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: 705H	**Type of Well:** CONVENTIONAL GAS WELL	**Allottee or Tribe Name:**
Lease Number: NMSF78767	**Unit or CA Name:** ROSA UNIT	**Unit or CA Number:** NMNM78407E
US Well Number: 3003931438	**Well Status:** Approved Application for Permit to Drill	**Operator:** LOGOS OPERATING LLC

Notice of Intent

Sundry ID: 2779381

Type of Submission: Notice of Intent

Type of Action: Other

Date Sundry Submitted: 03/13/2024

Time Sundry Submitted: 08:49

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 plan.

Surface Disturbance

Is any additional surface disturbance proposed?: No

NOI Attachments

Procedure Description

3160_005_Rosa_Unit_705H_Change_in_Plan_3__20240313_20240313084859.pdf

CONFIDENTIAL

Well Name: ROSA UNIT	**Well Location:** T31N / R5W / SEC 7 / NESE /	**County or Parish/State:**
Well Number: 705H	**Type of Well:** CONVENTIONAL GAS WELL	**Allottee or Tribe Name:**
Lease Number: NMSF78767	**Unit or CA Name:** ROSA UNIT	**Unit or CA Number:** NMNM78407E
US Well Number: 3003931438	**Well Status:** Approved Application for Permit to Drill	**Operator:** LOGOS OPERATING LLC

Operator

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

Operator Electronic Signature: ETTA TRUJILLO

Signed on: MAR 13, 2024 08:50 AM

Name: LOGOS OPERATING LLC

Title: Regulatory Specialist

Street Address: 2010 AFTON PLACE

City: Farmington **State:** NM

Phone: (505) 324-4154

Email address: ETRUJILLO@LOGOSRESOURCESLLC.COM

Field

Representative Name:

Street Address:

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

Phone:

Email address:

BLM Point of Contact

BLM POC Name: KENNETH G RENNICK

BLM POC Title: Petroleum Engineer

BLM POC Phone: 5055647742

BLM POC Email Address: krennick@blm.gov

Disposition: Approved

Disposition Date: 03/13/2024

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 705H

2. Name of Operator: LOGOS OPERATING, LLC

9. API Well No.: 30-039-31438

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 I SEC 7 T31N 5W 2551' FSL 1279' 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 bottom-hole location from 1846' FNL & 1266' FEL to **new bottom-hole location 1951' FNL & 2526' FWL**
Original TD @ 17,279' (MD) 7,187' (TVD) to **new TD @ 20,742' (MD) 6,945' (TVD)**.

Geology tops have been updated per changes.
Original KOP @ 6,607' (MD) 6,573' (TVD) to **new KOP @ 6,376' (MD) 6,346' (TVD)**
Original Landing point @ 7,582' (MD) 7,182' (TVD) to **new Landing point @ 7,341' (MD) 6,945' (TVD)**

Original 13.375" Surface casing @ 320' MD to **new 20" Surface casing @ 350' (MD)**
Original 9,625" casing Intermediate @ 6,243' MD to **new 9.625" Intermediate casing @ 6,274' (MD)**
Original 5.5" casing Production casing @ 17,279' MD to **new 5.5" Production casing @ 20,742' (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: 3/13/2024

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)

District I
625 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
30-039-31438	97232	BASIN MANCOS

[4] Property Code	[5] Property Name	[6] Well Number
320608	ROSA UNIT	705H

[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
I	7	31N	5W		2551	SOUTH	1279	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
K	10	31N	5W		1951	~~SOUTH~~ NORTH	2526	WEST	RIO ARRIBA

[12] Dedicated Acres		[13] Joint or Infill	[14] Consolidation Code	[15] Order No.
1191.90	S/2 - Sections 7, 8, 9, 10			R-13457

[17] OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom-hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Etta Trujillo — Signature — 3/13/24 — Date

Etta Trujillo — Printed Name

etrujillo@logosresourcesllc.com — E-mail Address

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

[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.

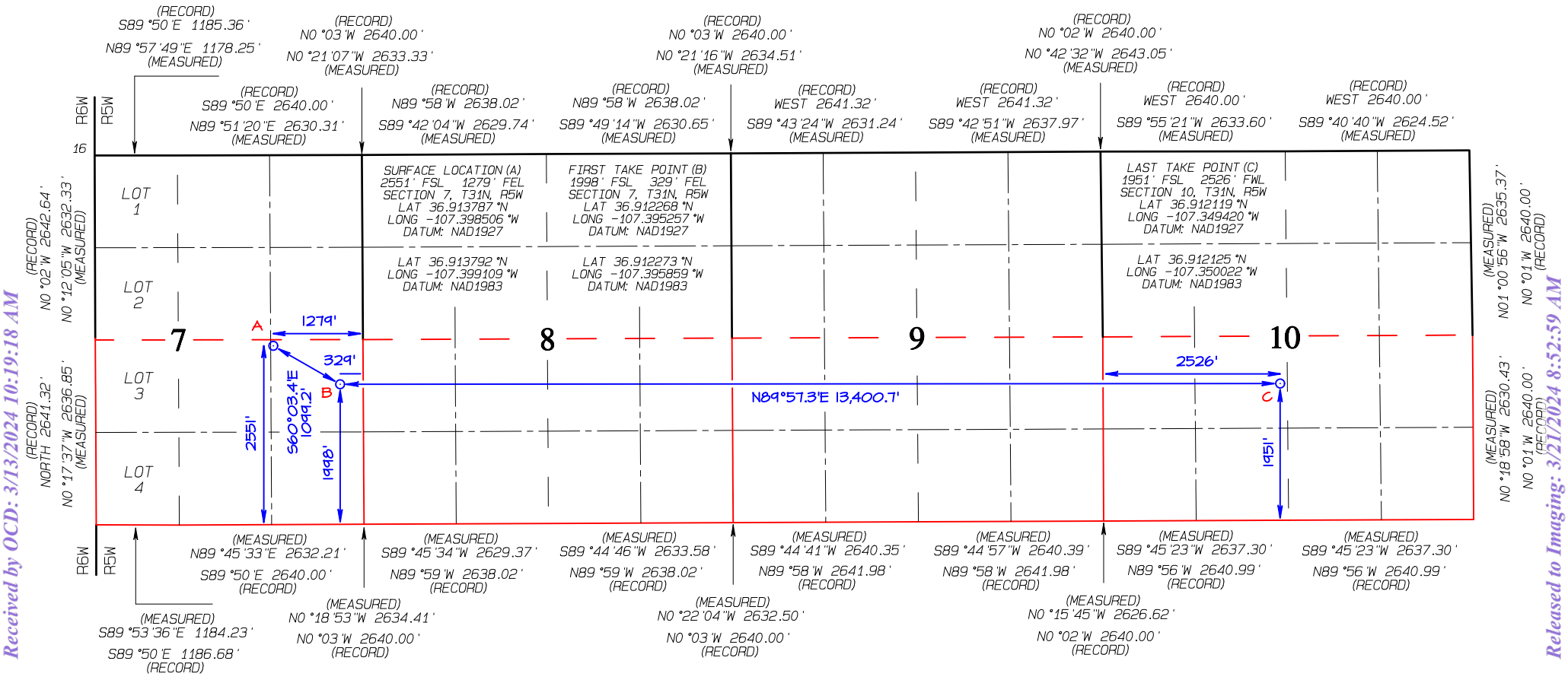
Date Revised: MARCH 12, 2024
Survey Date: NOVEMBER 15, 2021

Signature and Seal of Professional Surveyor

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

JASON C. EDWARDS

Certificate Number 15269



Received by OCD: 3/13/2024 10:19:18 AM
Released to Imaging: 3/21/2024 8:52:59 AM
Page 1 of 2

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 705H**	GL Elevation:	6,295’
Surface Location:	Sec 7, T31N, R5W 2551’ FSL, 1279’ FEL (36.913792º N, 107.399109º W – NAD83)	KB:	30’
Bottom Hole Location:	Sec 10, T31N, R5W 1951’ FNL, 2526’ FWL (36.912125º N, 107.350022º W – NAD83)	Measured Depth:	20,742’ (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	2420’	2411’	*POINT LOOKOUT	5652’	5626’
KIRTLAND	2534’	2524’	*MANCOS	6199’	6170’
*FRUITLAND	2905’	2893’	KICKOFF POINT	6376’	6346’
*PICTURED CLIFFS	3345’	3331’	LANDING POINT	7341’	6945’
LEWIS	3472’	3457’	TD	20742’	6945’
CHACRA	4614’	4593’			
*CLIFF HOUSE	5385’	5360’			
MENEFEE	5435’	5410’			

* 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:** 6,945' TVD x 0.43 = 2986 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"	6,274'	9.625"	43.5 LBS	N-80 or equiv	LTC/BTC
PRODUCTION	8.5"	20,742'	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	5,774	500	0.3132	1.3	221	39	1.10	201	15.8
Stage 1 Lead	4,664	1,110	0.3132	1.3	452	80	1.90	238	12.4
					673	**120**		**439**	
Stage 2 Tail	4,064	600	0.3132	1.3	244	44	1.58	155	13.2
Stage 2 Lead	2,955	1,109	0.3132	1.3	452	80	1.90	238	12.4
					696	**124**		**392**	
Stage 3 Tail	2,305	650	0.3132	1.3	265	47	1.58	168	13.2
Stage 3 Lead	350	1,955	0.3132	1.3	796	142	1.58	504	12.4
Stage 3 Lead	-	350	1.4895	1	521	93	1.90	274	12.4
					1,582	**282**		**946**	
					2,951	**526**		**1,777**	
Set Depth, ft RKB	6274								

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	**6,174**	**100**	**0.2531**	**1**	**25**	**5**	1.59	**16**	13.2
Open Hole Tail	**6,274**	**14,468**	**0.2291**	**1.15**	**3,822**	**681**	1.59	**2,404**	13.2
					3,848	**685**		**2,420**	
Set Depth, ft RKB	20742								

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 * 6,945' 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.

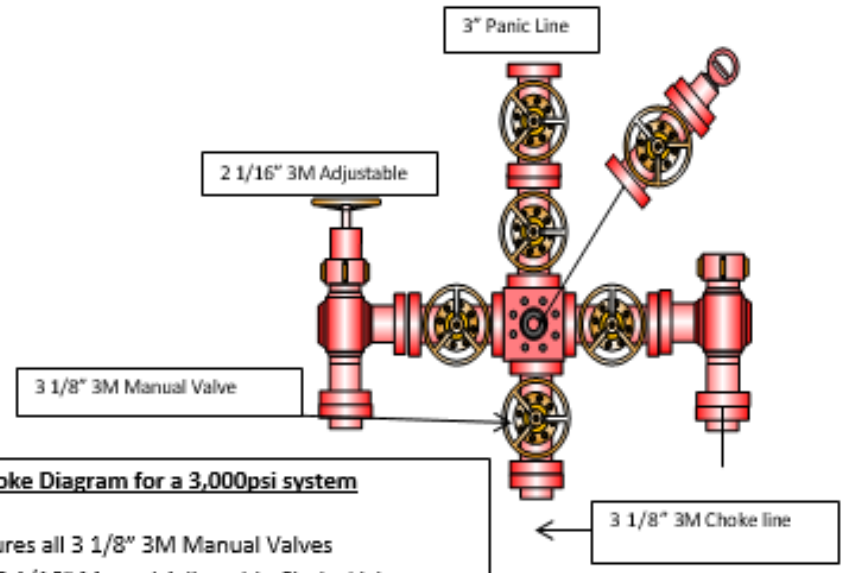
E. PRODUCTION TUBING

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.

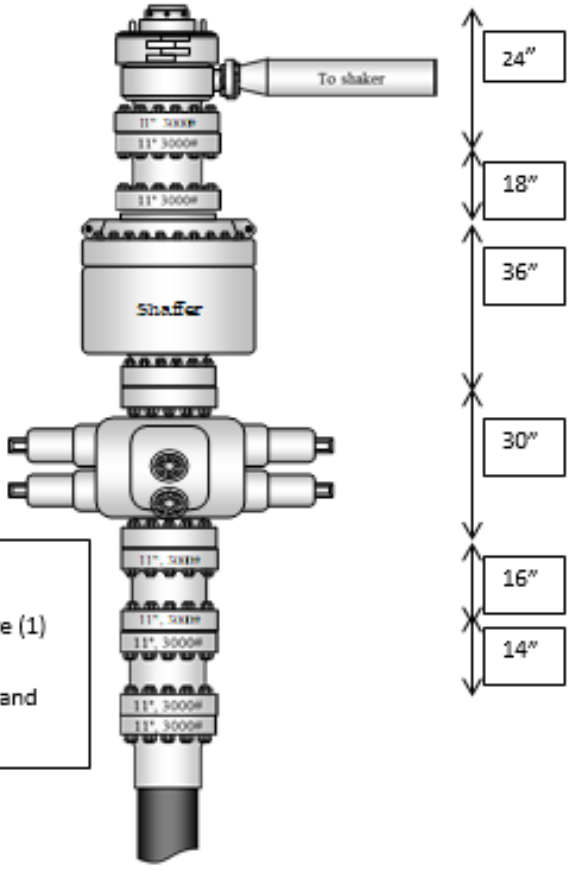
LOGOS RESOURCES II, LLC

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



Choke Diagram for a 3,000psi system

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



11" 3,000psi BOP

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

Logos Operating LLC

Rio Arriba, NM (NAD83)
Rosa Unit 24
Rosa Unit 705H

OH

Plan: Prelim #3

Standard Planning Report

01 March, 2024

SDT

Planning Report

Database:	EDM 5000 Multi User Db	**Local Co-ordinate Reference:**	Well Rosa Unit 705H
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 705H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Prelim #3		

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 705H					
Well Position	**+N/-S**	0.00 usft	**Northing:**	2,152,236.36 usft	**Latitude:**	36.913792
	+E/-W	0.00 usft	**Easting:**	2,850,032.05 usft	**Longitude:**	-107.399109
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	1/29/2024	8.45	63.46	49,468.32773069

Design	Prelim #3				
Audit Notes:					
Version:		**Phase:**	PLAN	**Tie On Depth:**	0.00
Vertical Section:	**Depth From (TVD) (usft)**	**+N/-S (usft)**	**+E/-W (usft)**	**Direction (°)**	
	0.00	0.00	0.00	90.22	

Plan Survey Tool Program **Date** 2/13/2024

	Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	20,741.48	Prelim #3 (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	
795.17	5.90	147.73	794.65	-12.85	8.11	2.00	2.00	0.00	147.73	
6,375.94	5.90	147.73	6,345.82	-498.19	314.55	0.00	0.00	0.00	0.00	
7,340.76	90.00	90.22	6,945.00	-552.84	950.00	9.00	8.72	-5.96	-57.65	RU 705H POE
20,741.48	90.00	90.22	6,945.00	-603.16	14,350.63	0.00	0.00	0.00	0.00	RU 705H PBHL

SDT

Planning Report

Database:	EDM 5000 Multi User Db	**Local Co-ordinate Reference:**	Well Rosa Unit 705H
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 705H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Prelim #3		

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	147.73	599.98	-1.48	0.93	0.94	2.00	2.00	0.00
700.00	4.00	147.73	699.84	-5.90	3.73	3.75	2.00	2.00	0.00
795.17	5.90	147.73	794.65	-12.85	8.11	8.16	2.00	2.00	0.00
Start 5580.77 hold at 795.17 MD									
800.00	5.90	147.73	799.45	-13.27	8.38	8.43	0.00	0.00	0.00
900.00	5.90	147.73	898.92	-21.96	13.87	13.95	0.00	0.00	0.00
1,000.00	5.90	147.73	998.39	-30.66	19.36	19.48	0.00	0.00	0.00
1,100.00	5.90	147.73	1,097.86	-39.36	24.85	25.00	0.00	0.00	0.00
1,200.00	5.90	147.73	1,197.33	-48.05	30.34	30.52	0.00	0.00	0.00
1,300.00	5.90	147.73	1,296.80	-56.75	35.83	36.05	0.00	0.00	0.00
1,400.00	5.90	147.73	1,396.27	-65.45	41.32	41.57	0.00	0.00	0.00
1,500.00	5.90	147.73	1,495.74	-74.14	46.81	47.10	0.00	0.00	0.00
1,600.00	5.90	147.73	1,595.21	-82.84	52.30	52.62	0.00	0.00	0.00
1,700.00	5.90	147.73	1,694.68	-91.54	57.80	58.15	0.00	0.00	0.00
1,800.00	5.90	147.73	1,794.15	-100.23	63.29	63.67	0.00	0.00	0.00
1,900.00	5.90	147.73	1,893.62	-108.93	68.78	69.20	0.00	0.00	0.00
2,000.00	5.90	147.73	1,993.09	-117.63	74.27	74.72	0.00	0.00	0.00
2,100.00	5.90	147.73	2,092.56	-126.32	79.76	80.24	0.00	0.00	0.00
2,200.00	5.90	147.73	2,192.03	-135.02	85.25	85.77	0.00	0.00	0.00
2,300.00	5.90	147.73	2,291.50	-143.72	90.74	91.29	0.00	0.00	0.00
2,400.00	5.90	147.73	2,390.97	-152.41	96.23	96.82	0.00	0.00	0.00
2,420.14	5.90	147.73	2,411.00	-154.17	97.34	97.93	0.00	0.00	0.00
Ojo Alamo									
2,500.00	5.90	147.73	2,490.44	-161.11	101.72	102.34	0.00	0.00	0.00
2,533.74	5.90	147.73	2,524.00	-164.05	103.58	104.21	0.00	0.00	0.00
Kirtland									
2,600.00	5.90	147.73	2,589.91	-169.81	107.21	107.87	0.00	0.00	0.00
2,700.00	5.90	147.73	2,689.38	-178.50	112.71	113.39	0.00	0.00	0.00
2,800.00	5.90	147.73	2,788.85	-187.20	118.20	118.91	0.00	0.00	0.00
2,900.00	5.90	147.73	2,888.32	-195.90	123.69	124.44	0.00	0.00	0.00
2,904.71	5.90	147.73	2,893.00	-196.31	123.95	124.70	0.00	0.00	0.00
Fruitland									
3,000.00	5.90	147.73	2,987.79	-204.59	129.18	129.96	0.00	0.00	0.00
3,001.22	5.90	147.73	2,989.00	-204.70	129.25	130.03	0.00	0.00	0.00
Top of Coals									
3,100.00	5.90	147.73	3,087.25	-213.29	134.67	135.49	0.00	0.00	0.00
3,175.14	5.90	147.73	3,162.00	-219.83	138.80	139.64	0.00	0.00	0.00
Base of Coals									
3,200.00	5.90	147.73	3,186.72	-221.99	140.16	141.01	0.00	0.00	0.00
3,300.00	5.90	147.73	3,286.19	-230.68	145.65	146.54	0.00	0.00	0.00
3,345.04	5.90	147.73	3,331.00	-234.60	148.13	149.03	0.00	0.00	0.00
Pictured Cliffs									
3,400.00	5.90	147.73	3,385.66	-239.38	151.14	152.06	0.00	0.00	0.00
3,471.72	5.90	147.73	3,457.00	-245.62	155.08	156.02	0.00	0.00	0.00
Lewis									
3,500.00	5.90	147.73	3,485.13	-248.08	156.63	157.59	0.00	0.00	0.00

SDT

Planning Report

Database:	EDM 5000 Multi User Db	**Local Co-ordinate Reference:**	Well Rosa Unit 705H
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 705H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Prelim #3		

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)
3,600.00	5.90	147.73	3,584.60	-256.78	162.13	163.11	0.00	0.00	0.00
3,700.00	5.90	147.73	3,684.07	-265.47	167.62	168.63	0.00	0.00	0.00
3,800.00	5.90	147.73	3,783.54	-274.17	173.11	174.16	0.00	0.00	0.00
3,900.00	5.90	147.73	3,883.01	-282.87	178.60	179.68	0.00	0.00	0.00
4,000.00	5.90	147.73	3,982.48	-291.56	184.09	185.21	0.00	0.00	0.00
4,100.00	5.90	147.73	4,081.95	-300.26	189.58	190.73	0.00	0.00	0.00
4,200.00	5.90	147.73	4,181.42	-308.96	195.07	196.26	0.00	0.00	0.00
4,300.00	5.90	147.73	4,280.89	-317.65	200.56	201.78	0.00	0.00	0.00
4,400.00	5.90	147.73	4,380.36	-326.35	206.05	207.31	0.00	0.00	0.00
4,500.00	5.90	147.73	4,479.83	-335.05	211.54	212.83	0.00	0.00	0.00
4,600.00	5.90	147.73	4,579.30	-343.74	217.04	218.35	0.00	0.00	0.00
4,613.77	5.90	147.73	4,593.00	-344.94	217.79	219.11	0.00	0.00	0.00
Chacra									
4,700.00	5.90	147.73	4,678.77	-352.44	222.53	223.88	0.00	0.00	0.00
4,800.00	5.90	147.73	4,778.24	-361.14	228.02	229.40	0.00	0.00	0.00
4,900.00	5.90	147.73	4,877.71	-369.83	233.51	234.93	0.00	0.00	0.00
5,000.00	5.90	147.73	4,977.18	-378.53	239.00	240.45	0.00	0.00	0.00
5,100.00	5.90	147.73	5,076.65	-387.23	244.49	245.98	0.00	0.00	0.00
5,101.36	5.90	147.73	5,078.00	-387.34	244.57	246.05	0.00	0.00	0.00
Upper Cliff House									
5,200.00	5.90	147.73	5,176.12	-395.92	249.98	251.50	0.00	0.00	0.00
5,300.00	5.90	147.73	5,275.59	-404.62	255.47	257.02	0.00	0.00	0.00
5,384.86	5.90	147.73	5,360.00	-412.00	260.13	261.71	0.00	0.00	0.00
Cliff House									
5,400.00	5.90	147.73	5,375.06	-413.32	260.96	262.55	0.00	0.00	0.00
5,435.13	5.90	147.73	5,410.00	-416.37	262.89	264.49	0.00	0.00	0.00
Menefee									
5,500.00	5.90	147.73	5,474.53	-422.01	266.45	268.07	0.00	0.00	0.00
5,600.00	5.90	147.73	5,574.00	-430.71	271.95	273.60	0.00	0.00	0.00
5,652.28	5.90	147.73	5,626.00	-435.26	274.82	276.49	0.00	0.00	0.00
Point Lookout									
5,700.00	5.90	147.73	5,673.47	-439.41	277.44	279.12	0.00	0.00	0.00
5,800.00	5.90	147.73	5,772.94	-448.10	282.93	284.65	0.00	0.00	0.00
5,900.00	5.90	147.73	5,872.41	-456.80	288.42	290.17	0.00	0.00	0.00
6,000.00	5.90	147.73	5,971.88	-465.50	293.91	295.70	0.00	0.00	0.00
6,100.00	5.90	147.73	6,071.35	-474.19	299.40	301.22	0.00	0.00	0.00
6,199.18	5.90	147.73	6,170.00	-482.82	304.85	306.70	0.00	0.00	0.00
Mancos									
6,200.00	5.90	147.73	6,170.81	-482.89	304.89	306.74	0.00	0.00	0.00
6,300.00	5.90	147.73	6,270.28	-491.59	310.38	312.27	0.00	0.00	0.00
6,375.94	5.90	147.73	6,345.82	-498.19	314.55	316.46	0.00	0.00	0.00
Start DLS 9.00 TFO -57.65									
6,400.00	7.29	133.17	6,369.72	-500.28	316.33	318.25	9.00	5.78	-60.52
6,450.00	11.01	116.84	6,419.09	-504.61	322.91	324.84	9.00	7.44	-32.65
6,500.00	15.16	109.00	6,467.78	-508.90	333.35	335.31	9.00	8.29	-15.69
6,550.00	19.46	104.51	6,515.51	-513.12	347.60	349.57	9.00	8.60	-8.98
6,600.00	23.83	101.61	6,561.97	-517.24	365.57	367.55	9.00	8.74	-5.81
6,650.00	28.24	99.56	6,606.89	-521.24	387.14	389.14	9.00	8.82	-4.09
6,700.00	32.67	98.03	6,649.98	-525.09	412.18	414.19	9.00	8.87	-3.06
6,750.00	37.12	96.83	6,690.98	-528.77	440.54	442.57	9.00	8.90	-2.40
6,800.00	41.58	95.86	6,729.64	-532.26	472.04	474.08	9.00	8.91	-1.95
6,850.00	46.04	95.04	6,765.71	-535.54	506.49	508.54	9.00	8.93	-1.64
6,850.42	46.08	95.03	6,766.00	-535.56	506.79	508.84	9.00	8.93	-1.51

SDT

Planning Report

Database:	EDM 5000 Multi User Db	**Local Co-ordinate Reference:**	Well Rosa Unit 705H
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 705H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Prelim #3		

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)
Black Top									
6,900.00	50.51	94.34	6,798.98	-538.58	543.67	545.74	9.00	8.94	-1.41
6,950.00	54.98	93.72	6,829.24	-541.37	583.36	585.44	9.00	8.95	-1.24
7,000.00	59.46	93.16	6,856.30	-543.88	625.32	627.40	9.00	8.95	-1.11
7,050.00	63.94	92.66	6,880.00	-546.12	669.27	671.36	9.00	8.96	-1.01
7,100.00	68.42	92.19	6,900.19	-548.05	714.96	717.06	9.00	8.96	-0.94
7,150.00	72.90	91.75	6,916.74	-549.67	762.10	764.20	9.00	8.96	-0.88
7,200.00	77.38	91.33	6,929.56	-550.97	810.39	812.50	9.00	8.96	-0.84
7,250.00	81.86	90.93	6,938.57	-551.94	859.55	861.67	9.00	8.96	-0.81
7,300.00	86.35	90.53	6,943.70	-552.57	909.27	911.39	9.00	8.97	-0.79
7,340.76	90.00	90.22	6,945.00	-552.84	950.00	952.12	9.00	8.97	-0.78
Start 13400.72 hold at 7340.76 MD									
7,400.00	90.00	90.22	6,945.00	-553.06	1,009.24	1,011.36	0.00	0.00	0.00
7,500.00	90.00	90.22	6,945.00	-553.44	1,109.24	1,111.36	0.00	0.00	0.00
7,600.00	90.00	90.22	6,945.00	-553.81	1,209.24	1,211.36	0.00	0.00	0.00
7,700.00	90.00	90.22	6,945.00	-554.19	1,309.24	1,311.36	0.00	0.00	0.00
7,800.00	90.00	90.22	6,945.00	-554.56	1,409.24	1,411.36	0.00	0.00	0.00
7,900.00	90.00	90.22	6,945.00	-554.94	1,509.24	1,511.36	0.00	0.00	0.00
8,000.00	90.00	90.22	6,945.00	-555.32	1,609.24	1,611.36	0.00	0.00	0.00
8,100.00	90.00	90.22	6,945.00	-555.69	1,709.24	1,711.36	0.00	0.00	0.00
8,200.00	90.00	90.22	6,945.00	-556.07	1,809.24	1,811.36	0.00	0.00	0.00
8,300.00	90.00	90.22	6,945.00	-556.44	1,909.24	1,911.36	0.00	0.00	0.00
8,400.00	90.00	90.22	6,945.00	-556.82	2,009.24	2,011.36	0.00	0.00	0.00
8,500.00	90.00	90.22	6,945.00	-557.19	2,109.24	2,111.36	0.00	0.00	0.00
8,600.00	90.00	90.22	6,945.00	-557.57	2,209.24	2,211.36	0.00	0.00	0.00
8,700.00	90.00	90.22	6,945.00	-557.94	2,309.23	2,311.36	0.00	0.00	0.00
8,800.00	90.00	90.22	6,945.00	-558.32	2,409.23	2,411.36	0.00	0.00	0.00
8,900.00	90.00	90.22	6,945.00	-558.70	2,509.23	2,511.36	0.00	0.00	0.00
9,000.00	90.00	90.22	6,945.00	-559.07	2,609.23	2,611.36	0.00	0.00	0.00
9,100.00	90.00	90.22	6,945.00	-559.45	2,709.23	2,711.36	0.00	0.00	0.00
9,200.00	90.00	90.22	6,945.00	-559.82	2,809.23	2,811.36	0.00	0.00	0.00
9,300.00	90.00	90.22	6,945.00	-560.20	2,909.23	2,911.36	0.00	0.00	0.00
9,400.00	90.00	90.22	6,945.00	-560.57	3,009.23	3,011.36	0.00	0.00	0.00
9,500.00	90.00	90.22	6,945.00	-560.95	3,109.23	3,111.36	0.00	0.00	0.00
9,600.00	90.00	90.22	6,945.00	-561.32	3,209.23	3,211.36	0.00	0.00	0.00
9,700.00	90.00	90.22	6,945.00	-561.70	3,309.23	3,311.36	0.00	0.00	0.00
9,800.00	90.00	90.22	6,945.00	-562.08	3,409.23	3,411.36	0.00	0.00	0.00
9,900.00	90.00	90.22	6,945.00	-562.45	3,509.23	3,511.36	0.00	0.00	0.00
10,000.00	90.00	90.22	6,945.00	-562.83	3,609.23	3,611.36	0.00	0.00	0.00
10,100.00	90.00	90.22	6,945.00	-563.20	3,709.23	3,711.36	0.00	0.00	0.00
10,200.00	90.00	90.22	6,945.00	-563.58	3,809.22	3,811.36	0.00	0.00	0.00
10,300.00	90.00	90.22	6,945.00	-563.95	3,909.22	3,911.36	0.00	0.00	0.00
10,400.00	90.00	90.22	6,945.00	-564.33	4,009.22	4,011.36	0.00	0.00	0.00
10,500.00	90.00	90.22	6,945.00	-564.70	4,109.22	4,111.36	0.00	0.00	0.00
10,600.00	90.00	90.22	6,945.00	-565.08	4,209.22	4,211.36	0.00	0.00	0.00
10,700.00	90.00	90.22	6,945.00	-565.45	4,309.22	4,311.36	0.00	0.00	0.00
10,800.00	90.00	90.22	6,945.00	-565.83	4,409.22	4,411.36	0.00	0.00	0.00
10,900.00	90.00	90.22	6,945.00	-566.21	4,509.22	4,511.36	0.00	0.00	0.00
11,000.00	90.00	90.22	6,945.00	-566.58	4,609.22	4,611.36	0.00	0.00	0.00
11,100.00	90.00	90.22	6,945.00	-566.96	4,709.22	4,711.36	0.00	0.00	0.00
11,200.00	90.00	90.22	6,945.00	-567.33	4,809.22	4,811.36	0.00	0.00	0.00
11,300.00	90.00	90.22	6,945.00	-567.71	4,909.22	4,911.36	0.00	0.00	0.00
11,400.00	90.00	90.22	6,945.00	-568.08	5,009.22	5,011.36	0.00	0.00	0.00

SDT
Planning Report

Database:	EDM 5000 Multi User Db	**Local Co-ordinate Reference:**	Well Rosa Unit 705H
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 705H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Prelim #3		

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)
11,500.00	90.00	90.22	6,945.00	-568.46	5,109.22	5,111.36	0.00	0.00	0.00
11,600.00	90.00	90.22	6,945.00	-568.83	5,209.21	5,211.36	0.00	0.00	0.00
11,700.00	90.00	90.22	6,945.00	-569.21	5,309.21	5,311.36	0.00	0.00	0.00
11,800.00	90.00	90.22	6,945.00	-569.59	5,409.21	5,411.36	0.00	0.00	0.00
11,900.00	90.00	90.22	6,945.00	-569.96	5,509.21	5,511.36	0.00	0.00	0.00
12,000.00	90.00	90.22	6,945.00	-570.34	5,609.21	5,611.36	0.00	0.00	0.00
12,100.00	90.00	90.22	6,945.00	-570.71	5,709.21	5,711.36	0.00	0.00	0.00
12,200.00	90.00	90.22	6,945.00	-571.09	5,809.21	5,811.36	0.00	0.00	0.00
12,300.00	90.00	90.22	6,945.00	-571.46	5,909.21	5,911.36	0.00	0.00	0.00
12,400.00	90.00	90.22	6,945.00	-571.84	6,009.21	6,011.36	0.00	0.00	0.00
12,500.00	90.00	90.22	6,945.00	-572.21	6,109.21	6,111.36	0.00	0.00	0.00
12,600.00	90.00	90.22	6,945.00	-572.59	6,209.21	6,211.36	0.00	0.00	0.00
12,700.00	90.00	90.22	6,945.00	-572.97	6,309.21	6,311.36	0.00	0.00	0.00
12,800.00	90.00	90.22	6,945.00	-573.34	6,409.21	6,411.36	0.00	0.00	0.00
12,900.00	90.00	90.22	6,945.00	-573.72	6,509.21	6,511.36	0.00	0.00	0.00
13,000.00	90.00	90.22	6,945.00	-574.09	6,609.20	6,611.36	0.00	0.00	0.00
13,100.00	90.00	90.22	6,945.00	-574.47	6,709.20	6,711.36	0.00	0.00	0.00
13,200.00	90.00	90.22	6,945.00	-574.84	6,809.20	6,811.36	0.00	0.00	0.00
13,300.00	90.00	90.22	6,945.00	-575.22	6,909.20	6,911.36	0.00	0.00	0.00
13,400.00	90.00	90.22	6,945.00	-575.59	7,009.20	7,011.36	0.00	0.00	0.00
13,500.00	90.00	90.22	6,945.00	-575.97	7,109.20	7,111.36	0.00	0.00	0.00
13,600.00	90.00	90.22	6,945.00	-576.35	7,209.20	7,211.36	0.00	0.00	0.00
13,700.00	90.00	90.22	6,945.00	-576.72	7,309.20	7,311.36	0.00	0.00	0.00
13,800.00	90.00	90.22	6,945.00	-577.10	7,409.20	7,411.36	0.00	0.00	0.00
13,900.00	90.00	90.22	6,945.00	-577.47	7,509.20	7,511.36	0.00	0.00	0.00
14,000.00	90.00	90.22	6,945.00	-577.85	7,609.20	7,611.36	0.00	0.00	0.00
14,100.00	90.00	90.22	6,945.00	-578.22	7,709.20	7,711.36	0.00	0.00	0.00
14,200.00	90.00	90.22	6,945.00	-578.60	7,809.20	7,811.36	0.00	0.00	0.00
14,300.00	90.00	90.22	6,945.00	-578.97	7,909.20	7,911.36	0.00	0.00	0.00
14,400.00	90.00	90.22	6,945.00	-579.35	8,009.19	8,011.36	0.00	0.00	0.00
14,500.00	90.00	90.22	6,945.00	-579.73	8,109.19	8,111.36	0.00	0.00	0.00
14,600.00	90.00	90.22	6,945.00	-580.10	8,209.19	8,211.36	0.00	0.00	0.00
14,700.00	90.00	90.22	6,945.00	-580.48	8,309.19	8,311.36	0.00	0.00	0.00
14,800.00	90.00	90.22	6,945.00	-580.85	8,409.19	8,411.36	0.00	0.00	0.00
14,900.00	90.00	90.22	6,945.00	-581.23	8,509.19	8,511.36	0.00	0.00	0.00
15,000.00	90.00	90.22	6,945.00	-581.60	8,609.19	8,611.36	0.00	0.00	0.00
15,100.00	90.00	90.22	6,945.00	-581.98	8,709.19	8,711.36	0.00	0.00	0.00
15,200.00	90.00	90.22	6,945.00	-582.35	8,809.19	8,811.36	0.00	0.00	0.00
15,300.00	90.00	90.22	6,945.00	-582.73	8,909.19	8,911.36	0.00	0.00	0.00
15,400.00	90.00	90.22	6,945.00	-583.10	9,009.19	9,011.36	0.00	0.00	0.00
15,500.00	90.00	90.22	6,945.00	-583.48	9,109.19	9,111.36	0.00	0.00	0.00
15,600.00	90.00	90.22	6,945.00	-583.86	9,209.19	9,211.36	0.00	0.00	0.00
15,700.00	90.00	90.22	6,945.00	-584.23	9,309.19	9,311.36	0.00	0.00	0.00
15,800.00	90.00	90.22	6,945.00	-584.61	9,409.18	9,411.36	0.00	0.00	0.00
15,900.00	90.00	90.22	6,945.00	-584.98	9,509.18	9,511.36	0.00	0.00	0.00
16,000.00	90.00	90.22	6,945.00	-585.36	9,609.18	9,611.36	0.00	0.00	0.00
16,100.00	90.00	90.22	6,945.00	-585.73	9,709.18	9,711.36	0.00	0.00	0.00
16,200.00	90.00	90.22	6,945.00	-586.11	9,809.18	9,811.36	0.00	0.00	0.00
16,300.00	90.00	90.22	6,945.00	-586.48	9,909.18	9,911.36	0.00	0.00	0.00
16,400.00	90.00	90.22	6,945.00	-586.86	10,009.18	10,011.36	0.00	0.00	0.00
16,500.00	90.00	90.22	6,945.00	-587.24	10,109.18	10,111.36	0.00	0.00	0.00
16,600.00	90.00	90.22	6,945.00	-587.61	10,209.18	10,211.36	0.00	0.00	0.00
16,700.00	90.00	90.22	6,945.00	-587.99	10,309.18	10,311.36	0.00	0.00	0.00
16,800.00	90.00	90.22	6,945.00	-588.36	10,409.18	10,411.36	0.00	0.00	0.00

SDT

Planning Report

Database:	EDM 5000 Multi User Db	**Local Co-ordinate Reference:**	Well Rosa Unit 705H
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 705H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Prelim #3		

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)
16,900.00	90.00	90.22	6,945.00	-588.74	10,509.18	10,511.36	0.00	0.00	0.00
17,000.00	90.00	90.22	6,945.00	-589.11	10,609.18	10,611.36	0.00	0.00	0.00
17,100.00	90.00	90.22	6,945.00	-589.49	10,709.18	10,711.36	0.00	0.00	0.00
17,200.00	90.00	90.22	6,945.00	-589.86	10,809.18	10,811.36	0.00	0.00	0.00
17,300.00	90.00	90.22	6,945.00	-590.24	10,909.17	10,911.36	0.00	0.00	0.00
17,400.00	90.00	90.22	6,945.00	-590.62	11,009.17	11,011.36	0.00	0.00	0.00
17,500.00	90.00	90.22	6,945.00	-590.99	11,109.17	11,111.36	0.00	0.00	0.00
17,600.00	90.00	90.22	6,945.00	-591.37	11,209.17	11,211.36	0.00	0.00	0.00
17,700.00	90.00	90.22	6,945.00	-591.74	11,309.17	11,311.36	0.00	0.00	0.00
17,800.00	90.00	90.22	6,945.00	-592.12	11,409.17	11,411.36	0.00	0.00	0.00
17,900.00	90.00	90.22	6,945.00	-592.49	11,509.17	11,511.36	0.00	0.00	0.00
18,000.00	90.00	90.22	6,945.00	-592.87	11,609.17	11,611.36	0.00	0.00	0.00
18,100.00	90.00	90.22	6,945.00	-593.24	11,709.17	11,711.36	0.00	0.00	0.00
18,200.00	90.00	90.22	6,945.00	-593.62	11,809.17	11,811.36	0.00	0.00	0.00
18,300.00	90.00	90.22	6,945.00	-594.00	11,909.17	11,911.36	0.00	0.00	0.00
18,400.00	90.00	90.22	6,945.00	-594.37	12,009.17	12,011.36	0.00	0.00	0.00
18,500.00	90.00	90.22	6,945.00	-594.75	12,109.17	12,111.36	0.00	0.00	0.00
18,600.00	90.00	90.22	6,945.00	-595.12	12,209.17	12,211.36	0.00	0.00	0.00
18,700.00	90.00	90.22	6,945.00	-595.50	12,309.16	12,311.36	0.00	0.00	0.00
18,800.00	90.00	90.22	6,945.00	-595.87	12,409.16	12,411.36	0.00	0.00	0.00
18,900.00	90.00	90.22	6,945.00	-596.25	12,509.16	12,511.36	0.00	0.00	0.00
19,000.00	90.00	90.22	6,945.00	-596.62	12,609.16	12,611.36	0.00	0.00	0.00
19,100.00	90.00	90.22	6,945.00	-597.00	12,709.16	12,711.36	0.00	0.00	0.00
19,200.00	90.00	90.22	6,945.00	-597.38	12,809.16	12,811.36	0.00	0.00	0.00
19,300.00	90.00	90.22	6,945.00	-597.75	12,909.16	12,911.36	0.00	0.00	0.00
19,400.00	90.00	90.22	6,945.00	-598.13	13,009.16	13,011.36	0.00	0.00	0.00
19,500.00	90.00	90.22	6,945.00	-598.50	13,109.16	13,111.36	0.00	0.00	0.00
19,600.00	90.00	90.22	6,945.00	-598.88	13,209.16	13,211.36	0.00	0.00	0.00
19,700.00	90.00	90.22	6,945.00	-599.25	13,309.16	13,311.36	0.00	0.00	0.00
19,800.00	90.00	90.22	6,945.00	-599.63	13,409.16	13,411.36	0.00	0.00	0.00
19,900.00	90.00	90.22	6,945.00	-600.00	13,509.16	13,511.36	0.00	0.00	0.00
20,000.00	90.00	90.22	6,945.00	-600.38	13,609.16	13,611.36	0.00	0.00	0.00
20,100.00	90.00	90.22	6,945.00	-600.75	13,709.15	13,711.36	0.00	0.00	0.00
20,200.00	90.00	90.22	6,945.00	-601.13	13,809.15	13,811.36	0.00	0.00	0.00
20,300.00	90.00	90.22	6,945.00	-601.51	13,909.15	13,911.36	0.00	0.00	0.00
20,400.00	90.00	90.22	6,945.00	-601.88	14,009.15	14,011.36	0.00	0.00	0.00
20,500.00	90.00	90.22	6,945.00	-602.26	14,109.15	14,111.36	0.00	0.00	0.00
20,600.00	90.00	90.22	6,945.00	-602.63	14,209.15	14,211.36	0.00	0.00	0.00
20,700.00	90.00	90.22	6,945.00	-603.01	14,309.15	14,311.36	0.00	0.00	0.00
20,741.48	90.00	90.22	6,945.00	-603.16	14,350.63	14,352.84	0.00	0.00	0.00
TD at 20741.48									

SDT
Planning Report

Database:	EDM 5000 Multi User Db	**Local Co-ordinate Reference:**	Well Rosa Unit 705H
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 705H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Prelim #3		

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 705H SHL - plan hits target center - Point	0.00	0.00	0.00	0.00	0.00	2,152,236.36	2,850,032.05	36.913792	-107.399109
RU 705H PBHL - plan hits target center - Point	0.00	0.00	6,945.00	-603.16	14,350.63	2,151,698.53	2,864,385.27	36.912125	-107.350022
RU 705H POE - plan hits target center - Point	0.00	0.00	6,945.00	-552.84	950.00	2,151,687.85	2,850,984.56	36.912274	-107.395860

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,420.14	2,411.00	Ojo Alamo		0.00	
2,533.74	2,524.00	Kirtland		0.00	
2,904.71	2,893.00	Fruitland		0.00	
3,001.22	2,989.00	Top of Coals		0.00	
3,175.14	3,162.00	Base of Coals		0.00	
3,345.04	3,331.00	Pictured Cliffs		0.00	
3,471.72	3,457.00	Lewis		0.00	
4,613.77	4,593.00	Chacra		0.00	
5,101.36	5,078.00	Upper Cliff House		0.00	
5,384.86	5,360.00	Cliff House		0.00	
5,435.13	5,410.00	Menefee		0.00	
5,652.28	5,626.00	Point Lookout		0.00	
6,199.18	6,170.00	Mancos		0.00	
6,850.42	6,766.00	Black Top		0.00	

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
795.17	794.65	-12.85	8.11	Start 5580.77 hold at 795.17 MD
6,375.94	6,345.82	-498.19	314.55	Start DLS 9.00 TFO -57.65
7,340.76	6,945.00	-552.84	950.00	Start 13400.72 hold at 7340.76 MD
20,741.48	6,945.00	-603.16	14,350.63	TD at 20741.48

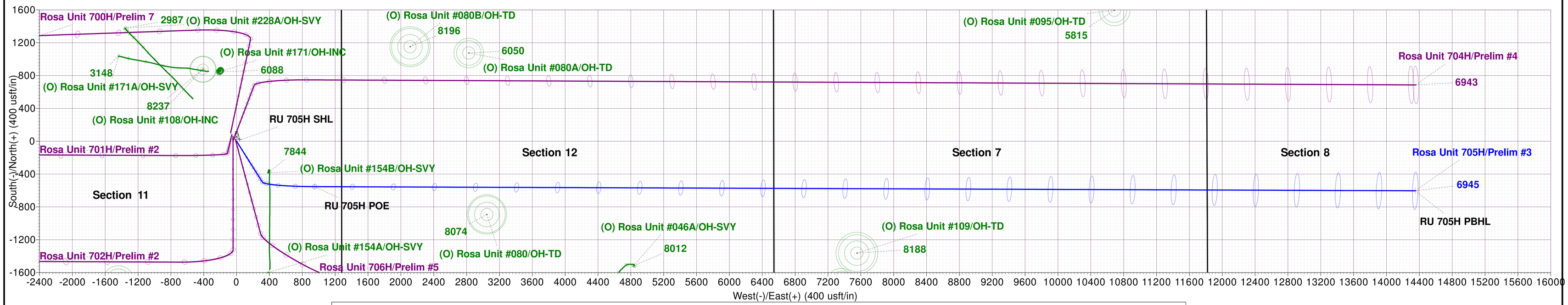
Released to Imaging: 3/21/2024 8:52:59 AM

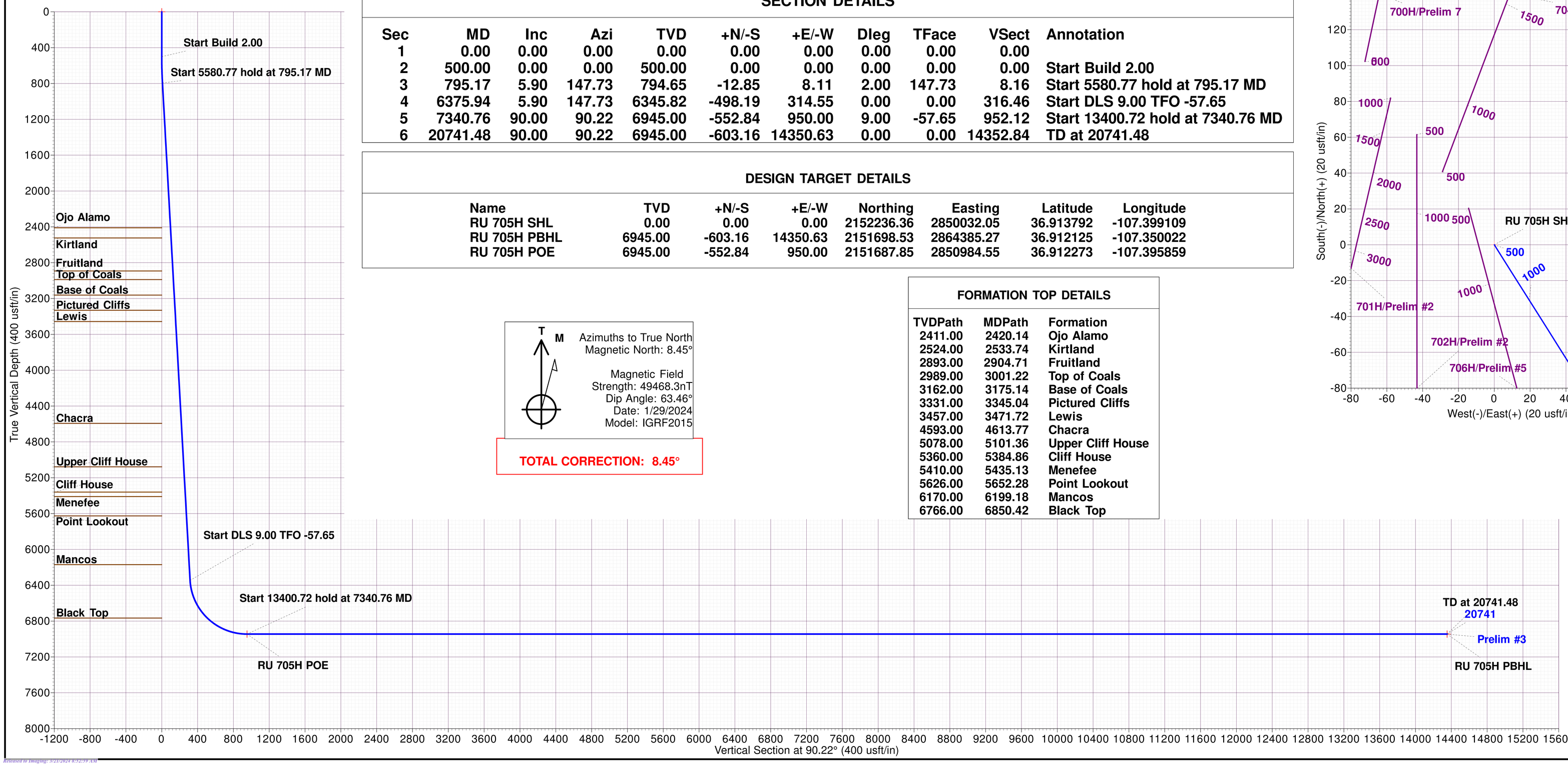
Received by OCD: 3/13/2024 10:19:18 AM

LOGOS ENERGY

County: Rio Arriba, NM (NAD83)
Site: Rosa Unit 24
Well: Rosa Unit 705H
Depth Reference: 6295+30 @ 6325.00usft (H&P 530)
Rig: H&P 530
Plan: Prelim #3
Job #: Permit

SCOUT DRILLING TECHNOLOGIES





SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	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	795.17	5.90	147.73	794.65	-12.85	8.11	2.00	147.73	8.16	Start 5580.77 hold at 795.17 MD
4	6375.94	5.90	147.73	6345.82	-498.19	314.55	0.00	0.00	316.46	Start DLS 9.00 TFO -57.65
5	7340.76	90.00	90.22	6945.00	-552.84	950.00	9.00	-57.65	952.12	Start 13400.72 hold at 7340.76 MD
6	20741.48	90.00	90.22	6945.00	-603.16	14350.63	0.00	0.00	14352.84	TD at 20741.48

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
RU 705H SHL	0.00	0.00	0.00	2152236.36	2850032.05	36.913792	-107.399109
RU 705H PBHL	6945.00	-603.16	14350.63	2151698.53	2864385.27	36.912125	-107.350022
RU 705H POE	6945.00	-552.84	950.00	2151687.85	2850984.55	36.912273	-107.395859

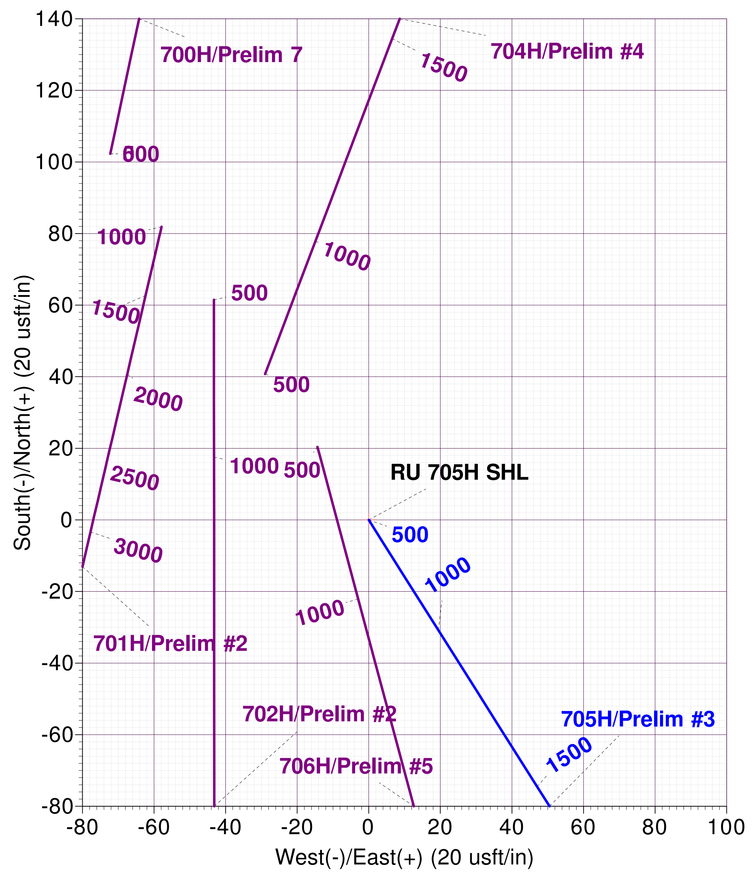
Azimuths to True North
Magnetic North: 8.45°

Magnetic Field
Strength: 49468.3nT
Dip Angle: 63.46°
Date: 1/29/2024
Model: IGRF2015

TOTAL CORRECTION: 8.45°

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
2411.00	2420.14	Ojo Alamo
2524.00	2533.74	Kirtland
2893.00	2904.71	Fruitland
2989.00	3001.22	Top of Coals
3162.00	3175.14	Base of Coals
3331.00	3345.04	Pictured Cliffs
3457.00	3471.72	Lewis
4593.00	4613.77	Chacra
5078.00	5101.36	Upper Cliff House
5360.00	5384.86	Cliff House
5410.00	5435.13	Menefee
5626.00	5652.28	Point Lookout
6170.00	6199.18	Mancos
6766.00	6850.42	Black Top



Received by Imaging: 3/21/2024 8:52:59 AM

Logos Operating LLC

Rio Arriba, NM (NAD83)
Rosa Unit 24
Rosa Unit 705H

OH
Prelim #3

Anticollision Report

02 March, 2024

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 705H
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 705H	**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 #3	**Offset TVD Reference:**	Offset Datum

Reference	Prelim #3		
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** 2/13/2024

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	20,741.48	Prelim #3 (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 #001E - OH - OH-SVY	0.00	17.14	8,034.53			
(O) Rosa Unit #001E - OH - OH-SVY	600.00	631.84	8,036.69	8,032.54	1,936.872	ES
(O) Rosa Unit #001E - OH - OH-SVY	7,000.00	6,583.96	8,642.96	8,594.15	177.049	SF
(O) Rosa Unit #009A - OH - OH-TD	500.00	422.00	10,173.96	10,159.63	709.982	CC
(O) Rosa Unit #009A - OH - OH-TD	600.00	522.08	10,175.11	10,157.44	575.793	ES
(O) Rosa Unit #009A - OH - OH-TD	7,000.00	6,787.67	10,885.34	10,656.61	47.591	SF
(O) Rosa Unit #009C - OH - OH-TD	500.00	561.10	12,122.94	12,104.45	655.367	CC
(O) Rosa Unit #009C - OH - OH-TD	700.00	759.51	12,125.20	12,100.08	482.670	ES
(O) Rosa Unit #009C - OH - OH-TD	7,000.00	6,904.11	12,659.54	12,426.73	54.378	SF
(O) Rosa Unit #009D - OH - OH-SVY	0.00	0.00	10,212.92			
(O) Rosa Unit #009D - OH - OH-SVY	6,950.00	7,214.53	11,549.91	11,496.23	215.157	SF
(O) Rosa Unit #030 - OH - OH-SVY	0.00	161.55	3,819.98			
(O) Rosa Unit #030 - OH - OH-SVY	600.00	756.33	3,821.97	3,817.39	833.528	ES
(O) Rosa Unit #030 - OH - OH-SVY	6,750.00	6,667.26	4,165.01	4,116.46	85.805	SF
(O) Rosa Unit #030B - OH - OH-TD	590.03	750.93	5,298.17	5,273.68	216.301	CC
(O) Rosa Unit #030B - OH - OH-TD	6,375.94	6,510.58	5,372.42	5,153.39	24.528	ES
(O) Rosa Unit #030B - OH - OH-TD	6,800.00	6,876.94	5,505.88	5,274.18	23.763	SF
(O) Rosa Unit #030C - OH - OH-TD	5,093.71	5,251.06	3,884.18	3,707.81	22.022	CC
(O) Rosa Unit #030C - OH - OH-TD	6,200.00	6,317.00	3,887.39	3,674.83	18.288	ES
(O) Rosa Unit #030C - OH - OH-TD	6,300.00	6,317.00	3,889.90	3,677.07	18.277	SF
(O) Rosa Unit #036 - OH - OH-TD	500.00	600.10	7,867.71	7,848.04	400.055	CC
(O) Rosa Unit #036 - OH - OH-TD	600.00	700.08	7,868.81	7,845.81	342.046	ES
(O) Rosa Unit #036 - OH - OH-TD	6,950.00	6,954.44	8,525.08	8,291.39	36.481	SF
(O) Rosa Unit #036C - OH - OH-SVY	0.00	79.37	9,041.53			
(O) Rosa Unit #036C - OH - OH-SVY	200.00	244.71	9,042.28	9,041.23	8,625.394	ES
(O) Rosa Unit #036C - OH - OH-SVY	6,950.00	6,665.05	10,095.35	10,044.43	198.229	SF
(O) Rosa Unit #040 - OH - OH-TD	20,741.48	7,460.46	4,035.06	3,710.75	12.442	CC, ES, SF
(O) Rosa Unit #041C - OH - OH-TD	10,938.13	7,017.45	2,431.73	2,146.65	8.530	CC, ES
(O) Rosa Unit #041C - OH - OH-TD	11,200.00	7,017.48	2,445.79	2,157.73	8.491	SF
(O) Rosa Unit #045 - OH - OH-TD	13,757.93	6,117.00	1,571.24	1,339.77	6.788	CC
(O) Rosa Unit #045 - OH - OH-TD	13,800.00	6,117.00	1,571.80	1,339.69	6.772	ES
(O) Rosa Unit #045 - OH - OH-TD	13,900.00	6,117.00	1,577.65	1,343.96	6.751	SF
(O) Rosa Unit #046A - OH - OH-SVY	11,239.19	7,027.68	942.46	842.61	9.439	CC, ES
(O) Rosa Unit #046A - OH - OH-SVY	11,300.00	7,027.98	944.42	844.10	9.415	SF
(O) Rosa Unit #070 - OH - OH	19,487.05	6,518.00	2,808.61	2,413.31	7.105	CC
(O) Rosa Unit #070 - OH - OH	19,500.00	6,518.00	2,808.64	2,413.17	7.102	ES
(O) Rosa Unit #070 - OH - OH	19,700.00	6,518.00	2,816.68	2,419.06	7.084	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 705H
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 705H	**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 #3	**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	9,438.61	6,881.82	329.53	70.52	1.272	Level 3, CC, ES, SF
(O) Rosa Unit #080A - OH - OH-TD	9,211.32	6,011.00	1,864.84	1,662.84	9.232	CC, ES
(O) Rosa Unit #080A - OH - OH-TD	9,400.00	6,011.00	1,874.37	1,670.52	9.195	SF
(O) Rosa Unit #080B - OH - OH-TD	8,495.94	6,945.24	1,709.38	1,461.11	6.885	CC
(O) Rosa Unit #080B - OH - OH-TD	8,500.00	6,945.24	1,709.38	1,461.08	6.884	ES
(O) Rosa Unit #080B - OH - OH-TD	8,600.00	6,945.25	1,712.54	1,463.30	6.871	SF
(O) Rosa Unit #095 - OH - OH-TD	17,071.23	6,300.00	2,460.08	2,136.57	7.604	CC
(O) Rosa Unit #095 - OH - OH-TD	17,100.00	6,300.00	2,460.25	2,136.40	7.597	ES
(O) Rosa Unit #095 - OH - OH-TD	17,200.00	6,300.00	2,463.45	2,138.55	7.582	SF
(O) Rosa Unit #108 - OH - OH-INC	500.00	450.02	968.17	958.00	95.214	CC
(O) Rosa Unit #108 - OH - OH-INC	600.00	550.00	969.90	957.42	77.738	ES
(O) Rosa Unit #108 - OH - OH-INC	6,550.00	6,465.96	1,583.17	1,434.36	10.639	SF
(O) Rosa Unit #109 - OH - OH-TD	13,945.89	7,244.06	784.99	446.59	2.320	CC, ES
(O) Rosa Unit #109 - OH - OH-TD	14,000.00	7,244.06	786.85	447.48	2.319	SF
(O) Rosa Unit #149 - OH - OH-INC	300.00	261.00	3,579.24	3,572.37	520.692	CC
(O) Rosa Unit #149 - OH - OH-INC	600.00	561.13	3,580.62	3,564.85	227.047	ES
(O) Rosa Unit #149 - OH - OH-INC	6,100.00	5,949.00	4,038.15	3,832.08	19.596	SF
(O) Rosa Unit #149A - OH - OH-INC	400.00	359.00	4,903.99	4,896.30	637.980	CC
(O) Rosa Unit #149A - OH - OH-INC	600.00	558.98	4,905.16	4,893.18	409.496	ES
(O) Rosa Unit #149A - OH - OH-INC	6,200.00	6,000.00	5,305.72	5,163.55	37.321	SF
(O) Rosa Unit #149B - OH - OH-INC	500.00	596.03	6,815.56	6,801.19	474.285	CC
(O) Rosa Unit #149B - OH - OH-INC	600.00	696.01	6,816.76	6,799.92	404.775	ES
(O) Rosa Unit #149B - OH - OH-INC	6,900.00	6,896.55	7,466.03	7,270.33	38.149	SF
(O) Rosa Unit #149C - OH - OH-SVY	2,779.87	3,321.03	4,536.93	4,509.15	163.311	CC
(O) Rosa Unit #149C - OH - OH-SVY	2,800.00	3,333.00	4,536.97	4,509.07	162.590	ES
(O) Rosa Unit #149C - OH - OH-SVY	6,600.00	6,684.14	4,886.67	4,840.35	105.519	SF
(O) Rosa Unit #154 - OH - OH-TD	6,220.96	6,341.00	2,130.29	1,916.93	9.985	CC, ES, SF
(O) Rosa Unit #154A - OH - OH-SVY	6,229.50	6,125.00	1,156.77	1,129.59	42.559	CC, ES
(O) Rosa Unit #154A - OH - OH-SVY	6,400.00	6,125.00	1,169.24	1,141.37	41.955	SF
(O) Rosa Unit #154B - OH - OH-SVY	5,879.47	6,148.80	122.35	93.44	4.232	CC
(O) Rosa Unit #154B - OH - OH-SVY	5,900.00	6,169.19	122.38	93.42	4.226	ES
(O) Rosa Unit #154B - OH - OH-SVY	6,000.00	6,268.77	122.86	93.71	4.214	SF
(O) Rosa Unit #171 - OH - OH-INC	100.00	38.18	885.33	884.39	935.093	CC
(O) Rosa Unit #171 - OH - OH-INC	600.00	543.84	887.09	876.82	86.399	ES
(O) Rosa Unit #171 - OH - OH-INC	3,900.00	3,822.48	1,204.47	1,149.20	21.793	SF
(O) Rosa Unit #171A - OH - OH-SVY	100.00	37.84	902.54	902.21	2,740.180	CC, ES
(O) Rosa Unit #171A - OH - OH-SVY	3,700.00	3,351.28	2,134.63	2,107.24	77.952	SF
(O) Rosa Unit #181 - OH - OH-SVY	568.65	643.00	10,887.57	10,884.84	3,987.630	CC, ES
(O) Rosa Unit #181 - OH - OH-SVY	6,800.00	1,359.00	12,719.22	12,693.83	500.918	SF
(O) Rosa Unit #228A - OH - OH-SVY	457.23	395.24	743.08	741.07	369.494	CC, ES
(O) Rosa Unit #228A - OH - OH-SVY	3,500.00	3,253.00	2,278.85	2,256.83	103.502	SF
Rosa Unit 700H - OH - Prelim 7	500.00	500.00	125.22	121.85	37.161	CC, ES
Rosa Unit 700H - OH - Prelim 7	800.00	788.73	151.61	146.17	27.867	SF
Rosa Unit 701H - OH - Prelim #2	500.00	500.00	100.30	96.93	29.767	CC, ES
Rosa Unit 701H - OH - Prelim #2	6,300.00	6,286.41	544.17	499.07	12.065	SF
Rosa Unit 702H - OH - Prelim #2	500.00	500.00	75.22	71.85	22.322	CC
Rosa Unit 702H - OH - Prelim #2	1,200.00	1,210.15	76.96	68.58	9.182	ES
Rosa Unit 702H - OH - Prelim #2	1,400.00	1,407.30	84.97	74.96	8.490	SF
Rosa Unit 704H - OH - Prelim #4	500.00	500.00	50.00	46.63	14.839	CC, ES
Rosa Unit 704H - OH - Prelim #4	20,741.48	20,855.61	1,289.63	830.49	2.809	SF
Rosa Unit 706H - OH - Prelim #5	1,085.31	1,088.66	22.81	15.31	3.044	CC
Rosa Unit 706H - OH - Prelim #5	1,100.00	1,103.28	22.86	15.25	3.003	ES
Rosa Unit 706H - OH - Prelim #5	20,741.48	21,031.79	1,298.40	839.99	2.832	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 705H
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 705H	**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 #3	**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 #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
0.00	0.00	17.14	17.14	0.00	0.03	-102.11	-1,685.63	-7,855.72	8,034.53				
100.00	100.00	106.04	106.04	0.25	0.28	-102.11	-1,685.72	-7,855.83	8,034.67	8,034.14	0.53	N/A	
200.00	200.00	206.79	206.79	0.61	0.64	-102.11	-1,686.01	-7,855.92	8,034.82	8,033.57	1.25	6,452.354	
300.00	300.00	297.36	297.36	0.97	0.95	-102.12	-1,686.39	-7,856.02	8,035.01	8,033.09	1.92	4,184.444	
400.00	400.00	377.16	377.15	1.33	1.23	-102.12	-1,686.80	-7,856.25	8,035.41	8,032.85	2.56	3,141.503	
500.00	500.00	479.31	479.30	1.68	1.59	-102.12	-1,687.15	-7,856.69	8,035.90	8,032.63	3.27	2,454.444	
600.00	599.98	631.84	631.84	2.03	2.13	110.15	-1,687.39	-7,856.93	8,036.69	8,032.54	4.15	1,936.872 ES	
700.00	699.84	742.35	742.34	2.37	2.51	110.16	-1,687.75	-7,856.56	8,038.24	8,033.37	4.87	1,650.992	
795.17	794.65	833.35	833.35	2.69	2.83	110.16	-1,687.81	-7,856.33	8,040.85	8,035.34	5.51	1,458.266	
800.00	799.45	842.31	842.30	2.71	2.86	110.17	-1,687.80	-7,856.31	8,041.01	8,035.45	5.56	1,445.611	
900.00	898.92	947.61	947.60	3.06	3.22	110.24	-1,687.55	-7,856.02	8,044.26	8,037.98	6.28	1,280.255	
1,000.00	998.39	1,071.52	1,071.51	3.43	3.66	110.33	-1,687.16	-7,855.34	8,047.22	8,040.14	7.08	1,137.289	
1,100.00	1,097.86	1,168.95	1,168.94	3.79	4.00	110.39	-1,686.91	-7,854.68	8,050.09	8,042.31	7.78	1,034.602	
1,200.00	1,197.33	1,268.65	1,268.63	4.16	4.34	110.46	-1,686.69	-7,854.04	8,053.03	8,044.53	8.50	947.714	
1,300.00	1,296.80	1,372.09	1,372.07	4.53	4.70	110.54	-1,686.16	-7,853.39	8,055.92	8,046.69	9.23	872.847	
1,400.00	1,396.27	1,463.41	1,463.38	4.91	5.02	110.60	-1,685.54	-7,852.97	8,058.95	8,049.03	9.92	812.301	
1,500.00	1,495.74	1,550.00	1,549.97	5.28	5.33	110.67	-1,684.80	-7,852.61	8,062.03	8,051.43	10.60	760.732	
1,600.00	1,595.21	1,674.45	1,674.42	5.66	5.76	110.76	-1,683.95	-7,852.10	8,065.15	8,053.74	11.41	706.971	
1,700.00	1,694.68	1,803.59	1,803.55	6.04	6.21	110.85	-1,682.75	-7,851.08	8,067.85	8,055.62	12.24	659.359	
1,800.00	1,794.15	1,884.56	1,884.51	6.42	6.49	110.91	-1,681.54	-7,850.46	8,070.49	8,057.60	12.90	625.815	
1,900.00	1,893.62	1,955.58	1,955.52	6.80	6.74	110.97	-1,680.21	-7,850.23	8,073.50	8,059.98	13.52	597.082	
2,000.00	1,993.09	2,025.00	2,024.92	7.18	6.99	111.03	-1,678.74	-7,850.31	8,076.89	8,062.75	14.14	571.136	
2,100.00	2,092.56	2,132.18	2,132.09	7.56	7.36	111.12	-1,676.76	-7,850.55	8,080.47	8,065.58	14.89	542.507	
2,200.00	2,192.03	2,245.34	2,245.22	7.94	7.76	111.21	-1,674.64	-7,850.52	8,083.81	8,068.14	15.67	515.909	
2,300.00	2,291.50	2,317.05	2,316.92	8.32	8.01	111.27	-1,673.08	-7,850.62	8,087.29	8,070.99	16.30	496.206	
2,400.00	2,390.97	2,400.00	2,399.85	8.70	8.30	111.34	-1,671.56	-7,850.95	8,091.09	8,074.12	16.97	476.877	
2,500.00	2,490.44	2,532.83	2,532.67	9.08	8.76	111.44	-1,669.74	-7,851.26	8,094.84	8,077.03	17.81	454.486	
2,600.00	2,589.91	2,618.60	2,618.43	9.47	9.06	111.51	-1,668.27	-7,851.31	8,098.37	8,079.88	18.49	437.985	
2,700.00	2,689.38	2,681.33	2,681.14	9.85	9.28	111.56	-1,667.14	-7,851.58	8,102.27	8,083.18	19.09	424.473	
2,800.00	2,788.85	2,735.86	2,735.67	10.23	9.47	111.60	-1,666.39	-7,852.06	8,106.68	8,087.03	19.66	412.424	
2,900.00	2,888.32	2,819.28	2,819.07	10.61	9.76	111.66	-1,665.54	-7,853.22	8,111.65	8,091.32	20.33	399.074	
3,000.00	2,987.79	2,900.00	2,899.78	11.00	10.04	111.73	-1,664.50	-7,854.40	8,116.68	8,095.70	20.99	386.754	
3,100.00	3,087.25	2,950.00	2,949.77	11.38	10.22	111.77	-1,663.96	-7,855.33	8,122.16	8,100.62	21.54	377.113	
3,200.00	3,186.72	3,092.99	3,092.73	11.76	10.72	111.87	-1,663.54	-7,857.58	8,127.42	8,105.00	22.42	362.513	
3,300.00	3,286.19	3,150.00	3,149.74	12.15	10.92	111.91	-1,663.38	-7,858.58	8,132.94	8,109.95	23.00	353.673	
3,400.00	3,385.66	3,286.89	3,286.61	12.53	11.39	112.00	-1,663.42	-7,860.62	8,138.21	8,114.35	23.86	341.130	
3,500.00	3,485.13	3,408.32	3,408.03	12.91	11.82	112.09	-1,663.51	-7,862.44	8,143.61	8,118.95	24.66	330.201	
3,600.00	3,584.60	3,471.65	3,471.35	13.30	12.04	112.13	-1,663.47	-7,863.39	8,148.95	8,123.69	25.26	322.583	
3,700.00	3,684.07	3,567.19	3,566.88	13.68	12.37	112.20	-1,663.50	-7,864.74	8,154.27	8,128.29	25.98	313.922	
3,800.00	3,783.54	3,686.14	3,685.82	14.06	12.79	112.28	-1,663.47	-7,866.54	8,159.66	8,132.88	26.77	304.768	
3,900.00	3,883.01	3,786.08	3,785.75	14.45	13.14	112.35	-1,663.40	-7,868.01	8,165.02	8,137.52	27.50	296.875	
4,000.00	3,982.48	3,861.05	3,860.71	14.83	13.40	112.40	-1,663.70	-7,869.18	8,170.56	8,142.41	28.14	290.315	
4,100.00	4,081.95	3,950.00	3,949.64	15.22	13.71	112.45	-1,664.53	-7,870.68	8,176.32	8,147.48	28.83	283.561	

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 705H
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 705H	**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 #3	**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
4,200.00	4,181.42	4,042.64	4,042.26	15.60	14.03	112.50	-1,666.10	-7,872.15	8,182.13	8,152.59	29.54	277.000	
4,300.00	4,280.89	4,117.42	4,117.00	15.98	14.29	112.54	-1,667.91	-7,873.40	8,188.15	8,157.98	30.18	271.331	
4,400.00	4,380.36	4,209.06	4,208.58	16.37	14.61	112.59	-1,670.78	-7,875.02	8,194.39	8,163.51	30.88	265.378	
4,500.00	4,479.83	4,282.94	4,282.40	16.75	14.87	112.62	-1,673.36	-7,876.44	8,200.84	8,169.33	31.51	260.228	
4,600.00	4,579.30	4,364.17	4,363.56	17.14	15.15	112.65	-1,676.39	-7,878.14	8,207.52	8,175.34	32.18	255.079	
4,700.00	4,678.77	4,440.40	4,439.71	17.52	15.42	112.69	-1,679.45	-7,879.95	8,214.51	8,181.69	32.82	250.287	
4,800.00	4,778.24	4,550.00	4,549.18	17.90	15.80	112.73	-1,684.05	-7,882.66	8,221.63	8,188.04	33.59	244.791	
4,900.00	4,877.71	4,625.97	4,625.05	18.29	16.07	112.76	-1,687.27	-7,884.51	8,228.75	8,194.52	34.23	240.402	
5,000.00	4,977.18	4,733.78	4,732.73	18.67	16.45	112.80	-1,691.95	-7,887.28	8,235.99	8,201.00	34.99	235.390	
5,100.00	5,076.65	4,842.34	4,841.15	19.06	16.82	112.84	-1,696.70	-7,890.10	8,243.27	8,207.52	35.75	230.574	
5,200.00	5,176.12	4,932.72	4,931.41	19.44	17.14	112.88	-1,700.59	-7,892.38	8,250.47	8,214.02	36.45	226.370	
5,300.00	5,275.59	5,033.28	5,031.84	19.83	17.49	112.92	-1,704.97	-7,894.99	8,257.75	8,220.57	37.18	222.102	
5,400.00	5,375.06	5,113.63	5,112.08	20.21	17.77	112.95	-1,708.52	-7,897.21	8,265.19	8,227.36	37.84	218.432	
5,500.00	5,474.53	5,258.44	5,256.70	20.59	18.28	113.00	-1,715.20	-7,900.70	8,272.32	8,233.59	38.73	213.563	
5,600.00	5,574.00	5,409.47	5,407.53	20.98	18.81	113.06	-1,722.43	-7,903.53	8,278.99	8,239.34	39.65	208.787	
5,700.00	5,673.47	5,538.79	5,536.68	21.36	19.26	113.10	-1,728.85	-7,905.33	8,285.22	8,244.73	40.49	204.619	
5,800.00	5,772.94	5,664.19	5,661.89	21.75	19.70	113.14	-1,735.58	-7,906.50	8,291.05	8,249.73	41.31	200.681	
5,900.00	5,872.41	5,800.00	5,797.50	22.13	20.17	113.18	-1,742.95	-7,907.01	8,296.28	8,254.11	42.18	196.710	
6,000.00	5,971.88	5,875.00	5,872.39	22.52	20.43	113.20	-1,747.00	-7,907.41	8,301.70	8,258.88	42.82	193.892	
6,100.00	6,071.35	5,941.74	5,939.03	22.90	20.67	113.22	-1,750.52	-7,907.94	8,307.38	8,263.96	43.43	191.296	
6,200.00	6,170.81	6,023.36	6,020.53	23.28	20.95	113.24	-1,754.89	-7,908.88	8,313.42	8,269.33	44.09	188.551	
6,300.00	6,270.28	6,100.00	6,097.05	23.67	21.22	113.27	-1,759.01	-7,909.92	8,319.69	8,274.95	44.74	185.969	
6,375.94	6,345.82	6,153.31	6,150.28	23.96	21.41	113.28	-1,761.83	-7,910.83	8,324.67	8,279.46	45.21	184.136	
6,400.00	6,369.72	6,175.00	6,171.93	24.05	21.48	127.73	-1,762.98	-7,911.22	8,326.72	8,281.35	45.38	183.500	
6,450.00	6,419.09	6,200.00	6,196.89	24.25	21.57	143.76	-1,764.32	-7,911.70	8,333.92	8,288.27	45.65	182.546	
6,500.00	6,467.78	6,238.39	6,235.21	24.46	21.70	151.26	-1,766.40	-7,912.51	8,345.02	8,299.04	45.98	181.488	
6,550.00	6,515.51	6,275.00	6,271.76	24.67	21.83	155.34	-1,768.40	-7,913.37	8,359.96	8,313.66	46.30	180.558	
6,600.00	6,561.97	6,300.00	6,296.72	24.88	21.92	157.76	-1,769.78	-7,913.97	8,378.60	8,332.03	46.57	179.897	
6,650.00	6,606.89	6,334.78	6,331.43	25.10	22.04	159.24	-1,771.72	-7,914.84	8,400.83	8,353.95	46.88	179.198	
6,700.00	6,649.98	6,350.00	6,346.62	25.32	22.10	160.08	-1,772.67	-7,915.29	8,426.61	8,379.50	47.11	178.884	
6,750.00	6,690.98	6,350.00	6,346.62	25.54	22.10	160.45	-1,772.67	-7,915.29	8,455.76	8,408.49	47.27	178.891	
6,800.00	6,729.64	6,364.49	6,361.07	25.77	22.15	160.45	-1,773.65	-7,915.78	8,488.08	8,440.61	47.47	178.793	
6,850.00	6,765.71	6,441.33	6,437.72	26.00	22.41	160.22	-1,778.04	-7,918.53	8,523.25	8,475.34	47.91	177.903	
6,900.00	6,798.98	6,491.17	6,487.48	26.24	22.59	159.60	-1,780.51	-7,920.15	8,560.88	8,512.65	48.23	177.495	
6,950.00	6,829.24	6,535.56	6,531.80	26.49	22.74	158.58	-1,782.67	-7,921.51	8,600.84	8,552.32	48.52	177.256	
7,000.00	6,856.30	6,583.96	6,580.12	26.76	22.91	157.08	-1,784.97	-7,922.95	8,642.96	8,594.15	48.82	177.049 SF	
7,050.00	6,880.00	6,603.51	6,599.64	27.03	22.98	154.78	-1,785.90	-7,923.51	8,686.96	8,637.97	48.99	177.321	
7,100.00	6,900.19	6,622.48	6,618.58	27.32	23.05	151.41	-1,786.79	-7,924.05	8,732.57	8,683.42	49.15	177.674	
7,150.00	6,916.74	6,638.18	6,634.25	27.62	23.10	146.29	-1,787.51	-7,924.47	8,779.54	8,730.25	49.28	178.140	
7,200.00	6,929.56	6,655.04	6,651.09	27.93	23.16	138.19	-1,788.32	-7,924.95	8,827.60	8,778.18	49.41	178.649	
7,250.00	6,938.57	6,662.73	6,658.77	28.26	23.19	124.38	-1,788.69	-7,925.16	8,876.41	8,826.92	49.50	179.336	
7,300.00	6,943.70	6,666.53	6,662.56	28.60	23.20	101.23	-1,788.87	-7,925.27	8,925.71	8,876.15	49.56	180.117	
7,340.76	6,945.00	6,666.72	6,662.76	28.88	23.20	76.61	-1,788.88	-7,925.27	8,966.03	8,916.44	49.59	180.817	
7,400.00	6,945.00	6,665.11	6,661.15	29.31	23.20	76.54	-1,788.80	-7,925.23	9,024.64	8,975.02	49.62	181.872	
7,500.00	6,945.00	6,662.39	6,658.43	30.09	23.19	76.42	-1,788.67	-7,925.15	9,123.60	9,073.92	49.68	183.649	
7,600.00	6,945.00	6,659.68	6,655.72	30.93	23.18	76.30	-1,788.54	-7,925.08	9,222.58	9,172.85	49.74	185.418	
7,700.00	6,945.00	6,656.96	6,653.01	31.83	23.17	76.19	-1,788.41	-7,925.01	9,321.59	9,271.79	49.80	187.180	
7,800.00	6,945.00	6,641.89	6,637.96	32.79	23.12	75.54	-1,787.69	-7,924.58	9,420.60	9,370.79	49.81	189.117	
7,900.00	6,945.00	6,640.87	6,636.94	33.79	23.11	75.50	-1,787.64	-7,924.55	9,519.64	9,469.76	49.88	190.841	
8,000.00	6,945.00	6,639.86	6,635.93	34.84	23.11	75.45	-1,787.59	-7,924.52	9,618.70	9,568.75	49.95	192.559	
8,100.00	6,945.00	6,638.86	6,634.94	35.93	23.11	75.41	-1,787.54	-7,924.49	9,717.78	9,667.75	50.02	194.269	
8,200.00	6,945.00	6,637.87	6,633.95	37.06	23.10	75.37	-1,787.50	-7,924.46	9,816.87	9,766.78	50.09	195.972	

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 705H
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 705H	**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 #3	**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
8,300.00	6,945.00	6,636.90	6,632.98	38.23	23.10	75.33	-1,787.45	-7,924.44	9,915.99	9,865.82	50.16	197.668	
8,400.00	6,945.00	6,635.93	6,632.01	39.42	23.10	75.28	-1,787.41	-7,924.41	10,015.12	9,964.88	50.24	199.357	
8,500.00	6,945.00	6,634.98	6,631.06	40.65	23.09	75.24	-1,787.36	-7,924.38	10,114.27	10,063.96	50.31	201.039	
8,600.00	6,945.00	6,634.04	6,630.12	41.90	23.09	75.20	-1,787.32	-7,924.36	10,213.43	10,163.05	50.38	202.715	
8,700.00	6,945.00	6,622.80	6,618.90	43.17	23.05	74.72	-1,786.81	-7,924.06	10,312.62	10,262.20	50.42	204.547	
8,800.00	6,945.00	6,620.00	6,616.11	44.46	23.04	74.61	-1,786.67	-7,923.98	10,411.81	10,361.33	50.48	206.241	
8,900.00	6,945.00	6,617.20	6,613.31	45.78	23.03	74.49	-1,786.54	-7,923.90	10,511.02	10,460.47	50.55	207.928	
9,000.00	6,945.00	6,614.41	6,610.52	47.11	23.02	74.37	-1,786.41	-7,923.82	10,610.24	10,559.62	50.62	209.610	
9,100.00	6,945.00	6,611.61	6,607.72	48.46	23.01	74.25	-1,786.28	-7,923.74	10,709.48	10,658.79	50.69	211.286	
9,200.00	6,945.00	6,608.81	6,604.93	49.82	23.00	74.13	-1,786.15	-7,923.66	10,808.72	10,757.97	50.76	212.956	
9,300.00	6,945.00	6,606.01	6,602.14	51.20	22.99	74.01	-1,786.02	-7,923.58	10,907.99	10,857.16	50.82	214.621	
9,400.00	6,945.00	6,603.21	6,599.34	52.59	22.98	73.89	-1,785.89	-7,923.50	11,007.26	10,956.37	50.89	216.280	
9,500.00	6,945.00	6,590.78	6,586.93	53.99	22.94	73.37	-1,785.29	-7,923.14	11,106.54	11,055.61	50.93	218.095	
9,600.00	6,945.00	6,589.81	6,585.96	55.40	22.93	73.33	-1,785.25	-7,923.11	11,205.83	11,154.83	51.00	219.713	
9,700.00	6,945.00	6,588.86	6,585.01	56.83	22.93	73.29	-1,785.20	-7,923.08	11,305.14	11,254.06	51.08	221.324	
9,800.00	6,945.00	6,587.91	6,584.06	58.26	22.93	73.25	-1,785.16	-7,923.06	11,404.46	11,353.30	51.16	222.930	
9,900.00	6,945.00	6,586.97	6,583.12	59.70	22.92	73.21	-1,785.11	-7,923.03	11,503.79	11,452.56	51.24	224.529	
10,000.00	6,945.00	6,586.04	6,582.19	61.15	22.92	73.17	-1,785.07	-7,923.00	11,603.14	11,551.82	51.31	226.123	
10,100.00	6,945.00	6,585.12	6,581.28	62.61	22.92	73.13	-1,785.03	-7,922.98	11,702.49	11,651.10	51.39	227.710	
10,200.00	6,945.00	6,584.21	6,580.37	64.07	22.91	73.09	-1,784.99	-7,922.95	11,801.85	11,750.38	51.47	229.292	
10,300.00	6,945.00	6,540.65	6,536.87	65.54	22.76	71.28	-1,782.92	-7,921.66	11,901.22	11,849.84	51.38	231.624	
10,400.00	6,945.00	6,539.69	6,535.91	67.02	22.76	71.24	-1,782.87	-7,921.64	12,000.60	11,949.14	51.46	233.199	
10,500.00	6,945.00	6,538.74	6,534.97	68.50	22.76	71.20	-1,782.82	-7,921.61	12,099.98	12,048.44	51.54	234.768	
10,600.00	6,945.00	6,537.79	6,534.03	69.99	22.75	71.16	-1,782.78	-7,921.58	12,199.38	12,147.76	51.62	236.331	
10,700.00	6,945.00	6,536.86	6,533.10	71.48	22.75	71.12	-1,782.73	-7,921.55	12,298.78	12,247.08	51.70	237.888	
10,800.00	6,945.00	6,535.94	6,532.18	72.98	22.75	71.09	-1,782.69	-7,921.52	12,398.20	12,346.41	51.78	239.439	
10,900.00	6,945.00	6,535.03	6,531.27	74.48	22.74	71.05	-1,782.64	-7,921.49	12,497.62	12,445.76	51.86	240.985	
11,000.00	6,945.00	6,534.13	6,530.37	75.99	22.74	71.01	-1,782.60	-7,921.47	12,597.05	12,545.11	51.94	242.524	
11,100.00	6,945.00	6,523.81	6,520.06	77.50	22.70	70.59	-1,782.10	-7,921.16	12,696.50	12,644.51	51.99	244.234	
11,200.00	6,945.00	6,520.77	6,517.03	79.01	22.69	70.46	-1,781.96	-7,921.07	12,795.95	12,743.89	52.06	245.802	
11,300.00	6,945.00	6,517.74	6,514.01	80.53	22.68	70.34	-1,781.81	-7,920.98	12,895.40	12,843.27	52.13	247.366	
11,400.00	6,945.00	6,514.71	6,510.98	82.05	22.67	70.22	-1,781.66	-7,920.89	12,994.86	12,942.66	52.20	248.925	
11,500.00	6,945.00	6,491.97	6,488.28	83.57	22.59	69.29	-1,780.55	-7,920.18	13,094.33	13,042.13	52.20	250.852	
11,600.00	6,945.00	6,490.55	6,486.86	85.10	22.59	69.23	-1,780.48	-7,920.13	13,193.80	13,141.52	52.28	252.371	
11,700.00	6,945.00	6,489.14	6,485.45	86.63	22.58	69.18	-1,780.41	-7,920.09	13,293.28	13,240.92	52.36	253.884	
11,800.00	6,945.00	6,487.74	6,484.05	88.16	22.58	69.12	-1,780.34	-7,920.04	13,392.77	13,340.33	52.44	255.392	
11,900.00	6,945.00	6,486.35	6,482.66	89.69	22.57	69.06	-1,780.27	-7,920.00	13,492.27	13,439.75	52.52	256.893	
12,000.00	6,945.00	6,461.92	6,458.28	91.23	22.49	68.08	-1,779.07	-7,919.22	13,591.77	13,539.26	52.51	258.838	
12,100.00	6,945.00	6,458.64	6,455.01	92.77	22.48	67.95	-1,778.91	-7,919.11	13,691.27	13,638.69	52.58	260.367	
12,200.00	6,945.00	6,455.37	6,451.74	94.31	22.46	67.82	-1,778.74	-7,919.00	13,790.78	13,738.12	52.66	261.891	
12,300.00	6,945.00	6,375.00	6,371.54	95.85	22.18	64.69	-1,774.40	-7,916.17	13,890.30	13,837.87	52.43	264.945	
12,400.00	6,945.00	6,375.00	6,371.54	97.40	22.18	64.69	-1,774.40	-7,916.17	13,989.80	13,937.29	52.51	266.399	
12,500.00	6,945.00	6,375.00	6,371.54	98.95	22.18	64.69	-1,774.40	-7,916.17	14,089.31	14,036.71	52.60	267.847	
12,600.00	6,945.00	6,375.00	6,371.54	100.50	22.18	64.69	-1,774.40	-7,916.17	14,188.83	14,136.14	52.69	269.289	
12,700.00	6,945.00	6,375.00	6,371.54	102.05	22.18	64.69	-1,774.40	-7,916.17	14,288.35	14,235.57	52.78	270.726	
12,800.00	6,945.00	6,375.00	6,371.54	103.60	22.18	64.69	-1,774.40	-7,916.17	14,387.88	14,335.02	52.87	272.157	
12,900.00	6,945.00	6,364.75	6,361.33	105.15	22.15	64.30	-1,773.67	-7,915.79	14,487.40	14,434.49	52.91	273.794	
13,000.00	6,945.00	6,364.08	6,360.65	106.71	22.14	64.27	-1,773.62	-7,915.76	14,586.94	14,533.94	53.00	275.229	
13,100.00	6,945.00	6,363.41	6,359.99	108.26	22.14	64.24	-1,773.58	-7,915.74	14,686.49	14,633.40	53.09	276.657	
13,200.00	6,945.00	6,362.75	6,359.33	109.82	22.14	64.22	-1,773.53	-7,915.72	14,786.04	14,732.87	53.17	278.080	
13,300.00	6,945.00	6,362.10	6,358.68	111.38	22.14	64.19	-1,773.48	-7,915.69	14,885.60	14,832.34	53.26	279.497	
13,400.00	6,945.00	6,361.45	6,358.03	112.94	22.14	64.17	-1,773.44	-7,915.67	14,985.16	14,931.82	53.35	280.908	

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 705H
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 705H	**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 #3	**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)	Rule Assigned: Distance Between Centres (usft)	Rule Assigned: Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
13,500.00	6,945.00	6,360.81	6,357.39	114.50	22.13	64.15	-1,773.39	-7,915.65	15,084.73	15,031.30	53.43	282.314	
13,600.00	6,945.00	6,350.00	6,346.62	116.07	22.10	63.73	-1,772.67	-7,915.29	15,184.32	15,130.85	53.48	283.929	
13,700.00	6,945.00	6,350.00	6,346.62	117.63	22.10	63.73	-1,772.67	-7,915.29	15,283.90	15,230.33	53.57	285.310	
13,800.00	6,945.00	6,350.00	6,346.62	119.19	22.10	63.73	-1,772.67	-7,915.29	15,383.49	15,329.83	53.66	286.686	
13,900.00	6,945.00	6,350.00	6,346.62	120.76	22.10	63.73	-1,772.67	-7,915.29	15,483.08	15,429.33	53.75	288.056	
14,000.00	6,945.00	6,350.00	6,346.62	122.33	22.10	63.73	-1,772.67	-7,915.29	15,582.67	15,528.83	53.84	289.420	
14,100.00	6,945.00	6,350.00	6,346.62	123.90	22.10	63.73	-1,772.67	-7,915.29	15,682.27	15,628.34	53.93	290.779	
14,200.00	6,945.00	6,350.00	6,346.62	125.46	22.10	63.73	-1,772.67	-7,915.29	15,781.88	15,727.85	54.02	292.132	
14,300.00	6,945.00	6,350.00	6,346.62	127.03	22.10	63.73	-1,772.67	-7,915.29	15,881.48	15,827.37	54.11	293.479	
14,400.00	6,945.00	6,350.00	6,346.62	128.60	22.10	63.73	-1,772.67	-7,915.29	15,981.10	15,926.89	54.21	294.821	
14,500.00	6,945.00	6,350.00	6,346.62	130.18	22.10	63.73	-1,772.67	-7,915.29	16,080.72	16,026.42	54.30	296.157	
14,600.00	6,945.00	6,350.00	6,346.62	131.75	22.10	63.73	-1,772.67	-7,915.29	16,180.34	16,125.95	54.39	297.487	
14,700.00	6,945.00	6,350.00	6,346.62	133.32	22.10	63.73	-1,772.67	-7,915.29	16,279.97	16,225.49	54.48	298.812	
14,800.00	6,945.00	6,350.00	6,346.62	134.89	22.10	63.73	-1,772.67	-7,915.29	16,379.60	16,325.03	54.57	300.132	
14,900.00	6,945.00	6,350.00	6,346.62	136.47	22.10	63.73	-1,772.67	-7,915.29	16,479.24	16,424.58	54.67	301.446	
15,000.00	6,945.00	6,350.00	6,346.62	138.04	22.10	63.73	-1,772.67	-7,915.29	16,578.88	16,524.12	54.76	302.754	
15,100.00	6,945.00	6,350.00	6,346.62	139.62	22.10	63.73	-1,772.67	-7,915.29	16,678.53	16,623.68	54.85	304.056	
15,200.00	6,945.00	6,350.00	6,346.62	141.20	22.10	63.73	-1,772.67	-7,915.29	16,778.18	16,723.23	54.95	305.353	
15,300.00	6,945.00	6,350.00	6,346.62	142.77	22.10	63.73	-1,772.67	-7,915.29	16,877.84	16,822.80	55.04	306.645	
15,400.00	6,945.00	6,350.00	6,346.62	144.35	22.10	63.73	-1,772.67	-7,915.29	16,977.49	16,922.36	55.13	307.931	
15,500.00	6,945.00	6,350.00	6,346.62	145.93	22.10	63.73	-1,772.67	-7,915.29	17,077.16	17,021.93	55.23	309.211	
15,600.00	6,945.00	6,350.00	6,346.62	147.51	22.10	63.73	-1,772.67	-7,915.29	17,176.82	17,121.50	55.32	310.486	
15,700.00	6,945.00	6,350.00	6,346.62	149.09	22.10	63.73	-1,772.67	-7,915.29	17,276.49	17,221.08	55.42	311.756	
15,800.00	6,945.00	6,350.00	6,346.62	150.67	22.10	63.73	-1,772.67	-7,915.29	17,376.17	17,320.66	55.51	313.020	
15,900.00	6,945.00	6,350.00	6,346.62	152.25	22.10	63.73	-1,772.67	-7,915.29	17,475.85	17,420.24	55.61	314.278	
16,000.00	6,945.00	6,350.00	6,346.62	153.83	22.10	63.73	-1,772.67	-7,915.29	17,575.53	17,519.83	55.70	315.531	
16,100.00	6,945.00	6,350.00	6,346.62	155.41	22.10	63.73	-1,772.67	-7,915.29	17,675.21	17,619.42	55.80	316.779	
16,200.00	6,945.00	6,350.00	6,346.62	156.99	22.10	63.73	-1,772.67	-7,915.29	17,774.90	17,719.01	55.89	318.021	
16,300.00	6,945.00	6,350.00	6,346.62	158.57	22.10	63.73	-1,772.67	-7,915.29	17,874.59	17,818.61	55.99	319.257	
16,400.00	6,945.00	6,350.00	6,346.62	160.15	22.10	63.73	-1,772.67	-7,915.29	17,974.29	17,918.21	56.08	320.488	
16,500.00	6,945.00	6,350.00	6,346.62	161.74	22.10	63.73	-1,772.67	-7,915.29	18,073.99	18,017.81	56.18	321.714	
16,600.00	6,945.00	6,350.00	6,346.62	163.32	22.10	63.73	-1,772.67	-7,915.29	18,173.69	18,117.41	56.28	322.934	
16,700.00	6,945.00	6,350.00	6,346.62	164.90	22.10	63.73	-1,772.67	-7,915.29	18,273.40	18,217.02	56.37	324.149	
16,800.00	6,945.00	6,350.00	6,346.62	166.49	22.10	63.73	-1,772.67	-7,915.29	18,373.11	18,316.64	56.47	325.359	
16,900.00	6,945.00	6,350.00	6,346.62	168.07	22.10	63.73	-1,772.67	-7,915.29	18,472.82	18,416.25	56.57	326.563	
17,000.00	6,945.00	6,350.00	6,346.62	169.66	22.10	63.73	-1,772.67	-7,915.29	18,572.53	18,515.87	56.66	327.762	
17,100.00	6,945.00	6,350.00	6,346.62	171.24	22.10	63.73	-1,772.67	-7,915.29	18,672.25	18,615.49	56.76	328.955	
17,200.00	6,945.00	6,350.00	6,346.62	172.83	22.10	63.73	-1,772.67	-7,915.29	18,771.97	18,715.11	56.86	330.143	
17,300.00	6,945.00	6,350.00	6,346.62	174.41	22.10	63.73	-1,772.67	-7,915.29	18,871.70	18,814.74	56.96	331.326	
17,400.00	6,945.00	6,350.00	6,346.62	176.00	22.10	63.73	-1,772.67	-7,915.29	18,971.42	18,914.37	57.06	332.503	
17,500.00	6,945.00	6,350.00	6,346.62	177.59	22.10	63.73	-1,772.67	-7,915.29	19,071.15	19,014.00	57.15	333.675	
17,600.00	6,945.00	6,350.00	6,346.62	179.17	22.10	63.73	-1,772.67	-7,915.29	19,170.89	19,113.63	57.25	334.842	
17,700.00	6,945.00	6,350.00	6,346.62	180.76	22.10	63.73	-1,772.67	-7,915.29	19,270.62	19,213.27	57.35	336.003	
17,800.00	6,945.00	6,350.00	6,346.62	182.35	22.10	63.73	-1,772.67	-7,915.29	19,370.36	19,312.91	57.45	337.160	
17,900.00	6,945.00	6,350.00	6,346.62	183.93	22.10	63.73	-1,772.67	-7,915.29	19,470.10	19,412.55	57.55	338.311	
18,000.00	6,945.00	6,350.00	6,346.62	185.52	22.10	63.73	-1,772.67	-7,915.29	19,569.84	19,512.19	57.65	339.456	
18,100.00	6,945.00	6,350.00	6,346.62	187.11	22.10	63.73	-1,772.67	-7,915.29	19,669.59	19,611.84	57.75	340.597	
18,200.00	6,945.00	6,350.00	6,346.62	188.70	22.10	63.73	-1,772.67	-7,915.29	19,769.34	19,711.49	57.85	341.732	
18,300.00	6,945.00	6,338.82	6,335.47	190.29	22.06	63.31	-1,771.96	-7,914.95	19,869.06	19,811.16	57.91	343.120	
18,400.00	6,945.00	6,338.49	6,335.13	191.88	22.05	63.30	-1,771.94	-7,914.94	19,968.81	19,910.81	58.01	344.253	
18,500.00	6,945.00	6,338.16	6,334.81	193.46	22.05	63.29	-1,771.92	-7,914.93	20,068.57	20,010.46	58.11	345.381	
18,600.00	6,945.00	6,337.83	6,334.48	195.05	22.05	63.28	-1,771.90	-7,914.92	20,168.33	20,110.12	58.21	346.503	

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 705H
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 705H	**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 #3	**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)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
18,700.00	6,945.00	6,337.51	6,334.16	196.64	22.05	63.26	-1,771.88	-7,914.92	20,268.08	20,209.78	58.31	347.621	
18,800.00	6,945.00	6,337.19	6,333.84	198.23	22.05	63.25	-1,771.87	-7,914.91	20,367.85	20,309.44	58.41	348.733	
18,900.00	6,945.00	6,336.87	6,333.52	199.82	22.05	63.24	-1,771.85	-7,914.90	20,467.61	20,409.10	58.51	349.840	
19,000.00	6,945.00	6,336.55	6,333.20	201.41	22.05	63.23	-1,771.83	-7,914.89	20,567.38	20,508.77	58.61	350.941	
19,100.00	6,945.00	6,336.24	6,332.89	203.00	22.05	63.22	-1,771.81	-7,914.88	20,667.14	20,608.44	58.71	352.038	
19,200.00	6,945.00	6,325.00	6,321.67	204.60	22.01	62.80	-1,771.18	-7,914.60	20,766.94	20,708.17	58.77	353.383	
19,300.00	6,945.00	6,325.00	6,321.67	206.19	22.01	62.80	-1,771.18	-7,914.60	20,866.71	20,807.84	58.87	354.463	
19,400.00	6,945.00	6,325.00	6,321.67	207.78	22.01	62.80	-1,771.18	-7,914.60	20,966.48	20,907.51	58.97	355.537	
19,500.00	6,945.00	6,325.00	6,321.67	209.37	22.01	62.80	-1,771.18	-7,914.60	21,066.26	21,007.19	59.07	356.606	
19,600.00	6,945.00	6,325.00	6,321.67	210.96	22.01	62.80	-1,771.18	-7,914.60	21,166.04	21,106.86	59.18	357.671	
19,700.00	6,945.00	6,325.00	6,321.67	212.55	22.01	62.80	-1,771.18	-7,914.60	21,265.82	21,206.54	59.28	358.730	
19,800.00	6,945.00	6,325.00	6,321.67	214.14	22.01	62.80	-1,771.18	-7,914.60	21,365.60	21,306.22	59.38	359.785	
19,900.00	6,945.00	6,325.00	6,321.67	215.74	22.01	62.80	-1,771.18	-7,914.60	21,465.38	21,405.90	59.49	360.834	
20,000.00	6,945.00	6,325.00	6,321.67	217.33	22.01	62.80	-1,771.18	-7,914.60	21,565.17	21,505.58	59.59	361.879	
20,100.00	6,945.00	6,325.00	6,321.67	218.92	22.01	62.80	-1,771.18	-7,914.60	21,664.96	21,605.26	59.70	362.918	
20,200.00	6,945.00	6,325.00	6,321.67	220.51	22.01	62.80	-1,771.18	-7,914.60	21,764.75	21,704.95	59.80	363.953	
20,300.00	6,945.00	6,325.00	6,321.67	222.11	22.01	62.80	-1,771.18	-7,914.60	21,864.54	21,804.63	59.91	364.983	
20,400.00	6,945.00	6,325.00	6,321.67	223.70	22.01	62.80	-1,771.18	-7,914.60	21,964.33	21,904.32	60.01	366.008	
20,500.00	6,945.00	6,325.00	6,321.67	225.29	22.01	62.80	-1,771.18	-7,914.60	22,064.13	22,004.01	60.12	367.028	
20,600.00	6,945.00	6,325.00	6,321.67	226.88	22.01	62.80	-1,771.18	-7,914.60	22,163.92	22,103.70	60.22	368.043	
20,700.00	6,945.00	6,325.00	6,321.67	228.48	22.01	62.80	-1,771.18	-7,914.60	22,263.72	22,203.40	60.33	369.054	
20,741.48	6,945.00	6,325.00	6,321.67	229.14	22.01	62.80	-1,771.18	-7,914.60	22,305.12	22,244.75	60.37	369.471	

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 705H
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 705H	**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 #3	**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
0.00	0.00	0.00	0.00	0.00	0.00	-81.08	1,576.72	-10,051.04	10,174.26				
100.00	100.00	22.00	22.00	0.25	0.66	-81.08	1,576.72	-10,051.04	10,173.96	10,173.05	0.91	N/A	
200.00	200.00	122.00	122.00	0.61	3.66	-81.08	1,576.72	-10,051.04	10,173.96	10,169.70	4.27	2,385.328	
300.00	300.00	222.00	222.00	0.97	6.65	-81.08	1,576.72	-10,051.04	10,173.96	10,166.34	7.62	1,335.146	
400.00	400.00	322.00	322.00	1.33	9.65	-81.08	1,576.72	-10,051.04	10,173.96	10,162.99	10.97	927.013	
500.00	500.00	422.00	422.00	1.68	12.65	-81.08	1,576.72	-10,051.04	10,173.96	10,159.63	14.33	709.982	CC
600.00	599.98	522.08	521.98	2.03	15.64	131.17	1,576.72	-10,051.04	10,175.11	10,157.44	17.67	575.793	ES
700.00	699.84	621.94	621.84	2.37	18.64	131.14	1,576.72	-10,051.04	10,178.56	10,157.56	21.00	484.707	
795.17	794.65	716.75	716.65	2.69	21.48	131.10	1,576.72	-10,051.04	10,183.97	10,159.80	24.17	421.371	
800.00	799.45	721.55	721.45	2.71	21.62	131.10	1,576.72	-10,051.04	10,184.30	10,159.97	24.33	418.577	
900.00	898.92	830.01	829.86	3.06	24.87	131.16	1,578.67	-10,051.04	10,191.39	10,163.46	27.93	364.881	
1,000.00	998.39	942.21	942.03	3.43	28.23	131.20	1,577.61	-10,051.04	10,198.04	10,166.39	31.65	322.229	
1,100.00	1,097.86	1,020.27	1,019.86	3.79	30.57	131.23	1,576.72	-10,051.04	10,204.67	10,170.32	34.35	297.101	
1,200.00	1,197.33	1,119.74	1,119.33	4.16	33.55	131.27	1,576.72	-10,051.04	10,211.47	10,173.78	37.69	270.926	
1,300.00	1,296.80	1,219.21	1,218.80	4.53	36.53	131.32	1,576.72	-10,051.04	10,218.28	10,177.24	41.04	249.002	
1,400.00	1,396.27	1,327.63	1,327.18	4.91	39.78	131.37	1,578.69	-10,051.04	10,225.41	10,180.76	44.65	228.998	
1,500.00	1,495.74	1,440.21	1,439.73	5.28	43.16	131.42	1,577.63	-10,051.04	10,232.08	10,183.69	48.39	211.429	
1,600.00	1,595.21	1,517.92	1,517.21	5.66	45.48	131.44	1,576.72	-10,051.04	10,238.74	10,187.64	51.09	200.395	
1,700.00	1,694.68	1,617.39	1,616.68	6.04	48.46	131.49	1,576.72	-10,051.04	10,245.57	10,191.12	54.44	188.186	
1,800.00	1,794.15	1,716.86	1,716.15	6.42	51.44	131.53	1,576.72	-10,051.04	10,252.40	10,194.61	57.80	177.391	
1,900.00	1,893.62	1,825.24	1,824.48	6.80	54.69	131.59	1,578.70	-10,051.04	10,259.58	10,198.16	61.41	167.053	
2,000.00	1,993.09	1,938.21	1,937.42	7.18	58.08	131.63	1,577.66	-10,051.04	10,266.28	10,201.10	65.17	157.525	
2,100.00	2,092.56	2,015.57	2,014.56	7.56	60.40	131.66	1,576.72	-10,051.04	10,272.95	10,205.09	67.86	151.378	
2,200.00	2,192.03	2,115.04	2,114.03	7.94	63.38	131.70	1,576.72	-10,051.04	10,279.81	10,208.59	71.22	144.345	
2,300.00	2,291.50	2,214.51	2,213.50	8.32	66.36	131.74	1,576.72	-10,051.04	10,286.67	10,212.10	74.57	137.945	
2,400.00	2,390.97	2,322.83	2,321.76	8.70	69.60	131.80	1,578.71	-10,051.04	10,293.88	10,215.69	78.19	131.652	
2,500.00	2,490.44	2,436.18	2,435.09	9.08	73.00	131.84	1,577.68	-10,051.04	10,300.61	10,218.65	81.96	125.677	
2,600.00	2,589.91	2,513.23	2,511.91	9.47	75.31	131.87	1,576.72	-10,051.04	10,307.30	10,222.66	84.64	121.774	
2,700.00	2,689.38	2,612.70	2,611.38	9.85	78.29	131.91	1,576.72	-10,051.04	10,314.19	10,226.19	88.00	117.209	
2,800.00	2,788.85	2,712.17	2,710.85	10.23	81.27	131.96	1,576.72	-10,051.04	10,321.09	10,229.73	91.35	112.980	
2,900.00	2,888.32	2,820.40	2,819.03	10.61	84.51	132.01	1,578.72	-10,051.04	10,328.33	10,233.36	94.97	108.752	
3,000.00	2,987.79	2,934.15	2,932.75	11.00	87.92	132.06	1,577.71	-10,051.04	10,335.09	10,236.33	98.75	104.654	
3,100.00	3,087.25	3,010.88	3,009.25	11.38	90.22	132.08	1,576.72	-10,051.04	10,341.80	10,240.37	101.43	101.962	
3,200.00	3,186.72	3,110.35	3,108.72	11.76	93.20	132.13	1,576.72	-10,051.04	10,348.72	10,243.93	104.78	98.763	
3,300.00	3,286.19	3,209.82	3,208.19	12.15	96.18	132.17	1,576.72	-10,051.04	10,355.64	10,247.50	108.14	95.762	
3,400.00	3,385.66	3,317.96	3,316.28	12.53	99.42	132.22	1,578.73	-10,051.04	10,362.92	10,251.17	111.75	92.729	
3,500.00	3,485.13	3,432.10	3,430.39	12.91	102.84	132.27	1,577.74	-10,051.04	10,369.71	10,254.16	115.55	89.742	
3,600.00	3,584.60	3,508.53	3,506.60	13.30	105.13	132.29	1,576.72	-10,051.04	10,376.44	10,258.22	118.21	87.776	
3,700.00	3,684.07	3,608.00	3,606.07	13.68	108.11	132.34	1,576.72	-10,051.04	10,383.38	10,261.81	121.57	85.410	
3,800.00	3,783.54	3,707.47	3,705.54	14.06	111.09	132.38	1,576.72	-10,051.04	10,390.33	10,265.41	124.93	83.172	
3,900.00	3,883.01	3,815.50	3,813.52	14.45	114.33	132.43	1,578.75	-10,051.04	10,397.65	10,269.11	128.54	80.891	
4,000.00	3,982.48	3,930.03	3,928.02	14.83	117.76	132.48	1,577.76	-10,051.04	10,404.46	10,272.12	132.35	78.615	
4,100.00	4,081.95	4,006.19	4,003.95	15.22	120.04	132.50	1,576.72	-10,051.04	10,411.21	10,276.21	135.00	77.118	
4,200.00	4,181.42	4,105.65	4,103.42	15.60	123.02	132.54	1,576.72	-10,051.04	10,418.19	10,279.83	138.36	75.298	
4,300.00	4,280.89	4,205.12	4,202.89	15.98	126.00	132.59	1,576.72	-10,051.04	10,425.16	10,283.45	141.71	73.564	
4,400.00	4,380.36	4,313.02	4,310.74	16.37	129.24	132.64	1,578.76	-10,051.04	10,432.52	10,287.20	145.32	71.788	
4,500.00	4,479.83	4,427.95	4,425.64	16.75	132.68	132.68	1,577.79	-10,051.04	10,439.36	10,290.21	149.14	69.995	
4,600.00	4,579.30	4,503.84	4,501.30	17.14	134.96	132.71	1,576.72	-10,051.04	10,446.13	10,294.34	151.79	68.819	
4,700.00	4,678.77	4,603.31	4,600.77	17.52	137.94	132.75	1,576.72	-10,051.04	10,453.13	10,297.98	155.15	67.375	
4,800.00	4,778.24	4,702.78	4,700.24	17.90	140.92	132.79	1,576.72	-10,051.04	10,460.13	10,301.63	158.50	65.993	
4,900.00	4,877.71	4,810.52	4,807.94	18.29	144.14	132.85	1,578.77	-10,051.04	10,467.52	10,305.42	162.11	64.571	
5,000.00	4,977.18	4,925.86	4,923.24	18.67	147.60	132.89	1,577.82	-10,051.04	10,474.39	10,308.45	165.94	63.121	

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 705H
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 705H	**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 #3	**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
5,100.00	5,076.65	5,001.49	4,998.65	19.06	149.87	132.92	1,576.72	-10,051.04	10,481.18	10,312.60	168.58	62.173	
5,200.00	5,176.12	5,100.96	5,098.12	19.44	152.85	132.96	1,576.72	-10,051.04	10,488.20	10,316.27	171.94	61.000	
5,300.00	5,275.59	5,200.43	5,197.59	19.83	155.83	133.00	1,576.72	-10,051.04	10,495.23	10,319.94	175.29	59.873	
5,400.00	5,375.06	5,308.01	5,305.12	20.21	159.05	133.05	1,578.78	-10,051.04	10,502.66	10,323.77	178.89	58.709	
5,500.00	5,474.53	5,423.75	5,420.83	20.59	162.52	133.10	1,577.84	-10,051.04	10,509.55	10,326.82	182.74	57.512	
5,600.00	5,574.00	5,539.68	5,536.72	20.98	165.99	133.13	1,575.97	-10,051.04	10,516.30	10,329.71	186.59	56.361	
5,700.00	5,673.47	5,598.61	5,595.47	21.36	167.76	133.16	1,576.72	-10,051.04	10,523.41	10,334.69	188.73	55.760	
5,800.00	5,772.94	5,698.08	5,694.94	21.75	170.74	133.20	1,576.72	-10,051.04	10,530.47	10,338.39	192.08	54.823	
5,900.00	5,872.41	5,805.48	5,802.28	22.13	173.96	133.26	1,578.79	-10,051.04	10,537.94	10,342.26	195.68	53.854	
6,000.00	5,971.88	5,921.62	5,918.40	22.52	177.44	133.30	1,577.87	-10,051.04	10,544.85	10,345.32	199.53	52.848	
6,100.00	6,071.35	6,037.97	6,034.70	22.90	180.92	133.34	1,576.00	-10,051.04	10,551.62	10,348.22	203.40	51.877	
6,200.00	6,170.81	6,096.27	6,092.81	23.28	182.67	133.36	1,576.72	-10,051.04	10,558.76	10,353.24	205.51	51.377	
6,300.00	6,270.28	6,195.74	6,192.28	23.67	185.65	133.40	1,576.72	-10,051.04	10,565.84	10,356.97	208.87	50.586	
6,375.94	6,345.82	6,274.91	6,271.42	23.96	188.02	133.45	1,578.87	-10,051.04	10,571.65	10,360.12	211.53	49.977	
6,400.00	6,369.72	6,302.89	6,299.39	24.05	188.86	147.96	1,578.80	-10,051.04	10,573.79	10,361.33	212.46	49.769	
6,450.00	6,419.09	6,360.71	6,357.20	24.25	190.60	164.24	1,578.47	-10,051.04	10,581.03	10,366.66	214.38	49.357	
6,500.00	6,467.78	6,417.79	6,414.27	24.46	192.31	172.10	1,577.91	-10,051.04	10,592.03	10,375.75	216.28	48.975	
6,550.00	6,515.51	6,473.79	6,470.25	24.67	193.98	176.67	1,577.15	-10,051.04	10,606.70	10,388.57	218.13	48.624	
6,600.00	6,561.97	6,528.35	6,524.78	24.88	195.62	179.74	1,576.19	-10,051.04	10,624.97	10,405.02	219.95	48.307	
6,650.00	6,606.89	6,532.65	6,528.89	25.10	195.75	-177.95	1,576.72	-10,051.04	10,646.93	10,426.69	220.24	48.343	
6,700.00	6,649.98	6,575.74	6,571.98	25.32	197.04	-176.05	1,576.72	-10,051.04	10,672.23	10,450.55	221.69	48.141	
6,750.00	6,690.98	6,616.74	6,612.98	25.54	198.27	-174.34	1,576.72	-10,051.04	10,700.76	10,477.70	223.06	47.972	
6,800.00	6,729.64	6,655.39	6,651.64	25.77	199.43	-172.70	1,576.72	-10,051.04	10,732.34	10,507.98	224.36	47.836	
6,850.00	6,765.71	6,691.46	6,687.71	26.00	200.51	-171.00	1,576.72	-10,051.04	10,766.76	10,541.20	225.56	47.733	
6,900.00	6,798.98	6,724.73	6,720.98	26.24	201.50	-169.14	1,576.72	-10,051.04	10,803.82	10,577.15	226.67	47.664	
6,950.00	6,829.24	6,755.89	6,752.09	26.49	202.44	-166.98	1,578.90	-10,051.04	10,843.71	10,616.02	227.70	47.624	
7,000.00	6,856.30	6,787.67	6,783.87	26.76	203.39	-164.40	1,578.85	-10,051.04	10,885.34	10,656.61	228.73	47.591 SF	
7,050.00	6,880.00	6,815.52	6,811.71	27.03	204.22	-161.14	1,578.75	-10,051.04	10,928.87	10,699.24	229.63	47.594	
7,100.00	6,900.19	6,839.25	6,835.44	27.32	204.93	-156.81	1,578.62	-10,051.04	10,974.04	10,743.65	230.39	47.632	
7,150.00	6,916.74	6,858.72	6,854.91	27.62	205.52	-150.79	1,578.48	-10,051.04	11,020.58	10,789.57	231.01	47.706	
7,200.00	6,929.56	6,873.80	6,869.98	27.93	205.97	-142.00	1,578.36	-10,051.04	11,068.21	10,836.72	231.49	47.814	
7,250.00	6,938.57	6,884.40	6,880.58	28.26	206.29	-128.78	1,578.26	-10,051.04	11,116.62	10,884.81	231.82	47.955	
7,300.00	6,943.70	6,890.44	6,886.62	28.60	206.47	-109.56	1,578.21	-10,051.04	11,165.53	10,933.54	232.00	48.128	
7,340.76	6,945.00	6,891.97	6,888.15	28.88	206.51	-90.58	1,578.19	-10,051.04	11,205.56	10,973.53	232.03	48.293	
7,400.00	6,945.00	6,891.97	6,888.15	29.31	206.51	-90.58	1,578.19	-10,051.04	11,263.77	11,031.75	232.02	48.547	
7,500.00	6,945.00	6,891.98	6,888.15	30.09	206.51	-90.58	1,578.19	-10,051.04	11,362.05	11,130.05	232.00	48.975	
7,600.00	6,945.00	6,891.98	6,888.16	30.93	206.51	-90.58	1,578.19	-10,051.04	11,460.36	11,228.38	231.98	49.402	
7,700.00	6,945.00	6,891.98	6,888.16	31.83	206.52	-90.58	1,578.19	-10,051.04	11,558.70	11,326.73	231.97	49.829	
7,800.00	6,945.00	6,891.99	6,888.17	32.79	206.52	-90.58	1,578.19	-10,051.04	11,657.07	11,425.10	231.96	50.255	
7,900.00	6,945.00	6,891.99	6,888.17	33.79	206.52	-90.58	1,578.19	-10,051.04	11,755.46	11,523.50	231.96	50.680	
8,000.00	6,945.00	6,892.00	6,888.17	34.84	206.52	-90.58	1,578.19	-10,051.04	11,853.88	11,621.93	231.95	51.104	
8,100.00	6,945.00	6,892.00	6,888.18	35.93	206.52	-90.58	1,578.19	-10,051.04	11,952.33	11,720.37	231.96	51.528	
8,200.00	6,945.00	6,892.00	6,888.18	37.06	206.52	-90.58	1,578.19	-10,051.04	12,050.80	11,818.84	231.96	51.951	
8,300.00	6,945.00	6,892.01	6,888.18	38.23	206.52	-90.58	1,578.19	-10,051.04	12,149.30	11,917.32	231.97	52.374	
8,400.00	6,945.00	6,892.01	6,888.19	39.42	206.52	-90.58	1,578.19	-10,051.04	12,247.82	12,015.83	231.98	52.796	
8,500.00	6,945.00	6,892.02	6,888.19	40.65	206.52	-90.58	1,578.19	-10,051.04	12,346.36	12,114.36	232.00	53.217	
8,600.00	6,945.00	6,892.02	6,888.20	41.90	206.52	-90.58	1,578.19	-10,051.04	12,444.93	12,212.91	232.02	53.638	
8,700.00	6,945.00	6,892.02	6,888.20	43.17	206.52	-90.58	1,578.19	-10,051.04	12,543.52	12,311.48	232.04	54.058	
8,800.00	6,945.00	6,892.03	6,888.20	44.46	206.52	-90.58	1,578.19	-10,051.04	12,642.14	12,410.07	232.06	54.477	
8,900.00	6,945.00	6,892.03	6,888.21	45.78	206.52	-90.58	1,578.19	-10,051.04	12,740.77	12,508.68	232.09	54.896	
9,000.00	6,945.00	6,892.04	6,888.21	47.11	206.52	-90.58	1,578.19	-10,051.04	12,839.43	12,607.31	232.12	55.314	
9,100.00	6,945.00	6,892.04	6,888.22	48.46	206.52	-90.58	1,578.19	-10,051.04	12,938.10	12,705.95	232.15	55.731	

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 705H
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 705H	**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 #3	**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
9,200.00	6,945.00	6,892.04	6,888.22	49.82	206.52	-90.58	1,578.19	-10,051.04	13,036.80	12,804.61	232.19	56.148	
9,300.00	6,945.00	6,892.05	6,888.22	51.20	206.52	-90.58	1,578.19	-10,051.04	13,135.52	12,903.29	232.22	56.564	
9,400.00	6,945.00	6,892.05	6,888.23	52.59	206.52	-90.58	1,578.19	-10,051.04	13,234.25	13,001.99	232.26	56.980	
9,500.00	6,945.00	6,892.06	6,888.23	53.99	206.52	-90.58	1,578.19	-10,051.04	13,333.01	13,100.70	232.30	57.395	
9,600.00	6,945.00	6,892.06	6,888.24	55.40	206.52	-90.58	1,578.19	-10,051.04	13,431.78	13,199.43	232.35	57.809	
9,700.00	6,945.00	6,892.06	6,888.24	56.83	206.52	-90.58	1,578.19	-10,051.04	13,530.57	13,298.18	232.39	58.223	
9,800.00	6,945.00	6,892.07	6,888.24	58.26	206.52	-90.58	1,578.19	-10,051.04	13,629.38	13,396.94	232.44	58.636	
9,900.00	6,945.00	6,892.07	6,888.25	59.70	206.52	-90.58	1,578.19	-10,051.04	13,728.21	13,495.72	232.49	59.049	
10,000.00	6,945.00	6,892.08	6,888.25	61.15	206.52	-90.58	1,578.19	-10,051.04	13,827.05	13,594.51	232.54	59.461	
10,100.00	6,945.00	6,892.08	6,888.26	62.61	206.52	-90.58	1,578.19	-10,051.04	13,925.91	13,693.31	232.59	59.872	
10,200.00	6,945.00	6,892.08	6,888.26	64.07	206.52	-90.58	1,578.19	-10,051.04	14,024.78	13,792.14	232.65	60.283	
10,300.00	6,945.00	6,892.09	6,888.26	65.54	206.52	-90.58	1,578.19	-10,051.04	14,123.68	13,890.97	232.71	60.693	
10,400.00	6,945.00	6,892.09	6,888.27	67.02	206.52	-90.58	1,578.19	-10,051.04	14,222.58	13,989.82	232.76	61.103	
10,500.00	6,945.00	6,892.09	6,888.27	68.50	206.52	-90.58	1,578.19	-10,051.04	14,321.51	14,088.68	232.82	61.512	
10,600.00	6,945.00	6,892.10	6,888.28	69.99	206.52	-90.58	1,578.19	-10,051.04	14,420.44	14,187.56	232.89	61.921	
10,700.00	6,945.00	6,892.10	6,888.28	71.48	206.52	-90.58	1,578.19	-10,051.04	14,519.39	14,286.45	232.95	62.329	
10,800.00	6,945.00	6,892.11	6,888.28	72.98	206.52	-90.58	1,578.19	-10,051.04	14,618.36	14,385.35	233.01	62.736	
10,900.00	6,945.00	6,892.11	6,888.29	74.48	206.52	-90.58	1,578.19	-10,051.04	14,717.34	14,484.26	233.08	63.143	
11,000.00	6,945.00	6,892.11	6,888.29	75.99	206.52	-90.58	1,578.19	-10,051.04	14,816.33	14,583.19	233.15	63.550	
11,100.00	6,945.00	6,892.12	6,888.30	77.50	206.52	-90.58	1,578.19	-10,051.04	14,915.34	14,682.13	233.21	63.956	
11,200.00	6,945.00	6,892.12	6,888.30	79.01	206.52	-90.58	1,578.19	-10,051.04	15,014.36	14,781.08	233.28	64.361	
11,300.00	6,945.00	6,892.13	6,888.30	80.53	206.52	-90.58	1,578.19	-10,051.04	15,113.39	14,880.04	233.35	64.766	
11,400.00	6,945.00	6,892.13	6,888.31	82.05	206.52	-90.58	1,578.19	-10,051.04	15,212.44	14,979.01	233.43	65.170	
11,500.00	6,945.00	6,892.13	6,888.31	83.57	206.52	-90.58	1,578.19	-10,051.04	15,311.50	15,078.00	233.50	65.574	
11,600.00	6,945.00	6,892.14	6,888.32	85.10	206.52	-90.58	1,578.19	-10,051.04	15,410.57	15,176.99	233.57	65.977	
11,700.00	6,945.00	6,892.14	6,888.32	86.63	206.52	-90.58	1,578.19	-10,051.04	15,509.65	15,276.00	233.65	66.380	
11,800.00	6,945.00	6,892.15	6,888.32	88.16	206.52	-90.58	1,578.19	-10,051.04	15,608.74	15,375.02	233.73	66.782	
11,900.00	6,945.00	6,892.15	6,888.33	89.69	206.52	-90.58	1,578.19	-10,051.04	15,707.85	15,474.05	233.80	67.184	
12,000.00	6,945.00	6,892.15	6,888.33	91.23	206.52	-90.58	1,578.19	-10,051.04	15,806.97	15,573.08	233.88	67.585	
12,100.00	6,945.00	6,892.16	6,888.34	92.77	206.52	-90.58	1,578.19	-10,051.04	15,906.09	15,672.13	233.96	67.986	
12,200.00	6,945.00	6,892.16	6,888.34	94.31	206.52	-90.59	1,578.19	-10,051.04	16,005.23	15,771.19	234.04	68.386	
12,300.00	6,945.00	6,892.17	6,888.34	95.85	206.52	-90.59	1,578.19	-10,051.04	16,104.38	15,870.26	234.12	68.786	
12,400.00	6,945.00	6,892.17	6,888.35	97.40	206.52	-90.59	1,578.19	-10,051.04	16,203.54	15,969.34	234.20	69.185	
12,500.00	6,945.00	6,892.17	6,888.35	98.95	206.52	-90.59	1,578.19	-10,051.04	16,302.71	16,068.42	234.29	69.584	
12,600.00	6,945.00	6,892.18	6,888.36	100.50	206.52	-90.59	1,578.19	-10,051.04	16,401.89	16,167.52	234.37	69.982	
12,700.00	6,945.00	6,892.18	6,888.36	102.05	206.52	-90.59	1,578.19	-10,051.04	16,501.08	16,266.62	234.46	70.380	
12,800.00	6,945.00	6,892.19	6,888.36	103.60	206.52	-90.59	1,578.19	-10,051.04	16,600.28	16,365.74	234.54	70.777	
12,900.00	6,945.00	6,892.19	6,888.37	105.15	206.52	-90.59	1,578.19	-10,051.04	16,699.49	16,464.86	234.63	71.174	
13,000.00	6,945.00	6,892.19	6,888.37	106.71	206.52	-90.59	1,578.19	-10,051.04	16,798.71	16,563.99	234.72	71.570	
13,100.00	6,945.00	6,892.20	6,888.38	108.26	206.52	-90.59	1,578.19	-10,051.04	16,897.94	16,663.13	234.80	71.966	
13,200.00	6,945.00	6,892.20	6,888.38	109.82	206.52	-90.59	1,578.19	-10,051.04	16,997.17	16,762.28	234.89	72.362	
13,300.00	6,945.00	6,892.21	6,888.38	111.38	206.52	-90.59	1,578.19	-10,051.04	17,096.42	16,861.44	234.98	72.756	
13,400.00	6,945.00	6,892.21	6,888.39	112.94	206.52	-90.59	1,578.19	-10,051.04	17,195.67	16,960.60	235.07	73.151	
13,500.00	6,945.00	6,892.21	6,888.39	114.50	206.52	-90.59	1,578.19	-10,051.04	17,294.94	17,059.77	235.16	73.545	
13,600.00	6,945.00	6,892.22	6,888.40	116.07	206.52	-90.59	1,578.19	-10,051.04	17,394.21	17,158.95	235.25	73.938	
13,700.00	6,945.00	6,892.22	6,888.40	117.63	206.52	-90.59	1,578.19	-10,051.04	17,493.49	17,258.14	235.35	74.331	
13,800.00	6,945.00	6,892.23	6,888.40	119.19	206.52	-90.59	1,578.19	-10,051.04	17,592.77	17,357.34	235.44	74.724	
13,900.00	6,945.00	6,892.23	6,888.41	120.76	206.52	-90.59	1,578.19	-10,051.04	17,692.07	17,456.54	235.53	75.116	
14,000.00	6,945.00	6,892.23	6,888.41	122.33	206.52	-90.59	1,578.19	-10,051.04	17,791.37	17,555.75	235.63	75.507	
14,100.00	6,945.00	6,892.24	6,888.42	123.90	206.52	-90.59	1,578.19	-10,051.04	17,890.69	17,654.97	235.72	75.898	
14,200.00	6,945.00	6,892.24	6,888.42	125.46	206.52	-90.59	1,578.19	-10,051.04	17,990.01	17,754.19	235.81	76.289	
14,300.00	6,945.00	6,892.25	6,888.42	127.03	206.52	-90.59	1,578.19	-10,051.04	18,089.33	17,853.42	235.91	76.679	

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 705H
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 705H	**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 #3	**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
14,400.00	6,945.00	6,892.25	6,888.43	128.60	206.52	-90.59	1,578.19	-10,051.04	18,188.67	17,952.66	236.01	77.069	
14,500.00	6,945.00	6,892.25	6,888.43	130.18	206.52	-90.59	1,578.19	-10,051.04	18,288.01	18,051.91	236.10	77.458	
14,600.00	6,945.00	6,892.26	6,888.44	131.75	206.52	-90.59	1,578.19	-10,051.04	18,387.36	18,151.16	236.20	77.847	
14,700.00	6,945.00	6,892.26	6,888.44	133.32	206.52	-90.59	1,578.19	-10,051.04	18,486.71	18,250.41	236.30	78.235	
14,800.00	6,945.00	6,892.27	6,888.44	134.89	206.52	-90.59	1,578.19	-10,051.04	18,586.07	18,349.68	236.39	78.623	
14,900.00	6,945.00	6,892.27	6,888.45	136.47	206.52	-90.59	1,578.19	-10,051.04	18,685.44	18,448.95	236.49	79.010	
15,000.00	6,945.00	6,892.27	6,888.45	138.04	206.52	-90.59	1,578.19	-10,051.04	18,784.82	18,548.23	236.59	79.397	
15,100.00	6,945.00	6,892.28	6,888.45	139.62	206.52	-90.59	1,578.19	-10,051.04	18,884.20	18,647.51	236.69	79.784	
15,200.00	6,945.00	6,892.28	6,888.46	141.20	206.52	-90.59	1,578.19	-10,051.04	18,983.59	18,746.80	236.79	80.170	
15,300.00	6,945.00	6,892.29	6,888.46	142.77	206.52	-90.59	1,578.19	-10,051.04	19,082.99	18,846.09	236.89	80.556	
15,400.00	6,945.00	6,892.29	6,888.47	144.35	206.52	-90.59	1,578.19	-10,051.04	19,182.39	18,945.39	236.99	80.941	
15,500.00	6,945.00	6,892.29	6,888.47	145.93	206.52	-90.59	1,578.19	-10,051.04	19,281.80	19,044.70	237.09	81.326	
15,600.00	6,945.00	6,892.30	6,888.47	147.51	206.52	-90.59	1,578.19	-10,051.04	19,381.21	19,144.01	237.20	81.710	
15,700.00	6,945.00	6,892.30	6,888.48	149.09	206.52	-90.59	1,578.19	-10,051.04	19,480.63	19,243.33	237.30	82.094	
15,800.00	6,945.00	6,892.31	6,888.48	150.67	206.52	-90.59	1,578.19	-10,051.04	19,580.06	19,342.65	237.40	82.477	
15,900.00	6,945.00	6,892.31	6,888.49	152.25	206.52	-90.59	1,578.19	-10,051.04	19,679.49	19,441.98	237.50	82.860	
16,000.00	6,945.00	6,892.31	6,888.49	153.83	206.52	-90.59	1,578.19	-10,051.04	19,778.92	19,541.32	237.61	83.242	
16,100.00	6,945.00	6,892.32	6,888.49	155.41	206.53	-90.59	1,578.19	-10,051.04	19,878.37	19,640.66	237.71	83.625	
16,200.00	6,945.00	6,892.32	6,888.50	156.99	206.53	-90.59	1,578.19	-10,051.04	19,977.82	19,740.00	237.81	84.006	
16,300.00	6,945.00	6,892.33	6,888.50	158.57	206.53	-90.59	1,578.19	-10,051.04	20,077.27	19,839.35	237.92	84.387	
16,400.00	6,945.00	6,892.33	6,888.51	160.15	206.53	-90.59	1,578.19	-10,051.04	20,176.73	19,938.71	238.02	84.768	
16,500.00	6,945.00	6,892.33	6,888.51	161.74	206.53	-90.59	1,578.19	-10,051.04	20,276.19	20,038.07	238.13	85.148	
16,600.00	6,945.00	6,892.34	6,888.51	163.32	206.53	-90.59	1,578.19	-10,051.04	20,375.66	20,137.43	238.23	85.528	
16,700.00	6,945.00	6,892.34	6,888.52	164.90	206.53	-90.59	1,578.19	-10,051.04	20,475.14	20,236.80	238.34	85.908	
16,800.00	6,945.00	6,892.35	6,888.52	166.49	206.53	-90.59	1,578.19	-10,051.04	20,574.62	20,336.17	238.45	86.287	
16,900.00	6,945.00	6,892.35	6,888.53	168.07	206.53	-90.59	1,578.19	-10,051.04	20,674.11	20,435.55	238.55	86.665	
17,000.00	6,945.00	6,892.35	6,888.53	169.66	206.53	-90.59	1,578.19	-10,051.04	20,773.60	20,534.94	238.66	87.043	
17,100.00	6,945.00	6,892.36	6,888.53	171.24	206.53	-90.59	1,578.19	-10,051.04	20,873.09	20,634.33	238.77	87.421	
17,200.00	6,945.00	6,892.36	6,888.54	172.83	206.53	-90.59	1,578.19	-10,051.04	20,972.59	20,733.72	238.87	87.798	
17,300.00	6,945.00	6,892.37	6,888.54	174.41	206.53	-90.59	1,578.19	-10,051.04	21,072.10	20,833.11	238.98	88.175	
17,400.00	6,945.00	6,892.37	6,888.55	176.00	206.53	-90.59	1,578.19	-10,051.04	21,171.60	20,932.52	239.09	88.551	
17,500.00	6,945.00	6,892.37	6,888.55	177.59	206.53	-90.59	1,578.19	-10,051.04	21,271.12	21,031.92	239.20	88.927	
17,600.00	6,945.00	6,892.38	6,888.55	179.17	206.53	-90.59	1,578.19	-10,051.04	21,370.64	21,131.33	239.31	89.303	
17,700.00	6,945.00	6,892.38	6,888.56	180.76	206.53	-90.59	1,578.19	-10,051.04	21,470.16	21,230.75	239.41	89.678	
17,800.00	6,945.00	6,892.39	6,888.56	182.35	206.53	-90.59	1,578.19	-10,051.04	21,569.69	21,330.16	239.52	90.053	
17,900.00	6,945.00	6,892.39	6,888.57	183.93	206.53	-90.59	1,578.19	-10,051.04	21,669.22	21,429.59	239.63	90.427	
18,000.00	6,945.00	6,892.39	6,888.57	185.52	206.53	-90.59	1,578.19	-10,051.04	21,768.75	21,529.01	239.74	90.801	
18,100.00	6,945.00	6,892.40	6,888.57	187.11	206.53	-90.59	1,578.19	-10,051.04	21,868.30	21,628.44	239.85	91.174	
18,200.00	6,945.00	6,892.40	6,888.58	188.70	206.53	-90.59	1,578.19	-10,051.04	21,967.84	21,727.88	239.96	91.547	
18,300.00	6,945.00	6,892.41	6,888.58	190.29	206.53	-90.59	1,578.19	-10,051.04	22,067.39	21,827.31	240.07	91.919	
18,400.00	6,945.00	6,892.41	6,888.59	191.88	206.53	-90.59	1,578.19	-10,051.04	22,166.94	21,926.76	240.18	92.291	
18,500.00	6,945.00	6,892.41	6,888.59	193.46	206.53	-90.59	1,578.19	-10,051.04	22,266.50	22,026.20	240.30	92.663	
18,600.00	6,945.00	6,892.42	6,888.59	195.05	206.53	-90.59	1,578.19	-10,051.04	22,366.06	22,125.65	240.41	93.034	
18,700.00	6,945.00	6,892.42	6,888.60	196.64	206.53	-90.59	1,578.19	-10,051.04	22,465.62	22,225.10	240.52	93.405	
18,800.00	6,945.00	6,892.43	6,888.60	198.23	206.53	-90.59	1,578.19	-10,051.04	22,565.19	22,324.56	240.63	93.775	
18,900.00	6,945.00	6,892.43	6,888.61	199.82	206.53	-90.59	1,578.19	-10,051.04	22,664.76	22,424.02	240.74	94.145	
19,000.00	6,945.00	6,892.43	6,888.61	201.41	206.53	-90.59	1,578.19	-10,051.04	22,764.34	22,523.48	240.85	94.515	
19,100.00	6,945.00	6,892.44	6,888.61	203.00	206.53	-90.59	1,578.19	-10,051.04	22,863.92	22,622.95	240.97	94.884	
19,200.00	6,945.00	6,892.44	6,888.62	204.60	206.53	-90.59	1,578.19	-10,051.04	22,963.50	22,722.42	241.08	95.253	
19,300.00	6,945.00	6,892.44	6,888.62	206.19	206.53	-90.59	1,578.19	-10,051.04	23,063.09	22,821.90	241.19	95.621	
19,400.00	6,945.00	6,892.45	6,888.63	207.78	206.53	-90.59	1,578.19	-10,051.04	23,162.68	22,921.37	241.31	95.989	
19,500.00	6,945.00	6,892.45	6,888.63	209.37	206.53	-90.59	1,578.19	-10,051.04	23,262.27	23,020.85	241.42	96.356	

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 705H
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 705H	**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 #3	**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

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
19,600.00	6,945.00	6,892.46	6,888.63	210.96	206.53	-90.59	1,578.19	-10,051.04	23,361.87	23,120.34	241.53	96.723	
19,700.00	6,945.00	6,892.46	6,888.64	212.55	206.53	-90.59	1,578.19	-10,051.04	23,461.47	23,219.82	241.65	97.090	
19,800.00	6,945.00	6,892.46	6,888.64	214.14	206.53	-90.59	1,578.19	-10,051.04	23,561.07	23,319.31	241.76	97.456	
19,900.00	6,945.00	6,892.47	6,888.65	215.74	206.53	-90.59	1,578.19	-10,051.04	23,660.68	23,418.81	241.88	97.822	
20,000.00	6,945.00	6,892.47	6,888.65	217.33	206.53	-90.59	1,578.19	-10,051.04	23,760.29	23,518.30	241.99	98.187	
20,100.00	6,945.00	6,892.48	6,888.65	218.92	206.53	-90.59	1,578.19	-10,051.04	23,859.91	23,617.80	242.11	98.552	
20,200.00	6,945.00	6,892.48	6,888.66	220.51	206.53	-90.59	1,578.19	-10,051.04	23,959.52	23,717.30	242.22	98.916	
20,300.00	6,945.00	6,892.48	6,888.66	222.11	206.53	-90.59	1,578.19	-10,051.04	24,059.15	23,816.81	242.34	99.280	
20,400.00	6,945.00	6,892.49	6,888.67	223.70	206.53	-90.59	1,578.19	-10,051.04	24,158.77	23,916.32	242.45	99.644	
20,500.00	6,945.00	6,892.49	6,888.67	225.29	206.53	-90.59	1,578.19	-10,051.04	24,258.40	24,015.83	242.57	100.007	
20,600.00	6,945.00	6,892.50	6,888.67	226.88	206.53	-90.59	1,578.19	-10,051.04	24,358.03	24,115.34	242.68	100.370	
20,700.00	6,945.00	6,892.50	6,888.68	228.48	206.53	-90.59	1,578.19	-10,051.04	24,457.66	24,214.86	242.80	100.732	
20,741.48	6,945.00	6,892.50	6,888.68	229.14	206.53	-90.59	1,578.19	-10,051.04	24,498.98	24,256.14	242.85	100.882	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 705H
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 705H	**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 #3	**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	-100.09	-2,124.88	-11,935.27	12,122.94				
100.00	100.00	161.00	161.00	0.25	4.82	-100.09	-2,124.88	-11,935.27	12,122.94	12,117.87	5.08	2,388.591	
200.00	200.00	261.00	261.00	0.61	7.82	-100.09	-2,124.88	-11,935.27	12,122.94	12,114.51	8.43	1,438.031	
300.00	300.00	361.00	361.00	0.97	10.82	-100.09	-2,124.88	-11,935.27	12,122.94	12,111.16	11.79	1,028.665	
400.00	400.00	461.00	461.00	1.33	13.81	-100.09	-2,124.88	-11,935.27	12,122.94	12,107.80	15.14	800.722	
500.00	500.00	561.10	561.00	1.68	16.81	-100.09	-2,124.88	-11,935.27	12,122.94	12,104.45	18.50	655.367	CC
600.00	599.98	661.08	660.98	2.03	19.81	112.17	-2,124.88	-11,935.27	12,123.60	12,101.77	21.84	555.201	
700.00	699.84	759.51	759.37	2.37	22.76	112.16	-2,122.70	-11,935.27	12,125.20	12,100.08	25.12	482.670	ES
795.17	794.65	842.17	842.02	2.69	25.24	112.14	-2,123.00	-11,935.27	12,128.36	12,100.44	27.93	434.293	
800.00	799.45	846.37	846.21	2.71	25.36	112.14	-2,123.02	-11,935.27	12,128.56	12,100.49	28.07	432.088	
900.00	898.92	933.21	933.03	3.06	27.96	112.17	-2,123.87	-11,935.27	12,132.63	12,101.60	31.03	391.052	
1,000.00	998.39	1,059.80	1,059.39	3.43	31.76	112.22	-2,124.88	-11,935.27	12,136.67	12,101.50	35.18	345.001	
1,100.00	1,097.86	1,159.27	1,158.86	3.79	34.74	112.27	-2,124.88	-11,935.27	12,140.59	12,102.06	38.52	315.146	
1,200.00	1,197.33	1,257.61	1,257.17	4.16	37.68	112.32	-2,122.70	-11,935.27	12,144.13	12,102.29	41.84	290.264	
1,300.00	1,296.80	1,344.57	1,344.11	4.53	40.29	112.36	-2,123.01	-11,935.27	12,148.12	12,103.31	44.81	271.079	
1,400.00	1,396.27	1,431.64	1,431.16	4.91	42.90	112.40	-2,123.85	-11,935.27	12,152.22	12,104.42	47.79	254.257	
1,500.00	1,495.74	1,557.45	1,556.74	5.28	46.67	112.45	-2,124.88	-11,935.27	12,156.31	12,104.37	51.94	234.052	
1,600.00	1,595.21	1,656.92	1,656.21	5.66	49.65	112.49	-2,124.88	-11,935.27	12,160.26	12,104.96	55.29	219.920	
1,700.00	1,694.68	1,755.58	1,754.83	6.04	52.61	112.55	-2,122.70	-11,935.27	12,163.85	12,105.22	58.63	207.483	
1,800.00	1,794.15	1,842.76	1,842.00	6.42	55.22	112.58	-2,123.00	-11,935.27	12,167.87	12,106.26	61.61	197.483	
1,900.00	1,893.62	1,930.07	1,929.28	6.80	57.83	112.62	-2,123.83	-11,935.27	12,172.00	12,107.39	64.61	188.399	
2,000.00	1,993.09	2,055.10	2,054.09	7.18	61.58	112.67	-2,124.88	-11,935.27	12,176.13	12,107.39	68.73	177.152	
2,100.00	2,092.56	2,154.57	2,153.56	7.56	64.56	112.72	-2,124.88	-11,935.27	12,180.11	12,108.02	72.09	168.954	
2,200.00	2,192.03	2,253.53	2,252.48	7.94	67.53	112.77	-2,122.70	-11,935.27	12,183.75	12,108.31	75.44	161.513	
2,300.00	2,291.50	2,340.95	2,339.88	8.32	70.15	112.81	-2,122.99	-11,935.27	12,187.81	12,109.37	78.43	155.391	
2,400.00	2,390.97	2,428.48	2,427.39	8.70	72.77	112.84	-2,123.81	-11,935.27	12,191.97	12,110.53	81.44	149.714	
2,500.00	2,490.44	2,552.76	2,551.44	9.08	76.49	112.89	-2,124.88	-11,935.27	12,196.13	12,110.59	85.54	142.580	
2,600.00	2,589.91	2,652.23	2,650.91	9.47	79.47	112.94	-2,124.88	-11,935.27	12,200.15	12,111.25	88.90	137.236	
2,700.00	2,689.38	2,751.48	2,750.12	9.85	82.45	112.99	-2,122.70	-11,935.27	12,203.83	12,111.58	92.25	132.287	
2,800.00	2,788.85	2,839.12	2,837.75	10.23	85.07	113.03	-2,122.98	-11,935.27	12,207.92	12,112.66	95.26	128.155	
2,900.00	2,888.32	2,926.89	2,925.50	10.61	87.70	113.06	-2,123.79	-11,935.27	12,212.12	12,113.85	98.27	124.272	
3,000.00	2,987.79	3,050.41	3,048.79	11.00	91.40	113.11	-2,124.88	-11,935.27	12,216.32	12,113.97	102.35	119.357	
3,100.00	3,087.25	3,149.88	3,148.25	11.38	94.38	113.16	-2,124.88	-11,935.27	12,220.38	12,114.66	105.71	115.600	
3,200.00	3,186.72	3,249.35	3,247.72	11.76	97.37	113.20	-2,124.88	-11,935.27	12,224.44	12,115.37	109.07	112.075	
3,300.00	3,286.19	3,337.29	3,335.61	12.15	100.00	113.25	-2,122.97	-11,935.27	12,228.23	12,116.14	112.09	109.094	
3,400.00	3,385.66	3,425.29	3,423.59	12.53	102.64	113.29	-2,123.77	-11,935.27	12,232.45	12,117.34	115.11	106.271	
3,500.00	3,485.13	3,548.06	3,546.13	12.91	106.32	113.33	-2,124.88	-11,935.27	12,236.69	12,117.52	119.17	102.686	
3,600.00	3,584.60	3,647.53	3,645.60	13.30	109.30	113.38	-2,124.88	-11,935.27	12,240.78	12,118.25	122.53	99.902	
3,700.00	3,684.07	3,747.00	3,745.07	13.68	112.28	113.42	-2,124.88	-11,935.27	12,244.89	12,119.00	125.89	97.267	
3,800.00	3,783.54	3,835.45	3,833.46	14.06	114.93	113.47	-2,122.95	-11,935.27	12,248.71	12,119.79	128.92	95.010	
3,900.00	3,883.01	3,923.68	3,921.68	14.45	117.57	113.51	-2,123.75	-11,935.27	12,252.96	12,121.02	131.94	92.865	
4,000.00	3,982.48	4,045.72	4,043.48	14.83	121.23	113.55	-2,124.88	-11,935.27	12,257.24	12,121.26	135.98	90.138	
4,100.00	4,081.95	4,145.19	4,142.95	15.22	124.21	113.60	-2,124.88	-11,935.27	12,261.37	12,122.03	139.34	87.993	
4,200.00	4,181.42	4,244.65	4,242.42	15.60	127.19	113.64	-2,124.88	-11,935.27	12,265.51	12,122.80	142.71	85.949	
4,300.00	4,280.89	4,333.59	4,331.31	15.98	129.85	113.69	-2,122.94	-11,935.27	12,269.38	12,123.62	145.75	84.180	
4,400.00	4,380.36	4,422.07	4,419.76	16.37	132.51	113.73	-2,123.73	-11,935.27	12,273.66	12,124.88	148.78	82.493	
4,500.00	4,479.83	4,543.37	4,540.83	16.75	136.14	113.77	-2,124.88	-11,935.27	12,277.97	12,125.17	152.80	80.353	
4,600.00	4,579.30	4,642.84	4,640.30	17.14	139.12	113.82	-2,124.88	-11,935.27	12,282.14	12,125.98	156.16	78.650	
4,700.00	4,678.77	4,742.31	4,739.77	17.52	142.10	113.86	-2,124.88	-11,935.27	12,286.32	12,126.79	159.52	77.018	
4,800.00	4,778.24	4,831.73	4,829.14	17.90	144.78	113.91	-2,122.93	-11,935.27	12,290.22	12,127.64	162.58	75.593	
4,900.00	4,877.71	4,920.44	4,917.83	18.29	147.44	113.94	-2,123.71	-11,935.27	12,294.54	12,128.92	165.62	74.232	
5,000.00	4,977.18	5,041.02	5,038.18	18.67	151.05	113.99	-2,124.88	-11,935.27	12,298.88	12,129.27	169.62	72.509	

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 705H
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 705H	**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 #3	**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	Warning
5,100.00	5,076.65	5,140.49	5,137.65	19.06	154.03	114.03	-2,124.88	-11,935.27	12,303.09	12,130.11	172.98	71.124	
5,200.00	5,176.12	5,239.96	5,237.12	19.44	157.01	114.08	-2,124.88	-11,935.27	12,307.30	12,130.96	176.34	69.792	
5,300.00	5,275.59	5,329.85	5,326.96	19.83	159.71	114.13	-2,122.92	-11,935.27	12,311.25	12,131.83	179.42	68.618	
5,400.00	5,375.06	5,418.80	5,415.89	20.21	162.37	114.16	-2,123.70	-11,935.27	12,315.60	12,133.13	182.46	67.496	
5,500.00	5,474.53	5,538.67	5,535.53	20.59	165.96	114.21	-2,124.88	-11,935.27	12,319.98	12,133.54	186.44	66.081	
5,600.00	5,574.00	5,638.14	5,635.00	20.98	168.94	114.25	-2,124.88	-11,935.27	12,324.22	12,134.42	189.80	64.933	
5,700.00	5,673.47	5,737.61	5,734.47	21.36	171.92	114.30	-2,124.88	-11,935.27	12,328.46	12,135.30	193.16	63.825	
5,800.00	5,772.94	5,827.97	5,824.77	21.75	174.63	114.34	-2,122.91	-11,935.27	12,332.45	12,136.20	196.25	62.841	
5,900.00	5,872.41	5,917.16	5,913.94	22.13	177.30	114.38	-2,123.68	-11,935.27	12,336.83	12,137.53	199.30	61.900	
6,000.00	5,971.88	6,036.33	6,032.88	22.52	180.88	114.43	-2,124.88	-11,935.27	12,341.25	12,137.99	203.26	60.718	
6,100.00	6,071.35	6,135.80	6,132.35	22.90	183.86	114.47	-2,124.88	-11,935.27	12,345.52	12,138.90	206.62	59.750	
6,200.00	6,170.81	6,235.27	6,231.81	23.28	186.84	114.51	-2,124.88	-11,935.27	12,349.80	12,139.82	209.98	58.814	
6,300.00	6,270.28	6,326.07	6,322.57	23.67	189.56	114.56	-2,122.90	-11,935.27	12,353.84	12,140.75	213.08	57.977	
6,375.94	6,345.82	6,393.98	6,390.46	23.96	191.59	114.59	-2,123.42	-11,935.27	12,357.17	12,141.77	215.41	57.367	
6,400.00	6,369.72	6,415.48	6,411.95	24.05	192.24	129.05	-2,123.66	-11,935.27	12,358.69	12,142.55	216.14	57.179	
6,450.00	6,419.09	6,459.91	6,456.37	24.25	193.57	145.12	-2,124.24	-11,935.27	12,364.73	12,147.07	217.67	56.806	
6,500.00	6,467.78	6,532.54	6,528.78	24.46	195.74	152.68	-2,124.88	-11,935.27	12,374.59	12,154.55	220.04	56.238	
6,550.00	6,515.51	6,580.26	6,576.51	24.67	197.17	156.82	-2,124.88	-11,935.27	12,388.17	12,166.51	221.66	55.888	
6,600.00	6,561.97	6,626.73	6,622.97	24.88	198.57	159.32	-2,124.88	-11,935.27	12,405.45	12,182.20	223.25	55.569	
6,650.00	6,606.89	6,671.65	6,667.89	25.10	199.91	160.89	-2,124.88	-11,935.27	12,426.32	12,201.54	224.78	55.283	
6,700.00	6,649.98	6,714.74	6,710.98	25.32	201.20	161.86	-2,124.88	-11,935.27	12,450.66	12,224.41	226.25	55.031	
6,750.00	6,690.98	6,755.15	6,751.35	25.54	202.41	162.43	-2,122.70	-11,935.27	12,478.03	12,250.40	227.63	54.816	
6,800.00	6,729.64	6,789.95	6,786.14	25.77	203.46	162.63	-2,122.75	-11,935.27	12,508.84	12,280.00	228.84	54.662	
6,850.00	6,765.71	6,822.44	6,818.63	26.00	204.43	162.54	-2,122.88	-11,935.27	12,542.61	12,312.64	229.97	54.541	
6,900.00	6,798.98	6,852.42	6,848.60	26.24	205.33	162.13	-2,123.07	-11,935.27	12,579.14	12,348.13	231.01	54.453	
6,950.00	6,829.24	6,879.70	6,875.88	26.49	206.15	161.39	-2,123.29	-11,935.27	12,618.19	12,386.24	231.96	54.399	
7,000.00	6,856.30	6,904.11	6,900.28	26.76	206.88	160.22	-2,123.53	-11,935.27	12,659.54	12,426.73	232.81	54.378	SF
7,050.00	6,880.00	6,925.49	6,921.66	27.03	207.52	158.49	-2,123.78	-11,935.27	12,702.91	12,469.35	233.55	54.390	
7,100.00	6,900.19	6,943.71	6,939.87	27.32	208.07	155.92	-2,124.01	-11,935.27	12,748.03	12,513.84	234.19	54.435	
7,150.00	6,916.74	6,958.66	6,954.82	27.62	208.51	152.04	-2,124.22	-11,935.27	12,794.64	12,559.92	234.72	54.511	
7,200.00	6,929.56	6,970.24	6,966.39	27.93	208.86	145.81	-2,124.39	-11,935.27	12,842.44	12,607.31	235.13	54.618	
7,250.00	6,938.57	7,003.63	6,999.57	28.26	209.86	135.43	-2,124.88	-11,935.27	12,891.15	12,654.96	236.19	54.580	
7,300.00	6,943.70	7,008.76	7,004.70	28.60	210.01	115.79	-2,124.88	-11,935.27	12,940.42	12,704.03	236.39	54.742	
7,340.76	6,945.00	7,010.06	7,006.00	28.88	210.05	90.00	-2,124.88	-11,935.27	12,980.81	12,744.36	236.46	54.897	
7,400.00	6,945.00	7,010.06	7,006.00	29.31	210.05	90.00	-2,124.88	-11,935.27	13,039.59	12,803.10	236.49	55.137	
7,500.00	6,945.00	7,010.06	7,006.00	30.09	210.05	90.00	-2,124.88	-11,935.27	13,138.83	12,902.27	236.56	55.542	
7,600.00	6,945.00	7,010.06	7,006.00	30.93	210.05	90.00	-2,124.88	-11,935.27	13,238.07	13,001.44	236.62	55.946	
7,700.00	6,945.00	7,010.06	7,006.00	31.83	210.05	90.00	-2,124.88	-11,935.27	13,337.32	13,100.63	236.69	56.350	
7,800.00	6,945.00	7,010.06	7,006.00	32.79	210.05	90.00	-2,124.88	-11,935.27	13,436.59	13,199.83	236.76	56.753	
7,900.00	6,945.00	7,010.06	7,006.00	33.79	210.05	90.00	-2,124.88	-11,935.27	13,535.86	13,299.04	236.82	57.156	
8,000.00	6,945.00	7,010.06	7,006.00	34.84	210.05	90.00	-2,124.88	-11,935.27	13,635.15	13,398.25	236.89	57.558	
8,100.00	6,945.00	7,010.06	7,006.00	35.93	210.05	90.00	-2,124.88	-11,935.27	13,734.44	13,497.48	236.96	57.960	
8,200.00	6,945.00	7,010.06	7,006.00	37.06	210.05	90.00	-2,124.88	-11,935.27	13,833.75	13,596.72	237.04	58.362	
8,300.00	6,945.00	7,010.06	7,006.00	38.23	210.05	90.00	-2,124.88	-11,935.27	13,933.07	13,695.96	237.11	58.763	
8,400.00	6,945.00	7,010.06	7,006.00	39.42	210.05	90.00	-2,124.88	-11,935.27	14,032.39	13,795.21	237.18	59.163	
8,500.00	6,945.00	7,010.06	7,006.00	40.65	210.05	90.00	-2,124.88	-11,935.27	14,131.73	13,894.47	237.25	59.564	
8,600.00	6,945.00	7,010.06	7,006.00	41.90	210.05	90.00	-2,124.88	-11,935.27	14,231.07	13,993.74	237.33	59.963	
8,700.00	6,945.00	7,010.06	7,006.00	43.17	210.05	90.00	-2,124.88	-11,935.27	14,330.43	14,093.02	237.40	60.363	
8,800.00	6,945.00	7,010.06	7,006.00	44.46	210.05	90.00	-2,124.88	-11,935.27	14,429.79	14,192.31	237.48	60.762	
8,900.00	6,945.00	7,010.06	7,006.00	45.78	210.05	90.00	-2,124.88	-11,935.27	14,529.16	14,291.60	237.56	61.160	
9,000.00	6,945.00	7,010.06	7,006.00	47.11	210.05	90.00	-2,124.88	-11,935.27	14,628.54	14,390.91	237.64	61.559	
9,100.00	6,945.00	7,010.06	7,006.00	48.46	210.05	90.00	-2,124.88	-11,935.27	14,727.93	14,490.22	237.71	61.956	

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 705H
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 705H	**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 #3	**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
9,200.00	6,945.00	7,010.06	7,006.00	49.82	210.05	90.00	-2,124.88	-11,935.27	14,827.33	14,589.54	237.79	62.354	
9,300.00	6,945.00	7,010.06	7,006.00	51.20	210.05	90.00	-2,124.88	-11,935.27	14,926.73	14,688.86	237.87	62.751	
9,400.00	6,945.00	7,010.06	7,006.00	52.59	210.05	90.00	-2,124.88	-11,935.27	15,026.15	14,788.19	237.95	63.147	
9,500.00	6,945.00	7,010.06	7,006.00	53.99	210.05	90.00	-2,124.88	-11,935.27	15,125.57	14,887.53	238.03	63.543	
9,600.00	6,945.00	7,010.06	7,006.00	55.40	210.05	90.00	-2,124.88	-11,935.27	15,225.00	14,986.88	238.12	63.939	
9,700.00	6,945.00	7,010.06	7,006.00	56.83	210.05	90.00	-2,124.88	-11,935.27	15,324.43	15,086.23	238.20	64.335	
9,800.00	6,945.00	7,010.06	7,006.00	58.26	210.05	90.00	-2,124.88	-11,935.27	15,423.88	15,185.59	238.28	64.730	
9,900.00	6,945.00	7,010.06	7,006.00	59.70	210.05	90.00	-2,124.88	-11,935.27	15,523.33	15,284.96	238.36	65.124	
10,000.00	6,945.00	7,010.06	7,006.00	61.15	210.05	90.00	-2,124.88	-11,935.27	15,622.78	15,384.33	238.45	65.518	
10,100.00	6,945.00	7,010.06	7,006.00	62.61	210.05	90.00	-2,124.88	-11,935.27	15,722.25	15,483.71	238.53	65.912	
10,200.00	6,945.00	7,010.06	7,006.00	64.07	210.05	90.00	-2,124.88	-11,935.27	15,821.72	15,583.10	238.62	66.306	
10,300.00	6,945.00	7,010.06	7,006.00	65.54	210.05	90.00	-2,124.88	-11,935.27	15,921.19	15,682.49	238.70	66.699	
10,400.00	6,945.00	7,010.06	7,006.00	67.02	210.05	90.00	-2,124.88	-11,935.27	16,020.68	15,781.89	238.79	67.091	
10,500.00	6,945.00	7,010.06	7,006.00	68.50	210.05	90.00	-2,124.88	-11,935.27	16,120.17	15,881.29	238.87	67.484	
10,600.00	6,945.00	7,010.06	7,006.00	69.99	210.05	90.00	-2,124.88	-11,935.27	16,219.67	15,980.70	238.96	67.876	
10,700.00	6,945.00	7,010.06	7,006.00	71.48	210.05	90.00	-2,124.88	-11,935.27	16,319.17	16,080.12	239.05	68.267	
10,800.00	6,945.00	7,010.06	7,006.00	72.98	210.05	90.00	-2,124.88	-11,935.27	16,418.68	16,179.54	239.14	68.658	
10,900.00	6,945.00	7,010.06	7,006.00	74.48	210.05	90.00	-2,124.88	-11,935.27	16,518.19	16,278.97	239.22	69.049	
11,000.00	6,945.00	7,010.06	7,006.00	75.99	210.05	90.00	-2,124.88	-11,935.27	16,617.71	16,378.40	239.31	69.440	
11,100.00	6,945.00	7,010.06	7,006.00	77.50	210.05	90.00	-2,124.88	-11,935.27	16,717.24	16,477.84	239.40	69.830	
11,200.00	6,945.00	7,010.06	7,006.00	79.01	210.05	90.00	-2,124.88	-11,935.27	16,816.77	16,577.28	239.49	70.219	
11,300.00	6,945.00	7,010.06	7,006.00	80.53	210.05	90.00	-2,124.88	-11,935.27	16,916.31	16,676.73	239.58	70.608	
11,400.00	6,945.00	7,010.06	7,006.00	82.05	210.05	90.00	-2,124.88	-11,935.27	17,015.85	16,776.18	239.67	70.997	
11,500.00	6,945.00	7,010.06	7,006.00	83.57	210.05	90.00	-2,124.88	-11,935.27	17,115.40	16,875.64	239.76	71.386	
11,600.00	6,945.00	7,010.06	7,006.00	85.10	210.05	90.00	-2,124.88	-11,935.27	17,214.95	16,975.10	239.85	71.774	
11,700.00	6,945.00	7,010.06	7,006.00	86.63	210.05	90.00	-2,124.88	-11,935.27	17,314.51	17,074.57	239.94	72.162	
11,800.00	6,945.00	7,010.06	7,006.00	88.16	210.05	90.00	-2,124.88	-11,935.27	17,414.07	17,174.04	240.03	72.549	
11,900.00	6,945.00	7,010.06	7,006.00	89.69	210.05	90.00	-2,124.88	-11,935.27	17,513.64	17,273.52	240.12	72.936	
12,000.00	6,945.00	7,010.06	7,006.00	91.23	210.05	90.00	-2,124.88	-11,935.27	17,613.22	17,373.00	240.22	73.323	
12,100.00	6,945.00	7,010.06	7,006.00	92.77	210.05	90.00	-2,124.88	-11,935.27	17,712.80	17,472.49	240.31	73.709	
12,200.00	6,945.00	7,010.06	7,006.00	94.31	210.05	90.00	-2,124.88	-11,935.27	17,812.38	17,571.98	240.40	74.095	
12,300.00	6,945.00	7,010.06	7,006.00	95.85	210.05	90.00	-2,124.88	-11,935.27	17,911.97	17,671.47	240.49	74.480	
12,400.00	6,945.00	7,010.06	7,006.00	97.40	210.05	90.00	-2,124.88	-11,935.27	18,011.56	17,770.97	240.59	74.865	
12,500.00	6,945.00	7,010.06	7,006.00	98.95	210.05	90.00	-2,124.88	-11,935.27	18,111.15	17,870.48	240.68	75.250	
12,600.00	6,945.00	7,010.06	7,006.00	100.50	210.05	90.00	-2,124.88	-11,935.27	18,210.76	17,969.98	240.77	75.635	
12,700.00	6,945.00	7,010.06	7,006.00	102.05	210.05	90.00	-2,124.88	-11,935.27	18,310.36	18,069.49	240.87	76.019	
12,800.00	6,945.00	7,010.06	7,006.00	103.60	210.05	90.00	-2,124.88	-11,935.27	18,409.97	18,169.01	240.96	76.402	
12,900.00	6,945.00	7,010.06	7,006.00	105.15	210.05	90.00	-2,124.88	-11,935.27	18,509.59	18,268.53	241.06	76.786	
13,000.00	6,945.00	7,010.06	7,006.00	106.71	210.05	90.00	-2,124.88	-11,935.27	18,609.20	18,368.05	241.15	77.168	
13,100.00	6,945.00	7,010.06	7,006.00	108.26	210.05	90.00	-2,124.88	-11,935.27	18,708.83	18,467.58	241.25	77.551	
13,200.00	6,945.00	7,010.06	7,006.00	109.82	210.05	90.00	-2,124.88	-11,935.27	18,808.45	18,567.11	241.34	77.933	
13,300.00	6,945.00	7,010.06	7,006.00	111.38	210.05	90.00	-2,124.88	-11,935.27	18,908.08	18,666.65	241.44	78.315	
13,400.00	6,945.00	7,010.06	7,006.00	112.94	210.05	90.00	-2,124.88	-11,935.27	19,007.72	18,766.18	241.53	78.696	
13,500.00	6,945.00	7,010.06	7,006.00	114.50	210.05	90.00	-2,124.88	-11,935.27	19,107.35	18,865.73	241.63	79.077	
13,600.00	6,945.00	7,010.06	7,006.00	116.07	210.05	90.00	-2,124.88	-11,935.27	19,207.00	18,965.27	241.73	79.458	
13,700.00	6,945.00	7,010.06	7,006.00	117.63	210.05	90.00	-2,124.88	-11,935.27	19,306.64	19,064.82	241.82	79.838	
13,800.00	6,945.00	7,010.06	7,006.00	119.19	210.05	90.00	-2,124.88	-11,935.27	19,406.29	19,164.37	241.92	80.218	
13,900.00	6,945.00	7,010.06	7,006.00	120.76	210.05	90.00	-2,124.88	-11,935.27	19,505.94	19,263.93	242.02	80.598	
14,000.00	6,945.00	7,010.06	7,006.00	122.33	210.05	90.00	-2,124.88	-11,935.27	19,605.60	19,363.49	242.11	80.977	
14,100.00	6,945.00	7,010.06	7,006.00	123.90	210.05	90.00	-2,124.88	-11,935.27	19,705.26	19,463.05	242.21	81.356	
14,200.00	6,945.00	7,010.06	7,006.00	125.46	210.05	90.00	-2,124.88	-11,935.27	19,804.92	19,562.61	242.31	81.734	
14,300.00	6,945.00	7,010.06	7,006.00	127.03	210.05	90.00	-2,124.88	-11,935.27	19,904.59	19,662.18	242.41	82.112	

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 705H
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 705H	**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 #3	**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)	Rule Assigned: Minimum Separation (usft)	Separation Factor	Warning
14,400.00	6,945.00	7,010.06	7,006.00	128.60	210.05	90.00	-2,124.88	-11,935.27	20,004.26	19,761.75	242.51	82.490	
14,500.00	6,945.00	7,010.06	7,006.00	130.18	210.05	90.00	-2,124.88	-11,935.27	20,103.93	19,861.33	242.60	82.867	
14,600.00	6,945.00	7,010.06	7,006.00	131.75	210.05	90.00	-2,124.88	-11,935.27	20,203.61	19,960.90	242.70	83.244	
14,700.00	6,945.00	7,010.06	7,006.00	133.32	210.05	90.00	-2,124.88	-11,935.27	20,303.29	20,060.48	242.80	83.621	
14,800.00	6,945.00	7,010.06	7,006.00	134.89	210.05	90.00	-2,124.88	-11,935.27	20,402.97	20,160.07	242.90	83.997	
14,900.00	6,945.00	7,010.06	7,006.00	136.47	210.05	90.00	-2,124.88	-11,935.27	20,502.65	20,259.65	243.00	84.373	
15,000.00	6,945.00	7,010.06	7,006.00	138.04	210.05	90.00	-2,124.88	-11,935.27	20,602.34	20,359.24	243.10	84.748	
15,100.00	6,945.00	7,010.06	7,006.00	139.62	210.05	90.00	-2,124.88	-11,935.27	20,702.03	20,458.83	243.20	85.123	
15,200.00	6,945.00	7,010.06	7,006.00	141.20	210.05	90.00	-2,124.88	-11,935.27	20,801.73	20,558.43	243.30	85.498	
15,300.00	6,945.00	7,010.06	7,006.00	142.77	210.05	90.00	-2,124.88	-11,935.27	20,901.43	20,658.03	243.40	85.872	
15,400.00	6,945.00	7,010.06	7,006.00	144.35	210.05	90.00	-2,124.88	-11,935.27	21,001.13	20,757.62	243.50	86.246	
15,500.00	6,945.00	7,010.06	7,006.00	145.93	210.05	90.00	-2,124.88	-11,935.27	21,100.83	20,857.23	243.60	86.620	
15,600.00	6,945.00	7,010.06	7,006.00	147.51	210.05	90.00	-2,124.88	-11,935.27	21,200.54	20,956.83	243.70	86.993	
15,700.00	6,945.00	7,010.06	7,006.00	149.09	210.05	90.00	-2,124.88	-11,935.27	21,300.25	21,056.44	243.81	87.366	
15,800.00	6,945.00	7,010.06	7,006.00	150.67	210.05	90.00	-2,124.88	-11,935.27	21,399.96	21,156.05	243.91	87.738	
15,900.00	6,945.00	7,010.06	7,006.00	152.25	210.05	90.00	-2,124.88	-11,935.27	21,499.67	21,255.66	244.01	88.110	
16,000.00	6,945.00	7,010.06	7,006.00	153.83	210.05	90.00	-2,124.88	-11,935.27	21,599.39	21,355.28	244.11	88.482	
16,100.00	6,945.00	7,010.06	7,006.00	155.41	210.05	90.00	-2,124.88	-11,935.27	21,699.11	21,454.89	244.21	88.853	
16,200.00	6,945.00	7,010.06	7,006.00	156.99	210.05	90.00	-2,124.88	-11,935.27	21,798.83	21,554.51	244.32	89.224	
16,300.00	6,945.00	7,010.06	7,006.00	158.57	210.05	90.00	-2,124.88	-11,935.27	21,898.55	21,654.14	244.42	89.595	
16,400.00	6,945.00	7,010.06	7,006.00	160.15	210.05	90.00	-2,124.88	-11,935.27	21,998.28	21,753.76	244.52	89.965	
16,500.00	6,945.00	7,010.06	7,006.00	161.74	210.05	90.00	-2,124.88	-11,935.27	22,098.01	21,853.39	244.62	90.335	
16,600.00	6,945.00	7,010.06	7,006.00	163.32	210.05	90.00	-2,124.88	-11,935.27	22,197.74	21,953.02	244.73	90.704	
16,700.00	6,945.00	7,010.06	7,006.00	164.90	210.05	90.00	-2,124.88	-11,935.27	22,297.48	22,052.65	244.83	91.073	
16,800.00	6,945.00	7,010.06	7,006.00	166.49	210.05	90.00	-2,124.88	-11,935.27	22,397.21	22,152.28	244.93	91.442	
16,900.00	6,945.00	7,010.06	7,006.00	168.07	210.05	90.00	-2,124.88	-11,935.27	22,496.95	22,251.92	245.04	91.810	
17,000.00	6,945.00	7,010.06	7,006.00	169.66	210.05	90.00	-2,124.88	-11,935.27	22,596.69	22,351.55	245.14	92.178	
17,100.00	6,945.00	7,010.06	7,006.00	171.24	210.05	90.00	-2,124.88	-11,935.27	22,696.44	22,451.19	245.25	92.546	
17,200.00	6,945.00	7,010.06	7,006.00	172.83	210.05	90.00	-2,124.88	-11,935.27	22,796.18	22,550.83	245.35	92.913	
17,300.00	6,945.00	7,010.06	7,006.00	174.41	210.05	90.00	-2,124.88	-11,935.27	22,895.93	22,650.48	245.46	93.280	
17,400.00	6,945.00	7,010.06	7,006.00	176.00	210.05	90.00	-2,124.88	-11,935.27	22,995.68	22,750.12	245.56	93.646	
17,500.00	6,945.00	7,010.06	7,006.00	177.59	210.05	90.00	-2,124.88	-11,935.27	23,095.44	22,849.77	245.66	94.012	
17,600.00	6,945.00	7,010.06	7,006.00	179.17	210.05	90.00	-2,124.88	-11,935.27	23,195.19	22,949.42	245.77	94.378	
17,700.00	6,945.00	7,010.06	7,006.00	180.76	210.05	90.00	-2,124.88	-11,935.27	23,294.95	23,049.07	245.88	94.743	
17,800.00	6,945.00	7,010.06	7,006.00	182.35	210.05	90.00	-2,124.88	-11,935.27	23,394.71	23,148.72	245.98	95.108	
17,900.00	6,945.00	7,010.06	7,006.00	183.93	210.05	90.00	-2,124.88	-11,935.27	23,494.47	23,248.38	246.09	95.472	
18,000.00	6,945.00	7,010.06	7,006.00	185.52	210.05	90.00	-2,124.88	-11,935.27	23,594.23	23,348.04	246.19	95.836	
18,100.00	6,945.00	7,010.06	7,006.00	187.11	210.05	90.00	-2,124.88	-11,935.27	23,693.99	23,447.70	246.30	96.200	
18,200.00	6,945.00	7,010.06	7,006.00	188.70	210.05	90.00	-2,124.88	-11,935.27	23,793.76	23,547.36	246.41	96.564	
18,300.00	6,945.00	7,010.06	7,006.00	190.29	210.05	90.00	-2,124.88	-11,935.27	23,893.53	23,647.02	246.51	96.927	
18,400.00	6,945.00	7,010.06	7,006.00	191.88	210.05	90.00	-2,124.88	-11,935.27	23,993.30	23,746.68	246.62	97.289	
18,500.00	6,945.00	7,010.06	7,006.00	193.46	210.05	90.00	-2,124.88	-11,935.27	24,093.07	23,846.35	246.73	97.651	
18,600.00	6,945.00	7,010.06	7,006.00	195.05	210.05	90.00	-2,124.88	-11,935.27	24,192.85	23,946.01	246.83	98.013	
18,700.00	6,945.00	7,010.06	7,006.00	196.64	210.05	90.00	-2,124.88	-11,935.27	24,292.62	24,045.68	246.94	98.375	
18,800.00	6,945.00	7,010.06	7,006.00	198.23	210.05	90.00	-2,124.88	-11,935.27	24,392.40	24,145.35	247.05	98.736	
18,900.00	6,945.00	7,010.06	7,006.00	199.82	210.05	90.00	-2,124.88	-11,935.27	24,492.18	24,245.03	247.15	99.096	
19,000.00	6,945.00	7,010.06	7,006.00	201.41	210.05	90.00	-2,124.88	-11,935.27	24,591.96	24,344.70	247.26	99.457	
19,100.00	6,945.00	7,010.06	7,006.00	203.00	210.05	90.00	-2,124.88	-11,935.27	24,691.75	24,444.38	247.37	99.817	
19,200.00	6,945.00	7,010.06	7,006.00	204.60	210.05	90.00	-2,124.88	-11,935.27	24,791.53	24,544.05	247.48	100.176	
19,300.00	6,945.00	7,010.06	7,006.00	206.19	210.05	90.00	-2,124.88	-11,935.27	24,891.32	24,643.73	247.59	100.536	
19,400.00	6,945.00	7,010.06	7,006.00	207.78	210.05	90.00	-2,124.88	-11,935.27	24,991.11	24,743.41	247.70	100.894	
19,500.00	6,945.00	7,010.06	7,006.00	209.37	210.05	90.00	-2,124.88	-11,935.27	25,090.90	24,843.09	247.80	101.253	

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 705H
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 705H	**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 #3	**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

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
19,600.00	6,945.00	7,010.06	7,006.00	210.96	210.05	90.00	-2,124.88	-11,935.27	25,190.69	24,942.78	247.91	101.611	
19,700.00	6,945.00	7,010.06	7,006.00	212.55	210.05	90.00	-2,124.88	-11,935.27	25,290.48	25,042.46	248.02	101.968	
19,800.00	6,945.00	7,010.06	7,006.00	214.14	210.05	90.00	-2,124.88	-11,935.27	25,390.28	25,142.15	248.13	102.326	
19,900.00	6,945.00	7,010.06	7,006.00	215.74	210.05	90.00	-2,124.88	-11,935.27	25,490.08	25,241.84	248.24	102.683	
20,000.00	6,945.00	7,010.06	7,006.00	217.33	210.05	90.00	-2,124.88	-11,935.27	25,589.88	25,341.52	248.35	103.039	
20,100.00	6,945.00	7,010.06	7,006.00	218.92	210.05	90.00	-2,124.88	-11,935.27	25,689.68	25,441.21	248.46	103.395	
20,200.00	6,945.00	7,010.06	7,006.00	220.51	210.05	90.00	-2,124.88	-11,935.27	25,789.48	25,540.91	248.57	103.751	
20,300.00	6,945.00	7,010.06	7,006.00	222.11	210.05	90.00	-2,124.88	-11,935.27	25,889.28	25,640.60	248.68	104.106	
20,400.00	6,945.00	7,010.06	7,006.00	223.70	210.05	90.00	-2,124.88	-11,935.27	25,989.09	25,740.29	248.79	104.461	
20,500.00	6,945.00	7,010.06	7,006.00	225.29	210.05	90.00	-2,124.88	-11,935.27	26,088.89	25,839.99	248.90	104.816	
20,600.00	6,945.00	7,010.06	7,006.00	226.88	210.05	90.00	-2,124.88	-11,935.27	26,188.70	25,939.69	249.01	105.170	
20,700.00	6,945.00	7,010.06	7,006.00	228.48	210.05	90.00	-2,124.88	-11,935.27	26,288.51	26,039.38	249.12	105.524	
20,741.48	6,945.00	7,010.06	7,006.00	229.14	210.05	90.00	-2,124.88	-11,935.27	26,329.91	26,080.74	249.17	105.671	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 705H
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 705H	**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 #3	**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)	Rule Assigned: Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	-81.61	1,490.15	-10,103.11	10,212.92				
100.00	100.00	0.00	0.00	0.25	0.00	-81.61	1,490.15	-10,103.11	10,214.41	10,214.15	0.26	N/A	
200.00	200.00	0.00	0.00	0.61	0.00	-81.61	1,490.15	-10,103.11	10,216.87	10,216.26	0.61	N/A	
300.00	300.00	0.00	0.00	0.97	0.00	-81.61	1,490.15	-10,103.11	10,220.32	10,219.35	0.97	N/A	
400.00	400.00	0.00	0.00	1.33	0.00	-81.61	1,490.15	-10,103.11	10,224.74	10,223.41	1.33	7,688.252	
500.00	500.00	0.00	0.00	1.68	0.00	-81.61	1,490.15	-10,103.11	10,230.14	10,228.45	1.69	6,061.080	
600.00	599.98	0.00	0.00	2.03	0.00	130.54	1,490.15	-10,103.11	10,237.64	10,235.61	2.03	5,039.648	
700.00	699.84	0.00	0.00	2.37	0.00	130.38	1,490.15	-10,103.11	10,248.37	10,246.01	2.37	4,326.628	
795.17	794.65	0.00	0.00	2.69	0.00	130.18	1,490.15	-10,103.11	10,261.56	10,258.87	2.70	3,804.940	
800.00	799.45	0.00	0.00	2.71	0.00	130.18	1,490.15	-10,103.11	10,262.31	10,259.59	2.72	3,777.664	
900.00	898.92	0.00	0.00	3.06	0.00	130.18	1,490.15	-10,103.11	10,278.21	10,275.14	3.06	3,357.532	
1,000.00	998.39	550.00	533.60	3.43	2.16	130.29	1,475.16	-10,147.39	10,293.27	10,287.68	5.59	1,841.675	
1,100.00	1,097.86	550.00	533.60	3.79	2.16	130.29	1,475.16	-10,147.39	10,305.92	10,299.97	5.95	1,732.100	
1,200.00	1,197.33	575.00	558.44	4.16	2.24	130.29	1,473.16	-10,149.34	10,319.35	10,312.96	6.39	1,614.206	
1,300.00	1,296.80	600.00	583.25	4.53	2.32	130.29	1,470.95	-10,151.54	10,333.52	10,326.68	6.84	1,511.039	
1,400.00	1,396.27	650.00	632.73	4.91	2.49	130.28	1,465.69	-10,156.42	10,348.31	10,340.94	7.37	1,403.473	
1,500.00	1,495.74	700.00	682.04	5.28	2.67	130.26	1,459.35	-10,161.71	10,363.59	10,355.67	7.92	1,309.187	
1,600.00	1,595.21	713.35	695.17	5.66	2.72	130.25	1,457.49	-10,163.22	10,379.48	10,371.16	8.33	1,246.146	
1,700.00	1,694.68	725.00	706.61	6.04	2.77	130.25	1,455.81	-10,164.64	10,396.19	10,387.45	8.74	1,190.078	
1,800.00	1,794.15	750.00	731.10	6.42	2.87	130.24	1,452.02	-10,167.96	10,413.70	10,404.51	9.19	1,132.738	
1,900.00	1,893.62	759.69	740.57	6.80	2.91	130.23	1,450.51	-10,169.34	10,431.97	10,422.38	9.59	1,087.516	
2,000.00	1,993.09	775.00	755.52	7.18	2.97	130.22	1,448.09	-10,171.57	10,450.99	10,440.98	10.01	1,043.800	
2,100.00	2,092.56	800.00	779.91	7.56	3.08	130.21	1,444.11	-10,175.38	10,470.69	10,460.22	10.47	999.991	
2,200.00	2,192.03	825.00	804.25	7.94	3.19	130.19	1,440.08	-10,179.40	10,491.11	10,480.18	10.93	959.880	
2,300.00	2,291.50	836.52	815.44	8.32	3.24	130.19	1,438.19	-10,181.37	10,512.32	10,500.99	11.33	927.564	
2,400.00	2,390.97	850.00	828.51	8.70	3.30	130.18	1,435.93	-10,183.78	10,534.32	10,522.58	11.74	897.033	
2,500.00	2,490.44	875.00	852.70	9.08	3.41	130.16	1,431.68	-10,188.47	10,557.08	10,544.87	12.20	865.176	
2,600.00	2,589.91	888.42	865.65	9.47	3.48	130.15	1,429.35	-10,191.09	10,580.53	10,567.92	12.61	838.986	
2,700.00	2,689.38	900.00	876.81	9.85	3.53	130.14	1,427.30	-10,193.42	10,604.73	10,591.72	13.01	815.101	
2,800.00	2,788.85	913.40	889.67	10.23	3.60	130.13	1,424.83	-10,196.23	10,629.71	10,616.29	13.42	792.236	
2,900.00	2,888.32	925.00	900.76	10.61	3.66	130.12	1,422.57	-10,198.79	10,655.48	10,641.66	13.81	771.330	
3,000.00	2,987.79	966.49	940.23	11.00	3.87	130.09	1,413.96	-10,208.25	10,681.89	10,667.54	14.35	744.287	
3,100.00	3,087.25	1,000.00	971.91	11.38	4.05	130.05	1,406.40	-10,216.11	10,708.81	10,693.96	14.86	720.862	
3,200.00	3,186.72	1,025.00	995.44	11.76	4.19	130.03	1,400.48	-10,222.14	10,736.33	10,721.01	15.32	700.816	
3,300.00	3,286.19	1,050.00	1,018.87	12.15	4.34	130.00	1,394.37	-10,228.35	10,764.50	10,748.71	15.78	681.950	
3,400.00	3,385.66	1,075.00	1,042.22	12.53	4.48	129.97	1,388.11	-10,234.74	10,793.31	10,777.06	16.25	664.177	
3,500.00	3,485.13	1,117.42	1,081.75	12.91	4.73	129.92	1,377.39	-10,245.80	10,822.65	10,805.84	16.81	643.815	
3,600.00	3,584.60	1,164.85	1,125.86	13.30	5.02	129.86	1,365.34	-10,258.39	10,852.46	10,835.06	17.40	623.722	
3,700.00	3,684.07	1,200.00	1,158.58	13.68	5.23	129.82	1,356.67	-10,267.86	10,882.75	10,864.82	17.92	607.236	
3,800.00	3,783.54	1,225.00	1,181.86	14.06	5.38	129.80	1,350.66	-10,274.70	10,913.60	10,895.21	18.39	593.549	
3,900.00	3,883.01	1,264.49	1,218.66	14.45	5.63	129.75	1,341.53	-10,285.76	10,945.05	10,926.12	18.93	578.172	
4,000.00	3,982.48	1,370.81	1,317.93	14.83	6.28	129.65	1,317.90	-10,315.59	10,976.68	10,956.83	19.84	553.147	
4,100.00	4,081.95	1,693.39	1,619.61	15.22	8.29	129.31	1,243.44	-10,402.18	11,006.56	10,984.55	22.01	500.173	
4,200.00	4,181.42	1,858.42	1,773.91	15.60	9.33	129.14	1,203.45	-10,444.87	11,036.01	11,012.71	23.29	473.775	
4,300.00	4,280.89	1,910.56	1,822.68	15.98	9.66	129.08	1,190.70	-10,458.23	11,065.25	11,041.32	23.93	462.481	
4,400.00	4,380.36	1,936.48	1,846.90	16.37	9.82	129.05	1,184.45	-10,465.02	11,095.04	11,070.64	24.40	454.668	
4,500.00	4,479.83	1,975.00	1,882.88	16.75	10.07	129.01	1,175.34	-10,475.33	11,125.41	11,100.46	24.95	445.881	
4,600.00	4,579.30	2,037.59	1,941.28	17.14	10.47	128.95	1,160.56	-10,492.29	11,156.18	11,130.54	25.64	435.068	
4,700.00	4,678.77	4,937.47	4,757.16	17.52	23.43	128.04	801.15	-10,893.09	11,175.34	11,136.80	38.54	289.987	
4,800.00	4,778.24	5,475.00	5,284.23	17.90	24.99	128.06	762.01	-10,889.38	11,181.29	11,140.75	40.54	275.800	
4,900.00	4,877.71	5,475.00	5,284.23	18.29	24.99	128.06	762.01	-10,889.38	11,184.48	11,143.53	40.95	273.154	
5,000.00	4,977.18	5,900.00	5,692.98	18.67	26.14	128.08	731.93	-10,873.82	11,185.02	11,142.50	42.51	263.095	

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 705H
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 705H	**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 #3	**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
5,100.00	5,076.65	5,900.00	5,692.98	19.06	26.14	128.08	731.93	-10,873.82	11,186.32	11,143.40	42.92	260.608	
5,200.00	5,176.12	5,900.00	5,692.98	19.44	26.14	128.08	731.93	-10,873.82	11,188.52	11,145.19	43.33	258.207	
5,300.00	5,275.59	5,900.00	5,692.98	19.83	26.14	128.08	731.93	-10,873.82	11,191.62	11,147.88	43.74	255.889	
5,400.00	5,375.06	5,900.00	5,692.98	20.21	26.14	128.08	731.93	-10,873.82	11,195.60	11,151.47	44.14	253.653	
5,500.00	5,474.53	5,900.00	5,692.98	20.59	26.14	128.08	731.93	-10,873.82	11,200.48	11,155.95	44.54	251.495	
5,600.00	5,574.00	5,950.00	5,742.98	20.98	26.28	128.10	731.39	-10,873.52	11,206.09	11,161.02	45.07	248.637	
5,700.00	5,673.47	6,000.00	5,792.98	21.36	26.41	128.12	731.21	-10,873.34	11,212.07	11,166.47	45.60	245.885	
5,800.00	5,772.94	6,075.00	5,867.98	21.75	26.61	128.15	730.91	-10,873.37	11,218.42	11,172.22	46.20	242.802	
5,900.00	5,872.41	6,136.39	5,929.36	22.13	26.79	128.17	730.48	-10,873.57	11,225.04	11,178.27	46.78	239.972	
6,000.00	5,971.88	6,212.88	6,005.85	22.52	27.02	128.20	729.85	-10,874.03	11,231.93	11,184.54	47.40	236.982	
6,100.00	6,071.35	6,225.00	6,017.97	22.90	27.05	128.21	729.72	-10,874.11	11,239.26	11,191.44	47.82	235.034	
6,200.00	6,170.81	6,225.00	6,017.97	23.28	27.05	128.21	729.72	-10,874.11	11,247.47	11,199.26	48.20	233.332	
6,300.00	6,270.28	6,225.00	6,017.97	23.67	27.05	128.21	729.72	-10,874.11	11,256.56	11,207.97	48.58	231.692	
6,375.94	6,345.82	6,225.00	6,017.97	23.96	27.05	128.21	729.72	-10,874.11	11,264.05	11,215.18	48.87	230.487	
6,400.00	6,369.72	6,225.00	6,017.97	24.05	27.05	142.70	729.72	-10,874.11	11,266.98	11,218.02	48.96	230.120	
6,450.00	6,419.09	6,225.00	6,017.97	24.25	27.05	158.92	729.72	-10,874.11	11,276.08	11,226.93	49.15	229.427	
6,500.00	6,467.78	6,225.00	6,017.97	24.46	27.05	166.69	729.72	-10,874.11	11,289.20	11,239.87	49.33	228.834	
6,550.00	6,515.51	6,225.00	6,017.97	24.67	27.05	171.16	729.72	-10,874.11	11,306.24	11,256.73	49.51	228.349	
6,600.00	6,561.97	6,225.00	6,017.97	24.88	27.05	174.09	729.72	-10,874.11	11,327.08	11,277.39	49.69	227.976	
6,650.00	6,606.89	6,225.00	6,017.97	25.10	27.05	176.22	729.72	-10,874.11	11,351.57	11,301.72	49.85	227.719	
6,700.00	6,649.98	7,035.85	6,785.30	25.32	29.51	177.81	701.10	-10,899.86	11,378.36	11,325.84	52.51	216.677	
6,750.00	6,690.98	7,066.16	6,815.62	25.54	29.59	179.19	701.08	-10,899.78	11,406.83	11,354.08	52.76	216.221	
6,800.00	6,729.64	7,108.85	6,858.31	25.77	29.71	-179.56	701.01	-10,899.71	11,438.46	11,385.44	53.02	215.726	
6,850.00	6,765.71	7,138.73	6,888.18	26.00	29.79	-178.35	701.00	-10,899.64	11,472.97	11,419.73	53.24	215.497	
6,900.00	6,798.98	7,164.53	6,913.98	26.24	29.87	-177.10	700.96	-10,899.61	11,510.23	11,456.80	53.43	215.416	
6,950.00	6,829.24	7,214.53	6,963.99	26.49	30.01	-175.74	700.88	-10,899.50	11,549.91	11,496.23	53.68	215.157 SF	
7,000.00	6,856.30	7,240.04	6,989.49	26.76	30.08	-174.14	700.85	-10,899.44	11,591.82	11,537.98	53.84	215.290	
7,050.00	6,880.00	7,260.57	7,010.02	27.03	30.13	-172.13	700.80	-10,899.39	11,635.70	11,581.72	53.98	215.575	
7,100.00	6,900.19	7,275.00	7,024.45	27.32	30.17	-169.43	700.78	-10,899.36	11,681.29	11,627.21	54.07	216.022	
7,150.00	6,916.74	7,305.56	7,055.01	27.62	30.26	-165.58	700.72	-10,899.29	11,728.28	11,674.08	54.21	216.361	
7,200.00	6,929.56	7,315.24	7,064.69	27.93	30.29	-159.34	700.70	-10,899.26	11,776.41	11,722.14	54.26	217.022	
7,250.00	6,938.57	7,325.00	7,074.45	28.26	30.31	-148.02	700.69	-10,899.24	11,825.37	11,771.06	54.31	217.749	
7,300.00	6,943.70	7,339.77	7,089.22	28.60	30.36	-124.88	700.65	-10,899.18	11,874.85	11,820.50	54.35	218.470	
7,340.76	6,945.00	7,341.21	7,090.66	28.88	30.36	-92.07	700.65	-10,899.18	11,915.38	11,861.02	54.35	219.217	
7,400.00	6,945.00	7,341.42	7,090.87	29.31	30.36	-92.08	700.65	-10,899.18	11,974.32	11,919.97	54.34	220.344	
7,500.00	6,945.00	7,341.76	7,091.21	30.09	30.36	-92.09	700.65	-10,899.18	12,073.81	12,019.48	54.33	222.241	
7,600.00	6,945.00	7,342.11	7,091.56	30.93	30.36	-92.11	700.65	-10,899.18	12,173.31	12,119.00	54.31	224.131	
7,700.00	6,945.00	7,342.45	7,091.91	31.83	30.36	-92.13	700.65	-10,899.18	12,272.82	12,218.52	54.30	226.012	
7,800.00	6,945.00	7,342.80	7,092.25	32.79	30.36	-92.14	700.65	-10,899.17	12,372.34	12,318.04	54.29	227.886	
7,900.00	6,945.00	7,343.15	7,092.60	33.79	30.36	-92.16	700.65	-10,899.17	12,471.86	12,417.58	54.28	229.752	
8,000.00	6,945.00	7,343.49	7,092.94	34.84	30.37	-92.18	700.64	-10,899.17	12,571.39	12,517.11	54.28	231.609	
8,100.00	6,945.00	7,355.17	7,104.62	35.93	30.40	-92.73	700.61	-10,899.13	12,670.93	12,616.62	54.31	233.310	
8,200.00	6,945.00	7,355.43	7,104.89	37.06	30.40	-92.74	700.61	-10,899.13	12,770.48	12,716.17	54.31	235.151	
8,300.00	6,945.00	7,355.70	7,105.15	38.23	30.40	-92.75	700.61	-10,899.12	12,870.03	12,815.72	54.31	236.984	
8,400.00	6,945.00	7,355.96	7,105.41	39.42	30.40	-92.77	700.61	-10,899.12	12,969.59	12,915.28	54.31	238.809	
8,500.00	6,945.00	7,356.22	7,105.68	40.65	30.40	-92.78	700.61	-10,899.12	13,069.16	13,014.85	54.31	240.626	
8,600.00	6,945.00	7,356.48	7,105.93	41.90	30.40	-92.79	700.61	-10,899.12	13,168.73	13,114.41	54.32	242.435	
8,700.00	6,945.00	7,356.74	7,106.19	43.17	30.40	-92.80	700.61	-10,899.12	13,268.31	13,213.99	54.33	244.235	
8,800.00	6,945.00	7,356.99	7,106.45	44.46	30.40	-92.82	700.61	-10,899.12	13,367.90	13,313.56	54.33	246.028	
8,900.00	6,945.00	7,357.25	7,106.70	45.78	30.40	-92.83	700.61	-10,899.12	13,467.49	13,413.14	54.35	247.812	
9,000.00	6,945.00	7,357.50	7,106.95	47.11	30.40	-92.84	700.60	-10,899.12	13,567.09	13,512.73	54.36	249.588	
9,100.00	6,945.00	7,357.75	7,107.20	48.46	30.41	-92.85	700.60	-10,899.12	13,666.69	13,612.32	54.37	251.356	

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 705H
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 705H	**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 #3	**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
9,200.00	6,945.00	7,358.00	7,107.45	49.82	30.41	-92.86	700.60	-10,899.11	13,766.30	13,711.91	54.39	253.115	
9,300.00	6,945.00	7,358.25	7,107.70	51.20	30.41	-92.87	700.60	-10,899.11	13,865.92	13,811.51	54.40	254.867	
9,400.00	6,945.00	7,358.49	7,107.94	52.59	30.41	-92.89	700.60	-10,899.11	13,965.54	13,911.12	54.42	256.610	
9,500.00	6,945.00	7,358.73	7,108.19	53.99	30.41	-92.90	700.60	-10,899.11	14,065.17	14,010.72	54.44	258.345	
9,600.00	6,945.00	7,358.97	7,108.43	55.40	30.41	-92.91	700.60	-10,899.11	14,164.80	14,110.33	54.47	260.071	
9,700.00	6,945.00	7,359.21	7,108.67	56.83	30.41	-92.92	700.60	-10,899.11	14,264.43	14,209.95	54.49	261.789	
9,800.00	6,945.00	7,359.45	7,108.91	58.26	30.41	-92.93	700.60	-10,899.11	14,364.08	14,309.56	54.51	263.499	
9,900.00	6,945.00	7,359.69	7,109.14	59.70	30.41	-92.94	700.60	-10,899.11	14,463.72	14,409.18	54.54	265.201	
10,000.00	6,945.00	7,359.92	7,109.38	61.15	30.41	-92.95	700.60	-10,899.11	14,563.37	14,508.81	54.57	266.894	
10,100.00	6,945.00	7,360.16	7,109.61	62.61	30.41	-92.96	700.59	-10,899.11	14,663.03	14,608.43	54.59	268.579	
10,200.00	6,945.00	7,360.39	7,109.84	64.07	30.41	-92.98	700.59	-10,899.11	14,762.69	14,708.07	54.62	270.255	
10,300.00	6,945.00	7,360.62	7,110.07	65.54	30.41	-92.99	700.59	-10,899.10	14,862.36	14,807.70	54.66	271.924	
10,400.00	6,945.00	7,360.85	7,110.30	67.02	30.41	-93.00	700.59	-10,899.10	14,962.03	14,907.34	54.69	273.584	
10,500.00	6,945.00	7,361.08	7,110.53	68.50	30.42	-93.01	700.59	-10,899.10	15,061.70	15,006.98	54.72	275.235	
10,600.00	6,945.00	7,361.30	7,110.75	69.99	30.42	-93.02	700.59	-10,899.10	15,161.38	15,106.62	54.76	276.878	
10,700.00	6,945.00	7,361.53	7,110.98	71.48	30.42	-93.03	700.59	-10,899.10	15,261.06	15,206.27	54.79	278.513	
10,800.00	6,945.00	7,361.75	7,111.20	72.98	30.42	-93.04	700.59	-10,899.10	15,360.75	15,305.92	54.83	280.140	
10,900.00	6,945.00	7,361.97	7,111.42	74.48	30.42	-93.05	700.59	-10,899.10	15,460.44	15,405.57	54.87	281.758	
11,000.00	6,945.00	7,362.19	7,111.64	75.99	30.42	-93.06	700.59	-10,899.10	15,560.13	15,505.22	54.91	283.368	
11,100.00	6,945.00	7,362.41	7,111.86	77.50	30.42	-93.07	700.58	-10,899.10	15,659.83	15,604.88	54.95	284.970	
11,200.00	6,945.00	7,362.63	7,112.08	79.01	30.42	-93.08	700.58	-10,899.10	15,759.54	15,704.54	55.00	286.563	
11,300.00	6,945.00	7,362.84	7,112.29	80.53	30.42	-93.09	700.58	-10,899.10	15,859.24	15,804.20	55.04	288.148	
11,400.00	6,945.00	7,363.06	7,112.51	82.05	30.42	-93.10	700.58	-10,899.09	15,958.95	15,903.87	55.08	289.724	
11,500.00	6,945.00	7,363.27	7,112.72	83.57	30.42	-93.11	700.58	-10,899.09	16,058.67	16,003.54	55.13	291.293	
11,600.00	6,945.00	7,363.48	7,112.93	85.10	30.42	-93.12	700.58	-10,899.09	16,158.38	16,103.21	55.18	292.853	
11,700.00	6,945.00	7,363.69	7,113.14	86.63	30.42	-93.13	700.58	-10,899.09	16,258.10	16,202.88	55.22	294.405	
11,800.00	6,945.00	7,363.90	7,113.35	88.16	30.42	-93.14	700.58	-10,899.09	16,357.83	16,302.56	55.27	295.948	
11,900.00	6,945.00	7,364.11	7,113.56	89.69	30.42	-93.15	700.58	-10,899.09	16,457.56	16,402.23	55.32	297.484	
12,000.00	6,945.00	7,364.31	7,113.77	91.23	30.42	-93.16	700.58	-10,899.09	16,557.29	16,501.91	55.37	299.011	
12,100.00	6,945.00	7,364.52	7,113.97	92.77	30.42	-93.17	700.57	-10,899.09	16,657.02	16,601.59	55.43	300.529	
12,200.00	6,945.00	7,364.72	7,114.17	94.31	30.43	-93.18	700.57	-10,899.09	16,756.76	16,701.28	55.48	302.040	
12,300.00	6,945.00	7,364.92	7,114.38	95.85	30.43	-93.19	700.57	-10,899.09	16,856.50	16,800.96	55.53	303.543	
12,400.00	6,945.00	7,365.13	7,114.58	97.40	30.43	-93.20	700.57	-10,899.09	16,956.24	16,900.65	55.59	305.037	
12,500.00	6,945.00	7,365.33	7,114.78	98.95	30.43	-93.21	700.57	-10,899.09	17,055.99	17,000.34	55.64	306.523	
12,600.00	6,945.00	7,365.52	7,114.98	100.50	30.43	-93.22	700.57	-10,899.09	17,155.74	17,100.04	55.70	308.001	
12,700.00	6,945.00	7,365.72	7,115.17	102.05	30.43	-93.23	700.57	-10,899.09	17,255.49	17,199.73	55.76	309.471	
12,800.00	6,945.00	7,365.92	7,115.37	103.60	30.43	-93.24	700.57	-10,899.08	17,355.24	17,299.43	55.82	310.933	
12,900.00	6,945.00	7,366.11	7,115.56	105.15	30.43	-93.25	700.57	-10,899.08	17,455.00	17,399.12	55.88	312.386	
13,000.00	6,945.00	7,366.31	7,115.76	106.71	30.43	-93.26	700.57	-10,899.08	17,554.76	17,498.82	55.94	313.832	
13,100.00	6,945.00	7,366.50	7,115.95	108.26	30.43	-93.26	700.57	-10,899.08	17,654.52	17,598.53	56.00	315.270	
13,200.00	6,945.00	7,366.69	7,116.14	109.82	30.43	-93.27	700.56	-10,899.08	17,754.29	17,698.23	56.06	316.699	
13,300.00	6,945.00	7,366.88	7,116.33	111.38	30.43	-93.28	700.56	-10,899.08	17,854.06	17,797.93	56.12	318.121	
13,400.00	6,945.00	7,367.07	7,116.52	112.94	30.43	-93.29	700.56	-10,899.08	17,953.83	17,897.64	56.19	319.535	
13,500.00	6,945.00	7,367.26	7,116.71	114.50	30.43	-93.30	700.56	-10,899.08	18,053.60	17,997.35	56.25	320.940	
13,600.00	6,945.00	7,367.44	7,116.90	116.07	30.43	-93.31	700.56	-10,899.08	18,153.38	18,097.06	56.32	322.338	
13,700.00	6,945.00	7,367.63	7,117.08	117.63	30.43	-93.32	700.56	-10,899.08	18,253.16	18,196.77	56.38	323.728	
13,800.00	6,945.00	7,367.81	7,117.27	119.19	30.43	-93.33	700.56	-10,899.08	18,352.94	18,296.49	56.45	325.110	
13,900.00	6,945.00	7,368.00	7,117.45	120.76	30.43	-93.34	700.56	-10,899.08	18,452.72	18,396.20	56.52	326.484	
14,000.00	6,945.00	7,368.18	7,117.63	122.33	30.44	-93.34	700.56	-10,899.08	18,552.51	18,495.92	56.59	327.851	
14,100.00	6,945.00	7,368.36	7,117.81	123.90	30.44	-93.35	700.56	-10,899.08	18,652.29	18,595.64	56.66	329.209	
14,200.00	6,945.00	7,368.54	7,117.99	125.46	30.44	-93.36	700.56	-10,899.08	18,752.09	18,695.36	56.73	330.560	
14,300.00	6,945.00	7,368.72	7,118.17	127.03	30.44	-93.37	700.55	-10,899.07	18,851.88	18,795.08	56.80	331.903	

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 705H
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 705H	**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 #3	**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
14,400.00	6,945.00	7,368.90	7,118.35	128.60	30.44	-93.38	700.55	-10,899.07	18,951.67	18,894.80	56.87	333.239	
14,500.00	6,945.00	7,375.00	7,124.45	130.18	30.45	-93.67	700.52	-10,899.05	19,051.47	18,994.51	56.96	334.449	
14,600.00	6,945.00	7,375.00	7,124.45	131.75	30.45	-93.67	700.52	-10,899.05	19,151.27	19,094.23	57.04	335.773	
14,700.00	6,945.00	7,375.00	7,124.45	133.32	30.45	-93.67	700.52	-10,899.05	19,251.07	19,193.96	57.11	337.088	
14,800.00	6,945.00	7,375.00	7,124.45	134.89	30.45	-93.67	700.52	-10,899.05	19,350.87	19,293.69	57.18	338.396	
14,900.00	6,945.00	7,375.00	7,124.45	136.47	30.45	-93.67	700.52	-10,899.05	19,450.68	19,393.42	57.26	339.697	
15,000.00	6,945.00	7,375.00	7,124.45	138.04	30.45	-93.67	700.52	-10,899.05	19,550.48	19,493.15	57.33	340.990	
15,100.00	6,945.00	7,375.00	7,124.45	139.62	30.45	-93.67	700.52	-10,899.05	19,650.29	19,592.88	57.41	342.276	
15,200.00	6,945.00	7,375.00	7,124.45	141.20	30.45	-93.67	700.52	-10,899.05	19,750.10	19,692.62	57.49	343.554	
15,300.00	6,945.00	7,375.00	7,124.45	142.77	30.45	-93.67	700.52	-10,899.05	19,849.92	19,792.35	57.57	344.824	
15,400.00	6,945.00	7,375.00	7,124.45	144.35	30.45	-93.67	700.52	-10,899.05	19,949.73	19,892.09	57.64	346.088	
15,500.00	6,945.00	7,375.00	7,124.45	145.93	30.45	-93.67	700.52	-10,899.05	20,049.55	19,991.83	57.72	347.344	
15,600.00	6,945.00	7,375.00	7,124.45	147.51	30.45	-93.67	700.52	-10,899.05	20,149.37	20,091.56	57.80	348.592	
15,700.00	6,945.00	7,375.00	7,124.45	149.09	30.45	-93.67	700.52	-10,899.05	20,249.19	20,191.30	57.88	349.834	
15,800.00	6,945.00	7,375.00	7,124.45	150.67	30.45	-93.67	700.52	-10,899.05	20,349.01	20,291.04	57.96	351.068	
15,900.00	6,945.00	7,375.00	7,124.45	152.25	30.45	-93.67	700.52	-10,899.05	20,448.83	20,390.79	58.04	352.295	
16,000.00	6,945.00	7,375.00	7,124.45	153.83	30.45	-93.67	700.52	-10,899.05	20,548.66	20,490.53	58.13	353.514	
16,100.00	6,945.00	7,375.00	7,124.45	155.41	30.45	-93.67	700.52	-10,899.05	20,648.48	20,590.27	58.21	354.727	
16,200.00	6,945.00	7,375.00	7,124.45	156.99	30.45	-93.67	700.52	-10,899.05	20,748.31	20,690.02	58.29	355.932	
16,300.00	6,945.00	7,375.00	7,124.45	158.57	30.45	-93.67	700.52	-10,899.05	20,848.14	20,789.77	58.38	357.131	
16,400.00	6,945.00	7,375.00	7,124.45	160.15	30.45	-93.67	700.52	-10,899.05	20,947.97	20,889.51	58.46	358.322	
16,500.00	6,945.00	7,375.00	7,124.45	161.74	30.45	-93.67	700.52	-10,899.05	21,047.81	20,989.26	58.55	359.507	
16,600.00	6,945.00	7,375.00	7,124.45	163.32	30.45	-93.67	700.52	-10,899.05	21,147.64	21,089.01	58.63	360.684	
16,700.00	6,945.00	7,375.00	7,124.45	164.90	30.45	-93.67	700.52	-10,899.05	21,247.48	21,188.76	58.72	361.854	
16,800.00	6,945.00	7,375.00	7,124.45	166.49	30.45	-93.67	700.52	-10,899.05	21,347.32	21,288.51	58.81	363.018	
16,900.00	6,945.00	7,375.00	7,124.45	168.07	30.45	-93.67	700.52	-10,899.05	21,447.16	21,388.26	58.89	364.175	
17,000.00	6,945.00	7,375.00	7,124.45	169.66	30.45	-93.67	700.52	-10,899.05	21,547.00	21,488.02	58.98	365.324	
17,100.00	6,945.00	7,375.00	7,124.45	171.24	30.45	-93.67	700.52	-10,899.05	21,646.84	21,587.77	59.07	366.467	
17,200.00	6,945.00	7,375.00	7,124.45	172.83	30.45	-93.67	700.52	-10,899.05	21,746.69	21,687.53	59.16	367.604	
17,300.00	6,945.00	7,375.00	7,124.45	174.41	30.45	-93.67	700.52	-10,899.05	21,846.53	21,787.28	59.25	368.733	
17,400.00	6,945.00	7,375.00	7,124.45	176.00	30.45	-93.67	700.52	-10,899.05	21,946.38	21,887.04	59.34	369.856	
17,500.00	6,945.00	7,375.00	7,124.45	177.59	30.45	-93.67	700.52	-10,899.05	22,046.23	21,986.80	59.43	370.972	
17,600.00	6,945.00	7,375.00	7,124.45	179.17	30.45	-93.67	700.52	-10,899.05	22,146.08	22,086.56	59.52	372.082	
17,700.00	6,945.00	7,375.00	7,124.45	180.76	30.45	-93.67	700.52	-10,899.05	22,245.93	22,186.32	59.61	373.185	
17,800.00	6,945.00	7,375.00	7,124.45	182.35	30.45	-93.67	700.52	-10,899.05	22,345.78	22,286.08	59.70	374.282	
17,900.00	6,945.00	7,375.00	7,124.45	183.93	30.45	-93.67	700.52	-10,899.05	22,445.63	22,385.84	59.80	375.372	
18,000.00	6,945.00	7,375.00	7,124.45	185.52	30.45	-93.67	700.52	-10,899.05	22,545.49	22,485.60	59.89	376.455	
18,100.00	6,945.00	7,375.00	7,124.45	187.11	30.45	-93.67	700.52	-10,899.05	22,645.34	22,585.36	59.98	377.532	
18,200.00	6,945.00	6,225.00	6,017.97	188.70	27.05	-50.27	729.72	-10,874.11	22,745.14	22,688.70	56.44	402.998	
18,300.00	6,945.00	6,225.00	6,017.97	190.29	27.05	-50.27	729.72	-10,874.11	22,844.89	22,788.35	56.54	404.075	
18,400.00	6,945.00	6,225.00	6,017.97	191.88	27.05	-50.27	729.72	-10,874.11	22,944.64	22,888.01	56.63	405.145	
18,500.00	6,945.00	6,225.00	6,017.97	193.46	27.05	-50.27	729.72	-10,874.11	23,044.40	22,987.67	56.73	406.208	
18,600.00	6,945.00	6,225.00	6,017.97	195.05	27.05	-50.27	729.72	-10,874.11	23,144.15	23,087.33	56.83	407.264	
18,700.00	6,945.00	6,225.00	6,017.97	196.64	27.05	-50.27	729.72	-10,874.11	23,243.91	23,186.99	56.93	408.313	
18,800.00	6,945.00	6,225.00	6,017.97	198.23	27.05	-50.27	729.72	-10,874.11	23,343.67	23,286.65	57.03	409.356	
18,900.00	6,945.00	6,225.00	6,017.97	199.82	27.05	-50.27	729.72	-10,874.11	23,443.44	23,386.31	57.12	410.392	
19,000.00	6,945.00	6,225.00	6,017.97	201.41	27.05	-50.27	729.72	-10,874.11	23,543.20	23,485.98	57.22	411.421	
19,100.00	6,945.00	6,225.00	6,017.97	203.00	27.05	-50.27	729.72	-10,874.11	23,642.97	23,585.64	57.32	412.443	
19,200.00	6,945.00	6,225.00	6,017.97	204.60	27.05	-50.27	729.72	-10,874.11	23,742.74	23,685.31	57.42	413.459	
19,300.00	6,945.00	6,225.00	6,017.97	206.19	27.05	-50.27	729.72	-10,874.11	23,842.51	23,784.98	57.53	414.469	
19,400.00	6,945.00	6,225.00	6,017.97	207.78	27.05	-50.27	729.72	-10,874.11	23,942.28	23,884.65	57.63	415.472	
19,500.00	6,945.00	6,225.00	6,017.97	209.37	27.05	-50.27	729.72	-10,874.11	24,042.06	23,984.33	57.73	416.468	

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 705H
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 705H	**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 #3	**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
19,600.00	6,945.00	6,225.00	6,017.97	210.96	27.05	-50.27	729.72	-10,874.11	24,141.83	24,084.00	57.83	417.458	
19,700.00	6,945.00	6,225.00	6,017.97	212.55	27.05	-50.27	729.72	-10,874.11	24,241.61	24,183.68	57.93	418.442	
19,800.00	6,945.00	6,225.00	6,017.97	214.14	27.05	-50.27	729.72	-10,874.11	24,341.39	24,283.35	58.04	419.419	
19,900.00	6,945.00	6,225.00	6,017.97	215.74	27.05	-50.27	729.72	-10,874.11	24,441.17	24,383.03	58.14	420.390	
20,000.00	6,945.00	6,225.00	6,017.97	217.33	27.05	-50.27	729.72	-10,874.11	24,540.96	24,482.71	58.24	421.355	
20,100.00	6,945.00	6,225.00	6,017.97	218.92	27.05	-50.27	729.72	-10,874.11	24,640.74	24,582.39	58.35	422.314	
20,200.00	6,945.00	6,225.00	6,017.97	220.51	27.05	-50.27	729.72	-10,874.11	24,740.53	24,682.08	58.45	423.266	
20,300.00	6,945.00	6,225.00	6,017.97	222.11	27.05	-50.27	729.72	-10,874.11	24,840.32	24,781.76	58.56	424.213	
20,400.00	6,945.00	6,225.00	6,017.97	223.70	27.05	-50.27	729.72	-10,874.11	24,940.11	24,881.45	58.66	425.153	
20,500.00	6,945.00	6,225.00	6,017.97	225.29	27.05	-50.27	729.72	-10,874.11	25,039.90	24,981.13	58.77	426.087	
20,600.00	6,945.00	6,225.00	6,017.97	226.88	27.05	-50.27	729.72	-10,874.11	25,139.69	25,080.82	58.87	427.016	
20,700.00	6,945.00	6,225.00	6,017.97	228.48	27.05	-50.27	729.72	-10,874.11	25,239.49	25,180.51	58.98	427.938	
20,741.48	6,945.00	6,225.00	6,017.97	229.14	27.05	-50.27	729.72	-10,874.11	25,280.88	25,221.86	59.02	428.319	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 705H
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 705H	**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 #3	**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	Warning
0.00	0.00	161.55	161.55	0.00	0.48	-115.22	-1,627.41	-3,455.97	3,819.98				
100.00	100.00	257.06	257.06	0.25	0.81	-115.22	-1,627.38	-3,455.98	3,819.98	3,818.92	1.06	3,596.905	
200.00	200.00	362.71	362.71	0.61	1.18	-115.21	-1,627.48	-3,456.26	3,820.26	3,818.47	1.79	2,133.928	
300.00	300.00	440.31	440.31	0.97	1.45	-115.21	-1,627.47	-3,456.46	3,820.53	3,818.10	2.42	1,578.645	
400.00	400.00	550.00	550.00	1.33	1.84	-115.22	-1,627.84	-3,456.71	3,820.85	3,817.69	3.16	1,208.228	
500.00	500.00	650.00	649.99	1.68	2.19	-115.22	-1,628.41	-3,456.92	3,821.28	3,817.41	3.87	987.233	
600.00	599.98	756.33	756.32	2.03	2.56	97.05	-1,629.13	-3,457.12	3,821.97	3,817.39	4.59	833.528	ES
700.00	699.84	845.83	845.82	2.37	2.87	97.10	-1,629.45	-3,457.41	3,823.05	3,817.82	5.23	730.434	
795.17	794.65	945.55	945.54	2.69	3.22	97.20	-1,629.35	-3,457.74	3,824.32	3,818.41	5.91	646.926	
800.00	799.45	950.33	950.32	2.71	3.24	97.21	-1,629.34	-3,457.77	3,824.40	3,818.46	5.95	643.275	
900.00	898.92	1,069.46	1,069.45	3.06	3.65	97.40	-1,628.83	-3,458.15	3,825.82	3,819.11	6.72	569.641	
1,000.00	998.39	1,174.93	1,174.91	3.43	4.02	97.58	-1,627.71	-3,458.58	3,827.11	3,819.66	7.45	514.014	
1,100.00	1,097.86	1,261.27	1,261.24	3.79	4.32	97.73	-1,626.48	-3,458.96	3,828.30	3,820.19	8.11	471.879	
1,200.00	1,197.33	1,368.43	1,368.39	4.16	4.70	97.92	-1,625.22	-3,459.53	3,829.71	3,820.86	8.86	432.429	
1,300.00	1,296.80	1,451.87	1,451.82	4.53	4.99	98.06	-1,624.03	-3,460.13	3,831.22	3,821.70	9.52	402.457	
1,400.00	1,396.27	1,561.06	1,561.00	4.91	5.37	98.25	-1,622.56	-3,460.80	3,832.69	3,822.41	10.27	373.023	
1,500.00	1,495.74	1,673.94	1,673.86	5.28	5.76	98.45	-1,621.09	-3,461.45	3,834.20	3,823.15	11.04	347.173	
1,600.00	1,595.21	1,780.89	1,780.81	5.66	6.14	98.63	-1,619.77	-3,461.73	3,835.50	3,823.70	11.79	325.216	
1,700.00	1,694.68	1,876.32	1,876.23	6.04	6.47	98.79	-1,618.50	-3,461.79	3,836.58	3,824.08	12.50	306.827	
1,800.00	1,794.15	1,975.90	1,975.80	6.42	6.82	98.96	-1,617.37	-3,461.83	3,837.77	3,824.54	13.23	290.086	
1,900.00	1,893.62	2,070.71	2,070.61	6.80	7.15	99.11	-1,616.63	-3,461.84	3,839.09	3,825.15	13.94	275.412	
2,000.00	1,993.09	2,175.04	2,174.94	7.18	7.51	99.28	-1,615.93	-3,461.85	3,840.49	3,825.81	14.68	261.561	
2,100.00	2,092.56	2,264.03	2,263.93	7.56	7.83	99.42	-1,615.33	-3,461.88	3,841.93	3,826.55	15.37	249.906	
2,200.00	2,192.03	2,350.00	2,349.89	7.94	8.13	99.56	-1,614.97	-3,462.05	3,843.65	3,827.59	16.05	239.423	
2,300.00	2,291.50	2,432.52	2,432.41	8.32	8.42	99.69	-1,614.77	-3,462.39	3,845.69	3,828.96	16.72	229.973	
2,400.00	2,390.97	2,537.01	2,536.90	8.70	8.78	99.85	-1,614.81	-3,463.10	3,848.10	3,830.63	17.47	220.282	
2,500.00	2,490.44	2,638.86	2,638.75	9.08	9.14	100.01	-1,614.54	-3,463.75	3,850.37	3,832.16	18.21	211.484	
2,600.00	2,589.91	2,751.33	2,751.21	9.47	9.53	100.20	-1,613.84	-3,464.37	3,852.46	3,833.48	18.98	202.961	
2,700.00	2,689.38	2,856.87	2,856.75	9.85	9.90	100.36	-1,613.30	-3,464.67	3,854.38	3,834.65	19.73	195.340	
2,800.00	2,788.85	2,950.00	2,949.88	10.23	10.23	100.51	-1,612.82	-3,464.83	3,856.23	3,835.79	20.44	188.676	
2,900.00	2,888.32	3,044.57	3,044.45	10.61	10.56	100.65	-1,612.71	-3,464.95	3,858.21	3,837.06	21.15	182.419	
3,000.00	2,987.79	3,128.70	3,128.58	11.00	10.85	100.78	-1,612.86	-3,465.25	3,860.53	3,838.71	21.83	176.879	
3,100.00	3,087.25	3,208.86	3,208.73	11.38	11.13	100.90	-1,613.31	-3,465.74	3,863.28	3,840.79	22.49	171.801	
3,200.00	3,186.72	3,308.80	3,308.67	11.76	11.48	101.03	-1,614.69	-3,466.35	3,866.32	3,843.10	23.22	166.517	
3,300.00	3,286.19	3,431.77	3,431.61	12.15	11.91	101.18	-1,617.14	-3,466.49	3,869.13	3,845.10	24.03	160.994	
3,400.00	3,385.66	3,524.53	3,524.35	12.53	12.23	101.30	-1,618.64	-3,466.62	3,871.85	3,847.11	24.74	156.509	
3,500.00	3,485.13	3,637.09	3,636.91	12.91	12.62	101.45	-1,620.15	-3,466.49	3,874.24	3,848.73	25.52	151.838	
3,600.00	3,584.60	3,734.53	3,734.34	13.30	12.96	101.58	-1,621.14	-3,466.64	3,876.82	3,850.58	26.24	147.752	
3,700.00	3,684.07	3,849.35	3,849.15	13.68	13.36	101.73	-1,622.32	-3,466.42	3,879.09	3,852.06	27.02	143.548	
3,800.00	3,783.54	3,933.97	3,933.77	14.06	13.65	101.85	-1,623.02	-3,466.37	3,881.42	3,853.72	27.70	140.121	
3,900.00	3,883.01	4,020.36	4,020.15	14.45	13.96	101.96	-1,624.14	-3,466.51	3,884.15	3,855.77	28.38	136.843	
4,000.00	3,982.48	4,122.83	4,122.61	14.83	14.31	102.09	-1,626.00	-3,466.59	3,887.01	3,857.88	29.13	133.459	
4,100.00	4,081.95	4,209.74	4,209.50	15.22	14.62	102.20	-1,627.50	-3,466.72	3,889.93	3,860.11	29.81	130.489	
4,200.00	4,181.42	4,283.04	4,282.78	15.60	14.87	102.29	-1,629.02	-3,467.21	3,893.45	3,863.00	30.45	127.882	
4,300.00	4,280.89	4,364.44	4,364.14	15.98	15.16	102.38	-1,631.40	-3,468.02	3,897.57	3,866.46	31.11	125.284	
4,400.00	4,380.36	4,450.00	4,449.65	16.37	15.46	102.47	-1,634.32	-3,469.00	3,902.05	3,870.26	31.79	122.749	
4,500.00	4,479.83	4,531.51	4,531.10	16.75	15.74	102.56	-1,637.24	-3,470.25	3,906.95	3,874.50	32.45	120.391	
4,600.00	4,579.30	4,604.69	4,604.21	17.14	16.00	102.64	-1,639.88	-3,471.74	3,912.37	3,879.29	33.08	118.258	
4,700.00	4,678.77	4,707.57	4,706.98	17.52	16.36	102.74	-1,644.06	-3,474.17	3,918.23	3,884.40	33.83	115.831	
4,800.00	4,778.24	4,784.18	4,783.51	17.90	16.62	102.82	-1,646.89	-3,476.25	3,924.32	3,889.85	34.47	113.848	
4,900.00	4,877.71	4,882.15	4,881.35	18.29	16.97	102.93	-1,650.80	-3,479.40	3,930.98	3,895.79	35.19	111.692	
5,000.00	4,977.18	4,965.55	4,964.66	18.67	17.26	103.02	-1,653.78	-3,482.17	3,937.62	3,901.76	35.86	109.796	

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 705H
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 705H	**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 #3	**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	Warning
5,100.00	5,076.65	5,061.97	5,060.96	19.06	17.60	103.13	-1,657.17	-3,485.48	3,944.38	3,907.80	36.58	107.824	
5,200.00	5,176.12	5,150.00	5,148.88	19.44	17.90	103.23	-1,660.27	-3,488.57	3,951.24	3,913.97	37.27	106.024	
5,300.00	5,275.59	5,250.00	5,248.74	19.83	18.25	103.34	-1,664.02	-3,492.20	3,958.28	3,920.28	38.00	104.165	
5,400.00	5,375.06	5,350.00	5,348.60	20.21	18.60	103.46	-1,667.62	-3,495.95	3,965.39	3,926.66	38.73	102.377	
5,500.00	5,474.53	5,456.47	5,454.93	20.59	18.98	103.58	-1,671.34	-3,500.03	3,972.57	3,933.08	39.49	100.593	
5,600.00	5,574.00	5,559.12	5,557.45	20.98	19.34	103.70	-1,674.91	-3,503.81	3,979.61	3,939.38	40.23	98.909	
5,700.00	5,673.47	5,660.64	5,658.84	21.36	19.69	103.81	-1,678.29	-3,507.53	3,986.61	3,945.64	40.97	97.296	
5,800.00	5,772.94	5,756.63	5,754.71	21.75	20.03	103.92	-1,681.53	-3,511.08	3,993.68	3,951.98	41.69	95.792	
5,900.00	5,872.41	5,850.90	5,848.86	22.13	20.36	104.03	-1,684.89	-3,514.58	4,000.82	3,958.42	42.40	94.355	
6,000.00	5,971.88	5,950.00	5,947.83	22.52	20.71	104.14	-1,688.48	-3,518.18	4,007.92	3,964.79	43.13	92.924	
6,100.00	6,071.35	6,050.00	6,047.70	22.90	21.06	104.24	-1,692.22	-3,521.70	4,014.97	3,971.10	43.86	91.531	
6,200.00	6,170.81	6,141.67	6,139.23	23.28	21.38	104.34	-1,695.66	-3,525.09	4,022.21	3,977.65	44.56	90.256	
6,300.00	6,270.28	6,238.55	6,235.97	23.67	21.72	104.45	-1,699.39	-3,528.89	4,029.71	3,984.43	45.29	88.986	
6,375.94	6,345.82	6,308.72	6,306.03	23.96	21.96	104.52	-1,702.06	-3,531.76	4,035.51	3,989.69	45.82	88.076	
6,400.00	6,369.72	6,325.00	6,322.29	24.05	22.02	118.95	-1,702.68	-3,532.47	4,037.83	3,991.87	45.96	87.847	
6,450.00	6,419.09	6,375.00	6,372.21	24.25	22.19	134.94	-1,704.49	-3,534.54	4,045.31	3,998.97	46.34	87.304	
6,500.00	6,467.78	6,419.18	6,416.31	24.46	22.35	142.34	-1,706.08	-3,536.56	4,056.64	4,009.95	46.69	86.890	
6,550.00	6,515.51	6,458.63	6,455.70	24.67	22.49	146.27	-1,707.53	-3,538.35	4,071.58	4,024.56	47.02	86.592	
6,600.00	6,561.97	6,512.89	6,509.87	24.88	22.68	148.54	-1,709.41	-3,540.80	4,090.00	4,042.59	47.41	86.264	
6,650.00	6,606.89	6,548.15	6,545.06	25.10	22.80	149.76	-1,710.73	-3,542.41	4,111.89	4,064.17	47.73	86.156	
6,700.00	6,649.98	6,600.00	6,596.84	25.32	22.98	150.38	-1,712.59	-3,544.63	4,136.92	4,088.82	48.10	85.999	
6,750.00	6,690.98	6,667.26	6,664.00	25.54	23.22	150.57	-1,715.05	-3,547.34	4,165.01	4,116.46	48.54	85.805 SF	
6,800.00	6,729.64	6,693.57	6,690.27	25.77	23.31	150.14	-1,716.03	-3,548.33	4,196.01	4,147.20	48.80	85.975	
6,850.00	6,765.71	6,758.43	6,755.05	26.00	23.54	149.52	-1,718.20	-3,550.66	4,229.65	4,180.43	49.22	85.936	
6,900.00	6,798.98	6,831.22	6,827.78	26.24	23.79	148.57	-1,720.43	-3,552.84	4,265.77	4,216.11	49.66	85.907	
6,950.00	6,829.24	6,861.53	6,858.06	26.49	23.90	146.85	-1,721.35	-3,553.60	4,304.11	4,254.20	49.91	86.230	
7,000.00	6,856.30	6,912.66	6,909.16	26.76	24.08	144.74	-1,722.70	-3,554.70	4,344.51	4,294.26	50.25	86.464	
7,050.00	6,880.00	6,932.67	6,929.16	27.03	24.15	141.52	-1,723.28	-3,555.09	4,386.83	4,336.39	50.45	86.961	
7,100.00	6,900.19	6,952.96	6,949.44	27.32	24.22	137.21	-1,723.83	-3,555.49	4,430.87	4,380.23	50.64	87.504	
7,150.00	6,916.74	6,986.32	6,982.79	27.62	24.34	131.70	-1,724.62	-3,556.10	4,476.28	4,425.42	50.87	87.997	
7,200.00	6,929.56	7,003.42	6,999.87	27.93	24.40	123.85	-1,725.01	-3,556.37	4,522.83	4,471.80	51.03	88.637	
7,250.00	6,938.57	7,011.72	7,008.17	28.26	24.43	112.98	-1,725.20	-3,556.50	4,570.25	4,519.11	51.14	89.366	
7,300.00	6,943.70	7,016.11	7,012.56	28.60	24.44	98.80	-1,725.30	-3,556.57	4,618.26	4,567.02	51.23	90.147	
7,340.76	6,945.00	7,016.78	7,013.23	28.88	24.44	85.35	-1,725.31	-3,556.58	4,657.61	4,606.32	51.29	90.815	
7,400.00	6,945.00	7,015.85	7,012.30	29.31	24.44	85.30	-1,725.29	-3,556.57	4,714.90	4,663.54	51.36	91.806	
7,500.00	6,945.00	7,014.30	7,010.75	30.09	24.44	85.23	-1,725.26	-3,556.54	4,811.71	4,760.24	51.48	93.476	
7,600.00	6,945.00	7,012.74	7,009.19	30.93	24.43	85.16	-1,725.22	-3,556.52	4,908.65	4,857.06	51.59	95.142	
7,700.00	6,945.00	7,011.19	7,007.64	31.83	24.42	85.08	-1,725.19	-3,556.49	5,005.71	4,954.00	51.71	96.803	
7,800.00	6,945.00	7,009.64	7,006.09	32.79	24.42	85.01	-1,725.15	-3,556.47	5,102.88	5,051.05	51.83	98.461	
7,900.00	6,945.00	7,008.09	7,004.54	33.79	24.41	84.93	-1,725.12	-3,556.45	5,200.15	5,148.21	51.94	100.115	
8,000.00	6,945.00	7,006.55	7,003.00	34.84	24.41	84.86	-1,725.08	-3,556.42	5,297.53	5,245.48	52.06	101.765	
8,100.00	6,945.00	7,005.00	7,001.46	35.93	24.40	84.78	-1,725.05	-3,556.40	5,395.01	5,342.84	52.17	103.412	
8,200.00	6,945.00	7,003.46	6,999.92	37.06	24.40	84.71	-1,725.01	-3,556.37	5,492.57	5,440.29	52.28	105.056	
8,300.00	6,945.00	7,003.62	7,000.08	38.23	24.40	84.72	-1,725.02	-3,556.38	5,590.22	5,537.82	52.40	106.682	
8,400.00	6,945.00	7,000.75	6,997.21	39.42	24.39	84.58	-1,724.95	-3,556.33	5,687.95	5,635.45	52.51	108.331	
8,500.00	6,945.00	6,997.78	6,994.24	40.65	24.38	84.44	-1,724.88	-3,556.29	5,785.76	5,733.15	52.61	109.977	
8,600.00	6,945.00	6,994.70	6,991.16	41.90	24.37	84.29	-1,724.81	-3,556.24	5,883.64	5,830.93	52.71	111.622	
8,700.00	6,945.00	6,991.52	6,987.98	43.17	24.36	84.14	-1,724.74	-3,556.19	5,981.59	5,928.78	52.81	113.265	
8,800.00	6,945.00	6,988.21	6,984.68	44.46	24.34	83.98	-1,724.66	-3,556.13	6,079.61	6,026.70	52.91	114.907	
8,900.00	6,945.00	6,984.79	6,981.25	45.78	24.33	83.82	-1,724.58	-3,556.07	6,177.69	6,124.68	53.01	116.548	
9,000.00	6,945.00	6,967.90	6,964.37	47.11	24.27	83.01	-1,724.19	-3,555.77	6,275.82	6,222.78	53.05	118.307	
9,100.00	6,945.00	6,966.01	6,962.48	48.46	24.27	82.92	-1,724.14	-3,555.73	6,374.02	6,320.87	53.15	119.930	

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 705H
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 705H	**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 #3	**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	6,945.00	6,971.68	6,968.15	49.82	24.29	83.19	-1,724.29	-3,555.85	6,472.27	6,418.99	53.28	121.481	
9,300.00	6,945.00	6,960.87	6,957.35	51.20	24.25	82.68	-1,724.03	-3,555.64	6,570.57	6,517.23	53.34	123.182	
9,400.00	6,945.00	6,950.00	6,946.48	52.59	24.21	82.16	-1,723.75	-3,555.43	6,668.92	6,615.52	53.40	124.883	
9,500.00	6,945.00	6,948.09	6,944.57	53.99	24.20	82.07	-1,723.70	-3,555.39	6,767.31	6,713.82	53.50	126.497	
9,600.00	6,945.00	6,946.37	6,942.85	55.40	24.20	81.99	-1,723.65	-3,555.36	6,865.75	6,812.16	53.59	128.106	
9,700.00	6,945.00	6,944.66	6,941.14	56.83	24.19	81.91	-1,723.61	-3,555.32	6,964.24	6,910.55	53.69	129.713	
9,800.00	6,945.00	6,942.96	6,939.45	58.26	24.19	81.83	-1,723.56	-3,555.29	7,062.76	7,008.98	53.78	131.317	
9,900.00	6,945.00	6,941.28	6,937.77	59.70	24.18	81.75	-1,723.52	-3,555.26	7,161.33	7,107.45	53.88	132.918	
10,000.00	6,945.00	6,939.62	6,936.10	61.15	24.17	81.67	-1,723.47	-3,555.22	7,259.93	7,205.96	53.97	134.516	
10,100.00	6,945.00	6,937.96	6,934.45	62.61	24.17	81.59	-1,723.42	-3,555.19	7,358.58	7,304.51	54.06	136.111	
10,200.00	6,945.00	6,936.32	6,932.81	64.07	24.16	81.51	-1,723.38	-3,555.16	7,457.25	7,403.10	54.15	137.703	
10,300.00	6,945.00	6,934.69	6,931.18	65.54	24.16	81.44	-1,723.33	-3,555.13	7,555.97	7,501.72	54.25	139.293	
10,400.00	6,945.00	6,933.08	6,929.56	67.02	24.15	81.36	-1,723.29	-3,555.09	7,654.71	7,600.38	54.34	140.879	
10,500.00	6,945.00	6,931.47	6,927.96	68.50	24.14	81.28	-1,723.24	-3,555.06	7,753.49	7,699.07	54.42	142.462	
10,600.00	6,945.00	6,929.88	6,926.37	69.99	24.14	81.21	-1,723.19	-3,555.03	7,852.30	7,797.78	54.51	144.042	
10,700.00	6,945.00	6,928.30	6,924.79	71.48	24.13	81.13	-1,723.15	-3,555.00	7,951.13	7,896.53	54.60	145.619	
10,800.00	6,945.00	6,925.00	6,921.49	72.98	24.12	80.98	-1,723.05	-3,554.94	8,050.00	7,995.32	54.68	147.212	
10,900.00	6,945.00	6,925.00	6,921.49	74.48	24.12	80.98	-1,723.05	-3,554.94	8,148.89	8,094.12	54.78	148.766	
11,000.00	6,945.00	6,925.00	6,921.49	75.99	24.12	80.98	-1,723.05	-3,554.94	8,247.81	8,192.94	54.87	150.316	
11,100.00	6,945.00	6,922.06	6,918.56	77.50	24.11	80.84	-1,722.97	-3,554.88	8,346.76	8,291.81	54.95	151.896	
11,200.00	6,945.00	6,920.51	6,917.01	79.01	24.11	80.76	-1,722.92	-3,554.85	8,445.73	8,390.69	55.04	153.457	
11,300.00	6,945.00	6,918.96	6,915.45	80.53	24.10	80.69	-1,722.88	-3,554.82	8,544.72	8,489.60	55.12	155.016	
11,400.00	6,945.00	6,917.40	6,913.90	82.05	24.10	80.62	-1,722.83	-3,554.79	8,643.73	8,588.53	55.21	156.571	
11,500.00	6,945.00	6,915.85	6,912.35	83.57	24.09	80.55	-1,722.79	-3,554.76	8,742.77	8,687.48	55.29	158.122	
11,600.00	6,945.00	6,914.30	6,910.80	85.10	24.08	80.47	-1,722.75	-3,554.73	8,841.83	8,786.46	55.38	159.671	
11,700.00	6,945.00	6,912.75	6,909.25	86.63	24.08	80.40	-1,722.70	-3,554.70	8,940.91	8,885.45	55.46	161.216	
11,800.00	6,945.00	6,911.20	6,907.70	88.16	24.07	80.33	-1,722.66	-3,554.67	9,040.01	8,984.47	55.54	162.758	
11,900.00	6,945.00	6,850.00	6,846.54	89.69	23.86	77.47	-1,721.00	-3,553.31	9,139.13	9,083.74	55.38	165.014	
12,000.00	6,945.00	6,850.00	6,846.54	91.23	23.86	77.47	-1,721.00	-3,553.31	9,238.25	9,182.78	55.47	166.535	
12,100.00	6,945.00	6,844.37	6,840.91	92.77	23.84	77.21	-1,720.83	-3,553.17	9,337.39	9,281.85	55.54	168.122	
12,200.00	6,945.00	6,842.77	6,839.31	94.31	23.83	77.13	-1,720.78	-3,553.13	9,436.55	9,380.93	55.62	169.656	
12,300.00	6,945.00	6,756.97	6,753.60	95.85	23.53	73.22	-1,718.16	-3,550.61	9,535.72	9,480.36	55.36	172.243	
12,400.00	6,945.00	6,754.35	6,750.97	97.40	23.52	73.11	-1,718.07	-3,550.52	9,634.89	9,579.45	55.44	173.790	
12,500.00	6,945.00	6,752.94	6,749.56	98.95	23.52	73.04	-1,718.02	-3,550.47	9,734.07	9,678.55	55.52	175.317	
12,600.00	6,945.00	6,748.54	6,745.18	100.50	23.50	72.85	-1,717.88	-3,550.32	9,833.27	9,777.68	55.59	176.880	
12,700.00	6,945.00	6,687.96	6,684.66	102.05	23.29	70.18	-1,715.82	-3,548.11	9,932.46	9,877.02	55.44	179.170	
12,800.00	6,945.00	6,686.42	6,683.13	103.60	23.29	70.11	-1,715.76	-3,548.05	10,031.67	9,976.15	55.52	180.693	
12,900.00	6,945.00	6,684.90	6,681.61	105.15	23.28	70.04	-1,715.70	-3,548.00	10,130.89	10,075.29	55.60	182.212	
13,000.00	6,945.00	6,683.39	6,680.11	106.71	23.28	69.98	-1,715.65	-3,547.94	10,230.13	10,174.45	55.68	183.727	
13,100.00	6,945.00	6,675.00	6,671.73	108.26	23.25	69.61	-1,715.33	-3,547.62	10,329.38	10,273.65	55.74	185.330	
13,200.00	6,945.00	6,675.00	6,671.73	109.82	23.25	69.61	-1,715.33	-3,547.62	10,428.65	10,372.82	55.82	186.817	
13,300.00	6,945.00	6,675.00	6,671.73	111.38	23.25	69.61	-1,715.33	-3,547.62	10,527.92	10,472.01	55.91	188.300	
13,400.00	6,945.00	6,675.00	6,671.73	112.94	23.25	69.61	-1,715.33	-3,547.62	10,627.21	10,571.22	56.00	189.779	
13,500.00	6,945.00	6,679.90	6,676.62	114.50	23.26	69.83	-1,715.52	-3,547.80	10,726.52	10,670.41	56.10	191.187	
13,600.00	6,945.00	6,673.75	6,670.47	116.07	23.24	69.56	-1,715.29	-3,547.58	10,825.83	10,769.66	56.17	192.742	
13,700.00	6,945.00	6,667.51	6,664.25	117.63	23.22	69.29	-1,715.06	-3,547.35	10,925.16	10,868.93	56.23	194.295	
13,800.00	6,945.00	6,600.00	6,596.84	119.19	22.98	66.44	-1,712.59	-3,544.63	11,024.48	10,968.43	56.05	196.699	
13,900.00	6,945.00	6,600.00	6,596.84	120.76	22.98	66.44	-1,712.59	-3,544.63	11,123.80	11,067.67	56.14	198.161	
14,000.00	6,945.00	6,600.00	6,596.84	122.33	22.98	66.44	-1,712.59	-3,544.63	11,223.14	11,166.92	56.22	199.619	
14,100.00	6,945.00	6,592.03	6,588.87	123.90	22.96	66.11	-1,712.29	-3,544.29	11,322.48	11,266.21	56.28	201.186	
14,200.00	6,945.00	6,590.43	6,587.28	125.46	22.95	66.04	-1,712.23	-3,544.22	11,421.84	11,365.48	56.36	202.659	
14,300.00	6,945.00	6,588.84	6,585.70	127.03	22.94	65.97	-1,712.17	-3,544.16	11,521.21	11,464.77	56.44	204.128	

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 705H
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 705H	**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 #3	**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	Warning
14,400.00	6,945.00	6,587.28	6,584.14	128.60	22.94	65.91	-1,712.11	-3,544.09	11,620.59	11,564.07	56.52	205.591	
14,500.00	6,945.00	6,534.80	6,531.74	130.18	22.75	63.78	-1,710.25	-3,541.78	11,719.97	11,663.57	56.40	207.785	
14,600.00	6,945.00	6,532.29	6,529.23	131.75	22.75	63.68	-1,710.15	-3,541.67	11,819.35	11,762.87	56.48	209.257	
14,700.00	6,945.00	6,525.00	6,521.96	133.32	22.72	63.39	-1,709.87	-3,541.34	11,918.74	11,862.20	56.54	210.795	
14,800.00	6,945.00	6,525.00	6,521.96	134.89	22.72	63.39	-1,709.87	-3,541.34	12,018.14	11,961.51	56.63	212.222	
14,900.00	6,945.00	6,525.00	6,521.96	136.47	22.72	63.39	-1,709.87	-3,541.34	12,117.55	12,060.83	56.72	213.645	
15,000.00	6,945.00	6,525.00	6,521.96	138.04	22.72	63.39	-1,709.87	-3,541.34	12,216.96	12,160.16	56.81	215.063	
15,100.00	6,945.00	6,525.00	6,521.96	139.62	22.72	63.39	-1,709.87	-3,541.34	12,316.39	12,259.49	56.89	216.477	
15,200.00	6,945.00	6,518.24	6,515.21	141.20	22.70	63.12	-1,709.61	-3,541.04	12,415.82	12,358.86	56.96	217.986	
15,300.00	6,945.00	6,516.04	6,513.01	142.77	22.69	63.04	-1,709.53	-3,540.94	12,515.26	12,458.22	57.04	219.424	
15,400.00	6,945.00	6,513.85	6,510.83	144.35	22.68	62.95	-1,709.45	-3,540.84	12,614.71	12,557.59	57.12	220.857	
15,500.00	6,945.00	6,511.68	6,508.67	145.93	22.67	62.87	-1,709.37	-3,540.74	12,714.17	12,656.97	57.20	222.285	
15,600.00	6,945.00	6,509.53	6,506.51	147.51	22.67	62.78	-1,709.29	-3,540.65	12,813.63	12,756.35	57.28	223.709	
15,700.00	6,945.00	6,507.38	6,504.37	149.09	22.66	62.70	-1,709.21	-3,540.56	12,913.10	12,855.74	57.36	225.128	
15,800.00	6,945.00	6,491.52	6,488.54	150.67	22.60	62.08	-1,708.67	-3,539.85	13,012.58	12,955.19	57.39	226.751	
15,900.00	6,945.00	6,487.04	6,484.06	152.25	22.59	61.91	-1,708.52	-3,539.65	13,112.06	13,054.60	57.46	228.197	
16,000.00	6,945.00	6,460.81	6,457.88	153.83	22.50	60.90	-1,707.61	-3,538.45	13,211.55	13,154.10	57.45	229.971	
16,100.00	6,945.00	6,455.36	6,452.43	155.41	22.48	60.69	-1,707.40	-3,538.20	13,311.03	13,253.52	57.52	231.426	
16,200.00	6,945.00	6,450.00	6,447.08	156.99	22.46	60.49	-1,707.20	-3,537.95	13,410.53	13,352.94	57.59	232.874	
16,300.00	6,945.00	6,450.00	6,447.08	158.57	22.46	60.49	-1,707.20	-3,537.95	13,510.02	13,452.35	57.68	234.236	
16,400.00	6,945.00	6,450.00	6,447.08	160.15	22.46	60.49	-1,707.20	-3,537.95	13,609.53	13,551.76	57.77	235.592	
16,500.00	6,945.00	6,450.00	6,447.08	161.74	22.46	60.49	-1,707.20	-3,537.95	13,709.04	13,651.19	57.86	236.944	
16,600.00	6,945.00	6,442.31	6,439.40	163.32	22.43	60.20	-1,706.91	-3,537.59	13,808.56	13,750.64	57.92	238.412	
16,700.00	6,945.00	6,440.43	6,437.53	164.90	22.42	60.13	-1,706.84	-3,537.51	13,908.08	13,850.08	58.00	239.784	
16,800.00	6,945.00	6,438.56	6,435.66	166.49	22.42	60.06	-1,706.77	-3,537.42	14,007.61	13,949.53	58.09	241.151	
16,900.00	6,945.00	6,436.71	6,433.81	168.07	22.41	59.99	-1,706.70	-3,537.34	14,107.15	14,048.98	58.17	242.514	
17,000.00	6,945.00	6,434.87	6,431.98	169.66	22.40	59.92	-1,706.63	-3,537.26	14,206.69	14,148.44	58.25	243.871	
17,100.00	6,945.00	6,433.04	6,430.15	171.24	22.40	59.85	-1,706.57	-3,537.18	14,306.24	14,247.90	58.34	245.224	
17,200.00	6,945.00	6,408.19	6,405.34	172.83	22.31	58.93	-1,705.71	-3,536.04	14,405.79	14,347.45	58.34	246.936	
17,300.00	6,945.00	6,403.56	6,400.72	174.41	22.29	58.77	-1,705.55	-3,535.82	14,505.34	14,446.93	58.41	248.325	
17,400.00	6,945.00	6,400.00	6,397.17	176.00	22.28	58.64	-1,705.42	-3,535.66	14,604.90	14,546.41	58.49	249.692	
17,500.00	6,945.00	6,400.00	6,397.17	177.59	22.28	58.64	-1,705.42	-3,535.66	14,704.46	14,645.88	58.58	250.998	
17,600.00	6,945.00	6,400.00	6,397.17	179.17	22.28	58.64	-1,705.42	-3,535.66	14,804.03	14,745.35	58.68	252.300	
17,700.00	6,945.00	6,400.00	6,397.17	180.76	22.28	58.64	-1,705.42	-3,535.66	14,903.60	14,844.83	58.77	253.596	
17,800.00	6,945.00	6,400.00	6,397.17	182.35	22.28	58.64	-1,705.42	-3,535.66	15,003.18	14,944.32	58.86	254.888	
17,900.00	6,945.00	6,389.31	6,386.50	183.93	22.24	58.25	-1,705.05	-3,535.16	15,102.75	15,043.83	58.92	256.347	
18,000.00	6,945.00	6,388.48	6,385.67	185.52	22.24	58.22	-1,705.02	-3,535.12	15,202.34	15,143.33	59.01	257.642	
18,100.00	6,945.00	6,387.66	6,384.85	187.11	22.24	58.19	-1,704.99	-3,535.08	15,301.93	15,242.83	59.10	258.933	
18,200.00	6,945.00	6,386.85	6,384.04	188.70	22.24	58.16	-1,704.96	-3,535.05	15,401.53	15,342.34	59.19	260.219	
18,300.00	6,945.00	6,386.05	6,383.24	190.29	22.23	58.13	-1,704.93	-3,535.01	15,501.13	15,441.85	59.28	261.500	
18,400.00	6,945.00	6,385.26	6,382.45	191.88	22.23	58.10	-1,704.90	-3,534.98	15,600.74	15,541.37	59.37	262.776	
18,500.00	6,945.00	6,375.00	6,372.21	193.46	22.19	57.73	-1,704.49	-3,534.54	15,700.36	15,640.94	59.43	264.204	
18,600.00	6,945.00	6,375.00	6,372.21	195.05	22.19	57.73	-1,704.49	-3,534.54	15,799.98	15,740.46	59.52	265.457	
18,700.00	6,945.00	6,375.00	6,372.21	196.64	22.19	57.73	-1,704.49	-3,534.54	15,899.60	15,839.98	59.61	266.706	
18,800.00	6,945.00	6,375.00	6,372.21	198.23	22.19	57.73	-1,704.49	-3,534.54	15,999.22	15,939.51	59.71	267.951	
18,900.00	6,945.00	6,375.00	6,372.21	199.82	22.19	57.73	-1,704.49	-3,534.54	16,098.85	16,039.05	59.80	269.190	
19,000.00	6,945.00	6,375.00	6,372.21	201.41	22.19	57.73	-1,704.49	-3,534.54	16,198.48	16,138.58	59.90	270.424	
19,100.00	6,945.00	6,375.00	6,372.21	203.00	22.19	57.73	-1,704.49	-3,534.54	16,298.12	16,238.12	60.00	271.654	
19,200.00	6,945.00	6,375.00	6,372.21	204.60	22.19	57.73	-1,704.49	-3,534.54	16,397.76	16,337.67	60.09	272.879	
19,300.00	6,945.00	6,375.00	6,372.21	206.19	22.19	57.73	-1,704.49	-3,534.54	16,497.41	16,437.22	60.19	274.099	
19,400.00	6,945.00	6,375.00	6,372.21	207.78	22.19	57.73	-1,704.49	-3,534.54	16,597.06	16,536.78	60.28	275.314	
19,500.00	6,945.00	6,375.00	6,372.21	209.37	22.19	57.73	-1,704.49	-3,534.54	16,696.71	16,636.33	60.38	276.524	

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 705H
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 705H	**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 #3	**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

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
19,600.00	6,945.00	6,375.00	6,372.21	210.96	22.19	57.73	-1,704.49	-3,534.54	16,796.37	16,735.90	60.48	277.730	
19,700.00	6,945.00	6,375.00	6,372.21	212.55	22.19	57.73	-1,704.49	-3,534.54	16,896.04	16,835.46	60.57	278.930	
19,800.00	6,945.00	6,375.00	6,372.21	214.14	22.19	57.73	-1,704.49	-3,534.54	16,995.70	16,935.03	60.67	280.126	
19,900.00	6,945.00	6,375.00	6,372.21	215.74	22.19	57.73	-1,704.49	-3,534.54	17,095.37	17,034.61	60.77	281.317	
20,000.00	6,945.00	6,375.00	6,372.21	217.33	22.19	57.73	-1,704.49	-3,534.54	17,195.05	17,134.18	60.87	282.504	
20,100.00	6,945.00	6,375.00	6,372.21	218.92	22.19	57.73	-1,704.49	-3,534.54	17,294.73	17,233.76	60.96	283.685	
20,200.00	6,945.00	6,367.51	6,364.73	220.51	22.17	57.46	-1,704.20	-3,534.24	17,394.41	17,333.37	61.04	284.990	
20,300.00	6,945.00	6,327.21	6,324.49	222.11	22.03	56.05	-1,702.76	-3,532.56	17,494.09	17,433.10	60.99	286.845	
20,400.00	6,945.00	6,325.00	6,322.29	223.70	22.02	55.97	-1,702.68	-3,532.47	17,593.77	17,532.69	61.08	288.051	
20,500.00	6,945.00	6,314.30	6,311.61	225.29	21.98	55.61	-1,702.27	-3,531.99	17,693.43	17,632.29	61.14	289.397	
20,600.00	6,945.00	6,313.58	6,310.89	226.88	21.98	55.58	-1,702.24	-3,531.96	17,793.11	17,731.88	61.24	290.569	
20,700.00	6,945.00	6,312.87	6,310.18	228.48	21.98	55.56	-1,702.21	-3,531.93	17,892.80	17,831.47	61.33	291.736	
20,741.48	6,945.00	6,312.58	6,309.88	229.14	21.98	55.55	-1,702.20	-3,531.92	17,934.14	17,872.77	61.37	292.218	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 705H
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 705H	**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 #3	**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	-118.27	-2,509.92	-4,666.99	5,299.10				
100.00	100.00	261.00	261.00	0.25	7.82	-118.27	-2,509.92	-4,666.99	5,299.10	5,291.03	8.07	656.499	
200.00	200.00	361.00	361.00	0.61	10.82	-118.27	-2,509.92	-4,666.99	5,299.10	5,287.68	11.43	463.750	
300.00	300.00	461.00	461.00	0.97	13.81	-118.27	-2,509.92	-4,666.99	5,299.10	5,284.32	14.78	358.495	
400.00	400.00	561.10	561.00	1.33	16.81	-118.27	-2,509.92	-4,666.99	5,299.10	5,280.97	18.14	292.131	
500.00	500.00	661.10	661.00	1.68	19.81	-118.27	-2,509.92	-4,666.99	5,299.10	5,277.61	21.49	246.534	
590.03	590.01	750.93	750.79	1.99	22.50	94.03	-2,507.74	-4,666.99	5,298.17	5,273.68	24.49	216.301	CC
600.00	599.98	759.41	759.27	2.03	22.76	94.03	-2,507.74	-4,666.99	5,298.20	5,273.41	24.78	213.784	
700.00	699.84	844.47	844.31	2.37	25.30	94.07	-2,508.05	-4,666.99	5,298.74	5,271.07	27.67	191.521	
795.17	794.65	925.31	925.14	2.69	27.73	94.11	-2,508.81	-4,666.99	5,299.75	5,269.33	30.42	174.232	
800.00	799.45	929.41	929.24	2.71	27.85	94.12	-2,508.86	-4,666.99	5,299.82	5,269.26	30.56	173.437	
900.00	898.92	1,060.33	1,059.92	3.06	31.77	94.25	-2,509.92	-4,666.99	5,300.98	5,266.14	34.84	152.168	
1,000.00	998.39	1,159.80	1,159.39	3.43	34.75	94.36	-2,509.92	-4,666.99	5,301.76	5,263.58	38.18	138.866	
1,093.48	1,091.38	1,252.35	1,251.91	3.77	37.53	94.49	-2,507.74	-4,666.99	5,301.48	5,260.19	41.29	128.382	
1,100.00	1,097.86	1,257.89	1,257.44	3.79	37.69	94.49	-2,507.74	-4,666.99	5,301.54	5,260.05	41.48	127.796	
1,200.00	1,197.33	1,342.82	1,342.36	4.16	40.24	94.58	-2,508.04	-4,666.99	5,302.52	5,258.12	44.40	119.429	
1,300.00	1,296.80	1,427.87	1,427.39	4.53	42.79	94.67	-2,508.84	-4,666.99	5,303.80	5,256.48	47.32	112.085	
1,400.00	1,396.27	1,557.98	1,557.27	4.91	46.68	94.80	-2,509.92	-4,666.99	5,305.06	5,253.47	51.59	102.826	
1,500.00	1,495.74	1,657.45	1,656.74	5.28	49.66	94.92	-2,509.92	-4,666.99	5,305.94	5,250.99	54.95	96.561	
1,581.26	1,576.57	1,738.28	1,737.57	5.59	52.09	95.00	-2,509.92	-4,666.99	5,306.66	5,248.99	57.68	92.006	
1,600.00	1,595.21	1,755.90	1,755.15	5.66	52.61	95.04	-2,507.74	-4,666.99	5,305.84	5,247.56	58.28	91.047	
1,700.00	1,694.68	1,841.06	1,840.29	6.04	55.17	95.14	-2,508.03	-4,666.99	5,306.91	5,245.70	61.21	86.707	
1,800.00	1,794.15	1,926.33	1,925.54	6.42	57.72	95.22	-2,508.82	-4,666.99	5,308.27	5,244.13	64.14	82.763	
1,900.00	1,893.62	2,055.63	2,054.62	6.80	61.60	95.36	-2,509.92	-4,666.99	5,309.64	5,241.25	68.39	77.634	
2,000.00	1,993.09	2,155.10	2,154.09	7.18	64.58	95.46	-2,509.92	-4,666.99	5,310.61	5,238.86	71.75	74.011	
2,097.52	2,090.09	2,251.78	2,250.73	7.55	67.47	95.59	-2,507.74	-4,666.99	5,310.61	5,235.58	75.02	70.787	
2,100.00	2,092.56	2,253.90	2,252.85	7.56	67.54	95.59	-2,507.74	-4,666.99	5,310.63	5,235.54	75.09	70.719	
2,200.00	2,192.03	2,339.28	2,338.21	7.94	70.10	95.69	-2,508.01	-4,666.99	5,311.79	5,233.76	78.03	68.071	
2,300.00	2,291.50	2,424.77	2,423.68	8.32	72.66	95.77	-2,508.80	-4,666.99	5,313.24	5,232.26	80.98	65.615	
2,400.00	2,390.97	2,553.29	2,551.97	8.70	76.51	95.90	-2,509.92	-4,666.99	5,314.71	5,229.50	85.21	62.372	
2,500.00	2,490.44	2,652.76	2,651.44	9.08	79.49	96.01	-2,509.92	-4,666.99	5,315.78	5,227.21	88.57	60.017	
2,600.00	2,589.91	2,751.89	2,750.54	9.47	82.46	96.14	-2,507.74	-4,666.99	5,315.92	5,223.99	91.92	57.829	
2,700.00	2,689.38	2,837.49	2,836.12	9.85	85.02	96.24	-2,508.00	-4,666.99	5,317.17	5,222.30	94.87	56.046	
2,800.00	2,788.85	2,923.20	2,921.81	10.23	87.59	96.32	-2,508.78	-4,666.99	5,318.70	5,220.88	97.82	54.372	
2,900.00	2,888.32	3,050.94	3,049.32	10.61	91.42	96.45	-2,509.92	-4,666.99	5,320.27	5,218.24	102.03	52.143	
3,000.00	2,987.79	3,150.41	3,148.79	11.00	94.40	96.56	-2,509.92	-4,666.99	5,321.45	5,216.05	105.40	50.490	
3,100.00	3,087.25	3,249.88	3,248.21	11.38	97.38	96.69	-2,507.74	-4,666.99	5,321.70	5,212.94	108.76	48.931	
3,200.00	3,186.72	3,335.70	3,334.02	11.76	99.95	96.78	-2,507.99	-4,666.99	5,323.04	5,211.33	111.71	47.649	
3,300.00	3,286.19	3,421.63	3,419.93	12.15	102.53	96.87	-2,508.77	-4,666.99	5,324.66	5,209.99	114.67	46.435	
3,400.00	3,385.66	3,548.59	3,546.66	12.53	106.33	97.00	-2,509.92	-4,666.99	5,326.33	5,207.47	118.86	44.812	
3,500.00	3,485.13	3,648.06	3,646.13	12.91	109.31	97.11	-2,509.92	-4,666.99	5,327.60	5,205.38	122.22	43.589	
3,600.00	3,584.60	3,747.53	3,745.60	13.30	112.29	97.22	-2,509.92	-4,666.99	5,328.89	5,203.30	125.59	42.432	
3,700.00	3,684.07	3,833.89	3,831.91	13.68	114.88	97.33	-2,507.98	-4,666.99	5,329.40	5,200.84	128.56	41.456	
3,800.00	3,783.54	3,920.05	3,918.05	14.06	117.46	97.42	-2,508.75	-4,666.99	5,331.10	5,199.58	131.52	40.534	
3,900.00	3,883.01	4,046.25	4,044.01	14.45	121.24	97.54	-2,509.92	-4,666.99	5,332.87	5,197.18	135.69	39.303	
4,000.00	3,982.48	4,145.72	4,143.48	14.83	124.22	97.65	-2,509.92	-4,666.99	5,334.24	5,195.19	139.05	38.362	
4,100.00	4,081.95	4,245.19	4,242.95	15.22	127.20	97.76	-2,509.92	-4,666.99	5,335.63	5,193.21	142.42	37.465	
4,200.00	4,181.42	4,332.08	4,329.79	15.60	129.81	97.88	-2,507.97	-4,666.99	5,336.25	5,190.84	145.40	36.700	
4,300.00	4,280.89	4,418.46	4,416.16	15.98	132.40	97.96	-2,508.73	-4,666.99	5,338.03	5,189.66	148.37	35.977	
4,400.00	4,380.36	4,543.90	4,541.36	16.37	136.16	98.09	-2,509.92	-4,666.99	5,339.90	5,187.38	152.52	35.012	
4,500.00	4,479.83	4,643.37	4,640.83	16.75	139.14	98.20	-2,509.92	-4,666.99	5,341.37	5,185.49	155.88	34.266	
4,600.00	4,579.30	4,742.84	4,740.30	17.14	142.12	98.31	-2,509.92	-4,666.99	5,342.85	5,183.60	159.25	33.551	

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 705H
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 705H	**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 #3	**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
4,700.00	4,678.77	4,830.25	4,827.66	17.52	144.74	98.42	-2,507.96	-4,666.99	5,343.58	5,181.33	162.25	32.935	
4,800.00	4,778.24	4,916.86	4,914.25	17.90	147.33	98.51	-2,508.71	-4,666.99	5,345.45	5,180.22	165.23	32.353	
4,900.00	4,877.71	5,041.55	5,038.71	18.29	151.07	98.63	-2,509.92	-4,666.99	5,347.42	5,178.07	169.35	31.577	
5,000.00	4,977.18	5,141.02	5,138.18	18.67	154.05	98.74	-2,509.92	-4,666.99	5,348.98	5,176.27	172.71	30.970	
5,100.00	5,076.65	5,240.49	5,237.65	19.06	157.03	98.85	-2,509.92	-4,666.99	5,350.56	5,174.48	176.08	30.388	
5,200.00	5,176.12	5,328.42	5,325.52	19.44	159.66	98.96	-2,507.95	-4,666.99	5,351.40	5,172.30	179.09	29.880	
5,300.00	5,275.59	5,415.26	5,412.34	19.83	162.27	99.05	-2,508.69	-4,666.99	5,353.35	5,171.27	182.08	29.401	
5,400.00	5,375.06	5,539.20	5,536.06	20.21	165.98	99.17	-2,509.92	-4,666.99	5,355.42	5,169.24	186.18	28.765	
5,500.00	5,474.53	5,638.67	5,635.53	20.59	168.96	99.28	-2,509.92	-4,666.99	5,357.08	5,167.53	189.54	28.263	
5,600.00	5,574.00	5,738.14	5,735.00	20.98	171.94	99.39	-2,509.92	-4,666.99	5,358.75	5,165.85	192.91	27.779	
5,700.00	5,673.47	5,826.58	5,823.38	21.36	174.59	99.50	-2,507.94	-4,666.99	5,359.70	5,163.76	195.94	27.354	
5,800.00	5,772.94	5,913.64	5,910.43	21.75	177.20	99.59	-2,508.67	-4,666.99	5,361.74	5,162.81	198.93	26.953	
5,900.00	5,872.41	6,036.86	6,033.41	22.13	180.89	99.71	-2,509.92	-4,666.99	5,363.90	5,160.89	203.01	26.422	
6,000.00	5,971.88	6,136.33	6,132.88	22.52	183.87	99.82	-2,509.92	-4,666.99	5,365.65	5,159.28	206.37	26.000	
6,100.00	6,071.35	6,235.80	6,232.35	22.90	186.85	99.93	-2,509.92	-4,666.99	5,367.42	5,157.69	209.74	25.591	
6,200.00	6,170.81	6,324.72	6,321.22	23.28	189.52	100.04	-2,507.93	-4,666.99	5,368.48	5,155.69	212.78	25.230	
6,300.00	6,270.28	6,412.02	6,408.50	23.67	192.13	100.13	-2,508.65	-4,666.99	5,370.60	5,154.82	215.78	24.889	
6,375.94	6,345.82	6,510.58	6,506.82	23.96	195.09	100.22	-2,509.92	-4,666.99	5,372.42	5,153.39	219.03	24.528 ES	
6,400.00	6,369.72	6,534.48	6,530.72	24.05	195.80	114.69	-2,509.92	-4,666.99	5,373.28	5,153.44	219.84	24.442	
6,450.00	6,419.09	6,583.84	6,580.09	24.25	197.28	130.74	-2,509.92	-4,666.99	5,377.76	5,156.25	221.52	24.277	
6,500.00	6,467.78	6,632.54	6,628.78	24.46	198.74	138.19	-2,509.92	-4,666.99	5,385.87	5,162.69	223.18	24.133	
6,550.00	6,515.51	6,680.26	6,676.51	24.67	200.17	142.16	-2,509.92	-4,666.99	5,397.54	5,172.73	224.81	24.009	
6,600.00	6,561.97	6,726.73	6,722.97	24.88	201.56	144.41	-2,509.92	-4,666.99	5,412.71	5,186.31	226.41	23.907	
6,650.00	6,606.89	6,769.00	6,765.20	25.10	202.83	145.68	-2,507.75	-4,666.99	5,430.52	5,202.64	227.88	23.831	
6,700.00	6,649.98	6,806.87	6,803.07	25.32	203.96	146.22	-2,507.85	-4,666.99	5,452.47	5,223.26	229.21	23.788	
6,750.00	6,690.98	6,842.93	6,839.12	25.54	205.05	146.23	-2,508.04	-4,666.99	5,477.64	5,247.15	230.49	23.766	
6,800.00	6,729.64	6,876.94	6,873.12	25.77	206.06	145.78	-2,508.30	-4,666.99	5,505.88	5,274.18	231.70	23.763 SF	
6,850.00	6,765.71	6,908.70	6,904.87	26.00	207.02	144.88	-2,508.62	-4,666.99	5,537.01	5,304.17	232.83	23.781	
6,900.00	6,798.98	6,938.00	6,934.17	26.24	207.89	143.51	-2,508.97	-4,666.99	5,570.83	5,336.94	233.89	23.818	
6,950.00	6,829.24	6,964.67	6,960.82	26.49	208.69	141.62	-2,509.35	-4,666.99	5,607.14	5,372.29	234.86	23.875	
7,000.00	6,856.30	7,021.36	7,017.30	26.76	210.39	139.39	-2,509.92	-4,666.99	5,645.69	5,408.97	236.72	23.849	
7,050.00	6,880.00	7,045.06	7,041.00	27.03	211.10	136.17	-2,509.92	-4,666.99	5,686.14	5,448.56	237.59	23.933	
7,100.00	6,900.19	7,065.25	7,061.19	27.32	211.71	132.00	-2,509.92	-4,666.99	5,728.38	5,490.05	238.33	24.035	
7,150.00	6,916.74	7,081.80	7,077.74	27.62	212.20	126.59	-2,509.92	-4,666.99	5,772.14	5,533.18	238.96	24.155	
7,200.00	6,929.56	7,094.62	7,090.56	27.93	212.59	119.63	-2,509.92	-4,666.99	5,817.15	5,577.68	239.47	24.292	
7,250.00	6,938.57	7,103.63	7,099.57	28.26	212.86	110.80	-2,509.92	-4,666.99	5,863.14	5,623.29	239.85	24.445	
7,300.00	6,943.70	7,108.76	7,104.70	28.60	213.01	100.00	-2,509.92	-4,666.99	5,909.82	5,669.71	240.11	24.613	
7,340.76	6,945.00	7,110.06	7,106.00	28.88	213.05	90.00	-2,509.92	-4,666.99	5,948.17	5,707.95	240.22	24.761	
7,400.00	6,945.00	7,110.06	7,106.00	29.31	213.05	90.00	-2,509.92	-4,666.99	6,004.08	5,763.75	240.33	24.983	
7,500.00	6,945.00	7,110.06	7,106.00	30.09	213.05	90.00	-2,509.92	-4,666.99	6,098.58	5,858.07	240.51	25.357	
7,600.00	6,945.00	7,110.06	7,106.00	30.93	213.05	90.00	-2,509.92	-4,666.99	6,193.26	5,952.57	240.70	25.731	
7,700.00	6,945.00	7,110.06	7,106.00	31.83	213.05	90.00	-2,509.92	-4,666.99	6,288.11	6,047.22	240.88	26.105	
7,800.00	6,945.00	7,110.06	7,106.00	32.79	213.05	90.00	-2,509.92	-4,666.99	6,383.11	6,142.04	241.07	26.479	
7,900.00	6,945.00	7,110.06	7,106.00	33.79	213.05	90.00	-2,509.92	-4,666.99	6,478.26	6,237.00	241.25	26.853	
8,000.00	6,945.00	7,110.06	7,106.00	34.84	213.05	90.00	-2,509.92	-4,666.99	6,573.55	6,332.11	241.44	27.227	
8,100.00	6,945.00	7,110.06	7,106.00	35.93	213.05	90.00	-2,509.92	-4,666.99	6,668.98	6,427.36	241.62	27.601	
8,200.00	6,945.00	7,110.06	7,106.00	37.06	213.05	90.00	-2,509.92	-4,666.99	6,764.55	6,522.74	241.81	27.975	
8,300.00	6,945.00	7,110.06	7,106.00	38.23	213.05	90.00	-2,509.92	-4,666.99	6,860.24	6,618.25	241.99	28.349	
8,400.00	6,945.00	7,110.06	7,106.00	39.42	213.05	90.00	-2,509.92	-4,666.99	6,956.05	6,713.87	242.18	28.723	
8,500.00	6,945.00	7,110.06	7,106.00	40.65	213.05	90.00	-2,509.92	-4,666.99	7,051.98	6,809.62	242.36	29.097	
8,600.00	6,945.00	7,110.06	7,106.00	41.90	213.05	90.00	-2,509.92	-4,666.99	7,148.02	6,905.48	242.54	29.471	
8,700.00	6,945.00	7,110.06	7,106.00	43.17	213.05	90.00	-2,509.92	-4,666.99	7,244.17	7,001.44	242.72	29.845	

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 705H
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 705H	**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 #3	**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
8,800.00	6,945.00	7,110.06	7,106.00	44.46	213.05	90.00	-2,509.92	-4,666.99	7,340.42	7,097.51	242.90	30.220	
8,900.00	6,945.00	7,110.06	7,106.00	45.78	213.05	90.00	-2,509.92	-4,666.99	7,436.77	7,193.69	243.08	30.594	
9,000.00	6,945.00	7,110.06	7,106.00	47.11	213.05	90.00	-2,509.92	-4,666.99	7,533.21	7,289.95	243.26	30.968	
9,100.00	6,945.00	7,110.06	7,106.00	48.46	213.05	90.00	-2,509.92	-4,666.99	7,629.75	7,386.31	243.43	31.342	
9,200.00	6,945.00	7,110.06	7,106.00	49.82	213.05	90.00	-2,509.92	-4,666.99	7,726.37	7,482.76	243.61	31.717	
9,300.00	6,945.00	7,110.06	7,106.00	51.20	213.05	90.00	-2,509.92	-4,666.99	7,823.08	7,579.30	243.78	32.091	
9,400.00	6,945.00	7,110.06	7,106.00	52.59	213.05	90.00	-2,509.92	-4,666.99	7,919.87	7,675.92	243.95	32.465	
9,500.00	6,945.00	7,110.06	7,106.00	53.99	213.05	90.00	-2,509.92	-4,666.99	8,016.74	7,772.62	244.12	32.839	
9,600.00	6,945.00	7,110.06	7,106.00	55.40	213.05	90.00	-2,509.92	-4,666.99	8,113.69	7,869.40	244.29	33.214	
9,700.00	6,945.00	7,110.06	7,106.00	56.83	213.05	90.00	-2,509.92	-4,666.99	8,210.70	7,966.25	244.45	33.588	
9,800.00	6,945.00	7,110.06	7,106.00	58.26	213.05	90.00	-2,509.92	-4,666.99	8,307.79	8,063.18	244.62	33.962	
9,900.00	6,945.00	7,110.06	7,106.00	59.70	213.05	90.00	-2,509.92	-4,666.99	8,404.95	8,160.17	244.78	34.337	
10,000.00	6,945.00	7,110.06	7,106.00	61.15	213.05	90.00	-2,509.92	-4,666.99	8,502.17	8,257.23	244.94	34.711	
10,100.00	6,945.00	7,110.06	7,106.00	62.61	213.05	90.00	-2,509.92	-4,666.99	8,599.46	8,354.36	245.10	35.085	
10,200.00	6,945.00	7,110.06	7,106.00	64.07	213.05	90.00	-2,509.92	-4,666.99	8,696.81	8,451.55	245.26	35.460	
10,300.00	6,945.00	7,110.06	7,106.00	65.54	213.05	90.00	-2,509.92	-4,666.99	8,794.22	8,548.80	245.42	35.834	
10,400.00	6,945.00	7,110.06	7,106.00	67.02	213.05	90.00	-2,509.92	-4,666.99	8,891.68	8,646.11	245.57	36.208	
10,500.00	6,945.00	7,110.06	7,106.00	68.50	213.05	90.00	-2,509.92	-4,666.99	8,989.21	8,743.48	245.72	36.582	
10,600.00	6,945.00	7,110.06	7,106.00	69.99	213.05	90.00	-2,509.92	-4,666.99	9,086.78	8,840.90	245.88	36.957	
10,700.00	6,945.00	7,110.06	7,106.00	71.48	213.05	90.00	-2,509.92	-4,666.99	9,184.41	8,938.38	246.03	37.331	
10,800.00	6,945.00	7,110.06	7,106.00	72.98	213.05	90.00	-2,509.92	-4,666.99	9,282.09	9,035.91	246.18	37.705	
10,900.00	6,945.00	7,110.06	7,106.00	74.48	213.05	90.00	-2,509.92	-4,666.99	9,379.81	9,133.49	246.33	38.079	
11,000.00	6,945.00	7,110.06	7,106.00	75.99	213.05	90.00	-2,509.92	-4,666.99	9,477.59	9,231.12	246.47	38.453	
11,100.00	6,945.00	7,110.06	7,106.00	77.50	213.05	90.00	-2,509.92	-4,666.99	9,575.41	9,328.79	246.62	38.827	
11,200.00	6,945.00	7,110.06	7,106.00	79.01	213.05	90.00	-2,509.92	-4,666.99	9,673.27	9,426.51	246.76	39.201	
11,300.00	6,945.00	7,110.06	7,106.00	80.53	213.05	90.00	-2,509.92	-4,666.99	9,771.18	9,524.28	246.90	39.575	
11,400.00	6,945.00	7,110.06	7,106.00	82.05	213.05	90.00	-2,509.92	-4,666.99	9,869.13	9,622.08	247.05	39.948	
11,500.00	6,945.00	7,110.06	7,106.00	83.57	213.05	90.00	-2,509.92	-4,666.99	9,967.12	9,719.94	247.19	40.322	
11,600.00	6,945.00	7,110.06	7,106.00	85.10	213.05	90.00	-2,509.92	-4,666.99	10,065.15	9,817.83	247.33	40.696	
11,700.00	6,945.00	7,110.06	7,106.00	86.63	213.05	90.00	-2,509.92	-4,666.99	10,163.22	9,915.76	247.46	41.069	
11,800.00	6,945.00	7,110.06	7,106.00	88.16	213.05	90.00	-2,509.92	-4,666.99	10,261.33	10,013.73	247.60	41.443	
11,900.00	6,945.00	7,110.06	7,106.00	89.69	213.05	90.00	-2,509.92	-4,666.99	10,359.47	10,111.73	247.74	41.816	
12,000.00	6,945.00	7,110.06	7,106.00	91.23	213.05	90.00	-2,509.92	-4,666.99	10,457.65	10,209.77	247.87	42.190	
12,100.00	6,945.00	7,110.06	7,106.00	92.77	213.05	90.00	-2,509.92	-4,666.99	10,555.86	10,307.85	248.01	42.563	
12,200.00	6,945.00	7,110.06	7,106.00	94.31	213.05	90.00	-2,509.92	-4,666.99	10,654.10	10,405.96	248.14	42.936	
12,300.00	6,945.00	7,110.06	7,106.00	95.85	213.05	90.00	-2,509.92	-4,666.99	10,752.38	10,504.11	248.27	43.309	
12,400.00	6,945.00	7,110.06	7,106.00	97.40	213.05	90.00	-2,509.92	-4,666.99	10,850.69	10,602.29	248.40	43.682	
12,500.00	6,945.00	7,110.06	7,106.00	98.95	213.05	90.00	-2,509.92	-4,666.99	10,949.03	10,700.50	248.53	44.055	
12,600.00	6,945.00	7,110.06	7,106.00	100.50	213.05	90.00	-2,509.92	-4,666.99	11,047.40	10,798.74	248.66	44.427	
12,700.00	6,945.00	7,110.06	7,106.00	102.05	213.05	90.00	-2,509.92	-4,666.99	11,145.80	10,897.01	248.79	44.800	
12,800.00	6,945.00	7,110.06	7,106.00	103.60	213.05	90.00	-2,509.92	-4,666.99	11,244.22	10,995.31	248.92	45.173	
12,900.00	6,945.00	7,110.06	7,106.00	105.15	213.05	90.00	-2,509.92	-4,666.99	11,342.68	11,093.63	249.04	45.545	
13,000.00	6,945.00	7,110.06	7,106.00	106.71	213.05	90.00	-2,509.92	-4,666.99	11,441.16	11,191.99	249.17	45.917	
13,100.00	6,945.00	7,110.06	7,106.00	108.26	213.05	90.00	-2,509.92	-4,666.99	11,539.66	11,290.37	249.29	46.289	
13,200.00	6,945.00	7,110.06	7,106.00	109.82	213.05	90.00	-2,509.92	-4,666.99	11,638.20	11,388.78	249.42	46.661	
13,300.00	6,945.00	7,110.06	7,106.00	111.38	213.05	90.00	-2,509.92	-4,666.99	11,736.75	11,487.21	249.54	47.033	
13,400.00	6,945.00	7,110.06	7,106.00	112.94	213.05	90.00	-2,509.92	-4,666.99	11,835.34	11,585.67	249.67	47.405	
13,500.00	6,945.00	7,110.06	7,106.00	114.50	213.05	90.00	-2,509.92	-4,666.99	11,933.94	11,684.15	249.79	47.776	
13,600.00	6,945.00	7,110.06	7,106.00	116.07	213.05	90.00	-2,509.92	-4,666.99	12,032.57	11,782.66	249.91	48.148	
13,700.00	6,945.00	7,110.06	7,106.00	117.63	213.05	90.00	-2,509.92	-4,666.99	12,131.22	11,881.19	250.03	48.519	
13,800.00	6,945.00	7,110.06	7,106.00	119.19	213.05	90.00	-2,509.92	-4,666.99	12,229.89	11,979.74	250.15	48.890	
13,900.00	6,945.00	7,110.06	7,106.00	120.76	213.05	90.00	-2,509.92	-4,666.99	12,328.58	12,078.32	250.27	49.261	

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 705H
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 705H	**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 #3	**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
14,000.00	6,945.00	7,110.06	7,106.00	122.33	213.05	90.00	-2,509.92	-4,666.99	12,427.30	12,176.91	250.39	49.632	
14,100.00	6,945.00	7,110.06	7,106.00	123.90	213.05	90.00	-2,509.92	-4,666.99	12,526.03	12,275.53	250.51	50.003	
14,200.00	6,945.00	7,110.06	7,106.00	125.46	213.05	90.00	-2,509.92	-4,666.99	12,624.79	12,374.17	250.62	50.373	
14,300.00	6,945.00	7,110.06	7,106.00	127.03	213.05	90.00	-2,509.92	-4,666.99	12,723.56	12,472.82	250.74	50.744	
14,400.00	6,945.00	7,110.06	7,106.00	128.60	213.05	90.00	-2,509.92	-4,666.99	12,822.36	12,571.50	250.86	51.114	
14,500.00	6,945.00	7,110.06	7,106.00	130.18	213.05	90.00	-2,509.92	-4,666.99	12,921.17	12,670.20	250.97	51.484	
14,600.00	6,945.00	7,110.06	7,106.00	131.75	213.05	90.00	-2,509.92	-4,666.99	13,020.00	12,768.91	251.09	51.854	
14,700.00	6,945.00	7,110.06	7,106.00	133.32	213.05	90.00	-2,509.92	-4,666.99	13,118.85	12,867.64	251.21	52.224	
14,800.00	6,945.00	7,110.06	7,106.00	134.89	213.05	90.00	-2,509.92	-4,666.99	13,217.71	12,966.39	251.32	52.593	
14,900.00	6,945.00	7,110.06	7,106.00	136.47	213.05	90.00	-2,509.92	-4,666.99	13,316.60	13,065.16	251.43	52.962	
15,000.00	6,945.00	7,110.06	7,106.00	138.04	213.05	90.00	-2,509.92	-4,666.99	13,415.49	13,163.95	251.55	53.332	
15,100.00	6,945.00	7,110.06	7,106.00	139.62	213.05	90.00	-2,509.92	-4,666.99	13,514.41	13,262.75	251.66	53.701	
15,200.00	6,945.00	7,110.06	7,106.00	141.20	213.05	90.00	-2,509.92	-4,666.99	13,613.34	13,361.56	251.78	54.069	
15,300.00	6,945.00	7,110.06	7,106.00	142.77	213.05	90.00	-2,509.92	-4,666.99	13,712.29	13,460.40	251.89	54.438	
15,400.00	6,945.00	7,110.06	7,106.00	144.35	213.05	90.00	-2,509.92	-4,666.99	13,811.25	13,559.25	252.00	54.806	
15,500.00	6,945.00	7,110.06	7,106.00	145.93	213.05	90.00	-2,509.92	-4,666.99	13,910.22	13,658.11	252.11	55.175	
15,600.00	6,945.00	7,110.06	7,106.00	147.51	213.05	90.00	-2,509.92	-4,666.99	14,009.21	13,756.99	252.22	55.543	
15,700.00	6,945.00	7,110.06	7,106.00	149.09	213.05	90.00	-2,509.92	-4,666.99	14,108.22	13,855.88	252.34	55.911	
15,800.00	6,945.00	7,110.06	7,106.00	150.67	213.05	90.00	-2,509.92	-4,666.99	14,207.24	13,954.79	252.45	56.278	
15,900.00	6,945.00	7,110.06	7,106.00	152.25	213.05	90.00	-2,509.92	-4,666.99	14,306.27	14,053.71	252.56	56.646	
16,000.00	6,945.00	7,110.06	7,106.00	153.83	213.05	90.00	-2,509.92	-4,666.99	14,405.32	14,152.65	252.67	57.013	
16,100.00	6,945.00	7,110.06	7,106.00	155.41	213.05	90.00	-2,509.92	-4,666.99	14,504.38	14,251.60	252.78	57.380	
16,200.00	6,945.00	7,110.06	7,106.00	156.99	213.05	90.00	-2,509.92	-4,666.99	14,603.45	14,350.56	252.89	57.747	
16,300.00	6,945.00	7,110.06	7,106.00	158.57	213.05	90.00	-2,509.92	-4,666.99	14,702.53	14,449.54	253.00	58.113	
16,400.00	6,945.00	7,110.06	7,106.00	160.15	213.05	90.00	-2,509.92	-4,666.99	14,801.63	14,548.52	253.11	58.480	
16,500.00	6,945.00	7,110.06	7,106.00	161.74	213.05	90.00	-2,509.92	-4,666.99	14,900.74	14,647.52	253.22	58.846	
16,600.00	6,945.00	7,110.06	7,106.00	163.32	213.05	90.00	-2,509.92	-4,666.99	14,999.86	14,746.54	253.32	59.212	
16,700.00	6,945.00	7,110.06	7,106.00	164.90	213.05	90.00	-2,509.92	-4,666.99	15,098.99	14,845.56	253.43	59.578	
16,800.00	6,945.00	7,110.06	7,106.00	166.49	213.05	90.00	-2,509.92	-4,666.99	15,198.14	14,944.59	253.54	59.943	
16,900.00	6,945.00	7,110.06	7,106.00	168.07	213.05	90.00	-2,509.92	-4,666.99	15,297.29	15,043.64	253.65	60.309	
17,000.00	6,945.00	7,110.06	7,106.00	169.66	213.05	90.00	-2,509.92	-4,666.99	15,396.46	15,142.70	253.76	60.674	
17,100.00	6,945.00	7,110.06	7,106.00	171.24	213.05	90.00	-2,509.92	-4,666.99	15,495.63	15,241.77	253.87	61.039	
17,200.00	6,945.00	7,110.06	7,106.00	172.83	213.05	90.00	-2,509.92	-4,666.99	15,594.82	15,340.85	253.97	61.403	
17,300.00	6,945.00	7,110.06	7,106.00	174.41	213.05	90.00	-2,509.92	-4,666.99	15,694.02	15,439.94	254.08	61.768	
17,400.00	6,945.00	7,110.06	7,106.00	176.00	213.05	90.00	-2,509.92	-4,666.99	15,793.23	15,539.04	254.19	62.132	
17,500.00	6,945.00	7,110.06	7,106.00	177.59	213.05	90.00	-2,509.92	-4,666.99	15,892.44	15,638.15	254.30	62.496	
17,600.00	6,945.00	7,110.06	7,106.00	179.17	213.05	90.00	-2,509.92	-4,666.99	15,991.67	15,737.27	254.40	62.860	
17,700.00	6,945.00	7,110.06	7,106.00	180.76	213.05	90.00	-2,509.92	-4,666.99	16,090.91	15,836.40	254.51	63.223	
17,800.00	6,945.00	7,110.06	7,106.00	182.35	213.05	90.00	-2,509.92	-4,666.99	16,190.15	15,935.54	254.62	63.587	
17,900.00	6,945.00	7,110.06	7,106.00	183.93	213.05	90.00	-2,509.92	-4,666.99	16,289.41	16,034.69	254.72	63.950	
18,000.00	6,945.00	7,110.06	7,106.00	185.52	213.05	90.00	-2,509.92	-4,666.99	16,388.67	16,133.84	254.83	64.312	
18,100.00	6,945.00	7,110.06	7,106.00	187.11	213.05	90.00	-2,509.92	-4,666.99	16,487.95	16,233.01	254.94	64.675	
18,200.00	6,945.00	7,110.06	7,106.00	188.70	213.05	90.00	-2,509.92	-4,666.99	16,587.23	16,332.19	255.04	65.037	
18,300.00	6,945.00	7,110.06	7,106.00	190.29	213.05	90.00	-2,509.92	-4,666.99	16,686.52	16,431.37	255.15	65.399	
18,400.00	6,945.00	7,110.06	7,106.00	191.88	213.05	90.00	-2,509.92	-4,666.99	16,785.82	16,530.56	255.25	65.761	
18,500.00	6,945.00	7,110.06	7,106.00	193.46	213.05	90.00	-2,509.92	-4,666.99	16,885.12	16,629.76	255.36	66.123	
18,600.00	6,945.00	7,110.06	7,106.00	195.05	213.05	90.00	-2,509.92	-4,666.99	16,984.44	16,728.97	255.47	66.484	
18,700.00	6,945.00	7,110.06	7,106.00	196.64	213.05	90.00	-2,509.92	-4,666.99	17,083.76	16,828.19	255.57	66.845	
18,800.00	6,945.00	7,110.06	7,106.00	198.23	213.05	90.00	-2,509.92	-4,666.99	17,183.09	16,927.42	255.68	67.206	
18,900.00	6,945.00	7,110.06	7,106.00	199.82	213.05	90.00	-2,509.92	-4,666.99	17,282.43	17,026.65	255.78	67.566	
19,000.00	6,945.00	7,110.06	7,106.00	201.41	213.05	90.00	-2,509.92	-4,666.99	17,381.78	17,125.89	255.89	67.927	
19,100.00	6,945.00	7,110.06	7,106.00	203.00	213.05	90.00	-2,509.92	-4,666.99	17,481.13	17,225.14	256.00	68.287	

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 705H
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 705H	**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 #3	**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
19,200.00	6,945.00	7,110.06	7,106.00	204.60	213.05	90.00	-2,509.92	-4,666.99	17,580.50	17,324.39	256.10	68.647	
19,300.00	6,945.00	7,110.06	7,106.00	206.19	213.05	90.00	-2,509.92	-4,666.99	17,679.86	17,423.66	256.21	69.006	
19,400.00	6,945.00	7,110.06	7,106.00	207.78	213.05	90.00	-2,509.92	-4,666.99	17,779.24	17,522.93	256.31	69.366	
19,500.00	6,945.00	7,110.06	7,106.00	209.37	213.05	90.00	-2,509.92	-4,666.99	17,878.62	17,622.20	256.42	69.725	
19,600.00	6,945.00	7,110.06	7,106.00	210.96	213.05	90.00	-2,509.92	-4,666.99	17,978.01	17,721.49	256.52	70.083	
19,700.00	6,945.00	7,110.06	7,106.00	212.55	213.05	90.00	-2,509.92	-4,666.99	18,077.41	17,820.78	256.63	70.442	
19,800.00	6,945.00	7,110.06	7,106.00	214.14	213.05	90.00	-2,509.92	-4,666.99	18,176.81	17,920.08	256.73	70.800	
19,900.00	6,945.00	7,110.06	7,106.00	215.74	213.05	90.00	-2,509.92	-4,666.99	18,276.22	18,019.38	256.84	71.158	
20,000.00	6,945.00	7,110.06	7,106.00	217.33	213.05	90.00	-2,509.92	-4,666.99	18,375.64	18,118.69	256.95	71.516	
20,100.00	6,945.00	7,110.06	7,106.00	218.92	213.05	90.00	-2,509.92	-4,666.99	18,475.06	18,218.01	257.05	71.873	
20,200.00	6,945.00	7,110.06	7,106.00	220.51	213.05	90.00	-2,509.92	-4,666.99	18,574.49	18,317.33	257.16	72.230	
20,300.00	6,945.00	7,110.06	7,106.00	222.11	213.05	90.00	-2,509.92	-4,666.99	18,673.92	18,416.66	257.26	72.587	
20,400.00	6,945.00	7,110.06	7,106.00	223.70	213.05	90.00	-2,509.92	-4,666.99	18,773.36	18,515.99	257.37	72.944	
20,500.00	6,945.00	7,110.06	7,106.00	225.29	213.05	90.00	-2,509.92	-4,666.99	18,872.81	18,615.33	257.47	73.300	
20,600.00	6,945.00	7,110.06	7,106.00	226.88	213.05	90.00	-2,509.92	-4,666.99	18,972.26	18,714.68	257.58	73.656	
20,700.00	6,945.00	7,110.06	7,106.00	228.48	213.05	90.00	-2,509.92	-4,666.99	19,071.72	18,814.03	257.68	74.012	
20,741.48	6,945.00	7,110.06	7,106.00	229.14	213.05	90.00	-2,509.92	-4,666.99	19,112.97	18,855.24	257.73	74.160	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 705H
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 705H	**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 #3	**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	Warning
0.00	0.00	178.00	178.00	0.00	5.33	-128.87	-2,454.66	-3,045.13	3,911.29				
100.00	100.00	278.00	278.00	0.25	8.33	-128.87	-2,454.66	-3,045.13	3,911.29	3,902.71	8.58	455.800	
200.00	200.00	378.00	378.00	0.61	11.33	-128.87	-2,454.66	-3,045.13	3,911.29	3,899.35	11.94	327.687	
300.00	300.00	478.00	478.00	0.97	14.32	-128.87	-2,454.66	-3,045.13	3,911.29	3,896.00	15.29	255.791	
400.00	400.00	578.10	578.00	1.33	17.32	-128.87	-2,454.66	-3,045.13	3,911.29	3,892.64	18.65	209.733	
500.00	500.00	678.10	678.00	1.68	20.32	-128.87	-2,454.66	-3,045.13	3,911.29	3,889.28	22.00	177.755	
600.00	599.98	773.97	773.82	2.03	23.19	83.45	-2,452.50	-3,045.13	3,909.74	3,884.52	25.22	155.031	
700.00	699.84	859.31	859.15	2.37	25.75	83.51	-2,452.90	-3,045.13	3,909.43	3,881.32	28.11	139.069	
795.17	794.65	940.44	940.25	2.69	28.18	83.61	-2,453.75	-3,045.13	3,909.13	3,878.26	30.87	126.629	
800.00	799.45	944.55	944.37	2.71	28.30	83.62	-2,453.80	-3,045.13	3,909.12	3,878.11	31.01	126.056	
900.00	898.92	1,077.33	1,076.92	3.06	32.28	83.81	-2,454.66	-3,045.13	3,908.39	3,873.04	35.35	110.574	
1,000.00	998.39	1,176.80	1,176.39	3.43	35.26	83.96	-2,454.66	-3,045.13	3,907.28	3,868.60	38.69	100.993	
1,100.00	1,097.86	1,272.47	1,272.02	3.79	38.13	84.12	-2,452.50	-3,045.13	3,904.87	3,862.95	41.92	93.147	
1,200.00	1,197.33	1,357.70	1,357.24	4.16	40.68	84.25	-2,452.88	-3,045.13	3,904.11	3,859.26	44.84	87.058	
1,300.00	1,296.80	1,443.04	1,442.56	4.53	43.24	84.37	-2,453.78	-3,045.13	3,903.73	3,855.96	47.77	81.714	
1,400.00	1,396.27	1,574.98	1,574.27	4.91	47.19	84.55	-2,454.66	-3,045.13	3,903.14	3,851.04	52.10	74.914	
1,500.00	1,495.74	1,674.45	1,673.74	5.28	50.17	84.70	-2,454.66	-3,045.13	3,902.18	3,846.72	55.46	70.363	
1,600.00	1,595.21	1,770.51	1,769.76	5.66	53.05	84.87	-2,452.49	-3,045.13	3,899.92	3,841.21	58.71	66.423	
1,700.00	1,694.68	1,855.97	1,855.20	6.04	55.61	85.00	-2,452.87	-3,045.13	3,899.28	3,837.63	61.65	63.248	
1,800.00	1,794.15	1,941.53	1,940.74	6.42	58.18	85.12	-2,453.76	-3,045.13	3,899.02	3,834.43	64.59	60.364	
1,900.00	1,893.62	2,072.63	2,071.62	6.80	62.11	85.30	-2,454.66	-3,045.13	3,898.57	3,829.67	68.90	56.582	
2,000.00	1,993.09	2,172.10	2,171.09	7.18	65.09	85.45	-2,454.66	-3,045.13	3,897.74	3,825.48	72.26	53.939	
2,100.00	2,092.56	2,268.55	2,267.49	7.56	67.98	85.62	-2,452.49	-3,045.13	3,895.64	3,820.11	75.53	51.576	
2,200.00	2,192.03	2,354.22	2,353.15	7.94	70.54	85.75	-2,452.86	-3,045.13	3,895.12	3,816.64	78.48	49.632	
2,287.75	2,279.31	2,429.50	2,428.40	8.27	72.80	85.85	-2,453.60	-3,045.13	3,894.97	3,813.91	81.07	48.046	
2,300.00	2,291.50	2,440.01	2,438.91	8.32	73.11	85.87	-2,453.74	-3,045.13	3,894.98	3,813.55	81.43	47.832	
2,400.00	2,390.97	2,570.29	2,568.97	8.70	77.02	86.05	-2,454.66	-3,045.13	3,894.68	3,808.96	85.72	45.436	
2,500.00	2,490.44	2,669.76	2,668.44	9.08	80.00	86.20	-2,454.66	-3,045.13	3,893.98	3,804.90	89.08	43.714	
2,600.00	2,589.91	2,766.57	2,765.21	9.47	82.90	86.37	-2,452.49	-3,045.13	3,892.03	3,799.67	92.36	42.139	
2,700.00	2,689.38	2,852.47	2,851.09	9.85	85.47	86.50	-2,452.85	-3,045.13	3,891.64	3,796.32	95.32	40.828	
2,756.54	2,745.61	2,901.08	2,899.69	10.07	86.93	86.57	-2,453.28	-3,045.13	3,891.58	3,794.59	96.99	40.123	
2,800.00	2,788.85	2,938.48	2,937.08	10.23	88.05	86.62	-2,453.72	-3,045.13	3,891.61	3,793.34	98.28	39.599	
2,900.00	2,888.32	3,067.94	3,066.32	10.61	91.93	86.80	-2,454.66	-3,045.13	3,891.45	3,788.91	102.54	37.950	
3,000.00	2,987.79	3,167.41	3,165.79	11.00	94.91	86.95	-2,454.66	-3,045.13	3,890.89	3,784.99	105.90	36.740	
3,100.00	3,087.25	3,264.58	3,262.92	11.38	97.82	87.13	-2,452.49	-3,045.13	3,889.10	3,779.91	109.20	35.615	
3,200.00	3,186.72	3,350.71	3,349.02	11.76	100.40	87.25	-2,452.83	-3,045.13	3,888.83	3,776.67	112.16	34.672	
3,224.00	3,210.60	3,371.39	3,369.71	11.86	101.02	87.28	-2,452.99	-3,045.13	3,888.82	3,775.95	112.87	34.453	
3,300.00	3,286.19	3,436.94	3,435.24	12.15	102.99	87.37	-2,453.70	-3,045.13	3,888.92	3,773.80	115.13	33.780	
3,400.00	3,385.66	3,565.59	3,563.66	12.53	106.84	87.56	-2,454.66	-3,045.13	3,888.91	3,769.54	119.37	32.579	
3,500.00	3,485.13	3,665.06	3,663.13	12.91	109.82	87.71	-2,454.66	-3,045.13	3,888.48	3,765.75	122.73	31.683	
3,600.00	3,584.60	3,762.59	3,760.62	13.30	112.74	87.88	-2,452.48	-3,045.13	3,886.85	3,760.82	126.04	30.839	
3,691.21	3,675.33	3,841.34	3,839.35	13.65	115.10	88.00	-2,452.77	-3,045.13	3,886.70	3,757.96	128.75	30.189	
3,700.00	3,684.07	3,848.93	3,846.95	13.68	115.33	88.01	-2,452.82	-3,045.13	3,886.70	3,757.70	129.01	30.128	
3,800.00	3,783.54	3,935.40	3,933.39	14.06	117.92	88.13	-2,453.68	-3,045.13	3,886.92	3,754.94	131.98	29.451	
3,900.00	3,883.01	4,063.25	4,061.01	14.45	121.75	88.31	-2,454.66	-3,045.13	3,887.05	3,750.85	136.20	28.540	
4,000.00	3,982.48	4,162.72	4,160.48	14.83	124.73	88.46	-2,454.66	-3,045.13	3,886.75	3,747.19	139.56	27.850	
4,100.00	4,081.95	4,260.58	4,258.30	15.22	127.67	88.63	-2,452.48	-3,045.13	3,885.28	3,742.40	142.88	27.193	
4,157.00	4,138.65	4,309.91	4,307.63	15.43	129.14	88.71	-2,452.60	-3,045.13	3,885.23	3,740.65	144.58	26.873	
4,200.00	4,181.42	4,347.15	4,344.86	15.60	130.26	88.76	-2,452.81	-3,045.13	3,885.26	3,739.40	145.86	26.638	
4,300.00	4,280.89	4,433.84	4,431.53	15.98	132.86	88.88	-2,453.66	-3,045.13	3,885.59	3,736.75	148.84	26.107	
4,400.00	4,380.36	4,560.90	4,558.36	16.37	136.67	89.06	-2,454.66	-3,045.13	3,885.86	3,732.83	153.03	25.393	
4,500.00	4,479.83	4,660.37	4,657.83	16.75	139.65	89.21	-2,454.66	-3,045.13	3,885.70	3,729.31	156.39	24.845	

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 705H
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 705H	**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 #3	**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	Warning
4,600.00	4,579.30	4,758.56	4,755.98	17.14	142.59	89.39	-2,452.48	-3,045.13	3,884.39	3,724.67	159.72	24.320	
4,621.72	4,600.90	4,777.40	4,774.82	17.22	143.15	89.42	-2,452.50	-3,045.13	3,884.39	3,724.02	160.37	24.222	
4,700.00	4,678.77	4,845.36	4,842.77	17.52	145.19	89.52	-2,452.80	-3,045.13	3,884.49	3,721.79	162.71	23.874	
4,800.00	4,778.24	4,932.28	4,929.66	17.90	147.79	89.64	-2,453.64	-3,045.13	3,884.94	3,719.25	165.69	23.447	
4,900.00	4,877.71	5,058.55	5,055.71	18.29	151.58	89.82	-2,454.66	-3,045.13	3,885.35	3,715.49	169.86	22.873	
5,000.00	4,977.18	5,158.02	5,155.18	18.67	154.56	89.97	-2,454.66	-3,045.13	3,885.34	3,712.11	173.23	22.429	
5,093.71	5,070.39	5,251.06	5,248.18	19.03	157.35	90.14	-2,452.48	-3,045.13	3,884.18	3,707.81	176.38	22.022	CC
5,100.00	5,076.65	5,256.53	5,253.65	19.06	157.51	90.14	-2,452.48	-3,045.13	3,884.18	3,707.62	176.56	21.999	
5,200.00	5,176.12	5,343.56	5,340.66	19.44	160.12	90.27	-2,452.78	-3,045.13	3,884.41	3,704.85	179.56	21.633	
5,300.00	5,275.59	5,430.71	5,427.79	19.83	162.73	90.39	-2,453.62	-3,045.13	3,884.98	3,702.43	182.55	21.282	
5,400.00	5,375.06	5,556.20	5,553.06	20.21	166.49	90.57	-2,454.66	-3,045.13	3,885.53	3,698.83	186.70	20.812	
5,464.90	5,439.62	5,620.57	5,617.41	20.46	168.42	90.68	-2,453.61	-3,045.13	3,885.05	3,696.18	188.88	20.569	
5,500.00	5,474.53	5,647.53	5,644.36	20.59	169.23	90.72	-2,453.67	-3,045.13	3,885.14	3,695.32	189.82	20.468	
5,600.00	5,574.00	5,755.29	5,752.00	20.98	172.45	90.87	-2,454.66	-3,045.13	3,885.79	3,692.36	193.43	20.089	
5,700.00	5,673.47	5,854.76	5,851.47	21.36	175.44	91.02	-2,454.66	-3,045.13	3,885.96	3,689.17	196.80	19.746	
5,725.24	5,698.57	5,877.75	5,874.44	21.46	176.12	91.07	-2,453.53	-3,045.13	3,885.43	3,687.84	197.58	19.665	
5,800.00	5,772.94	5,936.38	5,933.05	21.75	177.88	91.16	-2,453.82	-3,045.13	3,885.77	3,686.14	199.62	19.465	
5,900.00	5,872.41	6,053.86	6,050.41	22.13	181.40	91.33	-2,454.66	-3,045.13	3,886.39	3,682.85	203.53	19.095	
6,000.00	5,971.88	6,153.33	6,149.88	22.52	184.38	91.48	-2,454.66	-3,045.13	3,886.64	3,679.74	206.90	18.785	
6,100.00	6,071.35	6,252.80	6,249.35	22.90	187.36	91.63	-2,454.66	-3,045.13	3,886.92	3,676.66	210.26	18.486	
6,200.00	6,170.81	6,317.00	6,313.36	23.28	189.29	91.72	-2,454.66	-3,045.13	3,887.39	3,674.83	212.56	18.288	ES
6,300.00	6,270.28	6,317.00	6,313.36	23.67	189.29	91.72	-2,454.66	-3,045.13	3,889.90	3,677.07	212.83	18.277	SF
6,375.94	6,345.82	6,317.00	6,313.36	23.96	189.29	91.72	-2,454.66	-3,045.13	3,893.53	3,680.59	212.94	18.285	
6,400.00	6,369.72	6,317.00	6,313.36	24.05	189.29	106.11	-2,454.66	-3,045.13	3,895.37	3,682.41	212.96	18.292	
6,450.00	6,419.09	6,317.00	6,313.36	24.25	189.29	121.92	-2,454.66	-3,045.13	3,902.16	3,689.18	212.99	18.321	
6,500.00	6,467.78	6,317.00	6,313.36	24.46	189.29	129.05	-2,454.66	-3,045.13	3,912.88	3,699.90	212.99	18.371	
6,550.00	6,515.51	6,317.00	6,313.36	24.67	189.29	132.62	-2,454.66	-3,045.13	3,927.44	3,714.47	212.97	18.441	
6,600.00	6,561.97	6,317.00	6,313.36	24.88	189.29	134.37	-2,454.66	-3,045.13	3,945.69	3,732.76	212.93	18.530	
6,650.00	6,606.89	6,317.00	6,313.36	25.10	189.29	134.99	-2,454.66	-3,045.13	3,967.49	3,754.60	212.88	18.637	
6,700.00	6,649.98	6,317.00	6,313.36	25.32	189.29	134.80	-2,454.66	-3,045.13	3,992.63	3,779.80	212.83	18.760	
6,750.00	6,690.98	6,317.00	6,313.36	25.54	189.29	133.93	-2,454.66	-3,045.13	4,020.90	3,808.14	212.77	18.898	
6,800.00	6,729.64	6,317.00	6,313.36	25.77	189.29	132.43	-2,454.66	-3,045.13	4,052.07	3,839.36	212.71	19.050	
6,850.00	6,765.71	6,317.00	6,313.36	26.00	189.29	130.29	-2,454.66	-3,045.13	4,085.88	3,873.22	212.66	19.214	
6,900.00	6,798.98	6,317.00	6,313.36	26.24	189.29	127.45	-2,454.66	-3,045.13	4,122.05	3,909.43	212.62	19.387	
6,950.00	6,829.24	6,317.00	6,313.36	26.49	189.29	123.85	-2,454.66	-3,045.13	4,160.30	3,947.71	212.59	19.569	
7,000.00	6,856.30	6,317.00	6,313.36	26.76	189.29	119.37	-2,454.66	-3,045.13	4,200.36	3,987.77	212.59	19.758	
7,050.00	6,880.00	6,317.00	6,313.36	27.03	189.29	113.92	-2,454.66	-3,045.13	4,241.91	4,029.30	212.61	19.952	
7,100.00	6,900.19	6,317.00	6,313.36	27.32	189.29	107.45	-2,454.66	-3,045.13	4,284.67	4,072.02	212.65	20.149	
7,150.00	6,916.74	6,317.00	6,313.36	27.62	189.29	99.97	-2,454.66	-3,045.13	4,328.34	4,115.62	212.72	20.348	
7,200.00	6,929.56	6,317.00	6,313.36	27.93	189.29	91.65	-2,454.66	-3,045.13	4,372.63	4,159.81	212.82	20.546	
7,250.00	6,938.57	6,317.00	6,313.36	28.26	189.29	82.84	-2,454.66	-3,045.13	4,417.25	4,204.30	212.94	20.744	
7,300.00	6,943.70	6,317.00	6,313.36	28.60	189.29	74.00	-2,454.66	-3,045.13	4,461.91	4,248.82	213.09	20.939	
7,340.76	6,945.00	6,317.00	6,313.36	28.88	189.29	67.10	-2,454.66	-3,045.13	4,498.17	4,284.93	213.24	21.095	
7,400.00	6,945.00	6,317.00	6,313.36	29.31	189.29	67.10	-2,454.66	-3,045.13	4,550.78	4,337.32	213.46	21.319	
7,500.00	6,945.00	6,317.00	6,313.36	30.09	189.29	67.10	-2,454.66	-3,045.13	4,639.93	4,426.10	213.83	21.699	
7,600.00	6,945.00	6,317.00	6,313.36	30.93	189.29	67.10	-2,454.66	-3,045.13	4,729.53	4,515.33	214.20	22.080	
7,700.00	6,945.00	6,317.00	6,313.36	31.83	189.29	67.10	-2,454.66	-3,045.13	4,819.53	4,604.97	214.56	22.463	
7,800.00	6,945.00	6,317.00	6,313.36	32.79	189.29	67.10	-2,454.66	-3,045.13	4,909.92	4,695.01	214.91	22.847	
7,900.00	6,945.00	6,317.00	6,313.36	33.79	189.29	67.10	-2,454.66	-3,045.13	5,000.68	4,785.42	215.26	23.231	
8,000.00	6,945.00	6,317.00	6,313.36	34.84	189.29	67.10	-2,454.66	-3,045.13	5,091.78	4,876.18	215.59	23.617	
8,100.00	6,945.00	6,317.00	6,313.36	35.93	189.29	67.10	-2,454.66	-3,045.13	5,183.21	4,967.28	215.93	24.005	
8,200.00	6,945.00	6,317.00	6,313.36	37.06	189.29	67.10	-2,454.66	-3,045.13	5,274.95	5,058.70	216.25	24.393	

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 705H
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 705H	**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 #3	**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
8,300.00	6,945.00	6,317.00	6,313.36	38.23	189.29	67.10	-2,454.66	-3,045.13	5,366.98	5,150.42	216.57	24.782	
8,400.00	6,945.00	6,317.00	6,313.36	39.42	189.29	67.10	-2,454.66	-3,045.13	5,459.30	5,242.42	216.88	25.172	
8,500.00	6,945.00	6,317.00	6,313.36	40.65	189.29	67.10	-2,454.66	-3,045.13	5,551.88	5,334.70	217.18	25.563	
8,600.00	6,945.00	6,317.00	6,313.36	41.90	189.29	67.10	-2,454.66	-3,045.13	5,644.72	5,427.24	217.48	25.955	
8,700.00	6,945.00	6,317.00	6,313.36	43.17	189.29	67.10	-2,454.66	-3,045.13	5,737.79	5,520.02	217.77	26.348	
8,800.00	6,945.00	6,317.00	6,313.36	44.46	189.29	67.10	-2,454.66	-3,045.13	5,831.10	5,613.05	218.05	26.741	
8,900.00	6,945.00	6,317.00	6,313.36	45.78	189.29	67.10	-2,454.66	-3,045.13	5,924.62	5,706.29	218.33	27.136	
9,000.00	6,945.00	6,317.00	6,313.36	47.11	189.29	67.10	-2,454.66	-3,045.13	6,018.36	5,799.75	218.60	27.531	
9,100.00	6,945.00	6,317.00	6,313.36	48.46	189.29	67.10	-2,454.66	-3,045.13	6,112.29	5,893.42	218.87	27.927	
9,200.00	6,945.00	6,317.00	6,313.36	49.82	189.29	67.10	-2,454.66	-3,045.13	6,206.41	5,987.28	219.13	28.323	
9,300.00	6,945.00	6,317.00	6,313.36	51.20	189.29	67.10	-2,454.66	-3,045.13	6,300.71	6,081.33	219.38	28.720	
9,400.00	6,945.00	6,317.00	6,313.36	52.59	189.29	67.10	-2,454.66	-3,045.13	6,395.18	6,175.56	219.63	29.118	
9,500.00	6,945.00	6,317.00	6,313.36	53.99	189.29	67.10	-2,454.66	-3,045.13	6,489.82	6,269.95	219.87	29.517	
9,600.00	6,945.00	6,317.00	6,313.36	55.40	189.29	67.10	-2,454.66	-3,045.13	6,584.62	6,364.52	220.11	29.915	
9,700.00	6,945.00	6,317.00	6,313.36	56.83	189.29	67.10	-2,454.66	-3,045.13	6,679.57	6,459.23	220.34	30.315	
9,800.00	6,945.00	6,317.00	6,313.36	58.26	189.29	67.10	-2,454.66	-3,045.13	6,774.67	6,554.10	220.57	30.715	
9,900.00	6,945.00	6,317.00	6,313.36	59.70	189.29	67.10	-2,454.66	-3,045.13	6,869.90	6,649.12	220.79	31.115	
10,000.00	6,945.00	6,317.00	6,313.36	61.15	189.29	67.10	-2,454.66	-3,045.13	6,965.27	6,744.27	221.01	31.516	
10,100.00	6,945.00	6,317.00	6,313.36	62.61	189.29	67.10	-2,454.66	-3,045.13	7,060.77	6,839.55	221.22	31.917	
10,200.00	6,945.00	6,317.00	6,313.36	64.07	189.29	67.10	-2,454.66	-3,045.13	7,156.39	6,934.96	221.43	32.319	
10,300.00	6,945.00	6,317.00	6,313.36	65.54	189.29	67.10	-2,454.66	-3,045.13	7,252.13	7,030.49	221.64	32.721	
10,400.00	6,945.00	6,317.00	6,313.36	67.02	189.29	67.10	-2,454.66	-3,045.13	7,347.98	7,126.14	221.84	33.123	
10,500.00	6,945.00	6,317.00	6,313.36	68.50	189.29	67.10	-2,454.66	-3,045.13	7,443.94	7,221.91	222.03	33.526	
10,600.00	6,945.00	6,317.00	6,313.36	69.99	189.29	67.10	-2,454.66	-3,045.13	7,540.01	7,317.78	222.23	33.929	
10,700.00	6,945.00	6,317.00	6,313.36	71.48	189.29	67.10	-2,454.66	-3,045.13	7,636.17	7,413.75	222.42	34.333	
10,800.00	6,945.00	6,317.00	6,313.36	72.98	189.29	67.10	-2,454.66	-3,045.13	7,732.44	7,509.83	222.60	34.736	
10,900.00	6,945.00	6,317.00	6,313.36	74.48	189.29	67.10	-2,454.66	-3,045.13	7,828.79	7,606.01	222.79	35.140	
11,000.00	6,945.00	6,317.00	6,313.36	75.99	189.29	67.10	-2,454.66	-3,045.13	7,925.24	7,702.27	222.97	35.544	
11,100.00	6,945.00	6,317.00	6,313.36	77.50	189.29	67.10	-2,454.66	-3,045.13	8,021.78	7,798.63	223.15	35.949	
11,200.00	6,945.00	6,317.00	6,313.36	79.01	189.29	67.10	-2,454.66	-3,045.13	8,118.39	7,895.07	223.32	36.353	
11,300.00	6,945.00	6,317.00	6,313.36	80.53	189.29	67.10	-2,454.66	-3,045.13	8,215.09	7,991.60	223.49	36.758	
11,400.00	6,945.00	6,317.00	6,313.36	82.05	189.29	67.10	-2,454.66	-3,045.13	8,311.87	8,088.21	223.66	37.163	
11,500.00	6,945.00	6,317.00	6,313.36	83.57	189.29	67.10	-2,454.66	-3,045.13	8,408.72	8,184.90	223.83	37.568	
11,600.00	6,945.00	6,317.00	6,313.36	85.10	189.29	67.10	-2,454.66	-3,045.13	8,505.65	8,281.66	223.99	37.973	
11,700.00	6,945.00	6,317.00	6,313.36	86.63	189.29	67.10	-2,454.66	-3,045.13	8,602.65	8,378.50	224.15	38.379	
11,800.00	6,945.00	6,317.00	6,313.36	88.16	189.29	67.10	-2,454.66	-3,045.13	8,699.71	8,475.40	224.31	38.784	
11,900.00	6,945.00	6,317.00	6,313.36	89.69	189.29	67.10	-2,454.66	-3,045.13	8,796.84	8,572.38	224.47	39.190	
12,000.00	6,945.00	6,317.00	6,313.36	91.23	189.29	67.10	-2,454.66	-3,045.13	8,894.03	8,669.41	224.62	39.596	
12,100.00	6,945.00	6,317.00	6,313.36	92.77	189.29	67.10	-2,454.66	-3,045.13	8,991.29	8,766.52	224.77	40.002	
12,200.00	6,945.00	6,317.00	6,313.36	94.31	189.29	67.10	-2,454.66	-3,045.13	9,088.60	8,863.68	224.92	40.408	
12,300.00	6,945.00	6,317.00	6,313.36	95.85	189.29	67.10	-2,454.66	-3,045.13	9,185.98	8,960.91	225.07	40.814	
12,400.00	6,945.00	6,317.00	6,313.36	97.40	189.29	67.10	-2,454.66	-3,045.13	9,283.41	9,058.19	225.22	41.220	
12,500.00	6,945.00	6,317.00	6,313.36	98.95	189.29	67.10	-2,454.66	-3,045.13	9,380.89	9,155.53	225.36	41.626	
12,600.00	6,945.00	6,317.00	6,313.36	100.50	189.29	67.10	-2,454.66	-3,045.13	9,478.42	9,252.92	225.50	42.032	
12,700.00	6,945.00	6,317.00	6,313.36	102.05	189.29	67.10	-2,454.66	-3,045.13	9,576.01	9,350.36	225.65	42.438	
12,800.00	6,945.00	6,317.00	6,313.36	103.60	189.29	67.10	-2,454.66	-3,045.13	9,673.64	9,447.86	225.78	42.845	
12,900.00	6,945.00	6,317.00	6,313.36	105.15	189.29	67.10	-2,454.66	-3,045.13	9,771.33	9,545.40	225.92	43.251	
13,000.00	6,945.00	6,317.00	6,313.36	106.71	189.29	67.10	-2,454.66	-3,045.13	9,869.06	9,643.00	226.06	43.657	
13,100.00	6,945.00	6,317.00	6,313.36	108.26	189.29	67.10	-2,454.66	-3,045.13	9,966.83	9,740.64	226.19	44.063	
13,200.00	6,945.00	6,317.00	6,313.36	109.82	189.29	67.10	-2,454.66	-3,045.13	10,064.65	9,838.32	226.33	44.469	
13,300.00	6,945.00	6,317.00	6,313.36	111.38	189.29	67.10	-2,454.66	-3,045.13	10,162.51	9,936.05	226.46	44.876	
13,400.00	6,945.00	6,317.00	6,313.36	112.94	189.29	67.10	-2,454.66	-3,045.13	10,260.41	10,033.82	226.59	45.282	

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 705H
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 705H	**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 #3	**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
13,500.00	6,945.00	6,317.00	6,313.36	114.50	189.29	67.10	-2,454.66	-3,045.13	10,358.35	10,131.63	226.72	45.688	
13,600.00	6,945.00	6,317.00	6,313.36	116.07	189.29	67.10	-2,454.66	-3,045.13	10,456.33	10,229.49	226.85	46.094	
13,700.00	6,945.00	6,317.00	6,313.36	117.63	189.29	67.10	-2,454.66	-3,045.13	10,554.35	10,327.38	226.97	46.500	
13,800.00	6,945.00	6,317.00	6,313.36	119.19	189.29	67.10	-2,454.66	-3,045.13	10,652.41	10,425.31	227.10	46.906	
13,900.00	6,945.00	6,317.00	6,313.36	120.76	189.29	67.10	-2,454.66	-3,045.13	10,750.50	10,523.27	227.23	47.312	
14,000.00	6,945.00	6,317.00	6,313.36	122.33	189.29	67.10	-2,454.66	-3,045.13	10,848.63	10,621.28	227.35	47.718	
14,100.00	6,945.00	6,317.00	6,313.36	123.90	189.29	67.10	-2,454.66	-3,045.13	10,946.79	10,719.31	227.47	48.124	
14,200.00	6,945.00	6,317.00	6,313.36	125.46	189.29	67.10	-2,454.66	-3,045.13	11,044.98	10,817.38	227.59	48.529	
14,300.00	6,945.00	6,317.00	6,313.36	127.03	189.29	67.10	-2,454.66	-3,045.13	11,143.20	10,915.49	227.72	48.935	
14,400.00	6,945.00	6,317.00	6,313.36	128.60	189.29	67.10	-2,454.66	-3,045.13	11,241.46	11,013.63	227.84	49.340	
14,500.00	6,945.00	6,317.00	6,313.36	130.18	189.29	67.10	-2,454.66	-3,045.13	11,339.75	11,111.79	227.95	49.746	
14,600.00	6,945.00	6,317.00	6,313.36	131.75	189.29	67.10	-2,454.66	-3,045.13	11,438.06	11,209.99	228.07	50.151	
14,700.00	6,945.00	6,317.00	6,313.36	133.32	189.29	67.10	-2,454.66	-3,045.13	11,536.41	11,308.22	228.19	50.556	
14,800.00	6,945.00	6,317.00	6,313.36	134.89	189.29	67.10	-2,454.66	-3,045.13	11,634.78	11,406.48	228.31	50.961	
14,900.00	6,945.00	6,317.00	6,313.36	136.47	189.29	67.10	-2,454.66	-3,045.13	11,733.19	11,504.76	228.42	51.366	
15,000.00	6,945.00	6,317.00	6,313.36	138.04	189.29	67.10	-2,454.66	-3,045.13	11,831.61	11,603.08	228.54	51.771	
15,100.00	6,945.00	6,317.00	6,313.36	139.62	189.29	67.10	-2,454.66	-3,045.13	11,930.07	11,701.41	228.65	52.175	
15,200.00	6,945.00	6,317.00	6,313.36	141.20	189.29	67.10	-2,454.66	-3,045.13	12,028.55	11,799.78	228.77	52.580	
15,300.00	6,945.00	6,317.00	6,313.36	142.77	189.29	67.10	-2,454.66	-3,045.13	12,127.05	11,898.17	228.88	52.984	
15,400.00	6,945.00	6,317.00	6,313.36	144.35	189.29	67.10	-2,454.66	-3,045.13	12,225.58	11,996.59	228.99	53.388	
15,500.00	6,945.00	6,317.00	6,313.36	145.93	189.29	67.10	-2,454.66	-3,045.13	12,324.13	12,095.03	229.11	53.792	
15,600.00	6,945.00	6,317.00	6,313.36	147.51	189.29	67.10	-2,454.66	-3,045.13	12,422.71	12,193.49	229.22	54.196	
15,700.00	6,945.00	6,317.00	6,313.36	149.09	189.29	67.10	-2,454.66	-3,045.13	12,521.31	12,291.98	229.33	54.600	
15,800.00	6,945.00	6,317.00	6,313.36	150.67	189.29	67.10	-2,454.66	-3,045.13	12,619.93	12,390.49	229.44	55.003	
15,900.00	6,945.00	6,317.00	6,313.36	152.25	189.29	67.10	-2,454.66	-3,045.13	12,718.57	12,489.02	229.55	55.407	
16,000.00	6,945.00	6,317.00	6,313.36	153.83	189.29	67.10	-2,454.66	-3,045.13	12,817.23	12,587.58	229.66	55.810	
16,100.00	6,945.00	6,317.00	6,313.36	155.41	189.29	67.10	-2,454.66	-3,045.13	12,915.92	12,686.15	229.77	56.213	
16,200.00	6,945.00	6,317.00	6,313.36	156.99	189.29	67.10	-2,454.66	-3,045.13	13,014.62	12,784.75	229.88	56.616	
16,300.00	6,945.00	6,317.00	6,313.36	158.57	189.29	67.10	-2,454.66	-3,045.13	13,113.35	12,883.36	229.99	57.018	
16,400.00	6,945.00	6,317.00	6,313.36	160.15	189.29	67.10	-2,454.66	-3,045.13	13,212.09	12,982.00	230.09	57.421	
16,500.00	6,945.00	6,317.00	6,313.36	161.74	189.29	67.10	-2,454.66	-3,045.13	13,310.85	13,080.65	230.20	57.823	
16,600.00	6,945.00	6,317.00	6,313.36	163.32	189.29	67.10	-2,454.66	-3,045.13	13,409.63	13,179.32	230.31	58.225	
16,700.00	6,945.00	6,317.00	6,313.36	164.90	189.29	67.10	-2,454.66	-3,045.13	13,508.43	13,278.01	230.41	58.627	
16,800.00	6,945.00	6,317.00	6,313.36	166.49	189.29	67.10	-2,454.66	-3,045.13	13,607.24	13,376.72	230.52	59.028	
16,900.00	6,945.00	6,317.00	6,313.36	168.07	189.29	67.10	-2,454.66	-3,045.13	13,706.07	13,475.45	230.63	59.430	
17,000.00	6,945.00	6,317.00	6,313.36	169.66	189.29	67.10	-2,454.66	-3,045.13	13,804.92	13,574.19	230.73	59.831	
17,100.00	6,945.00	6,317.00	6,313.36	171.24	189.29	67.10	-2,454.66	-3,045.13	13,903.79	13,672.95	230.84	60.232	
17,200.00	6,945.00	6,317.00	6,313.36	172.83	189.29	67.10	-2,454.66	-3,045.13	14,002.67	13,771.73	230.94	60.632	
17,300.00	6,945.00	6,317.00	6,313.36	174.41	189.29	67.10	-2,454.66	-3,045.13	14,101.57	13,870.52	231.05	61.033	
17,400.00	6,945.00	6,317.00	6,313.36	176.00	189.29	67.10	-2,454.66	-3,045.13	14,200.48	13,969.33	231.15	61.433	
17,500.00	6,945.00	6,317.00	6,313.36	177.59	189.29	67.10	-2,454.66	-3,045.13	14,299.41	14,068.15	231.26	61.833	
17,600.00	6,945.00	6,317.00	6,313.36	179.17	189.29	67.10	-2,454.66	-3,045.13	14,398.35	14,166.99	231.36	62.233	
17,700.00	6,945.00	6,317.00	6,313.36	180.76	189.29	67.10	-2,454.66	-3,045.13	14,497.31	14,265.84	231.47	62.633	
17,800.00	6,945.00	6,317.00	6,313.36	182.35	189.29	67.10	-2,454.66	-3,045.13	14,596.28	14,364.71	231.57	63.032	
17,900.00	6,945.00	6,317.00	6,313.36	183.93	189.29	67.10	-2,454.66	-3,045.13	14,695.27	14,463.59	231.67	63.431	
18,000.00	6,945.00	6,317.00	6,313.36	185.52	189.29	67.10	-2,454.66	-3,045.13	14,794.27	14,562.49	231.78	63.830	
18,100.00	6,945.00	6,317.00	6,313.36	187.11	189.29	67.10	-2,454.66	-3,045.13	14,893.28	14,661.40	231.88	64.228	
18,200.00	6,945.00	6,317.00	6,313.36	188.70	189.29	67.10	-2,454.66	-3,045.13	14,992.31	14,760.32	231.98	64.627	
18,300.00	6,945.00	6,317.00	6,313.36	190.29	189.29	67.10	-2,454.66	-3,045.13	15,091.34	14,859.26	232.09	65.025	
18,400.00	6,945.00	6,317.00	6,313.36	191.88	189.29	67.10	-2,454.66	-3,045.13	15,190.40	14,958.21	232.19	65.423	
18,500.00	6,945.00	6,317.00	6,313.36	193.46	189.29	67.10	-2,454.66	-3,045.13	15,289.46	15,057.17	232.29	65.820	
18,600.00	6,945.00	6,317.00	6,313.36	195.05	189.29	67.10	-2,454.66	-3,045.13	15,388.53	15,156.14	232.39	66.217	

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 705H
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 705H	**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 #3	**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
18,700.00	6,945.00	6,317.00	6,313.36	196.64	189.29	67.10	-2,454.66	-3,045.13	15,487.62	15,255.13	232.50	66.614	
18,800.00	6,945.00	6,317.00	6,313.36	198.23	189.29	67.10	-2,454.66	-3,045.13	15,586.72	15,354.12	232.60	67.011	
18,900.00	6,945.00	6,317.00	6,313.36	199.82	189.29	67.10	-2,454.66	-3,045.13	15,685.83	15,453.13	232.70	67.408	
19,000.00	6,945.00	6,317.00	6,313.36	201.41	189.29	67.10	-2,454.66	-3,045.13	15,784.95	15,552.15	232.80	67.804	
19,100.00	6,945.00	6,317.00	6,313.36	203.00	189.29	67.10	-2,454.66	-3,045.13	15,884.09	15,651.18	232.91	68.200	
19,200.00	6,945.00	6,317.00	6,313.36	204.60	189.29	67.10	-2,454.66	-3,045.13	15,983.23	15,750.22	233.01	68.595	
19,300.00	6,945.00	6,317.00	6,313.36	206.19	189.29	67.10	-2,454.66	-3,045.13	16,082.38	15,849.28	233.11	68.991	
19,400.00	6,945.00	6,317.00	6,313.36	207.78	189.29	67.10	-2,454.66	-3,045.13	16,181.55	15,948.34	233.21	69.386	
19,500.00	6,945.00	6,317.00	6,313.36	209.37	189.29	67.10	-2,454.66	-3,045.13	16,280.72	16,047.41	233.31	69.781	
19,600.00	6,945.00	6,317.00	6,313.36	210.96	189.29	67.10	-2,454.66	-3,045.13	16,379.91	16,146.49	233.41	70.175	
19,700.00	6,945.00	6,317.00	6,313.36	212.55	189.29	67.10	-2,454.66	-3,045.13	16,479.10	16,245.59	233.52	70.570	
19,800.00	6,945.00	6,317.00	6,313.36	214.14	189.29	67.10	-2,454.66	-3,045.13	16,578.31	16,344.69	233.62	70.963	
19,900.00	6,945.00	6,317.00	6,313.36	215.74	189.29	67.10	-2,454.66	-3,045.13	16,677.52	16,443.80	233.72	71.357	
20,000.00	6,945.00	6,317.00	6,313.36	217.33	189.29	67.10	-2,454.66	-3,045.13	16,776.74	16,542.92	233.82	71.750	
20,100.00	6,945.00	6,317.00	6,313.36	218.92	189.29	67.10	-2,454.66	-3,045.13	16,875.98	16,642.06	233.92	72.144	
20,200.00	6,945.00	6,317.00	6,313.36	220.51	189.29	67.10	-2,454.66	-3,045.13	16,975.22	16,741.19	234.02	72.536	
20,300.00	6,945.00	6,317.00	6,313.36	222.11	189.29	67.10	-2,454.66	-3,045.13	17,074.47	16,840.34	234.13	72.929	
20,400.00	6,945.00	6,317.00	6,313.36	223.70	189.29	67.10	-2,454.66	-3,045.13	17,173.73	16,939.50	234.23	73.321	
20,500.00	6,945.00	6,317.00	6,313.36	225.29	189.29	67.10	-2,454.66	-3,045.13	17,273.00	17,038.67	234.33	73.713	
20,600.00	6,945.00	6,317.00	6,313.36	226.88	189.29	67.10	-2,454.66	-3,045.13	17,372.27	17,137.84	234.43	74.104	
20,700.00	6,945.00	6,317.00	6,313.36	228.48	189.29	67.10	-2,454.66	-3,045.13	17,471.56	17,237.02	234.53	74.496	
20,741.48	6,945.00	6,317.00	6,313.36	229.14	189.29	67.10	-2,454.66	-3,045.13	17,512.74	17,278.16	234.57	74.658	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 705H
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 705H	**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 #3	**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
0.00	0.00	100.00	100.00	0.00	3.00	-83.07	949.13	-7,810.25	7,867.71				
100.00	100.00	200.00	200.00	0.25	5.99	-83.07	949.13	-7,810.25	7,867.71	7,861.47	6.24	1,260.052	
200.00	200.00	300.00	300.00	0.61	8.99	-83.07	949.13	-7,810.25	7,867.71	7,858.11	9.60	819.652	
300.00	300.00	400.00	400.00	0.97	11.99	-83.07	949.13	-7,810.25	7,867.71	7,854.76	12.95	607.371	
400.00	400.00	500.10	500.00	1.33	14.99	-83.07	949.13	-7,810.25	7,867.71	7,851.40	16.31	482.337	
500.00	500.00	600.10	600.00	1.68	17.98	-83.07	949.13	-7,810.25	7,867.71	7,848.04	19.67	400.055 CC	
600.00	599.98	700.08	699.98	2.03	20.98	129.19	949.13	-7,810.25	7,868.81	7,845.81	23.01	342.046 ES	
700.00	699.84	803.55	803.40	2.37	24.08	129.18	951.21	-7,810.25	7,872.37	7,845.93	26.44	297.732	
795.17	794.65	905.30	905.13	2.69	27.13	129.15	950.47	-7,810.25	7,877.49	7,847.67	29.82	264.182	
800.00	799.45	910.46	910.29	2.71	27.28	129.15	950.41	-7,810.25	7,877.80	7,847.81	29.99	262.672	
900.00	898.92	1,017.40	1,017.18	3.06	30.49	129.20	948.82	-7,810.25	7,884.13	7,850.59	33.55	235.027	
1,000.00	998.39	1,098.80	1,098.39	3.43	32.92	129.25	949.13	-7,810.25	7,890.68	7,854.33	36.34	217.126	
1,100.00	1,097.86	1,198.27	1,197.86	3.79	35.91	129.31	949.13	-7,810.25	7,897.21	7,857.53	39.68	199.010	
1,200.00	1,197.33	1,301.35	1,300.90	4.16	38.99	129.38	951.22	-7,810.25	7,904.01	7,860.88	43.13	183.240	
1,300.00	1,296.80	1,408.46	1,407.99	4.53	42.20	129.44	950.44	-7,810.25	7,910.47	7,863.76	46.71	169.352	
1,400.00	1,396.27	1,515.74	1,515.23	4.91	45.42	129.49	948.85	-7,810.25	7,916.84	7,866.55	50.29	157.416	
1,500.00	1,495.74	1,596.45	1,595.74	5.28	47.84	129.54	949.13	-7,810.25	7,923.42	7,870.34	53.08	149.274	
1,600.00	1,595.21	1,695.92	1,695.21	5.66	50.82	129.60	949.13	-7,810.25	7,929.99	7,873.56	56.43	140.527	
1,700.00	1,694.68	1,798.99	1,798.23	6.04	53.91	129.67	951.23	-7,810.25	7,936.84	7,876.95	59.89	132.524	
1,800.00	1,794.15	1,906.45	1,905.67	6.42	57.13	129.73	950.46	-7,810.25	7,943.34	7,879.86	63.48	125.128	
1,900.00	1,893.62	2,014.08	2,013.26	6.80	60.35	129.78	948.88	-7,810.25	7,949.74	7,882.66	67.08	118.513	
2,000.00	1,993.09	2,094.10	2,093.09	7.18	62.75	129.82	949.13	-7,810.25	7,956.36	7,886.51	69.85	113.907	
2,100.00	2,092.56	2,193.57	2,192.56	7.56	65.73	129.88	949.13	-7,810.25	7,962.97	7,889.76	73.20	108.778	
2,200.00	2,192.03	2,296.61	2,295.55	7.94	68.82	129.95	951.24	-7,810.25	7,969.87	7,893.21	76.66	103.958	
2,300.00	2,291.50	2,404.42	2,403.33	8.32	72.05	130.01	950.48	-7,810.25	7,976.41	7,896.14	80.27	99.371	
2,400.00	2,390.97	2,512.40	2,511.28	8.70	75.28	130.06	948.91	-7,810.25	7,982.84	7,898.96	83.88	95.170	
2,500.00	2,490.44	2,591.76	2,590.44	9.08	77.66	130.11	949.13	-7,810.25	7,989.49	7,902.86	86.63	92.224	
2,600.00	2,589.91	2,691.23	2,689.91	9.47	80.64	130.16	949.13	-7,810.25	7,996.14	7,906.15	89.99	88.860	
2,700.00	2,689.38	2,794.21	2,792.85	9.85	83.73	130.23	951.24	-7,810.25	8,003.10	7,909.65	93.45	85.643	
2,800.00	2,788.85	2,902.38	2,900.99	10.23	86.97	130.29	950.50	-7,810.25	8,009.67	7,912.60	97.06	82.520	
2,900.00	2,888.32	3,010.71	3,009.29	10.61	90.21	130.34	948.94	-7,810.25	8,016.14	7,915.45	100.69	79.616	
3,000.00	2,987.79	3,089.41	3,087.79	11.00	92.57	130.39	949.13	-7,810.25	8,022.82	7,919.40	103.42	77.577	
3,100.00	3,087.25	3,188.88	3,187.25	11.38	95.55	130.44	949.13	-7,810.25	8,029.51	7,922.73	106.77	75.201	
3,200.00	3,186.72	3,291.80	3,290.13	11.76	98.64	130.51	951.25	-7,810.25	8,036.51	7,926.28	110.23	72.905	
3,300.00	3,286.19	3,400.32	3,398.63	12.15	101.89	130.57	950.52	-7,810.25	8,043.12	7,929.26	113.86	70.640	
3,400.00	3,385.66	3,509.01	3,507.28	12.53	105.15	130.62	948.97	-7,810.25	8,049.62	7,932.13	117.49	68.511	
3,500.00	3,485.13	3,587.06	3,585.13	12.91	107.48	130.66	949.13	-7,810.25	8,056.34	7,936.13	120.21	67.021	
3,600.00	3,584.60	3,686.53	3,684.60	13.30	110.47	130.72	949.13	-7,810.25	8,063.06	7,939.50	123.56	65.255	
3,700.00	3,684.07	3,789.38	3,787.40	13.68	113.55	130.79	951.26	-7,810.25	8,070.12	7,943.10	127.02	63.534	
3,800.00	3,783.54	3,898.25	3,896.26	14.06	116.81	130.85	950.54	-7,810.25	8,076.76	7,946.10	130.66	61.816	
3,900.00	3,883.01	4,007.31	4,005.27	14.45	120.08	130.90	949.00	-7,810.25	8,083.30	7,948.99	134.30	60.187	
4,000.00	3,982.48	4,084.72	4,082.48	14.83	122.40	130.94	949.13	-7,810.25	8,090.04	7,953.05	137.00	59.053	
4,100.00	4,081.95	4,184.19	4,181.95	15.22	125.38	130.99	949.13	-7,810.25	8,096.81	7,956.45	140.35	57.689	
4,200.00	4,181.42	4,286.93	4,284.65	15.60	128.46	131.06	951.27	-7,810.25	8,103.91	7,960.10	143.81	56.353	
4,300.00	4,280.89	4,396.17	4,393.87	15.98	131.73	131.12	950.57	-7,810.25	8,110.59	7,963.13	147.46	55.003	
4,400.00	4,380.36	4,505.58	4,503.25	16.37	135.01	131.17	949.03	-7,810.25	8,117.16	7,966.04	151.11	53.716	
4,500.00	4,479.83	4,582.37	4,579.83	16.75	137.31	131.21	949.13	-7,810.25	8,123.93	7,970.15	153.79	52.826	
4,600.00	4,579.30	4,681.84	4,679.30	17.14	140.29	131.27	949.13	-7,810.25	8,130.73	7,973.59	157.14	51.741	
4,700.00	4,678.77	4,784.47	4,781.89	17.52	143.36	131.34	951.27	-7,810.25	8,137.88	7,977.29	160.59	50.673	
4,800.00	4,778.24	4,894.07	4,891.47	17.90	146.65	131.39	950.59	-7,810.25	8,144.60	7,980.35	164.26	49.585	
4,900.00	4,877.71	5,003.85	5,001.21	18.29	149.94	131.44	949.06	-7,810.25	8,151.20	7,983.28	167.92	48.542	
5,000.00	4,977.18	5,080.02	5,077.18	18.67	152.22	131.48	949.13	-7,810.25	8,158.01	7,987.43	170.58	47.826	

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 705H
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 705H	**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 #3	**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
5,100.00	5,076.65	5,179.49	5,176.65	19.06	155.20	131.54	949.13	-7,810.25	8,164.85	7,990.91	173.93	46.942	
5,200.00	5,176.12	5,282.00	5,279.11	19.44	158.27	131.61	951.28	-7,810.25	8,172.04	7,994.66	177.38	46.070	
5,300.00	5,275.59	5,391.96	5,389.05	19.83	161.57	131.66	950.61	-7,810.25	8,178.80	7,997.74	181.05	45.173	
5,400.00	5,375.06	5,502.11	5,499.16	20.21	164.87	131.71	949.09	-7,810.25	8,185.43	8,000.70	184.73	44.310	
5,500.00	5,474.53	5,577.67	5,574.53	20.59	167.13	131.75	949.13	-7,810.25	8,192.26	8,004.90	187.37	43.723	
5,600.00	5,574.00	5,677.14	5,674.00	20.98	170.11	131.80	949.13	-7,810.25	8,199.14	8,008.41	190.72	42.989	
5,700.00	5,673.47	5,779.50	5,776.31	21.36	173.18	131.87	951.28	-7,810.25	8,206.38	8,012.21	194.17	42.264	
5,800.00	5,772.94	5,889.84	5,886.62	21.75	176.49	131.93	950.63	-7,810.25	8,213.17	8,015.32	197.85	41.512	
5,900.00	5,872.41	6,000.35	5,997.10	22.13	179.80	131.98	949.12	-7,810.25	8,219.83	8,018.29	201.54	40.785	
6,000.00	5,971.88	6,075.33	6,071.88	22.52	182.04	132.02	949.13	-7,810.25	8,226.70	8,022.54	204.16	40.296	
6,100.00	6,071.35	6,174.80	6,171.35	22.90	185.02	132.07	949.13	-7,810.25	8,233.61	8,026.09	207.51	39.677	
6,200.00	6,170.81	6,277.00	6,273.50	23.28	188.09	132.14	951.29	-7,810.25	8,240.90	8,029.94	210.95	39.065	
6,300.00	6,270.28	6,387.70	6,384.18	23.67	191.40	132.19	950.65	-7,810.25	8,247.72	8,033.07	214.65	38.425	
6,375.94	6,345.82	6,471.89	6,468.34	23.96	193.93	132.23	949.59	-7,810.25	8,252.82	8,035.36	217.46	37.952	
6,400.00	6,369.72	6,498.55	6,495.00	24.05	194.73	146.74	949.15	-7,810.25	8,254.86	8,036.52	218.35	37.806	
6,450.00	6,419.09	6,522.84	6,519.09	24.25	195.45	162.99	949.13	-7,810.25	8,262.06	8,042.80	219.26	37.682	
6,500.00	6,467.78	6,571.54	6,567.78	24.46	196.91	170.84	949.13	-7,810.25	8,273.10	8,052.19	220.90	37.451	
6,550.00	6,515.51	6,619.26	6,615.51	24.67	198.34	175.39	949.13	-7,810.25	8,287.87	8,065.35	222.52	37.246	
6,600.00	6,561.97	6,665.73	6,661.97	24.88	199.74	178.43	949.13	-7,810.25	8,306.28	8,082.19	224.08	37.068	
6,650.00	6,606.89	6,710.65	6,706.89	25.10	201.08	-179.31	949.13	-7,810.25	8,328.21	8,102.62	225.60	36.916	
6,700.00	6,649.98	6,754.19	6,750.39	25.32	202.39	-177.45	951.31	-7,810.25	8,353.93	8,126.87	227.06	36.791	
6,750.00	6,690.98	6,799.93	6,796.13	25.54	203.76	-175.82	951.23	-7,810.25	8,382.48	8,153.89	228.58	36.672	
6,800.00	6,729.64	6,843.09	6,839.28	25.77	205.05	-174.27	951.01	-7,810.25	8,414.06	8,184.05	230.01	36.581	
6,850.00	6,765.71	6,883.40	6,879.58	26.00	206.26	-172.70	950.69	-7,810.25	8,448.50	8,217.16	231.35	36.519	
6,900.00	6,798.98	6,920.59	6,916.76	26.24	207.37	-171.00	950.30	-7,810.25	8,485.58	8,253.01	232.57	36.486	
6,950.00	6,829.24	6,954.44	6,950.60	26.49	208.39	-169.05	949.85	-7,810.25	8,525.08	8,291.39	233.68	36.481 SF	
7,000.00	6,856.30	6,984.73	6,980.88	26.76	209.29	-166.72	949.39	-7,810.25	8,566.75	8,332.08	234.67	36.505	
7,050.00	6,880.00	7,011.26	7,007.40	27.03	210.09	-163.76	948.93	-7,810.25	8,610.35	8,374.82	235.54	36.557	
7,100.00	6,900.19	7,004.25	7,000.19	27.32	209.88	-159.65	949.13	-7,810.25	8,655.68	8,420.30	235.37	36.775	
7,150.00	6,916.74	7,020.80	7,016.74	27.62	210.38	-153.99	949.13	-7,810.25	8,702.39	8,466.48	235.91	36.889	
7,200.00	6,929.56	7,033.62	7,029.56	27.93	210.76	-145.51	949.13	-7,810.25	8,750.19	8,513.88	236.31	37.028	
7,250.00	6,938.57	7,042.63	7,038.57	28.26	211.03	-132.13	949.13	-7,810.25	8,798.79	8,562.20	236.59	37.189	
7,300.00	6,943.70	7,047.76	7,043.70	28.60	211.18	-111.40	949.13	-7,810.25	8,847.89	8,611.14	236.75	37.372	
7,340.76	6,945.00	7,049.06	7,045.00	28.88	211.22	-90.00	949.13	-7,810.25	8,888.08	8,651.29	236.78	37.537	
7,400.00	6,945.00	7,049.06	7,045.00	29.31	211.22	-90.00	949.13	-7,810.25	8,946.51	8,709.74	236.77	37.786	
7,500.00	6,945.00	7,049.06	7,045.00	30.09	211.22	-90.00	949.13	-7,810.25	9,045.17	8,808.42	236.75	38.206	
7,600.00	6,945.00	7,049.06	7,045.00	30.93	211.22	-90.00	949.13	-7,810.25	9,143.86	8,907.12	236.73	38.625	
7,700.00	6,945.00	7,049.06	7,045.00	31.83	211.22	-90.00	949.13	-7,810.25	9,242.57	9,005.85	236.72	39.044	
7,800.00	6,945.00	7,049.06	7,045.00	32.79	211.22	-90.00	949.13	-7,810.25	9,341.31	9,104.60	236.71	39.463	
7,900.00	6,945.00	7,049.06	7,045.00	33.79	211.22	-90.00	949.13	-7,810.25	9,440.08	9,203.38	236.70	39.881	
8,000.00	6,945.00	7,049.06	7,045.00	34.84	211.22	-90.00	949.13	-7,810.25	9,538.88	9,302.17	236.70	40.299	
8,100.00	6,945.00	7,049.06	7,045.00	35.93	211.22	-90.00	949.13	-7,810.25	9,637.69	9,400.99	236.70	40.717	
8,200.00	6,945.00	7,049.06	7,045.00	37.06	211.22	-90.00	949.13	-7,810.25	9,736.54	9,499.83	236.70	41.134	
8,300.00	6,945.00	7,049.06	7,045.00	38.23	211.22	-90.00	949.13	-7,810.25	9,835.40	9,598.69	236.71	41.550	
8,400.00	6,945.00	7,049.06	7,045.00	39.42	211.22	-90.00	949.13	-7,810.25	9,934.29	9,697.58	236.72	41.967	
8,500.00	6,945.00	7,049.06	7,045.00	40.65	211.22	-90.00	949.13	-7,810.25	10,033.21	9,796.48	236.73	42.383	
8,600.00	6,945.00	7,049.06	7,045.00	41.90	211.22	-90.00	949.13	-7,810.25	10,132.14	9,895.40	236.74	42.798	
8,700.00	6,945.00	7,049.06	7,045.00	43.17	211.22	-90.00	949.13	-7,810.25	10,231.09	9,994.33	236.76	43.213	
8,800.00	6,945.00	7,049.06	7,045.00	44.46	211.22	-90.00	949.13	-7,810.25	10,330.07	10,093.29	236.78	43.628	
8,900.00	6,945.00	7,049.06	7,045.00	45.78	211.22	-90.00	949.13	-7,810.25	10,429.06	10,192.26	236.80	44.042	
9,000.00	6,945.00	7,049.06	7,045.00	47.11	211.22	-90.00	949.13	-7,810.25	10,528.07	10,291.25	236.82	44.456	
9,100.00	6,945.00	7,049.06	7,045.00	48.46	211.22	-90.00	949.13	-7,810.25	10,627.10	10,390.26	236.84	44.870	

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 705H
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 705H	**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 #3	**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
9,200.00	6,945.00	7,049.06	7,045.00	49.82	211.22	-90.00	949.13	-7,810.25	10,726.15	10,489.28	236.87	45.283	
9,300.00	6,945.00	7,049.06	7,045.00	51.20	211.22	-90.00	949.13	-7,810.25	10,825.22	10,588.32	236.90	45.696	
9,400.00	6,945.00	7,049.06	7,045.00	52.59	211.22	-90.00	949.13	-7,810.25	10,924.30	10,687.37	236.93	46.108	
9,500.00	6,945.00	7,049.06	7,045.00	53.99	211.22	-90.00	949.13	-7,810.25	11,023.40	10,786.44	236.96	46.520	
9,600.00	6,945.00	7,049.06	7,045.00	55.40	211.22	-90.00	949.13	-7,810.25	11,122.52	10,885.52	237.00	46.931	
9,700.00	6,945.00	7,049.06	7,045.00	56.83	211.22	-90.00	949.13	-7,810.25	11,221.65	10,984.62	237.03	47.343	
9,800.00	6,945.00	7,049.06	7,045.00	58.26	211.22	-90.00	949.13	-7,810.25	11,320.80	11,083.73	237.07	47.753	
9,900.00	6,945.00	7,049.06	7,045.00	59.70	211.22	-90.00	949.13	-7,810.25	11,419.96	11,182.85	237.11	48.164	
10,000.00	6,945.00	7,049.06	7,045.00	61.15	211.22	-90.00	949.13	-7,810.25	11,519.13	11,281.99	237.15	48.574	
10,100.00	6,945.00	7,049.06	7,045.00	62.61	211.22	-90.00	949.13	-7,810.25	11,618.32	11,381.13	237.19	48.983	
10,200.00	6,945.00	7,049.06	7,045.00	64.07	211.22	-90.00	949.13	-7,810.25	11,717.53	11,480.30	237.23	49.393	
10,300.00	6,945.00	7,049.06	7,045.00	65.54	211.22	-90.00	949.13	-7,810.25	11,816.75	11,579.47	237.28	49.801	
10,400.00	6,945.00	7,049.06	7,045.00	67.02	211.22	-90.00	949.13	-7,810.25	11,915.98	11,678.65	237.32	50.210	
10,500.00	6,945.00	7,049.06	7,045.00	68.50	211.22	-90.00	949.13	-7,810.25	12,015.22	11,777.85	237.37	50.618	
10,600.00	6,945.00	7,049.06	7,045.00	69.99	211.22	-90.00	949.13	-7,810.25	12,114.48	11,877.06	237.42	51.025	
10,700.00	6,945.00	7,049.06	7,045.00	71.48	211.22	-90.00	949.13	-7,810.25	12,213.74	11,976.27	237.47	51.433	
10,800.00	6,945.00	7,049.06	7,045.00	72.98	211.22	-90.00	949.13	-7,810.25	12,313.02	12,075.50	237.52	51.840	
10,900.00	6,945.00	7,049.06	7,045.00	74.48	211.22	-90.00	949.13	-7,810.25	12,412.32	12,174.74	237.57	52.246	
11,000.00	6,945.00	7,049.06	7,045.00	75.99	211.22	-90.00	949.13	-7,810.25	12,511.62	12,273.99	237.63	52.652	
11,100.00	6,945.00	7,049.06	7,045.00	77.50	211.22	-90.00	949.13	-7,810.25	12,610.93	12,373.25	237.68	53.058	
11,200.00	6,945.00	7,049.06	7,045.00	79.01	211.22	-90.00	949.13	-7,810.25	12,710.26	12,472.52	237.74	53.463	
11,300.00	6,945.00	7,049.06	7,045.00	80.53	211.22	-90.00	949.13	-7,810.25	12,809.59	12,571.79	237.80	53.868	
11,400.00	6,945.00	7,049.06	7,045.00	82.05	211.22	-90.00	949.13	-7,810.25	12,908.94	12,671.08	237.86	54.272	
11,500.00	6,945.00	7,049.06	7,045.00	83.57	211.22	-90.00	949.13	-7,810.25	13,008.29	12,770.38	237.91	54.676	
11,600.00	6,945.00	7,049.06	7,045.00	85.10	211.22	-90.00	949.13	-7,810.25	13,107.66	12,869.68	237.97	55.080	
11,700.00	6,945.00	7,049.06	7,045.00	86.63	211.22	-90.00	949.13	-7,810.25	13,207.03	12,969.00	238.04	55.483	
11,800.00	6,945.00	7,049.06	7,045.00	88.16	211.22	-90.00	949.13	-7,810.25	13,306.42	13,068.32	238.10	55.886	
11,900.00	6,945.00	7,049.06	7,045.00	89.69	211.22	-90.00	949.13	-7,810.25	13,405.81	13,167.65	238.16	56.289	
12,000.00	6,945.00	7,049.06	7,045.00	91.23	211.22	-90.00	949.13	-7,810.25	13,505.21	13,266.99	238.23	56.691	
12,100.00	6,945.00	7,049.06	7,045.00	92.77	211.22	-90.00	949.13	-7,810.25	13,604.62	13,366.33	238.29	57.092	
12,200.00	6,945.00	7,049.06	7,045.00	94.31	211.22	-90.00	949.13	-7,810.25	13,704.04	13,465.68	238.36	57.494	
12,300.00	6,945.00	7,049.06	7,045.00	95.85	211.22	-90.00	949.13	-7,810.25	13,803.47	13,565.05	238.42	57.895	
12,400.00	6,945.00	7,049.06	7,045.00	97.40	211.22	-90.00	949.13	-7,810.25	13,902.91	13,664.41	238.49	58.295	
12,500.00	6,945.00	7,049.06	7,045.00	98.95	211.22	-90.00	949.13	-7,810.25	14,002.35	13,763.79	238.56	58.695	
12,600.00	6,945.00	7,049.06	7,045.00	100.50	211.22	-90.00	949.13	-7,810.25	14,101.80	13,863.17	238.63	59.095	
12,700.00	6,945.00	7,049.06	7,045.00	102.05	211.22	-90.00	949.13	-7,810.25	14,201.26	13,962.56	238.70	59.494	
12,800.00	6,945.00	7,049.06	7,045.00	103.60	211.22	-90.00	949.13	-7,810.25	14,300.73	14,061.96	238.77	59.893	
12,900.00	6,945.00	7,049.06	7,045.00	105.15	211.22	-90.00	949.13	-7,810.25	14,400.20	14,161.36	238.84	60.292	
13,000.00	6,945.00	7,049.06	7,045.00	106.71	211.22	-90.00	949.13	-7,810.25	14,499.69	14,260.77	238.92	60.690	
13,100.00	6,945.00	7,049.06	7,045.00	108.26	211.22	-90.00	949.13	-7,810.25	14,599.17	14,360.19	238.99	61.087	
13,200.00	6,945.00	7,049.06	7,045.00	109.82	211.22	-90.00	949.13	-7,810.25	14,698.67	14,459.61	239.06	61.485	
13,300.00	6,945.00	7,049.06	7,045.00	111.38	211.22	-90.00	949.13	-7,810.25	14,798.17	14,559.04	239.14	61.882	
13,400.00	6,945.00	7,049.06	7,045.00	112.94	211.22	-90.00	949.13	-7,810.25	14,897.68	14,658.47	239.21	62.278	
13,500.00	6,945.00	7,049.06	7,045.00	114.50	211.22	-90.00	949.13	-7,810.25	14,997.20	14,757.91	239.29	62.674	
13,600.00	6,945.00	7,049.06	7,045.00	116.07	211.22	-90.00	949.13	-7,810.25	15,096.72	14,857.35	239.37	63.070	
13,700.00	6,945.00	7,049.06	7,045.00	117.63	211.22	-90.00	949.13	-7,810.25	15,196.25	14,956.81	239.44	63.465	
13,800.00	6,945.00	7,049.06	7,045.00	119.19	211.22	-90.00	949.13	-7,810.25	15,295.78	15,056.26	239.52	63.860	
13,900.00	6,945.00	7,049.06	7,045.00	120.76	211.22	-90.00	949.13	-7,810.25	15,395.32	15,155.72	239.60	64.254	
14,000.00	6,945.00	7,049.06	7,045.00	122.33	211.22	-90.00	949.13	-7,810.25	15,494.87	15,255.19	239.68	64.648	
14,100.00	6,945.00	7,049.06	7,045.00	123.90	211.22	-90.00	949.13	-7,810.25	15,594.42	15,354.66	239.76	65.042	
14,200.00	6,945.00	7,049.06	7,045.00	125.46	211.22	-90.00	949.13	-7,810.25	15,693.98	15,454.14	239.84	65.435	
14,300.00	6,945.00	7,049.06	7,045.00	127.03	211.22	-90.00	949.13	-7,810.25	15,793.55	15,553.62	239.92	65.828	

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 705H
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 705H	**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 #3	**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
14,400.00	6,945.00	7,049.06	7,045.00	128.60	211.22	-90.00	949.13	-7,810.25	15,893.11	15,653.11	240.00	66.220	
14,500.00	6,945.00	7,049.06	7,045.00	130.18	211.22	-90.00	949.13	-7,810.25	15,992.69	15,752.60	240.09	66.612	
14,600.00	6,945.00	7,049.06	7,045.00	131.75	211.22	-90.00	949.13	-7,810.25	16,092.27	15,852.10	240.17	67.004	
14,700.00	6,945.00	7,049.06	7,045.00	133.32	211.22	-90.00	949.13	-7,810.25	16,191.85	15,951.60	240.25	67.395	
14,800.00	6,945.00	7,049.06	7,045.00	134.89	211.22	-90.00	949.13	-7,810.25	16,291.44	16,051.11	240.34	67.786	
14,900.00	6,945.00	7,049.06	7,045.00	136.47	211.22	-90.00	949.13	-7,810.25	16,391.04	16,150.62	240.42	68.176	
15,000.00	6,945.00	7,049.06	7,045.00	138.04	211.22	-90.00	949.13	-7,810.25	16,490.64	16,250.13	240.51	68.566	
15,100.00	6,945.00	7,049.06	7,045.00	139.62	211.22	-90.00	949.13	-7,810.25	16,590.24	16,349.65	240.59	68.955	
15,200.00	6,945.00	7,049.06	7,045.00	141.20	211.22	-90.00	949.13	-7,810.25	16,689.85	16,449.17	240.68	69.345	
15,300.00	6,945.00	7,049.06	7,045.00	142.77	211.22	-90.00	949.13	-7,810.25	16,789.47	16,548.70	240.77	69.733	
15,400.00	6,945.00	7,049.06	7,045.00	144.35	211.22	-90.00	949.13	-7,810.25	16,889.09	16,648.23	240.85	70.121	
15,500.00	6,945.00	7,049.06	7,045.00	145.93	211.22	-90.00	949.13	-7,810.25	16,988.71	16,747.77	240.94	70.509	
15,600.00	6,945.00	7,049.06	7,045.00	147.51	211.22	-90.00	949.13	-7,810.25	17,088.34	16,847.31	241.03	70.897	
15,700.00	6,945.00	7,049.06	7,045.00	149.09	211.22	-90.00	949.13	-7,810.25	17,187.97	16,946.85	241.12	71.284	
15,800.00	6,945.00	7,049.06	7,045.00	150.67	211.22	-90.00	949.13	-7,810.25	17,287.60	17,046.39	241.21	71.670	
15,900.00	6,945.00	7,049.06	7,045.00	152.25	211.22	-90.00	949.13	-7,810.25	17,387.25	17,145.95	241.30	72.057	
16,000.00	6,945.00	7,049.06	7,045.00	153.83	211.22	-90.00	949.13	-7,810.25	17,486.89	17,245.50	241.39	72.442	
16,100.00	6,945.00	7,049.06	7,045.00	155.41	211.22	-90.00	949.13	-7,810.25	17,586.54	17,345.06	241.48	72.828	
16,200.00	6,945.00	7,049.06	7,045.00	156.99	211.22	-90.00	949.13	-7,810.25	17,686.19	17,444.62	241.57	73.213	
16,300.00	6,945.00	7,049.06	7,045.00	158.57	211.22	-90.00	949.13	-7,810.25	17,785.85	17,544.18	241.67	73.597	
16,400.00	6,945.00	7,049.06	7,045.00	160.15	211.22	-90.00	949.13	-7,810.25	17,885.51	17,643.75	241.76	73.981	
16,500.00	6,945.00	7,049.06	7,045.00	161.74	211.22	-90.00	949.13	-7,810.25	17,985.17	17,743.32	241.85	74.365	
16,600.00	6,945.00	7,049.06	7,045.00	163.32	211.22	-90.00	949.13	-7,810.25	18,084.84	17,842.90	241.94	74.748	
16,700.00	6,945.00	7,049.06	7,045.00	164.90	211.22	-90.00	949.13	-7,810.25	18,184.51	17,942.47	242.04	75.131	
16,800.00	6,945.00	7,049.06	7,045.00	166.49	211.22	-90.00	949.13	-7,810.25	18,284.19	18,042.05	242.13	75.513	
16,900.00	6,945.00	7,049.06	7,045.00	168.07	211.22	-90.00	949.13	-7,810.25	18,383.86	18,141.64	242.23	75.895	
17,000.00	6,945.00	7,049.06	7,045.00	169.66	211.22	-90.00	949.13	-7,810.25	18,483.55	18,241.22	242.32	76.277	
17,100.00	6,945.00	7,049.06	7,045.00	171.24	211.22	-90.00	949.13	-7,810.25	18,583.23	18,340.81	242.42	76.658	
17,200.00	6,945.00	7,049.06	7,045.00	172.83	211.22	-90.00	949.13	-7,810.25	18,682.92	18,440.41	242.51	77.039	
17,300.00	6,945.00	7,049.06	7,045.00	174.41	211.22	-90.00	949.13	-7,810.25	18,782.61	18,540.00	242.61	77.419	
17,400.00	6,945.00	7,049.06	7,045.00	176.00	211.22	-90.00	949.13	-7,810.25	18,882.31	18,639.60	242.71	77.799	
17,500.00	6,945.00	7,049.06	7,045.00	177.59	211.22	-90.00	949.13	-7,810.25	18,982.01	18,739.20	242.80	78.179	
17,600.00	6,945.00	7,049.06	7,045.00	179.17	211.22	-90.00	949.13	-7,810.25	19,081.71	18,838.81	242.90	78.558	
17,700.00	6,945.00	7,049.06	7,045.00	180.76	211.22	-90.00	949.13	-7,810.25	19,181.41	18,938.41	243.00	78.936	
17,800.00	6,945.00	7,049.06	7,045.00	182.35	211.22	-90.00	949.13	-7,810.25	19,281.12	19,038.02	243.10	79.314	
17,900.00	6,945.00	7,049.06	7,045.00	183.93	211.22	-90.00	949.13	-7,810.25	19,380.83	19,137.63	243.20	79.692	
18,000.00	6,945.00	7,049.06	7,045.00	185.52	211.22	-90.00	949.13	-7,810.25	19,480.54	19,237.25	243.30	80.070	
18,100.00	6,945.00	7,049.06	7,045.00	187.11	211.22	-90.00	949.13	-7,810.25	19,580.26	19,336.87	243.39	80.447	
18,200.00	6,945.00	7,049.06	7,045.00	188.70	211.22	-90.00	949.13	-7,810.25	19,679.98	19,436.49	243.49	80.823	
18,300.00	6,945.00	7,049.06	7,045.00	190.29	211.22	-90.00	949.13	-7,810.25	19,779.70	19,536.11	243.59	81.199	
18,400.00	6,945.00	7,049.06	7,045.00	191.88	211.22	-90.00	949.13	-7,810.25	19,879.43	19,635.73	243.70	81.575	
18,500.00	6,945.00	7,049.06	7,045.00	193.46	211.22	-90.00	949.13	-7,810.25	19,979.16	19,735.36	243.80	81.950	
18,600.00	6,945.00	7,049.06	7,045.00	195.05	211.22	-90.00	949.13	-7,810.25	20,078.89	19,834.99	243.90	82.325	
18,700.00	6,945.00	7,049.06	7,045.00	196.64	211.22	-90.00	949.13	-7,810.25	20,178.62	19,934.62	244.00	82.699	
18,800.00	6,945.00	7,049.06	7,045.00	198.23	211.22	-90.00	949.13	-7,810.25	20,278.36	20,034.25	244.10	83.073	
18,900.00	6,945.00	7,049.06	7,045.00	199.82	211.22	-90.00	949.13	-7,810.25	20,378.09	20,133.89	244.20	83.447	
19,000.00	6,945.00	7,049.06	7,045.00	201.41	211.22	-90.00	949.13	-7,810.25	20,477.84	20,233.53	244.31	83.820	
19,100.00	6,945.00	7,049.06	7,045.00	203.00	211.22	-90.00	949.13	-7,810.25	20,577.58	20,333.17	244.41	84.193	
19,200.00	6,945.00	7,049.06	7,045.00	204.60	211.22	-90.00	949.13	-7,810.25	20,677.33	20,432.81	244.51	84.565	
19,300.00	6,945.00	7,049.06	7,045.00	206.19	211.22	-90.00	949.13	-7,810.25	20,777.07	20,532.46	244.62	84.937	
19,400.00	6,945.00	7,049.06	7,045.00	207.78	211.22	-90.00	949.13	-7,810.25	20,876.82	20,632.10	244.72	85.308	
19,500.00	6,945.00	7,049.06	7,045.00	209.37	211.22	-90.00	949.13	-7,810.25	20,976.58	20,731.75	244.83	85.679	

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 705H
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 705H	**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 #3	**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
19,600.00	6,945.00	7,049.06	7,045.00	210.96	211.22	-90.00	949.13	-7,810.25	21,076.33	20,831.40	244.93	86.050	
19,700.00	6,945.00	7,049.06	7,045.00	212.55	211.22	-90.00	949.13	-7,810.25	21,176.09	20,931.06	245.04	86.420	
19,800.00	6,945.00	7,049.06	7,045.00	214.14	211.22	-90.00	949.13	-7,810.25	21,275.85	21,030.71	245.14	86.790	
19,900.00	6,945.00	7,049.06	7,045.00	215.74	211.22	-90.00	949.13	-7,810.25	21,375.61	21,130.37	245.25	87.159	
20,000.00	6,945.00	7,049.06	7,045.00	217.33	211.22	-90.00	949.13	-7,810.25	21,475.38	21,230.02	245.35	87.528	
20,100.00	6,945.00	7,049.06	7,045.00	218.92	211.22	-90.00	949.13	-7,810.25	21,575.15	21,329.69	245.46	87.897	
20,200.00	6,945.00	7,049.06	7,045.00	220.51	211.22	-90.00	949.13	-7,810.25	21,674.91	21,429.35	245.57	88.265	
20,300.00	6,945.00	7,049.06	7,045.00	222.11	211.22	-90.00	949.13	-7,810.25	21,774.69	21,529.01	245.67	88.632	
20,400.00	6,945.00	7,049.06	7,045.00	223.70	211.22	-90.00	949.13	-7,810.25	21,874.46	21,628.68	245.78	89.000	
20,500.00	6,945.00	7,049.06	7,045.00	225.29	211.22	-90.00	949.13	-7,810.25	21,974.23	21,728.35	245.89	89.366	
20,600.00	6,945.00	7,049.06	7,045.00	226.88	211.22	-90.00	949.13	-7,810.25	22,074.01	21,828.01	246.00	89.733	
20,700.00	6,945.00	7,049.06	7,045.00	228.48	211.22	-90.00	949.13	-7,810.25	22,173.79	21,927.69	246.11	90.099	
20,741.48	6,945.00	7,049.06	7,045.00	229.14	211.22	-90.00	949.13	-7,810.25	22,215.18	21,969.03	246.15	90.250	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 705H
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 705H	**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 #3	**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
0.00	0.00	79.37	79.37	0.00	0.14	-84.03	940.01	-8,992.52	9,041.53				
100.00	100.00	162.04	162.04	0.25	0.29	-84.03	939.98	-8,992.75	9,041.81	9,041.27	0.54	N/A	
200.00	200.00	244.71	244.71	0.61	0.44	-84.03	939.93	-8,993.15	9,042.28	9,041.23	1.05	8,625.394 ES	
300.00	300.00	327.31	327.30	0.97	0.64	-84.03	939.85	-8,993.71	9,042.95	9,041.34	1.60	5,638.233	
400.00	400.00	372.00	372.00	1.33	0.80	-84.03	939.80	-8,994.08	9,043.90	9,041.78	2.12	4,260.297	
500.00	500.00	372.00	372.00	1.68	0.80	-84.03	939.80	-8,994.08	9,045.82	9,043.34	2.48	3,644.116	
600.00	599.98	372.00	372.00	2.03	0.80	128.17	939.80	-8,994.08	9,049.93	9,047.10	2.83	3,200.761	
700.00	699.84	372.00	372.00	2.37	0.80	128.05	939.80	-8,994.08	9,057.29	9,054.12	3.17	2,860.110	
795.17	794.65	372.00	372.00	2.69	0.80	127.89	939.80	-8,994.08	9,067.30	9,063.81	3.50	2,591.760	
800.00	799.45	372.00	372.00	2.71	0.80	127.89	939.80	-8,994.08	9,067.89	9,064.37	3.52	2,577.798	
900.00	898.92	552.00	550.99	3.06	1.49	127.91	928.51	-9,005.70	9,080.36	9,075.83	4.53	2,004.029	
1,000.00	998.39	584.00	582.83	3.43	1.60	127.91	926.00	-9,007.68	9,092.00	9,086.99	5.00	1,817.302	
1,100.00	1,097.86	616.00	614.60	3.79	1.72	127.90	922.96	-9,009.99	9,104.39	9,098.91	5.48	1,661.319	
1,200.00	1,197.33	648.00	646.29	4.16	1.84	127.89	919.38	-9,012.64	9,117.57	9,111.61	5.96	1,529.297	
1,300.00	1,296.80	676.57	674.51	4.53	1.95	127.89	915.81	-9,015.20	9,131.43	9,124.99	6.43	1,419.142	
1,400.00	1,396.27	725.05	722.29	4.91	2.15	127.86	909.06	-9,019.89	9,145.93	9,138.94	6.99	1,308.546	
1,500.00	1,495.74	809.16	805.01	5.28	2.50	127.82	896.37	-9,028.36	9,160.77	9,153.07	7.70	1,190.067	
1,600.00	1,595.21	834.00	829.43	5.66	2.61	127.81	892.58	-9,030.89	9,175.97	9,167.81	8.16	1,124.185	
1,700.00	1,694.68	898.00	892.34	6.04	2.88	127.78	883.13	-9,037.88	9,191.75	9,182.95	8.79	1,045.340	
1,800.00	1,794.15	1,047.77	1,039.55	6.42	3.54	127.70	860.91	-9,054.19	9,207.37	9,197.57	9.79	940.027	
1,900.00	1,893.62	1,162.49	1,152.22	6.80	4.04	127.64	843.32	-9,066.69	9,223.06	9,212.40	10.65	865.682	
2,000.00	1,993.09	1,311.68	1,298.49	7.18	4.71	127.56	818.52	-9,082.37	9,238.26	9,226.58	11.68	791.081	
2,100.00	2,092.56	1,420.85	1,405.80	7.56	5.20	127.50	801.59	-9,093.10	9,252.84	9,240.32	12.52	739.047	
2,200.00	2,192.03	1,462.00	1,446.26	7.94	5.38	127.48	795.34	-9,097.34	9,267.90	9,254.84	13.06	709.519	
2,300.00	2,291.50	1,574.24	1,556.54	8.32	5.88	127.42	778.18	-9,109.23	9,283.31	9,269.40	13.92	666.931	
2,400.00	2,390.97	1,670.85	1,651.48	8.70	6.31	127.37	763.32	-9,119.19	9,298.42	9,283.71	14.71	632.211	
2,500.00	2,490.44	1,714.00	1,693.93	9.08	6.50	127.35	757.08	-9,123.76	9,313.93	9,298.67	15.26	610.449	
2,600.00	2,589.91	1,776.00	1,754.91	9.47	6.77	127.33	748.31	-9,130.67	9,329.97	9,314.08	15.89	587.209	
2,700.00	2,689.38	1,879.65	1,856.86	9.85	7.24	127.28	733.56	-9,142.26	9,346.03	9,329.33	16.70	559.501	
2,800.00	2,788.85	2,104.40	2,077.79	10.23	8.24	127.17	700.31	-9,166.59	9,361.96	9,343.89	18.06	518.354	
2,900.00	2,888.32	2,288.97	2,259.46	10.61	9.05	127.09	673.10	-9,184.47	9,376.69	9,357.46	19.24	487.476	
3,000.00	2,987.79	2,346.52	2,316.18	11.00	9.30	127.07	665.01	-9,189.83	9,390.92	9,371.07	19.85	473.164	
3,100.00	3,087.25	2,453.71	2,421.84	11.38	9.77	127.02	649.93	-9,199.82	9,405.19	9,384.51	20.68	454.898	
3,200.00	3,186.72	2,507.74	2,475.08	11.76	10.00	127.00	642.30	-9,204.97	9,419.70	9,398.43	21.27	442.816	
3,300.00	3,286.19	2,586.24	2,552.32	12.15	10.35	126.96	630.72	-9,212.87	9,434.65	9,412.67	21.98	429.255	
3,400.00	3,385.66	2,671.38	2,636.08	12.53	10.73	126.92	618.15	-9,221.54	9,449.74	9,427.02	22.72	415.986	
3,500.00	3,485.13	2,779.75	2,742.59	12.91	11.21	126.87	601.45	-9,232.58	9,464.79	9,441.22	23.56	401.704	
3,600.00	3,584.60	2,844.00	2,805.67	13.30	11.50	126.84	591.29	-9,239.24	9,479.99	9,455.78	24.21	391.577	
3,700.00	3,684.07	2,911.85	2,872.26	13.68	11.81	126.80	580.50	-9,246.52	9,495.56	9,470.69	24.87	381.736	
3,800.00	3,783.54	2,992.12	2,951.10	14.06	12.17	126.76	568.12	-9,255.19	9,511.27	9,485.68	25.59	371.626	
3,900.00	3,883.01	3,034.00	2,992.24	14.45	12.36	126.74	561.91	-9,259.94	9,527.50	9,501.37	26.14	364.536	
4,000.00	3,982.48	3,259.89	3,214.67	14.83	13.36	126.65	530.62	-9,283.80	9,542.70	9,515.20	27.49	347.071	
4,100.00	4,081.95	3,307.03	3,261.10	15.22	13.56	126.64	524.15	-9,288.71	9,558.16	9,530.10	28.06	340.657	
4,200.00	4,181.42	3,788.82	3,736.85	15.60	15.60	126.49	463.34	-9,331.36	9,572.95	9,542.47	30.48	314.060	
4,300.00	4,280.89	3,896.99	3,844.50	15.98	15.99	126.49	455.15	-9,338.08	9,584.69	9,553.44	31.25	306.714	
4,400.00	4,380.36	4,005.18	3,952.19	16.37	16.38	126.49	447.08	-9,344.69	9,596.34	9,564.32	32.02	299.716	
4,500.00	4,479.83	4,113.40	4,059.91	16.75	16.78	126.50	439.15	-9,351.20	9,607.89	9,575.10	32.79	293.041	
4,600.00	4,579.30	4,221.63	4,167.68	17.14	17.17	126.50	431.36	-9,357.59	9,619.35	9,585.80	33.56	286.667	
4,700.00	4,678.77	4,329.89	4,275.48	17.52	17.56	126.50	423.69	-9,363.88	9,630.72	9,596.40	34.33	280.574	
4,800.00	4,778.24	4,438.17	4,383.32	17.90	17.95	126.51	416.16	-9,370.05	9,642.00	9,606.90	35.09	274.744	
4,900.00	4,877.71	4,546.46	4,491.19	18.29	18.35	126.52	408.77	-9,376.12	9,653.18	9,617.32	35.86	269.160	
5,000.00	4,977.18	4,654.78	4,599.10	18.67	18.74	126.52	401.51	-9,382.07	9,664.28	9,627.64	36.63	263.807	

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 705H
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 705H	**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 #3	**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
5,100.00	5,076.65	4,763.11	4,707.04	19.06	19.13	126.53	394.38	-9,387.92	9,675.28	9,637.88	37.40	258.670	
5,200.00	5,176.12	4,871.47	4,815.02	19.44	19.53	126.54	387.38	-9,393.66	9,686.19	9,648.02	38.17	253.737	
5,300.00	5,275.59	4,979.84	4,923.03	19.83	19.92	126.55	380.52	-9,399.28	9,697.01	9,658.06	38.94	248.995	
5,400.00	5,375.06	5,088.23	5,031.06	20.21	20.32	126.56	373.80	-9,404.80	9,707.73	9,668.02	39.72	244.435	
5,500.00	5,474.53	5,196.63	5,139.13	20.59	20.71	126.57	367.21	-9,410.20	9,718.37	9,677.88	40.49	240.044	
5,600.00	5,574.00	5,305.05	5,247.23	20.98	21.11	126.59	360.75	-9,415.50	9,728.91	9,687.66	41.26	235.815	
5,700.00	5,673.47	5,413.49	5,355.36	21.36	21.50	126.60	354.43	-9,420.68	9,739.36	9,697.34	42.03	231.737	
5,800.00	5,772.94	5,521.94	5,463.51	21.75	21.90	126.61	348.24	-9,425.76	9,749.73	9,706.93	42.80	227.804	
5,900.00	5,872.41	5,630.40	5,571.70	22.13	22.29	126.63	342.19	-9,430.72	9,759.99	9,716.42	43.57	224.007	
6,000.00	5,971.88	5,738.88	5,679.91	22.52	22.69	126.64	336.28	-9,435.58	9,770.17	9,725.83	44.34	220.340	
6,100.00	6,071.35	5,847.37	5,788.14	22.90	23.08	126.66	330.49	-9,440.32	9,780.26	9,735.14	45.11	216.795	
6,200.00	6,170.81	5,955.88	5,896.40	23.28	23.48	126.68	324.85	-9,444.95	9,790.25	9,744.37	45.88	213.367	
6,300.00	6,270.28	6,064.39	6,004.68	23.67	23.87	126.70	319.34	-9,449.47	9,800.16	9,753.50	46.66	210.050	
6,375.94	6,345.82	6,146.81	6,086.92	23.96	24.17	126.71	315.24	-9,452.83	9,807.62	9,760.37	47.24	207.602	
6,400.00	6,369.72	6,172.87	6,112.93	24.05	24.27	141.20	313.96	-9,453.88	9,810.42	9,762.99	47.43	206.848	
6,450.00	6,419.09	6,226.57	6,166.52	24.25	24.46	157.40	311.36	-9,456.02	9,819.10	9,771.28	47.81	205.365	
6,500.00	6,467.78	6,279.37	6,219.23	24.46	24.66	165.15	308.82	-9,458.09	9,831.57	9,783.38	48.19	204.005	
6,550.00	6,515.51	6,330.98	6,270.73	24.67	24.84	169.56	306.38	-9,460.10	9,847.78	9,799.21	48.56	202.777	
6,600.00	6,561.97	6,381.06	6,320.72	24.88	25.03	172.43	304.03	-9,462.02	9,867.61	9,818.69	48.93	201.688	
6,650.00	6,606.89	6,429.31	6,368.89	25.10	25.20	174.47	301.80	-9,463.85	9,890.95	9,841.68	49.27	200.742	
6,700.00	6,649.98	6,475.45	6,414.95	25.32	25.37	176.05	299.70	-9,465.58	9,917.66	9,868.06	49.60	199.944	
6,750.00	6,690.98	6,519.19	6,458.62	25.54	25.53	177.35	297.72	-9,467.20	9,947.57	9,897.66	49.91	199.296	
6,800.00	6,729.64	6,560.27	6,499.62	25.77	25.68	178.49	295.89	-9,468.70	9,980.51	9,930.30	50.20	198.801	
6,850.00	6,765.71	6,598.42	6,537.71	26.00	25.82	179.57	294.20	-9,470.09	10,016.26	9,965.79	50.47	198.458	
6,900.00	6,798.98	6,633.42	6,572.66	26.24	25.95	-179.33	292.67	-9,471.34	10,054.62	10,003.91	50.71	198.268	
6,950.00	6,829.24	6,665.05	6,604.24	26.49	26.06	-178.15	291.29	-9,472.47	10,095.35	10,044.43	50.93	198.229 SF	
7,000.00	6,856.30	6,693.12	6,632.26	26.76	26.17	-176.77	290.08	-9,473.46	10,138.21	10,087.09	51.12	198.339	
7,050.00	6,880.00	6,717.44	6,656.54	27.03	26.26	-175.03	289.04	-9,474.32	10,182.92	10,131.65	51.27	198.595	
7,100.00	6,900.19	6,737.86	6,676.94	27.32	26.33	-172.66	288.18	-9,475.03	10,229.22	10,177.82	51.41	198.992	
7,150.00	6,916.74	6,754.26	6,693.31	27.62	26.39	-169.07	287.48	-9,475.60	10,276.83	10,225.32	51.51	199.525	
7,200.00	6,929.56	6,766.52	6,705.56	27.93	26.43	-162.85	286.97	-9,476.02	10,325.45	10,273.87	51.58	200.186	
7,250.00	6,938.57	6,774.57	6,713.59	28.26	26.46	-149.68	286.63	-9,476.30	10,374.78	10,323.15	51.62	200.968	
7,300.00	6,943.70	6,778.35	6,717.37	28.60	26.48	-114.66	286.47	-9,476.43	10,424.52	10,372.88	51.64	201.861	
7,340.76	6,945.00	6,778.25	6,717.27	28.88	26.48	-67.97	286.47	-9,476.42	10,465.16	10,413.52	51.64	202.662	
7,400.00	6,945.00	6,776.02	6,715.04	29.31	26.47	-67.84	286.57	-9,476.35	10,524.20	10,472.58	51.62	203.873	
7,500.00	6,945.00	6,772.26	6,711.28	30.09	26.46	-67.61	286.73	-9,476.22	10,623.87	10,572.27	51.59	205.912	
7,600.00	6,945.00	6,768.48	6,707.51	30.93	26.44	-67.39	286.88	-9,476.09	10,723.54	10,671.97	51.57	207.946	
7,700.00	6,945.00	6,764.70	6,703.74	31.83	26.43	-67.16	287.04	-9,475.96	10,823.21	10,771.67	51.55	209.975	
7,800.00	6,945.00	6,760.91	6,699.95	32.79	26.41	-66.93	287.20	-9,475.83	10,922.89	10,871.37	51.52	211.999	
7,900.00	6,945.00	6,757.11	6,696.16	33.79	26.40	-66.71	287.36	-9,475.69	11,022.58	10,971.07	51.50	214.018	
8,000.00	6,945.00	6,753.31	6,692.36	34.84	26.39	-66.48	287.52	-9,475.56	11,122.26	11,070.78	51.48	216.032	
8,100.00	6,945.00	6,749.49	6,688.55	35.93	26.37	-66.26	287.68	-9,475.43	11,221.96	11,170.49	51.47	218.040	
8,200.00	6,945.00	6,745.67	6,684.74	37.06	26.36	-66.04	287.85	-9,475.30	11,321.66	11,270.20	51.45	220.043	
8,300.00	6,945.00	6,741.84	6,680.91	38.23	26.34	-65.81	288.01	-9,475.17	11,421.36	11,369.92	51.44	222.041	
8,400.00	6,945.00	6,738.00	6,677.08	39.42	26.33	-65.59	288.17	-9,475.03	11,521.06	11,469.64	51.43	224.033	
8,500.00	6,945.00	6,734.16	6,673.24	40.65	26.32	-65.37	288.33	-9,474.90	11,620.77	11,569.36	51.41	226.019	
8,600.00	6,945.00	6,730.31	6,669.39	41.90	26.30	-65.14	288.50	-9,474.76	11,720.48	11,669.08	51.41	228.000	
8,700.00	6,945.00	6,726.44	6,665.54	43.17	26.29	-64.92	288.66	-9,474.63	11,820.20	11,768.80	51.40	229.975	
8,800.00	6,945.00	6,722.57	6,661.67	44.46	26.27	-64.70	288.83	-9,474.49	11,919.92	11,868.53	51.39	231.945	
8,900.00	6,945.00	6,718.70	6,657.80	45.78	26.26	-64.48	288.99	-9,474.36	12,019.65	11,968.26	51.39	233.908	
9,000.00	6,945.00	6,714.81	6,653.92	47.11	26.25	-64.26	289.16	-9,474.22	12,119.37	12,067.99	51.38	235.865	
9,100.00	6,945.00	6,710.91	6,650.03	48.46	26.23	-64.04	289.32	-9,474.09	12,219.10	12,167.72	51.38	237.817	

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 705H
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 705H	**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 #3	**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
9,200.00	6,945.00	6,707.01	6,646.13	49.82	26.22	-63.82	289.49	-9,473.95	12,318.84	12,267.46	51.38	239.762	
9,300.00	6,945.00	6,703.10	6,642.23	51.20	26.20	-63.60	289.66	-9,473.81	12,418.58	12,367.20	51.38	241.701	
9,400.00	6,945.00	6,699.18	6,638.32	52.59	26.19	-63.38	289.82	-9,473.68	12,518.32	12,466.94	51.38	243.634	
9,500.00	6,945.00	6,695.25	6,634.39	53.99	26.17	-63.16	289.99	-9,473.54	12,618.06	12,566.68	51.38	245.561	
9,600.00	6,945.00	6,691.32	6,630.46	55.40	26.16	-62.95	290.16	-9,473.40	12,717.81	12,666.42	51.39	247.481	
9,700.00	6,945.00	6,687.37	6,626.53	56.83	26.15	-62.73	290.33	-9,473.26	12,817.56	12,766.16	51.39	249.395	
9,800.00	6,945.00	6,683.42	6,622.58	58.26	26.13	-62.51	290.50	-9,473.12	12,917.31	12,865.91	51.40	251.302	
9,900.00	6,945.00	6,679.46	6,618.63	59.70	26.12	-62.30	290.67	-9,472.98	13,017.06	12,965.65	51.41	253.203	
10,000.00	6,945.00	6,675.49	6,614.66	61.15	26.10	-62.08	290.84	-9,472.84	13,116.82	13,065.40	51.42	255.097	
10,100.00	6,945.00	6,671.51	6,610.69	62.61	26.09	-61.86	291.01	-9,472.70	13,216.58	13,165.15	51.43	256.985	
10,200.00	6,945.00	6,667.53	6,606.71	64.07	26.07	-61.65	291.19	-9,472.56	13,316.34	13,264.90	51.44	258.866	
10,300.00	6,945.00	6,663.53	6,602.72	65.54	26.06	-61.44	291.36	-9,472.42	13,416.11	13,364.65	51.45	260.740	
10,400.00	6,945.00	6,659.53	6,598.72	67.02	26.04	-61.22	291.53	-9,472.27	13,515.88	13,464.41	51.47	262.607	
10,500.00	6,945.00	6,655.52	6,594.72	68.50	26.03	-61.01	291.71	-9,472.13	13,615.65	13,564.16	51.48	264.468	
10,600.00	6,945.00	6,651.50	6,590.70	69.99	26.01	-60.80	291.88	-9,471.99	13,715.42	13,663.92	51.50	266.321	
10,700.00	6,945.00	6,647.47	6,586.68	71.48	26.00	-60.58	292.05	-9,471.85	13,815.19	13,763.68	51.52	268.168	
10,800.00	6,945.00	6,643.43	6,582.65	72.98	25.98	-60.37	292.23	-9,471.70	13,914.97	13,863.43	51.54	270.007	
10,900.00	6,945.00	6,639.38	6,578.61	74.48	25.97	-60.16	292.41	-9,471.56	14,014.75	13,963.19	51.56	271.840	
11,000.00	6,945.00	6,635.33	6,574.56	75.99	25.96	-59.95	292.58	-9,471.41	14,114.53	14,062.95	51.58	273.665	
11,100.00	6,945.00	6,631.26	6,570.50	77.50	25.94	-59.74	292.76	-9,471.27	14,214.31	14,162.71	51.60	275.483	
11,200.00	6,945.00	6,627.19	6,566.44	79.01	25.93	-59.53	292.94	-9,471.12	14,314.10	14,262.48	51.62	277.294	
11,300.00	6,945.00	6,623.11	6,562.36	80.53	25.91	-59.32	293.12	-9,470.98	14,413.88	14,362.24	51.64	279.098	
11,400.00	6,945.00	6,619.02	6,558.28	82.05	25.90	-59.11	293.29	-9,470.83	14,513.67	14,462.00	51.67	280.895	
11,500.00	6,945.00	6,614.92	6,554.18	83.57	25.88	-58.91	293.47	-9,470.68	14,613.46	14,561.77	51.70	282.684	
11,600.00	6,945.00	6,610.81	6,550.08	85.10	25.87	-58.70	293.65	-9,470.53	14,713.26	14,661.53	51.72	284.466	
11,700.00	6,945.00	6,606.69	6,545.97	86.63	25.85	-58.49	293.83	-9,470.39	14,813.05	14,761.30	51.75	286.240	
11,800.00	6,945.00	6,602.57	6,541.85	88.16	25.84	-58.29	294.02	-9,470.24	14,912.85	14,861.07	51.78	288.007	
11,900.00	6,945.00	6,598.43	6,537.73	89.69	25.82	-58.08	294.20	-9,470.09	15,012.64	14,960.84	51.81	289.767	
12,000.00	6,945.00	6,594.29	6,533.59	91.23	25.81	-57.87	294.38	-9,469.94	15,112.44	15,060.60	51.84	291.520	
12,100.00	6,945.00	6,590.13	6,529.44	92.77	25.79	-57.67	294.56	-9,469.79	15,212.25	15,160.37	51.87	293.264	
12,200.00	6,945.00	6,585.97	6,525.29	94.31	25.78	-57.47	294.75	-9,469.64	15,312.05	15,260.14	51.90	295.002	
12,300.00	6,945.00	6,581.80	6,521.12	95.85	25.76	-57.26	294.93	-9,469.49	15,411.85	15,359.91	51.94	296.731	
12,400.00	6,945.00	6,577.62	6,516.95	97.40	25.74	-57.06	295.12	-9,469.34	15,511.66	15,459.69	51.97	298.454	
12,500.00	6,945.00	6,573.43	6,512.77	98.95	25.73	-56.86	295.30	-9,469.18	15,611.47	15,559.46	52.01	300.168	
12,600.00	6,945.00	6,569.23	6,508.57	100.50	25.71	-56.66	295.49	-9,469.03	15,711.28	15,659.23	52.05	301.875	
12,700.00	6,945.00	6,565.03	6,504.37	102.05	25.70	-56.46	295.67	-9,468.88	15,811.09	15,759.00	52.08	303.575	
12,800.00	6,945.00	6,560.81	6,500.16	103.60	25.68	-56.25	295.86	-9,468.72	15,910.90	15,858.78	52.12	305.267	
12,900.00	6,945.00	6,556.58	6,495.94	105.15	25.67	-56.06	296.05	-9,468.57	16,010.71	15,958.55	52.16	306.951	
13,000.00	6,945.00	6,552.35	6,491.72	106.71	25.65	-55.86	296.24	-9,468.42	16,110.53	16,058.33	52.20	308.627	
13,100.00	6,945.00	6,548.10	6,487.48	108.26	25.64	-55.66	296.43	-9,468.26	16,210.34	16,158.10	52.24	310.296	
13,200.00	6,945.00	6,543.85	6,483.23	109.82	25.62	-55.46	296.62	-9,468.10	16,310.16	16,257.88	52.28	311.957	
13,300.00	6,945.00	6,539.58	6,478.97	111.38	25.61	-55.26	296.81	-9,467.95	16,409.98	16,357.65	52.33	313.610	
13,400.00	6,945.00	6,535.31	6,474.71	112.94	25.59	-55.07	297.00	-9,467.79	16,509.80	16,457.43	52.37	315.256	
13,500.00	6,945.00	6,531.03	6,470.43	114.50	25.57	-54.87	297.19	-9,467.63	16,609.62	16,557.21	52.41	316.894	
13,600.00	6,945.00	6,526.74	6,466.15	116.07	25.56	-54.67	297.38	-9,467.48	16,709.44	16,656.98	52.46	318.524	
13,700.00	6,945.00	6,522.43	6,461.85	117.63	25.54	-54.48	297.57	-9,467.32	16,809.26	16,756.76	52.50	320.147	
13,800.00	6,945.00	6,518.12	6,457.55	119.19	25.53	-54.28	297.77	-9,467.16	16,909.09	16,856.54	52.55	321.762	
13,900.00	6,945.00	6,513.80	6,453.24	120.76	25.51	-54.09	297.96	-9,467.00	17,008.91	16,956.32	52.60	323.369	
14,000.00	6,945.00	6,509.47	6,448.91	122.33	25.50	-53.90	298.16	-9,466.84	17,108.74	17,056.09	52.65	324.968	
14,100.00	6,945.00	6,505.13	6,444.58	123.90	25.48	-53.70	298.35	-9,466.68	17,208.57	17,155.87	52.70	326.560	
14,200.00	6,945.00	6,500.78	6,440.24	125.46	25.46	-53.51	298.55	-9,466.52	17,308.40	17,255.65	52.75	328.144	
14,300.00	6,945.00	6,496.42	6,435.89	127.03	25.45	-53.32	298.75	-9,466.36	17,408.23	17,355.43	52.80	329.720	

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 705H
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 705H	**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 #3	**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
14,400.00	6,945.00	6,492.05	6,431.52	128.60	25.43	-53.13	298.94	-9,466.20	17,508.06	17,455.21	52.85	331.288	
14,500.00	6,945.00	6,487.67	6,427.15	130.18	25.42	-52.94	299.14	-9,466.03	17,607.89	17,554.99	52.90	332.849	
14,600.00	6,945.00	6,483.29	6,422.77	131.75	25.40	-52.75	299.34	-9,465.87	17,707.72	17,654.77	52.95	334.401	
14,700.00	6,945.00	6,478.89	6,418.38	133.32	25.38	-52.56	299.54	-9,465.71	17,807.56	17,754.55	53.01	335.947	
14,800.00	6,945.00	6,474.48	6,413.98	134.89	25.37	-52.37	299.74	-9,465.54	17,907.39	17,854.33	53.06	337.484	
14,900.00	6,945.00	6,470.06	6,409.57	136.47	25.35	-52.19	299.94	-9,465.38	18,007.23	17,954.11	53.12	339.014	
15,000.00	6,945.00	6,465.63	6,405.15	138.04	25.34	-52.00	300.14	-9,465.21	18,107.07	18,053.89	53.17	340.536	
15,100.00	6,945.00	6,461.19	6,400.72	139.62	25.32	-51.81	300.34	-9,465.05	18,206.90	18,153.68	53.23	342.050	
15,200.00	6,945.00	6,456.75	6,396.28	141.20	25.30	-51.63	300.55	-9,464.88	18,306.74	18,253.46	53.29	343.557	
15,300.00	6,945.00	6,452.29	6,391.83	142.77	25.29	-51.44	300.75	-9,464.71	18,406.58	18,353.24	53.34	345.056	
15,400.00	6,945.00	6,447.82	6,387.37	144.35	25.27	-51.26	300.95	-9,464.55	18,506.42	18,453.02	53.40	346.547	
15,500.00	6,945.00	6,443.34	6,382.90	145.93	25.25	-51.08	301.16	-9,464.38	18,606.26	18,552.80	53.46	348.031	
15,600.00	6,945.00	6,438.85	6,378.42	147.51	25.24	-50.89	301.36	-9,464.21	18,706.10	18,652.58	53.52	349.507	
15,700.00	6,945.00	6,434.35	6,373.92	149.09	25.22	-50.71	301.57	-9,464.04	18,805.95	18,752.37	53.58	350.975	
15,800.00	6,945.00	6,429.85	6,369.42	150.67	25.21	-50.53	301.78	-9,463.87	18,905.79	18,852.15	53.64	352.436	
15,900.00	6,945.00	6,425.33	6,364.91	152.25	25.19	-50.35	301.99	-9,463.70	19,005.63	18,951.93	53.71	353.889	
16,000.00	6,945.00	6,420.80	6,360.39	153.83	25.17	-50.17	302.19	-9,463.53	19,105.48	19,051.71	53.77	355.335	
16,100.00	6,945.00	6,416.26	6,355.86	155.41	25.16	-49.99	302.40	-9,463.36	19,205.33	19,151.49	53.83	356.773	
16,200.00	6,945.00	6,411.71	6,351.32	156.99	25.14	-49.81	302.61	-9,463.19	19,305.17	19,251.28	53.89	358.204	
16,300.00	6,945.00	6,407.15	6,346.76	158.57	25.12	-49.63	302.82	-9,463.01	19,405.02	19,351.06	53.96	359.627	
16,400.00	6,945.00	6,402.57	6,342.20	160.15	25.11	-49.45	303.04	-9,462.84	19,504.87	19,450.84	54.02	361.043	
16,500.00	6,945.00	6,397.99	6,337.63	161.74	25.09	-49.27	303.25	-9,462.67	19,604.71	19,550.63	54.09	362.451	
16,600.00	6,945.00	6,393.40	6,333.05	163.32	25.07	-49.10	303.46	-9,462.49	19,704.56	19,650.41	54.16	363.851	
16,700.00	6,945.00	6,388.80	6,328.45	164.90	25.06	-48.92	303.67	-9,462.32	19,804.41	19,750.19	54.22	365.245	
16,800.00	6,945.00	6,384.19	6,323.85	166.49	25.04	-48.75	303.89	-9,462.14	19,904.26	19,849.97	54.29	366.631	
16,900.00	6,945.00	6,379.56	6,319.23	168.07	25.02	-48.57	304.10	-9,461.96	20,004.11	19,949.76	54.36	368.009	
17,000.00	6,945.00	6,374.93	6,314.61	169.66	25.01	-48.40	304.32	-9,461.79	20,103.97	20,049.54	54.43	369.380	
17,100.00	6,945.00	6,370.28	6,309.97	171.24	24.99	-48.22	304.53	-9,461.61	20,203.82	20,149.32	54.50	370.744	
17,200.00	6,945.00	6,365.63	6,305.32	172.83	24.97	-48.05	304.75	-9,461.43	20,303.67	20,249.11	54.57	372.100	
17,300.00	6,945.00	6,360.96	6,300.66	174.41	24.95	-47.88	304.97	-9,461.25	20,403.52	20,348.89	54.64	373.450	
17,400.00	6,945.00	6,356.28	6,296.00	176.00	24.94	-47.71	305.19	-9,461.07	20,503.38	20,448.67	54.71	374.792	
17,500.00	6,945.00	6,351.60	6,291.32	177.59	24.92	-47.54	305.41	-9,460.89	20,603.23	20,548.46	54.78	376.126	
17,600.00	6,945.00	6,346.90	6,286.63	179.17	24.90	-47.36	305.63	-9,460.71	20,703.09	20,648.24	54.85	377.454	
17,700.00	6,945.00	6,342.19	6,281.92	180.76	24.89	-47.20	305.85	-9,460.53	20,802.94	20,748.02	54.92	378.774	
17,800.00	6,945.00	6,337.47	6,277.21	182.35	24.87	-47.03	306.07	-9,460.35	20,902.80	20,847.80	54.99	380.088	
17,900.00	6,945.00	6,332.74	6,272.49	183.93	24.85	-46.86	306.29	-9,460.17	21,002.66	20,947.59	55.07	381.394	
18,000.00	6,945.00	6,327.99	6,267.76	185.52	24.83	-46.69	306.52	-9,459.98	21,102.51	21,047.37	55.14	382.693	
18,100.00	6,945.00	6,323.24	6,263.01	187.11	24.82	-46.52	306.74	-9,459.80	21,202.37	21,147.15	55.22	383.985	
18,200.00	6,945.00	6,318.47	6,258.25	188.70	24.80	-46.36	306.97	-9,459.62	21,302.23	21,246.94	55.29	385.270	
18,300.00	6,945.00	6,313.70	6,253.49	190.29	24.78	-46.19	307.19	-9,459.43	21,402.09	21,346.72	55.37	386.548	
18,400.00	6,945.00	6,308.91	6,248.71	191.88	24.76	-46.03	307.42	-9,459.24	21,501.95	21,446.50	55.44	387.819	
18,500.00	6,945.00	6,304.11	6,243.92	193.46	24.75	-45.86	307.65	-9,459.06	21,601.80	21,546.28	55.52	389.083	
18,600.00	6,945.00	6,299.30	6,239.12	195.05	24.73	-45.70	307.87	-9,458.87	21,701.66	21,646.07	55.60	390.340	
18,700.00	6,945.00	6,294.48	6,234.31	196.64	24.71	-45.53	308.10	-9,458.68	21,801.52	21,745.85	55.67	391.590	
18,800.00	6,945.00	6,289.65	6,229.49	198.23	24.69	-45.37	308.33	-9,458.50	21,901.38	21,845.63	55.75	392.834	
18,900.00	6,945.00	6,284.81	6,224.65	199.82	24.68	-45.21	308.56	-9,458.31	22,001.25	21,945.42	55.83	394.070	
19,000.00	6,945.00	6,279.95	6,219.80	201.41	24.66	-45.05	308.79	-9,458.12	22,101.11	22,045.20	55.91	395.300	
19,100.00	6,945.00	6,275.09	6,214.95	203.00	24.64	-44.89	309.03	-9,457.93	22,200.97	22,144.98	55.99	396.523	
19,200.00	6,945.00	6,270.21	6,210.08	204.60	24.62	-44.73	309.26	-9,457.74	22,300.83	22,244.76	56.07	397.740	
19,300.00	6,945.00	6,265.32	6,205.20	206.19	24.61	-44.57	309.49	-9,457.54	22,400.69	22,344.54	56.15	398.949	
19,400.00	6,945.00	6,260.42	6,200.31	207.78	24.59	-44.41	309.73	-9,457.35	22,500.56	22,444.33	56.23	400.152	
19,500.00	6,945.00	6,255.50	6,195.40	209.37	24.57	-44.25	309.96	-9,457.16	22,600.42	22,544.11	56.31	401.349	

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 705H
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 705H	**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 #3	**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 **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
19,600.00	6,945.00	6,250.58	6,190.49	210.96	24.55	-44.09	310.20	-9,456.96	22,700.28	22,643.89	56.39	402.539	
19,700.00	6,945.00	6,245.64	6,185.56	212.55	24.53	-43.93	310.44	-9,456.77	22,800.15	22,743.67	56.47	403.722	
19,800.00	6,945.00	6,240.70	6,180.63	214.14	24.52	-43.78	310.67	-9,456.57	22,900.01	22,843.45	56.56	404.899	
19,900.00	6,945.00	6,235.74	6,175.68	215.74	24.50	-43.62	310.91	-9,456.38	22,999.88	22,943.24	56.64	406.069	
20,000.00	6,945.00	6,230.77	6,170.71	217.33	24.48	-43.47	311.15	-9,456.18	23,099.74	23,043.02	56.72	407.233	
20,100.00	6,945.00	6,225.78	6,165.74	218.92	24.46	-43.31	311.39	-9,455.98	23,199.61	23,142.80	56.81	408.391	
20,200.00	6,945.00	6,220.79	6,160.76	220.51	24.44	-43.16	311.63	-9,455.79	23,299.47	23,242.58	56.89	409.542	
20,300.00	6,945.00	6,215.78	6,155.76	222.11	24.42	-43.00	311.88	-9,455.59	23,399.34	23,342.36	56.98	410.687	
20,400.00	6,945.00	6,210.76	6,150.75	223.70	24.41	-42.85	312.12	-9,455.39	23,499.21	23,442.14	57.06	411.826	
20,500.00	6,945.00	6,205.73	6,145.73	225.29	24.39	-42.70	312.36	-9,455.19	23,599.07	23,541.93	57.15	412.958	
20,600.00	6,945.00	6,200.69	6,140.69	226.88	24.37	-42.55	312.61	-9,454.99	23,698.94	23,641.71	57.23	414.084	
20,700.00	6,945.00	6,195.63	6,135.65	228.48	24.35	-42.40	312.85	-9,454.79	23,798.81	23,741.49	57.32	415.204	
20,741.48	6,945.00	6,193.53	6,133.55	229.14	24.34	-42.33	312.96	-9,454.70	23,840.23	23,782.87	57.35	415.666	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 705H
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 705H	**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 #3	**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 — **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	488.00	488.00	0.00	14.62	86.90	977.19	18,062.99	18,089.41				
100.00	100.00	588.10	588.00	0.25	17.62	86.90	977.19	18,062.99	18,089.41	18,071.53	17.87	1,012.102	
200.00	200.00	688.10	688.00	0.61	20.62	86.90	977.19	18,062.99	18,089.41	18,068.18	21.23	852.147	
300.00	300.00	790.90	790.75	0.97	23.70	86.90	979.31	18,062.99	18,089.52	18,064.85	24.67	733.357	
400.00	400.00	898.23	898.06	1.33	26.92	86.90	978.60	18,062.99	18,089.48	18,061.24	28.24	640.529	
500.00	500.00	1,005.60	1,005.39	1.68	30.13	86.90	977.09	18,062.99	18,089.41	18,057.59	31.82	568.544	
600.00	599.98	1,088.39	1,087.98	2.03	32.61	-60.85	977.19	18,062.99	18,088.55	18,053.91	34.64	522.180	
700.00	699.84	1,188.24	1,187.84	2.37	35.61	-60.91	977.19	18,062.99	18,086.00	18,048.04	37.97	476.349	
795.17	794.65	1,285.52	1,285.07	2.69	38.52	-61.01	979.33	18,062.99	18,082.12	18,040.91	41.21	438.767	
800.00	799.45	1,290.68	1,290.23	2.71	38.67	-61.01	979.31	18,062.99	18,081.88	18,040.49	41.38	436.935	
900.00	898.92	1,397.65	1,397.17	3.06	41.88	-61.04	978.61	18,062.99	18,076.84	18,031.90	44.94	402.232	
1,000.00	998.39	1,504.78	1,504.28	3.43	45.09	-61.06	977.10	18,062.99	18,071.76	18,023.25	48.51	372.534	
1,100.00	1,097.86	1,586.57	1,585.86	3.79	47.54	-61.09	977.19	18,062.99	18,066.76	18,015.44	51.32	352.013	
1,200.00	1,197.33	1,686.04	1,685.33	4.16	50.52	-61.12	977.19	18,062.99	18,061.77	18,007.10	54.67	330.372	
1,300.00	1,296.80	1,788.28	1,787.53	4.53	53.58	-61.15	979.32	18,062.99	18,056.91	17,998.80	58.10	310.772	
1,400.00	1,396.27	1,895.60	1,894.82	4.91	56.80	-61.18	978.63	18,062.99	18,051.89	17,990.20	61.69	292.624	
1,500.00	1,495.74	2,003.09	2,002.27	5.28	60.02	-61.21	977.13	18,062.99	18,046.83	17,981.55	65.28	276.442	
1,600.00	1,595.21	2,084.23	2,083.21	5.66	62.45	-61.23	977.19	18,062.99	18,041.85	17,973.77	68.09	264.981	
1,700.00	1,694.68	2,183.69	2,182.68	6.04	65.43	-61.26	977.19	18,062.99	18,036.89	17,965.44	71.44	252.468	
1,800.00	1,794.15	2,285.87	2,284.81	6.42	68.49	-61.29	979.32	18,062.99	18,032.05	17,957.17	74.88	240.815	
1,900.00	1,893.62	2,393.54	2,392.46	6.80	71.72	-61.32	978.65	18,062.99	18,027.05	17,948.57	78.48	229.699	
2,000.00	1,993.09	2,501.38	2,500.26	7.18	74.95	-61.35	977.16	18,062.99	18,022.02	17,939.93	82.09	219.543	
2,100.00	2,092.56	2,581.88	2,580.56	7.56	77.36	-61.37	977.19	18,062.99	18,017.06	17,932.18	84.88	212.269	
2,200.00	2,192.03	2,681.35	2,680.03	7.94	80.35	-61.40	977.19	18,062.99	18,012.11	17,923.88	88.24	204.135	
2,300.00	2,291.50	2,783.44	2,782.08	8.32	83.40	-61.44	979.33	18,062.99	18,007.30	17,915.63	91.67	196.429	
2,400.00	2,390.97	2,891.46	2,890.08	8.70	86.64	-61.47	978.67	18,062.99	18,002.33	17,907.04	95.29	188.926	
2,500.00	2,490.44	2,999.66	2,998.23	9.08	89.88	-61.49	977.19	18,062.99	17,997.31	17,898.40	98.91	181.960	
2,600.00	2,589.91	3,079.53	3,077.91	9.47	92.28	-61.52	977.19	18,062.99	17,992.37	17,890.69	101.68	176.950	
2,700.00	2,689.38	3,179.00	3,177.38	9.85	95.26	-61.54	977.19	18,062.99	17,987.45	17,882.41	105.04	171.244	
2,800.00	2,788.85	3,281.00	3,279.33	10.23	98.31	-61.58	979.34	18,062.99	17,982.67	17,874.20	108.48	165.777	
2,900.00	2,888.32	3,389.37	3,387.68	10.61	101.56	-61.61	978.69	18,062.99	17,977.72	17,865.62	112.10	160.370	
3,000.00	2,987.79	3,497.92	3,496.20	11.00	104.81	-61.64	977.22	18,062.99	17,972.72	17,856.99	115.73	155.294	
3,100.00	3,087.25	3,577.18	3,575.25	11.38	107.19	-61.66	977.19	18,062.99	17,967.80	17,849.32	118.49	151.642	
3,200.00	3,186.72	3,676.65	3,674.72	11.76	110.17	-61.69	977.19	18,062.99	17,962.90	17,841.05	121.85	147.420	
3,300.00	3,286.19	3,778.54	3,776.57	12.15	113.22	-61.72	979.34	18,062.99	17,958.15	17,832.87	125.28	143.343	
3,400.00	3,385.66	3,887.27	3,885.28	12.53	116.48	-61.75	978.71	18,062.99	17,953.22	17,824.30	128.92	139.259	
3,500.00	3,485.13	3,996.18	3,994.15	12.91	119.74	-61.78	977.25	18,062.99	17,948.25	17,815.68	132.56	135.395	
3,600.00	3,584.60	4,074.84	4,072.60	13.30	122.10	-61.80	977.19	18,062.99	17,943.35	17,808.05	135.30	132.619	
3,700.00	3,684.07	4,174.31	4,172.07	13.68	125.08	-61.83	977.19	18,062.99	17,938.47	17,799.81	138.66	129.370	
3,800.00	3,783.54	4,276.06	4,273.79	14.06	128.13	-61.87	979.35	18,062.99	17,933.75	17,791.66	142.09	126.214	
3,900.00	3,883.01	4,385.15	4,382.86	14.45	131.40	-61.90	978.73	18,062.99	17,928.84	17,783.10	145.74	123.020	
4,000.00	3,982.48	4,494.42	4,492.09	14.83	134.67	-61.92	977.28	18,062.99	17,923.88	17,774.49	149.39	119.978	
4,100.00	4,081.95	4,572.49	4,569.95	15.22	137.01	-61.95	977.19	18,062.99	17,919.00	17,766.89	152.11	117.800	
4,200.00	4,181.42	4,671.96	4,669.42	15.60	139.99	-61.98	977.19	18,062.99	17,914.15	17,758.67	155.47	115.222	
4,300.00	4,280.89	4,773.57	4,770.99	15.98	143.04	-62.01	979.35	18,062.99	17,909.45	17,750.55	158.90	112.709	
4,400.00	4,380.36	4,883.02	4,880.42	16.37	146.32	-62.04	978.75	18,062.99	17,904.57	17,742.01	162.56	110.141	
4,500.00	4,479.83	4,992.66	4,990.02	16.75	149.60	-62.07	977.31	18,062.99	17,899.64	17,733.41	166.23	107.683	
4,600.00	4,579.30	5,070.14	5,067.30	17.14	151.92	-62.09	977.19	18,062.99	17,894.78	17,725.85	168.93	105.931	
4,700.00	4,678.77	5,169.61	5,166.77	17.52	154.90	-62.12	977.19	18,062.99	17,889.94	17,717.65	172.29	103.836	
4,800.00	4,778.24	5,271.06	5,268.18	17.90	157.94	-62.16	979.35	18,062.99	17,885.28	17,709.57	175.71	101.788	
4,900.00	4,877.71	5,380.88	5,377.97	18.29	161.24	-62.19	978.77	18,062.99	17,880.42	17,701.03	179.38	99.677	
5,000.00	4,977.18	5,490.88	5,487.94	18.67	164.53	-62.21	977.34	18,062.99	17,875.50	17,692.44	183.06	97.649	

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 705H
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 705H	**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 #3	**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	5,076.65	5,567.80	5,564.65	19.06	166.84	-62.24	977.19	18,062.99	17,870.66	17,684.92	185.75	96.210	
5,200.00	5,176.12	5,667.27	5,664.12	19.44	169.82	-62.27	977.19	18,062.99	17,865.85	17,676.75	189.11	94.474	
5,300.00	5,275.59	5,768.54	5,765.35	19.83	172.85	-62.30	979.36	18,062.99	17,861.22	17,668.69	192.52	92.774	
5,400.00	5,375.06	5,878.72	5,875.51	20.21	176.15	-62.33	978.79	18,062.99	17,856.38	17,660.17	196.21	91.008	
5,500.00	5,474.53	5,989.09	5,985.84	20.59	179.46	-62.36	977.37	18,062.99	17,851.49	17,651.59	199.89	89.305	
5,600.00	5,574.00	6,065.45	6,062.00	20.98	181.75	-62.38	977.19	18,062.99	17,846.67	17,644.10	202.56	88.104	
5,700.00	5,673.47	6,164.92	6,161.47	21.36	184.73	-62.41	977.19	18,062.99	17,841.88	17,635.95	205.93	86.642	
5,800.00	5,772.94	6,265.99	6,262.50	21.75	187.76	-62.45	979.36	18,062.99	17,837.27	17,627.94	209.34	85.209	
5,900.00	5,872.41	6,376.55	6,373.03	22.13	191.07	-62.48	978.81	18,062.99	17,832.46	17,619.43	213.03	83.709	
6,000.00	5,971.88	6,487.28	6,483.74	22.52	194.39	-62.51	977.40	18,062.99	17,827.59	17,610.86	216.73	82.258	
6,100.00	6,071.35	6,563.10	6,559.35	22.90	196.66	-62.53	977.19	18,062.99	17,822.79	17,603.40	219.38	81.240	
6,200.00	6,170.81	6,662.57	6,658.81	23.28	199.64	-62.56	977.19	18,062.99	17,818.02	17,595.28	222.75	79.993	
6,300.00	6,270.28	6,763.43	6,759.64	23.67	202.66	-62.59	979.36	18,062.99	17,813.44	17,587.29	226.15	78.769	
6,375.94	6,345.82	6,847.65	6,843.84	23.96	205.19	-62.62	979.04	18,062.99	17,809.81	17,580.85	228.96	77.785	
6,400.00	6,369.72	6,874.32	6,870.51	24.05	205.99	-48.17	978.83	18,062.99	17,808.20	17,578.35	229.85	77.476	
6,450.00	6,419.09	6,929.44	6,925.61	24.25	207.64	-32.11	978.24	18,062.99	17,801.96	17,570.26	231.70	76.833	
6,500.00	6,467.78	6,983.86	6,980.01	24.46	209.27	-24.56	977.46	18,062.99	17,791.85	17,558.33	233.52	76.189	
6,550.00	6,515.51	7,007.57	7,003.51	24.67	209.98	-20.39	977.19	18,062.99	17,777.96	17,543.54	234.43	75.836	
6,600.00	6,561.97	7,054.03	7,049.97	24.88	211.37	-17.87	977.19	18,062.99	17,760.41	17,524.40	236.01	75.254	
6,650.00	6,606.89	7,098.95	7,094.89	25.10	212.72	-16.26	977.19	18,062.99	17,739.25	17,501.71	237.54	74.680	
6,700.00	6,649.98	7,142.04	7,137.98	25.32	214.01	-15.22	977.19	18,062.99	17,714.63	17,475.62	239.01	74.118	
6,750.00	6,690.98	7,183.04	7,178.98	25.54	215.24	-14.58	977.19	18,062.99	17,686.68	17,446.28	240.40	73.571	
6,800.00	6,729.64	7,221.70	7,217.64	25.77	216.39	-14.26	977.19	18,062.99	17,655.60	17,413.87	241.72	73.041	
6,850.00	6,765.71	7,258.70	7,254.60	26.00	217.50	-14.21	979.37	18,062.99	17,621.74	17,378.76	242.98	72.523	
6,900.00	6,798.98	7,295.91	7,291.80	26.24	218.62	-14.43	979.30	18,062.99	17,584.95	17,340.71	244.24	72.000	
6,950.00	6,829.24	7,329.77	7,325.65	26.49	219.63	-14.93	979.15	18,062.99	17,545.64	17,300.26	245.38	71.505	
7,000.00	6,856.30	7,360.07	7,355.95	26.76	220.54	-15.77	978.95	18,062.99	17,504.05	17,257.65	246.40	71.040	
7,050.00	6,880.00	7,386.61	7,382.49	27.03	221.34	-17.07	978.72	18,062.99	17,460.44	17,213.14	247.29	70.606	
7,100.00	6,900.19	7,409.24	7,405.10	27.32	222.01	-19.05	978.48	18,062.99	17,415.07	17,167.02	248.06	70.206	
7,150.00	6,916.74	7,427.79	7,423.66	27.62	222.57	-22.14	978.26	18,062.99	17,368.24	17,119.56	248.69	69.840	
7,200.00	6,929.56	7,442.17	7,438.03	27.93	223.00	-27.30	978.08	18,062.99	17,320.23	17,071.05	249.18	69.509	
7,250.00	6,938.57	7,452.27	7,448.13	28.26	223.30	-36.89	977.94	18,062.99	17,271.34	17,021.81	249.53	69.215	
7,300.00	6,943.70	7,458.03	7,453.89	28.60	223.48	-57.66	977.86	18,062.99	17,221.87	16,972.13	249.74	68.958	
7,340.76	6,945.00	7,459.49	7,455.34	28.88	223.52	-90.80	977.84	18,062.99	17,181.33	16,931.51	249.81	68.777	
7,400.00	6,945.00	7,459.50	7,455.35	29.31	223.52	-90.80	977.84	18,062.99	17,122.34	16,872.50	249.84	68.533	
7,500.00	6,945.00	7,459.50	7,455.36	30.09	223.52	-90.80	977.84	18,062.99	17,022.78	16,772.88	249.90	68.120	
7,600.00	6,945.00	7,459.51	7,455.36	30.93	223.52	-90.80	977.84	18,062.99	16,923.22	16,673.27	249.95	67.706	
7,700.00	6,945.00	7,459.52	7,455.37	31.83	223.52	-90.80	977.84	18,062.99	16,823.67	16,573.66	250.01	67.292	
7,800.00	6,945.00	7,459.53	7,455.38	32.79	223.52	-90.80	977.84	18,062.99	16,724.12	16,474.05	250.07	66.878	
7,900.00	6,945.00	7,459.53	7,455.38	33.79	223.52	-90.80	977.84	18,062.99	16,624.58	16,374.44	250.13	66.463	
8,000.00	6,945.00	7,459.54	7,455.39	34.84	223.52	-90.80	977.84	18,062.99	16,525.04	16,274.84	250.20	66.048	
8,100.00	6,945.00	7,459.55	7,455.40	35.93	223.52	-90.80	977.84	18,062.99	16,425.51	16,175.24	250.27	65.632	
8,200.00	6,945.00	7,459.55	7,455.41	37.06	223.52	-90.80	977.84	18,062.99	16,325.99	16,075.65	250.34	65.216	
8,300.00	6,945.00	7,459.56	7,455.41	38.23	223.52	-90.81	977.83	18,062.99	16,226.47	15,976.06	250.41	64.800	
8,400.00	6,945.00	7,459.57	7,455.42	39.42	223.52	-90.81	977.83	18,062.99	16,126.96	15,876.47	250.48	64.383	
8,500.00	6,945.00	7,459.58	7,455.43	40.65	223.52	-90.81	977.83	18,062.99	16,027.45	15,776.89	250.56	63.966	
8,600.00	6,945.00	7,459.58	7,455.44	41.90	223.52	-90.81	977.83	18,062.99	15,927.95	15,677.31	250.64	63.549	
8,700.00	6,945.00	7,459.59	7,455.44	43.17	223.52	-90.81	977.83	18,062.99	15,828.45	15,577.73	250.72	63.131	
8,800.00	6,945.00	7,459.60	7,455.45	44.46	223.52	-90.81	977.83	18,062.99	15,728.97	15,478.16	250.81	62.713	
8,900.00	6,945.00	7,459.60	7,455.46	45.78	223.52	-90.81	977.83	18,062.99	15,629.49	15,378.59	250.90	62.294	
9,000.00	6,945.00	7,459.61	7,455.46	47.11	223.52	-90.81	977.83	18,062.99	15,530.01	15,279.02	250.99	61.876	
9,100.00	6,945.00	7,459.62	7,455.47	48.46	223.52	-90.81	977.83	18,062.99	15,430.54	15,179.46	251.08	61.456	

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 705H
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 705H	**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 #3	**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	6,945.00	7,459.63	7,455.48	49.82	223.52	-90.81	977.83	18,062.99	15,331.08	15,079.91	251.18	61.037	
9,300.00	6,945.00	7,459.63	7,455.49	51.20	223.52	-90.81	977.83	18,062.99	15,231.63	14,980.35	251.28	60.617	
9,400.00	6,945.00	7,459.64	7,455.49	52.59	223.52	-90.81	977.83	18,062.99	15,132.18	14,880.80	251.38	60.197	
9,500.00	6,945.00	7,459.65	7,455.50	53.99	223.52	-90.81	977.83	18,062.99	15,032.74	14,781.26	251.48	59.777	
9,600.00	6,945.00	7,459.66	7,455.51	55.40	223.53	-90.81	977.83	18,062.99	14,933.31	14,681.72	251.59	59.356	
9,700.00	6,945.00	7,459.66	7,455.51	56.83	223.53	-90.81	977.83	18,062.99	14,833.89	14,582.19	251.70	58.935	
9,800.00	6,945.00	7,459.67	7,455.52	58.26	223.53	-90.81	977.83	18,062.99	14,734.47	14,482.66	251.81	58.513	
9,900.00	6,945.00	7,459.68	7,455.53	59.70	223.53	-90.81	977.83	18,062.99	14,635.06	14,383.13	251.93	58.092	
10,000.00	6,945.00	7,459.68	7,455.54	61.15	223.53	-90.81	977.83	18,062.99	14,535.66	14,283.61	252.05	57.670	
10,100.00	6,945.00	7,459.69	7,455.54	62.61	223.53	-90.81	977.83	18,062.99	14,436.27	14,184.10	252.17	57.247	
10,200.00	6,945.00	7,459.70	7,455.55	64.07	223.53	-90.81	977.83	18,062.99	14,336.89	14,084.59	252.30	56.825	
10,300.00	6,945.00	7,459.71	7,455.56	65.54	223.53	-90.81	977.83	18,062.99	14,237.51	13,985.08	252.43	56.402	
10,400.00	6,945.00	7,459.71	7,455.57	67.02	223.53	-90.81	977.83	18,062.99	14,138.15	13,885.58	252.56	55.979	
10,500.00	6,945.00	7,459.72	7,455.57	68.50	223.53	-90.81	977.83	18,062.99	14,038.79	13,786.09	252.70	55.555	
10,600.00	6,945.00	7,459.73	7,455.58	69.99	223.53	-90.81	977.83	18,062.99	13,939.44	13,686.60	252.84	55.132	
10,700.00	6,945.00	7,459.73	7,455.59	71.48	223.53	-90.81	977.83	18,062.99	13,840.10	13,587.12	252.98	54.708	
10,800.00	6,945.00	7,459.74	7,455.59	72.98	223.53	-90.81	977.83	18,062.99	13,740.77	13,487.65	253.13	54.284	
10,900.00	6,945.00	7,459.75	7,455.60	74.48	223.53	-90.81	977.83	18,062.99	13,641.46	13,388.18	253.28	53.859	
11,000.00	6,945.00	7,459.76	7,455.61	75.99	223.53	-90.81	977.83	18,062.99	13,542.15	13,288.71	253.43	53.435	
11,100.00	6,945.00	7,459.76	7,455.62	77.50	223.53	-90.81	977.83	18,062.99	13,442.85	13,189.26	253.59	53.010	
11,200.00	6,945.00	7,459.77	7,455.62	79.01	223.53	-90.81	977.83	18,062.99	13,343.56	13,089.81	253.75	52.585	
11,300.00	6,945.00	7,459.78	7,455.63	80.53	223.53	-90.81	977.83	18,062.99	13,244.28	12,990.36	253.92	52.160	
11,400.00	6,945.00	7,459.79	7,455.64	82.05	223.53	-90.81	977.83	18,062.99	13,145.02	12,890.93	254.09	51.734	
11,500.00	6,945.00	7,459.79	7,455.65	83.57	223.53	-90.81	977.83	18,062.99	13,045.76	12,791.50	254.26	51.308	
11,600.00	6,945.00	7,459.80	7,455.65	85.10	223.53	-90.81	977.83	18,062.99	12,946.52	12,692.08	254.44	50.882	
11,700.00	6,945.00	7,459.81	7,455.66	86.63	223.53	-90.81	977.83	18,062.99	12,847.28	12,592.66	254.62	50.456	
11,800.00	6,945.00	7,459.81	7,455.67	88.16	223.53	-90.81	977.83	18,062.99	12,748.06	12,493.25	254.81	50.030	
11,900.00	6,945.00	7,459.82	7,455.67	89.69	223.53	-90.81	977.83	18,062.99	12,648.86	12,393.86	255.00	49.603	
12,000.00	6,945.00	7,459.83	7,455.68	91.23	223.53	-90.81	977.83	18,062.99	12,549.66	12,294.47	255.20	49.177	
12,100.00	6,945.00	7,459.84	7,455.69	92.77	223.53	-90.81	977.83	18,062.99	12,450.48	12,195.08	255.40	48.750	
12,200.00	6,945.00	7,459.84	7,455.70	94.31	223.53	-90.82	977.83	18,062.99	12,351.31	12,095.71	255.60	48.323	
12,300.00	6,945.00	7,459.85	7,455.70	95.85	223.53	-90.82	977.83	18,062.99	12,252.15	11,996.34	255.81	47.896	
12,400.00	6,945.00	7,459.86	7,455.71	97.40	223.53	-90.82	977.83	18,062.99	12,153.01	11,896.99	256.02	47.468	
12,500.00	6,945.00	7,459.87	7,455.72	98.95	223.53	-90.82	977.83	18,062.99	12,053.88	11,797.64	256.24	47.041	
12,600.00	6,945.00	7,459.87	7,455.72	100.50	223.53	-90.82	977.83	18,062.99	11,954.77	11,698.30	256.47	46.613	
12,700.00	6,945.00	7,459.88	7,455.73	102.05	223.53	-90.82	977.83	18,062.99	11,855.67	11,598.97	256.70	46.185	
12,800.00	6,945.00	7,459.89	7,455.74	103.60	223.53	-90.82	977.83	18,062.99	11,756.59	11,499.66	256.93	45.757	
12,900.00	6,945.00	7,459.89	7,455.75	105.15	223.53	-90.82	977.83	18,062.99	11,657.52	11,400.35	257.17	45.329	
13,000.00	6,945.00	7,459.90	7,455.75	106.71	223.53	-90.82	977.83	18,062.99	11,558.47	11,301.05	257.42	44.901	
13,100.00	6,945.00	7,459.91	7,455.76	108.26	223.53	-90.82	977.83	18,062.99	11,459.43	11,201.76	257.67	44.473	
13,200.00	6,945.00	7,459.92	7,455.77	109.82	223.53	-90.82	977.83	18,062.99	11,360.42	11,102.49	257.93	44.045	
13,300.00	6,945.00	7,459.92	7,455.78	111.38	223.53	-90.82	977.83	18,062.99	11,261.42	11,003.22	258.19	43.616	
13,400.00	6,945.00	7,459.93	7,455.78	112.94	223.53	-90.82	977.83	18,062.99	11,162.43	10,903.97	258.46	43.188	
13,500.00	6,945.00	7,459.94	7,455.79	114.50	223.53	-90.82	977.83	18,062.99	11,063.47	10,804.73	258.74	42.759	
13,600.00	6,945.00	7,459.94	7,455.80	116.07	223.53	-90.82	977.83	18,062.99	10,964.52	10,705.50	259.02	42.330	
13,700.00	6,945.00	7,459.95	7,455.80	117.63	223.53	-90.82	977.83	18,062.99	10,865.60	10,606.28	259.31	41.902	
13,800.00	6,945.00	7,459.96	7,455.81	119.19	223.53	-90.82	977.83	18,062.99	10,766.69	10,507.08	259.61	41.473	
13,900.00	6,945.00	7,459.97	7,455.82	120.76	223.53	-90.82	977.83	18,062.99	10,667.80	10,407.89	259.91	41.044	
14,000.00	6,945.00	7,459.97	7,455.83	122.33	223.53	-90.82	977.83	18,062.99	10,568.94	10,308.72	260.22	40.615	
14,100.00	6,945.00	7,459.98	7,455.83	123.90	223.53	-90.82	977.83	18,062.99	10,470.09	10,209.55	260.54	40.186	
14,200.00	6,945.00	7,459.99	7,455.84	125.46	223.53	-90.82	977.83	18,062.99	10,371.27	10,110.41	260.87	39.757	
14,300.00	6,945.00	7,460.00	7,455.85	127.03	223.54	-90.82	977.83	18,062.99	10,272.47	10,011.28	261.20	39.328	

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 705H
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 705H	**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 #3	**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
14,400.00	6,945.00	7,460.00	7,455.86	128.60	223.54	-90.82	977.83	18,062.99	10,173.70	9,912.16	261.54	38.899	
14,500.00	6,945.00	7,460.01	7,455.86	130.18	223.54	-90.82	977.83	18,062.99	10,074.95	9,813.06	261.89	38.470	
14,600.00	6,945.00	7,460.02	7,455.87	131.75	223.54	-90.82	977.83	18,062.99	9,976.22	9,713.97	262.25	38.041	
14,700.00	6,945.00	7,460.02	7,455.88	133.32	223.54	-90.82	977.83	18,062.99	9,877.52	9,614.91	262.61	37.612	
14,800.00	6,945.00	7,460.03	7,455.88	134.89	223.54	-90.82	977.83	18,062.99	9,778.85	9,515.86	262.99	37.183	
14,900.00	6,945.00	7,460.04	7,455.89	136.47	223.54	-90.82	977.83	18,062.99	9,680.20	9,416.82	263.38	36.754	
15,000.00	6,945.00	7,460.05	7,455.90	138.04	223.54	-90.82	977.83	18,062.99	9,581.58	9,317.81	263.77	36.325	
15,100.00	6,945.00	7,460.05	7,455.91	139.62	223.54	-90.82	977.83	18,062.99	9,482.99	9,218.82	264.17	35.897	
15,200.00	6,945.00	7,460.06	7,455.91	141.20	223.54	-90.82	977.83	18,062.99	9,384.43	9,119.84	264.59	35.468	
15,300.00	6,945.00	7,460.07	7,455.92	142.77	223.54	-90.82	977.83	18,062.99	9,285.90	9,020.89	265.01	35.039	
15,400.00	6,945.00	7,460.08	7,455.93	144.35	223.54	-90.82	977.83	18,062.99	9,187.40	8,921.95	265.45	34.611	
15,500.00	6,945.00	7,460.08	7,455.93	145.93	223.54	-90.82	977.83	18,062.99	9,088.94	8,823.04	265.90	34.182	
15,600.00	6,945.00	7,460.09	7,455.94	147.51	223.54	-90.82	977.83	18,062.99	8,990.51	8,724.15	266.36	33.754	
15,700.00	6,945.00	7,460.10	7,455.95	149.09	223.54	-90.82	977.83	18,062.99	8,892.11	8,625.29	266.83	33.326	
15,800.00	6,945.00	7,460.10	7,455.96	150.67	223.54	-90.82	977.83	18,062.99	8,793.75	8,526.45	267.31	32.898	
15,900.00	6,945.00	7,460.11	7,455.96	152.25	223.54	-90.82	977.83	18,062.99	8,695.43	8,427.63	267.80	32.470	
16,000.00	6,945.00	7,460.12	7,455.97	153.83	223.54	-90.83	977.83	18,062.99	8,597.15	8,328.84	268.31	32.042	
16,100.00	6,945.00	7,460.13	7,455.98	155.41	223.54	-90.83	977.83	18,062.99	8,498.90	8,230.07	268.83	31.614	
16,200.00	6,945.00	7,460.13	7,455.99	156.99	223.54	-90.83	977.83	18,062.99	8,400.70	8,131.33	269.37	31.187	
16,300.00	6,945.00	7,460.14	7,455.99	158.57	223.54	-90.83	977.83	18,062.99	8,302.54	8,032.63	269.92	30.760	
16,400.00	6,945.00	7,460.15	7,456.00	160.15	223.54	-90.83	977.83	18,062.99	8,204.43	7,933.95	270.48	30.333	
16,500.00	6,945.00	7,460.16	7,456.01	161.74	223.54	-90.83	977.83	18,062.99	8,106.36	7,835.30	271.06	29.906	
16,600.00	6,945.00	7,460.16	7,456.01	163.32	223.54	-90.83	977.83	18,062.99	8,008.34	7,736.68	271.66	29.479	
16,700.00	6,945.00	7,460.17	7,456.02	164.90	223.54	-90.83	977.83	18,062.99	7,910.37	7,638.10	272.27	29.053	
16,800.00	6,945.00	7,460.18	7,456.03	166.49	223.54	-90.83	977.83	18,062.99	7,812.45	7,539.55	272.90	28.627	
16,900.00	6,945.00	7,460.18	7,456.04	168.07	223.54	-90.83	977.83	18,062.99	7,714.58	7,441.03	273.55	28.202	
17,000.00	6,945.00	7,460.19	7,456.04	169.66	223.54	-90.83	977.83	18,062.99	7,616.77	7,342.55	274.22	27.776	
17,100.00	6,945.00	7,460.20	7,456.05	171.24	223.54	-90.83	977.83	18,062.99	7,519.02	7,244.11	274.90	27.352	
17,200.00	6,945.00	7,460.21	7,456.06	172.83	223.54	-90.83	977.83	18,062.99	7,421.32	7,145.71	275.61	26.927	
17,300.00	6,945.00	7,460.21	7,456.07	174.41	223.54	-90.83	977.83	18,062.99	7,323.69	7,047.36	276.34	26.503	
17,400.00	6,945.00	7,460.22	7,456.07	176.00	223.54	-90.83	977.83	18,062.99	7,226.13	6,949.04	277.08	26.079	
17,500.00	6,945.00	7,460.23	7,456.08	177.59	223.54	-90.83	977.83	18,062.99	7,128.63	6,850.77	277.85	25.656	
17,600.00	6,945.00	7,460.24	7,456.09	179.17	223.54	-90.83	977.83	18,062.99	7,031.20	6,752.55	278.65	25.233	
17,700.00	6,945.00	7,460.24	7,456.09	180.76	223.54	-90.83	977.82	18,062.99	6,933.84	6,654.37	279.47	24.811	
17,800.00	6,945.00	7,460.25	7,456.10	182.35	223.54	-90.83	977.82	18,062.99	6,836.56	6,556.25	280.31	24.389	
17,900.00	6,945.00	7,460.26	7,456.11	183.93	223.54	-90.83	977.82	18,062.99	6,739.36	6,458.18	281.18	23.968	
18,000.00	6,945.00	7,460.26	7,456.12	185.52	223.54	-90.83	977.82	18,062.99	6,642.25	6,360.17	282.08	23.548	
18,100.00	6,945.00	7,460.27	7,456.12	187.11	223.54	-90.83	977.82	18,062.99	6,545.22	6,262.21	283.00	23.128	
18,200.00	6,945.00	7,460.28	7,456.13	188.70	223.54	-90.83	977.82	18,062.99	6,448.28	6,164.32	283.96	22.708	
18,300.00	6,945.00	7,460.29	7,456.14	190.29	223.54	-90.83	977.82	18,062.99	6,351.43	6,066.48	284.95	22.290	
18,400.00	6,945.00	7,460.29	7,456.15	191.88	223.54	-90.83	977.82	18,062.99	6,254.69	5,968.72	285.97	21.872	
18,500.00	6,945.00	7,460.30	7,456.15	193.46	223.54	-90.83	977.82	18,062.99	6,158.05	5,871.02	287.02	21.455	
18,600.00	6,945.00	7,460.31	7,456.16	195.05	223.54	-90.83	977.82	18,062.99	6,061.52	5,773.40	288.11	21.039	
18,700.00	6,945.00	7,460.32	7,456.17	196.64	223.54	-90.83	977.82	18,062.99	5,965.10	5,675.86	289.24	20.623	
18,800.00	6,945.00	7,460.32	7,456.17	198.23	223.54	-90.83	977.82	18,062.99	5,868.80	5,578.40	290.41	20.209	
18,900.00	6,945.00	7,460.33	7,456.18	199.82	223.55	-90.83	977.82	18,062.99	5,772.63	5,481.02	291.61	19.796	
19,000.00	6,945.00	7,460.34	7,456.19	201.41	223.55	-90.83	977.82	18,062.99	5,676.59	5,383.73	292.86	19.383	
19,100.00	6,945.00	7,460.34	7,456.20	203.00	223.55	-90.83	977.82	18,062.99	5,580.69	5,286.53	294.16	18.972	
19,200.00	6,945.00	7,460.35	7,456.20	204.60	223.55	-90.83	977.82	18,062.99	5,484.94	5,189.44	295.50	18.562	
19,300.00	6,945.00	7,460.36	7,456.21	206.19	223.55	-90.83	977.82	18,062.99	5,389.34	5,092.45	296.89	18.153	
19,400.00	6,945.00	7,460.37	7,456.22	207.78	223.55	-90.83	977.82	18,062.99	5,293.90	4,995.57	298.33	17.745	
19,500.00	6,945.00	7,460.37	7,456.23	209.37	223.55	-90.83	977.82	18,062.99	5,198.63	4,898.80	299.83	17.339	

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 705H
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 705H	**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 #3	**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

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
19,600.00	6,945.00	7,460.38	7,456.23	210.96	223.55	-90.83	977.82	18,062.99	5,103.55	4,802.16	301.38	16.934	
19,700.00	6,945.00	7,460.39	7,456.24	212.55	223.55	-90.83	977.82	18,062.99	5,008.66	4,705.66	303.00	16.530	
19,800.00	6,945.00	7,460.40	7,456.25	214.14	223.55	-90.84	977.82	18,062.99	4,913.97	4,609.29	304.68	16.128	
19,900.00	6,945.00	7,460.40	7,456.25	215.74	223.55	-90.84	977.82	18,062.99	4,819.49	4,513.07	306.42	15.728	
20,000.00	6,945.00	7,460.41	7,456.26	217.33	223.55	-90.84	977.82	18,062.99	4,725.24	4,417.00	308.24	15.330	
20,100.00	6,945.00	7,460.42	7,456.27	218.92	223.55	-90.84	977.82	18,062.99	4,631.24	4,321.11	310.13	14.933	
20,200.00	6,945.00	7,460.42	7,456.28	220.51	223.55	-90.84	977.82	18,062.99	4,537.48	4,225.39	312.10	14.539	
20,300.00	6,945.00	7,460.43	7,456.28	222.11	223.55	-90.84	977.82	18,062.99	4,444.01	4,129.86	314.15	14.146	
20,400.00	6,945.00	7,460.44	7,456.29	223.70	223.55	-90.84	977.82	18,062.99	4,350.82	4,034.53	316.28	13.756	
20,500.00	6,945.00	7,460.45	7,456.30	225.29	223.55	-90.84	977.82	18,062.99	4,257.94	3,939.43	318.51	13.368	
20,600.00	6,945.00	7,460.45	7,456.31	226.88	223.55	-90.84	977.82	18,062.99	4,165.39	3,844.55	320.84	12.983	
20,700.00	6,945.00	7,460.46	7,456.31	228.48	223.55	-90.84	977.82	18,062.99	4,073.19	3,749.92	323.27	12.600	
20,741.48	6,945.00	7,460.46	7,456.32	229.14	223.55	-90.84	977.82	18,062.99	4,035.06	3,710.75	324.31	12.442	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 705H
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 705H	**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 #3	**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	Rule Assigned: Warning
0.00	0.00	23.00	23.00	0.00	0.69	67.74	1,865.26	4,556.48	4,923.49				
100.00	100.00	123.00	123.00	0.25	3.69	67.74	1,865.26	4,556.48	4,923.49	4,919.55	3.94	1,250.658	
200.00	200.00	223.00	223.00	0.61	6.68	67.74	1,865.26	4,556.48	4,923.49	4,916.19	7.29	675.227	
300.00	300.00	323.00	323.00	0.97	9.68	67.74	1,865.26	4,556.48	4,923.49	4,912.84	10.65	462.452	
400.00	400.00	423.00	423.00	1.33	12.68	67.74	1,865.26	4,556.48	4,923.49	4,909.48	14.00	351.643	
500.00	500.00	523.10	523.00	1.68	15.67	67.74	1,865.26	4,556.48	4,923.49	4,906.13	17.36	283.622	
600.00	599.98	623.08	622.98	2.03	18.67	-80.02	1,865.26	4,556.48	4,923.18	4,902.49	20.70	237.860	
700.00	699.84	722.94	722.84	2.37	21.66	-80.10	1,865.26	4,556.48	4,922.28	4,898.25	24.03	204.880	
795.17	794.65	828.06	827.91	2.69	24.81	-80.25	1,867.22	4,556.48	4,921.63	4,894.13	27.50	178.943	
800.00	799.45	833.60	833.44	2.71	24.98	-80.26	1,867.19	4,556.48	4,921.54	4,893.85	27.69	177.757	
900.00	898.92	948.35	948.17	3.06	28.42	-80.38	1,866.06	4,556.48	4,919.42	4,887.94	31.48	156.269	
1,000.00	998.39	1,021.80	1,021.39	3.43	30.62	-80.46	1,865.26	4,556.48	4,917.32	4,883.27	34.04	144.444	
1,100.00	1,097.86	1,121.27	1,120.86	3.79	33.60	-80.58	1,865.26	4,556.48	4,915.61	4,878.22	37.39	131.469	
1,200.00	1,197.33	1,220.74	1,220.33	4.16	36.58	-80.70	1,865.26	4,556.48	4,913.93	4,873.19	40.74	120.617	
1,300.00	1,296.80	1,331.18	1,330.72	4.53	39.89	-80.85	1,867.21	4,556.48	4,913.04	4,868.62	44.42	110.601	
1,400.00	1,396.27	1,446.33	1,445.85	4.91	43.34	-80.97	1,866.09	4,556.48	4,911.03	4,862.78	48.25	101.793	
1,500.00	1,495.74	1,519.45	1,518.74	5.28	45.53	-81.05	1,865.26	4,556.48	4,909.01	4,858.20	50.81	96.610	
1,600.00	1,595.21	1,618.92	1,618.21	5.66	48.51	-81.17	1,865.26	4,556.48	4,907.41	4,853.24	54.17	90.593	
1,700.00	1,694.68	1,718.39	1,717.68	6.04	51.49	-81.29	1,865.26	4,556.48	4,905.84	4,848.31	57.53	85.277	
1,800.00	1,794.15	1,828.74	1,827.98	6.42	54.80	-81.44	1,867.22	4,556.48	4,905.08	4,843.87	61.21	80.131	
1,900.00	1,893.62	1,944.30	1,943.51	6.80	58.26	-81.56	1,866.12	4,556.48	4,903.17	4,838.11	65.05	75.370	
2,000.00	1,993.09	2,017.10	2,016.09	7.18	60.44	-81.64	1,865.26	4,556.48	4,901.23	4,833.61	67.62	72.485	
2,100.00	2,092.56	2,116.57	2,115.56	7.56	63.42	-81.76	1,865.26	4,556.48	4,899.74	4,828.76	70.98	69.032	
2,200.00	2,192.03	2,216.04	2,215.03	7.94	66.40	-81.88	1,865.26	4,556.48	4,898.27	4,823.93	74.34	65.890	
2,300.00	2,291.50	2,326.29	2,325.22	8.32	69.71	-82.03	1,867.23	4,556.48	4,897.64	4,819.62	78.02	62.771	
2,400.00	2,390.97	2,442.25	2,441.16	8.70	73.18	-82.16	1,866.14	4,556.48	4,895.83	4,813.95	81.88	59.793	
2,500.00	2,490.44	2,514.76	2,513.44	9.08	75.35	-82.23	1,865.26	4,556.48	4,893.98	4,809.54	84.44	57.961	
2,600.00	2,589.91	2,614.23	2,612.91	9.47	78.33	-82.35	1,865.26	4,556.48	4,892.59	4,804.80	87.80	55.726	
2,700.00	2,689.38	2,713.70	2,712.38	9.85	81.31	-82.47	1,865.26	4,556.48	4,891.23	4,800.07	91.16	53.655	
2,800.00	2,788.85	2,823.82	2,822.45	10.23	84.61	-82.62	1,867.25	4,556.48	4,890.73	4,795.89	94.84	51.567	
2,900.00	2,888.32	2,940.19	2,938.79	10.61	88.10	-82.75	1,866.17	4,556.48	4,889.02	4,790.31	98.71	49.529	
3,000.00	2,987.79	3,012.41	3,010.79	11.00	90.27	-82.83	1,865.26	4,556.48	4,887.26	4,786.00	101.26	48.264	
3,100.00	3,087.25	3,111.88	3,110.25	11.38	93.25	-82.95	1,865.26	4,556.48	4,885.98	4,781.36	104.62	46.701	
3,200.00	3,186.72	3,211.35	3,209.72	11.76	96.23	-83.07	1,865.26	4,556.48	4,884.72	4,776.73	107.99	45.234	
3,300.00	3,286.19	3,321.33	3,319.65	12.15	99.52	-83.22	1,867.26	4,556.48	4,884.35	4,772.69	111.67	43.741	
3,400.00	3,385.66	3,438.12	3,436.41	12.53	103.02	-83.35	1,866.20	4,556.48	4,882.75	4,767.20	115.55	42.258	
3,500.00	3,485.13	3,510.06	3,508.13	12.91	105.18	-83.42	1,865.26	4,556.48	4,881.07	4,762.98	118.09	41.334	
3,600.00	3,584.60	3,609.53	3,607.60	13.30	108.16	-83.54	1,865.26	4,556.48	4,879.90	4,758.44	121.45	40.179	
3,700.00	3,684.07	3,709.00	3,707.07	13.68	111.14	-83.66	1,865.26	4,556.48	4,878.74	4,753.93	124.82	39.087	
3,800.00	3,783.54	3,818.82	3,816.84	14.06	114.43	-83.81	1,867.27	4,556.48	4,878.51	4,750.02	128.49	37.968	
3,900.00	3,883.01	3,936.02	3,934.02	14.45	117.94	-83.94	1,866.23	4,556.48	4,877.01	4,744.63	132.38	36.840	
4,000.00	3,982.48	4,007.72	4,005.48	14.83	120.09	-84.02	1,865.26	4,556.48	4,875.42	4,740.50	134.92	36.136	
4,100.00	4,081.95	4,107.19	4,104.95	15.22	123.07	-84.14	1,865.26	4,556.48	4,874.35	4,736.07	138.28	35.249	
4,200.00	4,181.42	4,206.65	4,204.42	15.60	126.05	-84.26	1,865.26	4,556.48	4,873.31	4,731.66	141.65	34.404	
4,243.42	4,224.61	4,249.84	4,247.61	15.77	127.34	-84.31	1,865.26	4,556.48	4,872.86	4,729.75	143.11	34.050	
4,300.00	4,280.89	4,316.30	4,314.02	15.98	129.34	-84.41	1,867.28	4,556.48	4,873.20	4,727.88	145.32	33.535	
4,400.00	4,380.36	4,433.92	4,431.61	16.37	132.86	-84.54	1,866.25	4,556.48	4,871.81	4,722.59	149.22	32.648	
4,500.00	4,479.83	4,505.37	4,502.83	16.75	135.00	-84.62	1,865.26	4,556.48	4,870.30	4,718.55	151.75	32.094	
4,600.00	4,579.30	4,604.84	4,602.30	17.14	137.98	-84.74	1,865.26	4,556.48	4,869.34	4,714.22	155.12	31.392	
4,700.00	4,678.77	4,704.31	4,701.77	17.52	140.96	-84.86	1,865.26	4,556.48	4,868.40	4,709.92	158.48	30.719	
4,745.00	4,723.53	4,749.07	4,746.53	17.69	142.30	-84.91	1,865.26	4,556.48	4,867.99	4,707.99	160.00	30.426	
4,800.00	4,778.24	4,813.76	4,811.17	17.90	144.24	-85.01	1,867.29	4,556.48	4,868.43	4,706.29	162.14	30.025	

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 705H
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 705H	**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 #3	**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
4,900.00	4,877.71	4,931.80	4,929.18	18.29	147.78	-85.14	1,866.28	4,556.48	4,867.15	4,701.08	166.06	29.309	
5,000.00	4,977.18	5,003.02	5,000.18	18.67	149.91	-85.22	1,865.26	4,556.48	4,865.72	4,697.14	168.58	28.862	
5,100.00	5,076.65	5,102.49	5,099.65	19.06	152.89	-85.34	1,865.26	4,556.48	4,864.87	4,692.92	171.95	28.292	
5,200.00	5,176.12	5,201.96	5,199.12	19.44	155.87	-85.46	1,865.26	4,556.48	4,864.04	4,688.73	175.31	27.745	
5,245.00	5,220.88	5,246.72	5,243.88	19.61	157.22	-85.51	1,865.26	4,556.48	4,863.67	4,686.84	176.83	27.505	
5,300.00	5,275.59	5,311.19	5,308.30	19.83	159.15	-85.61	1,867.30	4,556.48	4,864.20	4,685.23	178.97	27.179	
5,400.00	5,375.06	5,429.66	5,426.74	20.21	162.70	-85.74	1,866.31	4,556.48	4,863.02	4,680.12	182.90	26.588	
5,500.00	5,474.53	5,500.67	5,497.53	20.59	164.83	-85.82	1,865.26	4,556.48	4,861.68	4,676.26	185.42	26.220	
5,600.00	5,574.00	5,600.14	5,597.00	20.98	167.81	-85.94	1,865.26	4,556.48	4,860.94	4,672.15	188.78	25.749	
5,700.00	5,673.47	5,699.61	5,696.47	21.36	170.79	-86.06	1,865.26	4,556.48	4,860.22	4,668.07	192.15	25.294	
5,750.50	5,723.70	5,749.85	5,746.70	21.56	172.29	-86.12	1,865.26	4,556.48	4,859.86	4,666.01	193.85	25.071	
5,800.00	5,772.94	5,808.62	5,805.42	21.75	174.05	-86.21	1,867.32	4,556.48	4,860.51	4,664.71	195.80	24.824	
5,900.00	5,872.41	5,927.51	5,924.28	22.13	177.61	-86.35	1,866.33	4,556.48	4,859.44	4,659.70	199.74	24.329	
6,000.00	5,971.88	6,046.60	6,043.33	22.52	181.18	-86.47	1,864.36	4,556.48	4,858.00	4,654.31	203.69	23.850	
6,100.00	6,071.35	6,097.80	6,094.35	22.90	182.72	-86.54	1,865.26	4,556.48	4,857.55	4,651.93	205.62	23.624	
6,200.00	6,170.81	6,197.27	6,193.81	23.28	185.70	-86.66	1,865.26	4,556.48	4,856.93	4,647.95	208.98	23.241	
6,252.50	6,223.04	6,249.49	6,246.04	23.49	187.26	-86.72	1,865.26	4,556.48	4,856.62	4,645.87	210.75	23.045	
6,300.00	6,270.28	6,306.02	6,302.52	23.67	188.96	-86.81	1,867.33	4,556.48	4,857.36	4,644.73	212.63	22.845	
6,375.94	6,345.82	6,396.61	6,393.09	23.96	191.67	-86.92	1,866.68	4,556.48	4,856.66	4,641.04	215.63	22.523	
6,400.00	6,369.72	6,425.30	6,421.77	24.05	192.53	-72.51	1,866.36	4,556.48	4,856.00	4,639.42	216.58	22.421	
6,450.00	6,419.09	6,484.59	6,481.05	24.25	194.31	-56.65	1,865.51	4,556.48	4,852.03	4,633.47	218.55	22.201	
6,500.00	6,467.78	6,543.13	6,539.56	24.46	196.06	-49.46	1,864.44	4,556.48	4,844.58	4,624.07	220.51	21.970	
6,550.00	6,515.51	6,542.26	6,538.51	24.67	196.04	-45.66	1,865.26	4,556.48	4,834.39	4,613.69	220.70	21.905	
6,600.00	6,561.97	6,588.73	6,584.97	24.88	197.43	-43.76	1,865.26	4,556.48	4,820.79	4,598.48	222.31	21.685	
6,650.00	6,606.89	6,633.65	6,629.89	25.10	198.77	-42.94	1,865.26	4,556.48	4,804.04	4,580.17	223.87	21.459	
6,700.00	6,649.98	6,676.74	6,672.98	25.32	200.07	-42.87	1,865.26	4,556.48	4,784.24	4,558.87	225.37	21.228	
6,750.00	6,690.98	6,717.74	6,713.98	25.54	201.29	-43.40	1,865.26	4,556.48	4,761.55	4,534.73	226.82	20.993	
6,800.00	6,729.64	6,757.71	6,753.92	25.77	202.49	-44.48	1,867.43	4,556.48	4,737.22	4,508.99	228.23	20.756	
6,850.00	6,765.71	6,801.09	6,797.29	26.00	203.79	-46.08	1,867.34	4,556.48	4,709.18	4,479.44	229.74	20.498	
6,900.00	6,798.98	6,841.12	6,837.31	26.24	204.99	-48.19	1,867.15	4,556.48	4,678.72	4,447.56	231.15	20.241	
6,950.00	6,829.24	6,877.55	6,873.73	26.49	206.08	-50.83	1,866.87	4,556.48	4,646.04	4,413.59	232.46	19.987	
7,000.00	6,856.30	6,910.15	6,906.32	26.76	207.06	-54.04	1,866.54	4,556.48	4,611.39	4,377.75	233.64	19.737	
7,050.00	6,880.00	6,938.71	6,934.88	27.03	207.92	-57.85	1,866.19	4,556.48	4,575.00	4,340.30	234.71	19.492	
7,100.00	6,900.19	6,963.06	6,959.21	27.32	208.64	-62.28	1,865.85	4,556.48	4,537.13	4,301.48	235.65	19.254	
7,150.00	6,916.74	6,983.03	6,979.18	27.62	209.24	-67.35	1,865.54	4,556.48	4,498.02	4,261.56	236.46	19.023	
7,200.00	6,929.56	6,998.50	6,994.64	27.93	209.71	-73.01	1,865.28	4,556.48	4,457.94	4,220.81	237.13	18.800	
7,250.00	6,938.57	7,009.37	7,005.50	28.26	210.03	-79.16	1,865.09	4,556.48	4,417.15	4,179.49	237.67	18.586	
7,300.00	6,943.70	7,015.57	7,011.70	28.60	210.22	-85.66	1,864.97	4,556.48	4,375.92	4,137.86	238.06	18.381	
7,340.76	6,945.00	7,017.14	7,013.27	28.88	210.27	-91.07	1,864.94	4,556.48	4,342.17	4,103.88	238.29	18.222	
7,400.00	6,945.00	7,017.14	7,013.28	29.31	210.27	-91.07	1,864.94	4,556.48	4,293.22	4,054.67	238.55	17.997	
7,500.00	6,945.00	7,017.15	7,013.29	30.09	210.27	-91.07	1,864.94	4,556.48	4,211.19	3,972.16	239.03	17.618	
7,600.00	6,945.00	7,017.16	7,013.29	30.93	210.27	-91.07	1,864.94	4,556.48	4,129.95	3,890.39	239.56	17.240	
7,700.00	6,945.00	7,017.17	7,013.30	31.83	210.27	-91.07	1,864.94	4,556.48	4,049.55	3,809.41	240.13	16.864	
7,800.00	6,945.00	7,017.18	7,013.31	32.79	210.27	-91.07	1,864.94	4,556.48	3,970.04	3,729.28	240.76	16.489	
7,900.00	6,945.00	7,017.19	7,013.32	33.79	210.27	-91.07	1,864.94	4,556.48	3,891.47	3,650.03	241.45	16.117	
8,000.00	6,945.00	7,017.20	7,013.33	34.84	210.27	-91.07	1,864.94	4,556.48	3,813.91	3,571.73	242.19	15.748	
8,100.00	6,945.00	7,017.20	7,013.34	35.93	210.27	-91.07	1,864.94	4,556.48	3,737.42	3,494.43	242.99	15.381	
8,200.00	6,945.00	7,017.21	7,013.35	37.06	210.27	-91.07	1,864.94	4,556.48	3,662.06	3,418.21	243.85	15.018	
8,300.00	6,945.00	7,017.22	7,013.36	38.23	210.27	-91.07	1,864.94	4,556.48	3,587.91	3,343.13	244.77	14.658	
8,400.00	6,945.00	7,017.23	7,013.37	39.42	210.27	-91.07	1,864.94	4,556.48	3,515.03	3,269.27	245.76	14.303	
8,500.00	6,945.00	7,017.24	7,013.37	40.65	210.27	-91.07	1,864.94	4,556.48	3,443.52	3,196.71	246.81	13.952	
8,600.00	6,945.00	7,017.25	7,013.38	41.90	210.27	-91.07	1,864.94	4,556.48	3,373.45	3,125.53	247.92	13.607	

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 705H
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 705H	**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 #3	**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
8,700.00	6,945.00	7,017.26	7,013.39	43.17	210.27	-91.07	1,864.94	4,556.48	3,304.93	3,055.82	249.11	13.267	
8,800.00	6,945.00	7,017.27	7,013.40	44.46	210.27	-91.07	1,864.94	4,556.48	3,238.04	2,987.69	250.36	12.934	
8,900.00	6,945.00	7,017.27	7,013.41	45.78	210.27	-91.07	1,864.94	4,556.48	3,172.90	2,921.23	251.67	12.607	
9,000.00	6,945.00	7,017.28	7,013.42	47.11	210.27	-91.07	1,864.94	4,556.48	3,109.61	2,856.56	253.05	12.288	
9,100.00	6,945.00	7,017.29	7,013.43	48.46	210.27	-91.07	1,864.94	4,556.48	3,048.29	2,793.79	254.49	11.978	
9,200.00	6,945.00	7,017.30	7,013.44	49.82	210.27	-91.07	1,864.94	4,556.48	2,989.05	2,733.05	256.00	11.676	
9,300.00	6,945.00	7,017.31	7,013.44	51.20	210.27	-91.07	1,864.94	4,556.48	2,932.03	2,674.47	257.56	11.384	
9,400.00	6,945.00	7,017.32	7,013.45	52.59	210.27	-91.07	1,864.94	4,556.48	2,877.35	2,618.17	259.18	11.102	
9,500.00	6,945.00	7,017.33	7,013.46	53.99	210.27	-91.07	1,864.94	4,556.48	2,825.16	2,564.31	260.85	10.830	
9,600.00	6,945.00	7,017.34	7,013.47	55.40	210.27	-91.07	1,864.94	4,556.48	2,775.59	2,513.03	262.57	10.571	
9,700.00	6,945.00	7,017.35	7,013.48	56.83	210.27	-91.07	1,864.94	4,556.48	2,728.79	2,464.47	264.32	10.324	
9,800.00	6,945.00	7,017.35	7,013.49	58.26	210.27	-91.07	1,864.94	4,556.48	2,684.90	2,418.80	266.10	10.090	
9,900.00	6,945.00	7,017.36	7,013.50	59.70	210.27	-91.07	1,864.94	4,556.48	2,644.06	2,376.15	267.90	9.869	
10,000.00	6,945.00	7,017.37	7,013.51	61.15	210.27	-91.07	1,864.94	4,556.48	2,606.42	2,336.70	269.72	9.663	
10,100.00	6,945.00	7,017.38	7,013.51	62.61	210.27	-91.07	1,864.94	4,556.48	2,572.12	2,300.58	271.53	9.473	
10,200.00	6,945.00	7,017.39	7,013.52	64.07	210.27	-91.07	1,864.94	4,556.48	2,541.29	2,267.95	273.34	9.297	
10,300.00	6,945.00	7,017.40	7,013.53	65.54	210.27	-91.07	1,864.94	4,556.48	2,514.07	2,238.95	275.12	9.138	
10,400.00	6,945.00	7,017.41	7,013.54	67.02	210.27	-91.07	1,864.94	4,556.48	2,490.56	2,213.70	276.86	8.996	
10,500.00	6,945.00	7,017.42	7,013.55	68.50	210.27	-91.07	1,864.94	4,556.48	2,470.89	2,192.33	278.55	8.870	
10,600.00	6,945.00	7,017.42	7,013.56	69.99	210.27	-91.07	1,864.94	4,556.48	2,455.13	2,174.94	280.18	8.763	
10,700.00	6,945.00	7,017.43	7,013.57	71.48	210.27	-91.07	1,864.94	4,556.48	2,443.36	2,161.62	281.74	8.672	
10,800.00	6,945.00	7,017.44	7,013.58	72.98	210.27	-91.07	1,864.94	4,556.48	2,435.65	2,152.44	283.21	8.600	
10,900.00	6,945.00	7,017.45	7,013.59	74.48	210.27	-91.07	1,864.94	4,556.48	2,432.03	2,147.44	284.59	8.546	
10,938.13	6,945.00	7,017.45	7,013.59	75.05	210.27	-91.07	1,864.94	4,556.48	2,431.73	2,146.65	285.09	8.530	CC, ES
11,000.00	6,945.00	7,017.46	7,013.59	75.99	210.27	-91.07	1,864.94	4,556.48	2,432.52	2,146.66	285.86	8.510	
11,100.00	6,945.00	7,017.47	7,013.60	77.50	210.28	-91.07	1,864.94	4,556.48	2,437.11	2,150.10	287.02	8.491	
11,200.00	6,945.00	7,017.48	7,013.61	79.01	210.28	-91.07	1,864.94	4,556.48	2,445.79	2,157.73	288.06	8.491	SF
11,300.00	6,945.00	7,017.49	7,013.62	80.53	210.28	-91.07	1,864.94	4,556.48	2,458.51	2,169.53	288.98	8.508	
11,400.00	6,945.00	7,017.50	7,013.63	82.05	210.28	-91.08	1,864.94	4,556.48	2,475.20	2,185.43	289.78	8.542	
11,500.00	6,945.00	7,017.50	7,013.64	83.57	210.28	-91.08	1,864.94	4,556.48	2,495.80	2,205.35	290.45	8.593	
11,600.00	6,945.00	7,017.51	7,013.65	85.10	210.28	-91.08	1,864.94	4,556.48	2,520.20	2,229.18	291.01	8.660	
11,700.00	6,945.00	7,017.52	7,013.66	86.63	210.28	-91.08	1,864.94	4,556.48	2,548.29	2,256.83	291.46	8.743	
11,800.00	6,945.00	7,017.53	7,013.67	88.16	210.28	-91.08	1,864.94	4,556.48	2,579.95	2,288.16	291.79	8.842	
11,900.00	6,945.00	7,017.54	7,013.67	89.69	210.28	-91.08	1,864.94	4,556.48	2,615.05	2,323.03	292.02	8.955	
12,000.00	6,945.00	7,017.55	7,013.68	91.23	210.28	-91.08	1,864.94	4,556.48	2,653.47	2,361.31	292.15	9.082	
12,100.00	6,945.00	7,017.56	7,013.69	92.77	210.28	-91.08	1,864.94	4,556.48	2,695.04	2,402.84	292.20	9.223	
12,200.00	6,945.00	7,017.57	7,013.70	94.31	210.28	-91.08	1,864.94	4,556.48	2,739.64	2,447.48	292.16	9.377	
12,300.00	6,945.00	7,017.57	7,013.71	95.85	210.28	-91.08	1,864.94	4,556.48	2,787.11	2,495.06	292.05	9.543	
12,400.00	6,945.00	7,017.58	7,013.72	97.40	210.28	-91.08	1,864.94	4,556.48	2,837.32	2,545.44	291.88	9.721	
12,500.00	6,945.00	7,017.59	7,013.73	98.95	210.28	-91.08	1,864.93	4,556.48	2,890.11	2,598.47	291.64	9.910	
12,600.00	6,945.00	7,017.60	7,013.74	100.50	210.28	-91.08	1,864.93	4,556.48	2,945.36	2,653.99	291.36	10.109	
12,700.00	6,945.00	7,017.61	7,013.74	102.05	210.28	-91.08	1,864.93	4,556.48	3,002.91	2,711.88	291.03	10.318	
12,800.00	6,945.00	7,017.62	7,013.75	103.60	210.28	-91.08	1,864.93	4,556.48	3,062.66	2,771.99	290.67	10.537	
12,900.00	6,945.00	7,017.63	7,013.76	105.15	210.28	-91.08	1,864.93	4,556.48	3,124.46	2,834.18	290.28	10.764	
13,000.00	6,945.00	7,017.64	7,013.77	106.71	210.28	-91.08	1,864.93	4,556.48	3,188.20	2,898.34	289.85	10.999	
13,100.00	6,945.00	7,017.65	7,013.78	108.26	210.28	-91.08	1,864.93	4,556.48	3,253.76	2,964.35	289.41	11.243	
13,200.00	6,945.00	7,017.65	7,013.79	109.82	210.28	-91.08	1,864.93	4,556.48	3,321.05	3,032.09	288.95	11.493	
13,300.00	6,945.00	7,017.66	7,013.80	111.38	210.28	-91.08	1,864.93	4,556.48	3,389.95	3,101.46	288.48	11.751	
13,400.00	6,945.00	7,017.67	7,013.81	112.94	210.28	-91.08	1,864.93	4,556.48	3,460.36	3,172.36	288.00	12.015	
13,500.00	6,945.00	7,017.68	7,013.82	114.50	210.28	-91.08	1,864.93	4,556.48	3,532.21	3,244.69	287.52	12.285	
13,600.00	6,945.00	7,017.69	7,013.82	116.07	210.28	-91.08	1,864.93	4,556.48	3,605.39	3,318.37	287.02	12.561	
13,700.00	6,945.00	7,017.70	7,013.83	117.63	210.28	-91.08	1,864.93	4,556.48	3,679.84	3,393.31	286.53	12.843	

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 705H
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 705H	**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 #3	**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
13,800.00	6,945.00	7,017.71	7,013.84	119.19	210.28	-91.08	1,864.93	4,556.48	3,755.48	3,469.43	286.04	13.129	
13,900.00	6,945.00	7,017.72	7,013.85	120.76	210.28	-91.08	1,864.93	4,556.48	3,832.23	3,546.67	285.55	13.420	
14,000.00	6,945.00	7,017.73	7,013.86	122.33	210.28	-91.08	1,864.93	4,556.48	3,910.03	3,624.96	285.07	13.716	
14,100.00	6,945.00	7,017.73	7,013.87	123.90	210.28	-91.08	1,864.93	4,556.48	3,988.82	3,704.23	284.59	14.016	
14,200.00	6,945.00	7,017.74	7,013.88	125.46	210.28	-91.08	1,864.93	4,556.48	4,068.55	3,784.43	284.12	14.320	
14,300.00	6,945.00	7,017.75	7,013.89	127.03	210.28	-91.08	1,864.93	4,556.48	4,149.15	3,865.50	283.65	14.628	
14,400.00	6,945.00	7,017.76	7,013.89	128.60	210.28	-91.08	1,864.93	4,556.48	4,230.58	3,947.39	283.20	14.939	
14,500.00	6,945.00	7,017.77	7,013.90	130.18	210.28	-91.08	1,864.93	4,556.48	4,312.80	4,030.05	282.75	15.253	
14,600.00	6,945.00	7,017.78	7,013.91	131.75	210.28	-91.08	1,864.93	4,556.48	4,395.75	4,113.44	282.31	15.571	
14,700.00	6,945.00	7,017.79	7,013.92	133.32	210.28	-91.08	1,864.93	4,556.48	4,479.39	4,197.52	281.87	15.891	
14,800.00	6,945.00	7,017.80	7,013.93	134.89	210.28	-91.08	1,864.93	4,556.48	4,563.70	4,282.25	281.45	16.215	
14,900.00	6,945.00	7,017.80	7,013.94	136.47	210.29	-91.08	1,864.93	4,556.48	4,648.62	4,367.58	281.04	16.541	
15,000.00	6,945.00	7,017.81	7,013.95	138.04	210.29	-91.08	1,864.93	4,556.48	4,734.14	4,453.50	280.64	16.869	
15,100.00	6,945.00	7,017.82	7,013.96	139.62	210.29	-91.08	1,864.93	4,556.48	4,820.21	4,539.97	280.24	17.200	
15,200.00	6,945.00	7,017.83	7,013.97	141.20	210.29	-91.08	1,864.93	4,556.48	4,906.81	4,626.95	279.86	17.533	
15,300.00	6,945.00	7,017.84	7,013.97	142.77	210.29	-91.08	1,864.93	4,556.48	4,993.92	4,714.43	279.49	17.868	
15,400.00	6,945.00	7,017.85	7,013.98	144.35	210.29	-91.08	1,864.93	4,556.48	5,081.49	4,802.37	279.12	18.205	
15,500.00	6,945.00	7,017.86	7,013.99	145.93	210.29	-91.08	1,864.93	4,556.48	5,169.52	4,890.75	278.77	18.544	
15,600.00	6,945.00	7,017.87	7,014.00	147.51	210.29	-91.08	1,864.93	4,556.48	5,257.98	4,979.55	278.42	18.885	
15,700.00	6,945.00	7,017.88	7,014.01	149.09	210.29	-91.08	1,864.93	4,556.48	5,346.84	5,068.75	278.09	19.227	
15,800.00	6,945.00	7,017.88	7,014.02	150.67	210.29	-91.08	1,864.93	4,556.48	5,436.09	5,158.33	277.76	19.571	
15,900.00	6,945.00	7,017.89	7,014.03	152.25	210.29	-91.08	1,864.93	4,556.48	5,525.71	5,248.26	277.45	19.916	
16,000.00	6,945.00	7,017.90	7,014.04	153.83	210.29	-91.08	1,864.93	4,556.48	5,615.68	5,338.54	277.14	20.263	
16,100.00	6,945.00	7,017.91	7,014.05	155.41	210.29	-91.08	1,864.93	4,556.48	5,705.98	5,429.14	276.84	20.611	
16,200.00	6,945.00	7,017.92	7,014.05	156.99	210.29	-91.09	1,864.93	4,556.48	5,796.60	5,520.05	276.55	20.960	
16,300.00	6,945.00	7,017.93	7,014.06	158.57	210.29	-91.09	1,864.93	4,556.48	5,887.52	5,611.26	276.27	21.311	
16,400.00	6,945.00	7,017.94	7,014.07	160.15	210.29	-91.09	1,864.93	4,556.48	5,978.74	5,702.74	275.99	21.663	
16,500.00	6,945.00	7,017.95	7,014.08	161.74	210.29	-91.09	1,864.93	4,556.48	6,070.23	5,794.50	275.73	22.015	
16,600.00	6,945.00	7,017.96	7,014.09	163.32	210.29	-91.09	1,864.93	4,556.48	6,161.98	5,886.51	275.47	22.369	
16,700.00	6,945.00	7,017.96	7,014.10	164.90	210.29	-91.09	1,864.93	4,556.48	6,253.99	5,978.77	275.22	22.724	
16,800.00	6,945.00	7,017.97	7,014.11	166.49	210.29	-91.09	1,864.93	4,556.48	6,346.24	6,071.27	274.98	23.079	
16,900.00	6,945.00	7,017.98	7,014.12	168.07	210.29	-91.09	1,864.93	4,556.48	6,438.72	6,163.98	274.74	23.436	
17,000.00	6,945.00	7,017.99	7,014.13	169.66	210.29	-91.09	1,864.93	4,556.48	6,531.43	6,256.92	274.51	23.793	
17,100.00	6,945.00	7,018.00	7,014.13	171.24	210.29	-91.09	1,864.93	4,556.48	6,624.34	6,350.05	274.29	24.151	
17,200.00	6,945.00	7,018.01	7,014.14	172.83	210.29	-91.09	1,864.93	4,556.48	6,717.46	6,443.39	274.08	24.510	
17,300.00	6,945.00	7,018.02	7,014.15	174.41	210.29	-91.09	1,864.93	4,556.48	6,810.78	6,536.91	273.87	24.869	
17,400.00	6,945.00	7,018.03	7,014.16	176.00	210.29	-91.09	1,864.93	4,556.48	6,904.28	6,630.61	273.66	25.229	
17,500.00	6,945.00	7,018.04	7,014.17	177.59	210.29	-91.09	1,864.93	4,556.48	6,997.96	6,724.49	273.47	25.590	
17,600.00	6,945.00	7,018.04	7,014.18	179.17	210.29	-91.09	1,864.93	4,556.48	7,091.81	6,818.53	273.28	25.951	
17,700.00	6,945.00	7,018.05	7,014.19	180.76	210.29	-91.09	1,864.93	4,556.48	7,185.83	6,912.74	273.09	26.313	
17,800.00	6,945.00	7,018.06	7,014.20	182.35	210.29	-91.09	1,864.93	4,556.48	7,280.01	7,007.09	272.92	26.675	
17,900.00	6,945.00	7,018.07	7,014.20	183.93	210.29	-91.09	1,864.93	4,556.48	7,374.34	7,101.60	272.74	27.038	
18,000.00	6,945.00	7,018.08	7,014.21	185.52	210.29	-91.09	1,864.93	4,556.48	7,468.82	7,196.24	272.58	27.401	
18,100.00	6,945.00	7,018.09	7,014.22	187.11	210.29	-91.09	1,864.93	4,556.48	7,563.44	7,291.03	272.42	27.764	
18,200.00	6,945.00	7,018.10	7,014.23	188.70	210.29	-91.09	1,864.93	4,556.48	7,658.20	7,385.94	272.26	28.128	
18,300.00	6,945.00	7,018.11	7,014.24	190.29	210.29	-91.09	1,864.93	4,556.48	7,753.09	7,480.98	272.11	28.493	
18,400.00	6,945.00	7,018.12	7,014.25	191.88	210.29	-91.09	1,864.93	4,556.48	7,848.11	7,576.15	271.96	28.858	
18,500.00	6,945.00	7,018.12	7,014.26	193.46	210.29	-91.09	1,864.92	4,556.48	7,943.25	7,671.43	271.82	29.223	
18,600.00	6,945.00	7,018.13	7,014.27	195.05	210.29	-91.09	1,864.92	4,556.48	8,038.50	7,766.82	271.68	29.588	
18,700.00	6,945.00	7,018.14	7,014.28	196.64	210.30	-91.09	1,864.92	4,556.48	8,133.87	7,862.33	271.55	29.954	
18,800.00	6,945.00	7,018.15	7,014.28	198.23	210.30	-91.09	1,864.92	4,556.48	8,229.35	7,957.93	271.42	30.320	
18,900.00	6,945.00	7,018.16	7,014.29	199.82	210.30	-91.09	1,864.92	4,556.48	8,324.94	8,053.65	271.30	30.686	

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 705H
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 705H	**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 #3	**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
19,000.00	6,945.00	7,018.17	7,014.30	201.41	210.30	-91.09	1,864.92	4,556.48	8,420.63	8,149.45	271.18	31.052	
19,100.00	6,945.00	7,018.18	7,014.31	203.00	210.30	-91.09	1,864.92	4,556.48	8,516.42	8,245.36	271.06	31.419	
19,200.00	6,945.00	7,018.19	7,014.32	204.60	210.30	-91.09	1,864.92	4,556.48	8,612.30	8,341.35	270.95	31.786	
19,300.00	6,945.00	7,018.19	7,014.33	206.19	210.30	-91.09	1,864.92	4,556.48	8,708.28	8,437.44	270.84	32.153	
19,400.00	6,945.00	7,018.20	7,014.34	207.78	210.30	-91.09	1,864.92	4,556.48	8,804.35	8,533.61	270.74	32.520	
19,500.00	6,945.00	7,018.21	7,014.35	209.37	210.30	-91.09	1,864.92	4,556.48	8,900.50	8,629.86	270.64	32.887	
19,600.00	6,945.00	7,018.22	7,014.36	210.96	210.30	-91.09	1,864.92	4,556.48	8,996.74	8,726.20	270.54	33.255	
19,700.00	6,945.00	7,018.23	7,014.36	212.55	210.30	-91.09	1,864.92	4,556.48	9,093.05	8,822.61	270.45	33.622	
19,800.00	6,945.00	7,018.24	7,014.37	214.14	210.30	-91.09	1,864.92	4,556.48	9,189.45	8,919.09	270.36	33.990	
19,900.00	6,945.00	7,018.25	7,014.38	215.74	210.30	-91.09	1,864.92	4,556.48	9,285.92	9,015.65	270.27	34.358	
20,000.00	6,945.00	7,018.26	7,014.39	217.33	210.30	-91.09	1,864.92	4,556.48	9,382.47	9,112.28	270.19	34.726	
20,100.00	6,945.00	7,018.27	7,014.40	218.92	210.30	-91.09	1,864.92	4,556.48	9,479.09	9,208.98	270.11	35.094	
20,200.00	6,945.00	7,018.27	7,014.41	220.51	210.30	-91.09	1,864.92	4,556.48	9,575.78	9,305.75	270.03	35.462	
20,300.00	6,945.00	7,018.28	7,014.42	222.11	210.30	-91.09	1,864.92	4,556.48	9,672.53	9,402.58	269.96	35.830	
20,400.00	6,945.00	7,018.29	7,014.43	223.70	210.30	-91.09	1,864.92	4,556.48	9,769.35	9,499.47	269.89	36.198	
20,500.00	6,945.00	7,018.30	7,014.44	225.29	210.30	-91.09	1,864.92	4,556.48	9,866.24	9,596.42	269.82	36.566	
20,600.00	6,945.00	7,018.31	7,014.44	226.88	210.30	-91.09	1,864.92	4,556.48	9,963.18	9,693.43	269.75	36.934	
20,700.00	6,945.00	7,018.32	7,014.45	228.48	210.30	-91.09	1,864.92	4,556.48	10,060.19	9,790.50	269.69	37.303	
20,741.48	6,945.00	7,018.32	7,014.46	229.14	210.30	-91.09	1,864.92	4,556.48	10,100.44	9,830.77	269.67	37.455	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 705H
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 705H	**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 #3	**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
0.00	0.00	233.00	233.00	0.00	6.98	103.24	-1,732.60	7,362.79	7,563.90				
100.00	100.00	333.00	333.00	0.25	9.98	103.24	-1,732.60	7,362.79	7,563.90	7,553.67	10.23	739.443	
200.00	200.00	433.00	433.00	0.61	12.97	103.24	-1,732.60	7,362.79	7,563.90	7,550.31	13.58	556.821	
300.00	300.00	533.10	533.00	0.97	15.97	103.24	-1,732.60	7,362.79	7,563.90	7,546.95	16.94	446.458	
400.00	400.00	633.10	633.00	1.33	18.97	103.24	-1,732.60	7,362.79	7,563.90	7,543.60	20.30	372.662	
500.00	500.00	733.10	733.00	1.68	21.97	103.24	-1,732.60	7,362.79	7,563.90	7,540.24	23.65	319.801	
600.00	599.98	824.15	823.99	2.03	24.70	-44.53	-1,730.61	7,362.79	7,562.20	7,535.48	26.72	282.988	
700.00	699.84	913.35	913.18	2.37	27.37	-44.60	-1,731.35	7,362.79	7,558.66	7,528.93	29.73	254.231	
795.17	794.65	1,028.05	1,027.65	2.69	30.81	-44.72	-1,732.60	7,362.79	7,553.07	7,519.57	33.50	225.485	
800.00	799.45	1,032.86	1,032.45	2.71	30.95	-44.73	-1,732.60	7,362.79	7,552.71	7,519.05	33.66	224.388	
900.00	898.92	1,132.33	1,131.92	3.06	33.93	-44.78	-1,732.60	7,362.79	7,545.39	7,508.40	36.99	203.990	
1,000.00	998.39	1,231.80	1,231.39	3.43	36.91	-44.84	-1,732.60	7,362.79	7,538.07	7,497.75	40.32	186.936	
1,100.00	1,097.86	1,322.70	1,322.24	3.79	39.63	-44.90	-1,730.61	7,362.79	7,530.32	7,486.91	43.41	173.481	
1,200.00	1,197.33	1,411.81	1,411.34	4.16	42.30	-44.94	-1,731.34	7,362.79	7,523.20	7,476.76	46.44	162.000	
1,300.00	1,296.80	1,530.51	1,529.80	4.53	45.86	-45.00	-1,732.60	7,362.79	7,516.16	7,465.80	50.36	149.248	
1,400.00	1,396.27	1,629.98	1,629.27	4.91	48.84	-45.06	-1,732.60	7,362.79	7,508.88	7,455.17	53.71	139.812	
1,500.00	1,495.74	1,729.45	1,728.74	5.28	51.82	-45.11	-1,732.60	7,362.79	7,501.60	7,444.54	57.06	131.480	
1,600.00	1,595.21	1,820.79	1,820.03	5.66	54.56	-45.18	-1,730.60	7,362.79	7,493.88	7,433.72	60.16	124.564	
1,700.00	1,694.68	1,910.15	1,909.37	6.04	57.24	-45.22	-1,731.32	7,362.79	7,486.79	7,423.59	63.21	118.447	
1,800.00	1,794.15	2,028.16	2,027.15	6.42	60.77	-45.28	-1,732.60	7,362.79	7,479.79	7,412.68	67.11	111.448	
1,900.00	1,893.62	2,127.63	2,126.62	6.80	63.75	-45.33	-1,732.60	7,362.79	7,472.54	7,402.07	70.47	106.045	
2,000.00	1,993.09	2,227.10	2,226.09	7.18	66.73	-45.39	-1,732.60	7,362.79	7,465.29	7,391.48	73.82	101.131	
2,100.00	2,092.56	2,318.87	2,317.81	7.56	69.48	-45.46	-1,730.59	7,362.79	7,457.63	7,380.69	76.94	96.927	
2,200.00	2,192.03	2,408.47	2,407.39	7.94	72.17	-45.50	-1,731.30	7,362.79	7,450.57	7,370.57	80.00	93.134	
2,300.00	2,291.50	2,525.82	2,524.50	8.32	75.68	-45.56	-1,732.60	7,362.79	7,443.60	7,359.71	83.89	88.734	
2,400.00	2,390.97	2,625.29	2,623.97	8.70	78.67	-45.62	-1,732.60	7,362.79	7,436.38	7,349.14	87.24	85.240	
2,500.00	2,490.44	2,724.76	2,723.44	9.08	81.65	-45.67	-1,732.60	7,362.79	7,429.17	7,338.58	90.59	82.005	
2,600.00	2,589.91	2,816.95	2,815.58	9.47	84.41	-45.74	-1,730.58	7,362.79	7,421.55	7,327.82	93.73	79.179	
2,700.00	2,689.38	2,906.79	2,905.40	9.85	87.10	-45.79	-1,731.28	7,362.79	7,414.52	7,317.72	96.80	76.598	
2,800.00	2,788.85	3,023.47	3,021.85	10.23	90.60	-45.84	-1,732.60	7,362.79	7,407.59	7,306.92	100.67	73.585	
2,900.00	2,888.32	3,122.94	3,121.32	10.61	93.58	-45.90	-1,732.60	7,362.79	7,400.40	7,296.38	104.02	71.142	
3,000.00	2,987.79	3,222.41	3,220.79	11.00	96.56	-45.96	-1,732.60	7,362.79	7,393.23	7,285.85	107.38	68.853	
3,100.00	3,087.25	3,315.01	3,313.33	11.38	99.33	-46.03	-1,730.57	7,362.79	7,385.65	7,275.12	110.53	66.822	
3,200.00	3,186.72	3,405.09	3,403.40	11.76	102.03	-46.07	-1,731.26	7,362.79	7,378.65	7,265.05	113.60	64.952	
3,300.00	3,286.19	3,521.12	3,519.19	12.15	105.51	-46.13	-1,732.60	7,362.79	7,371.75	7,254.30	117.45	62.763	
3,400.00	3,385.66	3,620.59	3,618.66	12.53	108.49	-46.19	-1,732.60	7,362.79	7,364.61	7,243.80	120.81	60.961	
3,500.00	3,485.13	3,720.06	3,718.13	12.91	111.47	-46.24	-1,732.60	7,362.79	7,357.47	7,233.31	124.16	59.256	
3,600.00	3,584.60	3,813.06	3,811.08	13.30	114.26	-46.31	-1,730.56	7,362.79	7,349.94	7,222.61	127.33	57.725	
3,700.00	3,684.07	3,903.39	3,901.39	13.68	116.96	-46.36	-1,731.24	7,362.79	7,342.97	7,212.56	130.41	56.307	
3,800.00	3,783.54	4,018.78	4,016.54	14.06	120.42	-46.42	-1,732.60	7,362.79	7,336.11	7,201.87	134.24	54.648	
3,900.00	3,883.01	4,118.25	4,116.01	14.45	123.40	-46.48	-1,732.60	7,362.79	7,329.00	7,191.40	137.60	53.263	
4,000.00	3,982.48	4,217.72	4,215.48	14.83	126.38	-46.53	-1,732.60	7,362.79	7,321.90	7,180.95	140.96	51.945	
4,100.00	4,081.95	4,311.10	4,308.81	15.22	129.18	-46.60	-1,730.55	7,362.79	7,314.41	7,170.28	144.13	50.749	
4,200.00	4,181.42	4,401.68	4,399.38	15.60	131.89	-46.65	-1,731.22	7,362.79	7,307.48	7,160.25	147.22	49.636	
4,300.00	4,280.89	4,516.43	4,513.89	15.98	135.33	-46.71	-1,732.60	7,362.79	7,300.65	7,149.62	151.03	48.338	
4,400.00	4,380.36	4,615.90	4,613.36	16.37	138.31	-46.77	-1,732.60	7,362.79	7,293.58	7,139.19	154.39	47.241	
4,500.00	4,479.83	4,715.37	4,712.83	16.75	141.29	-46.83	-1,732.60	7,362.79	7,286.52	7,128.77	157.75	46.191	
4,600.00	4,579.30	4,809.12	4,806.54	17.14	144.10	-46.90	-1,730.54	7,362.79	7,279.08	7,118.14	160.94	45.230	
4,700.00	4,678.77	4,899.96	4,897.35	17.52	146.82	-46.95	-1,731.21	7,362.79	7,272.17	7,108.14	164.03	44.333	
4,800.00	4,778.24	5,014.08	5,011.24	17.90	150.24	-47.00	-1,732.60	7,362.79	7,265.39	7,097.56	167.83	43.290	
4,900.00	4,877.71	5,113.55	5,110.71	18.29	153.23	-47.06	-1,732.60	7,362.79	7,258.36	7,087.17	171.19	42.400	
5,000.00	4,977.18	5,213.02	5,210.18	18.67	156.21	-47.12	-1,732.60	7,362.79	7,251.33	7,076.79	174.54	41.545	

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 705H
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 705H	**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 #3	**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
5,100.00	5,076.65	5,307.14	5,304.25	19.06	159.03	-47.19	-1,730.53	7,362.79	7,243.94	7,066.20	177.74	40.755	
5,200.00	5,176.12	5,398.23	5,395.31	19.44	161.76	-47.24	-1,731.19	7,362.79	7,237.06	7,056.22	180.85	40.017	
5,300.00	5,275.59	5,511.74	5,508.59	19.83	165.16	-47.30	-1,732.60	7,362.79	7,230.31	7,045.69	184.63	39.162	
5,400.00	5,375.06	5,611.20	5,608.06	20.21	168.14	-47.36	-1,732.60	7,362.79	7,223.32	7,035.34	187.98	38.425	
5,500.00	5,474.53	5,710.67	5,707.53	20.59	171.12	-47.42	-1,732.60	7,362.79	7,216.34	7,025.00	191.34	37.715	
5,600.00	5,574.00	5,805.15	5,801.95	20.98	173.95	-47.49	-1,730.53	7,362.79	7,208.99	7,014.44	194.55	37.055	
5,700.00	5,673.47	5,896.48	5,893.27	21.36	176.69	-47.54	-1,731.17	7,362.79	7,202.15	7,004.49	197.66	36.436	
5,800.00	5,772.94	6,009.39	6,005.94	21.75	180.07	-47.60	-1,732.60	7,362.79	7,195.44	6,994.01	201.42	35.723	
5,900.00	5,872.41	6,108.86	6,105.41	22.13	183.05	-47.66	-1,732.60	7,362.79	7,188.49	6,983.70	204.78	35.103	
6,000.00	5,971.88	6,117.00	6,113.48	22.52	183.29	-47.67	-1,732.60	7,362.79	7,182.12	6,976.72	205.40	34.966	
6,100.00	6,071.35	6,117.00	6,113.48	22.90	183.29	-47.67	-1,732.60	7,362.79	7,177.15	6,971.41	205.74	34.885	
6,200.00	6,170.81	6,117.00	6,113.48	23.28	183.29	-47.67	-1,732.60	7,362.79	7,173.56	6,967.52	206.04	34.816	
6,300.00	6,270.28	6,117.00	6,113.48	23.67	183.29	-47.67	-1,732.60	7,362.79	7,171.36	6,965.06	206.30	34.762	
6,375.94	6,345.82	6,117.00	6,113.48	23.96	183.29	-47.67	-1,732.60	7,362.79	7,170.63	6,964.15	206.47	34.729	
6,400.00	6,369.72	6,117.00	6,113.48	24.05	183.29	-33.19	-1,732.60	7,362.79	7,170.11	6,963.59	206.52	34.718	
6,450.00	6,419.09	6,117.00	6,113.48	24.25	183.29	-17.00	-1,732.60	7,362.79	7,166.45	6,959.82	206.62	34.684	
6,500.00	6,467.78	6,117.00	6,113.48	24.46	183.29	-9.24	-1,732.60	7,362.79	7,159.28	6,952.57	206.71	34.635	
6,550.00	6,515.51	6,117.00	6,113.48	24.67	183.29	-4.78	-1,732.60	7,362.79	7,148.65	6,941.87	206.78	34.571	
6,600.00	6,561.97	6,117.00	6,113.48	24.88	183.29	-1.84	-1,732.60	7,362.79	7,134.61	6,927.76	206.85	34.492	
6,650.00	6,606.89	6,117.00	6,113.48	25.10	183.29	0.31	-1,732.60	7,362.79	7,117.21	6,910.32	206.90	34.400	
6,700.00	6,649.98	6,117.00	6,113.48	25.32	183.29	2.02	-1,732.60	7,362.79	7,096.56	6,889.62	206.93	34.294	
6,750.00	6,690.98	6,117.00	6,113.48	25.54	183.29	3.50	-1,732.60	7,362.79	7,072.74	6,865.78	206.96	34.174	
6,800.00	6,729.64	6,117.00	6,113.48	25.77	183.29	4.85	-1,732.60	7,362.79	7,045.87	6,838.90	206.97	34.042	
6,850.00	6,765.71	6,117.00	6,113.48	26.00	183.29	6.18	-1,732.60	7,362.79	7,016.08	6,809.11	206.97	33.898	
6,900.00	6,798.98	6,117.00	6,113.48	26.24	183.29	7.55	-1,732.60	7,362.79	6,983.53	6,776.56	206.96	33.743	
6,950.00	6,829.24	6,117.00	6,113.48	26.49	183.29	9.05	-1,732.60	7,362.79	6,948.36	6,741.42	206.95	33.576	
7,000.00	6,856.30	6,117.00	6,113.48	26.76	183.29	10.75	-1,732.60	7,362.79	6,910.77	6,703.86	206.92	33.399	
7,050.00	6,880.00	6,117.00	6,113.48	27.03	183.29	12.77	-1,732.60	7,362.79	6,870.95	6,664.07	206.88	33.212	
7,100.00	6,900.19	6,117.00	6,113.48	27.32	183.29	15.25	-1,732.60	7,362.79	6,829.10	6,622.26	206.84	33.016	
7,150.00	6,916.74	6,117.00	6,113.48	27.62	183.29	18.44	-1,732.60	7,362.79	6,785.45	6,578.65	206.79	32.812	
7,200.00	6,929.56	6,117.00	6,113.48	27.93	183.29	22.69	-1,732.60	7,362.79	6,740.23	6,533.48	206.75	32.601	
7,250.00	6,938.57	6,117.00	6,113.48	28.26	183.29	28.61	-1,732.60	7,362.79	6,693.69	6,486.99	206.70	32.384	
7,300.00	6,943.70	6,117.00	6,113.48	28.60	183.29	37.24	-1,732.60	7,362.79	6,646.11	6,439.45	206.65	32.160	
7,340.76	6,945.00	6,117.00	6,113.48	28.88	183.29	47.35	-1,732.60	7,362.79	6,606.73	6,400.11	206.62	31.975	
7,400.00	6,945.00	6,117.00	6,113.48	29.31	183.29	47.35	-1,732.60	7,362.79	6,549.20	6,342.63	206.57	31.704	
7,500.00	6,945.00	6,117.00	6,113.48	30.09	183.29	47.35	-1,732.60	7,362.79	6,452.16	6,245.67	206.49	31.247	
7,600.00	6,945.00	6,117.00	6,113.48	30.93	183.29	47.35	-1,732.60	7,362.79	6,355.22	6,148.81	206.41	30.789	
7,700.00	6,945.00	6,117.00	6,113.48	31.83	183.29	47.35	-1,732.60	7,362.79	6,258.38	6,052.04	206.33	30.331	
7,800.00	6,945.00	6,117.00	6,113.48	32.79	183.29	47.35	-1,732.60	7,362.79	6,161.63	5,955.37	206.26	29.873	
7,900.00	6,945.00	6,117.00	6,113.48	33.79	183.29	47.35	-1,732.60	7,362.79	6,064.99	5,858.80	206.19	29.415	
8,000.00	6,945.00	6,117.00	6,113.48	34.84	183.29	47.35	-1,732.60	7,362.79	5,968.46	5,762.34	206.12	28.956	
8,100.00	6,945.00	6,117.00	6,113.48	35.93	183.29	47.35	-1,732.60	7,362.79	5,872.05	5,665.99	206.05	28.498	
8,200.00	6,945.00	6,117.00	6,113.48	37.06	183.29	47.35	-1,732.60	7,362.79	5,775.75	5,569.76	205.99	28.039	
8,300.00	6,945.00	6,117.00	6,113.48	38.23	183.29	47.35	-1,732.60	7,362.79	5,679.59	5,473.65	205.94	27.579	
8,400.00	6,945.00	6,117.00	6,113.48	39.42	183.29	47.35	-1,732.60	7,362.79	5,583.56	5,377.68	205.88	27.120	
8,500.00	6,945.00	6,117.00	6,113.48	40.65	183.29	47.35	-1,732.60	7,362.79	5,487.67	5,281.84	205.84	26.660	
8,600.00	6,945.00	6,117.00	6,113.48	41.90	183.29	47.35	-1,732.60	7,362.79	5,391.94	5,186.14	205.80	26.200	
8,700.00	6,945.00	6,117.00	6,113.48	43.17	183.29	47.35	-1,732.60	7,362.79	5,296.36	5,090.60	205.76	25.740	
8,800.00	6,945.00	6,117.00	6,113.48	44.46	183.29	47.35	-1,732.60	7,362.79	5,200.94	4,995.21	205.74	25.280	
8,900.00	6,945.00	6,117.00	6,113.48	45.78	183.29	47.35	-1,732.60	7,362.79	5,105.71	4,899.99	205.72	24.819	
9,000.00	6,945.00	6,117.00	6,113.48	47.11	183.29	47.35	-1,732.60	7,362.79	5,010.65	4,804.95	205.70	24.358	
9,100.00	6,945.00	6,117.00	6,113.48	48.46	183.29	47.35	-1,732.60	7,362.79	4,915.80	4,710.09	205.70	23.898	

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 705H
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 705H	**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 #3	**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
9,200.00	6,945.00	6,117.00	6,113.48	49.82	183.29	47.35	-1,732.60	7,362.79	4,821.15	4,615.44	205.71	23.437	
9,300.00	6,945.00	6,117.00	6,113.48	51.20	183.29	47.35	-1,732.60	7,362.79	4,726.72	4,520.99	205.73	22.975	
9,400.00	6,945.00	6,117.00	6,113.48	52.59	183.29	47.35	-1,732.60	7,362.79	4,632.53	4,426.77	205.76	22.514	
9,500.00	6,945.00	6,117.00	6,113.48	53.99	183.29	47.35	-1,732.60	7,362.79	4,538.58	4,332.78	205.81	22.053	
9,600.00	6,945.00	6,117.00	6,113.48	55.40	183.29	47.35	-1,732.60	7,362.79	4,444.90	4,239.04	205.86	21.591	
9,700.00	6,945.00	6,117.00	6,113.48	56.83	183.29	47.35	-1,732.60	7,362.79	4,351.50	4,145.56	205.94	21.130	
9,800.00	6,945.00	6,117.00	6,113.48	58.26	183.29	47.35	-1,732.60	7,362.79	4,258.40	4,052.37	206.03	20.669	
9,900.00	6,945.00	6,117.00	6,113.48	59.70	183.29	47.35	-1,732.60	7,362.79	4,165.62	3,959.49	206.13	20.208	
10,000.00	6,945.00	6,117.00	6,113.48	61.15	183.29	47.35	-1,732.60	7,362.79	4,073.18	3,866.92	206.26	19.748	
10,100.00	6,945.00	6,117.00	6,113.48	62.61	183.29	47.35	-1,732.60	7,362.79	3,981.11	3,774.70	206.40	19.288	
10,200.00	6,945.00	6,117.00	6,113.48	64.07	183.29	47.35	-1,732.60	7,362.79	3,889.42	3,682.85	206.57	18.828	
10,300.00	6,945.00	6,117.00	6,113.48	65.54	183.29	47.35	-1,732.60	7,362.79	3,798.16	3,591.40	206.76	18.370	
10,400.00	6,945.00	6,117.00	6,113.48	67.02	183.29	47.35	-1,732.60	7,362.79	3,707.35	3,500.38	206.98	17.912	
10,500.00	6,945.00	6,117.00	6,113.48	68.50	183.29	47.35	-1,732.60	7,362.79	3,617.02	3,409.81	207.22	17.455	
10,600.00	6,945.00	6,117.00	6,113.48	69.99	183.29	47.35	-1,732.60	7,362.79	3,527.22	3,319.74	207.48	17.000	
10,700.00	6,945.00	6,117.00	6,113.48	71.48	183.29	47.35	-1,732.60	7,362.79	3,437.98	3,230.20	207.78	16.546	
10,800.00	6,945.00	6,117.00	6,113.48	72.98	183.29	47.35	-1,732.60	7,362.79	3,349.34	3,141.24	208.10	16.095	
10,900.00	6,945.00	6,117.00	6,113.48	74.48	183.29	47.35	-1,732.60	7,362.79	3,261.37	3,052.91	208.46	15.645	
11,000.00	6,945.00	6,117.00	6,113.48	75.99	183.29	47.35	-1,732.60	7,362.79	3,174.10	2,965.26	208.85	15.198	
11,100.00	6,945.00	6,117.00	6,113.48	77.50	183.29	47.35	-1,732.60	7,362.79	3,087.61	2,878.34	209.27	14.754	
11,200.00	6,945.00	6,117.00	6,113.48	79.01	183.29	47.35	-1,732.60	7,362.79	3,001.96	2,792.23	209.73	14.314	
11,300.00	6,945.00	6,117.00	6,113.48	80.53	183.29	47.35	-1,732.60	7,362.79	2,917.22	2,707.00	210.22	13.877	
11,400.00	6,945.00	6,117.00	6,113.48	82.05	183.29	47.35	-1,732.60	7,362.79	2,833.48	2,622.73	210.75	13.445	
11,500.00	6,945.00	6,117.00	6,113.48	83.57	183.29	47.35	-1,732.60	7,362.79	2,750.82	2,539.51	211.31	13.018	
11,600.00	6,945.00	6,117.00	6,113.48	85.10	183.29	47.35	-1,732.60	7,362.79	2,669.35	2,457.44	211.91	12.597	
11,700.00	6,945.00	6,117.00	6,113.48	86.63	183.29	47.35	-1,732.60	7,362.79	2,589.18	2,376.64	212.54	12.182	
11,800.00	6,945.00	6,117.00	6,113.48	88.16	183.29	47.35	-1,732.60	7,362.79	2,510.43	2,297.22	213.21	11.774	
11,900.00	6,945.00	6,117.00	6,113.48	89.69	183.29	47.35	-1,732.60	7,362.79	2,433.24	2,219.33	213.91	11.375	
12,000.00	6,945.00	6,117.00	6,113.48	91.23	183.29	47.35	-1,732.60	7,362.79	2,357.77	2,143.13	214.64	10.985	
12,100.00	6,945.00	6,117.00	6,113.48	92.77	183.29	47.35	-1,732.60	7,362.79	2,284.19	2,068.78	215.40	10.604	
12,200.00	6,945.00	6,117.00	6,113.48	94.31	183.29	47.35	-1,732.60	7,362.79	2,212.67	1,996.49	216.18	10.235	
12,300.00	6,945.00	6,117.00	6,113.48	95.85	183.29	47.35	-1,732.60	7,362.79	2,143.44	1,926.45	216.99	9.878	
12,400.00	6,945.00	6,117.00	6,113.48	97.40	183.29	47.35	-1,732.60	7,362.79	2,076.72	1,858.91	217.81	9.535	
12,500.00	6,945.00	6,117.00	6,113.48	98.95	183.29	47.35	-1,732.60	7,362.79	2,012.75	1,794.11	218.64	9.206	
12,600.00	6,945.00	6,117.00	6,113.48	100.50	183.29	47.35	-1,732.60	7,362.79	1,951.81	1,732.33	219.48	8.893	
12,700.00	6,945.00	6,117.00	6,113.48	102.05	183.29	47.35	-1,732.60	7,362.79	1,894.20	1,673.87	220.33	8.597	
12,800.00	6,945.00	6,117.00	6,113.48	103.60	183.29	47.35	-1,732.60	7,362.79	1,840.22	1,619.03	221.19	8.320	
12,900.00	6,945.00	6,117.00	6,113.48	105.15	183.29	47.35	-1,732.60	7,362.79	1,790.20	1,568.15	222.05	8.062	
13,000.00	6,945.00	6,117.00	6,113.48	106.71	183.29	47.35	-1,732.60	7,362.79	1,744.49	1,521.56	222.93	7.825	
13,100.00	6,945.00	6,117.00	6,113.48	108.26	183.29	47.35	-1,732.60	7,362.79	1,703.42	1,479.60	223.83	7.610	
13,200.00	6,945.00	6,117.00	6,113.48	109.82	183.29	47.35	-1,732.60	7,362.79	1,667.35	1,442.59	224.76	7.418	
13,300.00	6,945.00	6,117.00	6,113.48	111.38	183.29	47.35	-1,732.60	7,362.79	1,636.61	1,410.85	225.75	7.250	
13,400.00	6,945.00	6,117.00	6,113.48	112.94	183.29	47.35	-1,732.60	7,362.79	1,611.49	1,384.67	226.81	7.105	
13,500.00	6,945.00	6,117.00	6,113.48	114.50	183.29	47.35	-1,732.60	7,362.79	1,592.27	1,364.29	227.97	6.985	
13,600.00	6,945.00	6,117.00	6,113.48	116.07	183.29	47.35	-1,732.60	7,362.79	1,579.15	1,349.92	229.24	6.889	
13,700.00	6,945.00	6,117.00	6,113.48	117.63	183.29	47.35	-1,732.60	7,362.79	1,572.30	1,341.69	230.61	6.818	
13,757.93	6,945.00	6,117.00	6,113.48	118.54	183.29	47.35	-1,732.60	7,362.79	1,571.24	1,339.77	231.47	6.788	CC
13,800.00	6,945.00	6,117.00	6,113.48	119.19	183.29	47.35	-1,732.60	7,362.79	1,571.80	1,339.69	232.10	6.772	ES
13,900.00	6,945.00	6,117.00	6,113.48	120.76	183.29	47.35	-1,732.60	7,362.79	1,577.65	1,343.96	233.69	6.751	SF
14,000.00	6,945.00	6,117.00	6,113.48	122.33	183.29	47.35	-1,732.60	7,362.79	1,589.77	1,354.45	235.33	6.756	
14,100.00	6,945.00	6,117.00	6,113.48	123.90	183.29	47.35	-1,732.60	7,362.79	1,608.04	1,371.05	236.99	6.785	
14,200.00	6,945.00	6,117.00	6,113.48	125.46	183.29	47.35	-1,732.60	7,362.79	1,632.24	1,393.61	238.64	6.840	

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 705H
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 705H	**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 #3	**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
14,300.00	6,945.00	6,117.00	6,113.48	127.03	183.29	47.35	-1,732.60	7,362.79	1,662.11	1,421.90	240.21	6.919	
14,400.00	6,945.00	6,117.00	6,113.48	128.60	183.29	47.35	-1,732.60	7,362.79	1,697.36	1,455.67	241.69	7.023	
14,500.00	6,945.00	6,117.00	6,113.48	130.18	183.29	47.35	-1,732.60	7,362.79	1,737.66	1,494.62	243.03	7.150	
14,600.00	6,945.00	6,117.00	6,113.48	131.75	183.29	47.35	-1,732.60	7,362.79	1,782.66	1,538.43	244.23	7.299	
14,700.00	6,945.00	6,117.00	6,113.48	133.32	183.29	47.35	-1,732.60	7,362.79	1,832.02	1,586.76	245.26	7.470	
14,800.00	6,945.00	6,117.00	6,113.48	134.89	183.29	47.35	-1,732.60	7,362.79	1,885.39	1,639.27	246.12	7.660	
14,900.00	6,945.00	6,117.00	6,113.48	136.47	183.29	47.35	-1,732.60	7,362.79	1,942.45	1,695.62	246.83	7.870	
15,000.00	6,945.00	6,117.00	6,113.48	138.04	183.29	47.35	-1,732.60	7,362.79	2,002.88	1,755.50	247.38	8.096	
15,100.00	6,945.00	6,117.00	6,113.48	139.62	183.29	47.35	-1,732.60	7,362.79	2,066.38	1,818.58	247.80	8.339	
15,200.00	6,945.00	6,117.00	6,113.48	141.20	183.29	47.35	-1,732.60	7,362.79	2,132.69	1,884.60	248.09	8.596	
15,300.00	6,945.00	6,117.00	6,113.48	142.77	183.29	47.35	-1,732.60	7,362.79	2,201.54	1,953.27	248.27	8.868	
15,400.00	6,945.00	6,117.00	6,113.48	144.35	183.29	47.35	-1,732.60	7,362.79	2,272.70	2,024.36	248.35	9.151	
15,500.00	6,945.00	6,117.00	6,113.48	145.93	183.29	47.35	-1,732.60	7,362.79	2,345.98	2,097.63	248.34	9.446	
15,600.00	6,945.00	6,117.00	6,113.48	147.51	183.29	47.35	-1,732.60	7,362.79	2,421.16	2,172.89	248.27	9.752	
15,700.00	6,945.00	6,117.00	6,113.48	149.09	183.29	47.35	-1,732.60	7,362.79	2,498.09	2,249.95	248.14	10.067	
15,800.00	6,945.00	6,117.00	6,113.48	150.67	183.29	47.35	-1,732.60	7,362.79	2,576.60	2,328.64	247.95	10.391	
15,900.00	6,945.00	6,117.00	6,113.48	152.25	183.29	47.35	-1,732.60	7,362.79	2,656.55	2,408.82	247.73	10.724	
16,000.00	6,945.00	6,117.00	6,113.48	153.83	183.29	47.35	-1,732.60	7,362.79	2,737.82	2,490.35	247.47	11.063	
16,100.00	6,945.00	6,117.00	6,113.48	155.41	183.29	47.35	-1,732.60	7,362.79	2,820.30	2,573.11	247.19	11.409	
16,200.00	6,945.00	6,117.00	6,113.48	156.99	183.29	47.35	-1,732.60	7,362.79	2,903.88	2,656.99	246.89	11.762	
16,300.00	6,945.00	6,117.00	6,113.48	158.57	183.29	47.35	-1,732.60	7,362.79	2,988.46	2,741.89	246.57	12.120	
16,400.00	6,945.00	6,117.00	6,113.48	160.15	183.29	47.35	-1,732.60	7,362.79	3,073.98	2,827.73	246.25	12.483	
16,500.00	6,945.00	6,117.00	6,113.48	161.74	183.29	47.35	-1,732.60	7,362.79	3,160.34	2,914.43	245.91	12.852	
16,600.00	6,945.00	6,117.00	6,113.48	163.32	183.29	47.35	-1,732.60	7,362.79	3,247.49	3,001.91	245.57	13.224	
16,700.00	6,945.00	6,117.00	6,113.48	164.90	183.29	47.35	-1,732.60	7,362.79	3,335.35	3,090.12	245.23	13.601	
16,800.00	6,945.00	6,117.00	6,113.48	166.49	183.29	47.35	-1,732.60	7,362.79	3,423.89	3,178.99	244.89	13.981	
16,900.00	6,945.00	6,117.00	6,113.48	168.07	183.29	47.35	-1,732.60	7,362.79	3,513.03	3,268.48	244.56	14.365	
17,000.00	6,945.00	6,117.00	6,113.48	169.66	183.29	47.35	-1,732.60	7,362.79	3,602.75	3,358.53	244.22	14.752	
17,100.00	6,945.00	6,117.00	6,113.48	171.24	183.29	47.35	-1,732.60	7,362.79	3,693.00	3,449.11	243.89	15.142	
17,200.00	6,945.00	6,117.00	6,113.48	172.83	183.29	47.35	-1,732.60	7,362.79	3,783.74	3,540.17	243.57	15.535	
17,300.00	6,945.00	6,117.00	6,113.48	174.41	183.29	47.35	-1,732.60	7,362.79	3,874.93	3,631.68	243.25	15.930	
17,400.00	6,945.00	6,117.00	6,113.48	176.00	183.29	47.35	-1,732.60	7,362.79	3,966.55	3,723.60	242.94	16.327	
17,500.00	6,945.00	6,117.00	6,113.48	177.59	183.29	47.35	-1,732.60	7,362.79	4,058.56	3,815.92	242.64	16.727	
17,600.00	6,945.00	6,117.00	6,113.48	179.17	183.29	47.35	-1,732.60	7,362.79	4,150.94	3,908.60	242.34	17.128	
17,700.00	6,945.00	6,117.00	6,113.48	180.76	183.29	47.35	-1,732.60	7,362.79	4,243.67	4,001.61	242.06	17.532	
17,800.00	6,945.00	6,117.00	6,113.48	182.35	183.29	47.35	-1,732.60	7,362.79	4,336.72	4,094.94	241.78	17.937	
17,900.00	6,945.00	6,117.00	6,113.48	183.93	183.29	47.35	-1,732.60	7,362.79	4,430.07	4,188.57	241.50	18.344	
18,000.00	6,945.00	6,117.00	6,113.48	185.52	183.29	47.35	-1,732.60	7,362.79	4,523.71	4,282.47	241.24	18.752	
18,100.00	6,945.00	6,117.00	6,113.48	187.11	183.29	47.35	-1,732.60	7,362.79	4,617.62	4,376.63	240.99	19.161	
18,200.00	6,945.00	6,117.00	6,113.48	188.70	183.29	47.35	-1,732.60	7,362.79	4,711.77	4,471.03	240.74	19.572	
18,300.00	6,945.00	6,117.00	6,113.48	190.29	183.29	47.35	-1,732.60	7,362.79	4,806.16	4,565.66	240.50	19.984	
18,400.00	6,945.00	6,117.00	6,113.48	191.88	183.29	47.35	-1,732.60	7,362.79	4,900.78	4,660.51	240.27	20.397	
18,500.00	6,945.00	6,117.00	6,113.48	193.46	183.29	47.35	-1,732.60	7,362.79	4,995.60	4,755.56	240.05	20.811	
18,600.00	6,945.00	6,117.00	6,113.48	195.05	183.29	47.35	-1,732.60	7,362.79	5,090.62	4,850.79	239.83	21.226	
18,700.00	6,945.00	6,117.00	6,113.48	196.64	183.29	47.35	-1,732.60	7,362.79	5,185.83	4,946.21	239.62	21.642	
18,800.00	6,945.00	6,117.00	6,113.48	198.23	183.29	47.35	-1,732.60	7,362.79	5,281.22	5,041.80	239.42	22.058	
18,900.00	6,945.00	6,117.00	6,113.48	199.82	183.29	47.35	-1,732.60	7,362.79	5,376.77	5,137.54	239.23	22.475	
19,000.00	6,945.00	6,117.00	6,113.48	201.41	183.29	47.35	-1,732.60	7,362.79	5,472.49	5,233.44	239.04	22.893	
19,100.00	6,945.00	6,117.00	6,113.48	203.00	183.29	47.35	-1,732.60	7,362.79	5,568.35	5,329.49	238.86	23.312	
19,200.00	6,945.00	6,117.00	6,113.48	204.60	183.29	47.35	-1,732.60	7,362.79	5,664.36	5,425.67	238.69	23.731	
19,300.00	6,945.00	6,117.00	6,113.48	206.19	183.29	47.35	-1,732.60	7,362.79	5,760.50	5,521.97	238.53	24.150	
19,400.00	6,945.00	6,117.00	6,113.48	207.78	183.29	47.35	-1,732.60	7,362.79	5,856.77	5,618.41	238.37	24.570	

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 705H
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 705H	**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 #3	**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

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
19,500.00	6,945.00	6,117.00	6,113.48	209.37	183.29	47.35	-1,732.60	7,362.79	5,953.17	5,714.95	238.21	24.991	
19,600.00	6,945.00	6,117.00	6,113.48	210.96	183.29	47.35	-1,732.60	7,362.79	6,049.68	5,811.61	238.07	25.412	
19,700.00	6,945.00	6,117.00	6,113.48	212.55	183.29	47.35	-1,732.60	7,362.79	6,146.30	5,908.38	237.92	25.833	
19,800.00	6,945.00	6,117.00	6,113.48	214.14	183.29	47.35	-1,732.60	7,362.79	6,243.03	6,005.24	237.79	26.255	
19,900.00	6,945.00	6,117.00	6,113.48	215.74	183.29	47.35	-1,732.60	7,362.79	6,339.86	6,102.20	237.66	26.676	
20,000.00	6,945.00	6,117.00	6,113.48	217.33	183.29	47.35	-1,732.60	7,362.79	6,436.79	6,199.26	237.53	27.099	
20,100.00	6,945.00	6,117.00	6,113.48	218.92	183.29	47.35	-1,732.60	7,362.79	6,533.81	6,296.40	237.41	27.521	
20,200.00	6,945.00	6,117.00	6,113.48	220.51	183.29	47.35	-1,732.60	7,362.79	6,630.92	6,393.62	237.30	27.943	
20,300.00	6,945.00	6,117.00	6,113.48	222.11	183.29	47.35	-1,732.60	7,362.79	6,728.11	6,490.92	237.19	28.366	
20,400.00	6,945.00	6,117.00	6,113.48	223.70	183.29	47.35	-1,732.60	7,362.79	6,825.39	6,588.30	237.08	28.789	
20,500.00	6,945.00	6,117.00	6,113.48	225.29	183.29	47.35	-1,732.60	7,362.79	6,922.74	6,685.76	236.98	29.212	
20,600.00	6,945.00	6,117.00	6,113.48	226.88	183.29	47.35	-1,732.60	7,362.79	7,020.17	6,783.28	236.89	29.635	
20,700.00	6,945.00	6,117.00	6,113.48	228.48	183.29	47.35	-1,732.60	7,362.79	7,117.67	6,880.87	236.80	30.058	
20,741.48	6,945.00	6,117.00	6,113.48	229.14	183.29	47.35	-1,732.60	7,362.79	7,158.13	6,921.36	236.76	30.233	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 705H
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 705H	**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 #3	**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	121.94	-2,540.55	4,074.46	4,803.50				
100.00	100.00	0.00	0.00	0.25	0.00	121.94	-2,540.55	4,074.46	4,801.75	4,801.50	0.25	N/A	
134.00	134.00	0.00	0.00	0.37	0.00	121.94	-2,540.55	4,074.46	4,801.63	4,801.26	0.37	N/A	
200.00	200.00	61.69	61.69	0.61	0.07	121.94	-2,540.55	4,074.49	4,801.66	4,800.98	0.68	7,072.884	
300.00	300.00	155.17	155.17	0.97	0.17	121.94	-2,540.57	4,074.66	4,801.82	4,800.67	1.14	4,203.561	
400.00	400.00	248.64	248.64	1.33	0.28	121.94	-2,540.60	4,074.96	4,802.11	4,800.50	1.61	2,990.534	
500.00	500.00	353.82	353.82	1.68	0.43	121.94	-2,540.47	4,075.53	4,802.51	4,800.40	2.12	2,269.145	
600.00	599.98	498.58	498.41	2.03	0.76	-25.90	-2,534.99	4,078.29	4,800.48	4,797.70	2.78	1,728.315	
700.00	699.84	567.43	566.93	2.37	0.93	-26.04	-2,529.07	4,081.45	4,795.23	4,791.94	3.29	1,458.026	
795.17	794.65	621.50	620.54	2.69	1.07	-26.21	-2,523.16	4,085.37	4,788.25	4,784.49	3.76	1,271.880	
800.00	799.45	624.41	623.42	2.71	1.08	-26.22	-2,522.83	4,085.61	4,787.85	4,784.06	3.79	1,262.650	
900.00	898.92	682.00	680.38	3.06	1.26	-26.35	-2,516.05	4,090.62	4,779.91	4,775.60	4.31	1,108.623	
1,000.00	998.39	772.00	769.12	3.43	1.56	-26.58	-2,504.18	4,099.80	4,772.56	4,767.60	4.96	961.461	
1,100.00	1,097.86	947.66	940.49	3.79	2.28	-27.14	-2,471.93	4,120.60	4,763.73	4,757.70	6.04	789.112	
1,200.00	1,197.33	1,037.02	1,026.38	4.16	2.73	-27.48	-2,450.97	4,133.59	4,755.21	4,748.37	6.85	694.514	
1,300.00	1,296.80	1,121.37	1,106.38	4.53	3.22	-27.85	-2,428.29	4,147.67	4,747.06	4,739.37	7.69	616.967	
1,400.00	1,396.27	1,183.71	1,164.74	4.91	3.62	-28.15	-2,409.75	4,159.33	4,739.55	4,731.09	8.46	560.554	
1,500.00	1,495.74	1,243.94	1,220.58	5.28	4.02	-28.46	-2,390.84	4,171.69	4,733.03	4,723.81	9.22	513.130	
1,600.00	1,595.21	1,328.00	1,297.66	5.66	4.64	-28.91	-2,362.77	4,189.98	4,727.07	4,716.87	10.20	463.535	
1,700.00	1,694.68	1,394.44	1,357.97	6.04	5.16	-29.28	-2,339.46	4,205.26	4,721.83	4,710.75	11.08	426.242	
1,800.00	1,794.15	1,454.94	1,412.48	6.42	5.64	-29.63	-2,317.70	4,219.94	4,717.65	4,705.73	11.93	395.606	
1,900.00	1,893.62	1,520.14	1,470.91	6.80	6.18	-30.02	-2,293.85	4,236.33	4,714.41	4,701.59	12.82	367.685	
2,000.00	1,993.09	1,600.23	1,542.11	7.18	6.87	-30.50	-2,263.66	4,257.14	4,711.94	4,698.07	13.87	339.790	
2,100.00	2,092.56	1,700.00	1,630.17	7.56	7.73	-31.12	-2,224.82	4,283.41	4,709.80	4,694.71	15.09	312.178	
2,200.00	2,192.03	1,762.90	1,685.45	7.94	8.29	-31.52	-2,199.94	4,300.20	4,708.34	4,692.34	16.00	294.334	
2,291.03	2,282.58	1,822.39	1,737.50	8.29	8.80	-31.90	-2,176.24	4,316.60	4,708.01	4,691.18	16.83	279.779	
2,300.00	2,291.50	1,830.47	1,744.57	8.32	8.87	-31.95	-2,173.04	4,318.83	4,708.01	4,691.09	16.93	278.150	
2,400.00	2,390.97	2,448.00	2,289.37	8.70	13.81	-35.82	-1,920.51	4,455.01	4,703.85	4,681.67	22.17	212.128	
2,500.00	2,490.44	2,448.00	2,289.37	9.08	13.81	-35.82	-1,920.51	4,455.01	4,695.86	4,673.31	22.55	208.205	
2,600.00	2,589.91	2,448.00	2,289.37	9.47	13.81	-35.82	-1,920.51	4,455.01	4,689.99	4,667.07	22.93	204.571	
2,700.00	2,689.38	2,448.00	2,289.37	9.85	13.81	-35.82	-1,920.51	4,455.01	4,686.25	4,662.96	23.29	201.215	
2,800.00	2,788.85	2,448.00	2,289.37	10.23	13.81	-35.82	-1,920.51	4,455.01	4,684.65	4,661.00	23.65	198.124	
2,825.34	2,814.05	2,448.00	2,289.37	10.33	13.81	-35.82	-1,920.51	4,455.01	4,684.58	4,660.84	23.73	197.381	
2,900.00	2,888.32	2,448.00	2,289.37	10.61	13.81	-35.82	-1,920.51	4,455.01	4,685.17	4,661.18	23.99	195.288	
3,000.00	2,987.79	2,607.42	2,429.40	11.00	15.17	-36.84	-1,855.25	4,494.34	4,686.08	4,660.40	25.68	182.480	
3,100.00	3,087.25	2,705.38	2,516.28	11.38	15.95	-37.45	-1,816.31	4,517.37	4,687.07	4,660.27	26.80	174.860	
3,200.00	3,186.72	2,798.24	2,599.82	11.76	16.67	-38.00	-1,781.60	4,538.33	4,688.43	4,660.58	27.85	168.336	
3,300.00	3,286.19	2,887.67	2,681.36	12.15	17.32	-38.50	-1,750.45	4,557.76	4,690.21	4,661.37	28.84	162.634	
3,400.00	3,385.66	3,033.77	2,816.24	12.53	18.33	-39.28	-1,702.99	4,587.75	4,692.04	4,661.86	30.17	155.495	
3,500.00	3,485.13	3,194.82	2,968.52	12.91	19.30	-40.01	-1,658.94	4,615.94	4,692.80	4,661.33	31.47	149.106	
3,600.00	3,584.60	3,348.90	3,116.84	13.30	20.08	-40.62	-1,624.15	4,638.91	4,692.84	4,660.25	32.58	144.032	
3,700.00	3,684.07	3,562.76	3,326.27	13.68	20.93	-41.30	-1,587.70	4,661.72	4,689.92	4,656.16	33.77	138.896	
3,800.00	3,783.54	3,679.21	3,441.56	14.06	21.27	-41.59	-1,574.46	4,671.15	4,686.83	4,652.38	34.45	136.056	
3,900.00	3,883.01	3,770.86	3,532.76	14.45	21.48	-41.76	-1,567.91	4,677.29	4,683.63	4,648.61	35.01	133.773	
4,000.00	3,982.48	3,858.56	3,620.05	14.83	21.68	-41.92	-1,561.92	4,683.31	4,680.70	4,645.14	35.56	131.636	
4,100.00	4,081.95	3,946.33	3,707.41	15.22	21.87	-42.09	-1,556.15	4,689.48	4,678.06	4,641.95	36.10	129.572	
4,200.00	4,181.42	4,046.52	3,807.14	15.60	22.09	-42.27	-1,549.82	4,696.63	4,675.63	4,638.96	36.67	127.506	
4,300.00	4,280.89	4,160.16	3,920.31	15.98	22.33	-42.47	-1,542.87	4,704.40	4,673.02	4,635.76	37.26	125.425	
4,400.00	4,380.36	4,273.88	4,033.60	16.37	22.57	-42.67	-1,536.15	4,711.75	4,670.13	4,632.29	37.84	123.403	
4,500.00	4,479.83	4,387.68	4,147.00	16.75	22.81	-42.87	-1,529.65	4,718.66	4,666.98	4,628.55	38.43	121.436	
4,600.00	4,579.30	4,495.75	4,254.72	17.14	23.03	-43.05	-1,523.71	4,724.83	4,663.57	4,624.57	39.00	119.579	
4,700.00	4,678.77	4,591.64	4,350.34	17.52	23.20	-43.21	-1,518.86	4,730.18	4,660.18	4,620.65	39.53	117.891	

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 705H
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 705H	**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 #3	**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
4,800.00	4,778.24	4,687.67	4,446.12	17.90	23.38	-43.36	-1,514.48	4,735.48	4,656.89	4,616.83	40.06	116.249	
4,900.00	4,877.71	4,783.82	4,542.05	18.29	23.56	-43.50	-1,510.58	4,740.72	4,653.70	4,613.11	40.59	114.651	
5,000.00	4,977.18	4,880.09	4,638.13	18.67	23.74	-43.65	-1,507.17	4,745.92	4,650.61	4,609.49	41.12	113.096	
5,100.00	5,076.65	4,975.51	4,733.36	19.06	23.91	-43.78	-1,504.26	4,751.01	4,647.61	4,605.98	41.64	111.616	
5,200.00	5,176.12	5,069.38	4,827.07	19.44	24.05	-43.90	-1,501.93	4,756.00	4,644.75	4,602.62	42.13	110.236	
5,300.00	5,275.59	5,163.37	4,920.91	19.83	24.20	-44.02	-1,500.14	4,760.98	4,642.03	4,599.40	42.63	108.889	
5,400.00	5,375.06	5,257.47	5,014.87	20.21	24.34	-44.14	-1,498.90	4,765.94	4,639.44	4,596.32	43.13	107.575	
5,500.00	5,474.53	5,351.67	5,108.94	20.59	24.49	-44.24	-1,498.19	4,770.89	4,636.99	4,593.37	43.63	106.292	
5,600.00	5,574.00	5,447.58	5,204.72	20.98	24.63	-44.34	-1,497.99	4,775.91	4,634.67	4,590.55	44.12	105.052	
5,700.00	5,673.47	5,546.02	5,303.02	21.36	24.77	-44.45	-1,498.00	4,781.06	4,632.40	4,587.79	44.60	103.858	
5,800.00	5,772.94	5,644.48	5,401.35	21.75	24.91	-44.55	-1,498.14	4,786.20	4,630.17	4,585.08	45.09	102.691	
5,900.00	5,872.41	5,742.97	5,499.70	22.13	25.04	-44.65	-1,498.41	4,791.34	4,627.98	4,582.41	45.57	101.549	
6,000.00	5,971.88	5,841.47	5,598.07	22.52	25.18	-44.74	-1,498.82	4,796.47	4,625.83	4,579.77	46.06	100.432	
6,100.00	6,071.35	5,941.84	5,698.30	22.90	25.32	-44.84	-1,499.30	4,801.70	4,623.71	4,577.16	46.55	99.328	
6,200.00	6,170.81	6,043.27	5,799.59	23.28	25.47	-44.94	-1,499.63	4,806.98	4,621.56	4,574.52	47.04	98.242	
6,300.00	6,270.28	6,144.66	5,900.85	23.67	25.61	-45.05	-1,499.76	4,812.27	4,619.39	4,571.86	47.54	97.178	
6,375.94	6,345.82	6,221.64	5,977.72	23.96	25.72	-45.13	-1,499.74	4,816.28	4,617.73	4,569.82	47.91	96.385	
6,400.00	6,369.72	6,246.02	6,002.07	24.05	25.75	-30.67	-1,499.71	4,817.55	4,616.76	4,568.73	48.03	96.127	
6,450.00	6,419.09	6,296.52	6,052.50	24.25	25.83	-14.49	-1,499.61	4,820.19	4,611.90	4,563.63	48.27	95.536	
6,500.00	6,467.78	6,346.53	6,102.44	24.46	25.90	-6.70	-1,499.47	4,822.79	4,603.24	4,554.72	48.52	94.875	
6,550.00	6,515.51	6,400.60	6,156.44	24.67	25.97	-2.18	-1,499.29	4,825.60	4,590.82	4,542.06	48.76	94.148	
6,600.00	6,561.97	6,460.48	6,216.25	24.88	26.04	0.86	-1,499.26	4,828.53	4,574.62	4,525.62	49.00	93.357	
6,650.00	6,606.89	6,518.49	6,274.20	25.10	26.11	3.16	-1,499.45	4,831.16	4,554.74	4,505.51	49.23	92.514	
6,700.00	6,649.98	6,574.24	6,329.89	25.32	26.18	5.09	-1,499.82	4,833.49	4,531.30	4,481.85	49.45	91.627	
6,750.00	6,690.98	6,627.33	6,382.94	25.54	26.24	6.85	-1,500.36	4,835.54	4,504.47	4,454.81	49.66	90.703	
6,800.00	6,729.64	6,677.42	6,432.99	25.77	26.31	8.59	-1,501.03	4,837.31	4,474.44	4,424.58	49.86	89.747	
6,850.00	6,765.71	6,724.17	6,479.71	26.00	26.36	10.42	-1,501.79	4,838.83	4,441.39	4,391.36	50.03	88.767	
6,900.00	6,798.98	6,767.28	6,522.80	26.24	26.42	12.46	-1,502.62	4,840.12	4,405.57	4,355.37	50.20	87.768	
6,950.00	6,829.24	6,806.50	6,562.00	26.49	26.46	14.83	-1,503.47	4,841.19	4,367.20	4,316.86	50.34	86.755	
7,000.00	6,856.30	6,841.58	6,597.06	26.76	26.51	17.71	-1,504.31	4,842.07	4,326.56	4,276.09	50.46	85.734	
7,050.00	6,880.00	6,872.33	6,627.79	27.03	26.54	21.33	-1,505.11	4,842.77	4,283.90	4,233.33	50.57	84.710	
7,100.00	6,900.19	6,910.14	6,665.58	27.32	26.57	26.20	-1,506.15	4,843.53	4,239.48	4,188.82	50.65	83.694	
7,150.00	6,916.74	6,941.14	6,696.56	27.62	26.59	32.81	-1,507.01	4,844.03	4,193.58	4,142.87	50.72	82.684	
7,200.00	6,929.56	6,965.01	6,720.41	27.93	26.61	41.96	-1,507.69	4,844.35	4,146.53	4,095.77	50.76	81.682	
7,250.00	6,938.57	6,981.77	6,737.17	28.26	26.62	54.63	-1,508.17	4,844.53	4,098.65	4,047.86	50.79	80.691	
7,300.00	6,943.70	6,991.53	6,746.92	28.60	26.63	71.14	-1,508.45	4,844.62	4,050.26	3,999.45	50.81	79.713	
7,340.76	6,945.00	6,994.39	6,749.78	28.88	26.63	86.28	-1,508.54	4,844.65	4,010.66	3,959.84	50.81	78.927	
7,400.00	6,945.00	6,995.26	6,750.65	29.31	26.63	86.33	-1,508.56	4,844.66	3,953.10	3,902.28	50.82	77.792	
7,500.00	6,945.00	6,996.69	6,752.08	30.09	26.64	86.42	-1,508.60	4,844.67	3,856.06	3,805.24	50.83	75.869	
7,600.00	6,945.00	6,998.06	6,753.45	30.93	26.64	86.50	-1,508.64	4,844.68	3,759.18	3,708.33	50.84	73.935	
7,700.00	6,945.00	6,999.39	6,754.78	31.83	26.64	86.58	-1,508.68	4,844.69	3,662.46	3,611.58	50.88	71.989	
7,800.00	6,945.00	7,000.67	6,756.06	32.79	26.64	86.66	-1,508.72	4,844.70	3,565.92	3,515.00	50.92	70.031	
7,900.00	6,945.00	7,001.91	6,757.30	33.79	26.64	86.73	-1,508.76	4,844.71	3,469.58	3,418.60	50.98	68.061	
8,000.00	6,945.00	7,003.10	6,758.49	34.84	26.64	86.81	-1,508.79	4,844.72	3,373.45	3,322.40	51.05	66.076	
8,100.00	6,945.00	7,004.26	6,759.64	35.93	26.64	86.88	-1,508.82	4,844.73	3,277.56	3,226.41	51.15	64.077	
8,200.00	6,945.00	7,005.37	6,760.76	37.06	26.64	86.95	-1,508.86	4,844.74	3,181.91	3,130.64	51.27	62.063	
8,300.00	6,945.00	7,006.46	6,761.84	38.23	26.64	87.01	-1,508.89	4,844.74	3,086.55	3,035.13	51.42	60.032	
8,400.00	6,945.00	7,007.50	6,762.89	39.42	26.64	87.07	-1,508.92	4,844.75	2,991.48	2,939.89	51.59	57.984	
8,500.00	6,945.00	7,008.52	6,763.90	40.65	26.64	87.14	-1,508.95	4,844.76	2,896.75	2,844.94	51.80	55.918	
8,600.00	6,945.00	7,009.50	6,764.89	41.90	26.64	87.20	-1,508.98	4,844.76	2,802.38	2,750.32	52.06	53.833	
8,700.00	6,945.00	7,010.45	6,765.84	43.17	26.65	87.25	-1,509.01	4,844.77	2,708.41	2,656.06	52.36	51.731	
8,800.00	6,945.00	7,011.38	6,766.76	44.46	26.65	87.31	-1,509.03	4,844.78	2,614.90	2,562.19	52.71	49.610	

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 705H
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 705H	**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 #3	**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
8,900.00	6,945.00	7,012.28	6,767.66	45.78	26.65	87.36	-1,509.06	4,844.78	2,521.88	2,468.75	53.13	47.471	
9,000.00	6,945.00	7,013.15	6,768.53	47.11	26.65	87.42	-1,509.09	4,844.79	2,429.41	2,375.80	53.61	45.315	
9,100.00	6,945.00	7,014.00	6,769.38	48.46	26.65	87.47	-1,509.11	4,844.79	2,337.57	2,283.39	54.18	43.144	
9,200.00	6,945.00	7,014.82	6,770.20	49.82	26.65	87.52	-1,509.13	4,844.80	2,246.42	2,191.58	54.84	40.962	
9,300.00	6,945.00	7,015.62	6,771.00	51.20	26.65	87.57	-1,509.16	4,844.80	2,156.06	2,100.45	55.61	38.772	
9,400.00	6,945.00	7,016.40	6,771.78	52.59	26.65	87.62	-1,509.18	4,844.81	2,066.58	2,010.08	56.50	36.579	
9,500.00	6,945.00	7,017.15	6,772.54	53.99	26.65	87.66	-1,509.20	4,844.81	1,978.11	1,920.59	57.52	34.389	
9,600.00	6,945.00	7,017.89	6,773.27	55.40	26.65	87.71	-1,509.23	4,844.82	1,890.79	1,832.09	58.70	32.212	
9,700.00	6,945.00	7,018.61	6,773.99	56.83	26.65	87.75	-1,509.25	4,844.82	1,804.79	1,744.74	60.05	30.056	
9,800.00	6,945.00	7,019.31	6,774.69	58.26	26.65	87.79	-1,509.27	4,844.83	1,720.30	1,658.71	61.59	27.933	
9,900.00	6,945.00	7,019.99	6,775.37	59.70	26.65	87.83	-1,509.29	4,844.83	1,637.56	1,574.23	63.34	25.855	
10,000.00	6,945.00	7,020.65	6,776.03	61.15	26.65	87.87	-1,509.31	4,844.83	1,556.85	1,491.54	65.31	23.837	
10,100.00	6,945.00	7,021.30	6,776.68	62.61	26.65	87.91	-1,509.33	4,844.84	1,478.49	1,410.96	67.53	21.893	
10,200.00	6,945.00	7,021.93	6,777.31	64.07	26.65	87.95	-1,509.34	4,844.84	1,402.89	1,332.88	70.01	20.038	
10,300.00	6,945.00	7,022.55	6,777.93	65.54	26.65	87.99	-1,509.36	4,844.84	1,330.52	1,257.77	72.74	18.290	
10,400.00	6,945.00	7,023.15	6,778.53	67.02	26.65	88.03	-1,509.38	4,844.85	1,261.92	1,186.19	75.73	16.664	
10,500.00	6,945.00	7,023.74	6,779.12	68.50	26.66	88.06	-1,509.40	4,844.85	1,197.75	1,118.82	78.94	15.173	
10,600.00	6,945.00	7,024.31	6,779.69	69.99	26.66	88.10	-1,509.42	4,844.85	1,138.76	1,056.44	82.32	13.834	
10,700.00	6,945.00	7,024.87	6,780.25	71.48	26.66	88.13	-1,509.43	4,844.86	1,085.79	1,000.00	85.79	12.657	
10,800.00	6,945.00	7,025.42	6,780.80	72.98	26.66	88.16	-1,509.45	4,844.86	1,039.76	950.54	89.23	11.653	
10,900.00	6,945.00	7,025.95	6,781.33	74.48	26.66	88.20	-1,509.46	4,844.86	1,001.63	909.15	92.48	10.831	
11,000.00	6,945.00	7,026.48	6,781.85	75.99	26.66	88.23	-1,509.48	4,844.87	972.33	876.96	95.37	10.195	
11,100.00	6,945.00	7,026.99	6,782.36	77.50	26.66	88.26	-1,509.49	4,844.87	952.68	854.95	97.73	9.748	
11,200.00	6,945.00	7,027.49	6,782.86	79.01	26.66	88.29	-1,509.51	4,844.87	943.27	843.87	99.40	9.490	
11,239.19	6,945.00	7,027.68	6,783.06	79.60	26.66	88.30	-1,509.52	4,844.87	942.46	842.61	99.85	9.439	CC, ES
11,300.00	6,945.00	7,027.98	6,783.35	80.53	26.66	88.32	-1,509.52	4,844.87	944.42	844.10	100.31	9.415	SF
11,400.00	6,945.00	7,028.45	6,783.83	82.05	26.66	88.35	-1,509.54	4,844.88	956.08	855.60	100.47	9.516	
11,500.00	6,945.00	7,028.92	6,784.30	83.57	26.66	88.38	-1,509.55	4,844.88	977.88	877.91	99.97	9.782	
11,600.00	6,945.00	7,029.38	6,784.76	85.10	26.66	88.40	-1,509.57	4,844.88	1,009.16	910.22	98.94	10.199	
11,700.00	6,945.00	7,029.83	6,785.21	86.63	26.66	88.43	-1,509.58	4,844.88	1,049.08	951.53	97.55	10.754	
11,800.00	6,945.00	7,030.27	6,785.65	88.16	26.66	88.46	-1,509.59	4,844.88	1,096.69	1,000.75	95.93	11.432	
11,900.00	6,945.00	7,030.70	6,786.08	89.69	26.66	88.48	-1,509.60	4,844.89	1,151.03	1,056.83	94.21	12.218	
12,000.00	6,945.00	7,031.12	6,786.50	91.23	26.66	88.51	-1,509.62	4,844.89	1,211.21	1,118.76	92.45	13.101	
12,100.00	6,945.00	7,031.54	6,786.91	92.77	26.66	88.54	-1,509.63	4,844.89	1,276.40	1,185.68	90.72	14.069	
12,200.00	6,945.00	7,031.94	6,787.32	94.31	26.66	88.56	-1,509.64	4,844.89	1,345.87	1,256.81	89.06	15.112	
12,300.00	6,945.00	7,032.34	6,787.71	95.85	26.66	88.58	-1,509.65	4,844.89	1,418.98	1,331.51	87.47	16.222	
12,400.00	6,945.00	7,032.73	6,788.10	97.40	26.66	88.61	-1,509.67	4,844.89	1,495.22	1,409.24	85.98	17.391	
12,500.00	6,945.00	7,033.11	6,788.49	98.95	26.66	88.63	-1,509.68	4,844.90	1,574.11	1,489.54	84.57	18.612	
12,600.00	6,945.00	7,033.49	6,788.86	100.50	26.66	88.65	-1,509.69	4,844.90	1,655.29	1,572.02	83.27	19.879	
12,700.00	6,945.00	7,033.85	6,789.23	102.05	26.66	88.68	-1,509.70	4,844.90	1,738.43	1,656.38	82.05	21.187	
12,800.00	6,945.00	7,034.21	6,789.59	103.60	26.66	88.70	-1,509.71	4,844.90	1,823.26	1,742.34	80.92	22.531	
12,900.00	6,945.00	7,034.57	6,789.94	105.15	26.66	88.72	-1,509.72	4,844.90	1,909.57	1,829.69	79.88	23.906	
13,000.00	6,945.00	7,034.92	6,790.29	106.71	26.66	88.74	-1,509.73	4,844.90	1,997.15	1,918.24	78.91	25.310	
13,100.00	6,945.00	7,035.26	6,790.63	108.26	26.66	88.76	-1,509.74	4,844.91	2,085.85	2,007.84	78.01	26.738	
13,200.00	6,945.00	7,035.59	6,790.97	109.82	26.66	88.78	-1,509.75	4,844.91	2,175.53	2,098.35	77.18	28.188	
13,300.00	6,945.00	7,035.92	6,791.30	111.38	26.66	88.80	-1,509.76	4,844.91	2,266.07	2,189.66	76.41	29.658	
13,400.00	6,945.00	7,036.25	6,791.62	112.94	26.66	88.82	-1,509.77	4,844.91	2,357.38	2,281.69	75.69	31.145	
13,500.00	6,945.00	7,036.57	6,791.94	114.50	26.66	88.84	-1,509.78	4,844.91	2,449.36	2,374.34	75.03	32.647	
13,600.00	6,945.00	7,036.88	6,792.25	116.07	26.66	88.86	-1,509.79	4,844.91	2,541.95	2,467.55	74.41	34.162	
13,700.00	6,945.00	7,037.18	6,792.56	117.63	26.67	88.88	-1,509.80	4,844.91	2,635.09	2,561.25	73.83	35.690	
13,800.00	6,945.00	7,037.49	6,792.86	119.19	26.67	88.90	-1,509.81	4,844.91	2,728.71	2,655.41	73.30	37.227	
13,900.00	6,945.00	7,037.78	6,793.16	120.76	26.67	88.92	-1,509.82	4,844.91	2,822.76	2,749.96	72.80	38.773	

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 705H
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 705H	**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 #3	**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)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,000.00	6,945.00	7,038.07	6,793.45	122.33	26.67	88.93	-1,509.82	4,844.92	2,917.21	2,844.88	72.34	40.328	
14,100.00	6,945.00	7,038.36	6,793.73	123.90	26.67	88.95	-1,509.83	4,844.92	3,012.02	2,940.12	71.90	41.889	
14,200.00	6,945.00	7,038.64	6,794.02	125.46	26.67	88.97	-1,509.84	4,844.92	3,107.16	3,035.66	71.50	43.456	
14,300.00	6,945.00	7,038.92	6,794.29	127.03	26.67	88.98	-1,509.85	4,844.92	3,202.59	3,131.47	71.12	45.029	
14,400.00	6,945.00	7,039.19	6,794.57	128.60	26.67	89.00	-1,509.86	4,844.92	3,298.29	3,227.52	70.77	46.606	
14,500.00	6,945.00	7,039.46	6,794.83	130.18	26.67	89.02	-1,509.87	4,844.92	3,394.25	3,323.81	70.44	48.186	
14,600.00	6,945.00	7,039.73	6,795.10	131.75	26.67	89.03	-1,509.87	4,844.92	3,490.42	3,420.29	70.13	49.770	
14,700.00	6,945.00	7,039.99	6,795.36	133.32	26.67	89.05	-1,509.88	4,844.92	3,586.81	3,516.97	69.84	51.356	
14,800.00	6,945.00	7,040.24	6,795.61	134.89	26.67	89.06	-1,509.89	4,844.92	3,683.39	3,613.82	69.57	52.944	
14,900.00	6,945.00	7,040.50	6,795.87	136.47	26.67	89.08	-1,509.90	4,844.92	3,780.15	3,710.83	69.32	54.534	
15,000.00	6,945.00	7,040.74	6,796.11	138.04	26.67	89.10	-1,509.90	4,844.93	3,877.07	3,807.99	69.08	56.125	
15,100.00	6,945.00	7,040.99	6,796.36	139.62	26.67	89.11	-1,509.91	4,844.93	3,974.14	3,905.29	68.86	57.717	
15,200.00	6,945.00	7,041.23	6,796.60	141.20	26.67	89.12	-1,509.92	4,844.93	4,071.36	4,002.71	68.65	59.309	
15,300.00	6,945.00	7,041.46	6,796.84	142.77	26.67	89.14	-1,509.93	4,844.93	4,168.71	4,100.26	68.45	60.902	
15,400.00	6,945.00	7,041.70	6,797.07	144.35	26.67	89.15	-1,509.93	4,844.93	4,266.18	4,197.91	68.27	62.494	
15,500.00	6,945.00	7,041.93	6,797.30	145.93	26.67	89.17	-1,509.94	4,844.93	4,363.76	4,295.67	68.09	64.085	
15,600.00	6,945.00	7,042.15	6,797.52	147.51	26.67	89.18	-1,509.95	4,844.93	4,461.45	4,393.52	67.93	65.676	
15,700.00	6,945.00	7,042.38	6,797.75	149.09	26.67	89.19	-1,509.95	4,844.93	4,559.24	4,491.46	67.78	67.266	
15,800.00	6,945.00	7,042.60	6,797.97	150.67	26.67	89.21	-1,509.96	4,844.93	4,657.13	4,589.49	67.64	68.854	
15,900.00	6,945.00	7,042.81	6,798.18	152.25	26.67	89.22	-1,509.97	4,844.93	4,755.10	4,687.60	67.50	70.442	
16,000.00	6,945.00	7,043.03	6,798.40	153.83	26.67	89.23	-1,509.97	4,844.93	4,853.16	4,785.78	67.38	72.027	
16,100.00	6,945.00	7,043.24	6,798.61	155.41	26.67	89.25	-1,509.98	4,844.93	4,951.29	4,884.03	67.26	73.611	
16,200.00	6,945.00	7,043.45	6,798.82	156.99	26.67	89.26	-1,509.98	4,844.93	5,049.50	4,982.35	67.15	75.192	
16,300.00	6,945.00	7,043.65	6,799.02	158.57	26.67	89.27	-1,509.99	4,844.94	5,147.78	5,080.72	67.05	76.772	
16,400.00	6,945.00	7,043.85	6,799.22	160.15	26.67	89.28	-1,510.00	4,844.94	5,246.12	5,179.16	66.96	78.349	
16,500.00	6,945.00	7,044.05	6,799.42	161.74	26.67	89.30	-1,510.00	4,844.94	5,344.52	5,277.65	66.87	79.924	
16,600.00	6,945.00	7,044.25	6,799.62	163.32	26.67	89.31	-1,510.01	4,844.94	5,442.98	5,376.19	66.79	81.497	
16,700.00	6,945.00	7,044.44	6,799.81	164.90	26.67	89.32	-1,510.01	4,844.94	5,541.50	5,474.79	66.71	83.066	
16,800.00	6,945.00	7,044.63	6,800.00	166.49	26.67	89.33	-1,510.02	4,844.94	5,640.07	5,573.42	66.64	84.633	
16,900.00	6,945.00	7,044.82	6,800.19	168.07	26.67	89.34	-1,510.03	4,844.94	5,738.68	5,672.11	66.58	86.197	
17,000.00	6,945.00	7,045.01	6,800.38	169.66	26.67	89.35	-1,510.03	4,844.94	5,837.35	5,770.83	66.52	87.758	
17,100.00	6,945.00	7,045.19	6,800.56	171.24	26.67	89.37	-1,510.04	4,844.94	5,936.06	5,869.60	66.46	89.316	
17,200.00	6,945.00	7,045.37	6,800.74	172.83	26.67	89.38	-1,510.04	4,844.94	6,034.81	5,968.40	66.41	90.871	
17,300.00	6,945.00	7,045.55	6,800.92	174.41	26.67	89.39	-1,510.05	4,844.94	6,133.60	6,067.24	66.36	92.423	
17,400.00	6,945.00	7,045.72	6,801.09	176.00	26.67	89.40	-1,510.05	4,844.94	6,232.43	6,166.11	66.32	93.971	
17,500.00	6,945.00	7,045.90	6,801.27	177.59	26.67	89.41	-1,510.06	4,844.94	6,331.30	6,265.02	66.29	95.516	
17,600.00	6,945.00	7,046.07	6,801.44	179.17	26.67	89.42	-1,510.06	4,844.94	6,430.20	6,363.95	66.25	97.057	
17,700.00	6,945.00	7,046.24	6,801.61	180.76	26.67	89.43	-1,510.07	4,844.94	6,529.14	6,462.92	66.22	98.595	
17,800.00	6,945.00	7,046.41	6,801.78	182.35	26.67	89.44	-1,510.07	4,844.94	6,628.11	6,561.91	66.20	100.129	
17,900.00	6,945.00	7,046.57	6,801.94	183.93	26.67	89.45	-1,510.08	4,844.94	6,727.11	6,660.93	66.17	101.659	
18,000.00	6,945.00	7,046.74	6,802.10	185.52	26.67	89.46	-1,510.08	4,844.94	6,826.13	6,759.98	66.15	103.186	
18,100.00	6,945.00	7,046.90	6,802.26	187.11	26.67	89.47	-1,510.09	4,844.94	6,925.19	6,859.05	66.14	104.709	
18,200.00	6,945.00	7,047.06	6,802.42	188.70	26.67	89.48	-1,510.09	4,844.94	7,024.27	6,958.15	66.12	106.228	
18,300.00	6,945.00	7,047.21	6,802.58	190.29	26.67	89.49	-1,510.10	4,844.95	7,123.38	7,057.27	66.11	107.743	
18,400.00	6,945.00	7,047.37	6,802.74	191.88	26.67	89.50	-1,510.10	4,844.95	7,222.51	7,156.41	66.11	109.254	
18,500.00	6,945.00	7,047.52	6,802.89	193.46	26.67	89.51	-1,510.11	4,844.95	7,321.67	7,255.57	66.10	110.761	
18,600.00	6,945.00	7,047.67	6,803.04	195.05	26.67	89.52	-1,510.11	4,844.95	7,420.85	7,354.75	66.10	112.265	
18,700.00	6,945.00	7,047.82	6,803.19	196.64	26.67	89.53	-1,510.12	4,844.95	7,520.05	7,453.95	66.10	113.764	
18,800.00	6,945.00	7,047.97	6,803.34	198.23	26.67	89.53	-1,510.12	4,844.95	7,619.27	7,553.16	66.11	115.259	
18,900.00	6,945.00	7,048.12	6,803.48	199.82	26.67	89.54	-1,510.12	4,844.95	7,718.51	7,652.40	66.11	116.749	
19,000.00	6,945.00	7,048.26	6,803.63	201.41	26.67	89.55	-1,510.13	4,844.95	7,817.77	7,751.65	66.12	118.236	
19,100.00	6,945.00	7,048.40	6,803.77	203.00	26.67	89.56	-1,510.13	4,844.95	7,917.05	7,850.92	66.13	119.718	

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 705H
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 705H	**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 #3	**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
19,200.00	6,945.00	7,048.54	6,803.91	204.60	26.67	89.57	-1,510.14	4,844.95	8,016.35	7,950.21	66.14	121.197	
19,300.00	6,945.00	7,048.68	6,804.05	206.19	26.67	89.58	-1,510.14	4,844.95	8,115.66	8,049.51	66.16	122.671	
19,400.00	6,945.00	7,048.82	6,804.19	207.78	26.67	89.59	-1,510.15	4,844.95	8,215.00	8,148.82	66.18	124.140	
19,500.00	6,945.00	7,048.96	6,804.32	209.37	26.67	89.59	-1,510.15	4,844.95	8,314.34	8,248.15	66.19	125.605	
19,600.00	6,945.00	7,049.09	6,804.46	210.96	26.67	89.60	-1,510.15	4,844.95	8,413.71	8,347.49	66.22	127.066	
19,700.00	6,945.00	7,049.22	6,804.59	212.55	26.67	89.61	-1,510.16	4,844.95	8,513.08	8,446.85	66.24	128.523	
19,800.00	6,945.00	7,049.36	6,804.72	214.14	26.67	89.62	-1,510.16	4,844.95	8,612.48	8,546.21	66.26	129.975	
19,900.00	6,945.00	7,049.49	6,804.85	215.74	26.67	89.63	-1,510.17	4,844.95	8,711.88	8,645.59	66.29	131.422	
20,000.00	6,945.00	7,049.62	6,804.98	217.33	26.67	89.63	-1,510.17	4,844.95	8,811.30	8,744.98	66.32	132.865	
20,100.00	6,945.00	7,049.74	6,805.11	218.92	26.67	89.64	-1,510.17	4,844.95	8,910.73	8,844.39	66.35	134.304	
20,200.00	6,945.00	7,049.87	6,805.24	220.51	26.67	89.65	-1,510.18	4,844.95	9,010.18	8,943.80	66.38	135.738	
20,300.00	6,945.00	7,049.99	6,805.36	222.11	26.67	89.66	-1,510.18	4,844.95	9,109.64	9,043.22	66.41	137.168	
20,400.00	6,945.00	7,050.12	6,805.48	223.70	26.67	89.66	-1,510.18	4,844.95	9,209.10	9,142.66	66.45	138.593	
20,500.00	6,945.00	7,050.24	6,805.60	225.29	26.67	89.67	-1,510.19	4,844.95	9,308.58	9,242.10	66.48	140.014	
20,600.00	6,945.00	7,050.36	6,805.72	226.88	26.67	89.68	-1,510.19	4,844.95	9,408.08	9,341.55	66.52	141.430	
20,700.00	6,945.00	7,050.48	6,805.84	228.48	26.68	89.69	-1,510.20	4,844.95	9,507.58	9,441.02	66.56	142.841	
20,741.48	6,945.00	7,050.53	6,805.89	229.14	26.68	89.69	-1,510.20	4,844.95	9,548.85	9,482.27	66.58	143.425	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 705H
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 705H	**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 #3	**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	Rule Assigned: Warning
0.00	0.00	193.00	193.00	0.00	5.78	80.73	2,140.00	13,106.49	13,280.05				
100.00	100.00	293.00	293.00	0.25	8.78	80.73	2,140.00	13,106.49	13,280.05	13,271.02	9.03	1,470.558	
200.00	200.00	393.00	393.00	0.61	11.78	80.73	2,140.00	13,106.49	13,280.05	13,267.67	12.39	1,072.225	
300.00	300.00	493.00	493.00	0.97	14.77	80.73	2,140.00	13,106.49	13,280.05	13,264.31	15.74	843.693	
400.00	400.00	593.10	593.00	1.33	17.77	80.73	2,140.00	13,106.49	13,280.05	13,260.95	19.10	695.351	
500.00	500.00	693.10	693.00	1.68	20.77	80.73	2,140.00	13,106.49	13,280.05	13,257.60	22.45	591.453	
600.00	599.98	800.70	800.55	2.03	23.99	-67.03	2,142.09	13,106.49	13,279.71	13,253.69	26.02	510.365	
700.00	699.84	918.25	918.07	2.37	27.51	-67.10	2,141.19	13,106.49	13,277.54	13,247.66	29.88	444.399	
795.17	794.65	1,030.03	1,029.81	2.69	30.86	-67.19	2,139.44	13,106.49	13,274.10	13,240.54	33.56	395.586	
800.00	799.45	1,035.69	1,035.48	2.71	31.03	-67.19	2,139.33	13,106.49	13,273.89	13,240.15	33.74	393.385	
900.00	898.92	1,092.33	1,091.92	3.06	32.73	-67.22	2,140.00	13,106.49	13,269.93	13,234.13	35.79	370.737	
1,000.00	998.39	1,191.80	1,191.39	3.43	35.71	-67.26	2,140.00	13,106.49	13,265.93	13,226.79	39.13	338.989	
1,100.00	1,097.86	1,298.72	1,298.27	3.79	38.92	-67.31	2,142.10	13,106.49	13,262.28	13,219.58	42.70	310.577	
1,200.00	1,197.33	1,416.23	1,415.75	4.16	42.44	-67.36	2,141.21	13,106.49	13,258.18	13,211.59	46.59	284.567	
1,300.00	1,296.80	1,533.95	1,533.42	4.53	45.96	-67.40	2,139.36	13,106.49	13,253.94	13,203.46	50.49	262.517	
1,400.00	1,396.27	1,589.98	1,589.27	4.91	47.64	-67.42	2,140.00	13,106.49	13,250.01	13,197.47	52.54	252.191	
1,500.00	1,495.74	1,689.45	1,688.74	5.28	50.62	-67.46	2,140.00	13,106.49	13,246.04	13,190.15	55.89	236.986	
1,600.00	1,595.21	1,796.11	1,795.36	5.66	53.82	-67.52	2,142.10	13,106.49	13,242.44	13,182.98	59.46	222.694	
1,700.00	1,694.68	1,914.05	1,913.26	6.04	57.35	-67.56	2,141.24	13,106.49	13,238.37	13,175.00	63.37	208.892	
1,800.00	1,794.15	2,032.18	2,031.36	6.42	60.89	-67.60	2,139.40	13,106.49	13,234.17	13,166.88	67.29	196.673	
1,900.00	1,893.62	2,087.63	2,086.62	6.80	62.55	-67.63	2,140.00	13,106.49	13,230.26	13,160.93	69.33	190.830	
2,000.00	1,993.09	2,187.10	2,186.09	7.18	65.54	-67.67	2,140.00	13,106.49	13,226.33	13,153.64	72.69	181.959	
2,100.00	2,092.56	2,293.49	2,292.43	7.56	68.72	-67.72	2,142.11	13,106.49	13,222.77	13,146.51	76.25	173.402	
2,200.00	2,192.03	2,411.85	2,410.76	7.94	72.27	-67.77	2,141.26	13,106.49	13,218.73	13,138.55	80.18	164.863	
2,300.00	2,291.50	2,530.41	2,529.28	8.32	75.82	-67.81	2,139.43	13,106.49	13,214.56	13,130.45	84.11	157.108	
2,400.00	2,390.97	2,585.29	2,583.97	8.70	77.47	-67.83	2,140.00	13,106.49	13,210.68	13,124.54	86.14	153.369	
2,500.00	2,490.44	2,684.76	2,683.44	9.08	80.45	-67.87	2,140.00	13,106.49	13,206.78	13,117.29	89.50	147.567	
2,600.00	2,589.91	2,790.85	2,789.49	9.47	83.63	-67.93	2,142.12	13,106.49	13,203.27	13,110.21	93.06	141.885	
2,700.00	2,689.38	2,909.63	2,908.24	9.85	87.19	-67.97	2,141.29	13,106.49	13,199.26	13,102.27	97.00	136.082	
2,800.00	2,788.85	3,028.62	3,027.19	10.23	90.75	-68.01	2,139.47	13,106.49	13,195.12	13,094.18	100.94	130.722	
2,900.00	2,888.32	3,082.94	3,081.32	10.61	92.38	-68.04	2,140.00	13,106.49	13,191.27	13,088.32	102.95	128.132	
3,000.00	2,987.79	3,182.41	3,180.79	11.00	95.36	-68.08	2,140.00	13,106.49	13,187.41	13,081.10	106.31	124.045	
3,100.00	3,087.25	3,288.19	3,286.52	11.38	98.53	-68.13	2,142.13	13,106.49	13,183.94	13,074.07	109.86	120.004	
3,200.00	3,186.72	3,407.40	3,405.71	11.76	102.10	-68.18	2,141.31	13,106.49	13,179.97	13,066.15	113.82	115.801	
3,300.00	3,286.19	3,526.82	3,525.09	12.15	105.68	-68.22	2,139.50	13,106.49	13,175.86	13,058.09	117.77	111.874	
3,400.00	3,385.66	3,580.59	3,578.66	12.53	107.29	-68.24	2,140.00	13,106.49	13,172.04	13,052.27	119.77	109.979	
3,500.00	3,485.13	3,680.06	3,678.13	12.91	110.27	-68.29	2,140.00	13,106.49	13,168.21	13,045.08	123.13	106.945	
3,600.00	3,584.60	3,785.51	3,783.54	13.30	113.43	-68.34	2,142.13	13,106.49	13,164.78	13,038.11	126.67	103.928	
3,700.00	3,684.07	3,905.15	3,903.16	13.68	117.02	-68.38	2,141.34	13,106.49	13,160.85	13,030.21	130.64	100.743	
3,800.00	3,783.54	4,025.01	4,022.97	14.06	120.61	-68.43	2,139.54	13,106.49	13,156.77	13,022.16	134.61	97.740	
3,900.00	3,883.01	4,078.25	4,076.01	14.45	122.20	-68.45	2,140.00	13,106.49	13,152.97	13,016.38	136.59	96.296	
4,000.00	3,982.48	4,177.72	4,175.48	14.83	125.18	-68.49	2,140.00	13,106.49	13,149.18	13,009.23	139.95	93.955	
4,100.00	4,081.95	4,282.81	4,280.53	15.22	128.33	-68.55	2,142.14	13,106.49	13,145.80	13,002.31	143.48	91.619	
4,200.00	4,181.42	4,402.89	4,400.59	15.60	131.93	-68.59	2,141.36	13,106.49	13,141.90	12,994.44	147.46	89.120	
4,300.00	4,280.89	4,523.18	4,520.84	15.98	135.54	-68.64	2,139.57	13,106.49	13,137.85	12,986.41	151.45	86.748	
4,400.00	4,380.36	4,575.90	4,573.36	16.37	137.11	-68.66	2,140.00	13,106.49	13,134.09	12,980.67	153.41	85.613	
4,500.00	4,479.83	4,675.37	4,672.83	16.75	140.10	-68.70	2,140.00	13,106.49	13,130.33	12,973.55	156.78	83.752	
4,600.00	4,579.30	4,780.09	4,777.51	17.14	143.23	-68.75	2,142.15	13,106.49	13,126.99	12,966.69	160.30	81.892	
4,700.00	4,678.77	4,900.61	4,898.00	17.52	146.84	-68.80	2,141.39	13,106.49	13,123.13	12,958.84	164.29	79.878	
4,800.00	4,778.24	5,021.34	5,018.69	17.90	150.46	-68.84	2,139.61	13,106.49	13,119.11	12,950.82	168.29	77.957	
4,900.00	4,877.71	5,073.55	5,070.71	18.29	152.03	-68.87	2,140.00	13,106.49	13,115.37	12,945.13	170.24	77.042	
5,000.00	4,977.18	5,173.02	5,170.18	18.67	155.01	-68.91	2,140.00	13,106.49	13,111.65	12,938.05	173.60	75.528	

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 705H
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 705H	**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 #3	**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
5,100.00	5,076.65	5,277.35	5,274.47	19.06	158.13	-68.96	2,142.15	13,106.49	13,108.35	12,931.24	177.11	74.013	
5,200.00	5,176.12	5,398.31	5,395.40	19.44	161.76	-69.01	2,141.41	13,106.49	13,104.53	12,923.41	181.12	72.355	
5,300.00	5,275.59	5,519.49	5,516.54	19.83	165.39	-69.05	2,139.64	13,106.49	13,100.55	12,915.42	185.13	70.765	
5,400.00	5,375.06	5,571.20	5,568.06	20.21	166.94	-69.08	2,140.00	13,106.49	13,096.83	12,909.77	187.06	70.013	
5,500.00	5,474.53	5,670.67	5,667.53	20.59	169.92	-69.12	2,140.00	13,106.49	13,093.15	12,902.72	190.43	68.757	
5,600.00	5,574.00	5,774.59	5,771.40	20.98	173.03	-69.17	2,142.16	13,106.49	13,089.89	12,895.97	193.92	67.500	
5,700.00	5,673.47	5,896.00	5,892.78	21.36	176.67	-69.22	2,141.43	13,106.49	13,086.10	12,888.16	197.94	66.111	
5,800.00	5,772.94	6,017.62	6,014.37	21.75	180.32	-69.26	2,139.68	13,106.49	13,082.15	12,880.19	201.97	64.773	
5,900.00	5,872.41	6,068.86	6,065.41	22.13	181.85	-69.29	2,140.00	13,106.49	13,078.47	12,874.58	203.89	64.145	
6,000.00	5,971.88	6,168.33	6,164.88	22.52	184.83	-69.33	2,140.00	13,106.49	13,074.82	12,867.57	207.25	63.086	
6,100.00	6,071.35	6,271.81	6,268.32	22.90	187.93	-69.38	2,142.16	13,106.49	13,071.61	12,860.87	210.74	62.028	
6,200.00	6,170.81	6,393.67	6,390.15	23.28	191.58	-69.43	2,141.46	13,106.49	13,067.86	12,853.09	214.77	60.846	
6,300.00	6,270.28	6,515.74	6,512.18	23.67	195.24	-69.47	2,139.71	13,106.49	13,063.94	12,845.13	218.81	59.705	
6,375.94	6,345.82	6,518.00	6,514.23	23.96	195.31	-69.48	2,140.00	13,106.49	13,061.18	12,842.01	219.17	59.593	
6,400.00	6,369.72	6,518.00	6,514.23	24.05	195.31	-55.03	2,140.00	13,106.49	13,059.93	12,840.66	219.26	59.562	
6,450.00	6,419.09	6,518.00	6,514.23	24.25	195.31	-39.00	2,140.00	13,106.49	13,054.64	12,835.18	219.46	59.486	
6,500.00	6,467.78	6,518.00	6,514.23	24.46	195.31	-31.52	2,140.00	13,106.49	13,045.74	12,826.09	219.65	59.393	
6,550.00	6,515.51	6,518.00	6,514.23	24.67	195.31	-27.48	2,140.00	13,106.49	13,033.27	12,813.43	219.84	59.285	
6,600.00	6,561.97	6,518.00	6,514.23	24.88	195.31	-25.11	2,140.00	13,106.49	13,017.30	12,797.27	220.03	59.163	
6,650.00	6,606.89	6,518.00	6,514.23	25.10	195.31	-23.69	2,140.00	13,106.49	12,997.91	12,777.71	220.21	59.026	
6,700.00	6,649.98	6,518.00	6,514.23	25.32	195.31	-22.90	2,140.00	13,106.49	12,975.22	12,754.84	220.38	58.876	
6,750.00	6,690.98	6,518.00	6,514.23	25.54	195.31	-22.58	2,140.00	13,106.49	12,949.34	12,728.79	220.55	58.714	
6,800.00	6,729.64	6,518.00	6,514.23	25.77	195.31	-22.63	2,140.00	13,106.49	12,920.42	12,699.71	220.71	58.541	
6,850.00	6,765.71	6,518.00	6,514.23	26.00	195.31	-23.04	2,140.00	13,106.49	12,888.61	12,667.75	220.86	58.356	
6,900.00	6,798.98	6,518.00	6,514.23	26.24	195.31	-23.81	2,140.00	13,106.49	12,854.08	12,633.08	221.00	58.163	
6,950.00	6,829.24	6,518.00	6,514.23	26.49	195.31	-24.98	2,140.00	13,106.49	12,817.04	12,595.91	221.14	57.960	
7,000.00	6,856.30	6,518.00	6,514.23	26.76	195.31	-26.63	2,140.00	13,106.49	12,777.69	12,556.43	221.26	57.750	
7,050.00	6,880.00	6,518.00	6,514.23	27.03	195.31	-28.90	2,140.00	13,106.49	12,736.24	12,514.87	221.37	57.533	
7,100.00	6,900.19	6,518.00	6,514.23	27.32	195.31	-32.01	2,140.00	13,106.49	12,692.95	12,471.47	221.48	57.310	
7,150.00	6,916.74	6,518.00	6,514.23	27.62	195.31	-36.30	2,140.00	13,106.49	12,648.05	12,426.47	221.58	57.082	
7,200.00	6,929.56	6,518.00	6,514.23	27.93	195.31	-42.35	2,140.00	13,106.49	12,601.80	12,380.14	221.66	56.851	
7,250.00	6,938.57	6,518.00	6,514.23	28.26	195.31	-51.03	2,140.00	13,106.49	12,554.49	12,332.74	221.74	56.617	
7,300.00	6,943.70	6,518.00	6,514.23	28.60	195.31	-63.54	2,140.00	13,106.49	12,506.38	12,284.57	221.82	56.382	
7,340.76	6,945.00	6,518.00	6,514.23	28.88	195.31	-77.17	2,140.00	13,106.49	12,466.79	12,244.92	221.87	56.190	
7,400.00	6,945.00	6,518.00	6,514.23	29.31	195.31	-77.17	2,140.00	13,106.49	12,409.07	12,187.13	221.95	55.910	
7,500.00	6,945.00	6,518.00	6,514.23	30.09	195.31	-77.17	2,140.00	13,106.49	12,311.69	12,089.61	222.08	55.438	
7,600.00	6,945.00	6,518.00	6,514.23	30.93	195.31	-77.17	2,140.00	13,106.49	12,214.35	11,992.12	222.22	54.964	
7,700.00	6,945.00	6,518.00	6,514.23	31.83	195.31	-77.17	2,140.00	13,106.49	12,117.05	11,894.68	222.37	54.490	
7,800.00	6,945.00	6,518.00	6,514.23	32.79	195.31	-77.17	2,140.00	13,106.49	12,019.79	11,797.26	222.53	54.014	
7,900.00	6,945.00	6,518.00	6,514.23	33.79	195.31	-77.17	2,140.00	13,106.49	11,922.59	11,699.89	222.70	53.537	
8,000.00	6,945.00	6,518.00	6,514.23	34.84	195.31	-77.17	2,140.00	13,106.49	11,825.42	11,602.55	222.87	53.060	
8,100.00	6,945.00	6,518.00	6,514.23	35.93	195.31	-77.17	2,140.00	13,106.49	11,728.31	11,505.26	223.05	52.581	
8,200.00	6,945.00	6,518.00	6,514.23	37.06	195.31	-77.17	2,140.00	13,106.49	11,631.24	11,408.00	223.24	52.101	
8,300.00	6,945.00	6,518.00	6,514.23	38.23	195.31	-77.17	2,140.00	13,106.49	11,534.23	11,310.78	223.44	51.620	
8,400.00	6,945.00	6,518.00	6,514.23	39.42	195.31	-77.17	2,140.00	13,106.49	11,437.26	11,213.61	223.65	51.139	
8,500.00	6,945.00	6,518.00	6,514.23	40.65	195.31	-77.17	2,140.00	13,106.49	11,340.35	11,116.48	223.87	50.656	
8,600.00	6,945.00	6,518.00	6,514.23	41.90	195.31	-77.17	2,140.00	13,106.49	11,243.49	11,019.40	224.10	50.173	
8,700.00	6,945.00	6,518.00	6,514.23	43.17	195.31	-77.17	2,140.00	13,106.49	11,146.69	10,922.36	224.33	49.688	
8,800.00	6,945.00	6,518.00	6,514.23	44.46	195.31	-77.17	2,140.00	13,106.49	11,049.95	10,825.37	224.58	49.203	
8,900.00	6,945.00	6,518.00	6,514.23	45.78	195.31	-77.17	2,140.00	13,106.49	10,953.26	10,728.43	224.84	48.717	
9,000.00	6,945.00	6,518.00	6,514.23	47.11	195.31	-77.17	2,140.00	13,106.49	10,856.64	10,631.53	225.10	48.229	
9,100.00	6,945.00	6,518.00	6,514.23	48.46	195.31	-77.17	2,140.00	13,106.49	10,760.07	10,534.69	225.38	47.742	

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 705H
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 705H	**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 #3	**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)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,200.00	6,945.00	6,518.00	6,514.23	49.82	195.31	-77.17	2,140.00	13,106.49	10,663.57	10,437.90	225.67	47.253	
9,300.00	6,945.00	6,518.00	6,514.23	51.20	195.31	-77.17	2,140.00	13,106.49	10,567.13	10,341.16	225.97	46.764	
9,400.00	6,945.00	6,518.00	6,514.23	52.59	195.31	-77.17	2,140.00	13,106.49	10,470.76	10,244.48	226.28	46.274	
9,500.00	6,945.00	6,518.00	6,514.23	53.99	195.31	-77.17	2,140.00	13,106.49	10,374.46	10,147.86	226.60	45.783	
9,600.00	6,945.00	6,518.00	6,514.23	55.40	195.31	-77.17	2,140.00	13,106.49	10,278.23	10,051.30	226.94	45.291	
9,700.00	6,945.00	6,518.00	6,514.23	56.83	195.31	-77.17	2,140.00	13,106.49	10,182.08	9,954.79	227.28	44.799	
9,800.00	6,945.00	6,518.00	6,514.23	58.26	195.31	-77.17	2,140.00	13,106.49	10,085.99	9,858.35	227.64	44.307	
9,900.00	6,945.00	6,518.00	6,514.23	59.70	195.31	-77.17	2,140.00	13,106.49	9,989.99	9,761.98	228.01	43.814	
10,000.00	6,945.00	6,518.00	6,514.23	61.15	195.31	-77.17	2,140.00	13,106.49	9,894.06	9,665.67	228.39	43.320	
10,100.00	6,945.00	6,518.00	6,514.23	62.61	195.31	-77.17	2,140.00	13,106.49	9,798.22	9,569.43	228.79	42.826	
10,200.00	6,945.00	6,518.00	6,514.23	64.07	195.31	-77.17	2,140.00	13,106.49	9,702.45	9,473.25	229.20	42.332	
10,300.00	6,945.00	6,518.00	6,514.23	65.54	195.31	-77.17	2,140.00	13,106.49	9,606.78	9,377.15	229.62	41.837	
10,400.00	6,945.00	6,518.00	6,514.23	67.02	195.31	-77.17	2,140.00	13,106.49	9,511.19	9,281.13	230.06	41.342	
10,500.00	6,945.00	6,518.00	6,514.23	68.50	195.31	-77.17	2,140.00	13,106.49	9,415.70	9,185.18	230.51	40.846	
10,600.00	6,945.00	6,518.00	6,514.23	69.99	195.31	-77.17	2,140.00	13,106.49	9,320.30	9,089.32	230.98	40.351	
10,700.00	6,945.00	6,518.00	6,514.23	71.48	195.31	-77.17	2,140.00	13,106.49	9,225.00	8,993.53	231.46	39.855	
10,800.00	6,945.00	6,518.00	6,514.23	72.98	195.31	-77.17	2,140.00	13,106.49	9,129.79	8,897.83	231.96	39.359	
10,900.00	6,945.00	6,518.00	6,514.23	74.48	195.31	-77.17	2,140.00	13,106.49	9,034.70	8,802.22	232.48	38.863	
11,000.00	6,945.00	6,518.00	6,514.23	75.99	195.31	-77.17	2,140.00	13,106.49	8,939.71	8,706.70	233.01	38.367	
11,100.00	6,945.00	6,518.00	6,514.23	77.50	195.31	-77.17	2,140.00	13,106.49	8,844.82	8,611.27	233.55	37.871	
11,200.00	6,945.00	6,518.00	6,514.23	79.01	195.31	-77.17	2,140.00	13,106.49	8,750.06	8,515.94	234.12	37.375	
11,300.00	6,945.00	6,518.00	6,514.23	80.53	195.31	-77.17	2,140.00	13,106.49	8,655.41	8,420.71	234.70	36.879	
11,400.00	6,945.00	6,518.00	6,514.23	82.05	195.31	-77.17	2,140.00	13,106.49	8,560.88	8,325.58	235.30	36.383	
11,500.00	6,945.00	6,518.00	6,514.23	83.57	195.31	-77.17	2,140.00	13,106.49	8,466.48	8,230.57	235.91	35.888	
11,600.00	6,945.00	6,518.00	6,514.23	85.10	195.31	-77.17	2,140.00	13,106.49	8,372.21	8,135.66	236.55	35.393	
11,700.00	6,945.00	6,518.00	6,514.23	86.63	195.31	-77.17	2,140.00	13,106.49	8,278.07	8,040.86	237.21	34.898	
11,800.00	6,945.00	6,518.00	6,514.23	88.16	195.31	-77.17	2,140.00	13,106.49	8,184.07	7,946.19	237.88	34.404	
11,900.00	6,945.00	6,518.00	6,514.23	89.69	195.31	-77.17	2,140.00	13,106.49	8,090.22	7,851.64	238.58	33.910	
12,000.00	6,945.00	6,518.00	6,514.23	91.23	195.31	-77.17	2,140.00	13,106.49	7,996.51	7,757.22	239.30	33.417	
12,100.00	6,945.00	6,518.00	6,514.23	92.77	195.31	-77.17	2,140.00	13,106.49	7,902.96	7,662.93	240.03	32.924	
12,200.00	6,945.00	6,518.00	6,514.23	94.31	195.31	-77.17	2,140.00	13,106.49	7,809.57	7,568.78	240.80	32.432	
12,300.00	6,945.00	6,518.00	6,514.23	95.85	195.31	-77.17	2,140.00	13,106.49	7,716.35	7,474.77	241.58	31.941	
12,400.00	6,945.00	6,518.00	6,514.23	97.40	195.31	-77.17	2,140.00	13,106.49	7,623.29	7,380.91	242.39	31.451	
12,500.00	6,945.00	6,518.00	6,514.23	98.95	195.31	-77.17	2,140.00	13,106.49	7,530.42	7,287.20	243.22	30.962	
12,600.00	6,945.00	6,518.00	6,514.23	100.50	195.31	-77.17	2,140.00	13,106.49	7,437.73	7,193.65	244.08	30.473	
12,700.00	6,945.00	6,518.00	6,514.23	102.05	195.31	-77.17	2,140.00	13,106.49	7,345.23	7,100.27	244.96	29.986	
12,800.00	6,945.00	6,518.00	6,514.23	103.60	195.31	-77.17	2,140.00	13,106.49	7,252.93	7,007.06	245.87	29.500	
12,900.00	6,945.00	6,518.00	6,514.23	105.15	195.31	-77.17	2,140.00	13,106.49	7,160.83	6,914.03	246.80	29.015	
13,000.00	6,945.00	6,518.00	6,514.23	106.71	195.31	-77.17	2,140.00	13,106.49	7,068.96	6,821.19	247.76	28.531	
13,100.00	6,945.00	6,518.00	6,514.23	108.26	195.31	-77.17	2,140.00	13,106.49	6,977.30	6,728.54	248.76	28.049	
13,200.00	6,945.00	6,518.00	6,514.23	109.82	195.31	-77.17	2,140.00	13,106.49	6,885.88	6,636.10	249.78	27.568	
13,300.00	6,945.00	6,518.00	6,514.23	111.38	195.31	-77.17	2,140.00	13,106.49	6,794.70	6,543.87	250.83	27.089	
13,400.00	6,945.00	6,518.00	6,514.23	112.94	195.31	-77.17	2,140.00	13,106.49	6,703.77	6,451.85	251.92	26.611	
13,500.00	6,945.00	6,518.00	6,514.23	114.50	195.31	-77.17	2,140.00	13,106.49	6,613.10	6,360.07	253.03	26.135	
13,600.00	6,945.00	6,518.00	6,514.23	116.07	195.31	-77.17	2,140.00	13,106.49	6,522.70	6,268.52	254.18	25.662	
13,700.00	6,945.00	6,518.00	6,514.23	117.63	195.31	-77.17	2,140.00	13,106.49	6,432.59	6,177.23	255.37	25.190	
13,800.00	6,945.00	6,518.00	6,514.23	119.19	195.31	-77.17	2,140.00	13,106.49	6,342.78	6,086.19	256.59	24.720	
13,900.00	6,945.00	6,518.00	6,514.23	120.76	195.31	-77.17	2,140.00	13,106.49	6,253.27	5,995.43	257.84	24.252	
14,000.00	6,945.00	6,518.00	6,514.23	122.33	195.31	-77.17	2,140.00	13,106.49	6,164.09	5,904.95	259.14	23.787	
14,100.00	6,945.00	6,518.00	6,514.23	123.90	195.31	-77.17	2,140.00	13,106.49	6,075.25	5,814.77	260.48	23.324	
14,200.00	6,945.00	6,518.00	6,514.23	125.46	195.31	-77.17	2,140.00	13,106.49	5,986.75	5,724.90	261.85	22.863	
14,300.00	6,945.00	6,518.00	6,514.23	127.03	195.31	-77.17	2,140.00	13,106.49	5,898.63	5,635.36	263.27	22.405	

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 705H
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 705H	**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 #3	**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
14,400.00	6,945.00	6,518.00	6,514.23	128.60	195.31	-77.17	2,140.00	13,106.49	5,810.89	5,546.16	264.73	21.950	
14,500.00	6,945.00	6,518.00	6,514.23	130.18	195.31	-77.17	2,140.00	13,106.49	5,723.55	5,457.31	266.23	21.498	
14,600.00	6,945.00	6,518.00	6,514.23	131.75	195.31	-77.17	2,140.00	13,106.49	5,636.63	5,368.84	267.78	21.049	
14,700.00	6,945.00	6,518.00	6,514.23	133.32	195.31	-77.17	2,140.00	13,106.49	5,550.15	5,280.77	269.38	20.603	
14,800.00	6,945.00	6,518.00	6,514.23	134.89	195.31	-77.17	2,140.00	13,106.49	5,464.13	5,193.10	271.03	20.161	
14,900.00	6,945.00	6,518.00	6,514.23	136.47	195.31	-77.17	2,140.00	13,106.49	5,378.60	5,105.87	272.73	19.722	
15,000.00	6,945.00	6,518.00	6,514.23	138.04	195.31	-77.17	2,140.00	13,106.49	5,293.57	5,019.10	274.48	19.286	
15,100.00	6,945.00	6,518.00	6,514.23	139.62	195.31	-77.17	2,140.00	13,106.49	5,209.08	4,932.80	276.28	18.854	
15,200.00	6,945.00	6,518.00	6,514.23	141.20	195.31	-77.17	2,140.00	13,106.49	5,125.14	4,847.01	278.14	18.427	
15,300.00	6,945.00	6,518.00	6,514.23	142.77	195.31	-77.17	2,140.00	13,106.49	5,041.80	4,761.74	280.05	18.003	
15,400.00	6,945.00	6,518.00	6,514.23	144.35	195.31	-77.17	2,140.00	13,106.49	4,959.06	4,677.04	282.02	17.584	
15,500.00	6,945.00	6,518.00	6,514.23	145.93	195.31	-77.17	2,140.00	13,106.49	4,876.97	4,592.92	284.06	17.169	
15,600.00	6,945.00	6,518.00	6,514.23	147.51	195.31	-77.17	2,140.00	13,106.49	4,795.57	4,509.42	286.15	16.759	
15,700.00	6,945.00	6,518.00	6,514.23	149.09	195.31	-77.17	2,140.00	13,106.49	4,714.88	4,426.57	288.31	16.354	
15,800.00	6,945.00	6,518.00	6,514.23	150.67	195.31	-77.17	2,140.00	13,106.49	4,634.94	4,344.41	290.53	15.953	
15,900.00	6,945.00	6,518.00	6,514.23	152.25	195.31	-77.17	2,140.00	13,106.49	4,555.79	4,262.98	292.82	15.559	
16,000.00	6,945.00	6,518.00	6,514.23	153.83	195.31	-77.17	2,140.00	13,106.49	4,477.48	4,182.31	295.17	15.169	
16,100.00	6,945.00	6,518.00	6,514.23	155.41	195.31	-77.17	2,140.00	13,106.49	4,400.05	4,102.46	297.59	14.786	
16,200.00	6,945.00	6,518.00	6,514.23	156.99	195.31	-77.17	2,140.00	13,106.49	4,323.54	4,023.46	300.08	14.408	
16,300.00	6,945.00	6,518.00	6,514.23	158.57	195.31	-77.17	2,140.00	13,106.49	4,248.01	3,945.37	302.64	14.036	
16,400.00	6,945.00	6,518.00	6,514.23	160.15	195.31	-77.17	2,140.00	13,106.49	4,173.51	3,868.24	305.27	13.672	
16,500.00	6,945.00	6,518.00	6,514.23	161.74	195.31	-77.17	2,140.00	13,106.49	4,100.10	3,792.12	307.97	13.313	
16,600.00	6,945.00	6,518.00	6,514.23	163.32	195.31	-77.17	2,140.00	13,106.49	4,027.82	3,717.08	310.74	12.962	
16,700.00	6,945.00	6,518.00	6,514.23	164.90	195.31	-77.17	2,140.00	13,106.49	3,956.76	3,643.18	313.58	12.618	
16,800.00	6,945.00	6,518.00	6,514.23	166.49	195.31	-77.17	2,140.00	13,106.49	3,886.97	3,570.48	316.49	12.281	
16,900.00	6,945.00	6,518.00	6,514.23	168.07	195.31	-77.17	2,140.00	13,106.49	3,818.53	3,499.05	319.47	11.953	
17,000.00	6,945.00	6,518.00	6,514.23	169.66	195.31	-77.17	2,140.00	13,106.49	3,751.50	3,428.98	322.51	11.632	
17,100.00	6,945.00	6,518.00	6,514.23	171.24	195.31	-77.17	2,140.00	13,106.49	3,685.96	3,360.34	325.62	11.320	
17,200.00	6,945.00	6,518.00	6,514.23	172.83	195.31	-77.17	2,140.00	13,106.49	3,622.00	3,293.22	328.79	11.016	
17,300.00	6,945.00	6,518.00	6,514.23	174.41	195.31	-77.17	2,140.00	13,106.49	3,559.71	3,227.70	332.01	10.722	
17,400.00	6,945.00	6,518.00	6,514.23	176.00	195.31	-77.17	2,140.00	13,106.49	3,499.16	3,163.88	335.28	10.437	
17,500.00	6,945.00	6,518.00	6,514.23	177.59	195.31	-77.17	2,140.00	13,106.49	3,440.45	3,101.85	338.60	10.161	
17,600.00	6,945.00	6,518.00	6,514.23	179.17	195.31	-77.17	2,140.00	13,106.49	3,383.68	3,041.73	341.95	9.895	
17,700.00	6,945.00	6,518.00	6,514.23	180.76	195.31	-77.17	2,140.00	13,106.49	3,328.94	2,983.61	345.33	9.640	
17,800.00	6,945.00	6,518.00	6,514.23	182.35	195.31	-77.17	2,140.00	13,106.49	3,276.35	2,927.61	348.73	9.395	
17,900.00	6,945.00	6,518.00	6,514.23	183.93	195.31	-77.17	2,140.00	13,106.49	3,225.99	2,873.85	352.14	9.161	
18,000.00	6,945.00	6,518.00	6,514.23	185.52	195.31	-77.17	2,140.00	13,106.49	3,177.99	2,822.44	355.55	8.938	
18,100.00	6,945.00	6,518.00	6,514.23	187.11	195.31	-77.17	2,140.00	13,106.49	3,132.45	2,773.50	358.94	8.727	
18,200.00	6,945.00	6,518.00	6,514.23	188.70	195.31	-77.17	2,140.00	13,106.49	3,089.47	2,727.16	362.30	8.527	
18,300.00	6,945.00	6,518.00	6,514.23	190.29	195.31	-77.17	2,140.00	13,106.49	3,049.16	2,683.55	365.62	8.340	
18,400.00	6,945.00	6,518.00	6,514.23	191.88	195.31	-77.17	2,140.00	13,106.49	3,011.64	2,642.77	368.87	8.165	
18,500.00	6,945.00	6,518.00	6,514.23	193.46	195.31	-77.17	2,140.00	13,106.49	2,977.01	2,604.97	372.04	8.002	
18,600.00	6,945.00	6,518.00	6,514.23	195.05	195.31	-77.17	2,140.00	13,106.49	2,945.36	2,570.25	375.11	7.852	
18,700.00	6,945.00	6,518.00	6,514.23	196.64	195.31	-77.17	2,140.00	13,106.49	2,916.81	2,538.74	378.07	7.715	
18,800.00	6,945.00	6,518.00	6,514.23	198.23	195.31	-77.17	2,140.00	13,106.49	2,891.43	2,510.54	380.89	7.591	
18,900.00	6,945.00	6,518.00	6,514.23	199.82	195.31	-77.17	2,140.00	13,106.49	2,869.31	2,485.75	383.56	7.481	
19,000.00	6,945.00	6,518.00	6,514.23	201.41	195.31	-77.17	2,140.00	13,106.49	2,850.53	2,464.47	386.06	7.384	
19,100.00	6,945.00	6,518.00	6,514.23	203.00	195.31	-77.17	2,140.00	13,106.49	2,835.16	2,446.79	388.37	7.300	
19,200.00	6,945.00	6,518.00	6,514.23	204.60	195.31	-77.17	2,140.00	13,106.49	2,823.24	2,432.77	390.48	7.230	
19,300.00	6,945.00	6,518.00	6,514.23	206.19	195.31	-77.17	2,140.00	13,106.49	2,814.84	2,422.46	392.37	7.174	
19,400.00	6,945.00	6,518.00	6,514.23	207.78	195.31	-77.17	2,140.00	13,106.49	2,809.96	2,415.92	394.04	7.131	
19,487.05	6,945.00	6,518.00	6,514.23	209.16	195.31	-77.17	2,140.00	13,106.49	2,808.61	2,413.31	395.30	7.105	CC

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 705H
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 705H	**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 #3	**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
19,500.00	6,945.00	6,518.00	6,514.23	209.37	195.31	-77.17	2,140.00	13,106.49	2,808.64	2,413.17	395.47	7.102	ES
19,600.00	6,945.00	6,518.00	6,514.23	210.96	195.31	-77.17	2,140.00	13,106.49	2,810.88	2,414.22	396.67	7.086	
19,700.00	6,945.00	6,518.00	6,514.23	212.55	195.31	-77.17	2,140.00	13,106.49	2,816.68	2,419.06	397.61	7.084	SF
19,800.00	6,945.00	6,518.00	6,514.23	214.14	195.31	-77.17	2,140.00	13,106.49	2,826.00	2,427.68	398.32	7.095	
19,900.00	6,945.00	6,518.00	6,514.23	215.74	195.31	-77.17	2,140.00	13,106.49	2,838.81	2,440.03	398.78	7.119	
20,000.00	6,945.00	6,518.00	6,514.23	217.33	195.31	-77.17	2,140.00	13,106.49	2,855.07	2,456.07	399.00	7.156	
20,100.00	6,945.00	6,518.00	6,514.23	218.92	195.31	-77.17	2,140.00	13,106.49	2,874.72	2,475.73	398.99	7.205	
20,200.00	6,945.00	6,518.00	6,514.23	220.51	195.31	-77.17	2,140.00	13,106.49	2,897.69	2,498.93	398.76	7.267	
20,300.00	6,945.00	6,518.00	6,514.23	222.11	195.31	-77.17	2,140.00	13,106.49	2,923.90	2,525.59	398.32	7.341	
20,400.00	6,945.00	6,518.00	6,514.23	223.70	195.31	-77.17	2,140.00	13,106.49	2,953.27	2,555.59	397.67	7.426	
20,500.00	6,945.00	6,518.00	6,514.23	225.29	195.31	-77.17	2,140.00	13,106.49	2,985.70	2,588.85	396.85	7.523	
20,600.00	6,945.00	6,518.00	6,514.23	226.88	195.31	-77.17	2,140.00	13,106.49	3,021.09	2,625.23	395.85	7.632	
20,700.00	6,945.00	6,518.00	6,514.23	228.48	195.31	-77.17	2,140.00	13,106.49	3,059.34	2,664.64	394.70	7.751	
20,741.48	6,945.00	6,518.00	6,514.23	229.14	195.31	-77.17	2,140.00	13,106.49	3,076.02	2,681.83	394.19	7.803	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 705H
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 705H	**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 #3	**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	106.32	-891.81	3,046.60	3,175.09				
100.00	100.00	36.00	36.00	0.25	1.08	106.32	-891.81	3,046.60	3,174.45	3,173.12	1.33	2,387.091	
200.00	200.00	136.00	136.00	0.61	4.08	106.32	-891.81	3,046.60	3,174.45	3,169.76	4.68	677.617	
300.00	300.00	236.00	236.00	0.97	7.07	106.32	-891.81	3,046.60	3,174.45	3,166.41	8.04	394.851	
400.00	400.00	336.00	336.00	1.33	10.07	106.32	-891.81	3,046.60	3,174.45	3,163.05	11.39	278.595	
500.00	500.00	436.00	436.00	1.68	13.06	106.32	-891.81	3,046.60	3,174.45	3,159.70	14.75	215.226	
600.00	599.98	536.08	535.98	2.03	16.06	-41.45	-891.81	3,046.60	3,173.14	3,155.05	18.09	175.398	
700.00	699.84	635.94	635.84	2.37	19.06	-41.57	-891.81	3,046.60	3,169.22	3,147.80	21.42	147.961	
795.17	794.65	730.75	730.65	2.69	21.90	-41.75	-891.81	3,046.60	3,163.07	3,138.48	24.59	128.640	
800.00	799.45	735.55	735.45	2.71	22.04	-41.76	-891.81	3,046.60	3,162.70	3,137.95	24.75	127.781	
900.00	898.92	830.20	830.05	3.06	24.88	-41.91	-889.85	3,046.60	3,154.48	3,126.54	27.94	112.920	
1,000.00	998.39	924.17	923.99	3.43	27.69	-42.01	-890.69	3,046.60	3,147.06	3,115.95	31.11	101.175	
1,100.00	1,097.86	1,034.27	1,033.86	3.79	30.99	-42.13	-891.81	3,046.60	3,139.69	3,104.93	34.76	90.318	
1,200.00	1,197.33	1,133.74	1,133.33	4.16	33.97	-42.26	-891.81	3,046.60	3,132.05	3,093.95	38.10	82.196	
1,300.00	1,296.80	1,233.21	1,232.80	4.53	36.95	-42.38	-891.81	3,046.60	3,124.43	3,082.98	41.45	75.381	
1,400.00	1,396.27	1,328.21	1,327.76	4.91	39.80	-42.54	-889.84	3,046.60	3,116.31	3,071.64	44.66	69.777	
1,500.00	1,495.74	1,422.45	1,421.97	5.28	42.62	-42.64	-890.67	3,046.60	3,108.95	3,061.09	47.85	64.971	
1,600.00	1,595.21	1,531.92	1,531.21	5.66	45.90	-42.77	-891.81	3,046.60	3,101.65	3,050.15	51.50	60.227	
1,700.00	1,694.68	1,631.39	1,630.68	6.04	48.88	-42.89	-891.81	3,046.60	3,094.09	3,039.24	54.85	56.411	
1,800.00	1,794.15	1,730.86	1,730.15	6.42	51.86	-43.02	-891.81	3,046.60	3,086.55	3,028.35	58.20	53.034	
1,900.00	1,893.62	1,826.21	1,825.45	6.80	54.72	-43.18	-889.83	3,046.60	3,078.52	3,017.09	61.43	50.116	
2,000.00	1,993.09	1,920.72	1,919.93	7.18	57.55	-43.29	-890.65	3,046.60	3,071.22	3,006.59	64.63	47.520	
2,100.00	2,092.56	2,029.57	2,028.56	7.56	60.82	-43.42	-891.81	3,046.60	3,064.00	2,995.74	68.26	44.885	
2,200.00	2,192.03	2,129.04	2,128.03	7.94	63.80	-43.55	-891.81	3,046.60	3,056.52	2,984.91	71.62	42.679	
2,300.00	2,291.50	2,228.51	2,227.50	8.32	66.78	-43.68	-891.81	3,046.60	3,049.06	2,974.09	74.97	40.671	
2,400.00	2,390.97	2,324.20	2,323.13	8.70	69.64	-43.85	-889.82	3,046.60	3,041.13	2,962.92	78.21	38.884	
2,500.00	2,490.44	2,418.97	2,417.89	9.08	72.48	-43.96	-890.63	3,046.60	3,033.90	2,952.48	81.42	37.261	
2,600.00	2,589.91	2,527.23	2,525.91	9.47	75.73	-44.08	-891.81	3,046.60	3,026.76	2,941.72	85.04	35.592	
2,700.00	2,689.38	2,626.70	2,625.38	9.85	78.71	-44.22	-891.81	3,046.60	3,019.36	2,930.97	88.39	34.158	
2,800.00	2,788.85	2,726.17	2,724.85	10.23	81.69	-44.36	-891.81	3,046.60	3,011.98	2,920.23	91.75	32.828	
2,900.00	2,888.32	2,822.17	2,820.80	10.61	84.57	-44.52	-889.81	3,046.60	3,004.16	2,909.16	95.00	31.622	
3,000.00	2,987.79	2,917.22	2,915.83	11.00	87.41	-44.64	-890.60	3,046.60	2,997.00	2,898.78	98.22	30.512	
3,100.00	3,087.25	3,024.88	3,023.25	11.38	90.64	-44.77	-891.81	3,046.60	2,989.94	2,888.12	101.82	29.364	
3,200.00	3,186.72	3,124.35	3,122.72	11.76	93.62	-44.91	-891.81	3,046.60	2,982.63	2,877.45	105.18	28.357	
3,300.00	3,286.19	3,223.82	3,222.19	12.15	96.60	-45.05	-891.81	3,046.60	2,975.33	2,866.80	108.54	27.413	
3,400.00	3,385.66	3,320.14	3,318.46	12.53	99.49	-45.22	-889.80	3,046.60	2,967.62	2,855.82	111.80	26.544	
3,500.00	3,485.13	3,415.46	3,413.76	12.91	102.34	-45.34	-890.58	3,046.60	2,960.54	2,845.51	115.03	25.737	
3,600.00	3,584.60	3,522.53	3,520.60	13.30	105.55	-45.47	-891.81	3,046.60	2,953.55	2,834.94	118.61	24.901	
3,700.00	3,684.07	3,622.00	3,620.07	13.68	108.53	-45.61	-891.81	3,046.60	2,946.33	2,824.36	121.97	24.156	
3,800.00	3,783.54	3,721.47	3,719.54	14.06	111.51	-45.75	-891.81	3,046.60	2,939.13	2,813.80	125.33	23.452	
3,900.00	3,883.01	3,818.09	3,816.11	14.45	114.41	-45.93	-889.79	3,046.60	2,931.52	2,802.92	128.60	22.796	
4,000.00	3,982.48	3,913.69	3,911.69	14.83	117.27	-46.06	-890.56	3,046.60	2,924.52	2,792.68	131.84	22.182	
4,100.00	4,081.95	4,020.19	4,017.95	15.22	120.46	-46.19	-891.81	3,046.60	2,917.62	2,782.21	135.41	21.547	
4,200.00	4,181.42	4,119.65	4,117.42	15.60	123.44	-46.33	-891.81	3,046.60	2,910.49	2,771.72	138.77	20.974	
4,300.00	4,280.89	4,219.12	4,216.89	15.98	126.42	-46.48	-891.81	3,046.60	2,903.38	2,761.25	142.12	20.429	
4,400.00	4,380.36	4,316.03	4,313.75	16.37	129.33	-46.66	-889.78	3,046.60	2,895.89	2,750.49	145.41	19.916	
4,500.00	4,479.83	4,411.91	4,409.60	16.75	132.20	-46.79	-890.54	3,046.60	2,888.97	2,740.32	148.66	19.434	
4,600.00	4,579.30	4,517.84	4,515.30	17.14	135.37	-46.92	-891.81	3,046.60	2,882.16	2,729.95	152.21	18.936	
4,700.00	4,678.77	4,617.31	4,614.77	17.52	138.36	-47.07	-891.81	3,046.60	2,875.12	2,719.56	155.56	18.482	
4,800.00	4,778.24	4,716.78	4,714.24	17.90	141.34	-47.22	-891.81	3,046.60	2,868.11	2,709.18	158.92	18.047	
4,900.00	4,877.71	4,813.96	4,811.37	18.29	144.25	-47.41	-889.77	3,046.60	2,860.74	2,698.53	162.21	17.636	
5,000.00	4,977.18	4,910.11	4,907.50	18.67	147.13	-47.54	-890.52	3,046.60	2,853.91	2,688.44	165.47	17.247	

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 705H
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 705H	**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 #3	**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
5,100.00	5,076.65	5,015.49	5,012.65	19.06	150.29	-47.68	-891.81	3,046.60	2,847.18	2,678.17	169.01	16.846	
5,200.00	5,176.12	5,114.96	5,112.12	19.44	153.27	-47.83	-891.81	3,046.60	2,840.25	2,667.88	172.37	16.478	
5,300.00	5,275.59	5,214.43	5,211.59	19.83	156.25	-47.98	-891.81	3,046.60	2,833.33	2,657.60	175.73	16.123	
5,400.00	5,375.06	5,311.87	5,308.98	20.21	159.17	-48.17	-889.76	3,046.60	2,826.09	2,647.06	179.03	15.786	
5,500.00	5,474.53	5,408.31	5,405.40	20.59	162.06	-48.31	-890.50	3,046.60	2,819.35	2,637.05	182.30	15.466	
5,600.00	5,574.00	5,513.14	5,510.00	20.98	165.20	-48.45	-891.81	3,046.60	2,812.71	2,626.90	185.81	15.137	
5,700.00	5,673.47	5,612.61	5,609.47	21.36	168.18	-48.60	-891.81	3,046.60	2,805.88	2,616.70	189.17	14.832	
5,800.00	5,772.94	5,712.08	5,708.94	21.75	171.16	-48.76	-891.81	3,046.60	2,799.07	2,606.53	192.53	14.538	
5,900.00	5,872.41	5,809.78	5,806.58	22.13	174.09	-48.96	-889.75	3,046.60	2,791.96	2,596.12	195.84	14.256	
6,000.00	5,971.88	5,906.50	5,903.28	22.52	176.99	-49.10	-890.48	3,046.60	2,785.31	2,586.19	199.12	13.988	
6,100.00	6,071.35	6,010.80	6,007.35	22.90	180.11	-49.24	-891.81	3,046.60	2,778.76	2,576.14	202.62	13.714	
6,200.00	6,170.81	6,110.27	6,106.81	23.28	183.09	-49.40	-891.81	3,046.60	2,772.04	2,566.05	205.98	13.458	
6,300.00	6,270.28	6,209.74	6,206.28	23.67	186.07	-49.56	-891.81	3,046.60	2,765.33	2,555.99	209.34	13.209	
6,375.94	6,345.82	6,284.35	6,280.85	23.96	188.31	-49.73	-889.67	3,046.60	2,759.96	2,548.09	211.87	13.027	
6,400.00	6,369.72	6,307.64	6,304.14	24.05	189.01	-35.27	-889.74	3,046.60	2,757.91	2,545.25	212.66	12.969	
6,450.00	6,419.09	6,355.76	6,352.25	24.25	190.45	-19.11	-890.02	3,046.60	2,750.83	2,536.54	214.29	12.837	
6,500.00	6,467.78	6,403.26	6,399.74	24.46	191.87	-11.38	-890.45	3,046.60	2,739.95	2,524.04	215.90	12.691	
6,550.00	6,515.51	6,449.86	6,446.32	24.67	193.27	-6.93	-891.02	3,046.60	2,725.33	2,507.85	217.48	12.531	
6,600.00	6,561.97	6,501.73	6,497.97	24.88	194.82	-3.99	-891.81	3,046.60	2,707.07	2,487.86	219.22	12.349	
6,650.00	6,606.89	6,546.65	6,542.89	25.10	196.17	-1.85	-891.81	3,046.60	2,685.16	2,464.43	220.73	12.165	
6,700.00	6,649.98	6,589.74	6,585.98	25.32	197.46	-0.13	-891.81	3,046.60	2,659.82	2,437.64	222.18	11.971	
6,750.00	6,690.98	6,630.74	6,626.98	25.54	198.69	1.38	-891.81	3,046.60	2,631.23	2,407.67	223.56	11.769	
6,800.00	6,729.64	6,669.39	6,665.64	25.77	199.85	2.80	-891.81	3,046.60	2,599.55	2,374.69	224.86	11.561	
6,850.00	6,765.71	6,705.46	6,701.71	26.00	200.93	4.24	-891.81	3,046.60	2,564.98	2,338.91	226.07	11.346	
6,900.00	6,798.98	6,738.73	6,734.98	26.24	201.92	5.80	-891.81	3,046.60	2,527.73	2,300.56	227.18	11.127	
6,950.00	6,829.24	6,768.55	6,764.75	26.49	202.82	7.51	-889.64	3,046.60	2,487.74	2,259.57	228.17	10.903	
7,000.00	6,856.30	6,794.99	6,791.19	26.76	203.61	9.69	-889.70	3,046.60	2,445.86	2,216.82	229.04	10.679	
7,050.00	6,880.00	6,818.15	6,814.35	27.03	204.30	12.49	-889.79	3,046.60	2,402.05	2,172.24	229.80	10.453	
7,100.00	6,900.19	6,837.90	6,834.09	27.32	204.89	16.29	-889.90	3,046.60	2,356.57	2,126.13	230.44	10.226	
7,150.00	6,916.74	6,854.09	6,850.28	27.62	205.38	21.77	-890.01	3,046.60	2,309.72	2,078.76	230.96	10.000	
7,200.00	6,929.56	6,866.63	6,862.82	27.93	205.76	30.21	-890.10	3,046.60	2,261.78	2,030.42	231.36	9.776	
7,250.00	6,938.57	6,875.45	6,871.63	28.26	206.02	44.02	-890.18	3,046.60	2,213.05	1,981.43	231.63	9.554	
7,300.00	6,943.70	6,880.47	6,876.65	28.60	206.17	66.30	-890.22	3,046.60	2,163.84	1,932.07	231.77	9.336	
7,340.76	6,945.00	6,881.75	6,877.93	28.88	206.21	89.47	-890.23	3,046.60	2,123.58	1,891.79	231.79	9.161	
7,400.00	6,945.00	6,881.75	6,877.93	29.31	206.21	89.47	-890.23	3,046.60	2,065.07	1,833.30	231.77	8.910	
7,500.00	6,945.00	6,881.75	6,877.93	30.09	206.21	89.47	-890.23	3,046.60	1,966.42	1,734.69	231.73	8.486	
7,600.00	6,945.00	6,881.75	6,877.93	30.93	206.21	89.47	-890.23	3,046.60	1,867.91	1,636.22	231.69	8.062	
7,700.00	6,945.00	6,881.76	6,877.94	31.83	206.21	89.47	-890.23	3,046.60	1,769.56	1,537.91	231.65	7.639	
7,800.00	6,945.00	6,881.76	6,877.94	32.79	206.21	89.47	-890.23	3,046.60	1,671.42	1,439.80	231.62	7.216	
7,900.00	6,945.00	6,881.76	6,877.94	33.79	206.21	89.47	-890.23	3,046.60	1,573.50	1,341.91	231.60	6.794	
8,000.00	6,945.00	6,881.77	6,877.95	34.84	206.21	89.47	-890.23	3,046.60	1,475.87	1,244.28	231.59	6.373	
8,100.00	6,945.00	6,881.77	6,877.95	35.93	206.21	89.47	-890.23	3,046.60	1,378.58	1,146.98	231.60	5.952	
8,200.00	6,945.00	6,881.78	6,877.96	37.06	206.21	89.47	-890.23	3,046.60	1,281.70	1,050.06	231.64	5.533	
8,300.00	6,945.00	6,881.78	6,877.96	38.23	206.21	89.47	-890.23	3,046.60	1,185.34	953.62	231.72	5.115	
8,400.00	6,945.00	6,881.78	6,877.96	39.42	206.21	89.47	-890.23	3,046.60	1,089.64	857.77	231.86	4.699	
8,500.00	6,945.00	6,881.79	6,877.97	40.65	206.21	89.47	-890.23	3,046.60	994.78	762.67	232.10	4.286	
8,600.00	6,945.00	6,881.79	6,877.97	41.90	206.21	89.47	-890.23	3,046.60	901.03	668.54	232.50	3.875	
8,700.00	6,945.00	6,881.79	6,877.97	43.17	206.21	89.47	-890.23	3,046.60	808.79	575.67	233.11	3.469	
8,800.00	6,945.00	6,881.80	6,877.98	44.46	206.21	89.47	-890.23	3,046.60	718.62	484.54	234.08	3.070	
8,900.00	6,945.00	6,881.80	6,877.98	45.78	206.21	89.47	-890.23	3,046.60	631.42	395.83	235.60	2.680	
9,000.00	6,945.00	6,881.80	6,877.98	47.11	206.21	89.48	-890.23	3,046.60	548.61	310.69	237.92	2.306	
9,100.00	6,945.00	6,881.81	6,877.99	48.46	206.21	89.48	-890.23	3,046.60	472.49	231.10	241.40	1.957	

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 705H
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 705H	**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 #3	**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 — **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	6,945.00	6,881.81	6,877.99	49.82	206.21	89.48	-890.23	3,046.60	406.85	160.58	246.27	1.652	
9,300.00	6,945.00	6,881.81	6,877.99	51.20	206.21	89.48	-890.23	3,046.60	357.50	105.30	252.20	1.418	Level 3
9,400.00	6,945.00	6,881.82	6,878.00	52.59	206.21	89.48	-890.23	3,046.60	331.79	74.19	257.60	1.288	Level 3
9,438.61	6,945.00	6,881.82	6,878.00	53.13	206.21	89.48	-890.23	3,046.60	329.53	70.52	259.01	1.272	Level 3, CC, ES, SF
9,500.00	6,945.00	6,881.82	6,878.00	53.99	206.21	89.48	-890.24	3,046.60	335.20	75.07	260.14	1.289	Level 3
9,600.00	6,945.00	6,881.82	6,878.00	55.40	206.21	89.48	-890.24	3,046.60	366.93	107.69	259.24	1.415	Level 3
9,700.00	6,945.00	6,881.83	6,878.01	56.83	206.21	89.48	-890.24	3,046.60	420.61	164.18	256.44	1.640	
9,800.00	6,945.00	6,881.83	6,878.01	58.26	206.21	89.48	-890.24	3,046.60	489.07	235.79	253.29	1.931	
9,900.00	6,945.00	6,881.83	6,878.01	59.70	206.21	89.48	-890.24	3,046.60	566.98	316.51	250.48	2.264	
10,000.00	6,945.00	6,881.84	6,878.02	61.15	206.21	89.48	-890.24	3,046.60	650.96	402.79	248.17	2.623	
10,100.00	6,945.00	6,881.84	6,878.02	62.61	206.21	89.48	-890.24	3,046.60	738.94	492.62	246.32	3.000	
10,200.00	6,945.00	6,881.84	6,878.02	64.07	206.21	89.48	-890.24	3,046.60	829.64	584.80	244.84	3.388	
10,300.00	6,945.00	6,881.85	6,878.03	65.54	206.21	89.48	-890.24	3,046.60	922.27	678.62	243.66	3.785	
10,400.00	6,945.00	6,881.85	6,878.03	67.02	206.21	89.48	-890.24	3,046.60	1,016.30	773.60	242.69	4.188	
10,500.00	6,945.00	6,881.86	6,878.04	68.50	206.21	89.48	-890.24	3,046.60	1,111.37	869.46	241.91	4.594	
10,600.00	6,945.00	6,881.86	6,878.04	69.99	206.21	89.49	-890.24	3,046.60	1,207.24	965.98	241.26	5.004	
10,700.00	6,945.00	6,881.86	6,878.04	71.48	206.21	89.49	-890.24	3,046.60	1,303.72	1,063.01	240.71	5.416	
10,800.00	6,945.00	6,881.87	6,878.05	72.98	206.21	89.49	-890.24	3,046.60	1,400.70	1,160.45	240.25	5.830	
10,900.00	6,945.00	6,881.87	6,878.05	74.48	206.21	89.49	-890.24	3,046.60	1,498.08	1,258.22	239.86	6.246	
11,000.00	6,945.00	6,881.87	6,878.05	75.99	206.21	89.49	-890.24	3,046.60	1,595.78	1,356.25	239.53	6.662	
11,100.00	6,945.00	6,881.88	6,878.06	77.50	206.21	89.49	-890.24	3,046.60	1,693.75	1,454.51	239.25	7.079	
11,200.00	6,945.00	6,881.88	6,878.06	79.01	206.21	89.49	-890.24	3,046.60	1,791.95	1,552.95	239.00	7.498	
11,300.00	6,945.00	6,881.88	6,878.06	80.53	206.21	89.49	-890.24	3,046.60	1,890.33	1,651.54	238.79	7.916	
11,400.00	6,945.00	6,881.89	6,878.07	82.05	206.21	89.49	-890.24	3,046.60	1,988.88	1,750.27	238.61	8.335	
11,500.00	6,945.00	6,881.89	6,878.07	83.57	206.21	89.49	-890.24	3,046.60	2,087.56	1,849.12	238.44	8.755	
11,600.00	6,945.00	6,881.89	6,878.07	85.10	206.21	89.49	-890.24	3,046.60	2,186.37	1,948.06	238.30	9.175	
11,700.00	6,945.00	6,881.90	6,878.08	86.63	206.21	89.49	-890.24	3,046.60	2,285.27	2,047.09	238.18	9.595	
11,800.00	6,945.00	6,881.90	6,878.08	88.16	206.21	89.49	-890.24	3,046.60	2,384.27	2,146.19	238.08	10.015	
11,900.00	6,945.00	6,881.90	6,878.08	89.69	206.21	89.49	-890.24	3,046.60	2,483.35	2,245.37	237.98	10.435	
12,000.00	6,945.00	6,881.91	6,878.09	91.23	206.21	89.49	-890.24	3,046.60	2,582.50	2,344.60	237.90	10.855	
12,100.00	6,945.00	6,881.91	6,878.09	92.77	206.21	89.49	-890.24	3,046.60	2,681.71	2,443.88	237.84	11.275	
12,200.00	6,945.00	6,881.91	6,878.09	94.31	206.21	89.49	-890.24	3,046.60	2,780.98	2,543.21	237.78	11.696	
12,300.00	6,945.00	6,881.92	6,878.10	95.85	206.21	89.50	-890.24	3,046.60	2,880.30	2,642.58	237.73	12.116	
12,400.00	6,945.00	6,881.92	6,878.10	97.40	206.21	89.50	-890.24	3,046.60	2,979.67	2,741.98	237.68	12.536	
12,500.00	6,945.00	6,881.93	6,878.10	98.95	206.21	89.50	-890.24	3,046.60	3,079.07	2,841.43	237.65	12.956	
12,600.00	6,945.00	6,881.93	6,878.11	100.50	206.21	89.50	-890.24	3,046.60	3,178.52	2,940.90	237.62	13.377	
12,700.00	6,945.00	6,881.93	6,878.11	102.05	206.21	89.50	-890.24	3,046.60	3,278.00	3,040.40	237.60	13.797	
12,800.00	6,945.00	6,881.94	6,878.12	103.60	206.21	89.50	-890.24	3,046.60	3,377.50	3,139.93	237.58	14.216	
12,900.00	6,945.00	6,881.94	6,878.12	105.15	206.21	89.50	-890.24	3,046.60	3,477.04	3,239.47	237.57	14.636	
13,000.00	6,945.00	6,881.94	6,878.12	106.71	206.21	89.50	-890.24	3,046.60	3,576.60	3,339.04	237.56	15.056	
13,100.00	6,945.00	6,881.95	6,878.13	108.26	206.21	89.50	-890.24	3,046.60	3,676.19	3,438.63	237.55	15.475	
13,200.00	6,945.00	6,881.95	6,878.13	109.82	206.21	89.50	-890.24	3,046.60	3,775.80	3,538.24	237.55	15.894	
13,300.00	6,945.00	6,881.95	6,878.13	111.38	206.21	89.50	-890.24	3,046.60	3,875.42	3,637.87	237.56	16.314	
13,400.00	6,945.00	6,881.96	6,878.14	112.94	206.21	89.50	-890.24	3,046.60	3,975.07	3,737.51	237.57	16.732	
13,500.00	6,945.00	6,881.96	6,878.14	114.50	206.21	89.50	-890.24	3,046.60	4,074.74	3,837.16	237.58	17.151	
13,600.00	6,945.00	6,881.96	6,878.14	116.07	206.21	89.50	-890.24	3,046.60	4,174.42	3,936.82	237.59	17.570	
13,700.00	6,945.00	6,881.97	6,878.15	117.63	206.21	89.50	-890.24	3,046.60	4,274.11	4,036.50	237.61	17.988	
13,800.00	6,945.00	6,881.97	6,878.15	119.19	206.21	89.50	-890.24	3,046.60	4,373.82	4,136.19	237.63	18.406	
13,900.00	6,945.00	6,881.97	6,878.15	120.76	206.22	89.51	-890.24	3,046.60	4,473.54	4,235.89	237.65	18.824	
14,000.00	6,945.00	6,881.98	6,878.16	122.33	206.22	89.51	-890.24	3,046.60	4,573.28	4,335.60	237.67	19.242	
14,100.00	6,945.00	6,881.98	6,878.16	123.90	206.22	89.51	-890.24	3,046.60	4,673.02	4,435.32	237.70	19.659	
14,200.00	6,945.00	6,881.98	6,878.16	125.46	206.22	89.51	-890.24	3,046.60	4,772.78	4,535.05	237.73	20.076	

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 705H
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 705H	**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 #3	**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
14,300.00	6,945.00	6,881.99	6,878.17	127.03	206.22	89.51	-890.24	3,046.60	4,872.55	4,634.78	237.76	20.493	
14,400.00	6,945.00	6,881.99	6,878.17	128.60	206.22	89.51	-890.24	3,046.60	4,972.32	4,734.53	237.80	20.910	
14,500.00	6,945.00	6,881.99	6,878.17	130.18	206.22	89.51	-890.24	3,046.60	5,072.11	4,834.27	237.83	21.327	
14,600.00	6,945.00	6,882.00	6,878.18	131.75	206.22	89.51	-890.24	3,046.60	5,171.90	4,934.03	237.87	21.743	
14,700.00	6,945.00	6,882.00	6,878.18	133.32	206.22	89.51	-890.24	3,046.60	5,271.70	5,033.79	237.91	22.159	
14,800.00	6,945.00	6,882.01	6,878.19	134.89	206.22	89.51	-890.24	3,046.60	5,371.51	5,133.56	237.95	22.574	
14,900.00	6,945.00	6,882.01	6,878.19	136.47	206.22	89.51	-890.24	3,046.60	5,471.32	5,233.33	237.99	22.990	
15,000.00	6,945.00	6,882.01	6,878.19	138.04	206.22	89.51	-890.24	3,046.60	5,571.14	5,333.11	238.03	23.405	
15,100.00	6,945.00	6,882.02	6,878.20	139.62	206.22	89.51	-890.24	3,046.60	5,670.97	5,432.89	238.08	23.820	
15,200.00	6,945.00	6,882.02	6,878.20	141.20	206.22	89.51	-890.24	3,046.60	5,770.81	5,532.68	238.12	24.234	
15,300.00	6,945.00	6,882.02	6,878.20	142.77	206.22	89.51	-890.24	3,046.60	5,870.65	5,632.47	238.17	24.649	
15,400.00	6,945.00	6,882.03	6,878.21	144.35	206.22	89.51	-890.24	3,046.60	5,970.49	5,732.27	238.22	25.063	
15,500.00	6,945.00	6,882.03	6,878.21	145.93	206.22	89.51	-890.24	3,046.60	6,070.34	5,832.07	238.27	25.477	
15,600.00	6,945.00	6,882.03	6,878.21	147.51	206.22	89.52	-890.24	3,046.60	6,170.20	5,931.87	238.32	25.890	
15,700.00	6,945.00	6,882.04	6,878.22	149.09	206.22	89.52	-890.24	3,046.60	6,270.05	6,031.68	238.38	26.303	
15,800.00	6,945.00	6,882.04	6,878.22	150.67	206.22	89.52	-890.24	3,046.60	6,369.92	6,131.49	238.43	26.716	
15,900.00	6,945.00	6,882.04	6,878.22	152.25	206.22	89.52	-890.24	3,046.60	6,469.79	6,231.30	238.49	27.129	
16,000.00	6,945.00	6,882.05	6,878.23	153.83	206.22	89.52	-890.24	3,046.60	6,569.66	6,331.12	238.54	27.541	
16,100.00	6,945.00	6,882.05	6,878.23	155.41	206.22	89.52	-890.24	3,046.60	6,669.54	6,430.93	238.60	27.953	
16,200.00	6,945.00	6,882.05	6,878.23	156.99	206.22	89.52	-890.24	3,046.60	6,769.41	6,530.75	238.66	28.364	
16,300.00	6,945.00	6,882.06	6,878.24	158.57	206.22	89.52	-890.24	3,046.60	6,869.30	6,630.58	238.72	28.776	
16,400.00	6,945.00	6,882.06	6,878.24	160.15	206.22	89.52	-890.24	3,046.60	6,969.18	6,730.40	238.78	29.187	
16,500.00	6,945.00	6,882.06	6,878.24	161.74	206.22	89.52	-890.24	3,046.60	7,069.07	6,830.23	238.84	29.597	
16,600.00	6,945.00	6,882.07	6,878.25	163.32	206.22	89.52	-890.24	3,046.60	7,168.97	6,930.06	238.91	30.008	
16,700.00	6,945.00	6,882.07	6,878.25	164.90	206.22	89.52	-890.24	3,046.60	7,268.86	7,029.89	238.97	30.418	
16,800.00	6,945.00	6,882.08	6,878.26	166.49	206.22	89.52	-890.24	3,046.60	7,368.76	7,129.73	239.03	30.827	
16,900.00	6,945.00	6,882.08	6,878.26	168.07	206.22	89.52	-890.24	3,046.60	7,468.66	7,229.56	239.10	31.237	
17,000.00	6,945.00	6,882.08	6,878.26	169.66	206.22	89.52	-890.24	3,046.60	7,568.57	7,329.40	239.17	31.646	
17,100.00	6,945.00	6,882.09	6,878.27	171.24	206.22	89.52	-890.24	3,046.60	7,668.47	7,429.24	239.23	32.054	
17,200.00	6,945.00	6,882.09	6,878.27	172.83	206.22	89.53	-890.24	3,046.60	7,768.38	7,529.08	239.30	32.463	
17,300.00	6,945.00	6,882.09	6,878.27	174.41	206.22	89.53	-890.24	3,046.60	7,868.29	7,628.92	239.37	32.871	
17,400.00	6,945.00	6,882.10	6,878.28	176.00	206.22	89.53	-890.24	3,046.60	7,968.21	7,728.76	239.44	33.278	
17,500.00	6,945.00	6,882.10	6,878.28	177.59	206.22	89.53	-890.24	3,046.60	8,068.12	7,828.61	239.51	33.686	
17,600.00	6,945.00	6,882.10	6,878.28	179.17	206.22	89.53	-890.24	3,046.60	8,168.04	7,928.45	239.58	34.093	
17,700.00	6,945.00	6,882.11	6,878.29	180.76	206.22	89.53	-890.24	3,046.60	8,267.96	8,028.30	239.66	34.499	
17,800.00	6,945.00	6,882.11	6,878.29	182.35	206.22	89.53	-890.24	3,046.60	8,367.88	8,128.15	239.73	34.905	
17,900.00	6,945.00	6,882.11	6,878.29	183.93	206.22	89.53	-890.24	3,046.60	8,467.80	8,228.00	239.80	35.311	
18,000.00	6,945.00	6,882.12	6,878.30	185.52	206.22	89.53	-890.24	3,046.60	8,567.73	8,327.85	239.88	35.717	
18,100.00	6,945.00	6,882.12	6,878.30	187.11	206.22	89.53	-890.24	3,046.60	8,667.66	8,427.70	239.95	36.122	
18,200.00	6,945.00	6,882.12	6,878.30	188.70	206.22	89.53	-890.24	3,046.60	8,767.58	8,527.55	240.03	36.527	
18,300.00	6,945.00	6,882.13	6,878.31	190.29	206.22	89.53	-890.24	3,046.60	8,867.51	8,627.41	240.11	36.931	
18,400.00	6,945.00	6,882.13	6,878.31	191.88	206.22	89.53	-890.24	3,046.60	8,967.45	8,727.26	240.19	37.336	
18,500.00	6,945.00	6,882.13	6,878.31	193.46	206.22	89.53	-890.24	3,046.60	9,067.38	8,827.12	240.26	37.739	
18,600.00	6,945.00	6,882.14	6,878.32	195.05	206.22	89.53	-890.24	3,046.60	9,167.31	8,926.97	240.34	38.143	
18,700.00	6,945.00	6,882.14	6,878.32	196.64	206.22	89.53	-890.24	3,046.60	9,267.25	9,026.83	240.42	38.546	
18,800.00	6,945.00	6,882.15	6,878.32	198.23	206.22	89.53	-890.24	3,046.60	9,367.19	9,126.69	240.50	38.948	
18,900.00	6,945.00	6,882.15	6,878.33	199.82	206.22	89.54	-890.24	3,046.60	9,467.13	9,226.54	240.58	39.351	
19,000.00	6,945.00	6,882.15	6,878.33	201.41	206.22	89.54	-890.24	3,046.60	9,567.07	9,326.40	240.67	39.753	
19,100.00	6,945.00	6,882.16	6,878.34	203.00	206.22	89.54	-890.24	3,046.60	9,667.01	9,426.26	240.75	40.154	
19,200.00	6,945.00	6,882.16	6,878.34	204.60	206.22	89.54	-890.24	3,046.60	9,766.95	9,526.12	240.83	40.555	
19,300.00	6,945.00	6,882.16	6,878.34	206.19	206.22	89.54	-890.24	3,046.60	9,866.89	9,625.98	240.91	40.956	
19,400.00	6,945.00	6,882.17	6,878.35	207.78	206.22	89.54	-890.24	3,046.60	9,966.84	9,725.84	241.00	41.357	

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 705H
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 705H	**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 #3	**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

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
19,500.00	6,945.00	6,882.17	6,878.35	209.37	206.22	89.54	-890.24	3,046.60	10,066.78	9,825.70	241.08	41.757	
19,600.00	6,945.00	6,882.17	6,878.35	210.96	206.22	89.54	-890.24	3,046.60	10,166.73	9,925.56	241.17	42.156	
19,700.00	6,945.00	6,882.18	6,878.36	212.55	206.22	89.54	-890.24	3,046.60	10,266.68	10,025.43	241.25	42.556	
19,800.00	6,945.00	6,882.18	6,878.36	214.14	206.22	89.54	-890.24	3,046.60	10,366.63	10,125.29	241.34	42.954	
19,900.00	6,945.00	6,882.18	6,878.36	215.74	206.22	89.54	-890.24	3,046.60	10,466.58	10,225.15	241.43	43.353	
20,000.00	6,945.00	6,882.19	6,878.37	217.33	206.22	89.54	-890.24	3,046.60	10,566.53	10,325.01	241.51	43.751	
20,100.00	6,945.00	6,882.19	6,878.37	218.92	206.22	89.54	-890.24	3,046.60	10,666.48	10,424.88	241.60	44.149	
20,200.00	6,945.00	6,882.19	6,878.37	220.51	206.22	89.54	-890.24	3,046.60	10,766.43	10,524.74	241.69	44.546	
20,300.00	6,945.00	6,882.20	6,878.38	222.11	206.22	89.54	-890.24	3,046.60	10,866.39	10,624.61	241.78	44.943	
20,400.00	6,945.00	6,882.20	6,878.38	223.70	206.22	89.54	-890.24	3,046.60	10,966.34	10,724.47	241.87	45.340	
20,500.00	6,945.00	6,882.20	6,878.38	225.29	206.22	89.55	-890.24	3,046.60	11,066.30	10,824.34	241.96	45.736	
20,600.00	6,945.00	6,882.21	6,878.39	226.88	206.22	89.55	-890.24	3,046.60	11,166.25	10,924.20	242.05	46.132	
20,700.00	6,945.00	6,882.21	6,878.39	228.48	206.22	89.55	-890.24	3,046.60	11,266.21	11,024.07	242.14	46.527	
20,741.48	6,945.00	6,882.21	6,878.39	229.14	206.22	89.55	-890.24	3,046.60	11,307.67	11,065.49	242.18	46.691	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 705H
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 705H	**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 #3	**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
0.00	0.00	0.00	0.00	0.00	0.00	69.16	1,075.91	2,826.69	3,024.82				
100.00	100.00	58.00	58.00	0.25	1.74	69.16	1,075.91	2,826.69	3,024.53	3,022.54	1.99	1,520.589	
200.00	200.00	158.00	158.00	0.61	4.73	69.16	1,075.91	2,826.69	3,024.53	3,019.18	5.34	565.974	
300.00	300.00	258.00	258.00	0.97	7.73	69.16	1,075.91	2,826.69	3,024.53	3,015.83	8.70	347.694	
400.00	400.00	358.00	358.00	1.33	10.73	69.16	1,075.91	2,826.69	3,024.53	3,012.47	12.05	250.921	
500.00	500.00	458.00	458.00	1.68	13.72	69.16	1,075.91	2,826.69	3,024.53	3,009.12	15.41	196.288	
600.00	599.98	558.08	557.98	2.03	16.72	-78.61	1,075.91	2,826.69	3,024.18	3,005.43	18.75	161.289	
700.00	699.84	657.94	657.84	2.37	19.71	-78.73	1,075.91	2,826.69	3,023.15	3,001.07	22.08	136.934	
795.17	794.65	752.99	752.85	2.69	22.56	-78.95	1,078.09	2,826.69	3,022.34	2,997.08	25.25	119.675	
800.00	799.45	758.19	758.05	2.71	22.72	-78.96	1,078.09	2,826.69	3,022.24	2,996.81	25.43	118.858	
900.00	898.92	866.02	865.86	3.06	25.95	-79.16	1,077.62	2,826.69	3,020.12	2,991.11	29.01	104.094	
1,000.00	998.39	974.03	973.83	3.43	29.19	-79.34	1,076.34	2,826.69	3,017.76	2,985.15	32.61	92.538	
1,100.00	1,097.86	1,056.27	1,055.86	3.79	31.65	-79.49	1,075.91	2,826.69	3,015.65	2,980.21	35.44	85.087	
1,200.00	1,197.33	1,155.74	1,155.33	4.16	34.63	-79.68	1,075.91	2,826.69	3,013.78	2,974.99	38.79	77.691	
1,300.00	1,296.80	1,255.67	1,255.23	4.53	37.63	-79.91	1,078.09	2,826.69	3,012.76	2,970.61	42.16	71.463	
1,400.00	1,396.27	1,363.85	1,363.39	4.91	40.87	-80.11	1,077.64	2,826.69	3,010.81	2,965.04	45.77	65.776	
1,500.00	1,495.74	1,472.21	1,471.71	5.28	44.11	-80.30	1,076.36	2,826.69	3,008.61	2,959.21	49.40	60.909	
1,600.00	1,595.21	1,553.92	1,553.21	5.66	46.56	-80.45	1,075.91	2,826.69	3,006.65	2,954.42	52.22	57.575	
1,700.00	1,694.68	1,653.39	1,652.68	6.04	49.54	-80.64	1,075.91	2,826.69	3,004.95	2,949.37	55.58	54.065	
1,800.00	1,794.15	1,753.13	1,752.38	6.42	52.53	-80.87	1,078.09	2,826.69	3,004.14	2,945.19	58.95	50.963	
1,900.00	1,893.62	1,861.67	1,860.90	6.80	55.78	-81.08	1,077.65	2,826.69	3,002.36	2,939.78	62.58	47.977	
2,000.00	1,993.09	1,970.38	1,969.58	7.18	59.04	-81.27	1,076.39	2,826.69	3,000.31	2,934.09	66.22	45.311	
2,100.00	2,092.56	2,051.57	2,050.56	7.56	61.47	-81.41	1,075.91	2,826.69	2,998.50	2,929.47	69.03	43.438	
2,200.00	2,192.03	2,151.04	2,150.03	7.94	64.45	-81.61	1,075.91	2,826.69	2,996.97	2,924.58	72.39	41.399	
2,300.00	2,291.50	2,250.58	2,249.52	8.32	67.44	-81.84	1,078.09	2,826.69	2,996.37	2,920.61	75.76	39.553	
2,400.00	2,390.97	2,359.47	2,358.40	8.70	70.70	-82.04	1,077.67	2,826.69	2,994.76	2,915.36	79.40	37.718	
2,500.00	2,490.44	2,468.55	2,467.44	9.08	73.97	-82.24	1,076.42	2,826.69	2,992.87	2,909.82	83.05	36.038	
2,600.00	2,589.91	2,549.23	2,547.91	9.47	76.39	-82.38	1,075.91	2,826.69	2,991.21	2,905.36	85.85	34.842	
2,700.00	2,689.38	2,648.70	2,647.38	9.85	79.37	-82.58	1,075.91	2,826.69	2,989.86	2,900.65	89.21	33.514	
2,800.00	2,788.85	2,748.17	2,746.85	10.23	82.35	-82.77	1,075.91	2,826.69	2,988.54	2,895.97	92.58	32.282	
2,900.00	2,888.32	2,857.26	2,855.88	10.61	85.62	-83.02	1,077.69	2,826.69	2,988.03	2,891.80	96.23	31.052	
3,000.00	2,987.79	2,966.70	2,965.29	11.00	88.90	-83.21	1,076.45	2,826.69	2,986.31	2,886.42	99.89	29.897	
3,100.00	3,087.25	3,046.88	3,045.25	11.38	91.30	-83.36	1,075.91	2,826.69	2,984.80	2,882.12	102.68	29.070	
3,200.00	3,186.72	3,146.35	3,144.72	11.76	94.28	-83.55	1,075.91	2,826.69	2,983.62	2,877.58	106.04	28.137	
3,300.00	3,286.19	3,245.82	3,244.19	12.15	97.26	-83.75	1,075.91	2,826.69	2,982.47	2,873.07	109.40	27.261	
3,400.00	3,385.66	3,355.03	3,353.35	12.53	100.53	-83.99	1,077.70	2,826.69	2,982.17	2,869.11	113.06	26.377	
3,500.00	3,485.13	3,464.83	3,463.12	12.91	103.82	-84.19	1,076.48	2,826.69	2,980.61	2,863.88	116.73	25.534	
3,600.00	3,584.60	3,544.53	3,542.60	13.30	106.21	-84.33	1,075.91	2,826.69	2,979.25	2,859.75	119.51	24.930	
3,700.00	3,684.07	3,644.00	3,642.07	13.68	109.19	-84.53	1,075.91	2,826.69	2,978.25	2,855.38	122.87	24.239	
3,800.00	3,783.54	3,743.47	3,741.54	14.06	112.17	-84.73	1,075.91	2,826.69	2,977.28	2,851.05	126.23	23.585	
3,821.36	3,804.79	3,766.29	3,764.32	14.15	112.85	-84.81	1,078.08	2,826.69	2,978.07	2,851.07	127.00	23.449	
3,900.00	3,883.01	3,852.79	3,850.80	14.45	115.45	-84.97	1,077.72	2,826.69	2,977.19	2,847.30	129.89	22.920	
4,000.00	3,982.48	3,962.96	3,960.94	14.83	118.75	-85.17	1,076.51	2,826.69	2,975.80	2,842.22	133.58	22.278	
4,100.00	4,081.95	4,042.19	4,039.95	15.22	121.12	-85.31	1,075.91	2,826.69	2,974.59	2,838.25	136.34	21.818	
4,200.00	4,181.42	4,141.65	4,139.42	15.60	124.10	-85.51	1,075.91	2,826.69	2,973.76	2,834.06	139.70	21.287	
4,300.00	4,280.89	4,241.12	4,238.89	15.98	127.08	-85.71	1,075.91	2,826.69	2,972.97	2,829.91	143.07	20.780	
4,315.52	4,296.33	4,257.29	4,255.02	16.04	127.57	-85.78	1,078.09	2,826.69	2,973.87	2,830.26	143.61	20.708	
4,400.00	4,380.36	4,350.53	4,348.24	16.37	130.36	-85.95	1,077.74	2,826.69	2,973.09	2,826.37	146.73	20.263	
4,500.00	4,479.83	4,461.07	4,458.75	16.75	133.67	-86.15	1,076.53	2,826.69	2,971.86	2,821.44	150.42	19.757	
4,600.00	4,579.30	4,539.84	4,537.30	17.14	136.03	-86.30	1,075.91	2,826.69	2,970.81	2,817.64	153.17	19.396	
4,700.00	4,678.77	4,639.31	4,636.77	17.52	139.01	-86.49	1,075.91	2,826.69	2,970.16	2,813.63	156.53	18.974	
4,800.00	4,778.24	4,738.78	4,736.24	17.90	142.00	-86.69	1,075.91	2,826.69	2,969.55	2,809.65	159.90	18.571	

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 705H
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 705H	**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 #3	**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)	Rule Assigned: Minimum Separation (usft)	Separation Factor	Warning
4,811.12	4,789.30	4,749.84	4,747.30	17.95	142.33	-86.71	1,075.91	2,826.69	2,969.48	2,809.21	160.27	18.528	
4,900.00	4,877.71	4,848.26	4,845.66	18.29	145.28	-86.94	1,077.75	2,826.69	2,969.88	2,806.32	163.56	18.157	
5,000.00	4,977.18	4,959.17	4,956.54	18.67	148.60	-87.14	1,076.56	2,826.69	2,968.82	2,801.55	167.27	17.749	
5,100.00	5,076.65	5,037.49	5,034.65	19.06	150.95	-87.28	1,075.91	2,826.69	2,967.92	2,797.91	170.00	17.458	
5,200.00	5,176.12	5,136.96	5,134.12	19.44	153.93	-87.48	1,075.91	2,826.69	2,967.44	2,794.08	173.37	17.116	
5,300.00	5,275.59	5,236.43	5,233.59	19.83	156.91	-87.68	1,075.91	2,826.69	2,967.01	2,790.27	176.73	16.788	
5,313.40	5,288.92	5,249.76	5,246.92	19.88	157.31	-87.70	1,075.91	2,826.69	2,966.95	2,789.77	177.18	16.745	
5,400.00	5,375.06	5,345.97	5,343.07	20.21	160.19	-87.93	1,077.77	2,826.69	2,967.55	2,787.16	180.40	16.450	
5,500.00	5,474.53	5,457.25	5,454.32	20.59	163.52	-88.13	1,076.59	2,826.69	2,966.66	2,782.55	184.11	16.113	
5,600.00	5,574.00	5,535.14	5,532.00	20.98	165.86	-88.27	1,075.91	2,826.69	2,965.91	2,779.07	186.84	15.874	
5,700.00	5,673.47	5,634.61	5,631.47	21.36	168.84	-88.47	1,075.91	2,826.69	2,965.62	2,775.41	190.20	15.592	
5,800.00	5,772.94	5,734.08	5,730.94	21.75	171.82	-88.67	1,075.91	2,826.69	2,965.36	2,771.79	193.57	15.320	
5,815.00	5,787.86	5,749.00	5,745.86	21.80	172.27	-88.70	1,075.91	2,826.69	2,965.32	2,771.25	194.07	15.280	
5,900.00	5,872.41	5,843.66	5,840.46	22.13	175.10	-88.91	1,077.78	2,826.69	2,966.12	2,768.89	197.23	15.039	
6,000.00	5,971.88	5,955.33	5,952.09	22.52	178.45	-89.12	1,076.62	2,826.69	2,965.40	2,764.44	200.96	14.756	
6,066.90	6,038.42	6,030.12	6,026.86	22.77	180.69	-89.24	1,075.35	2,826.69	2,964.70	2,761.25	203.45	14.572	
6,100.00	6,071.35	6,011.00	6,007.54	22.90	180.12	-89.22	1,075.91	2,826.69	2,964.88	2,761.86	203.01	14.605	
6,200.00	6,170.81	6,011.00	6,007.54	23.28	180.12	-89.22	1,075.91	2,826.69	2,967.16	2,763.92	203.24	14.600	
6,300.00	6,270.28	6,011.00	6,007.54	23.67	180.12	-89.22	1,075.91	2,826.69	2,972.81	2,769.57	203.24	14.627	
6,375.94	6,345.82	6,011.00	6,007.54	23.96	180.12	-89.22	1,075.91	2,826.69	2,979.33	2,776.23	203.10	14.670	
6,400.00	6,369.72	6,011.00	6,007.54	24.05	180.12	-74.65	1,075.91	2,826.69	2,981.41	2,778.39	203.03	14.685	
6,450.00	6,419.09	6,011.00	6,007.54	24.25	180.12	-58.40	1,075.91	2,826.69	2,983.88	2,781.04	202.84	14.710	
6,500.00	6,467.78	6,011.00	6,007.54	24.46	180.12	-50.76	1,075.91	2,826.69	2,983.83	2,781.22	202.62	14.726	
6,550.00	6,515.51	6,011.00	6,007.54	24.67	180.12	-46.59	1,075.91	2,826.69	2,981.27	2,778.93	202.35	14.734	
6,600.00	6,561.97	6,011.00	6,007.54	24.88	180.12	-44.13	1,075.91	2,826.69	2,976.21	2,774.17	202.04	14.731	
6,650.00	6,606.89	6,011.00	6,007.54	25.10	180.12	-42.65	1,075.91	2,826.69	2,968.66	2,766.97	201.69	14.719	
6,700.00	6,649.98	6,011.00	6,007.54	25.32	180.12	-41.83	1,075.91	2,826.69	2,958.64	2,757.34	201.31	14.697	
6,750.00	6,690.98	6,011.00	6,007.54	25.54	180.12	-41.47	1,075.91	2,826.69	2,946.21	2,745.32	200.90	14.665	
6,800.00	6,729.64	6,011.00	6,007.54	25.77	180.12	-41.49	1,075.91	2,826.69	2,931.40	2,730.94	200.47	14.623	
6,850.00	6,765.71	6,011.00	6,007.54	26.00	180.12	-41.82	1,075.91	2,826.69	2,914.27	2,714.25	200.02	14.570	
6,900.00	6,798.98	6,011.00	6,007.54	26.24	180.12	-42.45	1,075.91	2,826.69	2,894.89	2,695.32	199.57	14.506	
6,950.00	6,829.24	6,011.00	6,007.54	26.49	180.12	-43.36	1,075.91	2,826.69	2,873.33	2,674.21	199.11	14.431	
7,000.00	6,856.30	6,011.00	6,007.54	26.76	180.12	-44.55	1,075.91	2,826.69	2,849.67	2,651.00	198.67	14.344	
7,050.00	6,880.00	6,011.00	6,007.54	27.03	180.12	-46.03	1,075.91	2,826.69	2,824.02	2,625.77	198.25	14.245	
7,100.00	6,900.19	6,011.00	6,007.54	27.32	180.12	-47.81	1,075.91	2,826.69	2,796.47	2,598.62	197.85	14.134	
7,150.00	6,916.74	6,011.00	6,007.54	27.62	180.12	-49.91	1,075.91	2,826.69	2,767.14	2,569.65	197.50	14.011	
7,200.00	6,929.56	6,011.00	6,007.54	27.93	180.12	-52.35	1,075.91	2,826.69	2,736.17	2,538.98	197.19	13.876	
7,250.00	6,938.57	6,011.00	6,007.54	28.26	180.12	-55.17	1,075.91	2,826.69	2,703.68	2,506.74	196.94	13.729	
7,300.00	6,943.70	6,011.00	6,007.54	28.60	180.12	-58.38	1,075.91	2,826.69	2,669.83	2,473.07	196.76	13.569	
7,340.76	6,945.00	6,011.00	6,007.54	28.88	180.12	-61.30	1,075.91	2,826.69	2,641.33	2,444.67	196.67	13.431	
7,400.00	6,945.00	6,011.00	6,007.54	29.31	180.12	-61.30	1,075.91	2,826.69	2,599.71	2,403.14	196.57	13.225	
7,500.00	6,945.00	6,011.00	6,007.54	30.09	180.12	-61.30	1,075.91	2,826.69	2,531.06	2,334.62	196.44	12.885	
7,600.00	6,945.00	6,011.00	6,007.54	30.93	180.12	-61.30	1,075.91	2,826.69	2,464.54	2,268.22	196.33	12.553	
7,700.00	6,945.00	6,011.00	6,007.54	31.83	180.12	-61.30	1,075.91	2,826.69	2,400.36	2,204.11	196.25	12.231	
7,800.00	6,945.00	6,011.00	6,007.54	32.79	180.12	-61.30	1,075.91	2,826.69	2,338.69	2,142.48	196.21	11.920	
7,900.00	6,945.00	6,011.00	6,007.54	33.79	180.12	-61.30	1,075.91	2,826.69	2,279.74	2,083.53	196.20	11.619	
8,000.00	6,945.00	6,011.00	6,007.54	34.84	180.12	-61.30	1,075.91	2,826.69	2,223.72	2,027.47	196.25	11.331	
8,100.00	6,945.00	6,011.00	6,007.54	35.93	180.12	-61.30	1,075.91	2,826.69	2,170.87	1,974.53	196.34	11.057	
8,200.00	6,945.00	6,011.00	6,007.54	37.06	180.12	-61.30	1,075.91	2,826.69	2,121.42	1,924.93	196.49	10.797	
8,300.00	6,945.00	6,011.00	6,007.54	38.23	180.12	-61.30	1,075.91	2,826.69	2,075.61	1,878.91	196.69	10.553	
8,400.00	6,945.00	6,011.00	6,007.54	39.42	180.12	-61.30	1,075.91	2,826.69	2,033.69	1,836.72	196.96	10.325	
8,500.00	6,945.00	6,011.00	6,007.54	40.65	180.12	-61.30	1,075.91	2,826.69	1,995.90	1,798.59	197.31	10.116	

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 705H
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 705H	**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 #3	**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
8,600.00	6,945.00	6,011.00	6,007.54	41.90	180.12	-61.30	1,075.91	2,826.69	1,962.49	1,764.76	197.72	9.925	
8,700.00	6,945.00	6,011.00	6,007.54	43.17	180.12	-61.30	1,075.91	2,826.69	1,933.67	1,735.45	198.22	9.755	
8,800.00	6,945.00	6,011.00	6,007.54	44.46	180.12	-61.30	1,075.91	2,826.69	1,909.67	1,710.87	198.79	9.606	
8,900.00	6,945.00	6,011.00	6,007.54	45.78	180.12	-61.30	1,075.91	2,826.69	1,890.65	1,691.20	199.45	9.479	
9,000.00	6,945.00	6,011.00	6,007.54	47.11	180.12	-61.30	1,075.91	2,826.69	1,876.78	1,676.59	200.19	9.375	
9,100.00	6,945.00	6,011.00	6,007.54	48.46	180.12	-61.30	1,075.91	2,826.69	1,868.16	1,667.15	201.01	9.294	
9,200.00	6,945.00	6,011.00	6,007.54	49.82	180.12	-61.30	1,075.91	2,826.69	1,864.88	1,662.98	201.90	9.237	
9,211.32	6,945.00	6,011.00	6,007.54	49.98	180.12	-61.30	1,075.91	2,826.69	1,864.84	1,662.84	202.00	9.232	CC, ES
9,300.00	6,945.00	6,011.00	6,007.54	51.20	180.12	-61.30	1,075.91	2,826.69	1,866.95	1,664.11	202.85	9.204	
9,400.00	6,945.00	6,011.00	6,007.54	52.59	180.12	-61.30	1,075.91	2,826.69	1,874.37	1,670.52	203.85	9.195	SF
9,500.00	6,945.00	6,011.00	6,007.54	53.99	180.12	-61.30	1,075.91	2,826.69	1,887.06	1,682.18	204.88	9.211	
9,600.00	6,945.00	6,011.00	6,007.54	55.40	180.12	-61.30	1,075.91	2,826.69	1,904.92	1,698.98	205.94	9.250	
9,700.00	6,945.00	6,011.00	6,007.54	56.83	180.12	-61.30	1,075.91	2,826.69	1,927.81	1,720.82	207.00	9.313	
9,800.00	6,945.00	6,011.00	6,007.54	58.26	180.12	-61.30	1,075.91	2,826.69	1,955.55	1,747.51	208.05	9.400	
9,900.00	6,945.00	6,011.00	6,007.54	59.70	180.12	-61.30	1,075.91	2,826.69	1,987.95	1,778.87	209.07	9.508	
10,000.00	6,945.00	6,011.00	6,007.54	61.15	180.12	-61.30	1,075.91	2,826.69	2,024.76	1,814.70	210.07	9.639	
10,100.00	6,945.00	6,011.00	6,007.54	62.61	180.12	-61.30	1,075.91	2,826.69	2,065.77	1,854.76	211.01	9.790	
10,200.00	6,945.00	6,011.00	6,007.54	64.07	180.12	-61.30	1,075.91	2,826.69	2,110.72	1,898.81	211.91	9.961	
10,300.00	6,945.00	6,011.00	6,007.54	65.54	180.12	-61.30	1,075.91	2,826.69	2,159.37	1,946.63	212.74	10.150	
10,400.00	6,945.00	6,011.00	6,007.54	67.02	180.12	-61.30	1,075.91	2,826.69	2,211.47	1,997.95	213.52	10.357	
10,500.00	6,945.00	6,011.00	6,007.54	68.50	180.12	-61.30	1,075.91	2,826.69	2,266.79	2,052.56	214.23	10.581	
10,600.00	6,945.00	6,011.00	6,007.54	69.99	180.12	-61.30	1,075.91	2,826.69	2,325.10	2,110.21	214.89	10.820	
10,700.00	6,945.00	6,011.00	6,007.54	71.48	180.12	-61.30	1,075.91	2,826.69	2,386.17	2,170.69	215.48	11.074	
10,800.00	6,945.00	6,011.00	6,007.54	72.98	180.12	-61.30	1,075.91	2,826.69	2,449.81	2,233.79	216.02	11.341	
10,900.00	6,945.00	6,011.00	6,007.54	74.48	180.12	-61.30	1,075.91	2,826.69	2,515.81	2,299.31	216.50	11.620	
11,000.00	6,945.00	6,011.00	6,007.54	75.99	180.12	-61.30	1,075.91	2,826.69	2,584.00	2,367.06	216.93	11.911	
11,100.00	6,945.00	6,011.00	6,007.54	77.50	180.12	-61.30	1,075.91	2,826.69	2,654.20	2,436.88	217.32	12.213	
11,200.00	6,945.00	6,011.00	6,007.54	79.01	180.12	-61.30	1,075.91	2,826.69	2,726.26	2,508.60	217.66	12.525	
11,300.00	6,945.00	6,011.00	6,007.54	80.53	180.12	-61.30	1,075.91	2,826.69	2,800.04	2,582.08	217.97	12.846	
11,400.00	6,945.00	6,011.00	6,007.54	82.05	180.12	-61.30	1,075.91	2,826.69	2,875.41	2,657.17	218.24	13.176	
11,500.00	6,945.00	6,011.00	6,007.54	83.57	180.12	-61.30	1,075.91	2,826.69	2,952.24	2,733.76	218.48	13.513	
11,600.00	6,945.00	6,011.00	6,007.54	85.10	180.12	-61.30	1,075.91	2,826.69	3,030.42	2,811.74	218.68	13.858	
11,700.00	6,945.00	6,011.00	6,007.54	86.63	180.12	-61.30	1,075.91	2,826.69	3,109.85	2,890.99	218.87	14.209	
11,800.00	6,945.00	6,011.00	6,007.54	88.16	180.12	-61.30	1,075.91	2,826.69	3,190.44	2,971.42	219.03	14.566	
11,900.00	6,945.00	6,011.00	6,007.54	89.69	180.12	-61.30	1,075.91	2,826.69	3,272.10	3,052.94	219.17	14.930	
12,000.00	6,945.00	6,011.00	6,007.54	91.23	180.12	-61.30	1,075.91	2,826.69	3,354.76	3,135.47	219.29	15.298	
12,100.00	6,945.00	6,011.00	6,007.54	92.77	180.12	-61.30	1,075.91	2,826.69	3,438.33	3,218.94	219.39	15.672	
12,200.00	6,945.00	6,011.00	6,007.54	94.31	180.12	-61.30	1,075.91	2,826.69	3,522.77	3,303.28	219.48	16.050	
12,300.00	6,945.00	6,011.00	6,007.54	95.85	180.12	-61.30	1,075.91	2,826.69	3,607.99	3,388.43	219.56	16.433	
12,400.00	6,945.00	6,011.00	6,007.54	97.40	180.12	-61.30	1,075.91	2,826.69	3,693.96	3,474.33	219.63	16.819	
12,500.00	6,945.00	6,011.00	6,007.54	98.95	180.12	-61.30	1,075.91	2,826.69	3,780.62	3,560.93	219.69	17.209	
12,600.00	6,945.00	6,011.00	6,007.54	100.50	180.12	-61.30	1,075.91	2,826.69	3,867.92	3,648.18	219.74	17.602	
12,700.00	6,945.00	6,011.00	6,007.54	102.05	180.12	-61.30	1,075.91	2,826.69	3,955.83	3,736.05	219.78	17.999	
12,800.00	6,945.00	6,011.00	6,007.54	103.60	180.12	-61.30	1,075.91	2,826.69	4,044.29	3,824.48	219.82	18.398	
12,900.00	6,945.00	6,011.00	6,007.54	105.15	180.12	-61.30	1,075.91	2,826.69	4,133.28	3,913.44	219.85	18.801	
13,000.00	6,945.00	6,011.00	6,007.54	106.71	180.12	-61.30	1,075.91	2,826.69	4,222.77	4,002.90	219.87	19.205	
13,100.00	6,945.00	6,011.00	6,007.54	108.26	180.12	-61.30	1,075.91	2,826.69	4,312.72	4,092.82	219.89	19.613	
13,200.00	6,945.00	6,011.00	6,007.54	109.82	180.12	-61.30	1,075.91	2,826.69	4,403.10	4,183.18	219.91	20.022	
13,300.00	6,945.00	6,011.00	6,007.54	111.38	180.12	-61.30	1,075.91	2,826.69	4,493.88	4,273.95	219.93	20.433	
13,400.00	6,945.00	6,011.00	6,007.54	112.94	180.12	-61.30	1,075.91	2,826.69	4,585.05	4,365.11	219.94	20.847	
13,500.00	6,945.00	6,011.00	6,007.54	114.50	180.12	-61.30	1,075.91	2,826.69	4,676.59	4,456.63	219.95	21.262	
13,600.00	6,945.00	6,011.00	6,007.54	116.07	180.12	-61.30	1,075.91	2,826.69	4,768.46	4,548.50	219.96	21.679	

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 705H
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 705H	**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 #3	**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
13,700.00	6,945.00	6,011.00	6,007.54	117.63	180.12	-61.30	1,075.91	2,826.69	4,860.65	4,640.68	219.97	22.097	
13,800.00	6,945.00	6,011.00	6,007.54	119.19	180.12	-61.30	1,075.91	2,826.69	4,953.15	4,733.17	219.98	22.517	
13,900.00	6,945.00	6,011.00	6,007.54	120.76	180.12	-61.30	1,075.91	2,826.69	5,045.93	4,825.95	219.98	22.938	
14,000.00	6,945.00	6,011.00	6,007.54	122.33	180.12	-61.30	1,075.91	2,826.69	5,138.98	4,919.00	219.99	23.360	
14,100.00	6,945.00	6,011.00	6,007.54	123.90	180.12	-61.30	1,075.91	2,826.69	5,232.29	5,012.30	219.99	23.784	
14,200.00	6,945.00	6,011.00	6,007.54	125.46	180.12	-61.30	1,075.91	2,826.69	5,325.84	5,105.85	220.00	24.209	
14,300.00	6,945.00	6,011.00	6,007.54	127.03	180.12	-61.30	1,075.91	2,826.69	5,419.63	5,199.62	220.00	24.634	
14,400.00	6,945.00	6,011.00	6,007.54	128.60	180.12	-61.30	1,075.91	2,826.69	5,513.63	5,293.62	220.01	25.061	
14,500.00	6,945.00	6,011.00	6,007.54	130.18	180.12	-61.30	1,075.91	2,826.69	5,607.84	5,387.82	220.01	25.489	
14,600.00	6,945.00	6,011.00	6,007.54	131.75	180.12	-61.30	1,075.91	2,826.69	5,702.24	5,482.22	220.02	25.917	
14,700.00	6,945.00	6,011.00	6,007.54	133.32	180.12	-61.30	1,075.91	2,826.69	5,796.84	5,576.81	220.02	26.346	
14,800.00	6,945.00	6,011.00	6,007.54	134.89	180.12	-61.30	1,075.91	2,826.69	5,891.61	5,671.58	220.03	26.776	
14,900.00	6,945.00	6,011.00	6,007.54	136.47	180.12	-61.30	1,075.91	2,826.69	5,986.55	5,766.51	220.04	27.207	
15,000.00	6,945.00	6,011.00	6,007.54	138.04	180.12	-61.30	1,075.91	2,826.69	6,081.65	5,861.61	220.05	27.638	
15,100.00	6,945.00	6,011.00	6,007.54	139.62	180.12	-61.30	1,075.91	2,826.69	6,176.91	5,956.86	220.06	28.070	
15,200.00	6,945.00	6,011.00	6,007.54	141.20	180.12	-61.30	1,075.91	2,826.69	6,272.32	6,052.25	220.07	28.502	
15,300.00	6,945.00	6,011.00	6,007.54	142.77	180.12	-61.30	1,075.91	2,826.69	6,367.87	6,147.79	220.08	28.935	
15,400.00	6,945.00	6,011.00	6,007.54	144.35	180.12	-61.30	1,075.91	2,826.69	6,463.55	6,243.46	220.09	29.368	
15,500.00	6,945.00	6,011.00	6,007.54	145.93	180.12	-61.30	1,075.91	2,826.69	6,559.36	6,339.26	220.10	29.801	
15,600.00	6,945.00	6,011.00	6,007.54	147.51	180.12	-61.30	1,075.91	2,826.69	6,655.29	6,435.18	220.12	30.235	
15,700.00	6,945.00	6,011.00	6,007.54	149.09	180.12	-61.30	1,075.91	2,826.69	6,751.35	6,531.21	220.13	30.670	
15,800.00	6,945.00	6,011.00	6,007.54	150.67	180.12	-61.30	1,075.91	2,826.69	6,847.51	6,627.36	220.15	31.104	
15,900.00	6,945.00	6,011.00	6,007.54	152.25	180.12	-61.30	1,075.91	2,826.69	6,943.78	6,723.62	220.16	31.539	
16,000.00	6,945.00	6,011.00	6,007.54	153.83	180.12	-61.30	1,075.91	2,826.69	7,040.16	6,819.98	220.18	31.974	
16,100.00	6,945.00	6,011.00	6,007.54	155.41	180.12	-61.30	1,075.91	2,826.69	7,136.64	6,916.44	220.20	32.410	
16,200.00	6,945.00	6,011.00	6,007.54	156.99	180.12	-61.30	1,075.91	2,826.69	7,233.21	7,012.99	220.22	32.845	
16,300.00	6,945.00	6,011.00	6,007.54	158.57	180.12	-61.30	1,075.91	2,826.69	7,329.88	7,109.64	220.24	33.281	
16,400.00	6,945.00	6,011.00	6,007.54	160.15	180.12	-61.30	1,075.91	2,826.69	7,426.63	7,206.37	220.26	33.717	
16,500.00	6,945.00	6,011.00	6,007.54	161.74	180.12	-61.30	1,075.91	2,826.69	7,523.47	7,303.18	220.29	34.153	
16,600.00	6,945.00	6,011.00	6,007.54	163.32	180.12	-61.30	1,075.91	2,826.69	7,620.39	7,400.08	220.31	34.589	
16,700.00	6,945.00	6,011.00	6,007.54	164.90	180.12	-61.30	1,075.91	2,826.69	7,717.39	7,497.05	220.34	35.026	
16,800.00	6,945.00	6,011.00	6,007.54	166.49	180.12	-61.30	1,075.91	2,826.69	7,814.46	7,594.10	220.36	35.462	
16,900.00	6,945.00	6,011.00	6,007.54	168.07	180.12	-61.30	1,075.91	2,826.69	7,911.61	7,691.22	220.39	35.898	
17,000.00	6,945.00	6,011.00	6,007.54	169.66	180.12	-61.30	1,075.91	2,826.69	8,008.82	7,788.40	220.42	36.335	
17,100.00	6,945.00	6,011.00	6,007.54	171.24	180.12	-61.30	1,075.91	2,826.69	8,106.11	7,885.66	220.45	36.771	
17,200.00	6,945.00	6,011.00	6,007.54	172.83	180.12	-61.30	1,075.91	2,826.69	8,203.46	7,982.98	220.48	37.207	
17,300.00	6,945.00	6,011.00	6,007.54	174.41	180.12	-61.30	1,075.91	2,826.69	8,300.87	8,080.36	220.51	37.644	
17,400.00	6,945.00	6,011.00	6,007.54	176.00	180.12	-61.30	1,075.91	2,826.69	8,398.35	8,177.80	220.54	38.080	
17,500.00	6,945.00	6,011.00	6,007.54	177.59	180.12	-61.30	1,075.91	2,826.69	8,495.88	8,275.30	220.58	38.517	
17,600.00	6,945.00	6,011.00	6,007.54	179.17	180.12	-61.30	1,075.91	2,826.69	8,593.47	8,372.86	220.61	38.953	
17,700.00	6,945.00	6,011.00	6,007.54	180.76	180.12	-61.30	1,075.91	2,826.69	8,691.11	8,470.46	220.65	39.389	
17,800.00	6,945.00	6,011.00	6,007.54	182.35	180.12	-61.30	1,075.91	2,826.69	8,788.81	8,568.12	220.68	39.825	
17,900.00	6,945.00	6,011.00	6,007.54	183.93	180.12	-61.30	1,075.91	2,826.69	8,886.56	8,665.83	220.72	40.261	
18,000.00	6,945.00	6,011.00	6,007.54	185.52	180.12	-61.30	1,075.91	2,826.69	8,984.35	8,763.59	220.76	40.697	
18,100.00	6,945.00	6,011.00	6,007.54	187.11	180.12	-61.30	1,075.91	2,826.69	9,082.20	8,861.40	220.80	41.133	
18,200.00	6,945.00	6,011.00	6,007.54	188.70	180.12	-61.30	1,075.91	2,826.69	9,180.09	8,959.25	220.84	41.569	
18,300.00	6,945.00	6,011.00	6,007.54	190.29	180.12	-61.30	1,075.91	2,826.69	9,278.03	9,057.15	220.88	42.004	
18,400.00	6,945.00	6,011.00	6,007.54	191.88	180.12	-61.30	1,075.91	2,826.69	9,376.01	9,155.08	220.93	42.440	
18,500.00	6,945.00	6,011.00	6,007.54	193.46	180.12	-61.30	1,075.91	2,826.69	9,474.03	9,253.06	220.97	42.875	
18,600.00	6,945.00	6,011.00	6,007.54	195.05	180.12	-61.30	1,075.91	2,826.69	9,572.10	9,351.08	221.01	43.310	
18,700.00	6,945.00	6,011.00	6,007.54	196.64	180.12	-61.30	1,075.91	2,826.69	9,670.20	9,449.14	221.06	43.745	
18,800.00	6,945.00	6,011.00	6,007.54	198.23	180.12	-61.30	1,075.91	2,826.69	9,768.34	9,547.24	221.11	44.179	

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 705H
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 705H	**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 #3	**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
18,900.00	6,945.00	6,011.00	6,007.54	199.82	180.12	-61.30	1,075.91	2,826.69	9,866.52	9,645.37	221.15	44.614	
19,000.00	6,945.00	6,011.00	6,007.54	201.41	180.12	-61.30	1,075.91	2,826.69	9,964.74	9,743.53	221.20	45.048	
19,100.00	6,945.00	6,011.00	6,007.54	203.00	180.12	-61.30	1,075.91	2,826.69	10,062.99	9,841.74	221.25	45.482	
19,200.00	6,945.00	6,011.00	6,007.54	204.60	180.12	-61.30	1,075.91	2,826.69	10,161.27	9,939.97	221.30	45.916	
19,300.00	6,945.00	6,011.00	6,007.54	206.19	180.12	-61.30	1,075.91	2,826.69	10,259.59	10,038.24	221.35	46.350	
19,400.00	6,945.00	6,011.00	6,007.54	207.78	180.12	-61.30	1,075.91	2,826.69	10,357.94	10,136.54	221.40	46.783	
19,500.00	6,945.00	6,011.00	6,007.54	209.37	180.12	-61.30	1,075.91	2,826.69	10,456.32	10,234.87	221.46	47.216	
19,600.00	6,945.00	6,011.00	6,007.54	210.96	180.12	-61.30	1,075.91	2,826.69	10,554.73	10,333.22	221.51	47.649	
19,700.00	6,945.00	6,011.00	6,007.54	212.55	180.12	-61.30	1,075.91	2,826.69	10,653.18	10,431.61	221.56	48.082	
19,800.00	6,945.00	6,011.00	6,007.54	214.14	180.12	-61.30	1,075.91	2,826.69	10,751.65	10,530.03	221.62	48.514	
19,900.00	6,945.00	6,011.00	6,007.54	215.74	180.12	-61.30	1,075.91	2,826.69	10,850.14	10,628.47	221.68	48.946	
20,000.00	6,945.00	6,011.00	6,007.54	217.33	180.12	-61.30	1,075.91	2,826.69	10,948.67	10,726.94	221.73	49.378	
20,100.00	6,945.00	6,011.00	6,007.54	218.92	180.12	-61.30	1,075.91	2,826.69	11,047.22	10,825.43	221.79	49.809	
20,200.00	6,945.00	6,011.00	6,007.54	220.51	180.12	-61.30	1,075.91	2,826.69	11,145.80	10,923.95	221.85	50.241	
20,300.00	6,945.00	6,011.00	6,007.54	222.11	180.12	-61.30	1,075.91	2,826.69	11,244.40	11,022.49	221.91	50.672	
20,400.00	6,945.00	6,011.00	6,007.54	223.70	180.12	-61.30	1,075.91	2,826.69	11,343.03	11,121.06	221.97	51.102	
20,500.00	6,945.00	6,011.00	6,007.54	225.29	180.12	-61.30	1,075.91	2,826.69	11,441.68	11,219.65	222.03	51.533	
20,600.00	6,945.00	6,011.00	6,007.54	226.88	180.12	-61.30	1,075.91	2,826.69	11,540.35	11,318.26	222.09	51.963	
20,700.00	6,945.00	6,011.00	6,007.54	228.48	180.12	-61.30	1,075.91	2,826.69	11,639.05	11,416.90	222.15	52.392	
20,741.48	6,945.00	6,011.00	6,007.54	229.14	180.12	-61.30	1,075.91	2,826.69	11,679.99	11,457.82	222.18	52.570	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 705H
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 705H	**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 #3	**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
0.00	0.00	0.00	0.00	0.00	0.00	61.40	1,151.18	2,111.59	2,405.16				
100.00	100.00	73.00	73.00	0.25	2.19	61.40	1,151.18	2,111.59	2,405.00	2,402.57	2.44	986.259	
200.00	200.00	173.00	173.00	0.61	5.18	61.40	1,151.18	2,111.59	2,405.00	2,399.21	5.79	415.129	
300.00	300.00	273.00	273.00	0.97	8.18	61.40	1,151.18	2,111.59	2,405.00	2,395.86	9.15	262.891	
400.00	400.00	373.00	373.00	1.33	11.18	61.40	1,151.18	2,111.59	2,405.00	2,392.50	12.50	192.352	
500.00	500.00	473.00	473.00	1.68	14.17	61.40	1,151.18	2,111.59	2,405.00	2,389.15	15.86	151.658	
600.00	599.98	573.08	572.98	2.03	17.17	-86.37	1,151.18	2,111.59	2,404.89	2,385.69	19.20	125.257	
700.00	699.84	672.94	672.84	2.37	20.16	-86.50	1,151.18	2,111.59	2,404.57	2,382.04	22.53	106.741	
747.59	747.28	720.38	720.28	2.53	21.59	-86.60	1,151.18	2,111.59	2,404.34	2,380.23	24.11	99.711	
795.17	794.65	769.35	769.20	2.69	23.05	-86.76	1,153.35	2,111.59	2,405.13	2,379.39	25.74	93.422	
800.00	799.45	774.58	774.44	2.71	23.21	-86.77	1,153.34	2,111.59	2,405.10	2,379.18	25.92	92.794	
900.00	898.92	883.04	882.88	3.06	26.46	-87.02	1,152.74	2,111.59	2,404.27	2,374.74	29.52	81.434	
1,000.00	998.39	991.68	991.48	3.43	29.72	-87.26	1,151.32	2,111.59	2,403.11	2,369.97	33.14	72.513	
1,100.00	1,097.86	1,071.27	1,070.86	3.79	32.10	-87.45	1,151.18	2,111.59	2,402.47	2,366.58	35.89	66.935	
1,200.00	1,197.33	1,170.74	1,170.33	4.16	35.08	-87.70	1,151.18	2,111.59	2,402.04	2,362.79	39.24	61.209	
1,250.40	1,247.46	1,220.87	1,220.46	4.35	36.58	-87.82	1,151.18	2,111.59	2,401.83	2,360.90	40.93	58.677	
1,300.00	1,296.80	1,272.10	1,271.65	4.53	38.12	-87.99	1,153.34	2,111.59	2,402.73	2,360.08	42.65	56.332	
1,400.00	1,396.27	1,380.92	1,380.45	4.91	41.38	-88.24	1,152.76	2,111.59	2,402.12	2,355.83	46.29	51.896	
1,500.00	1,495.74	1,489.92	1,489.41	5.28	44.64	-88.48	1,151.35	2,111.59	2,401.16	2,351.23	49.93	48.093	
1,600.00	1,595.21	1,568.92	1,568.21	5.66	47.01	-88.67	1,151.18	2,111.59	2,400.73	2,348.05	52.67	45.577	
1,700.00	1,694.68	1,668.39	1,667.68	6.04	49.99	-88.92	1,151.18	2,111.59	2,400.51	2,344.48	56.03	42.841	
1,750.40	1,744.81	1,718.52	1,717.81	6.23	51.49	-89.04	1,151.18	2,111.59	2,400.41	2,342.69	57.73	41.583	
1,800.00	1,794.15	1,769.60	1,768.85	6.42	53.03	-89.21	1,153.35	2,111.59	2,401.46	2,342.02	59.44	40.399	
1,900.00	1,893.62	1,878.78	1,878.01	6.80	56.30	-89.46	1,152.78	2,111.59	2,401.07	2,337.98	63.09	38.055	
2,000.00	1,993.09	1,988.14	1,987.33	7.18	59.57	-89.70	1,151.38	2,111.59	2,400.32	2,333.57	66.75	35.960	
2,032.55	2,025.47	2,023.78	2,022.95	7.30	60.64	-89.78	1,150.74	2,111.59	2,399.99	2,332.05	67.94	35.325	
2,100.00	2,092.56	2,066.57	2,065.56	7.56	61.92	-89.89	1,151.18	2,111.59	2,400.08	2,330.59	69.48	34.542	
2,144.00	2,136.32	2,110.34	2,109.32	7.73	63.24	-90.00	1,151.18	2,111.59	2,400.07	2,329.11	70.96	33.822	
2,200.00	2,192.03	2,166.04	2,165.03	7.94	64.90	-90.14	1,151.18	2,111.59	2,400.08	2,327.24	72.84	32.948	
2,300.00	2,291.50	2,267.08	2,266.03	8.32	67.93	-90.43	1,153.35	2,111.59	2,401.30	2,325.05	76.25	31.491	
2,400.00	2,390.97	2,376.63	2,375.55	8.70	71.21	-90.69	1,152.80	2,111.59	2,401.12	2,321.21	79.92	30.046	
2,500.00	2,490.44	2,486.35	2,485.24	9.08	74.50	-90.93	1,151.41	2,111.59	2,400.58	2,316.99	83.58	28.721	
2,534.00	2,524.26	2,523.70	2,522.57	9.21	75.62	-91.01	1,150.74	2,111.59	2,400.30	2,315.47	84.83	28.295	
2,600.00	2,589.91	2,564.23	2,562.91	9.47	76.84	-91.11	1,151.18	2,111.59	2,400.53	2,314.23	86.30	27.816	
2,700.00	2,689.38	2,663.70	2,662.38	9.85	79.82	-91.36	1,151.18	2,111.59	2,400.75	2,311.09	89.66	26.775	
2,800.00	2,788.85	2,764.55	2,763.19	10.23	82.84	-91.65	1,153.35	2,111.59	2,402.23	2,309.16	93.07	25.811	
2,900.00	2,888.32	2,874.46	2,873.08	10.61	86.13	-91.91	1,152.82	2,111.59	2,402.28	2,305.54	96.74	24.832	
3,000.00	2,987.79	2,984.55	2,983.13	11.00	89.43	-92.15	1,151.44	2,111.59	2,401.94	2,301.51	100.42	23.919	
3,034.00	3,021.60	3,022.02	3,020.59	11.13	90.55	-92.23	1,150.78	2,111.59	2,401.73	2,300.06	101.67	23.622	
3,100.00	3,087.25	3,061.88	3,060.25	11.38	91.75	-92.33	1,151.18	2,111.59	2,402.09	2,298.96	103.13	23.293	
3,200.00	3,186.72	3,161.35	3,159.72	11.76	94.73	-92.58	1,151.18	2,111.59	2,402.53	2,296.04	106.49	22.561	
3,300.00	3,286.19	3,262.00	3,260.33	12.15	97.74	-92.87	1,153.36	2,111.59	2,404.27	2,294.38	109.89	21.879	
3,400.00	3,385.66	3,372.27	3,370.59	12.53	101.05	-93.13	1,152.84	2,111.59	2,404.53	2,290.96	113.57	21.172	
3,500.00	3,485.13	3,482.73	3,481.01	12.91	104.36	-93.37	1,151.47	2,111.59	2,404.40	2,287.13	117.26	20.504	
3,540.10	3,525.02	3,527.08	3,525.34	13.07	105.69	-93.46	1,150.68	2,111.59	2,404.23	2,285.48	118.74	20.247	
3,600.00	3,584.60	3,559.53	3,557.60	13.30	106.66	-93.55	1,151.18	2,111.59	2,404.74	2,284.79	119.95	20.048	
3,700.00	3,684.07	3,659.00	3,657.07	13.68	109.64	-93.79	1,151.18	2,111.59	2,405.40	2,282.09	123.31	19.506	
3,800.00	3,783.54	3,759.43	3,757.46	14.06	112.65	-94.08	1,153.36	2,111.59	2,407.40	2,280.69	126.71	19.000	
3,900.00	3,883.01	3,870.08	3,868.09	14.45	115.97	-94.34	1,152.86	2,111.59	2,407.89	2,277.48	130.40	18.465	
4,000.00	3,982.48	3,980.91	3,978.88	14.83	119.29	-94.59	1,151.50	2,111.59	2,407.95	2,273.85	134.10	17.956	
4,042.40	4,024.66	4,027.95	4,025.91	14.99	120.70	-94.69	1,150.66	2,111.59	2,407.85	2,272.18	135.67	17.748	
4,100.00	4,081.95	4,057.19	4,054.95	15.22	121.57	-94.77	1,151.18	2,111.59	2,408.49	2,271.71	136.78	17.609	

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 705H
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 705H	**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 #3	**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
4,200.00	4,181.42	4,156.65	4,154.42	15.60	124.55	-95.01	1,151.18	2,111.59	2,409.37	2,269.23	140.14	17.193	
4,300.00	4,280.89	4,256.85	4,254.57	15.98	127.55	-95.29	1,153.36	2,111.59	2,411.62	2,268.10	143.53	16.803	
4,400.00	4,380.36	4,367.86	4,365.57	16.37	130.88	-95.55	1,152.88	2,111.59	2,412.33	2,265.10	147.23	16.384	
4,500.00	4,479.83	4,479.07	4,476.74	16.75	134.21	-95.80	1,151.53	2,111.59	2,412.60	2,261.66	150.94	15.984	
4,600.00	4,579.30	4,554.84	4,552.30	17.14	136.48	-95.98	1,151.18	2,111.59	2,413.33	2,259.72	153.60	15.712	
4,700.00	4,678.77	4,654.31	4,651.77	17.52	139.46	-96.22	1,151.18	2,111.59	2,414.43	2,257.46	156.97	15.382	
4,800.00	4,778.24	4,754.24	4,751.67	17.90	142.46	-96.50	1,153.36	2,111.59	2,416.93	2,256.59	160.34	15.074	
4,900.00	4,877.71	4,865.64	4,863.04	18.29	145.80	-96.76	1,152.89	2,111.59	2,417.86	2,253.80	164.06	14.738	
5,000.00	4,977.18	4,977.22	4,974.59	18.67	149.14	-97.01	1,151.56	2,111.59	2,418.34	2,250.56	167.78	14.414	
5,100.00	5,076.65	5,052.49	5,049.65	19.06	151.40	-97.18	1,151.18	2,111.59	2,419.25	2,248.82	170.43	14.195	
5,200.00	5,176.12	5,151.96	5,149.12	19.44	154.38	-97.42	1,151.18	2,111.59	2,420.56	2,246.77	173.79	13.928	
5,300.00	5,275.59	5,251.62	5,248.74	19.83	157.36	-97.70	1,153.36	2,111.59	2,423.32	2,246.16	177.16	13.679	
5,400.00	5,375.06	5,363.39	5,360.49	20.21	160.71	-97.96	1,152.91	2,111.59	2,424.47	2,243.58	180.89	13.403	
5,500.00	5,474.53	5,475.35	5,472.42	20.59	164.07	-98.21	1,151.59	2,111.59	2,425.15	2,240.53	184.62	13.136	
5,600.00	5,574.00	5,550.14	5,547.00	20.98	166.31	-98.38	1,151.18	2,111.59	2,426.25	2,239.00	187.25	12.957	
5,700.00	5,673.47	5,649.61	5,646.47	21.36	169.29	-98.62	1,151.18	2,111.59	2,427.78	2,237.16	190.61	12.737	
5,800.00	5,772.94	5,749.08	5,745.94	21.75	172.27	-98.86	1,151.18	2,111.59	2,429.35	2,235.37	193.98	12.524	
5,900.00	5,872.41	5,861.14	5,857.93	22.13	175.63	-99.16	1,152.93	2,111.59	2,432.15	2,234.44	197.71	12.301	
6,000.00	5,971.88	5,973.48	5,970.24	22.52	178.99	-99.40	1,151.62	2,111.59	2,433.04	2,231.58	201.45	12.077	
6,100.00	6,071.35	6,047.80	6,044.35	22.90	181.22	-99.57	1,151.18	2,111.59	2,434.31	2,230.24	204.07	11.929	
6,200.00	6,170.81	6,147.27	6,143.81	23.28	184.20	-99.81	1,151.18	2,111.59	2,436.05	2,228.62	207.43	11.744	
6,300.00	6,270.28	6,246.74	6,243.28	23.67	187.18	-100.05	1,151.18	2,111.59	2,437.84	2,227.04	210.80	11.565	
6,375.94	6,345.82	6,331.77	6,328.26	23.96	189.73	-100.28	1,153.13	2,111.59	2,440.55	2,226.92	213.63	11.424	
6,400.00	6,369.72	6,358.83	6,355.32	24.05	190.54	-85.88	1,152.95	2,111.59	2,440.55	2,226.02	214.54	11.376	
6,450.00	6,419.09	6,414.75	6,411.22	24.25	192.21	-70.08	1,152.41	2,111.59	2,438.34	2,221.93	216.41	11.267	
6,500.00	6,467.78	6,469.95	6,466.41	24.46	193.87	-63.01	1,151.67	2,111.59	2,433.16	2,214.90	218.26	11.148	
6,550.00	6,515.51	6,524.10	6,520.54	24.67	195.49	-59.55	1,150.74	2,111.59	2,425.10	2,205.01	220.09	11.019	
6,600.00	6,561.97	6,538.73	6,534.97	24.88	195.93	-57.65	1,151.18	2,111.59	2,415.00	2,194.24	220.76	10.939	
6,650.00	6,606.89	6,583.65	6,579.89	25.10	197.28	-57.08	1,151.18	2,111.59	2,402.23	2,179.90	222.33	10.805	
6,700.00	6,649.98	6,626.74	6,622.98	25.32	198.57	-57.27	1,151.18	2,111.59	2,387.02	2,163.18	223.85	10.664	
6,750.00	6,690.98	6,667.74	6,663.98	25.54	199.80	-58.06	1,151.18	2,111.59	2,369.53	2,144.22	225.31	10.517	
6,800.00	6,729.64	6,706.39	6,702.64	25.77	200.95	-59.35	1,151.18	2,111.59	2,349.92	2,123.22	226.70	10.366	
6,850.00	6,765.71	6,742.46	6,738.71	26.00	202.03	-61.06	1,151.18	2,111.59	2,328.39	2,100.36	228.02	10.211	
6,900.00	6,798.98	6,779.22	6,775.42	26.24	203.14	-63.25	1,153.33	2,111.59	2,306.72	2,077.34	229.37	10.057	
6,950.00	6,829.24	6,813.57	6,809.76	26.49	204.17	-65.77	1,153.22	2,111.59	2,281.92	2,051.26	230.66	9.893	
7,000.00	6,856.30	6,844.31	6,840.50	26.76	205.09	-68.58	1,153.05	2,111.59	2,255.82	2,023.98	231.84	9.730	
7,050.00	6,880.00	6,871.24	6,867.42	27.03	205.89	-71.64	1,152.85	2,111.59	2,228.67	1,995.75	232.92	9.568	
7,100.00	6,900.19	6,894.19	6,890.37	27.32	206.58	-74.89	1,152.63	2,111.59	2,200.73	1,966.84	233.89	9.409	
7,150.00	6,916.74	6,913.02	6,909.19	27.62	207.15	-78.24	1,152.43	2,111.59	2,172.25	1,937.51	234.74	9.254	
7,200.00	6,929.56	6,927.60	6,923.77	27.93	207.58	-81.63	1,152.26	2,111.59	2,143.49	1,908.01	235.48	9.103	
7,250.00	6,938.57	6,937.85	6,934.01	28.26	207.89	-84.99	1,152.13	2,111.59	2,114.70	1,878.60	236.10	8.957	
7,300.00	6,943.70	6,943.69	6,939.86	28.60	208.06	-88.25	1,152.05	2,111.59	2,086.11	1,849.51	236.60	8.817	
7,340.76	6,945.00	6,945.17	6,941.34	28.88	208.11	-90.78	1,152.03	2,111.59	2,063.11	1,826.19	236.92	8.708	
7,400.00	6,945.00	6,945.18	6,941.34	29.31	208.11	-90.78	1,152.03	2,111.59	2,030.53	1,793.20	237.34	8.555	
7,500.00	6,945.00	6,945.18	6,941.35	30.09	208.11	-90.78	1,152.03	2,111.59	1,978.35	1,740.25	238.10	8.309	
7,600.00	6,945.00	6,945.19	6,941.35	30.93	208.11	-90.78	1,152.03	2,111.59	1,929.94	1,691.00	238.95	8.077	
7,700.00	6,945.00	6,945.20	6,941.36	31.83	208.11	-90.78	1,152.03	2,111.59	1,885.60	1,645.74	239.86	7.861	
7,800.00	6,945.00	6,945.20	6,941.36	32.79	208.11	-90.78	1,152.03	2,111.59	1,845.62	1,604.78	240.84	7.663	
7,900.00	6,945.00	6,945.21	6,941.37	33.79	208.11	-90.78	1,152.03	2,111.59	1,810.28	1,568.41	241.87	7.484	
8,000.00	6,945.00	6,945.21	6,941.38	34.84	208.11	-90.78	1,152.03	2,111.59	1,779.87	1,536.92	242.95	7.326	
8,100.00	6,945.00	6,945.22	6,941.38	35.93	208.11	-90.78	1,152.03	2,111.59	1,754.64	1,510.59	244.04	7.190	
8,200.00	6,945.00	6,945.23	6,941.39	37.06	208.11	-90.78	1,152.03	2,111.59	1,734.81	1,489.66	245.15	7.077	

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 705H
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 705H	**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 #3	**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
8,300.00	6,945.00	6,945.23	6,941.39	38.23	208.11	-90.78	1,152.03	2,111.59	1,720.57	1,474.33	246.24	6.987	
8,400.00	6,945.00	6,945.24	6,941.40	39.42	208.11	-90.78	1,152.03	2,111.59	1,712.07	1,464.77	247.30	6.923	
8,495.94	6,945.00	6,945.24	6,941.41	40.60	208.11	-90.78	1,152.03	2,111.59	1,709.38	1,461.11	248.27	6.885 CC	
8,500.00	6,945.00	6,945.24	6,941.41	40.65	208.11	-90.78	1,152.03	2,111.59	1,709.38	1,461.08	248.31	6.884 ES	
8,600.00	6,945.00	6,945.25	6,941.41	41.90	208.11	-90.78	1,152.03	2,111.59	1,712.54	1,463.30	249.25	6.871 SF	
8,700.00	6,945.00	6,945.26	6,941.42	43.17	208.11	-90.78	1,152.03	2,111.59	1,721.52	1,471.41	250.11	6.883	
8,800.00	6,945.00	6,945.26	6,941.42	44.46	208.11	-90.79	1,152.03	2,111.59	1,736.21	1,485.33	250.88	6.920	
8,900.00	6,945.00	6,945.27	6,941.43	45.78	208.11	-90.79	1,152.03	2,111.59	1,756.49	1,504.93	251.56	6.982	
9,000.00	6,945.00	6,945.27	6,941.43	47.11	208.11	-90.79	1,152.03	2,111.59	1,782.15	1,530.01	252.14	7.068	
9,100.00	6,945.00	6,945.28	6,941.44	48.46	208.11	-90.79	1,152.03	2,111.59	1,812.97	1,560.35	252.62	7.177	
9,200.00	6,945.00	6,945.29	6,941.45	49.82	208.11	-90.79	1,152.03	2,111.59	1,848.70	1,595.69	253.01	7.307	
9,300.00	6,945.00	6,945.29	6,941.45	51.20	208.11	-90.79	1,152.03	2,111.59	1,889.05	1,635.74	253.31	7.458	
9,400.00	6,945.00	6,945.30	6,941.46	52.59	208.11	-90.79	1,152.03	2,111.59	1,933.73	1,680.20	253.53	7.627	
9,500.00	6,945.00	6,945.30	6,941.46	53.99	208.11	-90.79	1,152.03	2,111.59	1,982.45	1,728.77	253.68	7.815	
9,600.00	6,945.00	6,945.31	6,941.47	55.40	208.11	-90.79	1,152.03	2,111.59	2,034.93	1,781.16	253.76	8.019	
9,700.00	6,945.00	6,945.31	6,941.48	56.83	208.11	-90.79	1,152.03	2,111.59	2,090.87	1,837.08	253.80	8.238	
9,800.00	6,945.00	6,945.32	6,941.48	58.26	208.11	-90.79	1,152.03	2,111.59	2,150.01	1,896.23	253.78	8.472	
9,900.00	6,945.00	6,945.33	6,941.49	59.70	208.11	-90.79	1,152.03	2,111.59	2,212.10	1,958.37	253.73	8.718	
10,000.00	6,945.00	6,945.33	6,941.49	61.15	208.11	-90.79	1,152.03	2,111.59	2,276.88	2,023.24	253.64	8.977	
10,100.00	6,945.00	6,945.34	6,941.50	62.61	208.11	-90.79	1,152.03	2,111.59	2,344.14	2,090.61	253.53	9.246	
10,200.00	6,945.00	6,945.34	6,941.51	64.07	208.11	-90.79	1,152.03	2,111.59	2,413.67	2,160.27	253.40	9.525	
10,300.00	6,945.00	6,945.35	6,941.51	65.54	208.11	-90.79	1,152.03	2,111.59	2,485.28	2,232.03	253.25	9.814	
10,400.00	6,945.00	6,945.36	6,941.52	67.02	208.11	-90.79	1,152.03	2,111.59	2,558.79	2,305.70	253.09	10.110	
10,500.00	6,945.00	6,945.36	6,941.52	68.50	208.11	-90.79	1,152.03	2,111.59	2,634.05	2,381.13	252.92	10.414	
10,600.00	6,945.00	6,945.37	6,941.53	69.99	208.11	-90.79	1,152.03	2,111.59	2,710.91	2,458.16	252.75	10.726	
10,700.00	6,945.00	6,945.37	6,941.54	71.48	208.11	-90.79	1,152.03	2,111.59	2,789.24	2,536.67	252.57	11.043	
10,800.00	6,945.00	6,945.38	6,941.54	72.98	208.12	-90.79	1,152.03	2,111.59	2,868.92	2,616.52	252.39	11.367	
10,900.00	6,945.00	6,945.39	6,941.55	74.48	208.12	-90.79	1,152.03	2,111.59	2,949.83	2,697.61	252.22	11.696	
11,000.00	6,945.00	6,945.39	6,941.55	75.99	208.12	-90.79	1,152.03	2,111.59	3,031.88	2,779.84	252.04	12.029	
11,100.00	6,945.00	6,945.40	6,941.56	77.50	208.12	-90.79	1,152.03	2,111.59	3,114.98	2,863.12	251.87	12.368	
11,200.00	6,945.00	6,945.40	6,941.57	79.01	208.12	-90.79	1,152.03	2,111.59	3,199.05	2,947.36	251.70	12.710	
11,300.00	6,945.00	6,945.41	6,941.57	80.53	208.12	-90.79	1,152.03	2,111.59	3,284.01	3,032.48	251.53	13.056	
11,400.00	6,945.00	6,945.42	6,941.58	82.05	208.12	-90.79	1,152.03	2,111.59	3,369.80	3,118.43	251.37	13.406	
11,500.00	6,945.00	6,945.42	6,941.58	83.57	208.12	-90.79	1,152.03	2,111.59	3,456.35	3,205.14	251.21	13.759	
11,600.00	6,945.00	6,945.43	6,941.59	85.10	208.12	-90.79	1,152.03	2,111.59	3,543.61	3,292.55	251.06	14.115	
11,700.00	6,945.00	6,945.43	6,941.60	86.63	208.12	-90.79	1,152.03	2,111.59	3,631.53	3,380.62	250.91	14.474	
11,800.00	6,945.00	6,945.44	6,941.60	88.16	208.12	-90.79	1,152.03	2,111.59	3,720.05	3,469.29	250.77	14.835	
11,900.00	6,945.00	6,945.45	6,941.61	89.69	208.12	-90.79	1,152.03	2,111.59	3,809.15	3,558.52	250.63	15.198	
12,000.00	6,945.00	6,945.45	6,941.61	91.23	208.12	-90.79	1,152.03	2,111.59	3,898.77	3,648.27	250.50	15.564	
12,100.00	6,945.00	6,945.46	6,941.62	92.77	208.12	-90.79	1,152.03	2,111.59	3,988.89	3,738.52	250.37	15.932	
12,200.00	6,945.00	6,945.46	6,941.63	94.31	208.12	-90.79	1,152.03	2,111.59	4,079.47	3,829.21	250.25	16.301	
12,300.00	6,945.00	6,945.47	6,941.63	95.85	208.12	-90.79	1,152.03	2,111.59	4,170.47	3,920.34	250.14	16.673	
12,400.00	6,945.00	6,945.48	6,941.64	97.40	208.12	-90.79	1,152.03	2,111.59	4,261.89	4,011.86	250.03	17.046	
12,500.00	6,945.00	6,945.48	6,941.64	98.95	208.12	-90.79	1,152.03	2,111.59	4,353.67	4,103.75	249.92	17.420	
12,600.00	6,945.00	6,945.49	6,941.65	100.50	208.12	-90.79	1,152.03	2,111.59	4,445.82	4,196.00	249.82	17.796	
12,700.00	6,945.00	6,945.49	6,941.66	102.05	208.12	-90.79	1,152.03	2,111.59	4,538.29	4,288.57	249.73	18.173	
12,800.00	6,945.00	6,945.50	6,941.66	103.60	208.12	-90.79	1,152.03	2,111.59	4,631.08	4,381.45	249.64	18.551	
12,900.00	6,945.00	6,945.51	6,941.67	105.15	208.12	-90.79	1,152.03	2,111.59	4,724.16	4,474.61	249.55	18.931	
13,000.00	6,945.00	6,945.51	6,941.67	106.71	208.12	-90.79	1,152.03	2,111.59	4,817.52	4,568.06	249.47	19.311	
13,100.00	6,945.00	6,945.52	6,941.68	108.26	208.12	-90.79	1,152.03	2,111.59	4,911.15	4,661.75	249.39	19.692	
13,200.00	6,945.00	6,945.52	6,941.68	109.82	208.12	-90.79	1,152.03	2,111.59	5,005.01	4,755.69	249.32	20.075	
13,300.00	6,945.00	6,945.53	6,941.69	111.38	208.12	-90.79	1,152.03	2,111.59	5,099.12	4,849.87	249.25	20.458	

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 705H
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 705H	**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 #3	**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
13,400.00	6,945.00	6,945.54	6,941.70	112.94	208.12	-90.79	1,152.03	2,111.59	5,193.44	4,944.25	249.19	20.842	
13,500.00	6,945.00	6,945.54	6,941.70	114.50	208.12	-90.79	1,152.03	2,111.59	5,287.97	5,038.84	249.13	21.226	
13,600.00	6,945.00	6,945.55	6,941.71	116.07	208.12	-90.79	1,152.02	2,111.59	5,382.70	5,133.63	249.07	21.611	
13,700.00	6,945.00	6,945.55	6,941.71	117.63	208.12	-90.79	1,152.02	2,111.59	5,477.61	5,228.60	249.01	21.997	
13,800.00	6,945.00	6,945.56	6,941.72	119.19	208.12	-90.80	1,152.02	2,111.59	5,572.71	5,323.74	248.96	22.384	
13,900.00	6,945.00	6,945.56	6,941.73	120.76	208.12	-90.80	1,152.02	2,111.59	5,667.97	5,419.05	248.92	22.770	
14,000.00	6,945.00	6,945.57	6,941.73	122.33	208.12	-90.80	1,152.02	2,111.59	5,763.39	5,514.52	248.87	23.158	
14,100.00	6,945.00	6,945.58	6,941.74	123.90	208.12	-90.80	1,152.02	2,111.59	5,858.97	5,610.13	248.83	23.546	
14,200.00	6,945.00	6,945.58	6,941.74	125.46	208.12	-90.80	1,152.02	2,111.59	5,954.69	5,705.89	248.80	23.934	
14,300.00	6,945.00	6,945.59	6,941.75	127.03	208.12	-90.80	1,152.02	2,111.59	6,050.55	5,801.78	248.76	24.322	
14,400.00	6,945.00	6,945.59	6,941.76	128.60	208.12	-90.80	1,152.02	2,111.59	6,146.54	5,897.80	248.73	24.711	
14,500.00	6,945.00	6,945.60	6,941.76	130.18	208.12	-90.80	1,152.02	2,111.59	6,242.65	5,993.95	248.70	25.101	
14,600.00	6,945.00	6,945.61	6,941.77	131.75	208.12	-90.80	1,152.02	2,111.59	6,338.89	6,090.21	248.68	25.490	
14,700.00	6,945.00	6,945.61	6,941.77	133.32	208.12	-90.80	1,152.02	2,111.59	6,435.24	6,186.59	248.66	25.880	
14,800.00	6,945.00	6,945.62	6,941.78	134.89	208.12	-90.80	1,152.02	2,111.59	6,531.70	6,283.07	248.64	26.270	
14,900.00	6,945.00	6,945.62	6,941.79	136.47	208.12	-90.80	1,152.02	2,111.59	6,628.27	6,379.65	248.62	26.660	
15,000.00	6,945.00	6,945.63	6,941.79	138.04	208.12	-90.80	1,152.02	2,111.59	6,724.94	6,476.33	248.60	27.051	
15,100.00	6,945.00	6,945.64	6,941.80	139.62	208.12	-90.80	1,152.02	2,111.59	6,821.70	6,573.11	248.59	27.442	
15,200.00	6,945.00	6,945.64	6,941.80	141.20	208.12	-90.80	1,152.02	2,111.59	6,918.56	6,669.98	248.58	27.832	
15,300.00	6,945.00	6,945.65	6,941.81	142.77	208.12	-90.80	1,152.02	2,111.59	7,015.50	6,766.93	248.57	28.223	
15,400.00	6,945.00	6,945.65	6,941.82	144.35	208.12	-90.80	1,152.02	2,111.59	7,112.53	6,863.96	248.57	28.614	
15,500.00	6,945.00	6,945.66	6,941.82	145.93	208.12	-90.80	1,152.02	2,111.59	7,209.64	6,961.07	248.56	29.005	
15,600.00	6,945.00	6,945.67	6,941.83	147.51	208.12	-90.80	1,152.02	2,111.59	7,306.82	7,058.26	248.56	29.397	
15,700.00	6,945.00	6,945.67	6,941.83	149.09	208.12	-90.80	1,152.02	2,111.59	7,404.09	7,155.52	248.56	29.788	
15,800.00	6,945.00	6,945.68	6,941.84	150.67	208.12	-90.80	1,152.02	2,111.59	7,501.42	7,252.86	248.56	30.179	
15,900.00	6,945.00	6,945.68	6,941.85	152.25	208.12	-90.80	1,152.02	2,111.59	7,598.82	7,350.26	248.57	30.571	
16,000.00	6,945.00	6,945.69	6,941.85	153.83	208.12	-90.80	1,152.02	2,111.59	7,696.29	7,447.72	248.57	30.962	
16,100.00	6,945.00	6,945.70	6,941.86	155.41	208.12	-90.80	1,152.02	2,111.59	7,793.83	7,545.25	248.58	31.353	
16,200.00	6,945.00	6,945.70	6,941.86	156.99	208.12	-90.80	1,152.02	2,111.59	7,891.42	7,642.83	248.59	31.745	
16,300.00	6,945.00	6,945.71	6,941.87	158.57	208.12	-90.80	1,152.02	2,111.59	7,989.08	7,740.48	248.60	32.136	
16,400.00	6,945.00	6,945.71	6,941.88	160.15	208.13	-90.80	1,152.02	2,111.59	8,086.79	7,838.17	248.61	32.527	
16,500.00	6,945.00	6,945.72	6,941.88	161.74	208.13	-90.80	1,152.02	2,111.59	8,184.56	7,935.93	248.63	32.919	
16,600.00	6,945.00	6,945.73	6,941.89	163.32	208.13	-90.80	1,152.02	2,111.59	8,282.38	8,033.73	248.65	33.310	
16,700.00	6,945.00	6,945.73	6,941.89	164.90	208.13	-90.80	1,152.02	2,111.59	8,380.25	8,131.59	248.66	33.701	
16,800.00	6,945.00	6,945.74	6,941.90	166.49	208.13	-90.80	1,152.02	2,111.59	8,478.17	8,229.49	248.68	34.092	
16,900.00	6,945.00	6,945.74	6,941.91	168.07	208.13	-90.80	1,152.02	2,111.59	8,576.14	8,327.44	248.71	34.483	
17,000.00	6,945.00	6,945.75	6,941.91	169.66	208.13	-90.80	1,152.02	2,111.59	8,674.16	8,425.43	248.73	34.874	
17,100.00	6,945.00	6,945.76	6,941.92	171.24	208.13	-90.80	1,152.02	2,111.59	8,772.22	8,523.47	248.75	35.265	
17,200.00	6,945.00	6,945.76	6,941.92	172.83	208.13	-90.80	1,152.02	2,111.59	8,870.32	8,621.55	248.78	35.656	
17,300.00	6,945.00	6,945.77	6,941.93	174.41	208.13	-90.80	1,152.02	2,111.59	8,968.47	8,719.67	248.80	36.046	
17,400.00	6,945.00	6,945.77	6,941.94	176.00	208.13	-90.80	1,152.02	2,111.59	9,066.66	8,817.83	248.83	36.437	
17,500.00	6,945.00	6,945.78	6,941.94	177.59	208.13	-90.80	1,152.02	2,111.59	9,164.88	8,916.02	248.86	36.827	
17,600.00	6,945.00	6,945.79	6,941.95	179.17	208.13	-90.80	1,152.02	2,111.59	9,263.15	9,014.25	248.89	37.217	
17,700.00	6,945.00	6,945.79	6,941.95	180.76	208.13	-90.80	1,152.02	2,111.59	9,361.45	9,112.52	248.93	37.607	
17,800.00	6,945.00	6,945.80	6,941.96	182.35	208.13	-90.80	1,152.02	2,111.59	9,459.79	9,210.83	248.96	37.997	
17,900.00	6,945.00	6,945.80	6,941.97	183.93	208.13	-90.80	1,152.02	2,111.59	9,558.16	9,309.16	248.99	38.387	
18,000.00	6,945.00	6,945.81	6,941.97	185.52	208.13	-90.80	1,152.02	2,111.59	9,656.56	9,407.53	249.03	38.777	
18,100.00	6,945.00	6,945.82	6,941.98	187.11	208.13	-90.80	1,152.02	2,111.59	9,755.00	9,505.93	249.07	39.166	
18,200.00	6,945.00	6,945.82	6,941.98	188.70	208.13	-90.80	1,152.02	2,111.59	9,853.47	9,604.36	249.11	39.555	
18,300.00	6,945.00	6,945.83	6,941.99	190.29	208.13	-90.80	1,152.02	2,111.59	9,951.96	9,702.82	249.14	39.944	
18,400.00	6,945.00	6,945.83	6,942.00	191.88	208.13	-90.80	1,152.02	2,111.59	10,050.49	9,801.31	249.19	40.333	
18,500.00	6,945.00	6,945.84	6,942.00	193.46	208.13	-90.80	1,152.02	2,111.59	10,149.05	9,899.82	249.23	40.722	

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 705H
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 705H	**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 #3	**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)	Rule Assigned: Distance Between Centres (usft)	Rule Assigned: Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
18,600.00	6,945.00	6,945.85	6,942.01	195.05	208.13	-90.80	1,152.02	2,111.59	10,247.64	9,998.37	249.27	41.111	
18,700.00	6,945.00	6,945.85	6,942.01	196.64	208.13	-90.80	1,152.02	2,111.59	10,346.25	10,096.93	249.31	41.499	
18,800.00	6,945.00	6,945.86	6,942.02	198.23	208.13	-90.81	1,152.02	2,111.59	10,444.89	10,195.53	249.36	41.887	
18,900.00	6,945.00	6,945.86	6,942.02	199.82	208.13	-90.81	1,152.02	2,111.59	10,543.55	10,294.15	249.41	42.275	
19,000.00	6,945.00	6,945.87	6,942.03	201.41	208.13	-90.81	1,152.02	2,111.59	10,642.24	10,392.79	249.45	42.662	
19,100.00	6,945.00	6,945.88	6,942.04	203.00	208.13	-90.81	1,152.02	2,111.59	10,740.95	10,491.45	249.50	43.050	
19,200.00	6,945.00	6,945.88	6,942.04	204.60	208.13	-90.81	1,152.02	2,111.59	10,839.69	10,590.14	249.55	43.437	
19,300.00	6,945.00	6,945.89	6,942.05	206.19	208.13	-90.81	1,152.02	2,111.59	10,938.45	10,688.85	249.60	43.824	
19,400.00	6,945.00	6,945.89	6,942.05	207.78	208.13	-90.81	1,152.02	2,111.59	11,037.23	10,787.58	249.65	44.211	
19,500.00	6,945.00	6,945.90	6,942.06	209.37	208.13	-90.81	1,152.02	2,111.59	11,136.04	10,886.34	249.70	44.597	
19,600.00	6,945.00	6,945.91	6,942.07	210.96	208.13	-90.81	1,152.02	2,111.59	11,234.86	10,985.11	249.76	44.983	
19,700.00	6,945.00	6,945.91	6,942.07	212.55	208.13	-90.81	1,152.02	2,111.59	11,333.71	11,083.90	249.81	45.369	
19,800.00	6,945.00	6,945.92	6,942.08	214.14	208.13	-90.81	1,152.02	2,111.59	11,432.58	11,182.71	249.86	45.755	
19,900.00	6,945.00	6,945.92	6,942.08	215.74	208.13	-90.81	1,152.02	2,111.59	11,531.46	11,281.54	249.92	46.141	
20,000.00	6,945.00	6,945.93	6,942.09	217.33	208.13	-90.81	1,152.02	2,111.59	11,630.37	11,380.39	249.98	46.526	
20,100.00	6,945.00	6,945.94	6,942.10	218.92	208.13	-90.81	1,152.02	2,111.59	11,729.29	11,479.26	250.03	46.911	
20,200.00	6,945.00	6,945.94	6,942.10	220.51	208.13	-90.81	1,152.02	2,111.59	11,828.23	11,578.14	250.09	47.296	
20,300.00	6,945.00	6,945.95	6,942.11	222.11	208.13	-90.81	1,152.02	2,111.59	11,927.19	11,677.04	250.15	47.680	
20,400.00	6,945.00	6,945.95	6,942.11	223.70	208.13	-90.81	1,152.02	2,111.59	12,026.17	11,775.96	250.21	48.064	
20,500.00	6,945.00	6,945.96	6,942.12	225.29	208.13	-90.81	1,152.02	2,111.59	12,125.16	11,874.89	250.27	48.448	
20,600.00	6,945.00	6,945.97	6,942.13	226.88	208.13	-90.81	1,152.02	2,111.59	12,224.17	11,973.84	250.33	48.832	
20,700.00	6,945.00	6,945.97	6,942.13	228.48	208.13	-90.81	1,152.02	2,111.59	12,323.19	12,072.80	250.39	49.215	
20,741.48	6,945.00	6,945.97	6,942.14	229.14	208.13	-90.81	1,152.02	2,111.59	12,364.27	12,113.85	250.42	49.374	

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 705H
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 705H	**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 #3	**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
0.00	0.00	481.00	481.00	0.00	14.41	81.51	1,595.99	10,688.62	10,807.11				
100.00	100.00	581.10	581.00	0.25	17.41	81.51	1,595.99	10,688.62	10,807.11	10,789.45	17.66	611.838	
200.00	200.00	681.10	681.00	0.61	20.41	81.51	1,595.99	10,688.62	10,807.11	10,786.09	21.02	514.177	
300.00	300.00	785.04	784.89	0.97	23.52	81.50	1,598.13	10,688.62	10,807.43	10,782.94	24.49	441.279	
400.00	400.00	897.66	897.49	1.33	26.90	81.50	1,597.41	10,688.62	10,807.33	10,779.11	28.22	382.910	
500.00	500.00	1,010.31	1,010.10	1.68	30.27	81.51	1,595.80	10,688.62	10,807.12	10,775.17	31.96	338.164	
600.00	599.98	1,081.39	1,080.98	2.03	32.40	-66.25	1,595.99	10,688.62	10,806.41	10,771.98	34.43	313.860	
700.00	699.84	1,181.24	1,180.84	2.37	35.40	-66.31	1,595.99	10,688.62	10,804.30	10,766.54	37.76	286.145	
795.17	794.65	1,279.38	1,278.93	2.69	38.34	-66.42	1,598.14	10,688.62	10,801.32	10,760.29	41.03	263.271	
800.00	799.45	1,284.80	1,284.35	2.71	38.50	-66.43	1,598.13	10,688.62	10,801.12	10,759.91	41.21	262.118	
900.00	898.92	1,397.04	1,396.57	3.06	41.86	-66.48	1,597.41	10,688.62	10,796.89	10,751.97	44.92	240.338	
1,000.00	998.39	1,509.47	1,508.96	3.43	45.23	-66.53	1,595.82	10,688.62	10,792.56	10,743.91	48.65	221.830	
1,100.00	1,097.86	1,579.57	1,578.86	3.79	47.33	-66.56	1,595.99	10,688.62	10,788.43	10,737.32	51.12	211.052	
1,200.00	1,197.33	1,679.04	1,678.33	4.16	50.31	-66.61	1,595.99	10,688.62	10,784.33	10,729.86	54.47	198.003	
1,300.00	1,296.80	1,782.27	1,781.51	4.53	53.40	-66.68	1,598.13	10,688.62	10,780.56	10,722.63	57.93	186.101	
1,400.00	1,396.27	1,894.89	1,894.11	4.91	56.78	-66.73	1,597.44	10,688.62	10,776.38	10,714.70	61.68	174.728	
1,500.00	1,495.74	2,007.70	2,006.89	5.28	60.16	-66.78	1,595.85	10,688.62	10,772.08	10,706.65	65.43	164.639	
1,600.00	1,595.21	2,077.23	2,076.21	5.66	62.24	-66.81	1,595.99	10,688.62	10,767.99	10,700.10	67.89	158.616	
1,700.00	1,694.68	2,176.69	2,175.68	6.04	65.22	-66.86	1,595.99	10,688.62	10,763.93	10,692.68	71.24	151.087	
1,800.00	1,794.15	2,279.71	2,278.66	6.42	68.31	-66.93	1,598.14	10,688.62	10,760.21	10,685.50	74.71	144.032	
1,900.00	1,893.62	2,392.72	2,391.64	6.80	71.70	-66.98	1,597.46	10,688.62	10,756.07	10,677.60	78.47	137.072	
2,000.00	1,993.09	2,505.92	2,504.80	7.18	75.09	-67.03	1,595.88	10,688.62	10,751.81	10,669.57	82.24	130.738	
2,100.00	2,092.56	2,574.88	2,573.56	7.56	77.15	-67.06	1,595.99	10,688.62	10,747.75	10,663.07	84.68	126.915	
2,200.00	2,192.03	2,674.35	2,673.03	7.94	80.14	-67.11	1,595.99	10,688.62	10,743.73	10,655.69	88.04	122.026	
2,300.00	2,291.50	2,777.14	2,775.78	8.32	83.22	-67.18	1,598.14	10,688.62	10,740.07	10,648.56	91.50	117.373	
2,400.00	2,390.97	2,890.54	2,889.16	8.70	86.61	-67.23	1,597.48	10,688.62	10,735.97	10,640.69	95.28	112.677	
2,500.00	2,490.44	3,004.13	3,002.71	9.08	90.02	-67.28	1,595.91	10,688.62	10,731.75	10,632.68	99.06	108.332	
2,600.00	2,589.91	3,072.53	3,070.91	9.47	92.07	-67.31	1,595.99	10,688.62	10,727.73	10,626.23	101.49	105.698	
2,700.00	2,689.38	3,172.00	3,170.38	9.85	95.05	-67.37	1,595.99	10,688.62	10,723.74	10,618.89	104.86	102.272	
2,800.00	2,788.85	3,274.56	3,272.89	10.23	98.12	-67.43	1,598.15	10,688.62	10,720.13	10,611.82	108.31	98.977	
2,900.00	2,888.32	3,388.35	3,386.66	10.61	101.53	-67.48	1,597.50	10,688.62	10,716.08	10,603.98	112.10	95.595	
3,000.00	2,987.79	3,502.33	3,500.60	11.00	104.95	-67.53	1,595.95	10,688.62	10,711.89	10,596.00	115.89	92.428	
3,100.00	3,087.25	3,570.18	3,568.25	11.38	106.98	-67.57	1,595.99	10,688.62	10,707.91	10,589.60	118.31	90.507	
3,200.00	3,186.72	3,669.65	3,667.72	11.76	109.96	-67.62	1,595.99	10,688.62	10,703.97	10,582.30	121.67	87.974	
3,300.00	3,286.19	3,771.95	3,769.98	12.15	113.02	-67.68	1,598.15	10,688.62	10,700.41	10,575.29	125.12	85.522	
3,400.00	3,385.66	3,886.13	3,884.14	12.53	116.45	-67.74	1,597.52	10,688.62	10,696.39	10,567.47	128.92	82.969	
3,500.00	3,485.13	4,000.51	3,998.48	12.91	119.87	-67.79	1,595.98	10,688.62	10,692.25	10,559.52	132.73	80.557	
3,600.00	3,584.60	4,067.84	4,065.60	13.30	121.89	-67.82	1,595.99	10,688.62	10,688.30	10,553.17	135.13	79.097	
3,700.00	3,684.07	4,167.31	4,165.07	13.68	124.87	-67.87	1,595.99	10,688.62	10,684.40	10,545.91	138.49	77.148	
3,800.00	3,783.54	4,269.33	4,267.05	14.06	127.93	-67.94	1,598.16	10,688.62	10,680.89	10,538.96	141.93	75.255	
3,900.00	3,883.01	4,383.91	4,381.61	14.45	131.36	-67.99	1,597.54	10,688.62	10,676.92	10,531.18	145.74	73.258	
4,000.00	3,982.48	4,498.68	4,496.35	14.83	134.80	-68.04	1,596.01	10,688.62	10,672.82	10,523.25	149.56	71.359	
4,100.00	4,081.95	4,565.49	4,562.95	15.22	136.80	-68.08	1,595.99	10,688.62	10,668.90	10,516.95	151.95	70.213	
4,200.00	4,181.42	4,664.96	4,662.42	15.60	139.78	-68.13	1,595.99	10,688.62	10,665.05	10,509.74	155.31	68.668	
4,300.00	4,280.89	4,766.69	4,764.11	15.98	142.83	-68.19	1,598.16	10,688.62	10,661.59	10,502.85	158.74	67.162	
4,400.00	4,380.36	4,881.66	4,879.06	16.37	146.28	-68.25	1,597.56	10,688.62	10,657.67	10,495.10	162.57	65.557	
4,500.00	4,479.83	4,996.84	4,994.20	16.75	149.73	-68.30	1,596.04	10,688.62	10,653.60	10,487.20	166.40	64.023	
4,600.00	4,579.30	5,063.14	5,060.30	17.14	151.71	-68.33	1,595.99	10,688.62	10,649.72	10,480.95	168.77	63.100	
4,700.00	4,678.77	5,162.61	5,159.77	17.52	154.70	-68.38	1,595.99	10,688.62	10,645.91	10,473.77	172.14	61.845	
4,800.00	4,778.24	5,264.02	5,261.14	17.90	157.73	-68.45	1,598.16	10,688.62	10,642.51	10,466.95	175.56	60.621	
4,900.00	4,877.71	5,379.41	5,376.50	18.29	161.19	-68.50	1,597.58	10,688.62	10,638.62	10,459.23	179.40	59.302	
5,000.00	4,977.18	5,494.99	5,492.04	18.67	164.65	-68.55	1,596.07	10,688.62	10,634.60	10,451.36	183.24	58.036	

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 705H
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 705H	**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 #3	**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	5,076.65	5,560.80	5,557.65	19.06	166.63	-68.59	1,595.99	10,688.62	10,630.75	10,445.15	185.60	57.278	
5,200.00	5,176.12	5,660.27	5,657.12	19.44	169.61	-68.64	1,595.99	10,688.62	10,626.98	10,438.02	188.96	56.238	
5,300.00	5,275.59	5,761.35	5,758.16	19.83	172.64	-68.70	1,598.17	10,688.62	10,623.63	10,431.26	192.37	55.224	
5,400.00	5,375.06	5,877.13	5,873.92	20.21	176.11	-68.76	1,597.60	10,688.62	10,619.79	10,423.57	196.23	54.120	
5,500.00	5,474.53	5,993.12	5,989.87	20.59	179.58	-68.81	1,596.10	10,688.62	10,615.81	10,415.73	200.08	53.057	
5,600.00	5,574.00	6,058.45	6,055.00	20.98	181.54	-68.84	1,595.99	10,688.62	10,612.00	10,409.57	202.43	52.424	
5,700.00	5,673.47	6,157.92	6,154.47	21.36	184.52	-68.90	1,595.99	10,688.62	10,608.27	10,402.49	205.79	51.549	
5,800.00	5,772.94	6,257.39	6,253.94	21.75	187.50	-68.95	1,595.99	10,688.62	10,604.56	10,395.41	209.15	50.702	
5,900.00	5,872.41	6,300.00	6,296.37	22.13	188.78	-68.97	1,595.99	10,688.62	10,601.00	10,390.19	210.81	50.286	
6,000.00	5,971.88	6,300.00	6,296.37	22.52	188.78	-68.97	1,595.99	10,688.62	10,598.31	10,387.13	211.18	50.186	
6,100.00	6,071.35	6,300.00	6,296.37	22.90	188.78	-68.97	1,595.99	10,688.62	10,596.55	10,385.02	211.53	50.094	
6,200.00	6,170.81	6,300.00	6,296.37	23.28	188.78	-68.97	1,595.99	10,688.62	10,595.74	10,383.88	211.87	50.011	
6,235.81	6,206.43	6,300.00	6,296.37	23.42	188.78	-68.97	1,595.99	10,688.62	10,595.68	10,383.70	211.98	49.984	
6,300.00	6,270.28	6,300.00	6,296.37	23.67	188.78	-68.97	1,595.99	10,688.62	10,595.88	10,383.70	212.18	49.938	
6,375.94	6,345.82	6,300.00	6,296.37	23.96	188.78	-68.97	1,595.99	10,688.62	10,596.61	10,384.20	212.41	49.888	
6,400.00	6,369.72	6,300.00	6,296.37	24.05	188.78	-54.50	1,595.99	10,688.62	10,596.51	10,384.03	212.48	49.871	
6,450.00	6,419.09	6,300.00	6,296.37	24.25	188.78	-38.43	1,595.99	10,688.62	10,593.63	10,381.00	212.62	49.823	
6,500.00	6,467.78	6,300.00	6,296.37	24.46	188.78	-30.90	1,595.99	10,688.62	10,587.15	10,374.38	212.77	49.759	
6,550.00	6,515.51	6,300.00	6,296.37	24.67	188.78	-26.79	1,595.99	10,688.62	10,577.10	10,364.19	212.91	49.679	
6,600.00	6,561.97	6,300.00	6,296.37	24.88	188.78	-24.35	1,595.99	10,688.62	10,563.54	10,350.50	213.04	49.584	
6,650.00	6,606.89	6,300.00	6,296.37	25.10	188.78	-22.85	1,595.99	10,688.62	10,546.54	10,333.37	213.18	49.473	
6,700.00	6,649.98	6,300.00	6,296.37	25.32	188.78	-21.97	1,595.99	10,688.62	10,526.19	10,312.89	213.30	49.349	
6,750.00	6,690.98	6,300.00	6,296.37	25.54	188.78	-21.52	1,595.99	10,688.62	10,502.59	10,289.17	213.42	49.210	
6,800.00	6,729.64	6,300.00	6,296.37	25.77	188.78	-21.44	1,595.99	10,688.62	10,475.87	10,262.33	213.54	49.059	
6,850.00	6,765.71	6,300.00	6,296.37	26.00	188.78	-21.67	1,595.99	10,688.62	10,446.16	10,232.52	213.64	48.895	
6,900.00	6,798.98	6,300.00	6,296.37	26.24	188.78	-22.22	1,595.99	10,688.62	10,413.63	10,199.89	213.74	48.720	
6,950.00	6,829.24	6,300.00	6,296.37	26.49	188.78	-23.10	1,595.99	10,688.62	10,378.46	10,164.62	213.84	48.534	
7,000.00	6,856.30	6,300.00	6,296.37	26.76	188.78	-24.37	1,595.99	10,688.62	10,340.82	10,126.90	213.93	48.338	
7,050.00	6,880.00	6,300.00	6,296.37	27.03	188.78	-26.13	1,595.99	10,688.62	10,300.94	10,086.93	214.01	48.134	
7,100.00	6,900.19	6,300.00	6,296.37	27.32	188.78	-28.52	1,595.99	10,688.62	10,259.02	10,044.94	214.08	47.921	
7,150.00	6,916.74	6,300.00	6,296.37	27.62	188.78	-31.79	1,595.99	10,688.62	10,215.32	10,001.16	214.15	47.701	
7,200.00	6,929.56	6,300.00	6,296.37	27.93	188.78	-36.31	1,595.99	10,688.62	10,170.06	9,955.84	214.22	47.475	
7,250.00	6,938.57	6,300.00	6,296.37	28.26	188.78	-42.73	1,595.99	10,688.62	10,123.52	9,909.24	214.28	47.244	
7,300.00	6,943.70	6,300.00	6,296.37	28.60	188.78	-52.03	1,595.99	10,688.62	10,075.96	9,861.62	214.34	47.010	
7,340.76	6,945.00	6,300.00	6,296.37	28.88	188.78	-62.67	1,595.99	10,688.62	10,036.64	9,822.26	214.39	46.816	
7,400.00	6,945.00	6,300.00	6,296.37	29.31	188.78	-62.67	1,595.99	10,688.62	9,979.22	9,764.76	214.45	46.533	
7,500.00	6,945.00	6,300.00	6,296.37	30.09	188.78	-62.67	1,595.99	10,688.62	9,882.33	9,667.76	214.57	46.056	
7,600.00	6,945.00	6,300.00	6,296.37	30.93	188.78	-62.67	1,595.99	10,688.62	9,785.51	9,570.81	214.70	45.578	
7,700.00	6,945.00	6,300.00	6,296.37	31.83	188.78	-62.67	1,595.99	10,688.62	9,688.76	9,473.92	214.83	45.099	
7,800.00	6,945.00	6,300.00	6,296.37	32.79	188.78	-62.67	1,595.99	10,688.62	9,592.07	9,377.09	214.98	44.619	
7,900.00	6,945.00	6,300.00	6,296.37	33.79	188.78	-62.67	1,595.99	10,688.62	9,495.45	9,280.32	215.13	44.139	
8,000.00	6,945.00	6,300.00	6,296.37	34.84	188.78	-62.67	1,595.99	10,688.62	9,398.90	9,183.61	215.29	43.658	
8,100.00	6,945.00	6,300.00	6,296.37	35.93	188.78	-62.67	1,595.99	10,688.62	9,302.42	9,086.96	215.45	43.176	
8,200.00	6,945.00	6,300.00	6,296.37	37.06	188.78	-62.67	1,595.99	10,688.62	9,206.02	8,990.39	215.63	42.693	
8,300.00	6,945.00	6,300.00	6,296.37	38.23	188.78	-62.67	1,595.99	10,688.62	9,109.69	8,893.87	215.82	42.210	
8,400.00	6,945.00	6,300.00	6,296.37	39.42	188.78	-62.67	1,595.99	10,688.62	9,013.45	8,797.43	216.02	41.726	
8,500.00	6,945.00	6,300.00	6,296.37	40.65	188.78	-62.67	1,595.99	10,688.62	8,917.29	8,701.06	216.22	41.241	
8,600.00	6,945.00	6,300.00	6,296.37	41.90	188.78	-62.67	1,595.99	10,688.62	8,821.21	8,604.77	216.44	40.755	
8,700.00	6,945.00	6,300.00	6,296.37	43.17	188.78	-62.67	1,595.99	10,688.62	8,725.22	8,508.55	216.67	40.269	
8,800.00	6,945.00	6,300.00	6,296.37	44.46	188.78	-62.67	1,595.99	10,688.62	8,629.33	8,412.42	216.91	39.783	
8,900.00	6,945.00	6,300.00	6,296.37	45.78	188.78	-62.67	1,595.99	10,688.62	8,533.52	8,316.36	217.16	39.296	
9,000.00	6,945.00	6,300.00	6,296.37	47.11	188.78	-62.67	1,595.99	10,688.62	8,437.82	8,220.39	217.43	38.808	

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 705H
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 705H	**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 #3	**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	Rule Assigned: Warning
9,100.00	6,945.00	6,300.00	6,296.37	48.46	188.78	-62.67	1,595.99	10,688.62	8,342.21	8,124.51	217.70	38.320	
9,200.00	6,945.00	6,300.00	6,296.37	49.82	188.78	-62.67	1,595.99	10,688.62	8,246.71	8,028.73	217.99	37.831	
9,300.00	6,945.00	6,300.00	6,296.37	51.20	188.78	-62.67	1,595.99	10,688.62	8,151.32	7,933.03	218.29	37.342	
9,400.00	6,945.00	6,300.00	6,296.37	52.59	188.78	-62.67	1,595.99	10,688.62	8,056.04	7,837.44	218.60	36.852	
9,500.00	6,945.00	6,300.00	6,296.37	53.99	188.78	-62.67	1,595.99	10,688.62	7,960.88	7,741.95	218.93	36.363	
9,600.00	6,945.00	6,300.00	6,296.37	55.40	188.78	-62.67	1,595.99	10,688.62	7,865.83	7,646.56	219.27	35.872	
9,700.00	6,945.00	6,300.00	6,296.37	56.83	188.78	-62.67	1,595.99	10,688.62	7,770.91	7,551.28	219.63	35.382	
9,800.00	6,945.00	6,300.00	6,296.37	58.26	188.78	-62.67	1,595.99	10,688.62	7,676.12	7,456.12	220.00	34.891	
9,900.00	6,945.00	6,300.00	6,296.37	59.70	188.78	-62.67	1,595.99	10,688.62	7,581.46	7,361.07	220.39	34.401	
10,000.00	6,945.00	6,300.00	6,296.37	61.15	188.78	-62.67	1,595.99	10,688.62	7,486.94	7,266.15	220.79	33.910	
10,100.00	6,945.00	6,300.00	6,296.37	62.61	188.78	-62.67	1,595.99	10,688.62	7,392.57	7,171.36	221.21	33.419	
10,200.00	6,945.00	6,300.00	6,296.37	64.07	188.78	-62.67	1,595.99	10,688.62	7,298.34	7,076.70	221.65	32.928	
10,300.00	6,945.00	6,300.00	6,296.37	65.54	188.78	-62.67	1,595.99	10,688.62	7,204.28	6,982.17	222.10	32.437	
10,400.00	6,945.00	6,300.00	6,296.37	67.02	188.78	-62.67	1,595.99	10,688.62	7,110.37	6,887.79	222.57	31.946	
10,500.00	6,945.00	6,300.00	6,296.37	68.50	188.78	-62.67	1,595.99	10,688.62	7,016.63	6,793.56	223.07	31.455	
10,600.00	6,945.00	6,300.00	6,296.37	69.99	188.78	-62.67	1,595.99	10,688.62	6,923.07	6,699.49	223.58	30.965	
10,700.00	6,945.00	6,300.00	6,296.37	71.48	188.78	-62.67	1,595.99	10,688.62	6,829.69	6,605.58	224.11	30.475	
10,800.00	6,945.00	6,300.00	6,296.37	72.98	188.78	-62.67	1,595.99	10,688.62	6,736.49	6,511.84	224.66	29.986	
10,900.00	6,945.00	6,300.00	6,296.37	74.48	188.78	-62.67	1,595.99	10,688.62	6,643.50	6,418.27	225.23	29.497	
11,000.00	6,945.00	6,300.00	6,296.37	75.99	188.78	-62.67	1,595.99	10,688.62	6,550.71	6,324.89	225.82	29.008	
11,100.00	6,945.00	6,300.00	6,296.37	77.50	188.78	-62.67	1,595.99	10,688.62	6,458.14	6,231.70	226.44	28.520	
11,200.00	6,945.00	6,300.00	6,296.37	79.01	188.78	-62.67	1,595.99	10,688.62	6,365.80	6,138.72	227.08	28.033	
11,300.00	6,945.00	6,300.00	6,296.37	80.53	188.78	-62.67	1,595.99	10,688.62	6,273.68	6,045.94	227.74	27.547	
11,400.00	6,945.00	6,300.00	6,296.37	82.05	188.78	-62.67	1,595.99	10,688.62	6,181.82	5,953.38	228.43	27.062	
11,500.00	6,945.00	6,300.00	6,296.37	83.57	188.78	-62.67	1,595.99	10,688.62	6,090.21	5,861.06	229.15	26.578	
11,600.00	6,945.00	6,300.00	6,296.37	85.10	188.78	-62.67	1,595.99	10,688.62	5,998.86	5,768.98	229.89	26.095	
11,700.00	6,945.00	6,300.00	6,296.37	86.63	188.78	-62.67	1,595.99	10,688.62	5,907.80	5,677.14	230.66	25.613	
11,800.00	6,945.00	6,300.00	6,296.37	88.16	188.78	-62.67	1,595.99	10,688.62	5,817.03	5,585.58	231.46	25.132	
11,900.00	6,945.00	6,300.00	6,296.37	89.69	188.78	-62.67	1,595.99	10,688.62	5,726.57	5,494.29	232.28	24.653	
12,000.00	6,945.00	6,300.00	6,296.37	91.23	188.78	-62.67	1,595.99	10,688.62	5,636.43	5,403.29	233.14	24.176	
12,100.00	6,945.00	6,300.00	6,296.37	92.77	188.78	-62.67	1,595.99	10,688.62	5,546.63	5,312.61	234.03	23.701	
12,200.00	6,945.00	6,300.00	6,296.37	94.31	188.78	-62.67	1,595.99	10,688.62	5,457.19	5,222.24	234.95	23.227	
12,300.00	6,945.00	6,300.00	6,296.37	95.85	188.78	-62.67	1,595.99	10,688.62	5,368.11	5,132.21	235.90	22.756	
12,400.00	6,945.00	6,300.00	6,296.37	97.40	188.78	-62.67	1,595.99	10,688.62	5,279.43	5,042.54	236.89	22.286	
12,500.00	6,945.00	6,300.00	6,296.37	98.95	188.78	-62.67	1,595.99	10,688.62	5,191.16	4,953.24	237.92	21.819	
12,600.00	6,945.00	6,300.00	6,296.37	100.50	188.78	-62.67	1,595.99	10,688.62	5,103.32	4,864.34	238.98	21.355	
12,700.00	6,945.00	6,300.00	6,296.37	102.05	188.78	-62.67	1,595.99	10,688.62	5,015.94	4,775.86	240.08	20.893	
12,800.00	6,945.00	6,300.00	6,296.37	103.60	188.78	-62.67	1,595.99	10,688.62	4,929.04	4,687.82	241.22	20.434	
12,900.00	6,945.00	6,300.00	6,296.37	105.15	188.78	-62.67	1,595.99	10,688.62	4,842.64	4,600.24	242.40	19.978	
13,000.00	6,945.00	6,300.00	6,296.37	106.71	188.78	-62.67	1,595.99	10,688.62	4,756.78	4,513.15	243.63	19.525	
13,100.00	6,945.00	6,300.00	6,296.37	108.26	188.78	-62.67	1,595.99	10,688.62	4,671.48	4,426.58	244.89	19.076	
13,200.00	6,945.00	6,300.00	6,296.37	109.82	188.78	-62.67	1,595.99	10,688.62	4,586.77	4,340.56	246.20	18.630	
13,300.00	6,945.00	6,300.00	6,296.37	111.38	188.78	-62.67	1,595.99	10,688.62	4,502.69	4,255.12	247.56	18.188	
13,400.00	6,945.00	6,300.00	6,296.37	112.94	188.78	-62.67	1,595.99	10,688.62	4,419.27	4,170.30	248.97	17.750	
13,500.00	6,945.00	6,300.00	6,296.37	114.50	188.78	-62.67	1,595.99	10,688.62	4,336.55	4,086.13	250.42	17.317	
13,600.00	6,945.00	6,300.00	6,296.37	116.07	188.78	-62.67	1,595.99	10,688.62	4,254.58	4,002.65	251.93	16.888	
13,700.00	6,945.00	6,300.00	6,296.37	117.63	188.78	-62.67	1,595.99	10,688.62	4,173.39	3,919.91	253.48	16.464	
13,800.00	6,945.00	6,300.00	6,296.37	119.19	188.78	-62.67	1,595.99	10,688.62	4,093.04	3,837.95	255.09	16.045	
13,900.00	6,945.00	6,300.00	6,296.37	120.76	188.78	-62.67	1,595.99	10,688.62	4,013.57	3,756.81	256.75	15.632	
14,000.00	6,945.00	6,300.00	6,296.37	122.33	188.78	-62.67	1,595.99	10,688.62	3,935.03	3,676.56	258.47	15.224	
14,100.00	6,945.00	6,300.00	6,296.37	123.90	188.78	-62.67	1,595.99	10,688.62	3,857.49	3,597.25	260.24	14.823	
14,200.00	6,945.00	6,300.00	6,296.37	125.46	188.78	-62.67	1,595.99	10,688.62	3,781.00	3,518.93	262.07	14.428	

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 705H
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 705H	**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 #3	**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
14,300.00	6,945.00	6,300.00	6,296.37	127.03	188.78	-62.67	1,595.99	10,688.62	3,705.63	3,441.68	263.95	14.039	
14,400.00	6,945.00	6,300.00	6,296.37	128.60	188.78	-62.67	1,595.99	10,688.62	3,631.46	3,365.56	265.89	13.658	
14,500.00	6,945.00	6,300.00	6,296.37	130.18	188.78	-62.67	1,595.99	10,688.62	3,558.54	3,290.65	267.89	13.284	
14,600.00	6,945.00	6,300.00	6,296.37	131.75	188.78	-62.67	1,595.99	10,688.62	3,486.97	3,217.03	269.94	12.917	
14,700.00	6,945.00	6,300.00	6,296.37	133.32	188.78	-62.67	1,595.99	10,688.62	3,416.83	3,144.78	272.05	12.559	
14,800.00	6,945.00	6,300.00	6,296.37	134.89	188.78	-62.67	1,595.99	10,688.62	3,348.21	3,073.99	274.22	12.210	
14,900.00	6,945.00	6,300.00	6,296.37	136.47	188.78	-62.67	1,595.99	10,688.62	3,281.20	3,004.77	276.43	11.870	
15,000.00	6,945.00	6,300.00	6,296.37	138.04	188.78	-62.67	1,595.99	10,688.62	3,215.90	2,937.20	278.69	11.539	
15,100.00	6,945.00	6,300.00	6,296.37	139.62	188.78	-62.67	1,595.99	10,688.62	3,152.42	2,871.42	281.00	11.218	
15,200.00	6,945.00	6,300.00	6,296.37	141.20	188.78	-62.67	1,595.99	10,688.62	3,090.87	2,807.52	283.35	10.908	
15,300.00	6,945.00	6,300.00	6,296.37	142.77	188.78	-62.67	1,595.99	10,688.62	3,031.38	2,745.64	285.74	10.609	
15,400.00	6,945.00	6,300.00	6,296.37	144.35	188.78	-62.67	1,595.99	10,688.62	2,974.06	2,685.89	288.16	10.321	
15,500.00	6,945.00	6,300.00	6,296.37	145.93	188.78	-62.67	1,595.99	10,688.62	2,919.03	2,628.43	290.61	10.045	
15,600.00	6,945.00	6,300.00	6,296.37	147.51	188.78	-62.67	1,595.99	10,688.62	2,866.45	2,573.38	293.07	9.781	
15,700.00	6,945.00	6,300.00	6,296.37	149.09	188.78	-62.67	1,595.99	10,688.62	2,816.43	2,520.90	295.53	9.530	
15,800.00	6,945.00	6,300.00	6,296.37	150.67	188.78	-62.67	1,595.99	10,688.62	2,769.12	2,471.12	298.00	9.292	
15,900.00	6,945.00	6,300.00	6,296.37	152.25	188.78	-62.67	1,595.99	10,688.62	2,724.66	2,424.21	300.45	9.069	
16,000.00	6,945.00	6,300.00	6,296.37	153.83	188.78	-62.67	1,595.99	10,688.62	2,683.19	2,380.32	302.87	8.859	
16,100.00	6,945.00	6,300.00	6,296.37	155.41	188.78	-62.67	1,595.99	10,688.62	2,644.86	2,339.61	305.25	8.664	
16,200.00	6,945.00	6,300.00	6,296.37	156.99	188.78	-62.67	1,595.99	10,688.62	2,609.80	2,302.21	307.59	8.485	
16,300.00	6,945.00	6,300.00	6,296.37	158.57	188.78	-62.67	1,595.99	10,688.62	2,578.14	2,268.29	309.85	8.321	
16,400.00	6,945.00	6,300.00	6,296.37	160.15	188.78	-62.67	1,595.99	10,688.62	2,550.01	2,237.98	312.03	8.172	
16,500.00	6,945.00	6,300.00	6,296.37	161.74	188.78	-62.67	1,595.99	10,688.62	2,525.53	2,211.41	314.12	8.040	
16,600.00	6,945.00	6,300.00	6,296.37	163.32	188.78	-62.67	1,595.99	10,688.62	2,504.81	2,188.71	316.09	7.924	
16,700.00	6,945.00	6,300.00	6,296.37	164.90	188.78	-62.67	1,595.99	10,688.62	2,487.93	2,169.99	317.94	7.825	
16,800.00	6,945.00	6,300.00	6,296.37	166.49	188.78	-62.67	1,595.99	10,688.62	2,474.99	2,155.33	319.65	7.743	
16,900.00	6,945.00	6,300.00	6,296.37	168.07	188.78	-62.67	1,595.99	10,688.62	2,466.03	2,144.82	321.21	7.677	
17,000.00	6,945.00	6,300.00	6,296.37	169.66	188.78	-62.67	1,595.99	10,688.62	2,461.11	2,138.50	322.61	7.629	
17,071.23	6,945.00	6,300.00	6,296.37	170.79	188.78	-62.67	1,595.99	10,688.62	2,460.08	2,136.57	323.51	7.604 CC	
17,100.00	6,945.00	6,300.00	6,296.37	171.24	188.78	-62.67	1,595.99	10,688.62	2,460.25	2,136.40	323.84	7.597 ES	
17,200.00	6,945.00	6,300.00	6,296.37	172.83	188.78	-62.67	1,595.99	10,688.62	2,463.45	2,138.55	324.90	7.582 SF	
17,300.00	6,945.00	6,300.00	6,296.37	174.41	188.78	-62.67	1,595.99	10,688.62	2,470.69	2,144.92	325.77	7.584	
17,400.00	6,945.00	6,300.00	6,296.37	176.00	188.78	-62.67	1,595.99	10,688.62	2,481.95	2,155.48	326.47	7.602	
17,500.00	6,945.00	6,300.00	6,296.37	177.59	188.78	-62.67	1,595.99	10,688.62	2,497.16	2,170.18	326.98	7.637	
17,600.00	6,945.00	6,300.00	6,296.37	179.17	188.78	-62.67	1,595.99	10,688.62	2,516.26	2,188.95	327.32	7.688	
17,700.00	6,945.00	6,300.00	6,296.37	180.76	188.78	-62.67	1,595.99	10,688.62	2,539.16	2,211.68	327.48	7.754	
17,800.00	6,945.00	6,300.00	6,296.37	182.35	188.78	-62.67	1,595.99	10,688.62	2,565.75	2,238.28	327.47	7.835	
17,900.00	6,945.00	6,300.00	6,296.37	183.93	188.78	-62.67	1,595.99	10,688.62	2,595.93	2,268.62	327.31	7.931	
18,000.00	6,945.00	6,300.00	6,296.37	185.52	188.78	-62.67	1,595.99	10,688.62	2,629.56	2,302.57	326.99	8.042	
18,100.00	6,945.00	6,300.00	6,296.37	187.11	188.78	-62.67	1,595.99	10,688.62	2,666.52	2,339.99	326.54	8.166	
18,200.00	6,945.00	6,300.00	6,296.37	188.70	188.78	-62.67	1,595.99	10,688.62	2,706.68	2,380.72	325.96	8.304	
18,300.00	6,945.00	6,300.00	6,296.37	190.29	188.78	-62.67	1,595.99	10,688.62	2,749.88	2,424.62	325.26	8.454	
18,400.00	6,945.00	6,300.00	6,296.37	191.88	188.78	-62.67	1,595.99	10,688.62	2,796.00	2,471.54	324.46	8.617	
18,500.00	6,945.00	6,300.00	6,296.37	193.46	188.78	-62.67	1,595.99	10,688.62	2,844.88	2,521.31	323.57	8.792	
18,600.00	6,945.00	6,300.00	6,296.37	195.05	188.78	-62.67	1,595.99	10,688.62	2,896.40	2,573.80	322.60	8.978	
18,700.00	6,945.00	6,300.00	6,296.37	196.64	188.78	-62.67	1,595.99	10,688.62	2,950.40	2,628.84	321.56	9.175	
18,800.00	6,945.00	6,300.00	6,296.37	198.23	188.78	-62.67	1,595.99	10,688.62	3,006.76	2,686.30	320.46	9.383	
18,900.00	6,945.00	6,300.00	6,296.37	199.82	188.78	-62.67	1,595.99	10,688.62	3,065.35	2,746.04	319.31	9.600	
19,000.00	6,945.00	6,300.00	6,296.37	201.41	188.78	-62.67	1,595.99	10,688.62	3,126.04	2,807.91	318.13	9.826	
19,100.00	6,945.00	6,300.00	6,296.37	203.00	188.78	-62.67	1,595.99	10,688.62	3,188.71	2,871.80	316.91	10.062	
19,200.00	6,945.00	6,300.00	6,296.37	204.60	188.78	-62.67	1,595.99	10,688.62	3,253.25	2,937.58	315.67	10.306	
19,300.00	6,945.00	6,300.00	6,296.37	206.19	188.78	-62.67	1,595.99	10,688.62	3,319.55	3,005.13	314.42	10.558	

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 705H
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 705H	**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 #3	**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
19,400.00	6,945.00	6,300.00	6,296.37	207.78	188.78	-62.67	1,595.99	10,688.62	3,387.50	3,074.34	313.16	10.817	
19,500.00	6,945.00	6,300.00	6,296.37	209.37	188.78	-62.67	1,595.99	10,688.62	3,457.01	3,145.12	311.89	11.084	
19,600.00	6,945.00	6,300.00	6,296.37	210.96	188.78	-62.67	1,595.99	10,688.62	3,527.98	3,217.36	310.62	11.358	
19,700.00	6,945.00	6,300.00	6,296.37	212.55	188.78	-62.67	1,595.99	10,688.62	3,600.33	3,290.98	309.36	11.638	
19,800.00	6,945.00	6,300.00	6,296.37	214.14	188.78	-62.67	1,595.99	10,688.62	3,673.98	3,365.88	308.10	11.924	
19,900.00	6,945.00	6,300.00	6,296.37	215.74	188.78	-62.67	1,595.99	10,688.62	3,748.85	3,441.99	306.86	12.217	
20,000.00	6,945.00	6,300.00	6,296.37	217.33	188.78	-62.67	1,595.99	10,688.62	3,824.87	3,519.24	305.63	12.515	
20,100.00	6,945.00	6,300.00	6,296.37	218.92	188.78	-62.67	1,595.99	10,688.62	3,901.98	3,597.55	304.42	12.818	
20,200.00	6,945.00	6,300.00	6,296.37	220.51	188.78	-62.67	1,595.99	10,688.62	3,980.10	3,676.87	303.23	13.126	
20,300.00	6,945.00	6,300.00	6,296.37	222.11	188.78	-62.67	1,595.99	10,688.62	4,059.18	3,757.12	302.06	13.438	
20,400.00	6,945.00	6,300.00	6,296.37	223.70	188.78	-62.67	1,595.99	10,688.62	4,139.16	3,838.26	300.91	13.756	
20,500.00	6,945.00	6,300.00	6,296.37	225.29	188.78	-62.67	1,595.99	10,688.62	4,220.00	3,920.23	299.78	14.077	
20,600.00	6,945.00	6,300.00	6,296.37	226.88	188.78	-62.67	1,595.99	10,688.62	4,301.65	4,002.98	298.67	14.403	
20,700.00	6,945.00	6,300.00	6,296.37	228.48	188.78	-62.67	1,595.99	10,688.62	4,384.06	4,086.47	297.59	14.732	
20,741.48	6,945.00	6,300.00	6,296.37	229.14	188.78	-62.67	1,595.99	10,688.62	4,418.45	4,121.30	297.14	14.870	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 705H
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 705H	**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 #3	**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
0.00	0.00	0.00	0.00	0.00	0.00	-25.01	877.41	-409.27	969.46				
100.00	100.00	50.00	50.00	0.25	0.99	-25.01	877.41	-409.27	968.17	966.93	1.24	783.299	
200.00	200.00	150.00	150.00	0.61	2.90	-25.01	877.41	-409.27	968.17	964.66	3.51	275.990	
300.00	300.00	250.01	250.00	0.97	4.74	-25.01	877.41	-409.27	968.17	962.46	5.71	169.643	
400.00	400.00	350.75	350.75	1.33	6.60	-25.00	877.50	-409.27	968.25	960.32	7.93	122.174	
500.00	500.00	450.02	450.00	1.68	8.48	-25.01	877.41	-409.27	968.17	958.00	10.17	95.214	CC
600.00	599.98	550.00	549.98	2.03	10.45	-172.75	877.41	-409.27	969.90	957.42	12.48	77.738	ES
700.00	699.84	649.85	649.84	2.37	12.41	-172.77	877.41	-409.27	975.09	960.32	14.78	65.989	
795.17	794.65	746.73	746.70	2.69	14.31	-172.80	878.13	-409.27	983.90	966.89	17.01	57.848	
800.00	799.45	751.64	751.62	2.71	14.41	-172.80	878.12	-409.27	984.38	967.26	17.12	57.483	
900.00	898.92	853.53	853.50	3.06	16.41	-172.89	877.74	-409.27	994.25	974.78	19.47	51.065	
1,000.00	998.39	948.45	948.39	3.43	18.25	-172.96	877.41	-409.27	1,004.15	982.49	21.66	46.358	
1,100.00	1,097.86	1,047.92	1,047.86	3.79	20.15	-173.03	877.41	-409.27	1,014.36	990.45	23.91	42.433	
1,200.00	1,197.33	1,148.40	1,148.33	4.16	22.06	-173.09	878.06	-409.27	1,025.16	998.99	26.17	39.171	
1,300.00	1,296.80	1,250.96	1,250.89	4.53	24.01	-173.17	877.78	-409.27	1,035.12	1,006.65	28.48	36.347	
1,400.00	1,396.27	1,346.35	1,346.27	4.91	25.80	-173.24	877.41	-409.27	1,045.00	1,014.38	30.62	34.130	
1,500.00	1,495.74	1,445.82	1,445.74	5.28	27.57	-173.31	877.41	-409.27	1,055.21	1,022.46	32.75	32.222	
1,600.00	1,595.21	1,547.24	1,547.15	5.66	29.38	-173.36	877.68	-409.27	1,065.67	1,030.76	34.91	30.523	
1,700.00	1,694.68	1,644.77	1,644.68	6.04	31.12	-173.43	877.41	-409.27	1,075.64	1,038.62	37.02	29.056	
1,800.00	1,794.15	1,744.24	1,744.15	6.42	32.96	-173.50	877.41	-409.27	1,085.86	1,046.65	39.22	27.690	
1,900.00	1,893.62	1,843.71	1,843.62	6.80	34.80	-173.56	877.41	-409.27	1,096.08	1,054.67	41.41	26.468	
2,000.00	1,993.09	1,944.11	1,944.01	7.18	36.65	-173.61	877.61	-409.27	1,106.48	1,062.86	43.62	25.363	
2,100.00	2,092.56	2,044.59	2,044.50	7.56	38.50	-173.67	877.46	-409.27	1,116.58	1,070.74	45.84	24.358	
2,200.00	2,192.03	2,142.14	2,142.03	7.94	40.43	-173.73	877.41	-409.27	1,126.75	1,078.62	48.13	23.412	
2,300.00	2,291.50	2,244.21	2,244.09	8.32	42.49	-173.78	877.76	-409.27	1,137.29	1,086.74	50.55	22.497	
2,400.00	2,390.97	2,341.10	2,340.97	8.70	44.46	-173.84	877.41	-409.27	1,147.20	1,094.32	52.89	21.692	
2,500.00	2,490.44	2,440.57	2,440.44	9.08	46.54	-173.90	877.41	-409.27	1,157.43	1,102.10	55.33	20.920	
2,600.00	2,589.91	2,542.62	2,542.48	9.47	48.68	-173.94	878.11	-409.27	1,168.28	1,110.46	57.82	20.205	
2,700.00	2,689.38	2,647.74	2,647.59	9.85	50.87	-174.01	877.57	-409.27	1,178.06	1,117.67	60.38	19.510	
2,800.00	2,788.85	2,739.04	2,738.85	10.23	52.69	-174.06	877.41	-409.27	1,188.12	1,125.55	62.56	18.991	
2,900.00	2,888.32	2,838.51	2,838.32	10.61	54.65	-174.11	877.41	-409.27	1,198.35	1,133.47	64.88	18.470	
3,000.00	2,987.79	2,937.98	2,937.79	11.00	56.61	-174.16	877.41	-409.27	1,208.58	1,141.38	67.20	17.984	
3,100.00	3,087.25	3,038.65	3,038.45	11.38	58.59	-174.18	878.83	-409.27	1,220.08	1,150.53	69.55	17.543	
3,200.00	3,186.72	3,141.14	3,140.93	11.76	60.61	-174.23	878.58	-409.27	1,230.09	1,158.17	71.93	17.102	
3,300.00	3,286.19	3,243.67	3,243.45	12.15	62.62	-174.29	878.05	-409.27	1,239.87	1,165.56	74.31	16.685	
3,400.00	3,385.66	3,335.91	3,335.66	12.53	64.44	-174.35	877.41	-409.27	1,249.52	1,173.03	76.49	16.337	
3,500.00	3,485.13	3,435.38	3,435.13	12.91	66.40	-174.40	877.41	-409.27	1,259.75	1,180.94	78.81	15.985	
3,600.00	3,584.60	3,534.85	3,534.60	13.30	68.36	-174.44	877.41	-409.27	1,269.99	1,188.86	81.13	15.654	
3,700.00	3,684.07	3,634.32	3,634.07	13.68	70.31	-174.49	877.41	-409.27	1,280.23	1,196.78	83.45	15.341	
3,800.00	3,783.54	3,733.79	3,733.54	14.06	72.27	-174.53	877.41	-409.27	1,290.46	1,204.69	85.77	15.045	
3,900.00	3,883.01	3,833.26	3,833.01	14.45	74.23	-174.57	877.41	-409.27	1,300.70	1,212.61	88.09	14.765	
4,000.00	3,982.48	3,933.26	3,933.00	14.83	76.20	-174.59	878.60	-409.27	1,312.00	1,221.58	90.42	14.509	
4,100.00	4,081.95	4,033.67	4,033.42	15.22	78.18	-174.64	878.51	-409.27	1,322.17	1,229.40	92.77	14.253	
4,200.00	4,181.42	4,134.10	4,133.85	15.60	80.15	-174.68	878.35	-409.27	1,332.26	1,237.16	95.11	14.008	
4,300.00	4,280.89	4,234.55	4,234.29	15.98	82.13	-174.73	878.10	-409.27	1,342.29	1,244.84	97.45	13.774	
4,400.00	4,380.36	4,335.01	4,334.75	16.37	84.11	-174.77	877.78	-409.27	1,352.24	1,252.45	99.79	13.551	
4,500.00	4,479.83	4,430.18	4,429.83	16.75	85.98	-174.82	877.41	-409.27	1,362.15	1,260.13	102.03	13.351	
4,600.00	4,579.30	4,529.65	4,529.30	17.14	87.94	-174.86	877.41	-409.27	1,372.40	1,268.05	104.35	13.152	
4,700.00	4,678.77	4,629.41	4,629.06	17.52	89.91	-174.88	878.27	-409.27	1,383.41	1,276.73	106.68	12.968	
4,800.00	4,778.24	4,734.68	4,734.32	17.90	91.98	-174.92	878.00	-409.27	1,393.42	1,284.31	109.12	12.770	
4,900.00	4,877.71	4,828.09	4,827.71	18.29	93.81	-174.97	877.41	-409.27	1,403.13	1,291.82	111.31	12.606	
5,000.00	4,977.18	4,927.56	4,927.18	18.67	95.71	-175.01	877.41	-409.27	1,413.38	1,299.81	113.57	12.445	

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 705H
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 705H	**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 #3	**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
5,100.00	5,076.65	5,027.03	5,026.65	19.06	97.60	-175.04	877.41	-409.27	1,423.63	1,307.80	115.82	12.291	
5,200.00	5,176.12	5,126.50	5,126.12	19.44	99.49	-175.08	877.41	-409.27	1,433.87	1,315.79	118.08	12.143	
5,300.00	5,275.59	5,225.97	5,225.59	19.83	101.38	-175.11	877.41	-409.27	1,444.12	1,323.79	120.34	12.001	
5,400.00	5,375.06	5,325.44	5,325.06	20.21	103.28	-175.15	877.41	-409.27	1,454.37	1,331.78	122.59	11.863	
5,500.00	5,474.53	5,425.23	5,424.84	20.59	105.18	-175.16	878.66	-409.27	1,465.72	1,340.87	124.85	11.739	
5,600.00	5,574.00	5,525.71	5,525.32	20.98	107.09	-175.19	878.59	-409.27	1,475.92	1,348.78	127.13	11.609	
5,700.00	5,673.47	5,626.20	5,625.81	21.36	109.00	-175.23	878.45	-409.27	1,486.04	1,356.63	129.41	11.483	
5,800.00	5,772.94	5,726.71	5,726.32	21.75	110.91	-175.27	878.24	-409.27	1,496.10	1,364.42	131.69	11.361	
5,900.00	5,872.41	5,827.23	5,826.84	22.13	112.82	-175.31	877.94	-409.27	1,506.09	1,372.13	133.96	11.243	
6,000.00	5,971.88	5,927.77	5,927.37	22.52	114.74	-175.34	877.57	-409.27	1,516.02	1,379.78	136.24	11.127	
6,100.00	6,071.35	6,021.80	6,021.35	22.90	116.56	-175.38	877.41	-409.27	1,526.12	1,387.70	138.43	11.025	
6,200.00	6,170.81	6,121.27	6,120.81	23.28	118.52	-175.41	877.41	-409.27	1,536.37	1,395.63	140.75	10.916	
6,300.00	6,270.28	6,220.74	6,220.28	23.67	120.48	-175.44	877.41	-409.27	1,546.63	1,403.56	143.07	10.810	
6,375.94	6,345.82	6,296.27	6,295.82	23.96	121.97	-175.46	877.41	-409.27	1,554.41	1,409.58	144.84	10.732	
6,400.00	6,369.72	6,320.17	6,319.72	24.05	122.44	-160.80	877.41	-409.27	1,557.09	1,411.70	145.39	10.709	
6,450.00	6,419.09	6,369.54	6,369.09	24.25	123.41	-144.25	877.41	-409.27	1,563.99	1,417.44	146.55	10.672	
6,500.00	6,467.78	6,418.23	6,417.78	24.46	124.37	-136.16	877.41	-409.27	1,572.69	1,425.00	147.69	10.648	
6,550.00	6,515.51	6,465.96	6,465.51	24.67	125.31	-131.39	877.41	-409.27	1,583.17	1,434.36	148.81	10.639 SF	
6,600.00	6,561.97	6,512.42	6,511.97	24.88	126.22	-128.16	877.41	-409.27	1,595.44	1,445.53	149.91	10.643	
6,650.00	6,606.89	6,557.34	6,556.89	25.10	127.11	-125.72	877.41	-409.27	1,609.50	1,458.53	150.97	10.661	
6,700.00	6,649.98	6,600.43	6,599.98	25.32	127.96	-123.70	877.41	-409.27	1,625.36	1,473.37	151.99	10.694	
6,750.00	6,690.98	6,641.43	6,640.98	25.54	128.76	-121.90	877.41	-409.27	1,643.02	1,490.06	152.96	10.741	
6,800.00	6,729.64	6,680.09	6,679.64	25.77	129.53	-120.19	877.41	-409.27	1,662.49	1,508.61	153.89	10.803	
6,850.00	6,765.71	6,716.16	6,715.71	26.00	130.24	-118.46	877.41	-409.27	1,683.75	1,529.00	154.75	10.880	
6,900.00	6,798.98	6,749.43	6,748.98	26.24	130.89	-116.65	877.41	-409.27	1,706.79	1,551.23	155.56	10.972	
6,950.00	6,829.24	6,779.69	6,779.24	26.49	131.49	-114.69	877.41	-409.27	1,731.54	1,575.24	156.30	11.078	
7,000.00	6,856.30	6,806.75	6,806.30	26.76	132.02	-112.52	877.41	-409.27	1,757.97	1,600.99	156.97	11.199	
7,050.00	6,880.00	6,830.45	6,830.00	27.03	132.49	-110.11	877.41	-409.27	1,785.97	1,628.40	157.57	11.334	
7,100.00	6,900.19	6,850.64	6,850.19	27.32	132.88	-107.41	877.41	-409.27	1,815.44	1,657.35	158.09	11.483	
7,150.00	6,916.74	6,867.19	6,866.74	27.62	133.21	-104.40	877.41	-409.27	1,846.25	1,687.72	158.53	11.646	
7,200.00	6,929.56	6,880.01	6,879.56	27.93	133.46	-101.06	877.41	-409.27	1,878.26	1,719.37	158.89	11.821	
7,250.00	6,938.57	6,889.02	6,888.57	28.26	133.64	-97.40	877.41	-409.27	1,911.27	1,752.11	159.16	12.008	
7,300.00	6,943.70	6,894.18	6,893.71	28.60	133.74	-93.42	880.44	-409.27	1,947.33	1,787.97	159.36	12.220	
7,340.76	6,945.00	6,895.49	6,895.02	28.88	133.77	-90.00	880.44	-409.27	1,975.33	1,815.88	159.44	12.389	
7,400.00	6,945.00	6,895.49	6,895.02	29.31	133.77	-90.00	880.44	-409.27	2,016.71	1,857.18	159.53	12.641	
7,500.00	6,945.00	6,895.49	6,895.02	30.09	133.77	-90.00	880.44	-409.27	2,088.51	1,928.83	159.69	13.079	
7,600.00	6,945.00	6,895.49	6,895.02	30.93	133.77	-90.00	880.44	-409.27	2,162.56	2,002.71	159.85	13.529	
7,700.00	6,945.00	6,895.49	6,895.02	31.83	133.77	-90.00	880.44	-409.27	2,238.63	2,078.62	160.01	13.991	
7,800.00	6,945.00	6,895.49	6,895.02	32.79	133.77	-90.00	880.44	-409.27	2,316.51	2,156.35	160.16	14.464	
7,900.00	6,945.00	6,895.49	6,895.02	33.79	133.77	-90.00	880.44	-409.27	2,396.04	2,235.72	160.32	14.946	
8,000.00	6,945.00	6,895.49	6,895.02	34.84	133.77	-90.00	880.44	-409.27	2,477.05	2,316.58	160.47	15.437	
8,100.00	6,945.00	6,895.49	6,895.02	35.93	133.77	-90.00	880.44	-409.27	2,559.40	2,398.79	160.61	15.935	
8,200.00	6,945.00	6,895.49	6,895.02	37.06	133.77	-90.00	880.44	-409.27	2,642.98	2,482.22	160.75	16.441	
8,300.00	6,945.00	6,895.49	6,895.02	38.23	133.77	-90.00	880.44	-409.27	2,727.66	2,566.76	160.89	16.953	
8,400.00	6,945.00	6,895.49	6,895.02	39.42	133.77	-90.00	880.44	-409.27	2,813.34	2,652.31	161.03	17.471	
8,500.00	6,945.00	6,895.49	6,895.02	40.65	133.77	-90.00	880.44	-409.27	2,899.94	2,738.79	161.15	17.995	
8,600.00	6,945.00	6,895.49	6,895.02	41.90	133.77	-90.00	880.44	-409.27	2,987.38	2,826.10	161.28	18.523	
8,700.00	6,945.00	6,895.49	6,895.02	43.17	133.77	-90.00	880.44	-409.27	3,075.58	2,914.19	161.40	19.056	
8,800.00	6,945.00	6,895.49	6,895.02	44.46	133.77	-90.00	880.44	-409.27	3,164.49	3,002.98	161.51	19.593	
8,900.00	6,945.00	6,895.49	6,895.02	45.78	133.77	-90.00	880.44	-409.27	3,254.04	3,092.41	161.63	20.133	
9,000.00	6,945.00	6,895.49	6,895.02	47.11	133.77	-90.00	880.44	-409.27	3,344.18	3,182.45	161.73	20.677	
9,100.00	6,945.00	6,895.49	6,895.02	48.46	133.77	-90.00	880.44	-409.27	3,434.87	3,273.03	161.84	21.224	

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 705H
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 705H	**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 #3	**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
9,200.00	6,945.00	6,895.49	6,895.02	49.82	133.77	-90.00	880.44	-409.27	3,526.06	3,364.12	161.94	21.774	
9,300.00	6,945.00	6,895.49	6,895.02	51.20	133.77	-90.00	880.44	-409.27	3,617.72	3,455.68	162.04	22.326	
9,400.00	6,945.00	6,895.49	6,895.02	52.59	133.77	-90.00	880.44	-409.27	3,709.80	3,547.67	162.13	22.881	
9,500.00	6,945.00	6,895.49	6,895.02	53.99	133.77	-90.00	880.44	-409.27	3,802.29	3,640.06	162.23	23.438	
9,600.00	6,945.00	6,895.49	6,895.02	55.40	133.77	-90.00	880.44	-409.27	3,895.15	3,732.83	162.32	23.997	
9,700.00	6,945.00	6,895.49	6,895.02	56.83	133.77	-90.00	880.44	-409.27	3,988.36	3,825.95	162.41	24.558	
9,800.00	6,945.00	6,895.49	6,895.02	58.26	133.77	-90.00	880.44	-409.27	4,081.88	3,919.39	162.49	25.120	
9,900.00	6,945.00	6,895.49	6,895.02	59.70	133.77	-90.00	880.44	-409.27	4,175.71	4,013.13	162.58	25.684	
10,000.00	6,945.00	6,895.49	6,895.02	61.15	133.77	-90.00	880.44	-409.27	4,269.81	4,107.15	162.66	26.250	
10,100.00	6,945.00	6,895.49	6,895.02	62.61	133.77	-90.00	880.44	-409.27	4,364.18	4,201.44	162.74	26.816	
10,200.00	6,945.00	6,895.49	6,895.02	64.07	133.77	-90.00	880.44	-409.27	4,458.80	4,295.97	162.82	27.384	
10,300.00	6,945.00	6,895.49	6,895.02	65.54	133.77	-90.00	880.44	-409.27	4,553.64	4,390.74	162.90	27.953	
10,400.00	6,945.00	6,895.49	6,895.02	67.02	133.77	-90.00	880.44	-409.27	4,648.70	4,485.72	162.98	28.523	
10,500.00	6,945.00	6,895.49	6,895.02	68.50	133.77	-90.00	880.44	-409.27	4,743.96	4,580.91	163.06	29.094	
10,600.00	6,945.00	6,895.49	6,895.02	69.99	133.77	-90.00	880.44	-409.27	4,839.42	4,676.29	163.13	29.666	
10,700.00	6,945.00	6,895.49	6,895.02	71.48	133.77	-90.00	880.44	-409.27	4,935.05	4,771.85	163.20	30.238	
10,800.00	6,945.00	6,895.49	6,895.02	72.98	133.77	-90.00	880.44	-409.27	5,030.86	4,867.58	163.28	30.812	
10,900.00	6,945.00	6,895.49	6,895.02	74.48	133.77	-90.00	880.44	-409.27	5,126.82	4,963.47	163.35	31.385	
11,000.00	6,945.00	6,895.49	6,895.02	75.99	133.77	-90.00	880.44	-409.27	5,222.94	5,059.52	163.42	31.960	
11,100.00	6,945.00	6,895.49	6,895.02	77.50	133.77	-90.00	880.44	-409.27	5,319.20	5,155.70	163.49	32.534	
11,200.00	6,945.00	6,895.49	6,895.02	79.01	133.77	-90.00	880.44	-409.27	5,415.59	5,252.03	163.57	33.110	
11,300.00	6,945.00	6,895.49	6,895.02	80.53	133.77	-90.00	880.44	-409.27	5,512.11	5,348.48	163.64	33.685	
11,400.00	6,945.00	6,895.49	6,895.02	82.05	133.77	-90.00	880.44	-409.27	5,608.76	5,445.05	163.71	34.261	
11,500.00	6,945.00	6,895.49	6,895.02	83.57	133.77	-90.00	880.44	-409.27	5,705.52	5,541.75	163.77	34.838	
11,600.00	6,945.00	6,895.49	6,895.02	85.10	133.77	-90.00	880.44	-409.27	5,802.39	5,638.55	163.84	35.414	
11,700.00	6,945.00	6,895.49	6,895.02	86.63	133.77	-90.00	880.44	-409.27	5,899.37	5,735.45	163.91	35.991	
11,800.00	6,945.00	6,895.49	6,895.02	88.16	133.77	-90.00	880.44	-409.27	5,996.44	5,832.46	163.98	36.568	
11,900.00	6,945.00	6,895.49	6,895.02	89.69	133.77	-90.00	880.44	-409.27	6,093.61	5,929.56	164.05	37.145	
12,000.00	6,945.00	6,895.49	6,895.02	91.23	133.77	-90.00	880.44	-409.27	6,190.87	6,026.75	164.12	37.722	
12,100.00	6,945.00	6,895.49	6,895.02	92.77	133.77	-90.00	880.44	-409.27	6,288.21	6,124.03	164.19	38.299	
12,200.00	6,945.00	6,895.49	6,895.02	94.31	133.77	-90.00	880.44	-409.27	6,385.64	6,221.39	164.25	38.877	
12,300.00	6,945.00	6,895.49	6,895.02	95.85	133.77	-90.00	880.44	-409.27	6,483.15	6,318.82	164.32	39.454	
12,400.00	6,945.00	6,895.49	6,895.02	97.40	133.77	-90.00	880.44	-409.27	6,580.73	6,416.34	164.39	40.031	
12,500.00	6,945.00	6,895.49	6,895.02	98.95	133.77	-90.00	880.44	-409.27	6,678.38	6,513.92	164.46	40.608	
12,600.00	6,945.00	6,895.49	6,895.02	100.50	133.77	-90.00	880.44	-409.27	6,776.10	6,611.57	164.53	41.186	
12,700.00	6,945.00	6,895.49	6,895.02	102.05	133.77	-90.00	880.44	-409.27	6,873.88	6,709.29	164.59	41.763	
12,800.00	6,945.00	6,895.49	6,895.02	103.60	133.77	-90.00	880.44	-409.27	6,971.73	6,807.07	164.66	42.340	
12,900.00	6,945.00	6,895.49	6,895.02	105.15	133.77	-90.00	880.44	-409.27	7,069.64	6,904.91	164.73	42.916	
13,000.00	6,945.00	6,895.49	6,895.02	106.71	133.77	-90.00	880.44	-409.27	7,167.61	7,002.81	164.80	43.493	
13,100.00	6,945.00	6,895.49	6,895.02	108.26	133.77	-90.00	880.44	-409.27	7,265.63	7,100.76	164.87	44.070	
13,200.00	6,945.00	6,895.49	6,895.02	109.82	133.77	-90.00	880.44	-409.27	7,363.71	7,198.77	164.94	44.646	
13,300.00	6,945.00	6,895.49	6,895.02	111.38	133.77	-90.00	880.44	-409.27	7,461.83	7,296.83	165.00	45.222	
13,400.00	6,945.00	6,895.49	6,895.02	112.94	133.77	-90.00	880.44	-409.27	7,560.01	7,394.93	165.07	45.798	
13,500.00	6,945.00	6,895.49	6,895.02	114.50	133.77	-90.00	880.44	-409.27	7,658.23	7,493.09	165.14	46.373	
13,600.00	6,945.00	6,895.49	6,895.02	116.07	133.77	-90.00	880.44	-409.27	7,756.50	7,591.29	165.21	46.949	
13,700.00	6,945.00	6,895.49	6,895.02	117.63	133.77	-90.00	880.44	-409.27	7,854.81	7,689.53	165.28	47.524	
13,800.00	6,945.00	6,895.49	6,895.02	119.19	133.77	-90.00	880.44	-409.27	7,953.17	7,787.81	165.35	48.098	
13,900.00	6,945.00	6,895.49	6,895.02	120.76	133.77	-90.00	880.44	-409.27	8,051.56	7,886.14	165.42	48.673	
14,000.00	6,945.00	6,895.49	6,895.02	122.33	133.77	-90.00	880.44	-409.27	8,149.99	7,984.50	165.49	49.247	
14,100.00	6,945.00	6,895.49	6,895.02	123.90	133.77	-90.00	880.44	-409.27	8,248.46	8,082.90	165.56	49.821	
14,200.00	6,945.00	6,895.49	6,895.02	125.46	133.77	-90.00	880.44	-409.27	8,346.97	8,181.34	165.63	50.394	
14,300.00	6,945.00	6,895.49	6,895.02	127.03	133.77	-90.00	880.44	-409.27	8,445.51	8,279.81	165.71	50.967	

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 705H
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 705H	**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 #3	**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
14,400.00	6,945.00	6,895.49	6,895.02	128.60	133.77	-90.00	880.44	-409.27	8,544.09	8,378.31	165.78	51.540	
14,500.00	6,945.00	6,895.49	6,895.02	130.18	133.77	-90.00	880.44	-409.27	8,642.70	8,476.85	165.85	52.112	
14,600.00	6,945.00	6,895.49	6,895.02	131.75	133.77	-90.00	880.44	-409.27	8,741.34	8,575.42	165.92	52.684	
14,700.00	6,945.00	6,895.49	6,895.02	133.32	133.77	-90.00	880.44	-409.27	8,840.01	8,674.02	165.99	53.255	
14,800.00	6,945.00	6,895.49	6,895.02	134.89	133.77	-90.00	880.44	-409.27	8,938.71	8,772.65	166.07	53.826	
14,900.00	6,945.00	6,895.49	6,895.02	136.47	133.77	-90.00	880.44	-409.27	9,037.44	8,871.30	166.14	54.396	
15,000.00	6,945.00	6,895.49	6,895.02	138.04	133.77	-90.00	880.44	-409.27	9,136.20	8,969.99	166.21	54.967	
15,100.00	6,945.00	6,895.49	6,895.02	139.62	133.77	-90.00	880.44	-409.27	9,234.98	9,068.70	166.29	55.536	
15,200.00	6,945.00	6,895.49	6,895.02	141.20	133.77	-90.00	880.44	-409.27	9,333.79	9,167.43	166.36	56.105	
15,300.00	6,945.00	6,895.49	6,895.02	142.77	133.77	-90.00	880.44	-409.27	9,432.63	9,266.19	166.44	56.674	
15,400.00	6,945.00	6,895.49	6,895.02	144.35	133.77	-90.00	880.44	-409.27	9,531.49	9,364.98	166.51	57.242	
15,500.00	6,945.00	6,895.49	6,895.02	145.93	133.77	-90.00	880.44	-409.27	9,630.37	9,463.78	166.59	57.810	
15,600.00	6,945.00	6,895.49	6,895.02	147.51	133.77	-90.00	880.44	-409.27	9,729.28	9,562.61	166.66	58.377	
15,700.00	6,945.00	6,895.49	6,895.02	149.09	133.77	-90.00	880.44	-409.27	9,828.20	9,661.47	166.74	58.944	
15,800.00	6,945.00	6,895.49	6,895.02	150.67	133.77	-90.00	880.44	-409.27	9,927.15	9,760.34	166.81	59.510	
15,900.00	6,945.00	6,895.49	6,895.02	152.25	133.77	-90.00	880.44	-409.27	10,026.12	9,859.23	166.89	60.076	
16,000.00	6,945.00	6,895.49	6,895.02	153.83	133.77	-90.00	880.44	-409.27	10,125.11	9,958.14	166.97	60.641	
16,100.00	6,945.00	6,895.49	6,895.02	155.41	133.77	-90.00	880.44	-409.27	10,224.12	10,057.08	167.05	61.205	
16,200.00	6,945.00	6,895.49	6,895.02	156.99	133.77	-90.00	880.44	-409.27	10,323.15	10,156.03	167.12	61.769	
16,300.00	6,945.00	6,895.49	6,895.02	158.57	133.77	-90.00	880.44	-409.27	10,422.20	10,255.00	167.20	62.333	
16,400.00	6,945.00	6,895.49	6,895.02	160.15	133.77	-90.00	880.44	-409.27	10,521.27	10,353.98	167.28	62.896	
16,500.00	6,945.00	6,895.49	6,895.02	161.74	133.77	-90.00	880.44	-409.27	10,620.35	10,452.99	167.36	63.458	
16,600.00	6,945.00	6,895.49	6,895.02	163.32	133.77	-90.00	880.44	-409.27	10,719.45	10,552.01	167.44	64.020	
16,700.00	6,945.00	6,895.49	6,895.02	164.90	133.77	-90.00	880.44	-409.27	10,818.57	10,651.05	167.52	64.581	
16,800.00	6,945.00	6,895.49	6,895.02	166.49	133.77	-90.00	880.44	-409.27	10,917.70	10,750.10	167.60	65.141	
16,900.00	6,945.00	6,895.49	6,895.02	168.07	133.77	-90.00	880.44	-409.27	11,016.85	10,849.17	167.68	65.701	
17,000.00	6,945.00	6,895.49	6,895.02	169.66	133.77	-90.00	880.44	-409.27	11,116.01	10,948.25	167.76	66.261	
17,100.00	6,945.00	6,895.49	6,895.02	171.24	133.77	-90.00	880.44	-409.27	11,215.19	11,047.35	167.84	66.819	
17,200.00	6,945.00	6,895.49	6,895.02	172.83	133.77	-90.00	880.44	-409.27	11,314.38	11,146.46	167.93	67.378	
17,300.00	6,945.00	6,895.49	6,895.02	174.41	133.77	-90.00	880.44	-409.27	11,413.59	11,245.58	168.01	67.935	
17,400.00	6,945.00	6,895.49	6,895.02	176.00	133.77	-90.00	880.44	-409.27	11,512.81	11,344.72	168.09	68.492	
17,500.00	6,945.00	6,895.49	6,895.02	177.59	133.77	-90.00	880.44	-409.27	11,612.04	11,443.87	168.17	69.048	
17,600.00	6,945.00	6,895.49	6,895.02	179.17	133.77	-90.00	880.44	-409.27	11,711.29	11,543.04	168.26	69.604	
17,700.00	6,945.00	6,895.49	6,895.02	180.76	133.77	-90.00	880.44	-409.27	11,810.55	11,642.21	168.34	70.159	
17,800.00	6,945.00	6,895.49	6,895.02	182.35	133.77	-90.00	880.44	-409.27	11,909.82	11,741.40	168.42	70.713	
17,900.00	6,945.00	6,895.49	6,895.02	183.93	133.77	-90.00	880.44	-409.27	12,009.11	11,840.60	168.51	71.267	
18,000.00	6,945.00	6,895.49	6,895.02	185.52	133.77	-90.00	880.44	-409.27	12,108.40	11,939.81	168.59	71.820	
18,100.00	6,945.00	6,895.49	6,895.02	187.11	133.77	-90.00	880.44	-409.27	12,207.71	12,039.03	168.68	72.372	
18,200.00	6,945.00	6,895.49	6,895.02	188.70	133.77	-90.00	880.44	-409.27	12,307.03	12,138.27	168.76	72.924	
18,300.00	6,945.00	6,895.49	6,895.02	190.29	133.77	-90.00	880.44	-409.27	12,406.36	12,237.51	168.85	73.475	
18,400.00	6,945.00	6,895.49	6,895.02	191.88	133.77	-90.00	880.44	-409.27	12,505.70	12,336.76	168.94	74.026	
18,500.00	6,945.00	6,895.49	6,895.02	193.46	133.77	-90.00	880.44	-409.27	12,605.05	12,436.03	169.02	74.575	
18,600.00	6,945.00	6,895.49	6,895.02	195.05	133.77	-90.00	880.44	-409.27	12,704.41	12,535.30	169.11	75.124	
18,700.00	6,945.00	6,895.49	6,895.02	196.64	133.77	-90.00	880.44	-409.27	12,803.78	12,634.59	169.20	75.673	
18,800.00	6,945.00	6,895.49	6,895.02	198.23	133.77	-90.00	880.44	-409.27	12,903.17	12,733.88	169.29	76.221	
18,900.00	6,945.00	6,895.49	6,895.02	199.82	133.77	-90.00	880.44	-409.27	13,002.56	12,833.18	169.38	76.768	
19,000.00	6,945.00	6,895.49	6,895.02	201.41	133.77	-90.00	880.44	-409.27	13,101.96	12,932.49	169.46	77.314	
19,100.00	6,945.00	6,895.49	6,895.02	203.00	133.77	-90.00	880.44	-409.27	13,201.36	13,031.81	169.55	77.860	
19,200.00	6,945.00	6,895.49	6,895.02	204.60	133.77	-90.00	880.44	-409.27	13,300.78	13,131.14	169.64	78.404	
19,300.00	6,945.00	6,895.49	6,895.02	206.19	133.77	-90.00	880.44	-409.27	13,400.21	13,230.47	169.73	78.949	
19,400.00	6,945.00	6,895.49	6,895.02	207.78	133.77	-90.00	880.44	-409.27	13,499.64	13,329.82	169.82	79.492	
19,500.00	6,945.00	6,895.49	6,895.02	209.37	133.77	-90.00	880.44	-409.27	13,599.09	13,429.17	169.91	80.035	

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 705H
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 705H	**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 #3	**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

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
19,600.00	6,945.00	6,895.49	6,895.02	210.96	133.77	-90.00	880.44	-409.27	13,698.54	13,528.53	170.00	80.577	
19,700.00	6,945.00	6,895.49	6,895.02	212.55	133.77	-90.00	880.44	-409.27	13,798.00	13,627.90	170.10	81.119	
19,800.00	6,945.00	6,895.49	6,895.02	214.14	133.77	-90.00	880.44	-409.27	13,897.46	13,727.27	170.19	81.659	
19,900.00	6,945.00	6,895.49	6,895.02	215.74	133.77	-90.00	880.44	-409.27	13,996.94	13,826.66	170.28	82.199	
20,000.00	6,945.00	6,895.49	6,895.02	217.33	133.77	-90.00	880.44	-409.27	14,096.42	13,926.05	170.37	82.739	
20,100.00	6,945.00	6,895.49	6,895.02	218.92	133.77	-90.00	880.44	-409.27	14,195.91	14,025.44	170.47	83.277	
20,200.00	6,945.00	6,895.49	6,895.02	220.51	133.77	-90.00	880.44	-409.27	14,295.40	14,124.84	170.56	83.815	
20,300.00	6,945.00	6,895.49	6,895.02	222.11	133.77	-90.00	880.44	-409.27	14,394.91	14,224.25	170.65	84.352	
20,400.00	6,945.00	6,895.49	6,895.02	223.70	133.77	-90.00	880.44	-409.27	14,494.42	14,323.67	170.75	84.889	
20,500.00	6,945.00	6,895.49	6,895.02	225.29	133.77	-90.00	880.44	-409.27	14,593.93	14,423.09	170.84	85.424	
20,600.00	6,945.00	6,895.49	6,895.02	226.88	133.77	-90.00	880.44	-409.27	14,693.46	14,522.52	170.94	85.959	
20,700.00	6,945.00	6,895.49	6,895.02	228.48	133.77	-90.00	880.44	-409.27	14,792.99	14,621.96	171.03	86.493	
20,741.48	6,945.00	6,895.49	6,895.02	229.14	133.77	-90.00	880.44	-409.27	14,834.27	14,663.20	171.07	86.715	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 705H
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 705H	**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 #3	**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	100.23	-1,362.62	7,552.14	7,674.08				
100.00	100.00	395.00	395.00	0.25	11.84	100.23	-1,362.62	7,552.14	7,674.08	7,662.00	12.09	634.906	
200.00	200.00	495.00	495.00	0.61	14.83	100.23	-1,362.62	7,552.14	7,674.08	7,658.64	15.44	496.967	
300.00	300.00	595.10	595.00	0.97	17.83	100.23	-1,362.62	7,552.14	7,674.08	7,655.28	18.80	408.200	
400.00	400.00	695.10	695.00	1.33	20.83	100.23	-1,362.62	7,552.14	7,674.08	7,651.93	22.15	346.386	
454.75	454.75	749.85	749.71	1.52	22.47	100.21	-1,360.44	7,552.14	7,673.70	7,649.70	23.99	319.850	
500.00	500.00	791.19	791.04	1.68	23.71	100.21	-1,360.50	7,552.14	7,673.71	7,648.31	25.39	302.204	
600.00	599.98	882.56	882.40	2.03	26.45	-47.54	-1,361.06	7,552.14	7,672.64	7,644.16	28.47	269.470	
700.00	699.84	973.91	973.71	2.37	29.18	-47.61	-1,362.20	7,552.14	7,669.32	7,637.78	31.55	243.118	
795.17	794.65	1,090.05	1,089.65	2.69	32.66	-47.74	-1,362.62	7,552.14	7,663.83	7,628.47	35.35	216.770	
800.00	799.45	1,094.86	1,094.45	2.71	32.81	-47.74	-1,362.62	7,552.14	7,663.49	7,627.98	35.52	215.771	
900.00	898.92	1,194.33	1,193.92	3.06	35.79	-47.80	-1,362.62	7,552.14	7,656.56	7,617.71	38.85	197.094	
1,000.00	998.39	1,290.08	1,289.63	3.43	38.66	-47.87	-1,360.50	7,552.14	7,649.27	7,607.19	42.07	181.814	
1,100.00	1,097.86	1,381.22	1,380.75	3.79	41.39	-47.92	-1,361.05	7,552.14	7,642.45	7,597.29	45.16	169.220	
1,200.00	1,197.33	1,472.49	1,472.00	4.16	44.12	-47.96	-1,362.17	7,552.14	7,635.76	7,587.50	48.26	158.220	
1,300.00	1,296.80	1,592.51	1,591.80	4.53	47.72	-48.03	-1,362.62	7,552.14	7,628.90	7,576.68	52.22	146.086	
1,400.00	1,396.27	1,691.98	1,691.27	4.91	50.70	-48.08	-1,362.62	7,552.14	7,622.01	7,566.44	55.57	137.162	
1,500.00	1,495.74	1,788.04	1,787.28	5.28	53.58	-48.16	-1,360.50	7,552.14	7,614.76	7,555.95	58.82	129.467	
1,600.00	1,595.21	1,879.43	1,878.66	5.66	56.32	-48.20	-1,361.03	7,552.14	7,607.98	7,546.06	61.92	122.859	
1,700.00	1,694.68	1,970.96	1,970.16	6.04	59.06	-48.25	-1,362.15	7,552.14	7,601.32	7,536.28	65.04	116.875	
1,800.00	1,794.15	2,090.16	2,089.15	6.42	62.63	-48.32	-1,362.62	7,552.14	7,594.51	7,525.53	68.98	110.096	
1,900.00	1,893.62	2,189.63	2,188.62	6.80	65.61	-48.37	-1,362.62	7,552.14	7,587.65	7,515.32	72.33	104.898	
2,000.00	1,993.09	2,285.98	2,284.92	7.18	68.50	-48.44	-1,360.49	7,552.14	7,580.45	7,504.86	75.59	100.279	
2,100.00	2,092.56	2,377.63	2,376.56	7.56	71.24	-48.49	-1,361.01	7,552.14	7,573.71	7,494.99	78.71	96.219	
2,200.00	2,192.03	2,469.41	2,468.31	7.94	73.99	-48.54	-1,362.13	7,552.14	7,567.07	7,485.23	81.84	92.465	
2,300.00	2,291.50	2,587.82	2,586.50	8.32	77.54	-48.61	-1,362.62	7,552.14	7,560.30	7,474.55	85.76	88.158	
2,400.00	2,390.97	2,687.29	2,685.97	8.70	80.52	-48.66	-1,362.62	7,552.14	7,553.49	7,464.37	89.11	84.763	
2,500.00	2,490.44	2,783.92	2,782.55	9.08	83.42	-48.74	-1,360.49	7,552.14	7,546.34	7,453.95	92.38	81.685	
2,600.00	2,589.91	2,875.82	2,874.44	9.47	86.17	-48.79	-1,361.00	7,552.14	7,539.62	7,444.11	95.51	78.939	
2,700.00	2,689.38	2,967.86	2,966.45	9.85	88.93	-48.83	-1,362.10	7,552.14	7,533.02	7,434.37	98.65	76.365	
2,800.00	2,788.85	3,085.47	3,083.85	10.23	92.45	-48.90	-1,362.62	7,552.14	7,526.30	7,423.75	102.54	73.396	
2,900.00	2,888.32	3,184.94	3,183.32	10.61	95.44	-48.96	-1,362.62	7,552.14	7,519.52	7,413.62	105.90	71.006	
3,000.00	2,987.79	3,281.84	3,280.17	11.00	98.34	-49.03	-1,360.48	7,552.14	7,512.42	7,403.24	109.18	68.808	
3,100.00	3,087.25	3,374.00	3,372.32	11.38	101.10	-49.08	-1,360.98	7,552.14	7,505.74	7,393.42	112.32	66.826	
3,200.00	3,186.72	3,466.30	3,464.58	11.76	103.87	-49.13	-1,362.08	7,552.14	7,499.17	7,383.71	115.46	64.951	
3,300.00	3,286.19	3,583.12	3,581.19	12.15	107.37	-49.19	-1,362.62	7,552.14	7,492.49	7,373.15	119.34	62.785	
3,400.00	3,385.66	3,682.59	3,680.66	12.53	110.35	-49.25	-1,362.62	7,552.14	7,485.75	7,363.06	122.69	61.012	
3,500.00	3,485.13	3,779.75	3,777.78	12.91	113.26	-49.33	-1,360.48	7,552.14	7,478.70	7,352.72	125.98	59.364	
3,600.00	3,584.60	3,872.17	3,870.18	13.30	116.03	-49.38	-1,360.97	7,552.14	7,472.06	7,342.93	129.13	57.866	
3,700.00	3,684.07	3,964.72	3,962.71	13.68	118.80	-49.43	-1,362.06	7,552.14	7,465.52	7,333.24	132.28	56.438	
3,800.00	3,783.54	4,080.78	4,078.54	14.06	122.28	-49.49	-1,362.62	7,552.14	7,458.88	7,322.75	136.13	54.792	
3,900.00	3,883.01	4,180.25	4,178.01	14.45	125.26	-49.55	-1,362.62	7,552.14	7,452.18	7,312.69	139.49	53.425	
4,000.00	3,982.48	4,277.65	4,275.37	14.83	128.18	-49.63	-1,360.47	7,552.14	7,445.18	7,302.40	142.78	52.143	
4,100.00	4,081.95	4,370.33	4,368.04	15.22	130.95	-49.68	-1,360.95	7,552.14	7,438.58	7,292.64	145.94	50.971	
4,200.00	4,181.42	4,463.14	4,460.82	15.60	133.74	-49.73	-1,362.03	7,552.14	7,432.07	7,282.97	149.10	49.847	
4,300.00	4,280.89	4,578.43	4,575.89	15.98	137.19	-49.79	-1,362.62	7,552.14	7,425.47	7,272.55	152.93	48.555	
4,400.00	4,380.36	4,677.90	4,675.36	16.37	140.17	-49.85	-1,362.62	7,552.14	7,418.82	7,262.53	156.29	47.470	
4,500.00	4,479.83	4,775.54	4,772.96	16.75	143.10	-49.93	-1,360.47	7,552.14	7,411.87	7,252.28	159.59	46.443	
4,600.00	4,579.30	4,868.48	4,865.88	17.14	145.88	-49.98	-1,360.94	7,552.14	7,405.30	7,242.55	162.75	45.500	
4,700.00	4,678.77	4,961.55	4,958.93	17.52	148.67	-50.03	-1,362.01	7,552.14	7,398.83	7,232.91	165.92	44.593	
4,800.00	4,778.24	5,076.08	5,073.24	17.90	152.10	-50.10	-1,362.62	7,552.14	7,392.28	7,222.55	169.73	43.554	
4,900.00	4,877.71	5,175.55	5,172.71	18.29	155.08	-50.16	-1,362.62	7,552.14	7,385.66	7,212.58	173.09	42.671	

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 705H
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 705H	**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 #3	**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
5,000.00	4,977.18	5,273.41	5,270.53	18.67	158.02	-50.23	-1,360.46	7,552.14	7,378.77	7,202.37	176.40	41.831	
5,100.00	5,076.65	5,366.62	5,363.72	19.06	160.81	-50.29	-1,360.92	7,552.14	7,372.24	7,192.67	179.57	41.055	
5,200.00	5,176.12	5,459.96	5,457.03	19.44	163.60	-50.34	-1,361.99	7,552.14	7,365.80	7,183.05	182.74	40.307	
5,300.00	5,275.59	5,573.74	5,570.59	19.83	167.01	-50.40	-1,362.62	7,552.14	7,359.29	7,172.76	186.53	39.454	
5,400.00	5,375.06	5,673.20	5,670.06	20.21	169.99	-50.46	-1,362.62	7,552.14	7,352.72	7,162.83	189.89	38.721	
5,500.00	5,474.53	5,771.28	5,768.09	20.59	172.93	-50.54	-1,360.46	7,552.14	7,345.87	7,152.67	193.21	38.021	
5,600.00	5,574.00	5,864.75	5,861.54	20.98	175.73	-50.60	-1,360.91	7,552.14	7,339.38	7,143.00	196.38	37.372	
5,700.00	5,673.47	5,958.35	5,955.12	21.36	178.54	-50.65	-1,361.96	7,552.14	7,332.98	7,133.41	199.57	36.744	
5,800.00	5,772.94	6,071.39	6,067.94	21.75	181.93	-50.71	-1,362.62	7,552.14	7,326.51	7,123.18	203.33	36.032	
5,900.00	5,872.41	6,170.86	6,167.41	22.13	184.91	-50.77	-1,362.62	7,552.14	7,319.98	7,113.29	206.69	35.415	
6,000.00	5,971.88	6,269.13	6,265.64	22.52	187.85	-50.85	-1,360.46	7,552.14	7,313.20	7,103.18	210.01	34.822	
6,100.00	6,071.35	6,362.86	6,359.35	22.90	190.66	-50.91	-1,360.89	7,552.14	7,306.74	7,093.54	213.20	34.271	
6,200.00	6,170.81	6,456.73	6,453.19	23.28	193.47	-50.96	-1,361.94	7,552.14	7,300.37	7,083.98	216.39	33.736	
6,300.00	6,270.28	6,569.04	6,565.28	23.67	196.84	-51.02	-1,362.62	7,552.14	7,293.95	7,073.81	220.14	33.134	
6,375.94	6,345.82	6,644.58	6,640.82	23.96	199.10	-51.07	-1,362.62	7,552.14	7,289.03	7,066.34	222.69	32.732	
6,400.00	6,369.72	6,668.48	6,664.72	24.05	199.82	-36.60	-1,362.62	7,552.14	7,287.02	7,063.52	223.50	32.605	
6,450.00	6,419.09	6,717.84	6,714.09	24.25	201.30	-20.42	-1,362.62	7,552.14	7,279.97	7,054.81	225.16	32.332	
6,500.00	6,467.78	6,765.61	6,761.81	24.46	202.73	-12.70	-1,360.45	7,552.14	7,268.84	7,042.05	226.78	32.052	
6,550.00	6,515.51	6,810.69	6,806.89	24.67	204.08	-8.26	-1,360.57	7,552.14	7,254.21	7,025.89	228.32	31.772	
6,600.00	6,561.97	6,854.62	6,850.80	24.88	205.40	-5.36	-1,360.83	7,552.14	7,235.92	7,006.10	229.82	31.486	
6,650.00	6,606.89	6,897.10	6,893.28	25.10	206.67	-3.26	-1,361.20	7,552.14	7,214.07	6,982.81	231.26	31.194	
6,700.00	6,649.98	6,937.89	6,934.06	25.32	207.89	-1.60	-1,361.68	7,552.14	7,188.81	6,956.17	232.65	30.900	
6,750.00	6,690.98	6,976.72	6,972.87	25.54	209.05	-0.19	-1,362.24	7,552.14	7,160.29	6,926.32	233.96	30.604	
6,800.00	6,729.64	7,028.70	7,024.64	25.77	210.61	1.11	-1,362.62	7,552.14	7,128.63	6,892.97	235.66	30.250	
6,850.00	6,765.71	7,064.77	7,060.71	26.00	211.69	2.38	-1,362.62	7,552.14	7,094.03	6,857.16	236.87	29.949	
6,900.00	6,798.98	7,098.04	7,093.98	26.24	212.69	3.72	-1,362.62	7,552.14	7,056.75	6,818.77	237.98	29.653	
6,950.00	6,829.24	7,128.30	7,124.24	26.49	213.60	5.22	-1,362.62	7,552.14	7,017.00	6,778.02	238.99	29.362	
7,000.00	6,856.30	7,155.36	7,151.30	26.76	214.41	7.01	-1,362.62	7,552.14	6,975.04	6,735.16	239.88	29.077	
7,050.00	6,880.00	7,179.06	7,175.00	27.03	215.12	9.28	-1,362.62	7,552.14	6,931.13	6,690.47	240.66	28.800	
7,100.00	6,900.19	7,199.25	7,195.19	27.32	215.72	12.34	-1,362.62	7,552.14	6,885.53	6,644.21	241.32	28.533	
7,150.00	6,916.74	7,215.80	7,211.74	27.62	216.22	16.80	-1,362.62	7,552.14	6,838.54	6,596.68	241.86	28.275	
7,200.00	6,929.56	7,228.62	7,224.56	27.93	216.60	23.90	-1,362.62	7,552.14	6,790.43	6,548.16	242.27	28.029	
7,250.00	6,938.57	7,237.63	7,233.57	28.26	216.87	36.49	-1,362.62	7,552.14	6,741.51	6,498.96	242.55	27.794	
7,300.00	6,943.70	7,242.76	7,238.70	28.60	217.03	60.47	-1,362.62	7,552.14	6,692.07	6,449.37	242.70	27.573	
7,340.76	6,945.00	7,244.06	7,240.00	28.88	217.06	90.00	-1,362.62	7,552.14	6,651.62	6,408.88	242.73	27.403	
7,400.00	6,945.00	7,244.06	7,240.00	29.31	217.06	90.00	-1,362.62	7,552.14	6,592.79	6,350.07	242.72	27.162	
7,500.00	6,945.00	7,244.06	7,240.00	30.09	217.06	90.00	-1,362.62	7,552.14	6,493.51	6,250.82	242.70	26.756	
7,600.00	6,945.00	7,244.06	7,240.00	30.93	217.06	90.00	-1,362.62	7,552.14	6,394.26	6,151.58	242.67	26.349	
7,700.00	6,945.00	7,244.06	7,240.00	31.83	217.06	90.00	-1,362.62	7,552.14	6,295.02	6,052.37	242.65	25.943	
7,800.00	6,945.00	7,244.06	7,240.00	32.79	217.06	90.00	-1,362.62	7,552.14	6,195.82	5,953.18	242.63	25.536	
7,900.00	6,945.00	7,244.06	7,240.00	33.79	217.06	90.00	-1,362.62	7,552.14	6,096.64	5,854.02	242.62	25.129	
8,000.00	6,945.00	7,244.06	7,240.00	34.84	217.06	90.00	-1,362.62	7,552.14	5,997.48	5,754.88	242.60	24.721	
8,100.00	6,945.00	7,244.06	7,240.00	35.93	217.06	90.00	-1,362.62	7,552.14	5,898.36	5,655.77	242.59	24.314	
8,200.00	6,945.00	7,244.06	7,240.00	37.06	217.06	90.00	-1,362.62	7,552.14	5,799.26	5,556.68	242.58	23.906	
8,300.00	6,945.00	7,244.06	7,240.00	38.23	217.06	90.00	-1,362.62	7,552.14	5,700.20	5,457.62	242.58	23.498	
8,400.00	6,945.00	7,244.06	7,240.00	39.42	217.06	90.00	-1,362.62	7,552.14	5,601.17	5,358.59	242.58	23.090	
8,500.00	6,945.00	7,244.06	7,240.00	40.65	217.06	90.00	-1,362.62	7,552.14	5,502.17	5,259.59	242.58	22.682	
8,600.00	6,945.00	7,244.06	7,240.00	41.90	217.06	90.00	-1,362.62	7,552.14	5,403.22	5,160.63	242.59	22.273	
8,700.00	6,945.00	7,244.06	7,240.00	43.17	217.06	90.00	-1,362.62	7,552.14	5,304.30	5,061.70	242.60	21.865	
8,800.00	6,945.00	7,244.06	7,240.00	44.46	217.06	90.00	-1,362.62	7,552.14	5,205.42	4,962.81	242.61	21.456	
8,900.00	6,945.00	7,244.06	7,240.00	45.78	217.06	90.00	-1,362.62	7,552.14	5,106.58	4,863.95	242.63	21.047	
9,000.00	6,945.00	7,244.06	7,240.00	47.11	217.06	90.00	-1,362.62	7,552.14	5,007.80	4,765.14	242.66	20.637	

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 705H
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 705H	**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 #3	**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	6,945.00	7,244.06	7,240.00	48.46	217.06	90.00	-1,362.62	7,552.14	4,909.06	4,666.37	242.69	20.228	
9,200.00	6,945.00	7,244.06	7,240.00	49.82	217.06	90.00	-1,362.62	7,552.14	4,810.37	4,567.64	242.73	19.818	
9,300.00	6,945.00	7,244.06	7,240.00	51.20	217.06	90.00	-1,362.62	7,552.14	4,711.74	4,468.96	242.78	19.407	
9,400.00	6,945.00	7,244.06	7,240.00	52.59	217.06	90.00	-1,362.62	7,552.14	4,613.17	4,370.33	242.84	18.997	
9,500.00	6,945.00	7,244.06	7,240.00	53.99	217.06	90.00	-1,362.62	7,552.14	4,514.66	4,271.75	242.90	18.586	
9,600.00	6,945.00	7,244.06	7,240.00	55.40	217.06	90.00	-1,362.62	7,552.14	4,416.22	4,173.23	242.98	18.175	
9,700.00	6,945.00	7,244.06	7,240.00	56.83	217.06	90.00	-1,362.62	7,552.14	4,317.84	4,074.77	243.07	17.764	
9,800.00	6,945.00	7,244.06	7,240.00	58.26	217.06	90.00	-1,362.62	7,552.14	4,219.55	3,976.37	243.18	17.352	
9,900.00	6,945.00	7,244.06	7,240.00	59.70	217.06	90.00	-1,362.62	7,552.14	4,121.34	3,878.04	243.29	16.940	
10,000.00	6,945.00	7,244.06	7,240.00	61.15	217.06	90.00	-1,362.62	7,552.14	4,023.21	3,779.79	243.43	16.527	
10,100.00	6,945.00	7,244.06	7,240.00	62.61	217.06	90.00	-1,362.62	7,552.14	3,925.18	3,681.61	243.58	16.115	
10,200.00	6,945.00	7,244.06	7,240.00	64.07	217.06	90.00	-1,362.62	7,552.14	3,827.26	3,583.51	243.75	15.702	
10,300.00	6,945.00	7,244.06	7,240.00	65.54	217.06	90.00	-1,362.62	7,552.14	3,729.44	3,485.49	243.95	15.288	
10,400.00	6,945.00	7,244.06	7,240.00	67.02	217.06	90.00	-1,362.62	7,552.14	3,631.74	3,387.57	244.17	14.874	
10,500.00	6,945.00	7,244.06	7,240.00	68.50	217.06	90.00	-1,362.62	7,552.14	3,534.17	3,289.76	244.41	14.460	
10,600.00	6,945.00	7,244.06	7,240.00	69.99	217.06	90.00	-1,362.62	7,552.14	3,436.74	3,192.05	244.69	14.045	
10,700.00	6,945.00	7,244.06	7,240.00	71.48	217.06	90.00	-1,362.62	7,552.14	3,339.46	3,094.45	245.01	13.630	
10,800.00	6,945.00	7,244.06	7,240.00	72.98	217.06	90.00	-1,362.62	7,552.14	3,242.35	2,996.99	245.36	13.215	
10,900.00	6,945.00	7,244.06	7,240.00	74.48	217.06	90.00	-1,362.62	7,552.14	3,145.42	2,899.66	245.76	12.799	
11,000.00	6,945.00	7,244.06	7,240.00	75.99	217.06	90.00	-1,362.62	7,552.14	3,048.68	2,802.48	246.20	12.383	
11,100.00	6,945.00	7,244.06	7,240.00	77.50	217.06	90.00	-1,362.62	7,552.14	2,952.17	2,705.46	246.70	11.966	
11,200.00	6,945.00	7,244.06	7,240.00	79.01	217.06	90.00	-1,362.62	7,552.14	2,855.89	2,608.62	247.27	11.550	
11,300.00	6,945.00	7,244.06	7,240.00	80.53	217.06	90.00	-1,362.62	7,552.14	2,759.88	2,511.98	247.90	11.133	
11,400.00	6,945.00	7,244.06	7,240.00	82.05	217.06	90.00	-1,362.62	7,552.14	2,664.16	2,415.55	248.61	10.716	
11,500.00	6,945.00	7,244.06	7,240.00	83.57	217.06	90.00	-1,362.62	7,552.14	2,568.77	2,319.37	249.40	10.300	
11,600.00	6,945.00	7,244.06	7,240.00	85.10	217.06	90.00	-1,362.62	7,552.14	2,473.74	2,223.45	250.30	9.883	
11,700.00	6,945.00	7,244.06	7,240.00	86.63	217.06	90.00	-1,362.62	7,552.14	2,379.12	2,127.82	251.30	9.467	
11,800.00	6,945.00	7,244.06	7,240.00	88.16	217.06	90.00	-1,362.62	7,552.14	2,284.96	2,032.53	252.43	9.052	
11,900.00	6,945.00	7,244.06	7,240.00	89.69	217.06	90.00	-1,362.62	7,552.14	2,191.32	1,937.62	253.70	8.637	
12,000.00	6,945.00	7,244.06	7,240.00	91.23	217.06	90.00	-1,362.62	7,552.14	2,098.26	1,843.13	255.13	8.224	
12,100.00	6,945.00	7,244.06	7,240.00	92.77	217.06	90.00	-1,362.62	7,552.14	2,005.87	1,749.14	256.73	7.813	
12,200.00	6,945.00	7,244.06	7,240.00	94.31	217.06	90.00	-1,362.62	7,552.14	1,914.24	1,655.71	258.54	7.404	
12,300.00	6,945.00	7,244.06	7,240.00	95.85	217.06	90.00	-1,362.62	7,552.14	1,823.50	1,562.93	260.57	6.998	
12,400.00	6,945.00	7,244.06	7,240.00	97.40	217.06	90.00	-1,362.62	7,552.14	1,733.78	1,470.91	262.86	6.596	
12,500.00	6,945.00	7,244.06	7,240.00	98.95	217.06	90.00	-1,362.62	7,552.14	1,645.24	1,379.79	265.45	6.198	
12,600.00	6,945.00	7,244.06	7,240.00	100.50	217.06	90.00	-1,362.62	7,552.14	1,558.08	1,289.73	268.35	5.806	
12,700.00	6,945.00	7,244.06	7,240.00	102.05	217.06	90.00	-1,362.62	7,552.14	1,472.56	1,200.93	271.63	5.421	
12,800.00	6,945.00	7,244.06	7,240.00	103.60	217.06	90.00	-1,362.62	7,552.14	1,388.98	1,113.66	275.32	5.045	
12,900.00	6,945.00	7,244.06	7,240.00	105.15	217.06	90.00	-1,362.62	7,552.14	1,307.70	1,028.24	279.46	4.679	
13,000.00	6,945.00	7,244.06	7,240.00	106.71	217.06	90.00	-1,362.62	7,552.14	1,229.19	945.09	284.10	4.327	
13,100.00	6,945.00	7,244.06	7,240.00	108.26	217.06	90.00	-1,362.62	7,552.14	1,154.01	864.75	289.26	3.990	
13,200.00	6,945.00	7,244.06	7,240.00	109.82	217.06	90.00	-1,362.62	7,552.14	1,082.85	787.89	294.95	3.671	
13,300.00	6,945.00	7,244.06	7,240.00	111.38	217.06	90.00	-1,362.62	7,552.14	1,016.55	715.40	301.15	3.376	
13,400.00	6,945.00	7,244.06	7,240.00	112.94	217.06	90.00	-1,362.62	7,552.14	956.14	648.37	307.77	3.107	
13,500.00	6,945.00	7,244.06	7,240.00	114.50	217.06	90.00	-1,362.62	7,552.14	902.78	588.16	314.62	2.869	
13,600.00	6,945.00	7,244.06	7,240.00	116.07	217.06	90.00	-1,362.62	7,552.14	857.81	536.39	321.42	2.669	
13,700.00	6,945.00	7,244.06	7,240.00	117.63	217.06	90.00	-1,362.62	7,552.14	822.60	494.83	327.77	2.510	
13,800.00	6,945.00	7,244.06	7,240.00	119.19	217.06	90.00	-1,362.62	7,552.14	798.43	465.26	333.17	2.396	
13,900.00	6,945.00	7,244.06	7,240.00	120.76	217.06	90.00	-1,362.62	7,552.14	786.33	449.18	337.15	2.332	
13,945.89	6,945.00	7,244.06	7,240.00	121.48	217.06	90.00	-1,362.62	7,552.14	784.99	446.59	338.40	2.320	CC, ES
14,000.00	6,945.00	7,244.06	7,240.00	122.33	217.06	90.00	-1,362.62	7,552.14	786.85	447.48	339.37	2.319	SF
14,100.00	6,945.00	7,244.06	7,240.00	123.90	217.06	90.00	-1,362.62	7,552.14	799.97	460.24	339.73	2.355	

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 705H
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 705H	**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 #3	**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
14,200.00	6,945.00	7,244.06	7,240.00	125.46	217.06	90.00	-1,362.62	7,552.14	825.09	486.71	338.38	2.438	
14,300.00	6,945.00	7,244.06	7,240.00	127.03	217.06	90.00	-1,362.62	7,552.14	861.16	525.49	335.67	2.565	
14,400.00	6,945.00	7,244.06	7,240.00	128.60	217.06	90.00	-1,362.62	7,552.14	906.87	574.85	332.03	2.731	
14,500.00	6,945.00	7,244.06	7,240.00	130.18	217.06	90.00	-1,362.62	7,552.14	960.86	633.02	327.84	2.931	
14,600.00	6,945.00	7,244.06	7,240.00	131.75	217.06	90.00	-1,362.62	7,552.14	1,021.79	698.36	323.43	3.159	
14,700.00	6,945.00	7,244.06	7,240.00	133.32	217.06	90.00	-1,362.62	7,552.14	1,088.53	769.49	319.03	3.412	
14,800.00	6,945.00	7,244.06	7,240.00	134.89	217.06	90.00	-1,362.62	7,552.14	1,160.05	845.26	314.79	3.685	
14,900.00	6,945.00	7,244.06	7,240.00	136.47	217.06	90.00	-1,362.62	7,552.14	1,235.53	924.74	310.78	3.976	
15,000.00	6,945.00	7,244.06	7,240.00	138.04	217.06	90.00	-1,362.62	7,552.14	1,314.29	1,007.23	307.06	4.280	
15,100.00	6,945.00	7,244.06	7,240.00	139.62	217.06	90.00	-1,362.62	7,552.14	1,395.77	1,092.15	303.62	4.597	
15,200.00	6,945.00	7,244.06	7,240.00	141.20	217.06	90.00	-1,362.62	7,552.14	1,479.53	1,179.06	300.47	4.924	
15,300.00	6,945.00	7,244.06	7,240.00	142.77	217.06	90.00	-1,362.62	7,552.14	1,565.19	1,267.61	297.58	5.260	
15,400.00	6,945.00	7,244.06	7,240.00	144.35	217.06	90.00	-1,362.62	7,552.14	1,652.47	1,357.51	294.95	5.602	
15,500.00	6,945.00	7,244.06	7,240.00	145.93	217.06	90.00	-1,362.62	7,552.14	1,741.11	1,448.56	292.55	5.951	
15,600.00	6,945.00	7,244.06	7,240.00	147.51	217.06	90.00	-1,362.62	7,552.14	1,830.93	1,540.56	290.36	6.306	
15,700.00	6,945.00	7,244.06	7,240.00	149.09	217.06	90.00	-1,362.62	7,552.14	1,921.75	1,633.39	288.36	6.664	
15,800.00	6,945.00	7,244.06	7,240.00	150.67	217.06	90.00	-1,362.62	7,552.14	2,013.44	1,726.91	286.53	7.027	
15,900.00	6,945.00	7,244.06	7,240.00	152.25	217.06	90.00	-1,362.62	7,552.14	2,105.89	1,821.03	284.85	7.393	
16,000.00	6,945.00	7,244.06	7,240.00	153.83	217.06	90.00	-1,362.62	7,552.14	2,198.99	1,915.68	283.31	7.762	
16,100.00	6,945.00	7,244.06	7,240.00	155.41	217.06	90.00	-1,362.62	7,552.14	2,292.68	2,010.78	281.90	8.133	
16,200.00	6,945.00	7,244.06	7,240.00	156.99	217.06	90.00	-1,362.62	7,552.14	2,386.88	2,106.29	280.60	8.506	
16,300.00	6,945.00	7,244.06	7,240.00	158.57	217.06	90.00	-1,362.62	7,552.14	2,481.54	2,202.14	279.40	8.882	
16,400.00	6,945.00	7,244.06	7,240.00	160.15	217.06	90.00	-1,362.62	7,552.14	2,576.60	2,298.31	278.29	9.259	
16,500.00	6,945.00	7,244.06	7,240.00	161.74	217.06	90.00	-1,362.62	7,552.14	2,672.02	2,394.76	277.26	9.637	
16,600.00	6,945.00	7,244.06	7,240.00	163.32	217.06	90.00	-1,362.62	7,552.14	2,767.76	2,491.45	276.31	10.017	
16,700.00	6,945.00	7,244.06	7,240.00	164.90	217.06	90.00	-1,362.62	7,552.14	2,863.80	2,588.36	275.43	10.397	
16,800.00	6,945.00	7,244.06	7,240.00	166.49	217.06	90.00	-1,362.62	7,552.14	2,960.09	2,685.48	274.61	10.779	
16,900.00	6,945.00	7,244.06	7,240.00	168.07	217.06	90.00	-1,362.62	7,552.14	3,056.63	2,782.78	273.85	11.162	
17,000.00	6,945.00	7,244.06	7,240.00	169.66	217.06	90.00	-1,362.62	7,552.14	3,153.38	2,880.24	273.14	11.545	
17,100.00	6,945.00	7,244.06	7,240.00	171.24	217.06	90.00	-1,362.62	7,552.14	3,250.33	2,977.84	272.48	11.929	
17,200.00	6,945.00	7,244.06	7,240.00	172.83	217.06	90.00	-1,362.62	7,552.14	3,347.45	3,075.59	271.86	12.313	
17,300.00	6,945.00	7,244.06	7,240.00	174.41	217.06	90.00	-1,362.62	7,552.14	3,444.74	3,173.46	271.29	12.698	
17,400.00	6,945.00	7,244.06	7,240.00	176.00	217.06	90.00	-1,362.62	7,552.14	3,542.19	3,271.44	270.75	13.083	
17,500.00	6,945.00	7,244.06	7,240.00	177.59	217.06	90.00	-1,362.62	7,552.14	3,639.77	3,369.53	270.24	13.469	
17,600.00	6,945.00	7,244.06	7,240.00	179.17	217.06	90.00	-1,362.62	7,552.14	3,737.48	3,467.71	269.77	13.854	
17,700.00	6,945.00	7,244.06	7,240.00	180.76	217.06	90.00	-1,362.62	7,552.14	3,835.30	3,565.98	269.32	14.240	
17,800.00	6,945.00	7,244.06	7,240.00	182.35	217.06	90.00	-1,362.62	7,552.14	3,933.24	3,664.33	268.91	14.627	
17,900.00	6,945.00	7,244.06	7,240.00	183.93	217.06	90.00	-1,362.62	7,552.14	4,031.28	3,762.76	268.52	15.013	
18,000.00	6,945.00	7,244.06	7,240.00	185.52	217.06	90.00	-1,362.62	7,552.14	4,129.41	3,861.26	268.15	15.400	
18,100.00	6,945.00	7,244.06	7,240.00	187.11	217.06	90.00	-1,362.62	7,552.14	4,227.63	3,959.83	267.80	15.786	
18,200.00	6,945.00	7,244.06	7,240.00	188.70	217.06	90.00	-1,362.62	7,552.14	4,325.93	4,058.45	267.48	16.173	
18,300.00	6,945.00	7,244.06	7,240.00	190.29	217.06	90.00	-1,362.62	7,552.14	4,424.31	4,157.13	267.17	16.560	
18,400.00	6,945.00	7,244.06	7,240.00	191.88	217.06	90.00	-1,362.62	7,552.14	4,522.75	4,255.87	266.89	16.946	
18,500.00	6,945.00	7,244.06	7,240.00	193.46	217.06	90.00	-1,362.62	7,552.14	4,621.27	4,354.65	266.61	17.333	
18,600.00	6,945.00	7,244.06	7,240.00	195.05	217.06	90.00	-1,362.62	7,552.14	4,719.85	4,453.49	266.36	17.720	
18,700.00	6,945.00	7,244.06	7,240.00	196.64	217.06	90.00	-1,362.62	7,552.14	4,818.48	4,552.36	266.12	18.106	
18,800.00	6,945.00	7,244.06	7,240.00	198.23	217.06	90.00	-1,362.62	7,552.14	4,917.17	4,651.28	265.89	18.493	
18,900.00	6,945.00	7,244.06	7,240.00	199.82	217.06	90.00	-1,362.62	7,552.14	5,015.92	4,750.23	265.68	18.879	
19,000.00	6,945.00	7,244.06	7,240.00	201.41	217.06	90.00	-1,362.62	7,552.14	5,114.71	4,849.23	265.48	19.266	
19,100.00	6,945.00	7,244.06	7,240.00	203.00	217.06	90.00	-1,362.62	7,552.14	5,213.55	4,948.25	265.29	19.652	
19,200.00	6,945.00	7,244.06	7,240.00	204.60	217.06	90.00	-1,362.62	7,552.14	5,312.43	5,047.31	265.12	20.038	
19,300.00	6,945.00	7,244.06	7,240.00	206.19	217.06	90.00	-1,362.62	7,552.14	5,411.35	5,146.40	264.95	20.424	

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 705H
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 705H	**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 #3	**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
19,400.00	6,945.00	7,244.06	7,240.00	207.78	217.06	90.00	-1,362.62	7,552.14	5,510.31	5,245.52	264.79	20.810	
19,500.00	6,945.00	7,244.06	7,240.00	209.37	217.06	90.00	-1,362.62	7,552.14	5,609.31	5,344.66	264.65	21.195	
19,600.00	6,945.00	7,244.06	7,240.00	210.96	217.06	90.00	-1,362.62	7,552.14	5,708.34	5,443.83	264.51	21.581	
19,700.00	6,945.00	7,244.06	7,240.00	212.55	217.06	90.00	-1,362.62	7,552.14	5,807.41	5,543.03	264.38	21.966	
19,800.00	6,945.00	7,244.06	7,240.00	214.14	217.06	90.00	-1,362.62	7,552.14	5,906.51	5,642.25	264.26	22.351	
19,900.00	6,945.00	7,244.06	7,240.00	215.74	217.06	90.00	-1,362.62	7,552.14	6,005.63	5,741.49	264.14	22.736	
20,000.00	6,945.00	7,244.06	7,240.00	217.33	217.06	90.00	-1,362.62	7,552.14	6,104.79	5,840.75	264.04	23.121	
20,100.00	6,945.00	7,244.06	7,240.00	218.92	217.06	90.00	-1,362.62	7,552.14	6,203.97	5,940.03	263.94	23.505	
20,200.00	6,945.00	7,244.06	7,240.00	220.51	217.06	90.00	-1,362.62	7,552.14	6,303.18	6,039.34	263.85	23.890	
20,300.00	6,945.00	7,244.06	7,240.00	222.11	217.06	90.00	-1,362.62	7,552.14	6,402.42	6,138.66	263.76	24.274	
20,400.00	6,945.00	7,244.06	7,240.00	223.70	217.06	90.00	-1,362.62	7,552.14	6,501.67	6,237.99	263.68	24.657	
20,500.00	6,945.00	7,244.06	7,240.00	225.29	217.06	90.00	-1,362.62	7,552.14	6,600.95	6,337.35	263.61	25.041	
20,600.00	6,945.00	7,244.06	7,240.00	226.88	217.06	90.00	-1,362.62	7,552.14	6,700.25	6,436.72	263.54	25.424	
20,700.00	6,945.00	7,244.06	7,240.00	228.48	217.06	90.00	-1,362.62	7,552.14	6,799.58	6,536.10	263.47	25.807	
20,741.48	6,945.00	7,244.06	7,240.00	229.14	217.06	90.00	-1,362.62	7,552.14	6,840.78	6,577.33	263.45	25.966	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 705H
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 705H	**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 #3	**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	-70.04	1,221.73	-3,364.28	3,579.46				
100.00	100.00	61.00	61.00	0.25	1.20	-70.04	1,221.73	-3,364.28	3,579.24	3,577.79	1.45	2,463.857	
200.00	200.00	161.00	161.00	0.61	3.41	-70.04	1,221.73	-3,364.28	3,579.24	3,575.23	4.01	891.534	
300.00	300.00	261.00	261.00	0.97	5.91	-70.04	1,221.73	-3,364.28	3,579.24	3,572.37	6.87	520.692	CC
400.00	400.00	363.22	363.21	1.33	8.46	-70.03	1,222.31	-3,364.28	3,579.44	3,569.66	9.79	365.672	
500.00	500.00	467.55	467.54	1.68	11.07	-70.04	1,221.94	-3,364.28	3,579.32	3,566.57	12.76	280.589	
506.92	506.92	474.78	474.76	1.71	11.25	142.23	1,221.90	-3,364.28	3,579.32	3,566.36	12.96	276.166	
600.00	599.98	561.13	560.98	2.03	13.74	142.23	1,221.73	-3,364.28	3,580.62	3,564.85	15.77	227.047	ES
700.00	699.84	670.43	670.25	2.37	17.10	142.25	1,222.73	-3,364.28	3,585.12	3,565.66	19.46	184.208	
795.17	794.65	755.96	755.65	2.69	19.67	142.23	1,221.73	-3,364.28	3,591.27	3,568.90	22.37	160.575	
800.00	799.45	760.76	760.45	2.71	19.80	142.23	1,221.73	-3,364.28	3,591.66	3,569.15	22.51	159.554	
900.00	898.92	860.23	859.92	3.06	22.42	142.33	1,221.73	-3,364.28	3,599.81	3,574.33	25.48	141.264	
1,000.00	998.39	979.05	978.70	3.43	25.56	142.45	1,221.97	-3,364.28	3,608.11	3,579.14	28.97	124.544	
1,100.00	1,097.86	1,059.28	1,058.86	3.79	27.46	142.53	1,221.73	-3,364.28	3,616.15	3,584.92	31.23	115.804	
1,200.00	1,197.33	1,158.75	1,158.33	4.16	29.75	142.63	1,221.73	-3,364.28	3,624.33	3,590.45	33.88	106.982	
1,300.00	1,296.80	1,259.19	1,258.76	4.53	32.06	142.75	1,223.07	-3,364.28	3,633.00	3,596.45	36.55	99.387	
1,400.00	1,396.27	1,364.67	1,364.23	4.91	34.49	142.85	1,222.75	-3,364.28	3,641.10	3,601.75	39.35	92.535	
1,500.00	1,495.74	1,470.25	1,469.80	5.28	36.93	142.94	1,221.93	-3,364.28	3,649.05	3,606.90	42.15	86.581	
1,600.00	1,595.21	1,556.74	1,556.21	5.66	38.85	143.02	1,221.73	-3,364.28	3,657.18	3,612.74	44.44	82.301	
1,700.00	1,694.68	1,656.21	1,655.68	6.04	41.04	143.12	1,221.73	-3,364.28	3,665.41	3,618.42	46.99	77.996	
1,800.00	1,794.15	1,756.71	1,756.17	6.42	43.26	143.23	1,223.08	-3,364.28	3,674.15	3,624.57	49.58	74.111	
1,900.00	1,893.62	1,862.38	1,861.83	6.80	45.59	143.33	1,222.75	-3,364.28	3,682.30	3,630.02	52.27	70.445	
2,000.00	1,993.09	1,968.15	1,967.58	7.18	47.92	143.42	1,221.93	-3,364.28	3,690.29	3,635.32	54.97	67.132	
2,100.00	2,092.56	2,054.19	2,053.56	7.56	49.68	143.50	1,221.73	-3,364.28	3,698.47	3,641.36	57.10	64.770	
2,200.00	2,192.03	2,153.66	2,153.03	7.94	51.67	143.59	1,221.73	-3,364.28	3,706.75	3,647.29	59.46	62.338	
2,300.00	2,291.50	2,254.96	2,254.32	8.32	53.70	143.70	1,222.71	-3,364.28	3,715.41	3,653.55	61.86	60.061	
2,400.00	2,390.97	2,359.90	2,359.25	8.70	55.80	143.80	1,222.36	-3,364.28	3,723.60	3,659.27	64.33	57.881	
2,500.00	2,490.44	2,452.12	2,451.44	9.08	57.65	143.87	1,221.73	-3,364.28	3,731.68	3,665.13	66.55	56.075	
2,600.00	2,589.91	2,551.59	2,550.91	9.47	59.65	143.97	1,221.73	-3,364.28	3,740.01	3,671.08	68.92	54.264	
2,700.00	2,689.38	2,651.06	2,650.38	9.85	61.66	144.06	1,221.73	-3,364.28	3,748.34	3,677.05	71.30	52.574	
2,800.00	2,788.85	2,752.25	2,751.56	10.23	63.70	144.16	1,222.53	-3,364.28	3,756.99	3,683.29	73.71	50.973	
2,900.00	2,888.32	2,855.52	2,854.82	10.61	65.78	144.25	1,222.27	-3,364.28	3,765.25	3,689.10	76.16	49.441	
3,000.00	2,987.79	2,958.83	2,958.13	11.00	67.86	144.34	1,221.73	-3,364.28	3,773.42	3,694.82	78.61	48.002	
3,100.00	3,087.25	3,049.00	3,048.25	11.38	69.60	144.42	1,221.73	-3,364.28	3,781.79	3,701.07	80.72	46.853	
3,200.00	3,186.72	3,148.47	3,147.72	11.76	71.52	144.51	1,221.73	-3,364.28	3,790.17	3,707.17	83.00	45.663	
3,300.00	3,286.19	3,248.34	3,247.59	12.15	73.44	144.62	1,222.95	-3,364.28	3,799.04	3,713.74	85.30	44.538	
3,400.00	3,385.66	3,352.57	3,351.81	12.53	75.45	144.71	1,222.75	-3,364.28	3,807.37	3,719.69	87.68	43.424	
3,500.00	3,485.13	3,456.87	3,456.10	12.91	77.46	144.80	1,222.22	-3,364.28	3,815.59	3,725.53	90.06	42.367	
3,600.00	3,584.60	3,546.40	3,545.60	13.30	79.24	144.87	1,221.73	-3,364.28	3,823.81	3,731.60	92.21	41.470	
3,700.00	3,684.07	3,646.33	3,645.53	13.68	81.36	144.96	1,221.98	-3,364.28	3,832.34	3,737.64	94.70	40.468	
3,800.00	3,783.54	3,751.63	3,750.83	14.06	83.60	145.05	1,221.74	-3,364.28	3,840.69	3,743.38	97.31	39.470	
3,900.00	3,883.01	3,844.84	3,844.01	14.45	86.80	145.14	1,221.73	-3,364.28	3,849.13	3,748.24	100.88	38.154	
4,000.00	3,982.48	3,944.31	3,943.48	14.83	90.29	145.22	1,221.73	-3,364.28	3,857.59	3,752.84	104.74	36.829	
4,100.00	4,081.95	4,047.15	4,046.30	15.22	93.90	145.33	1,223.31	-3,364.28	3,866.68	3,757.96	108.72	35.566	
4,200.00	4,181.42	4,155.40	4,154.53	15.60	97.69	145.42	1,222.76	-3,364.28	3,874.96	3,762.07	112.88	34.327	
4,300.00	4,280.89	4,263.77	4,262.88	15.98	101.49	145.50	1,221.60	-3,364.28	3,883.02	3,765.96	117.06	33.172	
4,400.00	4,380.36	4,342.88	4,341.36	16.37	105.43	145.57	1,221.73	-3,364.28	3,891.51	3,770.14	121.36	32.065	
4,500.00	4,479.83	4,442.69	4,440.83	16.75	110.29	145.65	1,221.73	-3,364.28	3,900.01	3,773.41	126.59	30.807	
4,600.00	4,579.30	4,542.41	4,540.30	17.14	115.06	145.74	1,221.73	-3,364.28	3,908.52	3,776.79	131.73	29.670	
4,700.00	4,678.77	4,661.85	4,659.50	17.52	120.94	145.85	1,222.74	-3,364.28	3,917.49	3,779.50	137.99	28.390	
4,800.00	4,778.24	4,741.89	4,739.24	17.90	124.95	145.91	1,221.73	-3,364.28	3,925.56	3,783.20	142.37	27.574	
4,900.00	4,877.71	4,841.63	4,838.71	18.29	129.94	145.99	1,221.73	-3,364.28	3,934.10	3,786.37	147.73	26.631	

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 705H
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 705H	**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 #3	**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
5,000.00	4,977.18	4,941.21	4,938.18	18.67	134.88	146.07	1,221.73	-3,364.28	3,942.64	3,789.61	153.03	25.764	
5,100.00	5,076.65	5,072.00	5,068.36	19.06	141.55	146.18	1,221.73	-3,364.28	3,951.32	3,791.24	160.08	24.684	
5,200.00	5,176.12	5,140.76	5,137.12	19.44	144.94	146.24	1,221.73	-3,364.28	3,959.76	3,795.92	163.83	24.169	
5,300.00	5,275.59	5,240.23	5,236.59	19.83	149.84	146.32	1,221.73	-3,364.28	3,968.33	3,799.22	169.11	23.467	
5,400.00	5,375.06	5,358.87	5,355.03	20.21	155.69	146.47	1,225.38	-3,364.28	3,978.45	3,803.13	175.33	22.692	
5,500.00	5,474.53	5,497.73	5,493.71	20.59	162.53	146.54	1,222.14	-3,364.28	3,986.08	3,803.55	182.53	21.837	
5,600.00	5,574.00	5,539.71	5,535.00	20.98	164.54	146.57	1,221.73	-3,364.28	3,994.08	3,809.16	184.92	21.599	
5,700.00	5,673.47	5,639.18	5,634.47	21.36	169.25	146.65	1,221.73	-3,364.28	4,002.68	3,812.69	190.00	21.067	
5,800.00	5,772.94	5,738.65	5,733.94	21.75	173.96	146.73	1,221.73	-3,364.28	4,011.29	3,816.21	195.08	20.563	
5,900.00	5,872.41	5,838.11	5,833.41	22.13	178.67	146.81	1,221.73	-3,364.28	4,019.91	3,819.75	200.16	20.084	
6,000.00	5,971.88	5,937.58	5,932.88	22.52	183.38	146.89	1,221.73	-3,364.28	4,028.53	3,823.30	205.24	19.629	
6,100.00	6,071.35	5,949.00	5,943.35	22.90	183.92	146.90	1,221.73	-3,364.28	4,038.15	3,832.08	206.07	19.596	SF
6,200.00	6,170.81	5,949.00	5,943.35	23.28	183.92	146.90	1,221.73	-3,364.28	4,050.19	3,843.96	206.23	19.639	
6,300.00	6,270.28	5,949.00	5,943.35	23.67	183.92	146.90	1,221.73	-3,364.28	4,064.66	3,858.38	206.28	19.705	
6,375.94	6,345.82	5,949.00	5,943.35	23.96	183.92	146.90	1,221.73	-3,364.28	4,077.26	3,871.02	206.24	19.770	
6,400.00	6,369.72	5,949.00	5,943.35	24.05	183.92	161.54	1,221.73	-3,364.28	4,081.94	3,875.73	206.21	19.795	
6,450.00	6,419.09	5,949.00	5,943.35	24.25	183.92	178.17	1,221.73	-3,364.28	4,094.67	3,888.54	206.14	19.864	
6,500.00	6,467.78	5,949.00	5,943.35	24.46	183.92	-173.49	1,221.73	-3,364.28	4,111.35	3,905.31	206.04	19.954	
6,550.00	6,515.51	5,949.00	5,943.35	24.67	183.92	-168.30	1,221.73	-3,364.28	4,131.83	3,925.91	205.92	20.065	
6,600.00	6,561.97	5,949.00	5,943.35	24.88	183.92	-164.46	1,221.73	-3,364.28	4,155.93	3,950.15	205.78	20.196	
6,650.00	6,606.89	5,949.00	5,943.35	25.10	183.92	-161.20	1,221.73	-3,364.28	4,183.43	3,977.80	205.63	20.345	
6,700.00	6,649.98	5,949.00	5,943.35	25.32	183.92	-158.12	1,221.73	-3,364.28	4,214.11	4,008.65	205.47	20.510	
6,750.00	6,690.98	5,949.00	5,943.35	25.54	183.92	-154.95	1,221.73	-3,364.28	4,247.71	4,042.41	205.30	20.690	
6,800.00	6,729.64	5,949.00	5,943.35	25.77	183.92	-151.50	1,221.73	-3,364.28	4,283.95	4,078.82	205.14	20.883	
6,850.00	6,765.71	5,949.00	5,943.35	26.00	183.92	-147.57	1,221.73	-3,364.28	4,322.55	4,117.58	204.98	21.088	
6,900.00	6,798.98	5,949.00	5,943.35	26.24	183.92	-142.93	1,221.73	-3,364.28	4,363.21	4,158.39	204.83	21.302	
6,950.00	6,829.24	5,949.00	5,943.35	26.49	183.92	-137.36	1,221.73	-3,364.28	4,405.63	4,200.94	204.69	21.524	
7,000.00	6,856.30	5,949.00	5,943.35	26.76	183.92	-130.57	1,221.73	-3,364.28	4,449.50	4,244.93	204.57	21.751	
7,050.00	6,880.00	5,949.00	5,943.35	27.03	183.92	-122.35	1,221.73	-3,364.28	4,494.50	4,290.03	204.47	21.981	
7,100.00	6,900.19	5,949.00	5,943.35	27.32	183.92	-112.59	1,221.73	-3,364.28	4,540.34	4,335.95	204.39	22.214	
7,150.00	6,916.74	5,949.00	5,943.35	27.62	183.92	-101.54	1,221.73	-3,364.28	4,586.71	4,382.37	204.34	22.446	
7,200.00	6,929.56	5,949.00	5,943.35	27.93	183.92	-89.88	1,221.73	-3,364.28	4,633.31	4,428.99	204.32	22.677	
7,250.00	6,938.57	5,949.00	5,943.35	28.26	183.92	-78.57	1,221.73	-3,364.28	4,679.85	4,475.53	204.32	22.904	
7,300.00	6,943.70	5,949.00	5,943.35	28.60	183.92	-68.42	1,221.73	-3,364.28	4,726.05	4,521.70	204.36	23.126	
7,340.76	6,945.00	5,949.00	5,943.35	28.88	183.92	-61.30	1,221.73	-3,364.28	4,763.28	4,558.87	204.41	23.303	
7,400.00	6,945.00	5,949.00	5,943.35	29.31	183.92	-61.30	1,221.73	-3,364.28	4,817.08	4,612.58	204.50	23.556	
7,500.00	6,945.00	5,949.00	5,943.35	30.09	183.92	-61.30	1,221.73	-3,364.28	4,908.19	4,703.54	204.65	23.983	
7,600.00	6,945.00	5,949.00	5,943.35	30.93	183.92	-61.30	1,221.73	-3,364.28	4,999.63	4,794.82	204.81	24.411	
7,700.00	6,945.00	5,949.00	5,943.35	31.83	183.92	-61.30	1,221.73	-3,364.28	5,091.40	4,886.43	204.97	24.840	
7,800.00	6,945.00	5,949.00	5,943.35	32.79	183.92	-61.30	1,221.73	-3,364.28	5,183.47	4,978.34	205.13	25.269	
7,900.00	6,945.00	5,949.00	5,943.35	33.79	183.92	-61.30	1,221.73	-3,364.28	5,275.84	5,070.54	205.30	25.699	
8,000.00	6,945.00	5,949.00	5,943.35	34.84	183.92	-61.30	1,221.73	-3,364.28	5,368.47	5,163.01	205.46	26.129	
8,100.00	6,945.00	5,949.00	5,943.35	35.93	183.92	-61.30	1,221.73	-3,364.28	5,461.36	5,255.74	205.63	26.560	
8,200.00	6,945.00	5,949.00	5,943.35	37.06	183.92	-61.30	1,221.73	-3,364.28	5,554.51	5,348.71	205.79	26.991	
8,300.00	6,945.00	5,949.00	5,943.35	38.23	183.92	-61.30	1,221.73	-3,364.28	5,647.88	5,441.93	205.96	27.423	
8,400.00	6,945.00	5,949.00	5,943.35	39.42	183.92	-61.30	1,221.73	-3,364.28	5,741.48	5,535.36	206.12	27.855	
8,500.00	6,945.00	5,949.00	5,943.35	40.65	183.92	-61.30	1,221.73	-3,364.28	5,835.29	5,629.01	206.28	28.288	
8,600.00	6,945.00	5,949.00	5,943.35	41.90	183.92	-61.30	1,221.73	-3,364.28	5,929.31	5,722.86	206.45	28.721	
8,700.00	6,945.00	5,949.00	5,943.35	43.17	183.92	-61.30	1,221.73	-3,364.28	6,023.51	5,816.90	206.61	29.154	
8,800.00	6,945.00	5,949.00	5,943.35	44.46	183.92	-61.30	1,221.73	-3,364.28	6,117.90	5,911.13	206.77	29.588	
8,900.00	6,945.00	5,949.00	5,943.35	45.78	183.92	-61.30	1,221.73	-3,364.28	6,212.47	6,005.53	206.93	30.022	
9,000.00	6,945.00	5,949.00	5,943.35	47.11	183.92	-61.30	1,221.73	-3,364.28	6,307.20	6,100.11	207.09	30.456	

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 705H
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 705H	**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 #3	**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
9,100.00	6,945.00	5,949.00	5,943.35	48.46	183.92	-61.30	1,221.73	-3,364.28	6,402.09	6,194.84	207.25	30.891	
9,200.00	6,945.00	5,949.00	5,943.35	49.82	183.92	-61.30	1,221.73	-3,364.28	6,497.14	6,289.73	207.41	31.325	
9,300.00	6,945.00	5,949.00	5,943.35	51.20	183.92	-61.30	1,221.73	-3,364.28	6,592.33	6,384.77	207.56	31.760	
9,400.00	6,945.00	5,949.00	5,943.35	52.59	183.92	-61.30	1,221.73	-3,364.28	6,687.67	6,479.95	207.72	32.196	
9,500.00	6,945.00	5,949.00	5,943.35	53.99	183.92	-61.30	1,221.73	-3,364.28	6,783.14	6,575.26	207.87	32.631	
9,600.00	6,945.00	5,949.00	5,943.35	55.40	183.92	-61.30	1,221.73	-3,364.28	6,878.73	6,670.71	208.02	33.067	
9,700.00	6,945.00	5,949.00	5,943.35	56.83	183.92	-61.30	1,221.73	-3,364.28	6,974.45	6,766.28	208.17	33.503	
9,800.00	6,945.00	5,949.00	5,943.35	58.26	183.92	-61.30	1,221.73	-3,364.28	7,070.29	6,861.97	208.32	33.939	
9,900.00	6,945.00	5,949.00	5,943.35	59.70	183.92	-61.30	1,221.73	-3,364.28	7,166.25	6,957.77	208.47	34.375	
10,000.00	6,945.00	5,949.00	5,943.35	61.15	183.92	-61.30	1,221.73	-3,364.28	7,262.31	7,053.69	208.62	34.811	
10,100.00	6,945.00	5,949.00	5,943.35	62.61	183.92	-61.30	1,221.73	-3,364.28	7,358.47	7,149.71	208.76	35.248	
10,200.00	6,945.00	5,949.00	5,943.35	64.07	183.92	-61.30	1,221.73	-3,364.28	7,454.74	7,245.83	208.91	35.684	
10,300.00	6,945.00	5,949.00	5,943.35	65.54	183.92	-61.30	1,221.73	-3,364.28	7,551.11	7,342.05	209.05	36.121	
10,400.00	6,945.00	5,949.00	5,943.35	67.02	183.92	-61.30	1,221.73	-3,364.28	7,647.56	7,438.37	209.19	36.557	
10,500.00	6,945.00	5,949.00	5,943.35	68.50	183.92	-61.30	1,221.73	-3,364.28	7,744.11	7,534.78	209.33	36.994	
10,600.00	6,945.00	5,949.00	5,943.35	69.99	183.92	-61.30	1,221.73	-3,364.28	7,840.75	7,631.27	209.47	37.431	
10,700.00	6,945.00	5,949.00	5,943.35	71.48	183.92	-61.30	1,221.73	-3,364.28	7,937.46	7,727.85	209.61	37.868	
10,800.00	6,945.00	5,949.00	5,943.35	72.98	183.92	-61.30	1,221.73	-3,364.28	8,034.26	7,824.51	209.75	38.304	
10,900.00	6,945.00	5,949.00	5,943.35	74.48	183.92	-61.30	1,221.73	-3,364.28	8,131.14	7,921.25	209.88	38.741	
11,000.00	6,945.00	5,949.00	5,943.35	75.99	183.92	-61.30	1,221.73	-3,364.28	8,228.09	8,018.07	210.02	39.178	
11,100.00	6,945.00	5,949.00	5,943.35	77.50	183.92	-61.30	1,221.73	-3,364.28	8,325.11	8,114.96	210.15	39.615	
11,200.00	6,945.00	5,949.00	5,943.35	79.01	183.92	-61.30	1,221.73	-3,364.28	8,422.20	8,211.92	210.28	40.052	
11,300.00	6,945.00	5,949.00	5,943.35	80.53	183.92	-61.30	1,221.73	-3,364.28	8,519.36	8,308.95	210.41	40.488	
11,400.00	6,945.00	5,949.00	5,943.35	82.05	183.92	-61.30	1,221.73	-3,364.28	8,616.59	8,406.04	210.54	40.925	
11,500.00	6,945.00	5,949.00	5,943.35	83.57	183.92	-61.30	1,221.73	-3,364.28	8,713.87	8,503.20	210.67	41.362	
11,600.00	6,945.00	5,949.00	5,943.35	85.10	183.92	-61.30	1,221.73	-3,364.28	8,811.22	8,600.42	210.80	41.798	
11,700.00	6,945.00	5,949.00	5,943.35	86.63	183.92	-61.30	1,221.73	-3,364.28	8,908.63	8,697.70	210.93	42.235	
11,800.00	6,945.00	5,949.00	5,943.35	88.16	183.92	-61.30	1,221.73	-3,364.28	9,006.09	8,795.03	211.06	42.671	
11,900.00	6,945.00	5,949.00	5,943.35	89.69	183.92	-61.30	1,221.73	-3,364.28	9,103.61	8,892.43	211.18	43.108	
12,000.00	6,945.00	5,949.00	5,943.35	91.23	183.92	-61.30	1,221.73	-3,364.28	9,201.18	8,989.87	211.31	43.544	
12,100.00	6,945.00	5,949.00	5,943.35	92.77	183.92	-61.30	1,221.73	-3,364.28	9,298.80	9,087.37	211.43	43.980	
12,200.00	6,945.00	5,949.00	5,943.35	94.31	183.92	-61.30	1,221.73	-3,364.28	9,396.48	9,184.92	211.55	44.416	
12,300.00	6,945.00	5,949.00	5,943.35	95.85	183.92	-61.30	1,221.73	-3,364.28	9,494.20	9,282.52	211.68	44.852	
12,400.00	6,945.00	5,949.00	5,943.35	97.40	183.92	-61.30	1,221.73	-3,364.28	9,591.97	9,380.17	211.80	45.288	
12,500.00	6,945.00	5,949.00	5,943.35	98.95	183.92	-61.30	1,221.73	-3,364.28	9,689.78	9,477.86	211.92	45.724	
12,600.00	6,945.00	5,949.00	5,943.35	100.50	183.92	-61.30	1,221.73	-3,364.28	9,787.64	9,575.60	212.04	46.159	
12,700.00	6,945.00	5,949.00	5,943.35	102.05	183.92	-61.30	1,221.73	-3,364.28	9,885.54	9,673.38	212.16	46.595	
12,800.00	6,945.00	5,949.00	5,943.35	103.60	183.92	-61.30	1,221.73	-3,364.28	9,983.49	9,771.21	212.28	47.030	
12,900.00	6,945.00	5,949.00	5,943.35	105.15	183.92	-61.30	1,221.73	-3,364.28	10,081.47	9,869.07	212.40	47.465	
13,000.00	6,945.00	5,949.00	5,943.35	106.71	183.92	-61.30	1,221.73	-3,364.28	10,179.49	9,966.97	212.52	47.900	
13,100.00	6,945.00	5,949.00	5,943.35	108.26	183.92	-61.30	1,221.73	-3,364.28	10,277.55	10,064.92	212.63	48.334	
13,200.00	6,945.00	5,949.00	5,943.35	109.82	183.92	-61.30	1,221.73	-3,364.28	10,375.65	10,162.90	212.75	48.769	
13,300.00	6,945.00	5,949.00	5,943.35	111.38	183.92	-61.30	1,221.73	-3,364.28	10,473.78	10,260.92	212.87	49.203	
13,400.00	6,945.00	5,949.00	5,943.35	112.94	183.92	-61.30	1,221.73	-3,364.28	10,571.95	10,358.97	212.98	49.637	
13,500.00	6,945.00	5,949.00	5,943.35	114.50	183.92	-61.30	1,221.73	-3,364.28	10,670.15	10,457.06	213.10	50.071	
13,600.00	6,945.00	5,949.00	5,943.35	116.07	183.92	-61.30	1,221.73	-3,364.28	10,768.39	10,555.18	213.22	50.505	
13,700.00	6,945.00	5,949.00	5,943.35	117.63	183.92	-61.30	1,221.73	-3,364.28	10,866.66	10,653.33	213.33	50.938	
13,800.00	6,945.00	5,949.00	5,943.35	119.19	183.92	-61.30	1,221.73	-3,364.28	10,964.96	10,751.51	213.44	51.372	
13,900.00	6,945.00	5,949.00	5,943.35	120.76	183.92	-61.30	1,221.73	-3,364.28	11,063.29	10,849.73	213.56	51.805	
14,000.00	6,945.00	5,949.00	5,943.35	122.33	183.92	-61.30	1,221.73	-3,364.28	11,161.65	10,947.98	213.67	52.237	
14,100.00	6,945.00	5,949.00	5,943.35	123.90	183.92	-61.30	1,221.73	-3,364.28	11,260.04	11,046.25	213.78	52.670	
14,200.00	6,945.00	5,949.00	5,943.35	125.46	183.92	-61.30	1,221.73	-3,364.28	11,358.45	11,144.55	213.90	53.102	

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 705H
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 705H	**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 #3	**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
14,300.00	6,945.00	5,949.00	5,943.35	127.03	183.92	-61.30	1,221.73	-3,364.28	11,456.90	11,242.89	214.01	53.534	
14,400.00	6,945.00	5,949.00	5,943.35	128.60	183.92	-61.30	1,221.73	-3,364.28	11,555.37	11,341.24	214.12	53.966	
14,500.00	6,945.00	5,949.00	5,943.35	130.18	183.92	-61.30	1,221.73	-3,364.28	11,653.86	11,439.63	214.23	54.398	
14,600.00	6,945.00	5,949.00	5,943.35	131.75	183.92	-61.30	1,221.73	-3,364.28	11,752.39	11,538.04	214.35	54.829	
14,700.00	6,945.00	5,949.00	5,943.35	133.32	183.92	-61.30	1,221.73	-3,364.28	11,850.93	11,636.47	214.46	55.260	
14,800.00	6,945.00	5,949.00	5,943.35	134.89	183.92	-61.30	1,221.73	-3,364.28	11,949.50	11,734.93	214.57	55.691	
14,900.00	6,945.00	5,949.00	5,943.35	136.47	183.92	-61.30	1,221.73	-3,364.28	12,048.10	11,833.42	214.68	56.121	
15,000.00	6,945.00	5,949.00	5,943.35	138.04	183.92	-61.30	1,221.73	-3,364.28	12,146.71	11,931.92	214.79	56.551	
15,100.00	6,945.00	5,949.00	5,943.35	139.62	183.92	-61.30	1,221.73	-3,364.28	12,245.35	12,030.45	214.90	56.981	
15,200.00	6,945.00	5,949.00	5,943.35	141.20	183.92	-61.30	1,221.73	-3,364.28	12,344.02	12,129.01	215.01	57.411	
15,300.00	6,945.00	5,949.00	5,943.35	142.77	183.92	-61.30	1,221.73	-3,364.28	12,442.70	12,227.58	215.12	57.840	
15,400.00	6,945.00	5,949.00	5,943.35	144.35	183.92	-61.30	1,221.73	-3,364.28	12,541.40	12,326.17	215.23	58.269	
15,500.00	6,945.00	5,949.00	5,943.35	145.93	183.92	-61.30	1,221.73	-3,364.28	12,640.13	12,424.79	215.34	58.698	
15,600.00	6,945.00	5,949.00	5,943.35	147.51	183.92	-61.30	1,221.73	-3,364.28	12,738.87	12,523.42	215.45	59.127	
15,700.00	6,945.00	5,949.00	5,943.35	149.09	183.92	-61.30	1,221.73	-3,364.28	12,837.64	12,622.08	215.56	59.555	
15,800.00	6,945.00	5,949.00	5,943.35	150.67	183.92	-61.30	1,221.73	-3,364.28	12,936.42	12,720.75	215.67	59.982	
15,900.00	6,945.00	5,949.00	5,943.35	152.25	183.92	-61.30	1,221.73	-3,364.28	13,035.22	12,819.44	215.78	60.410	
16,000.00	6,945.00	5,949.00	5,943.35	153.83	183.92	-61.30	1,221.73	-3,364.28	13,134.04	12,918.15	215.89	60.837	
16,100.00	6,945.00	5,949.00	5,943.35	155.41	183.92	-61.30	1,221.73	-3,364.28	13,232.88	13,016.88	216.00	61.264	
16,200.00	6,945.00	5,949.00	5,943.35	156.99	183.92	-61.30	1,221.73	-3,364.28	13,331.73	13,115.62	216.11	61.691	
16,300.00	6,945.00	5,949.00	5,943.35	158.57	183.92	-61.30	1,221.73	-3,364.28	13,430.60	13,214.39	216.22	62.117	
16,400.00	6,945.00	5,949.00	5,943.35	160.15	183.92	-61.30	1,221.73	-3,364.28	13,529.49	13,313.17	216.32	62.543	
16,500.00	6,945.00	5,949.00	5,943.35	161.74	183.92	-61.30	1,221.73	-3,364.28	13,628.40	13,411.96	216.43	62.968	
16,600.00	6,945.00	5,949.00	5,943.35	163.32	183.92	-61.30	1,221.73	-3,364.28	13,727.32	13,510.77	216.54	63.393	
16,700.00	6,945.00	5,949.00	5,943.35	164.90	183.92	-61.30	1,221.73	-3,364.28	13,826.25	13,609.60	216.65	63.818	
16,800.00	6,945.00	5,949.00	5,943.35	166.49	183.92	-61.30	1,221.73	-3,364.28	13,925.20	13,708.44	216.76	64.243	
16,900.00	6,945.00	5,949.00	5,943.35	168.07	183.92	-61.30	1,221.73	-3,364.28	14,024.17	13,807.30	216.87	64.667	
17,000.00	6,945.00	5,949.00	5,943.35	169.66	183.92	-61.30	1,221.73	-3,364.28	14,123.15	13,906.17	216.98	65.091	
17,100.00	6,945.00	5,949.00	5,943.35	171.24	183.92	-61.30	1,221.73	-3,364.28	14,222.14	14,005.06	217.09	65.514	
17,200.00	6,945.00	5,949.00	5,943.35	172.83	183.92	-61.30	1,221.73	-3,364.28	14,321.15	14,103.96	217.19	65.937	
17,300.00	6,945.00	5,949.00	5,943.35	174.41	183.92	-61.30	1,221.73	-3,364.28	14,420.17	14,202.87	217.30	66.360	
17,400.00	6,945.00	5,949.00	5,943.35	176.00	183.92	-61.30	1,221.73	-3,364.28	14,519.21	14,301.80	217.41	66.782	
17,500.00	6,945.00	5,949.00	5,943.35	177.59	183.92	-61.30	1,221.73	-3,364.28	14,618.26	14,400.74	217.52	67.204	
17,600.00	6,945.00	5,949.00	5,943.35	179.17	183.92	-61.30	1,221.73	-3,364.28	14,717.32	14,499.69	217.63	67.626	
17,700.00	6,945.00	5,949.00	5,943.35	180.76	183.92	-61.30	1,221.73	-3,364.28	14,816.39	14,598.66	217.74	68.047	
17,800.00	6,945.00	5,949.00	5,943.35	182.35	183.92	-61.30	1,221.73	-3,364.28	14,915.48	14,697.64	217.85	68.468	
17,900.00	6,945.00	5,949.00	5,943.35	183.93	183.92	-61.30	1,221.73	-3,364.28	15,014.58	14,796.63	217.95	68.889	
18,000.00	6,945.00	5,949.00	5,943.35	185.52	183.92	-61.30	1,221.73	-3,364.28	15,113.69	14,895.63	218.06	69.309	
18,100.00	6,945.00	5,949.00	5,943.35	187.11	183.92	-61.30	1,221.73	-3,364.28	15,212.81	14,994.64	218.17	69.729	
18,200.00	6,945.00	5,949.00	5,943.35	188.70	183.92	-61.30	1,221.73	-3,364.28	15,311.95	15,093.67	218.28	70.148	
18,300.00	6,945.00	5,949.00	5,943.35	190.29	183.92	-61.30	1,221.73	-3,364.28	15,411.09	15,192.70	218.39	70.567	
18,400.00	6,945.00	5,949.00	5,943.35	191.88	183.92	-61.30	1,221.73	-3,364.28	15,510.25	15,291.75	218.50	70.986	
18,500.00	6,945.00	5,949.00	5,943.35	193.46	183.92	-61.30	1,221.73	-3,364.28	15,609.41	15,390.81	218.61	71.404	
18,600.00	6,945.00	5,949.00	5,943.35	195.05	183.92	-61.30	1,221.73	-3,364.28	15,708.59	15,489.88	218.72	71.822	
18,700.00	6,945.00	5,949.00	5,943.35	196.64	183.92	-61.30	1,221.73	-3,364.28	15,807.78	15,588.95	218.82	72.239	
18,800.00	6,945.00	5,949.00	5,943.35	198.23	183.92	-61.30	1,221.73	-3,364.28	15,906.98	15,688.04	218.93	72.657	
18,900.00	6,945.00	5,949.00	5,943.35	199.82	183.92	-61.30	1,221.73	-3,364.28	16,006.18	15,787.14	219.04	73.073	
19,000.00	6,945.00	5,949.00	5,943.35	201.41	183.92	-61.30	1,221.73	-3,364.28	16,105.40	15,886.25	219.15	73.490	
19,100.00	6,945.00	5,949.00	5,943.35	203.00	183.92	-61.30	1,221.73	-3,364.28	16,204.63	15,985.37	219.26	73.905	
19,200.00	6,945.00	5,949.00	5,943.35	204.60	183.92	-61.30	1,221.73	-3,364.28	16,303.86	16,084.49	219.37	74.321	
19,300.00	6,945.00	5,949.00	5,943.35	206.19	183.92	-61.30	1,221.73	-3,364.28	16,403.11	16,183.63	219.48	74.736	
19,400.00	6,945.00	5,949.00	5,943.35	207.78	183.92	-61.30	1,221.73	-3,364.28	16,502.37	16,282.78	219.59	75.151	

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 705H
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 705H	**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 #3	**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

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
19,500.00	6,945.00	5,949.00	5,943.35	209.37	183.92	-61.30	1,221.73	-3,364.28	16,601.63	16,381.93	219.70	75.565	
19,600.00	6,945.00	5,949.00	5,943.35	210.96	183.92	-61.30	1,221.73	-3,364.28	16,700.90	16,481.09	219.81	75.979	
19,700.00	6,945.00	5,949.00	5,943.35	212.55	183.92	-61.30	1,221.73	-3,364.28	16,800.18	16,580.26	219.92	76.392	
19,800.00	6,945.00	5,949.00	5,943.35	214.14	183.92	-61.30	1,221.73	-3,364.28	16,899.47	16,679.44	220.03	76.806	
19,900.00	6,945.00	5,949.00	5,943.35	215.74	183.92	-61.30	1,221.73	-3,364.28	16,998.77	16,778.63	220.14	77.218	
20,000.00	6,945.00	5,949.00	5,943.35	217.33	183.92	-61.30	1,221.73	-3,364.28	17,098.08	16,877.83	220.25	77.630	
20,100.00	6,945.00	5,949.00	5,943.35	218.92	183.92	-61.30	1,221.73	-3,364.28	17,197.39	16,977.03	220.36	78.042	
20,200.00	6,945.00	5,949.00	5,943.35	220.51	183.92	-61.30	1,221.73	-3,364.28	17,296.71	17,076.24	220.47	78.454	
20,300.00	6,945.00	5,949.00	5,943.35	222.11	183.92	-61.30	1,221.73	-3,364.28	17,396.04	17,175.46	220.58	78.865	
20,400.00	6,945.00	5,949.00	5,943.35	223.70	183.92	-61.30	1,221.73	-3,364.28	17,495.38	17,274.69	220.69	79.275	
20,500.00	6,945.00	5,949.00	5,943.35	225.29	183.92	-61.30	1,221.73	-3,364.28	17,594.73	17,373.92	220.80	79.685	
20,600.00	6,945.00	5,949.00	5,943.35	226.88	183.92	-61.30	1,221.73	-3,364.28	17,694.08	17,473.17	220.91	80.095	
20,700.00	6,945.00	5,949.00	5,943.35	228.48	183.92	-61.30	1,221.73	-3,364.28	17,793.44	17,572.42	221.02	80.505	
20,741.48	6,945.00	5,949.00	5,943.35	229.14	183.92	-61.30	1,221.73	-3,364.28	17,834.65	17,613.58	221.07	80.674	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 705H
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 705H	**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 #3	**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
0.00	0.00	0.00	0.00	0.00	0.00	-80.12	841.09	-4,831.32	4,904.16				
100.00	100.00	59.00	59.00	0.25	1.05	-80.12	841.09	-4,831.32	4,903.99	4,902.69	1.30	3,782.824	
200.00	200.00	159.00	159.00	0.61	2.82	-80.12	841.09	-4,831.32	4,903.99	4,900.56	3.43	1,431.208	
300.00	300.00	259.00	259.00	0.97	4.59	-80.12	841.09	-4,831.32	4,903.99	4,898.43	5.56	882.555	
400.00	400.00	359.00	359.00	1.33	6.36	-80.12	841.09	-4,831.32	4,903.99	4,896.30	7.69	637.980 CC	
500.00	500.00	460.50	460.50	1.68	8.16	-80.12	841.13	-4,831.32	4,904.00	4,894.15	9.84	498.195	
504.45	504.45	465.02	465.02	1.70	8.24	132.14	841.12	-4,831.32	4,904.00	4,894.06	9.94	493.417	
600.00	599.98	558.98	558.98	2.03	9.95	132.14	841.09	-4,831.32	4,905.16	4,893.18	11.98	409.496 ES	
700.00	699.84	659.28	659.28	2.37	11.79	132.14	841.23	-4,831.32	4,908.70	4,894.55	14.15	346.827	
795.17	794.65	755.35	755.35	2.69	13.55	132.13	841.11	-4,831.32	4,914.20	4,897.96	16.24	302.549	
800.00	799.45	760.22	760.21	2.71	13.64	132.13	841.10	-4,831.32	4,914.53	4,898.18	16.35	300.581	
900.00	898.92	857.94	857.92	3.06	15.48	132.22	841.09	-4,831.32	4,921.46	4,902.92	18.54	265.459	
1,000.00	998.39	957.41	957.39	3.43	17.36	132.30	841.09	-4,831.32	4,928.39	4,907.62	20.77	237.267	
1,100.00	1,097.86	1,057.85	1,057.83	3.79	19.25	132.40	841.87	-4,831.32	4,935.48	4,912.46	23.03	214.343	
1,200.00	1,197.33	1,159.73	1,159.71	4.16	21.17	132.49	841.62	-4,831.32	4,942.40	4,917.09	25.31	195.268	
1,300.00	1,296.80	1,261.67	1,261.64	4.53	23.10	132.57	841.10	-4,831.32	4,949.28	4,921.68	27.60	179.330	
1,400.00	1,396.27	1,355.32	1,355.27	4.91	24.87	132.66	841.09	-4,831.32	4,956.26	4,926.52	29.74	166.645	
1,500.00	1,495.74	1,454.78	1,454.74	5.28	26.76	132.74	841.09	-4,831.32	4,963.25	4,931.26	32.00	155.121	
1,600.00	1,595.21	1,554.95	1,554.91	5.66	28.66	132.84	841.61	-4,831.32	4,970.36	4,936.09	34.26	145.057	
1,700.00	1,694.68	1,656.09	1,656.05	6.04	30.58	132.92	841.44	-4,831.32	4,977.34	4,940.79	36.55	136.167	
1,800.00	1,794.15	1,757.27	1,757.22	6.42	32.50	133.01	841.10	-4,831.32	4,984.31	4,945.47	38.84	128.320	
1,900.00	1,893.62	1,852.69	1,852.62	6.80	34.52	133.09	841.09	-4,831.32	4,991.34	4,950.11	41.24	121.032	
2,000.00	1,993.09	1,952.16	1,952.09	7.18	36.64	133.17	841.09	-4,831.32	4,998.40	4,954.67	43.73	114.301	
2,100.00	2,092.56	2,052.72	2,052.64	7.56	38.78	133.27	841.88	-4,831.32	5,005.61	4,959.37	46.24	108.244	
2,200.00	2,192.03	2,154.82	2,154.74	7.94	40.96	133.35	841.63	-4,831.32	5,012.64	4,963.85	48.79	102.737	
2,300.00	2,291.50	2,256.97	2,256.88	8.32	43.13	133.44	841.10	-4,831.32	5,019.63	4,968.29	51.34	97.773	
2,400.00	2,390.97	2,350.14	2,349.97	8.70	45.15	133.51	841.09	-4,831.32	5,026.71	4,972.99	53.73	93.558	
2,500.00	2,490.44	2,449.61	2,449.44	9.08	47.30	133.60	841.09	-4,831.32	5,033.82	4,977.57	56.26	89.481	
2,600.00	2,589.91	2,551.58	2,551.38	9.47	49.51	133.70	842.64	-4,831.32	5,041.25	4,982.41	58.84	85.681	
2,700.00	2,689.38	2,656.85	2,656.64	9.85	51.79	133.79	842.08	-4,831.32	5,048.28	4,986.79	61.49	82.098	
2,800.00	2,788.85	2,762.23	2,762.00	10.23	54.07	133.86	840.93	-4,831.32	5,055.20	4,991.05	64.15	78.807	
2,900.00	2,888.32	2,847.59	2,847.32	10.61	55.80	133.94	841.09	-4,831.32	5,062.36	4,996.11	66.25	76.417	
3,000.00	2,987.79	2,947.06	2,946.79	11.00	57.83	134.02	841.09	-4,831.32	5,069.52	5,000.87	68.65	73.847	
3,100.00	3,087.25	3,047.93	3,047.65	11.38	59.89	134.11	841.86	-4,831.32	5,076.85	5,005.77	71.08	71.424	
3,200.00	3,186.72	3,150.30	3,150.02	11.76	61.97	134.19	841.59	-4,831.32	5,083.98	5,010.44	73.54	69.130	
3,300.00	3,286.19	3,245.52	3,245.19	12.15	63.92	134.27	841.09	-4,831.32	5,091.07	5,015.21	75.86	67.114	
3,400.00	3,385.66	3,344.99	3,344.66	12.53	65.88	134.35	841.09	-4,831.32	5,098.27	5,020.08	78.19	65.203	
3,500.00	3,485.13	3,444.46	3,444.13	12.91	67.84	134.43	841.09	-4,831.32	5,105.49	5,024.96	80.52	63.403	
3,600.00	3,584.60	3,544.19	3,543.85	13.30	69.80	134.53	842.36	-4,831.32	5,112.99	5,030.12	82.86	61.704	
3,700.00	3,684.07	3,647.09	3,646.74	13.68	71.83	134.61	842.17	-4,831.32	5,120.18	5,034.92	85.26	60.051	
3,800.00	3,783.54	3,750.05	3,749.69	14.06	73.86	134.69	841.67	-4,831.32	5,127.33	5,039.66	87.67	58.486	
3,900.00	3,883.01	3,842.39	3,842.01	14.45	75.67	134.76	841.09	-4,831.32	5,134.45	5,044.59	89.86	57.139	
4,000.00	3,982.48	3,941.86	3,941.48	14.83	77.63	134.84	841.09	-4,831.32	5,141.72	5,049.52	92.19	55.771	
4,100.00	4,081.95	4,041.33	4,040.95	15.22	79.59	134.92	841.09	-4,831.32	5,148.99	5,054.47	94.53	54.471	
4,200.00	4,181.42	4,142.49	4,142.10	15.60	81.59	135.01	841.54	-4,831.32	5,156.38	5,059.49	96.89	53.217	
4,300.00	4,280.89	4,244.16	4,243.77	15.98	83.59	135.09	841.30	-4,831.32	5,163.63	5,064.36	99.27	52.016	
4,400.00	4,380.36	4,339.79	4,339.36	16.37	85.50	135.16	841.09	-4,831.32	5,170.89	5,069.33	101.56	50.916	
4,500.00	4,479.83	4,439.25	4,438.83	16.75	87.53	135.24	841.09	-4,831.32	5,178.20	5,074.24	103.96	49.809	
4,600.00	4,579.30	4,538.72	4,538.30	17.14	89.56	135.32	841.09	-4,831.32	5,185.53	5,079.17	106.37	48.752	
4,700.00	4,678.77	4,642.21	4,641.77	17.52	91.67	135.42	842.01	-4,831.32	5,193.08	5,084.23	108.85	47.708	
4,800.00	4,778.24	4,746.13	4,745.68	17.90	93.79	135.49	841.47	-4,831.32	5,200.31	5,088.97	111.35	46.703	
4,900.00	4,877.71	4,837.19	4,836.71	18.29	95.59	135.56	841.09	-4,831.32	5,207.58	5,094.06	113.52	45.874	

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 705H
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 705H	**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 #3	**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
5,000.00	4,977.18	4,936.66	4,936.18	18.67	97.48	135.64	841.09	-4,831.32	5,214.94	5,099.16	115.78	45.041	
5,100.00	5,076.65	5,036.13	5,035.65	19.06	99.37	135.72	841.09	-4,831.32	5,222.32	5,104.28	118.04	44.240	
5,200.00	5,176.12	5,138.69	5,138.20	19.44	101.32	135.81	841.78	-4,831.32	5,229.87	5,109.51	120.37	43.450	
5,300.00	5,275.59	5,241.56	5,241.07	19.83	103.27	135.88	841.39	-4,831.32	5,237.18	5,114.49	122.69	42.685	
5,400.00	5,375.06	5,334.57	5,334.06	20.21	105.10	135.95	841.09	-4,831.32	5,244.51	5,119.62	124.89	41.992	
5,500.00	5,474.53	5,434.04	5,433.53	20.59	107.13	136.03	841.09	-4,831.32	5,251.93	5,124.63	127.30	41.258	
5,600.00	5,574.00	5,533.51	5,533.00	20.98	109.16	136.11	841.09	-4,831.32	5,259.36	5,129.66	129.70	40.550	
5,700.00	5,673.47	5,635.14	5,634.62	21.36	111.23	136.19	841.54	-4,831.32	5,266.90	5,134.76	132.15	39.856	
5,800.00	5,772.94	5,736.94	5,736.43	21.75	113.31	136.27	841.28	-4,831.32	5,274.29	5,139.69	134.60	39.185	
5,900.00	5,872.41	5,831.98	5,831.41	22.13	115.41	136.34	841.09	-4,831.32	5,281.69	5,144.62	137.08	38.531	
6,000.00	5,971.88	5,931.45	5,930.88	22.52	117.80	136.42	841.09	-4,831.32	5,289.16	5,149.32	139.84	37.823	
6,100.00	6,071.35	6,000.00	5,999.35	22.90	119.45	136.47	841.09	-4,831.32	5,296.72	5,154.87	141.85	37.340	
6,200.00	6,170.81	6,000.00	5,999.35	23.28	119.45	136.47	841.09	-4,831.32	5,305.72	5,163.55	142.16	37.321	SF
6,300.00	6,270.28	6,000.00	5,999.35	23.67	119.45	136.47	841.09	-4,831.32	5,316.58	5,174.15	142.43	37.328	
6,375.94	6,345.82	6,000.00	5,999.35	23.96	119.45	136.47	841.09	-4,831.32	5,326.07	5,183.47	142.60	37.351	
6,400.00	6,369.72	6,000.00	5,999.35	24.05	119.45	151.02	841.09	-4,831.32	5,329.73	5,187.09	142.64	37.364	
6,450.00	6,419.09	6,000.00	5,999.35	24.25	119.45	167.39	841.09	-4,831.32	5,340.45	5,197.72	142.74	37.415	
6,500.00	6,467.78	6,000.00	5,999.35	24.46	119.45	175.39	841.09	-4,831.32	5,355.28	5,212.47	142.82	37.498	
6,550.00	6,515.51	6,000.00	5,999.35	24.67	119.45	-179.84	841.09	-4,831.32	5,374.10	5,231.22	142.88	37.612	
6,600.00	6,561.97	6,000.00	5,999.35	24.88	119.45	-176.53	841.09	-4,831.32	5,396.74	5,253.81	142.94	37.757	
6,650.00	6,606.89	6,000.00	5,999.35	25.10	119.45	-173.91	841.09	-4,831.32	5,423.03	5,280.05	142.98	37.930	
6,700.00	6,649.98	6,000.00	5,999.35	25.32	119.45	-171.61	841.09	-4,831.32	5,452.74	5,309.74	143.01	38.130	
6,750.00	6,690.98	6,000.00	5,999.35	25.54	119.45	-169.39	841.09	-4,831.32	5,485.65	5,342.63	143.02	38.355	
6,800.00	6,729.64	6,000.00	5,999.35	25.77	119.45	-167.07	841.09	-4,831.32	5,521.49	5,378.46	143.03	38.603	
6,850.00	6,765.71	6,000.00	5,999.35	26.00	119.45	-164.49	841.09	-4,831.32	5,559.99	5,416.96	143.03	38.872	
6,900.00	6,798.98	6,000.00	5,999.35	26.24	119.45	-161.45	841.09	-4,831.32	5,600.85	5,457.83	143.02	39.160	
6,950.00	6,829.24	6,000.00	5,999.35	26.49	119.45	-157.69	841.09	-4,831.32	5,643.79	5,500.78	143.01	39.464	
7,000.00	6,856.30	6,000.00	5,999.35	26.76	119.45	-152.80	841.09	-4,831.32	5,688.48	5,545.49	142.99	39.781	
7,050.00	6,880.00	6,000.00	5,999.35	27.03	119.45	-146.19	841.09	-4,831.32	5,734.62	5,591.64	142.98	40.109	
7,100.00	6,900.19	6,000.00	5,999.35	27.32	119.45	-136.94	841.09	-4,831.32	5,781.89	5,638.93	142.96	40.445	
7,150.00	6,916.74	6,000.00	5,999.35	27.62	119.45	-123.89	841.09	-4,831.32	5,829.98	5,687.04	142.94	40.786	
7,200.00	6,929.56	6,000.00	5,999.35	27.93	119.45	-106.43	841.09	-4,831.32	5,878.56	5,735.64	142.92	41.131	
7,250.00	6,938.57	6,000.00	5,999.35	28.26	119.45	-86.45	841.09	-4,831.32	5,927.34	5,784.43	142.91	41.475	
7,300.00	6,943.70	6,000.00	5,999.35	28.60	119.45	-68.24	841.09	-4,831.32	5,976.02	5,833.11	142.91	41.816	
7,340.76	6,945.00	6,000.00	5,999.35	28.88	119.45	-56.60	841.09	-4,831.32	6,015.41	5,872.49	142.91	42.091	
7,400.00	6,945.00	6,000.00	5,999.35	29.31	119.45	-56.60	841.09	-4,831.32	6,072.42	5,929.49	142.93	42.487	
7,500.00	6,945.00	6,000.00	5,999.35	30.09	119.45	-56.60	841.09	-4,831.32	6,168.75	6,025.80	142.95	43.153	
7,600.00	6,945.00	6,000.00	5,999.35	30.93	119.45	-56.60	841.09	-4,831.32	6,265.19	6,122.21	142.98	43.819	
7,700.00	6,945.00	6,000.00	5,999.35	31.83	119.45	-56.60	841.09	-4,831.32	6,361.74	6,218.73	143.01	44.485	
7,800.00	6,945.00	6,000.00	5,999.35	32.79	119.45	-56.60	841.09	-4,831.32	6,458.40	6,315.35	143.04	45.150	
7,900.00	6,945.00	6,000.00	5,999.35	33.79	119.45	-56.60	841.09	-4,831.32	6,555.15	6,412.07	143.08	45.814	
8,000.00	6,945.00	6,000.00	5,999.35	34.84	119.45	-56.60	841.09	-4,831.32	6,652.01	6,508.88	143.12	46.477	
8,100.00	6,945.00	6,000.00	5,999.35	35.93	119.45	-56.60	841.09	-4,831.32	6,748.95	6,605.78	143.17	47.140	
8,200.00	6,945.00	6,000.00	5,999.35	37.06	119.45	-56.60	841.09	-4,831.32	6,845.98	6,702.77	143.21	47.803	
8,300.00	6,945.00	6,000.00	5,999.35	38.23	119.45	-56.60	841.09	-4,831.32	6,943.10	6,799.84	143.26	48.464	
8,400.00	6,945.00	6,000.00	5,999.35	39.42	119.45	-56.60	841.09	-4,831.32	7,040.30	6,896.99	143.31	49.126	
8,500.00	6,945.00	6,000.00	5,999.35	40.65	119.45	-56.60	841.09	-4,831.32	7,137.57	6,994.21	143.37	49.786	
8,600.00	6,945.00	6,000.00	5,999.35	41.90	119.45	-56.60	841.09	-4,831.32	7,234.92	7,091.50	143.42	50.446	
8,700.00	6,945.00	6,000.00	5,999.35	43.17	119.45	-56.60	841.09	-4,831.32	7,332.34	7,188.87	143.48	51.105	
8,800.00	6,945.00	6,000.00	5,999.35	44.46	119.45	-56.60	841.09	-4,831.32	7,429.83	7,286.30	143.53	51.763	
8,900.00	6,945.00	6,000.00	5,999.35	45.78	119.45	-56.60	841.09	-4,831.32	7,527.39	7,383.79	143.59	52.421	
9,000.00	6,945.00	6,000.00	5,999.35	47.11	119.45	-56.60	841.09	-4,831.32	7,625.01	7,481.35	143.66	53.078	

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 705H
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 705H	**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 #3	**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
9,100.00	6,945.00	6,000.00	5,999.35	48.46	119.45	-56.60	841.09	-4,831.32	7,722.68	7,578.97	143.72	53.735	
9,200.00	6,945.00	6,000.00	5,999.35	49.82	119.45	-56.60	841.09	-4,831.32	7,820.42	7,676.64	143.78	54.391	
9,300.00	6,945.00	6,000.00	5,999.35	51.20	119.45	-56.60	841.09	-4,831.32	7,918.22	7,774.37	143.85	55.046	
9,400.00	6,945.00	6,000.00	5,999.35	52.59	119.45	-56.60	841.09	-4,831.32	8,016.07	7,872.15	143.91	55.701	
9,500.00	6,945.00	6,000.00	5,999.35	53.99	119.45	-56.60	841.09	-4,831.32	8,113.97	7,969.99	143.98	56.355	
9,600.00	6,945.00	6,000.00	5,999.35	55.40	119.45	-56.60	841.09	-4,831.32	8,211.92	8,067.87	144.05	57.008	
9,700.00	6,945.00	6,000.00	5,999.35	56.83	119.45	-56.60	841.09	-4,831.32	8,309.92	8,165.80	144.12	57.661	
9,800.00	6,945.00	6,000.00	5,999.35	58.26	119.45	-56.60	841.09	-4,831.32	8,407.97	8,263.78	144.19	58.312	
9,900.00	6,945.00	6,000.00	5,999.35	59.70	119.45	-56.60	841.09	-4,831.32	8,506.06	8,361.80	144.26	58.964	
10,000.00	6,945.00	6,000.00	5,999.35	61.15	119.45	-56.60	841.09	-4,831.32	8,604.20	8,459.87	144.33	59.614	
10,100.00	6,945.00	6,000.00	5,999.35	62.61	119.45	-56.60	841.09	-4,831.32	8,702.38	8,557.97	144.40	60.264	
10,200.00	6,945.00	6,000.00	5,999.35	64.07	119.45	-56.60	841.09	-4,831.32	8,800.60	8,656.12	144.48	60.913	
10,300.00	6,945.00	6,000.00	5,999.35	65.54	119.45	-56.60	841.09	-4,831.32	8,898.86	8,754.31	144.55	61.562	
10,400.00	6,945.00	6,000.00	5,999.35	67.02	119.45	-56.60	841.09	-4,831.32	8,997.16	8,852.53	144.63	62.210	
10,500.00	6,945.00	6,000.00	5,999.35	68.50	119.45	-56.60	841.09	-4,831.32	9,095.49	8,950.79	144.70	62.857	
10,600.00	6,945.00	6,000.00	5,999.35	69.99	119.45	-56.60	841.09	-4,831.32	9,193.86	9,049.09	144.78	63.503	
10,700.00	6,945.00	6,000.00	5,999.35	71.48	119.45	-56.60	841.09	-4,831.32	9,292.27	9,147.42	144.86	64.149	
10,800.00	6,945.00	6,000.00	5,999.35	72.98	119.45	-56.60	841.09	-4,831.32	9,390.71	9,245.78	144.93	64.794	
10,900.00	6,945.00	6,000.00	5,999.35	74.48	119.45	-56.60	841.09	-4,831.32	9,489.18	9,344.17	145.01	65.438	
11,000.00	6,945.00	6,000.00	5,999.35	75.99	119.45	-56.60	841.09	-4,831.32	9,587.69	9,442.60	145.09	66.081	
11,100.00	6,945.00	6,000.00	5,999.35	77.50	119.45	-56.60	841.09	-4,831.32	9,686.22	9,541.05	145.17	66.724	
11,200.00	6,945.00	6,000.00	5,999.35	79.01	119.45	-56.60	841.09	-4,831.32	9,784.79	9,639.54	145.25	67.366	
11,300.00	6,945.00	6,000.00	5,999.35	80.53	119.45	-56.60	841.09	-4,831.32	9,883.38	9,738.05	145.33	68.008	
11,400.00	6,945.00	6,000.00	5,999.35	82.05	119.45	-56.60	841.09	-4,831.32	9,982.00	9,836.59	145.41	68.648	
11,500.00	6,945.00	6,000.00	5,999.35	83.57	119.45	-56.60	841.09	-4,831.32	10,080.65	9,935.16	145.49	69.288	
11,600.00	6,945.00	6,000.00	5,999.35	85.10	119.45	-56.60	841.09	-4,831.32	10,179.33	10,033.76	145.57	69.927	
11,700.00	6,945.00	6,000.00	5,999.35	86.63	119.45	-56.60	841.09	-4,831.32	10,278.03	10,132.37	145.65	70.566	
11,800.00	6,945.00	6,000.00	5,999.35	88.16	119.45	-56.60	841.09	-4,831.32	10,376.75	10,231.02	145.73	71.203	
11,900.00	6,945.00	6,000.00	5,999.35	89.69	119.45	-56.60	841.09	-4,831.32	10,475.50	10,329.68	145.82	71.840	
12,000.00	6,945.00	6,000.00	5,999.35	91.23	119.45	-56.60	841.09	-4,831.32	10,574.27	10,428.37	145.90	72.476	
12,100.00	6,945.00	6,000.00	5,999.35	92.77	119.45	-56.60	841.09	-4,831.32	10,673.07	10,527.09	145.98	73.111	
12,200.00	6,945.00	6,000.00	5,999.35	94.31	119.45	-56.60	841.09	-4,831.32	10,771.89	10,625.82	146.07	73.746	
12,300.00	6,945.00	6,000.00	5,999.35	95.85	119.45	-56.60	841.09	-4,831.32	10,870.73	10,724.58	146.15	74.380	
12,400.00	6,945.00	6,000.00	5,999.35	97.40	119.45	-56.60	841.09	-4,831.32	10,969.59	10,823.35	146.24	75.012	
12,500.00	6,945.00	6,000.00	5,999.35	98.95	119.45	-56.60	841.09	-4,831.32	11,068.47	10,922.15	146.32	75.645	
12,600.00	6,945.00	6,000.00	5,999.35	100.50	119.45	-56.60	841.09	-4,831.32	11,167.37	11,020.96	146.41	76.276	
12,700.00	6,945.00	6,000.00	5,999.35	102.05	119.45	-56.60	841.09	-4,831.32	11,266.29	11,119.80	146.49	76.907	
12,800.00	6,945.00	6,000.00	5,999.35	103.60	119.45	-56.60	841.09	-4,831.32	11,365.23	11,218.65	146.58	77.536	
12,900.00	6,945.00	6,000.00	5,999.35	105.15	119.45	-56.60	841.09	-4,831.32	11,464.19	11,317.52	146.67	78.165	
13,000.00	6,945.00	6,000.00	5,999.35	106.71	119.45	-56.60	841.09	-4,831.32	11,563.17	11,416.41	146.75	78.793	
13,100.00	6,945.00	6,000.00	5,999.35	108.26	119.45	-56.60	841.09	-4,831.32	11,662.16	11,515.32	146.84	79.421	
13,200.00	6,945.00	6,000.00	5,999.35	109.82	119.45	-56.60	841.09	-4,831.32	11,761.17	11,614.24	146.93	80.047	
13,300.00	6,945.00	6,000.00	5,999.35	111.38	119.45	-56.60	841.09	-4,831.32	11,860.20	11,713.18	147.02	80.673	
13,400.00	6,945.00	6,000.00	5,999.35	112.94	119.45	-56.60	841.09	-4,831.32	11,959.24	11,812.14	147.10	81.298	
13,500.00	6,945.00	6,000.00	5,999.35	114.50	119.45	-56.60	841.09	-4,831.32	12,058.30	11,911.11	147.19	81.922	
13,600.00	6,945.00	6,000.00	5,999.35	116.07	119.45	-56.60	841.09	-4,831.32	12,157.37	12,010.09	147.28	82.545	
13,700.00	6,945.00	6,000.00	5,999.35	117.63	119.45	-56.60	841.09	-4,831.32	12,256.46	12,109.09	147.37	83.167	
13,800.00	6,945.00	6,000.00	5,999.35	119.19	119.45	-56.60	841.09	-4,831.32	12,355.57	12,208.11	147.46	83.789	
13,900.00	6,945.00	6,000.00	5,999.35	120.76	119.45	-56.60	841.09	-4,831.32	12,454.68	12,307.13	147.55	84.409	
14,000.00	6,945.00	6,000.00	5,999.35	122.33	119.45	-56.60	841.09	-4,831.32	12,553.82	12,406.18	147.64	85.029	
14,100.00	6,945.00	6,000.00	5,999.35	123.90	119.45	-56.60	841.09	-4,831.32	12,652.96	12,505.23	147.73	85.648	
14,200.00	6,945.00	6,000.00	5,999.35	125.46	119.45	-56.60	841.09	-4,831.32	12,752.12	12,604.30	147.82	86.266	

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 705H
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 705H	**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 #3	**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

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	6,945.00	6,000.00	5,999.35	127.03	119.45	-56.60	841.09	-4,831.32	12,851.30	12,703.38	147.91	86.884	
14,400.00	6,945.00	6,000.00	5,999.35	128.60	119.45	-56.60	841.09	-4,831.32	12,950.48	12,802.47	148.01	87.500	
14,500.00	6,945.00	6,000.00	5,999.35	130.18	119.45	-56.60	841.09	-4,831.32	13,049.68	12,901.58	148.10	88.115	
14,600.00	6,945.00	6,000.00	5,999.35	131.75	119.45	-56.60	841.09	-4,831.32	13,148.89	13,000.70	148.19	88.730	
14,700.00	6,945.00	6,000.00	5,999.35	133.32	119.45	-56.60	841.09	-4,831.32	13,248.11	13,099.83	148.28	89.344	
14,800.00	6,945.00	6,000.00	5,999.35	134.89	119.45	-56.60	841.09	-4,831.32	13,347.34	13,198.97	148.38	89.957	
14,900.00	6,945.00	6,000.00	5,999.35	136.47	119.45	-56.60	841.09	-4,831.32	13,446.59	13,298.12	148.47	90.569	
15,000.00	6,945.00	6,000.00	5,999.35	138.04	119.45	-56.60	841.09	-4,831.32	13,545.84	13,397.28	148.56	91.180	
15,100.00	6,945.00	6,000.00	5,999.35	139.62	119.45	-56.60	841.09	-4,831.32	13,645.11	13,496.45	148.66	91.790	
15,200.00	6,945.00	6,000.00	5,999.35	141.20	119.45	-56.60	841.09	-4,831.32	13,744.39	13,595.64	148.75	92.399	
15,300.00	6,945.00	6,000.00	5,999.35	142.77	119.45	-56.60	841.09	-4,831.32	13,843.67	13,694.83	148.84	93.008	
15,400.00	6,945.00	6,000.00	5,999.35	144.35	119.45	-56.60	841.09	-4,831.32	13,942.97	13,794.03	148.94	93.615	
15,500.00	6,945.00	6,000.00	5,999.35	145.93	119.45	-56.60	841.09	-4,831.32	14,042.28	13,893.25	149.03	94.222	
15,600.00	6,945.00	6,000.00	5,999.35	147.51	119.45	-56.60	841.09	-4,831.32	14,141.60	13,992.47	149.13	94.828	
15,700.00	6,945.00	6,000.00	5,999.35	149.09	119.45	-56.60	841.09	-4,831.32	14,240.92	14,091.70	149.22	95.433	
15,800.00	6,945.00	6,000.00	5,999.35	150.67	119.45	-56.60	841.09	-4,831.32	14,340.26	14,190.94	149.32	96.037	
15,900.00	6,945.00	6,000.00	5,999.35	152.25	119.45	-56.60	841.09	-4,831.32	14,439.61	14,290.19	149.42	96.640	
16,000.00	6,945.00	6,000.00	5,999.35	153.83	119.45	-56.60	841.09	-4,831.32	14,538.96	14,389.45	149.51	97.242	
16,100.00	6,945.00	6,000.00	5,999.35	155.41	119.45	-56.60	841.09	-4,831.32	14,638.32	14,488.71	149.61	97.843	
16,200.00	6,945.00	6,000.00	5,999.35	156.99	119.45	-56.60	841.09	-4,831.32	14,737.70	14,587.99	149.71	98.443	
16,300.00	6,945.00	6,000.00	5,999.35	158.57	119.45	-56.60	841.09	-4,831.32	14,837.08	14,687.27	149.81	99.043	
16,400.00	6,945.00	6,000.00	5,999.35	160.15	119.45	-56.60	841.09	-4,831.32	14,936.47	14,786.56	149.90	99.641	
16,500.00	6,945.00	6,000.00	5,999.35	161.74	119.45	-56.60	841.09	-4,831.32	15,035.86	14,885.86	150.00	100.239	
16,600.00	6,945.00	6,000.00	5,999.35	163.32	119.45	-56.60	841.09	-4,831.32	15,135.27	14,985.17	150.10	100.835	
16,700.00	6,945.00	6,000.00	5,999.35	164.90	119.45	-56.60	841.09	-4,831.32	15,234.68	15,084.48	150.20	101.431	
16,800.00	6,945.00	6,000.00	5,999.35	166.49	119.45	-56.60	841.09	-4,831.32	15,334.10	15,183.80	150.30	102.026	
16,900.00	6,945.00	6,000.00	5,999.35	168.07	119.45	-56.60	841.09	-4,831.32	15,433.53	15,283.13	150.40	102.619	
17,000.00	6,945.00	6,000.00	5,999.35	169.66	119.45	-56.60	841.09	-4,831.32	15,532.96	15,382.47	150.50	103.212	
17,100.00	6,945.00	6,000.00	5,999.35	171.24	119.45	-56.60	841.09	-4,831.32	15,632.40	15,481.81	150.60	103.804	
17,200.00	6,945.00	6,000.00	5,999.35	172.83	119.45	-56.60	841.09	-4,831.32	15,731.85	15,581.16	150.70	104.395	
17,300.00	6,945.00	6,000.00	5,999.35	174.41	119.45	-56.60	841.09	-4,831.32	15,831.31	15,680.51	150.80	104.985	
17,400.00	6,945.00	6,000.00	5,999.35	176.00	119.45	-56.60	841.09	-4,831.32	15,930.77	15,779.88	150.90	105.574	
17,500.00	6,945.00	6,000.00	5,999.35	177.59	119.45	-56.60	841.09	-4,831.32	16,030.24	15,879.25	151.00	106.163	
17,600.00	6,945.00	6,000.00	5,999.35	179.17	119.45	-56.60	841.09	-4,831.32	16,129.72	15,978.62	151.10	106.750	
17,700.00	6,945.00	6,000.00	5,999.35	180.76	119.45	-56.60	841.09	-4,831.32	16,229.20	16,078.00	151.20	107.336	
17,800.00	6,945.00	6,000.00	5,999.35	182.35	119.45	-56.60	841.09	-4,831.32	16,328.69	16,177.39	151.30	107.922	
17,900.00	6,945.00	6,000.00	5,999.35	183.93	119.45	-56.60	841.09	-4,831.32	16,428.19	16,276.78	151.40	108.506	
18,000.00	6,945.00	6,000.00	5,999.35	185.52	119.45	-56.60	841.09	-4,831.32	16,527.69	16,376.18	151.51	109.089	
18,100.00	6,945.00	6,000.00	5,999.35	187.11	119.45	-56.60	841.09	-4,831.32	16,627.19	16,475.59	151.61	109.672	
18,200.00	6,945.00	6,000.00	5,999.35	188.70	119.45	-56.60	841.09	-4,831.32	16,726.71	16,575.00	151.71	110.254	
18,300.00	6,945.00	6,000.00	5,999.35	190.29	119.45	-56.60	841.09	-4,831.32	16,826.23	16,674.41	151.81	110.834	
18,400.00	6,945.00	6,000.00	5,999.35	191.88	119.45	-56.60	841.09	-4,831.32	16,925.75	16,773.83	151.92	111.414	
18,500.00	6,945.00	6,000.00	5,999.35	193.46	119.45	-56.60	841.09	-4,831.32	17,025.28	16,873.26	152.02	111.993	
18,600.00	6,945.00	6,000.00	5,999.35	195.05	119.45	-56.60	841.09	-4,831.32	17,124.82	16,972.69	152.13	112.570	
18,700.00	6,945.00	6,000.00	5,999.35	196.64	119.45	-56.60	841.09	-4,831.32	17,224.36	17,072.13	152.23	113.147	
18,800.00	6,945.00	6,000.00	5,999.35	198.23	119.45	-56.60	841.09	-4,831.32	17,323.90	17,171.57	152.33	113.723	
18,900.00	6,945.00	6,000.00	5,999.35	199.82	119.45	-56.60	841.09	-4,831.32	17,423.46	17,271.02	152.44	114.298	
19,000.00	6,945.00	6,000.00	5,999.35	201.41	119.45	-56.60	841.09	-4,831.32	17,523.01	17,370.47	152.54	114.872	
19,100.00	6,945.00	6,000.00	5,999.35	203.00	119.45	-56.60	841.09	-4,831.32	17,622.57	17,469.92	152.65	115.445	
19,200.00	6,945.00	6,000.00	5,999.35	204.60	119.45	-56.60	841.09	-4,831.32	17,722.14	17,569.39	152.75	116.017	
19,300.00	6,945.00	6,000.00	5,999.35	206.19	119.45	-56.60	841.09	-4,831.32	17,821.71	17,668.85	152.86	116.588	
19,400.00	6,945.00	6,000.00	5,999.35	207.78	119.45	-56.60	841.09	-4,831.32	17,921.29	17,768.32	152.97	117.158	

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 705H
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 705H	**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 #3	**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
19,500.00	6,945.00	6,000.00	5,999.35	209.37	119.45	-56.60	841.09	-4,831.32	18,020.87	17,867.80	153.07	117.727	
19,600.00	6,945.00	6,000.00	5,999.35	210.96	119.45	-56.60	841.09	-4,831.32	18,120.45	17,967.27	153.18	118.295	
19,700.00	6,945.00	6,000.00	5,999.35	212.55	119.45	-56.60	841.09	-4,831.32	18,220.04	18,066.76	153.29	118.863	
19,800.00	6,945.00	6,000.00	5,999.35	214.14	119.45	-56.60	841.09	-4,831.32	18,319.64	18,166.25	153.39	119.429	
19,900.00	6,945.00	6,000.00	5,999.35	215.74	119.45	-56.60	841.09	-4,831.32	18,419.24	18,265.74	153.50	119.994	
20,000.00	6,945.00	6,000.00	5,999.35	217.33	119.45	-56.60	841.09	-4,831.32	18,518.84	18,365.23	153.61	120.558	
20,100.00	6,945.00	6,000.00	5,999.35	218.92	119.45	-56.60	841.09	-4,831.32	18,618.45	18,464.73	153.72	121.122	
20,200.00	6,945.00	6,000.00	5,999.35	220.51	119.45	-56.60	841.09	-4,831.32	18,718.06	18,564.24	153.82	121.684	
20,300.00	6,945.00	6,000.00	5,999.35	222.11	119.45	-56.60	841.09	-4,831.32	18,817.68	18,663.74	153.93	122.246	
20,400.00	6,945.00	6,000.00	5,999.35	223.70	119.45	-56.60	841.09	-4,831.32	18,917.30	18,763.25	154.04	122.806	
20,500.00	6,945.00	6,000.00	5,999.35	225.29	119.45	-56.60	841.09	-4,831.32	19,016.92	18,862.77	154.15	123.366	
20,600.00	6,945.00	6,000.00	5,999.35	226.88	119.45	-56.60	841.09	-4,831.32	19,116.55	18,962.29	154.26	123.924	
20,700.00	6,945.00	6,000.00	5,999.35	228.48	119.45	-56.60	841.09	-4,831.32	19,216.18	19,061.81	154.37	124.482	
20,741.48	6,945.00	6,000.00	5,999.35	229.14	119.45	-56.60	841.09	-4,831.32	19,257.50	19,103.09	154.41	124.713	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 705H
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 705H	**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 #3	**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 — **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	96.00	96.00	0.00	2.04	-78.72	1,333.66	-6,683.80	6,815.56				
100.00	100.00	196.00	196.00	0.25	4.17	-78.72	1,333.66	-6,683.80	6,815.56	6,811.14	4.42	1,541.085	
200.00	200.00	296.00	296.00	0.61	6.30	-78.72	1,333.66	-6,683.80	6,815.56	6,808.65	6.91	986.429	
300.00	300.00	396.00	396.00	0.97	8.43	-78.72	1,333.66	-6,683.80	6,815.56	6,806.16	9.40	725.362	
400.00	400.00	496.00	496.00	1.33	10.56	-78.72	1,333.66	-6,683.80	6,815.56	6,803.68	11.88	573.563	
500.00	500.00	596.03	596.00	1.68	12.69	-78.72	1,333.66	-6,683.80	6,815.56	6,801.19	14.37	474.285	CC
600.00	599.98	696.01	695.98	2.03	14.81	133.55	1,333.66	-6,683.80	6,816.76	6,799.92	16.84	404.775	ES
700.00	699.84	797.80	797.76	2.37	16.98	133.53	1,334.67	-6,683.80	6,820.57	6,801.23	19.34	352.610	
795.17	794.65	897.55	897.51	2.69	19.10	133.50	1,334.35	-6,683.80	6,826.18	6,804.38	21.79	313.209	
800.00	799.45	902.61	902.56	2.71	19.21	133.51	1,334.32	-6,683.80	6,826.51	6,804.59	21.92	311.425	
900.00	898.92	1,007.34	1,007.29	3.06	21.44	133.56	1,333.57	-6,683.80	6,833.48	6,808.98	24.50	278.930	
1,000.00	998.39	1,094.49	1,094.39	3.43	23.47	133.62	1,333.66	-6,683.80	6,840.59	6,813.71	26.88	254.453	
1,100.00	1,097.86	1,193.96	1,193.86	3.79	25.76	133.68	1,333.66	-6,683.80	6,847.71	6,818.17	29.54	231.828	
1,200.00	1,197.33	1,295.82	1,295.71	4.16	28.11	133.75	1,334.71	-6,683.80	6,855.05	6,822.80	32.25	212.557	
1,300.00	1,296.80	1,400.41	1,400.30	4.53	30.53	133.82	1,334.34	-6,683.80	6,862.12	6,827.09	35.03	195.903	
1,400.00	1,396.27	1,505.08	1,504.95	4.91	32.94	133.88	1,333.58	-6,683.80	6,869.11	6,831.30	37.81	181.677	
1,500.00	1,495.74	1,591.96	1,591.74	5.28	35.13	133.93	1,333.66	-6,683.80	6,876.27	6,835.90	40.37	170.334	
1,600.00	1,595.21	1,691.43	1,691.21	5.66	37.62	133.99	1,333.66	-6,683.80	6,883.43	6,840.20	43.23	159.236	
1,700.00	1,694.68	1,794.54	1,794.30	6.04	40.21	134.07	1,335.24	-6,683.80	6,890.92	6,844.74	46.18	149.224	
1,800.00	1,794.15	1,902.16	1,901.91	6.42	42.90	134.13	1,334.66	-6,683.80	6,897.99	6,848.75	49.24	140.082	
1,900.00	1,893.62	2,009.91	2,009.63	6.80	45.60	134.19	1,333.47	-6,683.80	6,904.94	6,852.63	52.31	131.999	
2,000.00	1,993.09	2,089.48	2,089.09	7.18	47.69	134.24	1,333.66	-6,683.80	6,912.14	6,857.37	54.78	126.188	
2,100.00	2,092.56	2,188.95	2,188.56	7.56	50.29	134.30	1,333.66	-6,683.80	6,919.34	6,861.59	57.75	119.819	
2,200.00	2,192.03	2,292.53	2,292.12	7.94	53.00	134.37	1,335.19	-6,683.80	6,926.87	6,866.05	60.83	113.876	
2,300.00	2,291.50	2,400.63	2,400.20	8.32	55.82	134.43	1,334.57	-6,683.80	6,933.97	6,869.94	64.03	108.299	
2,400.00	2,390.97	2,487.55	2,486.97	8.70	58.09	134.48	1,333.66	-6,683.80	6,940.99	6,874.32	66.67	104.117	
2,500.00	2,490.44	2,587.02	2,586.44	9.08	60.50	134.54	1,333.66	-6,683.80	6,948.22	6,878.77	69.44	100.057	
2,600.00	2,589.91	2,686.49	2,685.91	9.47	62.90	134.60	1,333.66	-6,683.80	6,955.45	6,883.23	72.22	96.309	
2,700.00	2,689.38	2,790.28	2,789.65	9.85	65.41	134.68	1,335.56	-6,683.80	6,963.11	6,888.01	75.10	92.715	
2,800.00	2,788.85	2,899.71	2,899.07	10.23	68.05	134.74	1,334.89	-6,683.80	6,970.23	6,892.11	78.12	89.222	
2,900.00	2,888.32	3,009.29	3,008.62	10.61	70.70	134.79	1,333.52	-6,683.80	6,977.22	6,896.08	81.14	85.985	
3,000.00	2,987.79	3,084.52	3,083.79	11.00	72.27	134.84	1,333.66	-6,683.80	6,984.48	6,901.40	83.08	84.069	
3,100.00	3,087.25	3,183.99	3,183.25	11.38	74.37	134.90	1,333.66	-6,683.80	6,991.75	6,906.20	85.56	81.720	
3,200.00	3,186.72	3,283.46	3,282.72	11.76	76.47	134.96	1,333.66	-6,683.80	6,999.04	6,911.00	88.04	79.503	
3,300.00	3,286.19	3,383.57	3,382.82	12.15	78.59	135.03	1,335.26	-6,683.80	7,006.68	6,916.16	90.53	77.400	
3,400.00	3,385.66	3,486.94	3,486.18	12.53	80.78	135.09	1,335.09	-6,683.80	7,013.95	6,920.86	93.09	75.349	
3,500.00	3,485.13	3,590.35	3,589.58	12.91	82.96	135.15	1,334.66	-6,683.80	7,021.16	6,925.51	95.65	73.407	
3,600.00	3,584.60	3,693.81	3,693.03	13.30	85.15	135.20	1,333.99	-6,683.80	7,028.33	6,930.12	98.21	71.564	
3,700.00	3,684.07	3,780.92	3,780.07	13.68	87.19	135.25	1,333.66	-6,683.80	7,035.56	6,934.94	100.62	69.923	
3,800.00	3,783.54	3,880.39	3,879.54	14.06	89.69	135.31	1,333.66	-6,683.80	7,042.89	6,939.39	103.50	68.048	
3,900.00	3,883.01	3,979.86	3,979.01	14.45	92.20	135.37	1,333.66	-6,683.80	7,050.23	6,943.85	106.38	66.275	
4,000.00	3,982.48	4,079.33	4,078.48	14.83	94.71	135.43	1,333.66	-6,683.80	7,057.57	6,948.31	109.26	64.595	
4,100.00	4,081.95	4,178.80	4,177.95	15.22	97.21	135.49	1,333.66	-6,683.80	7,064.92	6,952.78	112.14	63.002	
4,200.00	4,181.42	4,278.27	4,277.42	15.60	99.72	135.55	1,333.66	-6,683.80	7,072.28	6,957.26	115.02	61.489	
4,300.00	4,280.89	4,377.74	4,376.89	15.98	102.22	135.60	1,333.66	-6,683.80	7,079.64	6,961.74	117.90	60.049	
4,400.00	4,380.36	4,477.21	4,476.36	16.37	104.73	135.66	1,333.66	-6,683.80	7,087.01	6,966.23	120.78	58.678	
4,500.00	4,479.83	4,576.68	4,575.83	16.75	107.23	135.72	1,333.66	-6,683.80	7,094.39	6,970.73	123.66	57.372	
4,600.00	4,579.30	4,676.15	4,675.30	17.14	109.74	135.78	1,333.66	-6,683.80	7,101.78	6,975.24	126.54	56.124	
4,700.00	4,678.77	4,776.08	4,775.19	17.52	112.26	135.87	1,338.07	-6,683.80	7,110.22	6,980.79	129.43	54.936	
4,800.00	4,778.24	4,877.05	4,876.15	17.90	114.80	135.93	1,338.00	-6,683.80	7,117.60	6,985.26	132.35	53.781	
4,900.00	4,877.71	4,978.03	4,977.13	18.29	117.34	135.98	1,337.84	-6,683.80	7,124.98	6,989.72	135.26	52.675	
5,000.00	4,977.18	5,079.03	5,078.12	18.67	119.89	136.04	1,337.59	-6,683.80	7,132.34	6,994.16	138.18	51.616	

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 705H
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 705H	**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 #3	**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
5,100.00	5,076.65	5,180.04	5,179.13	19.06	122.43	136.10	1,337.26	-6,683.80	7,139.69	6,998.58	141.10	50.600	
5,200.00	5,176.12	5,281.08	5,280.16	19.44	124.98	136.15	1,336.84	-6,683.80	7,147.02	7,003.00	144.02	49.625	
5,300.00	5,275.59	5,382.13	5,381.21	19.83	127.52	136.21	1,336.32	-6,683.80	7,154.33	7,007.39	146.94	48.689	
5,400.00	5,375.06	5,483.20	5,482.27	20.21	130.07	136.26	1,335.72	-6,683.80	7,161.64	7,011.77	149.86	47.789	
5,500.00	5,474.53	5,584.28	5,583.34	20.59	132.62	136.31	1,335.04	-6,683.80	7,168.92	7,016.14	152.78	46.923	
5,600.00	5,574.00	5,685.38	5,684.44	20.98	135.16	136.36	1,334.26	-6,683.80	7,176.19	7,020.49	155.70	46.089	
5,700.00	5,673.47	5,771.04	5,769.47	21.36	137.38	136.41	1,333.66	-6,683.80	7,183.50	7,025.20	158.29	45.381	
5,800.00	5,772.94	5,870.51	5,868.94	21.75	140.32	136.46	1,333.66	-6,683.80	7,190.97	7,029.36	161.61	44.497	
5,900.00	5,872.41	5,969.98	5,968.41	22.13	143.26	136.52	1,333.66	-6,683.80	7,198.44	7,033.53	164.92	43.649	
6,000.00	5,971.88	6,069.45	6,067.88	22.52	146.20	136.57	1,333.66	-6,683.80	7,205.93	7,037.70	168.23	42.834	
6,100.00	6,071.35	6,168.92	6,167.35	22.90	149.13	136.63	1,333.66	-6,683.80	7,213.42	7,041.88	171.54	42.050	
6,200.00	6,170.81	6,268.39	6,266.81	23.28	152.07	136.69	1,333.66	-6,683.80	7,220.92	7,046.07	174.85	41.297	
6,300.00	6,270.28	6,367.86	6,366.28	23.67	155.01	136.74	1,333.66	-6,683.80	7,228.43	7,050.26	178.17	40.571	
6,375.94	6,345.82	6,443.39	6,441.82	23.96	157.24	136.78	1,333.66	-6,683.80	7,234.13	7,053.45	180.68	40.038	
6,400.00	6,369.72	6,467.29	6,465.72	24.05	157.95	151.32	1,333.66	-6,683.80	7,236.38	7,054.90	181.48	39.875	
6,450.00	6,419.09	6,516.66	6,515.09	24.25	159.41	167.64	1,333.66	-6,683.80	7,243.84	7,060.72	183.12	39.557	
6,500.00	6,467.78	6,565.35	6,563.78	24.46	160.84	175.56	1,333.66	-6,683.80	7,255.03	7,070.29	184.75	39.270	
6,550.00	6,515.51	6,613.08	6,611.51	24.67	162.25	-179.78	1,333.66	-6,683.80	7,269.89	7,083.55	186.33	39.015	
6,600.00	6,561.97	6,659.54	6,657.97	24.88	163.63	-176.60	1,333.66	-6,683.80	7,288.31	7,100.43	187.88	38.792	
6,650.00	6,606.89	6,704.46	6,702.89	25.10	164.95	-174.17	1,333.66	-6,683.80	7,310.19	7,120.81	189.37	38.602	
6,700.00	6,649.98	6,747.55	6,745.98	25.32	166.23	-172.12	1,333.66	-6,683.80	7,335.39	7,144.59	190.80	38.445	
6,750.00	6,690.98	6,788.55	6,786.98	25.54	167.44	-170.23	1,333.66	-6,683.80	7,363.75	7,171.60	192.16	38.322	
6,800.00	6,729.64	6,827.21	6,825.64	25.77	168.58	-168.36	1,333.66	-6,683.80	7,395.11	7,201.68	193.43	38.231	
6,850.00	6,765.71	6,863.28	6,861.71	26.00	169.65	-166.40	1,333.66	-6,683.80	7,429.28	7,234.66	194.62	38.174	
6,900.00	6,798.98	6,896.55	6,894.98	26.24	170.63	-164.22	1,333.66	-6,683.80	7,466.03	7,270.33	195.71	38.149	SF
6,950.00	6,829.24	6,926.81	6,925.24	26.49	171.52	-161.69	1,333.66	-6,683.80	7,505.16	7,308.46	196.69	38.157	
7,000.00	6,856.30	6,953.87	6,952.30	26.76	172.32	-158.64	1,333.66	-6,683.80	7,546.41	7,348.84	197.57	38.196	
7,050.00	6,880.00	6,977.57	6,976.00	27.03	173.02	-154.80	1,333.66	-6,683.80	7,589.55	7,391.21	198.33	38.266	
7,100.00	6,900.19	6,997.76	6,996.19	27.32	173.62	-149.81	1,333.66	-6,683.80	7,634.30	7,435.32	198.98	38.367	
7,150.00	6,916.74	7,014.31	7,012.74	27.62	174.11	-143.12	1,333.66	-6,683.80	7,680.39	7,480.88	199.50	38.497	
7,200.00	6,929.56	7,027.13	7,025.56	27.93	174.49	-133.92	1,333.66	-6,683.80	7,727.54	7,527.63	199.90	38.656	
7,250.00	6,938.57	7,036.14	7,034.57	28.26	174.75	-121.30	1,333.66	-6,683.80	7,775.45	7,575.27	200.18	38.842	
7,300.00	6,943.70	7,041.27	7,039.70	28.60	174.90	-104.96	1,333.66	-6,683.80	7,823.85	7,623.52	200.33	39.055	
7,340.76	6,945.00	7,042.57	7,041.00	28.88	174.94	-90.00	1,333.66	-6,683.80	7,863.45	7,663.08	200.36	39.246	
7,400.00	6,945.00	7,042.57	7,041.00	29.31	174.94	-90.00	1,333.66	-6,683.80	7,921.03	7,720.68	200.35	39.536	
7,500.00	6,945.00	7,042.57	7,041.00	30.09	174.94	-90.00	1,333.66	-6,683.80	8,018.27	7,817.94	200.33	40.025	
7,600.00	6,945.00	7,042.57	7,041.00	30.93	174.94	-90.00	1,333.66	-6,683.80	8,115.58	7,915.27	200.32	40.514	
7,700.00	6,945.00	7,042.57	7,041.00	31.83	174.94	-90.00	1,333.66	-6,683.80	8,212.96	8,012.65	200.31	41.001	
7,800.00	6,945.00	7,042.57	7,041.00	32.79	174.94	-90.00	1,333.66	-6,683.80	8,310.40	8,110.09	200.31	41.488	
7,900.00	6,945.00	7,042.57	7,041.00	33.79	174.94	-90.00	1,333.66	-6,683.80	8,407.90	8,207.59	200.31	41.974	
8,000.00	6,945.00	7,042.57	7,041.00	34.84	174.94	-90.00	1,333.66	-6,683.80	8,505.45	8,305.14	200.32	42.460	
8,100.00	6,945.00	7,042.57	7,041.00	35.93	174.94	-90.00	1,333.66	-6,683.80	8,603.07	8,402.74	200.33	42.944	
8,200.00	6,945.00	7,042.57	7,041.00	37.06	174.94	-90.00	1,333.66	-6,683.80	8,700.74	8,500.39	200.35	43.429	
8,300.00	6,945.00	7,042.57	7,041.00	38.23	174.94	-90.00	1,333.66	-6,683.80	8,798.45	8,598.09	200.37	43.912	
8,400.00	6,945.00	7,042.57	7,041.00	39.42	174.94	-90.00	1,333.66	-6,683.80	8,896.23	8,695.84	200.39	44.395	
8,500.00	6,945.00	7,042.57	7,041.00	40.65	174.94	-90.00	1,333.66	-6,683.80	8,994.04	8,793.63	200.42	44.877	
8,600.00	6,945.00	7,042.57	7,041.00	41.90	174.94	-90.00	1,333.66	-6,683.80	9,091.91	8,891.47	200.45	45.358	
8,700.00	6,945.00	7,042.57	7,041.00	43.17	174.94	-90.00	1,333.66	-6,683.80	9,189.82	8,989.35	200.48	45.839	
8,800.00	6,945.00	7,042.57	7,041.00	44.46	174.94	-90.00	1,333.66	-6,683.80	9,287.78	9,087.27	200.52	46.320	
8,900.00	6,945.00	7,042.57	7,041.00	45.78	174.94	-90.00	1,333.66	-6,683.80	9,385.78	9,185.23	200.55	46.799	
9,000.00	6,945.00	7,042.57	7,041.00	47.11	174.94	-90.00	1,333.66	-6,683.80	9,483.82	9,283.23	200.60	47.278	
9,100.00	6,945.00	7,042.57	7,041.00	48.46	174.94	-90.00	1,333.66	-6,683.80	9,581.91	9,381.27	200.64	47.757	

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 705H
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 705H	**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 #3	**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
9,200.00	6,945.00	7,042.57	7,041.00	49.82	174.94	-90.00	1,333.66	-6,683.80	9,680.03	9,479.34	200.69	48.234	
9,300.00	6,945.00	7,042.57	7,041.00	51.20	174.94	-90.00	1,333.66	-6,683.80	9,778.19	9,577.45	200.74	48.711	
9,400.00	6,945.00	7,042.57	7,041.00	52.59	174.94	-90.00	1,333.66	-6,683.80	9,876.38	9,675.60	200.79	49.188	
9,500.00	6,945.00	7,042.57	7,041.00	53.99	174.94	-90.00	1,333.66	-6,683.80	9,974.62	9,773.78	200.84	49.664	
9,600.00	6,945.00	7,042.57	7,041.00	55.40	174.94	-90.00	1,333.66	-6,683.80	10,072.88	9,871.99	200.90	50.139	
9,700.00	6,945.00	7,042.57	7,041.00	56.83	174.94	-90.00	1,333.66	-6,683.80	10,171.19	9,970.23	200.95	50.614	
9,800.00	6,945.00	7,042.57	7,041.00	58.26	174.94	-90.00	1,333.66	-6,683.80	10,269.52	10,068.51	201.01	51.089	
9,900.00	6,945.00	7,042.57	7,041.00	59.70	174.94	-90.00	1,333.66	-6,683.80	10,367.89	10,166.81	201.07	51.562	
10,000.00	6,945.00	7,042.57	7,041.00	61.15	174.94	-90.00	1,333.66	-6,683.80	10,466.28	10,265.14	201.14	52.035	
10,100.00	6,945.00	7,042.57	7,041.00	62.61	174.94	-90.00	1,333.66	-6,683.80	10,564.71	10,363.51	201.20	52.508	
10,200.00	6,945.00	7,042.57	7,041.00	64.07	174.94	-90.00	1,333.66	-6,683.80	10,663.17	10,461.90	201.27	52.980	
10,300.00	6,945.00	7,042.57	7,041.00	65.54	174.94	-90.00	1,333.66	-6,683.80	10,761.65	10,560.32	201.33	53.452	
10,400.00	6,945.00	7,042.57	7,041.00	67.02	174.94	-90.00	1,333.66	-6,683.80	10,860.16	10,658.76	201.40	53.923	
10,500.00	6,945.00	7,042.57	7,041.00	68.50	174.94	-90.00	1,333.66	-6,683.80	10,958.70	10,757.23	201.47	54.393	
10,600.00	6,945.00	7,042.57	7,041.00	69.99	174.94	-90.00	1,333.66	-6,683.80	11,057.27	10,855.72	201.54	54.863	
10,700.00	6,945.00	7,042.57	7,041.00	71.48	174.94	-90.00	1,333.66	-6,683.80	11,155.86	10,954.24	201.62	55.332	
10,800.00	6,945.00	7,042.57	7,041.00	72.98	174.94	-90.00	1,333.66	-6,683.80	11,254.47	11,052.79	201.69	55.801	
10,900.00	6,945.00	7,042.57	7,041.00	74.48	174.94	-90.00	1,333.66	-6,683.80	11,353.11	11,151.35	201.76	56.269	
11,000.00	6,945.00	7,042.57	7,041.00	75.99	174.94	-90.00	1,333.66	-6,683.80	11,451.78	11,249.94	201.84	56.737	
11,100.00	6,945.00	7,042.57	7,041.00	77.50	174.94	-90.00	1,333.66	-6,683.80	11,550.46	11,348.55	201.92	57.204	
11,200.00	6,945.00	7,042.57	7,041.00	79.01	174.94	-90.00	1,333.66	-6,683.80	11,649.17	11,447.18	201.99	57.671	
11,300.00	6,945.00	7,042.57	7,041.00	80.53	174.94	-90.00	1,333.66	-6,683.80	11,747.90	11,545.83	202.07	58.137	
11,400.00	6,945.00	7,042.57	7,041.00	82.05	174.94	-90.00	1,333.66	-6,683.80	11,846.66	11,644.51	202.15	58.603	
11,500.00	6,945.00	7,042.57	7,041.00	83.57	174.94	-90.00	1,333.66	-6,683.80	11,945.43	11,743.20	202.23	59.068	
11,600.00	6,945.00	7,042.57	7,041.00	85.10	174.94	-90.00	1,333.66	-6,683.80	12,044.22	11,841.91	202.31	59.533	
11,700.00	6,945.00	7,042.57	7,041.00	86.63	174.94	-90.00	1,333.66	-6,683.80	12,143.04	11,940.64	202.39	59.997	
11,800.00	6,945.00	7,042.57	7,041.00	88.16	174.94	-90.00	1,333.66	-6,683.80	12,241.87	12,039.39	202.48	60.461	
11,900.00	6,945.00	7,042.57	7,041.00	89.69	174.94	-90.00	1,333.66	-6,683.80	12,340.72	12,138.16	202.56	60.924	
12,000.00	6,945.00	7,042.57	7,041.00	91.23	174.94	-90.00	1,333.66	-6,683.80	12,439.59	12,236.95	202.64	61.387	
12,100.00	6,945.00	7,042.57	7,041.00	92.77	174.94	-90.00	1,333.66	-6,683.80	12,538.48	12,335.75	202.73	61.849	
12,200.00	6,945.00	7,042.57	7,041.00	94.31	174.94	-90.00	1,333.66	-6,683.80	12,637.38	12,434.57	202.81	62.310	
12,300.00	6,945.00	7,042.57	7,041.00	95.85	174.94	-90.00	1,333.66	-6,683.80	12,736.30	12,533.40	202.90	62.771	
12,400.00	6,945.00	7,042.57	7,041.00	97.40	174.94	-90.00	1,333.66	-6,683.80	12,835.24	12,632.26	202.99	63.232	
12,500.00	6,945.00	7,042.57	7,041.00	98.95	174.94	-90.00	1,333.66	-6,683.80	12,934.20	12,731.12	203.07	63.692	
12,600.00	6,945.00	7,042.57	7,041.00	100.50	174.94	-90.00	1,333.66	-6,683.80	13,033.17	12,830.01	203.16	64.152	
12,700.00	6,945.00	7,042.57	7,041.00	102.05	174.94	-90.00	1,333.66	-6,683.80	13,132.15	12,928.90	203.25	64.611	
12,800.00	6,945.00	7,042.57	7,041.00	103.60	174.94	-90.00	1,333.66	-6,683.80	13,231.16	13,027.82	203.34	65.070	
12,900.00	6,945.00	7,042.57	7,041.00	105.15	174.94	-90.00	1,333.66	-6,683.80	13,330.17	13,126.74	203.43	65.528	
13,000.00	6,945.00	7,042.57	7,041.00	106.71	174.94	-90.00	1,333.66	-6,683.80	13,429.20	13,225.69	203.52	65.985	
13,100.00	6,945.00	7,042.57	7,041.00	108.26	174.94	-90.00	1,333.66	-6,683.80	13,528.25	13,324.64	203.61	66.443	
13,200.00	6,945.00	7,042.57	7,041.00	109.82	174.94	-90.00	1,333.66	-6,683.80	13,627.31	13,423.61	203.70	66.899	
13,300.00	6,945.00	7,042.57	7,041.00	111.38	174.94	-90.00	1,333.66	-6,683.80	13,726.38	13,522.59	203.79	67.355	
13,400.00	6,945.00	7,042.57	7,041.00	112.94	174.94	-90.00	1,333.66	-6,683.80	13,825.47	13,621.59	203.88	67.811	
13,500.00	6,945.00	7,042.57	7,041.00	114.50	174.94	-90.00	1,333.66	-6,683.80	13,924.57	13,720.59	203.97	68.266	
13,600.00	6,945.00	7,042.57	7,041.00	116.07	174.94	-90.00	1,333.66	-6,683.80	14,023.68	13,819.61	204.07	68.721	
13,700.00	6,945.00	7,042.57	7,041.00	117.63	174.94	-90.00	1,333.66	-6,683.80	14,122.81	13,918.64	204.16	69.175	
13,800.00	6,945.00	7,042.57	7,041.00	119.19	174.94	-90.00	1,333.66	-6,683.80	14,221.94	14,017.69	204.25	69.629	
13,900.00	6,945.00	7,042.57	7,041.00	120.76	174.94	-90.00	1,333.66	-6,683.80	14,321.09	14,116.74	204.35	70.082	
14,000.00	6,945.00	7,042.57	7,041.00	122.33	174.94	-90.00	1,333.66	-6,683.80	14,420.25	14,215.81	204.44	70.534	
14,100.00	6,945.00	7,042.57	7,041.00	123.90	174.94	-90.00	1,333.66	-6,683.80	14,519.42	14,314.89	204.54	70.986	
14,200.00	6,945.00	7,042.57	7,041.00	125.46	174.94	-90.00	1,333.66	-6,683.80	14,618.61	14,413.98	204.63	71.438	
14,300.00	6,945.00	7,042.57	7,041.00	127.03	174.94	-90.00	1,333.66	-6,683.80	14,717.80	14,513.07	204.73	71.889	

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 705H
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 705H	**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 #3	**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
14,400.00	6,945.00	7,042.57	7,041.00	128.60	174.94	-90.00	1,333.66	-6,683.80	14,817.01	14,612.18	204.82	72.340	
14,500.00	6,945.00	7,042.57	7,041.00	130.18	174.94	-90.00	1,333.66	-6,683.80	14,916.22	14,711.30	204.92	72.790	
14,600.00	6,945.00	7,042.57	7,041.00	131.75	174.94	-90.00	1,333.66	-6,683.80	15,015.45	14,810.43	205.02	73.240	
14,700.00	6,945.00	7,042.57	7,041.00	133.32	174.94	-90.00	1,333.66	-6,683.80	15,114.69	14,909.57	205.11	73.689	
14,800.00	6,945.00	7,042.57	7,041.00	134.89	174.94	-90.00	1,333.66	-6,683.80	15,213.93	15,008.72	205.21	74.138	
14,900.00	6,945.00	7,042.57	7,041.00	136.47	174.94	-90.00	1,333.66	-6,683.80	15,313.19	15,107.88	205.31	74.586	
15,000.00	6,945.00	7,042.57	7,041.00	138.04	174.94	-90.00	1,333.66	-6,683.80	15,412.46	15,207.05	205.41	75.033	
15,100.00	6,945.00	7,042.57	7,041.00	139.62	174.94	-90.00	1,333.66	-6,683.80	15,511.73	15,306.23	205.51	75.481	
15,200.00	6,945.00	7,042.57	7,041.00	141.20	174.94	-90.00	1,333.66	-6,683.80	15,611.02	15,405.41	205.60	75.927	
15,300.00	6,945.00	7,042.57	7,041.00	142.77	174.94	-90.00	1,333.66	-6,683.80	15,710.31	15,504.61	205.70	76.373	
15,400.00	6,945.00	7,042.57	7,041.00	144.35	174.94	-90.00	1,333.66	-6,683.80	15,809.61	15,603.81	205.80	76.819	
15,500.00	6,945.00	7,042.57	7,041.00	145.93	174.94	-90.00	1,333.66	-6,683.80	15,908.93	15,703.02	205.90	77.264	
15,600.00	6,945.00	7,042.57	7,041.00	147.51	174.94	-90.00	1,333.66	-6,683.80	16,008.25	15,802.24	206.00	77.709	
15,700.00	6,945.00	7,042.57	7,041.00	149.09	174.94	-90.00	1,333.66	-6,683.80	16,107.57	15,901.47	206.10	78.153	
15,800.00	6,945.00	7,042.57	7,041.00	150.67	174.94	-90.00	1,333.66	-6,683.80	16,206.91	16,000.71	206.20	78.597	
15,900.00	6,945.00	7,042.57	7,041.00	152.25	174.94	-90.00	1,333.66	-6,683.80	16,306.26	16,099.95	206.30	79.040	
16,000.00	6,945.00	7,042.57	7,041.00	153.83	174.94	-90.00	1,333.66	-6,683.80	16,405.61	16,199.20	206.41	79.483	
16,100.00	6,945.00	7,042.57	7,041.00	155.41	174.94	-90.00	1,333.66	-6,683.80	16,504.97	16,298.46	206.51	79.925	
16,200.00	6,945.00	7,042.57	7,041.00	156.99	174.94	-90.00	1,333.66	-6,683.80	16,604.34	16,397.73	206.61	80.366	
16,300.00	6,945.00	7,042.57	7,041.00	158.57	174.94	-90.00	1,333.66	-6,683.80	16,703.71	16,497.00	206.71	80.807	
16,400.00	6,945.00	7,042.57	7,041.00	160.15	174.94	-90.00	1,333.66	-6,683.80	16,803.10	16,596.28	206.81	81.248	
16,500.00	6,945.00	7,042.57	7,041.00	161.74	174.94	-90.00	1,333.66	-6,683.80	16,902.49	16,695.57	206.91	81.688	
16,600.00	6,945.00	7,042.57	7,041.00	163.32	174.94	-90.00	1,333.66	-6,683.80	17,001.88	16,794.87	207.02	82.128	
16,700.00	6,945.00	7,042.57	7,041.00	164.90	174.94	-90.00	1,333.66	-6,683.80	17,101.29	16,894.17	207.12	82.567	
16,800.00	6,945.00	7,042.57	7,041.00	166.49	174.94	-90.00	1,333.66	-6,683.80	17,200.70	16,993.48	207.22	83.006	
16,900.00	6,945.00	7,042.57	7,041.00	168.07	174.94	-90.00	1,333.66	-6,683.80	17,300.12	17,092.79	207.33	83.444	
17,000.00	6,945.00	7,042.57	7,041.00	169.66	174.94	-90.00	1,333.66	-6,683.80	17,399.54	17,192.11	207.43	83.881	
17,100.00	6,945.00	7,042.57	7,041.00	171.24	174.94	-90.00	1,333.66	-6,683.80	17,498.98	17,291.44	207.53	84.318	
17,200.00	6,945.00	7,042.57	7,041.00	172.83	174.94	-90.00	1,333.66	-6,683.80	17,598.41	17,390.77	207.64	84.755	
17,300.00	6,945.00	7,042.57	7,041.00	174.41	174.94	-90.00	1,333.66	-6,683.80	17,697.86	17,490.11	207.74	85.191	
17,400.00	6,945.00	7,042.57	7,041.00	176.00	174.94	-90.00	1,333.66	-6,683.80	17,797.31	17,589.46	207.85	85.627	
17,500.00	6,945.00	7,042.57	7,041.00	177.59	174.94	-90.00	1,333.66	-6,683.80	17,896.77	17,688.81	207.95	86.062	
17,600.00	6,945.00	7,042.57	7,041.00	179.17	174.94	-90.00	1,333.66	-6,683.80	17,996.23	17,788.17	208.06	86.496	
17,700.00	6,945.00	7,042.57	7,041.00	180.76	174.94	-90.00	1,333.66	-6,683.80	18,095.70	17,887.53	208.16	86.930	
17,800.00	6,945.00	7,042.57	7,041.00	182.35	174.94	-90.00	1,333.66	-6,683.80	18,195.17	17,986.90	208.27	87.364	
17,900.00	6,945.00	7,042.57	7,041.00	183.93	174.94	-90.00	1,333.66	-6,683.80	18,294.65	18,086.28	208.38	87.797	
18,000.00	6,945.00	7,042.57	7,041.00	185.52	174.94	-90.00	1,333.66	-6,683.80	18,394.14	18,185.66	208.48	88.229	
18,100.00	6,945.00	7,042.57	7,041.00	187.11	174.94	-90.00	1,333.66	-6,683.80	18,493.63	18,285.04	208.59	88.661	
18,200.00	6,945.00	7,042.57	7,041.00	188.70	174.94	-90.00	1,333.66	-6,683.80	18,593.13	18,384.43	208.69	89.093	
18,300.00	6,945.00	7,042.57	7,041.00	190.29	174.94	-90.00	1,333.66	-6,683.80	18,692.63	18,483.83	208.80	89.524	
18,400.00	6,945.00	7,042.57	7,041.00	191.88	174.94	-90.00	1,333.66	-6,683.80	18,792.14	18,583.23	208.91	89.954	
18,500.00	6,945.00	7,042.57	7,041.00	193.46	174.94	-90.00	1,333.66	-6,683.80	18,891.65	18,682.63	209.02	90.384	
18,600.00	6,945.00	7,042.57	7,041.00	195.05	174.94	-90.00	1,333.66	-6,683.80	18,991.17	18,782.04	209.12	90.813	
18,700.00	6,945.00	7,042.57	7,041.00	196.64	174.94	-90.00	1,333.66	-6,683.80	19,090.69	18,881.46	209.23	91.242	
18,800.00	6,945.00	7,042.57	7,041.00	198.23	174.94	-90.00	1,333.66	-6,683.80	19,190.22	18,980.88	209.34	91.671	
18,900.00	6,945.00	7,042.57	7,041.00	199.82	174.94	-90.00	1,333.66	-6,683.80	19,289.75	19,080.30	209.45	92.099	
19,000.00	6,945.00	7,042.57	7,041.00	201.41	174.94	-90.00	1,333.66	-6,683.80	19,389.29	19,179.73	209.56	92.526	
19,100.00	6,945.00	7,042.57	7,041.00	203.00	174.94	-90.00	1,333.66	-6,683.80	19,488.83	19,279.17	209.66	92.953	
19,200.00	6,945.00	7,042.57	7,041.00	204.60	174.94	-90.00	1,333.66	-6,683.80	19,588.38	19,378.60	209.77	93.379	
19,300.00	6,945.00	7,042.57	7,041.00	206.19	174.94	-90.00	1,333.66	-6,683.80	19,687.93	19,478.05	209.88	93.805	
19,400.00	6,945.00	7,042.57	7,041.00	207.78	174.94	-90.00	1,333.66	-6,683.80	19,787.48	19,577.49	209.99	94.230	
19,500.00	6,945.00	7,042.57	7,041.00	209.37	174.94	-90.00	1,333.66	-6,683.80	19,887.04	19,676.94	210.10	94.655	

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 705H
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 705H	**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 #3	**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

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
19,600.00	6,945.00	7,042.57	7,041.00	210.96	174.94	-90.00	1,333.66	-6,683.80	19,986.61	19,776.40	210.21	95.079	
19,700.00	6,945.00	7,042.57	7,041.00	212.55	174.94	-90.00	1,333.66	-6,683.80	20,086.18	19,875.86	210.32	95.503	
19,800.00	6,945.00	7,042.57	7,041.00	214.14	174.94	-90.00	1,333.66	-6,683.80	20,185.75	19,975.32	210.43	95.926	
19,900.00	6,945.00	7,042.57	7,041.00	215.74	174.94	-90.00	1,333.66	-6,683.80	20,285.33	20,074.79	210.54	96.349	
20,000.00	6,945.00	7,042.57	7,041.00	217.33	174.94	-90.00	1,333.66	-6,683.80	20,384.91	20,174.26	210.65	96.771	
20,100.00	6,945.00	7,042.57	7,041.00	218.92	174.94	-90.00	1,333.66	-6,683.80	20,484.50	20,273.74	210.76	97.193	
20,200.00	6,945.00	7,042.57	7,041.00	220.51	174.94	-90.00	1,333.66	-6,683.80	20,584.09	20,373.21	210.87	97.614	
20,300.00	6,945.00	7,042.57	7,041.00	222.11	174.94	-90.00	1,333.66	-6,683.80	20,683.68	20,472.70	210.98	98.035	
20,400.00	6,945.00	7,042.57	7,041.00	223.70	174.94	-90.00	1,333.66	-6,683.80	20,783.28	20,572.18	211.09	98.455	
20,500.00	6,945.00	7,042.57	7,041.00	225.29	174.94	-90.00	1,333.66	-6,683.80	20,882.88	20,671.67	211.21	98.874	
20,600.00	6,945.00	7,042.57	7,041.00	226.88	174.94	-90.00	1,333.66	-6,683.80	20,982.49	20,771.17	211.32	99.293	
20,700.00	6,945.00	7,042.57	7,041.00	228.48	174.94	-90.00	1,333.66	-6,683.80	21,082.09	20,870.66	211.43	99.712	
20,741.48	6,945.00	7,042.57	7,041.00	229.14	174.94	-90.00	1,333.66	-6,683.80	21,123.41	20,911.93	211.48	99.885	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 705H
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 705H	**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 #3	**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	-79.92	852.70	-4,794.57	4,869.86				
100.00	100.00	84.97	84.97	0.25	0.10	-79.91	852.93	-4,794.45	4,869.73	4,869.38	0.35	N/A	
200.00	200.00	1,446.00	1,387.85	0.61	6.24	-76.87	1,065.93	-4,569.60	4,846.24	4,839.99	6.25	774.955	
300.00	300.00	1,493.53	1,431.14	0.97	6.60	-76.67	1,079.22	-4,555.17	4,821.68	4,814.84	6.84	704.949	
400.00	400.00	1,603.93	1,531.99	1.33	7.45	-76.21	1,109.84	-4,522.35	4,797.89	4,790.00	7.89	608.100	
500.00	500.00	1,727.12	1,644.03	1.68	8.39	-75.68	1,144.46	-4,484.56	4,773.40	4,764.35	9.04	527.835	
600.00	599.98	1,775.28	1,687.92	2.03	8.76	137.11	1,157.84	-4,469.98	4,750.73	4,741.04	9.69	490.119	
700.00	699.84	1,886.41	1,789.40	2.37	9.60	137.91	1,188.73	-4,436.84	4,731.36	4,720.61	10.75	439.959	
795.17	794.65	1,997.72	1,890.50	2.69	10.49	138.69	1,219.96	-4,402.30	4,714.40	4,702.55	11.85	397.861	
800.00	799.45	2,000.52	1,893.04	2.71	10.51	138.70	1,220.76	-4,401.43	4,713.62	4,701.74	11.88	396.670	
900.00	898.92	2,076.00	1,961.44	3.06	11.12	139.10	1,242.55	-4,378.11	4,697.76	4,684.97	12.79	367.225	
1,000.00	998.39	2,138.00	2,017.79	3.43	11.60	139.42	1,260.24	-4,359.24	4,682.65	4,669.04	13.61	344.100	
1,100.00	1,097.86	2,246.82	2,117.06	3.79	12.43	139.98	1,290.39	-4,326.38	4,667.94	4,653.21	14.73	316.941	
1,200.00	1,197.33	2,356.50	2,216.83	4.16	13.29	140.56	1,321.38	-4,292.99	4,653.54	4,637.66	15.88	293.088	
1,300.00	1,296.80	2,490.25	2,338.74	4.53	14.32	141.24	1,356.93	-4,251.05	4,638.11	4,620.94	17.17	270.132	
1,400.00	1,396.27	2,549.11	2,392.50	4.91	14.78	141.55	1,372.52	-4,232.83	4,623.53	4,605.54	17.99	257.073	
1,500.00	1,495.74	2,613.08	2,450.70	5.28	15.28	141.88	1,390.28	-4,213.11	4,609.76	4,590.90	18.85	244.530	
1,600.00	1,595.21	2,656.57	2,490.20	5.66	15.63	142.12	1,402.81	-4,199.89	4,597.05	4,577.46	19.59	234.719	
1,700.00	1,694.68	2,675.00	2,507.02	6.04	15.77	142.22	1,408.05	-4,194.51	4,585.88	4,565.74	20.14	227.684	
1,800.00	1,794.15	2,707.00	2,536.45	6.42	16.00	142.38	1,416.96	-4,185.62	4,576.28	4,555.50	20.78	220.242	
1,900.00	1,893.62	2,738.00	2,565.17	6.80	16.22	142.54	1,425.43	-4,177.61	4,568.36	4,546.95	21.40	213.472	
2,000.00	1,993.09	2,765.18	2,590.54	7.18	16.39	142.67	1,432.67	-4,171.07	4,562.08	4,540.09	21.98	207.521	
2,100.00	2,092.56	2,800.00	2,623.28	7.56	16.62	142.84	1,441.61	-4,163.31	4,557.39	4,534.78	22.61	201.561	
2,200.00	2,192.03	2,974.72	2,789.88	7.94	17.61	143.57	1,478.71	-4,126.10	4,552.62	4,528.68	23.94	190.183	
2,300.00	2,291.50	3,019.00	2,832.38	8.32	17.84	143.75	1,487.12	-4,116.94	4,547.89	4,523.32	24.57	185.090	
2,400.00	2,390.97	3,082.00	2,893.27	8.70	18.15	143.97	1,497.87	-4,104.87	4,544.19	4,518.93	25.27	179.856	
2,500.00	2,490.44	3,152.45	2,961.46	9.08	18.49	144.23	1,509.71	-4,091.74	4,541.12	4,515.13	25.99	174.729	
2,600.00	2,589.91	3,231.30	3,038.16	9.47	18.84	144.49	1,521.83	-4,078.09	4,538.88	4,512.16	26.72	169.854	
2,700.00	2,689.38	3,285.87	3,091.54	9.85	19.07	144.66	1,529.19	-4,069.42	4,537.41	4,510.07	27.33	166.007	
2,779.87	2,768.82	3,321.03	3,126.01	10.15	19.20	144.76	1,533.72	-4,064.16	4,536.93	4,509.15	27.78	163.311 CC	
2,800.00	2,788.85	3,333.00	3,137.76	10.23	19.25	144.80	1,535.25	-4,062.50	4,536.97	4,509.07	27.90	162.590 ES	
2,900.00	2,888.32	3,394.00	3,197.72	10.61	19.48	144.97	1,543.02	-4,054.38	4,537.75	4,509.24	28.52	159.124	
3,000.00	2,987.79	3,458.00	3,260.86	11.00	19.69	145.14	1,550.04	-4,046.70	4,539.27	4,510.15	29.11	155.916	
3,100.00	3,087.25	3,500.19	3,302.68	11.38	19.81	145.23	1,553.70	-4,042.45	4,541.80	4,512.18	29.62	153.360	
3,200.00	3,186.72	3,538.37	3,340.62	11.76	19.90	145.31	1,556.63	-4,039.30	4,545.66	4,515.57	30.09	151.063	
3,300.00	3,286.19	3,582.00	3,384.03	12.15	20.00	145.39	1,559.83	-4,036.47	4,550.93	4,520.36	30.57	148.878	
3,400.00	3,385.66	3,632.13	3,434.02	12.53	20.09	145.48	1,562.87	-4,034.13	4,557.39	4,526.36	31.04	146.831	
3,500.00	3,485.13	3,707.00	3,508.84	12.91	20.18	145.55	1,564.10	-4,032.48	4,564.53	4,533.03	31.50	144.903	
3,600.00	3,584.60	3,769.00	3,570.84	13.30	20.23	145.60	1,563.62	-4,032.16	4,572.30	4,540.39	31.91	143.276	
3,700.00	3,684.07	3,839.10	3,640.94	13.68	20.27	145.64	1,563.51	-4,032.47	4,581.08	4,548.75	32.33	141.685	
3,800.00	3,783.54	3,937.50	3,739.34	14.06	20.37	145.71	1,563.42	-4,032.97	4,590.02	4,557.20	32.81	139.876	
3,900.00	3,883.01	4,035.88	3,837.72	14.45	20.47	145.78	1,563.32	-4,033.50	4,598.98	4,565.69	33.30	138.119	
4,000.00	3,982.48	4,134.26	3,936.10	14.83	20.56	145.85	1,563.21	-4,034.06	4,607.98	4,574.20	33.78	136.412	
4,100.00	4,081.95	4,232.64	4,034.47	15.22	20.66	145.91	1,563.10	-4,034.64	4,617.00	4,582.74	34.26	134.753	
4,200.00	4,181.42	4,331.02	4,132.85	15.60	20.76	145.98	1,562.98	-4,035.26	4,626.06	4,591.31	34.75	133.141	
4,300.00	4,280.89	4,429.39	4,231.22	15.98	20.86	146.04	1,562.86	-4,035.89	4,635.14	4,599.91	35.23	131.574	
4,400.00	4,380.36	4,527.76	4,329.59	16.37	20.95	146.11	1,562.73	-4,036.56	4,644.25	4,608.54	35.71	130.049	
4,500.00	4,479.83	4,626.13	4,427.96	16.75	21.05	146.17	1,562.60	-4,037.25	4,653.39	4,617.20	36.19	128.565	
4,600.00	4,579.30	4,724.50	4,526.32	17.14	21.15	146.24	1,562.46	-4,037.97	4,662.57	4,625.89	36.68	127.121	
4,700.00	4,678.77	4,822.86	4,624.68	17.52	21.25	146.30	1,562.31	-4,038.72	4,671.76	4,634.60	37.16	125.715	
4,800.00	4,778.24	4,921.22	4,723.04	17.90	21.35	146.37	1,562.17	-4,039.49	4,680.99	4,643.35	37.65	124.345	
4,900.00	4,877.71	5,019.58	4,821.39	18.29	21.45	146.43	1,562.01	-4,040.29	4,690.25	4,652.12	38.13	123.010	

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 705H
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 705H	**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 #3	**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

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
5,000.00	4,977.18	5,117.94	4,919.75	18.67	21.55	146.49	1,561.85	-4,041.12	4,699.53	4,660.92	38.61	121.710	
5,100.00	5,076.65	5,216.29	5,018.10	19.06	21.65	146.55	1,561.69	-4,041.97	4,708.85	4,669.75	39.10	120.442	
5,200.00	5,176.12	5,314.64	5,116.44	19.44	21.75	146.62	1,561.52	-4,042.86	4,718.19	4,678.61	39.58	119.205	
5,300.00	5,275.59	5,412.99	5,214.79	19.83	21.85	146.68	1,561.34	-4,043.77	4,727.56	4,687.50	40.06	117.998	
5,400.00	5,375.06	5,511.34	5,313.13	20.21	21.95	146.74	1,561.16	-4,044.70	4,736.96	4,696.41	40.55	116.821	
5,500.00	5,474.53	5,609.68	5,411.47	20.59	22.05	146.80	1,560.98	-4,045.67	4,746.38	4,705.35	41.03	115.672	
5,600.00	5,574.00	5,708.02	5,509.80	20.98	22.16	146.86	1,560.79	-4,046.66	4,755.84	4,714.32	41.52	114.551	
5,700.00	5,673.47	5,806.36	5,608.14	21.36	22.26	146.92	1,560.59	-4,047.67	4,765.32	4,723.32	42.00	113.455	
5,800.00	5,772.94	5,904.70	5,706.46	21.75	22.36	146.98	1,560.39	-4,048.72	4,774.83	4,732.35	42.49	112.385	
5,900.00	5,872.41	6,003.03	5,804.79	22.13	22.46	147.04	1,560.19	-4,049.79	4,784.37	4,741.40	42.97	111.340	
6,000.00	5,971.88	6,101.36	5,903.12	22.52	22.56	147.09	1,559.98	-4,050.89	4,793.94	4,750.48	43.46	110.318	
6,100.00	6,071.35	6,199.69	6,001.44	22.90	22.67	147.15	1,559.76	-4,052.02	4,803.53	4,759.59	43.94	109.319	
6,200.00	6,170.81	6,298.01	6,099.75	23.28	22.77	147.21	1,559.54	-4,053.17	4,813.15	4,768.73	44.43	108.343	
6,300.00	6,270.28	6,396.33	6,198.07	23.67	22.87	147.27	1,559.31	-4,054.35	4,822.80	4,777.89	44.91	107.387	
6,375.94	6,345.82	6,470.99	6,272.72	23.96	22.95	147.31	1,559.14	-4,055.26	4,830.15	4,784.87	45.28	106.676	
6,400.00	6,369.72	6,494.62	6,296.34	24.05	22.98	161.89	1,559.08	-4,055.56	4,832.89	4,787.49	45.40	106.462	
6,450.00	6,419.09	6,543.36	6,345.08	24.25	23.03	178.35	1,558.96	-4,056.16	4,841.19	4,795.56	45.63	106.086	
6,500.00	6,467.78	6,591.39	6,393.11	24.46	23.08	-173.54	1,558.85	-4,056.77	4,852.97	4,807.10	45.87	105.801	
6,550.00	6,515.51	6,638.41	6,440.13	24.67	23.13	-168.65	1,558.73	-4,057.37	4,868.16	4,822.07	46.09	105.612	
6,600.00	6,561.97	6,684.14	6,485.85	24.88	23.18	-165.19	1,558.62	-4,057.96	4,886.67	4,840.35	46.31	105.519 SF	
6,650.00	6,606.89	6,728.28	6,529.99	25.10	23.22	-162.42	1,558.51	-4,058.53	4,908.37	4,861.86	46.52	105.520	
6,700.00	6,649.98	6,770.57	6,572.27	25.32	23.27	-159.96	1,558.40	-4,059.09	4,933.16	4,886.45	46.71	105.617	
6,750.00	6,690.98	6,810.74	6,612.44	25.54	23.31	-157.60	1,558.30	-4,059.62	4,960.87	4,913.99	46.89	105.808	
6,800.00	6,729.64	6,848.54	6,650.24	25.77	23.35	-155.17	1,558.20	-4,060.13	4,991.36	4,944.31	47.05	106.090	
6,850.00	6,765.71	6,883.74	6,685.44	26.00	23.39	-152.57	1,558.11	-4,060.60	5,024.42	4,977.23	47.19	106.462	
6,900.00	6,798.98	6,916.13	6,717.82	26.24	23.42	-149.66	1,558.03	-4,061.04	5,059.88	5,012.56	47.32	106.921	
6,950.00	6,829.24	6,945.51	6,747.19	26.49	23.45	-146.31	1,557.95	-4,061.44	5,097.52	5,050.08	47.44	107.462	
7,000.00	6,856.30	6,971.68	6,773.37	26.76	23.48	-142.37	1,557.88	-4,061.80	5,137.11	5,089.58	47.53	108.082	
7,050.00	6,880.00	6,994.51	6,796.19	27.03	23.51	-137.66	1,557.82	-4,062.11	5,178.43	5,130.82	47.61	108.776	
7,100.00	6,900.19	7,013.83	6,815.51	27.32	23.53	-131.98	1,557.77	-4,062.38	5,221.22	5,173.55	47.67	109.539	
7,150.00	6,916.74	7,029.54	6,831.22	27.62	23.54	-125.13	1,557.73	-4,062.60	5,265.23	5,217.52	47.71	110.364	
7,200.00	6,929.56	7,041.54	6,843.22	27.93	23.56	-116.95	1,557.70	-4,062.77	5,310.18	5,262.45	47.73	111.246	
7,250.00	6,938.57	7,049.76	6,851.43	28.26	23.57	-107.48	1,557.67	-4,062.88	5,355.82	5,308.08	47.74	112.177	
7,300.00	6,943.70	7,054.14	6,855.82	28.60	23.57	-97.03	1,557.66	-4,062.94	5,401.86	5,354.12	47.74	113.148	
7,340.76	6,945.00	7,054.86	6,856.54	28.88	23.57	-88.23	1,557.66	-4,062.95	5,439.49	5,391.76	47.73	113.964	
7,400.00	6,945.00	7,054.04	6,855.72	29.31	23.57	-88.21	1,557.66	-4,062.94	5,494.22	5,446.51	47.71	115.159	
7,500.00	6,945.00	7,052.66	6,854.34	30.09	23.57	-88.17	1,557.67	-4,062.92	5,586.81	5,539.13	47.69	117.159	
7,600.00	6,945.00	7,051.29	6,852.96	30.93	23.57	-88.14	1,557.67	-4,062.90	5,679.66	5,631.99	47.67	119.139	
7,700.00	6,945.00	7,049.91	6,851.59	31.83	23.57	-88.10	1,557.67	-4,062.88	5,772.74	5,725.07	47.67	121.100	
7,800.00	6,945.00	7,048.53	6,850.21	32.79	23.56	-88.06	1,557.68	-4,062.86	5,866.05	5,818.37	47.67	123.043	
7,900.00	6,945.00	7,047.15	6,848.83	33.79	23.56	-88.02	1,557.68	-4,062.85	5,959.57	5,911.88	47.69	124.968	
8,000.00	6,945.00	7,045.78	6,847.46	34.84	23.56	-87.99	1,557.68	-4,062.83	6,053.31	6,005.60	47.71	126.876	
8,100.00	6,945.00	7,044.40	6,846.08	35.93	23.56	-87.95	1,557.69	-4,062.81	6,147.24	6,099.50	47.74	128.768	
8,200.00	6,945.00	7,043.03	6,844.71	37.06	23.56	-87.91	1,557.69	-4,062.79	6,241.35	6,193.58	47.77	130.644	
8,300.00	6,945.00	7,041.66	6,843.34	38.23	23.56	-87.87	1,557.70	-4,062.77	6,335.65	6,287.84	47.81	132.505	
8,400.00	6,945.00	7,040.29	6,841.96	39.42	23.55	-87.84	1,557.70	-4,062.75	6,430.12	6,382.26	47.86	134.351	
8,500.00	6,945.00	7,038.91	6,840.59	40.65	23.55	-87.80	1,557.70	-4,062.73	6,524.75	6,476.84	47.91	136.184	
8,600.00	6,945.00	7,037.54	6,839.22	41.90	23.55	-87.76	1,557.71	-4,062.71	6,619.55	6,571.58	47.97	138.004	
8,700.00	6,945.00	7,036.17	6,837.85	43.17	23.55	-87.72	1,557.71	-4,062.69	6,714.49	6,666.46	48.03	139.812	
8,800.00	6,945.00	7,034.80	6,836.48	44.46	23.55	-87.69	1,557.71	-4,062.67	6,809.58	6,761.49	48.09	141.607	
8,900.00	6,945.00	7,033.44	6,835.11	45.78	23.55	-87.65	1,557.72	-4,062.65	6,904.80	6,856.65	48.15	143.390	
9,000.00	6,945.00	7,032.07	6,833.75	47.11	23.55	-87.61	1,557.72	-4,062.63	7,000.16	6,951.94	48.22	145.163	

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 705H
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 705H	**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 #3	**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

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	6,945.00	7,030.70	6,832.38	48.46	23.54	-87.57	1,557.72	-4,062.62	7,095.65	7,047.35	48.29	146.925	
9,200.00	6,945.00	7,029.33	6,831.01	49.82	23.54	-87.54	1,557.73	-4,062.60	7,191.25	7,142.89	48.37	148.676	
9,300.00	6,945.00	7,027.97	6,829.65	51.20	23.54	-87.50	1,557.73	-4,062.58	7,286.98	7,238.54	48.44	150.418	
9,400.00	6,945.00	7,026.60	6,828.28	52.59	23.54	-87.46	1,557.74	-4,062.56	7,382.82	7,334.30	48.52	152.150	
9,500.00	6,945.00	7,025.24	6,826.92	53.99	23.54	-87.42	1,557.74	-4,062.54	7,478.77	7,430.16	48.60	153.873	
9,600.00	6,945.00	7,023.88	6,825.56	55.40	23.54	-87.39	1,557.74	-4,062.52	7,574.82	7,526.13	48.69	155.587	
9,700.00	6,945.00	7,022.51	6,824.19	56.83	23.54	-87.35	1,557.75	-4,062.50	7,670.97	7,622.20	48.77	157.292	
9,800.00	6,945.00	7,021.15	6,822.83	58.26	23.53	-87.31	1,557.75	-4,062.48	7,767.22	7,718.37	48.85	158.989	
9,900.00	6,945.00	7,019.79	6,821.47	59.70	23.53	-87.28	1,557.75	-4,062.46	7,863.57	7,814.63	48.94	160.678	
10,000.00	6,945.00	7,018.43	6,820.11	61.15	23.53	-87.24	1,557.76	-4,062.45	7,960.00	7,910.97	49.03	162.359	
10,100.00	6,945.00	7,017.07	6,818.75	62.61	23.53	-87.20	1,557.76	-4,062.43	8,056.52	8,007.40	49.12	164.033	
10,200.00	6,945.00	7,015.71	6,817.39	64.07	23.53	-87.16	1,557.76	-4,062.41	8,153.12	8,103.92	49.20	165.699	
10,300.00	6,945.00	7,014.35	6,816.03	65.54	23.53	-87.13	1,557.77	-4,062.39	8,249.81	8,200.51	49.29	167.359	
10,400.00	6,945.00	7,013.00	6,814.68	67.02	23.53	-87.09	1,557.77	-4,062.37	8,346.57	8,297.18	49.38	169.011	
10,500.00	6,945.00	7,011.64	6,813.32	68.50	23.52	-87.05	1,557.78	-4,062.35	8,443.41	8,393.93	49.48	170.656	
10,600.00	6,945.00	7,010.28	6,811.97	69.99	23.52	-87.02	1,557.78	-4,062.33	8,540.32	8,490.75	49.57	172.295	
10,700.00	6,945.00	7,008.93	6,810.61	71.48	23.52	-86.98	1,557.78	-4,062.31	8,637.30	8,587.64	49.66	173.927	
10,800.00	6,945.00	7,007.57	6,809.26	72.98	23.52	-86.94	1,557.79	-4,062.29	8,734.35	8,684.59	49.75	175.553	
10,900.00	6,945.00	7,006.22	6,807.90	74.48	23.52	-86.91	1,557.79	-4,062.28	8,831.46	8,781.61	49.85	177.172	
11,000.00	6,945.00	7,004.87	6,806.55	75.99	23.52	-86.87	1,557.79	-4,062.26	8,928.64	8,878.70	49.94	178.786	
11,100.00	6,945.00	7,003.52	6,805.20	77.50	23.52	-86.83	1,557.80	-4,062.24	9,025.88	8,975.84	50.03	180.393	
11,200.00	6,945.00	7,002.16	6,803.85	79.01	23.51	-86.79	1,557.80	-4,062.22	9,123.17	9,073.05	50.13	181.994	
11,300.00	6,945.00	7,000.81	6,802.50	80.53	23.51	-86.76	1,557.80	-4,062.20	9,220.53	9,170.31	50.22	183.590	
11,400.00	6,945.00	6,999.46	6,801.15	82.05	23.51	-86.72	1,557.81	-4,062.18	9,317.94	9,267.62	50.32	185.180	
11,500.00	6,945.00	6,998.12	6,799.80	83.57	23.51	-86.68	1,557.81	-4,062.16	9,415.41	9,364.99	50.41	186.764	
11,600.00	6,945.00	6,996.77	6,798.45	85.10	23.51	-86.65	1,557.82	-4,062.15	9,512.93	9,462.42	50.51	188.342	
11,700.00	6,945.00	6,995.42	6,797.10	86.63	23.51	-86.61	1,557.82	-4,062.13	9,610.50	9,559.89	50.60	189.915	
11,800.00	6,945.00	6,994.07	6,795.75	88.16	23.51	-86.57	1,557.82	-4,062.11	9,708.11	9,657.41	50.70	191.482	
11,900.00	6,945.00	6,992.73	6,794.41	89.69	23.50	-86.54	1,557.83	-4,062.09	9,805.78	9,754.98	50.80	193.044	
12,000.00	6,945.00	6,991.38	6,793.06	91.23	23.50	-86.50	1,557.83	-4,062.07	9,903.49	9,852.60	50.89	194.601	
12,100.00	6,945.00	6,990.04	6,791.72	92.77	23.50	-86.46	1,557.83	-4,062.05	10,001.25	9,950.26	50.99	196.152	
12,200.00	6,945.00	6,988.69	6,790.37	94.31	23.50	-86.43	1,557.84	-4,062.03	10,099.05	10,047.97	51.08	197.698	
12,300.00	6,945.00	6,987.35	6,789.03	95.85	23.50	-86.39	1,557.84	-4,062.01	10,196.90	10,145.72	51.18	199.238	
12,400.00	6,945.00	6,986.01	6,787.69	97.40	23.50	-86.35	1,557.84	-4,062.00	10,294.78	10,243.50	51.28	200.774	
12,500.00	6,945.00	6,984.66	6,786.35	98.95	23.50	-86.32	1,557.85	-4,061.98	10,392.71	10,341.33	51.37	202.304	
12,600.00	6,945.00	6,983.32	6,785.01	100.50	23.49	-86.28	1,557.85	-4,061.96	10,490.67	10,439.20	51.47	203.829	
12,700.00	6,945.00	6,981.98	6,783.67	102.05	23.49	-86.24	1,557.85	-4,061.94	10,588.67	10,537.11	51.56	205.349	
12,800.00	6,945.00	6,980.64	6,782.33	103.60	23.49	-86.21	1,557.86	-4,061.92	10,686.71	10,635.05	51.66	206.864	
12,900.00	6,945.00	6,979.30	6,780.99	105.15	23.49	-86.17	1,557.86	-4,061.90	10,784.78	10,733.03	51.76	208.373	
13,000.00	6,945.00	6,977.97	6,779.65	106.71	23.49	-86.13	1,557.87	-4,061.89	10,882.89	10,831.04	51.85	209.878	
13,100.00	6,945.00	6,976.63	6,778.31	108.26	23.49	-86.10	1,557.87	-4,061.87	10,981.04	10,929.09	51.95	211.378	
13,200.00	6,945.00	6,975.29	6,776.98	109.82	23.49	-86.06	1,557.87	-4,061.85	11,079.21	11,027.17	52.05	212.872	
13,300.00	6,945.00	6,973.96	6,775.64	111.38	23.48	-86.03	1,557.88	-4,061.83	11,177.42	11,125.28	52.14	214.362	
13,400.00	6,945.00	6,972.62	6,774.31	112.94	23.48	-85.99	1,557.88	-4,061.81	11,275.66	11,223.42	52.24	215.846	
13,500.00	6,945.00	6,971.29	6,772.97	114.50	23.48	-85.95	1,557.88	-4,061.79	11,373.93	11,321.60	52.34	217.326	
13,600.00	6,945.00	6,969.95	6,771.64	116.07	23.48	-85.92	1,557.89	-4,061.78	11,472.23	11,419.80	52.43	218.800	
13,700.00	6,945.00	6,968.62	6,770.30	117.63	23.48	-85.88	1,557.89	-4,061.76	11,570.56	11,518.03	52.53	220.270	
13,800.00	6,945.00	6,967.29	6,768.97	119.19	23.48	-85.84	1,557.89	-4,061.74	11,668.92	11,616.29	52.63	221.735	
13,900.00	6,945.00	6,965.95	6,767.64	120.76	23.48	-85.81	1,557.90	-4,061.72	11,767.31	11,714.58	52.72	223.194	
14,000.00	6,945.00	6,964.62	6,766.31	122.33	23.47	-85.77	1,557.90	-4,061.70	11,865.72	11,812.90	52.82	224.649	
14,100.00	6,945.00	6,963.29	6,764.98	123.90	23.47	-85.73	1,557.90	-4,061.68	11,964.16	11,911.24	52.92	226.099	
14,200.00	6,945.00	6,961.96	6,763.65	125.46	23.47	-85.70	1,557.91	-4,061.67	12,062.62	12,009.61	53.01	227.544	

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 705H
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 705H	**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 #3	**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

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	6,945.00	6,960.64	6,762.32	127.03	23.47	-85.66	1,557.91	-4,061.65	12,161.11	12,108.00	53.11	228.984	
14,400.00	6,945.00	6,959.31	6,760.99	128.60	23.47	-85.63	1,557.91	-4,061.63	12,259.62	12,206.41	53.21	230.419	
14,500.00	6,945.00	6,957.98	6,759.67	130.18	23.47	-85.59	1,557.92	-4,061.61	12,358.16	12,304.85	53.30	231.849	
14,600.00	6,945.00	6,956.65	6,758.34	131.75	23.47	-85.55	1,557.92	-4,061.59	12,456.72	12,403.32	53.40	233.274	
14,700.00	6,945.00	6,955.33	6,757.01	133.32	23.46	-85.52	1,557.92	-4,061.57	12,555.30	12,501.80	53.50	234.695	
14,800.00	6,945.00	6,954.00	6,755.69	134.89	23.46	-85.48	1,557.93	-4,061.56	12,653.90	12,600.31	53.59	236.110	
14,900.00	6,945.00	6,952.68	6,754.37	136.47	23.46	-85.45	1,557.93	-4,061.54	12,752.53	12,698.84	53.69	237.521	
15,000.00	6,945.00	6,951.35	6,753.04	138.04	23.46	-85.41	1,557.94	-4,061.52	12,851.18	12,797.39	53.79	238.926	
15,100.00	6,945.00	6,950.03	6,751.72	139.62	23.46	-85.37	1,557.94	-4,061.50	12,949.84	12,895.96	53.88	240.327	
15,200.00	6,945.00	6,948.71	6,750.40	141.20	23.46	-85.34	1,557.94	-4,061.48	13,048.53	12,994.55	53.98	241.723	
15,300.00	6,945.00	6,947.39	6,749.08	142.77	23.46	-85.30	1,557.95	-4,061.47	13,147.24	13,093.16	54.08	243.113	
15,400.00	6,945.00	6,946.07	6,747.75	144.35	23.45	-85.27	1,557.95	-4,061.45	13,245.97	13,191.79	54.18	244.499	
15,500.00	6,945.00	6,944.75	6,746.43	145.93	23.45	-85.23	1,557.95	-4,061.43	13,344.71	13,290.44	54.27	245.881	
15,600.00	6,945.00	6,943.43	6,745.12	147.51	23.45	-85.19	1,557.96	-4,061.41	13,443.48	13,389.11	54.37	247.257	
15,700.00	6,945.00	6,942.11	6,743.80	149.09	23.45	-85.16	1,557.96	-4,061.39	13,542.26	13,487.79	54.47	248.628	
15,800.00	6,945.00	6,940.79	6,742.48	150.67	23.45	-85.12	1,557.96	-4,061.38	13,641.06	13,586.49	54.57	249.994	
15,900.00	6,945.00	6,939.47	6,741.16	152.25	23.45	-85.09	1,557.97	-4,061.36	13,739.88	13,685.21	54.66	251.356	
16,000.00	6,945.00	6,938.16	6,739.85	153.83	23.45	-85.05	1,557.97	-4,061.34	13,838.71	13,783.95	54.76	252.713	
16,100.00	6,945.00	6,936.84	6,738.53	155.41	23.44	-85.02	1,557.97	-4,061.32	13,937.56	13,882.70	54.86	254.064	
16,200.00	6,945.00	6,935.53	6,737.21	156.99	23.44	-84.98	1,557.98	-4,061.30	14,036.43	13,981.47	54.96	255.411	
16,300.00	6,945.00	6,934.21	6,735.90	158.57	23.44	-84.94	1,557.98	-4,061.29	14,135.31	14,080.25	55.05	256.753	
16,400.00	6,945.00	6,932.90	6,734.59	160.15	23.44	-84.91	1,557.98	-4,061.27	14,234.21	14,179.05	55.15	258.090	
16,500.00	6,945.00	6,931.58	6,733.27	161.74	23.44	-84.87	1,557.99	-4,061.25	14,333.12	14,277.87	55.25	259.422	
16,600.00	6,945.00	6,930.27	6,731.96	163.32	23.44	-84.84	1,557.99	-4,061.23	14,432.05	14,376.70	55.35	260.750	
16,700.00	6,945.00	6,928.96	6,730.65	164.90	23.44	-84.80	1,557.99	-4,061.21	14,530.99	14,475.54	55.45	262.072	
16,800.00	6,945.00	6,927.65	6,729.34	166.49	23.43	-84.77	1,558.00	-4,061.20	14,629.95	14,574.40	55.54	263.390	
16,900.00	6,945.00	6,926.34	6,728.03	168.07	23.43	-84.73	1,558.00	-4,061.18	14,728.92	14,673.27	55.64	264.702	
17,000.00	6,945.00	6,925.03	6,726.72	169.66	23.43	-84.69	1,558.00	-4,061.16	14,827.90	14,772.16	55.74	266.010	
17,100.00	6,945.00	6,923.72	6,725.41	171.24	23.43	-84.66	1,558.01	-4,061.14	14,926.90	14,871.06	55.84	267.313	
17,200.00	6,945.00	6,922.41	6,724.10	172.83	23.43	-84.62	1,558.01	-4,061.12	15,025.91	14,969.97	55.94	268.611	
17,300.00	6,945.00	6,921.11	6,722.80	174.41	23.43	-84.59	1,558.01	-4,061.11	15,124.93	15,068.90	56.04	269.904	
17,400.00	6,945.00	6,919.80	6,721.49	176.00	23.43	-84.55	1,558.02	-4,061.09	15,223.97	15,167.83	56.14	271.192	
17,500.00	6,945.00	6,918.49	6,720.18	177.59	23.43	-84.52	1,558.02	-4,061.07	15,323.02	15,266.78	56.24	272.476	
17,600.00	6,945.00	6,917.19	6,718.88	179.17	23.42	-84.48	1,558.02	-4,061.05	15,422.08	15,365.74	56.34	273.755	
17,700.00	6,945.00	6,915.88	6,717.57	180.76	23.42	-84.45	1,558.03	-4,061.04	15,521.15	15,464.72	56.43	275.028	
17,800.00	6,945.00	6,914.58	6,716.27	182.35	23.42	-84.41	1,558.03	-4,061.02	15,620.24	15,563.70	56.53	276.297	
17,900.00	6,945.00	6,913.28	6,714.97	183.93	23.42	-84.38	1,558.04	-4,061.00	15,719.33	15,662.70	56.63	277.561	
18,000.00	6,945.00	6,911.97	6,713.67	185.52	23.42	-84.34	1,558.04	-4,060.98	15,818.44	15,761.71	56.73	278.820	
18,100.00	6,945.00	6,910.67	6,712.36	187.11	23.42	-84.30	1,558.04	-4,060.97	15,917.56	15,860.73	56.83	280.075	
18,200.00	6,945.00	6,909.37	6,711.06	188.70	23.42	-84.27	1,558.05	-4,060.95	16,016.69	15,959.76	56.93	281.324	
18,300.00	6,945.00	6,908.07	6,709.76	190.29	23.41	-84.23	1,558.05	-4,060.93	16,115.83	16,058.79	57.03	282.569	
18,400.00	6,945.00	6,906.77	6,708.46	191.88	23.41	-84.20	1,558.05	-4,060.91	16,214.98	16,157.85	57.13	283.809	
18,500.00	6,945.00	6,905.47	6,707.16	193.46	23.41	-84.16	1,558.06	-4,060.89	16,314.14	16,256.91	57.23	285.044	
18,600.00	6,945.00	6,904.17	6,705.87	195.05	23.41	-84.13	1,558.06	-4,060.88	16,413.31	16,355.98	57.33	286.274	
18,700.00	6,945.00	6,902.88	6,704.57	196.64	23.41	-84.09	1,558.06	-4,060.86	16,512.49	16,455.06	57.43	287.499	
18,800.00	6,945.00	6,901.58	6,703.27	198.23	23.41	-84.06	1,558.07	-4,060.84	16,611.68	16,554.15	57.54	288.720	
18,900.00	6,945.00	6,900.28	6,701.98	199.82	23.41	-84.02	1,558.07	-4,060.82	16,710.88	16,653.24	57.64	289.936	
19,000.00	6,945.00	6,898.99	6,700.68	201.41	23.40	-83.99	1,558.07	-4,060.81	16,810.09	16,752.35	57.74	291.147	
19,100.00	6,945.00	6,897.69	6,699.39	203.00	23.40	-83.95	1,558.08	-4,060.79	16,909.31	16,851.47	57.84	292.353	
19,200.00	6,945.00	6,896.40	6,698.09	204.60	23.40	-83.92	1,558.08	-4,060.77	17,008.54	16,950.60	57.94	293.554	
19,300.00	6,945.00	6,895.11	6,696.80	206.19	23.40	-83.88	1,558.08	-4,060.75	17,107.77	17,049.73	58.04	294.751	
19,400.00	6,945.00	6,893.81	6,695.51	207.78	23.40	-83.85	1,558.09	-4,060.74	17,207.02	17,148.87	58.14	295.943	

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 705H
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 705H	**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 #3	**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
19,500.00	6,945.00	6,892.52	6,694.21	209.37	23.40	-83.81	1,558.09	-4,060.72	17,306.27	17,248.03	58.24	297.130	
19,600.00	6,945.00	6,891.23	6,692.92	210.96	23.40	-83.78	1,558.09	-4,060.70	17,405.53	17,347.19	58.35	298.312	
19,700.00	6,945.00	6,889.94	6,691.63	212.55	23.39	-83.74	1,558.10	-4,060.68	17,504.80	17,446.36	58.45	299.490	
19,800.00	6,945.00	6,888.65	6,690.34	214.14	23.39	-83.71	1,558.10	-4,060.67	17,604.08	17,545.53	58.55	300.663	
19,900.00	6,945.00	6,887.36	6,689.05	215.74	23.39	-83.67	1,558.10	-4,060.65	17,703.37	17,644.72	58.65	301.831	
20,000.00	6,945.00	6,886.07	6,687.77	217.33	23.39	-83.64	1,558.11	-4,060.63	17,802.66	17,743.91	58.76	302.994	
20,100.00	6,945.00	6,884.78	6,686.48	218.92	23.39	-83.60	1,558.11	-4,060.61	17,901.97	17,843.11	58.86	304.153	
20,200.00	6,945.00	6,883.50	6,685.19	220.51	23.39	-83.57	1,558.11	-4,060.60	18,001.28	17,942.31	58.96	305.307	
20,300.00	6,945.00	6,882.21	6,683.90	222.11	23.39	-83.53	1,558.12	-4,060.58	18,100.59	18,041.53	59.06	306.456	
20,400.00	6,945.00	6,880.92	6,682.62	223.70	23.39	-83.50	1,558.12	-4,060.56	18,199.92	18,140.75	59.17	307.601	
20,500.00	6,945.00	6,879.64	6,681.33	225.29	23.38	-83.46	1,558.12	-4,060.54	18,299.25	18,239.98	59.27	308.741	
20,600.00	6,945.00	6,878.36	6,680.05	226.88	23.38	-83.43	1,558.13	-4,060.53	18,398.59	18,339.22	59.37	309.876	
20,700.00	6,945.00	6,877.07	6,678.77	228.48	23.38	-83.40	1,558.13	-4,060.51	18,497.94	18,438.46	59.48	311.007	
20,741.48	6,945.00	6,876.54	6,678.23	229.14	23.38	-83.38	1,558.13	-4,060.50	18,539.14	18,479.62	59.52	311.475	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 705H
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 705H	**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 #3	**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
0.00	0.00	156.00	156.00	0.00	4.67	-139.82	-1,705.16	-1,439.96	2,231.83				
100.00	100.00	256.00	256.00	0.25	7.67	-139.82	-1,705.16	-1,439.96	2,231.83	2,223.91	7.92	281.727	
200.00	200.00	356.00	356.00	0.61	10.67	-139.82	-1,705.16	-1,439.96	2,231.83	2,220.55	11.28	197.913	
300.00	300.00	456.00	456.00	0.97	13.66	-139.82	-1,705.16	-1,439.96	2,231.83	2,217.20	14.63	152.534	
400.00	400.00	556.10	556.00	1.33	16.66	-139.82	-1,705.16	-1,439.96	2,231.83	2,213.84	17.99	124.062	
500.00	500.00	656.10	656.00	1.68	19.66	-139.82	-1,705.16	-1,439.96	2,231.83	2,210.49	21.34	104.562	
600.00	599.98	755.42	755.28	2.03	22.64	72.54	-1,702.98	-1,439.96	2,229.64	2,204.98	24.66	90.402	
700.00	699.84	844.75	844.60	2.37	25.31	72.67	-1,703.30	-1,439.96	2,228.34	2,200.67	27.68	80.516	
795.17	794.65	929.67	929.49	2.69	27.86	72.87	-1,704.11	-1,439.96	2,226.60	2,196.05	30.55	72.888	
800.00	799.45	933.98	933.80	2.71	27.99	72.88	-1,704.17	-1,439.96	2,226.50	2,195.80	30.69	72.538	
900.00	898.92	1,055.33	1,054.92	3.06	31.62	73.17	-1,705.16	-1,439.96	2,224.13	2,189.45	34.69	64.120	
1,000.00	998.39	1,154.80	1,154.39	3.43	34.60	73.42	-1,705.16	-1,439.96	2,221.16	2,183.14	38.03	58.408	
1,100.00	1,097.86	1,253.81	1,253.36	3.79	37.57	73.71	-1,702.98	-1,439.96	2,216.60	2,175.24	41.36	53.592	
1,200.00	1,197.33	1,343.03	1,342.57	4.16	40.24	73.94	-1,703.29	-1,439.96	2,213.98	2,169.57	44.40	49.862	
1,300.00	1,296.80	1,432.37	1,431.89	4.53	42.92	74.15	-1,704.15	-1,439.96	2,211.86	2,164.41	47.45	46.616	
1,400.00	1,396.27	1,552.98	1,552.27	4.91	46.53	74.44	-1,705.16	-1,439.96	2,209.72	2,158.28	51.44	42.960	
1,500.00	1,495.74	1,652.45	1,651.74	5.28	49.51	74.70	-1,705.16	-1,439.96	2,206.97	2,152.18	54.79	40.279	
1,600.00	1,595.21	1,751.71	1,750.96	5.66	52.49	74.99	-1,702.98	-1,439.96	2,202.66	2,144.52	58.14	37.884	
1,700.00	1,694.68	1,841.17	1,840.41	6.04	55.17	75.22	-1,703.27	-1,439.96	2,200.24	2,139.05	61.20	35.953	
1,800.00	1,794.15	1,930.76	1,929.97	6.42	57.85	75.43	-1,704.13	-1,439.96	2,198.32	2,134.06	64.26	34.211	
1,900.00	1,893.62	2,050.63	2,049.62	6.80	61.45	75.73	-1,705.16	-1,439.96	2,196.42	2,128.19	68.23	32.191	
2,000.00	1,993.09	2,150.10	2,149.09	7.18	64.43	75.99	-1,705.16	-1,439.96	2,193.89	2,122.30	71.59	30.645	
2,100.00	2,092.56	2,249.57	2,248.56	7.56	67.41	76.25	-1,705.16	-1,439.96	2,191.41	2,116.46	74.95	29.238	
2,200.00	2,192.03	2,339.31	2,338.24	7.94	70.10	76.51	-1,703.26	-1,439.96	2,187.63	2,109.62	78.02	28.040	
2,300.00	2,291.50	2,429.13	2,428.04	8.32	72.79	76.73	-1,704.11	-1,439.96	2,185.92	2,104.83	81.09	26.957	
2,400.00	2,390.97	2,548.29	2,546.97	8.70	76.36	77.03	-1,705.16	-1,439.96	2,184.24	2,099.20	85.04	25.684	
2,500.00	2,490.44	2,647.76	2,646.44	9.08	79.34	77.29	-1,705.16	-1,439.96	2,181.95	2,093.54	88.40	24.682	
2,600.00	2,589.91	2,747.23	2,745.91	9.47	82.32	77.55	-1,705.16	-1,439.96	2,179.69	2,087.93	91.77	23.753	
2,700.00	2,689.38	2,837.43	2,836.05	9.85	85.02	77.83	-1,703.25	-1,439.96	2,176.17	2,081.32	94.85	22.943	
2,800.00	2,788.85	2,927.50	2,926.11	10.23	87.72	78.05	-1,704.09	-1,439.96	2,174.66	2,076.73	97.93	22.207	
2,900.00	2,888.32	3,045.94	3,044.32	10.61	91.27	78.34	-1,705.16	-1,439.96	2,173.22	2,071.36	101.86	21.335	
3,000.00	2,987.79	3,145.41	3,143.79	11.00	94.25	78.61	-1,705.16	-1,439.96	2,171.15	2,065.93	105.23	20.633	
3,100.00	3,087.25	3,244.88	3,243.25	11.38	97.23	78.87	-1,705.16	-1,439.96	2,169.13	2,060.54	108.59	19.976	
3,200.00	3,186.72	3,335.54	3,333.86	11.76	99.95	79.15	-1,703.24	-1,439.96	2,165.86	2,054.18	111.69	19.392	
3,300.00	3,286.19	3,425.86	3,424.16	12.15	102.65	79.38	-1,704.07	-1,439.96	2,164.56	2,049.79	114.77	18.859	
3,400.00	3,385.66	3,543.59	3,541.66	12.53	106.18	79.67	-1,705.16	-1,439.96	2,163.36	2,044.67	118.69	18.227	
3,500.00	3,485.13	3,643.06	3,641.13	12.91	109.16	79.94	-1,705.16	-1,439.96	2,161.53	2,039.48	122.05	17.710	
3,600.00	3,584.60	3,742.53	3,740.60	13.30	112.14	80.20	-1,705.16	-1,439.96	2,159.75	2,034.33	125.42	17.221	
3,700.00	3,684.07	3,833.64	3,831.66	13.68	114.87	80.49	-1,703.23	-1,439.96	2,156.74	2,028.21	128.53	16.780	
3,800.00	3,783.54	3,924.21	3,922.21	14.06	117.59	80.71	-1,704.04	-1,439.96	2,155.65	2,024.03	131.62	16.377	
3,900.00	3,883.01	4,041.25	4,039.01	14.45	121.09	81.01	-1,705.16	-1,439.96	2,154.68	2,019.16	135.52	15.900	
4,000.00	3,982.48	4,140.72	4,138.48	14.83	124.07	81.28	-1,705.16	-1,439.96	2,153.09	2,014.21	138.88	15.503	
4,100.00	4,081.95	4,240.19	4,237.95	15.22	127.06	81.55	-1,705.16	-1,439.96	2,151.55	2,009.30	142.25	15.125	
4,200.00	4,181.42	4,331.73	4,329.45	15.60	129.80	81.83	-1,703.22	-1,439.96	2,148.80	2,003.43	145.37	14.781	
4,300.00	4,280.89	4,422.55	4,420.24	15.98	132.52	82.06	-1,704.02	-1,439.96	2,147.93	1,999.46	148.48	14.466	
4,400.00	4,380.36	4,538.90	4,536.36	16.37	136.01	82.36	-1,705.16	-1,439.96	2,147.20	1,994.85	152.35	14.094	
4,500.00	4,479.83	4,638.37	4,635.83	16.75	138.99	82.63	-1,705.16	-1,439.96	2,145.85	1,990.14	155.72	13.781	
4,600.00	4,579.30	4,737.84	4,735.30	17.14	141.97	82.90	-1,705.16	-1,439.96	2,144.55	1,985.47	159.08	13.481	
4,700.00	4,678.77	4,829.82	4,827.23	17.52	144.72	83.19	-1,703.21	-1,439.96	2,142.08	1,979.85	162.22	13.205	
4,800.00	4,778.24	4,920.88	4,918.27	17.90	147.45	83.42	-1,704.00	-1,439.96	2,141.42	1,976.09	165.33	12.952	
4,900.00	4,877.71	5,036.55	5,033.71	18.29	150.92	83.71	-1,705.16	-1,439.96	2,140.93	1,971.75	169.19	12.654	
5,000.00	4,977.18	5,136.02	5,133.18	18.67	153.90	83.99	-1,705.16	-1,439.96	2,139.83	1,967.28	172.55	12.401	

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 705H
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 705H	**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 #3	**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
5,100.00	5,076.65	5,235.49	5,232.65	19.06	156.88	84.26	-1,705.16	-1,439.96	2,138.77	1,962.85	175.92	12.158	
5,200.00	5,176.12	5,327.89	5,324.99	19.44	159.65	84.55	-1,703.20	-1,439.96	2,136.57	1,957.50	179.07	11.931	
5,300.00	5,275.59	5,419.21	5,416.29	19.83	162.38	84.79	-1,703.98	-1,439.96	2,136.13	1,953.95	182.19	11.725	
5,400.00	5,375.06	5,534.20	5,531.06	20.21	165.83	85.08	-1,705.16	-1,439.96	2,135.89	1,949.86	186.02	11.482	
5,500.00	5,474.53	5,633.67	5,630.53	20.59	168.81	85.35	-1,705.16	-1,439.96	2,135.02	1,945.63	189.39	11.273	
5,600.00	5,574.00	5,733.14	5,730.00	20.98	171.79	85.62	-1,705.16	-1,439.96	2,134.21	1,941.46	192.75	11.072	
5,700.00	5,673.47	5,825.95	5,822.75	21.36	174.57	85.92	-1,703.19	-1,439.96	2,132.28	1,936.36	195.92	10.883	
5,800.00	5,772.94	5,917.52	5,914.30	21.75	177.32	86.16	-1,703.97	-1,439.96	2,132.07	1,933.03	199.05	10.711	
5,900.00	5,872.41	6,031.86	6,028.41	22.13	180.74	86.45	-1,705.16	-1,439.96	2,132.07	1,929.20	202.86	10.510	
6,000.00	5,971.88	6,131.33	6,127.88	22.52	183.72	86.72	-1,705.16	-1,439.96	2,131.45	1,925.22	206.23	10.335	
6,100.00	6,071.35	6,230.80	6,227.35	22.90	186.70	87.00	-1,705.16	-1,439.96	2,130.88	1,921.29	209.59	10.167	
6,200.00	6,170.81	6,330.27	6,326.81	23.28	189.68	87.27	-1,705.16	-1,439.96	2,130.37	1,917.41	212.96	10.004	
6,220.96	6,191.66	6,341.00	6,337.34	23.37	190.01	87.30	-1,705.16	-1,439.96	2,130.29	1,916.93	213.36	9.985	CC, ES, SF
6,300.00	6,270.28	6,341.00	6,337.34	23.67	190.01	87.30	-1,705.16	-1,439.96	2,131.75	1,918.27	213.49	9.985	
6,375.94	6,345.82	6,341.00	6,337.34	23.96	190.01	87.30	-1,705.16	-1,439.96	2,135.92	1,922.57	213.34	10.012	
6,400.00	6,369.72	6,341.00	6,337.34	24.05	190.01	101.65	-1,705.16	-1,439.96	2,138.17	1,924.92	213.25	10.027	
6,450.00	6,419.09	6,341.00	6,337.34	24.25	190.01	117.36	-1,705.16	-1,439.96	2,146.05	1,933.08	212.98	10.076	
6,500.00	6,467.78	6,341.00	6,337.34	24.46	190.01	124.35	-1,705.16	-1,439.96	2,158.18	1,945.56	212.62	10.150	
6,550.00	6,515.51	6,341.00	6,337.34	24.67	190.01	127.72	-1,705.16	-1,439.96	2,174.40	1,962.20	212.20	10.247	
6,600.00	6,561.97	6,341.00	6,337.34	24.88	190.01	129.20	-1,705.16	-1,439.96	2,194.53	1,982.81	211.72	10.365	
6,650.00	6,606.89	6,341.00	6,337.34	25.10	190.01	129.50	-1,705.16	-1,439.96	2,218.35	2,007.13	211.22	10.503	
6,700.00	6,649.98	6,341.00	6,337.34	25.32	190.01	128.91	-1,705.16	-1,439.96	2,245.58	2,034.88	210.70	10.658	
6,750.00	6,690.98	6,341.00	6,337.34	25.54	190.01	127.54	-1,705.16	-1,439.96	2,275.94	2,065.75	210.19	10.828	
6,800.00	6,729.64	6,341.00	6,337.34	25.77	190.01	125.44	-1,705.16	-1,439.96	2,309.13	2,099.41	209.72	11.011	
6,850.00	6,765.71	6,341.00	6,337.34	26.00	190.01	122.58	-1,705.16	-1,439.96	2,344.82	2,135.53	209.28	11.204	
6,900.00	6,798.98	6,341.00	6,337.34	26.24	190.01	118.90	-1,705.16	-1,439.96	2,382.69	2,173.78	208.91	11.405	
6,950.00	6,829.24	6,341.00	6,337.34	26.49	190.01	114.34	-1,705.16	-1,439.96	2,422.40	2,213.79	208.61	11.612	
7,000.00	6,856.30	6,341.00	6,337.34	26.76	190.01	108.82	-1,705.16	-1,439.96	2,463.63	2,255.25	208.38	11.823	
7,050.00	6,880.00	6,341.00	6,337.34	27.03	190.01	102.33	-1,705.16	-1,439.96	2,506.06	2,297.82	208.24	12.034	
7,100.00	6,900.19	6,341.00	6,337.34	27.32	190.01	94.95	-1,705.16	-1,439.96	2,549.38	2,341.19	208.19	12.245	
7,150.00	6,916.74	6,341.00	6,337.34	27.62	190.01	86.91	-1,705.16	-1,439.96	2,593.27	2,385.04	208.23	12.454	
7,200.00	6,929.56	6,341.00	6,337.34	27.93	190.01	78.54	-1,705.16	-1,439.96	2,637.44	2,429.10	208.34	12.659	
7,250.00	6,938.57	6,341.00	6,337.34	28.26	190.01	70.27	-1,705.16	-1,439.96	2,681.62	2,473.07	208.54	12.859	
7,300.00	6,943.70	6,341.00	6,337.34	28.60	190.01	62.48	-1,705.16	-1,439.96	2,725.54	2,516.71	208.82	13.052	
7,340.76	6,945.00	6,341.00	6,337.34	28.88	190.01	56.67	-1,705.16	-1,439.96	2,760.97	2,551.87	209.10	13.204	
7,400.00	6,945.00	6,341.00	6,337.34	29.31	190.01	56.67	-1,705.16	-1,439.96	2,812.31	2,602.79	209.53	13.422	
7,500.00	6,945.00	6,341.00	6,337.34	30.09	190.01	56.67	-1,705.16	-1,439.96	2,899.67	2,689.45	210.22	13.794	
7,600.00	6,945.00	6,341.00	6,337.34	30.93	190.01	56.67	-1,705.16	-1,439.96	2,987.82	2,776.95	210.87	14.169	
7,700.00	6,945.00	6,341.00	6,337.34	31.83	190.01	56.67	-1,705.16	-1,439.96	3,076.69	2,865.22	211.47	14.549	
7,800.00	6,945.00	6,341.00	6,337.34	32.79	190.01	56.67	-1,705.16	-1,439.96	3,166.23	2,954.18	212.04	14.932	
7,900.00	6,945.00	6,341.00	6,337.34	33.79	190.01	56.67	-1,705.16	-1,439.96	3,256.37	3,043.79	212.58	15.318	
8,000.00	6,945.00	6,341.00	6,337.34	34.84	190.01	56.67	-1,705.16	-1,439.96	3,347.08	3,134.00	213.08	15.708	
8,100.00	6,945.00	6,341.00	6,337.34	35.93	190.01	56.67	-1,705.16	-1,439.96	3,438.30	3,224.74	213.56	16.100	
8,200.00	6,945.00	6,341.00	6,337.34	37.06	190.01	56.67	-1,705.16	-1,439.96	3,530.00	3,315.99	214.01	16.495	
8,300.00	6,945.00	6,341.00	6,337.34	38.23	190.01	56.67	-1,705.16	-1,439.96	3,622.13	3,407.71	214.43	16.892	
8,400.00	6,945.00	6,341.00	6,337.34	39.42	190.01	56.67	-1,705.16	-1,439.96	3,714.68	3,499.85	214.83	17.291	
8,500.00	6,945.00	6,341.00	6,337.34	40.65	190.01	56.67	-1,705.16	-1,439.96	3,807.60	3,592.39	215.21	17.693	
8,600.00	6,945.00	6,341.00	6,337.34	41.90	190.01	56.67	-1,705.16	-1,439.96	3,900.87	3,685.30	215.56	18.096	
8,700.00	6,945.00	6,341.00	6,337.34	43.17	190.01	56.67	-1,705.16	-1,439.96	3,994.46	3,778.56	215.90	18.501	
8,800.00	6,945.00	6,341.00	6,337.34	44.46	190.01	56.67	-1,705.16	-1,439.96	4,088.36	3,872.14	216.23	18.908	
8,900.00	6,945.00	6,341.00	6,337.34	45.78	190.01	56.67	-1,705.16	-1,439.96	4,182.55	3,966.01	216.53	19.316	
9,000.00	6,945.00	6,341.00	6,337.34	47.11	190.01	56.67	-1,705.16	-1,439.96	4,276.99	4,060.17	216.83	19.725	

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 705H
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 705H	**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 #3	**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	6,945.00	6,341.00	6,337.34	48.46	190.01	56.67	-1,705.16	-1,439.96	4,371.68	4,154.58	217.10	20.136	
9,200.00	6,945.00	6,341.00	6,337.34	49.82	190.01	56.67	-1,705.16	-1,439.96	4,466.61	4,249.24	217.37	20.548	
9,300.00	6,945.00	6,341.00	6,337.34	51.20	190.01	56.67	-1,705.16	-1,439.96	4,561.75	4,344.12	217.63	20.961	
9,400.00	6,945.00	6,341.00	6,337.34	52.59	190.01	56.67	-1,705.16	-1,439.96	4,657.10	4,439.23	217.87	21.376	
9,500.00	6,945.00	6,341.00	6,337.34	53.99	190.01	56.67	-1,705.16	-1,439.96	4,752.63	4,534.53	218.10	21.791	
9,600.00	6,945.00	6,341.00	6,337.34	55.40	190.01	56.67	-1,705.16	-1,439.96	4,848.35	4,630.02	218.33	22.207	
9,700.00	6,945.00	6,341.00	6,337.34	56.83	190.01	56.67	-1,705.16	-1,439.96	4,944.23	4,725.69	218.55	22.623	
9,800.00	6,945.00	6,341.00	6,337.34	58.26	190.01	56.67	-1,705.16	-1,439.96	5,040.28	4,821.53	218.75	23.041	
9,900.00	6,945.00	6,341.00	6,337.34	59.70	190.01	56.67	-1,705.16	-1,439.96	5,136.48	4,917.52	218.95	23.459	
10,000.00	6,945.00	6,341.00	6,337.34	61.15	190.01	56.67	-1,705.16	-1,439.96	5,232.82	5,013.67	219.15	23.878	
10,100.00	6,945.00	6,341.00	6,337.34	62.61	190.01	56.67	-1,705.16	-1,439.96	5,329.29	5,109.96	219.33	24.298	
10,200.00	6,945.00	6,341.00	6,337.34	64.07	190.01	56.67	-1,705.16	-1,439.96	5,425.89	5,206.38	219.51	24.718	
10,300.00	6,945.00	6,341.00	6,337.34	65.54	190.01	56.67	-1,705.16	-1,439.96	5,522.62	5,302.93	219.69	25.139	
10,400.00	6,945.00	6,341.00	6,337.34	67.02	190.01	56.67	-1,705.16	-1,439.96	5,619.45	5,399.60	219.86	25.560	
10,500.00	6,945.00	6,341.00	6,337.34	68.50	190.01	56.67	-1,705.16	-1,439.96	5,716.40	5,496.38	220.02	25.981	
10,600.00	6,945.00	6,341.00	6,337.34	69.99	190.01	56.67	-1,705.16	-1,439.96	5,813.45	5,593.27	220.18	26.403	
10,700.00	6,945.00	6,341.00	6,337.34	71.48	190.01	56.67	-1,705.16	-1,439.96	5,910.60	5,690.26	220.33	26.826	
10,800.00	6,945.00	6,341.00	6,337.34	72.98	190.01	56.67	-1,705.16	-1,439.96	6,007.84	5,787.36	220.48	27.248	
10,900.00	6,945.00	6,341.00	6,337.34	74.48	190.01	56.67	-1,705.16	-1,439.96	6,105.17	5,884.54	220.63	27.671	
11,000.00	6,945.00	6,341.00	6,337.34	75.99	190.01	56.67	-1,705.16	-1,439.96	6,202.59	5,981.81	220.77	28.095	
11,100.00	6,945.00	6,341.00	6,337.34	77.50	190.01	56.67	-1,705.16	-1,439.96	6,300.08	6,079.17	220.91	28.518	
11,200.00	6,945.00	6,341.00	6,337.34	79.01	190.01	56.67	-1,705.16	-1,439.96	6,397.66	6,176.61	221.05	28.942	
11,300.00	6,945.00	6,341.00	6,337.34	80.53	190.01	56.67	-1,705.16	-1,439.96	6,495.31	6,274.12	221.18	29.366	
11,400.00	6,945.00	6,341.00	6,337.34	82.05	190.01	56.67	-1,705.16	-1,439.96	6,593.02	6,371.71	221.31	29.790	
11,500.00	6,945.00	6,341.00	6,337.34	83.57	190.01	56.67	-1,705.16	-1,439.96	6,690.81	6,469.37	221.44	30.215	
11,600.00	6,945.00	6,341.00	6,337.34	85.10	190.01	56.67	-1,705.16	-1,439.96	6,788.66	6,567.10	221.57	30.640	
11,700.00	6,945.00	6,341.00	6,337.34	86.63	190.01	56.67	-1,705.16	-1,439.96	6,886.57	6,664.89	221.69	31.064	
11,800.00	6,945.00	6,341.00	6,337.34	88.16	190.01	56.67	-1,705.16	-1,439.96	6,984.54	6,762.74	221.81	31.489	
11,900.00	6,945.00	6,341.00	6,337.34	89.69	190.01	56.67	-1,705.16	-1,439.96	7,082.57	6,860.65	221.93	31.914	
12,000.00	6,945.00	6,341.00	6,337.34	91.23	190.01	56.67	-1,705.16	-1,439.96	7,180.66	6,958.61	222.04	32.339	
12,100.00	6,945.00	6,341.00	6,337.34	92.77	190.01	56.67	-1,705.16	-1,439.96	7,278.79	7,056.63	222.16	32.764	
12,200.00	6,945.00	6,341.00	6,337.34	94.31	190.01	56.67	-1,705.16	-1,439.96	7,376.97	7,154.71	222.27	33.189	
12,300.00	6,945.00	6,341.00	6,337.34	95.85	190.01	56.67	-1,705.16	-1,439.96	7,475.21	7,252.83	222.38	33.615	
12,400.00	6,945.00	6,341.00	6,337.34	97.40	190.01	56.67	-1,705.16	-1,439.96	7,573.49	7,351.00	222.49	34.040	
12,500.00	6,945.00	6,341.00	6,337.34	98.95	190.01	56.67	-1,705.16	-1,439.96	7,671.81	7,449.21	222.60	34.465	
12,600.00	6,945.00	6,341.00	6,337.34	100.50	190.01	56.67	-1,705.16	-1,439.96	7,770.18	7,547.47	222.70	34.890	
12,700.00	6,945.00	6,341.00	6,337.34	102.05	190.01	56.67	-1,705.16	-1,439.96	7,868.58	7,645.77	222.81	35.315	
12,800.00	6,945.00	6,341.00	6,337.34	103.60	190.01	56.67	-1,705.16	-1,439.96	7,967.03	7,744.12	222.91	35.741	
12,900.00	6,945.00	6,341.00	6,337.34	105.15	190.01	56.67	-1,705.16	-1,439.96	8,065.52	7,842.50	223.02	36.166	
13,000.00	6,945.00	6,341.00	6,337.34	106.71	190.01	56.67	-1,705.16	-1,439.96	8,164.04	7,940.92	223.12	36.591	
13,100.00	6,945.00	6,341.00	6,337.34	108.26	190.01	56.67	-1,705.16	-1,439.96	8,262.60	8,039.38	223.22	37.016	
13,200.00	6,945.00	6,341.00	6,337.34	109.82	190.01	56.67	-1,705.16	-1,439.96	8,361.19	8,137.87	223.32	37.441	
13,300.00	6,945.00	6,341.00	6,337.34	111.38	190.01	56.67	-1,705.16	-1,439.96	8,459.81	8,236.40	223.42	37.866	
13,400.00	6,945.00	6,341.00	6,337.34	112.94	190.01	56.67	-1,705.16	-1,439.96	8,558.47	8,334.96	223.51	38.290	
13,500.00	6,945.00	6,341.00	6,337.34	114.50	190.01	56.67	-1,705.16	-1,439.96	8,657.16	8,433.55	223.61	38.715	
13,600.00	6,945.00	6,341.00	6,337.34	116.07	190.01	56.67	-1,705.16	-1,439.96	8,755.88	8,532.17	223.71	39.140	
13,700.00	6,945.00	6,341.00	6,337.34	117.63	190.01	56.67	-1,705.16	-1,439.96	8,854.62	8,630.82	223.80	39.564	
13,800.00	6,945.00	6,341.00	6,337.34	119.19	190.01	56.67	-1,705.16	-1,439.96	8,953.40	8,729.50	223.90	39.989	
13,900.00	6,945.00	6,341.00	6,337.34	120.76	190.01	56.67	-1,705.16	-1,439.96	9,052.20	8,828.20	223.99	40.413	
14,000.00	6,945.00	6,341.00	6,337.34	122.33	190.01	56.67	-1,705.16	-1,439.96	9,151.02	8,926.94	224.09	40.837	
14,100.00	6,945.00	6,341.00	6,337.34	123.90	190.01	56.67	-1,705.16	-1,439.96	9,249.88	9,025.70	224.18	41.261	
14,200.00	6,945.00	6,341.00	6,337.34	125.46	190.01	56.67	-1,705.16	-1,439.96	9,348.75	9,124.48	224.27	41.685	

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 705H
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 705H	**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 #3	**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
14,300.00	6,945.00	6,341.00	6,337.34	127.03	190.01	56.67	-1,705.16	-1,439.96	9,447.65	9,223.29	224.37	42.108	
14,400.00	6,945.00	6,341.00	6,337.34	128.60	190.01	56.67	-1,705.16	-1,439.96	9,546.58	9,322.12	224.46	42.532	
14,500.00	6,945.00	6,341.00	6,337.34	130.18	190.01	56.67	-1,705.16	-1,439.96	9,645.52	9,420.97	224.55	42.955	
14,600.00	6,945.00	6,341.00	6,337.34	131.75	190.01	56.67	-1,705.16	-1,439.96	9,744.49	9,519.85	224.64	43.378	
14,700.00	6,945.00	6,341.00	6,337.34	133.32	190.01	56.67	-1,705.16	-1,439.96	9,843.48	9,618.75	224.73	43.801	
14,800.00	6,945.00	6,341.00	6,337.34	134.89	190.01	56.67	-1,705.16	-1,439.96	9,942.49	9,717.66	224.82	44.224	
14,900.00	6,945.00	6,341.00	6,337.34	136.47	190.01	56.67	-1,705.16	-1,439.96	10,041.51	9,816.60	224.91	44.646	
15,000.00	6,945.00	6,341.00	6,337.34	138.04	190.01	56.67	-1,705.16	-1,439.96	10,140.56	9,915.56	225.00	45.069	
15,100.00	6,945.00	6,341.00	6,337.34	139.62	190.01	56.67	-1,705.16	-1,439.96	10,239.63	10,014.53	225.09	45.491	
15,200.00	6,945.00	6,341.00	6,337.34	141.20	190.01	56.67	-1,705.16	-1,439.96	10,338.71	10,113.53	225.18	45.913	
15,300.00	6,945.00	6,341.00	6,337.34	142.77	190.01	56.67	-1,705.16	-1,439.96	10,437.81	10,212.54	225.27	46.334	
15,400.00	6,945.00	6,341.00	6,337.34	144.35	190.01	56.67	-1,705.16	-1,439.96	10,536.93	10,311.57	225.36	46.756	
15,500.00	6,945.00	6,341.00	6,337.34	145.93	190.01	56.67	-1,705.16	-1,439.96	10,636.06	10,410.61	225.45	47.177	
15,600.00	6,945.00	6,341.00	6,337.34	147.51	190.01	56.67	-1,705.16	-1,439.96	10,735.21	10,509.67	225.54	47.598	
15,700.00	6,945.00	6,341.00	6,337.34	149.09	190.01	56.67	-1,705.16	-1,439.96	10,834.38	10,608.75	225.63	48.019	
15,800.00	6,945.00	6,341.00	6,337.34	150.67	190.01	56.67	-1,705.16	-1,439.96	10,933.56	10,707.84	225.72	48.439	
15,900.00	6,945.00	6,341.00	6,337.34	152.25	190.01	56.67	-1,705.16	-1,439.96	11,032.76	10,806.95	225.81	48.859	
16,000.00	6,945.00	6,341.00	6,337.34	153.83	190.01	56.67	-1,705.16	-1,439.96	11,131.97	10,906.07	225.90	49.279	
16,100.00	6,945.00	6,341.00	6,337.34	155.41	190.01	56.67	-1,705.16	-1,439.96	11,231.19	11,005.21	225.98	49.699	
16,200.00	6,945.00	6,341.00	6,337.34	156.99	190.01	56.67	-1,705.16	-1,439.96	11,330.43	11,104.36	226.07	50.118	
16,300.00	6,945.00	6,341.00	6,337.34	158.57	190.01	56.67	-1,705.16	-1,439.96	11,429.68	11,203.52	226.16	50.538	
16,400.00	6,945.00	6,341.00	6,337.34	160.15	190.01	56.67	-1,705.16	-1,439.96	11,528.94	11,302.69	226.25	50.957	
16,500.00	6,945.00	6,341.00	6,337.34	161.74	190.01	56.67	-1,705.16	-1,439.96	11,628.22	11,401.88	226.34	51.375	
16,600.00	6,945.00	6,341.00	6,337.34	163.32	190.01	56.67	-1,705.16	-1,439.96	11,727.51	11,501.08	226.43	51.794	
16,700.00	6,945.00	6,341.00	6,337.34	164.90	190.01	56.67	-1,705.16	-1,439.96	11,826.81	11,600.30	226.52	52.212	
16,800.00	6,945.00	6,341.00	6,337.34	166.49	190.01	56.67	-1,705.16	-1,439.96	11,926.12	11,699.52	226.61	52.629	
16,900.00	6,945.00	6,341.00	6,337.34	168.07	190.01	56.67	-1,705.16	-1,439.96	12,025.45	11,798.75	226.69	53.047	
17,000.00	6,945.00	6,341.00	6,337.34	169.66	190.01	56.67	-1,705.16	-1,439.96	12,124.78	11,898.00	226.78	53.464	
17,100.00	6,945.00	6,341.00	6,337.34	171.24	190.01	56.67	-1,705.16	-1,439.96	12,224.13	11,997.26	226.87	53.881	
17,200.00	6,945.00	6,341.00	6,337.34	172.83	190.01	56.67	-1,705.16	-1,439.96	12,323.49	12,096.53	226.96	54.298	
17,300.00	6,945.00	6,341.00	6,337.34	174.41	190.01	56.67	-1,705.16	-1,439.96	12,422.85	12,195.80	227.05	54.714	
17,400.00	6,945.00	6,341.00	6,337.34	176.00	190.01	56.67	-1,705.16	-1,439.96	12,522.23	12,295.09	227.14	55.130	
17,500.00	6,945.00	6,341.00	6,337.34	177.59	190.01	56.67	-1,705.16	-1,439.96	12,621.62	12,394.39	227.23	55.546	
17,600.00	6,945.00	6,341.00	6,337.34	179.17	190.01	56.67	-1,705.16	-1,439.96	12,721.02	12,493.70	227.32	55.961	
17,700.00	6,945.00	6,341.00	6,337.34	180.76	190.01	56.67	-1,705.16	-1,439.96	12,820.42	12,593.01	227.41	56.376	
17,800.00	6,945.00	6,341.00	6,337.34	182.35	190.01	56.67	-1,705.16	-1,439.96	12,919.84	12,692.34	227.50	56.791	
17,900.00	6,945.00	6,341.00	6,337.34	183.93	190.01	56.67	-1,705.16	-1,439.96	13,019.26	12,791.67	227.59	57.205	
18,000.00	6,945.00	6,341.00	6,337.34	185.52	190.01	56.67	-1,705.16	-1,439.96	13,118.69	12,891.02	227.68	57.619	
18,100.00	6,945.00	6,341.00	6,337.34	187.11	190.01	56.67	-1,705.16	-1,439.96	13,218.13	12,990.37	227.77	58.033	
18,200.00	6,945.00	6,341.00	6,337.34	188.70	190.01	56.67	-1,705.16	-1,439.96	13,317.58	13,089.73	227.86	58.447	
18,300.00	6,945.00	6,341.00	6,337.34	190.29	190.01	56.67	-1,705.16	-1,439.96	13,417.04	13,189.09	227.95	58.860	
18,400.00	6,945.00	6,341.00	6,337.34	191.88	190.01	56.67	-1,705.16	-1,439.96	13,516.51	13,288.47	228.04	59.273	
18,500.00	6,945.00	6,341.00	6,337.34	193.46	190.01	56.67	-1,705.16	-1,439.96	13,615.98	13,387.85	228.13	59.685	
18,600.00	6,945.00	6,341.00	6,337.34	195.05	190.01	56.67	-1,705.16	-1,439.96	13,715.46	13,487.24	228.22	60.097	
18,700.00	6,945.00	6,341.00	6,337.34	196.64	190.01	56.67	-1,705.16	-1,439.96	13,814.95	13,586.64	228.31	60.509	
18,800.00	6,945.00	6,341.00	6,337.34	198.23	190.01	56.67	-1,705.16	-1,439.96	13,914.45	13,686.04	228.40	60.920	
18,900.00	6,945.00	6,341.00	6,337.34	199.82	190.01	56.67	-1,705.16	-1,439.96	14,013.95	13,785.46	228.50	61.331	
19,000.00	6,945.00	6,341.00	6,337.34	201.41	190.01	56.67	-1,705.16	-1,439.96	14,113.46	13,884.88	228.59	61.742	
19,100.00	6,945.00	6,341.00	6,337.34	203.00	190.01	56.67	-1,705.16	-1,439.96	14,212.98	13,984.30	228.68	62.152	
19,200.00	6,945.00	6,341.00	6,337.34	204.60	190.01	56.67	-1,705.16	-1,439.96	14,312.50	14,083.73	228.77	62.562	
19,300.00	6,945.00	6,341.00	6,337.34	206.19	190.01	56.67	-1,705.16	-1,439.96	14,412.04	14,183.17	228.86	62.972	
19,400.00	6,945.00	6,341.00	6,337.34	207.78	190.01	56.67	-1,705.16	-1,439.96	14,511.57	14,282.62	228.96	63.381	

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 705H
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 705H	**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 #3	**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
19,500.00	6,945.00	6,341.00	6,337.34	209.37	190.01	56.67	-1,705.16	-1,439.96	14,611.12	14,382.07	229.05	63.790	
19,600.00	6,945.00	6,341.00	6,337.34	210.96	190.01	56.67	-1,705.16	-1,439.96	14,710.67	14,481.52	229.14	64.199	
19,700.00	6,945.00	6,341.00	6,337.34	212.55	190.01	56.67	-1,705.16	-1,439.96	14,810.22	14,580.99	229.23	64.607	
19,800.00	6,945.00	6,341.00	6,337.34	214.14	190.01	56.67	-1,705.16	-1,439.96	14,909.78	14,680.45	229.33	65.015	
19,900.00	6,945.00	6,341.00	6,337.34	215.74	190.01	56.67	-1,705.16	-1,439.96	15,009.35	14,779.93	229.42	65.423	
20,000.00	6,945.00	6,341.00	6,337.34	217.33	190.01	56.67	-1,705.16	-1,439.96	15,108.92	14,879.41	229.52	65.830	
20,100.00	6,945.00	6,341.00	6,337.34	218.92	190.01	56.67	-1,705.16	-1,439.96	15,208.50	14,978.89	229.61	66.237	
20,200.00	6,945.00	6,341.00	6,337.34	220.51	190.01	56.67	-1,705.16	-1,439.96	15,308.09	15,078.38	229.70	66.643	
20,300.00	6,945.00	6,341.00	6,337.34	222.11	190.01	56.67	-1,705.16	-1,439.96	15,407.68	15,177.88	229.80	67.049	
20,400.00	6,945.00	6,341.00	6,337.34	223.70	190.01	56.67	-1,705.16	-1,439.96	15,507.27	15,277.38	229.89	67.455	
20,500.00	6,945.00	6,341.00	6,337.34	225.29	190.01	56.67	-1,705.16	-1,439.96	15,606.87	15,376.88	229.99	67.860	
20,600.00	6,945.00	6,341.00	6,337.34	226.88	190.01	56.67	-1,705.16	-1,439.96	15,706.48	15,476.39	230.08	68.265	
20,700.00	6,945.00	6,341.00	6,337.34	228.48	190.01	56.67	-1,705.16	-1,439.96	15,806.09	15,575.91	230.18	68.669	
20,741.48	6,945.00	6,341.00	6,337.34	229.14	190.01	56.67	-1,705.16	-1,439.96	15,847.40	15,617.19	230.22	68.837	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 705H
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 705H	**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 #3	**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	28.76	28.76	0.00	0.02	166.86	-1,605.90	374.82	1,649.06				
100.00	100.00	128.78	128.78	0.25	0.11	166.85	-1,605.75	375.02	1,648.96	1,648.65	0.32	5,188.780	
129.00	129.00	157.00	157.00	0.35	0.14	166.85	-1,605.72	375.13	1,648.96	1,648.52	0.44	3,747.959	
200.00	200.00	226.11	226.11	0.61	0.23	166.83	-1,605.66	375.57	1,649.00	1,648.26	0.74	2,230.646	
300.00	300.00	325.76	325.75	0.97	0.36	166.80	-1,605.55	376.59	1,649.12	1,647.96	1.16	1,417.213	
400.00	400.00	423.59	423.58	1.33	0.48	166.76	-1,605.45	377.88	1,649.32	1,647.74	1.59	1,037.684	
500.00	500.00	524.77	524.74	1.68	0.62	166.71	-1,605.36	379.27	1,649.56	1,647.54	2.02	817.044	
600.00	599.98	624.26	624.23	2.03	0.75	18.96	-1,605.25	380.63	1,648.12	1,645.69	2.43	677.441	
700.00	699.84	723.30	723.25	2.37	0.87	19.00	-1,605.17	382.09	1,643.42	1,640.58	2.84	578.472	
795.17	794.65	817.33	817.28	2.69	1.00	19.09	-1,605.11	383.58	1,635.94	1,632.70	3.24	505.353	
800.00	799.45	821.95	821.89	2.71	1.00	19.09	-1,605.11	383.66	1,635.49	1,632.23	3.26	501.682	
900.00	898.92	917.58	917.51	3.06	1.13	19.15	-1,605.24	385.18	1,626.26	1,622.59	3.68	442.438	
1,000.00	998.39	1,016.71	1,016.63	3.43	1.25	19.22	-1,605.53	386.74	1,617.18	1,613.08	4.10	394.317	
1,100.00	1,097.86	1,115.87	1,115.77	3.79	1.38	19.29	-1,605.80	388.25	1,608.07	1,603.54	4.53	354.912	
1,200.00	1,197.33	1,215.14	1,215.04	4.16	1.50	19.37	-1,606.14	389.56	1,598.99	1,594.03	4.97	322.000	
1,300.00	1,296.80	1,316.84	1,316.73	4.53	1.63	19.45	-1,606.48	390.75	1,589.87	1,584.46	5.41	294.107	
1,400.00	1,396.27	1,422.53	1,422.42	4.91	1.77	19.55	-1,606.54	391.83	1,580.45	1,574.61	5.84	270.500	
1,500.00	1,495.74	1,523.73	1,523.61	5.28	1.90	19.64	-1,606.38	392.74	1,570.80	1,564.53	6.27	250.532	
1,600.00	1,595.21	1,625.33	1,625.21	5.66	2.03	19.74	-1,606.15	393.50	1,561.05	1,554.36	6.69	233.198	
1,700.00	1,694.68	1,728.75	1,728.62	6.04	2.11	19.87	-1,605.89	393.66	1,551.16	1,544.05	7.11	218.167	
1,800.00	1,794.15	1,828.21	1,828.08	6.42	2.08	20.01	-1,605.57	393.16	1,541.07	1,533.54	7.53	204.777	
1,900.00	1,893.62	1,932.67	1,932.54	6.80	2.08	20.16	-1,605.04	392.76	1,530.83	1,522.88	7.95	192.570	
2,000.00	1,993.09	2,037.23	2,037.09	7.18	2.12	20.30	-1,604.10	392.50	1,520.24	1,511.86	8.38	181.348	
2,100.00	2,092.56	2,139.39	2,139.25	7.56	2.17	20.45	-1,602.98	392.20	1,509.47	1,500.64	8.83	171.043	
2,200.00	2,192.03	2,237.55	2,237.40	7.94	2.22	20.59	-1,601.87	391.85	1,498.65	1,489.38	9.27	161.616	
2,300.00	2,291.50	2,332.77	2,332.62	8.32	2.26	20.73	-1,601.04	391.36	1,488.07	1,478.34	9.72	153.026	
2,400.00	2,390.97	2,432.73	2,432.57	8.70	2.30	20.89	-1,600.26	390.77	1,477.56	1,467.38	10.18	145.112	
2,500.00	2,490.44	2,534.98	2,534.82	9.08	2.34	21.06	-1,599.38	389.98	1,466.96	1,456.32	10.64	137.819	
2,600.00	2,589.91	2,635.30	2,635.12	9.47	2.37	21.25	-1,598.51	388.68	1,456.27	1,445.16	11.10	131.169	
2,700.00	2,689.38	2,730.79	2,730.60	9.85	2.39	21.45	-1,597.76	387.14	1,445.60	1,434.05	11.56	125.106	
2,800.00	2,788.85	2,831.08	2,830.87	10.23	2.42	21.65	-1,597.12	385.62	1,435.12	1,423.11	12.01	119.501	
2,900.00	2,888.32	2,926.42	2,926.20	10.61	2.45	21.85	-1,596.49	384.33	1,424.68	1,412.21	12.46	114.311	
3,000.00	2,987.79	3,017.84	3,017.62	11.00	2.48	22.03	-1,596.37	383.33	1,414.80	1,401.89	12.90	109.644	
3,100.00	3,087.25	3,104.22	3,103.99	11.38	2.48	22.19	-1,596.76	382.80	1,405.59	1,392.27	13.32	105.543	
3,200.00	3,186.72	3,203.13	3,202.90	11.76	2.49	22.36	-1,597.62	382.51	1,396.87	1,383.16	13.72	101.849	
3,300.00	3,286.19	3,303.74	3,303.50	12.15	2.51	22.55	-1,598.57	382.18	1,388.23	1,374.11	14.12	98.330	
3,400.00	3,385.66	3,404.91	3,404.67	12.53	2.53	22.75	-1,599.41	381.58	1,379.44	1,364.91	14.53	94.931	
3,500.00	3,485.13	3,506.54	3,506.30	12.91	2.56	22.95	-1,600.11	380.94	1,370.53	1,355.58	14.95	91.677	
3,600.00	3,584.60	3,616.36	3,616.11	13.30	2.61	23.15	-1,600.09	380.46	1,360.95	1,345.55	15.39	88.413	
3,700.00	3,684.07	3,714.52	3,714.27	13.68	2.69	23.33	-1,599.88	380.30	1,351.26	1,335.41	15.85	85.257	
3,800.00	3,783.54	3,806.88	3,806.63	14.06	2.74	23.49	-1,599.90	380.18	1,341.81	1,325.53	16.28	82.397	
3,900.00	3,883.01	3,891.07	3,890.82	14.45	2.77	23.66	-1,600.64	379.97	1,333.22	1,316.52	16.70	79.834	
4,000.00	3,982.48	3,987.64	3,987.38	14.83	2.81	23.86	-1,602.38	379.58	1,325.51	1,308.40	17.12	77.443	
4,100.00	4,081.95	4,086.98	4,086.69	15.22	2.86	24.07	-1,604.24	379.08	1,317.88	1,300.35	17.54	75.150	
4,200.00	4,181.42	4,184.02	4,183.72	15.60	2.91	24.29	-1,606.17	378.48	1,310.36	1,292.40	17.96	72.952	
4,300.00	4,280.89	4,278.36	4,278.02	15.98	2.97	24.52	-1,608.44	377.41	1,303.22	1,284.82	18.39	70.858	
4,400.00	4,380.36	4,376.12	4,375.73	16.37	3.03	24.78	-1,611.07	376.09	1,296.34	1,277.51	18.83	68.862	
4,500.00	4,479.83	4,488.00	4,487.58	16.75	3.10	25.07	-1,613.68	374.75	1,289.17	1,269.91	19.26	66.933	
4,600.00	4,579.30	4,590.32	4,589.87	17.14	3.17	25.32	-1,615.30	373.77	1,281.30	1,261.61	19.70	65.043	
4,700.00	4,678.77	4,691.83	4,691.38	17.52	3.25	25.57	-1,616.66	372.88	1,273.22	1,253.08	20.14	63.217	
4,800.00	4,778.24	4,790.25	4,789.78	17.90	3.32	25.81	-1,617.93	372.11	1,265.13	1,244.55	20.58	61.461	
4,900.00	4,877.71	4,892.37	4,891.89	18.29	3.41	26.05	-1,619.12	371.65	1,256.98	1,235.95	21.03	59.768	

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 705H
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 705H	**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 #3	**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
5,000.00	4,977.18	4,989.59	4,989.11	18.67	3.49	26.28	-1,620.22	371.26	1,248.81	1,227.33	21.48	58.137	
5,100.00	5,076.65	5,090.26	5,089.77	19.06	3.57	26.51	-1,621.40	370.95	1,240.73	1,218.79	21.93	56.568	
5,200.00	5,176.12	5,193.13	5,192.63	19.44	3.66	26.74	-1,622.50	370.78	1,232.56	1,210.17	22.39	55.052	
5,300.00	5,275.59	5,291.29	5,290.79	19.83	3.75	26.96	-1,623.45	370.73	1,224.34	1,201.49	22.85	53.586	
5,400.00	5,375.06	5,392.87	5,392.37	20.21	3.85	27.18	-1,624.50	370.88	1,216.20	1,192.90	23.31	52.176	
5,500.00	5,474.53	5,491.14	5,490.63	20.59	3.94	27.40	-1,625.45	370.98	1,208.02	1,184.25	23.77	50.814	
5,600.00	5,574.00	5,584.54	5,584.02	20.98	4.03	27.62	-1,626.64	370.87	1,200.15	1,175.91	24.24	49.512	
5,700.00	5,673.47	5,680.94	5,680.41	21.36	4.12	27.88	-1,628.26	370.35	1,192.67	1,167.96	24.71	48.273	
5,800.00	5,772.94	5,782.08	5,781.52	21.75	4.22	28.17	-1,630.06	369.33	1,185.27	1,160.09	25.17	47.087	
5,900.00	5,872.41	5,881.33	5,880.76	22.13	4.32	28.46	-1,631.79	368.20	1,177.86	1,152.22	25.64	45.941	
6,000.00	5,971.88	5,980.86	5,980.26	22.52	4.42	28.77	-1,633.54	366.97	1,170.49	1,144.38	26.11	44.836	
6,100.00	6,071.35	6,080.39	6,079.77	22.90	4.53	29.08	-1,635.28	365.74	1,163.15	1,136.57	26.57	43.771	
6,200.00	6,170.81	6,125.00	6,124.37	23.28	4.57	29.22	-1,636.07	365.19	1,157.15	1,130.10	27.05	42.786	
6,229.50	6,200.16	6,125.00	6,124.37	23.40	4.57	29.22	-1,636.07	365.19	1,156.77	1,129.59	27.18	42.559	CC, ES
6,300.00	6,270.28	6,125.00	6,124.37	23.67	4.57	29.22	-1,636.07	365.19	1,158.91	1,131.43	27.49	42.165	
6,375.94	6,345.82	6,125.00	6,124.37	23.96	4.57	29.22	-1,636.07	365.19	1,166.00	1,138.22	27.78	41.970	
6,400.00	6,369.72	6,125.00	6,124.37	24.05	4.57	43.39	-1,636.07	365.19	1,169.24	1,141.37	27.87	41.955	SF
6,450.00	6,419.09	6,125.00	6,124.37	24.25	4.57	58.78	-1,636.07	365.19	1,177.34	1,149.29	28.04	41.985	
6,500.00	6,467.78	6,125.00	6,124.37	24.46	4.57	65.53	-1,636.07	365.19	1,187.21	1,159.01	28.20	42.094	
6,550.00	6,515.51	6,125.00	6,124.37	24.67	4.57	68.76	-1,636.07	365.19	1,198.75	1,170.40	28.35	42.278	
6,600.00	6,561.97	6,125.00	6,124.37	24.88	4.57	70.24	-1,636.07	365.19	1,211.85	1,183.35	28.49	42.530	
6,650.00	6,606.89	6,125.00	6,124.37	25.10	4.57	70.73	-1,636.07	365.19	1,226.36	1,197.74	28.63	42.842	
6,700.00	6,649.98	6,125.00	6,124.37	25.32	4.57	70.57	-1,636.07	365.19	1,242.16	1,213.41	28.75	43.203	
6,750.00	6,690.98	6,125.00	6,124.37	25.54	4.57	69.96	-1,636.07	365.19	1,259.10	1,230.23	28.88	43.603	
6,800.00	6,729.64	6,125.00	6,124.37	25.77	4.57	69.03	-1,636.07	365.19	1,277.04	1,248.03	29.01	44.028	
6,850.00	6,765.71	6,125.00	6,124.37	26.00	4.57	67.85	-1,636.07	365.19	1,295.82	1,266.68	29.14	44.467	
6,900.00	6,798.98	6,125.00	6,124.37	26.24	4.57	66.49	-1,636.07	365.19	1,315.29	1,286.00	29.29	44.907	
6,950.00	6,829.24	6,125.00	6,124.37	26.49	4.57	65.00	-1,636.07	365.19	1,335.31	1,305.86	29.45	45.338	
7,000.00	6,856.30	6,125.00	6,124.37	26.76	4.57	63.40	-1,636.07	365.19	1,355.74	1,326.10	29.63	45.750	
7,050.00	6,880.00	6,125.00	6,124.37	27.03	4.57	61.75	-1,636.07	365.19	1,376.42	1,346.58	29.84	46.134	
7,100.00	6,900.19	6,125.00	6,124.37	27.32	4.57	60.05	-1,636.07	365.19	1,397.23	1,367.17	30.06	46.485	
7,150.00	6,916.74	6,125.00	6,124.37	27.62	4.57	58.34	-1,636.07	365.19	1,418.03	1,387.73	30.30	46.798	
7,200.00	6,929.56	6,125.00	6,124.37	27.93	4.57	56.63	-1,636.07	365.19	1,438.70	1,408.13	30.56	47.070	
7,250.00	6,938.57	6,125.00	6,124.37	28.26	4.57	54.94	-1,636.07	365.19	1,459.12	1,428.27	30.85	47.301	
7,300.00	6,943.70	6,125.00	6,124.37	28.60	4.57	53.29	-1,636.07	365.19	1,479.17	1,448.03	31.15	47.491	
7,340.76	6,945.00	6,125.00	6,124.37	28.88	4.57	51.98	-1,636.07	365.19	1,495.18	1,463.78	31.40	47.617	
7,400.00	6,945.00	6,125.00	6,124.37	29.31	4.57	51.98	-1,636.07	365.19	1,519.17	1,487.39	31.78	47.807	
7,500.00	6,945.00	6,125.00	6,124.37	30.09	4.57	51.98	-1,636.07	365.19	1,563.93	1,531.53	32.40	48.265	
7,600.00	6,945.00	6,125.00	6,124.37	30.93	4.57	51.98	-1,636.07	365.19	1,613.65	1,580.65	33.00	48.897	
7,700.00	6,945.00	6,125.00	6,124.37	31.83	4.57	51.98	-1,636.07	365.19	1,667.89	1,634.33	33.56	49.695	
7,800.00	6,945.00	6,125.00	6,124.37	32.79	4.57	51.98	-1,636.07	365.19	1,726.23	1,692.15	34.08	50.649	
7,900.00	6,945.00	6,125.00	6,124.37	33.79	4.57	51.98	-1,636.07	365.19	1,788.26	1,753.70	34.56	51.746	
8,000.00	6,945.00	6,125.00	6,124.37	34.84	4.57	51.98	-1,636.07	365.19	1,853.61	1,818.62	34.99	52.973	
8,100.00	6,945.00	6,125.00	6,124.37	35.93	4.57	51.98	-1,636.07	365.19	1,921.94	1,886.56	35.38	54.318	
8,200.00	6,945.00	6,125.00	6,124.37	37.06	4.57	51.98	-1,636.07	365.19	1,992.95	1,957.21	35.74	55.767	
8,300.00	6,945.00	6,125.00	6,124.37	38.23	4.57	51.98	-1,636.07	365.19	2,066.36	2,030.30	36.06	57.310	
8,400.00	6,945.00	6,125.00	6,124.37	39.42	4.57	51.98	-1,636.07	365.19	2,141.93	2,105.58	36.34	58.936	
8,500.00	6,945.00	6,125.00	6,124.37	40.65	4.57	51.98	-1,636.07	365.19	2,219.42	2,182.82	36.60	60.637	
8,600.00	6,945.00	6,125.00	6,124.37	41.90	4.57	51.98	-1,636.07	365.19	2,298.66	2,261.82	36.84	62.404	
8,700.00	6,945.00	6,125.00	6,124.37	43.17	4.57	51.98	-1,636.07	365.19	2,379.46	2,342.41	37.05	64.230	
8,800.00	6,945.00	6,125.00	6,124.37	44.46	4.57	51.98	-1,636.07	365.19	2,461.67	2,424.44	37.24	66.109	
8,900.00	6,945.00	6,125.00	6,124.37	45.78	4.57	51.98	-1,636.07	365.19	2,545.16	2,507.75	37.41	68.034	

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 705H
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 705H	**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 #3	**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
9,000.00	6,945.00	6,125.00	6,124.37	47.11	4.57	51.98	-1,636.07	365.19	2,629.80	2,592.23	37.57	70.001	
9,100.00	6,945.00	6,125.00	6,124.37	48.46	4.57	51.98	-1,636.07	365.19	2,715.48	2,677.77	37.71	72.006	
9,200.00	6,945.00	6,125.00	6,124.37	49.82	4.57	51.98	-1,636.07	365.19	2,802.11	2,764.27	37.84	74.043	
9,300.00	6,945.00	6,125.00	6,124.37	51.20	4.57	51.98	-1,636.07	365.19	2,889.60	2,851.64	37.97	76.111	
9,400.00	6,945.00	6,125.00	6,124.37	52.59	4.57	51.98	-1,636.07	365.19	2,977.89	2,939.81	38.08	78.205	
9,500.00	6,945.00	6,125.00	6,124.37	53.99	4.57	51.98	-1,636.07	365.19	3,066.89	3,028.71	38.18	80.322	
9,600.00	6,945.00	6,125.00	6,124.37	55.40	4.57	51.98	-1,636.07	365.19	3,156.55	3,118.27	38.28	82.461	
9,700.00	6,945.00	6,125.00	6,124.37	56.83	4.57	51.98	-1,636.07	365.19	3,246.81	3,208.44	38.37	84.619	
9,800.00	6,945.00	6,125.00	6,124.37	58.26	4.57	51.98	-1,636.07	365.19	3,337.63	3,299.18	38.45	86.793	
9,900.00	6,945.00	6,125.00	6,124.37	59.70	4.57	51.98	-1,636.07	365.19	3,428.96	3,390.43	38.54	88.983	
10,000.00	6,945.00	6,125.00	6,124.37	61.15	4.57	51.98	-1,636.07	365.19	3,520.77	3,482.15	38.61	91.186	
10,100.00	6,945.00	6,125.00	6,124.37	62.61	4.57	51.98	-1,636.07	365.19	3,613.00	3,574.32	38.68	93.400	
10,200.00	6,945.00	6,125.00	6,124.37	64.07	4.57	51.98	-1,636.07	365.19	3,705.64	3,666.89	38.75	95.626	
10,300.00	6,945.00	6,125.00	6,124.37	65.54	4.57	51.98	-1,636.07	365.19	3,798.65	3,759.84	38.82	97.860	
10,400.00	6,945.00	6,125.00	6,124.37	67.02	4.57	51.98	-1,636.07	365.19	3,892.01	3,853.13	38.88	100.102	
10,500.00	6,945.00	6,125.00	6,124.37	68.50	4.57	51.98	-1,636.07	365.19	3,985.70	3,946.75	38.94	102.351	
10,600.00	6,945.00	6,125.00	6,124.37	69.99	4.57	51.98	-1,636.07	365.19	4,079.68	4,040.68	39.00	104.607	
10,700.00	6,945.00	6,125.00	6,124.37	71.48	4.57	51.98	-1,636.07	365.19	4,173.94	4,134.88	39.06	106.867	
10,800.00	6,945.00	6,125.00	6,124.37	72.98	4.57	51.98	-1,636.07	365.19	4,268.46	4,229.35	39.11	109.132	
10,900.00	6,945.00	6,125.00	6,124.37	74.48	4.57	51.98	-1,636.07	365.19	4,363.23	4,324.06	39.17	111.401	
11,000.00	6,945.00	6,125.00	6,124.37	75.99	4.57	51.98	-1,636.07	365.19	4,458.22	4,419.00	39.22	113.672	
11,100.00	6,945.00	6,125.00	6,124.37	77.50	4.57	51.98	-1,636.07	365.19	4,553.43	4,514.16	39.27	115.946	
11,200.00	6,945.00	6,125.00	6,124.37	79.01	4.57	51.98	-1,636.07	365.19	4,648.84	4,609.52	39.32	118.221	
11,300.00	6,945.00	6,125.00	6,124.37	80.53	4.57	51.98	-1,636.07	365.19	4,744.44	4,705.07	39.37	120.497	
11,400.00	6,945.00	6,125.00	6,124.37	82.05	4.57	51.98	-1,636.07	365.19	4,840.22	4,800.80	39.42	122.774	
11,500.00	6,945.00	6,125.00	6,124.37	83.57	4.57	51.98	-1,636.07	365.19	4,936.17	4,896.69	39.47	125.051	
11,600.00	6,945.00	6,125.00	6,124.37	85.10	4.57	51.98	-1,636.07	365.19	5,032.27	4,992.75	39.52	127.328	
11,700.00	6,945.00	6,125.00	6,124.37	86.63	4.57	51.98	-1,636.07	365.19	5,128.52	5,088.95	39.57	129.604	
11,800.00	6,945.00	6,125.00	6,124.37	88.16	4.57	51.98	-1,636.07	365.19	5,224.91	5,185.29	39.62	131.878	
11,900.00	6,945.00	6,125.00	6,124.37	89.69	4.57	51.98	-1,636.07	365.19	5,321.44	5,281.77	39.67	134.151	
12,000.00	6,945.00	6,125.00	6,124.37	91.23	4.57	51.98	-1,636.07	365.19	5,418.09	5,378.38	39.72	136.423	
12,100.00	6,945.00	6,125.00	6,124.37	92.77	4.57	51.98	-1,636.07	365.19	5,514.86	5,475.10	39.76	138.691	
12,200.00	6,945.00	6,125.00	6,124.37	94.31	4.57	51.98	-1,636.07	365.19	5,611.75	5,571.94	39.81	140.958	
12,300.00	6,945.00	6,125.00	6,124.37	95.85	4.57	51.98	-1,636.07	365.19	5,708.74	5,668.88	39.86	143.221	
12,400.00	6,945.00	6,125.00	6,124.37	97.40	4.57	51.98	-1,636.07	365.19	5,805.83	5,765.93	39.91	145.482	
12,500.00	6,945.00	6,125.00	6,124.37	98.95	4.57	51.98	-1,636.07	365.19	5,903.02	5,863.07	39.96	147.739	
12,600.00	6,945.00	6,125.00	6,124.37	100.50	4.57	51.98	-1,636.07	365.19	6,000.31	5,960.30	40.00	149.992	
12,700.00	6,945.00	6,125.00	6,124.37	102.05	4.57	51.98	-1,636.07	365.19	6,097.68	6,057.63	40.05	152.241	
12,800.00	6,945.00	6,125.00	6,124.37	103.60	4.57	51.98	-1,636.07	365.19	6,195.13	6,155.03	40.10	154.486	
12,900.00	6,945.00	6,125.00	6,124.37	105.15	4.57	51.98	-1,636.07	365.19	6,292.67	6,252.52	40.15	156.727	
13,000.00	6,945.00	6,125.00	6,124.37	106.71	4.57	51.98	-1,636.07	365.19	6,390.28	6,350.08	40.20	158.963	
13,100.00	6,945.00	6,125.00	6,124.37	108.26	4.57	51.98	-1,636.07	365.19	6,487.96	6,447.72	40.25	161.195	
13,200.00	6,945.00	6,125.00	6,124.37	109.82	4.57	51.98	-1,636.07	365.19	6,585.72	6,545.42	40.30	163.421	
13,300.00	6,945.00	6,125.00	6,124.37	111.38	4.57	51.98	-1,636.07	365.19	6,683.54	6,643.19	40.35	165.642	
13,400.00	6,945.00	6,125.00	6,124.37	112.94	4.57	51.98	-1,636.07	365.19	6,781.42	6,741.02	40.40	167.858	
13,500.00	6,945.00	6,125.00	6,124.37	114.50	4.57	51.98	-1,636.07	365.19	6,879.37	6,838.91	40.45	170.069	
13,600.00	6,945.00	6,125.00	6,124.37	116.07	4.57	51.98	-1,636.07	365.19	6,977.37	6,936.87	40.50	172.274	
13,700.00	6,945.00	6,125.00	6,124.37	117.63	4.57	51.98	-1,636.07	365.19	7,075.43	7,034.87	40.55	174.473	
13,800.00	6,945.00	6,125.00	6,124.37	119.19	4.57	51.98	-1,636.07	365.19	7,173.54	7,132.93	40.61	176.666	
13,900.00	6,945.00	6,125.00	6,124.37	120.76	4.57	51.98	-1,636.07	365.19	7,271.70	7,231.04	40.66	178.853	
14,000.00	6,945.00	6,125.00	6,124.37	122.33	4.57	51.98	-1,636.07	365.19	7,369.92	7,329.20	40.71	181.033	
14,100.00	6,945.00	6,125.00	6,124.37	123.90	4.57	51.98	-1,636.07	365.19	7,468.18	7,427.41	40.76	183.208	

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 705H
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 705H	**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 #3	**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
14,200.00	6,945.00	6,125.00	6,124.37	125.46	4.57	51.98	-1,636.07	365.19	7,566.48	7,525.66	40.82	185.376	
14,300.00	6,945.00	6,125.00	6,124.37	127.03	4.57	51.98	-1,636.07	365.19	7,664.83	7,623.96	40.87	187.537	
14,400.00	6,945.00	6,125.00	6,124.37	128.60	4.57	51.98	-1,636.07	365.19	7,763.22	7,722.30	40.93	189.692	
14,500.00	6,945.00	6,125.00	6,124.37	130.18	4.57	51.98	-1,636.07	365.19	7,861.66	7,820.68	40.98	191.839	
14,600.00	6,945.00	6,125.00	6,124.37	131.75	4.57	51.98	-1,636.07	365.19	7,960.13	7,919.09	41.04	193.980	
14,700.00	6,945.00	6,125.00	6,124.37	133.32	4.57	51.98	-1,636.07	365.19	8,058.64	8,017.55	41.09	196.114	
14,800.00	6,945.00	6,125.00	6,124.37	134.89	4.57	51.98	-1,636.07	365.19	8,157.18	8,116.03	41.15	198.241	
14,900.00	6,945.00	6,125.00	6,124.37	136.47	4.57	51.98	-1,636.07	365.19	8,255.76	8,214.56	41.20	200.361	
15,000.00	6,945.00	6,125.00	6,124.37	138.04	4.57	51.98	-1,636.07	365.19	8,354.38	8,313.12	41.26	202.473	
15,100.00	6,945.00	6,125.00	6,124.37	139.62	4.57	51.98	-1,636.07	365.19	8,453.02	8,411.70	41.32	204.578	
15,200.00	6,945.00	6,125.00	6,124.37	141.20	4.57	51.98	-1,636.07	365.19	8,551.70	8,510.32	41.38	206.675	
15,300.00	6,945.00	6,125.00	6,124.37	142.77	4.57	51.98	-1,636.07	365.19	8,650.41	8,608.97	41.44	208.765	
15,400.00	6,945.00	6,125.00	6,124.37	144.35	4.57	51.98	-1,636.07	365.19	8,749.15	8,707.65	41.50	210.847	
15,500.00	6,945.00	6,125.00	6,124.37	145.93	4.57	51.98	-1,636.07	365.19	8,847.91	8,806.36	41.55	212.922	
15,600.00	6,945.00	6,125.00	6,124.37	147.51	4.57	51.98	-1,636.07	365.19	8,946.71	8,905.09	41.61	214.989	
15,700.00	6,945.00	6,125.00	6,124.37	149.09	4.57	51.98	-1,636.07	365.19	9,045.53	9,003.85	41.68	217.048	
15,800.00	6,945.00	6,125.00	6,124.37	150.67	4.57	51.98	-1,636.07	365.19	9,144.37	9,102.64	41.74	219.099	
15,900.00	6,945.00	6,125.00	6,124.37	152.25	4.57	51.98	-1,636.07	365.19	9,243.25	9,201.45	41.80	221.142	
16,000.00	6,945.00	6,125.00	6,124.37	153.83	4.57	51.98	-1,636.07	365.19	9,342.14	9,300.28	41.86	223.177	
16,100.00	6,945.00	6,125.00	6,124.37	155.41	4.57	51.98	-1,636.07	365.19	9,441.06	9,399.14	41.92	225.205	
16,200.00	6,945.00	6,125.00	6,124.37	156.99	4.57	51.98	-1,636.07	365.19	9,540.00	9,498.01	41.99	227.224	
16,300.00	6,945.00	6,125.00	6,124.37	158.57	4.57	51.98	-1,636.07	365.19	9,638.96	9,596.91	42.05	229.235	
16,400.00	6,945.00	6,125.00	6,124.37	160.15	4.57	51.98	-1,636.07	365.19	9,737.94	9,695.83	42.11	231.237	
16,500.00	6,945.00	6,125.00	6,124.37	161.74	4.57	51.98	-1,636.07	365.19	9,836.95	9,794.77	42.18	233.232	
16,600.00	6,945.00	6,125.00	6,124.37	163.32	4.57	51.98	-1,636.07	365.19	9,935.97	9,893.73	42.24	235.218	
16,700.00	6,945.00	6,125.00	6,124.37	164.90	4.57	51.98	-1,636.07	365.19	10,035.02	9,992.71	42.31	237.196	
16,800.00	6,945.00	6,125.00	6,124.37	166.49	4.57	51.98	-1,636.07	365.19	10,134.08	10,091.71	42.37	239.165	
16,900.00	6,945.00	6,125.00	6,124.37	168.07	4.57	51.98	-1,636.07	365.19	10,233.16	10,190.72	42.44	241.127	
17,000.00	6,945.00	6,125.00	6,124.37	169.66	4.57	51.98	-1,636.07	365.19	10,332.26	10,289.75	42.51	243.079	
17,100.00	6,945.00	6,125.00	6,124.37	171.24	4.57	51.98	-1,636.07	365.19	10,431.37	10,388.80	42.57	245.023	
17,200.00	6,945.00	6,125.00	6,124.37	172.83	4.57	51.98	-1,636.07	365.19	10,530.51	10,487.86	42.64	246.959	
17,300.00	6,945.00	6,125.00	6,124.37	174.41	4.57	51.98	-1,636.07	365.19	10,629.65	10,586.94	42.71	248.886	
17,400.00	6,945.00	6,125.00	6,124.37	176.00	4.57	51.98	-1,636.07	365.19	10,728.82	10,686.04	42.78	250.805	
17,500.00	6,945.00	6,125.00	6,124.37	177.59	4.57	51.98	-1,636.07	365.19	10,828.00	10,785.15	42.85	252.715	
17,600.00	6,945.00	6,125.00	6,124.37	179.17	4.57	51.98	-1,636.07	365.19	10,927.19	10,884.28	42.92	254.617	
17,700.00	6,945.00	6,125.00	6,124.37	180.76	4.57	51.98	-1,636.07	365.19	11,026.40	10,983.41	42.99	256.509	
17,800.00	6,945.00	6,125.00	6,124.37	182.35	4.57	51.98	-1,636.07	365.19	11,125.62	11,082.57	43.06	258.394	
17,900.00	6,945.00	6,125.00	6,124.37	183.93	4.57	51.98	-1,636.07	365.19	11,224.86	11,181.73	43.13	260.269	
18,000.00	6,945.00	6,125.00	6,124.37	185.52	4.57	51.98	-1,636.07	365.19	11,324.11	11,280.91	43.20	262.136	
18,100.00	6,945.00	6,125.00	6,124.37	187.11	4.57	51.98	-1,636.07	365.19	11,423.38	11,380.10	43.27	263.994	
18,200.00	6,945.00	6,125.00	6,124.37	188.70	4.57	51.98	-1,636.07	365.19	11,522.65	11,479.31	43.34	265.844	
18,300.00	6,945.00	6,125.00	6,124.37	190.29	4.57	51.98	-1,636.07	365.19	11,621.94	11,578.52	43.42	267.685	
18,400.00	6,945.00	6,125.00	6,124.37	191.88	4.57	51.98	-1,636.07	365.19	11,721.24	11,677.75	43.49	269.517	
18,500.00	6,945.00	6,125.00	6,124.37	193.46	4.57	51.98	-1,636.07	365.19	11,820.55	11,776.99	43.56	271.340	
18,600.00	6,945.00	6,125.00	6,124.37	195.05	4.57	51.98	-1,636.07	365.19	11,919.88	11,876.24	43.64	273.155	
18,700.00	6,945.00	6,125.00	6,124.37	196.64	4.57	51.98	-1,636.07	365.19	12,019.21	11,975.50	43.71	274.961	
18,800.00	6,945.00	6,125.00	6,124.37	198.23	4.57	51.98	-1,636.07	365.19	12,118.56	12,074.77	43.79	276.758	
18,900.00	6,945.00	6,125.00	6,124.37	199.82	4.57	51.98	-1,636.07	365.19	12,217.92	12,174.05	43.86	278.546	
19,000.00	6,945.00	6,125.00	6,124.37	201.41	4.57	51.98	-1,636.07	365.19	12,317.28	12,273.34	43.94	280.326	
19,100.00	6,945.00	6,125.00	6,124.37	203.00	4.57	51.98	-1,636.07	365.19	12,416.66	12,372.65	44.02	282.096	
19,200.00	6,945.00	6,125.00	6,124.37	204.60	4.57	51.98	-1,636.07	365.19	12,516.05	12,471.96	44.09	283.858	
19,300.00	6,945.00	6,125.00	6,124.37	206.19	4.57	51.98	-1,636.07	365.19	12,615.45	12,571.28	44.17	285.612	

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 705H
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 705H	**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 #3	**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
19,400.00	6,945.00	6,125.00	6,124.37	207.78	4.57	51.98	-1,636.07	365.19	12,714.85	12,670.60	44.25	287.356	
19,500.00	6,945.00	6,125.00	6,124.37	209.37	4.57	51.98	-1,636.07	365.19	12,814.27	12,769.94	44.33	289.092	
19,600.00	6,945.00	6,125.00	6,124.37	210.96	4.57	51.98	-1,636.07	365.19	12,913.69	12,869.29	44.40	290.819	
19,700.00	6,945.00	6,125.00	6,124.37	212.55	4.57	51.98	-1,636.07	365.19	13,013.13	12,968.64	44.48	292.538	
19,800.00	6,945.00	6,125.00	6,124.37	214.14	4.57	51.98	-1,636.07	365.19	13,112.57	13,068.01	44.56	294.247	
19,900.00	6,945.00	6,125.00	6,124.37	215.74	4.57	51.98	-1,636.07	365.19	13,212.02	13,167.38	44.64	295.948	
20,000.00	6,945.00	6,125.00	6,124.37	217.33	4.57	51.98	-1,636.07	365.19	13,311.48	13,266.75	44.72	297.640	
20,100.00	6,945.00	6,125.00	6,124.37	218.92	4.57	51.98	-1,636.07	365.19	13,410.94	13,366.14	44.80	299.324	
20,200.00	6,945.00	6,125.00	6,124.37	220.51	4.57	51.98	-1,636.07	365.19	13,510.42	13,465.53	44.89	300.998	
20,300.00	6,945.00	6,125.00	6,124.37	222.11	4.57	51.98	-1,636.07	365.19	13,609.90	13,564.94	44.97	302.665	
20,400.00	6,945.00	6,125.00	6,124.37	223.70	4.57	51.98	-1,636.07	365.19	13,709.39	13,664.34	45.05	304.322	
20,500.00	6,945.00	6,125.00	6,124.37	225.29	4.57	51.98	-1,636.07	365.19	13,808.89	13,763.76	45.13	305.971	
20,600.00	6,945.00	6,125.00	6,124.37	226.88	4.57	51.98	-1,636.07	365.19	13,908.39	13,863.18	45.21	307.611	
20,700.00	6,945.00	6,125.00	6,124.37	228.48	4.57	51.98	-1,636.07	365.19	14,007.91	13,962.61	45.30	309.242	
20,741.48	6,945.00	6,125.00	6,124.37	229.14	4.57	51.98	-1,636.07	365.19	14,049.18	14,003.85	45.33	309.916	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 705H
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 705H	**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 #3	**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	46.64	46.64	0.00	0.02	165.59	-1,560.04	400.80	1,610.70				
100.00	100.00	143.47	143.47	0.25	0.11	165.60	-1,560.06	400.63	1,610.68	1,610.37	0.31	5,136.073	
200.00	200.00	237.84	237.84	0.61	0.13	165.57	-1,560.09	401.38	1,610.92	1,610.18	0.74	2,181.710	
300.00	300.00	1,003.12	982.45	0.97	0.99	164.16	-1,421.61	403.26	1,608.93	1,606.74	2.19	733.265	
400.00	400.00	1,137.58	1,104.46	1.33	1.23	163.65	-1,365.21	400.48	1,567.72	1,565.07	2.65	590.775	
500.00	500.00	1,240.63	1,197.20	1.68	1.44	163.16	-1,320.29	399.57	1,525.42	1,522.34	3.07	496.428	
600.00	599.98	1,317.66	1,266.47	2.03	1.61	15.30	-1,286.59	399.17	1,481.59	1,478.13	3.47	427.471	
700.00	699.84	1,407.09	1,346.88	2.37	1.81	15.09	-1,247.45	399.69	1,435.09	1,431.20	3.90	368.144	
795.17	794.65	1,496.93	1,427.46	2.69	2.01	14.85	-1,207.75	401.01	1,387.99	1,383.66	4.32	321.036	
800.00	799.45	1,501.01	1,431.11	2.71	2.02	14.82	-1,205.94	401.07	1,385.52	1,381.16	4.36	318.019	
900.00	898.92	1,579.39	1,501.52	3.06	2.20	14.37	-1,171.49	401.57	1,334.74	1,329.99	4.76	280.683	
1,000.00	998.39	1,673.03	1,585.68	3.43	2.42	13.83	-1,130.44	401.55	1,283.97	1,278.79	5.18	247.657	
1,100.00	1,097.86	1,768.06	1,670.74	3.79	2.65	13.21	-1,088.08	401.67	1,232.64	1,227.02	5.62	219.268	
1,200.00	1,197.33	1,844.81	1,739.33	4.16	2.84	12.64	-1,053.64	402.12	1,181.28	1,175.24	6.05	195.323	
1,300.00	1,296.80	1,906.98	1,795.30	4.53	2.98	12.16	-1,026.59	402.50	1,131.28	1,124.81	6.47	174.775	
1,400.00	1,396.27	1,998.67	1,878.33	4.91	3.20	11.45	-987.71	402.59	1,082.23	1,075.31	6.92	156.287	
1,500.00	1,495.74	2,087.14	1,958.26	5.28	3.41	10.68	-949.74	402.75	1,032.88	1,025.50	7.38	139.960	
1,600.00	1,595.21	2,162.03	2,026.04	5.66	3.59	9.95	-917.92	403.37	984.22	976.38	7.84	125.535	
1,700.00	1,694.68	2,250.89	2,106.53	6.04	3.81	8.98	-880.29	404.40	936.01	927.70	8.31	112.640	
1,800.00	1,794.15	2,350.49	2,196.49	6.42	4.05	7.80	-837.55	404.87	887.29	878.52	8.78	101.070	
1,900.00	1,893.62	2,444.29	2,280.75	6.80	4.29	6.55	-796.33	404.80	837.73	828.48	9.25	90.531	
2,000.00	1,993.09	2,520.62	2,349.15	7.18	4.49	5.39	-762.45	404.83	788.17	778.41	9.75	80.798	
2,100.00	2,092.56	2,601.73	2,422.43	7.56	4.69	4.06	-727.68	405.01	740.28	730.01	10.26	72.126	
2,200.00	2,192.03	2,692.88	2,504.64	7.94	4.93	2.33	-688.31	405.31	692.57	681.80	10.77	64.291	
2,300.00	2,291.50	2,782.93	2,585.57	8.32	5.16	0.36	-648.83	405.42	644.75	633.45	11.30	57.066	
2,400.00	2,390.97	2,869.06	2,662.74	8.70	5.39	-1.84	-610.58	405.54	597.13	585.27	11.86	50.363	
2,500.00	2,490.44	2,956.76	2,741.60	9.08	5.62	-4.32	-572.22	404.72	550.37	537.94	12.43	44.278	
2,600.00	2,589.91	3,033.63	2,811.17	9.47	5.82	-6.65	-539.60	402.70	504.76	491.69	13.07	38.634	
2,700.00	2,689.38	3,108.16	2,879.59	9.85	6.00	-9.06	-510.13	400.72	462.30	448.56	13.74	33.640	
2,800.00	2,788.85	3,182.90	2,949.11	10.23	6.17	-11.70	-482.70	399.34	423.58	409.12	14.46	29.297	
2,900.00	2,888.32	3,256.93	3,018.87	10.61	6.33	-14.57	-457.96	399.25	389.56	374.35	15.21	25.608	
3,000.00	2,987.79	3,331.64	3,090.59	11.00	6.46	-17.45	-437.09	399.94	361.38	345.41	15.96	22.636	
3,100.00	3,087.25	3,420.39	3,176.83	11.38	6.61	-20.81	-416.17	401.04	337.65	320.99	16.66	20.269	
3,200.00	3,186.72	3,511.91	3,266.11	11.76	6.75	-24.53	-396.10	402.45	316.58	299.23	17.36	18.241	
3,300.00	3,286.19	3,604.59	3,357.17	12.15	6.87	-28.12	-378.92	402.72	297.79	279.77	18.03	16.520	
3,400.00	3,385.66	3,696.38	3,447.78	12.53	6.98	-31.70	-364.22	403.18	281.72	263.03	18.69	15.077	
3,500.00	3,485.13	3,792.35	3,543.20	12.91	7.07	-34.67	-354.35	402.68	268.28	249.02	19.27	13.925	
3,600.00	3,584.60	3,889.96	3,640.69	13.30	7.10	-36.51	-350.46	399.89	255.75	236.00	19.76	12.945	
3,700.00	3,684.07	3,985.83	3,736.49	13.68	7.13	-38.23	-347.99	397.45	244.28	224.04	20.24	12.069	
3,800.00	3,783.54	4,082.48	3,833.12	14.06	7.15	-39.87	-346.80	395.72	234.18	213.47	20.72	11.304	
3,900.00	3,883.01	4,180.55	3,931.18	14.45	7.18	-41.37	-347.06	394.54	225.29	204.11	21.18	10.639	
4,000.00	3,982.48	4,278.93	4,029.55	14.83	7.21	-42.77	-348.21	393.59	217.03	195.40	21.62	10.036	
4,100.00	4,081.95	4,378.18	4,128.78	15.22	7.23	-44.18	-349.87	392.71	209.10	187.04	22.06	9.477	
4,200.00	4,181.42	4,477.39	4,227.97	15.60	7.26	-45.58	-351.94	391.91	201.48	178.98	22.50	8.953	
4,300.00	4,280.89	4,577.12	4,327.67	15.98	7.29	-47.03	-354.26	391.11	194.04	171.10	22.94	8.458	
4,400.00	4,380.36	4,676.32	4,426.84	16.37	7.32	-48.62	-356.44	390.39	186.78	163.40	23.38	7.988	
4,500.00	4,479.83	4,775.39	4,525.89	16.75	7.35	-50.50	-358.16	389.97	179.91	156.08	23.83	7.551	
4,600.00	4,579.30	4,874.99	4,625.48	17.14	7.38	-52.59	-359.74	389.73	173.43	149.16	24.27	7.146	
4,700.00	4,678.77	4,974.50	4,724.98	17.52	7.41	-54.88	-361.21	389.55	167.26	142.54	24.71	6.768	
4,800.00	4,778.24	5,074.27	4,824.74	17.90	7.44	-57.39	-362.54	389.28	161.27	136.12	25.15	6.412	
4,900.00	4,877.71	5,173.82	4,924.28	18.29	7.47	-60.13	-363.74	388.98	155.59	130.01	25.59	6.081	
5,000.00	4,977.18	5,273.45	5,023.91	18.67	7.50	-63.05	-365.00	388.67	150.28	124.27	26.01	5.778	

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 705H
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 705H	**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 #3	**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
5,100.00	5,076.65	5,372.97	5,123.42	19.06	7.54	-66.16	-366.28	388.31	145.34	118.92	26.42	5.501	
5,200.00	5,176.12	5,472.87	5,223.30	19.44	7.57	-69.48	-367.62	387.83	140.73	113.91	26.82	5.248	
5,300.00	5,275.59	5,572.52	5,322.94	19.83	7.61	-73.01	-368.99	387.17	136.43	109.24	27.19	5.017	
5,400.00	5,375.06	5,672.42	5,422.83	20.21	7.65	-76.66	-370.64	386.44	132.54	105.00	27.55	4.812	
5,500.00	5,474.53	5,771.91	5,522.29	20.59	7.68	-80.31	-372.72	385.77	129.10	101.22	27.88	4.631	
5,600.00	5,574.00	5,871.39	5,621.74	20.98	7.72	-83.95	-375.08	385.47	126.43	98.24	28.19	4.485	
5,700.00	5,673.47	5,971.13	5,721.45	21.36	7.75	-87.70	-377.56	385.15	124.23	95.75	28.48	4.362	
5,800.00	5,772.94	6,070.05	5,820.35	21.75	7.79	-91.67	-379.70	384.79	122.70	93.97	28.74	4.270	
5,879.47	5,851.98	6,148.80	5,899.09	22.05	7.82	-95.06	-380.87	384.62	122.35	93.44	28.91	4.232 CC	
5,900.00	5,872.41	6,169.19	5,919.48	22.13	7.82	-95.94	-381.14	384.60	122.38	93.42	28.95	4.226 ES	
6,000.00	5,971.88	6,268.77	6,019.06	22.52	7.86	-100.24	-382.48	384.48	122.86	93.71	29.15	4.214 SF	
6,100.00	6,071.35	6,368.32	6,118.59	22.90	7.90	-104.49	-383.83	384.33	124.01	94.68	29.34	4.227	
6,200.00	6,170.81	6,467.73	6,217.99	23.28	7.94	-108.61	-385.21	384.22	125.84	96.32	29.51	4.264	
6,300.00	6,270.28	6,566.86	6,317.12	23.67	7.97	-112.57	-386.18	384.44	128.83	99.14	29.69	4.339	
6,375.94	6,345.82	6,641.59	6,391.85	23.96	7.99	-115.46	-386.65	384.68	131.75	101.93	29.82	4.418	
6,400.00	6,369.72	6,665.31	6,415.56	24.05	8.00	-102.00	-386.68	384.76	132.62	102.76	29.85	4.442	
6,450.00	6,419.09	6,715.13	6,465.39	24.25	8.02	-89.13	-386.83	384.90	133.10	103.23	29.88	4.455	
6,500.00	6,467.78	6,763.27	6,513.53	24.46	8.03	-86.12	-386.91	385.11	132.52	102.71	29.81	4.445	
6,550.00	6,515.51	6,810.97	6,561.23	24.67	8.05	-87.96	-386.86	385.31	131.77	102.06	29.70	4.436	
6,571.05	6,535.24	6,830.69	6,580.94	24.76	8.05	-89.64	-386.84	385.41	131.65	102.00	29.65	4.440	
6,600.00	6,561.97	6,857.66	6,607.91	24.88	8.06	-92.63	-386.83	385.57	131.93	102.34	29.59	4.458	
6,650.00	6,606.89	6,902.36	6,652.61	25.10	8.08	-98.89	-386.82	385.81	134.42	104.85	29.57	4.546	
6,700.00	6,649.98	6,945.21	6,695.46	25.32	8.09	-105.82	-386.66	386.03	140.87	111.14	29.73	4.738	
6,750.00	6,690.98	6,986.18	6,736.43	25.54	8.11	-112.61	-386.43	386.22	152.35	122.25	30.10	5.061	
6,800.00	6,729.64	7,025.31	6,775.56	25.77	8.12	-118.74	-386.28	386.38	169.26	138.65	30.61	5.529	
6,850.00	6,765.71	7,060.90	6,811.15	26.00	8.14	-123.54	-386.13	386.53	191.60	160.48	31.12	6.156	
6,900.00	6,798.98	7,094.41	6,844.65	26.24	8.15	-127.23	-385.89	386.66	219.01	187.40	31.61	6.929	
6,950.00	6,829.24	7,125.64	6,875.89	26.49	8.16	-129.81	-385.71	386.86	250.68	218.65	32.03	7.827	
7,000.00	6,856.30	7,152.37	6,902.62	26.76	8.17	-130.92	-385.58	387.04	286.07	253.71	32.36	8.841	
7,050.00	6,880.00	7,175.37	6,925.62	27.03	8.18	-130.70	-385.45	387.11	324.70	292.07	32.62	9.953	
7,100.00	6,900.19	7,195.37	6,945.61	27.32	8.19	-129.17	-385.33	387.14	365.98	333.14	32.84	11.144	
7,150.00	6,916.74	7,212.28	6,962.53	27.62	8.20	-126.09	-385.22	387.17	409.41	376.39	33.02	12.400	
7,200.00	6,929.56	7,225.18	6,975.42	27.93	8.20	-120.85	-385.14	387.20	454.53	421.38	33.15	13.711	
7,250.00	6,938.57	7,234.20	6,984.45	28.26	8.20	-112.86	-385.08	387.22	500.94	467.69	33.25	15.064	
7,300.00	6,943.70	7,238.87	6,989.11	28.60	8.21	-101.40	-385.06	387.22	548.27	514.94	33.33	16.451	
7,340.76	6,945.00	7,240.65	6,990.89	28.88	8.21	-89.96	-385.05	387.23	587.26	553.88	33.38	17.595	
7,400.00	6,945.00	7,240.73	6,990.98	29.31	8.21	-89.99	-385.05	387.23	644.31	610.88	33.43	19.274	
7,500.00	6,945.00	7,240.87	6,991.11	30.09	8.21	-90.04	-385.05	387.23	741.39	707.89	33.50	22.132	
7,600.00	6,945.00	7,241.01	6,991.25	30.93	8.21	-90.09	-385.05	387.23	839.16	805.61	33.55	25.010	
7,700.00	6,945.00	7,241.14	6,991.39	31.83	8.21	-90.13	-385.05	387.23	937.40	903.80	33.60	27.902	
7,800.00	6,945.00	7,241.28	6,991.52	32.79	8.21	-90.18	-385.04	387.23	1,035.98	1,002.34	33.63	30.801	
7,900.00	6,945.00	7,241.41	6,991.65	33.79	8.21	-90.23	-385.04	387.23	1,134.80	1,101.14	33.67	33.706	
8,000.00	6,945.00	7,241.54	6,991.78	34.84	8.21	-90.27	-385.04	387.23	1,233.82	1,200.12	33.70	36.613	
8,100.00	6,945.00	7,241.67	6,991.91	35.93	8.21	-90.31	-385.04	387.23	1,332.98	1,299.25	33.73	39.521	
8,200.00	6,945.00	7,241.79	6,992.04	37.06	8.21	-90.36	-385.04	387.23	1,432.26	1,398.50	33.76	42.430	
8,300.00	6,945.00	7,241.92	6,992.16	38.23	8.21	-90.40	-385.04	387.23	1,531.63	1,497.85	33.78	45.337	
8,400.00	6,945.00	7,242.04	6,992.29	39.42	8.21	-90.45	-385.04	387.23	1,631.08	1,597.27	33.81	48.242	
8,500.00	6,945.00	7,242.17	6,992.41	40.65	8.21	-90.49	-385.04	387.23	1,730.59	1,696.75	33.84	51.144	
8,600.00	6,945.00	7,242.29	6,992.53	41.90	8.21	-90.53	-385.04	387.23	1,830.16	1,796.29	33.86	54.044	
8,700.00	6,945.00	7,242.41	6,992.65	43.17	8.21	-90.57	-385.04	387.23	1,929.77	1,895.88	33.89	56.939	
8,800.00	6,945.00	7,242.53	6,992.77	44.46	8.21	-90.61	-385.04	387.23	2,029.42	1,995.50	33.92	59.831	
8,900.00	6,945.00	7,242.64	6,992.89	45.78	8.21	-90.65	-385.04	387.23	2,129.10	2,095.15	33.95	62.718	

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 705H
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 705H	**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 #3	**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
9,000.00	6,945.00	7,242.76	6,993.00	47.11	8.21	-90.69	-385.04	387.23	2,228.81	2,194.83	33.98	65.600	
9,100.00	6,945.00	7,242.87	6,993.12	48.46	8.21	-90.73	-385.04	387.23	2,328.54	2,294.54	34.00	68.477	
9,200.00	6,945.00	7,242.99	6,993.23	49.82	8.21	-90.77	-385.03	387.23	2,428.30	2,394.27	34.03	71.348	
9,300.00	6,945.00	7,243.10	6,993.34	51.20	8.21	-90.81	-385.03	387.23	2,528.08	2,494.01	34.06	74.214	
9,400.00	6,945.00	7,243.21	6,993.45	52.59	8.21	-90.85	-385.03	387.23	2,627.87	2,593.78	34.10	77.073	
9,500.00	6,945.00	7,243.32	6,993.56	53.99	8.21	-90.89	-385.03	387.23	2,727.68	2,693.55	34.13	79.927	
9,600.00	6,945.00	7,243.43	6,993.67	55.40	8.21	-90.92	-385.03	387.23	2,827.50	2,793.34	34.16	82.773	
9,700.00	6,945.00	7,243.53	6,993.78	56.83	8.21	-90.96	-385.03	387.23	2,927.33	2,893.14	34.19	85.613	
9,800.00	6,945.00	7,243.64	6,993.88	58.26	8.21	-91.00	-385.03	387.23	3,027.18	2,992.95	34.23	88.446	
9,900.00	6,945.00	7,243.74	6,993.99	59.70	8.21	-91.03	-385.03	387.23	3,127.03	3,092.77	34.26	91.271	
10,000.00	6,945.00	7,243.85	6,994.09	61.15	8.21	-91.07	-385.03	387.23	3,226.90	3,192.60	34.30	94.089	
10,100.00	6,945.00	7,243.95	6,994.19	62.61	8.21	-91.10	-385.03	387.23	3,326.77	3,292.44	34.33	96.899	
10,200.00	6,945.00	7,244.05	6,994.30	64.07	8.21	-91.14	-385.03	387.23	3,426.65	3,392.28	34.37	99.702	
10,300.00	6,945.00	7,244.15	6,994.40	65.54	8.21	-91.17	-385.03	387.23	3,526.54	3,492.13	34.41	102.496	
10,400.00	6,945.00	7,244.25	6,994.49	67.02	8.21	-91.21	-385.03	387.23	3,626.43	3,591.98	34.44	105.282	
10,500.00	6,945.00	7,244.35	6,994.59	68.50	8.21	-91.24	-385.03	387.23	3,726.33	3,691.84	34.48	108.059	
10,600.00	6,945.00	7,244.45	6,994.69	69.99	8.21	-91.28	-385.03	387.23	3,826.23	3,791.71	34.52	110.828	
10,700.00	6,945.00	7,244.54	6,994.79	71.48	8.21	-91.31	-385.03	387.23	3,926.14	3,891.57	34.56	113.588	
10,800.00	6,945.00	7,244.64	6,994.88	72.98	8.21	-91.34	-385.02	387.23	4,026.05	3,991.45	34.61	116.339	
10,900.00	6,945.00	7,244.73	6,994.98	74.48	8.21	-91.37	-385.02	387.23	4,125.97	4,091.32	34.65	119.081	
11,000.00	6,945.00	7,244.83	6,995.07	75.99	8.21	-91.41	-385.02	387.23	4,225.89	4,191.20	34.69	121.813	
11,100.00	6,945.00	7,244.92	6,995.16	77.50	8.21	-91.44	-385.02	387.23	4,325.82	4,291.08	34.74	124.536	
11,200.00	6,945.00	7,245.01	6,995.25	79.01	8.21	-91.47	-385.02	387.23	4,425.74	4,390.96	34.78	127.249	
11,300.00	6,945.00	7,245.10	6,995.34	80.53	8.21	-91.50	-385.02	387.23	4,525.68	4,490.85	34.83	129.953	
11,400.00	6,945.00	7,245.19	6,995.43	82.05	8.21	-91.53	-385.02	387.23	4,625.61	4,590.74	34.87	132.646	
11,500.00	6,945.00	7,245.28	6,995.52	83.57	8.21	-91.56	-385.02	387.23	4,725.55	4,690.63	34.92	135.330	
11,600.00	6,945.00	7,245.36	6,995.61	85.10	8.21	-91.59	-385.02	387.23	4,825.49	4,790.52	34.97	138.003	
11,700.00	6,945.00	7,245.45	6,995.69	86.63	8.21	-91.62	-385.02	387.23	4,925.43	4,890.41	35.02	140.666	
11,800.00	6,945.00	7,245.54	6,995.78	88.16	8.21	-91.65	-385.02	387.23	5,025.37	4,990.31	35.06	143.319	
11,900.00	6,945.00	7,245.62	6,995.87	89.69	8.21	-91.68	-385.02	387.23	5,125.32	5,090.21	35.11	145.960	
12,000.00	6,945.00	7,245.71	6,995.95	91.23	8.21	-91.71	-385.02	387.23	5,225.27	5,190.10	35.17	148.592	
12,100.00	6,945.00	7,245.79	6,996.03	92.77	8.21	-91.74	-385.02	387.23	5,325.22	5,290.00	35.22	151.212	
12,200.00	6,945.00	7,245.87	6,996.12	94.31	8.21	-91.77	-385.02	387.23	5,425.17	5,389.90	35.27	153.821	
12,300.00	6,945.00	7,245.95	6,996.20	95.85	8.21	-91.80	-385.02	387.23	5,525.13	5,489.80	35.32	156.420	
12,400.00	6,945.00	7,246.04	6,996.28	97.40	8.21	-91.82	-385.02	387.23	5,625.08	5,589.70	35.38	159.007	
12,500.00	6,945.00	7,246.12	6,996.36	98.95	8.21	-91.85	-385.02	387.23	5,725.04	5,689.61	35.43	161.583	
12,600.00	6,945.00	7,246.20	6,996.44	100.50	8.21	-91.88	-385.02	387.23	5,825.00	5,789.51	35.49	164.148	
12,700.00	6,945.00	7,246.27	6,996.52	102.05	8.21	-91.91	-385.01	387.23	5,924.96	5,889.42	35.54	166.701	
12,800.00	6,945.00	7,246.35	6,996.60	103.60	8.21	-91.93	-385.01	387.23	6,024.92	5,989.32	35.60	169.243	
12,900.00	6,945.00	7,246.43	6,996.67	105.15	8.21	-91.96	-385.01	387.23	6,124.88	6,089.22	35.66	171.773	
13,000.00	6,945.00	7,246.51	6,996.75	106.71	8.21	-91.99	-385.01	387.23	6,224.85	6,189.13	35.72	174.291	
13,100.00	6,945.00	7,246.58	6,996.83	108.26	8.21	-92.01	-385.01	387.23	6,324.81	6,289.04	35.77	176.798	
13,200.00	6,945.00	7,246.66	6,996.90	109.82	8.21	-92.04	-385.01	387.23	6,424.78	6,388.94	35.83	179.293	
13,300.00	6,945.00	7,246.73	6,996.98	111.38	8.21	-92.06	-385.01	387.23	6,524.74	6,488.85	35.89	181.775	
13,400.00	6,945.00	7,246.81	6,997.05	112.94	8.21	-92.09	-385.01	387.23	6,624.71	6,588.76	35.96	184.246	
13,500.00	6,945.00	7,246.88	6,997.12	114.50	8.21	-92.12	-385.01	387.23	6,724.68	6,688.66	36.02	186.705	
13,600.00	6,945.00	7,246.95	6,997.19	116.07	8.21	-92.14	-385.01	387.23	6,824.65	6,788.57	36.08	189.152	
13,700.00	6,945.00	7,247.02	6,997.27	117.63	8.21	-92.17	-385.01	387.23	6,924.62	6,888.48	36.14	191.586	
13,800.00	6,945.00	7,247.09	6,997.34	119.19	8.21	-92.19	-385.01	387.23	7,024.59	6,988.39	36.21	194.009	
13,900.00	6,945.00	7,247.16	6,997.41	120.76	8.21	-92.21	-385.01	387.23	7,124.57	7,088.29	36.27	196.419	
14,000.00	6,945.00	7,247.23	6,997.48	122.33	8.21	-92.24	-385.01	387.23	7,224.54	7,188.20	36.34	198.816	
14,100.00	6,945.00	7,247.30	6,997.55	123.90	8.21	-92.26	-385.01	387.23	7,324.51	7,288.11	36.40	201.202	

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 705H
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 705H	**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 #3	**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
14,200.00	6,945.00	7,247.37	6,997.62	125.46	8.21	-92.29	-385.01	387.23	7,424.49	7,388.02	36.47	203.574	
14,300.00	6,945.00	7,247.44	6,997.68	127.03	8.21	-92.31	-385.01	387.23	7,524.46	7,487.93	36.54	205.935	
14,400.00	6,945.00	7,247.51	6,997.75	128.60	8.21	-92.33	-385.01	387.24	7,624.44	7,587.83	36.61	208.283	
14,500.00	6,945.00	7,247.57	6,997.82	130.18	8.21	-92.36	-385.01	387.24	7,724.42	7,687.74	36.67	210.618	
14,600.00	6,945.00	7,247.64	6,997.88	131.75	8.21	-92.38	-385.01	387.24	7,824.39	7,787.65	36.74	212.941	
14,700.00	6,945.00	7,247.71	6,997.95	133.32	8.21	-92.40	-385.01	387.24	7,924.37	7,887.56	36.81	215.251	
14,800.00	6,945.00	7,247.77	6,998.02	134.89	8.21	-92.42	-385.01	387.24	8,024.35	7,987.46	36.89	217.549	
14,900.00	6,945.00	7,247.84	6,998.08	136.47	8.21	-92.45	-385.01	387.24	8,124.33	8,087.37	36.96	219.834	
15,000.00	6,945.00	7,247.90	6,998.14	138.04	8.21	-92.47	-385.00	387.24	8,224.31	8,187.28	37.03	222.106	
15,100.00	6,945.00	7,247.96	6,998.21	139.62	8.21	-92.49	-385.00	387.24	8,324.29	8,287.19	37.10	224.366	
15,200.00	6,945.00	7,248.03	6,998.27	141.20	8.21	-92.51	-385.00	387.24	8,424.27	8,387.09	37.17	226.613	
15,300.00	6,945.00	7,248.09	6,998.33	142.77	8.21	-92.53	-385.00	387.24	8,524.25	8,487.00	37.25	228.848	
15,400.00	6,945.00	7,248.15	6,998.39	144.35	8.21	-92.55	-385.00	387.24	8,624.23	8,586.91	37.32	231.069	
15,500.00	6,945.00	7,248.21	6,998.46	145.93	8.21	-92.58	-385.00	387.24	8,724.21	8,686.81	37.40	233.278	
15,600.00	6,945.00	7,248.27	6,998.52	147.51	8.21	-92.60	-385.00	387.24	8,824.19	8,786.72	37.47	235.474	
15,700.00	6,945.00	7,248.33	6,998.58	149.09	8.21	-92.62	-385.00	387.24	8,924.18	8,886.63	37.55	237.658	
15,800.00	6,945.00	7,248.39	6,998.64	150.67	8.21	-92.64	-385.00	387.24	9,024.16	8,986.53	37.63	239.829	
15,900.00	6,945.00	7,248.45	6,998.70	152.25	8.21	-92.66	-385.00	387.24	9,124.14	9,086.44	37.71	241.987	
16,000.00	6,945.00	7,248.51	6,998.76	153.83	8.21	-92.68	-385.00	387.24	9,224.13	9,186.34	37.78	244.132	
16,100.00	6,945.00	7,248.57	6,998.81	155.41	8.21	-92.70	-385.00	387.24	9,324.11	9,286.25	37.86	246.265	
16,200.00	6,945.00	7,248.63	6,998.87	156.99	8.21	-92.72	-385.00	387.24	9,424.10	9,386.15	37.94	248.385	
16,300.00	6,945.00	7,248.69	6,998.93	158.57	8.21	-92.74	-385.00	387.24	9,524.08	9,486.06	38.02	250.492	
16,400.00	6,945.00	7,248.74	6,998.99	160.15	8.21	-92.76	-385.00	387.24	9,624.07	9,585.96	38.10	252.587	
16,500.00	6,945.00	7,248.80	6,999.04	161.74	8.21	-92.78	-385.00	387.24	9,724.05	9,685.87	38.18	254.669	
16,600.00	6,945.00	7,248.86	6,999.10	163.32	8.21	-92.80	-385.00	387.24	9,824.04	9,785.77	38.26	256.738	
16,700.00	6,945.00	7,248.91	6,999.15	164.90	8.21	-92.82	-385.00	387.24	9,924.02	9,885.67	38.35	258.795	
16,800.00	6,945.00	7,248.97	6,999.21	166.49	8.21	-92.84	-385.00	387.24	10,024.01	9,985.58	38.43	260.839	
16,900.00	6,945.00	7,249.02	6,999.26	168.07	8.21	-92.85	-385.00	387.24	10,123.99	10,085.48	38.51	262.870	
17,000.00	6,945.00	7,249.08	6,999.32	169.66	8.21	-92.87	-385.00	387.24	10,223.98	10,185.38	38.60	264.889	
17,100.00	6,945.00	7,249.13	6,999.37	171.24	8.21	-92.89	-385.00	387.24	10,323.97	10,285.29	38.68	266.896	
17,200.00	6,945.00	7,249.18	6,999.43	172.83	8.21	-92.91	-385.00	387.24	10,423.96	10,385.19	38.77	268.890	
17,300.00	6,945.00	7,249.24	6,999.48	174.41	8.21	-92.93	-385.00	387.24	10,523.94	10,485.09	38.85	270.872	
17,400.00	6,945.00	7,249.29	6,999.53	176.00	8.21	-92.95	-385.00	387.24	10,623.93	10,584.99	38.94	272.841	
17,500.00	6,945.00	7,249.34	6,999.58	177.59	8.21	-92.97	-385.00	387.24	10,723.92	10,684.89	39.02	274.797	
17,600.00	6,945.00	7,249.39	6,999.64	179.17	8.21	-92.98	-385.00	387.24	10,823.91	10,784.79	39.11	276.742	
17,700.00	6,945.00	7,249.45	6,999.69	180.76	8.21	-93.00	-385.00	387.24	10,923.89	10,884.70	39.20	278.674	
17,800.00	6,945.00	7,249.50	6,999.74	182.35	8.21	-93.02	-384.99	387.24	11,023.88	10,984.60	39.29	280.593	
17,900.00	6,945.00	7,249.55	6,999.79	183.93	8.21	-93.04	-384.99	387.24	11,123.87	11,084.50	39.38	282.501	
18,000.00	6,945.00	7,249.60	6,999.84	185.52	8.21	-93.05	-384.99	387.24	11,223.86	11,184.40	39.47	284.396	
18,100.00	6,945.00	7,249.65	6,999.89	187.11	8.21	-93.07	-384.99	387.24	11,323.85	11,284.30	39.56	286.279	
18,200.00	6,945.00	7,249.70	6,999.94	188.70	8.21	-93.09	-384.99	387.24	11,423.84	11,384.19	39.65	288.150	
18,300.00	6,945.00	7,249.75	6,999.99	190.29	8.21	-93.10	-384.99	387.24	11,523.83	11,484.09	39.74	290.009	
18,400.00	6,945.00	7,249.79	7,000.04	191.88	8.21	-93.12	-384.99	387.24	11,623.82	11,583.99	39.83	291.856	
18,500.00	6,945.00	7,249.84	7,000.09	193.46	8.21	-93.14	-384.99	387.24	11,723.81	11,683.89	39.92	293.691	
18,600.00	6,945.00	7,249.89	7,000.13	195.05	8.21	-93.15	-384.99	387.24	11,823.80	11,783.79	40.01	295.514	
18,700.00	6,945.00	7,249.94	7,000.18	196.64	8.21	-93.17	-384.99	387.24	11,923.79	11,883.69	40.10	297.324	
18,800.00	6,945.00	7,249.99	7,000.23	198.23	8.21	-93.19	-384.99	387.24	12,023.78	11,983.58	40.20	299.124	
18,900.00	6,945.00	7,250.03	7,000.28	199.82	8.21	-93.20	-384.99	387.24	12,123.77	12,083.48	40.29	300.911	
19,000.00	6,945.00	7,250.08	7,000.32	201.41	8.21	-93.22	-384.99	387.24	12,223.76	12,183.38	40.38	302.686	
19,100.00	6,945.00	7,250.13	7,000.37	203.00	8.21	-93.24	-384.99	387.24	12,323.75	12,283.27	40.48	304.450	
19,200.00	6,945.00	7,250.17	7,000.42	204.60	8.21	-93.25	-384.99	387.24	12,423.74	12,383.17	40.57	306.202	
19,300.00	6,945.00	7,250.22	7,000.46	206.19	8.21	-93.27	-384.99	387.24	12,523.73	12,483.06	40.67	307.943	

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 705H
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 705H	**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 #3	**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)	Rule Assigned: Distance Between Ellipses (usft)	Rule Assigned: Minimum Separation (usft)	Separation Factor	Warning
19,400.00	6,945.00	7,250.26	7,000.51	207.78	8.21	-93.28	-384.99	387.24	12,623.73	12,582.96	40.76	309.672	
19,500.00	6,945.00	7,250.31	7,000.55	209.37	8.21	-93.30	-384.99	387.24	12,723.72	12,682.86	40.86	311.389	
19,600.00	6,945.00	7,250.35	7,000.60	210.96	8.21	-93.31	-384.99	387.24	12,823.71	12,782.75	40.96	313.095	
19,700.00	6,945.00	7,250.40	7,000.64	212.55	8.21	-93.33	-384.99	387.24	12,923.70	12,882.64	41.05	314.790	
19,800.00	6,945.00	7,250.44	7,000.69	214.14	8.21	-93.34	-384.99	387.24	13,023.69	12,982.54	41.15	316.473	
19,900.00	6,945.00	7,250.49	7,000.73	215.74	8.21	-93.36	-384.99	387.24	13,123.68	13,082.43	41.25	318.145	
20,000.00	6,945.00	7,250.53	7,000.77	217.33	8.21	-93.37	-384.99	387.24	13,223.68	13,182.33	41.35	319.806	
20,100.00	6,945.00	7,250.57	7,000.82	218.92	8.21	-93.39	-384.99	387.24	13,323.67	13,282.22	41.45	321.456	
20,200.00	6,945.00	7,250.62	7,000.86	220.51	8.21	-93.40	-384.99	387.24	13,423.66	13,382.11	41.55	323.095	
20,300.00	6,945.00	7,250.66	7,000.90	222.11	8.21	-93.42	-384.99	387.24	13,523.65	13,482.01	41.65	324.722	
20,400.00	6,945.00	7,250.70	7,000.94	223.70	8.21	-93.43	-384.99	387.24	13,623.64	13,581.90	41.75	326.339	
20,500.00	6,945.00	7,250.74	7,000.99	225.29	8.21	-93.45	-384.99	387.24	13,723.64	13,681.79	41.85	327.944	
20,600.00	6,945.00	7,250.78	7,001.03	226.88	8.21	-93.46	-384.99	387.24	13,823.63	13,781.68	41.95	329.539	
20,700.00	6,945.00	7,250.83	7,001.07	228.48	8.21	-93.48	-384.99	387.24	13,923.62	13,881.57	42.05	331.123	
20,741.48	6,945.00	7,250.84	7,001.09	229.14	8.21	-93.48	-384.99	387.24	13,965.10	13,923.01	42.09	331.777	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 705H
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 705H	**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 #3	**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	Rule Assigned: Warning
0.00	0.00	0.00	0.00	0.00	0.00	-13.85	859.57	-211.85	887.32				
100.00	100.00	38.18	38.18	0.25	0.70	-13.84	859.62	-211.82	885.33	884.39	0.95	935.093	CC
200.00	200.00	135.46	135.46	0.61	2.47	-13.81	860.13	-211.48	885.76	882.68	3.08	287.651	
300.00	300.00	237.18	237.18	0.97	4.32	-13.77	860.74	-210.98	886.23	880.94	5.28	167.737	
400.00	400.00	343.69	343.68	1.33	5.77	-13.73	860.87	-210.33	886.20	879.11	7.10	124.900	
500.00	500.00	443.23	443.22	1.68	6.86	-13.69	860.63	-209.68	885.81	877.26	8.55	103.616	
510.70	510.70	453.86	453.85	1.72	7.00	-161.42	860.60	-209.62	885.79	877.06	8.72	101.546	
600.00	599.98	543.84	543.82	2.03	8.24	-161.42	860.39	-209.04	887.09	876.82	10.27	86.399	ES
700.00	699.84	643.31	643.29	2.37	9.75	-161.45	860.13	-208.34	891.63	879.52	12.11	73.622	
795.17	794.65	738.36	738.34	2.69	11.30	-161.54	859.92	-207.67	899.05	885.05	13.99	64.244	
800.00	799.45	743.30	743.28	2.71	11.38	-161.54	859.90	-207.64	899.50	885.40	14.10	63.817	
900.00	898.92	843.82	843.80	3.06	12.97	-161.72	859.60	-207.01	908.83	892.80	16.03	56.704	
1,000.00	998.39	944.88	944.86	3.43	14.38	-161.90	859.08	-206.44	917.97	900.18	17.79	51.614	
1,100.00	1,097.86	1,044.99	1,044.96	3.79	15.97	-162.06	858.53	-205.73	927.04	907.32	19.73	46.996	
1,200.00	1,197.33	1,145.98	1,145.95	4.16	17.69	-162.21	857.90	-204.86	936.02	914.22	21.80	42.932	
1,300.00	1,296.80	1,244.67	1,244.63	4.53	19.49	-162.35	857.28	-203.82	944.96	920.99	23.97	39.430	
1,400.00	1,396.27	1,346.22	1,346.17	4.91	21.37	-162.49	856.61	-202.76	953.87	927.67	26.20	36.411	
1,500.00	1,495.74	1,447.40	1,447.34	5.28	23.35	-162.61	855.90	-201.44	962.68	934.15	28.53	33.737	
1,600.00	1,595.21	1,548.02	1,547.94	5.66	25.45	-162.71	854.98	-199.74	971.18	940.19	31.00	31.333	
1,700.00	1,694.68	1,642.68	1,642.59	6.04	27.44	-162.80	854.40	-198.12	979.97	946.62	33.35	29.385	
1,800.00	1,794.15	1,740.07	1,739.97	6.42	29.38	-162.90	854.03	-196.82	989.09	953.44	35.65	27.746	
1,900.00	1,893.62	1,835.66	1,835.56	6.80	31.08	-163.04	853.83	-196.19	998.56	960.85	37.71	26.481	
2,000.00	1,993.09	1,933.61	1,933.50	7.18	32.66	-163.18	853.86	-195.78	1,008.32	968.67	39.65	25.430	
2,100.00	2,092.56	2,033.26	2,033.15	7.56	34.23	-163.34	853.88	-195.52	1,018.13	976.55	41.58	24.488	
2,200.00	2,192.03	2,131.74	2,131.63	7.94	35.52	-163.49	853.89	-195.39	1,027.96	984.73	43.23	23.779	
2,300.00	2,291.50	2,226.85	2,226.75	8.32	34.32	-163.66	854.04	-195.69	1,038.07	995.68	42.39	24.490	
2,400.00	2,390.97	2,325.54	2,325.43	8.70	33.01	-163.85	854.36	-196.40	1,048.45	1,007.01	41.45	25.296	
2,500.00	2,490.44	2,424.97	2,424.85	9.08	31.75	-164.03	854.67	-197.05	1,058.83	1,018.28	40.54	26.115	
2,600.00	2,589.91	2,524.93	2,524.81	9.47	30.58	-164.21	855.06	-197.72	1,069.28	1,029.54	39.74	26.905	
2,700.00	2,689.38	2,624.15	2,624.03	9.85	29.84	-164.37	855.52	-198.05	1,079.72	1,040.36	39.36	27.431	
2,800.00	2,788.85	2,722.47	2,722.35	10.23	29.89	-164.51	856.09	-198.08	1,090.20	1,050.43	39.77	27.411	
2,900.00	2,888.32	2,822.19	2,822.07	10.61	30.59	-164.63	856.67	-197.88	1,100.61	1,059.78	40.83	26.954	
3,000.00	2,987.79	2,918.68	2,918.56	11.00	30.79	-164.76	857.38	-197.97	1,111.26	1,069.87	41.39	26.847	
3,100.00	3,087.25	3,017.39	3,017.26	11.38	30.66	-164.91	858.13	-198.34	1,122.02	1,080.40	41.62	26.956	
3,200.00	3,186.72	3,120.33	3,120.20	11.76	31.43	-165.03	858.95	-198.26	1,132.70	1,089.94	42.76	26.489	
3,300.00	3,286.19	3,220.70	3,220.57	12.15	32.90	-165.13	859.60	-197.74	1,143.09	1,098.49	44.60	25.630	
3,400.00	3,385.66	3,320.40	3,320.26	12.53	34.52	-165.22	860.21	-197.09	1,153.43	1,106.85	46.58	24.762	
3,500.00	3,485.13	3,419.56	3,419.42	12.91	36.14	-165.31	860.84	-196.46	1,163.79	1,115.23	48.56	23.964	
3,600.00	3,584.60	3,518.49	3,518.34	13.30	37.75	-165.40	861.47	-195.85	1,174.17	1,123.63	50.54	23.235	
3,700.00	3,684.07	3,624.33	3,624.18	13.68	39.52	-165.50	861.93	-195.17	1,184.33	1,131.66	52.68	22.482	
3,800.00	3,783.54	3,720.52	3,720.37	14.06	41.03	-165.59	862.26	-194.73	1,194.48	1,139.93	54.55	21.898	
3,900.00	3,883.01	3,822.48	3,822.33	14.45	41.39	-165.71	862.32	-194.63	1,204.47	1,149.20	55.27	21.793	SF
4,000.00	3,982.48	3,925.63	3,925.47	14.83	40.21	-165.86	862.05	-195.05	1,214.32	1,159.87	54.46	22.299	
4,100.00	4,081.95	4,024.04	4,023.88	15.22	39.18	-166.01	861.60	-195.81	1,224.11	1,170.31	53.79	22.757	
4,200.00	4,181.42	4,122.03	4,121.87	15.60	38.15	-166.16	861.29	-196.55	1,234.03	1,180.91	53.13	23.228	
4,300.00	4,280.89	4,226.07	4,225.90	15.98	37.20	-166.33	860.89	-197.39	1,243.93	1,191.39	52.54	23.676	
4,400.00	4,380.36	4,320.71	4,320.54	16.37	36.42	-166.47	860.46	-198.16	1,253.75	1,201.63	52.12	24.056	
4,500.00	4,479.83	4,419.16	4,418.98	16.75	35.57	-166.62	860.17	-198.89	1,263.72	1,212.08	51.64	24.472	
4,600.00	4,579.30	4,524.58	4,524.40	17.14	34.81	-166.77	859.76	-199.65	1,273.61	1,222.37	51.24	24.855	
4,700.00	4,678.77	4,626.01	4,625.83	17.52	34.35	-166.91	859.05	-200.30	1,283.17	1,232.02	51.15	25.087	
4,800.00	4,778.24	4,727.32	4,727.13	17.90	34.07	-167.05	858.28	-200.78	1,292.64	1,241.40	51.24	25.229	
4,900.00	4,877.71	4,825.82	4,825.63	18.29	34.04	-167.18	857.46	-201.16	1,302.02	1,250.45	51.57	25.247	

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 705H
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 705H	**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 #3	**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	Rule Assigned: Warning
5,000.00	4,977.18	4,923.55	4,923.35	18.67	33.93	-167.30	856.79	-201.64	1,311.57	1,259.75	51.82	25.312	
5,100.00	5,076.65	5,025.87	5,025.67	19.06	33.99	-167.45	855.91	-202.36	1,321.03	1,268.79	52.24	25.285	
5,200.00	5,176.12	5,124.89	5,124.69	19.44	34.08	-167.58	855.15	-202.92	1,330.56	1,277.86	52.70	25.247	
5,300.00	5,275.59	5,221.13	5,220.92	19.83	34.29	-167.71	854.39	-203.67	1,340.13	1,286.86	53.27	25.160	
5,400.00	5,375.06	5,322.98	5,322.76	20.21	34.53	-167.85	853.67	-204.51	1,349.80	1,295.93	53.87	25.056	
5,500.00	5,474.53	5,421.93	5,421.70	20.59	35.13	-167.99	852.69	-205.49	1,359.28	1,304.44	54.84	24.786	
5,600.00	5,574.00	5,520.65	5,520.41	20.98	35.90	-168.15	851.65	-206.71	1,368.79	1,312.82	55.98	24.453	
5,700.00	5,673.47	5,627.42	5,627.17	21.36	36.85	-168.29	850.43	-207.65	1,378.11	1,320.82	57.29	24.055	
5,800.00	5,772.94	5,722.29	5,722.03	21.75	37.78	-168.42	849.34	-208.36	1,387.37	1,328.79	58.58	23.684	
5,900.00	5,872.41	5,827.39	5,827.12	22.13	38.92	-168.54	848.13	-208.82	1,396.53	1,336.44	60.09	23.240	
6,000.00	5,971.88	5,926.94	5,926.67	22.52	40.17	-168.66	846.86	-209.19	1,405.57	1,343.86	61.70	22.779	
6,100.00	6,071.35	6,026.49	6,026.21	22.90	41.42	-168.78	845.60	-209.57	1,414.61	1,351.29	63.32	22.342	
6,200.00	6,170.81	6,028.00	6,027.71	23.28	41.44	-168.78	845.58	-209.58	1,427.03	1,363.53	63.50	22.472	
6,300.00	6,270.28	6,028.00	6,027.71	23.67	41.44	-168.78	845.58	-209.58	1,446.27	1,382.84	63.43	22.802	
6,375.94	6,345.82	6,028.00	6,027.71	23.96	41.44	-168.78	845.58	-209.58	1,465.28	1,402.06	63.22	23.177	
6,400.00	6,369.72	6,028.00	6,027.71	24.05	41.44	-153.70	845.58	-209.58	1,472.22	1,409.09	63.13	23.319	
6,450.00	6,419.09	6,028.00	6,027.71	24.25	41.44	-136.09	845.58	-209.58	1,488.74	1,425.82	62.92	23.660	
6,500.00	6,467.78	6,028.00	6,027.71	24.46	41.44	-126.66	845.58	-209.58	1,507.92	1,445.25	62.68	24.058	
6,550.00	6,515.51	6,028.00	6,027.71	24.67	41.44	-120.30	845.58	-209.58	1,529.54	1,467.14	62.41	24.508	
6,600.00	6,561.97	6,028.00	6,027.71	24.88	41.44	-115.23	845.58	-209.58	1,553.38	1,491.25	62.13	25.003	
6,650.00	6,606.89	6,028.00	6,027.71	25.10	41.44	-110.74	845.58	-209.58	1,579.17	1,517.33	61.84	25.537	
6,700.00	6,649.98	6,028.00	6,027.71	25.32	41.44	-106.48	845.58	-209.58	1,606.69	1,545.13	61.56	26.100	
6,750.00	6,690.98	6,028.00	6,027.71	25.54	41.44	-102.31	845.58	-209.58	1,635.67	1,574.38	61.29	26.687	
6,800.00	6,729.64	6,028.00	6,027.71	25.77	41.44	-98.15	845.58	-209.58	1,665.86	1,604.82	61.05	27.289	
6,850.00	6,765.71	6,028.00	6,027.71	26.00	41.44	-93.98	845.58	-209.58	1,697.03	1,636.20	60.83	27.898	
6,900.00	6,798.98	6,028.00	6,027.71	26.24	41.44	-89.80	845.58	-209.58	1,728.92	1,668.27	60.65	28.507	
6,950.00	6,829.24	6,028.00	6,027.71	26.49	41.44	-85.64	845.58	-209.58	1,761.31	1,700.81	60.51	29.109	
7,000.00	6,856.30	6,028.00	6,027.71	26.76	41.44	-81.54	845.58	-209.58	1,793.98	1,733.57	60.41	29.698	
7,050.00	6,880.00	6,028.00	6,027.71	27.03	41.44	-77.56	845.58	-209.58	1,826.72	1,766.36	60.35	30.267	
7,100.00	6,900.19	6,028.00	6,027.71	27.32	41.44	-73.73	845.58	-209.58	1,859.32	1,798.97	60.35	30.811	
7,150.00	6,916.74	6,028.00	6,027.71	27.62	41.44	-70.09	845.58	-209.58	1,891.60	1,831.22	60.38	31.326	
7,200.00	6,929.56	6,028.00	6,027.71	27.93	41.44	-66.68	845.58	-209.58	1,923.38	1,862.91	60.47	31.808	
7,250.00	6,938.57	6,028.00	6,027.71	28.26	41.44	-63.51	845.58	-209.58	1,954.49	1,893.90	60.60	32.254	
7,300.00	6,943.70	6,028.00	6,027.71	28.60	41.44	-60.59	845.58	-209.58	1,984.78	1,924.02	60.77	32.662	
7,340.76	6,945.00	6,028.00	6,027.71	28.88	41.44	-58.41	845.58	-209.58	2,008.76	1,947.83	60.94	32.965	
7,400.00	6,945.00	6,028.00	6,027.71	29.31	41.44	-58.41	845.58	-209.58	2,043.69	1,982.48	61.21	33.391	
7,500.00	6,945.00	6,028.00	6,027.71	30.09	41.44	-58.41	845.58	-209.58	2,105.11	2,043.44	61.66	34.138	
7,600.00	6,945.00	6,028.00	6,027.71	30.93	41.44	-58.41	845.58	-209.58	2,169.40	2,107.28	62.12	34.924	
7,700.00	6,945.00	6,028.00	6,027.71	31.83	41.44	-58.41	845.58	-209.58	2,236.31	2,173.75	62.56	35.745	
7,800.00	6,945.00	6,028.00	6,027.71	32.79	41.44	-58.41	845.58	-209.58	2,305.63	2,242.63	62.99	36.602	
7,900.00	6,945.00	6,028.00	6,027.71	33.79	41.44	-58.41	845.58	-209.58	2,377.12	2,313.72	63.41	37.490	
8,000.00	6,945.00	6,028.00	6,027.71	34.84	41.44	-58.41	845.58	-209.58	2,450.62	2,386.81	63.80	38.408	
8,100.00	6,945.00	6,028.00	6,027.71	35.93	41.44	-58.41	845.58	-209.58	2,525.93	2,461.75	64.18	39.355	
8,200.00	6,945.00	6,028.00	6,027.71	37.06	41.44	-58.41	845.58	-209.58	2,602.91	2,538.37	64.54	40.327	
8,300.00	6,945.00	6,028.00	6,027.71	38.23	41.44	-58.41	845.58	-209.58	2,681.41	2,616.53	64.89	41.324	
8,400.00	6,945.00	6,028.00	6,027.71	39.42	41.44	-58.41	845.58	-209.58	2,761.30	2,696.09	65.21	42.343	
8,500.00	6,945.00	6,028.00	6,027.71	40.65	41.44	-58.41	845.58	-209.58	2,842.46	2,776.94	65.52	43.383	
8,600.00	6,945.00	6,028.00	6,027.71	41.90	41.44	-58.41	845.58	-209.58	2,924.79	2,858.98	65.81	44.441	
8,700.00	6,945.00	6,028.00	6,027.71	43.17	41.44	-58.41	845.58	-209.58	3,008.19	2,942.10	66.09	45.517	
8,800.00	6,945.00	6,028.00	6,027.71	44.46	41.44	-58.41	845.58	-209.58	3,092.58	3,026.23	66.35	46.609	
8,900.00	6,945.00	6,028.00	6,027.71	45.78	41.44	-58.41	845.58	-209.58	3,177.87	3,111.27	66.60	47.715	
9,000.00	6,945.00	6,028.00	6,027.71	47.11	41.44	-58.41	845.58	-209.58	3,263.99	3,197.16	66.84	48.835	

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 705H
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 705H	**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 #3	**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	Rule Assigned: Warning
9,100.00	6,945.00	6,028.00	6,027.71	48.46	41.44	-58.41	845.58	-209.58	3,350.89	3,283.83	67.06	49.967	
9,200.00	6,945.00	6,028.00	6,027.71	49.82	41.44	-58.41	845.58	-209.58	3,438.50	3,371.23	67.27	51.111	
9,300.00	6,945.00	6,028.00	6,027.71	51.20	41.44	-58.41	845.58	-209.58	3,526.77	3,459.29	67.48	52.266	
9,400.00	6,945.00	6,028.00	6,027.71	52.59	41.44	-58.41	845.58	-209.58	3,615.65	3,547.98	67.67	53.429	
9,500.00	6,945.00	6,028.00	6,027.71	53.99	41.44	-58.41	845.58	-209.58	3,705.09	3,637.24	67.86	54.602	
9,600.00	6,945.00	6,028.00	6,027.71	55.40	41.44	-58.41	845.58	-209.58	3,795.07	3,727.03	68.03	55.783	
9,700.00	6,945.00	6,028.00	6,027.71	56.83	41.44	-58.41	845.58	-209.58	3,885.53	3,817.33	68.20	56.971	
9,800.00	6,945.00	6,028.00	6,027.71	58.26	41.44	-58.41	845.58	-209.58	3,976.45	3,908.09	68.36	58.165	
9,900.00	6,945.00	6,028.00	6,027.71	59.70	41.44	-58.41	845.58	-209.58	4,067.80	3,999.28	68.52	59.366	
10,000.00	6,945.00	6,028.00	6,027.71	61.15	41.44	-58.41	845.58	-209.58	4,159.54	4,090.87	68.67	60.573	
10,100.00	6,945.00	6,028.00	6,027.71	62.61	41.44	-58.41	845.58	-209.58	4,251.66	4,182.84	68.81	61.784	
10,200.00	6,945.00	6,028.00	6,027.71	64.07	41.44	-58.41	845.58	-209.58	4,344.12	4,275.17	68.95	63.001	
10,300.00	6,945.00	6,028.00	6,027.71	65.54	41.44	-58.41	845.58	-209.58	4,436.92	4,367.83	69.09	64.221	
10,400.00	6,945.00	6,028.00	6,027.71	67.02	41.44	-58.41	845.58	-209.58	4,530.02	4,460.80	69.22	65.446	
10,500.00	6,945.00	6,028.00	6,027.71	68.50	41.44	-58.41	845.58	-209.58	4,623.40	4,554.06	69.34	66.674	
10,600.00	6,945.00	6,028.00	6,027.71	69.99	41.44	-58.41	845.58	-209.58	4,717.06	4,647.60	69.47	67.905	
10,700.00	6,945.00	6,028.00	6,027.71	71.48	41.44	-58.41	845.58	-209.58	4,810.97	4,741.39	69.58	69.138	
10,800.00	6,945.00	6,028.00	6,027.71	72.98	41.44	-58.41	845.58	-209.58	4,905.13	4,835.43	69.70	70.375	
10,900.00	6,945.00	6,028.00	6,027.71	74.48	41.44	-58.41	845.58	-209.58	4,999.51	4,929.70	69.81	71.613	
11,000.00	6,945.00	6,028.00	6,027.71	75.99	41.44	-58.41	845.58	-209.58	5,094.11	5,024.18	69.92	72.854	
11,100.00	6,945.00	6,028.00	6,027.71	77.50	41.44	-58.41	845.58	-209.58	5,188.90	5,118.87	70.03	74.096	
11,200.00	6,945.00	6,028.00	6,027.71	79.01	41.44	-58.41	845.58	-209.58	5,283.89	5,213.76	70.13	75.339	
11,300.00	6,945.00	6,028.00	6,027.71	80.53	41.44	-58.41	845.58	-209.58	5,379.07	5,308.83	70.24	76.584	
11,400.00	6,945.00	6,028.00	6,027.71	82.05	41.44	-58.41	845.58	-209.58	5,474.41	5,404.07	70.34	77.830	
11,500.00	6,945.00	6,028.00	6,027.71	83.57	41.44	-58.41	845.58	-209.58	5,569.92	5,499.48	70.44	79.077	
11,600.00	6,945.00	6,028.00	6,027.71	85.10	41.44	-58.41	845.58	-209.58	5,665.58	5,595.05	70.53	80.324	
11,700.00	6,945.00	6,028.00	6,027.71	86.63	41.44	-58.41	845.58	-209.58	5,761.39	5,690.76	70.63	81.572	
11,800.00	6,945.00	6,028.00	6,027.71	88.16	41.44	-58.41	845.58	-209.58	5,857.34	5,786.62	70.72	82.820	
11,900.00	6,945.00	6,028.00	6,027.71	89.69	41.44	-58.41	845.58	-209.58	5,953.42	5,882.61	70.82	84.069	
12,000.00	6,945.00	6,028.00	6,027.71	91.23	41.44	-58.41	845.58	-209.58	6,049.63	5,978.72	70.91	85.317	
12,100.00	6,945.00	6,028.00	6,027.71	92.77	41.44	-58.41	845.58	-209.58	6,145.96	6,074.96	71.00	86.565	
12,200.00	6,945.00	6,028.00	6,027.71	94.31	41.44	-58.41	845.58	-209.58	6,242.41	6,171.32	71.09	87.813	
12,300.00	6,945.00	6,028.00	6,027.71	95.85	41.44	-58.41	845.58	-209.58	6,338.97	6,267.79	71.18	89.061	
12,400.00	6,945.00	6,028.00	6,027.71	97.40	41.44	-58.41	845.58	-209.58	6,435.63	6,364.36	71.26	90.308	
12,500.00	6,945.00	6,028.00	6,027.71	98.95	41.44	-58.41	845.58	-209.58	6,532.39	6,461.04	71.35	91.555	
12,600.00	6,945.00	6,028.00	6,027.71	100.50	41.44	-58.41	845.58	-209.58	6,629.25	6,557.81	71.44	92.800	
12,700.00	6,945.00	6,028.00	6,027.71	102.05	41.44	-58.41	845.58	-209.58	6,726.20	6,654.68	71.52	94.045	
12,800.00	6,945.00	6,028.00	6,027.71	103.60	41.44	-58.41	845.58	-209.58	6,823.24	6,751.63	71.61	95.289	
12,900.00	6,945.00	6,028.00	6,027.71	105.15	41.44	-58.41	845.58	-209.58	6,920.36	6,848.67	71.69	96.532	
13,000.00	6,945.00	6,028.00	6,027.71	106.71	41.44	-58.41	845.58	-209.58	7,017.56	6,945.79	71.77	97.774	
13,100.00	6,945.00	6,028.00	6,027.71	108.26	41.44	-58.41	845.58	-209.58	7,114.84	7,042.99	71.86	99.015	
13,200.00	6,945.00	6,028.00	6,027.71	109.82	41.44	-58.41	845.58	-209.58	7,212.20	7,140.26	71.94	100.255	
13,300.00	6,945.00	6,028.00	6,027.71	111.38	41.44	-58.41	845.58	-209.58	7,309.62	7,237.60	72.02	101.493	
13,400.00	6,945.00	6,028.00	6,027.71	112.94	41.44	-58.41	845.58	-209.58	7,407.12	7,335.02	72.10	102.729	
13,500.00	6,945.00	6,028.00	6,027.71	114.50	41.44	-58.41	845.58	-209.58	7,504.68	7,432.50	72.19	103.964	
13,600.00	6,945.00	6,028.00	6,027.71	116.07	41.44	-58.41	845.58	-209.58	7,602.31	7,530.04	72.27	105.198	
13,700.00	6,945.00	6,028.00	6,027.71	117.63	41.44	-58.41	845.58	-209.58	7,699.99	7,627.64	72.35	106.430	
13,800.00	6,945.00	6,028.00	6,027.71	119.19	41.44	-58.41	845.58	-209.58	7,797.74	7,725.31	72.43	107.660	
13,900.00	6,945.00	6,028.00	6,027.71	120.76	41.44	-58.41	845.58	-209.58	7,895.54	7,823.03	72.51	108.889	
14,000.00	6,945.00	6,028.00	6,027.71	122.33	41.44	-58.41	845.58	-209.58	7,993.39	7,920.80	72.59	110.115	
14,100.00	6,945.00	6,028.00	6,027.71	123.90	41.44	-58.41	845.58	-209.58	8,091.30	8,018.63	72.67	111.340	
14,200.00	6,945.00	6,028.00	6,027.71	125.46	41.44	-58.41	845.58	-209.58	8,189.26	8,116.50	72.75	112.563	

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 705H
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 705H	**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 #3	**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
14,300.00	6,945.00	6,028.00	6,027.71	127.03	41.44	-58.41	845.58	-209.58	8,287.26	8,214.43	72.83	113.784	
14,400.00	6,945.00	6,028.00	6,027.71	128.60	41.44	-58.41	845.58	-209.58	8,385.32	8,312.40	72.91	115.002	
14,500.00	6,945.00	6,028.00	6,027.71	130.18	41.44	-58.41	845.58	-209.58	8,483.42	8,410.42	73.00	116.219	
14,600.00	6,945.00	6,028.00	6,027.71	131.75	41.44	-58.41	845.58	-209.58	8,581.56	8,508.48	73.08	117.433	
14,700.00	6,945.00	6,028.00	6,027.71	133.32	41.44	-58.41	845.58	-209.58	8,679.75	8,606.59	73.16	118.646	
14,800.00	6,945.00	6,028.00	6,027.71	134.89	41.44	-58.41	845.58	-209.58	8,777.97	8,704.73	73.24	119.856	
14,900.00	6,945.00	6,028.00	6,027.71	136.47	41.44	-58.41	845.58	-209.58	8,876.24	8,802.92	73.32	121.063	
15,000.00	6,945.00	6,028.00	6,027.71	138.04	41.44	-58.41	845.58	-209.58	8,974.54	8,901.14	73.40	122.269	
15,100.00	6,945.00	6,028.00	6,027.71	139.62	41.44	-58.41	845.58	-209.58	9,072.88	8,999.40	73.48	123.472	
15,200.00	6,945.00	6,028.00	6,027.71	141.20	41.44	-58.41	845.58	-209.58	9,171.26	9,097.70	73.56	124.673	
15,300.00	6,945.00	6,028.00	6,027.71	142.77	41.44	-58.41	845.58	-209.58	9,269.67	9,196.03	73.64	125.871	
15,400.00	6,945.00	6,028.00	6,027.71	144.35	41.44	-58.41	845.58	-209.58	9,368.12	9,294.39	73.73	127.067	
15,500.00	6,945.00	6,028.00	6,027.71	145.93	41.44	-58.41	845.58	-209.58	9,466.60	9,392.79	73.81	128.260	
15,600.00	6,945.00	6,028.00	6,027.71	147.51	41.44	-58.41	845.58	-209.58	9,565.11	9,491.22	73.89	129.451	
15,700.00	6,945.00	6,028.00	6,027.71	149.09	41.44	-58.41	845.58	-209.58	9,663.65	9,589.68	73.97	130.639	
15,800.00	6,945.00	6,028.00	6,027.71	150.67	41.44	-58.41	845.58	-209.58	9,762.22	9,688.17	74.05	131.825	
15,900.00	6,945.00	6,028.00	6,027.71	152.25	41.44	-58.41	845.58	-209.58	9,860.82	9,786.68	74.14	133.008	
16,000.00	6,945.00	6,028.00	6,027.71	153.83	41.44	-58.41	845.58	-209.58	9,959.45	9,885.23	74.22	134.188	
16,100.00	6,945.00	6,028.00	6,027.71	155.41	41.44	-58.41	845.58	-209.58	10,058.10	9,983.80	74.30	135.366	
16,200.00	6,945.00	6,028.00	6,027.71	156.99	41.44	-58.41	845.58	-209.58	10,156.78	10,082.39	74.39	136.541	
16,300.00	6,945.00	6,028.00	6,027.71	158.57	41.44	-58.41	845.58	-209.58	10,255.49	10,181.02	74.47	137.713	
16,400.00	6,945.00	6,028.00	6,027.71	160.15	41.44	-58.41	845.58	-209.58	10,354.22	10,279.66	74.55	138.882	
16,500.00	6,945.00	6,028.00	6,027.71	161.74	41.44	-58.41	845.58	-209.58	10,452.97	10,378.33	74.64	140.049	
16,600.00	6,945.00	6,028.00	6,027.71	163.32	41.44	-58.41	845.58	-209.58	10,551.75	10,477.03	74.72	141.213	
16,700.00	6,945.00	6,028.00	6,027.71	164.90	41.44	-58.41	845.58	-209.58	10,650.55	10,575.74	74.81	142.374	
16,800.00	6,945.00	6,028.00	6,027.71	166.49	41.44	-58.41	845.58	-209.58	10,749.37	10,674.48	74.89	143.532	
16,900.00	6,945.00	6,028.00	6,027.71	168.07	41.44	-58.41	845.58	-209.58	10,848.22	10,773.24	74.98	144.687	
17,000.00	6,945.00	6,028.00	6,027.71	169.66	41.44	-58.41	845.58	-209.58	10,947.09	10,872.02	75.06	145.840	
17,100.00	6,945.00	6,028.00	6,027.71	171.24	41.44	-58.41	845.58	-209.58	11,045.97	10,970.82	75.15	146.989	
17,200.00	6,945.00	6,028.00	6,027.71	172.83	41.44	-58.41	845.58	-209.58	11,144.88	11,069.64	75.23	148.136	
17,300.00	6,945.00	6,028.00	6,027.71	174.41	41.44	-58.41	845.58	-209.58	11,243.80	11,168.48	75.32	149.280	
17,400.00	6,945.00	6,028.00	6,027.71	176.00	41.44	-58.41	845.58	-209.58	11,342.75	11,267.34	75.41	150.420	
17,500.00	6,945.00	6,028.00	6,027.71	177.59	41.44	-58.41	845.58	-209.58	11,441.71	11,366.22	75.49	151.558	
17,600.00	6,945.00	6,028.00	6,027.71	179.17	41.44	-58.41	845.58	-209.58	11,540.69	11,465.11	75.58	152.693	
17,700.00	6,945.00	6,028.00	6,027.71	180.76	41.44	-58.41	845.58	-209.58	11,639.69	11,564.02	75.67	153.824	
17,800.00	6,945.00	6,028.00	6,027.71	182.35	41.44	-58.41	845.58	-209.58	11,738.70	11,662.95	75.76	154.953	
17,900.00	6,945.00	6,028.00	6,027.71	183.93	41.44	-58.41	845.58	-209.58	11,837.74	11,761.89	75.84	156.079	
18,000.00	6,945.00	6,028.00	6,027.71	185.52	41.44	-58.41	845.58	-209.58	11,936.78	11,860.85	75.93	157.201	
18,100.00	6,945.00	6,028.00	6,027.71	187.11	41.44	-58.41	845.58	-209.58	12,035.85	11,959.83	76.02	158.321	
18,200.00	6,945.00	6,028.00	6,027.71	188.70	41.44	-58.41	845.58	-209.58	12,134.93	12,058.82	76.11	159.438	
18,300.00	6,945.00	6,028.00	6,027.71	190.29	41.44	-58.41	845.58	-209.58	12,234.02	12,157.82	76.20	160.551	
18,400.00	6,945.00	6,028.00	6,027.71	191.88	41.44	-58.41	845.58	-209.58	12,333.13	12,256.84	76.29	161.661	
18,500.00	6,945.00	6,028.00	6,027.71	193.46	41.44	-58.41	845.58	-209.58	12,432.25	12,355.87	76.38	162.769	
18,600.00	6,945.00	6,028.00	6,027.71	195.05	41.44	-58.41	845.58	-209.58	12,531.39	12,454.92	76.47	163.873	
18,700.00	6,945.00	6,028.00	6,027.71	196.64	41.44	-58.41	845.58	-209.58	12,630.54	12,553.98	76.56	164.974	
18,800.00	6,945.00	6,028.00	6,027.71	198.23	41.44	-58.41	845.58	-209.58	12,729.70	12,653.05	76.65	166.072	
18,900.00	6,945.00	6,028.00	6,027.71	199.82	41.44	-58.41	845.58	-209.58	12,828.88	12,752.14	76.74	167.166	
19,000.00	6,945.00	6,028.00	6,027.71	201.41	41.44	-58.41	845.58	-209.58	12,928.07	12,851.23	76.83	168.258	
19,100.00	6,945.00	6,028.00	6,027.71	203.00	41.44	-58.41	845.58	-209.58	13,027.27	12,950.34	76.93	169.346	
19,200.00	6,945.00	6,028.00	6,027.71	204.60	41.44	-58.41	845.58	-209.58	13,126.48	13,049.46	77.02	170.432	
19,300.00	6,945.00	6,028.00	6,027.71	206.19	41.44	-58.41	845.58	-209.58	13,225.71	13,148.60	77.11	171.514	
19,400.00	6,945.00	6,028.00	6,027.71	207.78	41.44	-58.41	845.58	-209.58	13,324.95	13,247.74	77.20	172.593	

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 705H
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 705H	**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 #3	**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

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
19,500.00	6,945.00	6,028.00	6,027.71	209.37	41.44	-58.41	845.58	-209.58	13,424.19	13,346.90	77.30	173.669	
19,600.00	6,945.00	6,028.00	6,027.71	210.96	41.44	-58.41	845.58	-209.58	13,523.45	13,446.06	77.39	174.741	
19,700.00	6,945.00	6,028.00	6,027.71	212.55	41.44	-58.41	845.58	-209.58	13,622.72	13,545.24	77.49	175.811	
19,800.00	6,945.00	6,028.00	6,027.71	214.14	41.44	-58.41	845.58	-209.58	13,722.01	13,644.43	77.58	176.877	
19,900.00	6,945.00	6,028.00	6,027.71	215.74	41.44	-58.41	845.58	-209.58	13,821.30	13,743.62	77.67	177.940	
20,000.00	6,945.00	6,028.00	6,027.71	217.33	41.44	-58.41	845.58	-209.58	13,920.60	13,842.83	77.77	179.000	
20,100.00	6,945.00	6,028.00	6,027.71	218.92	41.44	-58.41	845.58	-209.58	14,019.91	13,942.05	77.86	180.057	
20,200.00	6,945.00	6,028.00	6,027.71	220.51	41.44	-58.41	845.58	-209.58	14,119.23	14,041.27	77.96	181.110	
20,300.00	6,945.00	6,028.00	6,027.71	222.11	41.44	-58.41	845.58	-209.58	14,218.56	14,140.51	78.06	182.160	
20,400.00	6,945.00	6,028.00	6,027.71	223.70	41.44	-58.41	845.58	-209.58	14,317.90	14,239.75	78.15	183.207	
20,500.00	6,945.00	6,028.00	6,027.71	225.29	41.44	-58.41	845.58	-209.58	14,417.25	14,339.00	78.25	184.251	
20,600.00	6,945.00	6,028.00	6,027.71	226.88	41.44	-58.41	845.58	-209.58	14,516.61	14,438.26	78.34	185.292	
20,700.00	6,945.00	6,028.00	6,027.71	228.48	41.44	-58.41	845.58	-209.58	14,615.98	14,537.53	78.44	186.329	
20,741.48	6,945.00	6,028.00	6,027.71	229.14	41.44	-58.41	845.58	-209.58	14,657.19	14,578.71	78.48	186.759	

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 705H
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 705H	**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 #3	**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	-18.59	855.38	-287.69	904.39				
100.00	100.00	37.84	37.84	0.25	0.07	-18.60	855.37	-287.93	902.54	902.21	0.33	2,740.180	CC, ES
200.00	200.00	130.05	130.01	0.61	0.27	-18.76	855.26	-290.52	903.32	902.44	0.88	1,028.328	
300.00	300.00	222.01	221.80	0.97	0.47	-19.09	855.01	-295.95	904.99	903.56	1.43	634.427	
400.00	400.00	313.55	312.97	1.33	0.66	-19.59	854.64	-304.17	907.58	905.61	1.97	460.039	
500.00	500.00	404.49	403.25	1.68	0.85	-20.25	854.14	-315.10	911.19	908.67	2.52	362.017	
600.00	599.98	494.54	492.27	2.03	1.04	-168.78	853.53	-328.64	917.61	914.57	3.05	301.339	
700.00	699.84	582.75	579.03	2.37	1.27	-169.73	852.81	-344.50	928.69	925.08	3.61	257.271	
795.17	794.65	671.42	666.14	2.69	1.61	-170.73	851.97	-361.03	942.87	938.62	4.26	221.486	
800.00	799.45	674.69	669.36	2.71	1.62	-170.77	851.97	-361.65	943.72	939.43	4.29	219.923	
900.00	898.92	728.91	722.37	3.06	1.87	-171.44	852.81	-372.98	963.69	958.84	4.85	198.743	
1,000.00	998.39	808.92	799.71	3.43	2.28	-172.55	855.63	-393.23	987.55	982.01	5.54	178.317	
1,100.00	1,097.86	869.78	858.15	3.79	2.62	-173.44	857.87	-410.06	1,013.32	1,007.17	6.15	164.802	
1,200.00	1,197.33	940.74	925.58	4.16	3.06	-174.50	862.10	-431.75	1,042.67	1,035.84	6.83	152.661	
1,300.00	1,296.80	1,017.00	997.34	4.53	3.58	-175.70	866.63	-457.13	1,074.00	1,066.44	7.56	142.056	
1,400.00	1,396.27	1,088.62	1,063.94	4.91	4.13	-176.89	870.93	-483.12	1,107.50	1,099.21	8.29	133.602	
1,500.00	1,495.74	1,162.59	1,132.11	5.28	4.71	-178.12	875.56	-511.45	1,142.97	1,133.95	9.02	126.673	
1,600.00	1,595.21	1,228.91	1,192.98	5.66	5.25	-179.17	880.45	-537.33	1,180.42	1,170.73	9.70	121.732	
1,700.00	1,694.68	1,297.00	1,254.58	6.04	5.83	179.73	886.33	-565.73	1,220.75	1,210.38	10.37	117.712	
1,800.00	1,794.15	1,467.08	1,408.89	6.42	7.22	176.96	892.00	-636.87	1,257.46	1,245.63	11.82	106.350	
1,900.00	1,893.62	1,548.33	1,482.85	6.80	7.88	175.69	892.80	-670.49	1,293.72	1,281.12	12.60	102.672	
2,000.00	1,993.09	1,618.24	1,546.25	7.18	8.49	174.64	893.82	-699.93	1,331.47	1,318.18	13.30	100.143	
2,100.00	2,092.56	1,683.39	1,604.97	7.56	9.08	173.69	895.49	-728.10	1,371.29	1,357.34	13.95	98.327	
2,200.00	2,192.03	1,750.34	1,665.02	7.94	9.70	172.76	897.98	-757.61	1,412.99	1,398.39	14.60	96.783	
2,300.00	2,291.50	1,814.31	1,722.14	8.32	10.30	171.91	901.15	-786.24	1,456.47	1,441.26	15.21	95.732	
2,400.00	2,390.97	1,856.00	1,759.21	8.70	10.70	171.38	903.69	-805.14	1,501.96	1,486.34	15.62	96.170	
2,500.00	2,490.44	1,918.92	1,814.71	9.08	11.33	170.61	908.62	-834.36	1,549.49	1,533.29	16.20	95.629	
2,600.00	2,589.91	1,978.06	1,866.27	9.47	11.93	169.93	914.54	-862.71	1,599.47	1,582.73	16.74	95.538	
2,700.00	2,689.38	2,061.48	1,938.88	9.85	12.78	169.02	923.05	-902.90	1,650.17	1,632.68	17.49	94.361	
2,800.00	2,788.85	2,142.60	2,009.48	10.23	13.59	168.18	931.48	-941.93	1,701.25	1,683.05	18.20	93.497	
2,900.00	2,888.32	2,241.50	2,096.12	10.61	14.55	167.30	943.17	-988.16	1,752.51	1,733.47	19.03	92.075	
3,000.00	2,987.79	2,367.13	2,207.57	11.00	15.71	166.27	956.29	-1,044.62	1,801.55	1,781.48	20.07	89.771	
3,100.00	3,087.25	2,506.00	2,331.56	11.38	16.98	165.21	969.04	-1,105.83	1,849.90	1,828.70	21.20	87.240	
3,200.00	3,186.72	2,559.05	2,379.10	11.76	17.47	164.80	972.97	-1,129.05	1,897.17	1,875.52	21.65	87.626	
3,300.00	3,286.19	2,606.69	2,421.26	12.15	17.92	164.44	977.18	-1,150.82	1,946.61	1,924.57	22.04	88.304	
3,400.00	3,385.66	2,721.67	2,522.98	12.53	19.03	163.60	986.60	-1,203.59	1,996.06	1,973.05	23.01	86.754	
3,500.00	3,485.13	2,803.96	2,595.90	12.91	19.80	163.01	992.83	-1,241.20	2,045.26	2,021.57	23.69	86.345	
3,600.00	3,584.60	2,878.91	2,662.32	13.30	20.52	162.53	999.24	-1,275.32	2,095.01	2,070.71	24.30	86.199	
3,700.00	3,684.07	3,351.28	3,102.24	13.68	23.84	160.67	1,036.72	-1,440.97	2,134.63	2,107.24	27.38	77.952	SF
3,800.00	3,783.54	3,337.00	3,088.56	14.06	23.75	160.72	1,036.22	-1,436.89	2,171.11	2,143.66	27.44	79.113	
3,900.00	3,883.01	3,337.00	3,088.56	14.45	23.75	160.72	1,036.22	-1,436.89	2,211.49	2,183.96	27.53	80.328	
4,000.00	3,982.48	3,337.00	3,088.56	14.83	23.75	160.72	1,036.22	-1,436.89	2,255.59	2,228.01	27.58	81.784	
4,100.00	4,081.95	3,337.00	3,088.56	15.22	23.75	160.72	1,036.22	-1,436.89	2,303.19	2,275.60	27.60	83.464	
4,200.00	4,181.42	3,337.00	3,088.56	15.60	23.75	160.72	1,036.22	-1,436.89	2,354.08	2,326.50	27.58	85.350	
4,300.00	4,280.89	3,337.00	3,088.56	15.98	23.75	160.72	1,036.22	-1,436.89	2,408.04	2,380.50	27.54	87.427	
4,400.00	4,380.36	3,337.00	3,088.56	16.37	23.75	160.72	1,036.22	-1,436.89	2,464.89	2,437.40	27.49	89.681	
4,500.00	4,479.83	3,337.00	3,088.56	16.75	23.75	160.72	1,036.22	-1,436.89	2,524.41	2,497.00	27.41	92.095	
4,600.00	4,579.30	3,337.00	3,088.56	17.14	23.75	160.72	1,036.22	-1,436.89	2,586.44	2,559.12	27.32	94.658	
4,700.00	4,678.77	3,337.00	3,088.56	17.52	23.75	160.72	1,036.22	-1,436.89	2,650.79	2,623.56	27.23	97.356	
4,800.00	4,778.24	3,337.00	3,088.56	17.90	23.75	160.72	1,036.22	-1,436.89	2,717.29	2,690.16	27.13	100.175	
4,900.00	4,877.71	3,337.00	3,088.56	18.29	23.75	160.72	1,036.22	-1,436.89	2,785.80	2,758.78	27.02	103.105	
5,000.00	4,977.18	3,337.00	3,088.56	18.67	23.75	160.72	1,036.22	-1,436.89	2,856.16	2,829.25	26.91	106.134	

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 705H
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 705H	**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 #3	**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

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	5,076.65	3,337.00	3,088.56	19.06	23.75	160.72	1,036.22	-1,436.89	2,928.25	2,901.45	26.80	109.250	
5,200.00	5,176.12	3,337.00	3,088.56	19.44	23.75	160.72	1,036.22	-1,436.89	3,001.94	2,975.24	26.70	112.444	
5,300.00	5,275.59	3,337.00	3,088.56	19.83	23.75	160.72	1,036.22	-1,436.89	3,077.12	3,050.52	26.59	115.705	
5,400.00	5,375.06	3,337.00	3,088.56	20.21	23.75	160.72	1,036.22	-1,436.89	3,153.67	3,127.17	26.50	119.024	
5,500.00	5,474.53	3,337.00	3,088.56	20.59	23.75	160.72	1,036.22	-1,436.89	3,231.51	3,205.10	26.40	122.392	
5,600.00	5,574.00	3,337.00	3,088.56	20.98	23.75	160.72	1,036.22	-1,436.89	3,310.53	3,284.22	26.32	125.800	
5,700.00	5,673.47	3,337.00	3,088.56	21.36	23.75	160.72	1,036.22	-1,436.89	3,390.67	3,364.43	26.24	129.239	
5,800.00	5,772.94	3,337.00	3,088.56	21.75	23.75	160.72	1,036.22	-1,436.89	3,471.83	3,445.67	26.16	132.703	
5,900.00	5,872.41	3,337.00	3,088.56	22.13	23.75	160.72	1,036.22	-1,436.89	3,553.96	3,527.86	26.10	136.183	
6,000.00	5,971.88	3,337.00	3,088.56	22.52	23.75	160.72	1,036.22	-1,436.89	3,636.98	3,610.94	26.04	139.672	
6,100.00	6,071.35	3,337.00	3,088.56	22.90	23.75	160.72	1,036.22	-1,436.89	3,720.83	3,694.84	25.99	143.164	
6,200.00	6,170.81	3,337.00	3,088.56	23.28	23.75	160.72	1,036.22	-1,436.89	3,805.47	3,779.52	25.95	146.653	
6,300.00	6,270.28	3,337.00	3,088.56	23.67	23.75	160.72	1,036.22	-1,436.89	3,890.84	3,864.92	25.92	150.131	
6,375.94	6,345.82	3,337.00	3,088.56	23.96	23.75	160.72	1,036.22	-1,436.89	3,956.12	3,930.22	25.90	152.763	
6,400.00	6,369.72	3,337.00	3,088.56	24.05	23.75	177.63	1,036.22	-1,436.89	3,977.06	3,951.16	25.89	153.587	
6,450.00	6,419.09	3,337.00	3,088.56	24.25	23.75	-160.06	1,036.22	-1,436.89	4,021.69	3,995.79	25.89	155.319	
6,500.00	6,467.78	3,337.00	3,088.56	24.46	23.75	-144.34	1,036.22	-1,436.89	4,067.56	4,041.67	25.90	157.075	
6,550.00	6,515.51	3,337.00	3,088.56	24.67	23.75	-129.67	1,036.22	-1,436.89	4,114.36	4,088.46	25.90	158.862	
6,600.00	6,561.97	3,337.00	3,088.56	24.88	23.75	-114.22	1,036.22	-1,436.89	4,161.77	4,135.87	25.90	160.668	
6,650.00	6,606.89	3,337.00	3,088.56	25.10	23.75	-98.11	1,036.22	-1,436.89	4,209.48	4,183.58	25.91	162.483	
6,700.00	6,649.98	3,337.00	3,088.56	25.32	23.75	-82.66	1,036.22	-1,436.89	4,257.20	4,231.29	25.91	164.293	
6,750.00	6,690.98	3,337.00	3,088.56	25.54	23.75	-69.27	1,036.22	-1,436.89	4,304.63	4,278.71	25.92	166.087	
6,800.00	6,729.64	3,337.00	3,088.56	25.77	23.75	-58.50	1,036.22	-1,436.89	4,351.49	4,325.56	25.93	167.848	
6,850.00	6,765.71	3,337.00	3,088.56	26.00	23.75	-50.13	1,036.22	-1,436.89	4,397.52	4,371.58	25.93	169.562	
6,900.00	6,798.98	3,337.00	3,088.56	26.24	23.75	-43.70	1,036.22	-1,436.89	4,442.47	4,416.52	25.95	171.211	
6,950.00	6,829.24	3,337.00	3,088.56	26.49	23.75	-38.73	1,036.22	-1,436.89	4,486.09	4,460.12	25.96	172.776	
7,000.00	6,856.30	3,337.00	3,088.56	26.76	23.75	-34.83	1,036.22	-1,436.89	4,528.16	4,502.17	25.99	174.239	
7,050.00	6,880.00	3,337.00	3,088.56	27.03	23.75	-31.75	1,036.22	-1,436.89	4,568.46	4,542.44	26.02	175.578	
7,100.00	6,900.19	3,337.00	3,088.56	27.32	23.75	-29.28	1,036.22	-1,436.89	4,606.80	4,580.74	26.06	176.773	
7,150.00	6,916.74	3,337.00	3,088.56	27.62	23.75	-27.29	1,036.22	-1,436.89	4,642.99	4,616.88	26.11	177.803	
7,200.00	6,929.56	3,337.00	3,088.56	27.93	23.75	-25.68	1,036.22	-1,436.89	4,676.86	4,650.68	26.18	178.649	
7,250.00	6,938.57	3,337.00	3,088.56	28.26	23.75	-24.36	1,036.22	-1,436.89	4,708.26	4,682.00	26.26	179.293	
7,300.00	6,943.70	3,337.00	3,088.56	28.60	23.75	-23.30	1,036.22	-1,436.89	4,737.03	4,710.67	26.36	179.721	
7,340.76	6,945.00	3,337.00	3,088.56	28.88	23.75	-22.59	1,036.22	-1,436.89	4,758.46	4,732.01	26.45	179.908	
7,400.00	6,945.00	3,337.00	3,088.56	29.31	23.75	-22.59	1,036.22	-1,436.89	4,788.53	4,761.92	26.61	179.980	
7,500.00	6,945.00	3,337.00	3,088.56	30.09	23.75	-22.59	1,036.22	-1,436.89	4,840.50	4,813.60	26.90	179.961	
7,600.00	6,945.00	3,337.00	3,088.56	30.93	23.75	-22.59	1,036.22	-1,436.89	4,893.96	4,866.75	27.21	179.858	
7,700.00	6,945.00	3,337.00	3,088.56	31.83	23.75	-22.59	1,036.22	-1,436.89	4,948.86	4,921.32	27.54	179.693	
7,800.00	6,945.00	3,337.00	3,088.56	32.79	23.75	-22.59	1,036.22	-1,436.89	5,005.16	4,977.28	27.89	179.489	
7,900.00	6,945.00	3,337.00	3,088.56	33.79	23.75	-22.59	1,036.22	-1,436.89	5,062.81	5,034.57	28.24	179.264	
8,000.00	6,945.00	3,337.00	3,088.56	34.84	23.75	-22.59	1,036.22	-1,436.89	5,121.77	5,093.16	28.61	179.034	
8,100.00	6,945.00	3,337.00	3,088.56	35.93	23.75	-22.59	1,036.22	-1,436.89	5,181.98	5,153.00	28.98	178.811	
8,200.00	6,945.00	3,337.00	3,088.56	37.06	23.75	-22.59	1,036.22	-1,436.89	5,243.41	5,214.05	29.36	178.607	
8,300.00	6,945.00	3,337.00	3,088.56	38.23	23.75	-22.59	1,036.22	-1,436.89	5,306.01	5,276.27	29.74	178.429	
8,400.00	6,945.00	3,337.00	3,088.56	39.42	23.75	-22.59	1,036.22	-1,436.89	5,369.75	5,339.63	30.12	178.285	
8,500.00	6,945.00	3,337.00	3,088.56	40.65	23.75	-22.59	1,036.22	-1,436.89	5,434.57	5,404.07	30.50	178.180	
8,600.00	6,945.00	3,337.00	3,088.56	41.90	23.75	-22.59	1,036.22	-1,436.89	5,500.45	5,469.57	30.88	178.118	
8,700.00	6,945.00	3,337.00	3,088.56	43.17	23.75	-22.59	1,036.22	-1,436.89	5,567.35	5,536.09	31.26	178.101	
8,800.00	6,945.00	3,337.00	3,088.56	44.46	23.75	-22.59	1,036.22	-1,436.89	5,635.23	5,603.60	31.64	178.131	
8,900.00	6,945.00	3,337.00	3,088.56	45.78	23.75	-22.59	1,036.22	-1,436.89	5,704.06	5,672.05	32.01	178.209	
9,000.00	6,945.00	3,337.00	3,088.56	47.11	23.75	-22.59	1,036.22	-1,436.89	5,773.79	5,741.42	32.38	178.337	
9,100.00	6,945.00	3,337.00	3,088.56	48.46	23.75	-22.59	1,036.22	-1,436.89	5,844.41	5,811.67	32.74	178.513	

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 705H
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 705H	**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 #3	**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

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
9,200.00	6,945.00	3,337.00	3,088.56	49.82	23.75	-22.59	1,036.22	-1,436.89	5,915.87	5,882.77	33.10	178.737	
9,300.00	6,945.00	3,337.00	3,088.56	51.20	23.75	-22.59	1,036.22	-1,436.89	5,988.15	5,954.70	33.45	179.009	
9,400.00	6,945.00	3,337.00	3,088.56	52.59	23.75	-22.59	1,036.22	-1,436.89	6,061.22	6,027.42	33.80	179.327	
9,500.00	6,945.00	3,337.00	3,088.56	53.99	23.75	-22.59	1,036.22	-1,436.89	6,135.04	6,100.90	34.14	179.691	
9,600.00	6,945.00	3,337.00	3,088.56	55.40	23.75	-22.59	1,036.22	-1,436.89	6,209.60	6,175.12	34.48	180.099	
9,700.00	6,945.00	3,337.00	3,088.56	56.83	23.75	-22.59	1,036.22	-1,436.89	6,284.87	6,250.06	34.81	180.550	
9,800.00	6,945.00	3,337.00	3,088.56	58.26	23.75	-22.59	1,036.22	-1,436.89	6,360.82	6,325.68	35.13	181.042	
9,900.00	6,945.00	3,337.00	3,088.56	59.70	23.75	-22.59	1,036.22	-1,436.89	6,437.42	6,401.97	35.45	181.575	
10,000.00	6,945.00	3,337.00	3,088.56	61.15	23.75	-22.59	1,036.22	-1,436.89	6,514.66	6,478.90	35.77	182.145	
10,100.00	6,945.00	3,337.00	3,088.56	62.61	23.75	-22.59	1,036.22	-1,436.89	6,592.52	6,556.44	36.07	182.752	
10,200.00	6,945.00	3,337.00	3,088.56	64.07	23.75	-22.59	1,036.22	-1,436.89	6,670.96	6,634.58	36.37	183.395	
10,300.00	6,945.00	3,337.00	3,088.56	65.54	23.75	-22.59	1,036.22	-1,436.89	6,749.97	6,713.30	36.67	184.072	
10,400.00	6,945.00	3,337.00	3,088.56	67.02	23.75	-22.59	1,036.22	-1,436.89	6,829.53	6,792.57	36.96	184.781	
10,500.00	6,945.00	3,337.00	3,088.56	68.50	23.75	-22.59	1,036.22	-1,436.89	6,909.63	6,872.38	37.24	185.522	
10,600.00	6,945.00	3,337.00	3,088.56	69.99	23.75	-22.59	1,036.22	-1,436.89	6,990.23	6,952.71	37.52	186.292	
10,700.00	6,945.00	3,337.00	3,088.56	71.48	23.75	-22.59	1,036.22	-1,436.89	7,071.33	7,033.54	37.80	187.090	
10,800.00	6,945.00	3,337.00	3,088.56	72.98	23.75	-22.59	1,036.22	-1,436.89	7,152.91	7,114.85	38.06	187.916	
10,900.00	6,945.00	3,337.00	3,088.56	74.48	23.75	-22.59	1,036.22	-1,436.89	7,234.96	7,196.63	38.33	188.767	
11,000.00	6,945.00	3,337.00	3,088.56	75.99	23.75	-22.59	1,036.22	-1,436.89	7,317.45	7,278.86	38.59	189.644	
11,100.00	6,945.00	3,337.00	3,088.56	77.50	23.75	-22.59	1,036.22	-1,436.89	7,400.37	7,361.53	38.84	190.543	
11,200.00	6,945.00	3,337.00	3,088.56	79.01	23.75	-22.59	1,036.22	-1,436.89	7,483.71	7,444.62	39.09	191.466	
11,300.00	6,945.00	3,337.00	3,088.56	80.53	23.75	-22.59	1,036.22	-1,436.89	7,567.45	7,528.12	39.33	192.409	
11,400.00	6,945.00	3,337.00	3,088.56	82.05	23.75	-22.59	1,036.22	-1,436.89	7,651.58	7,612.01	39.57	193.373	
11,500.00	6,945.00	3,337.00	3,088.56	83.57	23.75	-22.59	1,036.22	-1,436.89	7,736.09	7,696.29	39.80	194.357	
11,600.00	6,945.00	3,337.00	3,088.56	85.10	23.75	-22.59	1,036.22	-1,436.89	7,820.97	7,780.93	40.03	195.359	
11,700.00	6,945.00	3,337.00	3,088.56	86.63	23.75	-22.59	1,036.22	-1,436.89	7,906.20	7,865.94	40.26	196.378	
11,800.00	6,945.00	3,337.00	3,088.56	88.16	23.75	-22.59	1,036.22	-1,436.89	7,991.77	7,951.29	40.48	197.415	
11,900.00	6,945.00	3,337.00	3,088.56	89.69	23.75	-22.59	1,036.22	-1,436.89	8,077.67	8,036.97	40.70	198.467	
12,000.00	6,945.00	3,337.00	3,088.56	91.23	23.75	-22.59	1,036.22	-1,436.89	8,163.90	8,122.98	40.91	199.534	
12,100.00	6,945.00	3,337.00	3,088.56	92.77	23.75	-22.59	1,036.22	-1,436.89	8,250.43	8,209.31	41.13	200.616	
12,200.00	6,945.00	3,337.00	3,088.56	94.31	23.75	-22.59	1,036.22	-1,436.89	8,337.27	8,295.94	41.33	201.712	
12,300.00	6,945.00	3,337.00	3,088.56	95.85	23.75	-22.59	1,036.22	-1,436.89	8,424.40	8,382.86	41.54	202.820	
12,400.00	6,945.00	3,337.00	3,088.56	97.40	23.75	-22.59	1,036.22	-1,436.89	8,511.81	8,470.07	41.74	203.941	
12,500.00	6,945.00	3,337.00	3,088.56	98.95	23.75	-22.59	1,036.22	-1,436.89	8,599.49	8,557.56	41.93	205.073	
12,600.00	6,945.00	3,337.00	3,088.56	100.50	23.75	-22.59	1,036.22	-1,436.89	8,687.45	8,645.32	42.13	206.217	
12,700.00	6,945.00	3,337.00	3,088.56	102.05	23.75	-22.59	1,036.22	-1,436.89	8,775.66	8,733.34	42.32	207.371	
12,800.00	6,945.00	3,337.00	3,088.56	103.60	23.75	-22.59	1,036.22	-1,436.89	8,864.12	8,821.61	42.51	208.535	
12,900.00	6,945.00	3,337.00	3,088.56	105.15	23.75	-22.59	1,036.22	-1,436.89	8,952.82	8,910.13	42.69	209.708	
13,000.00	6,945.00	3,337.00	3,088.56	106.71	23.75	-22.59	1,036.22	-1,436.89	9,041.76	8,998.88	42.87	210.890	
13,100.00	6,945.00	3,337.00	3,088.56	108.26	23.75	-22.59	1,036.22	-1,436.89	9,130.93	9,087.87	43.05	212.081	
13,200.00	6,945.00	3,337.00	3,088.56	109.82	23.75	-22.59	1,036.22	-1,436.89	9,220.32	9,177.08	43.23	213.280	
13,300.00	6,945.00	3,337.00	3,088.56	111.38	23.75	-22.59	1,036.22	-1,436.89	9,309.92	9,266.52	43.41	214.486	
13,400.00	6,945.00	3,337.00	3,088.56	112.94	23.75	-22.59	1,036.22	-1,436.89	9,399.74	9,356.16	43.58	215.699	
13,500.00	6,945.00	3,337.00	3,088.56	114.50	23.75	-22.59	1,036.22	-1,436.89	9,489.76	9,446.01	43.75	216.919	
13,600.00	6,945.00	3,337.00	3,088.56	116.07	23.75	-22.59	1,036.22	-1,436.89	9,579.97	9,536.06	43.92	218.145	
13,700.00	6,945.00	3,337.00	3,088.56	117.63	23.75	-22.59	1,036.22	-1,436.89	9,670.38	9,626.30	44.08	219.376	
13,800.00	6,945.00	3,337.00	3,088.56	119.19	23.75	-22.59	1,036.22	-1,436.89	9,760.98	9,716.73	44.24	220.614	
13,900.00	6,945.00	3,337.00	3,088.56	120.76	23.75	-22.59	1,036.22	-1,436.89	9,851.76	9,807.35	44.41	221.856	
14,000.00	6,945.00	3,337.00	3,088.56	122.33	23.75	-22.59	1,036.22	-1,436.89	9,942.71	9,898.15	44.57	223.104	
14,100.00	6,945.00	3,337.00	3,088.56	123.90	23.75	-22.59	1,036.22	-1,436.89	10,033.84	9,989.12	44.72	224.356	
14,200.00	6,945.00	3,337.00	3,088.56	125.46	23.75	-22.59	1,036.22	-1,436.89	10,125.14	10,080.26	44.88	225.612	
14,300.00	6,945.00	1,969.19	1,858.55	127.03	11.84	-16.19	913.63	-858.44	10,216.38	10,173.26	43.12	236.903	

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 705H
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 705H	**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 #3	**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	6,945.00	1,949.00	1,840.98	128.60	11.63	-16.12	911.55	-848.71	10,302.31	10,259.02	43.29	237.968	
14,500.00	6,945.00	1,949.00	1,840.98	130.18	11.63	-16.12	911.55	-848.71	10,388.47	10,344.98	43.49	238.882	
14,600.00	6,945.00	1,949.00	1,840.98	131.75	11.63	-16.12	911.55	-848.71	10,474.87	10,431.19	43.68	239.808	
14,700.00	6,945.00	1,949.00	1,840.98	133.32	11.63	-16.12	911.55	-848.71	10,561.52	10,517.65	43.87	240.747	
14,800.00	6,945.00	1,906.06	1,803.42	134.89	11.20	-15.96	907.48	-828.29	10,647.95	10,603.95	44.00	241.982	
14,900.00	6,945.00	1,896.96	1,795.42	136.47	11.11	-15.93	906.72	-824.03	10,734.85	10,690.67	44.18	242.990	
15,000.00	6,945.00	1,856.00	1,759.21	138.04	10.70	-15.79	903.69	-805.14	10,822.18	10,777.87	44.32	244.200	
15,100.00	6,945.00	1,856.00	1,759.21	139.62	10.70	-15.79	903.69	-805.14	10,909.34	10,864.84	44.50	245.158	
15,200.00	6,945.00	1,856.00	1,759.21	141.20	10.70	-15.79	903.69	-805.14	10,996.71	10,952.03	44.68	246.127	
15,300.00	6,945.00	1,856.00	1,759.21	142.77	10.70	-15.79	903.69	-805.14	11,084.29	11,039.44	44.86	247.106	
15,400.00	6,945.00	1,856.00	1,759.21	144.35	10.70	-15.79	903.69	-805.14	11,172.09	11,127.06	45.03	248.094	
15,500.00	6,945.00	1,856.00	1,759.21	145.93	10.70	-15.79	903.69	-805.14	11,260.09	11,214.88	45.20	249.090	
15,600.00	6,945.00	1,817.00	1,724.52	147.51	10.33	-15.67	901.30	-787.45	11,348.10	11,302.75	45.35	250.261	
15,700.00	6,945.00	1,800.67	1,709.98	149.09	10.17	-15.62	900.40	-780.10	11,436.30	11,390.80	45.50	251.330	
15,800.00	6,945.00	1,763.00	1,676.34	150.67	9.81	-15.50	898.53	-763.24	11,524.69	11,479.04	45.65	252.476	
15,900.00	6,945.00	1,763.00	1,676.34	152.25	9.81	-15.50	898.53	-763.24	11,613.10	11,567.29	45.81	253.484	
16,000.00	6,945.00	1,763.00	1,676.34	153.83	9.81	-15.50	898.53	-763.24	11,701.69	11,655.72	45.98	254.499	
16,100.00	6,945.00	1,763.00	1,676.34	155.41	9.81	-15.50	898.53	-763.24	11,790.47	11,744.33	46.14	255.521	
16,200.00	6,945.00	1,718.36	1,636.37	156.99	9.40	-15.37	896.69	-743.46	11,879.21	11,832.92	46.28	256.669	
16,300.00	6,945.00	1,701.83	1,621.53	158.57	9.25	-15.32	896.09	-736.18	11,968.14	11,921.71	46.44	257.734	
16,400.00	6,945.00	1,670.00	1,592.93	160.15	8.95	-15.24	895.08	-722.26	12,057.22	12,010.64	46.58	258.830	
16,500.00	6,945.00	1,670.00	1,592.93	161.74	8.95	-15.24	895.08	-722.26	12,146.35	12,099.61	46.74	259.858	
16,600.00	6,945.00	1,670.00	1,592.93	163.32	8.95	-15.24	895.08	-722.26	12,235.66	12,188.76	46.90	260.892	
16,700.00	6,945.00	1,670.00	1,592.93	164.90	8.95	-15.24	895.08	-722.26	12,325.12	12,278.07	47.05	261.932	
16,800.00	6,945.00	1,633.62	1,560.15	166.49	8.63	-15.14	894.15	-706.52	12,414.56	12,367.36	47.20	263.021	
16,900.00	6,945.00	1,621.93	1,549.59	168.07	8.52	-15.11	893.89	-701.51	12,504.20	12,456.85	47.35	264.076	
17,000.00	6,945.00	1,610.35	1,539.12	169.66	8.42	-15.08	893.67	-696.57	12,593.95	12,546.45	47.50	265.131	
17,100.00	6,945.00	1,575.00	1,507.08	171.24	8.11	-14.99	893.12	-681.64	12,683.91	12,636.26	47.65	266.199	
17,200.00	6,945.00	1,575.00	1,507.08	172.83	8.11	-14.99	893.12	-681.64	12,773.83	12,726.04	47.80	267.245	
17,300.00	6,945.00	1,575.00	1,507.08	174.41	8.11	-14.99	893.12	-681.64	12,863.91	12,815.96	47.95	268.296	
17,400.00	6,945.00	1,575.00	1,507.08	176.00	8.11	-14.99	893.12	-681.64	12,954.13	12,906.03	48.09	269.351	
17,500.00	6,945.00	1,539.87	1,475.16	177.59	7.81	-14.90	892.71	-666.96	13,044.38	12,996.14	48.24	270.383	
17,600.00	6,945.00	1,521.44	1,458.40	179.17	7.66	-14.85	892.51	-659.30	13,134.74	13,086.35	48.39	271.420	
17,700.00	6,945.00	1,481.00	1,421.57	180.76	7.32	-14.75	892.13	-642.60	13,225.22	13,176.68	48.55	272.424	
17,800.00	6,945.00	1,297.00	1,254.58	182.35	5.83	-14.28	886.33	-565.73	13,315.29	13,266.55	48.74	273.191	
17,900.00	6,945.00	1,297.00	1,254.58	183.93	5.83	-14.28	886.33	-565.73	13,405.33	13,356.45	48.89	274.218	
18,000.00	6,945.00	1,253.76	1,215.59	185.52	5.46	-14.15	882.49	-547.44	13,494.94	13,445.89	49.05	275.116	
18,100.00	6,945.00	1,248.88	1,211.16	187.11	5.42	-14.14	882.08	-545.43	13,585.12	13,535.93	49.20	276.139	
18,200.00	6,945.00	1,203.00	1,169.26	188.70	5.03	-14.00	878.44	-527.10	13,675.95	13,626.63	49.33	277.255	
18,300.00	6,945.00	1,203.00	1,169.26	190.29	5.03	-14.00	878.44	-527.10	13,766.26	13,716.80	49.47	278.284	
18,400.00	6,945.00	1,203.00	1,169.26	191.88	5.03	-14.00	878.44	-527.10	13,856.71	13,807.10	49.61	279.315	
18,500.00	6,945.00	1,203.00	1,169.26	193.46	5.03	-14.00	878.44	-527.10	13,947.28	13,897.53	49.75	280.350	
18,600.00	6,945.00	1,203.00	1,169.26	195.05	5.03	-14.00	878.44	-527.10	14,037.99	13,988.10	49.89	281.387	
18,700.00	6,945.00	1,203.00	1,169.26	196.64	5.03	-14.00	878.44	-527.10	14,128.82	14,078.79	50.03	282.428	
18,800.00	6,945.00	1,203.00	1,169.26	198.23	5.03	-14.00	878.44	-527.10	14,219.77	14,169.60	50.16	283.470	
18,900.00	6,945.00	1,203.00	1,169.26	199.82	5.03	-14.00	878.44	-527.10	14,310.84	14,260.54	50.30	284.516	
19,000.00	6,945.00	1,203.00	1,169.26	201.41	5.03	-14.00	878.44	-527.10	14,402.03	14,351.60	50.43	285.563	
19,100.00	6,945.00	1,203.00	1,169.26	203.00	5.03	-14.00	878.44	-527.10	14,493.34	14,442.77	50.57	286.612	
19,200.00	6,945.00	1,203.00	1,169.26	204.60	5.03	-14.00	878.44	-527.10	14,584.76	14,534.06	50.70	287.664	
19,300.00	6,945.00	1,167.75	1,136.85	206.19	4.75	-13.90	875.91	-513.45	14,676.20	14,625.34	50.85	288.603	
19,400.00	6,945.00	1,150.46	1,120.95	207.78	4.61	-13.86	874.74	-506.78	14,767.72	14,716.73	50.99	289.602	
19,500.00	6,945.00	1,109.00	1,082.76	209.37	4.28	-13.75	872.14	-490.85	14,859.36	14,808.22	51.14	290.543	

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 705H
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 705H	**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 #3	**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
19,600.00	6,945.00	1,109.00	1,082.76	210.96	4.28	-13.75	872.14	-490.85	14,950.98	14,899.70	51.27	291.590	
19,700.00	6,945.00	1,109.00	1,082.76	212.55	4.28	-13.75	872.14	-490.85	15,042.70	14,991.29	51.40	292.639	
19,800.00	6,945.00	1,109.00	1,082.76	214.14	4.28	-13.75	872.14	-490.85	15,134.52	15,082.99	51.53	293.688	
19,900.00	6,945.00	1,109.00	1,082.76	215.74	4.28	-13.75	872.14	-490.85	15,226.45	15,174.79	51.66	294.739	
20,000.00	6,945.00	1,109.00	1,082.76	217.33	4.28	-13.75	872.14	-490.85	15,318.49	15,266.70	51.79	295.791	
20,100.00	6,945.00	1,109.00	1,082.76	218.92	4.28	-13.75	872.14	-490.85	15,410.62	15,358.70	51.91	296.844	
20,200.00	6,945.00	1,109.00	1,082.76	220.51	4.28	-13.75	872.14	-490.85	15,502.84	15,450.80	52.04	297.897	
20,300.00	6,945.00	1,109.00	1,082.76	222.11	4.28	-13.75	872.14	-490.85	15,595.17	15,543.00	52.17	298.951	
20,400.00	6,945.00	1,067.54	1,044.41	223.70	3.97	-13.64	869.67	-475.28	15,687.20	15,634.88	52.32	299.812	
20,500.00	6,945.00	1,062.31	1,039.56	225.29	3.93	-13.62	869.36	-473.36	15,779.61	15,727.16	52.45	300.841	
20,600.00	6,945.00	1,057.13	1,034.75	226.88	3.89	-13.61	869.05	-471.46	15,872.10	15,819.52	52.58	301.869	
20,700.00	6,945.00	1,017.00	997.34	228.48	3.58	-13.50	866.63	-457.13	15,964.94	15,912.21	52.73	302.758	
20,741.48	6,945.00	1,017.00	997.34	229.14	3.58	-13.50	866.63	-457.13	16,003.32	15,950.54	52.78	303.193	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 705H
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 705H	**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 #3	**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	-90.33	-62.17	-10,898.23	10,898.59				
100.00	100.00	111.63	111.63	0.25	0.13	-90.33	-61.97	-10,897.84	10,898.28	10,897.90	0.38	N/A	
200.00	200.00	421.60	421.54	0.61	0.49	-90.31	-59.39	-10,892.72	10,896.62	10,895.53	1.09	9,981.608	
300.00	300.00	583.00	582.84	0.97	0.71	-90.30	-57.11	-10,887.69	10,893.36	10,891.70	1.66	6,552.332	
400.00	400.00	613.00	612.83	1.33	0.77	-90.30	-56.84	-10,886.75	10,890.42	10,888.34	2.08	5,240.768	
500.00	500.00	643.00	642.81	1.68	0.83	-90.30	-56.20	-10,886.11	10,888.22	10,885.73	2.50	4,363.507	
568.65	568.64	643.00	642.81	1.92	0.83	121.98	-56.20	-10,886.11	10,887.57	10,884.84	2.73	3,987.630	CC, ES
600.00	599.98	643.00	642.81	2.03	0.83	121.98	-56.20	-10,886.11	10,887.70	10,884.87	2.84	3,836.658	
700.00	699.84	673.00	672.81	2.37	0.89	121.95	-55.74	-10,885.98	10,889.89	10,886.66	3.23	3,371.044	
795.17	794.65	673.00	672.81	2.69	0.89	121.88	-55.74	-10,885.98	10,894.33	10,890.77	3.56	3,060.626	
800.00	799.45	673.00	672.81	2.71	0.89	121.88	-55.74	-10,885.98	10,894.62	10,891.05	3.58	3,045.429	
900.00	898.92	673.00	672.81	3.06	0.89	121.88	-55.74	-10,885.98	10,901.11	10,897.18	3.93	2,773.670	
1,000.00	998.39	688.15	687.96	3.43	0.92	121.89	-55.58	-10,886.22	10,908.39	10,904.07	4.32	2,525.895	
1,100.00	1,097.86	704.00	703.79	3.79	0.95	121.90	-55.25	-10,886.70	10,916.55	10,911.84	4.71	2,318.227	
1,200.00	1,197.33	704.00	703.79	4.16	0.95	121.90	-55.25	-10,886.70	10,925.49	10,920.41	5.07	2,153.682	
1,300.00	1,296.80	719.32	719.10	4.53	0.98	121.90	-54.90	-10,887.34	10,935.25	10,929.78	5.47	1,999.602	
1,400.00	1,396.27	733.00	732.76	4.91	1.00	121.91	-54.65	-10,888.04	10,945.80	10,939.94	5.86	1,867.466	
1,500.00	1,495.74	733.00	732.76	5.28	1.00	121.91	-54.65	-10,888.04	10,957.19	10,950.96	6.23	1,759.295	
1,600.00	1,595.21	748.61	748.33	5.66	1.04	121.92	-54.27	-10,889.03	10,969.35	10,962.72	6.63	1,655.182	
1,700.00	1,694.68	764.00	763.66	6.04	1.07	121.93	-53.61	-10,890.25	10,982.39	10,975.36	7.03	1,563.322	
1,800.00	1,794.15	764.00	763.66	6.42	1.07	121.93	-53.61	-10,890.25	10,996.19	10,988.80	7.39	1,487.707	
1,900.00	1,893.62	764.00	763.66	6.80	1.07	121.93	-53.61	-10,890.25	11,010.88	11,003.13	7.76	1,419.399	
2,000.00	1,993.09	794.00	793.47	7.18	1.15	121.95	-52.09	-10,893.25	11,026.35	11,018.16	8.19	1,346.853	
2,100.00	2,092.56	794.00	793.47	7.56	1.15	121.95	-52.09	-10,893.25	11,042.55	11,034.00	8.55	1,291.437	
2,200.00	2,192.03	794.00	793.47	7.94	1.15	121.95	-52.09	-10,893.25	11,059.63	11,050.71	8.91	1,240.749	
2,300.00	2,291.50	810.17	809.50	8.32	1.19	121.97	-51.28	-10,895.19	11,077.46	11,068.14	9.31	1,189.735	
2,400.00	2,390.97	825.00	824.18	8.70	1.22	121.98	-50.52	-10,897.18	11,096.12	11,086.42	9.70	1,143.528	
2,500.00	2,490.44	825.00	824.18	9.08	1.22	121.98	-50.52	-10,897.18	11,115.55	11,105.48	10.06	1,104.637	
2,600.00	2,589.91	825.00	824.18	9.47	1.22	121.98	-50.52	-10,897.18	11,135.83	11,125.41	10.42	1,068.630	
2,700.00	2,689.38	855.00	853.80	9.85	1.29	121.99	-49.52	-10,901.78	11,156.79	11,145.95	10.84	1,029.012	
2,800.00	2,788.85	855.00	853.80	10.23	1.29	121.99	-49.52	-10,901.78	11,178.53	11,167.34	11.20	998.361	
2,900.00	2,888.32	871.48	870.04	10.61	1.33	122.00	-49.26	-10,904.58	11,201.05	11,189.46	11.59	966.741	
3,000.00	2,987.79	886.00	884.33	11.00	1.37	122.01	-49.02	-10,907.16	11,224.28	11,212.31	11.97	937.719	
3,100.00	3,087.25	886.00	884.33	11.38	1.37	122.01	-49.02	-10,907.16	11,248.29	11,235.97	12.32	913.045	
3,200.00	3,186.72	886.00	884.33	11.76	1.37	122.01	-49.02	-10,907.16	11,273.14	11,260.48	12.67	889.912	
3,300.00	3,286.19	886.00	884.33	12.15	1.37	122.01	-49.02	-10,907.16	11,298.82	11,285.81	13.01	868.191	
3,400.00	3,385.66	915.44	913.18	12.53	1.45	122.03	-48.40	-10,912.96	11,324.82	11,311.40	13.43	843.271	
3,500.00	3,485.13	948.00	944.86	12.91	1.53	122.05	-47.36	-10,920.42	11,352.24	11,338.39	13.85	819.599	
3,600.00	3,584.60	948.00	944.86	13.30	1.53	122.05	-47.36	-10,920.42	11,379.86	11,365.66	14.19	801.875	
3,700.00	3,684.07	948.00	944.86	13.68	1.53	122.05	-47.36	-10,920.42	11,408.28	11,393.75	14.53	785.137	
3,800.00	3,783.54	948.00	944.86	14.06	1.53	122.05	-47.36	-10,920.42	11,437.51	11,422.64	14.87	769.312	
3,900.00	3,883.01	948.00	944.86	14.45	1.53	122.05	-47.36	-10,920.42	11,467.54	11,452.34	15.20	754.334	
4,000.00	3,982.48	978.00	973.87	14.83	1.64	122.07	-46.03	-10,927.94	11,498.18	11,482.57	15.61	736.395	
4,100.00	4,081.95	978.00	973.87	15.22	1.64	122.07	-46.03	-10,927.94	11,529.54	11,513.59	15.94	723.105	
4,200.00	4,181.42	1,010.00	1,004.69	15.60	1.76	122.09	-44.24	-10,936.35	11,561.48	11,545.12	16.36	706.604	
4,300.00	4,280.89	1,010.00	1,004.69	15.98	1.76	122.09	-44.24	-10,936.35	11,594.13	11,577.44	16.69	694.740	
4,400.00	4,380.36	1,010.00	1,004.69	16.37	1.76	122.09	-44.24	-10,936.35	11,627.55	11,610.54	17.01	683.457	
4,500.00	4,479.83	1,041.00	1,034.33	16.75	1.90	122.12	-42.17	-10,945.20	11,661.62	11,644.19	17.43	669.199	
4,600.00	4,579.30	1,041.00	1,034.33	17.14	1.90	122.12	-42.17	-10,945.20	11,696.31	11,678.57	17.75	659.082	
4,700.00	4,678.77	1,041.00	1,034.33	17.52	1.90	122.12	-42.17	-10,945.20	11,731.75	11,713.69	18.06	649.438	
4,800.00	4,778.24	1,071.00	1,062.83	17.90	2.05	122.14	-39.84	-10,954.28	11,767.74	11,749.27	18.47	637.008	
4,900.00	4,877.71	1,071.00	1,062.83	18.29	2.05	122.14	-39.84	-10,954.28	11,804.43	11,785.64	18.79	628.315	

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 705H
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 705H	**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 #3	**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
5,000.00	4,977.18	1,101.00	1,091.15	18.67	2.21	122.17	-37.10	-10,963.78	11,841.74	11,822.54	19.20	616.843	
5,100.00	5,076.65	1,101.00	1,091.15	19.06	2.21	122.17	-37.10	-10,963.78	11,879.65	11,860.14	19.51	608.986	
5,200.00	5,176.12	1,101.00	1,091.15	19.44	2.21	122.17	-37.10	-10,963.78	11,918.28	11,898.47	19.82	601.474	
5,300.00	5,275.59	1,132.00	1,120.15	19.83	2.40	122.20	-33.57	-10,974.15	11,957.51	11,937.28	20.23	591.106	
5,400.00	5,375.06	1,132.00	1,120.15	20.21	2.40	122.20	-33.57	-10,974.15	11,997.32	11,976.79	20.53	584.300	
5,500.00	5,474.53	1,163.00	1,148.95	20.59	2.60	122.23	-29.40	-10,984.82	12,037.71	12,016.76	20.95	574.610	
5,600.00	5,574.00	1,163.00	1,148.95	20.98	2.60	122.23	-29.40	-10,984.82	12,078.69	12,057.44	21.25	568.429	
5,700.00	5,673.47	1,194.00	1,177.60	21.36	2.82	122.27	-25.04	-10,995.83	12,120.22	12,098.55	21.67	559.406	
5,800.00	5,772.94	1,194.00	1,177.60	21.75	2.82	122.27	-25.04	-10,995.83	12,162.33	12,140.37	21.96	553.781	
5,900.00	5,872.41	1,207.94	1,190.42	22.13	2.92	122.29	-23.04	-11,000.92	12,205.05	12,182.74	22.31	547.003	
6,000.00	5,971.88	1,225.00	1,206.03	22.52	3.04	122.31	-20.48	-11,007.32	12,248.40	12,225.72	22.67	540.214	
6,100.00	6,071.35	1,225.00	1,206.03	22.90	3.04	122.31	-20.48	-11,007.32	12,292.29	12,269.33	22.96	535.293	
6,200.00	6,170.81	1,240.01	1,219.70	23.28	3.16	122.32	-18.13	-11,013.07	12,336.78	12,313.46	23.32	529.109	
6,300.00	6,270.28	1,257.00	1,235.10	23.67	3.29	122.35	-15.38	-11,019.68	12,381.83	12,358.16	23.67	522.993	
6,375.94	6,345.82	1,297.00	1,271.28	23.96	3.61	122.40	-8.57	-11,035.32	12,416.32	12,392.25	24.07	515.887	
6,400.00	6,369.72	1,297.00	1,271.28	24.05	3.61	136.87	-8.57	-11,035.32	12,427.69	12,403.55	24.14	514.860	
6,450.00	6,419.09	1,310.12	1,283.12	24.25	3.72	153.02	-6.21	-11,040.47	12,453.89	12,429.55	24.34	511.586	
6,500.00	6,467.78	1,328.00	1,299.18	24.46	3.87	160.70	-2.83	-11,047.56	12,483.52	12,458.95	24.57	508.118	
6,550.00	6,515.51	1,328.00	1,299.18	24.67	3.87	164.99	-2.83	-11,047.56	12,516.25	12,491.55	24.70	506.646	
6,600.00	6,561.97	1,328.00	1,299.18	24.88	3.87	167.70	-2.83	-11,047.56	12,551.95	12,527.12	24.83	505.468	
6,650.00	6,606.89	1,328.00	1,299.18	25.10	3.87	169.55	-2.83	-11,047.56	12,590.38	12,565.42	24.95	504.593	
6,700.00	6,649.98	1,328.00	1,299.18	25.32	3.87	170.89	-2.83	-11,047.56	12,631.26	12,606.20	25.06	504.026	
6,750.00	6,690.98	1,345.09	1,314.48	25.54	4.01	171.94	0.44	-11,054.43	12,674.27	12,649.03	25.24	502.157	
6,800.00	6,729.64	1,359.00	1,326.92	25.77	4.13	172.77	3.01	-11,060.10	12,719.22	12,693.83	25.39	500.918 SF	
6,850.00	6,765.71	1,359.00	1,326.92	26.00	4.13	173.43	3.01	-11,060.10	12,765.74	12,740.28	25.47	501.268	
6,900.00	6,798.98	1,359.00	1,326.92	26.24	4.13	174.00	3.01	-11,060.10	12,813.58	12,788.05	25.53	501.902	
6,950.00	6,829.24	1,359.00	1,326.92	26.49	4.13	174.58	3.01	-11,060.10	12,862.42	12,836.83	25.58	502.802	
7,000.00	6,856.30	1,359.00	1,326.92	26.76	4.13	175.42	3.01	-11,060.10	12,911.94	12,886.32	25.62	503.946	
7,050.00	6,880.00	1,359.00	1,326.92	27.03	4.13	-178.95	3.01	-11,060.10	12,961.85	12,936.20	25.65	505.304	
7,100.00	6,900.19	1,359.00	1,326.92	27.32	4.13	-7.25	3.01	-11,060.10	13,011.82	12,986.15	25.67	506.842	
7,150.00	6,916.74	1,359.00	1,326.92	27.62	4.13	-6.04	3.01	-11,060.10	13,061.56	13,035.88	25.69	508.521	
7,200.00	6,929.56	1,359.00	1,326.92	27.93	4.13	-5.64	3.01	-11,060.10	13,110.76	13,085.06	25.69	510.293	
7,250.00	6,938.57	1,359.00	1,326.92	28.26	4.13	-5.43	3.01	-11,060.10	13,159.12	13,133.42	25.70	512.106	
7,300.00	6,943.70	1,359.00	1,326.92	28.60	4.13	-5.31	3.01	-11,060.10	13,206.35	13,180.66	25.70	513.906	
7,340.76	6,945.00	1,359.00	1,326.92	28.88	4.13	-5.25	3.01	-11,060.10	13,243.83	13,218.13	25.70	515.333	
7,400.00	6,945.00	1,343.53	1,313.08	29.31	4.00	-5.21	0.15	-11,053.80	13,297.55	13,271.91	25.64	518.694	
7,500.00	6,945.00	1,328.00	1,299.18	30.09	3.87	-5.17	-2.83	-11,047.56	13,388.34	13,362.75	25.59	523.220	
7,600.00	6,945.00	1,328.00	1,299.18	30.93	3.87	-5.17	-2.83	-11,047.56	13,479.22	13,453.61	25.62	526.156	
7,700.00	6,945.00	1,328.00	1,299.18	31.83	3.87	-5.17	-2.83	-11,047.56	13,570.23	13,544.58	25.65	528.995	
7,800.00	6,945.00	1,328.00	1,299.18	32.79	3.87	-5.17	-2.83	-11,047.56	13,661.37	13,635.68	25.69	531.739	
7,900.00	6,945.00	1,297.00	1,271.28	33.79	3.61	-5.09	-8.57	-11,035.32	13,752.58	13,726.99	25.59	537.343	
8,000.00	6,945.00	1,297.00	1,271.28	34.84	3.61	-5.09	-8.57	-11,035.32	13,843.87	13,818.23	25.64	539.897	
8,100.00	6,945.00	1,293.33	1,267.96	35.93	3.58	-5.08	-9.19	-11,033.89	13,935.28	13,909.61	25.68	542.695	
8,200.00	6,945.00	1,257.00	1,235.10	37.06	3.29	-4.99	-15.38	-11,019.68	14,026.75	14,001.17	25.58	548.413	
8,300.00	6,945.00	1,257.00	1,235.10	38.23	3.29	-4.99	-15.38	-11,019.68	14,118.28	14,092.64	25.64	550.693	
8,400.00	6,945.00	1,257.00	1,235.10	39.42	3.29	-4.99	-15.38	-11,019.68	14,209.93	14,184.22	25.70	552.890	
8,500.00	6,945.00	1,239.42	1,219.15	40.65	3.16	-4.94	-18.23	-11,012.84	14,301.60	14,275.91	25.70	556.557	
8,600.00	6,945.00	1,225.00	1,206.03	41.90	3.04	-4.91	-20.48	-11,007.32	14,393.44	14,367.73	25.71	559.870	
8,700.00	6,945.00	1,225.00	1,206.03	43.17	3.04	-4.91	-20.48	-11,007.32	14,485.33	14,459.55	25.78	561.818	
8,800.00	6,945.00	1,225.00	1,206.03	44.46	3.04	-4.91	-20.48	-11,007.32	14,577.33	14,551.47	25.86	563.693	
8,900.00	6,945.00	1,225.00	1,206.03	45.78	3.04	-4.91	-20.48	-11,007.32	14,669.43	14,643.49	25.94	565.497	
9,000.00	6,945.00	1,225.00	1,206.03	47.11	3.04	-4.91	-20.48	-11,007.32	14,761.64	14,735.61	26.02	567.234	

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 705H
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 705H	**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 #3	**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
9,100.00	6,945.00	1,225.00	1,206.03	48.46	3.04	-4.91	-20.48	-11,007.32	14,853.94	14,827.83	26.11	568.905	
9,200.00	6,945.00	1,225.00	1,206.03	49.82	3.04	-4.91	-20.48	-11,007.32	14,946.35	14,920.15	26.20	570.513	
9,300.00	6,945.00	1,194.00	1,177.60	51.20	2.82	-4.84	-25.04	-10,995.83	15,038.81	15,012.64	26.17	574.563	
9,400.00	6,945.00	1,194.00	1,177.60	52.59	2.82	-4.84	-25.04	-10,995.83	15,131.33	15,105.07	26.27	576.032	
9,500.00	6,945.00	1,194.00	1,177.60	53.99	2.82	-4.84	-25.04	-10,995.83	15,223.95	15,197.59	26.36	577.445	
9,600.00	6,945.00	1,194.00	1,177.60	55.40	2.82	-4.84	-25.04	-10,995.83	15,316.66	15,290.20	26.46	578.804	
9,700.00	6,945.00	1,194.00	1,177.60	56.83	2.82	-4.84	-25.04	-10,995.83	15,409.46	15,382.90	26.56	580.113	
9,800.00	6,945.00	1,194.00	1,177.60	58.26	2.82	-4.84	-25.04	-10,995.83	15,502.35	15,475.68	26.67	581.372	
9,900.00	6,945.00	1,194.00	1,177.60	59.70	2.82	-4.84	-25.04	-10,995.83	15,595.33	15,568.56	26.77	582.585	
10,000.00	6,945.00	1,194.00	1,177.60	61.15	2.82	-4.84	-25.04	-10,995.83	15,688.39	15,661.52	26.88	583.753	
10,100.00	6,945.00	1,177.27	1,162.16	62.61	2.70	-4.80	-27.39	-10,989.84	15,781.47	15,754.54	26.93	586.081	
10,200.00	6,945.00	1,163.00	1,148.95	64.07	2.60	-4.77	-29.40	-10,984.82	15,874.68	15,847.70	26.99	588.178	
10,300.00	6,945.00	1,163.00	1,148.95	65.54	2.60	-4.77	-29.40	-10,984.82	15,967.93	15,940.83	27.10	589.199	
10,400.00	6,945.00	1,163.00	1,148.95	67.02	2.60	-4.77	-29.40	-10,984.82	16,061.26	16,034.04	27.21	590.183	
10,500.00	6,945.00	1,163.00	1,148.95	68.50	2.60	-4.77	-29.40	-10,984.82	16,154.66	16,127.34	27.33	591.131	
10,600.00	6,945.00	1,163.00	1,148.95	69.99	2.60	-4.77	-29.40	-10,984.82	16,248.15	16,220.71	27.44	592.045	
10,700.00	6,945.00	1,147.84	1,134.89	71.48	2.50	-4.74	-31.49	-10,979.57	16,341.67	16,314.15	27.52	593.915	
10,800.00	6,945.00	1,132.00	1,120.15	72.98	2.40	-4.71	-33.57	-10,974.15	16,435.29	16,407.70	27.59	595.785	
10,900.00	6,945.00	1,132.00	1,120.15	74.48	2.40	-4.71	-33.57	-10,974.15	16,528.94	16,501.23	27.71	596.583	
11,000.00	6,945.00	1,132.00	1,120.15	75.99	2.40	-4.71	-33.57	-10,974.15	16,622.66	16,594.83	27.83	597.353	
11,100.00	6,945.00	1,132.00	1,120.15	77.50	2.40	-4.71	-33.57	-10,974.15	16,716.46	16,688.51	27.95	598.098	
11,200.00	6,945.00	1,132.00	1,120.15	79.01	2.40	-4.71	-33.57	-10,974.15	16,810.32	16,782.25	28.07	598.818	
11,300.00	6,945.00	1,132.00	1,120.15	80.53	2.40	-4.71	-33.57	-10,974.15	16,904.26	16,876.06	28.20	599.514	
11,400.00	6,945.00	1,116.36	1,105.54	82.05	2.31	-4.68	-35.46	-10,968.87	16,998.20	16,969.92	28.28	601.066	
11,500.00	6,945.00	1,101.00	1,091.15	83.57	2.21	-4.65	-37.10	-10,963.78	17,092.28	17,063.91	28.37	602.566	
11,600.00	6,945.00	1,101.00	1,091.15	85.10	2.21	-4.65	-37.10	-10,963.78	17,186.36	17,157.87	28.49	603.176	
11,700.00	6,945.00	1,101.00	1,091.15	86.63	2.21	-4.65	-37.10	-10,963.78	17,280.51	17,251.89	28.62	603.767	
11,800.00	6,945.00	1,101.00	1,091.15	88.16	2.21	-4.65	-37.10	-10,963.78	17,374.72	17,345.97	28.75	604.341	
11,900.00	6,945.00	1,101.00	1,091.15	89.69	2.21	-4.65	-37.10	-10,963.78	17,469.00	17,440.12	28.88	604.898	
12,000.00	6,945.00	1,101.00	1,091.15	91.23	2.21	-4.65	-37.10	-10,963.78	17,563.34	17,534.33	29.01	605.440	
12,100.00	6,945.00	1,101.00	1,091.15	92.77	2.21	-4.65	-37.10	-10,963.78	17,657.74	17,628.60	29.14	605.967	
12,200.00	6,945.00	1,101.00	1,091.15	94.31	2.21	-4.65	-37.10	-10,963.78	17,752.21	17,722.93	29.27	606.479	
12,300.00	6,945.00	1,101.00	1,091.15	95.85	2.21	-4.65	-37.10	-10,963.78	17,846.73	17,817.33	29.40	606.979	
12,400.00	6,945.00	1,101.00	1,091.15	97.40	2.21	-4.65	-37.10	-10,963.78	17,941.31	17,911.78	29.53	607.466	
12,500.00	6,945.00	1,101.00	1,091.15	98.95	2.21	-4.65	-37.10	-10,963.78	18,035.96	18,006.29	29.67	607.942	
12,600.00	6,945.00	1,085.54	1,076.59	100.50	2.13	-4.62	-38.58	-10,958.79	18,130.54	18,100.78	29.77	609.082	
12,700.00	6,945.00	1,071.00	1,062.83	102.05	2.05	-4.60	-39.84	-10,954.28	18,225.35	18,195.48	29.87	610.159	
12,800.00	6,945.00	1,071.00	1,062.83	103.60	2.05	-4.60	-39.84	-10,954.28	18,320.11	18,290.10	30.00	610.583	
12,900.00	6,945.00	1,071.00	1,062.83	105.15	2.05	-4.60	-39.84	-10,954.28	18,414.92	18,384.79	30.14	610.998	
13,000.00	6,945.00	1,071.00	1,062.83	106.71	2.05	-4.60	-39.84	-10,954.28	18,509.80	18,479.52	30.27	611.404	
13,100.00	6,945.00	1,071.00	1,062.83	108.26	2.05	-4.60	-39.84	-10,954.28	18,604.72	18,574.31	30.41	611.802	
13,200.00	6,945.00	1,071.00	1,062.83	109.82	2.05	-4.60	-39.84	-10,954.28	18,699.70	18,669.15	30.55	612.193	
13,300.00	6,945.00	1,071.00	1,062.83	111.38	2.05	-4.60	-39.84	-10,954.28	18,794.73	18,764.05	30.68	612.577	
13,400.00	6,945.00	1,071.00	1,062.83	112.94	2.05	-4.60	-39.84	-10,954.28	18,889.81	18,858.99	30.82	612.954	
13,500.00	6,945.00	1,071.00	1,062.83	114.50	2.05	-4.60	-39.84	-10,954.28	18,984.94	18,953.98	30.95	613.325	
13,600.00	6,945.00	1,057.54	1,050.04	116.07	1.98	-4.58	-40.92	-10,950.19	19,080.10	19,049.03	31.07	614.161	
13,700.00	6,945.00	1,041.00	1,034.33	117.63	1.90	-4.56	-42.17	-10,945.20	19,175.31	19,144.14	31.18	615.081	
13,800.00	6,945.00	1,041.00	1,034.33	119.19	1.90	-4.56	-42.17	-10,945.20	19,270.54	19,239.23	31.31	615.419	
13,900.00	6,945.00	1,041.00	1,034.33	120.76	1.90	-4.56	-42.17	-10,945.20	19,365.82	19,334.37	31.45	615.752	
14,000.00	6,945.00	1,041.00	1,034.33	122.33	1.90	-4.56	-42.17	-10,945.20	19,461.15	19,429.56	31.59	616.081	
14,100.00	6,945.00	1,041.00	1,034.33	123.90	1.90	-4.56	-42.17	-10,945.20	19,556.52	19,524.80	31.73	616.406	
14,200.00	6,945.00	1,041.00	1,034.33	125.46	1.90	-4.56	-42.17	-10,945.20	19,651.94	19,620.08	31.86	616.728	

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 705H
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 705H	**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 #3	**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)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,300.00	6,945.00	1,041.00	1,034.33	127.03	1.90	-4.56	-42.17	-10,945.20	19,747.41	19,715.41	32.00	617.046	
14,400.00	6,945.00	1,041.00	1,034.33	128.60	1.90	-4.56	-42.17	-10,945.20	19,842.92	19,810.78	32.14	617.361	
14,500.00	6,945.00	1,041.00	1,034.33	130.18	1.90	-4.56	-42.17	-10,945.20	19,938.47	19,906.19	32.28	617.673	
14,600.00	6,945.00	1,041.00	1,034.33	131.75	1.90	-4.56	-42.17	-10,945.20	20,034.07	20,001.65	32.42	617.983	
14,700.00	6,945.00	1,041.00	1,034.33	133.32	1.90	-4.56	-42.17	-10,945.20	20,129.71	20,097.15	32.56	618.290	
14,800.00	6,945.00	1,041.00	1,034.33	134.89	1.90	-4.56	-42.17	-10,945.20	20,225.39	20,192.70	32.70	618.595	
14,900.00	6,945.00	1,026.20	1,020.21	136.47	1.83	-4.54	-43.21	-10,940.87	20,321.00	20,288.18	32.81	619.272	
15,000.00	6,945.00	1,024.88	1,018.95	138.04	1.82	-4.53	-43.30	-10,940.49	20,416.74	20,383.79	32.95	619.599	
15,100.00	6,945.00	1,010.00	1,004.69	139.62	1.76	-4.51	-44.24	-10,936.35	20,512.62	20,479.55	33.07	620.258	
15,200.00	6,945.00	1,010.00	1,004.69	141.20	1.76	-4.51	-44.24	-10,936.35	20,608.42	20,575.21	33.21	620.542	
15,300.00	6,945.00	1,010.00	1,004.69	142.77	1.76	-4.51	-44.24	-10,936.35	20,704.26	20,670.92	33.35	620.824	
15,400.00	6,945.00	1,010.00	1,004.69	144.35	1.76	-4.51	-44.24	-10,936.35	20,800.15	20,766.66	33.49	621.105	
15,500.00	6,945.00	1,010.00	1,004.69	145.93	1.76	-4.51	-44.24	-10,936.35	20,896.07	20,862.44	33.63	621.384	
15,600.00	6,945.00	1,010.00	1,004.69	147.51	1.76	-4.51	-44.24	-10,936.35	20,992.02	20,958.26	33.77	621.663	
15,700.00	6,945.00	1,010.00	1,004.69	149.09	1.76	-4.51	-44.24	-10,936.35	21,088.02	21,054.11	33.91	621.941	
15,800.00	6,945.00	1,010.00	1,004.69	150.67	1.76	-4.51	-44.24	-10,936.35	21,184.05	21,150.00	34.05	622.218	
15,900.00	6,945.00	1,010.00	1,004.69	152.25	1.76	-4.51	-44.24	-10,936.35	21,280.12	21,245.93	34.19	622.494	
16,000.00	6,945.00	1,010.00	1,004.69	153.83	1.76	-4.51	-44.24	-10,936.35	21,376.22	21,341.90	34.32	622.770	
16,100.00	6,945.00	1,010.00	1,004.69	155.41	1.76	-4.51	-44.24	-10,936.35	21,472.37	21,437.90	34.46	623.045	
16,200.00	6,945.00	1,010.00	1,004.69	156.99	1.76	-4.51	-44.24	-10,936.35	21,568.54	21,533.94	34.60	623.320	
16,300.00	6,945.00	1,010.00	1,004.69	158.57	1.76	-4.51	-44.24	-10,936.35	21,664.75	21,630.01	34.74	623.594	
16,400.00	6,945.00	1,010.00	1,004.69	160.15	1.76	-4.51	-44.24	-10,936.35	21,761.00	21,726.11	34.88	623.868	
16,500.00	6,945.00	1,010.00	1,004.69	161.74	1.76	-4.51	-44.24	-10,936.35	21,857.27	21,822.25	35.02	624.141	
16,600.00	6,945.00	1,010.00	1,004.69	163.32	1.76	-4.51	-44.24	-10,936.35	21,953.58	21,918.43	35.16	624.414	
16,700.00	6,945.00	1,010.00	1,004.69	164.90	1.76	-4.51	-44.24	-10,936.35	22,049.93	22,014.63	35.30	624.687	
16,800.00	6,945.00	1,010.00	1,004.69	166.49	1.76	-4.51	-44.24	-10,936.35	22,146.31	22,110.87	35.44	624.959	
16,900.00	6,945.00	994.35	989.64	168.07	1.70	-4.49	-45.15	-10,932.18	22,242.65	22,207.09	35.56	625.469	
17,000.00	6,945.00	978.00	973.87	169.66	1.64	-4.47	-46.03	-10,927.94	22,339.12	22,303.44	35.69	625.982	
17,100.00	6,945.00	978.00	973.87	171.24	1.64	-4.47	-46.03	-10,927.94	22,435.56	22,399.73	35.83	626.243	
17,200.00	6,945.00	978.00	973.87	172.83	1.64	-4.47	-46.03	-10,927.94	22,532.02	22,496.06	35.96	626.504	
17,300.00	6,945.00	978.00	973.87	174.41	1.64	-4.47	-46.03	-10,927.94	22,628.52	22,592.41	36.10	626.765	
17,400.00	6,945.00	978.00	973.87	176.00	1.64	-4.47	-46.03	-10,927.94	22,725.04	22,688.80	36.24	627.027	
17,500.00	6,945.00	978.00	973.87	177.59	1.64	-4.47	-46.03	-10,927.94	22,821.60	22,785.22	36.38	627.288	
17,600.00	6,945.00	978.00	973.87	179.17	1.64	-4.47	-46.03	-10,927.94	22,918.19	22,881.67	36.52	627.550	
17,700.00	6,945.00	978.00	973.87	180.76	1.64	-4.47	-46.03	-10,927.94	23,014.80	22,978.14	36.66	627.812	
17,800.00	6,945.00	978.00	973.87	182.35	1.64	-4.47	-46.03	-10,927.94	23,111.44	23,074.65	36.80	628.073	
17,900.00	6,945.00	978.00	973.87	183.93	1.64	-4.47	-46.03	-10,927.94	23,208.12	23,171.18	36.94	628.335	
18,000.00	6,945.00	978.00	973.87	185.52	1.64	-4.47	-46.03	-10,927.94	23,304.82	23,267.74	37.07	628.597	
18,100.00	6,945.00	978.00	973.87	187.11	1.64	-4.47	-46.03	-10,927.94	23,401.54	23,364.33	37.21	628.860	
18,200.00	6,945.00	963.53	959.89	188.70	1.59	-4.46	-46.73	-10,924.28	23,498.26	23,460.92	37.34	629.259	
18,300.00	6,945.00	948.00	944.86	190.29	1.53	-4.44	-47.36	-10,920.42	23,595.05	23,557.58	37.47	629.659	
18,400.00	6,945.00	948.00	944.86	191.88	1.53	-4.44	-47.36	-10,920.42	23,691.83	23,654.22	37.61	629.916	
18,500.00	6,945.00	948.00	944.86	193.46	1.53	-4.44	-47.36	-10,920.42	23,788.64	23,750.89	37.75	630.172	
18,600.00	6,945.00	948.00	944.86	195.05	1.53	-4.44	-47.36	-10,920.42	23,885.47	23,847.58	37.89	630.429	
18,700.00	6,945.00	948.00	944.86	196.64	1.53	-4.44	-47.36	-10,920.42	23,982.32	23,944.30	38.03	630.686	
18,800.00	6,945.00	948.00	944.86	198.23	1.53	-4.44	-47.36	-10,920.42	24,079.20	24,041.04	38.16	630.943	
18,900.00	6,945.00	948.00	944.86	199.82	1.53	-4.44	-47.36	-10,920.42	24,176.11	24,137.81	38.30	631.201	
19,000.00	6,945.00	948.00	944.86	201.41	1.53	-4.44	-47.36	-10,920.42	24,273.04	24,234.60	38.44	631.458	
19,100.00	6,945.00	948.00	944.86	203.00	1.53	-4.44	-47.36	-10,920.42	24,370.00	24,331.42	38.58	631.716	
19,200.00	6,945.00	948.00	944.86	204.60	1.53	-4.44	-47.36	-10,920.42	24,466.98	24,428.27	38.72	631.974	
19,300.00	6,945.00	948.00	944.86	206.19	1.53	-4.44	-47.36	-10,920.42	24,563.99	24,525.14	38.85	632.232	
19,400.00	6,945.00	948.00	944.86	207.78	1.53	-4.44	-47.36	-10,920.42	24,661.02	24,622.03	38.99	632.490	

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 705H
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 705H	**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 #3	**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
19,500.00	6,945.00	948.00	944.86	209.37	1.53	-4.44	-47.36	-10,920.42	24,758.07	24,718.94	39.13	632.749	
19,600.00	6,945.00	948.00	944.86	210.96	1.53	-4.44	-47.36	-10,920.42	24,855.15	24,815.88	39.27	633.007	
19,700.00	6,945.00	948.00	944.86	212.55	1.53	-4.44	-47.36	-10,920.42	24,952.25	24,912.85	39.40	633.265	
19,800.00	6,945.00	948.00	944.86	214.14	1.53	-4.44	-47.36	-10,920.42	25,049.37	25,009.83	39.54	633.524	
19,900.00	6,945.00	948.00	944.86	215.74	1.53	-4.44	-47.36	-10,920.42	25,146.52	25,106.84	39.68	633.782	
20,000.00	6,945.00	948.00	944.86	217.33	1.53	-4.44	-47.36	-10,920.42	25,243.69	25,203.87	39.81	634.041	
20,100.00	6,945.00	948.00	944.86	218.92	1.53	-4.44	-47.36	-10,920.42	25,340.87	25,300.92	39.95	634.299	
20,200.00	6,945.00	948.00	944.86	220.51	1.53	-4.44	-47.36	-10,920.42	25,438.09	25,398.00	40.09	634.558	
20,300.00	6,945.00	948.00	944.86	222.11	1.53	-4.44	-47.36	-10,920.42	25,535.32	25,495.09	40.22	634.816	
20,400.00	6,945.00	948.00	944.86	223.70	1.53	-4.44	-47.36	-10,920.42	25,632.57	25,592.21	40.36	635.075	
20,500.00	6,945.00	948.00	944.86	225.29	1.53	-4.44	-47.36	-10,920.42	25,729.85	25,689.35	40.50	635.333	
20,600.00	6,945.00	948.00	944.86	226.88	1.53	-4.44	-47.36	-10,920.42	25,827.14	25,786.51	40.63	635.591	
20,700.00	6,945.00	948.00	944.86	228.48	1.53	-4.44	-47.36	-10,920.42	25,924.46	25,883.69	40.77	635.849	
20,741.48	6,945.00	948.00	944.86	229.14	1.53	-4.44	-47.36	-10,920.42	25,964.83	25,924.00	40.83	635.957	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 705H
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 705H	**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 #3	**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	-45.67	520.70	-533.02	747.72				
100.00	100.00	38.85	38.85	0.25	0.04	-45.67	520.68	-533.00	745.12	744.83	0.29	2,527.394	
200.00	200.00	141.07	141.07	0.61	0.16	-45.67	520.48	-532.82	744.86	744.09	0.77	969.569	
300.00	300.00	243.29	243.29	0.97	0.27	-45.67	520.06	-532.44	744.30	743.05	1.24	599.431	
400.00	400.00	345.51	345.50	1.33	0.39	-45.68	519.40	-531.85	743.44	741.72	1.72	433.438	
457.23	457.23	395.24	395.23	1.53	0.48	-45.68	519.12	-531.67	743.08	741.07	2.01	369.494	CC, ES
500.00	500.00	428.26	428.25	1.68	0.54	-45.69	519.21	-531.87	743.35	741.12	2.23	333.900	
600.00	599.98	496.64	496.59	2.03	0.68	166.57	520.73	-533.47	748.33	745.62	2.71	276.272	
700.00	699.84	567.00	566.74	2.37	0.85	166.57	524.39	-537.38	760.96	757.76	3.20	237.945	
795.17	794.65	627.00	626.29	2.69	1.00	166.56	529.43	-542.70	780.24	776.58	3.66	213.231	
800.00	799.45	627.00	626.29	2.71	1.00	166.56	529.43	-542.70	781.38	777.70	3.68	212.182	
900.00	898.92	688.00	686.49	3.06	1.16	166.67	536.31	-549.67	807.38	803.24	4.15	194.716	
1,000.00	998.39	750.00	747.23	3.43	1.38	166.79	545.10	-558.45	837.34	832.73	4.61	181.625	
1,100.00	1,097.86	811.00	806.44	3.79	1.63	166.90	555.52	-568.73	871.12	866.06	5.07	171.857	
1,200.00	1,197.33	874.00	866.86	4.16	1.95	167.02	568.32	-581.15	908.80	903.27	5.53	164.229	
1,300.00	1,296.80	925.82	915.94	4.53	2.25	167.11	580.20	-592.75	950.00	944.04	5.96	159.506	
1,400.00	1,396.27	986.33	972.67	4.91	2.63	167.21	595.17	-607.56	994.09	987.69	6.41	155.111	
1,500.00	1,495.74	1,042.35	1,024.48	5.28	3.02	167.31	610.51	-622.32	1,041.14	1,034.30	6.84	152.156	
1,600.00	1,595.21	1,093.00	1,070.71	5.66	3.41	167.39	625.44	-636.65	1,090.97	1,083.73	7.25	150.513	
1,700.00	1,694.68	1,142.08	1,114.80	6.04	3.82	167.47	640.96	-651.59	1,143.67	1,136.03	7.65	149.595	
1,800.00	1,794.15	1,189.26	1,156.52	6.42	4.25	167.56	657.01	-666.73	1,199.04	1,191.00	8.03	149.262	
1,900.00	1,893.62	1,241.83	1,202.27	6.80	4.75	167.67	676.11	-684.18	1,256.71	1,248.26	8.45	148.779	
2,000.00	1,993.09	1,290.21	1,243.86	7.18	5.24	167.78	694.51	-700.69	1,316.21	1,307.37	8.84	148.882	
2,100.00	2,092.56	1,337.34	1,283.73	7.56	5.75	167.89	713.22	-717.46	1,377.73	1,368.48	9.25	148.967	
2,200.00	2,192.03	1,388.02	1,326.03	7.94	6.31	167.98	733.72	-736.39	1,440.91	1,431.28	9.64	149.523	
2,300.00	2,291.50	1,436.00	1,365.60	8.32	6.86	168.05	753.59	-754.89	1,505.51	1,495.48	10.04	150.000	
2,400.00	2,390.97	1,498.00	1,416.09	8.70	7.59	168.09	779.26	-780.10	1,571.41	1,560.87	10.54	149.110	
2,500.00	2,490.44	1,548.80	1,457.10	9.08	8.20	168.08	800.02	-801.72	1,638.14	1,627.18	10.96	149.417	
2,600.00	2,589.91	1,592.00	1,491.75	9.47	8.74	168.07	817.80	-820.42	1,705.73	1,694.39	11.33	150.484	
2,700.00	2,689.38	1,655.00	1,541.73	9.85	9.55	168.06	844.42	-848.03	1,774.27	1,762.40	11.86	149.560	
2,800.00	2,788.85	1,704.56	1,580.62	10.23	10.19	168.07	865.99	-869.89	1,843.73	1,831.44	12.29	150.023	
2,900.00	2,888.32	1,763.27	1,626.56	10.61	10.94	168.07	891.66	-895.94	1,913.59	1,900.80	12.79	149.641	
3,000.00	2,987.79	1,814.34	1,666.11	11.00	11.62	168.08	914.39	-918.89	1,984.28	1,971.04	13.23	149.944	
3,100.00	3,087.25	1,896.42	1,729.71	11.38	12.65	168.11	951.27	-955.37	2,054.95	2,041.03	13.92	147.585	
3,200.00	3,186.72	2,061.00	1,859.45	11.76	14.67	168.23	1,024.36	-1,025.44	2,124.36	2,109.11	15.26	139.249	
3,300.00	3,286.19	2,192.37	1,965.71	12.15	16.21	168.31	1,079.88	-1,079.10	2,191.21	2,174.90	16.31	134.379	
3,400.00	3,385.66	3,253.00	2,925.31	12.53	24.19	168.94	1,377.95	-1,360.38	2,249.26	2,227.59	21.67	103.795	
3,500.00	3,485.13	3,253.00	2,925.31	12.91	24.19	168.94	1,377.95	-1,360.38	2,278.85	2,256.83	22.02	103.502	SF
3,600.00	3,584.60	3,253.00	2,925.31	13.30	24.19	168.94	1,377.95	-1,360.38	2,312.39	2,290.06	22.33	103.573	
3,700.00	3,684.07	3,253.00	2,925.31	13.68	24.19	168.94	1,377.95	-1,360.38	2,349.70	2,327.10	22.60	103.976	
3,800.00	3,783.54	3,253.00	2,925.31	14.06	24.19	168.94	1,377.95	-1,360.38	2,390.62	2,367.79	22.84	104.686	
3,900.00	3,883.01	3,253.00	2,925.31	14.45	24.19	168.94	1,377.95	-1,360.38	2,434.97	2,411.92	23.04	105.674	
4,000.00	3,982.48	3,253.00	2,925.31	14.83	24.19	168.94	1,377.95	-1,360.38	2,482.55	2,459.33	23.22	106.918	
4,100.00	4,081.95	3,253.00	2,925.31	15.22	24.19	168.94	1,377.95	-1,360.38	2,533.18	2,509.81	23.37	108.396	
4,200.00	4,181.42	3,253.00	2,925.31	15.60	24.19	168.94	1,377.95	-1,360.38	2,586.70	2,563.20	23.50	110.087	
4,300.00	4,280.89	3,253.00	2,925.31	15.98	24.19	168.94	1,377.95	-1,360.38	2,642.91	2,619.31	23.60	111.971	
4,400.00	4,380.36	3,253.00	2,925.31	16.37	24.19	168.94	1,377.95	-1,360.38	2,701.66	2,677.97	23.69	114.032	
4,500.00	4,479.83	3,253.00	2,925.31	16.75	24.19	168.94	1,377.95	-1,360.38	2,762.78	2,739.01	23.77	116.252	
4,600.00	4,579.30	3,253.00	2,925.31	17.14	24.19	168.94	1,377.95	-1,360.38	2,826.11	2,802.29	23.83	118.617	
4,700.00	4,678.77	3,253.00	2,925.31	17.52	24.19	168.94	1,377.95	-1,360.38	2,891.52	2,867.65	23.88	121.111	
4,800.00	4,778.24	3,253.00	2,925.31	17.90	24.19	168.94	1,377.95	-1,360.38	2,958.86	2,934.95	23.92	123.721	
4,900.00	4,877.71	3,253.00	2,925.31	18.29	24.19	168.94	1,377.95	-1,360.38	3,028.01	3,004.06	23.95	126.434	

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 705H
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 705H	**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 #3	**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
5,000.00	4,977.18	3,253.00	2,925.31	18.67	24.19	168.94	1,377.95	-1,360.38	3,098.84	3,074.86	23.98	129.238	
5,100.00	5,076.65	3,253.00	2,925.31	19.06	24.19	168.94	1,377.95	-1,360.38	3,171.25	3,147.24	24.00	132.122	
5,200.00	5,176.12	3,253.00	2,925.31	19.44	24.19	168.94	1,377.95	-1,360.38	3,245.12	3,221.09	24.02	135.076	
5,300.00	5,275.59	3,253.00	2,925.31	19.83	24.19	168.94	1,377.95	-1,360.38	3,320.36	3,296.31	24.04	138.089	
5,400.00	5,375.06	3,253.00	2,925.31	20.21	24.19	168.94	1,377.95	-1,360.38	3,396.87	3,372.81	24.07	141.153	
5,500.00	5,474.53	3,253.00	2,925.31	20.59	24.19	168.94	1,377.95	-1,360.38	3,474.58	3,450.50	24.09	144.257	
5,600.00	5,574.00	3,253.00	2,925.31	20.98	24.19	168.94	1,377.95	-1,360.38	3,553.41	3,529.30	24.11	147.394	
5,700.00	5,673.47	3,253.00	2,925.31	21.36	24.19	168.94	1,377.95	-1,360.38	3,633.27	3,609.14	24.13	150.557	
5,800.00	5,772.94	3,253.00	2,925.31	21.75	24.19	168.94	1,377.95	-1,360.38	3,714.12	3,689.96	24.16	153.737	
5,900.00	5,872.41	3,253.00	2,925.31	22.13	24.19	168.94	1,377.95	-1,360.38	3,795.87	3,771.68	24.19	156.927	
6,000.00	5,971.88	3,253.00	2,925.31	22.52	24.19	168.94	1,377.95	-1,360.38	3,878.48	3,854.26	24.22	160.121	
6,100.00	6,071.35	3,253.00	2,925.31	22.90	24.19	168.94	1,377.95	-1,360.38	3,961.89	3,937.63	24.26	163.314	
6,200.00	6,170.81	3,253.00	2,925.31	23.28	24.19	168.94	1,377.95	-1,360.38	4,046.06	4,021.75	24.30	166.498	
6,300.00	6,270.28	3,253.00	2,925.31	23.67	24.19	168.94	1,377.95	-1,360.38	4,130.93	4,106.58	24.35	169.669	
6,375.94	6,345.82	3,253.00	2,925.31	23.96	24.19	168.94	1,377.95	-1,360.38	4,195.82	4,171.43	24.39	172.065	
6,400.00	6,369.72	3,253.00	2,925.31	24.05	24.19	-173.82	1,377.95	-1,360.38	4,216.61	4,192.21	24.40	172.812	
6,450.00	6,419.09	3,253.00	2,925.31	24.25	24.19	-150.91	1,377.95	-1,360.38	4,260.82	4,236.39	24.43	174.376	
6,500.00	6,467.78	3,253.00	2,925.31	24.46	24.19	-134.91	1,377.95	-1,360.38	4,306.11	4,281.64	24.47	175.956	
6,550.00	6,515.51	3,253.00	2,925.31	24.67	24.19	-120.63	1,377.95	-1,360.38	4,352.19	4,327.68	24.51	177.561	
6,600.00	6,561.97	3,253.00	2,925.31	24.88	24.19	-106.64	1,377.95	-1,360.38	4,398.73	4,374.18	24.55	179.180	
6,650.00	6,606.89	3,253.00	2,925.31	25.10	24.19	-93.02	1,377.95	-1,360.38	4,445.46	4,420.87	24.59	180.801	
6,700.00	6,649.98	3,253.00	2,925.31	25.32	24.19	-80.43	1,377.95	-1,360.38	4,492.07	4,467.44	24.63	182.411	
6,750.00	6,690.98	3,253.00	2,925.31	25.54	24.19	-69.48	1,377.95	-1,360.38	4,538.29	4,513.62	24.67	183.995	
6,800.00	6,729.64	3,253.00	2,925.31	25.77	24.19	-60.38	1,377.95	-1,360.38	4,583.85	4,559.14	24.71	185.538	
6,850.00	6,765.71	3,253.00	2,925.31	26.00	24.19	-53.01	1,377.95	-1,360.38	4,628.49	4,603.74	24.75	187.020	
6,900.00	6,798.98	3,253.00	2,925.31	26.24	24.19	-47.10	1,377.95	-1,360.38	4,671.97	4,647.17	24.80	188.422	
6,950.00	6,829.24	3,253.00	2,925.31	26.49	24.19	-42.36	1,377.95	-1,360.38	4,714.05	4,689.21	24.85	189.722	
7,000.00	6,856.30	3,253.00	2,925.31	26.76	24.19	-38.55	1,377.95	-1,360.38	4,754.52	4,729.62	24.91	190.899	
7,050.00	6,880.00	3,253.00	2,925.31	27.03	24.19	-35.45	1,377.95	-1,360.38	4,793.17	4,768.20	24.97	191.929	
7,100.00	6,900.19	3,253.00	2,925.31	27.32	24.19	-32.93	1,377.95	-1,360.38	4,829.81	4,804.76	25.05	192.790	
7,150.00	6,916.74	3,253.00	2,925.31	27.62	24.19	-30.87	1,377.95	-1,360.38	4,864.26	4,839.12	25.14	193.461	
7,200.00	6,929.56	3,253.00	2,925.31	27.93	24.19	-29.18	1,377.95	-1,360.38	4,896.36	4,871.11	25.25	193.922	
7,250.00	6,938.57	3,253.00	2,925.31	28.26	24.19	-27.79	1,377.95	-1,360.38	4,925.95	4,900.58	25.37	194.157	
7,300.00	6,943.70	3,253.00	2,925.31	28.60	24.19	-26.66	1,377.95	-1,360.38	4,952.91	4,927.40	25.51	194.153	
7,340.76	6,945.00	3,253.00	2,925.31	28.88	24.19	-25.90	1,377.95	-1,360.38	4,972.84	4,947.20	25.64	193.975	
7,400.00	6,945.00	3,253.00	2,925.31	29.31	24.19	-25.90	1,377.95	-1,360.38	5,000.72	4,974.88	25.85	193.489	
7,500.00	6,945.00	3,253.00	2,925.31	30.09	24.19	-25.90	1,377.95	-1,360.38	5,049.02	5,022.79	26.23	192.469	
7,600.00	6,945.00	3,253.00	2,925.31	30.93	24.19	-25.90	1,377.95	-1,360.38	5,098.82	5,072.17	26.65	191.309	
7,700.00	6,945.00	3,253.00	2,925.31	31.83	24.19	-25.90	1,377.95	-1,360.38	5,150.08	5,122.99	27.10	190.049	
7,800.00	6,945.00	3,253.00	2,925.31	32.79	24.19	-25.90	1,377.95	-1,360.38	5,202.76	5,175.19	27.57	188.727	
7,900.00	6,945.00	3,253.00	2,925.31	33.79	24.19	-25.90	1,377.95	-1,360.38	5,256.82	5,228.76	28.06	187.372	
8,000.00	6,945.00	3,253.00	2,925.31	34.84	24.19	-25.90	1,377.95	-1,360.38	5,312.20	5,283.64	28.56	186.012	
8,100.00	6,945.00	3,253.00	2,925.31	35.93	24.19	-25.90	1,377.95	-1,360.38	5,368.88	5,339.81	29.07	184.668	
8,200.00	6,945.00	3,253.00	2,925.31	37.06	24.19	-25.90	1,377.95	-1,360.38	5,426.81	5,397.21	29.60	183.356	
8,300.00	6,945.00	3,253.00	2,925.31	38.23	24.19	-25.90	1,377.95	-1,360.38	5,485.95	5,455.82	30.13	182.092	
8,400.00	6,945.00	3,253.00	2,925.31	39.42	24.19	-25.90	1,377.95	-1,360.38	5,546.26	5,515.60	30.66	180.884	
8,500.00	6,945.00	3,253.00	2,925.31	40.65	24.19	-25.90	1,377.95	-1,360.38	5,607.70	5,576.51	31.20	179.742	
8,600.00	6,945.00	3,253.00	2,925.31	41.90	24.19	-25.90	1,377.95	-1,360.38	5,670.25	5,638.51	31.74	178.671	
8,700.00	6,945.00	3,253.00	2,925.31	43.17	24.19	-25.90	1,377.95	-1,360.38	5,733.85	5,701.58	32.27	177.673	
8,800.00	6,945.00	3,253.00	2,925.31	44.46	24.19	-25.90	1,377.95	-1,360.38	5,798.49	5,765.68	32.81	176.752	
8,900.00	6,945.00	3,253.00	2,925.31	45.78	24.19	-25.90	1,377.95	-1,360.38	5,864.11	5,830.78	33.34	175.909	
9,000.00	6,945.00	3,253.00	2,925.31	47.11	24.19	-25.90	1,377.95	-1,360.38	5,930.70	5,896.84	33.86	175.143	

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 705H
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 705H	**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 #3	**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
9,100.00	6,945.00	3,253.00	2,925.31	48.46	24.19	-25.90	1,377.95	-1,360.38	5,998.21	5,963.83	34.38	174.454	
9,200.00	6,945.00	3,253.00	2,925.31	49.82	24.19	-25.90	1,377.95	-1,360.38	6,066.63	6,031.73	34.90	173.841	
9,300.00	6,945.00	3,253.00	2,925.31	51.20	24.19	-25.90	1,377.95	-1,360.38	6,135.90	6,100.50	35.41	173.302	
9,400.00	6,945.00	3,253.00	2,925.31	52.59	24.19	-25.90	1,377.95	-1,360.38	6,206.02	6,170.11	35.91	172.835	
9,500.00	6,945.00	3,253.00	2,925.31	53.99	24.19	-25.90	1,377.95	-1,360.38	6,276.95	6,240.55	36.40	172.437	
9,600.00	6,945.00	3,253.00	2,925.31	55.40	24.19	-25.90	1,377.95	-1,360.38	6,348.66	6,311.77	36.89	172.107	
9,700.00	6,945.00	3,253.00	2,925.31	56.83	24.19	-25.90	1,377.95	-1,360.38	6,421.12	6,383.76	37.37	171.842	
9,800.00	6,945.00	3,253.00	2,925.31	58.26	24.19	-25.90	1,377.95	-1,360.38	6,494.32	6,456.48	37.84	171.639	
9,900.00	6,945.00	3,253.00	2,925.31	59.70	24.19	-25.90	1,377.95	-1,360.38	6,568.22	6,529.92	38.30	171.496	
10,000.00	6,945.00	3,253.00	2,925.31	61.15	24.19	-25.90	1,377.95	-1,360.38	6,642.81	6,604.06	38.75	171.411	
10,100.00	6,945.00	3,253.00	2,925.31	62.61	24.19	-25.90	1,377.95	-1,360.38	6,718.06	6,678.86	39.20	171.380	
10,200.00	6,945.00	3,253.00	2,925.31	64.07	24.19	-25.90	1,377.95	-1,360.38	6,793.94	6,754.31	39.64	171.401	
10,300.00	6,945.00	3,253.00	2,925.31	65.54	24.19	-25.90	1,377.95	-1,360.38	6,870.45	6,830.38	40.07	171.473	
10,400.00	6,945.00	3,253.00	2,925.31	67.02	24.19	-25.90	1,377.95	-1,360.38	6,947.55	6,907.06	40.49	171.593	
10,500.00	6,945.00	3,253.00	2,925.31	68.50	24.19	-25.90	1,377.95	-1,360.38	7,025.23	6,984.32	40.90	171.758	
10,600.00	6,945.00	3,253.00	2,925.31	69.99	24.19	-25.90	1,377.95	-1,360.38	7,103.46	7,062.15	41.31	171.966	
10,700.00	6,945.00	3,253.00	2,925.31	71.48	24.19	-25.90	1,377.95	-1,360.38	7,182.24	7,140.53	41.70	172.216	
10,800.00	6,945.00	3,253.00	2,925.31	72.98	24.19	-25.90	1,377.95	-1,360.38	7,261.54	7,219.44	42.09	172.506	
10,900.00	6,945.00	3,253.00	2,925.31	74.48	24.19	-25.90	1,377.95	-1,360.38	7,341.34	7,298.86	42.48	172.833	
11,000.00	6,945.00	3,253.00	2,925.31	75.99	24.19	-25.90	1,377.95	-1,360.38	7,421.63	7,378.78	42.85	173.196	
11,100.00	6,945.00	3,253.00	2,925.31	77.50	24.19	-25.90	1,377.95	-1,360.38	7,502.40	7,459.18	43.22	173.594	
11,200.00	6,945.00	3,253.00	2,925.31	79.01	24.19	-25.90	1,377.95	-1,360.38	7,583.63	7,540.05	43.58	174.023	
11,300.00	6,945.00	3,253.00	2,925.31	80.53	24.19	-25.90	1,377.95	-1,360.38	7,665.30	7,621.37	43.93	174.484	
11,400.00	6,945.00	3,253.00	2,925.31	82.05	24.19	-25.90	1,377.95	-1,360.38	7,747.40	7,703.12	44.28	174.975	
11,500.00	6,945.00	3,253.00	2,925.31	83.57	24.19	-25.90	1,377.95	-1,360.38	7,829.91	7,785.30	44.62	175.494	
11,600.00	6,945.00	3,253.00	2,925.31	85.10	24.19	-25.90	1,377.95	-1,360.38	7,912.83	7,867.88	44.95	176.039	
11,700.00	6,945.00	3,253.00	2,925.31	86.63	24.19	-25.90	1,377.95	-1,360.38	7,996.14	7,950.87	45.28	176.610	
11,800.00	6,945.00	3,253.00	2,925.31	88.16	24.19	-25.90	1,377.95	-1,360.38	8,079.83	8,034.23	45.60	177.206	
11,900.00	6,945.00	3,253.00	2,925.31	89.69	24.19	-25.90	1,377.95	-1,360.38	8,163.88	8,117.97	45.91	177.825	
12,000.00	6,945.00	3,253.00	2,925.31	91.23	24.19	-25.90	1,377.95	-1,360.38	8,248.30	8,202.08	46.22	178.466	
12,100.00	6,945.00	3,253.00	2,925.31	92.77	24.19	-25.90	1,377.95	-1,360.38	8,333.05	8,286.53	46.52	179.128	
12,200.00	6,945.00	3,253.00	2,925.31	94.31	24.19	-25.90	1,377.95	-1,360.38	8,418.14	8,371.33	46.82	179.810	
12,300.00	6,945.00	3,253.00	2,925.31	95.85	24.19	-25.90	1,377.95	-1,360.38	8,503.56	8,456.45	47.11	180.512	
12,400.00	6,945.00	3,253.00	2,925.31	97.40	24.19	-25.90	1,377.95	-1,360.38	8,589.29	8,541.89	47.39	181.232	
12,500.00	6,945.00	3,253.00	2,925.31	98.95	24.19	-25.90	1,377.95	-1,360.38	8,675.32	8,627.65	47.67	181.969	
12,600.00	6,945.00	3,253.00	2,925.31	100.50	24.19	-25.90	1,377.95	-1,360.38	8,761.66	8,713.71	47.95	182.723	
12,700.00	6,945.00	3,253.00	2,925.31	102.05	24.19	-25.90	1,377.95	-1,360.38	8,848.28	8,800.05	48.22	183.493	
12,800.00	6,945.00	3,253.00	2,925.31	103.60	24.19	-25.90	1,377.95	-1,360.38	8,935.18	8,886.69	48.49	184.278	
12,900.00	6,945.00	3,253.00	2,925.31	105.15	24.19	-25.90	1,377.95	-1,360.38	9,022.35	8,973.60	48.75	185.077	
13,000.00	6,945.00	3,253.00	2,925.31	106.71	24.19	-25.90	1,377.95	-1,360.38	9,109.78	9,060.77	49.01	185.890	
13,100.00	6,945.00	3,253.00	2,925.31	108.26	24.19	-25.90	1,377.95	-1,360.38	9,197.47	9,148.21	49.26	186.716	
13,200.00	6,945.00	3,253.00	2,925.31	109.82	24.19	-25.90	1,377.95	-1,360.38	9,285.41	9,235.90	49.51	187.555	
13,300.00	6,945.00	3,253.00	2,925.31	111.38	24.19	-25.90	1,377.95	-1,360.38	9,373.59	9,323.84	49.75	188.406	
13,400.00	6,945.00	3,253.00	2,925.31	112.94	24.19	-25.90	1,377.95	-1,360.38	9,462.01	9,412.02	49.99	189.268	
13,500.00	6,945.00	3,253.00	2,925.31	114.50	24.19	-25.90	1,377.95	-1,360.38	9,550.65	9,500.42	50.23	190.141	
13,600.00	6,945.00	3,253.00	2,925.31	116.07	24.19	-25.90	1,377.95	-1,360.38	9,639.52	9,589.06	50.46	191.024	
13,700.00	6,945.00	3,253.00	2,925.31	117.63	24.19	-25.90	1,377.95	-1,360.38	9,728.60	9,677.91	50.69	191.918	
13,800.00	6,945.00	3,253.00	2,925.31	119.19	24.19	-25.90	1,377.95	-1,360.38	9,817.90	9,766.98	50.92	192.820	
13,900.00	6,945.00	3,253.00	2,925.31	120.76	24.19	-25.90	1,377.95	-1,360.38	9,907.39	9,856.25	51.14	193.732	
14,000.00	6,945.00	3,253.00	2,925.31	122.33	24.19	-25.90	1,377.95	-1,360.38	9,997.09	9,945.73	51.36	194.652	
14,100.00	6,945.00	3,253.00	2,925.31	123.90	24.19	-25.90	1,377.95	-1,360.38	10,086.98	10,035.41	51.57	195.580	
14,200.00	6,945.00	3,253.00	2,925.31	125.46	24.19	-25.90	1,377.95	-1,360.38	10,177.06	10,125.27	51.79	196.516	

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 705H
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 705H	**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 #3	**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	6,945.00	3,253.00	2,925.31	127.03	24.19	-25.90	1,377.95	-1,360.38	10,267.32	10,215.33	52.00	197.459	
14,400.00	6,945.00	3,253.00	2,925.31	128.60	24.19	-25.90	1,377.95	-1,360.38	10,357.77	10,305.56	52.20	198.409	
14,500.00	6,945.00	3,253.00	2,925.31	130.18	24.19	-25.90	1,377.95	-1,360.38	10,448.38	10,395.97	52.41	199.366	
14,600.00	6,945.00	3,253.00	2,925.31	131.75	24.19	-25.90	1,377.95	-1,360.38	10,539.17	10,486.56	52.61	200.329	
14,700.00	6,945.00	3,253.00	2,925.31	133.32	24.19	-25.90	1,377.95	-1,360.38	10,630.12	10,577.31	52.81	201.298	
14,800.00	6,945.00	3,253.00	2,925.31	134.89	24.19	-25.90	1,377.95	-1,360.38	10,721.23	10,668.23	53.00	202.273	
14,900.00	6,945.00	3,253.00	2,925.31	136.47	24.19	-25.90	1,377.95	-1,360.38	10,812.50	10,759.30	53.20	203.253	
15,000.00	6,945.00	3,253.00	2,925.31	138.04	24.19	-25.90	1,377.95	-1,360.38	10,903.92	10,850.54	53.39	204.238	
15,100.00	6,945.00	3,253.00	2,925.31	139.62	24.19	-25.90	1,377.95	-1,360.38	10,995.50	10,941.92	53.58	205.228	
15,200.00	6,945.00	3,253.00	2,925.31	141.20	24.19	-25.90	1,377.95	-1,360.38	11,087.21	11,033.45	53.76	206.223	
15,300.00	6,945.00	3,253.00	2,925.31	142.77	24.19	-25.90	1,377.95	-1,360.38	11,179.07	11,125.13	53.95	207.222	
15,400.00	6,945.00	3,253.00	2,925.31	144.35	24.19	-25.90	1,377.95	-1,360.38	11,271.07	11,216.94	54.13	208.225	
15,500.00	6,945.00	3,253.00	2,925.31	145.93	24.19	-25.90	1,377.95	-1,360.38	11,363.20	11,308.90	54.31	209.232	
15,600.00	6,945.00	3,253.00	2,925.31	147.51	24.19	-25.90	1,377.95	-1,360.38	11,455.47	11,400.98	54.49	210.243	
15,700.00	6,945.00	3,253.00	2,925.31	149.09	24.19	-25.90	1,377.95	-1,360.38	11,547.86	11,493.20	54.66	211.256	
15,800.00	6,945.00	3,253.00	2,925.31	150.67	24.19	-25.90	1,377.95	-1,360.38	11,640.38	11,585.55	54.84	212.274	
15,900.00	6,945.00	1,422.64	1,354.64	152.25	6.70	-13.18	748.00	-749.66	11,729.60	11,683.39	46.20	253.870	
16,000.00	6,945.00	1,405.00	1,340.10	153.83	6.50	-13.07	740.69	-742.86	11,817.23	11,770.94	46.29	255.286	
16,100.00	6,945.00	1,405.00	1,340.10	155.41	6.50	-13.07	740.69	-742.86	11,904.97	11,858.50	46.47	256.189	
16,200.00	6,945.00	1,405.00	1,340.10	156.99	6.50	-13.07	740.69	-742.86	11,992.91	11,946.26	46.65	257.100	
16,300.00	6,945.00	1,405.00	1,340.10	158.57	6.50	-13.07	740.69	-742.86	12,081.03	12,034.20	46.82	258.021	
16,400.00	6,945.00	1,374.00	1,314.38	160.15	6.15	-12.89	728.02	-731.08	12,169.29	12,122.45	46.84	259.831	
16,500.00	6,945.00	1,374.00	1,314.38	161.74	6.15	-12.89	728.02	-731.08	12,257.67	12,210.67	47.01	260.765	
16,600.00	6,945.00	1,374.00	1,314.38	163.32	6.15	-12.89	728.02	-731.08	12,346.24	12,299.06	47.18	261.706	
16,700.00	6,945.00	1,374.00	1,314.38	164.90	6.15	-12.89	728.02	-731.08	12,434.98	12,387.63	47.34	262.654	
16,800.00	6,945.00	1,374.00	1,314.38	166.49	6.15	-12.89	728.02	-731.08	12,523.88	12,476.37	47.51	263.610	
16,900.00	6,945.00	1,374.00	1,314.38	168.07	6.15	-12.89	728.02	-731.08	12,612.96	12,565.28	47.67	264.571	
17,000.00	6,945.00	1,345.22	1,290.34	169.66	5.83	-12.73	716.39	-720.34	12,701.97	12,654.27	47.70	266.264	
17,100.00	6,945.00	1,339.78	1,285.78	171.24	5.77	-12.69	714.20	-718.35	12,791.28	12,743.44	47.84	267.379	
17,200.00	6,945.00	1,311.00	1,261.52	172.83	5.46	-12.53	702.70	-707.99	12,880.87	12,833.02	47.85	269.197	
17,300.00	6,945.00	1,311.00	1,261.52	174.41	5.46	-12.53	702.70	-707.99	12,970.40	12,922.39	48.01	270.178	
17,400.00	6,945.00	1,311.00	1,261.52	176.00	5.46	-12.53	702.70	-707.99	13,060.08	13,011.91	48.16	271.164	
17,500.00	6,945.00	1,311.00	1,261.52	177.59	5.46	-12.53	702.70	-707.99	13,149.90	13,101.59	48.32	272.155	
17,600.00	6,945.00	1,311.00	1,261.52	179.17	5.46	-12.53	702.70	-707.99	13,239.88	13,191.41	48.47	273.151	
17,700.00	6,945.00	1,311.00	1,261.52	180.76	5.46	-12.53	702.70	-707.99	13,329.99	13,281.37	48.62	274.152	
17,800.00	6,945.00	1,311.00	1,261.52	182.35	5.46	-12.53	702.70	-707.99	13,420.25	13,371.48	48.77	275.157	
17,900.00	6,945.00	1,311.00	1,261.52	183.93	5.46	-12.53	702.70	-707.99	13,510.64	13,461.72	48.92	276.165	
18,000.00	6,945.00	1,293.51	1,246.68	185.52	5.28	-12.43	695.80	-701.84	13,601.09	13,552.10	48.99	277.622	
18,100.00	6,945.00	1,279.00	1,234.28	187.11	5.13	-12.35	690.17	-696.80	13,691.73	13,642.65	49.07	279.010	
18,200.00	6,945.00	1,279.00	1,234.28	188.70	5.13	-12.35	690.17	-696.80	13,782.43	13,733.22	49.22	280.028	
18,300.00	6,945.00	1,279.00	1,234.28	190.29	5.13	-12.35	690.17	-696.80	13,873.27	13,823.91	49.36	281.050	
18,400.00	6,945.00	1,279.00	1,234.28	191.88	5.13	-12.35	690.17	-696.80	13,964.23	13,914.73	49.51	282.074	
18,500.00	6,945.00	1,279.00	1,234.28	193.46	5.13	-12.35	690.17	-696.80	14,055.32	14,005.67	49.65	283.102	
18,600.00	6,945.00	1,263.09	1,220.62	195.05	4.97	-12.26	684.09	-691.36	14,146.46	14,096.74	49.72	284.508	
18,700.00	6,945.00	1,248.00	1,207.61	196.64	4.81	-12.18	678.41	-686.26	14,237.76	14,187.96	49.80	285.900	
18,800.00	6,945.00	1,248.00	1,207.61	198.23	4.81	-12.18	678.41	-686.26	14,329.13	14,279.19	49.94	286.934	
18,900.00	6,945.00	1,248.00	1,207.61	199.82	4.81	-12.18	678.41	-686.26	14,420.61	14,370.53	50.08	287.970	
19,000.00	6,945.00	1,236.78	1,197.90	201.41	4.70	-12.12	674.23	-682.49	14,512.19	14,462.02	50.17	289.257	
19,100.00	6,945.00	1,217.00	1,180.74	203.00	4.51	-12.02	666.95	-675.88	14,603.86	14,553.63	50.23	290.738	
19,200.00	6,945.00	1,217.00	1,180.74	204.60	4.51	-12.02	666.95	-675.88	14,695.60	14,645.24	50.37	291.779	
19,300.00	6,945.00	1,217.00	1,180.74	206.19	4.51	-12.02	666.95	-675.88	14,787.45	14,736.95	50.50	292.821	
19,400.00	6,945.00	1,217.00	1,180.74	207.78	4.51	-12.02	666.95	-675.88	14,879.40	14,828.77	50.63	293.865	

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 705H
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 705H	**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 #3	**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
19,500.00	6,945.00	1,217.00	1,180.74	209.37	4.51	-12.02	666.95	-675.88	14,971.46	14,920.69	50.77	294.910	
19,600.00	6,945.00	1,217.00	1,180.74	210.96	4.51	-12.02	666.95	-675.88	15,063.61	15,012.72	50.90	295.957	
19,700.00	6,945.00	1,217.00	1,180.74	212.55	4.51	-12.02	666.95	-675.88	15,155.87	15,104.84	51.03	297.005	
19,800.00	6,945.00	1,186.58	1,154.16	214.14	4.23	-11.86	656.07	-665.85	15,248.02	15,196.96	51.06	298.645	
19,900.00	6,945.00	1,181.70	1,149.87	215.74	4.18	-11.83	654.36	-664.26	15,340.40	15,289.23	51.17	299.789	
20,000.00	6,945.00	1,155.00	1,126.30	217.33	3.94	-11.70	645.24	-655.68	15,432.97	15,381.76	51.21	301.363	
20,100.00	6,945.00	1,155.00	1,126.30	218.92	3.94	-11.70	645.24	-655.68	15,525.48	15,474.14	51.34	302.412	
20,200.00	6,945.00	1,155.00	1,126.30	220.51	3.94	-11.70	645.24	-655.68	15,618.08	15,566.61	51.47	303.462	
20,300.00	6,945.00	1,155.00	1,126.30	222.11	3.94	-11.70	645.24	-655.68	15,710.77	15,659.18	51.59	304.512	
20,400.00	6,945.00	1,155.00	1,126.30	223.70	3.94	-11.70	645.24	-655.68	15,803.55	15,751.83	51.72	305.563	
20,500.00	6,945.00	1,155.00	1,126.30	225.29	3.94	-11.70	645.24	-655.68	15,896.41	15,844.57	51.85	306.614	
20,600.00	6,945.00	1,155.00	1,126.30	226.88	3.94	-11.70	645.24	-655.68	15,989.37	15,937.40	51.97	307.665	
20,700.00	6,945.00	1,155.00	1,126.30	228.48	3.94	-11.70	645.24	-655.68	16,082.41	16,030.31	52.09	308.716	
20,741.48	6,945.00	1,155.00	1,126.30	229.14	3.94	-11.70	645.24	-655.68	16,121.02	16,068.87	52.15	309.152	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 705H
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 705H	**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 #3	**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	-35.22	102.30	-72.21	125.22				
100.00	100.00	100.00	100.00	0.25	0.25	-35.22	102.30	-72.21	125.22	124.72	0.50	249.512	
200.00	200.00	200.00	200.00	0.61	0.61	-35.22	102.30	-72.21	125.22	124.00	1.22	102.740	
300.00	300.00	300.00	300.00	0.97	0.97	-35.22	102.30	-72.21	125.22	123.28	1.94	64.688	
400.00	400.00	400.00	400.00	1.33	1.33	-35.22	102.30	-72.21	125.22	122.57	2.65	47.205	
500.00	500.00	500.00	500.00	1.68	1.68	-35.22	102.30	-72.21	125.22	121.85	3.37	37.161	CC, ES
600.00	599.98	597.02	597.00	2.03	2.03	177.63	103.91	-71.87	128.12	124.06	4.06	31.545	
700.00	699.84	693.45	693.31	2.37	2.38	179.21	108.69	-70.85	136.88	132.13	4.75	28.835	
795.17	794.65	784.17	783.70	2.69	2.71	-178.69	116.08	-69.28	150.77	145.37	5.40	27.907	
800.00	799.45	788.73	788.24	2.71	2.73	-178.58	116.52	-69.19	151.61	146.17	5.44	27.867	SF
900.00	898.92	882.70	881.56	3.06	3.07	-176.09	127.27	-66.90	170.57	164.46	6.12	27.893	
1,000.00	998.39	975.39	973.21	3.43	3.41	-173.55	140.80	-64.03	192.31	185.53	6.78	28.345	
1,100.00	1,097.86	1,066.63	1,062.94	3.79	3.76	-171.06	156.94	-60.60	216.91	209.47	7.45	29.127	
1,200.00	1,197.33	1,160.32	1,154.63	4.16	4.13	-168.69	175.81	-56.58	243.91	235.78	8.13	30.003	
1,300.00	1,296.80	1,256.09	1,248.30	4.53	4.52	-166.72	195.28	-52.45	271.41	262.58	8.83	30.740	
1,400.00	1,396.27	1,351.85	1,341.97	4.91	4.91	-165.11	214.76	-48.31	299.16	289.62	9.54	31.370	
1,500.00	1,495.74	1,447.62	1,435.65	5.28	5.31	-163.78	234.23	-44.17	327.09	316.84	10.25	31.922	
1,600.00	1,595.21	1,543.38	1,529.32	5.66	5.71	-162.66	253.71	-40.03	355.15	344.19	10.96	32.408	
1,700.00	1,694.68	1,639.15	1,622.99	6.04	6.11	-161.69	273.18	-35.89	383.32	371.65	11.67	32.838	
1,800.00	1,794.15	1,734.91	1,716.66	6.42	6.52	-160.86	292.66	-31.75	411.58	399.19	12.39	33.220	
1,900.00	1,893.62	1,830.68	1,810.33	6.80	6.93	-160.14	312.13	-27.61	439.91	426.80	13.11	33.562	
2,000.00	1,993.09	1,926.44	1,904.01	7.18	7.34	-159.51	331.61	-23.47	468.30	454.47	13.83	33.869	
2,100.00	2,092.56	2,022.21	1,997.68	7.56	7.75	-158.94	351.09	-19.33	496.73	482.18	14.55	34.146	
2,200.00	2,192.03	2,117.97	2,091.35	7.94	8.16	-158.44	370.56	-15.19	525.20	509.93	15.27	34.398	
2,300.00	2,291.50	2,213.74	2,185.02	8.32	8.57	-157.99	390.04	-11.05	553.71	537.72	15.99	34.627	
2,400.00	2,390.97	2,309.50	2,278.69	8.70	8.99	-157.58	409.51	-6.91	582.24	565.53	16.71	34.836	
2,500.00	2,490.44	2,405.27	2,372.37	9.08	9.40	-157.22	428.99	-2.77	610.80	593.36	17.44	35.029	
2,600.00	2,589.91	2,501.03	2,466.04	9.47	9.82	-156.88	448.46	1.37	639.38	621.22	18.16	35.205	
2,700.00	2,689.38	2,596.80	2,559.71	9.85	10.23	-156.57	467.94	5.51	667.98	649.09	18.89	35.369	
2,800.00	2,788.85	2,692.56	2,653.38	10.23	10.65	-156.29	487.41	9.65	696.59	676.98	19.61	35.520	
2,900.00	2,888.32	2,788.33	2,747.05	10.61	11.07	-156.03	506.89	13.79	725.22	704.88	20.34	35.660	
3,000.00	2,987.79	2,884.09	2,840.73	11.00	11.48	-155.79	526.37	17.93	753.86	732.80	21.06	35.790	
3,100.00	3,087.25	2,979.85	2,934.40	11.38	11.90	-155.57	545.84	22.07	782.51	760.72	21.79	35.912	
3,200.00	3,186.72	3,075.62	3,028.07	11.76	12.32	-155.36	565.32	26.21	811.17	788.66	22.52	36.026	
3,300.00	3,286.19	3,171.38	3,121.74	12.15	12.74	-155.17	584.79	30.35	839.85	816.60	23.24	36.133	
3,400.00	3,385.66	3,267.15	3,215.41	12.53	13.15	-154.99	604.27	34.49	868.53	844.55	23.97	36.233	
3,500.00	3,485.13	3,362.91	3,309.09	12.91	13.57	-154.82	623.74	38.63	897.21	872.51	24.70	36.327	
3,600.00	3,584.60	3,458.68	3,402.76	13.30	13.99	-154.66	643.22	42.77	925.91	900.48	25.43	36.415	
3,700.00	3,684.07	3,554.44	3,496.43	13.68	14.41	-154.51	662.69	46.91	954.61	928.45	26.15	36.499	
3,800.00	3,783.54	3,650.21	3,590.10	14.06	14.83	-154.38	682.17	51.05	983.31	956.43	26.88	36.577	
3,900.00	3,883.01	3,745.97	3,683.78	14.45	15.25	-154.24	701.65	55.19	1,012.02	984.41	27.61	36.652	
4,000.00	3,982.48	3,841.74	3,777.45	14.83	15.67	-154.12	721.12	59.33	1,040.74	1,012.40	28.34	36.723	
4,100.00	4,081.95	3,937.50	3,871.12	15.22	16.09	-154.00	740.60	63.47	1,069.45	1,040.39	29.07	36.790	
4,200.00	4,181.42	4,033.27	3,964.79	15.60	16.51	-153.89	760.07	67.61	1,098.18	1,068.38	29.80	36.853	
4,300.00	4,280.89	4,129.03	4,058.46	15.98	16.93	-153.78	779.55	71.75	1,126.90	1,096.38	30.53	36.914	
4,400.00	4,380.36	4,224.80	4,152.14	16.37	17.35	-153.68	799.02	75.89	1,155.63	1,124.38	31.26	36.971	
4,500.00	4,479.83	4,320.56	4,245.81	16.75	17.77	-153.59	818.50	80.03	1,184.37	1,152.38	31.99	37.026	
4,600.00	4,579.30	4,416.33	4,339.48	17.14	18.19	-153.49	837.97	84.17	1,213.10	1,180.39	32.72	37.079	
4,700.00	4,678.77	4,512.09	4,433.15	17.52	18.61	-153.41	857.45	88.30	1,241.84	1,208.40	33.45	37.129	
4,800.00	4,778.24	4,607.86	4,526.82	17.90	19.03	-153.32	876.92	92.44	1,270.58	1,236.41	34.18	37.176	
4,900.00	4,877.71	4,703.62	4,620.50	18.29	19.45	-153.25	896.40	96.58	1,299.33	1,264.42	34.91	37.222	
5,000.00	4,977.18	4,799.39	4,714.17	18.67	19.87	-153.17	915.88	100.72	1,328.07	1,292.44	35.64	37.265	

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 705H
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 705H	**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 #3	**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
5,100.00	5,076.65	4,895.15	4,807.84	19.06	20.29	-153.10	935.35	104.86	1,356.82	1,320.45	36.37	37.307	
5,200.00	5,176.12	4,990.91	4,901.51	19.44	20.71	-153.03	954.83	109.00	1,385.57	1,348.47	37.10	37.347	
5,300.00	5,275.59	5,086.68	4,995.18	19.83	21.13	-152.96	974.30	113.14	1,414.32	1,376.49	37.83	37.386	
5,400.00	5,375.06	5,182.44	5,088.86	20.21	21.55	-152.90	993.78	117.28	1,443.08	1,404.51	38.56	37.423	
5,500.00	5,474.53	5,278.21	5,182.53	20.59	21.97	-152.83	1,013.25	121.42	1,471.83	1,432.54	39.29	37.458	
5,600.00	5,574.00	5,373.97	5,276.20	20.98	22.39	-152.77	1,032.73	125.56	1,500.59	1,460.56	40.02	37.492	
5,700.00	5,673.47	5,469.74	5,369.87	21.36	22.81	-152.72	1,052.20	129.70	1,529.35	1,488.59	40.76	37.525	
5,800.00	5,772.94	5,565.50	5,463.54	21.75	23.23	-152.66	1,071.68	133.84	1,558.10	1,516.62	41.49	37.556	
5,900.00	5,872.41	5,661.27	5,557.22	22.13	23.65	-152.61	1,091.16	137.98	1,586.87	1,544.65	42.22	37.586	
6,000.00	5,971.88	5,757.03	5,650.89	22.52	24.07	-152.56	1,110.63	142.12	1,615.63	1,572.68	42.95	37.616	
6,100.00	6,071.35	5,852.80	5,744.56	22.90	24.49	-152.51	1,130.11	146.26	1,644.39	1,600.71	43.68	37.644	
6,200.00	6,170.81	5,948.56	5,838.23	23.28	24.91	-152.46	1,149.58	150.40	1,673.15	1,628.74	44.42	37.671	
6,300.00	6,270.28	6,044.33	5,931.90	23.67	25.34	-152.41	1,169.06	154.54	1,701.92	1,656.77	45.15	37.697	
6,375.94	6,345.82	6,117.05	6,003.04	23.96	25.66	-152.38	1,183.85	157.68	1,723.76	1,678.06	45.70	37.716	
6,400.00	6,369.72	6,140.08	6,025.57	24.05	25.76	-137.27	1,188.53	158.68	1,730.72	1,684.84	45.88	37.722	
6,450.00	6,419.09	6,187.77	6,072.21	24.25	25.97	-119.87	1,198.23	160.74	1,745.36	1,699.11	46.25	37.734	
6,500.00	6,467.78	6,234.98	6,118.39	24.46	26.17	-111.06	1,207.83	162.78	1,760.21	1,713.58	46.63	37.748	
6,550.00	6,515.51	6,281.42	6,163.82	24.67	26.38	-105.72	1,217.27	164.79	1,775.21	1,728.20	47.01	37.762	
6,600.00	6,561.97	6,326.81	6,208.22	24.88	26.58	-102.05	1,226.51	166.75	1,790.34	1,742.95	47.39	37.779	
6,650.00	6,606.89	6,370.86	6,251.31	25.10	26.77	-99.33	1,235.46	168.66	1,805.59	1,757.82	47.77	37.799	
6,700.00	6,649.98	6,410.64	6,290.22	25.32	26.95	-97.15	1,243.55	170.31	1,820.99	1,772.87	48.13	37.838	
6,750.00	6,690.98	6,440.94	6,319.88	25.54	27.08	-95.23	1,249.68	170.45	1,836.72	1,788.30	48.42	37.931	
6,800.00	6,729.64	6,467.46	6,345.85	25.77	27.19	-93.50	1,255.00	169.39	1,852.89	1,804.19	48.70	38.048	
6,850.00	6,765.71	6,490.12	6,367.98	26.00	27.28	-91.87	1,259.51	167.61	1,869.55	1,820.59	48.96	38.188	
6,900.00	6,798.98	6,508.99	6,386.36	26.24	27.36	-90.26	1,263.23	165.52	1,886.73	1,837.54	49.20	38.352	
6,950.00	6,829.24	6,524.24	6,401.17	26.49	27.42	-88.62	1,266.21	163.42	1,904.45	1,855.03	49.42	38.538	
7,000.00	6,856.30	6,536.14	6,412.68	26.76	27.47	-86.92	1,268.52	161.54	1,922.68	1,873.05	49.63	38.742	
7,050.00	6,880.00	6,550.00	6,426.06	27.03	27.52	-85.32	1,271.20	159.06	1,941.39	1,891.52	49.87	38.930	
7,100.00	6,900.19	6,550.00	6,426.06	27.32	27.52	-83.30	1,271.20	159.06	1,960.48	1,910.46	50.02	39.197	
7,150.00	6,916.74	6,550.00	6,426.06	27.62	27.52	-81.31	1,271.20	159.06	1,979.89	1,929.72	50.18	39.459	
7,200.00	6,929.56	6,550.00	6,426.06	27.93	27.52	-79.35	1,271.20	159.06	1,999.51	1,949.16	50.35	39.711	
7,250.00	6,938.57	6,550.00	6,426.06	28.26	27.52	-77.43	1,271.20	159.06	2,019.20	1,968.66	50.54	39.950	
7,300.00	6,943.70	6,550.00	6,426.06	28.60	27.52	-75.56	1,271.20	159.06	2,038.85	1,988.10	50.75	40.174	
7,340.76	6,945.00	6,550.00	6,426.06	28.88	27.52	-74.09	1,271.20	159.06	2,054.75	2,003.82	50.93	40.345	
7,400.00	6,945.00	6,550.00	6,426.06	29.31	27.52	-74.09	1,271.20	159.06	2,078.47	2,027.27	51.20	40.593	
7,500.00	6,945.00	6,550.00	6,426.06	30.09	27.52	-74.09	1,271.20	159.06	2,121.66	2,069.98	51.68	41.056	
7,600.00	6,945.00	6,530.62	6,407.34	30.93	27.45	-73.52	1,267.45	162.44	2,168.38	2,116.39	52.00	41.703	
7,700.00	6,945.00	6,524.73	6,401.64	31.83	27.42	-73.34	1,266.31	163.35	2,218.67	2,166.25	52.43	42.318	
7,800.00	6,945.00	6,519.48	6,396.55	32.79	27.40	-73.19	1,265.28	164.11	2,272.22	2,219.36	52.86	42.985	
7,900.00	6,945.00	6,500.00	6,377.61	33.79	27.32	-72.61	1,261.46	166.58	2,328.94	2,275.78	53.16	43.809	
8,000.00	6,945.00	6,500.00	6,377.61	34.84	27.32	-72.61	1,261.46	166.58	2,388.27	2,334.66	53.61	44.546	
8,100.00	6,945.00	6,500.00	6,377.61	35.93	27.32	-72.61	1,261.46	166.58	2,450.26	2,396.21	54.05	45.334	
8,200.00	6,945.00	6,500.00	6,377.61	37.06	27.32	-72.61	1,261.46	166.58	2,514.69	2,460.22	54.47	46.170	
8,300.00	6,945.00	6,500.00	6,377.61	38.23	27.32	-72.61	1,261.46	166.58	2,581.38	2,526.52	54.86	47.052	
8,400.00	6,945.00	6,500.00	6,377.61	39.42	27.32	-72.61	1,261.46	166.58	2,650.18	2,594.94	55.24	47.976	
8,500.00	6,945.00	6,500.00	6,377.61	40.65	27.32	-72.61	1,261.46	166.58	2,720.91	2,665.31	55.60	48.940	
8,600.00	6,945.00	6,500.00	6,377.61	41.90	27.32	-72.61	1,261.46	166.58	2,793.42	2,737.49	55.93	49.941	
8,700.00	6,945.00	6,500.00	6,377.61	43.17	27.32	-72.61	1,261.46	166.58	2,867.60	2,811.34	56.25	50.976	
8,800.00	6,945.00	6,500.00	6,377.61	44.46	27.32	-72.61	1,261.46	166.58	2,943.30	2,886.74	56.55	52.044	
8,900.00	6,945.00	6,500.00	6,377.61	45.78	27.32	-72.61	1,261.46	166.58	3,020.41	2,963.58	56.84	53.141	
9,000.00	6,945.00	6,500.00	6,377.61	47.11	27.32	-72.61	1,261.46	166.58	3,098.84	3,041.73	57.11	54.265	
9,100.00	6,945.00	6,500.00	6,377.61	48.46	27.32	-72.61	1,261.46	166.58	3,178.47	3,121.11	57.36	55.415	

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 705H
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 705H	**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 #3	**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
9,200.00	6,945.00	6,500.00	6,377.61	49.82	27.32	-72.61	1,261.46	166.58	3,259.23	3,201.63	57.60	56.588	
9,300.00	6,945.00	6,478.41	6,356.55	51.20	27.23	-71.96	1,257.18	168.63	3,340.67	3,283.01	57.66	57.942	
9,400.00	6,945.00	6,476.95	6,355.12	52.59	27.23	-71.92	1,256.89	168.74	3,423.38	3,365.52	57.86	59.168	
9,500.00	6,945.00	6,475.56	6,353.77	53.99	27.22	-71.88	1,256.62	168.84	3,506.99	3,448.94	58.05	60.413	
9,600.00	6,945.00	6,474.26	6,352.49	55.40	27.22	-71.84	1,256.36	168.94	3,591.43	3,533.20	58.23	61.674	
9,700.00	6,945.00	6,473.03	6,351.29	56.83	27.21	-71.80	1,256.11	169.03	3,676.66	3,618.25	58.41	62.951	
9,800.00	6,945.00	6,471.86	6,350.14	58.26	27.21	-71.77	1,255.88	169.11	3,762.60	3,704.03	58.57	64.242	
9,900.00	6,945.00	6,450.00	6,328.76	59.70	27.12	-71.11	1,251.50	170.21	3,849.57	3,791.00	58.57	65.726	
10,000.00	6,945.00	6,450.00	6,328.76	61.15	27.12	-71.11	1,251.50	170.21	3,936.80	3,878.07	58.73	67.035	
10,100.00	6,945.00	6,450.00	6,328.76	62.61	27.12	-71.11	1,251.50	170.21	4,024.62	3,965.74	58.88	68.355	
10,200.00	6,945.00	6,450.00	6,328.76	64.07	27.12	-71.11	1,251.50	170.21	4,112.99	4,053.97	59.02	69.686	
10,300.00	6,945.00	6,450.00	6,328.76	65.54	27.12	-71.11	1,251.50	170.21	4,201.89	4,142.73	59.16	71.026	
10,400.00	6,945.00	6,450.00	6,328.76	67.02	27.12	-71.11	1,251.50	170.21	4,291.27	4,231.98	59.29	72.376	
10,500.00	6,945.00	6,450.00	6,328.76	68.50	27.12	-71.11	1,251.50	170.21	4,381.12	4,321.70	59.42	73.734	
10,600.00	6,945.00	6,450.00	6,328.76	69.99	27.12	-71.11	1,251.50	170.21	4,471.39	4,411.85	59.54	75.099	
10,700.00	6,945.00	6,450.00	6,328.76	71.48	27.12	-71.11	1,251.50	170.21	4,562.07	4,502.42	59.66	76.472	
10,800.00	6,945.00	6,450.00	6,328.76	72.98	27.12	-71.11	1,251.50	170.21	4,653.14	4,593.37	59.77	77.851	
10,900.00	6,945.00	6,450.00	6,328.76	74.48	27.12	-71.11	1,251.50	170.21	4,744.56	4,684.68	59.88	79.235	
11,000.00	6,945.00	6,450.00	6,328.76	75.99	27.12	-71.11	1,251.50	170.21	4,836.32	4,776.34	59.98	80.626	
11,100.00	6,945.00	6,450.00	6,328.76	77.50	27.12	-71.11	1,251.50	170.21	4,928.40	4,868.32	60.09	82.021	
11,200.00	6,945.00	6,450.00	6,328.76	79.01	27.12	-71.11	1,251.50	170.21	5,020.79	4,960.60	60.19	83.420	
11,300.00	6,945.00	6,450.00	6,328.76	80.53	27.12	-71.11	1,251.50	170.21	5,113.46	5,053.18	60.28	84.824	
11,400.00	6,945.00	6,450.00	6,328.76	82.05	27.12	-71.11	1,251.50	170.21	5,206.40	5,146.03	60.38	86.231	
11,500.00	6,945.00	6,450.00	6,328.76	83.57	27.12	-71.11	1,251.50	170.21	5,299.60	5,239.13	60.47	87.641	
11,600.00	6,945.00	6,450.00	6,328.76	85.10	27.12	-71.11	1,251.50	170.21	5,393.05	5,332.49	60.56	89.055	
11,700.00	6,945.00	6,450.00	6,328.76	86.63	27.12	-71.11	1,251.50	170.21	5,486.72	5,426.08	60.65	90.471	
11,800.00	6,945.00	6,450.00	6,328.76	88.16	27.12	-71.11	1,251.50	170.21	5,580.62	5,519.88	60.73	91.889	
11,900.00	6,945.00	6,450.00	6,328.76	89.69	27.12	-71.11	1,251.50	170.21	5,674.72	5,613.90	60.82	93.309	
12,000.00	6,945.00	6,450.00	6,328.76	91.23	27.12	-71.11	1,251.50	170.21	5,769.02	5,708.12	60.90	94.731	
12,100.00	6,945.00	6,450.00	6,328.76	92.77	27.12	-71.11	1,251.50	170.21	5,863.51	5,802.53	60.98	96.154	
12,200.00	6,945.00	6,450.00	6,328.76	94.31	27.12	-71.11	1,251.50	170.21	5,958.18	5,897.12	61.06	97.579	
12,300.00	6,945.00	6,450.00	6,328.76	95.85	27.12	-71.11	1,251.50	170.21	6,053.02	5,991.88	61.14	99.005	
12,400.00	6,945.00	6,450.00	6,328.76	97.40	27.12	-71.11	1,251.50	170.21	6,148.03	6,086.81	61.22	100.431	
12,500.00	6,945.00	6,450.00	6,328.76	98.95	27.12	-71.11	1,251.50	170.21	6,243.19	6,181.90	61.29	101.858	
12,600.00	6,945.00	6,450.00	6,328.76	100.50	27.12	-71.11	1,251.50	170.21	6,338.50	6,277.13	61.37	103.285	
12,700.00	6,945.00	6,450.00	6,328.76	102.05	27.12	-71.11	1,251.50	170.21	6,433.95	6,372.51	61.44	104.713	
12,800.00	6,945.00	6,450.00	6,328.76	103.60	27.12	-71.11	1,251.50	170.21	6,529.54	6,468.02	61.52	106.141	
12,900.00	6,945.00	6,450.00	6,328.76	105.15	27.12	-71.11	1,251.50	170.21	6,625.26	6,563.67	61.59	107.568	
13,000.00	6,945.00	6,450.00	6,328.76	106.71	27.12	-71.11	1,251.50	170.21	6,721.10	6,659.44	61.66	108.995	
13,100.00	6,945.00	6,450.00	6,328.76	108.26	27.12	-71.11	1,251.50	170.21	6,817.07	6,755.33	61.74	110.422	
13,200.00	6,945.00	6,450.00	6,328.76	109.82	27.12	-71.11	1,251.50	170.21	6,913.14	6,851.33	61.81	111.848	
13,300.00	6,945.00	6,450.00	6,328.76	111.38	27.12	-71.11	1,251.50	170.21	7,009.33	6,947.45	61.88	113.273	
13,400.00	6,945.00	6,450.00	6,328.76	112.94	27.12	-71.11	1,251.50	170.21	7,105.62	7,043.67	61.95	114.697	
13,500.00	6,945.00	6,450.00	6,328.76	114.50	27.12	-71.11	1,251.50	170.21	7,202.01	7,139.99	62.02	116.121	
13,600.00	6,945.00	6,450.00	6,328.76	116.07	27.12	-71.11	1,251.50	170.21	7,298.51	7,236.41	62.09	117.543	
13,700.00	6,945.00	6,450.00	6,328.76	117.63	27.12	-71.11	1,251.50	170.21	7,395.09	7,332.93	62.16	118.964	
13,800.00	6,945.00	6,450.00	6,328.76	119.19	27.12	-71.11	1,251.50	170.21	7,491.76	7,429.53	62.23	120.383	
13,900.00	6,945.00	6,450.00	6,328.76	120.76	27.12	-71.11	1,251.50	170.21	7,588.52	7,526.22	62.30	121.802	
14,000.00	6,945.00	6,450.00	6,328.76	122.33	27.12	-71.11	1,251.50	170.21	7,685.36	7,622.99	62.37	123.218	
14,100.00	6,945.00	6,450.00	6,328.76	123.90	27.12	-71.11	1,251.50	170.21	7,782.29	7,719.85	62.44	124.633	
14,200.00	6,945.00	6,450.00	6,328.76	125.46	27.12	-71.11	1,251.50	170.21	7,879.29	7,816.77	62.51	126.046	
14,300.00	6,945.00	6,450.00	6,328.76	127.03	27.12	-71.11	1,251.50	170.21	7,976.36	7,913.78	62.58	127.457	

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 705H
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 705H	**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 #3	**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)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Rule Assigned: Minimum Separation (usft)	Separation Factor	Warning
14,400.00	6,945.00	6,450.00	6,328.76	128.60	27.12	-71.11	1,251.50	170.21	8,073.50	8,010.85	62.65	128.866	
14,500.00	6,945.00	6,450.00	6,328.76	130.18	27.12	-71.11	1,251.50	170.21	8,170.72	8,108.00	62.72	130.274	
14,600.00	6,945.00	6,450.00	6,328.76	131.75	27.12	-71.11	1,251.50	170.21	8,268.00	8,205.21	62.79	131.679	
14,700.00	6,945.00	6,450.00	6,328.76	133.32	27.12	-71.11	1,251.50	170.21	8,365.34	8,302.48	62.86	133.081	
14,800.00	6,945.00	6,450.00	6,328.76	134.89	27.12	-71.11	1,251.50	170.21	8,462.75	8,399.82	62.93	134.482	
14,900.00	6,945.00	6,450.00	6,328.76	136.47	27.12	-71.11	1,251.50	170.21	8,560.21	8,497.22	63.00	135.880	
15,000.00	6,945.00	6,450.00	6,328.76	138.04	27.12	-71.11	1,251.50	170.21	8,657.74	8,594.67	63.07	137.276	
15,100.00	6,945.00	6,450.00	6,328.76	139.62	27.12	-71.11	1,251.50	170.21	8,755.32	8,692.18	63.14	138.670	
15,200.00	6,945.00	6,450.00	6,328.76	141.20	27.12	-71.11	1,251.50	170.21	8,852.95	8,789.74	63.21	140.060	
15,300.00	6,945.00	6,450.00	6,328.76	142.77	27.12	-71.11	1,251.50	170.21	8,950.64	8,887.36	63.28	141.449	
15,400.00	6,945.00	6,450.00	6,328.76	144.35	27.12	-71.11	1,251.50	170.21	9,048.37	8,985.03	63.35	142.834	
15,500.00	6,945.00	6,450.00	6,328.76	145.93	27.12	-71.11	1,251.50	170.21	9,146.16	9,082.74	63.42	144.217	
15,600.00	6,945.00	6,450.00	6,328.76	147.51	27.12	-71.11	1,251.50	170.21	9,243.99	9,180.50	63.49	145.597	
15,700.00	6,945.00	6,450.00	6,328.76	149.09	27.12	-71.11	1,251.50	170.21	9,341.87	9,278.31	63.56	146.974	
15,800.00	6,945.00	6,450.00	6,328.76	150.67	27.12	-71.11	1,251.50	170.21	9,439.79	9,376.16	63.63	148.349	
15,900.00	6,945.00	6,450.00	6,328.76	152.25	27.12	-71.11	1,251.50	170.21	9,537.76	9,474.06	63.70	149.720	
16,000.00	6,945.00	6,450.00	6,328.76	153.83	27.12	-71.11	1,251.50	170.21	9,635.77	9,571.99	63.78	151.088	
16,100.00	6,945.00	6,450.00	6,328.76	155.41	27.12	-71.11	1,251.50	170.21	9,733.82	9,669.97	63.85	152.454	
16,200.00	6,945.00	6,450.00	6,328.76	156.99	27.12	-71.11	1,251.50	170.21	9,831.91	9,767.99	63.92	153.816	
16,300.00	6,945.00	6,450.00	6,328.76	158.57	27.12	-71.11	1,251.50	170.21	9,930.03	9,866.04	63.99	155.175	
16,400.00	6,945.00	6,450.00	6,328.76	160.15	27.12	-71.11	1,251.50	170.21	10,028.19	9,964.13	64.07	156.531	
16,500.00	6,945.00	6,450.00	6,328.76	161.74	27.12	-71.11	1,251.50	170.21	10,126.39	10,062.26	64.14	157.884	
16,600.00	6,945.00	6,450.00	6,328.76	163.32	27.12	-71.11	1,251.50	170.21	10,224.63	10,160.42	64.21	159.234	
16,700.00	6,945.00	6,450.00	6,328.76	164.90	27.12	-71.11	1,251.50	170.21	10,322.90	10,258.61	64.28	160.580	
16,800.00	6,945.00	6,450.00	6,328.76	166.49	27.12	-71.11	1,251.50	170.21	10,421.20	10,356.84	64.36	161.923	
16,900.00	6,945.00	6,450.00	6,328.76	168.07	27.12	-71.11	1,251.50	170.21	10,519.53	10,455.10	64.43	163.263	
17,000.00	6,945.00	6,450.00	6,328.76	169.66	27.12	-71.11	1,251.50	170.21	10,617.89	10,553.39	64.51	164.599	
17,100.00	6,945.00	6,450.00	6,328.76	171.24	27.12	-71.11	1,251.50	170.21	10,716.29	10,651.71	64.58	165.932	
17,200.00	6,945.00	6,450.00	6,328.76	172.83	27.12	-71.11	1,251.50	170.21	10,814.71	10,750.05	64.66	167.262	
17,300.00	6,945.00	6,450.00	6,328.76	174.41	27.12	-71.11	1,251.50	170.21	10,913.16	10,848.43	64.73	168.588	
17,400.00	6,945.00	6,450.00	6,328.76	176.00	27.12	-71.11	1,251.50	170.21	11,011.64	10,946.84	64.81	169.910	
17,500.00	6,945.00	6,450.00	6,328.76	177.59	27.12	-71.11	1,251.50	170.21	11,110.15	11,045.27	64.88	171.229	
17,600.00	6,945.00	6,450.00	6,328.76	179.17	27.12	-71.11	1,251.50	170.21	11,208.69	11,143.72	64.96	172.544	
17,700.00	6,945.00	6,450.00	6,328.76	180.76	27.12	-71.11	1,251.50	170.21	11,307.25	11,242.21	65.04	173.856	
17,800.00	6,945.00	6,450.00	6,328.76	182.35	27.12	-71.11	1,251.50	170.21	11,405.83	11,340.71	65.11	175.164	
17,900.00	6,945.00	6,450.00	6,328.76	183.93	27.12	-71.11	1,251.50	170.21	11,504.44	11,439.25	65.19	176.469	
18,000.00	6,945.00	6,450.00	6,328.76	185.52	27.12	-71.11	1,251.50	170.21	11,603.07	11,537.80	65.27	177.770	
18,100.00	6,945.00	6,450.00	6,328.76	187.11	27.12	-71.11	1,251.50	170.21	11,701.73	11,636.38	65.35	179.067	
18,200.00	6,945.00	6,450.00	6,328.76	188.70	27.12	-71.11	1,251.50	170.21	11,800.41	11,734.98	65.43	180.361	
18,300.00	6,945.00	6,450.00	6,328.76	190.29	27.12	-71.11	1,251.50	170.21	11,899.11	11,833.60	65.51	181.651	
18,400.00	6,945.00	6,450.00	6,328.76	191.88	27.12	-71.11	1,251.50	170.21	11,997.83	11,932.25	65.58	182.937	
18,500.00	6,945.00	6,450.00	6,328.76	193.46	27.12	-71.11	1,251.50	170.21	12,096.57	12,030.91	65.66	184.219	
18,600.00	6,945.00	6,450.00	6,328.76	195.05	27.12	-71.11	1,251.50	170.21	12,195.34	12,129.59	65.74	185.498	
18,700.00	6,945.00	6,450.00	6,328.76	196.64	27.12	-71.11	1,251.50	170.21	12,294.12	12,228.30	65.82	186.773	
18,800.00	6,945.00	6,450.00	6,328.76	198.23	27.12	-71.11	1,251.50	170.21	12,392.92	12,327.02	65.90	188.044	
18,900.00	6,945.00	6,450.00	6,328.76	199.82	27.12	-71.11	1,251.50	170.21	12,491.75	12,425.76	65.99	189.311	
19,000.00	6,945.00	6,450.00	6,328.76	201.41	27.12	-71.11	1,251.50	170.21	12,590.59	12,524.52	66.07	190.574	
19,100.00	6,945.00	6,450.00	6,328.76	203.00	27.12	-71.11	1,251.50	170.21	12,689.45	12,623.30	66.15	191.834	
19,200.00	6,945.00	6,450.00	6,328.76	204.60	27.12	-71.11	1,251.50	170.21	12,788.32	12,722.09	66.23	193.089	
19,300.00	6,945.00	6,450.00	6,328.76	206.19	27.12	-71.11	1,251.50	170.21	12,887.22	12,820.90	66.31	194.341	
19,400.00	6,945.00	6,450.00	6,328.76	207.78	27.12	-71.11	1,251.50	170.21	12,986.13	12,919.73	66.40	195.589	
19,500.00	6,945.00	6,450.00	6,328.76	209.37	27.12	-71.11	1,251.50	170.21	13,085.06	13,018.58	66.48	196.833	

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 705H
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 705H	**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 #3	**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
19,600.00	6,945.00	6,450.00	6,328.76	210.96	27.12	-71.11	1,251.50	170.21	13,184.00	13,117.44	66.56	198.073	
19,700.00	6,945.00	6,450.00	6,328.76	212.55	27.12	-71.11	1,251.50	170.21	13,282.96	13,216.31	66.65	199.309	
19,800.00	6,945.00	6,450.00	6,328.76	214.14	27.12	-71.11	1,251.50	170.21	13,381.93	13,315.21	66.73	200.541	
19,900.00	6,945.00	6,450.00	6,328.76	215.74	27.12	-71.11	1,251.50	170.21	13,480.92	13,414.11	66.81	201.770	
20,000.00	6,945.00	6,450.00	6,328.76	217.33	27.12	-71.11	1,251.50	170.21	13,579.93	13,513.03	66.90	202.994	
20,100.00	6,945.00	6,450.00	6,328.76	218.92	27.12	-71.11	1,251.50	170.21	13,678.95	13,611.97	66.98	204.214	
20,200.00	6,945.00	6,450.00	6,328.76	220.51	27.12	-71.11	1,251.50	170.21	13,777.98	13,710.91	67.07	205.431	
20,300.00	6,945.00	6,450.00	6,328.76	222.11	27.12	-71.11	1,251.50	170.21	13,877.03	13,809.88	67.15	206.643	
20,400.00	6,945.00	6,450.00	6,328.76	223.70	27.12	-71.11	1,251.50	170.21	13,976.09	13,908.85	67.24	207.852	
20,500.00	6,945.00	6,450.00	6,328.76	225.29	27.12	-71.11	1,251.50	170.21	14,075.17	14,007.84	67.33	209.056	
20,600.00	6,945.00	6,450.00	6,328.76	226.88	27.12	-71.11	1,251.50	170.21	14,174.25	14,106.84	67.41	210.257	
20,700.00	6,945.00	6,450.00	6,328.76	228.48	27.12	-71.11	1,251.50	170.21	14,273.35	14,205.85	67.50	211.454	
20,741.48	6,945.00	6,450.00	6,328.76	229.14	27.12	-71.11	1,251.50	170.21	14,314.46	14,246.92	67.54	211.949	

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 705H
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 705H	**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 #3	**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
0.00	0.00	0.00	0.00	0.00	0.00	-35.25	81.92	-57.88	100.30				
100.00	100.00	100.00	100.00	0.25	0.25	-35.25	81.92	-57.88	100.30	99.80	0.50	199.863	
200.00	200.00	200.00	200.00	0.61	0.61	-35.25	81.92	-57.88	100.30	99.08	1.22	82.296	
300.00	300.00	300.00	300.00	0.97	0.97	-35.25	81.92	-57.88	100.30	98.37	1.94	51.816	
400.00	400.00	400.00	400.00	1.33	1.33	-35.25	81.92	-57.88	100.30	97.65	2.65	37.812	
500.00	500.00	500.00	500.00	1.68	1.68	-35.25	81.92	-57.88	100.30	96.93	3.37	29.767	CC, ES
600.00	599.98	599.98	599.98	2.03	2.04	177.07	81.92	-57.88	102.05	97.97	4.07	25.064	
700.00	699.84	699.84	699.84	2.37	2.40	177.21	81.92	-57.88	107.27	102.51	4.77	22.504	
795.17	794.65	794.65	794.65	2.69	2.74	177.40	81.92	-57.88	115.48	110.04	5.44	21.247	
800.00	799.45	799.45	799.45	2.71	2.76	177.41	81.92	-57.88	115.97	110.50	5.47	21.194	
900.00	898.92	898.92	898.92	3.06	3.11	177.62	81.92	-57.88	126.25	120.08	6.17	20.455	
1,000.00	998.39	998.39	998.39	3.43	3.47	177.80	81.92	-57.88	136.53	129.65	6.88	19.854	
1,100.00	1,097.86	1,101.33	1,101.31	3.79	3.82	177.44	80.17	-58.29	145.64	138.06	7.58	19.221	
1,200.00	1,197.33	1,201.99	1,201.87	4.16	4.15	176.38	75.87	-59.29	153.01	144.75	8.26	18.523	
1,300.00	1,296.80	1,301.68	1,301.46	4.53	4.49	175.40	71.49	-60.31	160.34	151.39	8.95	17.918	
1,400.00	1,396.27	1,401.38	1,401.06	4.91	4.82	174.50	67.10	-61.34	167.72	158.08	9.64	17.393	
1,500.00	1,495.74	1,501.07	1,500.65	5.28	5.16	173.67	62.71	-62.36	175.13	164.79	10.34	16.934	
1,600.00	1,595.21	1,600.77	1,600.24	5.66	5.50	172.92	58.32	-63.38	182.58	171.53	11.04	16.531	
1,700.00	1,694.68	1,700.46	1,699.84	6.04	5.85	172.22	53.93	-64.40	190.05	178.30	11.75	16.174	
1,800.00	1,794.15	1,800.16	1,799.43	6.42	6.20	171.57	49.54	-65.42	197.55	185.09	12.46	15.856	
1,900.00	1,893.62	1,899.85	1,899.02	6.80	6.55	170.97	45.15	-66.45	205.08	191.91	13.17	15.572	
2,000.00	1,993.09	1,999.55	1,998.61	7.18	6.90	170.42	40.76	-67.47	212.62	198.74	13.88	15.315	
2,100.00	2,092.56	2,099.24	2,098.21	7.56	7.25	169.90	36.38	-68.49	220.19	205.59	14.60	15.084	
2,200.00	2,192.03	2,198.94	2,197.80	7.94	7.60	169.42	31.99	-69.51	227.76	212.45	15.31	14.873	
2,300.00	2,291.50	2,298.63	2,297.39	8.32	7.96	168.97	27.60	-70.54	235.36	219.33	16.03	14.682	
2,400.00	2,390.97	2,398.33	2,396.98	8.70	8.31	168.54	23.21	-71.56	242.97	226.22	16.75	14.506	
2,500.00	2,490.44	2,498.02	2,496.58	9.08	8.67	168.15	18.82	-72.58	250.59	233.12	17.47	14.345	
2,600.00	2,589.91	2,597.71	2,596.17	9.47	9.02	167.77	14.43	-73.60	258.22	240.03	18.19	14.196	
2,700.00	2,689.38	2,697.41	2,695.76	9.85	9.38	167.42	10.04	-74.63	265.86	246.95	18.91	14.059	
2,800.00	2,788.85	2,797.10	2,795.35	10.23	9.74	167.09	5.65	-75.65	273.52	253.88	19.63	13.931	
2,900.00	2,888.32	2,896.80	2,894.95	10.61	10.10	166.77	1.26	-76.67	281.18	260.82	20.36	13.813	
3,000.00	2,987.79	2,996.49	2,994.54	11.00	10.46	166.47	-3.12	-77.69	288.85	267.77	21.08	13.703	
3,100.00	3,087.25	3,096.19	3,094.13	11.38	10.81	166.19	-7.51	-78.71	296.52	274.72	21.80	13.600	
3,200.00	3,186.72	3,195.88	3,193.73	11.76	11.17	165.92	-11.90	-79.74	304.20	281.68	22.53	13.504	
3,300.00	3,286.19	3,295.58	3,293.32	12.15	11.53	165.67	-16.29	-80.76	311.89	288.64	23.25	13.414	
3,400.00	3,385.66	3,395.27	3,392.91	12.53	11.89	165.42	-20.68	-81.78	319.59	295.61	23.98	13.329	
3,500.00	3,485.13	3,494.97	3,492.50	12.91	12.25	165.19	-25.07	-82.80	327.29	302.59	24.70	13.249	
3,600.00	3,584.60	3,594.66	3,592.10	13.30	12.61	164.97	-29.46	-83.83	335.00	309.57	25.43	13.174	
3,700.00	3,684.07	3,694.35	3,691.69	13.68	12.97	164.76	-33.85	-84.85	342.71	316.55	26.16	13.103	
3,800.00	3,783.54	3,794.05	3,791.28	14.06	13.33	164.56	-38.23	-85.87	350.42	323.54	26.88	13.036	
3,900.00	3,883.01	3,893.74	3,890.87	14.45	13.69	164.37	-42.62	-86.89	358.14	330.53	27.61	12.972	
4,000.00	3,982.48	3,993.44	3,990.47	14.83	14.05	164.18	-47.01	-87.92	365.86	337.53	28.34	12.912	
4,100.00	4,081.95	4,093.13	4,090.06	15.22	14.41	164.00	-51.40	-88.94	373.59	344.53	29.06	12.854	
4,200.00	4,181.42	4,192.83	4,189.65	15.60	14.78	163.83	-55.79	-89.96	381.32	351.53	29.79	12.800	
4,300.00	4,280.89	4,292.52	4,289.24	15.98	15.14	163.67	-60.18	-90.98	389.05	358.53	30.52	12.748	
4,400.00	4,380.36	4,392.22	4,388.84	16.37	15.50	163.51	-64.57	-92.00	396.79	365.54	31.25	12.699	
4,500.00	4,479.83	4,491.91	4,488.43	16.75	15.86	163.36	-68.96	-93.03	404.53	372.55	31.97	12.652	
4,600.00	4,579.30	4,591.61	4,588.02	17.14	16.22	163.22	-73.34	-94.05	412.27	379.57	32.70	12.607	
4,700.00	4,678.77	4,691.30	4,687.62	17.52	16.58	163.08	-77.73	-95.07	420.01	386.58	33.43	12.563	
4,800.00	4,778.24	4,790.99	4,787.21	17.90	16.94	162.94	-82.12	-96.09	427.76	393.60	34.16	12.522	
4,900.00	4,877.71	4,890.69	4,886.80	18.29	17.31	162.81	-86.51	-97.12	435.51	400.62	34.89	12.483	
5,000.00	4,977.18	4,990.38	4,986.39	18.67	17.67	162.69	-90.90	-98.14	443.26	407.64	35.62	12.445	

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 705H
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 705H	**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 #3	**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
5,100.00	5,076.65	5,090.08	5,085.99	19.06	18.03	162.57	-95.29	-99.16	451.01	414.66	36.35	12.409	
5,200.00	5,176.12	5,189.77	5,185.58	19.44	18.39	162.45	-99.68	-100.18	458.77	421.69	37.08	12.374	
5,300.00	5,275.59	5,289.47	5,285.17	19.83	18.75	162.34	-104.07	-101.21	466.52	428.72	37.81	12.340	
5,400.00	5,375.06	5,389.16	5,384.76	20.21	19.12	162.23	-108.46	-102.23	474.28	435.75	38.53	12.308	
5,500.00	5,474.53	5,488.86	5,484.36	20.59	19.48	162.12	-112.84	-103.25	482.04	442.78	39.26	12.277	
5,600.00	5,574.00	5,588.55	5,583.95	20.98	19.84	162.02	-117.23	-104.27	489.80	449.81	39.99	12.247	
5,700.00	5,673.47	5,688.25	5,683.54	21.36	20.20	161.92	-121.62	-105.29	497.57	456.84	40.72	12.218	
5,800.00	5,772.94	5,787.94	5,783.13	21.75	20.56	161.82	-126.01	-106.32	505.33	463.88	41.45	12.190	
5,900.00	5,872.41	5,887.63	5,882.73	22.13	20.93	161.73	-130.40	-107.34	513.10	470.91	42.18	12.164	
6,000.00	5,971.88	5,987.33	5,982.32	22.52	21.29	161.64	-134.79	-108.36	520.86	477.95	42.91	12.138	
6,100.00	6,071.35	6,087.02	6,081.91	22.90	21.65	161.55	-139.18	-109.38	528.63	484.99	43.64	12.113	
6,200.00	6,170.81	6,186.72	6,181.50	23.28	22.01	161.46	-143.57	-110.41	536.40	492.03	44.37	12.088	
6,300.00	6,270.28	6,286.41	6,281.10	23.67	22.38	161.38	-147.95	-111.43	544.17	499.07	45.10	12.065 SF	
6,375.94	6,345.82	6,350.00	6,344.59	23.96	22.61	161.27	-150.75	-113.06	550.97	505.39	45.58	12.088	
6,400.00	6,369.72	6,350.00	6,344.59	24.05	22.61	175.92	-150.75	-113.06	554.24	508.69	45.54	12.169	
6,450.00	6,419.09	6,386.02	6,380.42	24.25	22.74	-167.74	-152.31	-116.43	564.47	518.71	45.77	12.333	
6,500.00	6,467.78	6,413.39	6,407.48	24.46	22.84	-159.73	-153.49	-120.35	579.49	533.62	45.87	12.633	
6,550.00	6,515.51	6,438.88	6,432.50	24.67	22.93	-154.91	-154.57	-125.05	599.04	553.11	45.92	13.045	
6,600.00	6,561.97	6,462.13	6,455.16	24.88	23.01	-151.44	-155.55	-130.20	622.91	576.98	45.93	13.563	
6,650.00	6,606.89	6,482.93	6,475.24	25.10	23.08	-148.49	-156.41	-135.51	650.84	604.95	45.89	14.183	
6,700.00	6,649.98	6,500.00	6,491.60	25.32	23.15	-145.53	-157.11	-140.36	682.49	636.69	45.80	14.901	
6,750.00	6,690.98	6,516.72	6,507.48	25.54	23.20	-142.45	-157.79	-145.53	717.48	671.74	45.73	15.688	
6,800.00	6,729.64	6,529.74	6,519.75	25.77	23.25	-138.77	-158.31	-149.84	755.40	709.76	45.63	16.553	
6,850.00	6,765.71	6,550.00	6,538.67	26.00	23.32	-135.15	-159.11	-157.05	795.94	750.21	45.73	17.405	
6,900.00	6,798.98	6,550.00	6,538.67	26.24	23.32	-128.81	-159.11	-157.05	838.31	792.84	45.47	18.436	
6,950.00	6,829.24	6,550.00	6,538.67	26.49	23.32	-120.98	-159.11	-157.05	882.47	837.21	45.27	19.495	
7,000.00	6,856.30	6,550.00	6,538.67	26.76	23.32	-111.48	-159.11	-157.05	927.92	882.79	45.12	20.564	
7,050.00	6,880.00	6,550.00	6,538.67	27.03	23.32	-100.40	-159.11	-157.05	974.21	929.17	45.04	21.629	
7,100.00	6,900.19	6,550.00	6,538.67	27.32	23.32	-88.36	-159.11	-157.05	1,020.96	975.95	45.02	22.679	
7,150.00	6,916.74	6,550.00	6,538.67	27.62	23.32	-76.39	-159.11	-157.05	1,067.85	1,022.81	45.04	23.707	
7,200.00	6,929.56	6,550.00	6,538.67	27.93	23.32	-65.51	-159.11	-157.05	1,114.58	1,069.47	45.12	24.704	
7,250.00	6,938.57	6,550.00	6,538.67	28.26	23.32	-56.28	-159.11	-157.05	1,160.91	1,115.68	45.23	25.666	
7,300.00	6,943.70	6,550.00	6,538.67	28.60	23.32	-48.78	-159.11	-157.05	1,206.61	1,161.23	45.38	26.589	
7,340.76	6,945.00	6,550.00	6,538.67	28.88	23.32	-43.79	-159.11	-157.05	1,243.26	1,197.73	45.52	27.311	
7,400.00	6,945.00	6,550.00	6,538.67	29.31	23.32	-43.79	-159.11	-157.05	1,296.36	1,250.62	45.73	28.346	
7,500.00	6,945.00	6,525.17	6,515.45	30.09	23.23	-42.28	-158.13	-148.30	1,386.43	1,340.73	45.70	30.335	
7,600.00	6,945.00	6,500.00	6,491.60	30.93	23.15	-40.82	-157.11	-140.36	1,477.96	1,432.29	45.67	32.363	
7,700.00	6,945.00	6,500.00	6,491.60	31.83	23.15	-40.82	-157.11	-140.36	1,569.90	1,523.95	45.95	34.169	
7,800.00	6,945.00	6,500.00	6,491.60	32.79	23.15	-40.82	-157.11	-140.36	1,662.77	1,616.58	46.19	36.002	
7,900.00	6,945.00	6,500.00	6,491.60	33.79	23.15	-40.82	-157.11	-140.36	1,756.42	1,710.03	46.39	37.859	
8,000.00	6,945.00	6,500.00	6,491.60	34.84	23.15	-40.82	-157.11	-140.36	1,850.74	1,804.16	46.58	39.734	
8,100.00	6,945.00	6,475.00	6,467.60	35.93	23.06	-39.44	-156.08	-133.41	1,944.98	1,898.48	46.50	41.828	
8,200.00	6,945.00	6,450.00	6,443.36	37.06	22.97	-38.13	-155.04	-127.41	2,040.36	1,993.94	46.43	43.949	
8,300.00	6,945.00	6,450.00	6,443.36	38.23	22.97	-38.13	-155.04	-127.41	2,135.58	2,089.00	46.58	45.848	
8,400.00	6,945.00	6,450.00	6,443.36	39.42	22.97	-38.13	-155.04	-127.41	2,231.22	2,184.50	46.72	47.758	
8,500.00	6,945.00	6,450.00	6,443.36	40.65	22.97	-38.13	-155.04	-127.41	2,327.22	2,280.37	46.85	49.677	
8,600.00	6,945.00	6,450.00	6,443.36	41.90	22.97	-38.13	-155.04	-127.41	2,423.55	2,376.58	46.96	51.604	
8,700.00	6,945.00	6,450.00	6,443.36	43.17	22.97	-38.13	-155.04	-127.41	2,520.16	2,473.09	47.07	53.538	
8,800.00	6,945.00	6,450.00	6,443.36	44.46	22.97	-38.13	-155.04	-127.41	2,617.03	2,569.86	47.17	55.477	
8,900.00	6,945.00	6,450.00	6,443.36	45.78	22.97	-38.13	-155.04	-127.41	2,714.12	2,666.86	47.27	57.421	
9,000.00	6,945.00	6,450.00	6,443.36	47.11	22.97	-38.13	-155.04	-127.41	2,811.42	2,764.07	47.36	59.368	
9,100.00	6,945.00	6,428.16	6,422.00	48.46	22.89	-37.04	-154.12	-122.95	2,908.45	2,861.16	47.29	61.496	

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 705H
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 705H	**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 #3	**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)	Rule Assigned: Minimum Separation (usft)	Separation Factor	Warning
9,200.00	6,945.00	6,424.87	6,418.77	49.82	22.88	-36.88	-153.98	-122.34	3,005.95	2,958.60	47.36	63.473	
9,300.00	6,945.00	6,421.75	6,415.71	51.20	22.87	-36.73	-153.85	-121.78	3,103.60	3,056.18	47.42	65.451	
9,400.00	6,945.00	6,400.00	6,394.26	52.59	22.79	-35.71	-152.92	-118.29	3,201.70	3,154.34	47.36	67.600	
9,500.00	6,945.00	6,400.00	6,394.26	53.99	22.79	-35.71	-152.92	-118.29	3,299.50	3,252.06	47.44	69.551	
9,600.00	6,945.00	6,400.00	6,394.26	55.40	22.79	-35.71	-152.92	-118.29	3,397.43	3,349.91	47.52	71.501	
9,700.00	6,945.00	6,400.00	6,394.26	56.83	22.79	-35.71	-152.92	-118.29	3,495.47	3,447.88	47.59	73.452	
9,800.00	6,945.00	6,400.00	6,394.26	58.26	22.79	-35.71	-152.92	-118.29	3,593.62	3,545.96	47.66	75.403	
9,900.00	6,945.00	6,400.00	6,394.26	59.70	22.79	-35.71	-152.92	-118.29	3,691.87	3,644.14	47.73	77.352	
10,000.00	6,945.00	6,400.00	6,394.26	61.15	22.79	-35.71	-152.92	-118.29	3,790.21	3,742.42	47.80	79.301	
10,100.00	6,945.00	6,400.00	6,394.26	62.61	22.79	-35.71	-152.92	-118.29	3,888.64	3,840.78	47.86	81.248	
10,200.00	6,945.00	6,400.00	6,394.26	64.07	22.79	-35.71	-152.92	-118.29	3,987.15	3,939.22	47.93	83.193	
10,300.00	6,945.00	6,400.00	6,394.26	65.54	22.79	-35.71	-152.92	-118.29	4,085.72	4,037.73	47.99	85.137	
10,400.00	6,945.00	6,400.00	6,394.26	67.02	22.79	-35.71	-152.92	-118.29	4,184.37	4,136.32	48.05	87.078	
10,500.00	6,945.00	6,400.00	6,394.26	68.50	22.79	-35.71	-152.92	-118.29	4,283.08	4,234.96	48.12	89.016	
10,600.00	6,945.00	6,400.00	6,394.26	69.99	22.79	-35.71	-152.92	-118.29	4,381.84	4,333.67	48.18	90.952	
10,700.00	6,945.00	6,400.00	6,394.26	71.48	22.79	-35.71	-152.92	-118.29	4,480.67	4,432.43	48.24	92.885	
10,800.00	6,945.00	6,400.00	6,394.26	72.98	22.79	-35.71	-152.92	-118.29	4,579.54	4,531.24	48.30	94.814	
10,900.00	6,945.00	6,400.00	6,394.26	74.48	22.79	-35.71	-152.92	-118.29	4,678.46	4,630.10	48.36	96.740	
11,000.00	6,945.00	6,400.00	6,394.26	75.99	22.79	-35.71	-152.92	-118.29	4,777.42	4,729.00	48.42	98.663	
11,100.00	6,945.00	6,400.00	6,394.26	77.50	22.79	-35.71	-152.92	-118.29	4,876.43	4,827.95	48.48	100.582	
11,200.00	6,945.00	6,400.00	6,394.26	79.01	22.79	-35.71	-152.92	-118.29	4,975.48	4,926.94	48.54	102.497	
11,300.00	6,945.00	6,400.00	6,394.26	80.53	22.79	-35.71	-152.92	-118.29	5,074.56	5,025.96	48.60	104.408	
11,400.00	6,945.00	6,400.00	6,394.26	82.05	22.79	-35.71	-152.92	-118.29	5,173.68	5,125.02	48.66	106.315	
11,500.00	6,945.00	6,400.00	6,394.26	83.57	22.79	-35.71	-152.92	-118.29	5,272.84	5,224.11	48.72	108.217	
11,600.00	6,945.00	6,400.00	6,394.26	85.10	22.79	-35.71	-152.92	-118.29	5,372.02	5,323.24	48.79	110.116	
11,700.00	6,945.00	6,377.29	6,371.75	86.63	22.71	-34.70	-151.94	-115.43	5,470.79	5,422.04	48.75	112.230	
11,800.00	6,945.00	6,376.17	6,370.64	88.16	22.70	-34.65	-151.89	-115.31	5,569.98	5,521.18	48.80	114.131	
11,900.00	6,945.00	6,375.10	6,369.57	89.69	22.70	-34.60	-151.84	-115.20	5,669.21	5,620.35	48.86	116.027	
12,000.00	6,945.00	6,374.06	6,368.54	91.23	22.69	-34.56	-151.80	-115.09	5,768.46	5,719.54	48.92	117.918	
12,100.00	6,945.00	6,373.05	6,367.53	92.77	22.69	-34.51	-151.75	-114.98	5,867.73	5,818.75	48.98	119.804	
12,200.00	6,945.00	6,350.00	6,344.59	94.31	22.61	-33.55	-150.75	-113.06	5,967.45	5,918.50	48.94	121.925	
12,300.00	6,945.00	6,350.00	6,344.59	95.85	22.61	-33.55	-150.75	-113.06	6,066.73	6,017.72	49.01	123.791	
12,400.00	6,945.00	6,350.00	6,344.59	97.40	22.61	-33.55	-150.75	-113.06	6,166.03	6,116.96	49.07	125.651	
12,500.00	6,945.00	6,350.00	6,344.59	98.95	22.61	-33.55	-150.75	-113.06	6,265.36	6,216.22	49.14	127.507	
12,600.00	6,945.00	6,350.00	6,344.59	100.50	22.61	-33.55	-150.75	-113.06	6,364.70	6,315.50	49.20	129.356	
12,700.00	6,945.00	6,350.00	6,344.59	102.05	22.61	-33.55	-150.75	-113.06	6,464.07	6,414.80	49.27	131.201	
12,800.00	6,945.00	6,350.00	6,344.59	103.60	22.61	-33.55	-150.75	-113.06	6,563.46	6,514.12	49.33	133.039	
12,900.00	6,945.00	6,350.00	6,344.59	105.15	22.61	-33.55	-150.75	-113.06	6,662.86	6,613.46	49.40	134.872	
13,000.00	6,945.00	6,350.00	6,344.59	106.71	22.61	-33.55	-150.75	-113.06	6,762.29	6,712.82	49.47	136.700	
13,100.00	6,945.00	6,350.00	6,344.59	108.26	22.61	-33.55	-150.75	-113.06	6,861.72	6,812.19	49.54	138.521	
13,200.00	6,945.00	6,350.00	6,344.59	109.82	22.61	-33.55	-150.75	-113.06	6,961.18	6,911.58	49.60	140.337	
13,300.00	6,945.00	6,350.00	6,344.59	111.38	22.61	-33.55	-150.75	-113.06	7,060.65	7,010.98	49.67	142.146	
13,400.00	6,945.00	6,350.00	6,344.59	112.94	22.61	-33.55	-150.75	-113.06	7,160.14	7,110.40	49.74	143.950	
13,500.00	6,945.00	6,350.00	6,344.59	114.50	22.61	-33.55	-150.75	-113.06	7,259.64	7,209.83	49.81	145.747	
13,600.00	6,945.00	6,350.00	6,344.59	116.07	22.61	-33.55	-150.75	-113.06	7,359.15	7,309.27	49.88	147.539	
13,700.00	6,945.00	6,350.00	6,344.59	117.63	22.61	-33.55	-150.75	-113.06	7,458.68	7,408.73	49.95	149.324	
13,800.00	6,945.00	6,350.00	6,344.59	119.19	22.61	-33.55	-150.75	-113.06	7,558.21	7,508.19	50.02	151.103	
13,900.00	6,945.00	6,350.00	6,344.59	120.76	22.61	-33.55	-150.75	-113.06	7,657.76	7,607.67	50.09	152.876	
14,000.00	6,945.00	6,350.00	6,344.59	122.33	22.61	-33.55	-150.75	-113.06	7,757.33	7,707.16	50.16	154.642	
14,100.00	6,945.00	6,350.00	6,344.59	123.90	22.61	-33.55	-150.75	-113.06	7,856.90	7,806.66	50.24	156.402	
14,200.00	6,945.00	6,350.00	6,344.59	125.46	22.61	-33.55	-150.75	-113.06	7,956.48	7,906.18	50.31	158.155	
14,300.00	6,945.00	6,350.00	6,344.59	127.03	22.61	-33.55	-150.75	-113.06	8,056.08	8,005.70	50.38	159.902	

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 705H
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 705H	**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 #3	**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
14,400.00	6,945.00	6,350.00	6,344.59	128.60	22.61	-33.55	-150.75	-113.06	8,155.68	8,105.23	50.46	161.642	
14,500.00	6,945.00	6,350.00	6,344.59	130.18	22.61	-33.55	-150.75	-113.06	8,255.30	8,204.77	50.53	163.376	
14,600.00	6,945.00	6,350.00	6,344.59	131.75	22.61	-33.55	-150.75	-113.06	8,354.92	8,304.32	50.60	165.103	
14,700.00	6,945.00	6,350.00	6,344.59	133.32	22.61	-33.55	-150.75	-113.06	8,454.55	8,403.87	50.68	166.824	
14,800.00	6,945.00	6,350.00	6,344.59	134.89	22.61	-33.55	-150.75	-113.06	8,554.19	8,503.44	50.76	168.538	
14,900.00	6,945.00	6,350.00	6,344.59	136.47	22.61	-33.55	-150.75	-113.06	8,653.84	8,603.01	50.83	170.245	
15,000.00	6,945.00	6,350.00	6,344.59	138.04	22.61	-33.55	-150.75	-113.06	8,753.50	8,702.59	50.91	171.946	
15,100.00	6,945.00	6,350.00	6,344.59	139.62	22.61	-33.55	-150.75	-113.06	8,853.16	8,802.18	50.99	173.639	
15,200.00	6,945.00	6,350.00	6,344.59	141.20	22.61	-33.55	-150.75	-113.06	8,952.83	8,901.77	51.06	175.326	
15,300.00	6,945.00	6,350.00	6,344.59	142.77	22.61	-33.55	-150.75	-113.06	9,052.51	9,001.37	51.14	177.006	
15,400.00	6,945.00	6,350.00	6,344.59	144.35	22.61	-33.55	-150.75	-113.06	9,152.20	9,100.98	51.22	178.680	
15,500.00	6,945.00	6,350.00	6,344.59	145.93	22.61	-33.55	-150.75	-113.06	9,251.89	9,200.59	51.30	180.346	
15,600.00	6,945.00	6,350.00	6,344.59	147.51	22.61	-33.55	-150.75	-113.06	9,351.59	9,300.21	51.38	182.006	
15,700.00	6,945.00	6,350.00	6,344.59	149.09	22.61	-33.55	-150.75	-113.06	9,451.30	9,399.84	51.46	183.658	
15,800.00	6,945.00	6,350.00	6,344.59	150.67	22.61	-33.55	-150.75	-113.06	9,551.01	9,499.47	51.54	185.304	
15,900.00	6,945.00	6,350.00	6,344.59	152.25	22.61	-33.55	-150.75	-113.06	9,650.73	9,599.11	51.62	186.943	
16,000.00	6,945.00	6,350.00	6,344.59	153.83	22.61	-33.55	-150.75	-113.06	9,750.45	9,698.75	51.71	188.575	
16,100.00	6,945.00	6,350.00	6,344.59	155.41	22.61	-33.55	-150.75	-113.06	9,850.18	9,798.39	51.79	190.200	
16,200.00	6,945.00	6,350.00	6,344.59	156.99	22.61	-33.55	-150.75	-113.06	9,949.92	9,898.05	51.87	191.818	
16,300.00	6,945.00	6,350.00	6,344.59	158.57	22.61	-33.55	-150.75	-113.06	10,049.66	9,997.70	51.96	193.429	
16,400.00	6,945.00	6,350.00	6,344.59	160.15	22.61	-33.55	-150.75	-113.06	10,149.40	10,097.36	52.04	195.033	
16,500.00	6,945.00	6,350.00	6,344.59	161.74	22.61	-33.55	-150.75	-113.06	10,249.15	10,197.03	52.12	196.630	
16,600.00	6,945.00	6,350.00	6,344.59	163.32	22.61	-33.55	-150.75	-113.06	10,348.91	10,296.70	52.21	198.220	
16,700.00	6,945.00	6,350.00	6,344.59	164.90	22.61	-33.55	-150.75	-113.06	10,448.67	10,396.37	52.29	199.803	
16,800.00	6,945.00	6,350.00	6,344.59	166.49	22.61	-33.55	-150.75	-113.06	10,548.43	10,496.05	52.38	201.379	
16,900.00	6,945.00	6,350.00	6,344.59	168.07	22.61	-33.55	-150.75	-113.06	10,648.20	10,595.73	52.47	202.948	
17,000.00	6,945.00	6,350.00	6,344.59	169.66	22.61	-33.55	-150.75	-113.06	10,747.97	10,695.42	52.55	204.510	
17,100.00	6,945.00	6,350.00	6,344.59	171.24	22.61	-33.55	-150.75	-113.06	10,847.75	10,795.11	52.64	206.065	
17,200.00	6,945.00	6,350.00	6,344.59	172.83	22.61	-33.55	-150.75	-113.06	10,947.53	10,894.80	52.73	207.613	
17,300.00	6,945.00	6,350.00	6,344.59	174.41	22.61	-33.55	-150.75	-113.06	11,047.32	10,994.50	52.82	209.154	
17,400.00	6,945.00	6,350.00	6,344.59	176.00	22.61	-33.55	-150.75	-113.06	11,147.11	11,094.20	52.91	210.688	
17,500.00	6,945.00	6,350.00	6,344.59	177.59	22.61	-33.55	-150.75	-113.06	11,246.90	11,193.90	53.00	212.215	
17,600.00	6,945.00	6,350.00	6,344.59	179.17	22.61	-33.55	-150.75	-113.06	11,346.70	11,293.61	53.09	213.735	
17,700.00	6,945.00	6,350.00	6,344.59	180.76	22.61	-33.55	-150.75	-113.06	11,446.50	11,393.32	53.18	215.248	
17,800.00	6,945.00	6,350.00	6,344.59	182.35	22.61	-33.55	-150.75	-113.06	11,546.30	11,493.03	53.27	216.754	
17,900.00	6,945.00	6,350.00	6,344.59	183.93	22.61	-33.55	-150.75	-113.06	11,646.11	11,592.75	53.36	218.253	
18,000.00	6,945.00	6,350.00	6,344.59	185.52	22.61	-33.55	-150.75	-113.06	11,745.92	11,692.46	53.45	219.745	
18,100.00	6,945.00	6,350.00	6,344.59	187.11	22.61	-33.55	-150.75	-113.06	11,845.73	11,792.18	53.54	221.230	
18,200.00	6,945.00	6,350.00	6,344.59	188.70	22.61	-33.55	-150.75	-113.06	11,945.55	11,891.91	53.64	222.708	
18,300.00	6,945.00	6,350.00	6,344.59	190.29	22.61	-33.55	-150.75	-113.06	12,045.37	11,991.63	53.73	224.180	
18,400.00	6,945.00	6,350.00	6,344.59	191.88	22.61	-33.55	-150.75	-113.06	12,145.19	12,091.36	53.82	225.644	
18,500.00	6,945.00	6,350.00	6,344.59	193.46	22.61	-33.55	-150.75	-113.06	12,245.01	12,191.09	53.92	227.101	
18,600.00	6,945.00	6,350.00	6,344.59	195.05	22.61	-33.55	-150.75	-113.06	12,344.84	12,290.83	54.01	228.552	
18,700.00	6,945.00	6,350.00	6,344.59	196.64	22.61	-33.55	-150.75	-113.06	12,444.67	12,390.56	54.11	229.995	
18,800.00	6,945.00	6,350.00	6,344.59	198.23	22.61	-33.55	-150.75	-113.06	12,544.51	12,490.30	54.20	231.432	
18,900.00	6,945.00	6,350.00	6,344.59	199.82	22.61	-33.55	-150.75	-113.06	12,644.34	12,590.04	54.30	232.862	
19,000.00	6,945.00	6,350.00	6,344.59	201.41	22.61	-33.55	-150.75	-113.06	12,744.18	12,689.79	54.40	234.285	
19,100.00	6,945.00	6,350.00	6,344.59	203.00	22.61	-33.55	-150.75	-113.06	12,844.02	12,789.53	54.49	235.701	
19,200.00	6,945.00	6,350.00	6,344.59	204.60	22.61	-33.55	-150.75	-113.06	12,943.87	12,889.28	54.59	237.110	
19,300.00	6,945.00	6,350.00	6,344.59	206.19	22.61	-33.55	-150.75	-113.06	13,043.71	12,989.02	54.69	238.512	
19,400.00	6,945.00	6,350.00	6,344.59	207.78	22.61	-33.55	-150.75	-113.06	13,143.56	13,088.78	54.79	239.908	
19,500.00	6,945.00	6,350.00	6,344.59	209.37	22.61	-33.55	-150.75	-113.06	13,243.41	13,188.53	54.88	241.297	

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 705H
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 705H	**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 #3	**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
19,600.00	6,945.00	6,350.00	6,344.59	210.96	22.61	-33.55	-150.75	-113.06	13,343.27	13,288.28	54.98	242.679	
19,700.00	6,945.00	6,350.00	6,344.59	212.55	22.61	-33.55	-150.75	-113.06	13,443.12	13,388.04	55.08	244.054	
19,800.00	6,945.00	6,350.00	6,344.59	214.14	22.61	-33.55	-150.75	-113.06	13,542.98	13,487.80	55.18	245.423	
19,900.00	6,945.00	6,350.00	6,344.59	215.74	22.61	-33.55	-150.75	-113.06	13,642.84	13,587.55	55.28	246.785	
20,000.00	6,945.00	6,350.00	6,344.59	217.33	22.61	-33.55	-150.75	-113.06	13,742.70	13,687.32	55.38	248.140	
20,100.00	6,945.00	6,350.00	6,344.59	218.92	22.61	-33.55	-150.75	-113.06	13,842.56	13,787.08	55.48	249.489	
20,200.00	6,945.00	6,350.00	6,344.59	220.51	22.61	-33.55	-150.75	-113.06	13,942.43	13,886.84	55.58	250.831	
20,300.00	6,945.00	6,350.00	6,344.59	222.11	22.61	-33.55	-150.75	-113.06	14,042.29	13,986.61	55.69	252.166	
20,400.00	6,945.00	6,350.00	6,344.59	223.70	22.61	-33.55	-150.75	-113.06	14,142.16	14,086.38	55.79	253.495	
20,500.00	6,945.00	6,350.00	6,344.59	225.29	22.61	-33.55	-150.75	-113.06	14,242.04	14,186.14	55.89	254.818	
20,600.00	6,945.00	6,350.00	6,344.59	226.88	22.61	-33.55	-150.75	-113.06	14,341.91	14,285.91	55.99	256.133	
20,700.00	6,945.00	6,350.00	6,344.59	228.48	22.61	-33.55	-150.75	-113.06	14,441.78	14,385.69	56.10	257.442	
20,741.48	6,945.00	6,350.00	6,344.59	229.14	22.61	-33.55	-150.75	-113.06	14,483.21	14,427.07	56.14	257.983	

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 705H
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 705H	**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 #3	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - Rosa Unit 702H - 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
0.00	0.00	0.00	0.00	0.00	0.00	-35.12	61.53	-43.27	75.22				
100.00	100.00	100.00	100.00	0.25	0.25	-35.12	61.53	-43.27	75.22	74.72	0.50	149.877	
200.00	200.00	200.00	200.00	0.61	0.61	-35.12	61.53	-43.27	75.22	74.00	1.22	61.714	
300.00	300.00	300.00	300.00	0.97	0.97	-35.12	61.53	-43.27	75.22	73.28	1.94	38.857	
400.00	400.00	400.00	400.00	1.33	1.33	-35.12	61.53	-43.27	75.22	72.56	2.65	28.355	
500.00	500.00	500.00	500.00	1.68	1.68	-35.12	61.53	-43.27	75.22	71.85	3.37	22.322	CC
600.00	599.98	602.19	602.16	2.03	2.03	176.43	59.71	-43.27	75.51	71.45	4.06	18.595	
700.00	699.84	704.31	704.14	2.37	2.38	174.28	54.25	-43.26	76.44	71.71	4.73	16.156	
795.17	794.65	801.39	800.83	2.69	2.71	171.03	45.69	-43.25	78.12	72.74	5.38	14.513	
800.00	799.45	806.31	805.73	2.71	2.73	170.83	45.17	-43.25	78.23	72.81	5.42	14.441	
900.00	898.92	908.12	906.74	3.06	3.09	165.98	32.51	-43.24	79.31	73.19	6.12	12.969	
1,000.00	998.39	1,009.53	1,006.85	3.43	3.47	159.29	16.33	-43.23	78.72	71.89	6.84	11.517	
1,100.00	1,097.86	1,110.29	1,105.69	3.79	3.86	150.39	-3.23	-43.22	77.45	69.87	7.59	10.207	
1,179.11	1,176.55	1,189.38	1,182.75	4.09	4.18	141.62	-21.02	-43.20	76.91	68.70	8.21	9.363	
1,200.00	1,197.33	1,210.15	1,202.90	4.16	4.27	139.06	-26.04	-43.20	76.96	68.58	8.38	9.182	ES
1,300.00	1,296.80	1,308.73	1,298.48	4.53	4.69	127.00	-50.15	-43.18	79.30	70.11	9.20	8.621	
1,400.00	1,396.27	1,407.30	1,394.06	4.91	5.12	116.05	-74.26	-43.16	84.97	74.96	10.01	8.490	SF
1,500.00	1,495.74	1,505.88	1,489.65	5.28	5.56	106.74	-98.37	-43.14	93.36	82.56	10.80	8.644	
1,600.00	1,595.21	1,604.46	1,585.23	5.66	6.01	99.10	-122.48	-43.12	103.81	92.24	11.58	8.968	
1,700.00	1,694.68	1,703.03	1,680.81	6.04	6.46	92.92	-146.59	-43.11	115.77	103.43	12.34	9.381	
1,800.00	1,794.15	1,801.61	1,776.40	6.42	6.91	87.93	-170.70	-43.09	128.82	115.72	13.10	9.834	
1,900.00	1,893.62	1,900.19	1,871.98	6.80	7.36	83.88	-194.81	-43.07	142.66	128.81	13.86	10.296	
2,000.00	1,993.09	1,998.76	1,967.56	7.18	7.82	80.55	-218.92	-43.05	157.08	142.47	14.61	10.751	
2,100.00	2,092.56	2,097.34	2,063.15	7.56	8.28	77.78	-243.02	-43.03	171.94	156.57	15.37	11.189	
2,200.00	2,192.03	2,195.92	2,158.73	7.94	8.75	75.46	-267.13	-43.01	187.12	171.00	16.12	11.606	
2,300.00	2,291.50	2,294.49	2,254.31	8.32	9.21	73.48	-291.24	-42.99	202.56	185.68	16.88	12.000	
2,400.00	2,390.97	2,393.07	2,349.90	8.70	9.68	71.79	-315.35	-42.98	218.21	200.57	17.64	12.371	
2,500.00	2,490.44	2,491.65	2,445.48	9.08	10.14	70.32	-339.46	-42.96	234.01	215.62	18.40	12.720	
2,600.00	2,589.91	2,590.22	2,541.06	9.47	10.61	69.04	-363.57	-42.94	249.95	230.79	19.16	13.046	
2,700.00	2,689.38	2,688.80	2,636.65	9.85	11.08	67.91	-387.68	-42.92	266.00	246.08	19.92	13.353	
2,800.00	2,788.85	2,787.38	2,732.23	10.23	11.55	66.91	-411.79	-42.90	282.13	261.45	20.68	13.641	
2,900.00	2,888.32	2,885.96	2,827.81	10.61	12.02	66.02	-435.90	-42.88	298.34	276.89	21.45	13.911	
3,000.00	2,987.79	2,984.53	2,923.39	11.00	12.49	65.22	-460.01	-42.86	314.61	292.40	22.21	14.165	
3,100.00	3,087.25	3,083.11	3,018.98	11.38	12.96	64.50	-484.12	-42.84	330.94	307.96	22.97	14.404	
3,200.00	3,186.72	3,181.69	3,114.56	11.76	13.43	63.85	-508.23	-42.83	347.31	323.57	23.74	14.630	
3,300.00	3,286.19	3,280.26	3,210.14	12.15	13.90	63.26	-532.34	-42.81	363.72	339.22	24.51	14.842	
3,400.00	3,385.66	3,378.84	3,305.73	12.53	14.37	62.71	-556.45	-42.79	380.17	354.90	25.27	15.043	
3,500.00	3,485.13	3,477.42	3,401.31	12.91	14.84	62.22	-580.56	-42.77	396.65	370.61	26.04	15.233	
3,600.00	3,584.60	3,575.99	3,496.89	13.30	15.31	61.76	-604.67	-42.75	413.15	386.35	26.81	15.412	
3,700.00	3,684.07	3,674.57	3,592.48	13.68	15.79	61.33	-628.77	-42.73	429.68	402.11	27.57	15.583	
3,800.00	3,783.54	3,773.15	3,688.06	14.06	16.26	60.94	-652.88	-42.71	446.23	417.89	28.34	15.744	
3,900.00	3,883.01	3,871.72	3,783.64	14.45	16.73	60.58	-676.99	-42.70	462.80	433.69	29.11	15.898	
4,000.00	3,982.48	3,970.30	3,879.23	14.83	17.21	60.24	-701.10	-42.68	479.38	449.50	29.88	16.044	
4,100.00	4,081.95	4,068.88	3,974.81	15.22	17.68	59.92	-725.21	-42.66	495.98	465.33	30.65	16.183	
4,200.00	4,181.42	4,167.45	4,070.39	15.60	18.15	59.63	-749.32	-42.64	512.60	481.18	31.42	16.315	
4,300.00	4,280.89	4,266.03	4,165.98	15.98	18.63	59.35	-773.43	-42.62	529.22	497.04	32.19	16.442	
4,400.00	4,380.36	4,364.61	4,261.56	16.37	19.10	59.09	-797.54	-42.60	545.86	512.90	32.96	16.563	
4,500.00	4,479.83	4,463.19	4,357.14	16.75	19.57	58.85	-821.65	-42.58	562.51	528.78	33.73	16.678	
4,600.00	4,579.30	4,561.76	4,452.72	17.14	20.05	58.62	-845.76	-42.56	579.17	544.67	34.50	16.789	
4,700.00	4,678.77	4,660.34	4,548.31	17.52	20.52	58.40	-869.87	-42.55	595.83	560.56	35.27	16.894	
4,800.00	4,778.24	4,758.92	4,643.89	17.90	21.00	58.19	-893.98	-42.53	612.51	576.47	36.04	16.996	
4,900.00	4,877.71	4,857.49	4,739.47	18.29	21.47	58.00	-918.09	-42.51	629.19	592.38	36.81	17.093	

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 705H
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 705H	**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 #3	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - Rosa Unit 702H - 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)	Rule Assigned: Minimum Separation (usft)	Separation Factor	Warning
5,000.00	4,977.18	4,956.07	4,835.06	18.67	21.95	57.81	-942.20	-42.49	645.88	608.30	37.58	17.186	
5,100.00	5,076.65	5,054.65	4,930.64	19.06	22.42	57.64	-966.31	-42.47	662.57	624.22	38.35	17.276	
5,200.00	5,176.12	5,153.22	5,026.22	19.44	22.90	57.47	-990.42	-42.45	679.27	640.15	39.12	17.363	
5,300.00	5,275.59	5,251.80	5,121.81	19.83	23.37	57.31	-1,014.52	-42.43	695.98	656.08	39.89	17.446	
5,400.00	5,375.06	5,350.38	5,217.39	20.21	23.85	57.16	-1,038.63	-42.42	712.69	672.02	40.67	17.525	
5,500.00	5,474.53	5,448.95	5,312.97	20.59	24.32	57.02	-1,062.74	-42.40	729.40	687.96	41.44	17.602	
5,600.00	5,574.00	5,547.53	5,408.56	20.98	24.80	56.88	-1,086.85	-42.38	746.12	703.91	42.21	17.677	
5,700.00	5,673.47	5,646.11	5,504.14	21.36	25.27	56.75	-1,110.96	-42.36	762.84	719.86	42.98	17.748	
5,800.00	5,772.94	5,744.68	5,599.72	21.75	25.75	56.62	-1,135.07	-42.34	779.57	735.82	43.75	17.817	
5,900.00	5,872.41	5,843.26	5,695.31	22.13	26.22	56.50	-1,159.18	-42.32	796.30	751.77	44.53	17.884	
6,000.00	5,971.88	5,941.84	5,790.89	22.52	26.70	56.38	-1,183.29	-42.30	813.03	767.74	45.30	17.949	
6,100.00	6,071.35	6,040.41	5,886.47	22.90	27.17	56.27	-1,207.40	-42.29	829.77	783.70	46.07	18.011	
6,200.00	6,170.81	6,138.99	5,982.05	23.28	27.65	56.16	-1,231.51	-42.27	846.51	799.67	46.84	18.072	
6,300.00	6,270.28	6,237.57	6,077.64	23.67	28.12	56.06	-1,255.62	-42.25	863.25	815.64	47.61	18.130	
6,375.94	6,345.82	6,312.43	6,150.22	23.96	28.49	55.99	-1,273.93	-42.23	875.97	827.77	48.20	18.173	
6,400.00	6,369.72	6,336.12	6,173.19	24.05	28.60	70.10	-1,279.72	-42.23	880.18	831.79	48.39	18.189	
6,450.00	6,419.09	6,385.04	6,220.63	24.25	28.84	85.58	-1,291.69	-42.22	890.05	841.25	48.80	18.238	
6,500.00	6,467.78	6,433.31	6,267.43	24.46	29.07	92.67	-1,303.49	-42.21	901.42	852.19	49.24	18.307	
6,550.00	6,515.51	6,480.62	6,313.31	24.67	29.30	96.46	-1,315.06	-42.20	914.30	864.61	49.69	18.398	
6,600.00	6,561.97	6,515.08	6,346.72	24.88	29.46	98.50	-1,323.49	-42.46	928.90	878.84	50.07	18.552	
6,650.00	6,606.89	6,550.00	6,380.52	25.10	29.63	99.71	-1,332.01	-44.41	945.95	895.47	50.48	18.739	
6,700.00	6,649.98	6,565.11	6,395.11	25.32	29.70	99.74	-1,335.68	-45.84	965.30	914.59	50.71	19.034	
6,750.00	6,690.98	6,586.23	6,415.43	25.54	29.80	99.45	-1,340.80	-48.45	987.13	936.10	51.03	19.344	
6,800.00	6,729.64	6,600.00	6,428.63	25.77	29.87	98.40	-1,344.12	-50.52	1,011.33	960.05	51.28	19.722	
6,850.00	6,765.71	6,620.16	6,447.88	26.00	29.96	97.24	-1,348.96	-54.08	1,037.75	986.11	51.63	20.098	
6,900.00	6,798.98	6,633.04	6,460.11	26.24	30.02	95.34	-1,352.04	-56.69	1,066.29	1,014.37	51.92	20.535	
6,950.00	6,829.24	6,650.00	6,476.14	26.49	30.10	93.29	-1,356.06	-60.51	1,096.80	1,044.50	52.30	20.972	
7,000.00	6,856.30	6,650.00	6,476.14	26.76	30.10	89.85	-1,356.06	-60.51	1,128.94	1,076.47	52.47	21.515	
7,050.00	6,880.00	6,650.00	6,476.14	27.03	30.10	85.99	-1,356.06	-60.51	1,162.62	1,109.95	52.67	22.073	
7,100.00	6,900.19	6,650.00	6,476.14	27.32	30.10	81.80	-1,356.06	-60.51	1,197.52	1,144.62	52.90	22.639	
7,150.00	6,916.74	6,650.00	6,476.14	27.62	30.10	77.35	-1,356.06	-60.51	1,233.32	1,180.17	53.15	23.204	
7,200.00	6,929.56	6,650.00	6,476.14	27.93	30.10	72.74	-1,356.06	-60.51	1,269.74	1,216.31	53.43	23.764	
7,250.00	6,938.57	6,650.00	6,476.14	28.26	30.10	68.09	-1,356.06	-60.51	1,306.51	1,252.77	53.74	24.313	
7,300.00	6,943.70	6,650.00	6,476.14	28.60	30.10	63.49	-1,356.06	-60.51	1,343.39	1,289.32	54.06	24.848	
7,340.76	6,945.00	6,650.00	6,476.14	28.88	30.10	59.84	-1,356.06	-60.51	1,373.36	1,319.02	54.34	25.272	
7,400.00	6,945.00	6,650.00	6,476.14	29.31	30.10	59.84	-1,356.06	-60.51	1,417.40	1,362.65	54.75	25.891	
7,500.00	6,945.00	6,650.00	6,476.14	30.09	30.10	59.84	-1,356.06	-60.51	1,494.11	1,438.74	55.37	26.984	
7,600.00	6,945.00	6,650.00	6,476.14	30.93	30.10	59.84	-1,356.06	-60.51	1,573.44	1,517.51	55.92	28.135	
7,700.00	6,945.00	6,626.67	6,454.06	31.83	29.99	58.51	-1,350.52	-55.37	1,654.48	1,598.34	56.15	29.468	
7,800.00	6,945.00	6,620.63	6,448.33	32.79	29.96	58.17	-1,349.07	-54.17	1,737.67	1,681.15	56.53	30.741	
7,900.00	6,945.00	6,600.00	6,428.63	33.79	29.87	57.00	-1,344.12	-50.52	1,822.71	1,766.02	56.70	32.147	
8,000.00	6,945.00	6,600.00	6,428.63	34.84	29.87	57.00	-1,344.12	-50.52	1,908.83	1,851.76	57.07	33.448	
8,100.00	6,945.00	6,600.00	6,428.63	35.93	29.87	57.00	-1,344.12	-50.52	1,996.25	1,938.85	57.40	34.778	
8,200.00	6,945.00	6,600.00	6,428.63	37.06	29.87	57.00	-1,344.12	-50.52	2,084.79	2,027.10	57.70	36.134	
8,300.00	6,945.00	6,600.00	6,428.63	38.23	29.87	57.00	-1,344.12	-50.52	2,174.33	2,116.37	57.96	37.511	
8,400.00	6,945.00	6,600.00	6,428.63	39.42	29.87	57.00	-1,344.12	-50.52	2,264.75	2,206.54	58.21	38.909	
8,500.00	6,945.00	6,600.00	6,428.63	40.65	29.87	57.00	-1,344.12	-50.52	2,355.94	2,297.51	58.43	40.323	
8,600.00	6,945.00	6,600.00	6,428.63	41.90	29.87	57.00	-1,344.12	-50.52	2,447.81	2,389.19	58.63	41.752	
8,700.00	6,945.00	6,600.00	6,428.63	43.17	29.87	57.00	-1,344.12	-50.52	2,540.30	2,481.49	58.81	43.194	
8,800.00	6,945.00	6,600.00	6,428.63	44.46	29.87	57.00	-1,344.12	-50.52	2,633.34	2,574.36	58.98	44.647	
8,900.00	6,945.00	6,578.70	6,408.20	45.78	29.77	55.80	-1,338.98	-47.44	2,726.46	2,667.51	58.95	46.252	
9,000.00	6,945.00	6,576.26	6,405.85	47.11	29.76	55.66	-1,338.39	-47.13	2,820.33	2,761.26	59.07	47.743	

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 705H
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 705H	**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 #3	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - Rosa Unit 702H - 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
9,100.00	6,945.00	6,573.95	6,403.63	48.46	29.74	55.53	-1,337.83	-46.85	2,914.61	2,855.42	59.19	49.240	
9,200.00	6,945.00	6,571.78	6,401.54	49.82	29.73	55.41	-1,337.30	-46.59	3,009.24	2,949.94	59.30	50.744	
9,300.00	6,945.00	6,550.00	6,380.52	51.20	29.63	54.21	-1,332.01	-44.41	3,104.56	3,045.32	59.24	52.409	
9,400.00	6,945.00	6,550.00	6,380.52	52.59	29.63	54.21	-1,332.01	-44.41	3,199.76	3,140.40	59.35	53.910	
9,500.00	6,945.00	6,550.00	6,380.52	53.99	29.63	54.21	-1,332.01	-44.41	3,295.24	3,235.77	59.46	55.416	
9,600.00	6,945.00	6,550.00	6,380.52	55.40	29.63	54.21	-1,332.01	-44.41	3,390.98	3,331.41	59.57	56.926	
9,700.00	6,945.00	6,550.00	6,380.52	56.83	29.63	54.21	-1,332.01	-44.41	3,486.96	3,427.29	59.67	58.439	
9,800.00	6,945.00	6,550.00	6,380.52	58.26	29.63	54.21	-1,332.01	-44.41	3,583.16	3,523.39	59.76	59.956	
9,900.00	6,945.00	6,550.00	6,380.52	59.70	29.63	54.21	-1,332.01	-44.41	3,679.56	3,619.71	59.85	61.476	
10,000.00	6,945.00	6,550.00	6,380.52	61.15	29.63	54.21	-1,332.01	-44.41	3,776.15	3,716.21	59.94	62.998	
10,100.00	6,945.00	6,550.00	6,380.52	62.61	29.63	54.21	-1,332.01	-44.41	3,872.91	3,812.89	60.02	64.522	
10,200.00	6,945.00	6,550.00	6,380.52	64.07	29.63	54.21	-1,332.01	-44.41	3,969.84	3,909.73	60.11	66.048	
10,300.00	6,945.00	6,550.00	6,380.52	65.54	29.63	54.21	-1,332.01	-44.41	4,066.91	4,006.72	60.18	67.575	
10,400.00	6,945.00	6,550.00	6,380.52	67.02	29.63	54.21	-1,332.01	-44.41	4,164.12	4,103.86	60.26	69.103	
10,500.00	6,945.00	6,550.00	6,380.52	68.50	29.63	54.21	-1,332.01	-44.41	4,261.46	4,201.12	60.33	70.632	
10,600.00	6,945.00	6,550.00	6,380.52	69.99	29.63	54.21	-1,332.01	-44.41	4,358.92	4,298.51	60.41	72.161	
10,700.00	6,945.00	6,550.00	6,380.52	71.48	29.63	54.21	-1,332.01	-44.41	4,456.49	4,396.02	60.48	73.690	
10,800.00	6,945.00	6,550.00	6,380.52	72.98	29.63	54.21	-1,332.01	-44.41	4,554.17	4,493.62	60.55	75.220	
10,900.00	6,945.00	6,550.00	6,380.52	74.48	29.63	54.21	-1,332.01	-44.41	4,651.95	4,591.33	60.61	76.749	
11,000.00	6,945.00	6,550.00	6,380.52	75.99	29.63	54.21	-1,332.01	-44.41	4,749.82	4,689.14	60.68	78.277	
11,100.00	6,945.00	6,550.00	6,380.52	77.50	29.63	54.21	-1,332.01	-44.41	4,847.77	4,787.03	60.74	79.805	
11,200.00	6,945.00	6,550.00	6,380.52	79.01	29.63	54.21	-1,332.01	-44.41	4,945.81	4,885.00	60.81	81.333	
11,300.00	6,945.00	6,550.00	6,380.52	80.53	29.63	54.21	-1,332.01	-44.41	5,043.92	4,983.05	60.87	82.859	
11,400.00	6,945.00	6,550.00	6,380.52	82.05	29.63	54.21	-1,332.01	-44.41	5,142.11	5,081.18	60.94	84.384	
11,500.00	6,945.00	6,550.00	6,380.52	83.57	29.63	54.21	-1,332.01	-44.41	5,240.37	5,179.37	61.00	85.908	
11,600.00	6,945.00	6,550.00	6,380.52	85.10	29.63	54.21	-1,332.01	-44.41	5,338.69	5,277.63	61.06	87.431	
11,700.00	6,945.00	6,550.00	6,380.52	86.63	29.63	54.21	-1,332.01	-44.41	5,437.07	5,375.95	61.12	88.952	
11,800.00	6,945.00	6,550.00	6,380.52	88.16	29.63	54.21	-1,332.01	-44.41	5,535.51	5,474.33	61.19	90.472	
11,900.00	6,945.00	6,550.00	6,380.52	89.69	29.63	54.21	-1,332.01	-44.41	5,634.01	5,572.76	61.25	91.989	
12,000.00	6,945.00	6,550.00	6,380.52	91.23	29.63	54.21	-1,332.01	-44.41	5,732.55	5,671.25	61.31	93.505	
12,100.00	6,945.00	6,550.00	6,380.52	92.77	29.63	54.21	-1,332.01	-44.41	5,831.15	5,769.78	61.37	95.020	
12,200.00	6,945.00	6,550.00	6,380.52	94.31	29.63	54.21	-1,332.01	-44.41	5,929.80	5,868.37	61.43	96.532	
12,300.00	6,945.00	6,550.00	6,380.52	95.85	29.63	54.21	-1,332.01	-44.41	6,028.48	5,966.99	61.49	98.041	
12,400.00	6,945.00	6,550.00	6,380.52	97.40	29.63	54.21	-1,332.01	-44.41	6,127.21	6,065.66	61.55	99.549	
12,500.00	6,945.00	6,550.00	6,380.52	98.95	29.63	54.21	-1,332.01	-44.41	6,225.99	6,164.38	61.61	101.054	
12,600.00	6,945.00	6,550.00	6,380.52	100.50	29.63	54.21	-1,332.01	-44.41	6,324.80	6,263.13	61.67	102.557	
12,700.00	6,945.00	6,550.00	6,380.52	102.05	29.63	54.21	-1,332.01	-44.41	6,423.64	6,361.91	61.73	104.058	
12,800.00	6,945.00	6,550.00	6,380.52	103.60	29.63	54.21	-1,332.01	-44.41	6,522.52	6,460.73	61.79	105.556	
12,900.00	6,945.00	6,550.00	6,380.52	105.15	29.63	54.21	-1,332.01	-44.41	6,621.44	6,559.59	61.85	107.051	
13,000.00	6,945.00	6,550.00	6,380.52	106.71	29.63	54.21	-1,332.01	-44.41	6,720.39	6,658.47	61.91	108.544	
13,100.00	6,945.00	6,550.00	6,380.52	108.26	29.63	54.21	-1,332.01	-44.41	6,819.37	6,757.39	61.98	110.034	
13,200.00	6,945.00	6,550.00	6,380.52	109.82	29.63	54.21	-1,332.01	-44.41	6,918.37	6,856.34	62.04	111.521	
13,300.00	6,945.00	6,550.00	6,380.52	111.38	29.63	54.21	-1,332.01	-44.41	7,017.41	6,955.31	62.10	113.005	
13,400.00	6,945.00	6,550.00	6,380.52	112.94	29.63	54.21	-1,332.01	-44.41	7,116.47	7,054.31	62.16	114.486	
13,500.00	6,945.00	6,550.00	6,380.52	114.50	29.63	54.21	-1,332.01	-44.41	7,215.56	7,153.34	62.22	115.964	
13,600.00	6,945.00	6,550.00	6,380.52	116.07	29.63	54.21	-1,332.01	-44.41	7,314.68	7,252.39	62.28	117.439	
13,700.00	6,945.00	6,550.00	6,380.52	117.63	29.63	54.21	-1,332.01	-44.41	7,413.81	7,351.47	62.35	118.911	
13,800.00	6,945.00	6,550.00	6,380.52	119.19	29.63	54.21	-1,332.01	-44.41	7,512.97	7,450.56	62.41	120.380	
13,900.00	6,945.00	6,550.00	6,380.52	120.76	29.63	54.21	-1,332.01	-44.41	7,612.16	7,549.68	62.47	121.846	
14,000.00	6,945.00	6,550.00	6,380.52	122.33	29.63	54.21	-1,332.01	-44.41	7,711.36	7,648.82	62.54	123.308	
14,100.00	6,945.00	6,550.00	6,380.52	123.90	29.63	54.21	-1,332.01	-44.41	7,810.58	7,747.98	62.60	124.767	
14,200.00	6,945.00	6,550.00	6,380.52	125.46	29.63	54.21	-1,332.01	-44.41	7,909.83	7,847.16	62.67	126.223	

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 705H
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 705H	**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 #3	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - Rosa Unit 702H - 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
14,300.00	6,945.00	6,550.00	6,380.52	127.03	29.63	54.21	-1,332.01	-44.41	8,009.09	7,946.36	62.73	127.675	
14,400.00	6,945.00	6,550.00	6,380.52	128.60	29.63	54.21	-1,332.01	-44.41	8,108.37	8,045.57	62.80	129.124	
14,500.00	6,945.00	6,550.00	6,380.52	130.18	29.63	54.21	-1,332.01	-44.41	8,207.67	8,144.80	62.86	130.569	
14,600.00	6,945.00	6,526.78	6,358.05	131.75	29.52	52.94	-1,326.35	-42.90	8,306.53	8,243.76	62.77	132.341	
14,700.00	6,945.00	6,526.45	6,357.74	133.32	29.52	52.92	-1,326.27	-42.88	8,405.84	8,343.01	62.83	133.787	
14,800.00	6,945.00	6,526.13	6,357.43	134.89	29.52	52.91	-1,326.19	-42.87	8,505.18	8,442.28	62.89	135.229	
14,900.00	6,945.00	6,525.82	6,357.13	136.47	29.52	52.89	-1,326.11	-42.85	8,604.53	8,541.57	62.96	136.667	
15,000.00	6,945.00	6,525.52	6,356.84	138.04	29.51	52.87	-1,326.04	-42.84	8,703.89	8,640.87	63.03	138.102	
15,100.00	6,945.00	6,525.22	6,356.55	139.62	29.51	52.86	-1,325.97	-42.83	8,803.27	8,740.18	63.09	139.533	
15,200.00	6,945.00	6,524.93	6,356.26	141.20	29.51	52.84	-1,325.90	-42.81	8,902.66	8,839.51	63.16	140.960	
15,300.00	6,945.00	6,524.64	6,355.99	142.77	29.51	52.83	-1,325.83	-42.80	9,002.07	8,938.84	63.22	142.383	
15,400.00	6,945.00	6,524.37	6,355.72	144.35	29.51	52.81	-1,325.76	-42.79	9,101.49	9,038.20	63.29	143.802	
15,500.00	6,945.00	6,524.09	6,355.45	145.93	29.51	52.80	-1,325.69	-42.78	9,200.92	9,137.56	63.36	145.218	
15,600.00	6,945.00	6,523.82	6,355.19	147.51	29.51	52.78	-1,325.62	-42.77	9,300.36	9,236.93	63.43	146.629	
15,700.00	6,945.00	6,523.56	6,354.94	149.09	29.50	52.77	-1,325.56	-42.75	9,399.82	9,336.32	63.50	148.037	
15,800.00	6,945.00	6,500.00	6,332.10	150.67	29.39	51.51	-1,319.80	-42.21	9,499.73	9,436.33	63.41	149.821	
15,900.00	6,945.00	6,500.00	6,332.10	152.25	29.39	51.51	-1,319.80	-42.21	9,599.20	9,535.72	63.48	151.219	
16,000.00	6,945.00	6,500.00	6,332.10	153.83	29.39	51.51	-1,319.80	-42.21	9,698.68	9,635.13	63.55	152.613	
16,100.00	6,945.00	6,500.00	6,332.10	155.41	29.39	51.51	-1,319.80	-42.21	9,798.17	9,734.54	63.62	154.003	
16,200.00	6,945.00	6,500.00	6,332.10	156.99	29.39	51.51	-1,319.80	-42.21	9,897.67	9,833.97	63.70	155.389	
16,300.00	6,945.00	6,500.00	6,332.10	158.57	29.39	51.51	-1,319.80	-42.21	9,997.18	9,933.41	63.77	156.771	
16,400.00	6,945.00	6,500.00	6,332.10	160.15	29.39	51.51	-1,319.80	-42.21	10,096.69	10,032.85	63.84	158.149	
16,500.00	6,945.00	6,500.00	6,332.10	161.74	29.39	51.51	-1,319.80	-42.21	10,196.22	10,132.31	63.92	159.523	
16,600.00	6,945.00	6,500.00	6,332.10	163.32	29.39	51.51	-1,319.80	-42.21	10,295.76	10,231.77	63.99	160.893	
16,700.00	6,945.00	6,500.00	6,332.10	164.90	29.39	51.51	-1,319.80	-42.21	10,395.31	10,331.24	64.07	162.258	
16,800.00	6,945.00	6,500.00	6,332.10	166.49	29.39	51.51	-1,319.80	-42.21	10,494.86	10,430.72	64.14	163.619	
16,900.00	6,945.00	6,500.00	6,332.10	168.07	29.39	51.51	-1,319.80	-42.21	10,594.42	10,530.21	64.22	164.976	
17,000.00	6,945.00	6,500.00	6,332.10	169.66	29.39	51.51	-1,319.80	-42.21	10,693.99	10,629.70	64.29	166.329	
17,100.00	6,945.00	6,500.00	6,332.10	171.24	29.39	51.51	-1,319.80	-42.21	10,793.57	10,729.20	64.37	167.678	
17,200.00	6,945.00	6,500.00	6,332.10	172.83	29.39	51.51	-1,319.80	-42.21	10,893.16	10,828.71	64.45	169.023	
17,300.00	6,945.00	6,500.00	6,332.10	174.41	29.39	51.51	-1,319.80	-42.21	10,992.75	10,928.23	64.53	170.363	
17,400.00	6,945.00	6,500.00	6,332.10	176.00	29.39	51.51	-1,319.80	-42.21	11,092.36	11,027.75	64.60	171.699	
17,500.00	6,945.00	6,500.00	6,332.10	177.59	29.39	51.51	-1,319.80	-42.21	11,191.96	11,127.28	64.68	173.031	
17,600.00	6,945.00	6,500.00	6,332.10	179.17	29.39	51.51	-1,319.80	-42.21	11,291.58	11,226.82	64.76	174.358	
17,700.00	6,945.00	6,500.00	6,332.10	180.76	29.39	51.51	-1,319.80	-42.21	11,391.20	11,326.36	64.84	175.681	
17,800.00	6,945.00	6,500.00	6,332.10	182.35	29.39	51.51	-1,319.80	-42.21	11,490.83	11,425.91	64.92	177.000	
17,900.00	6,945.00	6,500.00	6,332.10	183.93	29.39	51.51	-1,319.80	-42.21	11,590.47	11,525.47	65.00	178.315	
18,000.00	6,945.00	6,500.00	6,332.10	185.52	29.39	51.51	-1,319.80	-42.21	11,690.11	11,625.03	65.08	179.625	
18,100.00	6,945.00	6,500.00	6,332.10	187.11	29.39	51.51	-1,319.80	-42.21	11,789.76	11,724.59	65.16	180.931	
18,200.00	6,945.00	6,500.00	6,332.10	188.70	29.39	51.51	-1,319.80	-42.21	11,889.41	11,824.17	65.24	182.232	
18,300.00	6,945.00	6,500.00	6,332.10	190.29	29.39	51.51	-1,319.80	-42.21	11,989.07	11,923.74	65.33	183.529	
18,400.00	6,945.00	6,500.00	6,332.10	191.88	29.39	51.51	-1,319.80	-42.21	12,088.73	12,023.33	65.41	184.822	
18,500.00	6,945.00	6,500.00	6,332.10	193.46	29.39	51.51	-1,319.80	-42.21	12,188.40	12,122.91	65.49	186.111	
18,600.00	6,945.00	6,500.00	6,332.10	195.05	29.39	51.51	-1,319.80	-42.21	12,288.08	12,222.51	65.57	187.395	
18,700.00	6,945.00	6,500.00	6,332.10	196.64	29.39	51.51	-1,319.80	-42.21	12,387.76	12,322.10	65.66	188.675	
18,800.00	6,945.00	6,500.00	6,332.10	198.23	29.39	51.51	-1,319.80	-42.21	12,487.45	12,421.71	65.74	189.950	
18,900.00	6,945.00	6,500.00	6,332.10	199.82	29.39	51.51	-1,319.80	-42.21	12,587.14	12,521.31	65.83	191.221	
19,000.00	6,945.00	6,500.00	6,332.10	201.41	29.39	51.51	-1,319.80	-42.21	12,686.83	12,620.92	65.91	192.487	
19,100.00	6,945.00	6,500.00	6,332.10	203.00	29.39	51.51	-1,319.80	-42.21	12,786.53	12,720.54	66.00	193.750	
19,200.00	6,945.00	6,500.00	6,332.10	204.60	29.39	51.51	-1,319.80	-42.21	12,886.24	12,820.16	66.08	195.007	
19,300.00	6,945.00	6,500.00	6,332.10	206.19	29.39	51.51	-1,319.80	-42.21	12,985.95	12,919.78	66.17	196.261	
19,400.00	6,945.00	6,500.00	6,332.10	207.78	29.39	51.51	-1,319.80	-42.21	13,085.66	13,019.41	66.25	197.510	

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 705H
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 705H	**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 #3	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - Rosa Unit 702H - 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
19,500.00	6,945.00	6,500.00	6,332.10	209.37	29.39	51.51	-1,319.80	-42.21	13,185.38	13,119.04	66.34	198.755	
19,600.00	6,945.00	6,500.00	6,332.10	210.96	29.39	51.51	-1,319.80	-42.21	13,285.11	13,218.68	66.43	199.995	
19,700.00	6,945.00	6,500.00	6,332.10	212.55	29.39	51.51	-1,319.80	-42.21	13,384.83	13,318.32	66.51	201.231	
19,800.00	6,945.00	6,500.00	6,332.10	214.14	29.39	51.51	-1,319.80	-42.21	13,484.56	13,417.96	66.60	202.462	
19,900.00	6,945.00	6,500.00	6,332.10	215.74	29.39	51.51	-1,319.80	-42.21	13,584.30	13,517.61	66.69	203.689	
20,000.00	6,945.00	6,500.00	6,332.10	217.33	29.39	51.51	-1,319.80	-42.21	13,684.04	13,617.26	66.78	204.912	
20,100.00	6,945.00	6,500.00	6,332.10	218.92	29.39	51.51	-1,319.80	-42.21	13,783.78	13,716.91	66.87	206.130	
20,200.00	6,945.00	6,500.00	6,332.10	220.51	29.39	51.51	-1,319.80	-42.21	13,883.53	13,816.57	66.96	207.343	
20,300.00	6,945.00	6,500.00	6,332.10	222.11	29.39	51.51	-1,319.80	-42.21	13,983.28	13,916.23	67.05	208.553	
20,400.00	6,945.00	6,500.00	6,332.10	223.70	29.39	51.51	-1,319.80	-42.21	14,083.03	14,015.89	67.14	209.758	
20,500.00	6,945.00	6,500.00	6,332.10	225.29	29.39	51.51	-1,319.80	-42.21	14,182.79	14,115.56	67.23	210.958	
20,600.00	6,945.00	6,500.00	6,332.10	226.88	29.39	51.51	-1,319.80	-42.21	14,282.55	14,215.23	67.32	212.155	
20,700.00	6,945.00	6,500.00	6,332.10	228.48	29.39	51.51	-1,319.80	-42.21	14,382.31	14,314.90	67.41	213.347	
20,741.48	6,945.00	6,500.00	6,332.10	229.14	29.39	51.51	-1,319.80	-42.21	14,423.69	14,356.24	67.45	213.840	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 705H
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 705H	**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 #3	**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
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	598.94	598.92	2.03	2.04	178.54	42.37	-28.34	52.73	48.66	4.07	12.963	
700.00	699.84	697.31	697.16	2.37	2.39	-177.43	47.13	-26.54	61.12	56.36	4.76	12.839	
795.17	794.65	789.89	789.40	2.69	2.73	-172.97	54.48	-23.75	74.67	69.25	5.42	13.770	
800.00	799.45	794.56	794.04	2.71	2.75	-172.75	54.93	-23.58	75.50	70.04	5.46	13.826	
900.00	898.92	891.63	890.46	3.06	3.10	-168.53	65.42	-19.61	93.96	87.81	6.15	15.279	
1,000.00	998.39	989.64	987.75	3.43	3.46	-165.52	76.44	-15.44	113.12	106.27	6.85	16.516	
1,100.00	1,097.86	1,087.64	1,085.05	3.79	3.82	-163.38	87.46	-11.26	132.48	124.93	7.55	17.539	
1,200.00	1,197.33	1,185.64	1,182.34	4.16	4.19	-161.79	98.48	-7.09	151.98	143.72	8.26	18.397	
1,300.00	1,296.80	1,283.65	1,279.63	4.53	4.56	-160.56	109.50	-2.92	171.57	162.60	8.97	19.121	
1,400.00	1,396.27	1,381.65	1,376.93	4.91	4.93	-159.58	120.52	1.25	191.22	181.53	9.69	19.741	
1,500.00	1,495.74	1,479.66	1,474.22	5.28	5.30	-158.79	131.54	5.42	210.91	200.51	10.40	20.276	
1,600.00	1,595.21	1,577.66	1,571.51	5.66	5.68	-158.13	142.56	9.60	230.63	219.51	11.12	20.742	
1,700.00	1,694.68	1,675.66	1,668.80	6.04	6.05	-157.57	153.58	13.77	250.38	238.54	11.84	21.152	
1,800.00	1,794.15	1,773.67	1,766.10	6.42	6.42	-157.10	164.60	17.94	270.15	257.59	12.56	21.515	
1,900.00	1,893.62	1,871.67	1,863.39	6.80	6.80	-156.69	175.62	22.11	289.93	276.66	13.28	21.838	
2,000.00	1,993.09	1,969.68	1,960.68	7.18	7.17	-156.33	186.64	26.29	309.73	295.73	14.00	22.127	
2,100.00	2,092.56	2,067.68	2,057.98	7.56	7.55	-156.02	197.66	30.46	329.53	314.81	14.72	22.388	
2,200.00	2,192.03	2,165.68	2,155.27	7.94	7.92	-155.74	208.68	34.63	349.35	333.91	15.44	22.624	
2,300.00	2,291.50	2,263.69	2,252.56	8.32	8.30	-155.49	219.70	38.80	369.17	353.00	16.16	22.839	
2,400.00	2,390.97	2,361.69	2,349.86	8.70	8.68	-155.27	230.72	42.98	389.00	372.11	16.89	23.035	
2,500.00	2,490.44	2,459.70	2,447.15	9.08	9.05	-155.07	241.74	47.15	408.83	391.22	17.61	23.215	
2,600.00	2,589.91	2,557.70	2,544.44	9.47	9.43	-154.88	252.76	51.32	428.66	410.33	18.33	23.381	
2,700.00	2,689.38	2,655.70	2,641.74	9.85	9.81	-154.72	263.78	55.49	448.51	429.45	19.06	23.534	
2,800.00	2,788.85	2,753.71	2,739.03	10.23	10.18	-154.56	274.80	59.66	468.35	448.57	19.78	23.675	
2,900.00	2,888.32	2,851.71	2,836.32	10.61	10.56	-154.42	285.82	63.84	488.20	467.69	20.51	23.806	
3,000.00	2,987.79	2,949.72	2,933.61	11.00	10.94	-154.29	296.84	68.01	508.05	486.81	21.23	23.929	
3,100.00	3,087.25	3,047.72	3,030.91	11.38	11.31	-154.17	307.86	72.18	527.90	505.94	21.96	24.043	
3,200.00	3,186.72	3,145.72	3,128.20	11.76	11.69	-154.06	318.88	76.35	547.75	525.07	22.68	24.149	
3,300.00	3,286.19	3,243.73	3,225.49	12.15	12.07	-153.96	329.90	80.53	567.61	544.20	23.41	24.249	
3,400.00	3,385.66	3,341.73	3,322.79	12.53	12.45	-153.86	340.92	84.70	587.46	563.33	24.13	24.343	
3,500.00	3,485.13	3,439.74	3,420.08	12.91	12.82	-153.77	351.94	88.87	607.32	582.46	24.86	24.432	
3,600.00	3,584.60	3,537.74	3,517.37	13.30	13.20	-153.69	362.96	93.04	627.18	601.60	25.58	24.515	
3,700.00	3,684.07	3,635.74	3,614.67	13.68	13.58	-153.61	373.98	97.22	647.04	620.73	26.31	24.593	
3,800.00	3,783.54	3,733.75	3,711.96	14.06	13.96	-153.54	385.00	101.39	666.91	639.87	27.04	24.667	
3,900.00	3,883.01	3,831.75	3,809.25	14.45	14.33	-153.47	396.01	105.56	686.77	659.01	27.76	24.738	
4,000.00	3,982.48	3,929.76	3,906.55	14.83	14.71	-153.40	407.03	109.73	706.63	678.15	28.49	24.804	
4,100.00	4,081.95	4,027.76	4,003.84	15.22	15.09	-153.34	418.05	113.91	726.50	697.29	29.21	24.868	
4,200.00	4,181.42	4,125.76	4,101.13	15.60	15.47	-153.28	429.07	118.08	746.37	716.42	29.94	24.928	
4,300.00	4,280.89	4,223.77	4,198.42	15.98	15.85	-153.22	440.09	122.25	766.23	735.56	30.67	24.985	
4,400.00	4,380.36	4,321.77	4,295.72	16.37	16.22	-153.17	451.11	126.42	786.10	754.71	31.39	25.040	
4,500.00	4,479.83	4,419.78	4,393.01	16.75	16.60	-153.12	462.13	130.59	805.97	773.85	32.12	25.092	
4,600.00	4,579.30	4,517.78	4,490.30	17.14	16.98	-153.07	473.15	134.77	825.84	792.99	32.85	25.141	
4,700.00	4,678.77	4,615.78	4,587.60	17.52	17.36	-153.02	484.17	138.94	845.71	812.13	33.57	25.189	
4,800.00	4,778.24	4,713.79	4,684.89	17.90	17.74	-152.98	495.19	143.11	865.58	831.27	34.30	25.234	
4,900.00	4,877.71	4,811.79	4,782.18	18.29	18.11	-152.94	506.21	147.28	885.45	850.42	35.03	25.278	
5,000.00	4,977.18	4,909.80	4,879.48	18.67	18.49	-152.90	517.23	151.46	905.32	869.56	35.76	25.319	

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 705H
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 705H	**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 #3	**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	5,076.65	5,007.80	4,976.77	19.06	18.87	-152.86	528.25	155.63	925.19	888.70	36.48	25.359	
5,200.00	5,176.12	5,105.80	5,074.06	19.44	19.25	-152.82	539.27	159.80	945.06	907.85	37.21	25.398	
5,300.00	5,275.59	5,203.81	5,171.36	19.83	19.63	-152.79	550.29	163.97	964.93	926.99	37.94	25.435	
5,400.00	5,375.06	5,301.81	5,268.65	20.21	20.00	-152.75	561.31	168.15	984.80	946.14	38.67	25.470	
5,500.00	5,474.53	5,399.82	5,365.94	20.59	20.38	-152.72	572.33	172.32	1,004.67	965.28	39.39	25.504	
5,600.00	5,574.00	5,497.82	5,463.23	20.98	20.76	-152.69	583.35	176.49	1,024.55	984.43	40.12	25.537	
5,700.00	5,673.47	5,595.82	5,560.53	21.36	21.14	-152.66	594.37	180.66	1,044.42	1,003.57	40.85	25.569	
5,800.00	5,772.94	5,693.83	5,657.82	21.75	21.52	-152.63	605.39	184.83	1,064.29	1,022.72	41.58	25.599	
5,900.00	5,872.41	5,791.83	5,755.11	22.13	21.90	-152.60	616.41	189.01	1,084.17	1,041.86	42.30	25.628	
6,000.00	5,971.88	5,889.84	5,852.41	22.52	22.27	-152.58	627.43	193.18	1,104.04	1,061.01	43.03	25.657	
6,100.00	6,071.35	5,987.84	5,949.70	22.90	22.65	-152.55	638.45	197.35	1,123.91	1,080.16	43.76	25.684	
6,200.00	6,170.81	6,085.84	6,046.99	23.28	23.03	-152.53	649.47	201.52	1,143.79	1,099.30	44.49	25.711	
6,300.00	6,270.28	6,183.85	6,144.29	23.67	23.41	-152.50	660.49	205.70	1,163.66	1,118.45	45.22	25.736	
6,375.94	6,345.82	6,258.27	6,218.17	23.96	23.70	-152.49	668.86	208.86	1,178.75	1,132.99	45.77	25.755	
6,400.00	6,369.72	6,281.84	6,241.57	24.05	23.79	-137.59	671.51	209.87	1,183.57	1,137.63	45.94	25.761	
6,450.00	6,419.09	6,330.64	6,290.01	24.25	23.97	-120.70	676.99	211.95	1,193.80	1,147.49	46.31	25.777	
6,500.00	6,467.78	6,379.66	6,338.68	24.46	24.16	-112.45	682.51	214.04	1,204.30	1,157.61	46.69	25.794	
6,550.00	6,515.51	6,440.10	6,398.44	24.67	24.40	-107.72	689.26	219.82	1,214.80	1,167.65	47.15	25.762	
6,600.00	6,561.97	6,501.93	6,458.73	24.88	24.65	-104.56	696.05	231.61	1,225.01	1,177.38	47.64	25.715	
6,650.00	6,606.89	6,565.12	6,518.88	25.10	24.91	-102.24	702.79	249.67	1,234.86	1,186.72	48.14	25.652	
6,700.00	6,649.98	6,629.60	6,578.12	25.32	25.18	-100.43	709.40	274.19	1,244.25	1,195.59	48.65	25.573	
6,750.00	6,690.98	6,695.27	6,635.60	25.54	25.46	-98.94	715.78	305.23	1,253.11	1,203.92	49.19	25.477	
6,800.00	6,729.64	6,761.96	6,690.42	25.77	25.74	-97.66	721.83	342.67	1,261.35	1,211.61	49.74	25.361	
6,850.00	6,765.71	6,829.50	6,741.66	26.00	26.04	-96.53	727.44	386.26	1,268.91	1,218.61	50.31	25.223	
6,900.00	6,798.98	6,897.65	6,788.43	26.24	26.36	-95.51	732.52	435.52	1,275.73	1,224.83	50.90	25.064	
6,950.00	6,829.24	6,966.15	6,829.90	26.49	26.69	-94.58	736.98	489.83	1,281.76	1,230.24	51.52	24.877	
7,000.00	6,856.30	7,034.74	6,865.38	26.76	27.05	-93.71	740.74	548.36	1,286.96	1,234.78	52.18	24.665	
7,050.00	6,880.00	7,103.10	6,894.32	27.03	27.43	-92.90	743.74	610.19	1,291.28	1,238.42	52.86	24.427	
7,100.00	6,900.19	7,170.98	6,916.37	27.32	27.84	-92.14	745.95	674.31	1,294.73	1,241.15	53.58	24.163	
7,150.00	6,916.74	7,238.09	6,931.39	27.62	28.26	-91.43	747.35	739.67	1,297.30	1,242.97	54.33	23.877	
7,200.00	6,929.56	7,304.20	6,939.42	27.93	28.70	-90.77	747.96	805.26	1,298.98	1,243.88	55.10	23.574	
7,250.00	6,938.57	7,364.45	6,941.00	28.26	29.11	-90.20	747.87	865.47	1,299.82	1,243.96	55.86	23.269	
7,300.00	6,943.70	7,414.17	6,941.01	28.60	29.46	-89.90	747.64	915.19	1,300.23	1,243.66	56.57	22.984	
7,340.76	6,945.00	7,454.90	6,941.02	28.88	29.77	-89.82	747.46	955.92	1,300.32	1,243.14	57.17	22.743	
7,400.00	6,945.00	7,514.14	6,941.02	29.31	30.23	-89.82	747.19	1,015.16	1,300.27	1,242.19	58.07	22.390	
7,500.00	6,945.00	7,614.14	6,941.04	30.09	31.05	-89.83	746.73	1,115.16	1,300.19	1,240.48	59.71	21.775	
7,600.00	6,945.00	7,714.14	6,941.05	30.93	31.93	-89.83	746.28	1,215.16	1,300.11	1,238.64	61.47	21.151	
7,700.00	6,945.00	7,814.14	6,941.07	31.83	32.87	-89.83	745.82	1,315.16	1,300.03	1,236.69	63.34	20.524	
7,800.00	6,945.00	7,914.14	6,941.08	32.79	33.85	-89.83	745.37	1,415.16	1,299.95	1,234.63	65.32	19.901	
7,900.00	6,945.00	8,014.14	6,941.10	33.79	34.88	-89.83	744.91	1,515.16	1,299.87	1,232.48	67.39	19.288	
8,000.00	6,945.00	8,114.14	6,941.11	34.84	35.95	-89.83	744.45	1,615.16	1,299.79	1,230.24	69.55	18.689	
8,100.00	6,945.00	8,214.14	6,941.13	35.93	37.06	-89.83	744.00	1,715.16	1,299.71	1,227.92	71.79	18.105	
8,200.00	6,945.00	8,314.14	6,941.14	37.06	38.20	-89.83	743.54	1,815.16	1,299.63	1,225.54	74.09	17.540	
8,300.00	6,945.00	8,414.14	6,941.16	38.23	39.37	-89.83	743.09	1,915.15	1,299.55	1,223.08	76.47	16.995	
8,400.00	6,945.00	8,514.14	6,941.17	39.42	40.58	-89.83	742.63	2,015.15	1,299.47	1,220.57	78.90	16.470	
8,500.00	6,945.00	8,614.14	6,941.19	40.65	41.81	-89.83	742.18	2,115.15	1,299.39	1,218.01	81.38	15.966	
8,600.00	6,945.00	8,714.14	6,941.20	41.90	43.06	-89.83	741.72	2,215.15	1,299.31	1,215.39	83.92	15.483	
8,700.00	6,945.00	8,814.14	6,941.22	43.17	44.34	-89.83	741.27	2,315.15	1,299.23	1,212.73	86.50	15.020	
8,800.00	6,945.00	8,914.14	6,941.23	44.46	45.64	-89.83	740.81	2,415.15	1,299.15	1,210.03	89.12	14.578	
8,900.00	6,945.00	9,014.14	6,941.25	45.78	46.95	-89.83	740.36	2,515.15	1,299.07	1,207.30	91.78	14.155	
9,000.00	6,945.00	9,114.14	6,941.26	47.11	48.29	-89.84	739.90	2,615.15	1,298.99	1,204.52	94.47	13.751	
9,100.00	6,945.00	9,214.14	6,941.28	48.46	49.63	-89.84	739.45	2,715.15	1,298.91	1,201.72	97.19	13.365	

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 705H
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 705H	**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 #3	**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
9,200.00	6,945.00	9,314.14	6,941.29	49.82	51.00	-89.84	738.99	2,815.14	1,298.83	1,198.89	99.94	12.996	
9,300.00	6,945.00	9,414.14	6,941.31	51.20	52.38	-89.84	738.54	2,915.14	1,298.75	1,196.03	102.72	12.644	
9,400.00	6,945.00	9,514.14	6,941.32	52.59	53.77	-89.84	738.08	3,015.14	1,298.67	1,193.15	105.52	12.307	
9,500.00	6,945.00	9,614.14	6,941.34	53.99	55.17	-89.84	737.63	3,115.14	1,298.59	1,190.25	108.35	11.985	
9,600.00	6,945.00	9,714.14	6,941.35	55.40	56.58	-89.84	737.17	3,215.14	1,298.51	1,187.32	111.19	11.678	
9,700.00	6,945.00	9,814.14	6,941.37	56.83	58.00	-89.84	736.72	3,315.14	1,298.43	1,184.38	114.06	11.384	
9,800.00	6,945.00	9,914.14	6,941.38	58.26	59.43	-89.84	736.26	3,415.14	1,298.35	1,181.41	116.94	11.103	
9,900.00	6,945.00	10,014.14	6,941.39	59.70	60.87	-89.84	735.81	3,515.14	1,298.27	1,178.43	119.84	10.833	
10,000.00	6,945.00	10,114.14	6,941.41	61.15	62.32	-89.84	735.35	3,615.14	1,298.20	1,175.44	122.75	10.576	
10,100.00	6,945.00	10,214.14	6,941.42	62.61	63.78	-89.84	734.90	3,715.13	1,298.12	1,172.43	125.68	10.328	
10,200.00	6,945.00	10,314.14	6,941.44	64.07	65.24	-89.84	734.44	3,815.13	1,298.04	1,169.41	128.63	10.092	
10,300.00	6,945.00	10,414.14	6,941.45	65.54	66.71	-89.84	733.98	3,915.13	1,297.96	1,166.38	131.58	9.864	
10,400.00	6,945.00	10,514.14	6,941.47	67.02	68.18	-89.84	733.53	4,015.13	1,297.88	1,163.33	134.55	9.646	
10,500.00	6,945.00	10,614.14	6,941.48	68.50	69.66	-89.84	733.07	4,115.13	1,297.80	1,160.27	137.52	9.437	
10,600.00	6,945.00	10,714.14	6,941.50	69.99	71.15	-89.85	732.62	4,215.13	1,297.72	1,157.21	140.51	9.236	
10,700.00	6,945.00	10,814.14	6,941.51	71.48	72.64	-89.85	732.16	4,315.13	1,297.64	1,154.13	143.51	9.042	
10,800.00	6,945.00	10,914.14	6,941.53	72.98	74.13	-89.85	731.71	4,415.13	1,297.56	1,151.05	146.51	8.856	
10,900.00	6,945.00	11,014.14	6,941.54	74.48	75.63	-89.85	731.25	4,515.13	1,297.48	1,147.95	149.53	8.677	
11,000.00	6,945.00	11,114.14	6,941.56	75.99	77.14	-89.85	730.80	4,615.13	1,297.40	1,144.85	152.55	8.505	
11,100.00	6,945.00	11,214.14	6,941.57	77.50	78.65	-89.85	730.34	4,715.12	1,297.32	1,141.74	155.58	8.339	
11,200.00	6,945.00	11,314.14	6,941.59	79.01	80.16	-89.85	729.89	4,815.12	1,297.24	1,138.63	158.61	8.179	
11,300.00	6,945.00	11,414.14	6,941.60	80.53	81.67	-89.85	729.43	4,915.12	1,297.16	1,135.50	161.66	8.024	
11,400.00	6,945.00	11,514.14	6,941.62	82.05	83.19	-89.85	728.98	5,015.12	1,297.08	1,132.37	164.70	7.875	
11,500.00	6,945.00	11,614.14	6,941.63	83.57	84.71	-89.85	728.52	5,115.12	1,297.00	1,129.24	167.76	7.731	
11,600.00	6,945.00	11,714.14	6,941.65	85.10	86.24	-89.85	728.07	5,215.12	1,296.92	1,126.10	170.82	7.592	
11,700.00	6,945.00	11,814.14	6,941.66	86.63	87.76	-89.85	727.61	5,315.12	1,296.84	1,122.95	173.89	7.458	
11,800.00	6,945.00	11,914.14	6,941.68	88.16	89.29	-89.85	727.16	5,415.12	1,296.76	1,119.80	176.96	7.328	
11,900.00	6,945.00	12,014.14	6,941.69	89.69	90.83	-89.85	726.70	5,515.12	1,296.68	1,116.65	180.03	7.202	
12,000.00	6,945.00	12,114.14	6,941.71	91.23	92.36	-89.85	726.25	5,615.11	1,296.60	1,113.49	183.11	7.081	
12,100.00	6,945.00	12,214.14	6,941.72	92.77	93.90	-89.86	725.79	5,715.11	1,296.52	1,110.32	186.20	6.963	
12,200.00	6,945.00	12,314.14	6,941.74	94.31	95.44	-89.86	725.34	5,815.11	1,296.44	1,107.16	189.29	6.849	
12,300.00	6,945.00	12,414.14	6,941.75	95.85	96.98	-89.86	724.88	5,915.11	1,296.36	1,103.98	192.38	6.739	
12,400.00	6,945.00	12,514.14	6,941.77	97.40	98.52	-89.86	724.43	6,015.11	1,296.28	1,100.81	195.47	6.631	
12,500.00	6,945.00	12,614.14	6,941.78	98.95	100.07	-89.86	723.97	6,115.11	1,296.20	1,097.63	198.57	6.528	
12,600.00	6,945.00	12,714.14	6,941.79	100.50	101.62	-89.86	723.51	6,215.11	1,296.12	1,094.45	201.68	6.427	
12,700.00	6,945.00	12,814.14	6,941.81	102.05	103.16	-89.86	723.06	6,315.11	1,296.04	1,091.26	204.78	6.329	
12,800.00	6,945.00	12,914.14	6,941.82	103.60	104.72	-89.86	722.60	6,415.11	1,295.96	1,088.07	207.89	6.234	
12,900.00	6,945.00	13,014.14	6,941.84	105.15	106.27	-89.86	722.15	6,515.10	1,295.88	1,084.88	211.00	6.142	
13,000.00	6,945.00	13,114.14	6,941.85	106.71	107.82	-89.86	721.69	6,615.10	1,295.80	1,081.68	214.12	6.052	
13,100.00	6,945.00	13,214.14	6,941.87	108.26	109.38	-89.86	721.24	6,715.10	1,295.72	1,078.49	217.24	5.965	
13,200.00	6,945.00	13,314.14	6,941.88	109.82	110.93	-89.86	720.78	6,815.10	1,295.64	1,075.29	220.36	5.880	
13,300.00	6,945.00	13,414.14	6,941.90	111.38	112.49	-89.86	720.33	6,915.10	1,295.56	1,072.08	223.48	5.797	
13,400.00	6,945.00	13,514.14	6,941.91	112.94	114.05	-89.86	719.87	7,015.10	1,295.48	1,068.88	226.60	5.717	
13,500.00	6,945.00	13,614.14	6,941.93	114.50	115.61	-89.86	719.42	7,115.10	1,295.40	1,065.67	229.73	5.639	
13,600.00	6,945.00	13,714.14	6,941.94	116.07	117.17	-89.86	718.96	7,215.10	1,295.32	1,062.46	232.86	5.563	
13,700.00	6,945.00	13,814.14	6,941.96	117.63	118.73	-89.87	718.51	7,315.10	1,295.25	1,059.25	235.99	5.488	
13,800.00	6,945.00	13,914.14	6,941.97	119.19	120.30	-89.87	718.05	7,415.10	1,295.17	1,056.04	239.13	5.416	
13,900.00	6,945.00	14,014.14	6,941.99	120.76	121.86	-89.87	717.60	7,515.09	1,295.09	1,052.82	242.26	5.346	
14,000.00	6,945.00	14,114.14	6,942.00	122.33	123.43	-89.87	717.14	7,615.09	1,295.01	1,049.61	245.40	5.277	
14,100.00	6,945.00	14,214.14	6,942.02	123.90	124.99	-89.87	716.69	7,715.09	1,294.93	1,046.39	248.54	5.210	
14,200.00	6,945.00	14,314.14	6,942.03	125.46	126.56	-89.87	716.23	7,815.09	1,294.85	1,043.17	251.68	5.145	
14,300.00	6,945.00	14,414.14	6,942.05	127.03	128.13	-89.87	715.78	7,915.09	1,294.77	1,039.94	254.82	5.081	

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 705H
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 705H	**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 #3	**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)	Rule Assigned: Minimum Separation (usft)	Separation Factor	Warning
14,400.00	6,945.00	14,514.14	6,942.06	128.60	129.70	-89.87	715.32	8,015.09	1,294.69	1,036.72	257.97	5.019	
14,500.00	6,945.00	14,614.14	6,942.08	130.18	131.27	-89.87	714.87	8,115.09	1,294.61	1,033.50	261.11	4.958	
14,600.00	6,945.00	14,714.14	6,942.09	131.75	132.84	-89.87	714.41	8,215.09	1,294.53	1,030.27	264.26	4.899	
14,700.00	6,945.00	14,814.14	6,942.11	133.32	134.41	-89.87	713.96	8,315.09	1,294.45	1,027.04	267.41	4.841	
14,800.00	6,945.00	14,914.14	6,942.12	134.89	135.99	-89.87	713.50	8,415.08	1,294.37	1,023.81	270.56	4.784	
14,900.00	6,945.00	15,014.14	6,942.14	136.47	137.56	-89.87	713.04	8,515.08	1,294.29	1,020.58	273.71	4.729	
15,000.00	6,945.00	15,114.14	6,942.15	138.04	139.13	-89.87	712.59	8,615.08	1,294.21	1,017.35	276.86	4.675	
15,100.00	6,945.00	15,214.14	6,942.16	139.62	140.71	-89.87	712.13	8,715.08	1,294.13	1,014.11	280.02	4.622	
15,200.00	6,945.00	15,314.14	6,942.18	141.20	142.28	-89.88	711.68	8,815.08	1,294.05	1,010.88	283.17	4.570	
15,300.00	6,945.00	15,414.14	6,942.19	142.77	143.86	-89.88	711.22	8,915.08	1,293.97	1,007.64	286.33	4.519	
15,400.00	6,945.00	15,514.14	6,942.21	144.35	145.43	-89.88	710.77	9,015.08	1,293.89	1,004.41	289.48	4.470	
15,500.00	6,945.00	15,614.14	6,942.22	145.93	147.01	-89.88	710.31	9,115.08	1,293.81	1,001.17	292.64	4.421	
15,600.00	6,945.00	15,714.14	6,942.24	147.51	148.59	-89.88	709.86	9,215.08	1,293.73	997.93	295.80	4.374	
15,700.00	6,945.00	15,814.14	6,942.25	149.09	150.17	-89.88	709.40	9,315.08	1,293.65	994.69	298.96	4.327	
15,800.00	6,945.00	15,914.14	6,942.27	150.67	151.75	-89.88	708.95	9,415.07	1,293.57	991.45	302.12	4.282	
15,900.00	6,945.00	16,014.14	6,942.28	152.25	153.33	-89.88	708.49	9,515.07	1,293.49	988.21	305.29	4.237	
16,000.00	6,945.00	16,114.14	6,942.30	153.83	154.90	-89.88	708.04	9,615.07	1,293.41	984.96	308.45	4.193	
16,100.00	6,945.00	16,214.14	6,942.31	155.41	156.48	-89.88	707.58	9,715.07	1,293.33	981.72	311.61	4.150	
16,200.00	6,945.00	16,314.14	6,942.33	156.99	158.07	-89.88	707.13	9,815.07	1,293.25	978.47	314.78	4.108	
16,300.00	6,945.00	16,414.14	6,942.34	158.57	159.65	-89.88	706.67	9,915.07	1,293.17	975.23	317.94	4.067	
16,400.00	6,945.00	16,514.14	6,942.36	160.15	161.23	-89.88	706.22	10,015.07	1,293.09	971.98	321.11	4.027	
16,500.00	6,945.00	16,614.14	6,942.37	161.74	162.81	-89.88	705.76	10,115.07	1,293.01	968.73	324.28	3.987	
16,600.00	6,945.00	16,714.14	6,942.39	163.32	164.39	-89.88	705.31	10,215.07	1,292.93	965.49	327.45	3.949	
16,700.00	6,945.00	16,814.14	6,942.40	164.90	165.98	-89.88	704.85	10,315.06	1,292.85	962.24	330.62	3.910	
16,800.00	6,945.00	16,914.14	6,942.42	166.49	167.56	-89.89	704.40	10,415.06	1,292.77	958.99	333.79	3.873	
16,900.00	6,945.00	17,014.14	6,942.43	168.07	169.14	-89.89	703.94	10,515.06	1,292.69	955.74	336.96	3.836	
17,000.00	6,945.00	17,114.14	6,942.45	169.66	170.73	-89.89	703.48	10,615.06	1,292.61	952.49	340.13	3.800	
17,100.00	6,945.00	17,214.14	6,942.46	171.24	172.31	-89.89	703.03	10,715.06	1,292.53	949.23	343.30	3.765	
17,200.00	6,945.00	17,314.14	6,942.48	172.83	173.90	-89.89	702.57	10,815.06	1,292.45	945.98	346.47	3.730	
17,300.00	6,945.00	17,414.14	6,942.49	174.41	175.48	-89.89	702.12	10,915.06	1,292.38	942.73	349.65	3.696	
17,400.00	6,945.00	17,514.14	6,942.51	176.00	177.07	-89.89	701.66	11,015.06	1,292.30	939.48	352.82	3.663	
17,500.00	6,945.00	17,614.14	6,942.52	177.59	178.65	-89.89	701.21	11,115.06	1,292.22	936.22	355.99	3.630	
17,600.00	6,945.00	17,714.14	6,942.54	179.17	180.24	-89.89	700.75	11,215.05	1,292.14	932.97	359.17	3.598	
17,700.00	6,945.00	17,814.14	6,942.55	180.76	181.82	-89.89	700.30	11,315.05	1,292.06	929.71	362.34	3.566	
17,800.00	6,945.00	17,914.14	6,942.56	182.35	183.41	-89.89	699.84	11,415.05	1,291.98	926.46	365.52	3.535	
17,900.00	6,945.00	18,014.14	6,942.58	183.93	185.00	-89.89	699.39	11,515.05	1,291.90	923.20	368.70	3.504	
18,000.00	6,945.00	18,114.14	6,942.59	185.52	186.58	-89.89	698.93	11,615.05	1,291.82	919.94	371.87	3.474	
18,100.00	6,945.00	18,214.14	6,942.61	187.11	188.17	-89.89	698.48	11,715.05	1,291.74	916.69	375.05	3.444	
18,200.00	6,945.00	18,314.14	6,942.62	188.70	189.76	-89.89	698.02	11,815.05	1,291.66	913.43	378.23	3.415	
18,300.00	6,945.00	18,414.14	6,942.64	190.29	191.35	-89.90	697.57	11,915.05	1,291.58	910.17	381.41	3.386	
18,400.00	6,945.00	18,514.14	6,942.65	191.88	192.94	-89.90	697.11	12,015.05	1,291.50	906.91	384.59	3.358	
18,500.00	6,945.00	18,614.14	6,942.67	193.46	194.52	-89.90	696.66	12,115.05	1,291.42	903.65	387.77	3.330	
18,600.00	6,945.00	18,714.14	6,942.68	195.05	196.11	-89.90	696.20	12,215.04	1,291.34	900.39	390.95	3.303	
18,700.00	6,945.00	18,814.14	6,942.70	196.64	197.70	-89.90	695.75	12,315.04	1,291.26	897.13	394.13	3.276	
18,800.00	6,945.00	18,914.14	6,942.71	198.23	199.29	-89.90	695.29	12,415.04	1,291.18	893.87	397.31	3.250	
18,900.00	6,945.00	19,014.14	6,942.73	199.82	200.88	-89.90	694.84	12,515.04	1,291.10	890.61	400.49	3.224	
19,000.00	6,945.00	19,114.14	6,942.74	201.41	202.47	-89.90	694.38	12,615.04	1,291.02	887.35	403.67	3.198	
19,100.00	6,945.00	19,214.14	6,942.76	203.00	204.06	-89.90	693.93	12,715.04	1,290.94	884.09	406.85	3.173	
19,200.00	6,945.00	19,314.14	6,942.77	204.60	205.65	-89.90	693.47	12,815.04	1,290.86	880.82	410.04	3.148	
19,300.00	6,945.00	19,414.14	6,942.79	206.19	207.24	-89.90	693.01	12,915.04	1,290.78	877.56	413.22	3.124	
19,400.00	6,945.00	19,514.14	6,942.80	207.78	208.83	-89.90	692.56	13,015.04	1,290.70	874.30	416.40	3.100	
19,500.00	6,945.00	19,614.14	6,942.82	209.37	210.42	-89.90	692.10	13,115.03	1,290.62	871.04	419.59	3.076	

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 705H
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 705H	**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 #3	**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

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
19,600.00	6,945.00	19,714.14	6,942.83	210.96	212.01	-89.90	691.65	13,215.03	1,290.54	867.77	422.77	3.053	
19,700.00	6,945.00	19,814.14	6,942.85	212.55	213.60	-89.90	691.19	13,315.03	1,290.46	864.51	425.95	3.030	
19,800.00	6,945.00	19,914.14	6,942.86	214.14	215.20	-89.91	690.74	13,415.03	1,290.38	861.24	429.14	3.007	
19,900.00	6,945.00	20,014.14	6,942.88	215.74	216.79	-89.91	690.28	13,515.03	1,290.30	857.98	432.32	2.985	
20,000.00	6,945.00	20,114.14	6,942.89	217.33	218.38	-89.91	689.83	13,615.03	1,290.22	854.71	435.51	2.963	
20,100.00	6,945.00	20,214.14	6,942.91	218.92	219.97	-89.91	689.37	13,715.03	1,290.14	851.45	438.70	2.941	
20,200.00	6,945.00	20,314.14	6,942.92	220.51	221.56	-89.91	688.92	13,815.03	1,290.06	848.18	441.88	2.919	
20,300.00	6,945.00	20,414.14	6,942.93	222.11	223.16	-89.91	688.46	13,915.03	1,289.98	844.92	445.07	2.898	
20,400.00	6,945.00	20,514.14	6,942.95	223.70	224.75	-89.91	688.01	14,015.02	1,289.90	841.65	448.25	2.878	
20,500.00	6,945.00	20,614.14	6,942.96	225.29	226.34	-89.91	687.55	14,115.02	1,289.82	838.38	451.44	2.857	
20,600.00	6,945.00	20,714.14	6,942.98	226.88	227.93	-89.91	687.10	14,215.02	1,289.74	835.12	454.63	2.837	
20,700.00	6,945.00	20,814.14	6,942.99	228.48	229.53	-89.91	686.64	14,315.02	1,289.66	831.85	457.82	2.817	
20,741.48	6,945.00	20,855.61	6,943.00	229.14	230.19	-89.91	686.45	14,356.50	1,289.63	830.49	459.14	2.809 SF	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 705H
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 705H	**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 #3	**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	-35.09	20.39	-14.32	24.92				
100.00	100.00	100.00	100.00	0.25	0.25	-35.09	20.39	-14.32	24.92	24.42	0.50	49.650	
200.00	200.00	200.00	200.00	0.61	0.61	-35.09	20.39	-14.32	24.92	23.70	1.22	20.444	
300.00	300.00	300.00	300.00	0.97	0.97	-35.09	20.39	-14.32	24.92	22.98	1.94	12.872	
400.00	400.00	400.00	400.00	1.33	1.33	-35.09	20.39	-14.32	24.92	22.26	2.65	9.393	
500.00	500.00	500.00	500.00	1.68	1.68	-35.09	20.39	-14.32	24.92	21.55	3.37	7.395	
600.00	599.98	600.82	600.80	2.03	2.03	175.98	18.67	-13.87	25.01	20.96	4.06	6.167	
700.00	699.84	701.62	701.46	2.37	2.37	172.45	13.54	-12.49	25.37	20.64	4.72	5.372	
795.17	794.65	797.53	796.99	2.69	2.70	167.14	5.48	-10.33	26.10	20.74	5.37	4.864	
800.00	799.45	802.39	801.83	2.71	2.72	166.82	4.99	-10.20	26.15	20.75	5.40	4.843	
900.00	898.92	903.07	901.74	3.06	3.07	158.13	-6.96	-7.00	25.86	19.76	6.09	4.243	
1,000.00	998.39	1,003.45	1,000.86	3.43	3.44	143.22	-22.23	-2.90	23.93	17.11	6.82	3.508	
1,085.31	1,083.25	1,088.66	1,084.53	3.74	3.78	123.04	-37.83	1.27	22.81	15.31	7.49	3.044	CC
1,100.00	1,097.86	1,103.28	1,098.83	3.79	3.83	118.89	-40.74	2.05	22.86	15.25	7.61	3.003	ES
1,200.00	1,197.33	1,202.62	1,196.00	4.16	4.24	93.10	-60.69	7.40	26.22	17.84	8.39	3.127	
1,300.00	1,296.80	1,301.96	1,293.17	4.53	4.65	75.73	-80.64	12.75	33.42	24.31	9.11	3.669	
1,400.00	1,396.27	1,401.29	1,390.33	4.91	5.06	65.10	-100.59	18.09	42.54	32.72	9.82	4.331	
1,500.00	1,495.74	1,500.63	1,487.50	5.28	5.49	58.35	-120.54	23.44	52.60	42.06	10.54	4.990	
1,600.00	1,595.21	1,599.97	1,584.67	5.66	5.91	53.80	-140.49	28.78	63.15	51.88	11.27	5.605	
1,700.00	1,694.68	1,699.31	1,681.84	6.04	6.34	50.57	-160.44	34.13	73.98	61.98	12.00	6.166	
1,800.00	1,794.15	1,798.65	1,779.00	6.42	6.77	48.17	-180.39	39.47	84.98	72.25	12.73	6.674	
1,900.00	1,893.62	1,897.98	1,876.17	6.80	7.21	46.32	-200.34	44.82	96.09	82.62	13.47	7.133	
2,000.00	1,993.09	1,997.32	1,973.34	7.18	7.65	44.85	-220.29	50.16	107.29	93.07	14.21	7.549	
2,100.00	2,092.56	2,096.66	2,070.50	7.56	8.08	43.67	-240.24	55.51	118.54	103.58	14.96	7.926	
2,200.00	2,192.03	2,196.00	2,167.67	7.94	8.52	42.68	-260.19	60.86	129.83	114.13	15.70	8.269	
2,300.00	2,291.50	2,295.34	2,264.84	8.32	8.96	41.86	-280.14	66.20	141.15	124.70	16.45	8.582	
2,400.00	2,390.97	2,394.67	2,362.01	8.70	9.41	41.16	-300.09	71.55	152.50	135.30	17.19	8.869	
2,500.00	2,490.44	2,494.01	2,459.17	9.08	9.85	40.55	-320.04	76.89	163.86	145.92	17.94	9.133	
2,600.00	2,589.91	2,593.35	2,556.34	9.47	10.29	40.03	-339.99	82.24	175.25	156.56	18.69	9.376	
2,700.00	2,689.38	2,692.69	2,653.51	9.85	10.73	39.56	-359.94	87.58	186.64	167.20	19.44	9.600	
2,800.00	2,788.85	2,792.03	2,750.68	10.23	11.18	39.16	-379.89	92.93	198.05	177.86	20.19	9.808	
2,900.00	2,888.32	2,891.36	2,847.84	10.61	11.62	38.79	-399.84	98.27	209.46	188.52	20.94	10.001	
3,000.00	2,987.79	2,990.70	2,945.01	11.00	12.07	38.46	-419.79	103.62	220.89	199.19	21.69	10.181	
3,100.00	3,087.25	3,090.04	3,042.18	11.38	12.51	38.17	-439.74	108.96	232.31	209.87	22.45	10.349	
3,200.00	3,186.72	3,189.38	3,139.34	11.76	12.96	37.90	-459.69	114.31	243.75	220.55	23.20	10.507	
3,300.00	3,286.19	3,288.72	3,236.51	12.15	13.40	37.66	-479.64	119.66	255.19	231.24	23.95	10.654	
3,400.00	3,385.66	3,388.05	3,333.68	12.53	13.85	37.44	-499.59	125.00	266.63	241.93	24.71	10.792	
3,500.00	3,485.13	3,487.39	3,430.85	12.91	14.30	37.23	-519.54	130.35	278.08	252.62	25.46	10.923	
3,600.00	3,584.60	3,586.73	3,528.01	13.30	14.74	37.05	-539.48	135.69	289.53	263.31	26.21	11.045	
3,700.00	3,684.07	3,686.07	3,625.18	13.68	15.19	36.87	-559.43	141.04	300.98	274.01	26.97	11.161	
3,800.00	3,783.54	3,785.41	3,722.35	14.06	15.64	36.71	-579.38	146.38	312.44	284.71	27.72	11.271	
3,900.00	3,883.01	3,884.75	3,819.51	14.45	16.08	36.56	-599.33	151.73	323.89	295.42	28.48	11.375	
4,000.00	3,982.48	3,984.08	3,916.68	14.83	16.53	36.42	-619.28	157.07	335.35	306.12	29.23	11.473	
4,100.00	4,081.95	4,083.42	4,013.85	15.22	16.98	36.29	-639.23	162.42	346.81	316.83	29.98	11.567	
4,200.00	4,181.42	4,182.76	4,111.02	15.60	17.43	36.17	-659.18	167.77	358.28	327.54	30.74	11.655	
4,300.00	4,280.89	4,282.10	4,208.18	15.98	17.87	36.06	-679.13	173.11	369.74	338.25	31.49	11.740	
4,400.00	4,380.36	4,381.44	4,305.35	16.37	18.32	35.95	-699.08	178.46	381.21	348.96	32.25	11.821	
4,500.00	4,479.83	4,480.77	4,402.52	16.75	18.77	35.85	-719.03	183.80	392.67	359.67	33.00	11.898	
4,600.00	4,579.30	4,580.11	4,499.69	17.14	19.22	35.76	-738.98	189.15	404.14	370.38	33.76	11.971	
4,700.00	4,678.77	4,679.45	4,596.85	17.52	19.67	35.67	-758.93	194.49	415.61	381.10	34.52	12.041	
4,800.00	4,778.24	4,778.79	4,694.02	17.90	20.11	35.58	-778.88	199.84	427.08	391.81	35.27	12.109	
4,900.00	4,877.71	4,878.13	4,791.19	18.29	20.56	35.50	-798.83	205.18	438.55	402.53	36.03	12.173	

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 705H
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 705H	**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 #3	**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
5,000.00	4,977.18	4,977.46	4,888.35	18.67	21.01	35.42	-818.78	210.53	450.03	413.24	36.78	12.235	
5,100.00	5,076.65	5,076.80	4,985.52	19.06	21.46	35.35	-838.73	215.88	461.50	423.96	37.54	12.294	
5,200.00	5,176.12	5,176.14	5,082.69	19.44	21.91	35.28	-858.68	221.22	472.97	434.68	38.29	12.351	
5,300.00	5,275.59	5,275.48	5,179.86	19.83	22.36	35.21	-878.63	226.57	484.45	445.39	39.05	12.406	
5,400.00	5,375.06	5,374.82	5,277.02	20.21	22.81	35.15	-898.58	231.91	495.92	456.11	39.81	12.458	
5,500.00	5,474.53	5,474.15	5,374.19	20.59	23.26	35.09	-918.53	237.26	507.40	466.83	40.56	12.509	
5,600.00	5,574.00	5,573.49	5,471.36	20.98	23.70	35.03	-938.48	242.60	518.87	477.55	41.32	12.558	
5,700.00	5,673.47	5,672.83	5,568.53	21.36	24.15	34.98	-958.43	247.95	530.35	488.27	42.08	12.605	
5,800.00	5,772.94	5,772.17	5,665.69	21.75	24.60	34.93	-978.38	253.29	541.82	498.99	42.83	12.650	
5,900.00	5,872.41	5,871.51	5,762.86	22.13	25.05	34.88	-998.33	258.64	553.30	509.71	43.59	12.694	
6,000.00	5,971.88	5,970.84	5,860.03	22.52	25.50	34.83	-1,018.28	263.98	564.78	520.43	44.34	12.736	
6,100.00	6,071.35	6,070.18	5,957.19	22.90	25.95	34.78	-1,038.23	269.33	576.26	531.15	45.10	12.777	
6,200.00	6,170.81	6,169.52	6,054.36	23.28	26.40	34.74	-1,058.18	274.68	587.73	541.88	45.86	12.816	
6,300.00	6,270.28	6,268.86	6,151.53	23.67	26.85	34.69	-1,078.13	280.02	599.21	552.60	46.61	12.855	
6,375.94	6,345.82	6,344.29	6,225.32	23.96	27.19	34.66	-1,093.28	284.08	607.93	560.74	47.19	12.883	
6,400.00	6,369.72	6,368.19	6,248.69	24.05	27.30	48.91	-1,098.08	285.37	610.71	563.34	47.37	12.891	
6,450.00	6,419.09	6,417.70	6,297.12	24.25	27.52	64.85	-1,108.02	288.03	616.60	568.82	47.78	12.906	
6,500.00	6,467.78	6,466.75	6,345.10	24.46	27.74	72.63	-1,117.87	290.67	622.67	574.47	48.21	12.917	
6,550.00	6,515.51	6,515.05	6,392.34	24.67	27.96	77.35	-1,127.57	293.27	629.03	580.37	48.66	12.928	
6,600.00	6,561.97	6,550.00	6,426.48	24.88	28.12	80.33	-1,134.72	295.41	636.06	587.04	49.02	12.975	
6,650.00	6,606.89	6,588.09	6,463.34	25.10	28.30	82.49	-1,143.39	299.48	644.49	595.05	49.44	13.035	
6,700.00	6,649.98	6,622.41	6,496.11	25.32	28.48	83.95	-1,152.04	304.85	654.42	604.56	49.86	13.125	
6,750.00	6,690.98	6,656.69	6,528.33	25.54	28.66	85.00	-1,161.45	311.82	665.81	615.51	50.31	13.235	
6,800.00	6,729.64	6,690.95	6,559.92	25.77	28.84	85.74	-1,171.60	320.35	678.65	627.85	50.80	13.360	
6,850.00	6,765.71	6,725.19	6,590.79	26.00	29.04	86.22	-1,182.45	330.43	692.88	641.55	51.33	13.498	
6,900.00	6,798.98	6,759.43	6,620.86	26.24	29.24	86.48	-1,193.98	342.03	708.47	656.56	51.91	13.648	
6,950.00	6,829.24	6,793.70	6,650.09	26.49	29.44	86.56	-1,206.16	355.12	725.35	672.82	52.54	13.807	
7,000.00	6,856.30	6,828.02	6,678.40	26.76	29.65	86.47	-1,218.98	369.69	743.47	690.27	53.20	13.975	
7,050.00	6,880.00	6,862.45	6,705.74	27.03	29.87	86.23	-1,232.41	385.72	762.74	708.84	53.90	14.150	
7,100.00	6,900.19	6,897.06	6,732.08	27.32	30.10	85.85	-1,246.46	403.21	783.09	728.45	54.63	14.334	
7,150.00	6,916.74	6,931.91	6,757.37	27.62	30.33	85.34	-1,261.12	422.18	804.42	749.04	55.38	14.525	
7,200.00	6,929.56	6,967.10	6,781.57	27.93	30.57	84.72	-1,276.39	442.66	826.66	770.52	56.14	14.724	
7,250.00	6,938.57	7,002.76	6,804.65	28.26	30.81	84.01	-1,292.31	464.69	849.71	792.80	56.91	14.932	
7,300.00	6,943.70	7,039.04	6,826.56	28.60	31.07	83.21	-1,308.90	488.36	873.46	815.79	57.66	15.148	
7,340.76	6,945.00	7,069.19	6,843.51	28.88	31.29	82.51	-1,322.97	508.94	893.27	835.00	58.27	15.330	
7,400.00	6,945.00	7,115.91	6,867.45	29.31	31.63	84.42	-1,345.16	542.36	922.73	863.59	59.13	15.604	
7,500.00	6,945.00	7,206.36	6,905.27	30.09	32.33	87.28	-1,389.13	611.66	973.42	912.81	60.60	16.062	
7,600.00	6,945.00	7,310.96	6,934.21	30.93	33.16	89.30	-1,440.62	697.85	1,023.75	961.59	62.16	16.470	
7,700.00	6,945.00	7,426.51	6,946.87	31.83	34.13	90.11	-1,496.71	797.89	1,072.30	1,008.44	63.86	16.791	
7,800.00	6,945.00	7,568.45	6,947.00	32.79	35.35	90.11	-1,561.44	924.19	1,117.62	1,051.79	65.83	16.977	
7,900.00	6,945.00	7,720.03	6,947.00	33.79	36.72	90.11	-1,623.59	1,062.43	1,158.30	1,090.35	67.95	17.047	
8,000.00	6,945.00	7,878.55	6,947.00	34.84	38.22	90.10	-1,680.66	1,210.30	1,193.97	1,123.78	70.19	17.012	
8,100.00	6,945.00	8,043.46	6,947.00	35.93	39.84	90.10	-1,731.26	1,367.23	1,224.31	1,151.80	72.51	16.886	
8,200.00	6,945.00	8,213.98	6,947.00	37.06	41.56	90.09	-1,773.99	1,532.29	1,249.02	1,174.15	74.87	16.683	
8,300.00	6,945.00	8,389.17	6,947.00	38.23	43.37	90.09	-1,807.59	1,704.19	1,267.84	1,190.61	77.23	16.417	
8,400.00	6,945.00	8,567.84	6,947.00	39.42	45.24	90.09	-1,830.98	1,881.30	1,280.57	1,201.02	79.54	16.099	
8,500.00	6,945.00	8,748.70	6,947.00	40.65	47.15	90.09	-1,843.35	2,061.70	1,287.04	1,205.29	81.75	15.743	
8,600.00	6,945.00	8,890.31	6,947.00	41.90	48.66	90.09	-1,845.50	2,203.29	1,287.95	1,203.90	84.05	15.323	
8,700.00	6,945.00	8,990.31	6,947.00	43.17	49.74	90.09	-1,845.97	2,303.29	1,288.04	1,201.44	86.60	14.874	
8,800.00	6,945.00	9,090.31	6,947.00	44.46	50.86	90.09	-1,846.43	2,403.29	1,288.12	1,198.94	89.18	14.444	
8,900.00	6,945.00	9,190.31	6,947.00	45.78	52.00	90.09	-1,846.89	2,503.29	1,288.21	1,196.40	91.81	14.032	
9,000.00	6,945.00	9,290.31	6,947.00	47.11	53.17	90.09	-1,847.35	2,603.29	1,288.29	1,193.83	94.47	13.637	

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 705H
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 705H	**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 #3	**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
9,100.00	6,945.00	9,390.31	6,947.00	48.46	54.36	90.09	-1,847.81	2,703.29	1,288.38	1,191.22	97.16	13.260	
9,200.00	6,945.00	9,490.31	6,947.00	49.82	55.57	90.09	-1,848.27	2,803.28	1,288.47	1,188.58	99.89	12.899	
9,300.00	6,945.00	9,590.31	6,947.00	51.20	56.80	90.09	-1,848.73	2,903.28	1,288.55	1,185.91	102.64	12.554	
9,400.00	6,945.00	9,690.31	6,947.00	52.59	58.05	90.09	-1,849.20	3,003.28	1,288.64	1,183.22	105.42	12.224	
9,500.00	6,945.00	9,790.31	6,947.00	53.99	59.32	90.09	-1,849.66	3,103.28	1,288.72	1,180.51	108.22	11.909	
9,600.00	6,945.00	9,890.31	6,947.00	55.40	60.60	90.09	-1,850.12	3,203.28	1,288.81	1,177.77	111.04	11.607	
9,700.00	6,945.00	9,990.31	6,947.00	56.83	61.90	90.09	-1,850.58	3,303.28	1,288.90	1,175.01	113.88	11.318	
9,800.00	6,945.00	10,090.31	6,947.00	58.26	63.21	90.09	-1,851.04	3,403.28	1,288.98	1,172.24	116.75	11.041	
9,900.00	6,945.00	10,190.31	6,947.00	59.70	64.54	90.09	-1,851.50	3,503.28	1,289.07	1,169.44	119.63	10.776	
10,000.00	6,945.00	10,290.31	6,947.00	61.15	65.88	90.09	-1,851.97	3,603.28	1,289.15	1,166.63	122.52	10.522	
10,100.00	6,945.00	10,390.31	6,947.00	62.61	67.23	90.09	-1,852.43	3,703.27	1,289.24	1,163.81	125.44	10.278	
10,200.00	6,945.00	10,490.31	6,947.00	64.07	68.59	90.09	-1,852.89	3,803.27	1,289.33	1,160.97	128.36	10.045	
10,300.00	6,945.00	10,590.31	6,947.00	65.54	69.97	90.09	-1,853.35	3,903.27	1,289.41	1,158.11	131.30	9.820	
10,400.00	6,945.00	10,690.31	6,947.00	67.02	71.35	90.09	-1,853.81	4,003.27	1,289.50	1,155.25	134.25	9.605	
10,500.00	6,945.00	10,790.31	6,947.00	68.50	72.74	90.09	-1,854.27	4,103.27	1,289.59	1,152.37	137.21	9.398	
10,600.00	6,945.00	10,890.31	6,947.00	69.99	74.14	90.09	-1,854.74	4,203.27	1,289.67	1,149.48	140.19	9.200	
10,700.00	6,945.00	10,990.31	6,947.00	71.48	75.55	90.09	-1,855.20	4,303.27	1,289.76	1,146.59	143.17	9.009	
10,800.00	6,945.00	11,090.31	6,947.00	72.98	76.97	90.09	-1,855.66	4,403.27	1,289.84	1,143.68	146.16	8.825	
10,900.00	6,945.00	11,190.31	6,947.00	74.48	78.39	90.09	-1,856.12	4,503.27	1,289.93	1,140.76	149.16	8.648	
11,000.00	6,945.00	11,290.31	6,947.00	75.99	79.82	90.09	-1,856.58	4,603.26	1,290.02	1,137.84	152.17	8.477	
11,100.00	6,945.00	11,390.31	6,947.00	77.50	81.26	90.09	-1,857.04	4,703.26	1,290.10	1,134.91	155.19	8.313	
11,200.00	6,945.00	11,490.31	6,947.00	79.01	82.70	90.09	-1,857.50	4,803.26	1,290.19	1,131.97	158.22	8.154	
11,300.00	6,945.00	11,590.31	6,947.00	80.53	84.15	90.09	-1,857.97	4,903.26	1,290.27	1,129.02	161.25	8.002	
11,400.00	6,945.00	11,690.31	6,947.00	82.05	85.61	90.09	-1,858.43	5,003.26	1,290.36	1,126.07	164.29	7.854	
11,500.00	6,945.00	11,790.31	6,947.00	83.57	87.07	90.09	-1,858.89	5,103.26	1,290.45	1,123.11	167.34	7.712	
11,600.00	6,945.00	11,890.31	6,947.00	85.10	88.53	90.09	-1,859.35	5,203.26	1,290.53	1,120.14	170.39	7.574	
11,700.00	6,945.00	11,990.31	6,947.00	86.63	90.00	90.09	-1,859.81	5,303.26	1,290.62	1,117.17	173.44	7.441	
11,800.00	6,945.00	12,090.31	6,947.00	88.16	91.48	90.09	-1,860.27	5,403.26	1,290.70	1,114.20	176.51	7.313	
11,900.00	6,945.00	12,190.31	6,947.00	89.69	92.96	90.09	-1,860.74	5,503.25	1,290.79	1,111.22	179.57	7.188	
12,000.00	6,945.00	12,290.31	6,947.00	91.23	94.44	90.09	-1,861.20	5,603.25	1,290.88	1,108.23	182.65	7.068	
12,100.00	6,945.00	12,390.31	6,947.00	92.77	95.93	90.09	-1,861.66	5,703.25	1,290.96	1,105.24	185.72	6.951	
12,200.00	6,945.00	12,490.31	6,947.00	94.31	97.42	90.09	-1,862.12	5,803.25	1,291.05	1,102.24	188.80	6.838	
12,300.00	6,945.00	12,590.31	6,947.00	95.85	98.91	90.09	-1,862.58	5,903.25	1,291.13	1,099.25	191.89	6.729	
12,400.00	6,945.00	12,690.31	6,947.00	97.40	100.41	90.09	-1,863.04	6,003.25	1,291.22	1,096.24	194.98	6.622	
12,500.00	6,945.00	12,790.31	6,947.00	98.95	101.91	90.09	-1,863.51	6,103.25	1,291.31	1,093.23	198.07	6.519	
12,600.00	6,945.00	12,890.31	6,947.00	100.50	103.42	90.09	-1,863.97	6,203.25	1,291.39	1,090.22	201.17	6.419	
12,700.00	6,945.00	12,990.31	6,947.00	102.05	104.93	90.09	-1,864.43	6,303.25	1,291.48	1,087.21	204.27	6.322	
12,800.00	6,945.00	13,090.31	6,947.00	103.60	106.44	90.09	-1,864.89	6,403.24	1,291.56	1,084.19	207.37	6.228	
12,900.00	6,945.00	13,190.31	6,947.00	105.15	107.95	90.09	-1,865.35	6,503.24	1,291.65	1,081.17	210.48	6.137	
13,000.00	6,945.00	13,290.31	6,947.00	106.71	109.47	90.09	-1,865.81	6,603.24	1,291.74	1,078.15	213.59	6.048	
13,100.00	6,945.00	13,390.31	6,947.00	108.26	110.98	90.09	-1,866.27	6,703.24	1,291.82	1,075.12	216.70	5.961	
13,200.00	6,945.00	13,490.31	6,947.00	109.82	112.50	90.09	-1,866.74	6,803.24	1,291.91	1,072.09	219.81	5.877	
13,300.00	6,945.00	13,590.31	6,947.00	111.38	114.03	90.09	-1,867.20	6,903.24	1,291.99	1,069.06	222.93	5.795	
13,400.00	6,945.00	13,690.31	6,947.00	112.94	115.55	90.09	-1,867.66	7,003.24	1,292.08	1,066.03	226.05	5.716	
13,500.00	6,945.00	13,790.31	6,947.00	114.50	117.08	90.09	-1,868.12	7,103.24	1,292.17	1,062.99	229.17	5.638	
13,600.00	6,945.00	13,890.31	6,947.00	116.07	118.61	90.09	-1,868.58	7,203.24	1,292.25	1,059.95	232.30	5.563	
13,700.00	6,945.00	13,990.31	6,947.00	117.63	120.14	90.09	-1,869.04	7,303.23	1,292.34	1,056.91	235.43	5.489	
13,800.00	6,945.00	14,090.31	6,947.00	119.19	121.67	90.09	-1,869.51	7,403.23	1,292.42	1,053.87	238.55	5.418	
13,900.00	6,945.00	14,190.31	6,947.00	120.76	123.21	90.09	-1,869.97	7,503.23	1,292.51	1,050.83	241.69	5.348	
14,000.00	6,945.00	14,290.31	6,947.00	122.33	124.74	90.09	-1,870.43	7,603.23	1,292.60	1,047.78	244.82	5.280	
14,100.00	6,945.00	14,390.31	6,947.00	123.90	126.28	90.09	-1,870.89	7,703.23	1,292.68	1,044.73	247.95	5.213	
14,200.00	6,945.00	14,490.31	6,947.00	125.46	127.82	90.09	-1,871.35	7,803.23	1,292.77	1,041.68	251.09	5.149	

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 705H
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 705H	**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 #3	**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
14,300.00	6,945.00	14,590.31	6,947.00	127.03	129.36	90.09	-1,871.81	7,903.23	1,292.86	1,038.63	254.23	5.085	
14,400.00	6,945.00	14,690.31	6,947.00	128.60	130.91	90.09	-1,872.28	8,003.23	1,292.94	1,035.57	257.37	5.024	
14,500.00	6,945.00	14,790.31	6,947.00	130.18	132.45	90.09	-1,872.74	8,103.23	1,293.03	1,032.52	260.51	4.963	
14,600.00	6,945.00	14,890.31	6,947.00	131.75	134.00	90.09	-1,873.20	8,203.22	1,293.11	1,029.46	263.65	4.905	
14,700.00	6,945.00	14,990.31	6,947.00	133.32	135.55	90.09	-1,873.66	8,303.22	1,293.20	1,026.40	266.80	4.847	
14,800.00	6,945.00	15,090.31	6,947.00	134.89	137.09	90.09	-1,874.12	8,403.22	1,293.29	1,023.34	269.95	4.791	
14,900.00	6,945.00	15,190.31	6,947.00	136.47	138.64	90.09	-1,874.58	8,503.22	1,293.37	1,020.28	273.09	4.736	
15,000.00	6,945.00	15,290.31	6,947.00	138.04	140.20	90.09	-1,875.04	8,603.22	1,293.46	1,017.21	276.24	4.682	
15,100.00	6,945.00	15,390.31	6,947.00	139.62	141.75	90.09	-1,875.51	8,703.22	1,293.54	1,014.15	279.39	4.630	
15,200.00	6,945.00	15,490.31	6,947.00	141.20	143.30	90.09	-1,875.97	8,803.22	1,293.63	1,011.08	282.55	4.578	
15,300.00	6,945.00	15,590.31	6,947.00	142.77	144.86	90.09	-1,876.43	8,903.22	1,293.72	1,008.02	285.70	4.528	
15,400.00	6,945.00	15,690.31	6,947.00	144.35	146.41	90.09	-1,876.89	9,003.22	1,293.80	1,004.95	288.85	4.479	
15,500.00	6,945.00	15,790.31	6,947.00	145.93	147.97	90.09	-1,877.35	9,103.21	1,293.89	1,001.88	292.01	4.431	
15,600.00	6,945.00	15,890.31	6,947.00	147.51	149.53	90.09	-1,877.81	9,203.21	1,293.97	998.81	295.17	4.384	
15,700.00	6,945.00	15,990.31	6,947.00	149.09	151.08	90.09	-1,878.28	9,303.21	1,294.06	995.74	298.32	4.338	
15,800.00	6,945.00	16,090.31	6,947.00	150.67	152.64	90.09	-1,878.74	9,403.21	1,294.15	992.66	301.48	4.293	
15,900.00	6,945.00	16,190.31	6,947.00	152.25	154.20	90.09	-1,879.20	9,503.21	1,294.23	989.59	304.64	4.248	
16,000.00	6,945.00	16,290.31	6,947.00	153.83	155.77	90.09	-1,879.66	9,603.21	1,294.32	986.52	307.80	4.205	
16,100.00	6,945.00	16,390.31	6,947.00	155.41	157.33	90.09	-1,880.12	9,703.21	1,294.40	983.44	310.96	4.163	
16,200.00	6,945.00	16,490.31	6,947.00	156.99	158.89	90.09	-1,880.58	9,803.21	1,294.49	980.36	314.13	4.121	
16,300.00	6,945.00	16,590.31	6,947.00	158.57	160.45	90.09	-1,881.05	9,903.21	1,294.58	977.29	317.29	4.080	
16,400.00	6,945.00	16,690.31	6,947.00	160.15	162.02	90.09	-1,881.51	10,003.20	1,294.66	974.21	320.45	4.040	
16,500.00	6,945.00	16,790.31	6,947.00	161.74	163.58	90.09	-1,881.97	10,103.20	1,294.75	971.13	323.62	4.001	
16,600.00	6,945.00	16,890.31	6,947.00	163.32	165.15	90.09	-1,882.43	10,203.20	1,294.83	968.05	326.79	3.962	
16,700.00	6,945.00	16,990.31	6,947.00	164.90	166.72	90.09	-1,882.89	10,303.20	1,294.92	964.97	329.95	3.925	
16,800.00	6,945.00	17,090.31	6,947.00	166.49	168.29	90.09	-1,883.35	10,403.20	1,295.01	961.89	333.12	3.888	
16,900.00	6,945.00	17,190.31	6,947.00	168.07	169.85	90.09	-1,883.81	10,503.20	1,295.09	958.80	336.29	3.851	
17,000.00	6,945.00	17,290.31	6,947.00	169.66	171.42	90.09	-1,884.28	10,603.20	1,295.18	955.72	339.46	3.815	
17,100.00	6,945.00	17,390.31	6,947.00	171.24	172.99	90.09	-1,884.74	10,703.20	1,295.26	952.64	342.63	3.780	
17,200.00	6,945.00	17,490.31	6,947.00	172.83	174.56	90.09	-1,885.20	10,803.20	1,295.35	949.55	345.80	3.746	
17,300.00	6,945.00	17,590.31	6,947.00	174.41	176.13	90.09	-1,885.66	10,903.19	1,295.44	946.47	348.97	3.712	
17,400.00	6,945.00	17,690.31	6,947.00	176.00	177.70	90.09	-1,886.12	11,003.19	1,295.52	943.38	352.14	3.679	
17,500.00	6,945.00	17,790.31	6,947.00	177.59	179.28	90.09	-1,886.58	11,103.19	1,295.61	940.30	355.31	3.646	
17,600.00	6,945.00	17,890.31	6,947.00	179.17	180.85	90.09	-1,887.05	11,203.19	1,295.69	937.21	358.49	3.614	
17,700.00	6,945.00	17,990.31	6,947.00	180.76	182.42	90.09	-1,887.51	11,303.19	1,295.78	934.12	361.66	3.583	
17,800.00	6,945.00	18,090.31	6,947.00	182.35	184.00	90.09	-1,887.97	11,403.19	1,295.87	931.03	364.83	3.552	
17,900.00	6,945.00	18,190.31	6,947.00	183.93	185.57	90.09	-1,888.43	11,503.19	1,295.95	927.94	368.01	3.522	
18,000.00	6,945.00	18,290.31	6,947.00	185.52	187.14	90.09	-1,888.89	11,603.19	1,296.04	924.85	371.18	3.492	
18,100.00	6,945.00	18,390.31	6,947.00	187.11	188.72	90.09	-1,889.35	11,703.19	1,296.12	921.77	374.36	3.462	
18,200.00	6,945.00	18,490.31	6,947.00	188.70	190.29	90.09	-1,889.82	11,803.19	1,296.21	918.67	377.54	3.433	
18,300.00	6,945.00	18,590.31	6,947.00	190.29	191.87	90.09	-1,890.28	11,903.18	1,296.30	915.58	380.71	3.405	
18,400.00	6,945.00	18,690.31	6,947.00	191.88	193.45	90.09	-1,890.74	12,003.18	1,296.38	912.49	383.89	3.377	
18,500.00	6,945.00	18,790.31	6,947.00	193.46	195.02	90.09	-1,891.20	12,103.18	1,296.47	909.40	387.07	3.349	
18,600.00	6,945.00	18,890.31	6,947.00	195.05	196.60	90.09	-1,891.66	12,203.18	1,296.56	906.31	390.25	3.322	
18,700.00	6,945.00	18,990.31	6,947.00	196.64	198.18	90.09	-1,892.12	12,303.18	1,296.64	903.22	393.43	3.296	
18,800.00	6,945.00	19,090.31	6,947.00	198.23	199.76	90.09	-1,892.58	12,403.18	1,296.73	900.12	396.61	3.270	
18,900.00	6,945.00	19,190.31	6,947.00	199.82	201.34	90.09	-1,893.05	12,503.18	1,296.81	897.03	399.79	3.244	
19,000.00	6,945.00	19,290.31	6,947.00	201.41	202.92	90.09	-1,893.51	12,603.18	1,296.90	893.93	402.97	3.218	
19,100.00	6,945.00	19,390.31	6,947.00	203.00	204.49	90.09	-1,893.97	12,703.18	1,296.99	890.84	406.15	3.193	
19,200.00	6,945.00	19,490.31	6,947.00	204.60	206.07	90.09	-1,894.43	12,803.17	1,297.07	887.74	409.33	3.169	
19,300.00	6,945.00	19,590.31	6,947.00	206.19	207.65	90.09	-1,894.89	12,903.17	1,297.16	884.65	412.51	3.145	
19,400.00	6,945.00	19,690.31	6,947.00	207.78	209.24	90.09	-1,895.35	13,003.17	1,297.24	881.55	415.69	3.121	

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 705H
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 705H	**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 #3	**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

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
19,500.00	6,945.00	19,790.31	6,947.00	209.37	210.82	90.09	-1,895.82	13,103.17	1,297.33	878.46	418.87	3.097	
19,600.00	6,945.00	19,890.31	6,947.00	210.96	212.40	90.09	-1,896.28	13,203.17	1,297.42	875.36	422.06	3.074	
19,700.00	6,945.00	19,990.31	6,947.00	212.55	213.98	90.09	-1,896.74	13,303.17	1,297.50	872.26	425.24	3.051	
19,800.00	6,945.00	20,090.31	6,947.00	214.14	215.56	90.09	-1,897.20	13,403.17	1,297.59	869.17	428.42	3.029	
19,900.00	6,945.00	20,190.31	6,947.00	215.74	217.14	90.09	-1,897.66	13,503.17	1,297.67	866.07	431.61	3.007	
20,000.00	6,945.00	20,290.31	6,947.00	217.33	218.73	90.09	-1,898.12	13,603.17	1,297.76	862.97	434.79	2.985	
20,100.00	6,945.00	20,390.31	6,947.00	218.92	220.31	90.09	-1,898.59	13,703.16	1,297.85	859.87	437.97	2.963	
20,200.00	6,945.00	20,490.31	6,947.00	220.51	221.89	90.09	-1,899.05	13,803.16	1,297.93	856.77	441.16	2.942	
20,300.00	6,945.00	20,590.31	6,947.00	222.11	223.47	90.09	-1,899.51	13,903.16	1,298.02	853.67	444.34	2.921	
20,400.00	6,945.00	20,690.31	6,947.00	223.70	225.06	90.09	-1,899.97	14,003.16	1,298.10	850.57	447.53	2.901	
20,500.00	6,945.00	20,790.31	6,947.00	225.29	226.64	90.09	-1,900.43	14,103.16	1,298.19	847.47	450.72	2.880	
20,600.00	6,945.00	20,890.31	6,947.00	226.88	228.23	90.09	-1,900.89	14,203.16	1,298.28	844.37	453.90	2.860	
20,700.00	6,945.00	20,990.31	6,947.00	228.48	229.81	90.09	-1,901.35	14,303.16	1,298.36	841.27	457.09	2.841	
20,741.48	6,945.00	21,031.79	6,947.00	229.14	230.47	90.09	-1,901.55	14,344.63	1,298.40	839.99	458.41	2.832	SF

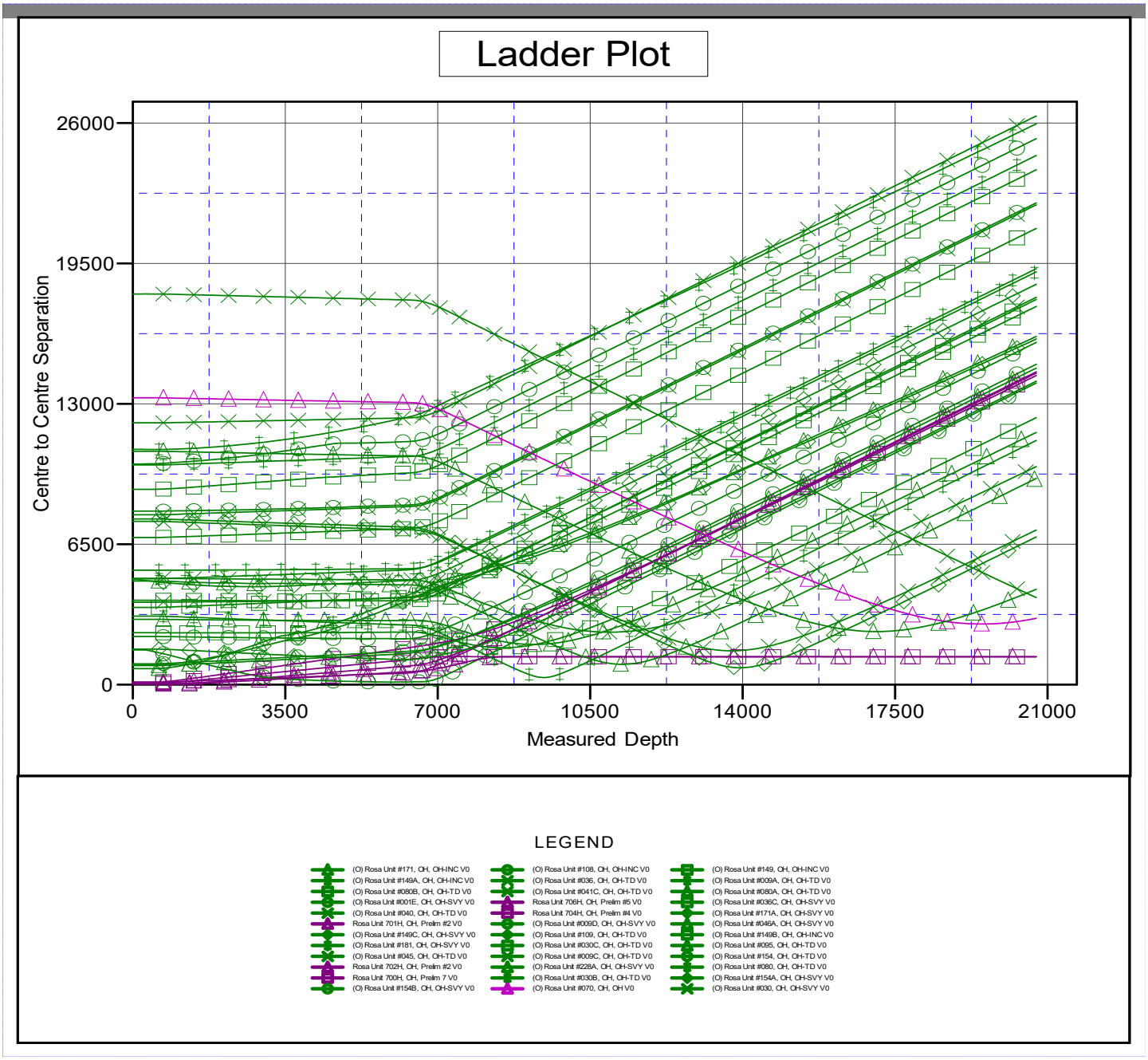
SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 705H
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 705H	**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 #3	**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 705H
Coordinate System is US State Plane 1983, New Mexico Western Zone
Grid Convergence at Surface is: 0.26°



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 705H
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)
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Reference Well:	Rosa Unit 705H	**Survey Calculation Method:**	Minimum Curvature
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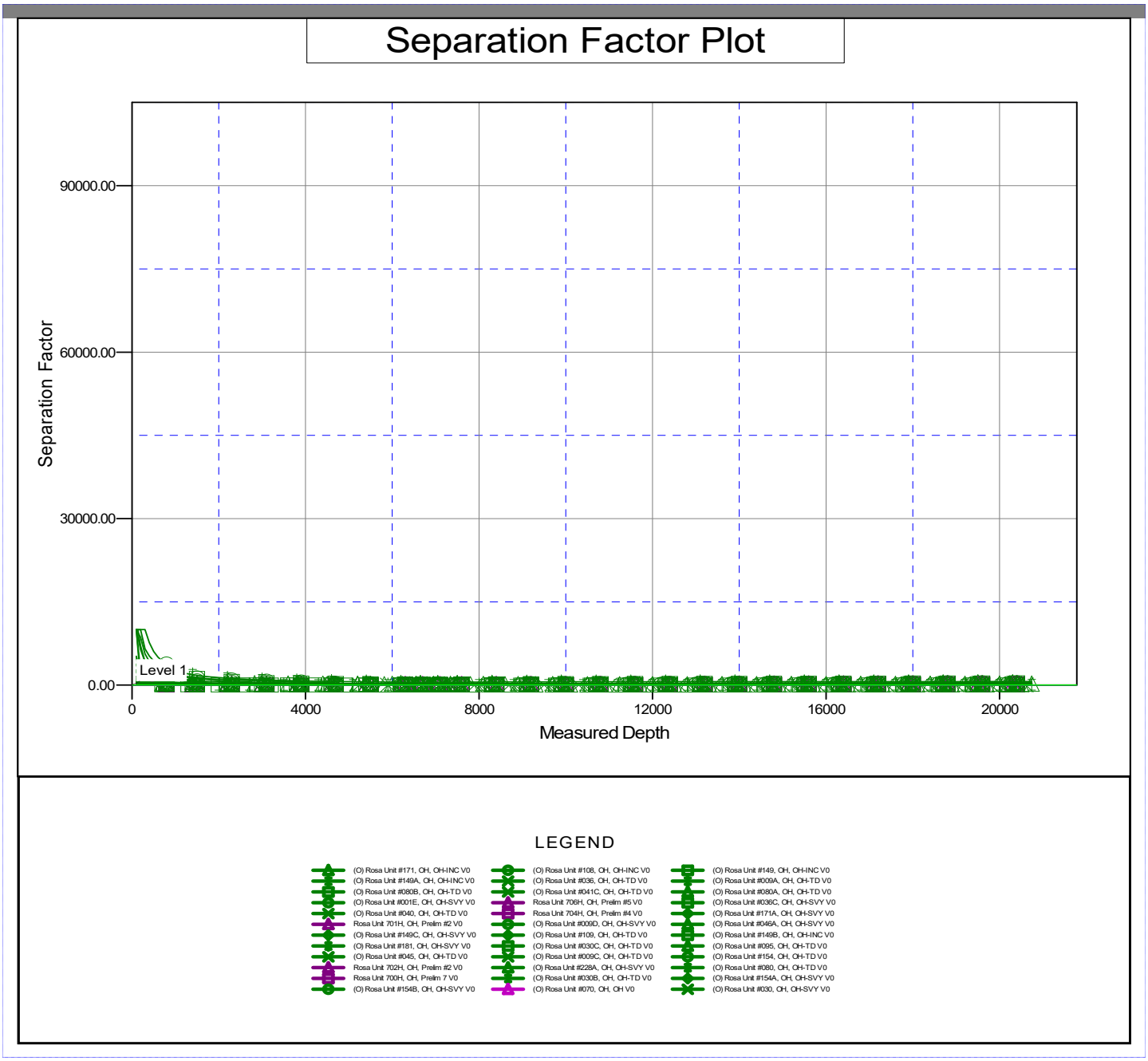
Reference Depths are relative to 6295+30 @ 6325.00usft (H&P 530)
Offset Depths are relative to Offset Datum
Central Meridian is -107.833334

Coordinates are relative to: Rosa Unit 705H
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 322924

CONDITIONS

Operator: LOGOS OPERATING, LLC 2010 Afton Place Farmington, NM 87401	OGRID: 289408
	Action Number: 322924
	Action Type: [C-103] NOI Change of Plans (C-103A)

CONDITIONS

Created By	Condition	Condition Date
ward.rikala	The C-102 BHL stated 1951' FNL however, plat showed 1951" FSL which is the correct measurement.	3/21/2024
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