Form 3160-5
(June 2019)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
OMB No. 1004-0137
Expires: October 31, 2021

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals.

SUBMIT IN TRIPLICATE *- Other instructions on page 2*

5. Lease Serial No.: NMSF078773

6. If Indian, Allottee or Tribe Name:

7. If Unit of CA/Agreement, Name and/or No.: NMNM78407E

1. Type of Well: [ ] Oil Well [x] Gas Well [ ] Other

8. Well Name and No.: ROSA UNIT 740H

2. Name of Operator: LOGOS OPERATING, LLC

API Well No.: 30-039-31364

3a. Address: 2010 AFTON PLACE, FARMINGTON, NM 87401

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

10. Field and Pool or Exploratory Area: BASIN MANCOS

4. Location of Well *(Footage, Sec., T.,R.,M., or Survey Description)*: SEC 33 T31N R05W, NENW (C) 319' FNL 1681' FWL

11. Country or Parish, State: RIO ARRIBA COUNTY, NM

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

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

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

LOGOS Operating request a change in plans for the following: g:

Original TD @ 17,927' MD 7,067' TVD to new **TD @ 17,737' MD 7,092' TVD.**

Geology tops have been updated per changes.

Original KOP @ 6,038' MD 5,997' TVD to new **KOP @ 6,421' MD 6,412' TVD**

Original Landing point @ 7,667' MD 7,079' TVD to new **Landing point @ 7,477' MD 7,104' TVD**

Original 9.625" casing Intermediate @ 6,367' MD to new **Intermediate casing @ 6,359' MD 6,350' TVD**

Original 5.5" casing Production @ 17,927' MD to new **Production casing @ 17,737' MD 7,092' TVD**

The 9.625" Intermediate & 5.5" production cementing bbls and sacks have been update per casing depth changes.

Attached: New C102, Operation and Directional Drill plans.

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

Title: Regulatory Specialist

Signature: Etta Trujillo

Date: 1/30/2023

THE SPACE FOR FEDERAL OR STATE OFICE USE

Approved by

Title

Date

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

Office

Title 18 U.S.C Section 1001 and Title 43 U.S.C Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Instructions on page 2)

U.S. Department of the Interior
BUREAU OF LAND MANAGEMENT

Sundry Print Report

01/31/2023

Well Name: ROSA UNIT

Well Location: T31N / R5W / SEC 33 / NENW / 36.862483 / -107.370925

County or Parish/State: RIO ARRIBA / NM

Well Number: 740H

Type of Well: CONVENTIONAL GAS WELL

Allottee or Tribe Name:

Lease Number: NMSF078773

Unit or CA Name: ROSA UNIT-MANCOS PA

Unit or CA Number: NMNM78407E

US Well Number: 300393136400X1

Well Status: Approved Application for Permit to Drill

Operator: LOGOS OPERATING LLC

Notice of Intent

Sundry ID: 2713134

Type of Submission: Notice of Intent

Type of Action: Other

Date Sundry Submitted: 01/30/2023

Time Sundry Submitted: 01:49

Date proposed operation will begin: 01/30/2023

Procedure Description: LOGOS Operating request a change in plans for the following: Original TD @ 17,927' MD 7,067' TVD to new TD @ 17,737' MD 7,092' TVD. Geology tops have been updated per changes. Original KOP @ 6,038' MD 5,997' TVD to new KOP @ 6,421' MD 6,412' TVD Original Landing point @ 7,667' MD 7,079' TVD to new Landing point @ 7,477' MD 7,104' TVD Original 9.625" casing Intermediate @ 6,367' MD to new Intermediate casing @ 6,359' MD 6,350' TVD Original 5.5" casing Production @ 17,927' MD to new Production casing @ 17,737' MD 7,092' TVD The 9.625" Intermediate & 5.5" production cementing bbls and sacks have been update per casing depth changes. Attached: New C102, Operation and Directional Drill plans.

Surface Disturbance

Is any additional surface disturbance proposed?: No

NOI Attachments

Procedure Description

3160_5_Rosa_Unit_740H_Plan_8_Change_in_Plans_20230130_20230130133704.pdf

Well Name: ROSA UNIT

Well Location: T31N / R5W / SEC 33 / NENW / 36.862483 / -107.370925

County or Parish/State: RIO ARRIBA / NM

Well Number: 740H

Type of Well: CONVENTIONAL GAS WELL

Allottee or Tribe Name:

Lease Number: NMSF078773

Unit or CA Name: ROSA UNIT-MANCOS PA

Unit or CA Number: NMNM78407E

US Well Number: 300393136400X1

Well Status: Approved Application for Permit to Drill

Operator: LOGOS OPERATING LLC

Operator

I certify that the foregoing is true and correct. Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction. Electronic submission of Sundry Notices through this system satisfies regulations requiring a

Operator Electronic Signature: ETTA TRUJILLO

Signed on: JAN 30, 2023 01:49 PM

Name: LOGOS OPERATING LLC

Title: Regulatory Specialist

Street Address: 2010 AFTON PLACE

City: Farmington **State:** NM

Phone: (505) 324-4154

Email address: ETRUJILLO@LOGOSRESOURCESLLC.COM

Field

Representative Name:

Street Address:

City: **State:** **Zip:**

Phone:

Email address:

BLM Point of Contact

BLM POC Name: KENNETH G RENNICK

BLM POC Title: Petroleum Engineer

BLM POC Phone: 5055647742

BLM POC Email Address: krennick@blm.gov

Disposition: Approved

Disposition Date: 01/31/2023

Signature: Kenneth Rennick

District I
1625 N. French Drive, Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
District II
811 S. First Street, Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720
District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
District IV
1220 S. St. Francis Drive, Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION

1220 South St. Francis Drive
Santa Fe, NM 87505

Form C-102
Revised August 1, 2011

Submit one copy to
Appropriate District Office

[X] AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

[1] API Number	[2] Pool Code	[3] Pool Name
30-039-31364	97232	BASIN MANCOS

[4] Property Code	[5] Property Name	[6] Well Number
320608	ROSA UNIT	740H

[7] OGRID No.	[8] Operator Name	[9] Elevation
289408	LOGOS OPERATING, LLC	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		319	NORTH	1681	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
C	31	31N	5W	1	371	NORTH	160	WEST	RIO ARRIBA

[12] Dedicated Acres		[13] Joint or Infill	[14] Consolidation Code	[15] Order No.
1425.68	REFER TO DESCRIPTION BELOW			R-13457

T31N R5W, Section 28 : SW/4
T31N R5W, Section 29 : S/2
T31N R5W, Section 30 : Lots 3 & 4, SE/4
T31N R5W, Section 31 : Lots 1 & 2, NE/4
T31N R5W, Section 32 : N/2
T31N R5W, Section 33 : NW/4

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 — 1/11/2023 — Date

Etta Trujillo
Printed Name

etrujillo@logosresourcesllc.com
E-mail Address

[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: JANUARY 11, 2023
Date of Survey: APRIL 21, 2016

Signature and Seal of Professional Surveyor

JASON C. EDWARDS
NEW MEXICO
15269
REGISTERED PROFESSIONAL SURVEYOR

JASON C. EDWARDS
Certificate Number 15269

LAST TAKE POINT (D)
371' FNL 160' FWL
SEC 31, T31N, R5W
LAT: 36.862331 °N
LONG: 107.406638 °W
DATUM: NAD1927

LAT: 36.862337 °N
LONG: 107.407241 °W
DATUM: NAD1983

N89°33.4'W 170.0'

FIRST PERFORATION (C)
373' FNL 330' FWL
SEC 31, T31N, R5W
LAT: 36.862325 °N
LONG: 107.406057 °W
DATUM: NAD1927

LAT: 36.862331 °N
LONG: 107.406660 °W
DATUM: NAD1983

N89°33.4'W 10,089.9'

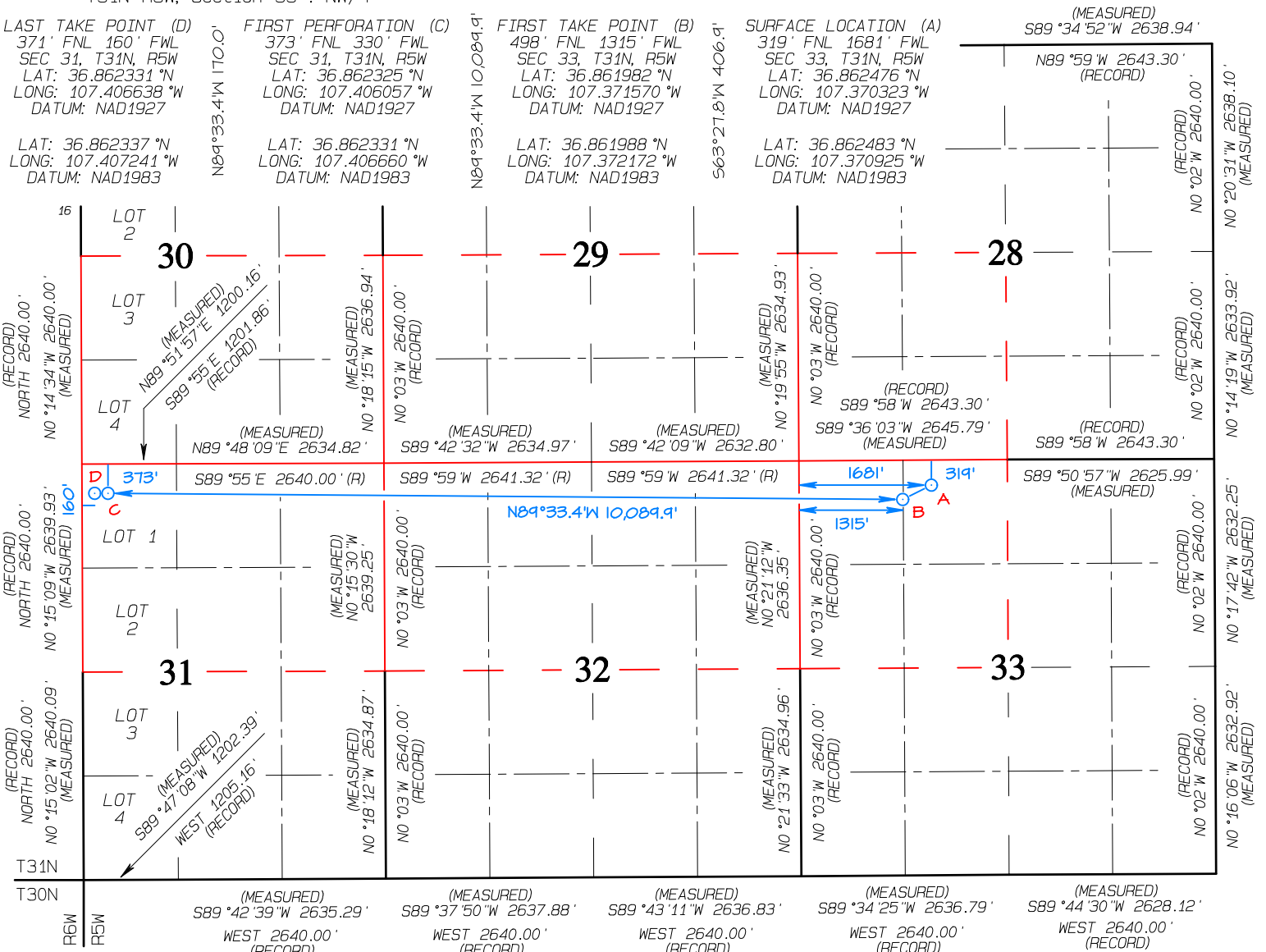
FIRST TAKE POINT (B)
498' FNL 1315' FWL
SEC 33, T31N, R5W
LAT: 36.861982 °N
LONG: 107.371570 °W
DATUM: NAD1927

LAT: 36.861988 °N
LONG: 107.372172 °W
DATUM: NAD1983

S63°27.8'W 406.9'

SURFACE LOCATION (A)
319' FNL 1681' FWL
SEC 33, T31N, R5W
LAT: 36.862476 °N
LONG: 107.370323 °W
DATUM: NAD1927

LAT: 36.862483 °N
LONG: 107.370925 °W
DATUM: NAD1983



Logos Operating LLC

Rio Arriba, NM NAD83
Rosa Unit 31
Rosa Unit #740H

OH
Plan #8

Anticollision Summary Report

09 January, 2023

Lonestar Consulting, LLC

Anticollision Summary Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit #740H - Slot A1
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	GL 6492' @ 6492.00ft
Reference Site:	Rosa Unit 31	**MD Reference:**	GL 6492' @ 6492.00ft
Site Error:	0.00 ft	**North Reference:**	True
Reference Well:	Rosa Unit #740H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 ft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Grand Junction
Reference Design:	Plan #8	**Offset TVD Reference:**	Offset Datum

Reference	Plan #8		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	**Error Model:**	ISCWSA
Depth Range:	Unlimited	**Scan Method:**	Closest Approach 3D
Results Limited by:	Maximum centre distance of 15,000.00ft	**Error Surface:**	Pedal Curve
Warning Levels Evaluated at:	2.00 **Sigma**	**Casing Method:**	Not applied

Survey Tool Program **Date** 1/9/2023

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.00	17,711.74	Plan #8 (OH)	MWD+HDGM	OWSG MWD + HDGM

Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Rosa Unit 31						
Rosa Unit #742H - OH - Plan #8	868.01	867.81	11.75	5.57	1.901	CC
Rosa Unit #742H - OH - Plan #8	900.00	899.75	11.88	5.48	1.855	ES, SF
Rosa Unit #744H - OH - Plan #7	1,108.62	1,108.06	23.76	15.95	3.043	CC
Rosa Unit #744H - OH - Plan #7	1,200.00	1,199.33	24.17	15.71	2.859	ES
Rosa Unit #744H - OH - Plan #7	6,850.00	6,839.96	121.74	72.90	2.493	SF
Rosa Unit #745H - OH - Plan #3	410.00	410.00	60.13	57.19	20.456	CC
Rosa Unit #745H - OH - Plan #3	500.00	498.73	60.65	57.08	16.981	ES
Rosa Unit #745H - OH - Plan #3	7,100.00	6,956.30	560.04	509.44	11.067	SF
Rosa Unit #746H - OH - Plan #7	500.00	500.00	45.14	41.55	12.592	CC, ES
Rosa Unit #746H - OH - Plan #7	800.00	794.55	57.52	51.92	10.259	SF
RU 13B - OH - OH	14,700.00	3,877.45	3,245.68	3,176.72	47.071	CC, ES
RU 13B - OH - OH	15,400.00	3,877.45	3,319.31	3,245.71	45.104	SF
RU 147C - OH - OH	6,300.00	6,249.00	1,175.32	962.97	5.535	SF
RU 147C - OH - OH	8,000.00	6,249.00	814.19	789.57	33.070	CC
RU 147C - OH - OH	8,200.00	6,249.00	839.00	775.99	13.316	ES
RU 24C - OH - OH	12,192.56	7,082.89	167.35	1.22	1.007	Level 2, CC, ES, SF

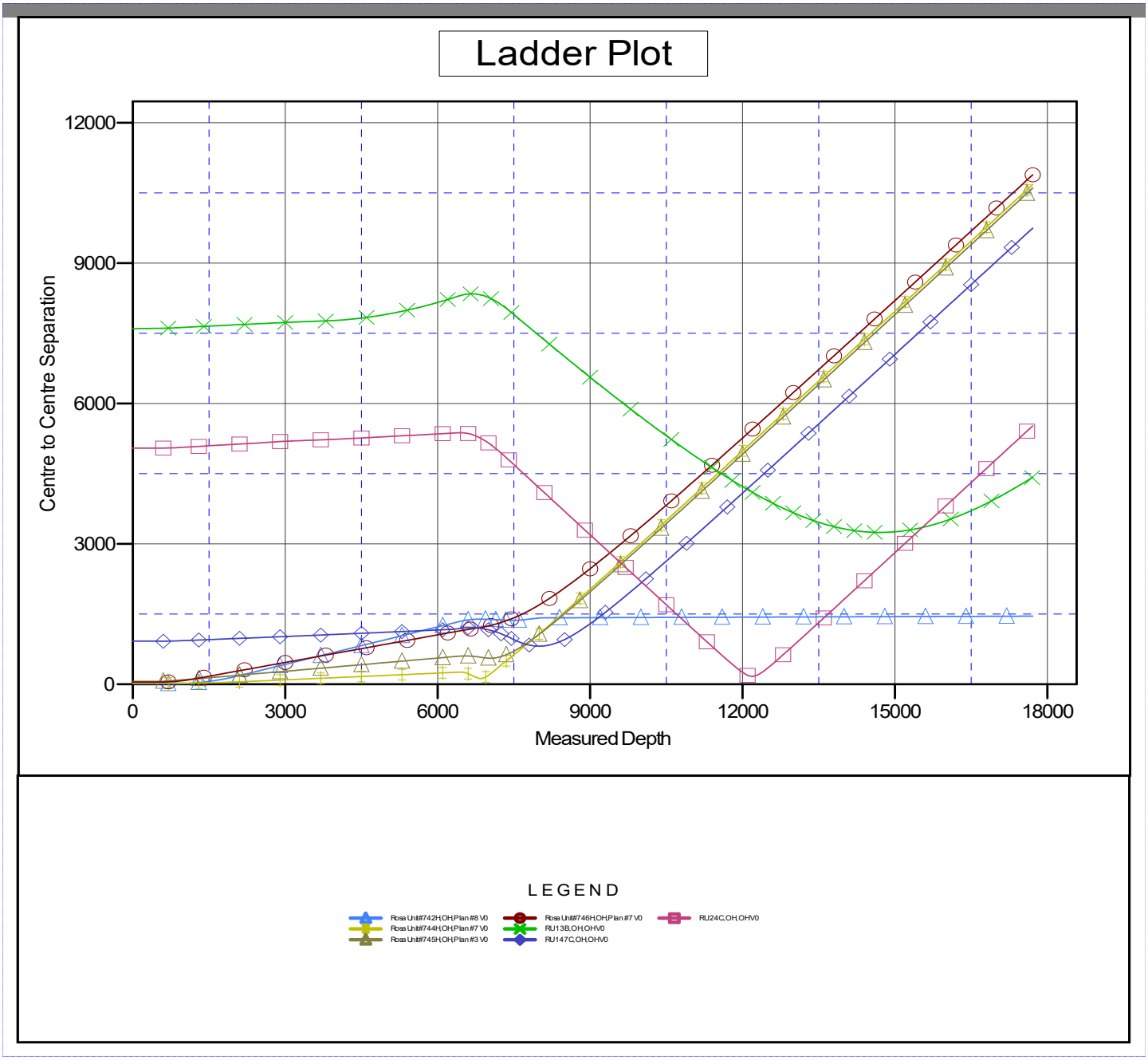
CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Lonestar Consulting, LLC
Anticollision Summary Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit #740H - Slot A1
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	GL 6492' @ 6492.00ft
Reference Site:	Rosa Unit 31	**MD Reference:**	GL 6492' @ 6492.00ft
Site Error:	0.00 ft	**North Reference:**	True
Reference Well:	Rosa Unit #740H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 ft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Grand Junction
Reference Design:	Plan #8	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to GL 6492' @ 6492.00ft
Offset Depths are relative to Offset Datum
Central Meridian is -107.8333334

Coordinates are relative to: Rosa Unit #740H - Slot A1
Coordinate System is US State Plane 1983, New Mexico Western Zone
Grid Convergence at Surface is: 0.28°



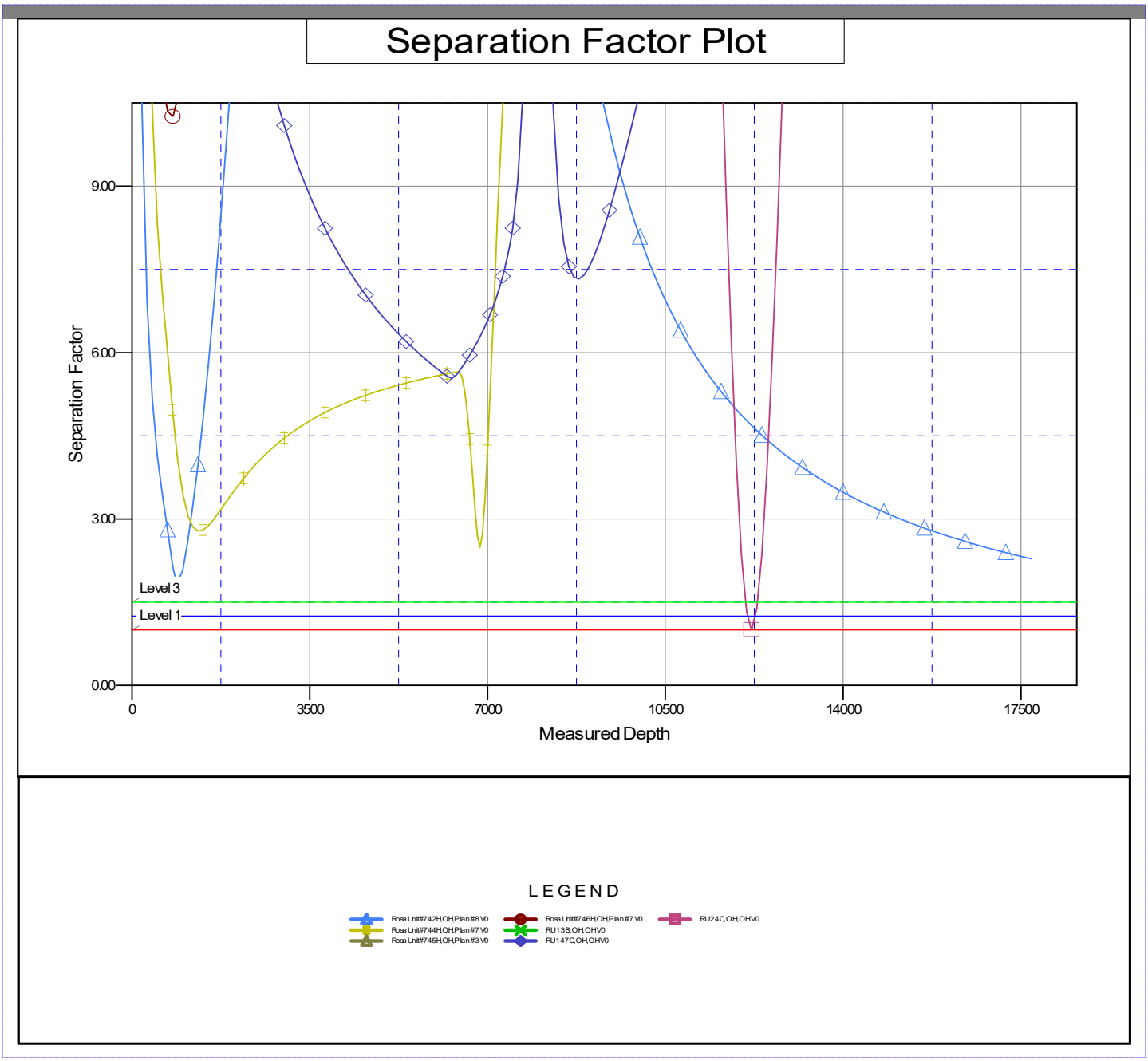
CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Lonestar Consulting, LLC
Anticollision Summary Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit #740H - Slot A1
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	GL 6492' @ 6492.00ft
Reference Site:	Rosa Unit 31	**MD Reference:**	GL 6492' @ 6492.00ft
Site Error:	0.00 ft	**North Reference:**	True
Reference Well:	Rosa Unit #740H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 ft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Grand Junction
Reference Design:	Plan #8	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to GL 6492' @ 6492.00ft
Offset Depths are relative to Offset Datum
Central Meridian is -107.8333334

Coordinates are relative to: Rosa Unit #740H - Slot A1
Coordinate System is US State Plane 1983, New Mexico Western Zone
Grid Convergence at Surface is: 0.28°



LOGOS RESOURCES II, LLC

Company: Logos Operating LLC
Project: Rio Arriba, NM NAD83
Site: Rosa Unit 31
Well: Rosa Unit #740H
Wellbore: OH
Design: Plan #8

PROJECT DETAILS: Rio Arriba, NM NAD83

Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: New Mexico Western Zone
System Datum: Mean Sea Level
Local North: True

LONESTAR CONSULTING

WELL DETAILS: Rosa Unit #740H

GL 6492' @ 6492.00ft

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	
0.00	0.00	2133595.0680	2858361.8390	36.8624825	-107.3709250	A1

Plan: Plan #8 (Rosa Unit #740H/OH)

Created By: Janie Collins Date: 14:54, January 09 2023

Azimuths to True North
Magnetic North: 8.33°
Magnetic Field
Strength: 49534.2nT
Dip Angle: 63.33°
Date: 10/19/2022
Model: HDGM2022

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
740H POE Rev 2	7079.00	-179.98	-364.79	2133413.3193	2857997.9255	36.8619881	-107.3721720
740H BHL Rev 4	7067.00	-50.94	-10623.87	2133492.6915	2847738.3622	36.8623370	-107.4072410
740H FPerf	7067.00	-53.19	-10453.90	2133491.2659	2847908.3353	36.8623310	-107.4066600

SECTION DETAILS

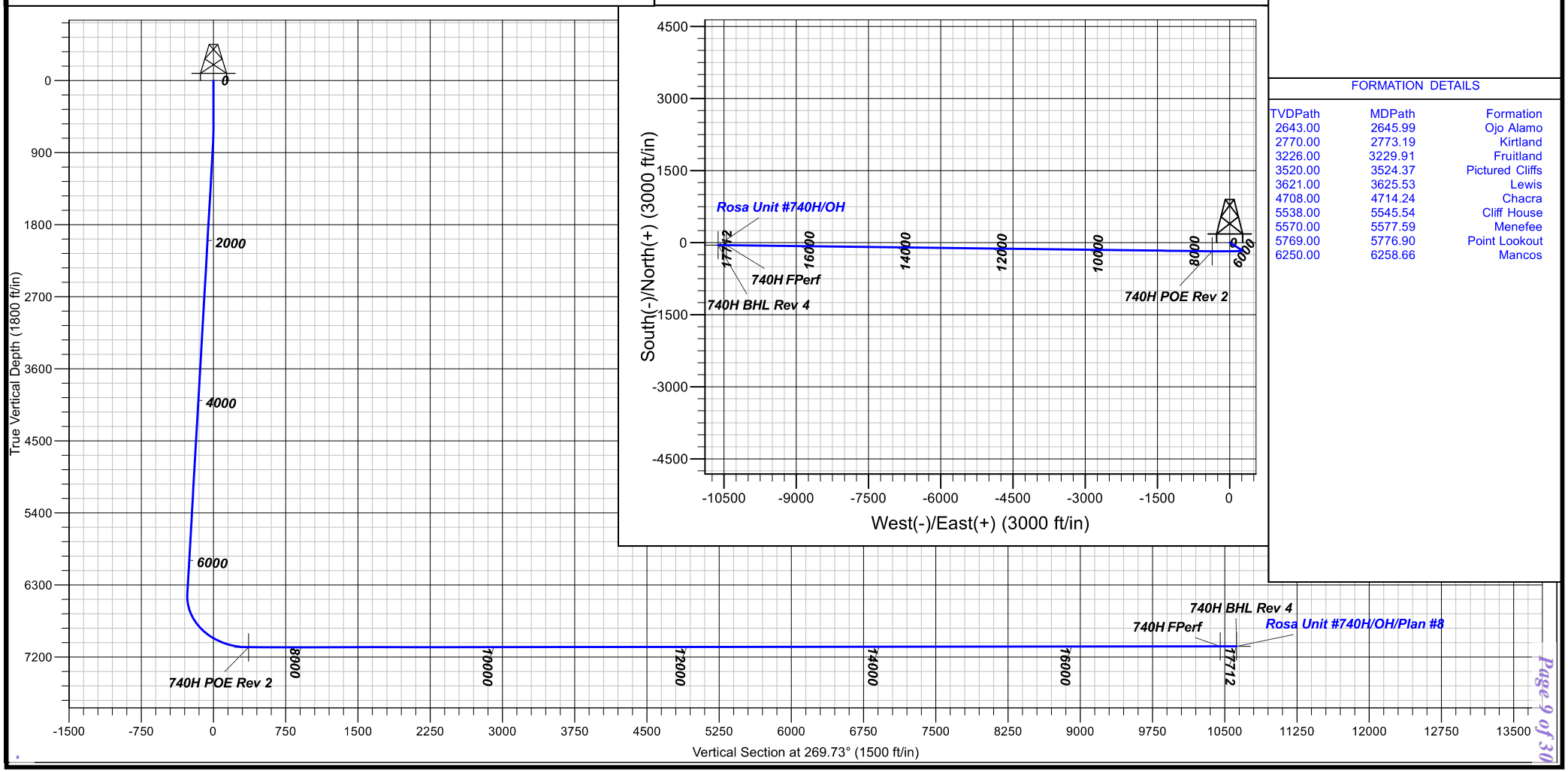
MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSect
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00
814.08	3.21	121.80	813.96	-3.16	5.10	1.50	121.80	-5.08
6421.03	3.21	121.80	6412.12	-168.66	272.03	0.00	0.00	-271.22
7452.33	90.07	270.72	7079.00	-179.98	-364.79	9.00	148.88	365.65
17712.23	90.07	270.72	7067.00	-50.94	-10623.87	0.00	0.00	10623.99

CASING DETAILS

TVD	MD	Name

FORMATION DETAILS

TVDPath	MDPath	Formation
2643.00	2645.99	Ojo Alamo
2770.00	2773.19	Kirtland
3226.00	3229.91	Fruitland
3520.00	3524.37	Pictured Cliffs
3621.00	3625.53	Lewis
4708.00	4714.24	Chacra
5538.00	5545.54	Cliff House
5570.00	5577.59	Menefee
5769.00	5776.90	Point Lookout
6250.00	6258.66	Mancos



Logos Operating LLC

Rio Arriba, NM NAD83
Rosa Unit 31
Rosa Unit #740H - Slot A1

OH

Plan: Plan #8

Standard Planning Report

25 January, 2023

Lonestar Consulting, LLC

Planning Report

Database:	Grand Junction	**Local Co-ordinate Reference:**	Well Rosa Unit #740H - Slot A1
Company:	Logos Operating LLC	**TVD Reference:**	GL 6492' @ 6492.00ft
Project:	Rio Arriba, NM NAD83	**MD Reference:**	GL 6492' @ 6492.00ft
Site:	Rosa Unit 31	**North Reference:**	True
Well:	Rosa Unit #740H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #8		

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:**	2,133,595.0680 usft	**Latitude:**	36.8624824
From:	Map	**Easting:**	2,858,361.8390 usft	**Longitude:**	-107.3709251
Position Uncertainty:	0.00 ft	**Slot Radius:**	13.200 in		

Well Rosa Unit #740H - Slot A1

Well Position	**+N/-S**	0.00 ft	**Northing:**	2,133,595.0680 usft	**Latitude:**	36.8624824
	+E/-W	0.00 ft	**Easting:**	2,858,361.8390 usft	**Longitude:**	-107.3709251
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)
	HDGM2022	10/19/2022	8.53	63.30	49,534.10000000

Design Plan #8

Audit Notes:

Version:		**Phase:**	PLAN	**Tie On Depth:**	0.00

Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	269.73

Plan Survey Tool Program **Date** 1/25/2023

	Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	17,711.74	Plan #8 (OH)	MWD+HDGM	
				OWSG MWD + HDGM	

Plan Sections

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00	
814.08	3.21	121.80	813.96	-3.16	5.10	1.50	1.50	0.00	121.80	
6,421.03	3.21	121.80	6,412.12	-168.66	272.03	0.00	0.00	0.00	0.00	
7,452.33	90.07	270.72	7,079.00	-179.98	-364.79	9.00	8.42	14.44	148.88	740H POE Rev 2
17,712.23	90.07	270.72	7,067.00	-50.94	-10,623.87	0.00	0.00	0.00	0.00	740H BHL Rev 4

Lonestar Consulting, LLC

Planning Report

Database:	Grand Junction	**Local Co-ordinate Reference:**	Well Rosa Unit #740H - Slot A1
Company:	Logos Operating LLC	**TVD Reference:**	GL 6492' @ 6492.00ft
Project:	Rio Arriba, NM NAD83	**MD Reference:**	GL 6492' @ 6492.00ft
Site:	Rosa Unit 31	**North Reference:**	True
Well:	Rosa Unit #740H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #8		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	1.50	121.80	699.99	-0.69	1.11	-1.11	1.50	1.50	0.00
800.00	3.00	121.80	799.91	-2.76	4.45	-4.44	1.50	1.50	0.00
814.08	3.21	121.80	813.96	-3.16	5.10	-5.08	1.50	1.50	0.00
900.00	3.21	121.80	899.75	-5.70	9.19	-9.16	0.00	0.00	0.00
1,000.00	3.21	121.80	999.60	-8.65	13.95	-13.91	0.00	0.00	0.00
1,100.00	3.21	121.80	1,099.44	-11.60	18.71	-18.65	0.00	0.00	0.00
1,200.00	3.21	121.80	1,199.28	-14.55	23.47	-23.40	0.00	0.00	0.00
1,300.00	3.21	121.80	1,299.13	-17.50	28.23	-28.15	0.00	0.00	0.00
1,400.00	3.21	121.80	1,398.97	-20.45	32.99	-32.89	0.00	0.00	0.00
1,500.00	3.21	121.80	1,498.81	-23.41	37.75	-37.64	0.00	0.00	0.00
1,600.00	3.21	121.80	1,598.65	-26.36	42.51	-42.39	0.00	0.00	0.00
1,700.00	3.21	121.80	1,698.50	-29.31	47.27	-47.13	0.00	0.00	0.00
1,800.00	3.21	121.80	1,798.34	-32.26	52.04	-51.88	0.00	0.00	0.00
1,900.00	3.21	121.80	1,898.18	-35.21	56.80	-56.63	0.00	0.00	0.00
2,000.00	3.21	121.80	1,998.03	-38.16	61.56	-61.37	0.00	0.00	0.00
2,100.00	3.21	121.80	2,097.87	-41.12	66.32	-66.12	0.00	0.00	0.00
2,200.00	3.21	121.80	2,197.71	-44.07	71.08	-70.87	0.00	0.00	0.00
2,300.00	3.21	121.80	2,297.55	-47.02	75.84	-75.61	0.00	0.00	0.00
2,400.00	3.21	121.80	2,397.40	-49.97	80.60	-80.36	0.00	0.00	0.00
2,500.00	3.21	121.80	2,497.24	-52.92	85.36	-85.11	0.00	0.00	0.00
2,600.00	3.21	121.80	2,597.08	-55.87	90.12	-89.85	0.00	0.00	0.00
2,700.00	3.21	121.80	2,696.93	-58.83	94.88	-94.60	0.00	0.00	0.00
2,800.00	3.21	121.80	2,796.77	-61.78	99.64	-99.35	0.00	0.00	0.00
2,900.00	3.21	121.80	2,896.61	-64.73	104.40	-104.09	0.00	0.00	0.00
3,000.00	3.21	121.80	2,996.46	-67.68	109.16	-108.84	0.00	0.00	0.00
3,100.00	3.21	121.80	3,096.30	-70.63	113.93	-113.59	0.00	0.00	0.00
3,200.00	3.21	121.80	3,196.14	-73.58	118.69	-118.33	0.00	0.00	0.00
3,300.00	3.21	121.80	3,295.98	-76.54	123.45	-123.08	0.00	0.00	0.00
3,400.00	3.21	121.80	3,395.83	-79.49	128.21	-127.83	0.00	0.00	0.00
3,500.00	3.21	121.80	3,495.67	-82.44	132.97	-132.57	0.00	0.00	0.00
3,600.00	3.21	121.80	3,595.51	-85.39	137.73	-137.32	0.00	0.00	0.00
3,700.00	3.21	121.80	3,695.36	-88.34	142.49	-142.07	0.00	0.00	0.00
3,800.00	3.21	121.80	3,795.20	-91.29	147.25	-146.81	0.00	0.00	0.00
3,900.00	3.21	121.80	3,895.04	-94.25	152.01	-151.56	0.00	0.00	0.00
4,000.00	3.21	121.80	3,994.89	-97.20	156.77	-156.31	0.00	0.00	0.00
4,100.00	3.21	121.80	4,094.73	-100.15	161.53	-161.05	0.00	0.00	0.00
4,200.00	3.21	121.80	4,194.57	-103.10	166.29	-165.80	0.00	0.00	0.00
4,300.00	3.21	121.80	4,294.41	-106.05	171.06	-170.54	0.00	0.00	0.00
4,400.00	3.21	121.80	4,394.26	-109.00	175.82	-175.29	0.00	0.00	0.00
4,500.00	3.21	121.80	4,494.10	-111.96	180.58	-180.04	0.00	0.00	0.00
4,600.00	3.21	121.80	4,593.94	-114.91	185.34	-184.78	0.00	0.00	0.00
4,700.00	3.21	121.80	4,693.79	-117.86	190.10	-189.53	0.00	0.00	0.00
4,800.00	3.21	121.80	4,793.63	-120.81	194.86	-194.28	0.00	0.00	0.00
4,900.00	3.21	121.80	4,893.47	-123.76	199.62	-199.02	0.00	0.00	0.00
5,000.00	3.21	121.80	4,993.32	-126.71	204.38	-203.77	0.00	0.00	0.00
5,100.00	3.21	121.80	5,093.16	-129.67	209.14	-208.52	0.00	0.00	0.00
5,200.00	3.21	121.80	5,193.00	-132.62	213.90	-213.26	0.00	0.00	0.00

Lonestar Consulting, LLC

Planning Report

Database:	Grand Junction	**Local Co-ordinate Reference:**	Well Rosa Unit #740H - Slot A1
Company:	Logos Operating LLC	**TVD Reference:**	GL 6492' @ 6492.00ft
Project:	Rio Arriba, NM NAD83	**MD Reference:**	GL 6492' @ 6492.00ft
Site:	Rosa Unit 31	**North Reference:**	True
Well:	Rosa Unit #740H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #8		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
5,300.00	3.21	121.80	5,292.84	-135.57	218.66	-218.01	0.00	0.00	0.00
5,400.00	3.21	121.80	5,392.69	-138.52	223.42	-222.76	0.00	0.00	0.00
5,500.00	3.21	121.80	5,492.53	-141.47	228.19	-227.50	0.00	0.00	0.00
5,600.00	3.21	121.80	5,592.37	-144.42	232.95	-232.25	0.00	0.00	0.00
5,700.00	3.21	121.80	5,692.22	-147.38	237.71	-237.00	0.00	0.00	0.00
5,800.00	3.21	121.80	5,792.06	-150.33	242.47	-241.74	0.00	0.00	0.00
5,900.00	3.21	121.80	5,891.90	-153.28	247.23	-246.49	0.00	0.00	0.00
6,000.00	3.21	121.80	5,991.75	-156.23	251.99	-251.24	0.00	0.00	0.00
6,100.00	3.21	121.80	6,091.59	-159.18	256.75	-255.98	0.00	0.00	0.00
6,200.00	3.21	121.80	6,191.43	-162.13	261.51	-260.73	0.00	0.00	0.00
6,300.00	3.21	121.80	6,291.27	-165.09	266.27	-265.48	0.00	0.00	0.00
6,400.00	3.21	121.80	6,391.12	-168.04	271.03	-270.22	0.00	0.00	0.00
6,421.03	3.21	121.80	6,412.12	-168.66	272.03	-271.22	0.00	0.00	0.00
6,500.00	4.66	249.91	6,490.99	-170.93	270.90	-270.08	9.00	1.84	162.24
6,600.00	13.46	263.77	6,589.66	-173.59	255.48	-254.65	9.00	8.80	13.85
6,700.00	22.42	266.69	6,684.70	-175.96	224.82	-223.97	9.00	8.96	2.93
6,800.00	31.40	268.00	6,773.79	-177.97	179.66	-178.80	9.00	8.98	1.31
6,900.00	40.39	268.77	6,854.72	-179.58	121.12	-120.25	9.00	8.99	0.77
7,000.00	49.38	269.30	6,925.50	-180.75	50.64	-49.77	9.00	8.99	0.53
7,100.00	58.37	269.70	6,984.40	-181.44	-30.05	30.92	9.00	8.99	0.40
7,200.00	67.37	270.03	7,029.95	-181.65	-118.96	119.83	9.00	9.00	0.33
7,300.00	76.36	270.32	7,061.05	-181.36	-213.89	214.76	9.00	9.00	0.29
7,400.00	85.36	270.58	7,076.91	-180.58	-312.52	313.38	9.00	9.00	0.27
7,452.33	90.07	270.72	7,079.00	-179.98	-364.79	365.65	9.00	9.00	0.26
7,500.00	90.07	270.72	7,078.94	-179.39	-412.45	413.31	0.00	0.00	0.00
7,600.00	90.07	270.72	7,078.83	-178.13	-512.45	513.29	0.00	0.00	0.00
7,700.00	90.07	270.72	7,078.71	-176.87	-612.44	613.28	0.00	0.00	0.00
7,800.00	90.07	270.72	7,078.59	-175.61	-712.43	713.26	0.00	0.00	0.00
7,900.00	90.07	270.72	7,078.48	-174.35	-812.42	813.25	0.00	0.00	0.00
8,000.00	90.07	270.72	7,078.36	-173.10	-912.41	913.23	0.00	0.00	0.00
8,100.00	90.07	270.72	7,078.24	-171.84	-1,012.41	1,013.22	0.00	0.00	0.00
8,200.00	90.07	270.72	7,078.13	-170.58	-1,112.40	1,113.20	0.00	0.00	0.00
8,300.00	90.07	270.72	7,078.01	-169.32	-1,212.39	1,213.19	0.00	0.00	0.00
8,400.00	90.07	270.72	7,077.89	-168.07	-1,312.38	1,313.17	0.00	0.00	0.00
8,500.00	90.07	270.72	7,077.77	-166.81	-1,412.37	1,413.16	0.00	0.00	0.00
8,600.00	90.07	270.72	7,077.66	-165.55	-1,512.37	1,513.14	0.00	0.00	0.00
8,700.00	90.07	270.72	7,077.54	-164.29	-1,612.36	1,613.13	0.00	0.00	0.00
8,800.00	90.07	270.72	7,077.42	-163.03	-1,712.35	1,713.11	0.00	0.00	0.00
8,900.00	90.07	270.72	7,077.31	-161.78	-1,812.34	1,813.10	0.00	0.00	0.00
9,000.00	90.07	270.72	7,077.19	-160.52	-1,912.33	1,913.08	0.00	0.00	0.00
9,100.00	90.07	270.72	7,077.07	-159.26	-2,012.33	2,013.07	0.00	0.00	0.00
9,200.00	90.07	270.72	7,076.96	-158.00	-2,112.32	2,113.05	0.00	0.00	0.00
9,300.00	90.07	270.72	7,076.84	-156.75	-2,212.31	2,213.04	0.00	0.00	0.00
9,400.00	90.07	270.72	7,076.72	-155.49	-2,312.30	2,313.02	0.00	0.00	0.00
9,500.00	90.07	270.72	7,076.61	-154.23	-2,412.29	2,413.01	0.00	0.00	0.00
9,600.00	90.07	270.72	7,076.49	-152.97	-2,512.29	2,512.99	0.00	0.00	0.00
9,700.00	90.07	270.72	7,076.37	-151.71	-2,612.28	2,612.98	0.00	0.00	0.00
9,800.00	90.07	270.72	7,076.25	-150.46	-2,712.27	2,712.96	0.00	0.00	0.00
9,900.00	90.07	270.72	7,076.14	-149.20	-2,812.26	2,812.95	0.00	0.00	0.00
10,000.00	90.07	270.72	7,076.02	-147.94	-2,912.25	2,912.93	0.00	0.00	0.00
10,100.00	90.07	270.72	7,075.90	-146.68	-3,012.25	3,012.91	0.00	0.00	0.00
10,200.00	90.07	270.72	7,075.79	-145.43	-3,112.24	3,112.90	0.00	0.00	0.00
10,300.00	90.07	270.72	7,075.67	-144.17	-3,212.23	3,212.88	0.00	0.00	0.00
10,400.00	90.07	270.72	7,075.55	-142.91	-3,312.22	3,312.87	0.00	0.00	0.00

Lonestar Consulting, LLC

Planning Report

Database:	Grand Junction	**Local Co-ordinate Reference:**	Well Rosa Unit #740H - Slot A1
Company:	Logos Operating LLC	**TVD Reference:**	GL 6492' @ 6492.00ft
Project:	Rio Arriba, NM NAD83	**MD Reference:**	GL 6492' @ 6492.00ft
Site:	Rosa Unit 31	**North Reference:**	True
Well:	Rosa Unit #740H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #8		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
10,500.00	90.07	270.72	7,075.44	-141.65	-3,412.21	3,412.85	0.00	0.00	0.00
10,600.00	90.07	270.72	7,075.32	-140.39	-3,512.21	3,512.84	0.00	0.00	0.00
10,700.00	90.07	270.72	7,075.20	-139.14	-3,612.20	3,612.82	0.00	0.00	0.00
10,800.00	90.07	270.72	7,075.08	-137.88	-3,712.19	3,712.81	0.00	0.00	0.00
10,900.00	90.07	270.72	7,074.97	-136.62	-3,812.18	3,812.79	0.00	0.00	0.00
11,000.00	90.07	270.72	7,074.85	-135.36	-3,912.17	3,912.78	0.00	0.00	0.00
11,100.00	90.07	270.72	7,074.73	-134.11	-4,012.17	4,012.76	0.00	0.00	0.00
11,200.00	90.07	270.72	7,074.62	-132.85	-4,112.16	4,112.75	0.00	0.00	0.00
11,300.00	90.07	270.72	7,074.50	-131.59	-4,212.15	4,212.73	0.00	0.00	0.00
11,400.00	90.07	270.72	7,074.38	-130.33	-4,312.14	4,312.72	0.00	0.00	0.00
11,500.00	90.07	270.72	7,074.27	-129.07	-4,412.13	4,412.70	0.00	0.00	0.00
11,600.00	90.07	270.72	7,074.15	-127.82	-4,512.13	4,512.69	0.00	0.00	0.00
11,700.00	90.07	270.72	7,074.03	-126.56	-4,612.12	4,612.67	0.00	0.00	0.00
11,800.00	90.07	270.72	7,073.92	-125.30	-4,712.11	4,712.66	0.00	0.00	0.00
11,900.00	90.07	270.72	7,073.80	-124.04	-4,812.10	4,812.64	0.00	0.00	0.00
12,000.00	90.07	270.72	7,073.68	-122.79	-4,912.09	4,912.63	0.00	0.00	0.00
12,100.00	90.07	270.72	7,073.56	-121.53	-5,012.09	5,012.61	0.00	0.00	0.00
12,200.00	90.07	270.72	7,073.45	-120.27	-5,112.08	5,112.60	0.00	0.00	0.00
12,300.00	90.07	270.72	7,073.33	-119.01	-5,212.07	5,212.58	0.00	0.00	0.00
12,400.00	90.07	270.72	7,073.21	-117.75	-5,312.06	5,312.57	0.00	0.00	0.00
12,500.00	90.07	270.72	7,073.10	-116.50	-5,412.05	5,412.55	0.00	0.00	0.00
12,600.00	90.07	270.72	7,072.98	-115.24	-5,512.05	5,512.54	0.00	0.00	0.00
12,700.00	90.07	270.72	7,072.86	-113.98	-5,612.04	5,612.52	0.00	0.00	0.00
12,800.00	90.07	270.72	7,072.75	-112.72	-5,712.03	5,712.51	0.00	0.00	0.00
12,900.00	90.07	270.72	7,072.63	-111.47	-5,812.02	5,812.49	0.00	0.00	0.00
13,000.00	90.07	270.72	7,072.51	-110.21	-5,912.01	5,912.48	0.00	0.00	0.00
13,100.00	90.07	270.72	7,072.39	-108.95	-6,012.01	6,012.46	0.00	0.00	0.00
13,200.00	90.07	270.72	7,072.28	-107.69	-6,112.00	6,112.45	0.00	0.00	0.00
13,300.00	90.07	270.72	7,072.16	-106.43	-6,211.99	6,212.43	0.00	0.00	0.00
13,400.00	90.07	270.72	7,072.04	-105.18	-6,311.98	6,312.41	0.00	0.00	0.00
13,500.00	90.07	270.72	7,071.93	-103.92	-6,411.98	6,412.40	0.00	0.00	0.00
13,600.00	90.07	270.72	7,071.81	-102.66	-6,511.97	6,512.38	0.00	0.00	0.00
13,700.00	90.07	270.72	7,071.69	-101.40	-6,611.96	6,612.37	0.00	0.00	0.00
13,800.00	90.07	270.72	7,071.58	-100.15	-6,711.95	6,712.35	0.00	0.00	0.00
13,900.00	90.07	270.72	7,071.46	-98.89	-6,811.94	6,812.34	0.00	0.00	0.00
14,000.00	90.07	270.72	7,071.34	-97.63	-6,911.94	6,912.32	0.00	0.00	0.00
14,100.00	90.07	270.72	7,071.23	-96.37	-7,011.93	7,012.31	0.00	0.00	0.00
14,200.00	90.07	270.72	7,071.11	-95.11	-7,111.92	7,112.29	0.00	0.00	0.00
14,300.00	90.07	270.72	7,070.99	-93.86	-7,211.91	7,212.28	0.00	0.00	0.00
14,400.00	90.07	270.72	7,070.87	-92.60	-7,311.90	7,312.26	0.00	0.00	0.00
14,500.00	90.07	270.72	7,070.76	-91.34	-7,411.90	7,412.25	0.00	0.00	0.00
14,600.00	90.07	270.72	7,070.64	-90.08	-7,511.89	7,512.23	0.00	0.00	0.00
14,700.00	90.07	270.72	7,070.52	-88.83	-7,611.88	7,612.22	0.00	0.00	0.00
14,800.00	90.07	270.72	7,070.41	-87.57	-7,711.87	7,712.20	0.00	0.00	0.00
14,900.00	90.07	270.72	7,070.29	-86.31	-7,811.86	7,812.19	0.00	0.00	0.00
15,000.00	90.07	270.72	7,070.17	-85.05	-7,911.86	7,912.17	0.00	0.00	0.00
15,100.00	90.07	270.72	7,070.06	-83.79	-8,011.85	8,012.16	0.00	0.00	0.00
15,200.00	90.07	270.72	7,069.94	-82.54	-8,111.84	8,112.14	0.00	0.00	0.00
15,300.00	90.07	270.72	7,069.82	-81.28	-8,211.83	8,212.13	0.00	0.00	0.00
15,400.00	90.07	270.72	7,069.70	-80.02	-8,311.82	8,312.11	0.00	0.00	0.00
15,500.00	90.07	270.72	7,069.59	-78.76	-8,411.82	8,412.10	0.00	0.00	0.00
15,600.00	90.07	270.72	7,069.47	-77.51	-8,511.81	8,512.08	0.00	0.00	0.00
15,700.00	90.07	270.72	7,069.35	-76.25	-8,611.80	8,612.07	0.00	0.00	0.00
15,800.00	90.07	270.72	7,069.24	-74.99	-8,711.79	8,712.05	0.00	0.00	0.00

Lonestar Consulting, LLC

Planning Report

Database:	Grand Junction	**Local Co-ordinate Reference:**	Well Rosa Unit #740H - Slot A1
Company:	Logos Operating LLC	**TVD Reference:**	GL 6492' @ 6492.00ft
Project:	Rio Arriba, NM NAD83	**MD Reference:**	GL 6492' @ 6492.00ft
Site:	Rosa Unit 31	**North Reference:**	True
Well:	Rosa Unit #740H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #8		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
15,900.00	90.07	270.72	7,069.12	-73.73	-8,811.78	8,812.04	0.00	0.00	0.00
16,000.00	90.07	270.72	7,069.00	-72.47	-8,911.78	8,912.02	0.00	0.00	0.00
16,100.00	90.07	270.72	7,068.89	-71.22	-9,011.77	9,012.01	0.00	0.00	0.00
16,200.00	90.07	270.72	7,068.77	-69.96	-9,111.76	9,111.99	0.00	0.00	0.00
16,300.00	90.07	270.72	7,068.65	-68.70	-9,211.75	9,211.98	0.00	0.00	0.00
16,400.00	90.07	270.72	7,068.53	-67.44	-9,311.74	9,311.96	0.00	0.00	0.00
16,500.00	90.07	270.72	7,068.42	-66.19	-9,411.74	9,411.94	0.00	0.00	0.00
16,600.00	90.07	270.72	7,068.30	-64.93	-9,511.73	9,511.93	0.00	0.00	0.00
16,700.00	90.07	270.72	7,068.18	-63.67	-9,611.72	9,611.91	0.00	0.00	0.00
16,800.00	90.07	270.72	7,068.07	-62.41	-9,711.71	9,711.90	0.00	0.00	0.00
16,900.00	90.07	270.72	7,067.95	-61.15	-9,811.70	9,811.88	0.00	0.00	0.00
17,000.00	90.07	270.72	7,067.83	-59.90	-9,911.70	9,911.87	0.00	0.00	0.00
17,100.00	90.07	270.72	7,067.72	-58.64	-10,011.69	10,011.85	0.00	0.00	0.00
17,200.00	90.07	270.72	7,067.60	-57.38	-10,111.68	10,111.84	0.00	0.00	0.00
17,300.00	90.07	270.72	7,067.48	-56.12	-10,211.67	10,211.82	0.00	0.00	0.00
17,400.00	90.07	270.72	7,067.37	-54.87	-10,311.66	10,311.81	0.00	0.00	0.00
17,500.00	90.07	270.72	7,067.25	-53.61	-10,411.66	10,411.79	0.00	0.00	0.00
17,600.00	90.07	270.72	7,067.13	-52.35	-10,511.65	10,511.78	0.00	0.00	0.00
17,700.00	90.07	270.72	7,067.01	-51.09	-10,611.64	10,611.76	0.00	0.00	0.00
17,712.23	90.07	270.72	7,067.00	-50.94	-10,623.87	10,623.99	0.00	0.00	0.00

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
740H FPerf	0.00	0.00	7,067.00	-53.19	-10,453.90	2,133,491.2659	2,847,908.3354	36.8623310	-107.4066600
- plan misses target center by 0.23ft at 17542.25ft MD (7067.20 TVD, -53.08 N, -10453.90 E)									
- Point									
740H BHL Rev 4	0.00	0.00	7,067.00	-50.94	-10,623.87	2,133,492.6915	2,847,738.3622	36.8623370	-107.4072410
- plan hits target center									
- Point									
740H POE Rev 2	0.00	0.00	7,079.00	-179.98	-364.79	2,133,413.3193	2,857,997.9255	36.8619881	-107.3721721
- plan hits target center									
- Point									

Lonestar Consulting, LLC
Planning Report

Database:	Grand Junction	**Local Co-ordinate Reference:**	Well Rosa Unit #740H - Slot A1
Company:	Logos Operating LLC	**TVD Reference:**	GL 6492' @ 6492.00ft
Project:	Rio Arriba, NM NAD83	**MD Reference:**	GL 6492' @ 6492.00ft
Site:	Rosa Unit 31	**North Reference:**	True
Well:	Rosa Unit #740H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #8		

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,645.99	2,643.00	Ojo Alamo		0.00	0.00
2,773.19	2,770.00	Kirtland		0.00	0.00
3,229.91	3,226.00	Fruitland		0.00	0.00
3,524.37	3,520.00	Pictured Cliffs		0.00	0.00
3,625.53	3,621.00	Lewis		0.00	0.00
4,714.24	4,708.00	Chacra		0.00	0.00
5,545.54	5,538.00	Cliff House		0.00	0.00
5,577.59	5,570.00	Menefee		0.00	0.00
5,776.90	5,769.00	Point Lookout		0.00	0.00
6,258.66	6,250.00	Mancos		0.00	0.00

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
600.00	600.00	0.00	0.00	Start Build 1.50
814.08	813.96	-3.16	5.10	Start 5606.96 hold at 814.08 MD
6,421.03	6,412.12	-168.66	272.03	Start DLS 9.00 TFO 148.88
7,452.33	7,079.00	-179.98	-364.79	36.8619881 / -107.3721720
7,452.33	7,079.00	-179.98	-364.79	POE @ 7452' MD
17,542.25	7,067.20	-53.08	-10,453.90	First Perf @ 17,542' MD
17,542.25	7,067.20	-53.08	-10,453.90	36.8623313 / -107.4066600
17,712.23	7,067.00	-50.94	-10,623.87	TD at 17712.23

LOGOS Operating, LLC
Operations Plan

Note: This procedure will be adjusted onsite based upon actual conditions

Date:	January 26, 2023	Pool:	Basin Mancos
Well Name:	**Rosa Unit 740H**	GL Elevation:	6,492’
Surface Location:	Sec 33, T31N, R5W 319 FNL, 1681 FWL (36.862483º N, 107.370925º W – NAD83)	Measured Depth:	17,737’ (MD)
Bottom Hole Location:	Sec 31, T31N, R5W 371 FNL, 160 FWL (36.862337º N, 107.407241º W – NAD83)	County:	Rio Arriba

Lease Serial #NMSF078773, CA Serial # NMNM78407E

I. GEOLOGY

A. Formation Tops (Based on 25’ KB Elevation): Estimated top of important geological markers:
SURFACE FORMATION – NACIMIENTO

NAME	MD	TVD	NAME	MD	TVD
OJO ALAMO	2671	2668	*POINT LOOKOUT	5802	5794
KIRTLAND	2798	2795	*MANCOS	6284	6275
*FRUITLAND	3255	3251	KICKOFF POINT	6421	6412
*PICTURED CLIFFS	3549	3545	POINT OF ENTRY	7477	7104
LEWIS	3651	3646			
CHACRA	4739	4733			
*CLIFF HOUSE	5571	5563			
MENEFEE	5603	5595	TD	17737	7092

* Indicates depth at which anticipated water, oil, gas, or other mineral-bearing formations are expected to be encountered.

B. MUD LOGGING PROGRAM: Mudlogger on location from KOP to TD.

C. LOGGING PROGRAM: LWD GR from surface casing to TD.

D. NATURAL GAUGES: Gauge any noticeable increases in gas flow. Record all gauges in the Tour book and on morning reports.

II. DRILLING

III. MUD PROGRAM: LSND mud (WBM) will be used to drill the 17-1/2" surface hole as well as the 12-1/4” directional vertical hole. An LSND (WBM) or (OBM) system will be used to drill the 8-1/2” curve and lateral portion of the wellbore. Treat for lost circulation as necessary. Obtain 100% returns prior to cementing. Notify Engineering of any mud losses.

Above-ground steel pits will be used for fluid and cuttings while drilling. In the unlikely event that a tank develops a leak, upon immediate visual discovery, the fluid would be transferred to another tank and contaminated soil would be removed and disposed of. Any leaks, spills, or other undesirable events will be reported in accordance with BLM NTL 3A. Rig crews will monitor the tanks at all times.

A. **BOP TESTING:** The BOPE will be tested to **250 psi (Low) for 5 minutes** and **1500 psi (High) for 10 minutes.** Pressure test surface casing to **600 psi for 30 minutes** and intermediate casing strings to one-third of internal yield pressure not to exceed **1500 psi for 30 minutes.** Utilize a BOPE Testing Unit with a recording chart and appropriate test plug for testing. The drum brakes will be inspected and tested on each tour. BOP equipment will be tested a minimum of every 30 days, after any repairs are made to the BOP equipment, and after the BOP equipment is subjected to pressure. Annular preventers will be functionally operated at least once per week. Pipe and blind rams shall be activated each trip but not more than once daily. The New Mexico Oil & Gas Conservation Commission and the BLM will be notified 24 hours in advance of testing of the BOPE. **All tests and inspections will be recorded and logged with time and results.** A full BOP test will be conducted when installed for the first well on the pad or if seals subject to test pressure are broken, following related repairs and at a minimum of 30-day intervals. A BOPE Shell Test only will be conducted for subsequent wells on the pad when seals subject to pressure have not been broken or repaired and fall within the 30-day interval of the first full test.

B. **GeoHazards:** There are no anticipated geohazards

C. **Maximum Anticipated Pressure:** 7104' TVD x 0.43 = 3055 psi

D. **H2S Concerns:** – There is no record of any naturally occurring H2S in any formation in the Rosa Unit. No H2S is anticipated in this formation or this well.

IV. MATERIALS

A. CASING EQUIPMENT:

CASING TYPE	OH SIZE (IN)	KB DEPTH (MD)	CSG SIZE	WEIGHT	GRADE	CONN
SURFACE	17.5"	331' GL/356' (KB)	13.375"	54.5 LBS	J-55	BTC
INTERMEDIATE	12.25"	6,359'	9.625"	43.5 LBS	N-80 or equiv	LTC/BTC
PRODUCTION	8.5"	17,737'	5.5"	20 LBS	P-110 or equiv	LTC/BTC

NOTE: All casing depths are approximate, based on 25' KB elevation and will be based on drilling conditions +/- 50'. Weights, grades, and connections will be based on availability and may vary but will be equivalent or greater.

B. FLOAT EQUIPMENT:

1. SURFACE CASING: 13-3/8" notched regular pattern guide shoe. Run (1) standard centralizer on each of the bottom (3) joints of Surface Casing.
2. INTERMEDIATE CASING: 9-5/8" cement nose guide shoe with a self-fill insert float. Place float collar one joint above the shoe. Install (1) centralizer on each of the bottom (3) joints and one standard centralizer every (3) joints to 2,500 ft. Run (1) centralizer at 2,500 ft., 2,000ft., 1,500 ft., and 1,000 ft. Optional use of DV Tools (2) will be strategically placed above loss circulation zones anticipated in the Mesaverde and Fruitland Coal. Optional use of cancelation plugs for DV tools may be used if losses while cementing are not encountered.
3. PRODUCTION CASING: Run 5-1/2" casing with cement nose guide Float Shoe, 5-1/2" full or pup joints as necessary, Landing Collar, 5-1/2" full or pup joints as necessary, at least (1) one Toe Sleeve (Sliding Sleeve) positioned inside the applicable production area. The centralizer program will be determined by wellbore conditions. Production casing to be pressure tested during completion operations with frac stack installed.

C. CEMENTING:

(Note: Cement type and volumes may be adjusted onsite due to actual conditions and availability)

1. SURFACE: Casing was set at ~ 331'GL/356' KB and cemented to surface. TOC at Surface.
   190 sks of 14.6 ppg Type III with 1.39 cuf/sk yield, circulated 7 bbls of cmt to surface.

2. INTERMEDIATE: Intermediate casing shall be kept fluid-filled while running into the hole to meet BLM minimum collapse requirements. The intermediate casing will be cemented in 2 or 3 stages using DV/STAGE tools to reduce cement losses and maximize cement coverage. Operator proposes optional DV tools above anticipated loss circulation zones in the Mesaverde and in the Fruitland coal. If losses are not observed during the second stage a cancelation plug will be pumped and the remaining cement will be pumped during stage 2. If cement does not circulate to the DV tool(s) or to the surface, a CBL will be run to determine TOC.

	Top	Footage	Cement (ft3/ft) Annular Capacity	Excess (30%)	Total (ft3)	Total (bbl)	Slurry Yield (ft3/sk)	Sacks Cement	Density (PPG)
Stage 1 Tail	5,859	500	0.31321	1.3	221	39	1.15	192	15.8
Stage 1 Lead	4,789	1,070	0.31321	1.3	436	78	1.97	221	12.4
					657	117		413	
Stage 2 Tail	4,189	600	0.31321	1.3	244	44	1.65	148	13.2
Stage 2 Lead	3,305	884	0.31321	1.3	360	64	1.97	183	12.4
					604	108		331	
Stage 3 Tail	2,655	650	0.31321	1.3	265	47	1.65	160	13.2
Stage 3 Lead	356	2,299	0.31321	1.3	936	167	1.97	475	12.4
Stage 3 Lead	-	356	0.36268	1	129	23	1.97	66	12.4
					1,330	237		701	
					2,591	461		1,445	

Calculations based on 30% excess for open hole and cement to the surface. Actual excess pumped will be determined by well conditions.

3. PRODUCTION: Production casing will be cemented in 1 stage with 100' of cement overlap above the intermediate shoe. A CBL, or alternatively, a Temperature Survey will be used to determine TOC.

	Top	ft	Cement (ft3/ft) Annular Capacity	Excess (15%)	Total (ft3)	Total (bbl)	Slurry Yield (ft3/sk)	Sacks Cement	Density (PPG)
Cased hole Tail	6,259	100	0.2531	1	25	5	1.56	16	13.2
Open Hole Tail	6,359	11,378	0.2291	1.15	3,008	536	1.56	1,928	13.2
					3,033	540		1,945	

Calculations based on 15% excess for the open hole and 100' overlap into the intermediate casing. Actual volumes will vary.

Cement calculations are used for volume estimation. Well conditions will dictate the final cement job design. Actual volumes will be calculated and determined by conditions onsite. All cement slurries will meet or exceed minimum BLM and New Mexico Oil Conservation Division requirements. Slurries used will be the slurries listed above or equivalent slurries depending on the service provider selected. Cement yields may change depending on the slurries selected. All waiting on cement times shall be a minimum of 8 hours or adequate to achieve a minimum of 500 psi compressive strength at the casing shoe prior to drilling out.

V. COMPLETION

A. CBL

CBLs and/or Temperature Surveys will be performed as needed or required to determine the cement top if cement is not circulated.

B. PRESSURE TEST

C. Pressure test 5-1/2" casing to 1563 psi (0.22 psi/ft * 7,104' TVD) for 30 minutes. Increase pressure to Open Toe sleeves.

D. STIMULATION

Stimulate with sand and water. Isolate stages with flow-through or dissolvable frac plugs. Drill out frac plugs as required and flow back lateral.

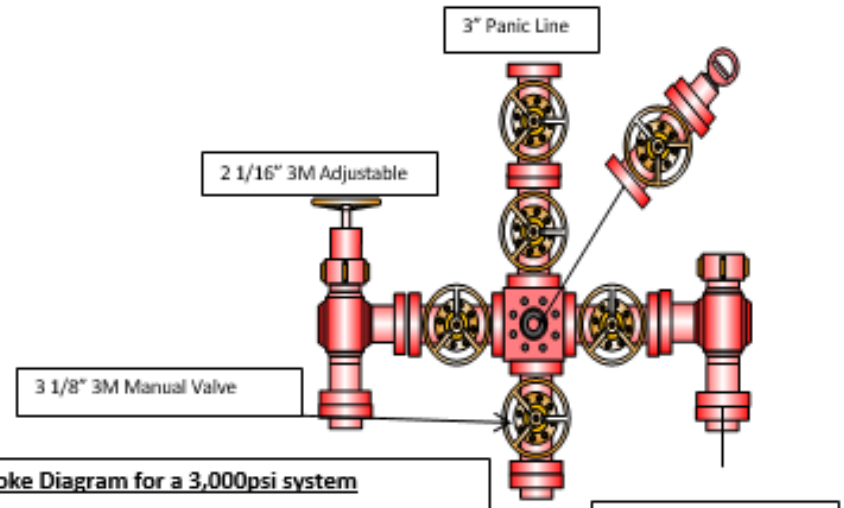
E. PRODUCTION TUBING

2-7/8", 6.5#, J-55 or L-80, EUE tubing will be run once volumes and pressures dictate. Due to the extremely high initial flow rates and pressures seen in offset wells, tubing will be installed once it is safe to do so, typically 12-18 months after completion.

*NOTE: Although this horizontal well may be drilled past the applicable setbacks, an unorthodox location application is not required because the completed interval in this well, as defined by 19.15.16.7 8(1) NMAC, will be entirely within the applicable setbacks. This approach complies with all applicable rules, including 19.15.16.14 A(3) NMAC, 19.15.16.14 8(2) NMAC, 19.15.16.15 8(2)NMAC, and 19.15.16.15. 8(4) NMAC.

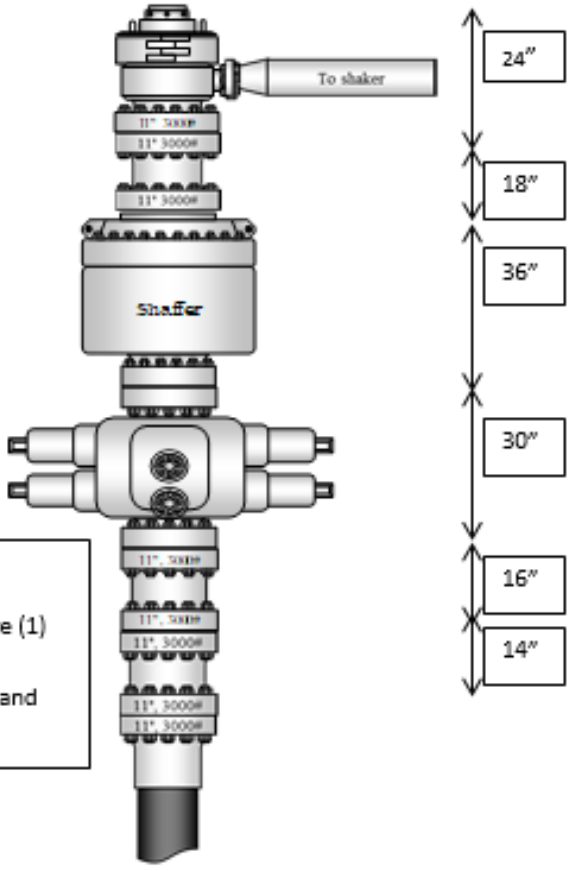
LOGOS RESOURCES II, LLC

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



Choke Diagram for a 3,000psi system

- Features all 3 1/8" 3M Manual Valves
- Two 2 1/16" Manual Adjustable Choke Valves
- 3" Panic Line and 2" Vent lines
- (2) 3 1/8" 3M Coflex Hose f/Choke to BOP



11" 3,000psi BOP

- Choke Side has (1) manual 3 1/8" Valve (1) HCR
- Kill Side has (2) 2 1/16" Manual Valve and (1) check valve

ROSA UNIT 740H

State of New Mexico
Energy, Minerals and Natural Resources Department

Submit Electronically
Via E-permitting

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

NATURAL GAS MANAGEMENT PLAN

This Natural Gas Management Plan must be submitted with each Application for Permit to Drill (APD) for a new or recompleted well.

Section 1 – Plan Description
Effective May 25, 2021

I. Operator: LOGOS Operating, LLC **OGRID:** 289408 **Date:** 1 / 25 / 2023

II. Type: ☒ Original ☐ Amendment due to ☐ 19.15.27.9.D(6)(a) NMAC ☐ 19.15.27.9.D(6)(b) NMAC ☐ Other.

If Other, please describe: _____

III. Well(s): Provide the following information for each new or recompleted well or set of wells proposed to be drilled or proposed to be recompleted from a single well pad or connected to a central delivery point.

Well Name	API	ULSTR	Footages	Anticipated Oil BBL/D	Anticipated Gas MCF/D	Anticipated Produced Water BBL/D
Rosa Unit 740H	30-039-31364	C-33-T31N-R5W	319FNL, 1681FWL	N/A	14,176	504
Rosa Unit 742H	30-039-31419	C-33-T31N-R5W	334FNL, 1682FWL	N/A	14,696	470
Rosa Unit 744H	30-039-31423	C-33-T31N-R5W	349FNL, 1683FWL	N/A	20,068	649
Rosa Unit 745H	30-039-pending	C-33-T31N-R5W	368FNL, 1686FWL	N/A	20,804	671
Rosa Unit 746H	30-039-31416	C-33-T31N-R5W	363FNL, 1685FWL	N/A	20,804	671

IV. Central Delivery Point Name: Harvest Gathering System [See 19.15.27.9(D)(1) NMAC]

V. Anticipated Schedule: Provide the following information for each new or recompleted well or set of wells proposed to be drilled or proposed to be recompleted from a single well pad or connected to a central delivery point.

Well Name	API	Spud Date	TD Reached Date	Completion Commencement Date	Initial Flow Back Date	First Production Date
Rosa Unit 740H	30-039-31364	8/25/2021	Pending	Pending	Pending	Pending
Rosa Unit 742H	30-039-31419	Pending	Pending	Pending	Pending	Pending
Rosa Unit 744H	30-039-31423	Pending	Pending	Pending	Pending	Pending
Rosa Unit 745H	30-039-pending	Pending	Pending	Pending	Pending	Pending
Rosa Unit 746H	30-039-31416	Pending	Pending	Pending	Pending	Pending

VI. Separation Equipment: ☒ Attach a complete description of how Operator will size separation equipment to optimize gas capture.

VII. Operational Practices: ☒ Attach a complete description of the actions Operator will take to comply with the requirements of Subsection A through F of 19.15.27.8 NMAC.

VIII. Best Management Practices: ☒ Attach a complete description of Operator's best management practices to minimize venting during active and planned maintenance.

Section 2 – Enhanced Plan

EFFECTIVE APRIL 1, 2022

Beginning April 1, 2022, an operator that is not in compliance with its statewide natural gas capture requirement for the applicable reporting area must complete this section.

☒ Operator certifies that it is not required to complete this section because Operator is in compliance with its statewide natural gas capture requirement for the applicable reporting area.

IX. Anticipated Natural Gas Production:

Well	API	Anticipated Average Natural Gas Rate MCF/D	Anticipated Volume of Natural Gas for the First Year MCF

X. Natural Gas Gathering System (NGGS):

Operator	System	ULSTR of Tie-in	Anticipated Gathering Start Date	Available Maximum Daily Capacity of System Segment Tie-in

XI. Map. ☐ Attach an accurate and legible map depicting the location of the well(s), the anticipated pipeline route(s) connecting the production operations to the existing or planned interconnect of the natural gas gathering system(s), and the maximum daily capacity of the segment or portion of the natural gas gathering system(s) to which the well(s) will be connected.

XII. Line Capacity. The natural gas gathering system ☐ will ☐ will not have capacity to gather 100% of the anticipated natural gas production volume from the well prior to the date of first production.

XIII. Line Pressure. Operator ☐ does ☐ does not anticipate that its existing well(s) connected to the same segment, or portion, of the natural gas gathering system(s) described above will continue to meet anticipated increases in line pressure caused by the new well(s).

☐ Attach Operator's plan to manage production in response to the increased line pressure.

XIV. Confidentiality: ☐ Operator asserts confidentiality pursuant to Section 71-2-8 NMSA 1978 for the information provided in Section 2 as provided in Paragraph (2) of Subsection D of 19.15.27.9 NMAC, and attaches a full description of the specific information for which confidentiality is asserted and the basis for such assertion.

Section 3 - Certifications

Effective May 25, 2021

Operator certifies that, after reasonable inquiry and based on the available information at the time of submittal:

☒ Operator will be able to connect the well(s) to a natural gas gathering system in the general area with sufficient capacity to transport one hundred percent of the anticipated volume of natural gas produced from the well(s) commencing on the date of first production, taking into account the current and anticipated volumes of produced natural gas from other wells connected to the pipeline gathering system; or

☐ Operator will not be able to connect to a natural gas gathering system in the general area with sufficient capacity to transport one hundred percent of the anticipated volume of natural gas produced from the well(s) commencing on the date of first production, taking into account the current and anticipated volumes of produced natural gas from other wells connected to the pipeline gathering system. ***If Operator checks this box, Operator will select one of the following:***

Well Shut-In. ☐ Operator will shut-in and not produce the well until it submits the certification required by Paragraph (4) of Subsection D of 19.15.27.9 NMAC; or

Venting and Flaring Plan. ☐ Operator has attached a venting and flaring plan that evaluates and selects one or more of the potential alternative beneficial uses for the natural gas until a natural gas gathering system is available, including:

- **(a)** power generation on lease;
- **(b)** power generation for grid;
- **(c)** compression on lease;
- **(d)** liquids removal on lease;
- **(e)** reinjection for underground storage;
- **(f)** reinjection for temporary storage;
- **(g)** reinjection for enhanced oil recovery;
- **(h)** fuel cell production; and
- **(i)** other alternative beneficial uses approved by the division.

Section 4 - Notices

1. If, at any time after Operator submits this Natural Gas Management Plan and before the well is spud:

(a) Operator becomes aware that the natural gas gathering system it planned to connect the well(s) to has become unavailable or will not have capacity to transport one hundred percent of the production from the well(s), no later than 20 days after becoming aware of such information, Operator shall submit for OCD's approval a new or revised venting and flaring plan containing the information specified in Paragraph (5) of Subsection D of 19.15.27.9 NMAC; or

(b) Operator becomes aware that it has, cumulatively for the year, become out of compliance with its baseline natural gas capture rate or natural gas capture requirement, no later than 20 days after becoming aware of such information, Operator shall submit for OCD's approval a new or revised Natural Gas Management Plan for each well it plans to spud during the next 90 days containing the information specified in Paragraph (2) of Subsection D of 19.15.27.9 NMAC, and shall file an update for each Natural Gas Management Plan until Operator is back in compliance with its baseline natural gas capture rate or natural gas capture requirement.

2. OCD may deny or conditionally approve an APD if Operator does not make a certification, fails to submit an adequate venting and flaring plan which includes alternative beneficial uses for the anticipated volume of natural gas produced, or if OCD determines that Operator will not have adequate natural gas takeaway capacity at the time a well will be spud.

I certify that, after reasonable inquiry, the statements in and attached to this Natural Gas Management Plan are true and correct to the best of my knowledge and acknowledge that a false statement may be subject to civil and criminal penalties under the Oil and Gas Act.

Signature:	Etta Trujillo
Printed Name:	Etta Trujillo
Title:	Regulatory Specialist
E-mail Address:	etrujillo@logosresourcesllc.com
Date:	1/23/2023
Phone:	505-324-4154

OIL CONSERVATION DIVISION
(Only applicable when submitted as a standalone form)

Approved By:	
Title:	
Approval Date:	
Conditions of Approval:	

VI. Separation Equipment

The operator will select separation equipment for the maximum anticipated throughput and pressure to optimize gas capture. Separation equipment is sized according to manufacturer's design specifications. Separation vessels are built following the A.S.M.E. section VII division 1 codes for pressure vessel design, fabrication, inspection, testing and certification. Anticipated well pressures and production rates are evaluated to select separation equipment according to the equipment's designed operating pressure and throughput.

After completion, the operator utilizes flowback equipment, including separators, to manage wellbore fluids and solids during the initial separation period. After the initial flowback period is complete the operator utilizes iterative facility separation equipment to ensure that optimal separation is achieved.

VII. Operational Practices 19.15.27.8 NMAC A through F

A. The operator will maximize the recovery of natural gas and minimize the amount of gas vented or flared when technically and safely feasible as further described and detailed within the following subsections (B-F of 19.15.27.8). In all cases where natural gas venting and flaring requires regulatory reporting, reporting will be submitted accurately and within the required time frames.
B. Venting and flaring during drilling operations:
    a. New Drill HZ Oil Wells: The operator drills wells in the area by utilizing a balanced mud to safely drill the wellbore. This technique prevents gas from coming to surface during the drilling process. If there is an emergency or malfunction and natural gas does come to surface the natural gas will be captured or combusted, with an appropriately sized and located flare stack, if technically and safely feasible.
    b. New Drill HZ Gas Wells: The operator drills wells in the area by balancing the mud weight to safely drill the wellbore with as minimal flaring as possible. When gas kicks enter the wellbore, sometimes it is necessary to circulate it out of the wellbore to an appropriately sized and located flare stack. The operator will estimate the volume flared and appropriately report.
C. Venting and flaring during completion or recompletion operations:
    a. New Drill HZ Oil Wells: The operator's facilities are designed to handle the maximum throughput and pressures from the newly drilled and completed wellbores. The amount of gas vented and flared will be minimized when technically and safely feasible. During initial flowback and initial separation flowback the operator will utilize contracted flowback equipment, including separators, to manage wellbore fluids and solids. The initial flowback period will be minimized and flow will be sent to separation equipment as soon as possible to reduce the amount of gas that is vented to atmosphere. During the separation flowback period natural gas will be routed to a properly sized and located flare until the natural gas is of pipeline quality (less than 60 days). The natural gas will also be utilized on site as needed for fuel gas or injection gas.

    b. New Drill HZ Gas Wells: The operator's facilities are designed to handle the maximum throughput and pressures from the newly drilled and completed wellbores. The amount of gas vented and flared will be minimized when technically and safely feasible. During initial flowback and initial separation flowback the operator will utilize contracted flowback equipment, including separators, to manage wellbore fluids and solids. The initial flowback period will be minimized and flow will be sent to separation equipment as soon as possible to reduce the amount of gas that is vented to atmosphere. The natural gas will be utilized on site as needed for fuel gas and natural gas will be sold. Venting and flaring during production operations:

D. Venting and flaring during production operations:

a. New Drill HZ Oil Wells: The operator's facilities are designed to handle the maximum throughput and pressures from producing wellbores. The amount of gas vented and flared will be minimized when technically and safely feasible. This facility will operate under a notice of intent (NOI) from the New Mexico Environment Department (NMED).

Operations will effectively manage the following scenarios to minimize the quantity of natural gas that is vented or flared:

(a) If there is an emergency or malfunction, vented or flared natural gas will be reported, if required, and the emergency or malfunction will be resolved as soon as technically and safely feasible.
(b) If the wellbore requires liquids to be unloaded to atmosphere, the operator will not vent the well after the well has achieved a stabilized rate and pressure. The operator will remain on site during unloading. Plunger lift systems will be optimized to reduce the amount of natural gas venting. Downhole maintenance, such as workovers, swabbing, etc. will only be conducted as needed and best management practices will be utilized to reduce venting of natural gas.
(c) The operator will minimize the amount of time that natural gas is vented to atmosphere from gauging and sampling a storage tank or low-pressure vessel, automatic tank gauges will be the primary means of gauging with minor exceptions.
(d) The operator will reduce the amount of time needed for loading out liquids from a storage tanks or other low-pressure vessels whenever feasible. Operations will utilize a LACT system when available to minimize gas vented during oil tank loading.
(e) Equipment will be repaired and maintained routinely to minimize the venting or flaring of natural gas. Repairs and maintenance will be conducted in a manner that minimizes the amount of natural gas vented to atmosphere through the isolation of the equipment that is being repaired or maintained.
(f) Electric controllers and pumps will be installed to replace pneumatic controllers whenever feasible. Pneumatic controllers and pumps will be inspected frequently to ensure that no excess gas is vented to atmosphere.
(g) Storage tanks and other low-pressure vessel normal operational venting will be minimized during the early life of the well with the installation of a vapor recovery unit to limit the flash and working and breathing emissions to atmosphere.
(h) No dehydration or amine units are anticipated to be set on location.
(i) Compressors, compressor engines, turbines, flanges, connectors, valves, and flanges will be routinely inspected to ensure that no excess venting occurs outside of normal operation.
(j) Regulatory required testing, such as bradenhead and packer testing will be performed in a manner that minimizes the amount of natural gas vented to atmosphere.
(k) When natural gas does not meet gathering pipeline specifications, for example high nitrogen content after a nearby frac, gas samples will be collected twice per week to determine when pipeline specification gas content has been achieved. During this time frame gas will be flared and not vented to atmosphere. Natural gas that meets pipeline specifications will be sold via pipeline and natural gas that can be utilized for fuel gas will be used during this time.
(l) If pipeline, equipment, or facilities need purged of impurities gas losses will be minimized as much as technically and safely feasible.

b. New Drill HZ Gas Wells: The operator's facilities are designed to handle the maximum throughput and pressures from producing wellbores. The amount of gas vented and flared will be minimized when technically and safely feasible.

Operations will effectively manage the following scenarios to minimize the quantity of natural gas that is vented or flared:

(a) If there is an emergency or malfunction vented or flared natural gas will be reported, if required, and the emergency or malfunction will be resolved as soon as technically and safely feasible.
(b) If the wellbore needs to be unloaded to atmosphere the operator will not vent the well after the well has achieved a stabilized rate and pressure. The operator will remain on site during unloading. Plunger lift systems will be optimized to reduce the amount of natural gas venting. Downhole maintenance, such as workovers, swabbing, etc. will only be conducted as needed and best management practices will be utilized to reduce venting of natural gas.
(c) The operator will minimize the amount of time that natural gas is vented to atmosphere from gauging and sampling a storage tank or low-pressure vessel, automatic tank gauges will be the primary means of gauging. The formation is only anticipated to produce water and therefore tank emissions are anticipated to be negligible.
(d) The operator will reduce the amount of time needed for loading out liquids from a storage tanks or other low-pressure vessels whenever feasible. Operations will always utilize the water transfer systems when available. Water loading emissions are anticipated to be negligible.
(e) Equipment will be repaired and maintained routinely to minimize the venting or flaring of natural gas. Repairs and maintenance will be conducted in a manner that minimizes the amount of natural gas vented to atmosphere through the isolation of the equipment that is being repaired or maintained.
(f) Electric controllers and pumps, or instrument air, will be installed to replace pneumatic controllers whenever feasible. Pneumatic controllers and pumps will be inspected frequently to ensure that no excess gas is vented to atmosphere.
(g) No dehydration or amine units are anticipated to be set on location.
(h) Compressors, compressor engines, turbines, flanges, connectors, valves, storage tanks, and other low-pressure vessels and flanges will be routinely inspected to ensure that no excess venting occurs outside of normal operations.
(i) Regulatory required testing, such as bradenhead and packer testing will be performed in a manner that minimizes the amount of natural gas vented to atmosphere.
(j) If natural gas does not meet gathering pipeline specifications gas samples will be collected twice per week to determine when pipeline specification gas content has been achieved. During this time frame gas will be flared and not vented to atmosphere. Natural gas that meets pipeline specifications will be sold via pipeline and natural gas that can be utilized for fuel gas will be used during this time.
(k) If pipeline, equipment, or facilities need purged of impurities gas losses will be minimized as much as technically and safely feasible.

E. Performance standards:
a. The production facilities are designed to handle the maximum throughput and pressures from producing wellbores and will be designed to minimize waste. The amount of gas vented and flared will be minimized when technically and safely feasible.

b. All tanks that are routed to a control device that is installed after 5/25/2021 will have an automatic gauging system to minimize the amount of vented natural gas.
c. If a flare stack is installed or replaced after 5/25/2021 it will be equipped with an automatic ignitor or continuous pilot. The flare stack will be properly sized and designed to ensure proper combustion efficiency. The flare stack will be located 100 feet away from the nearest wellhead or storage tank.
d. AVO inspections will be conducted weekly for the year after completion and for all wells producing greater than 60,000 cubic feet of natural gas daily. The AVO inspection will include all components, including flare stacks, thief hatches, closed vent systems, pumps, compressors, pressure relief devices, valves, lines, flanges, connectors, and associated pipeline to identify any leaks and releases by comprehensive auditory, visual, and olfactory inspection. The AVO inspection records will be maintained for 5 years which will be available at the department's request. Identified leaks will be repaired as soon as feasible to minimize the amount of vented natural gas.

F. Measurement or estimation of vented and flared natural gas.
a. The volume of natural gas that is vented, flared or consumed for beneficial use will be measured when possible, or estimated, during drilling, completions, or production operations.
b. Equipment will be installed to measure the volume of natural gas flared for all APD's issued after 5/25/2021 on facilities that will have an average daily gas rate greater than 60,000 cubic feet of natural gas. Measurement equipment will conform to API MPMS Chapter 14.10 regulations. The measurement equipment will not have a manifold that allows the diversion of natural gas around the metering element except for the sole purpose of inspecting and servicing the measurement equipment. If metering is not practical, then the volume of gas will be estimated

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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 182203

CONDITIONS

Operator: LOGOS OPERATING, LLC 2010 Afton Place Farmington, NM 87401	OGRID: 289408
	Action Number: 182203
	Action Type: [C-103] NOI Change of Plans (C-103A)

CONDITIONS

Created By	Condition	Condition Date
kpickford	Adhere to previous NMOCD Conditions of Approval	2/7/2023