

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

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 RT- Test Allowable
⁴ API Number 30 – 039-31431	⁵ Pool Name Basin Mancos	⁶ Pool Code 97232
⁷ Property Code 32608	⁸ Property Name Rosa Unit	⁹ Well Number 745H

II. ¹⁰ Surface Location

UL or lot no. C	Section 33	Township 31N	Range 5W	Lot Idn	Feet from the 378	North/South Line North	Feet from the 1686	East/West line West	County Rio Arriba
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¹¹ Bottom Hole Location

UL or lot no. A	Section 35	Township 31N	Range 5W	Lot Idn	Feet from the 1202	North/South line North	Feet from the 70	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

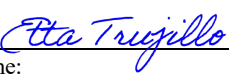
¹⁸ Transporter OGRID	¹⁹ Transporter Name and Address	²⁰ O/G/W
373888	Harvest Four Corners, LLC 1755 Arroyo Dr. Bloomfield, NM 87413	G

IV. Well Completion Data

²¹ Spud Date 6/15/2023	²² Ready Date ~10/16/2023	²³ TD 21,290' MD / 7,364' TVD	²⁴ PBDT 21,184' MD / 7,362' TVD	²⁵ Perforations 7,803' MD / 21,198' MD 7,360'TVD / 7,362' TVD	²⁶ DHC, MC R-13457	
²⁷ Hole Size		²⁸ Casing & Tubing Size		²⁹ Depth Set		³⁰ Sacks Cement
26"		20", 94#, J-55		386'		835sx (171bbls, 960cf)
17.5"		13-3/8", 61#, J-55		3618'		2405sx (4165bbls, 742cf)
12.25"		9-5/8", 47#, J-55		6411'		3394sx (1061bbls, 5956cf) DV tool @ 4,832' & 3,680'
8.5"		5-1/2", 20#, HCP-110		21,266'		2934sx (853bbls, 4789cf) TOC @ 1,486'
		2-7/8", 6.5#, J-55		pending		

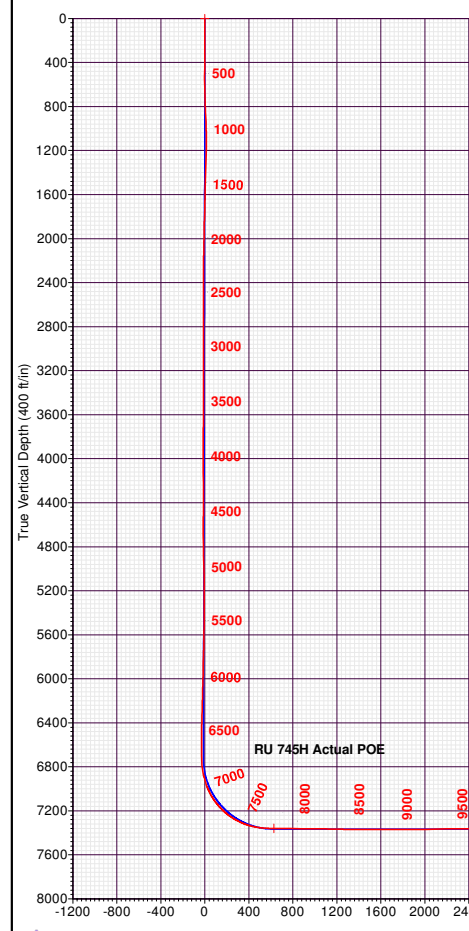
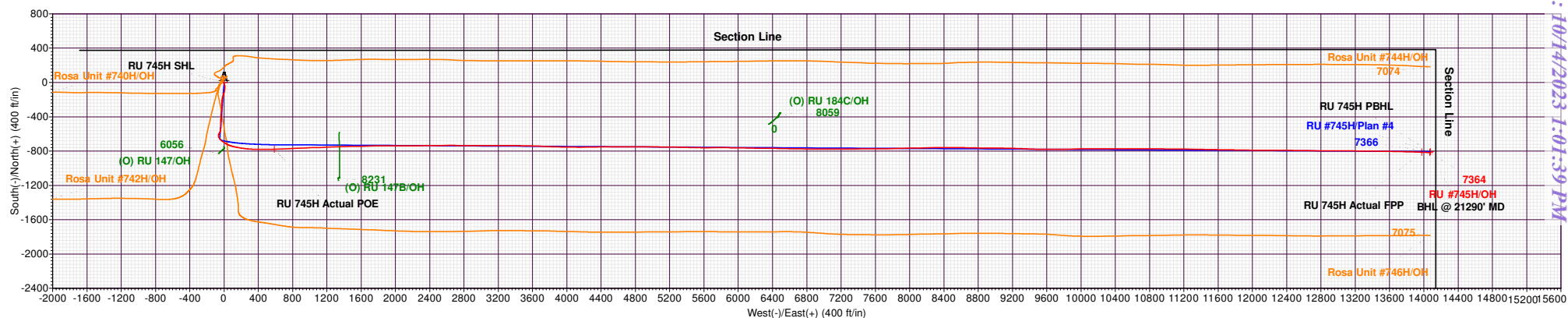
V. Well Test Data

³¹ Date New Oil	³² Gas Delivery Date ~10/16/2023	³³ Test Date	³⁴ Test Length	³⁵ Tbg. Pressure	³⁶ Csg. Pressure
³⁷ Choke Size	³⁸ Oil	³⁹ Water	⁴⁰ Gas		⁴¹ Test Method

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	
		Approved by: PATRICIA MARTINEZ	
Printed name: Etta Trujillo		Title: PETROLEUM SPECIALIST	
Title: Regulatory Specialist		Approval Date: 10/16/2023	
E-mail Address: etrujillo@logosresourcesllc.com		RT EXPIRES 1/16/2024	
Date: 10/13/2023	Phone: (505) 324-4154		



County: Rio Arriba, NM NAD83
 Site: Rosa Unit 31
 Well: Rosa Unit #745H
 Depth Reference: GL 6492' & RKB 30' @ 6522.00ft (H&P 530)
 Rig: H&P 530
 Plan: OH
 Job #: 15948

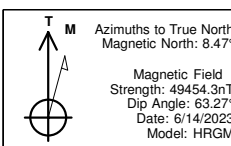


ANNOTATIONS

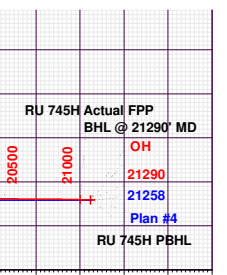
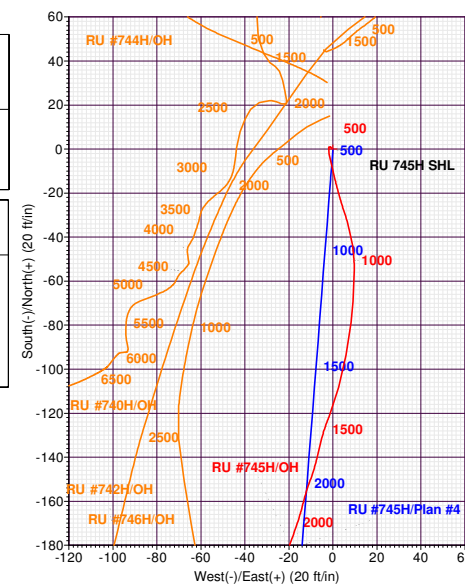
MD	Inc	Azi	TVD	+N/-S	+E/-W	Vsect	Departure	Annotation
21290.00	88.72	92.11	7363.83	-816.00	14069.21	14092.86	14830.68	BHL @ 21290' MD

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
RU 745H SHL	0.00	0.00	0.00	2133535.22	2858367.71	36.8623180	-107.3709060
RU 745H Actual POE	7359.57	-777.77	585.09	2132760.29	2858956.55	36.8601817	-107.3689060
RU 745H Actual FPP	7361.78	-812.63	13977.30	2132790.28	2872348.75	36.8600764	-107.3231285
RU 745H BHL	7363.83	-816.00	14069.21	2132787.36	2872440.68	36.8600670	-107.3228143
RU 745H PBHL	7366.00	-805.43	14075.67	2132797.96	2872447.08	36.8600960	-107.3227922



TOTAL CORRECTION: 8.47°



Logos Operating LLC

Rio Arriba, NM NAD83

Rosa Unit 31

Rosa Unit #745H - Slot A5

OH

Design: OH

Standard Survey Report

13 October, 2023

SDT Survey Report

Company:	Logos Operating LLC	Local Co-ordinate Reference:	Well Rosa Unit #745H - Slot A5
Project:	Rio Arriba, NM NAD83	TVD Reference:	GL 6492' & RKB 30' @ 6522.00ft (H&P 530)
Site:	Rosa Unit 31	MD Reference:	GL 6492' & RKB 30' @ 6522.00ft (H&P 530)
Well:	Rosa Unit #745H	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 31			
Site Position:		Northing:	2,133,595.07 usft	Latitude:	36.8624824
From:	Map	Easting:	2,858,361.84 usft	Longitude:	-107.3709251
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "		

Well	Rosa Unit #745H - Slot A5					
Well Position	+N/-S	0.00 ft	Northing:	2,133,535.22 usft	Latitude:	36.8623180
	+E/-W	0.00 ft	Easting:	2,858,367.71 usft	Longitude:	-107.3709060
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	6,492.00 ft
Grid Convergence:		0.28 °				

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HRGM	6/14/2023	8.47	63.27	49,454.32905958

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	93.32	

Survey Program	Date	10/13/2023			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
409.00	21,220.00	Survey #1 (OH)	B001Mb_MWD+HRGM	OWSG MWD + HRGM	
21,290.00	21,290.00	Survey #2 (OH)	Project	Projection	

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	
409.00	0.31	311.15	409.00	0.73	-0.83	-0.87	0.08	0.08	0.00	
450.00	0.79	317.65	450.00	1.01	-1.11	-1.16	1.18	1.17	15.85	
538.00	0.88	221.76	537.99	0.95	-1.97	-2.02	1.41	0.10	-108.97	
627.00	3.38	165.51	626.93	-2.10	-1.76	-1.64	3.35	2.81	-63.20	
757.00	7.51	167.36	756.31	-14.10	1.05	1.87	3.18	3.18	1.42	
848.00	9.01	161.82	846.37	-26.68	4.58	6.12	1.86	1.65	-6.09	
939.00	9.10	168.32	936.24	-40.49	8.26	10.59	1.13	0.10	7.14	
1,031.00	9.32	180.28	1,027.06	-55.07	9.70	12.87	2.09	0.24	13.00	

SDT

Survey Report

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Site:	Rosa Unit 31	MD Reference:	GL 6492' & RKB 30' @ 6522.00ft (H&P 530)
Well:	Rosa Unit #745H	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)	
1,122.00	8.79	184.06	1,116.92	-69.37	9.17	13.17	0.88	-0.58	4.15	
1,184.00	8.79	186.87	1,178.20	-78.80	8.27	12.81	0.69	0.00	4.53	
1,279.00	9.49	190.65	1,271.99	-93.70	5.95	11.37	0.97	0.74	3.98	
1,373.00	8.88	194.95	1,364.79	-108.33	2.65	8.91	0.98	-0.65	4.57	
1,468.00	7.51	202.25	1,458.82	-121.16	-1.60	5.42	1.81	-1.44	7.68	
1,562.00	5.71	194.25	1,552.19	-131.38	-5.07	2.54	2.15	-1.91	-8.51	
1,657.00	5.89	192.93	1,646.70	-140.71	-7.33	0.83	0.24	0.19	-1.39	
1,752.00	6.50	200.58	1,741.15	-150.50	-10.31	-1.58	1.08	0.64	8.05	
1,846.00	6.50	194.16	1,834.55	-160.64	-13.48	-4.16	0.77	0.00	-6.83	
1,941.00	5.01	198.47	1,929.07	-169.79	-16.11	-6.25	1.63	-1.57	4.54	
2,036.00	4.70	200.23	2,023.73	-177.37	-18.77	-8.47	0.36	-0.33	1.85	
2,130.00	4.61	190.12	2,117.42	-184.70	-20.77	-10.04	0.88	-0.10	-10.76	
2,224.00	5.49	189.07	2,211.05	-192.86	-22.14	-10.93	0.94	0.94	-1.12	
2,316.00	5.89	183.35	2,302.60	-201.92	-23.11	-11.38	0.75	0.43	-6.22	
2,410.00	6.90	184.19	2,396.01	-212.37	-23.80	-11.47	1.08	1.07	0.89	
2,505.00	6.42	186.87	2,490.37	-223.33	-24.85	-11.88	0.60	-0.51	2.82	
2,599.00	6.68	186.34	2,583.76	-233.98	-26.09	-12.50	0.28	0.28	-0.56	
2,693.00	7.60	183.44	2,677.03	-245.62	-27.06	-12.80	1.05	0.98	-3.09	
2,788.00	7.99	182.73	2,771.15	-258.49	-27.76	-12.74	0.42	0.41	-0.75	
2,883.00	7.91	182.83	2,865.24	-271.61	-28.39	-12.62	0.09	-0.08	0.11	
2,977.00	6.28	182.21	2,958.51	-283.21	-28.91	-12.46	1.74	-1.73	-0.66	
3,071.00	6.42	179.13	3,051.94	-293.60	-29.03	-11.98	0.39	0.15	-3.28	
3,166.00	6.11	179.74	3,146.37	-303.97	-28.92	-11.28	0.33	-0.33	0.64	
3,261.00	6.50	181.51	3,240.80	-314.40	-29.04	-10.79	0.46	0.41	1.86	
3,355.00	6.59	181.68	3,334.18	-325.11	-29.34	-10.47	0.10	0.10	0.18	
3,450.00	6.11	186.17	3,428.60	-335.59	-30.05	-10.56	0.73	-0.51	4.73	
3,544.00	5.80	188.54	3,522.09	-345.26	-31.29	-11.24	0.42	-0.33	2.52	
3,567.00	5.80	188.98	3,544.98	-347.55	-31.64	-11.47	0.19	0.00	1.91	
3,681.00	5.40	190.47	3,658.43	-358.52	-33.52	-12.70	0.37	-0.35	1.31	
3,776.00	5.19	184.85	3,753.03	-367.20	-34.69	-13.37	0.59	-0.22	-5.92	
3,870.00	4.88	184.58	3,846.66	-375.42	-35.37	-13.57	0.33	-0.33	-0.29	
3,965.00	5.32	183.79	3,941.29	-383.84	-35.98	-13.70	0.47	0.46	-0.83	
4,060.00	5.01	180.98	4,035.90	-392.38	-36.35	-13.57	0.42	-0.33	-2.96	
4,154.00	5.80	181.24	4,129.48	-401.24	-36.52	-13.23	0.84	0.84	0.28	
4,249.00	5.71	182.21	4,224.00	-410.76	-36.81	-12.96	0.14	-0.09	1.02	
4,343.00	4.88	181.95	4,317.60	-419.43	-37.12	-12.77	0.88	-0.88	-0.28	
4,437.00	5.32	184.23	4,411.23	-427.77	-37.58	-12.75	0.52	0.47	2.43	
4,532.00	6.59	186.25	4,505.71	-437.58	-38.50	-13.10	1.35	1.34	2.13	
4,627.00	5.41	184.76	4,600.19	-447.46	-39.46	-13.49	1.25	-1.24	-1.57	
4,721.00	5.71	181.42	4,693.75	-456.55	-39.95	-13.44	0.47	0.32	-3.55	
4,816.00	6.68	176.23	4,788.20	-466.79	-39.70	-12.61	1.18	1.02	-5.46	
4,910.00	5.58	173.33	4,881.66	-476.78	-38.81	-11.14	1.22	-1.17	-3.09	
5,005.00	5.71	172.54	4,976.20	-486.06	-37.66	-9.45	0.16	0.14	-0.83	

SDT Survey Report

Company:	Logos Operating LLC	Local Co-ordinate Reference:	Well Rosa Unit #745H - Slot A5
Project:	Rio Arriba, NM NAD83	TVD Reference:	GL 6492' & RKB 30' @ 6522.00ft (H&P 530)
Site:	Rosa Unit 31	MD Reference:	GL 6492' & RKB 30' @ 6522.00ft (H&P 530)
Well:	Rosa Unit #745H	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)
5,100.00	6.20	176.76	5,070.68	-495.87	-36.76	-7.98	0.69	0.52	4.44
5,194.00	5.19	179.22	5,164.22	-505.19	-36.41	-7.10	1.11	-1.07	2.62
5,289.00	5.41	181.51	5,258.81	-513.96	-36.47	-6.65	0.32	0.23	2.41
5,384.00	6.68	184.58	5,353.28	-523.94	-37.03	-6.63	1.38	1.34	3.23
5,478.00	6.59	186.43	5,446.65	-534.75	-38.07	-7.04	0.25	-0.10	1.97
5,573.00	6.02	187.92	5,541.08	-545.10	-39.37	-7.74	0.62	-0.60	1.57
5,636.00	5.89	188.63	5,603.74	-551.57	-40.31	-8.30	0.24	-0.21	1.13
5,699.00	5.41	191.88	5,666.43	-557.67	-41.40	-9.04	0.92	-0.76	5.16
5,762.00	5.01	198.65	5,729.17	-563.19	-42.90	-10.21	1.16	-0.63	10.75
5,825.00	4.39	204.27	5,791.96	-567.99	-44.77	-11.80	1.22	-0.98	8.92
5,888.00	4.48	198.65	5,854.77	-572.52	-46.54	-13.32	0.70	0.14	-8.92
5,951.00	4.61	198.82	5,917.57	-577.25	-48.15	-14.64	0.21	0.21	0.27
6,014.00	4.39	204.36	5,980.38	-581.84	-49.96	-16.19	0.77	-0.35	8.79
6,077.00	4.22	209.63	6,043.20	-586.05	-52.10	-18.08	0.68	-0.27	8.37
6,140.00	4.09	206.73	6,106.04	-590.07	-54.26	-20.00	0.39	-0.21	-4.60
6,203.00	3.91	208.05	6,168.88	-593.98	-56.28	-21.79	0.32	-0.29	2.10
6,266.00	3.60	208.31	6,231.75	-597.61	-58.22	-23.52	0.49	-0.49	0.41
6,329.00	3.38	208.31	6,294.63	-600.99	-60.04	-25.14	0.35	-0.35	0.00
6,365.00	3.30	212.97	6,330.57	-602.79	-61.11	-26.11	0.79	-0.22	12.94
6,446.00	2.40	207.86	6,411.47	-606.25	-63.17	-27.96	1.15	-1.11	-6.31
6,541.00	3.81	197.20	6,506.33	-611.02	-65.04	-29.55	1.60	1.48	-11.22
6,636.00	4.88	184.54	6,601.06	-618.07	-66.29	-30.39	1.51	1.13	-13.33
6,730.00	5.69	187.74	6,694.66	-626.67	-67.23	-30.83	0.92	0.86	3.40
6,824.00	11.70	154.19	6,787.59	-639.89	-63.71	-26.55	8.11	6.39	-35.69
6,919.00	17.75	135.79	6,879.47	-658.97	-49.39	-11.15	7.98	6.37	-19.37
7,013.00	24.25	129.79	6,967.19	-681.62	-24.54	14.97	7.27	6.91	-6.38
7,108.00	31.75	121.59	7,051.04	-707.24	11.81	52.74	8.86	7.89	-8.63
7,202.00	39.35	112.22	7,127.52	-731.52	60.57	102.83	9.93	8.09	-9.97
7,297.00	46.54	102.04	7,197.10	-750.15	122.33	165.56	10.50	7.57	-10.72
7,392.00	56.66	99.61	7,256.04	-764.00	195.37	239.28	10.84	10.65	-2.56
7,486.00	64.57	95.02	7,302.15	-774.29	276.53	320.90	9.43	8.41	-4.88
7,581.00	74.39	91.37	7,335.41	-779.15	365.24	409.74	10.94	10.34	-3.84
7,675.00	83.10	89.49	7,353.75	-779.82	457.34	501.72	9.47	9.27	-2.00
7,770.00	89.93	88.83	7,359.52	-778.43	552.09	596.24	7.22	7.19	-0.69
7,865.00	89.80	89.00	7,359.74	-776.63	647.08	690.96	0.23	-0.14	0.18
7,959.00	89.23	86.90	7,360.54	-773.27	741.01	784.54	2.31	-0.61	-2.23
8,054.00	89.19	87.16	7,361.85	-768.35	835.87	878.96	0.28	-0.04	0.27
8,148.00	89.43	87.50	7,362.98	-763.97	929.76	972.44	0.44	0.26	0.36
8,243.00	89.02	88.03	7,364.26	-760.27	1,024.68	1,066.98	0.71	-0.43	0.56
8,337.00	89.23	88.13	7,365.70	-757.12	1,118.62	1,160.58	0.25	0.22	0.11
8,432.00	88.52	88.43	7,367.56	-754.27	1,213.56	1,255.19	0.81	-0.75	0.32
8,526.00	90.20	87.90	7,368.61	-751.26	1,307.50	1,348.80	1.87	1.79	-0.56
8,621.00	90.10	88.38	7,368.37	-748.17	1,402.45	1,443.41	0.52	-0.11	0.51

SDT

Survey Report

Company:	Logos Operating LLC	Local Co-ordinate Reference:	Well Rosa Unit #745H - Slot A5
Project:	Rio Arriba, NM NAD83	TVD Reference:	GL 6492' & RKB 30' @ 6522.00ft (H&P 530)
Site:	Rosa Unit 31	MD Reference:	GL 6492' & RKB 30' @ 6522.00ft (H&P 530)
Well:	Rosa Unit #745H	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)
8,716.00	90.00	88.43	7,368.28	-745.53	1,497.41	1,538.06	0.12	-0.11	0.05
8,810.00	89.16	88.52	7,368.97	-743.03	1,591.37	1,631.73	0.90	-0.89	0.10
8,904.00	90.44	88.82	7,369.30	-740.84	1,685.35	1,725.41	1.40	1.36	0.32
8,999.00	90.17	89.40	7,368.79	-739.37	1,780.33	1,820.16	0.67	-0.28	0.61
9,094.00	89.87	89.51	7,368.76	-738.47	1,875.33	1,914.94	0.34	-0.32	0.12
9,188.00	91.18	89.76	7,367.90	-737.87	1,969.32	2,008.74	1.42	1.39	0.27
9,283.00	90.94	89.93	7,366.14	-737.61	2,064.30	2,103.55	0.31	-0.25	0.18
9,378.00	90.77	89.67	7,364.72	-737.28	2,159.29	2,198.36	0.33	-0.18	-0.27
9,472.00	90.57	90.15	7,363.62	-737.13	2,253.28	2,292.19	0.55	-0.21	0.51
9,567.00	90.17	89.20	7,363.01	-736.59	2,348.28	2,386.99	1.09	-0.42	-1.00
9,661.00	90.00	89.30	7,362.87	-735.36	2,442.27	2,480.75	0.21	-0.18	0.11
9,755.00	90.27	89.36	7,362.65	-734.26	2,536.26	2,574.52	0.29	0.29	0.06
9,850.00	90.13	89.79	7,362.32	-733.56	2,631.26	2,669.32	0.48	-0.15	0.45
9,944.00	90.10	90.41	7,362.13	-733.72	2,725.26	2,763.17	0.66	-0.03	0.66
10,038.00	90.24	90.63	7,361.85	-734.57	2,819.26	2,857.06	0.28	0.15	0.23
10,132.00	89.76	89.66	7,361.85	-734.81	2,913.25	2,950.91	1.15	-0.51	-1.03
10,227.00	90.24	89.62	7,361.85	-734.22	3,008.25	3,045.72	0.51	0.51	-0.04
10,322.00	89.16	90.05	7,362.35	-733.94	3,103.25	3,140.54	1.22	-1.14	0.45
10,416.00	88.92	90.34	7,363.92	-734.26	3,197.24	3,234.39	0.40	-0.26	0.31
10,511.00	88.75	90.58	7,365.86	-735.02	3,292.21	3,329.25	0.31	-0.18	0.25
10,605.00	88.62	90.51	7,368.01	-735.92	3,386.18	3,423.11	0.16	-0.14	-0.07
10,700.00	89.70	90.97	7,369.41	-737.15	3,481.16	3,518.01	1.24	1.14	0.48
10,794.00	89.93	91.35	7,369.71	-739.05	3,575.14	3,611.94	0.47	0.24	0.40
10,888.00	89.70	92.55	7,370.01	-742.25	3,669.09	3,705.91	1.30	-0.24	1.28
10,983.00	90.91	92.54	7,369.51	-746.46	3,763.99	3,800.90	1.27	1.27	-0.01
11,078.00	90.34	91.48	7,368.47	-749.80	3,858.92	3,895.86	1.27	-0.60	-1.12
11,172.00	90.57	91.79	7,367.72	-752.48	3,952.88	3,989.82	0.41	0.24	0.33
11,266.00	90.50	90.02	7,366.85	-753.96	4,046.86	4,083.73	1.88	-0.07	-1.88
11,360.00	90.54	90.89	7,365.99	-754.71	4,140.86	4,177.61	0.93	0.04	0.93
11,455.00	90.00	88.68	7,365.55	-754.35	4,235.85	4,272.42	2.39	-0.57	-2.33
11,549.00	90.03	89.35	7,365.52	-752.74	4,329.83	4,366.15	0.71	0.03	0.71
11,644.00	90.13	89.14	7,365.39	-751.49	4,424.82	4,460.91	0.24	0.11	-0.22
11,738.00	90.00	89.65	7,365.28	-750.49	4,518.82	4,554.69	0.56	-0.14	0.54
11,832.00	90.10	89.41	7,365.20	-749.72	4,612.82	4,648.49	0.28	0.11	-0.26
11,927.00	90.10	89.81	7,365.03	-749.08	4,707.81	4,743.29	0.42	0.00	0.42
12,021.00	89.66	90.00	7,365.23	-748.92	4,801.81	4,837.12	0.51	-0.47	0.20
12,116.00	89.56	90.82	7,365.88	-749.60	4,896.81	4,931.99	0.87	-0.11	0.86
12,210.00	90.37	90.53	7,365.93	-750.71	4,990.80	5,025.89	0.92	0.86	-0.31
12,305.00	90.03	90.72	7,365.60	-751.74	5,085.79	5,120.79	0.41	-0.36	0.20
12,400.00	89.66	90.55	7,365.86	-752.80	5,180.79	5,215.68	0.43	-0.39	-0.18
12,494.00	89.36	91.13	7,366.66	-754.17	5,274.77	5,309.59	0.69	-0.32	0.62
12,588.00	90.14	90.93	7,367.07	-755.86	5,368.76	5,403.51	0.86	0.83	-0.21
12,682.00	90.61	91.08	7,366.46	-757.51	5,462.74	5,497.44	0.52	0.50	0.16
12,777.00	89.97	92.23	7,365.98	-760.26	5,557.70	5,592.39	1.39	-0.67	1.21

SDT

Survey Report

Company:	Logos Operating LLC	Local Co-ordinate Reference:	Well Rosa Unit #745H - Slot A5
Project:	Rio Arriba, NM NAD83	TVD Reference:	GL 6492' & RKB 30' @ 6522.00ft (H&P 530)
Site:	Rosa Unit 31	MD Reference:	GL 6492' & RKB 30' @ 6522.00ft (H&P 530)
Well:	Rosa Unit #745H	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)	
12,871.00	90.07	89.00	7,365.94	-761.26	5,651.68	5,686.28	3.44	0.11	-3.44	
12,966.00	90.00	89.84	7,365.89	-760.30	5,746.67	5,781.05	0.89	-0.07	0.88	
13,060.00	89.93	90.06	7,365.94	-760.22	5,840.67	5,874.89	0.25	-0.07	0.23	
13,155.00	89.46	90.50	7,366.45	-760.68	5,935.67	5,969.76	0.68	-0.49	0.46	
13,250.00	89.46	90.83	7,367.35	-761.79	6,030.66	6,064.65	0.35	0.00	0.35	
13,344.00	89.22	91.84	7,368.43	-763.98	6,124.63	6,158.59	1.10	-0.26	1.07	
13,439.00	90.47	90.75	7,368.69	-766.12	6,219.60	6,253.52	1.75	1.32	-1.15	
13,533.00	90.47	90.42	7,367.91	-767.08	6,313.59	6,347.41	0.35	0.00	-0.35	
13,628.00	90.51	90.78	7,367.10	-768.08	6,408.58	6,442.30	0.38	0.04	0.38	
13,723.00	90.27	91.24	7,366.45	-769.75	6,503.56	6,537.22	0.55	-0.25	0.48	
13,817.00	90.47	91.07	7,365.85	-771.65	6,597.54	6,631.15	0.28	0.21	-0.18	
13,912.00	90.91	90.77	7,364.70	-773.17	6,692.52	6,726.06	0.56	0.46	-0.32	
14,007.00	90.61	90.99	7,363.44	-774.63	6,787.50	6,820.97	0.39	-0.32	0.23	
14,101.00	90.00	89.76	7,362.94	-775.25	6,881.50	6,914.84	1.46	-0.65	-1.31	
14,195.00	90.00	89.89	7,362.94	-774.96	6,975.50	7,008.67	0.14	0.00	0.14	
14,290.00	89.70	90.14	7,363.19	-774.99	7,070.50	7,103.51	0.41	-0.32	0.26	
14,384.00	89.39	90.88	7,363.94	-775.82	7,164.49	7,197.39	0.85	-0.33	0.79	
14,479.00	89.53	89.16	7,364.83	-775.85	7,259.48	7,292.23	1.82	0.15	-1.81	
14,574.00	89.70	89.29	7,365.47	-774.57	7,354.47	7,386.98	0.23	0.18	0.14	
14,668.00	89.63	89.76	7,366.02	-773.79	7,448.47	7,480.77	0.51	-0.07	0.50	
14,763.00	89.66	89.94	7,366.61	-773.54	7,543.46	7,575.60	0.19	0.03	0.19	
14,857.00	89.33	90.13	7,367.44	-773.60	7,637.46	7,669.44	0.41	-0.35	0.20	
14,952.00	89.19	89.27	7,368.67	-773.10	7,732.45	7,764.24	0.92	-0.15	-0.91	
15,046.00	89.60	88.38	7,369.66	-771.17	7,826.42	7,857.95	1.04	0.44	-0.95	
15,141.00	90.87	88.18	7,369.27	-768.32	7,921.38	7,952.58	1.35	1.34	-0.21	
15,235.00	91.40	88.24	7,367.41	-765.39	8,015.31	8,046.18	0.57	0.56	0.06	
15,330.00	90.57	88.76	7,365.77	-762.90	8,110.27	8,140.83	1.03	-0.87	0.55	
15,424.00	90.47	88.37	7,364.92	-760.55	8,204.23	8,234.50	0.43	-0.11	-0.41	
15,518.00	90.92	89.50	7,363.78	-758.80	8,298.21	8,328.22	1.29	0.48	1.20	
15,613.00	90.51	90.08	7,362.59	-758.45	8,393.20	8,423.03	0.75	-0.43	0.61	
15,708.00	90.40	90.43	7,361.84	-758.87	8,488.19	8,517.89	0.39	-0.12	0.37	
15,802.00	90.30	90.57	7,361.27	-759.70	8,582.19	8,611.78	0.18	-0.11	0.15	
15,897.00	90.00	90.79	7,361.02	-760.82	8,677.18	8,706.68	0.39	-0.32	0.23	
15,991.00	89.66	91.22	7,361.30	-762.47	8,771.17	8,800.60	0.58	-0.36	0.46	
16,086.00	90.58	90.01	7,361.10	-763.49	8,866.16	8,895.49	1.60	0.97	-1.27	
16,180.00	90.70	90.33	7,360.05	-763.77	8,960.15	8,989.34	0.36	0.13	0.34	
16,275.00	90.20	90.81	7,359.30	-764.71	9,055.14	9,084.23	0.73	-0.53	0.51	
16,369.00	90.17	91.25	7,359.00	-766.40	9,149.13	9,178.15	0.47	-0.03	0.47	
16,464.00	90.24	91.74	7,358.66	-768.88	9,244.09	9,273.10	0.52	0.07	0.52	
16,559.00	90.13	92.82	7,358.35	-772.66	9,339.02	9,368.09	1.14	-0.12	1.14	
16,653.00	90.27	91.84	7,358.02	-776.48	9,432.94	9,462.07	1.05	0.15	-1.04	
16,747.00	90.54	91.45	7,357.36	-779.18	9,526.90	9,556.03	0.50	0.29	-0.41	
16,842.00	90.13	89.90	7,356.80	-780.30	9,621.88	9,650.92	1.69	-0.43	-1.63	

SDT Survey Report

Company:	Logos Operating LLC	Local Co-ordinate Reference:	Well Rosa Unit #745H - Slot A5
Project:	Rio Arriba, NM NAD83	TVD Reference:	GL 6492' & RKB 30' @ 6522.00ft (H&P 530)
Site:	Rosa Unit 31	MD Reference:	GL 6492' & RKB 30' @ 6522.00ft (H&P 530)
Well:	Rosa Unit #745H	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)
16,937.00	89.87	89.25	7,356.80	-779.60	9,716.88	9,745.72	0.74	-0.27	-0.68
17,031.00	89.36	89.27	7,357.43	-778.38	9,810.87	9,839.48	0.54	-0.54	0.02
17,126.00	89.60	88.65	7,358.30	-776.66	9,905.85	9,934.20	0.70	0.25	-0.65
17,220.00	90.00	88.54	7,358.63	-774.35	9,999.82	10,027.88	0.44	0.43	-0.12
17,315.00	90.54	89.70	7,358.18	-772.89	10,094.81	10,122.62	1.35	0.57	1.22
17,409.00	90.13	89.61	7,357.63	-772.33	10,188.80	10,216.43	0.45	-0.44	-0.10
17,504.00	90.10	90.18	7,357.44	-772.15	10,283.80	10,311.26	0.60	-0.03	0.60
17,598.00	89.56	90.44	7,357.72	-772.66	10,377.80	10,405.13	0.64	-0.57	0.28
17,693.00	90.07	89.84	7,358.02	-772.90	10,472.80	10,499.98	0.83	0.54	-0.63
17,787.00	89.93	89.60	7,358.02	-772.44	10,566.80	10,593.80	0.30	-0.15	-0.26
17,882.00	89.80	89.96	7,358.25	-772.07	10,661.80	10,688.61	0.40	-0.14	0.38
17,977.00	89.50	90.38	7,358.83	-772.35	10,756.80	10,783.47	0.54	-0.32	0.44
18,071.00	89.16	90.41	7,359.93	-773.00	10,850.79	10,877.34	0.36	-0.36	0.03
18,166.00	89.06	90.94	7,361.40	-774.12	10,945.77	10,972.23	0.57	-0.11	0.56
18,261.00	89.93	90.36	7,362.24	-775.20	11,040.76	11,067.12	1.10	0.92	-0.61
18,356.00	91.04	90.53	7,361.44	-775.94	11,135.75	11,161.99	1.18	1.17	0.18
18,450.00	90.81	90.95	7,359.92	-777.15	11,229.73	11,255.89	0.51	-0.24	0.45
18,545.00	90.84	90.98	7,358.55	-778.75	11,324.71	11,350.80	0.04	0.03	0.03
18,639.00	90.71	90.70	7,357.28	-780.13	11,418.69	11,444.70	0.33	-0.14	-0.30
18,734.00	90.10	91.27	7,356.61	-781.76	11,513.67	11,539.62	0.88	-0.64	0.60
18,828.00	89.90	91.10	7,356.61	-783.70	11,607.65	11,633.55	0.28	-0.21	-0.18
18,923.00	89.80	90.84	7,356.86	-785.31	11,702.64	11,728.47	0.29	-0.11	-0.27
19,017.00	90.84	90.57	7,356.33	-786.47	11,796.63	11,822.37	1.14	1.11	-0.29
19,112.00	90.71	90.69	7,355.05	-787.51	11,891.61	11,917.26	0.19	-0.14	0.13
19,206.00	90.64	91.32	7,353.94	-789.16	11,985.59	12,011.17	0.67	-0.07	0.67
19,301.00	90.44	89.88	7,353.04	-790.16	12,080.58	12,106.06	1.53	-0.21	-1.52
19,395.00	90.30	89.74	7,352.44	-789.84	12,174.57	12,199.88	0.21	-0.15	-0.15
19,490.00	89.87	90.24	7,352.29	-789.83	12,269.57	12,294.72	0.69	-0.45	0.53
19,584.00	89.53	90.60	7,352.79	-790.52	12,363.57	12,388.60	0.53	-0.36	0.38
19,679.00	89.23	91.39	7,353.81	-792.17	12,458.55	12,483.52	0.89	-0.32	0.83
19,774.00	89.56	90.51	7,354.82	-793.74	12,553.53	12,578.43	0.99	0.35	-0.93
19,868.00	90.20	90.47	7,355.01	-794.55	12,647.53	12,672.31	0.68	0.68	-0.04
19,963.00	89.93	90.41	7,354.91	-795.28	12,742.52	12,767.19	0.29	-0.28	-0.06
20,058.00	89.46	90.81	7,355.41	-796.29	12,837.52	12,862.08	0.65	-0.49	0.42
20,152.00	90.17	89.74	7,355.72	-796.74	12,931.51	12,955.95	1.37	0.76	-1.14
20,246.00	90.37	90.34	7,355.27	-796.80	13,025.51	13,049.79	0.67	0.21	0.64
20,341.00	90.13	90.17	7,354.86	-797.23	13,120.51	13,144.66	0.31	-0.25	-0.18
20,436.00	89.80	90.43	7,354.92	-797.72	13,215.51	13,239.52	0.44	-0.35	0.27
20,530.00	89.63	90.41	7,355.38	-798.41	13,309.50	13,333.40	0.18	-0.18	-0.02
20,625.00	89.26	90.91	7,356.30	-799.51	13,404.49	13,428.30	0.65	-0.39	0.53
20,719.00	89.83	91.00	7,357.05	-801.07	13,498.48	13,522.21	0.61	0.61	0.10
20,814.00	89.53	91.38	7,357.58	-803.05	13,593.45	13,617.15	0.51	-0.32	0.40
20,909.00	89.53	91.00	7,358.36	-805.02	13,688.43	13,712.08	0.40	0.00	-0.40

SDT
Survey Report

Company:	Logos Operating LLC	Local Co-ordinate Reference:	Well Rosa Unit #745H - Slot A5
Project:	Rio Arriba, NM NAD83	TVD Reference:	GL 6492' & RKB 30' @ 6522.00ft (H&P 530)
Site:	Rosa Unit 31	MD Reference:	GL 6492' & RKB 30' @ 6522.00ft (H&P 530)
Well:	Rosa Unit #745H	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)
21,004.00	89.70	91.17	7,359.00	-806.82	13,783.41	13,807.00	0.25	0.18	0.18
21,098.00	89.16	91.82	7,359.93	-809.27	13,877.37	13,900.95	0.90	-0.57	0.69
21,193.00	88.75	92.02	7,361.67	-812.45	13,972.30	13,995.90	0.48	-0.43	0.21
21,220.00	88.72	92.11	7,362.26	-813.43	13,999.28	14,022.89	0.35	-0.11	0.33
21,290.00	88.72	92.11	7,363.83	-816.00	14,069.21	14,092.86	0.00	0.00	0.00
BHL @ 21290' MD									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
RU 745H SHL	0.00	0.00	0.00	0.00	0.00	2,133,535.22	2,858,367.71	36.8623180	-107.3709060
- actual wellpath hits target center									
- Point									
RU 745H Actual POE	0.00	0.00	7,359.57	-777.77	585.09	2,132,760.29	2,858,956.56	36.8601816	-107.3689061
- actual wellpath hits target center									
- Point									
RU 745H Actual FPP	0.00	0.00	7,361.78	-812.63	13,977.30	2,132,790.28	2,872,348.75	36.8600763	-107.3231285
- actual wellpath hits target center									
- Point									
RU 745H BHL	0.00	0.00	7,363.83	-816.00	14,069.21	2,132,787.36	2,872,440.68	36.8600669	-107.3228143
- actual wellpath hits target center									
- Point									
RU 745H PBHL	0.00	0.00	7,366.00	-805.43	14,075.67	2,132,797.96	2,872,447.08	36.8600960	-107.3227922
- actual wellpath misses target center by 12.57ft at 21290.00ft MD (7363.83 TVD, -816.00 N, 14069.21 E)									
- Point									

Design Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
21,290.00	7,363.83	-816.00	14,069.21	BHL @ 21290' MD

Checked By: _____

Approved By: _____

Date: _____

Logos Operating LLC

Rio Arriba, NM NAD83

Rosa Unit 31

Rosa Unit #745H - Slot A5

OH

Design: OH

Survey Report - Geographic

13 October, 2023

SDT

Survey Report - Geographic

Company:	Logos Operating LLC	Local Co-ordinate Reference:	Well Rosa Unit #745H - Slot A5
Project:	Rio Arriba, NM NAD83	TVD Reference:	GL 6492' & RKB 30' @ 6522.00ft (H&P 530)
Site:	Rosa Unit 31	MD Reference:	GL 6492' & RKB 30' @ 6522.00ft (H&P 530)
Well:	Rosa Unit #745H	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 31			
Site Position:		Northing:	2,133,595.07 usft	Latitude:	36.8624824
From:	Map	Easting:	2,858,361.84 usft	Longitude:	-107.3709251
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "	Grid Convergence:	0.28 °

Well	Rosa Unit #745H - Slot A5					
Well Position	+N/-S	0.00 ft	Northing:	2,133,535.22 usft	Latitude:	36.8623180
	+E/-W	0.00 ft	Easting:	2,858,367.71 usft	Longitude:	-107.3709060
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	6,492.00 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HRGM	6/14/2023	8.47	63.27	49,454.32905958

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	93.32	

Survey Program	Date	10/13/2023			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
409.00	21,220.00	Survey #1 (OH)	B001Mb_MWD+HRGM	OWSG MWD + HRGM	
21,290.00	21,290.00	Survey #2 (OH)	Project	Projection	

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	2,133,535.22	2,858,367.71	36.8623180	-107.3709060
409.00	0.31	311.15	409.00	0.73	-0.83	2,133,535.95	2,858,366.87	36.8623200	-107.3709089
450.00	0.79	317.65	450.00	1.01	-1.11	2,133,536.23	2,858,366.60	36.8623208	-107.3709098
538.00	0.88	221.76	537.99	0.95	-1.97	2,133,536.17	2,858,365.74	36.8623206	-107.3709127
627.00	3.38	165.51	626.93	-2.10	-1.76	2,133,533.12	2,858,365.96	36.8623122	-107.3709121
757.00	7.51	167.36	756.31	-14.10	1.05	2,133,521.13	2,858,368.83	36.8622793	-107.3709024
848.00	9.01	161.82	846.37	-26.68	4.58	2,133,508.57	2,858,372.42	36.8622447	-107.3708904
939.00	9.10	168.32	936.24	-40.49	8.26	2,133,494.77	2,858,376.16	36.8622068	-107.3708778
1,031.00	9.32	180.28	1,027.06	-55.07	9.70	2,133,480.20	2,858,377.67	36.8621667	-107.3708729
1,122.00	8.79	184.06	1,116.92	-69.37	9.17	2,133,465.90	2,858,377.21	36.8621274	-107.3708747
1,184.00	8.79	186.87	1,178.20	-78.80	8.27	2,133,456.46	2,858,376.36	36.8621015	-107.3708778

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Survey Report - Geographic

Company:	Logos Operating LLC	Local Co-ordinate Reference:	Well Rosa Unit #745H - Slot A5
Project:	Rio Arriba, NM NAD83	TVD Reference:	GL 6492' & RKB 30' @ 6522.00ft (H&P 530)
Site:	Rosa Unit 31	MD Reference:	GL 6492' & RKB 30' @ 6522.00ft (H&P 530)
Well:	Rosa Unit #745H	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	
1,279.00	9.49	190.65	1,271.99	-93.70	5.95	2,133,441.55	2,858,374.11	36.8620606	-107.3708857	
1,373.00	8.88	194.95	1,364.79	-108.33	2.65	2,133,426.91	2,858,370.88	36.8620204	-107.3708970	
1,468.00	7.51	202.25	1,458.82	-121.16	-1.60	2,133,414.06	2,858,366.70	36.8619852	-107.3709115	
1,562.00	5.71	194.25	1,552.19	-131.38	-5.07	2,133,403.82	2,858,363.27	36.8619571	-107.3709234	
1,657.00	5.89	192.93	1,646.70	-140.71	-7.33	2,133,394.48	2,858,361.06	36.8619315	-107.3709311	
1,752.00	6.50	200.58	1,741.15	-150.50	-10.31	2,133,384.68	2,858,358.13	36.8619046	-107.3709413	
1,846.00	6.50	194.16	1,834.55	-160.64	-13.48	2,133,374.52	2,858,355.01	36.8618768	-107.3709521	
1,941.00	5.01	198.47	1,929.07	-169.79	-16.11	2,133,365.36	2,858,352.42	36.8618516	-107.3709611	
2,036.00	4.70	200.23	2,023.73	-177.37	-18.77	2,133,357.76	2,858,349.80	36.8618308	-107.3709702	
2,130.00	4.61	190.12	2,117.42	-184.70	-20.77	2,133,350.42	2,858,347.84	36.8618107	-107.3709770	
2,224.00	5.49	189.07	2,211.05	-192.86	-22.14	2,133,342.25	2,858,346.51	36.8617882	-107.3709817	
2,316.00	5.89	183.35	2,302.60	-201.92	-23.11	2,133,333.19	2,858,345.58	36.8617634	-107.3709850	
2,410.00	6.90	184.19	2,396.01	-212.37	-23.80	2,133,322.74	2,858,344.94	36.8617347	-107.3709874	
2,505.00	6.42	186.87	2,490.37	-223.33	-24.85	2,133,311.77	2,858,343.94	36.8617046	-107.3709910	
2,599.00	6.68	186.34	2,583.76	-233.98	-26.09	2,133,301.12	2,858,342.76	36.8616753	-107.3709952	
2,693.00	7.60	183.44	2,677.03	-245.62	-27.06	2,133,289.47	2,858,341.84	36.8616433	-107.3709985	
2,788.00	7.99	182.73	2,771.15	-258.49	-27.76	2,133,276.60	2,858,341.21	36.8616080	-107.3710009	
2,883.00	7.91	182.83	2,865.24	-271.61	-28.39	2,133,263.48	2,858,340.63	36.8615719	-107.3710031	
2,977.00	6.28	182.21	2,958.51	-283.21	-28.91	2,133,251.88	2,858,340.17	36.8615401	-107.3710048	
3,071.00	6.42	179.13	3,051.94	-293.60	-29.03	2,133,241.48	2,858,340.10	36.8615115	-107.3710052	
3,166.00	6.11	179.74	3,146.37	-303.97	-28.92	2,133,231.12	2,858,340.26	36.8614831	-107.3710049	
3,261.00	6.50	181.51	3,240.80	-314.40	-29.04	2,133,220.69	2,858,340.19	36.8614544	-107.3710053	
3,355.00	6.59	181.68	3,334.18	-325.11	-29.34	2,133,209.97	2,858,339.94	36.8614250	-107.3710063	
3,450.00	6.11	186.17	3,428.60	-335.59	-30.05	2,133,199.49	2,858,339.29	36.8613962	-107.3710087	
3,544.00	5.80	188.54	3,522.09	-345.26	-31.29	2,133,189.82	2,858,338.09	36.8613697	-107.3710130	
3,567.00	5.80	188.98	3,544.98	-347.55	-31.64	2,133,187.52	2,858,337.75	36.8613634	-107.3710142	
3,681.00	5.40	190.47	3,658.43	-358.52	-33.52	2,133,176.55	2,858,335.93	36.8613332	-107.3710206	
3,776.00	5.19	184.85	3,753.03	-367.20	-34.69	2,133,167.86	2,858,334.80	36.8613094	-107.3710246	
3,870.00	4.88	184.58	3,846.66	-375.42	-35.37	2,133,159.64	2,858,334.16	36.8612868	-107.3710269	
3,965.00	5.32	183.79	3,941.29	-383.84	-35.98	2,133,151.21	2,858,333.58	36.8612637	-107.3710290	
4,060.00	5.01	180.98	4,035.90	-392.38	-36.35	2,133,142.67	2,858,333.26	36.8612402	-107.3710303	
4,154.00	5.80	181.24	4,129.48	-401.24	-36.52	2,133,133.82	2,858,333.13	36.8612159	-107.3710309	
4,249.00	5.71	182.21	4,224.00	-410.76	-36.81	2,133,124.29	2,858,332.89	36.8611898	-107.3710318	
4,343.00	4.88	181.95	4,317.60	-419.43	-37.12	2,133,115.62	2,858,332.62	36.8611659	-107.3710329	
4,437.00	5.32	184.23	4,411.23	-427.77	-37.58	2,133,107.28	2,858,332.20	36.8611430	-107.3710345	
4,532.00	6.59	186.25	4,505.71	-437.58	-38.50	2,133,097.46	2,858,331.33	36.8611161	-107.3710376	
4,627.00	5.41	184.76	4,600.19	-447.46	-39.46	2,133,087.58	2,858,330.41	36.8610889	-107.3710409	
4,721.00	5.71	181.42	4,693.75	-456.55	-39.95	2,133,078.48	2,858,329.97	36.8610640	-107.3710426	
4,816.00	6.68	176.23	4,788.20	-466.79	-39.70	2,133,068.25	2,858,330.27	36.8610358	-107.3710417	
4,910.00	5.58	173.33	4,881.66	-476.78	-38.81	2,133,058.26	2,858,331.21	36.8610084	-107.3710387	
5,005.00	5.71	172.54	4,976.20	-486.06	-37.66	2,133,048.99	2,858,332.40	36.8609829	-107.3710348	
5,100.00	6.20	176.76	5,070.68	-495.87	-36.76	2,133,039.19	2,858,333.35	36.8609560	-107.3710317	
5,194.00	5.19	179.22	5,164.22	-505.19	-36.41	2,133,029.87	2,858,333.74	36.8609304	-107.3710305	
5,289.00	5.41	181.51	5,258.81	-513.96	-36.47	2,133,021.09	2,858,333.73	36.8609063	-107.3710307	
5,384.00	6.68	184.58	5,353.28	-523.94	-37.03	2,133,011.11	2,858,333.22	36.8608789	-107.3710326	
5,478.00	6.59	186.43	5,446.65	-534.75	-38.07	2,133,000.29	2,858,332.23	36.8608492	-107.3710362	
5,573.00	6.02	187.92	5,541.08	-545.10	-39.37	2,132,989.94	2,858,330.98	36.8608207	-107.3710406	
5,636.00	5.89	188.63	5,603.74	-551.57	-40.31	2,132,983.46	2,858,330.07	36.8608030	-107.3710438	
5,699.00	5.41	191.88	5,666.43	-557.67	-41.40	2,132,977.36	2,858,329.01	36.8607862	-107.3710476	
5,762.00	5.01	198.65	5,729.17	-563.19	-42.90	2,132,971.84	2,858,327.54	36.8607711	-107.3710526	
5,825.00	4.39	204.27	5,791.96	-567.99	-44.77	2,132,967.02	2,858,325.69	36.8607579	-107.3710590	
5,888.00	4.48	198.65	5,854.77	-572.52	-46.54	2,132,962.48	2,858,323.94	36.8607454	-107.3710651	
5,951.00	4.61	198.82	5,917.57	-577.25	-48.15	2,132,957.75	2,858,322.36	36.8607324	-107.3710706	
6,014.00	4.39	204.36	5,980.38	-581.84	-49.96	2,132,953.15	2,858,320.57	36.8607198	-107.3710768	
6,077.00	4.22	209.63	6,043.20	-586.05	-52.10	2,132,948.92	2,858,318.45	36.8607083	-107.3710841	

SDT

Survey Report - Geographic

Company:	Logos Operating LLC	Local Co-ordinate Reference:	Well Rosa Unit #745H - Slot A5
Project:	Rio Arriba, NM NAD83	TVD Reference:	GL 6492' & RKB 30' @ 6522.00ft (H&P 530)
Site:	Rosa Unit 31	MD Reference:	GL 6492' & RKB 30' @ 6522.00ft (H&P 530)
Well:	Rosa Unit #745H	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	
6,140.00	4.09	206.73	6,106.04	-590.07	-54.26	2,132,944.89	2,858,316.31	36.8606972	-107.3710915	
6,203.00	3.91	208.05	6,168.88	-593.98	-56.28	2,132,940.98	2,858,314.31	36.8606865	-107.3710984	
6,266.00	3.60	208.31	6,231.75	-597.61	-58.22	2,132,937.33	2,858,312.38	36.8606765	-107.3711050	
6,329.00	3.38	208.31	6,294.63	-600.99	-60.04	2,132,933.95	2,858,310.58	36.8606672	-107.3711113	
6,365.00	3.30	212.97	6,330.57	-602.79	-61.11	2,132,932.14	2,858,309.52	36.8606623	-107.3711149	
6,446.00	2.40	207.86	6,411.47	-606.25	-63.17	2,132,928.68	2,858,307.47	36.8606528	-107.3711220	
6,541.00	3.81	197.20	6,506.33	-611.02	-65.04	2,132,923.89	2,858,305.63	36.8606397	-107.3711283	
6,636.00	4.88	184.54	6,601.06	-618.07	-66.29	2,132,916.84	2,858,304.41	36.8606203	-107.3711326	
6,730.00	5.69	187.74	6,694.66	-626.67	-67.23	2,132,908.24	2,858,303.51	36.8605967	-107.3711358	
6,824.00	11.70	154.19	6,787.59	-639.89	-63.71	2,132,895.04	2,858,307.10	36.8605604	-107.3711238	
6,919.00	17.75	135.79	6,879.47	-658.97	-49.39	2,132,876.03	2,858,321.51	36.8605080	-107.3710749	
7,013.00	24.25	129.79	6,967.19	-681.62	-24.54	2,132,853.50	2,858,346.47	36.8604458	-107.3709899	
7,108.00	31.75	121.59	7,051.04	-707.24	11.81	2,132,828.05	2,858,382.94	36.8603754	-107.3708657	
7,202.00	39.35	112.22	7,127.52	-731.52	60.57	2,132,804.00	2,858,431.82	36.8603087	-107.3706990	
7,297.00	46.54	102.04	7,197.10	-750.15	122.33	2,132,785.68	2,858,493.67	36.8602575	-107.3704879	
7,392.00	56.66	99.61	7,256.04	-764.00	195.37	2,132,772.18	2,858,566.78	36.8602195	-107.3702382	
7,486.00	64.57	95.02	7,302.15	-774.29	276.53	2,132,762.28	2,858,647.98	36.8601912	-107.3699608	
7,581.00	74.39	91.37	7,335.41	-779.15	365.24	2,132,757.85	2,858,736.72	36.8601779	-107.3696575	
7,675.00	83.10	89.49	7,353.75	-779.82	457.34	2,132,757.63	2,858,828.82	36.8601760	-107.3693427	
7,770.00	89.93	88.83	7,359.52	-778.43	552.09	2,132,759.48	2,858,923.57	36.8601798	-107.3690188	
7,865.00	89.80	89.00	7,359.74	-776.63	647.08	2,132,761.73	2,859,018.54	36.8601848	-107.3686942	
7,959.00	89.23	86.90	7,360.54	-773.27	741.01	2,132,765.55	2,859,112.45	36.8601940	-107.3683731	
8,054.00	89.19	87.16	7,361.85	-768.35	835.87	2,132,770.93	2,859,207.29	36.8602075	-107.3680488	
8,148.00	89.43	87.50	7,362.98	-763.97	929.76	2,132,775.76	2,859,301.16	36.8602195	-107.3677279	
8,243.00	89.02	88.03	7,364.26	-760.27	1,024.68	2,132,779.93	2,859,396.06	36.8602297	-107.3674034	
8,337.00	89.23	88.13	7,365.70	-757.12	1,118.62	2,132,783.53	2,859,489.98	36.8602383	-107.3670823	
8,432.00	88.52	88.43	7,367.56	-754.27	1,213.56	2,132,786.84	2,859,584.90	36.8602462	-107.3667578	
8,526.00	90.20	87.90	7,368.61	-751.26	1,307.50	2,132,790.31	2,859,678.83	36.8602544	-107.3664367	
8,621.00	90.10	88.38	7,368.37	-748.17	1,402.45	2,132,793.85	2,859,773.76	36.8602629	-107.3661121	
8,716.00	90.00	88.43	7,368.28	-745.53	1,497.41	2,132,796.96	2,859,868.71	36.8602701	-107.3657875	
8,810.00	89.16	88.52	7,368.97	-743.03	1,591.37	2,132,799.91	2,859,962.66	36.8602770	-107.3654663	
8,904.00	90.44	88.82	7,369.30	-740.84	1,685.35	2,132,802.55	2,860,056.62	36.8602829	-107.3651451	
8,999.00	90.17	89.40	7,368.79	-739.37	1,780.33	2,132,804.48	2,860,151.60	36.8602870	-107.3648204	
9,094.00	89.87	89.51	7,368.76	-738.47	1,875.33	2,132,805.85	2,860,246.59	36.8602895	-107.3644957	
9,188.00	91.18	89.76	7,367.90	-737.87	1,969.32	2,132,806.90	2,860,340.57	36.8602911	-107.3641744	
9,283.00	90.94	89.93	7,366.14	-737.61	2,064.30	2,132,807.62	2,860,435.56	36.8602918	-107.3638497	
9,378.00	90.77	89.67	7,364.72	-737.28	2,159.29	2,132,808.41	2,860,530.54	36.8602927	-107.3635250	
9,472.00	90.57	90.15	7,363.62	-737.13	2,253.28	2,132,809.01	2,860,624.53	36.8602930	-107.3632038	
9,567.00	90.17	89.20	7,363.01	-736.59	2,348.28	2,132,810.01	2,860,719.52	36.8602945	-107.3628790	
9,661.00	90.00	89.30	7,362.87	-735.36	2,442.27	2,132,811.70	2,860,813.51	36.8602979	-107.3625578	
9,755.00	90.27	89.36	7,362.65	-734.26	2,536.26	2,132,813.25	2,860,907.49	36.8603009	-107.3622365	
9,850.00	90.13	89.79	7,362.32	-733.56	2,631.26	2,132,814.42	2,861,002.49	36.8603028	-107.3619117	
9,944.00	90.10	90.41	7,362.13	-733.72	2,725.26	2,132,814.71	2,861,096.49	36.8603023	-107.3615904	
10,038.00	90.24	90.63	7,361.85	-734.57	2,819.26	2,132,814.31	2,861,190.48	36.8602999	-107.3612691	
10,132.00	89.76	89.66	7,361.85	-734.81	2,913.25	2,132,814.53	2,861,284.48	36.8602992	-107.3609478	
10,227.00	90.24	89.62	7,361.85	-734.22	3,008.25	2,132,815.58	2,861,379.48	36.8603009	-107.3606231	
10,322.00	89.16	90.05	7,362.35	-733.94	3,103.25	2,132,816.32	2,861,474.47	36.8603016	-107.3602984	
10,416.00	88.92	90.34	7,363.92	-734.26	3,197.24	2,132,816.45	2,861,568.46	36.8603007	-107.3599771	
10,511.00	88.75	90.58	7,365.86	-735.02	3,292.21	2,132,816.15	2,861,663.44	36.8602985	-107.3596525	
10,605.00	88.62	90.51	7,368.01	-735.92	3,386.18	2,132,815.71	2,861,757.41	36.8602961	-107.3593312	
10,700.00	89.70	90.97	7,369.41	-737.15	3,481.16	2,132,814.94	2,861,852.39	36.8602927	-107.3590066	
10,794.00	89.93	91.35	7,369.71	-739.05	3,575.14	2,132,813.50	2,861,946.38	36.8602874	-107.3586853	
10,888.00	89.70	92.55	7,370.01	-742.25	3,669.09	2,132,810.75	2,862,040.34	36.8602786	-107.3583642	
10,983.00	90.91	92.54	7,369.51	-746.46	3,763.99	2,132,806.99	2,862,135.26	36.8602670	-107.3580398	
11,078.00	90.34	91.48	7,368.47	-749.80	3,858.92	2,132,804.12	2,862,230.21	36.8602578	-107.3577153	

SDT

Survey Report - Geographic

Company:	Logos Operating LLC	Local Co-ordinate Reference:	Well Rosa Unit #745H - Slot A5
Project:	Rio Arriba, NM NAD83	TVD Reference:	GL 6492' & RKB 30' @ 6522.00ft (H&P 530)
Site:	Rosa Unit 31	MD Reference:	GL 6492' & RKB 30' @ 6522.00ft (H&P 530)
Well:	Rosa Unit #745H	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
11,172.00	90.57	91.79	7,367.72	-752.48	3,952.88	2,132,801.89	2,862,324.18	36.8602504	-107.3573941
11,266.00	90.50	90.02	7,366.85	-753.96	4,046.86	2,132,800.86	2,862,418.17	36.8602463	-107.3570729
11,360.00	90.54	90.89	7,365.99	-754.71	4,140.86	2,132,800.57	2,862,512.16	36.8602442	-107.3567516
11,455.00	90.00	88.68	7,365.55	-754.35	4,235.85	2,132,801.39	2,862,607.15	36.8602451	-107.3564269
11,549.00	90.03	89.35	7,365.52	-752.74	4,329.83	2,132,803.46	2,862,701.13	36.8602495	-107.3561056
11,644.00	90.13	89.14	7,365.39	-751.49	4,424.82	2,132,805.17	2,862,796.11	36.8602529	-107.3557809
11,738.00	90.00	89.65	7,365.28	-750.49	4,518.82	2,132,806.62	2,862,890.10	36.8602556	-107.3554596
11,832.00	90.10	89.41	7,365.20	-749.72	4,612.82	2,132,807.85	2,862,984.09	36.8602577	-107.3551383
11,927.00	90.10	89.81	7,365.03	-749.08	4,707.81	2,132,808.95	2,863,079.09	36.8602594	-107.3548136
12,021.00	89.66	90.00	7,365.23	-748.92	4,801.81	2,132,809.56	2,863,173.08	36.8602598	-107.3544923
12,116.00	89.56	90.82	7,365.88	-749.60	4,896.81	2,132,809.34	2,863,268.08	36.8602579	-107.3541676
12,210.00	90.37	90.53	7,365.93	-750.71	4,990.80	2,132,808.69	2,863,362.08	36.8602548	-107.3538463
12,305.00	90.03	90.72	7,365.60	-751.74	5,085.79	2,132,808.12	2,863,457.07	36.8602519	-107.3535216
12,400.00	89.66	90.55	7,365.86	-752.80	5,180.79	2,132,807.52	2,863,552.07	36.8602489	-107.3531969
12,494.00	89.36	91.13	7,366.66	-754.17	5,274.77	2,132,806.60	2,863,646.06	36.8602451	-107.3528756
12,588.00	90.14	90.93	7,367.07	-755.86	5,368.76	2,132,805.37	2,863,740.05	36.8602404	-107.3525544
12,682.00	90.61	91.08	7,366.46	-757.51	5,462.74	2,132,804.17	2,863,834.04	36.8602358	-107.3522331
12,777.00	89.97	92.23	7,365.98	-760.26	5,557.70	2,132,801.89	2,863,929.01	36.8602283	-107.3519085
12,871.00	90.07	89.00	7,365.94	-761.26	5,651.68	2,132,801.33	2,864,023.00	36.8602254	-107.3515873
12,966.00	90.00	89.84	7,365.89	-760.30	5,746.67	2,132,802.76	2,864,117.98	36.8602280	-107.3512625
13,060.00	89.93	90.06	7,365.94	-760.22	5,840.67	2,132,803.29	2,864,211.98	36.8602282	-107.3509412
13,155.00	89.46	90.50	7,366.45	-760.68	5,935.67	2,132,803.29	2,864,306.98	36.8602269	-107.3506165
13,250.00	89.46	90.83	7,367.35	-761.79	6,030.66	2,132,802.65	2,864,401.97	36.8602238	-107.3502918
13,344.00	89.22	91.84	7,368.43	-763.98	6,124.63	2,132,800.91	2,864,495.95	36.8602177	-107.3499706
13,439.00	90.47	90.75	7,368.69	-766.12	6,219.60	2,132,799.22	2,864,590.93	36.8602118	-107.3496460
13,533.00	90.47	90.42	7,367.91	-767.08	6,313.59	2,132,798.72	2,864,684.93	36.8602091	-107.3493247
13,628.00	90.51	90.78	7,367.10	-768.08	6,408.58	2,132,798.18	2,864,779.92	36.8602063	-107.3490000
13,723.00	90.27	91.24	7,366.45	-769.75	6,503.56	2,132,796.97	2,864,874.91	36.8602016	-107.3486753
13,817.00	90.47	91.07	7,365.85	-771.65	6,597.54	2,132,795.53	2,864,968.90	36.8601963	-107.3483541
13,912.00	90.91	90.77	7,364.70	-773.17	6,692.52	2,132,794.47	2,865,063.88	36.8601921	-107.3480294
14,007.00	90.61	90.99	7,363.44	-774.63	6,787.50	2,132,793.47	2,865,158.87	36.8601880	-107.3477048
14,101.00	90.00	89.76	7,362.94	-775.25	6,881.50	2,132,793.31	2,865,252.87	36.8601863	-107.3473835
14,195.00	90.00	89.89	7,362.94	-774.96	6,975.50	2,132,794.05	2,865,346.86	36.8601870	-107.3470622
14,290.00	89.70	90.14	7,363.19	-774.99	7,070.50	2,132,794.48	2,865,441.86	36.8601869	-107.3467374
14,384.00	89.39	90.88	7,363.94	-775.82	7,164.49	2,132,794.10	2,865,535.86	36.8601845	-107.3464161
14,479.00	89.53	89.16	7,364.83	-775.85	7,259.48	2,132,794.53	2,865,630.85	36.8601843	-107.3460914
14,574.00	89.70	89.29	7,365.47	-774.57	7,354.47	2,132,796.27	2,865,725.83	36.8601878	-107.3457667
14,668.00	89.63	89.76	7,366.02	-773.79	7,448.47	2,132,797.51	2,865,819.82	36.8601899	-107.3454454
14,763.00	89.66	89.94	7,366.61	-773.54	7,543.46	2,132,798.22	2,865,914.81	36.8601905	-107.3451207
14,857.00	89.33	90.13	7,367.44	-773.60	7,637.46	2,132,798.61	2,866,008.81	36.8601903	-107.3447994
14,952.00	89.19	89.27	7,368.67	-773.10	7,732.45	2,132,799.57	2,866,103.80	36.8601916	-107.3444747
15,046.00	89.60	88.38	7,369.66	-771.17	7,826.42	2,132,801.95	2,866,197.76	36.8601968	-107.3441535
15,141.00	90.87	88.18	7,369.27	-768.32	7,921.38	2,132,805.27	2,866,292.70	36.8602045	-107.3438289
15,235.00	91.40	88.24	7,367.41	-765.39	8,015.31	2,132,808.66	2,866,386.62	36.8602125	-107.3435078
15,330.00	90.57	88.76	7,365.77	-762.90	8,110.27	2,132,811.60	2,866,481.56	36.8602193	-107.3431832
15,424.00	90.47	88.37	7,364.92	-760.55	8,204.23	2,132,814.41	2,866,575.51	36.8602257	-107.3428620
15,518.00	90.92	89.50	7,363.78	-758.80	8,298.21	2,132,816.61	2,866,669.48	36.8602304	-107.3425408
15,613.00	90.51	90.08	7,362.59	-758.45	8,393.20	2,132,817.42	2,866,764.46	36.8602313	-107.3422161
15,708.00	90.40	90.43	7,361.84	-758.87	8,488.19	2,132,817.46	2,866,859.46	36.8602300	-107.3418914
15,802.00	90.30	90.57	7,361.27	-759.70	8,582.19	2,132,817.09	2,866,953.46	36.8602277	-107.3415701
15,897.00	90.00	90.79	7,361.02	-760.82	8,677.18	2,132,816.43	2,867,048.46	36.8602245	-107.3412454
15,991.00	89.66	91.22	7,361.30	-762.47	8,771.17	2,132,815.23	2,867,142.45	36.8602199	-107.3409241
16,086.00	90.58	90.01	7,361.10	-763.49	8,866.16	2,132,814.67	2,867,237.44	36.8602170	-107.3405994
16,180.00	90.70	90.33	7,360.05	-763.77	8,960.15	2,132,814.85	2,867,331.44	36.8602162	-107.3402781
16,275.00	90.20	90.81	7,359.30	-764.71	9,055.14	2,132,814.36	2,867,426.43	36.8602135	-107.3399534

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Survey Report - Geographic

Company:	Logos Operating LLC	Local Co-ordinate Reference:	Well Rosa Unit #745H - Slot A5
Project:	Rio Arriba, NM NAD83	TVD Reference:	GL 6492' & RKB 30' @ 6522.00ft (H&P 530)
Site:	Rosa Unit 31	MD Reference:	GL 6492' & RKB 30' @ 6522.00ft (H&P 530)
Well:	Rosa Unit #745H	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
16,369.00	90.17	91.25	7,359.00	-766.40	9,149.13	2,132,813.13	2,867,520.42	36.8602088	-107.3396322
16,464.00	90.24	91.74	7,358.66	-768.88	9,244.09	2,132,811.11	2,867,615.40	36.8602019	-107.3393076
16,559.00	90.13	92.82	7,358.35	-772.66	9,339.02	2,132,807.79	2,867,710.34	36.8601914	-107.3389831
16,653.00	90.27	91.84	7,358.02	-776.48	9,432.94	2,132,804.42	2,867,804.28	36.8601808	-107.3386621
16,747.00	90.54	91.45	7,357.36	-779.18	9,526.90	2,132,802.18	2,867,898.25	36.8601733	-107.3383409
16,842.00	90.13	89.90	7,356.80	-780.30	9,621.88	2,132,801.52	2,867,993.24	36.8601702	-107.3380162
16,937.00	89.87	89.25	7,356.80	-779.60	9,716.88	2,132,802.69	2,868,088.23	36.8601720	-107.3376915
17,031.00	89.36	89.27	7,357.43	-778.38	9,810.87	2,132,804.36	2,868,182.22	36.8601753	-107.3373702
17,126.00	89.60	88.65	7,358.30	-776.66	9,905.85	2,132,806.54	2,868,277.19	36.8601799	-107.3370455
17,220.00	90.00	88.54	7,358.63	-774.35	9,999.82	2,132,809.30	2,868,371.14	36.8601861	-107.3367243
17,315.00	90.54	89.70	7,358.18	-772.89	10,094.81	2,132,811.22	2,868,466.12	36.8601901	-107.3363996
17,409.00	90.13	89.61	7,357.63	-772.33	10,188.80	2,132,812.24	2,868,560.11	36.8601915	-107.3360783
17,504.00	90.10	90.18	7,357.44	-772.15	10,283.80	2,132,812.87	2,868,655.11	36.8601919	-107.3357536
17,598.00	89.56	90.44	7,357.72	-772.66	10,377.80	2,132,812.82	2,868,749.11	36.8601904	-107.3354323
17,693.00	90.07	89.84	7,358.02	-772.90	10,472.80	2,132,813.05	2,868,844.11	36.8601897	-107.3351076
17,787.00	89.93	89.60	7,358.02	-772.44	10,566.80	2,132,813.96	2,868,938.10	36.8601908	-107.3347863
17,882.00	89.80	89.96	7,358.25	-772.07	10,661.80	2,132,814.79	2,869,033.10	36.8601917	-107.3344615
17,977.00	89.50	90.38	7,358.83	-772.35	10,756.80	2,132,814.96	2,869,128.10	36.8601909	-107.3341368
18,071.00	89.16	90.41	7,359.93	-773.00	10,850.79	2,132,814.77	2,869,222.09	36.8601890	-107.3338155
18,166.00	89.06	90.94	7,361.40	-774.12	10,945.77	2,132,814.11	2,869,317.08	36.8601858	-107.3334909
18,261.00	89.93	90.36	7,362.24	-775.20	11,040.76	2,132,813.50	2,869,412.07	36.8601828	-107.3331662
18,356.00	91.04	90.53	7,361.44	-775.94	11,135.75	2,132,813.22	2,869,507.06	36.8601806	-107.3328415
18,450.00	90.81	90.95	7,359.92	-777.15	11,229.73	2,132,812.46	2,869,601.05	36.8601772	-107.3325202
18,545.00	90.84	90.98	7,358.55	-778.75	11,324.71	2,132,811.32	2,869,696.03	36.8601727	-107.3321956
18,639.00	90.71	90.70	7,357.28	-780.13	11,418.69	2,132,810.40	2,869,790.02	36.8601688	-107.3318743
18,734.00	90.10	91.27	7,356.61	-781.76	11,513.67	2,132,809.22	2,869,885.01	36.8601642	-107.3315497
18,828.00	89.90	91.10	7,356.61	-783.70	11,607.65	2,132,807.73	2,869,978.99	36.8601588	-107.3312284
18,923.00	89.80	90.84	7,356.86	-785.31	11,702.64	2,132,806.59	2,870,073.99	36.8601542	-107.3309038
19,017.00	90.84	90.57	7,356.33	-786.47	11,796.63	2,132,805.88	2,870,167.98	36.8601509	-107.3305825
19,112.00	90.71	90.69	7,355.05	-787.51	11,891.61	2,132,805.30	2,870,262.97	36.8601480	-107.3302578
19,206.00	90.64	91.32	7,353.94	-789.16	11,985.59	2,132,804.11	2,870,356.96	36.8601433	-107.3299366
19,301.00	90.44	89.88	7,353.04	-790.16	12,080.58	2,132,803.57	2,870,451.95	36.8601405	-107.3296119
19,395.00	90.30	89.74	7,352.44	-789.84	12,174.57	2,132,804.34	2,870,545.94	36.8601412	-107.3292906
19,490.00	89.87	90.24	7,352.29	-789.83	12,269.57	2,132,804.81	2,870,640.94	36.8601412	-107.3289658
19,584.00	89.53	90.60	7,352.79	-790.52	12,363.57	2,132,804.58	2,870,734.94	36.8601392	-107.3286445
19,679.00	89.23	91.39	7,353.81	-792.17	12,458.55	2,132,803.39	2,870,829.92	36.8601345	-107.3283199
19,774.00	89.56	90.51	7,354.82	-793.74	12,553.53	2,132,802.28	2,870,924.91	36.8601301	-107.3279952
19,868.00	90.20	90.47	7,355.01	-794.55	12,647.53	2,132,801.93	2,871,018.91	36.8601277	-107.3276739
19,963.00	89.93	90.41	7,354.91	-795.28	12,742.52	2,132,801.66	2,871,113.91	36.8601256	-107.3273492
20,058.00	89.46	90.81	7,355.41	-796.29	12,837.52	2,132,801.11	2,871,208.90	36.8601227	-107.3270245
20,152.00	90.17	89.74	7,355.72	-796.74	12,931.51	2,132,801.11	2,871,302.90	36.8601214	-107.3267032
20,246.00	90.37	90.34	7,355.27	-796.80	13,025.51	2,132,801.50	2,871,396.90	36.8601211	-107.3263819
20,341.00	90.13	90.17	7,354.86	-797.23	13,120.51	2,132,801.54	2,871,491.90	36.8601198	-107.3260572
20,436.00	89.80	90.43	7,354.92	-797.72	13,215.51	2,132,801.50	2,871,586.90	36.8601183	-107.3257324
20,530.00	89.63	90.41	7,355.38	-798.41	13,309.50	2,132,801.27	2,871,680.90	36.8601163	-107.3254111
20,625.00	89.26	90.91	7,356.30	-799.51	13,404.49	2,132,800.63	2,871,775.89	36.8601131	-107.3250865
20,719.00	89.83	91.00	7,357.05	-801.07	13,498.48	2,132,799.52	2,871,869.88	36.8601087	-107.3247652
20,814.00	89.53	91.38	7,357.58	-803.05	13,593.45	2,132,798.01	2,871,964.86	36.8601032	-107.3244405
20,909.00	89.53	91.00	7,358.36	-805.02	13,688.43	2,132,796.49	2,872,059.85	36.8600976	-107.3241159
21,004.00	89.70	91.17	7,359.00	-806.82	13,783.41	2,132,795.16	2,872,154.84	36.8600926	-107.3237912
21,098.00	89.16	91.82	7,359.93	-809.27	13,877.37	2,132,793.16	2,872,248.81	36.8600857	-107.3234701
21,193.00	88.75	92.02	7,361.67	-812.45	13,972.30	2,132,790.44	2,872,343.75	36.8600768	-107.3231456
21,220.00	88.72	92.11	7,362.26	-813.43	13,999.28	2,132,789.59	2,872,370.74	36.8600741	-107.3230534
21,290.00	88.72	92.11	7,363.83	-816.00	14,069.21	2,132,787.36	2,872,440.68	36.8600669	-107.3228143
BHL @ 21290' MD									

SDT
Survey Report - Geographic

Company:	Logos Operating LLC	Local Co-ordinate Reference:	Well Rosa Unit #745H - Slot A5
Project:	Rio Arriba, NM NAD83	TVD Reference:	GL 6492' & RKB 30' @ 6522.00ft (H&P 530)
Site:	Rosa Unit 31	MD Reference:	GL 6492' & RKB 30' @ 6522.00ft (H&P 530)
Well:	Rosa Unit #745H	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000 Multi User Db

Design Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(ft)	(ft)	(ft)	(usft)	(usft)		
- Shape									
RU 745H SHL	0.00	0.00	0.00	0.00	0.00	2,133,535.22	2,858,367.71	36.8623180	-107.3709060
- actual wellpath hits target center									
- Point									
RU 745H Actual POE	0.00	0.00	7,359.57	-777.77	585.09	2,132,760.29	2,858,956.56	36.8601816	-107.3689061
- actual wellpath hits target center									
- Point									
RU 745H Actual FPP	0.00	0.00	7,361.78	-812.63	13,977.30	2,132,790.28	2,872,348.75	36.8600763	-107.3231285
- actual wellpath hits target center									
- Point									
RU 745H BHL	0.00	0.00	7,363.83	-816.00	14,069.21	2,132,787.36	2,872,440.68	36.8600669	-107.3228143
- actual wellpath hits target center									
- Point									
RU 745H PBHL	0.00	0.00	7,366.00	-805.43	14,075.67	2,132,797.96	2,872,447.08	36.8600960	-107.3227922
- actual wellpath misses target center by 12.57ft at 21290.00ft MD (7363.83 TVD, -816.00 N, 14069.21 E)									
- Point									

Design Annotations				
Measured Depth	Vertical Depth	Local Coordinates		
(ft)	(ft)	+N/-S (ft)	+E/-W (ft)	Comment
21,290.00	7,363.83	-816.00	14,069.21	BHL @ 21290' MD

Checked By: _____

Approved By: _____

Date: _____

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 275642

ACKNOWLEDGMENTS

Operator: LOGOS OPERATING, LLC 2010 Afton Place Farmington, NM 87401	OGRID: 289408
	Action Number: 275642
	Action Type: [C-104] Completion Packet (C-104C)

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 275642

CONDITIONS

Operator: LOGOS OPERATING, LLC 2010 Afton Place Farmington, NM 87401	OGRID: 289408
	Action Number: 275642
	Action Type: [C-104] Completion Packet (C-104C)

CONDITIONS

Created By	Condition	Condition Date
plmartinez	RT EXPIRES 1/16/2024.	10/16/2023