

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 – 039-31416	⁵ Pool Name Basin Mancos		⁶ Pool Code 97232
⁷ Property Code 32608	⁸ Property Name Rosa Unit		⁹ Well Number 746H

II. ¹⁰ Surface Location

UL or lot no. C	Section 33	Township 31N	Range 5W	Lot Idn	Feet from the 363	North/South Line North	Feet from the 1685	East/West line West	County Rio Arriba
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¹¹ Bottom Hole Location

UL or lot no. H	Section 35	Township 31N	Range 5W	Lot Idn	Feet from the 2169	North/South line North	Feet from the 65	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

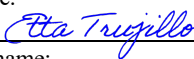
¹⁸ Transporter OGRID	¹⁹ Transporter Name and Address	²⁰ O/G/W
373888	Harvest Four Corners, LLC 1755 Arroyo Dr. Bloomfield, NM 87413	G

IV. Well Completion Data

²¹ Spud Date 4/15/2023	²² Ready Date ~10/16/2023	²³ TD 20,953’ MD / 7,075’ TVD	²⁴ PBDT 20,840’ MD / 7,074’ TVD	²⁵ Perforations 7,674’MD / 20,796’MD 7,080’TVD / 7,073’TVD	²⁶ DHC, MC R-13457	
²⁷ Hole Size		²⁸ Casing & Tubing Size		²⁹ Depth Set		³⁰ Sacks Cement
26”		20”, 94#, J-55		364’		764sx (156bbbs, 879cf)
17.5”		13-3/8”, 61#, J-55		3688’		2452sx (4216bbbs, 751cf)
12.25”		9-5/8”, 47#, L-80		6584’		2157sx (650bbbs, 3648cf) DV tool @ 3,774’ & 4,977’
8.5”		5-1/2”, 20#, HCP-110		20,933’		2875sx (837bbbs, 4701cf) TOC @ 3,362’
		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	
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>10/16/2023</i>	
Date: 10/13/2023	Phone: (505) 324-4154	<i>RT EXPIRES 1/16/2023</i>	

AS-DRILLED WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-039-31416		² Pool Code 97232	³ Pool Name BASIN MANCOS
⁴ Property Code 320608	⁵ Property Name ROSA UNIT		⁶ Well Number 746H
⁷ OGRID No. 289408	⁸ Operator Name LOGOS OPERATING, LLC		⁹ Elevation 6492'

¹⁰ Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
C	33	31N	5W		363	NORTH	1685	WEST	RIO ARriba

¹¹ Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
H	35	31N	5W		2169	NORTH	65	EAST	RIO ARriba

¹² Dedicated Acres 960.00	N/2 - Sections 33, 34 & 35		¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No. R-13457
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NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

17 OPERATOR CERTIFICATION
I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom-hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.
Etta Trujillo
Signature
Etta Trujillo
Printed Name
etrujillo@logosresourcesllc.com
E-mail Address
10/13/2023
Date

18 SURVEYOR CERTIFICATION
I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.
Date Revised: OCTOBER 13, 2023
Date of Survey: APRIL 21, 2016
Signature and Seal of Professional Surveyor

JASON C. EDWARDS
Certificate Number 15269

SURFACE LOCATION (A)
363' FNL 1685' FWL
SEC 33, T31N, R5W
LAT 36.862353°N
LONG 107.370309°W
DATUM: NAD1927

LAT 36.862359°N
LONG 107.370911°W
DATUM: NAD1983

S25°29.9'E
1681.2'

FIRST TAKE POINT (B)
2067' FNL 2484' FWL
SEC 33, T31N, R5W
LAT 36.8576779°N
LONG 107.3675690°W
DATUM: NAD1927

LAT 36.8576843°N
LONG 107.3681710°W
DATUM: NAD1983

S89°51.3'E
13,117.5'

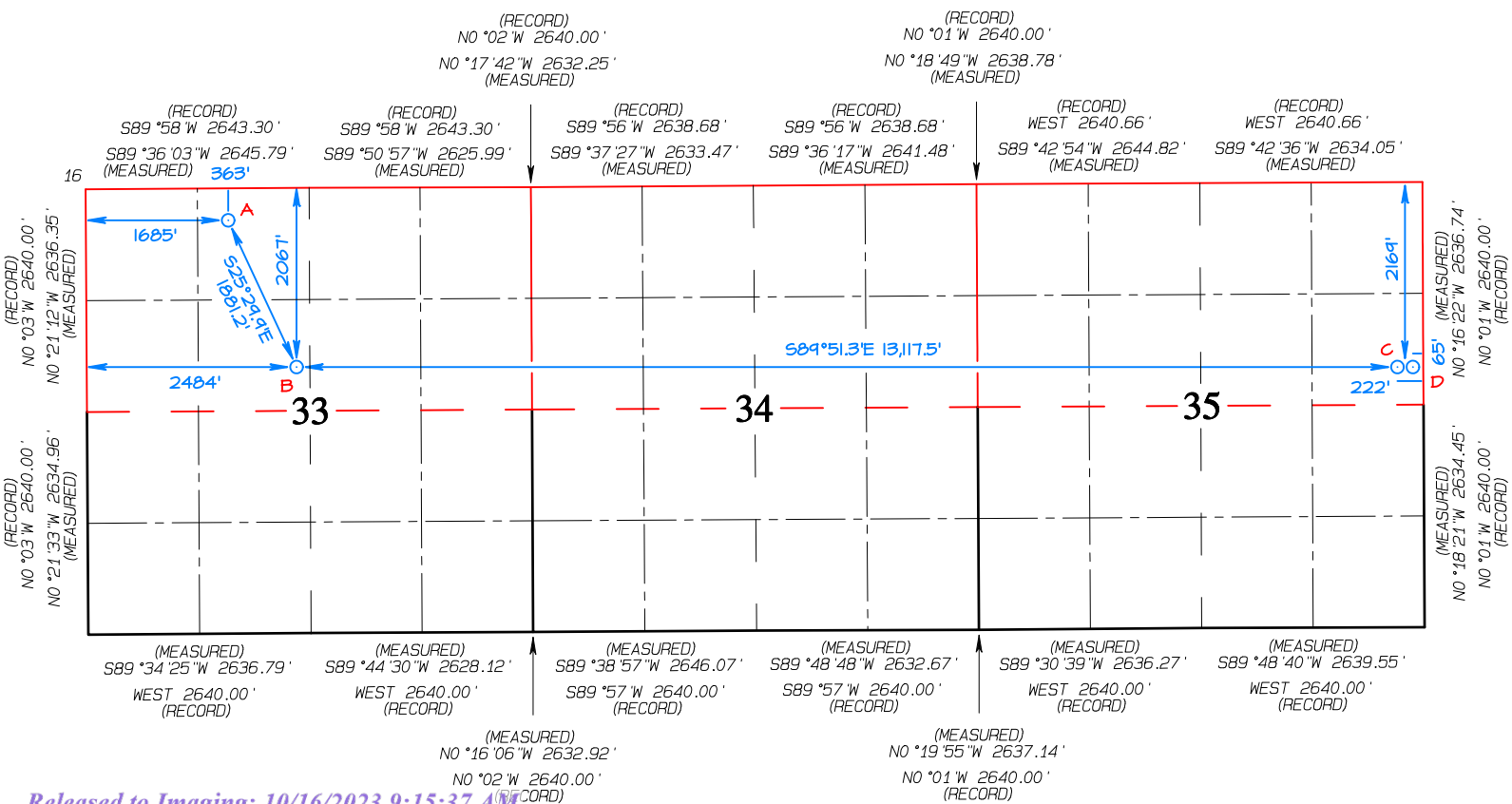
FIRST PERFORATION (C)
2169' FNL 222' FEL
SEC 35, T31N, R5W
LAT 36.8574026°N
LONG 107.3227343°W
DATUM: NAD1927

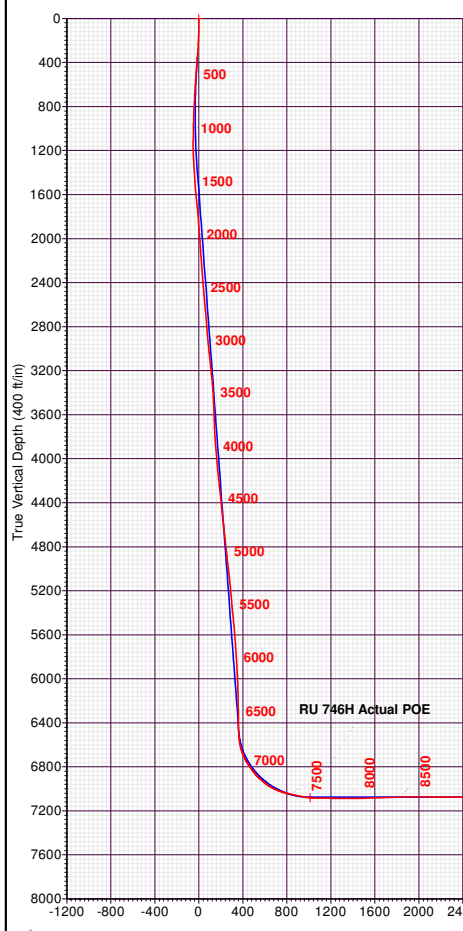
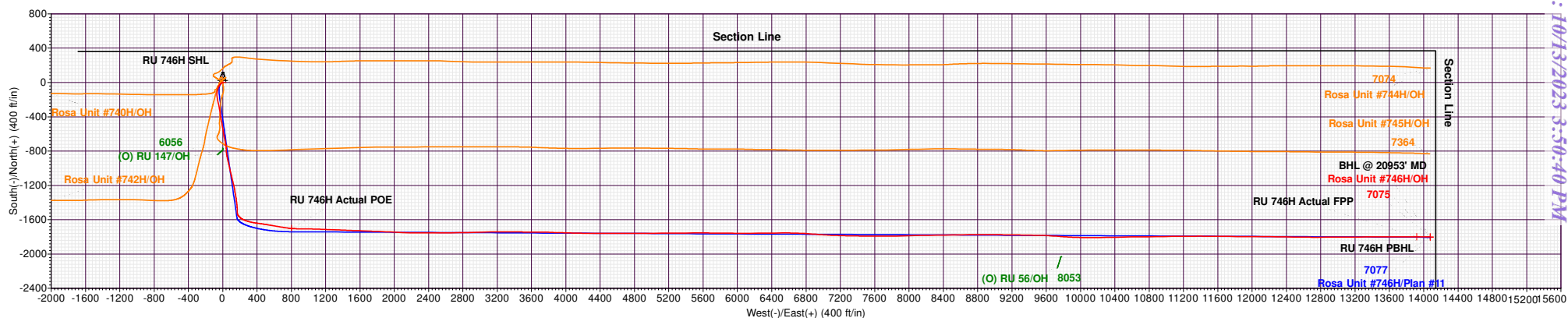
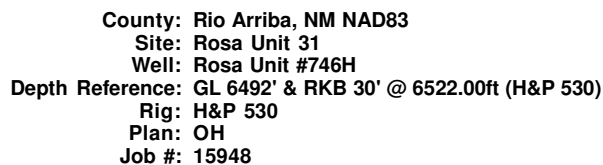
LAT 36.8574092°N
LONG 107.3233351°W
DATUM: NAD1983

N89°44.5'E
157.0'

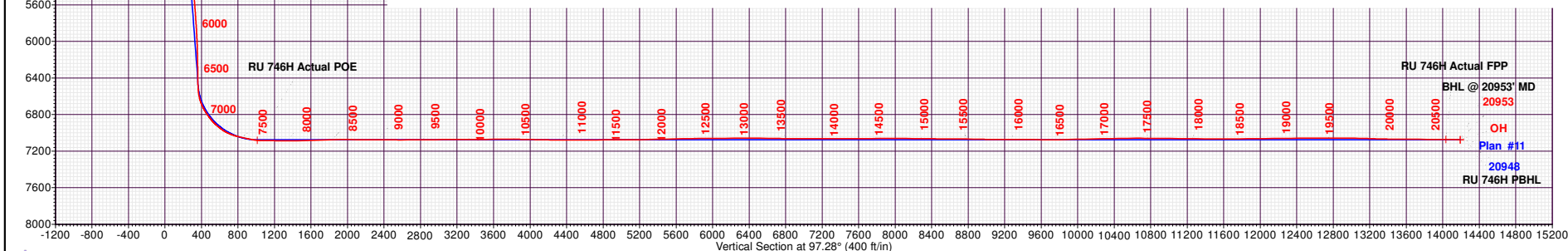
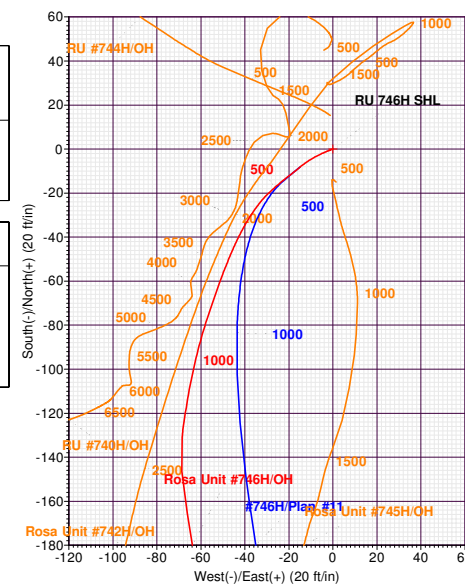
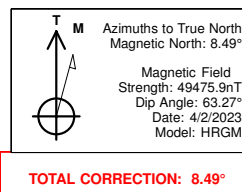
LAST TAKE POINT (D)
2169' FNL 65' FEL
SEC 35, T31N, R5W
LAT 36.8574022°N
LONG 107.3221976°W
DATUM: NAD1927

LAT 36.8574089°N
LONG 107.3227985°W
DATUM: NAD1983





DESIGN TARGET DETAILS							
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
RU 746H SHL	0.00	0.00	0.00	2133550.14	2858366.16	36.8623590	-107.3709110
RU 746H Actual FPP	7073.06	-1798.61	13918.80	2131818.95	2872293.48	36.8574092	-107.3233351
RU 746H BHL	7074.92	-1798.65	14075.79	2131819.66	2872450.47	36.8574089	-107.3227985
RU 746H PBHL	7077.00	-1804.65	14077.19	2131813.67	2872451.90	36.8573924	-107.3227937
RU 746H Actual POE	7080.65	-1701.91	801.61	2131852.13	2859176.00	36.8576843	-107.3681710



Logos Operating LLC

Rio Arriba, NM NAD83

Rosa Unit 31

Rosa Unit #746H - Slot A4

OH

Design: OH

Standard Survey Report

13 October, 2023

SDT
Survey Report

Company:	Logos Operating LLC	Local Co-ordinate Reference:	Well Rosa Unit #746H - Slot A4
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 #746H	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 #746H - Slot A4					
Well Position	+N/-S	0.00 ft	Northing:	2,133,550.14 usft	Latitude:	36.8623590
	+E/-W	0.00 ft	Easting:	2,858,366.17 usft	Longitude:	-107.3709110
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	4/2/2023	8.49	63.27	49,475.91939884

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	97.28	

Survey Program	Date	8/1/2023			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
100.00	360.00	Survey #1 (OH)	A020Ga_GYRO-NS	OWSG Gyrocompass Gyro	
450.00	6,539.00	Survey #2 (OH)	B001Mb_MWD+HRGM	OWSG MWD + HRGM	
6,613.00	20,880.00	Survey #3 (OH)	MWD+HRGM+MS	MWD + HRGM + Multi-Station Correction	
20,953.00	20,953.00	Survey #4 (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	
100.00	0.98	250.33	100.00	-0.29	-0.81	-0.76	0.98	0.98	0.00	
200.00	3.04	247.21	199.93	-1.60	-4.06	-3.82	2.06	2.06	-3.12	
300.00	5.06	239.72	299.67	-4.85	-10.31	-9.61	2.08	2.02	-7.49	
360.00	5.56	230.29	359.42	-8.05	-14.83	-13.69	1.67	0.83	-15.72	
450.00	6.20	232.04	448.94	-13.82	-22.02	-20.09	0.74	0.71	1.94	
537.00	6.59	226.33	535.40	-20.16	-29.33	-26.54	0.86	0.45	-6.56	

SDT

Survey Report

Company:	Logos Operating LLC	Local Co-ordinate Reference:	Well Rosa Unit #746H - Slot A4
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Site:	Rosa Unit 31	MD Reference:	GL 6492' & RKB 30' @ 6522.00ft (H&P 530)
Well:	Rosa Unit #746H	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)
627.00	8.39	213.68	624.64	-29.19	-36.71	-32.71	2.70	2.00	-14.06
711.00	9.80	205.85	707.58	-40.72	-43.23	-37.71	2.23	1.68	-9.32
806.00	11.38	200.49	800.96	-56.78	-50.03	-42.43	1.96	1.66	-5.64
897.00	11.38	198.73	890.17	-73.69	-56.06	-46.26	0.38	0.00	-1.93
988.00	11.60	194.34	979.35	-91.06	-61.21	-49.17	0.99	0.24	-4.82
1,080.00	11.91	190.65	1,069.42	-109.35	-65.25	-50.86	0.88	0.34	-4.01
1,172.00	11.38	187.31	1,159.53	-127.68	-68.16	-51.43	0.93	-0.58	-3.63
1,267.00	11.51	175.44	1,252.66	-146.43	-68.60	-49.49	2.48	0.14	-12.49
1,361.00	12.00	170.52	1,344.69	-165.42	-66.24	-44.74	1.19	0.52	-5.23
1,456.00	13.18	170.61	1,437.40	-185.84	-62.85	-38.79	1.24	1.24	0.09
1,550.00	14.19	168.68	1,528.73	-207.72	-58.84	-32.04	1.18	1.07	-2.05
1,645.00	15.12	167.53	1,620.64	-231.23	-53.88	-24.14	1.03	0.98	-1.21
1,740.00	15.38	167.71	1,712.29	-255.64	-48.52	-15.73	0.28	0.27	0.19
1,834.00	16.08	169.38	1,802.77	-280.61	-43.47	-7.55	0.89	0.74	1.78
1,929.00	15.60	170.17	1,894.17	-306.13	-38.87	0.25	0.55	-0.51	0.83
2,024.00	15.12	171.14	1,985.77	-330.96	-34.78	7.45	0.57	-0.51	1.02
2,118.00	14.41	170.26	2,076.67	-354.60	-30.91	14.29	0.79	-0.76	-0.94
2,212.00	14.02	171.84	2,167.79	-377.40	-27.31	20.74	0.59	-0.41	1.68
2,307.00	14.28	171.31	2,259.91	-400.37	-23.91	27.03	0.31	0.27	-0.56
2,401.00	14.90	169.03	2,350.88	-423.70	-19.86	34.01	0.90	0.66	-2.43
2,496.00	15.51	170.43	2,442.55	-448.21	-15.42	41.51	0.75	0.64	1.47
2,590.00	16.30	169.47	2,532.95	-473.58	-10.92	49.19	0.89	0.84	-1.02
2,685.00	16.48	169.99	2,624.09	-499.95	-6.14	57.28	0.24	0.19	0.55
2,780.00	16.08	170.35	2,715.28	-526.19	-1.60	65.11	0.43	-0.42	0.38
2,874.00	16.39	171.49	2,805.53	-552.14	2.55	72.51	0.47	0.33	1.21
2,968.00	17.18	170.78	2,895.53	-578.96	6.74	80.07	0.87	0.84	-0.76
3,063.00	17.49	169.73	2,986.21	-606.86	11.53	88.36	0.46	0.33	-1.11
3,158.00	18.28	167.09	3,076.62	-635.43	17.40	97.80	1.19	0.83	-2.78
3,252.00	18.11	167.71	3,165.92	-664.07	23.81	107.79	0.27	-0.18	0.66
3,347.00	16.70	168.06	3,256.57	-691.86	29.77	117.23	1.49	-1.48	0.37
3,441.00	14.99	169.29	3,347.00	-717.02	34.83	125.43	1.85	-1.82	1.31
3,535.00	12.88	173.95	3,438.23	-739.38	38.19	131.60	2.54	-2.24	4.96
3,630.00	11.69	175.97	3,531.05	-759.51	39.98	135.93	1.33	-1.25	2.13
3,649.00	11.29	174.65	3,549.67	-763.29	40.29	136.72	2.52	-2.11	-6.95
3,713.00	11.20	179.13	3,612.44	-775.74	40.97	138.97	1.37	-0.14	7.00
3,776.00	12.09	176.76	3,674.15	-788.44	41.44	141.04	1.60	1.41	-3.76
3,871.00	13.89	175.35	3,766.71	-809.74	42.92	145.21	1.92	1.89	-1.48
3,965.00	15.29	171.84	3,857.68	-833.26	45.60	150.85	1.76	1.49	-3.73
4,060.00	15.91	168.24	3,949.18	-858.41	50.03	158.43	1.21	0.65	-3.79
4,154.00	16.39	169.38	4,039.47	-884.06	55.10	166.71	0.61	0.51	1.21
4,249.00	16.00	167.97	4,130.70	-910.03	60.30	175.16	0.58	-0.41	-1.48
4,343.00	16.61	166.83	4,220.92	-935.79	66.06	184.14	0.73	0.65	-1.21
4,438.00	17.18	166.57	4,311.82	-962.65	72.41	193.85	0.61	0.60	-0.27

SDT

Survey Report

Company:	Logos Operating LLC	Local Co-ordinate Reference:	Well Rosa Unit #746H - Slot A4
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 #746H	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)
4,532.00	17.09	167.53	4,401.65	-989.64	78.62	203.42	0.32	-0.10	1.02
4,627.00	16.88	168.24	4,492.51	-1,016.78	84.44	212.64	0.31	-0.22	0.75
4,722.00	16.88	166.21	4,583.41	-1,043.68	90.54	222.10	0.62	0.00	-2.14
4,816.00	17.01	166.21	4,673.33	-1,070.28	97.07	231.95	0.14	0.14	0.00
4,911.00	18.98	166.92	4,763.68	-1,098.83	103.88	242.32	2.09	2.07	0.75
5,005.00	16.39	166.48	4,853.23	-1,126.62	110.44	252.35	2.76	-2.76	-0.47
5,100.00	16.08	165.86	4,944.44	-1,152.41	116.79	261.92	0.37	-0.33	-0.65
5,195.00	18.11	165.95	5,035.24	-1,179.49	123.59	272.10	2.14	2.14	0.09
5,289.00	17.18	167.18	5,124.82	-1,207.20	130.22	282.18	1.07	-0.99	1.31
5,384.00	15.91	168.32	5,215.88	-1,233.63	135.97	291.24	1.38	-1.34	1.20
5,479.00	16.30	171.93	5,307.16	-1,259.59	140.47	299.00	1.13	0.41	3.80
5,573.00	19.20	170.26	5,396.67	-1,287.89	144.94	307.02	3.13	3.09	-1.78
5,668.00	18.59	169.47	5,486.55	-1,318.17	150.35	316.22	0.70	-0.64	-0.83
5,762.00	17.31	171.75	5,575.98	-1,346.74	155.10	324.55	1.55	-1.36	2.43
5,857.00	15.60	171.93	5,667.08	-1,373.38	158.92	331.72	1.80	-1.80	0.19
5,951.00	14.50	173.25	5,757.86	-1,397.58	162.08	337.92	1.23	-1.17	1.40
6,014.00	13.89	172.45	5,818.93	-1,412.91	164.00	341.76	1.02	-0.97	-1.27
6,109.00	13.58	174.39	5,911.22	-1,435.31	166.59	347.17	0.58	-0.33	2.04
6,172.00	12.48	175.35	5,972.59	-1,449.46	167.86	350.23	1.78	-1.75	1.52
6,235.00	11.29	176.15	6,034.24	-1,462.40	168.83	352.83	1.91	-1.89	1.27
6,298.00	10.59	177.73	6,096.10	-1,474.33	169.47	354.98	1.21	-1.11	2.51
6,361.00	9.49	179.31	6,158.13	-1,485.31	169.76	356.66	1.80	-1.75	2.51
6,424.00	8.39	180.63	6,220.37	-1,495.10	169.77	357.91	1.78	-1.75	2.10
6,487.00	6.99	179.66	6,282.80	-1,503.53	169.75	358.95	2.23	-2.22	-1.54
6,539.00	6.20	179.84	6,334.45	-1,509.50	169.77	359.74	1.52	-1.52	0.35
6,613.00	5.62	181.23	6,408.06	-1,517.12	169.71	360.64	0.81	-0.78	1.88
6,697.00	7.50	170.92	6,491.51	-1,526.65	170.48	362.61	2.63	2.24	-12.27
6,791.00	16.54	156.06	6,583.37	-1,544.98	176.90	371.30	10.09	9.62	-15.81
6,886.00	24.90	132.01	6,672.30	-1,570.81	197.31	394.83	12.39	8.80	-25.32
6,981.00	31.75	117.11	6,755.98	-1,595.65	234.51	434.87	10.31	7.21	-15.68
7,075.00	38.39	107.89	6,832.93	-1,615.92	284.40	486.92	9.02	7.06	-9.81
7,170.00	45.98	100.78	6,903.31	-1,631.40	346.15	550.14	9.43	7.99	-7.48
7,265.00	54.72	97.39	6,963.88	-1,642.80	418.31	623.16	9.60	9.20	-3.57
7,359.00	66.78	99.34	7,009.73	-1,654.79	499.28	705.01	12.96	12.83	2.07
7,454.00	76.55	99.74	7,039.58	-1,669.73	588.10	795.00	10.29	10.28	0.42
7,548.00	77.86	99.29	7,060.40	-1,684.88	678.51	886.60	1.47	1.39	-0.48
7,642.00	81.93	97.50	7,076.89	-1,698.38	770.03	979.10	4.72	4.33	-1.90
7,737.00	89.80	90.93	7,083.74	-1,705.31	864.41	1,073.59	10.78	8.28	-6.92
7,832.00	88.48	90.47	7,085.17	-1,706.47	959.39	1,167.95	1.47	-1.39	-0.48
7,927.00	88.96	91.82	7,087.29	-1,708.37	1,054.34	1,262.38	1.51	0.51	1.42
8,021.00	90.44	92.05	7,087.78	-1,711.54	1,148.28	1,355.96	1.59	1.57	0.24
8,116.00	90.71	92.23	7,086.83	-1,715.09	1,243.21	1,450.58	0.34	0.28	0.19
8,210.00	92.02	92.28	7,084.59	-1,718.78	1,337.11	1,544.19	1.39	1.39	0.05
8,305.00	92.22	92.00	7,081.07	-1,722.33	1,431.98	1,638.74	0.36	0.21	-0.29

SDT

Survey Report

Company:	Logos Operating LLC	Local Co-ordinate Reference:	Well Rosa Unit #746H - Slot A4
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 #746H	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)
8,399.00	91.68	92.31	7,077.88	-1,725.86	1,525.86	1,732.31	0.66	-0.57	0.33
8,494.00	91.88	92.12	7,074.92	-1,729.53	1,620.74	1,826.89	0.29	0.21	-0.20
8,588.00	90.03	92.14	7,073.36	-1,733.03	1,714.66	1,920.50	1.97	-1.97	0.02
8,683.00	89.66	92.57	7,073.61	-1,736.93	1,809.58	2,015.14	0.60	-0.39	0.45
8,777.00	89.66	92.42	7,074.17	-1,741.02	1,903.49	2,108.81	0.16	0.00	-0.16
8,872.00	89.66	92.30	7,074.74	-1,744.93	1,998.41	2,203.46	0.13	0.00	-0.13
8,966.00	89.56	92.14	7,075.38	-1,748.57	2,092.33	2,297.09	0.20	-0.11	-0.17
9,061.00	89.46	92.05	7,076.19	-1,752.05	2,187.27	2,391.70	0.14	-0.11	-0.09
9,156.00	89.76	90.02	7,076.84	-1,753.76	2,282.24	2,486.13	2.16	0.32	-2.14
9,250.00	89.60	90.33	7,077.36	-1,754.05	2,376.24	2,579.41	0.37	-0.17	0.33
9,345.00	90.77	89.79	7,077.05	-1,754.15	2,471.24	2,673.65	1.36	1.23	-0.57
9,440.00	90.17	89.61	7,076.27	-1,753.65	2,566.23	2,767.82	0.66	-0.63	-0.19
9,534.00	89.80	89.24	7,076.30	-1,752.71	2,660.23	2,860.93	0.56	-0.39	-0.39
9,628.00	91.21	88.93	7,075.47	-1,751.21	2,754.21	2,953.97	1.54	1.50	-0.33
9,723.00	90.57	88.74	7,073.99	-1,749.28	2,849.18	3,047.92	0.70	-0.67	-0.20
9,817.00	90.13	88.18	7,073.42	-1,746.75	2,943.14	3,140.81	0.76	-0.47	-0.60
9,911.00	90.00	88.06	7,073.31	-1,743.67	3,037.09	3,233.61	0.19	-0.14	-0.13
10,005.00	90.94	89.39	7,072.54	-1,741.57	3,131.06	3,326.56	1.73	1.00	1.41
10,100.00	90.27	90.96	7,071.54	-1,741.87	3,226.05	3,420.82	1.80	-0.71	1.65
10,194.00	90.10	90.32	7,071.24	-1,742.92	3,320.05	3,514.19	0.70	-0.18	-0.68
10,289.00	90.07	89.73	7,071.10	-1,742.96	3,415.05	3,608.43	0.62	-0.03	-0.62
10,383.00	90.17	90.79	7,070.90	-1,743.38	3,509.04	3,701.72	1.13	0.11	1.13
10,478.00	90.34	89.36	7,070.48	-1,743.51	3,604.04	3,795.96	1.52	0.18	-1.51
10,572.00	88.82	90.60	7,071.16	-1,743.47	3,698.03	3,889.20	2.09	-1.62	1.32
10,667.00	89.13	92.39	7,072.86	-1,745.95	3,792.98	3,983.69	1.91	0.33	1.88
10,761.00	89.02	91.98	7,074.38	-1,749.54	3,886.90	4,077.31	0.45	-0.12	-0.44
10,856.00	88.75	91.60	7,076.23	-1,752.50	3,981.84	4,171.85	0.49	-0.28	-0.40
10,951.00	88.65	91.30	7,078.39	-1,754.91	4,076.78	4,266.34	0.33	-0.11	-0.32
11,045.00	90.54	91.20	7,079.05	-1,756.96	4,170.75	4,359.81	2.01	2.01	-0.11
11,139.00	90.07	90.44	7,078.55	-1,758.30	4,264.74	4,453.21	0.95	-0.50	-0.81
11,234.00	89.53	90.50	7,078.88	-1,759.08	4,359.74	4,547.54	0.57	-0.57	0.06
11,328.00	90.61	90.45	7,078.77	-1,759.86	4,453.73	4,640.88	1.15	1.15	-0.05
11,422.00	90.71	89.96	7,077.68	-1,760.20	4,547.72	4,734.15	0.53	0.11	-0.52
11,516.00	90.10	90.28	7,077.02	-1,760.39	4,641.72	4,827.42	0.73	-0.65	0.34
11,611.00	90.20	89.43	7,076.77	-1,760.15	4,736.72	4,921.62	0.90	0.11	-0.89
11,705.00	90.54	89.26	7,076.16	-1,759.08	4,830.71	5,014.72	0.40	0.36	-0.18
11,800.00	90.67	89.37	7,075.16	-1,757.94	4,925.70	5,108.79	0.18	0.14	0.12
11,894.00	90.71	90.13	7,074.03	-1,757.53	5,019.69	5,201.98	0.81	0.04	0.81
11,988.00	91.08	89.39	7,072.56	-1,757.14	5,113.68	5,295.15	0.88	0.39	-0.79
12,083.00	91.18	89.57	7,070.69	-1,756.28	5,208.65	5,389.26	0.22	0.11	0.19
12,178.00	91.21	89.60	7,068.71	-1,755.59	5,303.63	5,483.38	0.04	0.03	0.03
12,272.00	91.31	89.52	7,066.64	-1,754.87	5,397.61	5,576.50	0.14	0.11	-0.09
12,367.00	91.58	89.18	7,064.24	-1,753.79	5,492.57	5,670.57	0.46	0.28	-0.36

SDT Survey Report

Company:	Logos Operating LLC	Local Co-ordinate Reference:	Well Rosa Unit #746H - Slot A4
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 #746H	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)
12,461.00	90.27	90.63	7,062.73	-1,753.63	5,586.55	5,763.77	2.08	-1.39	1.54
12,555.00	90.37	90.32	7,062.20	-1,754.41	5,680.55	5,857.11	0.35	0.11	-0.33
12,649.00	90.27	90.55	7,061.68	-1,755.13	5,774.54	5,950.44	0.27	-0.11	0.24
12,744.00	90.37	90.82	7,061.14	-1,756.26	5,869.54	6,044.80	0.30	0.11	0.28
12,838.00	90.61	90.42	7,060.34	-1,757.28	5,963.53	6,138.17	0.50	0.26	-0.43
12,933.00	90.47	90.08	7,059.45	-1,757.69	6,058.52	6,232.45	0.39	-0.15	-0.36
13,027.00	90.64	89.77	7,058.53	-1,757.57	6,152.52	6,325.67	0.38	0.18	-0.33
13,122.00	90.34	89.66	7,057.72	-1,757.10	6,247.51	6,419.84	0.34	-0.32	-0.12
13,217.00	88.86	89.74	7,058.39	-1,756.60	6,342.50	6,514.00	1.56	-1.56	0.08
13,311.00	88.86	88.31	7,060.26	-1,755.00	6,436.47	6,607.01	1.52	0.00	-1.52
13,406.00	89.19	89.98	7,061.87	-1,753.59	6,531.44	6,701.03	1.79	0.35	1.76
13,500.00	89.80	91.34	7,062.70	-1,754.67	6,625.43	6,794.40	1.59	0.65	1.45
13,595.00	90.13	91.90	7,062.76	-1,757.35	6,720.39	6,888.94	0.68	0.35	0.59
13,690.00	89.80	93.86	7,062.82	-1,762.13	6,815.27	6,983.65	2.09	-0.35	2.06
13,784.00	89.76	94.14	7,063.18	-1,768.68	6,909.04	7,077.50	0.30	-0.04	0.30
13,879.00	89.60	93.86	7,063.71	-1,775.31	7,003.80	7,172.34	0.34	-0.17	-0.29
13,974.00	90.27	92.88	7,063.82	-1,780.89	7,098.64	7,267.12	1.25	0.71	-1.03
14,068.00	90.37	91.82	7,063.29	-1,784.75	7,192.56	7,360.77	1.13	0.11	-1.13
14,162.00	90.00	91.12	7,062.99	-1,787.16	7,286.52	7,454.28	0.84	-0.39	-0.74
14,257.00	90.00	90.79	7,062.99	-1,788.74	7,381.51	7,548.70	0.35	0.00	-0.35
14,352.00	90.20	90.20	7,062.82	-1,789.56	7,476.51	7,643.04	0.66	0.21	-0.62
14,446.00	90.24	90.97	7,062.46	-1,790.52	7,570.50	7,736.39	0.82	0.04	0.82
14,541.00	89.93	90.23	7,062.32	-1,791.52	7,665.49	7,830.75	0.84	-0.33	-0.78
14,635.00	90.17	89.04	7,062.24	-1,790.92	7,759.49	7,923.91	1.29	0.26	-1.27
14,730.00	90.30	89.07	7,061.85	-1,789.35	7,854.48	8,017.93	0.14	0.14	0.03
14,824.00	89.60	88.83	7,061.93	-1,787.63	7,948.46	8,110.94	0.79	-0.74	-0.26
14,919.00	89.50	88.65	7,062.68	-1,785.54	8,043.43	8,204.88	0.22	-0.11	-0.19
15,013.00	89.39	89.05	7,063.59	-1,783.66	8,137.41	8,297.86	0.44	-0.12	0.43
15,108.00	89.36	89.04	7,064.62	-1,782.07	8,232.39	8,391.87	0.03	-0.03	-0.01
15,202.00	89.60	88.56	7,065.48	-1,780.10	8,326.37	8,484.84	0.57	0.26	-0.51
15,297.00	89.36	89.12	7,066.34	-1,778.18	8,421.34	8,578.81	0.64	-0.25	0.59
15,391.00	89.43	89.01	7,067.33	-1,776.65	8,515.33	8,671.84	0.14	0.07	-0.12
15,486.00	89.33	89.32	7,068.36	-1,775.26	8,610.31	8,765.88	0.34	-0.11	0.33
15,580.00	89.36	88.95	7,069.43	-1,773.84	8,704.29	8,858.93	0.39	0.03	-0.39
15,675.00	89.02	89.85	7,070.78	-1,772.85	8,799.28	8,953.02	1.01	-0.36	0.95
15,769.00	88.89	90.58	7,072.49	-1,773.20	8,893.26	9,046.29	0.79	-0.14	0.78
15,864.00	90.27	90.25	7,073.19	-1,773.89	8,988.25	9,140.60	1.49	1.45	-0.35
15,958.00	89.93	91.03	7,073.02	-1,774.94	9,082.25	9,233.97	0.91	-0.36	0.83
16,053.00	90.07	90.54	7,073.02	-1,776.24	9,177.24	9,328.36	0.54	0.15	-0.52
16,147.00	89.87	91.07	7,073.07	-1,777.56	9,271.23	9,421.76	0.60	-0.21	0.56
16,242.00	89.43	90.92	7,073.65	-1,779.21	9,366.21	9,516.19	0.49	-0.46	-0.16
16,337.00	89.46	90.65	7,074.57	-1,780.51	9,461.20	9,610.57	0.29	0.03	-0.28
16,431.00	89.33	91.83	7,075.57	-1,782.55	9,555.17	9,704.04	1.26	-0.14	1.26

SDT

Survey Report

Company:	Logos Operating LLC	Local Co-ordinate Reference:	Well Rosa Unit #746H - Slot A4
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 #746H	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)
16,526.00	91.41	94.05	7,074.95	-1,787.42	9,650.03	9,798.76	3.20	2.19	2.34
16,620.00	91.21	94.27	7,072.80	-1,794.24	9,743.76	9,892.59	0.32	-0.21	0.23
16,714.00	91.38	93.53	7,070.68	-1,800.63	9,837.51	9,986.40	0.81	0.18	-0.79
16,809.00	91.31	92.33	7,068.45	-1,805.48	9,932.36	10,081.10	1.26	-0.07	-1.26
16,904.00	91.08	90.38	7,066.47	-1,807.73	10,027.31	10,175.57	2.07	-0.24	-2.05
16,998.00	90.81	90.48	7,064.92	-1,808.43	10,121.30	10,268.88	0.31	-0.29	0.11
17,093.00	90.77	89.33	7,063.61	-1,808.28	10,216.28	10,363.09	1.21	-0.04	-1.21
17,187.00	90.94	88.79	7,062.20	-1,806.73	10,310.26	10,456.11	0.60	0.18	-0.57
17,282.00	90.97	88.73	7,060.62	-1,804.68	10,405.23	10,550.05	0.07	0.03	-0.06
17,376.00	89.93	89.01	7,059.88	-1,802.82	10,499.20	10,643.03	1.15	-1.11	0.30
17,471.00	89.83	89.02	7,060.08	-1,801.19	10,594.19	10,737.05	0.11	-0.11	0.01
17,566.00	89.60	89.53	7,060.55	-1,799.99	10,689.18	10,831.12	0.59	-0.24	0.54
17,660.00	89.60	89.31	7,061.21	-1,799.04	10,783.17	10,924.23	0.23	0.00	-0.23
17,755.00	89.53	89.12	7,061.93	-1,797.74	10,878.16	11,018.29	0.21	-0.07	-0.20
17,849.00	89.43	88.79	7,062.79	-1,796.02	10,972.14	11,111.29	0.37	-0.11	-0.35
17,944.00	89.26	89.34	7,063.87	-1,794.47	11,067.12	11,205.31	0.61	-0.18	0.58
18,039.00	89.29	89.27	7,065.07	-1,793.32	11,162.11	11,299.39	0.08	0.03	-0.07
18,133.00	89.26	89.95	7,066.26	-1,792.68	11,256.10	11,392.54	0.72	-0.03	0.72
18,228.00	89.53	89.72	7,067.27	-1,792.41	11,351.09	11,486.73	0.37	0.28	-0.24
18,323.00	89.90	90.49	7,067.74	-1,792.58	11,446.09	11,580.98	0.90	0.39	0.81
18,417.00	90.64	90.64	7,067.30	-1,793.51	11,540.08	11,674.34	0.80	0.79	0.16
18,512.00	90.77	89.95	7,066.13	-1,794.00	11,635.07	11,768.62	0.74	0.14	-0.73
18,606.00	90.54	90.62	7,065.05	-1,794.46	11,729.07	11,861.92	0.75	-0.24	0.71
18,701.00	90.47	90.57	7,064.21	-1,795.45	11,824.06	11,956.27	0.09	-0.07	-0.05
18,795.00	90.64	90.27	7,063.30	-1,796.14	11,918.05	12,049.59	0.37	0.18	-0.32
18,890.00	90.67	90.11	7,062.22	-1,796.45	12,013.04	12,143.86	0.17	0.03	-0.17
18,984.00	90.64	90.44	7,061.14	-1,796.91	12,107.04	12,237.15	0.35	-0.03	0.35
19,079.00	90.40	90.70	7,060.28	-1,797.85	12,202.03	12,331.49	0.37	-0.25	0.27
19,173.00	90.40	90.74	7,059.62	-1,799.03	12,296.02	12,424.87	0.04	0.00	0.04
19,268.00	90.40	90.92	7,058.96	-1,800.41	12,391.01	12,519.27	0.19	0.00	0.19
19,363.00	89.97	90.89	7,058.65	-1,801.91	12,485.99	12,613.68	0.45	-0.45	-0.03
19,457.00	90.03	90.45	7,058.65	-1,803.01	12,579.99	12,707.06	0.47	0.06	-0.47
19,552.00	90.17	90.63	7,058.49	-1,803.90	12,674.98	12,801.40	0.24	0.15	0.19
19,646.00	90.03	90.11	7,058.33	-1,804.51	12,768.98	12,894.72	0.57	-0.15	-0.55
19,741.00	89.23	89.07	7,058.94	-1,803.83	12,863.97	12,988.86	1.38	-0.84	-1.09
19,835.00	89.13	89.17	7,060.28	-1,802.39	12,957.95	13,081.89	0.15	-0.11	0.11
19,930.00	88.49	90.18	7,062.26	-1,801.85	13,052.93	13,176.04	1.26	-0.67	1.06
20,025.00	87.81	90.09	7,065.32	-1,802.07	13,147.88	13,270.25	0.72	-0.72	-0.09
20,119.00	89.03	89.29	7,067.92	-1,801.56	13,241.84	13,363.39	1.55	1.30	-0.85
20,213.00	89.56	90.25	7,069.07	-1,801.19	13,335.83	13,456.57	1.17	0.56	1.02
20,308.00	89.83	89.42	7,069.58	-1,800.91	13,430.83	13,550.77	0.92	0.28	-0.87
20,403.00	89.60	90.10	7,070.05	-1,800.51	13,525.82	13,644.95	0.76	-0.24	0.72
20,497.00	89.60	90.05	7,070.71	-1,800.64	13,619.82	13,738.20	0.05	0.00	-0.05
20,592.00	89.63	89.61	7,071.34	-1,800.36	13,714.82	13,832.40	0.46	0.03	-0.46

SDT
Survey Report

Company:	Logos Operating LLC	Local Co-ordinate Reference:	Well Rosa Unit #746H - Slot A4
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 #746H	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)	
20,686.00	89.46	89.62	7,072.09	-1,799.72	13,808.81	13,925.56	0.18	-0.18	0.01	
20,781.00	89.53	89.25	7,072.93	-1,798.79	13,903.80	14,019.66	0.40	0.07	-0.39	
20,880.00	89.26	90.24	7,073.97	-1,798.35	14,002.80	14,117.80	1.04	-0.27	1.00	
20,953.00	89.26	90.24	7,074.92	-1,798.65	14,075.79	14,190.24	0.00	0.00	0.00	
BHL @ 20953' MD										

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude		
- hit/miss target										
- Shape								Longitude		
RU 746H SHL	0.00	0.00	0.00	0.00	0.00	2,133,550.14	2,858,366.17	36.8623590		
- actual wellpath hits target center										
- Point										
RU 746H Actual FPP	0.00	0.00	7,073.06	-1,798.61	13,918.80	2,131,818.94	2,872,293.49	36.8574092		
- actual wellpath hits target center										
- Point										
RU 746H BHL	0.00	0.00	7,074.92	-1,798.65	14,075.79	2,131,819.66	2,872,450.47	36.8574088		
- actual wellpath hits target center										
- Point										
RU 746H PBHL	0.00	0.00	7,077.00	-1,804.65	14,077.19	2,131,813.67	2,872,451.90	36.8573924		
- actual wellpath misses target center by 6.50ft at 20953.00ft MD (7074.92 TVD, -1798.65 N, 14075.79 E)										
- Point										
RU 746H Actual POE	0.00	0.00	7,080.65	-1,701.91	801.61	2,131,852.13	2,859,176.01	36.8576842		
- actual wellpath misses target center by 0.02ft at 7673.98ft MD (7080.65 TVD, -1701.91 N, 801.59 E)										
- Point										

Design Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
20,953.00	7,074.92	-1,798.65	14,075.79	BHL @ 20953' MD	

Checked By: _____

Approved By: _____

Date: _____

Logos Operating LLC

Rio Arriba, NM NAD83

Rosa Unit 31

Rosa Unit #746H - Slot A4

OH

Design: OH

Survey Report - Geographic

13 October, 2023

SDT

Survey Report - Geographic

Company:	Logos Operating LLC	Local Co-ordinate Reference:	Well Rosa Unit #746H - Slot A4
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 #746H	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 #746H - Slot A4					
Well Position	+N/-S	0.00 ft	Northing:	2,133,550.14 usft	Latitude:	36.8623590
	+E/-W	0.00 ft	Easting:	2,858,366.17 usft	Longitude:	-107.3709110
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	4/2/2023	8.49	63.27	49,475.91939884

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	97.28	

Survey Program	Date	8/1/2023			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
100.00	360.00	Survey #1 (OH)	A020Ga_GYRO-NS	OWSG Gyrocompass Gyro	
450.00	6,539.00	Survey #2 (OH)	B001Mb_MWD+HRGM	OWSG MWD + HRGM	
6,613.00	20,880.00	Survey #3 (OH)	MWD+HRGM+MS	MWD + HRGM + Multi-Station Correction	
20,953.00	20,953.00	Survey #4 (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	2,133,550.14	2,858,366.17	36.8623590	-107.3709110	
100.00	0.98	250.33	100.00	-0.29	-0.81	2,133,549.84	2,858,365.36	36.8623582	-107.3709138	
200.00	3.04	247.21	199.93	-1.60	-4.06	2,133,548.51	2,858,362.12	36.8623546	-107.3709249	
300.00	5.06	239.72	299.67	-4.85	-10.31	2,133,545.23	2,858,355.88	36.8623456	-107.3709463	
360.00	5.56	230.29	359.42	-8.05	-14.83	2,133,542.02	2,858,351.38	36.8623369	-107.3709617	
450.00	6.20	232.04	448.94	-13.82	-22.02	2,133,536.21	2,858,344.22	36.8623210	-107.3709863	
537.00	6.59	226.33	535.40	-20.16	-29.33	2,133,529.84	2,858,336.93	36.8623036	-107.3710113	
627.00	8.39	213.68	624.64	-29.19	-36.71	2,133,520.77	2,858,329.60	36.8622788	-107.3710365	
711.00	9.80	205.85	707.58	-40.72	-43.23	2,133,509.20	2,858,323.14	36.8622471	-107.3710588	

SDT

Survey Report - Geographic

Company:	Logos Operating LLC	Local Co-ordinate Reference:	Well Rosa Unit #746H - Slot A4
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 #746H	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
806.00	11.38	200.49	800.96	-56.78	-50.03	2,133,493.11	2,858,316.41	36.8622030	-107.3710821
897.00	11.38	198.73	890.17	-73.69	-56.06	2,133,476.17	2,858,310.47	36.8621566	-107.3711027
988.00	11.60	194.34	979.35	-91.06	-61.21	2,133,458.78	2,858,305.40	36.8621089	-107.3711203
1,080.00	11.91	190.65	1,069.42	-109.35	-65.25	2,133,440.47	2,858,301.45	36.8620586	-107.3711341
1,172.00	11.38	187.31	1,159.53	-127.68	-68.16	2,133,422.12	2,858,298.63	36.8620083	-107.3711440
1,267.00	11.51	175.44	1,252.66	-146.43	-68.60	2,133,403.38	2,858,298.28	36.8619568	-107.3711455
1,361.00	12.00	170.52	1,344.69	-165.42	-66.24	2,133,384.40	2,858,300.72	36.8619046	-107.3711375
1,456.00	13.18	170.61	1,437.40	-185.84	-62.85	2,133,363.99	2,858,304.22	36.8618485	-107.3711259
1,550.00	14.19	168.68	1,528.73	-207.72	-58.84	2,133,342.14	2,858,308.33	36.8617884	-107.3711122
1,645.00	15.12	167.53	1,620.64	-231.23	-53.88	2,133,318.65	2,858,313.41	36.8617238	-107.3710952
1,740.00	15.38	167.71	1,712.29	-255.64	-48.52	2,133,294.27	2,858,318.88	36.8616568	-107.3710769
1,834.00	16.08	169.38	1,802.77	-280.61	-43.47	2,133,269.32	2,858,324.06	36.8615882	-107.3710596
1,929.00	15.60	170.17	1,894.17	-306.13	-38.87	2,133,243.82	2,858,328.78	36.8615181	-107.3710439
2,024.00	15.12	171.14	1,985.77	-330.96	-34.78	2,133,219.01	2,858,332.99	36.8614499	-107.3710299
2,118.00	14.41	170.26	2,076.67	-354.60	-30.91	2,133,195.39	2,858,336.98	36.8613850	-107.3710167
2,212.00	14.02	171.84	2,167.79	-377.40	-27.31	2,133,172.61	2,858,340.68	36.8613224	-107.3710044
2,307.00	14.28	171.31	2,259.91	-400.37	-23.91	2,133,149.65	2,858,344.20	36.8612593	-107.3709928
2,401.00	14.90	169.03	2,350.88	-423.70	-19.86	2,133,126.35	2,858,348.36	36.8611952	-107.3709789
2,496.00	15.51	170.43	2,442.55	-448.21	-15.42	2,133,101.85	2,858,352.91	36.8611278	-107.3709638
2,590.00	16.30	169.47	2,532.95	-473.58	-10.92	2,133,076.51	2,858,357.54	36.8610582	-107.3709484
2,685.00	16.48	169.99	2,624.09	-499.95	-6.14	2,133,050.16	2,858,362.44	36.8609857	-107.3709320
2,780.00	16.08	170.35	2,715.28	-526.19	-1.60	2,133,023.94	2,858,367.12	36.8609137	-107.3709165
2,874.00	16.39	171.49	2,805.53	-552.14	2.55	2,132,998.01	2,858,371.39	36.8608424	-107.3709023
2,968.00	17.18	170.78	2,895.53	-578.96	6.74	2,132,971.21	2,858,375.71	36.8607687	-107.3708880
3,063.00	17.49	169.73	2,986.21	-606.86	11.53	2,132,943.34	2,858,380.63	36.8606921	-107.3708716
3,158.00	18.28	167.09	3,076.62	-635.43	17.40	2,132,914.80	2,858,386.65	36.8606136	-107.3708516
3,252.00	18.11	167.71	3,165.92	-664.07	23.81	2,132,886.19	2,858,393.19	36.8605349	-107.3708297
3,347.00	16.70	168.06	3,256.57	-691.86	29.77	2,132,858.43	2,858,399.29	36.8604586	-107.3708093
3,441.00	14.99	169.29	3,347.00	-717.02	34.83	2,132,833.30	2,858,404.47	36.8603895	-107.3707920
3,535.00	12.88	173.95	3,438.23	-739.38	38.19	2,132,810.95	2,858,407.94	36.8603281	-107.3707805
3,630.00	11.69	175.97	3,531.05	-759.51	39.98	2,132,790.83	2,858,409.83	36.8602728	-107.3707744
3,649.00	11.29	174.65	3,549.67	-763.29	40.29	2,132,787.06	2,858,410.15	36.8602624	-107.3707733
3,713.00	11.20	179.13	3,612.44	-775.74	40.97	2,132,774.61	2,858,410.89	36.8602282	-107.3707710
3,776.00	12.09	176.76	3,674.15	-788.44	41.44	2,132,761.90	2,858,411.42	36.8601933	-107.3707694
3,871.00	13.89	175.35	3,766.71	-809.74	42.92	2,132,740.61	2,858,413.01	36.8601348	-107.3707643
3,965.00	15.29	171.84	3,857.68	-833.26	45.60	2,132,717.11	2,858,415.80	36.8600702	-107.3707552
4,060.00	15.91	168.24	3,949.18	-858.41	50.03	2,132,691.98	2,858,420.35	36.8600012	-107.3707400
4,154.00	16.39	169.38	4,039.47	-884.06	55.10	2,132,666.36	2,858,425.55	36.8599307	-107.3707227
4,249.00	16.00	167.97	4,130.70	-910.03	60.30	2,132,640.41	2,858,430.87	36.8598593	-107.3707049
4,343.00	16.61	166.83	4,220.92	-935.79	66.06	2,132,614.68	2,858,436.76	36.8597886	-107.3706852
4,438.00	17.18	166.57	4,311.82	-962.65	72.41	2,132,587.84	2,858,443.24	36.8597148	-107.3706635
4,532.00	17.09	167.53	4,401.65	-989.64	78.62	2,132,560.89	2,858,449.58	36.8596407	-107.3706423
4,627.00	16.88	168.24	4,492.51	-1,016.78	84.44	2,132,533.78	2,858,455.53	36.8595662	-107.3706224
4,722.00	16.88	166.21	4,583.41	-1,043.68	90.54	2,132,506.91	2,858,461.76	36.8594923	-107.3706016
4,816.00	17.01	166.21	4,673.33	-1,070.28	97.07	2,132,480.34	2,858,468.42	36.8594192	-107.3705792
4,911.00	18.98	166.92	4,763.68	-1,098.83	103.88	2,132,451.83	2,858,475.37	36.8593408	-107.3705560
5,005.00	16.39	166.48	4,853.23	-1,126.62	110.44	2,132,424.07	2,858,482.06	36.8592645	-107.3705335
5,100.00	16.08	165.86	4,944.44	-1,152.41	116.79	2,132,398.31	2,858,488.54	36.8591936	-107.3705118
5,195.00	18.11	165.95	5,035.24	-1,179.49	123.59	2,132,371.26	2,858,495.47	36.8591192	-107.3704886
5,289.00	17.18	167.18	5,124.82	-1,207.20	130.22	2,132,343.58	2,858,502.23	36.8590431	-107.3704659
5,384.00	15.91	168.32	5,215.88	-1,233.63	135.97	2,132,317.18	2,858,508.11	36.8589705	-107.3704463
5,479.00	16.30	171.93	5,307.16	-1,259.59	140.47	2,132,291.25	2,858,512.74	36.8588992	-107.3704309
5,573.00	19.20	170.26	5,396.67	-1,287.89	144.94	2,132,262.97	2,858,517.34	36.8588215	-107.3704156
5,668.00	18.59	169.47	5,486.55	-1,318.17	150.35	2,132,232.71	2,858,522.90	36.8587383	-107.3703971
5,762.00	17.31	171.75	5,575.98	-1,346.74	155.10	2,132,204.16	2,858,527.78	36.8586598	-107.3703809

SDT

Survey Report - Geographic

Company:	Logos Operating LLC	Local Co-ordinate Reference:	Well Rosa Unit #746H - Slot A4
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 #746H	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
5,857.00	15.60	171.93	5,667.08	-1,373.38	158.92	2,132,177.54	2,858,531.73	36.8585867	-107.3703678
5,951.00	14.50	173.25	5,757.86	-1,397.58	162.08	2,132,153.36	2,858,535.01	36.8585202	-107.3703570
6,014.00	13.89	172.45	5,818.93	-1,412.91	164.00	2,132,138.04	2,858,537.00	36.8584781	-107.3703505
6,109.00	13.58	174.39	5,911.22	-1,435.31	166.59	2,132,115.65	2,858,539.70	36.8584165	-107.3703416
6,172.00	12.48	175.35	5,972.59	-1,449.46	167.86	2,132,101.51	2,858,541.04	36.8583777	-107.3703373
6,235.00	11.29	176.15	6,034.24	-1,462.40	168.83	2,132,088.58	2,858,542.07	36.8583422	-107.3703340
6,298.00	10.59	177.73	6,096.10	-1,474.33	169.47	2,132,076.64	2,858,542.77	36.8583094	-107.3703318
6,361.00	9.49	179.31	6,158.13	-1,485.31	169.76	2,132,065.67	2,858,543.12	36.8582792	-107.3703308
6,424.00	8.39	180.63	6,220.37	-1,495.10	169.77	2,132,055.88	2,858,543.18	36.8582523	-107.3703307
6,487.00	6.99	179.66	6,282.80	-1,503.53	169.75	2,132,047.45	2,858,543.19	36.8582292	-107.3703308
6,539.00	6.20	179.84	6,334.45	-1,509.50	169.77	2,132,041.47	2,858,543.25	36.8582128	-107.3703307
6,613.00	5.62	181.23	6,408.06	-1,517.12	169.71	2,132,033.86	2,858,543.22	36.8581918	-107.3703310
6,697.00	7.50	170.92	6,491.51	-1,526.65	170.48	2,132,024.33	2,858,544.04	36.8581657	-107.3703283
6,791.00	16.54	156.06	6,583.37	-1,544.98	176.90	2,132,006.04	2,858,550.54	36.8581153	-107.3703064
6,886.00	24.90	132.01	6,672.30	-1,570.81	197.31	2,131,980.30	2,858,571.08	36.8580444	-107.3702366
6,981.00	31.75	117.11	6,755.98	-1,595.65	234.51	2,131,955.64	2,858,608.40	36.8579761	-107.3701094
7,075.00	38.39	107.89	6,832.93	-1,615.92	284.40	2,131,935.61	2,858,658.38	36.8579205	-107.3699389
7,170.00	45.98	100.78	6,903.31	-1,631.40	346.15	2,131,920.43	2,858,720.21	36.8578779	-107.3697279
7,265.00	54.72	97.39	6,963.88	-1,642.80	418.31	2,131,909.38	2,858,792.42	36.8578466	-107.3694812
7,359.00	66.78	99.34	7,009.73	-1,654.79	499.28	2,131,897.78	2,858,873.46	36.8578137	-107.3692044
7,454.00	76.55	99.74	7,039.58	-1,669.73	588.10	2,131,883.28	2,858,962.35	36.8577726	-107.3689008
7,548.00	77.86	99.29	7,060.40	-1,684.88	678.51	2,131,868.56	2,859,052.82	36.8577310	-107.3685918
7,642.00	81.93	97.50	7,076.89	-1,698.38	770.03	2,131,855.51	2,859,144.42	36.8576939	-107.3682790
7,737.00	89.80	90.93	7,083.74	-1,705.31	864.41	2,131,849.04	2,859,238.82	36.8576749	-107.3679564
7,832.00	88.48	90.47	7,085.17	-1,706.47	959.39	2,131,848.34	2,859,333.80	36.8576717	-107.3676317
7,927.00	88.96	91.82	7,087.29	-1,708.37	1,054.34	2,131,846.90	2,859,428.77	36.8576665	-107.3673072
8,021.00	90.44	92.05	7,087.78	-1,711.54	1,148.28	2,131,844.18	2,859,522.72	36.8576578	-107.3669861
8,116.00	90.71	92.23	7,086.83	-1,715.09	1,243.21	2,131,841.09	2,859,617.67	36.8576480	-107.3666616
8,210.00	92.02	92.28	7,084.59	-1,718.78	1,337.11	2,131,837.85	2,859,711.58	36.8576378	-107.3663406
8,305.00	92.22	92.00	7,081.07	-1,722.33	1,431.98	2,131,834.76	2,859,806.47	36.8576281	-107.3660164
8,399.00	91.68	92.31	7,077.88	-1,725.86	1,525.86	2,131,831.68	2,859,900.36	36.8576184	-107.3656955
8,494.00	91.88	92.12	7,074.92	-1,729.53	1,620.74	2,131,828.47	2,859,995.26	36.8576083	-107.3653712
8,588.00	90.03	92.14	7,073.36	-1,733.03	1,714.66	2,131,825.44	2,860,089.19	36.8575987	-107.3650501
8,683.00	89.66	92.57	7,073.61	-1,736.93	1,809.58	2,131,821.99	2,860,184.13	36.8575879	-107.3647257
8,777.00	89.66	92.42	7,074.17	-1,741.02	1,903.49	2,131,818.35	2,860,278.06	36.8575767	-107.3644047
8,872.00	89.66	92.30	7,074.74	-1,744.93	1,998.41	2,131,814.90	2,860,372.99	36.8575659	-107.3640803
8,966.00	89.56	92.14	7,075.38	-1,748.57	2,092.33	2,131,811.72	2,860,466.94	36.8575559	-107.3637592
9,061.00	89.46	92.05	7,076.19	-1,752.05	2,187.27	2,131,808.70	2,860,561.89	36.8575463	-107.3634347
9,156.00	89.76	90.02	7,076.84	-1,753.76	2,282.24	2,131,807.45	2,860,656.87	36.8575416	-107.3631101
9,250.00	89.60	90.33	7,077.36	-1,754.05	2,376.24	2,131,807.62	2,860,750.87	36.8575408	-107.3627888
9,345.00	90.77	89.79	7,077.05	-1,754.15	2,471.24	2,131,807.98	2,860,845.87	36.8575405	-107.3624641
9,440.00	90.17	89.61	7,076.27	-1,753.65	2,566.23	2,131,808.93	2,860,940.86	36.8575418	-107.3621394
9,534.00	89.80	89.24	7,076.30	-1,752.71	2,660.23	2,131,810.33	2,861,034.85	36.8575444	-107.3618181
9,628.00	91.21	88.93	7,075.47	-1,751.21	2,754.21	2,131,812.29	2,861,128.82	36.8575485	-107.3614968
9,723.00	90.57	88.74	7,073.99	-1,749.28	2,849.18	2,131,814.68	2,861,223.78	36.8575538	-107.3611722
9,817.00	90.13	88.18	7,073.42	-1,746.75	2,943.14	2,131,817.66	2,861,317.73	36.8575607	-107.3608510
9,911.00	90.00	88.06	7,073.31	-1,743.67	3,037.09	2,131,821.20	2,861,411.66	36.8575691	-107.3605299
10,005.00	90.94	89.39	7,072.54	-1,741.57	3,131.06	2,131,823.74	2,861,505.62	36.8575749	-107.3602087
10,100.00	90.27	90.96	7,071.54	-1,741.87	3,226.05	2,131,823.91	2,861,600.61	36.8575740	-107.3598840
10,194.00	90.10	90.32	7,071.24	-1,742.92	3,320.05	2,131,823.32	2,861,694.61	36.8575711	-107.3595627
10,289.00	90.07	89.73	7,071.10	-1,742.96	3,415.05	2,131,823.74	2,861,789.61	36.8575710	-107.3592380
10,383.00	90.17	90.79	7,070.90	-1,743.38	3,509.04	2,131,823.77	2,861,883.60	36.8575698	-107.3589167
10,478.00	90.34	89.36	7,070.48	-1,743.51	3,604.04	2,131,824.10	2,861,978.60	36.8575694	-107.3585920
10,572.00	88.82	90.60	7,071.16	-1,743.47	3,698.03	2,131,824.59	2,862,072.59	36.8575694	-107.3582707
10,667.00	89.13	92.39	7,072.86	-1,745.95	3,792.98	2,131,822.57	2,862,167.55	36.8575626	-107.3579462

SDT

Survey Report - Geographic

Company:	Logos Operating LLC	Local Co-ordinate Reference:	Well Rosa Unit #746H - Slot A4
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 #746H	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
10,761.00	89.02	91.98	7,074.38	-1,749.54	3,886.90	2,131,819.44	2,862,261.49	36.8575527	-107.3576252
10,856.00	88.75	91.60	7,076.23	-1,752.50	3,981.84	2,131,816.94	2,862,356.43	36.8575445	-107.3573007
10,951.00	88.65	91.30	7,078.39	-1,754.91	4,076.78	2,131,814.99	2,862,451.39	36.8575379	-107.3569761
11,045.00	90.54	91.20	7,079.05	-1,756.96	4,170.75	2,131,813.40	2,862,545.37	36.8575322	-107.3566549
11,139.00	90.07	90.44	7,078.55	-1,758.30	4,264.74	2,131,812.51	2,862,639.36	36.8575285	-107.3563337
11,234.00	89.53	90.50	7,078.88	-1,759.08	4,359.74	2,131,812.19	2,862,734.36	36.8575263	-107.3560090
11,328.00	90.61	90.45	7,078.77	-1,759.86	4,453.73	2,131,811.86	2,862,828.36	36.8575241	-107.3556877
11,422.00	90.71	89.96	7,077.68	-1,760.20	4,547.72	2,131,811.98	2,862,922.35	36.8575232	-107.3553664
11,516.00	90.10	90.28	7,077.02	-1,760.39	4,641.72	2,131,812.24	2,863,016.35	36.8575226	-107.3550451
11,611.00	90.20	89.43	7,076.77	-1,760.15	4,736.72	2,131,812.94	2,863,111.34	36.8575232	-107.3547204
11,705.00	90.54	89.26	7,076.16	-1,759.08	4,830.71	2,131,814.47	2,863,205.33	36.8575261	-107.3543991
11,800.00	90.67	89.37	7,075.16	-1,757.94	4,925.70	2,131,816.07	2,863,300.31	36.8575292	-107.3540744
11,894.00	90.71	90.13	7,074.03	-1,757.53	5,019.69	2,131,816.93	2,863,394.30	36.8575303	-107.3537532
11,988.00	91.08	89.39	7,072.56	-1,757.14	5,113.68	2,131,817.78	2,863,488.28	36.8575313	-107.3534319
12,083.00	91.18	89.57	7,070.69	-1,756.28	5,208.65	2,131,819.10	2,863,583.25	36.8575336	-107.3531073
12,178.00	91.21	89.60	7,068.71	-1,755.59	5,303.63	2,131,820.25	2,863,678.23	36.8575355	-107.3527826
12,272.00	91.31	89.52	7,066.64	-1,754.87	5,397.61	2,131,821.43	2,863,772.20	36.8575374	-107.3524614
12,367.00	91.58	89.18	7,064.24	-1,753.79	5,492.57	2,131,822.96	2,863,867.15	36.8575403	-107.3521368
12,461.00	90.27	90.63	7,062.73	-1,753.63	5,586.55	2,131,823.57	2,863,961.13	36.8575407	-107.3518156
12,555.00	90.37	90.32	7,062.20	-1,754.41	5,680.55	2,131,823.25	2,864,055.13	36.8575385	-107.3514943
12,649.00	90.27	90.55	7,061.68	-1,755.13	5,774.54	2,131,822.99	2,864,149.13	36.8575365	-107.3511730
12,744.00	90.37	90.82	7,061.14	-1,756.26	5,869.54	2,131,822.32	2,864,244.13	36.8575333	-107.3508483
12,838.00	90.61	90.42	7,060.34	-1,757.28	5,963.53	2,131,821.75	2,864,338.12	36.8575305	-107.3505270
12,933.00	90.47	90.08	7,059.45	-1,757.69	6,058.52	2,131,821.80	2,864,433.12	36.8575293	-107.3502023
13,027.00	90.64	89.77	7,058.53	-1,757.57	6,152.52	2,131,822.38	2,864,527.11	36.8575295	-107.3498810
13,122.00	90.34	89.66	7,057.72	-1,757.10	6,247.51	2,131,823.31	2,864,622.10	36.8575308	-107.3495563
13,217.00	88.86	89.74	7,058.39	-1,756.60	6,342.50	2,131,824.27	2,864,717.09	36.8575321	-107.3492316
13,311.00	88.86	88.31	7,060.26	-1,755.00	6,436.47	2,131,826.32	2,864,811.05	36.8575364	-107.3489105
13,406.00	89.19	89.98	7,061.87	-1,753.59	6,531.44	2,131,828.20	2,864,906.01	36.8575403	-107.3485858
13,500.00	89.80	91.34	7,062.70	-1,754.67	6,625.43	2,131,827.57	2,865,000.00	36.8575372	-107.3482646
13,595.00	90.13	91.90	7,062.76	-1,757.35	6,720.39	2,131,825.35	2,865,094.98	36.8575298	-107.3479400
13,690.00	89.80	93.86	7,062.82	-1,762.13	6,815.27	2,131,821.03	2,865,189.87	36.8575166	-107.3476157
13,784.00	89.76	94.14	7,063.18	-1,768.68	6,909.04	2,131,814.93	2,865,283.67	36.8574985	-107.3472952
13,879.00	89.60	93.86	7,063.71	-1,775.31	7,003.80	2,131,808.76	2,865,378.47	36.8574803	-107.3469713
13,974.00	90.27	92.88	7,063.82	-1,780.89	7,098.64	2,131,803.64	2,865,473.33	36.8574649	-107.3466471
14,068.00	90.37	91.82	7,063.29	-1,784.75	7,192.56	2,131,800.24	2,865,567.27	36.8574542	-107.3463261
14,162.00	90.00	91.12	7,062.99	-1,787.16	7,286.52	2,131,798.28	2,865,661.24	36.8574475	-107.3460049
14,257.00	90.00	90.79	7,062.99	-1,788.74	7,381.51	2,131,797.16	2,865,756.24	36.8574431	-107.3456802
14,352.00	90.20	90.20	7,062.82	-1,789.56	7,476.51	2,131,796.80	2,865,851.24	36.8574408	-107.3453555
14,446.00	90.24	90.97	7,062.46	-1,790.52	7,570.50	2,131,796.29	2,865,945.23	36.8574381	-107.3450343
14,541.00	89.93	90.23	7,062.32	-1,791.52	7,665.49	2,131,795.76	2,866,040.23	36.8574353	-107.3447096
14,635.00	90.17	89.04	7,062.24	-1,790.92	7,759.49	2,131,796.81	2,866,134.22	36.8574368	-107.3443883
14,730.00	90.30	89.07	7,061.85	-1,789.35	7,854.48	2,131,798.84	2,866,229.20	36.8574411	-107.3440636
14,824.00	89.60	88.83	7,061.93	-1,787.63	7,948.46	2,131,801.02	2,866,323.17	36.8574457	-107.3437423
14,919.00	89.50	88.65	7,062.68	-1,785.54	8,043.43	2,131,803.56	2,866,418.14	36.8574514	-107.3434177
15,013.00	89.39	89.05	7,063.59	-1,783.66	8,137.41	2,131,805.91	2,866,512.10	36.8574565	-107.3430965
15,108.00	89.36	89.04	7,064.62	-1,782.07	8,232.39	2,131,807.95	2,866,607.07	36.8574608	-107.3427718
15,202.00	89.60	88.56	7,065.48	-1,780.10	8,326.37	2,131,810.37	2,866,701.04	36.8574661	-107.3424506
15,297.00	89.36	89.12	7,066.34	-1,778.18	8,421.34	2,131,812.75	2,866,796.00	36.8574713	-107.3421260
15,391.00	89.43	89.01	7,067.33	-1,776.65	8,515.33	2,131,814.74	2,866,889.98	36.8574754	-107.3418047
15,486.00	89.33	89.32	7,068.36	-1,775.26	8,610.31	2,131,816.59	2,866,984.95	36.8574792	-107.3414801
15,580.00	89.36	88.95	7,069.43	-1,773.84	8,704.29	2,131,818.46	2,867,078.93	36.8574830	-107.3411588
15,675.00	89.02	89.85	7,070.78	-1,772.85	8,799.28	2,131,819.92	2,867,173.91	36.8574856	-107.3408341
15,769.00	88.89	90.58	7,072.49	-1,773.20	8,893.26	2,131,820.02	2,867,267.89	36.8574846	-107.3405129
15,864.00	90.27	90.25	7,073.19	-1,773.89	8,988.25	2,131,819.79	2,867,362.89	36.8574826	-107.3401882

SDT

Survey Report - Geographic

Company:	Logos Operating LLC	Local Co-ordinate Reference:	Well Rosa Unit #746H - Slot A4
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 #746H	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	
15,958.00	89.93	91.03	7,073.02	-1,774.94	9,082.25	2,131,819.20	2,867,456.88	36.8574797	-107.3398669	
16,053.00	90.07	90.54	7,073.02	-1,776.24	9,177.24	2,131,818.35	2,867,551.88	36.8574760	-107.3395422	
16,147.00	89.87	91.07	7,073.07	-1,777.56	9,271.23	2,131,817.49	2,867,645.87	36.8574723	-107.3392210	
16,242.00	89.43	90.92	7,073.65	-1,779.21	9,366.21	2,131,816.30	2,867,740.86	36.8574677	-107.3388963	
16,337.00	89.46	90.65	7,074.57	-1,780.51	9,461.20	2,131,815.46	2,867,835.86	36.8574640	-107.3385716	
16,431.00	89.33	91.83	7,075.57	-1,782.55	9,555.17	2,131,813.88	2,867,929.83	36.8574583	-107.3382504	
16,526.00	91.41	94.05	7,074.95	-1,787.42	9,650.03	2,131,809.47	2,868,024.72	36.8574449	-107.3379262	
16,620.00	91.21	94.27	7,072.80	-1,794.24	9,743.76	2,131,803.10	2,868,118.48	36.8574260	-107.3376058	
16,714.00	91.38	93.53	7,070.68	-1,800.63	9,837.51	2,131,797.17	2,868,212.27	36.8574084	-107.3372854	
16,809.00	91.31	92.33	7,068.45	-1,805.48	9,932.36	2,131,792.77	2,868,307.14	36.8573950	-107.3369612	
16,904.00	91.08	90.38	7,066.47	-1,807.73	10,027.31	2,131,790.98	2,868,402.09	36.8573887	-107.3366366	
16,998.00	90.81	90.48	7,064.92	-1,808.43	10,121.30	2,131,790.73	2,868,496.08	36.8573867	-107.3363154	
17,093.00	90.77	89.33	7,063.61	-1,808.28	10,216.28	2,131,791.35	2,868,591.07	36.8573870	-107.3359907	
17,187.00	90.94	88.79	7,062.20	-1,806.73	10,310.26	2,131,793.35	2,868,685.04	36.8573912	-107.3356695	
17,282.00	90.97	88.73	7,060.62	-1,804.68	10,405.23	2,131,795.86	2,868,779.99	36.8573967	-107.3353449	
17,376.00	89.93	89.01	7,059.88	-1,802.82	10,499.20	2,131,798.17	2,868,873.96	36.8574017	-107.3350237	
17,471.00	89.83	89.02	7,060.08	-1,801.19	10,594.19	2,131,800.27	2,868,968.93	36.8574061	-107.3346990	
17,566.00	89.60	89.53	7,060.55	-1,799.99	10,689.18	2,131,801.93	2,869,063.92	36.8574093	-107.3343743	
17,660.00	89.60	89.31	7,061.21	-1,799.04	10,783.17	2,131,803.33	2,869,157.90	36.8574118	-107.3340530	
17,755.00	89.53	89.12	7,061.93	-1,797.74	10,878.16	2,131,805.10	2,869,252.88	36.8574153	-107.3337283	
17,849.00	89.43	88.79	7,062.79	-1,796.02	10,972.14	2,131,807.26	2,869,346.85	36.8574199	-107.3334071	
17,944.00	89.26	89.34	7,063.87	-1,794.47	11,067.12	2,131,809.27	2,869,441.83	36.8574240	-107.3330824	
18,039.00	89.29	89.27	7,065.07	-1,793.32	11,162.11	2,131,810.89	2,869,536.80	36.8574271	-107.3327578	
18,133.00	89.26	89.95	7,066.26	-1,792.68	11,256.10	2,131,811.98	2,869,630.79	36.8574288	-107.3324365	
18,228.00	89.53	89.72	7,067.27	-1,792.41	11,351.09	2,131,812.72	2,869,725.78	36.8574294	-107.3321118	
18,323.00	89.90	90.49	7,067.74	-1,792.58	11,446.09	2,131,813.00	2,869,820.78	36.8574288	-107.3317871	
18,417.00	90.64	90.64	7,067.30	-1,793.51	11,540.08	2,131,812.53	2,869,914.78	36.8574262	-107.3314658	
18,512.00	90.77	89.95	7,066.13	-1,794.00	11,635.07	2,131,812.50	2,870,009.77	36.8574247	-107.3311411	
18,606.00	90.54	90.62	7,065.05	-1,794.46	11,729.07	2,131,812.49	2,870,103.76	36.8574233	-107.3308199	
18,701.00	90.47	90.57	7,064.21	-1,795.45	11,824.06	2,131,811.96	2,870,198.76	36.8574205	-107.3304952	
18,795.00	90.64	90.27	7,063.30	-1,796.14	11,918.05	2,131,811.73	2,870,292.75	36.8574185	-107.3301739	
18,890.00	90.67	90.11	7,062.22	-1,796.45	12,013.04	2,131,811.87	2,870,387.74	36.8574175	-107.3298492	
18,984.00	90.64	90.44	7,061.14	-1,796.91	12,107.04	2,131,811.88	2,870,481.74	36.8574162	-107.3295279	
19,079.00	90.40	90.70	7,060.28	-1,797.85	12,202.03	2,131,811.39	2,870,576.73	36.8574135	-107.3292032	
19,173.00	90.40	90.74	7,059.62	-1,799.03	12,296.02	2,131,810.67	2,870,670.73	36.8574101	-107.3288820	
19,268.00	90.40	90.92	7,058.96	-1,800.41	12,391.01	2,131,809.75	2,870,765.72	36.8574062	-107.3285573	
19,363.00	89.97	90.89	7,058.65	-1,801.91	12,485.99	2,131,808.71	2,870,860.71	36.8574020	-107.3282326	
19,457.00	90.03	90.45	7,058.65	-1,803.01	12,579.99	2,131,808.06	2,870,954.71	36.8573988	-107.3279113	
19,552.00	90.17	90.63	7,058.49	-1,803.90	12,674.98	2,131,807.63	2,871,049.71	36.8573963	-107.3275866	
19,646.00	90.03	90.11	7,058.33	-1,804.51	12,768.98	2,131,807.48	2,871,143.71	36.8573945	-107.3272653	
19,741.00	89.23	89.07	7,058.94	-1,803.83	12,863.97	2,131,808.62	2,871,238.70	36.8573962	-107.3269406	
19,835.00	89.13	89.17	7,060.28	-1,802.39	12,957.95	2,131,810.52	2,871,332.67	36.8574001	-107.3266194	
19,930.00	88.49	90.18	7,062.26	-1,801.85	13,052.93	2,131,811.51	2,871,427.64	36.8574014	-107.3262948	
20,025.00	87.81	90.09	7,065.32	-1,802.07	13,147.88	2,131,811.75	2,871,522.59	36.8574007	-107.3259702	
20,119.00	89.03	89.29	7,067.92	-1,801.56	13,241.84	2,131,812.71	2,871,616.55	36.8574020	-107.3256491	
20,213.00	89.56	90.25	7,069.07	-1,801.19	13,335.83	2,131,813.55	2,871,710.53	36.8574029	-107.3253278	
20,308.00	89.83	89.42	7,069.58	-1,800.91	13,430.83	2,131,814.28	2,871,805.53	36.8574035	-107.3250031	
20,403.00	89.60	90.10	7,070.05	-1,800.51	13,525.82	2,131,815.14	2,871,900.52	36.8574045	-107.3246784	
20,497.00	89.60	90.05	7,070.71	-1,800.64	13,619.82	2,131,815.47	2,871,994.52	36.8574040	-107.3243571	
20,592.00	89.63	89.61	7,071.34	-1,800.36	13,714.82	2,131,816.21	2,872,089.51	36.8574047	-107.3240324	
20,686.00	89.46	89.62	7,072.09	-1,799.72	13,808.81	2,131,817.30	2,872,183.51	36.8574063	-107.3237111	
20,781.00	89.53	89.25	7,072.93	-1,798.79	13,903.80	2,131,818.69	2,872,278.49	36.8574087	-107.3233864	
20,880.00	89.26	90.24	7,073.97	-1,798.35	14,002.80	2,131,819.61	2,872,377.48	36.8574098	-107.3230480	
20,953.00	89.26	90.24	7,074.92	-1,798.65	14,075.79	2,131,819.66	2,872,450.47	36.8574088	-107.3227985	
BHL @ 20953' MD										

SDT
Survey Report - Geographic

Company:	Logos Operating LLC	Local Co-ordinate Reference:	Well Rosa Unit #746H - Slot A4
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 #746H	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 746H SHL	0.00	0.00	0.00	0.00	0.00	2,133,550.14	2,858,366.17	36.8623590	-107.3709110
- actual wellpath hits target center									
- Point									
RU 746H Actual FPP	0.00	0.00	7,073.06	-1,798.61	13,918.80	2,131,818.94	2,872,293.49	36.8574092	-107.3233351
- actual wellpath hits target center									
- Point									
RU 746H BHL	0.00	0.00	7,074.92	-1,798.65	14,075.79	2,131,819.66	2,872,450.47	36.8574088	-107.3227985
- actual wellpath hits target center									
- Point									
RU 746H PBHL	0.00	0.00	7,077.00	-1,804.65	14,077.19	2,131,813.67	2,872,451.90	36.8573924	-107.3227937
- actual wellpath misses target center by 6.50ft at 20953.00ft MD (7074.92 TVD, -1798.65 N, 14075.79 E)									
- Point									
RU 746H Actual POE	0.00	0.00	7,080.65	-1,701.91	801.61	2,131,852.13	2,859,176.01	36.8576842	-107.3681710
- actual wellpath misses target center by 0.02ft at 7673.98ft MD (7080.65 TVD, -1701.91 N, 801.59 E)									
- Point									

Design Annotations				
Measured Depth	Vertical Depth	Local Coordinates		
(ft)	(ft)	+N/-S (ft)	+E/-W (ft)	Comment
20,953.00	7,074.92	-1,798.65	14,075.79	BHL @ 20953' 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 275565

ACKNOWLEDGMENTS

Operator: LOGOS OPERATING, LLC 2010 Afton Place Farmington, NM 87401	OGRID: 289408
	Action Number: 275565
	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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State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Action 275565

CONDITIONS

Operator: LOGOS OPERATING, LLC 2010 Afton Place Farmington, NM 87401	OGRID: 289408
	Action Number: 275565
	Action Type: [C-104] Completion Packet (C-104C)

CONDITIONS

Created By	Condition	Condition Date
plmartinez	RT EXPIRES 1/16/223.	10/16/2023