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.: NMSF078767

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 644H

2. Name of Operator: LOGOS OPERATING LLC

9. API Well No.: 30-039-~~31318~~ 31430

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 19 T31N R05W NENW (C) 962 FNL 466 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	[x] Other Plug and Abandon Name Change
	[ ] Change Plans	[ ] Plug and Abandon	[ ] Temporarily Abandon	
	[ ] Convert to Injection	[ ] Plug Back	[ ] Water Disposal	

1 . 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 zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports must be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or 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 is requesting permission to Plug and Abandon the surface set for subject well and change well name to Rosa Unit 644Y with API number 30-039-31318. Rig will skid over 20' to new surface location with well name Rosa Unit 644H and a new API number (30-039-pending).

See attached plug and abandon procedure and the operations plan for the new surface location.

This location is shared with the following producing wells Rosa Unit 645H (30-039-31415) and Rosa Unit 647H (30-039-31411), a reclamation will not take place at this time.

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

Title: Regulatory Specialist

Signature: Etta Trujillo

Date: 3/8/2023

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)

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
30-039-31430	97232	BASIN MANCOS

[4] Property Code	[5] Property Name	[6] Well Number
320608	ROSA UNIT	644H

[7] OGRID No.	[8] Operator Name	[9] Elevation
289408	LOGOS OPERATING, LLC	6305'

[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	19	31N	5W	1	956	NORTH	482	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
L	23	31N	6W		1841	SOUTH	1146	WEST	RIO ARRIBA

[12] Dedicated Acres		[13] Joint or Infill	[14] Consolidation Code	[15] Order No.
592.02	S/2 - Sections 23 & 24, T31N, R6W			R-13457

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 — 3/8/2023
Signature — Date

Etta Trujillo
Printed Name

etrujillo@logosresourcesllc.com
E-mail Address

[18] SURVEYOR CERTIFICATION

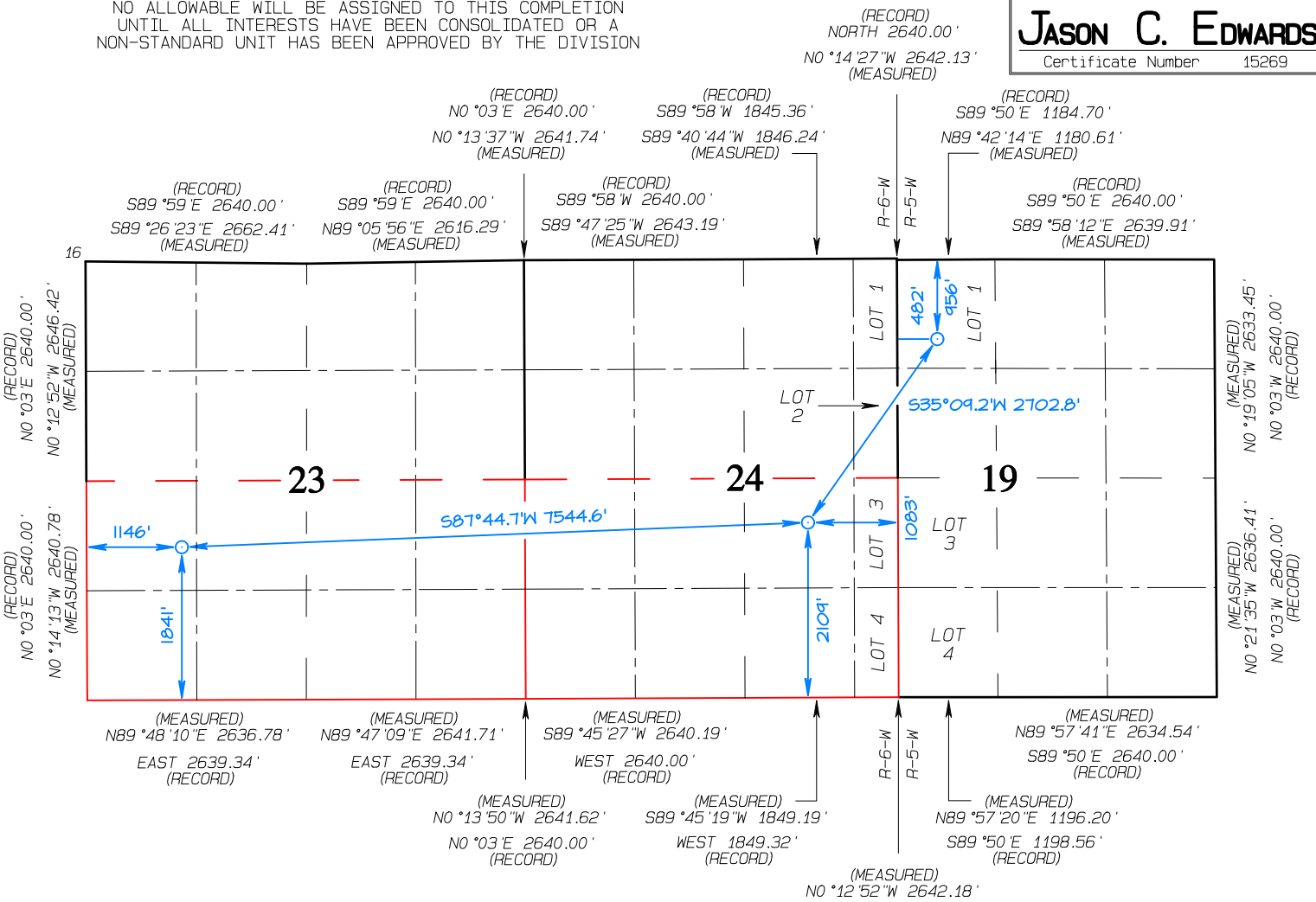
I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

Date Revised: DECEMBER 19, 2022
Date of Survey: JANUARY 4, 2017

Signature and Seal of Professional Surveyor

JASON C. EDWARDS — NEW MEXICO — 15269 — REGISTERED PROFESSIONAL SURVEYOR

JASON C. EDWARDS
Certificate Number 15269



LAST TAKE POINT
1841' FSL 1146' FWL
SECTION 23, T31N, R6W
LAT: 36.882920 °N
LONG: 107.436661 °W
DATUM: NAD1927

LAT: 36.882926 °N
LONG: 107.437265 °W
DATUM: NAD1983

FIRST TAKE POINT
2109' FSL 1083' FEL
SECTION 24, T31N, R6W
LAT: 36.883646 °N
LONG: 107.410880 °W
DATUM: NAD1927

LAT: 36.883652 °N
LONG: 107.411484 °W
DATUM: NAD1983

SURFACE LOCATION
956' FNL 482' FWL
SECTION 19, T31N, R5W
LAT: 36.889697 °N
LONG: 107.405526 °W
DATUM: NAD1927

LAT: 36.889703 °N
LONG: 107.406129 °W
DATUM: NAD1983

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

Sundry Print Report

03/09/2023

Well Name: ROSA UNIT

Well Location: T31N / R5W / SEC 19 / NENW / 36.889682 / -107.405583

County or Parish/State: RIO ARRIBA / NM

Well Number: 644Y

Type of Well: CONVENTIONAL GAS WELL

Allottee or Tribe Name:

Lease Number: NMSF078767

Unit or CA Name: ROSA UNIT-MANCOS PA

Unit or CA Number: NMNM78407E

US Well Number: 300393131800X1

Well Status: Temporarily Abandoned

Operator: LOGOS OPERATING LLC

Notice of Intent

Sundry ID: 2719893

Type of Submission: Notice of Intent

Type of Action: Plug and Abandonment

Date Sundry Submitted: 03/09/2023

Time Sundry Submitted: 09:06

Date proposed operation will begin: 04/03/2023

Procedure Description: LOGOS Operating is requesting permission to Plug and Abandon the surface set for subject well and change well name to Rosa Unit 644Y with API number 30-039-31318. Rig will skid over 20' to new surface location with well name Rosa Unit 644H and a new API number (30-039-pending). See attached plug and abandon procedure and the operations plan for the new surface location. This location is shared with the following producing wells Rosa Unit 645H (30-039-31415) and Rosa Unit 647H (30-039-31411), a reclamation will not take place at this time.

Surface Disturbance

Is any additional surface disturbance proposed?: No

NOI Attachments

Procedure Description

3160_5_Rosa_Unit_644H_P_A_and_Name_Change_20230308_20230309090609.pdf

Well Name: ROSA UNIT

Well Location: T31N / R5W / SEC 19 / NENW / 36.889682 / -107.405583

County or Parish/State: RIO ARRIBA / NM

Well Number: 644Y

Type of Well: CONVENTIONAL GAS WELL

Allottee or Tribe Name:

Lease Number: NMSF078767

Unit or CA Name: ROSA UNIT-MANCOS PA

Unit or CA Number: NMNM78407E

US Well Number: 300393131800X1

Well Status: Temporarily Abandoned

Operator: LOGOS OPERATING LLC

Conditions of Approval

Specialist Review

2719893_NOIA_644H_3003931318_KR_03092023_20230309113125.pdf

General_Requirement_PxA_20230309113038.pdf

Operator

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

Operator Electronic Signature: ETTA TRUJILLO

Signed on: MAR 09, 2023 09:06 AM

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: 03/09/2023

Signature: Kenneth Rennick

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
FARMINGTON DISTRICT OFFICE
6251 COLLEGE BLVD.
FARMINGTON, NEW MEXICO 87402

AFMSS 2 Sundry ID 2719893

Attachment to notice of Intention to Abandon

Well: Rosa Unit 644H

CONDITIONS OF APPROVAL

1. Plugging operations authorized are subject to the attached "General Requirements for Permanent Abandonment of Wells on Federal and Indian Lease."

2. Farmington Office is to be notified at least 24 hours before the plugging operations commence at (505) 564-7750.

You are also required to place cement excesses per 4.2 and 4.4 of the attached General Requirements.

Office Hours: 7:45 a.m. to 4:30 p.m.

K. Rennick 03/09/2023

LOGOS RESOURCES II, LLC

Company: Logos Operating LLC
Project: Rio Arriba, NM NAD83
Site: Rosa Unit 27
Well: Rosa Unit 644H
Wellbore: OH
Design: Plan #1

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

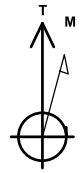
WELL DETAILS: Rosa Unit 644H

GL 6305' & RKB 24.5' @ 6329.50ft (Ensign 223)

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	
0.00	0.00	2143457.1410	2848019.1070	36.8897031	-107.4061289	B4

Plan: Plan #1 (Rosa Unit 644H/OH)

Created By: Janie Collins Date: 22:43, January 12 2023



Azimuths to True North
Magnetic North: 8.88°

Magnetic Field
Strength: 49683.6nT
Dip Angle: 63.33°
Date: 6/14/2021
Model: HDGM2021_FILE

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
644H POE Rev 1	6931.00	-2202.87	-1566.02	2141247.29	2846462.96	14	36.8836522	-107.4114836
644H BHL	6905.00	-2465.97	-9106.08	2140950.44	2838924.17	49	36.8829256	-107.4372650

SECTION DETAILS

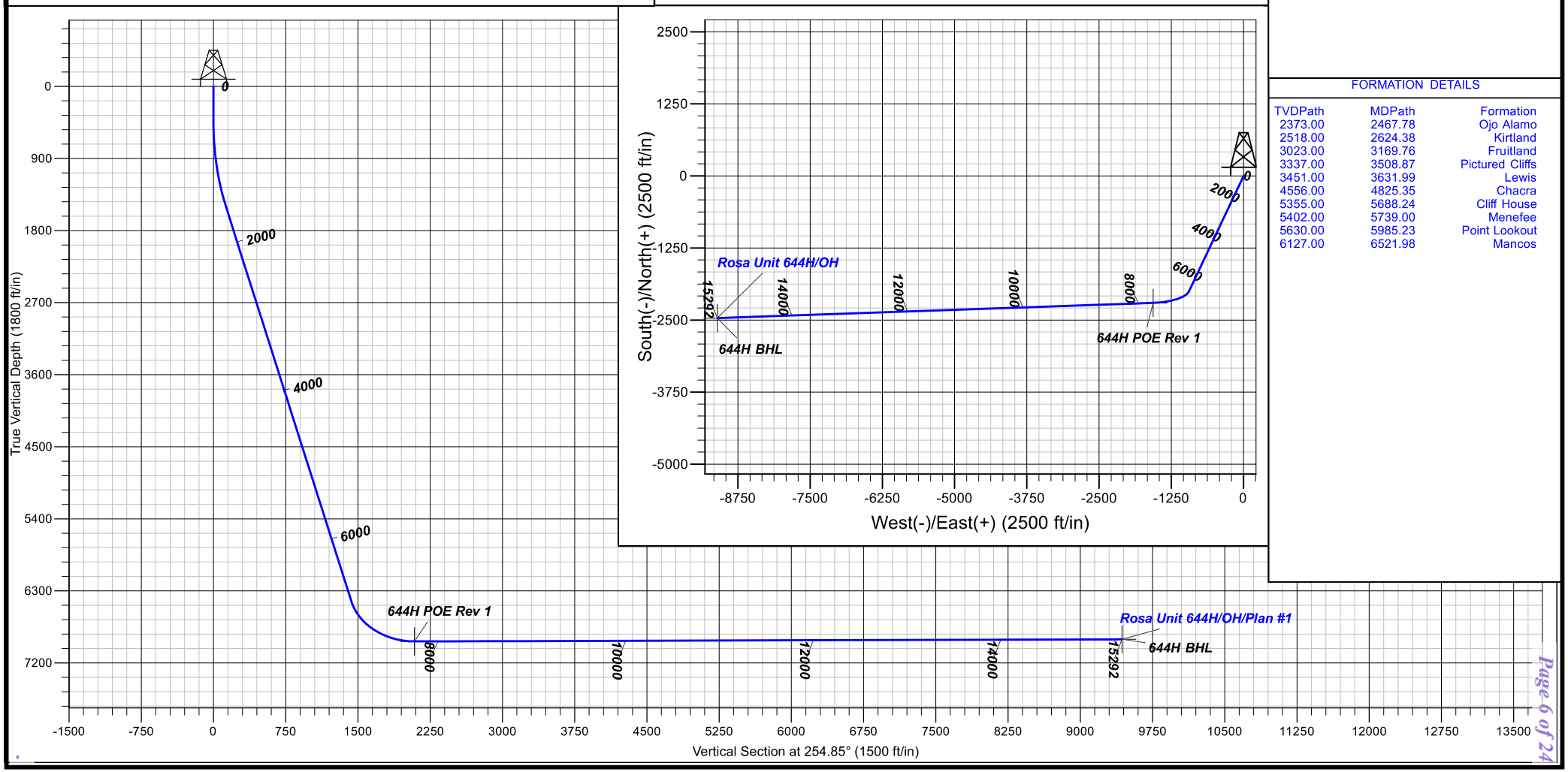
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
450.00	0.00	0.00	450.00	0.00	0.00	0.00	0.00	0.00
1559.36	22.19	205.25	1531.85	-191.86	-90.48	2.00	205.25	137.48
6855.90	22.19	205.25	6436.19	-2000.96	-943.59	0.00	0.00	1433.81
7747.34	90.20	268.00	6931.00	-2202.87	-1566.02	9.00	64.44	2087.39
15292.03	90.20	268.00	6905.00	-2465.97	-9106.08	0.00	0.00	9434.07

CASING DETAILS

No casing data is available

FORMATION DETAILS

TVDPath	MDPath	Formation
2373.00	2467.78	Ojo Alamo
2518.00	2624.38	Kirtland
3023.00	3169.76	Fruitland
3337.00	3508.87	Pictured Cliffs
3451.00	3631.99	Lewis
4556.00	4825.35	Chacra
5355.00	5688.24	Cliff House
5402.00	5739.00	Menefee
5630.00	5985.23	Point Lookout
6127.00	6521.98	Mancos



Logos Operating LLC

Rio Arriba, NM NAD83
Rosa Unit 27
Rosa Unit 644H - Slot B4

OH

Plan: Plan #1

Standard Planning Report

12 January, 2023

Lonestar Consulting, LLC
Planning Report

Database:	Grand Junction	**Local Co-ordinate Reference:**	Well Rosa Unit 644H - Slot B4
Company:	Logos Operating LLC	**TVD Reference:**	GL 6305' & RKB 24.5' @ 6329.50ft (Ensign 223)
Project:	Rio Arriba, NM NAD83	**MD Reference:**	GL 6305' & RKB 24.5' @ 6329.50ft (Ensign 223)
Site:	Rosa Unit 27	**North Reference:**	True
Well:	Rosa Unit 644H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

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 27

Site Position:		**Northing:**	2,143,451.5859 usft	**Latitude:**	36.8896880
From:	Lat/Long	**Easting:**	2,848,002.4398 usft	**Longitude:**	-107.4061860
Position Uncertainty:	0.00 ft	**Slot Radius:**	13.200 in		

Well Rosa Unit 644H - Slot B4

Well Position	**+N/-S**	0.00 ft	**Northing:**	2,143,457.1410 usft	**Latitude:**	36.8897030
	+E/-W	0.00 ft	**Easting:**	2,848,019.1070 usft	**Longitude:**	-107.4061290
Position Uncertainty		0.00 ft	**Wellhead Elevation:**	ft	**Ground Level:**	6,305.00 ft
Grid Convergence:		0.26 °				

Wellbore OH

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM2021_FILE	6/14/2021	8.68	63.37	49,683.80000000

Design Plan #1

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	254.85

Plan Survey Tool Program **Date** 1/12/2023

	Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	15,292.03	Plan #1 (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	
450.00	0.00	0.00	450.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,559.36	22.19	205.25	1,531.85	-191.86	-90.48	2.00	2.00	0.00	205.25	
6,855.90	22.19	205.25	6,436.19	-2,000.96	-943.59	0.00	0.00	0.00	0.00	
7,747.34	90.20	268.00	6,931.00	-2,202.87	-1,566.02	9.00	7.63	7.04	64.44	644H POE Rev 1
15,292.03	90.20	268.00	6,905.00	-2,465.97	-9,106.08	0.00	0.00	0.00	0.00	644H BHL

LOGOS RESOURCES II, LLC

Lonestar Consulting, LLC

Planning Report

LONESTAR CONSULTING

Database:	Grand Junction	**Local Co-ordinate Reference:**	Well Rosa Unit 644H - Slot B4
Company:	Logos Operating LLC	**TVD Reference:**	GL 6305' & RKB 24.5' @ 6329.50ft (Ensign 223)
Project:	Rio Arriba, NM NAD83	**MD Reference:**	GL 6305' & RKB 24.5' @ 6329.50ft (Ensign 223)
Site:	Rosa Unit 27	**North Reference:**	True
Well:	Rosa Unit 644H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

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
450.00	0.00	0.00	450.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	1.00	205.25	500.00	-0.39	-0.19	0.28	2.00	2.00	0.00
600.00	3.00	205.25	599.93	-3.55	-1.67	2.54	2.00	2.00	0.00
700.00	5.00	205.25	699.68	-9.86	-4.65	7.07	2.00	2.00	0.00
800.00	7.00	205.25	799.13	-19.31	-9.11	13.84	2.00	2.00	0.00
900.00	9.00	205.25	898.15	-31.90	-15.04	22.86	2.00	2.00	0.00
1,000.00	11.00	205.25	996.63	-47.61	-22.45	34.11	2.00	2.00	0.00
1,100.00	13.00	205.25	1,094.44	-66.41	-31.32	47.59	2.00	2.00	0.00
1,200.00	15.00	205.25	1,191.46	-88.29	-41.64	63.27	2.00	2.00	0.00
1,300.00	17.00	205.25	1,287.58	-113.22	-53.39	81.13	2.00	2.00	0.00
1,400.00	19.00	205.25	1,382.68	-141.17	-66.57	101.16	2.00	2.00	0.00
1,500.00	21.00	205.25	1,476.65	-172.10	-81.16	123.32	2.00	2.00	0.00
1,559.36	22.19	205.25	1,531.85	-191.86	-90.48	137.48	2.00	2.00	0.00
1,600.00	22.19	205.25	1,569.47	-205.74	-97.02	147.43	0.00	0.00	0.00
1,700.00	22.19	205.25	1,662.07	-239.90	-113.13	171.90	0.00	0.00	0.00
1,800.00	22.19	205.25	1,754.66	-274.05	-129.24	196.38	0.00	0.00	0.00
1,900.00	22.19	205.25	1,847.26	-308.21	-145.34	220.85	0.00	0.00	0.00
2,000.00	22.19	205.25	1,939.85	-342.37	-161.45	245.33	0.00	0.00	0.00
2,100.00	22.19	205.25	2,032.45	-376.52	-177.56	269.80	0.00	0.00	0.00
2,200.00	22.19	205.25	2,125.05	-410.68	-193.66	294.28	0.00	0.00	0.00
2,300.00	22.19	205.25	2,217.64	-444.84	-209.77	318.75	0.00	0.00	0.00
2,400.00	22.19	205.25	2,310.24	-478.99	-225.88	343.23	0.00	0.00	0.00
2,500.00	22.19	205.25	2,402.83	-513.15	-241.98	367.70	0.00	0.00	0.00
2,600.00	22.19	205.25	2,495.43	-547.30	-258.09	392.18	0.00	0.00	0.00
2,700.00	22.19	205.25	2,588.02	-581.46	-274.20	416.65	0.00	0.00	0.00
2,800.00	22.19	205.25	2,680.62	-615.62	-290.31	441.13	0.00	0.00	0.00
2,900.00	22.19	205.25	2,773.21	-649.77	-306.41	465.60	0.00	0.00	0.00
3,000.00	22.19	205.25	2,865.81	-683.93	-322.52	490.08	0.00	0.00	0.00
3,100.00	22.19	205.25	2,958.40	-718.08	-338.63	514.55	0.00	0.00	0.00
3,200.00	22.19	205.25	3,051.00	-752.24	-354.73	539.03	0.00	0.00	0.00
3,300.00	22.19	205.25	3,143.59	-786.40	-370.84	563.50	0.00	0.00	0.00
3,400.00	22.19	205.25	3,236.19	-820.55	-386.95	587.98	0.00	0.00	0.00
3,500.00	22.19	205.25	3,328.79	-854.71	-403.06	612.45	0.00	0.00	0.00
3,600.00	22.19	205.25	3,421.38	-888.87	-419.16	636.93	0.00	0.00	0.00
3,700.00	22.19	205.25	3,513.98	-923.02	-435.27	661.40	0.00	0.00	0.00
3,800.00	22.19	205.25	3,606.57	-957.18	-451.38	685.88	0.00	0.00	0.00
3,900.00	22.19	205.25	3,699.17	-991.33	-467.48	710.36	0.00	0.00	0.00
4,000.00	22.19	205.25	3,791.76	-1,025.49	-483.59	734.83	0.00	0.00	0.00
4,100.00	22.19	205.25	3,884.36	-1,059.65	-499.70	759.31	0.00	0.00	0.00
4,200.00	22.19	205.25	3,976.95	-1,093.80	-515.80	783.78	0.00	0.00	0.00
4,300.00	22.19	205.25	4,069.55	-1,127.96	-531.91	808.26	0.00	0.00	0.00
4,400.00	22.19	205.25	4,162.14	-1,162.12	-548.02	832.73	0.00	0.00	0.00
4,500.00	22.19	205.25	4,254.74	-1,196.27	-564.13	857.21	0.00	0.00	0.00
4,600.00	22.19	205.25	4,347.34	-1,230.43	-580.23	881.68	0.00	0.00	0.00
4,700.00	22.19	205.25	4,439.93	-1,264.58	-596.34	906.16	0.00	0.00	0.00
4,800.00	22.19	205.25	4,532.53	-1,298.74	-612.45	930.63	0.00	0.00	0.00
4,900.00	22.19	205.25	4,625.12	-1,332.90	-628.55	955.11	0.00	0.00	0.00

LOGOS RESOURCES II, LLC

Lonestar Consulting, LLC

Planning Report

LONESTAR CONSULTING

Database:	Grand Junction	**Local Co-ordinate Reference:**	Well Rosa Unit 644H - Slot B4
Company:	Logos Operating LLC	**TVD Reference:**	GL 6305' & RKB 24.5' @ 6329.50ft (Ensign 223)
Project:	Rio Arriba, NM NAD83	**MD Reference:**	GL 6305' & RKB 24.5' @ 6329.50ft (Ensign 223)
Site:	Rosa Unit 27	**North Reference:**	True
Well:	Rosa Unit 644H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

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)
5,000.00	22.19	205.25	4,717.72	-1,367.05	-644.66	979.58	0.00	0.00	0.00
5,100.00	22.19	205.25	4,810.31	-1,401.21	-660.77	1,004.06	0.00	0.00	0.00
5,200.00	22.19	205.25	4,902.91	-1,435.37	-676.87	1,028.53	0.00	0.00	0.00
5,300.00	22.19	205.25	4,995.50	-1,469.52	-692.98	1,053.01	0.00	0.00	0.00
5,400.00	22.19	205.25	5,088.10	-1,503.68	-709.09	1,077.48	0.00	0.00	0.00
5,500.00	22.19	205.25	5,180.69	-1,537.83	-725.20	1,101.96	0.00	0.00	0.00
5,600.00	22.19	205.25	5,273.29	-1,571.99	-741.30	1,126.43	0.00	0.00	0.00
5,700.00	22.19	205.25	5,365.89	-1,606.15	-757.41	1,150.91	0.00	0.00	0.00
5,800.00	22.19	205.25	5,458.48	-1,640.30	-773.52	1,175.38	0.00	0.00	0.00
5,900.00	22.19	205.25	5,551.08	-1,674.46	-789.62	1,199.86	0.00	0.00	0.00
6,000.00	22.19	205.25	5,643.67	-1,708.62	-805.73	1,224.33	0.00	0.00	0.00
6,100.00	22.19	205.25	5,736.27	-1,742.77	-821.84	1,248.81	0.00	0.00	0.00
6,200.00	22.19	205.25	5,828.86	-1,776.93	-837.95	1,273.28	0.00	0.00	0.00
6,300.00	22.19	205.25	5,921.46	-1,811.08	-854.05	1,297.76	0.00	0.00	0.00
6,400.00	22.19	205.25	6,014.05	-1,845.24	-870.16	1,322.23	0.00	0.00	0.00
6,500.00	22.19	205.25	6,106.65	-1,879.40	-886.27	1,346.71	0.00	0.00	0.00
6,600.00	22.19	205.25	6,199.24	-1,913.55	-902.37	1,371.18	0.00	0.00	0.00
6,700.00	22.19	205.25	6,291.84	-1,947.71	-918.48	1,395.66	0.00	0.00	0.00
6,800.00	22.19	205.25	6,384.44	-1,981.86	-934.59	1,420.13	0.00	0.00	0.00
6,855.90	22.19	205.25	6,436.19	-2,000.96	-943.59	1,433.82	0.00	0.00	0.00
6,900.00	24.15	214.03	6,476.75	-2,015.97	-952.20	1,446.04	9.00	4.46	19.90
7,000.00	30.03	229.11	6,565.84	-2,049.38	-982.62	1,484.15	9.00	5.88	15.09
7,100.00	37.08	239.28	6,649.19	-2,081.22	-1,027.55	1,535.84	9.00	7.05	10.17
7,200.00	44.76	246.49	6,724.74	-2,110.72	-1,085.87	1,599.84	9.00	7.67	7.21
7,300.00	52.77	251.95	6,790.63	-2,137.15	-1,156.15	1,674.59	9.00	8.02	5.45
7,400.00	60.99	256.34	6,845.24	-2,159.87	-1,236.66	1,758.23	9.00	8.22	4.39
7,500.00	69.33	260.07	6,887.22	-2,178.30	-1,325.42	1,848.72	9.00	8.34	3.73
7,600.00	77.74	263.41	6,915.54	-2,191.99	-1,420.23	1,943.82	9.00	8.41	3.34
7,700.00	86.19	266.55	6,929.51	-2,200.62	-1,518.77	2,041.18	9.00	8.45	3.13
7,747.34	90.20	268.00	6,931.00	-2,202.87	-1,566.02	2,087.39	9.00	8.46	3.07
7,800.00	90.20	268.00	6,930.82	-2,204.70	-1,618.65	2,138.66	0.00	0.00	0.00
7,900.00	90.20	268.00	6,930.47	-2,208.19	-1,718.59	2,236.04	0.00	0.00	0.00
8,000.00	90.20	268.00	6,930.13	-2,211.68	-1,818.53	2,333.41	0.00	0.00	0.00
8,100.00	90.20	268.00	6,929.78	-2,215.16	-1,918.46	2,430.79	0.00	0.00	0.00
8,200.00	90.20	268.00	6,929.44	-2,218.65	-2,018.40	2,528.16	0.00	0.00	0.00
8,300.00	90.20	268.00	6,929.10	-2,222.14	-2,118.34	2,625.54	0.00	0.00	0.00
8,400.00	90.20	268.00	6,928.75	-2,225.63	-2,218.28	2,722.91	0.00	0.00	0.00
8,500.00	90.20	268.00	6,928.41	-2,229.11	-2,318.22	2,820.29	0.00	0.00	0.00
8,600.00	90.20	268.00	6,928.06	-2,232.60	-2,418.16	2,917.66	0.00	0.00	0.00
8,700.00	90.20	268.00	6,927.72	-2,236.09	-2,518.10	3,015.04	0.00	0.00	0.00
8,800.00	90.20	268.00	6,927.37	-2,239.57	-2,618.03	3,112.42	0.00	0.00	0.00
8,900.00	90.20	268.00	6,927.03	-2,243.06	-2,717.97	3,209.79	0.00	0.00	0.00
9,000.00	90.20	268.00	6,926.68	-2,246.55	-2,817.91	3,307.17	0.00	0.00	0.00
9,100.00	90.20	268.00	6,926.34	-2,250.04	-2,917.85	3,404.54	0.00	0.00	0.00
9,200.00	90.20	268.00	6,925.99	-2,253.52	-3,017.79	3,501.92	0.00	0.00	0.00
9,300.00	90.20	268.00	6,925.65	-2,257.01	-3,117.73	3,599.29	0.00	0.00	0.00
9,400.00	90.20	268.00	6,925.30	-2,260.50	-3,217.67	3,696.67	0.00	0.00	0.00
9,500.00	90.20	268.00	6,924.96	-2,263.98	-3,317.60	3,794.04	0.00	0.00	0.00
9,600.00	90.20	268.00	6,924.62	-2,267.47	-3,417.54	3,891.42	0.00	0.00	0.00
9,700.00	90.20	268.00	6,924.27	-2,270.96	-3,517.48	3,988.80	0.00	0.00	0.00
9,800.00	90.20	268.00	6,923.93	-2,274.45	-3,617.42	4,086.17	0.00	0.00	0.00
9,900.00	90.20	268.00	6,923.58	-2,277.93	-3,717.36	4,183.55	0.00	0.00	0.00

Lonestar Consulting, LLC

Planning Report

Database:	Grand Junction	**Local Co-ordinate Reference:**	Well Rosa Unit 644H - Slot B4
Company:	Logos Operating LLC	**TVD Reference:**	GL 6305' & RKB 24.5' @ 6329.50ft (Ensign 223)
Project:	Rio Arriba, NM NAD83	**MD Reference:**	GL 6305' & RKB 24.5' @ 6329.50ft (Ensign 223)
Site:	Rosa Unit 27	**North Reference:**	True
Well:	Rosa Unit 644H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

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)
10,000.00	90.20	268.00	6,923.24	-2,281.42	-3,817.30	4,280.92	0.00	0.00	0.00
10,100.00	90.20	268.00	6,922.89	-2,284.91	-3,917.24	4,378.30	0.00	0.00	0.00
10,200.00	90.20	268.00	6,922.55	-2,288.40	-4,017.17	4,475.67	0.00	0.00	0.00
10,300.00	90.20	268.00	6,922.20	-2,291.88	-4,117.11	4,573.05	0.00	0.00	0.00
10,400.00	90.20	268.00	6,921.86	-2,295.37	-4,217.05	4,670.42	0.00	0.00	0.00
10,500.00	90.20	268.00	6,921.51	-2,298.86	-4,316.99	4,767.80	0.00	0.00	0.00
10,600.00	90.20	268.00	6,921.17	-2,302.34	-4,416.93	4,865.18	0.00	0.00	0.00
10,700.00	90.20	268.00	6,920.82	-2,305.83	-4,516.87	4,962.55	0.00	0.00	0.00
10,800.00	90.20	268.00	6,920.48	-2,309.32	-4,616.81	5,059.93	0.00	0.00	0.00
10,900.00	90.20	268.00	6,920.14	-2,312.81	-4,716.74	5,157.30	0.00	0.00	0.00
11,000.00	90.20	268.00	6,919.79	-2,316.29	-4,816.68	5,254.68	0.00	0.00	0.00
11,100.00	90.20	268.00	6,919.45	-2,319.78	-4,916.62	5,352.05	0.00	0.00	0.00
11,200.00	90.20	268.00	6,919.10	-2,323.27	-5,016.56	5,449.43	0.00	0.00	0.00
11,300.00	90.20	268.00	6,918.76	-2,326.76	-5,116.50	5,546.81	0.00	0.00	0.00
11,400.00	90.20	268.00	6,918.41	-2,330.24	-5,216.44	5,644.18	0.00	0.00	0.00
11,500.00	90.20	268.00	6,918.07	-2,333.73	-5,316.38	5,741.56	0.00	0.00	0.00
11,600.00	90.20	268.00	6,917.72	-2,337.22	-5,416.31	5,838.93	0.00	0.00	0.00
11,700.00	90.20	268.00	6,917.38	-2,340.70	-5,516.25	5,936.31	0.00	0.00	0.00
11,800.00	90.20	268.00	6,917.03	-2,344.19	-5,616.19	6,033.68	0.00	0.00	0.00
11,900.00	90.20	268.00	6,916.69	-2,347.68	-5,716.13	6,131.06	0.00	0.00	0.00
12,000.00	90.20	268.00	6,916.34	-2,351.17	-5,816.07	6,228.43	0.00	0.00	0.00
12,100.00	90.20	268.00	6,916.00	-2,354.65	-5,916.01	6,325.81	0.00	0.00	0.00
12,200.00	90.20	268.00	6,915.66	-2,358.14	-6,015.95	6,423.19	0.00	0.00	0.00
12,300.00	90.20	268.00	6,915.31	-2,361.63	-6,115.88	6,520.56	0.00	0.00	0.00
12,400.00	90.20	268.00	6,914.97	-2,365.11	-6,215.82	6,617.94	0.00	0.00	0.00
12,500.00	90.20	268.00	6,914.62	-2,368.60	-6,315.76	6,715.31	0.00	0.00	0.00
12,600.00	90.20	268.00	6,914.28	-2,372.09	-6,415.70	6,812.69	0.00	0.00	0.00
12,700.00	90.20	268.00	6,913.93	-2,375.58	-6,515.64	6,910.06	0.00	0.00	0.00
12,800.00	90.20	268.00	6,913.59	-2,379.06	-6,615.58	7,007.44	0.00	0.00	0.00
12,900.00	90.20	268.00	6,913.24	-2,382.55	-6,715.52	7,104.81	0.00	0.00	0.00
13,000.00	90.20	268.00	6,912.90	-2,386.04	-6,815.45	7,202.19	0.00	0.00	0.00
13,100.00	90.20	268.00	6,912.55	-2,389.53	-6,915.39	7,299.57	0.00	0.00	0.00
13,200.00	90.20	268.00	6,912.21	-2,393.01	-7,015.33	7,396.94	0.00	0.00	0.00
13,300.00	90.20	268.00	6,911.86	-2,396.50	-7,115.27	7,494.32	0.00	0.00	0.00
13,400.00	90.20	268.00	6,911.52	-2,399.99	-7,215.21	7,591.69	0.00	0.00	0.00
13,500.00	90.20	268.00	6,911.18	-2,403.47	-7,315.15	7,689.07	0.00	0.00	0.00
13,600.00	90.20	268.00	6,910.83	-2,406.96	-7,415.09	7,786.44	0.00	0.00	0.00
13,700.00	90.20	268.00	6,910.49	-2,410.45	-7,515.03	7,883.82	0.00	0.00	0.00
13,800.00	90.20	268.00	6,910.14	-2,413.94	-7,614.96	7,981.19	0.00	0.00	0.00
13,900.00	90.20	268.00	6,909.80	-2,417.42	-7,714.90	8,078.57	0.00	0.00	0.00
14,000.00	90.20	268.00	6,909.45	-2,420.91	-7,814.84	8,175.95	0.00	0.00	0.00
14,100.00	90.20	268.00	6,909.11	-2,424.40	-7,914.78	8,273.32	0.00	0.00	0.00
14,200.00	90.20	268.00	6,908.76	-2,427.89	-8,014.72	8,370.70	0.00	0.00	0.00
14,300.00	90.20	268.00	6,908.42	-2,431.37	-8,114.66	8,468.07	0.00	0.00	0.00
14,400.00	90.20	268.00	6,908.07	-2,434.86	-8,214.60	8,565.45	0.00	0.00	0.00
14,500.00	90.20	268.00	6,907.73	-2,438.35	-8,314.53	8,662.82	0.00	0.00	0.00
14,600.00	90.20	268.00	6,907.38	-2,441.83	-8,414.47	8,760.20	0.00	0.00	0.00
14,700.00	90.20	268.00	6,907.04	-2,445.32	-8,514.41	8,857.58	0.00	0.00	0.00
14,800.00	90.20	268.00	6,906.70	-2,448.81	-8,614.35	8,954.95	0.00	0.00	0.00
14,900.00	90.20	268.00	6,906.35	-2,452.30	-8,714.29	9,052.33	0.00	0.00	0.00
15,000.00	90.20	268.00	6,906.01	-2,455.78	-8,814.23	9,149.70	0.00	0.00	0.00
15,100.00	90.20	268.00	6,905.66	-2,459.27	-8,914.17	9,247.08	0.00	0.00	0.00

Lonestar Consulting, LLC
Planning Report

Database:	Grand Junction	**Local Co-ordinate Reference:**	Well Rosa Unit 644H - Slot B4
Company:	Logos Operating LLC	**TVD Reference:**	GL 6305' & RKB 24.5' @ 6329.50ft (Ensign 223)
Project:	Rio Arriba, NM NAD83	**MD Reference:**	GL 6305' & RKB 24.5' @ 6329.50ft (Ensign 223)
Site:	Rosa Unit 27	**North Reference:**	True
Well:	Rosa Unit 644H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

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)
15,200.00	90.20	268.00	6,905.32	-2,462.76	-9,014.10	9,344.45	0.00	0.00	0.00
15,292.03	90.20	268.00	6,905.00	-2,465.97	-9,106.08	9,434.07	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
644H BHL - plan hits target center - Point	0.00	0.00	6,905.00	-2,465.97	-9,106.08	2,140,950.4444	2,838,924.1749	36.8829256	-107.4372650
644H POE Rev 1 - plan hits target center - Point	0.00	0.00	6,931.00	-2,202.87	-1,566.02	2,141,247.2924	2,846,462.9614	36.8836522	-107.4114837

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,467.78	2,373.00	Ojo Alamo		0.00	0.00
2,624.38	2,518.00	Kirtland		0.00	0.00
3,169.76	3,023.00	Fruitland		0.00	0.00
3,508.87	3,337.00	Pictured Cliffs		0.00	0.00
3,631.99	3,451.00	Lewis		0.00	0.00
4,825.35	4,556.00	Chacra		0.00	0.00
5,688.24	5,355.00	Cliff House		0.00	0.00
5,739.00	5,402.00	Menefee		0.00	0.00
5,985.23	5,630.00	Point Lookout		0.00	0.00
6,521.98	6,127.00	Mancos		0.00	0.00

LOGOS Operating, LLC
Operations Plan

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

Date:	February 6, 2023	Pool:	Basin Mancos
Well Name:	**Rosa Unit 644H**	GL Elevation:	6305’
Surface Location:	Sec 19, T31N, R5W 956 FNL, 482 FWL (36.889703º N, 107.406129º W – NAD83)	Measured Depth:	15,292’ (MD)
Bottom Hole Location:	Sec 23, T31N, R6W 1841 FSL, 1146 FWL (36.882926º N, 107.437265º W – NAD83)	County:	Rio Arriba

Lease Serial #NMSF078767, CA Serial # NMNM78407E

I. GEOLOGY

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

NAME	MD	TVD	NAME	MD	TVD
OJO ALAMO	2468	2373	*POINT LOOKOUT	5985	5630
KIRTLAND	2624	2518	*MANCOS	6522	6127
*FRUITLAND	3170	3023	KICKOFF POINT	6855	6436
*PICTURED CLIFFS	3509	3337			
LEWIS	3632	3451	POINT OF ENTRY	7747	6931
CHACRA	4825	4556			
*CLIFF HOUSE	5688	5355			
MENEFEE	5739	5402	TD	15292	6905

* 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

A. **MUD PROGRAM:** LSND mud (WBM) will be used to drill the 24” or 26" surface hole, 17-1/2” and 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 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.

B. **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.

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

D. **Maximum Anticipated Pressure:** 6931' TVD x 0.43 = 2980 psi

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

III. MATERIALS

A. CASING EQUIPMENT:

CASING TYPE	OH SIZE (IN)	KB DEPTH (MD)	CSG SIZE	WEIGHT	GRADE	CONN
SURFACE	24"or 26"	320'	20"	94 LBS	J-55 or equiv	LTC/BTC
INTERMEDIATE	17.5"	3,559'	13.375"	61 LBS	N-80 or equiv	LTC/BTC
INTERMEDIATE	12.25"	6,597'	9.625"	43.5 LBS	N-80 or equiv	LTC/BTC
PRODUCTION	8.5"	15,292'	5.5"	20 LBS	P-110 or equiv	LTC/BTC

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

B. FLOAT EQUIPMENT:

1. 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: 13-3/8" 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., 1,000 ft, and 500ft. Intermediate casing shall be kept fluid-filled while running into the hole to meet BLM minimum collapse requirements.
3. 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 3,500 ft. Run (1) centralizer at 3,000' and 2,500 ft. Optional use of DV Tools will be strategically placed above loss circulation zones anticipated in the Mesaverde. Optional cancelation plugs for DV tools may be used if losses while cementing are not encountered. Intermediate casing shall be kept fluid-filled while running into the hole to meet BLM minimum collapse requirements.

4. PRODUCTION CASING: Run 5-1/2" casing with cement nose guide Float Shoe, 5-1/2" full or pup joints as necessary, Landing Collar, 5-1/2" full or pup joints as necessary, at least (1) one Toe Sleeve (Sliding Sleeve) positioned inside the applicable production area. 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 shall be set at ~ 320' and cemented to surface. TOC at Surface. 381 sks of 15.8 ppg Type Neat G, 1.18 cuft/sk yield or equivalent 323 sks of 14.6 ppg Type III with 1.39 cuf/sk yield, 30% excess. (Assuming 24" hole).

2. INTERMEDIATE 1: 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 1 stage. If cement does not circulate to surface, a CBL will be run to determine TOC.

Intermediate 1 -13-3/8"	Top	Footage	Cement (ft3/ft) Annular Capacity	Excess (30%)	Total (ft3)	Total (bbl)	Slurry Yield (ft3/sk)	Sacks Cement	Density (PPG)
Stage 1 Tail	2,959	600	0.6947	1.3	575	102	1.15	500	15.8
Stage 1 Lead - OH	320	2,639	0.6947	1.3	2,383	424	1.97	1210	12.4
Stage 2 Lead - Cased	-	320	1.019	1	326	58	1.97	166	12.4
					3,285	**585**		**1876**	

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

3. INTERMEDIATE 2: 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 1 or 2 stages using a DV/STAGE tool to reduce cement losses and maximize cement coverage. The operator proposes optional DV tools above anticipated loss circulation zones in the Mesaverde. If losses are not observed, a cancelation plug will be pumped, and the remaining cement will be pumped during stage 2. Top of cement is planned at 100' above the base of the 13-3/8" casing (100' of overlap). If cement does not circulate to the DV tool or to the 13-3/8" casing, a CBL will be run to determine TOC.

Intermediate 2 -9-5/8"	Top	Footage	Cement (ft3/ft) Annular Capacity	Excess (30%)	Total (ft3)	Total (bbl)	Slurry Yield (ft3/sk)	Sacks Cement	Density (PPG)
Stage 1 Tail	6,097	500	0.3132	1.3	220	39	1.15	191	15.8
Stage 1 Lead	4,900	1,197	0.3132	1.3	487	87	1.97	247	12.4
					707	**126**		**439**	
Stage 2 Tail	4,300	600	0.3132	1.3	244	44	1.65	148	13.2
Stage 2 Lead	3,559	741	0.3132	1.3	302	54	1.97	153	12.4
Stage 2 Lead - Cased	3,459	100	0.3627	1	36	6	1.97	18	12.4
Stage 2 Totals					**582**	**104**		**320**	
Int 2 Totals					**1,290**	**230**		**758**	

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

4. 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 Lead	6,497	100	0.2531	1	25	5	1.56	16	13.2
Open Hole Lead	6,597	8,695	0.2291	1.15	2,296	409	1.56	1,472	13.2
					2,321	413		1,488	

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.

IV. 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 1525 psi (0.22 psi/ft * 6,931' 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.

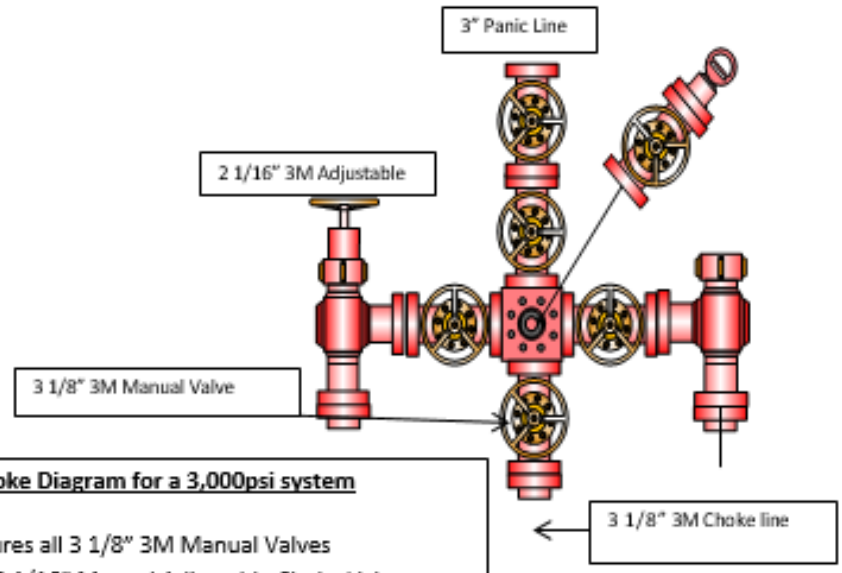
E. PRODUCTION TUBING

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.

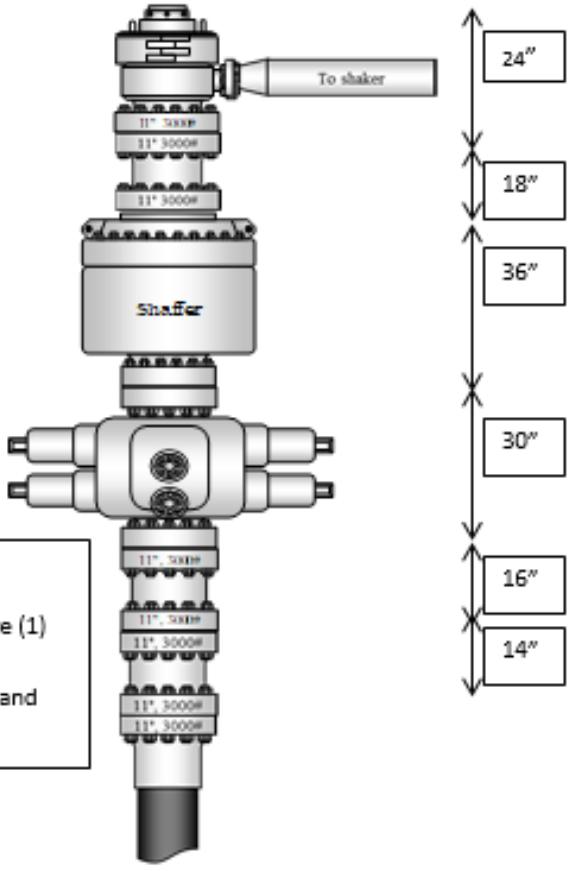
LOGOS RESOURCES II, LLC

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 644H

Logos Operating LLC

Rio Arriba, NM NAD83
Rosa Unit 27
Rosa Unit 644H

OH
Plan #1

Anticollision Summary Report

12 January, 2023

Lonestar Consulting, LLC

Anticollision Summary Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 644H - Slot B4
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	GL 6305' & RKB 24.5' @ 6329.50ft (Ensign 223)
Reference Site:	Rosa Unit 27	**MD Reference:**	GL 6305' & RKB 24.5' @ 6329.50ft (Ensign 223)
Site Error:	0.00 ft	**North Reference:**	True
Reference Well:	Rosa Unit 644H	**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 #1	**Offset TVD Reference:**	Offset Datum

Reference	Plan #1		
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** 1/12/2023

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.00	15,292.03	Plan #1 (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 27						
Rosa Unit 183A - OH - OH	2,216.89	2,109.96	555.71	481.46	7.484	CC
Rosa Unit 183A - OH - OH	2,300.00	2,186.67	556.61	479.51	7.219	ES
Rosa Unit 183A - OH - OH	3,100.00	2,927.99	647.71	543.93	6.241	SF
Rosa Unit 206A - OH - OH	3,500.00	6,550.00	669.84	548.08	5.502	SF
Rosa Unit 206A - OH - OH	3,589.00	6,550.00	663.85	545.84	5.625	CC, ES
Rosa Unit 640H - OH - OH	0.00	0.51	30.00			
Rosa Unit 640H - OH - OH	100.00	100.28	30.30	29.87	70.162	ES
Rosa Unit 640H - OH - OH	15,292.03	16,345.46	3,510.62	2,979.85	6.614	SF
Rosa Unit 641H - OH - OH	0.00	0.51	45.00			
Rosa Unit 641H - OH - OH	400.00	400.32	45.18	43.04	21.090	ES
Rosa Unit 641H - OH - OH	11,200.00	12,150.02	2,696.55	2,422.50	9.840	SF
Rosa Unit 642H - OH - OH	0.00	0.51	45.88			
Rosa Unit 642H - OH - OH	100.00	100.26	46.15	45.84	146.243	ES
Rosa Unit 642H - OH - OH	11,200.00	12,180.02	1,987.30	1,703.96	7.014	SF
Rosa Unit 643H - OH - OH	312.63	313.17	29.95	28.22	17.374	CC
Rosa Unit 643H - OH - OH	400.00	400.27	30.24	28.10	14.152	ES
Rosa Unit 643H - OH - OH	11,104.45	12,411.28	1,386.99	1,109.31	4.995	SF
Rosa Unit 645H - OH - OH	607.20	607.06	56.99	53.59	16.755	CC, ES
Rosa Unit 645H - OH - OH	800.00	795.30	67.16	62.41	14.148	SF
Rosa Unit 645H - OH - Plan #5	573.57	573.24	59.77	55.86	15.300	CC
Rosa Unit 645H - OH - Plan #5	600.00	599.47	59.82	55.73	14.634	ES
Rosa Unit 645H - OH - Plan #5	800.00	794.66	70.13	64.64	12.772	SF
Rosa Unit 646H - OH - Plan #2	645.30	646.42	12.08	7.69	2.750	CC, ES, SF
Rosa Unit 647H - OH - OH	1,266.62	1,266.23	12.42	4.25	1.520	CC, ES, SF
Rosa Unit 648H - OH - OH	0.00	0.51	45.89			
Rosa Unit 648H - OH - OH	200.00	200.24	46.29	45.25	44.504	ES
Rosa Unit 648H - OH - OH	1,500.00	1,491.77	74.50	64.69	7.598	SF
Rosa Unit 649H - OH (MagComp) - OH	428.18	428.19	7.30	5.07	3.273	CC
Rosa Unit 649H - OH (MagComp) - OH	600.00	599.68	7.56	4.16	2.221	ES
Rosa Unit 649H - OH (MagComp) - OH	700.00	699.46	8.62	4.52	2.104	SF
Rosa Unit 649H - ST1 - Plan #3	428.18	428.19	7.30	5.07	3.273	CC
Rosa Unit 649H - ST1 - Plan #3	600.00	599.68	7.56	4.16	2.221	ES
Rosa Unit 649H - ST1 - Plan #3	700.00	699.46	8.62	4.52	2.104	SF

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

Lonestar Consulting, LLC
Anticollision Summary Report

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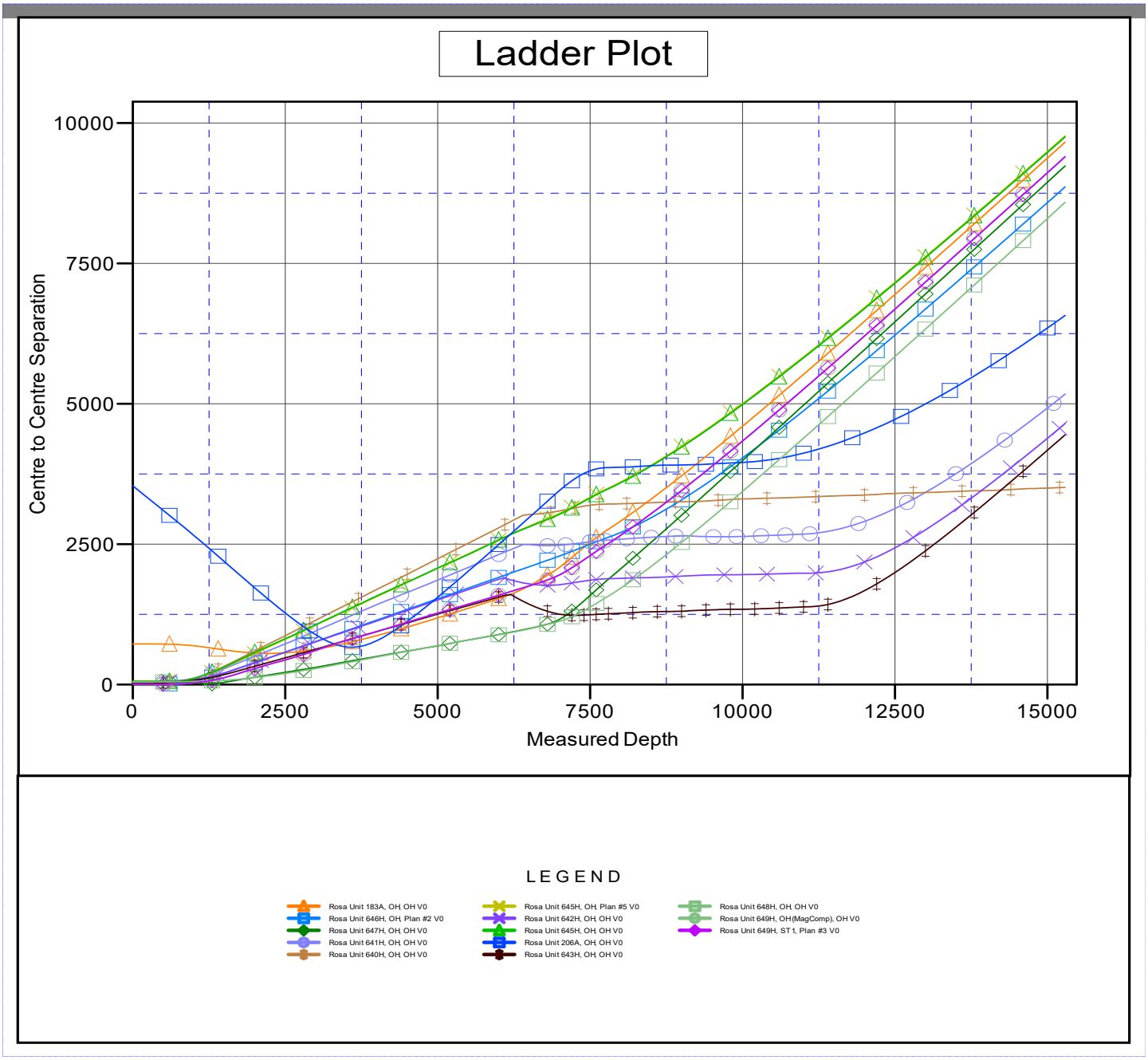
Reference Well:	Rosa Unit 644H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 ft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Grand Junction
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to GL 6305' & RKB 24.5' @ 6329.50ft (E
Offset Depths are relative to Offset Datum
Central Meridian is -107.8333334

Coordinates are relative to: Rosa Unit 644H - Slot B4
Coordinate System is US State Plane 1983, New Mexico Western Zone
Grid Convergence at Surface is: 0.26°



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Coordinate System is US State Plane 1983, New Mexico Western Zone
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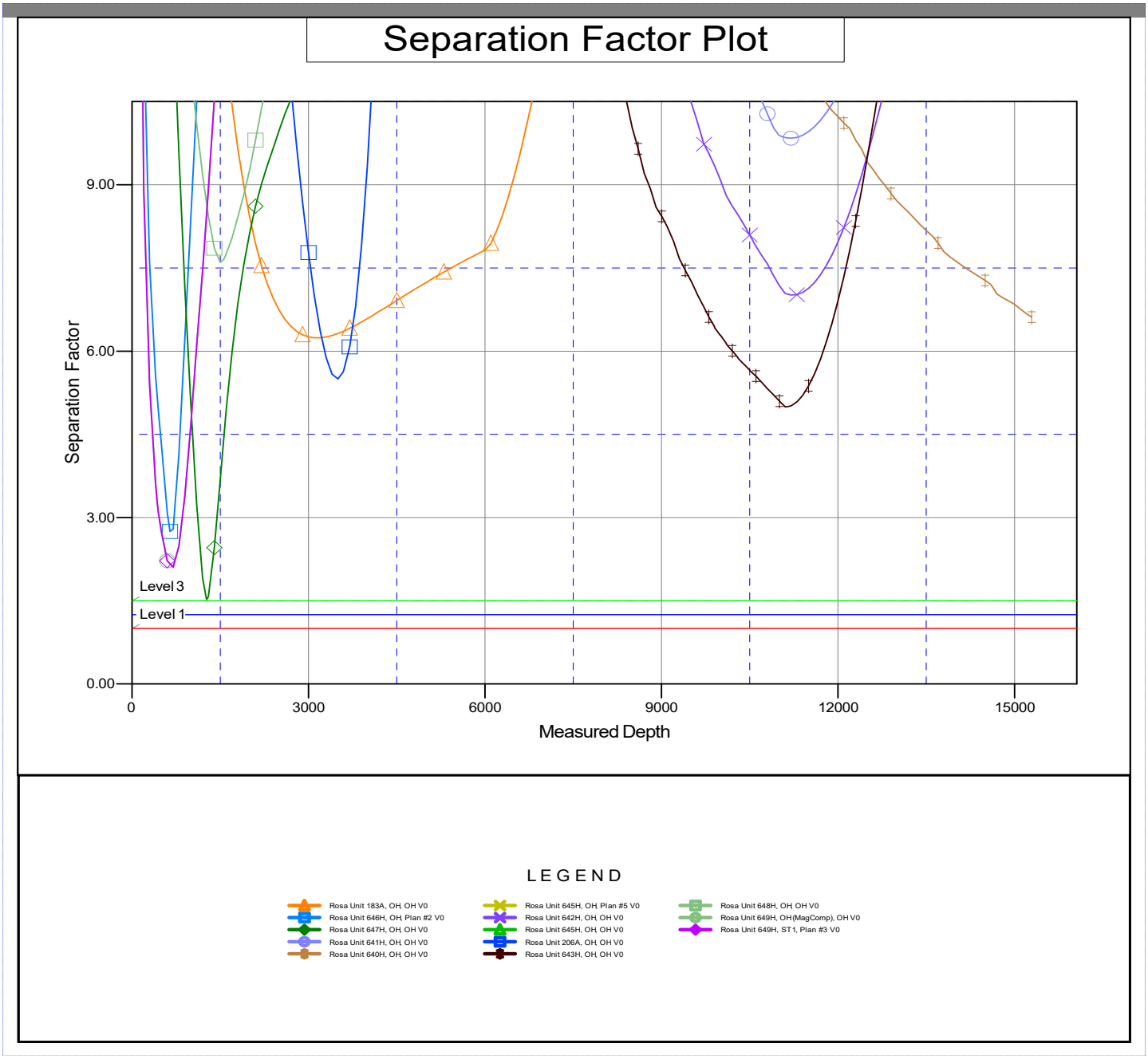

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

GENERAL REQUIREMENTS FOR PERMANENT ABANDONMENT OF WELLS ON FEDERAL AND INDIAN LEASES FARMINGTON FIELD OFFICE

1.0 The approved plugging plans may contain variances from the following minimum general requirements.

1.1 Modification of the approved plugging procedure is allowed only with the prior approval of the Authorized Officer, Farmington Field Office.

1.2 Requirements may be added to address specific well conditions.

2.0 Materials used must be accurately measured. (densometer/scales)

3.0 A tank or lined pit must be used for containment of any fluids from the wellbore during plugging operations and all pits are to be fenced with woven wire. These pits will be fenced on three sides and once the rig leaves location, the fourth side will be fenced.

3.1 Pits are not to be used for disposal of any hydrocarbons. If hydrocarbons are present in the pit, the fluids must be removed prior to filling in.

4.0 All cement plugs are to be placed through a work string. Cement may be bull-headed down the casing with prior approval. Cement caps on top of bridge plugs or cement retainers may be placed by dump bailer.

4.1 The cement shall be as specified in the approved plugging plan.

4.2 All cement plugs placed inside casing shall have sufficient volume to fill a minimum of 100' of the casing, or annular void(s) between casings, plus an excess volume sufficient to provide for 50 linear feet of fill above the plug.

4.3 Surface plugs may be no less than 50' in length.

4.4 All cement plugs placed to fill annular void(s) between casing and the formation shall be of sufficient volume to fill a minimum of 100' of the annular space plus 100% excess, calculated using the bit size, or 100' of annular capacity, determined from a caliper log, plus an excess volume sufficient to provide for 50 linear feet of fill above the plug.

4.5 All cement plugs placed to fill an open hole shall be of sufficient volume to fill a minimum of 100' of hole, as calculated from a caliper log, plus an excess volume sufficient to provide for 50 linear feet of fill above the plug. In the absence of a caliper log, an excess of 100% shall be required.

4.6 **A cement bond log or other accepted cement evaluation tool is required to be run if one had not been previously ran or cement did not circulate to surface during the original casing cementing job or subsequent cementing jobs.**

5.0 All cement plugs spotted across, or above, any exposed zone(s), when; the wellbore is not full of fluid or the fluid level will not remain static, and in the case of lost circulation or partial returns during cement placement, shall be tested by tagging with the work string.

5.1 The top of any cement plug verified by tagging must be at or above the depth specified in the approved plan, without regard to any excess.

5.2 Testing will not be required for any cement plug that is mechanically contained by use of a bridge plug and/or cement retainer, if casing integrity has been established.

5.3 Any cement plug which is the only isolating medium, for a fresh water interval or a zone containing a prospectively valuable deposit of minerals, shall be tested by tagging.

5.4 If perforations are required below the surface casing shoe, a 30 minute minimum wait time will be required to determine if gas and/or water flows are present. If flow is present, the well will be shut-in for a minimum of one hour and the pressure recorded. Short or long term venting may be necessary to evacuate trapped gas. If only a water flow occurs with no associated gas, shut well in and record the pressures. Contact the Engineer as it may be necessary to change the cement weight and additives.

6.0 Before setting any cement plugs the hole needs to be rolled. All wells are to be controlled by means of a fluid that is to be of a weight and consistency necessary to stabilize the wellbore. This fluid shall be left in place as filler between all plugs.

6.1 Drilling mud may be used as the wellbore fluid in open hole plugging operations.

6.2 The wellbore fluid used in cased holes shall be of sufficient weight to balance known pore pressures in all exposed formations.

7.0 A blowout preventer and related equipment (BOPE) shall be installed and tested prior to working in a wellbore with any exposed zone(s); (1) that are over pressured, (2) where the pressures are unknown, or (3) known to contain H_2S.

8.0 Within 30 days after plugging work is completed, file a Sundry Notice, Subsequent Report of Abandonment (Form 3160-5), five copies, with the Field Manager, Bureau of Land Management, 6251 College Blvd., Suite A, Farmington, NM 87402. The report should show the manner in which the plugging work was carried out, the extent, by depth(s), of cement plugs placed, and the size and location, by depth(s), of casing left in the well. Show date well was plugged.

9.0 All permanently abandoned wells are to be marked with a permanent monument as specified in 43 CFR 3162.6(d). Unless otherwise approved.

10.0 If this well is located in a Specially Designated Area (SDA), compliance with the appropriate seasonal closure requirements will be necessary.

All of the above are minimum requirements. Failure to comply with the above conditions of approval may result in an assessment for noncompliance and/or a Shut-in Order being issued pursuant to 43 CFR 3163.1. You are further advised that any instructions, orders or decisions issued by the Bureau of Land Management are subject to administrative review pursuant to 43 CFR 3165.3 and appeal pursuant to 43 CFR 3165.4 and 43 CFR 4.700.

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

CONDITIONS

Action 195761

CONDITIONS

Operator: LOGOS OPERATING, LLC 2010 Afton Place Farmington, NM 87401	OGRID: 289408
	Action Number: 195761
	Action Type: [C-103] NOI General Sundry (C-103X)

CONDITIONS

Created By	Condition	Condition Date
kpickford	Adhere to previous NMOCD Conditions of Approval	3/10/2023