

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENTFORM APPROVED
OMB NO. 1004-0137
Expires: January 31, 2018**SUNDRY NOTICES AND REPORTS ON WELLS**
Do not use this form for proposals to drill or to re-enter an abandoned well. Use form 3160-3 (APD) for such proposals.5. Lease Serial No.
NMNM0557391

6. If Indian, Allottee or Tribe Name

SUBMIT IN TRIPLICATE - Other instructions on page 27. If Unit or CA/Agreement, Name and/or No.
NMNM139655

1. Type of Well

☒ Oil Well ☐ Gas Well ☐ Other8. Well Name and No.
FEDERAL 2407 28M COM 3H2. Name of Operator
LOGOS OPERATING LLCContact: MARIE E FLOREZ
E-Mail: mflorez@logosresourcesllc.com9. API Well No.
30-039-31390-00-X13a. Address
2010 AFTON PLACE
FARMINGTON, NM 874013b. Phone No. (include area code)
Ph: 505.787.221810. Field and Pool or Exploratory Area
ESCRITO GALLUP

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

Sec 28 T24N R7W SWSW 011FSL 922FWL
36.277388 N Lat, 107.586093 W Lon

11. County or Parish, State

RIO ARRIBA COUNTY, NM

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

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

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 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 request a name change from Federal 2407 28M Com 3H to Nautilus 2407 28M Com 3H and request a change in plans for the following:

Original TD @ 12081' MD 6058' TVD to new TD @ 12060' MD 6040' TVD.

Geology tops have been updated per changes.

Original KOP @ 5429' MD 5329' TVD to new KOP @ 5407' MD 5307' TVD.

Original Landing point @ 6695' MD 6161' TVD to new Landing point @ 6674' MD 6140' TVD.

Original 7" Casing Intermediate @ 6695' MD to new 6674' MD.

NMOC
MAR 11 2020
DISTRICT III

14. I hereby certify that the foregoing is true and correct.

Electronic Submission #504959 verified by the BLM Well Information System
For LOGOS OPERATING LLC, sent to the Farmington
Committed to AFMSS for processing by JOE KILLINS on 03/09/2020 (20JK0132SE)

Name (Printed/Typed) MARIE E FLOREZ

Title REGULATORY SPECIALIST

Signature (Electronic Submission)

Date 02/28/2020

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By JOE KILLINS

Title ENGINEER

Date 03/10/2020

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 Farmington

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)

**** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ****

ADHERE TO PREVIOUS NMOC
CONDITIONS OF APPROVAL

NMOC

24

Additional data for EC transaction #504959 that would not fit on the form

32. Additional remarks, continued

Original 4.5" Casing Production @ 6545' - 12081' to new 6574'-12060'.

Attached: New C102 Plat with new name, Operation and Directional Drill plans.

DISTRICT I
1625 N. French Dr., Hobbs, N.M. 88240
Phone: (575) 393-6161 Fax: (575) 393-0720

DISTRICT II
811 S. First St., Artesia, N.M. 88210
Phone: (575) 748-1283 Fax: (575) 748-9720

DISTRICT III
1000 Rio Brazos Rd., Aztec, N.M. 87410
Phone: (505) 334-6178 Fax: (505) 334-6170

DISTRICT IV
1220 S. St. Francis Dr., Santa Fe, N.M. 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 Dr.
Santa Fe, NM 87505

Form C-102
Revised August 1, 2011
Submit one copy to appropriate
District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-039-31390		² Pool Code 22619	³ Pool Name ESCRITO GALLUP
⁴ Property Code 3273W	⁵ Property Name NAUTILUS 2407 28M COM		⁶ Well Number 3H
⁷ OGRID No. 289408	⁸ Operator Name LOGOS OPERATING, LLC		⁹ Elevation 7389

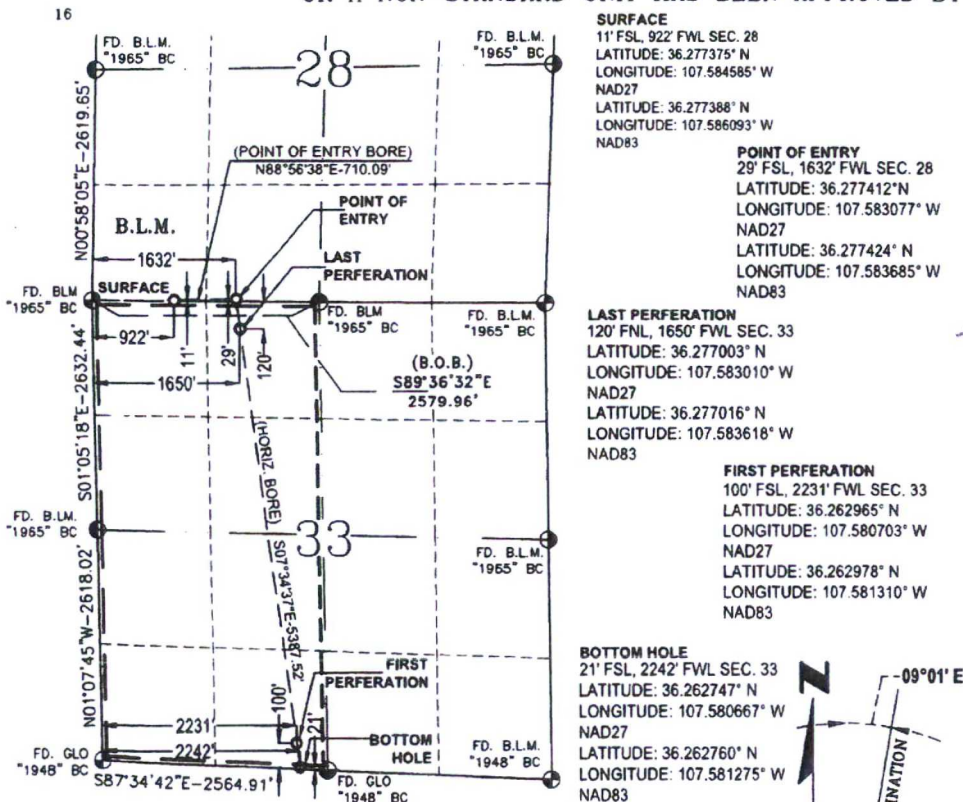
¹⁰ Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	28	24-N	7-W		11	SOUTH	922	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
N	33	24-N	7-W		21	SOUTH	2242	WEST	RIO ARriba
¹² Dedicated Acres EG=W/2 320 ACRES SEC 33			¹³ Joint or Infill		¹⁴ Consolidation Code		¹⁵ Order No.		

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
a working interest, or to a voluntary pooling agreement
or a compulsory pooling order heretofore entered by the
division.

Tamra Sessions 2/13/20
Signature Date
Printed Name
tsessions@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.

FEBRUARY 13, 2020

Date of Survey

Signature and Seal of



GLEN W. RUSSELL
Certificate Number 15703



LOGOS Operating, LLC Operations Plan

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

Date:	February 28, 2020	Pool:	Escrito Gallup
Well Name:	Nautilus 2407 28M Com 3H	Design Elevation:	7,385'
Surface Location:	Sec 28, T24N, R7W 11 FSL, 922 FWL (36.277388° N, 107.586093° W – NAD83)	Measured Depth:	12,060'
Bottom Hole Location:	Sec 33, T24N, R7W 21 FSL, 2242 FWL (36.262760° N, 107.581275° W – NAD83)	County:	Rio Arriba

Lease Serial #NMNM0557391

I. GEOLOGY

A. Formation Tops (Design GL): Estimated top of important geological markers:

NOTE: All Formation Tops/Kickoff points/Landing Depths are based on Ground Level elevation as a reference point and will be adjusted to actual KB when the actual rig is selected.

SURFACE FORMATION - NACIMIENTO

NAME	MD	TVD	NAME	MD	TVD
OJO ALAMO	1856	1856	MENEFEE	4201	4136
KIRTLAND	1998	1996	*POINT LOOKOUT	4920	4835
*FRUITLAND	2208	2201	*MANCOS	5177	5084
*PICTURED CLIFFS	2549	2532	GALLUP	6031	5884
LEWIS	2625	2606	KICKOFF POINT	5407	5307
CHACRA	3436	3394	LANDING POINT	6674	6140
*CLIFF HOUSE	4111	4049	TD	12060	6040

* 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 Tour book and on morning reports.

II. DRILLING

A. **MUD PROGRAM:** LSND mud (WBM) will be used to drill the 12-1/4" Surface hole, the 8 3/4" Directional Vertical hole, and the curve portion of the wellbore. A LSND (WBM) or (OBM) will be used to drill the lateral portion of well. 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

NAUTILUS 2407 28M 3H



contaminated soil would be removed and disposed. 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:** While drill pipe is in use, the pipe rams and the blindrams will be function tested once each trip. 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 to **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 each tour. **All tests and inspections will be recorded and logged with time and results.**

III. **MATERIALS**

A. **CASING EQUIPMENT:**

CASING TYPE	OHSIZE (IN)	DEPTH (MD)	CSG SIZE	WEIGHT	GRADE	CONN
SURFACE	12.25"	320'	9.625"	36 LBS	J-55 or equiv	STC or LTC
INTERMEDIATE	8.75"	6,674'	7"	23 LBS	J-55 or equiv	LTC
PRODUCTION	6.125"	6,574' – 12,060'	4.5"	11.6 LBS	P-110 or equiv	LTC or BTC
TIE BACK	6.125"	Surf. – 6,574'	4.5"	11.6 LBS	P-110 or equiv	LTC or BTC

NOTE: All casing depths are approximate 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:** 9-5/8" notched regular pattern guide shoe. Run (1) standard centralizer on each of the bottom (4) joints of Surface Casing.
2. **INTERMEDIATE CASING:** 7" 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., 2,300ft., 2,000ft., 1,500 ft., and 1,000 ft.
3. **PRODUCTION LINER:** Run 4-1/2" Liner with cement nose guide Float Shoe+ 2jts. of 4-1/2" casing+ Landing Collar+ 4-1/2" pup joint+ 1 RSI (Sliding Sleeve) positioned inside the legal setback. Centralizer program will be determined by wellbore condition. Set seals on Liner Hanger. Liner to be pressure tested during completion operations.

NOTE: Use of DV tool would be considered by operator as back up in case we experience heavy losses and are concerned with cement not reaching surface. If major losses are not encountered we will not run DV tool. Optional use of cancellation plugs for DV tools may be used if losses while cementing are not encountered.

C. **CEMENTING:**

(Note: Volumes may be adjusted onsite due to actual conditions)

1. **SURFACE:** 5 bbl Fresh Water Spacer, 100 sx (161 cu.ft.) of 14.5 ppg Type 1-11 (Neat G) + 20% Fly Ash cement w/ 7.41 gal/sack mix water ratio @ 1.61 cu ft/sx yield. Calculated @volume+ 50% excess. WOC 12 hours. Test csg to 600 psi. Total Volume: (160cu-ft/100 sx/ Bbls). TOC at Surface.
2. **INTERMEDIATE:** Stage 1: Spacer #1: 20 bbl (112 cuft) Chemwash. Lead Cement: 228 bbls,



658 sks (1282 cu.ft.), 12.3 ppg@ 1.95 cuft/sk yield. Tail Cement: 56 bbls, 241 sks, (314 cuft), 13.5 ppg@ 1.3 cu'ft/sk yield. Displacement: Displace w/ +/- 262 bbl Drilling mud or water. Total Cement: 284 bbls, 899 sks, (1596 cuft)

3. **PRODUCTION LINER:** Spacer #1: 10 bbl (56 cu-ft) Water Spacer. Spacer #2: 40 bbl 9.5 ppg (224.6 cu-ft) Tuned Spacer III. Spacer #3: 10 bbl Water Spacer. Lead Cement: Extencem TM System. Yield 1.36 cuft/sk 13.3 ppg (500 sx / 680 cuft / 121 bbls). Tail Spacer: 40 BBL of MMCR. Displacement: Displace w/ +/- 156 bbl.

IV. COMPLETION

A. CBL

CBLs and/or Temperature Surveys Will Be Performed as Needed or Required

B. PRESSURE TEST

Pressure test 4-1/2" casing to 4000 psi max, hold at 1500 psi for 30 minutes. Increase pressure to Open RSI sleeves.

C. STIMULATION

Stimulate with sand, water and N2. Isolate stages with flow through frac plugs. Drill out frac plugs and flowback lateral.

D. PRODUCTION TUBING

Run 2-7/8", 6.5#, J-55, EUE tubing

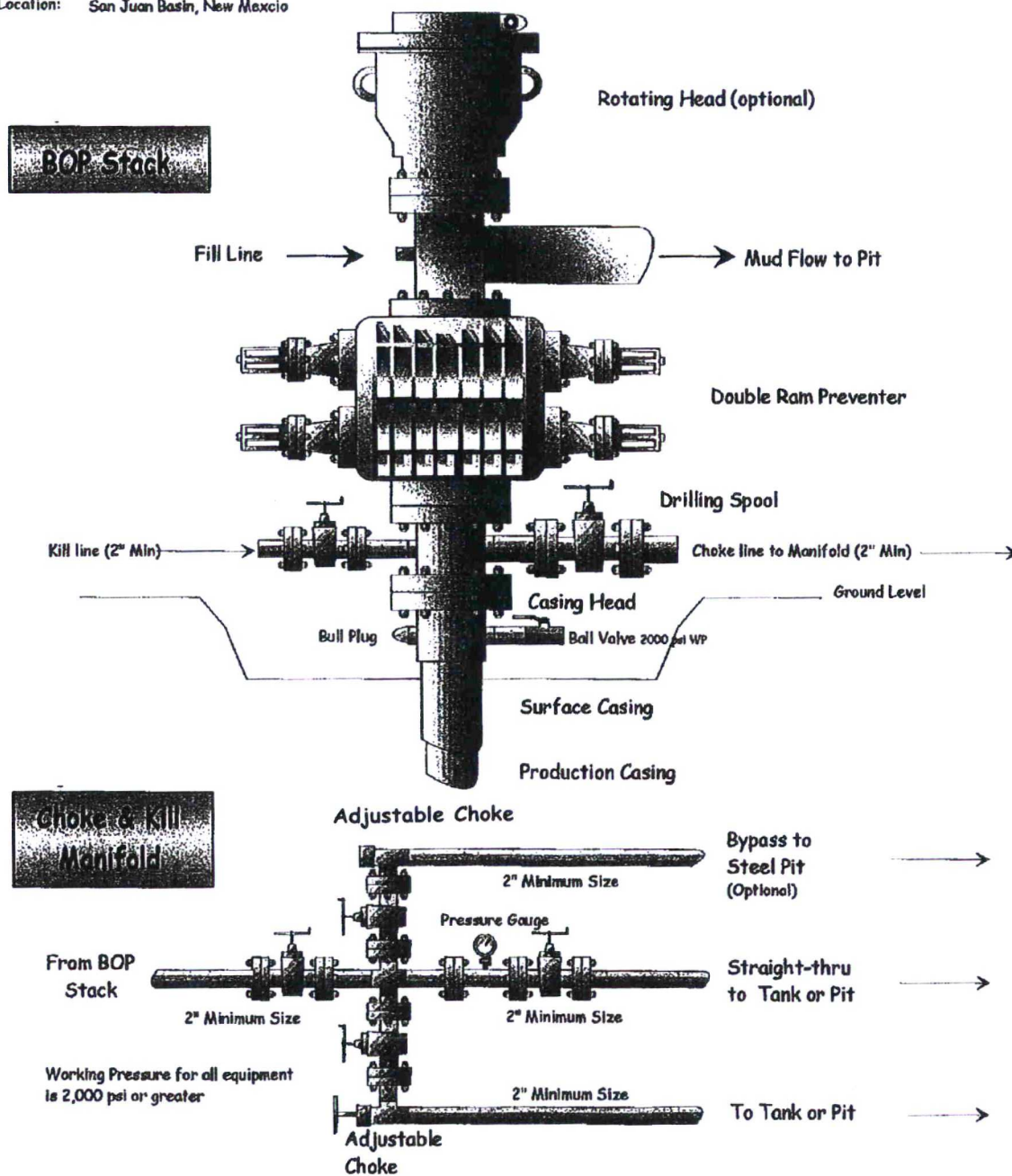
*NOTE: Although this horizontal well may be drilled past the applicable setbacks, an unorthodox location application is not required because the completed interval in this well, as defined by 19.15.16.7 8(1) NMAC, will be entirely within the applicable setbacks. This approach complies with all applicable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

Well Control Equipment Schematic for 2M Service

Attachment to Drilling Technical Program

Exhibit #1 Typical BOP setup

Location: San Juan Basin, New Mexico





Logos Operating LLC

Rio Arriba, NM NAD83

Nautilus 2407-28M

Nautilus 2407-28M 3H

OH

Plan: Plan #3

Standard Planning Report

19 February, 2020



Company: Logos Operating LLC
Project: Rio Arriba, NM NAD83
Site: Nautilus 2407-28M
Well: Nautilus 2407-28M 3H
Wellbore: OH
Design: Plan #3

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

WELL DETAILS: Nautilus 2407-28M 3H

GL 7385' @ 7385.00usft
+N/-S +E/-W Northing Easting Latitude Longitude
0.00 0.00 1920361.43 2795965.35 36.2773880 -107.5860930

Plan: Plan #3 (Nautilus 2407-28M 3H/OH)

Created By: Janie Collins Date: 15:31, February 19 2020



Azimuths to True North
Magnetic North: 8.75°

Magnetic Field
Strength: 49492.9nT
Dip Angle: 62.87°
Date: 12/17/2018
Model: HDGM

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Nautilus 28M 3H POE	6140.00	13.11	709.76	1920376.35	2796675.07	36.2774240	-107.5836850
Nautilus 28M 3H BHL	6040.00	-5324.94	1420.37	1915040.13	2797399.30	36.2627600	-107.5812750
Nautilus 28M 3H FPerf	6040.00	-5245.59	1410.04	1915119.46	2797388.78	36.2629780	-107.5813100
Nautilus 28M 3H LPerf	6140.00	-135.41	729.51	1920227.88	2796695.20	36.2770160	-107.5836180

SECTION DETAILS

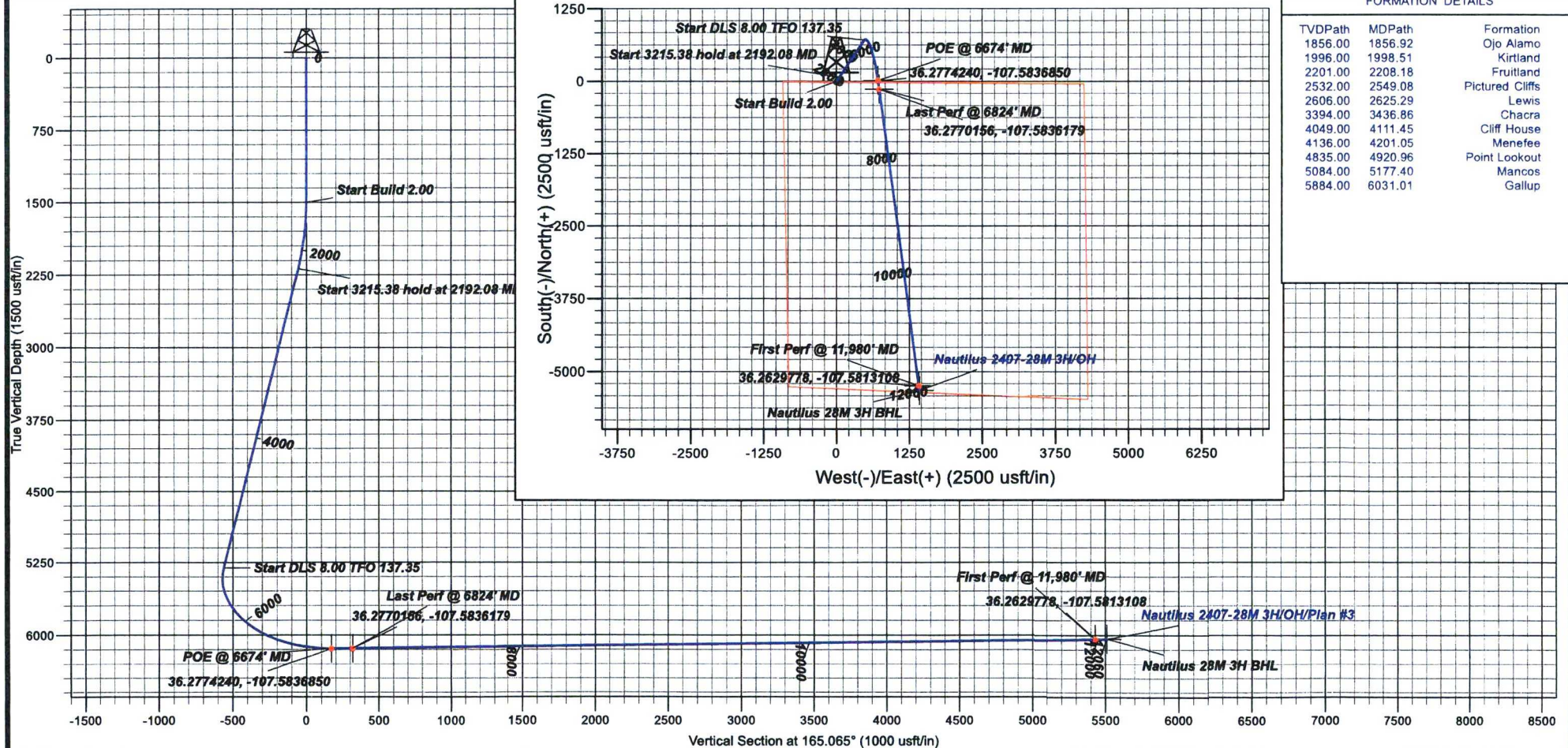
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00	
1500.00	0.00	0.000	1500.00	0.00	0.00	0.00	0.00	0.00	
2192.08	13.84	34.051	2185.37	68.93	48.58	2.00	34.05	-54.59	
5407.46	13.84	34.051	5307.37	706.27	477.30	0.00	0.00	-559.40	
6674.33	91.06	172.417	6140.00	13.11	709.76	8.00	137.35	170.25	Nautilus 28M 3H POE
12060.41	91.06	172.417	6040.00	-5324.94	1420.37	0.00	0.00	5511.12	Nautilus 28M 3H BHL

CASING DETAILS

No casing data is available

FORMATION DETAILS

TVDPath	MDPath	Formation
1856.00	1856.92	Ojo Alamo
1996.00	1998.51	Kirtland
2201.00	2208.18	Fruitland
2532.00	2549.08	Pictured Cliffs
2606.00	2625.29	Lewis
3394.00	3436.86	Chacra
4049.00	4111.45	Cliff House
4136.00	4201.05	Menefee
4835.00	4920.96	Point Lookout
5084.00	5177.40	Mancos
5884.00	6031.01	Gallup





Database:
Company: Logos Operating LLC
Project: Rio Arriba, NM NAD83
Site: Nautilus 2407-28M
Well: Nautilus 2407-28M 3H
Wellbore: OH
Design: Plan #3

Local Co-ordinate Reference: Well Nautilus 2407-28M 3H
TVD Reference: GL 7385' @ 7385.00usft
MD Reference: GL 7385' @ 7385.00usft
North Reference: True
Survey Calculation Method: Minimum Curvature

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	Nautilus 2407-28M				
Site Position:		Northing:	1,920,350.72 usft	Latitude:	36.2773590
From:	Lat/Long	Easting:	2,795,906.42 usft	Longitude:	-107.5862930
Position Uncertainty:	0.00 usft	Slot Radius:	13.20 in	Grid Convergence:	0.15 °

Well	Nautilus 2407-28M 3H				
Well Position	+N/-S	10.56 usft	Northing:	1,920,361.43 usft	Latitude: 36.2773880
	+E/-W	58.95 usft	Easting:	2,795,965.35 usft	Longitude: -107.5860930
Position Uncertainty	0.00 usft		Wellhead Elevation:	0.00 usft	Ground Level: 7,385.00 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	12/17/2018	8.75	62.87	49,492.90000000

Design	Plan #3				
Audit Notes:					
Version:		Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00	165.065	

Plan Survey Tool Program		Date	2/19/2020		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	12,060.41 Plan #3 (OH)	MWD+HDGM		
			OWSG MWD + HDGM		

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,500.00	0.00	0.000	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,192.08	13.84	34.051	2,185.37	68.93	46.58	2.00	2.00	0.00	34.05	
5,407.46	13.84	34.051	5,307.37	706.27	477.30	0.00	0.00	0.00	0.00	
6,674.33	91.06	172.417	6,140.00	13.11	709.76	8.00	6.10	10.92	137.35	Nautilus 28M 3H POE
12,060.41	91.06	172.417	6,040.00	-5,324.94	1,420.37	0.00	0.00	0.00	0.00	Nautilus 28M 3H BHL



Database:
Company: Logos Operating LLC
Project: Rio Arriba, NM NAD83
Site: Nautilus 2407-28M
Well: Nautilus 2407-28M 3H
Wellbore: OH
Design: Plan #3

Local Co-ordinate Reference: Well Nautilus 2407-28M 3H
TVD Reference: GL 7385' @ 7385.00usft
MD Reference: GL 7385' @ 7385.00usft
North Reference: True
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.000	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.000	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.000	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.000	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.000	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.000	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.000	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.000	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.000	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.000	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.000	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.000	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.000	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.000	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.000	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	2.00	34.051	1,599.98	1.45	0.98	-1.15	2.00	2.00	0.00
1,700.00	4.00	34.051	1,699.84	5.78	3.91	-4.58	2.00	2.00	0.00
1,800.00	6.00	34.051	1,799.45	13.00	8.79	-10.30	2.00	2.00	0.00
1,900.00	8.00	34.051	1,898.70	23.10	15.61	-18.30	2.00	2.00	0.00
2,000.00	10.00	34.051	1,997.47	36.06	24.37	-28.56	2.00	2.00	0.00
2,100.00	12.00	34.051	2,095.62	51.87	35.05	-41.08	2.00	2.00	0.00
2,192.08	13.84	34.051	2,185.37	68.93	46.58	-54.59	2.00	2.00	0.00
2,200.00	13.84	34.051	2,193.06	70.50	47.64	-55.84	0.00	0.00	0.00
2,300.00	13.84	34.051	2,290.15	90.32	61.04	-71.54	0.00	0.00	0.00
2,400.00	13.84	34.051	2,387.25	110.14	74.43	-87.24	0.00	0.00	0.00
2,500.00	13.84	34.051	2,484.35	129.96	87.83	-102.94	0.00	0.00	0.00
2,600.00	13.84	34.051	2,581.44	149.78	101.22	-118.64	0.00	0.00	0.00
2,700.00	13.84	34.051	2,678.54	169.61	114.62	-134.34	0.00	0.00	0.00
2,800.00	13.84	34.051	2,775.63	189.43	128.02	-150.04	0.00	0.00	0.00
2,900.00	13.84	34.051	2,872.73	209.25	141.41	-165.74	0.00	0.00	0.00
3,000.00	13.84	34.051	2,969.83	229.07	154.81	-181.44	0.00	0.00	0.00
3,100.00	13.84	34.051	3,066.92	248.89	168.20	-197.13	0.00	0.00	0.00
3,200.00	13.84	34.051	3,164.02	268.72	181.60	-212.83	0.00	0.00	0.00
3,300.00	13.84	34.051	3,261.11	288.54	194.99	-228.53	0.00	0.00	0.00
3,400.00	13.84	34.051	3,358.21	308.36	208.39	-244.23	0.00	0.00	0.00
3,500.00	13.84	34.051	3,455.31	328.18	221.79	-259.93	0.00	0.00	0.00
3,600.00	13.84	34.051	3,552.40	348.00	235.18	-275.63	0.00	0.00	0.00
3,700.00	13.84	34.051	3,649.50	367.82	248.58	-291.33	0.00	0.00	0.00
3,800.00	13.84	34.051	3,746.60	387.65	261.97	-307.03	0.00	0.00	0.00
3,900.00	13.84	34.051	3,843.69	407.47	275.37	-322.73	0.00	0.00	0.00
4,000.00	13.84	34.051	3,940.79	427.29	288.76	-338.43	0.00	0.00	0.00
4,100.00	13.84	34.051	4,037.88	447.11	302.16	-354.13	0.00	0.00	0.00
4,200.00	13.84	34.051	4,134.98	466.93	315.56	-369.83	0.00	0.00	0.00
4,300.00	13.84	34.051	4,232.08	486.76	328.95	-385.53	0.00	0.00	0.00
4,400.00	13.84	34.051	4,329.17	506.58	342.35	-401.23	0.00	0.00	0.00
4,500.00	13.84	34.051	4,426.27	526.40	355.74	-416.93	0.00	0.00	0.00
4,600.00	13.84	34.051	4,523.36	546.22	369.14	-432.63	0.00	0.00	0.00
4,700.00	13.84	34.051	4,620.46	566.04	382.53	-448.33	0.00	0.00	0.00
4,800.00	13.84	34.051	4,717.56	585.86	395.93	-464.03	0.00	0.00	0.00
4,900.00	13.84	34.051	4,814.65	605.69	409.33	-479.73	0.00	0.00	0.00
5,000.00	13.84	34.051	4,911.75	625.51	422.72	-495.43	0.00	0.00	0.00
5,100.00	13.84	34.051	5,008.84	645.33	436.12	-511.13	0.00	0.00	0.00
5,200.00	13.84	34.051	5,105.94	665.15	449.51	-526.83	0.00	0.00	0.00



Database:
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Project: Rio Arriba, NM NAD83
Site: Nautilus 2407-28M
Well: Nautilus 2407-28M 3H
Wellbore: OH
Design: Plan #3

Local Co-ordinate Reference: Well Nautilus 2407-28M 3H
TVD Reference: GL 7385' @ 7385.00usft
MD Reference: GL 7385' @ 7385.00usft
North Reference: True
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,300.00	13.84	34.051	5,203.04	684.97	462.91	-542.53	0.00	0.00	0.00
5,400.00	13.84	34.051	5,300.13	704.80	476.30	-558.23	0.00	0.00	0.00
5,407.46	13.84	34.051	5,307.37	706.27	477.30	-559.40	0.00	0.00	0.00
5,500.00	9.76	65.063	5,398.03	718.77	490.63	-568.04	8.00	-4.42	33.51
5,600.00	10.64	111.230	5,496.61	719.00	506.94	-564.06	8.00	0.88	46.17
5,700.00	16.06	137.451	5,593.96	705.45	524.92	-546.33	8.00	5.42	26.22
5,800.00	23.01	149.491	5,688.18	678.37	544.23	-515.19	8.00	6.95	12.04
5,900.00	30.46	156.026	5,777.44	638.30	564.49	-471.26	8.00	7.45	6.54
6,000.00	38.12	160.160	5,860.01	586.02	585.30	-415.38	8.00	7.66	4.13
6,100.00	45.88	163.077	5,934.27	522.55	606.26	-348.64	8.00	7.76	2.92
6,200.00	53.70	165.312	5,998.79	449.11	626.95	-272.35	8.00	7.82	2.23
6,300.00	61.55	167.136	6,052.30	367.14	646.99	-187.99	8.00	7.85	1.82
6,400.00	69.42	168.707	6,093.76	278.23	665.98	-97.19	8.00	7.87	1.57
6,500.00	77.30	170.122	6,122.37	184.12	683.54	-1.74	8.00	7.88	1.42
6,600.00	85.20	171.452	6,137.58	86.64	699.34	96.53	8.00	7.89	1.33
6,674.33	91.06	172.417	6,140.00	13.11	709.76	170.25	8.00	7.89	1.30
6,700.00	91.06	172.417	6,139.52	-12.32	713.14	195.70	0.00	0.00	0.00
6,800.00	91.06	172.417	6,137.67	-111.43	726.34	294.86	0.00	0.00	0.00
6,900.00	91.06	172.417	6,135.81	-210.54	739.53	394.03	0.00	0.00	0.00
7,000.00	91.06	172.417	6,133.95	-309.65	752.72	493.19	0.00	0.00	0.00
7,100.00	91.06	172.417	6,132.10	-408.76	765.92	592.35	0.00	0.00	0.00
7,200.00	91.06	172.417	6,130.24	-507.87	779.11	691.51	0.00	0.00	0.00
7,300.00	91.06	172.417	6,128.38	-606.97	792.30	790.67	0.00	0.00	0.00
7,400.00	91.06	172.417	6,126.53	-706.08	805.50	889.83	0.00	0.00	0.00
7,500.00	91.06	172.417	6,124.67	-805.19	818.69	988.99	0.00	0.00	0.00
7,600.00	91.06	172.417	6,122.81	-904.30	831.88	1,088.15	0.00	0.00	0.00
7,700.00	91.06	172.417	6,120.96	-1,003.41	845.08	1,187.31	0.00	0.00	0.00
7,800.00	91.06	172.417	6,119.10	-1,102.52	858.27	1,286.47	0.00	0.00	0.00
7,900.00	91.06	172.417	6,117.24	-1,201.63	871.47	1,385.63	0.00	0.00	0.00
8,000.00	91.06	172.417	6,115.39	-1,300.73	884.66	1,484.79	0.00	0.00	0.00
8,100.00	91.06	172.417	6,113.53	-1,399.84	897.85	1,583.95	0.00	0.00	0.00
8,200.00	91.06	172.417	6,111.67	-1,498.95	911.05	1,683.11	0.00	0.00	0.00
8,300.00	91.06	172.417	6,109.82	-1,598.06	924.24	1,782.27	0.00	0.00	0.00
8,400.00	91.06	172.417	6,107.96	-1,697.17	937.43	1,881.44	0.00	0.00	0.00
8,500.00	91.06	172.417	6,106.10	-1,796.28	950.63	1,980.60	0.00	0.00	0.00
8,600.00	91.06	172.417	6,104.25	-1,895.38	963.82	2,079.76	0.00	0.00	0.00
8,700.00	91.06	172.417	6,102.39	-1,994.49	977.01	2,178.92	0.00	0.00	0.00
8,800.00	91.06	172.417	6,100.53	-2,093.60	990.21	2,278.08	0.00	0.00	0.00
8,900.00	91.06	172.417	6,098.68	-2,192.71	1,003.40	2,377.24	0.00	0.00	0.00
9,000.00	91.06	172.417	6,096.82	-2,291.82	1,016.59	2,476.40	0.00	0.00	0.00
9,100.00	91.06	172.417	6,094.96	-2,390.93	1,029.79	2,575.56	0.00	0.00	0.00
9,200.00	91.06	172.417	6,093.11	-2,490.04	1,042.98	2,674.72	0.00	0.00	0.00
9,300.00	91.06	172.417	6,091.25	-2,589.14	1,056.17	2,773.88	0.00	0.00	0.00
9,400.00	91.06	172.417	6,089.39	-2,688.25	1,069.37	2,873.04	0.00	0.00	0.00
9,500.00	91.06	172.417	6,087.54	-2,787.36	1,082.56	2,972.20	0.00	0.00	0.00
9,600.00	91.06	172.417	6,085.68	-2,886.47	1,095.75	3,071.36	0.00	0.00	0.00
9,700.00	91.06	172.417	6,083.82	-2,985.58	1,108.95	3,170.52	0.00	0.00	0.00
9,800.00	91.06	172.417	6,081.97	-3,084.69	1,122.14	3,269.68	0.00	0.00	0.00
9,900.00	91.06	172.417	6,080.11	-3,183.79	1,135.33	3,368.84	0.00	0.00	0.00
10,000.00	91.06	172.417	6,078.25	-3,282.90	1,148.53	3,468.01	0.00	0.00	0.00
10,100.00	91.06	172.417	6,076.40	-3,382.01	1,161.72	3,567.17	0.00	0.00	0.00
10,200.00	91.06	172.417	6,074.54	-3,481.12	1,174.91	3,666.33	0.00	0.00	0.00
10,300.00	91.06	172.417	6,072.68	-3,580.23	1,188.11	3,765.49	0.00	0.00	0.00
10,400.00	91.06	172.417	6,070.83	-3,679.34	1,201.30	3,864.65	0.00	0.00	0.00



Database:
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Design: Plan #3

Local Co-ordinate Reference: Well Nautilus 2407-28M 3H
TVD Reference: GL 7385' @ 7385.00usft
MD Reference: GL 7385' @ 7385.00usft
North Reference: True
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
10,500.00	91.06	172.417	6,068.97	-3,778.44	1,214.49	3,963.81	0.00	0.00	0.00
10,600.00	91.06	172.417	6,067.11	-3,877.55	1,227.69	4,062.97	0.00	0.00	0.00
10,700.00	91.06	172.417	6,065.26	-3,976.66	1,240.88	4,162.13	0.00	0.00	0.00
10,800.00	91.06	172.417	6,063.40	-4,075.77	1,254.08	4,261.29	0.00	0.00	0.00
10,900.00	91.06	172.417	6,061.54	-4,174.88	1,267.27	4,360.45	0.00	0.00	0.00
11,000.00	91.06	172.417	6,059.69	-4,273.99	1,280.46	4,459.61	0.00	0.00	0.00
11,100.00	91.06	172.417	6,057.83	-4,373.10	1,293.66	4,558.77	0.00	0.00	0.00
11,200.00	91.06	172.417	6,055.97	-4,472.20	1,306.85	4,657.93	0.00	0.00	0.00
11,300.00	91.06	172.417	6,054.12	-4,571.31	1,320.04	4,757.09	0.00	0.00	0.00
11,400.00	91.06	172.417	6,052.26	-4,670.42	1,333.24	4,856.25	0.00	0.00	0.00
11,500.00	91.06	172.417	6,050.40	-4,769.53	1,346.43	4,955.42	0.00	0.00	0.00
11,600.00	91.06	172.417	6,048.55	-4,868.64	1,359.62	5,054.58	0.00	0.00	0.00
11,700.00	91.06	172.417	6,046.69	-4,967.75	1,372.82	5,153.74	0.00	0.00	0.00
11,800.00	91.06	172.417	6,044.84	-5,066.85	1,386.01	5,252.90	0.00	0.00	0.00
11,900.00	91.06	172.417	6,042.98	-5,165.96	1,399.20	5,352.06	0.00	0.00	0.00
12,000.00	91.06	172.417	6,041.12	-5,265.07	1,412.40	5,451.22	0.00	0.00	0.00
12,060.41	91.06	172.417	6,040.00	-5,324.94	1,420.37	5,511.12	0.00	0.00	0.00

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Nautilus 28M 3H BHL - plan hits target center - Point	0.00	0.000	6,040.00	-5,324.94	1,420.37	1,915,040.13	2,797,399.31	36.2627600	-107.5812750
Nautilus 28M 3H FPerf - plan misses target center by 1.51usft at 11980.40usft MD (6041.49 TVD, -5245.64 N, 1409.81 E) - Point	0.00	0.000	6,040.00	-5,245.59	1,410.04	1,915,119.46	2,797,388.78	36.2629780	-107.5813100
Nautilus 28M 3H POE - plan hits target center - Point	0.00	0.000	6,140.00	13.11	709.76	1,920,376.36	2,796,675.07	36.2774240	-107.5836850
Nautilus 28M 3H LPerf - plan misses target center by 2.78usft at 6824.14usft MD (6137.22 TVD, -135.36 N, 729.52 E) - Point	0.00	0.000	6,140.00	-135.41	729.51	1,920,227.88	2,796,695.20	36.2770160	-107.5836180



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MD Reference: GL 7385' @ 7385.00usft
North Reference: True
Survey Calculation Method: Minimum Curvature

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,856.92	1,856.00	Ojo Alamo		0.00	0.000
1,998.51	1,996.00	Kirtland		0.00	0.000
2,208.18	2,201.00	Fruitland		0.00	0.000
2,549.08	2,532.00	Pictured Cliffs		0.00	0.000
2,625.29	2,606.00	Lewis		0.00	0.000
3,436.86	3,394.00	Chacra		0.00	0.000
4,111.45	4,049.00	Cliff House		0.00	0.000
4,201.05	4,136.00	Menefee		0.00	0.000
4,920.96	4,835.00	Point Lookout		0.00	0.000
5,177.40	5,084.00	Mancos		0.00	0.000
6,031.01	5,884.00	Gallup		0.00	0.000

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,500.00	1,500.00	0.00	0.00	Start Build 2.00
2,192.08	2,185.37	68.93	46.58	Start 3215.38 hold at 2192.08 MD
5,407.46	5,307.37	706.27	477.30	Start DLS 8.00 TFO 137.35
6,674.33	6,140.00	13.12	709.76	36.2774240, -107.5836850
6,674.33	6,140.00	13.11	709.76	POE @ 6674' MD
6,824.33	6,137.22	-135.55	729.55	Last Perf @ 6824' MD
6,824.33	6,137.22	-135.55	729.55	36.2770156, -107.5836179
11,980.41	6,041.49	-5,245.66	1,409.81	36.2629778, -107.5813108
11,980.41	6,041.49	-5,245.66	1,409.81	First Perf @ 11,980' MD
12,060.41	6,040.00	-5,324.94	1,420.37	TD at 12060.41



Logos Operating LLC

Rio Arriba, NM NAD83

Nautilus 2407-28M

Nautilus 2407-28M 3H

OH

Plan #3

Anticollision Report

19 February, 2020



Company: Logos Operating LLC
Project: Rio Arriba, NM NAD83
Reference Site: Nautilus 2407-28M
Site Error: 0.00 usft
Reference Well: Nautilus 2407-28M 3H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan #3

Local Co-ordinate Reference: Well Nautilus 2407-28M 3H
TVD Reference: GL 7385' @ 7385.00usft
MD Reference: GL 7385' @ 7385.00usft
North Reference: True
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database:
Offset TVD Reference: Offset Datum

Reference	Plan #3
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria
Interpolation Method:	Stations
Depth Range:	Unlimited
Results Limited by:	Maximum centre distance of 10,000.00usft
Warning Levels Evaluated at:	2.00 Sigma
Error Model:	ISCWSA
Scan Method:	Closest Approach 3D
Error Surface:	Pedal Curve
Casing Method:	Not applied

Survey Tool Program		Date	2/19/2020		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.00	12,060.41	Plan #3 (OH)	MWD+HDGM	OWSG MWD + HDGM	

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Nautilus 2407-28M						
Nautilus 2407-28M 1H - OH - Plan #3	1,500.00	1,500.00	59.89	49.13	5.569	CC, ES
Nautilus 2407-28M 1H - OH - Plan #3	1,600.00	1,599.98	61.12	49.65	5.329	SF
Nautilus 2407-28M 2H - OH - Plan #3	1,200.00	1,200.00	29.91	21.31	3.477	CC, ES
Nautilus 2407-28M 2H - OH - Plan #3	1,300.00	1,299.08	31.40	22.10	3.376	SF

Offset Design: Nautilus 2407-28M - Nautilus 2407-28M 1H - OH - Plan #3														Offset Site Error: 0.00 usft
Survey Program: 0-MWD+HDGM		Offset		Semi Major Axis		Offset Wellbore Centre		Rule Assigned:				Offset Well Error: 0.00 usft		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning	
0.00	0.00	0.00	0.00	0.00	0.00	-100.15	-10.56	-58.95	59.89					
100.00	100.00	100.00	100.00	0.36	0.36	-100.15	-10.56	-58.95	59.89	59.17	0.72	83.532		
200.00	200.00	200.00	200.00	0.72	0.72	-100.15	-10.56	-58.95	59.89	58.45	1.43	41.766		
300.00	300.00	300.00	300.00	1.08	1.08	-100.15	-10.56	-58.95	59.89	57.74	2.15	27.844		
400.00	400.00	400.00	400.00	1.43	1.43	-100.15	-10.56	-58.95	59.89	57.02	2.87	20.883		
500.00	500.00	500.00	500.00	1.79	1.79	-100.15	-10.56	-58.95	59.89	56.30	3.58	16.706		
600.00	600.00	600.00	600.00	2.15	2.15	-100.15	-10.56	-58.95	59.89	55.59	4.30	13.922		
700.00	700.00	700.00	700.00	2.51	2.51	-100.15	-10.56	-58.95	59.89	54.87	5.02	11.933		
800.00	800.00	800.00	800.00	2.87	2.87	-100.15	-10.56	-58.95	59.89	54.15	5.74	10.442		
900.00	900.00	900.00	900.00	3.23	3.23	-100.15	-10.56	-58.95	59.89	53.44	6.45	9.281		
1,000.00	1,000.00	1,000.00	1,000.00	3.58	3.58	-100.15	-10.56	-58.95	59.89	52.72	7.17	8.353		
1,100.00	1,100.00	1,100.00	1,100.00	3.94	3.94	-100.15	-10.56	-58.95	59.89	52.00	7.89	7.594		
1,200.00	1,200.00	1,200.00	1,200.00	4.30	4.30	-100.15	-10.56	-58.95	59.89	51.28	8.60	6.961		
1,300.00	1,300.00	1,300.00	1,300.00	4.66	4.66	-100.15	-10.56	-58.95	59.89	50.57	9.32	6.426		
1,400.00	1,400.00	1,400.00	1,400.00	5.02	5.02	-100.15	-10.56	-58.95	59.89	49.85	10.04	5.967		
1,500.00	1,500.00	1,500.00	1,500.00	5.38	5.38	-100.15	-10.56	-58.95	59.89	49.13	10.75	5.569	CC, ES	
1,600.00	1,599.98	1,599.98	1,599.98	5.73	5.74	-135.36	-10.56	-58.95	61.12	49.65	11.47	5.329	SF	
1,700.00	1,699.84	1,699.84	1,699.84	6.09	6.09	-138.55	-10.56	-58.95	64.95	52.76	12.18	5.331		
1,800.00	1,799.45	1,799.45	1,799.45	6.45	6.45	-143.08	-10.56	-58.95	71.72	58.82	12.89	5.562		
1,900.00	1,898.70	1,898.42	1,898.40	6.81	6.80	-146.90	-9.08	-59.77	81.97	68.36	13.60	6.025		
2,000.00	1,997.47	1,997.16	1,997.00	7.17	7.16	-148.80	-4.64	-62.26	95.71	81.40	14.31	6.688		
2,100.00	2,095.62	2,095.47	2,094.94	7.54	7.51	-149.31	2.73	-66.37	112.70	97.68	15.02	7.504		
2,192.08	2,185.37	2,185.45	2,184.29	7.89	7.83	-148.96	12.05	-71.58	131.14	115.47	15.67	8.368		



Company: Logos Operating LLC
Project: Rio Arriba, NM NAD83
Reference Site: Nautilus 2407-28M
Site Error: 0.00 usft
Reference Well: Nautilus 2407-28M 3H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan #3

Local Co-ordinate Reference: Well Nautilus 2407-28M 3H
TVD Reference: GL 7385' @ 7385.00usft
MD Reference: GL 7385' @ 7385.00usft
North Reference: True
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database:
Offset TVD Reference: Offset Datum

Offset Design: Nautilus 2407-28M - Nautilus 2407-28M 1H - OH - Plan #3

Offset Site Error: 0.00 usft

Offset Well Error: 0.00 usft

Survey Program: 0-MWD+HDGM										Rule Assigned:		Warning	
Reference		Offset		Semi Major Axis		Highside Toothface (")	Offset Wellbore Centre		Distance Between Centres (usft)	Minimum Separation (usft)	Separation Factor		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)					
2,200.00	2,193.06	2,193.16	2,191.93	7.93	7.86	-148.92	12.96	-72.09	132.84	117.11	15.73	8.445	
2,300.00	2,290.15	2,290.42	2,288.02	8.32	8.21	-147.80	26.00	-79.37	154.45	138.01	16.44	9.394	
2,400.00	2,387.25	2,387.27	2,383.16	8.73	8.57	-145.88	41.81	-88.20	176.45	159.29	17.16	10.281	
2,500.00	2,484.35	2,483.50	2,477.04	9.14	8.94	-143.44	60.29	-98.52	199.08	181.19	17.89	11.125	
2,600.00	2,581.44	2,578.91	2,569.35	9.56	9.31	-140.69	81.32	-110.27	222.63	203.99	18.63	11.947	
2,700.00	2,678.54	2,674.86	2,661.59	9.98	9.70	-137.91	104.38	-123.15	247.14	227.74	19.39	12.743	
2,800.00	2,775.63	2,771.15	2,754.14	10.42	10.11	-135.61	127.59	-136.11	272.12	251.95	20.17	13.490	
2,900.00	2,872.73	2,867.45	2,846.69	10.85	10.52	-133.70	150.80	-149.08	297.46	276.49	20.96	14.188	
3,000.00	2,969.83	2,963.74	2,939.24	11.29	10.94	-132.08	174.02	-162.05	323.05	301.28	21.77	14.840	
3,100.00	3,066.92	3,060.04	3,031.80	11.74	11.37	-130.71	197.23	-175.01	348.86	326.27	22.58	15.447	
3,200.00	3,164.02	3,156.34	3,124.35	12.18	11.81	-129.52	220.44	-187.98	374.82	351.42	23.41	16.013	
3,300.00	3,261.11	3,252.63	3,216.90	12.63	12.25	-128.48	243.66	-200.95	400.92	376.68	24.24	16.540	
3,400.00	3,358.21	3,348.93	3,309.45	13.09	12.70	-127.57	266.87	-213.91	427.13	402.05	25.08	17.032	
3,500.00	3,455.31	3,445.22	3,402.01	13.54	13.15	-126.77	290.09	-226.88	453.42	427.50	25.92	17.490	
3,600.00	3,552.40	3,541.52	3,494.56	14.00	13.61	-126.05	313.30	-239.84	479.79	453.02	26.78	17.918	
3,700.00	3,649.50	3,637.81	3,587.11	14.46	14.07	-125.41	336.51	-252.81	506.22	478.59	27.63	18.319	
3,800.00	3,746.60	3,734.11	3,679.66	14.92	14.54	-124.83	359.73	-265.78	532.71	504.21	28.50	18.695	
3,900.00	3,843.69	3,830.41	3,772.21	15.38	15.00	-124.31	382.94	-278.74	559.24	529.88	29.36	19.047	
4,000.00	3,940.79	3,926.70	3,864.77	15.85	15.48	-123.83	406.15	-291.71	585.81	555.58	30.23	19.378	
4,100.00	4,037.88	4,023.00	3,957.32	16.31	15.95	-123.40	429.37	-304.68	612.42	581.31	31.10	19.689	
4,200.00	4,134.98	4,119.29	4,049.87	16.78	16.43	-123.00	452.58	-317.64	639.05	607.07	31.98	19.982	
4,300.00	4,232.08	4,215.59	4,142.42	17.25	16.90	-122.63	475.79	-330.61	665.72	632.85	32.86	20.258	
4,400.00	4,329.17	4,311.89	4,234.97	17.72	17.39	-122.29	499.01	-343.58	692.40	658.66	33.74	20.519	
4,500.00	4,426.27	4,408.18	4,327.53	18.19	17.87	-121.98	522.22	-356.54	719.11	684.48	34.63	20.766	
4,600.00	4,523.36	4,504.48	4,420.08	18.66	18.35	-121.69	545.44	-369.51	745.83	710.32	35.52	20.999	
4,700.00	4,620.46	4,600.77	4,512.63	19.13	18.84	-121.42	568.65	-382.47	772.58	736.17	36.41	21.221	
4,800.00	4,717.56	4,697.07	4,605.18	19.60	19.33	-121.16	591.86	-395.44	799.33	762.03	37.30	21.431	
4,900.00	4,814.65	4,793.36	4,697.73	20.07	19.82	-120.93	615.08	-408.41	826.10	787.91	38.19	21.631	
5,000.00	4,911.75	4,889.66	4,790.29	20.55	20.31	-120.70	638.29	-421.37	852.88	813.80	39.09	21.820	
5,100.00	5,008.84	4,985.96	4,882.84	21.02	20.80	-120.50	661.50	-434.34	879.68	839.69	39.98	22.001	
5,200.00	5,105.94	5,082.25	4,975.39	21.50	21.29	-120.30	684.72	-447.31	906.48	865.60	40.88	22.173	
5,300.00	5,203.04	5,178.55	5,067.94	21.97	21.79	-120.12	707.93	-460.27	933.30	891.51	41.78	22.337	
5,407.46	5,307.37	5,282.02	5,167.40	22.48	22.32	-119.93	732.88	-474.21	962.12	919.37	42.75	22.506	
5,450.00	5,348.88	5,322.86	5,206.64	22.68	22.53	-132.02	742.72	-479.70	973.79	930.67	43.12	22.581	
5,500.00	5,398.03	5,370.84	5,252.77	22.89	22.77	-151.96	754.26	-486.17	988.17	944.63	43.54	22.694	
5,550.00	5,447.35	5,422.16	5,302.58	23.08	23.02	-176.53	764.40	-493.10	1,003.13	959.17	43.96	22.819	
5,600.00	5,496.61	5,473.97	5,353.48	23.25	23.25	160.93	770.95	-500.13	1,018.51	974.18	44.33	22.973	
5,650.00	5,545.56	5,526.30	5,405.24	23.40	23.44	144.61	773.79	-507.21	1,034.26	989.60	44.67	23.155	
5,700.00	5,593.96	5,579.20	5,457.64	23.53	23.61	133.58	772.77	-514.31	1,050.29	1,005.34	44.96	23.362	
5,750.00	5,641.57	5,632.70	5,510.42	23.64	23.75	125.92	767.78	-521.39	1,066.52	1,021.31	45.21	23.591	
5,800.00	5,688.18	5,686.86	5,563.33	23.73	23.87	120.30	758.69	-528.42	1,082.88	1,037.45	45.43	23.838	
5,850.00	5,733.54	5,741.71	5,616.08	23.80	23.97	115.95	745.40	-535.36	1,099.27	1,053.65	45.61	24.101	
5,900.00	5,777.44	5,797.30	5,668.37	23.86	24.05	112.45	727.82	-542.16	1,115.61	1,069.84	45.76	24.377	
5,950.00	5,819.67	5,853.68	5,719.85	23.90	24.11	109.52	705.88	-548.78	1,131.82	1,085.93	45.89	24.664	
6,000.00	5,860.01	5,910.86	5,770.18	23.93	24.15	107.00	679.52	-555.16	1,147.81	1,101.81	45.99	24.957	
6,050.00	5,898.27	5,968.89	5,818.96	23.94	24.18	104.78	648.72	-561.26	1,163.49	1,117.42	46.07	25.253	
6,100.00	5,934.27	6,027.77	5,865.78	23.95	24.19	102.81	613.50	-567.02	1,178.79	1,132.65	46.14	25.547	
6,150.00	5,967.83	6,087.51	5,910.19	23.94	24.19	101.02	573.94	-572.38	1,193.61	1,147.40	46.20	25.834	
6,200.00	5,998.79	6,148.09	5,951.75	23.92	24.18	99.39	530.16	-577.27	1,207.87	1,161.60	46.27	26.107	
6,250.00	6,026.99	6,209.48	5,989.98	23.89	24.17	97.90	482.34	-581.65	1,221.49	1,175.15	46.34	26.361	
6,300.00	6,052.30	6,271.64	6,024.41	23.85	24.14	96.52	430.76	-585.45	1,234.39	1,187.97	46.42	26.589	
6,350.00	6,074.59	6,334.47	6,054.59	23.81	24.12	95.25	375.77	-588.61	1,246.50	1,199.97	46.54	26.785	



Company: Logos Operating LLC
Project: Rio Arriba, NM NAD83
Reference Site: Nautilus 2407-28M
Site Error: 0.00 usft
Reference Well: Nautilus 2407-28M 3H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan #3

Local Co-ordinate Reference: Well Nautilus 2407-28M 3H
TVD Reference: GL 7385' @ 7385.00usft
MD Reference: GL 7385' @ 7385.00usft
North Reference: True
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database:
Offset TVD Reference: Offset Datum

Offset Design: Nautilus 2407-28M - Nautilus 2407-28M 1H - OH - Plan #3

Offset Site Error: 0.00 usft
Offset Well Error: 0.00 usft

Survey Program:		O-MWD+HDGM								Rule Assigned:		Offset Well Error:		0.00 usft	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning		
6,400.00	6,093.76	6,397.89	6,080.10	23.76	24.10	94.08	317.78	-591.08	1,257.75	1,211.07	46.68	26.944			
6,450.00	6,109.72	6,461.76	6,100.56	23.71	24.10	93.00	257.31	-592.83	1,268.08	1,221.21	46.86	27.059			
6,500.00	6,122.37	6,525.96	6,115.66	23.65	24.12	92.00	194.95	-593.81	1,277.42	1,230.33	47.09	27.128			
6,550.00	6,131.68	6,590.33	6,125.20	23.59	24.16	91.09	131.32	-594.02	1,285.72	1,238.37	47.35	27.151			
6,600.00	6,137.58	6,654.68	6,129.03	23.66	24.23	90.27	67.10	-593.45	1,292.96	1,245.30	47.66	27.128			
6,650.00	6,140.04	6,709.68	6,128.45	23.91	24.34	89.59	12.12	-592.43	1,299.20	1,251.22	47.98	27.076			
6,674.33	6,140.00	6,733.84	6,128.02	24.04	24.40	89.35	-12.04	-591.96	1,302.01	1,253.86	48.15	27.040			
6,700.00	6,139.52	6,759.35	6,127.56	24.17	24.47	89.35	-37.53	-591.46	1,304.90	1,256.57	48.34	26.997			
6,800.00	6,137.67	6,858.71	6,125.80	24.76	24.82	89.36	-136.86	-589.52	1,316.16	1,266.99	49.17	26.768			
6,900.00	6,135.81	6,958.07	6,124.03	25.42	25.29	89.37	-236.19	-587.59	1,327.42	1,277.23	50.19	26.449			
7,000.00	6,133.95	7,057.44	6,122.27	26.16	25.86	89.38	-335.52	-585.65	1,338.68	1,287.30	51.38	26.054			
7,100.00	6,132.10	7,156.80	6,120.50	26.96	26.52	89.38	-434.85	-583.72	1,349.94	1,297.20	52.74	25.598			
7,200.00	6,130.24	7,256.17	6,118.74	27.84	27.25	89.39	-534.18	-581.78	1,361.20	1,306.95	54.24	25.095			
7,300.00	6,128.38	7,355.53	6,116.97	28.77	28.04	89.40	-633.51	-579.85	1,372.46	1,316.57	55.89	24.558			
7,400.00	6,126.53	7,454.89	6,115.21	29.76	28.90	89.41	-732.84	-577.91	1,383.72	1,326.06	57.66	24.000			
7,500.00	6,124.67	7,554.26	6,113.44	30.80	29.80	89.42	-832.17	-575.98	1,394.97	1,335.43	59.54	23.429			
7,600.00	6,122.81	7,653.62	6,111.68	31.89	30.76	89.42	-931.50	-574.04	1,406.23	1,344.70	61.53	22.855			
7,700.00	6,120.96	7,752.99	6,109.91	33.03	31.76	89.43	-1,030.83	-572.11	1,417.49	1,353.88	63.61	22.283			
7,800.00	6,119.10	7,852.35	6,108.15	34.20	32.80	89.44	-1,130.15	-570.17	1,428.75	1,362.97	65.78	21.720			
7,900.00	6,117.24	7,951.71	6,106.38	35.41	33.87	89.44	-1,229.48	-568.24	1,440.01	1,371.98	68.03	21.168			
8,000.00	6,115.39	8,051.08	6,104.62	36.65	34.98	89.45	-1,328.81	-566.30	1,451.27	1,380.93	70.34	20.631			
8,100.00	6,113.53	8,150.44	6,102.85	37.92	36.11	89.46	-1,428.14	-564.36	1,462.53	1,389.81	72.72	20.111			
8,200.00	6,111.67	8,249.81	6,101.09	39.22	37.28	89.47	-1,527.47	-562.43	1,473.79	1,398.63	75.16	19.609			
8,300.00	6,109.82	8,349.17	6,099.32	40.54	38.47	89.47	-1,626.80	-560.49	1,485.05	1,407.40	77.65	19.126			
8,400.00	6,107.96	8,448.53	6,097.56	41.88	39.68	89.48	-1,726.13	-558.56	1,496.31	1,416.13	80.18	18.661			
8,500.00	6,106.10	8,547.90	6,095.79	43.25	40.91	89.48	-1,825.46	-556.62	1,507.57	1,424.81	82.76	18.216			
8,600.00	6,104.25	8,647.26	6,094.03	44.63	42.16	89.49	-1,924.79	-554.69	1,518.83	1,433.45	85.38	17.790			
8,700.00	6,102.39	8,746.62	6,092.26	46.03	43.42	89.50	-2,024.12	-552.75	1,530.08	1,442.06	88.03	17.382			
8,800.00	6,100.53	8,845.99	6,090.50	47.44	44.71	89.50	-2,123.45	-550.82	1,541.34	1,450.63	90.71	16.992			
8,900.00	6,098.68	8,945.35	6,088.73	48.87	46.00	89.51	-2,222.78	-548.88	1,552.60	1,459.18	93.43	16.618			
9,000.00	6,096.82	9,044.72	6,086.97	50.31	47.31	89.52	-2,322.11	-546.95	1,563.86	1,467.70	96.17	16.262			
9,100.00	6,094.96	9,144.08	6,085.20	51.77	48.63	89.52	-2,421.44	-545.01	1,575.12	1,476.19	98.93	15.921			
9,200.00	6,093.11	9,243.44	6,083.43	53.23	49.97	89.53	-2,520.77	-543.07	1,586.38	1,484.66	101.72	15.595			
9,300.00	6,091.25	9,342.81	6,081.67	54.71	51.31	89.53	-2,620.10	-541.14	1,597.64	1,493.11	104.53	15.284			
9,400.00	6,089.39	9,442.17	6,079.90	56.19	52.67	89.54	-2,719.43	-539.20	1,608.90	1,501.54	107.36	14.986			
9,500.00	6,087.54	9,541.54	6,078.14	57.68	54.03	89.54	-2,818.76	-537.27	1,620.16	1,509.96	110.20	14.701			
9,600.00	6,085.68	9,640.90	6,076.37	59.18	55.40	89.55	-2,918.08	-535.33	1,631.42	1,518.35	113.07	14.429			
9,700.00	6,083.82	9,740.26	6,074.61	60.69	56.78	89.56	-3,017.41	-533.40	1,642.68	1,526.73	115.94	14.168			
9,800.00	6,081.97	9,839.63	6,072.84	62.20	58.16	89.56	-3,116.74	-531.46	1,653.94	1,535.10	118.84	13.918			
9,900.00	6,080.11	9,938.99	6,071.08	63.72	59.55	89.57	-3,216.07	-529.53	1,665.20	1,543.46	121.74	13.678			
10,000.00	6,078.25	10,038.36	6,069.31	65.25	60.95	89.57	-3,315.40	-527.59	1,676.46	1,551.80	124.66	13.448			
10,100.00	6,076.40	10,137.72	6,067.55	66.78	62.36	89.58	-3,414.73	-525.66	1,687.72	1,560.13	127.59	13.228			
10,200.00	6,074.54	10,237.08	6,065.78	68.32	63.76	89.58	-3,514.06	-523.72	1,698.98	1,568.45	130.53	13.016			
10,300.00	6,072.68	10,336.45	6,064.02	69.86	65.18	89.59	-3,613.39	-521.79	1,710.24	1,576.76	133.48	12.813			
10,400.00	6,070.83	10,435.81	6,062.25	71.40	66.60	89.59	-3,712.72	-519.85	1,721.50	1,585.06	136.43	12.618			
10,500.00	6,068.97	10,535.18	6,060.49	72.95	68.02	89.60	-3,812.05	-517.91	1,732.76	1,593.36	139.40	12.430			
10,600.00	6,067.11	10,634.54	6,058.72	74.51	69.45	89.60	-3,911.38	-515.98	1,744.02	1,601.64	142.38	12.249			
10,700.00	6,065.26	10,733.90	6,056.96	76.07	70.88	89.61	-4,010.71	-514.04	1,755.28	1,609.92	145.36	12.076			
10,800.00	6,063.40	10,833.27	6,055.19	77.63	72.32	89.61	-4,110.04	-512.11	1,766.53	1,618.19	148.35	11.908			
10,900.00	6,061.54	10,932.63	6,053.43	79.19	73.75	89.62	-4,209.37	-510.17	1,777.79	1,626.45	151.34	11.747			
11,000.00	6,059.69	11,032.00	6,051.66	80.76	75.20	89.62	-4,308.70	-508.24	1,789.05	1,634.71	154.35	11.591			
11,100.00	6,057.83	11,131.36	6,049.90	82.33	76.64	89.63	-4,408.03	-506.30	1,800.31	1,642.96	157.36	11.441			



Company: Logos Operating LLC
Project: Rio Arriba, NM NAD83
Reference Site: Nautilus 2407-28M
Site Error: 0.00 usft
Reference Well: Nautilus 2407-28M 3H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan #3

Local Co-ordinate Reference: Well Nautilus 2407-28M 3H
TVD Reference: GL 7385' @ 7385.00usft
MD Reference: GL 7385' @ 7385.00usft
North Reference: True
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database:
Offset TVD Reference: Offset Datum

Offset Design: Nautilus 2407-28M - Nautilus 2407-28M 1H - OH - Plan #3

Offset Site Error: 0.00 usft

Offset Well Error: 0.00 usft

Survey Program:		0-MWD+HDGM		Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Rule Assigned:			Offset Well Error:	0.00 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Reference (usft)	Offset (usft)	+N-S (usft)	+E-W (usft)		Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning		
11,200.00	6,055.97	11,230.72	6,048.13	83.90	78.09	89.63	-4,507.36	-504.37	1,811.57	1,651.20	160.37	11.296					
11,300.00	6,054.12	11,330.09	6,046.37	85.48	79.54	89.63	-4,606.69	-502.43	1,822.83	1,659.44	163.39	11.156					
11,400.00	6,052.26	11,429.45	6,044.60	87.06	80.99	89.64	-4,706.01	-500.50	1,834.09	1,667.68	166.42	11.021					
11,500.00	6,050.40	11,528.82	6,042.84	88.64	82.45	89.64	-4,805.34	-498.56	1,845.35	1,675.91	169.45	10.891					
11,600.00	6,048.55	11,628.18	6,041.07	90.22	83.91	89.65	-4,904.67	-496.62	1,856.61	1,684.13	172.48	10.764					
11,700.00	6,046.69	11,727.54	6,039.31	91.81	85.37	89.65	-5,004.00	-494.69	1,867.87	1,692.35	175.52	10.642					
11,800.00	6,044.84	11,826.91	6,037.54	93.40	86.83	89.66	-5,103.33	-492.75	1,879.13	1,700.57	178.56	10.524					
11,900.00	6,042.98	11,926.27	6,035.78	94.98	88.29	89.66	-5,202.66	-490.82	1,890.39	1,708.78	181.61	10.409					
12,000.00	6,041.12	11,969.97	6,035.00	96.58	88.94	89.66	-5,246.34	-489.97	1,902.47	1,719.08	183.38	10.374					
12,060.41	6,040.00	11,969.97	6,035.00	97.54	88.94	89.66	-5,246.34	-489.97	1,911.96	1,728.27	183.69	10.409					



Company: Logos Operating LLC
Project: Rio Arriba, NM NAD83
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Reference Well: Nautilus 2407-28M 3H
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Local Co-ordinate Reference: Well Nautilus 2407-28M 3H
TVD Reference: GL 7385' @ 7385.00usft
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North Reference: True
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database:
Offset TVD Reference: Offset Datum

Offset Design: Nautilus 2407-28M - Nautilus 2407-28M 2H - OH - Plan #3

Offset Site Error: 0.00 usft

Offset Well Error: 0.00 usft

Survey Program:		0-MWD+HDGM		Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Rule Assigned:		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Reference (usft)	Offset (usft)	Reference (usft)	Offset (usft)		+N-S (usft)	+E-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-99.81	-5.10	-29.47	29.91				
100.00	100.00	100.00	100.00	0.36	0.36	0.36	0.36	0.36	0.36	-99.81	-5.10	-29.47	29.91	29.20	0.72	41.722	
200.00	200.00	200.00	200.00	0.72	0.72	0.72	0.72	0.72	0.72	-99.81	-5.10	-29.47	29.91	28.48	1.43	20.861	
300.00	300.00	300.00	300.00	1.08	1.08	1.08	1.08	1.08	1.08	-99.81	-5.10	-29.47	29.91	27.76	2.15	13.907	
400.00	400.00	400.00	400.00	1.43	1.43	1.43	1.43	1.43	1.43	-99.81	-5.10	-29.47	29.91	27.04	2.87	10.431	
500.00	500.00	500.00	500.00	1.79	1.79	1.79	1.79	1.79	1.79	-99.81	-5.10	-29.47	29.91	26.33	3.58	8.344	
600.00	600.00	600.00	600.00	2.15	2.15	2.15	2.15	2.15	2.15	-99.81	-5.10	-29.47	29.91	25.61	4.30	6.954	
700.00	700.00	700.00	700.00	2.51	2.51	2.51	2.51	2.51	2.51	-99.81	-5.10	-29.47	29.91	24.89	5.02	5.960	
800.00	800.00	800.00	800.00	2.87	2.87	2.87	2.87	2.87	2.87	-99.81	-5.10	-29.47	29.91	24.18	5.74	5.215	
900.00	900.00	900.00	900.00	3.23	3.23	3.23	3.23	3.23	3.23	-99.81	-5.10	-29.47	29.91	23.46	6.45	4.636	
1,000.00	1,000.00	1,000.00	1,000.00	3.58	3.58	3.58	3.58	3.58	3.58	-99.81	-5.10	-29.47	29.91	22.74	7.17	4.172	
1,100.00	1,100.00	1,100.00	1,100.00	3.94	3.94	3.94	3.94	3.94	3.94	-99.81	-5.10	-29.47	29.91	22.03	7.89	3.793	
1,166.67	1,166.67	1,166.67	1,166.67	4.18	4.18	4.18	4.18	4.18	4.18	-99.81	-5.10	-29.47	29.91	21.55	8.36	3.576	
1,200.00	1,200.00	1,200.00	1,200.00	4.30	4.30	4.30	4.30	4.30	4.30	-99.81	-5.10	-29.47	29.91	21.31	8.60	3.477 CC, ES	
1,300.00	1,300.00	1,299.08	1,299.06	4.66	4.64	4.66	4.64	4.66	4.64	-101.46	-6.23	-30.76	31.40	22.10	9.30	3.376 SF	
1,400.00	1,400.00	1,397.93	1,397.77	5.02	4.97	5.02	4.97	5.02	4.97	-105.57	-9.64	-34.58	35.97	26.00	9.97	3.606	
1,500.00	1,500.00	1,496.84	1,496.33	5.38	5.31	5.38	5.31	5.38	5.31	-110.37	-15.14	-40.77	43.65	33.00	10.65	4.098	
1,600.00	1,599.98	1,596.25	1,595.34	5.73	5.65	5.73	5.65	5.73	5.65	-148.90	-21.10	-47.48	53.64	42.30	11.34	4.730	
1,700.00	1,699.84	1,695.25	1,693.93	6.09	5.99	6.09	5.99	6.09	5.99	-153.31	-27.03	-54.15	66.95	54.92	12.03	5.564	
1,800.00	1,799.45	1,793.69	1,791.98	6.45	6.34	6.45	6.34	6.45	6.34	-157.16	-32.93	-60.79	83.71	70.98	12.73	6.578	
1,900.00	1,898.70	1,891.47	1,889.36	6.81	6.69	6.81	6.69	6.81	6.69	-160.35	-38.79	-67.38	103.95	90.54	13.42	7.748	
2,000.00	1,997.47	1,988.47	1,985.95	7.17	7.03	7.17	7.03	7.17	7.03	-162.92	-44.61	-73.93	127.68	113.57	14.11	9.052	
2,100.00	2,095.62	2,084.56	2,081.65	7.54	7.38	7.54	7.38	7.54	7.38	-164.98	-50.37	-80.41	154.85	140.06	14.79	10.468	
2,192.08	2,185.37	2,172.13	2,168.87	7.89	7.70	7.89	7.70	7.89	7.70	-166.53	-55.62	-86.31	182.88	167.46	15.42	11.859	
2,200.00	2,193.06	2,179.63	2,176.34	7.93	7.72	7.93	7.72	7.93	7.72	-166.66	-56.07	-86.82	185.41	169.93	15.48	11.979	
2,300.00	2,290.15	2,274.24	2,270.56	8.32	8.07	8.32	8.07	8.32	8.07	-168.05	-61.74	-93.20	217.47	201.32	16.16	13.461	
2,400.00	2,387.25	2,368.84	2,364.78	8.73	8.42	8.73	8.42	8.73	8.42	-169.08	-67.41	-99.58	249.62	232.78	16.84	14.827	
2,500.00	2,484.35	2,463.45	2,459.00	9.14	8.76	9.14	8.76	9.14	8.76	-169.88	-73.08	-105.96	281.82	264.30	17.52	16.086	
2,600.00	2,581.44	2,558.06	2,553.23	9.56	9.11	9.56	9.11	9.56	9.11	-170.52	-78.75	-112.34	314.06	295.85	18.21	17.250	
2,700.00	2,678.54	2,652.67	2,647.45	9.98	9.46	9.98	9.46	9.98	9.46	-171.03	-84.42	-118.72	346.33	327.43	18.90	18.328	
2,800.00	2,775.63	2,747.28	2,741.67	10.42	9.81	10.42	9.81	10.42	9.81	-171.46	-90.09	-125.10	378.62	359.03	19.59	19.328	
2,900.00	2,872.73	2,841.89	2,835.89	10.85	10.16	10.85	10.16	10.85	10.16	-171.82	-95.77	-131.48	410.93	390.64	20.28	20.260	
3,000.00	2,969.83	2,936.50	2,930.12	11.29	10.51	11.29	10.51	11.29	10.51	-172.13	-101.44	-137.86	443.24	422.27	20.98	21.128	
3,100.00	3,066.92	3,031.10	3,024.34	11.74	10.87	11.74	10.87	11.74	10.87	-172.40	-107.11	-144.24	475.57	453.90	21.68	21.939	
3,200.00	3,164.02	3,125.71	3,118.56	12.18	11.22	12.18	11.22	12.18	11.22	-172.63	-112.78	-150.62	507.91	485.53	22.38	22.698	
3,300.00	3,261.11	3,220.32	3,212.78	12.63	11.57	12.63	11.57	12.63	11.57	-172.84	-118.45	-157.00	540.25	517.18	23.08	23.409	
3,400.00	3,358.21	3,314.93	3,307.01	13.09	11.93	13.09	11.93	13.09	11.93	-173.02	-124.12	-163.38	572.60	548.82	23.78	24.078	
3,500.00	3,455.31	3,409.54	3,401.23	13.54	12.28	13.54	12.28	13.54	12.28	-173.18	-129.79	-169.76	604.96	580.47	24.49	24.707	
3,600.00	3,552.40	3,504.15	3,495.45	14.00	12.64	14.00	12.64	14.00	12.64	-173.33	-135.46	-176.14	637.31	612.12	25.19	25.300	
3,700.00	3,649.50	3,598.75	3,589.67	14.46	12.99	14.46	12.99	14.46	12.99	-173.46	-141.14	-182.52	669.67	643.78	25.90	25.860	
3,800.00	3,746.60	3,693.36	3,683.90	14.92	13.35	14.92	13.35	14.92	13.35	-173.58	-146.81	-188.90	702.04	675.43	26.60	26.389	
3,900.00	3,843.69	3,787.97	3,778.12	15.38	13.71	15.38	13.71	15.38	13.71	-173.69	-152.48	-195.28	734.40	707.09	27.31	26.890	
4,000.00	3,940.79	3,882.58	3,872.34	15.85	14.06	15.85	14.06	15.85	14.06	-173.79	-158.15	-201.66	766.77	738.75	28.02	27.365	
4,100.00	4,037.88	3,977.19	3,966.56	16.31	14.42	16.31	14.42	16.31	14.42	-173.88	-163.82	-208.04	799.14	770.41	28.73	27.816	
4,200.00	4,134.98	4,071.80	4,060.79	16.78	14.78	16.78	14.78	16.78	14.78	-173.96	-169.49	-214.42	831.51	802.07	29.44	28.244	
4,300.00	4,232.08	4,166.41	4,155.01	17.25	15.13	17.25	15.13	17.25	15.13	-174.04	-175.16	-220.80	863.89	833.74	30.15	28.652	
4,400.00	4,329.17	4,261.01	4,249.23	17.72	15.49	17.72	15.49	17.72	15.49	-174.11	-180.83	-227.18	896.26	865.40	30.86	29.040	
4,500.00	4,426.27	4,355.62	4,343.45	18.19	15.85	18.19	15.85	18.19	15.85	-174.18	-186.51	-233.56	928.64	897.06	31.58	29.410	
4,600.00	4,523.36	4,450.23	4,437.68	18.66	16.21	18.66	16.21	18.66	16.21	-174.24	-192.18	-239.94	961.02	928.73	32.29	29.763	
4,700.00	4,620.46	4,544.84	4,531.90	19.13	16.56	19.13	16.56	19.13	16.56	-174.30	-197.85	-246.32	993.39	960.39	33.00	30.101	
4,800.00	4,717.56	4,639.45	4,626.12	19.60	16.92	19.60	16.92	19.60	16.92	-174.36	-203.52	-252.70	1,025.77	992.06	33.72	30.424	
4,900.00	4,814.65	4,734.06	4,720.34	20.07	17.28	20.07	17.28	20.07	17.28	-174.41	-209.19	-259.08	1,058.15	1,023.72	34.43	30.733	



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Database:
Offset TVD Reference: Offset Datum

Offset Design: Nautilus 2407-28M - Nautilus 2407-28M 2H - OH - Plan #3

Offset Site Error: 0.00 usft

Offset Well Error: 0.00 usft

Survey Program:		0-MWD+HDGM								Rule Assigned:		Offset Well Error:		0.00 usft	
Reference	Offset	Reference	Offset	Semi Major Axis		Offset Wellbore Centre		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning		
5,000.00	4,911.75	4,828.66	4,814.57	20.55	17.64	-174.46	-214.86	-265.46	1,090.53	1,055.39	35.15	31.029			
5,100.00	5,008.84	4,923.27	4,908.79	21.02	18.00	-174.50	-220.53	-271.84	1,122.91	1,087.05	35.86	31.312			
5,200.00	5,105.94	5,017.88	5,003.01	21.50	18.36	-174.55	-226.20	-278.22	1,155.30	1,118.72	36.58	31.585			
5,300.00	5,203.04	5,112.49	5,097.24	21.97	18.71	-174.59	-231.88	-284.60	1,187.68	1,150.38	37.29	31.846			
5,407.46	5,307.37	5,214.15	5,198.48	22.48	19.10	-174.63	-237.97	-291.46	1,222.47	1,184.41	38.06	32.116			
5,450.00	5,348.88	5,254.66	5,238.83	22.68	19.25	-173.30	-240.40	-294.19	1,235.44	1,197.08	38.37	32.200			
5,500.00	5,398.03	5,302.79	5,286.76	22.89	19.44	153.54	-243.28	-297.43	1,248.59	1,209.87	38.72	32.246			
5,550.00	5,447.35	5,351.27	5,335.04	23.08	19.62	129.36	-246.19	-300.70	1,259.42	1,220.35	39.07	32.236			
5,600.00	5,496.61	5,399.85	5,383.43	23.25	19.81	107.52	-249.10	-303.98	1,267.92	1,228.51	39.41	32.172			
5,650.00	5,545.56	5,454.15	5,437.50	23.40	20.01	92.26	-252.12	-307.84	1,274.06	1,234.28	39.79	32.023			
5,700.00	5,593.96	5,518.30	5,501.19	23.53	20.25	82.90	-252.35	-315.24	1,277.44	1,237.22	40.22	31.759			
5,750.00	5,641.57	5,576.80	5,558.72	23.64	20.47	77.33	-248.74	-325.19	1,278.19	1,237.58	40.61	31.477			
5,800.00	5,688.18	5,628.55	5,608.83	23.73	20.65	74.08	-242.53	-336.47	1,276.71	1,235.77	40.94	31.185			
5,850.00	5,733.54	5,673.13	5,651.20	23.80	20.81	72.26	-234.95	-348.02	1,273.45	1,232.23	41.22	30.894			
5,900.00	5,777.44	5,710.67	5,686.20	23.86	20.94	71.31	-226.97	-359.01	1,268.81	1,227.36	41.45	30.610			
5,950.00	5,819.67	5,741.65	5,714.53	23.90	21.04	70.90	-219.31	-368.94	1,263.17	1,221.53	41.64	30.339			
6,000.00	5,860.01	5,766.71	5,737.03	23.93	21.13	70.80	-212.41	-377.53	1,256.84	1,215.07	41.78	30.084			
6,050.00	5,898.27	5,786.51	5,754.55	23.94	21.19	70.88	-206.52	-384.65	1,250.11	1,208.23	41.88	29.851			
6,100.00	5,934.27	5,800.00	5,766.32	23.95	21.24	70.97	-202.29	-389.68	1,243.17	1,201.24	41.93	29.650			
6,150.00	5,967.83	5,812.98	5,777.55	23.94	21.28	71.23	-198.05	-394.64	1,236.21	1,194.24	41.98	29.449			
6,200.00	5,998.79	5,820.78	5,784.23	23.92	21.31	71.42	-195.43	-397.68	1,229.37	1,187.38	41.99	29.281			
6,250.00	6,026.99	5,825.59	5,788.34	23.89	21.32	71.57	-193.78	-399.58	1,222.74	1,180.76	41.97	29.131			
6,300.00	6,052.30	5,827.82	5,790.22	23.85	21.33	71.68	-193.02	-400.46	1,216.40	1,174.45	41.95	28.998			
6,350.00	6,074.59	5,827.78	5,790.19	23.81	21.33	71.74	-193.03	-400.45	1,210.40	1,168.49	41.91	28.878			
6,400.00	6,093.76	5,825.77	5,788.48	23.76	21.32	71.75	-193.72	-399.65	1,204.78	1,162.90	41.88	28.767			
6,450.00	6,109.72	5,822.02	5,785.29	23.71	21.31	71.71	-195.01	-398.17	1,199.56	1,157.71	41.85	28.660			
6,500.00	6,122.37	5,816.74	5,780.77	23.65	21.29	71.62	-196.80	-396.10	1,194.75	1,152.91	41.84	28.556			
6,550.00	6,131.68	5,800.00	5,766.32	23.59	21.24	71.03	-202.29	-389.68	1,190.40	1,148.69	41.71	28.541			
6,600.00	6,137.58	5,800.00	5,766.32	23.66	21.24	71.24	-202.29	-389.68	1,186.28	1,144.45	41.83	28.358			
6,650.00	6,140.04	5,800.00	5,766.32	23.91	21.24	71.47	-202.29	-389.68	1,182.62	1,140.62	42.00	28.159			
6,674.33	6,140.00	5,800.00	5,766.32	24.04	21.24	71.58	-202.29	-389.68	1,181.01	1,138.92	42.09	28.056			
6,700.00	6,139.52	5,783.50	5,751.89	24.17	21.18	70.84	-207.44	-383.55	1,179.43	1,137.46	41.98	28.096			
6,759.92	6,138.41	5,772.29	5,741.99	24.51	21.15	70.33	-210.79	-379.50	1,178.01	1,135.91	42.11	27.977			
6,800.00	6,137.67	5,765.19	5,735.68	24.76	21.12	70.01	-212.85	-376.99	1,178.65	1,136.46	42.19	27.936			
6,900.00	6,135.81	5,750.00	5,722.07	25.42	21.07	69.31	-217.08	-371.75	1,185.82	1,143.32	42.50	27.903			
7,000.00	6,133.95	5,733.88	5,707.47	26.16	21.02	68.57	-221.32	-366.38	1,200.87	1,158.05	42.82	28.043			
7,100.00	6,132.10	5,720.42	5,695.17	26.96	20.97	67.95	-224.66	-362.06	1,223.57	1,180.37	43.20	28.323			
7,200.00	6,130.24	5,700.00	5,676.32	27.84	20.90	67.01	-229.38	-355.77	1,253.61	1,210.14	43.48	28.834			
7,300.00	6,128.38	5,700.00	5,676.32	28.77	20.90	67.01	-229.38	-355.77	1,290.35	1,246.33	44.02	29.312			
7,400.00	6,126.53	5,700.00	5,676.32	29.76	20.90	67.01	-229.38	-355.77	1,333.59	1,289.07	44.52	29.954			
7,500.00	6,124.67	5,677.30	5,655.13	30.80	20.82	65.96	-234.13	-349.18	1,382.21	1,337.51	44.70	30.925			
7,600.00	6,122.81	5,668.61	5,646.95	31.89	20.79	65.56	-235.81	-346.77	1,436.16	1,391.15	45.01	31.908			
7,700.00	6,120.96	5,650.00	5,629.32	33.03	20.73	64.70	-239.14	-341.82	1,494.84	1,449.66	45.17	33.092			
7,800.00	6,119.10	5,650.00	5,629.32	34.20	20.73	64.70	-239.14	-341.82	1,557.41	1,511.90	45.51	34.224			
7,900.00	6,117.24	5,650.00	5,629.32	35.41	20.73	64.70	-239.14	-341.82	1,623.73	1,577.94	45.79	35.458			
8,000.00	6,115.39	5,650.00	5,629.32	36.65	20.73	64.70	-239.14	-341.82	1,693.37	1,647.33	46.04	36.781			
8,100.00	6,113.53	5,650.00	5,629.32	37.92	20.73	64.70	-239.14	-341.82	1,765.92	1,719.67	46.25	38.182			
8,200.00	6,111.67	5,628.02	5,608.32	39.22	20.65	63.69	-242.61	-336.35	1,840.58	1,794.33	46.25	39.799			
8,300.00	6,109.82	5,622.72	5,603.23	40.54	20.63	63.45	-243.37	-335.09	1,917.74	1,871.37	46.37	41.359			
8,400.00	6,107.96	5,600.00	5,581.29	41.88	20.55	62.41	-246.30	-329.96	1,997.17	1,950.83	46.34	43.101			
8,500.00	6,106.10	5,600.00	5,581.29	43.25	20.55	62.41	-246.30	-329.96	2,077.92	2,031.45	46.47	44.718			
8,600.00	6,104.25	5,600.00	5,581.29	44.63	20.55	62.41	-246.30	-329.96	2,160.28	2,113.70	46.58	46.378			



Company: Logos Operating LLC
Project: Rio Arriba, NM NAD83
Reference Site: Nautilus 2407-28M
Site Error: 0.00 usft
Reference Well: Nautilus 2407-28M 3H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan #3

Local Co-ordinate Reference: Well Nautilus 2407-28M 3H
TVD Reference: GL 7385' @ 7385.00usft
MD Reference: GL 7385' @ 7385.00usft
North Reference: True
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database:
Offset TVD Reference: Offset Datum

Offset Design: Nautilus 2407-28M - Nautilus 2407-28M 2H - OH - Plan #3

Offset Site Error: 0.00 usft

Offset Well Error: 0.00 usft

Survey Program:		0-MWD+HDGM		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Rule Assigned:				Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Reference (usft)	Offset (usft)		+N-S (usft)	+E-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
8,700.00	6,102.39	5,600.00	5,581.29	46.03	20.55	46.03	20.55	62.41	-246.30	-329.96	2,244.08	2,197.40	46.68	48.077	
8,800.00	6,100.53	5,600.00	5,581.29	47.44	20.55	47.44	20.55	62.41	-246.30	-329.96	2,329.16	2,282.39	46.76	49.810	
8,900.00	6,098.68	5,600.00	5,581.29	48.87	20.55	48.87	20.55	62.41	-246.30	-329.96	2,415.38	2,368.54	46.83	51.572	
9,000.00	6,096.82	5,600.00	5,581.29	50.31	20.55	50.31	20.55	62.41	-246.30	-329.96	2,502.62	2,455.72	46.90	53.362	
9,100.00	6,094.96	5,600.00	5,581.29	51.77	20.55	51.77	20.55	62.41	-246.30	-329.96	2,590.79	2,543.83	46.96	55.175	
9,200.00	6,093.11	5,600.00	5,581.29	53.23	20.55	53.23	20.55	62.41	-246.30	-329.96	2,679.79	2,632.78	47.01	57.008	
9,300.00	6,091.25	5,600.00	5,581.29	54.71	20.55	54.71	20.55	62.41	-246.30	-329.96	2,769.54	2,722.48	47.05	58.861	
9,400.00	6,089.39	5,600.00	5,581.29	56.19	20.55	56.19	20.55	62.41	-246.30	-329.96	2,859.97	2,812.87	47.09	60.730	
9,500.00	6,087.54	5,577.91	5,559.80	57.68	20.47	57.68	20.47	61.42	-248.63	-325.41	2,950.60	2,903.57	47.02	62.745	
9,600.00	6,085.68	5,575.26	5,557.21	59.18	20.46	59.18	20.46	61.30	-248.88	-324.89	3,042.10	2,995.05	47.05	64.656	
9,700.00	6,083.82	5,572.72	5,554.73	60.69	20.45	60.69	20.45	61.19	-249.11	-324.40	3,134.12	3,087.04	47.07	66.578	
9,800.00	6,081.97	5,550.00	5,532.46	62.20	20.37	62.20	20.37	60.18	-250.84	-320.26	3,226.94	3,179.93	47.01	68.645	
9,900.00	6,080.11	5,550.00	5,532.46	63.72	20.37	63.72	20.37	60.18	-250.84	-320.26	3,319.77	3,272.73	47.04	70.569	
10,000.00	6,078.25	5,550.00	5,532.46	65.25	20.37	65.25	20.37	60.18	-250.84	-320.26	3,413.01	3,365.93	47.08	72.500	
10,100.00	6,076.40	5,550.00	5,532.46	66.78	20.37	66.78	20.37	60.18	-250.84	-320.26	3,506.62	3,459.51	47.11	74.439	
10,200.00	6,074.54	5,550.00	5,532.46	68.32	20.37	68.32	20.37	60.18	-250.84	-320.26	3,600.57	3,553.43	47.14	76.385	
10,300.00	6,072.68	5,550.00	5,532.46	69.86	20.37	69.86	20.37	60.18	-250.84	-320.26	3,694.84	3,647.67	47.17	78.336	
10,400.00	6,070.83	5,550.00	5,532.46	71.40	20.37	71.40	20.37	60.18	-250.84	-320.26	3,789.40	3,742.21	47.20	80.291	
10,500.00	6,068.97	5,550.00	5,532.46	72.95	20.37	72.95	20.37	60.18	-250.84	-320.26	3,884.24	3,837.01	47.22	82.251	
10,600.00	6,067.11	5,550.00	5,532.46	74.51	20.37	74.51	20.37	60.18	-250.84	-320.26	3,979.33	3,932.07	47.25	84.214	
10,700.00	6,065.26	5,550.00	5,532.46	76.07	20.37	76.07	20.37	60.18	-250.84	-320.26	4,074.65	4,027.37	47.28	86.180	
10,800.00	6,063.40	5,550.00	5,532.46	77.63	20.37	77.63	20.37	60.18	-250.84	-320.26	4,170.19	4,122.89	47.31	88.148	
10,900.00	6,061.54	5,550.00	5,532.46	79.19	20.37	79.19	20.37	60.18	-250.84	-320.26	4,265.94	4,218.60	47.34	90.118	
11,000.00	6,059.69	5,550.00	5,532.46	80.76	20.37	80.76	20.37	60.18	-250.84	-320.26	4,361.88	4,314.51	47.37	92.089	
11,100.00	6,057.83	5,550.00	5,532.46	82.33	20.37	82.33	20.37	60.18	-250.84	-320.26	4,458.00	4,410.60	47.39	94.062	
11,200.00	6,055.97	5,550.00	5,532.46	83.90	20.37	83.90	20.37	60.18	-250.84	-320.26	4,554.28	4,506.86	47.42	96.034	
11,300.00	6,054.12	5,550.00	5,532.46	85.48	20.37	85.48	20.37	60.18	-250.84	-320.26	4,650.72	4,603.27	47.45	98.007	
11,400.00	6,052.26	5,550.00	5,532.46	87.06	20.37	87.06	20.37	60.18	-250.84	-320.26	4,747.31	4,699.82	47.48	99.979	
11,500.00	6,050.40	5,550.00	5,532.46	88.64	20.37	88.64	20.37	60.18	-250.84	-320.26	4,844.03	4,796.52	47.51	101.950	
11,600.00	6,048.55	5,550.00	5,532.46	90.22	20.37	90.22	20.37	60.18	-250.84	-320.26	4,940.89	4,893.35	47.54	103.921	
11,700.00	6,046.69	5,550.00	5,532.46	91.81	20.37	91.81	20.37	60.18	-250.84	-320.26	5,037.87	4,990.29	47.58	105.891	
11,800.00	6,044.84	5,550.00	5,532.46	93.40	20.37	93.40	20.37	60.18	-250.84	-320.26	5,134.97	5,087.36	47.61	107.859	
11,900.00	6,042.98	5,550.00	5,532.46	94.98	20.37	94.98	20.37	60.18	-250.84	-320.26	5,232.17	5,184.53	47.64	109.825	
12,000.00	6,041.12	5,550.00	5,532.46	96.58	20.37	96.58	20.37	60.18	-250.84	-320.26	5,329.48	5,281.80	47.67	111.789	
12,060.41	6,040.00	5,550.00	5,532.46	97.54	20.37	97.54	20.37	60.18	-250.84	-320.26	5,388.31	5,340.62	47.70	112.974	



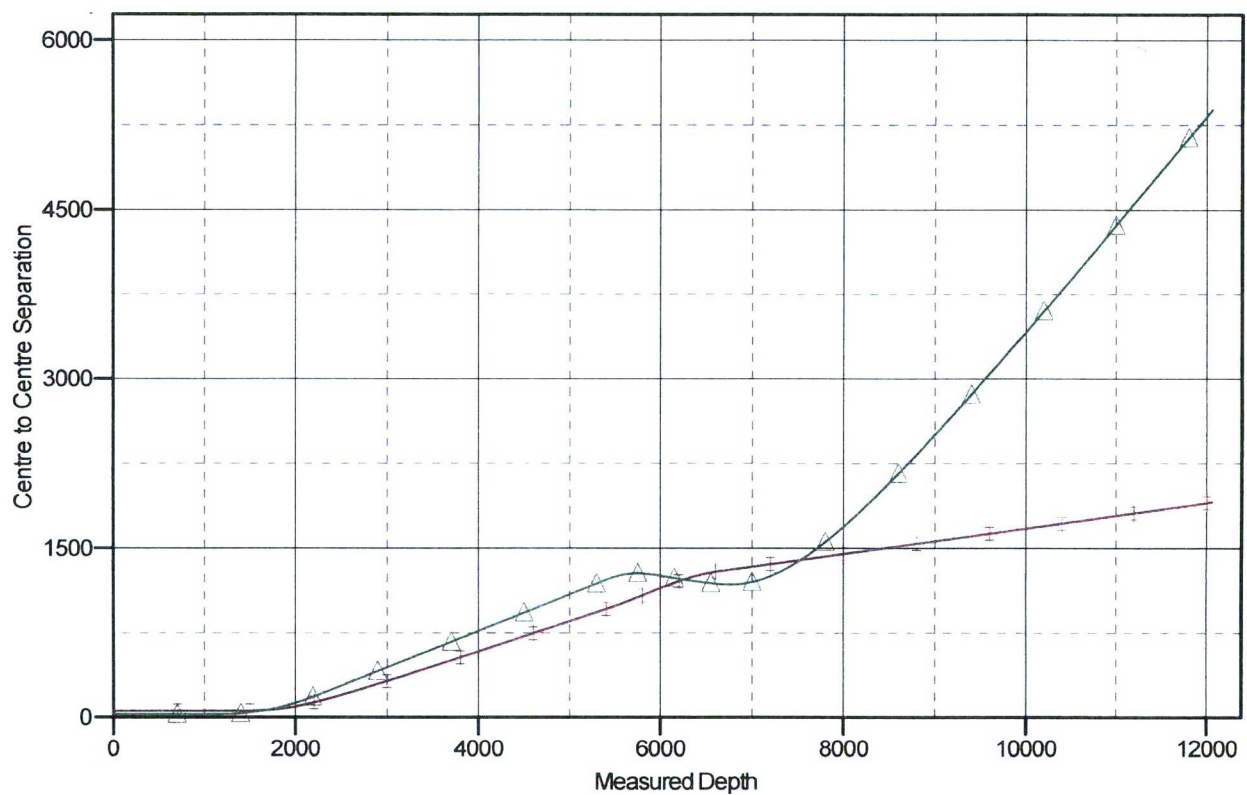
Company: Logos Operating LLC
Project: Rio Arriba, NM NAD83
Reference Site: Nautilus 2407-28M
Site Error: 0.00 usft
Reference Well: Nautilus 2407-28M 3H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan #3

Local Co-ordinate Reference: Well Nautilus 2407-28M 3H
TVD Reference: GL 7385' @ 7385.00usft
MD Reference: GL 7385' @ 7385.00usft
North Reference: True
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database:
Offset TVD Reference: Offset Datum

Reference Depths are relative to GL 7385' @ 7385.00usft
Offset Depths are relative to Offset Datum
Central Meridian is -107.8333334

Coordinates are relative to: Nautilus 2407-28M 3H
Coordinate System is US State Plane 1983, New Mexico Western Zone
Grid Convergence at Surface is: 0.15°

Ladder Plot



LEGEND

Nautilus2407-28M11:CH:Pen #3 VO Nautilus2407-28M21:CH:Pen #3 VO



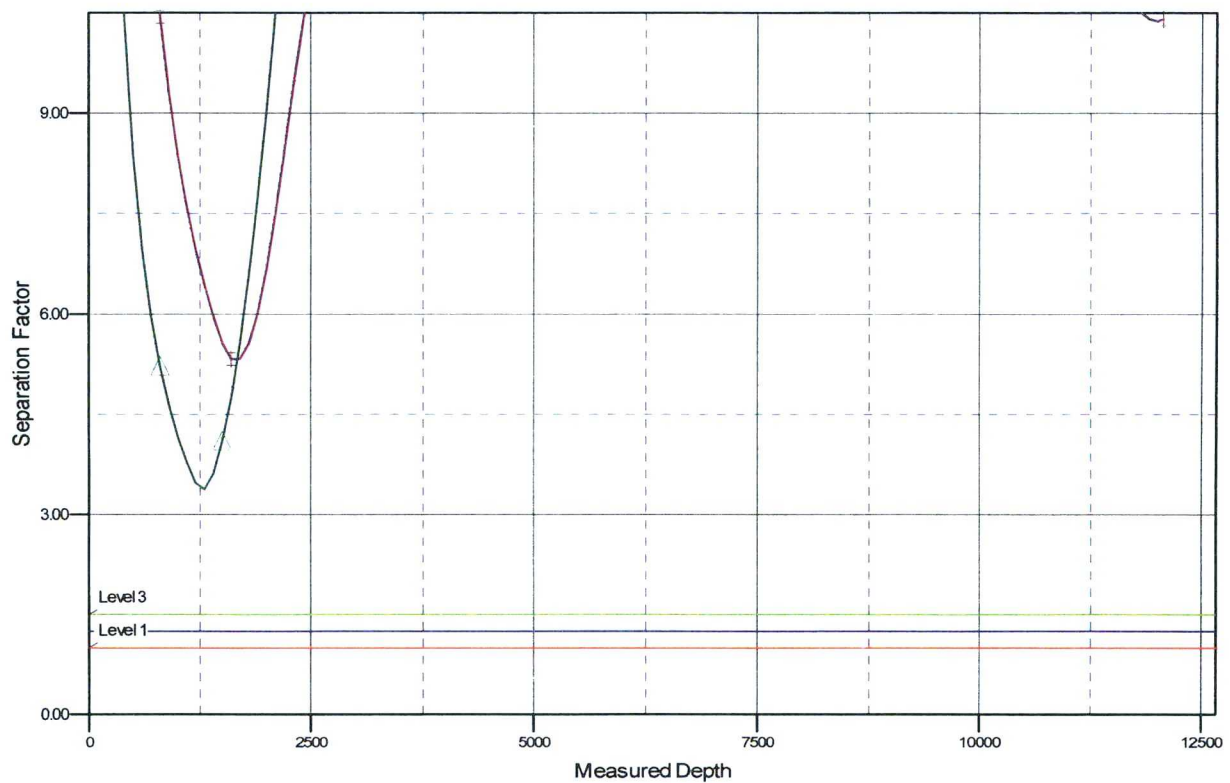
Company: Logos Operating LLC
Project: Rio Arriba, NM NAD83
Reference Site: Nautilus 2407-28M
Site Error: 0.00 usft
Reference Well: Nautilus 2407-28M 3H
Well Error: 0.00 usft
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Local Co-ordinate Reference: Well Nautilus 2407-28M 3H
TVD Reference: GL 7385' @ 7385.00usft
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Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database:
Offset TVD Reference: Offset Datum

Reference Depths are relative to GL 7385' @ 7385.00usft
Offset Depths are relative to Offset Datum
Central Meridian is -107.8333334

Coordinates are relative to: Nautilus 2407-28M 3H
Coordinate System is US State Plane 1983, New Mexico Western Zone
Grid Convergence at Surface is: 0.15°

Separation Factor Plot



LEGEND

Nautilus 2407-28M 1H, CH Plan #3 UD Nautilus 2407-28M 2H, CH Plan #3 UD