

Well Name: ROSA UNIT	Well Location: T31N / R5W / SEC 17 / SWNW / 36.900702 / -107.392806	County or Parish/State: RIO ARRIBA / NM
Well Number: 722H	Type of Well: CONVENTIONAL GAS WELL	Allottee or Tribe Name:
Lease Number: NMSF078769	Unit or CA Name: ROSA UNIT	Unit or CA Number: NMNM78407E
US Well Number: 300393147200X1	Operator: LOGOS OPERATING LLC	

Notice of Intent

Sundry ID: 2844865

Type of Submission: Notice of Intent	Type of Action: Other
Date Sundry Submitted: 04/01/2025	Time Sundry Submitted: 01:22
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 surface-hole location 2214' FNL & 560' FWL New bottom-hole location 795' FNL & 1305' FEL New TD @ 20,821' (MD) 6,942' (TVD). Geology tops have been updated per changes. New KOP @ 6,549' MD 6378' TVD New Landing point @ 7,479' MD 6,950' TVD New 20" Conductor casing @ 320' MD or greater New 13.375" Surface casing @ 3,459' MD New 9.625" Intermediate casing @ 6,449' MD New 5.5" Production casing @ 20,821' 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_722H_C102_Plat_Revised_3.28.25_signed_20250401132119.pdf
- Logos__Rosa_Unit__722H_AC_Report_Prelim_5_20250401131539.pdf
- Logos__Rosa_Unit__722H_Wall_Prelim_5_20250401131539.pdf
- Rosa_Unit_722H_Operations_Plan_4_string_Prelim5_3.28.2025_20250401131539.pdf
- Logos__Rosa_Unit__722H_Plan_Data_Prelim_5_20250401131539.pdf

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Lease Number: NMSF078769	Unit or CA Name: ROSA UNIT	Unit or CA Number: NMNM78407E
US Well Number: 300393147200X1	Operator: LOGOS OPERATING LLC	

Conditions of Approval

Additional

LOGOS_Operating_LLC_Rosa_Unit_722H_APD_Change_ID_2844865_MHK_20250402122324.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 01:23 PM

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: 04/02/2025

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 # 2844865 Request for APD Change

Operator: LOGOS Operating LLC
Lease: NMSF 078769
Agreement: NMNM 78407E
Well: Rosa Unit 722H (API # 30-039-31472)
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.

(RECORD)
NO *03' W 2640.00'
(RECORD)
NO *18'19" W 2640.84' (MEASURED)
(RECORD)
NO *18'43" W 2634.63' (MEASURED)
593' 1173'

SURFACE LOCATION (A) 2214' FNL 560' FWL SECTION 17, T31N, R5W LAT 36.900696° N LONG -107.392203° W DATUM: NAD1927	KICK OFF POINT (B) 833' FNL 593' FWL SECTION 17, T31N, R5W LAT 36.904488° N LONG -107.392095° W DATUM: NAD1927	FIRST TAKE POINT (C) 626' FNL 1173' FWL SECTION 17, T31N, R5W LAT 36.905058° N LONG -107.390109° W DATUM: NAD1927	INFLECTION POINT (D) 595' FNL 1640' FWL SECTION 17, T31N, R5W LAT 36.905143° N LONG -107.388514° W DATUM: NAD1927	LAST TAKE POINT (E) 795' FNL 1305' FWL SECTION 15, T31N, R5W LAT 36.904574° N LONG -107.34488° W DATUM: NAD1927	BOTTOM HOLE LOCATION (F) 795' FNL 1305' FWL SECTION 15, T31N, R5W LAT 36.904574° N LONG -107.34488° W DATUM: NAD1927
LAT 36.900702° N LONG -107.392806° W DATUM: NAD1983	LAT 36.904494° N LONG -107.392697° W DATUM: NAD1983	LAT 36.905064° N LONG -107.390712° W DATUM: NAD1983	LAT 36.905149° N LONG -107.389117° W DATUM: NAD1983	LAT 36.904580° N LONG -107.345089° W DATUM: NAD1983	LAT 36.904580° N LONG -107.345089° W DATUM: NAD1983

(RECORD)
NO *03' W 2640.00'
(MEASURED)
NO *19'36" W 2636.52'
(RECORD)
NO *02' W 2640.00'
(MEASURED)
NO *19'27" W 2634.99'

(RECORD)
N89 *59' W 2638.02'
S89 *45'34" W 2629.37'
833' 626' (MEASURED)

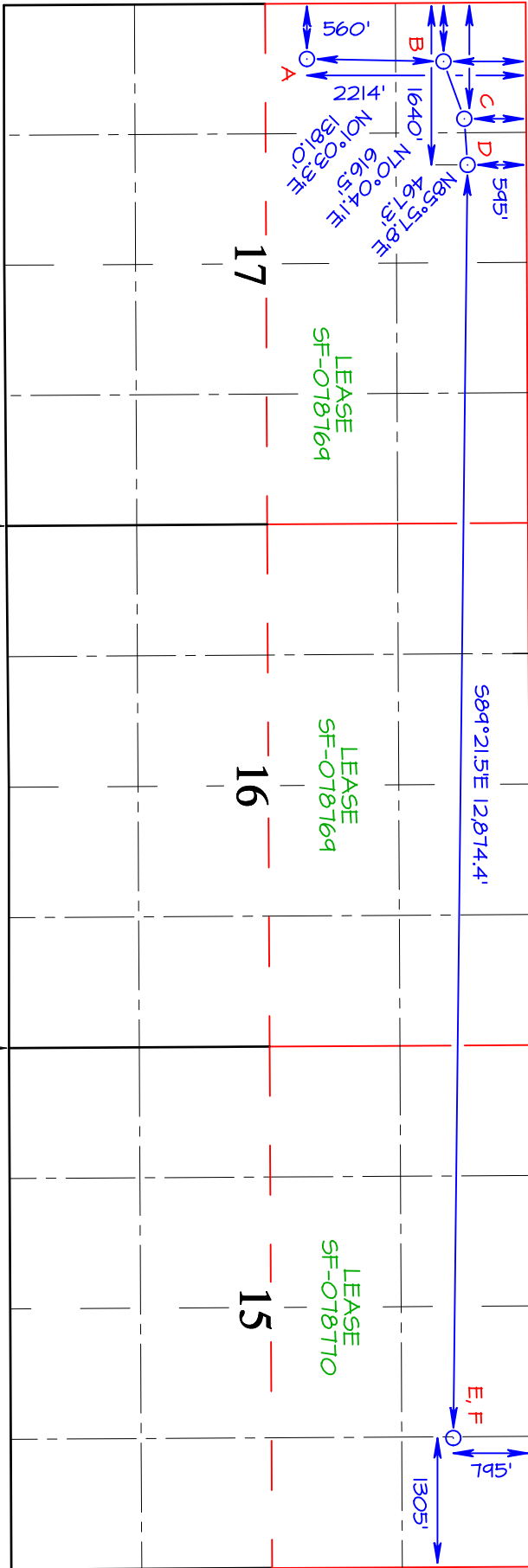
(RECORD)
N89 *59' W 2638.02'
S89 *44'46" W 2633.58' (MEASURED)

(RECORD)
N89 *58' W 2641.98'
S89 *44'41" W 2640.35' (MEASURED)

(RECORD)
N89 *58' W 2641.98'
S89 *44'57" W 2640.39' (MEASURED)

(RECORD)
N89 *56' W 2640.99'
S89 *45'23" W 2637.30' (MEASURED)

(RECORD)
N89 *56' W 2640.99'
S89 *45'23" W 2637.30' (MEASURED)



(MEASURED)
S89 *55'09" W 2628.91'
S89 *59' W 2642.31' (RECORD)

(MEASURED)
S89 *32'38" W 2637.07'
S89 *59' W 2642.31' (RECORD)

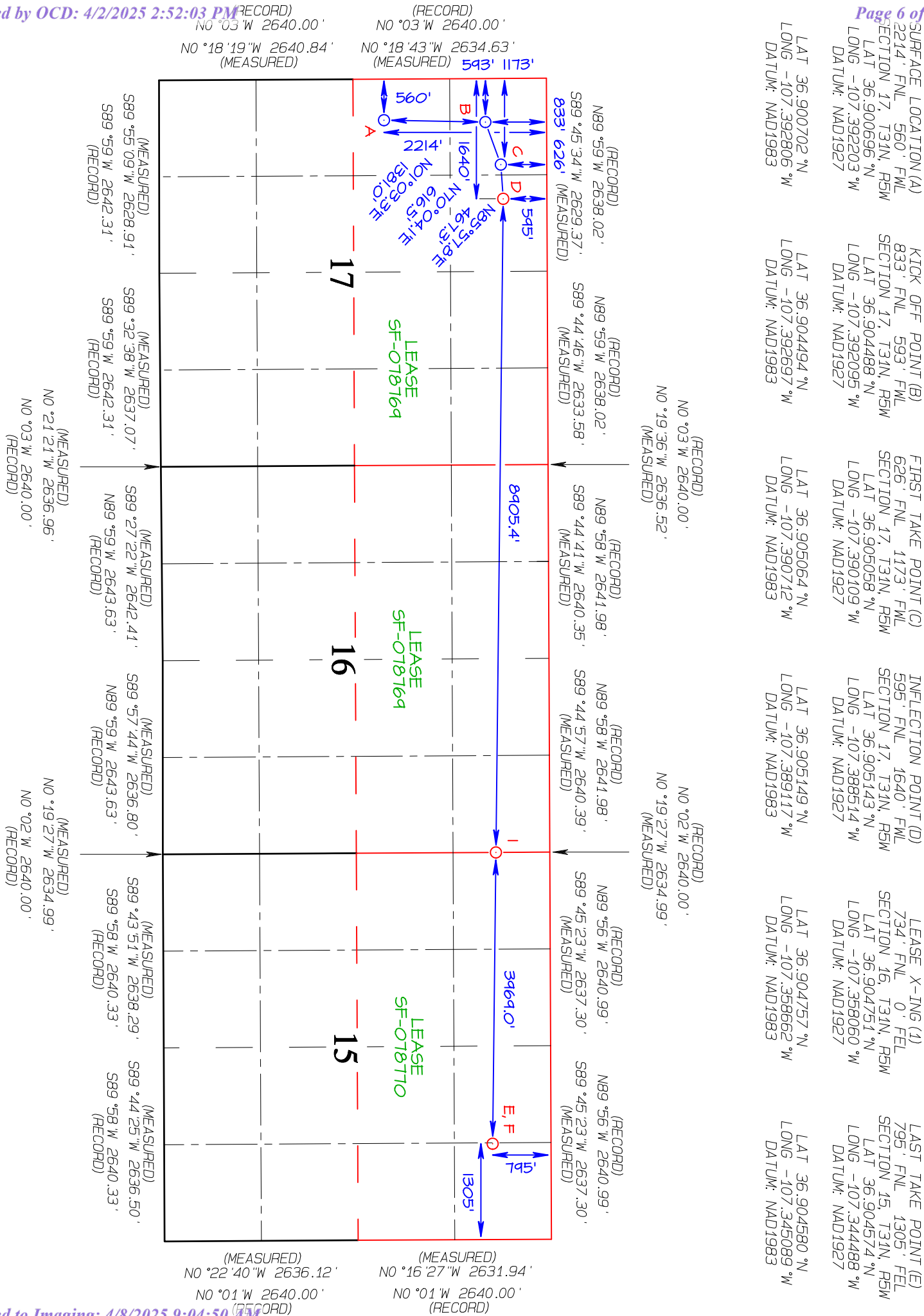
(MEASURED)
S89 *27'22" W 2642.41'
N89 *59' W 2643.63' (RECORD)

(MEASURED)
S89 *57'44" W 2636.80'
N89 *59' W 2643.63' (RECORD)

(MEASURED)
S89 *43'51" W 2638.29'
S89 *58' W 2640.33' (RECORD)

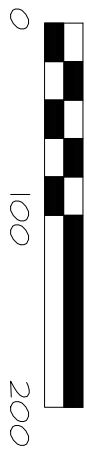
(MEASURED)
S89 *44'25" W 2636.50'
S89 *58' W 2640.33' (RECORD)

(RECORD)
NO *03' W 2640.00'
(RECORD)
NO *21'21" W 2636.96'
(RECORD)
NO *03' W 2640.00'
(RECORD)
NO *19'27" W 2634.99'
(RECORD)
NO *02' W 2640.00'
(RECORD)



Released to Imaging: 4/8/2025 9:04:50 AM

GRAPHIC SCALE 1"=100'



Logos Operating LLC

Rio Arriba, NM (NAD83)

Rosa Pad 26

Rosa Unit #722H

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 #722H
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 #722H	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 #722H					
Well Position	+N/-S	0.00 usft	Northing:	2,147,479.18 usft	Latitude:	36.900702
	+E/-W	0.00 usft	Easting:	2,851,896.67 usft	Longitude:	-107.392806
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	49,574.67755981

Design	Prelim 5				
Audit Notes:					
Version:		Phase:	PLAN	Tie On Depth:	352.65
Vertical Section:		Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
		0.00	0.00	0.00	90.91

Plan Survey Tool Program		Date	3/17/2025		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	85.28	352.65	Survey #1 (OH)	Standard Keeper 105	
				Standard Wireline Keeper ver 1	
2	352.65	20,821.37	Prelim 5 (OH)	MWD+HRGM+MS	
				MWD + HRGM + Multi-Station	

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Site:	Rosa Pad 26	North Reference:	True
Well:	Rosa Unit #722H	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
352.65	0.36	312.08	352.64	1.60	-1.84	0.00	0.00	0.00	0.00	
502.65	0.36	312.08	502.64	2.23	-2.54	0.00	0.00	0.00	0.00	
653.08	3.00	40.00	652.99	5.56	-0.36	2.00	1.76	58.45	94.78	
1,145.50	12.00	1.00	1,140.90	66.77	8.84	2.00	1.83	-7.92	-49.90	
3,455.07	12.00	1.00	3,400.00	546.88	17.22	0.00	0.00	0.00	0.00	
3,705.07	17.00	1.00	3,641.96	609.45	18.31	2.00	2.00	0.00	0.00	
5,334.30	17.00	1.00	5,200.00	1,085.72	26.63	0.00	0.00	0.00	0.00	
6,334.46	12.00	1.00	6,168.00	1,336.01	31.00	0.50	-0.50	0.00	180.00	
6,549.46	12.00	1.00	6,378.30	1,380.70	31.78	0.00	0.00	0.00	0.00	
7,479.12	90.03	81.55	6,950.00	1,588.19	612.33	9.47	8.39	8.66	80.75	
7,946.92	90.03	90.91	6,949.74	1,618.93	1,078.60	2.00	0.00	2.00	89.97	
20,821.37	90.03	90.91	6,942.00	1,415.35	13,951.44	0.00	0.00	0.00	0.00	RU 722H PBHL

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 #722H	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
85.28	0.66	310.28	85.28	0.32	-0.37	-0.38	0.77	0.77	0.00
123.12	0.52	315.43	123.12	0.58	-0.66	-0.67	0.40	-0.37	13.61
206.05	0.36	309.13	206.04	1.01	-1.13	-1.14	0.20	-0.19	-7.60
292.98	0.36	308.87	292.97	1.36	-1.55	-1.57	0.00	0.00	-0.30
352.65	0.36	312.08	352.64	1.60	-1.84	-1.86	0.03	0.00	5.38
Start 150.00 hold at 352.65 MD									
400.00	0.36	312.08	399.99	1.80	-2.06	-2.09	0.00	0.00	0.00
502.65	0.36	312.08	502.64	2.23	-2.54	-2.57	0.00	0.00	0.00
Start DLS 2.00 TFO 94.78									
600.00	1.95	36.27	599.97	3.77	-1.78	-1.84	2.00	1.63	86.48
653.08	3.00	40.00	652.99	5.56	-0.36	-0.45	2.00	1.98	7.04
Start DLS 2.00 TFO -49.90									
700.00	3.68	28.73	699.84	7.82	1.16	1.03	2.00	1.44	-24.02
800.00	5.38	15.29	799.53	15.16	3.93	3.69	2.00	1.71	-13.43
900.00	7.24	8.51	898.92	25.92	6.10	5.69	2.00	1.86	-6.78
1,000.00	9.16	4.52	997.89	40.09	7.67	7.03	2.00	1.92	-3.99
1,100.00	11.11	1.91	1,096.32	57.66	8.61	7.70	2.00	1.95	-2.61
1,145.50	12.00	1.00	1,140.90	66.77	8.84	7.78	2.00	1.96	-2.00
Start 2309.57 hold at 1145.50 MD									
1,200.00	12.00	1.00	1,194.21	78.10	9.04	7.80	0.00	0.00	0.00
1,300.00	12.00	1.00	1,292.03	98.89	9.40	7.83	0.00	0.00	0.00
1,400.00	12.00	1.00	1,389.84	119.67	9.77	7.86	0.00	0.00	0.00
1,500.00	12.00	1.00	1,487.66	140.46	10.13	7.90	0.00	0.00	0.00
1,600.00	12.00	1.00	1,585.47	161.25	10.49	7.93	0.00	0.00	0.00
1,700.00	12.00	1.00	1,683.28	182.04	10.85	7.96	0.00	0.00	0.00
1,800.00	12.00	1.00	1,781.10	202.83	11.22	7.99	0.00	0.00	0.00
1,900.00	12.00	1.00	1,878.91	223.61	11.58	8.03	0.00	0.00	0.00
2,000.00	12.00	1.00	1,976.73	244.40	11.94	8.06	0.00	0.00	0.00
2,100.00	12.00	1.00	2,074.54	265.19	12.31	8.09	0.00	0.00	0.00
2,200.00	12.00	1.00	2,172.36	285.98	12.67	8.12	0.00	0.00	0.00
2,300.00	12.00	1.00	2,270.17	306.77	13.03	8.16	0.00	0.00	0.00
2,400.00	12.00	1.00	2,367.99	327.55	13.39	8.19	0.00	0.00	0.00
2,466.46	12.00	1.00	2,433.00	341.37	13.64	8.21	0.00	0.00	0.00
Ojo Alamo									
2,500.00	12.00	1.00	2,465.80	348.34	13.76	8.22	0.00	0.00	0.00
2,578.92	12.00	1.00	2,543.00	364.75	14.04	8.25	0.00	0.00	0.00
Kirtland									
2,600.00	12.00	1.00	2,563.62	369.13	14.12	8.26	0.00	0.00	0.00
2,700.00	12.00	1.00	2,661.43	389.92	14.48	8.29	0.00	0.00	0.00
2,800.00	12.00	1.00	2,759.25	410.71	14.85	8.32	0.00	0.00	0.00
2,900.00	12.00	1.00	2,857.06	431.49	15.21	8.35	0.00	0.00	0.00
2,920.38	12.00	1.00	2,877.00	435.73	15.28	8.36	0.00	0.00	0.00
Fruitland									
3,000.00	12.00	1.00	2,954.88	452.28	15.57	8.39	0.00	0.00	0.00
3,078.85	12.00	1.00	3,032.00	468.67	15.86	8.41	0.00	0.00	0.00
Top of Coals									
3,100.00	12.00	1.00	3,052.69	473.07	15.93	8.42	0.00	0.00	0.00
3,200.00	12.00	1.00	3,150.51	493.86	16.30	8.45	0.00	0.00	0.00
3,232.20	12.00	1.00	3,182.00	500.55	16.41	8.46	0.00	0.00	0.00
Base of Coals									
3,300.00	12.00	1.00	3,248.32	514.65	16.66	8.48	0.00	0.00	0.00
3,400.00	12.00	1.00	3,346.14	535.43	17.02	8.52	0.00	0.00	0.00

SDT

Planning Report

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Site:	Rosa Pad 26	North Reference:	True
Well:	Rosa Unit #722H	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)
3,409.06	12.00	1.00	3,355.00	537.32	17.06	8.52	0.00	0.00	0.00
Pictured Cliffs									
3,455.07	12.00	1.00	3,400.00	546.88	17.22	8.53	0.00	0.00	0.00
Start DLS 2.00 TFO 0.00									
3,500.00	12.90	1.00	3,443.88	556.57	17.39	8.55	2.00	2.00	0.00
3,516.55	13.23	1.00	3,460.00	560.31	17.46	8.56	2.00	2.00	0.00
Lewis									
3,600.00	14.90	1.00	3,540.94	580.58	17.81	8.59	2.00	2.00	0.00
3,705.07	17.00	1.00	3,641.96	609.45	18.31	8.63	2.00	2.00	0.00
Start 1629.23 hold at 3705.07 MD									
3,800.00	17.00	1.00	3,732.74	637.20	18.80	8.68	0.00	0.00	0.00
3,900.00	17.00	1.00	3,828.37	666.43	19.31	8.72	0.00	0.00	0.00
4,000.00	17.00	1.00	3,924.01	695.66	19.82	8.77	0.00	0.00	0.00
4,100.00	17.00	1.00	4,019.64	724.90	20.33	8.81	0.00	0.00	0.00
4,200.00	17.00	1.00	4,115.27	754.13	20.84	8.86	0.00	0.00	0.00
4,300.00	17.00	1.00	4,210.90	783.36	21.35	8.91	0.00	0.00	0.00
4,400.00	17.00	1.00	4,306.53	812.60	21.86	8.95	0.00	0.00	0.00
4,500.00	17.00	1.00	4,402.16	841.83	22.37	9.00	0.00	0.00	0.00
4,600.00	17.00	1.00	4,497.79	871.06	22.88	9.04	0.00	0.00	0.00
4,690.15	17.00	1.00	4,584.00	897.41	23.34	9.09	0.00	0.00	0.00
Chacra									
4,700.00	17.00	1.00	4,593.42	900.29	23.39	9.09	0.00	0.00	0.00
4,800.00	17.00	1.00	4,689.05	929.53	23.90	9.14	0.00	0.00	0.00
4,900.00	17.00	1.00	4,784.68	958.76	24.41	9.18	0.00	0.00	0.00
5,000.00	17.00	1.00	4,880.31	987.99	24.92	9.23	0.00	0.00	0.00
5,100.00	17.00	1.00	4,975.94	1,017.22	25.43	9.27	0.00	0.00	0.00
5,186.85	17.00	1.00	5,059.00	1,042.61	25.88	9.31	0.00	0.00	0.00
U/Cliff House									
5,200.00	17.00	1.00	5,071.57	1,046.46	25.94	9.32	0.00	0.00	0.00
5,300.00	17.00	1.00	5,167.20	1,075.69	26.45	9.37	0.00	0.00	0.00
5,334.30	17.00	1.00	5,200.00	1,085.72	26.63	9.38	0.00	0.00	0.00
Start DLS 0.50 TFO 180.00									
5,400.00	16.67	1.00	5,262.89	1,104.74	26.96	9.41	0.50	-0.50	0.00
5,500.00	16.17	1.00	5,358.81	1,133.01	27.45	9.46	0.50	-0.50	0.00
5,503.32	16.15	1.00	5,362.00	1,133.93	27.47	9.46	0.50	-0.50	0.00
Cliff House									
5,544.95	15.95	1.00	5,402.00	1,145.44	27.67	9.48	0.50	-0.50	0.00
Menefee									
5,600.00	15.67	1.00	5,454.97	1,160.44	27.93	9.50	0.50	-0.50	0.00
5,700.00	15.17	1.00	5,551.37	1,187.02	28.40	9.54	0.50	-0.50	0.00
5,782.43	14.76	1.00	5,631.00	1,208.31	28.77	9.57	0.50	-0.50	0.00
Point Lookout									
5,800.00	14.67	1.00	5,648.00	1,212.77	28.85	9.58	0.50	-0.50	0.00
5,900.00	14.17	1.00	5,744.85	1,237.67	29.28	9.62	0.50	-0.50	0.00
6,000.00	13.67	1.00	5,841.91	1,261.73	29.70	9.66	0.50	-0.50	0.00
6,100.00	13.17	1.00	5,939.18	1,284.93	30.11	9.69	0.50	-0.50	0.00
6,200.00	12.67	1.00	6,036.64	1,307.29	30.50	9.73	0.50	-0.50	0.00
6,300.00	12.17	1.00	6,134.30	1,328.80	30.87	9.76	0.50	-0.50	0.00
6,334.46	12.00	1.00	6,168.00	1,336.01	31.00	9.77	0.50	-0.50	0.00
Start 215.00 hold at 6334.46 MD - Mancos									
6,400.00	12.00	1.00	6,232.11	1,349.64	31.23	9.80	0.00	0.00	0.00
6,500.00	12.00	1.00	6,329.92	1,370.42	31.60	9.83	0.00	0.00	0.00

SDT

Planning Report

Database:	EDM 5000 Multi User Db	Local Co-ordinate Reference:	Well Rosa Unit #722H
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 #722H	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)
6,549.46	12.00	1.00	6,378.30	1,380.70	31.78	9.84	0.00	0.00	0.00
Start DLS 9.47 TFO 80.75									
6,600.00	13.60	21.50	6,427.61	1,391.49	34.05	11.94	9.47	3.17	40.57
6,650.00	16.44	36.25	6,475.91	1,402.67	40.39	18.11	9.47	5.67	29.50
6,700.00	19.99	46.34	6,523.41	1,414.28	50.76	28.29	9.47	7.10	20.18
6,750.00	23.94	53.36	6,569.78	1,426.24	65.09	42.43	9.47	7.90	14.04
6,800.00	28.12	58.45	6,614.71	1,438.47	83.28	60.43	9.47	8.37	10.17
6,850.00	32.45	62.29	6,657.88	1,450.88	105.21	82.16	9.47	8.65	7.68
6,900.00	36.86	65.31	6,699.00	1,463.39	130.73	107.47	9.47	8.83	6.04
6,950.00	41.34	67.76	6,737.80	1,475.91	159.65	136.19	9.47	8.96	4.90
7,000.00	45.86	69.81	6,774.00	1,488.36	191.79	168.13	9.47	9.04	4.10
7,001.44	45.99	69.86	6,775.00	1,488.72	192.77	169.10	9.47	9.08	3.77
Black Top									
7,050.00	50.42	71.56	6,807.36	1,500.66	226.93	203.07	9.47	9.11	3.50
7,100.00	54.99	73.10	6,837.65	1,512.71	264.82	240.76	9.47	9.15	3.08
7,150.00	59.59	74.47	6,864.66	1,524.44	305.21	280.96	9.47	9.19	2.75
7,200.00	64.19	75.72	6,888.22	1,535.77	347.82	323.38	9.47	9.21	2.50
7,250.00	68.81	76.88	6,908.15	1,546.62	392.36	367.74	9.47	9.23	2.31
7,300.00	73.43	77.97	6,924.32	1,556.91	438.52	413.74	9.47	9.25	2.17
7,350.00	78.06	79.00	6,936.63	1,566.57	485.99	461.05	9.47	9.26	2.07
7,400.00	82.70	80.00	6,944.98	1,575.55	534.45	509.36	9.47	9.27	2.00
7,450.00	87.33	80.98	6,949.33	1,583.77	583.56	558.34	9.47	9.27	1.96
7,479.12	90.03	81.55	6,950.00	1,588.19	612.33	587.03	9.47	9.27	1.95
Start DLS 2.00 TFO 89.97									
7,500.00	90.03	81.97	6,949.99	1,591.18	633.00	607.65	2.00	0.00	2.00
7,600.00	90.03	83.97	6,949.94	1,603.43	732.24	706.69	2.00	0.00	2.00
7,700.00	90.03	85.97	6,949.88	1,612.20	831.85	806.14	2.00	0.00	2.00
7,800.00	90.03	87.97	6,949.82	1,617.49	931.71	905.90	2.00	0.00	2.00
7,900.00	90.03	89.97	6,949.76	1,619.29	1,031.69	1,005.84	2.00	0.00	2.00
7,946.92	90.03	90.91	6,949.74	1,618.93	1,078.60	1,052.75	2.00	0.00	2.00
Start 12874.45 hold at 7946.92 MD									
8,000.00	90.03	90.91	6,949.70	1,618.09	1,131.68	1,105.84	0.00	0.00	0.00
8,100.00	90.03	90.91	6,949.64	1,616.51	1,231.67	1,205.84	0.00	0.00	0.00
8,200.00	90.03	90.91	6,949.58	1,614.93	1,331.65	1,305.84	0.00	0.00	0.00
8,300.00	90.03	90.91	6,949.52	1,613.35	1,431.64	1,405.84	0.00	0.00	0.00
8,400.00	90.03	90.91	6,949.46	1,611.77	1,531.63	1,505.84	0.00	0.00	0.00
8,500.00	90.03	90.91	6,949.40	1,610.19	1,631.61	1,605.84	0.00	0.00	0.00
8,600.00	90.03	90.91	6,949.34	1,608.60	1,731.60	1,705.84	0.00	0.00	0.00
8,700.00	90.03	90.91	6,949.28	1,607.02	1,831.59	1,805.84	0.00	0.00	0.00
8,800.00	90.03	90.91	6,949.22	1,605.44	1,931.58	1,905.84	0.00	0.00	0.00
8,900.00	90.03	90.91	6,949.16	1,603.86	2,031.56	2,005.84	0.00	0.00	0.00
9,000.00	90.03	90.91	6,949.10	1,602.28	2,131.55	2,105.84	0.00	0.00	0.00
9,100.00	90.03	90.91	6,949.04	1,600.70	2,231.54	2,205.84	0.00	0.00	0.00
9,200.00	90.03	90.91	6,948.98	1,599.12	2,331.53	2,305.84	0.00	0.00	0.00
9,300.00	90.03	90.91	6,948.92	1,597.54	2,431.51	2,405.84	0.00	0.00	0.00
9,400.00	90.03	90.91	6,948.86	1,595.95	2,531.50	2,505.84	0.00	0.00	0.00
9,500.00	90.03	90.91	6,948.80	1,594.37	2,631.49	2,605.84	0.00	0.00	0.00
9,600.00	90.03	90.91	6,948.74	1,592.79	2,731.48	2,705.84	0.00	0.00	0.00
9,700.00	90.03	90.91	6,948.68	1,591.21	2,831.46	2,805.84	0.00	0.00	0.00
9,800.00	90.03	90.91	6,948.62	1,589.63	2,931.45	2,905.84	0.00	0.00	0.00
9,900.00	90.03	90.91	6,948.56	1,588.05	3,031.44	3,005.84	0.00	0.00	0.00
10,000.00	90.03	90.91	6,948.50	1,586.47	3,131.43	3,105.84	0.00	0.00	0.00
10,100.00	90.03	90.91	6,948.44	1,584.89	3,231.41	3,205.84	0.00	0.00	0.00
10,200.00	90.03	90.91	6,948.38	1,583.30	3,331.40	3,305.84	0.00	0.00	0.00

SDT
Planning Report

Database:	EDM 5000 Multi User Db	Local Co-ordinate Reference:	Well Rosa Unit #722H
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 #722H	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)
10,300.00	90.03	90.91	6,948.32	1,581.72	3,431.39	3,405.84	0.00	0.00	0.00
10,400.00	90.03	90.91	6,948.26	1,580.14	3,531.38	3,505.84	0.00	0.00	0.00
10,500.00	90.03	90.91	6,948.20	1,578.56	3,631.36	3,605.84	0.00	0.00	0.00
10,600.00	90.03	90.91	6,948.14	1,576.98	3,731.35	3,705.84	0.00	0.00	0.00
10,700.00	90.03	90.91	6,948.08	1,575.40	3,831.34	3,805.84	0.00	0.00	0.00
10,800.00	90.03	90.91	6,948.02	1,573.82	3,931.33	3,905.84	0.00	0.00	0.00
10,900.00	90.03	90.91	6,947.96	1,572.24	4,031.31	4,005.84	0.00	0.00	0.00
11,000.00	90.03	90.91	6,947.90	1,570.65	4,131.30	4,105.84	0.00	0.00	0.00
11,100.00	90.03	90.91	6,947.84	1,569.07	4,231.29	4,205.84	0.00	0.00	0.00
11,200.00	90.03	90.91	6,947.78	1,567.49	4,331.28	4,305.84	0.00	0.00	0.00
11,300.00	90.03	90.91	6,947.72	1,565.91	4,431.26	4,405.84	0.00	0.00	0.00
11,400.00	90.03	90.91	6,947.66	1,564.33	4,531.25	4,505.84	0.00	0.00	0.00
11,500.00	90.03	90.91	6,947.60	1,562.75	4,631.24	4,605.84	0.00	0.00	0.00
11,600.00	90.03	90.91	6,947.54	1,561.17	4,731.23	4,705.84	0.00	0.00	0.00
11,700.00	90.03	90.91	6,947.48	1,559.59	4,831.21	4,805.84	0.00	0.00	0.00
11,800.00	90.03	90.91	6,947.42	1,558.00	4,931.20	4,905.84	0.00	0.00	0.00
11,900.00	90.03	90.91	6,947.36	1,556.42	5,031.19	5,005.84	0.00	0.00	0.00
12,000.00	90.03	90.91	6,947.30	1,554.84	5,131.18	5,105.84	0.00	0.00	0.00
12,100.00	90.03	90.91	6,947.24	1,553.26	5,231.16	5,205.84	0.00	0.00	0.00
12,200.00	90.03	90.91	6,947.18	1,551.68	5,331.15	5,305.84	0.00	0.00	0.00
12,300.00	90.03	90.91	6,947.12	1,550.10	5,431.14	5,405.84	0.00	0.00	0.00
12,400.00	90.03	90.91	6,947.06	1,548.52	5,531.13	5,505.84	0.00	0.00	0.00
12,500.00	90.03	90.91	6,947.00	1,546.94	5,631.11	5,605.84	0.00	0.00	0.00
12,600.00	90.03	90.91	6,946.94	1,545.35	5,731.10	5,705.84	0.00	0.00	0.00
12,700.00	90.03	90.91	6,946.88	1,543.77	5,831.09	5,805.84	0.00	0.00	0.00
12,800.00	90.03	90.91	6,946.82	1,542.19	5,931.08	5,905.84	0.00	0.00	0.00
12,900.00	90.03	90.91	6,946.76	1,540.61	6,031.06	6,005.84	0.00	0.00	0.00
13,000.00	90.03	90.91	6,946.70	1,539.03	6,131.05	6,105.84	0.00	0.00	0.00
13,100.00	90.03	90.91	6,946.64	1,537.45	6,231.04	6,205.84	0.00	0.00	0.00
13,200.00	90.03	90.91	6,946.58	1,535.87	6,331.03	6,305.84	0.00	0.00	0.00
13,300.00	90.03	90.91	6,946.52	1,534.29	6,431.01	6,405.84	0.00	0.00	0.00
13,400.00	90.03	90.91	6,946.46	1,532.70	6,531.00	6,505.84	0.00	0.00	0.00
13,500.00	90.03	90.91	6,946.40	1,531.12	6,630.99	6,605.84	0.00	0.00	0.00
13,600.00	90.03	90.91	6,946.34	1,529.54	6,730.98	6,705.84	0.00	0.00	0.00
13,700.00	90.03	90.91	6,946.28	1,527.96	6,830.96	6,805.84	0.00	0.00	0.00
13,800.00	90.03	90.91	6,946.22	1,526.38	6,930.95	6,905.84	0.00	0.00	0.00
13,900.00	90.03	90.91	6,946.16	1,524.80	7,030.94	7,005.84	0.00	0.00	0.00
14,000.00	90.03	90.91	6,946.10	1,523.22	7,130.93	7,105.84	0.00	0.00	0.00
14,100.00	90.03	90.91	6,946.04	1,521.64	7,230.91	7,205.84	0.00	0.00	0.00
14,200.00	90.03	90.91	6,945.98	1,520.05	7,330.90	7,305.84	0.00	0.00	0.00
14,300.00	90.03	90.91	6,945.92	1,518.47	7,430.89	7,405.84	0.00	0.00	0.00
14,400.00	90.03	90.91	6,945.86	1,516.89	7,530.88	7,505.84	0.00	0.00	0.00
14,500.00	90.03	90.91	6,945.80	1,515.31	7,630.86	7,605.84	0.00	0.00	0.00
14,600.00	90.03	90.91	6,945.74	1,513.73	7,730.85	7,705.84	0.00	0.00	0.00
14,700.00	90.03	90.91	6,945.68	1,512.15	7,830.84	7,805.84	0.00	0.00	0.00
14,800.00	90.03	90.91	6,945.62	1,510.57	7,930.83	7,905.84	0.00	0.00	0.00
14,900.00	90.03	90.91	6,945.56	1,508.99	8,030.81	8,005.84	0.00	0.00	0.00
15,000.00	90.03	90.91	6,945.50	1,507.40	8,130.80	8,105.84	0.00	0.00	0.00
15,100.00	90.03	90.91	6,945.44	1,505.82	8,230.79	8,205.84	0.00	0.00	0.00
15,200.00	90.03	90.91	6,945.38	1,504.24	8,330.78	8,305.84	0.00	0.00	0.00
15,300.00	90.03	90.91	6,945.32	1,502.66	8,430.76	8,405.84	0.00	0.00	0.00
15,400.00	90.03	90.91	6,945.26	1,501.08	8,530.75	8,505.84	0.00	0.00	0.00
15,500.00	90.03	90.91	6,945.20	1,499.50	8,630.74	8,605.84	0.00	0.00	0.00
15,600.00	90.03	90.91	6,945.14	1,497.92	8,730.73	8,705.84	0.00	0.00	0.00

SDT
Planning Report

Database:	EDM 5000 Multi User Db	Local Co-ordinate Reference:	Well Rosa Unit #722H
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 #722H	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)	
15,700.00	90.03	90.91	6,945.08	1,496.33	8,830.71	8,805.84	0.00	0.00	0.00	
15,800.00	90.03	90.91	6,945.02	1,494.75	8,930.70	8,905.84	0.00	0.00	0.00	
15,900.00	90.03	90.91	6,944.96	1,493.17	9,030.69	9,005.84	0.00	0.00	0.00	
16,000.00	90.03	90.91	6,944.90	1,491.59	9,130.68	9,105.84	0.00	0.00	0.00	
16,100.00	90.03	90.91	6,944.84	1,490.01	9,230.66	9,205.84	0.00	0.00	0.00	
16,200.00	90.03	90.91	6,944.78	1,488.43	9,330.65	9,305.84	0.00	0.00	0.00	
16,300.00	90.03	90.91	6,944.72	1,486.85	9,430.64	9,405.84	0.00	0.00	0.00	
16,400.00	90.03	90.91	6,944.66	1,485.27	9,530.63	9,505.84	0.00	0.00	0.00	
16,500.00	90.03	90.91	6,944.60	1,483.68	9,630.61	9,605.84	0.00	0.00	0.00	
16,600.00	90.03	90.91	6,944.54	1,482.10	9,730.60	9,705.84	0.00	0.00	0.00	
16,700.00	90.03	90.91	6,944.48	1,480.52	9,830.59	9,805.84	0.00	0.00	0.00	
16,800.00	90.03	90.91	6,944.42	1,478.94	9,930.58	9,905.84	0.00	0.00	0.00	
16,900.00	90.03	90.91	6,944.36	1,477.36	10,030.56	10,005.84	0.00	0.00	0.00	
17,000.00	90.03	90.91	6,944.30	1,475.78	10,130.55	10,105.84	0.00	0.00	0.00	
17,100.00	90.03	90.91	6,944.24	1,474.20	10,230.54	10,205.84	0.00	0.00	0.00	
17,200.00	90.03	90.91	6,944.18	1,472.62	10,330.53	10,305.84	0.00	0.00	0.00	
17,300.00	90.03	90.91	6,944.12	1,471.03	10,430.51	10,405.84	0.00	0.00	0.00	
17,400.00	90.03	90.91	6,944.06	1,469.45	10,530.50	10,505.84	0.00	0.00	0.00	
17,500.00	90.03	90.91	6,944.00	1,467.87	10,630.49	10,605.84	0.00	0.00	0.00	
17,600.00	90.03	90.91	6,943.94	1,466.29	10,730.48	10,705.84	0.00	0.00	0.00	
17,700.00	90.03	90.91	6,943.88	1,464.71	10,830.46	10,805.84	0.00	0.00	0.00	
17,800.00	90.03	90.91	6,943.82	1,463.13	10,930.45	10,905.83	0.00	0.00	0.00	
17,900.00	90.03	90.91	6,943.76	1,461.55	11,030.44	11,005.83	0.00	0.00	0.00	
18,000.00	90.03	90.91	6,943.70	1,459.97	11,130.43	11,105.83	0.00	0.00	0.00	
18,100.00	90.03	90.91	6,943.64	1,458.38	11,230.41	11,205.83	0.00	0.00	0.00	
18,200.00	90.03	90.91	6,943.58	1,456.80	11,330.40	11,305.83	0.00	0.00	0.00	
18,300.00	90.03	90.91	6,943.52	1,455.22	11,430.39	11,405.83	0.00	0.00	0.00	
18,400.00	90.03	90.91	6,943.46	1,453.64	11,530.38	11,505.83	0.00	0.00	0.00	
18,500.00	90.03	90.91	6,943.40	1,452.06	11,630.36	11,605.83	0.00	0.00	0.00	
18,600.00	90.03	90.91	6,943.33	1,450.48	11,730.35	11,705.83	0.00	0.00	0.00	
18,700.00	90.03	90.91	6,943.27	1,448.90	11,830.34	11,805.83	0.00	0.00	0.00	
18,800.00	90.03	90.91	6,943.21	1,447.32	11,930.33	11,905.83	0.00	0.00	0.00	
18,900.00	90.03	90.91	6,943.15	1,445.73	12,030.31	12,005.83	0.00	0.00	0.00	
19,000.00	90.03	90.91	6,943.09	1,444.15	12,130.30	12,105.83	0.00	0.00	0.00	
19,100.00	90.03	90.91	6,943.03	1,442.57	12,230.29	12,205.83	0.00	0.00	0.00	
19,200.00	90.03	90.91	6,942.97	1,440.99	12,330.28	12,305.83	0.00	0.00	0.00	
19,300.00	90.03	90.91	6,942.91	1,439.41	12,430.26	12,405.83	0.00	0.00	0.00	
19,400.00	90.03	90.91	6,942.85	1,437.83	12,530.25	12,505.83	0.00	0.00	0.00	
19,500.00	90.03	90.91	6,942.79	1,436.25	12,630.24	12,605.83	0.00	0.00	0.00	
19,600.00	90.03	90.91	6,942.73	1,434.67	12,730.23	12,705.83	0.00	0.00	0.00	
19,700.00	90.03	90.91	6,942.67	1,433.08	12,830.21	12,805.83	0.00	0.00	0.00	
19,800.00	90.03	90.91	6,942.61	1,431.50	12,930.20	12,905.83	0.00	0.00	0.00	
19,900.00	90.03	90.91	6,942.55	1,429.92	13,030.19	13,005.83	0.00	0.00	0.00	
20,000.00	90.03	90.91	6,942.49	1,428.34	13,130.18	13,105.83	0.00	0.00	0.00	
20,100.00	90.03	90.91	6,942.43	1,426.76	13,230.16	13,205.83	0.00	0.00	0.00	
20,200.00	90.03	90.91	6,942.37	1,425.18	13,330.15	13,305.83	0.00	0.00	0.00	
20,300.00	90.03	90.91	6,942.31	1,423.60	13,430.14	13,405.83	0.00	0.00	0.00	
20,400.00	90.03	90.91	6,942.25	1,422.02	13,530.13	13,505.83	0.00	0.00	0.00	
20,500.00	90.03	90.91	6,942.19	1,420.43	13,630.11	13,605.83	0.00	0.00	0.00	
20,600.00	90.03	90.91	6,942.13	1,418.85	13,730.10	13,705.83	0.00	0.00	0.00	
20,700.00	90.03	90.91	6,942.07	1,417.27	13,830.09	13,805.83	0.00	0.00	0.00	
20,800.00	90.03	90.91	6,942.01	1,415.69	13,930.08	13,905.83	0.00	0.00	0.00	
20,821.37	90.03	90.91	6,942.00	1,415.35	13,951.44	13,927.20	0.00	0.00	0.00	

SDT
Planning Report

Database:	EDM 5000 Multi User Db	Local Co-ordinate Reference:	Well Rosa Unit #722H
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 #722H	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)
TD at 20821.37									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
RU 722H SHL - plan hits target center - Point	0.00	0.00	0.00	0.00	0.00	2,147,479.18	2,851,896.67	36.900702	-107.392806
RU 722H KOP - plan hits target center - Point	0.00	0.00	6,378.30	1,380.70	31.78	2,148,860.02	2,851,922.07	36.904495	-107.392698
RU 722H PBHL - plan hits target center - Point	0.00	0.00	6,942.00	1,415.35	13,951.44	2,148,958.93	2,865,841.43	36.904580	-107.345089
RU 722H IP - plan hits target center - Point	0.00	0.00	6,949.74	1,618.93	1,078.60	2,149,103.08	2,852,967.79	36.905149	-107.389117
RU 722H POE - plan hits target center - Point	0.00	0.00	6,950.00	1,588.19	612.33	2,149,070.19	2,852,501.66	36.905064	-107.390712

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
2,466.46	2,433.00	Ojo Alamo				
2,578.92	2,543.00	Kirtland				
2,920.38	2,877.00	Fruitland				
3,078.85	3,032.00	Top of Coals				
3,232.20	3,182.00	Base of Coals				
3,409.06	3,355.00	Pictured Cliffs				
3,516.55	3,460.00	Lewis				
4,690.15	4,584.00	Chacra				
5,186.85	5,059.00	U/Cliff House				
5,503.32	5,362.00	Cliff House				
5,544.95	5,402.00	Menefee				
5,782.43	5,631.00	Point Lookout				
6,334.46	6,168.00	Mancos				
7,001.44	6,775.00	Black Top				

SDT
Planning Report

Database:	EDM 5000 Multi User Db	Local Co-ordinate Reference:	Well Rosa Unit #722H
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 #722H	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)		
352.65	352.64	1.60	-1.84	Start 150.00 hold at 352.65 MD	
502.65	502.64	2.23	-2.54	Start DLS 2.00 TFO 94.78	
653.08	652.99	5.56	-0.36	Start DLS 2.00 TFO -49.90	
1,145.50	1,140.90	66.77	8.84	Start 2309.57 hold at 1145.50 MD	
3,455.07	3,400.00	546.88	17.22	Start DLS 2.00 TFO 0.00	
3,705.07	3,641.96	609.45	18.31	Start 1629.23 hold at 3705.07 MD	
5,334.30	5,200.00	1,085.72	26.63	Start DLS 0.50 TFO 180.00	
6,334.46	6,168.00	1,336.01	31.00	Start 215.00 hold at 6334.46 MD	
6,549.46	6,378.30	1,380.70	31.78	Start DLS 9.47 TFO 80.75	
7,479.12	6,950.00	1,588.19	612.33	Start DLS 2.00 TFO 89.97	
7,946.92	6,949.74	1,618.93	1,078.60	Start 12874.45 hold at 7946.92 MD	
20,821.37	6,942.00	1,415.35	13,951.44	TD at 20821.37	



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 722H	GL Elevation:	6,300'
Surface Location:	Sec 17, T31N, R5W 2214' FNL, 560' FWL (36.900702° N, -107.392806° W – NAD83)	KB:	30'
Bottom Hole Location:	Sec 15, T31N, R5W 795' FNL, 1305' FEL (36.904580° N, -107.345089° W – NAD83)	Measured Depth:	20,821' (KB)
Lease Serial CA Serial	# NMSF078769 # 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	2,466'	2,433'	*POINT LOOKOUT	5,782'	5,631'
KIRTLAND	2,579'	2,543'	*MANCOS	6,334'	6,168'
*FRUITLAND	2,920'	2,877'	KICKOFF POINT	6,549'	6,378'
*PICTURED CLIFFS	3,409'	3,355'	LANDING POINT	7,479'	6,950'
LEWIS	3,517'	3,460'	TD	20,821'	6,942'
CHACRA	4,690'	4,584'			
*CLIFF HOUSE	5,503'	5,362'			
MENEFEE	5,545'	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) to drill the 26"/24" will be used to drill the 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"	3,459'	13.375"	54.5 LBS	J-55 or equiv	LTC/BTC
INTERMEDIATE	12.25"	6,449'	9.625"	43.5 LBS	N-80 or equiv	LTC/BTC
PRODUCTION	8.5"	20,821'	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' 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	2,859	600	0.6947	1.3	575	102	1.15	501	15.8
Stage 1 Lead - OH	320	2,539	0.6947	1.3	2,293	408	2.66	862	11.8
Stage 2 Lead - Cased	-	320	1.019	1	326	58	2.66	123	11.8
					3,195	569		1485	

Set Depth 3459

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	5,949	500	0.3132	1.3	220	39	1.15	191	15.8
Stage 1 Lead	4,765	1,184	0.3132	1.3	482	86	2.66	181	11.8
					702	125		373	
Stage 2 Tail	4,165	600	0.3132	1.3	244	44	1.76	139	13.5
Stage 2 Lead	3,359	806	0.3132	1.3	328	58	2.66	123	11.8
Stage 2 Lead - Cased	3,259	100	0.3627	1	36	6	2.66	14	11.8
Stage 2 Totals					609	108		276	
Int 2 Totals					1,311	234		648	
Contingency									
Stage 3 Tail	3,459	75	0.3132	1.3	31	5	1.76	17	13.5
Stage 3 Tail - Cased	2,959	500	0.3490	1	175	31	1.76	99	13.5
Stage 3 Lead - Cased	-	2,959	0.3490	1	1,033	184	2.66	388	11.8
Contingency Stage 3 Totals					1,238	220		505	

Set Depth

6449

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	6,349	100	0.2531	1	25	5	2.03	12	13.2
Open Hole Lead	6,449	14,372	0.2291	1.15	3,792	675	2.03	1,867	13.2
					3,817	680		1,879	

Set depth

20821

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

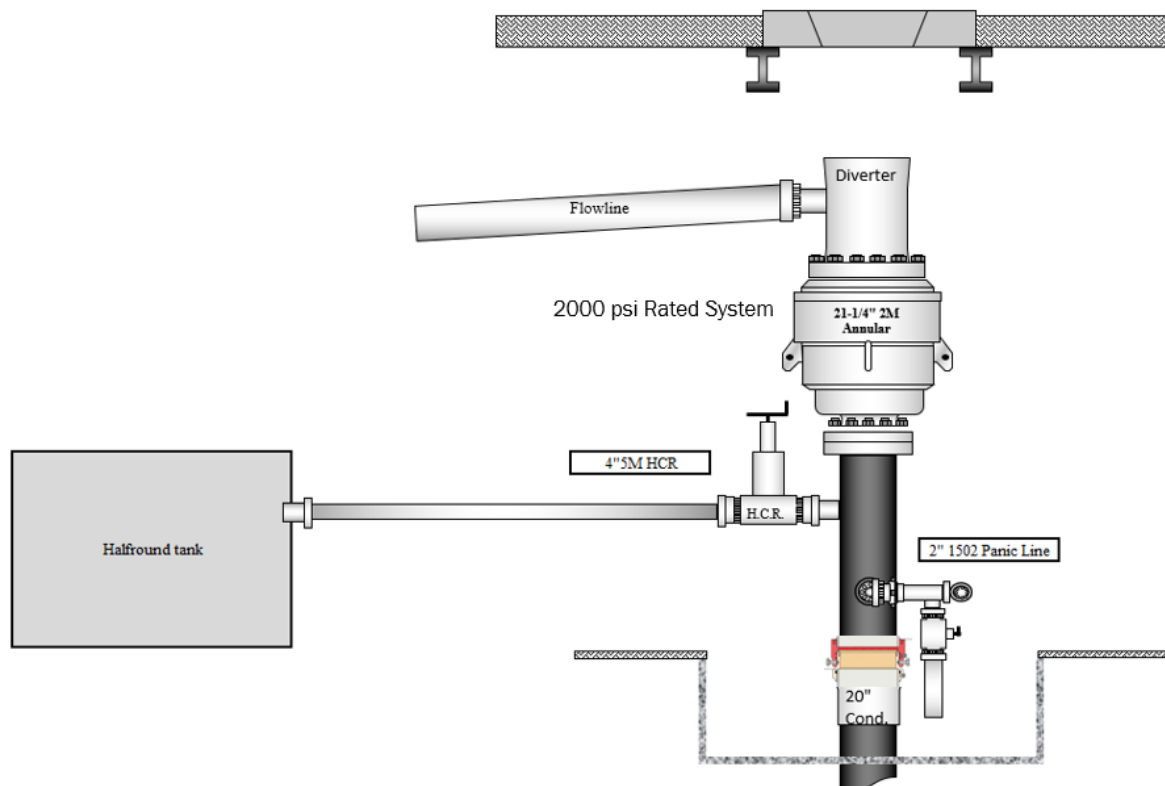
2-7/8", 6.5#, J-55 or L-80, EUE tubing will be run once volumes and pressures dictate. Due to the extremely high initial flow rates and pressures seen in offset wells, tubing will be installed once it is safe to do so, typically 12-36 months after completion.

*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

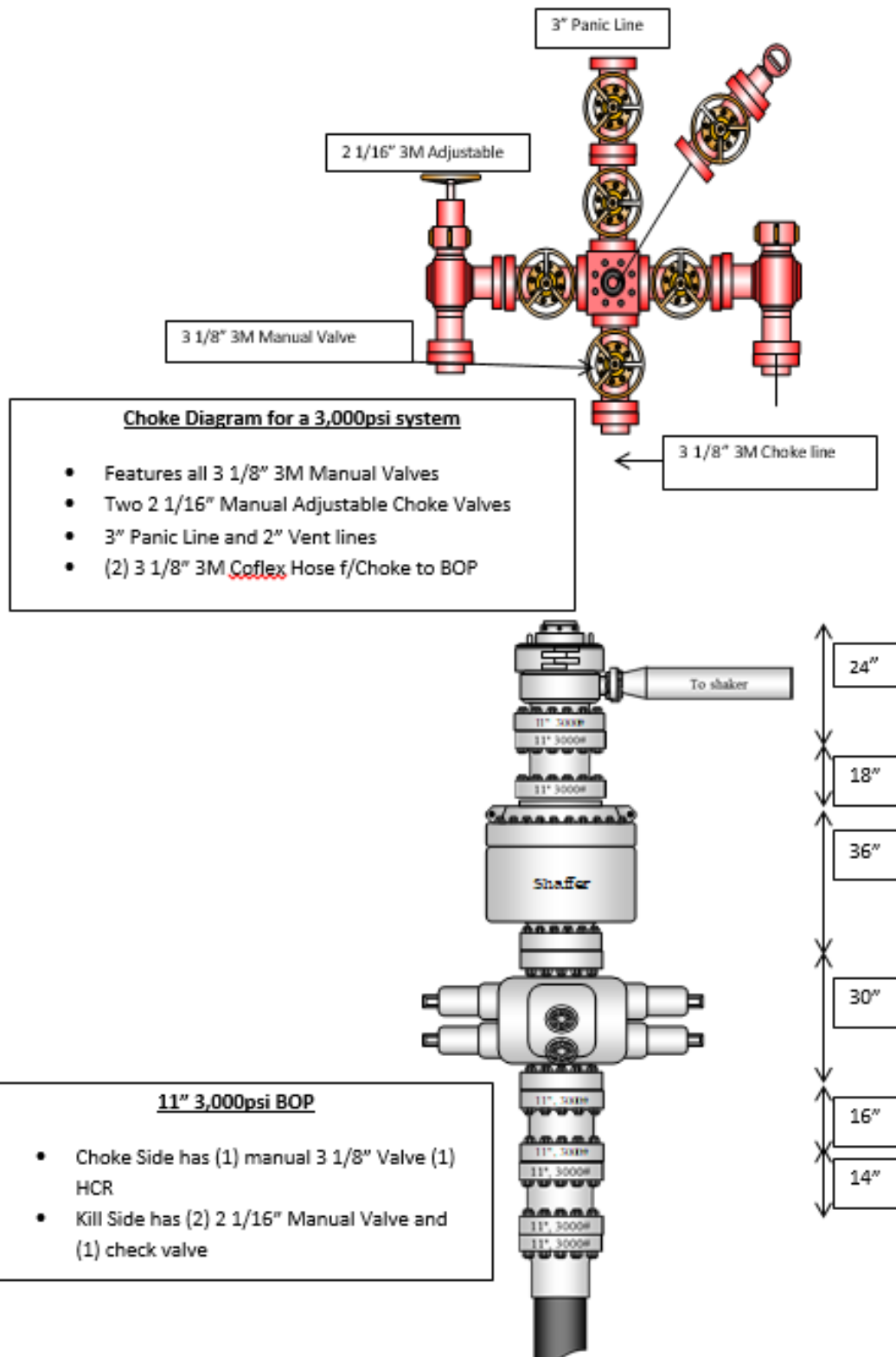
Surface Hole Diverter:





BOP:

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



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
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 (collapse & 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	3,404	9.20	9.20	1075	1628	2.78
68 J-55 BTC	3,404	9.20	9.20	1075	1628	3.52
54.5 J-55 BTC	3,404	9.20	9.20	1075	1628	2.04
Burst						
61 J-55 BTC	3,404	9.20	0.00	2658	0	1.16
68 J-55 BTC	3,404	9.20	0.00	2778	0	1.24
54.5 J-55 BTC	3,404	9.20	0.00	2538	0	1.08
Tension						
61 J-55 BTC		Mud Wt	Air Wt	Bouy Wt	BW +100k	SF
Tension (Body)	3,404	9.20	207,644	178,479	278,479	3.45
Tension (Conn)	3,404	9.20	207,644	178,479	278,479	3.68
		BF				
		0.8595				
68 J-55 BTC						
Tension (Body)	3,404	9.20	231,472	198,960	298,960	3.58
Tension (Conn)	3,404	9.20	231,472	198,960	298,960	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 6,280		0.00	9.40	0	3070	1.24	full evacuatio
43.5 N-80 or L-80 B 6,280		0.00	9.40	0	3070	1.24	full evacuatio
Burst							
43.5 N-80 or L-80 L 6,280		9.40	0.00	4570	0	1.39	Casing full wit
43.5 N-80 or L-80 B 6,280		9.40	0.00	4570	0	1.39	Casing full wit
Tension							
43.5 N-80 or L-80 LTC		Mud Wt	Air Wt	Bouy Wt	BW +100k	SF	
Tension (Body)	6,280	9.40	273,180	233,976	333,976	3.01	100k over pul
Tension (Conn)	6,280	9.40	273,180	233,976	333,976	2.47	100k over pul
		BF					BF= 1- (MW)/
		0.8565					
43.5 N-80 or L-80 BTC							
Tension (Body)	6,280	9.40	273,180	233,976	333,976	3.01	100k over pul
Tension (Conn)	6,280	9.40	273,180	233,976	333,976	3.22	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	6,950	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
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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 448147

CONDITIONS

Operator: LOGOS OPERATING, LLC 2010 Afton Place Farmington, NM 87401	OGRID: 289408
	Action Number: 448147
	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