

Well Name: ROSA UNIT	Well Location: T31N / R5W / SEC 17 / SWNW / 36.900875 / -107.392864	County or Parish/State: RIO ARRIBA / NM
Well Number: 712H	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: 300393147600X1	Operator: LOGOS OPERATING LLC	

Notice of Intent

Sundry ID: 2844379

Type of Submission: Notice of Intent	Type of Action: Other
Date Sundry Submitted: 03/31/2025	Time Sundry Submitted: 09:33
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 TD @ 20,869' (MD) 6,915' (TVD). Geology tops have been updated per changes. New KOP @ 6,553' MD 6381' TVD New Landing point @ 7,491' MD 6,953' TVD New 20" Conductor casing @ 320' MD or greater New 13.375" Surface casing @ 3,463' MD New 9.625" Intermediate casing @ 6,453' MD New 5.5" Production casing @ 20,869' 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

- Logos__Rosa_Unit__712H_AC_Report_Prelim_5_20250331093251.pdf
- Logos__Rosa_Unit__712H_Wall_Prelim_5_20250331092635.pdf
- Logos__Rosa_Unit__712H_Plan_Data_Prelim_5_20250331092616.pdf
- Rosa_Unit_712H_Operations_Plan_4_string_Prelim5_3.28.2025_20250331092529.pdf
- Rosa_Unit_712H_C102_Plat_Revised_3.27.25_signed_20250331084919.pdf

Received by OCD: 4/1/2025 2:24:40 PM

Page 2 of 26

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Lease Number: NMSF078764	Unit or CA Name: ROSA UNIT	Unit or CA Number: NMNM78407E
US Well Number: 300393147600X1	Operator: LOGOS OPERATING LLC	

Conditions of Approval

Additional

LOGOS_Operating_LLC_Rosa_Unit_712H_APD_Change_ID_2844379_MHK_20250401115845.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: MAR 31, 2025 09:33 AM

Name: LOGOS OPERATING LLC

Title: Regulatory Specialist

Street Address: 2010 AFTON PLACE

City: FarmingtonState: 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: 04/01/2025

Signature: /s/ 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 1, 2025

CONDITIONS OF APPROVAL

Sundry Notice of Intent ID # 2844379 Request for APD Change

Operator: LOGOS Operating LLC
Lease: NMSF 078764
Agreement: NMNM 78407E
Well: Rosa Unit 712H (API # 30-039-31476)
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 first take point, 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		

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	30-039-31476	Pool Code	97232	Pool Name	BASIN MANCOS	
Property Code	320608	Property Name	ROSA UNIT		Well Number	712H
OGRID No.	289408	Operator Name	LOGOS OPERATING, LLC		Ground Level Elevation	6300 '
Surface Owner:			☐ State ☐ Fee ☐ Tribal ☒ Federal			
			Mineral Owner: ☐ State ☐ Fee ☐ Tribal ☒ Federal			

Surface Location

UL E	Section 17	Township 31N	Range 5W	Lot	Feet from N/S Line 2156' NORTH	Feet from E/W Line 544' WEST	Latitude 36.900861 °N	Longitude -107.392859 °W	County RIO ARRIBA
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Bottom Hole Location

UL D	Section 14	Township 31N	Range 6W	Lot	Feet from N/S Line 519' NORTH	Feet from E/W Line 7' WEST	Latitude 36.905480 °N	Longitude -107.441204 °W	County RIO ARriba
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Penetrated Spacing Unit:

Dedicated Acres 823.43		N/2 - Section 13, T31N, R6W N/2 - Section 14, T31N, R6W N/2 - Section 18, T31N, R5W	Infill or Defining Well INFILL	Defining Well API	Overlapping Spacing Unit ☐ Yes ☒ No	Consolidation Code 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
D	17	31N	5W		779' NORTH	381' WEST	36.904645 °N	-107.393422 °W	RIO ARRIBA

First Take Point (FTP)

UL A	Section 18	Township 31N	Range 5W	Lot	Feet from N/S Line 572' NORTH	Feet from E/W Line 213' EAST	Latitude 36.905212 °N	Longitude -107.395454 °W	County RIO ARriba
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Last Take Point (LTP)

UL	Section	Township	Range	Lot	Feet from N/S Line	Feet from E/W Line	Latitude	Longitude	County
D	14	31N	6W		519' NORTH	7' WEST	36.905480 °N	-107.441204 °W	RIO ARRIBA

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

Signature _____

3/27/2025

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

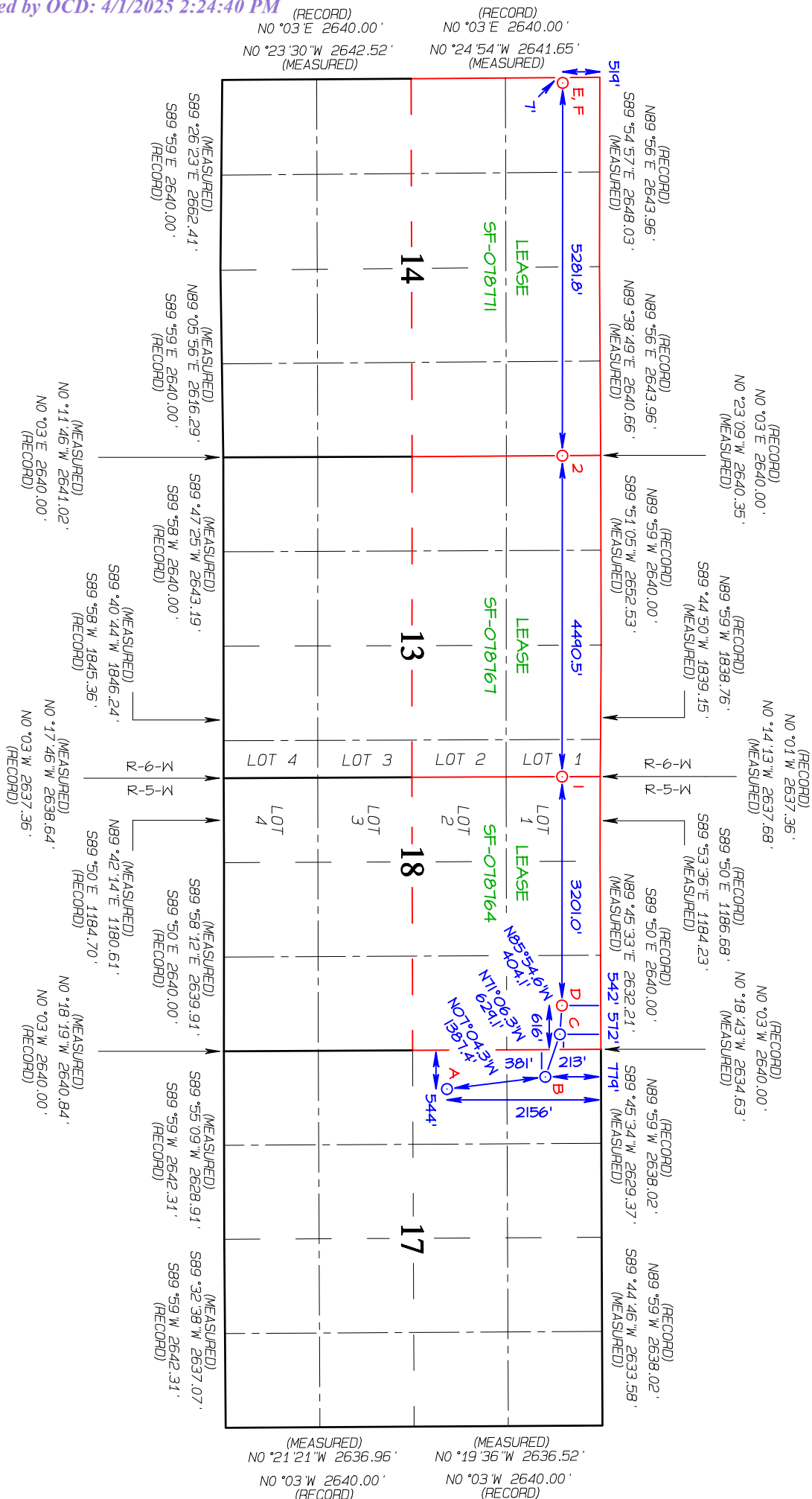
Signature and Seal of Professional Surveyor

Certificate Number	15269
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Date of Survey	JUNE 22, 2022
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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.

LAST TAKE POINT (E) 519' FNL 7' FNL SECTION 14, T34N, R6W LAT 36.905474° N LONG -107.440600° W DATUM: NAD1983	LEASE X-ING (2) 536' FNL 0' FNL SECTION 13, T34N, R6W LAT 36.905401° N LONG -107.422536° W DATUM: NAD1927	LEASE X-ING (1) 533' FNL 0' FNL SECTION 18, T34N, R5W LAT 36.905337° N LONG -107.407178° W DATUM: NAD1927	INFLECTION POINT (D) 542' FNL 616' FEL SECTION 18, T34N, R5W LAT 36.905291° N LONG -107.396230° W DATUM: NAD1927	FIRST TAKE POINT (C) 572' FNL 213' FEL SECTION 18, T34N, R5W LAT 36.905206° N LONG -107.394852° W DATUM: NAD1927	KICK OFF POINT (B) 779' FNL 381' FNL SECTION 17, T34N, R5W LAT 36.904639° N LONG -107.392819° W DATUM: NAD1927	SURFACE LOCATION (A) 2156' FNL 544' FNL SECTION 17, T34N, R5W LAT 36.900855° N LONG -107.392257° W DATUM: NAD1927
LAT 36.905480° N LONG -107.441204° W DATUM: NAD1983	LAT 36.905407° N LONG -107.423139° W DATUM: NAD1983	LAT 36.905343° N LONG -107.407781° W DATUM: NAD1983	LAT 36.905297° N LONG -107.396833° W DATUM: NAD1983	LAT 36.905212° N LONG -107.395454° W DATUM: NAD1983	LAT 36.904645° N LONG -107.393422° W DATUM: NAD1983	LAT 36.900861° N LONG -107.392859° W DATUM: NAD1983



Logos Operating LLC

Rio Arriba, NM (NAD83)

Rosa Pad 26

Rosa Unit #712H

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 #712H
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 #712H	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 #712H					
Well Position	+N/-S	0.00 usft	Northing:	2,147,537.00 usft	Latitude:	36.900861
	+E/-W	0.00 usft	Easting:	2,851,880.91 usft	Longitude:	-107.392859
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	49,574.75897035

Design	Prelim 5				
Audit Notes:					
Version:		Phase:	PLAN	Tie On Depth:	353.50
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00	270.31	

Plan Survey Tool Program	Date	3/17/2025			
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	97.08	353.50	Survey #1 (OH)	Standard Keeper 105	
				Standard Wireline Keeper ver 1	
2	353.50	20,867.86	Prelim 5 (OH)	MWD+HRGM+MS	
				MWD + HRGM + Multi-Station	

SDT
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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 #712H	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
353.50	0.08	353.11	353.50	0.24	-0.33	0.00	0.00	0.00	0.00	
503.50	0.08	353.11	503.50	0.44	-0.35	0.00	0.00	0.00	0.00	
1,099.50	12.00	353.20	1,095.12	62.60	-7.77	2.00	2.00	0.02	0.09	
3,455.87	12.00	353.20	3,400.00	549.07	-65.78	0.00	0.00	0.00	0.00	
3,705.87	17.00	353.20	3,641.96	611.21	-73.18	2.00	2.00	0.00	0.00	
5,335.10	17.00	353.20	5,200.00	1,084.20	-129.59	0.00	0.00	0.00	0.00	
6,338.33	11.98	353.20	6,171.00	1,333.41	-159.30	0.50	-0.50	0.00	180.00	
6,553.33	11.98	353.20	6,381.31	1,377.73	-164.59	0.00	0.00	0.00	0.00	
7,490.94	90.16	278.40	6,953.00	1,584.19	-758.80	9.28	8.34	-7.98	-75.08	
7,895.40	90.16	270.31	6,951.86	1,614.88	-1,161.76	2.00	0.00	-2.00	-89.97	
20,868.71	90.16	270.31	6,915.00	1,685.22	-14,134.83	0.00	0.00	0.00	0.00	RU 712H PBHL

SDT

Planning Report

Database:	EDM 5000 Multi User Db	Local Co-ordinate Reference:	Well Rosa Unit #712H
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 #712H	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
97.08	0.07	237.43	97.08	-0.03	-0.05	0.05	0.07	0.07	0.00
178.07	0.14	345.95	178.07	0.04	-0.12	0.12	0.22	0.09	133.99
265.68	0.12	280.86	265.68	0.16	-0.23	0.23	0.16	-0.02	-74.30
353.50	0.08	353.11	353.50	0.24	-0.33	0.33	0.14	-0.05	82.27
Start 150.00 hold at 353.50 MD									
400.00	0.08	353.11	400.00	0.30	-0.34	0.34	0.00	0.00	0.00
503.50	0.08	353.11	503.50	0.44	-0.35	0.36	0.00	0.00	0.00
Start DLS 2.00 TFO 0.09									
600.00	2.01	353.20	599.98	2.19	-0.56	0.57	2.00	2.00	0.09
700.00	4.01	353.20	699.84	7.41	-1.19	1.23	2.00	2.00	0.00
800.00	6.01	353.20	799.45	16.08	-2.22	2.31	2.00	2.00	0.00
900.00	8.01	353.20	898.70	28.19	-3.66	3.82	2.00	2.00	0.00
1,000.00	10.01	353.20	997.46	43.74	-5.52	5.76	2.00	2.00	0.00
1,099.50	12.00	353.20	1,095.12	62.60	-7.77	8.11	2.00	2.00	0.00
Start 2356.37 hold at 1099.50 MD									
1,200.00	12.00	353.20	1,193.43	83.35	-10.24	10.69	0.00	0.00	0.00
1,300.00	12.00	353.20	1,291.24	104.00	-12.70	13.27	0.00	0.00	0.00
1,400.00	12.00	353.20	1,389.06	124.64	-15.16	15.84	0.00	0.00	0.00
1,500.00	12.00	353.20	1,486.87	145.29	-17.63	18.41	0.00	0.00	0.00
1,600.00	12.00	353.20	1,584.69	165.93	-20.09	20.99	0.00	0.00	0.00
1,700.00	12.00	353.20	1,682.50	186.58	-22.55	23.56	0.00	0.00	0.00
1,800.00	12.00	353.20	1,780.32	207.22	-25.01	26.13	0.00	0.00	0.00
1,900.00	12.00	353.20	1,878.13	227.87	-27.47	28.71	0.00	0.00	0.00
2,000.00	12.00	353.20	1,975.94	248.51	-29.94	31.28	0.00	0.00	0.00
2,100.00	12.00	353.20	2,073.76	269.16	-32.40	33.85	0.00	0.00	0.00
2,200.00	12.00	353.20	2,171.57	289.80	-34.86	36.43	0.00	0.00	0.00
2,300.00	12.00	353.20	2,269.39	310.45	-37.32	39.00	0.00	0.00	0.00
2,400.00	12.00	353.20	2,367.20	331.09	-39.78	41.57	0.00	0.00	0.00
2,470.33	12.00	353.20	2,436.00	345.61	-41.51	43.38	0.00	0.00	0.00
Ojo Alamo									
2,500.00	12.00	353.20	2,465.02	351.74	-42.24	44.15	0.00	0.00	0.00
2,582.79	12.00	353.20	2,546.00	368.83	-44.28	46.28	0.00	0.00	0.00
Kirtland									
2,600.00	12.00	353.20	2,562.83	372.38	-44.71	46.72	0.00	0.00	0.00
2,700.00	12.00	353.20	2,660.65	393.03	-47.17	49.29	0.00	0.00	0.00
2,800.00	12.00	353.20	2,758.46	413.67	-49.63	51.87	0.00	0.00	0.00
2,900.00	12.00	353.20	2,856.28	434.32	-52.09	54.44	0.00	0.00	0.00
2,924.25	12.00	353.20	2,880.00	439.32	-52.69	55.06	0.00	0.00	0.00
Fruitland									
3,000.00	12.00	353.20	2,954.09	454.96	-54.55	57.01	0.00	0.00	0.00
3,082.72	12.00	353.20	3,035.00	472.04	-56.59	59.14	0.00	0.00	0.00
T/Coals									
3,100.00	12.00	353.20	3,051.91	475.61	-57.01	59.59	0.00	0.00	0.00
3,200.00	12.00	353.20	3,149.72	496.25	-59.48	62.16	0.00	0.00	0.00
3,236.07	12.00	353.20	3,185.00	503.70	-60.36	63.09	0.00	0.00	0.00
B/Coals									
3,300.00	12.00	353.20	3,247.54	516.90	-61.94	64.73	0.00	0.00	0.00
3,400.00	12.00	353.20	3,345.35	537.54	-64.40	67.31	0.00	0.00	0.00
3,412.93	12.00	353.20	3,358.00	540.21	-64.72	67.64	0.00	0.00	0.00
Pictured Cliffs									
3,455.87	12.00	353.20	3,400.00	549.07	-65.78	68.75	0.00	0.00	0.00
Start Build 2.00									

SDT

Planning Report

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Project:	Rio Arriba, NM (NAD83)	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site:	Rosa Pad 26	North Reference:	True
Well:	Rosa Unit #712H	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)
3,500.00	12.88	353.20	3,443.09	558.51	-66.90	69.92	2.00	2.00	0.00
3,520.44	13.29	353.20	3,463.00	563.11	-67.45	70.49	2.00	2.00	0.00
Lewis									
3,600.00	14.88	353.20	3,540.17	582.34	-69.74	72.89	2.00	2.00	0.00
3,705.87	17.00	353.20	3,641.96	611.21	-73.18	76.49	2.00	2.00	0.00
Start 1629.23 hold at 3705.87 MD									
3,800.00	17.00	353.20	3,731.98	638.54	-76.44	79.90	0.00	0.00	0.00
3,900.00	17.00	353.20	3,827.61	667.57	-79.90	83.52	0.00	0.00	0.00
4,000.00	17.00	353.20	3,923.24	696.60	-83.37	87.13	0.00	0.00	0.00
4,100.00	17.00	353.20	4,018.87	725.63	-86.83	90.75	0.00	0.00	0.00
4,200.00	17.00	353.20	4,114.50	754.66	-90.29	94.37	0.00	0.00	0.00
4,300.00	17.00	353.20	4,210.13	783.69	-93.75	97.99	0.00	0.00	0.00
4,400.00	17.00	353.20	4,305.76	812.73	-97.21	101.61	0.00	0.00	0.00
4,500.00	17.00	353.20	4,401.39	841.76	-100.68	105.23	0.00	0.00	0.00
4,600.00	17.00	353.20	4,497.02	870.79	-104.14	108.85	0.00	0.00	0.00
4,694.09	17.00	353.20	4,587.00	898.10	-107.39	112.25	0.00	0.00	0.00
Chacra									
4,700.00	17.00	353.20	4,592.65	899.82	-107.60	112.47	0.00	0.00	0.00
4,800.00	17.00	353.20	4,688.28	928.85	-111.06	116.09	0.00	0.00	0.00
4,900.00	17.00	353.20	4,783.91	957.88	-114.52	119.70	0.00	0.00	0.00
5,000.00	17.00	353.20	4,879.54	986.91	-117.98	123.32	0.00	0.00	0.00
5,100.00	17.00	353.20	4,975.17	1,015.95	-121.45	126.94	0.00	0.00	0.00
5,190.79	17.00	353.20	5,062.00	1,042.31	-124.59	130.23	0.00	0.00	0.00
U/Cliff House									
5,200.00	17.00	353.20	5,070.80	1,044.98	-124.91	130.56	0.00	0.00	0.00
5,300.00	17.00	353.20	5,166.43	1,074.01	-128.37	134.18	0.00	0.00	0.00
5,335.10	17.00	353.20	5,200.00	1,084.20	-129.59	135.45	0.00	0.00	0.00
Start Drop -0.50									
5,400.00	16.68	353.20	5,262.12	1,102.87	-131.81	137.78	0.50	-0.50	0.00
5,500.00	16.18	353.20	5,358.04	1,130.94	-135.16	141.28	0.50	-0.50	0.00
5,507.25	16.14	353.20	5,365.00	1,132.95	-135.40	141.53	0.50	-0.50	0.00
Cliff House									
5,548.87	15.93	353.20	5,405.00	1,144.36	-136.76	142.95	0.50	-0.50	0.00
Menefee									
5,600.00	15.68	353.20	5,454.20	1,158.19	-138.41	144.67	0.50	-0.50	0.00
5,700.00	15.18	353.20	5,550.60	1,184.60	-141.56	147.96	0.50	-0.50	0.00
5,786.33	14.74	353.20	5,634.00	1,206.73	-144.20	150.72	0.50	-0.50	0.00
Point Lookout									
5,800.00	14.68	353.20	5,647.22	1,210.18	-144.61	151.15	0.50	-0.50	0.00
5,900.00	14.18	353.20	5,744.07	1,234.91	-147.56	154.24	0.50	-0.50	0.00
6,000.00	13.68	353.20	5,841.13	1,258.81	-150.41	157.21	0.50	-0.50	0.00
6,100.00	13.18	353.20	5,938.40	1,281.86	-153.16	160.09	0.50	-0.50	0.00
6,200.00	12.68	353.20	6,035.86	1,304.08	-155.80	162.86	0.50	-0.50	0.00
6,300.00	12.18	353.20	6,133.52	1,325.44	-158.35	165.52	0.50	-0.50	0.00
6,338.33	11.98	353.20	6,171.00	1,333.41	-159.30	166.51	0.50	-0.50	0.00
Start 215.00 hold at 6338.33 MD - Mancos									
6,400.00	11.98	353.20	6,231.33	1,346.12	-160.82	168.10	0.00	0.00	0.00
6,500.00	11.98	353.20	6,329.15	1,366.74	-163.28	170.67	0.00	0.00	0.00
6,553.33	11.98	353.20	6,381.31	1,377.73	-164.59	172.04	0.00	0.00	0.00
Start DLS 9.28 TFO -75.08									
6,600.00	13.74	335.30	6,426.83	1,387.59	-167.48	174.98	9.28	3.77	-38.34
6,650.00	16.69	321.53	6,475.09	1,398.61	-174.43	181.99	9.28	5.89	-27.54

SDT

Planning Report

Database:	EDM 5000 Multi User Db	Local Co-ordinate Reference:	Well Rosa Unit #712H
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 #712H	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)
6,700.00	20.26	312.13	6,522.52	1,410.04	-185.32	192.94	9.28	7.15	-18.80
6,750.00	24.19	305.56	6,568.80	1,421.81	-200.08	207.77	9.28	7.85	-13.14
6,800.00	28.32	300.77	6,613.64	1,433.84	-218.61	226.36	9.28	8.27	-9.58
6,850.00	32.58	297.13	6,656.74	1,446.05	-240.79	248.61	9.28	8.52	-7.29
6,900.00	36.92	294.25	6,697.81	1,458.37	-266.48	274.37	9.28	8.69	-5.75
6,950.00	41.32	291.90	6,736.60	1,470.70	-295.50	303.46	9.28	8.80	-4.69
7,000.00	45.76	289.94	6,772.83	1,482.97	-327.67	335.69	9.28	8.88	-3.93
7,007.45	46.42	289.67	6,778.00	1,484.79	-332.72	340.75	9.28	8.92	-3.59
Black Top									
7,050.00	50.23	288.25	6,806.28	1,495.10	-362.78	370.86	9.28	8.94	-3.34
7,100.00	54.72	286.76	6,836.73	1,507.01	-400.59	408.74	9.28	8.98	-2.97
7,150.00	59.23	285.44	6,863.98	1,518.62	-440.86	449.07	9.28	9.01	-2.65
7,200.00	63.74	284.23	6,887.84	1,529.86	-483.32	491.59	9.28	9.04	-2.41
7,250.00	68.27	283.11	6,908.17	1,540.65	-527.69	536.02	9.28	9.06	-2.23
7,300.00	72.81	282.07	6,924.82	1,550.91	-573.69	582.07	9.28	9.07	-2.10
7,350.00	77.35	281.07	6,937.70	1,560.59	-621.01	629.45	9.28	9.08	-2.00
7,400.00	81.89	280.10	6,946.70	1,569.62	-669.34	677.83	9.28	9.09	-1.93
7,450.00	86.44	279.16	6,951.78	1,577.94	-718.37	726.90	9.28	9.09	-1.88
7,490.94	90.16	278.40	6,953.00	1,584.19	-758.80	767.36	9.28	9.09	-1.86
Start DLS 2.00 TFO -89.97									
7,500.00	90.16	278.22	6,952.97	1,585.50	-767.77	776.34	2.00	0.00	-2.00
7,600.00	90.16	276.22	6,952.69	1,598.06	-866.97	875.60	2.00	0.00	-2.00
7,700.00	90.16	274.22	6,952.41	1,607.16	-966.55	975.23	2.00	0.00	-2.00
7,800.00	90.16	272.22	6,952.13	1,612.77	-1,066.39	1,075.10	2.00	0.00	-2.00
7,895.40	90.16	270.31	6,951.86	1,614.88	-1,161.76	1,170.48	2.00	0.00	-2.00
Start 12973.31 hold at 7895.40 MD									
7,900.00	90.16	270.31	6,951.85	1,614.91	-1,166.36	1,175.08	0.00	0.00	0.00
8,000.00	90.16	270.31	6,951.56	1,615.45	-1,266.36	1,275.08	0.00	0.00	0.00
8,100.00	90.16	270.31	6,951.28	1,615.99	-1,366.36	1,375.08	0.00	0.00	0.00
8,200.00	90.16	270.31	6,950.99	1,616.53	-1,466.35	1,475.08	0.00	0.00	0.00
8,300.00	90.16	270.31	6,950.71	1,617.07	-1,566.35	1,575.08	0.00	0.00	0.00
8,400.00	90.16	270.31	6,950.43	1,617.62	-1,666.35	1,675.08	0.00	0.00	0.00
8,500.00	90.16	270.31	6,950.14	1,618.16	-1,766.35	1,775.08	0.00	0.00	0.00
8,600.00	90.16	270.31	6,949.86	1,618.70	-1,866.35	1,875.08	0.00	0.00	0.00
8,700.00	90.16	270.31	6,949.57	1,619.24	-1,966.34	1,975.08	0.00	0.00	0.00
8,800.00	90.16	270.31	6,949.29	1,619.78	-2,066.34	2,075.08	0.00	0.00	0.00
8,900.00	90.16	270.31	6,949.00	1,620.33	-2,166.34	2,175.08	0.00	0.00	0.00
9,000.00	90.16	270.31	6,948.72	1,620.87	-2,266.34	2,275.08	0.00	0.00	0.00
9,100.00	90.16	270.31	6,948.44	1,621.41	-2,366.34	2,375.08	0.00	0.00	0.00
9,200.00	90.16	270.31	6,948.15	1,621.95	-2,466.34	2,475.08	0.00	0.00	0.00
9,300.00	90.16	270.31	6,947.87	1,622.50	-2,566.33	2,575.07	0.00	0.00	0.00
9,400.00	90.16	270.31	6,947.58	1,623.04	-2,666.33	2,675.07	0.00	0.00	0.00
9,500.00	90.16	270.31	6,947.30	1,623.58	-2,766.33	2,775.07	0.00	0.00	0.00
9,600.00	90.16	270.31	6,947.02	1,624.12	-2,866.33	2,875.07	0.00	0.00	0.00
9,700.00	90.16	270.31	6,946.73	1,624.66	-2,966.33	2,975.07	0.00	0.00	0.00
9,800.00	90.16	270.31	6,946.45	1,625.21	-3,066.32	3,075.07	0.00	0.00	0.00
9,900.00	90.16	270.31	6,946.16	1,625.75	-3,166.32	3,175.07	0.00	0.00	0.00
10,000.00	90.16	270.31	6,945.88	1,626.29	-3,266.32	3,275.07	0.00	0.00	0.00
10,100.00	90.16	270.31	6,945.60	1,626.83	-3,366.32	3,375.07	0.00	0.00	0.00
10,200.00	90.16	270.31	6,945.31	1,627.37	-3,466.32	3,475.07	0.00	0.00	0.00
10,300.00	90.16	270.31	6,945.03	1,627.92	-3,566.32	3,575.07	0.00	0.00	0.00
10,400.00	90.16	270.31	6,944.74	1,628.46	-3,666.31	3,675.07	0.00	0.00	0.00
10,500.00	90.16	270.31	6,944.46	1,629.00	-3,766.31	3,775.07	0.00	0.00	0.00

SDT

Planning Report

Database:	EDM 5000 Multi User Db	Local Co-ordinate Reference:	Well Rosa Unit #712H
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 #712H	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)	
10,600.00	90.16	270.31	6,944.17	1,629.54	-3,866.31	3,875.07	0.00	0.00	0.00	
10,700.00	90.16	270.31	6,943.89	1,630.09	-3,966.31	3,975.07	0.00	0.00	0.00	
10,800.00	90.16	270.31	6,943.61	1,630.63	-4,066.31	4,075.07	0.00	0.00	0.00	
10,900.00	90.16	270.31	6,943.32	1,631.17	-4,166.30	4,175.07	0.00	0.00	0.00	
11,000.00	90.16	270.31	6,943.04	1,631.71	-4,266.30	4,275.07	0.00	0.00	0.00	
11,100.00	90.16	270.31	6,942.75	1,632.25	-4,366.30	4,375.07	0.00	0.00	0.00	
11,200.00	90.16	270.31	6,942.47	1,632.80	-4,466.30	4,475.07	0.00	0.00	0.00	
11,300.00	90.16	270.31	6,942.19	1,633.34	-4,566.30	4,575.07	0.00	0.00	0.00	
11,400.00	90.16	270.31	6,941.90	1,633.88	-4,666.29	4,675.07	0.00	0.00	0.00	
11,500.00	90.16	270.31	6,941.62	1,634.42	-4,766.29	4,775.07	0.00	0.00	0.00	
11,600.00	90.16	270.31	6,941.33	1,634.97	-4,866.29	4,875.07	0.00	0.00	0.00	
11,700.00	90.16	270.31	6,941.05	1,635.51	-4,966.29	4,975.07	0.00	0.00	0.00	
11,800.00	90.16	270.31	6,940.77	1,636.05	-5,066.29	5,075.06	0.00	0.00	0.00	
11,900.00	90.16	270.31	6,940.48	1,636.59	-5,166.29	5,175.06	0.00	0.00	0.00	
12,000.00	90.16	270.31	6,940.20	1,637.13	-5,266.28	5,275.06	0.00	0.00	0.00	
12,100.00	90.16	270.31	6,939.91	1,637.68	-5,366.28	5,375.06	0.00	0.00	0.00	
12,200.00	90.16	270.31	6,939.63	1,638.22	-5,466.28	5,475.06	0.00	0.00	0.00	
12,300.00	90.16	270.31	6,939.34	1,638.76	-5,566.28	5,575.06	0.00	0.00	0.00	
12,400.00	90.16	270.31	6,939.06	1,639.30	-5,666.28	5,675.06	0.00	0.00	0.00	
12,500.00	90.16	270.31	6,938.78	1,639.84	-5,766.27	5,775.06	0.00	0.00	0.00	
12,600.00	90.16	270.31	6,938.49	1,640.39	-5,866.27	5,875.06	0.00	0.00	0.00	
12,700.00	90.16	270.31	6,938.21	1,640.93	-5,966.27	5,975.06	0.00	0.00	0.00	
12,800.00	90.16	270.31	6,937.92	1,641.47	-6,066.27	6,075.06	0.00	0.00	0.00	
12,900.00	90.16	270.31	6,937.64	1,642.01	-6,166.27	6,175.06	0.00	0.00	0.00	
13,000.00	90.16	270.31	6,937.36	1,642.56	-6,266.26	6,275.06	0.00	0.00	0.00	
13,100.00	90.16	270.31	6,937.07	1,643.10	-6,366.26	6,375.06	0.00	0.00	0.00	
13,200.00	90.16	270.31	6,936.79	1,643.64	-6,466.26	6,475.06	0.00	0.00	0.00	
13,300.00	90.16	270.31	6,936.50	1,644.18	-6,566.26	6,575.06	0.00	0.00	0.00	
13,400.00	90.16	270.31	6,936.22	1,644.72	-6,666.26	6,675.06	0.00	0.00	0.00	
13,500.00	90.16	270.31	6,935.94	1,645.27	-6,766.26	6,775.06	0.00	0.00	0.00	
13,600.00	90.16	270.31	6,935.65	1,645.81	-6,866.25	6,875.06	0.00	0.00	0.00	
13,700.00	90.16	270.31	6,935.37	1,646.35	-6,966.25	6,975.06	0.00	0.00	0.00	
13,800.00	90.16	270.31	6,935.08	1,646.89	-7,066.25	7,075.06	0.00	0.00	0.00	
13,900.00	90.16	270.31	6,934.80	1,647.43	-7,166.25	7,175.06	0.00	0.00	0.00	
14,000.00	90.16	270.31	6,934.52	1,647.98	-7,266.25	7,275.06	0.00	0.00	0.00	
14,100.00	90.16	270.31	6,934.23	1,648.52	-7,366.24	7,375.06	0.00	0.00	0.00	
14,200.00	90.16	270.31	6,933.95	1,649.06	-7,466.24	7,475.06	0.00	0.00	0.00	
14,300.00	90.16	270.31	6,933.66	1,649.60	-7,566.24	7,575.05	0.00	0.00	0.00	
14,400.00	90.16	270.31	6,933.38	1,650.15	-7,666.24	7,675.05	0.00	0.00	0.00	
14,500.00	90.16	270.31	6,933.09	1,650.69	-7,766.24	7,775.05	0.00	0.00	0.00	
14,600.00	90.16	270.31	6,932.81	1,651.23	-7,866.23	7,875.05	0.00	0.00	0.00	
14,700.00	90.16	270.31	6,932.53	1,651.77	-7,966.23	7,975.05	0.00	0.00	0.00	
14,800.00	90.16	270.31	6,932.24	1,652.31	-8,066.23	8,075.05	0.00	0.00	0.00	
14,900.00	90.16	270.31	6,931.96	1,652.86	-8,166.23	8,175.05	0.00	0.00	0.00	
15,000.00	90.16	270.31	6,931.67	1,653.40	-8,266.23	8,275.05	0.00	0.00	0.00	
15,100.00	90.16	270.31	6,931.39	1,653.94	-8,366.23	8,375.05	0.00	0.00	0.00	
15,200.00	90.16	270.31	6,931.11	1,654.48	-8,466.22	8,475.05	0.00	0.00	0.00	
15,300.00	90.16	270.31	6,930.82	1,655.03	-8,566.22	8,575.05	0.00	0.00	0.00	
15,400.00	90.16	270.31	6,930.54	1,655.57	-8,666.22	8,675.05	0.00	0.00	0.00	
15,500.00	90.16	270.31	6,930.25	1,656.11	-8,766.22	8,775.05	0.00	0.00	0.00	
15,600.00	90.16	270.31	6,929.97	1,656.65	-8,866.22	8,875.05	0.00	0.00	0.00	
15,700.00	90.16	270.31	6,929.69	1,657.19	-8,966.21	8,975.05	0.00	0.00	0.00	
15,800.00	90.16	270.31	6,929.40	1,657.74	-9,066.21	9,075.05	0.00	0.00	0.00	
15,900.00	90.16	270.31	6,929.12	1,658.28	-9,166.21	9,175.05	0.00	0.00	0.00	

SDT
Planning Report

Database:	EDM 5000 Multi User Db	Local Co-ordinate Reference:	Well Rosa Unit #712H
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 #712H	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)
16,000.00	90.16	270.31	6,928.83	1,658.82	-9,266.21	9,275.05	0.00	0.00	0.00
16,100.00	90.16	270.31	6,928.55	1,659.36	-9,366.21	9,375.05	0.00	0.00	0.00
16,200.00	90.16	270.31	6,928.26	1,659.90	-9,466.20	9,475.05	0.00	0.00	0.00
16,300.00	90.16	270.31	6,927.98	1,660.45	-9,566.20	9,575.05	0.00	0.00	0.00
16,400.00	90.16	270.31	6,927.70	1,660.99	-9,666.20	9,675.05	0.00	0.00	0.00
16,500.00	90.16	270.31	6,927.41	1,661.53	-9,766.20	9,775.05	0.00	0.00	0.00
16,600.00	90.16	270.31	6,927.13	1,662.07	-9,866.20	9,875.05	0.00	0.00	0.00
16,700.00	90.16	270.31	6,926.84	1,662.62	-9,966.20	9,975.05	0.00	0.00	0.00
16,800.00	90.16	270.31	6,926.56	1,663.16	-10,066.19	10,075.04	0.00	0.00	0.00
16,900.00	90.16	270.31	6,926.28	1,663.70	-10,166.19	10,175.04	0.00	0.00	0.00
17,000.00	90.16	270.31	6,925.99	1,664.24	-10,266.19	10,275.04	0.00	0.00	0.00
17,100.00	90.16	270.31	6,925.71	1,664.78	-10,366.19	10,375.04	0.00	0.00	0.00
17,200.00	90.16	270.31	6,925.42	1,665.33	-10,466.19	10,475.04	0.00	0.00	0.00
17,300.00	90.16	270.31	6,925.14	1,665.87	-10,566.18	10,575.04	0.00	0.00	0.00
17,400.00	90.16	270.31	6,924.86	1,666.41	-10,666.18	10,675.04	0.00	0.00	0.00
17,500.00	90.16	270.31	6,924.57	1,666.95	-10,766.18	10,775.04	0.00	0.00	0.00
17,600.00	90.16	270.31	6,924.29	1,667.49	-10,866.18	10,875.04	0.00	0.00	0.00
17,700.00	90.16	270.31	6,924.00	1,668.04	-10,966.18	10,975.04	0.00	0.00	0.00
17,800.00	90.16	270.31	6,923.72	1,668.58	-11,066.17	11,075.04	0.00	0.00	0.00
17,900.00	90.16	270.31	6,923.43	1,669.12	-11,166.17	11,175.04	0.00	0.00	0.00
18,000.00	90.16	270.31	6,923.15	1,669.66	-11,266.17	11,275.04	0.00	0.00	0.00
18,100.00	90.16	270.31	6,922.87	1,670.21	-11,366.17	11,375.04	0.00	0.00	0.00
18,200.00	90.16	270.31	6,922.58	1,670.75	-11,466.17	11,475.04	0.00	0.00	0.00
18,300.00	90.16	270.31	6,922.30	1,671.29	-11,566.17	11,575.04	0.00	0.00	0.00
18,400.00	90.16	270.31	6,922.01	1,671.83	-11,666.16	11,675.04	0.00	0.00	0.00
18,500.00	90.16	270.31	6,921.73	1,672.37	-11,766.16	11,775.04	0.00	0.00	0.00
18,600.00	90.16	270.31	6,921.45	1,672.92	-11,866.16	11,875.04	0.00	0.00	0.00
18,700.00	90.16	270.31	6,921.16	1,673.46	-11,966.16	11,975.04	0.00	0.00	0.00
18,800.00	90.16	270.31	6,920.88	1,674.00	-12,066.16	12,075.04	0.00	0.00	0.00
18,900.00	90.16	270.31	6,920.59	1,674.54	-12,166.15	12,175.04	0.00	0.00	0.00
19,000.00	90.16	270.31	6,920.31	1,675.09	-12,266.15	12,275.04	0.00	0.00	0.00
19,100.00	90.16	270.31	6,920.03	1,675.63	-12,366.15	12,375.04	0.00	0.00	0.00
19,200.00	90.16	270.31	6,919.74	1,676.17	-12,466.15	12,475.03	0.00	0.00	0.00
19,300.00	90.16	270.31	6,919.46	1,676.71	-12,566.15	12,575.03	0.00	0.00	0.00
19,400.00	90.16	270.31	6,919.17	1,677.25	-12,666.14	12,675.03	0.00	0.00	0.00
19,500.00	90.16	270.31	6,918.89	1,677.80	-12,766.14	12,775.03	0.00	0.00	0.00
19,600.00	90.16	270.31	6,918.60	1,678.34	-12,866.14	12,875.03	0.00	0.00	0.00
19,700.00	90.16	270.31	6,918.32	1,678.88	-12,966.14	12,975.03	0.00	0.00	0.00
19,800.00	90.16	270.31	6,918.04	1,679.42	-13,066.14	13,075.03	0.00	0.00	0.00
19,900.00	90.16	270.31	6,917.75	1,679.96	-13,166.14	13,175.03	0.00	0.00	0.00
20,000.00	90.16	270.31	6,917.47	1,680.51	-13,266.13	13,275.03	0.00	0.00	0.00
20,100.00	90.16	270.31	6,917.18	1,681.05	-13,366.13	13,375.03	0.00	0.00	0.00
20,200.00	90.16	270.31	6,916.90	1,681.59	-13,466.13	13,475.03	0.00	0.00	0.00
20,300.00	90.16	270.31	6,916.62	1,682.13	-13,566.13	13,575.03	0.00	0.00	0.00
20,400.00	90.16	270.31	6,916.33	1,682.68	-13,666.13	13,675.03	0.00	0.00	0.00
20,500.00	90.16	270.31	6,916.05	1,683.22	-13,766.12	13,775.03	0.00	0.00	0.00
20,600.00	90.16	270.31	6,915.76	1,683.76	-13,866.12	13,875.03	0.00	0.00	0.00
20,700.00	90.16	270.31	6,915.48	1,684.30	-13,966.12	13,975.03	0.00	0.00	0.00
20,800.00	90.16	270.31	6,915.20	1,684.84	-14,066.12	14,075.03	0.00	0.00	0.00
20,868.71	90.16	270.31	6,915.00	1,685.22	-14,134.83	14,143.74	0.00	0.00	0.00
TD at 20868.71									

SDT
Planning Report

Database:	EDM 5000 Multi User Db	Local Co-ordinate Reference:	Well Rosa Unit #712H
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 #712H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Prelim 5		

Design Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
RU 712H SHL - plan hits target center - Point	0.00	0.00	0.00	0.00	0.00	2,147,537.00	2,851,880.91	36.900861	-107.392859
RU 712H KOP - plan hits target center - Point	0.00	0.00	6,381.31	1,377.73	-164.59	2,148,913.96	2,851,709.96	36.904645	-107.393422
RU 712H PBHL - plan hits target center - Point	0.00	0.00	6,915.00	1,685.22	-14,134.83	2,149,156.95	2,837,738.45	36.905480	-107.441204
RU 712H IP - plan hits target center - Point	0.00	0.00	6,951.86	1,614.88	-1,161.76	2,149,146.50	2,850,711.70	36.905297	-107.396833
RU 712H POE - plan hits target center - Point	0.00	0.00	6,953.00	1,584.19	-758.80	2,149,117.67	2,851,114.80	36.905212	-107.395455

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
2,470.33	2,436.00	Ojo Alamo				
2,582.79	2,546.00	Kirtland				
2,924.25	2,880.00	Fruitland				
3,082.72	3,035.00	T/Coals				
3,236.07	3,185.00	B/Coals				
3,412.93	3,358.00	Pictured Cliffs				
3,520.44	3,463.00	Lewis				
4,694.09	4,587.00	Chacra				
5,190.79	5,062.00	U/Cliff House				
5,507.25	5,365.00	Cliff House				
5,548.87	5,405.00	Menefee				
5,786.33	5,634.00	Point Lookout				
6,338.33	6,171.00	Mancos				
7,007.45	6,778.00	Black Top				

SDT
Planning Report

Database:	EDM 5000 Multi User Db	Local Co-ordinate Reference:	Well Rosa Unit #712H
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 #712H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Prelim 5		

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
353.50	353.50	0.24	-0.33	Start 150.00 hold at 353.50 MD
503.50	503.50	0.44	-0.35	Start DLS 2.00 TFO 0.09
1,099.50	1,095.12	62.60	-7.77	Start 2356.37 hold at 1099.50 MD
3,455.87	3,400.00	549.07	-65.78	Start Build 2.00
3,705.87	3,641.96	611.21	-73.18	Start 1629.23 hold at 3705.87 MD
5,335.10	5,200.00	1,084.20	-129.59	Start Drop -0.50
6,338.33	6,171.00	1,333.41	-159.30	Start 215.00 hold at 6338.33 MD
6,553.33	6,381.31	1,377.73	-164.59	Start DLS 9.28 TFO -75.08
7,490.94	6,953.00	1,584.19	-758.80	Start DLS 2.00 TFO -89.97
7,895.40	6,951.86	1,614.88	-1,161.76	Start 12973.31 hold at 7895.40 MD
20,868.71	6,915.00	1,685.22	-14,134.83	TD at 20868.71



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 712H	GL Elevation:	6,300'
Surface Location:	Sec 17, T31N, R5W 2156' FNL, 544' FWL (36.900861° N, -107.392859° W – NAD83)	KB:	30'
Bottom Hole Location:	Sec 14, T31N, R6W 519' FNL, 7' FWL (36.905480° N, -107.441204° W – NAD83)	Measured Depth:	20,869' (KB)
Lease Serial CA Serial	# NMSF078764 # 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	2,470'	2,436'	*POINT LOOKOUT	5,786'	5,634'
KIRTLAND	2,583'	2,546'	*MANCOS	6,338'	6,171'
*FRUITLAND	2,924'	2,880'	KICKOFF POINT	6,553'	6,381'
*PICTURED CLIFFS	3,413'	3,358'	LANDING POINT	7,491'	6,953'
LEWIS	3,520'	3,463'	TD	20,869'	6,915'
CHACRA	4,694'	4,587'			
*CLIFF HOUSE	5,507'	5,365'			
MENEFEE	5,549'	5,405'			

* 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:** 6,953' TVD x 0.43 = 2,990 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"	3,463'	13.375"	54.5 LBS	J-55 or equiv	LTC/BTC
INTERMEDIATE	12.25"	6,453'	9.625"	43.5 LBS	N-80 or equiv	LTC/BTC
PRODUCTION	8.5"	20,869'	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 cancellation 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	2,863	600	0.6947	1.3	575	102	1.15	501	15.8
Stage 1 Lead - OH	320	2,543	0.6947	1.3	2,297	409	2.66	863	11.8
Stage 2 Lead - Cased	-	320	1.019	1	326	58	2.66	123	11.8
					3,198	570		1486	

Set Depth 3463

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	5,953	500	0.3132	1.3	220	39	1.15	192	15.8
Stage 1 Lead	4,769	1,184	0.3132	1.3	482	86	2.66	181	11.8
					702	125		373	
Stage 2 Tail	4,169	600	0.3132	1.3	244	44	1.76	139	13.5
Stage 2 Lead	3,363	806	0.3132	1.3	328	58	2.66	123	11.8
Stage 2 Lead - Cased	3,263	100	0.3627	1	36	6	2.66	14	11.8
Stage 2 Totals					609	108		276	
Int 2 Totals					1,311	233		649	
Contingency									
Stage 3 Tail	3,463	75	0.3132	1.3	31	5	1.76	17	13.5
Stage 3 Tail - Cased	2,963	500	0.3490	1	175	31	1.76	99	13.5
Stage 3 Lead - Cased	-	2,963	0.3490	1	1,034	184	2.66	389	11.8
Contingency Stage 3 Totals					1,239	221		505	

Set Depth 6453



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	6,353	100	0.2531	1	25	5	2.03	12	13.2
Open Hole Lead	6,453	14,415	0.2291	1.15	3,803	677	2.03	1,873	13.2
					3,828	682		1,885	

Set depth 20868.71

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 * 6,953' TVD = 1530 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**

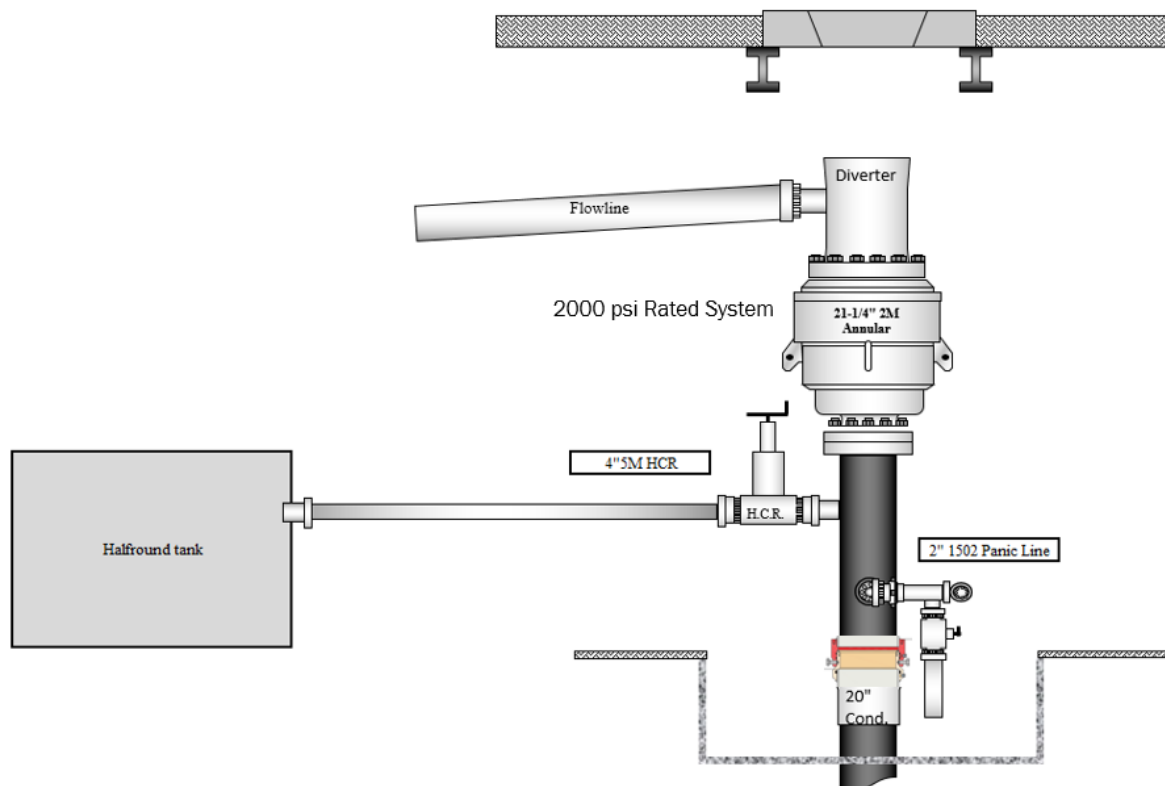
2-7/8", 6.5#, J-55 or L-80, EUE tubing will be run once volumes and pressures dictate. Due to the extremely high initial flow rates and pressures seen in offset wells, tubing will be installed once it is safe to do so, typically 12-36 months after completion.

*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

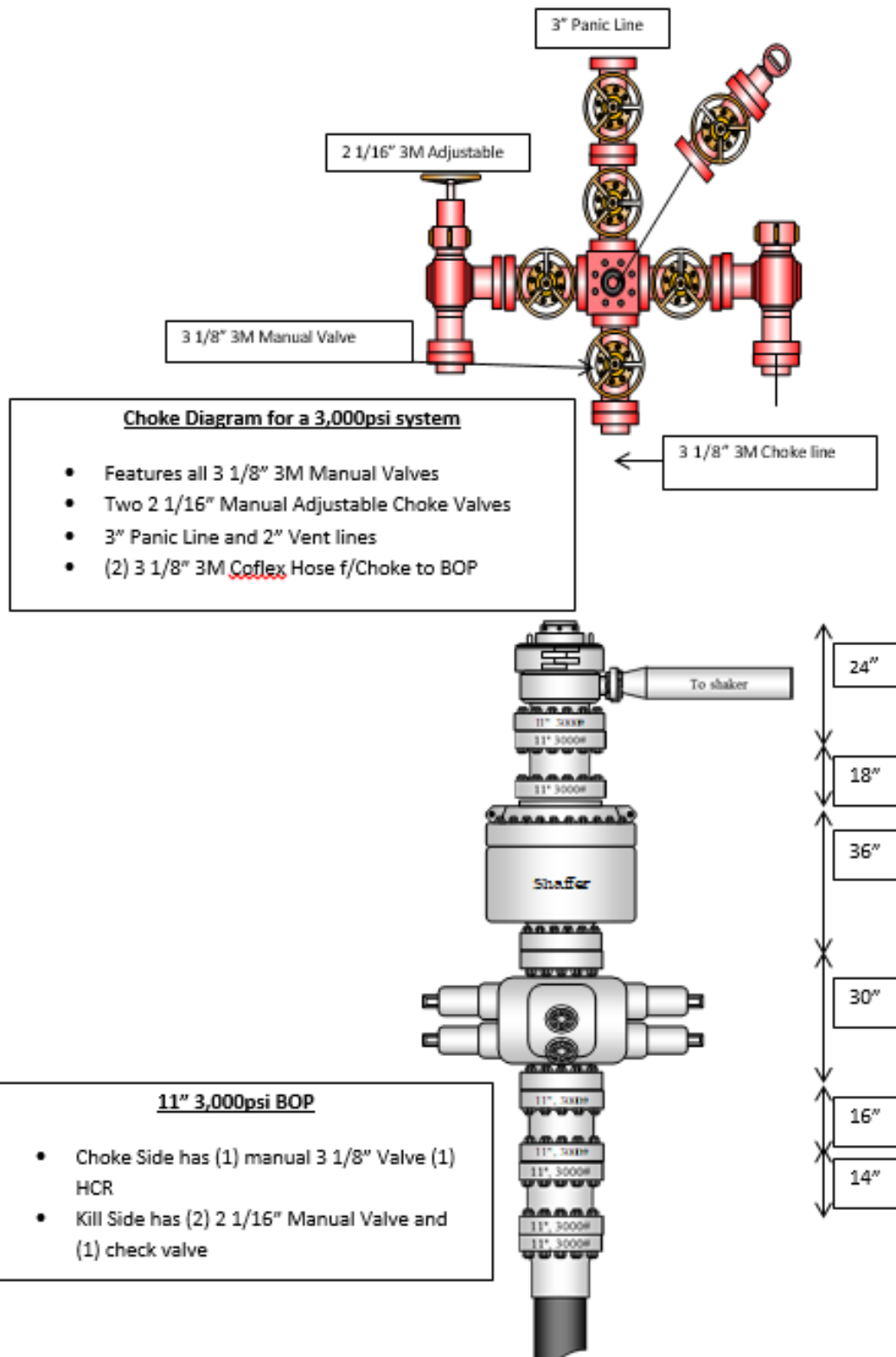
Surface Hole Diverter:





BOP:

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



Conductor Casing Design - Evacuated/Max SICP (collapse & 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	full evacuatio
Burst							
94 J-55 BTC	320	15.80	0.00	1263	0	1.67	1000 psi casin
54.5 J-55 BTC	320	9.00	0.00	1650	0	1.65	1500 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

	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	3,407	9.20	9.20	1076	1630	2.78
68 J-55 BTC	3,407	9.20	9.20	1076	1630	3.52
54.5 J-55 BTC	3,407	9.20	9.20	1076	1630	2.04
Burst						
61 J-55 BTC	3,407	9.20	0.00	2660	0	1.16
68 J-55 BTC	3,407	9.20	0.00	2780	0	1.24
54.5 J-55 BTC	3,407	9.20	0.00	2540	0	1.07
Tension						
61 J-55 BTC		Mud Wt	Air Wt	Bouy Wt	BW +100k	SF
Tension (Body)	3,407	9.20	207,827	178,636	278,636	3.45
Tension (Conn)	3,407	9.20	207,827	178,636	278,636	3.68
		BF				
		0.8595				
68 J-55 BTC						
Tension (Body)	3,407	9.20	231,676	199,135	299,135	3.57
Tension (Conn)	3,407	9.20	231,676	199,135	299,135	3.81

Intermediate Casing Design - Evacuated/Max SICP (collapse & 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 (collapse & 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	6,953	0.00	13.30	0	4809	2.30	full evacuatio
20 P110 BTC	6,953	0.00	13.30	0	4809	2.30	full evacuatio
Burst							
20 P110 LTC	6,953	13.30	0.00	6309	0	2.00	1500 psi casin
20 P110 BTC	6,953	13.30	0.00	6309	0	1.96	1500 psi casin
Tension							
20 P110 LTC		Mud Wt	Air Wt	Bouy Wt	BW +100k	SF	
Tension (Body)	6,953	13.30	139,060	110,823	210,823	3.04	100k over pul
Tension (Conn)	6,953	13.30	139,060	110,823	210,823	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)	6,953	13.30	139,060	110,823	210,823	3.04	100k over pul
Tension (Conn)	6,953	13.30	139,060	110,823	210,823	3.16	100k over pul

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

CONDITIONS

Action 447781

CONDITIONS

Operator: LOGOS OPERATING, LLC 2010 Afton Place Farmington, NM 87401	OGRID: 289408
	Action Number: 447781
	Action Type: [C-103] NOI Change of Plans (C-103A)

CONDITIONS

Created By	Condition	Condition Date
ward.rikala	Any previous COA's not addressed within the updated COA's still apply.	4/8/2025