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

Sundry Print Report

03/13/2024

Well Name: ROSA UNIT	**Well Location:** T31N / R5W / SEC 7 / NESE /	**County or Parish/State:**
Well Number: 702H	**Type of Well:** CONVENTIONAL GAS WELL	**Allottee or Tribe Name:**
Lease Number: NMSF0078767	**Unit or CA Name:**	**Unit or CA Number:** NMNM078407E
US Well Number: 3003931439	**Well Status:** Approved Application for Permit to Drill	**Operator:** LOGOS OPERATING LLC

Notice of Intent

Sundry ID: 2779144

Type of Submission: Notice of Intent

Type of Action: Other

Date Sundry Submitted: 03/11/2024

Time Sundry Submitted: 02:17

Date proposed operation will begin: 04/01/2024

Procedure Description: LOGOS Operating request a change in plans for subject well. See attached C102, Operations and Directional Drilling plans.

Surface Disturbance

Is any additional surface disturbance proposed?: No

NOI Attachments

Procedure Description

3160_005_Rosa_Unit_702H_Change_in_Plan_2__20240311_20240311141544.pdf

CONFIDENTIAL

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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 11, 2024 02:17 PM

Name: LOGOS OPERATING LLC

Title: Regulatory Specialist

Street Address: 2010 AFTON PLACE

City: Farmington **State:** NM

Phone: (505) 324-4154

Email address: ETRUJILLO@LOGOSRESOURCESLLC.COM

Field

Representative Name:

Street Address:

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

Phone:

Email address:

BLM Point of Contact

BLM POC Name: KENNETH G RENNICK

BLM POC Title: Petroleum Engineer

BLM POC Phone: 5055647742

BLM POC Email Address: krennick@blm.gov

Disposition: Approved

Disposition Date: 03/12/2024

Signature: Kenneth Rennick

CONFIDENTIAL

Form 3160-5
(June 2019)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED OMB
No. 1004-0137 Expires:
December 31, 2024

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.:

1. Type of Well: ☐ Oil Well ☒ Gas Well ☐ Other

8. Well Name and No.: ROSA UNIT 702H

2. Name of Operator: LOGOS OPERATING, LLC

9. API Well No.: 30-039-31439

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)*: UNIT J SEC 7 T31N 5W 2612' FSL 1322' FEL

11. Country or Parish, State: RIO ARRIBA, NEW MEXICO

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	
	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal	

13. Describe Proposed or Completed Operation: Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recomplete horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be perfonned 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 detennined that the site is ready for final inspection.)

LOGOS Operating request a change in plans for the following (based on KB elevation):

Original surface-hole location from 2612' FSL & 1322' FEL to **new surface-hole location 2612' FSL & 1322' FEL**
Original bottom-hole location from 1174' FSL & 1136' FWL to **new bottom-hole location 1086' FSL & 1109' FWL**
Original TD @ 17,962' (MD) 6,897' (TVD) to **new TD @ 18,024' (MD) 6,913' (TVD)**.

Geology tops have been updated per changes.
Original KOP @ 6,459' MD 6,311' TVD to **new KOP @ 6,497' MD 6,329' TVD**
Original Landing point @ 7,461' MD 6,930' TVD to **new Landing point @ 7,500' MD 6,947' TVD**

Original 13.375" Surface casing @ 320' MD to **new 20" Surface casing @ 320' MD**
Original 9,625" casing Intermediate @ 6,352' MD to **new 9.625" Intermediate casing @ 6,410' MD**
Original 5.5" casing Production casing @ 17,962' MD to **new 5.5" Production casing @ 18,024' MD**

All cementing bbls and sacks have been update per casing depth changes.
Attached: New C102, Operation and Directional Drill plans.

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

Title: Regulatory Specialist

Signature: Etta Trujillo

Date: 3/11/2024

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)

Received by OCD: 3/13/2024 7:16:33 AM

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
30-039-31439	97232	BASIN MANCOS

[4] Property Code	[5] Property Name	[6] Well Number
320608	ROSA UNIT	702H

[7] OGRID No.	[8] Operator Name	[9] Elevation
289408	LOGOS OPERATING, LLC	6295'

[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
J	7	31N	5W		2612	SOUTH	1322	EAST	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
M	11	31N	6W		1086	SOUTH	1109	WEST	RIO ARRIBA

[12] Dedicated Acres		[13] Joint or Infill	[14] Consolidation Code	[15] Order No.
823.25	S/2 – Sections 11, 12, T31N, R6W S/2 – Section 7, T31N, R5W			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 — 3/11/2024
Signature — Date

Etta Trujillo
Printed Name

etrujillo@logosresourcesllc.co
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: MARCH 11, 2024
Survey Date: NOVEMBER 15, 2021

Signature and Seal of Professional Surveyor

JASON C. EDWARDS
NEW MEXICO
15269
REGISTERED PROFESSIONAL SURVEYOR

JASON C. EDWARDS
Certificate Number 15269

LAST TAKE POINT (C)
1086' FSL 1109' FWL
SECTION 11, T31N, R6W
LAT 36.909867 °N
LONG -107.436833 °W
DATUM: NAD1927

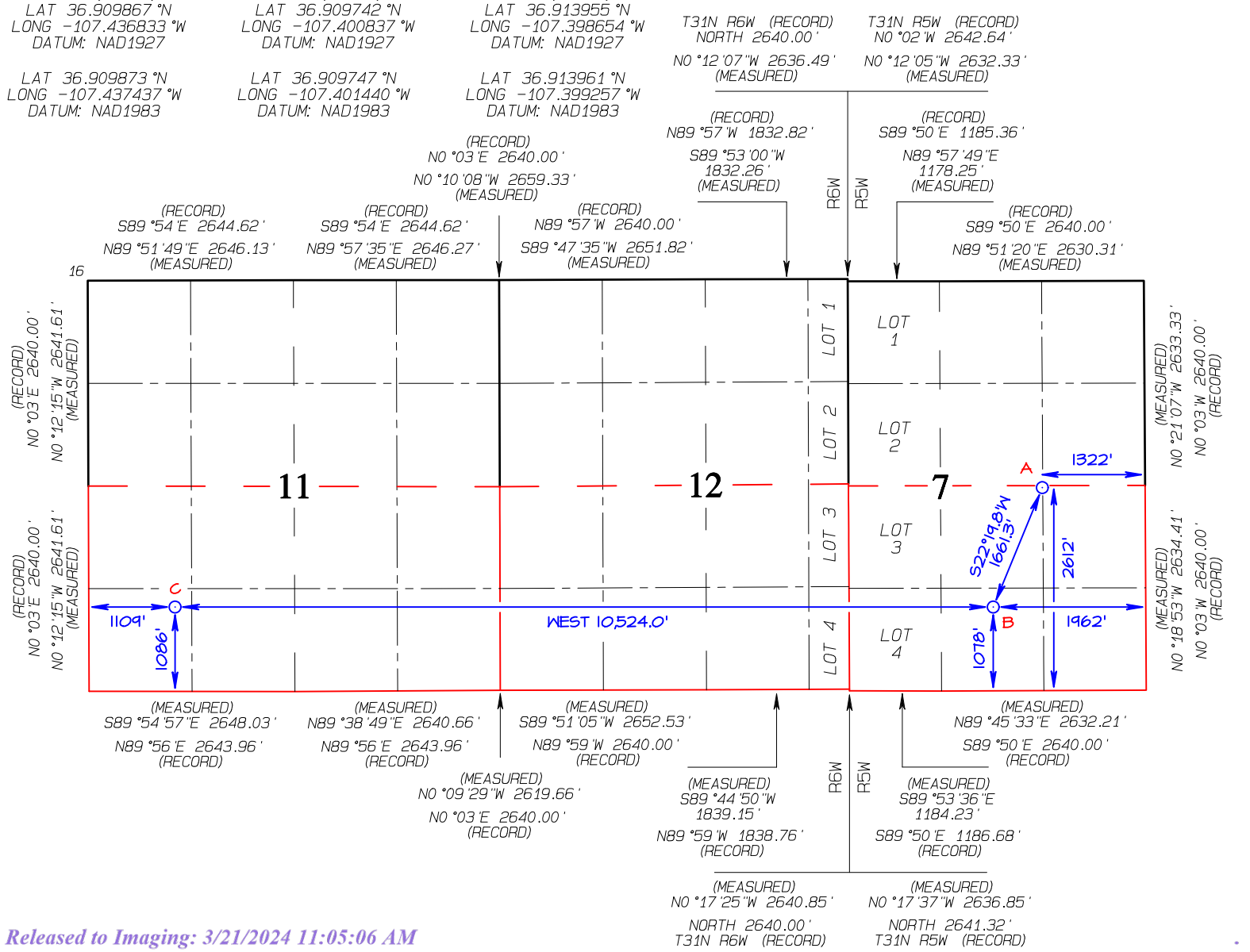
LAT 36.909873 °N
LONG -107.437437 °W
DATUM: NAD1983

FIRST TAKE POINT (B)
1078' FSL 1962' FEL
SECTION 7, T31N, R5W
LAT 36.909742 °N
LONG -107.400837 °W
DATUM: NAD1927

LAT 36.909747 °N
LONG -107.401440 °W
DATUM: NAD1983

SURFACE LOCATION (A)
2612' FSL 1322' FEL
SECTION 7, T31N, R5W
LAT 36.913955 °N
LONG -107.398654 °W
DATUM: NAD1927

LAT 36.913961 °N
LONG -107.399257 °W
DATUM: NAD1983



Released to Imaging: 3/21/2024 11:05:06 AM

LOGOS Operating, LLC
Operations Plan

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

Date:	February 29, 2024	Pool:	Basin Mancos
Well Name:	**Rosa Unit 702H**	GL Elevation:	6,295'
Surface Location:	Sec 7, T31N, R5W 2612' FSL, 1322' FEL (36.913961º N, 107.399257º W – NAD83)	KB:	30'
Bottom Hole Location:	Sec 11, T31N, R6W 1086' FSL, 1109' FWL (36.909873º N, 107.437437º W – NAD83)	Measured Depth:	18,024' (KB)
Lease Serial CA Serial	**# NMSF78767 # NMNM78407E**	County:	Rio Arriba

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	2458'	2413'	*POINT LOOKOUT	5774'	5628'
KIRTLAND	2575'	2526'	*MANCOS	6335'	6172'
*FRUITLAND	2955'	2895'	KICKOFF POINT	6497'	6329'
*PICTURED CLIFFS	3407'	3333'	LANDING POINT	7500'	6947'
LEWIS	3537'	3459'	TD	18024'	6913'
CHACRA	4709'	4595'			
*CLIFF HOUSE	5500'	5362'			
MENEFEE	5551'	5412'			

* 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 26"/24" surface hole and 12-1/4" intermediate hole. A LSND (WBM) or (OBM) will be used to drill the 8-1/2" curve and lateral portion of the wellbore. Treat for lost circulation as necessary. Obtain 100% returns prior to cementing. Notify Engineering of any mud losses.

Above ground steel pits will be used for fluid and cuttings while drilling. In the unlikely event that a tank develops a leak, upon immediate visual discovery, the fluid would be transferred to another tank and contaminated soil would be removed and disposed. 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 **3000 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. BOP equipment will be tested 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 or but not more than once a day. The New Mexico Oil & Gas Conservation Commission and the BLM will be notified 24 hours in advance of testing of BOPE. **All tests and inspections will be recorded and logged with time and results.** A full BOP test will be conducted when initially 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 first full test.

C. **GeoHazards:** There are no Geohazards

D. **Maximum Anticipated Pressure:** 6,947' TVD x 0.43 = 2987 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)	DEPTH (MD)	CSG SIZE	WEIGHT	GRADE	CONN
SURFACE	26" or 24"	350' or greater	20"	94 LBS	J-55 or equiv	LTC/BTC
INTERMEDIATE	12.25"	6,410'	9.625"	43.5 LBS	N-80 or equiv	LTC/BTC
PRODUCTION	8.5"	18,024'	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: 20" cement nose guide shoe. Place float shoe 1 joint above shoe. Run (1) standard centralizer on each of the bottom (3) joints of Surface Casing.
2. INTERMEDIATE CASING: 9-5/8" cement float shoe. 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. Optional use of DV Tools (2) will be strategically placed above loss circulation zones anticipated in the Mesaverde and Fruitland Coal. Optional use of cancelation plugs for DV tools may be used if losses while cementing are not encountered. Optional use of an ICP may be used in conjunction with DV Tools.
3. PRODUCTION CASING: Run 5-1/2" casing with cement nose guide Float Shoe, 5-1/2" full or pup joints as necessary, Landing Collar, 5-1/2" full or pup joints as necessary, at least (1) one Toe Sleeve (Sliding Sleeve) positioned inside the applicable production area. 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 ~ 350' and cemented to surface. TOC at Surface.

Surface - 20" csg	Top	Footage	Cement (ft3/ft) Annular Capacity	Excess (30%)	Total (ft3)	Total (bbl)	Slurry Yield (ft3/sk)	Sacks Cement	Density (PPG)
Type G	-	350	0.9599	1.3	473	84	1.10	430	15.8
or Type III		350	0.9599	1.3	473	84	1.39	340	14.6
			24" hole						
Set Depth, ft RKB	350								

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

Intermediate - 9-5/8" csg	Top	Footage	Cement (ft3/ft) Annular Capacity	Excess (30%)	Total (ft3)	Total (bbl)	Slurry Yield (ft3/sk)	Sacks Cement	Density (PPG)
Stage 1 Tail	5,910	500	0.3132	1.3	221	39	1.10	201	15.8
Stage 1 Lead	4,759	1,151	0.3132	1.3	469	83	1.90	247	12.4
					690	**123**		**448**	
Stage 2 Tail	4,159	600	0.3132	1.3	244	44	1.58	155	13.2
Stage 2 Lead	3,005	1,154	0.3132	1.3	470	84	1.90	247	12.4
					714	**127**		**402**	
Stage 3 Tail	2,355	650	0.3132	1.3	265	47	1.58	168	13.2
Stage 3 Lead	350	2,005	0.3132	1.3	816	145	1.58	517	12.4
Stage 3 Lead	-	350	1.4895	1	521	93	1.90	274	12.4
					1,602	**285**		**959**	
					3,006	**535**		**1,808**	
Set Depth, ft RKB	6410								

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

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

Production - 5-1/2"	Top	ft	Cement (ft3/ft) Annular Capacity	Excess (15%)	Total (ft3)	Total (bbl)	Slurry Yield (ft3/sk)	Sacks Cement	Density (PPG)
Cased hole Tail	6,310	100	0.2531	1	25	5	1.59	16	13.2
Open Hole Tail	6,410	11,614	0.2291	1.15	3,070	547	1.59	1,931	13.2
					3,096	551		1,947	
Set Depth, ft RKB	18024								

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

Cement calculations are used for volume estimation. Well conditions will dictate 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 service provider selected. Cement yields may change depending on 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 cement top if cement is not circulated.

B. PRESSURE TEST

C. Pressure test 5-1/2" casing to 0.22 psi/ft * 6,947' TVD = 1528 psi for 30 minutes. Increase pressure to Open RSI sleeves.

D. STIMULATION

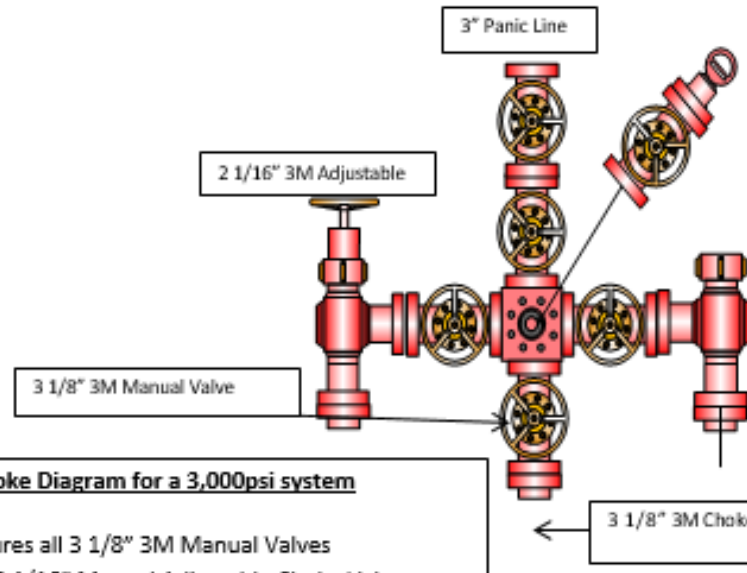
Stimulate with sand and water. Isolate stages with flow through or dissolvable frac plugs. Drill out frac plugs and flowback lateral.

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 12-36 months after completion.

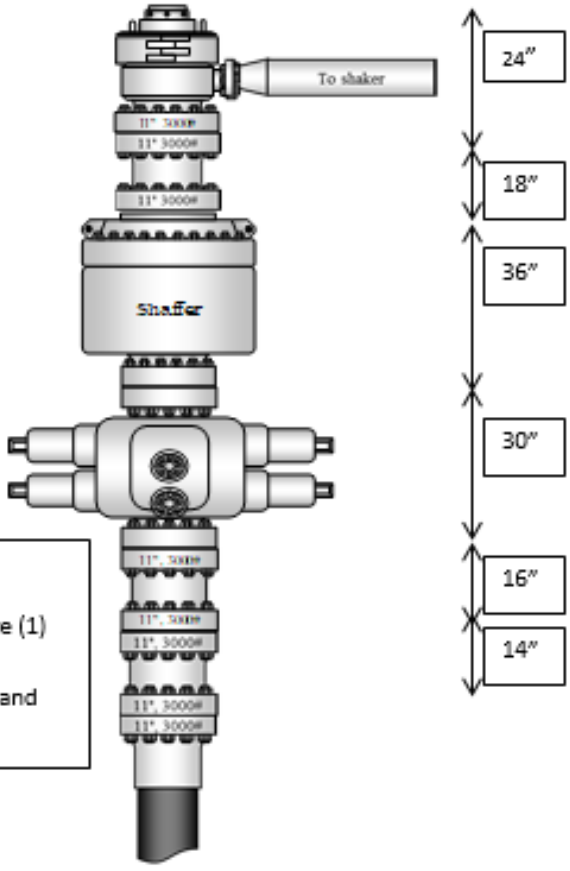
*NOTE: Although this horizontal well may be drilled past the applicable setbacks, an unorthodox location application is not required because the completed interval in this well, as defined by 19.15.16.7 8(1) NMAC, will be entirely within the applicable setbacks. This approach complies with all applicable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

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

Logos Operating LLC

Rio Arriba, NM (NAD83)
Rosa Unit 24
Rosa Unit 702H

OH

Plan: Prelim #2

Standard Planning Report

02 March, 2024

SDT
Planning Report

Database:	EDM 5000 Multi User Db	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Company:	Logos Operating LLC	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Project:	Rio Arriba, NM (NAD83)	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site:	Rosa Unit 24	**North Reference:**	True
Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Prelim #2		

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 24

Site Position:		**Northing:**	2,152,318.01 usft	**Latitude:**	36.914017
From:	Lat/Long	**Easting:**	2,849,973.79 usft	**Longitude:**	-107.399307
Position Uncertainty:	0.00 usft	**Slot Radius:**	13-3/16 "		

Well Rosa Unit 702H

Well Position	**+N/-S**	0.00 usft	**Northing:**	2,152,297.69 usft	**Latitude:**	36.913961
	+E/-W	0.00 usft	**Easting:**	2,849,988.50 usft	**Longitude:**	-107.399257
Position Uncertainty		0.00 usft	**Wellhead Elevation:**	usft	**Ground Level:**	6,295.00 usft
Grid Convergence:		0.26 °				

Wellbore OH

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	1/30/2024	8.45	63.46	49,468.10989288

Design Prelim #2

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	270.26

Plan Survey Tool Program **Date** 3/2/2024

	Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	18,023.75	Prelim #2 (OH)	MWD+HRGM+MS	
				MWD + HRGM + Multi-Station	

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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,207.83	14.16	179.96	1,200.65	-87.00	0.07	2.00	2.00	0.00	179.96	
6,496.84	14.16	179.96	6,329.04	-1,380.56	1.07	0.00	0.00	0.00	0.00	
7,499.66	90.19	270.26	6,947.00	-1,534.04	-638.25	9.00	7.58	9.01	90.25	RU 702H POE
18,023.75	90.19	270.26	6,913.00	-1,486.14	-11,162.17	0.00	0.00	0.00	0.00	RU 702H PBHL

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SDT

Planning Report

Database:	EDM 5000 Multi User Db	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Company:	Logos Operating LLC	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Project:	Rio Arriba, NM (NAD83)	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site:	Rosa Unit 24	**North Reference:**	True
Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Prelim #2		

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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 2.00									
600.00	2.00	179.96	599.98	-1.75	0.00	-0.01	2.00	2.00	0.00
700.00	4.00	179.96	699.84	-6.98	0.01	-0.04	2.00	2.00	0.00
800.00	6.00	179.96	799.45	-15.69	0.01	-0.08	2.00	2.00	0.00
900.00	8.00	179.96	898.70	-27.88	0.02	-0.15	2.00	2.00	0.00
1,000.00	10.00	179.96	997.47	-43.52	0.03	-0.23	2.00	2.00	0.00
1,100.00	12.00	179.96	1,095.62	-62.60	0.05	-0.33	2.00	2.00	0.00
1,207.83	14.16	179.96	1,200.65	-87.00	0.07	-0.46	2.00	2.00	0.00
Start 5289.01 hold at 1207.83 MD									
1,300.00	14.16	179.96	1,290.02	-109.54	0.08	-0.58	0.00	0.00	0.00
1,400.00	14.16	179.96	1,386.98	-134.00	0.10	-0.71	0.00	0.00	0.00
1,500.00	14.16	179.96	1,483.95	-158.46	0.12	-0.84	0.00	0.00	0.00
1,600.00	14.16	179.96	1,580.91	-182.92	0.14	-0.97	0.00	0.00	0.00
1,700.00	14.16	179.96	1,677.87	-207.37	0.16	-1.10	0.00	0.00	0.00
1,800.00	14.16	179.96	1,774.84	-231.83	0.18	-1.23	0.00	0.00	0.00
1,900.00	14.16	179.96	1,871.80	-256.29	0.20	-1.36	0.00	0.00	0.00
2,000.00	14.16	179.96	1,968.76	-280.75	0.22	-1.49	0.00	0.00	0.00
2,100.00	14.16	179.96	2,065.73	-305.20	0.24	-1.62	0.00	0.00	0.00
2,200.00	14.16	179.96	2,162.69	-329.66	0.26	-1.75	0.00	0.00	0.00
2,300.00	14.16	179.96	2,259.65	-354.12	0.27	-1.88	0.00	0.00	0.00
2,400.00	14.16	179.96	2,356.61	-378.58	0.29	-2.01	0.00	0.00	0.00
2,458.15	14.16	179.96	2,413.00	-392.80	0.30	-2.09	0.00	0.00	0.00
Ojo Alamo									
2,500.00	14.16	179.96	2,453.58	-403.03	0.31	-2.14	0.00	0.00	0.00
2,574.69	14.16	179.96	2,526.00	-421.30	0.33	-2.24	0.00	0.00	0.00
Kirtland									
2,600.00	14.16	179.96	2,550.54	-427.49	0.33	-2.27	0.00	0.00	0.00
2,700.00	14.16	179.96	2,647.50	-451.95	0.35	-2.40	0.00	0.00	0.00
2,800.00	14.16	179.96	2,744.47	-476.41	0.37	-2.53	0.00	0.00	0.00
2,900.00	14.16	179.96	2,841.43	-500.86	0.39	-2.66	0.00	0.00	0.00
2,955.25	14.16	179.96	2,895.00	-514.37	0.40	-2.73	0.00	0.00	0.00
Fruitland									
3,000.00	14.16	179.96	2,938.39	-525.32	0.41	-2.79	0.00	0.00	0.00
3,054.26	14.16	179.96	2,991.00	-538.59	0.42	-2.86	0.00	0.00	0.00
Top of Coals									
3,100.00	14.16	179.96	3,035.36	-549.78	0.43	-2.92	0.00	0.00	0.00
3,200.00	14.16	179.96	3,132.32	-574.23	0.44	-3.05	0.00	0.00	0.00
3,232.67	14.16	179.96	3,164.00	-582.23	0.45	-3.09	0.00	0.00	0.00
Base of Coals									
3,300.00	14.16	179.96	3,229.28	-598.69	0.46	-3.18	0.00	0.00	0.00
3,400.00	14.16	179.96	3,326.25	-623.15	0.48	-3.31	0.00	0.00	0.00
3,406.97	14.16	179.96	3,333.00	-624.85	0.48	-3.32	0.00	0.00	0.00
Pictured Cliffs									
3,500.00	14.16	179.96	3,423.21	-647.61	0.50	-3.44	0.00	0.00	0.00
3,536.91	14.16	179.96	3,459.00	-656.64	0.51	-3.49	0.00	0.00	0.00
Lewis									
3,600.00	14.16	179.96	3,520.17	-672.06	0.52	-3.57	0.00	0.00	0.00

SDT

Planning Report

Database:	EDM 5000 Multi User Db	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Company:	Logos Operating LLC	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Project:	Rio Arriba, NM (NAD83)	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site:	Rosa Unit 24	**North Reference:**	True
Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Prelim #2		

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)
3,700.00	14.16	179.96	3,617.13	-696.52	0.54	-3.70	0.00	0.00	0.00
3,800.00	14.16	179.96	3,714.10	-720.98	0.56	-3.83	0.00	0.00	0.00
3,900.00	14.16	179.96	3,811.06	-745.44	0.58	-3.96	0.00	0.00	0.00
4,000.00	14.16	179.96	3,908.02	-769.89	0.60	-4.09	0.00	0.00	0.00
4,100.00	14.16	179.96	4,004.99	-794.35	0.62	-4.22	0.00	0.00	0.00
4,200.00	14.16	179.96	4,101.95	-818.81	0.63	-4.35	0.00	0.00	0.00
4,300.00	14.16	179.96	4,198.91	-843.27	0.65	-4.48	0.00	0.00	0.00
4,400.00	14.16	179.96	4,295.88	-867.72	0.67	-4.61	0.00	0.00	0.00
4,500.00	14.16	179.96	4,392.84	-892.18	0.69	-4.74	0.00	0.00	0.00
4,600.00	14.16	179.96	4,489.80	-916.64	0.71	-4.87	0.00	0.00	0.00
4,700.00	14.16	179.96	4,586.76	-941.10	0.73	-5.00	0.00	0.00	0.00
4,708.49	14.16	179.96	4,595.00	-943.17	0.73	-5.01	0.00	0.00	0.00
Chacra									
4,800.00	14.16	179.96	4,683.73	-965.55	0.75	-5.13	0.00	0.00	0.00
4,900.00	14.16	179.96	4,780.69	-990.01	0.77	-5.26	0.00	0.00	0.00
5,000.00	14.16	179.96	4,877.65	-1,014.47	0.79	-5.39	0.00	0.00	0.00
5,100.00	14.16	179.96	4,974.62	-1,038.93	0.81	-5.52	0.00	0.00	0.00
5,200.00	14.16	179.96	5,071.58	-1,063.38	0.82	-5.65	0.00	0.00	0.00
5,208.68	14.16	179.96	5,080.00	-1,065.51	0.83	-5.66	0.00	0.00	0.00
Upper Cliff House									
5,300.00	14.16	179.96	5,168.54	-1,087.84	0.84	-5.78	0.00	0.00	0.00
5,400.00	14.16	179.96	5,265.51	-1,112.30	0.86	-5.91	0.00	0.00	0.00
5,499.52	14.16	179.96	5,362.00	-1,136.64	0.88	-6.04	0.00	0.00	0.00
Cliff House									
5,500.00	14.16	179.96	5,362.47	-1,136.76	0.88	-6.04	0.00	0.00	0.00
5,551.08	14.16	179.96	5,412.00	-1,149.25	0.89	-6.11	0.00	0.00	0.00
Menefee									
5,600.00	14.16	179.96	5,459.43	-1,161.21	0.90	-6.17	0.00	0.00	0.00
5,700.00	14.16	179.96	5,556.40	-1,185.67	0.92	-6.30	0.00	0.00	0.00
5,773.85	14.16	179.96	5,628.00	-1,203.73	0.93	-6.40	0.00	0.00	0.00
Point Lookout									
5,800.00	14.16	179.96	5,653.36	-1,210.13	0.94	-6.43	0.00	0.00	0.00
5,900.00	14.16	179.96	5,750.32	-1,234.59	0.96	-6.56	0.00	0.00	0.00
6,000.00	14.16	179.96	5,847.28	-1,259.04	0.98	-6.69	0.00	0.00	0.00
6,100.00	14.16	179.96	5,944.25	-1,283.50	0.99	-6.82	0.00	0.00	0.00
6,200.00	14.16	179.96	6,041.21	-1,307.96	1.01	-6.95	0.00	0.00	0.00
6,300.00	14.16	179.96	6,138.17	-1,332.42	1.03	-7.08	0.00	0.00	0.00
6,334.89	14.16	179.96	6,172.00	-1,340.95	1.04	-7.12	0.00	0.00	0.00
Mancos									
6,400.00	14.16	179.96	6,235.14	-1,356.87	1.05	-7.21	0.00	0.00	0.00
6,496.84	14.16	179.96	6,329.04	-1,380.56	1.07	-7.33	0.00	0.00	0.00
Start DLS 9.00 TFO 90.25									
6,500.00	14.16	181.12	6,332.10	-1,381.33	1.06	-7.33	9.00	0.05	36.80
6,550.00	14.91	198.87	6,380.52	-1,393.54	-1.14	-5.19	9.00	1.50	35.51
6,600.00	16.84	213.79	6,428.63	-1,405.65	-7.25	0.87	9.00	3.87	29.83
6,650.00	19.62	225.17	6,476.14	-1,417.59	-17.24	10.80	9.00	5.55	22.75
6,700.00	22.93	233.60	6,522.73	-1,429.29	-31.03	24.55	9.00	6.62	16.87
6,750.00	26.57	239.93	6,568.14	-1,440.68	-48.56	42.02	9.00	7.29	12.65
6,800.00	30.43	244.79	6,612.08	-1,451.69	-69.70	63.11	9.00	7.72	9.72
6,850.00	34.43	248.63	6,654.28	-1,462.24	-94.34	87.70	9.00	8.01	7.68
6,900.00	38.53	251.75	6,694.47	-1,472.27	-122.30	115.62	9.00	8.20	6.25
6,950.00	42.70	254.35	6,732.42	-1,481.73	-153.44	146.71	9.00	8.34	5.21
7,000.00	46.92	256.57	6,767.89	-1,490.55	-187.54	180.78	9.00	8.44	4.44

SDT

Planning Report

Database:	EDM 5000 Multi User Db	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Company:	Logos Operating LLC	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Project:	Rio Arriba, NM (NAD83)	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site:	Rosa Unit 24	**North Reference:**	True
Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Prelim #2		

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)
7,000.17	46.92	256.57	6,768.00	-1,490.57	-187.66	180.90	0.00	0.00	0.00
Black Top									
7,050.00	51.18	258.50	6,800.65	-1,498.67	-224.41	217.61	9.03	8.54	3.88
7,100.00	55.47	260.22	6,830.51	-1,506.06	-263.81	256.98	9.00	8.57	3.43
7,150.00	59.77	261.76	6,857.28	-1,512.65	-305.51	298.64	9.00	8.61	3.09
7,200.00	64.10	263.18	6,880.80	-1,518.42	-349.24	342.34	9.00	8.65	2.83
7,250.00	68.43	264.49	6,900.92	-1,523.33	-394.73	387.82	9.00	8.67	2.63
7,300.00	72.78	265.73	6,917.52	-1,527.34	-441.71	434.78	9.00	8.69	2.48
7,350.00	77.13	266.91	6,930.50	-1,530.43	-489.89	482.94	9.00	8.71	2.36
7,400.00	81.49	268.05	6,939.77	-1,532.59	-538.96	532.00	9.00	8.72	2.28
7,450.00	85.85	269.17	6,945.28	-1,533.79	-588.63	581.66	9.00	8.72	2.23
7,499.66	90.19	270.26	6,947.00	-1,534.04	-638.25	631.28	9.00	8.73	2.20
Start 10524.09 hold at 7499.66 MD									
7,600.00	90.19	270.26	6,946.68	-1,533.58	-738.58	731.62	0.00	0.00	0.00
7,700.00	90.19	270.26	6,946.35	-1,533.13	-838.58	831.62	0.00	0.00	0.00
7,800.00	90.19	270.26	6,946.03	-1,532.67	-938.58	931.61	0.00	0.00	0.00
7,900.00	90.19	270.26	6,945.71	-1,532.22	-1,038.58	1,031.61	0.00	0.00	0.00
8,000.00	90.19	270.26	6,945.38	-1,531.76	-1,138.58	1,131.61	0.00	0.00	0.00
8,100.00	90.19	270.26	6,945.06	-1,531.31	-1,238.57	1,231.61	0.00	0.00	0.00
8,200.00	90.19	270.26	6,944.74	-1,530.85	-1,338.57	1,331.61	0.00	0.00	0.00
8,300.00	90.19	270.26	6,944.41	-1,530.40	-1,438.57	1,431.61	0.00	0.00	0.00
8,400.00	90.19	270.26	6,944.09	-1,529.94	-1,538.57	1,531.61	0.00	0.00	0.00
8,500.00	90.19	270.26	6,943.77	-1,529.49	-1,638.57	1,631.61	0.00	0.00	0.00
8,600.00	90.19	270.26	6,943.45	-1,529.03	-1,738.57	1,731.61	0.00	0.00	0.00
8,700.00	90.19	270.26	6,943.12	-1,528.58	-1,838.57	1,831.61	0.00	0.00	0.00
8,800.00	90.19	270.26	6,942.80	-1,528.12	-1,938.56	1,931.61	0.00	0.00	0.00
8,900.00	90.19	270.26	6,942.48	-1,527.67	-2,038.56	2,031.61	0.00	0.00	0.00
9,000.00	90.19	270.26	6,942.15	-1,527.21	-2,138.56	2,131.61	0.00	0.00	0.00
9,100.00	90.19	270.26	6,941.83	-1,526.76	-2,238.56	2,231.61	0.00	0.00	0.00
9,200.00	90.19	270.26	6,941.51	-1,526.30	-2,338.56	2,331.61	0.00	0.00	0.00
9,300.00	90.19	270.26	6,941.18	-1,525.85	-2,438.56	2,431.61	0.00	0.00	0.00
9,400.00	90.19	270.26	6,940.86	-1,525.39	-2,538.55	2,531.61	0.00	0.00	0.00
9,500.00	90.19	270.26	6,940.54	-1,524.94	-2,638.55	2,631.61	0.00	0.00	0.00
9,600.00	90.19	270.26	6,940.21	-1,524.48	-2,738.55	2,731.61	0.00	0.00	0.00
9,700.00	90.19	270.26	6,939.89	-1,524.03	-2,838.55	2,831.60	0.00	0.00	0.00
9,800.00	90.19	270.26	6,939.57	-1,523.57	-2,938.55	2,931.60	0.00	0.00	0.00
9,900.00	90.19	270.26	6,939.25	-1,523.12	-3,038.55	3,031.60	0.00	0.00	0.00
10,000.00	90.19	270.26	6,938.92	-1,522.66	-3,138.55	3,131.60	0.00	0.00	0.00
10,100.00	90.19	270.26	6,938.60	-1,522.20	-3,238.54	3,231.60	0.00	0.00	0.00
10,200.00	90.19	270.26	6,938.28	-1,521.75	-3,338.54	3,331.60	0.00	0.00	0.00
10,300.00	90.19	270.26	6,937.95	-1,521.29	-3,438.54	3,431.60	0.00	0.00	0.00
10,400.00	90.19	270.26	6,937.63	-1,520.84	-3,538.54	3,531.60	0.00	0.00	0.00
10,500.00	90.19	270.26	6,937.31	-1,520.38	-3,638.54	3,631.60	0.00	0.00	0.00
10,600.00	90.19	270.26	6,936.98	-1,519.93	-3,738.54	3,731.60	0.00	0.00	0.00
10,700.00	90.19	270.26	6,936.66	-1,519.47	-3,838.53	3,831.60	0.00	0.00	0.00
10,800.00	90.19	270.26	6,936.34	-1,519.02	-3,938.53	3,931.60	0.00	0.00	0.00
10,900.00	90.19	270.26	6,936.01	-1,518.56	-4,038.53	4,031.60	0.00	0.00	0.00
11,000.00	90.19	270.26	6,935.69	-1,518.11	-4,138.53	4,131.60	0.00	0.00	0.00
11,100.00	90.19	270.26	6,935.37	-1,517.65	-4,238.53	4,231.60	0.00	0.00	0.00
11,200.00	90.19	270.26	6,935.05	-1,517.20	-4,338.53	4,331.60	0.00	0.00	0.00
11,300.00	90.19	270.26	6,934.72	-1,516.74	-4,438.52	4,431.60	0.00	0.00	0.00
11,400.00	90.19	270.26	6,934.40	-1,516.29	-4,538.52	4,531.60	0.00	0.00	0.00
11,500.00	90.19	270.26	6,934.08	-1,515.83	-4,638.52	4,631.60	0.00	0.00	0.00
11,600.00	90.19	270.26	6,933.75	-1,515.38	-4,738.52	4,731.59	0.00	0.00	0.00

SDT

Planning Report

Database:	EDM 5000 Multi User Db	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Company:	Logos Operating LLC	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Project:	Rio Arriba, NM (NAD83)	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site:	Rosa Unit 24	**North Reference:**	True
Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Prelim #2		

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)
11,700.00	90.19	270.26	6,933.43	-1,514.92	-4,838.52	4,831.59	0.00	0.00	0.00
11,800.00	90.19	270.26	6,933.11	-1,514.47	-4,938.52	4,931.59	0.00	0.00	0.00
11,900.00	90.19	270.26	6,932.78	-1,514.01	-5,038.52	5,031.59	0.00	0.00	0.00
12,000.00	90.19	270.26	6,932.46	-1,513.56	-5,138.51	5,131.59	0.00	0.00	0.00
12,100.00	90.19	270.26	6,932.14	-1,513.10	-5,238.51	5,231.59	0.00	0.00	0.00
12,200.00	90.19	270.26	6,931.81	-1,512.65	-5,338.51	5,331.59	0.00	0.00	0.00
12,300.00	90.19	270.26	6,931.49	-1,512.19	-5,438.51	5,431.59	0.00	0.00	0.00
12,400.00	90.19	270.26	6,931.17	-1,511.74	-5,538.51	5,531.59	0.00	0.00	0.00
12,500.00	90.19	270.26	6,930.85	-1,511.28	-5,638.51	5,631.59	0.00	0.00	0.00
12,600.00	90.19	270.26	6,930.52	-1,510.83	-5,738.50	5,731.59	0.00	0.00	0.00
12,700.00	90.19	270.26	6,930.20	-1,510.37	-5,838.50	5,831.59	0.00	0.00	0.00
12,800.00	90.19	270.26	6,929.88	-1,509.92	-5,938.50	5,931.59	0.00	0.00	0.00
12,900.00	90.19	270.26	6,929.55	-1,509.46	-6,038.50	6,031.59	0.00	0.00	0.00
13,000.00	90.19	270.26	6,929.23	-1,509.01	-6,138.50	6,131.59	0.00	0.00	0.00
13,100.00	90.19	270.26	6,928.91	-1,508.55	-6,238.50	6,231.59	0.00	0.00	0.00
13,200.00	90.19	270.26	6,928.58	-1,508.10	-6,338.50	6,331.59	0.00	0.00	0.00
13,300.00	90.19	270.26	6,928.26	-1,507.64	-6,438.49	6,431.59	0.00	0.00	0.00
13,400.00	90.19	270.26	6,927.94	-1,507.19	-6,538.49	6,531.59	0.00	0.00	0.00
13,500.00	90.19	270.26	6,927.61	-1,506.73	-6,638.49	6,631.59	0.00	0.00	0.00
13,600.00	90.19	270.26	6,927.29	-1,506.27	-6,738.49	6,731.58	0.00	0.00	0.00
13,700.00	90.19	270.26	6,926.97	-1,505.82	-6,838.49	6,831.58	0.00	0.00	0.00
13,800.00	90.19	270.26	6,926.65	-1,505.36	-6,938.49	6,931.58	0.00	0.00	0.00
13,900.00	90.19	270.26	6,926.32	-1,504.91	-7,038.48	7,031.58	0.00	0.00	0.00
14,000.00	90.19	270.26	6,926.00	-1,504.45	-7,138.48	7,131.58	0.00	0.00	0.00
14,100.00	90.19	270.26	6,925.68	-1,504.00	-7,238.48	7,231.58	0.00	0.00	0.00
14,200.00	90.19	270.26	6,925.35	-1,503.54	-7,338.48	7,331.58	0.00	0.00	0.00
14,300.00	90.19	270.26	6,925.03	-1,503.09	-7,438.48	7,431.58	0.00	0.00	0.00
14,400.00	90.19	270.26	6,924.71	-1,502.63	-7,538.48	7,531.58	0.00	0.00	0.00
14,500.00	90.19	270.26	6,924.38	-1,502.18	-7,638.48	7,631.58	0.00	0.00	0.00
14,600.00	90.19	270.26	6,924.06	-1,501.72	-7,738.47	7,731.58	0.00	0.00	0.00
14,700.00	90.19	270.26	6,923.74	-1,501.27	-7,838.47	7,831.58	0.00	0.00	0.00
14,800.00	90.19	270.26	6,923.42	-1,500.81	-7,938.47	7,931.58	0.00	0.00	0.00
14,900.00	90.19	270.26	6,923.09	-1,500.36	-8,038.47	8,031.58	0.00	0.00	0.00
15,000.00	90.19	270.26	6,922.77	-1,499.90	-8,138.47	8,131.58	0.00	0.00	0.00
15,100.00	90.19	270.26	6,922.45	-1,499.45	-8,238.47	8,231.58	0.00	0.00	0.00
15,200.00	90.19	270.26	6,922.12	-1,498.99	-8,338.46	8,331.58	0.00	0.00	0.00
15,300.00	90.19	270.26	6,921.80	-1,498.54	-8,438.46	8,431.58	0.00	0.00	0.00
15,400.00	90.19	270.26	6,921.48	-1,498.08	-8,538.46	8,531.58	0.00	0.00	0.00
15,500.00	90.19	270.26	6,921.15	-1,497.63	-8,638.46	8,631.57	0.00	0.00	0.00
15,600.00	90.19	270.26	6,920.83	-1,497.17	-8,738.46	8,731.57	0.00	0.00	0.00
15,700.00	90.19	270.26	6,920.51	-1,496.72	-8,838.46	8,831.57	0.00	0.00	0.00
15,800.00	90.19	270.26	6,920.18	-1,496.26	-8,938.45	8,931.57	0.00	0.00	0.00
15,900.00	90.19	270.26	6,919.86	-1,495.81	-9,038.45	9,031.57	0.00	0.00	0.00
16,000.00	90.19	270.26	6,919.54	-1,495.35	-9,138.45	9,131.57	0.00	0.00	0.00
16,100.00	90.19	270.26	6,919.22	-1,494.90	-9,238.45	9,231.57	0.00	0.00	0.00
16,200.00	90.19	270.26	6,918.89	-1,494.44	-9,338.45	9,331.57	0.00	0.00	0.00
16,300.00	90.19	270.26	6,918.57	-1,493.99	-9,438.45	9,431.57	0.00	0.00	0.00
16,400.00	90.19	270.26	6,918.25	-1,493.53	-9,538.45	9,531.57	0.00	0.00	0.00
16,500.00	90.19	270.26	6,917.92	-1,493.08	-9,638.44	9,631.57	0.00	0.00	0.00
16,600.00	90.19	270.26	6,917.60	-1,492.62	-9,738.44	9,731.57	0.00	0.00	0.00
16,700.00	90.19	270.26	6,917.28	-1,492.17	-9,838.44	9,831.57	0.00	0.00	0.00
16,800.00	90.19	270.26	6,916.95	-1,491.71	-9,938.44	9,931.57	0.00	0.00	0.00
16,900.00	90.19	270.26	6,916.63	-1,491.26	-10,038.44	10,031.57	0.00	0.00	0.00
17,000.00	90.19	270.26	6,916.31	-1,490.80	-10,138.44	10,131.57	0.00	0.00	0.00

SDT

Planning Report

Database:	EDM 5000 Multi User Db	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Company:	Logos Operating LLC	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Project:	Rio Arriba, NM (NAD83)	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site:	Rosa Unit 24	**North Reference:**	True
Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Prelim #2		

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)
17,100.00	90.19	270.26	6,915.98	-1,490.35	-10,238.43	10,231.57	0.00	0.00	0.00
17,200.00	90.19	270.26	6,915.66	-1,489.89	-10,338.43	10,331.57	0.00	0.00	0.00
17,300.00	90.19	270.26	6,915.34	-1,489.43	-10,438.43	10,431.57	0.00	0.00	0.00
17,400.00	90.19	270.26	6,915.02	-1,488.98	-10,538.43	10,531.56	0.00	0.00	0.00
17,500.00	90.19	270.26	6,914.69	-1,488.52	-10,638.43	10,631.56	0.00	0.00	0.00
17,600.00	90.19	270.26	6,914.37	-1,488.07	-10,738.43	10,731.56	0.00	0.00	0.00
17,700.00	90.19	270.26	6,914.05	-1,487.61	-10,838.43	10,831.56	0.00	0.00	0.00
17,800.00	90.19	270.26	6,913.72	-1,487.16	-10,938.42	10,931.56	0.00	0.00	0.00
17,900.00	90.19	270.26	6,913.40	-1,486.70	-11,038.42	11,031.56	0.00	0.00	0.00
18,000.00	90.19	270.26	6,913.08	-1,486.25	-11,138.42	11,131.56	0.00	0.00	0.00
18,023.75	90.19	270.26	6,913.00	-1,486.14	-11,162.17	11,155.32	0.00	0.00	0.00
TD at 18023.75									

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
RU 702H SHL - plan hits target center - Point	0.00	0.00	0.00	0.00	0.00	2,152,297.69	2,849,988.50	36.913961	-107.399257
RU 702H PBHL - plan misses target center by 109.00usft at 18023.75usft MD (6913.00 TVD, -1486.14 N, -11162.17 E) - Point	0.00	0.00	6,913.00	-1,377.14	-11,161.68	2,150,869.77	2,838,833.21	36.910172	-107.437436
RU 702H POE - plan hits target center - Point	0.00	0.00	6,947.00	-1,534.04	-638.25	2,150,760.76	2,849,357.24	36.909747	-107.401440

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,458.15	2,413.00	Ojo Alamo		0.00	
2,574.69	2,526.00	Kirtland		0.00	
2,955.25	2,895.00	Fruitland		0.00	
3,054.26	2,991.00	Top of Coals		0.00	
3,232.67	3,164.00	Base of Coals		0.00	
3,406.97	3,333.00	Pictured Cliffs		0.00	
3,536.91	3,459.00	Lewis		0.00	
4,708.49	4,595.00	Chacra		0.00	
5,208.68	5,080.00	Upper Cliff House		0.00	
5,499.52	5,362.00	Cliff House		0.00	
5,551.08	5,412.00	Menefee		0.00	
5,773.85	5,628.00	Point Lookout		0.00	
6,334.89	6,172.00	Mancos		0.00	
7,000.17	6,768.00	Black Top		0.00	

SDT

Planning Report

Database:	EDM 5000 Multi User Db	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Company:	Logos Operating LLC	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Project:	Rio Arriba, NM (NAD83)	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site:	Rosa Unit 24	**North Reference:**	True
Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Prelim #2		

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
500.00	500.00	0.00	0.00	Start Build 2.00
1,207.83	1,200.65	-87.00	0.07	Start 5289.01 hold at 1207.83 MD
6,496.84	6,329.04	-1,380.56	1.07	Start DLS 9.00 TFO 90.25
7,499.66	6,947.00	-1,534.04	-638.25	Start 10524.09 hold at 7499.66 MD
18,023.75	6,913.00	-1,486.14	-11,162.17	TD at 18023.75

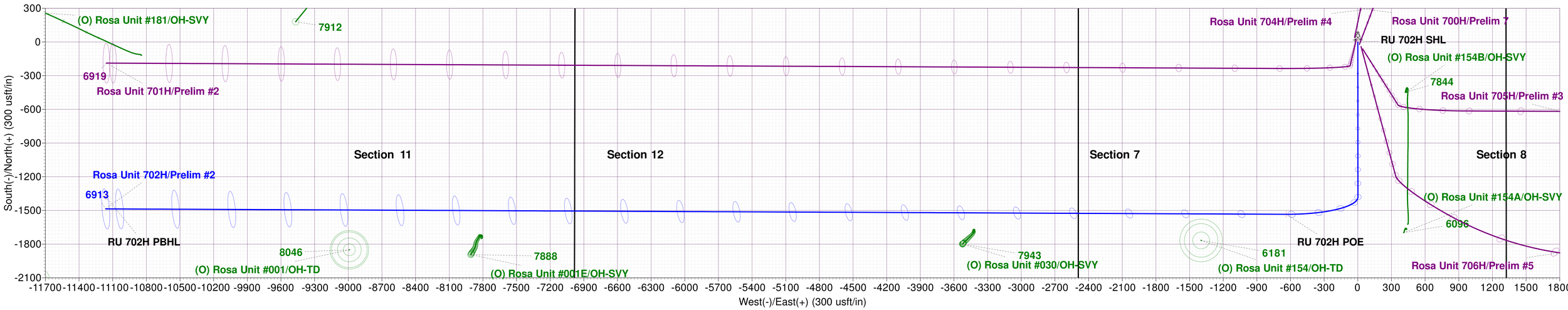
Released to Imaging: 3/21/2024 11:05:06 AM

Received by OCD: 3/13/2024 7:16:33 AM

LOGOS ENERGY

County: Rio Arriba, NM (NAD83)
Site: Rosa Unit 24
Well: Rosa Unit 702H
Depth Reference: 6295+30 @ 6325.00usft (H&P 530)
Rig: H&P 530
Plan: Prelim #2
Job #: Permit

SCOUT DRILLING TECHNOLOGIES

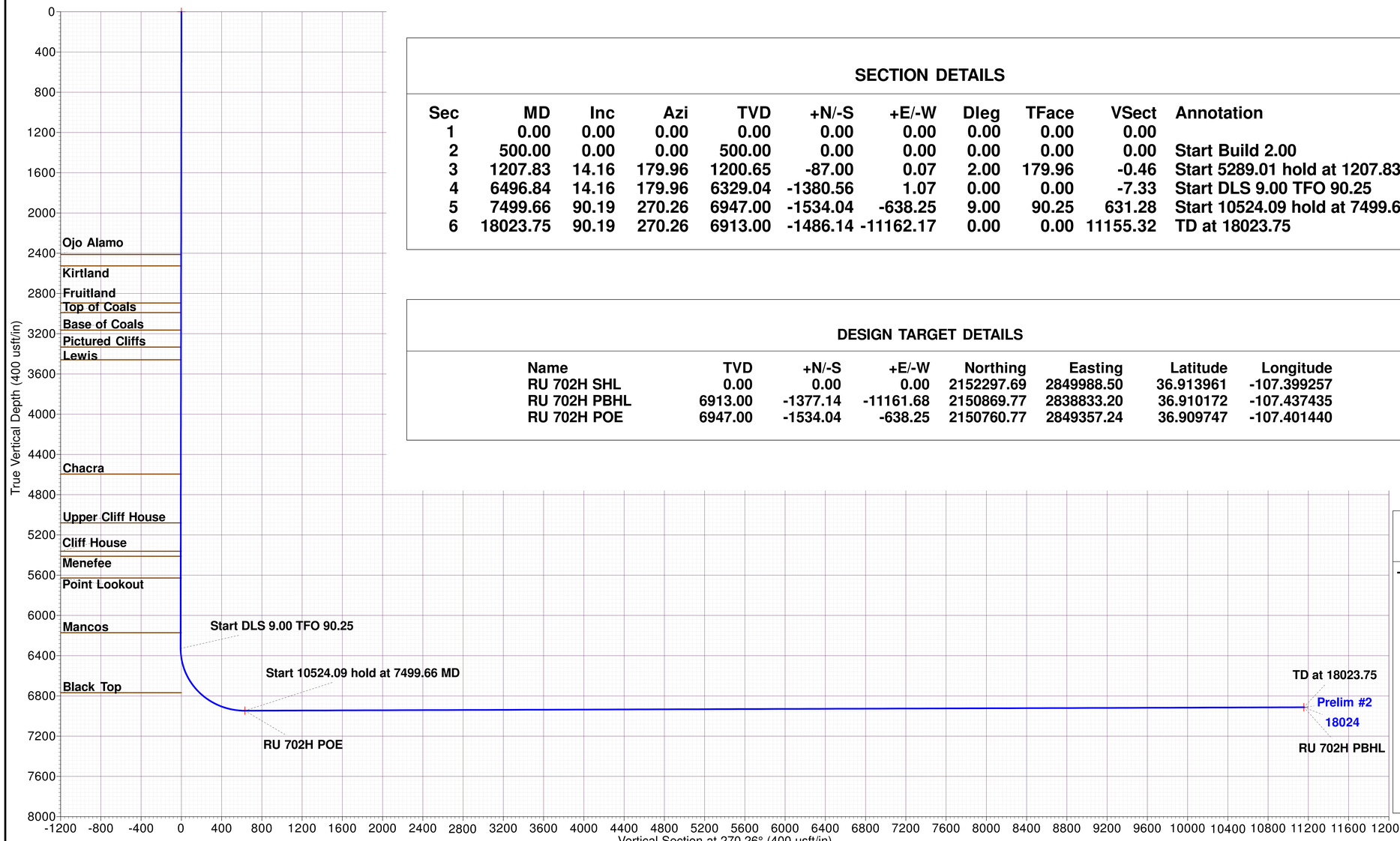


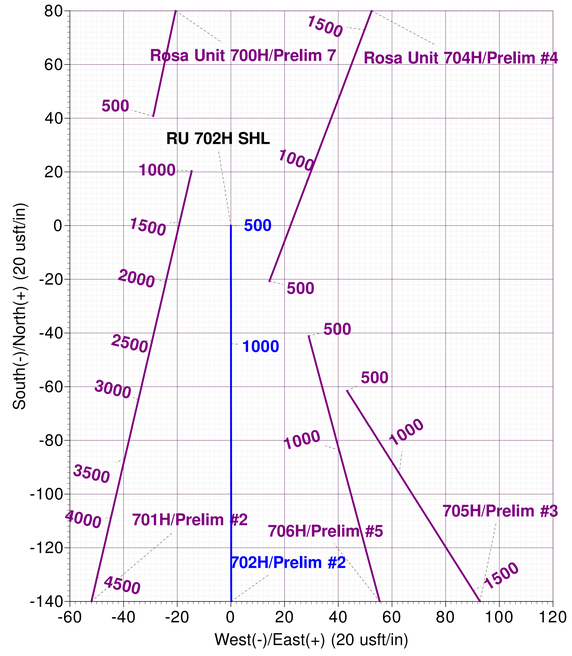
SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DIeg	TFace	VSect	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	Start Build 2.00
3	1207.83	14.16	179.96	1200.65	-87.00	0.07	2.00	179.96	-0.46	Start 5289.01 hold at 1207.83 MD
4	6496.84	14.16	179.96	6329.04	-1380.56	1.07	0.00	0.00	-7.33	Start DLS 9.00 TFO 90.25
5	7499.66	90.19	270.26	6947.00	-1534.04	-638.25	9.00	90.25	631.28	Start 10524.09 hold at 7499.66 MD
6	18023.75	90.19	270.26	6913.00	-1486.14	-11162.17	0.00	0.00	11155.32	TD at 18023.75

DESIGN TARGET DETAILS

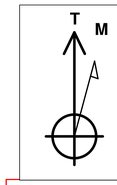
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
RU 702H SHL	0.00	0.00	0.00	2152297.69	2849988.50	36.913961	-107.399257
RU 702H PBHL	6913.00	-1377.14	-11161.68	2150869.77	2838833.20	36.910172	-107.437435
RU 702H POE	6947.00	-1534.04	-638.25	2150760.77	2849357.24	36.909747	-107.401440





FORMATION TOP DETAILS

TVDPath	MDPath	Formation
2413.00	2458.15	Ojo Alamo
2526.00	2574.69	Kirtland
2895.00	2955.25	Fruitland
2991.00	3054.25	Top of Coals
3164.00	3232.67	Base of Coals
3333.00	3406.97	Pictured Cliffs
3459.00	3536.91	Lewis
4595.00	4708.49	Chacra
5080.00	5208.68	Upper Cliff House
5362.00	5499.52	Cliff House
5412.00	5551.08	Menefee
5628.00	5773.85	Point Lookout
6172.00	6334.89	Mancos
6768.00	7000.17	Black Top



Azimuths to True North
Magnetic North: 8.45°

Magnetic Field
Strength: 49468.1nT
Dip Angle: 63.46°
Date: 1/30/2024
Model: IGRF2015

TOTAL CORRECTION: 8.45°

Plotted in Imagine: 3/13/2024 7:16:36 AM

Logos Operating LLC

Rio Arriba, NM (NAD83)
Rosa Unit 24
Rosa Unit 702H

OH
Prelim #2

Anticollision Report

06 March, 2024

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Reference	Prelim #2		
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:	Max. Cent. Dist. of 100,000.00usft or Max. SF of 100,000	**Error Surface:**	Pedal Curve
Warning Levels Evaluated at:	2.00 **Sigma**	**Casing Method:**	Not applied

Survey Tool Program **Date** 3/6/2024

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	18,023.75	Prelim #2 (OH)	MWD+HRGM+MS	MWD + HRGM + Multi-Station Correction

Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Rosa Unit 24						
(O) Rosa Unit #001 - OH - OH-TD	15,850.34	6,958.43	354.22	60.60	1.206	Level 3, CC, ES, SF
(O) Rosa Unit #001E - OH - OH-SVY	14,748.10	6,934.45	361.26	208.62	2.367	CC, ES
(O) Rosa Unit #001E - OH - OH-SVY	14,800.00	6,935.31	364.97	210.56	2.364	SF
(O) Rosa Unit #009A - OH - OH-TD	16,882.95	6,867.16	3,008.34	2,640.52	8.179	CC
(O) Rosa Unit #009A - OH - OH-TD	16,900.00	6,867.09	3,008.39	2,640.40	8.175	ES
(O) Rosa Unit #009A - OH - OH-TD	17,100.00	6,866.27	3,016.16	2,646.48	8.159	SF
(O) Rosa Unit #009C - OH - OH-TD	18,023.75	6,967.33	1,011.14	685.97	3.110	CC, ES, SF
(O) Rosa Unit #009D - OH - OH-SVY	17,727.30	7,269.82	2,126.76	1,923.43	10.460	CC, ES
(O) Rosa Unit #009D - OH - OH-SVY	17,800.00	7,269.47	2,128.00	1,924.31	10.447	SF
(O) Rosa Unit #030 - OH - OH-SVY	10,374.82	7,100.40	267.77	181.41	3.101	CC
(O) Rosa Unit #030 - OH - OH-SVY	10,400.00	7,100.61	268.95	181.12	3.062	ES, SF
(O) Rosa Unit #030B - OH - OH-TD	11,480.40	7,099.20	1,055.54	764.95	3.632	CC
(O) Rosa Unit #030B - OH - OH-TD	11,500.00	7,099.14	1,055.72	764.57	3.626	ES
(O) Rosa Unit #030B - OH - OH-TD	11,600.00	7,098.81	1,062.29	768.67	3.618	SF
(O) Rosa Unit #030C - OH - OH-TD	9,861.39	6,317.00	1,277.61	1,080.41	6.479	CC
(O) Rosa Unit #030C - OH - OH-TD	9,900.00	6,317.00	1,278.20	1,080.16	6.454	ES
(O) Rosa Unit #030C - OH - OH-TD	10,100.00	6,317.00	1,299.70	1,096.50	6.396	SF
(O) Rosa Unit #036 - OH - OH-TD	14,639.39	7,028.00	2,389.16	2,051.91	7.084	CC, ES
(O) Rosa Unit #036 - OH - OH-TD	14,800.00	7,027.48	2,394.55	2,056.12	7.075	SF
(O) Rosa Unit #036C - OH - OH-SVY	16,314.00	7,140.60	1,705.67	1,526.22	9.505	CC, ES
(O) Rosa Unit #036C - OH - OH-SVY	16,400.00	7,142.92	1,707.83	1,528.09	9.502	SF
(O) Rosa Unit #040 - OH - OH-TD	511.40	1,016.61	18,129.39	18,097.21	563.271	CC
(O) Rosa Unit #040 - OH - OH-TD	6,500.00	6,837.99	18,250.57	18,016.36	77.924	ES
(O) Rosa Unit #040 - OH - OH-TD	7,250.00	7,422.37	18,661.24	18,407.27	73.477	SF
(O) Rosa Unit #041C - OH - OH-TD	500.00	523.10	4,940.76	4,923.40	284.618	CC
(O) Rosa Unit #041C - OH - OH-TD	700.00	722.94	4,943.31	4,919.29	205.789	ES
(O) Rosa Unit #041C - OH - OH-TD	7,000.00	6,808.07	5,812.42	5,579.16	24.919	SF
(O) Rosa Unit #045 - OH - OH-TD	6,164.45	6,117.00	7,422.64	7,211.62	35.174	CC
(O) Rosa Unit #045 - OH - OH-TD	6,200.00	6,117.00	7,422.72	7,211.55	35.149	ES
(O) Rosa Unit #045 - OH - OH-TD	6,550.00	6,117.00	7,434.85	7,222.39	34.994	SF
(O) Rosa Unit #046A - OH - OH-SVY	2,857.74	2,448.00	4,753.73	4,728.49	188.363	CC, ES
(O) Rosa Unit #046A - OH - OH-SVY	6,800.00	6,501.17	4,949.51	4,895.60	91.801	SF
(O) Rosa Unit #070 - OH - OH	500.00	693.10	13,313.01	13,290.56	592.921	CC
(O) Rosa Unit #070 - OH - OH	1,300.00	1,525.73	13,330.46	13,280.09	264.672	ES
(O) Rosa Unit #070 - OH - OH	6,600.00	6,518.00	13,610.94	13,386.10	60.538	SF
(O) Rosa Unit #080 - OH - OH-TD	4,759.81	4,583.30	3,089.13	2,930.79	19.510	CC
(O) Rosa Unit #080 - OH - OH-TD	6,400.00	6,174.59	3,115.07	2,901.22	14.567	ES

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Rosa Unit 24						
(O) Rosa Unit #080 - OH - OH-TD	6,700.00	6,469.70	3,157.07	2,933.03	14.091	SF
(O) Rosa Unit #080A - OH - OH-TD	500.00	458.00	3,043.95	3,028.54	197.549	CC
(O) Rosa Unit #080A - OH - OH-TD	700.00	657.94	3,046.28	3,024.20	138.006	ES
(O) Rosa Unit #080A - OH - OH-TD	6,200.00	6,002.66	3,691.09	3,485.06	17.916	SF
(O) Rosa Unit #080B - OH - OH-TD	500.00	473.00	2,414.70	2,398.84	152.270	CC
(O) Rosa Unit #080B - OH - OH-TD	700.00	672.94	2,417.85	2,395.33	107.348	ES
(O) Rosa Unit #080B - OH - OH-TD	6,700.00	6,552.77	3,334.81	3,111.07	14.905	SF
(O) Rosa Unit #095 - OH - OH-TD	515.00	1,025.88	10,841.01	10,808.53	333.819	CC
(O) Rosa Unit #095 - OH - OH-TD	1,000.00	1,507.43	10,847.26	10,798.66	223.207	ES
(O) Rosa Unit #095 - OH - OH-TD	6,550.00	6,300.00	11,139.59	10,921.84	51.158	SF
(O) Rosa Unit #108 - OH - OH-INC	500.00	450.02	894.22	884.05	87.941	CC
(O) Rosa Unit #108 - OH - OH-INC	600.00	550.00	895.81	883.33	71.809	ES
(O) Rosa Unit #108 - OH - OH-INC	7,350.00	6,880.95	2,349.58	2,188.78	14.612	SF
(O) Rosa Unit #109 - OH - OH-TD	6,497.85	6,628.77	7,594.46	7,366.45	33.308	CC
(O) Rosa Unit #109 - OH - OH-TD	6,500.00	6,630.86	7,594.47	7,366.38	33.297	ES
(O) Rosa Unit #109 - OH - OH-TD	7,000.00	7,066.95	7,783.24	7,540.05	32.005	SF
(O) Rosa Unit #149 - OH - OH-INC	10,197.77	5,949.00	2,847.26	2,619.77	12.516	CC
(O) Rosa Unit #149 - OH - OH-INC	10,200.00	5,949.00	2,847.27	2,619.75	12.515	ES
(O) Rosa Unit #149 - OH - OH-INC	10,500.00	5,949.00	2,863.26	2,633.22	12.447	SF
(O) Rosa Unit #149A - OH - OH-INC	11,662.87	6,000.00	2,462.39	2,276.61	13.255	CC
(O) Rosa Unit #149A - OH - OH-INC	11,700.00	6,000.00	2,462.67	2,276.59	13.234	ES
(O) Rosa Unit #149A - OH - OH-INC	11,900.00	6,000.00	2,473.78	2,286.25	13.192	SF
(O) Rosa Unit #149B - OH - OH-INC	13,514.00	7,025.14	2,778.82	2,495.31	9.801	CC, ES
(O) Rosa Unit #149B - OH - OH-INC	13,700.00	7,024.54	2,784.99	2,499.86	9.768	SF
(O) Rosa Unit #149C - OH - OH-SVY	10,895.75	7,118.76	3,014.58	2,925.07	33.680	CC
(O) Rosa Unit #149C - OH - OH-SVY	10,900.00	7,118.80	3,014.58	2,925.04	33.668	ES
(O) Rosa Unit #149C - OH - OH-SVY	11,300.00	7,123.18	3,041.56	2,949.55	33.055	SF
(O) Rosa Unit #154 - OH - OH-TD	8,259.51	6,341.00	798.89	716.79	9.730	CC
(O) Rosa Unit #154 - OH - OH-TD	8,300.00	6,341.00	799.92	716.57	9.597	ES
(O) Rosa Unit #154 - OH - OH-TD	8,900.00	6,341.00	1,023.94	864.77	6.433	SF
(O) Rosa Unit #154A - OH - OH-SVY	6,348.85	6,125.00	546.55	515.24	17.456	CC, ES
(O) Rosa Unit #154A - OH - OH-SVY	6,400.00	6,125.00	548.93	517.28	17.344	SF
(O) Rosa Unit #154B - OH - OH-SVY	3,008.40	3,228.72	441.99	423.13	23.428	CC, ES
(O) Rosa Unit #154B - OH - OH-SVY	3,200.00	3,393.64	453.45	433.54	22.782	SF
(O) Rosa Unit #171 - OH - OH-INC	100.00	38.26	815.70	814.75	860.202	CC
(O) Rosa Unit #171 - OH - OH-INC	600.00	543.36	817.60	807.34	79.695	ES
(O) Rosa Unit #171 - OH - OH-INC	2,200.00	2,102.82	1,132.32	1,089.15	26.229	SF
(O) Rosa Unit #171A - OH - OH-SVY	100.00	38.32	830.70	830.37	2,512.403	CC, ES
(O) Rosa Unit #171A - OH - OH-SVY	3,700.00	3,294.91	2,226.35	2,195.40	71.942	SF
(O) Rosa Unit #181 - OH - OH-SVY	18,023.75	6,896.00	3,170.07	2,991.05	17.708	CC, ES, SF
(O) Rosa Unit #228A - OH - OH-SVY	457.06	395.07	669.28	667.27	332.946	CC, ES
(O) Rosa Unit #228A - OH - OH-SVY	3,500.00	3,253.00	2,404.90	2,381.23	101.580	SF
Rosa Unit 700H - OH - Prelim 7	500.00	500.00	50.00	46.63	14.839	CC, ES
Rosa Unit 700H - OH - Prelim 7	18,023.75	18,143.79	2,637.19	2,276.39	7.309	SF
Rosa Unit 701H - OH - Prelim #2	500.00	500.00	25.09	21.72	7.445	CC, ES
Rosa Unit 701H - OH - Prelim #2	18,023.75	17,759.55	1,298.11	938.67	3.611	SF
Rosa Unit 704H - OH - Prelim #4	728.16	727.90	17.82	12.86	3.596	CC, ES, SF
Rosa Unit 705H - OH - Prelim #3	500.00	500.00	75.22	71.85	22.322	CC
Rosa Unit 705H - OH - Prelim #3	1,207.83	1,197.30	76.95	68.59	9.205	ES
Rosa Unit 705H - OH - Prelim #3	1,400.00	1,386.73	84.25	74.32	8.488	SF
Rosa Unit 706H - OH - Prelim #5	500.00	500.00	50.30	46.93	14.928	CC
Rosa Unit 706H - OH - Prelim #5	700.00	696.74	51.06	46.36	10.859	ES
Rosa Unit 706H - OH - Prelim #5	2,100.00	2,087.37	98.28	81.97	6.028	SF

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning

Offset Design: Rosa Unit 24 - (O) Rosa Unit #001 - OH - OH-TD

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Rule Assigned:

Offset Well Error: 3.28 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	40.00	40.00	0.00	3.38	-101.63	-1,850.57	-8,990.40	9,178.88				
100.00	100.00	140.00	140.00	0.25	4.38	-101.63	-1,850.57	-8,990.40	9,178.88	9,174.25	4.63	1,980.555	
200.00	200.00	240.00	240.00	0.61	5.97	-101.63	-1,850.57	-8,990.40	9,178.88	9,172.31	6.58	1,395.599	
300.00	300.00	340.00	340.00	0.97	7.79	-101.63	-1,850.57	-8,990.40	9,178.88	9,170.13	8.75	1,048.417	
400.00	400.00	440.00	440.00	1.33	9.71	-101.63	-1,850.57	-8,990.40	9,178.88	9,167.85	11.04	831.651	
500.00	500.00	540.03	540.00	1.68	11.71	-101.63	-1,850.57	-8,990.40	9,178.88	9,165.49	13.39	685.411	
600.00	599.98	640.01	639.98	2.03	13.76	78.43	-1,850.57	-8,990.40	9,178.53	9,162.75	15.79	581.346	
700.00	699.84	739.86	739.84	2.36	15.83	78.48	-1,850.57	-8,990.40	9,177.49	9,159.29	18.19	504.449	
800.00	799.45	834.10	834.06	2.71	17.80	78.57	-1,849.60	-8,990.40	9,175.55	9,155.05	20.50	447.513	
900.00	898.70	927.46	927.41	3.06	19.76	78.69	-1,850.03	-8,990.40	9,173.22	9,150.41	22.82	402.061	
1,000.00	997.47	1,037.57	1,037.47	3.43	22.07	78.85	-1,850.57	-8,990.40	9,170.24	9,144.74	25.50	359.616	
1,100.00	1,095.62	1,135.72	1,135.62	3.82	24.14	79.04	-1,850.57	-8,990.40	9,166.52	9,138.56	27.96	327.899	
1,207.83	1,200.65	1,240.76	1,240.65	4.26	26.36	79.27	-1,850.57	-8,990.40	9,161.81	9,131.19	30.61	299.289	
1,300.00	1,290.02	1,325.54	1,325.42	4.65	28.15	79.41	-1,849.58	-8,990.40	9,157.32	9,124.53	32.79	279.230	
1,400.00	1,386.98	1,417.09	1,416.97	5.09	30.08	79.54	-1,849.96	-8,990.40	9,152.80	9,117.64	35.17	260.276	
1,500.00	1,483.95	1,524.12	1,523.95	5.53	32.35	79.70	-1,850.57	-8,990.40	9,148.37	9,110.50	37.87	241.550	
1,600.00	1,580.91	1,621.09	1,620.91	5.99	34.40	79.85	-1,850.57	-8,990.40	9,143.90	9,103.53	40.38	226.470	
1,700.00	1,677.87	1,718.05	1,717.87	6.44	36.46	79.99	-1,850.57	-8,990.40	9,139.49	9,096.61	42.88	213.121	
1,800.00	1,774.84	1,811.54	1,811.35	6.90	38.44	80.14	-1,849.54	-8,990.40	9,134.96	9,089.64	45.32	201.551	
1,900.00	1,871.80	1,903.45	1,903.26	7.36	40.39	80.28	-1,849.89	-8,990.40	9,130.75	9,083.01	47.73	191.286	
2,000.00	1,968.76	2,009.02	2,008.76	7.83	42.63	80.43	-1,850.57	-8,990.40	9,126.64	9,076.20	50.44	180.954	
2,100.00	2,065.73	2,105.98	2,105.73	8.30	44.69	80.58	-1,850.57	-8,990.40	9,122.48	9,069.53	52.96	172.254	
2,200.00	2,162.69	2,202.94	2,202.69	8.77	46.75	80.73	-1,850.57	-8,990.40	9,118.39	9,062.91	55.49	164.339	
2,300.00	2,259.65	2,297.43	2,297.16	9.24	48.75	80.88	-1,849.52	-8,990.40	9,114.19	9,056.23	57.96	157.248	
2,400.00	2,356.61	2,389.70	2,389.43	9.71	50.71	81.02	-1,849.82	-8,990.40	9,110.28	9,049.89	60.39	150.856	
2,500.00	2,453.58	2,482.13	2,481.86	10.18	52.67	81.15	-1,850.42	-8,990.40	9,106.48	9,043.66	62.83	144.949	
2,600.00	2,550.54	2,590.87	2,590.54	10.66	54.98	81.32	-1,850.57	-8,990.40	9,102.66	9,037.05	65.61	138.743	
2,700.00	2,647.50	2,687.83	2,687.50	11.13	57.04	81.47	-1,850.57	-8,990.40	9,098.89	9,030.75	68.14	133.528	
2,800.00	2,744.47	2,783.20	2,782.86	11.61	59.07	81.62	-1,849.50	-8,990.40	9,095.02	9,024.37	70.64	128.746	
2,900.00	2,841.43	2,875.84	2,875.50	12.08	61.04	81.76	-1,849.75	-8,990.40	9,091.42	9,018.33	73.09	124.391	
3,000.00	2,938.39	2,968.64	2,968.29	12.56	63.01	81.90	-1,850.31	-8,990.40	9,087.92	9,012.39	75.54	120.313	
3,100.00	3,035.36	3,075.76	3,075.36	13.04	65.29	82.06	-1,850.57	-8,990.40	9,084.44	9,006.15	78.29	116.037	
3,200.00	3,132.32	3,172.73	3,172.32	13.51	67.35	82.21	-1,850.57	-8,990.40	9,080.99	9,000.16	80.83	112.350	
3,300.00	3,229.28	3,268.86	3,268.45	13.99	69.39	82.36	-1,849.48	-8,990.40	9,077.45	8,994.10	83.35	108.909	
3,400.00	3,326.25	3,361.87	3,361.45	14.47	71.37	82.50	-1,849.70	-8,990.40	9,074.16	8,988.36	85.80	105.754	
3,500.00	3,423.21	3,455.03	3,454.60	14.95	73.35	82.64	-1,850.21	-8,990.40	9,070.98	8,982.72	88.26	102.771	
3,600.00	3,520.17	3,560.65	3,560.17	15.43	75.60	82.80	-1,850.57	-8,990.40	9,067.83	8,976.84	90.99	99.659	
3,700.00	3,617.13	3,657.62	3,657.13	15.91	77.66	82.95	-1,850.57	-8,990.40	9,064.70	8,971.17	93.53	96.918	
3,800.00	3,714.10	3,754.40	3,753.91	16.39	79.72	83.10	-1,849.48	-8,990.40	9,061.50	8,965.44	96.07	94.324	
3,900.00	3,811.06	3,847.78	3,847.28	16.87	81.70	83.25	-1,849.64	-8,990.40	9,058.53	8,960.00	98.53	91.933	
4,000.00	3,908.02	3,941.31	3,940.81	17.35	83.69	83.39	-1,850.12	-8,990.40	9,055.66	8,954.66	101.00	89.657	
4,100.00	4,004.99	4,045.54	4,044.99	17.83	85.91	83.54	-1,850.57	-8,990.40	9,052.84	8,949.14	103.70	87.298	
4,200.00	4,101.95	4,142.51	4,141.95	18.31	87.97	83.69	-1,850.57	-8,990.40	9,050.04	8,943.80	106.24	85.182	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #001 - OH - OH-TD

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Rule Assigned:

Offset Well Error: 3.28 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
4,300.00	4,198.91	4,239.47	4,238.91	18.79	90.03	83.84	-1,850.57	-8,990.40	9,047.30	8,938.52	108.79	83.165	
4,400.00	4,295.88	4,333.57	4,333.00	19.27	92.04	83.99	-1,849.60	-8,990.40	9,044.53	8,933.26	111.27	81.284	
4,500.00	4,392.84	4,427.48	4,426.90	19.75	94.03	84.14	-1,850.03	-8,990.40	9,041.97	8,928.22	113.75	79.490	
4,600.00	4,489.80	4,530.44	4,529.80	20.23	96.22	84.29	-1,850.57	-8,990.40	9,039.49	8,923.07	116.42	77.645	
4,700.00	4,586.76	4,627.40	4,626.76	20.71	98.29	84.44	-1,850.57	-8,990.40	9,037.01	8,918.05	118.97	75.963	
4,800.00	4,683.73	4,724.36	4,723.73	21.20	100.35	84.59	-1,850.57	-8,990.40	9,034.60	8,913.09	121.51	74.353	
4,900.00	4,780.69	4,819.25	4,818.60	21.68	102.37	84.74	-1,849.56	-8,990.40	9,032.16	8,908.15	124.01	72.833	
5,000.00	4,877.65	4,913.53	4,912.88	22.16	104.37	84.89	-1,849.94	-8,990.40	9,029.92	8,903.42	126.50	71.383	
5,100.00	4,974.62	5,015.33	5,014.62	22.64	106.54	85.04	-1,850.57	-8,990.40	9,027.77	8,898.62	129.15	69.903	
5,200.00	5,071.58	5,112.29	5,111.58	23.12	108.60	85.19	-1,850.57	-8,990.40	9,025.62	8,893.93	131.69	68.535	
5,300.00	5,168.54	5,209.25	5,208.54	23.60	110.66	85.34	-1,850.57	-8,990.40	9,023.54	8,889.30	134.24	67.220	
5,400.00	5,265.51	5,304.81	5,304.09	24.09	112.70	85.50	-1,849.53	-8,990.40	9,021.44	8,884.68	136.75	65.968	
5,500.00	5,362.47	5,399.47	5,398.74	24.57	114.71	85.64	-1,849.87	-8,990.40	9,019.52	8,880.27	139.25	64.772	
5,600.00	5,459.43	5,500.22	5,499.43	25.05	116.85	85.79	-1,850.57	-8,990.40	9,017.69	8,875.81	141.88	63.560	
5,700.00	5,556.40	5,597.18	5,596.40	25.53	118.92	85.94	-1,850.57	-8,990.40	9,015.87	8,871.45	144.42	62.427	
5,800.00	5,653.36	5,694.15	5,693.36	26.01	120.98	86.09	-1,850.57	-8,990.40	9,014.12	8,867.15	146.97	61.333	
5,900.00	5,750.32	5,790.24	5,789.45	26.50	123.02	86.25	-1,849.51	-8,990.40	9,012.36	8,862.86	149.50	60.284	
6,000.00	5,847.28	5,885.29	5,884.49	26.98	125.05	86.39	-1,849.80	-8,990.40	9,010.76	8,858.76	152.00	59.280	
6,100.00	5,944.25	5,980.50	5,979.69	27.46	127.07	86.54	-1,850.40	-8,990.40	9,009.25	8,854.74	154.51	58.307	
6,200.00	6,041.21	6,082.07	6,081.21	27.94	129.23	86.69	-1,850.57	-8,990.40	9,007.77	8,850.62	157.16	57.317	
6,300.00	6,138.17	6,179.04	6,178.17	28.43	131.30	86.84	-1,850.57	-8,990.40	9,006.35	8,846.65	159.70	56.394	
6,400.00	6,235.14	6,275.56	6,274.69	28.91	133.35	87.00	-1,849.49	-8,990.40	9,004.94	8,842.70	162.24	55.503	
6,496.84	6,329.04	6,367.98	6,367.10	29.38	135.32	87.14	-1,849.72	-8,990.40	9,003.70	8,839.03	164.68	54.675	
6,500.00	6,332.10	6,370.99	6,370.11	29.39	135.38	86.02	-1,849.73	-8,990.40	9,003.66	8,838.90	164.76	54.649	
6,550.00	6,380.52	6,418.72	6,417.83	29.63	136.40	68.88	-1,849.97	-8,990.40	9,000.84	8,834.83	166.01	54.218	
6,600.00	6,428.63	6,466.17	6,465.29	29.87	137.40	54.57	-1,850.29	-8,990.40	8,994.15	8,826.89	167.26	53.774	
6,650.00	6,476.14	6,517.07	6,516.14	30.10	138.49	43.78	-1,850.57	-8,990.40	8,983.61	8,815.04	168.57	53.293	
6,700.00	6,522.73	6,563.67	6,562.73	30.33	139.48	35.91	-1,850.57	-8,990.40	8,969.27	8,799.49	169.78	52.829	
6,750.00	6,568.14	6,609.08	6,608.14	30.54	140.45	30.15	-1,850.57	-8,990.40	8,951.23	8,780.27	170.96	52.359	
6,800.00	6,612.08	6,653.02	6,652.08	30.75	141.38	25.83	-1,850.57	-8,990.40	8,929.61	8,757.52	172.09	51.889	
6,850.00	6,654.28	6,695.22	6,694.28	30.95	142.28	22.51	-1,850.57	-8,990.40	8,904.54	8,731.36	173.18	51.419	
6,900.00	6,694.47	6,735.41	6,734.47	31.15	143.13	19.90	-1,850.57	-8,990.40	8,876.16	8,701.95	174.21	50.952	
6,950.00	6,732.42	6,773.06	6,772.12	31.33	143.93	17.78	-1,849.49	-8,990.40	8,844.61	8,669.44	175.17	50.492	
7,000.00	6,767.89	6,808.10	6,807.15	31.51	144.68	16.01	-1,849.54	-8,990.40	8,810.17	8,634.11	176.06	50.040	
7,050.00	6,800.65	6,840.49	6,839.53	31.68	145.37	14.49	-1,849.62	-8,990.40	8,773.01	8,596.13	176.88	49.598	
7,100.00	6,830.51	6,870.02	6,869.06	31.85	146.00	13.12	-1,849.73	-8,990.40	8,733.35	8,555.73	177.63	49.167	
7,150.00	6,857.28	6,896.51	6,895.55	32.01	146.56	11.81	-1,849.85	-8,990.40	8,691.44	8,513.15	178.29	48.749	
7,200.00	6,880.80	6,919.79	6,918.84	32.17	147.06	10.49	-1,849.98	-8,990.40	8,647.52	8,468.65	178.87	48.346	
7,250.00	6,900.92	6,939.72	6,938.76	32.33	147.48	8.99	-1,850.11	-8,990.40	8,601.88	8,422.52	179.36	47.960	
7,300.00	6,917.52	6,956.17	6,955.21	32.49	147.83	7.08	-1,850.22	-8,990.40	8,554.78	8,375.03	179.76	47.591	
7,350.00	6,930.50	6,969.02	6,968.06	32.66	148.10	4.18	-1,850.31	-8,990.40	8,506.53	8,326.47	180.06	47.241	
7,400.00	6,939.77	6,978.21	6,977.25	32.83	148.30	-1.38	-1,850.39	-8,990.40	8,457.42	8,277.14	180.28	46.913	
7,450.00	6,945.28	6,983.67	6,982.71	33.01	148.42	-17.65	-1,850.43	-8,990.40	8,407.74	8,227.34	180.40	46.606	
7,499.66	6,947.00	6,985.37	6,984.41	33.19	148.45	-93.94	-1,850.44	-8,990.40	8,358.14	8,177.72	180.43	46.324	
7,600.00	6,946.68	6,985.05	6,984.09	33.61	148.45	-93.88	-1,850.44	-8,990.40	8,257.90	8,077.51	180.39	45.778	
7,700.00	6,946.35	6,984.73	6,983.76	34.10	148.44	-93.83	-1,850.44	-8,990.40	8,157.99	7,977.64	180.35	45.233	
7,800.00	6,946.03	6,984.40	6,983.44	34.66	148.43	-93.78	-1,850.44	-8,990.40	8,058.09	7,877.77	180.32	44.688	
7,900.00	6,945.71	6,984.08	6,983.12	35.29	148.42	-93.73	-1,850.43	-8,990.40	7,958.19	7,777.91	180.28	44.143	
8,000.00	6,945.38	6,983.76	6,982.80	35.99	148.42	-93.68	-1,850.43	-8,990.40	7,858.29	7,678.05	180.24	43.598	
8,100.00	6,945.06	6,983.44	6,982.47	36.74	148.41	-93.62	-1,850.43	-8,990.40	7,758.39	7,578.19	180.21	43.053	
8,200.00	6,944.74	6,983.11	6,982.15	37.56	148.40	-93.57	-1,850.43	-8,990.40	7,658.50	7,478.33	180.17	42.507	
8,300.00	6,944.41	6,982.79	6,981.83	38.43	148.40	-93.52	-1,850.42	-8,990.40	7,558.61	7,378.47	180.13	41.961	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #001 - OH - OH-TD

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Rule Assigned:

Offset Well Error: 3.28 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
8,400.00	6,944.09	6,982.47	6,981.50	39.35	148.39	-93.47	-1,850.42	-8,990.40	7,458.72	7,278.62	180.10	41.415	
8,500.00	6,943.77	6,982.14	6,981.18	40.31	148.38	-93.42	-1,850.42	-8,990.40	7,358.83	7,178.78	180.06	40.869	
8,600.00	6,943.45	6,981.82	6,980.86	41.32	148.38	-93.36	-1,850.42	-8,990.40	7,258.95	7,078.93	180.02	40.323	
8,700.00	6,943.12	6,981.50	6,980.54	42.37	148.37	-93.31	-1,850.41	-8,990.40	7,159.07	6,979.09	179.98	39.776	
8,800.00	6,942.80	6,981.18	6,980.21	43.45	148.36	-93.26	-1,850.41	-8,990.40	7,059.20	6,879.25	179.95	39.230	
8,900.00	6,942.48	6,980.85	6,979.89	44.57	148.36	-93.21	-1,850.41	-8,990.40	6,959.33	6,779.42	179.91	38.683	
9,000.00	6,942.15	6,980.53	6,979.57	45.71	148.35	-93.16	-1,850.41	-8,990.40	6,859.46	6,679.59	179.87	38.136	
9,100.00	6,941.83	6,980.21	6,979.24	46.89	148.34	-93.10	-1,850.40	-8,990.40	6,759.60	6,579.77	179.83	37.589	
9,200.00	6,941.51	6,979.88	6,978.92	48.09	148.34	-93.05	-1,850.40	-8,990.40	6,659.74	6,479.95	179.79	37.042	
9,300.00	6,941.18	6,979.56	6,978.60	49.31	148.33	-93.00	-1,850.40	-8,990.40	6,559.88	6,380.13	179.75	36.494	
9,400.00	6,940.86	6,979.24	6,978.28	50.56	148.32	-92.95	-1,850.39	-8,990.40	6,460.03	6,280.32	179.71	35.947	
9,500.00	6,940.54	6,978.91	6,977.95	51.82	148.31	-92.90	-1,850.39	-8,990.40	6,360.18	6,180.51	179.67	35.399	
9,600.00	6,940.21	6,978.59	6,977.63	53.11	148.31	-92.84	-1,850.39	-8,990.40	6,260.34	6,080.71	179.63	34.852	
9,700.00	6,939.89	6,978.27	6,977.31	54.41	148.30	-92.79	-1,850.39	-8,990.40	6,160.50	5,980.92	179.59	34.304	
9,800.00	6,939.57	6,977.95	6,976.98	55.73	148.29	-92.74	-1,850.38	-8,990.40	6,060.67	5,881.13	179.54	33.756	
9,900.00	6,939.25	6,977.62	6,976.66	57.07	148.29	-92.69	-1,850.38	-8,990.40	5,960.85	5,781.35	179.50	33.208	
10,000.00	6,938.92	6,977.30	6,976.34	58.41	148.28	-92.64	-1,850.38	-8,990.40	5,861.03	5,681.57	179.46	32.660	
10,100.00	6,938.60	6,976.98	6,976.02	59.77	148.27	-92.58	-1,850.38	-8,990.40	5,761.21	5,581.80	179.41	32.112	
10,200.00	6,938.28	6,976.65	6,975.69	61.15	148.27	-92.53	-1,850.37	-8,990.40	5,661.41	5,482.04	179.37	31.563	
10,300.00	6,937.95	6,976.33	6,975.37	62.53	148.26	-92.48	-1,850.37	-8,990.40	5,561.61	5,382.28	179.32	31.015	
10,400.00	6,937.63	6,976.01	6,975.05	63.92	148.25	-92.43	-1,850.37	-8,990.40	5,461.81	5,282.54	179.28	30.466	
10,500.00	6,937.31	6,975.69	6,974.72	65.33	148.25	-92.38	-1,850.37	-8,990.40	5,362.03	5,182.80	179.23	29.917	
10,600.00	6,936.98	6,975.36	6,974.40	66.74	148.24	-92.32	-1,850.36	-8,990.40	5,262.25	5,083.07	179.18	29.369	
10,700.00	6,936.66	6,975.04	6,974.08	68.16	148.23	-92.27	-1,850.36	-8,990.40	5,162.48	4,983.35	179.13	28.820	
10,800.00	6,936.34	6,974.72	6,973.76	69.59	148.23	-92.22	-1,850.36	-8,990.40	5,062.72	4,883.64	179.08	28.271	
10,900.00	6,936.01	6,974.40	6,973.43	71.03	148.22	-92.17	-1,850.36	-8,990.40	4,962.97	4,783.95	179.03	27.722	
11,000.00	6,935.69	6,974.07	6,973.11	72.47	148.21	-92.12	-1,850.35	-8,990.40	4,863.23	4,684.26	178.98	27.172	
11,100.00	6,935.37	6,973.75	6,972.79	73.92	148.20	-92.06	-1,850.35	-8,990.40	4,763.51	4,584.58	178.92	26.623	
11,200.00	6,935.05	6,973.43	6,972.47	75.38	148.20	-92.01	-1,850.35	-8,990.40	4,663.79	4,484.92	178.87	26.074	
11,300.00	6,934.72	6,973.10	6,972.14	76.84	148.19	-91.96	-1,850.35	-8,990.40	4,564.09	4,385.27	178.81	25.524	
11,400.00	6,934.40	6,972.78	6,971.82	78.31	148.18	-91.91	-1,850.34	-8,990.40	4,464.39	4,285.64	178.76	24.975	
11,500.00	6,934.08	6,972.46	6,971.50	79.79	148.18	-91.86	-1,850.34	-8,990.40	4,364.72	4,186.02	178.70	24.425	
11,600.00	6,933.75	6,972.14	6,971.17	81.27	148.17	-91.80	-1,850.34	-8,990.40	4,265.06	4,086.41	178.64	23.875	
11,700.00	6,933.43	6,971.81	6,970.85	82.75	148.16	-91.75	-1,850.34	-8,990.40	4,165.41	3,986.83	178.58	23.325	
11,800.00	6,933.11	6,971.49	6,970.53	84.24	148.16	-91.70	-1,850.33	-8,990.40	4,065.78	3,887.26	178.52	22.775	
11,900.00	6,932.78	6,971.17	6,970.21	85.73	148.15	-91.65	-1,850.33	-8,990.40	3,966.17	3,787.71	178.46	22.224	
12,000.00	6,932.46	6,970.85	6,969.88	87.23	148.14	-91.59	-1,850.33	-8,990.40	3,866.58	3,688.18	178.40	21.674	
12,100.00	6,932.14	6,970.52	6,969.56	88.72	148.14	-91.54	-1,850.33	-8,990.40	3,767.01	3,588.68	178.34	21.123	
12,200.00	6,931.81	6,970.20	6,969.24	90.23	148.13	-91.49	-1,850.32	-8,990.40	3,667.47	3,489.19	178.28	20.572	
12,300.00	6,931.49	6,969.88	6,968.92	91.74	148.12	-91.44	-1,850.32	-8,990.40	3,567.95	3,389.74	178.21	20.021	
12,400.00	6,931.17	6,969.56	6,968.59	93.25	148.12	-91.39	-1,850.32	-8,990.40	3,468.46	3,290.31	178.15	19.469	
12,500.00	6,930.85	6,969.23	6,968.27	94.76	148.11	-91.33	-1,850.32	-8,990.40	3,369.00	3,190.91	178.09	18.917	
12,600.00	6,930.52	6,968.91	6,967.95	96.27	148.10	-91.28	-1,850.31	-8,990.40	3,269.57	3,091.54	178.03	18.365	
12,700.00	6,930.20	6,968.59	6,967.63	97.79	148.10	-91.23	-1,850.31	-8,990.40	3,170.18	2,992.20	177.98	17.812	
12,800.00	6,929.88	6,968.27	6,967.30	99.32	148.09	-91.18	-1,850.31	-8,990.40	3,070.83	2,892.90	177.92	17.259	
12,900.00	6,929.55	6,967.94	6,966.98	100.84	148.08	-91.13	-1,850.31	-8,990.40	2,971.52	2,793.64	177.87	16.706	
13,000.00	6,929.23	6,967.62	6,966.66	102.37	148.07	-91.07	-1,850.30	-8,990.40	2,872.25	2,694.42	177.83	16.152	
13,100.00	6,928.91	6,967.30	6,966.34	103.89	148.07	-91.02	-1,850.30	-8,990.40	2,773.05	2,595.25	177.80	15.597	
13,200.00	6,928.58	6,966.98	6,966.01	105.43	148.06	-90.97	-1,850.30	-8,990.40	2,673.90	2,496.12	177.77	15.041	
13,300.00	6,928.26	6,966.65	6,965.69	106.96	148.05	-90.92	-1,850.30	-8,990.40	2,574.81	2,397.05	177.76	14.485	
13,400.00	6,927.94	6,966.33	6,965.37	108.49	148.05	-90.86	-1,850.29	-8,990.40	2,475.80	2,298.03	177.77	13.927	
13,500.00	6,927.61	6,966.01	6,965.05	110.03	148.04	-90.81	-1,850.29	-8,990.40	2,376.87	2,199.08	177.80	13.368	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #001 - OH - OH-TD — **Offset Site Error:** 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY — **Rule Assigned:** — **Offset Well Error:** 3.28 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
13,600.00	6,927.29	6,965.69	6,964.72	111.57	148.03	-90.76	-1,850.29	-8,990.40	2,278.04	2,100.19	177.85	12.809	
13,700.00	6,926.97	6,965.36	6,964.40	113.11	148.03	-90.71	-1,850.29	-8,990.40	2,179.31	2,001.37	177.94	12.247	
13,800.00	6,926.65	6,965.04	6,964.08	114.65	148.02	-90.66	-1,850.28	-8,990.40	2,080.70	1,902.63	178.08	11.684	
13,900.00	6,926.32	6,964.72	6,963.76	116.20	148.01	-90.60	-1,850.28	-8,990.40	1,982.24	1,803.97	178.27	11.119	
14,000.00	6,926.00	6,964.40	6,963.43	117.75	148.01	-90.55	-1,850.28	-8,990.40	1,883.93	1,705.40	178.54	10.552	
14,100.00	6,925.68	6,964.07	6,963.11	119.29	148.00	-90.50	-1,850.28	-8,990.40	1,785.82	1,606.92	178.90	9.982	
14,200.00	6,925.35	6,963.75	6,962.79	120.84	147.99	-90.45	-1,850.28	-8,990.40	1,687.92	1,508.55	179.37	9.410	
14,300.00	6,925.03	6,963.43	6,962.47	122.39	147.99	-90.40	-1,850.27	-8,990.40	1,590.29	1,410.29	180.00	8.835	
14,400.00	6,924.71	6,963.11	6,962.14	123.94	147.98	-90.34	-1,850.27	-8,990.40	1,492.96	1,312.15	180.82	8.257	
14,500.00	6,924.38	6,962.78	6,961.82	125.50	147.97	-90.29	-1,850.27	-8,990.40	1,396.02	1,214.14	181.88	7.675	
14,600.00	6,924.06	6,962.46	6,961.50	127.05	147.96	-90.24	-1,850.27	-8,990.40	1,299.54	1,116.27	183.27	7.091	
14,700.00	6,923.74	6,962.14	6,961.18	128.61	147.96	-90.19	-1,850.26	-8,990.40	1,203.64	1,018.58	185.06	6.504	
14,800.00	6,923.42	6,961.82	6,960.86	130.16	147.95	-90.13	-1,850.26	-8,990.40	1,108.46	921.08	187.38	5.916	
14,900.00	6,923.09	6,961.49	6,960.53	131.72	147.94	-90.08	-1,850.26	-8,990.40	1,014.21	823.82	190.38	5.327	
15,000.00	6,922.77	6,961.17	6,960.21	133.28	147.94	-90.03	-1,850.26	-8,990.40	921.17	726.90	194.27	4.742	
15,100.00	6,922.45	6,960.85	6,959.89	134.84	147.93	-89.98	-1,850.25	-8,990.40	829.75	630.44	199.31	4.163	
15,200.00	6,922.12	6,960.53	6,959.57	136.40	147.92	-89.93	-1,850.25	-8,990.40	740.55	534.70	205.85	3.598	
15,300.00	6,921.80	6,960.20	6,959.24	137.96	147.92	-89.87	-1,850.25	-8,990.40	654.48	440.13	214.35	3.053	
15,400.00	6,921.48	6,959.88	6,958.92	139.53	147.91	-89.82	-1,850.25	-8,990.40	572.95	347.62	225.33	2.543	
15,500.00	6,921.15	6,959.56	6,958.60	141.09	147.90	-89.77	-1,850.24	-8,990.40	498.20	258.91	239.30	2.082	
15,600.00	6,920.83	6,959.24	6,958.28	142.65	147.90	-89.72	-1,850.24	-8,990.40	433.75	177.56	256.19	1.693	
15,700.00	6,920.51	6,958.92	6,957.95	144.22	147.89	-89.67	-1,850.24	-8,990.40	384.80	110.45	274.35	1.403	Level 3
15,800.00	6,920.18	6,958.59	6,957.63	145.79	147.88	-89.61	-1,850.24	-8,990.40	357.78	68.52	289.25	1.237	Level 3
15,850.34	6,920.02	6,958.43	6,957.47	146.58	147.88	-89.59	-1,850.24	-8,990.40	354.22	60.60	293.61	1.206	Level 3, CC, ES, SF
15,900.00	6,919.86	6,958.27	6,957.31	147.35	147.88	-89.56	-1,850.23	-8,990.40	357.68	62.47	295.21	1.212	Level 3
16,000.00	6,919.54	6,957.95	6,956.99	148.92	147.87	-89.51	-1,850.23	-8,990.40	384.53	93.64	290.89	1.322	Level 3
16,100.00	6,919.22	6,957.63	6,956.67	150.49	147.86	-89.46	-1,850.23	-8,990.40	433.36	152.90	280.46	1.545	
16,200.00	6,918.89	6,957.30	6,956.34	152.06	147.85	-89.41	-1,850.23	-8,990.40	497.72	229.18	268.54	1.853	
16,300.00	6,918.57	6,956.98	6,956.02	153.63	147.85	-89.35	-1,850.23	-8,990.40	572.41	314.85	257.57	2.222	
16,400.00	6,918.25	6,956.66	6,955.70	155.20	147.84	-89.30	-1,850.22	-8,990.40	653.90	405.65	248.25	2.634	
16,500.00	6,917.92	6,956.34	6,955.38	156.77	147.83	-89.25	-1,850.22	-8,990.40	739.94	499.39	240.56	3.076	
16,600.00	6,917.60	6,956.02	6,955.06	158.34	147.83	-89.20	-1,850.22	-8,990.40	829.12	594.87	234.25	3.539	
16,700.00	6,917.28	6,955.69	6,954.73	159.92	147.82	-89.14	-1,850.22	-8,990.40	920.53	691.47	229.06	4.019	
16,800.00	6,916.95	6,955.37	6,954.41	161.49	147.81	-89.09	-1,850.21	-8,990.40	1,013.56	788.80	224.76	4.510	
16,900.00	6,916.63	6,955.05	6,954.09	163.06	147.81	-89.04	-1,850.21	-8,990.40	1,107.81	886.65	221.16	5.009	
17,000.00	6,916.31	6,954.73	6,953.77	164.64	147.80	-88.99	-1,850.21	-8,990.40	1,202.98	984.86	218.12	5.515	
17,100.00	6,915.98	6,954.40	6,953.44	166.21	147.79	-88.94	-1,850.21	-8,990.40	1,298.88	1,083.35	215.53	6.026	
17,200.00	6,915.66	6,954.08	6,953.12	167.79	147.79	-88.88	-1,850.20	-8,990.40	1,395.36	1,182.05	213.31	6.542	
17,300.00	6,915.34	6,953.76	6,952.80	169.37	147.78	-88.83	-1,850.20	-8,990.40	1,492.30	1,280.91	211.38	7.060	
17,400.00	6,915.02	6,953.44	6,952.48	170.94	147.77	-88.78	-1,850.20	-8,990.40	1,589.62	1,379.91	209.71	7.580	
17,500.00	6,914.69	6,953.12	6,952.16	172.52	147.77	-88.73	-1,850.20	-8,990.40	1,687.25	1,479.01	208.23	8.103	
17,600.00	6,914.37	6,952.79	6,951.83	174.10	147.76	-88.68	-1,850.20	-8,990.40	1,785.14	1,578.21	206.94	8.627	
17,700.00	6,914.05	6,952.47	6,951.51	175.68	147.75	-88.62	-1,850.19	-8,990.40	1,883.26	1,677.47	205.79	9.152	
17,800.00	6,913.72	6,952.15	6,951.19	177.25	147.75	-88.57	-1,850.19	-8,990.40	1,981.56	1,776.80	204.76	9.677	
17,900.00	6,913.40	6,951.83	6,950.87	178.83	147.74	-88.52	-1,850.19	-8,990.40	2,080.03	1,876.18	203.84	10.204	
18,000.00	6,913.08	6,951.51	6,950.55	180.41	147.73	-88.47	-1,850.19	-8,990.40	2,178.63	1,975.61	203.02	10.731	
18,023.75	6,913.00	6,951.43	6,950.47	180.79	147.73	-88.45	-1,850.19	-8,990.40	2,202.08	1,999.24	202.84	10.856	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #001E - OH - OH-SVY

Offset Site Error: 0.00 usft

Survey Program: 50-A020Ga_GYRO-NS

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	17.14	17.14	0.00	0.03	-102.61	-1,747.17	-7,812.45	8,005.44				
100.00	100.00	105.96	105.96	0.25	0.28	-102.61	-1,747.26	-7,812.56	8,005.58	8,005.04	0.53	N/A	
200.00	200.00	206.58	206.58	0.61	0.64	-102.61	-1,747.55	-7,812.65	8,005.72	8,004.48	1.24	6,432.555	
300.00	300.00	297.21	297.21	0.97	0.95	-102.61	-1,747.93	-7,812.75	8,005.92	8,004.00	1.92	4,170.372	
400.00	400.00	376.98	376.98	1.33	1.23	-102.61	-1,748.34	-7,812.98	8,006.32	8,003.77	2.56	3,130.822	
500.00	500.00	479.35	479.35	1.68	1.59	-102.62	-1,748.69	-7,813.42	8,006.82	8,003.54	3.27	2,445.413	
600.00	599.98	631.58	631.58	2.03	2.12	77.45	-1,748.93	-7,813.66	8,006.63	8,002.48	4.15	1,930.731	
700.00	699.84	742.06	742.06	2.36	2.51	77.51	-1,749.29	-7,813.29	8,005.24	8,000.37	4.86	1,645.920	
800.00	799.45	842.18	842.17	2.71	2.86	77.62	-1,749.34	-7,813.04	8,003.11	7,997.56	5.56	1,440.590	
900.00	898.70	947.37	947.37	3.06	3.22	77.76	-1,749.09	-7,812.75	8,000.18	7,993.90	6.28	1,274.402	
1,000.00	997.47	1,070.60	1,070.59	3.43	3.65	77.98	-1,748.70	-7,812.08	7,996.22	7,989.15	7.08	1,129.822	
1,100.00	1,095.62	1,166.71	1,166.70	3.82	3.99	78.20	-1,748.45	-7,811.42	7,991.48	7,983.68	7.80	1,024.544	
1,207.83	1,200.65	1,271.48	1,271.46	4.26	4.35	78.48	-1,748.22	-7,810.76	7,985.69	7,977.08	8.61	927.939	
1,300.00	1,290.02	1,365.29	1,365.28	4.65	4.68	78.64	-1,747.74	-7,810.16	7,980.39	7,971.07	9.33	855.804	
1,400.00	1,386.98	1,451.99	1,451.97	5.09	4.98	78.80	-1,747.17	-7,809.75	7,974.84	7,964.78	10.06	792.547	
1,500.00	1,483.95	1,542.17	1,542.14	5.53	5.30	78.96	-1,746.40	-7,809.37	7,969.39	7,958.57	10.82	736.577	
1,600.00	1,580.91	1,652.66	1,652.63	5.99	5.68	79.15	-1,745.64	-7,808.95	7,964.09	7,952.44	11.65	683.403	
1,700.00	1,677.87	1,783.38	1,783.34	6.44	6.14	79.38	-1,744.53	-7,807.99	7,958.48	7,945.92	12.56	633.485	
1,800.00	1,774.84	1,875.00	1,874.95	6.90	6.46	79.55	-1,743.24	-7,807.25	7,952.78	7,939.44	13.34	596.142	
1,900.00	1,871.80	1,939.33	1,939.27	7.36	6.69	79.67	-1,742.09	-7,806.99	7,947.46	7,933.43	14.03	566.616	
2,000.00	1,968.76	2,004.02	2,003.95	7.83	6.91	79.79	-1,740.73	-7,806.99	7,942.56	7,927.84	14.72	539.732	
2,100.00	2,065.73	2,092.42	2,092.33	8.30	7.22	79.96	-1,738.98	-7,807.21	7,938.01	7,922.52	15.49	512.465	
2,200.00	2,162.69	2,216.18	2,216.06	8.77	7.65	80.19	-1,736.80	-7,807.26	7,933.38	7,916.99	16.39	484.075	
2,300.00	2,259.65	2,295.72	2,295.59	9.24	7.93	80.34	-1,735.09	-7,807.30	7,928.78	7,911.64	17.14	462.700	
2,400.00	2,356.61	2,369.23	2,369.09	9.71	8.19	80.48	-1,733.62	-7,807.55	7,924.56	7,906.69	17.86	443.621	
2,500.00	2,453.58	2,471.59	2,471.44	10.18	8.55	80.67	-1,732.13	-7,807.93	7,920.55	7,901.86	18.69	423.739	
2,600.00	2,550.54	2,587.82	2,587.65	10.66	8.95	80.88	-1,730.37	-7,808.00	7,916.30	7,896.73	19.57	404.508	
2,700.00	2,647.50	2,654.90	2,654.72	11.13	9.19	81.01	-1,729.14	-7,808.17	7,912.29	7,892.01	20.28	390.176	
2,800.00	2,744.47	2,712.85	2,712.66	11.61	9.39	81.12	-1,728.20	-7,808.57	7,908.81	7,887.85	20.96	377.398	
2,900.00	2,841.43	2,760.52	2,760.32	12.08	9.56	81.21	-1,727.67	-7,809.12	7,905.93	7,884.33	21.60	366.053	
3,000.00	2,938.39	2,859.40	2,859.18	12.56	9.90	81.39	-1,726.58	-7,810.51	7,903.37	7,880.95	22.42	352.537	
3,100.00	3,035.36	2,925.00	2,924.77	13.04	10.13	81.51	-1,725.75	-7,811.56	7,901.08	7,877.96	23.12	341.687	
3,200.00	3,132.32	3,048.06	3,047.81	13.51	10.56	81.73	-1,725.20	-7,813.70	7,899.15	7,875.12	24.03	328.717	
3,300.00	3,229.28	3,119.29	3,119.03	13.99	10.81	81.86	-1,724.99	-7,814.74	7,897.02	7,872.26	24.76	318.992	
3,400.00	3,326.25	3,250.00	3,249.73	14.47	11.26	82.09	-1,725.01	-7,816.85	7,895.19	7,869.50	25.69	307.318	
3,500.00	3,423.21	3,311.91	3,311.63	14.95	11.48	82.20	-1,724.93	-7,817.75	7,893.23	7,866.84	26.39	299.155	
3,600.00	3,520.17	3,425.00	3,424.71	15.43	11.88	82.40	-1,725.02	-7,819.39	7,891.33	7,864.07	27.26	289.493	
3,700.00	3,617.13	3,534.81	3,534.50	15.91	12.26	82.60	-1,725.10	-7,820.95	7,889.50	7,861.38	28.12	280.544	
3,800.00	3,714.10	3,625.00	3,624.68	16.39	12.57	82.76	-1,725.09	-7,822.33	7,887.82	7,858.91	28.92	272.775	
3,900.00	3,811.06	3,715.14	3,714.81	16.87	12.89	82.92	-1,724.99	-7,823.68	7,886.20	7,856.48	29.71	265.421	
4,000.00	3,908.02	3,808.53	3,808.19	17.35	13.21	83.08	-1,725.01	-7,825.09	7,884.67	7,854.15	30.52	258.354	
4,100.00	4,004.99	3,886.36	3,886.02	17.83	13.49	83.22	-1,725.43	-7,826.32	7,883.34	7,852.07	31.27	252.096	
4,200.00	4,101.95	3,983.19	3,982.82	18.31	13.82	83.38	-1,726.50	-7,827.94	7,882.25	7,850.16	32.09	245.625	
4,300.00	4,198.91	4,075.00	4,074.60	18.79	14.14	83.53	-1,728.32	-7,829.40	7,881.23	7,848.34	32.89	239.606	
4,400.00	4,295.88	4,150.00	4,149.56	19.27	14.41	83.65	-1,730.43	-7,830.70	7,880.50	7,846.87	33.64	234.293	
4,500.00	4,392.84	4,243.48	4,242.98	19.75	14.73	83.80	-1,733.46	-7,832.39	7,879.96	7,845.52	34.44	228.780	
4,600.00	4,489.80	4,317.62	4,317.05	20.23	14.99	83.91	-1,736.18	-7,833.86	7,879.68	7,844.49	35.18	223.961	
4,650.17	4,538.45	4,356.59	4,355.99	20.47	15.13	83.97	-1,737.65	-7,834.70	7,879.64	7,844.08	35.56	221.583	
4,700.00	4,586.76	4,384.46	4,383.83	20.71	15.22	84.01	-1,738.75	-7,835.35	7,879.72	7,843.83	35.90	219.510	
4,800.00	4,683.73	4,481.53	4,480.78	21.20	15.56	84.16	-1,742.70	-7,837.72	7,880.06	7,843.34	36.72	214.608	
4,900.00	4,780.69	4,575.72	4,574.86	21.68	15.89	84.30	-1,746.70	-7,840.02	7,880.45	7,842.92	37.53	209.979	
5,000.00	4,877.65	4,675.00	4,674.02	22.16	16.24	84.44	-1,750.95	-7,842.51	7,880.97	7,842.61	38.36	205.451	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #001E - OH - OH-SVY

Offset Site Error: 0.00 usft

Survey Program: 50-A020Ga_GYRO-NS **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,100.00	4,974.62	4,750.00	4,748.92	22.64	16.50	84.56	-1,754.23	-7,844.44	7,881.62	7,842.52	39.10	201.564	
5,200.00	5,071.58	4,864.99	4,863.77	23.12	16.90	84.73	-1,759.19	-7,847.38	7,882.28	7,842.29	39.99	197.114	
5,300.00	5,168.54	4,959.93	4,958.58	23.60	17.24	84.87	-1,763.29	-7,849.83	7,883.03	7,842.22	40.80	193.197	
5,400.00	5,265.51	5,050.00	5,048.54	24.09	17.55	85.00	-1,767.27	-7,852.14	7,883.83	7,842.23	41.60	189.514	
5,500.00	5,362.47	5,172.34	5,170.71	24.57	17.98	85.18	-1,772.69	-7,855.44	7,884.86	7,842.34	42.51	185.469	
5,600.00	5,459.43	5,293.66	5,291.87	25.05	18.40	85.36	-1,778.39	-7,858.16	7,885.48	7,842.06	43.42	181.600	
5,700.00	5,556.40	5,425.00	5,423.04	25.53	18.86	85.55	-1,784.74	-7,860.52	7,885.72	7,841.35	44.37	177.741	
5,800.00	5,653.36	5,550.00	5,547.87	26.01	19.30	85.72	-1,790.97	-7,862.19	7,885.55	7,840.26	45.29	174.121	
5,900.00	5,750.32	5,709.74	5,707.37	26.50	19.86	85.95	-1,799.58	-7,863.49	7,884.97	7,838.64	46.33	170.192	
6,000.00	5,847.28	5,812.58	5,810.06	26.98	20.22	86.09	-1,805.17	-7,863.76	7,883.88	7,836.71	47.17	167.129	
6,100.00	5,944.25	5,882.05	5,879.43	27.46	20.46	86.19	-1,808.92	-7,864.19	7,883.17	7,835.27	47.90	164.579	
6,200.00	6,041.21	5,950.00	5,947.28	27.94	20.70	86.28	-1,812.48	-7,864.76	7,882.76	7,834.14	48.62	162.132	
6,249.54	6,089.24	5,988.82	5,986.04	28.18	20.83	86.34	-1,814.58	-7,865.17	7,882.68	7,833.69	48.99	160.890	
6,300.00	6,138.17	6,037.17	6,034.32	28.43	21.00	86.40	-1,817.18	-7,865.76	7,882.69	7,833.28	49.41	159.545	
6,400.00	6,235.14	6,100.00	6,097.05	28.91	21.22	86.49	-1,820.55	-7,866.66	7,882.94	7,832.83	50.11	157.316	
6,496.84	6,329.04	6,184.03	6,180.95	29.38	21.51	86.61	-1,824.99	-7,868.10	7,883.50	7,832.63	50.87	154.972	
6,500.00	6,332.10	6,184.92	6,181.84	29.39	21.52	85.48	-1,825.03	-7,868.12	7,883.52	7,832.63	50.89	154.917	
6,550.00	6,380.52	6,212.02	6,208.89	29.63	21.61	68.32	-1,826.52	-7,868.69	7,881.78	7,830.56	51.22	153.876	
6,600.00	6,428.63	6,250.00	6,246.81	29.87	21.75	53.98	-1,828.58	-7,869.52	7,876.22	7,824.63	51.59	152.671	
6,650.00	6,476.14	6,287.03	6,283.77	30.10	21.87	43.16	-1,830.59	-7,870.37	7,866.85	7,814.91	51.95	151.440	
6,700.00	6,522.73	6,325.00	6,321.67	30.33	22.01	35.27	-1,832.72	-7,871.33	7,853.78	7,801.48	52.30	150.170	
6,750.00	6,568.14	6,350.00	6,346.62	30.54	22.10	29.45	-1,834.21	-7,872.02	7,837.07	7,784.48	52.60	149.007	
6,800.00	6,612.08	6,350.00	6,346.62	30.75	22.10	25.05	-1,834.21	-7,872.02	7,816.90	7,764.11	52.79	148.077	
6,850.00	6,654.28	6,375.00	6,371.54	30.95	22.18	21.67	-1,835.94	-7,872.90	7,793.42	7,740.36	53.06	146.871	
6,900.00	6,694.47	6,439.60	6,436.00	31.15	22.41	19.05	-1,839.49	-7,875.20	7,766.58	7,713.11	53.47	145.256	
6,950.00	6,732.42	6,491.54	6,487.85	31.33	22.59	16.89	-1,842.07	-7,876.90	7,736.38	7,682.57	53.81	143.763	
7,000.00	6,767.89	6,538.22	6,534.46	31.51	22.75	15.08	-1,844.34	-7,878.32	7,703.08	7,648.95	54.13	142.320	
7,050.00	6,800.65	6,588.69	6,584.84	31.68	22.93	13.51	-1,846.74	-7,879.81	7,666.93	7,612.50	54.44	140.845	
7,100.00	6,830.51	6,632.14	6,628.23	31.85	23.08	12.07	-1,848.77	-7,881.04	7,628.17	7,573.46	54.70	139.444	
7,150.00	6,857.28	6,657.51	6,653.56	32.01	23.17	10.66	-1,849.98	-7,881.75	7,587.05	7,532.16	54.89	138.217	
7,200.00	6,880.80	6,687.16	6,683.16	32.17	23.28	9.21	-1,851.38	-7,882.54	7,543.80	7,488.72	55.08	136.962	
7,250.00	6,900.92	6,715.24	6,711.21	32.33	23.37	7.56	-1,852.70	-7,883.30	7,498.74	7,443.49	55.24	135.738	
7,300.00	6,917.52	6,741.49	6,737.42	32.49	23.47	5.45	-1,853.88	-7,883.94	7,452.08	7,396.69	55.39	134.549	
7,350.00	6,930.50	6,766.32	6,762.22	32.66	23.55	2.33	-1,855.04	-7,884.54	7,404.17	7,348.66	55.51	133.395	
7,400.00	6,939.77	6,782.76	6,778.63	32.83	23.61	-3.31	-1,855.79	-7,884.91	7,355.29	7,299.71	55.58	132.335	
7,450.00	6,945.28	6,785.40	6,781.27	33.01	23.62	-16.87	-1,855.91	-7,884.97	7,305.77	7,250.18	55.59	131.414	
7,499.66	6,947.00	6,786.55	6,782.41	33.19	23.62	-65.57	-1,855.96	-7,885.00	7,256.25	7,200.66	55.59	130.538	
7,600.00	6,946.68	6,787.35	6,783.21	33.61	23.63	-65.68	-1,856.00	-7,885.02	7,156.06	7,100.50	55.56	128.810	
7,700.00	6,946.35	6,788.16	6,784.03	34.10	23.63	-65.80	-1,856.04	-7,885.04	7,056.21	7,000.69	55.52	127.087	
7,800.00	6,946.03	6,788.99	6,784.85	34.66	23.63	-65.91	-1,856.08	-7,885.06	6,956.36	6,900.87	55.49	125.362	
7,900.00	6,945.71	6,789.83	6,785.69	35.29	23.63	-66.02	-1,856.12	-7,885.08	6,856.52	6,801.06	55.46	123.636	
8,000.00	6,945.38	6,790.68	6,786.54	35.99	23.64	-66.14	-1,856.15	-7,885.10	6,756.68	6,701.26	55.42	121.908	
8,100.00	6,945.06	6,791.55	6,787.41	36.74	23.64	-66.26	-1,856.19	-7,885.12	6,656.85	6,601.46	55.39	120.179	
8,200.00	6,944.74	6,792.43	6,788.29	37.56	23.64	-66.38	-1,856.24	-7,885.14	6,557.02	6,501.67	55.36	118.449	
8,300.00	6,944.41	6,808.69	6,804.52	38.43	23.70	-68.66	-1,856.97	-7,885.53	6,457.20	6,401.83	55.37	116.609	
8,400.00	6,944.09	6,810.60	6,806.43	39.35	23.71	-68.93	-1,857.05	-7,885.57	6,357.38	6,302.04	55.34	114.871	
8,500.00	6,943.77	6,812.51	6,808.34	40.31	23.71	-69.20	-1,857.14	-7,885.62	6,257.56	6,202.25	55.31	113.133	
8,600.00	6,943.45	6,814.42	6,810.25	41.32	23.72	-69.48	-1,857.22	-7,885.66	6,157.75	6,102.47	55.28	111.393	
8,700.00	6,943.12	6,816.33	6,812.16	42.37	23.73	-69.75	-1,857.31	-7,885.70	6,057.95	6,002.70	55.25	109.653	
8,800.00	6,942.80	6,818.25	6,814.07	43.45	23.73	-70.03	-1,857.39	-7,885.75	5,958.15	5,902.93	55.21	107.912	
8,900.00	6,942.48	6,832.46	6,828.27	44.57	23.78	-72.10	-1,857.99	-7,886.04	5,858.34	5,803.12	55.22	106.094	
9,000.00	6,942.15	6,833.20	6,829.01	45.71	23.79	-72.20	-1,858.02	-7,886.06	5,758.55	5,703.37	55.18	104.361	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #001E - OH - OH-SVY

Offset Site Error: 0.00 usft

Survey Program: 50-A020Ga_GYRO-NS **Offset Well Error:** 0.00 usft

Rule Assigned:

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,100.00	6,941.83	6,833.96	6,829.77	46.89	23.79	-72.32	-1,858.05	-7,886.08	5,658.77	5,603.63	55.14	102.626	
9,200.00	6,941.51	6,834.73	6,830.54	48.09	23.79	-72.43	-1,858.09	-7,886.09	5,558.99	5,503.89	55.10	100.891	
9,300.00	6,941.18	6,835.52	6,831.33	49.31	23.79	-72.55	-1,858.12	-7,886.11	5,459.22	5,404.16	55.06	99.155	
9,400.00	6,940.86	6,836.33	6,832.13	50.56	23.80	-72.67	-1,858.15	-7,886.13	5,359.46	5,304.45	55.02	97.417	
9,500.00	6,940.54	6,837.15	6,832.95	51.82	23.80	-72.79	-1,858.19	-7,886.14	5,259.71	5,204.74	54.97	95.679	
9,600.00	6,940.21	6,837.98	6,833.79	53.11	23.80	-72.91	-1,858.22	-7,886.16	5,159.97	5,105.04	54.93	93.940	
9,700.00	6,939.89	6,838.84	6,834.64	54.41	23.81	-73.04	-1,858.26	-7,886.18	5,060.23	5,005.35	54.88	92.200	
9,800.00	6,939.57	6,839.71	6,835.51	55.73	23.81	-73.17	-1,858.29	-7,886.20	4,960.51	4,905.68	54.84	90.459	
9,900.00	6,939.25	6,840.60	6,836.40	57.07	23.81	-73.30	-1,858.33	-7,886.22	4,860.80	4,806.01	54.79	88.717	
10,000.00	6,938.92	6,841.51	6,837.31	58.41	23.82	-73.44	-1,858.37	-7,886.24	4,761.10	4,706.36	54.74	86.974	
10,100.00	6,938.60	6,842.44	6,838.24	59.77	23.82	-73.57	-1,858.41	-7,886.26	4,661.42	4,606.72	54.69	85.231	
10,200.00	6,938.28	6,843.39	6,839.18	61.15	23.82	-73.72	-1,858.45	-7,886.28	4,561.74	4,507.10	54.64	83.486	
10,300.00	6,937.95	6,850.00	6,845.79	62.53	23.84	-74.71	-1,858.73	-7,886.44	4,462.09	4,407.49	54.61	81.716	
10,400.00	6,937.63	6,850.00	6,845.79	63.92	23.84	-74.71	-1,858.73	-7,886.44	4,362.44	4,307.90	54.55	79.974	
10,500.00	6,937.31	6,850.00	6,845.79	65.33	23.84	-74.71	-1,858.73	-7,886.44	4,262.82	4,208.32	54.49	78.230	
10,600.00	6,936.98	6,850.00	6,845.79	66.74	23.84	-74.71	-1,858.73	-7,886.44	4,163.20	4,108.77	54.43	76.485	
10,700.00	6,936.66	6,850.00	6,845.79	68.16	23.84	-74.71	-1,858.73	-7,886.44	4,063.61	4,009.24	54.37	74.739	
10,800.00	6,936.34	6,850.00	6,845.79	69.59	23.84	-74.71	-1,858.73	-7,886.44	3,964.04	3,909.73	54.31	72.991	
10,900.00	6,936.01	6,863.70	6,859.47	71.03	23.89	-76.79	-1,859.31	-7,886.75	3,864.49	3,810.20	54.28	71.193	
11,000.00	6,935.69	6,879.74	6,875.50	72.47	23.95	-79.26	-1,859.96	-7,887.07	3,764.95	3,710.69	54.26	69.390	
11,100.00	6,935.37	6,866.26	6,862.03	73.92	23.90	-77.18	-1,859.41	-7,886.79	3,665.43	3,611.27	54.16	67.682	
11,200.00	6,935.05	6,868.08	6,863.85	75.38	23.91	-77.46	-1,859.48	-7,886.83	3,565.94	3,511.85	54.09	65.921	
11,300.00	6,934.72	6,869.91	6,865.68	76.84	23.91	-77.74	-1,859.56	-7,886.87	3,466.49	3,412.46	54.03	64.159	
11,400.00	6,934.40	6,879.73	6,875.49	78.31	23.95	-79.26	-1,859.96	-7,887.07	3,367.06	3,313.08	53.98	62.372	
11,500.00	6,934.08	6,880.87	6,876.63	79.79	23.95	-79.43	-1,860.01	-7,887.09	3,267.67	3,213.76	53.92	60.606	
11,600.00	6,933.75	6,882.03	6,877.79	81.27	23.96	-79.61	-1,860.05	-7,887.12	3,168.32	3,114.47	53.85	58.837	
11,700.00	6,933.43	6,883.22	6,878.97	82.75	23.96	-79.80	-1,860.10	-7,887.14	3,069.00	3,015.22	53.78	57.063	
11,800.00	6,933.11	6,884.42	6,880.18	84.24	23.97	-79.99	-1,860.15	-7,887.17	2,969.74	2,916.02	53.72	55.284	
11,900.00	6,932.78	6,885.65	6,881.41	85.73	23.97	-80.18	-1,860.19	-7,887.19	2,870.52	2,816.86	53.66	53.499	
12,000.00	6,932.46	6,886.91	6,882.66	87.23	23.97	-80.37	-1,860.24	-7,887.22	2,771.36	2,717.76	53.60	51.708	
12,100.00	6,932.14	6,888.19	6,883.94	88.72	23.98	-80.57	-1,860.29	-7,887.24	2,672.26	2,618.71	53.54	49.909	
12,200.00	6,931.81	6,889.49	6,885.24	90.23	23.98	-80.78	-1,860.35	-7,887.27	2,573.23	2,519.73	53.50	48.101	
12,300.00	6,931.49	6,890.82	6,886.57	91.74	23.99	-80.98	-1,860.40	-7,887.30	2,474.27	2,420.81	53.46	46.282	
12,400.00	6,931.17	6,892.17	6,887.92	93.25	23.99	-81.20	-1,860.45	-7,887.32	2,375.40	2,321.97	53.44	44.452	
12,500.00	6,930.85	6,893.56	6,889.30	94.76	24.00	-81.41	-1,860.51	-7,887.35	2,276.63	2,223.20	53.43	42.608	
12,600.00	6,930.52	6,894.97	6,890.71	96.27	24.00	-81.63	-1,860.56	-7,887.38	2,177.97	2,124.52	53.45	40.747	
12,700.00	6,930.20	6,896.41	6,892.15	97.79	24.01	-81.86	-1,860.62	-7,887.41	2,079.44	2,025.94	53.50	38.868	
12,800.00	6,929.88	6,900.00	6,895.74	99.32	24.02	-82.42	-1,860.76	-7,887.49	1,981.06	1,927.47	53.59	36.967	
12,900.00	6,929.55	6,900.00	6,895.74	100.84	24.02	-82.42	-1,860.76	-7,887.49	1,882.84	1,829.11	53.73	35.041	
13,000.00	6,929.23	6,901.69	6,897.42	102.37	24.03	-82.69	-1,860.82	-7,887.53	1,784.82	1,730.87	53.94	33.088	
13,100.00	6,928.91	6,904.40	6,900.13	103.89	24.04	-83.12	-1,860.93	-7,887.59	1,687.02	1,632.78	54.24	31.102	
13,200.00	6,928.58	6,906.97	6,902.70	105.43	24.04	-83.52	-1,861.03	-7,887.64	1,589.50	1,534.85	54.66	29.081	
13,300.00	6,928.26	6,909.42	6,905.15	106.96	24.05	-83.91	-1,861.12	-7,887.69	1,492.31	1,437.08	55.23	27.021	
13,400.00	6,927.94	6,911.75	6,907.48	108.49	24.06	-84.28	-1,861.21	-7,887.74	1,395.51	1,339.51	56.00	24.921	
13,500.00	6,927.61	6,913.97	6,909.70	110.03	24.07	-84.63	-1,861.29	-7,887.78	1,299.19	1,242.16	57.03	22.781	
13,600.00	6,927.29	6,916.09	6,911.81	111.57	24.08	-84.96	-1,861.37	-7,887.83	1,203.47	1,145.06	58.41	20.605	
13,700.00	6,926.97	6,918.11	6,913.84	113.11	24.08	-85.28	-1,861.45	-7,887.86	1,108.50	1,048.26	60.24	18.402	
13,800.00	6,926.65	6,920.05	6,915.77	114.65	24.09	-85.59	-1,861.52	-7,887.90	1,014.49	951.82	62.67	16.188	
13,900.00	6,926.32	6,921.90	6,917.62	116.20	24.10	-85.88	-1,861.59	-7,887.93	921.74	855.86	65.88	13.991	
14,000.00	6,926.00	6,923.67	6,919.39	117.75	24.10	-86.16	-1,861.66	-7,887.97	830.68	760.56	70.12	11.846	
14,100.00	6,925.68	6,925.37	6,921.09	119.29	24.11	-86.43	-1,861.72	-7,888.00	741.92	666.20	75.72	9.798	
14,200.00	6,925.35	6,925.00	6,920.72	120.84	24.11	-86.37	-1,861.71	-7,887.99	656.39	573.31	83.08	7.901	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #001E - OH - OH-SVY

Offset Site Error: 0.00 usft

Survey Program: 50-A020Ga_GYRO-NS

Rule Assigned:

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,300.00	6,925.03	6,927.82	6,923.53	122.39	24.12	-86.82	-1,861.81	-7,888.04	575.54	482.88	92.66	6.211	
14,400.00	6,924.71	6,929.18	6,924.89	123.94	24.12	-87.03	-1,861.86	-7,888.07	501.65	396.75	104.90	4.782	
14,500.00	6,924.38	6,930.60	6,926.31	125.50	24.13	-87.26	-1,861.91	-7,888.09	438.23	318.51	119.72	3.660	
14,600.00	6,924.06	6,932.10	6,927.81	127.05	24.13	-87.50	-1,861.97	-7,888.12	390.43	254.78	135.64	2.878	
14,700.00	6,923.74	6,933.66	6,929.37	128.61	24.14	-87.75	-1,862.02	-7,888.15	364.44	215.65	148.79	2.449	
14,748.10	6,923.58	6,934.45	6,930.15	129.36	24.14	-87.87	-1,862.05	-7,888.17	361.26	208.62	152.63	2.367	CC, ES
14,800.00	6,923.42	6,935.31	6,931.02	130.16	24.14	-88.01	-1,862.09	-7,888.19	364.97	210.56	154.41	2.364	SF
14,900.00	6,923.09	6,937.04	6,932.75	131.72	24.15	-88.28	-1,862.15	-7,888.22	391.89	240.54	151.35	2.589	
15,000.00	6,922.77	6,938.87	6,934.57	133.28	24.16	-88.57	-1,862.22	-7,888.26	440.39	297.42	142.97	3.080	
15,100.00	6,922.45	6,940.79	6,936.50	134.84	24.16	-88.88	-1,862.29	-7,888.30	504.29	371.15	133.14	3.788	
15,200.00	6,922.12	6,942.83	6,938.53	136.40	24.17	-89.20	-1,862.37	-7,888.35	578.50	454.56	123.94	4.668	
15,300.00	6,921.80	6,944.98	6,940.68	137.96	24.18	-89.54	-1,862.45	-7,888.39	659.55	543.51	116.04	5.684	
15,400.00	6,921.48	6,947.26	6,942.96	139.53	24.19	-89.90	-1,862.53	-7,888.45	745.21	635.73	109.49	6.806	
15,500.00	6,921.15	6,949.68	6,945.38	141.09	24.19	-90.28	-1,862.62	-7,888.50	834.07	729.98	104.09	8.013	
15,600.00	6,920.83	6,952.26	6,947.95	142.65	24.20	-90.69	-1,862.72	-7,888.57	925.20	825.56	99.63	9.286	
15,700.00	6,920.51	6,953.28	6,948.97	144.22	24.21	-90.85	-1,862.76	-7,888.59	1,017.99	922.07	95.93	10.612	
15,800.00	6,920.18	6,954.95	6,950.64	145.79	24.21	-91.12	-1,862.82	-7,888.63	1,112.03	1,019.21	92.82	11.980	
15,900.00	6,919.86	6,956.57	6,952.25	147.35	24.22	-91.37	-1,862.88	-7,888.66	1,207.03	1,116.83	90.20	13.382	
16,000.00	6,919.54	6,958.14	6,953.82	148.92	24.22	-91.62	-1,862.94	-7,888.70	1,302.77	1,214.81	87.96	14.810	
16,100.00	6,919.22	6,959.66	6,955.35	150.49	24.23	-91.86	-1,863.00	-7,888.73	1,399.10	1,313.06	86.04	16.261	
16,200.00	6,918.89	6,961.14	6,956.82	152.06	24.23	-92.10	-1,863.05	-7,888.77	1,495.92	1,411.54	84.38	17.728	
16,300.00	6,918.57	6,962.58	6,958.26	153.63	24.24	-92.32	-1,863.11	-7,888.80	1,593.13	1,510.19	82.93	19.210	
16,400.00	6,918.25	6,963.98	6,959.66	155.20	24.24	-92.54	-1,863.16	-7,888.83	1,690.66	1,609.00	81.66	20.703	
16,500.00	6,917.92	6,965.33	6,961.01	156.77	24.25	-92.76	-1,863.21	-7,888.86	1,788.46	1,707.92	80.54	22.205	
16,600.00	6,917.60	6,966.65	6,962.33	158.34	24.25	-92.96	-1,863.26	-7,888.89	1,886.49	1,806.94	79.55	23.714	
16,700.00	6,917.28	6,967.94	6,963.61	159.92	24.26	-93.16	-1,863.31	-7,888.91	1,984.72	1,906.05	78.67	25.229	
16,800.00	6,916.95	6,969.19	6,964.86	161.49	24.26	-93.36	-1,863.36	-7,888.94	2,083.11	2,005.23	77.88	26.748	
16,900.00	6,916.63	6,970.40	6,966.07	163.06	24.27	-93.55	-1,863.40	-7,888.96	2,181.65	2,104.48	77.17	28.270	
17,000.00	6,916.31	6,975.00	6,970.67	164.64	24.28	-94.27	-1,863.58	-7,889.05	2,280.32	2,203.77	76.55	29.788	
17,100.00	6,915.98	6,975.00	6,970.67	166.21	24.28	-94.27	-1,863.58	-7,889.05	2,379.10	2,303.13	75.97	31.316	
17,200.00	6,915.66	6,975.00	6,970.67	167.79	24.28	-94.27	-1,863.58	-7,889.05	2,477.97	2,402.53	75.44	32.846	
17,300.00	6,915.34	6,975.00	6,970.67	169.37	24.28	-94.27	-1,863.58	-7,889.05	2,576.93	2,501.97	74.96	34.376	
17,400.00	6,915.02	6,978.95	6,974.62	170.94	24.30	-94.89	-1,863.72	-7,889.13	2,675.96	2,601.42	74.55	35.896	
17,500.00	6,914.69	6,983.52	6,979.18	172.52	24.31	-95.60	-1,863.89	-7,889.23	2,775.07	2,700.89	74.17	37.414	
17,600.00	6,914.37	6,988.63	6,984.29	174.10	24.33	-96.40	-1,864.07	-7,889.34	2,874.23	2,800.39	73.83	38.928	
17,700.00	6,914.05	6,994.39	6,990.04	175.68	24.35	-97.29	-1,864.27	-7,889.47	2,973.44	2,899.91	73.53	40.438	
17,800.00	6,913.72	7,000.92	6,996.57	177.25	24.37	-98.30	-1,864.49	-7,889.62	3,072.70	2,999.45	73.26	41.944	
17,900.00	6,913.40	6,993.45	6,989.11	178.83	24.35	-97.14	-1,864.23	-7,889.46	3,172.00	3,099.06	72.94	43.488	
18,000.00	6,913.08	6,995.31	6,990.96	180.41	24.35	-97.43	-1,864.30	-7,889.50	3,271.36	3,198.66	72.69	45.004	
18,023.75	6,913.00	6,995.75	6,991.40	180.79	24.35	-97.50	-1,864.31	-7,889.51	3,294.96	3,222.33	72.63	45.363	

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

SDT

Anticollision Report

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Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #009A - OH - OH-TD

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	-81.39	1,515.17	-10,007.78	10,122.13				
100.00	100.00	22.00	22.00	0.25	0.66	-81.39	1,515.17	-10,007.78	10,121.83	10,120.92	0.91	N/A	
200.00	200.00	122.00	122.00	0.61	3.66	-81.39	1,515.17	-10,007.78	10,121.83	10,117.56	4.27	2,373.105	
300.00	300.00	222.00	222.00	0.97	6.65	-81.39	1,515.17	-10,007.78	10,121.83	10,114.21	7.62	1,328.305	
400.00	400.00	322.00	322.00	1.33	9.65	-81.39	1,515.17	-10,007.78	10,121.83	10,110.85	10.97	922.263	
500.00	500.00	422.00	422.00	1.68	12.65	-81.39	1,515.17	-10,007.78	10,121.83	10,107.50	14.33	706.344	
600.00	599.98	522.08	521.98	2.03	15.64	98.66	1,515.17	-10,007.78	10,122.09	10,104.42	17.67	572.849	
700.00	699.84	621.94	621.84	2.36	18.64	98.67	1,515.17	-10,007.78	10,122.88	10,101.88	20.99	482.172	
800.00	799.45	721.55	721.45	2.71	21.62	98.69	1,515.17	-10,007.78	10,124.20	10,099.88	24.32	416.246	
900.00	898.70	829.42	829.26	3.06	24.85	98.74	1,517.13	-10,007.78	10,126.36	10,098.45	27.91	362.816	
1,000.00	997.47	940.44	940.25	3.43	28.18	98.79	1,516.09	-10,007.78	10,128.63	10,097.02	31.61	320.450	
1,100.00	1,095.62	1,018.03	1,017.62	3.82	30.50	98.81	1,515.17	-10,007.78	10,131.43	10,097.11	34.32	295.202	
1,207.83	1,200.65	1,123.06	1,122.65	4.26	33.65	98.87	1,515.17	-10,007.78	10,135.28	10,097.37	37.91	267.362	
1,300.00	1,290.02	1,212.43	1,212.02	4.65	36.33	98.99	1,515.17	-10,007.78	10,138.89	10,097.91	40.98	247.419	
1,400.00	1,386.98	1,317.18	1,316.72	5.09	39.47	99.14	1,517.20	-10,007.78	10,143.18	10,098.63	44.55	227.667	
1,500.00	1,483.95	1,427.19	1,426.71	5.53	42.77	99.29	1,516.26	-10,007.78	10,147.08	10,098.78	48.29	210.119	
1,600.00	1,580.91	1,503.62	1,502.91	5.99	45.06	99.39	1,515.17	-10,007.78	10,150.96	10,099.93	51.03	198.918	
1,700.00	1,677.87	1,600.58	1,599.87	6.44	47.96	99.52	1,515.17	-10,007.78	10,155.10	10,100.71	54.39	186.710	
1,800.00	1,774.84	1,697.55	1,696.84	6.90	50.87	99.65	1,515.17	-10,007.78	10,159.29	10,101.54	57.75	175.913	
1,900.00	1,871.80	1,800.84	1,800.08	7.36	53.96	99.80	1,517.26	-10,007.78	10,163.91	10,102.60	61.31	165.787	
2,000.00	1,968.76	1,911.89	1,911.11	7.83	57.29	99.95	1,516.44	-10,007.78	10,168.10	10,103.00	65.10	156.199	
2,100.00	2,065.73	2,023.41	2,022.59	8.30	60.63	100.09	1,514.74	-10,007.78	10,172.21	10,103.30	68.90	147.631	
2,200.00	2,162.69	2,085.70	2,084.69	8.77	62.50	100.18	1,515.17	-10,007.78	10,176.65	10,105.41	71.24	142.860	
2,300.00	2,259.65	2,182.67	2,181.65	9.24	65.40	100.31	1,515.17	-10,007.78	10,181.13	10,106.52	74.61	136.462	
2,400.00	2,356.61	2,284.18	2,283.13	9.71	68.44	100.46	1,517.31	-10,007.78	10,186.06	10,107.95	78.12	130.393	
2,500.00	2,453.58	2,396.30	2,395.21	10.18	71.80	100.61	1,516.60	-10,007.78	10,190.55	10,108.60	81.95	124.356	
2,600.00	2,550.54	2,508.88	2,507.76	10.66	75.18	100.75	1,515.01	-10,007.78	10,194.94	10,109.15	85.79	118.835	
2,700.00	2,647.50	2,570.82	2,569.50	11.13	77.03	100.83	1,515.17	-10,007.78	10,199.62	10,111.50	88.12	115.751	
2,800.00	2,744.47	2,667.79	2,666.47	11.61	79.94	100.96	1,515.17	-10,007.78	10,204.38	10,112.89	91.49	111.531	
2,900.00	2,841.43	2,767.20	2,765.84	12.08	82.92	101.11	1,517.34	-10,007.78	10,209.63	10,114.68	94.94	107.533	
3,000.00	2,938.39	2,880.39	2,879.00	12.56	86.31	101.26	1,516.76	-10,007.78	10,214.41	10,115.60	98.81	103.376	
3,100.00	3,035.36	2,994.06	2,992.64	13.04	89.72	101.40	1,515.27	-10,007.78	10,219.09	10,116.40	102.69	99.516	
3,200.00	3,132.32	3,055.94	3,054.32	13.51	91.57	101.49	1,515.17	-10,007.78	10,224.00	10,118.98	105.01	97.358	
3,300.00	3,229.28	3,152.91	3,151.28	13.99	94.48	101.62	1,515.17	-10,007.78	10,229.04	10,120.65	108.39	94.370	
3,400.00	3,326.25	3,249.87	3,248.21	14.47	97.38	101.76	1,517.35	-10,007.78	10,234.60	10,122.83	111.77	91.567	
3,500.00	3,423.21	3,364.16	3,362.47	14.95	100.81	101.91	1,516.90	-10,007.78	10,239.68	10,124.01	115.67	88.525	
3,600.00	3,520.17	3,478.94	3,477.22	15.43	104.24	102.06	1,515.52	-10,007.78	10,244.65	10,125.06	119.58	85.669	
3,700.00	3,617.13	3,541.06	3,539.13	15.91	106.11	102.14	1,515.17	-10,007.78	10,249.78	10,127.86	121.92	84.071	
3,800.00	3,714.10	3,638.03	3,636.10	16.39	109.01	102.27	1,515.17	-10,007.78	10,255.10	10,129.81	125.30	81.846	
3,900.00	3,811.06	3,734.99	3,733.06	16.87	111.92	102.40	1,515.17	-10,007.78	10,260.48	10,131.81	128.68	79.739	
4,000.00	3,908.02	3,847.60	3,845.62	17.35	115.29	102.56	1,517.02	-10,007.78	10,266.34	10,133.82	132.52	77.467	
4,100.00	4,004.99	3,963.52	3,961.50	17.83	118.76	102.70	1,515.76	-10,007.78	10,271.60	10,135.13	136.47	75.265	
4,200.00	4,101.95	4,026.18	4,023.95	18.31	120.64	102.78	1,515.17	-10,007.78	10,276.95	10,138.13	138.82	74.029	
4,300.00	4,198.91	4,123.15	4,120.91	18.79	123.55	102.91	1,515.17	-10,007.78	10,282.55	10,140.35	142.20	72.309	
4,400.00	4,295.88	4,220.11	4,217.88	19.27	126.45	103.04	1,515.17	-10,007.78	10,288.21	10,142.63	145.58	70.670	
4,500.00	4,392.84	4,330.70	4,328.42	19.75	129.77	103.20	1,517.13	-10,007.78	10,294.39	10,145.02	149.37	68.919	
4,600.00	4,489.80	4,447.77	4,445.46	20.23	133.28	103.35	1,515.99	-10,007.78	10,299.93	10,146.58	153.35	67.166	
4,700.00	4,586.76	4,511.30	4,508.76	20.71	135.18	103.43	1,515.17	-10,007.78	10,305.51	10,149.78	155.73	66.177	
4,800.00	4,683.73	4,608.27	4,605.73	21.20	138.08	103.56	1,515.17	-10,007.78	10,311.38	10,152.28	159.11	64.808	
4,900.00	4,780.69	4,705.23	4,702.69	21.68	140.99	103.69	1,515.17	-10,007.78	10,317.31	10,154.83	162.49	63.497	
5,000.00	4,877.65	4,813.46	4,810.87	22.16	144.23	103.84	1,517.21	-10,007.78	10,323.80	10,157.60	166.20	62.116	
5,100.00	4,974.62	4,931.70	4,929.09	22.64	147.78	103.99	1,516.20	-10,007.78	10,329.64	10,159.42	170.22	60.684	

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

SDT

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Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #009A - OH - OH-TD

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Rule Assigned: Warning
5,200.00	5,071.58	5,050.47	5,047.81	23.12	151.33	104.14	1,514.20	-10,007.78	10,335.33	10,161.08	174.25	59.313	
5,300.00	5,168.54	5,093.39	5,090.54	23.60	152.62	104.20	1,515.17	-10,007.78	10,341.57	10,165.57	176.01	58.756	
5,400.00	5,265.51	5,190.35	5,187.51	24.09	155.53	104.32	1,515.17	-10,007.78	10,347.78	10,168.39	179.39	57.684	
5,500.00	5,362.47	5,295.85	5,292.96	24.57	158.69	104.47	1,517.28	-10,007.78	10,354.57	10,171.55	183.02	56.576	
5,600.00	5,459.43	5,415.29	5,412.38	25.05	162.27	104.63	1,516.40	-10,007.78	10,360.70	10,173.63	187.07	55.383	
5,700.00	5,556.40	5,535.28	5,532.32	25.53	165.86	104.77	1,514.51	-10,007.78	10,366.67	10,175.53	191.14	54.236	
5,800.00	5,653.36	5,578.51	5,575.36	26.01	167.16	104.83	1,515.17	-10,007.78	10,373.12	10,180.22	192.91	53.773	
5,900.00	5,750.32	5,675.47	5,672.32	26.50	170.06	104.96	1,515.17	-10,007.78	10,379.59	10,183.31	196.28	52.881	
6,000.00	5,847.28	5,777.87	5,774.68	26.98	173.13	105.10	1,517.33	-10,007.78	10,386.69	10,186.87	199.82	51.979	
6,100.00	5,944.25	5,898.54	5,895.32	27.46	176.75	105.26	1,516.58	-10,007.78	10,393.11	10,189.20	203.91	50.968	
6,200.00	6,041.21	6,019.76	6,016.50	27.94	180.38	105.41	1,514.81	-10,007.78	10,399.36	10,191.35	208.02	49.993	
6,300.00	6,138.17	6,063.63	6,060.17	28.43	181.69	105.47	1,515.17	-10,007.78	10,406.01	10,196.21	209.80	49.600	
6,400.00	6,235.14	6,160.59	6,157.14	28.91	184.60	105.59	1,515.17	-10,007.78	10,412.75	10,199.57	213.18	48.846	
6,496.84	6,329.04	6,255.67	6,252.18	29.38	187.45	105.73	1,517.35	-10,007.78	10,419.93	10,203.45	216.48	48.133	
6,500.00	6,332.10	6,259.51	6,256.02	29.39	187.56	104.60	1,517.35	-10,007.78	10,420.14	10,203.52	216.61	48.105	
6,550.00	6,380.52	6,320.32	6,316.82	29.63	189.39	87.46	1,517.18	-10,007.78	10,421.39	10,202.71	218.67	47.658	
6,600.00	6,428.63	6,380.89	6,377.37	29.87	191.20	73.25	1,516.75	-10,007.78	10,418.81	10,198.09	220.73	47.202	
6,650.00	6,476.14	6,440.82	6,437.28	30.10	193.00	62.69	1,516.08	-10,007.78	10,412.44	10,189.67	222.77	46.742	
6,700.00	6,522.73	6,499.74	6,496.18	30.33	194.76	55.17	1,515.17	-10,007.78	10,402.31	10,177.53	224.77	46.280	
6,750.00	6,568.14	6,557.28	6,553.70	30.54	196.49	49.90	1,514.06	-10,007.78	10,388.48	10,161.75	226.73	45.819	
6,800.00	6,612.08	6,537.84	6,534.08	30.75	195.90	46.08	1,515.17	-10,007.78	10,371.48	10,145.10	226.38	45.815	
6,850.00	6,654.28	6,580.03	6,576.28	30.95	197.17	43.54	1,515.17	-10,007.78	10,350.91	10,123.04	227.87	45.424	
6,900.00	6,694.47	6,620.23	6,616.47	31.15	198.37	41.90	1,515.17	-10,007.78	10,327.02	10,097.72	229.30	45.037	
6,950.00	6,732.42	6,658.18	6,654.42	31.33	199.51	40.99	1,515.17	-10,007.78	10,299.97	10,069.32	230.66	44.655	
7,000.00	6,767.89	6,693.64	6,689.89	31.51	200.57	40.71	1,515.17	-10,007.78	10,269.92	10,037.99	231.93	44.280	
7,050.00	6,800.65	6,726.41	6,722.65	31.68	201.55	41.03	1,515.17	-10,007.78	10,237.07	10,003.95	233.12	43.914	
7,100.00	6,830.51	6,757.99	6,754.19	31.85	202.50	41.98	1,517.35	-10,007.78	10,202.24	9,967.98	234.26	43.550	
7,150.00	6,857.28	6,791.96	6,788.16	32.01	203.52	43.60	1,517.29	-10,007.78	10,164.38	9,928.91	235.47	43.165	
7,200.00	6,880.80	6,821.84	6,818.04	32.17	204.41	46.00	1,517.17	-10,007.78	10,124.35	9,887.79	236.56	42.799	
7,250.00	6,900.92	6,847.44	6,843.62	32.33	205.18	49.35	1,517.02	-10,007.78	10,082.40	9,844.90	237.50	42.452	
7,300.00	6,917.52	6,868.57	6,864.75	32.49	205.81	53.90	1,516.86	-10,007.78	10,038.79	9,800.49	238.31	42.126	
7,350.00	6,930.50	6,885.10	6,881.28	32.66	206.31	60.01	1,516.71	-10,007.78	9,993.81	9,754.84	238.96	41.821	
7,400.00	6,939.77	6,896.91	6,893.09	32.83	206.66	68.11	1,516.60	-10,007.78	9,947.71	9,708.24	239.47	41.540	
7,450.00	6,945.28	6,903.94	6,900.11	33.01	206.87	78.55	1,516.52	-10,007.78	9,900.80	9,660.97	239.83	41.282	
7,499.66	6,947.00	6,906.13	6,902.30	33.19	206.94	91.21	1,516.50	-10,007.78	9,853.68	9,613.64	240.04	41.050	
7,600.00	6,946.68	6,905.71	6,901.88	33.61	206.93	91.20	1,516.51	-10,007.78	9,758.18	9,517.87	240.31	40.606	
7,700.00	6,946.35	6,905.29	6,901.46	34.10	206.91	91.20	1,516.51	-10,007.78	9,663.10	9,422.51	240.59	40.164	
7,800.00	6,946.03	6,904.87	6,901.05	34.66	206.90	91.19	1,516.51	-10,007.78	9,568.12	9,327.24	240.88	39.721	
7,900.00	6,945.71	6,904.46	6,900.63	35.29	206.89	91.18	1,516.52	-10,007.78	9,473.25	9,232.06	241.19	39.277	
8,000.00	6,945.38	6,904.04	6,900.22	35.99	206.88	91.17	1,516.52	-10,007.78	9,378.48	9,136.97	241.50	38.833	
8,100.00	6,945.06	6,903.62	6,899.80	36.74	206.86	91.16	1,516.53	-10,007.78	9,283.82	9,041.98	241.83	38.389	
8,200.00	6,944.74	6,903.21	6,899.38	37.56	206.85	91.16	1,516.53	-10,007.78	9,189.27	8,947.10	242.18	37.945	
8,300.00	6,944.41	6,902.79	6,898.97	38.43	206.84	91.15	1,516.54	-10,007.78	9,094.84	8,852.31	242.53	37.500	
8,400.00	6,944.09	6,902.38	6,898.55	39.35	206.83	91.14	1,516.54	-10,007.78	9,000.53	8,757.63	242.90	37.054	
8,500.00	6,943.77	6,901.96	6,898.13	40.31	206.81	91.13	1,516.55	-10,007.78	8,906.35	8,663.06	243.28	36.609	
8,600.00	6,943.45	6,901.54	6,897.72	41.32	206.80	91.12	1,516.55	-10,007.78	8,812.29	8,568.61	243.68	36.163	
8,700.00	6,943.12	6,901.13	6,897.30	42.37	206.79	91.12	1,516.55	-10,007.78	8,718.36	8,474.27	244.09	35.717	
8,800.00	6,942.80	6,900.71	6,896.88	43.45	206.78	91.11	1,516.56	-10,007.78	8,624.58	8,380.06	244.52	35.271	
8,900.00	6,942.48	6,900.29	6,896.47	44.57	206.76	91.10	1,516.56	-10,007.78	8,530.93	8,285.97	244.96	34.825	
9,000.00	6,942.15	6,899.88	6,896.05	45.71	206.75	91.09	1,516.57	-10,007.78	8,437.43	8,192.00	245.42	34.379	
9,100.00	6,941.83	6,899.46	6,895.64	46.89	206.74	91.08	1,516.57	-10,007.78	8,344.08	8,098.18	245.90	33.933	
9,200.00	6,941.51	6,899.04	6,895.22	48.09	206.73	91.08	1,516.58	-10,007.78	8,250.88	8,004.49	246.39	33.487	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #009A - OH - OH-TD

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Rule Assigned: Warning
9,300.00	6,941.18	6,898.63	6,894.80	49.31	206.71	91.07	1,516.58	-10,007.78	8,157.85	7,910.95	246.90	33.041	
9,400.00	6,940.86	6,898.21	6,894.39	50.56	206.70	91.06	1,516.59	-10,007.78	8,064.98	7,817.55	247.43	32.595	
9,500.00	6,940.54	6,897.80	6,893.97	51.82	206.69	91.05	1,516.59	-10,007.78	7,972.29	7,724.31	247.97	32.150	
9,600.00	6,940.21	6,897.38	6,893.56	53.11	206.68	91.05	1,516.59	-10,007.78	7,879.77	7,631.23	248.54	31.704	
9,700.00	6,939.89	6,896.96	6,893.14	54.41	206.66	91.04	1,516.60	-10,007.78	7,787.44	7,538.31	249.12	31.259	
9,800.00	6,939.57	6,896.55	6,892.72	55.73	206.65	91.03	1,516.60	-10,007.78	7,695.30	7,445.57	249.73	30.815	
9,900.00	6,939.25	6,896.13	6,892.31	57.07	206.64	91.02	1,516.61	-10,007.78	7,603.36	7,353.01	250.35	30.371	
10,000.00	6,938.92	6,895.72	6,891.89	58.41	206.63	91.01	1,516.61	-10,007.78	7,511.62	7,260.62	251.00	29.927	
10,100.00	6,938.60	6,895.30	6,891.48	59.77	206.61	91.01	1,516.62	-10,007.78	7,420.10	7,168.44	251.66	29.484	
10,200.00	6,938.28	6,894.88	6,891.06	61.15	206.60	91.00	1,516.62	-10,007.78	7,328.80	7,076.45	252.35	29.042	
10,300.00	6,937.95	6,894.47	6,890.65	62.53	206.59	90.99	1,516.62	-10,007.78	7,237.73	6,984.66	253.07	28.600	
10,400.00	6,937.63	6,894.05	6,890.23	63.92	206.58	90.98	1,516.63	-10,007.78	7,146.90	6,893.10	253.80	28.159	
10,500.00	6,937.31	6,893.64	6,889.81	65.33	206.56	90.97	1,516.63	-10,007.78	7,056.32	6,801.75	254.56	27.719	
10,600.00	6,936.98	6,893.22	6,889.40	66.74	206.55	90.97	1,516.64	-10,007.78	6,965.99	6,710.64	255.35	27.280	
10,700.00	6,936.66	6,892.81	6,888.98	68.16	206.54	90.96	1,516.64	-10,007.78	6,875.93	6,619.77	256.16	26.842	
10,800.00	6,936.34	6,892.39	6,888.57	69.59	206.53	90.95	1,516.64	-10,007.78	6,786.15	6,529.16	257.00	26.405	
10,900.00	6,936.01	6,891.97	6,888.15	71.03	206.51	90.94	1,516.65	-10,007.78	6,696.66	6,438.80	257.86	25.970	
11,000.00	6,935.69	6,891.56	6,887.74	72.47	206.50	90.93	1,516.65	-10,007.78	6,607.48	6,348.72	258.76	25.535	
11,100.00	6,935.37	6,891.14	6,887.32	73.92	206.49	90.93	1,516.66	-10,007.78	6,518.60	6,258.92	259.68	25.103	
11,200.00	6,935.05	6,890.73	6,886.91	75.38	206.48	90.92	1,516.66	-10,007.78	6,430.05	6,169.42	260.63	24.671	
11,300.00	6,934.72	6,890.31	6,886.49	76.84	206.46	90.91	1,516.66	-10,007.78	6,341.85	6,080.23	261.61	24.241	
11,400.00	6,934.40	6,889.90	6,886.07	78.31	206.45	90.90	1,516.67	-10,007.78	6,253.99	5,991.37	262.63	23.813	
11,500.00	6,934.08	6,889.48	6,885.66	79.79	206.44	90.89	1,516.67	-10,007.78	6,166.51	5,902.84	263.67	23.387	
11,600.00	6,933.75	6,889.07	6,885.24	81.27	206.43	90.89	1,516.68	-10,007.78	6,079.42	5,814.66	264.75	22.963	
11,700.00	6,933.43	6,888.65	6,884.83	82.75	206.42	90.88	1,516.68	-10,007.78	5,992.72	5,726.85	265.87	22.540	
11,800.00	6,933.11	6,888.24	6,884.41	84.24	206.40	90.87	1,516.69	-10,007.78	5,906.45	5,639.43	267.02	22.120	
11,900.00	6,932.78	6,887.82	6,884.00	85.73	206.39	90.86	1,516.69	-10,007.78	5,820.62	5,552.41	268.21	21.702	
12,000.00	6,932.46	6,887.40	6,883.58	87.23	206.38	90.86	1,516.69	-10,007.78	5,735.24	5,465.81	269.43	21.287	
12,100.00	6,932.14	6,886.99	6,883.17	88.72	206.37	90.85	1,516.70	-10,007.78	5,650.35	5,379.65	270.69	20.874	
12,200.00	6,931.81	6,886.57	6,882.75	90.23	206.35	90.84	1,516.70	-10,007.78	5,565.95	5,293.96	271.99	20.464	
12,300.00	6,931.49	6,886.16	6,882.34	91.74	206.34	90.83	1,516.70	-10,007.78	5,482.08	5,208.75	273.34	20.056	
12,400.00	6,931.17	6,885.74	6,881.92	93.25	206.33	90.82	1,516.71	-10,007.78	5,398.77	5,124.04	274.72	19.652	
12,500.00	6,930.85	6,885.33	6,881.51	94.76	206.32	90.82	1,516.71	-10,007.78	5,316.02	5,039.87	276.15	19.251	
12,600.00	6,930.52	6,884.91	6,881.09	96.27	206.30	90.81	1,516.72	-10,007.78	5,233.88	4,956.26	277.62	18.853	
12,700.00	6,930.20	6,884.50	6,880.68	97.79	206.29	90.80	1,516.72	-10,007.78	5,152.37	4,873.23	279.14	18.458	
12,800.00	6,929.88	6,884.08	6,880.26	99.32	206.28	90.79	1,516.72	-10,007.78	5,071.52	4,790.82	280.70	18.067	
12,900.00	6,929.55	6,883.67	6,879.85	100.84	206.27	90.78	1,516.73	-10,007.78	4,991.37	4,709.06	282.31	17.680	
13,000.00	6,929.23	6,883.25	6,879.43	102.37	206.25	90.78	1,516.73	-10,007.78	4,911.94	4,627.97	283.97	17.297	
13,100.00	6,928.91	6,882.84	6,879.02	103.89	206.24	90.77	1,516.74	-10,007.78	4,833.28	4,547.60	285.68	16.919	
13,200.00	6,928.58	6,882.42	6,878.60	105.43	206.23	90.76	1,516.74	-10,007.78	4,755.42	4,467.99	287.44	16.544	
13,300.00	6,928.26	6,882.01	6,878.19	106.96	206.22	90.75	1,516.74	-10,007.78	4,678.40	4,389.16	289.24	16.175	
13,400.00	6,927.94	6,881.59	6,877.77	108.49	206.20	90.74	1,516.75	-10,007.78	4,602.27	4,311.17	291.10	15.810	
13,500.00	6,927.61	6,881.18	6,877.36	110.03	206.19	90.74	1,516.75	-10,007.78	4,527.06	4,234.05	293.02	15.450	
13,600.00	6,927.29	6,880.76	6,876.94	111.57	206.18	90.73	1,516.76	-10,007.78	4,452.83	4,157.85	294.98	15.095	
13,700.00	6,926.97	6,880.35	6,876.53	113.11	206.17	90.72	1,516.76	-10,007.78	4,379.63	4,082.63	297.00	14.746	
13,800.00	6,926.65	6,879.93	6,876.12	114.65	206.15	90.71	1,516.76	-10,007.78	4,307.50	4,008.43	299.07	14.403	
13,900.00	6,926.32	6,879.52	6,875.70	116.20	206.14	90.70	1,516.77	-10,007.78	4,236.50	3,935.32	301.19	14.066	
14,000.00	6,926.00	6,879.11	6,875.29	117.75	206.13	90.70	1,516.77	-10,007.78	4,166.70	3,863.34	303.36	13.735	
14,100.00	6,925.68	6,878.69	6,874.87	119.29	206.12	90.69	1,516.77	-10,007.78	4,098.15	3,792.56	305.59	13.411	
14,200.00	6,925.35	6,878.28	6,874.46	120.84	206.10	90.68	1,516.78	-10,007.78	4,030.91	3,723.05	307.86	13.093	
14,300.00	6,925.03	6,877.86	6,874.04	122.39	206.09	90.67	1,516.78	-10,007.78	3,965.05	3,654.87	310.18	12.783	
14,400.00	6,924.71	6,877.45	6,873.63	123.94	206.08	90.67	1,516.79	-10,007.78	3,900.65	3,588.10	312.55	12.480	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #009A - OH - OH-TD

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Rule Assigned:

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,500.00	6,924.38	6,877.03	6,873.21	125.50	206.07	90.66	1,516.79	-10,007.78	3,837.77	3,522.80	314.97	12.185	
14,600.00	6,924.06	6,876.62	6,872.80	127.05	206.05	90.65	1,516.79	-10,007.78	3,776.49	3,459.07	317.42	11.897	
14,700.00	6,923.74	6,876.20	6,872.38	128.61	206.04	90.64	1,516.80	-10,007.78	3,716.89	3,396.99	319.91	11.619	
14,800.00	6,923.42	6,875.79	6,871.97	130.16	206.03	90.63	1,516.80	-10,007.78	3,659.06	3,336.63	322.43	11.348	
14,900.00	6,923.09	6,875.37	6,871.56	131.72	206.02	90.63	1,516.80	-10,007.78	3,603.07	3,278.09	324.98	11.087	
15,000.00	6,922.77	6,874.96	6,871.14	133.28	206.00	90.62	1,516.81	-10,007.78	3,549.02	3,221.47	327.56	10.835	
15,100.00	6,922.45	6,874.55	6,870.73	134.84	205.99	90.61	1,516.81	-10,007.78	3,496.99	3,166.85	330.14	10.592	
15,200.00	6,922.12	6,874.13	6,870.31	136.40	205.98	90.60	1,516.81	-10,007.78	3,447.08	3,114.35	332.74	10.360	
15,300.00	6,921.80	6,873.72	6,869.90	137.96	205.97	90.59	1,516.82	-10,007.78	3,399.38	3,064.05	335.33	10.137	
15,400.00	6,921.48	6,873.30	6,869.49	139.53	205.96	90.59	1,516.82	-10,007.78	3,353.98	3,016.06	337.92	9.925	
15,500.00	6,921.15	6,872.89	6,869.07	141.09	205.94	90.58	1,516.83	-10,007.78	3,310.99	2,970.50	340.49	9.724	
15,600.00	6,920.83	6,872.47	6,868.66	142.65	205.93	90.57	1,516.83	-10,007.78	3,270.48	2,927.46	343.02	9.534	
15,700.00	6,920.51	6,872.06	6,868.24	144.22	205.92	90.56	1,516.83	-10,007.78	3,232.56	2,887.04	345.52	9.356	
15,800.00	6,920.18	6,871.65	6,867.83	145.79	205.91	90.56	1,516.84	-10,007.78	3,197.32	2,849.36	347.97	9.189	
15,900.00	6,919.86	6,871.23	6,867.41	147.35	205.89	90.55	1,516.84	-10,007.78	3,164.85	2,814.50	350.35	9.033	
16,000.00	6,919.54	6,870.82	6,867.00	148.92	205.88	90.54	1,516.84	-10,007.78	3,135.23	2,782.58	352.65	8.890	
16,100.00	6,919.22	6,870.40	6,866.59	150.49	205.87	90.53	1,516.85	-10,007.78	3,108.55	2,753.69	354.87	8.760	
16,200.00	6,918.89	6,869.99	6,866.17	152.06	205.86	90.52	1,516.85	-10,007.78	3,084.88	2,727.91	356.98	8.642	
16,300.00	6,918.57	6,869.58	6,865.76	153.63	205.84	90.52	1,516.85	-10,007.78	3,064.30	2,705.32	358.98	8.536	
16,400.00	6,918.25	6,869.16	6,865.35	155.20	205.83	90.51	1,516.86	-10,007.78	3,046.86	2,686.01	360.85	8.444	
16,500.00	6,917.92	6,868.75	6,864.93	156.77	205.82	90.50	1,516.86	-10,007.78	3,032.61	2,670.03	362.59	8.364	
16,600.00	6,917.60	6,868.33	6,864.52	158.34	205.81	90.49	1,516.86	-10,007.78	3,021.62	2,657.44	364.18	8.297	
16,700.00	6,917.28	6,867.92	6,864.10	159.92	205.79	90.48	1,516.87	-10,007.78	3,013.90	2,648.28	365.61	8.243	
16,800.00	6,916.95	6,867.51	6,863.69	161.49	205.78	90.48	1,516.87	-10,007.78	3,009.48	2,642.60	366.89	8.203	
16,882.95	6,916.69	6,867.16	6,863.35	162.80	205.77	90.47	1,516.87	-10,007.78	3,008.34	2,640.52	367.81	8.179	CC
16,900.00	6,916.63	6,867.09	6,863.28	163.06	205.77	90.47	1,516.87	-10,007.78	3,008.39	2,640.40	367.99	8.175	ES
17,000.00	6,916.31	6,866.68	6,862.86	164.64	205.76	90.46	1,516.88	-10,007.78	3,010.61	2,641.69	368.92	8.161	
17,100.00	6,915.98	6,866.27	6,862.45	166.21	205.74	90.45	1,516.88	-10,007.78	3,016.16	2,646.48	369.68	8.159	SF
17,200.00	6,915.66	6,865.85	6,862.04	167.79	205.73	90.44	1,516.88	-10,007.78	3,025.00	2,654.74	370.26	8.170	
17,300.00	6,915.34	6,865.44	6,861.62	169.37	205.72	90.44	1,516.89	-10,007.78	3,037.11	2,666.44	370.67	8.194	
17,400.00	6,915.02	6,865.03	6,861.21	170.94	205.71	90.43	1,516.89	-10,007.78	3,052.45	2,681.54	370.91	8.230	
17,500.00	6,914.69	6,864.61	6,860.80	172.52	205.69	90.42	1,516.89	-10,007.78	3,070.97	2,699.99	370.98	8.278	
17,600.00	6,914.37	6,864.20	6,860.38	174.10	205.68	90.41	1,516.90	-10,007.78	3,092.61	2,721.73	370.88	8.338	
17,700.00	6,914.05	6,863.78	6,859.97	175.68	205.67	90.41	1,516.90	-10,007.78	3,117.32	2,746.68	370.64	8.411	
17,800.00	6,913.72	6,863.37	6,859.56	177.25	205.66	90.40	1,516.90	-10,007.78	3,145.01	2,774.76	370.25	8.494	
17,900.00	6,913.40	6,862.96	6,859.14	178.83	205.65	90.39	1,516.91	-10,007.78	3,175.61	2,805.89	369.72	8.589	
18,000.00	6,913.08	6,862.54	6,858.73	180.41	205.63	90.38	1,516.91	-10,007.78	3,209.03	2,839.97	369.06	8.695	
18,023.75	6,913.00	6,862.45	6,858.63	180.79	205.63	90.38	1,516.91	-10,007.78	3,217.38	2,848.49	368.89	8.722	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #009C - OH - OH-TD

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	61.00	61.00	0.00	1.83	-100.42	-2,186.42	-11,892.00	12,091.32				
100.00	100.00	161.00	161.00	0.25	4.82	-100.42	-2,186.42	-11,892.00	12,091.32	12,086.25	5.08	2,382.360	
200.00	200.00	261.00	261.00	0.61	7.82	-100.42	-2,186.42	-11,892.00	12,091.32	12,082.89	8.43	1,434.280	
300.00	300.00	361.00	361.00	0.97	10.82	-100.42	-2,186.42	-11,892.00	12,091.32	12,079.54	11.79	1,025.982	
400.00	400.00	461.00	461.00	1.33	13.81	-100.42	-2,186.42	-11,892.00	12,091.32	12,076.18	15.14	798.634	
500.00	500.00	561.10	561.00	1.68	16.81	-100.42	-2,186.42	-11,892.00	12,091.32	12,072.83	18.50	653.657	
600.00	599.98	661.08	660.98	2.03	19.81	79.64	-2,186.42	-11,892.00	12,091.01	12,069.17	21.83	553.748	
700.00	699.84	759.48	759.34	2.36	22.76	79.69	-2,184.25	-11,892.00	12,089.68	12,064.56	25.12	481.360	
800.00	799.45	846.02	845.86	2.71	25.35	79.76	-2,184.57	-11,892.00	12,088.18	12,060.13	28.05	430.916	
900.00	898.70	932.40	932.22	3.06	27.94	79.84	-2,185.41	-11,892.00	12,086.18	12,055.19	31.00	389.924	
1,000.00	997.47	1,058.87	1,058.47	3.43	31.73	79.98	-2,186.42	-11,892.00	12,083.56	12,048.41	35.16	343.709	
1,100.00	1,095.62	1,157.03	1,156.62	3.82	34.67	80.13	-2,186.42	-11,892.00	12,080.21	12,041.72	38.49	313.893	
1,207.83	1,200.65	1,260.50	1,260.06	4.26	37.77	80.34	-2,184.25	-11,892.00	12,075.58	12,033.56	42.03	287.335	
1,300.00	1,290.02	1,338.60	1,338.14	4.65	40.11	80.43	-2,184.52	-11,892.00	12,071.76	12,027.00	44.76	269.710	
1,400.00	1,386.98	1,423.59	1,423.11	5.09	42.66	80.52	-2,185.30	-11,892.00	12,067.75	12,020.01	47.74	252.779	
1,500.00	1,483.95	1,545.66	1,544.95	5.53	46.31	80.65	-2,186.42	-11,892.00	12,063.80	12,011.96	51.84	232.709	
1,600.00	1,580.91	1,642.62	1,641.91	5.99	49.22	80.77	-2,186.42	-11,892.00	12,059.73	12,004.53	55.20	218.493	
1,700.00	1,677.87	1,739.58	1,738.87	6.44	52.13	80.88	-2,186.42	-11,892.00	12,055.71	11,997.15	58.55	205.890	
1,800.00	1,774.84	1,826.16	1,825.40	6.90	54.72	80.99	-2,184.45	-11,892.00	12,051.42	11,989.81	61.61	195.620	
1,900.00	1,871.80	1,911.78	1,911.00	7.36	57.29	81.08	-2,185.16	-11,892.00	12,047.63	11,983.00	64.63	186.402	
2,000.00	1,968.76	2,030.78	2,029.76	7.83	60.85	81.21	-2,186.42	-11,892.00	12,043.94	11,975.28	68.66	175.410	
2,100.00	2,065.73	2,127.74	2,126.73	8.30	63.76	81.32	-2,186.42	-11,892.00	12,040.11	11,968.08	72.03	167.148	
2,200.00	2,162.69	2,224.70	2,223.69	8.77	66.66	81.43	-2,186.42	-11,892.00	12,036.33	11,960.93	75.41	159.621	
2,300.00	2,259.65	2,313.54	2,312.48	9.24	69.32	81.55	-2,184.39	-11,892.00	12,032.29	11,953.76	78.54	153.206	
2,400.00	2,356.61	2,399.78	2,398.70	9.71	71.91	81.64	-2,185.03	-11,892.00	12,028.73	11,947.13	81.59	147.426	
2,500.00	2,453.58	2,515.90	2,514.58	10.18	75.39	81.77	-2,186.42	-11,892.00	12,025.29	11,939.75	85.54	140.577	
2,600.00	2,550.54	2,612.86	2,611.54	10.66	78.29	81.88	-2,186.42	-11,892.00	12,021.70	11,932.78	88.92	135.196	
2,700.00	2,647.50	2,709.82	2,708.50	11.13	81.20	81.99	-2,186.42	-11,892.00	12,018.17	11,925.87	92.30	130.208	
2,800.00	2,744.47	2,800.73	2,799.36	11.61	83.92	82.11	-2,184.34	-11,892.00	12,014.39	11,918.89	95.50	125.808	
2,900.00	2,841.43	2,887.61	2,886.22	12.08	86.53	82.21	-2,184.91	-11,892.00	12,011.04	11,912.47	98.58	121.845	
3,000.00	2,938.39	3,001.02	2,999.39	12.56	89.92	82.33	-2,186.42	-11,892.00	12,007.86	11,905.40	102.45	117.206	
3,100.00	3,035.36	3,097.98	3,096.36	13.04	92.83	82.44	-2,186.42	-11,892.00	12,004.52	11,898.68	105.83	113.429	
3,200.00	3,132.32	3,194.94	3,193.32	13.51	95.73	82.55	-2,186.42	-11,892.00	12,001.22	11,892.01	109.22	109.886	
3,300.00	3,229.28	3,287.72	3,286.05	13.99	98.51	82.67	-2,184.29	-11,892.00	11,997.70	11,885.23	112.47	106.672	
3,400.00	3,326.25	3,375.24	3,373.56	14.47	101.14	82.77	-2,184.79	-11,892.00	11,994.58	11,879.01	115.57	103.783	
3,500.00	3,423.21	3,463.06	3,461.35	14.95	103.77	82.87	-2,185.83	-11,892.00	11,991.59	11,872.91	118.68	101.039	
3,600.00	3,520.17	3,583.10	3,581.17	15.43	107.37	83.00	-2,186.42	-11,892.00	11,988.55	11,865.79	122.76	97.660	
3,700.00	3,617.13	3,680.06	3,678.13	15.91	110.27	83.12	-2,186.42	-11,892.00	11,985.50	11,859.36	126.14	95.015	
3,800.00	3,714.10	3,774.51	3,772.54	16.39	113.10	83.24	-2,184.27	-11,892.00	11,982.24	11,852.79	129.45	92.561	
3,900.00	3,811.06	3,862.69	3,860.70	16.87	115.74	83.34	-2,184.69	-11,892.00	11,979.35	11,846.78	132.57	90.359	
4,000.00	3,908.02	3,951.17	3,949.15	17.35	118.39	83.44	-2,185.66	-11,892.00	11,976.59	11,840.88	135.71	88.254	
4,100.00	4,004.99	4,068.22	4,065.99	17.83	121.90	83.57	-2,186.42	-11,892.00	11,973.81	11,834.12	139.69	85.715	
4,200.00	4,101.95	4,165.18	4,162.95	18.31	124.81	83.68	-2,186.42	-11,892.00	11,971.01	11,827.93	143.08	83.667	
4,300.00	4,198.91	4,261.09	4,258.82	18.79	127.68	83.80	-2,184.25	-11,892.00	11,968.02	11,821.58	146.43	81.729	
4,400.00	4,295.88	4,349.94	4,347.65	19.27	130.34	83.90	-2,184.59	-11,892.00	11,965.36	11,815.78	149.58	79.994	
4,500.00	4,392.84	4,439.08	4,436.77	19.75	133.02	84.00	-2,185.49	-11,892.00	11,962.82	11,810.09	152.73	78.326	
4,600.00	4,489.80	4,553.34	4,550.80	20.23	136.44	84.13	-2,186.42	-11,892.00	11,960.30	11,803.67	156.63	76.358	
4,700.00	4,586.76	4,650.30	4,647.76	20.71	139.34	84.25	-2,186.42	-11,892.00	11,957.75	11,797.73	160.02	74.726	
4,800.00	4,683.73	4,747.27	4,744.73	21.20	142.25	84.36	-2,186.42	-11,892.00	11,955.25	11,791.84	163.41	73.161	
4,900.00	4,780.69	4,836.99	4,834.39	21.68	144.94	84.47	-2,184.51	-11,892.00	11,952.60	11,786.02	166.58	71.753	
5,000.00	4,877.65	4,926.81	4,924.20	22.16	147.63	84.57	-2,185.34	-11,892.00	11,950.29	11,780.54	169.75	70.398	
5,100.00	4,974.62	5,038.46	5,035.62	22.64	150.98	84.70	-2,186.42	-11,892.00	11,948.04	11,774.45	173.58	68.833	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #009C - OH - OH-TD

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,200.00	5,071.58	5,135.42	5,132.58	23.12	153.88	84.81	-2,186.42	-11,892.00	11,945.73	11,768.76	176.97	67.502	
5,300.00	5,168.54	5,232.39	5,229.54	23.60	156.79	84.92	-2,186.42	-11,892.00	11,943.47	11,763.12	180.36	66.222	
5,400.00	5,265.51	5,323.83	5,320.94	24.09	159.53	85.04	-2,184.44	-11,892.00	11,941.09	11,757.51	183.58	65.046	
5,500.00	5,362.47	5,414.35	5,411.43	24.57	162.24	85.14	-2,185.19	-11,892.00	11,939.01	11,752.24	186.77	63.922	
5,600.00	5,459.43	5,523.58	5,520.43	25.05	165.51	85.27	-2,186.42	-11,892.00	11,937.01	11,746.48	190.53	62.652	
5,700.00	5,556.40	5,620.54	5,617.40	25.53	168.42	85.38	-2,186.42	-11,892.00	11,934.95	11,741.03	193.92	61.546	
5,800.00	5,653.36	5,717.51	5,714.36	26.01	171.32	85.49	-2,186.42	-11,892.00	11,932.94	11,735.64	197.31	60.479	
5,900.00	5,750.32	5,810.46	5,807.27	26.50	174.11	85.61	-2,184.37	-11,892.00	11,930.82	11,730.25	200.57	59.483	
6,000.00	5,847.28	5,901.68	5,898.47	26.98	176.84	85.71	-2,185.05	-11,892.00	11,928.97	11,725.18	203.79	58.535	
6,100.00	5,944.25	6,008.70	6,005.25	27.46	180.05	85.83	-2,186.42	-11,892.00	11,927.22	11,719.74	207.48	57.486	
6,200.00	6,041.21	6,105.66	6,102.21	27.94	182.95	85.95	-2,186.42	-11,892.00	11,925.41	11,714.54	210.87	56.553	
6,300.00	6,138.17	6,202.63	6,199.17	28.43	185.86	86.06	-2,186.42	-11,892.00	11,923.65	11,709.40	214.26	55.651	
6,400.00	6,235.14	6,296.88	6,293.38	28.91	188.68	86.18	-2,184.32	-11,892.00	11,921.80	11,704.23	217.57	54.796	
6,496.84	6,329.04	6,385.90	6,382.39	29.38	191.35	86.28	-2,184.89	-11,892.00	11,920.24	11,699.54	220.70	54.011	
6,500.00	6,332.10	6,388.81	6,385.29	29.39	191.44	85.16	-2,184.92	-11,892.00	11,920.18	11,699.38	220.80	53.985	
6,550.00	6,380.52	6,434.84	6,431.31	29.63	192.82	68.00	-2,185.44	-11,892.00	11,917.21	11,694.78	222.42	53.579	
6,600.00	6,428.63	6,480.65	6,477.11	29.87	194.19	53.65	-2,186.10	-11,892.00	11,910.35	11,686.32	224.03	53.164	
6,650.00	6,476.14	6,540.89	6,537.14	30.10	195.99	42.83	-2,186.42	-11,892.00	11,899.63	11,673.56	226.06	52.638	
6,700.00	6,522.73	6,587.49	6,583.73	30.33	197.39	34.92	-2,186.42	-11,892.00	11,885.11	11,657.43	227.68	52.201	
6,750.00	6,568.14	6,632.90	6,629.14	30.54	198.75	29.11	-2,186.42	-11,892.00	11,866.90	11,637.65	229.25	51.764	
6,800.00	6,612.08	6,676.84	6,673.08	30.75	200.07	24.73	-2,186.42	-11,892.00	11,845.11	11,614.34	230.76	51.330	
6,850.00	6,654.28	6,719.03	6,715.28	30.95	201.33	21.34	-2,186.42	-11,892.00	11,819.87	11,587.66	232.21	50.901	
6,900.00	6,694.47	6,758.79	6,754.99	31.15	202.52	18.65	-2,184.25	-11,892.00	11,791.21	11,557.63	233.57	50.482	
6,950.00	6,732.42	6,794.97	6,791.17	31.33	203.61	16.42	-2,184.32	-11,892.00	11,759.57	11,524.75	234.82	50.080	
7,000.00	6,767.89	6,828.84	6,825.03	31.51	204.62	14.52	-2,184.46	-11,892.00	11,725.01	11,489.03	235.97	49.688	
7,050.00	6,800.65	6,860.16	6,856.35	31.68	205.56	12.83	-2,184.67	-11,892.00	11,687.74	11,450.70	237.04	49.307	
7,100.00	6,830.51	6,888.74	6,884.92	31.85	206.42	11.25	-2,184.92	-11,892.00	11,647.98	11,409.98	238.00	48.940	
7,150.00	6,857.28	6,914.39	6,910.56	32.01	207.19	9.68	-2,185.19	-11,892.00	11,605.99	11,367.13	238.87	48.588	
7,200.00	6,880.80	6,936.94	6,933.11	32.17	207.86	7.99	-2,185.47	-11,892.00	11,562.02	11,322.40	239.62	48.252	
7,250.00	6,900.92	6,956.25	6,952.41	32.33	208.44	5.98	-2,185.73	-11,892.00	11,516.34	11,276.08	240.26	47.933	
7,300.00	6,917.52	6,972.19	6,968.35	32.49	208.92	3.29	-2,185.97	-11,892.00	11,469.22	11,228.44	240.78	47.634	
7,350.00	6,930.50	6,984.66	6,980.81	32.66	209.29	-0.90	-2,186.17	-11,892.00	11,420.96	11,179.78	241.18	47.355	
7,400.00	6,939.77	7,004.83	7,000.77	32.83	209.90	-9.03	-2,186.42	-11,892.00	11,371.85	11,130.06	241.79	47.031	
7,450.00	6,945.28	7,010.34	7,006.28	33.01	210.06	-30.81	-2,186.42	-11,892.00	11,322.20	11,080.24	241.96	46.794	
7,499.66	6,947.00	7,012.06	7,008.00	33.19	210.11	-92.96	-2,186.42	-11,892.00	11,272.64	11,030.65	241.99	46.583	
7,600.00	6,946.68	7,011.74	7,007.68	33.61	210.10	-92.93	-2,186.42	-11,892.00	11,172.51	10,930.57	241.94	46.179	
7,700.00	6,946.35	7,011.41	7,007.35	34.10	210.09	-92.90	-2,186.42	-11,892.00	11,072.71	10,830.83	241.88	45.777	
7,800.00	6,946.03	7,011.09	7,007.03	34.66	210.08	-92.88	-2,186.42	-11,892.00	10,972.91	10,731.08	241.83	45.375	
7,900.00	6,945.71	7,010.77	7,006.71	35.29	210.07	-92.85	-2,186.42	-11,892.00	10,873.12	10,631.35	241.77	44.972	
8,000.00	6,945.38	7,010.44	7,006.38	35.99	210.06	-92.83	-2,186.42	-11,892.00	10,773.33	10,531.61	241.72	44.570	
8,100.00	6,945.06	7,010.12	7,006.06	36.74	210.05	-92.80	-2,186.42	-11,892.00	10,673.55	10,431.88	241.66	44.167	
8,200.00	6,944.74	7,009.80	7,005.74	37.56	210.05	-92.77	-2,186.42	-11,892.00	10,573.77	10,332.16	241.61	43.764	
8,300.00	6,944.41	7,009.48	7,005.41	38.43	210.04	-92.75	-2,186.42	-11,892.00	10,473.99	10,232.44	241.56	43.361	
8,400.00	6,944.09	7,009.15	7,005.09	39.35	210.03	-92.72	-2,186.42	-11,892.00	10,374.22	10,132.72	241.50	42.957	
8,500.00	6,943.77	7,008.83	7,004.77	40.31	210.02	-92.69	-2,186.42	-11,892.00	10,274.45	10,033.01	241.45	42.554	
8,600.00	6,943.45	7,008.51	7,004.45	41.32	210.01	-92.67	-2,186.42	-11,892.00	10,174.69	9,933.30	241.39	42.150	
8,700.00	6,943.12	7,008.18	7,004.12	42.37	210.00	-92.64	-2,186.42	-11,892.00	10,074.93	9,833.59	241.34	41.746	
8,800.00	6,942.80	7,007.86	7,003.80	43.45	209.99	-92.62	-2,186.42	-11,892.00	9,975.18	9,733.89	241.29	41.342	
8,900.00	6,942.48	7,007.54	7,003.48	44.57	209.98	-92.59	-2,186.42	-11,892.00	9,875.43	9,634.20	241.23	40.937	
9,000.00	6,942.15	7,007.21	7,003.15	45.71	209.97	-92.56	-2,186.42	-11,892.00	9,775.69	9,534.51	241.18	40.533	
9,100.00	6,941.83	7,006.89	7,002.83	46.89	209.96	-92.54	-2,186.42	-11,892.00	9,675.95	9,434.83	241.13	40.128	
9,200.00	6,941.51	7,006.57	7,002.51	48.09	209.95	-92.51	-2,186.42	-11,892.00	9,576.22	9,335.15	241.07	39.724	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #009C - OH - OH-TD — **Offset Site Error:** 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Rule Assigned: Warning
9,300.00	6,941.18	7,006.24	7,002.18	49.31	209.94	-92.48	-2,186.42	-11,892.00	9,476.49	9,235.48	241.02	39.319	
9,400.00	6,940.86	7,005.92	7,001.86	50.56	209.93	-92.46	-2,186.42	-11,892.00	9,376.77	9,135.81	240.97	38.913	
9,500.00	6,940.54	7,005.60	7,001.54	51.82	209.92	-92.43	-2,186.42	-11,892.00	9,277.06	9,036.15	240.91	38.508	
9,600.00	6,940.21	7,005.28	7,001.21	53.11	209.91	-92.41	-2,186.42	-11,892.00	9,177.35	8,936.49	240.86	38.103	
9,700.00	6,939.89	7,004.95	7,000.89	54.41	209.90	-92.38	-2,186.42	-11,892.00	9,077.65	8,836.84	240.81	37.697	
9,800.00	6,939.57	7,004.63	7,000.57	55.73	209.89	-92.35	-2,186.42	-11,892.00	8,977.95	8,737.20	240.75	37.291	
9,900.00	6,939.25	7,004.31	7,000.25	57.07	209.88	-92.33	-2,186.42	-11,892.00	8,878.27	8,637.57	240.70	36.885	
10,000.00	6,938.92	7,003.98	6,999.92	58.41	209.87	-92.30	-2,186.42	-11,892.00	8,778.58	8,537.94	240.65	36.479	
10,100.00	6,938.60	7,003.66	6,999.60	59.77	209.86	-92.27	-2,186.42	-11,892.00	8,678.91	8,438.32	240.59	36.073	
10,200.00	6,938.28	7,003.34	6,999.28	61.15	209.85	-92.25	-2,186.42	-11,892.00	8,579.24	8,338.70	240.54	35.666	
10,300.00	6,937.95	7,003.01	6,998.95	62.53	209.84	-92.22	-2,186.42	-11,892.00	8,479.58	8,239.09	240.49	35.260	
10,400.00	6,937.63	7,002.69	6,998.63	63.92	209.83	-92.20	-2,186.42	-11,892.00	8,379.93	8,139.50	240.44	34.853	
10,500.00	6,937.31	7,002.37	6,998.31	65.33	209.82	-92.17	-2,186.42	-11,892.00	8,280.29	8,039.91	240.39	34.446	
10,600.00	6,936.98	7,002.05	6,997.98	66.74	209.81	-92.14	-2,186.42	-11,892.00	8,180.66	7,940.32	240.33	34.039	
10,700.00	6,936.66	7,001.72	6,997.66	68.16	209.80	-92.12	-2,186.42	-11,892.00	8,081.03	7,840.75	240.28	33.631	
10,800.00	6,936.34	7,001.40	6,997.34	69.59	209.79	-92.09	-2,186.42	-11,892.00	7,981.42	7,741.19	240.23	33.224	
10,900.00	6,936.01	7,001.08	6,997.01	71.03	209.78	-92.06	-2,186.42	-11,892.00	7,881.81	7,641.63	240.18	32.816	
11,000.00	6,935.69	7,000.75	6,996.69	72.47	209.77	-92.04	-2,186.42	-11,892.00	7,782.22	7,542.09	240.13	32.408	
11,100.00	6,935.37	7,000.43	6,996.37	73.92	209.76	-92.01	-2,186.42	-11,892.00	7,682.63	7,442.55	240.08	32.000	
11,200.00	6,935.05	7,000.11	6,996.05	75.38	209.75	-91.99	-2,186.42	-11,892.00	7,583.06	7,343.03	240.03	31.592	
11,300.00	6,934.72	6,988.51	6,984.65	76.84	209.41	-91.06	-2,186.23	-11,892.00	7,483.49	7,243.84	239.65	31.227	
11,400.00	6,934.40	6,988.19	6,984.34	78.31	209.40	-91.03	-2,186.23	-11,892.00	7,383.94	7,144.33	239.60	30.817	
11,500.00	6,934.08	6,987.88	6,984.02	79.79	209.39	-91.01	-2,186.22	-11,892.00	7,284.40	7,044.84	239.56	30.408	
11,600.00	6,933.75	6,987.56	6,983.71	81.27	209.38	-90.98	-2,186.22	-11,892.00	7,184.87	6,945.36	239.51	29.998	
11,700.00	6,933.43	6,987.25	6,983.39	82.75	209.37	-90.96	-2,186.21	-11,892.00	7,085.36	6,845.90	239.47	29.588	
11,800.00	6,933.11	6,986.93	6,983.08	84.24	209.36	-90.93	-2,186.21	-11,892.00	6,985.86	6,746.44	239.42	29.178	
11,900.00	6,932.78	6,986.62	6,982.76	85.73	209.35	-90.90	-2,186.20	-11,892.00	6,886.38	6,647.00	239.38	28.768	
12,000.00	6,932.46	6,986.30	6,982.45	87.23	209.34	-90.88	-2,186.20	-11,892.00	6,786.91	6,547.57	239.34	28.357	
12,100.00	6,932.14	6,985.98	6,982.13	88.72	209.33	-90.85	-2,186.19	-11,892.00	6,687.45	6,448.16	239.30	27.946	
12,200.00	6,931.81	6,985.67	6,981.82	90.23	209.32	-90.83	-2,186.19	-11,892.00	6,588.02	6,348.76	239.26	27.535	
12,300.00	6,931.49	6,985.35	6,981.50	91.74	209.31	-90.80	-2,186.18	-11,892.00	6,488.60	6,249.38	239.22	27.124	
12,400.00	6,931.17	6,985.04	6,981.19	93.25	209.30	-90.78	-2,186.18	-11,892.00	6,389.20	6,150.01	239.19	26.712	
12,500.00	6,930.85	6,984.72	6,980.87	94.76	209.29	-90.75	-2,186.17	-11,892.00	6,289.81	6,050.66	239.15	26.300	
12,600.00	6,930.52	6,984.41	6,980.56	96.27	209.28	-90.73	-2,186.16	-11,892.00	6,190.45	5,951.33	239.12	25.888	
12,700.00	6,930.20	6,984.09	6,980.24	97.79	209.28	-90.70	-2,186.16	-11,892.00	6,091.11	5,852.01	239.10	25.476	
12,800.00	6,929.88	6,983.78	6,979.93	99.32	209.27	-90.67	-2,186.15	-11,892.00	5,991.79	5,752.72	239.07	25.063	
12,900.00	6,929.55	6,983.46	6,979.61	100.84	209.26	-90.65	-2,186.15	-11,892.00	5,892.49	5,653.44	239.05	24.650	
13,000.00	6,929.23	6,983.15	6,979.30	102.37	209.25	-90.62	-2,186.14	-11,892.00	5,793.22	5,554.19	239.03	24.236	
13,100.00	6,928.91	6,982.83	6,978.98	103.89	209.24	-90.60	-2,186.14	-11,892.00	5,693.97	5,454.95	239.02	23.822	
13,200.00	6,928.58	6,982.52	6,978.67	105.43	209.23	-90.57	-2,186.13	-11,892.00	5,594.75	5,355.74	239.01	23.408	
13,300.00	6,928.26	6,982.20	6,978.35	106.96	209.22	-90.55	-2,186.13	-11,892.00	5,495.56	5,256.55	239.01	22.993	
13,400.00	6,927.94	6,981.89	6,978.04	108.49	209.21	-90.52	-2,186.12	-11,892.00	5,396.40	5,157.38	239.01	22.578	
13,500.00	6,927.61	6,981.57	6,977.72	110.03	209.20	-90.49	-2,186.12	-11,892.00	5,297.27	5,058.24	239.02	22.162	
13,600.00	6,927.29	6,981.26	6,977.40	111.57	209.19	-90.47	-2,186.11	-11,892.00	5,198.17	4,959.13	239.04	21.746	
13,700.00	6,926.97	6,980.94	6,977.09	113.11	209.18	-90.44	-2,186.11	-11,892.00	5,099.11	4,860.04	239.06	21.329	
13,800.00	6,926.65	6,980.63	6,976.78	114.65	209.17	-90.42	-2,186.10	-11,892.00	5,000.08	4,760.98	239.10	20.912	
13,900.00	6,926.32	6,980.31	6,976.46	116.20	209.16	-90.39	-2,186.10	-11,892.00	4,901.10	4,661.95	239.14	20.494	
14,000.00	6,926.00	6,980.00	6,976.15	117.75	209.15	-90.37	-2,186.09	-11,892.00	4,802.15	4,562.95	239.20	20.076	
14,100.00	6,925.68	6,979.68	6,975.83	119.29	209.14	-90.34	-2,186.09	-11,892.00	4,703.25	4,463.99	239.27	19.657	
14,200.00	6,925.35	6,979.37	6,975.52	120.84	209.13	-90.31	-2,186.08	-11,892.00	4,604.40	4,365.05	239.35	19.237	
14,300.00	6,925.03	6,979.05	6,975.20	122.39	209.12	-90.29	-2,186.08	-11,892.00	4,505.60	4,266.16	239.44	18.817	
14,400.00	6,924.71	6,978.74	6,974.89	123.94	209.11	-90.26	-2,186.07	-11,892.00	4,406.85	4,167.29	239.56	18.396	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #009C - OH - OH-TD

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Rule Assigned:

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,500.00	6,924.38	6,978.42	6,974.57	125.50	209.11	-90.24	-2,186.07	-11,892.00	4,308.17	4,068.47	239.69	17.974	
14,600.00	6,924.06	6,978.11	6,974.26	127.05	209.10	-90.21	-2,186.06	-11,892.00	4,209.54	3,969.69	239.85	17.551	
14,700.00	6,923.74	6,977.79	6,973.94	128.61	209.09	-90.19	-2,186.06	-11,892.00	4,110.98	3,870.95	240.03	17.127	
14,800.00	6,923.42	6,977.48	6,973.63	130.16	209.08	-90.16	-2,186.05	-11,892.00	4,012.49	3,772.26	240.23	16.703	
14,900.00	6,923.09	6,977.16	6,973.31	131.72	209.07	-90.14	-2,186.05	-11,892.00	3,914.07	3,673.61	240.47	16.277	
15,000.00	6,922.77	6,976.85	6,973.00	133.28	209.06	-90.11	-2,186.04	-11,892.00	3,815.74	3,575.01	240.73	15.850	
15,100.00	6,922.45	6,976.53	6,972.68	134.84	209.05	-90.08	-2,186.04	-11,892.00	3,717.50	3,476.46	241.04	15.423	
15,200.00	6,922.12	6,976.22	6,972.37	136.40	209.04	-90.06	-2,186.03	-11,892.00	3,619.36	3,377.97	241.38	14.994	
15,300.00	6,921.80	6,975.90	6,972.05	137.96	209.03	-90.03	-2,186.03	-11,892.00	3,521.32	3,279.54	241.77	14.564	
15,400.00	6,921.48	6,975.59	6,971.74	139.53	209.02	-90.01	-2,186.02	-11,892.00	3,423.39	3,181.17	242.22	14.134	
15,500.00	6,921.15	6,975.27	6,971.42	141.09	209.01	-89.98	-2,186.02	-11,892.00	3,325.58	3,082.87	242.71	13.702	
15,600.00	6,920.83	6,974.96	6,971.11	142.65	209.00	-89.96	-2,186.01	-11,892.00	3,227.92	2,984.64	243.28	13.268	
15,700.00	6,920.51	6,974.64	6,970.79	144.22	208.99	-89.93	-2,186.01	-11,892.00	3,130.39	2,886.48	243.91	12.834	
15,800.00	6,920.18	6,974.33	6,970.48	145.79	208.98	-89.90	-2,186.00	-11,892.00	3,033.03	2,788.41	244.62	12.399	
15,900.00	6,919.86	6,974.01	6,970.16	147.35	208.97	-89.88	-2,186.00	-11,892.00	2,935.85	2,690.43	245.42	11.962	
16,000.00	6,919.54	6,973.70	6,969.85	148.92	208.96	-89.85	-2,185.99	-11,892.00	2,838.86	2,592.54	246.32	11.525	
16,100.00	6,919.22	6,973.38	6,969.54	150.49	208.95	-89.83	-2,185.99	-11,892.00	2,742.09	2,494.76	247.33	11.087	
16,200.00	6,918.89	6,973.07	6,969.22	152.06	208.94	-89.80	-2,185.98	-11,892.00	2,645.56	2,397.10	248.46	10.648	
16,300.00	6,918.57	6,972.75	6,968.91	153.63	208.94	-89.78	-2,185.98	-11,892.00	2,549.29	2,299.56	249.73	10.208	
16,400.00	6,918.25	6,972.44	6,968.59	155.20	208.93	-89.75	-2,185.97	-11,892.00	2,453.33	2,202.17	251.15	9.768	
16,500.00	6,917.92	6,972.12	6,968.28	156.77	208.92	-89.72	-2,185.97	-11,892.00	2,357.69	2,104.95	252.75	9.328	
16,600.00	6,917.60	6,971.81	6,967.96	158.34	208.91	-89.70	-2,185.96	-11,892.00	2,262.44	2,007.90	254.54	8.888	
16,700.00	6,917.28	6,971.50	6,967.65	159.92	208.90	-89.67	-2,185.96	-11,892.00	2,167.62	1,911.07	256.55	8.449	
16,800.00	6,916.95	6,971.18	6,967.33	161.49	208.89	-89.65	-2,185.95	-11,892.00	2,073.28	1,814.47	258.80	8.011	
16,900.00	6,916.63	6,970.87	6,967.02	163.06	208.88	-89.62	-2,185.95	-11,892.00	1,979.50	1,718.16	261.34	7.574	
17,000.00	6,916.31	6,970.55	6,966.70	164.64	208.87	-89.60	-2,185.94	-11,892.00	1,886.35	1,622.17	264.19	7.140	
17,100.00	6,915.98	6,970.24	6,966.39	166.21	208.86	-89.57	-2,185.94	-11,892.00	1,793.95	1,526.55	267.39	6.709	
17,200.00	6,915.66	6,969.92	6,966.08	167.79	208.85	-89.55	-2,185.94	-11,892.00	1,702.40	1,431.40	271.00	6.282	
17,300.00	6,915.34	6,969.61	6,965.76	169.37	208.84	-89.52	-2,185.93	-11,892.00	1,611.85	1,336.78	275.07	5.860	
17,400.00	6,915.02	6,969.29	6,965.45	170.94	208.83	-89.49	-2,185.93	-11,892.00	1,522.50	1,242.83	279.67	5.444	
17,500.00	6,914.69	6,968.98	6,965.13	172.52	208.82	-89.47	-2,185.92	-11,892.00	1,434.54	1,149.68	284.86	5.036	
17,600.00	6,914.37	6,968.66	6,964.82	174.10	208.81	-89.44	-2,185.92	-11,892.00	1,348.27	1,057.53	290.74	4.637	
17,700.00	6,914.05	6,968.35	6,964.50	175.68	208.80	-89.42	-2,185.91	-11,892.00	1,264.02	966.64	297.38	4.251	
17,800.00	6,913.72	6,968.04	6,964.19	177.25	208.79	-89.39	-2,185.91	-11,892.00	1,182.23	877.35	304.88	3.878	
17,900.00	6,913.40	6,967.72	6,963.88	178.83	208.78	-89.37	-2,185.90	-11,892.00	1,103.44	790.11	313.33	3.522	
18,000.00	6,913.08	6,967.41	6,963.56	180.41	208.78	-89.34	-2,185.90	-11,892.00	1,028.35	705.57	322.78	3.186	
18,023.75	6,913.00	6,967.33	6,963.49	180.79	208.77	-89.33	-2,185.90	-11,892.00	1,011.14	685.97	325.18	3.110	CC, ES, SF

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #009D - OH - OH-SVY

Offset Site Error: 0.00 usft

Survey Program: 25-B001Mb_MWD+HRGM

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	-81.92	1,428.61	-10,059.84	10,161.29				
100.00	100.00	0.00	0.00	0.25	0.00	-81.92	1,428.61	-10,059.84	10,162.78	10,162.53	0.26	N/A	
200.00	200.00	0.00	0.00	0.61	0.00	-81.92	1,428.61	-10,059.84	10,165.26	10,164.65	0.61	N/A	
300.00	300.00	0.00	0.00	0.97	0.00	-81.92	1,428.61	-10,059.84	10,168.72	10,167.75	0.97	N/A	
400.00	400.00	0.00	0.00	1.33	0.00	-81.92	1,428.61	-10,059.84	10,173.17	10,171.84	1.33	7,649.276	
500.00	500.00	0.00	0.00	1.68	0.00	-81.92	1,428.61	-10,059.84	10,178.59	10,176.91	1.69	6,030.439	
600.00	599.98	0.00	0.00	2.03	0.00	98.00	1,428.61	-10,059.84	10,185.24	10,183.21	2.03	5,021.538	
700.00	699.84	0.00	0.00	2.36	0.00	97.83	1,428.61	-10,059.84	10,193.35	10,190.99	2.36	4,319.435	
800.00	799.45	0.00	0.00	2.71	0.00	97.64	1,428.61	-10,059.84	10,202.91	10,200.20	2.70	3,776.704	
900.00	898.70	0.00	0.00	3.06	0.00	97.42	1,428.61	-10,059.84	10,213.89	10,210.84	3.05	3,343.939	
1,000.00	997.47	550.00	533.60	3.43	2.16	97.58	1,413.62	-10,104.12	10,224.35	10,218.75	5.60	1,825.547	
1,100.00	1,095.62	550.00	533.60	3.82	2.16	97.41	1,413.62	-10,104.12	10,233.01	10,227.02	5.99	1,708.168	
1,207.83	1,200.65	575.00	558.44	4.26	2.24	97.21	1,411.62	-10,106.08	10,243.72	10,237.21	6.51	1,572.908	
1,300.00	1,290.02	600.00	583.25	4.65	2.32	97.23	1,409.41	-10,108.28	10,253.79	10,246.81	6.99	1,467.627	
1,400.00	1,386.98	650.00	632.73	5.09	2.49	97.27	1,404.14	-10,113.16	10,265.34	10,257.75	7.59	1,352.395	
1,500.00	1,483.95	700.00	682.04	5.53	2.67	97.30	1,397.80	-10,118.44	10,277.37	10,269.16	8.21	1,252.014	
1,600.00	1,580.91	713.73	695.55	5.99	2.72	97.30	1,395.89	-10,120.00	10,290.04	10,281.33	8.70	1,182.260	
1,700.00	1,677.87	725.00	706.61	6.44	2.77	97.31	1,394.26	-10,121.37	10,303.52	10,294.33	9.19	1,120.821	
1,800.00	1,774.84	750.00	731.10	6.90	2.87	97.32	1,390.48	-10,124.69	10,317.83	10,308.10	9.74	1,059.586	
1,900.00	1,871.80	761.60	742.44	7.36	2.91	97.32	1,388.67	-10,126.35	10,332.91	10,322.68	10.23	1,009.711	
2,000.00	1,968.76	786.44	766.68	7.83	3.02	97.33	1,384.73	-10,130.03	10,348.74	10,337.95	10.78	959.738	
2,100.00	2,065.73	800.00	779.91	8.30	3.08	97.34	1,382.57	-10,132.11	10,365.28	10,353.99	11.29	918.213	
2,200.00	2,162.69	825.00	804.25	8.77	3.19	97.35	1,378.53	-10,136.14	10,382.55	10,370.70	11.84	876.793	
2,300.00	2,259.65	838.74	817.60	9.24	3.25	97.35	1,376.28	-10,138.49	10,400.62	10,388.27	12.35	842.201	
2,400.00	2,356.61	850.00	828.51	9.71	3.30	97.35	1,374.39	-10,140.52	10,419.51	10,406.66	12.85	811.108	
2,500.00	2,453.58	875.00	852.70	10.18	3.41	97.36	1,370.13	-10,145.21	10,439.14	10,425.73	13.40	778.963	
2,600.00	2,550.54	900.00	876.81	10.66	3.53	97.37	1,365.75	-10,150.16	10,459.51	10,445.55	13.96	749.370	
2,700.00	2,647.50	900.00	876.81	11.13	3.53	97.37	1,365.75	-10,150.16	10,480.64	10,466.24	14.40	727.659	
2,800.00	2,744.47	925.00	900.76	11.61	3.66	97.37	1,361.02	-10,155.52	10,502.57	10,487.61	14.96	702.029	
2,900.00	2,841.43	941.80	916.76	12.08	3.74	97.37	1,357.62	-10,159.33	10,525.26	10,509.78	15.48	679.888	
3,000.00	2,938.39	986.36	959.04	12.56	3.98	97.37	1,348.00	-10,169.62	10,548.50	10,532.36	16.14	653.729	
3,100.00	3,035.36	1,025.00	995.44	13.04	4.19	97.36	1,338.93	-10,178.87	10,572.28	10,555.51	16.77	630.492	
3,200.00	3,132.32	1,050.00	1,018.87	13.51	4.34	97.36	1,332.82	-10,185.09	10,596.70	10,579.37	17.33	611.311	
3,300.00	3,229.28	1,075.00	1,042.22	13.99	4.48	97.35	1,326.57	-10,191.48	10,621.77	10,603.87	17.90	593.355	
3,400.00	3,326.25	1,111.07	1,075.84	14.47	4.69	97.34	1,317.46	-10,200.86	10,647.40	10,628.87	18.53	574.648	
3,500.00	3,423.21	1,160.27	1,121.60	14.95	4.99	97.33	1,304.94	-10,213.90	10,673.51	10,654.28	19.23	555.030	
3,600.00	3,520.17	1,200.00	1,158.58	15.43	5.23	97.32	1,295.13	-10,224.59	10,700.10	10,680.22	19.88	538.221	
3,700.00	3,617.13	1,225.00	1,181.86	15.91	5.38	97.31	1,289.11	-10,231.43	10,727.24	10,706.80	20.45	524.638	
3,800.00	3,714.10	1,257.67	1,212.30	16.39	5.59	97.30	1,281.53	-10,240.57	10,755.02	10,733.97	21.05	510.817	
3,900.00	3,811.06	1,363.19	1,310.81	16.87	6.24	97.29	1,258.04	-10,270.19	10,783.06	10,760.98	22.07	488.499	
4,000.00	3,908.02	1,690.72	1,617.10	17.35	8.27	97.24	1,182.54	-10,358.22	10,809.40	10,785.00	24.40	443.028	
4,100.00	4,004.99	1,857.79	1,773.33	17.83	9.32	97.20	1,142.06	-10,401.45	10,835.06	10,809.25	25.82	419.665	
4,200.00	4,101.95	1,911.26	1,823.33	18.31	9.66	97.19	1,128.99	-10,415.15	10,860.47	10,833.90	26.57	408.822	
4,300.00	4,198.91	1,937.89	1,848.21	18.79	9.83	97.19	1,122.57	-10,422.12	10,886.44	10,859.29	27.15	400.973	
4,400.00	4,295.88	1,975.00	1,882.88	19.27	10.07	97.18	1,113.79	-10,432.06	10,913.00	10,885.21	27.80	392.612	
4,500.00	4,392.84	2,047.05	1,950.10	19.75	10.53	97.17	1,096.78	-10,451.60	10,939.93	10,911.28	28.65	381.810	
4,600.00	4,489.80	2,150.00	2,046.20	20.23	11.19	97.15	1,072.53	-10,479.46	10,966.81	10,937.11	29.70	369.277	
4,700.00	4,586.76	4,835.25	4,654.95	20.71	23.16	98.55	741.04	-10,849.55	10,979.95	10,938.08	41.87	262.219	
4,800.00	4,683.73	4,950.00	4,769.69	21.20	23.46	98.69	739.42	-10,849.88	10,983.77	10,941.08	42.69	257.285	
4,900.00	4,780.69	5,475.00	5,284.23	21.68	24.99	99.14	700.47	-10,846.12	10,985.17	10,940.42	44.75	245.498	
5,000.00	4,877.65	5,900.00	5,692.98	22.16	26.14	99.52	670.38	-10,830.55	10,984.78	10,938.39	46.39	236.800	
5,100.00	4,974.62	5,900.00	5,692.98	22.64	26.14	99.52	670.38	-10,830.55	10,982.71	10,935.80	46.91	234.108	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #009D - OH - OH-SVY

Offset Site Error: 0.00 usft

Survey Program: 25-B001Mb_MWD+HRGM **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,200.00	5,071.58	5,900.00	5,692.98	23.12	26.14	99.52	670.38	-10,830.55	10,981.55	10,934.11	47.43	231.511	
5,277.54	5,146.77	5,900.00	5,692.98	23.50	26.14	99.52	670.38	-10,830.55	10,981.28	10,933.44	47.84	229.559	
5,300.00	5,168.54	5,900.00	5,692.98	23.60	26.14	99.52	670.38	-10,830.55	10,981.30	10,933.35	47.95	229.004	
5,400.00	5,265.51	5,900.00	5,692.98	24.09	26.14	99.52	670.38	-10,830.55	10,981.96	10,933.49	48.47	226.586	
5,500.00	5,362.47	5,900.00	5,692.98	24.57	26.14	99.52	670.38	-10,830.55	10,983.53	10,934.55	48.98	224.254	
5,600.00	5,459.43	5,900.00	5,692.98	25.05	26.14	99.52	670.38	-10,830.55	10,986.01	10,936.52	49.49	222.005	
5,700.00	5,556.40	5,944.85	5,737.83	25.53	26.26	99.57	669.89	-10,830.29	10,989.29	10,939.18	50.11	219.296	
5,800.00	5,653.36	5,987.14	5,780.12	26.01	26.37	99.63	669.63	-10,830.09	10,992.96	10,942.24	50.73	216.710	
5,900.00	5,750.32	6,061.69	5,854.66	26.50	26.58	99.72	669.44	-10,830.09	10,997.13	10,945.70	51.43	213.822	
6,000.00	5,847.28	6,125.00	5,917.97	26.98	26.76	99.80	669.02	-10,830.25	11,001.54	10,949.42	52.11	211.109	
6,100.00	5,944.25	6,200.00	5,992.97	27.46	26.98	99.89	668.42	-10,830.67	11,006.26	10,953.43	52.83	208.328	
6,200.00	6,041.21	6,225.00	6,017.97	27.94	27.05	99.92	668.18	-10,830.85	11,011.36	10,957.96	53.40	206.202	
6,300.00	6,138.17	6,225.00	6,017.97	28.43	27.05	99.92	668.18	-10,830.85	11,017.32	10,963.43	53.89	204.435	
6,400.00	6,235.14	6,225.00	6,017.97	28.91	27.05	99.92	668.18	-10,830.85	11,024.19	10,969.81	54.38	202.733	
6,496.84	6,329.04	6,225.00	6,017.97	29.38	27.05	99.92	668.18	-10,830.85	11,031.70	10,976.85	54.84	201.144	
6,500.00	6,332.10	6,225.00	6,017.97	29.39	27.05	98.79	668.18	-10,830.85	11,031.95	10,977.09	54.86	201.093	
6,550.00	6,380.52	6,225.00	6,017.97	29.63	27.05	81.56	668.18	-10,830.85	11,034.00	10,978.90	55.10	200.253	
6,600.00	6,428.63	6,225.00	6,017.97	29.87	27.05	67.23	668.18	-10,830.85	11,032.40	10,977.06	55.34	199.352	
6,650.00	6,476.14	6,225.00	6,017.97	30.10	27.05	56.50	668.18	-10,830.85	11,027.17	10,971.59	55.58	198.401	
6,700.00	6,522.73	6,225.00	6,017.97	30.33	27.05	48.77	668.18	-10,830.85	11,018.33	10,962.51	55.82	197.407	
6,750.00	6,568.14	6,225.00	6,017.97	30.54	27.05	43.22	668.18	-10,830.85	11,005.92	10,949.88	56.05	196.373	
6,800.00	6,612.08	6,985.24	6,734.69	30.75	29.37	40.35	639.61	-10,856.69	10,987.86	10,929.24	58.62	187.434	
6,850.00	6,654.28	7,040.41	6,789.87	30.95	29.52	37.67	639.55	-10,856.58	10,965.61	10,906.61	59.00	185.847	
6,900.00	6,694.47	7,068.13	6,817.59	31.15	29.60	35.79	639.53	-10,856.51	10,939.99	10,880.69	59.30	184.480	
6,950.00	6,732.42	7,111.68	6,861.13	31.33	29.72	34.64	639.46	-10,856.44	10,911.20	10,851.57	59.64	182.961	
7,000.00	6,767.89	7,139.71	6,889.17	31.51	29.80	34.04	639.45	-10,856.37	10,879.39	10,819.47	59.92	181.569	
7,050.00	6,800.65	7,167.14	6,916.60	31.68	29.87	33.98	639.41	-10,856.34	10,844.79	10,784.60	60.19	180.170	
7,100.00	6,830.51	7,214.59	6,964.04	31.85	30.01	34.55	639.33	-10,856.24	10,807.55	10,747.04	60.51	178.607	
7,150.00	6,857.28	7,240.15	6,989.61	32.01	30.08	35.66	639.30	-10,856.17	10,767.93	10,707.17	60.76	177.231	
7,200.00	6,880.80	7,260.66	7,010.12	32.17	30.13	37.48	639.26	-10,856.12	10,726.18	10,665.20	60.98	175.901	
7,250.00	6,900.92	7,275.00	7,024.45	32.33	30.17	40.23	639.24	-10,856.09	10,682.57	10,621.39	61.17	174.629	
7,300.00	6,917.52	7,304.95	7,054.40	32.49	30.26	44.44	639.18	-10,856.02	10,637.33	10,575.93	61.40	173.248	
7,350.00	6,930.50	7,314.53	7,063.98	32.66	30.28	50.47	639.16	-10,856.00	10,590.77	10,529.21	61.56	172.043	
7,400.00	6,939.77	7,321.36	7,070.81	32.83	30.30	59.48	639.15	-10,855.98	10,543.16	10,481.46	61.70	170.879	
7,450.00	6,945.28	7,350.00	7,099.45	33.01	30.38	73.49	639.09	-10,855.88	10,494.79	10,432.90	61.89	169.573	
7,499.66	6,947.00	7,350.00	7,099.45	33.19	30.38	92.25	639.09	-10,855.88	10,446.30	10,384.31	61.99	168.515	
7,600.00	6,946.68	7,350.00	7,099.45	33.61	30.38	92.25	639.09	-10,855.88	10,348.08	10,285.90	62.19	166.403	
7,700.00	6,946.35	7,338.28	7,087.73	34.10	30.35	91.93	639.11	-10,855.92	10,250.24	10,187.88	62.36	164.381	
7,800.00	6,946.03	7,341.84	7,091.29	34.66	30.36	92.03	639.11	-10,855.92	10,152.44	10,089.87	62.57	162.245	
7,900.00	6,945.71	7,325.00	7,074.45	35.29	30.31	91.58	639.14	-10,855.97	10,054.69	9,991.94	62.74	160.248	
8,000.00	6,945.38	7,325.00	7,074.45	35.99	30.31	91.58	639.14	-10,855.97	9,956.97	9,894.00	62.97	158.129	
8,100.00	6,945.06	7,325.00	7,074.45	36.74	30.31	91.58	639.14	-10,855.97	9,859.30	9,796.11	63.20	156.006	
8,200.00	6,944.74	7,325.00	7,074.45	37.56	30.31	91.58	639.14	-10,855.97	9,761.68	9,698.25	63.44	153.881	
8,300.00	6,944.41	7,325.00	7,074.45	38.43	30.31	91.58	639.14	-10,855.97	9,664.11	9,600.43	63.68	151.753	
8,400.00	6,944.09	7,325.00	7,074.45	39.35	30.31	91.58	639.14	-10,855.97	9,566.59	9,502.65	63.94	149.623	
8,500.00	6,943.77	7,325.00	7,074.45	40.31	30.31	91.58	639.14	-10,855.97	9,469.12	9,404.92	64.20	147.492	
8,600.00	6,943.45	7,321.89	7,071.34	41.32	30.31	91.49	639.15	-10,855.98	9,371.70	9,307.24	64.46	145.379	
8,700.00	6,943.12	7,321.45	7,070.90	42.37	30.30	91.48	639.15	-10,855.98	9,274.34	9,209.60	64.74	143.248	
8,800.00	6,942.80	7,321.01	7,070.46	43.45	30.30	91.47	639.15	-10,855.98	9,177.04	9,112.01	65.03	141.116	
8,900.00	6,942.48	7,320.57	7,070.02	44.57	30.30	91.46	639.15	-10,855.98	9,079.79	9,014.46	65.33	138.983	
9,000.00	6,942.15	7,320.13	7,069.58	45.71	30.30	91.44	639.15	-10,855.98	8,982.60	8,916.97	65.64	136.851	
9,100.00	6,941.83	7,319.68	7,069.14	46.89	30.30	91.43	639.15	-10,855.98	8,885.48	8,819.53	65.96	134.718	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #009D - OH - OH-SVY

Offset Site Error: 0.00 usft

Survey Program: 25-B001Mb_MWD+HRGM **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,200.00	6,941.51	7,319.24	7,068.69	48.09	30.30	91.42	639.15	-10,855.98	8,788.42	8,722.14	66.28	132.586	
9,300.00	6,941.18	7,318.79	7,068.25	49.31	30.30	91.41	639.15	-10,855.98	8,691.43	8,624.81	66.62	130.456	
9,400.00	6,940.86	7,318.34	7,067.80	50.56	30.30	91.40	639.15	-10,855.99	8,594.51	8,527.53	66.97	128.327	
9,500.00	6,940.54	7,317.89	7,067.35	51.82	30.29	91.38	639.15	-10,855.99	8,497.65	8,430.32	67.34	126.199	
9,600.00	6,940.21	7,317.44	7,066.89	53.11	30.29	91.37	639.15	-10,855.99	8,400.88	8,333.17	67.71	124.074	
9,700.00	6,939.89	7,316.99	7,066.44	54.41	30.29	91.36	639.15	-10,855.99	8,304.17	8,236.08	68.09	121.952	
9,800.00	6,939.57	7,316.53	7,065.98	55.73	30.29	91.35	639.15	-10,855.99	8,207.55	8,139.06	68.49	119.832	
9,900.00	6,939.25	7,316.07	7,065.53	57.07	30.29	91.34	639.16	-10,855.99	8,111.01	8,042.11	68.90	117.716	
10,000.00	6,938.92	7,315.61	7,065.07	58.41	30.29	91.32	639.16	-10,855.99	8,014.55	7,945.22	69.33	115.605	
10,100.00	6,938.60	7,315.15	7,064.60	59.77	30.29	91.31	639.16	-10,855.99	7,918.18	7,848.42	69.77	113.497	
10,200.00	6,938.28	7,314.69	7,064.14	61.15	30.29	91.30	639.16	-10,856.00	7,821.91	7,751.69	70.22	111.395	
10,300.00	6,937.95	7,314.22	7,063.68	62.53	30.28	91.29	639.16	-10,856.00	7,725.72	7,655.04	70.69	109.297	
10,400.00	6,937.63	7,313.76	7,063.21	63.92	30.28	91.27	639.16	-10,856.00	7,629.64	7,558.47	71.17	107.206	
10,500.00	6,937.31	7,313.29	7,062.74	65.33	30.28	91.26	639.16	-10,856.00	7,533.65	7,461.99	71.67	105.121	
10,600.00	6,936.98	7,312.82	7,062.27	66.74	30.28	91.25	639.16	-10,856.00	7,437.78	7,365.60	72.18	103.043	
10,700.00	6,936.66	7,312.35	7,061.80	68.16	30.28	91.23	639.16	-10,856.00	7,342.01	7,269.30	72.71	100.972	
10,800.00	6,936.34	7,311.87	7,061.32	69.59	30.28	91.22	639.16	-10,856.00	7,246.36	7,173.09	73.26	98.909	
10,900.00	6,936.01	7,311.39	7,060.85	71.03	30.28	91.21	639.16	-10,856.00	7,150.82	7,076.99	73.83	96.854	
11,000.00	6,935.69	7,310.92	7,060.37	72.47	30.27	91.20	639.17	-10,856.01	7,055.41	6,980.99	74.42	94.809	
11,100.00	6,935.37	7,310.44	7,059.89	73.92	30.27	91.18	639.17	-10,856.01	6,960.13	6,885.11	75.02	92.772	
11,200.00	6,935.05	7,309.95	7,059.41	75.38	30.27	91.17	639.17	-10,856.01	6,864.98	6,789.33	75.65	90.746	
11,300.00	6,934.72	7,309.47	7,058.92	76.84	30.27	91.16	639.17	-10,856.01	6,769.97	6,693.68	76.30	88.730	
11,400.00	6,934.40	7,308.98	7,058.44	78.31	30.27	91.14	639.17	-10,856.01	6,675.11	6,598.14	76.97	86.726	
11,500.00	6,934.08	7,308.50	7,057.95	79.79	30.27	91.13	639.17	-10,856.01	6,580.40	6,502.74	77.66	84.733	
11,600.00	6,933.75	7,308.01	7,057.46	81.27	30.27	91.12	639.17	-10,856.01	6,485.85	6,407.48	78.38	82.752	
11,700.00	6,933.43	7,307.51	7,056.97	82.75	30.27	91.10	639.17	-10,856.02	6,391.47	6,312.35	79.12	80.784	
11,800.00	6,933.11	7,307.02	7,056.47	84.24	30.26	91.09	639.17	-10,856.02	6,297.26	6,217.37	79.88	78.830	
11,900.00	6,932.78	7,306.52	7,055.98	85.73	30.26	91.08	639.17	-10,856.02	6,203.22	6,122.55	80.68	76.889	
12,000.00	6,932.46	7,306.03	7,055.48	87.23	30.26	91.06	639.18	-10,856.02	6,109.38	6,027.89	81.50	74.964	
12,100.00	6,932.14	7,305.53	7,054.98	88.72	30.26	91.05	639.18	-10,856.02	6,015.74	5,933.39	82.35	73.053	
12,200.00	6,931.81	7,305.02	7,054.48	90.23	30.26	91.04	639.18	-10,856.02	5,922.31	5,839.08	83.23	71.159	
12,300.00	6,931.49	7,304.52	7,053.97	91.74	30.26	91.02	639.18	-10,856.02	5,829.09	5,744.95	84.14	69.281	
12,400.00	6,931.17	7,304.01	7,053.47	93.25	30.26	91.01	639.18	-10,856.03	5,736.10	5,651.02	85.08	67.420	
12,500.00	6,930.85	7,303.50	7,052.96	94.76	30.25	91.00	639.18	-10,856.03	5,643.35	5,557.29	86.06	65.577	
12,600.00	6,930.52	7,302.99	7,052.45	96.27	30.25	90.98	639.18	-10,856.03	5,550.85	5,463.79	87.07	63.753	
12,700.00	6,930.20	7,304.80	7,054.25	97.79	30.26	91.03	639.18	-10,856.02	5,458.62	5,370.50	88.12	61.942	
12,800.00	6,929.88	7,303.76	7,053.21	99.32	30.25	91.00	639.18	-10,856.03	5,366.67	5,277.46	89.21	60.158	
12,900.00	6,929.55	7,302.74	7,052.19	100.84	30.25	90.98	639.18	-10,856.03	5,275.00	5,184.67	90.33	58.394	
13,000.00	6,929.23	7,301.74	7,051.19	102.37	30.25	90.95	639.18	-10,856.03	5,183.65	5,092.15	91.50	56.651	
13,100.00	6,928.91	7,300.75	7,050.21	103.89	30.25	90.92	639.19	-10,856.03	5,092.62	4,999.91	92.71	54.929	
13,200.00	6,928.58	7,299.79	7,049.24	105.43	30.24	90.90	639.19	-10,856.04	5,001.94	4,907.97	93.97	53.230	
13,300.00	6,928.26	7,298.84	7,048.29	106.96	30.24	90.87	639.19	-10,856.04	4,911.61	4,816.34	95.27	51.554	
13,400.00	6,927.94	7,297.91	7,047.36	108.49	30.24	90.85	639.19	-10,856.04	4,821.67	4,725.05	96.62	49.902	
13,500.00	6,927.61	7,296.99	7,046.45	110.03	30.24	90.82	639.20	-10,856.05	4,732.13	4,634.10	98.03	48.274	
13,600.00	6,927.29	7,296.09	7,045.55	111.57	30.23	90.80	639.20	-10,856.05	4,643.02	4,543.53	99.48	46.671	
13,700.00	6,926.97	7,295.21	7,044.66	113.11	30.23	90.77	639.20	-10,856.05	4,554.36	4,453.36	101.00	45.094	
13,800.00	6,926.65	7,294.34	7,043.79	114.65	30.23	90.75	639.20	-10,856.05	4,466.18	4,363.61	102.57	43.544	
13,900.00	6,926.32	7,293.48	7,042.94	116.20	30.23	90.73	639.20	-10,856.06	4,378.50	4,274.30	104.20	42.020	
14,000.00	6,926.00	7,292.64	7,042.10	117.75	30.22	90.70	639.21	-10,856.06	4,291.37	4,185.47	105.89	40.525	
14,100.00	6,925.68	7,291.82	7,041.27	119.29	30.22	90.68	639.21	-10,856.06	4,204.81	4,097.15	107.66	39.058	
14,200.00	6,925.35	7,291.01	7,040.46	120.84	30.22	90.66	639.21	-10,856.06	4,118.85	4,009.37	109.49	37.620	
14,300.00	6,925.03	7,290.21	7,039.66	122.39	30.22	90.64	639.21	-10,856.06	4,033.55	3,922.16	111.39	36.212	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #009D - OH - OH-SVY — **Offset Site Error:** 0.00 usft

Survey Program: 25-B001Mb_MWD+HRGM — **Rule Assigned:** — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,400.00	6,924.71	7,289.42	7,038.87	123.94	30.21	90.62	639.21	-10,856.07	3,948.93	3,835.57	113.36	34.835	
14,500.00	6,924.38	7,288.65	7,038.10	125.50	30.21	90.60	639.21	-10,856.07	3,865.05	3,749.64	115.41	33.489	
14,600.00	6,924.06	7,287.88	7,037.34	127.05	30.21	90.58	639.21	-10,856.07	3,781.95	3,664.41	117.54	32.176	
14,700.00	6,923.74	7,287.13	7,036.59	128.61	30.21	90.56	639.22	-10,856.07	3,699.69	3,579.94	119.75	30.894	
14,800.00	6,923.42	7,286.40	7,035.85	130.16	30.21	90.54	639.22	-10,856.07	3,618.32	3,496.27	122.05	29.647	
14,900.00	6,923.09	7,285.67	7,035.12	131.72	30.20	90.52	639.22	-10,856.07	3,537.91	3,413.48	124.43	28.433	
15,000.00	6,922.77	7,284.95	7,034.41	133.28	30.20	90.50	639.22	-10,856.08	3,458.52	3,331.62	126.90	27.254	
15,100.00	6,922.45	7,284.25	7,033.70	134.84	30.20	90.48	639.22	-10,856.08	3,380.22	3,250.76	129.46	26.110	
15,200.00	6,922.12	7,283.56	7,033.01	136.40	30.20	90.46	639.22	-10,856.08	3,303.09	3,170.98	132.11	25.002	
15,300.00	6,921.80	7,282.87	7,032.33	137.96	30.20	90.44	639.22	-10,856.08	3,227.22	3,092.37	134.85	23.931	
15,400.00	6,921.48	7,282.20	7,031.65	139.53	30.19	90.42	639.23	-10,856.08	3,152.70	3,015.01	137.69	22.897	
15,500.00	6,921.15	7,281.54	7,030.99	141.09	30.19	90.40	639.23	-10,856.08	3,079.62	2,939.00	140.62	21.901	
15,600.00	6,920.83	7,280.88	7,030.34	142.65	30.19	90.39	639.23	-10,856.08	3,008.09	2,864.46	143.63	20.943	
15,700.00	6,920.51	7,280.24	7,029.69	144.22	30.19	90.37	639.23	-10,856.09	2,938.22	2,791.49	146.73	20.024	
15,800.00	6,920.18	7,279.61	7,029.06	145.79	30.19	90.35	639.23	-10,856.09	2,870.14	2,720.22	149.92	19.145	
15,900.00	6,919.86	7,278.98	7,028.43	147.35	30.19	90.34	639.23	-10,856.09	2,803.97	2,650.79	153.17	18.306	
16,000.00	6,919.54	7,278.37	7,027.82	148.92	30.18	90.32	639.23	-10,856.09	2,739.85	2,583.35	156.50	17.507	
16,100.00	6,919.22	7,277.76	7,027.21	150.49	30.18	90.30	639.23	-10,856.09	2,677.93	2,518.05	159.88	16.749	
16,200.00	6,918.89	7,277.16	7,026.61	152.06	30.18	90.29	639.23	-10,856.09	2,618.37	2,455.06	163.31	16.033	
16,300.00	6,918.57	7,276.57	7,026.02	153.63	30.18	90.27	639.23	-10,856.09	2,561.32	2,394.56	166.76	15.359	
16,400.00	6,918.25	7,275.99	7,025.44	155.20	30.18	90.26	639.23	-10,856.09	2,506.97	2,336.75	170.23	14.727	
16,500.00	6,917.92	7,275.41	7,024.87	156.77	30.18	90.24	639.24	-10,856.09	2,455.49	2,281.82	173.68	14.138	
16,600.00	6,917.60	7,275.00	7,024.45	158.34	30.17	90.23	639.24	-10,856.09	2,407.07	2,229.98	177.09	13.592	
16,700.00	6,917.28	7,275.00	7,024.45	159.92	30.17	90.23	639.24	-10,856.09	2,361.89	2,181.44	180.45	13.089	
16,800.00	6,916.95	7,275.00	7,024.45	161.49	30.17	90.23	639.24	-10,856.09	2,320.14	2,136.44	183.71	12.630	
16,900.00	6,916.63	7,273.58	7,023.03	163.06	30.17	90.19	639.24	-10,856.10	2,282.01	2,095.19	186.83	12.215	
17,000.00	6,916.31	7,273.14	7,022.59	164.64	30.17	90.18	639.24	-10,856.10	2,247.69	2,057.90	189.79	11.843	
17,100.00	6,915.98	7,272.69	7,022.15	166.21	30.17	90.17	639.24	-10,856.10	2,217.35	2,024.80	192.56	11.515	
17,200.00	6,915.66	7,272.25	7,021.70	167.79	30.17	90.15	639.24	-10,856.10	2,191.16	1,996.07	195.09	11.232	
17,300.00	6,915.34	7,271.79	7,021.25	169.37	30.17	90.14	639.24	-10,856.10	2,169.27	1,971.92	197.35	10.992	
17,400.00	6,915.02	7,271.34	7,020.79	170.94	30.16	90.13	639.24	-10,856.10	2,151.80	1,952.49	199.31	10.796	
17,500.00	6,914.69	7,270.88	7,020.33	172.52	30.16	90.12	639.24	-10,856.10	2,138.87	1,937.93	200.94	10.644	
17,600.00	6,914.37	7,270.41	7,019.87	174.10	30.16	90.11	639.24	-10,856.10	2,130.57	1,928.34	202.23	10.535	
17,700.00	6,914.05	7,269.94	7,019.40	175.68	30.16	90.09	639.24	-10,856.10	2,126.93	1,923.79	203.15	10.470	
17,727.30	6,913.96	7,269.82	7,019.27	176.11	30.16	90.09	639.24	-10,856.10	2,126.76	1,923.43	203.33	10.460	CC, ES
17,800.00	6,913.72	7,269.47	7,018.92	177.25	30.16	90.08	639.24	-10,856.10	2,128.00	1,924.31	203.69	10.447	SF
17,900.00	6,913.40	7,269.00	7,018.45	178.83	30.16	90.07	639.25	-10,856.10	2,133.75	1,929.90	203.86	10.467	
18,000.00	6,913.08	7,268.51	7,017.97	180.41	30.16	90.05	639.25	-10,856.11	2,144.16	1,940.50	203.66	10.528	
18,023.75	6,913.00	7,268.40	7,017.85	180.79	30.16	90.05	639.25	-10,856.11	2,147.31	1,943.76	203.56	10.549	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #030 - OH - OH-SVY

Offset Site Error: 0.00 usft

Survey Program: 50-A020Ga_GYRO-NS

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Rule Assigned: Warning
0.00	0.00	161.27	161.27	0.00	0.48	-116.33	-1,688.94	-3,412.71	3,807.77				
100.00	100.00	257.19	257.19	0.25	0.81	-116.33	-1,688.92	-3,412.72	3,807.77	3,806.71	1.06	3,583.848	
200.00	200.00	362.73	362.73	0.61	1.18	-116.33	-1,689.01	-3,412.99	3,808.05	3,806.26	1.79	2,127.043	
300.00	300.00	440.37	440.37	0.97	1.45	-116.33	-1,689.00	-3,413.19	3,808.31	3,805.89	2.42	1,573.462	
400.00	400.00	550.00	550.00	1.33	1.84	-116.33	-1,689.38	-3,413.44	3,808.65	3,805.48	3.16	1,204.364	
500.00	500.00	650.00	649.99	1.68	2.19	-116.34	-1,689.94	-3,413.65	3,809.08	3,805.21	3.87	984.073	
600.00	599.98	756.05	756.04	2.03	2.56	63.73	-1,690.66	-3,413.85	3,808.79	3,804.21	4.58	831.086	
700.00	699.84	845.66	845.65	2.36	2.87	63.83	-1,690.99	-3,414.14	3,806.92	3,801.69	5.23	727.966	
800.00	799.45	950.84	950.83	2.71	3.24	64.02	-1,690.87	-3,414.51	3,803.33	3,797.39	5.94	640.208	
900.00	898.70	1,070.00	1,069.99	3.06	3.65	64.32	-1,690.35	-3,414.88	3,798.08	3,791.37	6.71	565.911	
1,000.00	997.47	1,174.64	1,174.62	3.43	4.02	64.69	-1,689.25	-3,415.31	3,791.19	3,783.74	7.44	509.308	
1,100.00	1,095.62	1,260.16	1,260.13	3.82	4.32	65.08	-1,688.03	-3,415.69	3,782.76	3,774.63	8.12	465.584	
1,207.83	1,200.65	1,371.87	1,371.83	4.26	4.71	65.65	-1,686.70	-3,416.28	3,772.33	3,763.39	8.95	421.611	
1,300.00	1,290.02	1,446.46	1,446.41	4.65	4.97	65.92	-1,685.64	-3,416.82	3,762.89	3,753.30	9.59	392.307	
1,400.00	1,386.98	1,552.73	1,552.67	5.09	5.34	66.30	-1,684.23	-3,417.47	3,752.74	3,742.35	10.39	361.272	
1,500.00	1,483.95	1,659.11	1,659.04	5.53	5.71	66.69	-1,682.81	-3,418.14	3,742.76	3,731.57	11.19	334.428	
1,600.00	1,580.91	1,756.26	1,756.18	5.99	6.05	67.05	-1,681.56	-3,418.46	3,732.68	3,720.71	11.97	311.848	
1,700.00	1,677.87	1,856.56	1,856.47	6.44	6.40	67.42	-1,680.27	-3,418.50	3,722.48	3,709.72	12.76	291.652	
1,800.00	1,774.84	1,946.49	1,946.39	6.90	6.72	67.75	-1,679.17	-3,418.54	3,712.47	3,698.95	13.53	274.465	
1,900.00	1,871.80	2,040.97	2,040.87	7.36	7.05	68.09	-1,678.32	-3,418.56	3,702.72	3,688.41	14.31	258.780	
2,000.00	1,968.76	2,139.44	2,139.33	7.83	7.39	68.45	-1,677.70	-3,418.61	3,693.23	3,678.12	15.11	244.466	
2,100.00	2,065.73	2,246.63	2,246.52	8.30	7.76	68.84	-1,676.99	-3,418.63	3,683.84	3,667.90	15.94	231.126	
2,200.00	2,162.69	2,330.56	2,330.46	8.77	8.06	69.15	-1,676.60	-3,418.73	3,674.74	3,658.05	16.69	220.128	
2,300.00	2,259.65	2,412.69	2,412.58	9.24	8.35	69.45	-1,676.35	-3,418.99	3,666.03	3,648.59	17.44	210.150	
2,400.00	2,356.61	2,493.42	2,493.32	9.71	8.63	69.74	-1,676.31	-3,419.52	3,657.87	3,639.68	18.19	201.054	
2,500.00	2,453.58	2,595.87	2,595.75	10.18	8.99	70.11	-1,676.26	-3,420.23	3,649.90	3,630.88	19.02	191.916	
2,600.00	2,550.54	2,707.02	2,706.90	10.66	9.38	70.53	-1,675.62	-3,420.87	3,641.77	3,621.90	19.87	183.245	
2,700.00	2,647.50	2,800.00	2,799.88	11.13	9.70	70.88	-1,675.09	-3,421.28	3,633.71	3,613.04	20.67	175.804	
2,800.00	2,744.47	2,915.58	2,915.46	11.61	10.11	71.31	-1,674.56	-3,421.51	3,625.58	3,604.04	21.54	168.306	
2,900.00	2,841.43	3,007.48	3,007.36	12.08	10.43	71.66	-1,674.26	-3,421.59	3,617.57	3,595.23	22.34	161.965	
3,000.00	2,938.39	3,088.51	3,088.39	12.56	10.71	71.96	-1,674.29	-3,421.75	3,609.91	3,586.82	23.09	156.312	
3,100.00	3,035.36	3,175.00	3,174.88	13.04	11.01	72.27	-1,674.64	-3,422.20	3,602.82	3,578.95	23.87	150.918	
3,200.00	3,132.32	3,264.56	3,264.43	13.51	11.33	72.60	-1,675.52	-3,422.88	3,596.26	3,571.60	24.66	145.819	
3,300.00	3,229.28	3,368.52	3,368.37	13.99	11.69	72.96	-1,677.41	-3,423.30	3,589.78	3,564.27	25.50	140.766	
3,400.00	3,326.25	3,468.41	3,468.24	14.47	12.03	73.30	-1,679.26	-3,423.24	3,582.99	3,556.66	26.33	136.093	
3,500.00	3,423.21	3,581.24	3,581.05	14.95	12.43	73.70	-1,681.05	-3,423.31	3,576.38	3,549.18	27.20	131.496	
3,600.00	3,520.17	3,667.67	3,667.49	15.43	12.73	74.02	-1,681.99	-3,423.26	3,569.67	3,541.68	27.98	127.579	
3,700.00	3,617.13	3,774.24	3,774.05	15.91	13.10	74.40	-1,683.16	-3,423.35	3,563.22	3,534.39	28.83	123.590	
3,800.00	3,714.10	3,875.00	3,874.80	16.39	13.45	74.77	-1,684.05	-3,423.10	3,556.54	3,526.88	29.66	119.900	
3,900.00	3,811.06	3,960.69	3,960.49	16.87	13.75	75.09	-1,684.80	-3,423.14	3,550.27	3,519.83	30.44	116.613	
4,000.00	3,908.02	4,052.18	4,051.97	17.35	14.07	75.41	-1,686.26	-3,423.28	3,544.44	3,513.20	31.25	113.433	
4,100.00	4,004.99	4,151.29	4,151.06	17.83	14.41	75.77	-1,688.01	-3,423.35	3,538.72	3,506.64	32.08	110.326	
4,200.00	4,101.95	4,231.27	4,231.03	18.31	14.69	76.06	-1,689.43	-3,423.55	3,533.32	3,500.48	32.84	107.594	
4,300.00	4,198.91	4,307.22	4,306.95	18.79	14.96	76.32	-1,691.18	-3,424.17	3,528.68	3,495.09	33.59	105.053	
4,400.00	4,295.88	4,395.59	4,395.28	19.27	15.27	76.63	-1,693.98	-3,425.08	3,524.60	3,490.22	34.38	102.511	
4,500.00	4,392.84	4,478.32	4,477.94	19.75	15.56	76.91	-1,696.87	-3,426.13	3,520.94	3,485.79	35.16	100.153	
4,600.00	4,489.80	4,561.42	4,560.98	20.23	15.85	77.19	-1,699.85	-3,427.54	3,517.83	3,481.90	35.93	97.907	
4,700.00	4,586.76	4,639.09	4,638.58	20.71	16.12	77.45	-1,702.81	-3,429.30	3,515.41	3,478.72	36.68	95.827	
4,800.00	4,683.73	4,732.92	4,732.30	21.20	16.45	77.77	-1,706.55	-3,431.52	3,513.28	3,475.78	37.50	93.693	
4,900.00	4,780.69	4,808.94	4,808.24	21.68	16.71	78.03	-1,709.34	-3,433.75	3,511.73	3,473.48	38.25	91.820	
5,000.00	4,877.65	4,910.41	4,909.58	22.16	17.07	78.37	-1,713.33	-3,437.00	3,510.63	3,471.54	39.09	89.816	
5,100.00	4,974.62	5,006.74	5,005.80	22.64	17.40	78.70	-1,716.79	-3,440.25	3,509.74	3,469.83	39.91	87.942	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #030 - OH - OH-SVY

Offset Site Error: 0.00 usft

Survey Program: 50-A020Ga_GYRO-NS **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Rule Assigned: Warning
5,200.00	5,071.58	5,100.49	5,099.43	23.12	17.73	79.03	-1,720.09	-3,443.52	3,509.08	3,468.35	40.72	86.169	
5,300.00	5,168.54	5,190.87	5,189.69	23.60	18.05	79.34	-1,723.33	-3,446.77	3,508.64	3,467.12	41.52	84.496	
5,400.00	5,265.51	5,282.81	5,281.51	24.09	18.37	79.66	-1,726.78	-3,450.12	3,508.43	3,466.10	42.33	82.880	
5,412.36	5,277.49	5,290.18	5,288.87	24.15	18.40	79.69	-1,727.03	-3,450.40	3,508.42	3,466.00	42.42	82.714	
5,500.00	5,362.47	5,367.93	5,366.51	24.57	18.67	79.96	-1,729.76	-3,453.37	3,508.48	3,465.37	43.11	81.379	
5,600.00	5,459.43	5,481.18	5,479.61	25.05	19.06	80.35	-1,733.78	-3,457.64	3,508.60	3,464.60	44.00	79.740	
5,700.00	5,556.40	5,577.84	5,576.14	25.53	19.40	80.69	-1,737.09	-3,461.22	3,508.79	3,463.96	44.83	78.277	
5,800.00	5,653.36	5,675.00	5,673.19	26.01	19.74	81.03	-1,740.31	-3,464.79	3,509.05	3,463.40	45.65	76.864	
5,900.00	5,750.32	5,769.72	5,767.79	26.50	20.07	81.36	-1,743.52	-3,468.30	3,509.49	3,463.02	46.47	75.520	
6,000.00	5,847.28	5,869.56	5,867.49	26.98	20.42	81.71	-1,747.09	-3,472.01	3,510.10	3,462.79	47.31	74.196	
6,100.00	5,944.25	5,968.85	5,966.65	27.46	20.77	82.05	-1,750.69	-3,475.59	3,510.73	3,462.59	48.14	72.922	
6,200.00	6,041.21	6,061.23	6,058.91	27.94	21.09	82.37	-1,754.20	-3,478.84	3,511.44	3,462.49	48.95	71.731	
6,300.00	6,138.17	6,150.00	6,147.56	28.43	21.41	82.68	-1,757.51	-3,482.15	3,512.48	3,462.73	49.75	70.605	
6,400.00	6,235.14	6,244.19	6,241.61	28.91	21.74	83.00	-1,761.15	-3,485.85	3,513.84	3,463.28	50.56	69.493	
6,496.84	6,329.04	6,325.00	6,322.29	29.38	22.02	83.28	-1,764.21	-3,489.20	3,515.49	3,464.17	51.31	68.510	
6,500.00	6,332.10	6,327.21	6,324.50	29.39	22.03	82.16	-1,764.29	-3,489.30	3,515.55	3,464.21	51.34	68.481	
6,550.00	6,380.52	6,382.77	6,379.97	29.63	22.22	65.14	-1,766.33	-3,491.60	3,514.21	3,462.44	51.77	67.875	
6,600.00	6,428.63	6,428.59	6,425.71	29.87	22.38	50.88	-1,767.94	-3,493.71	3,509.25	3,457.08	52.17	67.266	
6,650.00	6,476.14	6,470.01	6,467.06	30.10	22.53	40.10	-1,769.47	-3,495.61	3,500.45	3,447.92	52.54	66.625	
6,700.00	6,522.73	6,521.80	6,518.76	30.33	22.71	32.26	-1,771.28	-3,497.93	3,487.81	3,434.87	52.94	65.880	
6,750.00	6,568.14	6,582.00	6,578.87	30.54	22.92	26.52	-1,773.45	-3,500.60	3,471.47	3,418.11	53.37	65.050	
6,800.00	6,612.08	6,626.47	6,623.26	30.75	23.08	22.14	-1,775.11	-3,502.49	3,451.42	3,397.70	53.72	64.250	
6,850.00	6,654.28	6,681.67	6,678.39	30.95	23.27	18.77	-1,777.12	-3,504.60	3,427.67	3,373.57	54.10	63.358	
6,900.00	6,694.47	6,738.31	6,734.96	31.15	23.47	16.07	-1,779.08	-3,506.71	3,400.56	3,346.09	54.47	62.427	
6,950.00	6,732.42	6,778.24	6,774.84	31.33	23.61	13.78	-1,780.37	-3,508.06	3,370.12	3,315.35	54.77	61.534	
7,000.00	6,767.89	6,843.66	6,840.20	31.51	23.84	11.87	-1,782.34	-3,509.88	3,336.41	3,281.27	55.14	60.506	
7,050.00	6,800.65	6,898.36	6,894.87	31.68	24.03	10.09	-1,783.86	-3,511.16	3,299.86	3,244.40	55.46	59.503	
7,100.00	6,830.51	6,928.32	6,924.81	31.85	24.13	8.30	-1,784.68	-3,511.73	3,260.61	3,204.95	55.67	58.573	
7,150.00	6,857.28	6,955.72	6,952.20	32.01	24.23	6.44	-1,785.43	-3,512.27	3,219.11	3,163.26	55.85	57.636	
7,200.00	6,880.80	6,991.90	6,988.36	32.17	24.36	4.37	-1,786.28	-3,512.92	3,175.52	3,119.47	56.05	56.656	
7,250.00	6,900.92	7,014.83	7,011.28	32.33	24.44	1.77	-1,786.80	-3,513.28	3,130.13	3,073.95	56.18	55.715	
7,300.00	6,917.52	7,030.78	7,027.22	32.49	24.49	-1.80	-1,787.16	-3,513.53	3,083.28	3,027.01	56.27	54.792	
7,350.00	6,930.50	7,042.09	7,038.53	32.66	24.53	-7.30	-1,787.41	-3,513.72	3,035.27	2,978.94	56.33	53.883	
7,400.00	6,939.77	7,051.09	7,047.53	32.83	24.56	-17.16	-1,787.62	-3,513.87	2,986.37	2,930.01	56.36	52.985	
7,450.00	6,945.28	7,064.53	7,060.96	33.01	24.61	-39.01	-1,787.91	-3,514.09	2,936.89	2,880.50	56.39	52.081	
7,499.66	6,947.00	7,069.62	7,066.06	33.19	24.63	-82.18	-1,788.02	-3,514.17	2,887.48	2,831.10	56.38	51.218	
7,600.00	6,946.68	7,071.79	7,068.22	33.61	24.64	-82.64	-1,788.06	-3,514.20	2,787.59	2,731.29	56.30	49.513	
7,700.00	6,946.35	7,073.81	7,070.24	34.10	24.64	-83.07	-1,788.10	-3,514.22	2,688.08	2,631.86	56.22	47.814	
7,800.00	6,946.03	7,075.70	7,072.13	34.66	24.65	-83.47	-1,788.14	-3,514.25	2,588.60	2,532.47	56.13	46.115	
7,900.00	6,945.71	7,077.48	7,073.91	35.29	24.66	-83.85	-1,788.17	-3,514.27	2,489.16	2,433.12	56.04	44.417	
8,000.00	6,945.38	7,079.15	7,075.58	35.99	24.66	-84.20	-1,788.21	-3,514.29	2,389.77	2,333.83	55.94	42.720	
8,100.00	6,945.06	7,078.84	7,075.27	36.74	24.66	-84.14	-1,788.20	-3,514.29	2,290.43	2,234.61	55.83	41.027	
8,200.00	6,944.74	7,079.94	7,076.36	37.56	24.66	-84.37	-1,788.22	-3,514.30	2,191.15	2,135.44	55.71	39.331	
8,300.00	6,944.41	7,081.02	7,077.45	38.43	24.67	-84.60	-1,788.25	-3,514.32	2,091.94	2,036.36	55.58	37.636	
8,400.00	6,944.09	7,082.09	7,078.51	39.35	24.67	-84.83	-1,788.27	-3,514.33	1,992.81	1,937.36	55.45	35.941	
8,500.00	6,943.77	7,083.14	7,079.56	40.31	24.68	-85.05	-1,788.29	-3,514.34	1,893.77	1,838.47	55.30	34.246	
8,600.00	6,943.45	7,084.18	7,080.60	41.32	24.68	-85.27	-1,788.31	-3,514.36	1,794.84	1,739.70	55.14	32.551	
8,700.00	6,943.12	7,085.20	7,081.62	42.37	24.68	-85.49	-1,788.33	-3,514.37	1,696.02	1,641.06	54.97	30.856	
8,800.00	6,942.80	7,086.20	7,082.63	43.45	24.69	-85.71	-1,788.35	-3,514.38	1,597.36	1,542.58	54.78	29.161	
8,900.00	6,942.48	7,087.20	7,083.62	44.57	24.69	-85.92	-1,788.38	-3,514.40	1,498.87	1,444.30	54.57	27.465	
9,000.00	6,942.15	7,088.18	7,084.60	45.71	24.69	-86.13	-1,788.40	-3,514.41	1,400.60	1,346.25	54.35	25.769	
9,100.00	6,941.83	7,089.14	7,085.57	46.89	24.70	-86.33	-1,788.42	-3,514.42	1,302.59	1,248.47	54.12	24.070	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #030 - OH - OH-SVY

Offset Site Error: 0.00 usft

Survey Program: 50-A020Ga_GYRO-NS **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,200.00	6,941.51	7,090.10	7,086.52	48.09	24.70	-86.54	-1,788.44	-3,514.43	1,204.90	1,151.04	53.87	22.368	
9,300.00	6,941.18	7,091.04	7,087.46	49.31	24.70	-86.74	-1,788.46	-3,514.44	1,107.63	1,054.02	53.61	20.660	
9,400.00	6,940.86	7,091.96	7,088.39	50.56	24.71	-86.93	-1,788.48	-3,514.45	1,010.89	957.53	53.36	18.945	
9,500.00	6,940.54	7,092.88	7,089.30	51.82	24.71	-87.13	-1,788.50	-3,514.47	914.85	861.71	53.14	17.217	
9,600.00	6,940.21	7,093.78	7,090.20	53.11	24.71	-87.32	-1,788.51	-3,514.48	819.76	766.76	52.99	15.469	
9,700.00	6,939.89	7,094.67	7,091.09	54.41	24.72	-87.51	-1,788.53	-3,514.49	725.98	672.96	53.02	13.692	
9,800.00	6,939.57	7,095.55	7,091.97	55.73	24.72	-87.70	-1,788.55	-3,514.50	634.11	580.70	53.41	11.872	
9,900.00	6,939.25	7,096.42	7,092.84	57.07	24.72	-87.89	-1,788.57	-3,514.51	545.10	490.59	54.51	10.000	
10,000.00	6,938.92	7,097.27	7,093.69	58.41	24.73	-88.07	-1,788.59	-3,514.52	460.63	403.69	56.94	8.089	
10,100.00	6,938.60	7,098.12	7,094.54	59.77	24.73	-88.25	-1,788.61	-3,514.53	383.69	322.03	61.67	6.222	
10,200.00	6,938.28	7,098.95	7,095.37	61.15	24.73	-88.43	-1,788.63	-3,514.54	319.78	250.20	69.58	4.596	
10,300.00	6,937.95	7,099.77	7,096.19	62.53	24.73	-88.61	-1,788.64	-3,514.55	278.03	198.19	79.83	3.483	
10,374.82	6,937.71	7,100.40	7,096.82	63.57	24.74	-88.74	-1,788.66	-3,514.55	267.77	181.41	86.36	3.101	CC
10,400.00	6,937.63	7,100.61	7,097.03	63.92	24.74	-88.78	-1,788.66	-3,514.56	268.95	181.12	87.84	3.062	ES, SF
10,500.00	6,937.31	7,101.47	7,097.89	65.33	24.74	-88.97	-1,788.68	-3,514.57	295.59	206.15	89.44	3.305	
10,600.00	6,936.98	7,102.36	7,098.78	66.74	24.74	-89.16	-1,788.70	-3,514.58	349.87	263.28	86.58	4.041	
10,700.00	6,936.66	7,103.26	7,099.68	68.16	24.75	-89.35	-1,788.72	-3,514.59	421.24	338.58	82.66	5.096	
10,800.00	6,936.34	7,104.19	7,100.61	69.59	24.75	-89.55	-1,788.74	-3,514.60	502.46	423.33	79.14	6.349	
10,900.00	6,936.01	7,105.14	7,101.56	71.03	24.75	-89.75	-1,788.76	-3,514.61	589.49	513.19	76.30	7.726	
11,000.00	6,935.69	7,106.11	7,102.53	72.47	24.76	-89.96	-1,788.78	-3,514.62	680.09	606.01	74.08	9.181	
11,100.00	6,935.37	7,107.11	7,103.53	73.92	24.76	-90.18	-1,788.80	-3,514.64	773.02	700.69	72.33	10.688	
11,200.00	6,935.05	7,108.14	7,104.56	75.38	24.76	-90.40	-1,788.83	-3,514.65	867.51	796.58	70.93	12.230	
11,300.00	6,934.72	7,109.19	7,105.61	76.84	24.77	-90.62	-1,788.85	-3,514.66	963.12	893.31	69.81	13.797	
11,400.00	6,934.40	7,110.28	7,106.69	78.31	24.77	-90.85	-1,788.87	-3,514.68	1,059.54	990.65	68.89	15.380	
11,500.00	6,934.08	7,111.39	7,107.81	79.79	24.78	-91.09	-1,788.90	-3,514.69	1,156.56	1,088.43	68.13	16.976	
11,600.00	6,933.75	7,112.53	7,108.95	81.27	24.78	-91.33	-1,788.92	-3,514.70	1,254.06	1,186.56	67.49	18.581	
11,700.00	6,933.43	7,113.70	7,110.12	82.75	24.78	-91.58	-1,788.95	-3,514.72	1,351.91	1,284.96	66.95	20.192	
11,800.00	6,933.11	7,114.91	7,111.33	84.24	24.79	-91.84	-1,788.97	-3,514.74	1,450.06	1,383.57	66.49	21.807	
11,900.00	6,932.78	7,116.15	7,112.57	85.73	24.79	-92.11	-1,789.00	-3,514.75	1,548.45	1,482.35	66.10	23.426	
12,000.00	6,932.46	7,117.43	7,113.85	87.23	24.80	-92.38	-1,789.02	-3,514.77	1,647.03	1,581.27	65.76	25.046	
12,100.00	6,932.14	7,118.75	7,115.16	88.72	24.80	-92.66	-1,789.05	-3,514.79	1,745.77	1,680.30	65.46	26.668	
12,200.00	6,931.81	7,120.10	7,116.52	90.23	24.81	-92.95	-1,789.08	-3,514.81	1,844.64	1,779.44	65.21	28.290	
12,300.00	6,931.49	7,121.50	7,117.91	91.74	24.81	-93.24	-1,789.11	-3,514.83	1,943.63	1,878.65	64.98	29.912	
12,400.00	6,931.17	7,122.94	7,119.35	93.25	24.82	-93.55	-1,789.14	-3,514.85	2,042.72	1,977.94	64.78	31.533	
12,500.00	6,930.85	7,124.42	7,120.84	94.76	24.82	-93.87	-1,789.17	-3,514.87	2,141.89	2,077.28	64.61	33.154	
12,600.00	6,930.52	7,125.95	7,122.37	96.27	24.83	-94.19	-1,789.20	-3,514.89	2,241.13	2,176.68	64.45	34.773	
12,700.00	6,930.20	7,127.54	7,123.95	97.79	24.83	-94.53	-1,789.23	-3,514.91	2,340.44	2,276.13	64.31	36.390	
12,800.00	6,929.88	7,129.17	7,125.58	99.32	24.84	-94.87	-1,789.27	-3,514.94	2,439.80	2,375.61	64.19	38.006	
12,900.00	6,929.55	7,130.17	7,126.58	100.84	24.84	-95.08	-1,789.29	-3,514.95	2,539.22	2,475.13	64.09	39.622	
13,000.00	6,929.23	7,131.66	7,128.07	102.37	24.85	-95.40	-1,789.32	-3,514.98	2,638.67	2,574.68	63.99	41.235	
13,100.00	6,928.91	7,133.18	7,129.59	103.89	24.85	-95.72	-1,789.35	-3,515.00	2,738.17	2,674.26	63.91	42.845	
13,200.00	6,928.58	7,134.73	7,131.14	105.43	24.86	-96.05	-1,789.38	-3,515.02	2,837.70	2,773.86	63.84	44.453	
13,300.00	6,928.26	7,136.31	7,132.72	106.96	24.86	-96.38	-1,789.41	-3,515.05	2,937.26	2,873.49	63.77	46.059	
13,400.00	6,927.94	7,137.92	7,134.33	108.49	24.87	-96.72	-1,789.44	-3,515.07	3,036.85	2,973.13	63.72	47.662	
13,500.00	6,927.61	7,139.56	7,135.97	110.03	24.87	-97.06	-1,789.47	-3,515.10	3,136.47	3,072.80	63.67	49.263	
13,600.00	6,927.29	7,141.24	7,137.65	111.57	24.88	-97.41	-1,789.50	-3,515.12	3,236.10	3,172.48	63.63	50.861	
13,700.00	6,926.97	7,142.95	7,139.36	113.11	24.89	-97.77	-1,789.53	-3,515.15	3,335.76	3,272.17	63.59	52.455	
13,800.00	6,926.65	7,144.69	7,141.10	114.65	24.89	-98.13	-1,789.56	-3,515.18	3,435.44	3,371.88	63.56	54.047	
13,900.00	6,926.32	7,146.47	7,142.88	116.20	24.90	-98.50	-1,789.60	-3,515.21	3,535.14	3,471.60	63.54	55.636	
14,000.00	6,926.00	7,148.29	7,144.70	117.75	24.90	-98.88	-1,789.63	-3,515.23	3,634.85	3,571.33	63.52	57.222	
14,100.00	6,925.68	7,150.15	7,146.55	119.29	24.91	-99.27	-1,789.66	-3,515.27	3,734.58	3,671.07	63.51	58.805	
14,200.00	6,925.35	7,152.04	7,148.45	120.84	24.92	-99.66	-1,789.70	-3,515.30	3,834.32	3,770.82	63.50	60.384	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #030 - OH - OH-SVY

Offset Site Error: 0.00 usft

Survey Program: 50-A020Ga_GYRO-NS

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,300.00	6,925.03	7,153.98	7,150.38	122.39	24.92	-100.06	-1,789.73	-3,515.33	3,934.07	3,870.58	63.49	61.960	
14,400.00	6,924.71	7,149.93	7,146.34	123.94	24.91	-99.22	-1,789.66	-3,515.26	4,033.84	3,970.37	63.47	63.556	
14,500.00	6,924.38	7,150.00	7,146.41	125.50	24.91	-99.24	-1,789.66	-3,515.26	4,133.62	4,070.15	63.46	65.134	
14,600.00	6,924.06	7,150.00	7,146.41	127.05	24.91	-99.24	-1,789.66	-3,515.26	4,233.40	4,169.94	63.46	66.709	
14,700.00	6,923.74	7,150.00	7,146.41	128.61	24.91	-99.24	-1,789.66	-3,515.26	4,333.20	4,269.74	63.46	68.281	
14,800.00	6,923.42	7,150.00	7,146.41	130.16	24.91	-99.24	-1,789.66	-3,515.26	4,433.01	4,369.54	63.46	69.850	
14,900.00	6,923.09	7,150.00	7,146.41	131.72	24.91	-99.24	-1,789.66	-3,515.26	4,532.82	4,469.35	63.47	71.416	
15,000.00	6,922.77	7,150.00	7,146.41	133.28	24.91	-99.24	-1,789.66	-3,515.26	4,632.65	4,569.17	63.48	72.979	
15,100.00	6,922.45	7,150.00	7,146.41	134.84	24.91	-99.24	-1,789.66	-3,515.26	4,732.48	4,668.99	63.49	74.539	
15,200.00	6,922.12	7,150.00	7,146.41	136.40	24.91	-99.24	-1,789.66	-3,515.26	4,832.32	4,768.81	63.50	76.095	
15,300.00	6,921.80	7,157.18	7,153.58	137.96	24.94	-100.72	-1,789.78	-3,515.37	4,932.15	4,868.60	63.55	77.613	
15,400.00	6,921.48	7,157.69	7,154.09	139.53	24.94	-100.82	-1,789.79	-3,515.38	5,032.00	4,968.43	63.57	79.160	
15,500.00	6,921.15	7,158.18	7,154.59	141.09	24.94	-100.92	-1,789.80	-3,515.39	5,131.85	5,068.26	63.59	80.703	
15,600.00	6,920.83	7,158.67	7,155.07	142.65	24.94	-101.02	-1,789.81	-3,515.40	5,231.71	5,168.10	63.61	82.243	
15,700.00	6,920.51	7,159.14	7,155.55	144.22	24.94	-101.12	-1,789.82	-3,515.40	5,331.58	5,267.94	63.64	83.779	
15,800.00	6,920.18	7,159.61	7,156.01	145.79	24.94	-101.21	-1,789.83	-3,515.41	5,431.45	5,367.78	63.67	85.312	
15,900.00	6,919.86	7,160.07	7,156.47	147.35	24.95	-101.31	-1,789.83	-3,515.41	5,531.32	5,467.63	63.69	86.842	
16,000.00	6,919.54	7,160.51	7,156.92	148.92	24.95	-101.40	-1,789.84	-3,515.42	5,631.20	5,567.48	63.72	88.368	
16,100.00	6,919.22	7,160.95	7,157.35	150.49	24.95	-101.49	-1,789.85	-3,515.43	5,731.09	5,667.33	63.76	89.890	
16,200.00	6,918.89	7,161.38	7,157.78	152.06	24.95	-101.57	-1,789.86	-3,515.43	5,830.97	5,767.18	63.79	91.409	
16,300.00	6,918.57	7,161.80	7,158.20	153.63	24.95	-101.66	-1,789.86	-3,515.44	5,930.86	5,867.04	63.82	92.924	
16,400.00	6,918.25	7,162.21	7,158.61	155.20	24.95	-101.74	-1,789.87	-3,515.44	6,030.76	5,966.90	63.86	94.436	
16,500.00	6,917.92	7,162.61	7,159.01	156.77	24.95	-101.83	-1,789.88	-3,515.45	6,130.66	6,066.76	63.90	95.944	
16,600.00	6,917.60	7,163.01	7,159.41	158.34	24.96	-101.91	-1,789.88	-3,515.45	6,230.56	6,166.62	63.94	97.448	
16,700.00	6,917.28	7,163.39	7,159.80	159.92	24.96	-101.98	-1,789.89	-3,515.46	6,330.46	6,266.48	63.98	98.949	
16,800.00	6,916.95	7,163.77	7,160.18	161.49	24.96	-102.06	-1,789.90	-3,515.46	6,430.37	6,366.35	64.02	100.446	
16,900.00	6,916.63	7,164.15	7,160.55	163.06	24.96	-102.14	-1,789.90	-3,515.47	6,530.28	6,466.22	64.06	101.939	
17,000.00	6,916.31	7,164.51	7,160.92	164.64	24.96	-102.21	-1,789.91	-3,515.47	6,630.19	6,566.09	64.10	103.428	
17,100.00	6,915.98	7,164.87	7,161.27	166.21	24.96	-102.28	-1,789.92	-3,515.48	6,730.11	6,665.96	64.15	104.913	
17,200.00	6,915.66	7,165.22	7,161.63	167.79	24.96	-102.36	-1,789.92	-3,515.48	6,830.02	6,765.83	64.19	106.395	
17,300.00	6,915.34	7,165.57	7,161.97	169.37	24.96	-102.43	-1,789.93	-3,515.49	6,929.94	6,865.70	64.24	107.873	
17,400.00	6,915.02	7,165.91	7,162.31	170.94	24.97	-102.49	-1,789.93	-3,515.49	7,029.87	6,965.58	64.29	109.347	
17,500.00	6,914.69	7,166.24	7,162.65	172.52	24.97	-102.56	-1,789.94	-3,515.50	7,129.79	7,065.45	64.34	110.817	
17,600.00	6,914.37	7,166.57	7,162.97	174.10	24.97	-102.63	-1,789.94	-3,515.50	7,229.72	7,165.33	64.39	112.283	
17,700.00	6,914.05	7,166.89	7,163.30	175.68	24.97	-102.69	-1,789.95	-3,515.50	7,329.64	7,265.21	64.44	113.745	
17,800.00	6,913.72	7,175.00	7,171.40	177.25	25.00	-104.32	-1,790.08	-3,515.59	7,429.59	7,365.06	64.52	115.148	
17,900.00	6,913.40	7,175.00	7,171.40	178.83	25.00	-104.32	-1,790.08	-3,515.59	7,529.52	7,464.94	64.57	116.604	
18,000.00	6,913.08	7,175.00	7,171.40	180.41	25.00	-104.32	-1,790.08	-3,515.59	7,629.45	7,564.82	64.63	118.056	
18,023.75	6,913.00	7,175.00	7,171.40	180.79	25.00	-104.32	-1,790.08	-3,515.59	7,653.19	7,588.55	64.64	118.401	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #030B - OH - OH-TD — **Offset Site Error:** 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY — **Rule Assigned:** — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	161.00	161.00	0.00	4.82	-119.08	-2,571.45	-4,623.72	5,290.67				
100.00	100.00	261.00	261.00	0.25	7.82	-119.08	-2,571.45	-4,623.72	5,290.67	5,282.60	8.07	655.454	
200.00	200.00	361.00	361.00	0.61	10.82	-119.08	-2,571.45	-4,623.72	5,290.67	5,279.24	11.43	463.011	
300.00	300.00	461.00	461.00	0.97	13.81	-119.08	-2,571.45	-4,623.72	5,290.67	5,275.89	14.78	357.924	
400.00	400.00	561.10	561.00	1.33	16.81	-119.08	-2,571.45	-4,623.72	5,290.67	5,272.53	18.14	291.666	
500.00	500.00	661.10	661.00	1.68	19.81	-119.08	-2,571.45	-4,623.72	5,290.67	5,269.17	21.49	246.142	
600.00	599.98	759.38	759.24	2.03	22.75	61.02	-2,569.27	-4,623.72	5,288.77	5,263.98	24.78	213.425	
700.00	699.84	844.13	843.97	2.36	25.29	61.10	-2,569.58	-4,623.72	5,286.41	5,258.75	27.65	191.171	
800.00	799.45	928.78	928.61	2.71	27.83	61.22	-2,570.39	-4,623.72	5,282.65	5,252.12	30.53	173.018	
900.00	898.70	1,060.11	1,059.70	3.06	31.77	61.46	-2,571.45	-4,623.72	5,277.19	5,242.37	34.82	151.544	
1,000.00	997.47	1,158.87	1,158.47	3.43	34.73	61.75	-2,571.45	-4,623.72	5,269.68	5,231.53	38.15	138.134	
1,100.00	1,095.62	1,255.96	1,255.52	3.82	37.63	62.11	-2,569.27	-4,623.72	5,259.53	5,218.09	41.44	126.919	
1,207.83	1,200.65	1,345.53	1,345.07	4.26	40.32	62.50	-2,569.59	-4,623.72	5,248.14	5,203.58	44.55	117.792	
1,300.00	1,290.02	1,421.99	1,421.51	4.65	42.61	62.68	-2,570.30	-4,623.72	5,237.92	5,190.70	47.23	110.912	
1,400.00	1,386.98	1,548.69	1,547.98	5.09	46.41	62.97	-2,571.45	-4,623.72	5,226.94	5,175.50	51.44	101.604	
1,500.00	1,483.95	1,645.66	1,644.95	5.53	49.31	63.20	-2,571.45	-4,623.72	5,215.60	5,160.82	54.78	95.212	
1,600.00	1,580.91	1,742.62	1,741.91	5.99	52.22	63.44	-2,571.45	-4,623.72	5,204.35	5,146.23	58.12	89.546	
1,700.00	1,677.87	1,826.92	1,826.15	6.44	54.74	63.66	-2,569.48	-4,623.72	5,192.30	5,131.22	61.09	85.001	
1,800.00	1,774.84	1,910.45	1,909.67	6.90	57.25	63.86	-2,570.17	-4,623.72	5,181.60	5,117.57	64.03	80.921	
1,900.00	1,871.80	2,033.81	2,032.80	7.36	60.94	64.15	-2,571.45	-4,623.72	5,171.13	5,102.96	68.18	75.850	
2,000.00	1,968.76	2,130.78	2,129.76	7.83	63.85	64.39	-2,571.45	-4,623.72	5,160.25	5,088.72	71.53	72.139	
2,100.00	2,065.73	2,227.74	2,226.73	8.30	66.75	64.63	-2,571.45	-4,623.72	5,149.45	5,074.56	74.89	68.760	
2,200.00	2,162.69	2,314.61	2,313.55	8.77	69.36	64.86	-2,569.42	-4,623.72	5,137.88	5,059.93	77.95	65.913	
2,300.00	2,259.65	2,398.74	2,397.66	9.24	71.88	65.06	-2,570.04	-4,623.72	5,127.59	5,046.67	80.93	63.360	
2,400.00	2,356.61	2,518.93	2,517.61	9.71	75.48	65.35	-2,571.45	-4,623.72	5,117.64	5,032.65	84.99	60.217	
2,500.00	2,453.58	2,615.90	2,614.58	10.18	78.38	65.59	-2,571.45	-4,623.72	5,107.22	5,018.87	88.35	57.804	
2,600.00	2,550.54	2,712.86	2,711.54	10.66	81.29	65.84	-2,571.45	-4,623.72	5,096.91	5,005.18	91.72	55.570	
2,700.00	2,647.50	2,802.12	2,800.76	11.13	83.96	66.08	-2,569.37	-4,623.72	5,085.82	4,990.96	94.86	53.614	
2,800.00	2,744.47	2,886.86	2,885.47	11.61	86.50	66.29	-2,569.93	-4,623.72	5,075.97	4,978.10	97.87	51.867	
2,900.00	2,841.43	3,004.05	3,002.43	12.08	90.02	66.57	-2,571.45	-4,623.72	5,066.53	4,964.69	101.84	49.749	
3,000.00	2,938.39	3,101.02	3,099.39	12.56	92.92	66.82	-2,571.45	-4,623.72	5,056.60	4,951.39	105.21	48.060	
3,100.00	3,035.36	3,197.98	3,196.36	13.04	95.83	67.07	-2,571.45	-4,623.72	5,046.77	4,938.19	108.59	46.477	
3,200.00	3,132.32	3,289.45	3,287.78	13.51	98.57	67.33	-2,569.32	-4,623.72	5,036.20	4,924.41	111.80	45.047	
3,300.00	3,229.28	3,374.80	3,373.11	13.99	101.12	67.54	-2,569.82	-4,623.72	5,026.80	4,911.97	114.83	43.777	
3,400.00	3,326.25	3,460.42	3,458.71	14.47	103.69	67.75	-2,570.82	-4,623.72	5,017.72	4,899.86	117.86	42.572	
3,500.00	3,423.21	3,586.14	3,584.21	14.95	107.46	68.07	-2,571.45	-4,623.72	5,008.46	4,886.36	122.10	41.019	
3,600.00	3,520.17	3,683.10	3,681.17	15.43	110.36	68.33	-2,571.45	-4,623.72	4,999.13	4,873.65	125.48	39.840	
3,700.00	3,617.13	3,776.58	3,774.61	15.91	113.16	68.59	-2,569.30	-4,623.72	4,989.10	4,860.34	128.76	38.749	
3,800.00	3,714.10	3,862.55	3,860.56	16.39	115.74	68.82	-2,569.71	-4,623.72	4,980.16	4,848.36	131.81	37.784	
3,900.00	3,811.06	3,948.81	3,946.79	16.87	118.32	69.03	-2,570.65	-4,623.72	4,971.54	4,836.67	134.87	36.862	
4,000.00	3,908.02	4,071.26	4,069.02	17.35	121.99	69.35	-2,571.45	-4,623.72	4,962.86	4,823.85	139.01	35.702	
4,100.00	4,004.99	4,168.22	4,165.99	17.83	124.90	69.61	-2,571.45	-4,623.72	4,954.05	4,811.66	142.39	34.792	
4,200.00	4,101.95	4,263.52	4,261.24	18.31	127.75	69.88	-2,569.28	-4,623.72	4,944.58	4,798.85	145.73	33.931	
4,300.00	4,198.91	4,350.12	4,347.83	18.79	130.35	70.11	-2,569.62	-4,623.72	4,936.12	4,787.32	148.80	33.173	
4,400.00	4,295.88	4,437.01	4,434.70	19.27	132.95	70.34	-2,570.49	-4,623.72	4,927.98	4,776.09	151.88	32.446	
4,500.00	4,392.84	4,556.38	4,553.84	19.75	136.53	70.65	-2,571.45	-4,623.72	4,919.87	4,763.94	155.94	31.551	
4,600.00	4,489.80	4,653.34	4,650.80	20.23	139.44	70.91	-2,571.45	-4,623.72	4,911.60	4,752.28	159.32	30.828	
4,700.00	4,586.76	4,750.26	4,747.68	20.71	142.34	71.19	-2,569.27	-4,623.72	4,902.70	4,740.00	162.71	30.132	
4,800.00	4,683.73	4,837.50	4,834.91	21.20	144.95	71.43	-2,569.54	-4,623.72	4,894.75	4,728.95	165.80	29.522	
4,900.00	4,780.69	4,925.04	4,922.43	21.68	147.58	71.66	-2,570.34	-4,623.72	4,887.10	4,718.19	168.91	28.934	
5,000.00	4,877.65	5,041.50	5,038.65	22.16	151.07	71.96	-2,571.45	-4,623.72	4,879.58	4,706.70	172.88	28.226	
5,100.00	4,974.62	5,138.46	5,135.62	22.64	153.97	72.23	-2,571.45	-4,623.72	4,871.85	4,695.58	176.26	27.639	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #030B - OH - OH-TD

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Rule Assigned: Warning
5,200.00	5,071.58	5,235.42	5,232.58	23.12	156.88	72.50	-2,571.45	-4,623.72	4,864.23	4,684.57	179.65	27.076	
5,300.00	5,168.54	5,324.69	5,321.79	23.60	159.55	72.76	-2,569.47	-4,623.72	4,856.12	4,673.31	182.81	26.563	
5,400.00	5,265.51	5,412.88	5,409.96	24.09	162.19	73.00	-2,570.20	-4,623.72	4,848.97	4,663.03	185.94	26.078	
5,500.00	5,362.47	5,526.62	5,523.47	24.57	165.60	73.30	-2,571.45	-4,623.72	4,842.04	4,652.21	189.83	25.507	
5,600.00	5,459.43	5,623.58	5,620.43	25.05	168.51	73.57	-2,571.45	-4,623.72	4,834.86	4,641.64	193.22	25.023	
5,700.00	5,556.40	5,720.54	5,717.40	25.53	171.41	73.84	-2,571.45	-4,623.72	4,827.81	4,631.19	196.61	24.555	
5,800.00	5,653.36	5,811.67	5,808.48	26.01	174.14	74.12	-2,569.40	-4,623.72	4,820.29	4,620.46	199.83	24.122	
5,900.00	5,750.32	5,900.53	5,897.31	26.50	176.81	74.36	-2,570.06	-4,623.72	4,813.66	4,610.69	202.98	23.715	
6,000.00	5,847.28	6,011.74	6,008.28	26.98	180.14	74.66	-2,571.45	-4,623.72	4,807.31	4,600.52	206.80	23.247	
6,100.00	5,944.25	6,108.70	6,105.25	27.46	183.04	74.93	-2,571.45	-4,623.72	4,800.71	4,590.52	210.19	22.840	
6,200.00	6,041.21	6,205.66	6,202.21	27.94	185.95	75.21	-2,571.45	-4,623.72	4,794.23	4,580.65	213.58	22.447	
6,300.00	6,138.17	6,298.45	6,294.95	28.43	188.73	75.49	-2,569.35	-4,623.72	4,787.32	4,570.47	216.85	22.077	
6,400.00	6,235.14	6,387.99	6,384.47	28.91	191.41	75.74	-2,569.94	-4,623.72	4,781.23	4,561.21	220.02	21.731	
6,496.84	6,329.04	6,474.98	6,471.44	29.38	194.02	75.98	-2,571.04	-4,623.72	4,775.59	4,552.49	223.10	21.406	
6,500.00	6,332.10	6,477.83	6,474.28	29.39	194.10	74.85	-2,571.08	-4,623.72	4,775.41	4,552.21	223.20	21.395	
6,550.00	6,380.52	6,545.28	6,541.52	29.63	196.13	57.72	-2,571.45	-4,623.72	4,770.30	4,544.84	225.46	21.158	
6,600.00	6,428.63	6,593.39	6,589.63	29.87	197.57	43.29	-2,571.45	-4,623.72	4,761.40	4,534.27	227.13	20.963	
6,650.00	6,476.14	6,640.89	6,637.14	30.10	198.99	32.30	-2,571.45	-4,623.72	4,748.80	4,520.03	228.78	20.757	
6,700.00	6,522.73	6,687.49	6,683.73	30.33	200.39	24.14	-2,571.45	-4,623.72	4,732.58	4,502.20	230.38	20.543	
6,750.00	6,568.14	6,732.90	6,729.14	30.54	201.75	17.99	-2,571.45	-4,623.72	4,712.83	4,480.90	231.93	20.320	
6,800.00	6,612.08	6,774.89	6,771.10	30.75	203.01	13.19	-2,569.29	-4,623.72	4,689.15	4,455.79	233.37	20.094	
6,850.00	6,654.28	6,814.10	6,810.30	30.95	204.18	9.23	-2,569.41	-4,623.72	4,662.75	4,428.05	234.70	19.867	
6,900.00	6,694.47	6,851.50	6,847.69	31.15	205.30	5.80	-2,569.63	-4,623.72	4,633.25	4,397.29	235.96	19.635	
6,950.00	6,732.42	6,886.86	6,883.04	31.33	206.36	2.67	-2,569.93	-4,623.72	4,600.84	4,363.69	237.15	19.401	
7,000.00	6,767.89	6,919.95	6,916.12	31.51	207.35	-0.37	-2,570.28	-4,623.72	4,565.71	4,327.46	238.24	19.164	
7,050.00	6,800.65	6,950.56	6,946.72	31.68	208.27	-3.49	-2,570.68	-4,623.72	4,528.06	4,288.82	239.25	18.926	
7,100.00	6,830.51	6,978.48	6,974.63	31.85	209.11	-6.90	-2,571.09	-4,623.72	4,488.14	4,247.99	240.15	18.689	
7,150.00	6,857.28	7,022.34	7,018.28	32.01	210.42	-10.90	-2,571.45	-4,623.72	4,446.12	4,204.63	241.50	18.411	
7,200.00	6,880.80	7,045.86	7,041.80	32.17	211.13	-15.74	-2,571.45	-4,623.72	4,402.28	4,160.06	242.22	18.174	
7,250.00	6,900.92	7,065.98	7,061.92	32.33	211.73	-21.91	-2,571.45	-4,623.72	4,356.94	4,114.11	242.83	17.943	
7,300.00	6,917.52	7,082.58	7,078.52	32.49	212.23	-30.12	-2,571.45	-4,623.72	4,310.38	4,067.08	243.30	17.716	
7,350.00	6,930.50	7,095.56	7,091.50	32.66	212.62	-41.23	-2,571.45	-4,623.72	4,262.90	4,019.25	243.65	17.496	
7,400.00	6,939.77	7,104.83	7,100.77	32.83	212.89	-55.88	-2,571.45	-4,623.72	4,214.80	3,970.93	243.87	17.283	
7,450.00	6,945.28	7,110.34	7,106.28	33.01	213.06	-73.34	-2,571.45	-4,623.72	4,166.38	3,922.43	243.95	17.079	
7,499.66	6,947.00	7,112.06	7,108.00	33.19	213.11	-90.70	-2,571.45	-4,623.72	4,118.28	3,874.37	243.91	16.884	
7,600.00	6,946.68	7,111.74	7,107.68	33.61	213.10	-90.68	-2,571.45	-4,623.72	4,021.38	3,777.69	243.69	16.502	
7,700.00	6,946.35	7,111.41	7,107.35	34.10	213.09	-90.66	-2,571.45	-4,623.72	3,924.97	3,681.50	243.47	16.121	
7,800.00	6,946.03	7,111.09	7,107.03	34.66	213.08	-90.65	-2,571.45	-4,623.72	3,828.75	3,585.50	243.25	15.740	
7,900.00	6,945.71	7,110.77	7,106.71	35.29	213.07	-90.63	-2,571.45	-4,623.72	3,732.73	3,489.70	243.03	15.359	
8,000.00	6,945.38	7,110.44	7,106.38	35.99	213.06	-90.61	-2,571.45	-4,623.72	3,636.92	3,394.11	242.81	14.979	
8,100.00	6,945.06	7,110.12	7,106.06	36.74	213.05	-90.59	-2,571.45	-4,623.72	3,541.35	3,298.76	242.59	14.598	
8,200.00	6,944.74	7,109.80	7,105.74	37.56	213.04	-90.58	-2,571.45	-4,623.72	3,446.02	3,203.65	242.37	14.218	
8,300.00	6,944.41	7,109.48	7,105.41	38.43	213.03	-90.56	-2,571.45	-4,623.72	3,350.97	3,108.82	242.15	13.838	
8,400.00	6,944.09	7,109.15	7,105.09	39.35	213.02	-90.54	-2,571.45	-4,623.72	3,256.21	3,014.27	241.94	13.459	
8,500.00	6,943.77	7,108.83	7,104.77	40.31	213.01	-90.52	-2,571.45	-4,623.72	3,161.78	2,920.04	241.74	13.079	
8,600.00	6,943.45	7,108.51	7,104.45	41.32	213.00	-90.51	-2,571.45	-4,623.72	3,067.70	2,826.15	241.55	12.700	
8,700.00	6,943.12	7,108.18	7,104.12	42.37	212.99	-90.49	-2,571.45	-4,623.72	2,974.00	2,732.63	241.37	12.321	
8,800.00	6,942.80	7,107.86	7,103.80	43.45	212.98	-90.47	-2,571.45	-4,623.72	2,880.73	2,639.51	241.22	11.942	
8,900.00	6,942.48	7,107.54	7,103.48	44.57	212.97	-90.45	-2,571.45	-4,623.72	2,787.93	2,546.84	241.09	11.564	
9,000.00	6,942.15	7,107.21	7,103.15	45.71	212.96	-90.43	-2,571.45	-4,623.72	2,695.64	2,454.64	241.00	11.185	
9,100.00	6,941.83	7,106.89	7,102.83	46.89	212.95	-90.42	-2,571.45	-4,623.72	2,603.92	2,362.97	240.95	10.807	
9,200.00	6,941.51	7,106.57	7,102.51	48.09	212.94	-90.40	-2,571.45	-4,623.72	2,512.83	2,271.88	240.95	10.429	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #030B - OH - OH-TD

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,300.00	6,941.18	7,106.25	7,102.18	49.31	212.94	-90.38	-2,571.45	-4,623.72	2,422.45	2,181.42	241.02	10.051	
9,400.00	6,940.86	7,105.92	7,101.86	50.56	212.93	-90.36	-2,571.45	-4,623.72	2,332.85	2,091.67	241.17	9.673	
9,500.00	6,940.54	7,105.60	7,101.54	51.82	212.92	-90.35	-2,571.45	-4,623.72	2,244.12	2,002.70	241.42	9.295	
9,600.00	6,940.21	7,105.28	7,101.21	53.11	212.91	-90.33	-2,571.45	-4,623.72	2,156.39	1,914.61	241.79	8.919	
9,700.00	6,939.89	7,104.95	7,100.89	54.41	212.90	-90.31	-2,571.45	-4,623.72	2,069.77	1,827.48	242.29	8.543	
9,800.00	6,939.57	7,104.63	7,100.57	55.73	212.89	-90.29	-2,571.45	-4,623.72	1,984.41	1,741.45	242.96	8.168	
9,900.00	6,939.25	7,104.31	7,100.25	57.07	212.88	-90.28	-2,571.45	-4,623.72	1,900.47	1,656.66	243.81	7.795	
10,000.00	6,938.92	7,103.98	7,099.92	58.41	212.87	-90.26	-2,571.45	-4,623.72	1,818.16	1,573.27	244.89	7.424	
10,100.00	6,938.60	7,103.66	7,099.60	59.77	212.86	-90.24	-2,571.45	-4,623.72	1,737.71	1,491.49	246.22	7.058	
10,200.00	6,938.28	7,103.34	7,099.28	61.15	212.85	-90.22	-2,571.45	-4,623.72	1,659.39	1,411.57	247.82	6.696	
10,300.00	6,937.95	7,103.01	7,098.95	62.53	212.84	-90.21	-2,571.45	-4,623.72	1,583.50	1,333.78	249.72	6.341	
10,400.00	6,937.63	7,102.69	7,098.63	63.92	212.83	-90.19	-2,571.45	-4,623.72	1,510.43	1,258.48	251.95	5.995	
10,500.00	6,937.31	7,102.37	7,098.31	65.33	212.82	-90.17	-2,571.45	-4,623.72	1,440.60	1,186.07	254.53	5.660	
10,600.00	6,936.98	7,102.05	7,097.98	66.74	212.81	-90.15	-2,571.45	-4,623.72	1,374.50	1,117.04	257.46	5.339	
10,700.00	6,936.66	7,101.72	7,097.66	68.16	212.80	-90.14	-2,571.45	-4,623.72	1,312.70	1,051.97	260.73	5.035	
10,800.00	6,936.34	7,101.40	7,097.34	69.59	212.79	-90.12	-2,571.45	-4,623.72	1,255.83	991.50	264.33	4.751	
10,900.00	6,936.01	7,101.08	7,097.01	71.03	212.78	-90.10	-2,571.45	-4,623.72	1,204.58	936.38	268.20	4.491	
11,000.00	6,935.69	7,100.75	7,096.69	72.47	212.77	-90.08	-2,571.45	-4,623.72	1,159.72	887.44	272.27	4.259	
11,100.00	6,935.37	7,100.43	7,096.37	73.92	212.76	-90.07	-2,571.45	-4,623.72	1,121.99	845.55	276.44	4.059	
11,200.00	6,935.05	7,100.11	7,096.05	75.38	212.75	-90.05	-2,571.45	-4,623.72	1,092.15	811.58	280.57	3.893	
11,300.00	6,934.72	7,099.78	7,095.72	76.84	212.74	-90.03	-2,571.45	-4,623.72	1,070.84	786.35	284.49	3.764	
11,400.00	6,934.40	7,099.46	7,095.40	78.31	212.73	-90.01	-2,571.45	-4,623.72	1,058.60	770.53	288.07	3.675	
11,480.40	6,934.14	7,099.20	7,095.14	79.50	212.72	-90.00	-2,571.45	-4,623.72	1,055.54	764.95	290.59	3.632	CC
11,500.00	6,934.08	7,099.14	7,095.08	79.79	212.72	-90.00	-2,571.45	-4,623.72	1,055.72	764.57	291.15	3.626	ES
11,600.00	6,933.75	7,098.81	7,094.75	81.27	212.71	-89.98	-2,571.45	-4,623.72	1,062.29	768.67	293.63	3.618	SF
11,700.00	6,933.43	7,098.49	7,094.43	82.75	212.70	-89.96	-2,571.45	-4,623.72	1,078.14	782.69	295.45	3.649	
11,800.00	6,933.11	7,098.17	7,094.11	84.24	212.69	-89.94	-2,571.45	-4,623.72	1,102.86	806.23	296.63	3.718	
11,900.00	6,932.78	7,097.85	7,093.78	85.73	212.68	-89.93	-2,571.45	-4,623.72	1,135.88	838.67	297.21	3.822	
12,000.00	6,932.46	7,097.52	7,093.46	87.23	212.67	-89.91	-2,571.45	-4,623.72	1,176.50	879.23	297.27	3.958	
12,100.00	6,932.14	7,097.20	7,093.14	88.72	212.66	-89.89	-2,571.45	-4,623.72	1,223.96	927.05	296.91	4.122	
12,200.00	6,931.81	7,096.88	7,092.81	90.23	212.65	-89.87	-2,571.45	-4,623.72	1,277.49	981.27	296.22	4.313	
12,300.00	6,931.49	7,096.55	7,092.49	91.74	212.64	-89.86	-2,571.45	-4,623.72	1,336.38	1,041.07	295.30	4.525	
12,400.00	6,931.17	7,096.23	7,092.17	93.25	212.64	-89.84	-2,571.45	-4,623.72	1,399.94	1,105.71	294.23	4.758	
12,500.00	6,930.85	7,095.91	7,091.85	94.76	212.63	-89.82	-2,571.45	-4,623.72	1,467.56	1,174.51	293.05	5.008	
12,600.00	6,930.52	7,095.58	7,091.52	96.27	212.62	-89.80	-2,571.45	-4,623.72	1,538.72	1,246.89	291.83	5.273	
12,700.00	6,930.20	7,095.26	7,091.20	97.79	212.61	-89.79	-2,571.45	-4,623.72	1,612.94	1,322.35	290.59	5.551	
12,800.00	6,929.88	7,094.94	7,090.88	99.32	212.60	-89.77	-2,571.45	-4,623.72	1,689.82	1,400.47	289.36	5.840	
12,900.00	6,929.55	7,094.61	7,090.55	100.84	212.59	-89.75	-2,571.45	-4,623.72	1,769.01	1,480.86	288.15	6.139	
13,000.00	6,929.23	7,094.29	7,090.23	102.37	212.58	-89.73	-2,571.45	-4,623.72	1,850.22	1,563.24	286.99	6.447	
13,100.00	6,928.91	7,093.97	7,089.91	103.89	212.57	-89.72	-2,571.45	-4,623.72	1,933.20	1,647.32	285.87	6.762	
13,200.00	6,928.58	7,093.65	7,089.58	105.43	212.56	-89.70	-2,571.45	-4,623.72	2,017.71	1,732.91	284.81	7.085	
13,300.00	6,928.26	7,093.32	7,089.26	106.96	212.55	-89.68	-2,571.45	-4,623.72	2,103.59	1,819.80	283.79	7.412	
13,400.00	6,927.94	7,093.00	7,088.94	108.49	212.54	-89.66	-2,571.45	-4,623.72	2,190.66	1,907.83	282.83	7.746	
13,500.00	6,927.61	7,092.68	7,088.61	110.03	212.53	-89.65	-2,571.45	-4,623.72	2,278.80	1,996.88	281.92	8.083	
13,600.00	6,927.29	7,092.35	7,088.29	111.57	212.52	-89.63	-2,571.45	-4,623.72	2,367.87	2,086.82	281.06	8.425	
13,700.00	6,926.97	7,092.03	7,087.97	113.11	212.51	-89.61	-2,571.45	-4,623.72	2,457.79	2,177.55	280.24	8.770	
13,800.00	6,926.65	7,091.71	7,087.65	114.65	212.50	-89.59	-2,571.45	-4,623.72	2,548.46	2,268.99	279.48	9.119	
13,900.00	6,926.32	7,091.38	7,087.32	116.20	212.49	-89.58	-2,571.45	-4,623.72	2,639.81	2,361.05	278.75	9.470	
14,000.00	6,926.00	7,091.06	7,087.00	117.75	212.48	-89.56	-2,571.45	-4,623.72	2,731.76	2,453.69	278.07	9.824	
14,100.00	6,925.68	7,090.74	7,086.68	119.29	212.47	-89.54	-2,571.45	-4,623.72	2,824.25	2,546.83	277.43	10.180	
14,200.00	6,925.35	7,090.41	7,086.35	120.84	212.46	-89.52	-2,571.45	-4,623.72	2,917.25	2,640.43	276.82	10.539	
14,300.00	6,925.03	7,090.09	7,086.03	122.39	212.45	-89.51	-2,571.45	-4,623.72	3,010.69	2,734.45	276.24	10.899	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #030B - OH - OH-TD

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Rule Assigned:

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,400.00	6,924.71	7,089.77	7,085.71	123.94	212.44	-89.49	-2,571.45	-4,623.72	3,104.54	2,828.84	275.70	11.261	
14,500.00	6,924.38	7,089.45	7,085.38	125.50	212.43	-89.47	-2,571.45	-4,623.72	3,198.76	2,923.58	275.18	11.624	
14,600.00	6,924.06	7,089.12	7,085.06	127.05	212.42	-89.45	-2,571.45	-4,623.72	3,293.32	3,018.63	274.70	11.989	
14,700.00	6,923.74	7,088.80	7,084.74	128.61	212.41	-89.44	-2,571.45	-4,623.72	3,388.20	3,113.96	274.24	12.355	
14,800.00	6,923.42	7,088.48	7,084.42	130.16	212.40	-89.42	-2,571.45	-4,623.72	3,483.36	3,209.56	273.80	12.722	
14,900.00	6,923.09	7,088.15	7,084.09	131.72	212.39	-89.40	-2,571.45	-4,623.72	3,578.79	3,305.40	273.39	13.091	
15,000.00	6,922.77	7,087.83	7,083.77	133.28	212.38	-89.38	-2,571.45	-4,623.72	3,674.46	3,401.46	272.99	13.460	
15,100.00	6,922.45	7,087.51	7,083.45	134.84	212.37	-89.37	-2,571.45	-4,623.72	3,770.35	3,497.73	272.62	13.830	
15,200.00	6,922.12	7,087.18	7,083.12	136.40	212.36	-89.35	-2,571.45	-4,623.72	3,866.45	3,594.19	272.27	14.201	
15,300.00	6,921.80	7,086.86	7,082.80	137.96	212.35	-89.33	-2,571.45	-4,623.72	3,962.75	3,690.82	271.93	14.573	
15,400.00	6,921.48	7,086.54	7,082.48	139.53	212.34	-89.31	-2,571.45	-4,623.72	4,059.22	3,787.61	271.61	14.945	
15,500.00	6,921.15	7,086.21	7,082.15	141.09	212.34	-89.30	-2,571.45	-4,623.72	4,155.86	3,884.55	271.31	15.318	
15,600.00	6,920.83	7,085.89	7,081.83	142.65	212.33	-89.28	-2,571.45	-4,623.72	4,252.66	3,981.64	271.02	15.691	
15,700.00	6,920.51	7,085.57	7,081.51	144.22	212.32	-89.26	-2,571.45	-4,623.72	4,349.60	4,078.85	270.75	16.065	
15,800.00	6,920.18	7,085.25	7,081.18	145.79	212.31	-89.24	-2,571.45	-4,623.72	4,446.68	4,176.19	270.48	16.440	
15,900.00	6,919.86	7,084.92	7,080.86	147.35	212.30	-89.23	-2,571.45	-4,623.72	4,543.88	4,273.64	270.24	16.815	
16,000.00	6,919.54	7,084.60	7,080.54	148.92	212.29	-89.21	-2,571.45	-4,623.72	4,641.20	4,371.20	270.00	17.190	
16,100.00	6,919.22	7,084.28	7,080.22	150.49	212.28	-89.19	-2,571.45	-4,623.72	4,738.64	4,468.86	269.77	17.565	
16,200.00	6,918.89	7,083.95	7,079.89	152.06	212.27	-89.17	-2,571.45	-4,623.72	4,836.17	4,566.62	269.56	17.941	
16,300.00	6,918.57	7,083.63	7,079.57	153.63	212.26	-89.15	-2,571.45	-4,623.72	4,933.81	4,664.46	269.35	18.317	
16,400.00	6,918.25	7,083.31	7,079.25	155.20	212.25	-89.14	-2,571.45	-4,623.72	5,031.54	4,762.39	269.15	18.694	
16,500.00	6,917.92	7,082.98	7,078.92	156.77	212.24	-89.12	-2,571.45	-4,623.72	5,129.36	4,860.39	268.97	19.071	
16,600.00	6,917.60	7,082.66	7,078.60	158.34	212.23	-89.10	-2,571.45	-4,623.72	5,227.26	4,958.47	268.79	19.448	
16,700.00	6,917.28	7,082.34	7,078.28	159.92	212.22	-89.08	-2,571.45	-4,623.72	5,325.24	5,056.62	268.62	19.825	
16,800.00	6,916.95	7,082.01	7,077.95	161.49	212.21	-89.07	-2,571.45	-4,623.72	5,423.29	5,154.83	268.45	20.202	
16,900.00	6,916.63	7,081.69	7,077.63	163.06	212.20	-89.05	-2,571.45	-4,623.72	5,521.41	5,253.11	268.30	20.579	
17,000.00	6,916.31	7,081.37	7,077.31	164.64	212.19	-89.03	-2,571.45	-4,623.72	5,619.60	5,351.44	268.15	20.957	
17,100.00	6,915.98	7,081.05	7,076.98	166.21	212.18	-89.01	-2,571.45	-4,623.72	5,717.85	5,449.84	268.01	21.334	
17,200.00	6,915.66	7,080.72	7,076.66	167.79	212.17	-89.00	-2,571.45	-4,623.72	5,816.16	5,548.28	267.87	21.712	
17,300.00	6,915.34	7,080.40	7,076.34	169.37	212.16	-88.98	-2,571.45	-4,623.72	5,914.52	5,646.78	267.75	22.090	
17,400.00	6,915.02	7,080.08	7,076.02	170.94	212.15	-88.96	-2,571.45	-4,623.72	6,012.94	5,745.32	267.62	22.468	
17,500.00	6,914.69	7,079.75	7,075.69	172.52	212.14	-88.94	-2,571.45	-4,623.72	6,111.42	5,843.91	267.51	22.846	
17,600.00	6,914.37	7,079.43	7,075.37	174.10	212.13	-88.93	-2,571.45	-4,623.72	6,209.94	5,942.54	267.39	23.224	
17,700.00	6,914.05	7,079.11	7,075.05	175.68	212.12	-88.91	-2,571.45	-4,623.72	6,308.50	6,041.22	267.29	23.602	
17,800.00	6,913.72	7,078.78	7,074.72	177.25	212.11	-88.89	-2,571.45	-4,623.72	6,407.12	6,139.93	267.18	23.980	
17,900.00	6,913.40	7,078.46	7,074.40	178.83	212.10	-88.87	-2,571.45	-4,623.72	6,505.77	6,238.68	267.09	24.358	
18,000.00	6,913.08	7,078.14	7,074.08	180.41	212.09	-88.86	-2,571.45	-4,623.72	6,604.46	6,337.47	267.00	24.736	
18,023.75	6,913.00	7,078.06	7,074.00	180.79	212.09	-88.85	-2,571.45	-4,623.72	6,627.91	6,360.94	266.97	24.826	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #030C - OH - OH-TD — **Offset Site Error:** 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY — **Rule Assigned:** — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	178.00	178.00	0.00	5.33	-129.97	-2,516.19	-3,001.86	3,916.94				
100.00	100.00	278.00	278.00	0.25	8.33	-129.97	-2,516.19	-3,001.86	3,916.94	3,908.35	8.58	456.458	
200.00	200.00	378.00	378.00	0.61	11.33	-129.97	-2,516.19	-3,001.86	3,916.94	3,905.00	11.94	328.160	
300.00	300.00	478.00	478.00	0.97	14.32	-129.97	-2,516.19	-3,001.86	3,916.94	3,901.64	15.29	256.161	
400.00	400.00	578.10	578.00	1.33	17.32	-129.97	-2,516.19	-3,001.86	3,916.94	3,898.29	18.65	210.036	
500.00	500.00	678.10	678.00	1.68	20.32	-129.97	-2,516.19	-3,001.86	3,916.94	3,894.93	22.00	178.012	
600.00	599.98	773.88	773.73	2.03	23.19	50.13	-2,514.03	-3,001.86	3,914.43	3,889.22	25.22	155.241	
700.00	699.84	858.92	858.76	2.36	25.74	50.23	-2,514.43	-3,001.86	3,911.38	3,883.28	28.10	139.213	
800.00	799.45	943.87	943.68	2.71	28.28	50.38	-2,515.32	-3,001.86	3,906.47	3,875.49	30.98	126.079	
900.00	898.70	1,077.11	1,076.70	3.06	32.28	50.66	-2,516.19	-3,001.86	3,899.10	3,863.77	35.33	110.357	
1,000.00	997.47	1,175.87	1,175.47	3.43	35.23	51.00	-2,516.19	-3,001.86	3,889.15	3,850.49	38.66	100.611	
1,100.00	1,095.62	1,270.50	1,270.06	3.82	38.07	51.42	-2,514.03	-3,001.86	3,875.69	3,833.82	41.87	92.571	
1,207.83	1,200.65	1,360.40	1,359.93	4.26	40.76	51.89	-2,514.44	-3,001.86	3,860.62	3,815.64	44.98	85.825	
1,300.00	1,290.02	1,437.13	1,436.65	4.65	43.06	52.10	-2,515.23	-3,001.86	3,847.08	3,799.43	47.65	80.733	
1,400.00	1,386.98	1,565.69	1,564.98	5.09	46.92	52.47	-2,516.19	-3,001.86	3,832.31	3,780.40	51.91	73.820	
1,500.00	1,483.95	1,662.66	1,661.95	5.53	49.82	52.75	-2,516.19	-3,001.86	3,817.17	3,761.94	55.24	69.107	
1,600.00	1,580.91	1,758.26	1,757.51	5.99	52.69	53.06	-2,514.01	-3,001.86	3,800.79	3,742.27	58.52	64.946	
1,700.00	1,677.87	1,841.83	1,841.06	6.44	55.19	53.31	-2,514.31	-3,001.86	3,786.07	3,724.61	61.45	61.609	
1,800.00	1,774.84	1,925.67	1,924.88	6.90	57.70	53.55	-2,515.09	-3,001.86	3,771.78	3,707.38	64.40	58.571	
1,900.00	1,871.80	2,050.81	2,049.80	7.36	61.45	53.92	-2,516.19	-3,001.86	3,757.60	3,689.02	68.58	54.791	
2,000.00	1,968.76	2,147.78	2,146.76	7.83	64.36	54.21	-2,516.19	-3,001.86	3,742.95	3,671.03	71.92	52.041	
2,100.00	2,065.73	2,244.74	2,243.73	8.30	67.26	54.51	-2,516.19	-3,001.86	3,728.41	3,653.14	75.27	49.535	
2,200.00	2,162.69	2,329.59	2,328.52	8.77	69.81	54.80	-2,514.23	-3,001.86	3,712.84	3,634.59	78.26	47.445	
2,300.00	2,259.65	2,414.03	2,412.94	9.24	72.34	55.05	-2,514.95	-3,001.86	3,699.00	3,617.77	81.23	45.536	
2,400.00	2,356.61	2,535.93	2,534.61	9.71	75.99	55.42	-2,516.19	-3,001.86	3,685.42	3,600.09	85.33	43.190	
2,500.00	2,453.58	2,632.90	2,631.58	10.18	78.89	55.73	-2,516.19	-3,001.86	3,671.31	3,582.62	88.68	41.397	
2,600.00	2,550.54	2,729.86	2,728.54	10.66	81.80	56.04	-2,516.19	-3,001.86	3,657.30	3,565.26	92.04	39.736	
2,700.00	2,647.50	2,817.17	2,815.80	11.13	84.42	56.35	-2,514.17	-3,001.86	3,642.27	3,547.16	95.11	38.294	
2,800.00	2,744.47	2,902.22	2,900.83	11.61	86.96	56.61	-2,514.82	-3,001.86	3,628.91	3,530.79	98.12	36.986	
2,900.00	2,841.43	3,021.05	3,019.43	12.08	90.52	56.98	-2,516.19	-3,001.86	3,615.94	3,513.81	102.13	35.405	
3,000.00	2,938.39	3,118.02	3,116.39	12.56	93.43	57.30	-2,516.19	-3,001.86	3,602.39	3,496.89	105.49	34.148	
3,100.00	3,035.36	3,214.98	3,213.36	13.04	96.34	57.63	-2,516.19	-3,001.86	3,588.94	3,480.09	108.86	32.969	
3,200.00	3,132.32	3,304.56	3,302.89	13.51	99.02	57.95	-2,514.11	-3,001.86	3,574.50	3,462.49	112.00	31.914	
3,300.00	3,229.28	3,390.23	3,388.54	13.99	101.59	58.23	-2,514.70	-3,001.86	3,561.66	3,446.62	115.03	30.962	
3,400.00	3,326.25	3,506.17	3,504.25	14.47	105.06	58.60	-2,516.19	-3,001.86	3,549.32	3,430.35	118.97	29.834	
3,500.00	3,423.21	3,603.14	3,601.21	14.95	107.97	58.93	-2,516.19	-3,001.86	3,536.35	3,414.01	122.34	28.907	
3,600.00	3,520.17	3,700.10	3,698.17	15.43	110.87	59.27	-2,516.19	-3,001.86	3,523.51	3,397.80	125.71	28.029	
3,700.00	3,617.13	3,791.77	3,789.79	15.91	113.62	59.61	-2,514.07	-3,001.86	3,509.69	3,380.77	128.92	27.223	
3,800.00	3,714.10	3,878.06	3,876.07	16.39	116.20	59.91	-2,514.58	-3,001.86	3,497.40	3,365.42	131.98	26.499	
3,900.00	3,811.06	3,964.64	3,962.63	16.87	118.80	60.20	-2,515.62	-3,001.86	3,485.53	3,350.48	135.04	25.810	
4,000.00	3,908.02	4,088.26	4,086.02	17.35	122.50	60.62	-2,516.19	-3,001.86	3,473.37	3,334.16	139.21	24.950	
4,100.00	4,004.99	4,185.22	4,182.99	17.83	125.41	60.97	-2,516.19	-3,001.86	3,461.16	3,318.56	142.59	24.273	
4,200.00	4,101.95	4,278.77	4,276.50	18.31	128.21	61.33	-2,514.04	-3,001.86	3,448.01	3,302.14	145.87	23.638	
4,300.00	4,198.91	4,365.71	4,363.41	18.79	130.82	61.64	-2,514.48	-3,001.86	3,436.31	3,287.36	148.95	23.070	
4,400.00	4,295.88	4,452.93	4,450.61	19.27	133.43	61.94	-2,515.45	-3,001.86	3,425.02	3,272.98	152.04	22.527	
4,500.00	4,392.84	4,573.38	4,570.84	19.75	137.04	62.37	-2,516.19	-3,001.86	3,413.61	3,257.49	156.12	21.865	
4,600.00	4,489.80	4,670.34	4,667.80	20.23	139.94	62.73	-2,516.19	-3,001.86	3,402.06	3,242.56	159.50	21.329	
4,700.00	4,586.76	4,765.58	4,763.00	20.71	142.80	63.11	-2,514.02	-3,001.86	3,389.64	3,226.80	162.84	20.816	
4,800.00	4,683.73	4,853.16	4,850.57	21.20	145.42	63.43	-2,514.38	-3,001.86	3,378.56	3,212.62	165.94	20.360	
4,900.00	4,780.69	4,941.04	4,938.42	21.68	148.06	63.74	-2,515.29	-3,001.86	3,367.89	3,198.83	169.06	19.922	
5,000.00	4,877.65	5,058.50	5,055.65	22.16	151.58	64.17	-2,516.19	-3,001.86	3,357.24	3,184.19	173.05	19.400	
5,100.00	4,974.62	5,155.46	5,152.62	22.64	154.48	64.54	-2,516.19	-3,001.86	3,346.39	3,169.95	176.44	18.966	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #030C - OH - OH-TD

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Rule Assigned: Warning
5,200.00	5,071.58	5,252.19	5,249.31	23.12	157.38	64.94	-2,514.01	-3,001.86	3,334.73	3,154.91	179.82	18.545	
5,300.00	5,168.54	5,340.42	5,337.52	23.60	160.02	65.28	-2,514.30	-3,001.86	3,324.32	3,141.36	182.95	18.170	
5,400.00	5,265.51	5,428.96	5,426.04	24.09	162.68	65.61	-2,515.13	-3,001.86	3,314.30	3,128.21	186.09	17.810	
5,500.00	5,362.47	5,543.62	5,540.47	24.57	166.11	66.03	-2,516.19	-3,001.86	3,304.44	3,114.43	190.01	17.391	
5,600.00	5,459.43	5,637.19	5,634.02	25.05	168.92	66.41	-2,515.17	-3,001.86	3,293.90	3,100.60	193.30	17.040	
5,700.00	5,556.40	5,718.55	5,715.36	25.53	171.35	66.72	-2,515.85	-3,001.86	3,284.27	3,088.04	196.23	16.737	
5,800.00	5,653.36	5,834.65	5,831.36	26.01	174.83	67.18	-2,516.19	-3,001.86	3,274.54	3,074.35	200.19	16.357	
5,900.00	5,750.32	5,922.59	5,919.27	26.50	177.47	67.54	-2,515.24	-3,001.86	3,264.52	3,061.20	203.32	16.056	
6,000.00	5,847.28	6,028.74	6,025.28	26.98	180.65	67.95	-2,516.19	-3,001.86	3,255.37	3,048.39	206.99	15.728	
6,100.00	5,944.25	6,125.70	6,122.25	27.46	183.55	68.34	-2,516.19	-3,001.86	3,246.02	3,035.64	210.38	15.429	
6,200.00	6,041.21	6,222.66	6,219.21	27.94	186.46	68.73	-2,516.19	-3,001.86	3,236.83	3,023.05	213.78	15.141	
6,300.00	6,138.17	6,317.00	6,313.36	28.43	189.29	69.11	-2,516.19	-3,001.86	3,227.80	3,010.70	217.10	14.868	
6,400.00	6,235.14	6,317.00	6,313.36	28.91	189.29	69.11	-2,516.19	-3,001.86	3,220.48	3,002.94	217.53	14.805	
6,496.84	6,329.04	6,317.00	6,313.36	29.38	189.29	69.11	-2,516.19	-3,001.86	3,216.33	2,998.56	217.76	14.770	
6,500.00	6,332.10	6,317.00	6,313.36	29.39	189.29	67.98	-2,516.19	-3,001.86	3,216.24	2,998.47	217.77	14.769	
6,550.00	6,380.52	6,317.00	6,313.36	29.63	189.29	50.69	-2,516.19	-3,001.86	3,213.22	2,995.41	217.81	14.752	
6,600.00	6,428.63	6,317.00	6,313.36	29.87	189.29	36.14	-2,516.19	-3,001.86	3,207.34	2,989.55	217.79	14.727	
6,650.00	6,476.14	6,317.00	6,313.36	30.10	189.29	25.03	-2,516.19	-3,001.86	3,198.60	2,980.89	217.71	14.692	
6,700.00	6,522.73	6,317.00	6,313.36	30.33	189.29	16.77	-2,516.19	-3,001.86	3,187.04	2,969.48	217.56	14.649	
6,750.00	6,568.14	6,317.00	6,313.36	30.54	189.29	10.51	-2,516.19	-3,001.86	3,172.70	2,955.34	217.36	14.597	
6,800.00	6,612.08	6,317.00	6,313.36	30.75	189.29	5.60	-2,516.19	-3,001.86	3,155.63	2,938.53	217.10	14.536	
6,850.00	6,654.28	6,317.00	6,313.36	30.95	189.29	1.57	-2,516.19	-3,001.86	3,135.89	2,919.11	216.78	14.466	
6,900.00	6,694.47	6,317.00	6,313.36	31.15	189.29	-1.87	-2,516.19	-3,001.86	3,113.56	2,897.14	216.41	14.387	
6,950.00	6,732.42	6,317.00	6,313.36	31.33	189.29	-4.96	-2,516.19	-3,001.86	3,088.71	2,872.71	216.00	14.300	
7,000.00	6,767.89	6,317.00	6,313.36	31.51	189.29	-7.85	-2,516.19	-3,001.86	3,061.44	2,845.90	215.54	14.203	
7,050.00	6,800.65	6,317.00	6,313.36	31.68	189.29	-10.68	-2,516.19	-3,001.86	3,031.86	2,816.81	215.05	14.098	
7,100.00	6,830.51	6,317.00	6,313.36	31.85	189.29	-13.55	-2,516.19	-3,001.86	3,000.08	2,785.55	214.53	13.984	
7,150.00	6,857.28	6,317.00	6,313.36	32.01	189.29	-16.57	-2,516.19	-3,001.86	2,966.24	2,752.25	213.99	13.862	
7,200.00	6,880.80	6,317.00	6,313.36	32.17	189.29	-19.83	-2,516.19	-3,001.86	2,930.47	2,717.04	213.43	13.730	
7,250.00	6,900.92	6,317.00	6,313.36	32.33	189.29	-23.46	-2,516.19	-3,001.86	2,892.92	2,680.05	212.87	13.590	
7,300.00	6,917.52	6,317.00	6,313.36	32.49	189.29	-27.55	-2,516.19	-3,001.86	2,853.77	2,641.46	212.31	13.442	
7,350.00	6,930.50	6,317.00	6,313.36	32.66	189.29	-32.25	-2,516.19	-3,001.86	2,813.18	2,601.42	211.76	13.285	
7,400.00	6,939.77	6,317.00	6,313.36	32.83	189.29	-37.67	-2,516.19	-3,001.86	2,771.36	2,560.12	211.24	13.119	
7,450.00	6,945.28	6,317.00	6,313.36	33.01	189.29	-43.92	-2,516.19	-3,001.86	2,728.51	2,517.76	210.75	12.946	
7,499.66	6,947.00	6,317.00	6,313.36	33.19	189.29	-51.00	-2,516.19	-3,001.86	2,685.15	2,474.84	210.31	12.767	
7,600.00	6,946.68	6,317.00	6,313.36	33.61	189.29	-51.00	-2,516.19	-3,001.86	2,597.34	2,387.90	209.45	12.401	
7,700.00	6,946.35	6,317.00	6,313.36	34.10	189.29	-51.00	-2,516.19	-3,001.86	2,510.76	2,302.22	208.54	12.040	
7,800.00	6,946.03	6,317.00	6,313.36	34.66	189.29	-51.00	-2,516.19	-3,001.86	2,425.21	2,217.63	207.58	11.683	
7,900.00	6,945.71	6,317.00	6,313.36	35.29	189.29	-51.00	-2,516.19	-3,001.86	2,340.80	2,134.23	206.57	11.332	
8,000.00	6,945.38	6,317.00	6,313.36	35.99	189.29	-51.00	-2,516.19	-3,001.86	2,257.67	2,052.16	205.51	10.985	
8,100.00	6,945.06	6,317.00	6,313.36	36.74	189.29	-51.00	-2,516.19	-3,001.86	2,175.96	1,971.54	204.42	10.645	
8,200.00	6,944.74	6,317.00	6,313.36	37.56	189.29	-51.00	-2,516.19	-3,001.86	2,095.83	1,892.56	203.28	10.310	
8,300.00	6,944.41	6,317.00	6,313.36	38.43	189.29	-51.00	-2,516.19	-3,001.86	2,017.48	1,815.38	202.11	9.982	
8,400.00	6,944.09	6,317.00	6,313.36	39.35	189.29	-51.00	-2,516.19	-3,001.86	1,941.12	1,740.21	200.91	9.662	
8,500.00	6,943.77	6,317.00	6,313.36	40.31	189.29	-51.00	-2,516.19	-3,001.86	1,867.00	1,667.29	199.71	9.349	
8,600.00	6,943.45	6,317.00	6,313.36	41.32	189.29	-51.00	-2,516.19	-3,001.86	1,795.38	1,596.88	198.51	9.045	
8,700.00	6,943.12	6,317.00	6,313.36	42.37	189.29	-51.00	-2,516.19	-3,001.86	1,726.59	1,529.26	197.33	8.750	
8,800.00	6,942.80	6,317.00	6,313.36	43.45	189.29	-51.00	-2,516.19	-3,001.86	1,660.98	1,464.78	196.20	8.466	
8,900.00	6,942.48	6,317.00	6,313.36	44.57	189.29	-51.00	-2,516.19	-3,001.86	1,598.93	1,403.78	195.15	8.193	
9,000.00	6,942.15	6,317.00	6,313.36	45.71	189.29	-51.00	-2,516.19	-3,001.86	1,540.87	1,346.67	194.20	7.934	
9,100.00	6,941.83	6,317.00	6,313.36	46.89	189.29	-51.00	-2,516.19	-3,001.86	1,487.28	1,293.88	193.40	7.690	
9,200.00	6,941.51	6,317.00	6,313.36	48.09	189.29	-51.00	-2,516.19	-3,001.86	1,438.66	1,245.86	192.79	7.462	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #030C - OH - OH-TD

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Rule Assigned: Warning
9,300.00	6,941.18	6,317.00	6,313.36	49.31	189.29	-51.00	-2,516.19	-3,001.86	1,395.51	1,203.09	192.42	7.252	
9,400.00	6,940.86	6,317.00	6,313.36	50.56	189.29	-51.00	-2,516.19	-3,001.86	1,358.37	1,166.03	192.34	7.062	
9,500.00	6,940.54	6,317.00	6,313.36	51.82	189.29	-51.00	-2,516.19	-3,001.86	1,327.74	1,135.13	192.62	6.893	
9,600.00	6,940.21	6,317.00	6,313.36	53.11	189.29	-51.00	-2,516.19	-3,001.86	1,304.08	1,110.78	193.29	6.747	
9,700.00	6,939.89	6,317.00	6,313.36	54.41	189.29	-51.00	-2,516.19	-3,001.86	1,287.77	1,093.35	194.42	6.624	
9,800.00	6,939.57	6,317.00	6,313.36	55.73	189.29	-51.00	-2,516.19	-3,001.86	1,279.09	1,083.09	196.00	6.526	
9,861.39	6,939.37	6,317.00	6,313.36	56.55	189.29	-51.00	-2,516.19	-3,001.86	1,277.61	1,080.41	197.20	6.479 CC	
9,900.00	6,939.25	6,317.00	6,313.36	57.07	189.29	-51.00	-2,516.19	-3,001.86	1,278.20	1,080.16	198.03	6.454 ES	
10,000.00	6,938.92	6,317.00	6,313.36	58.41	189.29	-51.00	-2,516.19	-3,001.86	1,285.11	1,084.65	200.46	6.411	
10,100.00	6,938.60	6,317.00	6,313.36	59.77	189.29	-51.00	-2,516.19	-3,001.86	1,299.70	1,096.50	203.20	6.396 SF	
10,200.00	6,938.28	6,317.00	6,313.36	61.15	189.29	-51.00	-2,516.19	-3,001.86	1,321.72	1,115.58	206.14	6.412	
10,300.00	6,937.95	6,317.00	6,313.36	62.53	189.29	-51.00	-2,516.19	-3,001.86	1,350.80	1,141.63	209.18	6.458	
10,400.00	6,937.63	6,317.00	6,313.36	63.92	189.29	-51.00	-2,516.19	-3,001.86	1,386.50	1,174.31	212.20	6.534	
10,500.00	6,937.31	6,317.00	6,313.36	65.33	189.29	-51.00	-2,516.19	-3,001.86	1,428.33	1,213.21	215.11	6.640	
10,600.00	6,936.98	6,317.00	6,313.36	66.74	189.29	-51.00	-2,516.19	-3,001.86	1,475.75	1,257.89	217.86	6.774	
10,700.00	6,936.66	6,317.00	6,313.36	68.16	189.29	-51.00	-2,516.19	-3,001.86	1,528.25	1,307.86	220.39	6.934	
10,800.00	6,936.34	6,317.00	6,313.36	69.59	189.29	-51.00	-2,516.19	-3,001.86	1,585.33	1,362.64	222.70	7.119	
10,900.00	6,936.01	6,317.00	6,313.36	71.03	189.29	-51.00	-2,516.19	-3,001.86	1,646.51	1,421.75	224.76	7.326	
11,000.00	6,935.69	6,317.00	6,313.36	72.47	189.29	-51.00	-2,516.19	-3,001.86	1,711.35	1,484.76	226.59	7.553	
11,100.00	6,935.37	6,317.00	6,313.36	73.92	189.29	-51.00	-2,516.19	-3,001.86	1,779.45	1,551.25	228.20	7.798	
11,200.00	6,935.05	6,317.00	6,313.36	75.38	189.29	-51.00	-2,516.19	-3,001.86	1,850.45	1,620.84	229.61	8.059	
11,300.00	6,934.72	6,317.00	6,313.36	76.84	189.29	-51.00	-2,516.19	-3,001.86	1,924.03	1,693.19	230.84	8.335	
11,400.00	6,934.40	6,317.00	6,313.36	78.31	189.29	-51.00	-2,516.19	-3,001.86	1,999.90	1,768.00	231.90	8.624	
11,500.00	6,934.08	6,317.00	6,313.36	79.79	189.29	-51.00	-2,516.19	-3,001.86	2,077.82	1,844.99	232.83	8.924	
11,600.00	6,933.75	6,317.00	6,313.36	81.27	189.29	-51.00	-2,516.19	-3,001.86	2,157.56	1,923.93	233.62	9.235	
11,700.00	6,933.43	6,317.00	6,313.36	82.75	189.29	-51.00	-2,516.19	-3,001.86	2,238.92	2,004.61	234.31	9.555	
11,800.00	6,933.11	6,317.00	6,313.36	84.24	189.29	-51.00	-2,516.19	-3,001.86	2,321.74	2,086.84	234.90	9.884	
11,900.00	6,932.78	6,317.00	6,313.36	85.73	189.29	-51.00	-2,516.19	-3,001.86	2,405.87	2,170.46	235.41	10.220	
12,000.00	6,932.46	6,317.00	6,313.36	87.23	189.29	-51.00	-2,516.19	-3,001.86	2,491.17	2,255.32	235.85	10.563	
12,100.00	6,932.14	6,317.00	6,313.36	88.72	189.29	-51.00	-2,516.19	-3,001.86	2,577.53	2,341.30	236.23	10.911	
12,200.00	6,931.81	6,317.00	6,313.36	90.23	189.29	-51.00	-2,516.19	-3,001.86	2,664.84	2,428.29	236.55	11.265	
12,300.00	6,931.49	6,317.00	6,313.36	91.74	189.29	-51.00	-2,516.19	-3,001.86	2,753.02	2,516.19	236.83	11.624	
12,400.00	6,931.17	6,317.00	6,313.36	93.25	189.29	-51.00	-2,516.19	-3,001.86	2,841.97	2,604.91	237.07	11.988	
12,500.00	6,930.85	6,317.00	6,313.36	94.76	189.29	-51.00	-2,516.19	-3,001.86	2,931.65	2,694.37	237.27	12.355	
12,600.00	6,930.52	6,317.00	6,313.36	96.27	189.29	-51.00	-2,516.19	-3,001.86	3,021.96	2,784.51	237.45	12.727	
12,700.00	6,930.20	6,317.00	6,313.36	97.79	189.29	-51.00	-2,516.19	-3,001.86	3,112.87	2,875.27	237.60	13.101	
12,800.00	6,929.88	6,317.00	6,313.36	99.32	189.29	-51.00	-2,516.19	-3,001.86	3,204.33	2,966.60	237.73	13.479	
12,900.00	6,929.55	6,317.00	6,313.36	100.84	189.29	-51.00	-2,516.19	-3,001.86	3,296.27	3,058.43	237.84	13.859	
13,000.00	6,929.23	6,317.00	6,313.36	102.37	189.29	-51.00	-2,516.19	-3,001.86	3,388.68	3,150.75	237.93	14.242	
13,100.00	6,928.91	6,317.00	6,313.36	103.89	189.29	-51.00	-2,516.19	-3,001.86	3,481.50	3,243.49	238.01	14.627	
13,200.00	6,928.58	6,317.00	6,313.36	105.43	189.29	-51.00	-2,516.19	-3,001.86	3,574.72	3,336.63	238.08	15.015	
13,300.00	6,928.26	6,317.00	6,313.36	106.96	189.29	-51.00	-2,516.19	-3,001.86	3,668.28	3,430.15	238.14	15.404	
13,400.00	6,927.94	6,317.00	6,313.36	108.49	189.29	-51.00	-2,516.19	-3,001.86	3,762.19	3,524.00	238.19	15.795	
13,500.00	6,927.61	6,317.00	6,313.36	110.03	189.29	-51.00	-2,516.19	-3,001.86	3,856.39	3,618.16	238.23	16.188	
13,600.00	6,927.29	6,317.00	6,313.36	111.57	189.29	-51.00	-2,516.19	-3,001.86	3,950.88	3,712.62	238.26	16.582	
13,700.00	6,926.97	6,317.00	6,313.36	113.11	189.29	-51.00	-2,516.19	-3,001.86	4,045.64	3,807.35	238.29	16.978	
13,800.00	6,926.65	6,317.00	6,313.36	114.65	189.29	-51.00	-2,516.19	-3,001.86	4,140.64	3,902.33	238.31	17.375	
13,900.00	6,926.32	6,317.00	6,313.36	116.20	189.29	-51.00	-2,516.19	-3,001.86	4,235.88	3,997.54	238.33	17.773	
14,000.00	6,926.00	6,317.00	6,313.36	117.75	189.29	-51.00	-2,516.19	-3,001.86	4,331.32	4,092.98	238.35	18.172	
14,100.00	6,925.68	6,317.00	6,313.36	119.29	189.29	-51.00	-2,516.19	-3,001.86	4,426.97	4,188.61	238.36	18.573	
14,200.00	6,925.35	6,317.00	6,313.36	120.84	189.29	-51.00	-2,516.19	-3,001.86	4,522.81	4,284.44	238.37	18.974	
14,300.00	6,925.03	6,317.00	6,313.36	122.39	189.29	-51.00	-2,516.19	-3,001.86	4,618.82	4,380.44	238.38	19.376	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #030C - OH - OH-TD

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Rule Assigned:

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,400.00	6,924.71	6,317.00	6,313.36	123.94	189.29	-51.00	-2,516.19	-3,001.86	4,715.00	4,476.62	238.39	19.779	
14,500.00	6,924.38	6,317.00	6,313.36	125.50	189.29	-51.00	-2,516.19	-3,001.86	4,811.34	4,572.95	238.39	20.182	
14,600.00	6,924.06	6,317.00	6,313.36	127.05	189.29	-51.00	-2,516.19	-3,001.86	4,907.82	4,669.42	238.40	20.587	
14,700.00	6,923.74	6,317.00	6,313.36	128.61	189.29	-51.00	-2,516.19	-3,001.86	5,004.44	4,766.04	238.40	20.992	
14,800.00	6,923.42	6,317.00	6,313.36	130.16	189.29	-51.00	-2,516.19	-3,001.86	5,101.19	4,862.79	238.40	21.397	
14,900.00	6,923.09	6,317.00	6,313.36	131.72	189.29	-51.00	-2,516.19	-3,001.86	5,198.06	4,959.66	238.41	21.803	
15,000.00	6,922.77	6,317.00	6,313.36	133.28	189.29	-51.00	-2,516.19	-3,001.86	5,295.05	5,056.64	238.41	22.210	
15,100.00	6,922.45	6,317.00	6,313.36	134.84	189.29	-51.00	-2,516.19	-3,001.86	5,392.15	5,153.74	238.41	22.617	
15,200.00	6,922.12	6,317.00	6,313.36	136.40	189.29	-51.00	-2,516.19	-3,001.86	5,489.36	5,250.94	238.41	23.024	
15,300.00	6,921.80	6,317.00	6,313.36	137.96	189.29	-51.00	-2,516.19	-3,001.86	5,586.66	5,348.24	238.42	23.432	
15,400.00	6,921.48	6,317.00	6,313.36	139.53	189.29	-51.00	-2,516.19	-3,001.86	5,684.05	5,445.63	238.42	23.840	
15,500.00	6,921.15	6,317.00	6,313.36	141.09	189.29	-51.00	-2,516.19	-3,001.86	5,781.54	5,543.11	238.42	24.249	
15,600.00	6,920.83	6,317.00	6,313.36	142.65	189.29	-51.00	-2,516.19	-3,001.86	5,879.11	5,640.68	238.43	24.658	
15,700.00	6,920.51	6,317.00	6,313.36	144.22	189.29	-51.00	-2,516.19	-3,001.86	5,976.76	5,738.32	238.43	25.067	
15,800.00	6,920.18	6,317.00	6,313.36	145.79	189.29	-51.00	-2,516.19	-3,001.86	6,074.48	5,836.05	238.44	25.476	
15,900.00	6,919.86	6,317.00	6,313.36	147.35	189.29	-51.00	-2,516.19	-3,001.86	6,172.28	5,933.84	238.44	25.886	
16,000.00	6,919.54	6,317.00	6,313.36	148.92	189.29	-51.00	-2,516.19	-3,001.86	6,270.15	6,031.70	238.45	26.295	
16,100.00	6,919.22	6,317.00	6,313.36	150.49	189.29	-51.00	-2,516.19	-3,001.86	6,368.09	6,129.63	238.46	26.705	
16,200.00	6,918.89	6,317.00	6,313.36	152.06	189.29	-51.00	-2,516.19	-3,001.86	6,466.08	6,227.62	238.47	27.115	
16,300.00	6,918.57	6,317.00	6,313.36	153.63	189.29	-51.00	-2,516.19	-3,001.86	6,564.14	6,325.67	238.47	27.526	
16,400.00	6,918.25	6,317.00	6,313.36	155.20	189.29	-51.00	-2,516.19	-3,001.86	6,662.26	6,423.77	238.48	27.936	
16,500.00	6,917.92	6,317.00	6,313.36	156.77	189.29	-51.00	-2,516.19	-3,001.86	6,760.43	6,521.93	238.49	28.346	
16,600.00	6,917.60	6,317.00	6,313.36	158.34	189.29	-51.00	-2,516.19	-3,001.86	6,858.65	6,620.15	238.51	28.757	
16,700.00	6,917.28	6,317.00	6,313.36	159.92	189.29	-51.00	-2,516.19	-3,001.86	6,956.93	6,718.41	238.52	29.167	
16,800.00	6,916.95	6,317.00	6,313.36	161.49	189.29	-51.00	-2,516.19	-3,001.86	7,055.25	6,816.72	238.53	29.578	
16,900.00	6,916.63	6,317.00	6,313.36	163.06	189.29	-51.00	-2,516.19	-3,001.86	7,153.62	6,915.08	238.54	29.989	
17,000.00	6,916.31	6,317.00	6,313.36	164.64	189.29	-51.00	-2,516.19	-3,001.86	7,252.03	7,013.48	238.56	30.399	
17,100.00	6,915.98	6,317.00	6,313.36	166.21	189.29	-51.00	-2,516.19	-3,001.86	7,350.49	7,111.92	238.58	30.810	
17,200.00	6,915.66	6,317.00	6,313.36	167.79	189.29	-51.00	-2,516.19	-3,001.86	7,448.99	7,210.40	238.59	31.221	
17,300.00	6,915.34	6,317.00	6,313.36	169.37	189.29	-51.00	-2,516.19	-3,001.86	7,547.53	7,308.92	238.61	31.631	
17,400.00	6,915.02	6,317.00	6,313.36	170.94	189.29	-51.00	-2,516.19	-3,001.86	7,646.10	7,407.48	238.63	32.042	
17,500.00	6,914.69	6,317.00	6,313.36	172.52	189.29	-51.00	-2,516.19	-3,001.86	7,744.72	7,506.07	238.65	32.453	
17,600.00	6,914.37	6,317.00	6,313.36	174.10	189.29	-51.00	-2,516.19	-3,001.86	7,843.36	7,604.70	238.67	32.863	
17,700.00	6,914.05	6,317.00	6,313.36	175.68	189.29	-51.00	-2,516.19	-3,001.86	7,942.04	7,703.36	238.69	33.274	
17,800.00	6,913.72	6,317.00	6,313.36	177.25	189.29	-51.00	-2,516.19	-3,001.86	8,040.76	7,802.05	238.71	33.684	
17,900.00	6,913.40	6,317.00	6,313.36	178.83	189.29	-51.00	-2,516.19	-3,001.86	8,139.50	7,900.77	238.73	34.095	
18,000.00	6,913.08	6,317.00	6,313.36	180.41	189.29	-51.00	-2,516.19	-3,001.86	8,238.28	7,999.52	238.76	34.505	
18,023.75	6,913.00	6,317.00	6,313.36	180.79	189.29	-51.00	-2,516.19	-3,001.86	8,261.75	8,022.98	238.76	34.602	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #036 - OH - OH-TD

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Rule Assigned:

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	100.00	100.00	0.00	3.00	-83.48	887.59	-7,766.98	7,817.54				
100.00	100.00	200.00	200.00	0.25	5.99	-83.48	887.59	-7,766.98	7,817.54	7,811.29	6.24	1,252.017	
200.00	200.00	300.00	300.00	0.61	8.99	-83.48	887.59	-7,766.98	7,817.54	7,807.94	9.60	814.425	
300.00	300.00	400.00	400.00	0.97	11.99	-83.48	887.59	-7,766.98	7,817.54	7,804.58	12.95	603.497	
400.00	400.00	500.10	500.00	1.33	14.99	-83.48	887.59	-7,766.98	7,817.54	7,801.22	16.31	479.261	
500.00	500.00	600.10	600.00	1.68	17.98	-83.48	887.59	-7,766.98	7,817.54	7,797.87	19.67	397.504	
600.00	599.98	700.08	699.98	2.03	20.98	96.57	887.59	-7,766.98	7,817.74	7,794.73	23.00	339.851	
700.00	699.84	803.31	803.16	2.36	24.07	96.62	889.67	-7,766.98	7,818.58	7,792.15	26.43	295.834	
800.00	799.45	909.76	909.58	2.71	27.26	96.66	888.88	-7,766.98	7,819.50	7,789.54	29.96	260.981	
900.00	898.70	1,016.05	1,015.84	3.06	30.45	96.72	887.30	-7,766.98	7,820.76	7,787.25	33.50	233.436	
1,000.00	997.47	1,097.87	1,097.47	3.43	32.90	96.78	887.59	-7,766.98	7,822.63	7,786.31	36.33	215.350	
1,100.00	1,095.62	1,196.03	1,195.62	3.82	35.84	96.87	887.59	-7,766.98	7,824.94	7,785.28	39.65	197.328	
1,207.83	1,200.65	1,304.83	1,304.38	4.26	39.10	97.00	889.67	-7,766.98	7,828.22	7,784.86	43.36	180.556	
1,300.00	1,290.02	1,401.06	1,400.59	4.65	41.98	97.17	888.98	-7,766.98	7,831.00	7,784.36	46.63	167.930	
1,400.00	1,386.98	1,505.87	1,505.36	5.09	45.12	97.34	887.49	-7,766.98	7,833.99	7,783.78	50.21	156.028	
1,500.00	1,483.95	1,584.66	1,583.95	5.53	47.48	97.48	887.59	-7,766.98	7,837.23	7,784.22	53.01	147.835	
1,600.00	1,580.91	1,681.62	1,680.91	5.99	50.39	97.66	887.59	-7,766.98	7,840.55	7,784.18	56.37	139.096	
1,700.00	1,677.87	1,780.98	1,780.23	6.44	53.37	97.85	889.74	-7,766.98	7,844.25	7,784.45	59.80	131.176	
1,800.00	1,774.84	1,886.31	1,885.53	6.90	56.52	98.03	889.12	-7,766.98	7,847.64	7,784.23	63.41	123.754	
1,900.00	1,871.80	1,992.06	1,991.25	7.36	59.69	98.21	887.73	-7,766.98	7,851.00	7,783.96	67.04	117.105	
2,000.00	1,968.76	2,069.78	2,068.76	7.83	62.02	98.34	887.59	-7,766.98	7,854.58	7,784.75	69.83	112.475	
2,100.00	2,065.73	2,166.74	2,165.73	8.30	64.93	98.51	887.59	-7,766.98	7,858.27	7,785.07	73.20	107.347	
2,200.00	2,162.69	2,265.00	2,263.94	8.77	67.87	98.70	889.77	-7,766.98	7,862.38	7,785.76	76.62	102.622	
2,300.00	2,259.65	2,371.28	2,370.20	9.24	71.05	98.88	889.26	-7,766.98	7,866.16	7,785.89	80.27	97.999	
2,400.00	2,356.61	2,477.98	2,476.88	9.71	74.25	99.06	887.96	-7,766.98	7,869.89	7,785.95	83.93	93.763	
2,500.00	2,453.58	2,554.90	2,553.58	10.18	76.56	99.20	887.59	-7,766.98	7,873.79	7,787.08	86.71	90.808	
2,600.00	2,550.54	2,651.86	2,650.54	10.66	79.46	99.37	887.59	-7,766.98	7,877.86	7,787.77	90.08	87.449	
2,700.00	2,647.50	2,748.82	2,747.50	11.13	82.37	99.54	887.59	-7,766.98	7,882.00	7,788.53	93.46	84.334	
2,800.00	2,744.47	2,855.96	2,854.58	11.61	85.58	99.74	889.38	-7,766.98	7,886.52	7,789.38	97.14	81.184	
2,900.00	2,841.43	2,963.65	2,962.24	12.08	88.80	99.92	888.18	-7,766.98	7,890.62	7,789.78	100.84	78.247	
3,000.00	2,938.39	3,040.02	3,038.39	12.56	91.09	100.05	887.59	-7,766.98	7,894.85	7,791.25	103.60	76.202	
3,100.00	3,035.36	3,136.98	3,135.36	13.04	94.00	100.22	887.59	-7,766.98	7,899.28	7,792.30	106.98	73.837	
3,200.00	3,132.32	3,233.94	3,232.32	13.51	96.90	100.38	887.59	-7,766.98	7,903.79	7,793.43	110.36	71.618	
3,300.00	3,229.28	3,340.36	3,338.68	13.99	100.09	100.58	889.49	-7,766.98	7,908.73	7,794.71	114.02	69.361	
3,400.00	3,326.25	3,449.03	3,447.33	14.47	103.35	100.77	888.39	-7,766.98	7,913.20	7,795.45	117.75	67.201	
3,500.00	3,423.21	3,525.14	3,523.21	14.95	105.63	100.89	887.59	-7,766.98	7,917.74	7,797.24	120.51	65.704	
3,600.00	3,520.17	3,622.10	3,620.17	15.43	108.53	101.06	887.59	-7,766.98	7,922.54	7,798.66	123.89	63.950	
3,700.00	3,617.13	3,719.06	3,717.13	15.91	111.44	101.23	887.59	-7,766.98	7,927.41	7,800.15	127.27	62.290	
3,800.00	3,714.10	3,824.45	3,822.47	16.39	114.60	101.43	889.58	-7,766.98	7,932.76	7,801.86	130.90	60.603	
3,900.00	3,811.06	3,934.14	3,932.13	16.87	117.88	101.61	888.59	-7,766.98	7,937.60	7,802.94	134.66	58.946	
4,000.00	3,908.02	4,010.26	4,008.02	17.35	120.17	101.73	887.59	-7,766.98	7,942.45	7,805.04	137.41	57.800	
4,100.00	4,004.99	4,107.22	4,104.99	17.83	123.07	101.90	887.59	-7,766.98	7,947.61	7,806.82	140.79	56.449	
4,200.00	4,101.95	4,204.18	4,201.95	18.31	125.98	102.07	887.59	-7,766.98	7,952.84	7,808.67	144.17	55.163	
4,300.00	4,198.91	4,308.24	4,305.95	18.79	129.09	102.26	889.65	-7,766.98	7,958.60	7,810.83	147.76	53.861	
4,400.00	4,295.88	4,418.96	4,416.65	19.27	132.41	102.45	888.78	-7,766.98	7,963.81	7,812.25	151.55	52.548	
4,500.00	4,392.84	4,530.15	4,527.80	19.75	135.74	102.63	887.03	-7,766.98	7,968.92	7,813.56	155.36	51.293	
4,600.00	4,489.80	4,592.34	4,589.80	20.23	137.61	102.74	887.59	-7,766.98	7,974.48	7,816.78	157.70	50.569	
4,700.00	4,586.76	4,689.30	4,686.76	20.71	140.51	102.90	887.59	-7,766.98	7,980.07	7,818.99	161.07	49.543	
4,800.00	4,683.73	4,791.70	4,789.12	21.20	143.58	103.09	889.71	-7,766.98	7,986.22	7,821.60	164.62	48.514	
4,900.00	4,780.69	4,903.48	4,900.87	21.68	146.93	103.28	888.95	-7,766.98	7,991.80	7,823.36	168.44	47.446	
5,000.00	4,877.65	5,015.73	5,013.08	22.16	150.29	103.46	887.31	-7,766.98	7,997.27	7,824.99	172.28	46.421	
5,100.00	4,974.62	5,077.46	5,074.62	22.64	152.14	103.57	887.59	-7,766.98	8,003.13	7,828.53	174.60	45.838	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #036 - OH - OH-TD

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,200.00	5,071.58	5,174.42	5,171.58	23.12	155.05	103.73	887.59	-7,766.98	8,009.07	7,831.09	177.97	45.001	
5,300.00	5,168.54	5,274.85	5,271.96	23.60	158.06	103.92	889.75	-7,766.98	8,015.61	7,834.16	181.45	44.174	
5,400.00	5,265.51	5,387.69	5,384.78	24.09	161.44	104.10	889.11	-7,766.98	8,021.56	7,836.25	185.31	43.287	
5,500.00	5,362.47	5,501.02	5,498.08	24.57	164.84	104.28	887.57	-7,766.98	8,027.38	7,838.21	189.18	42.433	
5,600.00	5,459.43	5,562.58	5,559.43	25.05	166.68	104.39	887.59	-7,766.98	8,033.53	7,842.04	191.49	41.952	
5,700.00	5,556.40	5,659.54	5,656.40	25.53	169.59	104.55	887.59	-7,766.98	8,039.82	7,844.95	194.87	41.258	
5,800.00	5,653.36	5,757.65	5,754.47	26.01	172.53	104.73	889.77	-7,766.98	8,046.75	7,848.47	198.28	40.583	
5,900.00	5,750.32	5,871.59	5,868.38	26.50	175.94	104.92	889.26	-7,766.98	8,053.07	7,850.90	202.16	39.834	
6,000.00	5,847.28	5,986.02	5,982.78	26.98	179.37	105.10	887.83	-7,766.98	8,059.25	7,853.19	206.06	39.110	
6,100.00	5,944.25	6,047.70	6,044.25	27.46	181.22	105.21	887.59	-7,766.98	8,065.68	7,857.30	208.38	38.706	
6,200.00	6,041.21	6,144.66	6,141.21	27.94	184.12	105.37	887.59	-7,766.98	8,072.31	7,860.56	211.76	38.121	
6,300.00	6,138.17	6,241.63	6,238.17	28.43	187.03	105.53	887.59	-7,766.98	8,079.02	7,863.89	215.13	37.554	
6,400.00	6,235.14	6,355.16	6,351.65	28.91	190.43	105.73	889.39	-7,766.98	8,086.30	7,867.30	219.00	36.923	
6,496.84	6,329.04	6,467.06	6,463.52	29.38	193.78	105.91	888.13	-7,766.98	8,092.64	7,869.82	222.81	36.320	
6,500.00	6,332.10	6,470.72	6,467.17	29.39	193.89	104.79	888.07	-7,766.98	8,092.83	7,869.90	222.94	36.301	
6,550.00	6,380.52	6,528.61	6,525.05	29.63	195.63	87.66	887.06	-7,766.98	8,093.92	7,869.01	224.91	35.988	
6,600.00	6,428.63	6,532.39	6,528.63	29.87	195.74	73.38	887.59	-7,766.98	8,091.50	7,866.24	225.26	35.921	
6,650.00	6,476.14	6,579.89	6,576.14	30.10	197.16	62.82	887.59	-7,766.98	8,085.32	7,858.40	226.92	35.630	
6,700.00	6,522.73	6,626.49	6,622.73	30.33	198.56	55.31	887.59	-7,766.98	8,075.45	7,846.89	228.56	35.332	
6,750.00	6,568.14	6,671.90	6,668.14	30.54	199.92	50.03	887.59	-7,766.98	8,061.94	7,831.79	230.15	35.029	
6,800.00	6,612.08	6,715.84	6,712.08	30.75	201.24	46.36	887.59	-7,766.98	8,044.90	7,813.20	231.70	34.721	
6,850.00	6,654.28	6,759.65	6,755.85	30.95	202.55	43.88	889.77	-7,766.98	8,025.05	7,791.81	233.24	34.407	
6,900.00	6,694.47	6,807.82	6,804.01	31.15	203.99	42.31	889.66	-7,766.98	8,001.24	7,766.34	234.91	34.061	
6,950.00	6,732.42	6,853.37	6,849.56	31.33	205.36	41.48	889.40	-7,766.98	7,974.25	7,737.75	236.49	33.719	
7,000.00	6,767.89	6,896.02	6,892.19	31.51	206.64	41.29	889.03	-7,766.98	7,944.23	7,706.25	237.98	33.381	
7,050.00	6,800.65	6,935.47	6,931.64	31.68	207.82	41.71	888.57	-7,766.98	7,911.40	7,672.03	239.37	33.051	
7,100.00	6,830.51	6,971.48	6,967.64	31.85	208.90	42.76	888.06	-7,766.98	7,875.96	7,635.31	240.65	32.728	
7,150.00	6,857.28	7,003.81	6,999.95	32.01	209.87	44.48	887.52	-7,766.98	7,838.13	7,596.32	241.81	32.414	
7,200.00	6,880.80	7,032.24	7,028.37	32.17	210.72	46.99	886.99	-7,766.98	7,798.16	7,555.30	242.85	32.111	
7,250.00	6,900.92	7,004.98	7,000.92	32.33	209.90	49.95	887.59	-7,766.98	7,756.46	7,514.24	242.22	32.023	
7,300.00	6,917.52	7,021.58	7,017.52	32.49	210.40	54.46	887.59	-7,766.98	7,713.07	7,470.19	242.89	31.756	
7,350.00	6,930.50	7,034.56	7,030.50	32.66	210.79	60.48	887.59	-7,766.98	7,668.31	7,424.87	243.44	31.499	
7,400.00	6,939.77	7,043.83	7,039.77	32.83	211.07	68.37	887.59	-7,766.98	7,622.44	7,378.56	243.88	31.255	
7,450.00	6,945.28	7,049.34	7,045.28	33.01	211.23	78.44	887.59	-7,766.98	7,575.75	7,331.54	244.20	31.023	
7,499.66	6,947.00	7,051.06	7,047.00	33.19	211.28	90.55	887.59	-7,766.98	7,528.82	7,284.42	244.40	30.805	
7,600.00	6,946.68	7,050.74	7,046.68	33.61	211.27	90.55	887.59	-7,766.98	7,433.74	7,189.06	244.69	30.381	
7,700.00	6,946.35	7,050.41	7,046.35	34.10	211.26	90.54	887.59	-7,766.98	7,339.12	7,094.13	244.98	29.957	
7,800.00	6,946.03	7,050.09	7,046.03	34.66	211.25	90.53	887.59	-7,766.98	7,244.64	6,999.34	245.30	29.534	
7,900.00	6,945.71	7,049.77	7,045.71	35.29	211.24	90.52	887.59	-7,766.98	7,150.31	6,904.68	245.63	29.111	
8,000.00	6,945.38	7,049.44	7,045.38	35.99	211.23	90.51	887.59	-7,766.98	7,056.14	6,810.17	245.97	28.687	
8,100.00	6,945.06	7,049.12	7,045.06	36.74	211.22	90.51	887.59	-7,766.98	6,962.13	6,715.80	246.33	28.263	
8,200.00	6,944.74	7,048.80	7,044.74	37.56	211.21	90.50	887.59	-7,766.98	6,868.29	6,621.58	246.71	27.840	
8,300.00	6,944.41	7,048.48	7,044.41	38.43	211.20	90.49	887.59	-7,766.98	6,774.62	6,527.52	247.10	27.416	
8,400.00	6,944.09	7,048.15	7,044.09	39.35	211.19	90.48	887.59	-7,766.98	6,681.14	6,433.63	247.51	26.993	
8,500.00	6,943.77	7,047.83	7,043.77	40.31	211.18	90.48	887.59	-7,766.98	6,587.85	6,339.91	247.94	26.570	
8,600.00	6,943.45	7,047.51	7,043.45	41.32	211.18	90.47	887.59	-7,766.98	6,494.76	6,246.37	248.39	26.147	
8,700.00	6,943.12	7,047.18	7,043.12	42.37	211.17	90.46	887.59	-7,766.98	6,401.88	6,153.01	248.86	25.724	
8,800.00	6,942.80	7,046.86	7,042.80	43.45	211.16	90.45	887.59	-7,766.98	6,309.21	6,059.86	249.36	25.302	
8,900.00	6,942.48	7,046.54	7,042.48	44.57	211.15	90.44	887.59	-7,766.98	6,216.78	5,966.91	249.87	24.880	
9,000.00	6,942.15	7,046.21	7,042.15	45.71	211.14	90.44	887.59	-7,766.98	6,124.58	5,874.17	250.40	24.459	
9,100.00	6,941.83	7,045.89	7,041.83	46.89	211.13	90.43	887.59	-7,766.98	6,032.63	5,781.66	250.96	24.038	
9,200.00	6,941.51	7,045.57	7,041.51	48.09	211.12	90.42	887.59	-7,766.98	5,940.93	5,689.39	251.55	23.617	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #036 - OH - OH-TD

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,300.00	6,941.18	7,045.24	7,041.18	49.31	211.11	90.41	887.59	-7,766.98	5,849.52	5,597.36	252.16	23.198	
9,400.00	6,940.86	7,044.92	7,040.86	50.56	211.10	90.41	887.59	-7,766.98	5,758.38	5,505.59	252.79	22.779	
9,500.00	6,940.54	7,044.60	7,040.54	51.82	211.09	90.40	887.59	-7,766.98	5,667.55	5,414.09	253.46	22.361	
9,600.00	6,940.21	7,044.28	7,040.21	53.11	211.08	90.39	887.59	-7,766.98	5,577.03	5,322.88	254.15	21.944	
9,700.00	6,939.89	7,043.95	7,039.89	54.41	211.07	90.38	887.59	-7,766.98	5,486.84	5,231.96	254.87	21.528	
9,800.00	6,939.57	7,043.63	7,039.57	55.73	211.06	90.37	887.59	-7,766.98	5,396.99	5,141.36	255.63	21.113	
9,900.00	6,939.25	7,043.31	7,039.25	57.07	211.05	90.37	887.59	-7,766.98	5,307.51	5,051.09	256.41	20.699	
10,000.00	6,938.92	7,042.98	7,038.92	58.41	211.04	90.36	887.59	-7,766.98	5,218.41	4,961.17	257.23	20.287	
10,100.00	6,938.60	7,042.66	7,038.60	59.77	211.03	90.35	887.59	-7,766.98	5,129.71	4,871.62	258.09	19.876	
10,200.00	6,938.28	7,042.34	7,038.28	61.15	211.02	90.34	887.59	-7,766.98	5,041.43	4,782.46	258.98	19.467	
10,300.00	6,937.95	7,042.01	7,037.95	62.53	211.01	90.34	887.59	-7,766.98	4,953.60	4,693.70	259.90	19.059	
10,400.00	6,937.63	7,041.69	7,037.63	63.92	211.00	90.33	887.59	-7,766.98	4,866.24	4,605.37	260.87	18.654	
10,500.00	6,937.31	7,041.37	7,037.31	65.33	210.99	90.32	887.59	-7,766.98	4,779.38	4,517.50	261.88	18.250	
10,600.00	6,936.98	7,041.05	7,036.98	66.74	210.98	90.31	887.59	-7,766.98	4,693.03	4,430.10	262.93	17.849	
10,700.00	6,936.66	7,040.72	7,036.66	68.16	210.97	90.31	887.59	-7,766.98	4,607.24	4,343.22	264.02	17.450	
10,800.00	6,936.34	7,040.40	7,036.34	69.59	210.96	90.30	887.59	-7,766.98	4,522.04	4,256.88	265.16	17.054	
10,900.00	6,936.01	7,040.08	7,036.01	71.03	210.95	90.29	887.59	-7,766.98	4,437.45	4,171.10	266.35	16.660	
11,000.00	6,935.69	7,039.75	7,035.69	72.47	210.94	90.28	887.59	-7,766.98	4,353.51	4,085.93	267.58	16.270	
11,100.00	6,935.37	7,039.43	7,035.37	73.92	210.93	90.27	887.59	-7,766.98	4,270.27	4,001.40	268.87	15.882	
11,200.00	6,935.05	7,039.11	7,035.05	75.38	210.92	90.27	887.59	-7,766.98	4,187.76	3,917.56	270.20	15.498	
11,300.00	6,934.72	7,038.78	7,034.72	76.84	210.91	90.26	887.59	-7,766.98	4,106.03	3,834.43	271.60	15.118	
11,400.00	6,934.40	7,038.46	7,034.40	78.31	210.90	90.25	887.59	-7,766.98	4,025.12	3,752.08	273.04	14.742	
11,500.00	6,934.08	7,038.14	7,034.08	79.79	210.89	90.24	887.59	-7,766.98	3,945.09	3,670.54	274.55	14.370	
11,600.00	6,933.75	7,037.81	7,033.75	81.27	210.88	90.24	887.59	-7,766.98	3,865.99	3,589.88	276.11	14.002	
11,700.00	6,933.43	7,037.49	7,033.43	82.75	210.88	90.23	887.59	-7,766.98	3,787.87	3,510.15	277.73	13.639	
11,800.00	6,933.11	7,037.17	7,033.11	84.24	210.87	90.22	887.59	-7,766.98	3,710.81	3,431.40	279.41	13.281	
11,900.00	6,932.78	7,036.85	7,032.78	85.73	210.86	90.21	887.59	-7,766.98	3,634.87	3,353.71	281.16	12.928	
12,000.00	6,932.46	7,036.52	7,032.46	87.23	210.85	90.20	887.59	-7,766.98	3,560.11	3,277.15	282.96	12.582	
12,100.00	6,932.14	7,036.20	7,032.14	88.72	210.84	90.20	887.59	-7,766.98	3,486.62	3,201.78	284.83	12.241	
12,200.00	6,931.81	7,035.88	7,031.81	90.23	210.83	90.19	887.59	-7,766.98	3,414.47	3,127.71	286.77	11.907	
12,300.00	6,931.49	7,035.55	7,031.49	91.74	210.82	90.18	887.59	-7,766.98	3,343.76	3,055.00	288.76	11.580	
12,400.00	6,931.17	7,035.23	7,031.17	93.25	210.81	90.17	887.59	-7,766.98	3,274.58	2,983.76	290.82	11.260	
12,500.00	6,930.85	7,034.91	7,030.85	94.76	210.80	90.17	887.59	-7,766.98	3,207.03	2,914.09	292.94	10.948	
12,600.00	6,930.52	7,034.58	7,030.52	96.27	210.79	90.16	887.59	-7,766.98	3,141.20	2,846.08	295.12	10.644	
12,700.00	6,930.20	7,034.26	7,030.20	97.79	210.78	90.15	887.59	-7,766.98	3,077.22	2,779.87	297.35	10.349	
12,800.00	6,929.88	7,033.94	7,029.88	99.32	210.77	90.14	887.59	-7,766.98	3,015.19	2,715.57	299.63	10.063	
12,900.00	6,929.55	7,033.61	7,029.55	100.84	210.76	90.13	887.59	-7,766.98	2,955.25	2,653.30	301.95	9.787	
13,000.00	6,929.23	7,033.29	7,029.23	102.37	210.75	90.13	887.59	-7,766.98	2,897.53	2,593.21	304.32	9.521	
13,100.00	6,928.91	7,032.97	7,028.91	103.89	210.74	90.12	887.59	-7,766.98	2,842.14	2,535.43	306.71	9.267	
13,200.00	6,928.58	7,032.65	7,028.58	105.43	210.73	90.11	887.59	-7,766.98	2,789.25	2,480.12	309.13	9.023	
13,300.00	6,928.26	7,032.32	7,028.26	106.96	210.72	90.10	887.59	-7,766.98	2,738.98	2,427.43	311.55	8.791	
13,400.00	6,927.94	7,032.00	7,027.94	108.49	210.71	90.10	887.59	-7,766.98	2,691.50	2,377.52	313.98	8.572	
13,500.00	6,927.61	7,031.68	7,027.61	110.03	210.70	90.09	887.59	-7,766.98	2,646.94	2,330.56	316.38	8.366	
13,600.00	6,927.29	7,031.35	7,027.29	111.57	210.69	90.08	887.59	-7,766.98	2,605.46	2,286.70	318.76	8.174	
13,700.00	6,926.97	7,031.03	7,026.97	113.11	210.68	90.07	887.59	-7,766.98	2,567.20	2,246.12	321.09	7.995	
13,800.00	6,926.65	7,030.71	7,026.65	114.65	210.67	90.07	887.59	-7,766.98	2,532.32	2,208.97	323.35	7.832	
13,900.00	6,926.32	7,030.38	7,026.32	116.20	210.66	90.06	887.59	-7,766.98	2,500.96	2,175.43	325.53	7.683	
14,000.00	6,926.00	7,030.06	7,026.00	117.75	210.65	90.05	887.59	-7,766.98	2,473.24	2,145.64	327.60	7.550	
14,100.00	6,925.68	7,029.74	7,025.68	119.29	210.64	90.04	887.59	-7,766.98	2,449.29	2,119.74	329.55	7.432	
14,200.00	6,925.35	7,029.41	7,025.35	120.84	210.63	90.03	887.59	-7,766.98	2,429.23	2,097.87	331.36	7.331	
14,300.00	6,925.03	7,029.09	7,025.03	122.39	210.62	90.03	887.59	-7,766.98	2,413.15	2,080.13	333.01	7.246	
14,400.00	6,924.71	7,028.77	7,024.71	123.94	210.61	90.02	887.59	-7,766.98	2,401.13	2,066.63	334.49	7.178	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #036 - OH - OH-TD — **Offset Site Error:** 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY — **Rule Assigned:** — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,500.00	6,924.38	7,028.45	7,024.38	125.50	210.60	90.01	887.59	-7,766.98	2,393.22	2,057.44	335.78	7.127	
14,600.00	6,924.06	7,028.12	7,024.06	127.05	210.59	90.00	887.59	-7,766.98	2,389.49	2,052.61	336.87	7.093	
14,639.39	6,923.93	7,028.00	7,023.93	127.66	210.59	90.00	887.59	-7,766.98	2,389.16	2,051.91	337.25	7.084	CC, ES
14,700.00	6,923.74	7,027.80	7,023.74	128.61	210.58	90.00	887.59	-7,766.98	2,389.93	2,052.17	337.76	7.076	
14,800.00	6,923.42	7,027.48	7,023.42	130.16	210.57	89.99	887.59	-7,766.98	2,394.55	2,056.12	338.43	7.075	SF
14,900.00	6,923.09	7,027.15	7,023.09	131.72	210.57	89.98	887.59	-7,766.98	2,403.33	2,064.44	338.90	7.092	
15,000.00	6,922.77	7,026.83	7,022.77	133.28	210.56	89.97	887.59	-7,766.98	2,416.22	2,077.07	339.15	7.124	
15,100.00	6,922.45	7,026.51	7,022.45	134.84	210.55	89.96	887.59	-7,766.98	2,433.16	2,093.96	339.20	7.173	
15,200.00	6,922.12	7,026.18	7,022.12	136.40	210.54	89.96	887.59	-7,766.98	2,454.05	2,115.00	339.05	7.238	
15,300.00	6,921.80	7,025.86	7,021.80	137.96	210.53	89.95	887.59	-7,766.98	2,478.81	2,140.09	338.72	7.318	
15,400.00	6,921.48	7,025.54	7,021.48	139.53	210.52	89.94	887.59	-7,766.98	2,507.31	2,169.10	338.21	7.413	
15,500.00	6,921.15	7,025.21	7,021.15	141.09	210.51	89.93	887.59	-7,766.98	2,539.44	2,201.89	337.54	7.523	
15,600.00	6,920.83	7,024.89	7,020.83	142.65	210.50	89.93	887.59	-7,766.98	2,575.05	2,238.31	336.74	7.647	
15,700.00	6,920.51	7,024.57	7,020.51	144.22	210.49	89.92	887.59	-7,766.98	2,614.00	2,278.20	335.80	7.784	
15,800.00	6,920.18	7,024.25	7,020.18	145.79	210.48	89.91	887.59	-7,766.98	2,656.15	2,321.39	334.75	7.935	
15,900.00	6,919.86	7,023.92	7,019.86	147.35	210.47	89.90	887.59	-7,766.98	2,701.34	2,367.73	333.61	8.097	
16,000.00	6,919.54	7,023.60	7,019.54	148.92	210.46	89.89	887.59	-7,766.98	2,749.43	2,417.05	332.38	8.272	
16,100.00	6,919.22	7,023.28	7,019.22	150.49	210.45	89.89	887.59	-7,766.98	2,800.26	2,469.17	331.09	8.458	
16,200.00	6,918.89	7,022.95	7,018.89	152.06	210.44	89.88	887.59	-7,766.98	2,853.70	2,523.95	329.74	8.654	
16,300.00	6,918.57	7,022.63	7,018.57	153.63	210.43	89.87	887.59	-7,766.98	2,909.59	2,581.23	328.36	8.861	
16,400.00	6,918.25	7,022.31	7,018.25	155.20	210.42	89.86	887.59	-7,766.98	2,967.80	2,640.86	326.94	9.077	
16,500.00	6,917.92	7,021.98	7,017.92	156.77	210.41	89.86	887.59	-7,766.98	3,028.19	2,702.69	325.50	9.303	
16,600.00	6,917.60	7,021.66	7,017.60	158.34	210.40	89.85	887.59	-7,766.98	3,090.64	2,766.58	324.06	9.537	
16,700.00	6,917.28	7,021.34	7,017.28	159.92	210.39	89.84	887.59	-7,766.98	3,155.03	2,832.42	322.61	9.780	
16,800.00	6,916.95	7,021.01	7,016.95	161.49	210.38	89.83	887.59	-7,766.98	3,221.23	2,900.07	321.16	10.030	
16,900.00	6,916.63	7,020.69	7,016.63	163.06	210.37	89.82	887.59	-7,766.98	3,289.14	2,969.42	319.72	10.288	
17,000.00	6,916.31	7,020.37	7,016.31	164.64	210.36	89.82	887.59	-7,766.98	3,358.65	3,040.36	318.30	10.552	
17,100.00	6,915.98	7,020.05	7,015.98	166.21	210.35	89.81	887.59	-7,766.98	3,429.67	3,112.78	316.89	10.823	
17,200.00	6,915.66	7,019.72	7,015.66	167.79	210.34	89.80	887.59	-7,766.98	3,502.11	3,186.61	315.50	11.100	
17,300.00	6,915.34	7,019.40	7,015.34	169.37	210.33	89.79	887.59	-7,766.98	3,575.88	3,261.73	314.14	11.383	
17,400.00	6,915.02	7,019.08	7,015.02	170.94	210.32	89.79	887.59	-7,766.98	3,650.89	3,338.08	312.81	11.671	
17,500.00	6,914.69	7,018.75	7,014.69	172.52	210.31	89.78	887.59	-7,766.98	3,727.08	3,415.57	311.51	11.965	
17,600.00	6,914.37	7,018.43	7,014.37	174.10	210.30	89.77	887.59	-7,766.98	3,804.37	3,494.14	310.23	12.263	
17,700.00	6,914.05	7,018.11	7,014.05	175.68	210.29	89.76	887.59	-7,766.98	3,882.70	3,573.72	308.98	12.566	
17,800.00	6,913.72	7,017.78	7,013.72	177.25	210.28	89.76	887.59	-7,766.98	3,962.00	3,654.23	307.77	12.873	
17,900.00	6,913.40	7,017.46	7,013.40	178.83	210.27	89.75	887.59	-7,766.98	4,042.23	3,735.64	306.59	13.185	
18,000.00	6,913.08	7,017.14	7,013.08	180.41	210.27	89.74	887.59	-7,766.98	4,123.31	3,817.87	305.44	13.500	
18,023.75	6,913.00	7,017.06	7,013.00	180.79	210.26	89.74	887.59	-7,766.98	4,142.70	3,837.53	305.17	13.575	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #036C - OH - OH-SVY

Offset Site Error: 0.00 usft

Survey Program: 300-B001Mb_MWD+HRGM **Offset Well Error:** 0.00 usft

Rule Assigned:

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	79.42	79.42	0.00	0.14	-84.39	878.47	-8,949.25	8,992.28				
100.00	100.00	162.15	162.15	0.25	0.29	-84.39	878.44	-8,949.49	8,992.56	8,992.02	0.54	N/A	
200.00	200.00	244.88	244.88	0.61	0.44	-84.39	878.39	-8,949.89	8,993.03	8,991.99	1.05	8,575.978	
300.00	300.00	327.53	327.53	0.97	0.64	-84.40	878.31	-8,950.45	8,993.70	8,992.09	1.60	5,604.738	
400.00	400.00	372.00	372.00	1.33	0.80	-84.40	878.26	-8,950.82	8,994.65	8,992.53	2.12	4,237.098	
500.00	500.00	372.00	372.00	1.68	0.80	-84.40	878.26	-8,950.82	8,996.59	8,994.11	2.48	3,624.262	
600.00	599.98	372.00	372.00	2.03	0.80	95.58	878.26	-8,950.82	8,999.81	8,996.98	2.82	3,185.779	
700.00	699.84	372.00	372.00	2.36	0.80	95.49	878.26	-8,950.82	9,004.47	9,001.31	3.16	2,849.938	
800.00	799.45	372.00	372.00	2.71	0.80	95.37	878.26	-8,950.82	9,010.58	9,007.07	3.51	2,570.593	
900.00	898.70	552.00	550.99	3.06	1.49	95.30	866.97	-8,962.43	9,017.94	9,013.41	4.53	1,992.437	
1,000.00	997.47	584.00	582.83	3.43	1.60	95.18	864.45	-8,964.42	9,024.78	9,019.76	5.01	1,800.142	
1,100.00	1,095.62	616.00	614.60	3.82	1.72	95.04	861.42	-8,966.73	9,032.71	9,027.19	5.52	1,636.552	
1,207.83	1,200.65	648.00	646.29	4.26	1.84	94.87	857.84	-8,969.37	9,042.49	9,036.41	6.08	1,487.278	
1,300.00	1,290.02	676.35	674.29	4.65	1.95	94.89	854.29	-8,971.91	9,051.65	9,045.07	6.58	1,375.555	
1,400.00	1,386.98	725.27	722.51	5.09	2.15	94.92	847.48	-8,976.64	9,062.21	9,055.00	7.21	1,257.469	
1,500.00	1,483.95	810.10	805.93	5.53	2.51	94.96	834.68	-8,985.19	9,073.11	9,065.11	7.99	1,135.002	
1,600.00	1,580.91	856.51	851.56	5.99	2.70	94.99	827.64	-8,989.97	9,084.30	9,075.67	8.63	1,052.575	
1,700.00	1,677.87	898.00	892.34	6.44	2.88	95.01	821.59	-8,994.61	9,096.25	9,087.00	9.25	983.260	
1,800.00	1,774.84	1,049.39	1,041.14	6.90	3.54	95.10	799.13	-9,011.10	9,107.93	9,097.58	10.35	880.208	
1,900.00	1,871.80	1,137.96	1,128.14	7.36	3.93	95.14	785.66	-9,020.77	9,119.68	9,108.50	11.18	815.488	
2,000.00	1,968.76	1,317.82	1,304.52	7.83	4.74	95.22	756.00	-9,039.72	9,130.90	9,118.46	12.43	734.374	
2,100.00	2,065.73	1,422.24	1,407.17	8.30	5.20	95.28	739.84	-9,049.97	9,141.54	9,128.19	13.35	684.829	
2,200.00	2,162.69	1,462.00	1,446.26	8.77	5.38	95.30	733.80	-9,054.07	9,152.69	9,138.71	13.98	654.672	
2,300.00	2,259.65	1,585.04	1,567.14	9.24	5.93	95.36	714.94	-9,067.09	9,164.16	9,149.18	14.98	611.653	
2,400.00	2,356.61	1,673.27	1,653.86	9.71	6.32	95.40	701.42	-9,076.17	9,175.33	9,159.50	15.83	579.552	
2,500.00	2,453.58	1,714.00	1,693.93	10.18	6.50	95.43	695.54	-9,080.50	9,186.95	9,170.48	16.47	557.807	
2,600.00	2,550.54	1,776.00	1,754.91	10.66	6.77	95.46	686.77	-9,087.41	9,199.11	9,181.91	17.20	534.813	
2,700.00	2,647.50	1,883.91	1,861.04	11.13	7.25	95.53	671.40	-9,099.47	9,211.27	9,193.13	18.14	507.909	
2,800.00	2,744.47	2,111.06	2,084.34	11.61	8.27	95.65	637.75	-9,123.99	9,223.17	9,203.57	19.60	470.452	
2,900.00	2,841.43	2,260.05	2,230.96	12.08	8.92	95.73	615.68	-9,138.53	9,233.93	9,213.21	20.72	445.546	
3,000.00	2,938.39	2,351.97	2,321.56	12.56	9.32	95.78	602.70	-9,147.08	9,244.30	9,222.71	21.59	428.192	
3,100.00	3,035.36	2,456.81	2,424.90	13.04	9.78	95.84	587.95	-9,156.84	9,254.68	9,232.17	22.51	411.140	
3,200.00	3,132.32	2,511.08	2,478.37	13.51	10.02	95.88	580.28	-9,162.03	9,265.33	9,242.12	23.21	399.180	
3,300.00	3,229.28	2,592.00	2,557.98	13.99	10.38	95.92	568.32	-9,170.18	9,276.39	9,252.36	24.03	385.999	
3,400.00	3,326.25	2,684.47	2,648.95	14.47	10.79	95.97	554.65	-9,179.61	9,287.59	9,262.68	24.91	372.898	
3,500.00	3,423.21	2,782.00	2,744.79	14.95	11.22	96.02	539.56	-9,189.54	9,298.71	9,272.90	25.81	360.312	
3,600.00	3,520.17	2,855.55	2,817.00	15.43	11.56	96.05	527.90	-9,197.19	9,310.02	9,283.42	26.60	349.966	
3,700.00	3,617.13	2,931.38	2,891.44	15.91	11.90	96.09	515.90	-9,205.37	9,321.69	9,294.28	27.41	340.100	
3,800.00	3,714.10	2,997.57	2,956.45	16.39	12.20	96.12	505.76	-9,212.53	9,333.52	9,305.35	28.17	331.349	
3,900.00	3,811.06	3,064.75	3,022.46	16.87	12.50	96.15	495.91	-9,220.21	9,345.93	9,317.00	28.93	323.057	
4,000.00	3,908.02	3,263.39	3,218.12	17.35	13.37	96.27	468.60	-9,240.89	9,357.17	9,326.90	30.27	309.099	
4,100.00	4,004.99	3,311.33	3,265.34	17.83	13.58	96.30	462.01	-9,245.91	9,368.83	9,337.89	30.94	302.763	
4,200.00	4,101.95	3,757.19	3,705.37	18.31	15.48	96.59	404.22	-9,286.10	9,379.87	9,346.53	33.34	281.378	
4,300.00	4,198.91	3,862.72	3,810.40	18.79	15.87	96.69	396.19	-9,292.69	9,388.15	9,353.95	34.20	274.519	
4,400.00	4,295.88	3,968.93	3,916.11	19.27	16.25	96.80	388.23	-9,299.22	9,396.37	9,361.31	35.06	267.984	
4,500.00	4,392.84	4,075.11	4,021.80	19.75	16.64	96.90	380.40	-9,305.64	9,404.54	9,368.61	35.93	261.761	
4,600.00	4,489.80	4,181.26	4,127.48	20.23	17.02	97.01	372.71	-9,311.95	9,412.66	9,375.87	36.79	255.830	
4,700.00	4,586.76	4,287.37	4,233.14	20.71	17.41	97.12	365.15	-9,318.15	9,420.72	9,383.07	37.66	250.169	
4,800.00	4,683.73	4,393.45	4,338.78	21.20	17.79	97.23	357.72	-9,324.25	9,428.73	9,390.21	38.52	244.761	
4,900.00	4,780.69	4,499.49	4,444.41	21.68	18.18	97.34	350.42	-9,330.23	9,436.69	9,397.31	39.39	239.589	
5,000.00	4,877.65	4,605.50	4,550.01	22.16	18.56	97.44	343.25	-9,336.11	9,444.60	9,404.35	40.25	234.638	
5,100.00	4,974.62	4,711.48	4,655.59	22.64	18.95	97.55	336.22	-9,341.88	9,452.46	9,411.35	41.12	229.895	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #036C - OH - OH-SVY

Offset Site Error: 0.00 usft

Survey Program: 300-B001Mb_MWD+HRGM **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,200.00	5,071.58	4,817.41	4,761.15	23.12	19.33	97.67	329.31	-9,347.54	9,460.27	9,418.29	41.98	225.346	
5,300.00	5,168.54	4,923.31	4,866.69	23.60	19.72	97.78	322.54	-9,353.10	9,468.03	9,425.19	42.85	220.980	
5,400.00	5,265.51	5,029.18	4,972.20	24.09	20.10	97.89	315.90	-9,358.54	9,475.75	9,432.04	43.71	216.786	
5,500.00	5,362.47	5,135.00	5,077.69	24.57	20.49	98.00	309.40	-9,363.88	9,483.41	9,438.84	44.57	212.753	
5,600.00	5,459.43	5,240.79	5,183.16	25.05	20.87	98.11	303.02	-9,369.11	9,491.03	9,445.59	45.44	208.874	
5,700.00	5,556.40	5,346.54	5,288.60	25.53	21.26	98.23	296.78	-9,374.23	9,498.60	9,452.30	46.30	205.139	
5,800.00	5,653.36	5,452.25	5,394.01	26.01	21.64	98.34	290.66	-9,379.24	9,506.13	9,458.96	47.17	201.541	
5,900.00	5,750.32	5,557.91	5,499.40	26.50	22.03	98.46	284.68	-9,384.15	9,513.61	9,465.58	48.03	198.072	
6,000.00	5,847.28	5,663.54	5,604.75	26.98	22.41	98.57	278.83	-9,388.95	9,521.05	9,472.15	48.89	194.725	
6,100.00	5,944.25	5,769.13	5,710.08	27.46	22.80	98.69	273.11	-9,393.64	9,528.44	9,478.69	49.76	191.493	
6,200.00	6,041.21	5,874.68	5,815.38	27.94	23.18	98.81	267.52	-9,398.23	9,535.80	9,485.18	50.62	188.372	
6,300.00	6,138.17	5,980.18	5,920.65	28.43	23.57	98.92	262.06	-9,402.70	9,543.11	9,491.62	51.49	185.356	
6,400.00	6,235.14	6,085.65	6,025.89	28.91	23.95	99.04	256.73	-9,407.07	9,550.38	9,498.03	52.35	182.438	
6,496.84	6,329.04	6,187.74	6,127.77	29.38	24.32	99.16	251.70	-9,411.20	9,557.38	9,504.20	53.18	179.703	
6,500.00	6,332.10	6,191.07	6,131.09	29.39	24.33	98.03	251.53	-9,411.34	9,557.60	9,504.39	53.21	179.616	
6,550.00	6,380.52	6,243.79	6,183.71	29.63	24.53	80.88	248.98	-9,413.43	9,559.02	9,505.38	53.64	178.194	
6,600.00	6,428.63	6,296.32	6,236.15	29.87	24.72	66.62	246.47	-9,415.49	9,556.55	9,502.48	54.08	176.723	
6,650.00	6,476.14	6,348.34	6,288.06	30.10	24.91	55.97	244.02	-9,417.50	9,550.22	9,495.71	54.51	175.215	
6,700.00	6,522.73	6,399.51	6,339.14	30.33	25.09	48.33	241.63	-9,419.46	9,540.06	9,485.13	54.93	173.681	
6,750.00	6,568.14	6,449.51	6,389.05	30.54	25.28	42.88	239.33	-9,421.34	9,526.13	9,470.79	55.34	172.131	
6,800.00	6,612.08	6,498.03	6,437.49	30.75	25.45	38.98	237.13	-9,423.15	9,508.54	9,452.79	55.75	170.571	
6,850.00	6,654.28	6,544.77	6,484.15	30.95	25.62	36.20	235.03	-9,424.87	9,487.38	9,431.25	56.14	169.010	
6,900.00	6,694.47	6,589.44	6,528.74	31.15	25.79	34.25	233.05	-9,426.50	9,462.80	9,406.29	56.51	167.454	
6,950.00	6,732.42	6,631.75	6,570.99	31.33	25.94	32.97	231.20	-9,428.02	9,434.95	9,378.08	56.87	165.909	
7,000.00	6,767.89	6,671.46	6,610.64	31.51	26.09	32.26	229.47	-9,429.43	9,403.99	9,346.78	57.21	164.382	
7,050.00	6,800.65	6,708.32	6,647.44	31.68	26.22	32.04	227.89	-9,430.73	9,370.13	9,312.61	57.53	162.879	
7,100.00	6,830.51	6,742.09	6,681.16	31.85	26.35	32.34	226.45	-9,431.91	9,333.58	9,275.75	57.83	161.404	
7,150.00	6,857.28	6,772.58	6,711.61	32.01	26.46	33.17	225.17	-9,432.96	9,294.56	9,236.45	58.10	159.963	
7,200.00	6,880.80	6,799.60	6,738.59	32.17	26.55	34.65	224.04	-9,433.89	9,253.31	9,194.95	58.36	158.561	
7,250.00	6,900.92	6,822.99	6,761.94	32.33	26.64	36.95	223.07	-9,434.69	9,210.09	9,151.51	58.59	157.201	
7,300.00	6,917.52	6,842.61	6,781.53	32.49	26.71	40.39	222.26	-9,435.35	9,165.17	9,106.38	58.79	155.887	
7,350.00	6,930.50	6,858.34	6,797.24	32.66	26.77	45.51	221.61	-9,435.88	9,118.83	9,059.85	58.97	154.624	
7,400.00	6,939.77	6,870.09	6,808.97	32.83	26.81	53.31	221.13	-9,436.27	9,071.34	9,012.21	59.13	153.413	
7,450.00	6,945.28	6,877.80	6,816.67	33.01	26.84	65.40	220.82	-9,436.53	9,023.00	8,963.74	59.26	152.259	
7,499.66	6,947.00	6,881.41	6,820.28	33.19	26.85	83.54	220.67	-9,436.65	8,974.44	8,915.07	59.37	151.169	
7,600.00	6,946.68	6,884.62	6,823.48	33.61	26.87	83.64	220.54	-9,436.76	8,875.99	8,816.44	59.56	149.029	
7,700.00	6,946.35	6,887.81	6,826.67	34.10	26.88	83.75	220.41	-9,436.87	8,777.92	8,718.17	59.76	146.897	
7,800.00	6,946.03	6,891.00	6,829.85	34.66	26.89	83.85	220.28	-9,436.97	8,679.89	8,619.93	59.96	144.762	
7,900.00	6,945.71	6,894.18	6,833.03	35.29	26.90	83.96	220.15	-9,437.08	8,581.91	8,521.74	60.17	142.625	
8,000.00	6,945.38	6,897.35	6,836.19	35.99	26.91	84.06	220.02	-9,437.18	8,483.97	8,423.58	60.39	140.487	
8,100.00	6,945.06	6,900.51	6,839.36	36.74	26.92	84.16	219.89	-9,437.29	8,386.08	8,325.46	60.62	138.348	
8,200.00	6,944.74	6,903.67	6,842.51	37.56	26.93	84.27	219.77	-9,437.39	8,288.24	8,227.39	60.85	136.207	
8,300.00	6,944.41	6,906.83	6,845.66	38.43	26.95	84.37	219.64	-9,437.50	8,190.44	8,129.35	61.09	134.065	
8,400.00	6,944.09	6,909.98	6,848.80	39.35	26.96	84.48	219.51	-9,437.60	8,092.71	8,031.36	61.34	131.923	
8,500.00	6,943.77	6,913.12	6,851.94	40.31	26.97	84.58	219.38	-9,437.71	7,995.02	7,933.42	61.60	129.781	
8,600.00	6,943.45	6,916.25	6,855.07	41.32	26.98	84.68	219.26	-9,437.81	7,897.40	7,835.52	61.87	127.638	
8,700.00	6,943.12	6,919.38	6,858.20	42.37	26.99	84.79	219.13	-9,437.91	7,799.83	7,737.68	62.15	125.496	
8,800.00	6,942.80	6,922.50	6,861.31	43.45	27.00	84.89	219.01	-9,438.02	7,702.32	7,639.88	62.44	123.354	
8,900.00	6,942.48	6,925.62	6,864.43	44.57	27.01	84.99	218.88	-9,438.12	7,604.88	7,542.14	62.74	121.214	
9,000.00	6,942.15	6,928.73	6,867.53	45.71	27.03	85.09	218.76	-9,438.22	7,507.50	7,444.45	63.05	119.074	
9,100.00	6,941.83	6,931.83	6,870.63	46.89	27.04	85.20	218.63	-9,438.32	7,410.19	7,346.82	63.37	116.936	
9,200.00	6,941.51	6,934.93	6,873.72	48.09	27.05	85.30	218.51	-9,438.43	7,312.96	7,249.25	63.70	114.800	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #036C - OH - OH-SVY — **Offset Site Error:** 0.00 usft

Survey Program: 300-B001Mb_MWD+HRGM — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,300.00	6,941.18	6,938.02	6,876.81	49.31	27.06	85.40	218.38	-9,438.53	7,215.79	7,151.75	64.05	112.666	
9,400.00	6,940.86	6,941.11	6,879.89	50.56	27.07	85.50	218.26	-9,438.63	7,118.71	7,054.31	64.40	110.535	
9,500.00	6,940.54	6,944.19	6,882.97	51.82	27.08	85.61	218.14	-9,438.73	7,021.70	6,956.93	64.77	108.407	
9,600.00	6,940.21	6,947.26	6,886.04	53.11	27.09	85.71	218.01	-9,438.83	6,924.78	6,859.63	65.15	106.283	
9,700.00	6,939.89	6,950.33	6,889.10	54.41	27.11	85.81	217.89	-9,438.93	6,827.95	6,762.40	65.55	104.162	
9,800.00	6,939.57	6,953.39	6,892.16	55.73	27.12	85.91	217.77	-9,439.03	6,731.20	6,665.24	65.96	102.045	
9,900.00	6,939.25	6,956.44	6,895.21	57.07	27.13	86.01	217.65	-9,439.13	6,634.56	6,568.17	66.39	99.934	
10,000.00	6,938.92	6,959.49	6,898.25	58.41	27.14	86.11	217.52	-9,439.23	6,538.01	6,471.18	66.83	97.827	
10,100.00	6,938.60	6,962.53	6,901.29	59.77	27.15	86.21	217.40	-9,439.33	6,441.57	6,374.27	67.29	95.726	
10,200.00	6,938.28	6,965.57	6,904.33	61.15	27.16	86.31	217.28	-9,439.43	6,345.23	6,277.46	67.77	93.632	
10,300.00	6,937.95	6,968.60	6,907.35	62.53	27.17	86.42	217.16	-9,439.53	6,249.01	6,180.75	68.26	91.544	
10,400.00	6,937.63	6,971.63	6,910.37	63.92	27.18	86.52	217.04	-9,439.63	6,152.91	6,084.13	68.78	89.463	
10,500.00	6,937.31	6,974.65	6,913.39	65.33	27.19	86.62	216.92	-9,439.73	6,056.93	5,987.62	69.31	87.390	
10,600.00	6,936.98	6,977.66	6,916.40	66.74	27.20	86.72	216.80	-9,439.82	5,961.08	5,891.22	69.86	85.325	
10,700.00	6,936.66	6,980.67	6,919.40	68.16	27.22	86.82	216.68	-9,439.92	5,865.37	5,794.94	70.44	83.269	
10,800.00	6,936.34	6,983.67	6,922.40	69.59	27.23	86.92	216.57	-9,440.02	5,769.81	5,698.77	71.04	81.223	
10,900.00	6,936.01	6,986.67	6,925.39	71.03	27.24	87.02	216.45	-9,440.12	5,674.39	5,602.74	71.66	79.186	
11,000.00	6,935.69	6,989.66	6,928.38	72.47	27.25	87.12	216.33	-9,440.21	5,579.14	5,506.83	72.31	77.161	
11,100.00	6,935.37	6,992.64	6,931.36	73.92	27.26	87.22	216.21	-9,440.31	5,484.05	5,411.07	72.98	75.147	
11,200.00	6,935.05	6,995.62	6,934.33	75.38	27.27	87.31	216.09	-9,440.41	5,389.14	5,315.46	73.68	73.145	
11,300.00	6,934.72	6,998.59	6,937.30	76.84	27.28	87.41	215.98	-9,440.50	5,294.41	5,220.01	74.41	71.156	
11,400.00	6,934.40	7,001.56	6,940.27	78.31	27.29	87.51	215.86	-9,440.60	5,199.88	5,124.72	75.16	69.180	
11,500.00	6,934.08	7,004.52	6,943.22	79.79	27.30	87.61	215.74	-9,440.69	5,105.56	5,029.61	75.95	67.218	
11,600.00	6,933.75	7,007.48	6,946.18	81.27	27.31	87.71	215.63	-9,440.79	5,011.46	4,934.68	76.78	65.272	
11,700.00	6,933.43	7,010.43	6,949.12	82.75	27.32	87.81	215.51	-9,440.88	4,917.58	4,839.95	77.64	63.341	
11,800.00	6,933.11	7,013.37	6,952.06	84.24	27.34	87.91	215.40	-9,440.98	4,823.95	4,745.42	78.53	61.427	
11,900.00	6,932.78	7,016.31	6,955.00	85.73	27.35	88.01	215.28	-9,441.07	4,730.58	4,651.12	79.46	59.531	
12,000.00	6,932.46	7,019.24	6,957.93	87.23	27.36	88.10	215.17	-9,441.17	4,637.49	4,557.05	80.44	57.653	
12,100.00	6,932.14	7,022.17	6,960.85	88.72	27.37	88.20	215.05	-9,441.26	4,544.68	4,463.23	81.45	55.794	
12,200.00	6,931.81	7,025.09	6,963.77	90.23	27.38	88.30	214.94	-9,441.35	4,452.19	4,369.67	82.52	53.955	
12,300.00	6,931.49	7,028.01	6,966.68	91.74	27.39	88.40	214.82	-9,441.45	4,360.02	4,276.40	83.63	52.137	
12,400.00	6,931.17	7,030.92	6,969.59	93.25	27.40	88.49	214.71	-9,441.54	4,268.21	4,183.42	84.79	50.341	
12,500.00	6,930.85	7,033.82	6,972.49	94.76	27.41	88.59	214.60	-9,441.63	4,176.77	4,090.77	86.00	48.569	
12,600.00	6,930.52	7,036.72	6,975.38	96.27	27.42	88.69	214.48	-9,441.73	4,085.73	3,998.46	87.26	46.820	
12,700.00	6,930.20	7,039.61	6,978.27	97.79	27.43	88.78	214.37	-9,441.82	3,995.11	3,906.52	88.59	45.096	
12,800.00	6,929.88	7,042.50	6,981.16	99.32	27.44	88.88	214.26	-9,441.91	3,904.95	3,814.97	89.98	43.398	
12,900.00	6,929.55	7,045.39	6,984.04	100.84	27.45	88.98	214.15	-9,442.00	3,815.28	3,723.85	91.43	41.728	
13,000.00	6,929.23	7,048.26	6,986.91	102.37	27.46	89.07	214.04	-9,442.09	3,726.13	3,633.18	92.95	40.086	
13,100.00	6,928.91	7,051.13	6,989.78	103.89	27.47	89.17	213.92	-9,442.19	3,637.55	3,543.00	94.55	38.473	
13,200.00	6,928.58	7,054.00	6,992.64	105.43	27.48	89.27	213.81	-9,442.28	3,549.57	3,453.35	96.22	36.890	
13,300.00	6,928.26	7,056.86	6,995.50	106.96	27.49	89.36	213.70	-9,442.37	3,462.24	3,364.27	97.97	35.340	
13,400.00	6,927.94	7,059.72	6,998.35	108.49	27.50	89.46	213.59	-9,442.46	3,375.61	3,275.80	99.81	33.822	
13,500.00	6,927.61	7,062.57	7,001.20	110.03	27.51	89.55	213.48	-9,442.55	3,289.74	3,188.01	101.73	32.338	
13,600.00	6,927.29	7,065.41	7,004.04	111.57	27.53	89.65	213.37	-9,442.64	3,204.68	3,100.93	103.75	30.889	
13,700.00	6,926.97	7,068.25	7,006.87	113.11	27.54	89.74	213.26	-9,442.73	3,120.51	3,014.65	105.86	29.477	
13,800.00	6,926.65	7,071.08	7,009.70	114.65	27.55	89.84	213.15	-9,442.82	3,037.29	2,929.21	108.08	28.103	
13,900.00	6,926.32	7,073.91	7,012.53	116.20	27.56	89.93	213.04	-9,442.91	2,955.12	2,844.71	110.40	26.767	
14,000.00	6,926.00	7,076.73	7,015.35	117.75	27.57	90.03	212.94	-9,443.00	2,874.07	2,761.23	112.83	25.472	
14,100.00	6,925.68	7,079.55	7,018.16	119.29	27.58	90.12	212.83	-9,443.08	2,794.24	2,678.86	115.38	24.218	
14,200.00	6,925.35	7,082.36	7,020.97	120.84	27.59	90.22	212.72	-9,443.17	2,715.75	2,597.71	118.04	23.007	
14,300.00	6,925.03	7,085.17	7,023.77	122.39	27.60	90.31	212.61	-9,443.26	2,638.71	2,517.89	120.82	21.841	
14,400.00	6,924.71	7,087.97	7,026.57	123.94	27.61	90.40	212.50	-9,443.35	2,563.25	2,439.54	123.71	20.719	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #036C - OH - OH-SVY

Offset Site Error: 0.00 usft

Survey Program: 300-B001Mb_MWD+HRGM

Offset Well Error: 0.00 usft

Rule Assigned:

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,500.00	6,924.38	7,090.77	7,029.36	125.50	27.62	90.50	212.40	-9,443.44	2,489.53	2,362.80	126.73	19.645	
14,600.00	6,924.06	7,093.56	7,032.15	127.05	27.63	90.59	212.29	-9,443.53	2,417.68	2,287.82	129.86	18.618	
14,700.00	6,923.74	7,096.35	7,034.93	128.61	27.64	90.69	212.18	-9,443.61	2,347.90	2,214.80	133.10	17.640	
14,800.00	6,923.42	7,099.13	7,037.71	130.16	27.65	90.78	212.08	-9,443.70	2,280.36	2,143.92	136.44	16.713	
14,900.00	6,923.09	7,101.90	7,040.48	131.72	27.66	90.87	211.97	-9,443.79	2,215.28	2,075.40	139.88	15.837	
15,000.00	6,922.77	7,104.67	7,043.25	133.28	27.67	90.96	211.87	-9,443.87	2,152.87	2,009.47	143.39	15.014	
15,100.00	6,922.45	7,107.44	7,046.01	134.84	27.68	91.06	211.76	-9,443.96	2,093.37	1,946.41	146.96	14.244	
15,200.00	6,922.12	7,110.20	7,048.77	136.40	27.69	91.15	211.65	-9,444.05	2,037.05	1,886.49	150.56	13.530	
15,300.00	6,921.80	7,112.95	7,051.52	137.96	27.70	91.24	211.55	-9,444.13	1,984.16	1,830.01	154.15	12.872	
15,400.00	6,921.48	7,115.70	7,054.27	139.53	27.71	91.33	211.45	-9,444.22	1,935.00	1,777.30	157.70	12.270	
15,500.00	6,921.15	7,118.45	7,057.01	141.09	27.72	91.43	211.34	-9,444.30	1,889.85	1,728.68	161.17	11.726	
15,600.00	6,920.83	7,121.19	7,059.75	142.65	27.73	91.52	211.24	-9,444.39	1,849.01	1,684.51	164.50	11.240	
15,700.00	6,920.51	7,123.92	7,062.48	144.22	27.74	91.61	211.13	-9,444.47	1,812.77	1,645.12	167.64	10.813	
15,800.00	6,920.18	7,126.65	7,065.20	145.79	27.75	91.70	211.03	-9,444.56	1,781.40	1,610.87	170.53	10.446	
15,900.00	6,919.86	7,129.38	7,067.92	147.35	27.76	91.79	210.93	-9,444.64	1,755.18	1,582.06	173.12	10.139	
16,000.00	6,919.54	7,132.10	7,070.64	148.92	27.77	91.89	210.82	-9,444.73	1,734.32	1,558.99	175.34	9.891	
16,100.00	6,919.22	7,134.81	7,073.35	150.49	27.78	91.98	210.72	-9,444.81	1,719.04	1,541.90	177.14	9.704	
16,200.00	6,918.89	7,137.52	7,076.06	152.06	27.79	92.07	210.62	-9,444.90	1,709.47	1,530.98	178.49	9.577	
16,300.00	6,918.57	7,140.22	7,078.76	153.63	27.80	92.16	210.52	-9,444.98	1,705.72	1,526.36	179.36	9.510	
16,314.00	6,918.52	7,140.60	7,079.14	153.85	27.80	92.17	210.50	-9,444.99	1,705.67	1,526.22	179.44	9.505	CC, ES
16,400.00	6,918.25	7,142.92	7,081.45	155.20	27.81	92.25	210.42	-9,445.06	1,707.83	1,528.09	179.74	9.502	SF
16,500.00	6,917.92	7,145.62	7,084.14	156.77	27.82	92.34	210.31	-9,445.15	1,715.76	1,536.15	179.61	9.553	
16,600.00	6,917.60	7,148.31	7,086.83	158.34	27.83	92.43	210.21	-9,445.23	1,729.44	1,550.43	179.01	9.661	
16,700.00	6,917.28	7,150.99	7,089.51	159.92	27.84	92.52	210.11	-9,445.31	1,748.74	1,570.78	177.96	9.826	
16,800.00	6,916.95	7,153.67	7,092.19	161.49	27.85	92.61	210.01	-9,445.40	1,773.48	1,596.97	176.51	10.048	
16,900.00	6,916.63	7,156.34	7,094.86	163.06	27.86	92.70	209.91	-9,445.48	1,803.42	1,628.73	174.69	10.324	
17,000.00	6,916.31	7,159.01	7,097.53	164.64	27.87	92.79	209.81	-9,445.56	1,838.32	1,665.75	172.57	10.653	
17,100.00	6,915.98	7,161.68	7,100.19	166.21	27.88	92.88	209.71	-9,445.64	1,877.89	1,707.70	170.19	11.034	
17,200.00	6,915.66	7,164.34	7,102.84	167.79	27.89	92.97	209.61	-9,445.72	1,921.86	1,754.24	167.63	11.465	
17,300.00	6,915.34	7,166.99	7,105.49	169.37	27.90	93.06	209.51	-9,445.80	1,969.92	1,805.01	164.91	11.945	
17,400.00	6,915.02	7,169.64	7,108.14	170.94	27.91	93.15	209.41	-9,445.89	2,021.79	1,859.69	162.10	12.473	
17,500.00	6,914.69	7,172.29	7,110.78	172.52	27.92	93.23	209.31	-9,445.97	2,077.17	1,917.95	159.22	13.046	
17,600.00	6,914.37	7,174.93	7,113.42	174.10	27.93	93.32	209.21	-9,446.05	2,135.80	1,979.47	156.32	13.663	
17,700.00	6,914.05	7,177.56	7,116.05	175.68	27.93	93.41	209.12	-9,446.13	2,197.41	2,043.98	153.43	14.322	
17,800.00	6,913.72	7,180.19	7,118.68	177.25	27.94	93.50	209.02	-9,446.21	2,261.77	2,111.20	150.57	15.022	
17,900.00	6,913.40	7,182.82	7,121.30	178.83	27.95	93.59	208.92	-9,446.29	2,328.64	2,180.88	147.75	15.760	
18,000.00	6,913.08	7,185.44	7,123.92	180.41	27.96	93.68	208.82	-9,446.37	2,397.81	2,252.81	145.00	16.536	
18,023.75	6,913.00	7,186.06	7,124.54	180.79	27.97	93.70	208.80	-9,446.39	2,414.56	2,270.20	144.36	16.726	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #040 - OH - OH-TD

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	488.00	488.00	0.00	14.62	87.10	915.69	18,106.26	18,129.40				
100.00	100.00	588.10	588.00	0.25	17.62	87.10	915.69	18,106.26	18,129.40	18,111.52	17.87	1,014.339	
200.00	200.00	688.10	688.00	0.61	20.62	87.10	915.69	18,106.26	18,129.40	18,108.17	21.23	854.031	
300.00	300.00	790.71	790.56	0.97	23.69	87.10	917.81	18,106.26	18,129.50	18,104.84	24.66	735.146	
400.00	400.00	897.55	897.38	1.33	26.89	87.10	917.11	18,106.26	18,129.47	18,101.25	28.22	642.410	
500.00	500.00	1,004.42	1,004.22	1.68	30.10	87.11	915.61	18,106.26	18,129.40	18,097.62	31.78	570.432	
511.40	511.40	1,016.61	1,016.40	1.72	30.46	-92.85	915.39	18,106.26	18,129.39	18,097.21	32.19	563.271 CC	
600.00	599.98	1,088.39	1,087.98	2.03	32.61	-92.85	915.69	18,106.26	18,129.48	18,094.85	34.64	523.387	
700.00	699.84	1,188.24	1,187.84	2.36	35.61	-92.87	915.69	18,106.26	18,129.75	18,091.78	37.96	477.560	
800.00	799.45	1,290.50	1,290.05	2.71	38.67	-92.89	917.81	18,106.26	18,130.29	18,088.92	41.37	438.240	
900.00	898.70	1,396.80	1,396.32	3.06	41.85	-92.92	917.12	18,106.26	18,130.88	18,085.97	44.91	403.700	
1,000.00	997.47	1,502.86	1,502.35	3.43	45.03	-92.95	915.64	18,106.26	18,131.62	18,083.16	48.46	374.150	
1,100.00	1,095.62	1,584.33	1,583.62	3.82	47.47	-92.98	915.69	18,106.26	18,132.62	18,081.33	51.29	353.528	
1,207.83	1,200.65	1,689.36	1,688.65	4.26	50.62	-93.03	915.69	18,106.26	18,133.93	18,079.05	54.88	330.431	
1,300.00	1,290.02	1,780.95	1,780.20	4.65	53.37	-93.11	917.84	18,106.26	18,135.30	18,077.28	58.02	312.583	
1,400.00	1,386.98	1,885.65	1,884.88	5.09	56.50	-93.19	917.23	18,106.26	18,136.65	18,075.05	61.59	294.466	
1,500.00	1,483.95	1,990.77	1,989.96	5.53	59.65	-93.26	915.84	18,106.26	18,137.99	18,072.80	65.19	278.250	
1,600.00	1,580.91	2,069.93	2,068.91	5.99	62.02	-93.32	915.69	18,106.26	18,139.41	18,071.41	68.01	266.722	
1,700.00	1,677.87	2,166.89	2,165.87	6.44	64.93	-93.40	915.69	18,106.26	18,140.89	18,069.52	71.37	254.183	
1,800.00	1,774.84	2,265.07	2,264.01	6.90	67.87	-93.48	917.86	18,106.26	18,142.54	18,067.77	74.77	242.643	
1,900.00	1,871.80	2,370.70	2,369.63	7.36	71.04	-93.56	917.36	18,106.26	18,144.06	18,065.66	78.40	231.435	
2,000.00	1,968.76	2,476.77	2,475.66	7.83	74.22	-93.64	916.07	18,106.26	18,145.56	18,063.52	82.04	221.177	
2,100.00	2,065.73	2,555.05	2,553.73	8.30	76.56	-93.70	915.69	18,106.26	18,147.14	18,062.28	84.85	213.865	
2,200.00	2,162.69	2,652.01	2,650.69	8.77	79.47	-93.77	915.69	18,106.26	18,148.78	18,060.55	88.23	205.705	
2,300.00	2,259.65	2,748.97	2,747.65	9.24	82.37	-93.85	915.69	18,106.26	18,150.46	18,058.85	91.60	198.144	
2,400.00	2,356.61	2,855.48	2,854.10	9.71	85.56	-93.93	917.48	18,106.26	18,152.29	18,057.03	95.27	190.545	
2,500.00	2,453.58	2,962.50	2,961.10	10.18	88.77	-94.01	916.29	18,106.26	18,153.96	18,055.01	98.94	183.476	
2,600.00	2,550.54	3,040.17	3,038.54	10.66	91.10	-94.07	915.69	18,106.26	18,155.68	18,053.93	101.74	178.443	
2,700.00	2,647.50	3,137.13	3,135.50	11.13	94.00	-94.15	915.69	18,106.26	18,157.49	18,052.36	105.12	172.724	
2,800.00	2,744.47	3,234.09	3,232.47	11.61	96.91	-94.22	915.69	18,106.26	18,159.33	18,050.82	108.50	167.360	
2,900.00	2,841.43	3,339.96	3,338.28	12.08	100.08	-94.31	917.59	18,106.26	18,161.35	18,049.19	112.15	161.935	
3,000.00	2,938.39	3,447.97	3,446.27	12.56	103.32	-94.39	916.50	18,106.26	18,163.18	18,047.31	115.86	156.762	
3,100.00	3,035.36	3,525.28	3,523.36	13.04	105.63	-94.44	915.69	18,106.26	18,165.04	18,046.38	118.66	153.088	
3,200.00	3,132.32	3,622.25	3,620.32	13.51	108.54	-94.52	915.69	18,106.26	18,167.01	18,044.97	122.04	148.862	
3,300.00	3,229.28	3,719.21	3,717.28	13.99	111.44	-94.59	915.69	18,106.26	18,169.01	18,043.59	125.42	144.863	
3,400.00	3,326.25	3,824.15	3,822.17	14.47	114.59	-94.68	917.68	18,106.26	18,171.22	18,042.18	129.04	140.814	
3,500.00	3,423.21	3,933.16	3,931.15	14.95	117.86	-94.76	916.70	18,106.26	18,173.22	18,040.43	132.79	136.859	
3,600.00	3,520.17	4,010.40	4,008.17	15.43	120.17	-94.82	915.69	18,106.26	18,175.22	18,039.64	135.58	134.055	
3,700.00	3,617.13	4,107.37	4,105.13	15.91	123.08	-94.89	915.69	18,106.26	18,177.35	18,038.39	138.96	130.806	
3,800.00	3,714.10	4,204.33	4,202.10	16.39	125.98	-94.97	915.69	18,106.26	18,179.52	18,037.17	142.35	127.712	
3,900.00	3,811.06	4,308.04	4,305.76	16.87	129.09	-95.05	917.75	18,106.26	18,181.91	18,035.97	145.93	124.590	
4,000.00	3,908.02	4,418.07	4,415.76	17.35	132.39	-95.13	916.88	18,106.26	18,184.07	18,034.36	149.71	121.462	
4,100.00	4,004.99	4,528.55	4,526.20	17.83	135.70	-95.21	915.16	18,106.26	18,186.20	18,032.70	153.50	118.477	
4,200.00	4,101.95	4,592.49	4,589.95	18.31	137.61	-95.26	915.69	18,106.26	18,188.51	18,032.62	155.89	116.672	
4,300.00	4,198.91	4,689.45	4,686.91	18.79	140.52	-95.34	915.69	18,106.26	18,190.84	18,031.57	159.28	114.207	
4,400.00	4,295.88	4,791.61	4,789.03	19.27	143.58	-95.42	917.81	18,106.26	18,193.41	18,030.59	162.82	111.740	
4,500.00	4,392.84	4,902.67	4,900.07	19.75	146.91	-95.51	917.05	18,106.26	18,195.75	18,029.12	166.63	109.201	
4,600.00	4,489.80	5,014.21	5,011.56	20.23	150.25	-95.59	915.43	18,106.26	18,198.03	18,027.59	170.45	106.766	
4,700.00	4,586.76	5,077.61	5,074.76	20.71	152.15	-95.64	915.69	18,106.26	18,200.49	18,027.66	172.83	105.310	
4,800.00	4,683.73	5,174.57	5,171.73	21.20	155.05	-95.71	915.69	18,106.26	18,202.98	18,026.77	176.21	103.301	
4,900.00	4,780.69	5,274.86	5,271.97	21.68	158.06	-95.79	917.85	18,106.26	18,205.73	18,026.03	179.70	101.314	
5,000.00	4,877.65	5,386.98	5,384.07	22.16	161.42	-95.88	917.21	18,106.26	18,208.23	18,024.70	183.54	99.208	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #040 - OH - OH-TD

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,100.00	4,974.62	5,499.58	5,496.64	22.64	164.79	-95.96	915.69	18,106.26	18,210.69	18,023.30	187.39	97.181	
5,200.00	5,071.58	5,562.73	5,559.58	23.12	166.68	-96.01	915.69	18,106.26	18,213.28	18,023.51	189.76	95.980	
5,300.00	5,168.54	5,659.69	5,656.54	23.60	169.59	-96.08	915.69	18,106.26	18,215.93	18,022.78	193.15	94.311	
5,400.00	5,265.51	5,757.77	5,754.59	24.09	172.53	-96.16	917.87	18,106.26	18,218.86	18,022.29	196.57	92.686	
5,500.00	5,362.47	5,870.97	5,867.77	24.57	175.92	-96.25	917.36	18,106.26	18,221.53	18,021.10	200.44	90.909	
5,600.00	5,459.43	5,984.66	5,981.42	25.05	179.33	-96.33	915.95	18,106.26	18,224.15	18,019.83	204.32	89.193	
5,700.00	5,556.40	6,047.85	6,044.40	25.53	181.22	-96.38	915.69	18,106.26	18,226.88	18,020.18	206.70	88.182	
5,800.00	5,653.36	6,144.81	6,141.36	26.01	184.13	-96.45	915.69	18,106.26	18,229.69	18,019.61	210.08	86.774	
5,900.00	5,750.32	6,241.77	6,238.32	26.50	187.03	-96.53	915.69	18,106.26	18,232.54	18,019.08	213.47	85.412	
6,000.00	5,847.28	6,354.65	6,351.14	26.98	190.41	-96.62	917.49	18,106.26	18,235.64	18,018.32	217.33	83.908	
6,100.00	5,944.25	6,469.45	6,465.90	27.46	193.85	-96.70	916.19	18,106.26	18,238.43	18,017.18	221.25	82.434	
6,200.00	6,041.21	6,532.97	6,529.21	27.94	195.76	-96.75	915.69	18,106.26	18,241.28	18,017.65	223.63	81.569	
6,300.00	6,138.17	6,629.93	6,626.17	28.43	198.66	-96.82	915.69	18,106.26	18,244.26	18,017.25	227.02	80.366	
6,400.00	6,235.14	6,726.89	6,723.14	28.91	201.57	-96.90	915.69	18,106.26	18,247.27	18,016.87	230.40	79.198	
6,496.84	6,329.04	6,834.33	6,830.52	29.38	204.79	-96.98	917.62	18,106.26	18,250.47	18,016.38	234.08	77.965	
6,500.00	6,332.10	6,837.99	6,834.18	29.39	204.90	-98.11	917.60	18,106.26	18,250.57	18,016.36	234.21	77.924 ES	
6,550.00	6,380.52	6,895.82	6,892.00	29.63	206.63	-115.39	917.13	18,106.26	18,254.24	18,018.06	236.18	77.290	
6,600.00	6,428.63	6,953.40	6,949.56	29.87	208.36	-129.88	916.42	18,106.26	18,261.77	18,023.63	238.14	76.686	
6,650.00	6,476.14	7,010.38	7,006.51	30.10	210.06	-140.86	915.50	18,106.26	18,273.10	18,033.03	240.07	76.117	
6,700.00	6,522.73	7,014.79	7,010.73	30.33	210.19	-148.93	915.69	18,106.26	18,288.26	18,047.85	240.41	76.071	
6,750.00	6,568.14	7,060.20	7,056.14	30.54	211.56	-154.96	915.69	18,106.26	18,307.10	18,065.13	241.97	75.658	
6,800.00	6,612.08	7,104.14	7,100.08	30.75	212.87	-159.58	915.69	18,106.26	18,329.48	18,086.01	243.47	75.283	
6,850.00	6,654.28	7,146.34	7,142.28	30.95	214.14	-163.26	915.69	18,106.26	18,355.27	18,110.36	244.91	74.947	
6,900.00	6,694.47	7,186.54	7,182.47	31.15	215.34	-166.31	915.69	18,106.26	18,384.31	18,138.04	246.27	74.650	
6,950.00	6,732.42	7,224.48	7,220.42	31.33	216.48	-168.95	915.69	18,106.26	18,416.41	18,168.86	247.55	74.394	
7,000.00	6,767.89	7,261.98	7,257.88	31.51	217.60	-171.36	917.86	18,106.26	18,451.65	18,202.85	248.80	74.162	
7,050.00	6,800.65	7,301.39	7,297.29	31.68	218.78	-173.66	917.78	18,106.26	18,489.26	18,239.17	250.09	73.930	
7,100.00	6,830.51	7,337.36	7,333.25	31.85	219.86	-176.01	917.60	18,106.26	18,529.27	18,278.01	251.26	73.745	
7,150.00	6,857.28	7,369.65	7,365.53	32.01	220.83	-178.58	917.37	18,106.26	18,571.44	18,319.14	252.30	73.608	
7,200.00	6,880.80	7,398.05	7,393.92	32.17	221.68	178.41	917.10	18,106.26	18,615.52	18,362.32	253.21	73.519	
7,250.00	6,900.92	7,422.37	7,418.24	32.33	222.41	174.58	916.83	18,106.26	18,661.24	18,407.27	253.97	73.477 SF	
7,300.00	6,917.52	7,442.45	7,438.31	32.49	223.01	169.25	916.57	18,106.26	18,708.31	18,453.72	254.59	73.483	
7,350.00	6,930.50	7,458.16	7,454.01	32.66	223.48	161.06	916.36	18,106.26	18,756.45	18,501.39	255.07	73.535	
7,400.00	6,939.77	7,469.38	7,465.23	32.83	223.82	147.14	916.19	18,106.26	18,805.37	18,549.98	255.39	73.633	
7,450.00	6,945.28	7,476.05	7,471.90	33.01	224.02	122.62	916.08	18,106.26	18,854.76	18,599.20	255.57	73.776	
7,499.66	6,947.00	7,478.13	7,473.98	33.19	224.08	89.51	916.05	18,106.26	18,903.99	18,648.40	255.59	73.962	
7,600.00	6,946.68	7,477.73	7,473.57	33.61	224.07	89.50	916.06	18,106.26	19,003.43	18,747.94	255.49	74.381	
7,700.00	6,946.35	7,477.33	7,473.17	34.10	224.05	89.50	916.06	18,106.26	19,102.54	18,847.15	255.39	74.797	
7,800.00	6,946.03	7,476.93	7,472.77	34.66	224.04	89.49	916.07	18,106.26	19,201.66	18,946.36	255.30	75.213	
7,900.00	6,945.71	7,476.53	7,472.38	35.29	224.03	89.48	916.08	18,106.26	19,300.79	19,045.58	255.20	75.629	
8,000.00	6,945.38	7,476.13	7,471.98	35.99	224.02	89.47	916.08	18,106.26	19,399.92	19,144.81	255.12	76.044	
8,100.00	6,945.06	7,475.73	7,471.58	36.74	224.01	89.46	916.09	18,106.26	19,499.07	19,244.04	255.03	76.458	
8,200.00	6,944.74	7,475.33	7,471.18	37.56	223.99	89.45	916.10	18,106.26	19,598.23	19,343.28	254.94	76.873	
8,300.00	6,944.41	7,474.93	7,470.78	38.43	223.98	89.44	916.10	18,106.26	19,697.39	19,442.53	254.86	77.286	
8,400.00	6,944.09	7,474.53	7,470.38	39.35	223.97	89.43	916.11	18,106.26	19,796.56	19,541.78	254.78	77.699	
8,500.00	6,943.77	7,474.13	7,469.98	40.31	223.96	89.42	916.11	18,106.26	19,895.74	19,641.03	254.71	78.112	
8,600.00	6,943.45	7,473.73	7,469.58	41.32	223.95	89.41	916.12	18,106.26	19,994.93	19,740.30	254.63	78.524	
8,700.00	6,943.12	7,473.33	7,469.18	42.37	223.93	89.40	916.13	18,106.26	20,094.13	19,839.56	254.56	78.936	
8,800.00	6,942.80	7,472.93	7,468.78	43.45	223.92	89.40	916.13	18,106.26	20,193.33	19,938.84	254.49	79.347	
8,900.00	6,942.48	7,472.53	7,468.38	44.57	223.91	89.39	916.14	18,106.26	20,292.54	20,038.12	254.43	79.758	
9,000.00	6,942.15	7,472.13	7,467.98	45.71	223.90	89.38	916.15	18,106.26	20,391.76	20,137.40	254.36	80.168	
9,100.00	6,941.83	7,471.73	7,467.58	46.89	223.89	89.37	916.15	18,106.26	20,490.99	20,236.69	254.30	80.577	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #040 - OH - OH-TD

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Rule Assigned: Warning
9,200.00	6,941.51	7,471.33	7,467.18	48.09	223.87	89.36	916.16	18,106.26	20,590.23	20,335.98	254.24	80.986	
9,300.00	6,941.18	7,470.94	7,466.78	49.31	223.86	89.35	916.16	18,106.26	20,689.47	20,435.28	254.19	81.395	
9,400.00	6,940.86	7,470.54	7,466.39	50.56	223.85	89.34	916.17	18,106.26	20,788.72	20,534.59	254.13	81.803	
9,500.00	6,940.54	7,470.14	7,465.99	51.82	223.84	89.33	916.18	18,106.26	20,887.98	20,633.90	254.08	82.211	
9,600.00	6,940.21	7,469.74	7,465.59	53.11	223.83	89.32	916.18	18,106.26	20,987.24	20,733.21	254.03	82.618	
9,700.00	6,939.89	7,469.34	7,465.19	54.41	223.82	89.31	916.19	18,106.26	21,086.51	20,832.53	253.98	83.024	
9,800.00	6,939.57	7,468.94	7,464.79	55.73	223.80	89.31	916.19	18,106.26	21,185.79	20,931.85	253.94	83.430	
9,900.00	6,939.25	7,468.54	7,464.39	57.07	223.79	89.30	916.20	18,106.26	21,285.07	21,031.18	253.89	83.835	
10,000.00	6,938.92	7,468.14	7,463.99	58.41	223.78	89.29	916.21	18,106.26	21,384.36	21,130.51	253.85	84.240	
10,100.00	6,938.60	7,467.74	7,463.59	59.77	223.77	89.28	916.21	18,106.26	21,483.66	21,229.85	253.81	84.644	
10,200.00	6,938.28	7,467.34	7,463.19	61.15	223.76	89.27	916.22	18,106.26	21,582.97	21,329.19	253.77	85.048	
10,300.00	6,937.95	7,466.94	7,462.79	62.53	223.74	89.26	916.22	18,106.26	21,682.28	21,428.54	253.74	85.451	
10,400.00	6,937.63	7,466.55	7,462.40	63.92	223.73	89.25	916.23	18,106.26	21,781.59	21,527.89	253.71	85.854	
10,500.00	6,937.31	7,466.15	7,462.00	65.33	223.72	89.24	916.24	18,106.26	21,880.92	21,627.24	253.67	86.256	
10,600.00	6,936.98	7,465.75	7,461.60	66.74	223.71	89.23	916.24	18,106.26	21,980.25	21,726.60	253.65	86.657	
10,700.00	6,936.66	7,465.35	7,461.20	68.16	223.70	89.22	916.25	18,106.26	22,079.58	21,825.96	253.62	87.058	
10,800.00	6,936.34	7,464.95	7,460.80	69.59	223.68	89.22	916.25	18,106.26	22,178.92	21,925.33	253.59	87.458	
10,900.00	6,936.01	7,464.55	7,460.40	71.03	223.67	89.21	916.26	18,106.26	22,278.27	22,024.70	253.57	87.858	
11,000.00	6,935.69	7,464.15	7,460.00	72.47	223.66	89.20	916.27	18,106.26	22,377.62	22,124.07	253.55	88.257	
11,100.00	6,935.37	7,463.75	7,459.61	73.92	223.65	89.19	916.27	18,106.26	22,476.98	22,223.45	253.53	88.656	
11,200.00	6,935.05	7,463.36	7,459.21	75.38	223.64	89.18	916.28	18,106.26	22,576.35	22,322.83	253.51	89.054	
11,300.00	6,934.72	7,462.96	7,458.81	76.84	223.62	89.17	916.28	18,106.26	22,675.72	22,422.22	253.50	89.452	
11,400.00	6,934.40	7,462.56	7,458.41	78.31	223.61	89.16	916.29	18,106.26	22,775.09	22,521.61	253.48	89.849	
11,500.00	6,934.08	7,462.16	7,458.01	79.79	223.60	89.15	916.30	18,106.26	22,874.47	22,621.00	253.47	90.245	
11,600.00	6,933.75	7,461.76	7,457.61	81.27	223.59	89.14	916.30	18,106.26	22,973.86	22,720.40	253.46	90.641	
11,700.00	6,933.43	7,461.36	7,457.22	82.75	223.58	89.13	916.31	18,106.26	23,073.25	22,819.80	253.45	91.036	
11,800.00	6,933.11	7,460.97	7,456.82	84.24	223.56	89.13	916.31	18,106.26	23,172.65	22,919.20	253.45	91.431	
11,900.00	6,932.78	7,460.57	7,456.42	85.73	223.55	89.12	916.32	18,106.26	23,272.05	23,018.61	253.44	91.825	
12,000.00	6,932.46	7,460.17	7,456.02	87.23	223.54	89.11	916.33	18,106.26	23,371.46	23,118.02	253.44	92.218	
12,100.00	6,932.14	7,459.77	7,455.62	88.72	223.53	89.10	916.33	18,106.26	23,470.87	23,217.43	253.44	92.611	
12,200.00	6,931.81	7,459.37	7,455.22	90.23	223.52	89.09	916.34	18,106.26	23,570.29	23,316.85	253.44	93.003	
12,300.00	6,931.49	7,458.97	7,454.83	91.74	223.50	89.08	916.34	18,106.26	23,669.71	23,416.27	253.44	93.395	
12,400.00	6,931.17	7,458.58	7,454.43	93.25	223.49	89.07	916.35	18,106.26	23,769.13	23,515.69	253.44	93.786	
12,500.00	6,930.85	7,458.18	7,454.03	94.76	223.48	89.06	916.35	18,106.26	23,868.57	23,615.12	253.44	94.177	
12,600.00	6,930.52	7,457.78	7,453.63	96.27	223.47	89.05	916.36	18,106.26	23,968.00	23,714.55	253.45	94.567	
12,700.00	6,930.20	7,457.38	7,453.23	97.79	223.46	89.04	916.37	18,106.26	24,067.44	23,813.98	253.46	94.956	
12,800.00	6,929.88	7,456.98	7,452.84	99.32	223.44	89.04	916.37	18,106.26	24,166.89	23,913.42	253.47	95.345	
12,900.00	6,929.55	7,456.59	7,452.44	100.84	223.43	89.03	916.38	18,106.26	24,266.34	24,012.86	253.48	95.733	
13,000.00	6,929.23	7,456.19	7,452.04	102.37	223.42	89.02	916.38	18,106.26	24,365.79	24,112.30	253.49	96.121	
13,100.00	6,928.91	7,455.79	7,451.64	103.89	223.41	89.01	916.39	18,106.26	24,465.25	24,211.75	253.51	96.508	
13,200.00	6,928.58	7,455.39	7,451.25	105.43	223.40	89.00	916.40	18,106.26	24,564.72	24,311.20	253.52	96.894	
13,300.00	6,928.26	7,454.99	7,450.85	106.96	223.39	88.99	916.40	18,106.26	24,664.18	24,410.65	253.54	97.280	
13,400.00	6,927.94	7,454.60	7,450.45	108.49	223.37	88.98	916.41	18,106.26	24,763.66	24,510.10	253.56	97.666	
13,500.00	6,927.61	7,454.20	7,450.05	110.03	223.36	88.97	916.41	18,106.26	24,863.13	24,609.56	253.57	98.051	
13,600.00	6,927.29	7,453.80	7,449.65	111.57	223.35	88.96	916.42	18,106.26	24,962.61	24,709.02	253.60	98.435	
13,700.00	6,926.97	7,453.40	7,449.26	113.11	223.34	88.95	916.42	18,106.26	25,062.10	24,808.48	253.62	98.818	
13,800.00	6,926.65	7,453.00	7,448.86	114.65	223.33	88.95	916.43	18,106.26	25,161.59	24,907.94	253.64	99.201	
13,900.00	6,926.32	7,452.61	7,448.46	116.20	223.31	88.94	916.43	18,106.26	25,261.08	25,007.41	253.67	99.584	
14,000.00	6,926.00	7,452.21	7,448.06	117.75	223.30	88.93	916.44	18,106.26	25,360.58	25,106.88	253.69	99.966	
14,100.00	6,925.68	7,451.81	7,447.67	119.29	223.29	88.92	916.45	18,106.26	25,460.08	25,206.36	253.72	100.347	
14,200.00	6,925.35	7,451.41	7,447.27	120.84	223.28	88.91	916.45	18,106.26	25,559.58	25,305.83	253.75	100.728	
14,300.00	6,925.03	7,451.02	7,446.87	122.39	223.27	88.90	916.46	18,106.26	25,659.09	25,405.31	253.78	101.108	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #040 - OH - OH-TD

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Rule Assigned:

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,400.00	6,924.71	7,450.62	7,446.47	123.94	223.25	88.89	916.46	18,106.26	25,758.60	25,504.79	253.81	101.488	
14,500.00	6,924.38	7,450.22	7,446.08	125.50	223.24	88.88	916.47	18,106.26	25,858.12	25,604.27	253.84	101.867	
14,600.00	6,924.06	7,449.82	7,445.68	127.05	223.23	88.87	916.47	18,106.26	25,957.64	25,703.76	253.88	102.245	
14,700.00	6,923.74	7,449.43	7,445.28	128.61	223.22	88.87	916.48	18,106.26	26,057.16	25,803.25	253.91	102.623	
14,800.00	6,923.42	7,449.03	7,444.89	130.16	223.21	88.86	916.49	18,106.26	26,156.69	25,902.74	253.95	103.000	
14,900.00	6,923.09	7,448.63	7,444.49	131.72	223.19	88.85	916.49	18,106.26	26,256.22	26,002.23	253.98	103.377	
15,000.00	6,922.77	7,448.24	7,444.09	133.28	223.18	88.84	916.50	18,106.26	26,355.75	26,101.73	254.02	103.753	
15,100.00	6,922.45	7,447.84	7,443.69	134.84	223.17	88.83	916.50	18,106.26	26,455.29	26,201.23	254.06	104.129	
15,200.00	6,922.12	7,447.44	7,443.30	136.40	223.16	88.82	916.51	18,106.26	26,554.83	26,300.73	254.10	104.504	
15,300.00	6,921.80	7,447.04	7,442.90	137.96	223.15	88.81	916.51	18,106.26	26,654.37	26,400.23	254.15	104.878	
15,400.00	6,921.48	7,446.65	7,442.50	139.53	223.14	88.80	916.52	18,106.26	26,753.92	26,499.73	254.19	105.252	
15,500.00	6,921.15	7,446.25	7,442.11	141.09	223.12	88.79	916.52	18,106.26	26,853.47	26,599.24	254.23	105.626	
15,600.00	6,920.83	7,445.85	7,441.71	142.65	223.11	88.78	916.53	18,106.26	26,953.03	26,698.75	254.28	105.999	
15,700.00	6,920.51	7,445.46	7,441.31	144.22	223.10	88.78	916.53	18,106.26	27,052.59	26,798.26	254.32	106.371	
15,800.00	6,920.18	7,445.06	7,440.92	145.79	223.09	88.77	916.54	18,106.26	27,152.15	26,897.78	254.37	106.743	
15,900.00	6,919.86	7,444.66	7,440.52	147.35	223.08	88.76	916.55	18,106.26	27,251.71	26,997.29	254.42	107.114	
16,000.00	6,919.54	7,444.26	7,440.12	148.92	223.06	88.75	916.55	18,106.26	27,351.28	27,096.81	254.47	107.484	
16,100.00	6,919.22	7,443.87	7,439.73	150.49	223.05	88.74	916.56	18,106.26	27,450.85	27,196.33	254.52	107.854	
16,200.00	6,918.89	7,443.47	7,439.33	152.06	223.04	88.73	916.56	18,106.26	27,550.42	27,295.85	254.57	108.224	
16,300.00	6,918.57	7,443.07	7,438.93	153.63	223.03	88.72	916.57	18,106.26	27,650.00	27,395.38	254.62	108.593	
16,400.00	6,918.25	7,442.68	7,438.54	155.20	223.02	88.71	916.57	18,106.26	27,749.58	27,494.91	254.67	108.961	
16,500.00	6,917.92	7,442.28	7,438.14	156.77	223.00	88.70	916.58	18,106.26	27,849.16	27,594.44	254.73	109.329	
16,600.00	6,917.60	7,441.88	7,437.74	158.34	222.99	88.69	916.58	18,106.26	27,948.75	27,693.97	254.78	109.696	
16,700.00	6,917.28	7,441.49	7,437.35	159.92	222.98	88.69	916.59	18,106.26	28,048.34	27,793.50	254.84	110.063	
16,800.00	6,916.95	7,441.09	7,436.95	161.49	222.97	88.68	916.59	18,106.26	28,147.93	27,893.03	254.90	110.429	
16,900.00	6,916.63	7,440.69	7,436.55	163.06	222.96	88.67	916.60	18,106.26	28,247.52	27,992.57	254.95	110.795	
17,000.00	6,916.31	7,440.30	7,436.16	164.64	222.94	88.66	916.60	18,106.26	28,347.12	28,092.11	255.01	111.160	
17,100.00	6,915.98	7,439.90	7,435.76	166.21	222.93	88.65	916.61	18,106.26	28,446.72	28,191.65	255.07	111.525	
17,200.00	6,915.66	7,439.50	7,435.36	167.79	222.92	88.64	916.61	18,106.26	28,546.32	28,291.19	255.13	111.889	
17,300.00	6,915.34	7,439.11	7,434.97	169.37	222.91	88.63	916.62	18,106.26	28,645.93	28,390.74	255.19	112.253	
17,400.00	6,915.02	7,438.71	7,434.57	170.94	222.90	88.62	916.62	18,106.26	28,745.54	28,490.29	255.25	112.616	
17,500.00	6,914.69	7,438.31	7,434.17	172.52	222.89	88.61	916.63	18,106.26	28,845.15	28,589.83	255.32	112.978	
17,600.00	6,914.37	7,437.92	7,433.78	174.10	222.87	88.61	916.64	18,106.26	28,944.76	28,689.38	255.38	113.340	
17,700.00	6,914.05	7,437.52	7,433.38	175.68	222.86	88.60	916.64	18,106.26	29,044.38	28,788.94	255.44	113.702	
17,800.00	6,913.72	7,437.13	7,432.99	177.25	222.85	88.59	916.65	18,106.26	29,144.00	28,888.49	255.51	114.062	
17,900.00	6,913.40	7,436.73	7,432.59	178.83	222.84	88.58	916.65	18,106.26	29,243.62	28,988.05	255.58	114.423	
18,000.00	6,913.08	7,436.33	7,432.19	180.41	222.83	88.57	916.66	18,106.26	29,343.25	29,087.60	255.64	114.783	
18,023.75	6,913.00	7,436.24	7,432.10	180.79	222.82	88.57	916.66	18,106.26	29,366.91	29,111.25	255.66	114.868	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #041C - OH - OH-TD

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	23.00	23.00	0.00	0.69	68.59	1,803.74	4,599.75	4,940.76				
100.00	100.00	123.00	123.00	0.25	3.69	68.59	1,803.74	4,599.75	4,940.76	4,936.83	3.94	1,255.046	
200.00	200.00	223.00	223.00	0.61	6.68	68.59	1,803.74	4,599.75	4,940.76	4,933.47	7.29	677.596	
300.00	300.00	323.00	323.00	0.97	9.68	68.59	1,803.74	4,599.75	4,940.76	4,930.12	10.65	464.074	
400.00	400.00	423.00	423.00	1.33	12.68	68.59	1,803.74	4,599.75	4,940.76	4,926.76	14.00	352.877	
500.00	500.00	523.10	523.00	1.68	15.67	68.59	1,803.74	4,599.75	4,940.76	4,923.40	17.36	284.618	CC
600.00	599.98	623.08	622.98	2.03	18.67	-111.37	1,803.74	4,599.75	4,941.40	4,920.70	20.70	238.757	
700.00	699.84	722.94	722.84	2.36	21.66	-111.40	1,803.74	4,599.75	4,943.31	4,919.29	24.02	205.789	ES
800.00	799.45	833.20	833.05	2.71	24.97	-111.46	1,805.67	4,599.75	4,947.23	4,919.56	27.67	178.803	
900.00	898.70	947.21	947.03	3.06	28.38	-111.52	1,804.56	4,599.75	4,951.36	4,919.92	31.44	157.488	
1,000.00	997.47	1,020.87	1,020.47	3.43	30.59	-111.53	1,803.74	4,599.75	4,956.79	4,922.77	34.02	145.721	
1,100.00	1,095.62	1,119.03	1,118.62	3.82	33.53	-111.60	1,803.74	4,599.75	4,963.91	4,926.57	37.34	132.935	
1,207.83	1,200.65	1,224.06	1,223.65	4.26	36.68	-111.69	1,803.74	4,599.75	4,973.12	4,932.20	40.92	121.525	
1,300.00	1,290.02	1,323.29	1,322.83	4.65	39.65	-111.97	1,805.73	4,599.75	4,982.49	4,938.21	44.28	112.521	
1,400.00	1,386.98	1,435.69	1,435.21	5.09	43.02	-112.25	1,804.71	4,599.75	4,991.59	4,943.51	48.07	103.832	
1,500.00	1,483.95	1,507.66	1,506.95	5.53	45.18	-112.43	1,803.74	4,599.75	5,000.67	4,950.01	50.66	98.705	
1,600.00	1,580.91	1,604.62	1,603.91	5.99	48.08	-112.68	1,803.74	4,599.75	5,010.30	4,956.30	54.01	92.774	
1,700.00	1,677.87	1,701.58	1,700.87	6.44	50.99	-112.93	1,803.74	4,599.75	5,020.03	4,962.68	57.35	87.531	
1,800.00	1,774.84	1,806.66	1,805.90	6.90	54.14	-113.22	1,805.80	4,599.75	5,030.71	4,969.76	60.94	82.546	
1,900.00	1,871.80	1,920.15	1,919.36	7.36	57.54	-113.51	1,804.90	4,599.75	5,040.33	4,975.54	64.79	77.793	
2,000.00	1,968.76	2,034.12	2,033.29	7.83	60.95	-113.78	1,803.10	4,599.75	5,049.73	4,981.08	68.66	73.552	
2,100.00	2,065.73	2,089.74	2,088.73	8.30	62.62	-113.93	1,803.74	4,599.75	5,059.95	4,989.18	70.77	71.497	
2,200.00	2,162.69	2,186.70	2,185.69	8.77	65.52	-114.17	1,803.74	4,599.75	5,070.18	4,996.05	74.13	68.398	
2,300.00	2,259.65	2,289.70	2,288.64	9.24	68.61	-114.45	1,805.86	4,599.75	5,081.41	5,003.74	77.67	65.427	
2,400.00	2,356.61	2,404.29	2,403.20	9.71	72.04	-114.73	1,805.08	4,599.75	5,091.55	5,010.00	81.55	62.433	
2,500.00	2,453.58	2,519.37	2,518.25	10.18	75.49	-115.01	1,803.38	4,599.75	5,101.45	5,016.00	85.45	59.698	
2,600.00	2,550.54	2,574.86	2,573.54	10.66	77.15	-115.15	1,803.74	4,599.75	5,112.04	5,024.47	87.57	58.377	
2,700.00	2,647.50	2,671.82	2,670.50	11.13	80.06	-115.39	1,803.74	4,599.75	5,122.75	5,031.82	90.93	56.339	
2,800.00	2,744.47	2,772.39	2,771.03	11.61	83.07	-115.66	1,805.90	4,599.75	5,134.51	5,040.12	94.39	54.394	
2,900.00	2,841.43	2,888.11	2,886.72	12.08	86.54	-115.94	1,805.25	4,599.75	5,145.17	5,046.85	98.32	52.332	
3,000.00	2,938.39	3,004.33	3,002.91	12.56	90.02	-116.21	1,803.66	4,599.75	5,155.56	5,053.30	102.25	50.419	
3,100.00	3,035.36	3,059.98	3,058.36	13.04	91.69	-116.35	1,803.74	4,599.75	5,166.50	5,062.13	104.37	49.501	
3,200.00	3,132.32	3,156.94	3,155.32	13.51	94.60	-116.58	1,803.74	4,599.75	5,177.68	5,069.94	107.73	48.061	
3,300.00	3,229.28	3,254.73	3,253.06	13.99	97.53	-116.84	1,805.91	4,599.75	5,189.95	5,078.83	111.11	46.709	
3,400.00	3,326.25	3,371.59	3,369.91	14.47	101.03	-117.12	1,805.40	4,599.75	5,201.11	5,086.04	115.07	45.200	
3,500.00	3,423.21	3,488.98	3,487.26	14.95	104.55	-117.39	1,803.92	4,599.75	5,211.98	5,092.94	119.04	43.783	
3,600.00	3,520.17	3,545.10	3,543.17	15.43	106.23	-117.52	1,803.74	4,599.75	5,223.26	5,102.09	121.17	43.106	
3,700.00	3,617.13	3,642.06	3,640.13	15.91	109.13	-117.75	1,803.74	4,599.75	5,234.88	5,110.35	124.53	42.038	
3,800.00	3,714.10	3,739.03	3,737.10	16.39	112.04	-117.98	1,803.74	4,599.75	5,246.59	5,118.71	127.88	41.026	
3,900.00	3,811.06	3,854.74	3,852.75	16.87	115.51	-118.27	1,805.53	4,599.75	5,259.29	5,127.49	131.81	39.902	
4,000.00	3,908.02	3,973.30	3,971.28	17.35	119.06	-118.54	1,804.17	4,599.75	5,270.64	5,134.83	135.81	38.809	
4,100.00	4,004.99	4,030.22	4,027.99	17.83	120.76	-118.67	1,803.74	4,599.75	5,282.24	5,144.28	137.96	38.288	
4,200.00	4,101.95	4,127.18	4,124.95	18.31	123.67	-118.89	1,803.74	4,599.75	5,294.30	5,152.98	141.32	37.464	
4,300.00	4,198.91	4,224.15	4,221.91	18.79	126.57	-119.12	1,803.74	4,599.75	5,306.44	5,161.77	144.67	36.679	
4,400.00	4,295.88	4,337.53	4,335.24	19.27	129.97	-119.40	1,805.65	4,599.75	5,319.65	5,171.13	148.52	35.818	
4,500.00	4,392.84	4,457.30	4,454.98	19.75	133.56	-119.67	1,804.41	4,599.75	5,331.46	5,178.90	152.56	34.947	
4,600.00	4,489.80	4,515.34	4,512.80	20.23	135.30	-119.79	1,803.74	4,599.75	5,343.37	5,188.63	154.74	34.531	
4,700.00	4,586.76	4,612.30	4,609.76	20.71	138.21	-120.01	1,803.74	4,599.75	5,355.84	5,197.75	158.09	33.878	
4,800.00	4,683.73	4,709.27	4,706.73	21.20	141.11	-120.24	1,803.74	4,599.75	5,368.40	5,206.96	161.45	33.252	
4,900.00	4,780.69	4,819.95	4,817.36	21.68	144.43	-120.50	1,805.74	4,599.75	5,382.10	5,216.89	165.21	32.577	
5,000.00	4,877.65	4,940.96	4,938.34	22.16	148.05	-120.77	1,804.64	4,599.75	5,394.37	5,225.09	169.29	31.865	
5,100.00	4,974.62	5,000.46	4,997.62	22.64	149.84	-120.89	1,803.74	4,599.75	5,406.57	5,235.06	171.51	31.524	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #041C - OH - OH-TD

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,200.00	5,071.58	5,097.42	5,094.58	23.12	152.74	-121.11	1,803.74	4,599.75	5,419.45	5,244.59	174.86	30.994	
5,300.00	5,168.54	5,194.39	5,191.54	23.60	155.65	-121.33	1,803.74	4,599.75	5,432.41	5,254.21	178.21	30.484	
5,400.00	5,265.51	5,302.00	5,299.11	24.09	158.87	-121.58	1,805.82	4,599.75	5,446.58	5,264.71	181.88	29.947	
5,500.00	5,362.47	5,424.27	5,421.35	24.57	162.54	-121.84	1,804.85	4,599.75	5,459.30	5,273.31	185.99	29.353	
5,600.00	5,459.43	5,547.09	5,544.13	25.05	166.22	-122.09	1,802.83	4,599.75	5,471.63	5,281.52	190.11	28.781	
5,700.00	5,556.40	5,582.54	5,579.40	25.53	167.28	-122.18	1,803.74	4,599.75	5,485.05	5,293.44	191.61	28.626	
5,800.00	5,653.36	5,679.51	5,676.36	26.01	170.18	-122.39	1,803.74	4,599.75	5,498.40	5,303.45	194.96	28.203	
5,900.00	5,750.32	5,783.66	5,780.47	26.50	173.30	-122.63	1,805.88	4,599.75	5,513.01	5,314.50	198.52	27.771	
6,000.00	5,847.28	5,907.21	5,903.99	26.98	177.01	-122.89	1,805.05	4,599.75	5,526.17	5,323.50	202.67	27.267	
6,100.00	5,944.25	6,031.33	6,028.07	27.46	180.73	-123.14	1,803.15	4,599.75	5,538.92	5,332.09	206.83	26.780	
6,200.00	6,041.21	6,067.66	6,064.21	27.94	181.81	-123.22	1,803.74	4,599.75	5,552.57	5,344.22	208.35	26.651	
6,300.00	6,138.17	6,164.63	6,161.17	28.43	184.72	-123.43	1,803.74	4,599.75	5,566.29	5,354.60	211.69	26.295	
6,400.00	6,235.14	6,264.93	6,261.43	28.91	187.73	-123.66	1,805.91	4,599.75	5,581.32	5,366.19	215.13	25.944	
6,496.84	6,329.04	6,385.83	6,382.31	29.38	191.35	-123.91	1,805.27	4,599.75	5,594.48	5,375.29	219.19	25.524	
6,500.00	6,332.10	6,389.78	6,386.26	29.39	191.47	-125.07	1,805.23	4,599.75	5,594.91	5,375.59	219.32	25.510	
6,550.00	6,380.52	6,452.36	6,448.82	29.63	193.34	-142.81	1,804.48	4,599.75	5,603.35	5,381.94	221.41	25.307	
6,600.00	6,428.63	6,514.67	6,511.11	29.87	195.21	-157.85	1,803.47	4,599.75	5,614.84	5,391.36	223.48	25.125	
6,650.00	6,476.14	6,502.89	6,499.14	30.10	194.86	-169.47	1,803.74	4,599.75	5,629.70	5,406.40	223.30	25.211	
6,700.00	6,522.73	6,549.49	6,545.73	30.33	196.25	-178.40	1,803.74	4,599.75	5,647.71	5,422.84	224.87	25.116	
6,750.00	6,568.14	6,594.90	6,591.14	30.54	197.61	174.59	1,803.74	4,599.75	5,668.60	5,442.22	226.38	25.040	
6,800.00	6,612.08	6,638.84	6,635.08	30.75	198.93	168.82	1,803.74	4,599.75	5,692.23	5,464.41	227.83	24.985	
6,850.00	6,654.28	6,681.03	6,677.28	30.95	200.19	163.82	1,803.74	4,599.75	5,718.48	5,489.27	229.21	24.949	
6,900.00	6,694.47	6,721.23	6,717.47	31.15	201.40	159.26	1,803.74	4,599.75	5,747.17	5,516.66	230.51	24.932	
6,950.00	6,732.42	6,761.96	6,758.17	31.33	202.62	154.88	1,805.91	4,599.75	5,779.39	5,547.58	231.81	24.932	
7,000.00	6,767.89	6,808.07	6,804.27	31.51	204.00	150.57	1,805.80	4,599.75	5,812.42	5,579.16	233.26	24.919 SF	
7,050.00	6,800.65	6,850.74	6,846.93	31.68	205.28	146.15	1,805.56	4,599.75	5,847.31	5,612.73	234.58	24.927	
7,100.00	6,830.51	6,889.69	6,885.87	31.85	206.45	141.49	1,805.23	4,599.75	5,883.87	5,648.10	235.77	24.956	
7,150.00	6,857.28	6,924.66	6,920.83	32.01	207.49	136.49	1,804.85	4,599.75	5,921.91	5,685.08	236.83	25.005	
7,200.00	6,880.80	6,955.42	6,951.57	32.17	208.42	131.06	1,804.44	4,599.75	5,961.22	5,723.48	237.74	25.075	
7,250.00	6,900.92	6,981.76	6,977.90	32.33	209.20	125.16	1,804.04	4,599.75	6,001.59	5,763.10	238.50	25.164	
7,300.00	6,917.52	7,003.50	6,999.64	32.49	209.86	118.78	1,803.67	4,599.75	6,042.80	5,803.70	239.10	25.273	
7,350.00	6,930.50	7,020.51	7,016.65	32.66	210.37	111.99	1,803.36	4,599.75	6,084.61	5,845.06	239.55	25.400	
7,400.00	6,939.77	7,032.67	7,028.80	32.83	210.73	104.93	1,803.12	4,599.75	6,126.80	5,886.95	239.85	25.545	
7,450.00	6,945.28	7,039.90	7,036.02	33.01	210.95	97.80	1,802.98	4,599.75	6,169.11	5,929.13	239.98	25.707	
7,499.66	6,947.00	7,042.15	7,038.27	33.19	211.01	90.88	1,802.93	4,599.75	6,211.01	5,971.06	239.95	25.884	
7,600.00	6,946.68	7,041.71	7,037.84	33.61	211.00	90.87	1,802.94	4,599.75	6,295.62	6,055.86	239.75	26.259	
7,700.00	6,946.35	7,041.28	7,037.40	34.10	210.99	90.86	1,802.95	4,599.75	6,380.40	6,140.82	239.58	26.632	
7,800.00	6,946.03	7,040.84	7,036.97	34.66	210.98	90.85	1,802.96	4,599.75	6,465.61	6,226.19	239.42	27.005	
7,900.00	6,945.71	7,040.41	7,036.53	35.29	210.96	90.85	1,802.97	4,599.75	6,551.24	6,311.95	239.29	27.378	
8,000.00	6,945.38	7,039.98	7,036.10	35.99	210.95	90.84	1,802.98	4,599.75	6,637.28	6,398.10	239.17	27.751	
8,100.00	6,945.06	7,039.54	7,035.67	36.74	210.94	90.83	1,802.99	4,599.75	6,723.70	6,484.62	239.07	28.124	
8,200.00	6,944.74	7,039.11	7,035.23	37.56	210.92	90.82	1,803.00	4,599.75	6,810.49	6,571.50	238.99	28.497	
8,300.00	6,944.41	7,038.67	7,034.80	38.43	210.91	90.82	1,803.00	4,599.75	6,897.64	6,658.72	238.92	28.870	
8,400.00	6,944.09	7,038.24	7,034.36	39.35	210.90	90.81	1,803.01	4,599.75	6,985.13	6,746.26	238.87	29.243	
8,500.00	6,943.77	7,037.80	7,033.93	40.31	210.88	90.80	1,803.02	4,599.75	7,072.96	6,834.13	238.83	29.615	
8,600.00	6,943.45	7,037.37	7,033.50	41.32	210.87	90.79	1,803.03	4,599.75	7,161.10	6,922.30	238.80	29.988	
8,700.00	6,943.12	7,036.94	7,033.06	42.37	210.86	90.79	1,803.04	4,599.75	7,249.55	7,010.77	238.78	30.360	
8,800.00	6,942.80	7,036.50	7,032.63	43.45	210.85	90.78	1,803.05	4,599.75	7,338.30	7,099.52	238.78	30.732	
8,900.00	6,942.48	7,036.07	7,032.19	44.57	210.83	90.77	1,803.06	4,599.75	7,427.34	7,188.55	238.79	31.104	
9,000.00	6,942.15	7,035.63	7,031.76	45.71	210.82	90.77	1,803.07	4,599.75	7,516.65	7,277.84	238.80	31.476	
9,100.00	6,941.83	7,035.20	7,031.33	46.89	210.81	90.76	1,803.07	4,599.75	7,606.22	7,367.39	238.83	31.848	
9,200.00	6,941.51	7,034.77	7,030.89	48.09	210.79	90.75	1,803.08	4,599.75	7,696.06	7,457.19	238.86	32.220	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #041C - OH - OH-TD

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,300.00	6,941.18	7,034.33	7,030.46	49.31	210.78	90.74	1,803.09	4,599.75	7,786.14	7,547.23	238.90	32.591	
9,400.00	6,940.86	7,033.90	7,030.03	50.56	210.77	90.74	1,803.10	4,599.75	7,876.46	7,637.51	238.95	32.963	
9,500.00	6,940.54	7,033.47	7,029.59	51.82	210.75	90.73	1,803.11	4,599.75	7,967.01	7,728.00	239.01	33.334	
9,600.00	6,940.21	7,033.03	7,029.16	53.11	210.74	90.72	1,803.12	4,599.75	8,057.78	7,818.71	239.07	33.705	
9,700.00	6,939.89	7,032.60	7,028.73	54.41	210.73	90.71	1,803.13	4,599.75	8,148.77	7,909.64	239.14	34.076	
9,800.00	6,939.57	7,032.16	7,028.29	55.73	210.72	90.71	1,803.13	4,599.75	8,239.97	8,000.76	239.21	34.447	
9,900.00	6,939.25	7,031.73	7,027.86	57.07	210.70	90.70	1,803.14	4,599.75	8,331.38	8,092.09	239.29	34.817	
10,000.00	6,938.92	7,031.30	7,027.43	58.41	210.69	90.69	1,803.15	4,599.75	8,422.97	8,183.60	239.37	35.188	
10,100.00	6,938.60	7,030.86	7,026.99	59.77	210.68	90.68	1,803.16	4,599.75	8,514.76	8,275.30	239.46	35.558	
10,200.00	6,938.28	7,030.43	7,026.56	61.15	210.66	90.68	1,803.17	4,599.75	8,606.73	8,367.18	239.55	35.929	
10,300.00	6,937.95	7,030.00	7,026.13	62.53	210.65	90.67	1,803.18	4,599.75	8,698.87	8,459.23	239.64	36.299	
10,400.00	6,937.63	7,029.56	7,025.69	63.92	210.64	90.66	1,803.19	4,599.75	8,791.19	8,551.45	239.74	36.669	
10,500.00	6,937.31	7,029.13	7,025.26	65.33	210.62	90.65	1,803.19	4,599.75	8,883.68	8,643.83	239.84	37.040	
10,600.00	6,936.98	7,028.70	7,024.83	66.74	210.61	90.65	1,803.20	4,599.75	8,976.32	8,736.38	239.95	37.410	
10,700.00	6,936.66	7,028.26	7,024.39	68.16	210.60	90.64	1,803.21	4,599.75	9,069.12	8,829.07	240.05	37.780	
10,800.00	6,936.34	7,027.83	7,023.96	69.59	210.59	90.63	1,803.22	4,599.75	9,162.08	8,921.92	240.16	38.150	
10,900.00	6,936.01	7,027.40	7,023.53	71.03	210.57	90.62	1,803.23	4,599.75	9,255.18	9,014.91	240.27	38.520	
11,000.00	6,935.69	7,026.96	7,023.09	72.47	210.56	90.62	1,803.24	4,599.75	9,348.42	9,108.04	240.38	38.889	
11,100.00	6,935.37	7,026.53	7,022.66	73.92	210.55	90.61	1,803.24	4,599.75	9,441.80	9,201.30	240.50	39.259	
11,200.00	6,935.05	7,026.10	7,022.23	75.38	210.53	90.60	1,803.25	4,599.75	9,535.32	9,294.70	240.61	39.629	
11,300.00	6,934.72	7,025.66	7,021.80	76.84	210.52	90.60	1,803.26	4,599.75	9,628.96	9,388.23	240.73	39.999	
11,400.00	6,934.40	7,025.23	7,021.36	78.31	210.51	90.59	1,803.27	4,599.75	9,722.73	9,481.88	240.85	40.368	
11,500.00	6,934.08	7,024.80	7,020.93	79.79	210.49	90.58	1,803.28	4,599.75	9,816.63	9,575.66	240.97	40.738	
11,600.00	6,933.75	7,024.37	7,020.50	81.27	210.48	90.57	1,803.29	4,599.75	9,910.64	9,669.55	241.09	41.108	
11,700.00	6,933.43	7,023.93	7,020.06	82.75	210.47	90.57	1,803.29	4,599.75	10,004.77	9,763.56	241.21	41.477	
11,800.00	6,933.11	7,023.50	7,019.63	84.24	210.46	90.56	1,803.30	4,599.75	10,099.02	9,857.68	241.33	41.847	
11,900.00	6,932.78	7,023.07	7,019.20	85.73	210.44	90.55	1,803.31	4,599.75	10,193.37	9,951.91	241.46	42.216	
12,000.00	6,932.46	7,022.63	7,018.77	87.23	210.43	90.54	1,803.32	4,599.75	10,287.83	10,046.25	241.58	42.586	
12,100.00	6,932.14	7,022.20	7,018.33	88.72	210.42	90.54	1,803.33	4,599.75	10,382.39	10,140.69	241.70	42.955	
12,200.00	6,931.81	7,021.77	7,017.90	90.23	210.40	90.53	1,803.34	4,599.75	10,477.06	10,235.23	241.83	43.324	
12,300.00	6,931.49	7,021.34	7,017.47	91.74	210.39	90.52	1,803.34	4,599.75	10,571.82	10,329.86	241.95	43.694	
12,400.00	6,931.17	7,020.90	7,017.04	93.25	210.38	90.51	1,803.35	4,599.75	10,666.68	10,424.60	242.08	44.063	
12,500.00	6,930.85	7,020.47	7,016.60	94.76	210.37	90.51	1,803.36	4,599.75	10,761.63	10,519.42	242.20	44.432	
12,600.00	6,930.52	7,020.04	7,016.17	96.27	210.35	90.50	1,803.37	4,599.75	10,856.67	10,614.34	242.33	44.801	
12,700.00	6,930.20	7,019.61	7,015.74	97.79	210.34	90.49	1,803.38	4,599.75	10,951.80	10,709.34	242.46	45.170	
12,800.00	6,929.88	7,019.17	7,015.31	99.32	210.33	90.48	1,803.38	4,599.75	11,047.01	10,804.43	242.58	45.540	
12,900.00	6,929.55	7,018.74	7,014.88	100.84	210.31	90.48	1,803.39	4,599.75	11,142.31	10,899.61	242.71	45.909	
13,000.00	6,929.23	7,018.31	7,014.44	102.37	210.30	90.47	1,803.40	4,599.75	11,237.70	10,994.86	242.83	46.278	
13,100.00	6,928.91	7,017.88	7,014.01	103.89	210.29	90.46	1,803.41	4,599.75	11,333.16	11,090.20	242.96	46.647	
13,200.00	6,928.58	7,017.44	7,013.58	105.43	210.27	90.46	1,803.42	4,599.75	11,428.70	11,185.61	243.08	47.016	
13,300.00	6,928.26	7,017.01	7,013.15	106.96	210.26	90.45	1,803.42	4,599.75	11,524.31	11,281.10	243.21	47.384	
13,400.00	6,927.94	7,016.58	7,012.71	108.49	210.25	90.44	1,803.43	4,599.75	11,620.00	11,376.66	243.33	47.753	
13,500.00	6,927.61	7,016.15	7,012.28	110.03	210.24	90.43	1,803.44	4,599.75	11,715.76	11,472.30	243.46	48.122	
13,600.00	6,927.29	7,015.72	7,011.85	111.57	210.22	90.43	1,803.45	4,599.75	11,811.59	11,568.01	243.58	48.491	
13,700.00	6,926.97	7,015.28	7,011.42	113.11	210.21	90.42	1,803.46	4,599.75	11,907.49	11,663.78	243.71	48.859	
13,800.00	6,926.65	7,014.85	7,010.99	114.65	210.20	90.41	1,803.46	4,599.75	12,003.46	11,759.62	243.83	49.228	
13,900.00	6,926.32	7,014.42	7,010.55	116.20	210.18	90.40	1,803.47	4,599.75	12,099.49	11,855.53	243.96	49.597	
14,000.00	6,926.00	7,013.99	7,010.12	117.75	210.17	90.40	1,803.48	4,599.75	12,195.58	11,951.50	244.08	49.965	
14,100.00	6,925.68	7,013.55	7,009.69	119.29	210.16	90.39	1,803.49	4,599.75	12,291.74	12,047.53	244.21	50.333	
14,200.00	6,925.35	7,013.12	7,009.26	120.84	210.14	90.38	1,803.50	4,599.75	12,387.96	12,143.63	244.33	50.702	
14,300.00	6,925.03	7,012.69	7,008.83	122.39	210.13	90.37	1,803.50	4,599.75	12,484.24	12,239.78	244.45	51.070	
14,400.00	6,924.71	7,012.26	7,008.40	123.94	210.12	90.37	1,803.51	4,599.75	12,580.57	12,336.00	244.58	51.438	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #041C - OH - OH-TD

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Rule Assigned:

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,500.00	6,924.38	7,011.83	7,007.96	125.50	210.11	90.36	1,803.52	4,599.75	12,676.96	12,432.26	244.70	51.807	
14,600.00	6,924.06	7,011.40	7,007.53	127.05	210.09	90.35	1,803.53	4,599.75	12,773.41	12,528.59	244.82	52.175	
14,700.00	6,923.74	7,010.96	7,007.10	128.61	210.08	90.34	1,803.54	4,599.75	12,869.91	12,624.97	244.94	52.543	
14,800.00	6,923.42	7,010.53	7,006.67	130.16	210.07	90.34	1,803.54	4,599.75	12,966.47	12,721.40	245.06	52.910	
14,900.00	6,923.09	7,010.10	7,006.24	131.72	210.05	90.33	1,803.55	4,599.75	13,063.08	12,817.89	245.19	53.278	
15,000.00	6,922.77	7,009.67	7,005.81	133.28	210.04	90.32	1,803.56	4,599.75	13,159.73	12,914.43	245.31	53.646	
15,100.00	6,922.45	7,009.24	7,005.38	134.84	210.03	90.32	1,803.57	4,599.75	13,256.44	13,011.01	245.43	54.014	
15,200.00	6,922.12	7,008.81	7,004.94	136.40	210.02	90.31	1,803.58	4,599.75	13,353.20	13,107.65	245.55	54.381	
15,300.00	6,921.80	7,008.37	7,004.51	137.96	210.00	90.30	1,803.58	4,599.75	13,450.00	13,204.33	245.67	54.749	
15,400.00	6,921.48	7,007.94	7,004.08	139.53	209.99	90.29	1,803.59	4,599.75	13,546.85	13,301.06	245.79	55.116	
15,500.00	6,921.15	7,007.51	7,003.65	141.09	209.98	90.29	1,803.60	4,599.75	13,643.74	13,397.84	245.91	55.483	
15,600.00	6,920.83	7,007.08	7,003.22	142.65	209.96	90.28	1,803.61	4,599.75	13,740.68	13,494.66	246.03	55.851	
15,700.00	6,920.51	7,006.65	7,002.79	144.22	209.95	90.27	1,803.61	4,599.75	13,837.67	13,591.52	246.14	56.218	
15,800.00	6,920.18	7,006.22	7,002.36	145.79	209.94	90.26	1,803.62	4,599.75	13,934.69	13,688.43	246.26	56.585	
15,900.00	6,919.86	7,005.79	7,001.92	147.35	209.93	90.26	1,803.63	4,599.75	14,031.76	13,785.38	246.38	56.952	
16,000.00	6,919.54	7,005.35	7,001.49	148.92	209.91	90.25	1,803.64	4,599.75	14,128.87	13,882.37	246.50	57.318	
16,100.00	6,919.22	7,004.92	7,001.06	150.49	209.90	90.24	1,803.65	4,599.75	14,226.02	13,979.40	246.62	57.685	
16,200.00	6,918.89	7,004.49	7,000.63	152.06	209.89	90.23	1,803.65	4,599.75	14,323.20	14,076.47	246.73	58.051	
16,300.00	6,918.57	7,004.06	7,000.20	153.63	209.87	90.23	1,803.66	4,599.75	14,420.43	14,173.58	246.85	58.418	
16,400.00	6,918.25	7,003.63	6,999.77	155.20	209.86	90.22	1,803.67	4,599.75	14,517.69	14,270.73	246.97	58.784	
16,500.00	6,917.92	7,003.20	6,999.34	156.77	209.85	90.21	1,803.68	4,599.75	14,614.99	14,367.91	247.08	59.150	
16,600.00	6,917.60	7,002.77	6,998.91	158.34	209.83	90.21	1,803.68	4,599.75	14,712.33	14,465.13	247.20	59.516	
16,700.00	6,917.28	7,002.34	6,998.48	159.92	209.82	90.20	1,803.69	4,599.75	14,809.70	14,562.39	247.31	59.882	
16,800.00	6,916.95	7,001.91	6,998.05	161.49	209.81	90.19	1,803.70	4,599.75	14,907.11	14,659.68	247.43	60.248	
16,900.00	6,916.63	7,001.47	6,997.62	163.06	209.80	90.18	1,803.71	4,599.75	15,004.55	14,757.01	247.54	60.614	
17,000.00	6,916.31	7,001.04	6,997.18	164.64	209.78	90.18	1,803.71	4,599.75	15,102.03	14,854.37	247.66	60.979	
17,100.00	6,915.98	7,000.61	6,996.75	166.21	209.77	90.17	1,803.72	4,599.75	15,199.53	14,951.76	247.77	61.345	
17,200.00	6,915.66	7,000.00	6,995.94	167.79	209.75	90.15	1,803.74	4,599.75	15,297.07	15,049.19	247.88	61.711	
17,300.00	6,915.34	6,999.75	6,995.89	169.37	209.74	90.15	1,803.74	4,599.75	15,394.65	15,146.64	248.00	62.075	
17,400.00	6,915.02	6,999.32	6,995.46	170.94	209.73	90.15	1,803.74	4,599.75	15,492.25	15,244.13	248.11	62.440	
17,500.00	6,914.69	6,998.89	6,995.03	172.52	209.72	90.14	1,803.75	4,599.75	15,589.88	15,341.65	248.23	62.805	
17,600.00	6,914.37	6,998.46	6,994.60	174.10	209.71	90.13	1,803.76	4,599.75	15,687.54	15,439.20	248.34	63.170	
17,700.00	6,914.05	6,998.03	6,994.17	175.68	209.69	90.12	1,803.77	4,599.75	15,785.23	15,536.78	248.45	63.534	
17,800.00	6,913.72	6,997.60	6,993.74	177.25	209.68	90.12	1,803.77	4,599.75	15,882.95	15,634.39	248.57	63.899	
17,900.00	6,913.40	6,997.17	6,993.31	178.83	209.67	90.11	1,803.78	4,599.75	15,980.70	15,732.03	248.68	64.263	
18,000.00	6,913.08	6,996.74	6,992.88	180.41	209.65	90.10	1,803.79	4,599.75	16,078.48	15,829.69	248.79	64.627	
18,023.75	6,913.00	6,996.63	6,992.78	180.79	209.65	90.10	1,803.79	4,599.75	16,101.71	15,852.89	248.82	64.713	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #045 - OH - OH-TD

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Rule Assigned: Warning
0.00	0.00	233.00	233.00	0.00	6.98	103.62	-1,794.12	7,406.06	7,620.27				
100.00	100.00	333.00	333.00	0.25	9.98	103.62	-1,794.12	7,406.06	7,620.27	7,610.04	10.23	744.954	
200.00	200.00	433.00	433.00	0.61	12.97	103.62	-1,794.12	7,406.06	7,620.27	7,606.69	13.58	560.971	
300.00	300.00	533.10	533.00	0.97	15.97	103.62	-1,794.12	7,406.06	7,620.27	7,603.33	16.94	449.786	
400.00	400.00	633.10	633.00	1.33	18.97	103.62	-1,794.12	7,406.06	7,620.27	7,599.97	20.30	375.440	
500.00	500.00	733.10	733.00	1.68	21.97	103.62	-1,794.12	7,406.06	7,620.27	7,596.62	23.65	322.185	
600.00	599.98	823.86	823.71	2.03	24.69	-76.37	-1,792.13	7,406.05	7,619.40	7,592.68	26.71	285.237	
700.00	699.84	912.74	912.57	2.36	27.35	-76.42	-1,792.86	7,406.06	7,618.36	7,588.65	29.71	256.441	
800.00	799.45	1,032.86	1,032.45	2.71	30.95	-76.52	-1,794.12	7,406.06	7,616.58	7,582.93	33.65	226.341	
900.00	898.70	1,132.11	1,131.70	3.06	33.92	-76.67	-1,794.12	7,406.06	7,613.73	7,576.75	36.98	205.886	
1,000.00	997.47	1,230.87	1,230.47	3.43	36.88	-76.85	-1,794.12	7,406.06	7,610.11	7,569.80	40.31	188.791	
1,100.00	1,095.62	1,320.53	1,320.07	3.82	39.57	-77.08	-1,792.11	7,406.05	7,605.27	7,561.89	43.38	175.305	
1,207.83	1,200.65	1,414.56	1,414.08	4.26	42.39	-77.33	-1,792.88	7,406.06	7,599.94	7,553.30	46.64	162.948	
1,300.00	1,290.02	1,523.73	1,523.02	4.65	45.66	-77.52	-1,794.12	7,406.06	7,595.14	7,544.84	50.30	150.988	
1,400.00	1,386.98	1,620.69	1,619.98	5.09	48.56	-77.69	-1,794.12	7,406.06	7,589.74	7,536.09	53.64	141.487	
1,500.00	1,483.95	1,717.66	1,716.95	5.53	51.47	-77.87	-1,794.12	7,406.06	7,584.41	7,527.42	56.99	133.083	
1,600.00	1,580.91	1,808.10	1,807.34	5.99	54.18	-78.05	-1,792.05	7,406.05	7,578.71	7,518.57	60.15	126.001	
1,700.00	1,677.87	1,895.55	1,894.77	6.44	56.80	-78.20	-1,792.68	7,406.05	7,573.69	7,510.46	63.22	119.797	
1,800.00	1,774.84	2,008.85	2,007.84	6.90	60.19	-78.40	-1,794.12	7,406.06	7,568.87	7,501.79	67.07	112.845	
1,900.00	1,871.80	2,105.81	2,104.80	7.36	63.10	-78.57	-1,794.12	7,406.06	7,563.84	7,493.40	70.44	107.382	
2,000.00	1,968.76	2,202.78	2,201.76	7.83	66.01	-78.75	-1,794.12	7,406.06	7,558.88	7,485.08	73.81	102.414	
2,100.00	2,065.73	2,295.07	2,294.00	8.30	68.77	-78.93	-1,792.01	7,406.05	7,553.59	7,476.55	77.04	98.051	
2,200.00	2,162.69	2,383.17	2,382.09	8.77	71.41	-79.09	-1,792.56	7,406.05	7,548.91	7,468.77	80.14	94.191	
2,300.00	2,259.65	2,471.57	2,470.46	9.24	74.06	-79.24	-1,793.65	7,406.06	7,544.42	7,461.16	83.26	90.611	
2,400.00	2,356.61	2,590.93	2,589.61	9.71	77.64	-79.46	-1,794.12	7,406.06	7,539.83	7,452.52	87.31	86.358	
2,500.00	2,453.58	2,687.90	2,686.58	10.18	80.54	-79.63	-1,794.12	7,406.06	7,535.26	7,444.57	90.69	83.092	
2,600.00	2,550.54	2,781.83	2,780.46	10.66	83.36	-79.82	-1,791.97	7,406.05	7,530.38	7,436.40	93.97	80.133	
2,700.00	2,647.50	2,870.59	2,869.21	11.13	86.02	-79.98	-1,792.45	7,406.05	7,526.06	7,428.95	97.11	77.503	
2,800.00	2,744.47	2,959.66	2,958.25	11.61	88.68	-80.14	-1,793.47	7,406.06	7,521.92	7,421.67	100.25	75.031	
2,900.00	2,841.43	3,076.05	3,074.43	12.08	92.17	-80.35	-1,794.12	7,406.06	7,517.74	7,413.53	104.21	72.138	
3,000.00	2,938.39	3,173.02	3,171.39	12.56	95.08	-80.52	-1,794.12	7,406.06	7,513.55	7,405.96	107.59	69.832	
3,100.00	3,035.36	3,268.38	3,266.71	13.04	97.94	-80.72	-1,791.95	7,406.05	7,509.08	7,398.15	110.93	67.693	
3,200.00	3,132.32	3,357.82	3,356.14	13.51	100.62	-80.88	-1,792.34	7,406.05	7,505.13	7,391.04	114.09	65.785	
3,300.00	3,229.28	3,447.57	3,445.86	13.99	103.30	-81.04	-1,793.30	7,406.06	7,501.34	7,384.09	117.25	63.975	
3,400.00	3,326.25	3,561.17	3,559.25	14.47	106.71	-81.24	-1,794.12	7,406.06	7,497.58	7,376.44	121.14	61.894	
3,500.00	3,423.21	3,658.14	3,656.21	14.95	109.61	-81.42	-1,794.12	7,406.06	7,493.78	7,369.26	124.52	60.181	
3,600.00	3,520.17	3,754.72	3,752.75	15.43	112.51	-81.61	-1,791.94	7,406.05	7,489.73	7,361.84	127.89	58.562	
3,700.00	3,617.13	3,844.85	3,842.86	15.91	115.21	-81.78	-1,792.25	7,406.05	7,486.14	7,355.07	131.07	57.114	
3,800.00	3,714.10	3,935.28	3,933.27	16.39	117.92	-81.94	-1,793.14	7,406.06	7,482.72	7,348.46	134.26	55.731	
3,900.00	3,811.06	4,046.29	4,044.06	16.87	121.25	-82.14	-1,794.12	7,406.06	7,479.36	7,341.29	138.07	54.171	
4,000.00	3,908.02	4,143.26	4,141.02	17.35	124.15	-82.32	-1,794.12	7,406.06	7,475.95	7,334.49	141.46	52.850	
4,100.00	4,004.99	4,240.22	4,237.99	17.83	127.06	-82.50	-1,794.12	7,406.06	7,472.62	7,327.78	144.84	51.591	
4,200.00	4,101.95	4,331.66	4,329.38	18.31	129.80	-82.68	-1,792.17	7,406.05	7,469.12	7,321.05	148.06	50.445	
4,300.00	4,198.91	4,422.80	4,420.49	18.79	132.53	-82.85	-1,792.98	7,406.06	7,466.06	7,314.78	151.28	49.354	
4,400.00	4,295.88	4,531.41	4,528.88	19.27	135.78	-83.04	-1,794.12	7,406.06	7,463.10	7,308.09	155.01	48.145	
4,500.00	4,392.84	4,628.38	4,625.84	19.75	138.69	-83.22	-1,794.12	7,406.06	7,460.09	7,301.69	158.40	47.096	
4,600.00	4,489.80	4,725.34	4,722.80	20.23	141.59	-83.40	-1,794.12	7,406.06	7,457.15	7,295.36	161.79	46.092	
4,700.00	4,586.76	4,818.27	4,815.68	20.71	144.38	-83.59	-1,792.10	7,406.05	7,454.06	7,289.01	165.06	45.161	
4,800.00	4,683.73	4,910.12	4,907.51	21.20	147.13	-83.76	-1,792.83	7,406.06	7,451.38	7,283.09	168.29	44.277	
4,900.00	4,780.69	5,016.53	5,013.69	21.68	150.32	-83.95	-1,794.12	7,406.06	7,448.82	7,276.86	171.96	43.317	
5,000.00	4,877.65	5,113.50	5,110.65	22.16	153.22	-84.13	-1,794.12	7,406.06	7,446.20	7,270.85	175.35	42.465	
5,100.00	4,974.62	5,210.46	5,207.62	22.64	156.13	-84.31	-1,794.12	7,406.06	7,443.66	7,264.92	178.74	41.646	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #045 - OH - OH-TD

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,200.00	5,071.58	5,304.66	5,301.77	23.12	158.95	-84.50	-1,792.04	7,406.05	7,440.99	7,258.95	182.04	40.875	
5,300.00	5,168.54	5,397.23	5,394.32	23.60	161.73	-84.67	-1,792.69	7,406.06	7,438.69	7,253.38	185.30	40.144	
5,400.00	5,265.51	5,501.65	5,498.51	24.09	164.85	-84.86	-1,794.12	7,406.06	7,436.52	7,247.60	188.91	39.365	
5,500.00	5,362.47	5,598.62	5,595.47	24.57	167.76	-85.04	-1,794.12	7,406.06	7,434.29	7,241.99	192.30	38.659	
5,600.00	5,459.43	5,695.58	5,692.43	25.05	170.67	-85.22	-1,794.12	7,406.06	7,432.15	7,236.46	195.69	37.979	
5,700.00	5,556.40	5,790.82	5,787.63	25.53	173.52	-85.41	-1,791.99	7,406.05	7,429.92	7,230.89	199.03	37.331	
5,800.00	5,653.36	5,884.13	5,880.92	26.01	176.32	-85.59	-1,792.57	7,406.05	7,427.99	7,225.68	202.31	36.716	
5,900.00	5,750.32	5,977.76	5,974.52	26.50	179.12	-85.75	-1,793.75	7,406.06	7,426.19	7,220.59	205.60	36.120	
6,000.00	5,847.28	6,083.74	6,080.28	26.98	182.30	-85.95	-1,794.12	7,406.06	7,424.39	7,215.13	209.26	35.480	
6,100.00	5,944.25	6,117.00	6,113.48	27.46	183.29	-86.01	-1,794.12	7,406.06	7,422.92	7,212.19	210.73	35.224	
6,164.45	6,006.74	6,117.00	6,113.48	27.77	183.29	-86.01	-1,794.12	7,406.06	7,422.64	7,211.62	211.02	35.174 CC	
6,200.00	6,041.21	6,117.00	6,113.48	27.94	183.29	-86.01	-1,794.12	7,406.06	7,422.72	7,211.55	211.18	35.149 ES	
6,300.00	6,138.17	6,117.00	6,113.48	28.43	183.29	-86.01	-1,794.12	7,406.06	7,423.88	7,212.29	211.59	35.086	
6,400.00	6,235.14	6,117.00	6,113.48	28.91	183.29	-86.01	-1,794.12	7,406.06	7,426.38	7,214.41	211.96	35.036	
6,496.84	6,329.04	6,117.00	6,113.48	29.38	183.29	-86.01	-1,794.12	7,406.06	7,430.08	7,217.78	212.29	34.999	
6,500.00	6,332.10	6,117.00	6,113.48	29.39	183.29	-87.14	-1,794.12	7,406.06	7,430.23	7,217.92	212.30	34.998	
6,550.00	6,380.52	6,117.00	6,113.48	29.63	183.29	-104.31	-1,794.12	7,406.06	7,434.85	7,222.39	212.46	34.994 SF	
6,600.00	6,428.63	6,117.00	6,113.48	29.87	183.29	-118.61	-1,794.12	7,406.06	7,443.69	7,231.08	212.61	35.011	
6,650.00	6,476.14	6,117.00	6,113.48	30.10	183.29	-129.34	-1,794.12	7,406.06	7,456.66	7,243.92	212.74	35.050	
6,700.00	6,522.73	6,117.00	6,113.48	30.33	183.29	-137.09	-1,794.12	7,406.06	7,473.68	7,260.82	212.86	35.110	
6,750.00	6,568.14	6,117.00	6,113.48	30.54	183.29	-142.69	-1,794.12	7,406.06	7,494.60	7,281.63	212.97	35.190	
6,800.00	6,612.08	6,117.00	6,113.48	30.75	183.29	-146.78	-1,794.12	7,406.06	7,519.27	7,306.20	213.07	35.290	
6,850.00	6,654.28	6,117.00	6,113.48	30.95	183.29	-149.78	-1,794.12	7,406.06	7,547.50	7,334.35	213.16	35.408	
6,900.00	6,694.47	6,117.00	6,113.48	31.15	183.29	-151.99	-1,794.12	7,406.06	7,579.08	7,365.85	213.23	35.544	
6,950.00	6,732.42	6,117.00	6,113.48	31.33	183.29	-153.58	-1,794.12	7,406.06	7,613.76	7,400.47	213.29	35.696	
7,000.00	6,767.89	6,117.00	6,113.48	31.51	183.29	-154.67	-1,794.12	7,406.06	7,651.30	7,437.95	213.35	35.863	
7,050.00	6,800.65	6,117.00	6,113.48	31.68	183.29	-155.29	-1,794.12	7,406.06	7,691.43	7,478.03	213.40	36.043	
7,100.00	6,830.51	6,117.00	6,113.48	31.85	183.29	-155.45	-1,794.12	7,406.06	7,733.85	7,520.41	213.44	36.234	
7,150.00	6,857.28	6,117.00	6,113.48	32.01	183.29	-155.08	-1,794.12	7,406.06	7,778.28	7,564.80	213.48	36.436	
7,200.00	6,880.80	6,117.00	6,113.48	32.17	183.29	-154.00	-1,794.12	7,406.06	7,824.40	7,610.89	213.51	36.647	
7,250.00	6,900.92	6,117.00	6,113.48	32.33	183.29	-151.76	-1,794.12	7,406.06	7,871.91	7,658.37	213.54	36.864	
7,300.00	6,917.52	6,117.00	6,113.48	32.49	183.29	-147.22	-1,794.12	7,406.06	7,920.49	7,706.92	213.57	37.087	
7,350.00	6,930.50	6,117.00	6,113.48	32.66	183.29	-136.63	-1,794.12	7,406.06	7,969.82	7,756.22	213.59	37.313	
7,400.00	6,939.77	6,117.00	6,113.48	32.83	183.29	-103.35	-1,794.12	7,406.06	8,019.59	7,805.96	213.62	37.541	
7,450.00	6,945.28	6,117.00	6,113.48	33.01	183.29	-37.90	-1,794.12	7,406.06	8,069.48	7,855.83	213.66	37.769	
7,499.66	6,947.00	6,117.00	6,113.48	33.19	183.29	-11.56	-1,794.12	7,406.06	8,118.86	7,905.17	213.69	37.994	
7,600.00	6,946.68	6,117.00	6,113.48	33.61	183.29	-11.56	-1,794.12	7,406.06	8,218.26	8,004.50	213.76	38.446	
7,700.00	6,946.35	6,117.00	6,113.48	34.10	183.29	-11.56	-1,794.12	7,406.06	8,317.35	8,103.51	213.84	38.896	
7,800.00	6,946.03	6,117.00	6,113.48	34.66	183.29	-11.56	-1,794.12	7,406.06	8,416.45	8,202.54	213.91	39.346	
7,900.00	6,945.71	6,117.00	6,113.48	35.29	183.29	-11.56	-1,794.12	7,406.06	8,515.58	8,301.60	213.98	39.796	
8,000.00	6,945.38	6,117.00	6,113.48	35.99	183.29	-11.56	-1,794.12	7,406.06	8,614.73	8,400.68	214.05	40.246	
8,100.00	6,945.06	6,117.00	6,113.48	36.74	183.29	-11.56	-1,794.12	7,406.06	8,713.90	8,499.78	214.12	40.696	
8,200.00	6,944.74	6,117.00	6,113.48	37.56	183.29	-11.56	-1,794.12	7,406.06	8,813.09	8,598.90	214.19	41.146	
8,300.00	6,944.41	6,117.00	6,113.48	38.43	183.29	-11.56	-1,794.12	7,406.06	8,912.29	8,698.03	214.26	41.596	
8,400.00	6,944.09	6,117.00	6,113.48	39.35	183.29	-11.56	-1,794.12	7,406.06	9,011.51	8,797.19	214.32	42.046	
8,500.00	6,943.77	6,117.00	6,113.48	40.31	183.29	-11.56	-1,794.12	7,406.06	9,110.75	8,896.36	214.39	42.496	
8,600.00	6,943.45	6,117.00	6,113.48	41.32	183.29	-11.56	-1,794.12	7,406.06	9,210.01	8,995.55	214.46	42.946	
8,700.00	6,943.12	6,117.00	6,113.48	42.37	183.29	-11.56	-1,794.12	7,406.06	9,309.28	9,094.76	214.52	43.396	
8,800.00	6,942.80	6,117.00	6,113.48	43.45	183.29	-11.56	-1,794.12	7,406.06	9,408.57	9,193.99	214.58	43.845	
8,900.00	6,942.48	6,117.00	6,113.48	44.57	183.29	-11.56	-1,794.12	7,406.06	9,507.87	9,293.22	214.65	44.295	
9,000.00	6,942.15	6,117.00	6,113.48	45.71	183.29	-11.56	-1,794.12	7,406.06	9,607.19	9,392.48	214.71	44.744	
9,100.00	6,941.83	6,117.00	6,113.48	46.89	183.29	-11.56	-1,794.12	7,406.06	9,706.52	9,491.75	214.78	45.194	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #045 - OH - OH-TD — **Offset Site Error:** 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Rule Assigned: Warning
9,200.00	6,941.51	6,117.00	6,113.48	48.09	183.29	-11.56	-1,794.12	7,406.06	9,805.87	9,591.03	214.84	45.643	
9,300.00	6,941.18	6,117.00	6,113.48	49.31	183.29	-11.56	-1,794.12	7,406.06	9,905.22	9,690.32	214.90	46.092	
9,400.00	6,940.86	6,117.00	6,113.48	50.56	183.29	-11.56	-1,794.12	7,406.06	10,004.59	9,789.63	214.96	46.541	
9,500.00	6,940.54	6,117.00	6,113.48	51.82	183.29	-11.56	-1,794.12	7,406.06	10,103.98	9,888.95	215.02	46.990	
9,600.00	6,940.21	6,117.00	6,113.48	53.11	183.29	-11.56	-1,794.12	7,406.06	10,203.37	9,988.29	215.09	47.439	
9,700.00	6,939.89	6,117.00	6,113.48	54.41	183.29	-11.56	-1,794.12	7,406.06	10,302.78	10,087.63	215.15	47.887	
9,800.00	6,939.57	6,117.00	6,113.48	55.73	183.29	-11.56	-1,794.12	7,406.06	10,402.20	10,186.99	215.21	48.336	
9,900.00	6,939.25	6,117.00	6,113.48	57.07	183.29	-11.56	-1,794.12	7,406.06	10,501.63	10,286.36	215.27	48.784	
10,000.00	6,938.92	6,117.00	6,113.48	58.41	183.29	-11.56	-1,794.12	7,406.06	10,601.07	10,385.74	215.33	49.232	
10,100.00	6,938.60	6,117.00	6,113.48	59.77	183.29	-11.56	-1,794.12	7,406.06	10,700.52	10,485.13	215.39	49.680	
10,200.00	6,938.28	6,117.00	6,113.48	61.15	183.29	-11.56	-1,794.12	7,406.06	10,799.98	10,584.53	215.45	50.127	
10,300.00	6,937.95	6,117.00	6,113.48	62.53	183.29	-11.56	-1,794.12	7,406.06	10,899.45	10,683.94	215.51	50.575	
10,400.00	6,937.63	6,117.00	6,113.48	63.92	183.29	-11.56	-1,794.12	7,406.06	10,998.93	10,783.36	215.57	51.022	
10,500.00	6,937.31	6,117.00	6,113.48	65.33	183.29	-11.56	-1,794.12	7,406.06	11,098.42	10,882.79	215.63	51.469	
10,600.00	6,936.98	6,117.00	6,113.48	66.74	183.29	-11.56	-1,794.12	7,406.06	11,197.91	10,982.22	215.69	51.916	
10,700.00	6,936.66	6,117.00	6,113.48	68.16	183.29	-11.56	-1,794.12	7,406.06	11,297.42	11,081.67	215.75	52.363	
10,800.00	6,936.34	6,117.00	6,113.48	69.59	183.29	-11.56	-1,794.12	7,406.06	11,396.94	11,181.13	215.81	52.810	
10,900.00	6,936.01	6,117.00	6,113.48	71.03	183.29	-11.56	-1,794.12	7,406.06	11,496.46	11,280.59	215.87	53.256	
11,000.00	6,935.69	6,117.00	6,113.48	72.47	183.29	-11.56	-1,794.12	7,406.06	11,596.00	11,380.06	215.93	53.702	
11,100.00	6,935.37	6,117.00	6,113.48	73.92	183.29	-11.56	-1,794.12	7,406.06	11,695.54	11,479.54	215.99	54.148	
11,200.00	6,935.05	6,117.00	6,113.48	75.38	183.29	-11.56	-1,794.12	7,406.06	11,795.08	11,579.03	216.05	54.594	
11,300.00	6,934.72	6,117.00	6,113.48	76.84	183.29	-11.56	-1,794.12	7,406.06	11,894.64	11,678.53	216.11	55.039	
11,400.00	6,934.40	6,117.00	6,113.48	78.31	183.29	-11.56	-1,794.12	7,406.06	11,994.20	11,778.03	216.17	55.484	
11,500.00	6,934.08	6,117.00	6,113.48	79.79	183.29	-11.56	-1,794.12	7,406.06	12,093.77	11,877.54	216.23	55.929	
11,600.00	6,933.75	6,117.00	6,113.48	81.27	183.29	-11.56	-1,794.12	7,406.06	12,193.35	11,977.06	216.30	56.374	
11,700.00	6,933.43	6,117.00	6,113.48	82.75	183.29	-11.56	-1,794.12	7,406.06	12,292.94	12,076.58	216.36	56.818	
11,800.00	6,933.11	6,117.00	6,113.48	84.24	183.29	-11.56	-1,794.12	7,406.06	12,392.53	12,176.11	216.42	57.262	
11,900.00	6,932.78	6,117.00	6,113.48	85.73	183.29	-11.56	-1,794.12	7,406.06	12,492.12	12,275.65	216.48	57.706	
12,000.00	6,932.46	6,117.00	6,113.48	87.23	183.29	-11.56	-1,794.12	7,406.06	12,591.73	12,375.19	216.54	58.150	
12,100.00	6,932.14	6,117.00	6,113.48	88.72	183.29	-11.56	-1,794.12	7,406.06	12,691.34	12,474.74	216.60	58.593	
12,200.00	6,931.81	6,117.00	6,113.48	90.23	183.29	-11.56	-1,794.12	7,406.06	12,790.95	12,574.29	216.66	59.036	
12,300.00	6,931.49	6,117.00	6,113.48	91.74	183.29	-11.56	-1,794.12	7,406.06	12,890.58	12,673.85	216.72	59.479	
12,400.00	6,931.17	6,117.00	6,113.48	93.25	183.29	-11.56	-1,794.12	7,406.06	12,990.20	12,773.42	216.79	59.922	
12,500.00	6,930.85	6,117.00	6,113.48	94.76	183.29	-11.56	-1,794.12	7,406.06	13,089.84	12,872.99	216.85	60.364	
12,600.00	6,930.52	6,117.00	6,113.48	96.27	183.29	-11.56	-1,794.12	7,406.06	13,189.48	12,972.57	216.91	60.806	
12,700.00	6,930.20	6,117.00	6,113.48	97.79	183.29	-11.56	-1,794.12	7,406.06	13,289.12	13,072.15	216.97	61.247	
12,800.00	6,929.88	6,117.00	6,113.48	99.32	183.29	-11.56	-1,794.12	7,406.06	13,388.77	13,171.73	217.04	61.689	
12,900.00	6,929.55	6,117.00	6,113.48	100.84	183.29	-11.56	-1,794.12	7,406.06	13,488.43	13,271.33	217.10	62.130	
13,000.00	6,929.23	6,117.00	6,113.48	102.37	183.29	-11.56	-1,794.12	7,406.06	13,588.09	13,370.92	217.16	62.571	
13,100.00	6,928.91	6,117.00	6,113.48	103.89	183.29	-11.56	-1,794.12	7,406.06	13,687.75	13,470.52	217.23	63.011	
13,200.00	6,928.58	6,117.00	6,113.48	105.43	183.29	-11.56	-1,794.12	7,406.06	13,787.42	13,570.13	217.29	63.451	
13,300.00	6,928.26	6,117.00	6,113.48	106.96	183.29	-11.56	-1,794.12	7,406.06	13,887.10	13,669.74	217.36	63.891	
13,400.00	6,927.94	6,117.00	6,113.48	108.49	183.29	-11.56	-1,794.12	7,406.06	13,986.78	13,769.36	217.42	64.330	
13,500.00	6,927.61	6,117.00	6,113.48	110.03	183.29	-11.56	-1,794.12	7,406.06	14,086.46	13,868.97	217.49	64.770	
13,600.00	6,927.29	6,117.00	6,113.48	111.57	183.29	-11.56	-1,794.12	7,406.06	14,186.15	13,968.60	217.55	65.208	
13,700.00	6,926.97	6,117.00	6,113.48	113.11	183.29	-11.56	-1,794.12	7,406.06	14,285.84	14,068.23	217.62	65.647	
13,800.00	6,926.65	6,117.00	6,113.48	114.65	183.29	-11.56	-1,794.12	7,406.06	14,385.54	14,167.86	217.68	66.085	
13,900.00	6,926.32	6,117.00	6,113.48	116.20	183.29	-11.56	-1,794.12	7,406.06	14,485.24	14,267.49	217.75	66.523	
14,000.00	6,926.00	6,117.00	6,113.48	117.75	183.29	-11.56	-1,794.12	7,406.06	14,584.94	14,367.13	217.81	66.961	
14,100.00	6,925.68	6,117.00	6,113.48	119.29	183.29	-11.56	-1,794.12	7,406.06	14,684.65	14,466.77	217.88	67.398	
14,200.00	6,925.35	6,117.00	6,113.48	120.84	183.29	-11.56	-1,794.12	7,406.06	14,784.37	14,566.42	217.95	67.835	
14,300.00	6,925.03	6,117.00	6,113.48	122.39	183.29	-11.56	-1,794.12	7,406.06	14,884.08	14,666.07	218.01	68.271	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #045 - OH - OH-TD

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Rule Assigned:

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,400.00	6,924.71	6,117.00	6,113.48	123.94	183.29	-11.56	-1,794.12	7,406.06	14,983.81	14,765.72	218.08	68.707	
14,500.00	6,924.38	6,117.00	6,113.48	125.50	183.29	-11.56	-1,794.12	7,406.06	15,083.53	14,865.38	218.15	69.143	
14,600.00	6,924.06	6,117.00	6,113.48	127.05	183.29	-11.56	-1,794.12	7,406.06	15,183.26	14,965.04	218.22	69.578	
14,700.00	6,923.74	6,117.00	6,113.48	128.61	183.29	-11.56	-1,794.12	7,406.06	15,282.99	15,064.70	218.29	70.014	
14,800.00	6,923.42	6,117.00	6,113.48	130.16	183.29	-11.56	-1,794.12	7,406.06	15,382.72	15,164.37	218.35	70.448	
14,900.00	6,923.09	6,117.00	6,113.48	131.72	183.29	-11.56	-1,794.12	7,406.06	15,482.46	15,264.04	218.42	70.883	
15,000.00	6,922.77	6,117.00	6,113.48	133.28	183.29	-11.56	-1,794.12	7,406.06	15,582.21	15,363.71	218.49	71.317	
15,100.00	6,922.45	6,117.00	6,113.48	134.84	183.29	-11.56	-1,794.12	7,406.06	15,681.95	15,463.39	218.56	71.750	
15,200.00	6,922.12	6,117.00	6,113.48	136.40	183.29	-11.56	-1,794.12	7,406.06	15,781.70	15,563.07	218.63	72.184	
15,300.00	6,921.80	6,117.00	6,113.48	137.96	183.29	-11.56	-1,794.12	7,406.06	15,881.45	15,662.75	218.70	72.616	
15,400.00	6,921.48	6,117.00	6,113.48	139.53	183.29	-11.56	-1,794.12	7,406.06	15,981.21	15,762.43	218.77	73.049	
15,500.00	6,921.15	6,117.00	6,113.48	141.09	183.29	-11.56	-1,794.12	7,406.06	16,080.96	15,862.12	218.85	73.481	
15,600.00	6,920.83	6,117.00	6,113.48	142.65	183.29	-11.56	-1,794.12	7,406.06	16,180.72	15,961.81	218.92	73.913	
15,700.00	6,920.51	6,117.00	6,113.48	144.22	183.29	-11.56	-1,794.12	7,406.06	16,280.49	16,061.50	218.99	74.344	
15,800.00	6,920.18	6,117.00	6,113.48	145.79	183.29	-11.56	-1,794.12	7,406.06	16,380.25	16,161.19	219.06	74.775	
15,900.00	6,919.86	6,117.00	6,113.48	147.35	183.29	-11.56	-1,794.12	7,406.06	16,480.02	16,260.89	219.13	75.206	
16,000.00	6,919.54	6,117.00	6,113.48	148.92	183.29	-11.56	-1,794.12	7,406.06	16,579.80	16,360.59	219.21	75.636	
16,100.00	6,919.22	6,117.00	6,113.48	150.49	183.29	-11.56	-1,794.12	7,406.06	16,679.57	16,460.29	219.28	76.066	
16,200.00	6,918.89	6,117.00	6,113.48	152.06	183.29	-11.56	-1,794.12	7,406.06	16,779.35	16,560.00	219.35	76.495	
16,300.00	6,918.57	6,117.00	6,113.48	153.63	183.29	-11.56	-1,794.12	7,406.06	16,879.13	16,659.70	219.43	76.924	
16,400.00	6,918.25	6,117.00	6,113.48	155.20	183.29	-11.56	-1,794.12	7,406.06	16,978.91	16,759.41	219.50	77.353	
16,500.00	6,917.92	6,117.00	6,113.48	156.77	183.29	-11.56	-1,794.12	7,406.06	17,078.70	16,859.12	219.57	77.781	
16,600.00	6,917.60	6,117.00	6,113.48	158.34	183.29	-11.56	-1,794.12	7,406.06	17,178.48	16,958.84	219.65	78.209	
16,700.00	6,917.28	6,117.00	6,113.48	159.92	183.29	-11.56	-1,794.12	7,406.06	17,278.27	17,058.55	219.72	78.636	
16,800.00	6,916.95	6,117.00	6,113.48	161.49	183.29	-11.56	-1,794.12	7,406.06	17,378.07	17,158.27	219.80	79.063	
16,900.00	6,916.63	6,117.00	6,113.48	163.06	183.29	-11.56	-1,794.12	7,406.06	17,477.86	17,257.99	219.88	79.490	
17,000.00	6,916.31	6,117.00	6,113.48	164.64	183.29	-11.56	-1,794.12	7,406.06	17,577.66	17,357.71	219.95	79.916	
17,100.00	6,915.98	6,117.00	6,113.48	166.21	183.29	-11.56	-1,794.12	7,406.06	17,677.46	17,457.43	220.03	80.342	
17,200.00	6,915.66	6,117.00	6,113.48	167.79	183.29	-11.56	-1,794.12	7,406.06	17,777.26	17,557.16	220.11	80.767	
17,300.00	6,915.34	6,117.00	6,113.48	169.37	183.29	-11.56	-1,794.12	7,406.06	17,877.07	17,656.88	220.18	81.192	
17,400.00	6,915.02	6,117.00	6,113.48	170.94	183.29	-11.56	-1,794.12	7,406.06	17,976.87	17,756.61	220.26	81.616	
17,500.00	6,914.69	6,117.00	6,113.48	172.52	183.29	-11.56	-1,794.12	7,406.06	18,076.68	17,856.34	220.34	82.041	
17,600.00	6,914.37	6,117.00	6,113.48	174.10	183.29	-11.56	-1,794.12	7,406.06	18,176.49	17,956.07	220.42	82.464	
17,700.00	6,914.05	6,117.00	6,113.48	175.68	183.29	-11.56	-1,794.12	7,406.06	18,276.30	18,055.81	220.50	82.888	
17,800.00	6,913.72	6,117.00	6,113.48	177.25	183.29	-11.56	-1,794.12	7,406.06	18,376.12	18,155.54	220.57	83.310	
17,900.00	6,913.40	6,117.00	6,113.48	178.83	183.29	-11.56	-1,794.12	7,406.06	18,475.94	18,255.28	220.65	83.733	
18,000.00	6,913.08	6,117.00	6,113.48	180.41	183.29	-11.56	-1,794.12	7,406.06	18,575.75	18,355.02	220.73	84.155	
18,023.75	6,913.00	6,117.00	6,113.48	180.79	183.29	-11.56	-1,794.12	7,406.06	18,599.47	18,378.71	220.75	84.255	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #046A - OH - OH-SVY — **Offset Site Error:** 0.00 usft

Survey Program: 321-APC_ISCWSA REV 2 MWD — **Rule Assigned:** — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	122.29	-2,602.07	4,117.73	4,872.83				
100.00	100.00	0.00	0.00	0.25	0.00	122.29	-2,602.07	4,117.73	4,871.10	4,870.85	0.25	N/A	
134.00	134.00	0.00	0.00	0.37	0.00	122.29	-2,602.07	4,117.73	4,870.99	4,870.61	0.37	N/A	
200.00	200.00	61.65	61.65	0.61	0.07	122.29	-2,602.08	4,117.76	4,871.02	4,870.34	0.68	7,175.590	
300.00	300.00	155.05	155.05	0.97	0.17	122.29	-2,602.09	4,117.93	4,871.17	4,870.03	1.14	4,264.757	
400.00	400.00	248.46	248.46	1.33	0.28	122.29	-2,602.12	4,118.23	4,871.46	4,869.86	1.61	3,034.116	
500.00	500.00	354.12	354.12	1.68	0.43	122.28	-2,601.99	4,118.81	4,871.86	4,869.75	2.12	2,301.201	
600.00	599.98	500.64	500.47	2.03	0.76	-57.79	-2,596.41	4,121.61	4,870.43	4,867.65	2.78	1,751.818	
700.00	699.84	569.14	568.63	2.36	0.94	-57.96	-2,590.42	4,124.83	4,867.07	4,863.78	3.29	1,480.297	
800.00	799.45	626.00	624.99	2.71	1.09	-58.17	-2,584.17	4,129.01	4,862.85	4,859.06	3.79	1,283.809	
900.00	898.70	682.00	680.38	3.06	1.26	-58.42	-2,577.57	4,133.89	4,857.67	4,853.36	4.31	1,126.744	
1,000.00	997.47	815.38	811.62	3.43	1.72	-59.02	-2,558.53	4,147.95	4,851.09	4,845.95	5.14	943.286	
1,100.00	1,095.62	944.98	937.90	3.82	2.26	-59.76	-2,534.04	4,163.51	4,841.79	4,835.73	6.07	798.157	
1,207.83	1,200.65	1,034.58	1,024.04	4.26	2.72	-60.46	-2,513.11	4,176.48	4,830.14	4,823.19	6.95	695.224	
1,300.00	1,290.02	1,105.51	1,091.43	4.65	3.12	-60.89	-2,494.31	4,188.15	4,819.87	4,812.14	7.73	623.162	
1,400.00	1,386.98	1,167.10	1,149.25	5.09	3.51	-61.28	-2,476.32	4,199.39	4,809.49	4,800.95	8.54	563.315	
1,500.00	1,483.95	1,234.00	1,211.40	5.53	3.95	-61.73	-2,455.55	4,212.85	4,800.30	4,790.89	9.41	510.110	
1,600.00	1,580.91	1,292.71	1,265.41	5.99	4.38	-62.14	-2,436.32	4,225.46	4,792.09	4,781.82	10.27	466.586	
1,700.00	1,677.87	1,357.92	1,324.89	6.44	4.87	-62.61	-2,413.87	4,240.02	4,784.66	4,773.46	11.20	427.271	
1,800.00	1,774.84	1,420.00	1,381.04	6.90	5.35	-63.06	-2,391.84	4,254.66	4,778.46	4,766.34	12.12	394.175	
1,900.00	1,871.80	1,461.55	1,418.42	7.36	5.70	-63.37	-2,376.82	4,264.85	4,773.45	4,760.55	12.90	369.910	
2,000.00	1,968.76	1,514.00	1,465.42	7.83	6.13	-63.77	-2,357.63	4,278.03	4,769.65	4,755.87	13.78	346.228	
2,100.00	2,065.73	1,586.80	1,530.22	8.30	6.75	-64.32	-2,330.33	4,296.87	4,766.91	4,752.07	14.84	321.179	
2,200.00	2,162.69	1,685.70	1,617.57	8.77	7.61	-65.09	-2,291.96	4,322.94	4,765.00	4,748.87	16.14	295.271	
2,300.00	2,259.65	1,739.83	1,665.22	9.24	8.08	-65.52	-2,270.61	4,337.23	4,763.84	4,746.79	17.05	279.370	
2,335.10	2,293.69	1,755.76	1,679.19	9.40	8.23	-65.64	-2,264.29	4,341.53	4,763.75	4,746.41	17.35	274.628	
2,400.00	2,356.61	1,794.00	1,712.67	9.71	8.56	-65.95	-2,249.07	4,352.02	4,764.06	4,746.09	17.97	265.162	
2,500.00	2,453.58	1,859.72	1,770.20	10.18	9.11	-66.47	-2,223.01	4,370.15	4,765.45	4,746.51	18.95	251.524	
2,600.00	2,550.54	2,448.00	2,289.37	10.66	13.81	-71.07	-1,982.03	4,498.28	4,760.71	4,736.63	24.08	197.715	
2,700.00	2,647.50	2,448.00	2,289.37	11.13	13.81	-71.07	-1,982.03	4,498.28	4,756.34	4,731.81	24.53	193.863	
2,800.00	2,744.47	2,448.00	2,289.37	11.61	13.81	-71.07	-1,982.03	4,498.28	4,754.08	4,729.09	24.98	190.298	
2,857.74	2,800.45	2,448.00	2,289.37	11.88	13.81	-71.07	-1,982.03	4,498.28	4,753.73	4,728.49	25.24	188.363	CC, ES
2,900.00	2,841.43	2,448.00	2,289.37	12.08	13.81	-71.07	-1,982.03	4,498.28	4,753.91	4,728.49	25.42	187.004	
3,000.00	2,938.39	2,448.00	2,289.37	12.56	13.81	-71.07	-1,982.03	4,498.28	4,755.85	4,730.00	25.85	183.970	
3,100.00	3,035.36	2,448.00	2,289.37	13.04	13.81	-71.07	-1,982.03	4,498.28	4,759.90	4,733.62	26.27	181.183	
3,200.00	3,132.32	2,519.91	2,352.44	13.51	14.43	-71.65	-1,952.57	4,516.30	4,765.49	4,738.19	27.30	174.540	
3,300.00	3,229.28	2,654.73	2,471.21	13.99	15.55	-72.71	-1,897.71	4,548.84	4,771.23	4,742.40	28.83	165.482	
3,400.00	3,326.25	2,753.62	2,559.51	14.47	16.33	-73.46	-1,859.46	4,571.64	4,777.48	4,747.47	30.02	159.169	
3,500.00	3,423.21	2,848.62	2,645.67	14.95	17.04	-74.16	-1,825.37	4,592.61	4,784.21	4,753.09	31.13	153.698	
3,600.00	3,520.17	2,966.21	2,753.57	15.43	17.88	-74.99	-1,785.88	4,617.58	4,791.45	4,759.09	32.36	148.060	
3,700.00	3,617.13	3,192.42	2,966.22	15.91	19.29	-76.44	-1,721.05	4,658.83	4,797.55	4,763.38	34.17	140.400	
3,800.00	3,714.10	3,516.09	3,280.33	16.39	20.76	-78.18	-1,656.18	4,700.68	4,801.62	4,765.58	36.04	133.219	
3,900.00	3,811.06	3,641.34	3,403.94	16.87	21.16	-78.75	-1,639.43	4,711.65	4,802.92	4,766.06	36.86	130.303	
4,000.00	3,908.02	3,753.28	3,515.27	17.35	21.44	-79.18	-1,630.65	4,719.38	4,803.62	4,766.05	37.57	127.869	
4,100.00	4,004.99	3,838.07	3,599.66	17.83	21.63	-79.50	-1,624.82	4,725.16	4,804.64	4,766.46	38.18	125.835	
4,200.00	4,101.95	3,922.98	3,684.17	18.31	21.82	-79.82	-1,619.19	4,731.09	4,806.08	4,767.28	38.80	123.877	
4,300.00	4,198.91	4,012.92	3,773.70	18.79	22.02	-80.16	-1,613.44	4,737.52	4,807.90	4,768.48	39.42	121.967	
4,400.00	4,295.88	4,124.27	3,884.56	19.27	22.25	-80.57	-1,606.56	4,745.27	4,809.78	4,769.70	40.08	120.010	
4,500.00	4,392.84	4,235.81	3,995.66	19.75	22.49	-80.98	-1,599.89	4,752.61	4,811.53	4,770.79	40.74	118.115	
4,600.00	4,489.80	4,347.55	4,107.00	20.23	22.72	-81.39	-1,593.43	4,759.54	4,813.15	4,771.76	41.39	116.278	
4,700.00	4,586.76	4,459.48	4,218.56	20.71	22.96	-81.79	-1,587.19	4,766.07	4,814.64	4,772.59	42.05	114.498	
4,800.00	4,683.73	4,555.44	4,314.24	21.20	23.14	-82.13	-1,582.15	4,771.44	4,816.13	4,773.48	42.65	112.912	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #046A - OH - OH-SVY — **Offset Site Error:** 0.00 usft

Survey Program: 321-APC_ISCWSA REV 2 MWD — **Rule Assigned:** — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
4,900.00	4,780.69	4,650.86	4,409.41	21.68	23.31	-82.47	-1,577.62	4,776.72	4,817.81	4,774.56	43.26	111.381	
5,000.00	4,877.65	4,746.58	4,504.90	22.16	23.49	-82.80	-1,573.56	4,781.97	4,819.68	4,775.82	43.86	109.896	
5,100.00	4,974.62	4,842.59	4,600.69	22.64	23.67	-83.12	-1,569.96	4,787.17	4,821.71	4,777.25	44.46	108.453	
5,200.00	5,071.58	4,938.88	4,696.80	23.12	23.85	-83.44	-1,566.84	4,792.33	4,823.90	4,778.84	45.06	107.052	
5,300.00	5,168.54	5,033.18	4,790.93	23.60	24.00	-83.75	-1,564.29	4,797.35	4,826.26	4,780.63	45.63	105.772	
5,400.00	5,265.51	5,127.74	4,885.34	24.09	24.14	-84.05	-1,562.28	4,802.36	4,828.82	4,782.62	46.20	104.528	
5,500.00	5,362.47	5,222.60	4,980.06	24.57	24.29	-84.35	-1,560.82	4,807.37	4,831.55	4,784.79	46.76	103.317	
5,600.00	5,459.43	5,317.76	5,075.08	25.05	24.44	-84.64	-1,559.90	4,812.38	4,834.45	4,787.12	47.33	102.138	
5,700.00	5,556.40	5,413.25	5,170.43	25.53	24.58	-84.92	-1,559.54	4,817.38	4,837.52	4,789.62	47.90	100.990	
5,800.00	5,653.36	5,509.85	5,266.90	26.01	24.72	-85.21	-1,559.50	4,822.43	4,840.73	4,792.27	48.45	99.903	
5,900.00	5,750.32	5,606.51	5,363.43	26.50	24.85	-85.49	-1,559.59	4,827.48	4,844.06	4,795.06	49.01	98.845	
6,000.00	5,847.28	5,703.24	5,460.03	26.98	24.99	-85.77	-1,559.81	4,832.53	4,847.53	4,797.97	49.56	97.813	
6,100.00	5,944.25	5,800.04	5,556.69	27.46	25.12	-86.05	-1,560.15	4,837.58	4,851.12	4,801.01	50.11	96.807	
6,200.00	6,041.21	5,896.97	5,653.50	27.94	25.26	-86.33	-1,560.62	4,842.63	4,854.84	4,804.17	50.66	95.823	
6,300.00	6,138.17	5,994.21	5,750.60	28.43	25.40	-86.61	-1,561.01	4,847.69	4,858.67	4,807.45	51.22	94.858	
6,400.00	6,235.14	6,091.37	5,847.62	28.91	25.53	-86.89	-1,561.23	4,852.76	4,862.62	4,810.84	51.78	93.917	
6,496.84	6,329.04	6,185.37	5,941.50	29.38	25.67	-87.16	-1,561.28	4,857.66	4,866.56	4,814.24	52.31	93.029	
6,500.00	6,332.10	6,188.43	5,944.56	29.39	25.67	-88.30	-1,561.28	4,857.82	4,866.70	4,814.37	52.33	93.000	
6,550.00	6,380.52	6,236.76	5,992.82	29.63	25.74	-105.62	-1,561.24	4,860.34	4,870.98	4,818.37	52.61	92.594	
6,600.00	6,428.63	6,284.55	6,040.54	29.87	25.81	-120.09	-1,561.16	4,862.83	4,879.18	4,826.30	52.88	92.272	
6,650.00	6,476.14	6,331.50	6,087.43	30.10	25.88	-131.00	-1,561.04	4,865.28	4,891.26	4,838.12	53.14	92.039	
6,700.00	6,522.73	6,377.88	6,133.74	30.33	25.94	-138.96	-1,560.88	4,867.70	4,907.13	4,853.73	53.40	91.894	
6,750.00	6,568.14	6,440.51	6,196.30	30.54	26.02	-144.84	-1,560.76	4,870.84	4,926.61	4,872.95	53.66	91.805	
6,800.00	6,612.08	6,501.17	6,256.89	30.75	26.09	-149.24	-1,560.89	4,873.66	4,949.51	4,895.60	53.92	91.801 SF	
6,850.00	6,654.28	6,559.51	6,315.18	30.95	26.16	-152.60	-1,561.22	4,876.16	4,975.71	4,921.56	54.15	91.880	
6,900.00	6,694.47	6,615.19	6,370.81	31.15	26.23	-155.21	-1,561.74	4,878.35	5,005.05	4,950.67	54.38	92.040	
6,950.00	6,732.42	6,667.86	6,423.45	31.33	26.29	-157.28	-1,562.41	4,880.26	5,037.38	4,982.79	54.59	92.280	
7,000.00	6,767.89	6,717.21	6,472.76	31.51	26.35	-158.93	-1,563.19	4,881.88	5,072.51	5,017.73	54.78	92.597	
7,050.00	6,800.65	6,762.91	6,518.43	31.68	26.41	-160.25	-1,564.05	4,883.26	5,110.24	5,055.29	54.96	92.988	
7,100.00	6,830.51	6,804.66	6,560.16	31.85	26.46	-161.32	-1,564.95	4,884.41	5,150.37	5,095.25	55.11	93.451	
7,150.00	6,857.28	6,842.16	6,597.64	32.01	26.51	-162.16	-1,565.85	4,885.35	5,192.65	5,137.40	55.25	93.983	
7,200.00	6,880.80	6,876.51	6,631.97	32.17	26.55	-162.81	-1,566.74	4,886.13	5,236.86	5,181.48	55.37	94.577	
7,250.00	6,900.92	6,923.07	6,678.50	32.33	26.58	-163.39	-1,568.02	4,887.02	5,282.69	5,227.20	55.48	95.213	
7,300.00	6,917.52	6,962.08	6,717.48	32.49	26.61	-163.80	-1,569.13	4,887.58	5,329.87	5,274.29	55.57	95.907	
7,350.00	6,930.50	6,993.03	6,748.43	32.66	26.63	-164.00	-1,570.02	4,887.91	5,378.15	5,322.51	55.64	96.654	
7,400.00	6,939.77	7,015.43	6,770.82	32.83	26.65	-163.83	-1,570.67	4,888.07	5,427.28	5,371.58	55.69	97.450	
7,450.00	6,945.28	7,028.79	6,784.17	33.01	26.66	-162.41	-1,571.07	4,888.15	5,476.97	5,421.24	55.72	98.289	
7,499.66	6,947.00	7,032.64	6,788.02	33.19	26.66	-15.64	-1,571.18	4,888.16	5,526.59	5,470.86	55.74	99.158	
7,600.00	6,946.68	7,030.59	6,785.96	33.61	26.66	-14.88	-1,571.12	4,888.15	5,626.93	5,571.18	55.74	100.949	
7,700.00	6,946.35	7,028.42	6,783.79	34.10	26.66	-14.15	-1,571.06	4,888.14	5,726.92	5,671.18	55.75	102.732	
7,800.00	6,946.03	7,026.11	6,781.48	34.66	26.66	-13.44	-1,570.99	4,888.13	5,826.92	5,771.17	55.75	104.514	
7,900.00	6,945.71	7,023.65	6,779.03	35.29	26.66	-12.74	-1,570.92	4,888.12	5,926.91	5,871.16	55.76	106.295	
8,000.00	6,945.38	7,021.02	6,776.40	35.99	26.65	-12.07	-1,570.84	4,888.11	6,026.91	5,971.14	55.77	108.074	
8,100.00	6,945.06	7,018.21	6,773.60	36.74	26.65	-11.42	-1,570.76	4,888.09	6,126.91	6,071.13	55.77	109.852	
8,200.00	6,944.74	7,015.21	6,770.59	37.56	26.65	-10.78	-1,570.67	4,888.07	6,226.90	6,171.12	55.78	111.628	
8,300.00	6,944.41	7,011.97	6,767.36	38.43	26.65	-10.16	-1,570.57	4,888.05	6,326.90	6,271.10	55.79	113.403	
8,400.00	6,944.09	7,008.49	6,763.87	39.35	26.64	-9.56	-1,570.47	4,888.03	6,426.89	6,371.09	55.80	115.176	
8,500.00	6,943.77	7,004.72	6,760.11	40.31	26.64	-8.97	-1,570.36	4,888.00	6,526.88	6,471.07	55.81	116.948	
8,600.00	6,943.45	7,000.64	6,756.03	41.32	26.64	-8.40	-1,570.24	4,887.97	6,626.88	6,571.06	55.82	118.718	
8,700.00	6,943.12	6,996.20	6,751.59	42.37	26.63	-7.84	-1,570.11	4,887.93	6,726.87	6,671.04	55.83	120.487	
8,800.00	6,942.80	6,991.35	6,746.74	43.45	26.63	-7.30	-1,569.97	4,887.89	6,826.86	6,771.02	55.84	122.254	
8,900.00	6,942.48	6,986.03	6,741.43	44.57	26.63	-6.77	-1,569.81	4,887.84	6,926.86	6,871.00	55.85	124.021	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #046A - OH - OH-SVY

Offset Site Error: 0.00 usft

Survey Program: 321-APC_ISCWSA REV 2 MWD

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Rule Assigned: Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,000.00	6,942.15	6,980.18	6,735.58	45.71	26.62	-6.26	-1,569.65	4,887.78	7,026.85	6,970.98	55.86	125.786	
9,100.00	6,941.83	6,973.70	6,729.10	46.89	26.62	-5.76	-1,569.46	4,887.72	7,126.84	7,070.96	55.87	127.551	
9,200.00	6,941.51	6,966.50	6,721.90	48.09	26.61	-5.28	-1,569.25	4,887.63	7,226.83	7,170.94	55.89	129.315	
9,300.00	6,941.18	6,958.43	6,713.84	49.31	26.61	-4.80	-1,569.02	4,887.54	7,326.81	7,270.92	55.90	131.078	
9,400.00	6,940.86	6,949.35	6,704.76	50.56	26.60	-4.34	-1,568.76	4,887.42	7,426.80	7,370.89	55.91	132.842	
9,500.00	6,940.54	6,939.04	6,694.45	51.82	26.59	-3.89	-1,568.47	4,887.27	7,526.79	7,470.87	55.92	134.606	
9,600.00	6,940.21	6,927.22	6,682.65	53.11	26.58	-3.46	-1,568.14	4,887.09	7,626.77	7,570.84	55.93	136.372	
9,700.00	6,939.89	6,913.57	6,669.00	54.41	26.57	-3.03	-1,567.76	4,886.86	7,726.75	7,670.81	55.93	138.140	
9,800.00	6,939.57	6,897.59	6,653.03	55.73	26.56	-2.62	-1,567.32	4,886.57	7,826.72	7,770.78	55.94	139.911	
9,900.00	6,939.25	6,878.65	6,634.10	57.07	26.55	-2.22	-1,566.80	4,886.18	7,926.70	7,870.75	55.94	141.688	
10,000.00	6,938.92	6,869.38	6,624.84	58.41	26.54	-2.05	-1,566.55	4,885.98	8,026.66	7,970.70	55.96	143.439	
10,100.00	6,938.60	6,864.36	6,619.82	59.77	26.53	-1.96	-1,566.42	4,885.86	8,126.63	8,070.65	55.98	145.178	
10,200.00	6,938.28	6,859.21	6,614.67	61.15	26.53	-1.88	-1,566.28	4,885.75	8,226.60	8,170.60	56.00	146.914	
10,300.00	6,937.95	6,853.93	6,609.40	62.53	26.52	-1.80	-1,566.15	4,885.63	8,326.56	8,270.54	56.02	148.647	
10,400.00	6,937.63	6,848.53	6,604.00	63.92	26.51	-1.72	-1,566.01	4,885.50	8,426.52	8,370.49	56.04	150.377	
10,500.00	6,937.31	6,842.99	6,598.47	65.33	26.51	-1.65	-1,565.87	4,885.37	8,526.49	8,470.43	56.06	152.105	
10,600.00	6,936.98	6,837.31	6,592.79	66.74	26.50	-1.57	-1,565.72	4,885.23	8,626.45	8,570.37	56.08	153.830	
10,700.00	6,936.66	6,831.49	6,586.97	68.16	26.49	-1.50	-1,565.58	4,885.09	8,726.41	8,670.31	56.10	155.552	
10,800.00	6,936.34	6,825.52	6,581.00	69.59	26.49	-1.43	-1,565.44	4,884.94	8,826.37	8,770.25	56.12	157.271	
10,900.00	6,936.01	6,819.39	6,574.88	71.03	26.48	-1.37	-1,565.29	4,884.79	8,926.33	8,870.19	56.14	158.987	
11,000.00	6,935.69	6,813.10	6,568.59	72.47	26.47	-1.30	-1,565.14	4,884.63	9,026.29	8,970.12	56.17	160.701	
11,100.00	6,935.37	6,806.64	6,562.13	73.92	26.46	-1.24	-1,564.99	4,884.46	9,126.25	9,070.05	56.19	162.411	
11,200.00	6,935.05	6,800.00	6,555.50	75.38	26.46	-1.18	-1,564.84	4,884.29	9,226.20	9,169.99	56.22	164.118	
11,300.00	6,934.72	6,793.18	6,548.68	76.84	26.45	-1.12	-1,564.69	4,884.10	9,326.16	9,269.92	56.24	165.822	
11,400.00	6,934.40	6,786.17	6,541.68	78.31	26.44	-1.06	-1,564.54	4,883.91	9,426.11	9,369.84	56.27	167.523	
11,500.00	6,934.08	6,778.96	6,534.47	79.79	26.43	-1.01	-1,564.38	4,883.71	9,526.06	9,469.77	56.29	169.222	
11,600.00	6,933.75	6,771.54	6,527.06	81.27	26.42	-0.95	-1,564.23	4,883.51	9,626.01	9,569.69	56.32	170.917	
11,700.00	6,933.43	6,763.90	6,519.43	82.75	26.41	-0.90	-1,564.07	4,883.29	9,725.96	9,669.62	56.35	172.609	
11,800.00	6,933.11	6,756.04	6,511.57	84.24	26.40	-0.85	-1,563.91	4,883.06	9,825.91	9,769.54	56.37	174.297	
11,900.00	6,932.78	6,747.94	6,503.48	85.73	26.39	-0.80	-1,563.75	4,882.82	9,925.86	9,869.46	56.40	175.983	
12,000.00	6,932.46	6,739.60	6,495.13	87.23	26.38	-0.76	-1,563.59	4,882.57	10,025.80	9,969.37	56.43	177.665	
12,100.00	6,932.14	6,730.99	6,486.53	88.72	26.37	-0.71	-1,563.44	4,882.31	10,125.75	10,069.29	56.46	179.345	
12,200.00	6,931.81	7,064.51	6,819.85	90.23	26.69	-50.55	-1,572.54	4,885.61	10,224.32	10,167.47	56.85	179.850	
12,300.00	6,931.49	7,064.41	6,819.75	91.74	26.69	-50.28	-1,572.54	4,885.61	10,324.32	10,267.43	56.89	181.484	
12,400.00	6,931.17	7,064.30	6,819.65	93.25	26.69	-50.01	-1,572.53	4,885.61	10,424.32	10,367.39	56.93	183.113	
12,500.00	6,930.85	7,064.20	6,819.54	94.76	26.69	-49.74	-1,572.53	4,885.61	10,524.32	10,467.35	56.97	184.738	
12,600.00	6,930.52	7,064.10	6,819.44	96.27	26.69	-49.48	-1,572.53	4,885.61	10,624.32	10,567.31	57.01	186.359	
12,700.00	6,930.20	7,063.99	6,819.34	97.79	26.68	-49.22	-1,572.52	4,885.61	10,724.32	10,667.27	57.05	187.975	
12,800.00	6,929.88	7,063.89	6,819.23	99.32	26.68	-48.96	-1,572.52	4,885.61	10,824.32	10,767.23	57.09	189.587	
12,900.00	6,929.55	7,063.78	6,819.13	100.84	26.68	-48.70	-1,572.52	4,885.61	10,924.32	10,867.18	57.14	191.194	
13,000.00	6,929.23	7,063.68	6,819.03	102.37	26.68	-48.44	-1,572.52	4,885.61	11,024.32	10,967.14	57.18	192.796	
13,100.00	6,928.91	7,063.58	6,818.92	103.89	26.68	-48.19	-1,572.51	4,885.61	11,124.32	11,067.09	57.23	194.394	
13,200.00	6,928.58	6,615.08	6,370.70	105.43	26.23	-0.32	-1,561.74	4,878.35	11,224.98	11,168.17	56.81	197.604	
13,300.00	6,928.26	6,602.13	6,357.76	106.96	26.21	-0.30	-1,561.60	4,877.86	11,324.89	11,268.05	56.84	199.244	
13,400.00	6,927.94	6,588.67	6,344.32	108.49	26.20	-0.27	-1,561.47	4,877.33	11,424.80	11,367.93	56.87	200.881	
13,500.00	6,927.61	6,574.69	6,330.34	110.03	26.18	-0.25	-1,561.35	4,876.78	11,524.71	11,467.80	56.91	202.515	
13,600.00	6,927.29	6,560.14	6,315.81	111.57	26.16	-0.23	-1,561.23	4,876.19	11,624.62	11,567.67	56.94	204.146	
13,700.00	6,926.97	6,544.99	6,300.67	113.11	26.14	-0.21	-1,561.12	4,875.56	11,724.52	11,667.54	56.98	205.774	
13,800.00	6,926.65	6,529.20	6,284.89	114.65	26.13	-0.20	-1,561.02	4,874.89	11,824.41	11,767.40	57.01	207.398	
13,900.00	6,926.32	6,512.73	6,268.44	116.20	26.11	-0.18	-1,560.94	4,874.17	11,924.30	11,867.25	57.05	209.019	
14,000.00	6,926.00	6,495.53	6,251.26	117.75	26.08	-0.17	-1,560.87	4,873.41	12,024.19	11,967.10	57.08	210.637	
14,100.00	6,925.68	6,477.57	6,233.31	119.29	26.06	-0.16	-1,560.81	4,872.59	12,124.07	12,066.95	57.12	212.251	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #046A - OH - OH-SVY

Offset Site Error: 0.00 usft

Survey Program: 321-APC_ISCWSA REV 2 MWD

Rule Assigned:

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,200.00	6,925.35	6,458.77	6,214.54	120.84	26.04	-0.15	-1,560.78	4,871.71	12,223.95	12,166.79	57.16	213.862	
14,300.00	6,925.03	6,439.10	6,194.89	122.39	26.02	-0.15	-1,560.76	4,870.77	12,323.82	12,266.62	57.19	215.470	
14,400.00	6,924.71	6,418.47	6,174.28	123.94	25.99	-0.15	-1,560.78	4,869.76	12,423.68	12,366.45	57.23	217.075	
14,500.00	6,924.38	6,396.83	6,152.67	125.50	25.97	-0.14	-1,560.82	4,868.68	12,523.54	12,466.27	57.27	218.676	
14,600.00	6,924.06	6,376.00	6,131.87	127.05	25.94	-0.15	-1,560.88	4,867.60	12,623.39	12,566.08	57.31	220.268	
14,700.00	6,923.74	6,370.02	6,125.89	128.61	25.93	-0.15	-1,560.91	4,867.29	12,723.23	12,665.87	57.36	221.812	
14,800.00	6,923.42	6,364.49	6,120.37	130.16	25.92	-0.15	-1,560.93	4,867.00	12,823.08	12,765.67	57.41	223.350	
14,900.00	6,923.09	6,358.96	6,114.85	131.72	25.92	-0.15	-1,560.95	4,866.71	12,922.92	12,865.46	57.47	224.883	
15,000.00	6,922.77	6,353.43	6,109.33	133.28	25.91	-0.15	-1,560.97	4,866.42	13,022.77	12,965.25	57.52	226.410	
15,100.00	6,922.45	6,347.90	6,103.81	134.84	25.90	-0.15	-1,560.98	4,866.14	13,122.62	13,065.04	57.57	227.932	
15,200.00	6,922.12	6,342.38	6,098.29	136.40	25.89	-0.15	-1,561.00	4,865.85	13,222.46	13,164.84	57.63	229.449	
15,300.00	6,921.80	6,336.85	6,092.77	137.96	25.88	-0.15	-1,561.02	4,865.56	13,322.31	13,264.63	57.68	230.960	
15,400.00	6,921.48	6,331.32	6,087.25	139.53	25.88	-0.15	-1,561.04	4,865.27	13,422.16	13,364.42	57.74	232.466	
15,500.00	6,921.15	6,325.79	6,081.73	141.09	25.87	-0.15	-1,561.05	4,864.98	13,522.00	13,464.21	57.79	233.967	
15,600.00	6,920.83	6,320.27	6,076.21	142.65	25.86	-0.15	-1,561.07	4,864.69	13,621.85	13,564.00	57.85	235.462	
15,700.00	6,920.51	6,314.74	6,070.70	144.22	25.85	-0.15	-1,561.08	4,864.41	13,721.70	13,663.79	57.91	236.952	
15,800.00	6,920.18	6,309.21	6,065.18	145.79	25.84	-0.15	-1,561.10	4,864.12	13,821.54	13,763.58	57.97	238.436	
15,900.00	6,919.86	6,303.69	6,059.66	147.35	25.84	-0.15	-1,561.11	4,863.83	13,921.39	13,863.36	58.03	239.915	
16,000.00	6,919.54	6,298.16	6,054.14	148.92	25.83	-0.15	-1,561.13	4,863.54	14,021.24	13,963.15	58.09	241.389	
16,100.00	6,919.22	6,292.64	6,048.62	150.49	25.82	-0.15	-1,561.14	4,863.25	14,121.08	14,062.94	58.15	242.857	
16,200.00	6,918.89	6,287.11	6,043.10	152.06	25.81	-0.15	-1,561.15	4,862.96	14,220.93	14,162.72	58.21	244.319	
16,300.00	6,918.57	6,281.58	6,037.58	153.63	25.81	-0.15	-1,561.16	4,862.68	14,320.78	14,262.51	58.27	245.777	
16,400.00	6,918.25	6,276.06	6,032.07	155.20	25.80	-0.15	-1,561.18	4,862.39	14,420.62	14,362.29	58.33	247.228	
16,500.00	6,917.92	6,270.53	6,026.55	156.77	25.79	-0.15	-1,561.19	4,862.10	14,520.47	14,462.08	58.39	248.674	
16,600.00	6,917.60	6,265.01	6,021.03	158.34	25.78	-0.15	-1,561.20	4,861.81	14,620.31	14,561.86	58.45	250.115	
16,700.00	6,917.28	6,259.48	6,015.51	159.92	25.77	-0.15	-1,561.21	4,861.52	14,720.16	14,661.64	58.52	251.550	
16,800.00	6,916.95	6,253.96	6,010.00	161.49	25.77	-0.15	-1,561.22	4,861.23	14,820.01	14,761.43	58.58	252.979	
16,900.00	6,916.63	6,248.44	6,004.48	163.06	25.76	-0.15	-1,561.22	4,860.95	14,919.85	14,861.21	58.65	254.403	
17,000.00	6,916.31	6,242.91	5,998.96	164.64	25.75	-0.15	-1,561.23	4,860.66	15,019.70	14,960.99	58.71	255.822	
17,100.00	6,915.98	6,237.39	5,993.45	166.21	25.74	-0.15	-1,561.24	4,860.37	15,119.55	15,060.77	58.78	257.234	
17,200.00	6,915.66	6,231.86	5,987.93	167.79	25.73	-0.15	-1,561.25	4,860.08	15,219.39	15,160.55	58.84	258.642	
17,300.00	6,915.34	6,226.34	5,982.41	169.37	25.73	-0.15	-1,561.25	4,859.79	15,319.24	15,260.33	58.91	260.043	
17,400.00	6,915.02	6,220.82	5,976.90	170.94	25.72	-0.15	-1,561.26	4,859.51	15,419.09	15,360.11	58.98	261.439	
17,500.00	6,914.69	6,215.29	5,971.38	172.52	25.71	-0.15	-1,561.26	4,859.22	15,518.93	15,459.89	59.05	262.830	
17,600.00	6,914.37	6,209.77	5,965.87	174.10	25.70	-0.15	-1,561.27	4,858.93	15,618.78	15,559.67	59.11	264.215	
17,700.00	6,914.05	6,204.25	5,960.35	175.68	25.69	-0.15	-1,561.27	4,858.64	15,718.63	15,659.44	59.18	265.594	
17,800.00	6,913.72	6,198.72	5,954.83	177.25	25.69	-0.15	-1,561.28	4,858.35	15,818.47	15,759.22	59.25	266.968	
17,900.00	6,913.40	6,193.20	5,949.32	178.83	25.68	-0.14	-1,561.28	4,858.06	15,918.32	15,859.00	59.32	268.336	
18,000.00	6,913.08	6,187.68	5,943.80	180.41	25.67	-0.14	-1,561.28	4,857.78	16,018.17	15,958.77	59.39	269.699	
18,023.75	6,913.00	6,186.37	5,942.49	180.79	25.67	-0.14	-1,561.28	4,857.71	16,041.88	15,982.47	59.41	270.021	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #070 - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Rule Assigned:

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	193.00	193.00	0.00	5.78	81.02	2,078.49	13,149.76	13,313.01				
100.00	100.00	293.00	293.00	0.25	8.78	81.02	2,078.49	13,149.76	13,313.01	13,303.98	9.03	1,474.208	
200.00	200.00	393.00	393.00	0.61	11.78	81.02	2,078.49	13,149.76	13,313.01	13,300.62	12.39	1,074.886	
300.00	300.00	493.00	493.00	0.97	14.77	81.02	2,078.49	13,149.76	13,313.01	13,297.27	15.74	845.787	
400.00	400.00	593.10	593.00	1.33	17.77	81.02	2,078.49	13,149.76	13,313.01	13,293.91	19.10	697.076	
500.00	500.00	693.10	693.00	1.68	20.77	81.02	2,078.49	13,149.76	13,313.01	13,290.56	22.45	592.921 CC	
600.00	599.98	800.44	800.30	2.03	23.98	-98.95	2,080.58	13,149.76	13,313.61	13,287.60	26.01	511.850	
700.00	699.84	917.41	917.24	2.36	27.49	-98.96	2,079.69	13,149.76	13,314.31	13,284.46	29.85	446.069	
800.00	799.45	1,034.31	1,034.09	2.71	30.99	-98.97	2,077.85	13,149.76	13,315.42	13,281.73	33.69	395.185	
900.00	898.70	1,092.11	1,091.70	3.06	32.72	-98.97	2,078.49	13,149.76	13,317.37	13,281.59	35.78	372.181	
1,000.00	997.47	1,190.87	1,190.47	3.43	35.68	-98.99	2,078.49	13,149.76	13,319.84	13,280.73	39.11	340.558	
1,100.00	1,095.62	1,295.93	1,295.48	3.82	38.83	-99.02	2,080.60	13,149.76	13,323.22	13,280.57	42.65	312.404	
1,207.83	1,200.65	1,419.84	1,419.36	4.26	42.54	-99.06	2,079.66	13,149.76	13,327.02	13,280.22	46.80	284.760	
1,300.00	1,290.02	1,525.73	1,525.21	4.65	45.72	-99.16	2,078.02	13,149.76	13,330.46	13,280.09	50.37	264.672 ES	
1,400.00	1,386.98	1,580.69	1,579.98	5.09	47.36	-99.22	2,078.49	13,149.76	13,334.48	13,282.04	52.45	254.242	
1,500.00	1,483.95	1,677.66	1,676.95	5.53	50.27	-99.32	2,078.49	13,149.76	13,338.55	13,282.75	55.80	239.059	
1,600.00	1,580.91	1,779.27	1,778.52	5.99	53.32	-99.44	2,080.64	13,149.76	13,343.01	13,283.73	59.29	225.049	
1,700.00	1,677.87	1,894.77	1,894.00	6.44	56.78	-99.55	2,079.94	13,149.76	13,347.07	13,283.86	63.20	211.177	
1,800.00	1,774.84	2,010.78	2,009.96	6.90	60.25	-99.67	2,078.30	13,149.76	13,351.02	13,283.89	67.14	198.865	
1,900.00	1,871.80	2,065.81	2,064.80	7.36	61.90	-99.73	2,078.49	13,149.76	13,355.23	13,285.98	69.24	192.870	
2,000.00	1,968.76	2,162.78	2,161.76	7.83	64.81	-99.83	2,078.49	13,149.76	13,359.50	13,286.89	72.61	183.984	
2,100.00	2,065.73	2,261.72	2,260.66	8.30	67.77	-99.94	2,080.67	13,149.76	13,364.21	13,288.17	76.04	175.750	
2,200.00	2,162.69	2,378.36	2,377.28	8.77	71.27	-100.06	2,080.10	13,149.76	13,368.50	13,288.50	80.00	167.102	
2,300.00	2,259.65	2,495.53	2,494.41	9.24	74.78	-100.17	2,078.57	13,149.76	13,372.68	13,288.70	83.98	159.237	
2,400.00	2,356.61	2,550.93	2,549.61	9.71	76.44	-100.23	2,078.49	13,149.76	13,377.05	13,290.94	86.11	155.352	
2,500.00	2,453.58	2,647.90	2,646.58	10.18	79.34	-100.33	2,078.49	13,149.76	13,381.55	13,292.07	89.48	149.543	
2,600.00	2,550.54	2,744.86	2,743.54	10.66	82.25	-100.43	2,078.49	13,149.76	13,386.09	13,293.23	92.86	144.156	
2,700.00	2,647.50	2,861.61	2,860.23	11.13	85.75	-100.55	2,080.24	13,149.76	13,391.01	13,294.18	96.83	138.297	
2,800.00	2,744.47	2,979.95	2,978.54	11.61	89.29	-100.67	2,078.82	13,149.76	13,395.42	13,294.57	100.85	132.831	
2,900.00	2,841.43	3,036.05	3,034.43	12.08	90.97	-100.73	2,078.49	13,149.76	13,399.96	13,296.96	103.00	130.099	
3,000.00	2,938.39	3,133.02	3,131.39	12.56	93.88	-100.83	2,078.49	13,149.76	13,404.67	13,298.30	106.38	126.012	
3,100.00	3,035.36	3,229.98	3,228.36	13.04	96.78	-100.93	2,078.49	13,149.76	13,409.43	13,299.67	109.75	122.177	
3,200.00	3,132.32	3,344.51	3,342.83	13.51	100.22	-101.05	2,080.36	13,149.76	13,414.60	13,300.94	113.66	118.025	
3,300.00	3,229.28	3,464.05	3,462.34	13.99	103.80	-101.17	2,079.07	13,149.76	13,419.24	13,301.52	117.71	113.998	
3,400.00	3,326.25	3,521.17	3,519.25	14.47	105.51	-101.22	2,078.49	13,149.76	13,423.94	13,304.04	119.90	111.960	
3,500.00	3,423.21	3,618.14	3,616.21	14.95	108.42	-101.32	2,078.49	13,149.76	13,428.87	13,305.59	123.28	108.931	
3,600.00	3,520.17	3,715.10	3,713.17	15.43	111.32	-101.42	2,078.49	13,149.76	13,433.84	13,307.18	126.66	106.064	
3,700.00	3,617.13	3,827.05	3,825.06	15.91	114.68	-101.54	2,080.46	13,149.76	13,439.26	13,308.77	130.49	102.993	
3,800.00	3,714.10	3,947.82	3,945.80	16.39	118.29	-101.66	2,079.30	13,149.76	13,444.12	13,309.54	134.58	99.897	
3,900.00	3,811.06	4,006.29	4,004.06	16.87	120.05	-101.72	2,078.49	13,149.76	13,449.00	13,312.19	136.81	98.307	
4,000.00	3,908.02	4,103.26	4,101.02	17.35	122.95	-101.82	2,078.49	13,149.76	13,454.13	13,313.95	140.19	95.974	
4,100.00	4,004.99	4,200.22	4,197.99	17.83	125.86	-101.92	2,078.49	13,149.76	13,459.31	13,315.75	143.57	93.750	
4,200.00	4,101.95	4,309.21	4,306.93	18.31	129.12	-102.04	2,080.55	13,149.76	13,464.98	13,317.68	147.31	91.408	
4,300.00	4,198.91	4,431.23	4,428.92	18.79	132.78	-102.16	2,079.52	13,149.76	13,470.08	13,318.64	151.44	88.948	
4,400.00	4,295.88	4,553.81	4,551.45	19.27	136.45	-102.27	2,077.45	13,149.76	13,475.03	13,319.44	155.59	86.609	
4,500.00	4,392.84	4,588.38	4,585.84	19.75	137.49	-102.31	2,078.49	13,149.76	13,480.46	13,323.37	157.09	85.811	
4,600.00	4,489.80	4,685.34	4,682.80	20.23	140.39	-102.41	2,078.49	13,149.76	13,485.85	13,325.38	160.47	84.037	
4,700.00	4,586.76	4,790.99	4,788.40	20.71	143.56	-102.53	2,080.61	13,149.76	13,491.76	13,327.65	164.11	82.209	
4,800.00	4,683.73	4,914.29	4,911.68	21.20	147.25	-102.65	2,079.73	13,149.76	13,497.09	13,328.80	168.28	80.204	
4,900.00	4,780.69	5,038.16	5,035.50	21.68	150.97	-102.77	2,077.77	13,149.76	13,502.26	13,329.79	172.47	78.287	
5,000.00	4,877.65	5,073.50	5,070.65	22.16	152.02	-102.81	2,078.49	13,149.76	13,507.84	13,333.84	174.00	77.630	
5,100.00	4,974.62	5,170.46	5,167.62	22.64	154.93	-102.90	2,078.49	13,149.76	13,513.45	13,336.06	177.38	76.183	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #070 - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,200.00	5,071.58	5,272.37	5,269.48	23.12	157.98	-103.02	2,080.65	13,149.76	13,519.59	13,338.68	180.91	74.731	
5,300.00	5,168.54	5,396.97	5,394.06	23.60	161.72	-103.14	2,079.92	13,149.76	13,525.15	13,340.03	185.12	73.062	
5,400.00	5,265.51	5,522.16	5,519.21	24.09	165.47	-103.26	2,078.08	13,149.76	13,530.55	13,341.20	189.34	71.460	
5,500.00	5,362.47	5,558.62	5,555.47	24.57	166.56	-103.30	2,078.49	13,149.76	13,536.27	13,345.37	190.91	70.904	
5,600.00	5,459.43	5,655.58	5,652.43	25.05	169.47	-103.39	2,078.49	13,149.76	13,542.09	13,347.80	194.29	69.701	
5,700.00	5,556.40	5,753.34	5,750.15	25.53	172.40	-103.50	2,080.67	13,149.76	13,548.46	13,350.77	197.69	68.533	
5,800.00	5,653.36	5,879.27	5,876.06	26.01	176.17	-103.62	2,080.09	13,149.76	13,554.25	13,352.31	201.94	67.120	
5,900.00	5,750.32	6,005.81	6,002.56	26.50	179.96	-103.75	2,078.39	13,149.76	13,559.88	13,353.67	206.21	65.759	
6,000.00	5,847.28	6,043.74	6,040.28	26.98	181.10	-103.78	2,078.49	13,149.76	13,565.75	13,357.94	207.81	65.278	
6,100.00	5,944.25	6,140.70	6,137.25	27.46	184.00	-103.88	2,078.49	13,149.76	13,571.77	13,360.58	211.19	64.263	
6,200.00	6,041.21	6,237.66	6,234.21	27.94	186.91	-103.98	2,078.49	13,149.76	13,577.83	13,363.26	214.57	63.279	
6,300.00	6,138.17	6,361.18	6,357.67	28.43	190.61	-104.11	2,080.24	13,149.76	13,584.40	13,365.65	218.75	62.101	
6,400.00	6,235.14	6,489.10	6,485.55	28.91	194.44	-104.23	2,078.67	13,149.76	13,590.24	13,367.19	223.05	60.928	
6,496.84	6,329.04	6,518.00	6,514.23	29.38	195.31	-104.26	2,078.49	13,149.76	13,596.07	13,371.69	224.37	60.595	
6,500.00	6,332.10	6,518.00	6,514.23	29.39	195.31	-105.39	2,078.49	13,149.76	13,596.27	13,371.88	224.39	60.592	
6,550.00	6,380.52	6,518.00	6,514.23	29.63	195.31	-122.71	2,078.49	13,149.76	13,601.64	13,377.02	224.62	60.555	
6,600.00	6,428.63	6,518.00	6,514.23	29.87	195.31	-137.28	2,078.49	13,149.76	13,610.94	13,386.10	224.83	60.538 SF	
6,650.00	6,476.14	6,518.00	6,514.23	30.10	195.31	-148.41	2,078.49	13,149.76	13,624.11	13,399.07	225.03	60.543	
6,700.00	6,522.73	6,518.00	6,514.23	30.33	195.31	-156.71	2,078.49	13,149.76	13,641.06	13,415.84	225.22	60.568	
6,750.00	6,568.14	6,518.00	6,514.23	30.54	195.31	-163.01	2,078.49	13,149.76	13,661.66	13,436.28	225.39	60.614	
6,800.00	6,612.08	6,518.00	6,514.23	30.75	195.31	-167.99	2,078.49	13,149.76	13,685.79	13,460.25	225.54	60.681	
6,850.00	6,654.28	6,518.00	6,514.23	30.95	195.31	-172.12	2,078.49	13,149.76	13,713.27	13,487.59	225.67	60.767	
6,900.00	6,694.47	6,518.00	6,514.23	31.15	195.31	-175.73	2,078.49	13,149.76	13,743.90	13,518.12	225.79	60.872	
6,950.00	6,732.42	6,518.00	6,514.23	31.33	195.31	-179.07	2,078.49	13,149.76	13,777.49	13,551.61	225.88	60.995	
7,000.00	6,767.89	6,518.00	6,514.23	31.51	195.31	177.64	2,078.49	13,149.76	13,813.80	13,587.84	225.96	61.135	
7,050.00	6,800.65	6,518.00	6,514.23	31.68	195.31	174.21	2,078.49	13,149.76	13,852.59	13,626.58	226.01	61.291	
7,100.00	6,830.51	6,518.00	6,514.23	31.85	195.31	170.41	2,078.49	13,149.76	13,893.60	13,667.55	226.05	61.462	
7,150.00	6,857.28	6,518.00	6,514.23	32.01	195.31	165.95	2,078.49	13,149.76	13,936.56	13,710.49	226.07	61.646	
7,200.00	6,880.80	6,518.00	6,514.23	32.17	195.31	160.44	2,078.49	13,149.76	13,981.19	13,755.12	226.07	61.843	
7,250.00	6,900.92	6,518.00	6,514.23	32.33	195.31	153.30	2,078.49	13,149.76	14,027.20	13,801.14	226.06	62.051	
7,300.00	6,917.52	6,518.00	6,514.23	32.49	195.31	143.74	2,078.49	13,149.76	14,074.29	13,848.26	226.03	62.267	
7,350.00	6,930.50	6,518.00	6,514.23	32.66	195.31	130.88	2,078.49	13,149.76	14,122.16	13,896.17	225.99	62.491	
7,400.00	6,939.77	6,518.00	6,514.23	32.83	195.31	114.48	2,078.49	13,149.76	14,170.51	13,944.58	225.93	62.721	
7,450.00	6,945.28	6,518.00	6,514.23	33.01	195.31	96.28	2,078.49	13,149.76	14,219.04	13,993.18	225.86	62.954	
7,499.66	6,947.00	6,518.00	6,514.23	33.19	195.31	79.66	2,078.49	13,149.76	14,267.13	14,041.34	225.79	63.188	
7,600.00	6,946.68	6,518.00	6,514.23	33.61	195.31	79.66	2,078.49	13,149.76	14,363.99	14,138.36	225.63	63.661	
7,700.00	6,946.35	6,518.00	6,514.23	34.10	195.31	79.66	2,078.49	13,149.76	14,460.57	14,235.09	225.48	64.131	
7,800.00	6,946.03	6,518.00	6,514.23	34.66	195.31	79.66	2,078.49	13,149.76	14,557.20	14,331.86	225.34	64.600	
7,900.00	6,945.71	6,518.00	6,514.23	35.29	195.31	79.66	2,078.49	13,149.76	14,653.87	14,428.66	225.21	65.067	
8,000.00	6,945.38	6,518.00	6,514.23	35.99	195.31	79.66	2,078.49	13,149.76	14,750.59	14,525.51	225.08	65.534	
8,100.00	6,945.06	6,518.00	6,514.23	36.74	195.31	79.66	2,078.49	13,149.76	14,847.35	14,622.39	224.96	65.999	
8,200.00	6,944.74	6,518.00	6,514.23	37.56	195.31	79.66	2,078.49	13,149.76	14,944.16	14,719.31	224.85	66.463	
8,300.00	6,944.41	6,518.00	6,514.23	38.43	195.31	79.66	2,078.49	13,149.76	15,041.00	14,816.26	224.74	66.926	
8,400.00	6,944.09	6,518.00	6,514.23	39.35	195.31	79.66	2,078.49	13,149.76	15,137.89	14,913.25	224.64	67.388	
8,500.00	6,943.77	6,518.00	6,514.23	40.31	195.31	79.66	2,078.49	13,149.76	15,234.82	15,010.27	224.54	67.848	
8,600.00	6,943.45	6,518.00	6,514.23	41.32	195.31	79.66	2,078.49	13,149.76	15,331.78	15,107.33	224.45	68.308	
8,700.00	6,943.12	6,518.00	6,514.23	42.37	195.31	79.66	2,078.49	13,149.76	15,428.79	15,204.42	224.37	68.766	
8,800.00	6,942.80	6,518.00	6,514.23	43.45	195.31	79.66	2,078.49	13,149.76	15,525.83	15,301.54	224.29	69.223	
8,900.00	6,942.48	6,518.00	6,514.23	44.57	195.31	79.66	2,078.49	13,149.76	15,622.91	15,398.70	224.21	69.678	
9,000.00	6,942.15	6,518.00	6,514.23	45.71	195.31	79.66	2,078.49	13,149.76	15,720.03	15,495.88	224.15	70.133	
9,100.00	6,941.83	6,518.00	6,514.23	46.89	195.31	79.66	2,078.49	13,149.76	15,817.18	15,593.10	224.08	70.586	
9,200.00	6,941.51	6,518.00	6,514.23	48.09	195.31	79.66	2,078.49	13,149.76	15,914.37	15,690.34	224.03	71.038	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #070 - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,300.00	6,941.18	6,518.00	6,514.23	49.31	195.31	79.66	2,078.49	13,149.76	16,011.59	15,787.62	223.97	71.489	
9,400.00	6,940.86	6,518.00	6,514.23	50.56	195.31	79.66	2,078.49	13,149.76	16,108.85	15,884.92	223.93	71.938	
9,500.00	6,940.54	6,518.00	6,514.23	51.82	195.31	79.66	2,078.49	13,149.76	16,206.14	15,982.26	223.88	72.387	
9,600.00	6,940.21	6,518.00	6,514.23	53.11	195.31	79.66	2,078.49	13,149.76	16,303.46	16,079.62	223.84	72.834	
9,700.00	6,939.89	6,518.00	6,514.23	54.41	195.31	79.66	2,078.49	13,149.76	16,400.82	16,177.01	223.81	73.280	
9,800.00	6,939.57	6,518.00	6,514.23	55.73	195.31	79.66	2,078.49	13,149.76	16,498.20	16,274.42	223.78	73.725	
9,900.00	6,939.25	6,518.00	6,514.23	57.07	195.31	79.66	2,078.49	13,149.76	16,595.62	16,371.87	223.76	74.168	
10,000.00	6,938.92	6,518.00	6,514.23	58.41	195.31	79.66	2,078.49	13,149.76	16,693.07	16,469.33	223.74	74.611	
10,100.00	6,938.60	6,518.00	6,514.23	59.77	195.31	79.66	2,078.49	13,149.76	16,790.55	16,566.83	223.72	75.052	
10,200.00	6,938.28	6,518.00	6,514.23	61.15	195.31	79.66	2,078.49	13,149.76	16,888.06	16,664.35	223.71	75.492	
10,300.00	6,937.95	6,518.00	6,514.23	62.53	195.31	79.66	2,078.49	13,149.76	16,985.59	16,761.89	223.70	75.930	
10,400.00	6,937.63	6,518.00	6,514.23	63.92	195.31	79.66	2,078.49	13,149.76	17,083.16	16,859.46	223.70	76.368	
10,500.00	6,937.31	6,518.00	6,514.23	65.33	195.31	79.66	2,078.49	13,149.76	17,180.75	16,957.06	223.69	76.805	
10,600.00	6,936.98	6,518.00	6,514.23	66.74	195.31	79.66	2,078.49	13,149.76	17,278.37	17,054.68	223.70	77.240	
10,700.00	6,936.66	6,518.00	6,514.23	68.16	195.31	79.66	2,078.49	13,149.76	17,376.02	17,152.32	223.70	77.674	
10,800.00	6,936.34	6,518.00	6,514.23	69.59	195.31	79.66	2,078.49	13,149.76	17,473.70	17,249.98	223.71	78.107	
10,900.00	6,936.01	6,518.00	6,514.23	71.03	195.31	79.66	2,078.49	13,149.76	17,571.40	17,347.67	223.73	78.539	
11,000.00	6,935.69	6,518.00	6,514.23	72.47	195.31	79.66	2,078.49	13,149.76	17,669.12	17,445.38	223.75	78.970	
11,100.00	6,935.37	6,518.00	6,514.23	73.92	195.31	79.66	2,078.49	13,149.76	17,766.88	17,543.11	223.77	79.399	
11,200.00	6,935.05	6,518.00	6,514.23	75.38	195.31	79.66	2,078.49	13,149.76	17,864.65	17,640.86	223.79	79.828	
11,300.00	6,934.72	6,518.00	6,514.23	76.84	195.31	79.66	2,078.49	13,149.76	17,962.45	17,738.64	223.82	80.255	
11,400.00	6,934.40	6,518.00	6,514.23	78.31	195.31	79.66	2,078.49	13,149.76	18,060.28	17,836.43	223.85	80.682	
11,500.00	6,934.08	6,518.00	6,514.23	79.79	195.31	79.66	2,078.49	13,149.76	18,158.13	17,934.25	223.88	81.107	
11,600.00	6,933.75	6,518.00	6,514.23	81.27	195.31	79.66	2,078.49	13,149.76	18,256.00	18,032.09	223.91	81.531	
11,700.00	6,933.43	6,518.00	6,514.23	82.75	195.31	79.66	2,078.49	13,149.76	18,353.89	18,129.94	223.95	81.954	
11,800.00	6,933.11	6,518.00	6,514.23	84.24	195.31	79.66	2,078.49	13,149.76	18,451.81	18,227.82	223.99	82.377	
11,900.00	6,932.78	6,518.00	6,514.23	85.73	195.31	79.66	2,078.49	13,149.76	18,549.75	18,325.72	224.04	82.798	
12,000.00	6,932.46	6,518.00	6,514.23	87.23	195.31	79.66	2,078.49	13,149.76	18,647.71	18,423.63	224.08	83.218	
12,100.00	6,932.14	6,518.00	6,514.23	88.72	195.31	79.66	2,078.49	13,149.76	18,745.70	18,521.57	224.13	83.637	
12,200.00	6,931.81	6,518.00	6,514.23	90.23	195.31	79.66	2,078.49	13,149.76	18,843.70	18,619.52	224.18	84.055	
12,300.00	6,931.49	6,518.00	6,514.23	91.74	195.31	79.66	2,078.49	13,149.76	18,941.73	18,717.49	224.24	84.472	
12,400.00	6,931.17	6,518.00	6,514.23	93.25	195.31	79.66	2,078.49	13,149.76	19,039.77	18,815.48	224.29	84.888	
12,500.00	6,930.85	6,518.00	6,514.23	94.76	195.31	79.66	2,078.49	13,149.76	19,137.84	18,913.49	224.35	85.303	
12,600.00	6,930.52	6,518.00	6,514.23	96.27	195.31	79.66	2,078.49	13,149.76	19,235.93	19,011.51	224.41	85.717	
12,700.00	6,930.20	6,518.00	6,514.23	97.79	195.31	79.66	2,078.49	13,149.76	19,334.03	19,109.56	224.47	86.131	
12,800.00	6,929.88	6,518.00	6,514.23	99.32	195.31	79.66	2,078.49	13,149.76	19,432.16	19,207.62	224.54	86.543	
12,900.00	6,929.55	6,518.00	6,514.23	100.84	195.31	79.66	2,078.49	13,149.76	19,530.30	19,305.70	224.60	86.954	
13,000.00	6,929.23	6,518.00	6,514.23	102.37	195.31	79.66	2,078.49	13,149.76	19,628.46	19,403.79	224.67	87.365	
13,100.00	6,928.91	6,518.00	6,514.23	103.89	195.31	79.66	2,078.49	13,149.76	19,726.64	19,501.90	224.74	87.774	
13,200.00	6,928.58	6,518.00	6,514.23	105.43	195.31	79.66	2,078.49	13,149.76	19,824.84	19,600.03	224.82	88.183	
13,300.00	6,928.26	6,518.00	6,514.23	106.96	195.31	79.66	2,078.49	13,149.76	19,923.06	19,698.17	224.89	88.591	
13,400.00	6,927.94	6,518.00	6,514.23	108.49	195.31	79.66	2,078.49	13,149.76	20,021.30	19,796.33	224.96	88.998	
13,500.00	6,927.61	6,518.00	6,514.23	110.03	195.31	79.66	2,078.49	13,149.76	20,119.55	19,894.51	225.04	89.404	
13,600.00	6,927.29	6,518.00	6,514.23	111.57	195.31	79.66	2,078.49	13,149.76	20,217.82	19,992.70	225.12	89.809	
13,700.00	6,926.97	6,518.00	6,514.23	113.11	195.31	79.66	2,078.49	13,149.76	20,316.10	20,090.90	225.20	90.213	
13,800.00	6,926.65	6,518.00	6,514.23	114.65	195.31	79.66	2,078.49	13,149.76	20,414.41	20,189.12	225.28	90.616	
13,900.00	6,926.32	6,518.00	6,514.23	116.20	195.31	79.66	2,078.49	13,149.76	20,512.73	20,287.36	225.37	91.019	
14,000.00	6,926.00	6,518.00	6,514.23	117.75	195.31	79.66	2,078.49	13,149.76	20,611.06	20,385.61	225.45	91.421	
14,100.00	6,925.68	6,518.00	6,514.23	119.29	195.31	79.66	2,078.49	13,149.76	20,709.41	20,483.88	225.54	91.822	
14,200.00	6,925.35	6,518.00	6,514.23	120.84	195.31	79.66	2,078.49	13,149.76	20,807.78	20,582.15	225.63	92.222	
14,300.00	6,925.03	6,518.00	6,514.23	122.39	195.31	79.66	2,078.49	13,149.76	20,906.16	20,680.45	225.72	92.622	
14,400.00	6,924.71	6,518.00	6,514.23	123.94	195.31	79.66	2,078.49	13,149.76	21,004.56	20,778.76	225.81	93.020	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #070 - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Rule Assigned:

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,500.00	6,924.38	6,518.00	6,514.23	125.50	195.31	79.66	2,078.49	13,149.76	21,102.98	20,877.08	225.90	93.418	
14,600.00	6,924.06	6,518.00	6,514.23	127.05	195.31	79.66	2,078.49	13,149.76	21,201.40	20,975.41	225.99	93.815	
14,700.00	6,923.74	6,518.00	6,514.23	128.61	195.31	79.66	2,078.49	13,149.76	21,299.85	21,073.76	226.09	94.212	
14,800.00	6,923.42	6,518.00	6,514.23	130.16	195.31	79.66	2,078.49	13,149.76	21,398.30	21,172.12	226.18	94.607	
14,900.00	6,923.09	6,518.00	6,514.23	131.72	195.31	79.66	2,078.49	13,149.76	21,496.77	21,270.50	226.28	95.002	
15,000.00	6,922.77	6,518.00	6,514.23	133.28	195.31	79.66	2,078.49	13,149.76	21,595.26	21,368.88	226.37	95.396	
15,100.00	6,922.45	6,518.00	6,514.23	134.84	195.31	79.66	2,078.49	13,149.76	21,693.76	21,467.29	226.47	95.790	
15,200.00	6,922.12	6,518.00	6,514.23	136.40	195.31	79.66	2,078.49	13,149.76	21,792.27	21,565.70	226.57	96.182	
15,300.00	6,921.80	6,518.00	6,514.23	137.96	195.31	79.66	2,078.49	13,149.76	21,890.80	21,664.12	226.67	96.574	
15,400.00	6,921.48	6,518.00	6,514.23	139.53	195.31	79.66	2,078.49	13,149.76	21,989.34	21,762.56	226.77	96.966	
15,500.00	6,921.15	6,518.00	6,514.23	141.09	195.31	79.66	2,078.49	13,149.76	22,087.89	21,861.01	226.88	97.356	
15,600.00	6,920.83	6,518.00	6,514.23	142.65	195.31	79.66	2,078.49	13,149.76	22,186.46	21,959.48	226.98	97.746	
15,700.00	6,920.51	6,518.00	6,514.23	144.22	195.31	79.66	2,078.49	13,149.76	22,285.03	22,057.95	227.08	98.135	
15,800.00	6,920.18	6,518.00	6,514.23	145.79	195.31	79.66	2,078.49	13,149.76	22,383.63	22,156.44	227.19	98.524	
15,900.00	6,919.86	6,518.00	6,514.23	147.35	195.31	79.66	2,078.49	13,149.76	22,482.23	22,254.93	227.30	98.912	
16,000.00	6,919.54	6,518.00	6,514.23	148.92	195.31	79.66	2,078.49	13,149.76	22,580.84	22,353.44	227.40	99.299	
16,100.00	6,919.22	6,518.00	6,514.23	150.49	195.31	79.66	2,078.49	13,149.76	22,679.47	22,451.96	227.51	99.685	
16,200.00	6,918.89	6,518.00	6,514.23	152.06	195.31	79.66	2,078.49	13,149.76	22,778.11	22,550.49	227.62	100.071	
16,300.00	6,918.57	6,518.00	6,514.23	153.63	195.31	79.66	2,078.49	13,149.76	22,876.76	22,649.04	227.73	100.457	
16,400.00	6,918.25	6,518.00	6,514.23	155.20	195.31	79.66	2,078.49	13,149.76	22,975.43	22,747.59	227.84	100.841	
16,500.00	6,917.92	6,518.00	6,514.23	156.77	195.31	79.66	2,078.49	13,149.76	23,074.10	22,846.15	227.95	101.225	
16,600.00	6,917.60	6,518.00	6,514.23	158.34	195.31	79.66	2,078.49	13,149.76	23,172.79	22,944.73	228.06	101.609	
16,700.00	6,917.28	6,518.00	6,514.23	159.92	195.31	79.66	2,078.49	13,149.76	23,271.49	23,043.32	228.17	101.991	
16,800.00	6,916.95	6,518.00	6,514.23	161.49	195.31	79.66	2,078.49	13,149.76	23,370.19	23,141.91	228.28	102.374	
16,900.00	6,916.63	6,518.00	6,514.23	163.06	195.31	79.66	2,078.49	13,149.76	23,468.91	23,240.52	228.40	102.755	
17,000.00	6,916.31	6,518.00	6,514.23	164.64	195.31	79.66	2,078.49	13,149.76	23,567.64	23,339.13	228.51	103.136	
17,100.00	6,915.98	6,518.00	6,514.23	166.21	195.31	79.66	2,078.49	13,149.76	23,666.39	23,437.76	228.62	103.517	
17,200.00	6,915.66	6,518.00	6,514.23	167.79	195.31	79.66	2,078.49	13,149.76	23,765.14	23,536.40	228.74	103.896	
17,300.00	6,915.34	6,518.00	6,514.23	169.37	195.31	79.66	2,078.49	13,149.76	23,863.90	23,635.04	228.85	104.275	
17,400.00	6,915.02	6,518.00	6,514.23	170.94	195.31	79.66	2,078.49	13,149.76	23,962.67	23,733.70	228.97	104.654	
17,500.00	6,914.69	6,518.00	6,514.23	172.52	195.31	79.66	2,078.49	13,149.76	24,061.45	23,832.37	229.09	105.032	
17,600.00	6,914.37	6,518.00	6,514.23	174.10	195.31	79.66	2,078.49	13,149.76	24,160.25	23,931.04	229.20	105.410	
17,700.00	6,914.05	6,518.00	6,514.23	175.68	195.31	79.66	2,078.49	13,149.76	24,259.05	24,029.73	229.32	105.786	
17,800.00	6,913.72	6,518.00	6,514.23	177.25	195.31	79.66	2,078.49	13,149.76	24,357.86	24,128.42	229.44	106.163	
17,900.00	6,913.40	6,518.00	6,514.23	178.83	195.31	79.66	2,078.49	13,149.76	24,456.68	24,227.12	229.56	106.539	
18,000.00	6,913.08	6,518.00	6,514.23	180.41	195.31	79.66	2,078.49	13,149.76	24,555.51	24,325.84	229.68	106.914	
18,023.75	6,913.00	6,518.00	6,514.23	180.79	195.31	79.66	2,078.49	13,149.76	24,578.99	24,349.29	229.70	107.003	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #080 - OH - OH-TD

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Rule Assigned: Warning
0.00	0.00	0.00	0.00	0.00	0.00	107.15	-953.33	3,089.87	3,234.23				
100.00	100.00	36.00	36.00	0.25	1.08	107.15	-953.33	3,089.87	3,233.60	3,232.27	1.33	2,431.570	
200.00	200.00	136.00	136.00	0.61	4.08	107.15	-953.33	3,089.87	3,233.60	3,228.91	4.68	690.243	
300.00	300.00	236.00	236.00	0.97	7.07	107.15	-953.33	3,089.87	3,233.60	3,225.56	8.04	402.208	
400.00	400.00	336.00	336.00	1.33	10.07	107.15	-953.33	3,089.87	3,233.60	3,222.20	11.39	283.786	
500.00	500.00	436.00	436.00	1.68	13.06	107.15	-953.33	3,089.87	3,233.60	3,218.85	14.75	219.236	
600.00	599.98	536.08	535.98	2.03	16.06	-72.85	-953.33	3,089.87	3,233.08	3,214.99	18.09	178.729	
700.00	699.84	635.94	635.84	2.36	19.06	-72.97	-953.33	3,089.87	3,231.54	3,210.13	21.41	150.907	
800.00	799.45	735.55	735.45	2.71	22.04	-73.16	-953.33	3,089.87	3,228.99	3,204.25	24.74	130.505	
900.00	898.70	829.70	829.55	3.06	24.86	-73.46	-951.37	3,089.87	3,224.91	3,196.99	27.92	115.510	
1,000.00	997.47	922.74	922.56	3.43	27.65	-73.77	-952.19	3,089.87	3,220.70	3,189.62	31.08	103.640	
1,100.00	1,095.62	1,032.03	1,031.62	3.82	30.92	-74.21	-953.33	3,089.87	3,215.65	3,180.91	34.74	92.570	
1,207.83	1,200.65	1,137.06	1,136.65	4.26	34.07	-74.75	-953.33	3,089.87	3,208.96	3,170.64	38.32	83.734	
1,300.00	1,290.02	1,226.43	1,226.02	4.65	36.75	-75.13	-953.33	3,089.87	3,202.93	3,161.54	41.39	77.382	
1,400.00	1,386.98	1,319.46	1,319.00	5.09	39.54	-75.55	-951.32	3,089.87	3,196.04	3,151.43	44.61	71.641	
1,500.00	1,483.95	1,411.52	1,411.04	5.53	42.30	-75.93	-952.06	3,089.87	3,190.05	3,142.24	47.81	66.721	
1,600.00	1,580.91	1,517.62	1,516.91	5.99	45.47	-76.36	-953.33	3,089.87	3,184.33	3,132.89	51.44	61.905	
1,700.00	1,677.87	1,614.58	1,613.87	6.44	48.38	-76.78	-953.33	3,089.87	3,178.48	3,123.69	54.80	58.005	
1,800.00	1,774.84	1,711.55	1,710.84	6.90	51.29	-77.20	-953.33	3,089.87	3,172.82	3,114.66	58.16	54.554	
1,900.00	1,871.80	1,805.82	1,805.07	7.36	54.11	-77.64	-951.26	3,089.87	3,166.87	3,105.43	61.45	51.540	
2,000.00	1,968.76	1,898.61	1,897.84	7.83	56.89	-78.03	-951.92	3,089.87	3,161.72	3,097.03	64.69	48.875	
2,100.00	2,065.73	2,002.74	2,001.73	8.30	60.01	-78.46	-953.33	3,089.87	3,156.88	3,088.61	68.28	46.238	
2,200.00	2,162.69	2,099.70	2,098.69	8.77	62.92	-78.88	-953.33	3,089.87	3,151.93	3,080.29	71.65	43.991	
2,300.00	2,259.65	2,196.67	2,195.65	9.24	65.82	-79.31	-953.33	3,089.87	3,147.17	3,072.14	75.02	41.948	
2,400.00	2,356.61	2,291.97	2,290.91	9.71	68.68	-79.76	-951.21	3,089.87	3,142.20	3,063.85	78.35	40.103	
2,500.00	2,453.58	2,385.49	2,384.41	10.18	71.48	-80.16	-951.79	3,089.87	3,137.92	3,056.29	81.63	38.441	
2,600.00	2,550.54	2,479.35	2,478.24	10.66	74.29	-80.56	-952.99	3,089.87	3,133.92	3,049.01	84.92	36.906	
2,700.00	2,647.50	2,584.82	2,583.50	11.13	77.45	-81.01	-953.33	3,089.87	3,129.94	3,041.39	88.55	35.346	
2,800.00	2,744.47	2,681.79	2,680.47	11.61	80.36	-81.44	-953.33	3,089.87	3,126.10	3,034.16	91.93	34.004	
2,900.00	2,841.43	2,777.88	2,776.52	12.08	83.24	-81.91	-951.18	3,089.87	3,122.13	3,026.84	95.29	32.764	
3,000.00	2,938.39	2,872.16	2,870.78	12.56	86.06	-82.32	-951.67	3,089.87	3,118.75	3,020.15	98.59	31.632	
3,100.00	3,035.36	2,966.77	2,965.36	13.04	88.90	-82.72	-952.79	3,089.87	3,115.63	3,013.72	101.91	30.573	
3,200.00	3,132.32	3,069.94	3,068.32	13.51	91.99	-83.17	-953.33	3,089.87	3,112.60	3,007.12	105.48	29.509	
3,300.00	3,229.28	3,166.91	3,165.28	13.99	94.89	-83.61	-953.33	3,089.87	3,109.70	3,000.83	108.87	28.565	
3,400.00	3,326.25	3,263.56	3,261.90	14.47	97.79	-84.08	-951.16	3,089.87	3,106.75	2,994.51	112.24	27.679	
3,500.00	3,423.21	3,358.60	3,356.91	14.95	100.64	-84.50	-951.56	3,089.87	3,104.29	2,988.72	115.57	26.860	
3,600.00	3,520.17	3,453.98	3,452.27	15.43	103.50	-84.91	-952.60	3,089.87	3,102.06	2,983.15	118.91	26.087	
3,700.00	3,617.13	3,555.06	3,553.13	15.91	106.53	-85.35	-953.33	3,089.87	3,099.99	2,977.57	122.42	25.322	
3,800.00	3,714.10	3,652.03	3,650.10	16.39	109.43	-85.79	-953.33	3,089.87	3,098.04	2,972.23	125.81	24.625	
3,900.00	3,811.06	3,748.99	3,747.06	16.87	112.34	-86.22	-953.33	3,089.87	3,096.28	2,967.09	129.20	23.966	
4,000.00	3,908.02	3,844.81	3,842.82	17.35	115.21	-86.69	-951.47	3,089.87	3,094.61	2,962.06	132.55	23.347	
4,100.00	4,004.99	3,940.97	3,938.96	17.83	118.09	-87.11	-952.43	3,089.87	3,093.30	2,957.39	135.91	22.759	
4,200.00	4,101.95	4,040.18	4,037.95	18.31	121.06	-87.54	-953.33	3,089.87	3,092.16	2,952.80	139.37	22.187	
4,300.00	4,198.91	4,137.15	4,134.91	18.79	123.97	-87.98	-953.33	3,089.87	3,091.18	2,948.42	142.75	21.654	
4,400.00	4,295.88	4,234.11	4,231.88	19.27	126.87	-88.42	-953.33	3,089.87	3,090.38	2,944.24	146.14	21.146	
4,500.00	4,392.84	4,330.79	4,328.50	19.75	129.77	-88.89	-951.38	3,089.87	3,089.75	2,940.23	149.52	20.664	
4,600.00	4,489.80	4,427.74	4,425.43	20.23	132.68	-89.31	-952.25	3,089.87	3,089.37	2,936.46	152.91	20.204	
4,700.00	4,586.76	4,525.30	4,522.76	20.71	135.60	-89.74	-953.33	3,089.87	3,089.17	2,932.85	156.31	19.763	
4,759.81	4,644.76	4,583.30	4,580.76	21.00	137.34	-90.00	-953.33	3,089.87	3,089.13	2,930.79	158.34	19.510 CC	
4,800.00	4,683.73	4,622.27	4,619.73	21.20	138.50	-90.18	-953.33	3,089.87	3,089.15	2,929.45	159.70	19.344	
4,900.00	4,780.69	4,719.23	4,716.69	21.68	141.41	-90.62	-953.33	3,089.87	3,089.32	2,926.24	163.09	18.943	
5,000.00	4,877.65	4,816.52	4,813.94	22.16	144.32	-91.09	-951.31	3,089.87	3,089.73	2,923.25	166.48	18.559	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #080 - OH - OH-TD

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Rule Assigned: Warning
5,100.00	4,974.62	4,914.28	4,911.67	22.64	147.25	-91.52	-952.09	3,089.87	3,090.29	2,920.40	169.89	18.190	
5,200.00	5,071.58	5,010.42	5,007.58	23.12	150.13	-91.94	-953.33	3,089.87	3,091.01	2,917.76	173.25	17.841	
5,300.00	5,168.54	5,107.39	5,104.54	23.60	153.04	-92.37	-953.33	3,089.87	3,091.96	2,915.32	176.64	17.505	
5,400.00	5,265.51	5,204.35	5,201.51	24.09	155.95	-92.81	-953.33	3,089.87	3,093.10	2,913.08	180.02	17.182	
5,500.00	5,362.47	5,302.02	5,299.13	24.57	158.87	-93.29	-951.25	3,089.87	3,094.56	2,911.13	183.42	16.871	
5,600.00	5,459.43	5,400.59	5,397.68	25.05	161.83	-93.73	-951.94	3,089.87	3,096.05	2,909.20	186.86	16.569	
5,700.00	5,556.40	5,499.53	5,496.59	25.53	164.79	-94.15	-953.33	3,089.87	3,097.68	2,907.38	190.30	16.278	
5,800.00	5,653.36	5,592.51	5,589.36	26.01	167.58	-94.57	-953.33	3,089.87	3,099.59	2,906.03	193.56	16.014	
5,900.00	5,750.32	5,689.47	5,686.32	26.50	170.48	-95.00	-953.33	3,089.87	3,101.69	2,904.75	196.94	15.749	
6,000.00	5,847.28	5,787.25	5,784.06	26.98	173.41	-95.48	-951.20	3,089.87	3,104.20	2,903.85	200.35	15.494	
6,100.00	5,944.25	5,886.66	5,883.45	27.46	176.39	-95.92	-951.80	3,089.87	3,106.64	2,902.84	203.80	15.244	
6,200.00	6,041.21	5,986.45	5,983.20	27.94	179.38	-96.34	-953.10	3,089.87	3,109.18	2,901.92	207.26	15.001	
6,300.00	6,138.17	6,077.63	6,074.17	28.43	182.11	-96.74	-953.33	3,089.87	3,112.01	2,901.55	210.47	14.786	
6,400.00	6,235.14	6,174.59	6,171.14	28.91	185.02	-97.18	-953.33	3,089.87	3,115.07	2,901.22	213.85	14.567 ES	
6,496.84	6,329.04	6,269.07	6,265.58	29.38	187.85	-97.64	-951.16	3,089.87	3,118.50	2,901.37	217.13	14.362	
6,500.00	6,332.10	6,272.23	6,268.74	29.39	187.94	-98.78	-951.17	3,089.87	3,118.62	2,901.38	217.24	14.356	
6,550.00	6,380.52	6,322.25	6,318.75	29.63	189.44	-116.24	-951.33	3,089.87	3,122.48	2,903.51	218.97	14.260	
6,600.00	6,428.63	6,372.04	6,368.53	29.87	190.94	-130.90	-951.67	3,089.87	3,130.22	2,909.53	220.69	14.184	
6,650.00	6,476.14	6,421.30	6,417.77	30.10	192.41	-142.06	-952.18	3,089.87	3,141.78	2,919.39	222.39	14.128	
6,700.00	6,522.73	6,469.70	6,466.16	30.33	193.86	-150.33	-952.84	3,089.87	3,157.07	2,933.03	224.04	14.091 SF	
6,750.00	6,568.14	6,507.90	6,504.14	30.54	195.01	-156.50	-953.33	3,089.87	3,176.04	2,950.67	225.38	14.092	
6,800.00	6,612.08	6,551.84	6,548.08	30.75	196.32	-161.32	-953.33	3,089.87	3,198.64	2,971.76	226.88	14.099	
6,850.00	6,654.28	6,594.03	6,590.28	30.95	197.59	-165.20	-953.33	3,089.87	3,224.62	2,996.31	228.31	14.124	
6,900.00	6,694.47	6,634.23	6,630.47	31.15	198.79	-168.46	-953.33	3,089.87	3,253.82	3,024.17	229.66	14.168	
6,950.00	6,732.42	6,672.18	6,668.42	31.33	199.93	-171.33	-953.33	3,089.87	3,286.07	3,055.14	230.93	14.230	
7,000.00	6,767.89	6,707.64	6,703.89	31.51	200.99	-173.98	-953.33	3,089.87	3,321.15	3,089.04	232.11	14.309	
7,050.00	6,800.65	6,740.41	6,736.65	31.68	201.97	-176.57	-953.33	3,089.87	3,358.85	3,125.66	233.19	14.404	
7,100.00	6,830.51	6,771.10	6,767.30	31.85	202.89	-179.32	-951.17	3,089.87	3,399.28	3,165.09	234.19	14.515	
7,150.00	6,857.28	6,798.99	6,795.19	32.01	203.73	177.72	-951.23	3,089.87	3,441.48	3,206.39	235.09	14.639	
7,200.00	6,880.80	6,823.52	6,819.71	32.17	204.46	174.21	-951.34	3,089.87	3,485.55	3,249.68	235.88	14.777	
7,250.00	6,900.92	6,844.52	6,840.71	32.33	205.09	169.75	-951.46	3,089.87	3,531.22	3,294.68	236.54	14.929	
7,300.00	6,917.52	6,861.86	6,858.04	32.49	205.61	163.63	-951.59	3,089.87	3,578.21	3,341.14	237.07	15.094	
7,350.00	6,930.50	6,875.42	6,871.60	32.66	206.02	154.53	-951.70	3,089.87	3,626.24	3,388.77	237.47	15.270	
7,400.00	6,939.77	6,885.11	6,881.29	32.83	206.31	140.02	-951.79	3,089.87	3,675.02	3,437.27	237.75	15.457	
7,450.00	6,945.28	6,890.87	6,887.05	33.01	206.48	117.28	-951.84	3,089.87	3,724.25	3,486.36	237.90	15.655	
7,499.66	6,947.00	6,892.67	6,888.84	33.19	206.54	89.41	-951.86	3,089.87	3,773.31	3,535.40	237.91	15.860	
7,600.00	6,946.68	6,892.32	6,888.50	33.61	206.53	89.38	-951.86	3,089.87	3,872.40	3,634.59	237.82	16.283	
7,700.00	6,946.35	6,891.98	6,888.16	34.10	206.51	89.34	-951.86	3,089.87	3,971.23	3,733.50	237.73	16.705	
7,800.00	6,946.03	6,891.64	6,887.82	34.66	206.50	89.31	-951.85	3,089.87	4,070.11	3,832.46	237.65	17.127	
7,900.00	6,945.71	6,891.30	6,887.48	35.29	206.49	89.28	-951.85	3,089.87	4,169.05	3,931.48	237.57	17.549	
8,000.00	6,945.38	6,890.96	6,887.13	35.99	206.48	89.24	-951.85	3,089.87	4,268.03	4,030.54	237.50	17.971	
8,100.00	6,945.06	6,890.61	6,886.79	36.74	206.47	89.21	-951.84	3,089.87	4,367.07	4,129.64	237.43	18.393	
8,200.00	6,944.74	6,890.27	6,886.45	37.56	206.46	89.18	-951.84	3,089.87	4,466.14	4,228.77	237.37	18.815	
8,300.00	6,944.41	6,889.93	6,886.11	38.43	206.45	89.15	-951.84	3,089.87	4,565.26	4,327.95	237.31	19.238	
8,400.00	6,944.09	6,889.59	6,885.77	39.35	206.44	89.11	-951.83	3,089.87	4,664.41	4,427.16	237.25	19.660	
8,500.00	6,943.77	6,889.25	6,885.42	40.31	206.43	89.08	-951.83	3,089.87	4,763.60	4,526.40	237.20	20.083	
8,600.00	6,943.45	6,888.91	6,885.08	41.32	206.42	89.05	-951.83	3,089.87	4,862.82	4,625.67	237.15	20.505	
8,700.00	6,943.12	6,888.56	6,884.74	42.37	206.41	89.02	-951.82	3,089.87	4,962.07	4,724.97	237.11	20.928	
8,800.00	6,942.80	6,888.22	6,884.40	43.45	206.40	88.98	-951.82	3,089.87	5,061.36	4,824.29	237.06	21.350	
8,900.00	6,942.48	6,887.88	6,884.06	44.57	206.39	88.95	-951.82	3,089.87	5,160.67	4,923.64	237.03	21.773	
9,000.00	6,942.15	6,887.54	6,883.72	45.71	206.38	88.92	-951.81	3,089.87	5,260.00	5,023.01	236.99	22.195	
9,100.00	6,941.83	6,887.20	6,883.38	46.89	206.37	88.89	-951.81	3,089.87	5,359.36	5,122.41	236.96	22.618	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #080 - OH - OH-TD

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,200.00	6,941.51	6,886.86	6,883.03	48.09	206.36	88.85	-951.81	3,089.87	5,458.75	5,221.82	236.92	23.040	
9,300.00	6,941.18	6,886.51	6,882.69	49.31	206.35	88.82	-951.80	3,089.87	5,558.15	5,321.26	236.90	23.462	
9,400.00	6,940.86	6,886.17	6,882.35	50.56	206.34	88.79	-951.80	3,089.87	5,657.58	5,420.71	236.87	23.885	
9,500.00	6,940.54	6,885.83	6,882.01	51.82	206.33	88.75	-951.80	3,089.87	5,757.03	5,520.18	236.85	24.307	
9,600.00	6,940.21	6,885.49	6,881.67	53.11	206.32	88.72	-951.79	3,089.87	5,856.49	5,619.67	236.82	24.729	
9,700.00	6,939.89	6,885.15	6,881.33	54.41	206.31	88.69	-951.79	3,089.87	5,955.98	5,719.17	236.80	25.151	
9,800.00	6,939.57	6,884.81	6,880.99	55.73	206.30	88.66	-951.79	3,089.87	6,055.48	5,818.69	236.79	25.574	
9,900.00	6,939.25	6,884.47	6,880.64	57.07	206.29	88.62	-951.78	3,089.87	6,154.99	5,918.22	236.77	25.996	
10,000.00	6,938.92	6,884.12	6,880.30	58.41	206.28	88.59	-951.78	3,089.87	6,254.53	6,017.77	236.76	26.417	
10,100.00	6,938.60	6,883.78	6,879.96	59.77	206.27	88.56	-951.78	3,089.87	6,354.07	6,117.33	236.75	26.839	
10,200.00	6,938.28	6,883.44	6,879.62	61.15	206.26	88.53	-951.77	3,089.87	6,453.63	6,216.90	236.73	27.261	
10,300.00	6,937.95	6,883.10	6,879.28	62.53	206.25	88.49	-951.77	3,089.87	6,553.21	6,316.48	236.73	27.683	
10,400.00	6,937.63	6,882.76	6,878.94	63.92	206.24	88.46	-951.77	3,089.87	6,652.80	6,416.08	236.72	28.104	
10,500.00	6,937.31	6,882.42	6,878.60	65.33	206.23	88.43	-951.76	3,089.87	6,752.40	6,515.68	236.71	28.525	
10,600.00	6,936.98	6,882.08	6,878.26	66.74	206.22	88.40	-951.76	3,089.87	6,852.01	6,615.30	236.71	28.947	
10,700.00	6,936.66	6,881.74	6,877.92	68.16	206.21	88.36	-951.76	3,089.87	6,951.63	6,714.92	236.71	29.368	
10,800.00	6,936.34	6,881.39	6,877.57	69.59	206.20	88.33	-951.75	3,089.87	7,051.26	6,814.55	236.71	29.789	
10,900.00	6,936.01	6,881.05	6,877.23	71.03	206.19	88.30	-951.75	3,089.87	7,150.90	6,914.19	236.71	30.210	
11,000.00	6,935.69	6,880.71	6,876.89	72.47	206.18	88.27	-951.75	3,089.87	7,250.56	7,013.84	236.71	30.630	
11,100.00	6,935.37	6,880.37	6,876.55	73.92	206.17	88.23	-951.74	3,089.87	7,350.22	7,113.50	236.72	31.051	
11,200.00	6,935.05	6,880.03	6,876.21	75.38	206.16	88.20	-951.74	3,089.87	7,449.89	7,213.17	236.72	31.471	
11,300.00	6,934.72	6,879.69	6,875.87	76.84	206.15	88.17	-951.74	3,089.87	7,549.57	7,312.84	236.73	31.891	
11,400.00	6,934.40	6,879.35	6,875.53	78.31	206.14	88.14	-951.74	3,089.87	7,649.26	7,412.52	236.73	32.312	
11,500.00	6,934.08	6,879.01	6,875.19	79.79	206.13	88.10	-951.73	3,089.87	7,748.95	7,512.21	236.74	32.731	
11,600.00	6,933.75	6,878.67	6,874.85	81.27	206.12	88.07	-951.73	3,089.87	7,848.66	7,611.90	236.75	33.151	
11,700.00	6,933.43	6,878.32	6,874.51	82.75	206.11	88.04	-951.73	3,089.87	7,948.37	7,711.60	236.77	33.571	
11,800.00	6,933.11	6,877.98	6,874.16	84.24	206.10	88.01	-951.72	3,089.87	8,048.09	7,811.31	236.78	33.990	
11,900.00	6,932.78	6,877.64	6,873.82	85.73	206.09	87.97	-951.72	3,089.87	8,147.81	7,911.02	236.79	34.409	
12,000.00	6,932.46	6,877.30	6,873.48	87.23	206.08	87.94	-951.72	3,089.87	8,247.55	8,010.74	236.81	34.828	
12,100.00	6,932.14	6,876.96	6,873.14	88.72	206.06	87.91	-951.71	3,089.87	8,347.28	8,110.46	236.82	35.247	
12,200.00	6,931.81	6,876.62	6,872.80	90.23	206.05	87.88	-951.71	3,089.87	8,447.03	8,210.19	236.84	35.665	
12,300.00	6,931.49	6,876.28	6,872.46	91.74	206.04	87.84	-951.71	3,089.87	8,546.78	8,309.92	236.86	36.084	
12,400.00	6,931.17	6,875.94	6,872.12	93.25	206.03	87.81	-951.71	3,089.87	8,646.54	8,409.66	236.88	36.502	
12,500.00	6,930.85	6,875.60	6,871.78	94.76	206.02	87.78	-951.70	3,089.87	8,746.30	8,509.40	236.90	36.920	
12,600.00	6,930.52	6,875.26	6,871.44	96.27	206.01	87.75	-951.70	3,089.87	8,846.07	8,609.14	236.92	37.337	
12,700.00	6,930.20	6,874.92	6,871.10	97.79	206.00	87.71	-951.70	3,089.87	8,945.84	8,708.89	236.95	37.755	
12,800.00	6,929.88	6,874.58	6,870.76	99.32	205.99	87.68	-951.69	3,089.87	9,045.62	8,808.65	236.97	38.172	
12,900.00	6,929.55	6,874.23	6,870.42	100.84	205.98	87.65	-951.69	3,089.87	9,145.40	8,908.40	236.99	38.589	
13,000.00	6,929.23	6,873.89	6,870.08	102.37	205.97	87.62	-951.69	3,089.87	9,245.18	9,008.16	237.02	39.006	
13,100.00	6,928.91	6,873.55	6,869.74	103.89	205.96	87.58	-951.68	3,089.87	9,344.98	9,107.93	237.05	39.423	
13,200.00	6,928.58	6,873.21	6,869.39	105.43	205.95	87.55	-951.68	3,089.87	9,444.77	9,207.70	237.07	39.839	
13,300.00	6,928.26	6,872.87	6,869.05	106.96	205.94	87.52	-951.68	3,089.87	9,544.57	9,307.47	237.10	40.255	
13,400.00	6,927.94	6,872.53	6,868.71	108.49	205.93	87.49	-951.68	3,089.87	9,644.38	9,407.24	237.13	40.671	
13,500.00	6,927.61	6,872.19	6,868.37	110.03	205.92	87.45	-951.67	3,089.87	9,744.18	9,507.02	237.16	41.086	
13,600.00	6,927.29	6,871.85	6,868.03	111.57	205.91	87.42	-951.67	3,089.87	9,844.00	9,606.80	237.20	41.502	
13,700.00	6,926.97	6,871.51	6,867.69	113.11	205.90	87.39	-951.67	3,089.87	9,943.81	9,706.59	237.23	41.917	
13,800.00	6,926.65	6,871.17	6,867.35	114.65	205.89	87.36	-951.66	3,089.87	10,043.63	9,806.37	237.26	42.332	
13,900.00	6,926.32	6,870.83	6,867.01	116.20	205.88	87.32	-951.66	3,089.87	10,143.46	9,906.16	237.30	42.746	
14,000.00	6,926.00	6,870.49	6,866.67	117.75	205.87	87.29	-951.66	3,089.87	10,243.28	10,005.95	237.33	43.160	
14,100.00	6,925.68	6,870.15	6,866.33	119.29	205.86	87.26	-951.66	3,089.87	10,343.11	10,105.75	237.37	43.574	
14,200.00	6,925.35	6,869.81	6,865.99	120.84	205.85	87.23	-951.65	3,089.87	10,442.95	10,205.54	237.40	43.988	
14,300.00	6,925.03	6,869.47	6,865.65	122.39	205.84	87.19	-951.65	3,089.87	10,542.78	10,305.34	237.44	44.402	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #080 - OH - OH-TD

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,400.00	6,924.71	6,869.13	6,865.31	123.94	205.83	87.16	-951.65	3,089.87	10,642.62	10,405.14	237.48	44.815	
14,500.00	6,924.38	6,868.79	6,864.97	125.50	205.82	87.13	-951.64	3,089.87	10,742.46	10,504.94	237.52	45.228	
14,600.00	6,924.06	6,868.45	6,864.63	127.05	205.81	87.10	-951.64	3,089.87	10,842.31	10,604.75	237.56	45.640	
14,700.00	6,923.74	6,868.11	6,864.29	128.61	205.80	87.06	-951.64	3,089.87	10,942.16	10,704.56	237.60	46.053	
14,800.00	6,923.42	6,867.77	6,863.95	130.16	205.79	87.03	-951.64	3,089.87	11,042.01	10,804.37	237.64	46.465	
14,900.00	6,923.09	6,867.43	6,863.61	131.72	205.78	87.00	-951.63	3,089.87	11,141.86	10,904.18	237.69	46.877	
15,000.00	6,922.77	6,867.09	6,863.27	133.28	205.77	86.97	-951.63	3,089.87	11,241.72	11,003.99	237.73	47.288	
15,100.00	6,922.45	6,866.75	6,862.93	134.84	205.76	86.93	-951.63	3,089.87	11,341.58	11,103.80	237.77	47.699	
15,200.00	6,922.12	6,866.41	6,862.59	136.40	205.75	86.90	-951.62	3,089.87	11,441.44	11,203.62	237.82	48.110	
15,300.00	6,921.80	6,866.07	6,862.25	137.96	205.74	86.87	-951.62	3,089.87	11,541.30	11,303.44	237.86	48.521	
15,400.00	6,921.48	6,865.73	6,861.91	139.53	205.73	86.84	-951.62	3,089.87	11,641.17	11,403.26	237.91	48.931	
15,500.00	6,921.15	6,865.39	6,861.57	141.09	205.72	86.80	-951.62	3,089.87	11,741.03	11,503.08	237.96	49.341	
15,600.00	6,920.83	6,865.05	6,861.23	142.65	205.71	86.77	-951.61	3,089.87	11,840.90	11,602.90	238.01	49.751	
15,700.00	6,920.51	6,864.71	6,860.89	144.22	205.70	86.74	-951.61	3,089.87	11,940.78	11,702.72	238.05	50.160	
15,800.00	6,920.18	6,864.37	6,860.55	145.79	205.69	86.71	-951.61	3,089.87	12,040.65	11,802.55	238.10	50.569	
15,900.00	6,919.86	6,864.03	6,860.21	147.35	205.68	86.67	-951.61	3,089.87	12,140.53	11,902.37	238.15	50.978	
16,000.00	6,919.54	6,863.69	6,859.87	148.92	205.67	86.64	-951.60	3,089.87	12,240.41	12,002.20	238.20	51.386	
16,100.00	6,919.22	6,863.35	6,859.53	150.49	205.66	86.61	-951.60	3,089.87	12,340.29	12,102.03	238.26	51.794	
16,200.00	6,918.89	6,863.01	6,859.19	152.06	205.65	86.58	-951.60	3,089.87	12,440.17	12,201.86	238.31	52.202	
16,300.00	6,918.57	6,862.67	6,858.85	153.63	205.64	86.55	-951.59	3,089.87	12,540.05	12,301.69	238.36	52.609	
16,400.00	6,918.25	6,862.33	6,858.51	155.20	205.63	86.51	-951.59	3,089.87	12,639.94	12,401.53	238.42	53.017	
16,500.00	6,917.92	6,861.99	6,858.17	156.77	205.62	86.48	-951.59	3,089.87	12,739.83	12,501.36	238.47	53.423	
16,600.00	6,917.60	6,861.65	6,857.83	158.34	205.61	86.45	-951.59	3,089.87	12,839.72	12,601.19	238.52	53.830	
16,700.00	6,917.28	6,861.31	6,857.49	159.92	205.60	86.42	-951.58	3,089.87	12,939.61	12,701.03	238.58	54.236	
16,800.00	6,916.95	6,860.97	6,857.15	161.49	205.59	86.38	-951.58	3,089.87	13,039.50	12,800.87	238.64	54.642	
16,900.00	6,916.63	6,860.63	6,856.81	163.06	205.58	86.35	-951.58	3,089.87	13,139.40	12,900.70	238.69	55.047	
17,000.00	6,916.31	6,860.29	6,856.47	164.64	205.57	86.32	-951.58	3,089.87	13,239.29	13,000.54	238.75	55.452	
17,100.00	6,915.98	6,859.95	6,856.13	166.21	205.56	86.29	-951.57	3,089.87	13,339.19	13,100.38	238.81	55.857	
17,200.00	6,915.66	6,859.61	6,855.79	167.79	205.54	86.25	-951.57	3,089.87	13,439.09	13,200.22	238.87	56.261	
17,300.00	6,915.34	6,859.27	6,855.45	169.37	205.53	86.22	-951.57	3,089.87	13,538.99	13,300.06	238.93	56.666	
17,400.00	6,915.02	6,858.93	6,855.11	170.94	205.52	86.19	-951.57	3,089.87	13,638.89	13,399.91	238.99	57.069	
17,500.00	6,914.69	6,858.59	6,854.77	172.52	205.51	86.16	-951.56	3,089.87	13,738.80	13,499.75	239.05	57.473	
17,600.00	6,914.37	6,858.25	6,854.43	174.10	205.50	86.13	-951.56	3,089.87	13,838.70	13,599.59	239.11	57.876	
17,700.00	6,914.05	6,857.91	6,854.09	175.68	205.49	86.09	-951.56	3,089.87	13,938.61	13,699.44	239.17	58.278	
17,800.00	6,913.72	6,857.57	6,853.76	177.25	205.48	86.06	-951.56	3,089.87	14,038.52	13,799.28	239.24	58.681	
17,900.00	6,913.40	6,857.23	6,853.42	178.83	205.47	86.03	-951.55	3,089.87	14,138.43	13,899.13	239.30	59.083	
18,000.00	6,913.08	6,856.89	6,853.08	180.41	205.46	86.00	-951.55	3,089.87	14,238.34	13,998.97	239.36	59.484	
18,023.75	6,913.00	6,856.81	6,853.00	180.79	205.46	85.99	-951.55	3,089.87	14,262.07	14,022.69	239.38	59.580	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #080A - OH - OH-TD

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	70.53	1,014.39	2,869.95	3,044.24				
100.00	100.00	58.00	58.00	0.25	1.74	70.53	1,014.39	2,869.95	3,043.95	3,041.96	1.99	1,530.353	
200.00	200.00	158.00	158.00	0.61	4.73	70.53	1,014.39	2,869.95	3,043.95	3,038.60	5.34	569.608	
300.00	300.00	258.00	258.00	0.97	7.73	70.53	1,014.39	2,869.95	3,043.95	3,035.25	8.70	349.927	
400.00	400.00	358.00	358.00	1.33	10.73	70.53	1,014.39	2,869.95	3,043.95	3,031.89	12.05	252.532	
500.00	500.00	458.00	458.00	1.68	13.72	70.53	1,014.39	2,869.95	3,043.95	3,028.54	15.41	197.549 CC	
600.00	599.98	558.08	557.98	2.03	16.72	-109.44	1,014.39	2,869.95	3,044.53	3,025.78	18.75	162.387	
700.00	699.84	657.94	657.84	2.36	19.71	-109.50	1,014.39	2,869.95	3,046.28	3,024.20	22.07	138.006 ES	
800.00	799.45	758.16	758.02	2.71	22.72	-109.64	1,016.56	2,869.95	3,049.94	3,024.52	25.42	119.982	
900.00	898.70	865.30	865.14	3.06	25.93	-109.79	1,016.10	2,869.95	3,053.93	3,024.94	28.99	105.361	
1,000.00	997.47	972.20	972.01	3.43	29.13	-109.97	1,014.84	2,869.95	3,058.90	3,026.34	32.56	93.955	
1,100.00	1,095.62	1,054.03	1,053.62	3.82	31.58	-110.11	1,014.39	2,869.95	3,065.33	3,029.94	35.39	86.605	
1,207.83	1,200.65	1,159.06	1,158.65	4.26	34.73	-110.37	1,014.39	2,869.95	3,073.97	3,035.00	38.98	78.867	
1,300.00	1,290.02	1,248.43	1,248.02	4.65	37.41	-110.75	1,014.39	2,869.95	3,082.11	3,040.07	42.04	73.314	
1,400.00	1,386.98	1,353.81	1,353.34	5.09	40.57	-111.23	1,016.19	2,869.95	3,091.77	3,046.15	45.62	67.767	
1,500.00	1,483.95	1,459.73	1,459.24	5.53	43.74	-111.66	1,015.03	2,869.95	3,100.53	3,051.30	49.23	62.981	
1,600.00	1,580.91	1,539.62	1,538.91	5.99	46.13	-111.98	1,014.39	2,869.95	3,109.56	3,057.50	52.06	59.729	
1,700.00	1,677.87	1,636.58	1,635.87	6.44	49.04	-112.39	1,014.39	2,869.95	3,119.04	3,063.63	55.41	56.293	
1,800.00	1,774.84	1,733.55	1,732.84	6.90	51.94	-112.79	1,014.39	2,869.95	3,128.68	3,069.93	58.76	53.248	
1,900.00	1,871.80	1,838.44	1,837.67	7.36	55.09	-113.26	1,016.29	2,869.95	3,139.27	3,076.93	62.35	50.353	
2,000.00	1,968.76	1,945.33	1,944.53	7.83	58.29	-113.68	1,015.23	2,869.95	3,148.85	3,082.86	66.00	47.713	
2,100.00	2,065.73	2,024.74	2,023.73	8.30	60.67	-113.99	1,014.39	2,869.95	3,158.58	3,089.75	68.82	45.894	
2,200.00	2,162.69	2,121.70	2,120.69	8.77	63.58	-114.38	1,014.39	2,869.95	3,168.85	3,096.68	72.18	43.904	
2,300.00	2,259.65	2,218.67	2,217.65	9.24	66.48	-114.77	1,014.39	2,869.95	3,179.29	3,103.76	75.53	42.092	
2,400.00	2,356.61	2,322.78	2,321.71	9.71	69.60	-115.22	1,016.38	2,869.95	3,190.75	3,111.65	79.10	40.337	
2,500.00	2,453.58	2,430.65	2,429.55	10.18	72.83	-115.64	1,015.43	2,869.95	3,201.12	3,118.34	82.79	38.668	
2,600.00	2,550.54	2,509.86	2,508.54	10.66	75.21	-115.93	1,014.39	2,869.95	3,211.50	3,125.90	85.61	37.514	
2,700.00	2,647.50	2,606.82	2,605.50	11.13	78.11	-116.31	1,014.39	2,869.95	3,222.54	3,133.58	88.96	36.224	
2,800.00	2,744.47	2,703.79	2,702.47	11.61	81.02	-116.69	1,014.39	2,869.95	3,233.73	3,141.41	92.32	35.029	
2,900.00	2,841.43	2,806.82	2,805.45	12.08	84.10	-117.12	1,016.45	2,869.95	3,246.03	3,150.17	95.85	33.865	
3,000.00	2,938.39	2,915.68	2,914.29	12.56	87.37	-117.53	1,015.61	2,869.95	3,257.16	3,157.59	99.57	32.714	
3,100.00	3,035.36	3,025.00	3,023.57	13.04	90.64	-117.92	1,013.93	2,869.95	3,268.07	3,164.78	103.29	31.640	
3,200.00	3,132.32	3,091.94	3,090.32	13.51	92.65	-118.18	1,014.39	2,869.95	3,279.91	3,174.17	105.74	31.019	
3,300.00	3,229.28	3,188.91	3,187.28	13.99	95.55	-118.55	1,014.39	2,869.95	3,291.81	3,182.72	109.09	30.175	
3,400.00	3,326.25	3,290.55	3,288.88	14.47	98.60	-118.96	1,016.51	2,869.95	3,304.90	3,192.32	112.58	29.355	
3,500.00	3,423.21	3,400.43	3,398.74	14.95	101.89	-119.36	1,015.78	2,869.95	3,316.76	3,200.44	116.32	28.513	
3,600.00	3,520.17	3,510.77	3,509.04	15.43	105.20	-119.75	1,014.19	2,869.95	3,328.37	3,208.30	120.08	27.719	
3,700.00	3,617.13	3,577.06	3,575.13	15.91	107.18	-119.99	1,014.39	2,869.95	3,340.77	3,218.27	122.50	27.271	
3,800.00	3,714.10	3,674.03	3,672.10	16.39	110.09	-120.34	1,014.39	2,869.95	3,353.35	3,227.49	125.85	26.645	
3,900.00	3,811.06	3,773.97	3,772.00	16.87	113.09	-120.74	1,016.55	2,869.95	3,367.18	3,237.89	129.29	26.044	
4,000.00	3,908.02	3,884.89	3,882.89	17.35	116.41	-121.13	1,015.93	2,869.95	3,379.74	3,246.69	133.06	25.401	
4,100.00	4,004.99	3,996.27	3,994.24	17.83	119.75	-121.50	1,014.45	2,869.95	3,392.03	3,255.19	136.84	24.789	
4,200.00	4,101.95	4,062.18	4,059.95	18.31	121.72	-121.73	1,014.39	2,869.95	3,404.94	3,265.69	139.25	24.452	
4,300.00	4,198.91	4,159.15	4,156.91	18.79	124.63	-122.08	1,014.39	2,869.95	3,418.15	3,275.56	142.59	23.972	
4,400.00	4,295.88	4,257.06	4,254.79	19.27	127.56	-122.45	1,016.57	2,869.95	3,432.69	3,286.72	145.96	23.517	
4,500.00	4,392.84	4,369.03	4,366.74	19.75	130.92	-122.83	1,016.07	2,869.95	3,445.92	3,296.16	149.76	23.009	
4,600.00	4,489.80	4,481.48	4,479.16	20.23	134.29	-123.19	1,014.69	2,869.95	3,458.84	3,305.27	153.57	22.523	
4,700.00	4,586.76	4,547.30	4,544.76	20.71	136.26	-123.41	1,014.39	2,869.95	3,472.23	3,316.26	155.97	22.262	
4,800.00	4,683.73	4,644.27	4,641.73	21.20	139.16	-123.74	1,014.39	2,869.95	3,486.05	3,326.73	159.31	21.882	
4,900.00	4,780.69	4,741.23	4,738.69	21.68	142.07	-124.07	1,014.39	2,869.95	3,499.98	3,337.33	162.65	21.518	
5,000.00	4,877.65	4,852.86	4,850.27	22.16	145.41	-124.46	1,016.20	2,869.95	3,515.10	3,348.67	166.44	21.120	
5,100.00	4,974.62	4,966.40	4,963.77	22.64	148.82	-124.82	1,014.93	2,869.95	3,528.64	3,358.37	170.27	20.723	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #080A - OH - OH-TD

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Rule Assigned: Warning
5,200.00	5,071.58	5,032.42	5,029.58	23.12	150.79	-125.03	1,014.39	2,869.95	3,542.46	3,369.79	172.68	20.515	
5,300.00	5,168.54	5,129.39	5,126.54	23.60	153.70	-125.35	1,014.39	2,869.95	3,556.85	3,380.84	176.01	20.208	
5,400.00	5,265.51	5,226.35	5,223.51	24.09	156.61	-125.66	1,014.39	2,869.95	3,571.34	3,391.99	179.35	19.913	
5,500.00	5,362.47	5,336.37	5,333.48	24.57	159.90	-126.04	1,016.31	2,869.95	3,587.12	3,404.04	183.08	19.593	
5,600.00	5,459.43	5,451.01	5,448.09	25.05	163.34	-126.39	1,015.15	2,869.95	3,601.25	3,414.30	186.95	19.263	
5,700.00	5,556.40	5,517.54	5,514.40	25.53	165.33	-126.59	1,014.39	2,869.95	3,615.47	3,426.11	189.36	19.093	
5,800.00	5,653.36	5,614.51	5,611.36	26.01	168.24	-126.89	1,014.39	2,869.95	3,630.39	3,437.70	192.69	18.840	
5,900.00	5,750.32	5,711.47	5,708.32	26.50	171.14	-127.19	1,014.39	2,869.95	3,645.41	3,449.39	196.02	18.597	
6,000.00	5,847.28	5,819.55	5,816.35	26.98	174.38	-127.55	1,016.40	2,869.95	3,661.80	3,462.11	199.69	18.337	
6,100.00	5,944.25	5,935.31	5,932.09	27.46	177.85	-127.89	1,015.37	2,869.95	3,676.49	3,472.90	203.59	18.058	
6,200.00	6,041.21	6,002.66	5,999.21	27.94	179.87	-128.08	1,014.39	2,869.95	3,691.09	3,485.06	206.02	17.916 SF	
6,300.00	6,138.17	6,011.00	6,007.54	28.43	180.12	-128.11	1,014.39	2,869.95	3,707.57	3,500.99	206.58	17.947	
6,400.00	6,235.14	6,011.00	6,007.54	28.91	180.12	-128.11	1,014.39	2,869.95	3,726.65	3,519.91	206.74	18.026	
6,496.84	6,329.04	6,011.00	6,007.54	29.38	180.12	-128.11	1,014.39	2,869.95	3,747.58	3,540.81	206.77	18.124	
6,500.00	6,332.10	6,011.00	6,007.54	29.39	180.12	-129.28	1,014.39	2,869.95	3,748.31	3,541.54	206.77	18.128	
6,550.00	6,380.52	6,011.00	6,007.54	29.63	180.12	-147.26	1,014.39	2,869.95	3,761.76	3,555.02	206.73	18.196	
6,600.00	6,428.63	6,011.00	6,007.54	29.87	180.12	-162.65	1,014.39	2,869.95	3,778.70	3,572.05	206.66	18.285	
6,650.00	6,476.14	6,011.00	6,007.54	30.10	180.12	-174.78	1,014.39	2,869.95	3,799.00	3,592.46	206.54	18.393	
6,700.00	6,522.73	6,011.00	6,007.54	30.33	180.12	175.75	1,014.39	2,869.95	3,822.46	3,616.07	206.39	18.520	
6,750.00	6,568.14	6,011.00	6,007.54	30.54	180.12	168.05	1,014.39	2,869.95	3,848.90	3,642.69	206.21	18.665	
6,800.00	6,612.08	6,011.00	6,007.54	30.75	180.12	161.43	1,014.39	2,869.95	3,878.09	3,672.08	206.01	18.825	
6,850.00	6,654.28	6,011.00	6,007.54	30.95	180.12	155.41	1,014.39	2,869.95	3,909.78	3,703.99	205.79	18.999	
6,900.00	6,694.47	6,011.00	6,007.54	31.15	180.12	149.62	1,014.39	2,869.95	3,943.73	3,738.17	205.56	19.185	
6,950.00	6,732.42	6,011.00	6,007.54	31.33	180.12	143.81	1,014.39	2,869.95	3,979.68	3,774.36	205.32	19.383	
7,000.00	6,767.89	6,011.00	6,007.54	31.51	180.12	137.80	1,014.39	2,869.95	4,017.34	3,812.26	205.08	19.589	
7,050.00	6,800.65	6,011.00	6,007.54	31.68	180.12	131.44	1,014.39	2,869.95	4,056.44	3,851.60	204.85	19.802	
7,100.00	6,830.51	6,011.00	6,007.54	31.85	180.12	124.68	1,014.39	2,869.95	4,096.71	3,892.09	204.62	20.021	
7,150.00	6,857.28	6,011.00	6,007.54	32.01	180.12	117.53	1,014.39	2,869.95	4,137.87	3,933.46	204.41	20.243	
7,200.00	6,880.80	6,011.00	6,007.54	32.17	180.12	110.09	1,014.39	2,869.95	4,179.63	3,975.41	204.22	20.466	
7,250.00	6,900.92	6,011.00	6,007.54	32.33	180.12	102.54	1,014.39	2,869.95	4,221.73	4,017.68	204.05	20.690	
7,300.00	6,917.52	6,011.00	6,007.54	32.49	180.12	95.11	1,014.39	2,869.95	4,263.91	4,060.00	203.91	20.911	
7,350.00	6,930.50	6,011.00	6,007.54	32.66	180.12	88.03	1,014.39	2,869.95	4,305.89	4,102.11	203.79	21.129	
7,400.00	6,939.77	6,011.00	6,007.54	32.83	180.12	81.49	1,014.39	2,869.95	4,347.45	4,143.75	203.70	21.342	
7,450.00	6,945.28	6,011.00	6,007.54	33.01	180.12	75.62	1,014.39	2,869.95	4,388.32	4,184.68	203.64	21.549	
7,499.66	6,947.00	6,011.00	6,007.54	33.19	180.12	70.49	1,014.39	2,869.95	4,428.02	4,224.41	203.61	21.747	
7,600.00	6,946.68	6,011.00	6,007.54	33.61	180.12	70.49	1,014.39	2,869.95	4,507.61	4,304.00	203.61	22.139	
7,700.00	6,946.35	6,011.00	6,007.54	34.10	180.12	70.49	1,014.39	2,869.95	4,587.74	4,384.12	203.62	22.531	
7,800.00	6,946.03	6,011.00	6,007.54	34.66	180.12	70.49	1,014.39	2,869.95	4,668.63	4,464.99	203.64	22.926	
7,900.00	6,945.71	6,011.00	6,007.54	35.29	180.12	70.49	1,014.39	2,869.95	4,750.26	4,546.57	203.68	23.322	
8,000.00	6,945.38	6,011.00	6,007.54	35.99	180.12	70.49	1,014.39	2,869.95	4,832.57	4,628.83	203.74	23.720	
8,100.00	6,945.06	6,011.00	6,007.54	36.74	180.12	70.49	1,014.39	2,869.95	4,915.54	4,711.74	203.80	24.119	
8,200.00	6,944.74	6,011.00	6,007.54	37.56	180.12	70.49	1,014.39	2,869.95	4,999.13	4,795.25	203.88	24.520	
8,300.00	6,944.41	6,011.00	6,007.54	38.43	180.12	70.49	1,014.39	2,869.95	5,083.32	4,879.35	203.97	24.922	
8,400.00	6,944.09	6,011.00	6,007.54	39.35	180.12	70.49	1,014.39	2,869.95	5,168.07	4,964.01	204.06	25.326	
8,500.00	6,943.77	6,011.00	6,007.54	40.31	180.12	70.49	1,014.39	2,869.95	5,253.35	5,049.19	204.16	25.731	
8,600.00	6,943.45	6,011.00	6,007.54	41.32	180.12	70.49	1,014.39	2,869.95	5,339.15	5,134.87	204.27	26.137	
8,700.00	6,943.12	6,011.00	6,007.54	42.37	180.12	70.49	1,014.39	2,869.95	5,425.43	5,221.04	204.39	26.544	
8,800.00	6,942.80	6,011.00	6,007.54	43.45	180.12	70.49	1,014.39	2,869.95	5,512.18	5,307.67	204.51	26.953	
8,900.00	6,942.48	6,011.00	6,007.54	44.57	180.12	70.49	1,014.39	2,869.95	5,599.37	5,394.73	204.64	27.362	
9,000.00	6,942.15	6,011.00	6,007.54	45.71	180.12	70.49	1,014.39	2,869.95	5,686.98	5,482.21	204.77	27.773	
9,100.00	6,941.83	6,011.00	6,007.54	46.89	180.12	70.49	1,014.39	2,869.95	5,774.99	5,570.09	204.90	28.184	
9,200.00	6,941.51	6,011.00	6,007.54	48.09	180.12	70.49	1,014.39	2,869.95	5,863.39	5,658.35	205.04	28.596	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #080A - OH - OH-TD

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,300.00	6,941.18	6,011.00	6,007.54	49.31	180.12	70.49	1,014.39	2,869.95	5,952.15	5,746.97	205.18	29.009	
9,400.00	6,940.86	6,011.00	6,007.54	50.56	180.12	70.49	1,014.39	2,869.95	6,041.27	5,835.94	205.32	29.423	
9,500.00	6,940.54	6,011.00	6,007.54	51.82	180.12	70.49	1,014.39	2,869.95	6,130.72	5,925.25	205.47	29.838	
9,600.00	6,940.21	6,011.00	6,007.54	53.11	180.12	70.49	1,014.39	2,869.95	6,220.49	6,014.88	205.61	30.253	
9,700.00	6,939.89	6,011.00	6,007.54	54.41	180.12	70.49	1,014.39	2,869.95	6,310.57	6,104.81	205.76	30.669	
9,800.00	6,939.57	6,011.00	6,007.54	55.73	180.12	70.49	1,014.39	2,869.95	6,400.94	6,195.04	205.91	31.086	
9,900.00	6,939.25	6,011.00	6,007.54	57.07	180.12	70.49	1,014.39	2,869.95	6,491.60	6,285.54	206.06	31.504	
10,000.00	6,938.92	6,011.00	6,007.54	58.41	180.12	70.49	1,014.39	2,869.95	6,582.53	6,376.32	206.21	31.922	
10,100.00	6,938.60	6,011.00	6,007.54	59.77	180.12	70.49	1,014.39	2,869.95	6,673.72	6,467.36	206.36	32.341	
10,200.00	6,938.28	6,011.00	6,007.54	61.15	180.12	70.49	1,014.39	2,869.95	6,765.15	6,558.64	206.51	32.760	
10,300.00	6,937.95	6,011.00	6,007.54	62.53	180.12	70.49	1,014.39	2,869.95	6,856.83	6,650.17	206.66	33.180	
10,400.00	6,937.63	6,011.00	6,007.54	63.92	180.12	70.49	1,014.39	2,869.95	6,948.73	6,741.92	206.81	33.600	
10,500.00	6,937.31	6,011.00	6,007.54	65.33	180.12	70.49	1,014.39	2,869.95	7,040.86	6,833.90	206.96	34.021	
10,600.00	6,936.98	6,011.00	6,007.54	66.74	180.12	70.49	1,014.39	2,869.95	7,133.19	6,926.09	207.11	34.442	
10,700.00	6,936.66	6,011.00	6,007.54	68.16	180.12	70.49	1,014.39	2,869.95	7,225.74	7,018.48	207.25	34.864	
10,800.00	6,936.34	6,011.00	6,007.54	69.59	180.12	70.49	1,014.39	2,869.95	7,318.47	7,111.07	207.40	35.286	
10,900.00	6,936.01	6,011.00	6,007.54	71.03	180.12	70.49	1,014.39	2,869.95	7,411.40	7,203.85	207.55	35.709	
11,000.00	6,935.69	6,011.00	6,007.54	72.47	180.12	70.49	1,014.39	2,869.95	7,504.51	7,296.81	207.70	36.132	
11,100.00	6,935.37	6,011.00	6,007.54	73.92	180.12	70.49	1,014.39	2,869.95	7,597.79	7,389.95	207.84	36.555	
11,200.00	6,935.05	6,011.00	6,007.54	75.38	180.12	70.49	1,014.39	2,869.95	7,691.24	7,483.25	207.99	36.979	
11,300.00	6,934.72	6,011.00	6,007.54	76.84	180.12	70.49	1,014.39	2,869.95	7,784.86	7,576.72	208.14	37.403	
11,400.00	6,934.40	6,011.00	6,007.54	78.31	180.12	70.49	1,014.39	2,869.95	7,878.63	7,670.35	208.28	37.827	
11,500.00	6,934.08	6,011.00	6,007.54	79.79	180.12	70.49	1,014.39	2,869.95	7,972.56	7,764.13	208.42	38.252	
11,600.00	6,933.75	6,011.00	6,007.54	81.27	180.12	70.49	1,014.39	2,869.95	8,066.62	7,858.06	208.57	38.677	
11,700.00	6,933.43	6,011.00	6,007.54	82.75	180.12	70.49	1,014.39	2,869.95	8,160.84	7,952.13	208.71	39.102	
11,800.00	6,933.11	6,011.00	6,007.54	84.24	180.12	70.49	1,014.39	2,869.95	8,255.18	8,046.33	208.85	39.527	
11,900.00	6,932.78	6,011.00	6,007.54	85.73	180.12	70.49	1,014.39	2,869.95	8,349.66	8,140.67	208.99	39.953	
12,000.00	6,932.46	6,011.00	6,007.54	87.23	180.12	70.49	1,014.39	2,869.95	8,444.27	8,235.14	209.13	40.379	
12,100.00	6,932.14	6,011.00	6,007.54	88.72	180.12	70.49	1,014.39	2,869.95	8,538.99	8,329.73	209.27	40.805	
12,200.00	6,931.81	6,011.00	6,007.54	90.23	180.12	70.49	1,014.39	2,869.95	8,633.84	8,424.44	209.40	41.231	
12,300.00	6,931.49	6,011.00	6,007.54	91.74	180.12	70.49	1,014.39	2,869.95	8,728.80	8,519.26	209.54	41.657	
12,400.00	6,931.17	6,011.00	6,007.54	93.25	180.12	70.49	1,014.39	2,869.95	8,823.88	8,614.20	209.67	42.084	
12,500.00	6,930.85	6,011.00	6,007.54	94.76	180.12	70.49	1,014.39	2,869.95	8,919.06	8,709.25	209.81	42.510	
12,600.00	6,930.52	6,011.00	6,007.54	96.27	180.12	70.49	1,014.39	2,869.95	9,014.34	8,804.40	209.94	42.937	
12,700.00	6,930.20	6,011.00	6,007.54	97.79	180.12	70.49	1,014.39	2,869.95	9,109.73	8,899.65	210.08	43.364	
12,800.00	6,929.88	6,011.00	6,007.54	99.32	180.12	70.49	1,014.39	2,869.95	9,205.22	8,995.01	210.21	43.791	
12,900.00	6,929.55	6,011.00	6,007.54	100.84	180.12	70.49	1,014.39	2,869.95	9,300.80	9,090.46	210.34	44.218	
13,000.00	6,929.23	6,011.00	6,007.54	102.37	180.12	70.49	1,014.39	2,869.95	9,396.47	9,186.00	210.47	44.645	
13,100.00	6,928.91	6,011.00	6,007.54	103.89	180.12	70.49	1,014.39	2,869.95	9,492.23	9,281.63	210.60	45.072	
13,200.00	6,928.58	6,011.00	6,007.54	105.43	180.12	70.49	1,014.39	2,869.95	9,588.08	9,377.35	210.73	45.499	
13,300.00	6,928.26	6,011.00	6,007.54	106.96	180.12	70.49	1,014.39	2,869.95	9,684.01	9,473.15	210.86	45.927	
13,400.00	6,927.94	6,011.00	6,007.54	108.49	180.12	70.49	1,014.39	2,869.95	9,780.02	9,569.03	210.99	46.354	
13,500.00	6,927.61	6,011.00	6,007.54	110.03	180.12	70.49	1,014.39	2,869.95	9,876.11	9,665.00	211.11	46.781	
13,600.00	6,927.29	6,011.00	6,007.54	111.57	180.12	70.49	1,014.39	2,869.95	9,972.28	9,761.04	211.24	47.209	
13,700.00	6,926.97	6,011.00	6,007.54	113.11	180.12	70.49	1,014.39	2,869.95	10,068.52	9,857.16	211.36	47.636	
13,800.00	6,926.65	6,011.00	6,007.54	114.65	180.12	70.49	1,014.39	2,869.95	10,164.84	9,953.35	211.49	48.063	
13,900.00	6,926.32	6,011.00	6,007.54	116.20	180.12	70.49	1,014.39	2,869.95	10,261.23	10,049.61	211.61	48.490	
14,000.00	6,926.00	6,011.00	6,007.54	117.75	180.12	70.49	1,014.39	2,869.95	10,357.68	10,145.94	211.74	48.918	
14,100.00	6,925.68	6,011.00	6,007.54	119.29	180.12	70.49	1,014.39	2,869.95	10,454.20	10,242.34	211.86	49.345	
14,200.00	6,925.35	6,011.00	6,007.54	120.84	180.12	70.49	1,014.39	2,869.95	10,550.79	10,338.81	211.98	49.772	
14,300.00	6,925.03	6,011.00	6,007.54	122.39	180.12	70.49	1,014.39	2,869.95	10,647.44	10,435.33	212.10	50.199	
14,400.00	6,924.71	6,011.00	6,007.54	123.94	180.12	70.49	1,014.39	2,869.95	10,744.15	10,531.92	212.23	50.626	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #080A - OH - OH-TD

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Rule Assigned:

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,500.00	6,924.38	6,011.00	6,007.54	125.50	180.12	70.49	1,014.39	2,869.95	10,840.92	10,628.57	212.35	51.053	
14,600.00	6,924.06	6,011.00	6,007.54	127.05	180.12	70.49	1,014.39	2,869.95	10,937.75	10,725.28	212.47	51.480	
14,700.00	6,923.74	6,011.00	6,007.54	128.61	180.12	70.49	1,014.39	2,869.95	11,034.63	10,822.05	212.59	51.907	
14,800.00	6,923.42	6,011.00	6,007.54	130.16	180.12	70.49	1,014.39	2,869.95	11,131.57	10,918.87	212.71	52.333	
14,900.00	6,923.09	6,011.00	6,007.54	131.72	180.12	70.49	1,014.39	2,869.95	11,228.57	11,015.74	212.82	52.760	
15,000.00	6,922.77	6,011.00	6,007.54	133.28	180.12	70.49	1,014.39	2,869.95	11,325.61	11,112.67	212.94	53.186	
15,100.00	6,922.45	6,011.00	6,007.54	134.84	180.12	70.49	1,014.39	2,869.95	11,422.71	11,209.65	213.06	53.613	
15,200.00	6,922.12	6,011.00	6,007.54	136.40	180.12	70.49	1,014.39	2,869.95	11,519.86	11,306.68	213.18	54.039	
15,300.00	6,921.80	6,011.00	6,007.54	137.96	180.12	70.49	1,014.39	2,869.95	11,617.05	11,403.76	213.29	54.465	
15,400.00	6,921.48	6,011.00	6,007.54	139.53	180.12	70.49	1,014.39	2,869.95	11,714.30	11,500.89	213.41	54.891	
15,500.00	6,921.15	6,011.00	6,007.54	141.09	180.12	70.49	1,014.39	2,869.95	11,811.58	11,598.06	213.53	55.317	
15,600.00	6,920.83	6,011.00	6,007.54	142.65	180.12	70.49	1,014.39	2,869.95	11,908.92	11,695.28	213.64	55.742	
15,700.00	6,920.51	6,011.00	6,007.54	144.22	180.12	70.49	1,014.39	2,869.95	12,006.30	11,792.54	213.76	56.168	
15,800.00	6,920.18	6,011.00	6,007.54	145.79	180.12	70.49	1,014.39	2,869.95	12,103.72	11,889.84	213.87	56.593	
15,900.00	6,919.86	6,011.00	6,007.54	147.35	180.12	70.49	1,014.39	2,869.95	12,201.18	11,987.19	213.99	57.018	
16,000.00	6,919.54	6,011.00	6,007.54	148.92	180.12	70.49	1,014.39	2,869.95	12,298.68	12,084.58	214.10	57.443	
16,100.00	6,919.22	6,011.00	6,007.54	150.49	180.12	70.49	1,014.39	2,869.95	12,396.22	12,182.01	214.22	57.868	
16,200.00	6,918.89	6,011.00	6,007.54	152.06	180.12	70.49	1,014.39	2,869.95	12,493.80	12,279.47	214.33	58.292	
16,300.00	6,918.57	6,011.00	6,007.54	153.63	180.12	70.49	1,014.39	2,869.95	12,591.42	12,376.98	214.44	58.717	
16,400.00	6,918.25	6,011.00	6,007.54	155.20	180.12	70.49	1,014.39	2,869.95	12,689.08	12,474.52	214.56	59.141	
16,500.00	6,917.92	6,011.00	6,007.54	156.77	180.12	70.49	1,014.39	2,869.95	12,786.77	12,572.10	214.67	59.565	
16,600.00	6,917.60	6,011.00	6,007.54	158.34	180.12	70.49	1,014.39	2,869.95	12,884.50	12,669.72	214.78	59.989	
16,700.00	6,917.28	6,011.00	6,007.54	159.92	180.12	70.49	1,014.39	2,869.95	12,982.26	12,767.37	214.89	60.412	
16,800.00	6,916.95	6,011.00	6,007.54	161.49	180.12	70.49	1,014.39	2,869.95	13,080.06	12,865.05	215.01	60.836	
16,900.00	6,916.63	6,011.00	6,007.54	163.06	180.12	70.49	1,014.39	2,869.95	13,177.89	12,962.77	215.12	61.259	
17,000.00	6,916.31	6,011.00	6,007.54	164.64	180.12	70.49	1,014.39	2,869.95	13,275.75	13,060.52	215.23	61.682	
17,100.00	6,915.98	6,011.00	6,007.54	166.21	180.12	70.49	1,014.39	2,869.95	13,373.64	13,158.30	215.34	62.104	
17,200.00	6,915.66	6,011.00	6,007.54	167.79	180.12	70.49	1,014.39	2,869.95	13,471.57	13,256.11	215.45	62.527	
17,300.00	6,915.34	6,011.00	6,007.54	169.37	180.12	70.49	1,014.39	2,869.95	13,569.52	13,353.96	215.56	62.949	
17,400.00	6,915.02	6,011.00	6,007.54	170.94	180.12	70.49	1,014.39	2,869.95	13,667.50	13,451.83	215.68	63.371	
17,500.00	6,914.69	6,011.00	6,007.54	172.52	180.12	70.49	1,014.39	2,869.95	13,765.52	13,549.73	215.79	63.792	
17,600.00	6,914.37	6,011.00	6,007.54	174.10	180.12	70.49	1,014.39	2,869.95	13,863.56	13,647.66	215.90	64.214	
17,700.00	6,914.05	6,011.00	6,007.54	175.68	180.12	70.49	1,014.39	2,869.95	13,961.63	13,745.62	216.01	64.635	
17,800.00	6,913.72	6,011.00	6,007.54	177.25	180.12	70.49	1,014.39	2,869.95	14,059.72	13,843.61	216.12	65.056	
17,900.00	6,913.40	6,011.00	6,007.54	178.83	180.12	70.49	1,014.39	2,869.95	14,157.85	13,941.62	216.23	65.476	
18,000.00	6,913.08	6,011.00	6,007.54	180.41	180.12	70.49	1,014.39	2,869.95	14,256.00	14,039.66	216.34	65.897	
18,023.75	6,913.00	6,011.00	6,007.54	180.79	180.12	70.49	1,014.39	2,869.95	14,279.32	14,062.95	216.36	65.997	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #080B - OH - OH-TD

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Rule Assigned:

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	63.18	1,089.66	2,154.86	2,414.85				
100.00	100.00	73.00	73.00	0.25	2.19	63.18	1,089.66	2,154.86	2,414.70	2,412.26	2.44	990.235	
200.00	200.00	173.00	173.00	0.61	5.18	63.18	1,089.66	2,154.86	2,414.70	2,408.91	5.79	416.802	
300.00	300.00	273.00	273.00	0.97	8.18	63.18	1,089.66	2,154.86	2,414.70	2,405.55	9.15	263.951	
400.00	400.00	373.00	373.00	1.33	11.18	63.18	1,089.66	2,154.86	2,414.70	2,402.20	12.50	193.127	
500.00	500.00	473.00	473.00	1.68	14.17	63.18	1,089.66	2,154.86	2,414.70	2,398.84	15.86	152.270	CC
600.00	599.98	573.08	572.98	2.03	17.17	-116.80	1,089.66	2,154.86	2,415.49	2,396.29	19.20	125.818	
700.00	699.84	672.94	672.84	2.36	20.16	-116.87	1,089.66	2,154.86	2,417.85	2,395.33	22.52	107.348	ES
800.00	799.45	774.47	774.33	2.71	23.21	-117.03	1,091.82	2,154.86	2,422.80	2,396.89	25.91	93.511	
900.00	898.70	882.24	882.08	3.06	26.44	-117.20	1,091.23	2,154.86	2,428.13	2,398.64	29.49	82.330	
1,000.00	997.47	989.78	989.58	3.43	29.66	-117.41	1,089.83	2,154.86	2,434.77	2,401.69	33.08	73.600	
1,100.00	1,095.62	1,069.03	1,068.62	3.82	32.03	-117.57	1,089.66	2,154.86	2,443.54	2,407.71	35.84	68.181	
1,207.83	1,200.65	1,174.06	1,173.65	4.26	35.18	-117.86	1,089.66	2,154.86	2,455.13	2,415.71	39.42	62.288	
1,300.00	1,290.02	1,264.68	1,264.23	4.65	37.90	-118.36	1,091.83	2,154.86	2,467.05	2,424.54	42.51	58.034	
1,400.00	1,386.98	1,370.82	1,370.36	5.09	41.08	-118.88	1,091.33	2,154.86	2,478.81	2,432.70	46.11	53.761	
1,500.00	1,483.95	1,477.40	1,476.90	5.53	44.27	-119.38	1,090.03	2,154.86	2,490.38	2,440.66	49.72	50.083	
1,600.00	1,580.91	1,554.62	1,553.91	5.99	46.58	-119.75	1,089.66	2,154.86	2,502.45	2,449.98	52.47	47.696	
1,700.00	1,677.87	1,651.58	1,650.87	6.44	49.49	-120.23	1,089.66	2,154.86	2,514.96	2,459.15	55.80	45.068	
1,800.00	1,774.84	1,748.55	1,747.84	6.90	52.39	-120.70	1,089.66	2,154.86	2,527.64	2,468.50	59.14	42.739	
1,900.00	1,871.80	1,855.52	1,854.76	7.36	55.60	-121.24	1,091.45	2,154.86	2,541.47	2,478.68	62.78	40.481	
2,000.00	1,968.76	1,963.07	1,962.28	7.83	58.82	-121.73	1,090.25	2,154.86	2,553.92	2,487.48	66.44	38.439	
2,100.00	2,065.73	2,039.74	2,038.73	8.30	61.12	-122.07	1,089.66	2,154.86	2,566.72	2,497.54	69.17	37.106	
2,200.00	2,162.69	2,136.70	2,135.69	8.77	64.03	-122.52	1,089.66	2,154.86	2,580.07	2,507.56	72.51	35.580	
2,300.00	2,259.65	2,233.67	2,232.65	9.24	66.93	-122.97	1,089.66	2,154.86	2,593.59	2,517.73	75.86	34.191	
2,400.00	2,356.61	2,339.93	2,338.86	9.71	70.11	-123.49	1,091.55	2,154.86	2,608.36	2,528.88	79.48	32.818	
2,500.00	2,453.58	2,448.48	2,447.38	10.18	73.37	-123.96	1,090.46	2,154.86	2,621.65	2,538.48	83.17	31.522	
2,600.00	2,550.54	2,524.86	2,523.54	10.66	75.66	-124.28	1,089.66	2,154.86	2,635.09	2,549.20	85.89	30.679	
2,700.00	2,647.50	2,621.82	2,620.50	11.13	78.56	-124.71	1,089.66	2,154.86	2,649.24	2,560.00	89.23	29.689	
2,800.00	2,744.47	2,718.79	2,717.47	11.61	81.47	-125.13	1,089.66	2,154.86	2,663.53	2,570.95	92.57	28.772	
2,900.00	2,841.43	2,824.04	2,822.67	12.08	84.62	-125.62	1,091.64	2,154.86	2,679.16	2,583.00	96.16	27.861	
3,000.00	2,938.39	2,933.60	2,932.20	12.56	87.90	-126.07	1,090.66	2,154.86	2,693.23	2,593.35	99.88	26.964	
3,100.00	3,035.36	3,009.98	3,008.36	13.04	90.19	-126.38	1,089.66	2,154.86	2,707.27	2,604.67	102.60	26.387	
3,200.00	3,132.32	3,106.94	3,105.32	13.51	93.10	-126.78	1,089.66	2,154.86	2,722.14	2,616.20	105.94	25.696	
3,300.00	3,229.28	3,203.91	3,202.28	13.99	96.00	-127.19	1,089.66	2,154.86	2,737.14	2,627.87	109.27	25.049	
3,400.00	3,326.25	3,307.85	3,306.17	14.47	99.12	-127.65	1,091.72	2,154.86	2,753.57	2,640.75	112.82	24.407	
3,500.00	3,423.21	3,418.43	3,416.73	14.95	102.43	-128.08	1,090.85	2,154.86	2,768.37	2,651.81	116.57	23.749	
3,600.00	3,520.17	3,529.47	3,527.73	15.43	105.76	-128.50	1,089.11	2,154.86	2,782.82	2,662.50	120.32	23.128	
3,700.00	3,617.13	3,592.06	3,590.13	15.91	107.63	-128.75	1,089.66	2,154.86	2,798.49	2,675.87	122.62	22.822	
3,800.00	3,714.10	3,689.03	3,687.10	16.39	110.54	-129.13	1,089.66	2,154.86	2,814.15	2,688.19	125.95	22.343	
3,900.00	3,811.06	3,791.33	3,789.36	16.87	113.61	-129.56	1,091.78	2,154.86	2,831.31	2,701.86	129.45	21.872	
4,000.00	3,908.02	3,902.96	3,900.96	17.35	116.95	-129.98	1,091.02	2,154.86	2,846.79	2,713.57	133.22	21.369	
4,100.00	4,004.99	4,015.06	4,013.03	17.83	120.31	-130.38	1,089.38	2,154.86	2,861.90	2,724.89	137.01	20.888	
4,200.00	4,101.95	4,077.18	4,074.95	18.31	122.17	-130.62	1,089.66	2,154.86	2,878.01	2,738.72	139.28	20.663	
4,300.00	4,198.91	4,174.15	4,171.91	18.79	125.08	-130.98	1,089.66	2,154.86	2,894.27	2,751.66	142.61	20.295	
4,400.00	4,295.88	4,274.49	4,272.22	19.27	128.08	-131.38	1,091.82	2,154.86	2,912.10	2,766.06	146.04	19.940	
4,500.00	4,392.84	4,387.19	4,384.89	19.75	131.46	-131.78	1,091.18	2,154.86	2,928.23	2,778.38	149.85	19.542	
4,600.00	4,489.80	4,500.37	4,498.04	20.23	134.85	-132.17	1,089.65	2,154.86	2,943.94	2,790.28	153.66	19.158	
4,700.00	4,586.76	4,562.30	4,559.76	20.71	136.71	-132.39	1,089.66	2,154.86	2,960.44	2,804.52	155.93	18.986	
4,800.00	4,683.73	4,659.27	4,656.73	21.20	139.61	-132.73	1,089.66	2,154.86	2,977.26	2,818.01	159.25	18.696	
4,900.00	4,780.69	4,757.32	4,754.74	21.68	142.55	-133.10	1,091.83	2,154.86	2,995.70	2,833.09	162.60	18.423	
5,000.00	4,877.65	4,871.10	4,868.50	22.16	145.96	-133.48	1,091.32	2,154.86	3,012.43	2,845.99	166.44	18.099	
5,100.00	4,974.62	4,985.38	4,982.75	22.64	149.38	-133.85	1,089.90	2,154.86	3,028.71	2,858.42	170.29	17.786	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #080B - OH - OH-TD

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,200.00	5,071.58	5,047.42	5,044.58	23.12	151.24	-134.06	1,089.66	2,154.86	3,045.56	2,873.02	172.55	17.651	
5,300.00	5,168.54	5,144.39	5,141.54	23.60	154.15	-134.38	1,089.66	2,154.86	3,062.89	2,887.02	175.87	17.416	
5,400.00	5,265.51	5,241.35	5,238.51	24.09	157.05	-134.70	1,089.66	2,154.86	3,080.31	2,901.12	179.19	17.191	
5,500.00	5,362.47	5,354.69	5,351.79	24.57	160.45	-135.10	1,091.45	2,154.86	3,099.16	2,916.16	183.01	16.935	
5,600.00	5,459.43	5,470.09	5,467.16	25.05	163.91	-135.45	1,090.14	2,154.86	3,115.98	2,929.10	186.88	16.673	
5,700.00	5,556.40	5,532.54	5,529.40	25.53	165.78	-135.64	1,089.66	2,154.86	3,133.14	2,943.99	189.15	16.564	
5,800.00	5,653.36	5,629.51	5,626.36	26.01	168.69	-135.95	1,089.66	2,154.86	3,150.93	2,958.47	192.47	16.371	
5,900.00	5,750.32	5,726.47	5,723.32	26.50	171.59	-136.25	1,089.66	2,154.86	3,168.82	2,973.03	195.78	16.185	
6,000.00	5,847.28	5,837.95	5,834.74	26.98	174.93	-136.62	1,091.57	2,154.86	3,188.23	2,988.68	199.54	15.978	
6,100.00	5,944.25	5,954.49	5,951.26	27.46	178.42	-136.96	1,090.38	2,154.86	3,205.55	3,002.10	203.45	15.756	
6,200.00	6,041.21	6,017.66	6,014.21	27.94	180.32	-137.14	1,089.66	2,154.86	3,222.98	3,017.25	205.74	15.666	
6,300.00	6,138.17	6,114.63	6,111.17	28.43	183.22	-137.43	1,089.66	2,154.86	3,241.20	3,032.16	209.05	15.505	
6,400.00	6,235.14	6,211.59	6,208.14	28.91	186.13	-137.72	1,089.66	2,154.86	3,259.51	3,047.15	212.36	15.349	
6,496.84	6,329.04	6,317.14	6,313.64	29.38	189.29	-138.05	1,091.68	2,154.86	3,278.86	3,062.93	215.93	15.185	
6,500.00	6,332.10	6,320.85	6,317.35	29.39	189.40	-139.23	1,091.66	2,154.86	3,279.43	3,063.38	216.05	15.179	
6,550.00	6,380.52	6,379.57	6,376.06	29.63	191.16	-157.27	1,091.25	2,154.86	3,289.83	3,071.82	218.02	15.090	
6,600.00	6,428.63	6,438.04	6,434.51	29.87	192.91	-172.60	1,090.60	2,154.86	3,302.58	3,082.62	219.96	15.014	
6,650.00	6,476.14	6,495.89	6,492.34	30.10	194.65	175.50	1,089.72	2,154.86	3,317.60	3,095.73	221.87	14.953	
6,700.00	6,522.73	6,552.77	6,549.19	30.33	196.35	166.40	1,088.64	2,154.86	3,334.81	3,111.07	223.74	14.905 SF	
6,750.00	6,568.14	6,544.90	6,541.14	30.54	196.11	159.08	1,089.66	2,154.86	3,355.24	3,131.62	223.62	15.004	
6,800.00	6,612.08	6,588.84	6,585.08	30.75	197.43	153.14	1,089.66	2,154.86	3,377.44	3,152.37	225.07	15.006	
6,850.00	6,654.28	6,631.03	6,627.28	30.95	198.70	148.03	1,089.66	2,154.86	3,401.62	3,175.17	226.45	15.021	
6,900.00	6,694.47	6,671.23	6,667.47	31.15	199.90	143.44	1,089.66	2,154.86	3,427.67	3,199.92	227.76	15.050	
6,950.00	6,732.42	6,709.18	6,705.42	31.33	201.04	139.14	1,089.66	2,154.86	3,455.47	3,226.49	228.98	15.091	
7,000.00	6,767.89	6,744.64	6,740.89	31.51	202.10	134.99	1,089.66	2,154.86	3,484.87	3,254.76	230.11	15.144	
7,050.00	6,800.65	6,783.51	6,779.71	31.68	203.26	130.93	1,091.80	2,154.86	3,517.31	3,285.98	231.33	15.205	
7,100.00	6,830.51	6,820.04	6,816.23	31.85	204.36	126.87	1,091.66	2,154.86	3,549.41	3,316.94	232.47	15.268	
7,150.00	6,857.28	6,852.83	6,849.02	32.01	205.34	122.73	1,091.47	2,154.86	3,582.63	3,349.15	233.48	15.344	
7,200.00	6,880.80	6,881.67	6,877.85	32.17	206.21	118.46	1,091.23	2,154.86	3,616.82	3,382.46	234.36	15.433	
7,250.00	6,900.92	6,906.37	6,902.54	32.33	206.95	114.04	1,090.98	2,154.86	3,651.83	3,416.73	235.10	15.533	
7,300.00	6,917.52	6,926.76	6,922.93	32.49	207.56	109.48	1,090.74	2,154.86	3,687.49	3,451.80	235.69	15.645	
7,350.00	6,930.50	6,942.71	6,938.87	32.66	208.03	104.81	1,090.54	2,154.86	3,723.63	3,487.48	236.15	15.768	
7,400.00	6,939.77	6,954.11	6,950.27	32.83	208.38	100.06	1,090.38	2,154.86	3,760.06	3,523.61	236.45	15.902	
7,450.00	6,945.28	6,960.89	6,957.05	33.01	208.58	95.30	1,090.28	2,154.86	3,796.58	3,559.97	236.60	16.046	
7,499.66	6,947.00	6,963.00	6,959.15	33.19	208.64	90.66	1,090.25	2,154.86	3,832.74	3,596.13	236.61	16.198	
7,600.00	6,946.68	6,962.59	6,958.75	33.61	208.63	90.65	1,090.26	2,154.86	3,906.16	3,669.67	236.49	16.517	
7,700.00	6,946.35	6,962.19	6,958.34	34.10	208.62	90.64	1,090.26	2,154.86	3,980.50	3,744.10	236.40	16.838	
7,800.00	6,946.03	6,961.78	6,957.94	34.66	208.61	90.63	1,090.27	2,154.86	4,055.95	3,819.62	236.33	17.162	
7,900.00	6,945.71	6,961.38	6,957.54	35.29	208.59	90.62	1,090.28	2,154.86	4,132.43	3,896.16	236.28	17.490	
8,000.00	6,945.38	6,960.97	6,957.13	35.99	208.58	90.61	1,090.28	2,154.86	4,209.91	3,973.66	236.25	17.820	
8,100.00	6,945.06	6,960.57	6,956.73	36.74	208.57	90.60	1,090.29	2,154.86	4,288.32	4,052.08	236.23	18.153	
8,200.00	6,944.74	6,960.17	6,956.32	37.56	208.56	90.59	1,090.29	2,154.86	4,367.60	4,131.37	236.23	18.489	
8,300.00	6,944.41	6,959.76	6,955.92	38.43	208.55	90.59	1,090.30	2,154.86	4,447.73	4,211.48	236.24	18.827	
8,400.00	6,944.09	6,959.36	6,955.51	39.35	208.53	90.58	1,090.31	2,154.86	4,528.64	4,292.37	236.27	19.167	
8,500.00	6,943.77	6,958.95	6,955.11	40.31	208.52	90.57	1,090.31	2,154.86	4,610.30	4,374.00	236.31	19.510	
8,600.00	6,943.45	6,958.55	6,954.71	41.32	208.51	90.56	1,090.32	2,154.86	4,692.68	4,456.32	236.35	19.855	
8,700.00	6,943.12	6,958.14	6,954.30	42.37	208.50	90.55	1,090.32	2,154.86	4,775.72	4,539.32	236.41	20.201	
8,800.00	6,942.80	6,957.74	6,953.90	43.45	208.49	90.54	1,090.33	2,154.86	4,859.41	4,622.94	236.47	20.550	
8,900.00	6,942.48	6,957.34	6,953.49	44.57	208.47	90.53	1,090.33	2,154.86	4,943.70	4,707.16	236.54	20.900	
9,000.00	6,942.15	6,956.93	6,953.09	45.71	208.46	90.52	1,090.34	2,154.86	5,028.57	4,791.95	236.61	21.252	
9,100.00	6,941.83	6,956.53	6,952.69	46.89	208.45	90.51	1,090.35	2,154.86	5,113.98	4,877.28	236.70	21.606	
9,200.00	6,941.51	6,956.12	6,952.28	48.09	208.44	90.51	1,090.35	2,154.86	5,199.91	4,963.13	236.78	21.961	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #080B - OH - OH-TD

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Rule Assigned: Warning
9,300.00	6,941.18	6,955.72	6,951.88	49.31	208.42	90.50	1,090.36	2,154.86	5,286.34	5,049.47	236.87	22.318	
9,400.00	6,940.86	6,955.32	6,951.48	50.56	208.41	90.49	1,090.36	2,154.86	5,373.24	5,136.28	236.96	22.676	
9,500.00	6,940.54	6,954.91	6,951.07	51.82	208.40	90.48	1,090.37	2,154.86	5,460.59	5,223.53	237.06	23.035	
9,600.00	6,940.21	6,954.51	6,950.67	53.11	208.39	90.47	1,090.38	2,154.86	5,548.36	5,311.21	237.16	23.396	
9,700.00	6,939.89	6,954.11	6,950.26	54.41	208.38	90.46	1,090.38	2,154.86	5,636.55	5,399.29	237.26	23.757	
9,800.00	6,939.57	6,953.70	6,949.86	55.73	208.36	90.45	1,090.39	2,154.86	5,725.12	5,487.76	237.36	24.120	
9,900.00	6,939.25	6,953.30	6,949.46	57.07	208.35	90.44	1,090.39	2,154.86	5,814.06	5,576.60	237.46	24.484	
10,000.00	6,938.92	6,952.89	6,949.05	58.41	208.34	90.44	1,090.40	2,154.86	5,903.35	5,665.79	237.57	24.849	
10,100.00	6,938.60	6,952.49	6,948.65	59.77	208.33	90.43	1,090.40	2,154.86	5,992.99	5,755.32	237.67	25.215	
10,200.00	6,938.28	6,952.09	6,948.25	61.15	208.32	90.42	1,090.41	2,154.86	6,082.94	5,845.17	237.78	25.582	
10,300.00	6,937.95	6,951.68	6,947.84	62.53	208.30	90.41	1,090.42	2,154.86	6,173.21	5,935.32	237.88	25.950	
10,400.00	6,937.63	6,951.28	6,947.44	63.92	208.29	90.40	1,090.42	2,154.86	6,263.77	6,025.78	237.99	26.319	
10,500.00	6,937.31	6,950.88	6,947.04	65.33	208.28	90.39	1,090.43	2,154.86	6,354.61	6,116.51	238.10	26.689	
10,600.00	6,936.98	6,950.47	6,946.63	66.74	208.27	90.38	1,090.43	2,154.86	6,445.73	6,207.52	238.21	27.059	
10,700.00	6,936.66	6,950.07	6,946.23	68.16	208.26	90.37	1,090.44	2,154.86	6,537.10	6,298.79	238.32	27.430	
10,800.00	6,936.34	6,949.67	6,945.83	69.59	208.24	90.37	1,090.44	2,154.86	6,628.73	6,390.31	238.42	27.802	
10,900.00	6,936.01	6,949.26	6,945.42	71.03	208.23	90.36	1,090.45	2,154.86	6,720.59	6,482.06	238.53	28.175	
11,000.00	6,935.69	6,948.86	6,945.02	72.47	208.22	90.35	1,090.45	2,154.86	6,812.68	6,574.05	238.64	28.548	
11,100.00	6,935.37	6,948.45	6,944.62	73.92	208.21	90.34	1,090.46	2,154.86	6,905.00	6,666.25	238.75	28.922	
11,200.00	6,935.05	6,948.05	6,944.21	75.38	208.20	90.33	1,090.47	2,154.86	6,997.52	6,758.67	238.85	29.296	
11,300.00	6,934.72	6,947.65	6,943.81	76.84	208.18	90.32	1,090.47	2,154.86	7,090.25	6,851.29	238.96	29.671	
11,400.00	6,934.40	6,947.24	6,943.41	78.31	208.17	90.31	1,090.48	2,154.86	7,183.17	6,944.10	239.07	30.047	
11,500.00	6,934.08	6,946.84	6,943.00	79.79	208.16	90.30	1,090.48	2,154.86	7,276.28	7,037.11	239.17	30.423	
11,600.00	6,933.75	6,946.44	6,942.60	81.27	208.15	90.30	1,090.49	2,154.86	7,369.57	7,130.29	239.28	30.799	
11,700.00	6,933.43	6,946.04	6,942.20	82.75	208.13	90.29	1,090.49	2,154.86	7,463.03	7,223.65	239.38	31.176	
11,800.00	6,933.11	6,945.63	6,941.79	84.24	208.12	90.28	1,090.50	2,154.86	7,556.66	7,317.18	239.48	31.554	
11,900.00	6,932.78	6,945.23	6,941.39	85.73	208.11	90.27	1,090.50	2,154.86	7,650.45	7,410.86	239.59	31.932	
12,000.00	6,932.46	6,944.83	6,940.99	87.23	208.10	90.26	1,090.51	2,154.86	7,744.40	7,504.71	239.69	32.310	
12,100.00	6,932.14	6,944.42	6,940.58	88.72	208.09	90.25	1,090.52	2,154.86	7,838.50	7,598.70	239.79	32.689	
12,200.00	6,931.81	6,944.02	6,940.18	90.23	208.07	90.24	1,090.52	2,154.86	7,932.74	7,692.84	239.89	33.068	
12,300.00	6,931.49	6,943.62	6,939.78	91.74	208.06	90.23	1,090.53	2,154.86	8,027.12	7,787.12	240.00	33.447	
12,400.00	6,931.17	6,943.21	6,939.38	93.25	208.05	90.23	1,090.53	2,154.86	8,121.63	7,881.54	240.10	33.827	
12,500.00	6,930.85	6,942.81	6,938.97	94.76	208.04	90.22	1,090.54	2,154.86	8,216.28	7,976.08	240.20	34.207	
12,600.00	6,930.52	6,942.41	6,938.57	96.27	208.03	90.21	1,090.54	2,154.86	8,311.05	8,070.75	240.30	34.587	
12,700.00	6,930.20	6,942.01	6,938.17	97.79	208.01	90.20	1,090.55	2,154.86	8,405.94	8,165.55	240.39	34.967	
12,800.00	6,929.88	6,941.60	6,937.77	99.32	208.00	90.19	1,090.55	2,154.86	8,500.95	8,260.46	240.49	35.348	
12,900.00	6,929.55	6,941.20	6,937.36	100.84	207.99	90.18	1,090.56	2,154.86	8,596.07	8,355.48	240.59	35.729	
13,000.00	6,929.23	6,940.80	6,936.96	102.37	207.98	90.17	1,090.56	2,154.86	8,691.30	8,450.61	240.69	36.110	
13,100.00	6,928.91	6,940.39	6,936.56	103.89	207.97	90.16	1,090.57	2,154.86	8,786.64	8,545.86	240.79	36.492	
13,200.00	6,928.58	6,939.99	6,936.15	105.43	207.95	90.16	1,090.58	2,154.86	8,882.08	8,641.20	240.88	36.873	
13,300.00	6,928.26	6,939.59	6,935.75	106.96	207.94	90.15	1,090.58	2,154.86	8,977.62	8,736.64	240.98	37.255	
13,400.00	6,927.94	6,939.19	6,935.35	108.49	207.93	90.14	1,090.59	2,154.86	9,073.25	8,832.18	241.07	37.637	
13,500.00	6,927.61	6,938.78	6,934.95	110.03	207.92	90.13	1,090.59	2,154.86	9,168.98	8,927.82	241.17	38.019	
13,600.00	6,927.29	6,938.38	6,934.54	111.57	207.91	90.12	1,090.60	2,154.86	9,264.80	9,023.54	241.26	38.401	
13,700.00	6,926.97	6,937.98	6,934.14	113.11	207.89	90.11	1,090.60	2,154.86	9,360.71	9,119.35	241.36	38.784	
13,800.00	6,926.65	6,937.58	6,933.74	114.65	207.88	90.10	1,090.61	2,154.86	9,456.70	9,215.25	241.45	39.166	
13,900.00	6,926.32	6,937.17	6,933.34	116.20	207.87	90.09	1,090.61	2,154.86	9,552.77	9,311.23	241.54	39.549	
14,000.00	6,926.00	6,936.77	6,932.94	117.75	207.86	90.09	1,090.62	2,154.86	9,648.92	9,407.29	241.64	39.932	
14,100.00	6,925.68	6,936.37	6,932.53	119.29	207.84	90.08	1,090.62	2,154.86	9,745.16	9,503.43	241.73	40.315	
14,200.00	6,925.35	6,935.97	6,932.13	120.84	207.83	90.07	1,090.63	2,154.86	9,841.46	9,599.64	241.82	40.697	
14,300.00	6,925.03	6,935.56	6,931.73	122.39	207.82	90.06	1,090.63	2,154.86	9,937.84	9,695.93	241.91	41.080	
14,400.00	6,924.71	6,935.16	6,931.33	123.94	207.81	90.05	1,090.64	2,154.86	10,034.29	9,792.29	242.00	41.463	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #080B - OH - OH-TD

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Rule Assigned:

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,500.00	6,924.38	6,934.76	6,930.92	125.50	207.80	90.04	1,090.64	2,154.86	10,130.81	9,888.71	242.09	41.847	
14,600.00	6,924.06	6,934.36	6,930.52	127.05	207.78	90.03	1,090.65	2,154.86	10,227.39	9,985.21	242.19	42.230	
14,700.00	6,923.74	6,933.95	6,930.12	128.61	207.77	90.02	1,090.65	2,154.86	10,324.04	10,081.77	242.28	42.613	
14,800.00	6,923.42	6,933.55	6,929.72	130.16	207.76	90.02	1,090.66	2,154.86	10,420.76	10,178.39	242.37	42.996	
14,900.00	6,923.09	6,933.15	6,929.32	131.72	207.75	90.01	1,090.66	2,154.86	10,517.53	10,275.07	242.46	43.379	
15,000.00	6,922.77	6,932.75	6,928.91	133.28	207.74	90.00	1,090.67	2,154.86	10,614.36	10,371.82	242.55	43.762	
15,100.00	6,922.45	6,932.35	6,928.51	134.84	207.72	89.99	1,090.67	2,154.86	10,711.26	10,468.62	242.63	44.146	
15,200.00	6,922.12	6,931.94	6,928.11	136.40	207.71	89.98	1,090.68	2,154.86	10,808.21	10,565.48	242.72	44.529	
15,300.00	6,921.80	6,931.54	6,927.71	137.96	207.70	89.97	1,090.68	2,154.86	10,905.21	10,662.40	242.81	44.912	
15,400.00	6,921.48	6,931.14	6,927.31	139.53	207.69	89.96	1,090.69	2,154.86	11,002.27	10,759.37	242.90	45.295	
15,500.00	6,921.15	6,930.74	6,926.90	141.09	207.68	89.95	1,090.69	2,154.86	11,099.38	10,856.39	242.99	45.678	
15,600.00	6,920.83	6,930.34	6,926.50	142.65	207.66	89.95	1,090.70	2,154.86	11,196.54	10,953.46	243.08	46.062	
15,700.00	6,920.51	6,929.93	6,926.10	144.22	207.65	89.94	1,090.71	2,154.86	11,293.75	11,050.58	243.17	46.445	
15,800.00	6,920.18	6,929.53	6,925.70	145.79	207.64	89.93	1,090.71	2,154.86	11,391.01	11,147.76	243.25	46.828	
15,900.00	6,919.86	6,929.13	6,925.30	147.35	207.63	89.92	1,090.72	2,154.86	11,488.32	11,244.97	243.34	47.211	
16,000.00	6,919.54	6,928.73	6,924.90	148.92	207.62	89.91	1,090.72	2,154.86	11,585.67	11,342.24	243.43	47.594	
16,100.00	6,919.22	6,928.33	6,924.49	150.49	207.60	89.90	1,090.73	2,154.86	11,683.06	11,439.55	243.52	47.976	
16,200.00	6,918.89	6,927.93	6,924.09	152.06	207.59	89.89	1,090.73	2,154.86	11,780.50	11,536.90	243.60	48.359	
16,300.00	6,918.57	6,927.52	6,923.69	153.63	207.58	89.88	1,090.74	2,154.86	11,877.99	11,634.30	243.69	48.742	
16,400.00	6,918.25	6,927.12	6,923.29	155.20	207.57	89.88	1,090.74	2,154.86	11,975.51	11,731.73	243.78	49.125	
16,500.00	6,917.92	6,926.72	6,922.89	156.77	207.56	89.87	1,090.75	2,154.86	12,073.08	11,829.21	243.87	49.507	
16,600.00	6,917.60	6,926.32	6,922.49	158.34	207.54	89.86	1,090.75	2,154.86	12,170.68	11,926.73	243.95	49.890	
16,700.00	6,917.28	6,925.92	6,922.09	159.92	207.53	89.85	1,090.75	2,154.86	12,268.32	12,024.28	244.04	50.272	
16,800.00	6,916.95	6,925.52	6,921.68	161.49	207.52	89.84	1,090.76	2,154.86	12,366.00	12,121.88	244.13	50.654	
16,900.00	6,916.63	6,925.11	6,921.28	163.06	207.51	89.83	1,090.76	2,154.86	12,463.72	12,219.51	244.21	51.036	
17,000.00	6,916.31	6,924.71	6,920.88	164.64	207.50	89.82	1,090.77	2,154.86	12,561.47	12,317.17	244.30	51.418	
17,100.00	6,915.98	6,924.31	6,920.48	166.21	207.48	89.82	1,090.77	2,154.86	12,659.26	12,414.88	244.39	51.800	
17,200.00	6,915.66	6,923.91	6,920.08	167.79	207.47	89.81	1,090.78	2,154.86	12,757.08	12,512.61	244.47	52.182	
17,300.00	6,915.34	6,923.51	6,919.68	169.37	207.46	89.80	1,090.78	2,154.86	12,854.94	12,610.38	244.56	52.564	
17,400.00	6,915.02	6,923.11	6,919.28	170.94	207.45	89.79	1,090.79	2,154.86	12,952.83	12,708.18	244.65	52.945	
17,500.00	6,914.69	6,922.71	6,918.87	172.52	207.44	89.78	1,090.79	2,154.86	13,050.75	12,806.02	244.73	53.327	
17,600.00	6,914.37	6,922.30	6,918.47	174.10	207.42	89.77	1,090.80	2,154.86	13,148.70	12,903.88	244.82	53.708	
17,700.00	6,914.05	6,921.90	6,918.07	175.68	207.41	89.76	1,090.80	2,154.86	13,246.68	13,001.78	244.90	54.089	
17,800.00	6,913.72	6,921.50	6,917.67	177.25	207.40	89.75	1,090.81	2,154.86	13,344.70	13,099.71	244.99	54.470	
17,900.00	6,913.40	6,921.10	6,917.27	178.83	207.39	89.75	1,090.81	2,154.86	13,442.74	13,197.66	245.08	54.851	
18,000.00	6,913.08	6,920.70	6,916.87	180.41	207.38	89.74	1,090.82	2,154.86	13,540.81	13,295.64	245.16	55.232	
18,023.75	6,913.00	6,920.60	6,916.77	180.79	207.37	89.73	1,090.82	2,154.86	13,564.11	13,318.92	245.18	55.322	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #095 - OH - OH-TD — **Offset Site Error:** 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY — **Rule Assigned:** — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	481.00	481.00	0.00	14.41	81.86	1,534.48	10,731.88	10,841.03				
100.00	100.00	581.10	581.00	0.25	17.41	81.86	1,534.48	10,731.88	10,841.03	10,823.36	17.66	613.758	
200.00	200.00	681.10	681.00	0.61	20.41	81.86	1,534.48	10,731.88	10,841.03	10,820.01	21.02	515.790	
300.00	300.00	784.87	784.72	0.97	23.52	81.85	1,536.62	10,731.88	10,841.33	10,816.84	24.49	442.755	
400.00	400.00	896.95	896.78	1.33	26.88	81.86	1,535.90	10,731.88	10,841.24	10,813.04	28.20	384.402	
500.00	500.00	1,009.06	1,008.85	1.68	30.24	81.86	1,534.31	10,731.88	10,841.04	10,809.12	31.92	339.625	
515.00	515.00	1,025.88	1,025.66	1.74	30.74	-98.09	1,534.00	10,731.88	10,841.01	10,808.53	32.48	333.819 CC	
600.00	599.98	1,081.39	1,080.98	2.03	32.40	-98.10	1,534.48	10,731.88	10,841.27	10,806.84	34.43	314.887	
700.00	699.84	1,181.24	1,180.84	2.36	35.40	-98.11	1,534.48	10,731.88	10,842.01	10,804.26	37.75	287.178	
800.00	799.45	1,284.64	1,284.19	2.71	38.49	-98.14	1,536.62	10,731.88	10,843.55	10,802.36	41.20	263.223	
900.00	898.70	1,396.15	1,395.68	3.06	41.83	-98.18	1,535.91	10,731.88	10,845.21	10,800.31	44.89	241.582	
1,000.00	997.47	1,507.43	1,506.92	3.43	45.17	-98.22	1,534.34	10,731.88	10,847.26	10,798.66	48.60	223.207 ES	
1,100.00	1,095.62	1,577.33	1,576.62	3.82	47.26	-98.24	1,534.48	10,731.88	10,850.02	10,798.94	51.08	212.413	
1,207.83	1,200.65	1,682.36	1,681.65	4.26	50.41	-98.29	1,534.48	10,731.88	10,853.62	10,798.95	54.67	198.537	
1,300.00	1,290.02	1,774.58	1,773.83	4.65	53.17	-98.42	1,536.64	10,731.88	10,857.32	10,799.49	57.82	187.767	
1,400.00	1,386.98	1,884.45	1,883.67	5.09	56.47	-98.56	1,536.03	10,731.88	10,860.95	10,799.40	61.55	176.455	
1,500.00	1,483.95	1,994.78	1,993.97	5.53	59.77	-98.69	1,534.57	10,731.88	10,864.52	10,799.22	65.30	166.380	
1,600.00	1,580.91	2,062.93	2,061.91	5.99	61.81	-98.78	1,534.48	10,731.88	10,868.29	10,800.50	67.79	160.322	
1,700.00	1,677.87	2,159.89	2,158.87	6.44	64.72	-98.90	1,534.48	10,731.88	10,872.16	10,801.01	71.15	152.808	
1,800.00	1,774.84	2,257.84	2,256.79	6.90	67.66	-99.04	1,536.66	10,731.88	10,876.44	10,801.90	74.54	145.912	
1,900.00	1,871.80	2,368.74	2,367.67	7.36	70.98	-99.18	1,536.17	10,731.88	10,880.35	10,802.03	78.32	138.914	
2,000.00	1,968.76	2,480.12	2,479.01	7.83	74.32	-99.31	1,534.81	10,731.88	10,884.19	10,802.07	82.12	132.534	
2,100.00	2,065.73	2,548.05	2,546.73	8.30	76.35	-99.39	1,534.48	10,731.88	10,888.19	10,803.56	84.62	128.666	
2,200.00	2,162.69	2,645.01	2,643.69	8.77	79.26	-99.52	1,534.48	10,731.88	10,892.33	10,804.33	87.99	123.784	
2,300.00	2,259.65	2,741.97	2,740.65	9.24	82.16	-99.64	1,534.48	10,731.88	10,896.52	10,805.15	91.37	119.260	
2,400.00	2,356.61	2,852.73	2,851.35	9.71	85.48	-99.79	1,536.29	10,731.88	10,901.09	10,805.94	95.15	114.562	
2,500.00	2,453.58	2,965.17	2,963.76	10.18	88.85	-99.93	1,535.04	10,731.88	10,905.21	10,806.21	98.99	110.161	
2,600.00	2,550.54	3,033.17	3,031.54	10.66	90.89	-100.01	1,534.48	10,731.88	10,909.42	10,807.92	101.50	107.481	
2,700.00	2,647.50	3,130.13	3,128.50	11.13	93.79	-100.13	1,534.48	10,731.88	10,913.83	10,808.95	104.88	104.063	
2,800.00	2,744.47	3,227.09	3,225.47	11.61	96.70	-100.25	1,534.48	10,731.88	10,918.29	10,810.03	108.25	100.858	
2,900.00	2,841.43	3,336.40	3,334.72	12.08	99.97	-100.40	1,536.40	10,731.88	10,923.16	10,811.16	112.00	97.527	
3,000.00	2,938.39	3,449.92	3,448.21	12.56	103.38	-100.54	1,535.26	10,731.88	10,927.55	10,811.67	115.88	94.304	
3,100.00	3,035.36	3,518.28	3,516.36	13.04	105.42	-100.62	1,534.48	10,731.88	10,931.98	10,813.59	118.40	92.334	
3,200.00	3,132.32	3,615.25	3,613.32	13.51	108.33	-100.74	1,534.48	10,731.88	10,936.65	10,814.88	121.77	89.810	
3,300.00	3,229.28	3,712.21	3,710.28	13.99	111.23	-100.87	1,534.48	10,731.88	10,941.38	10,816.22	125.15	87.424	
3,400.00	3,326.25	3,819.73	3,817.76	14.47	114.46	-101.01	1,536.49	10,731.88	10,946.55	10,817.70	128.85	84.956	
3,500.00	3,423.21	3,934.36	3,932.35	14.95	117.89	-101.15	1,535.47	10,731.88	10,951.21	10,818.46	132.76	82.490	
3,600.00	3,520.17	4,003.40	4,001.17	15.43	119.96	-101.23	1,534.48	10,731.88	10,955.86	10,820.56	135.30	80.975	
3,700.00	3,617.13	4,100.37	4,098.13	15.91	122.87	-101.35	1,534.48	10,731.88	10,960.80	10,822.12	138.68	79.037	
3,800.00	3,714.10	4,197.33	4,195.10	16.39	125.77	-101.48	1,534.48	10,731.88	10,965.78	10,823.72	142.06	77.192	
3,900.00	3,811.06	4,302.74	4,300.46	16.87	128.93	-101.62	1,536.56	10,731.88	10,971.25	10,825.56	145.69	75.305	
4,000.00	3,908.02	4,418.49	4,416.18	17.35	132.40	-101.76	1,535.67	10,731.88	10,976.19	10,826.56	149.63	73.354	
4,100.00	4,004.99	4,534.75	4,532.40	17.83	135.88	-101.89	1,533.83	10,731.88	10,981.01	10,827.42	153.59	71.495	
4,200.00	4,101.95	4,585.49	4,582.95	18.31	137.40	-101.96	1,534.48	10,731.88	10,986.25	10,830.66	155.59	70.612	
4,300.00	4,198.91	4,682.45	4,679.91	18.79	140.31	-102.08	1,534.48	10,731.88	10,991.49	10,832.53	158.97	69.144	
4,400.00	4,295.88	4,785.39	4,782.81	19.27	143.39	-102.22	1,536.61	10,731.88	10,997.26	10,834.73	162.52	67.666	
4,500.00	4,392.84	4,902.29	4,899.69	19.75	146.89	-102.36	1,535.85	10,731.88	11,002.47	10,835.97	166.50	66.080	
4,600.00	4,489.80	5,019.71	5,017.07	20.23	150.41	-102.50	1,534.12	10,731.88	11,007.56	10,837.07	170.49	64.563	
4,700.00	4,586.76	5,070.61	5,067.76	20.71	151.94	-102.57	1,534.48	10,731.88	11,013.00	10,840.50	172.49	63.847	
4,800.00	4,683.73	5,167.57	5,164.73	21.20	154.84	-102.69	1,534.48	10,731.88	11,018.50	10,842.63	175.87	62.651	
4,900.00	4,780.69	5,267.68	5,264.80	21.68	157.84	-102.82	1,536.65	10,731.88	11,024.55	10,845.21	179.34	61.471	
5,000.00	4,877.65	5,385.76	5,382.85	22.16	161.38	-102.96	1,536.01	10,731.88	11,030.05	10,846.69	183.36	60.156	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #095 - OH - OH-TD

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,100.00	4,974.62	5,504.36	5,501.42	22.64	164.94	-103.10	1,534.40	10,731.88	11,035.40	10,848.02	187.38	58.892	
5,200.00	5,071.58	5,555.73	5,552.58	23.12	166.47	-103.17	1,534.48	10,731.88	11,041.03	10,851.64	189.40	58.296	
5,300.00	5,168.54	5,652.69	5,649.54	23.60	169.38	-103.29	1,534.48	10,731.88	11,046.80	10,854.02	192.77	57.304	
5,400.00	5,265.51	5,749.65	5,746.51	24.09	172.29	-103.41	1,534.48	10,731.88	11,052.61	10,856.46	196.15	56.347	
5,500.00	5,362.47	5,868.88	5,865.67	24.57	175.86	-103.56	1,536.16	10,731.88	11,058.90	10,858.70	200.20	55.239	
5,600.00	5,459.43	5,988.69	5,985.45	25.05	179.45	-103.70	1,534.67	10,731.88	11,064.53	10,860.26	204.26	54.168	
5,700.00	5,556.40	6,040.85	6,037.40	25.53	181.01	-103.77	1,534.48	10,731.88	11,070.35	10,864.06	206.30	53.662	
5,800.00	5,653.36	6,137.81	6,134.36	26.01	183.92	-103.89	1,534.48	10,731.88	11,076.37	10,866.70	209.68	52.826	
5,900.00	5,750.32	6,234.77	6,231.32	26.50	186.82	-104.00	1,534.48	10,731.88	11,082.44	10,869.38	213.05	52.017	
6,000.00	5,847.28	6,300.00	6,296.37	26.98	188.78	-104.08	1,534.48	10,731.88	11,088.60	10,873.13	215.48	51.461	
6,100.00	5,944.25	6,300.00	6,296.37	27.46	188.78	-104.08	1,534.48	10,731.88	11,095.47	10,879.55	215.93	51.385	
6,200.00	6,041.21	6,300.00	6,296.37	27.94	188.78	-104.08	1,534.48	10,731.88	11,103.24	10,886.88	216.36	51.318	
6,300.00	6,138.17	6,300.00	6,296.37	28.43	188.78	-104.08	1,534.48	10,731.88	11,111.90	10,895.12	216.78	51.259	
6,400.00	6,235.14	6,300.00	6,296.37	28.91	188.78	-104.08	1,534.48	10,731.88	11,121.46	10,904.28	217.18	51.208	
6,496.84	6,329.04	6,300.00	6,296.37	29.38	188.78	-104.08	1,534.48	10,731.88	11,131.56	10,914.00	217.55	51.167	
6,500.00	6,332.10	6,300.00	6,296.37	29.39	188.78	-105.22	1,534.48	10,731.88	11,131.91	10,914.34	217.56	51.166	
6,550.00	6,380.52	6,300.00	6,296.37	29.63	188.78	-122.59	1,534.48	10,731.88	11,139.59	10,921.84	217.75	51.158 SF	
6,600.00	6,428.63	6,300.00	6,296.37	29.87	188.78	-137.22	1,534.48	10,731.88	11,151.20	10,933.29	217.92	51.172	
6,650.00	6,476.14	6,300.00	6,296.37	30.10	188.78	-148.41	1,534.48	10,731.88	11,166.68	10,948.61	218.07	51.206	
6,700.00	6,522.73	6,300.00	6,296.37	30.33	188.78	-156.78	1,534.48	10,731.88	11,185.91	10,967.70	218.21	51.262	
6,750.00	6,568.14	6,300.00	6,296.37	30.54	188.78	-163.16	1,534.48	10,731.88	11,208.75	10,990.42	218.33	51.338	
6,800.00	6,612.08	6,300.00	6,296.37	30.75	188.78	-168.23	1,534.48	10,731.88	11,235.04	11,016.60	218.44	51.434	
6,850.00	6,654.28	6,300.00	6,296.37	30.95	188.78	-172.47	1,534.48	10,731.88	11,264.59	11,046.07	218.52	51.549	
6,900.00	6,694.47	6,300.00	6,296.37	31.15	188.78	-176.23	1,534.48	10,731.88	11,297.20	11,078.61	218.59	51.681	
6,950.00	6,732.42	6,300.00	6,296.37	31.33	188.78	-179.76	1,534.48	10,731.88	11,332.64	11,113.99	218.65	51.831	
7,000.00	6,767.89	6,300.00	6,296.37	31.51	188.78	176.69	1,534.48	10,731.88	11,370.66	11,151.98	218.68	51.996	
7,050.00	6,800.65	6,300.00	6,296.37	31.68	188.78	172.91	1,534.48	10,731.88	11,411.01	11,192.31	218.70	52.176	
7,100.00	6,830.51	6,300.00	6,296.37	31.85	188.78	168.61	1,534.48	10,731.88	11,453.41	11,234.71	218.71	52.369	
7,150.00	6,857.28	6,300.00	6,296.37	32.01	188.78	163.42	1,534.48	10,731.88	11,497.59	11,278.89	218.70	52.573	
7,200.00	6,880.80	6,300.00	6,296.37	32.17	188.78	156.83	1,534.48	10,731.88	11,543.25	11,324.57	218.67	52.788	
7,250.00	6,900.92	6,300.00	6,296.37	32.33	188.78	148.06	1,534.48	10,731.88	11,590.09	11,371.45	218.64	53.011	
7,300.00	6,917.52	6,300.00	6,296.37	32.49	188.78	136.17	1,534.48	10,731.88	11,637.81	11,419.22	218.59	53.241	
7,350.00	6,930.50	6,300.00	6,296.37	32.66	188.78	120.48	1,534.48	10,731.88	11,686.11	11,467.58	218.53	53.475	
7,400.00	6,939.77	6,300.00	6,296.37	32.83	188.78	102.01	1,534.48	10,731.88	11,734.69	11,516.22	218.47	53.714	
7,450.00	6,945.28	6,300.00	6,296.37	33.01	188.78	84.01	1,534.48	10,731.88	11,783.25	11,564.85	218.40	53.953	
7,499.66	6,947.00	6,300.00	6,296.37	33.19	188.78	69.47	1,534.48	10,731.88	11,831.15	11,612.83	218.32	54.191	
7,600.00	6,946.68	6,300.00	6,296.37	33.61	188.78	69.47	1,534.48	10,731.88	11,927.46	11,709.28	218.18	54.668	
7,700.00	6,946.35	6,300.00	6,296.37	34.10	188.78	69.47	1,534.48	10,731.88	12,023.52	11,805.47	218.04	55.142	
7,800.00	6,946.03	6,300.00	6,296.37	34.66	188.78	69.47	1,534.48	10,731.88	12,119.63	11,901.71	217.92	55.616	
7,900.00	6,945.71	6,300.00	6,296.37	35.29	188.78	69.47	1,534.48	10,731.88	12,215.81	11,998.01	217.80	56.089	
8,000.00	6,945.38	6,300.00	6,296.37	35.99	188.78	69.47	1,534.48	10,731.88	12,312.05	12,094.37	217.68	56.560	
8,100.00	6,945.06	6,300.00	6,296.37	36.74	188.78	69.47	1,534.48	10,731.88	12,408.35	12,190.77	217.57	57.031	
8,200.00	6,944.74	6,300.00	6,296.37	37.56	188.78	69.47	1,534.48	10,731.88	12,504.70	12,287.23	217.47	57.501	
8,300.00	6,944.41	6,300.00	6,296.37	38.43	188.78	69.47	1,534.48	10,731.88	12,601.12	12,383.74	217.38	57.969	
8,400.00	6,944.09	6,300.00	6,296.37	39.35	188.78	69.47	1,534.48	10,731.88	12,697.58	12,480.30	217.29	58.437	
8,500.00	6,943.77	6,300.00	6,296.37	40.31	188.78	69.47	1,534.48	10,731.88	12,794.11	12,576.90	217.20	58.904	
8,600.00	6,943.45	6,300.00	6,296.37	41.32	188.78	69.47	1,534.48	10,731.88	12,890.68	12,673.56	217.13	59.369	
8,700.00	6,943.12	6,300.00	6,296.37	42.37	188.78	69.47	1,534.48	10,731.88	12,987.31	12,770.25	217.06	59.834	
8,800.00	6,942.80	6,300.00	6,296.37	43.45	188.78	69.47	1,534.48	10,731.88	13,083.99	12,867.00	216.99	60.297	
8,900.00	6,942.48	6,300.00	6,296.37	44.57	188.78	69.47	1,534.48	10,731.88	13,180.72	12,963.79	216.93	60.760	
9,000.00	6,942.15	6,300.00	6,296.37	45.71	188.78	69.47	1,534.48	10,731.88	13,277.49	13,060.62	216.88	61.222	
9,100.00	6,941.83	6,300.00	6,296.37	46.89	188.78	69.47	1,534.48	10,731.88	13,374.32	13,157.49	216.83	61.682	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #095 - OH - OH-TD

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,200.00	6,941.51	6,300.00	6,296.37	48.09	188.78	69.47	1,534.48	10,731.88	13,471.19	13,254.41	216.78	62.142	
9,300.00	6,941.18	6,300.00	6,296.37	49.31	188.78	69.47	1,534.48	10,731.88	13,568.10	13,351.36	216.74	62.600	
9,400.00	6,940.86	6,300.00	6,296.37	50.56	188.78	69.47	1,534.48	10,731.88	13,665.06	13,448.36	216.71	63.058	
9,500.00	6,940.54	6,300.00	6,296.37	51.82	188.78	69.47	1,534.48	10,731.88	13,762.07	13,545.39	216.68	63.514	
9,600.00	6,940.21	6,300.00	6,296.37	53.11	188.78	69.47	1,534.48	10,731.88	13,859.11	13,642.46	216.65	63.970	
9,700.00	6,939.89	6,300.00	6,296.37	54.41	188.78	69.47	1,534.48	10,731.88	13,956.20	13,739.57	216.63	64.424	
9,800.00	6,939.57	6,300.00	6,296.37	55.73	188.78	69.47	1,534.48	10,731.88	14,053.33	13,836.72	216.61	64.878	
9,900.00	6,939.25	6,300.00	6,296.37	57.07	188.78	69.47	1,534.48	10,731.88	14,150.50	13,933.90	216.60	65.330	
10,000.00	6,938.92	6,300.00	6,296.37	58.41	188.78	69.47	1,534.48	10,731.88	14,247.71	14,031.12	216.59	65.782	
10,100.00	6,938.60	6,300.00	6,296.37	59.77	188.78	69.47	1,534.48	10,731.88	14,344.95	14,128.37	216.59	66.232	
10,200.00	6,938.28	6,300.00	6,296.37	61.15	188.78	69.47	1,534.48	10,731.88	14,442.24	14,225.65	216.58	66.682	
10,300.00	6,937.95	6,300.00	6,296.37	62.53	188.78	69.47	1,534.48	10,731.88	14,539.56	14,322.97	216.59	67.131	
10,400.00	6,937.63	6,300.00	6,296.37	63.92	188.78	69.47	1,534.48	10,731.88	14,636.92	14,420.32	216.59	67.578	
10,500.00	6,937.31	6,300.00	6,296.37	65.33	188.78	69.47	1,534.48	10,731.88	14,734.31	14,517.71	216.60	68.025	
10,600.00	6,936.98	6,300.00	6,296.37	66.74	188.78	69.47	1,534.48	10,731.88	14,831.74	14,615.12	216.62	68.470	
10,700.00	6,936.66	6,300.00	6,296.37	68.16	188.78	69.47	1,534.48	10,731.88	14,929.20	14,712.56	216.63	68.915	
10,800.00	6,936.34	6,300.00	6,296.37	69.59	188.78	69.47	1,534.48	10,731.88	15,026.69	14,810.04	216.65	69.359	
10,900.00	6,936.01	6,300.00	6,296.37	71.03	188.78	69.47	1,534.48	10,731.88	15,124.22	14,907.54	216.67	69.802	
11,000.00	6,935.69	6,300.00	6,296.37	72.47	188.78	69.47	1,534.48	10,731.88	15,221.78	15,005.08	216.70	70.244	
11,100.00	6,935.37	6,300.00	6,296.37	73.92	188.78	69.47	1,534.48	10,731.88	15,319.37	15,102.64	216.73	70.685	
11,200.00	6,935.05	6,300.00	6,296.37	75.38	188.78	69.47	1,534.48	10,731.88	15,416.99	15,200.23	216.76	71.125	
11,300.00	6,934.72	6,300.00	6,296.37	76.84	188.78	69.47	1,534.48	10,731.88	15,514.64	15,297.85	216.79	71.564	
11,400.00	6,934.40	6,300.00	6,296.37	78.31	188.78	69.47	1,534.48	10,731.88	15,612.32	15,395.49	216.83	72.002	
11,500.00	6,934.08	6,300.00	6,296.37	79.79	188.78	69.47	1,534.48	10,731.88	15,710.03	15,493.16	216.87	72.439	
11,600.00	6,933.75	6,300.00	6,296.37	81.27	188.78	69.47	1,534.48	10,731.88	15,807.77	15,590.86	216.91	72.876	
11,700.00	6,933.43	6,300.00	6,296.37	82.75	188.78	69.47	1,534.48	10,731.88	15,905.54	15,688.58	216.96	73.312	
11,800.00	6,933.11	6,300.00	6,296.37	84.24	188.78	69.47	1,534.48	10,731.88	16,003.34	15,786.33	217.01	73.746	
11,900.00	6,932.78	6,300.00	6,296.37	85.73	188.78	69.47	1,534.48	10,731.88	16,101.16	15,884.10	217.05	74.180	
12,000.00	6,932.46	6,300.00	6,296.37	87.23	188.78	69.47	1,534.48	10,731.88	16,199.01	15,981.90	217.11	74.613	
12,100.00	6,932.14	6,300.00	6,296.37	88.72	188.78	69.47	1,534.48	10,731.88	16,296.88	16,079.72	217.16	75.046	
12,200.00	6,931.81	6,300.00	6,296.37	90.23	188.78	69.47	1,534.48	10,731.88	16,394.78	16,177.57	217.22	75.477	
12,300.00	6,931.49	6,300.00	6,296.37	91.74	188.78	69.47	1,534.48	10,731.88	16,492.71	16,275.43	217.27	75.907	
12,400.00	6,931.17	6,300.00	6,296.37	93.25	188.78	69.47	1,534.48	10,731.88	16,590.66	16,373.33	217.33	76.337	
12,500.00	6,930.85	6,300.00	6,296.37	94.76	188.78	69.47	1,534.48	10,731.88	16,688.63	16,471.24	217.40	76.766	
12,600.00	6,930.52	6,300.00	6,296.37	96.27	188.78	69.47	1,534.48	10,731.88	16,786.63	16,569.17	217.46	77.194	
12,700.00	6,930.20	6,300.00	6,296.37	97.79	188.78	69.47	1,534.48	10,731.88	16,884.65	16,667.13	217.53	77.622	
12,800.00	6,929.88	6,300.00	6,296.37	99.32	188.78	69.47	1,534.48	10,731.88	16,982.70	16,765.11	217.59	78.048	
12,900.00	6,929.55	6,300.00	6,296.37	100.84	188.78	69.47	1,534.48	10,731.88	17,080.77	16,863.11	217.66	78.474	
13,000.00	6,929.23	6,300.00	6,296.37	102.37	188.78	69.47	1,534.48	10,731.88	17,178.86	16,961.13	217.73	78.899	
13,100.00	6,928.91	6,300.00	6,296.37	103.89	188.78	69.47	1,534.48	10,731.88	17,276.97	17,059.17	217.81	79.323	
13,200.00	6,928.58	6,300.00	6,296.37	105.43	188.78	69.47	1,534.48	10,731.88	17,375.10	17,157.22	217.88	79.747	
13,300.00	6,928.26	6,300.00	6,296.37	106.96	188.78	69.47	1,534.48	10,731.88	17,473.26	17,255.30	217.95	80.169	
13,400.00	6,927.94	6,300.00	6,296.37	108.49	188.78	69.47	1,534.48	10,731.88	17,571.43	17,353.40	218.03	80.591	
13,500.00	6,927.61	6,300.00	6,296.37	110.03	188.78	69.47	1,534.48	10,731.88	17,669.63	17,451.52	218.11	81.012	
13,600.00	6,927.29	6,300.00	6,296.37	111.57	188.78	69.47	1,534.48	10,731.88	17,767.85	17,549.66	218.19	81.433	
13,700.00	6,926.97	6,300.00	6,296.37	113.11	188.78	69.47	1,534.48	10,731.88	17,866.08	17,647.81	218.27	81.853	
13,800.00	6,926.65	6,300.00	6,296.37	114.65	188.78	69.47	1,534.48	10,731.88	17,964.34	17,745.98	218.35	82.272	
13,900.00	6,926.32	6,300.00	6,296.37	116.20	188.78	69.47	1,534.48	10,731.88	18,062.61	17,844.18	218.44	82.690	
14,000.00	6,926.00	6,300.00	6,296.37	117.75	188.78	69.47	1,534.48	10,731.88	18,160.91	17,942.38	218.52	83.108	
14,100.00	6,925.68	6,300.00	6,296.37	119.29	188.78	69.47	1,534.48	10,731.88	18,259.22	18,040.61	218.61	83.525	
14,200.00	6,925.35	6,300.00	6,296.37	120.84	188.78	69.47	1,534.48	10,731.88	18,357.55	18,138.85	218.70	83.941	
14,300.00	6,925.03	6,300.00	6,296.37	122.39	188.78	69.47	1,534.48	10,731.88	18,455.90	18,237.11	218.78	84.357	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #095 - OH - OH-TD

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Rule Assigned:

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,400.00	6,924.71	6,300.00	6,296.37	123.94	188.78	69.47	1,534.48	10,731.88	18,554.26	18,335.39	218.87	84.772	
14,500.00	6,924.38	6,300.00	6,296.37	125.50	188.78	69.47	1,534.48	10,731.88	18,652.65	18,433.68	218.96	85.186	
14,600.00	6,924.06	6,300.00	6,296.37	127.05	188.78	69.47	1,534.48	10,731.88	18,751.05	18,531.99	219.06	85.600	
14,700.00	6,923.74	6,300.00	6,296.37	128.61	188.78	69.47	1,534.48	10,731.88	18,849.46	18,630.31	219.15	86.013	
14,800.00	6,923.42	6,300.00	6,296.37	130.16	188.78	69.47	1,534.48	10,731.88	18,947.90	18,728.65	219.24	86.425	
14,900.00	6,923.09	6,300.00	6,296.37	131.72	188.78	69.47	1,534.48	10,731.88	19,046.35	18,827.01	219.34	86.836	
15,000.00	6,922.77	6,300.00	6,296.37	133.28	188.78	69.47	1,534.48	10,731.88	19,144.81	18,925.38	219.43	87.247	
15,100.00	6,922.45	6,300.00	6,296.37	134.84	188.78	69.47	1,534.48	10,731.88	19,243.29	19,023.77	219.53	87.658	
15,200.00	6,922.12	6,300.00	6,296.37	136.40	188.78	69.47	1,534.48	10,731.88	19,341.79	19,122.17	219.62	88.068	
15,300.00	6,921.80	6,300.00	6,296.37	137.96	188.78	69.47	1,534.48	10,731.88	19,440.30	19,220.58	219.72	88.477	
15,400.00	6,921.48	6,300.00	6,296.37	139.53	188.78	69.47	1,534.48	10,731.88	19,538.83	19,319.01	219.82	88.885	
15,500.00	6,921.15	6,300.00	6,296.37	141.09	188.78	69.47	1,534.48	10,731.88	19,637.38	19,417.45	219.92	89.293	
15,600.00	6,920.83	6,300.00	6,296.37	142.65	188.78	69.47	1,534.48	10,731.88	19,735.93	19,515.91	220.02	89.700	
15,700.00	6,920.51	6,300.00	6,296.37	144.22	188.78	69.47	1,534.48	10,731.88	19,834.50	19,614.38	220.12	90.107	
15,800.00	6,920.18	6,300.00	6,296.37	145.79	188.78	69.47	1,534.48	10,731.88	19,933.09	19,712.87	220.22	90.513	
15,900.00	6,919.86	6,300.00	6,296.37	147.35	188.78	69.47	1,534.48	10,731.88	20,031.69	19,811.36	220.33	90.918	
16,000.00	6,919.54	6,300.00	6,296.37	148.92	188.78	69.47	1,534.48	10,731.88	20,130.30	19,909.88	220.43	91.323	
16,100.00	6,919.22	6,300.00	6,296.37	150.49	188.78	69.47	1,534.48	10,731.88	20,228.93	20,008.40	220.53	91.727	
16,200.00	6,918.89	6,300.00	6,296.37	152.06	188.78	69.47	1,534.48	10,731.88	20,327.57	20,106.94	220.64	92.131	
16,300.00	6,918.57	6,300.00	6,296.37	153.63	188.78	69.47	1,534.48	10,731.88	20,426.23	20,205.48	220.74	92.534	
16,400.00	6,918.25	6,300.00	6,296.37	155.20	188.78	69.47	1,534.48	10,731.88	20,524.89	20,304.05	220.85	92.937	
16,500.00	6,917.92	6,300.00	6,296.37	156.77	188.78	69.47	1,534.48	10,731.88	20,623.57	20,402.62	220.95	93.339	
16,600.00	6,917.60	6,300.00	6,296.37	158.34	188.78	69.47	1,534.48	10,731.88	20,722.27	20,501.21	221.06	93.740	
16,700.00	6,917.28	6,300.00	6,296.37	159.92	188.78	69.47	1,534.48	10,731.88	20,820.97	20,599.80	221.17	94.141	
16,800.00	6,916.95	6,300.00	6,296.37	161.49	188.78	69.47	1,534.48	10,731.88	20,919.69	20,698.41	221.28	94.541	
16,900.00	6,916.63	6,300.00	6,296.37	163.06	188.78	69.47	1,534.48	10,731.88	21,018.42	20,797.03	221.38	94.941	
17,000.00	6,916.31	6,300.00	6,296.37	164.64	188.78	69.47	1,534.48	10,731.88	21,117.16	20,895.67	221.49	95.340	
17,100.00	6,915.98	6,300.00	6,296.37	166.21	188.78	69.47	1,534.48	10,731.88	21,215.91	20,994.31	221.60	95.738	
17,200.00	6,915.66	6,300.00	6,296.37	167.79	188.78	69.47	1,534.48	10,731.88	21,314.68	21,092.97	221.71	96.136	
17,300.00	6,915.34	6,300.00	6,296.37	169.37	188.78	69.47	1,534.48	10,731.88	21,413.46	21,191.63	221.82	96.534	
17,400.00	6,915.02	6,300.00	6,296.37	170.94	188.78	69.47	1,534.48	10,731.88	21,512.24	21,290.31	221.93	96.931	
17,500.00	6,914.69	6,300.00	6,296.37	172.52	188.78	69.47	1,534.48	10,731.88	21,611.04	21,389.00	222.05	97.327	
17,600.00	6,914.37	6,300.00	6,296.37	174.10	188.78	69.47	1,534.48	10,731.88	21,709.85	21,487.70	222.16	97.723	
17,700.00	6,914.05	6,300.00	6,296.37	175.68	188.78	69.47	1,534.48	10,731.88	21,808.67	21,586.40	222.27	98.118	
17,800.00	6,913.72	6,300.00	6,296.37	177.25	188.78	69.47	1,534.48	10,731.88	21,907.50	21,685.12	222.38	98.513	
17,900.00	6,913.40	6,300.00	6,296.37	178.83	188.78	69.47	1,534.48	10,731.88	22,006.35	21,783.85	222.49	98.907	
18,000.00	6,913.08	6,300.00	6,296.37	180.41	188.78	69.47	1,534.48	10,731.88	22,105.20	21,882.59	222.61	99.301	
18,023.75	6,913.00	6,300.00	6,296.37	180.79	188.78	69.47	1,534.48	10,731.88	22,128.68	21,906.05	222.63	99.394	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #108 - OH - OH-INC

Offset Site Error: 0.00 usft

Survey Program: 107-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Rule Assigned: Warning
0.00	0.00	0.00	0.00	0.00	0.00	-24.16	815.88	-366.00	895.61				
100.00	100.00	50.00	50.00	0.25	0.99	-24.16	815.88	-366.00	894.22	892.98	1.24	723.467	
200.00	200.00	150.00	150.00	0.61	2.90	-24.16	815.88	-366.00	894.22	890.71	3.51	254.909	
300.00	300.00	250.01	250.00	0.97	4.74	-24.16	815.88	-366.00	894.22	888.51	5.71	156.685	
400.00	400.00	350.70	350.69	1.33	6.60	-24.16	815.97	-366.00	894.29	886.37	7.92	112.856	
500.00	500.00	450.02	450.00	1.68	8.48	-24.16	815.88	-366.00	894.22	884.05	10.17	87.941 CC	
600.00	599.98	550.00	549.98	2.03	10.45	155.92	815.88	-366.00	895.81	883.33	12.47	71.809 ES	
700.00	699.84	649.85	649.84	2.36	12.41	156.01	815.88	-366.00	900.59	885.82	14.77	60.965	
800.00	799.45	751.50	751.47	2.71	14.41	156.20	816.59	-366.00	909.22	892.10	17.11	53.130	
900.00	898.70	853.02	852.99	3.06	16.40	156.41	816.21	-366.00	920.05	900.59	19.46	47.284	
1,000.00	997.47	947.52	947.47	3.43	18.24	156.66	815.88	-366.00	934.11	912.46	21.65	43.147	
1,100.00	1,095.62	1,045.68	1,045.62	3.82	20.11	156.97	815.88	-366.00	951.70	927.82	23.88	39.852	
1,207.83	1,200.65	1,151.79	1,151.73	4.26	22.13	157.37	816.53	-366.00	974.87	948.58	26.30	37.070	
1,300.00	1,290.02	1,243.93	1,243.86	4.65	23.88	157.88	816.29	-366.00	995.59	967.19	28.39	35.063	
1,400.00	1,386.98	1,337.07	1,336.98	5.09	25.63	158.37	815.88	-366.00	1,018.00	987.48	30.52	33.360	
1,500.00	1,483.95	1,434.03	1,433.95	5.53	27.36	158.86	815.88	-366.00	1,040.86	1,008.24	32.62	31.911	
1,600.00	1,580.91	1,532.61	1,532.52	5.99	29.12	159.35	816.18	-366.00	1,064.07	1,029.32	34.75	30.620	
1,700.00	1,677.87	1,632.47	1,632.39	6.44	30.90	159.81	815.88	-366.00	1,086.80	1,049.89	36.91	29.444	
1,800.00	1,774.84	1,724.93	1,724.84	6.90	32.60	160.22	815.88	-366.00	1,109.86	1,070.87	39.00	28.461	
1,900.00	1,871.80	1,821.89	1,821.80	7.36	34.39	160.64	815.88	-366.00	1,132.99	1,091.82	41.17	27.521	
2,000.00	1,968.76	1,919.61	1,919.52	7.83	36.20	161.05	816.10	-366.00	1,156.37	1,113.01	43.35	26.673	
2,100.00	2,065.73	2,017.68	2,017.59	8.30	38.01	161.43	815.98	-366.00	1,179.49	1,133.94	45.55	25.895	
2,200.00	2,162.69	2,112.80	2,112.69	8.77	39.84	161.80	815.88	-366.00	1,202.67	1,154.91	47.76	25.181	
2,300.00	2,259.65	2,210.69	2,210.58	9.24	41.82	162.16	816.29	-366.00	1,226.38	1,176.26	50.12	24.467	
2,400.00	2,356.61	2,314.13	2,314.02	9.71	43.91	162.52	815.93	-366.00	1,249.43	1,196.82	52.60	23.751	
2,500.00	2,453.58	2,403.72	2,403.58	10.18	45.77	162.83	815.88	-366.00	1,272.77	1,217.92	54.85	23.204	
2,600.00	2,550.54	2,501.13	2,500.98	10.66	47.81	163.15	816.64	-366.00	1,296.94	1,239.67	57.27	22.645	
2,700.00	2,647.50	2,604.75	2,604.60	11.13	49.97	163.48	816.33	-366.00	1,320.15	1,260.32	59.83	22.065	
2,800.00	2,744.47	2,694.66	2,694.47	11.61	51.82	163.75	815.88	-366.00	1,343.22	1,281.16	62.05	21.646	
2,900.00	2,841.43	2,791.62	2,791.43	12.08	53.73	164.03	815.88	-366.00	1,366.77	1,302.42	64.35	21.240	
3,000.00	2,938.39	2,888.58	2,888.39	12.56	55.64	164.31	815.88	-366.00	1,390.35	1,323.71	66.64	20.863	
3,100.00	3,035.36	2,985.55	2,985.36	13.04	57.54	164.58	815.88	-366.00	1,413.97	1,345.03	68.94	20.511	
3,200.00	3,132.32	3,085.79	3,085.58	13.51	59.52	164.86	817.22	-366.00	1,438.90	1,367.60	71.30	20.181	
3,300.00	3,229.28	3,186.61	3,186.39	13.99	61.50	165.11	816.85	-366.00	1,462.23	1,388.55	73.67	19.847	
3,400.00	3,326.25	3,287.56	3,287.34	14.47	63.49	165.36	816.21	-366.00	1,485.32	1,409.27	76.05	19.530	
3,500.00	3,423.21	3,373.46	3,373.21	14.95	65.18	165.56	815.88	-366.00	1,508.69	1,430.57	78.12	19.313	
3,600.00	3,520.17	3,470.42	3,470.17	15.43	67.09	165.79	815.88	-366.00	1,532.43	1,452.01	80.41	19.057	
3,700.00	3,617.13	3,567.38	3,567.13	15.91	69.00	166.01	815.88	-366.00	1,556.19	1,473.48	82.71	18.815	
3,800.00	3,714.10	3,664.35	3,664.10	16.39	70.91	166.23	815.88	-366.00	1,579.97	1,494.97	85.00	18.587	
3,900.00	3,811.06	3,761.31	3,761.06	16.87	72.81	166.43	815.88	-366.00	1,603.78	1,516.48	87.30	18.371	
4,000.00	3,908.02	3,858.27	3,858.02	17.35	74.72	166.64	815.88	-366.00	1,627.60	1,538.01	89.59	18.166	
4,100.00	4,004.99	3,956.25	3,956.00	17.83	76.65	166.84	817.06	-366.00	1,652.59	1,560.68	91.91	17.980	
4,200.00	4,101.95	4,054.51	4,054.25	18.31	78.59	167.03	816.96	-366.00	1,676.35	1,582.12	94.24	17.789	
4,300.00	4,198.91	4,152.81	4,152.55	18.79	80.52	167.22	816.78	-366.00	1,700.06	1,603.50	96.56	17.606	
4,400.00	4,295.88	4,251.14	4,250.88	19.27	82.46	167.40	816.53	-366.00	1,723.71	1,624.83	98.88	17.432	
4,500.00	4,392.84	4,349.52	4,349.26	19.75	84.40	167.57	816.20	-366.00	1,747.30	1,646.09	101.21	17.264	
4,600.00	4,489.80	4,440.15	4,439.80	20.23	86.18	167.73	815.88	-366.00	1,770.91	1,667.54	103.37	17.131	
4,700.00	4,586.76	4,537.11	4,536.76	20.71	88.09	167.90	815.88	-366.00	1,794.85	1,689.18	105.67	16.986	
4,800.00	4,683.73	4,634.94	4,634.59	21.20	90.02	168.07	816.74	-366.00	1,819.64	1,711.65	107.98	16.851	
4,900.00	4,780.69	4,740.37	4,740.01	21.68	92.09	168.23	816.44	-366.00	1,843.34	1,732.88	110.46	16.688	
5,000.00	4,877.65	4,828.04	4,827.65	22.16	93.81	168.37	815.88	-366.00	1,866.74	1,754.19	112.55	16.585	
5,100.00	4,974.62	4,925.00	4,924.62	22.64	95.66	168.52	815.88	-366.00	1,890.73	1,775.95	114.79	16.472	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #108 - OH - OH-INC

Offset Site Error: 0.00 usft

Survey Program: 107-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,200.00	5,071.58	5,021.96	5,021.58	23.12	97.50	168.66	815.88	-366.00	1,914.73	1,797.72	117.02	16.363	
5,300.00	5,168.54	5,118.92	5,118.54	23.60	99.35	168.81	815.88	-366.00	1,938.75	1,819.50	119.25	16.258	
5,400.00	5,265.51	5,215.89	5,215.51	24.09	101.19	168.94	815.88	-366.00	1,962.77	1,841.29	121.48	16.157	
5,500.00	5,362.47	5,312.85	5,312.47	24.57	103.04	169.08	815.88	-366.00	1,986.81	1,863.09	123.71	16.060	
5,600.00	5,459.43	5,410.07	5,409.69	25.05	104.89	169.22	817.13	-366.00	2,012.08	1,886.13	125.95	15.975	
5,700.00	5,556.40	5,508.55	5,508.16	25.53	106.76	169.35	817.08	-366.00	2,036.09	1,907.87	128.22	15.880	
5,800.00	5,653.36	5,607.06	5,606.67	26.01	108.63	169.48	816.96	-366.00	2,060.03	1,929.55	130.48	15.788	
5,900.00	5,750.32	5,705.61	5,705.22	26.50	110.51	169.60	816.76	-366.00	2,083.91	1,951.17	132.75	15.698	
6,000.00	5,847.28	5,804.20	5,803.81	26.98	112.39	169.72	816.49	-366.00	2,107.73	1,972.72	135.01	15.611	
6,100.00	5,944.25	5,902.83	5,902.43	27.46	114.26	169.84	816.14	-366.00	2,131.49	1,994.21	137.28	15.526	
6,200.00	6,041.21	5,991.66	5,991.21	27.94	115.97	169.94	815.88	-366.00	2,155.32	2,015.96	139.36	15.466	
6,300.00	6,138.17	6,088.62	6,088.17	28.43	117.88	170.05	815.88	-366.00	2,179.43	2,037.77	141.66	15.385	
6,400.00	6,235.14	6,185.59	6,185.14	28.91	119.79	170.16	815.88	-366.00	2,203.54	2,059.59	143.96	15.307	
6,496.84	6,329.04	6,279.49	6,279.04	29.38	121.64	170.27	815.88	-366.00	2,226.90	2,080.72	146.18	15.234	
6,500.00	6,332.10	6,282.55	6,282.10	29.39	121.70	169.07	815.88	-366.00	2,227.66	2,081.41	146.25	15.232	
6,550.00	6,380.52	6,330.97	6,330.52	29.63	122.65	150.92	815.88	-366.00	2,239.34	2,091.94	147.40	15.192	
6,600.00	6,428.63	6,379.09	6,378.63	29.87	123.60	135.78	815.88	-366.00	2,250.31	2,101.77	148.54	15.150	
6,650.00	6,476.14	6,426.59	6,426.14	30.10	124.53	124.35	815.88	-366.00	2,260.54	2,110.88	149.66	15.104	
6,700.00	6,522.73	6,473.18	6,472.73	30.33	125.45	116.01	815.88	-366.00	2,270.03	2,119.26	150.77	15.057	
6,750.00	6,568.14	6,518.59	6,518.14	30.54	126.35	109.93	815.88	-366.00	2,278.79	2,126.94	151.84	15.008	
6,800.00	6,612.08	6,562.53	6,562.08	30.75	127.21	105.45	815.88	-366.00	2,286.85	2,133.97	152.88	14.959	
6,850.00	6,654.28	6,604.73	6,604.28	30.95	128.04	102.10	815.88	-366.00	2,294.26	2,140.38	153.88	14.910	
6,900.00	6,694.47	6,644.92	6,644.47	31.15	128.83	99.58	815.88	-366.00	2,301.10	2,146.26	154.83	14.862	
6,950.00	6,732.42	6,682.87	6,682.42	31.33	129.58	97.65	815.88	-366.00	2,307.42	2,151.69	155.74	14.816	
7,000.00	6,767.89	6,718.34	6,717.89	31.51	130.28	96.18	815.88	-366.00	2,313.32	2,156.73	156.59	14.773	
7,050.00	6,800.65	6,751.10	6,750.65	31.68	130.92	95.03	815.88	-366.00	2,318.88	2,161.50	157.39	14.734	
7,100.00	6,830.51	6,780.96	6,780.51	31.85	131.51	94.13	815.88	-366.00	2,324.19	2,166.07	158.12	14.699	
7,150.00	6,857.28	6,807.73	6,807.28	32.01	132.04	93.41	815.88	-366.00	2,329.32	2,170.53	158.79	14.669	
7,200.00	6,880.80	6,831.25	6,830.80	32.17	132.50	92.81	815.88	-366.00	2,334.37	2,174.97	159.40	14.645	
7,250.00	6,900.92	6,851.37	6,850.92	32.33	132.90	92.29	815.88	-366.00	2,339.39	2,179.45	159.94	14.627	
7,300.00	6,917.52	6,867.97	6,867.52	32.49	133.23	91.82	815.88	-366.00	2,344.45	2,184.04	160.41	14.616	
7,350.00	6,930.50	6,880.95	6,880.50	32.66	133.48	91.37	815.88	-366.00	2,349.58	2,188.78	160.80	14.612 SF	
7,400.00	6,939.77	6,890.22	6,889.77	32.83	133.66	90.92	815.88	-366.00	2,354.83	2,193.71	161.12	14.615	
7,450.00	6,945.28	6,895.81	6,895.34	33.01	133.77	90.45	818.92	-366.00	2,363.22	2,201.85	161.37	14.645	
7,499.66	6,947.00	6,897.55	6,897.08	33.19	133.81	89.98	818.92	-366.00	2,368.65	2,207.12	161.53	14.664	
7,600.00	6,946.68	6,897.22	6,896.75	33.61	133.80	89.97	818.92	-366.00	2,381.82	2,220.02	161.80	14.721	
7,700.00	6,946.35	6,896.90	6,896.42	34.10	133.79	89.97	818.92	-366.00	2,399.05	2,236.97	162.08	14.801	
7,800.00	6,946.03	6,896.57	6,896.10	34.66	133.79	89.96	818.92	-366.00	2,420.29	2,257.91	162.39	14.905	
7,900.00	6,945.71	6,896.24	6,895.77	35.29	133.78	89.95	818.92	-366.00	2,445.44	2,282.74	162.70	15.031	
8,000.00	6,945.38	6,895.91	6,895.44	35.99	133.78	89.94	818.92	-366.00	2,474.38	2,311.36	163.02	15.179	
8,100.00	6,945.06	6,895.58	6,895.11	36.74	133.77	89.93	818.92	-366.00	2,506.98	2,343.64	163.34	15.348	
8,200.00	6,944.74	6,895.25	6,894.78	37.56	133.76	89.93	818.92	-366.00	2,543.09	2,379.43	163.66	15.539	
8,300.00	6,944.41	6,894.92	6,894.45	38.43	133.76	89.92	818.92	-366.00	2,582.57	2,418.59	163.98	15.749	
8,400.00	6,944.09	6,894.60	6,894.12	39.35	133.75	89.91	818.92	-366.00	2,625.27	2,460.98	164.29	15.979	
8,500.00	6,943.77	6,894.27	6,893.80	40.31	133.74	89.90	818.92	-366.00	2,671.03	2,506.43	164.60	16.227	
8,600.00	6,943.45	6,893.94	6,893.47	41.32	133.74	89.89	818.92	-366.00	2,719.70	2,554.81	164.90	16.493	
8,700.00	6,943.12	6,893.61	6,893.14	42.37	133.73	89.89	818.92	-366.00	2,771.13	2,605.95	165.18	16.776	
8,800.00	6,942.80	6,893.28	6,892.81	43.45	133.72	89.88	818.92	-366.00	2,825.16	2,659.71	165.45	17.075	
8,900.00	6,942.48	6,892.95	6,892.48	44.57	133.72	89.87	818.92	-366.00	2,881.65	2,715.93	165.72	17.389	
9,000.00	6,942.15	6,892.62	6,892.15	45.71	133.71	89.86	818.92	-366.00	2,940.46	2,774.49	165.96	17.717	
9,100.00	6,941.83	6,892.30	6,891.82	46.89	133.70	89.85	818.92	-366.00	3,001.44	2,835.24	166.20	18.059	
9,200.00	6,941.51	6,891.97	6,891.50	48.09	133.70	89.85	818.92	-366.00	3,064.48	2,898.05	166.43	18.414	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #108 - OH - OH-INC

Offset Site Error: 0.00 usft

Survey Program: 107-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Rule Assigned:

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,300.00	6,941.18	6,891.64	6,891.17	49.31	133.69	89.84	818.92	-366.00	3,129.44	2,962.80	166.64	18.780	
9,400.00	6,940.86	6,891.31	6,890.86	50.56	133.68	89.83	815.88	-366.00	3,193.99	3,027.16	166.82	19.146	
9,500.00	6,940.54	6,890.99	6,890.54	51.82	133.68	89.82	815.88	-366.00	3,262.50	3,095.49	167.01	19.534	
9,600.00	6,940.21	6,890.67	6,890.21	53.11	133.67	89.81	815.88	-366.00	3,332.61	3,165.42	167.19	19.933	
9,700.00	6,939.89	6,890.34	6,889.89	54.41	133.67	89.81	815.88	-366.00	3,404.21	3,236.85	167.36	20.341	
9,800.00	6,939.57	6,890.02	6,889.57	55.73	133.66	89.80	815.88	-366.00	3,477.22	3,309.70	167.52	20.757	
9,900.00	6,939.25	6,889.70	6,889.25	57.07	133.65	89.79	815.88	-366.00	3,551.54	3,383.87	167.67	21.182	
10,000.00	6,938.92	6,889.37	6,888.92	58.41	133.65	89.78	815.88	-366.00	3,627.09	3,459.28	167.81	21.615	
10,100.00	6,938.60	6,889.05	6,888.60	59.77	133.64	89.77	815.88	-366.00	3,703.80	3,535.86	167.94	22.054	
10,200.00	6,938.28	6,888.73	6,888.28	61.15	133.63	89.77	815.88	-366.00	3,781.60	3,613.54	168.07	22.501	
10,300.00	6,937.95	6,888.40	6,887.95	62.53	133.63	89.76	815.88	-366.00	3,860.43	3,692.24	168.19	22.953	
10,400.00	6,937.63	6,888.08	6,887.63	63.92	133.62	89.75	815.88	-366.00	3,940.21	3,771.91	168.30	23.412	
10,500.00	6,937.31	6,887.76	6,887.31	65.33	133.61	89.74	815.88	-366.00	4,020.90	3,852.50	168.40	23.876	
10,600.00	6,936.98	6,887.43	6,886.98	66.74	133.61	89.74	815.88	-366.00	4,102.44	3,933.93	168.51	24.346	
10,700.00	6,936.66	6,887.11	6,886.66	68.16	133.60	89.73	815.88	-366.00	4,184.78	4,016.18	168.60	24.820	
10,800.00	6,936.34	6,886.79	6,886.34	69.59	133.60	89.72	815.88	-366.00	4,267.87	4,099.18	168.69	25.299	
10,900.00	6,936.01	6,886.47	6,886.01	71.03	133.59	89.71	815.88	-366.00	4,351.68	4,182.90	168.78	25.783	
11,000.00	6,935.69	6,886.14	6,885.69	72.47	133.58	89.70	815.88	-366.00	4,436.16	4,267.29	168.87	26.270	
11,100.00	6,935.37	6,885.82	6,885.37	73.92	133.58	89.70	815.88	-366.00	4,521.27	4,352.32	168.95	26.762	
11,200.00	6,935.05	6,885.50	6,885.05	75.38	133.57	89.69	815.88	-366.00	4,606.98	4,437.95	169.02	27.257	
11,300.00	6,934.72	6,885.17	6,884.72	76.84	133.56	89.68	815.88	-366.00	4,693.25	4,524.15	169.10	27.755	
11,400.00	6,934.40	6,884.85	6,884.40	78.31	133.56	89.67	815.88	-366.00	4,780.06	4,610.89	169.17	28.256	
11,500.00	6,934.08	6,884.53	6,884.08	79.79	133.55	89.66	815.88	-366.00	4,867.37	4,698.14	169.24	28.761	
11,600.00	6,933.75	6,884.20	6,883.75	81.27	133.54	89.66	815.88	-366.00	4,955.17	4,785.87	169.30	29.268	
11,700.00	6,933.43	6,883.88	6,883.43	82.75	133.54	89.65	815.88	-366.00	5,043.42	4,874.05	169.37	29.778	
11,800.00	6,933.11	6,883.56	6,883.11	84.24	133.53	89.64	815.88	-366.00	5,132.10	4,962.67	169.43	30.291	
11,900.00	6,932.78	6,883.23	6,882.78	85.73	133.53	89.63	815.88	-366.00	5,221.19	5,051.70	169.49	30.805	
12,000.00	6,932.46	6,882.91	6,882.46	87.23	133.52	89.63	815.88	-366.00	5,310.67	5,141.12	169.55	31.322	
12,100.00	6,932.14	6,882.59	6,882.14	88.72	133.51	89.62	815.88	-366.00	5,400.51	5,230.91	169.61	31.842	
12,200.00	6,931.81	6,882.27	6,881.81	90.23	133.51	89.61	815.88	-366.00	5,490.71	5,321.05	169.66	32.363	
12,300.00	6,931.49	6,881.94	6,881.49	91.74	133.50	89.60	815.88	-366.00	5,581.24	5,411.53	169.72	32.885	
12,400.00	6,931.17	6,881.62	6,881.17	93.25	133.49	89.59	815.88	-366.00	5,672.09	5,502.32	169.77	33.410	
12,500.00	6,930.85	6,881.30	6,880.85	94.76	133.49	89.59	815.88	-366.00	5,763.25	5,593.42	169.82	33.936	
12,600.00	6,930.52	6,880.97	6,880.52	96.27	133.48	89.58	815.88	-366.00	5,854.69	5,684.81	169.88	34.464	
12,700.00	6,930.20	6,880.65	6,880.20	97.79	133.47	89.57	815.88	-366.00	5,946.41	5,776.48	169.93	34.994	
12,800.00	6,929.88	6,880.33	6,879.88	99.32	133.47	89.56	815.88	-366.00	6,038.39	5,868.41	169.98	35.524	
12,900.00	6,929.55	6,880.00	6,879.55	100.84	133.46	89.55	815.88	-366.00	6,130.62	5,960.59	170.03	36.056	
13,000.00	6,929.23	6,879.68	6,879.23	102.37	133.46	89.55	815.88	-366.00	6,223.09	6,053.01	170.08	36.589	
13,100.00	6,928.91	6,879.36	6,878.91	103.89	133.45	89.54	815.88	-366.00	6,315.79	6,145.66	170.13	37.124	
13,200.00	6,928.58	6,879.03	6,878.58	105.43	133.44	89.53	815.88	-366.00	6,408.71	6,238.53	170.18	37.659	
13,300.00	6,928.26	6,878.71	6,878.26	106.96	133.44	89.52	815.88	-366.00	6,501.84	6,331.61	170.23	38.195	
13,400.00	6,927.94	6,878.39	6,877.94	108.49	133.43	89.51	815.88	-366.00	6,595.17	6,424.90	170.27	38.732	
13,500.00	6,927.61	6,878.07	6,877.61	110.03	133.42	89.51	815.88	-366.00	6,688.70	6,518.37	170.32	39.271	
13,600.00	6,927.29	6,877.74	6,877.29	111.57	133.42	89.50	815.88	-366.00	6,782.41	6,612.03	170.37	39.810	
13,700.00	6,926.97	6,877.42	6,876.97	113.11	133.41	89.49	815.88	-366.00	6,876.29	6,705.87	170.42	40.349	
13,800.00	6,926.65	6,877.10	6,876.65	114.65	133.40	89.48	815.88	-366.00	6,970.35	6,799.88	170.47	40.890	
13,900.00	6,926.32	6,876.77	6,876.32	116.20	133.40	89.48	815.88	-366.00	7,064.57	6,894.05	170.51	41.431	
14,000.00	6,926.00	6,876.45	6,876.00	117.75	133.39	89.47	815.88	-366.00	7,158.94	6,988.38	170.56	41.973	
14,100.00	6,925.68	6,876.13	6,875.68	119.29	133.39	89.46	815.88	-366.00	7,253.47	7,082.86	170.61	42.515	
14,200.00	6,925.35	6,875.80	6,875.35	120.84	133.38	89.45	815.88	-366.00	7,348.14	7,177.48	170.66	43.058	
14,300.00	6,925.03	6,875.48	6,875.03	122.39	133.37	89.44	815.88	-366.00	7,442.95	7,272.25	170.71	43.601	
14,400.00	6,924.71	6,875.16	6,874.71	123.94	133.37	89.44	815.88	-366.00	7,537.90	7,367.14	170.75	44.145	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #108 - OH - OH-INC

Offset Site Error: 0.00 usft

Survey Program: 107-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Rule Assigned:

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,500.00	6,924.38	6,874.84	6,874.38	125.50	133.36	89.43	815.88	-366.00	7,632.97	7,462.17	170.80	44.689	
14,600.00	6,924.06	6,874.51	6,874.06	127.05	133.35	89.42	815.88	-366.00	7,728.17	7,557.32	170.85	45.233	
14,700.00	6,923.74	6,874.19	6,873.74	128.61	133.35	89.41	815.88	-366.00	7,823.49	7,652.59	170.90	45.778	
14,800.00	6,923.42	6,873.87	6,873.42	130.16	133.34	89.40	815.88	-366.00	7,918.92	7,747.98	170.95	46.323	
14,900.00	6,923.09	6,873.54	6,873.09	131.72	133.33	89.40	815.88	-366.00	8,014.47	7,843.47	171.00	46.869	
15,000.00	6,922.77	6,873.22	6,872.77	133.28	133.33	89.39	815.88	-366.00	8,110.12	7,939.08	171.05	47.415	
15,100.00	6,922.45	6,872.90	6,872.45	134.84	133.32	89.38	815.88	-366.00	8,205.88	8,034.78	171.10	47.961	
15,200.00	6,922.12	6,872.57	6,872.12	136.40	133.32	89.37	815.88	-366.00	8,301.74	8,130.59	171.15	48.507	
15,300.00	6,921.80	6,872.25	6,871.80	137.96	133.31	89.37	815.88	-366.00	8,397.69	8,226.49	171.20	49.053	
15,400.00	6,921.48	6,871.93	6,871.48	139.53	133.30	89.36	815.88	-366.00	8,493.74	8,322.49	171.25	49.599	
15,500.00	6,921.15	6,871.60	6,871.15	141.09	133.30	89.35	815.88	-366.00	8,589.87	8,418.57	171.30	50.146	
15,600.00	6,920.83	6,871.28	6,870.83	142.65	133.29	89.34	815.88	-366.00	8,686.10	8,514.75	171.35	50.693	
15,700.00	6,920.51	6,870.96	6,870.51	144.22	133.28	89.33	815.88	-366.00	8,782.40	8,611.00	171.40	51.239	
15,800.00	6,920.18	6,870.64	6,870.18	145.79	133.28	89.33	815.88	-366.00	8,878.79	8,707.34	171.45	51.786	
15,900.00	6,919.86	6,870.31	6,869.86	147.35	133.27	89.32	815.88	-366.00	8,975.26	8,803.76	171.50	52.333	
16,000.00	6,919.54	6,869.99	6,869.54	148.92	133.26	89.31	815.88	-366.00	9,071.81	8,900.25	171.56	52.880	
16,100.00	6,919.22	6,869.67	6,869.22	150.49	133.26	89.30	815.88	-366.00	9,168.43	8,996.82	171.61	53.426	
16,200.00	6,918.89	6,869.34	6,868.89	152.06	133.25	89.29	815.88	-366.00	9,265.12	9,093.46	171.66	53.973	
16,300.00	6,918.57	6,869.02	6,868.57	153.63	133.25	89.29	815.88	-366.00	9,361.88	9,190.16	171.72	54.520	
16,400.00	6,918.25	6,868.70	6,868.25	155.20	133.24	89.28	815.88	-366.00	9,458.71	9,286.94	171.77	55.066	
16,500.00	6,917.92	6,868.37	6,867.92	156.77	133.23	89.27	815.88	-366.00	9,555.60	9,383.78	171.82	55.613	
16,600.00	6,917.60	6,868.05	6,867.60	158.34	133.23	89.26	815.88	-366.00	9,652.56	9,480.68	171.88	56.159	
16,700.00	6,917.28	6,867.73	6,867.28	159.92	133.22	89.26	815.88	-366.00	9,749.57	9,577.64	171.93	56.706	
16,800.00	6,916.95	6,867.40	6,866.95	161.49	133.21	89.25	815.88	-366.00	9,846.65	9,674.66	171.99	57.252	
16,900.00	6,916.63	6,867.08	6,866.63	163.06	133.21	89.24	815.88	-366.00	9,943.79	9,771.74	172.04	57.798	
17,000.00	6,916.31	6,866.76	6,866.31	164.64	133.20	89.23	815.88	-366.00	10,040.98	9,868.88	172.10	58.344	
17,100.00	6,915.98	6,866.44	6,865.98	166.21	133.19	89.22	815.88	-366.00	10,138.23	9,966.07	172.16	58.889	
17,200.00	6,915.66	6,866.11	6,865.66	167.79	133.19	89.22	815.88	-366.00	10,235.53	10,063.31	172.21	59.435	
17,300.00	6,915.34	6,865.79	6,865.34	169.37	133.18	89.21	815.88	-366.00	10,332.88	10,160.61	172.27	59.980	
17,400.00	6,915.02	6,865.47	6,865.02	170.94	133.18	89.20	815.88	-366.00	10,430.28	10,257.95	172.33	60.525	
17,500.00	6,914.69	6,865.14	6,864.69	172.52	133.17	89.19	815.88	-366.00	10,527.73	10,355.34	172.39	61.070	
17,600.00	6,914.37	6,864.82	6,864.37	174.10	133.16	89.18	815.88	-366.00	10,625.23	10,452.78	172.45	61.615	
17,700.00	6,914.05	6,864.50	6,864.05	175.68	133.16	89.18	815.88	-366.00	10,722.77	10,550.26	172.51	62.159	
17,800.00	6,913.72	6,864.17	6,863.72	177.25	133.15	89.17	815.88	-366.00	10,820.36	10,647.79	172.56	62.703	
17,900.00	6,913.40	6,863.85	6,863.40	178.83	133.14	89.16	815.88	-366.00	10,917.99	10,745.36	172.62	63.247	
18,000.00	6,913.08	6,863.53	6,863.08	180.41	133.14	89.15	815.88	-366.00	11,015.66	10,842.98	172.69	63.790	
18,023.75	6,913.00	6,863.45	6,863.00	180.79	133.14	89.15	815.88	-366.00	11,038.87	10,866.17	172.70	63.919	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #109 - OH - OH-TD

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	295.00	295.00	0.00	8.84	100.62	-1,424.14	7,595.41	7,727.77				
100.00	100.00	395.00	395.00	0.25	11.84	100.62	-1,424.14	7,595.41	7,727.77	7,715.68	12.09	639.348	
200.00	200.00	495.00	495.00	0.61	14.83	100.62	-1,424.14	7,595.41	7,727.77	7,712.33	15.44	500.443	
300.00	300.00	595.10	595.00	0.97	17.83	100.62	-1,424.14	7,595.41	7,727.77	7,708.97	18.80	411.056	
400.00	400.00	695.10	695.00	1.33	20.83	100.62	-1,424.14	7,595.41	7,727.77	7,705.61	22.15	348.809	
454.75	454.75	749.85	749.71	1.52	22.47	100.60	-1,421.96	7,595.41	7,727.37	7,703.37	23.99	322.088	
500.00	500.00	791.03	790.88	1.68	23.70	100.60	-1,422.02	7,595.41	7,727.38	7,701.99	25.39	304.376	
600.00	599.98	882.05	881.88	2.03	26.43	-79.36	-1,422.57	7,595.41	7,727.17	7,698.71	28.46	271.549	
700.00	699.84	973.05	972.85	2.36	29.16	-79.40	-1,423.70	7,595.41	7,726.43	7,694.92	31.51	245.167	
800.00	799.45	1,094.86	1,094.45	2.71	32.81	-79.51	-1,424.14	7,595.41	7,724.88	7,689.37	35.51	217.550	
900.00	898.70	1,194.11	1,193.70	3.06	35.78	-79.64	-1,424.14	7,595.41	7,722.66	7,683.82	38.84	198.841	
1,000.00	997.47	1,289.11	1,288.66	3.43	38.63	-79.82	-1,422.01	7,595.41	7,719.45	7,677.40	42.06	183.555	
1,100.00	1,095.62	1,378.86	1,378.39	3.82	41.32	-80.00	-1,422.54	7,595.41	7,716.16	7,671.02	45.13	170.969	
1,207.83	1,200.65	1,475.21	1,474.72	4.26	44.20	-80.24	-1,423.73	7,595.41	7,712.10	7,663.64	48.46	159.144	
1,300.00	1,290.02	1,585.73	1,585.02	4.65	47.52	-80.43	-1,424.14	7,595.41	7,708.25	7,656.08	52.16	147.769	
1,400.00	1,386.98	1,682.69	1,681.98	5.09	50.42	-80.60	-1,424.14	7,595.41	7,704.10	7,648.59	55.50	138.800	
1,500.00	1,483.95	1,777.25	1,776.50	5.53	53.25	-80.79	-1,421.99	7,595.41	7,699.67	7,640.88	58.78	130.988	
1,600.00	1,580.91	1,866.58	1,865.81	5.99	55.93	-80.95	-1,422.44	7,595.41	7,695.75	7,633.84	61.91	124.310	
1,700.00	1,677.87	1,956.22	1,955.43	6.44	58.62	-81.10	-1,423.45	7,595.41	7,692.00	7,626.96	65.05	118.251	
1,800.00	1,774.84	2,070.85	2,069.84	6.90	62.05	-81.30	-1,424.14	7,595.41	7,688.24	7,619.30	68.94	111.520	
1,900.00	1,871.80	2,167.81	2,166.80	7.36	64.96	-81.48	-1,424.14	7,595.41	7,684.47	7,612.16	72.31	106.275	
2,000.00	1,968.76	2,263.68	2,262.62	7.83	67.83	-81.67	-1,421.97	7,595.41	7,680.45	7,604.80	75.64	101.534	
2,100.00	2,065.73	2,353.70	2,352.62	8.30	70.53	-81.83	-1,422.34	7,595.41	7,676.89	7,598.08	78.81	97.413	
2,200.00	2,162.69	2,444.02	2,442.93	8.77	73.23	-81.98	-1,423.28	7,595.41	7,673.50	7,591.51	81.98	93.599	
2,300.00	2,259.65	2,555.97	2,554.65	9.24	76.59	-82.18	-1,424.14	7,595.41	7,670.14	7,584.33	85.81	89.388	
2,400.00	2,356.61	2,652.93	2,651.61	9.71	79.49	-82.35	-1,424.14	7,595.41	7,666.74	7,577.56	89.18	85.966	
2,500.00	2,453.58	2,749.89	2,748.54	10.18	82.40	-82.55	-1,421.96	7,595.41	7,663.14	7,570.58	92.56	82.789	
2,600.00	2,550.54	2,840.60	2,839.23	10.66	85.12	-82.71	-1,422.25	7,595.41	7,659.95	7,564.19	95.75	79.997	
2,700.00	2,647.50	2,931.63	2,930.23	11.13	87.84	-82.87	-1,423.11	7,595.41	7,656.91	7,557.95	98.96	77.377	
2,800.00	2,744.47	3,041.09	3,039.47	11.61	91.12	-83.06	-1,424.14	7,595.41	7,653.94	7,551.23	102.71	74.519	
2,900.00	2,841.43	3,138.05	3,136.43	12.08	94.03	-83.23	-1,424.14	7,595.41	7,650.93	7,544.84	106.09	72.116	
3,000.00	2,938.39	3,235.02	3,233.39	12.56	96.94	-83.41	-1,424.14	7,595.41	7,648.00	7,538.53	109.47	69.861	
3,100.00	3,035.36	3,327.30	3,325.62	13.04	99.70	-83.59	-1,422.17	7,595.41	7,644.92	7,532.20	112.72	67.824	
3,200.00	3,132.32	3,419.03	3,417.34	13.51	102.45	-83.75	-1,422.96	7,595.41	7,642.24	7,526.30	115.94	65.913	
3,300.00	3,229.28	3,526.21	3,524.28	13.99	105.66	-83.94	-1,424.14	7,595.41	7,639.67	7,520.04	119.63	63.859	
3,400.00	3,326.25	3,623.17	3,621.25	14.47	108.57	-84.12	-1,424.14	7,595.41	7,637.05	7,514.03	123.02	62.081	
3,500.00	3,423.21	3,720.14	3,718.21	14.95	111.47	-84.30	-1,424.14	7,595.41	7,634.50	7,508.10	126.40	60.398	
3,600.00	3,520.17	3,813.78	3,811.80	15.43	114.28	-84.48	-1,422.10	7,595.41	7,631.83	7,502.14	129.69	58.847	
3,700.00	3,617.13	3,906.24	3,904.24	15.91	117.05	-84.64	-1,422.81	7,595.41	7,629.52	7,496.58	132.94	57.391	
3,800.00	3,714.10	4,011.33	4,009.10	16.39	120.20	-84.83	-1,424.14	7,595.41	7,627.33	7,490.76	136.57	55.850	
3,900.00	3,811.06	4,108.29	4,106.06	16.87	123.10	-85.00	-1,424.14	7,595.41	7,625.10	7,485.14	139.95	54.483	
4,000.00	3,908.02	4,205.26	4,203.02	17.35	126.01	-85.18	-1,424.14	7,595.41	7,622.94	7,479.60	143.34	53.181	
4,100.00	4,004.99	4,300.04	4,297.76	17.83	128.85	-85.37	-1,422.05	7,595.41	7,620.69	7,474.02	146.66	51.961	
4,200.00	4,101.95	4,393.23	4,390.93	18.31	131.64	-85.54	-1,422.68	7,595.41	7,618.74	7,468.81	149.94	50.813	
4,300.00	4,198.91	4,486.74	4,484.41	18.79	134.44	-85.70	-1,423.92	7,595.41	7,616.92	7,463.71	153.22	49.713	
4,400.00	4,295.88	4,593.41	4,590.88	19.27	137.64	-85.89	-1,424.14	7,595.41	7,615.09	7,458.19	156.90	48.536	
4,500.00	4,392.84	4,690.38	4,687.84	19.75	140.54	-86.07	-1,424.14	7,595.41	7,613.32	7,453.04	160.28	47.499	
4,600.00	4,489.80	4,786.08	4,783.49	20.23	143.41	-86.26	-1,422.01	7,595.41	7,611.49	7,447.86	163.63	46.515	
4,700.00	4,586.76	4,880.00	4,877.40	20.71	146.23	-86.43	-1,422.55	7,595.41	7,609.92	7,442.99	166.93	45.587	
4,800.00	4,683.73	4,974.27	4,971.64	21.20	149.05	-86.60	-1,423.72	7,595.41	7,608.47	7,438.23	170.24	44.693	
4,900.00	4,780.69	5,078.53	5,075.69	21.68	152.18	-86.78	-1,424.14	7,595.41	7,607.04	7,433.19	173.84	43.758	
5,000.00	4,877.65	5,175.50	5,172.65	22.16	155.08	-86.96	-1,424.14	7,595.41	7,605.66	7,428.43	177.23	42.914	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #109 - OH - OH-TD

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Rule Assigned: Warning
5,100.00	4,974.62	5,271.88	5,268.99	22.64	157.97	-87.16	-1,421.98	7,595.41	7,604.26	7,423.65	180.60	42.105	
5,200.00	5,071.58	5,366.56	5,363.66	23.12	160.81	-87.33	-1,422.44	7,595.41	7,603.07	7,419.14	183.92	41.338	
5,300.00	5,168.54	5,461.59	5,458.66	23.60	163.65	-87.49	-1,423.53	7,595.41	7,601.98	7,414.73	187.25	40.598	
5,400.00	5,265.51	5,563.65	5,560.51	24.09	166.71	-87.68	-1,424.14	7,595.41	7,600.95	7,410.15	190.79	39.839	
5,500.00	5,362.47	5,660.62	5,657.47	24.57	169.62	-87.86	-1,424.14	7,595.41	7,599.96	7,405.78	194.18	39.138	
5,600.00	5,459.43	5,757.44	5,754.26	25.05	172.52	-88.05	-1,421.96	7,595.41	7,598.98	7,401.42	197.57	38.463	
5,700.00	5,556.40	5,852.89	5,849.69	25.53	175.38	-88.22	-1,422.33	7,595.41	7,598.18	7,397.27	200.91	37.819	
5,800.00	5,653.36	5,948.69	5,945.46	26.01	178.25	-88.39	-1,423.34	7,595.41	7,597.46	7,393.20	204.26	37.195	
5,900.00	5,750.32	6,048.77	6,045.32	26.50	181.25	-88.57	-1,424.14	7,595.41	7,596.82	7,389.07	207.74	36.568	
6,000.00	5,847.28	6,145.74	6,142.28	26.98	184.15	-88.75	-1,424.14	7,595.41	7,596.23	7,385.10	211.13	35.979	
6,100.00	5,944.25	6,242.70	6,239.25	27.46	187.06	-88.93	-1,424.14	7,595.41	7,595.72	7,381.20	214.52	35.408	
6,200.00	6,041.21	6,339.00	6,335.49	27.94	189.94	-89.12	-1,422.24	7,595.41	7,595.25	7,377.37	217.89	34.859	
6,300.00	6,138.17	6,435.58	6,432.05	28.43	192.84	-89.29	-1,423.17	7,595.41	7,594.92	7,373.65	221.26	34.325	
6,400.00	6,235.14	6,533.89	6,530.14	28.91	195.78	-89.46	-1,424.14	7,595.41	7,594.65	7,369.96	224.69	33.800	
6,496.84	6,329.04	6,627.79	6,624.04	29.38	198.60	-89.64	-1,424.14	7,595.41	7,594.46	7,366.49	227.97	33.313	
6,497.85	6,330.02	6,628.77	6,625.02	29.38	198.63	-90.00	-1,424.14	7,595.41	7,594.46	7,366.45	228.01	33.308 CC	
6,500.00	6,332.10	6,630.86	6,627.10	29.39	198.69	-90.77	-1,424.14	7,595.41	7,594.47	7,366.38	228.08	33.297 ES	
6,550.00	6,380.52	6,679.28	6,675.52	29.63	200.14	-108.06	-1,424.14	7,595.41	7,596.61	7,366.84	229.77	33.061	
6,600.00	6,428.63	6,727.39	6,723.63	29.87	201.58	-122.50	-1,424.14	7,595.41	7,602.68	7,371.23	231.45	32.848	
6,650.00	6,476.14	6,774.89	6,771.09	30.10	203.01	-133.42	-1,421.98	7,595.41	7,612.64	7,379.54	233.11	32.657	
6,700.00	6,522.73	6,821.56	6,817.75	30.33	204.40	-141.38	-1,422.14	7,595.41	7,626.44	7,391.72	234.73	32.491	
6,750.00	6,568.14	6,867.11	6,863.30	30.54	205.77	-147.22	-1,422.44	7,595.41	7,643.99	7,407.68	236.31	32.348	
6,800.00	6,612.08	6,911.27	6,907.44	30.75	207.09	-151.60	-1,422.87	7,595.41	7,665.16	7,427.33	237.83	32.229	
6,850.00	6,654.28	6,953.74	6,949.90	30.95	208.37	-154.95	-1,423.41	7,595.41	7,689.84	7,450.54	239.30	32.135	
6,900.00	6,694.47	6,994.26	6,990.41	31.15	209.58	-157.58	-1,424.05	7,595.41	7,717.86	7,477.17	240.69	32.066	
6,950.00	6,732.42	7,031.48	7,027.42	31.33	210.70	-159.68	-1,424.14	7,595.41	7,749.06	7,507.09	241.97	32.025	
7,000.00	6,767.89	7,066.95	7,062.89	31.51	211.76	-161.41	-1,424.14	7,595.41	7,783.24	7,540.05	243.18	32.005 SF	
7,050.00	6,800.65	7,099.71	7,095.65	31.68	212.74	-162.85	-1,424.14	7,595.41	7,820.18	7,575.87	244.30	32.010	
7,100.00	6,830.51	7,129.57	7,125.51	31.85	213.63	-164.08	-1,424.14	7,595.41	7,859.65	7,614.33	245.32	32.039	
7,150.00	6,857.28	7,156.34	7,152.28	32.01	214.44	-165.16	-1,424.14	7,595.41	7,901.41	7,655.19	246.22	32.090	
7,200.00	6,880.80	7,179.86	7,175.80	32.17	215.14	-166.16	-1,424.14	7,595.41	7,945.21	7,698.19	247.02	32.165	
7,250.00	6,900.92	7,199.98	7,195.92	32.33	215.74	-167.14	-1,424.14	7,595.41	7,990.76	7,743.06	247.69	32.261	
7,300.00	6,917.52	7,216.58	7,212.52	32.49	216.24	-168.22	-1,424.14	7,595.41	8,037.78	7,789.54	248.25	32.378	
7,350.00	6,930.50	7,229.56	7,225.50	32.66	216.63	-169.62	-1,424.14	7,595.41	8,085.99	7,837.32	248.68	32.516	
7,400.00	6,939.77	7,238.83	7,234.77	32.83	216.91	-172.04	-1,424.14	7,595.41	8,135.09	7,886.11	248.98	32.673	
7,450.00	6,945.28	7,244.34	7,240.28	33.01	217.07	-179.08	-1,424.14	7,595.41	8,184.77	7,935.61	249.16	32.849	
7,499.66	6,947.00	7,246.06	7,242.00	33.19	217.12	79.77	-1,424.14	7,595.41	8,234.39	7,985.17	249.21	33.041	
7,600.00	6,946.68	7,245.74	7,241.68	33.61	217.12	79.65	-1,424.14	7,595.41	8,334.71	8,085.51	249.20	33.446	
7,700.00	6,946.35	7,245.41	7,241.35	34.10	217.11	79.53	-1,424.14	7,595.41	8,434.69	8,185.51	249.18	33.849	
7,800.00	6,946.03	7,245.09	7,241.03	34.66	217.10	79.40	-1,424.14	7,595.41	8,534.68	8,285.51	249.17	34.253	
7,900.00	6,945.71	7,244.77	7,240.71	35.29	217.09	79.28	-1,424.14	7,595.41	8,634.66	8,385.51	249.15	34.656	
8,000.00	6,945.38	7,244.44	7,240.38	35.99	217.08	79.16	-1,424.14	7,595.41	8,734.65	8,485.51	249.14	35.059	
8,100.00	6,945.06	7,244.12	7,240.06	36.74	217.07	79.04	-1,424.14	7,595.41	8,834.63	8,585.50	249.13	35.462	
8,200.00	6,944.74	7,243.80	7,239.74	37.56	217.06	78.92	-1,424.14	7,595.41	8,934.62	8,685.50	249.12	35.865	
8,300.00	6,944.41	7,243.48	7,239.41	38.43	217.05	78.80	-1,424.14	7,595.41	9,034.60	8,785.49	249.11	36.267	
8,400.00	6,944.09	7,243.15	7,239.09	39.35	217.04	78.68	-1,424.14	7,595.41	9,134.59	8,885.49	249.10	36.670	
8,500.00	6,943.77	7,242.83	7,238.77	40.31	217.03	78.56	-1,424.14	7,595.41	9,234.58	8,985.48	249.09	37.073	
8,600.00	6,943.45	7,242.51	7,238.45	41.32	217.02	78.44	-1,424.14	7,595.41	9,334.56	9,085.48	249.09	37.475	
8,700.00	6,943.12	7,242.18	7,238.12	42.37	217.01	78.32	-1,424.14	7,595.41	9,434.55	9,185.47	249.08	37.877	
8,800.00	6,942.80	7,241.86	7,237.80	43.45	217.00	78.20	-1,424.14	7,595.41	9,534.54	9,285.46	249.08	38.279	
8,900.00	6,942.48	7,241.54	7,237.48	44.57	216.99	78.08	-1,424.14	7,595.41	9,634.53	9,385.45	249.07	38.681	
9,000.00	6,942.15	7,241.21	7,237.15	45.71	216.98	77.96	-1,424.14	7,595.41	9,734.51	9,485.44	249.07	39.083	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #109 - OH - OH-TD

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,100.00	6,941.83	7,240.89	7,236.83	46.89	216.97	77.84	-1,424.14	7,595.41	9,834.50	9,585.43	249.07	39.485	
9,200.00	6,941.51	7,240.57	7,236.51	48.09	216.96	77.72	-1,424.14	7,595.41	9,934.49	9,685.42	249.07	39.887	
9,300.00	6,941.18	7,240.25	7,236.18	49.31	216.95	77.60	-1,424.14	7,595.41	10,034.48	9,785.41	249.07	40.288	
9,400.00	6,940.86	7,239.92	7,235.86	50.56	216.94	77.48	-1,424.14	7,595.41	10,134.47	9,885.40	249.07	40.689	
9,500.00	6,940.54	7,239.60	7,235.54	51.82	216.93	77.36	-1,424.14	7,595.41	10,234.46	9,985.39	249.07	41.091	
9,600.00	6,940.21	7,239.28	7,235.21	53.11	216.92	77.24	-1,424.14	7,595.41	10,334.45	10,085.37	249.07	41.492	
9,700.00	6,939.89	7,238.95	7,234.89	54.41	216.91	77.12	-1,424.14	7,595.41	10,434.44	10,185.36	249.08	41.892	
9,800.00	6,939.57	7,238.63	7,234.57	55.73	216.90	77.00	-1,424.14	7,595.41	10,534.43	10,285.34	249.08	42.293	
9,900.00	6,939.25	7,238.31	7,234.25	57.07	216.89	76.88	-1,424.14	7,595.41	10,634.42	10,385.33	249.09	42.694	
10,000.00	6,938.92	7,237.98	7,233.92	58.41	216.88	76.76	-1,424.14	7,595.41	10,734.41	10,485.31	249.09	43.094	
10,100.00	6,938.60	7,237.66	7,233.60	59.77	216.87	76.64	-1,424.14	7,595.41	10,834.40	10,585.29	249.10	43.494	
10,200.00	6,938.28	7,237.34	7,233.28	61.15	216.86	76.52	-1,424.14	7,595.41	10,934.39	10,685.28	249.11	43.894	
10,300.00	6,937.95	7,237.01	7,232.95	62.53	216.85	76.40	-1,424.14	7,595.41	11,034.38	10,785.26	249.12	44.294	
10,400.00	6,937.63	7,236.69	7,232.63	63.92	216.84	76.28	-1,424.14	7,595.41	11,134.37	10,885.24	249.13	44.693	
10,500.00	6,937.31	7,236.37	7,232.31	65.33	216.83	76.17	-1,424.14	7,595.41	11,234.36	10,985.22	249.14	45.093	
10,600.00	6,936.98	7,236.05	7,231.98	66.74	216.82	76.05	-1,424.14	7,595.41	11,334.35	11,085.20	249.15	45.492	
10,700.00	6,936.66	7,235.72	7,231.66	68.16	216.81	75.93	-1,424.14	7,595.41	11,434.34	11,185.18	249.16	45.891	
10,800.00	6,936.34	7,235.40	7,231.34	69.59	216.81	75.81	-1,424.14	7,595.41	11,534.33	11,285.16	249.17	46.290	
10,900.00	6,936.01	7,235.08	7,231.01	71.03	216.80	75.69	-1,424.14	7,595.41	11,634.32	11,385.13	249.19	46.689	
11,000.00	6,935.69	7,234.75	7,230.69	72.47	216.79	75.58	-1,424.14	7,595.41	11,734.31	11,485.11	249.20	47.087	
11,100.00	6,935.37	7,234.43	7,230.37	73.92	216.78	75.46	-1,424.14	7,595.41	11,834.31	11,585.09	249.22	47.486	
11,200.00	6,935.05	7,234.11	7,230.05	75.38	216.77	75.34	-1,424.14	7,595.41	11,934.30	11,685.06	249.24	47.884	
11,300.00	6,934.72	7,233.78	7,229.72	76.84	216.76	75.22	-1,424.14	7,595.41	12,034.29	11,785.04	249.25	48.282	
11,400.00	6,934.40	7,233.46	7,229.40	78.31	216.75	75.10	-1,424.14	7,595.41	12,134.28	11,885.01	249.27	48.679	
11,500.00	6,934.08	7,233.14	7,229.08	79.79	216.74	74.99	-1,424.14	7,595.41	12,234.27	11,984.98	249.29	49.077	
11,600.00	6,933.75	7,232.81	7,228.75	81.27	216.73	74.87	-1,424.14	7,595.41	12,334.27	12,084.96	249.31	49.474	
11,700.00	6,933.43	7,232.49	7,228.43	82.75	216.72	74.75	-1,424.14	7,595.41	12,434.26	12,184.93	249.33	49.871	
11,800.00	6,933.11	7,232.17	7,228.11	84.24	216.71	74.64	-1,424.14	7,595.41	12,534.25	12,284.90	249.35	50.268	
11,900.00	6,932.78	7,231.85	7,227.78	85.73	216.70	74.52	-1,424.14	7,595.41	12,634.24	12,384.87	249.37	50.664	
12,000.00	6,932.46	7,231.52	7,227.46	87.23	216.69	74.40	-1,424.14	7,595.41	12,734.24	12,484.84	249.39	51.061	
12,100.00	6,932.14	7,231.20	7,227.14	88.72	216.68	74.29	-1,424.14	7,595.41	12,834.23	12,584.81	249.42	51.457	
12,200.00	6,931.81	7,230.88	7,226.81	90.23	216.67	74.17	-1,424.14	7,595.41	12,934.22	12,684.78	249.44	51.853	
12,300.00	6,931.49	7,230.55	7,226.49	91.74	216.66	74.05	-1,424.14	7,595.41	13,034.21	12,784.75	249.47	52.248	
12,400.00	6,931.17	7,230.23	7,226.17	93.25	216.65	73.94	-1,424.14	7,595.41	13,134.21	12,884.71	249.49	52.644	
12,500.00	6,930.85	7,229.91	7,225.85	94.76	216.64	73.82	-1,424.14	7,595.41	13,234.20	12,984.68	249.52	53.039	
12,600.00	6,930.52	7,229.58	7,225.52	96.27	216.63	73.71	-1,424.14	7,595.41	13,334.19	13,084.65	249.55	53.434	
12,700.00	6,930.20	7,229.26	7,225.20	97.79	216.62	73.59	-1,424.14	7,595.41	13,434.19	13,184.61	249.57	53.828	
12,800.00	6,929.88	7,228.94	7,224.88	99.32	216.61	73.48	-1,424.14	7,595.41	13,534.18	13,284.58	249.60	54.223	
12,900.00	6,929.55	7,228.61	7,224.55	100.84	216.60	73.36	-1,424.14	7,595.41	13,634.18	13,384.54	249.63	54.617	
13,000.00	6,929.23	7,228.29	7,224.23	102.37	216.59	73.24	-1,424.14	7,595.41	13,734.17	13,484.51	249.66	55.011	
13,100.00	6,928.91	7,227.97	7,223.91	103.89	216.58	73.13	-1,424.14	7,595.41	13,834.16	13,584.47	249.69	55.404	
13,200.00	6,928.58	7,227.65	7,223.58	105.43	216.57	73.01	-1,424.14	7,595.41	13,934.16	13,684.43	249.73	55.798	
13,300.00	6,928.26	7,227.32	7,223.26	106.96	216.56	72.90	-1,424.14	7,595.41	14,034.15	13,784.39	249.76	56.191	
13,400.00	6,927.94	7,227.00	7,222.94	108.49	216.55	72.79	-1,424.14	7,595.41	14,134.14	13,884.35	249.79	56.584	
13,500.00	6,927.61	7,226.68	7,222.61	110.03	216.54	72.67	-1,424.14	7,595.41	14,234.14	13,984.31	249.83	56.976	
13,600.00	6,927.29	7,226.35	7,222.29	111.57	216.53	72.56	-1,424.14	7,595.41	14,334.13	14,084.27	249.86	57.369	
13,700.00	6,926.97	7,226.03	7,221.97	113.11	216.52	72.44	-1,424.14	7,595.41	14,434.13	14,184.23	249.89	57.761	
13,800.00	6,926.65	7,225.71	7,221.65	114.65	216.51	72.33	-1,424.14	7,595.41	14,534.12	14,284.19	249.93	58.153	
13,900.00	6,926.32	7,225.38	7,221.32	116.20	216.51	72.21	-1,424.14	7,595.41	14,634.12	14,384.15	249.97	58.544	
14,000.00	6,926.00	7,225.06	7,221.00	117.75	216.50	72.10	-1,424.14	7,595.41	14,734.11	14,484.11	250.00	58.935	
14,100.00	6,925.68	7,224.74	7,220.68	119.29	216.49	71.99	-1,424.14	7,595.41	14,834.10	14,584.06	250.04	59.326	
14,200.00	6,925.35	7,224.41	7,220.35	120.84	216.48	71.87	-1,424.14	7,595.41	14,934.10	14,684.02	250.08	59.717	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #109 - OH - OH-TD

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Rule Assigned:

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,300.00	6,925.03	7,224.09	7,220.03	122.39	216.47	71.76	-1,424.14	7,595.41	15,034.09	14,783.97	250.12	60.107	
14,400.00	6,924.71	7,223.77	7,219.71	123.94	216.46	71.65	-1,424.14	7,595.41	15,134.09	14,883.93	250.16	60.497	
14,500.00	6,924.38	7,223.45	7,219.38	125.50	216.45	71.53	-1,424.14	7,595.41	15,234.08	14,983.88	250.20	60.887	
14,600.00	6,924.06	7,223.12	7,219.06	127.05	216.44	71.42	-1,424.14	7,595.41	15,334.08	15,083.84	250.24	61.277	
14,700.00	6,923.74	7,222.80	7,218.74	128.61	216.43	71.31	-1,424.14	7,595.41	15,434.07	15,183.79	250.28	61.666	
14,800.00	6,923.42	7,222.48	7,218.42	130.16	216.42	71.20	-1,424.14	7,595.41	15,534.07	15,283.74	250.33	62.055	
14,900.00	6,923.09	7,222.15	7,218.09	131.72	216.41	71.08	-1,424.14	7,595.41	15,634.06	15,383.69	250.37	62.444	
15,000.00	6,922.77	7,221.83	7,217.77	133.28	216.40	70.97	-1,424.14	7,595.41	15,734.06	15,483.64	250.41	62.832	
15,100.00	6,922.45	7,221.51	7,217.45	134.84	216.39	70.86	-1,424.14	7,595.41	15,834.05	15,583.59	250.46	63.220	
15,200.00	6,922.12	7,221.18	7,217.12	136.40	216.38	70.75	-1,424.14	7,595.41	15,934.05	15,683.54	250.50	63.608	
15,300.00	6,921.80	7,220.86	7,216.80	137.96	216.37	70.63	-1,424.14	7,595.41	16,034.04	15,783.49	250.55	63.995	
15,400.00	6,921.48	7,220.54	7,216.48	139.53	216.36	70.52	-1,424.14	7,595.41	16,134.04	15,883.44	250.60	64.382	
15,500.00	6,921.15	7,220.21	7,216.15	141.09	216.35	70.41	-1,424.14	7,595.41	16,234.03	15,983.39	250.64	64.769	
15,600.00	6,920.83	7,219.89	7,215.83	142.65	216.34	70.30	-1,424.14	7,595.41	16,334.03	16,083.34	250.69	65.156	
15,700.00	6,920.51	7,219.57	7,215.51	144.22	216.33	70.19	-1,424.14	7,595.41	16,434.02	16,183.28	250.74	65.542	
15,800.00	6,920.18	7,219.25	7,215.18	145.79	216.32	70.08	-1,424.14	7,595.41	16,534.02	16,283.23	250.79	65.928	
15,900.00	6,919.86	7,218.92	7,214.86	147.35	216.31	69.97	-1,424.14	7,595.41	16,634.02	16,383.18	250.84	66.314	
16,000.00	6,919.54	7,218.60	7,214.54	148.92	216.30	69.86	-1,424.14	7,595.41	16,734.01	16,483.12	250.89	66.699	
16,100.00	6,919.22	7,218.28	7,214.22	150.49	216.29	69.74	-1,424.14	7,595.41	16,834.01	16,583.07	250.94	67.084	
16,200.00	6,918.89	7,217.95	7,213.89	152.06	216.28	69.63	-1,424.14	7,595.41	16,934.00	16,683.01	250.99	67.468	
16,300.00	6,918.57	7,217.63	7,213.57	153.63	216.27	69.52	-1,424.14	7,595.41	17,034.00	16,782.95	251.04	67.853	
16,400.00	6,918.25	7,217.31	7,213.25	155.20	216.26	69.41	-1,424.14	7,595.41	17,133.99	16,882.90	251.10	68.237	
16,500.00	6,917.92	7,216.98	7,212.92	156.77	216.25	69.30	-1,424.14	7,595.41	17,233.99	16,982.84	251.15	68.620	
16,600.00	6,917.60	7,216.66	7,212.60	158.34	216.24	69.19	-1,424.14	7,595.41	17,333.99	17,082.78	251.20	69.004	
16,700.00	6,917.28	7,216.34	7,212.28	159.92	216.23	69.08	-1,424.14	7,595.41	17,433.98	17,182.72	251.26	69.387	
16,800.00	6,916.95	7,216.01	7,211.95	161.49	216.22	68.98	-1,424.14	7,595.41	17,533.98	17,282.67	251.31	69.770	
16,900.00	6,916.63	7,215.69	7,211.63	163.06	216.21	68.87	-1,424.14	7,595.41	17,633.97	17,382.61	251.37	70.152	
17,000.00	6,916.31	7,215.37	7,211.31	164.64	216.21	68.76	-1,424.14	7,595.41	17,733.97	17,482.55	251.42	70.534	
17,100.00	6,915.98	7,215.05	7,210.98	166.21	216.20	68.65	-1,424.14	7,595.41	17,833.97	17,582.48	251.48	70.916	
17,200.00	6,915.66	7,214.72	7,210.66	167.79	216.19	68.54	-1,424.14	7,595.41	17,933.96	17,682.42	251.54	71.297	
17,300.00	6,915.34	7,214.40	7,210.34	169.37	216.18	68.43	-1,424.14	7,595.41	18,033.96	17,782.36	251.60	71.678	
17,400.00	6,915.02	7,214.08	7,210.02	170.94	216.17	68.32	-1,424.14	7,595.41	18,133.95	17,882.30	251.65	72.059	
17,500.00	6,914.69	7,213.75	7,209.69	172.52	216.16	68.21	-1,424.14	7,595.41	18,233.95	17,982.24	251.71	72.439	
17,600.00	6,914.37	7,213.43	7,209.37	174.10	216.15	68.10	-1,424.14	7,595.41	18,333.95	18,082.17	251.77	72.819	
17,700.00	6,914.05	7,213.11	7,209.05	175.68	216.14	68.00	-1,424.14	7,595.41	18,433.94	18,182.11	251.83	73.199	
17,800.00	6,913.72	7,212.78	7,208.72	177.25	216.13	67.89	-1,424.14	7,595.41	18,533.94	18,282.05	251.89	73.579	
17,900.00	6,913.40	7,212.46	7,208.40	178.83	216.12	67.78	-1,424.14	7,595.41	18,633.94	18,381.98	251.95	73.958	
18,000.00	6,913.08	7,212.14	7,208.08	180.41	216.11	67.67	-1,424.14	7,595.41	18,733.93	18,481.92	252.02	74.336	
18,023.75	6,913.00	7,212.06	7,208.00	180.79	216.11	67.65	-1,424.14	7,595.41	18,757.69	18,505.65	252.03	74.426	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #149 - OH - OH-INC

Offset Site Error: 0.00 usft

Survey Program: 117-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Rule Assigned:

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	-70.74	1,160.19	-3,321.01	3,518.05				
100.00	100.00	61.00	61.00	0.25	1.20	-70.74	1,160.19	-3,321.01	3,517.84	3,516.39	1.45	2,421.586	
200.00	200.00	161.00	161.00	0.61	3.41	-70.74	1,160.19	-3,321.01	3,517.84	3,513.82	4.01	876.239	
300.00	300.00	261.00	261.00	0.97	5.91	-70.74	1,160.19	-3,321.01	3,517.84	3,510.96	6.87	511.759	
400.00	400.00	363.10	363.09	1.33	8.46	-70.73	1,160.78	-3,321.01	3,518.03	3,508.25	9.79	359.505	
500.00	500.00	467.21	467.20	1.68	11.06	-70.74	1,160.41	-3,321.01	3,517.91	3,505.17	12.75	275.961	
516.95	516.95	484.86	484.85	1.74	11.50	109.30	1,160.31	-3,321.01	3,517.90	3,504.65	13.25	265.561	
600.00	599.98	561.13	560.98	2.03	13.74	109.32	1,160.19	-3,321.01	3,518.42	3,502.65	15.77	223.128	
700.00	699.84	669.86	669.68	2.36	17.08	109.39	1,161.20	-3,321.01	3,520.50	3,501.06	19.44	181.100	
800.00	799.45	760.76	760.45	2.71	19.80	109.44	1,160.19	-3,321.01	3,523.06	3,500.56	22.50	156.568	
900.00	898.70	860.01	859.70	3.06	22.42	109.55	1,160.19	-3,321.01	3,527.15	3,501.68	25.48	138.452	
1,000.00	997.47	977.04	976.68	3.43	25.51	109.74	1,160.47	-3,321.01	3,532.60	3,503.67	28.93	122.101	
1,100.00	1,095.62	1,057.04	1,056.62	3.82	27.41	109.85	1,160.19	-3,321.01	3,539.02	3,507.81	31.22	113.367	
1,207.83	1,200.65	1,162.07	1,161.65	4.26	29.83	110.05	1,160.19	-3,321.01	3,547.55	3,513.47	34.07	104.115	
1,300.00	1,290.02	1,252.00	1,251.57	4.65	31.90	110.41	1,161.54	-3,321.01	3,556.03	3,519.50	36.53	97.341	
1,400.00	1,386.98	1,354.86	1,354.42	5.09	34.27	110.78	1,161.27	-3,321.01	3,564.77	3,525.44	39.33	90.640	
1,500.00	1,483.95	1,457.97	1,457.52	5.53	36.64	111.15	1,160.52	-3,321.01	3,573.49	3,531.35	42.14	84.804	
1,600.00	1,580.91	1,542.44	1,541.91	5.99	38.54	111.45	1,160.19	-3,321.01	3,582.46	3,537.99	44.47	80.558	
1,700.00	1,677.87	1,639.41	1,638.87	6.44	40.67	111.81	1,160.19	-3,321.01	3,591.72	3,544.67	47.05	76.340	
1,800.00	1,774.84	1,736.37	1,735.84	6.90	42.81	112.16	1,160.19	-3,321.01	3,601.12	3,551.49	49.63	72.558	
1,900.00	1,871.80	1,839.61	1,839.05	7.36	45.09	112.55	1,161.33	-3,321.01	3,611.11	3,558.76	52.35	68.976	
2,000.00	1,968.76	1,943.26	1,942.70	7.83	47.37	112.91	1,160.64	-3,321.01	3,620.54	3,565.46	55.09	65.725	
2,100.00	2,065.73	2,027.35	2,026.73	8.30	49.14	113.21	1,160.19	-3,321.01	3,630.16	3,572.85	57.31	63.342	
2,200.00	2,162.69	2,124.32	2,123.69	8.77	51.08	113.55	1,160.19	-3,321.01	3,640.12	3,580.42	59.70	60.970	
2,300.00	2,259.65	2,221.39	2,220.75	9.24	53.03	113.91	1,161.20	-3,321.01	3,650.64	3,588.54	62.10	58.787	
2,400.00	2,356.61	2,324.35	2,323.70	9.71	55.09	114.27	1,161.00	-3,321.01	3,660.79	3,596.18	64.61	56.656	
2,500.00	2,453.58	2,427.51	2,426.86	10.18	57.16	114.62	1,160.39	-3,321.01	3,670.92	3,603.78	67.13	54.680	
2,600.00	2,550.54	2,512.22	2,511.54	10.66	58.86	114.91	1,160.19	-3,321.01	3,681.31	3,612.02	69.29	53.129	
2,700.00	2,647.50	2,609.19	2,608.50	11.13	60.81	115.25	1,160.19	-3,321.01	3,691.95	3,620.25	71.70	51.494	
2,800.00	2,744.47	2,706.20	2,705.51	11.61	62.77	115.59	1,161.02	-3,321.01	3,703.08	3,628.97	74.10	49.971	
2,900.00	2,841.43	2,807.51	2,806.82	12.08	64.81	115.94	1,160.89	-3,321.01	3,713.91	3,637.31	76.60	48.485	
3,000.00	2,938.39	2,908.96	2,908.27	12.56	66.86	116.28	1,160.49	-3,321.01	3,724.76	3,645.67	79.10	47.091	
3,100.00	3,035.36	2,997.10	2,996.36	13.04	68.60	116.57	1,160.19	-3,321.01	3,735.77	3,654.48	81.29	45.956	
3,200.00	3,132.32	3,094.06	3,093.32	13.51	70.47	116.90	1,160.19	-3,321.01	3,747.04	3,663.43	83.61	44.816	
3,300.00	3,229.28	3,191.03	3,190.28	13.99	72.34	117.22	1,160.19	-3,321.01	3,758.44	3,672.51	85.93	43.738	
3,400.00	3,326.25	3,290.85	3,290.09	14.47	74.26	117.57	1,161.38	-3,321.01	3,770.53	3,682.22	88.30	42.699	
3,500.00	3,423.21	3,393.65	3,392.89	14.95	76.24	117.91	1,161.05	-3,321.01	3,782.03	3,691.30	90.74	41.681	
3,600.00	3,520.17	3,496.63	3,495.86	15.43	78.23	118.24	1,160.39	-3,321.01	3,793.51	3,700.33	93.17	40.714	
3,700.00	3,617.13	3,578.93	3,578.13	15.91	79.93	118.50	1,160.19	-3,321.01	3,805.27	3,709.95	95.32	39.920	
3,800.00	3,714.10	3,678.73	3,677.93	16.39	82.05	118.83	1,160.42	-3,321.01	3,817.40	3,719.51	97.89	38.997	
3,900.00	3,811.06	3,772.89	3,772.06	16.87	84.28	119.13	1,160.19	-3,321.01	3,829.41	3,728.84	100.57	38.077	
4,000.00	3,908.02	3,869.86	3,869.02	17.35	87.68	119.44	1,160.19	-3,321.01	3,841.66	3,737.24	104.42	36.792	
4,100.00	4,004.99	3,966.82	3,965.99	17.83	91.08	119.75	1,160.19	-3,321.01	3,854.02	3,745.76	108.26	35.599	
4,200.00	4,101.95	4,070.61	4,069.75	18.31	94.72	120.10	1,161.71	-3,321.01	3,867.28	3,754.93	112.35	34.422	
4,300.00	4,198.91	4,179.13	4,178.25	18.79	98.52	120.43	1,161.03	-3,321.01	3,879.56	3,762.96	116.60	33.272	
4,400.00	4,295.88	4,258.32	4,256.88	19.27	101.34	120.67	1,160.19	-3,321.01	3,891.79	3,771.93	119.86	32.469	
4,500.00	4,392.84	4,382.00	4,380.20	19.75	107.32	121.05	1,160.19	-3,321.01	3,904.70	3,778.41	126.29	30.919	
4,600.00	4,489.80	4,452.67	4,450.80	20.23	110.78	121.27	1,160.19	-3,321.01	3,917.54	3,787.35	130.18	30.092	
4,700.00	4,586.76	4,549.88	4,547.76	20.71	115.41	121.57	1,160.19	-3,321.01	3,930.57	3,795.32	135.26	29.060	
4,800.00	4,683.73	4,647.08	4,644.73	21.20	120.21	121.86	1,160.19	-3,321.01	3,943.72	3,803.23	140.49	28.071	
4,900.00	4,780.69	4,744.35	4,741.69	21.68	125.08	122.16	1,160.19	-3,321.01	3,956.97	3,811.17	145.80	27.139	
5,000.00	4,877.65	4,841.57	4,838.65	22.16	129.94	122.45	1,160.19	-3,321.01	3,970.33	3,819.22	151.11	26.275	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #149 - OH - OH-INC

Offset Site Error: 0.00 usft

Survey Program: 117-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,100.00	4,974.62	4,949.00	4,945.70	22.64	135.27	122.77	1,160.19	-3,321.01	3,983.81	3,826.93	156.87	25.395	
5,200.00	5,071.58	5,035.96	5,032.58	23.12	139.71	123.03	1,160.19	-3,321.01	3,997.36	3,835.61	161.75	24.713	
5,300.00	5,168.54	5,133.18	5,129.54	23.60	144.57	123.32	1,160.19	-3,321.01	4,011.03	3,843.99	167.05	24.011	
5,400.00	5,265.51	5,230.15	5,226.51	24.09	149.35	123.60	1,160.19	-3,321.01	4,024.81	3,852.55	172.26	23.364	
5,500.00	5,362.47	5,350.77	5,346.93	24.57	155.29	124.00	1,163.93	-3,321.01	4,040.88	3,862.23	178.65	22.619	
5,600.00	5,459.43	5,512.13	5,508.09	25.05	163.24	124.42	1,160.09	-3,321.01	4,053.55	3,866.52	187.03	21.673	
5,700.00	5,556.40	5,522.10	5,517.40	25.53	163.71	124.44	1,160.19	-3,321.01	4,066.73	3,878.80	187.93	21.639	
5,800.00	5,653.36	5,619.07	5,614.36	26.01	168.30	124.72	1,160.19	-3,321.01	4,080.91	3,887.95	192.96	21.149	
5,900.00	5,750.32	5,716.03	5,711.32	26.50	172.89	125.00	1,160.19	-3,321.01	4,095.18	3,897.19	197.98	20.684	
6,000.00	5,847.28	5,812.99	5,808.28	26.98	177.48	125.27	1,160.19	-3,321.01	4,109.54	3,906.53	203.01	20.243	
6,100.00	5,944.25	5,909.96	5,905.25	27.46	182.08	125.54	1,160.19	-3,321.01	4,124.00	3,915.97	208.03	19.824	
6,200.00	6,041.21	5,949.00	5,943.35	27.94	183.92	125.65	1,160.19	-3,321.01	4,138.97	3,928.72	210.26	19.685	
6,300.00	6,138.17	5,949.00	5,943.35	28.43	183.92	125.65	1,160.19	-3,321.01	4,156.13	3,945.61	210.51	19.743	
6,400.00	6,235.14	5,949.00	5,943.35	28.91	183.92	125.65	1,160.19	-3,321.01	4,175.60	3,964.95	210.65	19.822	
6,496.84	6,329.04	5,949.00	5,943.35	29.38	183.92	125.65	1,160.19	-3,321.01	4,196.65	3,985.96	210.68	19.919	
6,500.00	6,332.10	5,949.00	5,943.35	29.39	183.92	124.48	1,160.19	-3,321.01	4,197.36	3,986.68	210.68	19.923	
6,550.00	6,380.52	5,949.00	5,943.35	29.63	183.92	106.76	1,160.19	-3,321.01	4,207.33	3,996.67	210.66	19.972	
6,600.00	6,428.63	5,949.00	5,943.35	29.87	183.92	92.02	1,160.19	-3,321.01	4,214.71	4,004.09	210.62	20.011	
6,650.00	6,476.14	5,949.00	5,943.35	30.10	183.92	80.97	1,160.19	-3,321.01	4,219.45	4,008.89	210.56	20.039	
6,700.00	6,522.73	5,949.00	5,943.35	30.33	183.92	73.00	1,160.19	-3,321.01	4,221.54	4,011.07	210.48	20.057	
6,750.00	6,568.14	5,949.00	5,943.35	30.54	183.92	67.28	1,160.19	-3,321.01	4,220.98	4,010.60	210.38	20.064	
6,800.00	6,612.08	5,949.00	5,943.35	30.75	183.92	63.17	1,160.19	-3,321.01	4,217.76	4,007.50	210.26	20.059	
6,850.00	6,654.28	5,949.00	5,943.35	30.95	183.92	60.22	1,160.19	-3,321.01	4,211.90	4,001.76	210.14	20.044	
6,900.00	6,694.47	5,949.00	5,943.35	31.15	183.92	58.15	1,160.19	-3,321.01	4,203.42	3,993.42	210.00	20.016	
6,950.00	6,732.42	5,949.00	5,943.35	31.33	183.92	56.77	1,160.19	-3,321.01	4,192.36	3,982.51	209.86	19.977	
7,000.00	6,767.89	5,949.00	5,943.35	31.51	183.92	55.94	1,160.19	-3,321.01	4,178.77	3,969.06	209.71	19.926	
7,050.00	6,800.65	5,949.00	5,943.35	31.68	183.92	55.59	1,160.19	-3,321.01	4,162.71	3,953.14	209.57	19.863	
7,100.00	6,830.51	5,949.00	5,943.35	31.85	183.92	55.66	1,160.19	-3,321.01	4,144.24	3,934.80	209.44	19.788	
7,150.00	6,857.28	5,949.00	5,943.35	32.01	183.92	56.13	1,160.19	-3,321.01	4,123.46	3,914.14	209.32	19.700	
7,200.00	6,880.80	5,949.00	5,943.35	32.17	183.92	56.98	1,160.19	-3,321.01	4,100.44	3,891.23	209.22	19.599	
7,250.00	6,900.92	5,949.00	5,943.35	32.33	183.92	58.20	1,160.19	-3,321.01	4,075.31	3,866.18	209.14	19.486	
7,300.00	6,917.52	5,949.00	5,943.35	32.49	183.92	59.81	1,160.19	-3,321.01	4,048.18	3,839.09	209.09	19.361	
7,350.00	6,930.50	5,949.00	5,943.35	32.66	183.92	61.81	1,160.19	-3,321.01	4,019.17	3,810.10	209.07	19.224	
7,400.00	6,939.77	5,949.00	5,943.35	32.83	183.92	64.23	1,160.19	-3,321.01	3,988.43	3,779.34	209.09	19.075	
7,450.00	6,945.28	5,949.00	5,943.35	33.01	183.92	67.09	1,160.19	-3,321.01	3,956.10	3,746.95	209.16	18.915	
7,499.66	6,947.00	5,949.00	5,943.35	33.19	183.92	70.38	1,160.19	-3,321.01	3,922.59	3,713.32	209.26	18.745	
7,600.00	6,946.68	5,949.00	5,943.35	33.61	183.92	70.38	1,160.19	-3,321.01	3,854.26	3,644.72	209.54	18.394	
7,700.00	6,946.35	5,949.00	5,943.35	34.10	183.92	70.38	1,160.19	-3,321.01	3,787.58	3,577.74	209.84	18.050	
7,800.00	6,946.03	5,949.00	5,943.35	34.66	183.92	70.38	1,160.19	-3,321.01	3,722.39	3,512.21	210.18	17.711	
7,900.00	6,945.71	5,949.00	5,943.35	35.29	183.92	70.38	1,160.19	-3,321.01	3,658.78	3,448.22	210.55	17.377	
8,000.00	6,945.38	5,949.00	5,943.35	35.99	183.92	70.38	1,160.19	-3,321.01	3,596.82	3,385.86	210.96	17.050	
8,100.00	6,945.06	5,949.00	5,943.35	36.74	183.92	70.38	1,160.19	-3,321.01	3,536.60	3,325.19	211.41	16.729	
8,200.00	6,944.74	5,949.00	5,943.35	37.56	183.92	70.38	1,160.19	-3,321.01	3,478.22	3,266.33	211.89	16.415	
8,300.00	6,944.41	5,949.00	5,943.35	38.43	183.92	70.38	1,160.19	-3,321.01	3,421.76	3,209.35	212.41	16.109	
8,400.00	6,944.09	5,949.00	5,943.35	39.35	183.92	70.38	1,160.19	-3,321.01	3,367.33	3,154.36	212.96	15.812	
8,500.00	6,943.77	5,949.00	5,943.35	40.31	183.92	70.38	1,160.19	-3,321.01	3,315.02	3,101.46	213.56	15.523	
8,600.00	6,943.45	5,949.00	5,943.35	41.32	183.92	70.38	1,160.19	-3,321.01	3,264.93	3,050.75	214.18	15.244	
8,700.00	6,943.12	5,949.00	5,943.35	42.37	183.92	70.38	1,160.19	-3,321.01	3,217.18	3,002.33	214.85	14.974	
8,800.00	6,942.80	5,949.00	5,943.35	43.45	183.92	70.38	1,160.19	-3,321.01	3,171.86	2,956.31	215.55	14.715	
8,900.00	6,942.48	5,949.00	5,943.35	44.57	183.92	70.38	1,160.19	-3,321.01	3,129.08	2,912.80	216.28	14.468	
9,000.00	6,942.15	5,949.00	5,943.35	45.71	183.92	70.38	1,160.19	-3,321.01	3,088.94	2,871.90	217.04	14.232	
9,100.00	6,941.83	5,949.00	5,943.35	46.89	183.92	70.38	1,160.19	-3,321.01	3,051.56	2,833.72	217.83	14.009	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #149 - OH - OH-INC

Offset Site Error: 0.00 usft

Survey Program: 117-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,200.00	6,941.51	5,949.00	5,943.35	48.09	183.92	70.38	1,160.19	-3,321.01	3,017.03	2,798.37	218.65	13.798	
9,300.00	6,941.18	5,949.00	5,943.35	49.31	183.92	70.38	1,160.19	-3,321.01	2,985.45	2,765.95	219.49	13.601	
9,400.00	6,940.86	5,949.00	5,943.35	50.56	183.92	70.38	1,160.19	-3,321.01	2,956.92	2,736.56	220.36	13.419	
9,500.00	6,940.54	5,949.00	5,943.35	51.82	183.92	70.38	1,160.19	-3,321.01	2,931.52	2,710.28	221.24	13.251	
9,600.00	6,940.21	5,949.00	5,943.35	53.11	183.92	70.38	1,160.19	-3,321.01	2,909.34	2,687.21	222.13	13.098	
9,700.00	6,939.89	5,949.00	5,943.35	54.41	183.92	70.38	1,160.19	-3,321.01	2,890.45	2,667.42	223.03	12.960	
9,800.00	6,939.57	5,949.00	5,943.35	55.73	183.92	70.38	1,160.19	-3,321.01	2,874.91	2,650.98	223.93	12.838	
9,900.00	6,939.25	5,949.00	5,943.35	57.07	183.92	70.38	1,160.19	-3,321.01	2,862.79	2,637.95	224.84	12.733	
10,000.00	6,938.92	5,949.00	5,943.35	58.41	183.92	70.38	1,160.19	-3,321.01	2,854.12	2,628.38	225.74	12.643	
10,100.00	6,938.60	5,949.00	5,943.35	59.77	183.92	70.38	1,160.19	-3,321.01	2,848.94	2,622.31	226.64	12.571	
10,197.77	6,938.28	5,949.00	5,943.35	61.12	183.92	70.38	1,160.19	-3,321.01	2,847.26	2,619.77	227.50	12.516 CC	
10,200.00	6,938.28	5,949.00	5,943.35	61.15	183.92	70.38	1,160.19	-3,321.01	2,847.27	2,619.75	227.52	12.515 ES	
10,300.00	6,937.95	5,949.00	5,943.35	62.53	183.92	70.38	1,160.19	-3,321.01	2,849.10	2,620.72	228.38	12.475	
10,400.00	6,937.63	5,949.00	5,943.35	63.92	183.92	70.38	1,160.19	-3,321.01	2,854.44	2,625.22	229.22	12.453	
10,500.00	6,937.31	5,949.00	5,943.35	65.33	183.92	70.38	1,160.19	-3,321.01	2,863.26	2,633.22	230.04	12.447 SF	
10,600.00	6,936.98	5,949.00	5,943.35	66.74	183.92	70.38	1,160.19	-3,321.01	2,875.54	2,644.71	230.83	12.458	
10,700.00	6,936.66	5,949.00	5,943.35	68.16	183.92	70.38	1,160.19	-3,321.01	2,891.22	2,659.64	231.58	12.485	
10,800.00	6,936.34	5,949.00	5,943.35	69.59	183.92	70.38	1,160.19	-3,321.01	2,910.26	2,677.96	232.30	12.528	
10,900.00	6,936.01	5,949.00	5,943.35	71.03	183.92	70.38	1,160.19	-3,321.01	2,932.58	2,699.60	232.99	12.587	
11,000.00	6,935.69	5,949.00	5,943.35	72.47	183.92	70.38	1,160.19	-3,321.01	2,958.12	2,724.49	233.63	12.661	
11,100.00	6,935.37	5,949.00	5,943.35	73.92	183.92	70.38	1,160.19	-3,321.01	2,986.79	2,752.56	234.24	12.751	
11,200.00	6,935.05	5,949.00	5,943.35	75.38	183.92	70.38	1,160.19	-3,321.01	3,018.51	2,783.70	234.80	12.855	
11,300.00	6,934.72	5,949.00	5,943.35	76.84	183.92	70.38	1,160.19	-3,321.01	3,053.17	2,817.84	235.33	12.974	
11,400.00	6,934.40	5,949.00	5,943.35	78.31	183.92	70.38	1,160.19	-3,321.01	3,090.68	2,854.86	235.81	13.107	
11,500.00	6,934.08	5,949.00	5,943.35	79.79	183.92	70.38	1,160.19	-3,321.01	3,130.93	2,894.67	236.26	13.252	
11,600.00	6,933.75	5,949.00	5,943.35	81.27	183.92	70.38	1,160.19	-3,321.01	3,173.83	2,937.17	236.66	13.411	
11,700.00	6,933.43	5,949.00	5,943.35	82.75	183.92	70.38	1,160.19	-3,321.01	3,219.26	2,982.23	237.03	13.582	
11,800.00	6,933.11	5,949.00	5,943.35	84.24	183.92	70.38	1,160.19	-3,321.01	3,267.12	3,029.76	237.36	13.765	
11,900.00	6,932.78	5,949.00	5,943.35	85.73	183.92	70.38	1,160.19	-3,321.01	3,317.30	3,079.65	237.65	13.959	
12,000.00	6,932.46	5,949.00	5,943.35	87.23	183.92	70.38	1,160.19	-3,321.01	3,369.71	3,131.80	237.91	14.164	
12,100.00	6,932.14	5,949.00	5,943.35	88.72	183.92	70.38	1,160.19	-3,321.01	3,424.24	3,186.10	238.14	14.379	
12,200.00	6,931.81	5,949.00	5,943.35	90.23	183.92	70.38	1,160.19	-3,321.01	3,480.78	3,242.44	238.34	14.604	
12,300.00	6,931.49	5,949.00	5,943.35	91.74	183.92	70.38	1,160.19	-3,321.01	3,539.25	3,300.74	238.51	14.839	
12,400.00	6,931.17	5,949.00	5,943.35	93.25	183.92	70.38	1,160.19	-3,321.01	3,599.55	3,360.89	238.66	15.083	
12,500.00	6,930.85	5,949.00	5,943.35	94.76	183.92	70.38	1,160.19	-3,321.01	3,661.58	3,422.81	238.78	15.335	
12,600.00	6,930.52	5,949.00	5,943.35	96.27	183.92	70.38	1,160.19	-3,321.01	3,725.27	3,486.39	238.88	15.595	
12,700.00	6,930.20	5,949.00	5,943.35	97.79	183.92	70.38	1,160.19	-3,321.01	3,790.52	3,551.57	238.95	15.863	
12,800.00	6,929.88	5,949.00	5,943.35	99.32	183.92	70.38	1,160.19	-3,321.01	3,857.27	3,618.26	239.01	16.138	
12,900.00	6,929.55	5,949.00	5,943.35	100.84	183.92	70.38	1,160.19	-3,321.01	3,925.43	3,686.37	239.06	16.421	
13,000.00	6,929.23	5,949.00	5,943.35	102.37	183.92	70.38	1,160.19	-3,321.01	3,994.92	3,755.84	239.08	16.709	
13,100.00	6,928.91	5,949.00	5,943.35	103.89	183.92	70.38	1,160.19	-3,321.01	4,065.69	3,826.60	239.10	17.004	
13,200.00	6,928.58	5,949.00	5,943.35	105.43	183.92	70.38	1,160.19	-3,321.01	4,137.67	3,898.57	239.10	17.305	
13,300.00	6,928.26	5,949.00	5,943.35	106.96	183.92	70.38	1,160.19	-3,321.01	4,210.79	3,971.71	239.08	17.612	
13,400.00	6,927.94	5,949.00	5,943.35	108.49	183.92	70.38	1,160.19	-3,321.01	4,285.00	4,045.93	239.06	17.924	
13,500.00	6,927.61	5,949.00	5,943.35	110.03	183.92	70.38	1,160.19	-3,321.01	4,360.24	4,121.20	239.03	18.241	
13,600.00	6,927.29	5,949.00	5,943.35	111.57	183.92	70.38	1,160.19	-3,321.01	4,436.45	4,197.46	238.99	18.563	
13,700.00	6,926.97	5,949.00	5,943.35	113.11	183.92	70.38	1,160.19	-3,321.01	4,513.60	4,274.65	238.95	18.889	
13,800.00	6,926.65	5,949.00	5,943.35	114.65	183.92	70.38	1,160.19	-3,321.01	4,591.62	4,352.73	238.90	19.220	
13,900.00	6,926.32	5,949.00	5,943.35	116.20	183.92	70.38	1,160.19	-3,321.01	4,670.49	4,431.65	238.84	19.555	
14,000.00	6,926.00	5,949.00	5,943.35	117.75	183.92	70.38	1,160.19	-3,321.01	4,750.15	4,511.37	238.78	19.894	
14,100.00	6,925.68	5,949.00	5,943.35	119.29	183.92	70.38	1,160.19	-3,321.01	4,830.56	4,591.85	238.71	20.236	
14,200.00	6,925.35	5,949.00	5,943.35	120.84	183.92	70.38	1,160.19	-3,321.01	4,911.70	4,673.06	238.64	20.582	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #149 - OH - OH-INC

Offset Site Error: 0.00 usft

Survey Program: 117-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Rule Assigned:

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,300.00	6,925.03	5,949.00	5,943.35	122.39	183.92	70.38	1,160.19	-3,321.01	4,993.52	4,754.95	238.57	20.931	
14,400.00	6,924.71	5,949.00	5,943.35	123.94	183.92	70.38	1,160.19	-3,321.01	5,075.99	4,837.49	238.50	21.283	
14,500.00	6,924.38	5,949.00	5,943.35	125.50	183.92	70.38	1,160.19	-3,321.01	5,159.08	4,920.66	238.42	21.639	
14,600.00	6,924.06	5,949.00	5,943.35	127.05	183.92	70.38	1,160.19	-3,321.01	5,242.76	5,004.42	238.34	21.997	
14,700.00	6,923.74	5,949.00	5,943.35	128.61	183.92	70.38	1,160.19	-3,321.01	5,327.01	5,088.74	238.26	22.358	
14,800.00	6,923.42	5,949.00	5,943.35	130.16	183.92	70.38	1,160.19	-3,321.01	5,411.79	5,173.61	238.18	22.721	
14,900.00	6,923.09	5,949.00	5,943.35	131.72	183.92	70.38	1,160.19	-3,321.01	5,497.08	5,258.98	238.10	23.087	
15,000.00	6,922.77	5,949.00	5,943.35	133.28	183.92	70.38	1,160.19	-3,321.01	5,582.86	5,344.84	238.02	23.455	
15,100.00	6,922.45	5,949.00	5,943.35	134.84	183.92	70.38	1,160.19	-3,321.01	5,669.11	5,431.17	237.94	23.825	
15,200.00	6,922.12	5,949.00	5,943.35	136.40	183.92	70.38	1,160.19	-3,321.01	5,755.80	5,517.94	237.86	24.198	
15,300.00	6,921.80	5,949.00	5,943.35	137.96	183.92	70.38	1,160.19	-3,321.01	5,842.92	5,605.13	237.79	24.572	
15,400.00	6,921.48	5,949.00	5,943.35	139.53	183.92	70.38	1,160.19	-3,321.01	5,930.44	5,692.73	237.71	24.949	
15,500.00	6,921.15	5,949.00	5,943.35	141.09	183.92	70.38	1,160.19	-3,321.01	6,018.35	5,780.72	237.63	25.327	
15,600.00	6,920.83	5,949.00	5,943.35	142.65	183.92	70.38	1,160.19	-3,321.01	6,106.64	5,869.08	237.55	25.706	
15,700.00	6,920.51	5,949.00	5,943.35	144.22	183.92	70.38	1,160.19	-3,321.01	6,195.28	5,957.80	237.48	26.088	
15,800.00	6,920.18	5,949.00	5,943.35	145.79	183.92	70.38	1,160.19	-3,321.01	6,284.26	6,046.85	237.40	26.471	
15,900.00	6,919.86	5,949.00	5,943.35	147.35	183.92	70.38	1,160.19	-3,321.01	6,373.57	6,136.24	237.33	26.855	
16,000.00	6,919.54	5,949.00	5,943.35	148.92	183.92	70.38	1,160.19	-3,321.01	6,463.19	6,225.93	237.26	27.241	
16,100.00	6,919.22	5,949.00	5,943.35	150.49	183.92	70.38	1,160.19	-3,321.01	6,553.11	6,315.92	237.19	27.628	
16,200.00	6,918.89	5,949.00	5,943.35	152.06	183.92	70.38	1,160.19	-3,321.01	6,643.32	6,406.20	237.12	28.016	
16,300.00	6,918.57	5,949.00	5,943.35	153.63	183.92	70.38	1,160.19	-3,321.01	6,733.81	6,496.75	237.06	28.406	
16,400.00	6,918.25	5,949.00	5,943.35	155.20	183.92	70.38	1,160.19	-3,321.01	6,824.56	6,587.57	236.99	28.796	
16,500.00	6,917.92	5,949.00	5,943.35	156.77	183.92	70.38	1,160.19	-3,321.01	6,915.57	6,678.64	236.93	29.188	
16,600.00	6,917.60	5,949.00	5,943.35	158.34	183.92	70.38	1,160.19	-3,321.01	7,006.82	6,769.95	236.87	29.581	
16,700.00	6,917.28	5,949.00	5,943.35	159.92	183.92	70.38	1,160.19	-3,321.01	7,098.31	6,861.50	236.81	29.975	
16,800.00	6,916.95	5,949.00	5,943.35	161.49	183.92	70.38	1,160.19	-3,321.01	7,190.02	6,953.27	236.75	30.369	
16,900.00	6,916.63	5,949.00	5,943.35	163.06	183.92	70.38	1,160.19	-3,321.01	7,281.95	7,045.26	236.70	30.765	
17,000.00	6,916.31	5,949.00	5,943.35	164.64	183.92	70.38	1,160.19	-3,321.01	7,374.09	7,137.45	236.64	31.161	
17,100.00	6,915.98	5,949.00	5,943.35	166.21	183.92	70.38	1,160.19	-3,321.01	7,466.44	7,229.85	236.59	31.558	
17,200.00	6,915.66	5,949.00	5,943.35	167.79	183.92	70.38	1,160.19	-3,321.01	7,558.98	7,322.44	236.54	31.956	
17,300.00	6,915.34	5,949.00	5,943.35	169.37	183.92	70.38	1,160.19	-3,321.01	7,651.71	7,415.21	236.49	32.355	
17,400.00	6,915.02	5,949.00	5,943.35	170.94	183.92	70.38	1,160.19	-3,321.01	7,744.62	7,508.17	236.45	32.754	
17,500.00	6,914.69	5,949.00	5,943.35	172.52	183.92	70.38	1,160.19	-3,321.01	7,837.70	7,601.30	236.40	33.154	
17,600.00	6,914.37	5,949.00	5,943.35	174.10	183.92	70.38	1,160.19	-3,321.01	7,930.95	7,694.59	236.36	33.555	
17,700.00	6,914.05	5,949.00	5,943.35	175.68	183.92	70.38	1,160.19	-3,321.01	8,024.36	7,788.05	236.32	33.956	
17,800.00	6,913.72	5,949.00	5,943.35	177.25	183.92	70.38	1,160.19	-3,321.01	8,117.93	7,881.66	236.28	34.358	
17,900.00	6,913.40	5,949.00	5,943.35	178.83	183.92	70.38	1,160.19	-3,321.01	8,211.66	7,975.42	236.24	34.760	
18,000.00	6,913.08	5,949.00	5,943.35	180.41	183.92	70.38	1,160.19	-3,321.01	8,305.52	8,069.32	236.20	35.162	
18,023.75	6,913.00	5,949.00	5,943.35	180.79	183.92	70.38	1,160.19	-3,321.01	8,327.84	8,091.65	236.20	35.258	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #149A - OH - OH-INC

Offset Site Error: 0.00 usft

Survey Program: 245-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	-80.75	779.55	-4,788.06	4,851.28				
100.00	100.00	59.00	59.00	0.25	1.05	-80.75	779.55	-4,788.06	4,851.10	4,849.81	1.30	3,742.029	
200.00	200.00	159.00	159.00	0.61	2.82	-80.75	779.55	-4,788.06	4,851.10	4,847.68	3.43	1,415.773	
300.00	300.00	259.00	259.00	0.97	4.59	-80.75	779.55	-4,788.06	4,851.10	4,845.55	5.56	873.037	
400.00	400.00	359.00	359.00	1.33	6.36	-80.75	779.55	-4,788.06	4,851.10	4,843.42	7.69	631.099	
500.00	500.00	460.39	460.39	1.68	8.16	-80.75	779.59	-4,788.06	4,851.11	4,841.27	9.84	492.921	
505.40	505.40	465.87	465.87	1.70	8.25	99.29	779.58	-4,788.06	4,851.11	4,841.15	9.96	487.204	
600.00	599.98	558.98	558.98	2.03	9.95	99.31	779.55	-4,788.06	4,851.39	4,839.41	11.98	405.066	
700.00	699.84	659.25	659.25	2.36	11.79	99.35	779.70	-4,788.06	4,852.26	4,838.11	14.15	342.978	
800.00	799.45	760.09	760.09	2.71	13.64	99.43	779.57	-4,788.06	4,853.66	4,837.33	16.34	297.048	
900.00	898.70	857.72	857.70	3.06	15.48	99.52	779.55	-4,788.06	4,855.68	4,837.15	18.53	262.003	
1,000.00	997.47	956.48	956.47	3.43	17.34	99.65	779.55	-4,788.06	4,858.32	4,837.55	20.77	233.949	
1,100.00	1,095.62	1,055.52	1,055.50	3.82	19.21	99.82	780.34	-4,788.06	4,861.74	4,838.72	23.02	211.173	
1,207.83	1,200.65	1,163.05	1,163.02	4.26	21.24	100.01	780.08	-4,788.06	4,866.00	4,840.51	25.49	190.886	
1,300.00	1,290.02	1,254.66	1,254.64	4.65	22.96	100.27	779.61	-4,788.06	4,870.00	4,842.39	27.61	176.373	
1,400.00	1,386.98	1,346.03	1,345.98	5.09	24.70	100.52	779.55	-4,788.06	4,874.53	4,844.75	29.78	163.694	
1,500.00	1,483.95	1,442.99	1,442.95	5.53	26.54	100.80	779.55	-4,788.06	4,879.19	4,847.14	32.06	152.193	
1,600.00	1,580.91	1,540.44	1,540.39	5.99	28.38	101.08	780.08	-4,788.06	4,884.08	4,849.72	34.36	142.165	
1,700.00	1,677.87	1,639.13	1,639.08	6.44	30.26	101.36	779.95	-4,788.06	4,888.95	4,852.27	36.68	133.290	
1,800.00	1,774.84	1,737.91	1,737.86	6.90	32.13	101.63	779.64	-4,788.06	4,893.91	4,854.90	39.01	125.459	
1,900.00	1,871.80	1,830.87	1,830.80	7.36	34.06	101.89	779.55	-4,788.06	4,899.02	4,857.62	41.39	118.350	
2,000.00	1,968.76	1,927.84	1,927.76	7.83	36.12	102.16	779.55	-4,788.06	4,904.26	4,860.35	43.92	111.664	
2,100.00	2,065.73	2,025.24	2,025.15	8.30	38.20	102.44	780.37	-4,788.06	4,909.81	4,863.35	46.46	105.687	
2,200.00	2,162.69	2,125.12	2,125.04	8.77	40.32	102.72	780.19	-4,788.06	4,915.26	4,866.21	49.05	100.215	
2,300.00	2,259.65	2,225.14	2,225.05	9.24	42.45	102.99	779.76	-4,788.06	4,920.76	4,869.12	51.64	95.286	
2,400.00	2,356.61	2,315.79	2,315.61	9.71	44.41	103.24	779.55	-4,788.06	4,926.42	4,872.36	54.06	91.133	
2,500.00	2,453.58	2,412.75	2,412.58	10.18	46.51	103.51	779.55	-4,788.06	4,932.24	4,875.62	56.62	87.106	
2,600.00	2,550.54	2,510.01	2,509.81	10.66	48.61	103.80	781.16	-4,788.06	4,938.57	4,879.38	59.20	83.428	
2,700.00	2,647.50	2,613.84	2,613.63	11.13	50.86	104.08	780.84	-4,788.06	4,944.56	4,882.65	61.91	79.865	
2,800.00	2,744.47	2,717.98	2,717.75	11.61	53.12	104.36	779.95	-4,788.06	4,950.52	4,885.89	64.63	76.593	
2,900.00	2,841.43	2,800.70	2,800.43	12.08	54.84	104.58	779.55	-4,788.06	4,956.68	4,889.85	66.83	74.168	
3,000.00	2,938.39	2,897.67	2,897.39	12.56	56.82	104.84	779.55	-4,788.06	4,963.07	4,893.80	69.28	71.643	
3,100.00	3,035.36	2,994.63	2,994.36	13.04	58.80	105.11	779.55	-4,788.06	4,969.58	4,897.86	71.72	69.291	
3,200.00	3,132.32	3,095.08	3,094.80	13.51	60.85	105.39	780.23	-4,788.06	4,976.38	4,902.14	74.24	67.033	
3,300.00	3,229.28	3,195.80	3,195.52	13.99	62.90	105.66	779.84	-4,788.06	4,983.01	4,906.25	76.76	64.917	
3,400.00	3,326.25	3,285.58	3,285.25	14.47	64.71	105.90	779.55	-4,788.06	4,989.76	4,910.73	79.03	63.138	
3,500.00	3,423.21	3,382.54	3,382.21	14.95	66.62	106.16	779.55	-4,788.06	4,996.71	4,915.30	81.41	61.380	
3,600.00	3,520.17	3,479.50	3,479.17	15.43	68.53	106.42	779.55	-4,788.06	5,003.77	4,919.98	83.78	59.722	
3,700.00	3,617.13	3,578.32	3,577.98	15.91	70.47	106.70	780.80	-4,788.06	5,011.30	4,925.10	86.20	58.138	
3,800.00	3,714.10	3,679.90	3,679.55	16.39	72.47	106.97	780.51	-4,788.06	5,018.50	4,929.84	88.67	56.601	
3,900.00	3,811.06	3,781.64	3,781.28	16.87	74.48	107.24	779.92	-4,788.06	5,025.72	4,934.59	91.14	55.145	
4,000.00	3,908.02	3,867.41	3,867.02	17.35	76.17	107.46	779.55	-4,788.06	5,033.09	4,939.80	93.29	53.951	
4,100.00	4,004.99	3,964.37	3,963.99	17.83	78.08	107.72	779.55	-4,788.06	5,040.69	4,945.02	95.67	52.690	
4,200.00	4,101.95	4,061.33	4,060.95	18.31	79.99	107.98	779.55	-4,788.06	5,048.40	4,950.36	98.04	51.492	
4,300.00	4,198.91	4,161.24	4,160.85	18.79	81.96	108.25	779.98	-4,788.06	5,056.35	4,955.88	100.48	50.324	
4,400.00	4,295.88	4,261.31	4,260.92	19.27	83.93	108.51	779.70	-4,788.06	5,064.19	4,961.28	102.91	49.209	
4,500.00	4,392.84	4,352.26	4,351.84	19.75	85.76	108.74	779.55	-4,788.06	5,072.16	4,966.96	105.20	48.213	
4,600.00	4,489.80	4,449.23	4,448.80	20.23	87.74	109.00	779.55	-4,788.06	5,080.29	4,972.64	107.65	47.194	
4,700.00	4,586.76	4,546.19	4,545.76	20.71	89.71	109.25	779.55	-4,788.06	5,088.53	4,978.44	110.09	46.222	
4,800.00	4,683.73	4,649.46	4,649.02	21.20	91.82	109.53	780.45	-4,788.06	5,097.18	4,984.52	112.66	45.244	
4,900.00	4,780.69	4,752.99	4,752.54	21.68	93.93	109.79	779.89	-4,788.06	5,105.44	4,990.21	115.24	44.304	
5,000.00	4,877.65	4,837.14	4,836.65	22.16	95.59	110.01	779.55	-4,788.06	5,113.86	4,996.50	117.35	43.576	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #149A - OH - OH-INC

Offset Site Error: 0.00 usft

Survey Program: 245-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,100.00	4,974.62	4,934.10	4,933.62	22.64	97.43	110.26	779.55	-4,788.06	5,122.51	5,002.85	119.66	42.810	
5,200.00	5,071.58	5,031.06	5,030.58	23.12	99.28	110.51	779.55	-4,788.06	5,131.26	5,009.30	121.96	42.074	
5,300.00	5,168.54	5,132.37	5,131.88	23.60	101.20	110.77	780.26	-4,788.06	5,140.37	5,016.03	124.34	41.340	
5,400.00	5,265.51	5,234.48	5,233.99	24.09	103.14	111.03	779.89	-4,788.06	5,149.20	5,022.45	126.74	40.627	
5,500.00	5,362.47	5,321.98	5,321.47	24.57	104.84	111.25	779.55	-4,788.06	5,158.12	5,029.21	128.90	40.015	
5,600.00	5,459.43	5,418.94	5,418.43	25.05	106.82	111.50	779.55	-4,788.06	5,167.27	5,035.93	131.34	39.342	
5,700.00	5,556.40	5,515.91	5,515.40	25.53	108.80	111.74	779.55	-4,788.06	5,176.52	5,042.75	133.78	38.695	
5,800.00	5,653.36	5,615.53	5,615.01	26.01	110.83	112.00	780.04	-4,788.06	5,186.06	5,049.79	136.27	38.057	
5,900.00	5,750.32	5,716.11	5,715.59	26.50	112.88	112.25	779.82	-4,788.06	5,195.43	5,056.65	138.78	37.436	
6,000.00	5,847.28	5,806.86	5,806.28	26.98	114.81	112.47	779.55	-4,788.06	5,204.87	5,063.71	141.16	36.872	
6,100.00	5,944.25	5,903.82	5,903.25	27.46	117.14	112.71	779.55	-4,788.06	5,214.52	5,070.57	143.95	36.225	
6,200.00	6,041.21	6,000.00	5,999.35	27.94	119.45	112.95	779.55	-4,788.06	5,224.26	5,077.55	146.71	35.609	
6,300.00	6,138.17	6,000.00	5,999.35	28.43	119.45	112.95	779.55	-4,788.06	5,235.01	5,087.90	147.12	35.584	
6,400.00	6,235.14	6,000.00	5,999.35	28.91	119.45	112.95	779.55	-4,788.06	5,247.65	5,100.18	147.47	35.585	
6,496.84	6,329.04	6,000.00	5,999.35	29.38	119.45	112.95	779.55	-4,788.06	5,261.67	5,113.91	147.76	35.609	
6,500.00	6,332.10	6,000.00	5,999.35	29.39	119.45	111.81	779.55	-4,788.06	5,262.15	5,114.38	147.77	35.610	
6,550.00	6,380.52	6,000.00	5,999.35	29.63	119.45	94.41	779.55	-4,788.06	5,268.08	5,120.17	147.91	35.618	
6,600.00	6,428.63	6,000.00	5,999.35	29.87	119.45	79.95	779.55	-4,788.06	5,270.86	5,122.83	148.03	35.606	
6,650.00	6,476.14	6,000.00	5,999.35	30.10	119.45	69.16	779.55	-4,788.06	5,270.49	5,122.34	148.15	35.574	
6,700.00	6,522.73	6,000.00	5,999.35	30.33	119.45	61.41	779.55	-4,788.06	5,266.97	5,118.70	148.27	35.524	
6,750.00	6,568.14	6,000.00	5,999.35	30.54	119.45	55.90	779.55	-4,788.06	5,260.31	5,111.94	148.37	35.455	
6,800.00	6,612.08	6,000.00	5,999.35	30.75	119.45	51.97	779.55	-4,788.06	5,250.54	5,102.08	148.46	35.367	
6,850.00	6,654.28	6,000.00	5,999.35	30.95	119.45	49.20	779.55	-4,788.06	5,237.70	5,089.16	148.55	35.260	
6,900.00	6,694.47	6,000.00	5,999.35	31.15	119.45	47.30	779.55	-4,788.06	5,221.86	5,073.24	148.63	35.134	
6,950.00	6,732.42	6,000.00	5,999.35	31.33	119.45	46.08	779.55	-4,788.06	5,203.08	5,054.38	148.70	34.991	
7,000.00	6,767.89	6,000.00	5,999.35	31.51	119.45	45.43	779.55	-4,788.06	5,181.44	5,032.68	148.77	34.829	
7,050.00	6,800.65	6,000.00	5,999.35	31.68	119.45	45.28	779.55	-4,788.06	5,157.05	5,008.22	148.84	34.649	
7,100.00	6,830.51	6,000.00	5,999.35	31.85	119.45	45.60	779.55	-4,788.06	5,130.02	4,981.11	148.91	34.451	
7,150.00	6,857.28	6,000.00	5,999.35	32.01	119.45	46.38	779.55	-4,788.06	5,100.47	4,951.49	148.98	34.236	
7,200.00	6,880.80	6,000.00	5,999.35	32.17	119.45	47.63	779.55	-4,788.06	5,068.55	4,919.49	149.06	34.004	
7,250.00	6,900.92	6,000.00	5,999.35	32.33	119.45	49.39	779.55	-4,788.06	5,034.40	4,885.26	149.14	33.756	
7,300.00	6,917.52	6,000.00	5,999.35	32.49	119.45	51.73	779.55	-4,788.06	4,998.19	4,848.96	149.23	33.493	
7,350.00	6,930.50	6,000.00	5,999.35	32.66	119.45	54.72	779.55	-4,788.06	4,960.11	4,810.77	149.33	33.215	
7,400.00	6,939.77	6,000.00	5,999.35	32.83	119.45	58.47	779.55	-4,788.06	4,920.34	4,770.89	149.45	32.923	
7,450.00	6,945.28	6,000.00	5,999.35	33.01	119.45	63.11	779.55	-4,788.06	4,879.11	4,729.53	149.58	32.619	
7,499.66	6,947.00	6,000.00	5,999.35	33.19	119.45	68.73	779.55	-4,788.06	4,836.90	4,687.18	149.72	32.306	
7,600.00	6,946.68	6,000.00	5,999.35	33.61	119.45	68.73	779.55	-4,788.06	4,750.82	4,600.78	150.04	31.664	
7,700.00	6,946.35	6,000.00	5,999.35	34.10	119.45	68.73	779.55	-4,788.06	4,665.59	4,515.21	150.37	31.027	
7,800.00	6,946.03	6,000.00	5,999.35	34.66	119.45	68.73	779.55	-4,788.06	4,580.95	4,430.22	150.73	30.392	
7,900.00	6,945.71	6,000.00	5,999.35	35.29	119.45	68.73	779.55	-4,788.06	4,496.95	4,345.83	151.11	29.759	
8,000.00	6,945.38	6,000.00	5,999.35	35.99	119.45	68.73	779.55	-4,788.06	4,413.61	4,262.09	151.52	29.128	
8,100.00	6,945.06	6,000.00	5,999.35	36.74	119.45	68.73	779.55	-4,788.06	4,330.98	4,179.02	151.96	28.500	
8,200.00	6,944.74	6,000.00	5,999.35	37.56	119.45	68.73	779.55	-4,788.06	4,249.10	4,096.67	152.43	27.876	
8,300.00	6,944.41	6,000.00	5,999.35	38.43	119.45	68.73	779.55	-4,788.06	4,168.00	4,015.08	152.93	27.255	
8,400.00	6,944.09	6,000.00	5,999.35	39.35	119.45	68.73	779.55	-4,788.06	4,087.75	3,934.29	153.45	26.638	
8,500.00	6,943.77	6,000.00	5,999.35	40.31	119.45	68.73	779.55	-4,788.06	4,008.38	3,854.36	154.02	26.026	
8,600.00	6,943.45	6,000.00	5,999.35	41.32	119.45	68.73	779.55	-4,788.06	3,929.95	3,775.34	154.61	25.419	
8,700.00	6,943.12	6,000.00	5,999.35	42.37	119.45	68.73	779.55	-4,788.06	3,852.53	3,697.29	155.24	24.817	
8,800.00	6,942.80	6,000.00	5,999.35	43.45	119.45	68.73	779.55	-4,788.06	3,776.16	3,620.26	155.90	24.221	
8,900.00	6,942.48	6,000.00	5,999.35	44.57	119.45	68.73	779.55	-4,788.06	3,700.92	3,544.32	156.60	23.632	
9,000.00	6,942.15	6,000.00	5,999.35	45.71	119.45	68.73	779.55	-4,788.06	3,626.88	3,469.53	157.34	23.051	
9,100.00	6,941.83	6,000.00	5,999.35	46.89	119.45	68.73	779.55	-4,788.06	3,554.10	3,395.99	158.12	22.478	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #149A - OH - OH-INC

Offset Site Error: 0.00 usft

Survey Program: 245-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,200.00	6,941.51	6,000.00	5,999.35	48.09	119.45	68.73	779.55	-4,788.06	3,482.68	3,323.75	158.93	21.913	
9,300.00	6,941.18	6,000.00	5,999.35	49.31	119.45	68.73	779.55	-4,788.06	3,412.70	3,252.91	159.79	21.358	
9,400.00	6,940.86	6,000.00	5,999.35	50.56	119.45	68.73	779.55	-4,788.06	3,344.24	3,183.56	160.68	20.813	
9,500.00	6,940.54	6,000.00	5,999.35	51.82	119.45	68.73	779.55	-4,788.06	3,277.40	3,115.79	161.61	20.279	
9,600.00	6,940.21	6,000.00	5,999.35	53.11	119.45	68.73	779.55	-4,788.06	3,212.29	3,049.70	162.58	19.758	
9,700.00	6,939.89	6,000.00	5,999.35	54.41	119.45	68.73	779.55	-4,788.06	3,149.00	2,985.41	163.59	19.249	
9,800.00	6,939.57	6,000.00	5,999.35	55.73	119.45	68.73	779.55	-4,788.06	3,087.66	2,923.02	164.64	18.754	
9,900.00	6,939.25	6,000.00	5,999.35	57.07	119.45	68.73	779.55	-4,788.06	3,028.38	2,862.66	165.72	18.274	
10,000.00	6,938.92	6,000.00	5,999.35	58.41	119.45	68.73	779.55	-4,788.06	2,971.28	2,804.44	166.83	17.810	
10,100.00	6,938.60	6,000.00	5,999.35	59.77	119.45	68.73	779.55	-4,788.06	2,916.49	2,748.51	167.98	17.362	
10,200.00	6,938.28	6,000.00	5,999.35	61.15	119.45	68.73	779.55	-4,788.06	2,864.15	2,695.00	169.15	16.933	
10,300.00	6,937.95	6,000.00	5,999.35	62.53	119.45	68.73	779.55	-4,788.06	2,814.39	2,644.04	170.34	16.522	
10,400.00	6,937.63	6,000.00	5,999.35	63.92	119.45	68.73	779.55	-4,788.06	2,767.35	2,595.79	171.56	16.131	
10,500.00	6,937.31	6,000.00	5,999.35	65.33	119.45	68.73	779.55	-4,788.06	2,723.16	2,550.38	172.79	15.760	
10,600.00	6,936.98	6,000.00	5,999.35	66.74	119.45	68.73	779.55	-4,788.06	2,681.99	2,507.96	174.02	15.412	
10,700.00	6,936.66	6,000.00	5,999.35	68.16	119.45	68.73	779.55	-4,788.06	2,643.95	2,468.69	175.26	15.086	
10,800.00	6,936.34	6,000.00	5,999.35	69.59	119.45	68.73	779.55	-4,788.06	2,609.20	2,432.70	176.49	14.784	
10,900.00	6,936.01	6,000.00	5,999.35	71.03	119.45	68.73	779.55	-4,788.06	2,577.85	2,400.14	177.71	14.506	
11,000.00	6,935.69	6,000.00	5,999.35	72.47	119.45	68.73	779.55	-4,788.06	2,550.05	2,371.14	178.91	14.253	
11,100.00	6,935.37	6,000.00	5,999.35	73.92	119.45	68.73	779.55	-4,788.06	2,525.90	2,345.82	180.08	14.026	
11,200.00	6,935.05	6,000.00	5,999.35	75.38	119.45	68.73	779.55	-4,788.06	2,505.52	2,324.30	181.22	13.826	
11,300.00	6,934.72	6,000.00	5,999.35	76.84	119.45	68.73	779.55	-4,788.06	2,488.98	2,306.67	182.31	13.652	
11,400.00	6,934.40	6,000.00	5,999.35	78.31	119.45	68.73	779.55	-4,788.06	2,476.38	2,293.03	183.35	13.506	
11,500.00	6,934.08	6,000.00	5,999.35	79.79	119.45	68.73	779.55	-4,788.06	2,467.77	2,283.44	184.33	13.388	
11,600.00	6,933.75	6,000.00	5,999.35	81.27	119.45	68.73	779.55	-4,788.06	2,463.19	2,277.95	185.24	13.297	
11,662.87	6,933.55	6,000.00	5,999.35	82.20	119.45	68.73	779.55	-4,788.06	2,462.39	2,276.61	185.78	13.255	CC
11,700.00	6,933.43	6,000.00	5,999.35	82.75	119.45	68.73	779.55	-4,788.06	2,462.67	2,276.59	186.08	13.234	ES
11,800.00	6,933.11	6,000.00	5,999.35	84.24	119.45	68.73	779.55	-4,788.06	2,466.20	2,279.36	186.84	13.199	
11,900.00	6,932.78	6,000.00	5,999.35	85.73	119.45	68.73	779.55	-4,788.06	2,473.78	2,286.25	187.53	13.192	SF
12,000.00	6,932.46	6,000.00	5,999.35	87.23	119.45	68.73	779.55	-4,788.06	2,485.36	2,297.23	188.13	13.211	
12,100.00	6,932.14	6,000.00	5,999.35	88.72	119.45	68.73	779.55	-4,788.06	2,500.89	2,312.25	188.64	13.257	
12,200.00	6,931.81	6,000.00	5,999.35	90.23	119.45	68.73	779.55	-4,788.06	2,520.29	2,331.22	189.08	13.330	
12,300.00	6,931.49	6,000.00	5,999.35	91.74	119.45	68.73	779.55	-4,788.06	2,543.48	2,354.06	189.42	13.427	
12,400.00	6,931.17	6,000.00	5,999.35	93.25	119.45	68.73	779.55	-4,788.06	2,570.35	2,380.66	189.69	13.550	
12,500.00	6,930.85	6,000.00	5,999.35	94.76	119.45	68.73	779.55	-4,788.06	2,600.80	2,410.92	189.88	13.697	
12,600.00	6,930.52	6,000.00	5,999.35	96.27	119.45	68.73	779.55	-4,788.06	2,634.69	2,444.69	190.00	13.867	
12,700.00	6,930.20	6,000.00	5,999.35	97.79	119.45	68.73	779.55	-4,788.06	2,671.89	2,481.85	190.04	14.059	
12,800.00	6,929.88	6,000.00	5,999.35	99.32	119.45	68.73	779.55	-4,788.06	2,712.27	2,522.25	190.02	14.273	
12,900.00	6,929.55	6,000.00	5,999.35	100.84	119.45	68.73	779.55	-4,788.06	2,755.70	2,565.75	189.94	14.508	
13,000.00	6,929.23	6,000.00	5,999.35	102.37	119.45	68.73	779.55	-4,788.06	2,802.01	2,612.20	189.81	14.762	
13,100.00	6,928.91	6,000.00	5,999.35	103.89	119.45	68.73	779.55	-4,788.06	2,851.09	2,661.46	189.63	15.035	
13,200.00	6,928.58	6,000.00	5,999.35	105.43	119.45	68.73	779.55	-4,788.06	2,902.78	2,713.38	189.40	15.326	
13,300.00	6,928.26	6,000.00	5,999.35	106.96	119.45	68.73	779.55	-4,788.06	2,956.95	2,767.82	189.14	15.634	
13,400.00	6,927.94	6,000.00	5,999.35	108.49	119.45	68.73	779.55	-4,788.06	3,013.47	2,824.63	188.84	15.958	
13,500.00	6,927.61	6,000.00	5,999.35	110.03	119.45	68.73	779.55	-4,788.06	3,072.20	2,883.69	188.51	16.297	
13,600.00	6,927.29	6,000.00	5,999.35	111.57	119.45	68.73	779.55	-4,788.06	3,133.02	2,944.86	188.16	16.651	
13,700.00	6,926.97	6,000.00	5,999.35	113.11	119.45	68.73	779.55	-4,788.06	3,195.82	3,008.03	187.79	17.018	
13,800.00	6,926.65	6,000.00	5,999.35	114.65	119.45	68.73	779.55	-4,788.06	3,260.47	3,073.07	187.40	17.398	
13,900.00	6,926.32	6,000.00	5,999.35	116.20	119.45	68.73	779.55	-4,788.06	3,326.88	3,139.87	187.00	17.790	
14,000.00	6,926.00	6,000.00	5,999.35	117.75	119.45	68.73	779.55	-4,788.06	3,394.93	3,208.33	186.59	18.194	
14,100.00	6,925.68	6,000.00	5,999.35	119.29	119.45	68.73	779.55	-4,788.06	3,464.53	3,278.35	186.18	18.609	
14,200.00	6,925.35	6,000.00	5,999.35	120.84	119.45	68.73	779.55	-4,788.06	3,535.59	3,349.83	185.76	19.033	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #149A - OH - OH-INC — **Offset Site Error:** 0.00 usft

Survey Program: 245-A027Ua_INC-ONLY — **Rule Assigned:** — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,300.00	6,925.03	6,000.00	5,999.35	122.39	119.45	68.73	779.55	-4,788.06	3,608.02	3,422.69	185.33	19.468	
14,400.00	6,924.71	6,000.00	5,999.35	123.94	119.45	68.73	779.55	-4,788.06	3,681.75	3,496.84	184.91	19.911	
14,500.00	6,924.38	6,000.00	5,999.35	125.50	119.45	68.73	779.55	-4,788.06	3,756.68	3,572.20	184.48	20.363	
14,600.00	6,924.06	6,000.00	5,999.35	127.05	119.45	68.73	779.55	-4,788.06	3,832.77	3,648.70	184.06	20.823	
14,700.00	6,923.74	6,000.00	5,999.35	128.61	119.45	68.73	779.55	-4,788.06	3,909.93	3,726.28	183.65	21.291	
14,800.00	6,923.42	6,000.00	5,999.35	130.16	119.45	68.73	779.55	-4,788.06	3,988.10	3,804.87	183.23	21.765	
14,900.00	6,923.09	6,000.00	5,999.35	131.72	119.45	68.73	779.55	-4,788.06	4,067.23	3,884.41	182.83	22.246	
15,000.00	6,922.77	6,000.00	5,999.35	133.28	119.45	68.73	779.55	-4,788.06	4,147.27	3,964.84	182.43	22.734	
15,100.00	6,922.45	6,000.00	5,999.35	134.84	119.45	68.73	779.55	-4,788.06	4,228.15	4,046.11	182.03	23.227	
15,200.00	6,922.12	6,000.00	5,999.35	136.40	119.45	68.73	779.55	-4,788.06	4,309.83	4,128.19	181.65	23.726	
15,300.00	6,921.80	6,000.00	5,999.35	137.96	119.45	68.73	779.55	-4,788.06	4,392.28	4,211.01	181.27	24.231	
15,400.00	6,921.48	6,000.00	5,999.35	139.53	119.45	68.73	779.55	-4,788.06	4,475.43	4,294.54	180.90	24.740	
15,500.00	6,921.15	6,000.00	5,999.35	141.09	119.45	68.73	779.55	-4,788.06	4,559.27	4,378.73	180.54	25.254	
15,600.00	6,920.83	6,000.00	5,999.35	142.65	119.45	68.73	779.55	-4,788.06	4,643.74	4,463.56	180.18	25.772	
15,700.00	6,920.51	6,000.00	5,999.35	144.22	119.45	68.73	779.55	-4,788.06	4,728.83	4,548.99	179.84	26.295	
15,800.00	6,920.18	6,000.00	5,999.35	145.79	119.45	68.73	779.55	-4,788.06	4,814.48	4,634.97	179.51	26.821	
15,900.00	6,919.86	6,000.00	5,999.35	147.35	119.45	68.73	779.55	-4,788.06	4,900.68	4,721.50	179.18	27.351	
16,000.00	6,919.54	6,000.00	5,999.35	148.92	119.45	68.73	779.55	-4,788.06	4,987.39	4,808.53	178.86	27.884	
16,100.00	6,919.22	6,000.00	5,999.35	150.49	119.45	68.73	779.55	-4,788.06	5,074.59	4,896.04	178.55	28.421	
16,200.00	6,918.89	6,000.00	5,999.35	152.06	119.45	68.73	779.55	-4,788.06	5,162.26	4,984.01	178.25	28.961	
16,300.00	6,918.57	6,000.00	5,999.35	153.63	119.45	68.73	779.55	-4,788.06	5,250.37	5,072.41	177.96	29.503	
16,400.00	6,918.25	6,000.00	5,999.35	155.20	119.45	68.73	779.55	-4,788.06	5,338.89	5,161.22	177.68	30.048	
16,500.00	6,917.92	6,000.00	5,999.35	156.77	119.45	68.73	779.55	-4,788.06	5,427.82	5,250.42	177.40	30.596	
16,600.00	6,917.60	6,000.00	5,999.35	158.34	119.45	68.73	779.55	-4,788.06	5,517.12	5,339.99	177.13	31.147	
16,700.00	6,917.28	6,000.00	5,999.35	159.92	119.45	68.73	779.55	-4,788.06	5,606.79	5,429.91	176.88	31.699	
16,800.00	6,916.95	6,000.00	5,999.35	161.49	119.45	68.73	779.55	-4,788.06	5,696.80	5,520.17	176.62	32.254	
16,900.00	6,916.63	6,000.00	5,999.35	163.06	119.45	68.73	779.55	-4,788.06	5,787.13	5,610.75	176.38	32.810	
17,000.00	6,916.31	6,000.00	5,999.35	164.64	119.45	68.73	779.55	-4,788.06	5,877.78	5,701.64	176.15	33.369	
17,100.00	6,915.98	6,000.00	5,999.35	166.21	119.45	68.73	779.55	-4,788.06	5,968.73	5,792.81	175.92	33.929	
17,200.00	6,915.66	6,000.00	5,999.35	167.79	119.45	68.73	779.55	-4,788.06	6,059.97	5,884.27	175.70	34.491	
17,300.00	6,915.34	6,000.00	5,999.35	169.37	119.45	68.73	779.55	-4,788.06	6,151.47	5,975.99	175.48	35.054	
17,400.00	6,915.02	6,000.00	5,999.35	170.94	119.45	68.73	779.55	-4,788.06	6,243.24	6,067.96	175.28	35.619	
17,500.00	6,914.69	6,000.00	5,999.35	172.52	119.45	68.73	779.55	-4,788.06	6,335.26	6,160.18	175.08	36.185	
17,600.00	6,914.37	6,000.00	5,999.35	174.10	119.45	68.73	779.55	-4,788.06	6,427.51	6,252.63	174.88	36.753	
17,700.00	6,914.05	6,000.00	5,999.35	175.68	119.45	68.73	779.55	-4,788.06	6,519.99	6,345.30	174.70	37.322	
17,800.00	6,913.72	6,000.00	5,999.35	177.25	119.45	68.73	779.55	-4,788.06	6,612.70	6,438.18	174.52	37.891	
17,900.00	6,913.40	6,000.00	5,999.35	178.83	119.45	68.73	779.55	-4,788.06	6,705.61	6,531.26	174.34	38.462	
18,000.00	6,913.08	6,000.00	5,999.35	180.41	119.45	68.73	779.55	-4,788.06	6,798.72	6,624.55	174.17	39.034	
18,023.75	6,913.00	6,000.00	5,999.35	180.79	119.45	68.73	779.55	-4,788.06	6,820.87	6,646.73	174.14	39.170	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #149B - OH - OH-INC

Offset Site Error: 0.00 usft

Survey Program: 520-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	96.00	96.00	0.00	2.04	-79.16	1,272.12	-6,640.54	6,761.29				
100.00	100.00	196.00	196.00	0.25	4.17	-79.16	1,272.12	-6,640.54	6,761.29	6,756.87	4.42	1,528.814	
200.00	200.00	296.00	296.00	0.61	6.30	-79.16	1,272.12	-6,640.54	6,761.29	6,754.38	6.91	978.574	
300.00	300.00	396.00	396.00	0.97	8.43	-79.16	1,272.12	-6,640.54	6,761.29	6,751.89	9.40	719.586	
400.00	400.00	496.00	496.00	1.33	10.56	-79.16	1,272.12	-6,640.54	6,761.29	6,749.41	11.88	568.996	
500.00	500.00	596.03	596.00	1.68	12.69	-79.16	1,272.12	-6,640.54	6,761.29	6,746.92	14.37	470.508	
600.00	599.98	696.01	695.98	2.03	14.81	100.90	1,272.12	-6,640.54	6,761.62	6,744.78	16.84	401.543	
700.00	699.84	797.71	797.67	2.36	16.98	100.93	1,273.14	-6,640.54	6,762.80	6,743.47	19.34	349.752	
800.00	799.45	902.28	902.24	2.71	19.20	100.97	1,272.79	-6,640.54	6,764.40	6,742.49	21.91	308.805	
900.00	898.70	1,006.58	1,006.53	3.06	21.42	101.03	1,272.04	-6,640.54	6,766.60	6,742.12	24.48	276.407	
1,000.00	997.47	1,093.56	1,093.47	3.43	23.45	101.08	1,272.12	-6,640.54	6,769.65	6,742.77	26.88	251.894	
1,100.00	1,095.62	1,191.72	1,191.62	3.82	25.71	101.17	1,272.12	-6,640.54	6,773.39	6,743.87	29.53	229.396	
1,207.83	1,200.65	1,299.27	1,299.16	4.26	28.19	101.28	1,273.16	-6,640.54	6,778.47	6,746.02	32.45	208.898	
1,300.00	1,290.02	1,393.24	1,393.12	4.65	30.36	101.47	1,272.84	-6,640.54	6,782.98	6,747.98	35.01	193.754	
1,400.00	1,386.98	1,495.38	1,495.25	5.09	32.72	101.67	1,272.13	-6,640.54	6,787.89	6,750.09	37.80	179.580	
1,500.00	1,483.95	1,580.17	1,579.95	5.53	34.84	101.84	1,272.12	-6,640.54	6,793.01	6,752.64	40.36	168.305	
1,600.00	1,580.91	1,677.13	1,676.91	5.99	37.27	102.04	1,272.12	-6,640.54	6,798.22	6,754.98	43.24	157.238	
1,700.00	1,677.87	1,776.47	1,776.23	6.44	39.75	102.25	1,273.74	-6,640.54	6,803.86	6,757.69	46.17	147.355	
1,800.00	1,774.84	1,881.81	1,881.56	6.90	42.39	102.46	1,273.28	-6,640.54	6,809.15	6,759.89	49.27	138.214	
1,900.00	1,871.80	1,987.46	1,987.19	7.36	45.03	102.66	1,272.23	-6,640.54	6,814.40	6,762.04	52.37	130.126	
2,000.00	1,968.76	2,065.15	2,064.76	7.83	47.06	102.82	1,272.12	-6,640.54	6,819.90	6,765.05	54.85	124.340	
2,100.00	2,065.73	2,162.12	2,161.73	8.30	49.59	103.01	1,272.12	-6,640.54	6,825.53	6,767.68	57.85	117.997	
2,200.00	2,162.69	2,260.84	2,260.42	8.77	52.17	103.22	1,273.71	-6,640.54	6,831.61	6,770.72	60.89	112.198	
2,300.00	2,259.65	2,367.13	2,366.70	9.24	54.95	103.43	1,273.29	-6,640.54	6,837.32	6,773.19	64.13	106.613	
2,400.00	2,356.61	2,473.74	2,473.29	9.71	57.73	103.64	1,272.27	-6,640.54	6,842.98	6,775.59	67.38	101.551	
2,500.00	2,453.58	2,550.17	2,549.58	10.18	59.60	103.79	1,272.12	-6,640.54	6,848.87	6,779.15	69.72	98.234	
2,600.00	2,550.54	2,647.13	2,646.54	10.66	61.95	103.98	1,272.12	-6,640.54	6,854.91	6,782.38	72.53	94.510	
2,700.00	2,647.50	2,744.28	2,743.66	11.13	64.30	104.19	1,274.09	-6,640.54	6,861.53	6,786.18	75.35	91.066	
2,800.00	2,744.47	2,852.53	2,851.90	11.61	66.91	104.40	1,273.73	-6,640.54	6,867.66	6,789.23	78.43	87.562	
2,900.00	2,841.43	2,961.15	2,960.50	12.08	69.54	104.61	1,272.67	-6,640.54	6,873.71	6,792.18	81.53	84.312	
3,000.00	2,938.39	3,035.13	3,034.39	12.56	71.22	104.75	1,272.12	-6,640.54	6,879.89	6,796.22	83.68	82.220	
3,100.00	3,035.36	3,132.10	3,131.36	13.04	73.27	104.94	1,272.12	-6,640.54	6,886.34	6,800.15	86.20	79.891	
3,200.00	3,132.32	3,229.06	3,228.32	13.51	75.32	105.13	1,272.12	-6,640.54	6,892.87	6,804.16	88.72	77.696	
3,300.00	3,229.28	3,326.02	3,325.28	13.99	77.37	105.32	1,272.12	-6,640.54	6,899.48	6,808.25	91.24	75.623	
3,400.00	3,326.25	3,425.67	3,424.91	14.47	79.48	105.53	1,273.68	-6,640.54	6,906.60	6,812.79	93.81	73.622	
3,500.00	3,423.21	3,527.33	3,526.57	14.95	81.63	105.73	1,273.41	-6,640.54	6,913.30	6,816.87	96.43	71.691	
3,600.00	3,520.17	3,629.12	3,628.35	15.43	83.78	105.92	1,272.90	-6,640.54	6,920.02	6,820.97	99.05	69.861	
3,700.00	3,617.13	3,731.04	3,730.27	15.91	85.94	106.11	1,272.14	-6,640.54	6,926.75	6,825.07	101.68	68.124	
3,800.00	3,714.10	3,810.95	3,810.10	16.39	87.94	106.27	1,272.12	-6,640.54	6,933.73	6,829.58	104.15	66.574	
3,900.00	3,811.06	3,907.91	3,907.06	16.87	90.39	106.46	1,272.12	-6,640.54	6,940.82	6,833.75	107.06	64.830	
4,000.00	3,908.02	4,004.87	4,004.02	17.35	92.83	106.64	1,272.12	-6,640.54	6,947.98	6,838.01	109.97	63.179	
4,100.00	4,004.99	4,101.84	4,100.99	17.83	95.27	106.83	1,272.12	-6,640.54	6,955.23	6,842.35	112.88	61.614	
4,200.00	4,101.95	4,198.80	4,197.95	18.31	97.71	107.02	1,272.12	-6,640.54	6,962.55	6,846.76	115.80	60.128	
4,300.00	4,198.91	4,295.76	4,294.91	18.79	100.16	107.21	1,272.12	-6,640.54	6,969.96	6,851.25	118.71	58.716	
4,400.00	4,295.88	4,392.73	4,391.88	19.27	102.60	107.39	1,272.12	-6,640.54	6,977.44	6,855.82	121.62	57.373	
4,500.00	4,392.84	4,489.69	4,488.84	19.75	105.04	107.58	1,272.12	-6,640.54	6,984.99	6,860.47	124.53	56.093	
4,600.00	4,489.80	4,586.65	4,585.80	20.23	107.48	107.77	1,272.12	-6,640.54	6,992.63	6,865.19	127.44	54.872	
4,700.00	4,586.76	4,683.62	4,682.76	20.71	109.93	107.95	1,272.12	-6,640.54	7,000.34	6,869.99	130.35	53.706	
4,800.00	4,683.73	4,781.29	4,780.40	21.20	112.39	108.17	1,276.53	-6,640.54	7,009.54	6,876.26	133.27	52.596	
4,900.00	4,780.69	4,880.21	4,879.31	21.68	114.88	108.36	1,276.46	-6,640.54	7,017.39	6,881.16	136.23	51.511	
5,000.00	4,877.65	4,979.17	4,978.27	22.16	117.37	108.54	1,276.30	-6,640.54	7,025.30	6,886.11	139.19	50.473	
5,100.00	4,974.62	5,078.18	5,077.27	22.64	119.87	108.73	1,276.06	-6,640.54	7,033.25	6,891.10	142.15	49.478	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #149B - OH - OH-INC

Offset Site Error: 0.00 usft

Survey Program: 520-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Rule Assigned: Warning
5,200.00	5,071.58	5,177.23	5,176.32	23.12	122.36	108.92	1,275.73	-6,640.54	7,041.25	6,896.14	145.11	48.523	
5,300.00	5,168.54	5,276.32	5,275.41	23.60	124.86	109.10	1,275.32	-6,640.54	7,049.29	6,901.22	148.07	47.607	
5,400.00	5,265.51	5,375.46	5,374.54	24.09	127.35	109.28	1,274.82	-6,640.54	7,057.38	6,906.35	151.04	46.727	
5,500.00	5,362.47	5,474.65	5,473.72	24.57	129.85	109.46	1,274.24	-6,640.54	7,065.52	6,911.52	154.00	45.880	
5,600.00	5,459.43	5,573.87	5,572.94	25.05	132.35	109.64	1,273.57	-6,640.54	7,073.69	6,916.73	156.96	45.066	
5,700.00	5,556.40	5,673.15	5,672.20	25.53	134.85	109.83	1,272.82	-6,640.54	7,081.91	6,921.98	159.93	44.282	
5,800.00	5,653.36	5,772.46	5,771.51	26.01	137.36	110.00	1,271.98	-6,640.54	7,090.17	6,927.28	162.90	43.526	
5,900.00	5,750.32	5,847.89	5,846.32	26.50	139.65	110.14	1,272.12	-6,640.54	7,098.80	6,933.15	165.65	42.854	
6,000.00	5,847.28	5,944.86	5,943.28	26.98	142.52	110.32	1,272.12	-6,640.54	7,107.50	6,938.52	168.98	42.062	
6,100.00	5,944.25	6,041.82	6,040.25	27.46	145.38	110.50	1,272.12	-6,640.54	7,116.26	6,943.95	172.30	41.300	
6,200.00	6,041.21	6,138.78	6,137.21	27.94	148.24	110.68	1,272.12	-6,640.54	7,125.10	6,949.47	175.63	40.568	
6,300.00	6,138.17	6,235.74	6,234.17	28.43	151.11	110.86	1,272.12	-6,640.54	7,134.01	6,955.05	178.96	39.864	
6,400.00	6,235.14	6,332.71	6,331.14	28.91	153.97	111.04	1,272.12	-6,640.54	7,142.99	6,960.71	182.28	39.186	
6,496.84	6,329.04	6,426.61	6,425.04	29.38	156.75	111.21	1,272.12	-6,640.54	7,151.76	6,966.25	185.50	38.553	
6,500.00	6,332.10	6,429.67	6,428.10	29.39	156.84	110.08	1,272.12	-6,640.54	7,152.04	6,966.43	185.61	38.533	
6,550.00	6,380.52	6,478.09	6,476.52	29.63	158.27	92.90	1,272.12	-6,640.54	7,154.53	6,967.26	187.27	38.204	
6,600.00	6,428.63	6,526.21	6,524.63	29.87	159.69	78.69	1,272.12	-6,640.54	7,153.39	6,964.46	188.93	37.862	
6,650.00	6,476.14	6,573.71	6,572.14	30.10	161.09	68.15	1,272.12	-6,640.54	7,148.61	6,958.04	190.57	37.511	
6,700.00	6,522.73	6,620.30	6,618.73	30.33	162.47	60.68	1,272.12	-6,640.54	7,140.25	6,948.06	192.19	37.152	
6,750.00	6,568.14	6,665.71	6,664.14	30.54	163.81	55.48	1,272.12	-6,640.54	7,128.36	6,934.59	193.77	36.788	
6,800.00	6,612.08	6,709.65	6,708.08	30.75	165.11	51.91	1,272.12	-6,640.54	7,113.02	6,917.71	195.31	36.420	
6,850.00	6,654.28	6,751.85	6,750.28	30.95	166.35	49.54	1,272.12	-6,640.54	7,094.33	6,897.54	196.79	36.051	
6,900.00	6,694.47	6,792.04	6,790.47	31.15	167.54	48.10	1,272.12	-6,640.54	7,072.41	6,874.21	198.21	35.682	
6,950.00	6,732.42	6,829.99	6,828.42	31.33	168.66	47.42	1,272.12	-6,640.54	7,047.42	6,847.86	199.56	35.315	
7,000.00	6,767.89	6,865.46	6,863.89	31.51	169.71	47.40	1,272.12	-6,640.54	7,019.50	6,818.67	200.83	34.952	
7,050.00	6,800.65	6,898.22	6,896.65	31.68	170.68	48.01	1,272.12	-6,640.54	6,988.85	6,786.82	202.02	34.595	
7,100.00	6,830.51	6,928.08	6,926.51	31.85	171.56	49.23	1,272.12	-6,640.54	6,955.64	6,752.51	203.12	34.244	
7,150.00	6,857.28	6,954.85	6,953.28	32.01	172.35	51.11	1,272.12	-6,640.54	6,920.08	6,715.95	204.13	33.900	
7,200.00	6,880.80	6,978.37	6,976.80	32.17	173.05	53.70	1,272.12	-6,640.54	6,882.41	6,677.37	205.04	33.567	
7,250.00	6,900.92	6,998.49	6,996.92	32.33	173.64	57.11	1,272.12	-6,640.54	6,842.85	6,637.01	205.84	33.244	
7,300.00	6,917.52	7,015.09	7,013.52	32.49	174.13	61.47	1,272.12	-6,640.54	6,801.65	6,595.11	206.54	32.932	
7,350.00	6,930.50	7,028.07	7,026.50	32.66	174.51	66.91	1,272.12	-6,640.54	6,759.05	6,551.93	207.12	32.633	
7,400.00	6,939.77	7,037.34	7,035.77	32.83	174.79	73.56	1,272.12	-6,640.54	6,715.33	6,507.74	207.59	32.349	
7,450.00	6,945.28	7,042.85	7,041.28	33.01	174.95	81.45	1,272.12	-6,640.54	6,670.74	6,462.79	207.95	32.078	
7,499.66	6,947.00	7,044.57	7,043.00	33.19	175.00	90.40	1,272.12	-6,640.54	6,625.86	6,417.67	208.19	31.826	
7,600.00	6,946.68	7,044.25	7,042.68	33.61	174.99	90.39	1,272.12	-6,640.54	6,534.91	6,326.34	208.57	31.332	
7,700.00	6,946.35	7,043.92	7,042.35	34.10	174.98	90.39	1,272.12	-6,640.54	6,444.54	6,235.57	208.97	30.840	
7,800.00	6,946.03	7,043.60	7,042.03	34.66	174.97	90.38	1,272.12	-6,640.54	6,354.46	6,145.07	209.39	30.347	
7,900.00	6,945.71	7,043.28	7,041.71	35.29	174.96	90.37	1,272.12	-6,640.54	6,264.68	6,054.85	209.83	29.856	
8,000.00	6,945.38	7,042.95	7,041.38	35.99	174.95	90.37	1,272.12	-6,640.54	6,175.22	5,964.92	210.30	29.364	
8,100.00	6,945.06	7,042.63	7,041.06	36.74	174.94	90.36	1,272.12	-6,640.54	6,086.08	5,875.29	210.79	28.873	
8,200.00	6,944.74	7,042.31	7,040.74	37.56	174.93	90.35	1,272.12	-6,640.54	5,997.29	5,785.99	211.30	28.382	
8,300.00	6,944.41	7,041.99	7,040.41	38.43	174.92	90.35	1,272.12	-6,640.54	5,908.85	5,697.01	211.85	27.892	
8,400.00	6,944.09	7,041.66	7,040.09	39.35	174.91	90.34	1,272.12	-6,640.54	5,820.79	5,608.38	212.41	27.403	
8,500.00	6,943.77	7,041.34	7,039.77	40.31	174.91	90.33	1,272.12	-6,640.54	5,733.12	5,520.11	213.01	26.915	
8,600.00	6,943.45	7,041.02	7,039.45	41.32	174.90	90.33	1,272.12	-6,640.54	5,645.86	5,432.23	213.63	26.428	
8,700.00	6,943.12	7,040.69	7,039.12	42.37	174.89	90.32	1,272.12	-6,640.54	5,559.03	5,344.74	214.29	25.942	
8,800.00	6,942.80	7,040.37	7,038.80	43.45	174.88	90.31	1,272.12	-6,640.54	5,472.65	5,257.68	214.97	25.457	
8,900.00	6,942.48	7,040.05	7,038.48	44.57	174.87	90.31	1,272.12	-6,640.54	5,386.74	5,171.05	215.69	24.974	
9,000.00	6,942.15	7,039.72	7,038.15	45.71	174.86	90.30	1,272.12	-6,640.54	5,301.33	5,084.88	216.44	24.493	
9,100.00	6,941.83	7,039.40	7,037.83	46.89	174.85	90.29	1,272.12	-6,640.54	5,216.43	4,999.20	217.23	24.014	
9,200.00	6,941.51	7,039.08	7,037.51	48.09	174.84	90.29	1,272.12	-6,640.54	5,132.08	4,914.03	218.04	23.537	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #149B - OH - OH-INC — **Offset Site Error:** 0.00 usft

Survey Program: 520-A027Ua_INC-ONLY — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,300.00	6,941.18	7,038.75	7,037.18	49.31	174.83	90.28	1,272.12	-6,640.54	5,048.29	4,829.39	218.90	23.062	
9,400.00	6,940.86	7,038.43	7,036.86	50.56	174.82	90.27	1,272.12	-6,640.54	4,965.11	4,745.32	219.79	22.590	
9,500.00	6,940.54	7,038.11	7,036.54	51.82	174.81	90.27	1,272.12	-6,640.54	4,882.56	4,661.84	220.72	22.121	
9,600.00	6,940.21	7,037.79	7,036.21	53.11	174.80	90.26	1,272.12	-6,640.54	4,800.68	4,578.98	221.69	21.655	
9,700.00	6,939.89	7,037.46	7,035.89	54.41	174.79	90.25	1,272.12	-6,640.54	4,719.49	4,496.78	222.70	21.192	
9,800.00	6,939.57	7,037.14	7,035.57	55.73	174.78	90.25	1,272.12	-6,640.54	4,639.03	4,415.28	223.76	20.732	
9,900.00	6,939.25	7,036.82	7,035.25	57.07	174.77	90.24	1,272.12	-6,640.54	4,559.35	4,334.50	224.85	20.277	
10,000.00	6,938.92	7,036.49	7,034.92	58.41	174.76	90.23	1,272.12	-6,640.54	4,480.49	4,254.49	225.99	19.826	
10,100.00	6,938.60	7,036.17	7,034.60	59.77	174.75	90.23	1,272.12	-6,640.54	4,402.48	4,175.30	227.18	19.379	
10,200.00	6,938.28	7,035.85	7,034.28	61.15	174.74	90.22	1,272.12	-6,640.54	4,325.38	4,096.97	228.41	18.937	
10,300.00	6,937.95	7,035.52	7,033.95	62.53	174.73	90.21	1,272.12	-6,640.54	4,249.23	4,019.55	229.68	18.501	
10,400.00	6,937.63	7,035.20	7,033.63	63.92	174.72	90.21	1,272.12	-6,640.54	4,174.09	3,943.09	231.00	18.069	
10,500.00	6,937.31	7,034.88	7,033.31	65.33	174.71	90.20	1,272.12	-6,640.54	4,100.01	3,867.64	232.38	17.644	
10,600.00	6,936.98	7,034.55	7,032.98	66.74	174.70	90.19	1,272.12	-6,640.54	4,027.05	3,793.26	233.79	17.225	
10,700.00	6,936.66	7,034.23	7,032.66	68.16	174.70	90.19	1,272.12	-6,640.54	3,955.28	3,720.02	235.26	16.812	
10,800.00	6,936.34	7,033.91	7,032.34	69.59	174.69	90.18	1,272.12	-6,640.54	3,884.75	3,647.97	236.78	16.407	
10,900.00	6,936.01	7,033.59	7,032.01	71.03	174.68	90.17	1,272.12	-6,640.54	3,815.54	3,577.20	238.34	16.009	
11,000.00	6,935.69	7,033.26	7,031.69	72.47	174.67	90.17	1,272.12	-6,640.54	3,747.72	3,507.77	239.95	15.618	
11,100.00	6,935.37	7,032.94	7,031.37	73.92	174.66	90.16	1,272.12	-6,640.54	3,681.37	3,439.76	241.61	15.237	
11,200.00	6,935.05	7,032.62	7,031.05	75.38	174.65	90.15	1,272.12	-6,640.54	3,616.57	3,373.25	243.32	14.864	
11,300.00	6,934.72	7,032.29	7,030.72	76.84	174.64	90.15	1,272.12	-6,640.54	3,553.40	3,308.33	245.07	14.500	
11,400.00	6,934.40	7,031.97	7,030.40	78.31	174.63	90.14	1,272.12	-6,640.54	3,491.95	3,245.09	246.86	14.146	
11,500.00	6,934.08	7,031.65	7,030.08	79.79	174.62	90.13	1,272.12	-6,640.54	3,432.31	3,183.63	248.68	13.802	
11,600.00	6,933.75	7,031.32	7,029.75	81.27	174.61	90.13	1,272.12	-6,640.54	3,374.59	3,124.04	250.55	13.469	
11,700.00	6,933.43	7,031.00	7,029.43	82.75	174.60	90.12	1,272.12	-6,640.54	3,318.87	3,066.42	252.44	13.147	
11,800.00	6,933.11	7,030.68	7,029.11	84.24	174.59	90.11	1,272.12	-6,640.54	3,265.27	3,010.90	254.37	12.837	
11,900.00	6,932.78	7,030.35	7,028.78	85.73	174.58	90.11	1,272.12	-6,640.54	3,213.88	2,957.57	256.31	12.539	
12,000.00	6,932.46	7,030.03	7,028.46	87.23	174.57	90.10	1,272.12	-6,640.54	3,164.82	2,906.55	258.27	12.254	
12,100.00	6,932.14	7,029.71	7,028.14	88.72	174.56	90.09	1,272.12	-6,640.54	3,118.20	2,857.96	260.24	11.982	
12,200.00	6,931.81	7,029.39	7,027.81	90.23	174.55	90.09	1,272.12	-6,640.54	3,074.12	2,811.91	262.21	11.724	
12,300.00	6,931.49	7,029.06	7,027.49	91.74	174.54	90.08	1,272.12	-6,640.54	3,032.70	2,768.54	264.17	11.480	
12,400.00	6,931.17	7,028.74	7,027.17	93.25	174.53	90.07	1,272.12	-6,640.54	2,994.05	2,727.94	266.11	11.251	
12,500.00	6,930.85	7,028.42	7,026.85	94.76	174.52	90.07	1,272.12	-6,640.54	2,958.28	2,690.25	268.03	11.037	
12,600.00	6,930.52	7,028.09	7,026.52	96.27	174.51	90.06	1,272.12	-6,640.54	2,925.49	2,655.58	269.90	10.839	
12,700.00	6,930.20	7,027.77	7,026.20	97.79	174.50	90.05	1,272.12	-6,640.54	2,895.78	2,624.05	271.73	10.657	
12,800.00	6,929.88	7,027.45	7,025.88	99.32	174.50	90.05	1,272.12	-6,640.54	2,869.25	2,595.75	273.50	10.491	
12,900.00	6,929.55	7,027.12	7,025.55	100.84	174.49	90.04	1,272.12	-6,640.54	2,845.99	2,570.79	275.21	10.341	
13,000.00	6,929.23	7,026.80	7,025.23	102.37	174.48	90.03	1,272.12	-6,640.54	2,826.08	2,549.25	276.82	10.209	
13,100.00	6,928.91	7,026.48	7,024.91	103.89	174.47	90.03	1,272.12	-6,640.54	2,809.59	2,531.24	278.35	10.094	
13,200.00	6,928.58	7,026.15	7,024.58	105.43	174.46	90.02	1,272.12	-6,640.54	2,796.58	2,516.80	279.78	9.996	
13,300.00	6,928.26	7,025.83	7,024.26	106.96	174.45	90.01	1,272.12	-6,640.54	2,787.10	2,506.00	281.10	9.915	
13,400.00	6,927.94	7,025.51	7,023.94	108.49	174.44	90.01	1,272.12	-6,640.54	2,781.18	2,498.89	282.30	9.852	
13,500.00	6,927.61	7,025.19	7,023.61	110.03	174.43	90.00	1,272.12	-6,640.54	2,778.85	2,495.48	283.37	9.806	
13,514.00	6,927.57	7,025.14	7,023.57	110.25	174.43	90.00	1,272.12	-6,640.54	2,778.82	2,495.31	283.51	9.801	CC, ES
13,600.00	6,927.29	7,024.86	7,023.29	111.57	174.42	89.99	1,272.12	-6,640.54	2,780.13	2,495.81	284.32	9.778	
13,700.00	6,926.97	7,024.54	7,022.97	113.11	174.41	89.99	1,272.12	-6,640.54	2,784.99	2,499.86	285.13	9.768	SF
13,800.00	6,926.65	7,024.22	7,022.65	114.65	174.40	89.98	1,272.12	-6,640.54	2,793.42	2,507.62	285.81	9.774	
13,900.00	6,926.32	7,023.89	7,022.32	116.20	174.39	89.97	1,272.12	-6,640.54	2,805.40	2,519.05	286.35	9.797	
14,000.00	6,926.00	7,023.57	7,022.00	117.75	174.38	89.97	1,272.12	-6,640.54	2,820.88	2,534.12	286.76	9.837	
14,100.00	6,925.68	7,023.25	7,021.68	119.29	174.37	89.96	1,272.12	-6,640.54	2,839.79	2,552.76	287.03	9.894	
14,200.00	6,925.35	7,022.92	7,021.35	120.84	174.36	89.95	1,272.12	-6,640.54	2,862.07	2,574.89	287.18	9.966	
14,300.00	6,925.03	7,022.60	7,021.03	122.39	174.35	89.95	1,272.12	-6,640.54	2,887.65	2,600.44	287.21	10.054	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #149B - OH - OH-INC

Offset Site Error: 0.00 usft

Survey Program: 520-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Rule Assigned:

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,400.00	6,924.71	7,022.28	7,020.71	123.94	174.34	89.94	1,272.12	-6,640.54	2,916.43	2,629.31	287.12	10.157	
14,500.00	6,924.38	7,021.95	7,020.38	125.50	174.33	89.93	1,272.12	-6,640.54	2,948.33	2,661.40	286.93	10.275	
14,600.00	6,924.06	7,021.63	7,020.06	127.05	174.32	89.93	1,272.12	-6,640.54	2,983.24	2,696.60	286.63	10.408	
14,700.00	6,923.74	7,021.31	7,019.74	128.61	174.31	89.92	1,272.12	-6,640.54	3,021.05	2,734.81	286.24	10.554	
14,800.00	6,923.42	7,020.99	7,019.42	130.16	174.30	89.91	1,272.12	-6,640.54	3,061.67	2,775.90	285.77	10.714	
14,900.00	6,923.09	7,020.66	7,019.09	131.72	174.29	89.91	1,272.12	-6,640.54	3,104.98	2,819.75	285.22	10.886	
15,000.00	6,922.77	7,020.34	7,018.77	133.28	174.29	89.90	1,272.12	-6,640.54	3,150.86	2,866.26	284.61	11.071	
15,100.00	6,922.45	7,020.02	7,018.45	134.84	174.28	89.89	1,272.12	-6,640.54	3,199.22	2,915.29	283.93	11.268	
15,200.00	6,922.12	7,019.69	7,018.12	136.40	174.27	89.89	1,272.12	-6,640.54	3,249.93	2,966.73	283.20	11.476	
15,300.00	6,921.80	7,019.37	7,017.80	137.96	174.26	89.88	1,272.12	-6,640.54	3,302.89	3,020.46	282.43	11.695	
15,400.00	6,921.48	7,019.05	7,017.48	139.53	174.25	89.87	1,272.12	-6,640.54	3,358.00	3,076.38	281.62	11.924	
15,500.00	6,921.15	7,018.72	7,017.15	141.09	174.24	89.87	1,272.12	-6,640.54	3,415.15	3,134.36	280.78	12.163	
15,600.00	6,920.83	7,018.40	7,016.83	142.65	174.23	89.86	1,272.12	-6,640.54	3,474.23	3,194.31	279.92	12.412	
15,700.00	6,920.51	7,018.08	7,016.51	144.22	174.22	89.85	1,272.12	-6,640.54	3,535.16	3,256.13	279.03	12.669	
15,800.00	6,920.18	7,017.76	7,016.18	145.79	174.21	89.85	1,272.12	-6,640.54	3,597.83	3,319.70	278.13	12.936	
15,900.00	6,919.86	7,017.43	7,015.86	147.35	174.20	89.84	1,272.12	-6,640.54	3,662.16	3,384.94	277.22	13.210	
16,000.00	6,919.54	7,017.11	7,015.54	148.92	174.19	89.83	1,272.12	-6,640.54	3,728.07	3,451.76	276.31	13.492	
16,100.00	6,919.22	7,016.79	7,015.22	150.49	174.18	89.83	1,272.12	-6,640.54	3,795.47	3,520.07	275.39	13.782	
16,200.00	6,918.89	7,016.46	7,014.89	152.06	174.17	89.82	1,272.12	-6,640.54	3,864.27	3,589.80	274.48	14.079	
16,300.00	6,918.57	7,016.14	7,014.57	153.63	174.16	89.81	1,272.12	-6,640.54	3,934.42	3,660.86	273.56	14.382	
16,400.00	6,918.25	7,015.82	7,014.25	155.20	174.15	89.81	1,272.12	-6,640.54	4,005.84	3,733.18	272.66	14.692	
16,500.00	6,917.92	7,015.49	7,013.92	156.77	174.14	89.80	1,272.12	-6,640.54	4,078.45	3,806.70	271.76	15.008	
16,600.00	6,917.60	7,015.17	7,013.60	158.34	174.13	89.79	1,272.12	-6,640.54	4,152.21	3,881.34	270.87	15.329	
16,700.00	6,917.28	7,014.85	7,013.28	159.92	174.12	89.79	1,272.12	-6,640.54	4,227.04	3,957.05	269.99	15.656	
16,800.00	6,916.95	7,014.52	7,012.95	161.49	174.11	89.78	1,272.12	-6,640.54	4,302.90	4,033.77	269.12	15.988	
16,900.00	6,916.63	7,014.20	7,012.63	163.06	174.10	89.77	1,272.12	-6,640.54	4,379.73	4,111.45	268.27	16.326	
17,000.00	6,916.31	7,013.88	7,012.31	164.64	174.09	89.77	1,272.12	-6,640.54	4,457.47	4,190.03	267.44	16.667	
17,100.00	6,915.98	7,013.56	7,011.98	166.21	174.08	89.76	1,272.12	-6,640.54	4,536.09	4,269.47	266.62	17.014	
17,200.00	6,915.66	7,013.23	7,011.66	167.79	174.08	89.75	1,272.12	-6,640.54	4,615.53	4,349.73	265.81	17.364	
17,300.00	6,915.34	7,012.91	7,011.34	169.37	174.07	89.75	1,272.12	-6,640.54	4,695.77	4,430.75	265.02	17.719	
17,400.00	6,915.02	7,012.59	7,011.02	170.94	174.06	89.74	1,272.12	-6,640.54	4,776.74	4,512.50	264.25	18.077	
17,500.00	6,914.69	7,012.26	7,010.69	172.52	174.05	89.73	1,272.12	-6,640.54	4,858.43	4,594.94	263.49	18.439	
17,600.00	6,914.37	7,011.94	7,010.37	174.10	174.04	89.73	1,272.12	-6,640.54	4,940.79	4,678.04	262.75	18.804	
17,700.00	6,914.05	7,011.62	7,010.05	175.68	174.03	89.72	1,272.12	-6,640.54	5,023.79	4,761.76	262.03	19.173	
17,800.00	6,913.72	7,011.29	7,009.72	177.25	174.02	89.71	1,272.12	-6,640.54	5,107.39	4,846.07	261.32	19.544	
17,900.00	6,913.40	7,010.97	7,009.40	178.83	174.01	89.71	1,272.12	-6,640.54	5,191.58	4,930.95	260.63	19.919	
18,000.00	6,913.08	7,010.65	7,009.08	180.41	174.00	89.70	1,272.12	-6,640.54	5,276.32	5,016.36	259.96	20.297	
18,023.75	6,913.00	7,010.57	7,009.00	180.79	174.00	89.70	1,272.12	-6,640.54	5,296.53	5,036.73	259.80	20.387	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #149C - OH - OH-SVY

Offset Site Error: 0.00 usft

Survey Program: 327-APC_ISCWSA REV 2 MWD

Rule Assigned:

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	-80.55	791.17	-4,751.30	4,816.78				
100.00	100.00	85.19	85.19	0.25	0.10	-80.54	791.39	-4,751.18	4,816.65	4,816.30	0.35	N/A	
200.00	200.00	1,455.70	1,396.63	0.61	6.32	-77.45	1,007.20	-4,523.33	4,792.17	4,785.87	6.30	761.037	
300.00	300.00	1,495.39	1,432.84	0.97	6.61	-77.28	1,018.19	-4,511.35	4,767.31	4,760.49	6.83	698.329	
400.00	400.00	1,610.29	1,537.79	1.33	7.50	-76.80	1,050.11	-4,477.16	4,743.15	4,735.25	7.90	600.117	
500.00	500.00	1,728.96	1,645.69	1.68	8.41	-76.29	1,083.43	-4,440.73	4,718.27	4,709.25	9.02	523.029	
600.00	599.98	1,777.94	1,690.36	2.03	8.78	104.45	1,097.04	-4,425.91	4,694.45	4,684.78	9.68	485.116	
700.00	699.84	1,899.17	1,801.04	2.36	9.70	105.50	1,130.71	-4,389.70	4,672.25	4,661.44	10.81	432.383	
800.00	799.45	2,001.08	1,893.55	2.71	10.51	106.48	1,159.39	-4,357.99	4,650.07	4,638.21	11.86	392.201	
900.00	898.70	2,076.00	1,961.44	3.06	11.12	107.32	1,181.01	-4,334.84	4,629.63	4,616.87	12.76	362.828	
1,000.00	997.47	2,138.00	2,017.79	3.43	11.60	108.07	1,198.71	-4,315.97	4,611.04	4,597.45	13.59	339.340	
1,100.00	1,095.62	2,234.89	2,106.20	3.82	12.34	109.03	1,225.49	-4,286.75	4,594.14	4,579.48	14.66	313.434	
1,207.83	1,200.65	2,310.45	2,174.88	4.26	12.93	109.87	1,247.03	-4,263.77	4,577.81	4,562.14	15.67	292.112	
1,300.00	1,290.02	2,475.13	2,324.95	4.65	14.20	111.05	1,291.43	-4,212.55	4,564.03	4,546.83	17.20	265.336	
1,400.00	1,386.98	2,517.00	2,363.18	5.09	14.53	111.34	1,302.43	-4,199.47	4,549.74	4,531.76	17.98	252.983	
1,500.00	1,483.95	2,581.00	2,421.54	5.53	15.02	111.80	1,319.73	-4,179.72	4,536.60	4,517.67	18.93	239.659	
1,600.00	1,580.91	2,644.00	2,478.77	5.99	15.53	112.27	1,337.64	-4,160.40	4,524.61	4,504.71	19.90	227.415	
1,700.00	1,677.87	2,675.00	2,507.02	6.44	15.77	112.49	1,346.51	-4,151.24	4,514.04	4,493.41	20.64	218.724	
1,800.00	1,774.84	2,691.54	2,522.20	6.90	15.89	112.61	1,351.14	-4,146.58	4,505.16	4,483.88	21.28	211.748	
1,900.00	1,871.80	2,707.00	2,536.45	7.36	16.00	112.72	1,355.42	-4,142.36	4,498.07	4,476.17	21.91	205.338	
2,000.00	1,968.76	2,738.00	2,565.17	7.83	16.22	112.94	1,363.89	-4,134.35	4,492.70	4,470.07	22.63	198.525	
2,100.00	2,065.73	2,767.77	2,592.96	8.30	16.41	113.15	1,371.82	-4,127.21	4,489.10	4,465.77	23.33	192.396	
2,200.00	2,162.69	2,800.00	2,623.28	8.77	16.62	113.36	1,380.08	-4,120.05	4,487.20	4,463.15	24.05	186.600	
2,300.00	2,259.65	2,977.29	2,792.34	9.24	17.62	114.47	1,417.68	-4,082.28	4,485.13	4,459.64	25.50	175.904	
2,400.00	2,356.61	3,019.00	2,832.38	9.71	17.84	114.72	1,425.59	-4,073.67	4,483.52	4,457.30	26.22	170.982	
2,500.00	2,453.58	3,096.39	2,907.18	10.18	18.22	115.16	1,438.76	-4,058.85	4,482.98	4,455.89	27.09	165.511	
2,522.10	2,475.01	3,107.78	2,918.21	10.29	18.28	115.22	1,440.67	-4,056.70	4,482.95	4,455.70	27.25	164.508	
2,600.00	2,550.54	3,150.40	2,959.48	10.66	18.48	115.46	1,447.83	-4,048.84	4,483.31	4,455.47	27.84	161.031	
2,700.00	2,647.50	3,231.41	3,038.28	11.13	18.85	115.90	1,460.32	-4,034.81	4,484.56	4,455.87	28.69	156.324	
2,800.00	2,744.47	3,285.20	3,090.88	11.61	19.06	116.18	1,467.57	-4,026.26	4,486.65	4,457.25	29.40	152.618	
2,900.00	2,841.43	3,333.00	3,137.76	12.08	19.25	116.42	1,473.71	-4,019.23	4,489.87	4,459.80	30.07	149.297	
3,000.00	2,938.39	3,386.50	3,190.34	12.56	19.45	116.68	1,480.56	-4,012.08	4,494.41	4,463.65	30.76	146.112	
3,100.00	3,035.36	3,458.00	3,260.86	13.04	19.69	117.01	1,488.51	-4,003.43	4,499.75	4,468.27	31.48	142.927	
3,200.00	3,132.32	3,502.27	3,304.74	13.51	19.81	117.20	1,492.33	-3,999.00	4,506.09	4,474.00	32.09	140.430	
3,300.00	3,229.28	3,540.24	3,342.47	13.99	19.91	117.36	1,495.23	-3,995.90	4,513.79	4,481.13	32.66	138.209	
3,400.00	3,326.25	3,582.00	3,384.03	14.47	20.00	117.52	1,498.30	-3,993.21	4,522.92	4,489.69	33.23	136.124	
3,500.00	3,423.21	3,645.44	3,447.31	14.95	20.12	117.75	1,501.88	-3,990.41	4,533.21	4,499.39	33.82	134.057	
3,600.00	3,520.17	3,738.00	3,539.84	15.43	20.21	118.02	1,502.33	-3,988.97	4,543.78	4,509.40	34.38	132.174	
3,700.00	3,617.13	3,781.86	3,583.70	15.91	20.23	118.14	1,502.04	-3,988.93	4,555.17	4,520.31	34.87	130.650	
3,800.00	3,714.10	3,870.25	3,672.08	16.39	20.30	118.37	1,501.95	-3,989.36	4,567.41	4,532.00	35.41	128.994	
3,900.00	3,811.06	3,966.27	3,768.11	16.87	20.40	118.63	1,501.85	-3,989.86	4,579.77	4,543.79	35.98	127.293	
4,000.00	3,908.02	4,062.30	3,864.14	17.35	20.49	118.88	1,501.75	-3,990.39	4,592.25	4,555.70	36.55	125.651	
4,100.00	4,004.99	4,158.33	3,960.17	17.83	20.59	119.14	1,501.65	-3,990.94	4,604.84	4,567.72	37.12	124.066	
4,200.00	4,101.95	4,254.37	4,056.20	18.31	20.68	119.39	1,501.54	-3,991.51	4,617.54	4,579.86	37.68	122.534	
4,300.00	4,198.91	4,350.40	4,152.23	18.79	20.78	119.64	1,501.42	-3,992.11	4,630.36	4,592.11	38.25	121.054	
4,400.00	4,295.88	4,446.44	4,248.27	19.27	20.87	119.89	1,501.30	-3,992.74	4,643.30	4,604.48	38.82	119.623	
4,500.00	4,392.84	4,542.48	4,344.30	19.75	20.97	120.14	1,501.17	-3,993.40	4,656.34	4,616.96	39.38	118.238	
4,600.00	4,489.80	4,638.52	4,440.34	20.23	21.07	120.38	1,501.04	-3,994.08	4,669.49	4,629.55	39.95	116.898	
4,700.00	4,586.76	4,734.57	4,536.38	20.71	21.16	120.63	1,500.91	-3,994.78	4,682.75	4,642.25	40.51	115.600	
4,800.00	4,683.73	4,830.61	4,632.43	21.20	21.26	120.87	1,500.77	-3,995.51	4,696.13	4,655.05	41.07	114.343	
4,900.00	4,780.69	4,926.66	4,728.47	21.68	21.36	121.11	1,500.62	-3,996.27	4,709.60	4,667.97	41.63	113.125	
5,000.00	4,877.65	5,022.71	4,824.52	22.16	21.45	121.35	1,500.47	-3,997.05	4,723.19	4,680.99	42.19	111.944	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #149C - OH - OH-SVY

Offset Site Error: 0.00 usft

Survey Program: 327-APC_ISCWSA REV 2 MWD **Rule Assigned:** **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,100.00	4,974.62	5,118.76	4,920.57	22.64	21.55	121.59	1,500.32	-3,997.86	4,736.88	4,694.12	42.75	110.799	
5,200.00	5,071.58	5,214.82	5,016.62	23.12	21.65	121.83	1,500.16	-3,998.70	4,750.67	4,707.36	43.31	109.688	
5,300.00	5,168.54	5,310.87	5,112.67	23.60	21.75	122.06	1,499.99	-3,999.56	4,764.57	4,720.70	43.87	108.609	
5,400.00	5,265.51	5,406.93	5,208.73	24.09	21.85	122.30	1,499.82	-4,000.44	4,778.57	4,734.14	44.43	107.563	
5,500.00	5,362.47	5,502.99	5,304.78	24.57	21.94	122.53	1,499.65	-4,001.36	4,792.67	4,747.69	44.98	106.546	
5,600.00	5,459.43	5,599.05	5,400.84	25.05	22.04	122.76	1,499.47	-4,002.30	4,806.87	4,761.33	45.54	105.558	
5,700.00	5,556.40	5,695.12	5,496.90	25.53	22.14	122.99	1,499.28	-4,003.26	4,821.17	4,775.08	46.09	104.598	
5,800.00	5,653.36	5,791.18	5,592.96	26.01	22.24	123.22	1,499.09	-4,004.25	4,835.57	4,788.92	46.65	103.665	
5,900.00	5,750.32	5,887.25	5,689.02	26.50	22.34	123.44	1,498.90	-4,005.27	4,850.07	4,802.87	47.20	102.758	
6,000.00	5,847.28	5,983.32	5,785.09	26.98	22.44	123.67	1,498.70	-4,006.31	4,864.66	4,816.91	47.75	101.875	
6,100.00	5,944.25	6,079.39	5,881.15	27.46	22.54	123.89	1,498.49	-4,007.38	4,879.35	4,831.05	48.30	101.016	
6,200.00	6,041.21	6,175.47	5,977.22	27.94	22.64	124.11	1,498.28	-4,008.47	4,894.13	4,845.28	48.85	100.180	
6,300.00	6,138.17	6,271.54	6,073.29	28.43	22.74	124.33	1,498.06	-4,009.59	4,909.01	4,859.61	49.40	99.366	
6,400.00	6,235.14	6,367.62	6,169.36	28.91	22.84	124.55	1,497.84	-4,010.74	4,923.98	4,874.03	49.95	98.574	
6,496.84	6,329.04	6,460.67	6,262.40	29.38	22.94	124.76	1,497.63	-4,011.87	4,938.57	4,888.09	50.48	97.825	
6,500.00	6,332.10	6,463.70	6,265.43	29.39	22.94	123.62	1,497.62	-4,011.91	4,939.04	4,888.54	50.50	97.801	
6,550.00	6,380.52	6,511.71	6,313.44	29.63	22.99	106.25	1,497.51	-4,012.50	4,944.80	4,894.02	50.78	97.379	
6,600.00	6,428.63	6,559.46	6,361.18	29.87	23.04	91.90	1,497.39	-4,013.10	4,947.36	4,896.30	51.06	96.884	
6,650.00	6,476.14	6,606.66	6,408.38	30.10	23.09	81.29	1,497.28	-4,013.70	4,946.73	4,895.37	51.35	96.325	
6,700.00	6,522.73	6,653.01	6,454.73	30.33	23.14	73.80	1,497.16	-4,014.29	4,942.92	4,891.27	51.65	95.706	
6,750.00	6,568.14	6,698.24	6,499.95	30.54	23.19	68.62	1,497.05	-4,014.88	4,935.98	4,884.04	51.94	95.031	
6,800.00	6,612.08	6,742.06	6,543.77	30.75	23.24	65.11	1,496.94	-4,015.45	4,925.98	4,873.75	52.23	94.305	
6,850.00	6,654.28	6,784.21	6,585.91	30.95	23.28	62.83	1,496.83	-4,016.01	4,913.00	4,860.47	52.53	93.532	
6,900.00	6,694.47	6,824.42	6,626.12	31.15	23.33	61.50	1,496.73	-4,016.54	4,897.14	4,844.32	52.82	92.714	
6,950.00	6,732.42	6,862.45	6,664.15	31.33	23.37	60.93	1,496.63	-4,017.05	4,878.53	4,825.42	53.11	91.854	
7,000.00	6,767.89	6,898.07	6,699.76	31.51	23.40	61.01	1,496.54	-4,017.53	4,857.31	4,803.90	53.40	90.957	
7,050.00	6,800.65	6,931.05	6,732.74	31.68	23.44	61.66	1,496.45	-4,017.98	4,833.62	4,779.93	53.69	90.026	
7,100.00	6,830.51	6,961.20	6,762.88	31.85	23.47	62.85	1,496.38	-4,018.39	4,807.63	4,753.65	53.98	89.063	
7,150.00	6,857.28	6,988.32	6,790.00	32.01	23.50	64.55	1,496.30	-4,018.76	4,779.53	4,725.27	54.27	88.073	
7,200.00	6,880.80	7,012.25	6,813.93	32.17	23.53	66.74	1,496.24	-4,019.10	4,749.51	4,694.96	54.56	87.059	
7,250.00	6,900.92	7,032.83	6,834.51	32.33	23.55	69.42	1,496.19	-4,019.38	4,717.77	4,662.92	54.84	86.024	
7,300.00	6,917.52	7,049.95	6,851.63	32.49	23.57	72.58	1,496.14	-4,019.62	4,684.51	4,629.38	55.13	84.973	
7,350.00	6,930.50	7,063.50	6,865.17	32.66	23.58	76.20	1,496.10	-4,019.81	4,649.94	4,594.53	55.42	83.910	
7,400.00	6,939.77	7,073.38	6,875.06	32.83	23.59	80.26	1,496.08	-4,019.95	4,614.30	4,558.60	55.70	82.840	
7,450.00	6,945.28	7,079.55	6,881.22	33.01	23.60	84.71	1,496.06	-4,020.03	4,577.79	4,521.80	55.99	81.767	
7,499.66	6,947.00	7,081.94	6,883.62	33.19	23.60	89.46	1,496.05	-4,020.07	4,540.89	4,484.63	56.27	80.703	
7,600.00	6,946.68	7,083.02	6,884.69	33.61	23.60	89.48	1,496.05	-4,020.08	4,466.36	4,409.51	56.85	78.564	
7,700.00	6,946.35	7,084.09	6,885.77	34.10	23.60	89.50	1,496.05	-4,020.10	4,393.10	4,335.63	57.47	76.446	
7,800.00	6,946.03	7,085.17	6,886.84	34.66	23.60	89.52	1,496.04	-4,020.11	4,320.91	4,262.78	58.12	74.343	
7,900.00	6,945.71	7,086.24	6,887.92	35.29	23.60	89.54	1,496.04	-4,020.13	4,249.84	4,191.03	58.81	72.260	
8,000.00	6,945.38	7,087.32	6,888.99	35.99	23.61	89.56	1,496.04	-4,020.14	4,179.96	4,120.42	59.54	70.199	
8,100.00	6,945.06	7,088.40	6,890.07	36.74	23.61	89.58	1,496.04	-4,020.16	4,111.32	4,051.01	60.31	68.165	
8,200.00	6,944.74	7,089.48	6,891.15	37.56	23.61	89.60	1,496.03	-4,020.17	4,043.99	3,982.87	61.12	66.162	
8,300.00	6,944.41	7,090.55	6,892.23	38.43	23.61	89.62	1,496.03	-4,020.19	3,978.04	3,916.07	61.97	64.193	
8,400.00	6,944.09	7,091.63	6,893.31	39.35	23.61	89.64	1,496.03	-4,020.20	3,913.53	3,850.67	62.86	62.262	
8,500.00	6,943.77	7,092.71	6,894.39	40.31	23.61	89.66	1,496.02	-4,020.22	3,850.54	3,786.76	63.78	60.373	
8,600.00	6,943.45	7,093.79	6,895.47	41.32	23.61	89.69	1,496.02	-4,020.24	3,789.13	3,724.40	64.74	58.530	
8,700.00	6,943.12	7,094.87	6,896.55	42.37	23.61	89.71	1,496.02	-4,020.25	3,729.40	3,663.67	65.73	56.736	
8,800.00	6,942.80	7,095.95	6,897.63	43.45	23.61	89.73	1,496.02	-4,020.27	3,671.42	3,604.66	66.76	54.993	
8,900.00	6,942.48	7,097.04	6,898.71	44.57	23.62	89.75	1,496.01	-4,020.28	3,615.28	3,547.46	67.82	53.305	
9,000.00	6,942.15	7,098.12	6,899.79	45.71	23.62	89.77	1,496.01	-4,020.30	3,561.06	3,492.15	68.91	51.676	
9,100.00	6,941.83	7,099.20	6,900.87	46.89	23.62	89.79	1,496.01	-4,020.31	3,508.85	3,438.82	70.03	50.106	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #149C - OH - OH-SVY

Offset Site Error: 0.00 usft

Survey Program: 327-APC_ISCWSA REV 2 MWD

Rule Assigned:

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,200.00	6,941.51	7,100.29	6,901.96	48.09	23.62	89.81	1,496.00	-4,020.33	3,458.74	3,387.58	71.17	48.600	
9,300.00	6,941.18	7,101.37	6,903.04	49.31	23.62	89.83	1,496.00	-4,020.34	3,410.84	3,338.51	72.33	47.158	
9,400.00	6,940.86	7,102.45	6,904.13	50.56	23.62	89.85	1,496.00	-4,020.36	3,365.22	3,291.71	73.50	45.783	
9,500.00	6,940.54	7,103.54	6,905.21	51.82	23.62	89.87	1,495.99	-4,020.37	3,321.98	3,247.29	74.69	44.476	
9,600.00	6,940.21	7,104.63	6,906.30	53.11	23.62	89.89	1,495.99	-4,020.39	3,281.23	3,205.34	75.89	43.238	
9,700.00	6,939.89	7,105.71	6,907.38	54.41	23.62	89.91	1,495.99	-4,020.40	3,243.04	3,165.96	77.08	42.071	
9,800.00	6,939.57	7,106.80	6,908.47	55.73	23.63	89.93	1,495.99	-4,020.42	3,207.52	3,129.25	78.28	40.976	
9,900.00	6,939.25	7,107.89	6,909.56	57.07	23.63	89.95	1,495.98	-4,020.43	3,174.76	3,095.30	79.46	39.953	
10,000.00	6,938.92	7,108.98	6,910.65	58.41	23.63	89.97	1,495.98	-4,020.45	3,144.83	3,064.20	80.63	39.002	
10,100.00	6,938.60	7,110.07	6,911.74	59.77	23.63	89.99	1,495.98	-4,020.47	3,117.82	3,036.04	81.78	38.124	
10,200.00	6,938.28	7,111.16	6,912.83	61.15	23.63	90.02	1,495.97	-4,020.48	3,093.82	3,010.91	82.90	37.318	
10,300.00	6,937.95	7,112.25	6,913.92	62.53	23.63	90.04	1,495.97	-4,020.50	3,072.88	2,988.88	83.99	36.585	
10,400.00	6,937.63	7,113.34	6,915.01	63.92	23.63	90.06	1,495.97	-4,020.51	3,055.07	2,970.02	85.04	35.924	
10,500.00	6,937.31	7,114.43	6,916.10	65.33	23.63	90.08	1,495.97	-4,020.53	3,040.44	2,954.39	86.05	35.334	
10,600.00	6,936.98	7,115.52	6,917.19	66.74	23.64	90.10	1,495.96	-4,020.54	3,029.05	2,942.04	87.01	34.814	
10,700.00	6,936.66	7,116.61	6,918.28	68.16	23.64	90.12	1,495.96	-4,020.56	3,020.93	2,933.02	87.91	34.364	
10,800.00	6,936.34	7,117.71	6,919.38	69.59	23.64	90.14	1,495.96	-4,020.57	3,016.10	2,927.34	88.75	33.982	
10,895.75	6,936.03	7,118.76	6,920.43	70.97	23.64	90.16	1,495.95	-4,020.59	3,014.58	2,925.07	89.51	33.680 CC	
10,900.00	6,936.01	7,118.80	6,920.47	71.03	23.64	90.16	1,495.95	-4,020.59	3,014.58	2,925.04	89.54	33.668 ES	
11,000.00	6,935.69	7,119.90	6,921.57	72.47	23.64	90.18	1,495.95	-4,020.60	3,016.38	2,926.12	90.26	33.420	
11,100.00	6,935.37	7,120.99	6,922.66	73.92	23.64	90.20	1,495.95	-4,020.62	3,021.49	2,930.58	90.91	33.236	
11,200.00	6,935.05	7,122.09	6,923.76	75.38	23.64	90.22	1,495.94	-4,020.64	3,029.89	2,938.40	91.50	33.115	
11,300.00	6,934.72	7,123.18	6,924.85	76.84	23.64	90.24	1,495.94	-4,020.65	3,041.56	2,949.55	92.01	33.055 SF	
11,400.00	6,934.40	7,124.28	6,925.95	78.31	23.64	90.26	1,495.94	-4,020.67	3,056.46	2,963.99	92.46	33.055	
11,500.00	6,934.08	7,125.38	6,927.05	79.79	23.65	90.29	1,495.94	-4,020.68	3,074.53	2,981.69	92.85	33.113	
11,600.00	6,933.75	7,126.48	6,928.15	81.27	23.65	90.31	1,495.93	-4,020.70	3,095.74	3,002.57	93.17	33.228	
11,700.00	6,933.43	7,127.58	6,929.25	82.75	23.65	90.33	1,495.93	-4,020.71	3,120.00	3,026.58	93.42	33.396	
11,800.00	6,933.11	7,128.68	6,930.34	84.24	23.65	90.35	1,495.93	-4,020.73	3,147.26	3,053.64	93.62	33.617	
11,900.00	6,932.78	7,129.78	6,931.44	85.73	23.65	90.37	1,495.92	-4,020.74	3,177.43	3,083.67	93.76	33.888	
12,000.00	6,932.46	7,130.88	6,932.55	87.23	23.65	90.39	1,495.92	-4,020.76	3,210.44	3,116.59	93.85	34.209	
12,100.00	6,932.14	7,131.98	6,933.65	88.72	23.65	90.41	1,495.92	-4,020.78	3,246.19	3,152.30	93.89	34.576	
12,200.00	6,931.81	7,133.08	6,934.75	90.23	23.65	90.43	1,495.91	-4,020.79	3,284.59	3,190.71	93.88	34.988	
12,300.00	6,931.49	7,134.18	6,935.85	91.74	23.66	90.45	1,495.91	-4,020.81	3,325.56	3,231.74	93.83	35.443	
12,400.00	6,931.17	7,135.29	6,936.95	93.25	23.66	90.47	1,495.91	-4,020.82	3,369.00	3,275.26	93.74	35.940	
12,500.00	6,930.85	7,136.39	6,938.06	94.76	23.66	90.49	1,495.91	-4,020.84	3,414.82	3,321.20	93.62	36.477	
12,600.00	6,930.52	7,137.49	6,939.16	96.27	23.66	90.52	1,495.90	-4,020.85	3,462.92	3,369.46	93.46	37.051	
12,700.00	6,930.20	7,138.60	6,940.27	97.79	23.66	90.54	1,495.90	-4,020.87	3,513.21	3,419.92	93.28	37.662	
12,800.00	6,929.88	7,139.71	6,941.37	99.32	23.66	90.56	1,495.90	-4,020.89	3,565.59	3,472.51	93.08	38.308	
12,900.00	6,929.55	7,140.81	6,942.48	100.84	23.66	90.58	1,495.89	-4,020.90	3,619.98	3,527.12	92.85	38.987	
13,000.00	6,929.23	7,141.92	6,943.59	102.37	23.66	90.60	1,495.89	-4,020.92	3,676.28	3,583.67	92.61	39.697	
13,100.00	6,928.91	7,143.03	6,944.69	103.89	23.66	90.62	1,495.89	-4,020.93	3,734.41	3,642.06	92.35	40.438	
13,200.00	6,928.58	7,144.14	6,945.80	105.43	23.67	90.64	1,495.88	-4,020.95	3,794.29	3,702.21	92.08	41.208	
13,300.00	6,928.26	7,145.24	6,946.91	106.96	23.67	90.66	1,495.88	-4,020.96	3,855.83	3,764.03	91.79	42.005	
13,400.00	6,927.94	7,146.35	6,948.02	108.49	23.67	90.68	1,495.88	-4,020.98	3,918.95	3,827.45	91.50	42.829	
13,500.00	6,927.61	7,147.46	6,949.13	110.03	23.67	90.71	1,495.87	-4,021.00	3,983.59	3,892.38	91.21	43.677	
13,600.00	6,927.29	7,148.57	6,950.24	111.57	23.67	90.73	1,495.87	-4,021.01	4,049.66	3,958.76	90.90	44.549	
13,700.00	6,926.97	7,149.69	6,951.35	113.11	23.67	90.75	1,495.87	-4,021.03	4,117.11	4,026.51	90.60	45.444	
13,800.00	6,926.65	7,150.80	6,952.47	114.65	23.67	90.77	1,495.87	-4,021.04	4,185.85	4,095.56	90.29	46.361	
13,900.00	6,926.32	7,151.91	6,953.58	116.20	23.67	90.79	1,495.86	-4,021.06	4,255.83	4,165.86	89.98	47.299	
14,000.00	6,926.00	7,153.02	6,954.69	117.75	23.68	90.81	1,495.86	-4,021.08	4,327.00	4,237.33	89.67	48.256	
14,100.00	6,925.68	7,154.14	6,955.80	119.29	23.68	90.83	1,495.86	-4,021.09	4,399.28	4,309.92	89.36	49.231	
14,200.00	6,925.35	7,155.25	6,956.92	120.84	23.68	90.85	1,495.85	-4,021.11	4,472.63	4,383.58	89.05	50.225	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #149C - OH - OH-SVY — **Offset Site Error:** 0.00 usft

Survey Program: 327-APC_ISCWSA REV 2 MWD — **Rule Assigned:** — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,300.00	6,925.03	7,156.37	6,958.03	122.39	23.68	90.87	1,495.85	-4,021.12	4,547.00	4,458.25	88.75	51.236	
14,400.00	6,924.71	7,157.48	6,959.15	123.94	23.68	90.90	1,495.85	-4,021.14	4,622.33	4,533.89	88.44	52.263	
14,500.00	6,924.38	7,158.60	6,960.27	125.50	23.68	90.92	1,495.84	-4,021.15	4,698.59	4,610.44	88.15	53.305	
14,600.00	6,924.06	7,159.72	6,961.38	127.05	23.68	90.94	1,495.84	-4,021.17	4,775.72	4,687.87	87.85	54.362	
14,700.00	6,923.74	7,160.84	6,962.50	128.61	23.68	90.96	1,495.84	-4,021.19	4,853.68	4,766.13	87.56	55.433	
14,800.00	6,923.42	7,161.95	6,963.62	130.16	23.68	90.98	1,495.84	-4,021.20	4,932.44	4,845.17	87.27	56.518	
14,900.00	6,923.09	7,163.07	6,964.74	131.72	23.69	91.00	1,495.83	-4,021.22	5,011.96	4,924.97	86.99	57.615	
15,000.00	6,922.77	7,164.19	6,965.86	133.28	23.69	91.02	1,495.83	-4,021.23	5,092.20	5,005.49	86.71	58.724	
15,100.00	6,922.45	7,165.31	6,966.98	134.84	23.69	91.04	1,495.83	-4,021.25	5,173.13	5,086.69	86.44	59.844	
15,200.00	6,922.12	7,166.43	6,968.10	136.40	23.69	91.07	1,495.82	-4,021.27	5,254.71	5,168.54	86.18	60.976	
15,300.00	6,921.80	7,167.56	6,969.22	137.96	23.69	91.09	1,495.82	-4,021.28	5,336.92	5,251.01	85.92	62.118	
15,400.00	6,921.48	7,168.68	6,970.34	139.53	23.69	91.11	1,495.82	-4,021.30	5,419.73	5,334.07	85.66	63.270	
15,500.00	6,921.15	7,169.80	6,971.47	141.09	23.69	91.13	1,495.81	-4,021.32	5,503.11	5,417.70	85.41	64.431	
15,600.00	6,920.83	7,170.92	6,972.59	142.65	23.69	91.15	1,495.81	-4,021.33	5,587.04	5,501.87	85.17	65.601	
15,700.00	6,920.51	7,172.05	6,973.71	144.22	23.70	91.17	1,495.81	-4,021.35	5,671.48	5,586.55	84.93	66.780	
15,800.00	6,920.18	7,173.17	6,974.84	145.79	23.70	91.19	1,495.80	-4,021.36	5,756.43	5,671.73	84.69	67.967	
15,900.00	6,919.86	7,174.30	6,975.96	147.35	23.70	91.22	1,495.80	-4,021.38	5,841.85	5,757.38	84.47	69.161	
16,000.00	6,919.54	7,175.42	6,977.09	148.92	23.70	91.24	1,495.80	-4,021.40	5,927.72	5,843.48	84.24	70.363	
16,100.00	6,919.22	7,176.55	6,978.22	150.49	23.70	91.26	1,495.80	-4,021.41	6,014.04	5,930.01	84.03	71.571	
16,200.00	6,918.89	7,177.68	6,979.34	152.06	23.70	91.28	1,495.79	-4,021.43	6,100.77	6,016.95	83.82	72.786	
16,300.00	6,918.57	7,178.81	6,980.47	153.63	23.70	91.30	1,495.79	-4,021.44	6,187.90	6,104.28	83.61	74.008	
16,400.00	6,918.25	7,179.94	6,981.60	155.20	23.70	91.32	1,495.79	-4,021.46	6,275.41	6,192.00	83.41	75.235	
16,500.00	6,917.92	7,181.06	6,982.73	156.77	23.71	91.34	1,495.78	-4,021.48	6,363.29	6,280.08	83.22	76.467	
16,600.00	6,917.60	7,182.19	6,983.86	158.34	23.71	91.37	1,495.78	-4,021.49	6,451.53	6,368.50	83.03	77.705	
16,700.00	6,917.28	7,183.33	6,984.99	159.92	23.71	91.39	1,495.78	-4,021.51	6,540.10	6,457.26	82.84	78.948	
16,800.00	6,916.95	7,184.46	6,986.12	161.49	23.71	91.41	1,495.77	-4,021.53	6,629.00	6,546.34	82.66	80.195	
16,900.00	6,916.63	7,185.59	6,987.25	163.06	23.71	91.43	1,495.77	-4,021.54	6,718.21	6,635.72	82.49	81.447	
17,000.00	6,916.31	7,186.72	6,988.38	164.64	23.71	91.45	1,495.77	-4,021.56	6,807.72	6,725.40	82.32	82.703	
17,100.00	6,915.98	7,187.85	6,989.52	166.21	23.71	91.47	1,495.76	-4,021.57	6,897.52	6,815.37	82.15	83.962	
17,200.00	6,915.66	7,188.99	6,990.65	167.79	23.71	91.49	1,495.76	-4,021.59	6,987.59	6,905.60	81.99	85.225	
17,300.00	6,915.34	7,190.12	6,991.78	169.37	23.72	91.52	1,495.76	-4,021.61	7,077.93	6,996.10	81.83	86.492	
17,400.00	6,915.02	7,191.26	6,992.92	170.94	23.72	91.54	1,495.75	-4,021.62	7,168.53	7,086.85	81.68	87.762	
17,500.00	6,914.69	7,192.39	6,994.06	172.52	23.72	91.56	1,495.75	-4,021.64	7,259.37	7,177.84	81.53	89.035	
17,600.00	6,914.37	7,193.53	6,995.19	174.10	23.72	91.58	1,495.75	-4,021.66	7,350.45	7,269.06	81.39	90.310	
17,700.00	6,914.05	7,194.67	6,996.33	175.68	23.72	91.60	1,495.75	-4,021.67	7,441.76	7,360.51	81.25	91.588	
17,800.00	6,913.72	7,195.80	6,997.47	177.25	23.72	91.62	1,495.74	-4,021.69	7,533.30	7,452.18	81.12	92.868	
17,900.00	6,913.40	7,196.94	6,998.60	178.83	23.72	91.65	1,495.74	-4,021.70	7,625.04	7,544.05	80.99	94.151	
18,000.00	6,913.08	7,198.08	6,999.74	180.41	23.72	91.67	1,495.74	-4,021.72	7,716.99	7,636.13	80.86	95.435	
18,023.75	6,913.00	7,198.35	7,000.01	180.79	23.72	91.67	1,495.74	-4,021.72	7,738.86	7,658.03	80.83	95.740	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #154 - OH - OH-TD — **Offset Site Error:** 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY — **Rule Assigned:** — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	156.00	156.00	0.00	4.67	-141.67	-1,766.69	-1,396.69	2,252.10				
100.00	100.00	256.00	256.00	0.25	7.67	-141.67	-1,766.69	-1,396.69	2,252.10	2,244.18	7.92	284.286	
200.00	200.00	356.00	356.00	0.61	10.67	-141.67	-1,766.69	-1,396.69	2,252.10	2,240.82	11.28	199.710	
300.00	300.00	456.00	456.00	0.97	13.66	-141.67	-1,766.69	-1,396.69	2,252.10	2,237.47	14.63	153.919	
400.00	400.00	556.10	556.00	1.33	16.66	-141.67	-1,766.69	-1,396.69	2,252.10	2,234.11	17.99	125.188	
500.00	500.00	656.10	656.00	1.68	19.66	-141.67	-1,766.69	-1,396.69	2,252.10	2,230.75	21.34	105.511	
600.00	599.98	755.40	755.26	2.03	22.64	38.45	-1,764.52	-1,396.69	2,249.02	2,224.36	24.66	91.195	
700.00	699.84	844.40	844.24	2.36	25.30	38.57	-1,764.83	-1,396.69	2,245.20	2,217.54	27.66	81.165	
800.00	799.45	933.30	933.12	2.71	27.97	38.75	-1,765.69	-1,396.69	2,239.14	2,208.47	30.67	73.013	
900.00	898.70	1,055.11	1,054.70	3.06	31.62	39.09	-1,766.69	-1,396.69	2,230.31	2,195.64	34.67	64.326	
1,000.00	997.47	1,153.87	1,153.47	3.43	34.58	39.50	-1,766.69	-1,396.69	2,218.14	2,180.15	37.99	58.384	
1,100.00	1,095.62	1,251.80	1,251.35	3.82	37.51	40.04	-1,764.51	-1,396.69	2,201.68	2,160.38	41.30	53.313	
1,207.83	1,200.65	1,345.87	1,345.41	4.26	40.33	40.64	-1,764.84	-1,396.69	2,183.16	2,138.63	44.53	49.030	
1,300.00	1,290.02	1,426.19	1,425.71	4.65	42.74	40.98	-1,765.60	-1,396.69	2,166.54	2,119.25	47.29	45.812	
1,400.00	1,386.98	1,543.69	1,542.98	5.09	46.26	41.47	-1,766.69	-1,396.69	2,148.65	2,097.45	51.21	41.958	
1,500.00	1,483.95	1,640.66	1,639.95	5.53	49.16	41.90	-1,766.69	-1,396.69	2,130.14	2,075.63	54.52	39.073	
1,600.00	1,580.91	1,737.62	1,736.91	5.99	52.07	42.33	-1,766.69	-1,396.69	2,111.75	2,053.92	57.83	36.517	
1,700.00	1,677.87	1,826.32	1,825.55	6.44	54.72	42.78	-1,764.72	-1,396.69	2,092.03	2,031.13	60.90	34.352	
1,800.00	1,774.84	1,914.09	1,913.31	6.90	57.35	43.17	-1,765.46	-1,396.69	2,074.50	2,010.55	63.95	32.441	
1,900.00	1,871.80	2,028.81	2,027.80	7.36	60.79	43.69	-1,766.69	-1,396.69	2,057.33	1,989.53	67.80	30.342	
2,000.00	1,968.76	2,125.78	2,124.76	7.83	63.70	44.16	-1,766.69	-1,396.69	2,039.46	1,968.33	71.13	28.671	
2,100.00	2,065.73	2,222.74	2,221.73	8.30	66.60	44.63	-1,766.69	-1,396.69	2,021.72	1,947.25	74.47	27.149	
2,200.00	2,162.69	2,313.38	2,312.31	8.77	69.32	45.13	-1,764.65	-1,396.69	2,002.67	1,925.06	77.62	25.803	
2,300.00	2,259.65	2,401.81	2,400.73	9.24	71.97	45.56	-1,765.32	-1,396.69	1,985.75	1,905.05	80.70	24.607	
2,400.00	2,356.61	2,513.93	2,512.61	9.71	75.33	46.11	-1,766.69	-1,396.69	1,969.37	1,884.88	84.49	23.308	
2,500.00	2,453.58	2,610.90	2,609.58	10.18	78.23	46.62	-1,766.69	-1,396.69	1,952.23	1,864.39	87.84	22.225	
2,600.00	2,550.54	2,707.86	2,706.54	10.66	81.14	47.14	-1,766.69	-1,396.69	1,935.23	1,844.05	91.18	21.223	
2,700.00	2,647.50	2,800.23	2,798.87	11.13	83.91	47.68	-1,764.60	-1,396.69	1,916.98	1,822.58	94.40	20.307	
2,800.00	2,744.47	2,889.34	2,887.96	11.61	86.58	48.16	-1,765.19	-1,396.69	1,900.76	1,803.24	97.52	19.491	
2,900.00	2,841.43	2,978.75	2,977.34	12.08	89.26	48.64	-1,766.34	-1,396.69	1,885.12	1,784.47	100.65	18.730	
3,000.00	2,938.39	3,096.02	3,094.39	12.56	92.77	49.30	-1,766.69	-1,396.69	1,868.93	1,764.32	104.61	17.866	
3,100.00	3,035.36	3,192.98	3,191.36	13.04	95.68	49.86	-1,766.69	-1,396.69	1,852.79	1,744.82	107.97	17.160	
3,200.00	3,132.32	3,286.88	3,285.22	13.51	98.49	50.47	-1,764.56	-1,396.69	1,835.45	1,724.21	111.24	16.499	
3,300.00	3,229.28	3,376.67	3,374.98	13.99	101.18	50.99	-1,765.08	-1,396.69	1,820.05	1,705.66	114.40	15.910	
3,400.00	3,326.25	3,466.76	3,465.05	14.47	103.88	51.52	-1,766.16	-1,396.69	1,805.23	1,687.67	117.56	15.356	
3,500.00	3,423.21	3,581.14	3,579.21	14.95	107.31	52.21	-1,766.69	-1,396.69	1,790.11	1,668.67	121.44	14.740	
3,600.00	3,520.17	3,678.10	3,676.17	15.43	110.21	52.82	-1,766.69	-1,396.69	1,774.94	1,650.12	124.82	14.220	
3,700.00	3,617.13	3,773.32	3,771.35	15.91	113.07	53.49	-1,764.53	-1,396.69	1,758.66	1,630.52	128.14	13.724	
3,800.00	3,714.10	3,863.80	3,861.81	16.39	115.78	54.07	-1,764.97	-1,396.69	1,744.21	1,612.88	131.33	13.281	
3,900.00	3,811.06	3,954.59	3,952.57	16.87	118.50	54.64	-1,765.98	-1,396.69	1,730.34	1,595.81	134.52	12.863	
4,000.00	3,908.02	4,066.26	4,064.02	17.35	121.84	55.37	-1,766.69	-1,396.69	1,716.40	1,578.06	138.34	12.407	
4,100.00	4,004.99	4,163.22	4,160.99	17.83	124.75	56.03	-1,766.69	-1,396.69	1,702.32	1,560.60	141.72	12.012	
4,200.00	4,101.95	4,259.55	4,257.27	18.31	127.64	56.76	-1,764.52	-1,396.69	1,687.27	1,542.17	145.10	11.629	
4,300.00	4,198.91	4,350.72	4,348.43	18.79	130.37	57.40	-1,764.87	-1,396.69	1,673.91	1,525.59	148.32	11.286	
4,400.00	4,295.88	4,442.22	4,439.90	19.27	133.11	58.03	-1,765.81	-1,396.69	1,661.12	1,509.57	151.54	10.961	
4,500.00	4,392.84	4,551.38	4,548.84	19.75	136.38	58.79	-1,766.69	-1,396.69	1,648.47	1,493.17	155.30	10.615	
4,600.00	4,489.80	4,648.34	4,645.80	20.23	139.29	59.51	-1,766.69	-1,396.69	1,635.64	1,476.95	158.69	10.307	
4,700.00	4,586.76	4,745.30	4,742.76	20.71	142.19	60.24	-1,766.69	-1,396.69	1,623.08	1,460.99	162.09	10.013	
4,800.00	4,683.73	4,837.43	4,834.84	21.20	144.95	61.00	-1,764.78	-1,396.69	1,609.85	1,444.50	165.35	9.736	
4,900.00	4,780.69	4,929.65	4,927.03	21.68	147.71	61.68	-1,765.64	-1,396.69	1,598.31	1,429.69	168.61	9.479	
5,000.00	4,877.65	5,036.50	5,033.65	22.16	150.92	62.48	-1,766.69	-1,396.69	1,587.07	1,414.76	172.31	9.211	
5,100.00	4,974.62	5,133.46	5,130.62	22.64	153.82	63.25	-1,766.69	-1,396.69	1,575.64	1,399.92	175.72	8.967	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #154 - OH - OH-TD

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,200.00	5,071.58	5,230.42	5,227.58	23.12	156.73	64.03	-1,766.69	-1,396.69	1,564.51	1,385.39	179.12	8.734	
5,300.00	5,168.54	5,323.93	5,321.04	23.60	159.53	64.86	-1,764.71	-1,396.69	1,552.82	1,370.38	182.44	8.512	
5,400.00	5,265.51	5,416.87	5,413.95	24.09	162.31	65.60	-1,765.49	-1,396.69	1,542.68	1,356.95	185.73	8.306	
5,500.00	5,362.47	5,521.62	5,518.47	24.57	165.45	66.44	-1,766.69	-1,396.69	1,532.98	1,343.61	189.37	8.095	
5,600.00	5,459.43	5,618.58	5,615.43	25.05	168.36	67.26	-1,766.69	-1,396.69	1,523.11	1,330.32	192.78	7.901	
5,700.00	5,556.40	5,715.54	5,712.40	25.53	171.26	68.09	-1,766.69	-1,396.69	1,513.57	1,317.37	196.20	7.714	
5,800.00	5,653.36	5,810.20	5,807.01	26.01	174.10	68.98	-1,764.64	-1,396.69	1,503.61	1,304.06	199.55	7.535	
5,900.00	5,750.32	5,903.88	5,900.67	26.50	176.91	69.78	-1,765.34	-1,396.69	1,495.04	1,292.17	202.88	7.369	
6,000.00	5,847.28	6,006.74	6,003.28	26.98	179.99	70.64	-1,766.69	-1,396.69	1,487.00	1,280.54	206.47	7.202	
6,100.00	5,944.25	6,103.70	6,100.25	27.46	182.89	71.51	-1,766.69	-1,396.69	1,478.85	1,268.96	209.89	7.046	
6,200.00	6,041.21	6,200.66	6,197.21	27.94	185.80	72.39	-1,766.69	-1,396.69	1,471.06	1,257.75	213.31	6.896	
6,300.00	6,138.17	6,297.63	6,294.17	28.43	188.71	73.28	-1,766.69	-1,396.69	1,463.63	1,246.91	216.73	6.753	
6,400.00	6,235.14	6,341.00	6,337.34	28.91	190.01	73.68	-1,766.69	-1,396.69	1,457.58	1,239.14	218.44	6.673	
6,447.84	6,281.52	6,341.00	6,337.34	29.14	190.01	73.68	-1,766.69	-1,396.69	1,456.79	1,238.43	218.36	6.672	
6,496.84	6,329.04	6,341.00	6,337.34	29.38	190.01	73.68	-1,766.69	-1,396.69	1,457.62	1,239.57	218.05	6.685	
6,500.00	6,332.10	6,341.00	6,337.34	29.39	190.01	72.55	-1,766.69	-1,396.69	1,457.72	1,239.70	218.02	6.686	
6,550.00	6,380.52	6,341.00	6,337.34	29.63	190.01	55.37	-1,766.69	-1,396.69	1,458.25	1,240.80	217.45	6.706	
6,600.00	6,428.63	6,341.00	6,337.34	29.87	190.01	40.97	-1,766.69	-1,396.69	1,456.73	1,240.10	216.62	6.725	
6,650.00	6,476.14	6,341.00	6,337.34	30.10	190.01	30.07	-1,766.69	-1,396.69	1,453.16	1,237.61	215.54	6.742	
6,700.00	6,522.73	6,341.00	6,337.34	30.33	190.01	22.05	-1,766.69	-1,396.69	1,447.55	1,233.34	214.21	6.758	
6,750.00	6,568.14	6,341.00	6,337.34	30.54	190.01	16.11	-1,766.69	-1,396.69	1,439.91	1,227.30	212.62	6.772	
6,800.00	6,612.08	6,341.00	6,337.34	30.75	190.01	11.57	-1,766.69	-1,396.69	1,430.27	1,219.49	210.77	6.786	
6,850.00	6,654.28	6,341.00	6,337.34	30.95	190.01	8.00	-1,766.69	-1,396.69	1,418.62	1,209.94	208.68	6.798	
6,900.00	6,694.47	6,341.00	6,337.34	31.15	190.01	5.10	-1,766.69	-1,396.69	1,405.01	1,198.66	206.35	6.809	
6,950.00	6,732.42	6,341.00	6,337.34	31.33	190.01	2.66	-1,766.69	-1,396.69	1,389.45	1,185.68	203.77	6.819	
7,000.00	6,767.89	6,341.00	6,337.34	31.51	190.01	0.55	-1,766.69	-1,396.69	1,371.98	1,171.02	200.96	6.827	
7,050.00	6,800.65	6,341.00	6,337.34	31.68	190.01	-1.35	-1,766.69	-1,396.69	1,352.63	1,154.70	197.93	6.834	
7,100.00	6,830.51	6,341.00	6,337.34	31.85	190.01	-3.09	-1,766.69	-1,396.69	1,331.45	1,136.76	194.68	6.839	
7,150.00	6,857.28	6,341.00	6,337.34	32.01	190.01	-4.74	-1,766.69	-1,396.69	1,308.47	1,117.24	191.24	6.842	
7,200.00	6,880.80	6,341.00	6,337.34	32.17	190.01	-6.35	-1,766.69	-1,396.69	1,283.76	1,096.16	187.60	6.843	
7,250.00	6,900.92	6,341.00	6,337.34	32.33	190.01	-7.96	-1,766.69	-1,396.69	1,257.36	1,073.57	183.79	6.841	
7,300.00	6,917.52	6,341.00	6,337.34	32.49	190.01	-9.60	-1,766.69	-1,396.69	1,229.32	1,049.50	179.82	6.836	
7,350.00	6,930.50	6,341.00	6,337.34	32.66	190.01	-11.31	-1,766.69	-1,396.69	1,199.73	1,024.00	175.73	6.827	
7,400.00	6,939.77	6,341.00	6,337.34	32.83	190.01	-13.13	-1,766.69	-1,396.69	1,168.64	997.11	171.53	6.813	
7,450.00	6,945.28	6,341.00	6,337.34	33.01	190.01	-15.08	-1,766.69	-1,396.69	1,136.14	968.88	167.26	6.793	
7,499.66	6,947.00	6,341.00	6,337.34	33.19	190.01	-17.19	-1,766.69	-1,396.69	1,102.54	939.56	162.98	6.765	
7,600.00	6,946.68	6,341.00	6,337.34	33.61	190.01	-17.19	-1,766.69	-1,396.69	1,035.95	882.36	153.59	6.745	
7,700.00	6,946.35	6,341.00	6,337.34	34.10	190.01	-17.19	-1,766.69	-1,396.69	975.34	832.66	142.68	6.836	
7,800.00	6,946.03	6,341.00	6,337.34	34.66	190.01	-17.19	-1,766.69	-1,396.69	921.62	791.36	130.26	7.075	
7,900.00	6,945.71	6,341.00	6,337.34	35.29	190.01	-17.19	-1,766.69	-1,396.69	876.06	759.41	116.65	7.510	
8,000.00	6,945.38	6,341.00	6,337.34	35.99	190.01	-17.19	-1,766.69	-1,396.69	839.99	737.22	102.76	8.174	
8,100.00	6,945.06	6,341.00	6,337.34	36.74	190.01	-17.19	-1,766.69	-1,396.69	814.66	724.18	90.48	9.004	
8,200.00	6,944.74	6,341.00	6,337.34	37.56	190.01	-17.19	-1,766.69	-1,396.69	801.11	718.18	82.93	9.660	
8,259.51	6,944.55	6,341.00	6,337.34	38.07	190.01	-17.19	-1,766.69	-1,396.69	798.89	716.79	82.11	9.730	CC
8,300.00	6,944.41	6,341.00	6,337.34	38.43	190.01	-17.19	-1,766.69	-1,396.69	799.92	716.57	83.35	9.597	ES
8,400.00	6,944.09	6,341.00	6,337.34	39.35	190.01	-17.19	-1,766.69	-1,396.69	811.15	719.24	91.92	8.825	
8,500.00	6,943.77	6,341.00	6,337.34	40.31	190.01	-17.19	-1,766.69	-1,396.69	834.31	728.93	105.38	7.917	
8,600.00	6,943.45	6,341.00	6,337.34	41.32	190.01	-17.19	-1,766.69	-1,396.69	868.43	748.06	120.37	7.215	
8,700.00	6,943.12	6,341.00	6,337.34	42.37	190.01	-17.19	-1,766.69	-1,396.69	912.29	777.44	134.85	6.765	
8,800.00	6,942.80	6,341.00	6,337.34	43.45	190.01	-17.19	-1,766.69	-1,396.69	964.55	816.67	147.89	6.522	
8,900.00	6,942.48	6,341.00	6,337.34	44.57	190.01	-17.19	-1,766.69	-1,396.69	1,023.94	864.77	159.18	6.433	SF
9,000.00	6,942.15	6,341.00	6,337.34	45.71	190.01	-17.19	-1,766.69	-1,396.69	1,089.29	920.54	168.76	6.455	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #154 - OH - OH-TD

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Rule Assigned: Warning
9,100.00	6,941.83	6,341.00	6,337.34	46.89	190.01	-17.19	-1,766.69	-1,396.69	1,159.59	982.81	176.79	6.559	
9,200.00	6,941.51	6,341.00	6,337.34	48.09	190.01	-17.19	-1,766.69	-1,396.69	1,234.00	1,050.51	183.49	6.725	
9,300.00	6,941.18	6,341.00	6,337.34	49.31	190.01	-17.19	-1,766.69	-1,396.69	1,311.81	1,122.73	189.08	6.938	
9,400.00	6,940.86	6,341.00	6,337.34	50.56	190.01	-17.19	-1,766.69	-1,396.69	1,392.46	1,198.71	193.75	7.187	
9,500.00	6,940.54	6,341.00	6,337.34	51.82	190.01	-17.19	-1,766.69	-1,396.69	1,475.48	1,277.81	197.68	7.464	
9,600.00	6,940.21	6,341.00	6,337.34	53.11	190.01	-17.19	-1,766.69	-1,396.69	1,560.50	1,359.52	200.98	7.764	
9,700.00	6,939.89	6,341.00	6,337.34	54.41	190.01	-17.19	-1,766.69	-1,396.69	1,647.19	1,443.41	203.78	8.083	
9,800.00	6,939.57	6,341.00	6,337.34	55.73	190.01	-17.19	-1,766.69	-1,396.69	1,735.32	1,529.15	206.17	8.417	
9,900.00	6,939.25	6,341.00	6,337.34	57.07	190.01	-17.19	-1,766.69	-1,396.69	1,824.68	1,616.46	208.22	8.763	
10,000.00	6,938.92	6,341.00	6,337.34	58.41	190.01	-17.19	-1,766.69	-1,396.69	1,915.08	1,705.10	209.98	9.120	
10,100.00	6,938.60	6,341.00	6,337.34	59.77	190.01	-17.19	-1,766.69	-1,396.69	2,006.40	1,794.89	211.51	9.486	
10,200.00	6,938.28	6,341.00	6,337.34	61.15	190.01	-17.19	-1,766.69	-1,396.69	2,098.51	1,885.67	212.84	9.860	
10,300.00	6,937.95	6,341.00	6,337.34	62.53	190.01	-17.19	-1,766.69	-1,396.69	2,191.31	1,977.31	214.00	10.240	
10,400.00	6,937.63	6,341.00	6,337.34	63.92	190.01	-17.19	-1,766.69	-1,396.69	2,284.72	2,069.69	215.03	10.625	
10,500.00	6,937.31	6,341.00	6,337.34	65.33	190.01	-17.19	-1,766.69	-1,396.69	2,378.66	2,162.73	215.94	11.016	
10,600.00	6,936.98	6,341.00	6,337.34	66.74	190.01	-17.19	-1,766.69	-1,396.69	2,473.08	2,256.34	216.74	11.410	
10,700.00	6,936.66	6,341.00	6,337.34	68.16	190.01	-17.19	-1,766.69	-1,396.69	2,567.92	2,350.46	217.46	11.809	
10,800.00	6,936.34	6,341.00	6,337.34	69.59	190.01	-17.19	-1,766.69	-1,396.69	2,663.14	2,445.04	218.11	12.210	
10,900.00	6,936.01	6,341.00	6,337.34	71.03	190.01	-17.19	-1,766.69	-1,396.69	2,758.70	2,540.01	218.69	12.615	
11,000.00	6,935.69	6,341.00	6,337.34	72.47	190.01	-17.19	-1,766.69	-1,396.69	2,854.56	2,635.35	219.21	13.022	
11,100.00	6,935.37	6,341.00	6,337.34	73.92	190.01	-17.19	-1,766.69	-1,396.69	2,950.70	2,731.01	219.69	13.431	
11,200.00	6,935.05	6,341.00	6,337.34	75.38	190.01	-17.19	-1,766.69	-1,396.69	3,047.08	2,826.97	220.12	13.843	
11,300.00	6,934.72	6,341.00	6,337.34	76.84	190.01	-17.19	-1,766.69	-1,396.69	3,143.70	2,923.18	220.51	14.256	
11,400.00	6,934.40	6,341.00	6,337.34	78.31	190.01	-17.19	-1,766.69	-1,396.69	3,240.51	3,019.64	220.88	14.671	
11,500.00	6,934.08	6,341.00	6,337.34	79.79	190.01	-17.19	-1,766.69	-1,396.69	3,337.52	3,116.31	221.21	15.088	
11,600.00	6,933.75	6,341.00	6,337.34	81.27	190.01	-17.19	-1,766.69	-1,396.69	3,434.69	3,213.18	221.52	15.505	
11,700.00	6,933.43	6,341.00	6,337.34	82.75	190.01	-17.19	-1,766.69	-1,396.69	3,532.03	3,310.23	221.80	15.924	
11,800.00	6,933.11	6,341.00	6,337.34	84.24	190.01	-17.19	-1,766.69	-1,396.69	3,629.51	3,407.44	222.06	16.344	
11,900.00	6,932.78	6,341.00	6,337.34	85.73	190.01	-17.19	-1,766.69	-1,396.69	3,727.12	3,504.81	222.31	16.765	
12,000.00	6,932.46	6,341.00	6,337.34	87.23	190.01	-17.19	-1,766.69	-1,396.69	3,824.85	3,602.32	222.54	17.187	
12,100.00	6,932.14	6,341.00	6,337.34	88.72	190.01	-17.19	-1,766.69	-1,396.69	3,922.70	3,699.95	222.75	17.610	
12,200.00	6,931.81	6,341.00	6,337.34	90.23	190.01	-17.19	-1,766.69	-1,396.69	4,020.66	3,797.70	222.96	18.033	
12,300.00	6,931.49	6,341.00	6,337.34	91.74	190.01	-17.19	-1,766.69	-1,396.69	4,118.71	3,895.57	223.15	18.458	
12,400.00	6,931.17	6,341.00	6,337.34	93.25	190.01	-17.19	-1,766.69	-1,396.69	4,216.86	3,993.54	223.32	18.882	
12,500.00	6,930.85	6,341.00	6,337.34	94.76	190.01	-17.19	-1,766.69	-1,396.69	4,315.09	4,091.60	223.49	19.307	
12,600.00	6,930.52	6,341.00	6,337.34	96.27	190.01	-17.19	-1,766.69	-1,396.69	4,413.40	4,189.75	223.66	19.733	
12,700.00	6,930.20	6,341.00	6,337.34	97.79	190.01	-17.19	-1,766.69	-1,396.69	4,511.78	4,287.98	223.81	20.159	
12,800.00	6,929.88	6,341.00	6,337.34	99.32	190.01	-17.19	-1,766.69	-1,396.69	4,610.24	4,386.28	223.95	20.586	
12,900.00	6,929.55	6,341.00	6,337.34	100.84	190.01	-17.19	-1,766.69	-1,396.69	4,708.76	4,484.66	224.09	21.012	
13,000.00	6,929.23	6,341.00	6,337.34	102.37	190.01	-17.19	-1,766.69	-1,396.69	4,807.34	4,583.11	224.23	21.440	
13,100.00	6,928.91	6,341.00	6,337.34	103.89	190.01	-17.19	-1,766.69	-1,396.69	4,905.98	4,681.62	224.36	21.867	
13,200.00	6,928.58	6,341.00	6,337.34	105.43	190.01	-17.19	-1,766.69	-1,396.69	5,004.67	4,780.19	224.48	22.295	
13,300.00	6,928.26	6,341.00	6,337.34	106.96	190.01	-17.19	-1,766.69	-1,396.69	5,103.41	4,878.81	224.60	22.722	
13,400.00	6,927.94	6,341.00	6,337.34	108.49	190.01	-17.19	-1,766.69	-1,396.69	5,202.20	4,977.49	224.71	23.151	
13,500.00	6,927.61	6,341.00	6,337.34	110.03	190.01	-17.19	-1,766.69	-1,396.69	5,301.04	5,076.21	224.82	23.579	
13,600.00	6,927.29	6,341.00	6,337.34	111.57	190.01	-17.19	-1,766.69	-1,396.69	5,399.92	5,174.98	224.93	24.007	
13,700.00	6,926.97	6,341.00	6,337.34	113.11	190.01	-17.19	-1,766.69	-1,396.69	5,498.84	5,273.80	225.04	24.435	
13,800.00	6,926.65	6,341.00	6,337.34	114.65	190.01	-17.19	-1,766.69	-1,396.69	5,597.79	5,372.66	225.14	24.864	
13,900.00	6,926.32	6,341.00	6,337.34	116.20	190.01	-17.19	-1,766.69	-1,396.69	5,696.79	5,471.55	225.24	25.293	
14,000.00	6,926.00	6,341.00	6,337.34	117.75	190.01	-17.19	-1,766.69	-1,396.69	5,795.82	5,570.48	225.33	25.721	
14,100.00	6,925.68	6,341.00	6,337.34	119.29	190.01	-17.19	-1,766.69	-1,396.69	5,894.88	5,669.45	225.43	26.150	
14,200.00	6,925.35	6,341.00	6,337.34	120.84	190.01	-17.19	-1,766.69	-1,396.69	5,993.97	5,768.45	225.52	26.578	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #154 - OH - OH-TD

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Rule Assigned:

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,300.00	6,925.03	6,341.00	6,337.34	122.39	190.01	-17.19	-1,766.69	-1,396.69	6,093.09	5,867.48	225.61	27.007	
14,400.00	6,924.71	6,341.00	6,337.34	123.94	190.01	-17.19	-1,766.69	-1,396.69	6,192.24	5,966.54	225.70	27.436	
14,500.00	6,924.38	6,341.00	6,337.34	125.50	190.01	-17.19	-1,766.69	-1,396.69	6,291.42	6,065.63	225.79	27.864	
14,600.00	6,924.06	6,341.00	6,337.34	127.05	190.01	-17.19	-1,766.69	-1,396.69	6,390.62	6,164.75	225.87	28.293	
14,700.00	6,923.74	6,341.00	6,337.34	128.61	190.01	-17.19	-1,766.69	-1,396.69	6,489.85	6,263.89	225.96	28.721	
14,800.00	6,923.42	6,341.00	6,337.34	130.16	190.01	-17.19	-1,766.69	-1,396.69	6,589.10	6,363.06	226.04	29.150	
14,900.00	6,923.09	6,341.00	6,337.34	131.72	190.01	-17.19	-1,766.69	-1,396.69	6,688.38	6,462.25	226.12	29.578	
15,000.00	6,922.77	6,341.00	6,337.34	133.28	190.01	-17.19	-1,766.69	-1,396.69	6,787.67	6,561.46	226.21	30.006	
15,100.00	6,922.45	6,341.00	6,337.34	134.84	190.01	-17.19	-1,766.69	-1,396.69	6,886.99	6,660.70	226.29	30.435	
15,200.00	6,922.12	6,341.00	6,337.34	136.40	190.01	-17.19	-1,766.69	-1,396.69	6,986.32	6,759.95	226.37	30.863	
15,300.00	6,921.80	6,341.00	6,337.34	137.96	190.01	-17.19	-1,766.69	-1,396.69	7,085.67	6,859.23	226.45	31.291	
15,400.00	6,921.48	6,341.00	6,337.34	139.53	190.01	-17.19	-1,766.69	-1,396.69	7,185.04	6,958.52	226.53	31.718	
15,500.00	6,921.15	6,341.00	6,337.34	141.09	190.01	-17.19	-1,766.69	-1,396.69	7,284.43	7,057.83	226.60	32.146	
15,600.00	6,920.83	6,341.00	6,337.34	142.65	190.01	-17.19	-1,766.69	-1,396.69	7,383.84	7,157.16	226.68	32.574	
15,700.00	6,920.51	6,341.00	6,337.34	144.22	190.01	-17.19	-1,766.69	-1,396.69	7,483.26	7,256.50	226.76	33.001	
15,800.00	6,920.18	6,341.00	6,337.34	145.79	190.01	-17.19	-1,766.69	-1,396.69	7,582.69	7,355.86	226.84	33.428	
15,900.00	6,919.86	6,341.00	6,337.34	147.35	190.01	-17.19	-1,766.69	-1,396.69	7,682.15	7,455.23	226.91	33.855	
16,000.00	6,919.54	6,341.00	6,337.34	148.92	190.01	-17.19	-1,766.69	-1,396.69	7,781.61	7,554.62	226.99	34.282	
16,100.00	6,919.22	6,341.00	6,337.34	150.49	190.01	-17.19	-1,766.69	-1,396.69	7,881.09	7,654.02	227.06	34.709	
16,200.00	6,918.89	6,341.00	6,337.34	152.06	190.01	-17.19	-1,766.69	-1,396.69	7,980.58	7,753.44	227.14	35.135	
16,300.00	6,918.57	6,341.00	6,337.34	153.63	190.01	-17.19	-1,766.69	-1,396.69	8,080.08	7,852.87	227.22	35.561	
16,400.00	6,918.25	6,341.00	6,337.34	155.20	190.01	-17.19	-1,766.69	-1,396.69	8,179.60	7,952.31	227.29	35.987	
16,500.00	6,917.92	6,341.00	6,337.34	156.77	190.01	-17.19	-1,766.69	-1,396.69	8,279.13	8,051.76	227.37	36.413	
16,600.00	6,917.60	6,341.00	6,337.34	158.34	190.01	-17.19	-1,766.69	-1,396.69	8,378.67	8,151.22	227.44	36.839	
16,700.00	6,917.28	6,341.00	6,337.34	159.92	190.01	-17.19	-1,766.69	-1,396.69	8,478.22	8,250.70	227.52	37.264	
16,800.00	6,916.95	6,341.00	6,337.34	161.49	190.01	-17.19	-1,766.69	-1,396.69	8,577.78	8,350.18	227.59	37.689	
16,900.00	6,916.63	6,341.00	6,337.34	163.06	190.01	-17.19	-1,766.69	-1,396.69	8,677.35	8,449.68	227.67	38.114	
17,000.00	6,916.31	6,341.00	6,337.34	164.64	190.01	-17.19	-1,766.69	-1,396.69	8,776.93	8,549.18	227.74	38.539	
17,100.00	6,915.98	6,341.00	6,337.34	166.21	190.01	-17.19	-1,766.69	-1,396.69	8,876.52	8,648.70	227.82	38.963	
17,200.00	6,915.66	6,341.00	6,337.34	167.79	190.01	-17.19	-1,766.69	-1,396.69	8,976.11	8,748.22	227.89	39.387	
17,300.00	6,915.34	6,341.00	6,337.34	169.37	190.01	-17.19	-1,766.69	-1,396.69	9,075.72	8,847.75	227.97	39.811	
17,400.00	6,915.02	6,341.00	6,337.34	170.94	190.01	-17.19	-1,766.69	-1,396.69	9,175.34	8,947.29	228.04	40.235	
17,500.00	6,914.69	6,341.00	6,337.34	172.52	190.01	-17.19	-1,766.69	-1,396.69	9,274.96	9,046.84	228.12	40.658	
17,600.00	6,914.37	6,341.00	6,337.34	174.10	190.01	-17.19	-1,766.69	-1,396.69	9,374.59	9,146.40	228.19	41.082	
17,700.00	6,914.05	6,341.00	6,337.34	175.68	190.01	-17.19	-1,766.69	-1,396.69	9,474.23	9,245.96	228.27	41.504	
17,800.00	6,913.72	6,341.00	6,337.34	177.25	190.01	-17.19	-1,766.69	-1,396.69	9,573.88	9,345.54	228.35	41.927	
17,900.00	6,913.40	6,341.00	6,337.34	178.83	190.01	-17.19	-1,766.69	-1,396.69	9,673.54	9,445.12	228.42	42.349	
18,000.00	6,913.08	6,341.00	6,337.34	180.41	190.01	-17.19	-1,766.69	-1,396.69	9,773.20	9,544.70	228.50	42.771	
18,023.75	6,913.00	6,341.00	6,337.34	180.79	190.01	-17.19	-1,766.69	-1,396.69	9,796.87	9,568.36	228.52	42.872	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #154A - OH - OH-SVY — **Offset Site Error:** 0.00 usft

Survey Program: 95-Standard Keeper 104 — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	28.77	28.77	0.00	0.02	165.92	-1,667.43	418.08	1,719.04				
100.00	100.00	128.71	128.71	0.25	0.11	165.92	-1,667.28	418.29	1,718.95	1,718.63	0.32	5,421.623	
124.95	124.95	152.94	152.94	0.34	0.14	165.91	-1,667.25	418.38	1,718.94	1,718.52	0.42	4,072.557	
200.00	200.00	225.95	225.95	0.61	0.23	165.90	-1,667.18	418.84	1,718.99	1,718.25	0.74	2,328.261	
300.00	300.00	325.33	325.32	0.97	0.36	165.86	-1,667.07	419.85	1,719.13	1,717.97	1.16	1,478.373	
400.00	400.00	423.01	422.99	1.33	0.48	165.82	-1,666.98	421.14	1,719.36	1,717.77	1.59	1,082.061	
500.00	500.00	524.26	524.23	1.68	0.61	165.78	-1,666.89	422.54	1,719.61	1,717.59	2.02	851.708	
600.00	599.98	623.71	623.68	2.03	0.74	-14.25	-1,666.78	423.90	1,718.15	1,715.72	2.43	706.505	
700.00	699.84	722.62	722.58	2.36	0.87	-14.36	-1,666.70	425.35	1,713.36	1,710.52	2.84	603.680	
800.00	799.45	818.70	818.64	2.71	1.00	-14.52	-1,666.63	426.87	1,705.26	1,702.00	3.25	524.465	
900.00	898.70	917.58	917.51	3.06	1.13	-14.73	-1,666.77	428.45	1,693.99	1,690.31	3.68	460.791	
1,000.00	997.47	1,014.64	1,014.56	3.43	1.25	-14.99	-1,667.05	429.98	1,679.52	1,675.42	4.11	408.783	
1,100.00	1,095.62	1,112.72	1,112.62	3.82	1.37	-15.30	-1,667.31	431.47	1,661.73	1,657.18	4.55	365.310	
1,207.83	1,200.65	1,217.37	1,217.27	4.26	1.51	-15.70	-1,667.67	432.86	1,638.89	1,633.86	5.03	325.650	
1,300.00	1,290.02	1,308.86	1,308.75	4.65	1.62	-15.95	-1,667.98	433.93	1,617.73	1,612.27	5.45	296.718	
1,400.00	1,386.98	1,412.49	1,412.37	5.09	1.76	-16.25	-1,668.07	435.01	1,594.53	1,588.63	5.90	270.113	
1,500.00	1,483.95	1,510.62	1,510.50	5.53	1.89	-16.53	-1,667.93	435.89	1,571.12	1,564.77	6.35	247.573	
1,600.00	1,580.91	1,610.01	1,609.88	5.99	2.01	-16.83	-1,667.71	436.68	1,547.64	1,540.85	6.79	227.968	
1,700.00	1,677.87	1,711.62	1,711.49	6.44	2.12	-17.12	-1,667.47	437.01	1,524.05	1,516.83	7.22	211.027	
1,800.00	1,774.84	1,809.02	1,808.89	6.90	2.09	-17.38	-1,667.15	436.53	1,500.19	1,492.55	7.65	196.177	
1,900.00	1,871.80	1,909.73	1,909.60	7.36	2.08	-17.66	-1,666.72	436.09	1,476.28	1,468.20	8.08	182.719	
2,000.00	1,968.76	2,012.40	2,012.27	7.83	2.11	-17.97	-1,665.88	435.83	1,452.11	1,443.59	8.52	170.449	
2,100.00	2,065.73	2,109.98	2,109.84	8.30	2.16	-18.28	-1,664.84	435.56	1,427.72	1,418.75	8.97	159.184	
2,200.00	2,162.69	2,207.38	2,207.23	8.77	2.21	-18.60	-1,663.73	435.25	1,403.29	1,393.87	9.43	148.851	
2,300.00	2,259.65	2,301.31	2,301.16	9.24	2.25	-18.90	-1,662.82	434.81	1,379.02	1,369.13	9.89	139.388	
2,400.00	2,356.61	2,397.17	2,397.01	9.71	2.28	-19.22	-1,662.07	434.23	1,354.92	1,344.56	10.37	130.715	
2,500.00	2,453.58	2,496.34	2,496.17	10.18	2.32	-19.56	-1,661.26	433.62	1,330.83	1,319.99	10.84	122.734	
2,600.00	2,550.54	2,594.89	2,594.72	10.66	2.36	-19.89	-1,660.36	432.57	1,306.54	1,295.22	11.32	115.385	
2,700.00	2,647.50	2,692.20	2,692.02	11.13	2.38	-20.21	-1,659.57	431.05	1,282.23	1,270.43	11.80	108.634	
2,800.00	2,744.47	2,786.46	2,786.26	11.61	2.40	-20.53	-1,658.93	429.56	1,258.08	1,245.79	12.29	102.406	
2,900.00	2,841.43	2,882.53	2,882.32	12.08	2.44	-20.87	-1,658.26	428.16	1,233.98	1,221.21	12.77	96.628	
3,000.00	2,938.39	2,972.36	2,972.13	12.56	2.47	-21.21	-1,657.90	427.04	1,210.28	1,197.02	13.26	91.288	
3,100.00	3,035.36	3,062.02	3,061.80	13.04	2.48	-21.57	-1,658.00	426.26	1,187.22	1,173.49	13.74	86.435	
3,200.00	3,132.32	3,152.09	3,151.86	13.51	2.49	-21.94	-1,658.70	425.91	1,164.97	1,150.78	14.19	82.096	
3,300.00	3,229.28	3,248.99	3,248.76	13.99	2.50	-22.37	-1,659.60	425.61	1,142.95	1,128.31	14.64	78.064	
3,400.00	3,326.25	3,348.43	3,348.19	14.47	2.52	-22.82	-1,660.49	425.20	1,120.94	1,105.84	15.10	74.245	
3,500.00	3,423.21	3,447.87	3,447.62	14.95	2.54	-23.28	-1,661.22	424.57	1,098.75	1,083.19	15.56	70.598	
3,600.00	3,520.17	3,551.30	3,551.05	15.43	2.57	-23.78	-1,661.75	423.97	1,076.47	1,060.44	16.03	67.144	
3,700.00	3,617.13	3,647.59	3,647.34	15.91	2.64	-24.30	-1,661.55	423.67	1,053.72	1,037.19	16.53	63.743	
3,800.00	3,714.10	3,744.20	3,743.95	16.39	2.71	-24.85	-1,661.37	423.53	1,031.13	1,014.10	17.04	60.528	
3,900.00	3,811.06	3,834.06	3,833.82	16.87	2.75	-25.38	-1,661.58	423.39	1,009.02	991.49	17.53	57.564	
4,000.00	3,908.02	3,921.45	3,921.20	17.35	2.79	-25.88	-1,662.67	423.12	987.82	969.80	18.02	54.816	
4,100.00	4,004.99	4,018.13	4,017.85	17.83	2.83	-26.43	-1,664.48	422.71	967.22	948.72	18.50	52.273	
4,200.00	4,101.95	4,116.52	4,116.23	18.31	2.88	-27.02	-1,666.33	422.18	946.67	927.68	18.99	49.852	
4,300.00	4,198.91	4,212.73	4,212.41	18.79	2.93	-27.60	-1,668.32	421.48	926.29	906.81	19.49	47.538	
4,400.00	4,295.88	4,308.15	4,307.79	19.27	2.98	-28.15	-1,670.75	420.28	906.20	886.21	19.99	45.339	
4,500.00	4,392.84	4,407.41	4,407.01	19.75	3.05	-28.75	-1,673.43	418.93	886.26	865.78	20.49	43.263	
4,600.00	4,489.80	4,509.80	4,509.37	20.23	3.12	-29.43	-1,675.57	417.80	866.03	845.05	20.98	41.273	
4,700.00	4,586.76	4,608.28	4,607.83	20.71	3.19	-30.14	-1,677.09	416.89	845.54	824.04	21.50	39.336	
4,800.00	4,683.73	4,707.07	4,706.61	21.20	3.26	-30.91	-1,678.38	416.02	824.99	802.97	22.01	37.479	
4,900.00	4,780.69	4,802.85	4,802.38	21.68	3.33	-31.69	-1,679.63	415.29	804.64	782.10	22.54	35.695	
5,000.00	4,877.65	4,900.03	4,899.55	22.16	3.41	-32.56	-1,680.74	414.90	784.50	761.42	23.08	33.995	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #154A - OH - OH-SVY — **Offset Site Error:** 0.00 usft

Survey Program: 95-Standard Keeper 104 — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,100.00	4,974.62	4,996.77	4,996.29	22.64	3.49	-33.46	-1,681.84	414.50	764.54	740.92	23.62	32.368	
5,200.00	5,071.58	5,093.37	5,092.88	23.12	3.58	-34.41	-1,682.97	414.21	744.86	720.69	24.17	30.816	
5,300.00	5,168.54	5,192.15	5,191.66	23.60	3.66	-35.46	-1,684.01	414.05	725.38	700.66	24.73	29.337	
5,400.00	5,265.51	5,287.61	5,287.11	24.09	3.75	-36.53	-1,684.94	414.00	706.15	680.84	25.30	27.911	
5,500.00	5,362.47	5,384.90	5,384.39	24.57	3.84	-37.69	-1,685.95	414.13	687.34	661.46	25.88	26.558	
5,600.00	5,459.43	5,482.78	5,482.27	25.05	3.93	-38.93	-1,686.90	414.24	668.74	642.28	26.47	25.266	
5,700.00	5,556.40	5,578.96	5,578.45	25.53	4.02	-40.18	-1,688.09	414.16	650.55	623.49	27.07	24.035	
5,800.00	5,653.36	5,676.71	5,676.18	26.01	4.12	-41.47	-1,689.71	413.65	632.74	605.08	27.66	22.873	
5,900.00	5,750.32	5,774.76	5,774.21	26.50	4.22	-42.79	-1,691.46	412.66	615.02	586.76	28.26	21.762	
6,000.00	5,847.28	5,873.31	5,872.73	26.98	4.32	-44.20	-1,693.17	411.57	597.55	568.68	28.86	20.702	
6,100.00	5,944.25	5,970.68	5,970.08	27.46	4.41	-45.66	-1,694.88	410.36	580.37	550.89	29.48	19.686	
6,200.00	6,041.21	6,068.05	6,067.43	27.94	4.51	-47.21	-1,696.59	409.16	563.58	533.48	30.11	18.720	
6,300.00	6,138.17	6,125.00	6,124.37	28.43	4.57	-48.15	-1,697.59	408.46	548.73	517.83	30.89	17.764	
6,348.85	6,185.54	6,125.00	6,124.37	28.66	4.57	-48.15	-1,697.59	408.46	546.55	515.24	31.31	17.456	CC, ES
6,400.00	6,235.14	6,125.00	6,124.37	28.91	4.57	-48.15	-1,697.59	408.46	548.93	517.28	31.65	17.344	SF
6,496.84	6,329.04	6,125.00	6,124.37	29.38	4.57	-48.15	-1,697.59	408.46	566.23	534.30	31.93	17.733	
6,500.00	6,332.10	6,125.00	6,124.37	29.39	4.57	-49.23	-1,697.59	408.46	567.07	535.13	31.93	17.758	
6,550.00	6,380.52	6,125.00	6,124.37	29.63	4.57	-65.34	-1,697.59	408.46	583.92	552.03	31.89	18.309	
6,600.00	6,428.63	6,125.00	6,124.37	29.87	4.57	-78.08	-1,697.59	408.46	607.00	575.23	31.77	19.105	
6,650.00	6,476.14	6,125.00	6,124.37	30.10	4.57	-86.66	-1,697.59	408.46	635.48	603.88	31.60	20.109	
6,700.00	6,522.73	6,125.00	6,124.37	30.33	4.57	-91.58	-1,697.59	408.46	668.53	637.11	31.42	21.280	
6,750.00	6,568.14	6,125.00	6,124.37	30.54	4.57	-93.49	-1,697.59	408.46	705.29	674.05	31.24	22.574	
6,800.00	6,612.08	6,125.00	6,124.37	30.75	4.57	-92.88	-1,697.59	408.46	745.03	713.92	31.11	23.952	
6,850.00	6,654.28	6,125.00	6,124.37	30.95	4.57	-90.00	-1,697.59	408.46	787.06	756.04	31.01	25.378	
6,900.00	6,694.47	6,125.00	6,124.37	31.15	4.57	-84.96	-1,697.59	408.46	830.79	799.81	30.97	26.822	
6,950.00	6,732.42	6,125.00	6,124.37	31.33	4.57	-77.98	-1,697.59	408.46	875.72	844.74	30.99	28.261	
7,000.00	6,767.89	6,125.00	6,124.37	31.51	4.57	-69.45	-1,697.59	408.46	921.43	890.37	31.05	29.674	
7,050.00	6,800.65	6,125.00	6,124.37	31.68	4.57	-60.08	-1,697.59	408.46	967.53	936.36	31.16	31.049	
7,100.00	6,830.51	6,125.00	6,124.37	31.85	4.57	-50.74	-1,697.59	408.46	1,013.71	982.39	31.31	32.373	
7,150.00	6,857.28	6,125.00	6,124.37	32.01	4.57	-42.16	-1,697.59	408.46	1,059.69	1,028.19	31.50	33.640	
7,200.00	6,880.80	6,125.00	6,124.37	32.17	4.57	-34.75	-1,697.59	408.46	1,105.23	1,073.52	31.72	34.844	
7,250.00	6,900.92	6,125.00	6,124.37	32.33	4.57	-28.55	-1,697.59	408.46	1,150.13	1,118.17	31.96	35.983	
7,300.00	6,917.52	6,125.00	6,124.37	32.49	4.57	-23.46	-1,697.59	408.46	1,194.18	1,161.96	32.23	37.054	
7,350.00	6,930.50	6,125.00	6,124.37	32.66	4.57	-19.29	-1,697.59	408.46	1,237.23	1,204.72	32.51	38.057	
7,400.00	6,939.77	6,125.00	6,124.37	32.83	4.57	-15.84	-1,697.59	408.46	1,279.12	1,246.32	32.80	38.992	
7,450.00	6,945.28	6,125.00	6,124.37	33.01	4.57	-12.96	-1,697.59	408.46	1,319.72	1,286.61	33.11	39.860	
7,499.66	6,947.00	6,125.00	6,124.37	33.19	4.57	-10.53	-1,697.59	408.46	1,358.65	1,325.23	33.42	40.656	
7,600.00	6,946.68	6,125.00	6,124.37	33.61	4.57	-10.53	-1,697.59	408.46	1,437.23	1,403.22	34.01	42.265	
7,700.00	6,946.35	6,125.00	6,124.37	34.10	4.57	-10.53	-1,697.59	408.46	1,518.10	1,483.60	34.50	43.999	
7,800.00	6,946.03	6,125.00	6,124.37	34.66	4.57	-10.53	-1,697.59	408.46	1,601.14	1,566.21	34.93	45.842	
7,900.00	6,945.71	6,125.00	6,124.37	35.29	4.57	-10.53	-1,697.59	408.46	1,686.01	1,650.72	35.29	47.777	
8,000.00	6,945.38	6,125.00	6,124.37	35.99	4.57	-10.53	-1,697.59	408.46	1,772.47	1,736.87	35.60	49.788	
8,100.00	6,945.06	6,125.00	6,124.37	36.74	4.57	-10.53	-1,697.59	408.46	1,860.28	1,824.41	35.87	51.862	
8,200.00	6,944.74	6,125.00	6,124.37	37.56	4.57	-10.53	-1,697.59	408.46	1,949.27	1,913.17	36.10	53.989	
8,300.00	6,944.41	6,125.00	6,124.37	38.43	4.57	-10.53	-1,697.59	408.46	2,039.28	2,002.97	36.31	56.162	
8,400.00	6,944.09	6,125.00	6,124.37	39.35	4.57	-10.53	-1,697.59	408.46	2,130.18	2,093.69	36.49	58.373	
8,500.00	6,943.77	6,125.00	6,124.37	40.31	4.57	-10.53	-1,697.59	408.46	2,221.86	2,185.21	36.65	60.616	
8,600.00	6,943.45	6,125.00	6,124.37	41.32	4.57	-10.53	-1,697.59	408.46	2,314.23	2,277.43	36.80	62.888	
8,700.00	6,943.12	6,125.00	6,124.37	42.37	4.57	-10.53	-1,697.59	408.46	2,407.21	2,370.28	36.93	65.183	
8,800.00	6,942.80	6,125.00	6,124.37	43.45	4.57	-10.53	-1,697.59	408.46	2,500.74	2,463.69	37.05	67.500	
8,900.00	6,942.48	6,125.00	6,124.37	44.57	4.57	-10.53	-1,697.59	408.46	2,594.74	2,557.59	37.16	69.834	
9,000.00	6,942.15	6,125.00	6,124.37	45.71	4.57	-10.53	-1,697.59	408.46	2,689.18	2,651.93	37.26	72.183	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #154A - OH - OH-SVY — **Offset Site Error:** 0.00 usft

Survey Program: 95-Standard Keeper 104 — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,100.00	6,941.83	6,125.00	6,124.37	46.89	4.57	-10.53	-1,697.59	408.46	2,784.01	2,746.66	37.35	74.545	
9,200.00	6,941.51	6,125.00	6,124.37	48.09	4.57	-10.53	-1,697.59	408.46	2,879.18	2,841.75	37.43	76.919	
9,300.00	6,941.18	6,125.00	6,124.37	49.31	4.57	-10.53	-1,697.59	408.46	2,974.68	2,937.17	37.51	79.302	
9,400.00	6,940.86	6,125.00	6,124.37	50.56	4.57	-10.53	-1,697.59	408.46	3,070.46	3,032.87	37.59	81.693	
9,500.00	6,940.54	6,125.00	6,124.37	51.82	4.57	-10.53	-1,697.59	408.46	3,166.50	3,128.84	37.66	84.091	
9,600.00	6,940.21	6,125.00	6,124.37	53.11	4.57	-10.53	-1,697.59	408.46	3,262.78	3,225.06	37.72	86.495	
9,700.00	6,939.89	6,125.00	6,124.37	54.41	4.57	-10.53	-1,697.59	408.46	3,359.27	3,321.49	37.79	88.904	
9,800.00	6,939.57	6,125.00	6,124.37	55.73	4.57	-10.53	-1,697.59	408.46	3,455.97	3,418.12	37.85	91.317	
9,900.00	6,939.25	6,125.00	6,124.37	57.07	4.57	-10.53	-1,697.59	408.46	3,552.85	3,514.94	37.90	93.732	
10,000.00	6,938.92	6,125.00	6,124.37	58.41	4.57	-10.53	-1,697.59	408.46	3,649.90	3,611.94	37.96	96.150	
10,100.00	6,938.60	6,125.00	6,124.37	59.77	4.57	-10.53	-1,697.59	408.46	3,747.10	3,709.08	38.01	98.570	
10,200.00	6,938.28	6,125.00	6,124.37	61.15	4.57	-10.53	-1,697.59	408.46	3,844.44	3,806.38	38.07	100.990	
10,300.00	6,937.95	6,125.00	6,124.37	62.53	4.57	-10.53	-1,697.59	408.46	3,941.92	3,903.80	38.12	103.411	
10,400.00	6,937.63	6,125.00	6,124.37	63.92	4.57	-10.53	-1,697.59	408.46	4,039.52	4,001.36	38.17	105.832	
10,500.00	6,937.31	6,125.00	6,124.37	65.33	4.57	-10.53	-1,697.59	408.46	4,137.24	4,099.02	38.22	108.252	
10,600.00	6,936.98	6,125.00	6,124.37	66.74	4.57	-10.53	-1,697.59	408.46	4,235.06	4,196.80	38.27	110.672	
10,700.00	6,936.66	6,125.00	6,124.37	68.16	4.57	-10.53	-1,697.59	408.46	4,332.99	4,294.67	38.31	113.090	
10,800.00	6,936.34	6,125.00	6,124.37	69.59	4.57	-10.53	-1,697.59	408.46	4,431.00	4,392.64	38.36	115.506	
10,900.00	6,936.01	6,125.00	6,124.37	71.03	4.57	-10.53	-1,697.59	408.46	4,529.10	4,490.70	38.41	117.920	
11,000.00	6,935.69	6,125.00	6,124.37	72.47	4.57	-10.53	-1,697.59	408.46	4,627.29	4,588.83	38.45	120.332	
11,100.00	6,935.37	6,125.00	6,124.37	73.92	4.57	-10.53	-1,697.59	408.46	4,725.55	4,687.05	38.50	122.741	
11,200.00	6,935.05	6,125.00	6,124.37	75.38	4.57	-10.53	-1,697.59	408.46	4,823.88	4,785.33	38.55	125.147	
11,300.00	6,934.72	6,125.00	6,124.37	76.84	4.57	-10.53	-1,697.59	408.46	4,922.28	4,883.68	38.59	127.550	
11,400.00	6,934.40	6,125.00	6,124.37	78.31	4.57	-10.53	-1,697.59	408.46	5,020.74	4,982.10	38.64	129.949	
11,500.00	6,934.08	6,125.00	6,124.37	79.79	4.57	-10.53	-1,697.59	408.46	5,119.26	5,080.58	38.68	132.344	
11,600.00	6,933.75	6,125.00	6,124.37	81.27	4.57	-10.53	-1,697.59	408.46	5,217.84	5,179.11	38.73	134.736	
11,700.00	6,933.43	6,125.00	6,124.37	82.75	4.57	-10.53	-1,697.59	408.46	5,316.47	5,277.70	38.77	137.123	
11,800.00	6,933.11	6,125.00	6,124.37	84.24	4.57	-10.53	-1,697.59	408.46	5,415.15	5,376.33	38.82	139.505	
11,900.00	6,932.78	6,125.00	6,124.37	85.73	4.57	-10.53	-1,697.59	408.46	5,513.88	5,475.01	38.86	141.883	
12,000.00	6,932.46	6,125.00	6,124.37	87.23	4.57	-10.53	-1,697.59	408.46	5,612.65	5,573.74	38.91	144.256	
12,100.00	6,932.14	6,125.00	6,124.37	88.72	4.57	-10.53	-1,697.59	408.46	5,711.47	5,672.51	38.95	146.624	
12,200.00	6,931.81	6,125.00	6,124.37	90.23	4.57	-10.53	-1,697.59	408.46	5,810.32	5,771.32	39.00	148.987	
12,300.00	6,931.49	6,125.00	6,124.37	91.74	4.57	-10.53	-1,697.59	408.46	5,909.22	5,870.17	39.04	151.344	
12,400.00	6,931.17	6,125.00	6,124.37	93.25	4.57	-10.53	-1,697.59	408.46	6,008.15	5,969.06	39.09	153.696	
12,500.00	6,930.85	6,125.00	6,124.37	94.76	4.57	-10.53	-1,697.59	408.46	6,107.12	6,067.98	39.14	156.042	
12,600.00	6,930.52	6,125.00	6,124.37	96.27	4.57	-10.53	-1,697.59	408.46	6,206.11	6,166.93	39.18	158.382	
12,700.00	6,930.20	6,125.00	6,124.37	97.79	4.57	-10.53	-1,697.59	408.46	6,305.15	6,265.91	39.23	160.716	
12,800.00	6,929.88	6,125.00	6,124.37	99.32	4.57	-10.53	-1,697.59	408.46	6,404.21	6,364.93	39.28	163.044	
12,900.00	6,929.55	6,125.00	6,124.37	100.84	4.57	-10.53	-1,697.59	408.46	6,503.30	6,463.97	39.33	165.366	
13,000.00	6,929.23	6,125.00	6,124.37	102.37	4.57	-10.53	-1,697.59	408.46	6,602.41	6,563.04	39.37	167.681	
13,100.00	6,928.91	6,125.00	6,124.37	103.89	4.57	-10.53	-1,697.59	408.46	6,701.56	6,662.14	39.42	169.990	
13,200.00	6,928.58	6,125.00	6,124.37	105.43	4.57	-10.53	-1,697.59	408.46	6,800.73	6,761.25	39.47	172.292	
13,300.00	6,928.26	6,125.00	6,124.37	106.96	4.57	-10.53	-1,697.59	408.46	6,899.92	6,860.40	39.52	174.587	
13,400.00	6,927.94	6,125.00	6,124.37	108.49	4.57	-10.53	-1,697.59	408.46	6,999.14	6,959.56	39.57	176.876	
13,500.00	6,927.61	6,125.00	6,124.37	110.03	4.57	-10.53	-1,697.59	408.46	7,098.37	7,058.75	39.62	179.157	
13,600.00	6,927.29	6,125.00	6,124.37	111.57	4.57	-10.53	-1,697.59	408.46	7,197.63	7,157.96	39.67	181.432	
13,700.00	6,926.97	6,125.00	6,124.37	113.11	4.57	-10.53	-1,697.59	408.46	7,296.91	7,257.19	39.72	183.699	
13,800.00	6,926.65	6,125.00	6,124.37	114.65	4.57	-10.53	-1,697.59	408.46	7,396.21	7,356.44	39.77	185.959	
13,900.00	6,926.32	6,125.00	6,124.37	116.20	4.57	-10.53	-1,697.59	408.46	7,495.53	7,455.70	39.82	188.212	
14,000.00	6,926.00	6,125.00	6,124.37	117.75	4.57	-10.53	-1,697.59	408.46	7,594.86	7,554.98	39.88	190.457	
14,100.00	6,925.68	6,125.00	6,124.37	119.29	4.57	-10.53	-1,697.59	408.46	7,694.21	7,654.28	39.93	192.695	
14,200.00	6,925.35	6,125.00	6,124.37	120.84	4.57	-10.53	-1,697.59	408.46	7,793.58	7,753.60	39.98	194.925	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #154A - OH - OH-SVY — **Offset Site Error:** 0.00 usft

Survey Program: 95-Standard Keeper 104 — **Rule Assigned:** — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,300.00	6,925.03	6,125.00	6,124.37	122.39	4.57	-10.53	-1,697.59	408.46	7,892.97	7,852.93	40.04	197.147	
14,400.00	6,924.71	6,125.00	6,124.37	123.94	4.57	-10.53	-1,697.59	408.46	7,992.37	7,952.28	40.09	199.362	
14,500.00	6,924.38	6,125.00	6,124.37	125.50	4.57	-10.53	-1,697.59	408.46	8,091.78	8,051.64	40.14	201.569	
14,600.00	6,924.06	6,125.00	6,124.37	127.05	4.57	-10.53	-1,697.59	408.46	8,191.21	8,151.01	40.20	203.767	
14,700.00	6,923.74	6,125.00	6,124.37	128.61	4.57	-10.53	-1,697.59	408.46	8,290.65	8,250.40	40.25	205.958	
14,800.00	6,923.42	6,125.00	6,124.37	130.16	4.57	-10.53	-1,697.59	408.46	8,390.11	8,349.80	40.31	208.141	
14,900.00	6,923.09	6,125.00	6,124.37	131.72	4.57	-10.53	-1,697.59	408.46	8,489.58	8,449.21	40.37	210.316	
15,000.00	6,922.77	6,125.00	6,124.37	133.28	4.57	-10.53	-1,697.59	408.46	8,589.06	8,548.64	40.42	212.482	
15,100.00	6,922.45	6,125.00	6,124.37	134.84	4.57	-10.53	-1,697.59	408.46	8,688.55	8,648.07	40.48	214.640	
15,200.00	6,922.12	6,125.00	6,124.37	136.40	4.57	-10.53	-1,697.59	408.46	8,788.06	8,747.52	40.54	216.790	
15,300.00	6,921.80	6,125.00	6,124.37	137.96	4.57	-10.53	-1,697.59	408.46	8,887.57	8,846.98	40.60	218.932	
15,400.00	6,921.48	6,125.00	6,124.37	139.53	4.57	-10.53	-1,697.59	408.46	8,987.10	8,946.45	40.65	221.065	
15,500.00	6,921.15	6,125.00	6,124.37	141.09	4.57	-10.53	-1,697.59	408.46	9,086.64	9,045.93	40.71	223.189	
15,600.00	6,920.83	6,125.00	6,124.37	142.65	4.57	-10.53	-1,697.59	408.46	9,186.19	9,145.41	40.77	225.305	
15,700.00	6,920.51	6,125.00	6,124.37	144.22	4.57	-10.53	-1,697.59	408.46	9,285.74	9,244.91	40.83	227.413	
15,800.00	6,920.18	6,125.00	6,124.37	145.79	4.57	-10.53	-1,697.59	408.46	9,385.31	9,344.42	40.89	229.512	
15,900.00	6,919.86	6,125.00	6,124.37	147.35	4.57	-10.53	-1,697.59	408.46	9,484.88	9,443.93	40.95	231.602	
16,000.00	6,919.54	6,125.00	6,124.37	148.92	4.57	-10.53	-1,697.59	408.46	9,584.47	9,543.45	41.01	233.684	
16,100.00	6,919.22	6,125.00	6,124.37	150.49	4.57	-10.53	-1,697.59	408.46	9,684.06	9,642.98	41.08	235.757	
16,200.00	6,918.89	6,125.00	6,124.37	152.06	4.57	-10.53	-1,697.59	408.46	9,783.66	9,742.52	41.14	237.821	
16,300.00	6,918.57	6,125.00	6,124.37	153.63	4.57	-10.53	-1,697.59	408.46	9,883.27	9,842.07	41.20	239.876	
16,400.00	6,918.25	6,125.00	6,124.37	155.20	4.57	-10.53	-1,697.59	408.46	9,982.89	9,941.62	41.26	241.923	
16,500.00	6,917.92	6,125.00	6,124.37	156.77	4.57	-10.53	-1,697.59	408.46	10,082.51	10,041.18	41.33	243.960	
16,600.00	6,917.60	6,125.00	6,124.37	158.34	4.57	-10.53	-1,697.59	408.46	10,182.14	10,140.75	41.39	245.989	
16,700.00	6,917.28	6,125.00	6,124.37	159.92	4.57	-10.53	-1,697.59	408.46	10,281.78	10,240.33	41.46	248.009	
16,800.00	6,916.95	6,125.00	6,124.37	161.49	4.57	-10.53	-1,697.59	408.46	10,381.43	10,339.91	41.52	250.020	
16,900.00	6,916.63	6,125.00	6,124.37	163.06	4.57	-10.53	-1,697.59	408.46	10,481.08	10,439.49	41.59	252.022	
17,000.00	6,916.31	6,125.00	6,124.37	164.64	4.57	-10.53	-1,697.59	408.46	10,580.74	10,539.09	41.65	254.014	
17,100.00	6,915.98	6,125.00	6,124.37	166.21	4.57	-10.53	-1,697.59	408.46	10,680.41	10,638.69	41.72	255.998	
17,200.00	6,915.66	6,125.00	6,124.37	167.79	4.57	-10.53	-1,697.59	408.46	10,780.08	10,738.29	41.79	257.973	
17,300.00	6,915.34	6,125.00	6,124.37	169.37	4.57	-10.53	-1,697.59	408.46	10,879.76	10,837.90	41.86	259.939	
17,400.00	6,915.02	6,125.00	6,124.37	170.94	4.57	-10.53	-1,697.59	408.46	10,979.44	10,937.52	41.92	261.896	
17,500.00	6,914.69	6,125.00	6,124.37	172.52	4.57	-10.53	-1,697.59	408.46	11,079.13	11,037.14	41.99	263.843	
17,600.00	6,914.37	6,125.00	6,124.37	174.10	4.57	-10.53	-1,697.59	408.46	11,178.82	11,136.76	42.06	265.782	
17,700.00	6,914.05	6,125.00	6,124.37	175.68	4.57	-10.53	-1,697.59	408.46	11,278.52	11,236.39	42.13	267.711	
17,800.00	6,913.72	6,125.00	6,124.37	177.25	4.57	-10.53	-1,697.59	408.46	11,378.23	11,336.03	42.20	269.631	
17,900.00	6,913.40	6,125.00	6,124.37	178.83	4.57	-10.53	-1,697.59	408.46	11,477.94	11,435.67	42.27	271.542	
18,000.00	6,913.08	6,125.00	6,124.37	180.41	4.57	-10.53	-1,697.59	408.46	11,577.66	11,535.32	42.34	273.444	
18,023.75	6,913.00	6,125.00	6,124.37	180.79	4.57	-10.53	-1,697.59	408.46	11,601.34	11,558.99	42.36	273.895	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #154B - OH - OH-SVY

Offset Site Error: 0.00 usft

Survey Program: 95-Standard Keeper 104

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	46.70	46.70	0.00	0.02	164.69	-1,621.56	444.06	1,681.27				
100.00	100.00	143.38	143.38	0.25	0.11	164.69	-1,621.59	443.90	1,681.25	1,680.94	0.31	5,357.102	
200.00	200.00	237.84	237.84	0.61	0.13	164.67	-1,621.62	444.65	1,681.50	1,680.76	0.74	2,277.357	
300.00	300.00	1,054.66	1,029.44	0.97	1.08	163.06	-1,462.00	445.36	1,674.18	1,671.90	2.28	734.197	
400.00	400.00	1,168.31	1,132.16	1.33	1.30	162.58	-1,413.42	443.46	1,632.55	1,629.86	2.70	605.577	
500.00	500.00	1,263.34	1,217.61	1.68	1.49	162.12	-1,371.85	442.64	1,590.27	1,587.17	3.10	512.746	
600.00	599.98	1,345.93	1,291.91	2.03	1.67	-18.61	-1,335.80	442.49	1,546.85	1,543.34	3.51	441.212	
700.00	699.84	1,435.42	1,372.31	2.36	1.87	-19.59	-1,296.52	443.38	1,500.65	1,496.72	3.94	381.058	
800.00	799.45	1,523.86	1,451.59	2.71	2.07	-20.74	-1,257.33	444.61	1,451.46	1,447.08	4.38	331.704	
900.00	898.70	1,604.91	1,524.49	3.06	2.26	-21.94	-1,221.90	444.83	1,399.89	1,395.08	4.81	291.287	
1,000.00	997.47	1,696.42	1,606.66	3.43	2.48	-23.45	-1,181.63	444.80	1,345.47	1,340.21	5.25	256.061	
1,100.00	1,095.62	1,785.99	1,686.74	3.82	2.69	-25.23	-1,141.51	445.00	1,288.10	1,282.39	5.70	225.821	
1,207.83	1,200.65	1,855.17	1,748.61	4.26	2.86	-27.07	-1,110.56	445.48	1,223.94	1,217.77	6.17	198.485	
1,300.00	1,290.02	1,904.93	1,793.45	4.65	2.98	-27.96	-1,088.99	445.77	1,169.27	1,162.71	6.56	178.219	
1,400.00	1,386.98	1,986.68	1,867.50	5.09	3.17	-29.50	-1,054.36	445.84	1,111.10	1,104.08	7.02	158.362	
1,500.00	1,483.95	2,066.61	1,939.72	5.53	3.36	-31.18	-1,020.12	445.95	1,053.15	1,045.66	7.49	140.635	
1,600.00	1,580.91	2,132.99	1,999.72	5.99	3.52	-32.72	-991.71	446.34	996.11	988.13	7.98	124.825	
1,700.00	1,677.87	2,209.89	2,069.40	6.44	3.71	-34.70	-959.19	447.22	940.46	931.97	8.50	110.646	
1,800.00	1,774.84	2,294.45	2,145.95	6.90	3.91	-37.11	-923.27	447.99	885.62	876.57	9.04	97.913	
1,900.00	1,871.80	2,381.88	2,224.73	7.36	4.13	-39.89	-885.36	448.13	831.02	821.40	9.62	86.401	
2,000.00	1,968.76	2,464.03	2,298.42	7.83	4.34	-42.87	-849.06	448.07	777.18	766.95	10.23	75.948	
2,100.00	2,065.73	2,529.56	2,357.21	8.30	4.51	-45.51	-820.12	448.10	725.25	714.33	10.91	66.455	
2,200.00	2,162.69	2,603.92	2,424.41	8.77	4.70	-48.77	-788.27	448.29	676.46	664.82	11.64	58.126	
2,300.00	2,259.65	2,684.36	2,496.97	9.24	4.90	-52.73	-753.55	448.55	630.16	617.74	12.42	50.736	
2,400.00	2,356.61	2,764.59	2,569.11	9.71	5.11	-57.17	-718.45	448.67	586.75	573.47	13.28	44.198	
2,500.00	2,453.58	2,841.75	2,638.27	10.18	5.32	-61.93	-684.24	448.76	547.19	532.98	14.21	38.507	
2,600.00	2,550.54	2,921.55	2,709.92	10.66	5.53	-67.29	-649.11	448.52	512.68	497.48	15.20	33.735	
2,700.00	2,647.50	3,002.69	2,783.05	11.13	5.74	-73.11	-613.99	446.88	483.39	467.19	16.21	29.829	
2,800.00	2,744.47	3,075.41	2,849.42	11.61	5.92	-78.47	-584.37	444.77	461.11	443.93	17.18	26.833	
2,900.00	2,841.43	3,149.52	2,917.95	12.08	6.10	-84.00	-556.20	443.13	447.23	429.16	18.07	24.750	
3,000.00	2,938.39	3,222.46	2,986.26	12.56	6.26	-89.34	-530.66	442.39	442.02	423.21	18.81	23.498	
3,008.40	2,946.54	3,228.72	2,992.17	12.60	6.27	-89.79	-528.58	442.40	441.99	423.13	18.87	23.428	CC, ES
3,100.00	3,035.36	3,304.23	3,064.12	13.04	6.42	-94.93	-505.71	442.90	444.99	425.58	19.41	22.926	
3,200.00	3,132.32	3,393.64	3,150.80	13.51	6.56	-100.30	-483.84	443.94	453.45	433.54	19.90	22.782	SF
3,300.00	3,229.28	3,483.77	3,238.60	13.99	6.70	-105.30	-463.56	445.34	466.39	446.07	20.32	22.955	
3,400.00	3,326.25	3,588.46	3,341.27	14.47	6.85	-110.50	-443.19	445.98	481.47	460.74	20.73	23.226	
3,500.00	3,423.21	3,680.55	3,432.12	14.95	6.96	-114.52	-428.09	446.32	498.32	477.26	21.06	23.661	
3,600.00	3,520.17	3,817.75	3,568.55	15.43	7.08	-119.32	-414.55	445.28	513.93	492.42	21.51	23.889	
3,700.00	3,617.13	3,916.40	3,667.11	15.91	7.11	-122.10	-411.20	442.40	525.99	504.18	21.82	24.110	
3,800.00	3,714.10	4,012.83	3,763.49	16.39	7.13	-124.56	-409.04	440.18	539.06	516.95	22.11	24.377	
3,900.00	3,811.06	4,112.37	3,863.01	16.87	7.16	-126.81	-408.30	438.57	552.75	530.34	22.41	24.660	
4,000.00	3,908.02	4,210.32	3,960.95	17.35	7.19	-128.79	-408.89	437.47	566.77	544.07	22.71	24.962	
4,100.00	4,004.99	4,310.25	4,060.87	17.83	7.21	-130.65	-410.23	436.57	581.12	558.12	23.00	25.261	
4,200.00	4,101.95	4,408.29	4,158.88	18.31	7.24	-132.35	-411.97	435.72	595.77	572.47	23.30	25.566	
4,300.00	4,198.91	4,508.09	4,258.65	18.79	7.27	-133.96	-414.16	434.94	610.68	587.07	23.61	25.865	
4,400.00	4,295.88	4,604.99	4,355.53	19.27	7.30	-135.45	-416.40	434.15	625.92	602.01	23.91	26.177	
4,500.00	4,392.84	4,699.50	4,450.01	19.75	7.33	-136.83	-418.43	433.53	641.81	617.60	24.21	26.513	
4,600.00	4,489.80	4,794.57	4,545.07	20.23	7.35	-138.16	-419.99	433.18	658.62	634.11	24.51	26.875	
4,700.00	4,586.76	4,890.90	4,641.39	20.71	7.38	-139.45	-421.50	432.95	675.92	651.11	24.81	27.239	
4,800.00	4,683.73	4,987.33	4,737.82	21.20	7.41	-140.67	-422.91	432.79	693.68	668.55	25.13	27.608	
4,900.00	4,780.69	5,084.09	4,834.56	21.68	7.44	-141.85	-424.18	432.52	711.78	686.34	25.44	27.980	
5,000.00	4,877.65	5,181.67	4,932.13	22.16	7.47	-142.99	-425.36	432.22	730.25	704.49	25.76	28.349	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #154B - OH - OH-SVY

Offset Site Error: 0.00 usft

Survey Program: 95-Standard Keeper 104 **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Rule Assigned: Minimum Separation (usft)	Separation Factor	Warning
5,100.00	4,974.62	5,279.31	5,029.77	22.64	7.51	-144.07	-426.60	431.91	748.92	722.84	26.08	28.712	
5,200.00	5,071.58	5,377.33	5,127.77	23.12	7.54	-145.11	-427.87	431.56	767.81	741.39	26.42	29.067	
5,300.00	5,168.54	5,475.37	5,225.81	23.60	7.57	-146.10	-429.19	431.09	786.81	760.05	26.75	29.413	
5,400.00	5,265.51	5,573.57	5,323.99	24.09	7.61	-147.06	-430.54	430.43	805.90	778.81	27.09	29.749	
5,500.00	5,362.47	5,674.94	5,425.34	24.57	7.65	-147.99	-432.21	429.68	824.95	797.50	27.45	30.053	
5,600.00	5,459.43	5,773.91	5,524.29	25.05	7.68	-148.85	-434.29	429.02	843.83	816.03	27.81	30.347	
5,700.00	5,556.40	5,871.87	5,622.23	25.53	7.72	-149.62	-436.62	428.74	862.84	834.67	28.17	30.632	
5,800.00	5,653.36	5,970.27	5,720.59	26.01	7.75	-150.37	-439.06	428.43	881.89	853.36	28.54	30.905	
5,900.00	5,750.32	6,061.12	5,811.42	26.50	7.78	-151.04	-441.07	428.08	901.29	872.42	28.87	31.219	
6,000.00	5,847.28	6,154.23	5,904.52	26.98	7.82	-151.71	-442.47	427.88	921.50	892.28	29.22	31.538	
6,100.00	5,944.25	6,251.75	6,002.03	27.46	7.85	-152.38	-443.79	427.76	942.01	912.42	29.59	31.831	
6,200.00	6,041.21	6,349.01	6,099.28	27.94	7.89	-153.02	-445.10	427.61	962.62	932.65	29.97	32.117	
6,300.00	6,138.17	6,445.26	6,195.52	28.43	7.93	-153.63	-446.44	427.48	983.32	952.97	30.35	32.399	
6,400.00	6,235.14	6,537.45	6,287.71	28.91	7.96	-154.18	-447.45	427.66	1,004.53	973.82	30.71	32.707	
6,496.84	6,329.04	6,627.11	6,377.36	29.38	7.99	-154.70	-448.14	427.90	1,025.47	994.41	31.07	33.006	
6,500.00	6,332.10	6,629.86	6,380.11	29.39	7.99	-155.90	-448.15	427.91	1,026.17	995.09	31.08	33.017	
6,550.00	6,380.52	6,676.71	6,426.96	29.63	8.01	-174.26	-448.23	428.06	1,038.18	1,006.91	31.28	33.195	
6,600.00	6,428.63	6,725.44	6,475.69	29.87	8.02	170.26	-448.39	428.20	1,051.65	1,020.16	31.49	33.394	
6,650.00	6,476.14	6,769.50	6,519.75	30.10	8.03	158.36	-448.43	428.41	1,066.71	1,035.02	31.69	33.657	
6,700.00	6,522.73	6,815.41	6,565.66	30.33	8.05	149.45	-448.38	428.60	1,083.26	1,051.35	31.92	33.942	
6,750.00	6,568.14	6,862.18	6,612.43	30.54	8.06	142.71	-448.36	428.86	1,101.20	1,069.05	32.15	34.250	
6,800.00	6,612.08	6,902.77	6,653.02	30.75	8.08	137.36	-448.35	429.08	1,120.49	1,088.13	32.36	34.623	
6,850.00	6,654.28	6,943.13	6,693.38	30.95	8.09	133.02	-448.20	429.29	1,141.27	1,108.69	32.58	35.027	
6,900.00	6,694.47	6,981.99	6,732.23	31.15	8.11	129.34	-447.99	429.47	1,163.48	1,130.68	32.80	35.470	
6,950.00	6,732.42	7,022.86	6,773.11	31.33	8.12	126.22	-447.81	429.64	1,187.01	1,153.97	33.04	35.926	
7,000.00	6,767.89	7,054.55	6,804.80	31.51	8.13	123.15	-447.70	429.77	1,211.89	1,178.65	33.24	36.463	
7,050.00	6,800.65	7,087.57	6,837.82	31.68	8.15	120.33	-447.46	429.90	1,238.24	1,204.80	33.45	37.023	
7,100.00	6,830.51	7,114.87	6,865.12	31.85	8.16	117.42	-447.30	430.05	1,265.92	1,232.29	33.63	37.642	
7,150.00	6,857.28	7,143.41	6,893.66	32.01	8.17	114.63	-447.15	430.26	1,294.89	1,261.06	33.83	38.280	
7,200.00	6,880.80	7,168.36	6,918.60	32.17	8.18	111.70	-447.02	430.36	1,325.05	1,291.04	34.01	38.964	
7,250.00	6,900.92	7,189.68	6,939.92	32.33	8.19	108.57	-446.89	430.40	1,356.32	1,322.15	34.17	39.692	
7,300.00	6,917.52	7,204.61	6,954.85	32.49	8.19	105.09	-446.80	430.42	1,388.61	1,354.31	34.31	40.478	
7,350.00	6,930.50	7,216.70	6,966.94	32.66	8.20	101.41	-446.72	430.45	1,421.81	1,387.38	34.43	41.299	
7,400.00	6,939.77	7,226.80	6,977.05	32.83	8.20	97.59	-446.66	430.47	1,455.72	1,421.18	34.54	42.146	
7,450.00	6,945.28	7,232.79	6,983.03	33.01	8.20	93.56	-446.62	430.48	1,490.17	1,455.53	34.63	43.027	
7,499.66	6,947.00	7,234.59	6,984.84	33.19	8.20	89.39	-446.61	430.48	1,524.72	1,490.01	34.71	43.930	
7,600.00	6,946.68	7,234.03	6,984.28	33.61	8.20	89.36	-446.61	430.48	1,596.34	1,561.50	34.84	45.822	
7,700.00	6,946.35	7,233.47	6,983.72	34.10	8.20	89.33	-446.62	430.48	1,670.66	1,635.70	34.96	47.792	
7,800.00	6,946.03	7,232.91	6,983.15	34.66	8.20	89.30	-446.62	430.48	1,747.55	1,712.48	35.07	49.836	
7,900.00	6,945.71	7,232.34	6,982.58	35.29	8.20	89.27	-446.62	430.48	1,826.67	1,791.51	35.16	51.946	
8,000.00	6,945.38	7,231.77	6,982.01	35.99	8.20	89.24	-446.63	430.48	1,907.76	1,872.50	35.25	54.113	
8,100.00	6,945.06	7,231.19	6,981.43	36.74	8.20	89.21	-446.63	430.48	1,990.57	1,955.23	35.34	56.330	
8,200.00	6,944.74	7,230.60	6,980.85	37.56	8.20	89.18	-446.63	430.48	2,074.89	2,039.48	35.41	58.590	
8,300.00	6,944.41	7,230.01	6,980.26	38.43	8.20	89.15	-446.64	430.48	2,160.55	2,125.07	35.48	60.888	
8,400.00	6,944.09	7,229.42	6,979.66	39.35	8.20	89.12	-446.64	430.47	2,247.40	2,211.85	35.55	63.219	
8,500.00	6,943.77	7,228.82	6,979.06	40.31	8.20	89.09	-446.64	430.47	2,335.29	2,299.68	35.61	65.580	
8,600.00	6,943.45	7,228.21	6,978.46	41.32	8.20	89.06	-446.65	430.47	2,424.13	2,388.46	35.67	67.965	
8,700.00	6,943.12	7,227.60	6,977.85	42.37	8.20	89.03	-446.65	430.47	2,513.80	2,478.08	35.72	70.373	
8,800.00	6,942.80	7,226.99	6,977.23	43.45	8.20	88.99	-446.65	430.47	2,604.23	2,568.46	35.77	72.800	
8,900.00	6,942.48	7,226.37	6,976.61	44.57	8.20	88.96	-446.66	430.47	2,695.33	2,659.51	35.82	75.244	
9,000.00	6,942.15	7,225.74	6,975.99	45.71	8.20	88.93	-446.66	430.47	2,787.05	2,751.18	35.87	77.703	
9,100.00	6,941.83	7,225.11	6,975.35	46.89	8.20	88.89	-446.67	430.47	2,879.31	2,843.40	35.91	80.174	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #154B - OH - OH-SVY

Offset Site Error: 0.00 usft

Survey Program: 95-Standard Keeper 104 **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Rule Assigned: Warning
9,200.00	6,941.51	7,224.47	6,974.72	48.09	8.20	88.86	-446.67	430.46	2,972.08	2,936.12	35.96	82.656	
9,300.00	6,941.18	7,223.83	6,974.07	49.31	8.20	88.83	-446.67	430.46	3,065.30	3,029.30	36.00	85.148	
9,400.00	6,940.86	7,223.18	6,973.43	50.56	8.20	88.79	-446.68	430.46	3,158.93	3,122.89	36.04	87.648	
9,500.00	6,940.54	7,222.53	6,972.77	51.82	8.20	88.76	-446.68	430.46	3,252.95	3,216.86	36.08	90.154	
9,600.00	6,940.21	7,221.87	6,972.11	53.11	8.20	88.72	-446.69	430.46	3,347.31	3,311.18	36.12	92.666	
9,700.00	6,939.89	7,221.20	6,971.44	54.41	8.20	88.69	-446.69	430.46	3,441.98	3,405.82	36.16	95.182	
9,800.00	6,939.57	7,220.53	6,970.77	55.73	8.20	88.65	-446.70	430.45	3,536.96	3,500.75	36.20	97.702	
9,900.00	6,939.25	7,219.85	6,970.09	57.07	8.20	88.62	-446.70	430.45	3,632.20	3,595.96	36.24	100.224	
10,000.00	6,938.92	7,219.16	6,969.41	58.41	8.20	88.58	-446.70	430.45	3,727.69	3,691.41	36.28	102.749	
10,100.00	6,938.60	7,218.47	6,968.71	59.77	8.20	88.55	-446.71	430.45	3,823.41	3,787.09	36.32	105.274	
10,200.00	6,938.28	7,217.77	6,968.02	61.15	8.20	88.51	-446.71	430.45	3,919.34	3,882.99	36.36	107.800	
10,300.00	6,937.95	7,217.07	6,967.31	62.53	8.20	88.47	-446.72	430.45	4,015.48	3,979.08	36.40	110.326	
10,400.00	6,937.63	7,216.36	6,966.60	63.92	8.20	88.44	-446.72	430.44	4,111.79	4,075.36	36.44	112.851	
10,500.00	6,937.31	7,215.64	6,965.88	65.33	8.20	88.40	-446.73	430.44	4,208.28	4,171.81	36.47	115.375	
10,600.00	6,936.98	7,214.91	6,965.16	66.74	8.20	88.36	-446.73	430.44	4,304.93	4,268.42	36.51	117.897	
10,700.00	6,936.66	7,214.22	6,964.46	68.16	8.20	88.32	-446.74	430.44	4,401.73	4,365.18	36.55	120.416	
10,800.00	6,936.34	7,214.22	6,964.46	69.59	8.20	88.32	-446.74	430.44	4,498.67	4,462.07	36.60	122.929	
10,900.00	6,936.01	7,214.22	6,964.46	71.03	8.20	88.32	-446.74	430.44	4,595.74	4,559.10	36.64	125.439	
11,000.00	6,935.69	7,214.22	6,964.46	72.47	8.20	88.32	-446.74	430.44	4,692.93	4,656.25	36.68	127.945	
11,100.00	6,935.37	7,214.22	6,964.46	73.92	8.20	88.32	-446.74	430.44	4,790.24	4,753.52	36.72	130.448	
11,200.00	6,935.05	7,214.22	6,964.46	75.38	8.20	88.32	-446.74	430.44	4,887.66	4,850.89	36.76	132.946	
11,300.00	6,934.72	7,214.22	6,964.46	76.84	8.20	88.32	-446.74	430.44	4,985.18	4,948.37	36.81	135.440	
11,400.00	6,934.40	7,214.22	6,964.46	78.31	8.20	88.32	-446.74	430.44	5,082.79	5,045.94	36.85	137.928	
11,500.00	6,934.08	7,214.22	6,964.46	79.79	8.20	88.32	-446.74	430.44	5,180.50	5,143.60	36.90	140.412	
11,600.00	6,933.75	7,210.48	6,960.72	81.27	8.20	88.13	-446.76	430.43	5,278.29	5,241.36	36.93	142.910	
11,700.00	6,933.43	7,210.08	6,960.33	82.75	8.19	88.11	-446.77	430.43	5,376.16	5,339.19	36.98	145.384	
11,800.00	6,933.11	7,209.69	6,959.94	84.24	8.19	88.09	-446.77	430.43	5,474.11	5,437.09	37.02	147.852	
11,900.00	6,932.78	7,209.31	6,959.55	85.73	8.19	88.07	-446.77	430.43	5,572.14	5,535.07	37.07	150.314	
12,000.00	6,932.46	7,208.93	6,959.17	87.23	8.19	88.05	-446.77	430.43	5,670.23	5,633.11	37.12	152.770	
12,100.00	6,932.14	7,208.55	6,958.79	88.72	8.19	88.03	-446.78	430.43	5,768.39	5,731.22	37.16	155.219	
12,200.00	6,931.81	7,208.17	6,958.42	90.23	8.19	88.01	-446.78	430.43	5,866.61	5,829.40	37.21	157.661	
12,300.00	6,931.49	7,207.80	6,958.04	91.74	8.19	87.99	-446.78	430.42	5,964.89	5,927.63	37.26	160.096	
12,400.00	6,931.17	7,207.43	6,957.68	93.25	8.19	87.97	-446.78	430.42	6,063.22	6,025.91	37.31	162.523	
12,500.00	6,930.85	7,207.07	6,957.31	94.76	8.19	87.95	-446.79	430.42	6,161.61	6,124.25	37.36	164.943	
12,600.00	6,930.52	7,206.70	6,956.95	96.27	8.19	87.93	-446.79	430.42	6,260.05	6,222.64	37.41	167.356	
12,700.00	6,930.20	7,206.35	6,956.59	97.79	8.19	87.91	-446.79	430.42	6,358.54	6,321.08	37.46	169.761	
12,800.00	6,929.88	7,205.99	6,956.24	99.32	8.19	87.89	-446.79	430.42	6,457.07	6,419.57	37.51	172.157	
12,900.00	6,929.55	7,205.64	6,955.88	100.84	8.19	87.87	-446.80	430.42	6,555.65	6,518.09	37.56	174.546	
13,000.00	6,929.23	7,205.29	6,955.53	102.37	8.19	87.86	-446.80	430.42	6,654.27	6,616.66	37.61	176.926	
13,100.00	6,928.91	7,204.94	6,955.19	103.89	8.19	87.84	-446.80	430.42	6,752.94	6,715.27	37.66	179.298	
13,200.00	6,928.58	7,204.60	6,954.85	105.43	8.19	87.82	-446.80	430.42	6,851.64	6,813.92	37.72	181.661	
13,300.00	6,928.26	7,204.26	6,954.51	106.96	8.19	87.80	-446.80	430.42	6,950.37	6,912.60	37.77	184.016	
13,400.00	6,927.94	7,203.93	6,954.17	108.49	8.19	87.78	-446.81	430.42	7,049.15	7,011.32	37.83	186.362	
13,500.00	6,927.61	7,203.59	6,953.84	110.03	8.19	87.77	-446.81	430.42	7,147.96	7,110.08	37.88	188.698	
13,600.00	6,927.29	7,203.26	6,953.51	111.57	8.19	87.75	-446.81	430.42	7,246.80	7,208.86	37.94	191.026	
13,700.00	6,926.97	7,202.93	6,953.18	113.11	8.19	87.73	-446.81	430.42	7,345.67	7,307.68	37.99	193.345	
13,800.00	6,926.65	7,202.61	6,952.85	114.65	8.19	87.71	-446.82	430.41	7,444.57	7,406.52	38.05	195.654	
13,900.00	6,926.32	7,202.29	6,952.53	116.20	8.19	87.70	-446.82	430.41	7,543.50	7,505.39	38.11	197.955	
14,000.00	6,926.00	7,201.97	6,952.21	117.75	8.19	87.68	-446.82	430.41	7,642.46	7,604.29	38.17	200.245	
14,100.00	6,925.68	7,201.65	6,951.90	119.29	8.19	87.66	-446.82	430.41	7,741.44	7,703.22	38.22	202.526	
14,200.00	6,925.35	7,201.34	6,951.58	120.84	8.19	87.65	-446.82	430.41	7,840.46	7,802.17	38.28	204.798	
14,300.00	6,925.03	7,201.03	6,951.27	122.39	8.19	87.63	-446.83	430.41	7,939.49	7,901.15	38.34	207.060	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #154B - OH - OH-SVY

Offset Site Error: 0.00 usft

Survey Program: 95-Standard Keeper 104

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,400.00	6,924.71	7,200.72	6,950.96	123.94	8.19	87.62	-446.83	430.41	8,038.55	8,000.15	38.40	209.312	
14,500.00	6,924.38	7,200.41	6,950.66	125.50	8.19	87.60	-446.83	430.41	8,137.63	8,099.17	38.47	211.554	
14,600.00	6,924.06	7,200.11	6,950.35	127.05	8.19	87.58	-446.83	430.41	8,236.74	8,198.21	38.53	213.786	
14,700.00	6,923.74	7,199.81	6,950.05	128.61	8.19	87.57	-446.83	430.41	8,335.86	8,297.27	38.59	216.008	
14,800.00	6,923.42	7,199.51	6,949.75	130.16	8.19	87.55	-446.83	430.41	8,435.01	8,396.36	38.65	218.221	
14,900.00	6,923.09	7,199.21	6,949.46	131.72	8.19	87.54	-446.84	430.41	8,534.18	8,495.46	38.72	220.423	
15,000.00	6,922.77	7,198.92	6,949.16	133.28	8.19	87.52	-446.84	430.41	8,633.36	8,594.58	38.78	222.615	
15,100.00	6,922.45	7,198.63	6,948.87	134.84	8.19	87.51	-446.84	430.41	8,732.57	8,693.72	38.85	224.796	
15,200.00	6,922.12	7,198.34	6,948.59	136.40	8.19	87.49	-446.84	430.41	8,831.79	8,792.88	38.91	226.968	
15,300.00	6,921.80	7,198.05	6,948.30	137.96	8.19	87.48	-446.84	430.41	8,931.03	8,892.05	38.98	229.129	
15,400.00	6,921.48	7,197.77	6,948.02	139.53	8.19	87.46	-446.85	430.41	9,030.29	8,991.24	39.04	231.280	
15,500.00	6,921.15	7,197.49	6,947.73	141.09	8.19	87.45	-446.85	430.41	9,129.56	9,090.45	39.11	233.420	
15,600.00	6,920.83	7,197.21	6,947.45	142.65	8.19	87.43	-446.85	430.41	9,228.85	9,189.67	39.18	235.550	
15,700.00	6,920.51	7,196.93	6,947.18	144.22	8.19	87.42	-446.85	430.41	9,328.15	9,288.90	39.25	237.669	
15,800.00	6,920.18	7,196.66	6,946.90	145.79	8.19	87.40	-446.85	430.41	9,427.47	9,388.15	39.32	239.778	
15,900.00	6,919.86	7,196.39	6,946.63	147.35	8.19	87.39	-446.85	430.40	9,526.80	9,487.41	39.39	241.877	
16,000.00	6,919.54	7,196.11	6,946.36	148.92	8.19	87.37	-446.86	430.40	9,626.15	9,586.69	39.46	243.964	
16,100.00	6,919.22	7,195.85	6,946.09	150.49	8.19	87.36	-446.86	430.40	9,725.51	9,685.98	39.53	246.041	
16,200.00	6,918.89	7,195.58	6,945.82	152.06	8.19	87.35	-446.86	430.40	9,824.88	9,785.28	39.60	248.108	
16,300.00	6,918.57	7,195.32	6,945.56	153.63	8.19	87.33	-446.86	430.40	9,924.27	9,884.59	39.67	250.164	
16,400.00	6,918.25	7,195.05	6,945.30	155.20	8.19	87.32	-446.86	430.40	10,023.66	9,983.92	39.74	252.209	
16,500.00	6,917.92	7,194.79	6,945.04	156.77	8.19	87.31	-446.86	430.40	10,123.07	10,083.26	39.82	254.244	
16,600.00	6,917.60	7,194.54	6,944.78	158.34	8.19	87.29	-446.87	430.40	10,222.49	10,182.60	39.89	256.267	
16,700.00	6,917.28	7,187.88	6,938.13	159.92	8.19	86.94	-446.91	430.39	10,321.93	10,281.97	39.96	258.312	
16,800.00	6,916.95	7,187.38	6,937.62	161.49	8.19	86.92	-446.91	430.39	10,421.37	10,381.34	40.03	260.316	
16,900.00	6,916.63	7,186.87	6,937.11	163.06	8.19	86.89	-446.91	430.39	10,520.82	10,480.71	40.11	262.309	
17,000.00	6,916.31	7,186.36	6,936.61	164.64	8.19	86.86	-446.91	430.39	10,620.29	10,580.10	40.18	264.291	
17,100.00	6,915.98	7,185.86	6,936.10	166.21	8.19	86.84	-446.92	430.39	10,719.76	10,679.50	40.26	266.262	
17,200.00	6,915.66	7,185.35	6,935.60	167.79	8.18	86.81	-446.92	430.39	10,819.24	10,778.91	40.34	268.223	
17,300.00	6,915.34	7,184.85	6,935.09	169.37	8.18	86.78	-446.92	430.39	10,918.74	10,878.32	40.41	270.173	
17,400.00	6,915.02	7,184.34	6,934.59	170.94	8.18	86.76	-446.93	430.39	11,018.24	10,977.75	40.49	272.112	
17,500.00	6,914.69	7,183.83	6,934.08	172.52	8.18	86.73	-446.93	430.39	11,117.75	11,077.18	40.57	274.041	
17,600.00	6,914.37	7,183.33	6,933.57	174.10	8.18	86.71	-446.93	430.39	11,217.27	11,176.62	40.65	275.958	
17,700.00	6,914.05	7,114.87	6,865.12	175.68	8.16	83.14	-447.30	430.05	11,316.79	11,276.11	40.68	278.163	
17,800.00	6,913.72	7,114.87	6,865.12	177.25	8.16	83.14	-447.30	430.05	11,416.32	11,375.56	40.76	280.056	
17,900.00	6,913.40	7,114.87	6,865.12	178.83	8.16	83.14	-447.30	430.05	11,515.86	11,475.02	40.85	281.939	
18,000.00	6,913.08	7,114.87	6,865.12	180.41	8.16	83.14	-447.30	430.05	11,615.41	11,574.48	40.93	283.810	
18,023.75	6,913.00	7,114.87	6,865.12	180.79	8.16	83.14	-447.30	430.05	11,639.06	11,598.11	40.95	284.254	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #171 - OH - OH-INC

Offset Site Error: 0.00 usft

Survey Program: 95-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	-11.93	798.04	-168.59	817.86				
100.00	100.00	38.26	38.26	0.25	0.70	-11.93	798.09	-168.56	815.70	814.75	0.95	860.202	CC
200.00	200.00	135.66	135.66	0.61	2.47	-11.89	798.60	-168.22	816.13	813.05	3.08	264.727	
300.00	300.00	237.22	237.22	0.97	4.32	-11.85	799.21	-167.72	816.63	811.34	5.28	154.543	
400.00	400.00	343.22	343.21	1.33	5.76	-11.81	799.34	-167.07	816.62	809.53	7.09	115.166	
500.00	500.00	442.83	442.82	1.68	6.86	-11.76	799.10	-166.42	816.25	807.70	8.54	95.535	
509.86	509.86	452.62	452.61	1.72	6.99	168.28	799.08	-166.36	816.23	807.53	8.70	93.780	
600.00	599.98	543.36	543.35	2.03	8.23	168.34	798.87	-165.78	817.60	807.34	10.26	79.695	ES
700.00	699.84	642.85	642.83	2.36	9.74	168.44	798.61	-165.08	822.33	810.23	12.10	67.962	
800.00	799.45	742.76	742.75	2.71	11.37	168.57	798.38	-164.37	830.51	816.43	14.08	58.994	
900.00	898.70	843.01	842.99	3.06	12.96	168.73	798.08	-163.75	842.05	826.04	16.01	52.590	
1,000.00	997.47	943.31	943.29	3.43	14.36	168.91	797.56	-163.18	856.80	839.03	17.77	48.229	
1,100.00	1,095.62	1,042.03	1,042.00	3.82	15.92	169.12	797.02	-162.48	874.87	855.19	19.68	44.444	
1,207.83	1,200.65	1,148.45	1,148.42	4.26	17.73	169.38	796.35	-161.57	898.06	876.16	21.89	41.020	
1,300.00	1,290.02	1,236.95	1,236.91	4.65	19.35	169.69	795.80	-160.64	919.52	895.67	23.85	38.558	
1,400.00	1,386.98	1,336.04	1,335.99	5.09	21.18	170.02	795.16	-159.61	942.83	916.79	26.04	36.207	
1,500.00	1,483.95	1,433.63	1,433.58	5.53	23.07	170.34	794.49	-158.38	966.08	937.79	28.30	34.140	
1,600.00	1,580.91	1,532.93	1,532.86	5.99	25.13	170.67	793.59	-156.74	989.10	958.37	30.73	32.189	
1,700.00	1,677.87	1,625.20	1,625.11	6.44	27.08	170.97	792.95	-155.13	1,012.33	979.28	33.05	30.629	
1,800.00	1,774.84	1,720.17	1,720.07	6.90	29.00	171.25	792.56	-153.78	1,035.91	1,000.57	35.34	29.311	
1,900.00	1,871.80	1,813.91	1,813.80	7.36	30.70	171.48	792.32	-153.05	1,059.75	1,022.33	37.42	28.319	
2,000.00	1,968.76	1,908.77	1,908.66	7.83	32.28	171.69	792.31	-152.59	1,083.88	1,044.51	39.37	27.529	
2,100.00	2,065.73	2,005.88	2,005.77	8.30	33.79	171.89	792.35	-152.32	1,108.10	1,066.84	41.26	26.856	
2,200.00	2,162.69	2,102.82	2,102.72	8.77	35.32	172.07	792.36	-152.14	1,132.32	1,089.15	43.17	26.229	SF
2,300.00	2,259.65	2,196.46	2,196.35	9.24	34.74	172.23	792.43	-152.25	1,156.65	1,113.69	42.96	26.923	
2,400.00	2,356.61	2,291.85	2,291.74	9.71	33.45	172.36	792.71	-152.89	1,181.27	1,139.22	42.05	28.089	
2,500.00	2,453.58	2,388.92	2,388.81	10.18	32.20	172.48	793.02	-153.56	1,205.92	1,164.74	41.18	29.283	
2,600.00	2,550.54	2,484.99	2,484.87	10.66	31.05	172.60	793.39	-154.19	1,230.63	1,190.21	40.42	30.447	
2,700.00	2,647.50	2,580.80	2,580.68	11.13	30.07	172.72	793.78	-154.70	1,255.36	1,215.54	39.82	31.525	
2,800.00	2,744.47	2,677.18	2,677.06	11.61	29.74	172.86	794.29	-154.85	1,280.16	1,240.28	39.87	32.106	
2,900.00	2,841.43	2,774.37	2,774.25	12.08	30.24	173.00	794.87	-154.71	1,305.00	1,264.24	40.76	32.020	
3,000.00	2,938.39	2,868.44	2,868.32	12.56	30.75	173.13	795.47	-154.61	1,329.89	1,288.26	41.64	31.940	
3,100.00	3,035.36	2,964.77	2,964.64	13.04	30.66	173.24	796.19	-154.91	1,354.94	1,313.01	41.94	32.310	
3,200.00	3,132.32	3,061.14	3,061.01	13.51	30.84	173.36	796.99	-155.14	1,380.07	1,337.58	42.49	32.476	
3,300.00	3,229.28	3,162.01	3,161.87	13.99	32.00	173.50	797.73	-154.80	1,405.04	1,361.00	44.04	31.901	
3,400.00	3,326.25	3,259.64	3,259.51	14.47	33.53	173.63	798.29	-154.22	1,429.85	1,383.89	45.96	31.109	
3,500.00	3,423.21	3,356.14	3,356.00	14.95	35.09	173.77	798.90	-153.61	1,454.71	1,406.80	47.91	30.366	
3,600.00	3,520.17	3,453.10	3,452.95	15.43	36.66	173.90	799.51	-153.02	1,479.58	1,429.72	49.86	29.673	
3,700.00	3,617.13	3,551.43	3,551.28	15.91	38.27	174.02	800.15	-152.41	1,504.47	1,452.62	51.86	29.012	
3,800.00	3,714.10	3,649.05	3,648.90	16.39	39.93	174.15	800.47	-151.76	1,529.07	1,475.16	53.91	28.366	
3,900.00	3,811.06	3,751.61	3,751.45	16.87	41.44	174.26	800.79	-151.39	1,553.68	1,497.87	55.80	27.842	
4,000.00	3,908.02	3,852.33	3,852.17	17.35	41.06	174.35	800.73	-151.41	1,577.97	1,522.15	55.82	28.268	
4,100.00	4,004.99	3,950.58	3,950.43	17.83	39.94	174.42	800.41	-151.97	1,602.06	1,546.97	55.08	29.086	
4,200.00	4,101.95	4,044.36	4,044.20	18.31	38.95	174.47	800.01	-152.68	1,626.06	1,571.58	54.48	29.847	
4,300.00	4,198.91	4,145.13	4,144.97	18.79	37.93	174.52	799.67	-153.48	1,650.16	1,596.31	53.85	30.644	
4,400.00	4,295.88	4,241.09	4,240.92	19.27	37.08	174.58	799.28	-154.25	1,674.20	1,620.81	53.38	31.363	
4,500.00	4,392.84	4,335.80	4,335.63	19.75	36.28	174.62	798.89	-155.00	1,698.23	1,645.26	52.97	32.061	
4,600.00	4,489.80	4,433.60	4,433.43	20.23	35.46	174.67	798.61	-155.73	1,722.37	1,669.84	52.53	32.787	
4,700.00	4,586.76	4,539.39	4,539.21	20.71	34.74	174.73	798.12	-156.51	1,746.35	1,694.14	52.22	33.445	
4,800.00	4,683.73	4,634.92	4,634.74	21.20	34.32	174.78	797.46	-157.06	1,770.10	1,717.91	52.18	33.922	
4,900.00	4,780.69	4,735.35	4,735.17	21.68	34.06	174.83	796.68	-157.55	1,793.75	1,741.44	52.32	34.286	
5,000.00	4,877.65	4,829.49	4,829.30	22.16	34.04	174.89	795.91	-157.90	1,817.36	1,764.67	52.68	34.497	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #171 - OH - OH-INC

Offset Site Error: 0.00 usft

Survey Program: 95-A027Ua_INC-ONLY **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,100.00	4,974.62	4,927.88	4,927.68	22.64	33.92	174.94	795.23	-158.40	1,841.10	1,788.15	52.95	34.770	
5,200.00	5,071.58	5,028.85	5,028.65	23.12	34.00	174.98	794.35	-159.12	1,864.68	1,811.27	53.42	34.908	
5,300.00	5,168.54	5,122.06	5,121.85	23.60	34.08	175.03	793.65	-159.65	1,888.37	1,834.49	53.88	35.047	
5,400.00	5,265.51	5,217.33	5,217.11	24.09	34.28	175.07	792.88	-160.38	1,912.03	1,857.57	54.46	35.107	
5,500.00	5,362.47	5,315.79	5,315.58	24.57	34.50	175.10	792.19	-161.20	1,935.79	1,880.71	55.08	35.145	
5,600.00	5,459.43	5,416.95	5,416.73	25.05	35.10	175.13	791.21	-162.17	1,959.30	1,903.22	56.08	34.940	
5,700.00	5,556.40	5,515.89	5,515.65	25.53	35.86	175.16	790.17	-163.38	1,982.75	1,925.53	57.22	34.649	
5,800.00	5,653.36	5,620.74	5,620.49	26.01	36.78	175.19	789.00	-164.34	2,006.13	1,947.58	58.55	34.265	
5,900.00	5,750.32	5,710.73	5,710.47	26.50	37.67	175.22	787.93	-165.01	2,029.41	1,969.60	59.81	33.929	
6,000.00	5,847.28	5,812.94	5,812.67	26.98	38.74	175.26	786.78	-165.50	2,052.75	1,991.47	61.28	33.498	
6,100.00	5,944.25	5,910.21	5,909.93	27.46	39.96	175.31	785.55	-165.87	2,075.92	2,013.03	62.89	33.009	
6,200.00	6,041.21	6,007.47	6,007.19	27.94	41.18	175.35	784.31	-166.23	2,099.10	2,034.60	64.50	32.545	
6,300.00	6,138.17	6,028.00	6,027.71	28.43	41.44	175.36	784.05	-166.31	2,123.67	2,058.69	64.98	32.684	
6,400.00	6,235.14	6,028.00	6,027.71	28.91	41.44	175.36	784.05	-166.31	2,152.51	2,087.45	65.05	33.088	
6,496.84	6,329.04	6,028.00	6,027.71	29.38	41.44	175.36	784.05	-166.31	2,184.44	2,119.41	65.03	33.589	
6,500.00	6,332.10	6,028.00	6,027.71	29.39	41.44	174.12	784.05	-166.31	2,185.55	2,120.51	65.03	33.607	
6,550.00	6,380.52	6,028.00	6,027.71	29.63	41.44	155.22	784.05	-166.31	2,203.38	2,138.40	64.99	33.905	
6,600.00	6,428.63	6,028.00	6,027.71	29.87	41.44	139.10	784.05	-166.31	2,221.78	2,156.86	64.92	34.224	
6,650.00	6,476.14	6,028.00	6,027.71	30.10	41.44	126.48	784.05	-166.31	2,240.61	2,175.78	64.83	34.561	
6,700.00	6,522.73	6,028.00	6,027.71	30.33	41.44	116.78	784.05	-166.31	2,259.74	2,195.02	64.72	34.914	
6,750.00	6,568.14	6,028.00	6,027.71	30.54	41.44	109.20	784.05	-166.31	2,279.06	2,214.46	64.60	35.281	
6,800.00	6,612.08	6,028.00	6,027.71	30.75	41.44	103.10	784.05	-166.31	2,298.44	2,233.98	64.46	35.656	
6,850.00	6,654.28	6,028.00	6,027.71	30.95	41.44	98.05	784.05	-166.31	2,317.75	2,253.44	64.31	36.038	
6,900.00	6,694.47	6,028.00	6,027.71	31.15	41.44	93.77	784.05	-166.31	2,336.90	2,272.73	64.16	36.422	
6,950.00	6,732.42	6,028.00	6,027.71	31.33	41.44	90.07	784.05	-166.31	2,355.75	2,291.74	64.01	36.804	
7,000.00	6,767.89	6,028.00	6,027.71	31.51	41.44	86.84	784.05	-166.31	2,374.21	2,310.35	63.86	37.179	
7,050.00	6,800.65	6,028.00	6,027.71	31.68	41.44	83.98	784.05	-166.31	2,392.17	2,328.45	63.72	37.545	
7,100.00	6,830.51	6,028.00	6,027.71	31.85	41.44	81.45	784.05	-166.31	2,409.53	2,345.95	63.58	37.895	
7,150.00	6,857.28	6,028.00	6,027.71	32.01	41.44	79.20	784.05	-166.31	2,426.20	2,362.73	63.47	38.227	
7,200.00	6,880.80	6,028.00	6,027.71	32.17	41.44	77.20	784.05	-166.31	2,442.10	2,378.72	63.37	38.535	
7,250.00	6,900.92	6,028.00	6,027.71	32.33	41.44	75.43	784.05	-166.31	2,457.13	2,393.83	63.30	38.816	
7,300.00	6,917.52	6,028.00	6,027.71	32.49	41.44	73.88	784.05	-166.31	2,471.22	2,407.97	63.26	39.066	
7,350.00	6,930.50	6,028.00	6,027.71	32.66	41.44	72.53	784.05	-166.31	2,484.31	2,421.07	63.24	39.283	
7,400.00	6,939.77	6,028.00	6,027.71	32.83	41.44	71.38	784.05	-166.31	2,496.33	2,433.08	63.26	39.463	
7,450.00	6,945.28	6,028.00	6,027.71	33.01	41.44	70.42	784.05	-166.31	2,507.22	2,443.92	63.30	39.606	
7,499.66	6,947.00	6,028.00	6,027.71	33.19	41.44	69.65	784.05	-166.31	2,516.87	2,453.49	63.38	39.708	
7,600.00	6,946.68	6,028.00	6,027.71	33.61	41.44	69.65	784.05	-166.31	2,537.07	2,473.47	63.61	39.887	
7,700.00	6,946.35	6,028.00	6,027.71	34.10	41.44	69.65	784.05	-166.31	2,560.96	2,497.09	63.87	40.097	
7,800.00	6,946.03	6,028.00	6,027.71	34.66	41.44	69.65	784.05	-166.31	2,588.50	2,524.33	64.17	40.339	
7,900.00	6,945.71	6,028.00	6,027.71	35.29	41.44	69.65	784.05	-166.31	2,619.56	2,555.06	64.50	40.615	
8,000.00	6,945.38	6,028.00	6,027.71	35.99	41.44	69.65	784.05	-166.31	2,654.03	2,589.18	64.85	40.925	
8,100.00	6,945.06	6,028.00	6,027.71	36.74	41.44	69.65	784.05	-166.31	2,691.78	2,626.55	65.22	41.270	
8,200.00	6,944.74	6,028.00	6,027.71	37.56	41.44	69.65	784.05	-166.31	2,732.67	2,667.06	65.61	41.650	
8,300.00	6,944.41	6,028.00	6,027.71	38.43	41.44	69.65	784.05	-166.31	2,776.55	2,710.55	66.00	42.066	
8,400.00	6,944.09	6,028.00	6,027.71	39.35	41.44	69.65	784.05	-166.31	2,823.30	2,756.90	66.40	42.517	
8,500.00	6,943.77	6,028.00	6,027.71	40.31	41.44	69.65	784.05	-166.31	2,872.77	2,805.97	66.80	43.003	
8,600.00	6,943.45	6,028.00	6,027.71	41.32	41.44	69.65	784.05	-166.31	2,924.83	2,857.62	67.20	43.522	
8,700.00	6,943.12	6,028.00	6,027.71	42.37	41.44	69.65	784.05	-166.31	2,979.33	2,911.73	67.60	44.075	
8,800.00	6,942.80	6,028.00	6,027.71	43.45	41.44	69.65	784.05	-166.31	3,036.15	2,968.16	67.98	44.661	
8,900.00	6,942.48	6,028.00	6,027.71	44.57	41.44	69.65	784.05	-166.31	3,095.15	3,026.79	68.36	45.277	
9,000.00	6,942.15	6,028.00	6,027.71	45.71	41.44	69.65	784.05	-166.31	3,156.23	3,087.50	68.73	45.923	
9,100.00	6,941.83	6,028.00	6,027.71	46.89	41.44	69.65	784.05	-166.31	3,219.25	3,150.16	69.09	46.598	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #171 - OH - OH-INC

Offset Site Error: 0.00 usft

Survey Program: 95-A027Ua_INC-ONLY **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,200.00	6,941.51	6,028.00	6,027.71	48.09	41.44	69.65	784.05	-166.31	3,284.10	3,214.67	69.43	47.300	
9,300.00	6,941.18	6,028.00	6,027.71	49.31	41.44	69.65	784.05	-166.31	3,350.69	3,280.93	69.76	48.028	
9,400.00	6,940.86	6,028.00	6,027.71	50.56	41.44	69.65	784.05	-166.31	3,418.91	3,348.82	70.09	48.781	
9,500.00	6,940.54	6,028.00	6,027.71	51.82	41.44	69.65	784.05	-166.31	3,488.65	3,418.26	70.40	49.558	
9,600.00	6,940.21	6,028.00	6,027.71	53.11	41.44	69.65	784.05	-166.31	3,559.84	3,489.15	70.69	50.356	
9,700.00	6,939.89	6,028.00	6,027.71	54.41	41.44	69.65	784.05	-166.31	3,632.39	3,561.41	70.98	51.176	
9,800.00	6,939.57	6,028.00	6,027.71	55.73	41.44	69.65	784.05	-166.31	3,706.22	3,634.97	71.25	52.015	
9,900.00	6,939.25	6,028.00	6,027.71	57.07	41.44	69.65	784.05	-166.31	3,781.25	3,709.74	71.52	52.873	
10,000.00	6,938.92	6,028.00	6,027.71	58.41	41.44	69.65	784.05	-166.31	3,857.41	3,785.65	71.77	53.749	
10,100.00	6,938.60	6,028.00	6,027.71	59.77	41.44	69.65	784.05	-166.31	3,934.65	3,862.64	72.01	54.641	
10,200.00	6,938.28	6,028.00	6,027.71	61.15	41.44	69.65	784.05	-166.31	4,012.88	3,940.64	72.24	55.549	
10,300.00	6,937.95	6,028.00	6,027.71	62.53	41.44	69.65	784.05	-166.31	4,092.07	4,019.60	72.46	56.471	
10,400.00	6,937.63	6,028.00	6,027.71	63.92	41.44	69.65	784.05	-166.31	4,172.15	4,099.47	72.68	57.408	
10,500.00	6,937.31	6,028.00	6,027.71	65.33	41.44	69.65	784.05	-166.31	4,253.07	4,180.19	72.88	58.357	
10,600.00	6,936.98	6,028.00	6,027.71	66.74	41.44	69.65	784.05	-166.31	4,334.79	4,261.71	73.08	59.318	
10,700.00	6,936.66	6,028.00	6,027.71	68.16	41.44	69.65	784.05	-166.31	4,417.26	4,343.99	73.27	60.291	
10,800.00	6,936.34	6,028.00	6,027.71	69.59	41.44	69.65	784.05	-166.31	4,500.44	4,426.99	73.45	61.274	
10,900.00	6,936.01	6,028.00	6,027.71	71.03	41.44	69.65	784.05	-166.31	4,584.29	4,510.67	73.62	62.268	
11,000.00	6,935.69	6,028.00	6,027.71	72.47	41.44	69.65	784.05	-166.31	4,668.78	4,594.99	73.79	63.271	
11,100.00	6,935.37	6,028.00	6,027.71	73.92	41.44	69.65	784.05	-166.31	4,753.87	4,679.92	73.95	64.282	
11,200.00	6,935.05	6,028.00	6,027.71	75.38	41.44	69.65	784.05	-166.31	4,839.54	4,765.43	74.11	65.302	
11,300.00	6,934.72	6,028.00	6,027.71	76.84	41.44	69.65	784.05	-166.31	4,925.74	4,851.48	74.26	66.330	
11,400.00	6,934.40	6,028.00	6,027.71	78.31	41.44	69.65	784.05	-166.31	5,012.45	4,938.05	74.41	67.365	
11,500.00	6,934.08	6,028.00	6,027.71	79.79	41.44	69.65	784.05	-166.31	5,099.65	5,025.10	74.55	68.407	
11,600.00	6,933.75	6,028.00	6,027.71	81.27	41.44	69.65	784.05	-166.31	5,187.32	5,112.63	74.69	69.456	
11,700.00	6,933.43	6,028.00	6,027.71	82.75	41.44	69.65	784.05	-166.31	5,275.42	5,200.60	74.82	70.510	
11,800.00	6,933.11	6,028.00	6,027.71	84.24	41.44	69.65	784.05	-166.31	5,363.94	5,288.99	74.95	71.570	
11,900.00	6,932.78	6,028.00	6,027.71	85.73	41.44	69.65	784.05	-166.31	5,452.85	5,377.78	75.07	72.635	
12,000.00	6,932.46	6,028.00	6,027.71	87.23	41.44	69.65	784.05	-166.31	5,542.15	5,466.95	75.19	73.705	
12,100.00	6,932.14	6,028.00	6,027.71	88.72	41.44	69.65	784.05	-166.31	5,631.80	5,556.49	75.31	74.779	
12,200.00	6,931.81	6,028.00	6,027.71	90.23	41.44	69.65	784.05	-166.31	5,721.80	5,646.37	75.43	75.858	
12,300.00	6,931.49	6,028.00	6,027.71	91.74	41.44	69.65	784.05	-166.31	5,812.12	5,736.58	75.54	76.941	
12,400.00	6,931.17	6,028.00	6,027.71	93.25	41.44	69.65	784.05	-166.31	5,902.76	5,827.11	75.65	78.027	
12,500.00	6,930.85	6,028.00	6,027.71	94.76	41.44	69.65	784.05	-166.31	5,993.69	5,917.93	75.76	79.116	
12,600.00	6,930.52	6,028.00	6,027.71	96.27	41.44	69.65	784.05	-166.31	6,084.91	6,009.05	75.86	80.209	
12,700.00	6,930.20	6,028.00	6,027.71	97.79	41.44	69.65	784.05	-166.31	6,176.40	6,100.43	75.97	81.305	
12,800.00	6,929.88	6,028.00	6,027.71	99.32	41.44	69.65	784.05	-166.31	6,268.15	6,192.08	76.07	82.403	
12,900.00	6,929.55	6,028.00	6,027.71	100.84	41.44	69.65	784.05	-166.31	6,360.15	6,283.98	76.17	83.504	
13,000.00	6,929.23	6,028.00	6,027.71	102.37	41.44	69.65	784.05	-166.31	6,452.39	6,376.12	76.26	84.607	
13,100.00	6,928.91	6,028.00	6,027.71	103.89	41.44	69.65	784.05	-166.31	6,544.85	6,468.49	76.36	85.712	
13,200.00	6,928.58	6,028.00	6,027.71	105.43	41.44	69.65	784.05	-166.31	6,637.53	6,561.08	76.45	86.819	
13,300.00	6,928.26	6,028.00	6,027.71	106.96	41.44	69.65	784.05	-166.31	6,730.43	6,653.88	76.54	87.928	
13,400.00	6,927.94	6,028.00	6,027.71	108.49	41.44	69.65	784.05	-166.31	6,823.52	6,746.88	76.64	89.038	
13,500.00	6,927.61	6,028.00	6,027.71	110.03	41.44	69.65	784.05	-166.31	6,916.81	6,840.08	76.73	90.150	
13,600.00	6,927.29	6,028.00	6,027.71	111.57	41.44	69.65	784.05	-166.31	7,010.28	6,933.46	76.81	91.262	
13,700.00	6,926.97	6,028.00	6,027.71	113.11	41.44	69.65	784.05	-166.31	7,103.93	7,027.03	76.90	92.376	
13,800.00	6,926.65	6,028.00	6,027.71	114.65	41.44	69.65	784.05	-166.31	7,197.75	7,120.76	76.99	93.491	
13,900.00	6,926.32	6,028.00	6,027.71	116.20	41.44	69.65	784.05	-166.31	7,291.73	7,214.66	77.07	94.606	
14,000.00	6,926.00	6,028.00	6,027.71	117.75	41.44	69.65	784.05	-166.31	7,385.88	7,308.72	77.16	95.723	
14,100.00	6,925.68	6,028.00	6,027.71	119.29	41.44	69.65	784.05	-166.31	7,480.17	7,402.93	77.24	96.839	
14,200.00	6,925.35	6,028.00	6,027.71	120.84	41.44	69.65	784.05	-166.31	7,574.61	7,497.29	77.33	97.957	
14,300.00	6,925.03	6,028.00	6,027.71	122.39	41.44	69.65	784.05	-166.31	7,669.19	7,591.78	77.41	99.074	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #171 - OH - OH-INC

Offset Site Error: 0.00 usft

Survey Program: 95-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Rule Assigned:

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,400.00	6,924.71	6,028.00	6,027.71	123.94	41.44	69.65	784.05	-166.31	7,763.91	7,686.42	77.49	100.192	
14,500.00	6,924.38	6,028.00	6,027.71	125.50	41.44	69.65	784.05	-166.31	7,858.76	7,781.19	77.57	101.309	
14,600.00	6,924.06	6,028.00	6,027.71	127.05	41.44	69.65	784.05	-166.31	7,953.73	7,876.08	77.65	102.427	
14,700.00	6,923.74	6,028.00	6,027.71	128.61	41.44	69.65	784.05	-166.31	8,048.83	7,971.10	77.73	103.545	
14,800.00	6,923.42	6,028.00	6,027.71	130.16	41.44	69.65	784.05	-166.31	8,144.04	8,066.23	77.81	104.662	
14,900.00	6,923.09	6,028.00	6,027.71	131.72	41.44	69.65	784.05	-166.31	8,239.37	8,161.48	77.89	105.780	
15,000.00	6,922.77	6,028.00	6,027.71	133.28	41.44	69.65	784.05	-166.31	8,334.81	8,256.84	77.97	106.897	
15,100.00	6,922.45	6,028.00	6,027.71	134.84	41.44	69.65	784.05	-166.31	8,430.35	8,352.30	78.05	108.013	
15,200.00	6,922.12	6,028.00	6,027.71	136.40	41.44	69.65	784.05	-166.31	8,526.00	8,447.87	78.13	109.129	
15,300.00	6,921.80	6,028.00	6,027.71	137.96	41.44	69.65	784.05	-166.31	8,621.74	8,543.53	78.21	110.244	
15,400.00	6,921.48	6,028.00	6,027.71	139.53	41.44	69.65	784.05	-166.31	8,717.58	8,639.30	78.28	111.359	
15,500.00	6,921.15	6,028.00	6,027.71	141.09	41.44	69.65	784.05	-166.31	8,813.51	8,735.15	78.36	112.473	
15,600.00	6,920.83	6,028.00	6,027.71	142.65	41.44	69.65	784.05	-166.31	8,909.53	8,831.09	78.44	113.586	
15,700.00	6,920.51	6,028.00	6,027.71	144.22	41.44	69.65	784.05	-166.31	9,005.64	8,927.12	78.52	114.698	
15,800.00	6,920.18	6,028.00	6,027.71	145.79	41.44	69.65	784.05	-166.31	9,101.83	9,023.24	78.59	115.810	
15,900.00	6,919.86	6,028.00	6,027.71	147.35	41.44	69.65	784.05	-166.31	9,198.10	9,119.44	78.67	116.920	
16,000.00	6,919.54	6,028.00	6,027.71	148.92	41.44	69.65	784.05	-166.31	9,294.46	9,215.71	78.75	118.030	
16,100.00	6,919.22	6,028.00	6,027.71	150.49	41.44	69.65	784.05	-166.31	9,390.88	9,312.06	78.82	119.138	
16,200.00	6,918.89	6,028.00	6,027.71	152.06	41.44	69.65	784.05	-166.31	9,487.39	9,408.49	78.90	120.245	
16,300.00	6,918.57	6,028.00	6,027.71	153.63	41.44	69.65	784.05	-166.31	9,583.96	9,504.98	78.98	121.351	
16,400.00	6,918.25	6,028.00	6,027.71	155.20	41.44	69.65	784.05	-166.31	9,680.60	9,601.55	79.05	122.455	
16,500.00	6,917.92	6,028.00	6,027.71	156.77	41.44	69.65	784.05	-166.31	9,777.31	9,698.18	79.13	123.559	
16,600.00	6,917.60	6,028.00	6,027.71	158.34	41.44	69.65	784.05	-166.31	9,874.09	9,794.88	79.21	124.661	
16,700.00	6,917.28	6,028.00	6,027.71	159.92	41.44	69.65	784.05	-166.31	9,970.93	9,891.65	79.28	125.761	
16,800.00	6,916.95	6,028.00	6,027.71	161.49	41.44	69.65	784.05	-166.31	10,067.83	9,988.47	79.36	126.860	
16,900.00	6,916.63	6,028.00	6,027.71	163.06	41.44	69.65	784.05	-166.31	10,164.79	10,085.35	79.44	127.958	
17,000.00	6,916.31	6,028.00	6,027.71	164.64	41.44	69.65	784.05	-166.31	10,261.81	10,182.30	79.52	129.054	
17,100.00	6,915.98	6,028.00	6,027.71	166.21	41.44	69.65	784.05	-166.31	10,358.89	10,279.30	79.59	130.149	
17,200.00	6,915.66	6,028.00	6,027.71	167.79	41.44	69.65	784.05	-166.31	10,456.02	10,376.35	79.67	131.242	
17,300.00	6,915.34	6,028.00	6,027.71	169.37	41.44	69.65	784.05	-166.31	10,553.21	10,473.46	79.75	132.333	
17,400.00	6,915.02	6,028.00	6,027.71	170.94	41.44	69.65	784.05	-166.31	10,650.44	10,570.62	79.82	133.423	
17,500.00	6,914.69	6,028.00	6,027.71	172.52	41.44	69.65	784.05	-166.31	10,747.73	10,667.83	79.90	134.511	
17,600.00	6,914.37	6,028.00	6,027.71	174.10	41.44	69.65	784.05	-166.31	10,845.07	10,765.09	79.98	135.597	
17,700.00	6,914.05	6,028.00	6,027.71	175.68	41.44	69.65	784.05	-166.31	10,942.45	10,862.40	80.06	136.681	
17,800.00	6,913.72	6,028.00	6,027.71	177.25	41.44	69.65	784.05	-166.31	11,039.89	10,959.75	80.14	137.764	
17,900.00	6,913.40	6,028.00	6,027.71	178.83	41.44	69.65	784.05	-166.31	11,137.36	11,057.15	80.21	138.844	
18,000.00	6,913.08	6,028.00	6,027.71	180.41	41.44	69.65	784.05	-166.31	11,234.89	11,154.59	80.29	139.923	
18,023.75	6,913.00	6,028.00	6,027.71	180.79	41.44	69.65	784.05	-166.31	11,258.06	11,177.75	80.31	140.179	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #171A - OH - OH-SVY

Offset Site Error: 0.00 usft

Survey Program: 561-APC_ISCWSA REV 2 MWD

Rule Assigned:

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	-17.11	793.86	-244.42	832.72				
100.00	100.00	38.32	38.32	0.25	0.07	-17.13	793.85	-244.67	830.70	830.37	0.33	2,512.403	CC, ES
200.00	200.00	131.70	131.65	0.61	0.28	-17.31	793.72	-247.33	831.42	830.54	0.88	941.817	
300.00	300.00	224.82	224.60	0.97	0.47	-17.68	793.47	-252.90	832.96	831.53	1.43	580.913	
400.00	400.00	317.50	316.90	1.33	0.67	-18.24	793.09	-261.32	835.38	833.40	1.98	421.207	
500.00	500.00	409.57	408.27	1.68	0.86	-18.98	792.58	-272.53	838.76	836.23	2.53	331.475	
600.00	599.98	500.85	498.49	2.03	1.05	160.16	791.95	-286.42	844.86	841.80	3.06	276.091	
700.00	699.84	591.00	587.12	2.36	1.31	159.13	791.21	-302.85	855.41	851.76	3.64	234.721	
800.00	799.45	682.00	676.53	2.71	1.65	158.13	790.45	-319.77	869.61	865.29	4.32	201.507	
900.00	898.70	738.53	731.71	3.06	1.92	157.42	791.57	-331.97	890.72	885.81	4.91	181.589	
1,000.00	997.47	823.01	813.29	3.43	2.35	156.29	794.53	-353.71	918.22	912.58	5.64	162.840	
1,100.00	1,095.62	882.52	870.30	3.82	2.69	155.36	797.02	-370.57	950.77	944.49	6.28	151.487	
1,207.83	1,200.65	965.41	948.90	4.26	3.23	154.10	802.03	-396.42	992.33	985.24	7.10	139.842	
1,300.00	1,290.02	1,032.65	1,011.96	4.65	3.70	153.35	806.05	-419.39	1,030.66	1,022.86	7.80	132.108	
1,400.00	1,386.98	1,109.00	1,082.76	5.09	4.28	152.44	810.61	-447.58	1,073.71	1,065.10	8.61	124.737	
1,500.00	1,483.95	1,181.22	1,149.25	5.53	4.86	151.58	815.33	-475.39	1,118.20	1,108.82	9.39	119.112	
1,600.00	1,580.91	1,243.61	1,206.37	5.99	5.38	150.86	820.11	-500.01	1,164.38	1,154.28	10.10	115.290	
1,700.00	1,677.87	1,401.04	1,348.72	6.44	6.70	148.96	829.78	-566.38	1,212.29	1,200.69	11.60	104.511	
1,800.00	1,774.84	1,492.21	1,431.79	6.90	7.42	147.89	830.70	-603.95	1,254.84	1,242.30	12.54	100.082	
1,900.00	1,871.80	1,575.00	1,507.08	7.36	8.11	146.96	831.59	-638.37	1,297.97	1,284.53	13.44	96.577	
2,000.00	1,968.76	1,637.69	1,563.82	7.83	8.67	146.28	832.71	-665.00	1,342.38	1,328.19	14.19	94.609	
2,100.00	2,065.73	1,703.41	1,622.95	8.30	9.26	145.60	834.62	-693.61	1,388.49	1,373.53	14.96	92.829	
2,200.00	2,162.69	1,763.00	1,676.34	8.77	9.81	145.00	837.01	-719.97	1,436.13	1,420.47	15.66	91.703	
2,300.00	2,259.65	1,831.44	1,737.38	9.24	10.46	144.35	840.62	-750.72	1,485.26	1,468.82	16.44	90.326	
2,400.00	2,356.61	1,884.06	1,784.05	9.71	10.98	143.87	844.16	-774.77	1,536.08	1,519.02	17.07	90.011	
2,500.00	2,453.58	1,949.00	1,840.98	10.18	11.63	143.31	850.02	-805.45	1,589.29	1,571.49	17.81	89.247	
2,600.00	2,550.54	1,996.33	1,882.17	10.66	12.12	142.92	854.88	-828.24	1,643.88	1,625.52	18.36	89.553	
2,700.00	2,647.50	2,077.65	1,952.95	11.13	12.94	142.27	863.18	-867.42	1,698.97	1,679.73	19.25	88.267	
2,800.00	2,744.47	2,155.97	2,021.14	11.61	13.72	141.70	871.41	-905.05	1,754.34	1,734.25	20.09	87.314	
2,900.00	2,841.43	2,257.94	2,110.62	12.08	14.70	141.08	883.59	-952.39	1,809.92	1,788.78	21.15	85.585	
3,000.00	2,938.39	2,372.82	2,212.63	12.56	15.76	140.46	895.33	-1,003.89	1,863.18	1,840.87	22.31	83.521	
3,100.00	3,035.36	2,506.00	2,331.56	13.04	16.98	139.79	907.51	-1,062.57	1,915.57	1,891.93	23.64	81.027	
3,200.00	3,132.32	2,563.87	2,383.38	13.51	17.52	139.50	911.83	-1,087.94	1,966.98	1,942.71	24.27	81.047	
3,300.00	3,229.28	2,621.44	2,434.27	13.99	18.06	139.21	916.99	-1,114.37	2,020.36	1,995.47	24.89	81.163	
3,400.00	3,326.25	2,733.46	2,533.42	14.47	19.14	138.64	925.96	-1,165.71	2,073.22	2,047.17	26.06	79.562	
3,500.00	3,423.21	2,811.62	2,602.69	14.95	19.88	138.27	931.91	-1,201.43	2,125.90	2,099.01	26.88	79.082	
3,600.00	3,520.17	2,886.34	2,668.92	15.43	20.59	137.95	938.39	-1,235.41	2,179.16	2,151.49	27.67	78.760	
3,700.00	3,617.13	3,294.91	3,048.31	15.91	23.51	137.28	972.86	-1,381.44	2,226.35	2,195.40	30.95	71.942	SF
3,800.00	3,714.10	3,337.00	3,088.56	16.39	23.75	137.25	974.69	-1,393.63	2,267.16	2,235.75	31.41	72.181	
3,900.00	3,811.06	3,337.00	3,088.56	16.87	23.75	137.25	974.69	-1,393.63	2,311.47	2,279.90	31.56	73.229	
4,000.00	3,908.02	3,337.00	3,088.56	17.35	23.75	137.25	974.69	-1,393.63	2,359.18	2,327.51	31.68	74.478	
4,100.00	4,004.99	3,337.00	3,088.56	17.83	23.75	137.25	974.69	-1,393.63	2,410.11	2,378.36	31.75	75.911	
4,200.00	4,101.95	3,337.00	3,088.56	18.31	23.75	137.25	974.69	-1,393.63	2,464.04	2,432.25	31.79	77.516	
4,300.00	4,198.91	3,337.00	3,088.56	18.79	23.75	137.25	974.69	-1,393.63	2,520.78	2,488.98	31.80	79.278	
4,400.00	4,295.88	3,337.00	3,088.56	19.27	23.75	137.25	974.69	-1,393.63	2,580.15	2,548.37	31.78	81.185	
4,500.00	4,392.84	3,337.00	3,088.56	19.75	23.75	137.25	974.69	-1,393.63	2,641.98	2,610.24	31.74	83.226	
4,600.00	4,489.80	3,337.00	3,088.56	20.23	23.75	137.25	974.69	-1,393.63	2,706.09	2,674.40	31.69	85.389	
4,700.00	4,586.76	3,337.00	3,088.56	20.71	23.75	137.25	974.69	-1,393.63	2,772.33	2,740.70	31.62	87.665	
4,800.00	4,683.73	3,337.00	3,088.56	21.20	23.75	137.25	974.69	-1,393.63	2,840.54	2,808.99	31.55	90.042	
4,900.00	4,780.69	3,337.00	3,088.56	21.68	23.75	137.25	974.69	-1,393.63	2,910.59	2,879.13	31.46	92.513	
5,000.00	4,877.65	3,337.00	3,088.56	22.16	23.75	137.25	974.69	-1,393.63	2,982.34	2,950.97	31.37	95.069	
5,100.00	4,974.62	3,337.00	3,088.56	22.64	23.75	137.25	974.69	-1,393.63	3,055.69	3,024.41	31.28	97.700	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #171A - OH - OH-SVY

Offset Site Error: 0.00 usft

Survey Program: 561-APC_ISCWSA REV 2 MWD

Rule Assigned:

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,200.00	5,071.58	3,337.00	3,088.56	23.12	23.75	137.25	974.69	-1,393.63	3,130.51	3,099.33	31.18	100.400	
5,300.00	5,168.54	3,337.00	3,088.56	23.60	23.75	137.25	974.69	-1,393.63	3,206.71	3,175.62	31.08	103.162	
5,400.00	5,265.51	3,337.00	3,088.56	24.09	23.75	137.25	974.69	-1,393.63	3,284.18	3,253.19	30.99	105.977	
5,500.00	5,362.47	3,337.00	3,088.56	24.57	23.75	137.25	974.69	-1,393.63	3,362.84	3,331.94	30.90	108.840	
5,600.00	5,459.43	3,337.00	3,088.56	25.05	23.75	137.25	974.69	-1,393.63	3,442.61	3,411.80	30.81	111.743	
5,700.00	5,556.40	3,337.00	3,088.56	25.53	23.75	137.25	974.69	-1,393.63	3,523.41	3,492.69	30.72	114.682	
5,800.00	5,653.36	3,337.00	3,088.56	26.01	23.75	137.25	974.69	-1,393.63	3,605.18	3,574.53	30.64	117.649	
5,900.00	5,750.32	3,337.00	3,088.56	26.50	23.75	137.25	974.69	-1,393.63	3,687.84	3,657.27	30.57	120.640	
6,000.00	5,847.28	3,337.00	3,088.56	26.98	23.75	137.25	974.69	-1,393.63	3,771.34	3,740.84	30.50	123.650	
6,100.00	5,944.25	3,337.00	3,088.56	27.46	23.75	137.25	974.69	-1,393.63	3,855.63	3,825.19	30.44	126.672	
6,200.00	6,041.21	3,337.00	3,088.56	27.94	23.75	137.25	974.69	-1,393.63	3,940.65	3,910.27	30.38	129.704	
6,300.00	6,138.17	3,337.00	3,088.56	28.43	23.75	137.25	974.69	-1,393.63	4,026.36	3,996.03	30.33	132.739	
6,400.00	6,235.14	3,337.00	3,088.56	28.91	23.75	137.25	974.69	-1,393.63	4,112.72	4,082.43	30.29	135.774	
6,496.84	6,329.04	3,337.00	3,088.56	29.38	23.75	137.25	974.69	-1,393.63	4,196.93	4,166.67	30.26	138.709	
6,500.00	6,332.10	3,337.00	3,088.56	29.39	23.75	135.75	974.69	-1,393.63	4,199.68	4,169.42	30.26	138.805	
6,550.00	6,380.52	3,337.00	3,088.56	29.63	23.75	113.33	974.69	-1,393.63	4,242.59	4,212.36	30.24	140.303	
6,600.00	6,428.63	3,337.00	3,088.56	29.87	23.75	94.73	974.69	-1,393.63	4,284.10	4,253.88	30.22	141.758	
6,650.00	6,476.14	3,337.00	3,088.56	30.10	23.75	80.46	974.69	-1,393.63	4,323.99	4,293.79	30.20	143.157	
6,700.00	6,522.73	3,337.00	3,088.56	30.33	23.75	69.77	974.69	-1,393.63	4,362.07	4,331.88	30.19	144.499	
6,750.00	6,568.14	3,337.00	3,088.56	30.54	23.75	61.70	974.69	-1,393.63	4,398.14	4,367.97	30.17	145.783	
6,800.00	6,612.08	3,337.00	3,088.56	30.75	23.75	55.50	974.69	-1,393.63	4,432.04	4,401.89	30.15	147.005	
6,850.00	6,654.28	3,337.00	3,088.56	30.95	23.75	50.66	974.69	-1,393.63	4,463.62	4,433.49	30.13	148.159	
6,900.00	6,694.47	3,337.00	3,088.56	31.15	23.75	46.82	974.69	-1,393.63	4,492.72	4,462.61	30.10	149.239	
6,950.00	6,732.42	3,337.00	3,088.56	31.33	23.75	43.73	974.69	-1,393.63	4,519.22	4,489.14	30.08	150.238	
7,000.00	6,767.89	3,337.00	3,088.56	31.51	23.75	41.24	974.69	-1,393.63	4,543.00	4,512.94	30.06	151.146	
7,050.00	6,800.65	3,337.00	3,088.56	31.68	23.75	39.22	974.69	-1,393.63	4,563.95	4,533.92	30.04	151.952	
7,100.00	6,830.51	3,337.00	3,088.56	31.85	23.75	37.58	974.69	-1,393.63	4,582.00	4,551.98	30.02	152.647	
7,150.00	6,857.28	3,337.00	3,088.56	32.01	23.75	36.26	974.69	-1,393.63	4,597.06	4,567.05	30.00	153.218	
7,200.00	6,880.80	3,337.00	3,088.56	32.17	23.75	35.22	974.69	-1,393.63	4,609.06	4,579.07	30.00	153.654	
7,250.00	6,900.92	3,337.00	3,088.56	32.33	23.75	34.42	974.69	-1,393.63	4,617.97	4,587.97	30.00	153.945	
7,300.00	6,917.52	3,337.00	3,088.56	32.49	23.75	33.84	974.69	-1,393.63	4,623.74	4,593.73	30.01	154.081	
7,350.00	6,930.50	3,337.00	3,088.56	32.66	23.75	33.46	974.69	-1,393.63	4,626.34	4,596.31	30.03	154.054	
7,400.00	6,939.77	3,337.00	3,088.56	32.83	23.75	33.26	974.69	-1,393.63	4,625.78	4,595.71	30.07	153.858	
7,450.00	6,945.28	3,337.00	3,088.56	33.01	23.75	33.25	974.69	-1,393.63	4,622.04	4,591.93	30.11	153.490	
7,499.66	6,947.00	3,337.00	3,088.56	33.19	23.75	33.42	974.69	-1,393.63	4,615.20	4,585.03	30.17	152.952	
7,600.00	6,946.68	3,337.00	3,088.56	33.61	23.75	33.42	974.69	-1,393.63	4,599.33	4,568.99	30.34	151.617	
7,700.00	6,946.35	3,337.00	3,088.56	34.10	23.75	33.42	974.69	-1,393.63	4,585.64	4,555.09	30.55	150.108	
7,800.00	6,946.03	3,337.00	3,088.56	34.66	23.75	33.42	974.69	-1,393.63	4,574.09	4,543.28	30.82	148.431	
7,900.00	6,945.71	3,337.00	3,088.56	35.29	23.75	33.42	974.69	-1,393.63	4,564.71	4,533.58	31.14	146.610	
8,000.00	6,945.38	3,337.00	3,088.56	35.99	23.75	33.42	974.69	-1,393.63	4,557.51	4,526.00	31.50	144.672	
8,100.00	6,945.06	3,337.00	3,088.56	36.74	23.75	33.42	974.69	-1,393.63	4,552.48	4,520.57	31.91	142.644	
8,200.00	6,944.74	3,337.00	3,088.56	37.56	23.75	33.42	974.69	-1,393.63	4,549.66	4,517.29	32.37	140.556	
8,278.73	6,944.48	3,337.00	3,088.56	38.24	23.75	33.42	974.69	-1,393.63	4,548.97	4,516.22	32.76	138.874	
8,300.00	6,944.41	3,337.00	3,088.56	38.43	23.75	33.42	974.69	-1,393.63	4,549.02	4,516.16	32.86	138.437	
8,400.00	6,944.09	3,337.00	3,088.56	39.35	23.75	33.42	974.69	-1,393.63	4,550.59	4,517.21	33.38	136.310	
8,500.00	6,943.77	3,337.00	3,088.56	40.31	23.75	33.42	974.69	-1,393.63	4,554.35	4,520.42	33.94	134.200	
8,600.00	6,943.45	3,337.00	3,088.56	41.32	23.75	33.42	974.69	-1,393.63	4,560.31	4,525.79	34.51	132.128	
8,700.00	6,943.12	3,337.00	3,088.56	42.37	23.75	33.42	974.69	-1,393.63	4,568.44	4,533.33	35.11	130.110	
8,800.00	6,942.80	3,337.00	3,088.56	43.45	23.75	33.42	974.69	-1,393.63	4,578.74	4,543.02	35.73	128.161	
8,900.00	6,942.48	3,337.00	3,088.56	44.57	23.75	33.42	974.69	-1,393.63	4,591.20	4,554.85	36.35	126.293	
9,000.00	6,942.15	3,337.00	3,088.56	45.71	23.75	33.42	974.69	-1,393.63	4,605.80	4,568.81	36.99	124.514	
9,100.00	6,941.83	3,337.00	3,088.56	46.89	23.75	33.42	974.69	-1,393.63	4,622.52	4,584.88	37.63	122.830	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #171A - OH - OH-SVY

Offset Site Error: 0.00 usft

Survey Program: 561-APC_ISCWSA REV 2 MWD

Rule Assigned:

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,200.00	6,941.51	3,337.00	3,088.56	48.09	23.75	33.42	974.69	-1,393.63	4,641.33	4,603.05	38.28	121.247	
9,300.00	6,941.18	3,337.00	3,088.56	49.31	23.75	33.42	974.69	-1,393.63	4,662.21	4,623.28	38.93	119.768	
9,400.00	6,940.86	3,337.00	3,088.56	50.56	23.75	33.42	974.69	-1,393.63	4,685.13	4,645.56	39.57	118.393	
9,500.00	6,940.54	3,337.00	3,088.56	51.82	23.75	33.42	974.69	-1,393.63	4,710.06	4,669.85	40.21	117.123	
9,600.00	6,940.21	3,337.00	3,088.56	53.11	23.75	33.42	974.69	-1,393.63	4,736.97	4,696.12	40.85	115.958	
9,700.00	6,939.89	3,337.00	3,088.56	54.41	23.75	33.42	974.69	-1,393.63	4,765.84	4,724.36	41.48	114.895	
9,800.00	6,939.57	3,337.00	3,088.56	55.73	23.75	33.42	974.69	-1,393.63	4,796.61	4,754.51	42.10	113.933	
9,900.00	6,939.25	3,337.00	3,088.56	57.07	23.75	33.42	974.69	-1,393.63	4,829.25	4,786.54	42.71	113.070	
10,000.00	6,938.92	3,337.00	3,088.56	58.41	23.75	33.42	974.69	-1,393.63	4,863.74	4,820.43	43.31	112.302	
10,100.00	6,938.60	3,337.00	3,088.56	59.77	23.75	33.42	974.69	-1,393.63	4,900.02	4,856.12	43.90	111.626	
10,200.00	6,938.28	3,337.00	3,088.56	61.15	23.75	33.42	974.69	-1,393.63	4,938.06	4,893.59	44.47	111.039	
10,300.00	6,937.95	3,337.00	3,088.56	62.53	23.75	33.42	974.69	-1,393.63	4,977.82	4,932.79	45.03	110.539	
10,400.00	6,937.63	3,337.00	3,088.56	63.92	23.75	33.42	974.69	-1,393.63	5,019.26	4,973.68	45.58	110.121	
10,500.00	6,937.31	3,337.00	3,088.56	65.33	23.75	33.42	974.69	-1,393.63	5,062.33	5,016.22	46.11	109.782	
10,600.00	6,936.98	3,337.00	3,088.56	66.74	23.75	33.42	974.69	-1,393.63	5,107.00	5,060.37	46.63	109.519	
10,700.00	6,936.66	3,337.00	3,088.56	68.16	23.75	33.42	974.69	-1,393.63	5,153.23	5,106.09	47.14	109.328	
10,800.00	6,936.34	3,337.00	3,088.56	69.59	23.75	33.42	974.69	-1,393.63	5,200.96	5,153.34	47.62	109.207	
10,900.00	6,936.01	3,337.00	3,088.56	71.03	23.75	33.42	974.69	-1,393.63	5,250.17	5,202.07	48.10	109.153	
11,000.00	6,935.69	3,337.00	3,088.56	72.47	23.75	33.42	974.69	-1,393.63	5,300.80	5,252.24	48.56	109.162	
11,100.00	6,935.37	3,337.00	3,088.56	73.92	23.75	33.42	974.69	-1,393.63	5,352.83	5,303.82	49.00	109.232	
11,200.00	6,935.05	3,337.00	3,088.56	75.38	23.75	33.42	974.69	-1,393.63	5,406.20	5,356.77	49.44	109.359	
11,300.00	6,934.72	3,337.00	3,088.56	76.84	23.75	33.42	974.69	-1,393.63	5,460.89	5,411.03	49.85	109.541	
11,400.00	6,934.40	3,337.00	3,088.56	78.31	23.75	33.42	974.69	-1,393.63	5,516.84	5,466.58	50.26	109.776	
11,500.00	6,934.08	3,337.00	3,088.56	79.79	23.75	33.42	974.69	-1,393.63	5,574.03	5,523.38	50.64	110.061	
11,600.00	6,933.75	3,337.00	3,088.56	81.27	23.75	33.42	974.69	-1,393.63	5,632.41	5,581.39	51.02	110.394	
11,700.00	6,933.43	3,337.00	3,088.56	82.75	23.75	33.42	974.69	-1,393.63	5,691.95	5,640.57	51.38	110.772	
11,800.00	6,933.11	3,337.00	3,088.56	84.24	23.75	33.42	974.69	-1,393.63	5,752.61	5,700.88	51.73	111.194	
11,900.00	6,932.78	3,337.00	3,088.56	85.73	23.75	33.42	974.69	-1,393.63	5,814.36	5,762.29	52.07	111.657	
12,000.00	6,932.46	3,337.00	3,088.56	87.23	23.75	33.42	974.69	-1,393.63	5,877.16	5,824.76	52.40	112.160	
12,100.00	6,932.14	3,337.00	3,088.56	88.72	23.75	33.42	974.69	-1,393.63	5,940.99	5,888.27	52.71	112.701	
12,200.00	6,931.81	3,337.00	3,088.56	90.23	23.75	33.42	974.69	-1,393.63	6,005.79	5,952.78	53.02	113.277	
12,300.00	6,931.49	3,337.00	3,088.56	91.74	23.75	33.42	974.69	-1,393.63	6,071.56	6,018.25	53.31	113.887	
12,400.00	6,931.17	3,337.00	3,088.56	93.25	23.75	33.42	974.69	-1,393.63	6,138.25	6,084.65	53.59	114.531	
12,500.00	6,930.85	3,337.00	3,088.56	94.76	23.75	33.42	974.69	-1,393.63	6,205.83	6,151.96	53.87	115.205	
12,600.00	6,930.52	3,337.00	3,088.56	96.27	23.75	33.42	974.69	-1,393.63	6,274.28	6,220.15	54.13	115.909	
12,700.00	6,930.20	3,337.00	3,088.56	97.79	23.75	33.42	974.69	-1,393.63	6,343.57	6,289.18	54.39	116.642	
12,800.00	6,929.88	3,337.00	3,088.56	99.32	23.75	33.42	974.69	-1,393.63	6,413.66	6,359.03	54.63	117.401	
12,900.00	6,929.55	3,337.00	3,088.56	100.84	23.75	33.42	974.69	-1,393.63	6,484.55	6,429.68	54.87	118.186	
13,000.00	6,929.23	3,337.00	3,088.56	102.37	23.75	33.42	974.69	-1,393.63	6,556.19	6,501.09	55.10	118.996	
13,100.00	6,928.91	3,337.00	3,088.56	103.89	23.75	33.42	974.69	-1,393.63	6,628.56	6,573.25	55.32	119.830	
13,200.00	6,928.58	3,337.00	3,088.56	105.43	23.75	33.42	974.69	-1,393.63	6,701.65	6,646.12	55.53	120.686	
13,300.00	6,928.26	3,337.00	3,088.56	106.96	23.75	33.42	974.69	-1,393.63	6,775.42	6,719.69	55.74	121.563	
13,400.00	6,927.94	3,337.00	3,088.56	108.49	23.75	33.42	974.69	-1,393.63	6,849.86	6,793.93	55.94	122.461	
13,500.00	6,927.61	3,337.00	3,088.56	110.03	23.75	33.42	974.69	-1,393.63	6,924.95	6,868.82	56.13	123.378	
13,600.00	6,927.29	3,337.00	3,088.56	111.57	23.75	33.42	974.69	-1,393.63	7,000.65	6,944.34	56.31	124.314	
13,700.00	6,926.97	3,337.00	3,088.56	113.11	23.75	33.42	974.69	-1,393.63	7,076.96	7,020.47	56.49	125.268	
13,800.00	6,926.65	3,337.00	3,088.56	114.65	23.75	33.42	974.69	-1,393.63	7,153.85	7,097.19	56.67	126.239	
13,900.00	6,926.32	3,337.00	3,088.56	116.20	23.75	33.42	974.69	-1,393.63	7,231.31	7,174.48	56.84	127.226	
14,000.00	6,926.00	3,337.00	3,088.56	117.75	23.75	33.42	974.69	-1,393.63	7,309.32	7,252.32	57.00	128.228	
14,100.00	6,925.68	3,337.00	3,088.56	119.29	23.75	33.42	974.69	-1,393.63	7,387.86	7,330.69	57.16	129.246	
14,200.00	6,925.35	3,337.00	3,088.56	120.84	23.75	33.42	974.69	-1,393.63	7,466.90	7,409.59	57.32	130.277	
14,300.00	6,925.03	3,337.00	3,088.56	122.39	23.75	33.42	974.69	-1,393.63	7,546.45	7,488.99	57.47	131.322	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #171A - OH - OH-SVY — **Offset Site Error:** 0.00 usft

Survey Program: 561-APC_ISCWSA REV 2 MWD — **Rule Assigned:** — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,400.00	6,924.71	3,337.00	3,088.56	123.94	23.75	33.42	974.69	-1,393.63	7,626.48	7,568.87	57.61	132.380	
14,500.00	6,924.38	3,337.00	3,088.56	125.50	23.75	33.42	974.69	-1,393.63	7,706.97	7,649.22	57.75	133.450	
14,600.00	6,924.06	3,337.00	3,088.56	127.05	23.75	33.42	974.69	-1,393.63	7,787.92	7,730.03	57.89	134.532	
14,700.00	6,923.74	3,337.00	3,088.56	128.61	23.75	33.42	974.69	-1,393.63	7,869.30	7,811.28	58.02	135.625	
14,800.00	6,923.42	3,337.00	3,088.56	130.16	23.75	33.42	974.69	-1,393.63	7,951.11	7,892.96	58.15	136.729	
14,900.00	6,923.09	3,337.00	3,088.56	131.72	23.75	33.42	974.69	-1,393.63	8,033.33	7,975.05	58.28	137.843	
15,000.00	6,922.77	3,337.00	3,088.56	133.28	23.75	33.42	974.69	-1,393.63	8,115.95	8,057.55	58.40	138.966	
15,100.00	6,922.45	3,337.00	3,088.56	134.84	23.75	33.42	974.69	-1,393.63	8,198.96	8,140.44	58.52	140.099	
15,200.00	6,922.12	3,337.00	3,088.56	136.40	23.75	33.42	974.69	-1,393.63	8,282.34	8,223.70	58.64	141.241	
15,300.00	6,921.80	3,337.00	3,088.56	137.96	23.75	33.42	974.69	-1,393.63	8,366.09	8,307.34	58.75	142.391	
15,400.00	6,921.48	3,337.00	3,088.56	139.53	23.75	33.42	974.69	-1,393.63	8,450.19	8,391.32	58.87	143.549	
15,500.00	6,921.15	3,337.00	3,088.56	141.09	23.75	33.42	974.69	-1,393.63	8,534.63	8,475.66	58.98	144.715	
15,600.00	6,920.83	3,337.00	3,088.56	142.65	23.75	33.42	974.69	-1,393.63	8,619.41	8,560.33	59.08	145.888	
15,700.00	6,920.51	3,337.00	3,088.56	144.22	23.75	33.42	974.69	-1,393.63	8,704.51	8,645.32	59.19	147.067	
15,800.00	6,920.18	3,337.00	3,088.56	145.79	23.75	33.42	974.69	-1,393.63	8,789.92	8,730.63	59.29	148.254	
15,900.00	6,919.86	3,337.00	3,088.56	147.35	23.75	33.42	974.69	-1,393.63	8,875.64	8,816.25	59.39	149.446	
16,000.00	6,919.54	3,337.00	3,088.56	148.92	23.75	33.42	974.69	-1,393.63	8,961.65	8,902.17	59.49	150.645	
16,100.00	6,919.22	3,337.00	3,088.56	150.49	23.75	33.42	974.69	-1,393.63	9,047.96	8,988.37	59.59	151.849	
16,200.00	6,918.89	3,337.00	3,088.56	152.06	23.75	33.42	974.69	-1,393.63	9,134.54	9,074.86	59.68	153.058	
16,300.00	6,918.57	3,337.00	3,088.56	153.63	23.75	33.42	974.69	-1,393.63	9,221.39	9,161.62	59.77	154.273	
16,400.00	6,918.25	3,337.00	3,088.56	155.20	23.75	33.42	974.69	-1,393.63	9,308.51	9,248.64	59.86	155.492	
16,500.00	6,917.92	3,337.00	3,088.56	156.77	23.75	33.42	974.69	-1,393.63	9,395.88	9,335.92	59.96	156.715	
16,600.00	6,917.60	3,337.00	3,088.56	158.34	23.75	33.42	974.69	-1,393.63	9,483.50	9,423.46	60.04	157.943	
16,700.00	6,917.28	3,337.00	3,088.56	159.92	23.75	33.42	974.69	-1,393.63	9,571.37	9,511.23	60.13	159.175	
16,800.00	6,916.95	3,337.00	3,088.56	161.49	23.75	33.42	974.69	-1,393.63	9,659.47	9,599.25	60.22	160.410	
16,900.00	6,916.63	3,337.00	3,088.56	163.06	23.75	33.42	974.69	-1,393.63	9,747.80	9,687.49	60.30	161.649	
17,000.00	6,916.31	3,337.00	3,088.56	164.64	23.75	33.42	974.69	-1,393.63	9,836.35	9,775.97	60.39	162.892	
17,100.00	6,915.98	3,337.00	3,088.56	166.21	23.75	33.42	974.69	-1,393.63	9,925.12	9,864.65	60.47	164.137	
17,200.00	6,915.66	3,337.00	3,088.56	167.79	23.75	33.42	974.69	-1,393.63	10,014.11	9,953.56	60.55	165.386	
17,300.00	6,915.34	3,337.00	3,088.56	169.37	23.75	33.42	974.69	-1,393.63	10,103.29	10,042.66	60.63	166.637	
17,400.00	6,915.02	3,337.00	3,088.56	170.94	23.75	33.42	974.69	-1,393.63	10,192.68	10,131.97	60.71	167.890	
17,500.00	6,914.69	3,337.00	3,088.56	172.52	23.75	33.42	974.69	-1,393.63	10,282.27	10,221.48	60.79	169.146	
17,600.00	6,914.37	3,337.00	3,088.56	174.10	23.75	33.42	974.69	-1,393.63	10,372.05	10,311.18	60.87	170.404	
17,700.00	6,914.05	3,337.00	3,088.56	175.68	23.75	33.42	974.69	-1,393.63	10,462.01	10,401.06	60.94	171.664	
17,800.00	6,913.72	3,337.00	3,088.56	177.25	23.75	33.42	974.69	-1,393.63	10,552.15	10,491.13	61.02	172.926	
17,900.00	6,913.40	3,337.00	3,088.56	178.83	23.75	33.42	974.69	-1,393.63	10,642.47	10,581.37	61.10	174.189	
18,000.00	6,913.08	3,337.00	3,088.56	180.41	23.75	33.42	974.69	-1,393.63	10,732.96	10,671.78	61.17	175.454	
18,023.75	6,913.00	3,337.00	3,088.56	180.79	23.75	33.42	974.69	-1,393.63	10,754.48	10,693.29	61.19	175.754	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #181 - OH - OH-SVY

Offset Site Error: 0.00 usft

Survey Program: 553-APC_ISCWSA REV 2 MWD

Rule Assigned:

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	-90.65	-123.71	-10,854.96	10,855.86				
100.00	100.00	111.37	111.37	0.25	0.13	-90.65	-123.52	-10,854.58	10,855.54	10,855.16	0.38	N/A	
200.00	200.00	420.61	420.55	0.61	0.49	-90.64	-120.94	-10,849.48	10,853.88	10,852.79	1.09	9,953.275	
300.00	300.00	583.00	582.84	0.97	0.71	-90.63	-118.66	-10,844.42	10,850.62	10,848.95	1.66	6,526.911	
400.00	400.00	613.00	612.83	1.33	0.77	-90.63	-118.38	-10,843.48	10,847.66	10,845.59	2.08	5,220.426	
500.00	500.00	643.00	642.81	1.68	0.83	-90.62	-117.75	-10,842.84	10,845.46	10,842.96	2.50	4,346.564	
600.00	599.98	643.00	642.81	2.03	0.83	89.45	-117.75	-10,842.84	10,843.99	10,841.16	2.84	3,823.376	
700.00	699.84	673.00	672.81	2.36	0.89	89.48	-117.29	-10,842.72	10,843.35	10,840.12	3.23	3,361.552	
745.56	745.26	673.00	672.81	2.52	0.89	89.48	-117.29	-10,842.72	10,843.26	10,839.87	3.38	3,205.993	
800.00	799.45	673.00	672.81	2.71	0.89	89.48	-117.29	-10,842.72	10,843.39	10,839.82	3.57	3,037.960	
900.00	898.70	673.00	672.81	3.06	0.89	89.46	-117.29	-10,842.72	10,844.32	10,840.39	3.93	2,762.314	
1,000.00	997.47	688.27	688.07	3.43	0.92	89.44	-117.12	-10,842.96	10,846.02	10,841.69	4.33	2,506.314	
1,100.00	1,095.62	704.00	703.79	3.82	0.95	89.40	-116.79	-10,843.43	10,848.57	10,843.82	4.74	2,286.609	
1,207.83	1,200.65	704.00	703.79	4.26	0.95	89.33	-116.79	-10,843.43	10,852.17	10,846.99	5.19	2,092.659	
1,300.00	1,290.02	718.95	718.73	4.65	0.98	89.35	-116.45	-10,844.06	10,856.01	10,850.40	5.61	1,935.752	
1,400.00	1,386.98	733.00	732.76	5.09	1.00	89.37	-116.20	-10,844.78	10,860.94	10,854.87	6.07	1,789.141	
1,500.00	1,483.95	733.00	732.76	5.53	1.00	89.37	-116.20	-10,844.78	10,866.73	10,860.22	6.51	1,668.494	
1,600.00	1,580.91	747.89	747.61	5.99	1.04	89.39	-115.84	-10,845.71	10,873.31	10,866.32	6.99	1,555.311	
1,700.00	1,677.87	764.00	763.66	6.44	1.07	89.42	-115.16	-10,846.98	10,880.80	10,873.33	7.47	1,455.660	
1,800.00	1,774.84	764.00	763.66	6.90	1.07	89.42	-115.16	-10,846.98	10,889.06	10,881.13	7.93	1,373.339	
1,900.00	1,871.80	764.00	763.66	7.36	1.07	89.42	-115.16	-10,846.98	10,898.23	10,889.85	8.39	1,299.694	
2,000.00	1,968.76	794.00	793.47	7.83	1.15	89.46	-113.63	-10,849.98	10,908.24	10,899.33	8.91	1,224.708	
2,100.00	2,065.73	794.00	793.47	8.30	1.15	89.46	-113.63	-10,849.98	10,918.97	10,909.60	9.36	1,165.975	
2,200.00	2,162.69	794.00	793.47	8.77	1.15	89.46	-113.63	-10,849.98	10,930.59	10,920.77	9.82	1,112.739	
2,300.00	2,259.65	808.12	807.47	9.24	1.18	89.49	-112.93	-10,851.67	10,943.03	10,932.71	10.31	1,061.158	
2,400.00	2,356.61	825.00	824.18	9.71	1.22	89.51	-112.07	-10,853.91	10,956.33	10,945.52	10.81	1,013.845	
2,500.00	2,453.58	825.00	824.18	10.18	1.22	89.51	-112.07	-10,853.91	10,970.38	10,959.12	11.26	973.925	
2,600.00	2,550.54	825.00	824.18	10.66	1.22	89.51	-112.07	-10,853.91	10,985.33	10,973.61	11.72	937.244	
2,700.00	2,647.50	855.00	853.80	11.13	1.29	89.55	-111.06	-10,858.51	11,001.04	10,988.80	12.24	898.663	
2,800.00	2,744.47	855.00	853.80	11.61	1.29	89.55	-111.06	-10,858.51	11,017.51	11,004.81	12.70	867.806	
2,900.00	2,841.43	868.29	866.90	12.08	1.32	89.57	-110.85	-10,860.76	11,034.80	11,021.62	13.18	837.360	
3,000.00	2,938.39	886.00	884.33	12.56	1.37	89.60	-110.57	-10,863.90	11,052.85	11,039.18	13.67	808.643	
3,100.00	3,035.36	886.00	884.33	13.04	1.37	89.60	-110.57	-10,863.90	11,071.68	11,057.56	14.12	784.211	
3,200.00	3,132.32	886.00	884.33	13.51	1.37	89.60	-110.57	-10,863.90	11,091.38	11,076.82	14.57	761.431	
3,300.00	3,229.28	886.00	884.33	13.99	1.37	89.60	-110.57	-10,863.90	11,111.95	11,096.93	15.01	740.154	
3,400.00	3,326.25	886.00	884.33	14.47	1.37	89.60	-110.57	-10,863.90	11,133.37	11,117.92	15.46	720.248	
3,500.00	3,423.21	948.00	944.86	14.95	1.53	89.68	-108.91	-10,877.15	11,155.39	11,139.34	16.05	695.063	
3,600.00	3,520.17	948.00	944.86	15.43	1.53	89.68	-108.91	-10,877.15	11,178.00	11,161.51	16.49	677.883	
3,700.00	3,617.13	948.00	944.86	15.91	1.53	89.68	-108.91	-10,877.15	11,201.45	11,184.53	16.93	661.729	
3,800.00	3,714.10	948.00	944.86	16.39	1.53	89.68	-108.91	-10,877.15	11,225.75	11,208.39	17.36	646.522	
3,900.00	3,811.06	948.00	944.86	16.87	1.53	89.68	-108.91	-10,877.15	11,250.89	11,233.09	17.80	632.188	
4,000.00	3,908.02	978.00	973.87	17.35	1.64	89.73	-107.57	-10,884.67	11,276.77	11,258.46	18.31	615.974	
4,100.00	4,004.99	978.00	973.87	17.83	1.64	89.73	-107.57	-10,884.67	11,303.31	11,284.58	18.74	603.322	
4,200.00	4,101.95	1,010.00	1,004.69	18.31	1.76	89.78	-105.79	-10,893.09	11,330.59	11,311.34	19.25	588.602	
4,300.00	4,198.91	1,010.00	1,004.69	18.79	1.76	89.78	-105.79	-10,893.09	11,358.51	11,338.84	19.67	577.366	
4,400.00	4,295.88	1,010.00	1,004.69	19.27	1.76	89.78	-105.79	-10,893.09	11,387.24	11,367.15	20.09	566.718	
4,500.00	4,392.84	1,025.50	1,019.54	19.75	1.83	89.80	-104.80	-10,897.40	11,416.64	11,396.09	20.56	555.375	
4,600.00	4,489.80	1,041.00	1,034.33	20.23	1.90	89.83	-103.72	-10,901.94	11,446.86	11,425.85	21.02	544.640	
4,700.00	4,586.76	1,041.00	1,034.33	20.71	1.90	89.83	-103.72	-10,901.94	11,477.74	11,456.31	21.43	535.607	
4,800.00	4,683.73	1,071.00	1,062.83	21.20	2.05	89.88	-101.38	-10,911.01	11,509.34	11,487.41	21.93	524.771	
4,900.00	4,780.69	1,071.00	1,062.83	21.68	2.05	89.88	-101.38	-10,911.01	11,541.55	11,519.21	22.34	516.662	
5,000.00	4,877.65	1,084.80	1,075.89	22.16	2.12	89.90	-100.19	-10,915.29	11,574.44	11,551.65	22.79	507.927	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #181 - OH - OH-SVY

Offset Site Error: 0.00 usft

Survey Program: 553-APC_ISCWSA REV 2 MWD **Rule Assigned:** **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,100.00	4,974.62	1,101.00	1,091.15	22.64	2.21	89.93	-98.65	-10,920.52	11,608.09	11,584.85	23.24	499.453	
5,200.00	5,071.58	1,101.00	1,091.15	23.12	2.21	89.93	-98.65	-10,920.52	11,642.37	11,618.73	23.64	492.494	
5,300.00	5,168.54	1,101.00	1,091.15	23.60	2.21	89.93	-98.65	-10,920.52	11,677.41	11,653.38	24.03	485.855	
5,400.00	5,265.51	1,132.00	1,120.15	24.09	2.40	89.98	-95.11	-10,930.88	11,713.03	11,688.50	24.54	477.398	
5,500.00	5,362.47	1,132.00	1,120.15	24.57	2.40	89.98	-95.11	-10,930.88	11,749.33	11,724.41	24.92	471.397	
5,600.00	5,459.43	1,163.00	1,148.95	25.05	2.60	90.04	-90.94	-10,941.56	11,786.24	11,760.82	25.43	463.565	
5,700.00	5,556.40	1,163.00	1,148.95	25.53	2.60	90.04	-90.94	-10,941.56	11,823.78	11,797.97	25.81	458.128	
5,800.00	5,653.36	1,194.00	1,177.60	26.01	2.82	90.10	-86.58	-10,952.56	11,861.92	11,835.61	26.31	450.887	
5,900.00	5,750.32	1,194.00	1,177.60	26.50	2.82	90.10	-86.58	-10,952.56	11,900.67	11,873.99	26.69	445.953	
6,000.00	5,847.28	1,194.00	1,177.60	26.98	2.82	90.10	-86.58	-10,952.56	11,940.14	11,913.08	27.06	441.231	
6,100.00	5,944.25	1,225.00	1,206.03	27.46	3.04	90.16	-82.03	-10,964.05	11,980.16	11,952.60	27.56	434.746	
6,200.00	6,041.21	1,225.00	1,206.03	27.94	3.04	90.16	-82.03	-10,964.05	12,020.81	11,992.88	27.93	430.452	
6,300.00	6,138.17	1,225.00	1,206.03	28.43	3.04	90.16	-82.03	-10,964.05	12,062.15	12,033.86	28.29	426.339	
6,400.00	6,235.14	1,257.00	1,235.10	28.91	3.29	90.22	-76.92	-10,976.41	12,104.03	12,075.23	28.79	420.417	
6,496.84	6,329.04	1,297.90	1,272.09	29.38	3.62	90.30	-69.96	-10,992.41	12,145.11	12,115.79	29.32	414.256	
6,500.00	6,332.10	1,301.77	1,275.59	29.39	3.65	89.18	-69.28	-10,993.91	12,146.45	12,117.10	29.35	413.910	
6,550.00	6,380.52	1,297.00	1,271.28	29.63	3.61	71.98	-70.11	-10,992.06	12,165.78	12,136.28	29.50	412.350	
6,600.00	6,428.63	1,310.34	1,283.32	29.87	3.72	57.64	-67.72	-10,997.29	12,181.57	12,151.83	29.74	409.576	
6,650.00	6,476.14	1,328.00	1,299.18	30.10	3.87	46.86	-64.37	-11,004.29	12,193.81	12,163.81	30.00	406.480	
6,700.00	6,522.73	1,328.00	1,299.18	30.33	3.87	39.00	-64.37	-11,004.29	12,202.31	12,172.14	30.17	404.406	
6,750.00	6,568.14	1,328.00	1,299.18	30.54	3.87	33.25	-64.37	-11,004.29	12,207.13	12,176.78	30.35	402.275	
6,800.00	6,612.08	1,343.11	1,312.71	30.75	3.99	29.00	-61.47	-11,010.37	12,208.19	12,177.61	30.58	399.183	
6,850.00	6,654.28	1,359.00	1,326.92	30.95	4.13	25.79	-58.53	-11,016.83	12,205.50	12,174.68	30.82	396.039	
6,900.00	6,694.47	1,359.00	1,326.92	31.15	4.13	23.28	-58.53	-11,016.83	12,199.06	12,168.08	30.98	393.817	
6,950.00	6,732.42	1,359.00	1,326.92	31.33	4.13	21.30	-58.53	-11,016.83	12,188.94	12,157.82	31.13	391.577	
7,000.00	6,767.89	1,374.89	1,341.10	31.51	4.27	19.76	-55.62	-11,023.38	12,175.14	12,143.79	31.35	388.392	
7,050.00	6,800.65	1,391.00	1,355.41	31.68	4.41	18.53	-52.60	-11,030.14	12,157.82	12,126.26	31.56	385.227	
7,100.00	6,830.51	1,391.00	1,355.41	31.85	4.41	17.52	-52.60	-11,030.14	12,136.98	12,105.29	31.69	382.997	
7,150.00	6,857.28	1,391.00	1,355.41	32.01	4.41	16.70	-52.60	-11,030.14	12,112.80	12,080.99	31.81	380.782	
7,200.00	6,880.80	1,391.00	1,355.41	32.17	4.41	16.05	-52.60	-11,030.14	12,085.41	12,053.49	31.92	378.591	
7,250.00	6,900.92	1,422.00	1,382.82	32.33	4.70	15.61	-46.68	-11,043.36	12,054.92	12,022.74	32.18	374.652	
7,300.00	6,917.52	1,422.00	1,382.82	32.49	4.70	15.23	-46.68	-11,043.36	12,021.48	11,989.21	32.27	372.541	
7,350.00	6,930.50	1,422.00	1,382.82	32.66	4.70	14.96	-46.68	-11,043.36	11,985.33	11,952.98	32.35	370.476	
7,400.00	6,939.77	1,422.00	1,382.82	32.83	4.70	14.79	-46.68	-11,043.36	11,946.67	11,914.25	32.42	368.462	
7,450.00	6,945.28	1,422.00	1,382.82	33.01	4.70	14.72	-46.68	-11,043.36	11,905.72	11,873.23	32.48	366.506	
7,499.66	6,947.00	1,436.38	1,395.47	33.19	4.84	14.82	-43.88	-11,049.58	11,862.94	11,830.33	32.61	363.804	
7,600.00	6,946.68	1,452.00	1,409.17	33.61	4.99	14.88	-40.74	-11,056.41	11,774.78	11,742.01	32.77	359.284	
7,700.00	6,946.35	1,452.00	1,409.17	34.10	4.99	14.88	-40.74	-11,056.41	11,687.04	11,654.18	32.86	355.626	
7,800.00	6,946.03	1,452.00	1,409.17	34.66	4.99	14.88	-40.74	-11,056.41	11,599.51	11,566.55	32.96	351.918	
7,900.00	6,945.71	1,452.00	1,409.17	35.29	4.99	14.88	-40.74	-11,056.41	11,512.17	11,479.11	33.07	348.159	
8,000.00	6,945.38	1,467.82	1,422.98	35.99	5.15	14.95	-37.52	-11,063.44	11,424.96	11,391.70	33.26	343.494	
8,100.00	6,945.06	1,481.00	1,434.42	36.74	5.28	15.01	-34.82	-11,069.38	11,337.99	11,304.54	33.45	338.961	
8,200.00	6,944.74	1,481.00	1,434.42	37.56	5.28	15.01	-34.82	-11,069.38	11,251.18	11,217.60	33.58	335.079	
8,300.00	6,944.41	1,481.00	1,434.42	38.43	5.28	15.01	-34.82	-11,069.38	11,164.59	11,130.88	33.71	331.152	
8,400.00	6,944.09	1,495.04	1,446.57	39.35	5.43	15.07	-31.93	-11,075.80	11,078.17	11,044.24	33.93	326.457	
8,500.00	6,943.77	1,511.00	1,460.32	40.31	5.59	15.14	-28.59	-11,083.17	10,991.98	10,957.81	34.17	321.668	
8,600.00	6,943.45	1,511.00	1,460.32	41.32	5.59	15.14	-28.59	-11,083.17	10,905.96	10,871.62	34.33	317.642	
8,700.00	6,943.12	1,511.00	1,460.32	42.37	5.59	15.14	-28.59	-11,083.17	10,820.17	10,785.67	34.51	313.580	
8,800.00	6,942.80	1,525.54	1,472.80	43.45	5.75	15.20	-25.50	-11,089.97	10,734.57	10,699.81	34.77	308.762	
8,900.00	6,942.48	1,542.00	1,486.85	44.57	5.93	15.28	-21.96	-11,097.77	10,649.23	10,614.19	35.04	303.891	
9,000.00	6,942.15	1,542.00	1,486.85	45.71	5.93	15.28	-21.96	-11,097.77	10,564.06	10,528.82	35.24	299.759	
9,100.00	6,941.83	1,542.00	1,486.85	46.89	5.93	15.28	-21.96	-11,097.77	10,479.16	10,443.71	35.45	295.599	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #181 - OH - OH-SVY

Offset Site Error: 0.00 usft

Survey Program: 553-APC_ISCWSA REV 2 MWD

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,200.00	6,941.51	1,573.00	1,513.17	48.09	6.27	15.41	-15.21	-11,112.70	10,394.47	10,358.64	35.84	290.033	
9,300.00	6,941.18	1,573.00	1,513.17	49.31	6.27	15.41	-15.21	-11,112.70	10,309.97	10,273.90	36.07	285.854	
9,400.00	6,940.86	1,573.00	1,513.17	50.56	6.27	15.41	-15.21	-11,112.70	10,225.74	10,189.44	36.31	281.654	
9,500.00	6,940.54	1,573.00	1,513.17	51.82	6.27	15.41	-15.21	-11,112.70	10,141.80	10,105.25	36.56	277.438	
9,600.00	6,940.21	1,587.53	1,525.41	53.11	6.44	15.48	-11.98	-11,119.82	10,058.06	10,021.16	36.89	272.625	
9,700.00	6,939.89	1,605.00	1,539.99	54.41	6.64	15.56	-7.93	-11,128.56	9,974.70	9,937.44	37.26	267.678	
9,800.00	6,939.57	1,605.00	1,539.99	55.73	6.64	15.56	-7.93	-11,128.56	9,891.50	9,853.96	37.55	263.457	
9,900.00	6,939.25	1,605.00	1,539.99	57.07	6.64	15.56	-7.93	-11,128.56	9,808.62	9,770.78	37.84	259.229	
10,000.00	6,938.92	1,605.00	1,539.99	58.41	6.64	15.56	-7.93	-11,128.56	9,726.06	9,687.92	38.14	254.998	
10,100.00	6,938.60	1,619.84	1,552.28	59.77	6.82	15.63	-4.39	-11,136.09	9,643.76	9,605.22	38.54	250.224	
10,200.00	6,938.28	1,636.00	1,565.59	61.15	7.01	15.71	-0.49	-11,144.39	9,561.78	9,522.82	38.96	245.427	
10,300.00	6,937.95	1,636.00	1,565.59	62.53	7.01	15.71	-0.49	-11,144.39	9,480.07	9,440.77	39.30	241.232	
10,400.00	6,937.63	1,636.00	1,565.59	63.92	7.01	15.71	-0.49	-11,144.39	9,398.71	9,359.06	39.65	237.044	
10,500.00	6,937.31	1,652.43	1,579.03	65.33	7.21	15.78	3.54	-11,152.94	9,317.61	9,277.51	40.11	232.325	
10,600.00	6,936.98	1,666.00	1,590.05	66.74	7.38	15.85	6.90	-11,160.10	9,236.89	9,196.33	40.56	227.740	
10,700.00	6,936.66	1,666.00	1,590.05	68.16	7.38	15.85	6.90	-11,160.10	9,156.47	9,115.53	40.95	223.618	
10,800.00	6,936.34	1,680.79	1,602.01	69.59	7.57	15.92	10.57	-11,167.98	9,076.40	9,034.96	41.43	219.070	
10,900.00	6,936.01	1,696.00	1,614.26	71.03	7.77	15.99	14.35	-11,176.17	8,996.65	8,954.72	41.93	214.557	
11,000.00	6,935.69	1,696.00	1,614.26	72.47	7.77	15.99	14.35	-11,176.17	8,917.25	8,874.89	42.36	210.522	
11,100.00	6,935.37	1,712.89	1,627.80	73.92	7.99	16.08	18.54	-11,185.37	8,838.18	8,795.29	42.89	206.052	
11,200.00	6,935.05	1,727.00	1,639.04	75.38	8.17	16.14	22.05	-11,193.14	8,759.50	8,716.08	43.43	201.713	
11,300.00	6,934.72	1,727.00	1,639.04	76.84	8.17	16.14	22.05	-11,193.14	8,681.20	8,637.31	43.89	197.786	
11,400.00	6,934.40	1,740.34	1,649.60	78.31	8.35	16.21	25.39	-11,200.57	8,603.28	8,558.83	44.45	193.561	
11,500.00	6,934.08	1,757.00	1,662.69	79.79	8.58	16.29	29.61	-11,209.97	8,525.79	8,480.76	45.04	189.312	
11,600.00	6,933.75	1,757.00	1,662.69	81.27	8.58	16.29	29.61	-11,209.97	8,448.68	8,403.13	45.54	185.509	
11,700.00	6,933.43	1,757.00	1,662.69	82.75	8.58	16.29	29.61	-11,209.97	8,372.04	8,325.98	46.07	181.742	
11,800.00	6,933.11	1,787.00	1,685.99	84.24	9.00	16.44	37.27	-11,227.25	8,295.82	8,249.05	46.77	177.370	
11,900.00	6,932.78	1,787.00	1,685.99	85.73	9.00	16.44	37.27	-11,227.25	8,219.99	8,172.67	47.32	173.705	
12,000.00	6,932.46	1,798.83	1,695.09	87.23	9.17	16.50	40.32	-11,234.16	8,144.64	8,096.69	47.95	169.844	
12,100.00	6,932.14	1,818.00	1,709.77	88.72	9.44	16.59	45.33	-11,245.42	8,069.72	8,021.08	48.64	165.900	
12,200.00	6,931.81	1,818.00	1,709.77	90.23	9.44	16.59	45.33	-11,245.42	7,995.27	7,946.03	49.24	162.385	
12,300.00	6,931.49	1,835.04	1,722.72	91.74	9.69	16.68	49.89	-11,255.52	7,921.26	7,871.32	49.94	158.604	
12,400.00	6,931.17	1,850.00	1,733.98	93.25	9.91	16.75	54.01	-11,264.47	7,847.79	7,797.14	50.65	154.929	
12,500.00	6,930.85	1,850.00	1,733.98	94.76	9.91	16.75	54.01	-11,264.47	7,774.83	7,723.53	51.29	151.575	
12,600.00	6,930.52	1,867.28	1,746.87	96.27	10.17	16.84	58.83	-11,274.92	7,702.37	7,650.32	52.05	147.984	
12,700.00	6,930.20	1,881.00	1,757.03	97.79	10.38	16.91	62.67	-11,283.30	7,630.45	7,577.65	52.80	144.520	
12,800.00	6,929.88	6,896.00	6,053.19	99.32	54.34	71.97	948.73	-13,029.63	7,549.14	7,475.86	73.29	103.008	
12,900.00	6,929.55	6,896.00	6,053.19	100.84	54.34	71.97	948.73	-13,029.63	7,455.11	7,381.11	74.00	100.746	
13,000.00	6,929.23	6,896.00	6,053.19	102.37	54.34	71.97	948.73	-13,029.63	7,361.22	7,286.49	74.73	98.499	
13,100.00	6,928.91	6,896.00	6,053.19	103.89	54.34	71.97	948.73	-13,029.63	7,267.51	7,192.01	75.49	96.266	
13,200.00	6,928.58	6,896.00	6,053.19	105.43	54.34	71.97	948.73	-13,029.63	7,173.96	7,097.68	76.28	94.050	
13,300.00	6,928.26	6,896.00	6,053.19	106.96	54.34	71.97	948.73	-13,029.63	7,080.59	7,003.50	77.09	91.850	
13,400.00	6,927.94	6,896.00	6,053.19	108.49	54.34	71.97	948.73	-13,029.63	6,987.40	6,909.47	77.93	89.667	
13,500.00	6,927.61	6,896.00	6,053.19	110.03	54.34	71.97	948.73	-13,029.63	6,894.40	6,815.61	78.79	87.502	
13,600.00	6,927.29	6,896.00	6,053.19	111.57	54.34	71.97	948.73	-13,029.63	6,801.60	6,721.92	79.69	85.355	
13,700.00	6,926.97	6,896.00	6,053.19	113.11	54.34	71.97	948.73	-13,029.63	6,709.01	6,628.40	80.61	83.227	
13,800.00	6,926.65	6,896.00	6,053.19	114.65	54.34	71.97	948.73	-13,029.63	6,616.64	6,535.07	81.57	81.118	
13,900.00	6,926.32	6,896.00	6,053.19	116.20	54.34	71.97	948.73	-13,029.63	6,524.49	6,441.93	82.56	79.029	
14,000.00	6,926.00	6,896.00	6,053.19	117.75	54.34	71.97	948.73	-13,029.63	6,432.57	6,348.99	83.58	76.961	
14,100.00	6,925.68	6,896.00	6,053.19	119.29	54.34	71.97	948.73	-13,029.63	6,340.90	6,256.25	84.64	74.913	
14,200.00	6,925.35	6,896.00	6,053.19	120.84	54.34	71.97	948.73	-13,029.63	6,249.48	6,163.74	85.74	72.888	
14,300.00	6,925.03	6,896.00	6,053.19	122.39	54.34	71.97	948.73	-13,029.63	6,158.33	6,071.45	86.88	70.884	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #181 - OH - OH-SVY — **Offset Site Error:** 0.00 usft

Survey Program: 553-APC_ISCWSA REV 2 MWD — **Rule Assigned:** — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,400.00	6,924.71	6,896.00	6,053.19	123.94	54.34	71.97	948.73	-13,029.63	6,067.46	5,979.40	88.06	68.904	
14,500.00	6,924.38	6,896.00	6,053.19	125.50	54.34	71.97	948.73	-13,029.63	5,976.88	5,887.60	89.28	66.947	
14,600.00	6,924.06	6,896.00	6,053.19	127.05	54.34	71.97	948.73	-13,029.63	5,886.61	5,796.06	90.54	65.015	
14,700.00	6,923.74	6,896.00	6,053.19	128.61	54.34	71.97	948.73	-13,029.63	5,796.65	5,704.80	91.85	63.107	
14,800.00	6,923.42	6,896.00	6,053.19	130.16	54.34	71.97	948.73	-13,029.63	5,707.03	5,613.82	93.22	61.224	
14,900.00	6,923.09	6,896.00	6,053.19	131.72	54.34	71.97	948.73	-13,029.63	5,617.76	5,523.13	94.63	59.367	
15,000.00	6,922.77	6,896.00	6,053.19	133.28	54.34	71.97	948.73	-13,029.63	5,528.86	5,432.77	96.09	57.537	
15,100.00	6,922.45	6,896.00	6,053.19	134.84	54.34	71.97	948.73	-13,029.63	5,440.34	5,342.73	97.61	55.735	
15,200.00	6,922.12	6,896.00	6,053.19	136.40	54.34	71.97	948.73	-13,029.63	5,352.23	5,253.04	99.19	53.959	
15,300.00	6,921.80	6,896.00	6,053.19	137.96	54.34	71.97	948.73	-13,029.63	5,264.54	5,163.71	100.83	52.213	
15,400.00	6,921.48	6,896.00	6,053.19	139.53	54.34	71.97	948.73	-13,029.63	5,177.30	5,074.77	102.53	50.495	
15,500.00	6,921.15	6,896.00	6,053.19	141.09	54.34	71.97	948.73	-13,029.63	5,090.52	4,986.23	104.30	48.807	
15,600.00	6,920.83	6,896.00	6,053.19	142.65	54.34	71.97	948.73	-13,029.63	5,004.25	4,898.11	106.13	47.150	
15,700.00	6,920.51	6,896.00	6,053.19	144.22	54.34	71.97	948.73	-13,029.63	4,918.49	4,810.44	108.04	45.523	
15,800.00	6,920.18	6,896.00	6,053.19	145.79	54.34	71.97	948.73	-13,029.63	4,833.27	4,723.25	110.03	43.928	
15,900.00	6,919.86	6,896.00	6,053.19	147.35	54.34	71.97	948.73	-13,029.63	4,748.64	4,636.55	112.09	42.365	
16,000.00	6,919.54	6,896.00	6,053.19	148.92	54.34	71.97	948.73	-13,029.63	4,664.61	4,550.38	114.23	40.835	
16,100.00	6,919.22	6,896.00	6,053.19	150.49	54.34	71.97	948.73	-13,029.63	4,581.23	4,464.77	116.46	39.338	
16,200.00	6,918.89	6,896.00	6,053.19	152.06	54.34	71.97	948.73	-13,029.63	4,498.52	4,379.75	118.77	37.875	
16,300.00	6,918.57	6,896.00	6,053.19	153.63	54.34	71.97	948.73	-13,029.63	4,416.53	4,295.35	121.18	36.447	
16,400.00	6,918.25	6,896.00	6,053.19	155.20	54.34	71.97	948.73	-13,029.63	4,335.29	4,211.61	123.68	35.054	
16,500.00	6,917.92	6,896.00	6,053.19	156.77	54.34	71.97	948.73	-13,029.63	4,254.85	4,128.58	126.27	33.696	
16,600.00	6,917.60	6,896.00	6,053.19	158.34	54.34	71.97	948.73	-13,029.63	4,175.26	4,046.29	128.97	32.375	
16,700.00	6,917.28	6,896.00	6,053.19	159.92	54.34	71.97	948.73	-13,029.63	4,096.56	3,964.80	131.77	31.090	
16,800.00	6,916.95	6,896.00	6,053.19	161.49	54.34	71.97	948.73	-13,029.63	4,018.81	3,884.14	134.67	29.842	
16,900.00	6,916.63	6,896.00	6,053.19	163.06	54.34	71.97	948.73	-13,029.63	3,942.07	3,804.39	137.68	28.632	
17,000.00	6,916.31	6,896.00	6,053.19	164.64	54.34	71.97	948.73	-13,029.63	3,866.38	3,725.58	140.80	27.460	
17,100.00	6,915.98	6,896.00	6,053.19	166.21	54.34	71.97	948.73	-13,029.63	3,791.83	3,647.80	144.03	26.326	
17,200.00	6,915.66	6,896.00	6,053.19	167.79	54.34	71.97	948.73	-13,029.63	3,718.47	3,571.09	147.38	25.231	
17,300.00	6,915.34	6,896.00	6,053.19	169.37	54.34	71.97	948.73	-13,029.63	3,646.37	3,495.54	150.83	24.175	
17,400.00	6,915.02	6,896.00	6,053.19	170.94	54.34	71.97	948.73	-13,029.63	3,575.62	3,421.22	154.40	23.158	
17,500.00	6,914.69	6,896.00	6,053.19	172.52	54.34	71.97	948.73	-13,029.63	3,506.29	3,348.21	158.08	22.180	
17,600.00	6,914.37	6,896.00	6,053.19	174.10	54.34	71.97	948.73	-13,029.63	3,438.48	3,276.61	161.87	21.242	
17,700.00	6,914.05	6,896.00	6,053.19	175.68	54.34	71.97	948.73	-13,029.63	3,372.26	3,206.50	165.76	20.344	
17,800.00	6,913.72	6,896.00	6,053.19	177.25	54.34	71.97	948.73	-13,029.63	3,307.75	3,137.99	169.75	19.486	
17,900.00	6,913.40	6,896.00	6,053.19	178.83	54.34	71.97	948.73	-13,029.63	3,245.03	3,071.19	173.84	18.667	
18,000.00	6,913.08	6,896.00	6,053.19	180.41	54.34	71.97	948.73	-13,029.63	3,184.22	3,006.21	178.01	17.888	
18,023.75	6,913.00	6,896.00	6,053.19	180.79	54.34	71.97	948.73	-13,029.63	3,170.07	2,991.05	179.02	17.708	CC, ES, SF

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #228A - OH - OH-SVY — **Offset Site Error:** 0.00 usft

Survey Program: 352-APC_ISCWSA REV 2 MWD — **Rule Assigned:** — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	-46.85	459.17	-489.75	674.19				
100.00	100.00	38.76	38.76	0.25	0.04	-46.85	459.15	-489.74	671.32	671.02	0.29	2,277.791	
200.00	200.00	140.75	140.75	0.61	0.16	-46.85	458.95	-489.56	671.05	670.29	0.77	873.893	
300.00	300.00	242.75	242.75	0.97	0.27	-46.85	458.53	-489.17	670.50	669.25	1.24	540.254	
400.00	400.00	344.74	344.73	1.33	0.39	-46.86	457.88	-488.59	669.64	667.93	1.71	390.605	
457.06	457.06	395.07	395.06	1.53	0.48	-46.87	457.59	-488.41	669.28	667.27	2.01	332.946	CC, ES
500.00	500.00	428.99	428.98	1.68	0.54	-46.87	457.69	-488.61	669.56	667.33	2.23	300.565	
600.00	599.98	499.37	499.31	2.03	0.69	133.18	459.30	-490.32	674.15	671.44	2.71	248.585	
700.00	699.84	567.00	566.74	2.36	0.85	133.23	462.86	-494.12	685.54	682.35	3.19	214.794	
800.00	799.45	634.86	634.06	2.71	1.02	133.31	468.68	-500.26	703.97	700.29	3.68	191.190	
900.00	898.70	701.16	699.43	3.06	1.20	133.44	476.48	-508.11	728.99	724.81	4.18	174.513	
1,000.00	997.47	764.54	761.40	3.43	1.43	133.55	485.87	-517.48	760.51	755.85	4.66	163.062	
1,100.00	1,095.62	823.04	818.05	3.82	1.69	133.61	496.29	-527.71	798.35	793.20	5.14	155.300	
1,207.83	1,200.65	883.79	876.17	4.26	2.00	133.61	508.95	-539.98	846.00	840.35	5.65	149.782	
1,300.00	1,290.02	936.00	925.52	4.65	2.31	134.29	521.14	-551.89	891.04	884.96	6.08	146.561	
1,400.00	1,386.98	999.00	984.45	5.09	2.71	135.03	536.99	-567.55	942.56	935.99	6.57	143.429	
1,500.00	1,483.95	1,047.39	1,029.12	5.53	3.06	135.57	550.42	-580.43	996.92	989.93	7.00	142.446	
1,600.00	1,580.91	1,093.00	1,070.71	5.99	3.41	136.04	563.91	-593.38	1,054.00	1,046.59	7.41	142.306	
1,700.00	1,677.87	1,141.53	1,114.32	6.44	3.82	136.51	579.26	-608.15	1,113.73	1,105.90	7.83	142.222	
1,800.00	1,774.84	1,185.27	1,153.01	6.90	4.22	136.90	594.08	-622.16	1,175.94	1,167.71	8.23	142.887	
1,900.00	1,871.80	1,232.21	1,193.93	7.36	4.66	137.31	611.01	-637.70	1,240.32	1,231.68	8.64	143.503	
2,000.00	1,968.76	1,279.00	1,234.28	7.83	5.13	137.70	628.64	-653.54	1,306.37	1,297.31	9.06	144.205	
2,100.00	2,065.73	1,311.00	1,261.52	8.30	5.46	137.96	641.17	-664.72	1,374.28	1,364.91	9.37	146.611	
2,200.00	2,162.69	1,374.00	1,314.38	8.77	6.15	138.40	666.49	-687.81	1,443.62	1,433.70	9.92	145.563	
2,300.00	2,259.65	1,414.12	1,347.63	9.24	6.60	138.65	682.93	-703.09	1,514.18	1,503.88	10.30	147.048	
2,400.00	2,356.61	1,460.86	1,385.89	9.71	7.15	138.90	702.44	-721.54	1,586.01	1,575.27	10.73	147.777	
2,500.00	2,453.58	1,515.76	1,430.46	10.18	7.80	139.12	724.99	-744.32	1,658.51	1,647.27	11.24	147.545	
2,600.00	2,550.54	1,569.12	1,473.43	10.66	8.46	139.29	746.82	-767.22	1,731.64	1,719.89	11.75	147.411	
2,700.00	2,647.50	1,613.47	1,508.85	11.13	9.02	139.42	765.25	-786.53	1,805.53	1,793.34	12.18	148.188	
2,800.00	2,744.47	1,655.00	1,541.73	11.61	9.55	139.53	782.89	-804.76	1,880.25	1,867.66	12.60	149.236	
2,900.00	2,841.43	1,707.01	1,582.55	12.08	10.22	139.68	805.54	-827.71	1,955.75	1,942.64	13.11	149.218	
3,000.00	2,938.39	1,760.56	1,624.44	12.56	10.90	139.82	828.93	-851.46	2,031.52	2,017.89	13.63	149.082	
3,100.00	3,035.36	1,803.49	1,657.73	13.04	11.47	139.93	848.01	-870.73	2,107.99	2,093.92	14.06	149.898	
3,200.00	3,132.32	1,878.99	1,716.18	13.51	12.43	140.11	881.85	-904.46	2,184.66	2,169.88	14.78	147.785	
3,300.00	3,229.28	1,981.04	1,795.94	13.99	13.69	140.40	927.94	-948.37	2,260.86	2,245.13	15.73	143.746	
3,400.00	3,326.25	2,114.85	1,902.68	14.47	15.32	140.72	985.59	-1,004.80	2,335.06	2,318.11	16.95	137.801	
3,500.00	3,423.21	3,253.00	2,925.31	14.95	24.19	143.81	1,316.42	-1,317.12	2,404.90	2,381.23	23.68	101.580	SF
3,600.00	3,520.17	3,253.00	2,925.31	15.43	24.19	143.81	1,316.42	-1,317.12	2,444.22	2,420.18	24.03	101.698	
3,700.00	3,617.13	3,253.00	2,925.31	15.91	24.19	143.81	1,316.42	-1,317.12	2,486.94	2,462.58	24.36	102.108	
3,800.00	3,714.10	3,253.00	2,925.31	16.39	24.19	143.81	1,316.42	-1,317.12	2,532.88	2,508.24	24.64	102.784	
3,900.00	3,811.06	3,253.00	2,925.31	16.87	24.19	143.81	1,316.42	-1,317.12	2,581.89	2,556.99	24.90	103.702	
4,000.00	3,908.02	3,253.00	2,925.31	17.35	24.19	143.81	1,316.42	-1,317.12	2,633.78	2,608.66	25.12	104.839	
4,100.00	4,004.99	3,253.00	2,925.31	17.83	24.19	143.81	1,316.42	-1,317.12	2,688.39	2,663.07	25.32	106.177	
4,200.00	4,101.95	3,253.00	2,925.31	18.31	24.19	143.81	1,316.42	-1,317.12	2,745.56	2,720.07	25.49	107.698	
4,300.00	4,198.91	3,253.00	2,925.31	18.79	24.19	143.81	1,316.42	-1,317.12	2,805.13	2,779.49	25.64	109.384	
4,400.00	4,295.88	3,253.00	2,925.31	19.27	24.19	143.81	1,316.42	-1,317.12	2,866.95	2,841.17	25.78	111.220	
4,500.00	4,392.84	3,253.00	2,925.31	19.75	24.19	143.81	1,316.42	-1,317.12	2,930.88	2,904.99	25.89	113.193	
4,600.00	4,489.80	3,253.00	2,925.31	20.23	24.19	143.81	1,316.42	-1,317.12	2,996.78	2,970.79	25.99	115.289	
4,700.00	4,586.76	3,253.00	2,925.31	20.71	24.19	143.81	1,316.42	-1,317.12	3,064.53	3,038.45	26.08	117.497	
4,800.00	4,683.73	3,253.00	2,925.31	21.20	24.19	143.81	1,316.42	-1,317.12	3,134.01	3,107.85	26.16	119.804	
4,900.00	4,780.69	3,253.00	2,925.31	21.68	24.19	143.81	1,316.42	-1,317.12	3,205.10	3,178.87	26.23	122.202	
5,000.00	4,877.65	3,253.00	2,925.31	22.16	24.19	143.81	1,316.42	-1,317.12	3,277.70	3,251.41	26.29	124.679	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #228A - OH - OH-SVY

Offset Site Error: 0.00 usft

Survey Program: 352-APC_ISCWSA REV 2 MWD

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,100.00	4,974.62	3,253.00	2,925.31	22.64	24.19	143.81	1,316.42	-1,317.12	3,351.71	3,325.37	26.34	127.227	
5,200.00	5,071.58	3,253.00	2,925.31	23.12	24.19	143.81	1,316.42	-1,317.12	3,427.04	3,400.65	26.39	129.838	
5,300.00	5,168.54	3,253.00	2,925.31	23.60	24.19	143.81	1,316.42	-1,317.12	3,503.61	3,477.17	26.44	132.503	
5,400.00	5,265.51	3,253.00	2,925.31	24.09	24.19	143.81	1,316.42	-1,317.12	3,581.33	3,554.84	26.49	135.215	
5,500.00	5,362.47	3,253.00	2,925.31	24.57	24.19	143.81	1,316.42	-1,317.12	3,660.13	3,633.60	26.53	137.967	
5,600.00	5,459.43	3,253.00	2,925.31	25.05	24.19	143.81	1,316.42	-1,317.12	3,739.95	3,713.38	26.57	140.753	
5,700.00	5,556.40	3,253.00	2,925.31	25.53	24.19	143.81	1,316.42	-1,317.12	3,820.72	3,794.10	26.61	143.566	
5,800.00	5,653.36	3,253.00	2,925.31	26.01	24.19	143.81	1,316.42	-1,317.12	3,902.38	3,875.72	26.66	146.400	
5,900.00	5,750.32	3,253.00	2,925.31	26.50	24.19	143.81	1,316.42	-1,317.12	3,984.87	3,958.17	26.70	149.250	
6,000.00	5,847.28	3,253.00	2,925.31	26.98	24.19	143.81	1,316.42	-1,317.12	4,068.15	4,041.40	26.74	152.111	
6,100.00	5,944.25	3,253.00	2,925.31	27.46	24.19	143.81	1,316.42	-1,317.12	4,152.17	4,125.37	26.79	154.977	
6,200.00	6,041.21	3,253.00	2,925.31	27.94	24.19	143.81	1,316.42	-1,317.12	4,236.88	4,210.04	26.84	157.844	
6,300.00	6,138.17	3,253.00	2,925.31	28.43	24.19	143.81	1,316.42	-1,317.12	4,322.24	4,295.35	26.89	160.708	
6,400.00	6,235.14	3,253.00	2,925.31	28.91	24.19	143.81	1,316.42	-1,317.12	4,408.22	4,381.27	26.95	163.565	
6,496.84	6,329.04	3,253.00	2,925.31	29.38	24.19	143.81	1,316.42	-1,317.12	4,492.04	4,465.03	27.01	166.320	
6,500.00	6,332.10	3,253.00	2,925.31	29.39	24.19	142.28	1,316.42	-1,317.12	4,494.78	4,467.77	27.01	166.411	
6,550.00	6,380.52	3,253.00	2,925.31	29.63	24.19	119.36	1,316.42	-1,317.12	4,537.57	4,510.53	27.04	167.805	
6,600.00	6,428.63	3,253.00	2,925.31	29.87	24.19	100.26	1,316.42	-1,317.12	4,579.10	4,552.02	27.07	169.137	
6,650.00	6,476.14	3,253.00	2,925.31	30.10	24.19	85.52	1,316.42	-1,317.12	4,619.14	4,592.03	27.11	170.395	
6,700.00	6,522.73	3,253.00	2,925.31	30.33	24.19	74.40	1,316.42	-1,317.12	4,657.49	4,630.34	27.14	171.580	
6,750.00	6,568.14	3,253.00	2,925.31	30.54	24.19	65.96	1,316.42	-1,317.12	4,693.96	4,666.77	27.18	172.692	
6,800.00	6,612.08	3,253.00	2,925.31	30.75	24.19	59.44	1,316.42	-1,317.12	4,728.36	4,701.15	27.22	173.725	
6,850.00	6,654.28	3,253.00	2,925.31	30.95	24.19	54.33	1,316.42	-1,317.12	4,760.54	4,733.29	27.25	174.675	
6,900.00	6,694.47	3,253.00	2,925.31	31.15	24.19	50.25	1,316.42	-1,317.12	4,790.35	4,763.06	27.29	175.534	
6,950.00	6,732.42	3,253.00	2,925.31	31.33	24.19	46.96	1,316.42	-1,317.12	4,817.64	4,790.31	27.33	176.291	
7,000.00	6,767.89	3,253.00	2,925.31	31.51	24.19	44.30	1,316.42	-1,317.12	4,842.29	4,814.92	27.37	176.935	
7,050.00	6,800.65	3,253.00	2,925.31	31.68	24.19	42.13	1,316.42	-1,317.12	4,864.19	4,836.78	27.41	177.455	
7,100.00	6,830.51	3,253.00	2,925.31	31.85	24.19	40.37	1,316.42	-1,317.12	4,883.24	4,855.78	27.46	177.836	
7,150.00	6,857.28	3,253.00	2,925.31	32.01	24.19	38.94	1,316.42	-1,317.12	4,899.36	4,871.84	27.51	178.065	
7,200.00	6,880.80	3,253.00	2,925.31	32.17	24.19	37.81	1,316.42	-1,317.12	4,912.47	4,884.90	27.58	178.129	
7,250.00	6,900.92	3,253.00	2,925.31	32.33	24.19	36.94	1,316.42	-1,317.12	4,922.53	4,894.88	27.65	178.016	
7,300.00	6,917.52	3,253.00	2,925.31	32.49	24.19	36.30	1,316.42	-1,317.12	4,929.49	4,901.75	27.74	177.716	
7,350.00	6,930.50	3,253.00	2,925.31	32.66	24.19	35.86	1,316.42	-1,317.12	4,933.32	4,905.48	27.84	177.224	
7,400.00	6,939.77	3,253.00	2,925.31	32.83	24.19	35.63	1,316.42	-1,317.12	4,934.00	4,906.05	27.95	176.534	
7,450.00	6,945.28	3,253.00	2,925.31	33.01	24.19	35.59	1,316.42	-1,317.12	4,931.53	4,903.45	28.08	175.647	
7,499.66	6,947.00	3,253.00	2,925.31	33.19	24.19	35.73	1,316.42	-1,317.12	4,925.96	4,897.75	28.22	174.572	
7,600.00	6,946.68	3,253.00	2,925.31	33.61	24.19	35.73	1,316.42	-1,317.12	4,912.62	4,884.07	28.55	172.089	
7,700.00	6,946.35	3,253.00	2,925.31	34.10	24.19	35.73	1,316.42	-1,317.12	4,901.32	4,872.38	28.94	169.372	
7,800.00	6,946.03	3,253.00	2,925.31	34.66	24.19	35.73	1,316.42	-1,317.12	4,892.04	4,862.65	29.39	166.444	
7,900.00	6,945.71	3,253.00	2,925.31	35.29	24.19	35.73	1,316.42	-1,317.12	4,884.80	4,854.89	29.90	163.352	
8,000.00	6,945.38	3,253.00	2,925.31	35.99	24.19	35.73	1,316.42	-1,317.12	4,879.59	4,849.12	30.47	160.142	
8,100.00	6,945.06	3,253.00	2,925.31	36.74	24.19	35.73	1,316.42	-1,317.12	4,876.42	4,845.34	31.09	156.859	
8,200.00	6,944.74	3,253.00	2,925.31	37.56	24.19	35.73	1,316.42	-1,317.12	4,875.31	4,843.56	31.75	153.546	
8,204.45	6,944.72	3,253.00	2,925.31	37.60	24.19	35.73	1,316.42	-1,317.12	4,875.31	4,843.53	31.78	153.395	
8,300.00	6,944.41	3,253.00	2,925.31	38.43	24.19	35.73	1,316.42	-1,317.12	4,876.25	4,843.79	32.46	150.241	
8,400.00	6,944.09	3,253.00	2,925.31	39.35	24.19	35.73	1,316.42	-1,317.12	4,879.24	4,846.04	33.20	146.977	
8,500.00	6,943.77	3,253.00	2,925.31	40.31	24.19	35.73	1,316.42	-1,317.12	4,884.27	4,850.30	33.97	143.781	
8,600.00	6,943.45	3,253.00	2,925.31	41.32	24.19	35.73	1,316.42	-1,317.12	4,891.34	4,856.57	34.77	140.676	
8,700.00	6,943.12	3,253.00	2,925.31	42.37	24.19	35.73	1,316.42	-1,317.12	4,900.44	4,864.85	35.59	137.680	
8,800.00	6,942.80	3,253.00	2,925.31	43.45	24.19	35.73	1,316.42	-1,317.12	4,911.57	4,875.13	36.43	134.808	
8,900.00	6,942.48	3,253.00	2,925.31	44.57	24.19	35.73	1,316.42	-1,317.12	4,924.70	4,887.41	37.29	132.068	
9,000.00	6,942.15	3,253.00	2,925.31	45.71	24.19	35.73	1,316.42	-1,317.12	4,939.82	4,901.66	38.16	129.466	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #228A - OH - OH-SVY

Offset Site Error: 0.00 usft

Survey Program: 352-APC_ISCWSA REV 2 MWD

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,100.00	6,941.83	3,253.00	2,925.31	46.89	24.19	35.73	1,316.42	-1,317.12	4,956.91	4,917.88	39.03	127.008	
9,200.00	6,941.51	3,253.00	2,925.31	48.09	24.19	35.73	1,316.42	-1,317.12	4,975.95	4,936.04	39.91	124.693	
9,300.00	6,941.18	3,253.00	2,925.31	49.31	24.19	35.73	1,316.42	-1,317.12	4,996.92	4,956.14	40.78	122.522	
9,400.00	6,940.86	3,253.00	2,925.31	50.56	24.19	35.73	1,316.42	-1,317.12	5,019.80	4,978.14	41.66	120.493	
9,500.00	6,940.54	3,253.00	2,925.31	51.82	24.19	35.73	1,316.42	-1,317.12	5,044.55	5,002.02	42.53	118.603	
9,600.00	6,940.21	3,253.00	2,925.31	53.11	24.19	35.73	1,316.42	-1,317.12	5,071.16	5,027.76	43.40	116.848	
9,700.00	6,939.89	3,253.00	2,925.31	54.41	24.19	35.73	1,316.42	-1,317.12	5,099.59	5,055.33	44.26	115.223	
9,800.00	6,939.57	3,253.00	2,925.31	55.73	24.19	35.73	1,316.42	-1,317.12	5,129.81	5,084.70	45.11	113.725	
9,900.00	6,939.25	3,253.00	2,925.31	57.07	24.19	35.73	1,316.42	-1,317.12	5,161.79	5,115.84	45.94	112.349	
10,000.00	6,938.92	3,253.00	2,925.31	58.41	24.19	35.73	1,316.42	-1,317.12	5,195.50	5,148.73	46.77	111.089	
10,100.00	6,938.60	3,253.00	2,925.31	59.77	24.19	35.73	1,316.42	-1,317.12	5,230.90	5,183.32	47.58	109.939	
10,200.00	6,938.28	3,253.00	2,925.31	61.15	24.19	35.73	1,316.42	-1,317.12	5,267.97	5,219.59	48.38	108.896	
10,300.00	6,937.95	3,253.00	2,925.31	62.53	24.19	35.73	1,316.42	-1,317.12	5,306.66	5,257.50	49.16	107.955	
10,400.00	6,937.63	3,253.00	2,925.31	63.92	24.19	35.73	1,316.42	-1,317.12	5,346.94	5,297.02	49.92	107.109	
10,500.00	6,937.31	3,253.00	2,925.31	65.33	24.19	35.73	1,316.42	-1,317.12	5,388.78	5,338.11	50.67	106.355	
10,600.00	6,936.98	3,253.00	2,925.31	66.74	24.19	35.73	1,316.42	-1,317.12	5,432.13	5,380.73	51.40	105.688	
10,700.00	6,936.66	3,253.00	2,925.31	68.16	24.19	35.73	1,316.42	-1,317.12	5,476.97	5,424.86	52.11	105.104	
10,800.00	6,936.34	3,253.00	2,925.31	69.59	24.19	35.73	1,316.42	-1,317.12	5,523.25	5,470.45	52.80	104.599	
10,900.00	6,936.01	3,253.00	2,925.31	71.03	24.19	35.73	1,316.42	-1,317.12	5,570.95	5,517.47	53.48	104.168	
11,000.00	6,935.69	3,253.00	2,925.31	72.47	24.19	35.73	1,316.42	-1,317.12	5,620.02	5,565.88	54.14	103.808	
11,100.00	6,935.37	3,253.00	2,925.31	73.92	24.19	35.73	1,316.42	-1,317.12	5,670.43	5,615.65	54.78	103.515	
11,200.00	6,935.05	3,253.00	2,925.31	75.38	24.19	35.73	1,316.42	-1,317.12	5,722.14	5,666.74	55.40	103.287	
11,300.00	6,934.72	3,253.00	2,925.31	76.84	24.19	35.73	1,316.42	-1,317.12	5,775.12	5,719.12	56.00	103.118	
11,400.00	6,934.40	3,253.00	2,925.31	78.31	24.19	35.73	1,316.42	-1,317.12	5,829.34	5,772.75	56.59	103.008	
11,500.00	6,934.08	3,253.00	2,925.31	79.79	24.19	35.73	1,316.42	-1,317.12	5,884.75	5,827.59	57.16	102.952	
11,600.00	6,933.75	3,253.00	2,925.31	81.27	24.19	35.73	1,316.42	-1,317.12	5,941.34	5,883.62	57.71	102.948	
11,700.00	6,933.43	3,253.00	2,925.31	82.75	24.19	35.73	1,316.42	-1,317.12	5,999.05	5,940.80	58.25	102.994	
11,800.00	6,933.11	3,253.00	2,925.31	84.24	24.19	35.73	1,316.42	-1,317.12	6,057.87	5,999.10	58.77	103.086	
11,900.00	6,932.78	3,253.00	2,925.31	85.73	24.19	35.73	1,316.42	-1,317.12	6,117.75	6,058.49	59.27	103.223	
12,000.00	6,932.46	3,253.00	2,925.31	87.23	24.19	35.73	1,316.42	-1,317.12	6,178.68	6,118.92	59.75	103.403	
12,100.00	6,932.14	3,253.00	2,925.31	88.72	24.19	35.73	1,316.42	-1,317.12	6,240.61	6,180.38	60.22	103.623	
12,200.00	6,931.81	3,253.00	2,925.31	90.23	24.19	35.73	1,316.42	-1,317.12	6,303.52	6,242.84	60.68	103.882	
12,300.00	6,931.49	3,253.00	2,925.31	91.74	24.19	35.73	1,316.42	-1,317.12	6,367.38	6,306.25	61.12	104.177	
12,400.00	6,931.17	3,253.00	2,925.31	93.25	24.19	35.73	1,316.42	-1,317.12	6,432.15	6,370.61	61.55	104.507	
12,500.00	6,930.85	3,253.00	2,925.31	94.76	24.19	35.73	1,316.42	-1,317.12	6,497.83	6,435.87	61.96	104.871	
12,600.00	6,930.52	3,253.00	2,925.31	96.27	24.19	35.73	1,316.42	-1,317.12	6,564.37	6,502.01	62.36	105.266	
12,700.00	6,930.20	3,253.00	2,925.31	97.79	24.19	35.73	1,316.42	-1,317.12	6,631.74	6,569.00	62.75	105.691	
12,800.00	6,929.88	3,253.00	2,925.31	99.32	24.19	35.73	1,316.42	-1,317.12	6,699.94	6,636.82	63.12	106.146	
12,900.00	6,929.55	3,253.00	2,925.31	100.84	24.19	35.73	1,316.42	-1,317.12	6,768.92	6,705.44	63.48	106.627	
13,000.00	6,929.23	3,253.00	2,925.31	102.37	24.19	35.73	1,316.42	-1,317.12	6,838.67	6,774.84	63.83	107.136	
13,100.00	6,928.91	3,253.00	2,925.31	103.89	24.19	35.73	1,316.42	-1,317.12	6,909.17	6,845.00	64.17	107.669	
13,200.00	6,928.58	3,253.00	2,925.31	105.43	24.19	35.73	1,316.42	-1,317.12	6,980.38	6,915.88	64.50	108.226	
13,300.00	6,928.26	3,253.00	2,925.31	106.96	24.19	35.73	1,316.42	-1,317.12	7,052.30	6,987.48	64.82	108.806	
13,400.00	6,927.94	3,253.00	2,925.31	108.49	24.19	35.73	1,316.42	-1,317.12	7,124.89	7,059.77	65.12	109.408	
13,500.00	6,927.61	3,253.00	2,925.31	110.03	24.19	35.73	1,316.42	-1,317.12	7,198.14	7,132.72	65.42	110.031	
13,600.00	6,927.29	3,253.00	2,925.31	111.57	24.19	35.73	1,316.42	-1,317.12	7,272.02	7,206.32	65.71	110.674	
13,700.00	6,926.97	3,253.00	2,925.31	113.11	24.19	35.73	1,316.42	-1,317.12	7,346.53	7,280.54	65.99	111.336	
13,800.00	6,926.65	3,253.00	2,925.31	114.65	24.19	35.73	1,316.42	-1,317.12	7,421.63	7,355.38	66.26	112.016	
13,900.00	6,926.32	3,253.00	2,925.31	116.20	24.19	35.73	1,316.42	-1,317.12	7,497.32	7,430.80	66.52	112.714	
14,000.00	6,926.00	3,253.00	2,925.31	117.75	24.19	35.73	1,316.42	-1,317.12	7,573.56	7,506.79	66.77	113.428	
14,100.00	6,925.68	3,253.00	2,925.31	119.29	24.19	35.73	1,316.42	-1,317.12	7,650.36	7,583.35	67.02	114.159	
14,200.00	6,925.35	3,253.00	2,925.31	120.84	24.19	35.73	1,316.42	-1,317.12	7,727.69	7,660.44	67.25	114.905	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #228A - OH - OH-SVY — **Offset Site Error:** 0.00 usft

Survey Program: 352-APC_ISCWSA REV 2 MWD — **Rule Assigned:** — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,300.00	6,925.03	3,253.00	2,925.31	122.39	24.19	35.73	1,316.42	-1,317.12	7,805.53	7,738.05	67.48	115.665	
14,400.00	6,924.71	3,253.00	2,925.31	123.94	24.19	35.73	1,316.42	-1,317.12	7,883.87	7,816.17	67.71	116.440	
14,500.00	6,924.38	3,253.00	2,925.31	125.50	24.19	35.73	1,316.42	-1,317.12	7,962.70	7,894.78	67.92	117.228	
14,600.00	6,924.06	3,253.00	2,925.31	127.05	24.19	35.73	1,316.42	-1,317.12	8,042.00	7,973.86	68.14	118.029	
14,700.00	6,923.74	3,253.00	2,925.31	128.61	24.19	35.73	1,316.42	-1,317.12	8,121.75	8,053.41	68.34	118.843	
14,800.00	6,923.42	3,253.00	2,925.31	130.16	24.19	35.73	1,316.42	-1,317.12	8,201.95	8,133.41	68.54	119.668	
14,900.00	6,923.09	3,253.00	2,925.31	131.72	24.19	35.73	1,316.42	-1,317.12	8,282.58	8,213.85	68.73	120.505	
15,000.00	6,922.77	3,253.00	2,925.31	133.28	24.19	35.73	1,316.42	-1,317.12	8,363.63	8,294.71	68.92	121.353	
15,100.00	6,922.45	3,253.00	2,925.31	134.84	24.19	35.73	1,316.42	-1,317.12	8,445.08	8,375.98	69.10	122.211	
15,200.00	6,922.12	3,253.00	2,925.31	136.40	24.19	35.73	1,316.42	-1,317.12	8,526.93	8,457.65	69.28	123.079	
15,300.00	6,921.80	3,253.00	2,925.31	137.96	24.19	35.73	1,316.42	-1,317.12	8,609.17	8,539.71	69.45	123.956	
15,400.00	6,921.48	3,253.00	2,925.31	139.53	24.19	35.73	1,316.42	-1,317.12	8,691.77	8,622.15	69.62	124.843	
15,500.00	6,921.15	3,253.00	2,925.31	141.09	24.19	35.73	1,316.42	-1,317.12	8,774.74	8,704.95	69.79	125.739	
15,600.00	6,920.83	3,253.00	2,925.31	142.65	24.19	35.73	1,316.42	-1,317.12	8,858.06	8,788.11	69.94	126.643	
15,700.00	6,920.51	3,253.00	2,925.31	144.22	24.19	35.73	1,316.42	-1,317.12	8,941.72	8,871.62	70.10	127.555	
15,800.00	6,920.18	3,253.00	2,925.31	145.79	24.19	35.73	1,316.42	-1,317.12	9,025.71	8,955.46	70.25	128.475	
15,900.00	6,919.86	3,253.00	2,925.31	147.35	24.19	35.73	1,316.42	-1,317.12	9,110.03	9,039.63	70.40	129.403	
16,000.00	6,919.54	3,253.00	2,925.31	148.92	24.19	35.73	1,316.42	-1,317.12	9,194.66	9,124.11	70.55	130.337	
16,100.00	6,919.22	3,253.00	2,925.31	150.49	24.19	35.73	1,316.42	-1,317.12	9,279.59	9,208.91	70.69	131.279	
16,200.00	6,918.89	3,253.00	2,925.31	152.06	24.19	35.73	1,316.42	-1,317.12	9,364.83	9,294.00	70.82	132.226	
16,300.00	6,918.57	3,253.00	2,925.31	153.63	24.19	35.73	1,316.42	-1,317.12	9,450.35	9,379.39	70.96	133.181	
16,400.00	6,918.25	3,253.00	2,925.31	155.20	24.19	35.73	1,316.42	-1,317.12	9,536.16	9,465.07	71.09	134.141	
16,500.00	6,917.92	3,253.00	2,925.31	156.77	24.19	35.73	1,316.42	-1,317.12	9,622.24	9,551.02	71.22	135.106	
16,600.00	6,917.60	3,253.00	2,925.31	158.34	24.19	35.73	1,316.42	-1,317.12	9,708.58	9,637.24	71.35	136.078	
16,700.00	6,917.28	3,253.00	2,925.31	159.92	24.19	35.73	1,316.42	-1,317.12	9,795.19	9,723.72	71.47	137.054	
16,800.00	6,916.95	3,253.00	2,925.31	161.49	24.19	35.73	1,316.42	-1,317.12	9,882.05	9,810.46	71.59	138.036	
16,900.00	6,916.63	3,253.00	2,925.31	163.06	24.19	35.73	1,316.42	-1,317.12	9,969.15	9,897.44	71.71	139.022	
17,000.00	6,916.31	3,253.00	2,925.31	164.64	24.19	35.73	1,316.42	-1,317.12	10,056.50	9,984.67	71.83	140.013	
17,100.00	6,915.98	3,253.00	2,925.31	166.21	24.19	35.73	1,316.42	-1,317.12	10,144.08	10,072.14	71.94	141.008	
17,200.00	6,915.66	3,253.00	2,925.31	167.79	24.19	35.73	1,316.42	-1,317.12	10,231.88	10,159.83	72.05	142.007	
17,300.00	6,915.34	3,253.00	2,925.31	169.37	24.19	35.73	1,316.42	-1,317.12	10,319.91	10,247.75	72.16	143.011	
17,400.00	6,915.02	3,253.00	2,925.31	170.94	24.19	35.73	1,316.42	-1,317.12	10,408.16	10,335.89	72.27	144.018	
17,500.00	6,914.69	3,253.00	2,925.31	172.52	24.19	35.73	1,316.42	-1,317.12	10,496.61	10,424.24	72.38	145.029	
17,600.00	6,914.37	3,253.00	2,925.31	174.10	24.19	35.73	1,316.42	-1,317.12	10,585.27	10,512.79	72.48	146.043	
17,700.00	6,914.05	3,253.00	2,925.31	175.68	24.19	35.73	1,316.42	-1,317.12	10,674.13	10,601.55	72.58	147.060	
17,800.00	6,913.72	3,253.00	2,925.31	177.25	24.19	35.73	1,316.42	-1,317.12	10,763.19	10,690.51	72.68	148.081	
17,900.00	6,913.40	3,253.00	2,925.31	178.83	24.19	35.73	1,316.42	-1,317.12	10,852.44	10,779.65	72.78	149.104	
18,000.00	6,913.08	3,253.00	2,925.31	180.41	24.19	35.73	1,316.42	-1,317.12	10,941.87	10,868.99	72.88	150.130	
18,023.75	6,913.00	3,253.00	2,925.31	180.79	24.19	35.73	1,316.42	-1,317.12	10,963.14	10,890.24	72.91	150.375	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - Rosa Unit 700H - OH - Prelim 7 — **Offset Site Error:** 0.00 usft

Survey Program: 0-MWD+HRGM+MS — **Rule Assigned:** — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	-35.37	40.78	-28.94	50.00				
100.00	100.00	100.00	100.00	0.25	0.25	-35.37	40.78	-28.94	50.00	49.50	0.50	99.635	
200.00	200.00	200.00	200.00	0.61	0.61	-35.37	40.78	-28.94	50.00	48.78	1.22	41.026	
300.00	300.00	300.00	300.00	0.97	0.97	-35.37	40.78	-28.94	50.00	48.07	1.94	25.831	
400.00	400.00	400.00	400.00	1.33	1.33	-35.37	40.78	-28.94	50.00	47.35	2.65	18.850	
500.00	500.00	500.00	500.00	1.68	1.68	-35.37	40.78	-28.94	50.00	46.63	3.37	14.839	CC, ES
600.00	599.98	598.71	598.69	2.03	2.04	147.10	42.44	-28.59	52.64	48.58	4.07	12.948	
700.00	699.84	696.73	696.57	2.36	2.39	153.02	47.38	-27.54	61.03	56.27	4.75	12.836	
800.00	799.45	793.36	792.85	2.71	2.74	159.81	55.46	-25.82	75.98	70.54	5.45	13.953	
900.00	898.70	887.98	886.80	3.06	3.09	165.67	66.43	-23.49	97.93	91.80	6.13	15.975	
1,000.00	997.47	980.00	977.75	3.43	3.43	170.15	80.02	-20.60	126.79	119.99	6.80	18.646	
1,100.00	1,095.62	1,068.89	1,065.16	3.82	3.77	173.41	95.85	-17.24	162.27	154.82	7.45	21.777	
1,207.83	1,200.65	1,164.99	1,159.19	4.26	4.15	175.99	115.23	-13.12	206.86	198.69	8.17	25.334	
1,300.00	1,290.02	1,247.82	1,240.21	4.65	4.48	177.57	132.07	-9.54	246.88	238.10	8.78	28.116	
1,400.00	1,386.98	1,337.69	1,328.12	5.09	4.85	178.79	150.35	-5.65	290.44	280.99	9.45	30.738	
1,500.00	1,483.95	1,427.56	1,416.03	5.53	5.23	179.69	168.63	-1.77	334.07	323.95	10.12	33.004	
1,600.00	1,580.91	1,517.43	1,503.93	5.99	5.60	-179.62	186.90	2.12	377.75	366.95	10.80	34.976	
1,700.00	1,677.87	1,607.30	1,591.84	6.44	5.98	-179.07	205.18	6.00	421.47	409.99	11.48	36.706	
1,800.00	1,774.84	1,697.17	1,679.75	6.90	6.36	-178.62	223.46	9.89	465.21	453.04	12.17	38.233	
1,900.00	1,871.80	1,787.05	1,767.65	7.36	6.74	-178.25	241.73	13.77	508.98	496.12	12.86	39.589	
2,000.00	1,968.76	1,876.92	1,855.56	7.83	7.13	-177.94	260.01	17.66	552.75	539.21	13.55	40.802	
2,100.00	2,065.73	1,966.79	1,943.47	8.30	7.51	-177.67	278.29	21.54	596.54	582.30	14.24	41.891	
2,200.00	2,162.69	2,056.66	2,031.38	8.77	7.90	-177.45	296.56	25.43	640.34	625.40	14.94	42.874	
2,300.00	2,259.65	2,146.53	2,119.28	9.24	8.28	-177.25	314.84	29.31	684.14	668.51	15.63	43.766	
2,400.00	2,356.61	2,236.40	2,207.19	9.71	8.67	-177.07	333.12	33.20	727.95	711.62	16.33	44.578	
2,500.00	2,453.58	2,326.27	2,295.10	10.18	9.06	-176.91	351.40	37.08	771.77	754.74	17.03	45.321	
2,600.00	2,550.54	2,416.14	2,383.01	10.66	9.45	-176.77	369.67	40.97	815.59	797.86	17.73	46.002	
2,700.00	2,647.50	2,506.01	2,470.91	11.13	9.84	-176.65	387.95	44.85	859.41	840.98	18.43	46.629	
2,800.00	2,744.47	2,595.89	2,558.82	11.61	10.23	-176.54	406.23	48.74	903.24	884.11	19.13	47.208	
2,900.00	2,841.43	2,685.76	2,646.73	12.08	10.62	-176.43	424.50	52.62	947.07	927.23	19.84	47.744	
3,000.00	2,938.39	2,775.63	2,734.63	12.56	11.01	-176.34	442.78	56.51	990.90	970.36	20.54	48.242	
3,100.00	3,035.36	2,865.50	2,822.54	13.04	11.40	-176.25	461.06	60.39	1,034.73	1,013.49	21.24	48.706	
3,200.00	3,132.32	2,955.37	2,910.45	13.51	11.79	-176.18	479.33	64.28	1,078.57	1,056.62	21.95	49.138	
3,300.00	3,229.28	3,045.24	2,998.36	13.99	12.19	-176.10	497.61	68.16	1,122.40	1,099.75	22.66	49.542	
3,400.00	3,326.25	3,135.11	3,086.26	14.47	12.58	-176.04	515.89	72.05	1,166.24	1,142.88	23.36	49.920	
3,500.00	3,423.21	3,224.98	3,174.17	14.95	12.97	-175.97	534.16	75.93	1,210.08	1,186.01	24.07	50.276	
3,600.00	3,520.17	3,314.85	3,262.08	15.43	13.36	-175.92	552.44	79.82	1,253.92	1,229.14	24.78	50.610	
3,700.00	3,617.13	3,404.73	3,349.98	15.91	13.76	-175.86	570.72	83.70	1,297.76	1,272.28	25.48	50.924	
3,800.00	3,714.10	3,494.60	3,437.89	16.39	14.15	-175.81	589.00	87.59	1,341.60	1,315.41	26.19	51.221	
3,900.00	3,811.06	3,584.47	3,525.80	16.87	14.54	-175.77	607.27	91.47	1,385.44	1,358.54	26.90	51.501	
4,000.00	3,908.02	3,674.34	3,613.71	17.35	14.93	-175.72	625.55	95.36	1,429.29	1,401.68	27.61	51.767	
4,100.00	4,004.99	3,764.21	3,701.61	17.83	15.33	-175.68	643.83	99.24	1,473.13	1,444.81	28.32	52.018	
4,200.00	4,101.95	3,854.08	3,789.52	18.31	15.72	-175.64	662.10	103.13	1,516.98	1,487.95	29.03	52.256	
4,300.00	4,198.91	3,943.95	3,877.43	18.79	16.12	-175.60	680.38	107.01	1,560.82	1,531.08	29.74	52.482	
4,400.00	4,295.88	4,033.82	3,965.34	19.27	16.51	-175.57	698.66	110.90	1,604.67	1,574.22	30.45	52.698	
4,500.00	4,392.84	4,123.69	4,053.24	19.75	16.90	-175.54	716.93	114.78	1,648.51	1,617.35	31.16	52.903	
4,600.00	4,489.80	4,213.57	4,141.15	20.23	17.30	-175.50	735.21	118.67	1,692.36	1,660.49	31.87	53.098	
4,700.00	4,586.76	4,303.44	4,229.06	20.71	17.69	-175.47	753.49	122.55	1,736.21	1,703.62	32.58	53.284	
4,800.00	4,683.73	4,393.31	4,316.96	21.20	18.08	-175.45	771.76	126.44	1,780.05	1,746.76	33.30	53.462	
4,900.00	4,780.69	4,483.18	4,404.87	21.68	18.48	-175.42	790.04	130.32	1,823.90	1,789.89	34.01	53.631	
5,000.00	4,877.65	4,573.05	4,492.78	22.16	18.87	-175.39	808.32	134.21	1,867.75	1,833.03	34.72	53.794	
5,100.00	4,974.62	4,662.92	4,580.69	22.64	19.27	-175.37	826.60	138.09	1,911.60	1,876.16	35.43	53.949	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - Rosa Unit 700H - OH - Prelim 7 — **Offset Site Error:** 0.00 usft

Survey Program: 0-MWD+HRGM+MS — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,200.00	5,071.58	4,752.79	4,668.59	23.12	19.66	-175.34	844.87	141.98	1,955.44	1,919.30	36.15	54.098	
5,300.00	5,168.54	4,842.66	4,756.50	23.60	20.06	-175.32	863.15	145.86	1,999.29	1,962.43	36.86	54.240	
5,400.00	5,265.51	4,932.53	4,844.41	24.09	20.45	-175.30	881.43	149.74	2,043.14	2,005.57	37.57	54.377	
5,500.00	5,362.47	5,022.41	4,932.32	24.57	20.85	-175.28	899.70	153.63	2,086.99	2,048.70	38.29	54.509	
5,600.00	5,459.43	5,112.28	5,020.22	25.05	21.24	-175.26	917.98	157.51	2,130.84	2,091.84	39.00	54.635	
5,700.00	5,556.40	5,202.15	5,108.13	25.53	21.64	-175.24	936.26	161.40	2,174.69	2,134.97	39.72	54.756	
5,800.00	5,653.36	5,292.02	5,196.04	26.01	22.03	-175.22	954.53	165.28	2,218.54	2,178.11	40.43	54.872	
5,900.00	5,750.32	5,381.89	5,283.94	26.50	22.42	-175.21	972.81	169.17	2,262.39	2,221.24	41.15	54.985	
6,000.00	5,847.28	5,471.76	5,371.85	26.98	22.82	-175.19	991.09	173.05	2,306.24	2,264.38	41.86	55.092	
6,100.00	5,944.25	5,561.63	5,459.76	27.46	23.21	-175.17	1,009.36	176.94	2,350.09	2,307.51	42.58	55.196	
6,200.00	6,041.21	5,651.50	5,547.67	27.94	23.61	-175.16	1,027.64	180.82	2,393.94	2,350.65	43.29	55.297	
6,300.00	6,138.17	5,741.38	5,635.57	28.43	24.00	-175.14	1,045.92	184.71	2,437.79	2,393.78	44.01	55.393	
6,400.00	6,235.14	5,831.25	5,723.48	28.91	24.40	-175.13	1,064.20	188.59	2,481.64	2,436.91	44.73	55.486	
6,496.84	6,329.04	5,918.28	5,808.61	29.38	24.78	-175.11	1,081.90	192.36	2,524.11	2,478.69	45.42	55.573	
6,500.00	6,332.10	5,921.12	5,811.39	29.39	24.79	-176.38	1,082.47	192.48	2,525.49	2,480.05	45.44	55.576	
6,550.00	6,380.52	5,965.91	5,855.20	29.63	24.99	164.28	1,091.58	194.41	2,547.55	2,501.75	45.80	55.626	
6,600.00	6,428.63	6,010.24	5,898.56	29.87	25.19	147.85	1,100.60	196.33	2,569.76	2,523.62	46.15	55.687	
6,650.00	6,476.14	6,053.84	5,941.21	30.10	25.38	135.04	1,109.46	198.22	2,592.02	2,545.54	46.49	55.760	
6,700.00	6,522.73	6,096.44	5,982.88	30.33	25.56	125.27	1,118.13	200.06	2,614.23	2,567.42	46.81	55.846	
6,750.00	6,568.14	6,137.79	6,023.32	30.54	25.75	117.70	1,126.54	201.84	2,636.31	2,589.19	47.12	55.946	
6,800.00	6,612.08	6,177.61	6,062.28	30.75	25.92	111.70	1,134.64	203.57	2,658.20	2,610.78	47.42	56.059	
6,850.00	6,654.28	6,215.68	6,099.51	30.95	26.09	106.80	1,142.38	205.21	2,679.83	2,632.14	47.70	56.184	
6,900.00	6,694.47	6,251.74	6,134.79	31.15	26.25	102.70	1,149.71	206.77	2,701.17	2,653.21	47.96	56.323	
6,950.00	6,732.42	6,285.59	6,167.90	31.33	26.40	99.21	1,156.60	208.23	2,722.18	2,673.97	48.20	56.474	
7,000.00	6,767.89	6,317.02	6,198.64	31.51	26.53	96.17	1,162.99	209.59	2,742.81	2,694.38	48.43	56.636	
7,050.00	6,800.65	6,345.82	6,226.81	31.68	26.66	93.48	1,168.84	210.84	2,763.04	2,714.40	48.64	56.809	
7,100.00	6,830.51	6,371.82	6,252.24	31.85	26.78	91.06	1,174.13	211.96	2,782.83	2,734.01	48.83	56.992	
7,150.00	6,857.28	6,394.86	6,274.78	32.01	26.88	88.88	1,178.82	212.96	2,802.17	2,753.16	49.00	57.183	
7,200.00	6,880.80	7,453.80	6,935.81	32.17	29.88	93.12	1,292.32	-447.45	2,813.00	2,758.70	54.29	51.811	
7,250.00	6,900.92	7,499.42	6,935.76	32.33	30.06	91.95	1,290.73	-493.04	2,815.99	2,761.28	54.70	51.477	
7,300.00	6,917.52	7,546.49	6,935.71	32.49	30.27	91.03	1,289.09	-540.08	2,818.20	2,763.04	55.16	51.088	
7,350.00	6,930.50	7,594.73	6,935.66	32.66	30.50	90.34	1,287.40	-588.29	2,819.56	2,763.92	55.64	50.674	
7,400.00	6,939.77	7,643.84	6,935.61	32.83	30.75	89.91	1,285.69	-637.37	2,820.00	2,763.83	56.17	50.204	
7,450.00	6,945.28	7,693.51	6,935.56	33.01	31.03	89.72	1,283.96	-687.01	2,819.48	2,762.76	56.72	49.709	
7,499.66	6,947.00	7,743.11	6,935.51	33.19	31.32	89.77	1,282.22	-736.58	2,818.00	2,760.69	57.31	49.170	
7,600.00	6,946.68	7,843.37	6,935.40	33.61	31.97	89.78	1,278.73	-836.78	2,814.05	2,755.44	58.60	48.020	
7,700.00	6,946.35	7,943.29	6,935.30	34.10	32.69	89.78	1,275.24	-936.64	2,810.10	2,750.07	60.03	46.811	
7,800.00	6,946.03	8,043.21	6,935.19	34.66	33.47	89.79	1,271.75	-1,036.50	2,806.15	2,744.56	61.59	45.559	
7,900.00	6,945.71	8,143.14	6,935.09	35.29	34.30	89.79	1,268.26	-1,136.36	2,802.21	2,738.93	63.28	44.282	
8,000.00	6,945.38	8,243.06	6,934.98	35.99	35.19	89.79	1,264.78	-1,236.22	2,798.26	2,733.18	65.08	42.996	
8,100.00	6,945.06	8,342.98	6,934.88	36.74	36.12	89.80	1,261.29	-1,336.08	2,794.32	2,727.33	66.99	41.715	
8,200.00	6,944.74	8,442.90	6,934.77	37.56	37.10	89.80	1,257.80	-1,435.94	2,790.37	2,721.38	68.99	40.447	
8,300.00	6,944.41	8,542.82	6,934.67	38.43	38.12	89.81	1,254.32	-1,535.80	2,786.43	2,715.35	71.08	39.203	
8,400.00	6,944.09	8,642.74	6,934.56	39.35	39.18	89.81	1,250.83	-1,635.66	2,782.48	2,709.23	73.25	37.987	
8,500.00	6,943.77	8,742.67	6,934.46	40.31	40.28	89.82	1,247.34	-1,735.52	2,778.54	2,703.05	75.49	36.806	
8,600.00	6,943.45	8,842.59	6,934.35	41.32	41.40	89.82	1,243.85	-1,835.39	2,774.59	2,696.79	77.80	35.663	
8,700.00	6,943.12	8,942.51	6,934.25	42.37	42.56	89.82	1,240.37	-1,935.25	2,770.65	2,690.47	80.17	34.558	
8,800.00	6,942.80	9,042.43	6,934.14	43.45	43.74	89.83	1,236.88	-2,035.11	2,766.70	2,684.10	82.60	33.495	
8,900.00	6,942.48	9,142.35	6,934.04	44.57	44.95	89.83	1,233.39	-2,134.97	2,762.75	2,677.67	85.08	32.472	
9,000.00	6,942.15	9,242.28	6,933.94	45.71	46.18	89.84	1,229.91	-2,234.83	2,758.81	2,671.20	87.61	31.491	
9,100.00	6,941.83	9,342.20	6,933.83	46.89	47.44	89.84	1,226.42	-2,334.69	2,754.86	2,664.69	90.18	30.550	
9,200.00	6,941.51	9,442.12	6,933.73	48.09	48.71	89.85	1,222.93	-2,434.55	2,750.92	2,658.13	92.78	29.649	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - Rosa Unit 700H - OH - Prelim 7 — **Offset Site Error:** 0.00 usft

Survey Program: 0-MWD+HRGM+MS — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Rule Assigned: Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,300.00	6,941.18	9,542.04	6,933.62	49.31	50.00	89.85	1,219.44	-2,534.41	2,746.97	2,651.54	95.43	28.785	
9,400.00	6,940.86	9,641.96	6,933.52	50.56	51.31	89.85	1,215.96	-2,634.27	2,743.03	2,644.92	98.11	27.960	
9,500.00	6,940.54	9,741.89	6,933.41	51.82	52.64	89.86	1,212.47	-2,734.14	2,739.08	2,638.27	100.82	27.169	
9,600.00	6,940.21	9,841.81	6,933.31	53.11	53.98	89.86	1,208.98	-2,834.00	2,735.14	2,631.59	103.55	26.413	
9,700.00	6,939.89	9,941.73	6,933.20	54.41	55.33	89.87	1,205.50	-2,933.86	2,731.19	2,624.88	106.32	25.690	
9,800.00	6,939.57	10,041.65	6,933.10	55.73	56.70	89.87	1,202.01	-3,033.72	2,727.25	2,618.15	109.10	24.997	
9,900.00	6,939.25	10,141.57	6,932.99	57.07	58.07	89.88	1,198.52	-3,133.58	2,723.30	2,611.39	111.91	24.335	
10,000.00	6,938.92	10,241.50	6,932.89	58.41	59.46	89.88	1,195.03	-3,233.44	2,719.36	2,604.62	114.74	23.700	
10,100.00	6,938.60	10,341.42	6,932.78	59.77	60.86	89.88	1,191.55	-3,333.30	2,715.41	2,597.82	117.59	23.092	
10,200.00	6,938.28	10,441.34	6,932.68	61.15	62.27	89.89	1,188.06	-3,433.16	2,711.47	2,591.01	120.46	22.510	
10,300.00	6,937.95	10,541.26	6,932.58	62.53	63.69	89.89	1,184.57	-3,533.02	2,707.52	2,584.18	123.34	21.952	
10,400.00	6,937.63	10,641.18	6,932.47	63.92	65.11	89.90	1,181.09	-3,632.88	2,703.58	2,577.34	126.24	21.417	
10,500.00	6,937.31	10,741.11	6,932.37	65.33	66.55	89.90	1,177.60	-3,732.75	2,699.63	2,570.48	129.15	20.903	
10,600.00	6,936.98	10,841.03	6,932.26	66.74	67.99	89.91	1,174.11	-3,832.61	2,695.69	2,563.61	132.08	20.410	
10,700.00	6,936.66	10,940.95	6,932.16	68.16	69.44	89.91	1,170.62	-3,932.47	2,691.74	2,556.73	135.02	19.937	
10,800.00	6,936.34	11,040.87	6,932.05	69.59	70.89	89.92	1,167.14	-4,032.33	2,687.80	2,549.83	137.97	19.482	
10,900.00	6,936.01	11,140.79	6,931.95	71.03	72.35	89.92	1,163.65	-4,132.19	2,683.85	2,542.93	140.93	19.044	
11,000.00	6,935.69	11,240.72	6,931.84	72.47	73.82	89.92	1,160.16	-4,232.05	2,679.91	2,536.01	143.90	18.624	
11,100.00	6,935.37	11,340.64	6,931.74	73.92	75.29	89.93	1,156.68	-4,331.91	2,675.96	2,529.08	146.88	18.219	
11,200.00	6,935.05	11,440.56	6,931.63	75.38	76.76	89.93	1,153.19	-4,431.77	2,672.02	2,522.15	149.87	17.829	
11,300.00	6,934.72	11,540.48	6,931.53	76.84	78.25	89.94	1,149.70	-4,531.63	2,668.07	2,515.20	152.87	17.453	
11,400.00	6,934.40	11,640.40	6,931.42	78.31	79.73	89.94	1,146.21	-4,631.49	2,664.13	2,508.25	155.88	17.091	
11,500.00	6,934.08	11,740.32	6,931.32	79.79	81.22	89.95	1,142.73	-4,731.36	2,660.18	2,501.29	158.89	16.742	
11,600.00	6,933.75	11,840.25	6,931.22	81.27	82.72	89.95	1,139.24	-4,831.22	2,656.24	2,494.32	161.91	16.405	
11,700.00	6,933.43	11,940.17	6,931.11	82.75	84.21	89.96	1,135.75	-4,931.08	2,652.29	2,487.35	164.94	16.080	
11,800.00	6,933.11	12,040.09	6,931.01	84.24	85.72	89.96	1,132.27	-5,030.94	2,648.35	2,480.37	167.98	15.766	
11,900.00	6,932.78	12,140.01	6,930.90	85.73	87.22	89.97	1,128.78	-5,130.80	2,644.40	2,473.38	171.02	15.463	
12,000.00	6,932.46	12,239.93	6,930.80	87.23	88.73	89.97	1,125.29	-5,230.66	2,640.46	2,466.39	174.07	15.169	
12,100.00	6,932.14	12,339.86	6,930.69	88.72	90.24	89.98	1,121.81	-5,330.52	2,636.51	2,459.40	177.12	14.886	
12,200.00	6,931.81	12,439.78	6,930.59	90.23	91.76	89.98	1,118.32	-5,430.38	2,632.57	2,452.39	180.18	14.611	
12,300.00	6,931.49	12,539.70	6,930.48	91.74	93.27	89.99	1,114.83	-5,530.24	2,628.62	2,445.39	183.24	14.345	
12,400.00	6,931.17	12,639.62	6,930.38	93.25	94.79	89.99	1,111.34	-5,630.10	2,624.68	2,438.37	186.31	14.088	
12,500.00	6,930.85	12,739.54	6,930.27	94.76	96.32	89.99	1,107.86	-5,729.97	2,620.73	2,431.36	189.38	13.839	
12,600.00	6,930.52	12,839.47	6,930.17	96.27	97.84	90.00	1,104.37	-5,829.83	2,616.79	2,424.34	192.45	13.597	
12,700.00	6,930.20	12,939.39	6,930.06	97.79	99.37	90.00	1,100.88	-5,929.69	2,612.85	2,417.31	195.53	13.363	
12,800.00	6,929.88	13,008.91	6,929.99	99.32	100.43	90.01	1,098.46	-5,999.17	2,609.08	2,410.93	198.14	13.168	
12,900.00	6,929.55	13,077.15	6,929.92	100.84	101.48	90.01	1,096.89	-6,067.39	2,606.51	2,405.80	200.71	12.986	
12,985.54	6,929.28	13,121.94	6,929.88	102.15	102.17	90.01	1,096.74	-6,112.18	2,605.84	2,403.19	202.65	12.859	
13,000.00	6,929.23	13,129.52	6,929.87	102.37	102.29	90.01	1,096.79	-6,119.75	2,605.86	2,402.89	202.97	12.839	
13,100.00	6,928.91	13,220.14	6,929.78	103.89	103.69	90.02	1,097.74	-6,210.37	2,606.45	2,400.55	205.90	12.659	
13,200.00	6,928.58	13,320.14	6,929.68	105.43	105.23	90.02	1,098.82	-6,310.37	2,607.07	2,398.07	209.00	12.474	
13,300.00	6,928.26	13,420.14	6,929.59	106.96	106.78	90.03	1,099.90	-6,410.36	2,607.70	2,395.59	212.10	12.295	
13,400.00	6,927.94	13,520.14	6,929.49	108.49	108.33	90.03	1,100.98	-6,510.35	2,608.32	2,393.11	215.21	12.120	
13,500.00	6,927.61	13,620.13	6,929.39	110.03	109.88	90.04	1,102.06	-6,610.34	2,608.94	2,390.62	218.32	11.950	
13,600.00	6,927.29	13,720.13	6,929.30	111.57	111.44	90.04	1,103.14	-6,710.33	2,609.57	2,388.14	221.43	11.785	
13,700.00	6,926.97	13,820.13	6,929.20	113.11	112.99	90.05	1,104.22	-6,810.33	2,610.19	2,385.64	224.55	11.624	
13,800.00	6,926.65	13,920.13	6,929.10	114.65	114.55	90.05	1,105.30	-6,910.32	2,610.82	2,383.15	227.67	11.468	
13,900.00	6,926.32	14,020.12	6,929.01	116.20	116.11	90.06	1,106.38	-7,010.31	2,611.44	2,380.65	230.79	11.315	
14,000.00	6,926.00	14,120.12	6,928.91	117.75	117.66	90.06	1,107.46	-7,110.30	2,612.06	2,378.15	233.91	11.167	
14,100.00	6,925.68	14,220.12	6,928.81	119.29	119.22	90.07	1,108.53	-7,210.29	2,612.69	2,375.65	237.04	11.022	
14,200.00	6,925.35	14,320.12	6,928.72	120.84	120.78	90.07	1,109.61	-7,310.28	2,613.31	2,373.15	240.16	10.881	
14,300.00	6,925.03	14,420.12	6,928.62	122.39	122.35	90.08	1,110.69	-7,410.28	2,613.94	2,370.64	243.29	10.744	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - Rosa Unit 700H - OH - Prelim 7

Offset Site Error: 0.00 usft

Survey Program: 0-MWD+HRGM+MS

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,400.00	6,924.71	14,520.11	6,928.52	123.94	123.91	90.08	1,111.77	-7,510.27	2,614.56	2,368.14	246.42	10.610	
14,500.00	6,924.38	14,620.11	6,928.43	125.50	125.47	90.09	1,112.85	-7,610.26	2,615.18	2,365.63	249.56	10.479	
14,600.00	6,924.06	14,720.11	6,928.33	127.05	127.04	90.09	1,113.93	-7,710.25	2,615.81	2,363.12	252.69	10.352	
14,700.00	6,923.74	14,820.11	6,928.23	128.61	128.61	90.10	1,115.01	-7,810.24	2,616.43	2,360.60	255.83	10.227	
14,800.00	6,923.42	14,920.10	6,928.14	130.16	130.17	90.10	1,116.09	-7,910.24	2,617.06	2,358.09	258.97	10.106	
14,900.00	6,923.09	15,020.10	6,928.04	131.72	131.74	90.11	1,117.17	-8,010.23	2,617.68	2,355.57	262.11	9.987	
15,000.00	6,922.77	15,120.10	6,927.94	133.28	133.31	90.11	1,118.25	-8,110.22	2,618.31	2,353.05	265.25	9.871	
15,100.00	6,922.45	15,220.10	6,927.85	134.84	134.88	90.12	1,119.32	-8,210.21	2,618.93	2,350.53	268.40	9.758	
15,200.00	6,922.12	15,320.10	6,927.75	136.40	136.45	90.12	1,120.40	-8,310.20	2,619.55	2,348.01	271.54	9.647	
15,300.00	6,921.80	15,420.09	6,927.65	137.96	138.02	90.13	1,121.48	-8,410.20	2,620.18	2,345.49	274.69	9.539	
15,400.00	6,921.48	15,520.09	6,927.56	139.53	139.59	90.13	1,122.56	-8,510.19	2,620.80	2,342.97	277.84	9.433	
15,500.00	6,921.15	15,620.09	6,927.46	141.09	141.16	90.14	1,123.64	-8,610.18	2,621.43	2,340.44	280.99	9.329	
15,600.00	6,920.83	15,720.09	6,927.36	142.65	142.74	90.14	1,124.72	-8,710.17	2,622.05	2,337.92	284.14	9.228	
15,700.00	6,920.51	15,820.08	6,927.27	144.22	144.31	90.15	1,125.80	-8,810.16	2,622.68	2,335.39	287.29	9.129	
15,800.00	6,920.18	15,920.08	6,927.17	145.79	145.89	90.15	1,126.88	-8,910.16	2,623.30	2,332.86	290.44	9.032	
15,900.00	6,919.86	16,020.08	6,927.07	147.35	147.46	90.16	1,127.96	-9,010.15	2,623.93	2,330.33	293.60	8.937	
16,000.00	6,919.54	16,120.08	6,926.97	148.92	149.04	90.16	1,129.04	-9,110.14	2,624.55	2,327.80	296.75	8.844	
16,100.00	6,919.22	16,220.08	6,926.88	150.49	150.61	90.17	1,130.11	-9,210.13	2,625.18	2,325.27	299.91	8.753	
16,200.00	6,918.89	16,320.07	6,926.78	152.06	152.19	90.17	1,131.19	-9,310.12	2,625.80	2,322.73	303.06	8.664	
16,300.00	6,918.57	16,420.07	6,926.68	153.63	153.77	90.18	1,132.27	-9,410.12	2,626.42	2,320.20	306.22	8.577	
16,400.00	6,918.25	16,520.07	6,926.59	155.20	155.35	90.18	1,133.35	-9,510.11	2,627.05	2,317.67	309.38	8.491	
16,500.00	6,917.92	16,620.07	6,926.49	156.77	156.93	90.19	1,134.43	-9,610.10	2,627.67	2,315.13	312.54	8.407	
16,600.00	6,917.60	16,720.07	6,926.39	158.34	158.51	90.19	1,135.51	-9,710.09	2,628.30	2,312.59	315.71	8.325	
16,700.00	6,917.28	16,820.06	6,926.30	159.92	160.09	90.20	1,136.59	-9,810.08	2,628.92	2,310.06	318.87	8.245	
16,800.00	6,916.95	16,920.06	6,926.20	161.49	161.67	90.20	1,137.67	-9,910.08	2,629.55	2,307.52	322.03	8.166	
16,900.00	6,916.63	17,020.06	6,926.10	163.06	163.25	90.21	1,138.75	-10,010.07	2,630.17	2,304.98	325.20	8.088	
17,000.00	6,916.31	17,120.06	6,926.01	164.64	164.83	90.21	1,139.83	-10,110.06	2,630.80	2,302.44	328.36	8.012	
17,100.00	6,915.98	17,220.05	6,925.91	166.21	166.41	90.21	1,140.90	-10,210.05	2,631.42	2,299.90	331.53	7.937	
17,200.00	6,915.66	17,320.05	6,925.81	167.79	167.99	90.22	1,141.98	-10,310.04	2,632.05	2,297.35	334.69	7.864	
17,300.00	6,915.34	17,420.05	6,925.72	169.37	169.57	90.22	1,143.06	-10,410.03	2,632.67	2,294.81	337.86	7.792	
17,400.00	6,915.02	17,520.05	6,925.62	170.94	171.16	90.23	1,144.14	-10,510.03	2,633.30	2,292.27	341.03	7.722	
17,500.00	6,914.69	17,620.05	6,925.52	172.52	172.74	90.23	1,145.22	-10,610.02	2,633.92	2,289.72	344.20	7.652	
17,600.00	6,914.37	17,720.04	6,925.43	174.10	174.32	90.24	1,146.30	-10,710.01	2,634.55	2,287.18	347.37	7.584	
17,700.00	6,914.05	17,820.04	6,925.33	175.68	175.91	90.24	1,147.38	-10,810.00	2,635.17	2,284.63	350.54	7.518	
17,800.00	6,913.72	17,920.04	6,925.23	177.25	177.49	90.25	1,148.46	-10,909.99	2,635.80	2,282.09	353.71	7.452	
17,900.00	6,913.40	18,020.04	6,925.14	178.83	179.08	90.25	1,149.54	-11,009.99	2,636.42	2,279.54	356.88	7.387	
18,000.00	6,913.08	18,120.03	6,925.04	180.41	180.66	90.26	1,150.62	-11,109.98	2,637.05	2,276.99	360.05	7.324	
18,023.75	6,913.00	18,143.79	6,925.02	180.79	181.04	90.26	1,150.87	-11,133.73	2,637.19	2,276.39	360.80	7.309 SF	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - Rosa Unit 701H - OH - Prelim #2 — **Offset Site Error:** 0.00 usft

Survey Program: 0-MWD+HRGM+MS — **Rule Assigned:** — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	-35.64	20.39	-14.62	25.09				
100.00	100.00	100.00	100.00	0.25	0.25	-35.64	20.39	-14.62	25.09	24.58	0.50	49.987	
200.00	200.00	200.00	200.00	0.61	0.61	-35.64	20.39	-14.62	25.09	23.87	1.22	20.583	
300.00	300.00	300.00	300.00	0.97	0.97	-35.64	20.39	-14.62	25.09	23.15	1.94	12.960	
400.00	400.00	400.00	400.00	1.33	1.33	-35.64	20.39	-14.62	25.09	22.43	2.65	9.457	
500.00	500.00	500.00	500.00	1.68	1.68	-35.64	20.39	-14.62	25.09	21.72	3.37	7.445	CC, ES
600.00	599.98	599.98	599.98	2.03	2.04	146.58	20.39	-14.62	26.52	22.46	4.07	6.518	
700.00	699.84	699.84	699.84	2.36	2.40	151.87	20.39	-14.62	31.03	26.27	4.76	6.515	
800.00	799.45	799.45	799.45	2.71	2.76	157.86	20.39	-14.62	38.93	33.47	5.46	7.126	
900.00	898.70	898.70	898.70	3.06	3.11	163.02	20.39	-14.62	50.44	44.27	6.17	8.176	
1,000.00	997.47	997.47	997.47	3.43	3.47	166.94	20.39	-14.62	65.57	58.69	6.88	9.533	
1,100.00	1,095.62	1,098.24	1,098.22	3.82	3.81	169.41	18.75	-15.00	82.77	75.19	7.58	10.924	
1,207.83	1,200.65	1,205.07	1,204.95	4.26	4.16	170.81	14.21	-16.06	102.58	94.26	8.32	12.331	
1,300.00	1,290.02	1,295.34	1,295.12	4.65	4.46	171.77	10.24	-16.98	121.10	112.14	8.96	13.521	
1,400.00	1,386.98	1,393.28	1,392.96	5.09	4.79	172.53	5.93	-17.99	141.22	131.57	9.65	14.631	
1,500.00	1,483.95	1,491.22	1,490.80	5.53	5.13	173.10	1.61	-18.99	161.36	151.00	10.35	15.584	
1,600.00	1,580.91	1,589.16	1,588.65	5.99	5.46	173.54	-2.70	-19.99	181.50	170.44	11.06	16.409	
1,700.00	1,677.87	1,687.10	1,686.49	6.44	5.80	173.90	-7.01	-21.00	201.66	189.89	11.77	17.129	
1,800.00	1,774.84	1,785.04	1,784.33	6.90	6.14	174.19	-11.32	-22.00	221.83	209.34	12.49	17.762	
1,900.00	1,871.80	1,882.98	1,882.17	7.36	6.49	174.43	-15.63	-23.01	241.99	228.79	13.21	18.322	
2,000.00	1,968.76	1,980.92	1,980.01	7.83	6.83	174.63	-19.94	-24.01	262.17	248.24	13.93	18.822	
2,100.00	2,065.73	2,078.86	2,077.85	8.30	7.18	174.81	-24.26	-25.02	282.34	267.69	14.65	19.269	
2,200.00	2,162.69	2,176.80	2,175.69	8.77	7.52	174.96	-28.57	-26.02	302.52	287.14	15.38	19.672	
2,300.00	2,259.65	2,274.74	2,273.53	9.24	7.87	175.09	-32.88	-27.02	322.70	306.59	16.11	20.036	
2,400.00	2,356.61	2,372.68	2,371.37	9.71	8.22	175.21	-37.19	-28.03	342.88	326.04	16.83	20.367	
2,500.00	2,453.58	2,470.62	2,469.21	10.18	8.57	175.31	-41.50	-29.03	363.06	345.49	17.56	20.670	
2,600.00	2,550.54	2,568.56	2,567.05	10.66	8.92	175.40	-45.81	-30.04	383.24	364.94	18.30	20.947	
2,700.00	2,647.50	2,666.50	2,664.89	11.13	9.27	175.49	-50.12	-31.04	403.42	384.39	19.03	21.201	
2,800.00	2,744.47	2,764.44	2,762.73	11.61	9.62	175.56	-54.44	-32.05	423.61	403.84	19.76	21.436	
2,900.00	2,841.43	2,862.38	2,860.57	12.08	9.97	175.63	-58.75	-33.05	443.79	423.29	20.50	21.653	
3,000.00	2,938.39	2,960.33	2,958.41	12.56	10.33	175.70	-63.06	-34.05	463.98	442.74	21.23	21.855	
3,100.00	3,035.36	3,058.27	3,056.25	13.04	10.68	175.75	-67.37	-35.06	484.16	462.20	21.97	22.042	
3,200.00	3,132.32	3,156.21	3,154.09	13.51	11.03	175.81	-71.68	-36.06	504.35	481.64	22.70	22.216	
3,300.00	3,229.28	3,254.15	3,251.93	13.99	11.38	175.86	-75.99	-37.07	524.53	501.09	23.44	22.380	
3,400.00	3,326.25	3,352.09	3,349.77	14.47	11.74	175.90	-80.31	-38.07	544.72	520.54	24.17	22.532	
3,500.00	3,423.21	3,450.03	3,447.61	14.95	12.09	175.94	-84.62	-39.08	564.91	539.99	24.91	22.676	
3,600.00	3,520.17	3,547.97	3,545.45	15.43	12.44	175.98	-88.93	-40.08	585.09	559.44	25.65	22.810	
3,700.00	3,617.13	3,645.91	3,643.29	15.91	12.80	176.02	-93.24	-41.09	605.28	578.89	26.39	22.937	
3,800.00	3,714.10	3,743.85	3,741.13	16.39	13.15	176.05	-97.55	-42.09	625.47	598.34	27.13	23.057	
3,900.00	3,811.06	3,841.79	3,838.97	16.87	13.51	176.09	-101.86	-43.09	645.66	617.79	27.87	23.170	
4,000.00	3,908.02	3,939.73	3,936.81	17.35	13.86	176.12	-106.18	-44.10	665.84	637.24	28.61	23.277	
4,100.00	4,004.99	4,037.67	4,034.65	17.83	14.21	176.14	-110.49	-45.10	686.03	656.69	29.34	23.378	
4,200.00	4,101.95	4,135.61	4,132.49	18.31	14.57	176.17	-114.80	-46.11	706.22	676.14	30.08	23.474	
4,300.00	4,198.91	4,233.55	4,230.33	18.79	14.92	176.20	-119.11	-47.11	726.41	695.58	30.82	23.566	
4,400.00	4,295.88	4,331.49	4,328.17	19.27	15.28	176.22	-123.42	-48.12	746.60	715.03	31.57	23.653	
4,500.00	4,392.84	4,429.43	4,426.01	19.75	15.63	176.24	-127.73	-49.12	766.79	734.48	32.31	23.735	
4,600.00	4,489.80	4,527.37	4,523.85	20.23	15.99	176.26	-132.04	-50.12	786.98	753.93	33.05	23.814	
4,700.00	4,586.76	4,625.31	4,621.70	20.71	16.34	176.28	-136.36	-51.13	807.17	773.38	33.79	23.889	
4,800.00	4,683.73	4,723.25	4,719.54	21.20	16.70	176.30	-140.67	-52.13	827.35	792.83	34.53	23.961	
4,900.00	4,780.69	4,821.19	4,817.38	21.68	17.05	176.32	-144.98	-53.14	847.54	812.27	35.27	24.030	
5,000.00	4,877.65	4,919.13	4,915.22	22.16	17.41	176.34	-149.29	-54.14	867.73	831.72	36.01	24.096	
5,100.00	4,974.62	5,017.07	5,013.06	22.64	17.76	176.36	-153.60	-55.15	887.92	851.17	36.75	24.159	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - Rosa Unit 701H - OH - Prelim #2

Offset Site Error: 0.00 usft

Survey Program: 0-MWD+HRGM+MS

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,200.00	5,071.58	5,115.01	5,110.90	23.12	18.12	176.37	-157.91	-56.15	908.11	870.62	37.49	24.220	
5,300.00	5,168.54	5,212.96	5,208.74	23.60	18.48	176.39	-162.23	-57.15	928.30	890.06	38.24	24.278	
5,400.00	5,265.51	5,310.90	5,306.58	24.09	18.83	176.40	-166.54	-58.16	948.49	909.51	38.98	24.333	
5,500.00	5,362.47	5,408.84	5,404.42	24.57	19.19	176.42	-170.85	-59.16	968.68	928.96	39.72	24.387	
5,600.00	5,459.43	5,506.78	5,502.26	25.05	19.54	176.43	-175.16	-60.17	988.87	948.41	40.46	24.438	
5,700.00	5,556.40	5,604.72	5,600.10	25.53	19.90	176.44	-179.47	-61.17	1,009.06	967.85	41.21	24.488	
5,800.00	5,653.36	5,702.66	5,697.94	26.01	20.25	176.46	-183.78	-62.18	1,029.25	987.30	41.95	24.536	
5,900.00	5,750.32	5,800.60	5,795.78	26.50	20.61	176.47	-188.10	-63.18	1,049.44	1,006.75	42.69	24.582	
6,000.00	5,847.28	5,898.54	5,893.62	26.98	20.97	176.48	-192.41	-64.18	1,069.63	1,026.19	43.43	24.626	
6,100.00	5,944.25	5,996.48	5,991.46	27.46	21.32	176.49	-196.72	-65.19	1,089.82	1,045.64	44.18	24.669	
6,200.00	6,041.21	6,094.42	6,089.30	27.94	21.68	176.50	-201.03	-66.19	1,110.01	1,065.09	44.92	24.710	
6,300.00	6,138.17	6,192.36	6,187.14	28.43	22.03	176.51	-205.34	-67.20	1,130.20	1,084.53	45.66	24.750	
6,400.00	6,235.14	6,290.30	6,284.98	28.91	22.39	176.52	-209.65	-68.20	1,150.39	1,103.98	46.41	24.789	
6,496.84	6,329.04	6,377.48	6,371.94	29.38	22.71	176.38	-213.47	-72.18	1,170.17	1,123.09	47.08	24.857	
6,500.00	6,332.10	6,380.22	6,374.66	29.39	22.72	175.18	-213.59	-72.49	1,170.83	1,123.73	47.10	24.860	
6,550.00	6,380.52	6,423.38	6,417.31	29.63	22.87	156.84	-215.44	-78.81	1,181.22	1,133.79	47.43	24.906	
6,600.00	6,428.63	6,466.33	6,459.22	29.87	23.03	141.38	-217.25	-87.95	1,191.53	1,143.77	47.75	24.952	
6,650.00	6,476.14	6,509.10	6,500.26	30.10	23.18	129.51	-219.01	-99.85	1,201.67	1,153.60	48.07	24.997	
6,700.00	6,522.73	6,550.00	6,538.67	30.33	23.32	120.64	-220.64	-113.78	1,211.59	1,163.22	48.37	25.047	
6,750.00	6,568.14	6,594.29	6,579.16	30.54	23.47	113.94	-222.35	-131.62	1,221.21	1,172.52	48.69	25.080	
6,800.00	6,612.08	6,636.78	6,616.76	30.75	23.61	108.79	-223.92	-151.34	1,230.49	1,181.49	49.00	25.114	
6,850.00	6,654.28	6,679.26	6,652.95	30.95	23.76	104.72	-225.41	-173.52	1,239.36	1,190.06	49.30	25.141	
6,900.00	6,694.47	6,721.75	6,687.59	31.15	23.90	101.46	-226.83	-198.07	1,247.76	1,198.16	49.60	25.158	
6,950.00	6,732.42	6,764.29	6,720.55	31.33	24.04	98.80	-228.17	-224.92	1,255.65	1,205.75	49.90	25.164	
7,000.00	6,767.89	6,806.91	6,751.71	31.51	24.19	96.62	-229.41	-253.96	1,262.98	1,212.78	50.21	25.155	
7,050.00	6,800.65	6,850.00	6,781.17	31.68	24.35	94.82	-230.57	-285.38	1,269.71	1,219.19	50.53	25.129	
7,100.00	6,830.51	6,892.50	6,808.08	31.85	24.51	93.34	-231.61	-318.24	1,275.80	1,224.95	50.85	25.087	
7,150.00	6,857.28	6,935.52	6,833.02	32.01	24.68	92.14	-232.56	-353.27	1,281.22	1,230.02	51.20	25.023	
7,200.00	6,880.80	6,978.73	6,855.64	32.17	24.86	91.18	-233.39	-390.06	1,285.93	1,234.36	51.57	24.938	
7,250.00	6,900.92	7,022.14	6,875.81	32.33	25.06	90.44	-234.11	-428.49	1,289.91	1,237.96	51.95	24.829	
7,300.00	6,917.52	7,065.77	6,893.39	32.49	25.26	89.89	-234.70	-468.41	1,293.14	1,240.77	52.36	24.696	
7,350.00	6,930.50	7,109.65	6,908.28	32.66	25.48	89.53	-235.18	-509.68	1,295.60	1,242.80	52.80	24.539	
7,400.00	6,939.77	7,153.79	6,920.35	32.83	25.71	89.35	-235.52	-552.12	1,297.28	1,244.02	53.26	24.357	
7,450.00	6,945.28	7,200.00	6,929.81	33.01	25.96	89.35	-235.73	-597.34	1,298.18	1,244.41	53.77	24.143	
7,499.66	6,947.00	7,242.61	6,935.62	33.19	26.21	89.50	-235.80	-639.55	1,298.29	1,244.03	54.26	23.926	
7,600.00	6,946.68	7,335.84	6,938.95	33.61	26.77	89.66	-235.53	-732.66	1,298.09	1,242.70	55.39	23.436	
7,700.00	6,946.35	7,435.84	6,938.76	34.10	27.44	89.66	-235.08	-832.65	1,298.09	1,241.38	56.71	22.891	
7,800.00	6,946.03	7,535.84	6,938.57	34.66	28.19	89.67	-234.62	-932.65	1,298.09	1,239.91	58.17	22.315	
7,900.00	6,945.71	7,635.84	6,938.38	35.29	29.00	89.68	-234.17	-1,032.65	1,298.09	1,238.31	59.77	21.717	
8,000.00	6,945.38	7,735.84	6,938.18	35.99	29.88	89.68	-233.71	-1,132.65	1,298.09	1,236.59	61.50	21.107	
8,100.00	6,945.06	7,835.84	6,937.99	36.74	30.82	89.69	-233.25	-1,232.65	1,298.09	1,234.74	63.34	20.493	
8,200.00	6,944.74	7,935.84	6,937.80	37.56	31.81	89.69	-232.80	-1,332.65	1,298.09	1,232.79	65.29	19.881	
8,300.00	6,944.41	8,035.84	6,937.61	38.43	32.84	89.70	-232.34	-1,432.65	1,298.08	1,230.75	67.34	19.277	
8,400.00	6,944.09	8,135.84	6,937.42	39.35	33.93	89.71	-231.89	-1,532.65	1,298.08	1,228.61	69.47	18.686	
8,500.00	6,943.77	8,235.84	6,937.23	40.31	35.05	89.71	-231.43	-1,632.64	1,298.08	1,226.40	71.68	18.109	
8,600.00	6,943.45	8,335.83	6,937.04	41.32	36.21	89.72	-230.98	-1,732.64	1,298.08	1,224.11	73.97	17.549	
8,700.00	6,943.12	8,435.83	6,936.84	42.37	37.40	89.72	-230.52	-1,832.64	1,298.08	1,221.76	76.32	17.008	
8,800.00	6,942.80	8,535.83	6,936.65	43.45	38.62	89.73	-230.07	-1,932.64	1,298.08	1,219.35	78.73	16.487	
8,900.00	6,942.48	8,635.83	6,936.46	44.57	39.87	89.73	-229.61	-2,032.64	1,298.08	1,216.88	81.20	15.986	
9,000.00	6,942.15	8,735.83	6,936.27	45.71	41.14	89.74	-229.16	-2,132.64	1,298.08	1,214.36	83.72	15.505	
9,100.00	6,941.83	8,835.83	6,936.08	46.89	42.43	89.75	-228.70	-2,232.64	1,298.08	1,211.80	86.28	15.044	
9,200.00	6,941.51	8,935.83	6,935.89	48.09	43.75	89.75	-228.24	-2,332.63	1,298.08	1,209.19	88.89	14.603	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - Rosa Unit 701H - OH - Prelim #2

Offset Site Error: 0.00 usft

Survey Program: 0-MWD+HRGM+MS

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,300.00	6,941.18	9,035.83	6,935.70	49.31	45.08	89.76	-227.79	-2,432.63	1,298.08	1,206.55	91.53	14.181	
9,400.00	6,940.86	9,135.83	6,935.50	50.56	46.44	89.76	-227.33	-2,532.63	1,298.08	1,203.87	94.21	13.778	
9,500.00	6,940.54	9,235.83	6,935.31	51.82	47.80	89.77	-226.88	-2,632.63	1,298.08	1,201.16	96.92	13.393	
9,600.00	6,940.21	9,335.83	6,935.12	53.11	49.18	89.78	-226.42	-2,732.63	1,298.08	1,198.42	99.66	13.024	
9,700.00	6,939.89	9,435.83	6,934.93	54.41	50.58	89.78	-225.97	-2,832.63	1,298.08	1,195.65	102.43	12.673	
9,800.00	6,939.57	9,535.83	6,934.74	55.73	51.99	89.79	-225.51	-2,932.63	1,298.08	1,192.86	105.23	12.336	
9,900.00	6,939.25	9,635.83	6,934.55	57.07	53.40	89.79	-225.06	-3,032.63	1,298.08	1,190.04	108.04	12.015	
10,000.00	6,938.92	9,735.83	6,934.36	58.41	54.83	89.80	-224.60	-3,132.62	1,298.08	1,187.20	110.88	11.707	
10,100.00	6,938.60	9,835.83	6,934.17	59.77	56.27	89.80	-224.15	-3,232.62	1,298.08	1,184.35	113.73	11.413	
10,200.00	6,938.28	9,935.83	6,933.97	61.15	57.71	89.81	-223.69	-3,332.62	1,298.08	1,181.47	116.61	11.132	
10,300.00	6,937.95	10,035.83	6,933.78	62.53	59.17	89.82	-223.23	-3,432.62	1,298.08	1,178.58	119.50	10.862	
10,400.00	6,937.63	10,135.83	6,933.59	63.92	60.63	89.82	-222.78	-3,532.62	1,298.08	1,175.67	122.41	10.604	
10,500.00	6,937.31	10,235.83	6,933.40	65.33	62.10	89.83	-222.32	-3,632.62	1,298.08	1,172.75	125.33	10.357	
10,600.00	6,936.98	10,335.83	6,933.21	66.74	63.57	89.83	-221.87	-3,732.62	1,298.08	1,169.81	128.27	10.120	
10,700.00	6,936.66	10,435.83	6,933.02	68.16	65.06	89.84	-221.41	-3,832.62	1,298.08	1,166.86	131.22	9.893	
10,800.00	6,936.34	10,535.83	6,932.83	69.59	66.54	89.84	-220.96	-3,932.61	1,298.08	1,163.90	134.18	9.674	
10,900.00	6,936.01	10,635.83	6,932.63	71.03	68.04	89.85	-220.50	-4,032.61	1,298.08	1,160.93	137.15	9.465	
11,000.00	6,935.69	10,735.83	6,932.44	72.47	69.53	89.86	-220.05	-4,132.61	1,298.08	1,157.95	140.13	9.263	
11,090.21	6,935.40	10,826.04	6,932.27	73.78	70.89	89.86	-219.64	-4,222.82	1,298.08	1,155.25	142.83	9.088	
11,100.00	6,935.37	10,835.83	6,932.25	73.92	71.03	89.86	-219.59	-4,232.61	1,298.08	1,154.96	143.12	9.070	
11,200.00	6,935.05	10,935.83	6,932.06	75.38	72.54	89.87	-219.14	-4,332.61	1,298.08	1,151.96	146.12	8.883	
11,300.00	6,934.72	11,035.83	6,931.87	76.84	74.05	89.87	-218.68	-4,432.61	1,298.08	1,148.95	149.13	8.704	
11,400.00	6,934.40	11,135.83	6,931.68	78.31	75.57	89.88	-218.22	-4,532.61	1,298.08	1,145.93	152.15	8.532	
11,500.00	6,934.08	11,235.83	6,931.49	79.79	77.08	89.89	-217.77	-4,632.60	1,298.08	1,142.90	155.18	8.365	
11,600.00	6,933.75	11,335.83	6,931.29	81.27	78.60	89.89	-217.31	-4,732.60	1,298.08	1,139.87	158.21	8.205	
11,700.00	6,933.43	11,435.83	6,931.10	82.75	80.13	89.90	-216.86	-4,832.60	1,298.08	1,136.83	161.25	8.050	
11,800.00	6,933.11	11,535.83	6,930.91	84.24	81.66	89.90	-216.40	-4,932.60	1,298.08	1,133.79	164.29	7.901	
11,900.00	6,932.78	11,635.83	6,930.72	85.73	83.19	89.91	-215.95	-5,032.60	1,298.08	1,130.73	167.35	7.757	
12,000.00	6,932.46	11,735.83	6,930.53	87.23	84.72	89.91	-215.49	-5,132.60	1,298.08	1,127.68	170.40	7.618	
12,100.00	6,932.14	11,835.83	6,930.34	88.72	86.26	89.92	-215.04	-5,232.60	1,298.08	1,124.61	173.47	7.483	
12,200.00	6,931.81	11,935.83	6,930.15	90.23	87.79	89.93	-214.58	-5,332.60	1,298.08	1,121.55	176.53	7.353	
12,300.00	6,931.49	12,035.83	6,929.95	91.74	89.33	89.93	-214.13	-5,432.59	1,298.08	1,118.47	179.61	7.227	
12,400.00	6,931.17	12,135.83	6,929.76	93.25	90.88	89.94	-213.67	-5,532.59	1,298.08	1,115.40	182.69	7.106	
12,500.00	6,930.85	12,235.83	6,929.57	94.76	92.42	89.94	-213.21	-5,632.59	1,298.08	1,112.31	185.77	6.988	
12,600.00	6,930.52	12,335.83	6,929.38	96.27	93.97	89.95	-212.76	-5,732.59	1,298.08	1,109.23	188.85	6.873	
12,700.00	6,930.20	12,435.83	6,929.19	97.79	95.52	89.96	-212.30	-5,832.59	1,298.08	1,106.14	191.94	6.763	
12,800.00	6,929.88	12,535.83	6,929.00	99.32	97.07	89.96	-211.85	-5,932.59	1,298.08	1,103.04	195.04	6.656	
12,900.00	6,929.55	12,635.83	6,928.81	100.84	98.62	89.97	-211.39	-6,032.59	1,298.08	1,099.95	198.14	6.551	
13,000.00	6,929.23	12,735.83	6,928.62	102.37	100.17	89.97	-210.94	-6,132.59	1,298.08	1,096.85	201.24	6.451	
13,100.00	6,928.91	12,835.83	6,928.42	103.89	101.73	89.98	-210.48	-6,232.58	1,298.08	1,093.74	204.34	6.353	
13,200.00	6,928.58	12,935.83	6,928.23	105.43	103.28	89.98	-210.03	-6,332.58	1,298.08	1,090.63	207.45	6.257	
13,300.00	6,928.26	13,035.83	6,928.04	106.96	104.84	89.99	-209.57	-6,432.58	1,298.08	1,087.52	210.56	6.165	
13,400.00	6,927.94	13,135.83	6,927.85	108.49	106.40	90.00	-209.12	-6,532.58	1,298.08	1,084.41	213.67	6.075	
13,500.00	6,927.61	13,235.83	6,927.66	110.03	107.96	90.00	-208.66	-6,632.58	1,298.08	1,081.30	216.79	5.988	
13,600.00	6,927.29	13,335.83	6,927.47	111.57	109.52	90.01	-208.20	-6,732.58	1,298.08	1,078.18	219.91	5.903	
13,700.00	6,926.97	13,435.83	6,927.28	113.11	111.09	90.01	-207.75	-6,832.58	1,298.08	1,075.06	223.03	5.820	
13,800.00	6,926.65	13,535.83	6,927.08	114.65	112.65	90.02	-207.29	-6,932.57	1,298.08	1,071.93	226.15	5.740	
13,900.00	6,926.32	13,635.83	6,926.89	116.20	114.22	90.03	-206.84	-7,032.57	1,298.09	1,068.81	229.28	5.662	
14,000.00	6,926.00	13,735.83	6,926.70	117.75	115.78	90.03	-206.38	-7,132.57	1,298.09	1,065.68	232.41	5.585	
14,100.00	6,925.68	13,835.83	6,926.51	119.29	117.35	90.04	-205.93	-7,232.57	1,298.09	1,062.55	235.54	5.511	
14,200.00	6,925.35	13,935.83	6,926.32	120.84	118.92	90.04	-205.47	-7,332.57	1,298.09	1,059.42	238.67	5.439	
14,300.00	6,925.03	14,035.83	6,926.13	122.39	120.49	90.05	-205.02	-7,432.57	1,298.09	1,056.28	241.80	5.368	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - Rosa Unit 701H - OH - Prelim #2

Offset Site Error: 0.00 usft

Survey Program: 0-MWD+HRGM+MS

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,400.00	6,924.71	14,135.83	6,925.94	123.94	122.06	90.05	-204.56	-7,532.57	1,298.09	1,053.15	244.94	5.300	
14,500.00	6,924.38	14,235.83	6,925.74	125.50	123.63	90.06	-204.11	-7,632.57	1,298.09	1,050.01	248.08	5.233	
14,600.00	6,924.06	14,335.83	6,925.55	127.05	125.20	90.07	-203.65	-7,732.56	1,298.09	1,046.87	251.22	5.167	
14,700.00	6,923.74	14,435.83	6,925.36	128.61	126.78	90.07	-203.19	-7,832.56	1,298.09	1,043.73	254.36	5.103	
14,800.00	6,923.42	14,535.83	6,925.17	130.16	128.35	90.08	-202.74	-7,932.56	1,298.09	1,040.59	257.50	5.041	
14,900.00	6,923.09	14,635.83	6,924.98	131.72	129.92	90.08	-202.28	-8,032.56	1,298.09	1,037.44	260.65	4.980	
15,000.00	6,922.77	14,735.83	6,924.79	133.28	131.50	90.09	-201.83	-8,132.56	1,298.09	1,034.30	263.79	4.921	
15,100.00	6,922.45	14,835.83	6,924.60	134.84	133.07	90.09	-201.37	-8,232.56	1,298.09	1,031.15	266.94	4.863	
15,200.00	6,922.12	14,935.83	6,924.40	136.40	134.65	90.10	-200.92	-8,332.56	1,298.09	1,028.00	270.09	4.806	
15,300.00	6,921.80	15,035.83	6,924.21	137.96	136.23	90.11	-200.46	-8,432.56	1,298.09	1,024.85	273.24	4.751	
15,400.00	6,921.48	15,135.83	6,924.02	139.53	137.80	90.11	-200.01	-8,532.55	1,298.09	1,021.70	276.39	4.697	
15,500.00	6,921.15	15,235.83	6,923.83	141.09	139.38	90.12	-199.55	-8,632.55	1,298.09	1,018.55	279.55	4.644	
15,600.00	6,920.83	15,335.83	6,923.64	142.65	140.96	90.12	-199.10	-8,732.55	1,298.09	1,015.39	282.70	4.592	
15,700.00	6,920.51	15,435.83	6,923.45	144.22	142.54	90.13	-198.64	-8,832.55	1,298.09	1,012.24	285.86	4.541	
15,800.00	6,920.18	15,535.83	6,923.26	145.79	144.12	90.14	-198.18	-8,932.55	1,298.09	1,009.08	289.01	4.491	
15,900.00	6,919.86	15,635.83	6,923.07	147.35	145.70	90.14	-197.73	-9,032.55	1,298.10	1,005.92	292.17	4.443	
16,000.00	6,919.54	15,735.83	6,922.87	148.92	147.28	90.15	-197.27	-9,132.55	1,298.10	1,002.77	295.33	4.395	
16,100.00	6,919.22	15,835.83	6,922.68	150.49	148.86	90.15	-196.82	-9,232.54	1,298.10	999.61	298.49	4.349	
16,200.00	6,918.89	15,935.83	6,922.49	152.06	150.44	90.16	-196.36	-9,332.54	1,298.10	996.45	301.65	4.303	
16,300.00	6,918.57	16,035.83	6,922.30	153.63	152.03	90.16	-195.91	-9,432.54	1,298.10	993.29	304.81	4.259	
16,400.00	6,918.25	16,135.83	6,922.11	155.20	153.61	90.17	-195.45	-9,532.54	1,298.10	990.12	307.97	4.215	
16,500.00	6,917.92	16,235.83	6,921.92	156.77	155.19	90.18	-195.00	-9,632.54	1,298.10	986.96	311.14	4.172	
16,600.00	6,917.60	16,335.83	6,921.73	158.34	156.78	90.18	-194.54	-9,732.54	1,298.10	983.80	314.30	4.130	
16,700.00	6,917.28	16,435.83	6,921.53	159.92	158.36	90.19	-194.09	-9,832.54	1,298.10	980.63	317.47	4.089	
16,800.00	6,916.95	16,535.83	6,921.34	161.49	159.94	90.19	-193.63	-9,932.54	1,298.10	977.47	320.63	4.049	
16,900.00	6,916.63	16,635.83	6,921.15	163.06	161.53	90.20	-193.17	-10,032.53	1,298.10	974.30	323.80	4.009	
17,000.00	6,916.31	16,735.83	6,920.96	164.64	163.11	90.21	-192.72	-10,132.53	1,298.10	971.13	326.97	3.970	
17,100.00	6,915.98	16,835.83	6,920.77	166.21	164.70	90.21	-192.26	-10,232.53	1,298.10	967.97	330.14	3.932	
17,200.00	6,915.66	16,935.83	6,920.58	167.79	166.29	90.22	-191.81	-10,332.53	1,298.10	964.80	333.31	3.895	
17,300.00	6,915.34	17,035.83	6,920.39	169.37	167.87	90.22	-191.35	-10,432.53	1,298.11	961.63	336.48	3.858	
17,400.00	6,915.02	17,135.83	6,920.19	170.94	169.46	90.23	-190.90	-10,532.53	1,298.11	958.46	339.65	3.822	
17,500.00	6,914.69	17,235.83	6,920.00	172.52	171.05	90.23	-190.44	-10,632.53	1,298.11	955.29	342.82	3.787	
17,600.00	6,914.37	17,335.83	6,919.81	174.10	172.63	90.24	-189.99	-10,732.53	1,298.11	952.12	345.99	3.752	
17,700.00	6,914.05	17,435.83	6,919.62	175.68	174.22	90.25	-189.53	-10,832.52	1,298.11	948.94	349.16	3.718	
17,800.00	6,913.72	17,535.83	6,919.43	177.25	175.81	90.25	-189.08	-10,932.52	1,298.11	945.77	352.34	3.684	
17,900.00	6,913.40	17,635.83	6,919.24	178.83	177.40	90.26	-188.62	-11,032.52	1,298.11	942.60	355.51	3.651	
18,000.00	6,913.08	17,735.83	6,919.05	180.41	178.98	90.26	-188.16	-11,132.52	1,298.11	939.43	358.69	3.619	
18,023.75	6,913.00	17,759.55	6,919.00	180.79	179.36	90.26	-188.06	-11,156.25	1,298.11	938.67	359.44	3.611 SF	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - Rosa Unit 704H - OH - Prelim #4 — **Offset Site Error:** 0.00 usft

Survey Program: 0-MWD+HRGM+MS — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	145.38	-20.75	14.32	25.22				
100.00	100.00	100.00	100.00	0.25	0.25	145.38	-20.75	14.32	25.22	24.71	0.50	50.245	
200.00	200.00	200.00	200.00	0.61	0.61	145.38	-20.75	14.32	25.22	24.00	1.22	20.689	
300.00	300.00	300.00	300.00	0.97	0.97	145.38	-20.75	14.32	25.22	23.28	1.94	13.026	
400.00	400.00	400.00	400.00	1.33	1.33	145.38	-20.75	14.32	25.22	22.56	2.65	9.506	
500.00	500.00	500.00	500.00	1.68	1.68	145.38	-20.75	14.32	25.22	21.85	3.37	7.483	
600.00	599.98	600.38	600.36	2.03	2.04	-40.72	-19.11	14.95	22.91	18.84	4.07	5.628	
700.00	699.84	700.06	699.90	2.36	2.40	-66.68	-14.22	16.80	18.29	13.53	4.76	3.843	
728.16	727.92	727.90	727.66	2.46	2.51	-79.58	-12.28	17.53	17.82	12.86	4.95	3.596	CC, ES, SF
800.00	799.45	798.33	797.79	2.71	2.76	-114.94	-6.24	19.82	22.01	16.56	5.45	4.036	
900.00	898.70	895.23	894.04	3.06	3.11	-142.65	4.30	23.81	40.29	34.14	6.15	6.549	
1,000.00	997.47	991.52	989.63	3.43	3.46	-153.65	15.13	27.91	65.41	58.56	6.85	9.546	
1,100.00	1,095.62	1,086.82	1,084.24	3.82	3.82	-159.18	25.84	31.97	94.72	87.16	7.55	12.543	
1,207.83	1,200.65	1,188.35	1,185.03	4.26	4.20	-162.70	37.26	36.29	130.37	122.07	8.30	15.703	
1,300.00	1,290.02	1,274.54	1,270.59	4.65	4.53	-164.78	46.95	39.96	162.66	153.72	8.94	18.191	
1,400.00	1,386.98	1,368.05	1,363.42	5.09	4.88	-166.26	57.46	43.94	197.83	188.20	9.63	20.539	
1,500.00	1,483.95	1,461.56	1,456.25	5.53	5.23	-167.29	67.98	47.92	233.08	222.75	10.33	22.572	
1,600.00	1,580.91	1,555.07	1,549.08	5.99	5.59	-168.06	78.49	51.90	268.38	257.35	11.02	24.345	
1,700.00	1,677.87	1,648.58	1,641.91	6.44	5.95	-168.64	89.01	55.88	303.71	291.98	11.72	25.903	
1,800.00	1,774.84	1,742.09	1,734.75	6.90	6.30	-169.11	99.52	59.86	339.06	326.64	12.43	27.282	
1,900.00	1,871.80	1,835.60	1,827.58	7.36	6.66	-169.48	110.04	63.84	374.43	361.30	13.13	28.510	
2,000.00	1,968.76	1,929.11	1,920.41	7.83	7.02	-169.79	120.55	67.83	409.81	395.97	13.84	29.610	
2,100.00	2,065.73	2,022.62	2,013.24	8.30	7.38	-170.06	131.07	71.81	445.20	430.66	14.55	30.600	
2,200.00	2,162.69	2,116.13	2,106.08	8.77	7.73	-170.28	141.58	75.79	480.60	465.34	15.26	31.496	
2,300.00	2,259.65	2,209.64	2,198.91	9.24	8.09	-170.47	152.09	79.77	516.00	500.03	15.97	32.311	
2,400.00	2,356.61	2,303.15	2,291.74	9.71	8.45	-170.64	162.61	83.75	551.41	534.73	16.68	33.054	
2,500.00	2,453.58	2,396.66	2,384.57	10.18	8.81	-170.79	173.12	87.73	586.82	569.43	17.39	33.735	
2,600.00	2,550.54	2,490.17	2,477.40	10.66	9.17	-170.92	183.64	91.71	622.24	604.13	18.11	34.361	
2,700.00	2,647.50	2,583.68	2,570.24	11.13	9.53	-171.03	194.15	95.69	657.65	638.83	18.82	34.938	
2,800.00	2,744.47	2,677.19	2,663.07	11.61	9.89	-171.14	204.67	99.67	693.07	673.53	19.54	35.472	
2,900.00	2,841.43	2,770.70	2,755.90	12.08	10.25	-171.23	215.18	103.65	728.49	708.24	20.25	35.968	
3,000.00	2,938.39	2,864.21	2,848.73	12.56	10.61	-171.32	225.70	107.64	763.91	742.94	20.97	36.428	
3,100.00	3,035.36	2,957.72	2,941.56	13.04	10.97	-171.40	236.21	111.62	799.33	777.65	21.69	36.858	
3,200.00	3,132.32	3,051.23	3,034.40	13.51	11.33	-171.47	246.72	115.60	834.76	812.36	22.40	37.259	
3,300.00	3,229.28	3,144.74	3,127.23	13.99	11.69	-171.54	257.24	119.58	870.18	847.06	23.12	37.635	
3,400.00	3,326.25	3,238.25	3,220.06	14.47	12.05	-171.60	267.75	123.56	905.61	881.77	23.84	37.987	
3,500.00	3,423.21	3,331.77	3,312.89	14.95	12.41	-171.65	278.27	127.54	941.04	916.48	24.56	38.319	
3,600.00	3,520.17	3,425.28	3,405.72	15.43	12.77	-171.70	288.78	131.52	976.47	951.19	25.28	38.631	
3,700.00	3,617.13	3,518.79	3,498.56	15.91	13.13	-171.75	299.30	135.50	1,011.89	985.90	26.00	38.925	
3,800.00	3,714.10	3,612.30	3,591.39	16.39	13.49	-171.80	309.81	139.48	1,047.32	1,020.61	26.72	39.203	
3,900.00	3,811.06	3,705.81	3,684.22	16.87	13.85	-171.84	320.33	143.46	1,082.75	1,055.32	27.43	39.467	
4,000.00	3,908.02	3,799.32	3,777.05	17.35	14.21	-171.88	330.84	147.45	1,118.18	1,090.03	28.15	39.716	
4,100.00	4,004.99	3,892.83	3,869.89	17.83	14.57	-171.92	341.35	151.43	1,153.61	1,124.74	28.87	39.953	
4,200.00	4,101.95	3,986.34	3,962.72	18.31	14.93	-171.95	351.87	155.41	1,189.04	1,159.45	29.59	40.177	
4,300.00	4,198.91	4,079.85	4,055.55	18.79	15.29	-171.98	362.38	159.39	1,224.48	1,194.16	30.32	40.391	
4,400.00	4,295.88	4,173.36	4,148.38	19.27	15.65	-172.02	372.90	163.37	1,259.91	1,228.87	31.04	40.595	
4,500.00	4,392.84	4,266.87	4,241.21	19.75	16.01	-172.04	383.41	167.35	1,295.34	1,263.58	31.76	40.789	
4,600.00	4,489.80	4,360.38	4,334.05	20.23	16.37	-172.07	393.93	171.33	1,330.77	1,298.29	32.48	40.974	
4,700.00	4,586.76	4,453.89	4,426.88	20.71	16.73	-172.10	404.44	175.31	1,366.20	1,333.00	33.20	41.150	
4,800.00	4,683.73	4,547.40	4,519.71	21.20	17.09	-172.12	414.96	179.29	1,401.64	1,367.72	33.92	41.319	
4,900.00	4,780.69	4,640.91	4,612.54	21.68	17.45	-172.15	425.47	183.27	1,437.07	1,402.43	34.64	41.481	
5,000.00	4,877.65	4,734.42	4,705.37	22.16	17.82	-172.17	435.98	187.26	1,472.50	1,437.14	35.37	41.636	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - Rosa Unit 704H - OH - Prelim #4 — **Offset Site Error:** 0.00 usft

Survey Program: 0-MWD+HRGM+MS — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,100.00	4,974.62	4,827.93	4,798.21	22.64	18.18	-172.19	446.50	191.24	1,507.94	1,471.85	36.09	41.785	
5,200.00	5,071.58	4,921.44	4,891.04	23.12	18.54	-172.21	457.01	195.22	1,543.37	1,506.56	36.81	41.927	
5,300.00	5,168.54	5,014.95	4,983.87	23.60	18.90	-172.23	467.53	199.20	1,578.80	1,541.27	37.53	42.064	
5,400.00	5,265.51	5,108.46	5,076.70	24.09	19.26	-172.25	478.04	203.18	1,614.24	1,575.98	38.26	42.195	
5,500.00	5,362.47	5,201.97	5,169.54	24.57	19.62	-172.27	488.56	207.16	1,649.67	1,610.69	38.98	42.322	
5,600.00	5,459.43	5,295.48	5,262.37	25.05	19.98	-172.29	499.07	211.14	1,685.11	1,645.40	39.70	42.443	
5,700.00	5,556.40	5,389.00	5,355.20	25.53	20.34	-172.30	509.59	215.12	1,720.54	1,680.11	40.43	42.560	
5,800.00	5,653.36	5,482.51	5,448.03	26.01	20.70	-172.32	520.10	219.10	1,755.97	1,714.82	41.15	42.673	
5,900.00	5,750.32	5,576.02	5,540.86	26.50	21.06	-172.33	530.61	223.08	1,791.41	1,749.54	41.87	42.781	
6,000.00	5,847.28	5,669.53	5,633.70	26.98	21.42	-172.35	541.13	227.07	1,826.84	1,784.25	42.60	42.886	
6,100.00	5,944.25	5,763.04	5,726.53	27.46	21.78	-172.36	551.64	231.05	1,862.28	1,818.96	43.32	42.987	
6,200.00	6,041.21	5,856.55	5,819.36	27.94	22.14	-172.38	562.16	235.03	1,897.71	1,853.67	44.05	43.085	
6,300.00	6,138.17	5,950.06	5,912.19	28.43	22.51	-172.39	572.67	239.01	1,933.15	1,888.38	44.77	43.179	
6,400.00	6,235.14	6,043.57	6,005.02	28.91	22.87	-172.40	583.19	242.99	1,968.58	1,923.09	45.50	43.270	
6,496.84	6,329.04	6,134.12	6,094.92	29.38	23.22	-172.41	593.37	246.85	2,002.90	1,956.70	46.20	43.355	
6,500.00	6,332.10	6,137.08	6,097.86	29.39	23.23	-173.65	593.70	246.97	2,004.02	1,957.80	46.22	43.358	
6,550.00	6,380.52	6,183.69	6,144.12	29.63	23.41	167.50	598.94	248.96	2,021.98	1,975.40	46.58	43.408	
6,600.00	6,428.63	6,229.82	6,189.93	29.87	23.59	151.55	604.13	250.92	2,040.30	1,993.37	46.93	43.472	
6,650.00	6,476.14	6,275.21	6,234.99	30.10	23.76	139.22	609.23	252.85	2,058.91	2,011.64	47.28	43.550	
6,700.00	6,522.73	6,319.57	6,279.02	30.33	23.93	129.90	614.22	254.74	2,077.74	2,030.13	47.61	43.642	
6,750.00	6,568.14	6,362.62	6,321.76	30.54	24.10	122.77	619.06	256.57	2,096.75	2,048.82	47.93	43.749	
6,800.00	6,612.08	6,394.72	6,353.61	30.75	24.22	117.05	622.67	258.21	2,115.96	2,067.80	48.16	43.936	
6,850.00	6,654.28	6,419.87	6,378.50	30.95	24.32	112.30	625.48	260.52	2,135.54	2,087.20	48.34	44.177	
6,900.00	6,694.47	6,450.00	6,408.16	31.15	24.44	108.41	628.83	264.58	2,155.52	2,106.97	48.55	44.394	
6,950.00	6,732.42	6,461.25	6,419.19	31.33	24.49	104.69	630.07	266.46	2,175.80	2,127.18	48.62	44.749	
7,000.00	6,767.89	6,477.40	6,434.95	31.51	24.55	101.46	631.84	269.49	2,196.42	2,147.70	48.72	45.078	
7,050.00	6,800.65	6,500.00	6,456.87	31.68	24.64	98.71	634.31	274.42	2,217.35	2,168.47	48.88	45.364	
7,100.00	6,830.51	6,500.00	6,456.87	31.85	24.64	95.63	634.31	274.42	2,238.41	2,189.56	48.85	45.821	
7,150.00	6,857.28	6,500.00	6,456.87	32.01	24.64	92.74	634.31	274.42	2,259.67	2,210.84	48.82	46.282	
7,200.00	6,880.80	6,514.59	6,470.92	32.17	24.70	90.42	635.89	278.01	2,280.90	2,231.97	48.93	46.620	
7,250.00	6,900.92	6,517.99	6,474.18	32.33	24.72	87.96	636.25	278.89	2,302.10	2,253.16	48.94	47.039	
7,300.00	6,917.52	6,519.46	6,475.58	32.49	24.72	85.61	636.41	279.28	2,323.13	2,274.19	48.95	47.462	
7,350.00	6,930.50	6,519.17	6,475.31	32.66	24.72	83.37	636.38	279.20	2,343.88	2,294.93	48.95	47.883	
7,400.00	6,939.77	6,517.30	6,473.52	32.83	24.71	81.25	636.18	278.71	2,364.22	2,315.27	48.95	48.297	
7,450.00	6,945.28	6,500.00	6,456.87	33.01	24.64	78.91	634.31	274.42	2,384.13	2,335.30	48.83	48.824	
7,499.66	6,947.00	6,500.00	6,456.87	33.19	24.64	77.21	634.31	274.42	2,403.11	2,354.23	48.88	49.167	
7,600.00	6,946.68	6,500.00	6,456.87	33.61	24.64	77.21	634.31	274.42	2,442.51	2,393.50	49.01	49.842	
7,700.00	6,946.35	6,500.00	6,456.87	34.10	24.64	77.21	634.31	274.42	2,485.18	2,436.02	49.16	50.551	
7,800.00	6,946.03	6,500.00	6,456.87	34.66	24.64	77.21	634.31	274.42	2,531.10	2,481.76	49.34	51.298	
7,900.00	6,945.71	6,476.73	6,434.29	35.29	24.55	76.63	631.77	269.36	2,579.75	2,530.40	49.34	52.282	
8,000.00	6,945.38	6,470.48	6,428.20	35.99	24.52	76.48	631.09	268.14	2,631.40	2,581.89	49.51	53.153	
8,100.00	6,945.06	6,450.00	6,408.16	36.74	24.44	75.96	628.83	264.58	2,685.87	2,636.31	49.56	54.190	
8,200.00	6,944.74	6,450.00	6,408.16	37.56	24.44	75.96	628.83	264.58	2,742.67	2,692.87	49.80	55.072	
8,300.00	6,944.41	6,450.00	6,408.16	38.43	24.44	75.96	628.83	264.58	2,801.88	2,751.84	50.04	55.988	
8,400.00	6,944.09	6,450.00	6,408.16	39.35	24.44	75.96	628.83	264.58	2,863.36	2,813.07	50.29	56.937	
8,500.00	6,943.77	6,450.00	6,408.16	40.31	24.44	75.96	628.83	264.58	2,926.97	2,876.44	50.54	57.919	
8,600.00	6,943.45	6,450.00	6,408.16	41.32	24.44	75.96	628.83	264.58	2,992.57	2,941.79	50.78	58.932	
8,700.00	6,943.12	6,450.00	6,408.16	42.37	24.44	75.96	628.83	264.58	3,060.03	3,009.01	51.02	59.975	
8,800.00	6,942.80	6,450.00	6,408.16	43.45	24.44	75.96	628.83	264.58	3,129.23	3,077.97	51.26	61.047	
8,900.00	6,942.48	6,450.00	6,408.16	44.57	24.44	75.96	628.83	264.58	3,200.06	3,148.57	51.49	62.146	
9,000.00	6,942.15	6,450.00	6,408.16	45.71	24.44	75.96	628.83	264.58	3,272.42	3,220.70	51.72	63.272	
9,100.00	6,941.83	6,427.60	6,386.12	46.89	24.35	75.40	626.34	261.42	3,345.83	3,294.04	51.79	64.609	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - Rosa Unit 704H - OH - Prelim #4 — **Offset Site Error:** 0.00 usft

Survey Program: 0-MWD+HRGM+MS — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,200.00	6,941.51	6,425.13	6,383.69	48.09	24.34	75.34	626.07	261.12	3,420.85	3,368.86	51.99	65.801	
9,300.00	6,941.18	6,422.80	6,381.39	49.31	24.33	75.28	625.81	260.85	3,497.11	3,444.93	52.18	67.014	
9,400.00	6,940.86	6,420.61	6,379.23	50.56	24.32	75.23	625.56	260.60	3,574.54	3,522.16	52.38	68.246	
9,500.00	6,940.54	6,400.00	6,358.85	51.82	24.24	74.71	623.26	258.62	3,653.31	3,600.87	52.44	69.666	
9,600.00	6,940.21	6,400.00	6,358.85	53.11	24.24	74.71	623.26	258.62	3,732.80	3,680.16	52.64	70.916	
9,700.00	6,939.89	6,400.00	6,358.85	54.41	24.24	74.71	623.26	258.62	3,813.25	3,760.42	52.83	72.184	
9,800.00	6,939.57	6,400.00	6,358.85	55.73	24.24	74.71	623.26	258.62	3,894.61	3,841.60	53.01	73.468	
9,900.00	6,939.25	6,400.00	6,358.85	57.07	24.24	74.71	623.26	258.62	3,976.82	3,923.63	53.19	74.767	
10,000.00	6,938.92	6,400.00	6,358.85	58.41	24.24	74.71	623.26	258.62	4,059.82	4,006.46	53.36	76.081	
10,100.00	6,938.60	6,400.00	6,358.85	59.77	24.24	74.71	623.26	258.62	4,143.58	4,090.05	53.53	77.409	
10,200.00	6,938.28	6,400.00	6,358.85	61.15	24.24	74.71	623.26	258.62	4,228.04	4,174.35	53.69	78.749	
10,300.00	6,937.95	6,400.00	6,358.85	62.53	24.24	74.71	623.26	258.62	4,313.17	4,259.32	53.85	80.101	
10,400.00	6,937.63	6,400.00	6,358.85	63.92	24.24	74.71	623.26	258.62	4,398.92	4,344.93	54.00	81.464	
10,500.00	6,937.31	6,400.00	6,358.85	65.33	24.24	74.71	623.26	258.62	4,485.27	4,431.12	54.15	82.837	
10,600.00	6,936.98	6,400.00	6,358.85	66.74	24.24	74.71	623.26	258.62	4,572.17	4,517.88	54.29	84.220	
10,700.00	6,936.66	6,400.00	6,358.85	68.16	24.24	74.71	623.26	258.62	4,659.59	4,605.17	54.43	85.611	
10,800.00	6,936.34	6,400.00	6,358.85	69.59	24.24	74.71	623.26	258.62	4,747.52	4,692.95	54.56	87.011	
10,900.00	6,936.01	6,400.00	6,358.85	71.03	24.24	74.71	623.26	258.62	4,835.91	4,781.21	54.69	88.418	
11,000.00	6,935.69	6,400.00	6,358.85	72.47	24.24	74.71	623.26	258.62	4,924.74	4,869.92	54.82	89.833	
11,100.00	6,935.37	6,400.00	6,358.85	73.92	24.24	74.71	623.26	258.62	5,014.00	4,959.05	54.95	91.254	
11,200.00	6,935.05	6,400.00	6,358.85	75.38	24.24	74.71	623.26	258.62	5,103.65	5,048.59	55.07	92.681	
11,300.00	6,934.72	6,400.00	6,358.85	76.84	24.24	74.71	623.26	258.62	5,193.69	5,138.50	55.19	94.113	
11,400.00	6,934.40	6,400.00	6,358.85	78.31	24.24	74.71	623.26	258.62	5,284.08	5,228.78	55.30	95.551	
11,500.00	6,934.08	6,400.00	6,358.85	79.79	24.24	74.71	623.26	258.62	5,374.81	5,319.39	55.41	96.993	
11,600.00	6,933.75	6,400.00	6,358.85	81.27	24.24	74.71	623.26	258.62	5,465.86	5,410.34	55.52	98.440	
11,700.00	6,933.43	6,400.00	6,358.85	82.75	24.24	74.71	623.26	258.62	5,557.23	5,501.59	55.63	99.890	
11,800.00	6,933.11	6,400.00	6,358.85	84.24	24.24	74.71	623.26	258.62	5,648.88	5,593.14	55.74	101.344	
11,900.00	6,932.78	6,400.00	6,358.85	85.73	24.24	74.71	623.26	258.62	5,740.81	5,684.97	55.84	102.801	
12,000.00	6,932.46	6,389.02	6,347.96	87.23	24.20	74.43	622.03	257.83	5,832.91	5,777.02	55.89	104.365	
12,100.00	6,932.14	6,388.34	6,347.29	88.72	24.20	74.41	621.95	257.79	5,925.35	5,869.37	55.99	105.834	
12,200.00	6,931.81	6,387.68	6,346.63	90.23	24.19	74.40	621.88	257.75	6,018.03	5,961.95	56.08	107.305	
12,300.00	6,931.49	6,387.04	6,346.00	91.74	24.19	74.38	621.81	257.71	6,110.94	6,054.77	56.18	108.779	
12,400.00	6,931.17	6,376.00	6,335.04	93.25	24.15	74.10	620.57	257.14	6,204.16	6,147.94	56.22	110.358	
12,500.00	6,930.85	6,376.00	6,335.04	94.76	24.15	74.10	620.57	257.14	6,297.49	6,241.18	56.31	111.829	
12,600.00	6,930.52	6,376.00	6,335.04	96.27	24.15	74.10	620.57	257.14	6,391.03	6,334.62	56.41	113.300	
12,700.00	6,930.20	6,376.00	6,335.04	97.79	24.15	74.10	620.57	257.14	6,484.75	6,428.25	56.50	114.773	
12,800.00	6,929.88	6,376.00	6,335.04	99.32	24.15	74.10	620.57	257.14	6,578.66	6,522.07	56.59	116.247	
12,900.00	6,929.55	6,376.00	6,335.04	100.84	24.15	74.10	620.57	257.14	6,672.75	6,616.07	56.68	117.721	
13,000.00	6,929.23	6,376.00	6,335.04	102.37	24.15	74.10	620.57	257.14	6,767.01	6,710.23	56.77	119.196	
13,100.00	6,928.91	6,376.00	6,335.04	103.89	24.15	74.10	620.57	257.14	6,861.42	6,804.56	56.86	120.670	
13,200.00	6,928.58	6,376.00	6,335.04	105.43	24.15	74.10	620.57	257.14	6,956.00	6,899.05	56.95	122.145	
13,300.00	6,928.26	6,376.00	6,335.04	106.96	24.15	74.10	620.57	257.14	7,050.72	6,993.69	57.04	123.620	
13,400.00	6,927.94	6,376.00	6,335.04	108.49	24.15	74.10	620.57	257.14	7,145.59	7,088.47	57.12	125.094	
13,500.00	6,927.61	6,376.00	6,335.04	110.03	24.15	74.10	620.57	257.14	7,240.60	7,183.39	57.21	126.567	
13,600.00	6,927.29	6,376.00	6,335.04	111.57	24.15	74.10	620.57	257.14	7,335.74	7,278.45	57.29	128.040	
13,700.00	6,926.97	6,376.00	6,335.04	113.11	24.15	74.10	620.57	257.14	7,431.01	7,373.63	57.38	129.513	
13,800.00	6,926.65	6,376.00	6,335.04	114.65	24.15	74.10	620.57	257.14	7,526.40	7,468.94	57.46	130.984	
13,900.00	6,926.32	6,376.00	6,335.04	116.20	24.15	74.10	620.57	257.14	7,621.90	7,564.36	57.54	132.454	
14,000.00	6,926.00	6,376.00	6,335.04	117.75	24.15	74.10	620.57	257.14	7,717.53	7,659.90	57.63	133.923	
14,100.00	6,925.68	6,376.00	6,335.04	119.29	24.15	74.10	620.57	257.14	7,813.26	7,755.55	57.71	135.390	
14,200.00	6,925.35	6,376.00	6,335.04	120.84	24.15	74.10	620.57	257.14	7,909.10	7,851.30	57.79	136.857	
14,300.00	6,925.03	6,376.00	6,335.04	122.39	24.15	74.10	620.57	257.14	8,005.03	7,947.16	57.87	138.321	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - Rosa Unit 704H - OH - Prelim #4

Offset Site Error: 0.00 usft

Survey Program: 0-MWD+HRGM+MS

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,400.00	6,924.71	6,376.00	6,335.04	123.94	24.15	74.10	620.57	257.14	8,101.07	8,043.12	57.95	139.784	
14,500.00	6,924.38	6,376.00	6,335.04	125.50	24.15	74.10	620.57	257.14	8,197.20	8,139.17	58.04	141.245	
14,600.00	6,924.06	6,376.00	6,335.04	127.05	24.15	74.10	620.57	257.14	8,293.43	8,235.31	58.12	142.704	
14,700.00	6,923.74	6,376.00	6,335.04	128.61	24.15	74.10	620.57	257.14	8,389.74	8,331.54	58.20	144.161	
14,800.00	6,923.42	6,372.66	6,331.73	130.16	24.14	74.02	620.19	257.00	8,486.14	8,427.87	58.26	145.654	
14,900.00	6,923.09	6,368.13	6,327.24	131.72	24.12	73.90	619.68	256.81	8,582.61	8,524.29	58.32	147.158	
15,000.00	6,922.77	6,363.61	6,322.74	133.28	24.10	73.79	619.17	256.61	8,679.17	8,620.78	58.38	148.661	
15,100.00	6,922.45	6,359.08	6,318.25	134.84	24.08	73.68	618.66	256.42	8,775.79	8,717.35	58.44	150.162	
15,200.00	6,922.12	6,354.55	6,313.75	136.40	24.07	73.56	618.15	256.23	8,872.50	8,813.99	58.50	151.661	
15,300.00	6,921.80	6,350.03	6,309.26	137.96	24.05	73.45	617.65	256.04	8,969.27	8,910.71	58.56	153.158	
15,400.00	6,921.48	6,345.50	6,304.77	139.53	24.03	73.34	617.14	255.84	9,066.11	9,007.48	58.62	154.652	
15,500.00	6,921.15	6,340.97	6,300.27	141.09	24.01	73.22	616.63	255.65	9,163.01	9,104.33	58.68	156.145	
15,600.00	6,920.83	6,336.45	6,295.78	142.65	24.00	73.11	616.12	255.46	9,259.98	9,201.24	58.74	157.635	
15,700.00	6,920.51	6,331.92	6,291.28	144.22	23.98	73.00	615.61	255.27	9,357.01	9,298.21	58.80	159.123	
15,800.00	6,920.18	6,327.39	6,286.79	145.79	23.96	72.88	615.10	255.07	9,454.10	9,395.24	58.86	160.609	
15,900.00	6,919.86	6,322.87	6,282.30	147.35	23.94	72.77	614.59	254.88	9,551.25	9,492.32	58.92	162.092	
16,000.00	6,919.54	6,318.34	6,277.80	148.92	23.93	72.66	614.08	254.69	9,648.45	9,589.47	58.99	163.572	
16,100.00	6,919.22	6,313.81	6,273.31	150.49	23.91	72.55	613.57	254.50	9,745.71	9,686.66	59.05	165.050	
16,200.00	6,918.89	6,309.29	6,268.81	152.06	23.89	72.43	613.06	254.30	9,843.02	9,783.91	59.11	166.526	
16,300.00	6,918.57	6,304.76	6,264.32	153.63	23.87	72.32	612.56	254.11	9,940.38	9,881.21	59.17	167.998	
16,400.00	6,918.25	6,300.23	6,259.83	155.20	23.86	72.21	612.05	253.92	10,037.80	9,978.56	59.23	169.468	
16,500.00	6,917.92	6,295.71	6,255.33	156.77	23.84	72.09	611.54	253.72	10,135.26	10,075.96	59.29	170.935	
16,600.00	6,917.60	6,291.18	6,250.84	158.34	23.82	71.98	611.03	253.53	10,232.76	10,173.41	59.36	172.399	
16,700.00	6,917.28	6,286.65	6,246.34	159.92	23.80	71.87	610.52	253.34	10,330.32	10,270.90	59.42	173.860	
16,800.00	6,916.95	6,282.13	6,241.85	161.49	23.79	71.76	610.01	253.15	10,427.91	10,368.44	59.48	175.319	
16,900.00	6,916.63	6,277.60	6,237.36	163.06	23.77	71.65	609.50	252.95	10,525.56	10,466.01	59.54	176.774	
17,000.00	6,916.31	6,273.07	6,232.86	164.64	23.75	71.53	608.99	252.76	10,623.24	10,563.63	59.61	178.226	
17,100.00	6,915.98	6,268.54	6,228.37	166.21	23.73	71.42	608.48	252.57	10,720.96	10,661.29	59.67	179.675	
17,200.00	6,915.66	6,264.02	6,223.87	167.79	23.72	71.31	607.97	252.38	10,818.73	10,758.99	59.73	181.121	
17,300.00	6,915.34	6,259.49	6,219.38	169.37	23.70	71.20	607.47	252.18	10,916.53	10,856.73	59.80	182.563	
17,400.00	6,915.02	6,254.96	6,214.89	170.94	23.68	71.09	606.96	251.99	11,014.37	10,954.51	59.86	184.003	
17,500.00	6,914.69	6,250.44	6,210.39	172.52	23.66	70.98	606.45	251.80	11,112.24	11,052.32	59.92	185.439	
17,600.00	6,914.37	6,245.91	6,205.90	174.10	23.65	70.86	605.94	251.60	11,210.16	11,150.17	59.99	186.871	
17,700.00	6,914.05	6,241.38	6,201.40	175.68	23.63	70.75	605.43	251.41	11,308.10	11,248.05	60.05	188.301	
17,800.00	6,913.72	6,236.86	6,196.91	177.25	23.61	70.64	604.92	251.22	11,406.08	11,345.96	60.12	189.727	
17,900.00	6,913.40	6,232.33	6,192.42	178.83	23.59	70.53	604.41	251.03	11,504.10	11,443.91	60.18	191.149	
18,000.00	6,913.08	6,227.80	6,187.92	180.41	23.58	70.42	603.90	250.83	11,602.14	11,541.89	60.25	192.568	
18,023.75	6,913.00	6,226.73	6,186.86	180.79	23.57	70.39	603.78	250.79	11,625.44	11,565.17	60.27	192.905	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - Rosa Unit 705H - OH - Prelim #3

Offset Site Error: 0.00 usft

Survey Program: 0-MWD+HRGM+MS

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	144.88	-61.53	43.27	75.22				
100.00	100.00	100.00	100.00	0.25	0.25	144.88	-61.53	43.27	75.22	74.72	0.50	149.877	
200.00	200.00	200.00	200.00	0.61	0.61	144.88	-61.53	43.27	75.22	74.00	1.22	61.714	
300.00	300.00	300.00	300.00	0.97	0.97	144.88	-61.53	43.27	75.22	73.28	1.94	38.857	
400.00	400.00	400.00	400.00	1.33	1.33	144.88	-61.53	43.27	75.22	72.56	2.65	28.355	
500.00	500.00	500.00	500.00	1.68	1.68	144.88	-61.53	43.27	75.22	71.85	3.37	22.322	CC
600.00	599.98	597.44	597.42	2.03	2.02	-35.75	-62.93	44.15	75.49	71.45	4.04	18.666	
700.00	699.84	694.82	694.67	2.36	2.35	-37.74	-67.13	46.80	76.38	71.69	4.70	16.259	
800.00	799.45	792.11	791.60	2.71	2.68	-40.95	-74.11	51.21	78.07	72.71	5.36	14.562	
900.00	898.70	891.81	890.77	3.06	3.04	-45.57	-82.78	56.68	79.29	73.24	6.06	13.090	
1,000.00	997.47	991.41	989.85	3.43	3.40	-51.97	-91.44	62.15	78.82	72.05	6.77	11.637	
1,100.00	1,095.62	1,090.71	1,088.62	3.82	3.76	-60.53	-100.08	67.61	77.57	70.05	7.52	10.319	
1,189.42	1,182.78	1,179.14	1,176.58	4.18	4.09	-70.23	-107.77	72.46	76.91	68.70	8.21	9.363	
1,207.83	1,200.65	1,197.30	1,194.65	4.26	4.15	-72.46	-109.35	73.46	76.95	68.59	8.36	9.205	ES
1,300.00	1,290.02	1,288.16	1,285.02	4.65	4.49	-83.63	-117.25	78.45	78.90	69.79	9.11	8.662	
1,400.00	1,386.98	1,386.73	1,383.08	5.09	4.86	-94.72	-125.82	83.86	84.25	74.32	9.93	8.488	SF
1,500.00	1,483.95	1,485.31	1,481.13	5.53	5.23	-104.21	-134.39	89.27	92.38	81.65	10.73	8.609	
1,600.00	1,580.91	1,583.89	1,579.18	5.99	5.60	-112.02	-142.97	94.69	102.65	91.13	11.52	8.910	
1,700.00	1,677.87	1,682.47	1,677.24	6.44	5.97	-118.33	-151.54	100.10	114.48	102.18	12.30	9.307	
1,800.00	1,774.84	1,781.04	1,775.29	6.90	6.35	-123.43	-160.11	105.51	127.43	114.36	13.07	9.750	
1,900.00	1,871.80	1,879.62	1,873.35	7.36	6.72	-127.57	-168.69	110.93	141.20	127.36	13.84	10.206	
2,000.00	1,968.76	1,978.20	1,971.40	7.83	7.10	-130.97	-177.26	116.34	155.57	140.97	14.60	10.657	
2,100.00	2,065.73	2,076.77	2,069.45	8.30	7.47	-133.79	-185.83	121.75	170.38	155.02	15.36	11.093	
2,200.00	2,162.69	2,175.35	2,167.51	8.77	7.85	-136.15	-194.40	127.16	185.53	169.41	16.12	11.510	
2,300.00	2,259.65	2,273.93	2,265.56	9.24	8.22	-138.16	-202.98	132.58	200.95	184.07	16.88	11.904	
2,400.00	2,356.61	2,372.50	2,363.62	9.71	8.60	-139.88	-211.55	137.99	216.58	198.94	17.64	12.276	
2,500.00	2,453.58	2,471.08	2,461.67	10.18	8.97	-141.37	-220.12	143.40	232.37	213.97	18.41	12.625	
2,600.00	2,550.54	2,569.66	2,559.72	10.66	9.35	-142.67	-228.70	148.82	248.30	229.13	19.17	12.954	
2,700.00	2,647.50	2,668.23	2,657.78	11.13	9.73	-143.81	-237.27	154.23	264.33	244.40	19.93	13.262	
2,800.00	2,744.47	2,766.81	2,755.83	11.61	10.10	-144.82	-245.84	159.64	280.46	259.76	20.70	13.552	
2,900.00	2,841.43	2,865.39	2,853.89	12.08	10.48	-145.72	-254.42	165.05	296.66	275.20	21.46	13.824	
3,000.00	2,938.39	2,963.96	2,951.94	12.56	10.86	-146.53	-262.99	170.47	312.92	290.70	22.23	14.080	
3,100.00	3,035.36	3,062.54	3,049.99	13.04	11.24	-147.26	-271.56	175.88	329.25	306.25	22.99	14.321	
3,200.00	3,132.32	3,161.12	3,148.05	13.51	11.61	-147.92	-280.13	181.29	345.61	321.86	23.76	14.548	
3,300.00	3,229.28	3,259.70	3,246.10	13.99	11.99	-148.52	-288.71	186.71	362.02	337.50	24.52	14.762	
3,400.00	3,326.25	3,358.27	3,344.16	14.47	12.37	-149.07	-297.28	192.12	378.47	353.17	25.29	14.964	
3,500.00	3,423.21	3,456.85	3,442.21	14.95	12.75	-149.57	-305.85	197.53	394.94	368.88	26.06	15.156	
3,600.00	3,520.17	3,555.43	3,540.27	15.43	13.13	-150.03	-314.43	202.94	411.44	384.62	26.83	15.337	
3,700.00	3,617.13	3,654.00	3,638.32	15.91	13.50	-150.46	-323.00	208.36	427.97	400.37	27.59	15.509	
3,800.00	3,714.10	3,752.58	3,736.37	16.39	13.88	-150.85	-331.57	213.77	444.52	416.15	28.36	15.672	
3,900.00	3,811.06	3,851.16	3,834.43	16.87	14.26	-151.22	-340.14	219.18	461.08	431.95	29.13	15.827	
4,000.00	3,908.02	3,949.73	3,932.48	17.35	14.64	-151.56	-348.72	224.60	477.66	447.76	29.90	15.975	
4,100.00	4,004.99	4,048.31	4,030.54	17.83	15.02	-151.88	-357.29	230.01	494.26	463.59	30.67	16.115	
4,200.00	4,101.95	4,146.89	4,128.59	18.31	15.40	-152.18	-365.86	235.42	510.88	479.44	31.44	16.249	
4,300.00	4,198.91	4,245.46	4,226.64	18.79	15.77	-152.45	-374.44	240.84	527.50	495.29	32.21	16.377	
4,400.00	4,295.88	4,344.04	4,324.70	19.27	16.15	-152.72	-383.01	246.25	544.14	511.16	32.98	16.499	
4,500.00	4,392.84	4,442.62	4,422.75	19.75	16.53	-152.96	-391.58	251.66	560.78	527.04	33.75	16.616	
4,600.00	4,489.80	4,541.19	4,520.81	20.23	16.91	-153.19	-400.16	257.07	577.44	542.92	34.52	16.728	
4,700.00	4,586.76	4,639.77	4,618.86	20.71	17.29	-153.41	-408.73	262.49	594.11	558.82	35.29	16.835	
4,800.00	4,683.73	4,738.35	4,716.91	21.20	17.67	-153.62	-417.30	267.90	610.78	574.72	36.06	16.937	
4,900.00	4,780.69	4,836.93	4,814.97	21.68	18.05	-153.82	-425.87	273.31	627.46	590.63	36.83	17.036	
5,000.00	4,877.65	4,935.50	4,913.02	22.16	18.42	-154.00	-434.45	278.73	644.15	606.54	37.60	17.130	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - Rosa Unit 705H - OH - Prelim #3

Offset Site Error: 0.00 usft

Survey Program: 0-MWD+HRGM+MS

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Rule Assigned: Distance Between Ellipses (usft)	Rule Assigned: Minimum Separation (usft)	Separation Factor	Warning
5,100.00	4,974.62	5,034.08	5,011.08	22.64	18.80	-154.18	-443.02	284.14	660.84	622.47	38.37	17.221	
5,200.00	5,071.58	5,132.66	5,109.13	23.12	19.18	-154.35	-451.59	289.55	677.54	638.39	39.15	17.308	
5,300.00	5,168.54	5,231.23	5,207.18	23.60	19.56	-154.51	-460.17	294.96	694.24	654.33	39.92	17.392	
5,400.00	5,265.51	5,329.81	5,305.24	24.09	19.94	-154.66	-468.74	300.38	710.95	670.27	40.69	17.473	
5,500.00	5,362.47	5,428.39	5,403.29	24.57	20.32	-154.80	-477.31	305.79	727.67	686.21	41.46	17.551	
5,600.00	5,459.43	5,526.96	5,501.35	25.05	20.70	-154.94	-485.89	311.20	744.39	702.16	42.23	17.626	
5,700.00	5,556.40	5,625.54	5,599.40	25.53	21.08	-155.08	-494.46	316.62	761.11	718.11	43.00	17.699	
5,800.00	5,653.36	5,724.12	5,697.46	26.01	21.46	-155.20	-503.03	322.03	777.84	734.06	43.78	17.769	
5,900.00	5,750.32	5,822.69	5,795.51	26.50	21.83	-155.32	-511.60	327.44	794.57	750.02	44.55	17.836	
6,000.00	5,847.28	5,921.27	5,893.56	26.98	22.21	-155.44	-520.18	332.85	811.30	765.98	45.32	17.902	
6,100.00	5,944.25	6,019.85	5,991.62	27.46	22.59	-155.55	-528.75	338.27	828.04	781.94	46.09	17.965	
6,200.00	6,041.21	6,118.42	6,089.67	27.94	22.97	-155.66	-537.32	343.68	844.78	797.91	46.86	18.026	
6,300.00	6,138.17	6,217.00	6,187.73	28.43	23.35	-155.76	-545.90	349.09	861.52	813.88	47.64	18.085	
6,400.00	6,235.14	6,315.58	6,285.78	28.91	23.73	-155.86	-554.47	354.51	878.26	829.85	48.41	18.142	
6,496.84	6,329.04	6,400.00	6,369.72	29.38	24.05	-155.92	-561.81	359.60	894.73	845.65	49.08	18.230	
6,500.00	6,332.10	6,400.00	6,369.72	29.39	24.05	-157.09	-561.81	359.60	895.31	846.23	49.08	18.242	
6,550.00	6,380.52	6,431.51	6,400.89	29.63	24.18	-175.00	-564.54	363.29	905.79	856.45	49.34	18.359	
6,600.00	6,428.63	6,461.37	6,430.23	29.87	24.30	169.91	-567.12	368.21	918.75	869.17	49.58	18.530	
6,650.00	6,476.14	6,489.43	6,457.55	30.10	24.42	158.31	-569.53	374.09	934.18	884.38	49.81	18.756	
6,700.00	6,522.73	6,515.22	6,482.43	30.33	24.52	149.53	-571.72	380.56	952.09	902.08	50.01	19.039	
6,750.00	6,568.14	6,538.44	6,504.58	30.54	24.62	142.67	-573.68	387.24	972.45	922.28	50.17	19.382	
6,800.00	6,612.08	6,550.00	6,515.51	30.75	24.67	136.64	-574.64	390.87	995.32	945.15	50.17	19.840	
6,850.00	6,654.28	6,576.52	6,540.33	30.95	24.78	132.06	-576.84	399.94	1,020.40	970.02	50.39	20.251	
6,900.00	6,694.47	6,600.00	6,561.97	31.15	24.88	127.89	-578.76	408.84	1,047.87	997.29	50.57	20.719	
6,950.00	6,732.42	6,600.00	6,561.97	31.33	24.88	122.72	-578.76	408.84	1,077.29	1,026.89	50.40	21.377	
7,000.00	6,767.89	6,613.01	6,573.82	31.51	24.94	118.34	-579.82	414.11	1,108.64	1,058.19	50.44	21.979	
7,050.00	6,800.65	6,620.16	6,580.29	31.68	24.97	113.59	-580.39	417.11	1,141.64	1,091.23	50.41	22.648	
7,100.00	6,830.51	6,625.10	6,584.74	31.85	24.99	108.63	-580.79	419.22	1,176.04	1,125.68	50.36	23.353	
7,150.00	6,857.28	6,628.02	6,587.35	32.01	25.00	103.45	-581.02	420.49	1,211.56	1,161.26	50.30	24.086	
7,200.00	6,880.80	6,629.08	6,588.30	32.17	25.01	98.11	-581.11	420.95	1,247.92	1,197.68	50.24	24.839	
7,250.00	6,900.92	6,628.47	6,587.76	32.33	25.00	92.69	-581.06	420.68	1,284.86	1,234.67	50.18	25.603	
7,300.00	6,917.52	6,626.34	6,585.85	32.49	24.99	87.29	-580.89	419.76	1,322.09	1,271.95	50.14	26.370	
7,350.00	6,930.50	6,622.85	6,582.71	32.66	24.98	82.05	-580.61	418.26	1,359.36	1,309.26	50.10	27.134	
7,400.00	6,939.77	6,618.13	6,578.45	32.83	24.96	77.06	-580.23	416.25	1,396.41	1,346.34	50.07	27.888	
7,450.00	6,945.28	6,600.00	6,561.97	33.01	24.88	71.80	-578.76	408.84	1,433.16	1,383.30	49.86	28.746	
7,499.66	6,947.00	6,600.00	6,561.97	33.19	24.88	67.97	-578.76	408.84	1,468.74	1,418.76	49.98	29.389	
7,600.00	6,946.68	6,600.00	6,561.97	33.61	24.88	67.97	-578.76	408.84	1,541.51	1,491.27	50.24	30.684	
7,700.00	6,946.35	6,579.10	6,542.72	34.10	24.79	67.03	-577.05	400.88	1,616.56	1,566.38	50.17	32.219	
7,800.00	6,946.03	6,567.69	6,532.10	34.66	24.74	66.52	-576.11	396.81	1,693.99	1,643.74	50.25	33.712	
7,900.00	6,945.71	6,550.00	6,515.51	35.29	24.67	65.72	-574.64	390.87	1,773.51	1,723.28	50.23	35.306	
8,000.00	6,945.38	6,550.00	6,515.51	35.99	24.67	65.72	-574.64	390.87	1,854.75	1,804.30	50.44	36.770	
8,100.00	6,945.06	6,550.00	6,515.51	36.74	24.67	65.72	-574.64	390.87	1,937.74	1,887.11	50.63	38.273	
8,200.00	6,944.74	6,530.87	6,497.38	37.56	24.59	64.87	-573.04	384.97	2,021.92	1,971.33	50.58	39.971	
8,300.00	6,944.41	6,523.39	6,490.25	38.43	24.56	64.54	-572.41	382.82	2,107.48	2,056.81	50.67	41.594	
8,400.00	6,944.09	6,500.00	6,467.78	39.35	24.46	63.51	-570.43	376.62	2,194.42	2,143.84	50.58	43.385	
8,500.00	6,943.77	6,500.00	6,467.78	40.31	24.46	63.51	-570.43	376.62	2,281.96	2,231.23	50.73	44.982	
8,600.00	6,943.45	6,500.00	6,467.78	41.32	24.46	63.51	-570.43	376.62	2,370.49	2,319.62	50.87	46.600	
8,700.00	6,943.12	6,500.00	6,467.78	42.37	24.46	63.51	-570.43	376.62	2,459.89	2,408.89	51.00	48.238	
8,800.00	6,942.80	6,500.00	6,467.78	43.45	24.46	63.51	-570.43	376.62	2,550.08	2,498.97	51.11	49.892	
8,900.00	6,942.48	6,500.00	6,467.78	44.57	24.46	63.51	-570.43	376.62	2,640.98	2,589.76	51.22	51.561	
9,000.00	6,942.15	6,500.00	6,467.78	45.71	24.46	63.51	-570.43	376.62	2,732.51	2,681.19	51.32	53.243	
9,100.00	6,941.83	6,479.28	6,447.71	46.89	24.37	62.61	-568.66	371.83	2,824.22	2,772.97	51.26	55.101	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - Rosa Unit 705H - OH - Prelim #3

Offset Site Error: 0.00 usft

Survey Program: 0-MWD+HRGM+MS

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,200.00	6,941.51	6,475.19	6,443.72	48.09	24.36	62.43	-568.31	370.96	2,916.68	2,865.36	51.32	56.835	
9,300.00	6,941.18	6,471.32	6,439.95	49.31	24.34	62.27	-567.97	370.16	3,009.59	2,958.21	51.38	58.576	
9,400.00	6,940.86	6,450.00	6,419.09	50.56	24.25	61.36	-566.14	366.17	3,103.20	3,051.89	51.31	60.475	
9,500.00	6,940.54	6,450.00	6,419.09	51.82	24.25	61.36	-566.14	366.17	3,196.81	3,145.41	51.40	62.196	
9,600.00	6,940.21	6,450.00	6,419.09	53.11	24.25	61.36	-566.14	366.17	3,290.79	3,239.31	51.48	63.924	
9,700.00	6,939.89	6,450.00	6,419.09	54.41	24.25	61.36	-566.14	366.17	3,385.12	3,333.56	51.56	65.658	
9,800.00	6,939.57	6,450.00	6,419.09	55.73	24.25	61.36	-566.14	366.17	3,479.77	3,428.13	51.63	67.396	
9,900.00	6,939.25	6,450.00	6,419.09	57.07	24.25	61.36	-566.14	366.17	3,574.70	3,523.00	51.70	69.140	
10,000.00	6,938.92	6,450.00	6,419.09	58.41	24.25	61.36	-566.14	366.17	3,669.91	3,618.14	51.77	70.887	
10,100.00	6,938.60	6,450.00	6,419.09	59.77	24.25	61.36	-566.14	366.17	3,765.36	3,713.52	51.84	72.637	
10,200.00	6,938.28	6,450.00	6,419.09	61.15	24.25	61.36	-566.14	366.17	3,861.05	3,809.14	51.90	74.390	
10,300.00	6,937.95	6,450.00	6,419.09	62.53	24.25	61.36	-566.14	366.17	3,956.94	3,904.98	51.97	76.146	
10,400.00	6,937.63	6,450.00	6,419.09	63.92	24.25	61.36	-566.14	366.17	4,053.04	4,001.01	52.03	77.903	
10,500.00	6,937.31	6,450.00	6,419.09	65.33	24.25	61.36	-566.14	366.17	4,149.32	4,097.23	52.09	79.661	
10,600.00	6,936.98	6,450.00	6,419.09	66.74	24.25	61.36	-566.14	366.17	4,245.77	4,193.63	52.15	81.420	
10,700.00	6,936.66	6,450.00	6,419.09	68.16	24.25	61.36	-566.14	366.17	4,342.38	4,290.18	52.20	83.180	
10,800.00	6,936.34	6,450.00	6,419.09	69.59	24.25	61.36	-566.14	366.17	4,439.15	4,386.89	52.26	84.941	
10,900.00	6,936.01	6,450.00	6,419.09	71.03	24.25	61.36	-566.14	366.17	4,536.05	4,483.73	52.32	86.701	
11,000.00	6,935.69	6,428.04	6,397.47	72.47	24.17	60.43	-564.24	362.81	4,632.66	4,580.40	52.27	88.637	
11,100.00	6,935.37	6,426.35	6,395.80	73.92	24.16	60.36	-564.10	362.58	4,729.75	4,677.44	52.31	90.410	
11,200.00	6,935.05	6,424.72	6,394.20	75.38	24.15	60.30	-563.95	362.36	4,826.96	4,774.60	52.36	92.182	
11,300.00	6,934.72	6,423.16	6,392.65	76.84	24.15	60.23	-563.82	362.16	4,924.27	4,871.86	52.41	93.952	
11,400.00	6,934.40	6,400.00	6,369.72	78.31	24.05	59.28	-561.81	359.60	5,022.10	4,969.74	52.36	95.914	
11,500.00	6,934.08	6,400.00	6,369.72	79.79	24.05	59.28	-561.81	359.60	5,119.55	5,067.14	52.42	97.668	
11,600.00	6,933.75	6,400.00	6,369.72	81.27	24.05	59.28	-561.81	359.60	5,217.11	5,164.63	52.48	99.421	
11,700.00	6,933.43	6,400.00	6,369.72	82.75	24.05	59.28	-561.81	359.60	5,314.75	5,262.22	52.53	101.171	
11,800.00	6,933.11	6,400.00	6,369.72	84.24	24.05	59.28	-561.81	359.60	5,412.48	5,359.89	52.59	102.920	
11,900.00	6,932.78	6,400.00	6,369.72	85.73	24.05	59.28	-561.81	359.60	5,510.29	5,457.65	52.65	104.667	
12,000.00	6,932.46	6,400.00	6,369.72	87.23	24.05	59.28	-561.81	359.60	5,608.18	5,555.48	52.70	106.412	
12,100.00	6,932.14	6,400.00	6,369.72	88.72	24.05	59.28	-561.81	359.60	5,706.14	5,653.38	52.76	108.154	
12,200.00	6,931.81	6,400.00	6,369.72	90.23	24.05	59.28	-561.81	359.60	5,804.18	5,751.36	52.82	109.894	
12,300.00	6,931.49	6,400.00	6,369.72	91.74	24.05	59.28	-561.81	359.60	5,902.27	5,849.40	52.87	111.631	
12,400.00	6,931.17	6,400.00	6,369.72	93.25	24.05	59.28	-561.81	359.60	6,000.43	5,947.50	52.93	113.365	
12,500.00	6,930.85	6,400.00	6,369.72	94.76	24.05	59.28	-561.81	359.60	6,098.65	6,045.67	52.99	115.096	
12,600.00	6,930.52	6,400.00	6,369.72	96.27	24.05	59.28	-561.81	359.60	6,196.93	6,143.89	53.05	116.823	
12,700.00	6,930.20	6,400.00	6,369.72	97.79	24.05	59.28	-561.81	359.60	6,295.26	6,242.16	53.10	118.548	
12,800.00	6,929.88	6,400.00	6,369.72	99.32	24.05	59.28	-561.81	359.60	6,393.65	6,340.48	53.16	120.269	
12,900.00	6,929.55	6,400.00	6,369.72	100.84	24.05	59.28	-561.81	359.60	6,492.08	6,438.86	53.22	121.987	
13,000.00	6,929.23	6,400.00	6,369.72	102.37	24.05	59.28	-561.81	359.60	6,590.56	6,537.28	53.28	123.701	
13,100.00	6,928.91	6,400.00	6,369.72	103.89	24.05	59.28	-561.81	359.60	6,689.08	6,635.75	53.34	125.412	
13,200.00	6,928.58	6,400.00	6,369.72	105.43	24.05	59.28	-561.81	359.60	6,787.65	6,734.25	53.40	127.119	
13,300.00	6,928.26	6,400.00	6,369.72	106.96	24.05	59.28	-561.81	359.60	6,886.26	6,832.80	53.46	128.822	
13,400.00	6,927.94	6,400.00	6,369.72	108.49	24.05	59.28	-561.81	359.60	6,984.91	6,931.39	53.52	130.521	
13,500.00	6,927.61	6,400.00	6,369.72	110.03	24.05	59.28	-561.81	359.60	7,083.60	7,030.02	53.58	132.215	
13,600.00	6,927.29	6,400.00	6,369.72	111.57	24.05	59.28	-561.81	359.60	7,182.32	7,128.68	53.64	133.906	
13,700.00	6,926.97	6,400.00	6,369.72	113.11	24.05	59.28	-561.81	359.60	7,281.08	7,227.38	53.70	135.593	
13,800.00	6,926.65	6,400.00	6,369.72	114.65	24.05	59.28	-561.81	359.60	7,379.87	7,326.11	53.76	137.275	
13,900.00	6,926.32	6,400.00	6,369.72	116.20	24.05	59.28	-561.81	359.60	7,478.69	7,424.87	53.82	138.953	
14,000.00	6,926.00	6,400.00	6,369.72	117.75	24.05	59.28	-561.81	359.60	7,577.55	7,523.66	53.88	140.627	
14,100.00	6,925.68	6,400.00	6,369.72	119.29	24.05	59.28	-561.81	359.60	7,676.43	7,622.48	53.95	142.296	
14,200.00	6,925.35	6,400.00	6,369.72	120.84	24.05	59.28	-561.81	359.60	7,775.34	7,721.33	54.01	143.960	
14,300.00	6,925.03	6,400.00	6,369.72	122.39	24.05	59.28	-561.81	359.60	7,874.28	7,820.21	54.07	145.620	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - Rosa Unit 705H - OH - Prelim #3

Offset Site Error: 0.00 usft

Survey Program: 0-MWD+HRGM+MS

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,400.00	6,924.71	6,400.00	6,369.72	123.94	24.05	59.28	-561.81	359.60	7,973.25	7,919.11	54.14	147.275	
14,500.00	6,924.38	6,400.00	6,369.72	125.50	24.05	59.28	-561.81	359.60	8,072.24	8,018.04	54.20	148.926	
14,600.00	6,924.06	6,400.00	6,369.72	127.05	24.05	59.28	-561.81	359.60	8,171.26	8,116.99	54.27	150.571	
14,700.00	6,923.74	6,400.00	6,369.72	128.61	24.05	59.28	-561.81	359.60	8,270.30	8,215.96	54.33	152.212	
14,800.00	6,923.42	6,400.00	6,369.72	130.16	24.05	59.28	-561.81	359.60	8,369.36	8,314.96	54.40	153.848	
14,900.00	6,923.09	6,400.00	6,369.72	131.72	24.05	59.28	-561.81	359.60	8,468.45	8,413.98	54.47	155.479	
15,000.00	6,922.77	6,400.00	6,369.72	133.28	24.05	59.28	-561.81	359.60	8,567.55	8,513.02	54.53	157.105	
15,100.00	6,922.45	6,388.55	6,358.35	134.84	24.01	58.81	-560.81	358.64	8,666.57	8,612.01	54.56	158.842	
15,200.00	6,922.12	6,388.01	6,357.82	136.40	24.01	58.79	-560.77	358.60	8,765.71	8,711.08	54.63	160.464	
15,300.00	6,921.80	6,387.49	6,357.31	137.96	24.01	58.77	-560.72	358.56	8,864.86	8,810.17	54.69	162.081	
15,400.00	6,921.48	6,375.94	6,345.82	139.53	23.96	58.31	-559.72	357.82	8,964.14	8,909.41	54.72	163.809	
15,500.00	6,921.15	6,375.94	6,345.82	141.09	23.96	58.31	-559.72	357.82	9,063.32	9,008.53	54.79	165.411	
15,600.00	6,920.83	6,375.94	6,345.82	142.65	23.96	58.31	-559.72	357.82	9,162.52	9,107.66	54.86	167.007	
15,700.00	6,920.51	6,375.94	6,345.82	144.22	23.96	58.31	-559.72	357.82	9,261.74	9,206.80	54.93	168.598	
15,800.00	6,920.18	6,375.94	6,345.82	145.79	23.96	58.31	-559.72	357.82	9,360.97	9,305.96	55.01	170.183	
15,900.00	6,919.86	6,375.94	6,345.82	147.35	23.96	58.31	-559.72	357.82	9,460.22	9,405.14	55.08	171.763	
16,000.00	6,919.54	6,375.94	6,345.82	148.92	23.96	58.31	-559.72	357.82	9,559.48	9,504.34	55.15	173.338	
16,100.00	6,919.22	6,375.94	6,345.82	150.49	23.96	58.31	-559.72	357.82	9,658.77	9,603.54	55.22	174.908	
16,200.00	6,918.89	6,375.94	6,345.82	152.06	23.96	58.31	-559.72	357.82	9,758.06	9,702.77	55.30	176.472	
16,300.00	6,918.57	6,375.94	6,345.82	153.63	23.96	58.31	-559.72	357.82	9,857.37	9,802.00	55.37	178.030	
16,400.00	6,918.25	6,375.94	6,345.82	155.20	23.96	58.31	-559.72	357.82	9,956.69	9,901.25	55.44	179.584	
16,500.00	6,917.92	6,375.94	6,345.82	156.77	23.96	58.31	-559.72	357.82	10,056.03	10,000.51	55.52	181.131	
16,600.00	6,917.60	6,375.94	6,345.82	158.34	23.96	58.31	-559.72	357.82	10,155.38	10,099.79	55.59	182.673	
16,700.00	6,917.28	6,375.94	6,345.82	159.92	23.96	58.31	-559.72	357.82	10,254.74	10,199.07	55.67	184.210	
16,800.00	6,916.95	6,375.94	6,345.82	161.49	23.96	58.31	-559.72	357.82	10,354.12	10,298.37	55.74	185.741	
16,900.00	6,916.63	6,375.94	6,345.82	163.06	23.96	58.31	-559.72	357.82	10,453.51	10,397.68	55.82	187.266	
17,000.00	6,916.31	6,375.94	6,345.82	164.64	23.96	58.31	-559.72	357.82	10,552.90	10,497.00	55.90	188.786	
17,100.00	6,915.98	6,375.94	6,345.82	166.21	23.96	58.31	-559.72	357.82	10,652.31	10,596.34	55.98	190.300	
17,200.00	6,915.66	6,375.94	6,345.82	167.79	23.96	58.31	-559.72	357.82	10,751.73	10,695.68	56.05	191.809	
17,300.00	6,915.34	6,375.94	6,345.82	169.37	23.96	58.31	-559.72	357.82	10,851.17	10,795.03	56.13	193.312	
17,400.00	6,915.02	6,375.94	6,345.82	170.94	23.96	58.31	-559.72	357.82	10,950.61	10,894.39	56.21	194.809	
17,500.00	6,914.69	6,375.94	6,345.82	172.52	23.96	58.31	-559.72	357.82	11,050.06	10,993.77	56.29	196.301	
17,600.00	6,914.37	6,375.94	6,345.82	174.10	23.96	58.31	-559.72	357.82	11,149.52	11,093.15	56.37	197.787	
17,700.00	6,914.05	6,375.94	6,345.82	175.68	23.96	58.31	-559.72	357.82	11,248.99	11,192.54	56.45	199.267	
17,800.00	6,913.72	6,375.94	6,345.82	177.25	23.96	58.31	-559.72	357.82	11,348.47	11,291.94	56.53	200.741	
17,900.00	6,913.40	6,375.94	6,345.82	178.83	23.96	58.31	-559.72	357.82	11,447.96	11,391.35	56.61	202.210	
18,000.00	6,913.08	6,375.94	6,345.82	180.41	23.96	58.31	-559.72	357.82	11,547.46	11,490.76	56.70	203.673	
18,023.75	6,913.00	6,375.94	6,345.82	180.79	23.96	58.31	-559.72	357.82	11,571.09	11,514.38	56.72	204.020	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - Rosa Unit 706H - OH - Prelim #5

Offset Site Error: 0.00 usft

Survey Program: 0-MWD+HRGM+MS

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	144.87	-41.14	28.94	50.30				
100.00	100.00	100.00	100.00	0.25	0.25	144.87	-41.14	28.94	50.30	49.80	0.50	100.228	
200.00	200.00	200.00	200.00	0.61	0.61	144.87	-41.14	28.94	50.30	49.08	1.22	41.270	
300.00	300.00	300.00	300.00	0.97	0.97	144.87	-41.14	28.94	50.30	48.36	1.94	25.985	
400.00	400.00	400.00	400.00	1.33	1.33	144.87	-41.14	28.94	50.30	47.65	2.65	18.962	
500.00	500.00	500.00	500.00	1.68	1.68	144.87	-41.14	28.94	50.30	46.93	3.37	14.928	CC
600.00	599.98	598.38	598.36	2.03	2.02	-35.54	-42.77	29.38	50.49	46.44	4.05	12.476	
700.00	699.84	696.74	696.59	2.36	2.35	-36.89	-47.66	30.69	51.06	46.36	4.70	10.859	ES
800.00	799.45	795.09	794.57	2.71	2.69	-39.08	-55.81	32.87	52.08	46.71	5.37	9.699	
900.00	898.70	893.41	892.17	3.06	3.04	-41.98	-67.19	35.92	53.64	47.59	6.05	8.865	
1,000.00	997.47	991.68	989.27	3.43	3.40	-45.46	-81.80	39.84	55.82	49.07	6.75	8.272	
1,100.00	1,095.62	1,089.91	1,085.75	3.82	3.78	-49.32	-99.60	44.61	58.75	51.28	7.47	7.862	
1,207.83	1,200.65	1,197.38	1,190.87	4.26	4.21	-54.74	-121.17	50.38	61.60	53.28	8.32	7.401	
1,300.00	1,290.02	1,289.32	1,280.80	4.65	4.59	-60.32	-139.63	55.33	63.58	54.49	9.09	6.993	
1,400.00	1,386.98	1,389.08	1,378.38	5.09	5.01	-65.95	-159.66	60.70	66.37	56.41	9.96	6.666	
1,500.00	1,483.95	1,488.83	1,475.96	5.53	5.44	-71.08	-179.70	66.07	69.74	58.90	10.84	6.434	
1,600.00	1,580.91	1,588.59	1,573.54	5.99	5.86	-75.71	-199.73	71.44	73.62	61.88	11.74	6.271	
1,700.00	1,677.87	1,688.35	1,671.11	6.44	6.29	-79.84	-219.77	76.80	77.93	65.29	12.65	6.162	
1,800.00	1,774.84	1,788.10	1,768.69	6.90	6.73	-83.53	-239.80	82.17	82.61	69.05	13.56	6.092	
1,900.00	1,871.80	1,887.86	1,866.27	7.36	7.17	-86.82	-259.83	87.54	87.59	73.11	14.48	6.051	
2,000.00	1,968.76	1,987.62	1,963.84	7.83	7.60	-89.74	-279.87	92.91	92.83	77.44	15.39	6.031	
2,100.00	2,065.73	2,087.37	2,061.42	8.30	8.04	-92.34	-299.90	98.28	98.28	81.97	16.30	6.028	SF
2,200.00	2,162.69	2,187.13	2,159.00	8.77	8.48	-94.67	-319.93	103.65	103.91	86.69	17.22	6.035	
2,300.00	2,259.65	2,286.89	2,256.57	9.24	8.93	-96.76	-339.97	109.01	109.70	91.57	18.13	6.051	
2,400.00	2,356.61	2,386.64	2,354.15	9.71	9.37	-98.63	-360.00	114.38	115.62	96.58	19.04	6.073	
2,500.00	2,453.58	2,486.40	2,451.73	10.18	9.81	-100.32	-380.04	119.75	121.64	101.70	19.94	6.099	
2,600.00	2,550.54	2,586.16	2,549.31	10.66	10.26	-101.85	-400.07	125.12	127.77	106.92	20.85	6.128	
2,700.00	2,647.50	2,685.92	2,646.88	11.13	10.70	-103.24	-420.10	130.49	133.98	112.22	21.75	6.159	
2,800.00	2,744.47	2,785.67	2,744.46	11.61	11.15	-104.51	-440.14	135.85	140.25	117.60	22.66	6.190	
2,900.00	2,841.43	2,885.43	2,842.04	12.08	11.60	-105.66	-460.17	141.22	146.60	123.04	23.56	6.223	
3,000.00	2,938.39	2,985.19	2,939.61	12.56	12.04	-106.72	-480.21	146.59	152.99	128.53	24.46	6.255	
3,100.00	3,035.36	3,084.94	3,037.19	13.04	12.49	-107.70	-500.24	151.96	159.43	134.08	25.36	6.287	
3,200.00	3,132.32	3,184.70	3,134.77	13.51	12.94	-108.60	-520.27	157.33	165.92	139.66	26.26	6.319	
3,300.00	3,229.28	3,284.46	3,232.34	13.99	13.38	-109.43	-540.31	162.69	172.44	145.29	27.15	6.351	
3,400.00	3,326.25	3,384.21	3,329.92	14.47	13.83	-110.20	-560.34	168.06	179.00	150.95	28.05	6.381	
3,500.00	3,423.21	3,483.97	3,427.50	14.95	14.28	-110.92	-580.38	173.43	185.59	156.64	28.95	6.411	
3,600.00	3,520.17	3,583.73	3,525.08	15.43	14.73	-111.58	-600.41	178.80	192.20	162.36	29.84	6.441	
3,700.00	3,617.13	3,683.48	3,622.65	15.91	15.18	-112.21	-620.44	184.17	198.84	168.10	30.74	6.469	
3,800.00	3,714.10	3,783.24	3,720.23	16.39	15.63	-112.79	-640.48	189.53	205.50	173.87	31.63	6.497	
3,900.00	3,811.06	3,883.00	3,817.81	16.87	16.08	-113.33	-660.51	194.90	212.18	179.65	32.53	6.523	
4,000.00	3,908.02	3,982.76	3,915.38	17.35	16.53	-113.85	-680.54	200.27	218.88	185.46	33.42	6.549	
4,100.00	4,004.99	4,082.51	4,012.96	17.83	16.97	-114.33	-700.58	205.64	225.59	191.28	34.31	6.574	
4,200.00	4,101.95	4,182.27	4,110.54	18.31	17.42	-114.78	-720.61	211.01	232.32	197.11	35.21	6.599	
4,300.00	4,198.91	4,282.03	4,208.11	18.79	17.87	-115.21	-740.65	216.37	239.06	202.96	36.10	6.622	
4,400.00	4,295.88	4,381.78	4,305.69	19.27	18.32	-115.61	-760.68	221.74	245.82	208.83	36.99	6.645	
4,500.00	4,392.84	4,481.54	4,403.27	19.75	18.77	-116.00	-780.71	227.11	252.59	214.70	37.88	6.667	
4,600.00	4,489.80	4,581.30	4,500.85	20.23	19.22	-116.36	-800.75	232.48	259.36	220.59	38.78	6.689	
4,700.00	4,586.76	4,681.05	4,598.42	20.71	19.67	-116.71	-820.78	237.85	266.15	226.48	39.67	6.709	
4,800.00	4,683.73	4,780.81	4,696.00	21.20	20.12	-117.03	-840.82	243.22	272.95	232.39	40.56	6.729	
4,900.00	4,780.69	4,880.57	4,793.58	21.68	20.57	-117.34	-860.85	248.58	279.75	238.30	41.45	6.749	
5,000.00	4,877.65	4,980.32	4,891.15	22.16	21.02	-117.64	-880.88	253.95	286.57	244.22	42.34	6.768	
5,100.00	4,974.62	5,080.08	4,988.73	22.64	21.48	-117.92	-900.92	259.32	293.39	250.15	43.24	6.786	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - Rosa Unit 706H - OH - Prelim #5

Offset Site Error: 0.00 usft

Survey Program: 0-MWD+HRGM+MS

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,200.00	5,071.58	5,179.84	5,086.31	23.12	21.93	-118.19	-920.95	264.69	300.21	256.09	44.13	6.803	
5,300.00	5,168.54	5,279.60	5,183.88	23.60	22.38	-118.45	-940.99	270.06	307.05	262.03	45.02	6.821	
5,400.00	5,265.51	5,379.35	5,281.46	24.09	22.83	-118.70	-961.02	275.42	313.89	267.98	45.91	6.837	
5,500.00	5,362.47	5,479.11	5,379.04	24.57	23.28	-118.94	-981.05	280.79	320.73	273.93	46.80	6.853	
5,600.00	5,459.43	5,578.87	5,476.61	25.05	23.73	-119.16	-1,001.09	286.16	327.58	279.89	47.69	6.869	
5,700.00	5,556.40	5,678.62	5,574.19	25.53	24.18	-119.38	-1,021.12	291.53	334.44	285.85	48.58	6.884	
5,800.00	5,653.36	5,778.38	5,671.77	26.01	24.63	-119.59	-1,041.16	296.90	341.29	291.82	49.47	6.899	
5,900.00	5,750.32	5,878.14	5,769.35	26.50	25.08	-119.79	-1,061.19	302.26	348.16	297.80	50.36	6.913	
6,000.00	5,847.28	5,977.89	5,866.92	26.98	25.53	-119.98	-1,081.22	307.63	355.03	303.77	51.25	6.927	
6,100.00	5,944.25	6,077.65	5,964.50	27.46	25.98	-120.17	-1,101.26	313.00	361.90	309.75	52.14	6.940	
6,200.00	6,041.21	6,177.41	6,062.08	27.94	26.43	-120.34	-1,121.29	318.37	368.77	315.74	53.03	6.953	
6,300.00	6,138.17	6,277.16	6,159.65	28.43	26.88	-120.52	-1,141.32	323.74	375.65	321.73	53.92	6.966	
6,400.00	6,235.14	6,376.92	6,257.23	28.91	27.34	-120.68	-1,161.36	329.10	382.53	327.72	54.82	6.979	
6,496.84	6,329.04	6,473.53	6,351.73	29.38	27.77	-120.84	-1,180.76	334.30	389.20	333.52	55.68	6.990	
6,500.00	6,332.10	6,476.68	6,354.81	29.39	27.79	-121.98	-1,181.39	334.47	389.43	333.72	55.71	6.991	
6,550.00	6,380.52	6,526.38	6,403.42	29.63	28.01	-139.33	-1,191.37	337.15	394.75	338.59	56.16	7.029	
6,600.00	6,428.63	6,564.33	6,440.41	29.87	28.19	-153.73	-1,199.39	339.98	404.04	347.50	56.54	7.146	
6,650.00	6,476.14	6,600.00	6,474.77	30.10	28.36	-164.40	-1,207.83	344.43	418.10	361.20	56.90	7.348	
6,700.00	6,522.73	6,632.38	6,505.54	30.33	28.53	-172.08	-1,216.23	349.99	436.89	379.68	57.20	7.637	
6,750.00	6,568.14	6,662.23	6,533.48	30.54	28.69	-177.69	-1,224.57	356.36	460.29	402.84	57.45	8.012	
6,800.00	6,612.08	6,688.78	6,557.93	30.75	28.83	177.95	-1,232.46	363.03	488.11	430.50	57.62	8.472	
6,850.00	6,654.28	6,711.85	6,578.85	30.95	28.96	174.27	-1,239.66	369.59	520.05	462.35	57.71	9.012	
6,900.00	6,694.47	6,731.46	6,596.35	31.15	29.07	170.82	-1,246.03	375.71	555.73	498.00	57.72	9.627	
6,950.00	6,732.42	6,750.00	6,612.66	31.33	29.18	167.42	-1,252.26	381.95	594.68	536.92	57.75	10.297	
7,000.00	6,767.89	6,760.72	6,621.98	31.51	29.24	163.03	-1,255.95	385.76	636.40	578.79	57.61	11.046	
7,050.00	6,800.65	6,770.77	6,630.63	31.68	29.30	157.79	-1,259.46	389.46	680.42	622.90	57.52	11.829	
7,100.00	6,830.51	6,778.06	6,636.87	31.85	29.35	150.77	-1,262.05	392.23	726.25	668.82	57.42	12.647	
7,150.00	6,857.28	6,782.85	6,640.93	32.01	29.38	140.87	-1,263.76	394.08	773.42	716.09	57.33	13.490	
7,200.00	6,880.80	6,785.35	6,643.05	32.17	29.39	126.76	-1,264.66	395.06	821.53	764.27	57.25	14.349	
7,250.00	6,900.92	6,785.79	6,643.43	32.33	29.39	107.93	-1,264.82	395.24	870.16	812.97	57.19	15.214	
7,300.00	6,917.52	6,784.38	6,642.23	32.49	29.39	87.08	-1,264.31	394.68	918.98	861.83	57.15	16.079	
7,350.00	6,930.50	6,781.28	6,639.60	32.66	29.37	69.05	-1,263.20	393.47	967.66	910.52	57.13	16.937	
7,400.00	6,939.77	6,776.68	6,635.69	32.83	29.34	55.94	-1,261.56	391.70	1,015.90	958.77	57.14	17.781	
7,450.00	6,945.28	6,770.71	6,630.59	33.01	29.30	46.96	-1,259.44	389.44	1,063.45	1,006.29	57.16	18.606	
7,499.66	6,947.00	6,750.00	6,612.66	33.19	29.18	40.31	-1,252.26	381.95	1,109.95	1,053.07	56.88	19.513	
7,600.00	6,946.68	6,750.00	6,612.66	33.61	29.18	40.31	-1,252.26	381.95	1,202.63	1,145.31	57.31	20.983	
7,700.00	6,946.35	6,750.00	6,612.66	34.10	29.18	40.31	-1,252.26	381.95	1,296.12	1,238.47	57.65	22.482	
7,800.00	6,946.03	6,723.45	6,589.23	34.66	29.03	39.27	-1,243.40	373.15	1,389.83	1,332.37	57.46	24.189	
7,900.00	6,945.71	6,700.00	6,568.15	35.29	28.89	38.39	-1,235.92	366.14	1,484.44	1,427.12	57.32	25.898	
8,000.00	6,945.38	6,700.00	6,568.15	35.99	28.89	38.39	-1,235.92	366.14	1,579.24	1,521.68	57.55	27.439	
8,100.00	6,945.06	6,700.00	6,568.15	36.74	28.89	38.39	-1,235.92	366.14	1,674.64	1,616.89	57.75	28.998	
8,200.00	6,944.74	6,700.00	6,568.15	37.56	28.89	38.39	-1,235.92	366.14	1,770.55	1,712.63	57.92	30.571	
8,300.00	6,944.41	6,676.94	6,547.08	38.43	28.77	37.53	-1,228.89	359.94	1,866.40	1,808.64	57.76	32.315	
8,400.00	6,944.09	6,669.71	6,540.41	39.35	28.73	37.27	-1,226.75	358.15	1,962.76	1,904.96	57.80	33.957	
8,500.00	6,943.77	6,650.00	6,522.09	40.31	28.62	36.56	-1,221.08	353.60	2,059.53	2,001.85	57.69	35.702	
8,600.00	6,943.45	6,650.00	6,522.09	41.32	28.62	36.56	-1,221.08	353.60	2,156.28	2,098.48	57.81	37.302	
8,700.00	6,943.12	6,650.00	6,522.09	42.37	28.62	36.56	-1,221.08	353.60	2,253.32	2,195.40	57.91	38.910	
8,800.00	6,942.80	6,650.00	6,522.09	43.45	28.62	36.56	-1,221.08	353.60	2,350.60	2,292.59	58.00	40.524	
8,900.00	6,942.48	6,650.00	6,522.09	44.57	28.62	36.56	-1,221.08	353.60	2,448.10	2,390.01	58.09	42.143	
9,000.00	6,942.15	6,650.00	6,522.09	45.71	28.62	36.56	-1,221.08	353.60	2,545.79	2,487.62	58.17	43.767	
9,100.00	6,941.83	6,650.00	6,522.09	46.89	28.62	36.56	-1,221.08	353.60	2,643.66	2,585.42	58.24	45.394	
9,200.00	6,941.51	6,626.94	6,500.40	48.09	28.50	35.75	-1,214.77	348.95	2,741.23	2,683.14	58.09	47.191	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - Rosa Unit 706H - OH - Prelim #5 — **Offset Site Error:** 0.00 usft

Survey Program: 0-MWD+HRGM+MS — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,300.00	6,941.18	6,622.95	6,496.63	49.31	28.48	35.61	-1,213.71	348.22	2,839.22	2,781.10	58.12	48.852	
9,400.00	6,940.86	6,600.00	6,474.77	50.56	28.36	34.82	-1,207.83	344.43	2,937.63	2,879.66	57.98	50.669	
9,500.00	6,940.54	6,600.00	6,474.77	51.82	28.36	34.82	-1,207.83	344.43	3,035.74	2,977.70	58.04	52.303	
9,600.00	6,940.21	6,600.00	6,474.77	53.11	28.36	34.82	-1,207.83	344.43	3,133.96	3,075.86	58.10	53.939	
9,700.00	6,939.89	6,600.00	6,474.77	54.41	28.36	34.82	-1,207.83	344.43	3,232.29	3,174.13	58.16	55.577	
9,800.00	6,939.57	6,600.00	6,474.77	55.73	28.36	34.82	-1,207.83	344.43	3,330.72	3,272.51	58.21	57.215	
9,900.00	6,939.25	6,600.00	6,474.77	57.07	28.36	34.82	-1,207.83	344.43	3,429.24	3,370.97	58.27	58.854	
10,000.00	6,938.92	6,600.00	6,474.77	58.41	28.36	34.82	-1,207.83	344.43	3,527.84	3,469.53	58.32	60.493	
10,100.00	6,938.60	6,600.00	6,474.77	59.77	28.36	34.82	-1,207.83	344.43	3,626.53	3,568.16	58.37	62.133	
10,200.00	6,938.28	6,600.00	6,474.77	61.15	28.36	34.82	-1,207.83	344.43	3,725.28	3,666.86	58.42	63.772	
10,300.00	6,937.95	6,600.00	6,474.77	62.53	28.36	34.82	-1,207.83	344.43	3,824.09	3,765.63	58.46	65.411	
10,400.00	6,937.63	6,600.00	6,474.77	63.92	28.36	34.82	-1,207.83	344.43	3,922.97	3,864.46	58.51	67.050	
10,500.00	6,937.31	6,600.00	6,474.77	65.33	28.36	34.82	-1,207.83	344.43	4,021.90	3,963.35	58.55	68.688	
10,600.00	6,936.98	6,600.00	6,474.77	66.74	28.36	34.82	-1,207.83	344.43	4,120.88	4,062.28	58.60	70.324	
10,700.00	6,936.66	6,600.00	6,474.77	68.16	28.36	34.82	-1,207.83	344.43	4,219.91	4,161.27	58.64	71.960	
10,800.00	6,936.34	6,600.00	6,474.77	69.59	28.36	34.82	-1,207.83	344.43	4,318.99	4,260.30	58.69	73.594	
10,900.00	6,936.01	6,600.00	6,474.77	71.03	28.36	34.82	-1,207.83	344.43	4,418.11	4,359.38	58.73	75.227	
11,000.00	6,935.69	6,600.00	6,474.77	72.47	28.36	34.82	-1,207.83	344.43	4,517.26	4,458.49	58.77	76.859	
11,100.00	6,935.37	6,576.96	6,452.62	73.92	28.25	34.05	-1,202.28	341.35	4,616.04	4,557.38	58.66	78.687	
11,200.00	6,935.05	6,575.30	6,451.02	75.38	28.24	33.99	-1,201.90	341.16	4,715.21	4,656.51	58.70	80.331	
11,300.00	6,934.72	6,573.71	6,449.48	76.84	28.23	33.94	-1,201.53	340.98	4,814.40	4,755.67	58.73	81.972	
11,400.00	6,934.40	6,572.18	6,448.00	78.31	28.23	33.89	-1,201.18	340.81	4,913.63	4,854.86	58.77	83.612	
11,500.00	6,934.08	6,550.00	6,426.48	79.79	28.12	33.17	-1,196.25	338.68	5,013.21	4,954.54	58.67	85.446	
11,600.00	6,933.75	6,550.00	6,426.48	81.27	28.12	33.17	-1,196.25	338.68	5,112.45	5,053.73	58.72	87.068	
11,700.00	6,933.43	6,550.00	6,426.48	82.75	28.12	33.17	-1,196.25	338.68	5,211.71	5,152.95	58.76	88.689	
11,800.00	6,933.11	6,550.00	6,426.48	84.24	28.12	33.17	-1,196.25	338.68	5,311.00	5,252.19	58.81	90.307	
11,900.00	6,932.78	6,550.00	6,426.48	85.73	28.12	33.17	-1,196.25	338.68	5,410.32	5,351.46	58.86	91.923	
12,000.00	6,932.46	6,550.00	6,426.48	87.23	28.12	33.17	-1,196.25	338.68	5,509.66	5,450.75	58.90	93.536	
12,100.00	6,932.14	6,550.00	6,426.48	88.72	28.12	33.17	-1,196.25	338.68	5,609.02	5,550.07	58.95	95.147	
12,200.00	6,931.81	6,550.00	6,426.48	90.23	28.12	33.17	-1,196.25	338.68	5,708.41	5,649.41	59.00	96.755	
12,300.00	6,931.49	6,550.00	6,426.48	91.74	28.12	33.17	-1,196.25	338.68	5,807.82	5,748.77	59.05	98.361	
12,400.00	6,931.17	6,550.00	6,426.48	93.25	28.12	33.17	-1,196.25	338.68	5,907.25	5,848.15	59.09	99.963	
12,500.00	6,930.85	6,550.00	6,426.48	94.76	28.12	33.17	-1,196.25	338.68	6,006.69	5,947.55	59.14	101.563	
12,600.00	6,930.52	6,550.00	6,426.48	96.27	28.12	33.17	-1,196.25	338.68	6,106.16	6,046.97	59.19	103.159	
12,700.00	6,930.20	6,550.00	6,426.48	97.79	28.12	33.17	-1,196.25	338.68	6,205.64	6,146.40	59.24	104.753	
12,800.00	6,929.88	6,550.00	6,426.48	99.32	28.12	33.17	-1,196.25	338.68	6,305.14	6,245.85	59.29	106.343	
12,900.00	6,929.55	6,550.00	6,426.48	100.84	28.12	33.17	-1,196.25	338.68	6,404.65	6,345.31	59.34	107.930	
13,000.00	6,929.23	6,550.00	6,426.48	102.37	28.12	33.17	-1,196.25	338.68	6,504.18	6,444.79	59.39	109.514	
13,100.00	6,928.91	6,550.00	6,426.48	103.89	28.12	33.17	-1,196.25	338.68	6,603.73	6,544.28	59.44	111.095	
13,200.00	6,928.58	6,550.00	6,426.48	105.43	28.12	33.17	-1,196.25	338.68	6,703.28	6,643.79	59.49	112.672	
13,300.00	6,928.26	6,550.00	6,426.48	106.96	28.12	33.17	-1,196.25	338.68	6,802.85	6,743.31	59.55	114.246	
13,400.00	6,927.94	6,550.00	6,426.48	108.49	28.12	33.17	-1,196.25	338.68	6,902.44	6,842.84	59.60	115.817	
13,500.00	6,927.61	6,550.00	6,426.48	110.03	28.12	33.17	-1,196.25	338.68	7,002.03	6,942.38	59.65	117.384	
13,600.00	6,927.29	6,550.00	6,426.48	111.57	28.12	33.17	-1,196.25	338.68	7,101.64	7,041.93	59.70	118.947	
13,700.00	6,926.97	6,550.00	6,426.48	113.11	28.12	33.17	-1,196.25	338.68	7,201.25	7,141.49	59.76	120.507	
13,800.00	6,926.65	6,550.00	6,426.48	114.65	28.12	33.17	-1,196.25	338.68	7,300.88	7,241.07	59.81	122.063	
13,900.00	6,926.32	6,550.00	6,426.48	116.20	28.12	33.17	-1,196.25	338.68	7,400.52	7,340.65	59.87	123.615	
14,000.00	6,926.00	6,550.00	6,426.48	117.75	28.12	33.17	-1,196.25	338.68	7,500.16	7,440.24	59.92	125.163	
14,100.00	6,925.68	6,550.00	6,426.48	119.29	28.12	33.17	-1,196.25	338.68	7,599.82	7,539.84	59.98	126.708	
14,200.00	6,925.35	6,550.00	6,426.48	120.84	28.12	33.17	-1,196.25	338.68	7,699.48	7,639.45	60.04	128.249	
14,300.00	6,925.03	6,550.00	6,426.48	122.39	28.12	33.17	-1,196.25	338.68	7,799.16	7,739.07	60.09	129.786	
14,400.00	6,924.71	6,550.00	6,426.48	123.94	28.12	33.17	-1,196.25	338.68	7,898.84	7,838.69	60.15	131.319	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - Rosa Unit 706H - OH - Prelim #5

Offset Site Error: 0.00 usft

Survey Program: 0-MWD+HRGM+MS

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,500.00	6,924.38	6,550.00	6,426.48	125.50	28.12	33.17	-1,196.25	338.68	7,998.53	7,938.32	60.21	132.848	
14,600.00	6,924.06	6,550.00	6,426.48	127.05	28.12	33.17	-1,196.25	338.68	8,098.23	8,037.96	60.27	134.372	
14,700.00	6,923.74	6,541.01	6,417.72	128.61	28.08	32.88	-1,194.35	338.01	8,197.87	8,137.59	60.28	135.999	
14,800.00	6,923.42	6,540.43	6,417.15	130.16	28.08	32.86	-1,194.23	337.97	8,297.58	8,237.24	60.34	137.523	
14,900.00	6,923.09	6,539.85	6,416.59	131.72	28.07	32.84	-1,194.11	337.93	8,397.29	8,336.89	60.39	139.044	
15,000.00	6,922.77	6,530.62	6,407.57	133.28	28.03	32.54	-1,192.23	337.38	8,497.06	8,436.65	60.41	140.665	
15,100.00	6,922.45	6,530.62	6,407.57	134.84	28.03	32.54	-1,192.23	337.38	8,596.77	8,536.31	60.47	142.171	
15,200.00	6,922.12	6,530.62	6,407.57	136.40	28.03	32.54	-1,192.23	337.38	8,696.50	8,635.97	60.53	143.673	
15,300.00	6,921.80	6,530.62	6,407.57	137.96	28.03	32.54	-1,192.23	337.38	8,796.23	8,735.63	60.59	145.170	
15,400.00	6,921.48	6,530.62	6,407.57	139.53	28.03	32.54	-1,192.23	337.38	8,895.96	8,835.31	60.66	146.663	
15,500.00	6,921.15	6,530.62	6,407.57	141.09	28.03	32.54	-1,192.23	337.38	8,995.70	8,934.98	60.72	148.152	
15,600.00	6,920.83	6,530.62	6,407.57	142.65	28.03	32.54	-1,192.23	337.38	9,095.45	9,034.66	60.78	149.636	
15,700.00	6,920.51	6,530.62	6,407.57	144.22	28.03	32.54	-1,192.23	337.38	9,195.20	9,134.35	60.85	151.116	
15,800.00	6,920.18	6,530.62	6,407.57	145.79	28.03	32.54	-1,192.23	337.38	9,294.96	9,234.04	60.91	152.592	
15,900.00	6,919.86	6,530.62	6,407.57	147.35	28.03	32.54	-1,192.23	337.38	9,394.72	9,333.74	60.98	154.063	
16,000.00	6,919.54	6,530.62	6,407.57	148.92	28.03	32.54	-1,192.23	337.38	9,494.49	9,433.44	61.05	155.530	
16,100.00	6,919.22	6,530.62	6,407.57	150.49	28.03	32.54	-1,192.23	337.38	9,594.26	9,533.15	61.11	156.992	
16,200.00	6,918.89	6,530.62	6,407.57	152.06	28.03	32.54	-1,192.23	337.38	9,694.04	9,632.86	61.18	158.450	
16,300.00	6,918.57	6,530.62	6,407.57	153.63	28.03	32.54	-1,192.23	337.38	9,793.82	9,732.57	61.25	159.903	
16,400.00	6,918.25	6,530.62	6,407.57	155.20	28.03	32.54	-1,192.23	337.38	9,893.61	9,832.29	61.32	161.352	
16,500.00	6,917.92	6,530.62	6,407.57	156.77	28.03	32.54	-1,192.23	337.38	9,993.40	9,932.01	61.39	162.796	
16,600.00	6,917.60	6,530.62	6,407.57	158.34	28.03	32.54	-1,192.23	337.38	10,093.19	10,031.73	61.46	164.236	
16,700.00	6,917.28	6,530.62	6,407.57	159.92	28.03	32.54	-1,192.23	337.38	10,192.99	10,131.46	61.53	165.671	
16,800.00	6,916.95	6,530.62	6,407.57	161.49	28.03	32.54	-1,192.23	337.38	10,292.79	10,231.19	61.60	167.101	
16,900.00	6,916.63	6,530.27	6,407.23	163.06	28.03	32.53	-1,192.15	337.36	10,392.60	10,330.93	61.67	168.532	
17,000.00	6,916.31	6,524.48	6,401.57	164.64	28.00	32.35	-1,190.99	337.05	10,492.40	10,430.70	61.71	170.031	
17,100.00	6,915.98	6,518.69	6,395.90	166.21	27.98	32.17	-1,189.83	336.73	10,592.21	10,530.46	61.75	171.527	
17,200.00	6,915.66	6,512.90	6,390.24	167.79	27.95	32.00	-1,188.67	336.42	10,692.02	10,630.23	61.80	173.019	
17,300.00	6,915.34	6,507.11	6,384.58	169.37	27.92	31.82	-1,187.51	336.11	10,791.83	10,729.99	61.84	174.507	
17,400.00	6,915.02	6,501.33	6,378.92	170.94	27.90	31.65	-1,186.34	335.80	10,891.64	10,829.75	61.89	175.991	
17,500.00	6,914.69	6,495.54	6,373.26	172.52	27.87	31.48	-1,185.18	335.49	10,991.45	10,929.52	61.93	177.472	
17,600.00	6,914.37	6,489.75	6,367.59	174.10	27.85	31.32	-1,184.02	335.18	11,091.26	11,029.28	61.98	178.948	
17,700.00	6,914.05	6,483.96	6,361.93	175.68	27.82	31.16	-1,182.86	334.86	11,191.07	11,129.05	62.03	180.420	
17,800.00	6,913.72	6,478.17	6,356.27	177.25	27.79	31.00	-1,181.69	334.55	11,290.88	11,228.81	62.08	181.888	
17,900.00	6,913.40	6,472.38	6,350.61	178.83	27.77	30.84	-1,180.53	334.24	11,390.70	11,328.57	62.12	183.353	
18,000.00	6,913.08	6,466.59	6,344.95	180.41	27.74	30.68	-1,179.37	333.93	11,490.51	11,428.34	62.17	184.813	
18,023.75	6,913.00	6,465.22	6,343.60	180.79	27.74	30.65	-1,179.09	333.86	11,514.22	11,452.03	62.19	185.159	

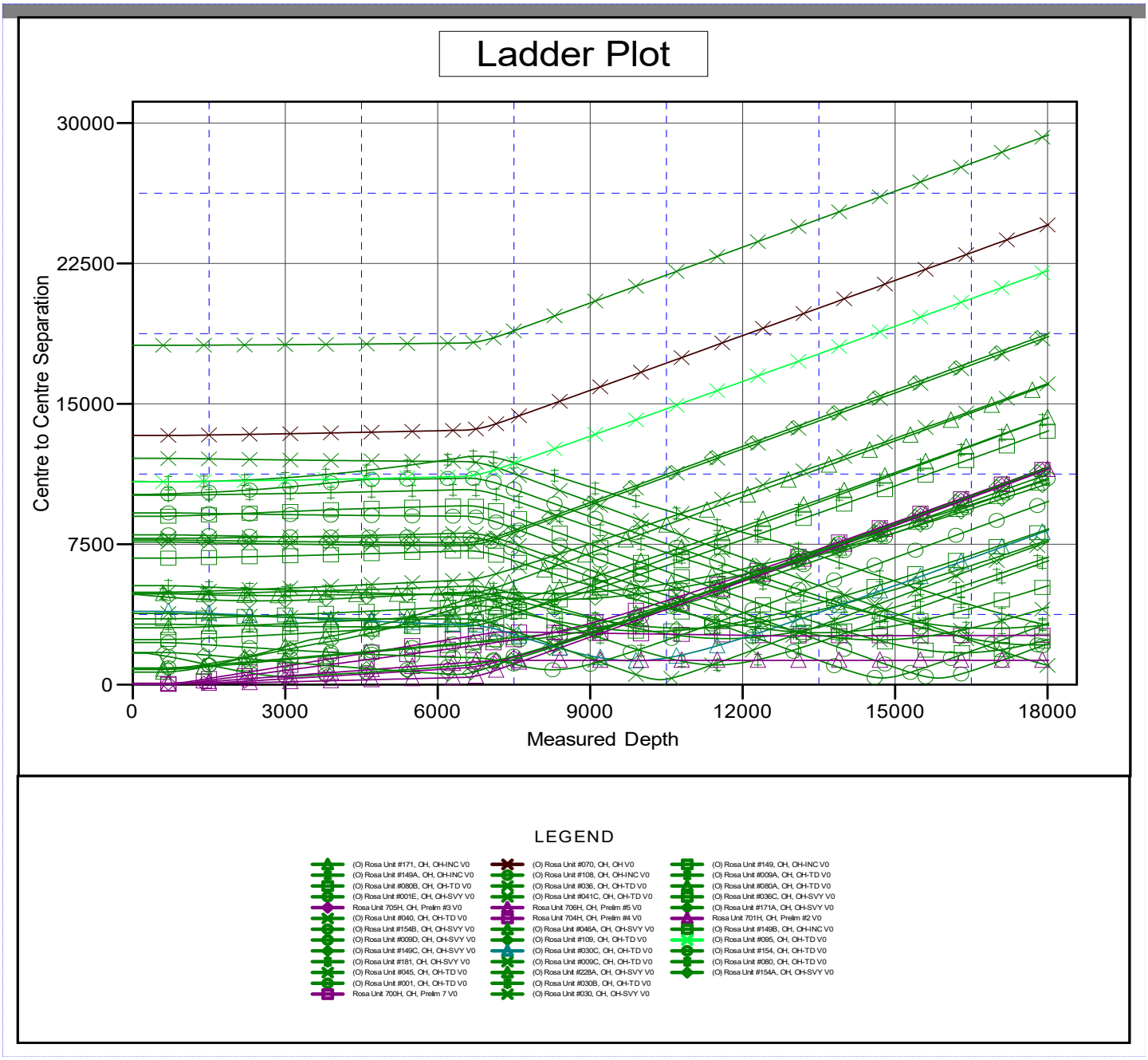
CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to 6295+30 @ 6325.00usft (H&P 530)	Coordinates are relative to: Rosa Unit 702H
Offset Depths are relative to Offset Datum	Coordinate System is US State Plane 1983, New Mexico Western Zone
Central Meridian is -107.833334	Grid Convergence at Surface is: 0.26°



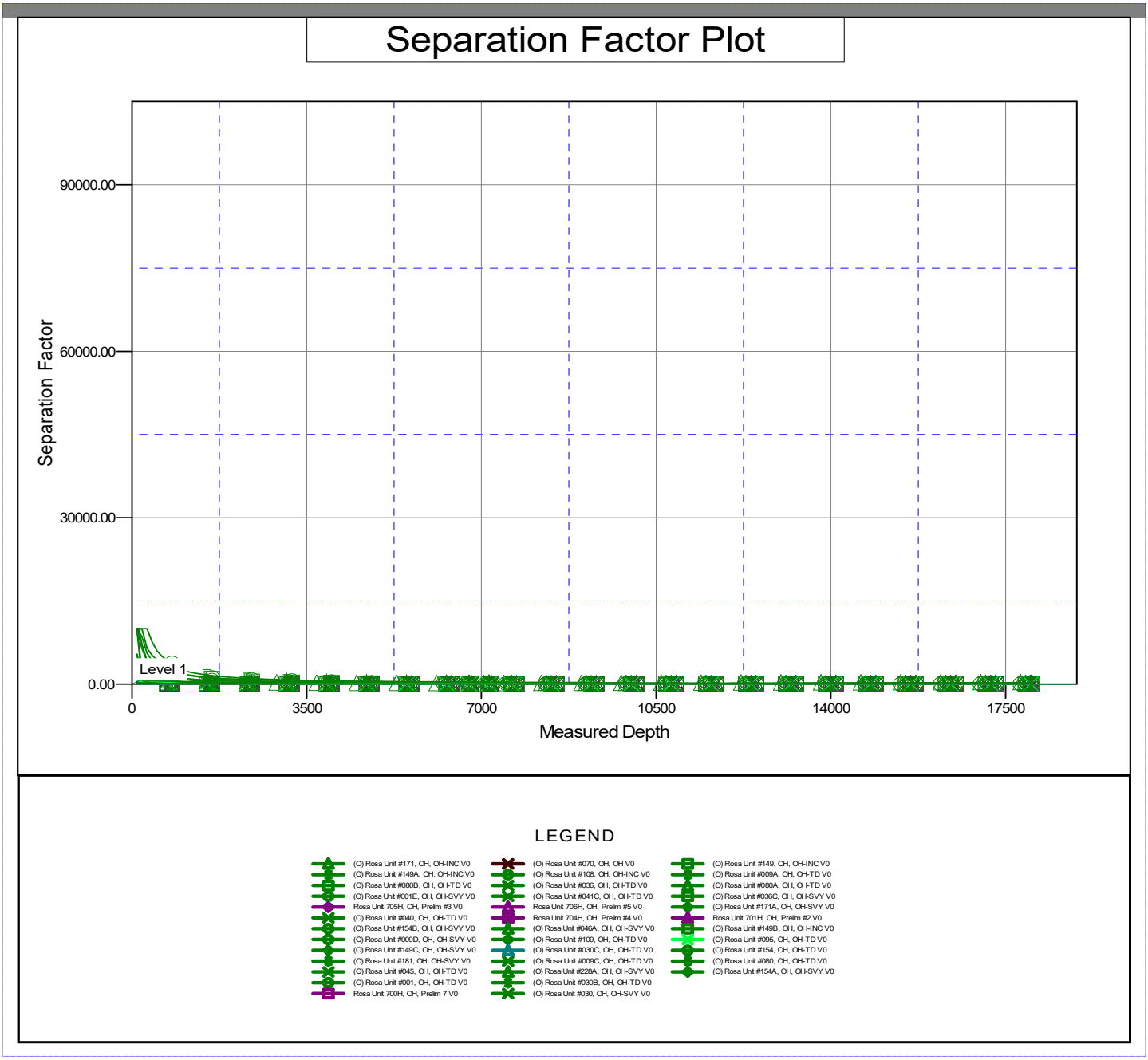
SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 702H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 702H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #2	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to 6295+30 @ 6325.00usft (H&P 530)
Offset Depths are relative to Offset Datum
Central Meridian is -107.833334

Coordinates are relative to: Rosa Unit 702H
Coordinate System is US State Plane 1983, New Mexico Western Zone
Grid Convergence at Surface is: 0.26°



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 322810

CONDITIONS

Operator: LOGOS OPERATING, LLC 2010 Afton Place Farmington, NM 87401	OGRID: 289408
	Action Number: 322810
	Action Type: [C-103] NOI Change of Plans (C-103A)

CONDITIONS

Created By	Condition	Condition Date
ward.rikala	All original COA's still apply. Additionally, if cement is not circulated to surface during cementing operations, then a CBL is required.	3/21/2024