral interest in each tract (in the target pool or formation) in which any part of the well's completed interval will be located or obtained a compulsory pooling order from the division.*

Etta Trujillo — Signature

3/28/2025 — Date

Etta Trujillo — Printed Name

etrujillo@logosresourcesllc.com — E-mail Address

### 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.*

JASON C. EDWARDS — NEW MEXICO — 15269 — 3/28/2025 — REGISTERED PROFESSIONAL SURVEYOR

JASON C. EDWARDS — Signature and Seal of Professional Surveyor

| Certificate Number | Date of Survey |
|---|---|
| 15269 | JUNE 22, 2022 |

Note: 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 (A)
2233' FNL 565' FWL
SECTION 17, T31N, R5W
LAT 36.900643 °N
LONG -107.392186 °W
DATUM: NAD1927

LAT 36.900649 °N
LONG -107.392788 °W
DATUM: NAD1983

KICK OFF POINT (B)
2148' FNL 623' FWL
SECTION 17, T31N, R5W
LAT 36.900879 °N
LONG -107.391986 °W
DATUM: NAD1927

LAT 36.900885 °N
LONG -107.392588 °W
DATUM: NAD1983

FIRST TAKE POINT (C)
2159' FNL 1260' FWL
SECTION 17, T31N, R5W
LAT 36.900846 °N
LONG -107.389807 °W
DATUM: NAD1927

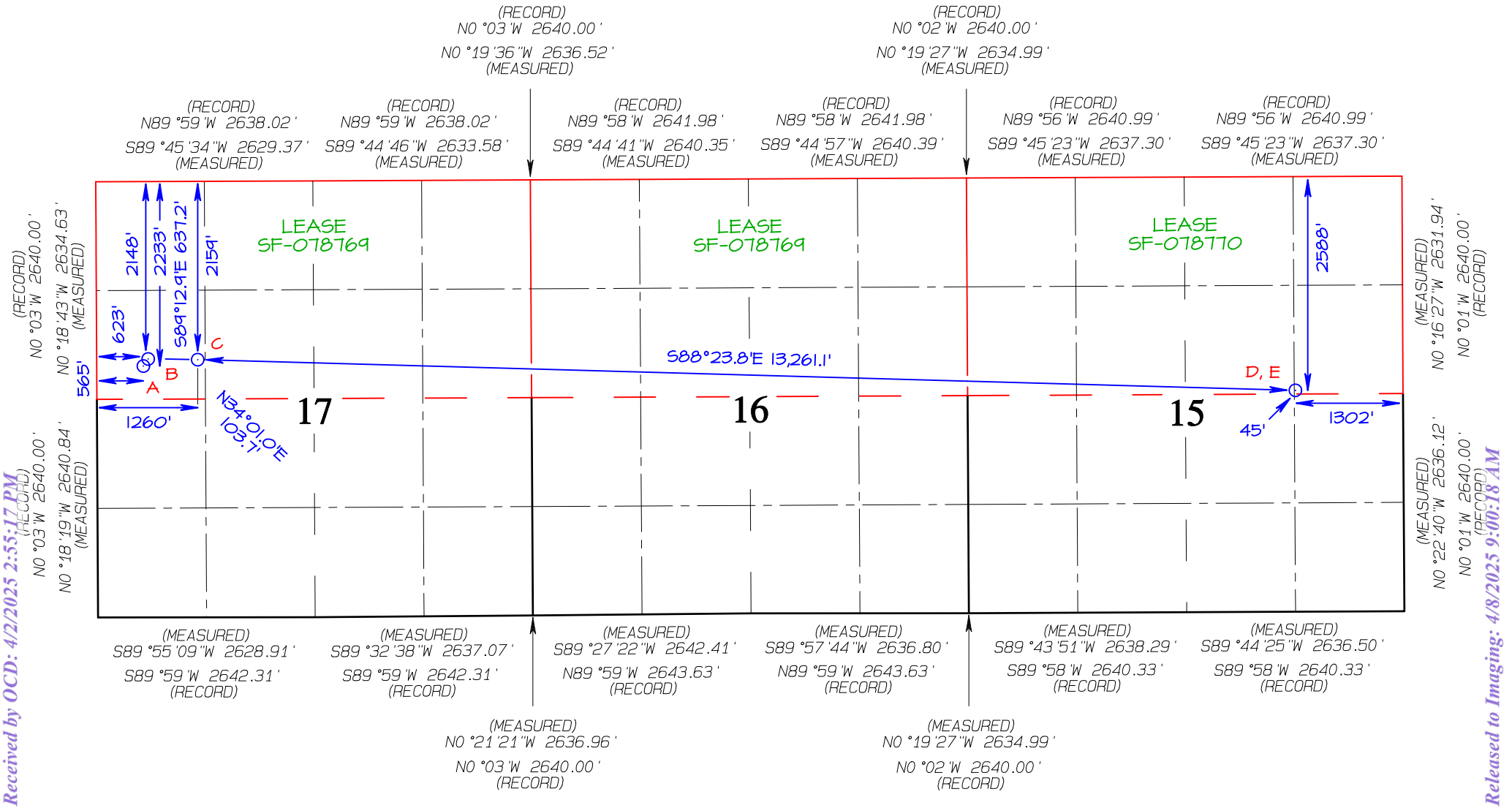
LAT 36.900852 °N
LONG -107.390409 °W
DATUM: NAD1983

LAST TAKE POINT (D)
2588' FNL 1302' FEL
SECTION 15, T31N, R5W
LAT 36.899649 °N
LONG -107.344479 °W
DATUM: NAD1927

LAT 36.899656 °N
LONG -107.345081 °W
DATUM: NAD1983

BOTTOM HOLE LOCATION (E)
2588' FNL 1302' FEL
SECTION 15, T31N, R5W
LAT 36.899649 °N
LONG -107.344479 °W
DATUM: NAD1927

LAT 36.899656 °N
LONG -107.345081 °W
DATUM: NAD1983



SURFACE LOCATION (A)
2233' FNL 565' FWL
SECTION 17, T31N, R5W
LAT 36.900643 °N
LONG -107.392186 °W
DATUM: NAD1927

LAT 36.900649 °N
LONG -107.392788 °W
DATUM: NAD1983

KICK OFF POINT (B)
2148' FNL 623' FWL
SECTION 17, T31N, R5W
LAT 36.900879 °N
LONG -107.391986 °W
DATUM: NAD1927

LAT 36.900885 °N
LONG -107.392588 °W
DATUM: NAD1983

FIRST TAKE POINT (C)
2159' FNL 1260' FWL
SECTION 17, T31N, R5W
LAT 36.900846 °N
LONG -107.389807 °W
DATUM: NAD1927

LAT 36.900852 °N
LONG -107.390409 °W
DATUM: NAD1983

LEASE X-ING (1)
2460' FNL 0' FEL
SECTION 16, T31N, R5W
LAT 36.900010 °N
LONG -107.358056 °W
DATUM: NAD1927

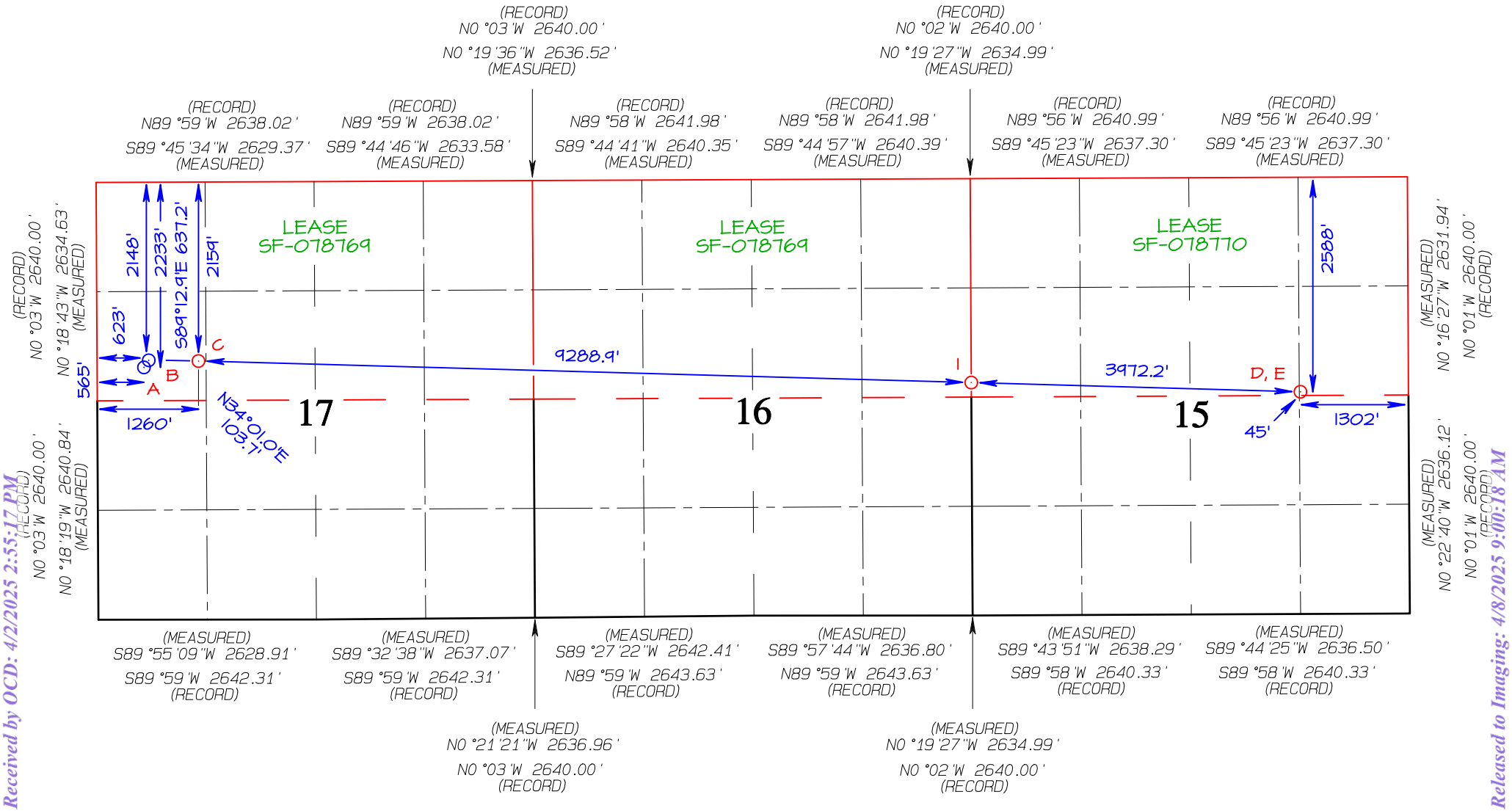
LAT 36.900016 °N
LONG -107.358658 °W
DATUM: NAD1983

LAST TAKE POINT (D)
2588' FNL 1302' FEL
SECTION 15, T31N, R5W
LAT 36.899649 °N
LONG -107.344479 °W
DATUM: NAD1927

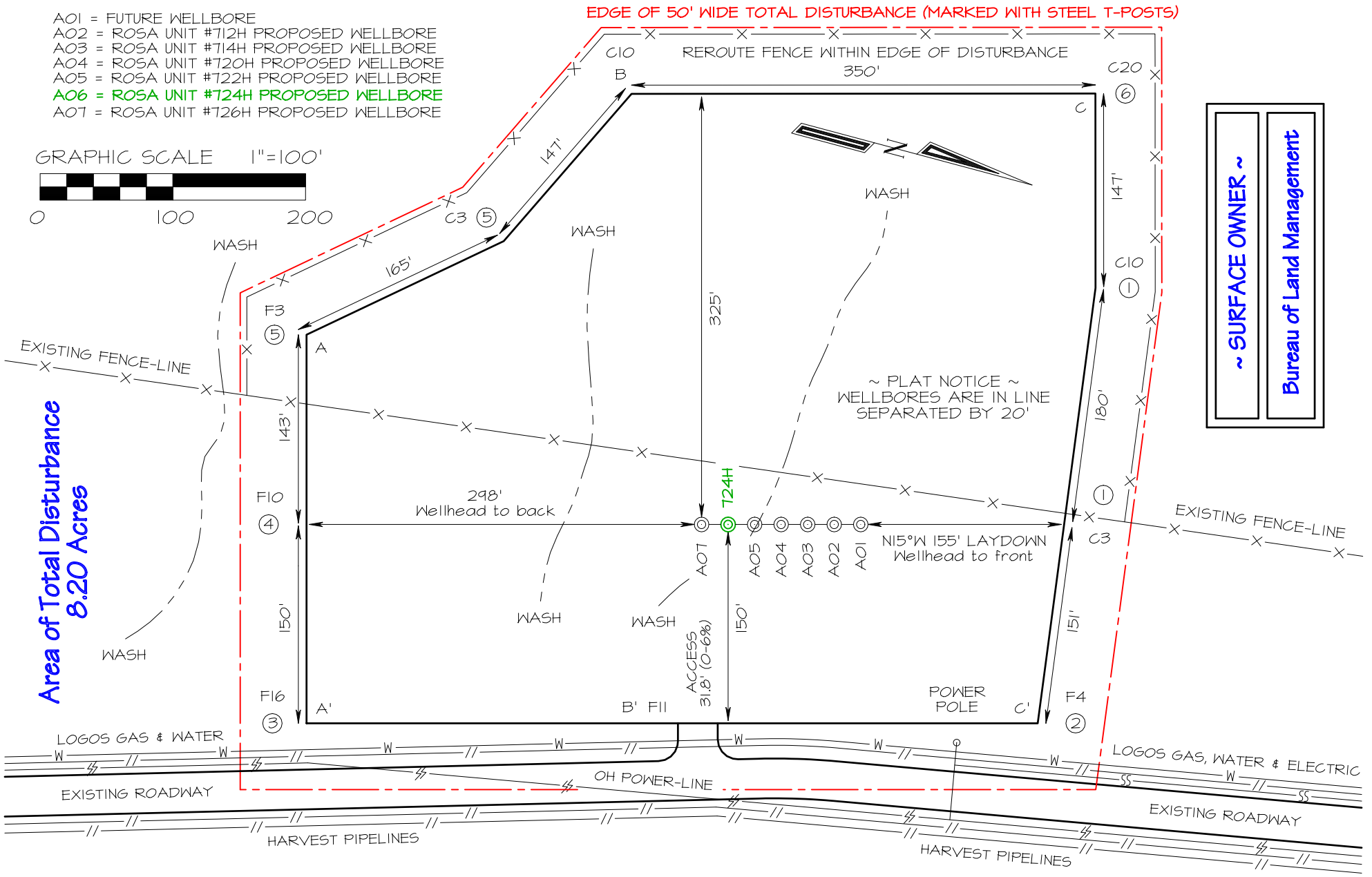
LAT 36.899656 °N
LONG -107.345081 °W
DATUM: NAD1983

BOTTOM HOLE LOCATION (E)
2588' FNL 1302' FEL
SECTION 15, T31N, R5W
LAT 36.899649 °N
LONG -107.344479 °W
DATUM: NAD1927

LAT 36.899656 °N
LONG -107.345081 °W
DATUM: NAD1983



# LOGOS OPERATING, LLC ROSA UNIT #724H
## 2233' FNL & 565' FWL, SECTION 17, T31N, R5W, NMPM
## RIO ARRIBA COUNTY, NEW MEXICO ELEVATION: 6300'
## LAT: 36.900649°N LONG: -107.392788°W DATUM: NAD1983




Steel T-Posts have been set to define Edge of Disturbance limits which are 50' offset from edge of staked wellpad.

# Logos Operating LLC

**Rio Arriba, NM (NAD83)**
**Rosa Pad 26**
**Rosa Unit #724H**

**OH**

**Plan: Prelim 5**

# Standard Planning Report

**17 March, 2025**

# SDT

## Planning Report

| | | | |
|---|---|---|---|
| **Database:** | EDM 5000 Multi User Db | **Local Co-ordinate Reference:** | Well Rosa Unit #724H |
| **Company:** | Logos Operating LLC | **TVD Reference:** | 6300+30 @ 6330.00usft (H&P 530) |
| **Project:** | Rio Arriba, NM (NAD83) | **MD Reference:** | 6300+30 @ 6330.00usft (H&P 530) |
| **Site:** | Rosa Pad 26 | **North Reference:** | True |
| **Well:** | Rosa Unit #724H | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | OH | | |
| **Design:** | Prelim 5 | | |

**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 " | | |

**Well** Rosa Unit #724H

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Well Position** | **+N/-S** | 0.00 usft | **Northing:** | 2,147,459.91 usft | **Latitude:** | 36.900649 |
| | **+E/-W** | 0.00 usft | **Easting:** | 2,851,902.02 usft | **Longitude:** | -107.392788 |
| **Position Uncertainty** | | 0.00 usft | **Wellhead Elevation:** | usft | **Ground Level:** | 6,300.00 usft |
| **Grid Convergence:** | | 0.26 ° | | | | |

**Wellbore** OH

| Magnetics | Model Name | Sample Date | Declination (°) | Dip Angle (°) | Field Strength (nT) |
|---|---|---|---|---|---|
| | IGRF2015 | 1/11/2023 | 8.55 | 63.46 | 49,574.65046456 |

**Design** Prelim 5

**Audit Notes:**

| | | | | | |
|---|---|---|---|---|---|
| **Version:** | | **Phase:** | PLAN | **Tie On Depth:** | 354.64 |

| Vertical Section: | Depth From (TVD) (usft) | +N/-S (usft) | +E/-W (usft) | Direction (°) |
|---|---|---|---|---|
| | 0.00 | 0.00 | 0.00 | 91.87 |

**Plan Survey Tool Program** **Date** 3/17/2025

| | Depth From (usft) | Depth To (usft) | Survey (Wellbore) | Tool Name | Remarks |
|---|---|---|---|---|---|
| 1 | 93.20 | 354.64 | Survey #1 (OH) | Standard Keeper 105<br>Standard Wireline Keeper ver 1 | |
| 2 | 354.64 | 20,576.01 | Prelim 5 (OH) | MWD+HRGM+MS<br>MWD + HRGM + Multi-Station | |

# SDT

Planning Report

| | | | |
|---|---|---|---|
| **Database:** | EDM 5000 Multi User Db | **Local Co-ordinate Reference:** | Well Rosa Unit #724H |
| **Company:** | Logos Operating LLC | **TVD Reference:** | 6300+30 @ 6330.00usft (H&P 530) |
| **Project:** | Rio Arriba, NM (NAD83) | **MD Reference:** | 6300+30 @ 6330.00usft (H&P 530) |
| **Site:** | Rosa Pad 26 | **North Reference:** | True |
| **Well:** | Rosa Unit #724H | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | OH | | |
| **Design:** | Prelim 5 | | |

**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 |
|---|---|---|---|---|---|---|---|---|---|---|
| 354.64 | 0.87 | 306.81 | 354.58 | 2.81 | -5.72 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 504.64 | 0.87 | 306.81 | 504.56 | 4.18 | -7.54 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 573.79 | 1.04 | 39.21 | 573.71 | 4.98 | -7.57 | 2.00 | 0.24 | 133.61 | 131.33 | |
| 6,321.48 | 1.04 | 39.21 | 6,320.45 | 85.77 | 58.34 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 7,315.05 | 90.05 | 91.87 | 6,950.00 | 74.09 | 695.46 | 9.00 | 8.96 | 5.30 | 52.66 | RU 724H POE |
| 20,576.05 | 90.05 | 91.87 | 6,938.00 | -358.04 | 13,949.41 | 0.00 | 0.00 | 0.00 | 0.00 | RU 724H PBHL |

# SDT

## Planning Report

| | | | |
|---|---|---|---|
| **Database:** | EDM 5000 Multi User Db | **Local Co-ordinate Reference:** | Well Rosa Unit #724H |
| **Company:** | Logos Operating LLC | **TVD Reference:** | 6300+30 @ 6330.00usft (H&P 530) |
| **Project:** | Rio Arriba, NM (NAD83) | **MD Reference:** | 6300+30 @ 6330.00usft (H&P 530) |
| **Site:** | Rosa Pad 26 | **North Reference:** | True |
| **Well:** | Rosa Unit #724H | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | OH | | |
| **Design:** | Prelim 5 | | |

**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 |
| 93.20 | 1.49 | 289.60 | 93.19 | 0.41 | -1.14 | -1.15 | 1.60 | 1.60 | 0.00 |
| 123.17 | 1.21 | 298.64 | 123.15 | 0.69 | -1.79 | -1.81 | 1.17 | -0.93 | 30.16 |
| 207.84 | 1.15 | 294.27 | 207.80 | 1.47 | -3.35 | -3.39 | 0.13 | -0.07 | -5.16 |
| 294.97 | 1.10 | 300.46 | 294.92 | 2.25 | -4.86 | -4.93 | 0.15 | -0.06 | 7.10 |
| 354.64 | 0.87 | 306.81 | 354.58 | 2.81 | -5.72 | -5.81 | 0.43 | -0.39 | 10.64 |
| **Start 150.00 hold at 354.64 MD** | | | | | | | | | |
| 400.00 | 0.87 | 306.81 | 399.93 | 3.22 | -6.27 | -6.37 | 0.00 | 0.00 | 0.00 |
| 504.64 | 0.87 | 306.81 | 504.56 | 4.18 | -7.54 | -7.68 | 0.00 | 0.00 | 0.00 |
| **Start DLS 2.00 TFO 131.33** | | | | | | | | | |
| 573.79 | 1.04 | 39.21 | 573.71 | 4.98 | -7.57 | -7.73 | 2.00 | 0.24 | 133.61 |
| **Start 5747.69 hold at 573.79 MD** | | | | | | | | | |
| 600.00 | 1.04 | 39.21 | 599.91 | 5.35 | -7.27 | -7.44 | 0.00 | 0.00 | 0.00 |
| 700.00 | 1.04 | 39.21 | 699.89 | 6.75 | -6.12 | -6.34 | 0.00 | 0.00 | 0.00 |
| 800.00 | 1.04 | 39.21 | 799.88 | 8.16 | -4.97 | -5.24 | 0.00 | 0.00 | 0.00 |
| 900.00 | 1.04 | 39.21 | 899.86 | 9.56 | -3.83 | -4.14 | 0.00 | 0.00 | 0.00 |
| 1,000.00 | 1.04 | 39.21 | 999.84 | 10.97 | -2.68 | -3.04 | 0.00 | 0.00 | 0.00 |
| 1,100.00 | 1.04 | 39.21 | 1,099.83 | 12.37 | -1.53 | -1.94 | 0.00 | 0.00 | 0.00 |
| 1,200.00 | 1.04 | 39.21 | 1,199.81 | 13.78 | -0.39 | -0.84 | 0.00 | 0.00 | 0.00 |
| 1,300.00 | 1.04 | 39.21 | 1,299.79 | 15.18 | 0.76 | 0.26 | 0.00 | 0.00 | 0.00 |
| 1,400.00 | 1.04 | 39.21 | 1,399.78 | 16.59 | 1.91 | 1.36 | 0.00 | 0.00 | 0.00 |
| 1,500.00 | 1.04 | 39.21 | 1,499.76 | 18.00 | 3.05 | 2.46 | 0.00 | 0.00 | 0.00 |
| 1,600.00 | 1.04 | 39.21 | 1,599.75 | 19.40 | 4.20 | 3.57 | 0.00 | 0.00 | 0.00 |
| 1,700.00 | 1.04 | 39.21 | 1,699.73 | 20.81 | 5.35 | 4.67 | 0.00 | 0.00 | 0.00 |
| 1,800.00 | 1.04 | 39.21 | 1,799.71 | 22.21 | 6.49 | 5.77 | 0.00 | 0.00 | 0.00 |
| 1,900.00 | 1.04 | 39.21 | 1,899.70 | 23.62 | 7.64 | 6.87 | 0.00 | 0.00 | 0.00 |
| 2,000.00 | 1.04 | 39.21 | 1,999.68 | 25.02 | 8.79 | 7.97 | 0.00 | 0.00 | 0.00 |
| 2,100.00 | 1.04 | 39.21 | 2,099.66 | 26.43 | 9.93 | 9.07 | 0.00 | 0.00 | 0.00 |
| 2,200.00 | 1.04 | 39.21 | 2,199.65 | 27.84 | 11.08 | 10.17 | 0.00 | 0.00 | 0.00 |
| 2,300.00 | 1.04 | 39.21 | 2,299.63 | 29.24 | 12.23 | 11.27 | 0.00 | 0.00 | 0.00 |
| 2,400.00 | 1.04 | 39.21 | 2,399.61 | 30.65 | 13.37 | 12.37 | 0.00 | 0.00 | 0.00 |
| 2,433.39 | 1.04 | 39.21 | 2,433.00 | 31.12 | 13.76 | 12.73 | 0.00 | 0.00 | 0.00 |
| **Ojo Alamo** | | | | | | | | | |
| 2,500.00 | 1.04 | 39.21 | 2,499.60 | 32.05 | 14.52 | 13.47 | 0.00 | 0.00 | 0.00 |
| 2,543.41 | 1.04 | 39.21 | 2,543.00 | 32.66 | 15.02 | 13.95 | 0.00 | 0.00 | 0.00 |
| **Kirtland** | | | | | | | | | |
| 2,600.00 | 1.04 | 39.21 | 2,599.58 | 33.46 | 15.67 | 14.57 | 0.00 | 0.00 | 0.00 |
| 2,700.00 | 1.04 | 39.21 | 2,699.56 | 34.86 | 16.81 | 15.67 | 0.00 | 0.00 | 0.00 |
| 2,800.00 | 1.04 | 39.21 | 2,799.55 | 36.27 | 17.96 | 16.77 | 0.00 | 0.00 | 0.00 |
| 2,877.47 | 1.04 | 39.21 | 2,877.00 | 37.36 | 18.85 | 17.62 | 0.00 | 0.00 | 0.00 |
| **Fruitland** | | | | | | | | | |
| 2,900.00 | 1.04 | 39.21 | 2,899.53 | 37.67 | 19.11 | 17.87 | 0.00 | 0.00 | 0.00 |
| 3,000.00 | 1.04 | 39.21 | 2,999.51 | 39.08 | 20.25 | 18.97 | 0.00 | 0.00 | 0.00 |
| 3,032.49 | 1.04 | 39.21 | 3,032.00 | 39.54 | 20.63 | 19.33 | 0.00 | 0.00 | 0.00 |
| **T/Coals** | | | | | | | | | |
| 3,100.00 | 1.04 | 39.21 | 3,099.50 | 40.49 | 21.40 | 20.07 | 0.00 | 0.00 | 0.00 |
| 3,182.52 | 1.04 | 39.21 | 3,182.00 | 41.65 | 22.35 | 20.98 | 0.00 | 0.00 | 0.00 |
| **T/Coals** | | | | | | | | | |
| 3,200.00 | 1.04 | 39.21 | 3,199.48 | 41.89 | 22.55 | 21.17 | 0.00 | 0.00 | 0.00 |
| 3,300.00 | 1.04 | 39.21 | 3,299.47 | 43.30 | 23.69 | 22.27 | 0.00 | 0.00 | 0.00 |
| 3,355.54 | 1.04 | 39.21 | 3,355.00 | 44.08 | 24.33 | 22.88 | 0.00 | 0.00 | 0.00 |
| **Pictured Cliffs** | | | | | | | | | |
| 3,400.00 | 1.04 | 39.21 | 3,399.45 | 44.70 | 24.84 | 23.37 | 0.00 | 0.00 | 0.00 |

# SDT

## Planning Report

| | | | |
|---|---|---|---|
| **Database:** | EDM 5000 Multi User Db | **Local Co-ordinate Reference:** | Well Rosa Unit #724H |
| **Company:** | Logos Operating LLC | **TVD Reference:** | 6300+30 @ 6330.00usft (H&P 530) |
| **Project:** | Rio Arriba, NM (NAD83) | **MD Reference:** | 6300+30 @ 6330.00usft (H&P 530) |
| **Site:** | Rosa Pad 26 | **North Reference:** | True |
| **Well:** | Rosa Unit #724H | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | OH | | |
| **Design:** | Prelim 5 | | |

**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) |
|---|---|---|---|---|---|---|---|---|---|
| 3,460.56 | 1.04 | 39.21 | 3,460.00 | 45.55 | 25.54 | 24.04 | 0.00 | 0.00 | 0.00 |
| **Lewis** | | | | | | | | | |
| 3,500.00 | 1.04 | 39.21 | 3,499.43 | 46.11 | 25.99 | 24.47 | 0.00 | 0.00 | 0.00 |
| 3,600.00 | 1.04 | 39.21 | 3,599.42 | 47.51 | 27.14 | 25.57 | 0.00 | 0.00 | 0.00 |
| 3,700.00 | 1.04 | 39.21 | 3,699.40 | 48.92 | 28.28 | 26.67 | 0.00 | 0.00 | 0.00 |
| 3,800.00 | 1.04 | 39.21 | 3,799.38 | 50.33 | 29.43 | 27.77 | 0.00 | 0.00 | 0.00 |
| 3,900.00 | 1.04 | 39.21 | 3,899.37 | 51.73 | 30.58 | 28.87 | 0.00 | 0.00 | 0.00 |
| 4,000.00 | 1.04 | 39.21 | 3,999.35 | 53.14 | 31.72 | 29.97 | 0.00 | 0.00 | 0.00 |
| 4,100.00 | 1.04 | 39.21 | 4,099.33 | 54.54 | 32.87 | 31.07 | 0.00 | 0.00 | 0.00 |
| 4,200.00 | 1.04 | 39.21 | 4,199.32 | 55.95 | 34.02 | 32.17 | 0.00 | 0.00 | 0.00 |
| 4,300.00 | 1.04 | 39.21 | 4,299.30 | 57.35 | 35.16 | 33.27 | 0.00 | 0.00 | 0.00 |
| 4,400.00 | 1.04 | 39.21 | 4,399.28 | 58.76 | 36.31 | 34.37 | 0.00 | 0.00 | 0.00 |
| 4,500.00 | 1.04 | 39.21 | 4,499.27 | 60.16 | 37.46 | 35.47 | 0.00 | 0.00 | 0.00 |
| 4,584.75 | 1.04 | 39.21 | 4,584.00 | 61.36 | 38.43 | 36.40 | 0.00 | 0.00 | 0.00 |
| **Chacra** | | | | | | | | | |
| 4,600.00 | 1.04 | 39.21 | 4,599.25 | 61.57 | 38.60 | 36.57 | 0.00 | 0.00 | 0.00 |
| 4,700.00 | 1.04 | 39.21 | 4,699.24 | 62.98 | 39.75 | 37.67 | 0.00 | 0.00 | 0.00 |
| 4,800.00 | 1.04 | 39.21 | 4,799.22 | 64.38 | 40.90 | 38.77 | 0.00 | 0.00 | 0.00 |
| 4,900.00 | 1.04 | 39.21 | 4,899.20 | 65.79 | 42.04 | 39.87 | 0.00 | 0.00 | 0.00 |
| 5,000.00 | 1.04 | 39.21 | 4,999.19 | 67.19 | 43.19 | 40.97 | 0.00 | 0.00 | 0.00 |
| 5,059.82 | 1.04 | 39.21 | 5,059.00 | 68.03 | 43.88 | 41.63 | 0.00 | 0.00 | 0.00 |
| **U/Cliff House** | | | | | | | | | |
| 5,100.00 | 1.04 | 39.21 | 5,099.17 | 68.60 | 44.34 | 42.07 | 0.00 | 0.00 | 0.00 |
| 5,200.00 | 1.04 | 39.21 | 5,199.15 | 70.00 | 45.48 | 43.17 | 0.00 | 0.00 | 0.00 |
| 5,300.00 | 1.04 | 39.21 | 5,299.14 | 71.41 | 46.63 | 44.27 | 0.00 | 0.00 | 0.00 |
| 5,362.87 | 1.04 | 39.21 | 5,362.00 | 72.29 | 47.35 | 44.97 | 0.00 | 0.00 | 0.00 |
| **Cliff House** | | | | | | | | | |
| 5,400.00 | 1.04 | 39.21 | 5,399.12 | 72.81 | 47.78 | 45.37 | 0.00 | 0.00 | 0.00 |
| 5,402.88 | 1.04 | 39.21 | 5,402.00 | 72.86 | 47.81 | 45.41 | 0.00 | 0.00 | 0.00 |
| **Menefee** | | | | | | | | | |
| 5,500.00 | 1.04 | 39.21 | 5,499.10 | 74.22 | 48.92 | 46.47 | 0.00 | 0.00 | 0.00 |
| 5,600.00 | 1.04 | 39.21 | 5,599.09 | 75.63 | 50.07 | 47.58 | 0.00 | 0.00 | 0.00 |
| 5,631.92 | 1.04 | 39.21 | 5,631.00 | 76.07 | 50.44 | 47.93 | 0.00 | 0.00 | 0.00 |
| **Point Lookout** | | | | | | | | | |
| 5,700.00 | 1.04 | 39.21 | 5,699.07 | 77.03 | 51.22 | 48.68 | 0.00 | 0.00 | 0.00 |
| 5,800.00 | 1.04 | 39.21 | 5,799.05 | 78.44 | 52.36 | 49.78 | 0.00 | 0.00 | 0.00 |
| 5,900.00 | 1.04 | 39.21 | 5,899.04 | 79.84 | 53.51 | 50.88 | 0.00 | 0.00 | 0.00 |
| 6,000.00 | 1.04 | 39.21 | 5,999.02 | 81.25 | 54.66 | 51.98 | 0.00 | 0.00 | 0.00 |
| 6,100.00 | 1.04 | 39.21 | 6,099.00 | 82.65 | 55.80 | 53.08 | 0.00 | 0.00 | 0.00 |
| 6,169.01 | 1.04 | 39.21 | 6,168.00 | 83.62 | 56.59 | 53.84 | 0.00 | 0.00 | 0.00 |
| **Mancos** | | | | | | | | | |
| 6,200.00 | 1.04 | 39.21 | 6,198.99 | 84.06 | 56.95 | 54.18 | 0.00 | 0.00 | 0.00 |
| 6,300.00 | 1.04 | 39.21 | 6,298.97 | 85.47 | 58.10 | 55.28 | 0.00 | 0.00 | 0.00 |
| 6,321.48 | 1.04 | 39.21 | 6,320.45 | 85.77 | 58.34 | 55.51 | 0.00 | 0.00 | 0.00 |
| **Start DLS 9.00 TFO 52.66** | | | | | | | | | |
| 6,350.00 | 3.30 | 77.39 | 6,348.95 | 86.15 | 59.31 | 56.47 | 9.00 | 7.93 | 133.88 |
| 6,400.00 | 7.74 | 85.78 | 6,398.70 | 86.71 | 64.07 | 61.21 | 9.00 | 8.88 | 16.77 |
| 6,450.00 | 12.22 | 88.05 | 6,447.93 | 87.14 | 72.73 | 69.85 | 9.00 | 8.97 | 4.55 |
| 6,500.00 | 16.72 | 89.11 | 6,496.34 | 87.43 | 85.21 | 82.32 | 9.00 | 8.98 | 2.13 |
| 6,550.00 | 21.21 | 89.74 | 6,543.61 | 87.58 | 101.46 | 98.55 | 9.00 | 8.99 | 1.25 |
| 6,600.00 | 25.71 | 90.15 | 6,589.46 | 87.60 | 121.36 | 118.44 | 9.00 | 8.99 | 0.83 |
| 6,650.00 | 30.21 | 90.45 | 6,633.62 | 87.47 | 144.79 | 141.86 | 9.00 | 9.00 | 0.59 |
| 6,700.00 | 34.71 | 90.67 | 6,675.80 | 87.20 | 171.62 | 168.68 | 9.00 | 9.00 | 0.45 |

# SDT

Planning Report

| | | | |
|---|---|---|---|
| **Database:** | EDM 5000 Multi User Db | **Local Co-ordinate Reference:** | Well Rosa Unit #724H |
| **Company:** | Logos Operating LLC | **TVD Reference:** | 6300+30 @ 6330.00usft (H&P 530) |
| **Project:** | Rio Arriba, NM (NAD83) | **MD Reference:** | 6300+30 @ 6330.00usft (H&P 530) |
| **Site:** | Rosa Pad 26 | **North Reference:** | True |
| **Well:** | Rosa Unit #724H | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | OH | | |
| **Design:** | Prelim 5 | | |

**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) |
|---|---|---|---|---|---|---|---|---|---|
| 6,750.00 | 39.20 | 90.85 | 6,715.74 | 86.80 | 201.67 | 198.73 | 9.00 | 9.00 | 0.36 |
| 6,800.00 | 43.70 | 91.00 | 6,753.21 | 86.26 | 234.76 | 231.82 | 9.00 | 9.00 | 0.30 |
| 6,830.87 | 46.48 | 91.08 | 6,775.00 | 85.87 | 256.62 | 253.68 | 9.00 | 9.00 | 0.26 |
| **Black Top** | | | | | | | | | |
| 6,850.00 | 48.20 | 91.13 | 6,787.96 | 85.59 | 270.68 | 267.74 | 9.00 | 9.00 | 0.24 |
| 6,900.00 | 52.70 | 91.24 | 6,819.79 | 84.80 | 309.22 | 306.28 | 9.00 | 9.00 | 0.22 |
| 6,950.00 | 57.20 | 91.33 | 6,848.49 | 83.88 | 350.13 | 347.20 | 9.00 | 9.00 | 0.19 |
| 7,000.00 | 61.70 | 91.42 | 6,873.90 | 82.84 | 393.16 | 390.25 | 9.00 | 9.00 | 0.18 |
| 7,050.00 | 66.20 | 91.50 | 6,895.85 | 81.70 | 438.06 | 435.16 | 9.00 | 9.00 | 0.16 |
| 7,100.00 | 70.70 | 91.58 | 6,914.22 | 80.45 | 484.53 | 481.65 | 9.00 | 9.00 | 0.15 |
| 7,150.00 | 75.20 | 91.65 | 6,928.87 | 79.10 | 532.30 | 529.44 | 9.00 | 9.00 | 0.14 |
| 7,200.00 | 79.70 | 91.72 | 6,939.74 | 77.67 | 581.08 | 578.23 | 9.00 | 9.00 | 0.14 |
| 7,250.00 | 84.20 | 91.78 | 6,946.74 | 76.16 | 630.55 | 627.73 | 9.00 | 9.00 | 0.13 |
| 7,300.00 | 88.70 | 91.85 | 6,949.84 | 74.58 | 680.41 | 677.62 | 9.00 | 9.00 | 0.13 |
| 7,315.05 | 90.05 | 91.87 | 6,950.00 | 74.09 | 695.46 | 692.67 | 9.00 | 9.00 | 0.13 |
| **Start 13261.00 hold at 7315.05 MD** | | | | | | | | | |
| 7,400.00 | 90.05 | 91.87 | 6,949.92 | 71.32 | 780.36 | 777.62 | 0.00 | 0.00 | 0.00 |
| 7,500.00 | 90.05 | 91.87 | 6,949.83 | 68.06 | 880.31 | 877.62 | 0.00 | 0.00 | 0.00 |
| 7,600.00 | 90.05 | 91.87 | 6,949.74 | 64.80 | 980.25 | 977.62 | 0.00 | 0.00 | 0.00 |
| 7,700.00 | 90.05 | 91.87 | 6,949.65 | 61.55 | 1,080.20 | 1,077.62 | 0.00 | 0.00 | 0.00 |
| 7,800.00 | 90.05 | 91.87 | 6,949.56 | 58.29 | 1,180.15 | 1,177.62 | 0.00 | 0.00 | 0.00 |
| 7,900.00 | 90.05 | 91.87 | 6,949.47 | 55.03 | 1,280.09 | 1,277.62 | 0.00 | 0.00 | 0.00 |
| 8,000.00 | 90.05 | 91.87 | 6,949.38 | 51.77 | 1,380.04 | 1,377.62 | 0.00 | 0.00 | 0.00 |
| 8,100.00 | 90.05 | 91.87 | 6,949.29 | 48.51 | 1,479.99 | 1,477.62 | 0.00 | 0.00 | 0.00 |
| 8,200.00 | 90.05 | 91.87 | 6,949.20 | 45.25 | 1,579.93 | 1,577.62 | 0.00 | 0.00 | 0.00 |
| 8,300.00 | 90.05 | 91.87 | 6,949.11 | 41.99 | 1,679.88 | 1,677.62 | 0.00 | 0.00 | 0.00 |
| 8,400.00 | 90.05 | 91.87 | 6,949.02 | 38.73 | 1,779.83 | 1,777.62 | 0.00 | 0.00 | 0.00 |
| 8,500.00 | 90.05 | 91.87 | 6,948.93 | 35.48 | 1,879.77 | 1,877.62 | 0.00 | 0.00 | 0.00 |
| 8,600.00 | 90.05 | 91.87 | 6,948.84 | 32.22 | 1,979.72 | 1,977.62 | 0.00 | 0.00 | 0.00 |
| 8,700.00 | 90.05 | 91.87 | 6,948.75 | 28.96 | 2,079.67 | 2,077.62 | 0.00 | 0.00 | 0.00 |
| 8,800.00 | 90.05 | 91.87 | 6,948.66 | 25.70 | 2,179.62 | 2,177.62 | 0.00 | 0.00 | 0.00 |
| 8,900.00 | 90.05 | 91.87 | 6,948.57 | 22.44 | 2,279.56 | 2,277.62 | 0.00 | 0.00 | 0.00 |
| 9,000.00 | 90.05 | 91.87 | 6,948.48 | 19.18 | 2,379.51 | 2,377.62 | 0.00 | 0.00 | 0.00 |
| 9,100.00 | 90.05 | 91.87 | 6,948.38 | 15.92 | 2,479.46 | 2,477.62 | 0.00 | 0.00 | 0.00 |
| 9,200.00 | 90.05 | 91.87 | 6,948.29 | 12.67 | 2,579.40 | 2,577.62 | 0.00 | 0.00 | 0.00 |
| 9,300.00 | 90.05 | 91.87 | 6,948.20 | 9.41 | 2,679.35 | 2,677.62 | 0.00 | 0.00 | 0.00 |
| 9,400.00 | 90.05 | 91.87 | 6,948.11 | 6.15 | 2,779.30 | 2,777.62 | 0.00 | 0.00 | 0.00 |
| 9,500.00 | 90.05 | 91.87 | 6,948.02 | 2.89 | 2,879.24 | 2,877.62 | 0.00 | 0.00 | 0.00 |
| 9,600.00 | 90.05 | 91.87 | 6,947.93 | -0.37 | 2,979.19 | 2,977.62 | 0.00 | 0.00 | 0.00 |
| 9,700.00 | 90.05 | 91.87 | 6,947.84 | -3.63 | 3,079.14 | 3,077.62 | 0.00 | 0.00 | 0.00 |
| 9,800.00 | 90.05 | 91.87 | 6,947.75 | -6.89 | 3,179.08 | 3,177.62 | 0.00 | 0.00 | 0.00 |
| 9,900.00 | 90.05 | 91.87 | 6,947.66 | -10.15 | 3,279.03 | 3,277.62 | 0.00 | 0.00 | 0.00 |
| 10,000.00 | 90.05 | 91.87 | 6,947.57 | -13.40 | 3,378.98 | 3,377.62 | 0.00 | 0.00 | 0.00 |
| 10,100.00 | 90.05 | 91.87 | 6,947.48 | -16.66 | 3,478.92 | 3,477.62 | 0.00 | 0.00 | 0.00 |
| 10,200.00 | 90.05 | 91.87 | 6,947.39 | -19.92 | 3,578.87 | 3,577.62 | 0.00 | 0.00 | 0.00 |
| 10,300.00 | 90.05 | 91.87 | 6,947.30 | -23.18 | 3,678.82 | 3,677.62 | 0.00 | 0.00 | 0.00 |
| 10,400.00 | 90.05 | 91.87 | 6,947.21 | -26.44 | 3,778.76 | 3,777.62 | 0.00 | 0.00 | 0.00 |
| 10,500.00 | 90.05 | 91.87 | 6,947.12 | -29.70 | 3,878.71 | 3,877.62 | 0.00 | 0.00 | 0.00 |
| 10,600.00 | 90.05 | 91.87 | 6,947.03 | -32.96 | 3,978.66 | 3,977.62 | 0.00 | 0.00 | 0.00 |
| 10,700.00 | 90.05 | 91.87 | 6,946.94 | -36.21 | 4,078.61 | 4,077.62 | 0.00 | 0.00 | 0.00 |
| 10,800.00 | 90.05 | 91.87 | 6,946.85 | -39.47 | 4,178.55 | 4,177.62 | 0.00 | 0.00 | 0.00 |
| 10,900.00 | 90.05 | 91.87 | 6,946.76 | -42.73 | 4,278.50 | 4,277.62 | 0.00 | 0.00 | 0.00 |
| 11,000.00 | 90.05 | 91.87 | 6,946.67 | -45.99 | 4,378.45 | 4,377.61 | 0.00 | 0.00 | 0.00 |

# SDT

Planning Report

| | | | |
|---|---|---|---|
| **Database:** | EDM 5000 Multi User Db | **Local Co-ordinate Reference:** | Well Rosa Unit #724H |
| **Company:** | Logos Operating LLC | **TVD Reference:** | 6300+30 @ 6330.00usft (H&P 530) |
| **Project:** | Rio Arriba, NM (NAD83) | **MD Reference:** | 6300+30 @ 6330.00usft (H&P 530) |
| **Site:** | Rosa Pad 26 | **North Reference:** | True |
| **Well:** | Rosa Unit #724H | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | OH | | |
| **Design:** | Prelim 5 | | |

**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) |
|---|---|---|---|---|---|---|---|---|---|
| 11,100.00 | 90.05 | 91.87 | 6,946.58 | -49.25 | 4,478.39 | 4,477.61 | 0.00 | 0.00 | 0.00 |
| 11,200.00 | 90.05 | 91.87 | 6,946.48 | -52.51 | 4,578.34 | 4,577.61 | 0.00 | 0.00 | 0.00 |
| 11,300.00 | 90.05 | 91.87 | 6,946.39 | -55.77 | 4,678.29 | 4,677.61 | 0.00 | 0.00 | 0.00 |
| 11,400.00 | 90.05 | 91.87 | 6,946.30 | -59.02 | 4,778.23 | 4,777.61 | 0.00 | 0.00 | 0.00 |
| 11,500.00 | 90.05 | 91.87 | 6,946.21 | -62.28 | 4,878.18 | 4,877.61 | 0.00 | 0.00 | 0.00 |
| 11,600.00 | 90.05 | 91.87 | 6,946.12 | -65.54 | 4,978.13 | 4,977.61 | 0.00 | 0.00 | 0.00 |
| 11,700.00 | 90.05 | 91.87 | 6,946.03 | -68.80 | 5,078.07 | 5,077.61 | 0.00 | 0.00 | 0.00 |
| 11,800.00 | 90.05 | 91.87 | 6,945.94 | -72.06 | 5,178.02 | 5,177.61 | 0.00 | 0.00 | 0.00 |
| 11,900.00 | 90.05 | 91.87 | 6,945.85 | -75.32 | 5,277.97 | 5,277.61 | 0.00 | 0.00 | 0.00 |
| 12,000.00 | 90.05 | 91.87 | 6,945.76 | -78.58 | 5,377.91 | 5,377.61 | 0.00 | 0.00 | 0.00 |
| 12,100.00 | 90.05 | 91.87 | 6,945.67 | -81.84 | 5,477.86 | 5,477.61 | 0.00 | 0.00 | 0.00 |
| 12,200.00 | 90.05 | 91.87 | 6,945.58 | -85.09 | 5,577.81 | 5,577.61 | 0.00 | 0.00 | 0.00 |
| 12,300.00 | 90.05 | 91.87 | 6,945.49 | -88.35 | 5,677.76 | 5,677.61 | 0.00 | 0.00 | 0.00 |
| 12,400.00 | 90.05 | 91.87 | 6,945.40 | -91.61 | 5,777.70 | 5,777.61 | 0.00 | 0.00 | 0.00 |
| 12,500.00 | 90.05 | 91.87 | 6,945.31 | -94.87 | 5,877.65 | 5,877.61 | 0.00 | 0.00 | 0.00 |
| 12,600.00 | 90.05 | 91.87 | 6,945.22 | -98.13 | 5,977.60 | 5,977.61 | 0.00 | 0.00 | 0.00 |
| 12,700.00 | 90.05 | 91.87 | 6,945.13 | -101.39 | 6,077.54 | 6,077.61 | 0.00 | 0.00 | 0.00 |
| 12,800.00 | 90.05 | 91.87 | 6,945.04 | -104.65 | 6,177.49 | 6,177.61 | 0.00 | 0.00 | 0.00 |
| 12,900.00 | 90.05 | 91.87 | 6,944.95 | -107.90 | 6,277.44 | 6,277.61 | 0.00 | 0.00 | 0.00 |
| 13,000.00 | 90.05 | 91.87 | 6,944.86 | -111.16 | 6,377.38 | 6,377.61 | 0.00 | 0.00 | 0.00 |
| 13,100.00 | 90.05 | 91.87 | 6,944.77 | -114.42 | 6,477.33 | 6,477.61 | 0.00 | 0.00 | 0.00 |
| 13,200.00 | 90.05 | 91.87 | 6,944.67 | -117.68 | 6,577.28 | 6,577.61 | 0.00 | 0.00 | 0.00 |
| 13,300.00 | 90.05 | 91.87 | 6,944.58 | -120.94 | 6,677.22 | 6,677.61 | 0.00 | 0.00 | 0.00 |
| 13,400.00 | 90.05 | 91.87 | 6,944.49 | -124.20 | 6,777.17 | 6,777.61 | 0.00 | 0.00 | 0.00 |
| 13,500.00 | 90.05 | 91.87 | 6,944.40 | -127.46 | 6,877.12 | 6,877.61 | 0.00 | 0.00 | 0.00 |
| 13,600.00 | 90.05 | 91.87 | 6,944.31 | -130.71 | 6,977.06 | 6,977.61 | 0.00 | 0.00 | 0.00 |
| 13,700.00 | 90.05 | 91.87 | 6,944.22 | -133.97 | 7,077.01 | 7,077.61 | 0.00 | 0.00 | 0.00 |
| 13,800.00 | 90.05 | 91.87 | 6,944.13 | -137.23 | 7,176.96 | 7,177.61 | 0.00 | 0.00 | 0.00 |
| 13,900.00 | 90.05 | 91.87 | 6,944.04 | -140.49 | 7,276.90 | 7,277.61 | 0.00 | 0.00 | 0.00 |
| 14,000.00 | 90.05 | 91.87 | 6,943.95 | -143.75 | 7,376.85 | 7,377.61 | 0.00 | 0.00 | 0.00 |
| 14,100.00 | 90.05 | 91.87 | 6,943.86 | -147.01 | 7,476.80 | 7,477.61 | 0.00 | 0.00 | 0.00 |
| 14,200.00 | 90.05 | 91.87 | 6,943.77 | -150.27 | 7,576.75 | 7,577.61 | 0.00 | 0.00 | 0.00 |
| 14,300.00 | 90.05 | 91.87 | 6,943.68 | -153.53 | 7,676.69 | 7,677.61 | 0.00 | 0.00 | 0.00 |
| 14,400.00 | 90.05 | 91.87 | 6,943.59 | -156.78 | 7,776.64 | 7,777.61 | 0.00 | 0.00 | 0.00 |
| 14,500.00 | 90.05 | 91.87 | 6,943.50 | -160.04 | 7,876.59 | 7,877.61 | 0.00 | 0.00 | 0.00 |
| 14,600.00 | 90.05 | 91.87 | 6,943.41 | -163.30 | 7,976.53 | 7,977.61 | 0.00 | 0.00 | 0.00 |
| 14,700.00 | 90.05 | 91.87 | 6,943.32 | -166.56 | 8,076.48 | 8,077.61 | 0.00 | 0.00 | 0.00 |
| 14,800.00 | 90.05 | 91.87 | 6,943.23 | -169.82 | 8,176.43 | 8,177.61 | 0.00 | 0.00 | 0.00 |
| 14,900.00 | 90.05 | 91.87 | 6,943.14 | -173.08 | 8,276.37 | 8,277.61 | 0.00 | 0.00 | 0.00 |
| 15,000.00 | 90.05 | 91.87 | 6,943.05 | -176.34 | 8,376.32 | 8,377.61 | 0.00 | 0.00 | 0.00 |
| 15,100.00 | 90.05 | 91.87 | 6,942.96 | -179.59 | 8,476.27 | 8,477.61 | 0.00 | 0.00 | 0.00 |
| 15,200.00 | 90.05 | 91.87 | 6,942.86 | -182.85 | 8,576.21 | 8,577.61 | 0.00 | 0.00 | 0.00 |
| 15,300.00 | 90.05 | 91.87 | 6,942.77 | -186.11 | 8,676.16 | 8,677.61 | 0.00 | 0.00 | 0.00 |
| 15,400.00 | 90.05 | 91.87 | 6,942.68 | -189.37 | 8,776.11 | 8,777.61 | 0.00 | 0.00 | 0.00 |
| 15,500.00 | 90.05 | 91.87 | 6,942.59 | -192.63 | 8,876.05 | 8,877.61 | 0.00 | 0.00 | 0.00 |
| 15,600.00 | 90.05 | 91.87 | 6,942.50 | -195.89 | 8,976.00 | 8,977.61 | 0.00 | 0.00 | 0.00 |
| 15,700.00 | 90.05 | 91.87 | 6,942.41 | -199.15 | 9,075.95 | 9,077.61 | 0.00 | 0.00 | 0.00 |
| 15,800.00 | 90.05 | 91.87 | 6,942.32 | -202.41 | 9,175.89 | 9,177.61 | 0.00 | 0.00 | 0.00 |
| 15,900.00 | 90.05 | 91.87 | 6,942.23 | -205.66 | 9,275.84 | 9,277.61 | 0.00 | 0.00 | 0.00 |
| 16,000.00 | 90.05 | 91.87 | 6,942.14 | -208.92 | 9,375.79 | 9,377.61 | 0.00 | 0.00 | 0.00 |
| 16,100.00 | 90.05 | 91.87 | 6,942.05 | -212.18 | 9,475.74 | 9,477.61 | 0.00 | 0.00 | 0.00 |
| 16,200.00 | 90.05 | 91.87 | 6,941.96 | -215.44 | 9,575.68 | 9,577.61 | 0.00 | 0.00 | 0.00 |
| 16,300.00 | 90.05 | 91.87 | 6,941.87 | -218.70 | 9,675.63 | 9,677.61 | 0.00 | 0.00 | 0.00 |
| 16,400.00 | 90.05 | 91.87 | 6,941.78 | -221.96 | 9,775.58 | 9,777.61 | 0.00 | 0.00 | 0.00 |

# SDT
Planning Report

| | | | |
|---|---|---|---|
| **Database:** | EDM 5000 Multi User Db | **Local Co-ordinate Reference:** | Well Rosa Unit #724H |
| **Company:** | Logos Operating LLC | **TVD Reference:** | 6300+30 @ 6330.00usft (H&P 530) |
| **Project:** | Rio Arriba, NM (NAD83) | **MD Reference:** | 6300+30 @ 6330.00usft (H&P 530) |
| **Site:** | Rosa Pad 26 | **North Reference:** | True |
| **Well:** | Rosa Unit #724H | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | OH | | |
| **Design:** | Prelim 5 | | |

**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) |
|---|---|---|---|---|---|---|---|---|---|
| 16,500.00 | 90.05 | 91.87 | 6,941.69 | -225.22 | 9,875.52 | 9,877.61 | 0.00 | 0.00 | 0.00 |
| 16,600.00 | 90.05 | 91.87 | 6,941.60 | -228.47 | 9,975.47 | 9,977.61 | 0.00 | 0.00 | 0.00 |
| 16,700.00 | 90.05 | 91.87 | 6,941.51 | -231.73 | 10,075.42 | 10,077.61 | 0.00 | 0.00 | 0.00 |
| 16,800.00 | 90.05 | 91.87 | 6,941.42 | -234.99 | 10,175.36 | 10,177.61 | 0.00 | 0.00 | 0.00 |
| 16,900.00 | 90.05 | 91.87 | 6,941.33 | -238.25 | 10,275.31 | 10,277.61 | 0.00 | 0.00 | 0.00 |
| 17,000.00 | 90.05 | 91.87 | 6,941.24 | -241.51 | 10,375.26 | 10,377.61 | 0.00 | 0.00 | 0.00 |
| 17,100.00 | 90.05 | 91.87 | 6,941.15 | -244.77 | 10,475.20 | 10,477.61 | 0.00 | 0.00 | 0.00 |
| 17,200.00 | 90.05 | 91.87 | 6,941.06 | -248.03 | 10,575.15 | 10,577.61 | 0.00 | 0.00 | 0.00 |
| 17,300.00 | 90.05 | 91.87 | 6,940.96 | -251.28 | 10,675.10 | 10,677.61 | 0.00 | 0.00 | 0.00 |
| 17,400.00 | 90.05 | 91.87 | 6,940.87 | -254.54 | 10,775.04 | 10,777.61 | 0.00 | 0.00 | 0.00 |
| 17,500.00 | 90.05 | 91.87 | 6,940.78 | -257.80 | 10,874.99 | 10,877.61 | 0.00 | 0.00 | 0.00 |
| 17,600.00 | 90.05 | 91.87 | 6,940.69 | -261.06 | 10,974.94 | 10,977.61 | 0.00 | 0.00 | 0.00 |
| 17,700.00 | 90.05 | 91.87 | 6,940.60 | -264.32 | 11,074.89 | 11,077.61 | 0.00 | 0.00 | 0.00 |
| 17,800.00 | 90.05 | 91.87 | 6,940.51 | -267.58 | 11,174.83 | 11,177.61 | 0.00 | 0.00 | 0.00 |
| 17,900.00 | 90.05 | 91.87 | 6,940.42 | -270.84 | 11,274.78 | 11,277.61 | 0.00 | 0.00 | 0.00 |
| 18,000.00 | 90.05 | 91.87 | 6,940.33 | -274.10 | 11,374.73 | 11,377.61 | 0.00 | 0.00 | 0.00 |
| 18,100.00 | 90.05 | 91.87 | 6,940.24 | -277.35 | 11,474.67 | 11,477.61 | 0.00 | 0.00 | 0.00 |
| 18,200.00 | 90.05 | 91.87 | 6,940.15 | -280.61 | 11,574.62 | 11,577.61 | 0.00 | 0.00 | 0.00 |
| 18,300.00 | 90.05 | 91.87 | 6,940.06 | -283.87 | 11,674.57 | 11,677.61 | 0.00 | 0.00 | 0.00 |
| 18,400.00 | 90.05 | 91.87 | 6,939.97 | -287.13 | 11,774.51 | 11,777.61 | 0.00 | 0.00 | 0.00 |
| 18,500.00 | 90.05 | 91.87 | 6,939.88 | -290.39 | 11,874.46 | 11,877.61 | 0.00 | 0.00 | 0.00 |
| 18,600.00 | 90.05 | 91.87 | 6,939.79 | -293.65 | 11,974.41 | 11,977.61 | 0.00 | 0.00 | 0.00 |
| 18,700.00 | 90.05 | 91.87 | 6,939.70 | -296.91 | 12,074.35 | 12,077.61 | 0.00 | 0.00 | 0.00 |
| 18,800.00 | 90.05 | 91.87 | 6,939.61 | -300.16 | 12,174.30 | 12,177.61 | 0.00 | 0.00 | 0.00 |
| 18,900.00 | 90.05 | 91.87 | 6,939.52 | -303.42 | 12,274.25 | 12,277.61 | 0.00 | 0.00 | 0.00 |
| 19,000.00 | 90.05 | 91.87 | 6,939.43 | -306.68 | 12,374.19 | 12,377.61 | 0.00 | 0.00 | 0.00 |
| 19,100.00 | 90.05 | 91.87 | 6,939.34 | -309.94 | 12,474.14 | 12,477.61 | 0.00 | 0.00 | 0.00 |
| 19,200.00 | 90.05 | 91.87 | 6,939.25 | -313.20 | 12,574.09 | 12,577.61 | 0.00 | 0.00 | 0.00 |
| 19,300.00 | 90.05 | 91.87 | 6,939.15 | -316.46 | 12,674.03 | 12,677.61 | 0.00 | 0.00 | 0.00 |
| 19,400.00 | 90.05 | 91.87 | 6,939.06 | -319.72 | 12,773.98 | 12,777.61 | 0.00 | 0.00 | 0.00 |
| 19,500.00 | 90.05 | 91.87 | 6,938.97 | -322.98 | 12,873.93 | 12,877.61 | 0.00 | 0.00 | 0.00 |
| 19,600.00 | 90.05 | 91.87 | 6,938.88 | -326.23 | 12,973.88 | 12,977.61 | 0.00 | 0.00 | 0.00 |
| 19,700.00 | 90.05 | 91.87 | 6,938.79 | -329.49 | 13,073.82 | 13,077.61 | 0.00 | 0.00 | 0.00 |
| 19,800.00 | 90.05 | 91.87 | 6,938.70 | -332.75 | 13,173.77 | 13,177.61 | 0.00 | 0.00 | 0.00 |
| 19,900.00 | 90.05 | 91.87 | 6,938.61 | -336.01 | 13,273.72 | 13,277.61 | 0.00 | 0.00 | 0.00 |
| 20,000.00 | 90.05 | 91.87 | 6,938.52 | -339.27 | 13,373.66 | 13,377.61 | 0.00 | 0.00 | 0.00 |
| 20,100.00 | 90.05 | 91.87 | 6,938.43 | -342.53 | 13,473.61 | 13,477.61 | 0.00 | 0.00 | 0.00 |
| 20,200.00 | 90.05 | 91.87 | 6,938.34 | -345.79 | 13,573.56 | 13,577.61 | 0.00 | 0.00 | 0.00 |
| 20,300.00 | 90.05 | 91.87 | 6,938.25 | -349.04 | 13,673.50 | 13,677.61 | 0.00 | 0.00 | 0.00 |
| 20,400.00 | 90.05 | 91.87 | 6,938.16 | -352.30 | 13,773.45 | 13,777.61 | 0.00 | 0.00 | 0.00 |
| 20,500.00 | 90.05 | 91.87 | 6,938.07 | -355.56 | 13,873.40 | 13,877.61 | 0.00 | 0.00 | 0.00 |
| 20,576.05 | 90.05 | 91.87 | 6,938.00 | -358.04 | 13,949.41 | 13,953.67 | 0.00 | 0.00 | 0.00 |
| **TD at 20576.05** | | | | | | | | | |

# SDT

Planning Report

| | | | |
|---|---|---|---|
| **Database:** | EDM 5000 Multi User Db | **Local Co-ordinate Reference:** | Well Rosa Unit #724H |
| **Company:** | Logos Operating LLC | **TVD Reference:** | 6300+30 @ 6330.00usft (H&P 530) |
| **Project:** | Rio Arriba, NM (NAD83) | **MD Reference:** | 6300+30 @ 6330.00usft (H&P 530) |
| **Site:** | Rosa Pad 26 | **North Reference:** | True |
| **Well:** | Rosa Unit #724H | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | OH | | |
| **Design:** | Prelim 5 | | |

**Design Targets**

| Target Name - hit/miss target - Shape | Dip Angle (°) | Dip Dir. (°) | TVD (usft) | +N/-S (usft) | +E/-W (usft) | Northing (usft) | Easting (usft) | Latitude | Longitude |
|---|---|---|---|---|---|---|---|---|---|
| RU 724H SHL<br>- plan hits target center<br>- Point | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2,147,459.91 | 2,851,902.02 | 36.900649 | -107.392788 |
| RU 724H KOP<br>- plan hits target center<br>- Point | 0.00 | 0.00 | 6,320.45 | 85.77 | 58.34 | 2,147,545.95 | 2,851,959.97 | 36.900885 | -107.392589 |
| RU 724H PBHL<br>- plan hits target center<br>- Point | 0.00 | 0.00 | 6,938.00 | -358.04 | 13,949.41 | 2,147,166.28 | 2,865,852.94 | 36.899656 | -107.345081 |
| RU 724H POE<br>- plan hits target center<br>- Point | 0.00 | 0.00 | 6,950.00 | 74.09 | 695.46 | 2,147,537.21 | 2,852,597.13 | 36.900853 | -107.390410 |

**Formations**

| Measured Depth (usft) | Vertical Depth (usft) | Name | Lithology | Dip (°) | Dip Direction (°) |
|---|---|---|---|---|---|
| 2,433.39 | 2,433.00 | Ojo Alamo | | | |
| 2,543.41 | 2,543.00 | Kirtland | | | |
| 2,877.47 | 2,877.00 | Fruitland | | | |
| 3,032.49 | 3,032.00 | T/Coals | | | |
| 3,182.52 | 3,182.00 | T/Coals | | | |
| 3,355.54 | 3,355.00 | Pictured Cliffs | | | |
| 3,460.56 | 3,460.00 | Lewis | | | |
| 4,584.75 | 4,584.00 | Chacra | | | |
| 5,059.82 | 5,059.00 | U/Cliff House | | | |
| 5,362.87 | 5,362.00 | Cliff House | | | |
| 5,402.88 | 5,402.00 | Menefee | | | |
| 5,631.92 | 5,631.00 | Point Lookout | | | |
| 6,169.01 | 6,168.00 | Mancos | | | |
| 6,830.87 | 6,775.00 | Black Top | | | |

**Plan Annotations**

| Measured Depth (usft) | Vertical Depth (usft) | Local Coordinates +N/-S (usft) | Local Coordinates +E/-W (usft) | Comment |
|---|---|---|---|---|
| 354.64 | 354.58 | 2.81 | -5.72 | Start 150.00 hold at 354.64 MD |
| 504.64 | 504.56 | 4.18 | -7.54 | Start DLS 2.00 TFO 131.33 |
| 573.79 | 573.71 | 4.98 | -7.57 | Start 5747.69 hold at 573.79 MD |
| 6,321.48 | 6,320.45 | 85.77 | 58.34 | Start DLS 9.00 TFO 52.66 |
| 7,315.05 | 6,950.00 | 74.09 | 695.46 | Start 13261.00 hold at 7315.05 MD |
| 20,576.05 | 6,938.00 | -358.04 | 13,949.41 | TD at 20576.05 |

# LOGOS Operating, LLC
# Operations Plan

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

| | | | |
|---|---|---|---|
| Date: | March 28, 2025 | Pool: | Basin Mancos |
| **Well Name:** | **Rosa Unit 724H** | GL Elevation: | 6,300' |
| Surface Location: | Sec 17, T31N, R5W 2233' FNL, 565' FWL (36.900649º N, -107.392788º W – NAD83) | KB: | 30' |
| Bottom Hole Location: | Sec 15, T31N, R5W 2588' FNL, 1302' FEL (36.899656º N, -107.345081º W – NAD83) | Measured Depth: | 20,576' (KB) |
| **Lease Serial**<br>**CA Serial** | **# NMSF078769**<br>**# NMNM78407E** | County: | Rio Arriba |

## 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 | 2,433' | 2,433' | *POINT LOOKOUT | 5,632' | 5,631' |
| KIRTLAND | 2,543' | 2,543' | *MANCOS | 6,169' | 6,168' |
| *FRUITLAND | 2,877' | 2,877' | KICKOFF POINT | **6,321'** | **6,320'** |
| *PICTURED CLIFFS | 3,356' | 3,355' | LANDING POINT | 7,315' | 6,950' |
| LEWIS | 3,461' | 3,460' | TD | **20,576'** | **6,938'** |
| CHACRA | 4,585' | 4,584' | | | |
| *CLIFF HOUSE | 5,363' | 5,362' | | | |
| MENEFEE | 5,403' | 5,402' | | | |

* 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 26"/24" conductor hole. LSND (WBM) will be used to drill the 17-1/2" surface hole and 12-1/4" intermediate 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.

B. **BOP TESTING:** The BOPE will be tested to **250 psi (Low) for 5 minutes** and **3000 psi (High) for 10 minutes.** Pressure test surface casing to **1500 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:** 6,950' TVD x 0.43 = 2,989 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 |
|---|---|---|---|---|---|---|
| CONDUCTOR | 26" or 24" | 320' or greater (GL) | 20" | 94 LBS | J-55 or equiv | LTC/BTC |
| SURFACE | 17.5" | 3,406' | 13.375" | 54.5 LBS | J-55 or equiv | LTC/BTC |
| INTERMEDIATE | 12.25" | 6,284' | 9.625" | 43.5 LBS | N-80 or equiv | LTC/BTC |
| PRODUCTION | 8.5" | 20,576' | 5.5" | 20 LBS | P-110 or equiv | LTC/BTC |

NOTE: All casing depths are approximate, based on KB 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:

1. CONDUCTOR CASING: 20" cement nose guide shoe. Place float collar 1 joint above shoe. Run (1) standard centralizer on each of the bottom (3) joints of casing.
2. SURFACE CASING: 13-3/8" cement nose guide shoe with 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., 2,000ft., 1,500 ft., 1,000 ft, and 500ft.
   - Casing will be kept fluid filled during drilling
3. INTERMEDIATE CASING: 9-5/8" cement float shoe. 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 cancelation plugs for DV tools may be used if losses while cementing are not encountered. Optional use of an ICP may be used in conjunction with DV Tools.
4. 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. CONDUCTOR: Casing shall be set at ~ 320'(GL) and cemented to surface. TOC at Surface.

| Conductor - 20" | Top | Footage | Cement (ft3/ft) Annular Capacity | Excess (30%) | Total (ft3) | Total (bbl) | Slurry Yield (ft3/sk) | Sacks Cement | Density (PPG) |
|---|---|---|---|---|---|---|---|---|---|
| Type G | - | 320 | 0.9599 | 1.3 | 449 | 80 | 1.10 | 408 | 15.8 |
| Type III | | 320 | 0.9599 | 1.3 | 449 | 80 | 1.39 | 323 | 14.6 |
| | | | 24" hole | | | | | | |
| Set Depth (GL) | 320 | | | | | | | | |

2. SURFACE: Casing shall be kept fluid-filled while running into the hole to meet BLM minimum collapse requirements. The surface casing will be cemented in 1 stage. If cement does not circulate to the surface, a CBL will be run to determine TOC.

| Surface - 13-3/8" | Top | Footage | Cement (ft3/ft) Annular Capacity | Excess (30%) | Total (ft3) | Total (bbl) | Slurry Yield (ft3/sk) | Sacks Cement | Density (PPG) |
|---|---|---|---|---|---|---|---|---|---|
| Stage 1 Tail | 2,806 | 600 | 0.6947 | 1.3 | 575 | 102 | 1.15 | 501 | 15.8 |
| Stage 1 Lead - OH | 320 | 2,486 | 0.6947 | 1.3 | 2,245 | 400 | 2.66 | 844 | 11.8 |
| Stage 2 Lead - Cased | - | 320 | 1.019 | 1 | 326 | 58 | 2.66 | 123 | 11.8 |
| | | | | | **3,146** | **560** | | **1467** | |
| Set Depth | 3406 | | | | | | | | |

3. 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 and optional ICP's 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

| Intermediate - 9-5/8" | Top | Footage | Cement (ft3/ft) Annular Capacity | Excess (30%) | Total (ft3) | Total (bbl) | Slurry Yield (ft3/sk) | Sacks Cement | Density (PPG) |
|---|---|---|---|---|---|---|---|---|---|
| Stage 1 Tail | 5,784 | 500 | 0.3132 | 1.3 | 220 | 39 | 1.15 | 191 | 15.8 |
| Stage 1 Lead | 4,660 | 1,124 | 0.3132 | 1.3 | 458 | 82 | 2.66 | 172 | 11.8 |
| | | | | | **678** | **121** | | **364** | |
| Stage 2 Tail | 4,060 | 600 | 0.3132 | 1.3 | 244 | 44 | 1.76 | 139 | 13.5 |
| Stage 2 Lead | 3,306 | 754 | 0.3132 | 1.3 | 307 | 55 | 2.66 | 115 | 11.8 |
| Stage 2 Lead - Cased | 3,206 | 100 | 0.3627 | 1 | 36 | 6 | 2.66 | 14 | 11.8 |
| Stage 2 Totals | | | | | **588** | **105** | | **268** | |
| Int 2 Totals | | | | | **1,265** | **225** | | **631** | |
| Contingency | | | | | | | | | |
| Stage 3 Tail | 3,406 | 75 | 0.3132 | 1.3 | 31 | 5 | 1.76 | 17 | 13.5 |
| Stage 3 Tail - Cased | 2,906 | 500 | 0.3490 | 1 | 175 | 31 | 1.76 | 99 | 13.5 |
| Stage 3 Lead - Cased | - | 2,906 | 0.3490 | 1 | 1,014 | 181 | 2.66 | 381 | 11.8 |
| Contingency Stage 3 Totals | | | | | **1,219** | **217** | | **498** | |

Set Depth 6284

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

4. 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.

| Production - 5-1/2" | Top | ft | Cement (ft3/ft) Annular Capacity | Excess (15%) | Total (ft3) | Total (bbl) | Slurry Yield (ft3/sk) | Sacks Cement | Density (PPG) |
|---|---|---|---|---|---|---|---|---|---|
| Cased Lead | **6,184** | **100** | **0.2531** | **1** | **25** | **5** | **2.03** | **12** | 13.2 |
| Open Hole Lead | **6,284** | **14,292** | **0.2291** | **1.15** | **3,771** | **672** | **2.03** | **1,857** | 13.2 |
| | | | | | **3,796** | **676** | | **1,869** | |

Set depth 20576

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 * 6,950' TVD = 1529 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.

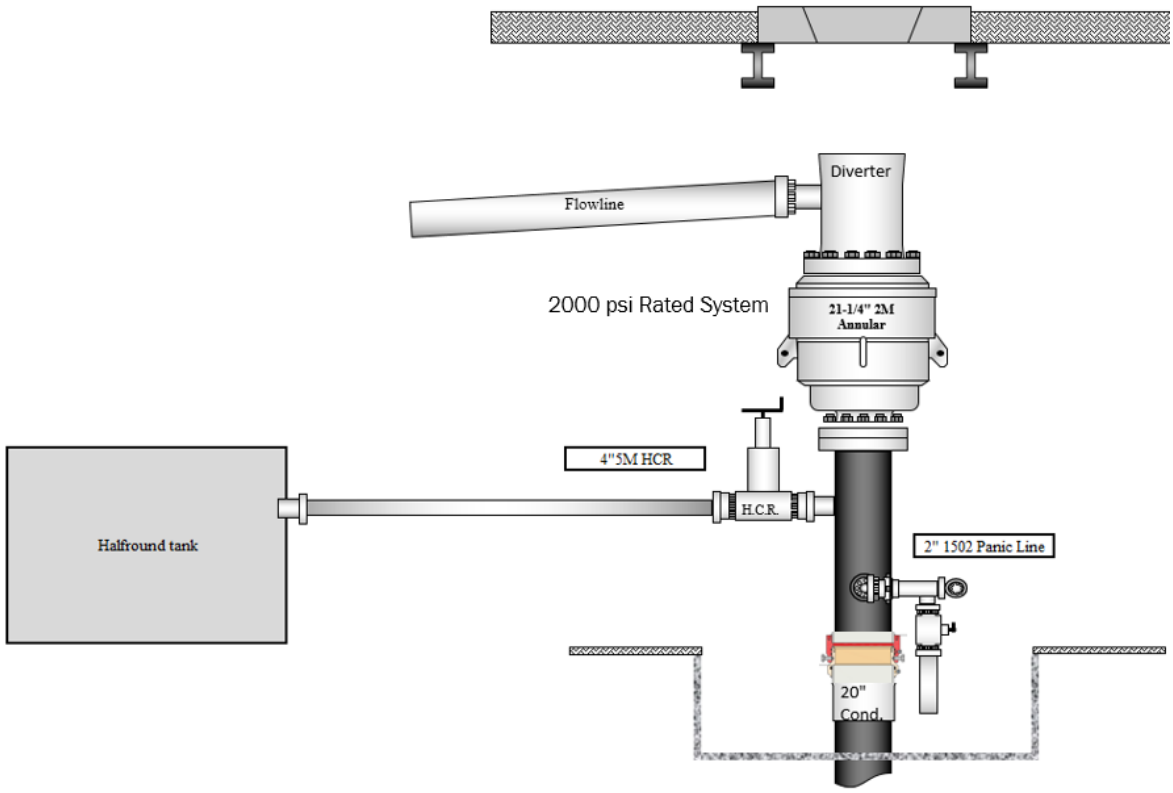
**E. PRODUCTION TUBING**

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.

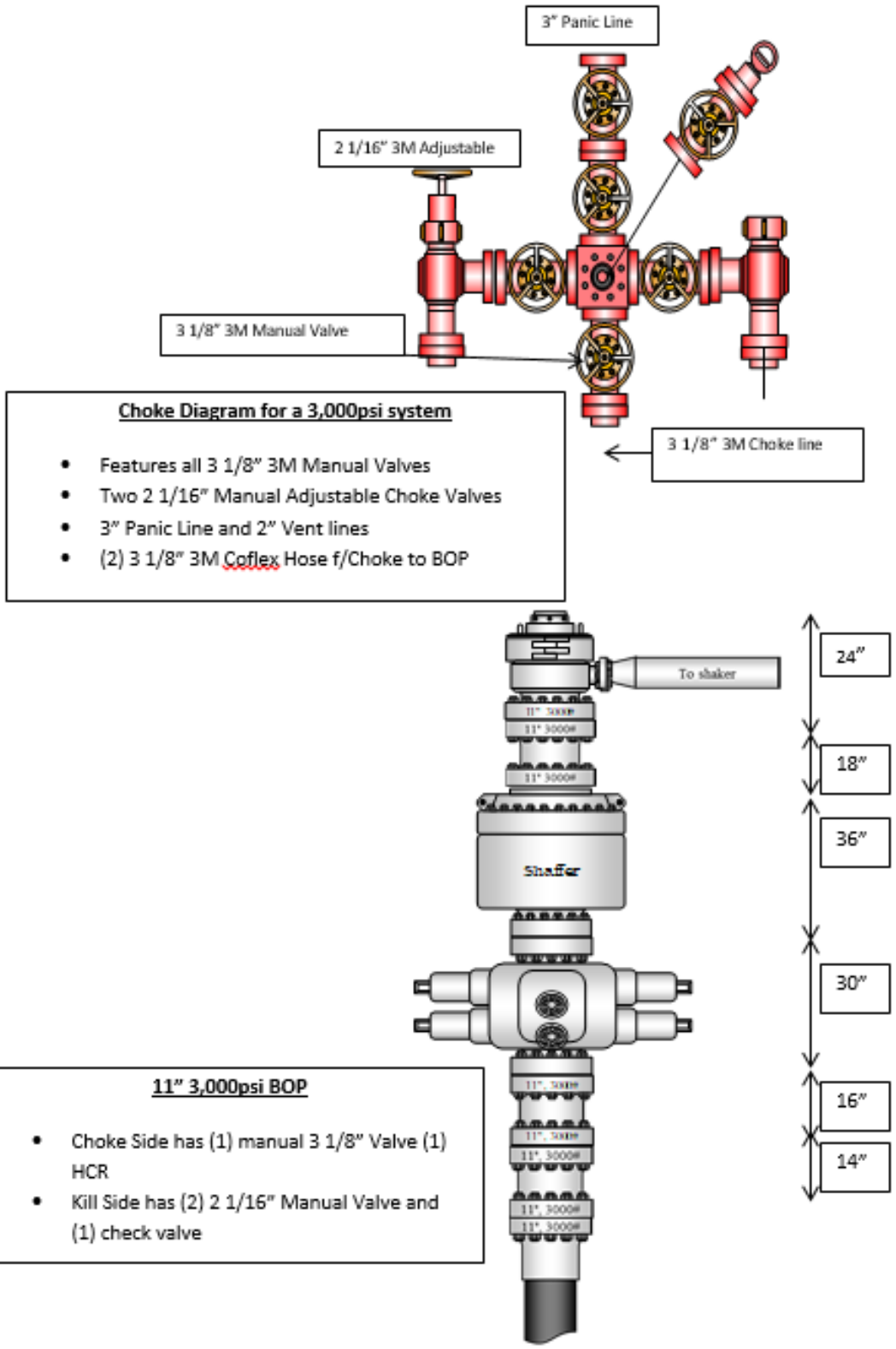
**BOP Equipment**

**Surface Hole Diverter:**



**BOP:**

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




**Choke Diagram for a 3,000psi system**

- Features all 3 1/8" 3M Manual Valves
- Two 2 1/16" Manual Adjustable Choke Valves
- 3" Panic Line and 2" Vent lines
- (2) 3 1/8" 3M Coflex Hose f/Choke to BOP

**11" 3,000psi BOP**

- Choke Side has (1) manual 3 1/8" Valve (1) HCR
- Kill Side has (2) 2 1/16" Manual Valve and (1) check valve

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

| | | | | | 1.125 | 1.000 | |
|---|---|---|---|---|---|---|---|
| | **Size** | **Weight** | **Grade** | **Conn** | **Collapse** | **Burst** | **70% Burst** |
| **Conductor** | 20.000 | 94 | J-55 | BTC | 520 | 2,110 | 1,477 |

| **Collapse** | | | | | | | |
|---|---|---|---|---|---|---|---|
| | **Casing Depth TVD** | **MW in** | **MW out** | **Pres in** | **Pres out** | **SF** | |
| 94 J-55 BTC | 320 | 0.00 | 15.80 | 0 | 263 | 1.98 | n with 15.8 pp |
| 54.5 J-55 BTC | 320 | 0.00 | 15.80 | 0 | 263 | 4.30 | full evacuatio |

| **Burst** | | | | | | | |
|---|---|---|---|---|---|---|---|
| 94 J-55 BTC | 320 | 15.80 | 0.00 | 1263 | 0 | 1.67 | 1000 psi casin |

| **Tension** | | | | | | | |
|---|---|---|---|---|---|---|---|
| 94 J-55 BTC | | **Mud Wt** | **Air Wt** | **Bouy Wt** | **BW +100k** | **SF** | |
| **Tension (Body)** | 320 | 15.80 | 30,080 | 22,824 | 122,824 | 12.05 | 100k over pul |
| **Tension (Conn)** | 320 | 15.80 | 30,080 | 22,824 | 122,824 | 11.41 | 100k over pul |

## Surface Casing Design - 1/3 Evacuated/Max SICP (collaspe & burst), 100k overpull (te

| | | | | | 1.125 | 1.000 |
|---|---|---|---|---|---|---|
| | **Size** | **Weight** | **Grade** | **Conn** | **Collapse** | **Burst** |
| **Surface** | 13.375 | 61 | J-55 | BTC | 1,540 | 3,090 |
| | 13.375 | 68 | J-55 | BTC | 1,950 | 3,450 |
| | 13.375 | 54.5 | J-55 | BTC | 1,130 | 2,730 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | **Collapse** | | | |
| | **Casing Depth TVD** | **MW in** | **MW out** | **Pres in** | **Pres out** | **SF** |
| 61 J-55 BTC | 3,405 | 9.20 | 9.20 | 1075 | 1629 | 2.78 |
| 68 J-55 BTC | 3,405 | 9.20 | 9.20 | 1075 | 1629 | 3.52 |
| 54.5 J-55 BTC | 3,405 | 9.20 | 9.20 | 1075 | 1629 | 2.04 |
| | | | **Burst** | | | |
| 61 J-55 BTC | 3,405 | 9.20 | 0.00 | 2659 | 0 | 1.16 |
| 68 J-55 BTC | 3,405 | 9.20 | 0.00 | 2779 | 0 | 1.24 |
| 54.5 J-55 BTC | 3,405 | 9.20 | 0.00 | 2539 | 0 | 1.08 |
| | | | **Tension** | | | |
| 61 J-55 BTC | | **Mud Wt** | **Air Wt** | **Bouy Wt** | **BW +100k** | **SF** |
| **Tension (Body)** | 3,405 | 9.20 | 207,705 | 178,531 | 278,531 | 3.45 |
| **Tension (Conn)** | 3,405 | 9.20 | 207,705 | 178,531 | 278,531 | 3.68 |
| | | **BF** | | | | |
| | | 0.8595 | | | | |
| 68 J-55 BTC | | | | | | |
| **Tension (Body)** | 3,405 | 9.20 | 231,540 | 199,018 | 299,018 | 3.58 |
| **Tension (Conn)** | 3,405 | 9.20 | 231,540 | 199,018 | 299,018 | 3.81 |

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

| | | | | | 1.125 | 1.000 | |
|---|---|---|---|---|---|---|---|
| | **Size** | **Weight** | **Grade** | **Conn** | **Collapse** | **Burst** | **80% Burst** |
| **Intermediate** | 9.625 | 43.5 | N-80 or L-80 | LTC | 3,810 | 6,330 | 5,064 |
| | 9.625 | 43.5 | N-80 or L-80 | BTC | 3,810 | 6,330 | 5,064 |
| | 9.625 | 43.5 | P-110 | BTC | 4,420 | 8,700 | 6,960 |

| **Collapse** | | | | | | | |
|---|---|---|---|---|---|---|---|
| | **Casing Depth TVD** | **MW in** | **MW out** | **Pres in** | **Pres out** | **SF** | |
| 43.5 N-80 or L-80 L | 6,283 | 0.00 | 9.40 | 0 | 3071 | 1.24 | full evacuatio |
| 43.5 N-80 or L-80 B | 6,283 | 0.00 | 9.40 | 0 | 3071 | 1.24 | full evacuatio |
| | | | | | | | |
| **Burst** | | | | | | | |
| 43.5 N-80 or L-80 L | 6,283 | 9.40 | 0.00 | 4571 | 0 | 1.38 | Casing full wit |
| 43.5 N-80 or L-80 B | 6,283 | 9.40 | 0.00 | 4571 | 0 | 1.38 | Casing full wit |
| | | | | | | | |
| **Tension** | | | | | | | |
| 43.5 N-80 or L-80 LTC | | **Mud Wt** | **Air Wt** | **Bouy Wt** | **BW +100k** | **SF** | |
| **Tension (Body)** | 6,283 | 9.40 | 273,311 | 234,087 | 334,087 | 3.01 | 100k over pul |
| **Tension (Conn)** | 6,283 | 9.40 | 273,311 | 234,087 | 334,087 | 2.47 | 100k over pul |
| | | **BF** | | | | | BF= 1- (MW)/ |
| | | 0.8565 | | | | | |
| 43.5 N-80 or L-80 BTC | | | | | | | |
| **Tension (Body)** | 6,283 | 9.40 | 273,311 | 234,087 | 334,087 | 3.01 | 100k over pul |
| **Tension (Conn)** | 6,283 | 9.40 | 273,311 | 234,087 | 334,087 | 3.21 | 100k over pul |

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

| | | | | | 1.125 | 1.000 | |
|---|---|---|---|---|---|---|---|
| | **Size** | **Weight** | **Grade** | **Conn** | **Collapse** | **Burst** | **80% Burst** |
| **Production** | 5.5 | 20 | P110 | LTC | 11,080 | 12,630 | 10,104 |
| | 5.5 | 20 | P110 | BTC | 11,080 | 12,360 | 9,888 |

| **Collapse** | | | | | | | |
|---|---|---|---|---|---|---|---|
| | **Casing Depth TVD** | **MW in** | **MW out** | **Pres in** | **Pres out** | **SF** | |
| 20 P110 LTC | 6,950 | 0.00 | 13.30 | 0 | 4807 | 2.31 | full evacuatio |
| 20 P110 BTC | 6,950 | 0.00 | 13.30 | 0 | 4807 | 2.31 | full evacuatio |

| **Burst** | | | | | | | |
|---|---|---|---|---|---|---|---|
| 20 P110 LTC | 6,950 | 13.30 | 0.00 | 6307 | 0 | 2.00 | 1500 psi casin |
| 20 P110 BTC | 6,950 | 13.30 | 0.00 | 6307 | 0 | 1.96 | 1500 psi casin |

| **Tension** | | | | | | | |
|---|---|---|---|---|---|---|---|
| 20 P110 LTC | | **Mud Wt** | **Air Wt** | **Bouy Wt** | **BW +100k** | **SF** | |
| **Tension (Body)** | 6,950 | 13.30 | 139,000 | 110,776 | 210,776 | 3.04 | 100k over pul |
| **Tension (Conn)** | 6,950 | 13.30 | 139,000 | 110,776 | 210,776 | 2.60 | 100k over pul |
| | | **BF** | | | | | BF= 1- (MW)/ |
| | | 0.7969 | | | | | |
| 20 P110 BTC | | **Mud Wt** | **Air Wt** | **Bouy Wt** | **BW +100k** | **SF** | |
| **Tension (Body)** | 6,950 | 13.30 | 139,000 | 110,776 | 210,776 | 3.04 | 100k over pul |
| **Tension (Conn)** | 6,950 | 13.30 | 139,000 | 110,776 | 210,776 | 3.16 | 100k over pul |

Sante Fe Main Office
Phone: (505) 476-3441

General Information
Phone: (505) 629-6116

Online Phone Directory
https://www.emnrd.nm.gov/ocd/contact-us

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

CONDITIONS

Action 448149

## CONDITIONS

| | |
|---|---|
| Operator:<br>LOGOS OPERATING, LLC<br>2010 Afton Place<br>Farmington, NM 87401 | OGRID:<br>289408 |
| | Action Number:<br>448149 |
| | Action Type:<br>[C-103] NOI Change of Plans (C-103A) |

**CONDITIONS**

| Created By | Condition | Condition Date |
|---|---|---|
| ward.rikala | Administrative order required for non-standard spacing unit prior to production. | 4/8/2025 |
| ward.rikala | Administrative order required for non-standard location prior to production. | 4/8/2025 |
| ward.rikala | Any previous COA's not addressed within the updated COA's still apply. | 4/8/2025 |