

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Rd., Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals & Natural Resources

Form C-104
Revised August 1, 2011

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

Submit one copy to appropriate District Office

☐ AMENDED REPORT

I. REQUEST FOR ALLOWABLE AND AUTHORIZATION TO TRANSPORT

¹ Operator name and Address LOGOS Operating, LLC 2010 Afton Place Farmington, NM 87401		² OGRID Number 289408	
		³ Reason for Filing Code/ Effective Date New Well	
⁴ API Number 30 – 039-31412	⁵ Pool Name Basin Mancos		⁶ Pool Code 97232
⁷ Property Code 320608	⁸ Property Name Rosa Unit		⁹ Well Number 650H

II. ¹⁰ Surface Location

UL or lot no. A	Section 25	Township 31N	Range 6W	Lot Idn 1	Feet from the 1084	North/South Line North	Feet from the 258	East/West line East	County Rio Arriba
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¹¹ Bottom Hole Location

UL or lot no. P	Section 22	Township 31N	Range 6W	Lot Idn	Feet from the 366	North/South line South	Feet from the 17	East/West line East	County Rio Arriba
¹² Lse Code F	¹³ Producing Method Code F		¹⁴ Gas Connection Date		¹⁵ C-129 Permit Number		¹⁶ C-129 Effective Date		¹⁷ C-129 Expiration Date

III. Oil and Gas Transporters

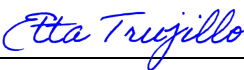
¹⁸ Transporter OGRID	¹⁹ Transporter Name and Address	²⁰ O/G/W
373888	Harvest Four Corners, LLC 1755 Arroyo Dr. Bloomfield, NM 87413	G

IV. Well Completion Data

²¹ Spud Date 4/11/2022	²² Ready Date 10/21/2023	²³ TD 16,364' MD / 7,240' TVD	²⁴ PBTD 16,238' MD / 7,240' TVD	²⁵ Perforations 7,786' MD / `16,149' MD 7,253' TVD / `7,242' TVD	²⁶ DHC, MC R-13457
²⁷ Hole Size		²⁸ Casing & Tubing Size		²⁹ Depth Set	
17.5"		13-3/8", 54.5#, J-55		325'	
12.5"		9-5/8", 47#, L-80		6393'	
8.5"		5-1/2", 20#, HCP-110		16,331'	
		2-7/8", 6.5#, J-55		pending	
³⁰ Sacks Cement					
365sx (75bbbls, 420cf)					
2411sx (753bbbls, 4230cf) DV tool @ 4790' & 3207'					
2162sx (622bbbls, 3497cf) TOC @ 1,200' (CBL)					

V. Well Test Data

³¹ Date New Oil n/a	³² Gas Delivery Date 10/21/2023	³³ Test Date 10/21/2023	³⁴ Test Length 12 hrs	³⁵ Tbg. Pressure n/a	³⁶ Csg. Pressure 1932 psi
³⁷ Choke Size 16/128	³⁸ Oil n/a	³⁹ Water 480 bbls	⁴⁰ Gas 709 mcf		⁴¹ Test Method F

⁴² I hereby certify that the rules of the Oil Conservation Division have been complied with and that the information given above is true and complete to the best of my knowledge and belief. Signature: 		OIL CONSERVATION DIVISION	
Printed name: Etta Trujillo		Approved by: <i>PATRICIA MARTINEZ</i>	
Title: Regulatory Specialist		Title: <i>PETROLEUM SPECIALIST</i>	
E-mail Address: etrujillo@logosresourcesllc.com		Approval Date: <i>3/1/2024</i>	
Date: 12/12/2023	Phone: (505) 324-4154		



Request for Confidential "Tight Hole" Status

LOGOS Operating, LLC
Rosa Unit 650H
API# 30-039-31412
A Section 25 T31N R06W
Rio Arriba County, New Mexico

Per 19.15.7.16 WELL COMPLETION OR RECOMPLETION REPORT AND LOG (Form C-105); LOGOS Operating, LLC.
Request the Division keep Form C-105 and all pertained documentation confidential as of 12/12/2023 for 90 days acceptance of the referenced documents.

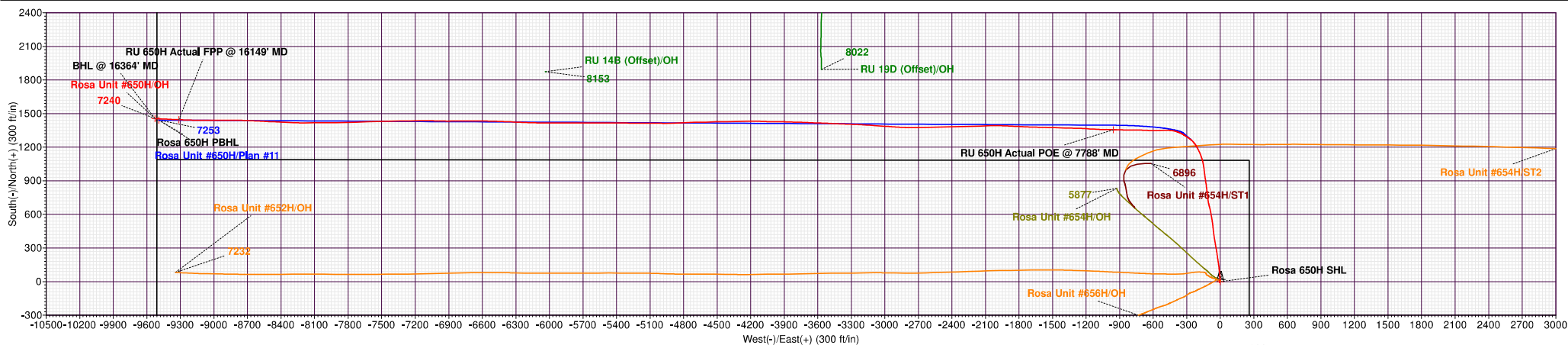
Sincerely,

A handwritten signature in blue ink that reads "Etta Trujillo".

Etta Trujillo
Regulatory Specialist
Email: etrujillo@logosresourcesllc.com
Office: 505-324-4154
Cell: 505-258-2936

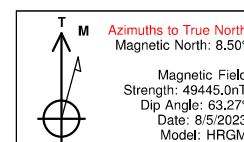
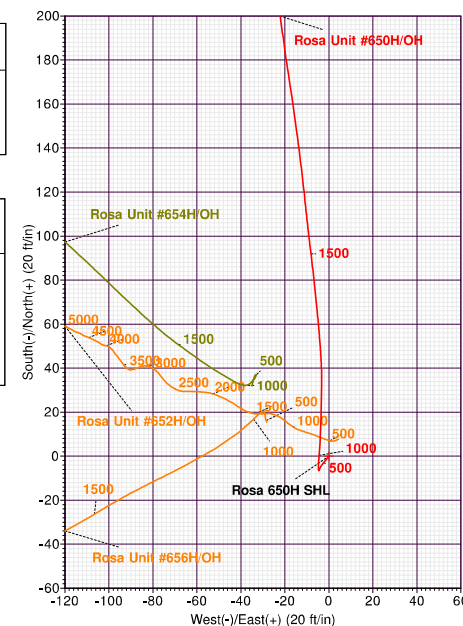


County: Rio Arriba, NM NAD83
 Site: Rosa Unit 29
 Well: Rosa Unit #650H
 Depth Reference: 6372+30 @ 6402.00ft (H&P 530)
 Rig: H&P 530
 Plan: OH
 Job #: 16789

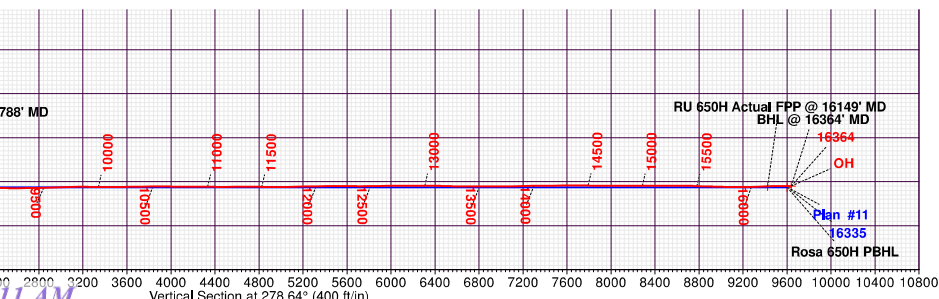
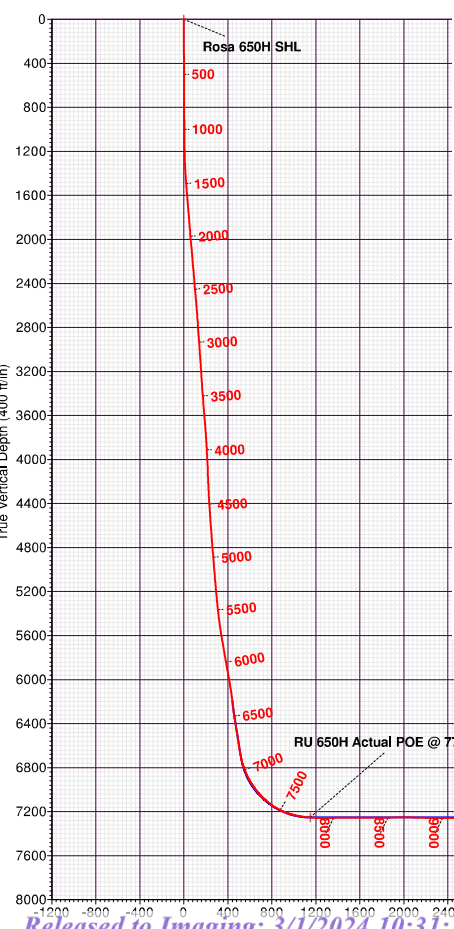


ANNOTATIONS									
MD	Inc	Azi	TVD	+N-S	+E-W	VSect	Departure	Annotation	
7788.00	85.65	271.06	7253.17	1356.17	-956.52	1149.39	2040.20	RU 650H Actual POE @ 7788' MD	
16149.00	91.92	272.58	7242.44	1445.86	-9312.63	9424.15	10400.06	RU 650H Actual FPP @ 16149' MD	
16364.00	90.20	272.24	7239.93	1455.05	-9527.40	9637.87	10615.03	BHL @ 16364' MD	

DESIGN TARGET DETAILS							
Name	TVD	+N-S	+E-W	Northing	Easting	Latitude	Longitude
Rosa 650H SHL	0.00	0.00	0.00	2138058.49	2847301.01	36.8748833	-107.4086666
Rosa 650H BHL	7239.93	1455.05	-9527.40	2139471.14	2837767.25	36.8788755	-107.4412416
Rosa 650H Actual FPP	7242.44	1445.86	-9312.63	2139462.91	2837982.06	36.8788504	-107.4405072
Rosa 650H PBHL	7253.00	1442.20	-9492.95	2139458.45	2837801.76	36.8788402	-107.4411238
Rosa 650H Actual POE	7253.17	1356.17	-956.52	2139410.39	2846338.47	36.8786083	-107.4119370



TOTAL CORRECTION: 8.50°



Logos Operating LLC

Rio Arriba, NM NAD83

Rosa Unit 29

Rosa Unit #650H - Slot B10

OH

Design: OH

Standard Survey Report

16 October, 2023

SDT
Survey Report

Company:	Logos Operating LLC	Local Co-ordinate Reference:	Well Rosa Unit #650H - Slot B10
Project:	Rio Arriba, NM NAD83	TVD Reference:	6372+30 @ 6402.00ft (H&P 530)
Site:	Rosa Unit 29	MD Reference:	6372+30 @ 6402.00ft (H&P 530)
Well:	Rosa Unit #650H	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000 Multi User Db

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 Unit 29			
Site Position:		Northing:	2,138,126.53 usft	Latitude: 36.8750715
From:	Map	Easting:	2,847,195.58 usft	Longitude: -107.4090261
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "	

Well	Rosa Unit #650H - Slot B10			
Well Position	+N/-S	0.00 ft	Northing:	2,138,058.49 usft
	+E/-W	0.00 ft	Easting:	2,847,301.01 usft
Position Uncertainty	0.00 ft	Wellhead Elevation:	0.00 ft	Ground Level: 6,372.00 ft
Grid Convergence:	0.25 °			

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HRGM	8/5/2023	8.50	63.27	49,445.00838568

Design	OH				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	0.00	0.00	0.00	278.64	

Survey Program	Date	10/16/2023			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
404.50	6,358.50	Survey #1 (OH)	MWD+HRGM+MS	MWD + HRGM + Multi-Station Correction	
6,428.01	16,298.00	Survey #2 (OH)	MWD+HRGM+MS	MWD + HRGM + Multi-Station Correction	
16,364.00	16,364.00	Survey #3 (OH)	A026Ua_BLIND	OWSG BLIND	

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	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	
404.50	0.71	219.26	404.49	-1.94	-1.59	1.28	0.18	0.18	0.00	
495.50	0.92	221.72	495.48	-2.92	-2.43	1.96	0.23	0.23	2.70	
587.50	1.12	212.15	587.47	-4.23	-3.40	2.72	0.28	0.22	-10.40	
680.50	0.89	203.97	680.45	-5.66	-4.18	3.28	0.29	-0.25	-8.80	
772.50	0.48	213.60	772.44	-6.64	-4.68	3.63	0.46	-0.45	10.47	
871.50	1.24	4.31	871.44	-5.92	-4.83	3.89	1.69	0.77	152.23	
934.50	2.74	1.99	934.40	-3.73	-4.73	4.11	2.38	2.38	-3.68	

SDT

Survey Report

Company:	Logos Operating LLC	Local Co-ordinate Reference:	Well Rosa Unit #650H - Slot B10
Project:	Rio Arriba, NM NAD83	TVD Reference:	6372+30 @ 6402.00ft (H&P 530)
Site:	Rosa Unit 29	MD Reference:	6372+30 @ 6402.00ft (H&P 530)
Well:	Rosa Unit #650H	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000 Multi User Db

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
998.50	4.45	5.82	998.27	0.27	-4.42	4.41	2.70	2.67	5.98
1,060.50	5.88	2.49	1,060.02	5.83	-4.04	4.87	2.36	2.31	-5.37
1,154.50	7.88	1.46	1,153.34	17.09	-3.66	6.19	2.13	2.13	-1.10
1,249.50	10.05	1.06	1,247.17	31.89	-3.35	8.10	2.29	2.28	-0.42
1,344.50	12.62	355.50	1,340.31	50.52	-4.01	11.55	2.94	2.71	-5.85
1,416.50	14.59	354.50	1,410.29	67.39	-5.49	15.56	2.76	2.74	-1.39
1,510.50	16.16	353.19	1,500.92	92.17	-8.18	21.93	1.71	1.67	-1.39
1,605.50	17.52	354.02	1,591.85	119.52	-11.24	29.06	1.45	1.43	0.87
1,700.50	16.71	352.07	1,682.64	147.27	-14.61	36.57	1.04	-0.85	-2.05
1,795.50	16.31	351.39	1,773.72	173.98	-18.49	44.42	0.47	-0.42	-0.72
1,889.50	15.35	352.58	1,864.16	199.37	-22.07	51.78	1.08	-1.02	1.27
1,985.50	15.73	351.47	1,956.65	224.84	-25.65	59.13	0.50	0.40	-1.16
2,080.50	15.84	350.68	2,048.06	250.37	-29.66	66.93	0.25	0.12	-0.83
2,175.50	14.93	350.18	2,139.66	275.22	-33.84	74.80	0.97	-0.96	-0.53
2,268.50	15.55	349.46	2,229.39	299.28	-38.17	82.69	0.70	0.67	-0.77
2,364.50	14.50	350.99	2,322.10	323.81	-42.40	90.57	1.17	-1.09	1.59
2,458.50	15.09	351.20	2,412.99	347.52	-46.12	97.80	0.63	0.63	0.22
2,553.50	16.30	350.29	2,504.44	372.88	-50.26	105.70	1.30	1.27	-0.96
2,648.50	16.04	350.85	2,595.69	398.98	-54.59	113.91	0.32	-0.27	0.59
2,743.50	15.58	352.43	2,687.09	424.59	-58.36	121.48	0.66	-0.48	1.66
2,838.50	15.11	353.85	2,778.71	449.54	-61.37	128.20	0.63	-0.49	1.49
2,933.50	15.30	353.87	2,870.38	474.32	-64.03	134.56	0.20	0.20	0.02
3,028.50	14.82	353.70	2,962.12	498.85	-66.70	140.89	0.51	-0.51	-0.18
3,123.50	13.99	351.98	3,054.13	522.30	-69.64	147.31	0.98	-0.87	-1.81
3,218.50	12.77	351.49	3,146.55	544.06	-72.80	153.70	1.29	-1.28	-0.52
3,314.50	11.91	350.52	3,240.33	564.32	-76.00	159.91	0.92	-0.90	-1.01
3,409.50	12.58	349.66	3,333.17	584.17	-79.47	166.32	0.73	0.71	-0.91
3,504.50	12.48	350.12	3,425.91	604.46	-83.09	172.95	0.15	-0.11	0.48
3,600.50	12.77	348.62	3,519.59	625.08	-86.96	179.88	0.46	0.30	-1.56
3,696.50	12.43	346.70	3,613.27	645.54	-91.43	187.37	0.56	-0.35	-2.00
3,790.50	11.49	345.13	3,705.23	664.43	-96.16	194.88	1.06	-1.00	-1.67
3,883.50	10.14	345.67	3,796.58	681.31	-100.56	201.77	1.46	-1.45	0.58
3,979.50	8.89	346.74	3,891.26	696.72	-104.36	207.84	1.32	-1.30	1.11
4,074.50	8.17	350.38	3,985.21	710.52	-107.17	212.69	0.95	-0.76	3.83
4,171.50	8.40	353.92	4,081.19	724.36	-109.07	216.65	0.58	0.24	3.65
4,265.50	9.04	354.87	4,174.11	738.55	-110.46	220.15	0.70	0.68	1.01
4,360.50	10.11	352.81	4,267.78	754.25	-112.17	224.21	1.18	1.13	-2.17
4,456.50	12.03	352.45	4,361.99	772.53	-114.54	229.29	2.00	2.00	-0.38
4,552.50	13.72	352.25	4,455.57	793.73	-117.39	235.30	1.76	1.76	-0.21
4,649.50	14.47	352.97	4,549.65	817.16	-120.42	241.82	0.79	0.77	0.74
4,744.50	15.28	353.39	4,641.47	841.37	-123.32	248.31	0.86	0.85	0.44
4,838.50	15.13	352.20	4,732.18	865.83	-126.41	255.04	0.37	-0.16	-1.27
4,933.50	14.74	351.25	4,823.97	890.06	-129.93	262.16	0.48	-0.41	-1.00

SDT

Survey Report

Company:	Logos Operating LLC	Local Co-ordinate Reference:	Well Rosa Unit #650H - Slot B10
Project:	Rio Arriba, NM NAD83	TVD Reference:	6372+30 @ 6402.00ft (H&P 530)
Site:	Rosa Unit 29	MD Reference:	6372+30 @ 6402.00ft (H&P 530)
Well:	Rosa Unit #650H	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000 Multi User Db

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
5,027.50	15.05	351.36	4,914.81	913.94	-133.58	269.36	0.33	0.33	0.12	
5,124.50	16.30	352.13	5,008.20	939.88	-137.34	276.97	1.31	1.29	0.79	
5,219.50	16.90	352.74	5,099.24	966.78	-140.91	284.55	0.66	0.63	0.64	
5,313.50	18.28	353.13	5,188.84	994.98	-144.40	292.23	1.47	1.47	0.41	
5,408.50	19.02	351.87	5,278.86	1,025.09	-148.37	300.68	0.89	0.78	-1.33	
5,471.50	18.54	349.99	5,338.50	1,045.12	-151.56	306.85	1.23	-0.76	-2.98	
5,503.50	18.17	348.57	5,368.87	1,055.02	-153.44	310.19	1.81	-1.16	-4.44	
5,567.50	17.99	345.79	5,429.72	1,074.38	-157.84	317.45	1.38	-0.28	-4.34	
5,631.50	17.95	343.35	5,490.59	1,093.41	-163.09	325.50	1.18	-0.06	-3.81	
5,695.50	17.68	341.14	5,551.53	1,112.06	-169.06	334.20	1.14	-0.42	-3.45	
5,758.50	17.84	338.78	5,611.52	1,130.11	-175.64	343.42	1.17	0.25	-3.75	
5,820.50	17.67	336.58	5,670.57	1,147.59	-182.82	353.15	1.12	-0.27	-3.55	
5,884.50	17.43	334.70	5,731.59	1,165.17	-190.78	363.65	0.96	-0.38	-2.94	
5,948.50	17.14	333.41	5,792.70	1,182.27	-199.10	374.44	0.75	-0.45	-2.02	
6,011.50	16.47	330.38	5,853.01	1,198.34	-207.67	385.33	1.75	-1.06	-4.81	
6,075.50	15.27	327.52	5,914.57	1,213.33	-216.68	396.49	2.24	-1.88	-4.47	
6,137.50	14.28	324.69	5,974.52	1,226.46	-225.48	407.17	1.98	-1.60	-4.56	
6,200.50	12.94	321.95	6,035.75	1,238.36	-234.32	417.69	2.36	-2.13	-4.35	
6,263.50	11.18	318.49	6,097.36	1,248.49	-242.72	427.52	3.02	-2.79	-5.49	
6,358.50	8.78	311.71	6,190.92	1,260.21	-254.23	440.67	2.81	-2.53	-7.14	
6,428.00	7.37	307.41	6,259.73	1,266.45	-261.74	449.02	2.21	-2.03	-6.19	
6,523.00	9.77	304.55	6,353.66	1,274.72	-273.22	461.61	2.57	2.53	-3.01	
6,617.00	10.82	306.26	6,446.15	1,284.46	-286.90	476.60	1.16	1.12	1.82	
6,712.00	8.92	298.73	6,539.74	1,293.28	-300.55	491.42	2.41	-2.00	-7.93	
6,806.00	10.21	305.05	6,632.44	1,301.57	-313.76	505.73	1.77	1.37	6.72	
6,901.00	13.78	301.19	6,725.35	1,312.27	-330.34	523.73	3.85	3.76	-4.06	
6,996.00	21.97	295.32	6,815.69	1,325.75	-356.13	551.25	8.82	8.62	-6.18	
7,090.00	28.29	288.26	6,900.77	1,340.27	-393.22	590.10	7.43	6.72	-7.51	
7,185.00	35.60	275.21	6,981.43	1,349.86	-442.26	640.02	10.55	7.69	-13.74	
7,279.00	44.56	268.03	7,053.32	1,351.21	-502.62	699.90	10.71	9.53	-7.64	
7,374.00	50.67	268.50	7,117.33	1,349.10	-572.73	768.90	6.44	6.43	0.49	
7,468.00	60.29	273.24	7,170.55	1,350.46	-650.04	845.53	11.04	10.23	5.04	
7,563.00	71.11	271.04	7,209.59	1,353.62	-736.43	931.42	11.58	11.39	-2.32	
7,657.00	77.84	270.11	7,234.74	1,354.51	-826.94	1,021.04	7.22	7.16	-0.99	
7,751.00	83.77	271.08	7,249.75	1,355.48	-919.68	1,112.87	6.39	6.31	1.03	
7,788.00	85.65	271.06	7,253.17	1,356.17	-956.52	1,149.39	5.07	5.07	-0.05	
RU 650H Actual POE @ 7788' MD										
7,846.00	88.59	271.03	7,256.08	1,357.23	-1,014.43	1,206.81	5.07	5.07	-0.05	
7,940.00	90.50	273.02	7,256.83	1,360.55	-1,108.36	1,300.17	2.93	2.03	2.12	
8,034.00	90.60	273.43	7,255.92	1,365.84	-1,202.20	1,393.74	0.45	0.11	0.44	
8,129.00	90.44	271.22	7,255.06	1,369.69	-1,297.12	1,488.16	2.33	-0.17	-2.33	
8,223.00	90.27	271.76	7,254.48	1,372.13	-1,391.08	1,581.43	0.60	-0.18	0.57	
8,317.00	90.13	271.71	7,254.15	1,374.98	-1,485.04	1,674.74	0.16	-0.15	-0.05	
8,412.00	90.24	271.29	7,253.85	1,377.47	-1,580.01	1,769.01	0.46	0.12	-0.44	

SDT

Survey Report

Company:	Logos Operating LLC	Local Co-ordinate Reference:	Well Rosa Unit #650H - Slot B10
Project:	Rio Arriba, NM NAD83	TVD Reference:	6372+30 @ 6402.00ft (H&P 530)
Site:	Rosa Unit 29	MD Reference:	6372+30 @ 6402.00ft (H&P 530)
Well:	Rosa Unit #650H	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000 Multi User Db

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
8,506.00	90.34	271.80	7,253.37	1,380.00	-1,673.97	1,862.28	0.55	0.11	0.54
8,600.00	90.13	272.54	7,252.98	1,383.56	-1,767.90	1,955.68	0.82	-0.22	0.79
8,694.00	89.90	272.96	7,252.96	1,388.07	-1,861.79	2,049.19	0.51	-0.24	0.45
8,789.00	88.25	271.70	7,254.49	1,391.93	-1,956.70	2,143.59	2.19	-1.74	-1.33
8,883.00	88.65	268.56	7,257.04	1,392.15	-2,050.65	2,236.51	3.37	0.43	-3.34
8,978.00	90.34	268.16	7,257.87	1,389.43	-2,145.60	2,329.98	1.83	1.78	-0.42
9,072.00	89.87	268.97	7,257.70	1,387.07	-2,239.57	2,422.53	1.00	-0.50	0.86
9,167.00	88.89	267.63	7,258.73	1,384.25	-2,334.52	2,515.98	1.75	-1.03	-1.41
9,262.00	90.74	269.72	7,259.04	1,382.06	-2,429.49	2,609.54	2.94	1.95	2.20
9,356.00	89.97	268.88	7,258.45	1,380.91	-2,523.48	2,702.29	1.21	-0.82	-0.89
9,450.00	91.55	267.75	7,257.21	1,378.15	-2,617.42	2,794.75	2.07	1.68	-1.20
9,544.00	91.65	269.63	7,254.58	1,376.00	-2,711.36	2,887.30	2.00	0.11	2.00
9,639.00	92.49	271.00	7,251.15	1,376.52	-2,806.29	2,981.23	1.69	0.88	1.44
9,734.00	91.95	274.13	7,247.47	1,380.77	-2,901.11	3,075.62	3.34	-0.57	3.29
9,829.00	89.50	273.69	7,246.27	1,387.25	-2,995.88	3,170.28	2.62	-2.58	-0.46
9,923.00	89.19	273.62	7,247.34	1,393.24	-3,089.68	3,263.92	0.34	-0.33	-0.07
10,018.00	89.06	273.96	7,248.79	1,399.52	-3,184.46	3,358.56	0.38	-0.14	0.36
10,113.00	89.97	272.27	7,249.60	1,404.68	-3,279.31	3,453.12	2.02	0.96	-1.78
10,207.00	91.14	271.53	7,248.69	1,407.79	-3,373.25	3,546.46	1.47	1.24	-0.79
10,302.00	91.44	272.98	7,246.55	1,411.53	-3,468.15	3,640.84	1.56	0.32	1.53
10,397.00	90.97	271.81	7,244.55	1,415.50	-3,563.05	3,735.26	1.33	-0.49	-1.23
10,491.00	91.35	272.47	7,242.65	1,419.01	-3,656.96	3,828.63	0.81	0.40	0.70
10,586.00	88.75	271.50	7,242.56	1,422.30	-3,751.90	3,922.98	2.92	-2.74	-1.02
10,680.00	89.06	272.04	7,244.36	1,425.20	-3,845.83	4,016.29	0.66	0.33	0.57
10,775.00	89.83	270.72	7,245.28	1,427.49	-3,940.80	4,110.52	1.61	0.81	-1.39
10,869.00	89.70	270.87	7,245.67	1,428.79	-4,034.79	4,203.64	0.21	-0.14	0.16
10,964.00	89.93	272.65	7,245.97	1,431.71	-4,129.74	4,297.95	1.89	0.24	1.87
11,058.00	88.92	268.18	7,246.92	1,432.39	-4,223.71	4,390.96	4.87	-1.07	-4.76
11,153.00	90.30	268.97	7,247.56	1,430.03	-4,318.67	4,484.49	1.67	1.45	0.83
11,247.00	90.30	269.39	7,247.07	1,428.69	-4,412.66	4,577.21	0.45	0.00	0.45
11,342.00	90.07	268.11	7,246.76	1,426.61	-4,507.64	4,670.80	1.37	-0.24	-1.35
11,436.00	89.87	269.23	7,246.81	1,424.43	-4,601.61	4,763.37	1.21	-0.21	1.19
11,531.00	88.96	269.05	7,247.78	1,423.01	-4,696.59	4,857.07	0.98	-0.96	-0.19
11,625.00	89.90	267.41	7,248.72	1,420.10	-4,790.54	4,949.51	2.01	1.00	-1.74
11,720.00	91.58	267.12	7,247.49	1,415.57	-4,885.42	5,042.63	1.79	1.77	-0.31
11,814.00	91.98	270.35	7,244.57	1,413.50	-4,979.34	5,135.17	3.46	0.43	3.44
11,908.00	90.94	270.67	7,242.18	1,414.33	-5,073.30	5,228.20	1.16	-1.11	0.34
12,003.00	90.20	270.28	7,241.23	1,415.12	-5,168.29	5,322.23	0.88	-0.78	-0.41
12,098.00	90.34	270.23	7,240.78	1,415.54	-5,263.29	5,416.21	0.16	0.15	-0.05
12,192.00	90.13	270.55	7,240.40	1,416.18	-5,357.29	5,509.24	0.41	-0.22	0.34
12,287.00	89.76	269.80	7,240.49	1,416.47	-5,452.29	5,603.20	0.88	-0.39	-0.79
12,381.00	89.36	270.69	7,241.21	1,416.87	-5,546.28	5,696.19	1.04	-0.43	0.95
12,476.00	90.94	269.85	7,240.96	1,417.32	-5,641.28	5,790.18	1.88	1.66	-0.88

SDT Survey Report

Company:	Logos Operating LLC	Local Co-ordinate Reference:	Well Rosa Unit #650H - Slot B10
Project:	Rio Arriba, NM NAD83	TVD Reference:	6372+30 @ 6402.00ft (H&P 530)
Site:	Rosa Unit 29	MD Reference:	6372+30 @ 6402.00ft (H&P 530)
Well:	Rosa Unit #650H	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000 Multi User Db

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
12,570.00	90.77	269.99	7,239.56	1,417.19	-5,735.27	5,883.08	0.23	-0.18	0.15
12,665.00	90.84	270.71	7,238.22	1,417.77	-5,830.25	5,977.08	0.76	0.07	0.76
12,759.00	90.81	269.06	7,236.87	1,417.58	-5,924.24	6,069.97	1.76	-0.03	-1.76
12,854.00	89.63	270.33	7,236.51	1,417.08	-6,019.24	6,163.81	1.82	-1.24	1.34
12,948.00	90.03	270.91	7,236.79	1,418.09	-6,113.23	6,256.89	0.75	0.43	0.62
13,043.00	89.63	272.00	7,237.07	1,420.51	-6,208.20	6,351.14	1.22	-0.42	1.15
13,138.00	88.69	272.68	7,238.46	1,424.38	-6,303.11	6,445.55	1.22	-0.99	0.72
13,232.00	88.42	272.47	7,240.83	1,428.61	-6,396.98	6,539.00	0.36	-0.29	-0.22
13,326.00	89.56	271.05	7,242.49	1,431.49	-6,490.92	6,632.30	1.94	1.21	-1.51
13,421.00	89.43	272.01	7,243.32	1,434.03	-6,585.88	6,726.57	1.02	-0.14	1.01
13,515.00	90.34	269.27	7,243.51	1,435.08	-6,679.86	6,819.64	3.07	0.97	-2.91
13,610.00	90.13	269.95	7,243.12	1,434.43	-6,774.86	6,913.46	0.75	-0.22	0.72
13,705.00	90.07	268.82	7,242.96	1,433.41	-6,869.85	7,007.23	1.19	-0.06	-1.19
13,799.00	91.38	271.66	7,241.77	1,433.81	-6,963.83	7,100.20	3.33	1.39	3.02
13,894.00	91.65	270.88	7,239.26	1,435.91	-7,058.77	7,194.38	0.87	0.28	-0.82
13,988.00	90.44	269.28	7,237.54	1,436.04	-7,152.75	7,287.31	2.13	-1.29	-1.70
14,083.00	90.71	269.09	7,236.59	1,434.69	-7,247.74	7,381.02	0.35	0.28	-0.20
14,177.00	90.67	269.38	7,235.46	1,433.43	-7,341.72	7,473.75	0.31	-0.04	0.31
14,272.00	90.30	268.71	7,234.65	1,431.85	-7,436.71	7,567.41	0.81	-0.39	-0.71
14,367.00	90.17	268.89	7,234.26	1,429.86	-7,531.69	7,661.02	0.23	-0.14	0.19
14,461.00	89.33	267.70	7,234.67	1,427.07	-7,625.64	7,753.48	1.55	-0.89	-1.27
14,556.00	89.46	267.30	7,235.68	1,422.92	-7,720.54	7,846.69	0.44	0.14	-0.42
14,650.00	90.34	269.71	7,235.84	1,420.47	-7,814.50	7,939.21	2.73	0.94	2.56
14,745.00	90.10	268.81	7,235.48	1,419.24	-7,909.49	8,032.94	0.98	-0.25	-0.95
14,839.00	89.56	269.86	7,235.75	1,418.15	-8,003.49	8,125.70	1.26	-0.57	1.12
14,933.00	89.09	270.12	7,236.86	1,418.14	-8,097.48	8,218.63	0.57	-0.50	0.28
15,028.00	89.80	269.56	7,237.78	1,417.87	-8,192.47	8,312.50	0.95	0.75	-0.59
15,122.00	90.00	272.39	7,237.95	1,419.47	-8,286.45	8,405.65	3.02	0.21	3.01
15,217.00	90.17	272.29	7,237.81	1,423.35	-8,381.37	8,500.08	0.21	0.18	-0.11
15,311.00	90.40	272.69	7,237.34	1,427.43	-8,475.28	8,593.54	0.49	0.24	0.43
15,374.00	89.73	272.89	7,237.27	1,430.50	-8,538.21	8,656.21	1.11	-1.06	0.32
15,469.00	88.35	272.72	7,238.86	1,435.15	-8,633.08	8,750.70	1.46	-1.45	-0.18
15,563.00	88.42	272.18	7,241.51	1,439.16	-8,726.95	8,844.12	0.58	0.07	-0.57
15,595.00	88.22	272.06	7,242.45	1,440.35	-8,758.92	8,875.90	0.73	-0.63	-0.38
15,689.00	87.91	269.79	7,245.62	1,441.86	-8,852.84	8,968.99	2.44	-0.33	-2.41
15,783.00	89.02	269.95	7,248.14	1,441.65	-8,946.81	9,061.85	1.19	1.18	0.17
15,878.00	89.87	269.37	7,249.06	1,441.09	-9,041.80	9,155.68	1.08	0.89	-0.61
15,972.00	91.41	270.64	7,248.01	1,441.09	-9,135.79	9,248.61	2.12	1.64	1.35
16,067.00	91.88	271.41	7,245.28	1,442.79	-9,230.74	9,342.73	0.95	0.49	0.81
16,130.00	92.08	272.61	7,243.10	1,445.00	-9,293.66	9,405.27	1.93	0.32	1.90
16,149.00	91.92	272.58	7,242.44	1,445.86	-9,312.63	9,424.15	0.86	-0.84	-0.17
RU 650H Actual FPP @ 16149' MD									
16,193.00	91.55	272.50	7,241.11	1,447.81	-9,356.56	9,467.88	0.86	-0.84	-0.17
16,256.00	90.03	272.69	7,240.24	1,450.66	-9,419.49	9,530.52	2.43	-2.41	0.30

SDT
Survey Report

Company:	Logos Operating LLC	Local Co-ordinate Reference:	Well Rosa Unit #650H - Slot B10
Project:	Rio Arriba, NM NAD83	TVD Reference:	6372+30 @ 6402.00ft (H&P 530)
Site:	Rosa Unit 29	MD Reference:	6372+30 @ 6402.00ft (H&P 530)
Well:	Rosa Unit #650H	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000 Multi User Db

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
16,298.00	90.20	272.24	7,240.16	1,452.47	-9,461.45	9,572.28	1.15	0.40	-1.07
16,364.00	90.20	272.24	7,239.93	1,455.05	-9,527.40	9,637.87	0.00	0.00	0.00
BHL @ 16364' MD									

Design Targets									
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Rosa 650H SHL - actual wellpath hits target center - Point	0.00	0.00	0.00	0.00	0.00	2,138,058.49	2,847,301.01	36.8748833	-107.4086666
Rosa 650H BHL - actual wellpath hits target center - Point	0.00	0.00	7,239.93	1,455.05	-9,527.40	2,139,471.14	2,837,767.25	36.8788755	-107.4412416
Rosa 650H Actual FPP - actual wellpath hits target center - Point	0.00	0.00	7,242.44	1,445.86	-9,312.63	2,139,462.91	2,837,982.06	36.8788504	-107.4405073
Rosa 650H PBHL - actual wellpath misses target center by 35.53ft at 16298.00ft MD (7240.16 TVD, 1452.47 N, -9461.45 E) - Point	0.00	0.00	7,253.00	1,442.20	-9,492.95	2,139,458.45	2,837,801.76	36.8788402	-107.4411238
Rosa 650H Actual POE - actual wellpath hits target center - Point	0.00	0.00	7,253.17	1,356.17	-956.52	2,139,410.39	2,846,338.47	36.8786083	-107.4119370

Design Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
7,788.00	7,253.17	1,356.17	-956.52	RU 650H Actual POE @ 7788' MD
16,149.00	7,242.44	1,445.86	-9,312.63	RU 650H Actual FPP @ 16149' MD
16,364.00	7,239.93	1,455.05	-9,527.40	BHL @ 16364' MD

Checked By: _____

Approved By: _____

Date: _____

Logos Operating LLC

Rio Arriba, NM NAD83

Rosa Unit 29

Rosa Unit #650H - Slot B10

OH

Design: OH

Survey Report - Geographic

16 October, 2023

SDT
Survey Report - Geographic

Company:	Logos Operating LLC	Local Co-ordinate Reference:	Well Rosa Unit #650H - Slot B10
Project:	Rio Arriba, NM NAD83	TVD Reference:	6372+30 @ 6402.00ft (H&P 530)
Site:	Rosa Unit 29	MD Reference:	6372+30 @ 6402.00ft (H&P 530)
Well:	Rosa Unit #650H	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000 Multi User Db

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 Unit 29			
Site Position:		Northing:	2,138,126.53 usft	Latitude: 36.8750715
From:	Map	Easting:	2,847,195.58 usft	Longitude: -107.4090261
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "	Grid Convergence: 0.25 °

Well	Rosa Unit #650H - Slot B10			
Well Position	+N/-S	0.00 ft	Northing:	2,138,058.49 usft
	+E/-W	0.00 ft	Easting:	2,847,301.01 usft
Position Uncertainty	0.00 ft		Wellhead Elevation:	0.00 ft
			Ground Level:	6,372.00 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HRGM	8/5/2023	8.50	63.27	49,445.00838568

Design	OH			
Audit Notes:				
Version:	1.0	Phase:	ACTUAL	Tie On Depth: 0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	278.64

Survey Program	Date	10/16/2023		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
404.50	6,358.50	Survey #1 (OH)	MWD+HRGM+MS	MWD + HRGM + Multi-Station Correction
6,428.01	16,298.00	Survey #2 (OH)	MWD+HRGM+MS	MWD + HRGM + Multi-Station Correction
16,364.00	16,364.00	Survey #3 (OH)	A026Ua_BLIND	OWSG BLIND

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.00	0.00	0.00	0.00	0.00	0.00	2,138,058.49	2,847,301.01	36.8748833	-107.4086666
404.50	0.71	219.26	404.49	-1.94	-1.59	2,138,056.54	2,847,299.44	36.8748780	-107.4086721
495.50	0.92	221.72	495.48	-2.92	-2.43	2,138,055.55	2,847,298.60	36.8748753	-107.4086750
587.50	1.12	212.15	587.47	-4.23	-3.40	2,138,054.24	2,847,297.63	36.8748717	-107.4086783
680.50	0.89	203.97	680.45	-5.66	-4.18	2,138,052.80	2,847,296.86	36.8748677	-107.4086809
772.50	0.48	213.60	772.44	-6.64	-4.68	2,138,051.83	2,847,296.36	36.8748650	-107.4086826
871.50	1.24	4.31	871.44	-5.92	-4.83	2,138,052.55	2,847,296.21	36.8748670	-107.4086832
934.50	2.74	1.99	934.40	-3.73	-4.73	2,138,054.74	2,847,296.30	36.8748730	-107.4086828
998.50	4.45	5.82	998.27	0.27	-4.42	2,138,058.74	2,847,296.59	36.8748840	-107.4086818
1,060.50	5.88	2.49	1,060.02	5.83	-4.04	2,138,064.30	2,847,296.95	36.8748993	-107.4086805

SDT

Survey Report - Geographic

Company:	Logos Operating LLC	Local Co-ordinate Reference:	Well Rosa Unit #650H - Slot B10
Project:	Rio Arriba, NM NAD83	TVD Reference:	6372+30 @ 6402.00ft (H&P 530)
Site:	Rosa Unit 29	MD Reference:	6372+30 @ 6402.00ft (H&P 530)
Well:	Rosa Unit #650H	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000 Multi User Db

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
1,154.50	7.88	1.46	1,153.34	17.09	-3.66	2,138,075.56	2,847,297.27	36.8749302	-107.4086792	
1,249.50	10.05	1.06	1,247.17	31.89	-3.35	2,138,090.36	2,847,297.53	36.8749709	-107.4086781	
1,344.50	12.62	355.50	1,340.31	50.52	-4.01	2,138,108.99	2,847,296.78	36.8750221	-107.4086803	
1,416.50	14.59	354.50	1,410.29	67.39	-5.49	2,138,125.86	2,847,295.22	36.8750684	-107.4086854	
1,510.50	16.16	353.19	1,500.92	92.17	-8.18	2,138,150.62	2,847,292.42	36.8751364	-107.4086946	
1,605.50	17.52	354.02	1,591.85	119.52	-11.24	2,138,177.96	2,847,289.24	36.8752116	-107.4087051	
1,700.50	16.71	352.07	1,682.64	147.27	-14.61	2,138,205.69	2,847,285.75	36.8752878	-107.4087166	
1,795.50	16.31	351.39	1,773.72	173.98	-18.49	2,138,232.39	2,847,281.75	36.8753612	-107.4087299	
1,889.50	15.35	352.58	1,864.16	199.37	-22.07	2,138,257.76	2,847,278.05	36.8754309	-107.4087421	
1,985.50	15.73	351.47	1,956.65	224.84	-25.65	2,138,283.21	2,847,274.37	36.8755009	-107.4087543	
2,080.50	15.84	350.68	2,048.06	250.37	-29.66	2,138,308.72	2,847,270.24	36.8755710	-107.4087680	
2,175.50	14.93	350.18	2,139.66	275.22	-33.84	2,138,333.56	2,847,265.95	36.8756393	-107.4087824	
2,268.50	15.55	349.46	2,229.39	299.28	-38.17	2,138,357.60	2,847,261.52	36.8757053	-107.4087971	
2,364.50	14.50	350.99	2,322.10	323.81	-42.40	2,138,382.10	2,847,257.17	36.8757727	-107.4088116	
2,458.50	15.09	351.20	2,412.99	347.52	-46.12	2,138,405.80	2,847,253.35	36.8758378	-107.4088243	
2,553.50	16.30	350.29	2,504.44	372.88	-50.26	2,138,431.14	2,847,249.10	36.8759075	-107.4088385	
2,648.50	16.04	350.85	2,595.69	398.98	-54.59	2,138,457.22	2,847,244.65	36.8759792	-107.4088533	
2,743.50	15.58	352.43	2,687.09	424.59	-58.36	2,138,482.81	2,847,240.76	36.8760495	-107.4088662	
2,838.50	15.11	353.85	2,778.71	449.54	-61.37	2,138,507.75	2,847,237.65	36.8761181	-107.4088765	
2,933.50	15.30	353.87	2,870.38	474.32	-64.03	2,138,532.51	2,847,234.87	36.8761861	-107.4088856	
3,028.50	14.82	353.70	2,962.12	498.85	-66.70	2,138,557.04	2,847,232.09	36.8762535	-107.4088947	
3,123.50	13.99	351.98	3,054.13	522.30	-69.64	2,138,580.47	2,847,229.05	36.8763179	-107.4089047	
3,218.50	12.77	351.49	3,146.55	544.06	-72.80	2,138,602.22	2,847,225.80	36.8763777	-107.4089155	
3,314.50	11.91	350.52	3,240.33	564.32	-76.00	2,138,622.47	2,847,222.51	36.8764333	-107.4089265	
3,409.50	12.58	349.66	3,333.17	584.17	-79.47	2,138,642.30	2,847,218.95	36.8764878	-107.4089384	
3,504.50	12.48	350.12	3,425.91	604.46	-83.09	2,138,662.57	2,847,215.24	36.8765436	-107.4089507	
3,600.50	12.77	348.62	3,519.59	625.08	-86.96	2,138,683.17	2,847,211.27	36.8766002	-107.4089640	
3,696.50	12.43	346.70	3,613.27	645.54	-91.43	2,138,703.61	2,847,206.71	36.8766564	-107.4089793	
3,790.50	11.49	345.13	3,705.23	664.43	-96.16	2,138,722.48	2,847,201.90	36.8767083	-107.4089954	
3,883.50	10.14	345.67	3,796.58	681.31	-100.56	2,138,739.35	2,847,197.42	36.8767547	-107.4090105	
3,979.50	8.89	346.74	3,891.26	696.72	-104.36	2,138,754.74	2,847,193.56	36.8767970	-107.4090234	
4,074.50	8.17	350.38	3,985.21	710.52	-107.17	2,138,768.53	2,847,190.68	36.8768349	-107.4090331	
4,171.50	8.40	353.92	4,081.19	724.36	-109.07	2,138,782.36	2,847,188.72	36.8768729	-107.4090396	
4,265.50	9.04	354.87	4,174.11	738.55	-110.46	2,138,796.53	2,847,187.27	36.8769119	-107.4090443	
4,360.50	10.11	352.81	4,267.78	754.25	-112.17	2,138,812.23	2,847,185.49	36.8769550	-107.4090502	
4,456.50	12.03	352.45	4,361.99	772.53	-114.54	2,138,830.50	2,847,183.04	36.8770052	-107.4090583	
4,552.50	13.72	352.25	4,455.57	793.73	-117.39	2,138,851.69	2,847,180.09	36.8770635	-107.4090680	
4,649.50	14.47	352.97	4,549.65	817.16	-120.42	2,138,875.10	2,847,176.96	36.8771278	-107.4090784	
4,744.50	15.28	353.39	4,641.47	841.37	-123.32	2,138,899.30	2,847,173.95	36.8771943	-107.4090883	
4,838.50	15.13	352.20	4,732.18	865.83	-126.41	2,138,923.75	2,847,170.75	36.8772615	-107.4090988	
4,933.50	14.74	351.25	4,823.97	890.06	-129.93	2,138,947.96	2,847,167.13	36.8773280	-107.4091109	
5,027.50	15.05	351.36	4,914.81	913.94	-133.58	2,138,971.83	2,847,163.37	36.8773936	-107.4091234	
5,124.50	16.30	352.13	5,008.20	939.88	-137.34	2,138,997.75	2,847,159.50	36.8774649	-107.4091362	
5,219.50	16.90	352.74	5,099.24	966.78	-140.91	2,139,024.63	2,847,155.81	36.8775388	-107.4091484	
5,313.50	18.28	353.13	5,188.84	994.98	-144.40	2,139,052.81	2,847,152.19	36.8776162	-107.4091604	
5,408.50	19.02	351.87	5,278.86	1,025.09	-148.37	2,139,082.91	2,847,148.08	36.8776989	-107.4091739	
5,471.50	18.54	349.99	5,338.50	1,045.12	-151.56	2,139,102.92	2,847,144.80	36.8777539	-107.4091848	
5,503.50	18.17	348.57	5,368.87	1,055.02	-153.44	2,139,112.81	2,847,142.89	36.8777811	-107.4091913	
5,567.50	17.99	345.79	5,429.72	1,074.38	-157.84	2,139,132.15	2,847,138.40	36.8778343	-107.4092063	
5,631.50	17.95	343.35	5,490.59	1,093.41	-163.09	2,139,151.16	2,847,133.06	36.8778866	-107.4092243	
5,695.50	17.68	341.14	5,551.53	1,112.06	-169.06	2,139,169.78	2,847,127.01	36.8779378	-107.4092447	
5,758.50	17.84	338.78	5,611.52	1,130.11	-175.64	2,139,187.80	2,847,120.34	36.8779874	-107.4092672	
5,820.50	17.67	336.58	5,670.57	1,147.59	-182.82	2,139,205.25	2,847,113.09	36.8780354	-107.4092917	
5,884.50	17.43	334.70	5,731.59	1,165.17	-190.78	2,139,222.80	2,847,105.05	36.8780837	-107.4093189	
5,948.50	17.14	333.41	5,792.70	1,182.27	-199.10	2,139,239.86	2,847,096.66	36.8781307	-107.4093474	

SDT

Survey Report - Geographic

Company:	Logos Operating LLC	Local Co-ordinate Reference:	Well Rosa Unit #650H - Slot B10
Project:	Rio Arriba, NM NAD83	TVD Reference:	6372+30 @ 6402.00ft (H&P 530)
Site:	Rosa Unit 29	MD Reference:	6372+30 @ 6402.00ft (H&P 530)
Well:	Rosa Unit #650H	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000 Multi User Db

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
6,011.50	16.47	330.38	5,853.01	1,198.34	-207.67	2,139,255.89	2,847,088.02	36.8781748	-107.4093767
6,075.50	15.27	327.52	5,914.57	1,213.33	-216.68	2,139,270.84	2,847,078.94	36.8782160	-107.4094075
6,137.50	14.28	324.69	5,974.52	1,226.46	-225.48	2,139,283.93	2,847,070.08	36.8782520	-107.4094376
6,200.50	12.94	321.95	6,035.75	1,238.36	-234.32	2,139,295.79	2,847,061.19	36.8782847	-107.4094678
6,263.50	11.18	318.49	6,097.36	1,248.49	-242.72	2,139,305.88	2,847,052.75	36.8783125	-107.4094965
6,358.50	8.78	311.71	6,190.92	1,260.21	-254.23	2,139,317.55	2,847,041.18	36.8783447	-107.4095359
6,428.00	7.37	307.41	6,259.73	1,266.45	-261.74	2,139,323.76	2,847,033.65	36.8783619	-107.4095615
6,523.00	9.77	304.55	6,353.66	1,274.72	-273.22	2,139,331.98	2,847,022.13	36.8783846	-107.4096008
6,617.00	10.82	306.26	6,446.15	1,284.46	-286.90	2,139,341.66	2,847,008.40	36.8784114	-107.4096476
6,712.00	8.92	298.73	6,539.74	1,293.28	-300.55	2,139,350.41	2,846,994.71	36.8784356	-107.4096942
6,806.00	10.21	305.05	6,632.44	1,301.57	-313.76	2,139,358.64	2,846,981.47	36.8784583	-107.4097394
6,901.00	13.78	301.19	6,725.35	1,312.27	-330.34	2,139,369.27	2,846,964.84	36.8784877	-107.4097961
6,996.00	21.97	295.32	6,815.69	1,325.75	-356.13	2,139,382.64	2,846,938.99	36.8785248	-107.4098843
7,090.00	28.29	288.26	6,900.77	1,340.27	-393.22	2,139,396.99	2,846,901.84	36.8785646	-107.4100111
7,185.00	35.60	275.21	6,981.43	1,349.86	-442.26	2,139,406.36	2,846,852.75	36.8785910	-107.4101788
7,279.00	44.56	268.03	7,053.32	1,351.21	-502.62	2,139,407.45	2,846,792.39	36.8785947	-107.4103851
7,374.00	50.67	268.50	7,117.33	1,349.10	-572.73	2,139,405.02	2,846,722.29	36.8785889	-107.4106248
7,468.00	60.29	273.24	7,170.55	1,350.46	-650.04	2,139,406.04	2,846,644.98	36.8785926	-107.4108892
7,563.00	71.11	271.04	7,209.59	1,353.62	-736.43	2,139,408.81	2,846,558.57	36.8786013	-107.4111845
7,657.00	77.84	270.11	7,234.74	1,354.51	-826.94	2,139,409.31	2,846,468.06	36.8786037	-107.4114940
7,751.00	83.77	271.08	7,249.75	1,355.48	-919.68	2,139,409.86	2,846,375.31	36.8786064	-107.4118111
7,788.00	85.65	271.06	7,253.17	1,356.17	-956.52	2,139,410.39	2,846,338.47	36.8786083	-107.4119370
RU 650H Actual POE @ 7788' MD									
7,846.00	88.59	271.03	7,256.08	1,357.23	-1,014.43	2,139,411.19	2,846,280.56	36.8786112	-107.4121350
7,940.00	90.50	273.02	7,256.83	1,360.55	-1,108.36	2,139,414.09	2,846,186.62	36.8786203	-107.4124562
8,034.00	90.60	273.43	7,255.92	1,365.84	-1,202.20	2,139,418.96	2,846,092.75	36.8786348	-107.4127771
8,129.00	90.44	271.22	7,255.06	1,369.69	-1,297.12	2,139,422.39	2,845,997.82	36.8786454	-107.4131016
8,223.00	90.27	271.76	7,254.48	1,372.13	-1,391.08	2,139,424.42	2,845,903.84	36.8786521	-107.4134229
8,317.00	90.13	271.71	7,254.15	1,374.98	-1,485.04	2,139,426.85	2,845,809.88	36.8786599	-107.4137441
8,412.00	90.24	271.29	7,253.85	1,377.47	-1,580.01	2,139,428.91	2,845,714.90	36.8786667	-107.4140688
8,506.00	90.34	271.80	7,253.37	1,380.00	-1,673.97	2,139,431.03	2,845,620.92	36.8786736	-107.4143901
8,600.00	90.13	272.54	7,252.98	1,383.56	-1,767.90	2,139,434.17	2,845,526.98	36.8786834	-107.4147112
8,694.00	89.90	272.96	7,252.96	1,388.07	-1,861.79	2,139,438.26	2,845,433.07	36.8786958	-107.4150323
8,789.00	88.25	271.70	7,254.49	1,391.93	-1,956.70	2,139,441.70	2,845,338.15	36.8787064	-107.4153567
8,883.00	88.65	268.56	7,257.04	1,392.15	-2,050.65	2,139,441.50	2,845,244.20	36.8787069	-107.4156780
8,978.00	90.34	268.16	7,257.87	1,389.43	-2,145.60	2,139,438.35	2,845,149.25	36.8786994	-107.4160026
9,072.00	89.87	268.97	7,257.70	1,387.07	-2,239.57	2,139,435.58	2,845,055.30	36.8786930	-107.4163239
9,167.00	88.89	267.63	7,258.73	1,384.25	-2,334.52	2,139,432.34	2,844,960.36	36.8786852	-107.4166485
9,262.00	90.74	269.72	7,259.04	1,382.06	-2,429.49	2,139,429.72	2,844,865.41	36.8786791	-107.4169732
9,356.00	89.97	268.88	7,258.45	1,380.91	-2,523.48	2,139,428.16	2,844,771.42	36.8786760	-107.4172946
9,450.00	91.55	267.75	7,257.21	1,378.15	-2,617.42	2,139,424.98	2,844,677.49	36.8786684	-107.4176158
9,544.00	91.65	269.63	7,254.58	1,376.00	-2,711.36	2,139,422.41	2,844,583.57	36.8786624	-107.4179370
9,639.00	92.49	271.00	7,251.15	1,376.52	-2,806.29	2,139,422.51	2,844,488.63	36.8786638	-107.4182616
9,734.00	91.95	274.13	7,247.47	1,380.77	-2,901.11	2,139,426.34	2,844,393.79	36.8786755	-107.4185858
9,829.00	89.50	273.69	7,246.27	1,387.25	-2,995.88	2,139,432.39	2,844,299.00	36.8786932	-107.4189098
9,923.00	89.19	273.62	7,247.34	1,393.24	-3,089.68	2,139,437.97	2,844,205.17	36.8787097	-107.4192305
10,018.00	89.06	273.96	7,248.79	1,399.52	-3,184.46	2,139,443.82	2,844,110.37	36.8787269	-107.4195546
10,113.00	89.97	272.27	7,249.60	1,404.68	-3,279.31	2,139,448.56	2,844,015.49	36.8787410	-107.4198789
10,207.00	91.14	271.53	7,248.69	1,407.79	-3,373.25	2,139,451.26	2,843,921.54	36.8787496	-107.4202001
10,302.00	91.44	272.98	7,246.55	1,411.53	-3,468.15	2,139,454.58	2,843,826.62	36.8787598	-107.4205245
10,397.00	90.97	271.81	7,244.55	1,415.50	-3,563.05	2,139,458.12	2,843,731.71	36.8787707	-107.4208490
10,491.00	91.35	272.47	7,242.65	1,419.01	-3,656.96	2,139,461.21	2,843,637.78	36.8787803	-107.4211701
10,586.00	88.75	271.50	7,242.56	1,422.30	-3,751.90	2,139,464.08	2,843,542.84	36.8787893	-107.4214947
10,680.00	89.06	272.04	7,244.36	1,425.20	-3,845.83	2,139,466.57	2,843,448.89	36.8787972	-107.4218158
10,775.00	89.83	270.72	7,245.28	1,427.49	-3,940.80	2,139,468.43	2,843,353.91	36.8788035	-107.4221405

SDT

Survey Report - Geographic

Company:	Logos Operating LLC	Local Co-ordinate Reference:	Well Rosa Unit #650H - Slot B10
Project:	Rio Arriba, NM NAD83	TVD Reference:	6372+30 @ 6402.00ft (H&P 530)
Site:	Rosa Unit 29	MD Reference:	6372+30 @ 6402.00ft (H&P 530)
Well:	Rosa Unit #650H	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000 Multi User Db

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
10,869.00	89.70	270.87	7,245.67	1,428.79	-4,034.79	2,139,469.32	2,843,259.92	36.8788070	-107.4224619
10,964.00	89.93	272.65	7,245.97	1,431.71	-4,129.74	2,139,471.81	2,843,164.95	36.8788150	-107.4227865
11,058.00	88.92	268.18	7,246.92	1,432.39	-4,223.71	2,139,472.08	2,843,070.99	36.8788168	-107.4231078
11,153.00	90.30	268.97	7,247.56	1,430.03	-4,318.67	2,139,469.29	2,842,976.03	36.8788103	-107.4234325
11,247.00	90.30	269.39	7,247.07	1,428.69	-4,412.66	2,139,467.53	2,842,882.05	36.8788065	-107.4237539
11,342.00	90.07	268.11	7,246.76	1,426.61	-4,507.64	2,139,465.03	2,842,787.09	36.8788008	-107.4240786
11,436.00	89.87	269.23	7,246.81	1,424.43	-4,601.61	2,139,462.43	2,842,693.12	36.8787948	-107.4243999
11,531.00	88.96	269.05	7,247.78	1,423.01	-4,696.59	2,139,460.59	2,842,598.15	36.8787908	-107.4247247
11,625.00	89.90	267.41	7,248.72	1,420.10	-4,790.54	2,139,457.26	2,842,504.21	36.8787828	-107.4250459
11,720.00	91.58	267.12	7,247.49	1,415.57	-4,885.42	2,139,452.31	2,842,409.36	36.8787703	-107.4253703
11,814.00	91.98	270.35	7,244.57	1,413.50	-4,979.34	2,139,449.82	2,842,315.45	36.8787646	-107.4256914
11,908.00	90.94	270.67	7,242.18	1,414.33	-5,073.30	2,139,450.24	2,842,221.48	36.8787668	-107.4260127
12,003.00	90.20	270.28	7,241.23	1,415.12	-5,168.29	2,139,450.60	2,842,126.49	36.8787689	-107.4263374
12,098.00	90.34	270.23	7,240.78	1,415.54	-5,263.29	2,139,450.60	2,842,031.49	36.8787700	-107.4266622
12,192.00	90.13	270.55	7,240.40	1,416.18	-5,357.29	2,139,450.82	2,841,937.49	36.8787718	-107.4269836
12,287.00	89.76	269.80	7,240.49	1,416.47	-5,452.29	2,139,450.69	2,841,842.49	36.8787725	-107.4273084
12,381.00	89.36	270.69	7,241.21	1,416.87	-5,546.28	2,139,450.68	2,841,748.49	36.8787736	-107.4276298
12,476.00	90.94	269.85	7,240.96	1,417.32	-5,641.28	2,139,450.70	2,841,653.50	36.8787747	-107.4279546
12,570.00	90.77	269.99	7,239.56	1,417.19	-5,735.27	2,139,450.15	2,841,559.51	36.8787743	-107.4282760
12,665.00	90.84	270.71	7,238.22	1,417.77	-5,830.25	2,139,450.31	2,841,464.52	36.8787759	-107.4286007
12,759.00	90.81	269.06	7,236.87	1,417.58	-5,924.24	2,139,449.70	2,841,370.54	36.8787753	-107.4289221
12,854.00	89.63	270.33	7,236.51	1,417.08	-6,019.24	2,139,448.77	2,841,275.55	36.8787738	-107.4292469
12,948.00	90.03	270.91	7,236.79	1,418.09	-6,113.23	2,139,449.37	2,841,181.55	36.8787766	-107.4295683
13,043.00	89.63	272.00	7,237.07	1,420.51	-6,208.20	2,139,451.36	2,841,086.57	36.8787831	-107.4298930
13,138.00	88.69	272.68	7,238.46	1,424.38	-6,303.11	2,139,454.82	2,840,991.65	36.8787937	-107.4302175
13,232.00	88.42	272.47	7,240.83	1,428.61	-6,396.98	2,139,458.62	2,840,897.75	36.8788053	-107.4305384
13,326.00	89.56	271.05	7,242.49	1,431.49	-6,490.92	2,139,461.09	2,840,803.81	36.8788131	-107.4308596
13,421.00	89.43	272.01	7,243.32	1,434.03	-6,585.88	2,139,463.21	2,840,708.83	36.8788201	-107.4311843
13,515.00	90.34	269.27	7,243.51	1,435.08	-6,679.86	2,139,463.84	2,840,614.85	36.8788229	-107.4315056
13,610.00	90.13	269.95	7,243.12	1,434.43	-6,774.86	2,139,462.77	2,840,519.85	36.8788210	-107.4318304
13,705.00	90.07	268.82	7,242.96	1,433.41	-6,869.85	2,139,461.33	2,840,424.87	36.8788182	-107.4321552
13,799.00	91.38	271.66	7,241.77	1,433.81	-6,963.83	2,139,461.30	2,840,330.89	36.8788192	-107.4324765
13,894.00	91.65	270.88	7,239.26	1,435.91	-7,058.77	2,139,462.98	2,840,235.94	36.8788249	-107.4328012
13,988.00	90.44	269.28	7,237.54	1,436.04	-7,152.75	2,139,462.70	2,840,141.96	36.8788252	-107.4331225
14,083.00	90.71	269.09	7,236.59	1,434.69	-7,247.74	2,139,460.92	2,840,046.98	36.8788214	-107.4334473
14,177.00	90.67	269.38	7,235.46	1,433.43	-7,341.72	2,139,459.25	2,839,953.00	36.8788179	-107.4337686
14,272.00	90.30	268.71	7,234.65	1,431.85	-7,436.71	2,139,457.24	2,839,858.03	36.8788135	-107.4340933
14,367.00	90.17	268.89	7,234.26	1,429.86	-7,531.69	2,139,454.83	2,839,763.06	36.8788079	-107.4344181
14,461.00	89.33	267.70	7,234.67	1,427.07	-7,625.64	2,139,451.62	2,839,669.12	36.8788002	-107.4347393
14,556.00	89.46	267.30	7,235.68	1,422.92	-7,720.54	2,139,447.05	2,839,574.23	36.8787887	-107.4350638
14,650.00	90.34	269.71	7,235.84	1,420.47	-7,814.50	2,139,444.18	2,839,480.28	36.8787819	-107.4353851
14,745.00	90.10	268.81	7,235.48	1,419.24	-7,909.49	2,139,442.53	2,839,385.30	36.8787785	-107.4357098
14,839.00	89.56	269.86	7,235.75	1,418.15	-8,003.49	2,139,441.02	2,839,291.31	36.8787754	-107.4360312
14,933.00	89.09	270.12	7,236.86	1,418.14	-8,097.48	2,139,440.59	2,839,197.32	36.8787753	-107.4363526
15,028.00	89.80	269.56	7,237.78	1,417.87	-8,192.47	2,139,439.90	2,839,102.33	36.8787745	-107.4366774
15,122.00	90.00	272.39	7,237.95	1,419.47	-8,286.45	2,139,441.08	2,839,008.35	36.8787788	-107.4369987
15,217.00	90.17	272.29	7,237.81	1,423.35	-8,381.37	2,139,444.54	2,838,913.41	36.8787894	-107.4373232
15,311.00	90.40	272.69	7,237.34	1,427.43	-8,475.28	2,139,448.21	2,838,819.48	36.8788005	-107.4376443
15,374.00	89.73	272.89	7,237.27	1,430.50	-8,538.21	2,139,450.99	2,838,756.55	36.8788089	-107.4378595
15,469.00	88.35	272.72	7,238.86	1,435.15	-8,633.08	2,139,455.22	2,838,661.66	36.8788216	-107.4381838
15,563.00	88.42	272.18	7,241.51	1,439.16	-8,726.95	2,139,458.82	2,838,567.76	36.8788325	-107.4385048
15,595.00	88.22	272.06	7,242.45	1,440.35	-8,758.92	2,139,459.86	2,838,535.79	36.8788358	-107.4386141
15,689.00	87.91	269.79	7,245.62	1,441.86	-8,852.84	2,139,460.96	2,838,441.86	36.8788398	-107.4389352
15,783.00	89.02	269.95	7,248.14	1,441.65	-8,946.81	2,139,460.33	2,838,347.90	36.8788392	-107.4392565
15,878.00	89.87	269.37	7,249.06	1,441.09	-9,041.80	2,139,459.34	2,838,252.91	36.8788375	-107.4395813

SDT
Survey Report - Geographic

Company:	Logos Operating LLC	Local Co-ordinate Reference:	Well Rosa Unit #650H - Slot B10
Project:	Rio Arriba, NM NAD83	TVD Reference:	6372+30 @ 6402.00ft (H&P 530)
Site:	Rosa Unit 29	MD Reference:	6372+30 @ 6402.00ft (H&P 530)
Well:	Rosa Unit #650H	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000 Multi User Db

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
15,972.00	91.41	270.64	7,248.01	1,441.09	-9,135.79	2,139,458.93	2,838,158.92	36.8788375	-107.4399027
16,067.00	91.88	271.41	7,245.28	1,442.79	-9,230.74	2,139,460.21	2,838,063.97	36.8788421	-107.4402273
16,130.00	92.08	272.61	7,243.10	1,445.00	-9,293.66	2,139,462.13	2,838,001.04	36.8788481	-107.4404424
16,149.00	91.92	272.58	7,242.44	1,445.86	-9,312.63	2,139,462.91	2,837,982.06	36.8788504	-107.4405073
RU 650H Actual FPP @ 16149' MD									
16,193.00	91.55	272.50	7,241.11	1,447.81	-9,356.56	2,139,464.66	2,837,938.12	36.8788557	-107.4406575
16,256.00	90.03	272.69	7,240.24	1,450.66	-9,419.49	2,139,467.23	2,837,875.18	36.8788635	-107.4408727
16,298.00	90.20	272.24	7,240.16	1,452.47	-9,461.45	2,139,468.85	2,837,833.21	36.8788684	-107.4410161
16,364.00	90.20	272.24	7,239.93	1,455.05	-9,527.40	2,139,471.14	2,837,767.25	36.8788755	-107.4412416
BHL @ 16364' MD									

Design Targets									
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Rosa 650H SHL - actual wellpath hits target center - Point	0.00	0.00	0.00	0.00	0.00	2,138,058.49	2,847,301.01	36.8748833	-107.4086666
Rosa 650H BHL - actual wellpath hits target center - Point	0.00	0.00	7,239.93	1,455.05	-9,527.40	2,139,471.14	2,837,767.25	36.8788755	-107.4412416
Rosa 650H Actual FPP - actual wellpath hits target center - Point	0.00	0.00	7,242.44	1,445.86	-9,312.63	2,139,462.91	2,837,982.06	36.8788504	-107.4405073
Rosa 650H PBHL - actual wellpath misses target center by 35.53ft at 16298.00ft MD (7240.16 TVD, 1452.47 N, -9461.45 E) - Point	0.00	0.00	7,253.00	1,442.20	-9,492.95	2,139,458.45	2,837,801.76	36.8788402	-107.4411238
Rosa 650H Actual POE - actual wellpath hits target center - Point	0.00	0.00	7,253.17	1,356.17	-956.52	2,139,410.39	2,846,338.47	36.8786083	-107.4119370

Design Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
7,788.00	7,253.17	1,356.17	-956.52	RU 650H Actual POE @ 7788' MD	
16,149.00	7,242.44	1,445.86	-9,312.63	RU 650H Actual FPP @ 16149' MD	
16,364.00	7,239.93	1,455.05	-9,527.40	BHL @ 16364' MD	

Checked By: _____

Approved By: _____

Date: _____

Form 3160-5
(June 2019)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED OMB
No. 1004-0137 Expires:
December 31, 2024

SUNDRY NOTICES AND REPORTS ON WELLS
**Do not use this form for proposals to drill or to re-enter an
abandoned well. Use Form 3160-3 (APD) for such proposals.**

5. Lease Serial No. NMSF078771

6. If Indian, Allottee or Tribe Name

SUBMIT IN TRIPLICATE - Other instructions on page 2

1. Type of Well

☐ Oil Well ☒ Gas Well ☐ Other

2. Name of Operator
LOGOS OPERATING, LLC

3a. Address 2010 AFTON PLACE
FARMINGTON, NM 87401

3b. Phone No. (include area code)
(505) 278-8720

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)
SEC 25 T31N R06W NENE (A) 1080' FNL 258' FEL

7. If Unit of CA/Agreement, Name and/or No.

8. Well Name and No.
ROSA UNIT 650H

9. API Well No.
30-039-31412

10. Field and Pool or Exploratory Area
BASIN MANCOS

11. Country or Parish, State
RIO ARriba COUNTY, NM

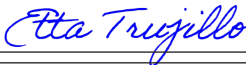
12. CHECK THE APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION				
☐ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off	
	☐ Alter Casing	☐ Hydraulic Fracturing	☐ Reclamation	☐ Well Integrity	
☒ Subsequent Report	☐ Casing Repair	☐ New Construction	☐ Recomplete	☒ Other	
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	Completions	
☐ Final Abandonment Notice	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal		

413. Describe Proposed or Completed Operation: Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recompleat horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports must be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompleat in a new interval, a Form 3160-4 must be filed once testing has been completed. Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed and the operator has determined that the site is ready for final inspection.)

9/16/2023 - MIRU WL. Run CBL (TOC @ 1,200'). RDMO
9/20 -9/30/2023 - MIRU. Open toe sleeves @ 16,098'-16,101' & 16,146'-16,149' (48perfs). RU Frac. MIRU WL. Finish Frac rig up.
10/01 - 10/12/2023 - Frac'd stage 1 w/249,544lbs Proppant, 100mesh & 40/70 sand, 7,605bbbs slickwater. Set CFP @ 16,083'. Perforate intervals @ 16,068' - 7,786'. w/5 and 6 SPF, .38" Dia, 60 phasing. Frac'd w/19,139,949lbs Proppant, 100mesh & 40/70 sand, 492,818bbbs slickwater. RIH set kill plug @ 7758'. PT to 6500psi. Total of 1,976 perfs. RDMO.
10/13 - 10/16/2023 - MIRU CTU. DO kill plug @ 7,758'. Circulate, CO & DO composite frac plugs. POOH w/2-3/8" CT and drill out BHA. Well secured. RDMO CTU & all associated equipment.

Per the approved operations plan, the 2-7/8", 6.5#, J-55, EUE tubing will be run once volumes and pressures decline and could be close to a year after the well is brought online.

14. I hereby certify that the foregoing is true and correct. Name (Printed/Typed) Etta Trujillo	Title Regulatory Specialist
Signature 	Date 12/08/2023

THE SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by	Title	Date
Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.	Office	

(Instructions on page 2)

Form 3160-5
(June 2019)UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENTFORM APPROVED OMB
No. 1004-0137 Expires:
December 31, 2024**SUNDRY NOTICES AND REPORTS ON WELLS**
**Do not use this form for proposals to drill or to re-enter an
abandoned well. Use Form 3160-3 (APD) for such proposals.**

5. Lease Serial No. NMSF078771

6. If Indian, Allottee or Tribe Name

SUBMIT IN TRIPLICATE - Other instructions on page 2

1. Type of Well

☐ Oil Well ☒ Gas Well ☐ Other

2. Name of Operator

LOGOS OPERATING, LLC

3a. Address 2010 AFTON PLACE
FARMINGTON, NM 874013b. Phone No. (include area code)
(505) 278-8720

7. If Unit of CA/Agreement, Name and/or No.

NMNM78407E

8. Well Name and No.

ROSA UNIT650H

9. API Well No.

30-039-31412

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)

SEC 25 T31N R06W NENE (A) 1080' FNL 258' FEL

10. Field and Pool or Exploratory Area

BASIN MANCOS

11. Country or Parish, State

RIO ARRIBA COUNTY, NM

12. CHECK THE APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION				
☐ Notice of Intent	☐ Acidize	☐ Deepen	☒ Production (Start/Resume)	☐ Water Shut-Off	
☒ Subsequent Report	☐ Alter Casing	☐ Hydraulic Fracturing	☐ Reclamation	☐ Well Integrity	
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☐ Other	
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon		
	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal		

13. Describe Proposed or Completed Operation: Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recompleat horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports must be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompleat in a new interval, a Form 3160-4 must be filed once testing has been completed. Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed and the operator has detennined that the site is ready for final inspection.)

First delivery date: 10/21/2023

TP: 0 CP: 1268

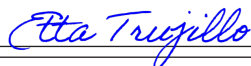
Initial MCF: 43 MCF

14. I hereby certify that the foregoing is true and correct. Name (Printed/Typed)

Etta Trujillo

Title Regulatory Specialist

Signature



Date 10/30/2023

THE SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by

Title

Date

Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

Office

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

(Instructions on page 2)

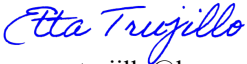
From: blm-afmss-notifications@blm.gov
To: [Etta Trujillo](#)
Subject: Well Name: ROSA UNIT, Well Number: 650H, Notification of Well Completion Acceptance
Date: Tuesday, December 12, 2023 10:25:49 AM

The Bureau of Land Management

Notice of Acceptance for Well Completion Report

- Operator Name: **LOGOS OPERATING LLC**
- Well Name: **ROSA UNIT**
- Well Number: **650H**
- US Well Number: **3003931412**
- Well Completion Report Id: **WCR2023121290430**

This notification is automatically generated. Please do not reply to this message as this account is not monitored.

Submit To Appropriate District Office Two Copies <u>District I</u> 1625 N. French Dr., Hobbs, NM 88240 <u>District II</u> 811 S. First St., Artesia, NM 88210 <u>District III</u> 1000 Rio Brazos Rd., Aztec, NM 87410 <u>District IV</u> 1220 S. St. Francis Dr., Santa Fe, NM 87505		State of New Mexico Energy, Minerals and Natural Resources Oil Conservation Division 1220 South St. Francis Dr. Santa Fe, NM 87505				Form C-105 Revised April 3, 2017				
WELL COMPLETION OR RECOMPLETION REPORT AND LOG										
4. Reason for filing: ☒ COMPLETION REPORT (Fill in boxes #1 through #31 for State and Fee wells only) ☐ C-144 CLOSURE ATTACHMENT (Fill in boxes #1 through #9, #15 Date Rig Released and #32 and/or #33; attach this and the plat to the C-144 closure report in accordance with 19.15.17.13.K NMAC)								5. Lease Name or Unit Agreement Name ROSA UNIT		
								6. Well Number: 650H		
7. Type of Completion: ☒ NEW WELL ☐ WORKOVER ☐ DEEPENING ☐ PLUGBACK ☐ DIFFERENT RESERVOIR ☐ OTHER										
8. Name of Operator LOGOS OPERATING, LLC						9. OGRID 289408				
10. Address of Operator 2010 AFTON PLACE, FARMINGTON, NM 87401						11. Pool name or Wildcat BASIN MANCOS				
12. Location	Unit Ltr	Section	Township	Range	Lot	Feet from the	N/S Line	Feet from the	E/W Line	County
Surface:	A	25	31N	R06W	1	1084'	FNL	258'	FEL	RIO ARRIBA
BH:	P	22	31N	R06W		366'	FSL	17'	FEL	RIO ARRIBA
13. Date Spudded 4/11/2022	14. Date T.D. Reached 8/18/2023		15. Date Rig Released 8/20/2023		16. Date Completed (Ready to Produce) 10/16/2023			17. Elevations (DF and RKB, RT, GR, etc.) 6372'		
18. Total Measured Depth of Well 16,364' MD / 7,240' TVD			19. Plug Back Measured Depth 16,238' MD / 7,240' TVD		20. Was Directional Survey Made? Y			21. Type Electric and Other Logs Run CBL		
22. Producing Interval(s), of this completion - Top, Bottom, Name BASIN MANCOS (7242' - 7253') TVD										
23. CASING RECORD (Report all strings set in well)										
CASING SIZE		WEIGHT LB./FT.		DEPTH SET		HOLE SIZE		CEMENTING RECORD		AMOUNT PULLED
13-3/8"		54.5#		325' (GL)		17-1/2"		365 sks		Circ 25bbls to surface
9-5/8"		47.0#		6393'		12-1/2"		2411 sks		126bbls (DV@ 3207', 4790')
5-1/2"		20.0#		16,331'		8-1/2"		2162 sks		TOC @ 1200' (CBL)
24. LINER RECORD										
SIZE	TOP	BOTTOM		SACKS CEMENT	SCREEN		25. TUBING RECORD			
							Pending			
26. Perforation record (interval, size, and number) 16,.149' MD to 7,786' MD, 0.38" , 5 & 6SPF, 2024 total holes						27. ACID, SHOT, FRACTURE, CEMENT, SQUEEZE, ETC.				
						DEPTH INTERVAL		AMOUNT AND KIND MATERIAL USED		
						16,149' MD - 7,786' MD		Frac'd 43 stages of 19,389,493lb Proppant, 100# mesh &		
								40/70 Ottawa sand. 500,423bbls of slickwater.		
28. PRODUCTION										
Date First Production 10/21/2023		Production Method (<i>Flowing, gas lift, pumping - Size and type pump</i>) <i>Flowing</i>				Well Status (<i>Prod. or Shut-in</i>) <i>Producing</i>				
Date of Test 10/21/2023	Hours Tested 12hrs	Choke Size 16/128	Prod'n For Test Period	Oil - Bbl n/a	Gas - MCF 709 mcf	Water - Bbl. 480 bbls	Gas - Oil Ratio n/a			
Flow Tubing Press. n/a	Casing Pressure 1932 psi	Calculated 24-Hour Rate	Oil - Bbl. n/a	Gas - MCF 1,589 mcf	Water - Bbl. 912 bbls	Oil Gravity - API - (<i>Corr.</i>) n/a				
29. Disposition of Gas (<i>Sold, used for fuel, vented, etc.</i>) <i>SOLD</i>								30. Test Witnessed By		
31. List Attachments										
32. If a temporary pit was used at the well, attach a plat with the location of the temporary pit.								33. Rig Release Date:		
34. If an on-site burial was used at the well, report the exact location of the on-site burial:										
Latitude _____ Longitude _____ NAD83										
<i>I hereby certify that the information shown on both sides of this form is true and complete to the best of my knowledge and belief</i>										
Signature 			Name Etta Trujillo			Title Regulatory Specialist			Date 12/12/2023	
E-mail Address etrujillo@logosresourcesllc.com										

This form is to be filed with the appropriate District Office of the Division not later than 20 days after the completion of any newly-drilled or deepened well and not later than 60 days after completion of closure. When submitted as a completion report, this shall be accompanied by one copy of all electrical and radio-activity logs run on the well and a summary of all special tests conducted, including drill stem tests. All depths reported shall be measured depths. In the case of directionally drilled wells, true vertical depths shall also be reported. For multiple completions, items 11, 12 and 26-31 shall be reported for each zone.

Southeastern New Mexico		Northwestern New Mexico	
T. Anhy	T. Canyon	T. Ojo Alamo 2539'	T. Penn A"
T. Salt	T. Strawn	T. Kirtland 2652'	T. Penn. "B"
B. Salt	T. Atoka	T. Fruitland 3105'	T. Penn. "C"
T. Yates	T. Miss	T. Pictured Cliffs 3506'	T. Penn. "D"
T. 7 Rivers	T. Devonian	T. Cliff House 5575'	T. Leadville
T. Queen	T. Silurian	T. Menefee 5619'	T. Madison
T. Grayburg	T. Montoya	T. Point Lookout 5842'	T. Elbert
T. San Andres	T. Simpson	T. Mancos 6348'	T. McCracken
T. Glorieta	T. McKee	T. Gallup	T. Ignacio Otzte
T. Paddock	T. Ellenburger	Base Greenhorn	T. Granite
T. Blinebry	T. Gr. Wash	T. Dakota	
T. Tubb	T. Delaware Sand	T. Morrison	
T. Drinkard	T. Bone Springs	T. Todilto	
T. Abo	T.	T. Entrada	
T. Wolfcamp	T.	T. Wingate	
T. Penn	T.	T. Chinle	
T. Cisco (Bough C)	T.	T. Permian	

No. 1, from.....to.....

No. 2, from.....to.....

No. 3, from.....to.....

No. 4, from.....to.....

Include data on rate of water inflow and elevation to which water rose in hole.

No. 1, from.....to.....feet.....
 No. 2, from.....to.....feet.....
 No. 3, from.....to.....feet.....

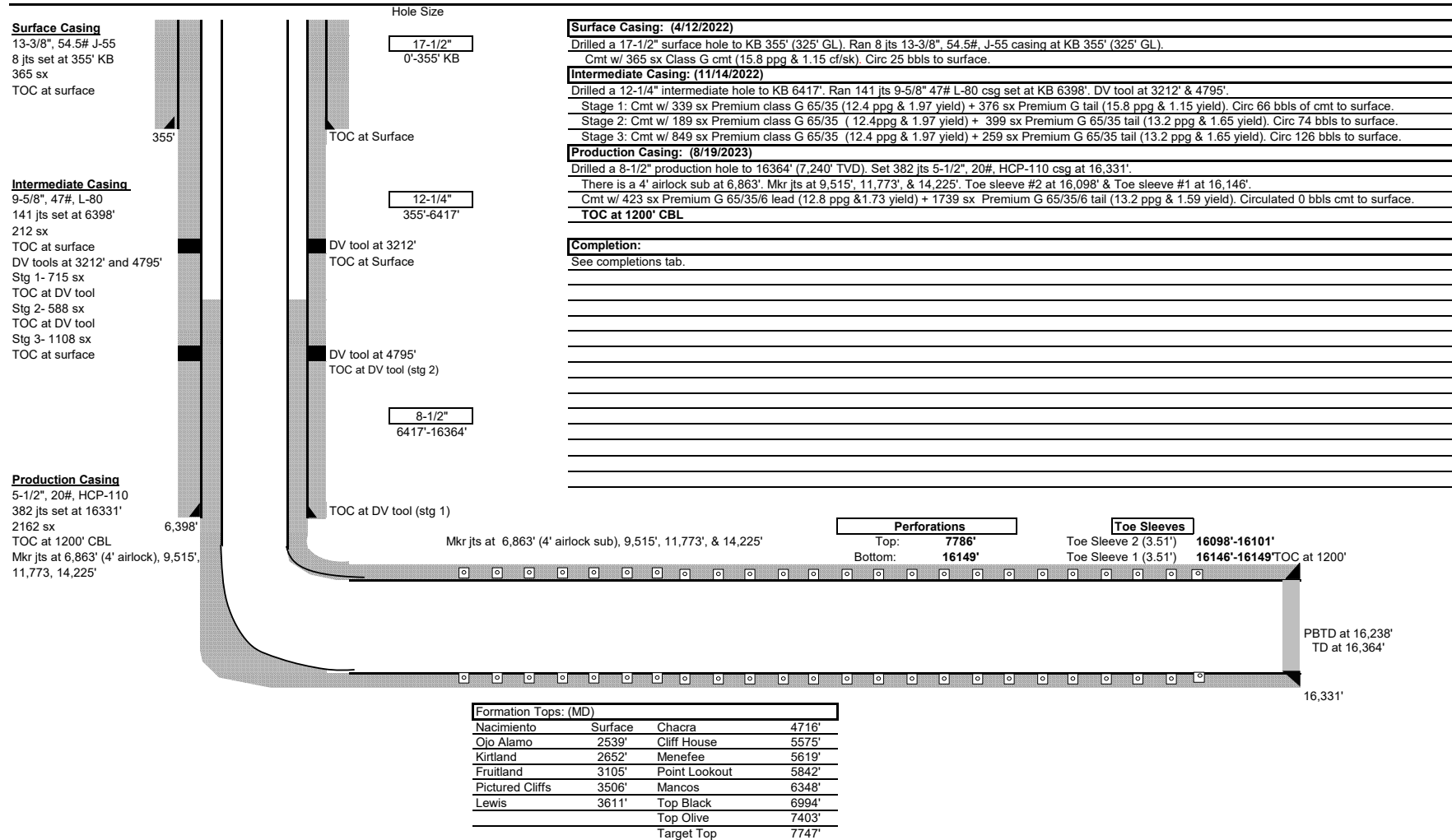
From	To	Thickness In Feet	Lithology



Well Name: Rosa Unit 650H
 Location: A - Sec 25, T31N, R06W, 1084' FNL, 258' FEL
 County: Rio Arriba
 API #: 30-039-31412
 Co-ordinates: 36.8748833, -107.4086666 NAD83
 Operator: LOGOS Operating, LLC

Wellbore Schematic
 Ground Elevation: 6372'
 KB Elevation: 6402'
 TD (TVD): 7,240'
 TD (MD): 16,364'
 PBTD: 16,238'

Prepared By: 9/1/2023 Peace
 Reviewed By: 9/5/2023 Gomez
 Last Updated: 10/12/2023 Peace
 Spud Date: 4/11/2022
 Completion Date:
 Last Workover Date: N/A



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

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

ACKNOWLEDGMENTS

Action 294854

ACKNOWLEDGMENTS

Operator: LOGOS OPERATING, LLC 2010 Afton Place Farmington, NM 87401	OGRID: 289408
	Action Number: 294854
	Action Type: [C-104] Tight Hole Completion Packet (C-104CT)

ACKNOWLEDGMENTS

☒	I hereby certify that the required Water Use Report has been, or will be, submitted for this wells completion.
☒	I hereby certify that the required FracFocus disclosure has been, or will be, submitted for this wells completion.

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CONDITIONS

Action 294854

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	Action Number: 294854
	Action Type: [C-104] Tight Hole Completion Packet (C-104CT)

CONDITIONS

Created By	Condition	Condition Date
plmartinez	File 3160-4 within 10 days of BLM approval.	3/1/2024