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

Sundry Print Report
07/11/2024

Well Name: ROSA UNIT	**Well Location:** T31N / R5W / SEC 7 / NESE / 36.913792 / -107.399109	**County or Parish/State:** RIO ARRIBA / NM
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	**Operator:** LOGOS OPERATING LLC	

Notice of Intent

Sundry ID: 2800112

Type of Submission: Notice of Intent

Type of Action: Other

Date Sundry Submitted: 07/11/2024

Time Sundry Submitted: 08:49

Date proposed operation will begin: 07/11/2024

Procedure Description: LOGOS Operating request a change in plans for the following (based on KB elevation): Original bottom-hole location from 1951' FNL & 2526' FWL to new bottom-hole location 1951' FSL & 2626' FWL Original TD @ 20,742' (MD) 6,945' (TVD) to new TD @ 20,853' (MD) 6,945' (TVD). Geology tops have been updated per changes. Original KOP @ 6,376' (MD) 6,346' (TVD) to new KOP @ 6,355' (MD) 6,325' (TVD) Original Landing point @ 7,341' (MD) 6,945' (TVD) to new Landing point @ 7,338' (MD) 6,945' (TVD) Original 5.5" casing Production casing @ 20,742' MD to new 5.5" Production casing @ 20,853' (MD) All cementing bbls and sacks have been update per casing depth changes. Attached: New C102, Operation and Directional Drill plans.

Surface Disturbance

Is any additional surface disturbance proposed?: No

NOI Attachments

Procedure Description

3160_005_Rosa_Unit_705H_Change_in_Plan_4__20240711_20240711084903.pdf

CONFIDENTIAL

Well Name: ROSA UNIT

Well Location: T31N / R5W / SEC 7 / NESE / 36.913792 / -107.399109

County or Parish/State: RIO ARRIBA / NM

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

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: JUL 11, 2024 08:49 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: 07/11/2024

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 1951' FNL & 2526' FWL to **new bottom-hole location 1951' FSL & 2626' FWL**
Original TD @ 20,742' (MD) 6,945' (TVD) to **new TD @ 20,853' (MD) 6,945' (TVD)**.

Geology tops have been updated per changes.
Original KOP @ 6,376' (MD) 6,346' (TVD) to **new KOP @ 6,355' (MD) 6,325' (TVD)**
Original Landing point @ 7,341' (MD) 6,945' (TVD) to **new Landing point @ 7,338' (MD) 6,945' (TVD)**

Original 5.5" casing Production casing @ 20,742' MD to **new 5.5" Production casing @ 20,853' (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: 7/11/2024

THE SPACE FOR FEDERAL OR STATE OFICE USE

Approved by

Title

Date

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

Office

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

(Instructions on page 2)

Received by OCD: 7/11/2024 9:30:44 AM

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

State of New Mexico
Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION

1220 South St. Francis Drive Santa Fe, NM 87505

Form C-102 (Revised August 1, 2011)
Submit one copy to Appropriate District Office

[X] AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

[1] API Number	[2] Pool Code	[3] Pool Name
30-039-31438	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	2626	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 — 7/11/2024
Signature — 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

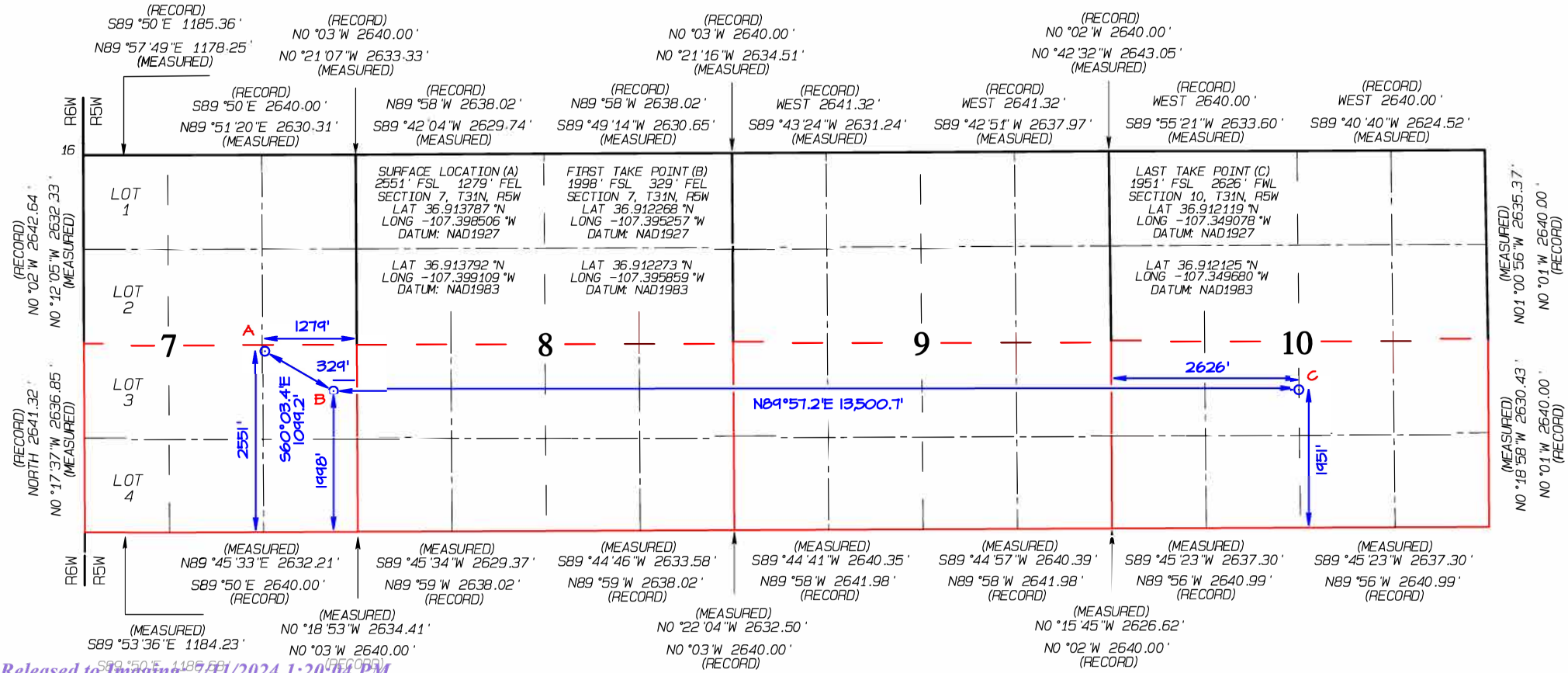
I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

Date Revised: JULY 11, 2024
Survey Date: NOVEMBER 15, 2021

Signature and Seal of Professional Surveyor

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

JASON C. EDWARDS
Certificate Number 15269



Released to Imaging: 7/11/2024 1:20:04 PM

LOGOS Operating, LLC
Operations Plan

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

Date:	July 10, 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’ FSL, 2626’ FWL (36.912125º N, 107.349680º W – NAD83)	Measured Depth:	20,853’ (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	5654’	5626’
KIRTLAND	2534’	2524’	*MANCOS	6199’	6170’
*FRUITLAND	2905’	2893’	KICKOFF POINT	6355’	6325’
*PICTURED CLIFFS	3345’	3331’	LANDING POINT	7338’	6945’
LEWIS	3472’	3457’	TD	20853’	6945’
CHACRA	4614’	4593’			
*CLIFF HOUSE	5387’	5360’			
MENEFEE	5438’	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"	354' (pre-set)	20"	94 LBS	J-55	BTC
INTERMEDIATE	12.25"	6,216' (pre-set)	9.625"	47 LBS	L-80	BTC
PRODUCTION	8.5"	20,853'	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: Pre-set at 354' (GL)

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: Pre-set at 6,216'

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	6,116	100	0.2531	1	25	5	1.59	16	13.2
Open Hole Tail	6,216	14,637	0.2291	1.15	3,867	689	1.59	2,432	13.2
					3,892	693		2,448	
Set Depth, ft RKB	20853								

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.

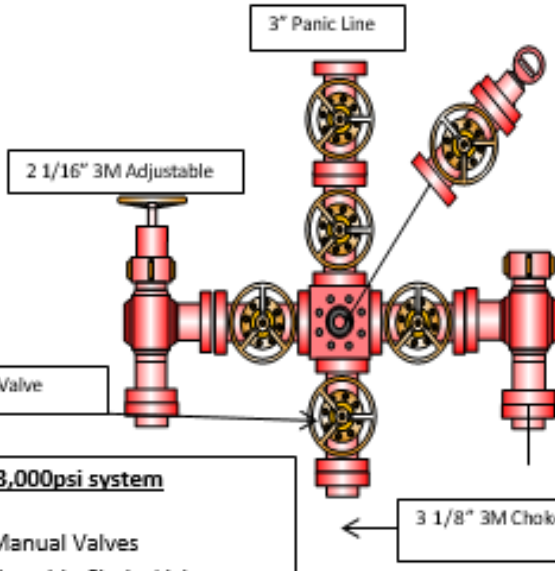
E. PRODUCTION TUBING

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.

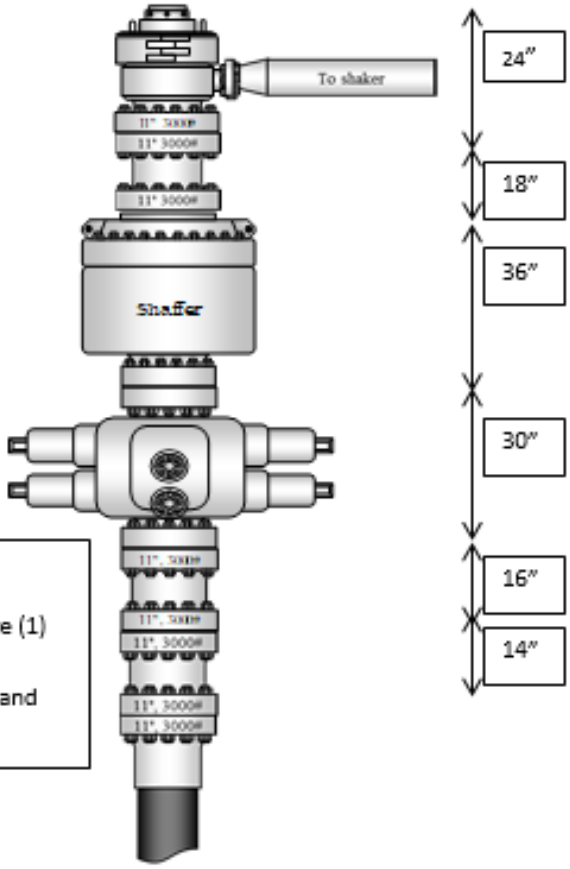
LOGOS OPERATING

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: Plan #4

Standard Planning Report

03 July, 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:	Plan #4		

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)**
	HRGM	4/2/2024	8.46	63.29	49,366.24321367

Design	Plan #4			
Audit Notes:				
Version:	**Phase:**	PLAN	**Tie On Depth:**	6,235.00

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** 7/3/2024

	Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	20.93	292.93	Survey #1 (OH)	Standard Keeper 104 Standard Wireline Keeper ver 1	
2	365.00	6,235.00	Survey #2 (OH)	MWD+HRGM+MS MWD + HRGM + Multi-Station	
3	6,235.00	20,852.65	Plan #4 (OH)	MWD+HRGM+MS MWD + HRGM + Multi-Station	

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:	Plan #4		

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
6,235.00	2.21	143.07	6,205.43	-491.25	299.43	0.00	0.00	0.00	0.00	
6,355.00	2.21	143.07	6,325.34	-494.95	302.21	0.00	0.00	0.00	0.00	
7,337.82	90.00	93.30	6,945.00	-549.76	935.67	9.01	8.93	-5.06	-49.79	
7,492.38	90.00	90.21	6,945.00	-554.49	1,090.15	2.00	0.00	-2.00	-90.00	
20,852.96	90.00	90.21	6,945.00	-603.16	14,450.63	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:	Plan #4		

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
20.93	0.29	192.65	20.93	-0.05	-0.01	-0.01	1.39	1.39	0.00
117.41	0.24	197.20	117.41	-0.48	-0.12	-0.12	0.06	-0.05	4.72
206.68	0.25	171.30	206.68	-0.85	-0.15	-0.15	0.12	0.01	-29.01
292.93	0.47	171.85	292.93	-1.39	-0.07	-0.07	0.26	0.26	0.64
365.00	0.45	202.53	364.99	-1.94	-0.14	-0.13	0.34	-0.03	42.57
451.00	2.24	149.23	450.97	-3.70	0.59	0.61	2.33	2.08	-61.98
540.00	4.46	143.72	539.81	-7.99	3.53	3.56	2.52	2.49	-6.19
665.00	5.13	141.39	664.37	-16.27	9.89	9.96	0.56	0.54	-1.86
753.00	5.27	142.38	752.01	-22.55	14.82	14.90	0.19	0.16	1.13
847.00	5.26	139.36	845.61	-29.23	20.26	20.37	0.29	-0.01	-3.21
939.00	5.41	139.12	937.22	-35.71	25.84	25.98	0.16	0.16	-0.26
1,030.00	5.88	150.60	1,027.78	-43.02	30.94	31.10	1.34	0.52	12.62
1,120.00	6.57	147.72	1,117.25	-51.39	35.95	36.15	0.84	0.77	-3.20
1,211.00	6.27	150.39	1,207.68	-60.11	41.19	41.42	0.47	-0.33	2.93
1,306.00	5.95	148.54	1,302.14	-68.82	46.32	46.58	0.40	-0.34	-1.95
1,400.00	5.89	147.28	1,395.63	-77.03	51.47	51.76	0.15	-0.06	-1.34
1,495.00	5.18	147.96	1,490.19	-84.77	56.38	56.70	0.75	-0.75	0.72
1,589.00	4.91	150.42	1,583.83	-91.87	60.62	60.97	0.37	-0.29	2.62
1,684.00	5.44	148.03	1,678.44	-99.22	65.01	65.39	0.60	0.56	-2.52
1,779.00	5.90	143.61	1,772.98	-106.97	70.29	70.70	0.67	0.48	-4.65
1,873.00	5.75	142.12	1,866.49	-114.58	76.05	76.49	0.23	-0.16	-1.59
1,967.00	5.40	137.46	1,960.05	-121.55	81.93	82.39	0.61	-0.37	-4.96
2,062.00	5.86	142.83	2,054.59	-128.71	87.88	88.37	0.74	0.48	5.65
2,156.00	5.99	143.54	2,148.09	-136.48	93.69	94.22	0.16	0.14	0.76
2,251.00	6.16	142.19	2,242.55	-144.49	99.76	100.32	0.23	0.18	-1.42
2,345.00	6.32	148.19	2,336.00	-152.87	105.58	106.17	0.71	0.17	6.38
2,440.00	6.22	150.82	2,430.43	-161.81	110.85	111.47	0.32	-0.11	2.77
2,535.00	6.27	149.55	2,524.86	-170.78	115.99	116.64	0.15	0.05	-1.34
2,629.00	6.17	149.55	2,618.31	-179.56	121.15	121.84	0.11	-0.11	0.00
2,724.00	6.12	148.79	2,712.77	-188.29	126.36	127.08	0.10	-0.05	-0.80
2,818.00	6.05	148.22	2,806.24	-196.79	131.56	132.32	0.10	-0.07	-0.61
2,913.00	5.97	146.01	2,900.71	-205.14	136.96	137.75	0.26	-0.08	-2.33
3,008.00	5.41	150.44	2,995.25	-213.13	141.93	142.75	0.75	-0.59	4.66
3,102.00	5.80	150.22	3,088.80	-221.11	146.48	147.33	0.42	0.41	-0.23
3,197.00	5.96	147.28	3,183.30	-229.42	151.53	152.41	0.36	0.17	-3.09
3,291.00	6.85	153.40	3,276.71	-238.54	156.68	157.59	1.19	0.95	6.51
3,386.00	7.10	154.56	3,371.01	-248.91	161.74	162.69	0.30	0.26	1.22
3,480.00	7.60	153.26	3,464.23	-259.71	167.03	168.03	0.56	0.53	-1.38
3,575.00	6.92	151.78	3,558.47	-270.36	172.56	173.60	0.74	-0.72	-1.56
3,670.00	6.32	150.85	3,652.84	-279.97	177.82	178.89	0.64	-0.63	-0.98
3,764.00	5.24	147.68	3,746.36	-288.11	182.63	183.74	1.20	-1.15	-3.37
3,859.00	5.10	143.95	3,840.97	-295.19	187.43	188.57	0.38	-0.15	-3.93
3,954.00	5.47	143.91	3,935.57	-302.27	192.59	193.75	0.39	0.39	-0.04
4,049.00	5.47	153.00	4,030.14	-309.96	197.31	198.50	0.91	0.00	9.57
4,143.00	4.95	151.92	4,123.75	-317.53	201.25	202.47	0.56	-0.55	-1.15
4,238.00	5.85	151.67	4,218.33	-325.41	205.48	206.73	0.95	0.95	-0.26
4,333.00	6.92	154.47	4,312.74	-334.83	210.24	211.53	1.17	1.13	2.95
4,427.00	6.96	152.08	4,406.05	-344.98	215.35	216.67	0.31	0.04	-2.54
4,522.00	7.03	151.17	4,500.34	-355.16	220.85	222.21	0.14	0.07	-0.96
4,616.00	8.57	153.39	4,593.47	-366.46	226.76	228.17	1.67	1.64	2.36
4,710.00	8.40	152.67	4,686.44	-378.82	233.05	234.50	0.21	-0.18	-0.77
4,899.00	6.26	146.33	4,873.89	-399.66	245.10	246.64	1.21	-1.13	-3.35
4,962.00	5.36	143.97	4,936.56	-404.90	248.74	250.29	1.48	-1.43	-3.75

SDT

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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:	Plan #4		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,024.00	5.86	147.74	4,998.27	-409.92	252.13	253.70	1.00	0.81	6.08
5,150.00	5.37	146.75	5,123.66	-420.29	258.80	260.41	0.40	-0.39	-0.79
5,213.00	5.56	149.13	5,186.37	-425.37	261.98	263.61	0.47	0.30	3.78
5,276.00	5.33	148.25	5,249.09	-430.48	265.08	266.74	0.39	-0.37	-1.40
5,339.00	5.11	149.19	5,311.83	-435.38	268.06	269.73	0.37	-0.35	1.49
5,401.00	5.23	146.67	5,373.58	-440.11	271.03	272.72	0.41	0.19	-4.06
5,464.00	4.85	149.39	5,436.33	-444.80	273.96	275.67	0.71	-0.60	4.32
5,590.00	4.97	150.70	5,561.87	-454.15	279.34	281.09	0.13	0.10	1.04
5,653.00	4.51	152.05	5,624.66	-458.71	281.84	283.60	0.75	-0.73	2.14
5,715.00	4.23	157.02	5,686.48	-462.97	283.88	285.65	0.76	-0.45	8.02
5,778.00	4.54	154.33	5,749.29	-467.36	285.86	287.66	0.59	0.49	-4.27
5,841.00	4.36	156.63	5,812.10	-471.80	287.89	289.70	0.40	-0.29	3.65
5,904.00	3.94	151.32	5,874.94	-475.90	289.88	291.71	0.90	-0.67	-8.43
5,967.00	3.69	149.78	5,937.80	-479.55	291.94	293.78	0.43	-0.40	-2.44
6,030.00	3.29	151.70	6,000.68	-482.90	293.82	295.67	0.66	-0.63	3.05
6,093.00	2.95	148.03	6,063.59	-485.86	295.53	297.40	0.63	-0.54	-5.83
6,156.00	2.83	142.75	6,126.51	-488.48	297.33	299.21	0.46	-0.19	-8.38
6,235.00	2.21	143.07	6,205.43	-491.25	299.43	301.31	0.79	-0.78	0.41
Start 120.00 hold at 6235.00 MD									
6,300.00	2.21	143.07	6,270.38	-493.25	300.94	302.83	0.00	0.00	0.00
6,355.00	2.21	143.07	6,325.34	-494.95	302.21	304.11	0.00	0.00	0.00
Start DLS 9.01 TFO -49.79									
6,400.00	5.74	110.36	6,370.23	-496.42	304.84	306.74	9.01	7.83	-72.69
6,450.00	10.13	102.79	6,419.74	-498.27	311.47	313.39	9.01	8.79	-15.13
6,500.00	14.59	99.80	6,468.57	-500.31	321.97	323.89	9.01	8.92	-5.99
6,550.00	19.07	98.19	6,516.42	-502.55	336.27	338.20	9.01	8.96	-3.22
6,600.00	23.56	97.17	6,562.98	-504.96	354.28	356.22	9.01	8.98	-2.03
6,650.00	28.06	96.47	6,607.98	-507.54	375.90	377.84	9.01	8.99	-1.41
6,700.00	32.56	95.94	6,651.14	-510.25	400.97	402.93	9.01	9.00	-1.05
6,750.00	37.06	95.54	6,692.18	-513.10	429.37	431.33	9.01	9.00	-0.82
6,800.00	41.56	95.20	6,730.86	-516.06	460.89	462.87	9.01	9.00	-0.66
6,848.66	45.94	94.93	6,766.00	-519.03	494.40	496.39	9.01	9.00	-0.56
Black Top									
6,850.00	46.06	94.93	6,766.93	-519.11	495.36	497.35	9.01	9.00	-0.51
6,900.00	50.56	94.69	6,800.18	-522.24	532.56	534.56	9.01	9.01	-0.48
6,950.00	55.07	94.48	6,830.39	-525.42	572.26	574.27	9.01	9.01	-0.42
7,000.00	59.57	94.29	6,857.38	-528.64	614.21	616.23	9.01	9.01	-0.38
7,050.00	64.07	94.12	6,880.98	-531.87	658.15	660.19	9.01	9.01	-0.34
7,100.00	68.58	93.96	6,901.06	-535.09	703.82	705.87	9.01	9.01	-0.32
7,150.00	73.08	93.81	6,917.47	-538.29	750.93	752.99	9.01	9.01	-0.30
7,200.00	77.58	93.67	6,930.13	-541.45	799.18	801.25	9.01	9.01	-0.28
7,250.00	82.09	93.53	6,938.95	-544.54	848.29	850.37	9.01	9.01	-0.27
7,300.00	86.59	93.40	6,943.88	-547.55	897.94	900.03	9.01	9.01	-0.27
7,337.82	90.00	93.30	6,945.00	-549.76	935.67	937.78	9.01	9.01	-0.27
Start DLS 2.00 TFO -90.00									
7,400.00	90.00	92.06	6,945.00	-552.66	997.78	999.90	2.00	0.00	-2.00
7,492.38	90.00	90.21	6,945.00	-554.49	1,090.15	1,092.27	2.00	0.00	-2.00
Start 13360.57 hold at 7492.38 MD									
7,500.00	90.00	90.21	6,945.00	-554.52	1,097.76	1,099.88	0.00	0.00	0.00
7,600.00	90.00	90.21	6,945.00	-554.88	1,197.76	1,199.88	0.00	0.00	0.00
7,700.00	90.00	90.21	6,945.00	-555.25	1,297.76	1,299.88	0.00	0.00	0.00
7,800.00	90.00	90.21	6,945.00	-555.61	1,397.76	1,399.88	0.00	0.00	0.00
7,900.00	90.00	90.21	6,945.00	-555.97	1,497.76	1,499.88	0.00	0.00	0.00

SDT

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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:	Plan #4		

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)
8,000.00	90.00	90.21	6,945.00	-556.34	1,597.76	1,599.88	0.00	0.00	0.00
8,100.00	90.00	90.21	6,945.00	-556.70	1,697.76	1,699.88	0.00	0.00	0.00
8,200.00	90.00	90.21	6,945.00	-557.07	1,797.76	1,799.88	0.00	0.00	0.00
8,300.00	90.00	90.21	6,945.00	-557.43	1,897.76	1,899.88	0.00	0.00	0.00
8,400.00	90.00	90.21	6,945.00	-557.80	1,997.75	1,999.88	0.00	0.00	0.00
8,500.00	90.00	90.21	6,945.00	-558.16	2,097.75	2,099.88	0.00	0.00	0.00
8,600.00	90.00	90.21	6,945.00	-558.52	2,197.75	2,199.88	0.00	0.00	0.00
8,700.00	90.00	90.21	6,945.00	-558.89	2,297.75	2,299.88	0.00	0.00	0.00
8,800.00	90.00	90.21	6,945.00	-559.25	2,397.75	2,399.88	0.00	0.00	0.00
8,900.00	90.00	90.21	6,945.00	-559.62	2,497.75	2,499.88	0.00	0.00	0.00
9,000.00	90.00	90.21	6,945.00	-559.98	2,597.75	2,599.88	0.00	0.00	0.00
9,100.00	90.00	90.21	6,945.00	-560.35	2,697.75	2,699.88	0.00	0.00	0.00
9,200.00	90.00	90.21	6,945.00	-560.71	2,797.75	2,799.88	0.00	0.00	0.00
9,300.00	90.00	90.21	6,945.00	-561.07	2,897.75	2,899.88	0.00	0.00	0.00
9,400.00	90.00	90.21	6,945.00	-561.44	2,997.75	2,999.88	0.00	0.00	0.00
9,500.00	90.00	90.21	6,945.00	-561.80	3,097.75	3,099.88	0.00	0.00	0.00
9,600.00	90.00	90.21	6,945.00	-562.17	3,197.75	3,199.88	0.00	0.00	0.00
9,700.00	90.00	90.21	6,945.00	-562.53	3,297.75	3,299.88	0.00	0.00	0.00
9,800.00	90.00	90.21	6,945.00	-562.90	3,397.75	3,399.88	0.00	0.00	0.00
9,900.00	90.00	90.21	6,945.00	-563.26	3,497.74	3,499.88	0.00	0.00	0.00
10,000.00	90.00	90.21	6,945.00	-563.62	3,597.74	3,599.88	0.00	0.00	0.00
10,100.00	90.00	90.21	6,945.00	-563.99	3,697.74	3,699.88	0.00	0.00	0.00
10,200.00	90.00	90.21	6,945.00	-564.35	3,797.74	3,799.88	0.00	0.00	0.00
10,300.00	90.00	90.21	6,945.00	-564.72	3,897.74	3,899.88	0.00	0.00	0.00
10,400.00	90.00	90.21	6,945.00	-565.08	3,997.74	3,999.88	0.00	0.00	0.00
10,500.00	90.00	90.21	6,945.00	-565.45	4,097.74	4,099.88	0.00	0.00	0.00
10,600.00	90.00	90.21	6,945.00	-565.81	4,197.74	4,199.88	0.00	0.00	0.00
10,700.00	90.00	90.21	6,945.00	-566.18	4,297.74	4,299.88	0.00	0.00	0.00
10,800.00	90.00	90.21	6,945.00	-566.54	4,397.74	4,399.88	0.00	0.00	0.00
10,900.00	90.00	90.21	6,945.00	-566.90	4,497.74	4,499.88	0.00	0.00	0.00
11,000.00	90.00	90.21	6,945.00	-567.27	4,597.74	4,599.88	0.00	0.00	0.00
11,100.00	90.00	90.21	6,945.00	-567.63	4,697.74	4,699.88	0.00	0.00	0.00
11,200.00	90.00	90.21	6,945.00	-568.00	4,797.74	4,799.88	0.00	0.00	0.00
11,300.00	90.00	90.21	6,945.00	-568.36	4,897.74	4,899.88	0.00	0.00	0.00
11,400.00	90.00	90.21	6,945.00	-568.73	4,997.73	4,999.88	0.00	0.00	0.00
11,500.00	90.00	90.21	6,945.00	-569.09	5,097.73	5,099.88	0.00	0.00	0.00
11,600.00	90.00	90.21	6,945.00	-569.45	5,197.73	5,199.88	0.00	0.00	0.00
11,700.00	90.00	90.21	6,945.00	-569.82	5,297.73	5,299.88	0.00	0.00	0.00
11,800.00	90.00	90.21	6,945.00	-570.18	5,397.73	5,399.88	0.00	0.00	0.00
11,900.00	90.00	90.21	6,945.00	-570.55	5,497.73	5,499.88	0.00	0.00	0.00
12,000.00	90.00	90.21	6,945.00	-570.91	5,597.73	5,599.88	0.00	0.00	0.00
12,100.00	90.00	90.21	6,945.00	-571.28	5,697.73	5,699.88	0.00	0.00	0.00
12,200.00	90.00	90.21	6,945.00	-571.64	5,797.73	5,799.88	0.00	0.00	0.00
12,300.00	90.00	90.21	6,945.00	-572.00	5,897.73	5,899.88	0.00	0.00	0.00
12,400.00	90.00	90.21	6,945.00	-572.37	5,997.73	5,999.88	0.00	0.00	0.00
12,500.00	90.00	90.21	6,945.00	-572.73	6,097.73	6,099.88	0.00	0.00	0.00
12,600.00	90.00	90.21	6,945.00	-573.10	6,197.73	6,199.88	0.00	0.00	0.00
12,700.00	90.00	90.21	6,945.00	-573.46	6,297.73	6,299.88	0.00	0.00	0.00
12,800.00	90.00	90.21	6,945.00	-573.83	6,397.73	6,399.88	0.00	0.00	0.00
12,900.00	90.00	90.21	6,945.00	-574.19	6,497.72	6,499.88	0.00	0.00	0.00
13,000.00	90.00	90.21	6,945.00	-574.55	6,597.72	6,599.88	0.00	0.00	0.00
13,100.00	90.00	90.21	6,945.00	-574.92	6,697.72	6,699.88	0.00	0.00	0.00
13,200.00	90.00	90.21	6,945.00	-575.28	6,797.72	6,799.88	0.00	0.00	0.00
13,300.00	90.00	90.21	6,945.00	-575.65	6,897.72	6,899.88	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:	Plan #4		

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)
13,400.00	90.00	90.21	6,945.00	-576.01	6,997.72	6,999.88	0.00	0.00	0.00
13,500.00	90.00	90.21	6,945.00	-576.38	7,097.72	7,099.88	0.00	0.00	0.00
13,600.00	90.00	90.21	6,945.00	-576.74	7,197.72	7,199.88	0.00	0.00	0.00
13,700.00	90.00	90.21	6,945.00	-577.10	7,297.72	7,299.88	0.00	0.00	0.00
13,800.00	90.00	90.21	6,945.00	-577.47	7,397.72	7,399.88	0.00	0.00	0.00
13,900.00	90.00	90.21	6,945.00	-577.83	7,497.72	7,499.88	0.00	0.00	0.00
14,000.00	90.00	90.21	6,945.00	-578.20	7,597.72	7,599.88	0.00	0.00	0.00
14,100.00	90.00	90.21	6,945.00	-578.56	7,697.72	7,699.88	0.00	0.00	0.00
14,200.00	90.00	90.21	6,945.00	-578.93	7,797.72	7,799.88	0.00	0.00	0.00
14,300.00	90.00	90.21	6,945.00	-579.29	7,897.72	7,899.88	0.00	0.00	0.00
14,400.00	90.00	90.21	6,945.00	-579.65	7,997.71	7,999.88	0.00	0.00	0.00
14,500.00	90.00	90.21	6,945.00	-580.02	8,097.71	8,099.88	0.00	0.00	0.00
14,600.00	90.00	90.21	6,945.00	-580.38	8,197.71	8,199.88	0.00	0.00	0.00
14,700.00	90.00	90.21	6,945.00	-580.75	8,297.71	8,299.88	0.00	0.00	0.00
14,800.00	90.00	90.21	6,945.00	-581.11	8,397.71	8,399.88	0.00	0.00	0.00
14,900.00	90.00	90.21	6,945.00	-581.48	8,497.71	8,499.88	0.00	0.00	0.00
15,000.00	90.00	90.21	6,945.00	-581.84	8,597.71	8,599.88	0.00	0.00	0.00
15,100.00	90.00	90.21	6,945.00	-582.20	8,697.71	8,699.88	0.00	0.00	0.00
15,200.00	90.00	90.21	6,945.00	-582.57	8,797.71	8,799.88	0.00	0.00	0.00
15,300.00	90.00	90.21	6,945.00	-582.93	8,897.71	8,899.88	0.00	0.00	0.00
15,400.00	90.00	90.21	6,945.00	-583.30	8,997.71	8,999.88	0.00	0.00	0.00
15,500.00	90.00	90.21	6,945.00	-583.66	9,097.71	9,099.88	0.00	0.00	0.00
15,600.00	90.00	90.21	6,945.00	-584.03	9,197.71	9,199.88	0.00	0.00	0.00
15,700.00	90.00	90.21	6,945.00	-584.39	9,297.71	9,299.88	0.00	0.00	0.00
15,800.00	90.00	90.21	6,945.00	-584.76	9,397.71	9,399.88	0.00	0.00	0.00
15,900.00	90.00	90.21	6,945.00	-585.12	9,497.70	9,499.88	0.00	0.00	0.00
16,000.00	90.00	90.21	6,945.00	-585.48	9,597.70	9,599.88	0.00	0.00	0.00
16,100.00	90.00	90.21	6,945.00	-585.85	9,697.70	9,699.88	0.00	0.00	0.00
16,200.00	90.00	90.21	6,945.00	-586.21	9,797.70	9,799.88	0.00	0.00	0.00
16,300.00	90.00	90.21	6,945.00	-586.58	9,897.70	9,899.88	0.00	0.00	0.00
16,400.00	90.00	90.21	6,945.00	-586.94	9,997.70	9,999.88	0.00	0.00	0.00
16,500.00	90.00	90.21	6,945.00	-587.31	10,097.70	10,099.88	0.00	0.00	0.00
16,600.00	90.00	90.21	6,945.00	-587.67	10,197.70	10,199.88	0.00	0.00	0.00
16,700.00	90.00	90.21	6,945.00	-588.03	10,297.70	10,299.88	0.00	0.00	0.00
16,800.00	90.00	90.21	6,945.00	-588.40	10,397.70	10,399.88	0.00	0.00	0.00
16,900.00	90.00	90.21	6,945.00	-588.76	10,497.70	10,499.88	0.00	0.00	0.00
17,000.00	90.00	90.21	6,945.00	-589.13	10,597.70	10,599.88	0.00	0.00	0.00
17,100.00	90.00	90.21	6,945.00	-589.49	10,697.70	10,699.88	0.00	0.00	0.00
17,200.00	90.00	90.21	6,945.00	-589.86	10,797.70	10,799.88	0.00	0.00	0.00
17,300.00	90.00	90.21	6,945.00	-590.22	10,897.70	10,899.88	0.00	0.00	0.00
17,400.00	90.00	90.21	6,945.00	-590.58	10,997.70	10,999.88	0.00	0.00	0.00
17,500.00	90.00	90.21	6,945.00	-590.95	11,097.69	11,099.88	0.00	0.00	0.00
17,600.00	90.00	90.21	6,945.00	-591.31	11,197.69	11,199.88	0.00	0.00	0.00
17,700.00	90.00	90.21	6,945.00	-591.68	11,297.69	11,299.88	0.00	0.00	0.00
17,800.00	90.00	90.21	6,945.00	-592.04	11,397.69	11,399.88	0.00	0.00	0.00
17,900.00	90.00	90.21	6,945.00	-592.41	11,497.69	11,499.88	0.00	0.00	0.00
18,000.00	90.00	90.21	6,945.00	-592.77	11,597.69	11,599.88	0.00	0.00	0.00
18,100.00	90.00	90.21	6,945.00	-593.13	11,697.69	11,699.88	0.00	0.00	0.00
18,200.00	90.00	90.21	6,945.00	-593.50	11,797.69	11,799.88	0.00	0.00	0.00
18,300.00	90.00	90.21	6,945.00	-593.86	11,897.69	11,899.88	0.00	0.00	0.00
18,400.00	90.00	90.21	6,945.00	-594.23	11,997.69	11,999.88	0.00	0.00	0.00
18,500.00	90.00	90.21	6,945.00	-594.59	12,097.69	12,099.88	0.00	0.00	0.00
18,600.00	90.00	90.21	6,945.00	-594.96	12,197.69	12,199.88	0.00	0.00	0.00
18,700.00	90.00	90.21	6,945.00	-595.32	12,297.69	12,299.88	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:	Plan #4		

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)
18,800.00	90.00	90.21	6,945.00	-595.68	12,397.69	12,399.88	0.00	0.00	0.00
18,900.00	90.00	90.21	6,945.00	-596.05	12,497.69	12,499.88	0.00	0.00	0.00
19,000.00	90.00	90.21	6,945.00	-596.41	12,597.68	12,599.88	0.00	0.00	0.00
19,100.00	90.00	90.21	6,945.00	-596.78	12,697.68	12,699.88	0.00	0.00	0.00
19,200.00	90.00	90.21	6,945.00	-597.14	12,797.68	12,799.88	0.00	0.00	0.00
19,300.00	90.00	90.21	6,945.00	-597.51	12,897.68	12,899.88	0.00	0.00	0.00
19,400.00	90.00	90.21	6,945.00	-597.87	12,997.68	12,999.88	0.00	0.00	0.00
19,500.00	90.00	90.21	6,945.00	-598.23	13,097.68	13,099.88	0.00	0.00	0.00
19,600.00	90.00	90.21	6,945.00	-598.60	13,197.68	13,199.88	0.00	0.00	0.00
19,700.00	90.00	90.21	6,945.00	-598.96	13,297.68	13,299.88	0.00	0.00	0.00
19,800.00	90.00	90.21	6,945.00	-599.33	13,397.68	13,399.88	0.00	0.00	0.00
19,900.00	90.00	90.21	6,945.00	-599.69	13,497.68	13,499.88	0.00	0.00	0.00
20,000.00	90.00	90.21	6,945.00	-600.06	13,597.68	13,599.88	0.00	0.00	0.00
20,100.00	90.00	90.21	6,945.00	-600.42	13,697.68	13,699.88	0.00	0.00	0.00
20,200.00	90.00	90.21	6,945.00	-600.78	13,797.68	13,799.88	0.00	0.00	0.00
20,300.00	90.00	90.21	6,945.00	-601.15	13,897.68	13,899.88	0.00	0.00	0.00
20,400.00	90.00	90.21	6,945.00	-601.51	13,997.68	13,999.88	0.00	0.00	0.00
20,500.00	90.00	90.21	6,945.00	-601.88	14,097.67	14,099.88	0.00	0.00	0.00
20,600.00	90.00	90.21	6,945.00	-602.24	14,197.67	14,199.88	0.00	0.00	0.00
20,700.00	90.00	90.21	6,945.00	-602.61	14,297.67	14,299.88	0.00	0.00	0.00
20,800.00	90.00	90.21	6,945.00	-602.97	14,397.67	14,399.88	0.00	0.00	0.00
20,852.96	90.00	90.21	6,945.00	-603.16	14,450.63	14,452.84	0.00	0.00	0.00
TD at 20852.96									

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	14,450.63	2,151,698.99	2,864,485.28	36.912125	-107.349680
RU 705H POE - plan misses target center by 2.29usft at 7352.28usft MD (6945.00 TVD, -550.55 N, 950.11 E) - Point	0.00	0.00	6,945.00	-552.84	950.00	2,151,687.85	2,850,984.56	36.912274	-107.395860

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:	Plan #4		

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,420.46	2,411.00	Ojo Alamo		0.00	
2,534.13	2,524.00	Kirtland		0.00	
2,905.24	2,893.00	Fruitland		0.00	
3,001.73	2,989.00	Top of Coals		0.00	
3,175.59	3,162.00	Base of Coals		0.00	
3,345.69	3,331.00	Pictured Cliffs		0.00	
3,472.70	3,457.00	Lewis		0.00	
4,615.53	4,593.00	Chacra		0.00	
5,104.13	5,078.00	Upper Cliff House		0.00	
5,387.37	5,360.00	Cliff House		0.00	
5,437.57	5,410.00	Menefee		0.00	
5,654.35	5,626.00	Point Lookout		0.00	
6,199.54	6,170.00	Mancos		0.00	
6,848.66	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
6,235.00	6,205.43	-491.25	299.43	Start 120.00 hold at 6235.00 MD
6,355.00	6,325.34	-494.95	302.21	Start DLS 9.01 TFO -49.79
7,337.82	6,945.00	-549.76	935.67	Start DLS 2.00 TFO -90.00
7,492.38	6,945.00	-554.49	1,090.15	Start 13360.57 hold at 7492.38 MD
20,852.96	6,945.00	-603.16	14,450.63	TD at 20852.96

Released to Imaging: 7/11/2024 1:20:04 PM

Logos Operating LLC

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

OH
Plan #4

Anticollision Report

03 July, 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:	Plan #4	**Offset TVD Reference:**	Offset Datum

Reference	Plan #4		
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 99,999.00usft or Max. SF of 100	**Error Surface:**	Pedal Curve
Warning Levels Evaluated at:	2.00 **Sigma**	**Casing Method:**	Not applied

Survey Tool Program **Date** 7/3/2024

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
20.93	292.93	Survey #1 (OH)	Standard Keeper 104	Standard Wireline Keeper ver 1.0.4
365.00	6,235.00	Survey #2 (OH)	MWD+HRGM+MS	MWD + HRGM + Multi-Station Correction
6,235.00	20,852.65	Plan #4 (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	168.20	179.91	8,034.47	8,033.85	10,000.000	CC
(O) Rosa Unit #001E - OH - OH-SVY	369.30	353.09	8,034.70	8,033.31	5,789.508	ES
(O) Rosa Unit #001E - OH - OH-SVY	6,650.00	6,334.92	8,391.81	8,347.07	187.601	SF
(O) Rosa Unit #009A - OH - OH-SVY	83.51	0.00	10,162.29			
(O) Rosa Unit #009A - OH - OH-SVY	117.41	23.82	10,162.30			
(O) Rosa Unit #009A - OH - OH-SVY	6,650.00	6,218.98	10,679.77	10,644.49	302.736	SF
(O) Rosa Unit #009C - OH - OH-TD	384.78	445.77	12,122.42	12,108.78	888.720	CC
(O) Rosa Unit #009C - OH - OH-TD	540.00	600.91	12,125.02	12,106.23	645.242	ES
(O) Rosa Unit #009C - OH - OH-TD	7,000.00	6,904.93	12,650.43	12,420.44	55.003	SF
(O) Rosa Unit #009D - OH - OH-SVY	0.00	0.00	10,212.92			
(O) Rosa Unit #009D - OH - OH-SVY	6,800.00	7,110.58	11,425.64	11,375.17	226.410	SF
(O) Rosa Unit #030 - OH - OH-SVY	117.41	271.85	3,819.71	3,818.80	4,208.245	CC
(O) Rosa Unit #030 - OH - OH-SVY	451.00	598.39	3,820.08	3,817.59	1,532.823	ES
(O) Rosa Unit #030 - OH - OH-SVY	6,600.00	6,513.60	4,082.88	4,037.46	89.889	SF
(O) Rosa Unit #030B - OH - OH-TD	432.00	593.08	5,297.86	5,279.65	290.938	CC
(O) Rosa Unit #030B - OH - OH-TD	6,400.00	6,534.99	5,364.08	5,145.56	24.548	ES
(O) Rosa Unit #030B - OH - OH-TD	6,750.00	6,843.89	5,472.92	5,244.81	23.992	SF
(O) Rosa Unit #030C - OH - OH-TD	6,069.90	6,221.97	3,877.64	3,669.23	18.606	CC
(O) Rosa Unit #030C - OH - OH-TD	6,156.00	6,307.96	3,877.88	3,666.59	18.353	ES
(O) Rosa Unit #030C - OH - OH-TD	6,235.00	6,317.00	3,878.92	3,667.10	18.313	SF
(O) Rosa Unit #036 - OH - OH-SVY	387.19	523.44	7,866.03	7,864.09	4,044.205	CC, ES
(O) Rosa Unit #036 - OH - OH-SVY	6,800.00	7,066.53	8,371.67	8,324.74	178.400	SF
(O) Rosa Unit #036C - OH - OH-SVY	0.00	79.37	9,041.53			
(O) Rosa Unit #036C - OH - OH-SVY	6,800.00	6,561.26	9,968.11	9,920.44	209.106	SF
(O) Rosa Unit #040 - OH - OH-TD	20,852.96	7,460.46	3,943.25	3,616.32	12.061	CC, ES, SF
(O) Rosa Unit #041C - OH - OH-TD	10,949.88	7,017.47	2,432.47	2,148.72	8.573	CC
(O) Rosa Unit #041C - OH - OH-TD	11,000.00	7,017.48	2,432.98	2,148.59	8.555	ES
(O) Rosa Unit #041C - OH - OH-TD	11,200.00	7,017.49	2,445.29	2,158.63	8.530	SF
(O) Rosa Unit #045 - OH - OH-TD	13,769.28	6,117.00	1,570.93	1,341.45	6.846	CC
(O) Rosa Unit #045 - OH - OH-TD	13,800.00	6,117.00	1,571.23	1,341.26	6.832	ES
(O) Rosa Unit #045 - OH - OH-TD	14,000.00	6,117.00	1,587.78	1,354.48	6.806	SF
(O) Rosa Unit #046A - OH - OH-SVY	11,250.57	7,027.70	941.76	843.21	9.557	CC, ES
(O) Rosa Unit #046A - OH - OH-SVY	11,300.00	7,027.94	943.05	844.12	9.532	SF
(O) Rosa Unit #070 - OH - OH	19,498.84	6,518.00	2,808.40	2,413.59	7.113	CC
(O) Rosa Unit #070 - OH - OH	19,500.00	6,518.00	2,808.40	2,413.57	7.113	ES

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 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:	Plan #4	**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 #070 - OH - OH	19,700.00	6,518.00	2,815.59	2,418.52	7.091	SF
(O) Rosa Unit #080 - OH - OH-SVY	9,508.04	6,886.38	442.36	366.49	5.831	CC, ES, SF
(O) Rosa Unit #080A - OH - OH-TD	9,222.98	6,011.00	1,865.66	1,664.42	9.271	CC, ES
(O) Rosa Unit #080A - OH - OH-TD	9,400.00	6,011.00	1,874.04	1,670.92	9.227	SF
(O) Rosa Unit #080B - OH - OH-TD	8,507.61	6,945.26	1,710.39	1,464.25	6.949	CC, ES
(O) Rosa Unit #080B - OH - OH-TD	8,600.00	6,945.27	1,712.88	1,465.82	6.933	SF
(O) Rosa Unit #095 - OH - OH-TD	17,082.96	6,300.00	2,460.12	2,136.62	7.605	CC
(O) Rosa Unit #095 - OH - OH-TD	17,100.00	6,300.00	2,460.18	2,136.47	7.600	ES
(O) Rosa Unit #095 - OH - OH-TD	17,300.00	6,300.00	2,469.68	2,143.91	7.581	SF
(O) Rosa Unit #108 - OH - OH-INC	46.30	0.00	968.32	968.30	10,000.000	CC
(O) Rosa Unit #108 - OH - OH-INC	365.00	315.00	969.87	963.60	154.601	ES
(O) Rosa Unit #108 - OH - OH-INC	6,550.00	6,466.87	1,568.48	1,421.55	10.675	SF
(O) Rosa Unit #109 - OH - OH-TD	13,957.28	7,244.06	784.59	447.20	2.326	CC, ES
(O) Rosa Unit #109 - OH - OH-TD	14,000.00	7,244.06	785.75	447.57	2.323	SF
(O) Rosa Unit #149 - OH - OH-INC	36.95	0.00	3,579.26			
(O) Rosa Unit #149 - OH - OH-INC	451.00	416.41	3,581.22	3,570.94	348.529	ES
(O) Rosa Unit #149 - OH - OH-INC	6,030.00	5,949.00	4,035.81	3,830.77	19.683	SF
(O) Rosa Unit #149A - OH - OH-INC	142.14	101.14	4,903.94	4,902.10	2,664.709	CC
(O) Rosa Unit #149A - OH - OH-INC	451.00	410.70	4,905.23	4,897.48	632.785	ES
(O) Rosa Unit #149A - OH - OH-INC	6,235.00	6,000.00	5,303.49	5,162.08	37.505	SF
(O) Rosa Unit #149B - OH - OH-SVY	380.48	500.00	6,810.66	6,809.85	8,395.402	CC, ES
(O) Rosa Unit #149B - OH - OH-SVY	6,500.00	6,544.47	7,299.83	7,271.96	261.868	SF
(O) Rosa Unit #149C - OH - OH-SVY	2,767.33	3,317.27	4,551.35	4,524.49	169.488	CC
(O) Rosa Unit #149C - OH - OH-SVY	2,818.00	3,333.00	4,551.54	4,524.43	167.874	ES
(O) Rosa Unit #149C - OH - OH-SVY	6,400.00	6,495.25	4,820.85	4,776.81	109.452	SF
(O) Rosa Unit #154 - OH - OH-TD	6,130.26	6,260.25	2,120.95	1,911.19	10.111	CC
(O) Rosa Unit #154 - OH - OH-TD	6,235.00	6,341.00	2,121.24	1,908.70	9.980	ES, SF
(O) Rosa Unit #154A - OH - OH-SVY	6,171.09	6,125.00	1,149.88	1,123.88	44.223	CC, ES
(O) Rosa Unit #154A - OH - OH-SVY	6,300.00	6,125.00	1,157.77	1,131.30	43.735	SF
(O) Rosa Unit #154B - OH - OH-SVY	6,600.00	6,858.62	122.21	94.38	4.392	SF
(O) Rosa Unit #154B - OH - OH-SVY	6,640.34	6,894.95	121.04	93.48	4.392	CC, ES
(O) Rosa Unit #171 - OH - OH-INC	56.34	0.00	885.50	885.48	10,000.000	CC
(O) Rosa Unit #171 - OH - OH-INC	365.00	306.80	888.17	882.42	154.586	ES
(O) Rosa Unit #171 - OH - OH-INC	3,859.00	3,781.51	1,218.92	1,164.35	22.335	SF
(O) Rosa Unit #171A - OH - OH-SVY	55.37	0.00	902.66	902.64	10,000.000	CC, ES
(O) Rosa Unit #171A - OH - OH-SVY	3,764.00	3,337.00	2,176.07	2,149.45	81.758	SF
(O) Rosa Unit #181 - OH - OH-SVY	456.87	627.67	10,889.78	10,888.50	8,550.203	CC, ES
(O) Rosa Unit #181 - OH - OH-SVY	6,500.00	1,328.00	12,473.12	12,450.04	540.420	SF
(O) Rosa Unit #228A - OH - OH-SVY	381.25	326.35	744.98	744.28	1,062.621	CC, ES
(O) Rosa Unit #228A - OH - OH-SVY	3,575.00	3,253.00	2,322.30	2,300.90	108.503	SF
Rosa Unit 700H - OH - OH	382.03	383.43	125.08	124.37	176.213	CC, ES
Rosa Unit 700H - OH - OH	6,400.00	6,407.00	1,627.15	1,582.76	36.649	SF
Rosa Unit 701H - OH - OH	0.00	0.00	100.30			
Rosa Unit 701H - OH - OH	3,575.00	3,573.00	297.37	273.88	12.660	SF
Rosa Unit 701H - OH - Plan #3	0.00	0.00	100.30			
Rosa Unit 701H - OH - Plan #3	6,355.00	6,330.87	539.05	495.84	12.476	SF
Rosa Unit 702H - OH - OH	0.00	0.00	75.22			
Rosa Unit 702H - OH - OH	1,684.00	1,689.71	135.09	124.63	12.914	SF
Rosa Unit 702H - OH - Plan #3	0.00	0.00	75.22			
Rosa Unit 702H - OH - Plan #3	1,684.00	1,689.71	135.09	124.63	12.914	SF
Rosa Unit 704H - OH - OH	0.00	0.00	50.00			
Rosa Unit 704H - OH - OH	1,030.00	1,021.37	111.65	106.77	22.907	SF
Rosa Unit 704H - OH - Plan #6	0.00	0.00	50.00			

CC - Min centre to center distance or 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:	Plan #4	**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						
Rosa Unit 704H - OH - Plan #6	20,852.96	20,942.32	1,289.63	829.18	2.801	SF
Rosa Unit 705H - OH - OH	6,241.97	6,235.00	6.97	6.97	101.000	CC, ES
Rosa Unit 705H - OH - OH	7,000.00	6,235.00	724.93	715.85	79.834	SF
Rosa Unit 706H - OH - OH	0.00	0.00	24.92			
Rosa Unit 706H - OH - OH	20,852.96	20,962.00	1,309.70	843.31	2.808	SF

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

Offset Site Error: 0.00 usft

Survey Program: 50-A020Ga_GYRO-NS

Rule Assigned:

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	17.14	17.14	0.00	0.03	-102.11	-1,685.63	-7,855.72	8,034.53				
20.93	20.93	35.07	35.07	0.00	0.06	65.24	-1,685.63	-7,855.73	8,034.52				
117.41	117.41	123.66	123.66	0.05	0.35	60.69	-1,685.76	-7,855.86	8,034.48	8,034.10	0.38	N/A	
168.20	168.20	179.91	179.91	0.12	0.54	75.72	-1,685.92	-7,855.90	8,034.47	8,033.85	0.62	N/A	CC
206.68	206.68	213.98	213.98	0.17	0.66	86.59	-1,686.04	-7,855.92	8,034.50	8,033.73	0.77	N/A	
292.93	292.93	291.74	291.74	0.28	0.93	86.04	-1,686.37	-7,856.01	8,034.63	8,033.53	1.10	7,329.454	
365.00	364.99	350.00	350.00	0.36	1.14	55.37	-1,686.66	-7,856.14	8,034.69	8,033.33	1.36	5,887.238	
369.30	369.29	353.09	353.08	0.36	1.15	65.66	-1,686.67	-7,856.15	8,034.70	8,033.31	1.39	5,789.508	ES
451.00	450.97	431.66	431.66	0.55	1.43	108.65	-1,687.01	-7,856.48	8,035.46	8,033.56	1.90	4,232.489	
540.00	539.81	533.94	533.94	0.83	1.78	114.14	-1,687.24	-7,856.94	8,037.88	8,035.32	2.57	3,131.489	
665.00	664.37	709.22	709.21	1.26	2.40	116.54	-1,687.66	-7,856.69	8,042.21	8,038.58	3.63	2,214.025	
753.00	752.01	791.27	791.26	1.58	2.68	115.59	-1,687.83	-7,856.42	8,045.49	8,041.24	4.24	1,895.755	
847.00	845.61	889.59	889.59	1.93	3.02	118.66	-1,687.72	-7,856.17	8,049.18	8,044.24	4.94	1,630.555	
939.00	937.22	1,006.63	1,006.62	2.27	3.43	118.97	-1,687.36	-7,855.75	8,052.94	8,047.25	5.69	1,415.664	
1,030.00	1,027.78	1,110.83	1,110.82	2.62	3.79	107.58	-1,687.04	-7,855.08	8,055.81	8,049.42	6.40	1,259.701	
1,120.00	1,117.25	1,190.84	1,190.83	2.96	4.07	110.49	-1,686.86	-7,854.54	8,058.38	8,051.36	7.02	1,148.158	
1,211.00	1,207.68	1,280.06	1,280.05	3.31	4.38	107.91	-1,686.65	-7,853.98	8,061.14	8,053.46	7.68	1,049.619	
1,306.00	1,302.14	1,376.92	1,376.90	3.68	4.72	109.83	-1,686.14	-7,853.36	8,063.73	8,055.34	8.38	961.984	
1,400.00	1,395.63	1,462.60	1,462.58	4.04	5.02	111.15	-1,685.54	-7,852.97	8,066.58	8,057.54	9.04	892.237	
1,495.00	1,490.19	1,550.00	1,549.97	4.40	5.33	110.55	-1,684.80	-7,852.61	8,069.31	8,059.61	9.71	831.312	
1,589.00	1,583.83	1,657.84	1,657.81	4.76	5.70	108.17	-1,684.07	-7,852.20	8,071.59	8,061.15	10.44	773.316	
1,684.00	1,678.44	1,785.72	1,785.69	5.12	6.15	110.63	-1,682.97	-7,851.24	8,073.59	8,062.34	11.24	718.052	
1,779.00	1,772.98	1,875.00	1,874.95	5.48	6.46	115.08	-1,681.70	-7,850.52	8,076.24	8,064.32	11.92	677.690	
1,873.00	1,866.49	1,936.99	1,936.93	5.84	6.68	116.62	-1,680.60	-7,850.27	8,079.69	8,067.20	12.49	646.810	
1,967.00	1,960.05	2,000.00	1,999.93	6.20	6.90	121.33	-1,679.27	-7,850.25	8,083.71	8,070.64	13.07	618.652	
2,062.00	2,054.59	2,083.71	2,083.62	6.56	7.19	116.02	-1,677.60	-7,850.46	8,088.04	8,074.32	13.72	589.585	
2,156.00	2,148.09	2,206.13	2,206.02	6.92	7.62	115.40	-1,675.46	-7,850.54	8,092.01	8,077.51	14.50	557.898	
2,251.00	2,242.55	2,284.71	2,284.59	7.29	7.89	116.80	-1,673.79	-7,850.55	8,096.09	8,080.95	15.14	534.689	
2,345.00	2,336.00	2,354.75	2,354.61	7.65	8.14	110.88	-1,672.35	-7,850.76	8,100.14	8,084.39	15.75	514.418	
2,440.00	2,430.43	2,444.39	2,444.24	8.02	8.45	108.34	-1,670.93	-7,851.13	8,103.73	8,087.31	16.42	493.399	
2,535.00	2,524.86	2,570.39	2,570.22	8.38	8.89	109.71	-1,669.13	-7,851.26	8,106.95	8,089.72	17.23	470.496	
2,629.00	2,618.31	2,637.85	2,637.67	8.75	9.13	109.77	-1,667.92	-7,851.37	8,110.26	8,092.43	17.83	454.942	
2,724.00	2,712.77	2,692.91	2,692.72	9.12	9.32	110.57	-1,666.96	-7,851.67	8,114.00	8,095.62	18.38	441.399	
2,818.00	2,806.24	2,741.88	2,741.69	9.48	9.49	111.18	-1,666.32	-7,852.13	8,118.25	8,099.34	18.91	429.278	
2,913.00	2,900.71	2,831.25	2,831.05	9.84	9.80	113.46	-1,665.40	-7,853.38	8,123.17	8,103.59	19.59	414.744	
3,008.00	2,995.25	2,900.00	2,899.78	10.21	10.04	109.12	-1,664.50	-7,854.40	8,127.80	8,107.62	20.19	402.659	
3,102.00	3,088.80	2,950.00	2,949.77	10.57	10.22	109.36	-1,663.96	-7,855.33	8,132.41	8,111.70	20.71	392.611	

CC - Min centre to center distance or 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:	Plan #4	**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
3,197.00	3,183.30	3,090.90	3,090.65	10.93	10.71	112.38	-1,663.55	-7,857.55	8,137.25	8,115.68	21.57	377.230	
3,291.00	3,276.71	3,143.13	3,142.87	11.30	10.89	106.28	-1,663.38	-7,858.44	8,142.24	8,120.12	22.11	368.218	
3,386.00	3,371.01	3,275.00	3,274.72	11.67	11.35	105.23	-1,663.44	-7,860.44	8,146.77	8,123.82	22.95	355.040	
3,480.00	3,464.23	3,371.51	3,371.22	12.04	11.69	106.58	-1,663.50	-7,861.98	8,151.59	8,127.94	23.65	344.640	
3,575.00	3,558.47	3,450.00	3,449.70	12.42	11.96	108.16	-1,663.45	-7,863.04	8,156.48	8,132.18	24.30	335.687	
3,670.00	3,652.84	3,550.00	3,549.69	12.79	12.31	109.19	-1,663.52	-7,864.45	8,161.34	8,136.32	25.02	326.250	
3,764.00	3,746.36	3,650.00	3,649.68	13.15	12.66	112.47	-1,663.49	-7,865.96	8,166.09	8,140.37	25.72	317.455	
3,859.00	3,840.97	3,730.47	3,730.14	13.51	12.94	116.25	-1,663.41	-7,867.20	8,171.06	8,144.70	26.36	309.971	
3,954.00	3,935.57	3,825.00	3,824.66	13.87	13.27	116.32	-1,663.54	-7,868.60	8,176.37	8,149.32	27.05	302.284	
4,049.00	4,030.14	3,900.00	3,899.65	14.23	13.53	107.30	-1,664.01	-7,869.83	8,181.37	8,153.71	27.67	295.694	
4,143.00	4,123.75	3,987.84	3,987.47	14.59	13.84	108.45	-1,665.04	-7,871.28	8,185.72	8,157.39	28.33	288.948	
4,238.00	4,218.33	4,075.00	4,074.60	14.95	14.14	108.70	-1,666.78	-7,872.66	8,190.39	8,161.40	28.99	282.494	
4,333.00	4,312.74	4,150.00	4,149.56	15.32	14.41	105.90	-1,668.89	-7,873.97	8,195.59	8,165.97	29.62	276.692	
4,427.00	4,406.05	4,225.00	4,224.51	15.69	14.67	108.32	-1,671.30	-7,875.32	8,201.15	8,170.90	30.25	271.144	
4,522.00	4,500.34	4,312.01	4,311.45	16.06	14.97	109.27	-1,674.43	-7,877.02	8,207.29	8,176.36	30.92	265.432	
4,616.00	4,593.47	4,375.00	4,374.38	16.44	15.19	107.01	-1,676.82	-7,878.39	8,213.87	8,182.36	31.51	260.685	
4,710.00	4,686.44	4,450.00	4,449.29	16.82	15.45	107.79	-1,679.85	-7,880.20	8,220.93	8,188.78	32.15	255.743	
4,899.00	4,873.89	4,625.00	4,624.09	17.57	16.06	114.35	-1,687.23	-7,884.49	8,235.34	8,201.85	33.50	245.856	
4,962.00	4,936.56	4,689.74	4,688.74	17.81	16.29	116.80	-1,690.07	-7,886.14	8,240.12	8,206.16	33.96	242.622	
5,024.00	4,998.27	4,750.00	4,748.92	18.04	16.50	113.02	-1,692.69	-7,887.71	8,244.70	8,210.29	34.41	239.614	
5,150.00	5,123.66	4,875.00	4,873.77	18.53	16.94	114.08	-1,698.09	-7,890.91	8,253.68	8,218.36	35.32	233.661	
5,213.00	5,186.37	4,937.74	4,936.43	18.77	17.16	111.72	-1,700.81	-7,892.51	8,258.04	8,222.26	35.78	230.793	
5,276.00	5,249.09	5,000.00	4,998.61	19.01	17.38	112.63	-1,703.50	-7,894.11	8,262.34	8,226.10	36.24	228.006	
5,339.00	5,311.83	5,050.00	5,048.54	19.25	17.55	111.72	-1,705.73	-7,895.41	8,266.58	8,229.93	36.65	225.571	
5,401.00	5,373.58	5,113.36	5,111.82	19.48	17.77	114.25	-1,708.51	-7,897.20	8,270.93	8,233.82	37.10	222.920	
5,464.00	5,436.33	5,208.25	5,206.58	19.72	18.10	111.58	-1,712.81	-7,899.57	8,275.07	8,237.39	37.68	219.632	
5,590.00	5,561.87	5,365.76	5,363.87	20.19	18.65	110.31	-1,720.35	-7,902.78	8,282.38	8,243.68	38.71	213.983	
5,653.00	5,624.66	5,471.83	5,469.81	20.43	19.03	109.01	-1,725.47	-7,904.50	8,285.61	8,246.29	39.32	210.727	
5,715.00	5,686.48	5,550.00	5,547.87	20.66	19.30	104.07	-1,729.43	-7,905.46	8,288.20	8,248.38	39.83	208.115	
5,778.00	5,749.29	5,642.91	5,640.64	20.90	19.62	106.76	-1,734.39	-7,906.35	8,290.62	8,250.23	40.39	205.273	
5,841.00	5,812.10	5,741.02	5,738.60	21.13	19.97	104.49	-1,739.74	-7,906.89	8,292.82	8,251.85	40.97	202.412	
5,904.00	5,874.94	5,800.00	5,797.50	21.36	20.17	109.81	-1,742.95	-7,907.01	8,294.82	8,253.41	41.41	200.315	
5,967.00	5,937.80	5,837.74	5,835.18	21.60	20.30	111.35	-1,745.02	-7,907.18	8,297.11	8,255.34	41.77	198.641	
6,030.00	6,000.68	5,893.15	5,890.51	21.83	20.50	109.45	-1,747.95	-7,907.54	8,299.38	8,257.18	42.19	196.704	
6,093.00	6,063.59	5,938.76	5,936.05	22.05	20.66	113.13	-1,750.36	-7,907.91	8,301.64	8,259.06	42.58	194.976	
6,156.00	6,126.51	5,985.85	5,983.08	22.28	20.82	118.41	-1,752.88	-7,908.40	8,304.19	8,261.22	42.97	193.269	
6,235.00	6,205.43	6,050.00	6,047.13	22.56	21.05	118.11	-1,756.32	-7,909.21	8,307.47	8,263.99	43.47	191.101	
6,300.00	6,270.38	6,100.00	6,097.05	22.68	21.22	118.10	-1,759.01	-7,909.92	8,310.10	8,266.34	43.76	189.892	
6,355.00	6,325.34	6,137.15	6,134.15	22.69	21.35	118.10	-1,760.95	-7,910.52	8,312.42	8,268.52	43.90	189.357	
6,400.00	6,370.23	6,175.00	6,171.93	22.71	21.48	150.68	-1,762.98	-7,911.22	8,315.97	8,271.93	44.04	188.829	
6,450.00	6,419.74	6,200.00	6,196.89	22.73	21.57	158.03	-1,764.32	-7,911.70	8,323.61	8,279.47	44.14	188.571	
6,500.00	6,468.57	6,238.58	6,235.41	22.77	21.71	160.74	-1,766.41	-7,912.52	8,335.10	8,290.80	44.30	188.163	
6,550.00	6,516.42	6,275.00	6,271.76	22.81	21.83	161.97	-1,768.40	-7,913.37	8,350.39	8,305.93	44.45	187.851	
6,600.00	6,562.98	6,300.00	6,296.72	22.87	21.92	162.51	-1,769.78	-7,913.97	8,369.33	8,324.76	44.57	187.775	
6,650.00	6,607.98	6,334.92	6,331.57	22.95	22.04	162.64	-1,771.73	-7,914.84	8,391.81	8,347.07	44.73	187.601 SF	
6,700.00	6,651.14	6,350.00	6,346.62	23.03	22.10	162.43	-1,772.67	-7,915.29	8,417.79	8,372.97	44.83	187.788	
6,750.00	6,692.18	6,350.00	6,346.62	23.14	22.10	161.93	-1,772.67	-7,915.29	8,447.09	8,402.22	44.87	188.263	
6,800.00	6,730.86	6,364.63	6,361.20	23.26	22.15	161.16	-1,773.66	-7,915.78	8,479.51	8,434.54	44.97	188.557	
6,850.00	6,766.93	6,441.61	6,438.01	23.40	22.42	160.20	-1,778.05	-7,918.53	8,514.71	8,469.40	45.31	187.923	
6,900.00	6,800.18	6,491.58	6,487.89	23.56	22.59	158.86	-1,780.53	-7,920.17	8,552.33	8,506.78	45.55	187.752	
6,950.00	6,830.39	6,535.84	6,532.07	23.74	22.75	157.07	-1,782.68	-7,921.52	8,592.22	8,546.45	45.77	187.708	
7,000.00	6,857.38	6,584.23	6,580.38	23.94	22.91	154.73	-1,784.99	-7,922.95	8,634.22	8,588.21	46.01	187.641	

CC - Min centre to center distance or 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:	Plan #4	**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	Rule Assigned: Warning
7,050.00	6,880.98	6,604.15	6,600.28	24.17	22.98	151.45	-1,785.93	-7,923.53	8,678.04	8,631.89	46.15	188.037	
7,100.00	6,901.06	6,623.05	6,619.15	24.42	23.05	146.91	-1,786.82	-7,924.06	8,723.43	8,677.15	46.28	188.482	
7,150.00	6,917.47	6,638.37	6,634.44	24.70	23.10	140.41	-1,787.52	-7,924.48	8,770.12	8,723.72	46.40	189.010	
7,200.00	6,930.13	6,655.46	6,651.51	25.01	23.16	130.92	-1,788.34	-7,924.97	8,817.86	8,771.34	46.52	189.540	
7,250.00	6,938.95	6,663.07	6,659.11	25.34	23.19	116.73	-1,788.71	-7,925.17	8,866.31	8,819.70	46.61	190.236	
7,300.00	6,943.88	6,666.77	6,662.81	25.69	23.20	97.07	-1,788.88	-7,925.27	8,915.19	8,868.52	46.67	191.012	
7,337.82	6,945.00	6,666.97	6,663.00	25.97	23.20	80.19	-1,788.89	-7,925.28	8,952.27	8,905.56	46.71	191.649	
7,400.00	6,945.00	6,665.41	6,661.44	26.45	23.20	78.96	-1,788.82	-7,925.24	9,013.35	8,966.59	46.76	192.743	
7,492.38	6,945.00	6,662.97	6,659.01	27.21	23.19	76.42	-1,788.70	-7,925.17	9,104.55	9,057.72	46.83	194.415	
7,500.00	6,945.00	6,662.76	6,658.80	27.28	23.19	76.41	-1,788.69	-7,925.16	9,112.09	9,065.25	46.84	194.554	
7,600.00	6,945.00	6,660.04	6,656.09	28.17	23.18	76.30	-1,788.56	-7,925.09	9,211.07	9,164.17	46.90	196.394	
7,700.00	6,945.00	6,657.32	6,653.37	29.12	23.17	76.18	-1,788.43	-7,925.02	9,310.07	9,263.11	46.97	198.226	
7,800.00	6,945.00	6,654.60	6,650.66	30.14	23.16	76.06	-1,788.30	-7,924.94	9,409.10	9,362.06	47.03	200.049	
7,900.00	6,945.00	6,641.00	6,637.08	31.20	23.11	75.48	-1,787.65	-7,924.55	9,508.13	9,461.07	47.06	202.036	
8,000.00	6,945.00	6,639.99	6,636.07	32.31	23.11	75.43	-1,787.60	-7,924.52	9,607.19	9,560.05	47.14	203.815	
8,100.00	6,945.00	6,638.99	6,635.07	33.46	23.11	75.39	-1,787.55	-7,924.50	9,706.26	9,659.05	47.21	205.586	
8,200.00	6,945.00	6,638.00	6,634.08	34.64	23.10	75.35	-1,787.50	-7,924.47	9,805.36	9,758.07	47.29	207.348	
8,300.00	6,945.00	6,637.03	6,633.11	35.86	23.10	75.31	-1,787.46	-7,924.44	9,904.48	9,857.11	47.37	209.102	
8,400.00	6,945.00	6,636.06	6,632.14	37.11	23.10	75.27	-1,787.41	-7,924.41	10,003.61	9,956.16	47.44	210.847	
8,500.00	6,945.00	6,635.11	6,631.19	38.39	23.09	75.23	-1,787.37	-7,924.39	10,102.76	10,055.23	47.52	212.583	
8,600.00	6,945.00	6,634.16	6,630.24	39.69	23.09	75.18	-1,787.32	-7,924.36	10,201.92	10,154.32	47.60	214.312	
8,700.00	6,945.00	6,633.23	6,629.31	41.01	23.09	75.15	-1,787.28	-7,924.34	10,301.10	10,253.42	47.68	216.033	
8,800.00	6,945.00	6,620.37	6,616.47	42.35	23.04	74.60	-1,786.69	-7,923.99	10,400.31	10,352.59	47.72	217.947	
8,900.00	6,945.00	6,617.57	6,613.68	43.71	23.03	74.48	-1,786.56	-7,923.91	10,499.51	10,451.72	47.79	219.686	
9,000.00	6,945.00	6,614.77	6,610.88	45.08	23.02	74.36	-1,786.43	-7,923.83	10,598.74	10,550.87	47.87	221.417	
9,100.00	6,945.00	6,611.97	6,608.09	46.47	23.01	74.24	-1,786.30	-7,923.75	10,697.97	10,650.03	47.94	223.140	
9,200.00	6,945.00	6,609.18	6,605.30	47.87	23.00	74.12	-1,786.17	-7,923.67	10,797.22	10,749.20	48.02	224.857	
9,300.00	6,945.00	6,606.38	6,602.50	49.29	22.99	74.00	-1,786.04	-7,923.59	10,896.48	10,848.39	48.09	226.567	
9,400.00	6,945.00	6,603.58	6,599.71	50.71	22.98	73.88	-1,785.91	-7,923.51	10,995.76	10,947.59	48.17	228.270	
9,500.00	6,945.00	6,590.91	6,587.06	52.15	22.94	73.35	-1,785.30	-7,923.14	11,095.04	11,046.83	48.21	230.141	
9,600.00	6,945.00	6,589.94	6,586.09	53.59	22.93	73.31	-1,785.25	-7,923.12	11,194.33	11,146.04	48.29	231.799	
9,700.00	6,945.00	6,588.98	6,585.13	55.05	22.93	73.27	-1,785.21	-7,923.09	11,293.64	11,245.26	48.38	233.449	
9,800.00	6,945.00	6,588.03	6,584.18	56.51	22.93	73.23	-1,785.16	-7,923.06	11,392.96	11,344.50	48.46	235.093	
9,900.00	6,945.00	6,587.09	6,583.24	57.98	22.92	73.19	-1,785.12	-7,923.03	11,492.30	11,443.75	48.55	236.729	
10,000.00	6,945.00	6,586.16	6,582.31	59.45	22.92	73.15	-1,785.08	-7,923.01	11,591.64	11,543.01	48.63	238.359	
10,100.00	6,945.00	6,585.24	6,581.39	60.93	22.92	73.11	-1,785.03	-7,922.98	11,690.99	11,642.28	48.72	239.981	
10,200.00	6,945.00	6,584.33	6,580.48	62.42	22.92	73.07	-1,784.99	-7,922.96	11,790.36	11,741.56	48.80	241.596	
10,300.00	6,945.00	6,540.77	6,537.00	63.92	22.76	71.26	-1,782.92	-7,921.67	11,889.73	11,841.00	48.73	243.994	
10,400.00	6,945.00	6,539.81	6,536.04	65.42	22.76	71.22	-1,782.87	-7,921.64	11,989.11	11,940.29	48.82	245.600	
10,500.00	6,945.00	6,538.86	6,535.09	66.92	22.76	71.18	-1,782.83	-7,921.61	12,088.49	12,039.59	48.90	247.199	
10,600.00	6,945.00	6,537.91	6,534.15	68.43	22.75	71.14	-1,782.78	-7,921.58	12,187.89	12,138.90	48.99	248.792	
10,700.00	6,945.00	6,536.98	6,533.22	69.94	22.75	71.10	-1,782.74	-7,921.55	12,287.29	12,238.22	49.08	250.377	
10,800.00	6,945.00	6,536.06	6,532.29	71.45	22.75	71.06	-1,782.69	-7,921.52	12,386.71	12,337.54	49.16	251.956	
10,900.00	6,945.00	6,535.15	6,531.38	72.97	22.74	71.02	-1,782.65	-7,921.50	12,486.13	12,436.88	49.25	253.528	
11,000.00	6,945.00	6,534.25	6,530.48	74.50	22.74	70.99	-1,782.60	-7,921.47	12,585.56	12,536.23	49.34	255.094	
11,100.00	6,945.00	6,524.19	6,520.44	76.02	22.70	70.57	-1,782.12	-7,921.18	12,685.01	12,635.62	49.39	256.829	
11,200.00	6,945.00	6,521.16	6,517.42	77.55	22.69	70.45	-1,781.98	-7,921.08	12,784.46	12,734.99	49.47	258.423	
11,300.00	6,945.00	6,518.13	6,514.39	79.08	22.68	70.32	-1,781.83	-7,920.99	12,883.92	12,834.36	49.55	260.011	
11,400.00	6,945.00	6,515.09	6,511.36	80.62	22.67	70.20	-1,781.68	-7,920.90	12,983.38	12,933.75	49.63	261.593	
11,500.00	6,945.00	6,512.06	6,508.34	82.16	22.66	70.08	-1,781.53	-7,920.81	13,082.85	13,033.14	49.71	263.169	
11,600.00	6,945.00	6,490.73	6,487.04	83.70	22.59	69.21	-1,780.49	-7,920.14	13,182.32	13,132.60	49.73	265.098	
11,700.00	6,945.00	6,489.31	6,485.62	85.24	22.58	69.15	-1,780.42	-7,920.09	13,281.80	13,231.99	49.81	266.631	

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:	Plan #4	**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
11,800.00	6,945.00	6,487.91	6,484.23	86.78	22.58	69.09	-1,780.35	-7,920.05	13,381.29	13,331.39	49.90	268.158	
11,900.00	6,945.00	6,486.52	6,482.84	88.33	22.57	69.04	-1,780.28	-7,920.01	13,480.79	13,430.80	49.99	269.678	
12,000.00	6,945.00	6,462.33	6,458.69	89.87	22.49	68.07	-1,779.09	-7,919.23	13,580.29	13,530.30	49.99	271.646	
12,100.00	6,945.00	6,459.05	6,455.42	91.42	22.48	67.94	-1,778.93	-7,919.12	13,679.80	13,629.72	50.07	273.193	
12,200.00	6,945.00	6,455.78	6,452.15	92.98	22.47	67.81	-1,778.76	-7,919.02	13,779.31	13,729.15	50.16	274.733	
12,300.00	6,945.00	6,452.50	6,448.88	94.53	22.45	67.68	-1,778.60	-7,918.91	13,878.82	13,828.59	50.24	276.268	
12,400.00	6,945.00	6,375.00	6,371.54	96.08	22.18	64.65	-1,774.40	-7,916.17	13,978.33	13,928.28	50.05	279.310	
12,500.00	6,945.00	6,375.00	6,371.54	97.64	22.18	64.65	-1,774.40	-7,916.17	14,077.84	14,027.70	50.14	280.770	
12,600.00	6,945.00	6,375.00	6,371.54	99.20	22.18	64.65	-1,774.40	-7,916.17	14,177.36	14,127.12	50.23	282.224	
12,700.00	6,945.00	6,375.00	6,371.54	100.76	22.18	64.65	-1,774.40	-7,916.17	14,276.88	14,226.55	50.33	283.671	
12,800.00	6,945.00	6,375.00	6,371.54	102.32	22.18	64.65	-1,774.40	-7,916.17	14,376.41	14,325.99	50.42	285.112	
12,900.00	6,945.00	6,364.84	6,361.41	103.88	22.15	64.26	-1,773.68	-7,915.79	14,475.93	14,425.45	50.48	286.760	
13,000.00	6,945.00	6,364.16	6,360.74	105.44	22.14	64.24	-1,773.63	-7,915.77	14,575.47	14,524.90	50.57	288.203	
13,100.00	6,945.00	6,363.49	6,360.07	107.00	22.14	64.21	-1,773.58	-7,915.74	14,675.02	14,624.35	50.67	289.639	
13,200.00	6,945.00	6,362.83	6,359.41	108.57	22.14	64.18	-1,773.54	-7,915.72	14,774.57	14,723.81	50.76	291.069	
13,300.00	6,945.00	6,362.18	6,358.76	110.13	22.14	64.16	-1,773.49	-7,915.70	14,874.13	14,823.28	50.85	292.493	
13,400.00	6,945.00	6,361.53	6,358.11	111.70	22.14	64.13	-1,773.44	-7,915.67	14,973.69	14,922.75	50.95	293.910	
13,500.00	6,945.00	6,360.89	6,357.47	113.27	22.13	64.11	-1,773.40	-7,915.65	15,073.26	15,022.22	51.04	295.321	
13,600.00	6,945.00	6,360.25	6,356.84	114.84	22.13	64.09	-1,773.36	-7,915.63	15,172.84	15,121.71	51.13	296.726	
13,700.00	6,945.00	6,350.00	6,346.62	116.41	22.10	63.70	-1,772.67	-7,915.29	15,272.44	15,221.24	51.19	298.331	
13,800.00	6,945.00	6,350.00	6,346.62	117.98	22.10	63.70	-1,772.67	-7,915.29	15,372.02	15,320.73	51.29	299.710	
13,900.00	6,945.00	6,350.00	6,346.62	119.55	22.10	63.70	-1,772.67	-7,915.29	15,471.61	15,420.23	51.39	301.083	
14,000.00	6,945.00	6,350.00	6,346.62	121.12	22.10	63.70	-1,772.67	-7,915.29	15,571.21	15,519.72	51.48	302.450	
14,100.00	6,945.00	6,350.00	6,346.62	122.69	22.10	63.70	-1,772.67	-7,915.29	15,670.81	15,619.23	51.58	303.810	
14,200.00	6,945.00	6,350.00	6,346.62	124.27	22.10	63.70	-1,772.67	-7,915.29	15,770.41	15,718.73	51.68	305.164	
14,300.00	6,945.00	6,350.00	6,346.62	125.84	22.10	63.70	-1,772.67	-7,915.29	15,870.02	15,818.25	51.78	306.513	
14,400.00	6,945.00	6,350.00	6,346.62	127.41	22.10	63.70	-1,772.67	-7,915.29	15,969.64	15,917.76	51.87	307.855	
14,500.00	6,945.00	6,350.00	6,346.62	128.99	22.10	63.70	-1,772.67	-7,915.29	16,069.26	16,017.29	51.97	309.191	
14,600.00	6,945.00	6,350.00	6,346.62	130.57	22.10	63.70	-1,772.67	-7,915.29	16,168.88	16,116.81	52.07	310.520	
14,700.00	6,945.00	6,350.00	6,346.62	132.14	22.10	63.70	-1,772.67	-7,915.29	16,268.51	16,216.34	52.17	311.844	
14,800.00	6,945.00	6,350.00	6,346.62	133.72	22.10	63.70	-1,772.67	-7,915.29	16,368.14	16,315.88	52.27	313.162	
14,900.00	6,945.00	6,350.00	6,346.62	135.30	22.10	63.70	-1,772.67	-7,915.29	16,467.78	16,415.42	52.37	314.473	
15,000.00	6,945.00	6,350.00	6,346.62	136.87	22.10	63.70	-1,772.67	-7,915.29	16,567.43	16,514.96	52.47	315.779	
15,100.00	6,945.00	6,350.00	6,346.62	138.45	22.10	63.70	-1,772.67	-7,915.29	16,667.07	16,614.51	52.56	317.078	
15,200.00	6,945.00	6,350.00	6,346.62	140.03	22.10	63.70	-1,772.67	-7,915.29	16,766.72	16,714.06	52.66	318.372	
15,300.00	6,945.00	6,350.00	6,346.62	141.61	22.10	63.70	-1,772.67	-7,915.29	16,866.38	16,813.61	52.76	319.659	
15,400.00	6,945.00	6,350.00	6,346.62	143.19	22.10	63.70	-1,772.67	-7,915.29	16,966.04	16,913.17	52.86	320.940	
15,500.00	6,945.00	6,350.00	6,346.62	144.77	22.10	63.70	-1,772.67	-7,915.29	17,065.70	17,012.74	52.96	322.216	
15,600.00	6,945.00	6,350.00	6,346.62	146.35	22.10	63.70	-1,772.67	-7,915.29	17,165.37	17,112.30	53.06	323.485	
15,700.00	6,945.00	6,350.00	6,346.62	147.94	22.10	63.70	-1,772.67	-7,915.29	17,265.04	17,211.87	53.16	324.749	
15,800.00	6,945.00	6,350.00	6,346.62	149.52	22.10	63.70	-1,772.67	-7,915.29	17,364.71	17,311.45	53.26	326.007	
15,900.00	6,945.00	6,350.00	6,346.62	151.10	22.10	63.70	-1,772.67	-7,915.29	17,464.39	17,411.03	53.37	327.258	
16,000.00	6,945.00	6,350.00	6,346.62	152.68	22.10	63.70	-1,772.67	-7,915.29	17,564.07	17,510.61	53.47	328.504	
16,100.00	6,945.00	6,350.00	6,346.62	154.26	22.10	63.70	-1,772.67	-7,915.29	17,663.76	17,610.19	53.57	329.744	
16,200.00	6,945.00	6,350.00	6,346.62	155.85	22.10	63.70	-1,772.67	-7,915.29	17,763.45	17,709.78	53.67	330.978	
16,300.00	6,945.00	6,350.00	6,346.62	157.43	22.10	63.70	-1,772.67	-7,915.29	17,863.14	17,809.37	53.77	332.206	
16,400.00	6,945.00	6,350.00	6,346.62	159.02	22.10	63.70	-1,772.67	-7,915.29	17,962.84	17,908.96	53.87	333.429	
16,500.00	6,945.00	6,350.00	6,346.62	160.60	22.10	63.70	-1,772.67	-7,915.29	18,062.54	18,008.56	53.98	334.645	
16,600.00	6,945.00	6,350.00	6,346.62	162.18	22.10	63.70	-1,772.67	-7,915.29	18,162.24	18,108.16	54.08	335.856	
16,700.00	6,945.00	6,350.00	6,346.62	163.77	22.10	63.70	-1,772.67	-7,915.29	18,261.95	18,207.77	54.18	337.061	
16,800.00	6,945.00	6,350.00	6,346.62	165.35	22.10	63.70	-1,772.67	-7,915.29	18,361.65	18,307.37	54.28	338.260	
16,900.00	6,945.00	6,350.00	6,346.62	166.94	22.10	63.70	-1,772.67	-7,915.29	18,461.37	18,406.98	54.39	339.454	

CC - Min centre to center distance or 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:	Plan #4	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 50-A020Ga_GYRO-NS

Rule Assigned:

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
17,000.00	6,945.00	6,350.00	6,346.62	168.53	22.10	63.70	-1,772.67	-7,915.29	18,561.08	18,506.59	54.49	340.641	
17,100.00	6,945.00	6,350.00	6,346.62	170.11	22.10	63.70	-1,772.67	-7,915.29	18,660.80	18,606.21	54.59	341.823	
17,200.00	6,945.00	6,350.00	6,346.62	171.70	22.10	63.70	-1,772.67	-7,915.29	18,760.52	18,705.83	54.70	343.000	
17,300.00	6,945.00	6,350.00	6,346.62	173.29	22.10	63.70	-1,772.67	-7,915.29	18,860.25	18,805.45	54.80	344.170	
17,400.00	6,945.00	6,350.00	6,346.62	174.87	22.10	63.70	-1,772.67	-7,915.29	18,959.97	18,905.07	54.90	345.335	
17,500.00	6,945.00	6,350.00	6,346.62	176.46	22.10	63.70	-1,772.67	-7,915.29	19,059.70	19,004.70	55.01	346.495	
17,600.00	6,945.00	6,350.00	6,346.62	178.05	22.10	63.70	-1,772.67	-7,915.29	19,159.44	19,104.33	55.11	347.648	
17,700.00	6,945.00	6,350.00	6,346.62	179.63	22.10	63.70	-1,772.67	-7,915.29	19,259.17	19,203.96	55.22	348.797	
17,800.00	6,945.00	6,350.00	6,346.62	181.22	22.10	63.70	-1,772.67	-7,915.29	19,358.91	19,303.59	55.32	349.939	
17,900.00	6,945.00	6,350.00	6,346.62	182.81	22.10	63.70	-1,772.67	-7,915.29	19,458.65	19,403.23	55.43	351.076	
18,000.00	6,945.00	6,350.00	6,346.62	184.40	22.10	63.70	-1,772.67	-7,915.29	19,558.40	19,502.87	55.53	352.207	
18,100.00	6,945.00	6,350.00	6,346.62	185.99	22.10	63.70	-1,772.67	-7,915.29	19,658.14	19,602.51	55.64	353.333	
18,200.00	6,945.00	6,350.00	6,346.62	187.58	22.10	63.70	-1,772.67	-7,915.29	19,757.89	19,702.15	55.74	354.454	
18,300.00	6,945.00	6,338.86	6,335.50	189.16	22.06	63.28	-1,771.97	-7,914.95	19,857.62	19,801.81	55.81	355.822	
18,400.00	6,945.00	6,338.53	6,335.17	190.75	22.05	63.26	-1,771.95	-7,914.94	19,957.37	19,901.46	55.91	356.939	
18,500.00	6,945.00	6,338.20	6,334.84	192.34	22.05	63.25	-1,771.93	-7,914.93	20,057.13	20,001.11	56.02	358.051	
18,600.00	6,945.00	6,337.87	6,334.52	193.93	22.05	63.24	-1,771.91	-7,914.93	20,156.88	20,100.76	56.12	359.157	
18,700.00	6,945.00	6,337.55	6,334.19	195.52	22.05	63.23	-1,771.89	-7,914.92	20,256.64	20,200.41	56.23	360.258	
18,800.00	6,945.00	6,337.22	6,333.87	197.11	22.05	63.21	-1,771.87	-7,914.91	20,356.40	20,300.07	56.33	361.353	
18,900.00	6,945.00	6,336.91	6,333.55	198.70	22.05	63.20	-1,771.85	-7,914.90	20,456.17	20,399.73	56.44	362.443	
19,000.00	6,945.00	6,336.59	6,333.24	200.29	22.05	63.19	-1,771.83	-7,914.89	20,555.93	20,499.39	56.55	363.527	
19,100.00	6,945.00	6,336.27	6,332.92	201.88	22.05	63.18	-1,771.81	-7,914.88	20,655.70	20,599.05	56.65	364.606	
19,200.00	6,945.00	6,325.00	6,321.67	203.47	22.01	62.76	-1,771.18	-7,914.60	20,755.50	20,698.78	56.72	365.929	
19,300.00	6,945.00	6,325.00	6,321.67	205.06	22.01	62.76	-1,771.18	-7,914.60	20,855.27	20,798.44	56.83	366.991	
19,400.00	6,945.00	6,325.00	6,321.67	206.65	22.01	62.76	-1,771.18	-7,914.60	20,955.04	20,898.11	56.94	368.047	
19,500.00	6,945.00	6,325.00	6,321.67	208.24	22.01	62.76	-1,771.18	-7,914.60	21,054.82	20,997.78	57.04	369.098	
19,600.00	6,945.00	6,325.00	6,321.67	209.84	22.01	62.76	-1,771.18	-7,914.60	21,154.60	21,097.45	57.15	370.143	
19,700.00	6,945.00	6,325.00	6,321.67	211.43	22.01	62.76	-1,771.18	-7,914.60	21,254.38	21,197.12	57.26	371.184	
19,800.00	6,945.00	6,325.00	6,321.67	213.02	22.01	62.76	-1,771.18	-7,914.60	21,354.16	21,296.79	57.37	372.219	
19,900.00	6,945.00	6,325.00	6,321.67	214.61	22.01	62.76	-1,771.18	-7,914.60	21,453.95	21,396.47	57.48	373.249	
20,000.00	6,945.00	6,325.00	6,321.67	216.20	22.01	62.76	-1,771.18	-7,914.60	21,553.73	21,496.14	57.59	374.274	
20,100.00	6,945.00	6,325.00	6,321.67	217.79	22.01	62.76	-1,771.18	-7,914.60	21,653.52	21,595.82	57.70	375.293	
20,200.00	6,945.00	6,325.00	6,321.67	219.38	22.01	62.76	-1,771.18	-7,914.60	21,753.31	21,695.50	57.81	376.308	
20,300.00	6,945.00	6,325.00	6,321.67	220.98	22.01	62.76	-1,771.18	-7,914.60	21,853.10	21,795.18	57.92	377.317	
20,400.00	6,945.00	6,325.00	6,321.67	222.57	22.01	62.76	-1,771.18	-7,914.60	21,952.90	21,894.87	58.03	378.322	
20,500.00	6,945.00	6,325.00	6,321.67	224.16	22.01	62.76	-1,771.18	-7,914.60	22,052.69	21,994.55	58.14	379.321	
20,600.00	6,945.00	6,325.00	6,321.67	225.75	22.01	62.76	-1,771.18	-7,914.60	22,152.49	22,094.24	58.25	380.316	
20,700.00	6,945.00	6,325.00	6,321.67	227.35	22.01	62.76	-1,771.18	-7,914.60	22,252.29	22,193.93	58.36	381.305	
20,800.00	6,945.00	6,325.00	6,321.67	228.94	22.01	62.76	-1,771.18	-7,914.60	22,352.09	22,293.62	58.47	382.289	
20,852.96	6,945.00	6,325.00	6,321.67	229.61	22.01	62.76	-1,771.18	-7,914.60	22,404.94	22,342.13	62.82	356.671	

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:	Plan #4	**Offset TVD Reference:**	Offset Datum

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

Survey Program: 100-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	-81.51	1,499.60	-10,051.07	10,162.62				
20.93	20.93	0.00	0.00	0.00	0.00	85.84	1,499.60	-10,051.07	10,162.48				
83.51	83.51	0.00	0.00	0.03	0.00	83.09	1,499.60	-10,051.07	10,162.29				
117.41	117.41	23.82	23.82	0.05	0.03	81.29	1,499.60	-10,051.09	10,162.30				
206.68	206.68	77.78	77.78	0.17	0.09	107.19	1,499.64	-10,051.26	10,162.62	10,162.44	0.18	N/A	
292.93	292.93	140.82	140.82	0.28	0.20	106.64	1,499.72	-10,051.66	10,163.33	10,162.97	0.36	N/A	
365.00	364.99	200.49	200.49	0.36	0.34	75.96	1,499.77	-10,052.13	10,163.91	10,163.35	0.56	N/A	
451.00	450.97	326.24	326.23	0.55	0.59	129.25	1,499.84	-10,052.93	10,165.44	10,164.37	1.06	9,555.551	
540.00	539.81	448.22	448.21	0.83	0.84	134.72	1,499.93	-10,053.32	10,169.28	10,167.66	1.62	6,262.221	
665.00	664.37	569.40	569.39	1.26	1.09	137.06	1,500.36	-10,053.31	10,176.86	10,174.53	2.33	4,366.486	
753.00	752.01	633.00	632.99	1.58	1.22	136.09	1,500.59	-10,053.45	10,182.91	10,180.12	2.79	3,655.173	
847.00	845.61	700.00	699.99	1.93	1.36	139.13	1,500.85	-10,053.77	10,189.79	10,186.52	3.27	3,114.900	
939.00	937.22	775.97	775.95	2.27	1.53	139.39	1,501.17	-10,054.29	10,196.96	10,193.19	3.77	2,702.966	
1,030.00	1,027.78	860.24	860.22	2.62	1.71	127.92	1,501.56	-10,054.97	10,203.88	10,199.59	4.29	2,378.219	
1,120.00	1,117.25	942.91	942.89	2.96	1.89	130.80	1,501.98	-10,055.66	10,210.91	10,206.11	4.81	2,124.159	
1,211.00	1,207.68	1,027.85	1,027.82	3.31	2.07	128.19	1,502.51	-10,056.43	10,218.31	10,212.98	5.33	1,916.466	
1,306.00	1,302.14	1,133.41	1,133.38	3.68	2.29	130.11	1,503.17	-10,057.34	10,225.62	10,219.71	5.91	1,731.067	
1,400.00	1,395.63	1,242.05	1,242.02	4.04	2.51	131.42	1,503.91	-10,058.11	10,232.73	10,226.25	6.48	1,578.480	
1,495.00	1,490.19	1,347.18	1,347.14	4.40	2.73	130.83	1,504.60	-10,058.73	10,239.42	10,232.36	7.06	1,451.246	
1,589.00	1,583.83	1,437.33	1,437.29	4.76	2.92	128.42	1,505.24	-10,059.20	10,245.30	10,237.70	7.59	1,349.133	
1,684.00	1,678.44	1,516.02	1,515.97	5.12	3.08	130.82	1,505.81	-10,059.70	10,251.48	10,243.37	8.11	1,263.408	
1,779.00	1,772.98	1,600.00	1,599.95	5.48	3.26	135.25	1,506.41	-10,060.40	10,258.80	10,250.15	8.65	1,186.433	
1,873.00	1,866.49	1,669.44	1,669.38	5.84	3.41	136.78	1,506.84	-10,061.12	10,266.71	10,257.56	9.14	1,122.863	
1,967.00	1,960.05	1,789.46	1,789.39	6.20	3.66	141.51	1,507.21	-10,062.38	10,274.65	10,264.90	9.74	1,054.672	
2,062.00	2,054.59	1,904.75	1,904.68	6.56	3.89	136.15	1,507.10	-10,063.32	10,282.41	10,272.07	10.33	995.075	
2,156.00	2,148.09	1,997.13	1,997.06	6.92	4.09	135.46	1,506.95	-10,064.01	10,290.05	10,279.17	10.88	945.980	
2,251.00	2,242.55	2,096.94	2,096.87	7.29	4.30	136.84	1,506.80	-10,064.72	10,297.97	10,286.53	11.44	899.946	
2,345.00	2,336.00	2,167.12	2,167.05	7.65	4.44	130.86	1,506.78	-10,065.27	10,305.77	10,293.83	11.94	862.904	
2,440.00	2,430.43	2,243.06	2,242.98	8.02	4.60	128.28	1,506.92	-10,066.01	10,313.34	10,300.88	12.46	827.625	
2,535.00	2,524.86	2,319.51	2,319.43	8.38	4.77	129.58	1,507.11	-10,066.85	10,320.94	10,307.95	12.98	795.030	
2,629.00	2,618.31	2,384.09	2,383.99	8.75	4.90	129.62	1,507.39	-10,067.70	10,328.74	10,315.27	13.47	766.622	
2,724.00	2,712.77	2,468.03	2,467.93	9.12	5.08	130.42	1,507.86	-10,068.98	10,336.81	10,322.80	14.01	737.886	
2,818.00	2,806.24	2,573.96	2,573.84	9.48	5.30	131.04	1,508.33	-10,070.59	10,344.82	10,330.24	14.59	709.277	
2,913.00	2,900.71	2,662.87	2,662.75	9.84	5.49	133.30	1,508.67	-10,071.88	10,352.93	10,337.80	15.13	684.361	
3,008.00	2,995.25	2,764.95	2,764.82	10.21	5.71	128.94	1,509.16	-10,073.40	10,360.63	10,344.93	15.70	659.998	
3,102.00	3,088.80	2,869.37	2,869.22	10.57	5.92	129.19	1,509.63	-10,074.80	10,367.75	10,351.48	16.27	637.281	
3,197.00	3,183.30	2,982.56	2,982.40	10.93	6.16	132.17	1,510.26	-10,076.18	10,375.34	10,358.48	16.86	615.226	
3,291.00	3,276.71	3,256.69	3,256.52	11.30	6.74	126.14	1,511.55	-10,076.71	10,382.12	10,364.32	17.81	583.086	
3,386.00	3,371.01	3,344.18	3,344.01	11.67	6.92	125.02	1,511.97	-10,076.17	10,388.36	10,370.00	18.35	566.013	
3,480.00	3,464.23	3,426.31	3,426.14	12.04	7.09	126.34	1,512.37	-10,075.73	10,395.00	10,376.11	18.89	550.353	
3,575.00	3,558.47	3,510.74	3,510.56	12.42	7.27	127.90	1,512.79	-10,075.38	10,401.96	10,382.53	19.43	535.368	
3,670.00	3,652.84	3,609.01	3,608.84	12.79	7.47	128.92	1,513.23	-10,074.99	10,408.49	10,388.50	20.00	520.505	
3,764.00	3,746.36	3,693.30	3,693.13	13.15	7.65	132.17	1,513.61	-10,074.68	10,414.38	10,393.85	20.53	507.377	
3,859.00	3,840.97	3,782.01	3,781.83	13.51	7.83	135.94	1,514.03	-10,074.42	10,420.14	10,399.07	21.07	494.651	
3,954.00	3,935.57	3,884.53	3,884.35	13.87	8.05	136.00	1,514.42	-10,074.14	10,426.25	10,404.61	21.63	481.932	
4,049.00	4,030.14	3,990.04	3,989.86	14.23	8.27	126.96	1,514.44	-10,073.80	10,431.95	10,409.74	22.21	469.704	
4,143.00	4,123.75	4,079.55	4,079.37	14.59	8.45	128.10	1,514.13	-10,073.54	10,436.83	10,414.08	22.75	458.815	
4,238.00	4,218.33	4,173.19	4,173.01	14.95	8.65	128.34	1,513.50	-10,073.35	10,442.08	10,418.78	23.30	448.169	
4,333.00	4,312.74	4,252.90	4,252.72	15.32	8.82	125.53	1,512.67	-10,073.29	10,448.19	10,424.36	23.83	438.492	
4,427.00	4,406.05	4,323.59	4,323.39	15.69	8.96	127.94	1,511.50	-10,073.44	10,454.94	10,430.61	24.34	429.618	
4,522.00	4,500.34	4,400.00	4,399.78	16.06	9.13	128.87	1,509.79	-10,073.90	10,462.33	10,437.47	24.86	420.854	
4,616.00	4,593.47	4,472.40	4,472.15	16.44	9.28	126.58	1,507.78	-10,074.54	10,470.51	10,445.13	25.38	412.608	

CC - Min centre to center distance or 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:	Plan #4	**Offset TVD Reference:**	Offset Datum

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

Survey Program: 100-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
4,710.00	4,686.44	4,556.55	4,556.25	16.82	9.46	127.36	1,505.14	-10,075.41	10,479.34	10,453.41	25.92	404.245	
4,899.00	4,873.89	4,700.00	4,699.62	17.57	9.76	133.89	1,500.55	-10,077.20	10,496.19	10,469.24	26.95	389.462	
4,962.00	4,936.56	4,746.42	4,746.01	17.81	9.86	136.31	1,499.12	-10,077.93	10,501.33	10,474.05	27.28	384.906	
5,024.00	4,998.27	4,800.00	4,799.56	18.04	9.98	132.52	1,497.49	-10,078.87	10,506.30	10,478.68	27.63	380.287	
5,150.00	5,123.66	4,885.06	4,884.57	18.53	10.16	133.56	1,494.95	-10,080.57	10,516.49	10,488.21	28.28	371.923	
5,213.00	5,186.37	4,938.97	4,938.44	18.77	10.27	131.18	1,493.32	-10,081.74	10,521.54	10,492.91	28.63	367.549	
5,276.00	5,249.09	5,000.00	4,999.42	19.01	10.41	132.08	1,491.44	-10,083.11	10,526.55	10,497.56	28.99	363.071	
5,339.00	5,311.83	5,049.79	5,049.18	19.25	10.51	131.16	1,489.89	-10,084.27	10,531.45	10,502.12	29.33	359.021	
5,401.00	5,373.58	5,100.00	5,099.35	19.48	10.62	133.69	1,488.32	-10,085.47	10,536.34	10,506.67	29.67	355.098	
5,464.00	5,436.33	5,150.38	5,149.69	19.72	10.73	131.00	1,486.79	-10,086.73	10,541.28	10,511.27	30.01	351.238	
5,590.00	5,561.87	5,253.56	5,252.79	20.19	10.95	129.70	1,483.89	-10,089.49	10,550.93	10,520.23	30.70	343.729	
5,653.00	5,624.66	5,312.30	5,311.49	20.43	11.08	128.38	1,482.39	-10,091.09	10,555.61	10,524.56	31.05	339.937	
5,715.00	5,686.48	5,381.95	5,381.09	20.66	11.22	123.44	1,480.63	-10,092.97	10,559.75	10,528.32	31.43	336.020	
5,778.00	5,749.29	5,458.82	5,457.91	20.90	11.38	126.13	1,478.70	-10,094.97	10,563.83	10,532.01	31.82	331.999	
5,841.00	5,812.10	5,532.78	5,531.82	21.13	11.54	123.85	1,476.87	-10,096.79	10,567.87	10,535.66	32.21	328.138	
5,904.00	5,874.94	5,601.29	5,600.29	21.36	11.68	129.19	1,475.27	-10,098.40	10,571.76	10,539.18	32.58	324.493	
5,967.00	5,937.80	5,648.89	5,647.87	21.60	11.78	130.75	1,474.19	-10,099.54	10,575.68	10,542.77	32.91	321.370	
6,030.00	6,000.68	5,700.00	5,698.95	21.83	11.89	128.86	1,473.04	-10,100.84	10,579.44	10,546.20	33.24	318.242	
6,093.00	6,063.59	5,745.25	5,744.17	22.05	11.99	132.55	1,472.02	-10,102.05	10,583.07	10,549.50	33.57	315.291	
6,156.00	6,126.51	5,800.00	5,798.89	22.28	12.11	137.84	1,470.82	-10,103.59	10,586.80	10,552.89	33.91	312.209	
6,235.00	6,205.43	5,863.64	5,862.48	22.56	12.25	137.54	1,469.44	-10,105.45	10,591.32	10,556.99	34.33	308.544	
6,300.00	6,270.38	5,930.66	5,929.46	22.68	12.39	137.54	1,467.95	-10,107.44	10,594.80	10,560.21	34.59	306.331	
6,355.00	6,325.34	5,999.17	5,997.92	22.69	12.54	137.54	1,466.28	-10,109.44	10,597.69	10,562.95	34.74	305.043	
6,400.00	6,370.23	6,037.32	6,036.04	22.71	12.62	170.24	1,465.31	-10,110.55	10,601.62	10,566.79	34.83	304.395	
6,450.00	6,419.74	6,079.01	6,077.70	22.73	12.71	177.83	1,464.28	-10,111.78	10,609.69	10,574.77	34.93	303.779	
6,500.00	6,468.57	6,117.60	6,116.26	22.77	12.80	-179.11	1,463.36	-10,112.95	10,621.62	10,586.60	35.02	303.315	
6,550.00	6,516.42	6,152.82	6,151.46	22.81	12.87	-177.37	1,462.53	-10,114.05	10,637.35	10,602.24	35.11	303.007	
6,600.00	6,562.98	6,186.99	6,185.59	22.87	12.95	-176.17	1,461.72	-10,115.16	10,656.77	10,621.58	35.19	302.809	
6,650.00	6,607.98	6,218.98	6,217.57	22.95	13.02	-175.22	1,460.96	-10,116.24	10,679.77	10,644.49	35.28	302.736 SF	
6,700.00	6,651.14	6,248.97	6,247.53	23.03	13.09	-174.36	1,460.24	-10,117.28	10,706.19	10,670.83	35.36	302.781	
6,750.00	6,692.18	6,277.34	6,275.87	23.14	13.15	-173.52	1,459.57	-10,118.30	10,735.88	10,700.44	35.44	302.936	
6,800.00	6,730.86	6,307.83	6,306.33	23.26	13.22	-172.63	1,458.83	-10,119.43	10,768.64	10,733.11	35.53	303.126	
6,850.00	6,766.93	6,357.25	6,355.70	23.40	13.32	-171.66	1,457.64	-10,121.24	10,804.20	10,768.55	35.65	303.029	
6,900.00	6,800.18	6,402.65	6,401.06	23.56	13.42	-170.53	1,456.54	-10,122.84	10,842.33	10,806.56	35.77	303.078	
6,950.00	6,830.39	6,431.32	6,429.71	23.74	13.48	-169.12	1,455.85	-10,123.83	10,882.82	10,846.97	35.85	303.528	
7,000.00	6,857.38	6,457.41	6,455.77	23.94	13.54	-167.32	1,455.26	-10,124.72	10,925.44	10,889.51	35.93	304.090	
7,050.00	6,880.98	6,479.98	6,478.33	24.17	13.58	-164.90	1,454.76	-10,125.50	10,969.92	10,933.93	35.99	304.780	
7,100.00	6,901.06	6,498.91	6,497.24	24.42	13.62	-161.49	1,454.35	-10,126.14	11,015.99	10,979.94	36.05	305.599	
7,150.00	6,917.47	6,520.31	6,518.62	24.70	13.67	-156.37	1,453.91	-10,126.86	11,063.36	11,027.26	36.10	306.428	
7,200.00	6,930.13	6,536.69	6,534.99	25.01	13.70	-147.95	1,453.58	-10,127.40	11,111.74	11,075.60	36.15	307.405	
7,250.00	6,938.95	6,547.44	6,545.73	25.34	13.73	-132.63	1,453.36	-10,127.75	11,160.84	11,124.66	36.17	308.540	
7,300.00	6,943.88	6,552.45	6,550.74	25.69	13.74	-104.47	1,453.27	-10,127.91	11,210.35	11,174.16	36.18	309.829	
7,337.82	6,945.00	6,552.39	6,550.68	25.97	13.74	-76.93	1,453.27	-10,127.91	11,247.89	11,211.71	36.18	310.902	
7,400.00	6,945.00	6,549.51	6,547.80	26.45	13.73	-78.75	1,453.32	-10,127.81	11,309.50	11,273.34	36.16	312.746	
7,492.38	6,945.00	6,545.11	6,543.40	27.21	13.72	-80.66	1,453.41	-10,127.67	11,400.69	11,364.56	36.13	315.505	
7,500.00	6,945.00	6,544.74	6,543.04	27.28	13.72	-80.65	1,453.42	-10,127.66	11,408.19	11,372.06	36.13	315.737	
7,600.00	6,945.00	6,539.88	6,538.18	28.17	13.71	-80.51	1,453.51	-10,127.50	11,506.66	11,470.56	36.10	318.702	
7,700.00	6,945.00	6,534.97	6,533.27	29.12	13.70	-80.37	1,453.61	-10,127.34	11,605.16	11,569.08	36.08	321.635	
7,800.00	6,945.00	6,530.01	6,528.32	30.14	13.69	-80.23	1,453.71	-10,127.18	11,703.69	11,667.62	36.06	324.537	
7,900.00	6,945.00	6,525.00	6,523.30	31.20	13.68	-80.09	1,453.81	-10,127.01	11,802.23	11,766.18	36.05	327.407	
8,000.00	6,945.00	6,519.93	6,518.24	32.31	13.67	-79.95	1,453.91	-10,126.85	11,900.80	11,864.77	36.04	330.246	
8,100.00	6,945.00	6,514.80	6,513.12	33.46	13.66	-79.80	1,454.02	-10,126.68	11,999.39	11,963.36	36.03	333.054	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 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:	Plan #4	**Offset TVD Reference:**	Offset Datum

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

Survey Program: 100-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
8,200.00	6,945.00	6,509.62	6,507.94	34.64	13.65	-79.66	1,454.13	-10,126.50	12,098.01	12,061.98	36.02	335.831	
8,300.00	6,945.00	6,504.38	6,502.70	35.86	13.63	-79.51	1,454.24	-10,126.33	12,196.64	12,160.62	36.02	338.577	
8,400.00	6,945.00	6,499.40	6,497.73	37.11	13.62	-79.37	1,454.34	-10,126.16	12,295.29	12,259.27	36.03	341.287	
8,500.00	6,945.00	6,495.91	6,494.24	38.39	13.62	-79.27	1,454.41	-10,126.04	12,393.97	12,357.93	36.04	343.934	
8,600.00	6,945.00	6,492.42	6,490.75	39.69	13.61	-79.18	1,454.49	-10,125.92	12,492.67	12,456.62	36.05	346.549	
8,700.00	6,945.00	6,488.92	6,487.26	41.01	13.60	-79.08	1,454.56	-10,125.80	12,591.38	12,555.32	36.06	349.134	
8,800.00	6,945.00	6,485.42	6,483.75	42.35	13.59	-78.98	1,454.64	-10,125.68	12,690.11	12,654.03	36.08	351.688	
8,900.00	6,945.00	6,481.91	6,480.25	43.71	13.59	-78.88	1,454.71	-10,125.56	12,788.87	12,752.76	36.11	354.213	
9,000.00	6,945.00	6,478.39	6,476.73	45.08	13.58	-78.79	1,454.79	-10,125.44	12,887.64	12,851.51	36.13	356.707	
9,100.00	6,945.00	6,474.87	6,473.22	46.47	13.57	-78.69	1,454.87	-10,125.32	12,986.43	12,950.27	36.16	359.172	
9,200.00	6,945.00	6,471.34	6,469.69	47.87	13.56	-78.59	1,454.95	-10,125.20	13,085.24	13,049.05	36.19	361.608	
9,300.00	6,945.00	6,467.81	6,466.16	49.29	13.56	-78.49	1,455.02	-10,125.08	13,184.06	13,147.84	36.22	364.016	
9,400.00	6,945.00	6,464.27	6,462.63	50.71	13.55	-78.39	1,455.10	-10,124.96	13,282.90	13,246.65	36.25	366.396	
9,500.00	6,945.00	6,460.73	6,459.09	52.15	13.54	-78.29	1,455.18	-10,124.84	13,381.76	13,345.47	36.29	368.747	
9,600.00	6,945.00	6,457.18	6,455.54	53.59	13.54	-78.20	1,455.26	-10,124.72	13,480.63	13,444.30	36.33	371.071	
9,700.00	6,945.00	6,453.63	6,451.99	55.05	13.53	-78.10	1,455.34	-10,124.60	13,579.52	13,543.15	36.37	373.369	
9,800.00	6,945.00	6,450.07	6,448.44	56.51	13.52	-78.00	1,455.42	-10,124.47	13,678.42	13,642.01	36.41	375.639	
9,900.00	6,945.00	6,446.50	6,444.87	57.98	13.51	-77.90	1,455.50	-10,124.35	13,777.34	13,740.88	36.46	377.884	
10,000.00	6,945.00	6,442.93	6,441.31	59.45	13.51	-77.80	1,455.58	-10,124.23	13,876.27	13,839.77	36.51	380.102	
10,100.00	6,945.00	6,439.35	6,437.73	60.93	13.50	-77.70	1,455.67	-10,124.10	13,975.22	13,938.66	36.56	382.295	
10,200.00	6,945.00	6,435.77	6,434.15	62.42	13.49	-77.60	1,455.75	-10,123.98	14,074.18	14,037.57	36.61	384.463	
10,300.00	6,945.00	6,432.18	6,430.57	63.92	13.48	-77.51	1,455.83	-10,123.86	14,173.16	14,136.50	36.66	386.607	
10,400.00	6,945.00	6,428.59	6,426.98	65.42	13.47	-77.41	1,455.92	-10,123.73	14,272.15	14,235.43	36.72	388.726	
10,500.00	6,945.00	6,424.99	6,423.38	66.92	13.47	-77.31	1,456.00	-10,123.61	14,371.15	14,334.38	36.77	390.821	
10,600.00	6,945.00	6,421.38	6,419.78	68.43	13.46	-77.21	1,456.09	-10,123.49	14,470.16	14,433.33	36.83	392.893	
10,700.00	6,945.00	6,417.77	6,416.17	69.94	13.45	-77.11	1,456.17	-10,123.36	14,569.19	14,532.30	36.89	394.941	
10,800.00	6,945.00	6,414.16	6,412.56	71.45	13.44	-77.01	1,456.26	-10,123.24	14,668.23	14,631.28	36.95	396.967	
10,900.00	6,945.00	6,416.85	6,415.24	72.97	13.45	-77.08	1,456.19	-10,123.33	14,767.28	14,730.25	37.03	398.818	
11,000.00	6,945.00	6,411.09	6,409.49	74.50	13.44	-76.93	1,456.33	-10,123.13	14,866.34	14,829.26	37.09	400.851	
11,100.00	6,945.00	6,405.27	6,403.68	76.02	13.43	-76.77	1,456.47	-10,122.93	14,965.42	14,928.27	37.15	402.863	
11,200.00	6,945.00	6,399.40	6,397.82	77.55	13.41	-76.61	1,456.61	-10,122.72	15,064.51	15,027.30	37.21	404.855	
11,300.00	6,945.00	6,393.48	6,391.90	79.08	13.40	-76.44	1,456.76	-10,122.52	15,163.60	15,126.33	37.27	406.827	
11,400.00	6,945.00	6,387.50	6,385.92	80.62	13.39	-76.28	1,456.90	-10,122.31	15,262.71	15,225.37	37.34	408.780	
11,500.00	6,945.00	6,381.47	6,379.89	82.16	13.37	-76.12	1,457.05	-10,122.10	15,361.83	15,324.43	37.40	410.713	
11,600.00	6,945.00	6,375.37	6,373.81	83.70	13.36	-75.95	1,457.20	-10,121.88	15,460.96	15,423.49	37.47	412.628	
11,700.00	6,945.00	6,369.22	6,367.66	85.24	13.35	-75.78	1,457.35	-10,121.66	15,560.09	15,522.56	37.54	414.524	
11,800.00	6,945.00	6,363.02	6,361.46	86.78	13.33	-75.62	1,457.50	-10,121.44	15,659.24	15,621.64	37.61	416.402	
11,900.00	6,945.00	6,356.75	6,355.20	88.33	13.32	-75.45	1,457.65	-10,121.22	15,758.40	15,720.72	37.68	418.262	
12,000.00	6,945.00	6,350.42	6,348.88	89.87	13.31	-75.27	1,457.80	-10,120.99	15,857.56	15,819.82	37.75	420.105	
12,100.00	6,945.00	6,344.03	6,342.49	91.42	13.29	-75.10	1,457.96	-10,120.76	15,956.74	15,918.92	37.82	421.930	
12,200.00	6,945.00	6,337.58	6,336.05	92.98	13.28	-74.93	1,458.11	-10,120.53	16,055.92	16,018.03	37.89	423.738	
12,300.00	6,945.00	6,331.06	6,329.54	94.53	13.27	-74.75	1,458.27	-10,120.29	16,155.12	16,117.15	37.96	425.530	
12,400.00	6,945.00	6,324.49	6,322.97	96.08	13.25	-74.58	1,458.43	-10,120.05	16,254.32	16,216.28	38.04	427.305	
12,500.00	6,945.00	6,317.84	6,316.33	97.64	13.24	-74.40	1,458.59	-10,119.80	16,353.52	16,315.41	38.11	429.063	
12,600.00	6,945.00	6,311.13	6,309.63	99.20	13.22	-74.22	1,458.75	-10,119.55	16,452.74	16,414.55	38.19	430.806	
12,700.00	6,945.00	6,304.36	6,302.86	100.76	13.21	-74.04	1,458.92	-10,119.30	16,551.97	16,513.70	38.27	432.534	
12,800.00	6,945.00	6,300.00	6,298.51	102.32	13.20	-73.92	1,459.02	-10,119.14	16,651.20	16,612.85	38.35	434.188	
12,900.00	6,945.00	6,300.00	6,298.51	103.88	13.20	-73.92	1,459.02	-10,119.14	16,750.44	16,712.00	38.44	435.725	
13,000.00	6,945.00	6,300.00	6,298.51	105.44	13.20	-73.92	1,459.02	-10,119.14	16,849.69	16,811.16	38.54	437.247	
13,100.00	6,945.00	6,300.00	6,298.51	107.00	13.20	-73.92	1,459.02	-10,119.14	16,948.95	16,910.32	38.63	438.752	
13,200.00	6,945.00	6,300.00	6,298.51	108.57	13.20	-73.92	1,459.02	-10,119.14	17,048.22	17,009.49	38.72	440.243	
13,300.00	6,945.00	6,300.00	6,298.51	110.13	13.20	-73.92	1,459.02	-10,119.14	17,147.50	17,108.68	38.82	441.718	

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:	Plan #4	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 100-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
13,400.00	6,945.00	6,300.00	6,298.51	111.70	13.20	-73.92	1,459.02	-10,119.14	17,246.78	17,207.86	38.92	443.178	
13,500.00	6,945.00	6,300.00	6,298.51	113.27	13.20	-73.92	1,459.02	-10,119.14	17,346.07	17,307.06	39.01	444.623	
13,600.00	6,945.00	6,300.00	6,298.51	114.84	13.20	-73.92	1,459.02	-10,119.14	17,445.37	17,406.26	39.11	446.054	
13,700.00	6,945.00	6,279.26	6,277.78	116.41	13.15	-73.37	1,459.52	-10,118.37	17,544.66	17,505.50	39.17	447.958	
13,800.00	6,945.00	6,277.10	6,275.62	117.98	13.15	-73.32	1,459.57	-10,118.29	17,643.98	17,604.72	39.26	449.411	
13,900.00	6,945.00	6,274.94	6,273.47	119.55	13.14	-73.26	1,459.62	-10,118.21	17,743.30	17,703.94	39.36	450.849	
14,000.00	6,945.00	6,272.80	6,271.34	121.12	13.14	-73.20	1,459.67	-10,118.14	17,842.62	17,803.17	39.45	452.273	
14,100.00	6,945.00	6,270.67	6,269.21	122.69	13.13	-73.15	1,459.72	-10,118.06	17,941.96	17,902.41	39.55	453.683	
14,200.00	6,945.00	6,268.55	6,267.09	124.27	13.13	-73.09	1,459.78	-10,117.98	18,041.30	18,001.65	39.64	455.080	
14,300.00	6,945.00	6,266.44	6,264.98	125.84	13.12	-73.04	1,459.83	-10,117.90	18,140.64	18,100.90	39.74	456.463	
14,400.00	6,945.00	6,264.34	6,262.88	127.41	13.12	-72.98	1,459.88	-10,117.83	18,240.00	18,200.16	39.84	457.833	
14,500.00	6,945.00	6,262.24	6,260.79	128.99	13.12	-72.92	1,459.93	-10,117.75	18,339.36	18,299.42	39.94	459.190	
14,600.00	6,945.00	6,260.16	6,258.71	130.57	13.11	-72.87	1,459.98	-10,117.68	18,438.73	18,398.69	40.04	460.535	
14,700.00	6,945.00	6,258.09	6,256.63	132.14	13.11	-72.82	1,460.03	-10,117.60	18,538.10	18,497.96	40.14	461.866	
14,800.00	6,945.00	6,256.03	6,254.57	133.72	13.10	-72.76	1,460.08	-10,117.53	18,637.48	18,597.24	40.24	463.185	
14,900.00	6,945.00	6,253.97	6,252.52	135.30	13.10	-72.71	1,460.12	-10,117.46	18,736.87	18,696.53	40.34	464.492	
15,000.00	6,945.00	6,251.93	6,250.48	136.87	13.09	-72.65	1,460.17	-10,117.38	18,836.26	18,795.82	40.44	465.786	
15,100.00	6,945.00	6,249.89	6,248.45	138.45	13.09	-72.60	1,460.22	-10,117.31	18,935.66	18,895.12	40.54	467.069	
15,200.00	6,945.00	6,247.87	6,246.42	140.03	13.08	-72.55	1,460.27	-10,117.24	19,035.06	18,994.42	40.64	468.339	
15,300.00	6,945.00	6,245.85	6,244.41	141.61	13.08	-72.49	1,460.32	-10,117.17	19,134.47	19,093.73	40.75	469.598	
15,400.00	6,945.00	6,243.84	6,242.40	143.19	13.07	-72.44	1,460.37	-10,117.10	19,233.89	19,193.04	40.85	470.846	
15,500.00	6,945.00	6,241.84	6,240.40	144.77	13.07	-72.39	1,460.41	-10,117.03	19,333.31	19,292.36	40.95	472.082	
15,600.00	6,945.00	6,239.85	6,238.42	146.35	13.07	-72.34	1,460.46	-10,116.96	19,432.74	19,391.68	41.06	473.307	
15,700.00	6,945.00	6,237.87	6,236.44	147.94	13.06	-72.29	1,460.51	-10,116.89	19,532.17	19,491.01	41.16	474.521	
15,800.00	6,945.00	6,235.90	6,234.47	149.52	13.06	-72.23	1,460.56	-10,116.82	19,631.61	19,590.34	41.27	475.724	
15,900.00	6,945.00	6,233.94	6,232.51	151.10	13.05	-72.18	1,460.60	-10,116.75	19,731.05	19,689.68	41.37	476.916	
16,000.00	6,945.00	6,231.98	6,230.55	152.68	13.05	-72.13	1,460.65	-10,116.68	19,830.50	19,789.02	41.48	478.097	
16,100.00	6,945.00	6,230.04	6,228.61	154.26	13.04	-72.08	1,460.70	-10,116.62	19,929.96	19,888.37	41.58	479.268	
16,200.00	6,945.00	6,228.10	6,226.67	155.85	13.04	-72.03	1,460.74	-10,116.55	20,029.42	19,987.73	41.69	480.429	
16,300.00	6,945.00	6,226.17	6,224.75	157.43	13.04	-71.98	1,460.79	-10,116.48	20,128.88	20,087.08	41.80	481.580	
16,400.00	6,945.00	6,224.25	6,222.83	159.02	13.03	-71.93	1,460.83	-10,116.42	20,228.35	20,186.44	41.90	482.720	
16,500.00	6,945.00	6,222.34	6,220.92	160.60	13.03	-71.88	1,460.88	-10,116.35	20,327.82	20,285.81	42.01	483.851	
16,600.00	6,945.00	6,200.00	6,198.60	162.18	12.98	-71.30	1,461.41	-10,115.59	20,427.32	20,385.24	42.08	485.423	
16,700.00	6,945.00	6,200.00	6,198.60	163.77	12.98	-71.30	1,461.41	-10,115.59	20,526.80	20,484.61	42.19	486.491	
16,800.00	6,945.00	6,200.00	6,198.60	165.35	12.98	-71.30	1,461.41	-10,115.59	20,626.29	20,583.98	42.31	487.549	
16,900.00	6,945.00	6,200.00	6,198.60	166.94	12.98	-71.30	1,461.41	-10,115.59	20,725.78	20,683.36	42.42	488.599	
17,000.00	6,945.00	6,200.00	6,198.60	168.53	12.98	-71.30	1,461.41	-10,115.59	20,825.27	20,782.74	42.53	489.640	
17,100.00	6,945.00	6,200.00	6,198.60	170.11	12.98	-71.30	1,461.41	-10,115.59	20,924.77	20,882.13	42.65	490.672	
17,200.00	6,945.00	6,200.00	6,198.60	171.70	12.98	-71.30	1,461.41	-10,115.59	21,024.28	20,981.52	42.76	491.695	
17,300.00	6,945.00	6,200.00	6,198.60	173.29	12.98	-71.30	1,461.41	-10,115.59	21,123.78	21,080.91	42.87	492.709	
17,400.00	6,945.00	6,200.00	6,198.60	174.87	12.98	-71.30	1,461.41	-10,115.59	21,223.30	21,180.31	42.99	493.715	
17,500.00	6,945.00	6,200.00	6,198.60	176.46	12.98	-71.30	1,461.41	-10,115.59	21,322.82	21,279.72	43.10	494.712	
17,600.00	6,945.00	6,200.00	6,198.60	178.05	12.98	-71.30	1,461.41	-10,115.59	21,422.34	21,379.12	43.22	495.701	
17,700.00	6,945.00	6,200.00	6,198.60	179.63	12.98	-71.30	1,461.41	-10,115.59	21,521.87	21,478.54	43.33	496.682	
17,800.00	6,945.00	6,200.00	6,198.60	181.22	12.98	-71.30	1,461.41	-10,115.59	21,621.40	21,577.95	43.45	497.655	
17,900.00	6,945.00	6,200.00	6,198.60	182.81	12.98	-71.30	1,461.41	-10,115.59	21,720.94	21,677.37	43.56	498.619	
18,000.00	6,945.00	6,200.00	6,198.60	184.40	12.98	-71.30	1,461.41	-10,115.59	21,820.48	21,776.80	43.68	499.576	
18,100.00	6,945.00	6,200.00	6,198.60	185.99	12.98	-71.30	1,461.41	-10,115.59	21,920.02	21,876.23	43.79	500.525	
18,200.00	6,945.00	6,200.00	6,198.60	187.58	12.98	-71.30	1,461.41	-10,115.59	22,019.57	21,975.66	43.91	501.465	
18,300.00	6,945.00	6,200.00	6,198.60	189.16	12.98	-71.30	1,461.41	-10,115.59	22,119.12	22,075.09	44.03	502.399	
18,400.00	6,945.00	6,200.00	6,198.60	190.75	12.98	-71.30	1,461.41	-10,115.59	22,218.68	22,174.53	44.14	503.324	
18,500.00	6,945.00	6,200.00	6,198.60	192.34	12.98	-71.30	1,461.41	-10,115.59	22,318.24	22,273.98	44.26	504.242	

CC - Min centre to center distance or 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:	Plan #4	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 100-APC_ISCWSA REV 2 MWD

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
18,600.00	6,945.00	6,200.00	6,198.60	193.93	12.98	-71.30	1,461.41	-10,115.59	22,417.80	22,373.43	44.38	505.153	
18,700.00	6,945.00	6,200.00	6,198.60	195.52	12.98	-71.30	1,461.41	-10,115.59	22,517.37	22,472.88	44.50	506.056	
18,800.00	6,945.00	6,200.00	6,198.60	197.11	12.98	-71.30	1,461.41	-10,115.59	22,616.94	22,572.33	44.61	506.952	
18,900.00	6,945.00	6,177.15	6,175.77	198.70	12.93	-70.72	1,461.95	-10,114.84	22,716.50	22,671.81	44.69	508.311	
19,000.00	6,945.00	6,175.29	6,173.90	200.29	12.92	-70.67	1,461.99	-10,114.78	22,816.08	22,771.27	44.81	509.229	
19,100.00	6,945.00	6,173.43	6,172.05	201.88	12.92	-70.62	1,462.04	-10,114.72	22,915.66	22,870.74	44.92	510.140	
19,200.00	6,945.00	6,171.58	6,170.20	203.47	12.91	-70.57	1,462.08	-10,114.66	23,015.24	22,970.20	45.04	511.044	
19,300.00	6,945.00	6,169.74	6,168.36	205.06	12.91	-70.53	1,462.13	-10,114.60	23,114.83	23,069.67	45.15	511.941	
19,400.00	6,945.00	6,167.91	6,166.53	206.65	12.91	-70.48	1,462.17	-10,114.54	23,214.42	23,169.15	45.27	512.830	
19,500.00	6,945.00	6,166.08	6,164.71	208.24	12.90	-70.43	1,462.21	-10,114.48	23,314.01	23,268.63	45.38	513.713	
19,600.00	6,945.00	6,164.26	6,162.89	209.84	12.90	-70.39	1,462.26	-10,114.42	23,413.61	23,368.11	45.50	514.588	
19,700.00	6,945.00	6,162.45	6,161.07	211.43	12.89	-70.34	1,462.30	-10,114.36	23,513.20	23,467.59	45.62	515.457	
19,800.00	6,945.00	6,160.64	6,159.27	213.02	12.89	-70.29	1,462.34	-10,114.30	23,612.81	23,567.07	45.73	516.318	
19,900.00	6,945.00	6,158.84	6,157.47	214.61	12.89	-70.25	1,462.39	-10,114.24	23,712.41	23,666.56	45.85	517.173	
20,000.00	6,945.00	6,157.04	6,155.68	216.20	12.88	-70.20	1,462.43	-10,114.19	23,812.02	23,766.05	45.97	518.021	
20,100.00	6,945.00	6,155.26	6,153.89	217.79	12.88	-70.16	1,462.47	-10,114.13	23,911.63	23,865.55	46.08	518.863	
20,200.00	6,945.00	6,153.48	6,152.11	219.38	12.88	-70.11	1,462.51	-10,114.07	24,011.25	23,965.05	46.20	519.697	
20,300.00	6,945.00	6,151.70	6,150.34	220.98	12.87	-70.07	1,462.55	-10,114.02	24,110.87	24,064.55	46.32	520.526	
20,400.00	6,945.00	6,149.94	6,148.57	222.57	12.87	-70.02	1,462.60	-10,113.96	24,210.49	24,164.05	46.44	521.348	
20,500.00	6,945.00	6,148.17	6,146.81	224.16	12.86	-69.98	1,462.64	-10,113.90	24,310.11	24,263.55	46.56	522.163	
20,600.00	6,945.00	6,146.42	6,145.06	225.75	12.86	-69.93	1,462.68	-10,113.85	24,409.74	24,363.06	46.68	522.972	
20,700.00	6,945.00	6,144.67	6,143.31	227.35	12.86	-69.89	1,462.72	-10,113.79	24,509.37	24,462.57	46.79	523.775	
20,800.00	6,945.00	6,142.93	6,141.57	228.94	12.85	-69.84	1,462.76	-10,113.74	24,609.00	24,562.09	46.91	524.572	
20,852.96	6,945.00	6,142.01	6,140.65	229.61	12.85	-69.82	1,462.78	-10,113.71	24,661.76	24,610.28	51.48	479.026	

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:	Plan #4	**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
0.00	0.00	61.00	61.00	0.00	1.83	-100.09	-2,124.88	-11,935.27	12,122.94				
20.93	20.93	81.93	81.93	0.00	2.46	67.26	-2,124.88	-11,935.27	12,122.92				
117.41	117.41	178.41	178.41	0.05	5.35	62.71	-2,124.88	-11,935.27	12,122.74	12,117.35	5.38	2,251.657	
206.68	206.68	267.68	267.68	0.17	8.02	88.61	-2,124.88	-11,935.27	12,122.65	12,114.52	8.12	1,492.059	
292.93	292.93	353.93	353.93	0.28	10.61	88.06	-2,124.88	-11,935.27	12,122.63	12,111.86	10.77	1,125.994	
365.00	364.99	425.99	425.99	0.36	12.76	57.38	-2,124.88	-11,935.27	12,122.47	12,109.48	12.99	933.158	
384.78	384.77	445.77	445.77	0.40	13.36	89.64	-2,124.88	-11,935.27	12,122.42	12,108.78	13.64	888.720	CC
451.00	450.97	512.07	511.97	0.55	15.34	110.68	-2,124.88	-11,935.27	12,122.88	12,107.06	15.82	766.359	
540.00	539.81	600.91	600.81	0.83	18.01	116.16	-2,124.88	-11,935.27	12,125.02	12,106.23	18.79	645.242	ES
665.00	664.37	725.47	725.37	1.26	21.74	118.50	-2,124.88	-11,935.27	12,129.84	12,106.86	22.98	527.842	
753.00	752.01	805.03	804.88	1.58	24.12	117.55	-2,122.81	-11,935.27	12,133.25	12,107.56	25.69	472.299	
847.00	845.61	886.75	886.59	1.93	26.57	120.59	-2,123.35	-11,935.27	12,137.56	12,109.07	28.49	426.053	
939.00	937.22	966.81	966.62	2.27	28.97	120.85	-2,124.34	-11,935.27	12,142.14	12,110.91	31.23	388.787	
1,030.00	1,027.78	1,089.18	1,088.78	2.62	32.64	109.44	-2,124.88	-11,935.27	12,145.96	12,110.72	35.24	344.663	
1,120.00	1,117.25	1,178.65	1,178.25	2.96	35.32	112.32	-2,124.88	-11,935.27	12,149.46	12,111.20	38.26	317.513	
1,211.00	1,207.68	1,266.66	1,266.22	3.31	37.95	109.73	-2,122.71	-11,935.27	12,152.77	12,111.52	41.25	294.606	
1,306.00	1,302.14	1,349.31	1,348.85	3.68	40.43	111.62	-2,123.04	-11,935.27	12,156.42	12,112.33	44.09	275.714	
1,400.00	1,395.63	1,431.22	1,430.73	4.04	42.89	112.91	-2,123.85	-11,935.27	12,160.26	12,113.36	46.90	259.262	
1,495.00	1,490.19	1,551.90	1,551.19	4.40	46.50	112.30	-2,124.88	-11,935.27	12,163.95	12,113.07	50.88	239.071	
1,589.00	1,583.83	1,645.54	1,644.83	4.76	49.31	109.89	-2,124.88	-11,935.27	12,166.94	12,112.90	54.04	225.150	
1,684.00	1,678.44	1,740.15	1,739.44	5.12	52.14	112.30	-2,124.88	-11,935.27	12,170.04	12,112.81	57.23	212.641	
1,779.00	1,772.98	1,824.23	1,823.47	5.48	54.66	116.73	-2,122.89	-11,935.27	12,173.64	12,113.52	60.11	202.512	
1,873.00	1,866.49	1,906.32	1,905.54	5.84	57.12	118.25	-2,123.55	-11,935.27	12,178.18	12,115.25	62.93	193.519	
1,967.00	1,960.05	2,022.06	2,021.05	6.20	60.59	122.96	-2,124.88	-11,935.27	12,183.03	12,116.28	66.75	182.508	
2,062.00	2,054.59	2,116.60	2,115.59	6.56	63.42	117.62	-2,124.88	-11,935.27	12,187.73	12,117.79	69.95	174.246	
2,156.00	2,148.09	2,210.10	2,209.09	6.92	66.22	116.95	-2,124.88	-11,935.27	12,192.20	12,119.09	73.10	166.777	
2,251.00	2,242.55	2,297.93	2,296.87	7.29	68.86	118.33	-2,122.78	-11,935.27	12,196.54	12,120.44	76.10	160.271	
2,345.00	2,336.00	2,380.14	2,379.06	7.65	71.32	112.38	-2,123.29	-11,935.27	12,201.02	12,122.10	78.92	154.595	
2,440.00	2,430.43	2,463.32	2,462.22	8.02	73.81	109.80	-2,124.29	-11,935.27	12,204.96	12,123.18	81.78	149.242	
2,535.00	2,524.86	2,587.18	2,585.86	8.38	77.52	111.12	-2,124.88	-11,935.27	12,208.66	12,122.80	85.86	142.196	
2,629.00	2,618.31	2,680.63	2,679.31	8.75	80.32	111.17	-2,124.88	-11,935.27	12,212.35	12,123.33	89.02	137.188	
2,724.00	2,712.77	2,772.08	2,770.72	9.12	83.06	111.98	-2,122.72	-11,935.27	12,215.76	12,123.64	92.12	132.601	
2,818.00	2,806.24	2,854.51	2,853.14	9.48	85.53	112.59	-2,123.08	-11,935.27	12,219.63	12,124.67	94.95	128.690	
2,913.00	2,900.71	2,937.93	2,936.54	9.84	88.03	114.83	-2,123.93	-11,935.27	12,223.80	12,125.98	97.82	124.966	
3,008.00	2,995.25	3,057.87	3,056.25	10.21	91.63	110.48	-2,124.88	-11,935.27	12,227.58	12,125.80	101.77	120.146	
3,102.00	3,088.80	3,151.42	3,149.80	10.57	94.43	110.73	-2,124.88	-11,935.27	12,230.82	12,125.89	104.93	116.558	
3,197.00	3,183.30	3,245.92	3,244.30	10.93	97.26	113.69	-2,124.88	-11,935.27	12,234.52	12,126.39	108.13	113.148	
3,291.00	3,276.71	3,328.95	3,327.27	11.30	99.75	107.62	-2,122.92	-11,935.27	12,237.90	12,126.92	110.98	110.273	
3,386.00	3,371.01	3,412.43	3,410.73	11.67	102.25	106.50	-2,123.62	-11,935.27	12,241.43	12,127.58	113.85	107.522	
3,480.00	3,464.23	3,527.16	3,525.23	12.04	105.69	107.83	-2,124.88	-11,935.27	12,245.18	12,127.52	117.66	104.074	
3,575.00	3,558.47	3,621.40	3,619.47	12.42	108.51	109.38	-2,124.88	-11,935.27	12,249.03	12,128.18	120.86	101.353	
3,670.00	3,652.84	3,715.77	3,713.84	12.79	111.34	110.38	-2,124.88	-11,935.27	12,252.78	12,128.72	124.05	98.772	
3,764.00	3,746.36	3,802.55	3,800.57	13.15	113.94	113.62	-2,122.80	-11,935.27	12,256.00	12,128.99	127.01	96.496	
3,859.00	3,840.97	3,886.51	3,884.52	13.51	116.46	117.37	-2,123.35	-11,935.27	12,259.79	12,129.90	129.88	94.391	
3,954.00	3,935.57	3,970.55	3,968.53	13.87	118.98	117.43	-2,124.40	-11,935.27	12,264.01	12,131.25	132.76	92.378	
4,049.00	4,030.14	4,093.37	4,091.14	14.23	122.66	108.41	-2,124.88	-11,935.27	12,267.57	12,130.77	136.80	89.675	
4,143.00	4,123.75	4,186.98	4,184.75	14.59	125.46	109.54	-2,124.88	-11,935.27	12,270.36	12,130.40	139.96	87.670	
4,238.00	4,218.33	4,278.03	4,275.75	14.95	128.19	109.81	-2,122.73	-11,935.27	12,273.06	12,130.02	143.05	85.797	
4,333.00	4,312.74	4,362.00	4,359.71	15.32	130.71	107.03	-2,123.14	-11,935.27	12,276.47	12,130.54	145.93	84.125	
4,427.00	4,406.05	4,445.13	4,442.82	15.69	133.20	109.44	-2,124.03	-11,935.27	12,280.19	12,131.41	148.79	82.535	
4,522.00	4,500.34	4,563.88	4,561.34	16.06	136.75	110.41	-2,124.88	-11,935.27	12,284.26	12,131.54	152.72	80.437	
4,616.00	4,593.47	4,657.01	4,654.47	16.44	139.54	108.19	-2,124.88	-11,935.27	12,288.49	12,132.61	155.88	78.832	

CC - Min centre to center distance or 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:	Plan #4	**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
4,710.00	4,686.44	4,749.96	4,747.39	16.82	142.33	108.98	-2,122.70	-11,935.27	12,292.64	12,133.60	159.04	77.291	
4,899.00	4,873.89	4,917.34	4,914.73	17.57	147.35	115.47	-2,123.68	-11,935.27	12,301.79	12,136.99	164.80	74.647	
4,962.00	4,936.56	5,000.41	4,997.56	17.81	149.83	117.89	-2,124.88	-11,935.27	12,304.81	12,137.28	167.53	73.448	
5,024.00	4,998.27	5,062.11	5,059.27	18.04	151.68	114.14	-2,124.88	-11,935.27	12,307.47	12,137.85	169.61	72.562	
5,150.00	5,123.66	5,187.50	5,184.66	18.53	155.44	115.20	-2,124.88	-11,935.27	12,312.63	12,138.78	173.85	70.823	
5,213.00	5,186.37	5,250.18	5,247.30	18.77	157.32	112.85	-2,122.70	-11,935.27	12,314.78	12,138.81	175.97	69.984	
5,276.00	5,249.09	5,306.28	5,303.39	19.01	159.00	113.76	-2,122.81	-11,935.27	12,317.17	12,139.28	177.89	69.242	
5,339.00	5,311.83	5,362.44	5,359.54	19.25	160.68	112.85	-2,123.14	-11,935.27	12,319.50	12,139.69	179.81	68.516	
5,401.00	5,373.58	5,417.76	5,414.85	19.48	162.34	115.38	-2,123.68	-11,935.27	12,321.87	12,140.17	181.70	67.816	
5,464.00	5,436.33	5,500.48	5,497.33	19.72	164.82	112.70	-2,124.88	-11,935.27	12,324.28	12,139.87	184.41	66.830	
5,590.00	5,561.87	5,626.02	5,622.87	20.19	168.58	111.44	-2,124.88	-11,935.27	12,328.35	12,139.70	188.65	65.352	
5,653.00	5,624.66	5,688.80	5,685.66	20.43	170.46	110.13	-2,124.88	-11,935.27	12,330.20	12,139.44	190.76	64.636	
5,715.00	5,686.48	5,750.54	5,747.36	20.66	172.31	105.21	-2,122.70	-11,935.27	12,331.35	12,138.51	192.84	63.945	
5,778.00	5,749.29	5,806.86	5,803.67	20.90	174.00	107.90	-2,122.81	-11,935.27	12,332.75	12,137.98	194.76	63.321	
5,841.00	5,812.10	5,863.22	5,860.01	21.13	175.69	105.63	-2,123.15	-11,935.27	12,334.21	12,137.52	196.69	62.710	
5,904.00	5,874.94	5,919.63	5,916.41	21.36	177.38	110.95	-2,123.70	-11,935.27	12,335.72	12,137.11	198.61	62.110	
5,967.00	5,937.80	6,002.25	5,998.80	21.60	179.85	112.51	-2,124.88	-11,935.27	12,337.41	12,136.10	201.32	61.283	
6,030.00	6,000.68	6,065.13	6,061.68	21.83	181.74	110.62	-2,124.88	-11,935.27	12,338.83	12,135.40	203.43	60.653	
6,093.00	6,063.59	6,128.04	6,124.59	22.05	183.62	114.31	-2,124.88	-11,935.27	12,340.13	12,134.59	205.55	60.036	
6,156.00	6,126.51	6,190.96	6,187.51	22.28	185.51	119.60	-2,124.88	-11,935.27	12,341.57	12,133.91	207.66	59.432	
6,235.00	6,205.43	6,267.83	6,264.34	22.56	187.81	119.32	-2,122.71	-11,935.27	12,342.99	12,132.75	210.24	58.708	
6,300.00	6,270.38	6,326.17	6,322.66	22.68	189.56	119.32	-2,122.90	-11,935.27	12,344.25	12,132.14	212.11	58.197	
6,355.00	6,325.34	6,375.55	6,372.03	22.69	191.04	119.33	-2,123.25	-11,935.27	12,345.34	12,131.74	213.60	57.797	
6,400.00	6,370.23	6,415.89	6,412.37	22.71	192.25	151.95	-2,123.66	-11,935.27	12,347.82	12,133.00	214.82	57.481	
6,450.00	6,419.74	6,460.41	6,456.87	22.73	193.58	159.34	-2,124.25	-11,935.27	12,354.23	12,138.07	216.17	57.152	
6,500.00	6,468.57	6,533.33	6,529.57	22.77	195.77	162.11	-2,124.88	-11,935.27	12,364.43	12,146.06	218.37	56.620	
6,550.00	6,516.42	6,581.17	6,577.42	22.81	197.20	163.42	-2,124.88	-11,935.27	12,378.31	12,158.48	219.84	56.307	
6,600.00	6,562.98	6,627.74	6,623.98	22.87	198.60	164.05	-2,124.88	-11,935.27	12,395.86	12,174.59	221.26	56.023	
6,650.00	6,607.98	6,672.74	6,668.98	22.95	199.95	164.28	-2,124.88	-11,935.27	12,416.95	12,194.30	222.65	55.769	
6,700.00	6,651.14	6,715.89	6,712.14	23.03	201.24	164.22	-2,124.88	-11,935.27	12,441.46	12,217.47	223.99	55.545	
6,750.00	6,692.18	6,756.22	6,752.43	23.14	202.45	163.92	-2,122.70	-11,935.27	12,468.96	12,243.72	225.24	55.358	
6,800.00	6,730.86	6,791.00	6,787.20	23.26	203.49	163.38	-2,122.76	-11,935.27	12,499.85	12,273.51	226.34	55.226	
6,850.00	6,766.93	6,823.46	6,819.65	23.40	204.46	162.57	-2,122.89	-11,935.27	12,533.67	12,306.30	227.37	55.125	
6,900.00	6,800.18	6,853.39	6,849.58	23.56	205.36	161.47	-2,123.07	-11,935.27	12,570.19	12,341.86	228.32	55.054	
6,950.00	6,830.39	6,880.60	6,876.78	23.74	206.17	159.99	-2,123.30	-11,935.27	12,609.19	12,379.99	229.20	55.014	
7,000.00	6,857.38	6,904.93	6,901.11	23.94	206.90	158.01	-2,123.54	-11,935.27	12,650.43	12,420.44	229.99	55.003 SF	
7,050.00	6,880.98	6,926.22	6,922.39	24.17	207.54	155.32	-2,123.78	-11,935.27	12,693.65	12,462.96	230.69	55.024	
7,100.00	6,901.06	6,944.34	6,940.50	24.42	208.08	151.59	-2,124.02	-11,935.27	12,738.59	12,507.29	231.30	55.074	
7,150.00	6,917.47	6,959.17	6,955.32	24.70	208.53	146.25	-2,124.23	-11,935.27	12,784.96	12,553.16	231.81	55.154	
7,200.00	6,930.13	6,970.61	6,966.77	25.01	208.87	138.28	-2,124.40	-11,935.27	12,832.48	12,600.27	232.21	55.263	
7,250.00	6,938.95	7,004.01	6,999.95	25.34	209.87	126.38	-2,124.88	-11,935.27	12,880.87	12,647.60	233.26	55.220	
7,300.00	6,943.88	7,008.94	7,004.88	25.69	210.02	107.93	-2,124.88	-11,935.27	12,929.78	12,696.32	233.46	55.383	
7,337.82	6,945.00	7,010.06	7,006.00	25.97	210.05	90.00	-2,124.88	-11,935.27	12,966.96	12,733.43	233.53	55.525	
7,400.00	6,945.00	7,010.06	7,006.00	26.45	210.05	90.00	-2,124.88	-11,935.27	13,028.27	12,794.68	233.59	55.775	
7,492.38	6,945.00	7,010.06	7,006.00	27.21	210.05	90.00	-2,124.88	-11,935.27	13,119.74	12,886.08	233.65	56.150	
7,500.00	6,945.00	7,010.06	7,006.00	27.28	210.05	90.00	-2,124.88	-11,935.27	13,127.30	12,893.64	233.66	56.181	
7,600.00	6,945.00	7,010.06	7,006.00	28.17	210.05	90.00	-2,124.88	-11,935.27	13,226.54	12,992.81	233.73	56.589	
7,700.00	6,945.00	7,010.06	7,006.00	29.12	210.05	90.00	-2,124.88	-11,935.27	13,325.79	13,092.00	233.80	56.997	
7,800.00	6,945.00	7,010.06	7,006.00	30.14	210.05	90.00	-2,124.88	-11,935.27	13,425.06	13,191.19	233.87	57.404	
7,900.00	6,945.00	7,010.06	7,006.00	31.20	210.05	90.00	-2,124.88	-11,935.27	13,524.34	13,290.40	233.94	57.811	
8,000.00	6,945.00	7,010.06	7,006.00	32.31	210.05	90.00	-2,124.88	-11,935.27	13,623.62	13,389.61	234.01	58.217	
8,100.00	6,945.00	7,010.06	7,006.00	33.46	210.05	90.00	-2,124.88	-11,935.27	13,722.92	13,488.83	234.09	58.623	

CC - Min centre to center distance or 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:	Plan #4	**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
8,200.00	6,945.00	7,010.06	7,006.00	34.64	210.05	90.00	-2,124.88	-11,935.27	13,822.23	13,588.07	234.16	59.028	
8,300.00	6,945.00	7,010.06	7,006.00	35.86	210.05	90.00	-2,124.88	-11,935.27	13,921.55	13,687.31	234.24	59.433	
8,400.00	6,945.00	7,010.06	7,006.00	37.11	210.05	90.00	-2,124.88	-11,935.27	14,020.87	13,786.56	234.32	59.837	
8,500.00	6,945.00	7,010.06	7,006.00	38.39	210.05	90.00	-2,124.88	-11,935.27	14,120.21	13,885.81	234.40	60.241	
8,600.00	6,945.00	7,010.06	7,006.00	39.69	210.05	90.00	-2,124.88	-11,935.27	14,219.56	13,985.08	234.48	60.644	
8,700.00	6,945.00	7,010.06	7,006.00	41.01	210.05	90.00	-2,124.88	-11,935.27	14,318.91	14,084.36	234.56	61.047	
8,800.00	6,945.00	7,010.06	7,006.00	42.35	210.05	90.00	-2,124.88	-11,935.27	14,418.28	14,183.64	234.64	61.449	
8,900.00	6,945.00	7,010.06	7,006.00	43.71	210.05	90.00	-2,124.88	-11,935.27	14,517.65	14,282.93	234.72	61.851	
9,000.00	6,945.00	7,010.06	7,006.00	45.08	210.05	90.00	-2,124.88	-11,935.27	14,617.03	14,382.23	234.80	62.253	
9,100.00	6,945.00	7,010.06	7,006.00	46.47	210.05	90.00	-2,124.88	-11,935.27	14,716.42	14,481.53	234.89	62.654	
9,200.00	6,945.00	7,010.06	7,006.00	47.87	210.05	90.00	-2,124.88	-11,935.27	14,815.82	14,580.85	234.97	63.054	
9,300.00	6,945.00	7,010.06	7,006.00	49.29	210.05	90.00	-2,124.88	-11,935.27	14,915.22	14,680.17	235.05	63.454	
9,400.00	6,945.00	7,010.06	7,006.00	50.71	210.05	90.00	-2,124.88	-11,935.27	15,014.64	14,779.50	235.14	63.854	
9,500.00	6,945.00	7,010.06	7,006.00	52.15	210.05	90.00	-2,124.88	-11,935.27	15,114.06	14,878.83	235.23	64.253	
9,600.00	6,945.00	7,010.06	7,006.00	53.59	210.05	90.00	-2,124.88	-11,935.27	15,213.49	14,978.18	235.31	64.652	
9,700.00	6,945.00	7,010.06	7,006.00	55.05	210.05	90.00	-2,124.88	-11,935.27	15,312.93	15,077.52	235.40	65.050	
9,800.00	6,945.00	7,010.06	7,006.00	56.51	210.05	90.00	-2,124.88	-11,935.27	15,412.37	15,176.88	235.49	65.448	
9,900.00	6,945.00	7,010.06	7,006.00	57.98	210.05	90.00	-2,124.88	-11,935.27	15,511.82	15,276.24	235.58	65.846	
10,000.00	6,945.00	7,010.06	7,006.00	59.45	210.05	90.00	-2,124.88	-11,935.27	15,611.28	15,375.61	235.67	66.243	
10,100.00	6,945.00	7,010.06	7,006.00	60.93	210.05	90.00	-2,124.88	-11,935.27	15,710.74	15,474.99	235.76	66.639	
10,200.00	6,945.00	7,010.06	7,006.00	62.42	210.05	90.00	-2,124.88	-11,935.27	15,810.22	15,574.37	235.85	67.036	
10,300.00	6,945.00	7,010.06	7,006.00	63.92	210.05	90.00	-2,124.88	-11,935.27	15,909.69	15,673.75	235.94	67.431	
10,400.00	6,945.00	7,010.06	7,006.00	65.42	210.05	90.00	-2,124.88	-11,935.27	16,009.18	15,773.15	236.03	67.827	
10,500.00	6,945.00	7,010.06	7,006.00	66.92	210.05	90.00	-2,124.88	-11,935.27	16,108.67	15,872.55	236.12	68.222	
10,600.00	6,945.00	7,010.06	7,006.00	68.43	210.05	90.00	-2,124.88	-11,935.27	16,208.17	15,971.95	236.22	68.616	
10,700.00	6,945.00	7,010.06	7,006.00	69.94	210.05	90.00	-2,124.88	-11,935.27	16,307.67	16,071.36	236.31	69.010	
10,800.00	6,945.00	7,010.06	7,006.00	71.45	210.05	90.00	-2,124.88	-11,935.27	16,407.18	16,170.78	236.40	69.404	
10,900.00	6,945.00	7,010.06	7,006.00	72.97	210.05	90.00	-2,124.88	-11,935.27	16,506.70	16,270.20	236.50	69.797	
11,000.00	6,945.00	7,010.06	7,006.00	74.50	210.05	90.00	-2,124.88	-11,935.27	16,606.22	16,369.63	236.59	70.190	
11,100.00	6,945.00	7,010.06	7,006.00	76.02	210.05	90.00	-2,124.88	-11,935.27	16,705.74	16,469.06	236.68	70.582	
11,200.00	6,945.00	7,010.06	7,006.00	77.55	210.05	90.00	-2,124.88	-11,935.27	16,805.28	16,568.50	236.78	70.974	
11,300.00	6,945.00	7,010.06	7,006.00	79.08	210.05	90.00	-2,124.88	-11,935.27	16,904.82	16,667.94	236.87	71.366	
11,400.00	6,945.00	7,010.06	7,006.00	80.62	210.05	90.00	-2,124.88	-11,935.27	17,004.36	16,767.39	236.97	71.757	
11,500.00	6,945.00	7,010.06	7,006.00	82.16	210.05	90.00	-2,124.88	-11,935.27	17,103.91	16,866.84	237.07	72.148	
11,600.00	6,945.00	7,010.06	7,006.00	83.70	210.05	90.00	-2,124.88	-11,935.27	17,203.46	16,966.30	237.16	72.538	
11,700.00	6,945.00	7,010.06	7,006.00	85.24	210.05	90.00	-2,124.88	-11,935.27	17,303.02	17,065.76	237.26	72.928	
11,800.00	6,945.00	7,010.06	7,006.00	86.78	210.05	90.00	-2,124.88	-11,935.27	17,402.59	17,165.23	237.36	73.318	
11,900.00	6,945.00	7,010.06	7,006.00	88.33	210.05	90.00	-2,124.88	-11,935.27	17,502.16	17,264.70	237.46	73.707	
12,000.00	6,945.00	7,010.06	7,006.00	89.87	210.05	90.00	-2,124.88	-11,935.27	17,601.73	17,364.18	237.55	74.096	
12,100.00	6,945.00	7,010.06	7,006.00	91.42	210.05	90.00	-2,124.88	-11,935.27	17,701.31	17,463.66	237.65	74.484	
12,200.00	6,945.00	7,010.06	7,006.00	92.98	210.05	90.00	-2,124.88	-11,935.27	17,800.89	17,563.14	237.75	74.872	
12,300.00	6,945.00	7,010.06	7,006.00	94.53	210.05	90.00	-2,124.88	-11,935.27	17,900.48	17,662.63	237.85	75.260	
12,400.00	6,945.00	7,010.06	7,006.00	96.08	210.05	90.00	-2,124.88	-11,935.27	18,000.07	17,762.13	237.95	75.647	
12,500.00	6,945.00	7,010.06	7,006.00	97.64	210.05	90.00	-2,124.88	-11,935.27	18,099.67	17,861.62	238.05	76.034	
12,600.00	6,945.00	7,010.06	7,006.00	99.20	210.05	90.00	-2,124.88	-11,935.27	18,199.27	17,961.13	238.15	76.420	
12,700.00	6,945.00	7,010.06	7,006.00	100.76	210.05	90.00	-2,124.88	-11,935.27	18,298.88	18,060.63	238.25	76.806	
12,800.00	6,945.00	7,010.06	7,006.00	102.32	210.05	90.00	-2,124.88	-11,935.27	18,398.49	18,160.14	238.35	77.192	
12,900.00	6,945.00	7,010.06	7,006.00	103.88	210.05	90.00	-2,124.88	-11,935.27	18,498.11	18,259.66	238.45	77.577	
13,000.00	6,945.00	7,010.06	7,006.00	105.44	210.05	90.00	-2,124.88	-11,935.27	18,597.72	18,359.17	238.55	77.961	
13,100.00	6,945.00	7,010.06	7,006.00	107.00	210.05	90.00	-2,124.88	-11,935.27	18,697.35	18,458.70	238.65	78.346	
13,200.00	6,945.00	7,010.06	7,006.00	108.57	210.05	90.00	-2,124.88	-11,935.27	18,796.97	18,558.22	238.75	78.730	
13,300.00	6,945.00	7,010.06	7,006.00	110.13	210.05	90.00	-2,124.88	-11,935.27	18,896.60	18,657.75	238.85	79.113	

CC - Min centre to center distance or 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:	Plan #4	**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
13,400.00	6,945.00	7,010.06	7,006.00	111.70	210.05	90.00	-2,124.88	-11,935.27	18,996.24	18,757.28	238.96	79.497	
13,500.00	6,945.00	7,010.06	7,006.00	113.27	210.05	90.00	-2,124.88	-11,935.27	19,095.88	18,856.82	239.06	79.879	
13,600.00	6,945.00	7,010.06	7,006.00	114.84	210.05	90.00	-2,124.88	-11,935.27	19,195.52	18,956.36	239.16	80.262	
13,700.00	6,945.00	7,010.06	7,006.00	116.41	210.05	90.00	-2,124.88	-11,935.27	19,295.17	19,055.90	239.26	80.644	
13,800.00	6,945.00	7,010.06	7,006.00	117.98	210.05	90.00	-2,124.88	-11,935.27	19,394.82	19,155.45	239.37	81.025	
13,900.00	6,945.00	7,010.06	7,006.00	119.55	210.05	90.00	-2,124.88	-11,935.27	19,494.47	19,255.00	239.47	81.406	
14,000.00	6,945.00	7,010.06	7,006.00	121.12	210.05	90.00	-2,124.88	-11,935.27	19,594.13	19,354.55	239.57	81.787	
14,100.00	6,945.00	7,010.06	7,006.00	122.69	210.05	90.00	-2,124.88	-11,935.27	19,693.79	19,454.11	239.68	82.168	
14,200.00	6,945.00	7,010.06	7,006.00	124.27	210.05	90.00	-2,124.88	-11,935.27	19,793.45	19,553.67	239.78	82.548	
14,300.00	6,945.00	7,010.06	7,006.00	125.84	210.05	90.00	-2,124.88	-11,935.27	19,893.12	19,653.23	239.89	82.927	
14,400.00	6,945.00	7,010.06	7,006.00	127.41	210.05	90.00	-2,124.88	-11,935.27	19,992.79	19,752.80	239.99	83.306	
14,500.00	6,945.00	7,010.06	7,006.00	128.99	210.05	90.00	-2,124.88	-11,935.27	20,092.46	19,852.37	240.10	83.685	
14,600.00	6,945.00	7,010.06	7,006.00	130.57	210.05	90.00	-2,124.88	-11,935.27	20,192.14	19,951.94	240.20	84.064	
14,700.00	6,945.00	7,010.06	7,006.00	132.14	210.05	90.00	-2,124.88	-11,935.27	20,291.82	20,051.51	240.31	84.442	
14,800.00	6,945.00	7,010.06	7,006.00	133.72	210.05	90.00	-2,124.88	-11,935.27	20,391.50	20,151.09	240.41	84.819	
14,900.00	6,945.00	7,010.06	7,006.00	135.30	210.05	90.00	-2,124.88	-11,935.27	20,491.19	20,250.67	240.52	85.196	
15,000.00	6,945.00	7,010.06	7,006.00	136.87	210.05	90.00	-2,124.88	-11,935.27	20,590.88	20,350.25	240.62	85.573	
15,100.00	6,945.00	7,010.06	7,006.00	138.45	210.05	90.00	-2,124.88	-11,935.27	20,690.57	20,449.84	240.73	85.950	
15,200.00	6,945.00	7,010.06	7,006.00	140.03	210.05	90.00	-2,124.88	-11,935.27	20,790.27	20,549.43	240.84	86.326	
15,300.00	6,945.00	7,010.06	7,006.00	141.61	210.05	90.00	-2,124.88	-11,935.27	20,889.96	20,649.02	240.94	86.701	
15,400.00	6,945.00	7,010.06	7,006.00	143.19	210.05	90.00	-2,124.88	-11,935.27	20,989.66	20,748.62	241.05	87.077	
15,500.00	6,945.00	7,010.06	7,006.00	144.77	210.05	90.00	-2,124.88	-11,935.27	21,089.37	20,848.21	241.16	87.451	
15,600.00	6,945.00	7,010.06	7,006.00	146.35	210.05	90.00	-2,124.88	-11,935.27	21,189.08	20,947.81	241.26	87.826	
15,700.00	6,945.00	7,010.06	7,006.00	147.94	210.05	90.00	-2,124.88	-11,935.27	21,288.78	21,047.42	241.37	88.200	
15,800.00	6,945.00	7,010.06	7,006.00	149.52	210.05	90.00	-2,124.88	-11,935.27	21,388.50	21,147.02	241.48	88.574	
15,900.00	6,945.00	7,010.06	7,006.00	151.10	210.05	90.00	-2,124.88	-11,935.27	21,488.21	21,246.63	241.58	88.947	
16,000.00	6,945.00	7,010.06	7,006.00	152.68	210.05	90.00	-2,124.88	-11,935.27	21,587.93	21,346.24	241.69	89.320	
16,100.00	6,945.00	7,010.06	7,006.00	154.26	210.05	90.00	-2,124.88	-11,935.27	21,687.65	21,445.85	241.80	89.692	
16,200.00	6,945.00	7,010.06	7,006.00	155.85	210.05	90.00	-2,124.88	-11,935.27	21,787.37	21,545.46	241.91	90.064	
16,300.00	6,945.00	7,010.06	7,006.00	157.43	210.05	90.00	-2,124.88	-11,935.27	21,887.10	21,645.08	242.02	90.436	
16,400.00	6,945.00	7,010.06	7,006.00	159.02	210.05	90.00	-2,124.88	-11,935.27	21,986.82	21,744.70	242.13	90.807	
16,500.00	6,945.00	7,010.06	7,006.00	160.60	210.05	90.00	-2,124.88	-11,935.27	22,086.55	21,844.32	242.23	91.178	
16,600.00	6,945.00	7,010.06	7,006.00	162.18	210.05	90.00	-2,124.88	-11,935.27	22,186.29	21,943.94	242.34	91.549	
16,700.00	6,945.00	7,010.06	7,006.00	163.77	210.05	90.00	-2,124.88	-11,935.27	22,286.02	22,043.57	242.45	91.919	
16,800.00	6,945.00	7,010.06	7,006.00	165.35	210.05	90.00	-2,124.88	-11,935.27	22,385.76	22,143.20	242.56	92.289	
16,900.00	6,945.00	7,010.06	7,006.00	166.94	210.05	90.00	-2,124.88	-11,935.27	22,485.50	22,242.83	242.67	92.658	
17,000.00	6,945.00	7,010.06	7,006.00	168.53	210.05	90.00	-2,124.88	-11,935.27	22,585.24	22,342.46	242.78	93.027	
17,100.00	6,945.00	7,010.06	7,006.00	170.11	210.05	90.00	-2,124.88	-11,935.27	22,684.99	22,442.09	242.89	93.395	
17,200.00	6,945.00	7,010.06	7,006.00	171.70	210.05	90.00	-2,124.88	-11,935.27	22,784.73	22,541.73	243.00	93.764	
17,300.00	6,945.00	7,010.06	7,006.00	173.29	210.05	90.00	-2,124.88	-11,935.27	22,884.48	22,641.37	243.11	94.131	
17,400.00	6,945.00	7,010.06	7,006.00	174.87	210.05	90.00	-2,124.88	-11,935.27	22,984.23	22,741.01	243.22	94.499	
17,500.00	6,945.00	7,010.06	7,006.00	176.46	210.05	90.00	-2,124.88	-11,935.27	23,083.98	22,840.65	243.33	94.866	
17,600.00	6,945.00	7,010.06	7,006.00	178.05	210.05	90.00	-2,124.88	-11,935.27	23,183.74	22,940.30	243.44	95.232	
17,700.00	6,945.00	7,010.06	7,006.00	179.63	210.05	90.00	-2,124.88	-11,935.27	23,283.50	23,039.94	243.56	95.598	
17,800.00	6,945.00	7,010.06	7,006.00	181.22	210.05	90.00	-2,124.88	-11,935.27	23,383.26	23,139.59	243.67	95.964	
17,900.00	6,945.00	7,010.06	7,006.00	182.81	210.05	90.00	-2,124.88	-11,935.27	23,483.02	23,239.24	243.78	96.330	
18,000.00	6,945.00	7,010.06	7,006.00	184.40	210.05	90.00	-2,124.88	-11,935.27	23,582.78	23,338.89	243.89	96.695	
18,100.00	6,945.00	7,010.06	7,006.00	185.99	210.05	90.00	-2,124.88	-11,935.27	23,682.55	23,438.55	244.00	97.059	
18,200.00	6,945.00	7,010.06	7,006.00	187.58	210.05	90.00	-2,124.88	-11,935.27	23,782.31	23,538.20	244.11	97.423	
18,300.00	6,945.00	7,010.06	7,006.00	189.16	210.05	90.00	-2,124.88	-11,935.27	23,882.08	23,637.86	244.23	97.787	
18,400.00	6,945.00	7,010.06	7,006.00	190.75	210.05	90.00	-2,124.88	-11,935.27	23,981.85	23,737.52	244.34	98.151	
18,500.00	6,945.00	7,010.06	7,006.00	192.34	210.05	90.00	-2,124.88	-11,935.27	24,081.63	23,837.18	244.45	98.514	

CC - Min centre to center distance or 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:	Plan #4	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Rule Assigned:

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
18,600.00	6,945.00	7,010.06	7,006.00	193.93	210.05	90.00	-2,124.88	-11,935.27	24,181.40	23,936.84	244.56	98.876	
18,700.00	6,945.00	7,010.06	7,006.00	195.52	210.05	90.00	-2,124.88	-11,935.27	24,281.18	24,036.50	244.68	99.238	
18,800.00	6,945.00	7,010.06	7,006.00	197.11	210.05	90.00	-2,124.88	-11,935.27	24,380.96	24,136.17	244.79	99.600	
18,900.00	6,945.00	7,010.06	7,006.00	198.70	210.05	90.00	-2,124.88	-11,935.27	24,480.74	24,235.84	244.90	99.962	
19,000.00	6,945.00	7,010.06	7,006.00	200.29	210.05	90.00	-2,124.88	-11,935.27	24,580.52	24,335.51	245.01	100.323	
19,100.00	6,945.00	7,010.06	7,006.00	201.88	210.05	90.00	-2,124.88	-11,935.27	24,680.31	24,435.18	245.13	100.683	
19,200.00	6,945.00	7,010.06	7,006.00	203.47	210.05	90.00	-2,124.88	-11,935.27	24,780.09	24,534.85	245.24	101.044	
19,300.00	6,945.00	7,010.06	7,006.00	205.06	210.05	90.00	-2,124.88	-11,935.27	24,879.88	24,634.52	245.36	101.403	
19,400.00	6,945.00	7,010.06	7,006.00	206.65	210.05	90.00	-2,124.88	-11,935.27	24,979.67	24,734.20	245.47	101.763	
19,500.00	6,945.00	7,010.06	7,006.00	208.24	210.05	90.00	-2,124.88	-11,935.27	25,079.46	24,833.88	245.58	102.122	
19,600.00	6,945.00	7,010.06	7,006.00	209.84	210.05	90.00	-2,124.88	-11,935.27	25,179.25	24,933.55	245.70	102.481	
19,700.00	6,945.00	7,010.06	7,006.00	211.43	210.05	90.00	-2,124.88	-11,935.27	25,279.05	25,033.23	245.81	102.839	
19,800.00	6,945.00	7,010.06	7,006.00	213.02	210.05	90.00	-2,124.88	-11,935.27	25,378.84	25,132.91	245.93	103.197	
19,900.00	6,945.00	7,010.06	7,006.00	214.61	210.05	90.00	-2,124.88	-11,935.27	25,478.64	25,232.60	246.04	103.554	
20,000.00	6,945.00	7,010.06	7,006.00	216.20	210.05	90.00	-2,124.88	-11,935.27	25,578.44	25,332.28	246.16	103.911	
20,100.00	6,945.00	7,010.06	7,006.00	217.79	210.05	90.00	-2,124.88	-11,935.27	25,678.24	25,431.97	246.27	104.268	
20,200.00	6,945.00	7,010.06	7,006.00	219.38	210.05	90.00	-2,124.88	-11,935.27	25,778.04	25,531.65	246.39	104.624	
20,300.00	6,945.00	7,010.06	7,006.00	220.98	210.05	90.00	-2,124.88	-11,935.27	25,877.84	25,631.34	246.50	104.980	
20,400.00	6,945.00	7,010.06	7,006.00	222.57	210.05	90.00	-2,124.88	-11,935.27	25,977.65	25,731.03	246.62	105.336	
20,500.00	6,945.00	7,010.06	7,006.00	224.16	210.05	90.00	-2,124.88	-11,935.27	26,077.46	25,830.72	246.73	105.691	
20,600.00	6,945.00	7,010.06	7,006.00	225.75	210.05	90.00	-2,124.88	-11,935.27	26,177.26	25,930.41	246.85	106.046	
20,700.00	6,945.00	7,010.06	7,006.00	227.35	210.05	90.00	-2,124.88	-11,935.27	26,277.07	26,030.11	246.96	106.400	
20,800.00	6,945.00	7,010.06	7,006.00	228.94	210.05	90.00	-2,124.88	-11,935.27	26,376.88	26,129.80	247.08	106.754	
20,852.96	6,945.00	7,010.06	7,006.00	229.61	210.05	90.00	-2,124.88	-11,935.27	26,429.74	26,178.24	251.50	105.088	

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:	Plan #4	**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				
20.93	20.93	0.00	0.00	0.00	0.00	85.74	1,490.15	-10,103.11	10,213.15				
117.41	117.41	0.00	0.00	0.05	0.00	81.19	1,490.15	-10,103.11	10,214.71				
206.68	206.68	0.00	0.00	0.17	0.00	107.09	1,490.15	-10,103.11	10,217.05				
292.93	292.93	0.00	0.00	0.28	0.00	106.53	1,490.15	-10,103.11	10,220.17	10,220.02	0.16	N/A	
365.00	364.99	0.00	0.00	0.36	0.00	75.85	1,490.15	-10,103.11	10,223.23	10,222.98	0.25	N/A	
451.00	450.97	0.00	0.00	0.55	0.00	129.06	1,490.15	-10,103.11	10,228.49	10,228.00	0.50	N/A	
540.00	539.81	0.00	0.00	0.83	0.00	134.42	1,490.15	-10,103.11	10,237.21	10,236.39	0.82	N/A	
665.00	664.37	0.00	0.00	1.26	0.00	136.70	1,490.15	-10,103.11	10,253.26	10,252.00	1.27	8,090.156	
753.00	752.01	0.00	0.00	1.58	0.00	135.69	1,490.15	-10,103.11	10,265.96	10,264.38	1.58	6,477.630	
847.00	845.61	0.00	0.00	1.93	0.00	138.73	1,490.15	-10,103.11	10,280.52	10,278.59	1.92	5,343.462	
939.00	937.22	0.00	0.00	2.27	0.00	138.96	1,490.15	-10,103.11	10,295.82	10,293.56	2.26	4,562.125	
1,030.00	1,027.78	550.00	533.60	2.62	2.16	127.47	1,475.16	-10,147.39	10,308.18	10,303.42	4.76	2,165.391	
1,120.00	1,117.25	561.26	544.79	2.96	2.20	130.28	1,474.28	-10,148.23	10,319.89	10,314.76	5.14	2,009.454	
1,211.00	1,207.68	575.00	558.44	3.31	2.24	127.64	1,473.16	-10,149.34	10,332.58	10,327.05	5.52	1,870.775	
1,306.00	1,302.14	600.00	583.25	3.68	2.32	129.53	1,470.95	-10,151.54	10,346.07	10,340.11	5.96	1,735.708	
1,400.00	1,395.63	650.00	632.73	4.04	2.49	130.79	1,465.69	-10,156.42	10,359.98	10,353.49	6.48	1,598.356	
1,495.00	1,490.19	700.00	682.04	4.40	2.67	130.17	1,459.35	-10,161.71	10,374.10	10,367.09	7.01	1,479.719	
1,589.00	1,583.83	711.79	693.64	4.76	2.72	127.72	1,457.71	-10,163.04	10,387.91	10,380.52	7.40	1,404.066	
1,684.00	1,678.44	725.00	706.61	5.12	2.77	130.05	1,455.81	-10,164.64	10,402.73	10,394.94	7.80	1,334.366	
1,779.00	1,772.98	738.82	720.16	5.48	2.82	134.44	1,453.74	-10,166.43	10,419.20	10,411.00	8.20	1,270.880	
1,873.00	1,866.49	750.00	731.10	5.84	2.87	135.95	1,452.02	-10,167.96	10,436.71	10,428.13	8.58	1,215.745	
1,967.00	1,960.05	775.00	755.52	6.20	2.97	140.69	1,448.09	-10,171.57	10,454.91	10,445.89	9.02	1,158.931	
2,062.00	2,054.59	800.00	779.91	6.56	3.08	135.18	1,444.11	-10,175.38	10,473.94	10,464.48	9.46	1,106.942	
2,156.00	2,148.09	825.00	804.25	6.92	3.19	134.43	1,440.08	-10,179.40	10,493.45	10,483.55	9.90	1,059.721	
2,251.00	2,242.55	825.00	804.25	7.29	3.19	135.77	1,440.08	-10,179.40	10,514.02	10,503.78	10.24	1,026.376	
2,345.00	2,336.00	850.00	828.51	7.65	3.30	129.66	1,435.93	-10,183.78	10,534.98	10,524.29	10.68	985.977	
2,440.00	2,430.43	850.00	828.51	8.02	3.30	127.03	1,435.93	-10,183.78	10,556.30	10,545.28	11.03	957.468	
2,535.00	2,524.86	875.00	852.70	8.38	3.41	128.28	1,431.68	-10,188.47	10,578.16	10,566.69	11.47	922.187	
2,629.00	2,618.31	900.00	876.81	8.75	3.53	128.29	1,427.30	-10,193.42	10,600.51	10,588.60	11.91	889.807	
2,724.00	2,712.77	900.00	876.81	9.12	3.53	129.06	1,427.30	-10,193.42	10,623.73	10,611.48	12.25	867.330	
2,818.00	2,806.24	925.00	900.76	9.48	3.66	129.64	1,422.57	-10,198.79	10,647.46	10,634.77	12.69	839.007	
2,913.00	2,900.71	925.00	900.76	9.84	3.66	131.89	1,422.57	-10,198.79	10,672.18	10,659.16	13.02	819.600	
3,008.00	2,995.25	975.00	948.29	10.21	3.92	127.48	1,412.09	-10,210.23	10,697.04	10,683.45	13.58	787.560	
3,102.00	3,088.80	1,000.00	971.91	10.57	4.05	127.59	1,406.40	-10,216.11	10,721.73	10,707.71	14.03	764.379	
3,197.00	3,183.30	1,025.00	995.44	10.93	4.19	130.51	1,400.48	-10,222.14	10,747.69	10,733.22	14.48	742.378	
3,291.00	3,276.71	1,050.00	1,018.87	11.30	4.34	124.07	1,394.37	-10,228.35	10,774.23	10,759.30	14.93	721.733	
3,386.00	3,371.01	1,075.00	1,042.22	11.67	4.48	122.80	1,388.11	-10,234.74	10,801.63	10,786.25	15.39	702.004	
3,480.00	3,464.23	1,109.65	1,074.52	12.04	4.69	123.96	1,379.36	-10,243.75	10,829.57	10,813.67	15.90	681.269	
3,575.00	3,558.47	1,150.00	1,112.04	12.42	4.93	125.60	1,369.08	-10,254.43	10,858.38	10,841.94	16.44	660.478	
3,670.00	3,652.84	1,200.00	1,158.58	12.79	5.23	126.64	1,356.67	-10,267.86	10,887.20	10,870.17	17.03	639.158	
3,764.00	3,746.36	1,225.00	1,181.86	13.15	5.38	130.10	1,350.66	-10,274.70	10,915.65	10,898.17	17.48	624.411	
3,859.00	3,840.97	1,250.00	1,205.15	13.51	5.54	133.89	1,344.83	-10,281.68	10,944.75	10,926.83	17.93	610.503	
3,954.00	3,935.57	1,320.80	1,271.21	13.87	5.97	133.76	1,328.96	-10,301.59	10,974.58	10,955.95	18.62	589.239	
4,049.00	4,030.14	1,666.04	1,594.01	14.23	8.12	124.18	1,249.96	-10,395.06	11,003.35	10,982.47	20.88	526.874	
4,143.00	4,123.75	1,748.89	1,671.50	14.59	8.64	125.31	1,230.11	-10,416.65	11,029.92	11,008.25	21.67	508.994	
4,238.00	4,218.33	1,887.30	1,800.93	14.95	9.51	125.19	1,196.38	-10,452.25	11,056.70	11,033.91	22.79	485.176	
4,333.00	4,312.74	1,925.00	1,836.17	15.32	9.75	122.05	1,187.21	-10,461.99	11,084.32	11,061.00	23.33	475.175	
4,427.00	4,406.05	1,950.00	1,859.53	15.69	9.91	124.44	1,181.24	-10,468.61	11,112.65	11,088.87	23.79	467.159	
4,522.00	4,500.34	1,984.10	1,891.37	16.06	10.12	125.31	1,173.19	-10,477.78	11,142.08	11,117.78	24.30	458.458	
4,616.00	4,593.47	2,063.09	1,965.08	16.44	10.63	122.56	1,154.54	-10,499.22	11,172.07	11,146.98	25.09	445.363	
4,710.00	4,686.44	4,941.78	4,761.48	16.82	23.44	123.08	801.09	-10,893.11	11,188.58	11,150.75	37.83	295.757	

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:	Plan #4	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

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

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
4,899.00	4,873.89	5,475.00	5,284.23	17.57	24.99	129.59	762.01	-10,889.38	11,199.17	11,158.96	40.20	278.558	
4,962.00	4,936.56	5,900.00	5,692.98	17.81	26.14	131.97	731.93	-10,873.82	11,199.64	11,158.02	41.62	269.092	
5,024.00	4,998.27	5,900.00	5,692.98	18.04	26.14	128.22	731.93	-10,873.82	11,200.08	11,158.21	41.87	267.471	
5,150.00	5,123.66	5,900.00	5,692.98	18.53	26.14	129.21	731.93	-10,873.82	11,201.83	11,159.45	42.39	264.276	
5,213.00	5,186.37	5,900.00	5,692.98	18.77	26.14	126.83	731.93	-10,873.82	11,203.08	11,160.44	42.64	262.729	
5,276.00	5,249.09	5,900.00	5,692.98	19.01	26.14	127.72	731.93	-10,873.82	11,204.61	11,161.71	42.89	261.214	
5,339.00	5,311.83	5,900.00	5,692.98	19.25	26.14	126.78	731.93	-10,873.82	11,206.34	11,163.19	43.15	259.735	
5,401.00	5,373.58	5,900.00	5,692.98	19.48	26.14	129.29	731.93	-10,873.82	11,208.41	11,165.02	43.39	258.314	
5,464.00	5,436.33	5,900.00	5,692.98	19.72	26.14	126.59	731.93	-10,873.82	11,210.78	11,167.14	43.64	256.903	
5,590.00	5,561.87	5,945.90	5,738.88	20.19	26.26	125.29	731.43	-10,873.55	11,215.98	11,171.72	44.26	253.426	
5,653.00	5,624.66	5,975.00	5,767.98	20.43	26.34	123.97	731.21	-10,873.40	11,218.60	11,174.02	44.58	251.639	
5,715.00	5,686.48	6,000.00	5,792.98	20.66	26.41	119.02	731.21	-10,873.34	11,220.94	11,176.06	44.89	249.985	
5,778.00	5,749.29	6,057.40	5,850.37	20.90	26.56	121.72	731.01	-10,873.35	11,223.37	11,178.08	45.29	247.809	
5,841.00	5,812.10	6,100.00	5,892.97	21.13	26.69	119.44	730.74	-10,873.42	11,225.93	11,180.27	45.66	245.875	
5,904.00	5,874.94	6,138.30	5,931.28	21.36	26.80	124.77	730.47	-10,873.58	11,228.54	11,182.53	46.01	244.042	
5,967.00	5,937.80	6,186.15	5,979.12	21.60	26.94	126.33	730.09	-10,873.84	11,231.28	11,184.89	46.39	242.097	
6,030.00	6,000.68	6,225.00	6,017.97	21.83	27.05	124.43	729.72	-10,874.11	11,233.89	11,187.15	46.74	240.325	
6,093.00	6,063.59	6,225.00	6,017.97	22.05	27.05	128.11	729.72	-10,874.11	11,236.57	11,189.59	46.98	239.189	
6,156.00	6,126.51	6,225.00	6,017.97	22.28	27.05	133.40	729.72	-10,874.11	11,239.64	11,192.44	47.21	238.087	
6,235.00	6,205.43	6,225.00	6,017.97	22.56	27.05	133.10	729.72	-10,874.11	11,243.78	11,196.29	47.49	236.746	
6,300.00	6,270.38	6,225.00	6,017.97	22.68	27.05	133.10	729.72	-10,874.11	11,247.36	11,199.75	47.61	236.246	
6,355.00	6,325.34	6,225.00	6,017.97	22.69	27.05	133.10	729.72	-10,874.11	11,250.67	11,203.06	47.62	236.284	
6,400.00	6,370.23	6,225.00	6,017.97	22.71	27.05	165.78	729.72	-10,874.11	11,255.17	11,207.55	47.62	236.346	
6,450.00	6,419.74	6,225.00	6,017.97	22.73	27.05	173.32	729.72	-10,874.11	11,264.06	11,216.43	47.63	236.484	
6,500.00	6,468.57	6,225.00	6,017.97	22.77	27.05	176.31	729.72	-10,874.11	11,277.00	11,229.36	47.64	236.696	
6,550.00	6,516.42	6,225.00	6,017.97	22.81	27.05	177.94	729.72	-10,874.11	11,293.88	11,246.22	47.66	236.980	
6,600.00	6,562.98	6,225.00	6,017.97	22.87	27.05	178.99	729.72	-10,874.11	11,314.59	11,266.92	47.67	237.335	
6,650.00	6,607.98	6,225.00	6,017.97	22.95	27.05	179.77	729.72	-10,874.11	11,338.98	11,291.28	47.69	237.756	
6,700.00	6,651.14	7,037.46	6,786.91	23.03	29.52	-179.79	701.10	-10,899.86	11,365.62	11,315.42	50.20	226.417	
6,750.00	6,692.18	7,066.76	6,816.21	23.14	29.60	-179.27	701.08	-10,899.78	11,394.04	11,343.73	50.31	226.480	
6,800.00	6,730.86	7,110.58	6,860.04	23.26	29.72	-178.79	701.01	-10,899.71	11,425.64	11,375.17	50.46	226.410 SF	
6,850.00	6,766.93	7,139.38	6,888.83	23.40	29.80	-178.30	701.00	-10,899.64	11,460.15	11,409.58	50.58	226.589	
6,900.00	6,800.18	7,165.86	6,915.32	23.56	29.87	-177.77	700.96	-10,899.61	11,497.43	11,446.75	50.68	226.841	
6,950.00	6,830.39	7,215.24	6,964.69	23.74	30.01	-177.18	700.88	-10,899.50	11,537.16	11,486.30	50.86	226.855	
7,000.00	6,857.38	7,241.45	6,990.91	23.94	30.08	-176.46	700.84	-10,899.44	11,579.15	11,528.18	50.96	227.215	
7,050.00	6,880.98	7,261.17	7,010.62	24.17	30.14	-175.53	700.80	-10,899.39	11,623.12	11,572.08	51.05	227.702	
7,100.00	6,901.06	7,275.00	7,024.45	24.42	30.17	-174.25	700.78	-10,899.36	11,668.83	11,617.72	51.11	228.309	
7,150.00	6,917.47	7,306.07	7,055.52	24.70	30.26	-172.36	700.72	-10,899.29	11,715.97	11,664.75	51.22	228.740	
7,200.00	6,930.13	7,315.62	7,065.08	25.01	30.29	-169.15	700.70	-10,899.26	11,764.25	11,712.98	51.26	229.487	
7,250.00	6,938.95	7,325.00	7,074.45	25.34	30.31	-162.63	700.69	-10,899.24	11,813.38	11,762.08	51.30	230.274	
7,300.00	6,943.88	7,339.90	7,089.35	25.69	30.36	-143.85	700.65	-10,899.18	11,863.05	11,811.70	51.35	231.025	
7,337.82	6,945.00	7,341.16	7,090.61	25.97	30.36	-94.40	700.65	-10,899.18	11,900.81	11,849.45	51.35	231.740	
7,400.00	6,945.00	7,341.38	7,090.83	26.45	30.36	-93.04	700.65	-10,899.18	11,962.88	11,911.53	51.35	232.964	
7,492.38	6,945.00	7,341.70	7,091.15	27.21	30.36	-92.09	700.65	-10,899.18	12,054.92	12,003.58	51.34	234.810	
7,500.00	6,945.00	7,341.73	7,091.18	27.28	30.36	-92.09	700.65	-10,899.18	12,062.50	12,011.16	51.34	234.965	
7,600.00	6,945.00	7,342.07	7,091.52	28.17	30.36	-92.10	700.65	-10,899.18	12,162.00	12,110.68	51.32	236.970	
7,700.00	6,945.00	7,342.42	7,091.87	29.12	30.36	-92.12	700.65	-10,899.18	12,261.50	12,210.19	51.31	238.965	
7,800.00	6,945.00	7,342.76	7,092.22	30.14	30.36	-92.14	700.65	-10,899.17	12,361.02	12,309.72	51.30	240.950	
7,900.00	6,945.00	7,343.11	7,092.56	31.20	30.36	-92.15	700.65	-10,899.17	12,460.54	12,409.25	51.29	242.926	
8,000.00	6,945.00	7,343.46	7,092.91	32.31	30.37	-92.17	700.64	-10,899.17	12,560.07	12,508.78	51.29	244.891	
8,100.00	6,945.00	7,355.14	7,104.59	33.46	30.40	-92.72	700.61	-10,899.13	12,659.61	12,608.29	51.32	246.688	
8,200.00	6,945.00	7,355.41	7,104.86	34.64	30.40	-92.73	700.61	-10,899.13	12,759.15	12,707.83	51.32	248.632	

CC - Min centre to center distance or 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:	Plan #4	**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
8,300.00	6,945.00	7,355.67	7,105.12	35.86	30.40	-92.75	700.61	-10,899.12	12,858.70	12,807.38	51.32	250.566	
8,400.00	6,945.00	7,355.94	7,105.39	37.11	30.40	-92.76	700.61	-10,899.12	12,958.26	12,906.94	51.32	252.491	
8,500.00	6,945.00	7,356.20	7,105.65	38.39	30.40	-92.77	700.61	-10,899.12	13,057.82	13,006.50	51.33	254.404	
8,600.00	6,945.00	7,356.46	7,105.91	39.69	30.40	-92.78	700.61	-10,899.12	13,157.39	13,106.06	51.33	256.308	
8,700.00	6,945.00	7,356.71	7,106.17	41.01	30.40	-92.80	700.61	-10,899.12	13,256.97	13,205.63	51.34	258.202	
8,800.00	6,945.00	7,356.97	7,106.42	42.35	30.40	-92.81	700.61	-10,899.12	13,356.55	13,305.20	51.35	260.085	
8,900.00	6,945.00	7,357.22	7,106.67	43.71	30.40	-92.82	700.61	-10,899.12	13,456.14	13,404.78	51.37	261.958	
9,000.00	6,945.00	7,357.47	7,106.93	45.08	30.40	-92.83	700.60	-10,899.12	13,555.74	13,504.36	51.38	263.821	
9,100.00	6,945.00	7,357.72	7,107.18	46.47	30.41	-92.84	700.60	-10,899.12	13,655.34	13,603.94	51.40	265.673	
9,200.00	6,945.00	7,357.97	7,107.43	47.87	30.41	-92.86	700.60	-10,899.11	13,754.95	13,703.53	51.42	267.515	
9,300.00	6,945.00	7,358.22	7,107.67	49.29	30.41	-92.87	700.60	-10,899.11	13,854.56	13,803.13	51.44	269.347	
9,400.00	6,945.00	7,358.47	7,107.92	50.71	30.41	-92.88	700.60	-10,899.11	13,954.18	13,902.72	51.46	271.168	
9,500.00	6,945.00	7,358.71	7,108.16	52.15	30.41	-92.89	700.60	-10,899.11	14,053.81	14,002.32	51.48	272.979	
9,600.00	6,945.00	7,358.95	7,108.40	53.59	30.41	-92.90	700.60	-10,899.11	14,153.44	14,101.93	51.51	274.780	
9,700.00	6,945.00	7,359.19	7,108.64	55.05	30.41	-92.91	700.60	-10,899.11	14,253.07	14,201.54	51.54	276.571	
9,800.00	6,945.00	7,359.43	7,108.88	56.51	30.41	-92.92	700.60	-10,899.11	14,352.71	14,301.15	51.56	278.351	
9,900.00	6,945.00	7,359.67	7,109.12	57.98	30.41	-92.94	700.60	-10,899.11	14,452.35	14,400.76	51.59	280.120	
10,000.00	6,945.00	7,359.90	7,109.35	59.45	30.41	-92.95	700.60	-10,899.11	14,552.00	14,500.38	51.62	281.880	
10,100.00	6,945.00	7,360.13	7,109.59	60.93	30.41	-92.96	700.59	-10,899.11	14,651.66	14,600.00	51.66	283.629	
10,200.00	6,945.00	7,360.37	7,109.82	62.42	30.41	-92.97	700.59	-10,899.11	14,751.32	14,699.63	51.69	285.368	
10,300.00	6,945.00	7,360.60	7,110.05	63.92	30.41	-92.98	700.59	-10,899.10	14,850.98	14,799.25	51.73	287.096	
10,400.00	6,945.00	7,360.83	7,110.28	65.42	30.41	-92.99	700.59	-10,899.10	14,950.65	14,898.88	51.77	288.815	
10,500.00	6,945.00	7,361.05	7,110.51	66.92	30.42	-93.00	700.59	-10,899.10	15,050.32	14,998.52	51.80	290.522	
10,600.00	6,945.00	7,361.28	7,110.73	68.43	30.42	-93.01	700.59	-10,899.10	15,150.00	15,098.15	51.84	292.220	
10,700.00	6,945.00	7,361.50	7,110.96	69.94	30.42	-93.02	700.59	-10,899.10	15,249.68	15,197.79	51.89	293.908	
10,800.00	6,945.00	7,361.73	7,111.18	71.45	30.42	-93.03	700.59	-10,899.10	15,349.36	15,297.44	51.93	295.585	
10,900.00	6,945.00	7,361.95	7,111.40	72.97	30.42	-93.04	700.59	-10,899.10	15,449.05	15,397.08	51.97	297.252	
11,000.00	6,945.00	7,362.17	7,111.62	74.50	30.42	-93.05	700.59	-10,899.10	15,548.75	15,496.73	52.02	298.909	
11,100.00	6,945.00	7,362.39	7,111.84	76.02	30.42	-93.06	700.58	-10,899.10	15,648.44	15,596.38	52.07	300.556	
11,200.00	6,945.00	7,362.60	7,112.06	77.55	30.42	-93.07	700.58	-10,899.10	15,748.15	15,696.03	52.11	302.192	
11,300.00	6,945.00	7,362.82	7,112.27	79.08	30.42	-93.08	700.58	-10,899.10	15,847.85	15,795.69	52.16	303.819	
11,400.00	6,945.00	7,363.03	7,112.49	80.62	30.42	-93.09	700.58	-10,899.10	15,947.56	15,895.35	52.21	305.435	
11,500.00	6,945.00	7,363.25	7,112.70	82.16	30.42	-93.10	700.58	-10,899.09	16,047.27	15,995.01	52.26	307.042	
11,600.00	6,945.00	7,363.46	7,112.91	83.70	30.42	-93.11	700.58	-10,899.09	16,146.99	16,094.67	52.32	308.638	
11,700.00	6,945.00	7,363.67	7,113.12	85.24	30.42	-93.12	700.58	-10,899.09	16,246.71	16,194.33	52.37	310.225	
11,800.00	6,945.00	7,363.88	7,113.33	86.78	30.42	-93.13	700.58	-10,899.09	16,346.43	16,294.00	52.43	311.801	
11,900.00	6,945.00	7,364.09	7,113.54	88.33	30.42	-93.14	700.58	-10,899.09	16,446.15	16,393.67	52.48	313.368	
12,000.00	6,945.00	7,364.29	7,113.74	89.87	30.42	-93.15	700.58	-10,899.09	16,545.88	16,493.34	52.54	314.925	
12,100.00	6,945.00	7,364.50	7,113.95	91.42	30.42	-93.16	700.57	-10,899.09	16,645.62	16,593.02	52.60	316.472	
12,200.00	6,945.00	7,364.70	7,114.15	92.98	30.43	-93.17	700.57	-10,899.09	16,745.35	16,692.69	52.66	318.009	
12,300.00	6,945.00	7,364.90	7,114.36	94.53	30.43	-93.18	700.57	-10,899.09	16,845.09	16,792.37	52.72	319.536	
12,400.00	6,945.00	7,365.10	7,114.56	96.08	30.43	-93.19	700.57	-10,899.09	16,944.83	16,892.05	52.78	321.054	
12,500.00	6,945.00	7,365.30	7,114.76	97.64	30.43	-93.20	700.57	-10,899.09	17,044.58	16,991.74	52.84	322.561	
12,600.00	6,945.00	7,365.50	7,114.96	99.20	30.43	-93.21	700.57	-10,899.09	17,144.32	17,091.42	52.90	324.060	
12,700.00	6,945.00	7,365.70	7,115.15	100.76	30.43	-93.22	700.57	-10,899.09	17,244.07	17,191.11	52.97	325.548	
12,800.00	6,945.00	7,365.90	7,115.35	102.32	30.43	-93.23	700.57	-10,899.08	17,343.83	17,290.79	53.03	327.027	
12,900.00	6,945.00	7,366.09	7,115.54	103.88	30.43	-93.24	700.57	-10,899.08	17,443.58	17,390.48	53.10	328.497	
13,000.00	6,945.00	7,366.29	7,115.74	105.44	30.43	-93.25	700.57	-10,899.08	17,543.34	17,490.18	53.17	329.957	
13,100.00	6,945.00	7,366.48	7,115.93	107.00	30.43	-93.26	700.57	-10,899.08	17,643.11	17,589.87	53.24	331.408	
13,200.00	6,945.00	7,366.67	7,116.12	108.57	30.43	-93.27	700.56	-10,899.08	17,742.87	17,689.56	53.31	332.849	
13,300.00	6,945.00	7,366.86	7,116.31	110.13	30.43	-93.27	700.56	-10,899.08	17,842.64	17,789.26	53.38	334.281	
13,400.00	6,945.00	7,367.05	7,116.50	111.70	30.43	-93.28	700.56	-10,899.08	17,942.41	17,888.96	53.45	335.704	

CC - Min centre to center distance or 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:	Plan #4	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

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

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
13,500.00	6,945.00	7,367.24	7,116.69	113.27	30.43	-93.29	700.56	-10,899.08	18,042.18	17,988.66	53.52	337.117	
13,600.00	6,945.00	7,367.42	7,116.88	114.84	30.43	-93.30	700.56	-10,899.08	18,141.95	18,088.36	53.59	338.521	
13,700.00	6,945.00	7,367.61	7,117.06	116.41	30.43	-93.31	700.56	-10,899.08	18,241.73	18,188.07	53.67	339.916	
13,800.00	6,945.00	7,367.79	7,117.25	117.98	30.43	-93.32	700.56	-10,899.08	18,341.51	18,287.77	53.74	341.302	
13,900.00	6,945.00	7,367.98	7,117.43	119.55	30.43	-93.33	700.56	-10,899.08	18,441.29	18,387.48	53.82	342.679	
14,000.00	6,945.00	7,368.16	7,117.61	121.12	30.44	-93.34	700.56	-10,899.08	18,541.08	18,487.19	53.89	344.047	
14,100.00	6,945.00	7,368.34	7,117.79	122.69	30.44	-93.34	700.56	-10,899.08	18,640.87	18,586.90	53.97	345.405	
14,200.00	6,945.00	7,368.52	7,117.97	124.27	30.44	-93.35	700.56	-10,899.08	18,740.65	18,686.61	54.05	346.755	
14,300.00	6,945.00	7,368.70	7,118.15	125.84	30.44	-93.36	700.55	-10,899.07	18,840.45	18,786.32	54.12	348.096	
14,400.00	6,945.00	7,368.88	7,118.33	127.41	30.44	-93.37	700.55	-10,899.07	18,940.24	18,886.04	54.20	349.429	
14,500.00	6,945.00	7,375.00	7,124.45	128.99	30.45	-93.66	700.52	-10,899.05	19,040.04	18,985.74	54.30	350.636	
14,600.00	6,945.00	7,375.00	7,124.45	130.57	30.45	-93.66	700.52	-10,899.05	19,139.83	19,085.45	54.38	351.954	
14,700.00	6,945.00	7,375.00	7,124.45	132.14	30.45	-93.66	700.52	-10,899.05	19,239.63	19,185.17	54.46	353.264	
14,800.00	6,945.00	7,375.00	7,124.45	133.72	30.45	-93.66	700.52	-10,899.05	19,339.44	19,284.89	54.54	354.564	
14,900.00	6,945.00	7,375.00	7,124.45	135.30	30.45	-93.66	700.52	-10,899.05	19,439.24	19,384.61	54.63	355.856	
15,000.00	6,945.00	7,375.00	7,124.45	136.87	30.45	-93.66	700.52	-10,899.05	19,539.05	19,484.34	54.71	357.140	
15,100.00	6,945.00	7,375.00	7,124.45	138.45	30.45	-93.66	700.52	-10,899.05	19,638.85	19,584.06	54.79	358.415	
15,200.00	6,945.00	7,375.00	7,124.45	140.03	30.45	-93.66	700.52	-10,899.05	19,738.66	19,683.78	54.88	359.682	
15,300.00	6,945.00	7,375.00	7,124.45	141.61	30.45	-93.66	700.52	-10,899.05	19,838.47	19,783.51	54.96	360.940	
15,400.00	6,945.00	7,375.00	7,124.45	143.19	30.45	-93.66	700.52	-10,899.05	19,938.29	19,883.24	55.05	362.190	
15,500.00	6,945.00	7,375.00	7,124.45	144.77	30.45	-93.66	700.52	-10,899.05	20,038.10	19,982.97	55.14	363.432	
15,600.00	6,945.00	7,375.00	7,124.45	146.35	30.45	-93.66	700.52	-10,899.05	20,137.92	20,082.70	55.22	364.666	
15,700.00	6,945.00	7,375.00	7,124.45	147.94	30.45	-93.66	700.52	-10,899.05	20,237.74	20,182.43	55.31	365.891	
15,800.00	6,945.00	7,375.00	7,124.45	149.52	30.45	-93.66	700.52	-10,899.05	20,337.56	20,282.16	55.40	367.109	
15,900.00	6,945.00	7,375.00	7,124.45	151.10	30.45	-93.66	700.52	-10,899.05	20,437.38	20,381.90	55.49	368.318	
16,000.00	6,945.00	7,375.00	7,124.45	152.68	30.45	-93.66	700.52	-10,899.05	20,537.21	20,481.63	55.58	369.520	
16,100.00	6,945.00	7,375.00	7,124.45	154.26	30.45	-93.66	700.52	-10,899.05	20,637.03	20,581.37	55.67	370.713	
16,200.00	6,945.00	7,375.00	7,124.45	155.85	30.45	-93.66	700.52	-10,899.05	20,736.86	20,681.10	55.76	371.899	
16,300.00	6,945.00	7,375.00	7,124.45	157.43	30.45	-93.66	700.52	-10,899.05	20,836.69	20,780.84	55.85	373.076	
16,400.00	6,945.00	7,375.00	7,124.45	159.02	30.45	-93.66	700.52	-10,899.05	20,936.52	20,880.58	55.94	374.246	
16,500.00	6,945.00	7,375.00	7,124.45	160.60	30.45	-93.66	700.52	-10,899.05	21,036.35	20,980.32	56.04	375.409	
16,600.00	6,945.00	7,375.00	7,124.45	162.18	30.45	-93.66	700.52	-10,899.05	21,136.19	21,080.06	56.13	376.563	
16,700.00	6,945.00	7,375.00	7,124.45	163.77	30.45	-93.66	700.52	-10,899.05	21,236.02	21,179.80	56.22	377.710	
16,800.00	6,945.00	7,375.00	7,124.45	165.35	30.45	-93.66	700.52	-10,899.05	21,335.86	21,279.54	56.32	378.850	
16,900.00	6,945.00	7,375.00	7,124.45	166.94	30.45	-93.66	700.52	-10,899.05	21,435.70	21,379.29	56.41	379.982	
17,000.00	6,945.00	7,375.00	7,124.45	168.53	30.45	-93.66	700.52	-10,899.05	21,535.54	21,479.03	56.51	381.106	
17,100.00	6,945.00	7,375.00	7,124.45	170.11	30.45	-93.66	700.52	-10,899.05	21,635.38	21,578.78	56.60	382.223	
17,200.00	6,945.00	7,375.00	7,124.45	171.70	30.45	-93.66	700.52	-10,899.05	21,735.23	21,678.53	56.70	383.333	
17,300.00	6,945.00	7,375.00	7,124.45	173.29	30.45	-93.66	700.52	-10,899.05	21,835.07	21,778.27	56.80	384.435	
17,400.00	6,945.00	7,375.00	7,124.45	174.87	30.45	-93.66	700.52	-10,899.05	21,934.92	21,878.02	56.90	385.530	
17,500.00	6,945.00	7,375.00	7,124.45	176.46	30.45	-93.66	700.52	-10,899.05	22,034.76	21,977.77	56.99	386.618	
17,600.00	6,945.00	7,375.00	7,124.45	178.05	30.45	-93.66	700.52	-10,899.05	22,134.61	22,077.52	57.09	387.699	
17,700.00	6,945.00	7,375.00	7,124.45	179.63	30.45	-93.66	700.52	-10,899.05	22,234.46	22,177.27	57.19	388.773	
17,800.00	6,945.00	7,375.00	7,124.45	181.22	30.45	-93.66	700.52	-10,899.05	22,334.31	22,277.02	57.29	389.839	
17,900.00	6,945.00	7,375.00	7,124.45	182.81	30.45	-93.66	700.52	-10,899.05	22,434.17	22,376.78	57.39	390.899	
18,000.00	6,945.00	7,375.00	7,124.45	184.40	30.45	-93.66	700.52	-10,899.05	22,534.02	22,476.53	57.49	391.952	
18,100.00	6,945.00	7,375.00	7,124.45	185.99	30.45	-93.66	700.52	-10,899.05	22,633.88	22,576.28	57.59	392.997	
18,200.00	6,945.00	6,225.00	6,017.97	187.58	27.05	-50.33	729.72	-10,874.11	22,733.69	22,679.20	54.49	417.210	
18,300.00	6,945.00	6,225.00	6,017.97	189.16	27.05	-50.33	729.72	-10,874.11	22,833.44	22,778.84	54.59	418.243	
18,400.00	6,945.00	6,225.00	6,017.97	190.75	27.05	-50.33	729.72	-10,874.11	22,933.19	22,878.49	54.70	419.269	
18,500.00	6,945.00	6,225.00	6,017.97	192.34	27.05	-50.33	729.72	-10,874.11	23,032.94	22,978.14	54.80	420.287	
18,600.00	6,945.00	6,225.00	6,017.97	193.93	27.05	-50.33	729.72	-10,874.11	23,132.70	23,077.79	54.91	421.299	

CC - Min centre to center distance or 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:	Plan #4	**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
18,700.00	6,945.00	6,225.00	6,017.97	195.52	27.05	-50.33	729.72	-10,874.11	23,232.45	23,177.44	55.01	422.304	
18,800.00	6,945.00	6,225.00	6,017.97	197.11	27.05	-50.33	729.72	-10,874.11	23,332.21	23,277.10	55.12	423.302	
18,900.00	6,945.00	6,225.00	6,017.97	198.70	27.05	-50.33	729.72	-10,874.11	23,431.98	23,376.75	55.23	424.292	
19,000.00	6,945.00	6,225.00	6,017.97	200.29	27.05	-50.33	729.72	-10,874.11	23,531.74	23,476.41	55.33	425.276	
19,100.00	6,945.00	6,225.00	6,017.97	201.88	27.05	-50.33	729.72	-10,874.11	23,631.51	23,576.07	55.44	426.254	
19,200.00	6,945.00	6,225.00	6,017.97	203.47	27.05	-50.33	729.72	-10,874.11	23,731.28	23,675.73	55.55	427.224	
19,300.00	6,945.00	6,225.00	6,017.97	205.06	27.05	-50.33	729.72	-10,874.11	23,831.05	23,775.39	55.66	428.188	
19,400.00	6,945.00	6,225.00	6,017.97	206.65	27.05	-50.33	729.72	-10,874.11	23,930.82	23,875.05	55.76	429.145	
19,500.00	6,945.00	6,225.00	6,017.97	208.24	27.05	-50.33	729.72	-10,874.11	24,030.59	23,974.72	55.87	430.096	
19,600.00	6,945.00	6,225.00	6,017.97	209.84	27.05	-50.33	729.72	-10,874.11	24,130.37	24,074.39	55.98	431.040	
19,700.00	6,945.00	6,225.00	6,017.97	211.43	27.05	-50.33	729.72	-10,874.11	24,230.14	24,174.05	56.09	431.978	
19,800.00	6,945.00	6,225.00	6,017.97	213.02	27.05	-50.33	729.72	-10,874.11	24,329.92	24,273.72	56.20	432.909	
19,900.00	6,945.00	6,225.00	6,017.97	214.61	27.05	-50.33	729.72	-10,874.11	24,429.71	24,373.39	56.31	433.834	
20,000.00	6,945.00	6,225.00	6,017.97	216.20	27.05	-50.33	729.72	-10,874.11	24,529.49	24,473.07	56.42	434.753	
20,100.00	6,945.00	6,225.00	6,017.97	217.79	27.05	-50.33	729.72	-10,874.11	24,629.27	24,572.74	56.53	435.666	
20,200.00	6,945.00	6,225.00	6,017.97	219.38	27.05	-50.33	729.72	-10,874.11	24,729.06	24,672.42	56.64	436.572	
20,300.00	6,945.00	6,225.00	6,017.97	220.98	27.05	-50.33	729.72	-10,874.11	24,828.85	24,772.09	56.76	437.472	
20,400.00	6,945.00	6,225.00	6,017.97	222.57	27.05	-50.33	729.72	-10,874.11	24,928.64	24,871.77	56.87	438.366	
20,500.00	6,945.00	6,225.00	6,017.97	224.16	27.05	-50.33	729.72	-10,874.11	25,028.43	24,971.45	56.98	439.254	
20,600.00	6,945.00	6,225.00	6,017.97	225.75	27.05	-50.33	729.72	-10,874.11	25,128.22	25,071.13	57.09	440.136	
20,700.00	6,945.00	6,225.00	6,017.97	227.35	27.05	-50.33	729.72	-10,874.11	25,228.02	25,170.81	57.20	441.012	
20,800.00	6,945.00	6,225.00	6,017.97	228.94	27.05	-50.33	729.72	-10,874.11	25,327.81	25,270.50	57.32	441.883	
20,852.96	6,945.00	6,225.00	6,017.97	229.61	27.05	-50.33	729.72	-10,874.11	25,380.66	25,318.58	62.08	408.823	

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:	Plan #4	**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				
20.93	20.93	192.30	192.30	0.00	0.59	52.13	-1,627.46	-3,455.94	3,819.93				
117.41	117.41	271.85	271.85	0.05	0.86	47.59	-1,627.38	-3,456.03	3,819.71	3,818.80	0.91	4,208.245 CC	
121.43	121.43	275.00	275.00	0.06	0.87	47.59	-1,627.37	-3,456.04	3,819.71	3,818.78	0.92	4,142.060	
206.68	206.68	371.16	371.16	0.17	1.21	73.50	-1,627.48	-3,456.26	3,819.76	3,818.43	1.33	2,864.826	
241.53	241.52	400.00	400.00	0.22	1.31	73.19	-1,627.45	-3,456.29	3,819.74	3,818.28	1.46	2,617.570	
292.93	292.93	435.42	435.42	0.28	1.44	72.95	-1,627.46	-3,456.44	3,819.82	3,818.20	1.62	2,354.141	
365.00	364.99	525.00	525.00	0.36	1.75	42.28	-1,627.80	-3,456.65	3,819.80	3,817.80	2.00	1,910.534	
388.22	388.21	540.96	540.96	0.41	1.80	77.38	-1,627.83	-3,456.68	3,819.75	3,817.63	2.12	1,803.765	
451.00	450.97	598.39	598.39	0.55	2.01	95.59	-1,628.11	-3,456.87	3,820.08	3,817.59	2.49	1,532.823 ES	
540.00	539.81	678.29	678.29	0.83	2.29	101.12	-1,628.54	-3,457.02	3,821.30	3,818.23	3.08	1,242.310	
665.00	664.37	807.34	807.33	1.26	2.74	103.58	-1,629.29	-3,457.25	3,824.06	3,820.07	3.98	960.385	
753.00	752.01	910.09	910.08	1.58	3.10	102.72	-1,629.48	-3,457.56	3,826.18	3,821.51	4.67	819.698	
847.00	845.61	1,003.59	1,003.58	1.93	3.42	105.86	-1,629.22	-3,458.01	3,828.63	3,823.28	5.35	716.135	
939.00	937.22	1,101.60	1,101.58	2.27	3.76	106.24	-1,628.47	-3,458.28	3,830.93	3,824.89	6.03	634.959	
1,030.00	1,027.78	1,203.65	1,203.62	2.62	4.12	94.97	-1,627.34	-3,458.65	3,832.42	3,825.68	6.73	569.157	
1,120.00	1,117.25	1,277.93	1,277.89	2.96	4.38	97.96	-1,626.27	-3,459.07	3,833.47	3,826.13	7.34	522.412	
1,211.00	1,207.68	1,375.00	1,374.96	3.31	4.72	95.49	-1,625.12	-3,459.56	3,834.65	3,826.62	8.03	477.669	
1,306.00	1,302.14	1,457.57	1,457.52	3.68	5.01	97.49	-1,623.96	-3,460.18	3,835.90	3,827.22	8.68	441.863	
1,400.00	1,395.63	1,560.22	1,560.15	4.04	5.37	98.92	-1,622.57	-3,460.80	3,837.28	3,827.88	9.40	408.227	
1,495.00	1,490.19	1,666.80	1,666.72	4.40	5.74	98.43	-1,621.18	-3,461.43	3,838.71	3,828.57	10.13	378.807	
1,589.00	1,583.83	1,762.30	1,762.21	4.76	6.07	96.12	-1,619.97	-3,461.74	3,839.57	3,828.74	10.82	354.804	
1,684.00	1,678.44	1,857.67	1,857.58	5.12	6.41	98.64	-1,618.72	-3,461.78	3,840.22	3,828.70	11.51	333.534	
1,779.00	1,772.98	1,945.37	1,945.28	5.48	6.71	103.18	-1,617.65	-3,461.80	3,841.60	3,829.42	12.18	315.344	
1,873.00	1,866.49	2,036.72	2,036.62	5.84	7.03	104.81	-1,616.81	-3,461.82	3,843.60	3,830.74	12.86	298.872	
1,967.00	1,960.05	2,125.00	2,124.90	6.20	7.34	109.59	-1,616.24	-3,461.86	3,846.11	3,832.58	13.53	284.361	
2,062.00	2,054.59	2,224.52	2,224.41	6.56	7.69	104.38	-1,615.58	-3,461.91	3,848.61	3,834.38	14.23	270.380	
2,156.00	2,148.09	2,315.23	2,315.12	6.92	8.01	103.81	-1,615.13	-3,461.99	3,850.88	3,835.97	14.91	258.261	
2,251.00	2,242.55	2,400.00	2,399.89	7.29	8.30	105.28	-1,614.86	-3,462.22	3,853.54	3,837.96	15.57	247.471	
2,345.00	2,336.00	2,480.76	2,480.65	7.65	8.58	99.44	-1,614.79	-3,462.69	3,856.19	3,839.98	16.22	237.802	
2,440.00	2,430.43	2,568.77	2,568.66	8.02	8.89	96.97	-1,614.77	-3,463.29	3,858.28	3,841.39	16.89	228.429	
2,535.00	2,524.86	2,684.84	2,684.73	8.38	9.30	98.43	-1,614.26	-3,464.03	3,860.08	3,842.42	17.66	218.527	
2,629.00	2,618.31	2,779.65	2,779.53	8.75	9.63	98.59	-1,613.67	-3,464.46	3,861.77	3,843.41	18.36	210.355	
2,724.00	2,712.77	2,875.00	2,874.88	9.12	9.96	99.51	-1,613.20	-3,464.72	3,863.45	3,844.39	19.06	202.724	
2,818.00	2,806.24	2,971.83	2,971.71	9.48	10.30	100.23	-1,612.76	-3,464.88	3,865.16	3,845.40	19.76	195.627	
2,913.00	2,900.71	3,060.20	3,060.08	9.84	10.61	102.57	-1,612.75	-3,464.97	3,867.21	3,846.78	20.43	189.278	
3,008.00	2,995.25	3,136.93	3,136.81	10.21	10.88	98.28	-1,612.90	-3,465.29	3,869.36	3,848.30	21.06	183.715	
3,102.00	3,088.80	3,209.99	3,209.87	10.57	11.13	98.59	-1,613.32	-3,465.75	3,871.48	3,849.81	21.67	178.620	
3,197.00	3,183.30	3,306.30	3,306.16	10.93	11.47	101.64	-1,614.65	-3,466.34	3,874.22	3,851.85	22.38	173.144	
3,291.00	3,276.71	3,424.41	3,424.25	11.30	11.88	95.70	-1,617.01	-3,466.50	3,876.58	3,853.43	23.15	167.420	
3,386.00	3,371.01	3,506.76	3,506.59	11.67	12.17	94.67	-1,618.36	-3,466.59	3,878.27	3,854.46	23.81	162.856	
3,480.00	3,464.23	3,621.34	3,621.15	12.04	12.57	96.15	-1,619.99	-3,466.50	3,879.82	3,855.23	24.59	157.799	
3,575.00	3,558.47	3,701.14	3,700.95	12.42	12.84	97.76	-1,620.80	-3,466.61	3,881.72	3,856.48	25.24	153.794	
3,670.00	3,652.84	3,817.25	3,817.05	12.79	13.25	98.88	-1,622.10	-3,466.51	3,883.61	3,857.59	26.02	149.274	
3,764.00	3,746.36	3,900.00	3,899.80	13.15	13.54	102.17	-1,622.72	-3,466.36	3,885.41	3,858.75	26.66	145.713	
3,859.00	3,840.97	3,980.22	3,980.02	13.51	13.82	105.98	-1,623.50	-3,466.44	3,887.92	3,860.61	27.30	142.399	
3,954.00	3,935.57	4,073.85	4,073.63	13.87	14.14	106.11	-1,625.11	-3,466.57	3,891.02	3,863.03	27.99	139.017	
4,049.00	4,030.14	4,169.03	4,168.80	14.23	14.47	97.16	-1,626.78	-3,466.64	3,893.48	3,864.80	28.68	135.741	
4,143.00	4,123.75	4,238.94	4,238.70	14.59	14.72	98.33	-1,628.05	-3,466.87	3,895.52	3,866.24	29.28	133.041	
4,238.00	4,218.33	4,310.79	4,310.53	14.95	14.97	98.63	-1,629.75	-3,467.47	3,898.36	3,868.47	29.89	130.427	
4,333.00	4,312.74	4,393.55	4,393.24	15.32	15.26	95.91	-1,632.37	-3,468.33	3,901.62	3,871.08	30.54	127.735	
4,427.00	4,406.05	4,470.92	4,470.56	15.69	15.53	98.38	-1,635.06	-3,469.30	3,905.26	3,874.08	31.18	125.249	

CC - Min centre to center distance or 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:	Plan #4	**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
4,522.00	4,500.34	4,550.00	4,549.57	16.06	15.81	99.39	-1,637.91	-3,470.59	3,909.68	3,877.86	31.83	122.848	
4,616.00	4,593.47	4,618.36	4,617.87	16.44	16.04	97.22	-1,640.43	-3,472.07	3,914.60	3,882.17	32.43	120.703	
4,710.00	4,686.44	4,714.29	4,713.69	16.82	16.38	98.10	-1,644.31	-3,474.33	3,919.83	3,886.69	33.15	118.255	
4,899.00	4,873.89	4,868.66	4,867.88	17.57	16.92	104.76	-1,650.27	-3,478.98	3,932.18	3,897.76	34.42	114.237	
4,962.00	4,936.56	4,931.04	4,930.19	17.81	17.14	107.24	-1,652.50	-3,480.95	3,936.55	3,901.67	34.88	112.860	
5,024.00	4,998.27	4,998.04	4,997.10	18.04	17.37	103.52	-1,654.96	-3,483.24	3,940.91	3,905.55	35.35	111.475	
5,150.00	5,123.66	5,118.09	5,117.01	18.53	17.79	104.66	-1,659.14	-3,487.40	3,949.45	3,913.20	36.25	108.950	
5,213.00	5,186.37	5,177.68	5,176.52	18.77	18.00	102.34	-1,661.33	-3,489.58	3,953.77	3,917.08	36.70	107.742	
5,276.00	5,249.09	5,227.27	5,226.04	19.01	18.17	103.28	-1,663.09	-3,491.36	3,957.97	3,920.87	37.10	106.673	
5,339.00	5,311.83	5,290.71	5,289.40	19.25	18.40	102.42	-1,665.52	-3,493.69	3,962.21	3,924.65	37.56	105.479	
5,401.00	5,373.58	5,350.00	5,348.60	19.48	18.60	104.98	-1,667.62	-3,495.95	3,966.48	3,928.48	38.00	104.368	
5,464.00	5,436.33	5,418.47	5,416.98	19.72	18.84	102.35	-1,670.02	-3,498.59	3,970.80	3,932.32	38.48	103.181	
5,590.00	5,561.87	5,550.00	5,548.34	20.19	19.30	101.16	-1,674.62	-3,503.46	3,978.83	3,939.41	39.42	100.934	
5,653.00	5,624.66	5,610.57	5,608.84	20.43	19.52	99.89	-1,676.63	-3,505.70	3,982.65	3,942.78	39.87	99.898	
5,715.00	5,686.48	5,670.54	5,668.73	20.66	19.73	95.00	-1,678.63	-3,507.90	3,986.07	3,945.76	40.31	98.893	
5,778.00	5,749.29	5,730.40	5,728.52	20.90	19.94	97.71	-1,680.65	-3,510.10	3,989.48	3,948.73	40.75	97.903	
5,841.00	5,812.10	5,795.06	5,793.09	21.13	20.16	95.48	-1,682.90	-3,512.51	3,992.96	3,951.75	41.21	96.890	
5,904.00	5,874.94	5,854.93	5,852.89	21.36	20.37	100.84	-1,685.03	-3,514.73	3,996.51	3,954.86	41.65	95.948	
5,967.00	5,937.80	5,925.00	5,922.86	21.60	20.62	102.44	-1,687.56	-3,517.28	4,000.23	3,958.09	42.13	94.943	
6,030.00	6,000.68	5,988.93	5,986.71	21.83	20.84	100.57	-1,689.88	-3,519.56	4,003.83	3,961.25	42.59	94.015	
6,093.00	6,063.59	6,050.00	6,047.70	22.05	21.06	104.28	-1,692.22	-3,521.70	4,007.40	3,964.38	43.03	93.133	
6,156.00	6,126.51	6,112.26	6,109.87	22.28	21.27	109.59	-1,694.55	-3,523.98	4,011.24	3,967.77	43.47	92.269	
6,235.00	6,205.43	6,175.00	6,172.52	22.56	21.49	109.32	-1,696.97	-3,526.39	4,016.20	3,972.23	43.97	91.344	
6,300.00	6,270.38	6,238.83	6,236.25	22.68	21.72	109.33	-1,699.40	-3,528.91	4,020.22	3,975.91	44.31	90.729	
6,355.00	6,325.34	6,297.11	6,294.44	22.69	21.92	109.34	-1,701.62	-3,531.30	4,023.71	3,979.18	44.53	90.368	
6,400.00	6,370.23	6,325.00	6,322.29	22.71	22.02	141.87	-1,702.68	-3,532.47	4,028.07	3,983.44	44.63	90.261	
6,450.00	6,419.74	6,375.00	6,372.21	22.73	22.19	149.13	-1,704.49	-3,534.54	4,036.33	3,991.51	44.82	90.048	
6,500.00	6,468.57	6,422.17	6,419.30	22.77	22.36	151.70	-1,706.19	-3,536.69	4,048.37	4,003.36	45.02	89.926	
6,550.00	6,516.42	6,459.95	6,457.01	22.81	22.49	152.76	-1,707.57	-3,538.41	4,063.94	4,018.76	45.18	89.942	
6,600.00	6,562.98	6,513.60	6,510.58	22.87	22.68	153.12	-1,709.44	-3,540.83	4,082.88	4,037.46	45.42	89.889	SF
6,650.00	6,607.98	6,562.21	6,559.10	22.95	22.85	153.02	-1,711.22	-3,543.03	4,105.19	4,059.54	45.65	89.933	
6,700.00	6,651.14	6,601.77	6,598.60	23.03	22.99	152.53	-1,712.66	-3,544.71	4,130.56	4,084.72	45.84	90.099	
6,750.00	6,692.18	6,668.46	6,665.19	23.14	23.22	151.83	-1,715.09	-3,547.38	4,158.87	4,112.71	46.16	90.102	
6,800.00	6,730.86	6,707.69	6,704.37	23.26	23.36	150.71	-1,716.54	-3,548.88	4,190.00	4,143.63	46.37	90.363	
6,850.00	6,766.93	6,759.41	6,756.03	23.40	23.54	149.32	-1,718.24	-3,550.69	4,223.67	4,177.03	46.63	90.569	
6,900.00	6,800.18	6,832.00	6,828.55	23.56	23.80	147.72	-1,720.45	-3,552.86	4,259.70	4,212.72	46.99	90.659	
6,950.00	6,830.39	6,863.52	6,860.05	23.74	23.91	145.34	-1,721.40	-3,553.65	4,297.88	4,250.70	47.18	91.087	
7,000.00	6,857.38	6,913.38	6,909.88	23.94	24.08	142.57	-1,722.72	-3,554.72	4,338.02	4,290.57	47.46	91.412	
7,050.00	6,880.98	6,933.44	6,929.92	24.17	24.15	138.67	-1,723.30	-3,555.10	4,380.01	4,332.39	47.62	91.983	
7,100.00	6,901.06	6,954.91	6,951.39	24.42	24.23	133.71	-1,723.88	-3,555.53	4,423.62	4,375.83	47.79	92.571	
7,150.00	6,917.47	6,987.35	6,983.82	24.70	24.34	127.63	-1,724.64	-3,556.12	4,468.53	4,420.54	48.00	93.103	
7,200.00	6,930.13	7,003.94	7,000.40	25.01	24.40	119.49	-1,725.02	-3,556.38	4,514.50	4,466.36	48.14	93.769	
7,250.00	6,938.95	7,012.11	7,008.56	25.34	24.43	109.05	-1,725.21	-3,556.51	4,561.28	4,513.02	48.26	94.513	
7,300.00	6,943.88	7,016.35	7,012.80	25.69	24.44	96.51	-1,725.30	-3,556.57	4,608.58	4,560.22	48.36	95.298	
7,337.82	6,945.00	7,016.94	7,013.39	25.97	24.44	86.14	-1,725.32	-3,556.58	4,644.53	4,596.11	48.42	95.917	
7,400.00	6,945.00	7,016.03	7,012.48	26.45	24.44	85.82	-1,725.30	-3,556.57	4,703.90	4,655.39	48.51	96.961	
7,492.38	6,945.00	7,014.62	7,011.07	27.21	24.44	85.24	-1,725.27	-3,556.55	4,792.94	4,744.30	48.64	98.542	
7,500.00	6,945.00	7,014.50	7,010.95	27.28	24.44	85.23	-1,725.26	-3,556.55	4,800.31	4,751.67	48.65	98.673	
7,600.00	6,945.00	7,012.95	7,009.40	28.17	24.43	85.16	-1,725.23	-3,556.52	4,897.25	4,848.47	48.77	100.407	
7,700.00	6,945.00	7,011.39	7,007.85	29.12	24.42	85.08	-1,725.19	-3,556.50	4,994.30	4,945.40	48.90	102.135	
7,800.00	6,945.00	7,009.84	7,006.30	30.14	24.42	85.01	-1,725.16	-3,556.47	5,091.46	5,042.44	49.02	103.858	
7,900.00	6,945.00	7,008.29	7,004.75	31.20	24.41	84.94	-1,725.12	-3,556.45	5,188.74	5,139.59	49.15	105.576	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 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:	Plan #4	**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
8,000.00	6,945.00	7,006.75	7,003.20	32.31	24.41	84.86	-1,725.09	-3,556.42	5,286.11	5,236.84	49.27	107.290	
8,100.00	6,945.00	7,005.21	7,001.66	33.46	24.40	84.79	-1,725.05	-3,556.40	5,383.58	5,334.19	49.39	108.999	
8,200.00	6,945.00	7,003.67	7,000.12	34.64	24.40	84.71	-1,725.02	-3,556.38	5,481.14	5,431.63	49.51	110.705	
8,300.00	6,945.00	7,004.00	7,000.45	35.86	24.40	84.73	-1,725.02	-3,556.38	5,578.79	5,529.15	49.64	112.390	
8,400.00	6,945.00	7,001.13	6,997.59	37.11	24.39	84.59	-1,724.96	-3,556.34	5,676.52	5,626.77	49.75	114.099	
8,500.00	6,945.00	6,998.17	6,994.63	38.39	24.38	84.45	-1,724.89	-3,556.29	5,774.32	5,724.46	49.86	115.805	
8,600.00	6,945.00	6,995.11	6,991.57	39.69	24.37	84.30	-1,724.82	-3,556.24	5,872.20	5,822.23	49.97	117.509	
8,700.00	6,945.00	6,991.94	6,988.40	41.01	24.36	84.15	-1,724.75	-3,556.19	5,970.15	5,920.07	50.08	119.210	
8,800.00	6,945.00	6,988.65	6,985.11	42.35	24.35	83.99	-1,724.67	-3,556.14	6,068.16	6,017.98	50.19	120.910	
8,900.00	6,945.00	6,985.24	6,981.70	43.71	24.33	83.83	-1,724.59	-3,556.08	6,166.24	6,115.95	50.29	122.607	
9,000.00	6,945.00	6,968.14	6,964.61	45.08	24.27	83.01	-1,724.19	-3,555.77	6,264.38	6,214.03	50.35	124.428	
9,100.00	6,945.00	6,966.25	6,962.72	46.47	24.27	82.92	-1,724.15	-3,555.74	6,362.57	6,312.11	50.45	126.106	
9,200.00	6,945.00	6,972.97	6,969.44	47.87	24.29	83.24	-1,724.32	-3,555.87	6,460.82	6,410.23	50.59	127.701	
9,300.00	6,945.00	6,962.33	6,958.80	49.29	24.25	82.74	-1,724.06	-3,555.67	6,559.12	6,508.45	50.67	129.456	
9,400.00	6,945.00	6,950.31	6,946.79	50.71	24.21	82.17	-1,723.76	-3,555.44	6,657.47	6,606.73	50.73	131.223	
9,500.00	6,945.00	6,950.00	6,946.48	52.15	24.21	82.15	-1,723.75	-3,555.43	6,755.86	6,705.01	50.84	132.874	
9,600.00	6,945.00	6,946.58	6,943.06	53.59	24.20	81.99	-1,723.66	-3,555.36	6,854.30	6,803.36	50.94	134.553	
9,700.00	6,945.00	6,944.87	6,941.36	55.05	24.19	81.91	-1,723.61	-3,555.33	6,952.78	6,901.74	51.04	136.211	
9,800.00	6,945.00	6,943.18	6,939.66	56.51	24.19	81.83	-1,723.57	-3,555.29	7,051.31	7,000.16	51.15	137.867	
9,900.00	6,945.00	6,941.50	6,937.98	57.98	24.18	81.75	-1,723.52	-3,555.26	7,149.87	7,098.62	51.25	139.518	
10,000.00	6,945.00	6,939.83	6,936.31	59.45	24.17	81.67	-1,723.48	-3,555.23	7,248.48	7,197.13	51.35	141.167	
10,100.00	6,945.00	6,938.17	6,934.66	60.93	24.17	81.59	-1,723.43	-3,555.19	7,347.12	7,295.67	51.45	142.812	
10,200.00	6,945.00	6,936.53	6,933.01	62.42	24.16	81.51	-1,723.38	-3,555.16	7,445.80	7,394.25	51.54	144.453	
10,300.00	6,945.00	6,934.90	6,931.39	63.92	24.16	81.43	-1,723.34	-3,555.13	7,544.51	7,492.87	51.64	146.091	
10,400.00	6,945.00	6,933.28	6,929.77	65.42	24.15	81.36	-1,723.29	-3,555.10	7,643.25	7,591.51	51.74	147.726	
10,500.00	6,945.00	6,931.67	6,928.16	66.92	24.15	81.28	-1,723.25	-3,555.07	7,742.03	7,690.19	51.84	149.357	
10,600.00	6,945.00	6,930.08	6,926.57	68.43	24.14	81.21	-1,723.20	-3,555.04	7,840.84	7,788.91	51.93	150.984	
10,700.00	6,945.00	6,928.50	6,924.99	69.94	24.13	81.13	-1,723.16	-3,555.01	7,939.67	7,887.65	52.03	152.608	
10,800.00	6,945.00	6,925.00	6,921.49	71.45	24.12	80.96	-1,723.05	-3,554.94	8,038.54	7,986.43	52.11	154.249	
10,900.00	6,945.00	6,925.00	6,921.49	72.97	24.12	80.96	-1,723.05	-3,554.94	8,137.43	8,085.22	52.21	155.849	
11,000.00	6,945.00	6,925.00	6,921.49	74.50	24.12	80.96	-1,723.05	-3,554.94	8,236.35	8,184.04	52.31	157.444	
11,100.00	6,945.00	6,922.26	6,918.76	76.02	24.11	80.84	-1,722.97	-3,554.89	8,335.30	8,282.89	52.40	159.067	
11,200.00	6,945.00	6,920.71	6,917.20	77.55	24.11	80.76	-1,722.93	-3,554.86	8,434.27	8,381.77	52.49	160.672	
11,300.00	6,945.00	6,919.15	6,915.65	79.08	24.10	80.69	-1,722.88	-3,554.83	8,533.26	8,480.67	52.59	162.274	
11,400.00	6,945.00	6,917.60	6,914.09	80.62	24.10	80.61	-1,722.84	-3,554.80	8,632.27	8,579.60	52.68	163.872	
11,500.00	6,945.00	6,916.04	6,912.54	82.16	24.09	80.54	-1,722.80	-3,554.77	8,731.31	8,678.54	52.77	165.467	
11,600.00	6,945.00	6,914.49	6,910.99	83.70	24.09	80.47	-1,722.75	-3,554.74	8,830.37	8,777.51	52.86	167.057	
11,700.00	6,945.00	6,912.94	6,909.44	85.24	24.08	80.39	-1,722.71	-3,554.71	8,929.45	8,876.50	52.95	168.644	
11,800.00	6,945.00	6,911.39	6,907.89	86.78	24.07	80.32	-1,722.67	-3,554.68	9,028.55	8,975.51	53.04	170.227	
11,900.00	6,945.00	6,850.00	6,846.54	88.33	23.86	77.45	-1,721.00	-3,553.31	9,127.67	9,074.76	52.91	172.524	
12,000.00	6,945.00	6,850.00	6,846.54	89.87	23.86	77.45	-1,721.00	-3,553.31	9,226.79	9,173.79	53.00	174.085	
12,100.00	6,945.00	6,844.57	6,841.11	91.42	23.84	77.20	-1,720.84	-3,553.17	9,325.93	9,272.86	53.08	175.708	
12,200.00	6,945.00	6,842.96	6,839.51	92.98	23.83	77.12	-1,720.79	-3,553.13	9,425.09	9,371.93	53.16	177.281	
12,300.00	6,945.00	6,841.37	6,837.91	94.53	23.83	77.05	-1,720.74	-3,553.09	9,524.27	9,471.01	53.25	178.849	
12,400.00	6,945.00	6,754.67	6,751.29	96.08	23.53	73.10	-1,718.08	-3,550.53	9,623.44	9,570.41	53.03	181.479	
12,500.00	6,945.00	6,753.46	6,750.09	97.64	23.52	73.04	-1,718.04	-3,550.49	9,722.62	9,669.50	53.12	183.040	
12,600.00	6,945.00	6,749.08	6,745.71	99.20	23.51	72.85	-1,717.90	-3,550.34	9,821.82	9,768.62	53.20	184.638	
12,700.00	6,945.00	6,688.14	6,684.85	100.76	23.29	70.16	-1,715.83	-3,548.12	9,921.01	9,867.94	53.07	186.958	
12,800.00	6,945.00	6,686.60	6,683.31	102.32	23.29	70.09	-1,715.77	-3,548.06	10,020.22	9,967.06	53.15	188.515	
12,900.00	6,945.00	6,685.08	6,681.79	103.88	23.28	70.03	-1,715.71	-3,548.00	10,119.44	10,066.20	53.24	190.067	
13,000.00	6,945.00	6,683.57	6,680.29	105.44	23.28	69.96	-1,715.65	-3,547.94	10,218.68	10,165.35	53.33	191.615	
13,100.00	6,945.00	6,675.00	6,671.73	107.00	23.25	69.59	-1,715.33	-3,547.62	10,317.93	10,264.54	53.39	193.252	

CC - Min centre to center distance or 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:	Plan #4	**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)	Rule Assigned: Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
13,200.00	6,945.00	6,675.00	6,671.73	108.57	23.25	69.59	-1,715.33	-3,547.62	10,417.20	10,363.71	53.48	194.771	
13,300.00	6,945.00	6,675.00	6,671.73	110.13	23.25	69.59	-1,715.33	-3,547.62	10,516.47	10,462.90	53.58	196.286	
13,400.00	6,945.00	6,675.00	6,671.73	111.70	23.25	69.59	-1,715.33	-3,547.62	10,615.76	10,562.09	53.67	197.796	
13,500.00	6,945.00	6,673.34	6,670.07	113.27	23.24	69.52	-1,715.27	-3,547.56	10,715.07	10,661.31	53.76	199.323	
13,600.00	6,945.00	6,674.48	6,671.21	114.84	23.24	69.57	-1,715.32	-3,547.60	10,814.38	10,760.53	53.85	200.809	
13,700.00	6,945.00	6,668.26	6,664.99	116.41	23.22	69.30	-1,715.09	-3,547.37	10,913.71	10,859.79	53.92	202.389	
13,800.00	6,945.00	6,600.00	6,596.84	117.98	22.98	66.41	-1,712.59	-3,544.63	11,013.03	10,959.26	53.77	204.813	
13,900.00	6,945.00	6,600.00	6,596.84	119.55	22.98	66.41	-1,712.59	-3,544.63	11,112.36	11,058.50	53.86	206.303	
14,000.00	6,945.00	6,600.00	6,596.84	121.12	22.98	66.41	-1,712.59	-3,544.63	11,211.70	11,157.74	53.96	207.789	
14,100.00	6,945.00	6,592.22	6,589.06	122.69	22.96	66.08	-1,712.30	-3,544.30	11,311.04	11,257.02	54.02	209.378	
14,200.00	6,945.00	6,590.62	6,587.47	124.27	22.95	66.02	-1,712.24	-3,544.23	11,410.40	11,356.29	54.11	210.876	
14,300.00	6,945.00	6,589.03	6,585.89	125.84	22.94	65.95	-1,712.18	-3,544.16	11,509.77	11,455.57	54.20	212.370	
14,400.00	6,945.00	6,587.46	6,584.32	127.41	22.94	65.89	-1,712.12	-3,544.10	11,609.15	11,554.86	54.28	213.859	
14,500.00	6,945.00	6,535.09	6,532.03	128.99	22.76	63.76	-1,710.26	-3,541.80	11,708.53	11,654.34	54.19	216.055	
14,600.00	6,945.00	6,532.58	6,529.53	130.57	22.75	63.66	-1,710.16	-3,541.68	11,807.91	11,753.64	54.28	217.550	
14,700.00	6,945.00	6,525.00	6,521.96	132.14	22.72	63.36	-1,709.87	-3,541.34	11,907.30	11,852.96	54.34	219.113	
14,800.00	6,945.00	6,525.00	6,521.96	133.72	22.72	63.36	-1,709.87	-3,541.34	12,006.70	11,952.26	54.44	220.563	
14,900.00	6,945.00	6,525.00	6,521.96	135.30	22.72	63.36	-1,709.87	-3,541.34	12,106.11	12,051.58	54.53	222.008	
15,000.00	6,945.00	6,525.00	6,521.96	136.87	22.72	63.36	-1,709.87	-3,541.34	12,205.52	12,150.90	54.62	223.448	
15,100.00	6,945.00	6,525.00	6,521.96	138.45	22.72	63.36	-1,709.87	-3,541.34	12,304.95	12,250.23	54.72	224.884	
15,200.00	6,945.00	6,518.50	6,515.46	140.03	22.70	63.10	-1,709.62	-3,541.05	12,404.38	12,349.59	54.79	226.408	
15,300.00	6,945.00	6,516.30	6,513.27	141.61	22.69	63.02	-1,709.54	-3,540.95	12,503.82	12,448.95	54.87	227.865	
15,400.00	6,945.00	6,514.11	6,511.09	143.19	22.68	62.93	-1,709.46	-3,540.85	12,603.27	12,548.31	54.96	229.317	
15,500.00	6,945.00	6,511.94	6,508.92	144.77	22.67	62.84	-1,709.38	-3,540.76	12,702.73	12,647.68	55.05	230.764	
15,600.00	6,945.00	6,509.78	6,506.76	146.35	22.67	62.76	-1,709.30	-3,540.66	12,802.19	12,747.06	55.13	232.206	
15,700.00	6,945.00	6,507.63	6,504.62	147.94	22.66	62.67	-1,709.22	-3,540.57	12,901.67	12,846.45	55.22	233.643	
15,800.00	6,945.00	6,492.05	6,489.06	149.52	22.60	62.07	-1,708.69	-3,539.87	13,001.15	12,945.89	55.26	235.271	
15,900.00	6,945.00	6,487.56	6,484.58	151.10	22.59	61.89	-1,708.53	-3,539.67	13,100.63	13,045.29	55.34	236.733	
16,000.00	6,945.00	6,461.45	6,458.51	152.68	22.50	60.89	-1,707.63	-3,538.48	13,200.11	13,144.77	55.34	238.507	
16,100.00	6,945.00	6,455.99	6,453.06	154.26	22.48	60.68	-1,707.43	-3,538.23	13,299.60	13,244.18	55.42	239.974	
16,200.00	6,945.00	6,450.54	6,447.62	155.85	22.46	60.48	-1,707.22	-3,537.97	13,399.09	13,343.59	55.50	241.437	
16,300.00	6,945.00	6,450.00	6,447.08	157.43	22.46	60.46	-1,707.20	-3,537.95	13,498.59	13,443.00	55.59	242.822	
16,400.00	6,945.00	6,450.00	6,447.08	159.02	22.46	60.46	-1,707.20	-3,537.95	13,598.10	13,542.41	55.69	244.194	
16,500.00	6,945.00	6,450.00	6,447.08	160.60	22.46	60.46	-1,707.20	-3,537.95	13,697.61	13,641.83	55.78	245.561	
16,600.00	6,945.00	6,442.52	6,439.62	162.18	22.43	60.17	-1,706.92	-3,537.60	13,797.13	13,741.28	55.85	247.035	
16,700.00	6,945.00	6,440.64	6,437.74	163.77	22.42	60.10	-1,706.85	-3,537.52	13,896.65	13,840.71	55.94	248.420	
16,800.00	6,945.00	6,438.77	6,435.88	165.35	22.42	60.03	-1,706.78	-3,537.43	13,996.18	13,940.15	56.03	249.800	
16,900.00	6,945.00	6,436.92	6,434.03	166.94	22.41	59.96	-1,706.71	-3,537.35	14,095.72	14,039.60	56.12	251.174	
17,000.00	6,945.00	6,435.08	6,432.19	168.53	22.40	59.89	-1,706.64	-3,537.27	14,195.26	14,139.05	56.21	252.543	
17,100.00	6,945.00	6,433.25	6,430.36	170.11	22.40	59.83	-1,706.58	-3,537.18	14,294.81	14,238.51	56.30	253.907	
17,200.00	6,945.00	6,408.72	6,405.87	171.70	22.31	58.92	-1,705.72	-3,536.06	14,394.36	14,338.05	56.31	255.608	
17,300.00	6,945.00	6,404.09	6,401.25	173.29	22.30	58.75	-1,705.57	-3,535.85	14,493.91	14,437.52	56.40	257.005	
17,400.00	6,945.00	6,400.00	6,397.17	174.87	22.28	58.60	-1,705.42	-3,535.66	14,593.47	14,536.99	56.48	258.388	
17,500.00	6,945.00	6,400.00	6,397.17	176.46	22.28	58.60	-1,705.42	-3,535.66	14,693.03	14,636.46	56.58	259.705	
17,600.00	6,945.00	6,400.00	6,397.17	178.05	22.28	58.60	-1,705.42	-3,535.66	14,792.60	14,735.93	56.67	261.016	
17,700.00	6,945.00	6,400.00	6,397.17	179.63	22.28	58.60	-1,705.42	-3,535.66	14,892.18	14,835.40	56.77	262.323	
17,800.00	6,945.00	6,400.00	6,397.17	181.22	22.28	58.60	-1,705.42	-3,535.66	14,991.76	14,934.89	56.87	263.623	
17,900.00	6,945.00	6,389.41	6,386.59	182.81	22.24	58.21	-1,705.05	-3,535.16	15,091.32	15,034.39	56.93	265.081	
18,000.00	6,945.00	6,388.58	6,385.76	184.40	22.24	58.18	-1,705.02	-3,535.12	15,190.91	15,133.88	57.03	266.385	
18,100.00	6,945.00	6,387.76	6,384.94	185.99	22.24	58.15	-1,704.99	-3,535.09	15,290.50	15,233.38	57.12	267.683	
18,200.00	6,945.00	6,386.95	6,384.14	187.58	22.24	58.13	-1,704.96	-3,535.05	15,390.10	15,332.88	57.22	268.976	
18,300.00	6,945.00	6,386.14	6,383.34	189.16	22.23	58.10	-1,704.93	-3,535.01	15,489.70	15,432.39	57.31	270.264	

CC - Min centre to center distance or 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:	Plan #4	**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

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
18,400.00	6,945.00	6,385.35	6,382.54	190.75	22.23	58.07	-1,704.90	-3,534.98	15,589.31	15,531.90	57.41	271.546	
18,500.00	6,945.00	6,375.00	6,372.21	192.34	22.19	57.69	-1,704.49	-3,534.54	15,688.94	15,631.46	57.47	272.973	
18,600.00	6,945.00	6,375.00	6,372.21	193.93	22.19	57.69	-1,704.49	-3,534.54	15,788.55	15,730.98	57.57	274.233	
18,700.00	6,945.00	6,375.00	6,372.21	195.52	22.19	57.69	-1,704.49	-3,534.54	15,888.17	15,830.50	57.67	275.488	
18,800.00	6,945.00	6,375.00	6,372.21	197.11	22.19	57.69	-1,704.49	-3,534.54	15,987.80	15,930.02	57.77	276.738	
18,900.00	6,945.00	6,375.00	6,372.21	198.70	22.19	57.69	-1,704.49	-3,534.54	16,087.43	16,029.55	57.87	277.982	
19,000.00	6,945.00	6,375.00	6,372.21	200.29	22.19	57.69	-1,704.49	-3,534.54	16,187.06	16,129.09	57.97	279.222	
19,100.00	6,945.00	6,375.00	6,372.21	201.88	22.19	57.69	-1,704.49	-3,534.54	16,286.70	16,228.62	58.07	280.456	
19,200.00	6,945.00	6,375.00	6,372.21	203.47	22.19	57.69	-1,704.49	-3,534.54	16,386.34	16,328.17	58.17	281.685	
19,300.00	6,945.00	6,375.00	6,372.21	205.06	22.19	57.69	-1,704.49	-3,534.54	16,485.99	16,427.71	58.27	282.908	
19,400.00	6,945.00	6,375.00	6,372.21	206.65	22.19	57.69	-1,704.49	-3,534.54	16,585.64	16,527.26	58.37	284.127	
19,500.00	6,945.00	6,375.00	6,372.21	208.24	22.19	57.69	-1,704.49	-3,534.54	16,685.29	16,626.82	58.48	285.341	
19,600.00	6,945.00	6,375.00	6,372.21	209.84	22.19	57.69	-1,704.49	-3,534.54	16,784.95	16,726.37	58.58	286.549	
19,700.00	6,945.00	6,375.00	6,372.21	211.43	22.19	57.69	-1,704.49	-3,534.54	16,884.61	16,825.94	58.68	287.752	
19,800.00	6,945.00	6,375.00	6,372.21	213.02	22.19	57.69	-1,704.49	-3,534.54	16,984.28	16,925.50	58.78	288.950	
19,900.00	6,945.00	6,375.00	6,372.21	214.61	22.19	57.69	-1,704.49	-3,534.54	17,083.95	17,025.07	58.88	290.143	
20,000.00	6,945.00	6,375.00	6,372.21	216.20	22.19	57.69	-1,704.49	-3,534.54	17,183.63	17,124.64	58.98	291.331	
20,100.00	6,945.00	6,375.00	6,372.21	217.79	22.19	57.69	-1,704.49	-3,534.54	17,283.31	17,224.22	59.09	292.514	
20,200.00	6,945.00	6,367.72	6,364.94	219.38	22.17	57.43	-1,704.21	-3,534.24	17,382.98	17,323.82	59.16	293.809	
20,300.00	6,945.00	6,327.68	6,324.97	220.98	22.03	56.03	-1,702.77	-3,532.58	17,482.67	17,423.53	59.14	295.623	
20,400.00	6,945.00	6,325.00	6,322.29	222.57	22.02	55.94	-1,702.68	-3,532.47	17,582.35	17,523.11	59.23	296.834	
20,500.00	6,945.00	6,314.39	6,311.69	224.16	21.98	55.57	-1,702.27	-3,532.00	17,682.01	17,622.71	59.30	298.168	
20,600.00	6,945.00	6,313.66	6,310.97	225.75	21.98	55.55	-1,702.24	-3,531.97	17,781.69	17,722.29	59.40	299.339	
20,700.00	6,945.00	6,312.95	6,310.26	227.35	21.98	55.52	-1,702.22	-3,531.94	17,881.38	17,821.87	59.50	300.504	
20,800.00	6,945.00	6,312.24	6,309.55	228.94	21.97	55.50	-1,702.19	-3,531.91	17,981.07	17,921.46	59.61	301.664	
20,852.96	6,945.00	6,311.87	6,309.18	229.61	21.97	55.48	-1,702.18	-3,531.89	18,033.86	17,970.11	63.75	282.875	

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:	Plan #4	**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
0.00	0.00	161.00	161.00	0.00	4.82	-118.27	-2,509.92	-4,666.99	5,299.10				
20.93	20.93	181.93	181.93	0.00	5.45	49.08	-2,509.92	-4,666.99	5,299.07				
117.41	117.41	278.41	278.41	0.05	8.34	44.53	-2,509.92	-4,666.99	5,298.77	5,290.38	8.39	631.652	
206.68	206.68	367.68	367.68	0.17	11.02	70.44	-2,509.92	-4,666.99	5,298.57	5,287.42	11.14	475.440	
292.93	292.93	453.93	453.93	0.28	13.60	69.89	-2,509.92	-4,666.99	5,298.38	5,284.59	13.80	384.053	
365.00	364.99	526.10	525.99	0.36	15.76	39.22	-2,509.92	-4,666.99	5,298.06	5,282.04	16.02	330.678	
432.00	431.98	593.08	592.98	0.51	17.77	90.00	-2,509.92	-4,666.99	5,297.86	5,279.65	18.21	290.938	CC
451.00	450.97	612.07	611.97	0.55	18.34	92.53	-2,509.92	-4,666.99	5,297.87	5,279.04	18.83	281.346	
540.00	539.81	700.91	700.81	0.83	21.00	98.08	-2,509.92	-4,666.99	5,298.44	5,276.64	21.79	243.106	
665.00	664.37	814.30	814.15	1.26	24.40	100.51	-2,507.88	-4,666.99	5,299.20	5,273.55	25.65	206.628	
753.00	752.01	889.05	888.88	1.58	26.64	99.59	-2,508.41	-4,666.99	5,300.89	5,272.68	28.21	187.891	
847.00	845.61	1,007.02	1,006.61	1.93	30.17	102.70	-2,509.92	-4,666.99	5,303.22	5,271.12	32.10	165.213	
939.00	937.22	1,098.62	1,098.22	2.27	32.92	103.02	-2,509.92	-4,666.99	5,305.13	5,269.94	35.19	150.757	
1,030.00	1,027.78	1,189.18	1,188.78	2.62	35.63	91.69	-2,509.92	-4,666.99	5,306.24	5,267.99	38.25	138.731	
1,092.07	1,089.50	1,250.75	1,250.30	2.85	37.48	93.82	-2,507.74	-4,666.99	5,305.55	5,265.22	40.33	131.549	
1,120.00	1,117.25	1,274.44	1,274.00	2.96	38.19	94.67	-2,507.76	-4,666.99	5,305.79	5,264.65	41.15	128.942	
1,211.00	1,207.68	1,351.73	1,351.27	3.31	40.50	92.10	-2,508.10	-4,666.99	5,306.59	5,262.78	43.82	121.112	
1,306.00	1,302.14	1,432.56	1,432.08	3.68	42.93	94.03	-2,508.90	-4,666.99	5,307.57	5,260.97	46.60	113.891	
1,400.00	1,395.63	1,557.35	1,556.63	4.04	46.67	95.42	-2,509.92	-4,666.99	5,308.75	5,258.05	50.70	104.703	
1,495.00	1,490.19	1,651.90	1,651.19	4.40	49.50	94.84	-2,509.92	-4,666.99	5,309.57	5,255.68	53.90	98.511	
1,589.00	1,583.83	1,745.54	1,744.83	4.76	52.30	92.48	-2,509.92	-4,666.99	5,310.11	5,253.05	57.06	93.064	
1,613.88	1,608.61	1,767.38	1,766.63	4.85	52.96	93.19	-2,507.75	-4,666.99	5,309.23	5,251.42	57.81	91.843	
1,684.00	1,678.44	1,827.19	1,826.43	5.12	54.75	94.96	-2,507.94	-4,666.99	5,309.80	5,249.93	59.86	88.696	
1,779.00	1,772.98	1,908.25	1,907.47	5.48	57.18	99.43	-2,508.61	-4,666.99	5,311.35	5,248.69	62.66	84.770	
1,873.00	1,866.49	2,028.51	2,027.49	5.84	60.78	101.03	-2,509.92	-4,666.99	5,313.57	5,246.95	66.62	79.759	
1,967.00	1,960.05	2,122.06	2,121.05	6.20	63.59	105.77	-2,509.92	-4,666.99	5,315.69	5,245.91	69.78	76.176	
2,062.00	2,054.59	2,216.60	2,215.59	6.56	66.42	100.51	-2,509.92	-4,666.99	5,317.80	5,244.82	72.98	72.870	
2,156.00	2,148.09	2,301.56	2,300.50	6.92	68.97	99.92	-2,507.83	-4,666.99	5,318.60	5,242.72	75.88	70.089	
2,251.00	2,242.55	2,382.73	2,381.65	7.29	71.40	101.34	-2,508.35	-4,666.99	5,320.74	5,242.06	78.68	67.625	
2,345.00	2,336.00	2,463.12	2,462.01	7.65	73.81	95.46	-2,509.32	-4,666.99	5,322.74	5,241.29	81.45	65.349	
2,440.00	2,430.43	2,592.75	2,591.43	8.02	77.69	92.99	-2,509.92	-4,666.99	5,323.66	5,237.96	85.70	62.116	
2,535.00	2,524.86	2,687.18	2,685.86	8.38	80.52	94.36	-2,509.92	-4,666.99	5,324.33	5,235.43	88.90	59.890	
2,598.10	2,587.59	2,749.90	2,748.54	8.63	82.40	94.46	-2,507.74	-4,666.99	5,323.90	5,232.88	91.03	58.488	
2,629.00	2,618.31	2,776.34	2,774.97	8.75	83.19	94.49	-2,507.76	-4,666.99	5,324.18	5,232.24	91.94	57.911	
2,724.00	2,712.77	2,857.69	2,856.31	9.12	85.63	95.33	-2,508.14	-4,666.99	5,325.25	5,230.51	94.74	56.209	
2,818.00	2,806.24	2,938.29	2,936.89	9.48	88.04	95.99	-2,508.97	-4,666.99	5,326.66	5,229.14	97.52	54.623	
2,913.00	2,900.71	3,063.34	3,061.71	9.84	91.79	98.32	-2,509.92	-4,666.99	5,328.23	5,226.60	101.63	52.426	
3,008.00	2,995.25	3,157.87	3,156.25	10.21	94.62	94.01	-2,509.92	-4,666.99	5,329.26	5,224.43	104.83	50.838	
3,088.06	3,074.93	3,237.55	3,235.93	10.51	97.01	94.28	-2,509.92	-4,666.99	5,329.83	5,222.30	107.52	49.570	
3,102.00	3,088.80	3,251.20	3,249.54	10.57	97.42	94.35	-2,507.74	-4,666.99	5,329.00	5,221.01	107.98	49.350	
3,197.00	3,183.30	3,332.78	3,331.10	10.93	99.87	97.36	-2,507.98	-4,666.99	5,330.12	5,219.32	110.79	48.109	
3,291.00	3,276.71	3,413.52	3,411.82	11.30	102.28	91.35	-2,508.67	-4,666.99	5,331.23	5,217.65	113.58	46.940	
3,386.00	3,371.01	3,533.94	3,532.01	11.67	105.89	90.35	-2,509.92	-4,666.99	5,331.87	5,214.31	117.56	45.355	
3,480.00	3,464.23	3,627.16	3,625.23	12.04	108.69	91.76	-2,509.92	-4,666.99	5,332.09	5,211.37	120.72	44.167	
3,575.00	3,558.47	3,721.40	3,719.47	12.42	111.51	93.36	-2,509.92	-4,666.99	5,332.63	5,208.70	123.92	43.032	
3,607.46	3,590.71	3,753.13	3,751.16	12.54	112.46	93.72	-2,507.74	-4,666.99	5,331.95	5,206.95	125.00	42.655	
3,670.00	3,652.84	3,806.92	3,804.94	12.79	114.07	94.42	-2,507.85	-4,666.99	5,332.51	5,205.66	126.86	42.036	
3,764.00	3,746.36	3,887.97	3,885.98	13.15	116.50	97.67	-2,508.40	-4,666.99	5,333.76	5,204.11	129.64	41.141	
3,859.00	3,840.97	4,004.21	4,001.97	13.51	119.98	101.48	-2,509.92	-4,666.99	5,335.77	5,202.28	133.49	39.972	
3,954.00	3,935.57	4,098.80	4,096.57	13.87	122.82	101.61	-2,509.92	-4,666.99	5,337.53	5,200.85	136.68	39.050	
4,049.00	4,030.14	4,193.37	4,191.14	14.23	125.65	92.65	-2,509.92	-4,666.99	5,338.66	5,198.78	139.88	38.166	
4,107.28	4,088.17	4,251.19	4,248.92	14.45	127.39	93.37	-2,507.74	-4,666.99	5,338.04	5,196.21	141.83	37.636	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 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:	Plan #4	**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
4,143.00	4,123.75	4,282.07	4,279.79	14.59	128.31	93.84	-2,507.77	-4,666.99	5,338.26	5,195.37	142.89	37.359	
4,238.00	4,218.33	4,364.21	4,361.91	14.95	130.77	94.16	-2,508.19	-4,666.99	5,339.09	5,193.37	145.71	36.641	
4,333.00	4,312.74	4,446.31	4,444.00	15.32	133.23	91.45	-2,509.08	-4,666.99	5,340.01	5,191.47	148.54	35.950	
4,427.00	4,406.05	4,569.59	4,567.05	15.69	136.93	93.98	-2,509.92	-4,666.99	5,340.81	5,188.20	152.61	34.997	
4,522.00	4,500.34	4,663.88	4,661.34	16.06	139.75	95.00	-2,509.92	-4,666.99	5,341.72	5,185.92	155.81	34.284	
4,598.86	4,576.51	4,740.05	4,737.51	16.37	142.03	93.24	-2,509.92	-4,666.99	5,342.45	5,184.06	158.40	33.729	
4,616.00	4,593.47	4,756.08	4,753.50	16.44	142.51	92.94	-2,507.74	-4,666.99	5,341.71	5,182.77	158.94	33.608	
4,710.00	4,686.44	4,837.06	4,834.47	16.82	144.94	93.78	-2,508.00	-4,666.99	5,342.66	5,180.91	161.75	33.030	
4,899.00	4,873.89	5,037.73	5,034.89	17.57	150.95	100.36	-2,509.92	-4,666.99	5,346.20	5,177.69	168.51	31.726	
4,962.00	4,936.56	5,100.41	5,097.56	17.81	152.83	102.79	-2,509.92	-4,666.99	5,347.48	5,176.85	170.63	31.339	
5,024.00	4,998.27	5,162.11	5,159.27	18.04	154.68	99.10	-2,509.92	-4,666.99	5,348.62	5,175.91	172.72	30.968	
5,150.00	5,123.66	5,282.73	5,279.84	18.53	158.29	100.23	-2,507.77	-4,666.99	5,349.86	5,173.05	176.81	30.257	
5,213.00	5,186.37	5,337.52	5,334.62	18.77	159.94	97.91	-2,508.00	-4,666.99	5,350.91	5,172.22	178.69	29.945	
5,276.00	5,249.09	5,392.36	5,389.45	19.01	161.58	98.85	-2,508.44	-4,666.99	5,351.99	5,171.41	180.57	29.639	
5,339.00	5,311.83	5,447.26	5,444.33	19.25	163.22	97.96	-2,509.10	-4,666.99	5,353.12	5,170.66	182.46	29.339	
5,401.00	5,373.58	5,537.72	5,534.58	19.48	165.94	100.55	-2,509.92	-4,666.99	5,354.26	5,168.86	185.41	28.879	
5,464.00	5,436.33	5,600.48	5,597.33	19.72	167.82	97.90	-2,509.92	-4,666.99	5,355.16	5,167.64	187.52	28.557	
5,590.00	5,561.87	5,726.02	5,722.87	20.19	171.58	96.71	-2,509.92	-4,666.99	5,356.53	5,164.77	191.76	27.933	
5,616.68	5,588.45	5,752.26	5,749.07	20.29	172.36	96.22	-2,507.74	-4,666.99	5,355.95	5,163.31	192.65	27.802	
5,653.00	5,624.66	5,783.94	5,780.75	20.43	173.31	95.44	-2,507.78	-4,666.99	5,356.27	5,162.54	193.73	27.648	
5,715.00	5,686.48	5,838.08	5,834.88	20.66	174.94	90.52	-2,508.01	-4,666.99	5,356.63	5,161.04	195.58	27.388	
5,778.00	5,749.29	5,893.12	5,889.91	20.90	176.58	93.25	-2,508.45	-4,666.99	5,356.98	5,159.52	197.47	27.129	
5,841.00	5,812.10	5,948.20	5,944.97	21.13	178.24	90.99	-2,509.11	-4,666.99	5,357.45	5,158.10	199.35	26.875	
5,904.00	5,874.94	6,039.39	6,035.94	21.36	180.97	96.35	-2,509.92	-4,666.99	5,357.97	5,155.65	202.32	26.483	
5,967.00	5,937.80	6,102.25	6,098.80	21.60	182.85	97.94	-2,509.92	-4,666.99	5,358.49	5,154.06	204.44	26.211	
6,030.00	6,000.68	6,165.13	6,161.68	21.83	184.74	96.06	-2,509.92	-4,666.99	5,358.96	5,152.41	206.55	25.945	
6,093.00	6,063.59	6,228.04	6,224.59	22.05	186.62	99.77	-2,509.92	-4,666.99	5,359.43	5,150.77	208.66	25.685	
6,114.85	6,085.41	6,249.86	6,246.37	22.13	187.27	101.58	-2,507.74	-4,666.99	5,358.81	5,149.42	209.40	25.592	
6,156.00	6,126.51	6,285.89	6,282.40	22.28	188.35	105.10	-2,507.78	-4,666.99	5,359.31	5,148.68	210.62	25.445	
6,235.00	6,205.43	6,355.12	6,351.61	22.56	190.43	104.81	-2,508.12	-4,666.99	5,360.35	5,147.37	212.98	25.169	
6,300.00	6,270.38	6,412.12	6,408.60	22.68	192.14	104.83	-2,508.65	-4,666.99	5,361.22	5,146.42	214.80	24.959	
6,355.00	6,325.34	6,460.37	6,456.83	22.69	193.58	104.84	-2,509.28	-4,666.99	5,362.03	5,145.78	216.26	24.795	
6,400.00	6,370.23	6,534.99	6,531.23	22.71	195.82	137.45	-2,509.92	-4,666.99	5,364.08	5,145.56	218.51	24.548 ES	
6,450.00	6,419.74	6,584.50	6,580.74	22.73	197.30	144.78	-2,509.92	-4,666.99	5,369.53	5,149.52	220.02	24.405	
6,500.00	6,468.57	6,633.33	6,629.57	22.77	198.76	147.41	-2,509.92	-4,666.99	5,378.50	5,156.99	221.51	24.281	
6,550.00	6,516.42	6,681.17	6,677.42	22.81	200.20	148.53	-2,509.92	-4,666.99	5,390.94	5,167.95	222.99	24.176	
6,600.00	6,562.98	6,727.74	6,723.98	22.87	201.59	148.90	-2,509.92	-4,666.99	5,406.76	5,182.33	224.43	24.091	
6,650.00	6,607.98	6,769.94	6,766.14	22.95	202.86	148.81	-2,507.75	-4,666.99	5,425.09	5,199.34	225.75	24.031	
6,700.00	6,651.14	6,807.84	6,804.03	23.03	203.99	148.32	-2,507.85	-4,666.99	5,447.46	5,220.50	226.95	24.002	
6,750.00	6,692.18	6,843.89	6,840.08	23.14	205.07	147.49	-2,508.04	-4,666.99	5,472.92	5,244.81	228.11	23.992 SF	
6,800.00	6,730.86	6,877.89	6,874.07	23.26	206.09	146.31	-2,508.31	-4,666.99	5,501.33	5,272.11	229.21	24.001	
6,850.00	6,766.93	6,909.62	6,905.79	23.40	207.04	144.77	-2,508.63	-4,666.99	5,532.50	5,302.25	230.25	24.028	
6,900.00	6,800.18	6,938.87	6,935.03	23.56	207.92	142.80	-2,508.98	-4,666.99	5,566.26	5,335.03	231.23	24.073	
6,950.00	6,830.39	6,965.47	6,961.63	23.74	208.72	140.33	-2,509.36	-4,666.99	5,602.38	5,370.25	232.13	24.135	
7,000.00	6,857.38	7,022.44	7,018.38	23.94	210.42	137.55	-2,509.92	-4,666.99	5,640.62	5,406.67	233.95	24.111	
7,050.00	6,880.98	7,046.05	7,041.98	24.17	211.13	133.81	-2,509.92	-4,666.99	5,680.66	5,445.89	234.77	24.197	
7,100.00	6,901.06	7,066.12	7,062.06	24.42	211.73	129.17	-2,509.92	-4,666.99	5,722.37	5,486.89	235.49	24.300	
7,150.00	6,917.47	7,082.53	7,078.47	24.70	212.22	123.41	-2,509.92	-4,666.99	5,765.51	5,529.42	236.09	24.420	
7,200.00	6,930.13	7,095.19	7,091.13	25.01	212.60	116.34	-2,509.92	-4,666.99	5,809.81	5,573.22	236.59	24.556	
7,250.00	6,938.95	7,104.01	7,099.95	25.34	212.87	107.85	-2,509.92	-4,666.99	5,855.00	5,618.03	236.97	24.708	
7,300.00	6,943.88	7,108.94	7,104.88	25.69	213.02	98.04	-2,509.92	-4,666.99	5,900.79	5,663.56	237.23	24.874	
7,337.82	6,945.00	7,110.06	7,106.00	25.97	213.05	90.00	-2,509.92	-4,666.99	5,935.66	5,698.32	237.35	25.008	

CC - Min centre to center distance or 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:	Plan #4	**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
7,400.00	6,945.00	7,110.06	7,106.00	26.45	213.05	90.00	-2,509.92	-4,666.99	5,993.37	5,755.89	237.48	25.237	
7,492.38	6,945.00	7,110.06	7,106.00	27.21	213.05	90.00	-2,509.92	-4,666.99	6,080.16	5,842.49	237.67	25.583	
7,500.00	6,945.00	7,110.06	7,106.00	27.28	213.05	90.00	-2,509.92	-4,666.99	6,087.36	5,849.68	237.68	25.611	
7,600.00	6,945.00	7,110.06	7,106.00	28.17	213.05	90.00	-2,509.92	-4,666.99	6,182.03	5,944.15	237.88	25.988	
7,700.00	6,945.00	7,110.06	7,106.00	29.12	213.05	90.00	-2,509.92	-4,666.99	6,276.86	6,038.79	238.07	26.365	
7,800.00	6,945.00	7,110.06	7,106.00	30.14	213.05	90.00	-2,509.92	-4,666.99	6,371.86	6,133.58	238.27	26.742	
7,900.00	6,945.00	7,110.06	7,106.00	31.20	213.05	90.00	-2,509.92	-4,666.99	6,467.00	6,228.53	238.47	27.119	
8,000.00	6,945.00	7,110.06	7,106.00	32.31	213.05	90.00	-2,509.92	-4,666.99	6,562.28	6,323.62	238.67	27.496	
8,100.00	6,945.00	7,110.06	7,106.00	33.46	213.05	90.00	-2,509.92	-4,666.99	6,657.71	6,418.85	238.86	27.872	
8,200.00	6,945.00	7,110.06	7,106.00	34.64	213.05	90.00	-2,509.92	-4,666.99	6,753.27	6,514.21	239.06	28.249	
8,300.00	6,945.00	7,110.06	7,106.00	35.86	213.05	90.00	-2,509.92	-4,666.99	6,848.95	6,609.69	239.26	28.626	
8,400.00	6,945.00	7,110.06	7,106.00	37.11	213.05	90.00	-2,509.92	-4,666.99	6,944.76	6,705.30	239.45	29.003	
8,500.00	6,945.00	7,110.06	7,106.00	38.39	213.05	90.00	-2,509.92	-4,666.99	7,040.68	6,801.03	239.65	29.379	
8,600.00	6,945.00	7,110.06	7,106.00	39.69	213.05	90.00	-2,509.92	-4,666.99	7,136.71	6,896.87	239.84	29.756	
8,700.00	6,945.00	7,110.06	7,106.00	41.01	213.05	90.00	-2,509.92	-4,666.99	7,232.86	6,992.82	240.03	30.133	
8,800.00	6,945.00	7,110.06	7,106.00	42.35	213.05	90.00	-2,509.92	-4,666.99	7,329.10	7,088.88	240.22	30.510	
8,900.00	6,945.00	7,110.06	7,106.00	43.71	213.05	90.00	-2,509.92	-4,666.99	7,425.45	7,185.03	240.41	30.886	
9,000.00	6,945.00	7,110.06	7,106.00	45.08	213.05	90.00	-2,509.92	-4,666.99	7,521.89	7,281.29	240.60	31.263	
9,100.00	6,945.00	7,110.06	7,106.00	46.47	213.05	90.00	-2,509.92	-4,666.99	7,618.42	7,377.63	240.79	31.640	
9,200.00	6,945.00	7,110.06	7,106.00	47.87	213.05	90.00	-2,509.92	-4,666.99	7,715.04	7,474.07	240.97	32.017	
9,300.00	6,945.00	7,110.06	7,106.00	49.29	213.05	90.00	-2,509.92	-4,666.99	7,811.74	7,570.59	241.15	32.393	
9,400.00	6,945.00	7,110.06	7,106.00	50.71	213.05	90.00	-2,509.92	-4,666.99	7,908.53	7,667.20	241.33	32.770	
9,500.00	6,945.00	7,110.06	7,106.00	52.15	213.05	90.00	-2,509.92	-4,666.99	8,005.40	7,763.88	241.51	33.147	
9,600.00	6,945.00	7,110.06	7,106.00	53.59	213.05	90.00	-2,509.92	-4,666.99	8,102.34	7,860.65	241.69	33.524	
9,700.00	6,945.00	7,110.06	7,106.00	55.05	213.05	90.00	-2,509.92	-4,666.99	8,199.35	7,957.49	241.86	33.901	
9,800.00	6,945.00	7,110.06	7,106.00	56.51	213.05	90.00	-2,509.92	-4,666.99	8,296.44	8,054.40	242.04	34.277	
9,900.00	6,945.00	7,110.06	7,106.00	57.98	213.05	90.00	-2,509.92	-4,666.99	8,393.59	8,151.38	242.21	34.654	
10,000.00	6,945.00	7,110.06	7,106.00	59.45	213.05	90.00	-2,509.92	-4,666.99	8,490.82	8,248.43	242.38	35.031	
10,100.00	6,945.00	7,110.06	7,106.00	60.93	213.05	90.00	-2,509.92	-4,666.99	8,588.10	8,345.55	242.55	35.408	
10,200.00	6,945.00	7,110.06	7,106.00	62.42	213.05	90.00	-2,509.92	-4,666.99	8,685.45	8,442.73	242.72	35.784	
10,300.00	6,945.00	7,110.06	7,106.00	63.92	213.05	90.00	-2,509.92	-4,666.99	8,782.85	8,539.97	242.88	36.161	
10,400.00	6,945.00	7,110.06	7,106.00	65.42	213.05	90.00	-2,509.92	-4,666.99	8,880.32	8,637.27	243.05	36.538	
10,500.00	6,945.00	7,110.06	7,106.00	66.92	213.05	90.00	-2,509.92	-4,666.99	8,977.84	8,734.63	243.21	36.914	
10,600.00	6,945.00	7,110.06	7,106.00	68.43	213.05	90.00	-2,509.92	-4,666.99	9,075.41	8,832.04	243.37	37.291	
10,700.00	6,945.00	7,110.06	7,106.00	69.94	213.05	90.00	-2,509.92	-4,666.99	9,173.04	8,929.51	243.53	37.667	
10,800.00	6,945.00	7,110.06	7,106.00	71.45	213.05	90.00	-2,509.92	-4,666.99	9,270.71	9,027.03	243.69	38.044	
10,900.00	6,945.00	7,110.06	7,106.00	72.97	213.05	90.00	-2,509.92	-4,666.99	9,368.44	9,124.59	243.84	38.420	
11,000.00	6,945.00	7,110.06	7,106.00	74.50	213.05	90.00	-2,509.92	-4,666.99	9,466.21	9,222.21	244.00	38.796	
11,100.00	6,945.00	7,110.06	7,106.00	76.02	213.05	90.00	-2,509.92	-4,666.99	9,564.03	9,319.88	244.15	39.173	
11,200.00	6,945.00	7,110.06	7,106.00	77.55	213.05	90.00	-2,509.92	-4,666.99	9,661.89	9,417.59	244.30	39.549	
11,300.00	6,945.00	7,110.06	7,106.00	79.08	213.05	90.00	-2,509.92	-4,666.99	9,759.80	9,515.35	244.45	39.925	
11,400.00	6,945.00	7,110.06	7,106.00	80.62	213.05	90.00	-2,509.92	-4,666.99	9,857.75	9,613.15	244.60	40.301	
11,500.00	6,945.00	7,110.06	7,106.00	82.16	213.05	90.00	-2,509.92	-4,666.99	9,955.74	9,710.99	244.75	40.677	
11,600.00	6,945.00	7,110.06	7,106.00	83.70	213.05	90.00	-2,509.92	-4,666.99	10,053.77	9,808.87	244.90	41.053	
11,700.00	6,945.00	7,110.06	7,106.00	85.24	213.05	90.00	-2,509.92	-4,666.99	10,151.84	9,906.79	245.04	41.429	
11,800.00	6,945.00	7,110.06	7,106.00	86.78	213.05	90.00	-2,509.92	-4,666.99	10,249.94	10,004.76	245.19	41.805	
11,900.00	6,945.00	7,110.06	7,106.00	88.33	213.05	90.00	-2,509.92	-4,666.99	10,348.08	10,102.75	245.33	42.181	
12,000.00	6,945.00	7,110.06	7,106.00	89.87	213.05	90.00	-2,509.92	-4,666.99	10,446.26	10,200.79	245.47	42.556	
12,100.00	6,945.00	7,110.06	7,106.00	91.42	213.05	90.00	-2,509.92	-4,666.99	10,544.47	10,298.86	245.61	42.932	
12,200.00	6,945.00	7,110.06	7,106.00	92.98	213.05	90.00	-2,509.92	-4,666.99	10,642.71	10,396.96	245.75	43.307	
12,300.00	6,945.00	7,110.06	7,106.00	94.53	213.05	90.00	-2,509.92	-4,666.99	10,740.99	10,495.10	245.89	43.682	
12,400.00	6,945.00	7,110.06	7,106.00	96.08	213.05	90.00	-2,509.92	-4,666.99	10,839.30	10,593.27	246.03	44.058	

CC - Min centre to center distance or 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:	Plan #4	**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
12,500.00	6,945.00	7,110.06	7,106.00	97.64	213.05	90.00	-2,509.92	-4,666.99	10,937.64	10,691.48	246.16	44.433	
12,600.00	6,945.00	7,110.06	7,106.00	99.20	213.05	90.00	-2,509.92	-4,666.99	11,036.01	10,789.71	246.30	44.808	
12,700.00	6,945.00	7,110.06	7,106.00	100.76	213.05	90.00	-2,509.92	-4,666.99	11,134.40	10,887.97	246.43	45.182	
12,800.00	6,945.00	7,110.06	7,106.00	102.32	213.05	90.00	-2,509.92	-4,666.99	11,232.83	10,986.26	246.57	45.557	
12,900.00	6,945.00	7,110.06	7,106.00	103.88	213.05	90.00	-2,509.92	-4,666.99	11,331.28	11,084.59	246.70	45.932	
13,000.00	6,945.00	7,110.06	7,106.00	105.44	213.05	90.00	-2,509.92	-4,666.99	11,429.76	11,182.93	246.83	46.306	
13,100.00	6,945.00	7,110.06	7,106.00	107.00	213.05	90.00	-2,509.92	-4,666.99	11,528.27	11,281.31	246.96	46.680	
13,200.00	6,945.00	7,110.06	7,106.00	108.57	213.05	90.00	-2,509.92	-4,666.99	11,626.80	11,379.71	247.09	47.055	
13,300.00	6,945.00	7,110.06	7,106.00	110.13	213.05	90.00	-2,509.92	-4,666.99	11,725.36	11,478.14	247.22	47.429	
13,400.00	6,945.00	7,110.06	7,106.00	111.70	213.05	90.00	-2,509.92	-4,666.99	11,823.94	11,576.59	247.35	47.803	
13,500.00	6,945.00	7,110.06	7,106.00	113.27	213.05	90.00	-2,509.92	-4,666.99	11,922.55	11,675.07	247.48	48.176	
13,600.00	6,945.00	7,110.06	7,106.00	114.84	213.05	90.00	-2,509.92	-4,666.99	12,021.17	11,773.57	247.60	48.550	
13,700.00	6,945.00	7,110.06	7,106.00	116.41	213.05	90.00	-2,509.92	-4,666.99	12,119.82	11,872.09	247.73	48.923	
13,800.00	6,945.00	7,110.06	7,106.00	117.98	213.05	90.00	-2,509.92	-4,666.99	12,218.50	11,970.64	247.86	49.297	
13,900.00	6,945.00	7,110.06	7,106.00	119.55	213.05	90.00	-2,509.92	-4,666.99	12,317.19	12,069.21	247.98	49.670	
14,000.00	6,945.00	7,110.06	7,106.00	121.12	213.05	90.00	-2,509.92	-4,666.99	12,415.90	12,167.80	248.11	50.043	
14,100.00	6,945.00	7,110.06	7,106.00	122.69	213.05	90.00	-2,509.92	-4,666.99	12,514.64	12,266.41	248.23	50.416	
14,200.00	6,945.00	7,110.06	7,106.00	124.27	213.05	90.00	-2,509.92	-4,666.99	12,613.39	12,365.04	248.35	50.788	
14,300.00	6,945.00	7,110.06	7,106.00	125.84	213.05	90.00	-2,509.92	-4,666.99	12,712.17	12,463.69	248.47	51.161	
14,400.00	6,945.00	7,110.06	7,106.00	127.41	213.05	90.00	-2,509.92	-4,666.99	12,810.96	12,562.37	248.60	51.533	
14,500.00	6,945.00	7,110.06	7,106.00	128.99	213.05	90.00	-2,509.92	-4,666.99	12,909.77	12,661.06	248.72	51.905	
14,600.00	6,945.00	7,110.06	7,106.00	130.57	213.05	90.00	-2,509.92	-4,666.99	13,008.61	12,759.77	248.84	52.277	
14,700.00	6,945.00	7,110.06	7,106.00	132.14	213.05	90.00	-2,509.92	-4,666.99	13,107.45	12,858.49	248.96	52.649	
14,800.00	6,945.00	7,110.06	7,106.00	133.72	213.05	90.00	-2,509.92	-4,666.99	13,206.32	12,957.24	249.08	53.021	
14,900.00	6,945.00	7,110.06	7,106.00	135.30	213.05	90.00	-2,509.92	-4,666.99	13,305.20	13,056.00	249.20	53.392	
15,000.00	6,945.00	7,110.06	7,106.00	136.87	213.05	90.00	-2,509.92	-4,666.99	13,404.10	13,154.78	249.32	53.763	
15,100.00	6,945.00	7,110.06	7,106.00	138.45	213.05	90.00	-2,509.92	-4,666.99	13,503.01	13,253.58	249.44	54.134	
15,200.00	6,945.00	7,110.06	7,106.00	140.03	213.05	90.00	-2,509.92	-4,666.99	13,601.95	13,352.39	249.55	54.505	
15,300.00	6,945.00	7,110.06	7,106.00	141.61	213.05	90.00	-2,509.92	-4,666.99	13,700.89	13,451.22	249.67	54.876	
15,400.00	6,945.00	7,110.06	7,106.00	143.19	213.05	90.00	-2,509.92	-4,666.99	13,799.85	13,550.06	249.79	55.246	
15,500.00	6,945.00	7,110.06	7,106.00	144.77	213.05	90.00	-2,509.92	-4,666.99	13,898.83	13,648.92	249.91	55.616	
15,600.00	6,945.00	7,110.06	7,106.00	146.35	213.05	90.00	-2,509.92	-4,666.99	13,997.82	13,747.80	250.02	55.986	
15,700.00	6,945.00	7,110.06	7,106.00	147.94	213.05	90.00	-2,509.92	-4,666.99	14,096.83	13,846.69	250.14	56.356	
15,800.00	6,945.00	7,110.06	7,106.00	149.52	213.05	90.00	-2,509.92	-4,666.99	14,195.85	13,945.59	250.25	56.726	
15,900.00	6,945.00	7,110.06	7,106.00	151.10	213.05	90.00	-2,509.92	-4,666.99	14,294.88	14,044.51	250.37	57.095	
16,000.00	6,945.00	7,110.06	7,106.00	152.68	213.05	90.00	-2,509.92	-4,666.99	14,393.92	14,143.44	250.48	57.464	
16,100.00	6,945.00	7,110.06	7,106.00	154.26	213.05	90.00	-2,509.92	-4,666.99	14,492.98	14,242.38	250.60	57.833	
16,200.00	6,945.00	7,110.06	7,106.00	155.85	213.05	90.00	-2,509.92	-4,666.99	14,592.06	14,341.34	250.71	58.202	
16,300.00	6,945.00	7,110.06	7,106.00	157.43	213.05	90.00	-2,509.92	-4,666.99	14,691.14	14,440.31	250.83	58.571	
16,400.00	6,945.00	7,110.06	7,106.00	159.02	213.05	90.00	-2,509.92	-4,666.99	14,790.24	14,539.30	250.94	58.939	
16,500.00	6,945.00	7,110.06	7,106.00	160.60	213.05	90.00	-2,509.92	-4,666.99	14,889.35	14,638.29	251.06	59.307	
16,600.00	6,945.00	7,110.06	7,106.00	162.18	213.05	90.00	-2,509.92	-4,666.99	14,988.47	14,737.30	251.17	59.675	
16,700.00	6,945.00	7,110.06	7,106.00	163.77	213.05	90.00	-2,509.92	-4,666.99	15,087.60	14,836.32	251.28	60.043	
16,800.00	6,945.00	7,110.06	7,106.00	165.35	213.05	90.00	-2,509.92	-4,666.99	15,186.74	14,935.35	251.39	60.410	
16,900.00	6,945.00	7,110.06	7,106.00	166.94	213.05	90.00	-2,509.92	-4,666.99	15,285.90	15,034.39	251.51	60.777	
17,000.00	6,945.00	7,110.06	7,106.00	168.53	213.05	90.00	-2,509.92	-4,666.99	15,385.07	15,133.45	251.62	61.144	
17,100.00	6,945.00	7,110.06	7,106.00	170.11	213.05	90.00	-2,509.92	-4,666.99	15,484.24	15,232.51	251.73	61.511	
17,200.00	6,945.00	7,110.06	7,106.00	171.70	213.05	90.00	-2,509.92	-4,666.99	15,583.43	15,331.59	251.84	61.877	
17,300.00	6,945.00	7,110.06	7,106.00	173.29	213.05	90.00	-2,509.92	-4,666.99	15,682.63	15,430.67	251.96	62.244	
17,400.00	6,945.00	7,110.06	7,106.00	174.87	213.05	90.00	-2,509.92	-4,666.99	15,781.84	15,529.77	252.07	62.610	
17,500.00	6,945.00	7,110.06	7,106.00	176.46	213.05	90.00	-2,509.92	-4,666.99	15,881.05	15,628.87	252.18	62.975	
17,600.00	6,945.00	7,110.06	7,106.00	178.05	213.05	90.00	-2,509.92	-4,666.99	15,980.28	15,727.99	252.29	63.341	

CC - Min centre to center distance or 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:	Plan #4	**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
17,700.00	6,945.00	7,110.06	7,106.00	179.63	213.05	90.00	-2,509.92	-4,666.99	16,079.52	15,827.12	252.40	63.706	
17,800.00	6,945.00	7,110.06	7,106.00	181.22	213.05	90.00	-2,509.92	-4,666.99	16,178.76	15,926.25	252.51	64.071	
17,900.00	6,945.00	7,110.06	7,106.00	182.81	213.05	90.00	-2,509.92	-4,666.99	16,278.02	16,025.40	252.62	64.436	
18,000.00	6,945.00	7,110.06	7,106.00	184.40	213.05	90.00	-2,509.92	-4,666.99	16,377.28	16,124.55	252.73	64.801	
18,100.00	6,945.00	7,110.06	7,106.00	185.99	213.05	90.00	-2,509.92	-4,666.99	16,476.56	16,223.71	252.84	65.165	
18,200.00	6,945.00	7,110.06	7,106.00	187.58	213.05	90.00	-2,509.92	-4,666.99	16,575.84	16,322.89	252.95	65.529	
18,300.00	6,945.00	7,110.06	7,106.00	189.16	213.05	90.00	-2,509.92	-4,666.99	16,675.13	16,422.07	253.07	65.893	
18,400.00	6,945.00	7,110.06	7,106.00	190.75	213.05	90.00	-2,509.92	-4,666.99	16,774.43	16,521.25	253.18	66.256	
18,500.00	6,945.00	7,110.06	7,106.00	192.34	213.05	90.00	-2,509.92	-4,666.99	16,873.74	16,620.45	253.29	66.619	
18,600.00	6,945.00	7,110.06	7,106.00	193.93	213.05	90.00	-2,509.92	-4,666.99	16,973.05	16,719.66	253.40	66.982	
18,700.00	6,945.00	7,110.06	7,106.00	195.52	213.05	90.00	-2,509.92	-4,666.99	17,072.38	16,818.87	253.51	67.345	
18,800.00	6,945.00	7,110.06	7,106.00	197.11	213.05	90.00	-2,509.92	-4,666.99	17,171.71	16,918.09	253.62	67.708	
18,900.00	6,945.00	7,110.06	7,106.00	198.70	213.05	90.00	-2,509.92	-4,666.99	17,271.05	17,017.32	253.73	68.070	
19,000.00	6,945.00	7,110.06	7,106.00	200.29	213.05	90.00	-2,509.92	-4,666.99	17,370.40	17,116.56	253.83	68.432	
19,100.00	6,945.00	7,110.06	7,106.00	201.88	213.05	90.00	-2,509.92	-4,666.99	17,469.75	17,215.80	253.94	68.794	
19,200.00	6,945.00	7,110.06	7,106.00	203.47	213.05	90.00	-2,509.92	-4,666.99	17,569.11	17,315.06	254.05	69.155	
19,300.00	6,945.00	7,110.06	7,106.00	205.06	213.05	90.00	-2,509.92	-4,666.99	17,668.48	17,414.32	254.16	69.516	
19,400.00	6,945.00	7,110.06	7,106.00	206.65	213.05	90.00	-2,509.92	-4,666.99	17,767.86	17,513.58	254.27	69.877	
19,500.00	6,945.00	7,110.06	7,106.00	208.24	213.05	90.00	-2,509.92	-4,666.99	17,867.24	17,612.86	254.38	70.238	
19,600.00	6,945.00	7,110.06	7,106.00	209.84	213.05	90.00	-2,509.92	-4,666.99	17,966.63	17,712.14	254.49	70.598	
19,700.00	6,945.00	7,110.06	7,106.00	211.43	213.05	90.00	-2,509.92	-4,666.99	18,066.02	17,811.42	254.60	70.958	
19,800.00	6,945.00	7,110.06	7,106.00	213.02	213.05	90.00	-2,509.92	-4,666.99	18,165.43	17,910.72	254.71	71.318	
19,900.00	6,945.00	7,110.06	7,106.00	214.61	213.05	90.00	-2,509.92	-4,666.99	18,264.84	18,010.02	254.82	71.677	
20,000.00	6,945.00	7,110.06	7,106.00	216.20	213.05	90.00	-2,509.92	-4,666.99	18,364.25	18,109.32	254.93	72.037	
20,100.00	6,945.00	7,110.06	7,106.00	217.79	213.05	90.00	-2,509.92	-4,666.99	18,463.68	18,208.64	255.04	72.396	
20,200.00	6,945.00	7,110.06	7,106.00	219.38	213.05	90.00	-2,509.92	-4,666.99	18,563.10	18,307.96	255.15	72.754	
20,300.00	6,945.00	7,110.06	7,106.00	220.98	213.05	90.00	-2,509.92	-4,666.99	18,662.54	18,407.28	255.26	73.113	
20,400.00	6,945.00	7,110.06	7,106.00	222.57	213.05	90.00	-2,509.92	-4,666.99	18,761.98	18,506.61	255.37	73.471	
20,500.00	6,945.00	7,110.06	7,106.00	224.16	213.05	90.00	-2,509.92	-4,666.99	18,861.43	18,605.95	255.48	73.829	
20,600.00	6,945.00	7,110.06	7,106.00	225.75	213.05	90.00	-2,509.92	-4,666.99	18,960.88	18,705.29	255.58	74.186	
20,700.00	6,945.00	7,110.06	7,106.00	227.35	213.05	90.00	-2,509.92	-4,666.99	19,060.34	18,804.64	255.69	74.543	
20,800.00	6,945.00	7,110.06	7,106.00	228.94	213.05	90.00	-2,509.92	-4,666.99	19,159.80	18,904.00	255.80	74.900	
20,852.96	6,945.00	7,110.06	7,106.00	229.61	213.05	90.00	-2,509.92	-4,666.99	19,212.48	18,952.81	259.66	73.990	

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:	Plan #4	**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
0.00	0.00	178.00	178.00	0.00	5.33	-128.87	-2,454.66	-3,045.13	3,911.29				
20.93	20.93	198.93	198.93	0.00	5.96	38.48	-2,454.66	-3,045.13	3,911.25				
117.41	117.41	295.41	295.41	0.05	8.85	33.93	-2,454.66	-3,045.13	3,910.89	3,901.99	8.90	439.300	
206.68	206.68	384.68	384.68	0.17	11.53	59.84	-2,454.66	-3,045.13	3,910.63	3,898.97	11.67	335.152	
292.93	292.93	470.93	470.93	0.28	14.11	59.29	-2,454.66	-3,045.13	3,910.36	3,896.03	14.33	272.893	
365.00	364.99	543.10	542.99	0.36	16.27	28.62	-2,454.66	-3,045.13	3,909.96	3,893.40	16.56	236.170	
451.00	450.97	629.07	628.97	0.55	18.85	81.95	-2,454.66	-3,045.13	3,909.43	3,890.07	19.35	202.005	
540.00	539.81	717.91	717.81	0.83	21.51	87.54	-2,454.66	-3,045.13	3,909.03	3,886.72	22.31	175.202	
610.47	610.05	782.59	782.45	1.08	23.45	89.03	-2,452.52	-3,045.13	3,907.53	3,883.03	24.50	159.461	
665.00	664.37	829.05	828.90	1.26	24.84	90.02	-2,452.70	-3,045.13	3,907.62	3,881.53	26.09	149.764	
753.00	752.01	904.06	903.89	1.58	27.09	89.13	-2,453.31	-3,045.13	3,908.01	3,879.35	28.66	136.336	
847.00	845.61	1,024.02	1,023.61	1.93	30.68	92.28	-2,454.66	-3,045.13	3,908.87	3,876.26	32.61	119.864	
939.00	937.22	1,115.62	1,115.22	2.27	33.43	92.64	-2,454.66	-3,045.13	3,909.24	3,873.54	35.70	109.499	
1,030.00	1,027.78	1,206.18	1,205.78	2.62	36.14	81.35	-2,454.66	-3,045.13	3,908.74	3,869.98	38.76	100.846	
1,120.00	1,117.25	1,289.09	1,288.64	2.96	38.63	84.38	-2,452.53	-3,045.13	3,906.23	3,864.64	41.59	93.925	
1,211.00	1,207.68	1,366.65	1,366.18	3.31	40.95	81.84	-2,452.95	-3,045.13	3,905.31	3,861.05	44.26	88.230	
1,306.00	1,302.14	1,447.76	1,447.27	3.68	43.38	83.79	-2,453.84	-3,045.13	3,904.68	3,857.62	47.06	82.978	
1,400.00	1,395.63	1,574.35	1,573.63	4.04	47.17	85.23	-2,454.66	-3,045.13	3,904.10	3,852.89	51.21	76.235	
1,495.00	1,490.19	1,668.90	1,668.19	4.40	50.01	84.68	-2,454.66	-3,045.13	3,903.30	3,848.89	54.41	71.743	
1,589.00	1,583.83	1,760.75	1,760.00	4.76	52.76	82.37	-2,452.48	-3,045.13	3,901.05	3,843.54	57.51	67.829	
1,684.00	1,678.44	1,842.06	1,841.29	5.12	55.20	84.86	-2,452.77	-3,045.13	3,900.31	3,840.00	60.31	64.673	
1,724.76	1,719.00	1,876.95	1,876.17	5.27	56.24	86.88	-2,453.04	-3,045.13	3,900.21	3,838.70	61.51	63.408	
1,779.00	1,772.98	1,923.40	1,922.61	5.48	57.63	89.36	-2,453.53	-3,045.13	3,900.38	3,837.27	63.11	61.805	
1,873.00	1,866.49	2,045.51	2,044.49	5.84	61.29	91.01	-2,454.66	-3,045.13	3,900.99	3,833.86	67.13	58.112	
1,967.00	1,960.05	2,139.06	2,138.05	6.20	64.10	95.79	-2,454.66	-3,045.13	3,901.52	3,831.23	70.29	55.506	
2,062.00	2,054.59	2,233.60	2,232.59	6.56	66.93	90.58	-2,454.66	-3,045.13	3,902.02	3,828.54	73.49	53.099	
2,100.65	2,093.04	2,268.96	2,267.91	6.71	67.99	90.36	-2,452.49	-3,045.13	3,900.77	3,826.07	74.69	52.224	
2,156.00	2,148.09	2,316.38	2,315.31	6.92	69.41	90.02	-2,452.63	-3,045.13	3,900.88	3,824.56	76.33	51.108	
2,251.00	2,242.55	2,397.83	2,396.74	7.29	71.85	91.48	-2,453.24	-3,045.13	3,901.44	3,822.31	79.13	49.303	
2,345.00	2,336.00	2,515.32	2,514.00	7.65	75.37	85.69	-2,454.66	-3,045.13	3,901.95	3,818.93	83.02	47.002	
2,440.00	2,430.43	2,609.75	2,608.43	8.02	78.20	83.22	-2,454.66	-3,045.13	3,900.94	3,814.73	86.21	45.247	
2,535.00	2,524.86	2,704.18	2,702.86	8.38	81.03	84.63	-2,454.66	-3,045.13	3,899.84	3,810.43	89.41	43.617	
2,629.00	2,618.31	2,791.10	2,789.74	8.75	83.63	84.80	-2,452.54	-3,045.13	3,897.67	3,805.29	92.38	42.192	
2,724.00	2,712.77	2,872.74	2,871.36	9.12	86.08	85.67	-2,453.00	-3,045.13	3,897.14	3,801.94	95.19	40.940	
2,786.42	2,774.83	2,926.44	2,925.04	9.36	87.69	86.13	-2,453.57	-3,045.13	3,897.04	3,800.00	97.04	40.159	
2,818.00	2,806.24	2,953.63	2,952.22	9.48	88.50	86.36	-2,453.93	-3,045.13	3,897.06	3,799.09	97.98	39.776	
2,913.00	2,900.71	3,080.34	3,078.71	9.84	92.30	88.74	-2,454.66	-3,045.13	3,896.93	3,794.79	102.14	38.152	
3,008.00	2,995.25	3,174.87	3,173.25	10.21	95.13	84.47	-2,454.66	-3,045.13	3,896.39	3,791.05	105.34	36.989	
3,102.00	3,088.80	3,265.92	3,264.26	10.57	97.86	84.84	-2,452.49	-3,045.13	3,894.28	3,785.86	108.43	35.917	
3,196.15	3,182.45	3,347.05	3,345.37	10.93	100.29	87.86	-2,452.81	-3,045.13	3,893.89	3,782.67	111.22	35.011	
3,197.00	3,183.30	3,347.78	3,346.10	10.93	100.31	87.89	-2,452.81	-3,045.13	3,893.89	3,782.64	111.24	35.003	
3,291.00	3,276.71	3,428.81	3,427.11	11.30	102.74	81.93	-2,453.60	-3,045.13	3,893.43	3,779.40	114.03	34.143	
3,386.00	3,371.01	3,550.94	3,549.01	11.67	106.40	80.99	-2,454.66	-3,045.13	3,892.22	3,774.15	118.07	32.966	
3,480.00	3,464.23	3,644.16	3,642.23	12.04	109.20	82.46	-2,454.66	-3,045.13	3,890.47	3,769.24	121.23	32.091	
3,575.00	3,558.47	3,738.40	3,736.47	12.42	112.02	84.09	-2,454.66	-3,045.13	3,889.05	3,764.62	124.43	31.254	
3,670.00	3,652.84	3,821.88	3,819.90	12.79	114.52	85.18	-2,452.66	-3,045.13	3,886.91	3,759.61	127.30	30.533	
3,730.93	3,713.44	3,874.58	3,872.59	13.02	116.10	87.16	-2,453.02	-3,045.13	3,886.72	3,757.60	129.12	30.103	
3,764.00	3,746.36	3,903.22	3,901.22	13.15	116.96	88.44	-2,453.30	-3,045.13	3,886.77	3,756.67	130.10	29.875	
3,859.00	3,840.97	4,021.21	4,018.97	13.51	120.49	92.30	-2,454.66	-3,045.13	3,887.51	3,753.52	134.00	29.012	
3,954.00	3,935.57	4,115.80	4,113.57	13.87	123.33	92.46	-2,454.66	-3,045.13	3,887.88	3,750.69	137.19	28.339	
4,049.00	4,030.14	4,210.37	4,208.14	14.23	126.16	83.55	-2,454.66	-3,045.13	3,887.56	3,747.17	140.39	27.691	
4,143.00	4,123.75	4,296.98	4,294.70	14.59	128.76	84.76	-2,452.56	-3,045.13	3,885.54	3,742.20	143.34	27.107	

CC - Min centre to center distance or 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:	Plan #4	**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
4,238.00	4,218.33	4,379.41	4,377.11	14.95	131.23	85.12	-2,453.06	-3,045.13	3,885.07	3,738.90	146.17	26.579	
4,333.00	4,312.74	4,461.80	4,459.48	15.32	133.70	82.47	-2,454.05	-3,045.13	3,884.52	3,735.52	149.01	26.070	
4,427.00	4,406.05	4,586.59	4,584.05	15.69	137.43	85.05	-2,454.66	-3,045.13	3,883.49	3,730.37	153.12	25.363	
4,522.00	4,500.34	4,680.88	4,678.34	16.06	140.26	86.12	-2,454.66	-3,045.13	3,882.59	3,726.28	156.32	24.838	
4,616.00	4,593.47	4,770.94	4,768.36	16.44	142.96	84.15	-2,452.49	-3,045.13	3,880.31	3,720.92	159.39	24.345	
4,710.00	4,686.44	4,852.22	4,849.63	16.82	145.39	85.03	-2,452.84	-3,045.13	3,879.21	3,717.00	162.21	23.915	
4,786.17	4,761.87	4,918.26	4,915.65	17.12	147.37	87.26	-2,453.47	-3,045.13	3,878.87	3,714.39	164.49	23.582	
4,899.00	4,873.89	5,054.73	5,051.89	17.57	151.46	91.67	-2,454.66	-3,045.13	3,879.26	3,710.23	169.03	22.951	
4,962.00	4,936.56	5,117.41	5,114.56	17.81	153.34	94.12	-2,454.66	-3,045.13	3,879.57	3,708.43	171.15	22.668	
5,024.00	4,998.27	5,179.11	5,176.27	18.04	155.19	90.45	-2,454.66	-3,045.13	3,879.81	3,706.58	173.23	22.397	
5,095.30	5,069.21	5,250.03	5,247.15	18.32	157.31	91.12	-2,452.48	-3,045.13	3,878.76	3,703.13	175.63	22.085	
5,150.00	5,123.66	5,297.73	5,294.85	18.53	158.74	91.64	-2,452.56	-3,045.13	3,878.93	3,701.66	177.27	21.882	
5,213.00	5,186.37	5,352.72	5,349.82	18.77	160.39	89.34	-2,452.85	-3,045.13	3,879.15	3,700.00	179.15	21.653	
5,276.00	5,249.09	5,407.76	5,404.84	19.01	162.04	90.29	-2,453.35	-3,045.13	3,879.44	3,698.39	181.04	21.428	
5,339.00	5,311.83	5,462.85	5,459.92	19.25	163.69	89.42	-2,454.06	-3,045.13	3,879.85	3,696.92	182.93	21.210	
5,401.00	5,373.58	5,554.72	5,551.58	19.48	166.44	92.04	-2,454.66	-3,045.13	3,880.12	3,694.19	185.92	20.869	
5,464.00	5,436.33	5,617.48	5,614.33	19.72	168.33	89.42	-2,454.66	-3,045.13	3,880.19	3,692.15	188.04	20.635	
5,590.00	5,561.87	5,743.16	5,739.87	20.19	172.09	88.27	-2,454.66	-3,045.13	3,879.97	3,687.69	192.28	20.179	
5,653.00	5,624.66	5,805.95	5,802.66	20.43	173.97	87.00	-2,454.66	-3,045.13	3,879.76	3,685.36	194.40	19.958	
5,715.00	5,686.48	5,867.77	5,864.48	20.66	175.82	82.11	-2,454.66	-3,045.13	3,879.32	3,682.83	196.48	19.744	
5,778.00	5,749.29	5,917.83	5,914.51	20.90	177.33	84.86	-2,453.68	-3,045.13	3,878.29	3,680.08	198.22	19.566	
5,841.00	5,812.10	5,967.50	5,964.17	21.13	178.81	82.62	-2,454.16	-3,045.13	3,878.08	3,678.14	199.94	19.397	
5,904.00	5,874.94	6,056.39	6,052.94	21.36	181.48	88.00	-2,454.66	-3,045.13	3,877.86	3,675.02	202.84	19.118	
5,967.00	5,937.80	6,119.25	6,115.80	21.60	183.36	89.60	-2,454.66	-3,045.13	3,877.77	3,672.82	204.95	18.920	
6,030.00	6,000.68	6,182.13	6,178.68	21.83	185.24	87.74	-2,454.66	-3,045.13	3,877.68	3,670.62	207.07	18.727	
6,069.90	6,040.52	6,221.97	6,218.52	21.97	186.44	90.00	-2,454.66	-3,045.13	3,877.64	3,669.23	208.41	18.606 CC	
6,093.00	6,063.59	6,245.04	6,241.59	22.05	187.13	91.46	-2,454.66	-3,045.13	3,877.65	3,668.47	209.18	18.537	
6,156.00	6,126.51	6,307.96	6,304.51	22.28	189.01	96.78	-2,454.66	-3,045.13	3,877.88	3,666.59	211.29	18.353 ES	
6,235.00	6,205.43	6,317.00	6,313.36	22.56	189.29	96.47	-2,454.66	-3,045.13	3,878.92	3,667.10	211.81	18.313 SF	
6,300.00	6,270.38	6,317.00	6,313.36	22.68	189.29	96.47	-2,454.66	-3,045.13	3,880.92	3,669.08	211.84	18.320	
6,355.00	6,325.34	6,317.00	6,313.36	22.69	189.29	96.47	-2,454.66	-3,045.13	3,883.46	3,671.73	211.73	18.342	
6,400.00	6,370.23	6,317.00	6,313.36	22.71	189.29	128.92	-2,454.66	-3,045.13	3,887.44	3,675.82	211.61	18.370	
6,450.00	6,419.74	6,317.00	6,313.36	22.73	189.29	136.01	-2,454.66	-3,045.13	3,895.53	3,684.06	211.47	18.421	
6,500.00	6,468.57	6,317.00	6,313.36	22.77	189.29	138.30	-2,454.66	-3,045.13	3,907.42	3,696.11	211.30	18.492	
6,550.00	6,516.42	6,317.00	6,313.36	22.81	189.29	138.99	-2,454.66	-3,045.13	3,922.99	3,711.86	211.13	18.581	
6,600.00	6,562.98	6,317.00	6,313.36	22.87	189.29	138.83	-2,454.66	-3,045.13	3,942.11	3,731.16	210.95	18.687	
6,650.00	6,607.98	6,317.00	6,313.36	22.95	189.29	138.08	-2,454.66	-3,045.13	3,964.60	3,753.84	210.77	18.810	
6,700.00	6,651.14	6,317.00	6,313.36	23.03	189.29	136.82	-2,454.66	-3,045.13	3,990.29	3,779.69	210.59	18.948	
6,750.00	6,692.18	6,317.00	6,313.36	23.14	189.29	135.09	-2,454.66	-3,045.13	4,018.93	3,808.51	210.43	19.099	
6,800.00	6,730.86	6,317.00	6,313.36	23.26	189.29	132.85	-2,454.66	-3,045.13	4,050.31	3,840.03	210.28	19.262	
6,850.00	6,766.93	6,317.00	6,313.36	23.40	189.29	130.06	-2,454.66	-3,045.13	4,084.15	3,874.01	210.15	19.435	
6,900.00	6,800.18	6,317.00	6,313.36	23.56	189.29	126.66	-2,454.66	-3,045.13	4,120.21	3,910.16	210.05	19.616	
6,950.00	6,830.39	6,317.00	6,313.36	23.74	189.29	122.57	-2,454.66	-3,045.13	4,158.19	3,948.22	209.97	19.803	
7,000.00	6,857.38	6,317.00	6,313.36	23.94	189.29	117.71	-2,454.66	-3,045.13	4,197.82	3,987.88	209.93	19.996	
7,050.00	6,880.98	6,317.00	6,313.36	24.17	189.29	112.04	-2,454.66	-3,045.13	4,238.80	4,028.87	209.93	20.192	
7,100.00	6,901.06	6,317.00	6,313.36	24.42	189.29	105.55	-2,454.66	-3,045.13	4,280.85	4,070.89	209.96	20.389	
7,150.00	6,917.47	6,317.00	6,313.36	24.70	189.29	98.33	-2,454.66	-3,045.13	4,323.68	4,113.66	210.02	20.587	
7,200.00	6,930.13	6,317.00	6,313.36	25.01	189.29	90.59	-2,454.66	-3,045.13	4,367.01	4,156.89	210.12	20.783	
7,250.00	6,938.95	6,317.00	6,313.36	25.34	189.29	82.64	-2,454.66	-3,045.13	4,410.56	4,200.30	210.26	20.977	
7,300.00	6,943.88	6,317.00	6,313.36	25.69	189.29	74.82	-2,454.66	-3,045.13	4,454.05	4,243.63	210.43	21.167	
7,337.82	6,945.00	6,317.00	6,313.36	25.97	189.29	69.20	-2,454.66	-3,045.13	4,486.76	4,276.18	210.57	21.307	
7,400.00	6,945.00	6,317.00	6,313.36	26.45	189.29	68.41	-2,454.66	-3,045.13	4,540.73	4,329.91	210.83	21.538	

CC - Min centre to center distance or 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:	Plan #4	**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
7,492.38	6,945.00	6,317.00	6,313.36	27.21	189.29	67.08	-2,454.66	-3,045.13	4,622.41	4,411.22	211.19	21.887	
7,500.00	6,945.00	6,317.00	6,313.36	27.28	189.29	67.08	-2,454.66	-3,045.13	4,629.21	4,417.99	211.22	21.916	
7,600.00	6,945.00	6,317.00	6,313.36	28.17	189.29	67.08	-2,454.66	-3,045.13	4,718.77	4,507.17	211.60	22.300	
7,700.00	6,945.00	6,317.00	6,313.36	29.12	189.29	67.08	-2,454.66	-3,045.13	4,808.74	4,596.76	211.98	22.685	
7,800.00	6,945.00	6,317.00	6,313.36	30.14	189.29	67.08	-2,454.66	-3,045.13	4,899.10	4,686.75	212.35	23.071	
7,900.00	6,945.00	6,317.00	6,313.36	31.20	189.29	67.08	-2,454.66	-3,045.13	4,989.83	4,777.12	212.71	23.458	
8,000.00	6,945.00	6,317.00	6,313.36	32.31	189.29	67.08	-2,454.66	-3,045.13	5,080.90	4,867.84	213.06	23.847	
8,100.00	6,945.00	6,317.00	6,313.36	33.46	189.29	67.08	-2,454.66	-3,045.13	5,172.31	4,958.90	213.41	24.236	
8,200.00	6,945.00	6,317.00	6,313.36	34.64	189.29	67.08	-2,454.66	-3,045.13	5,264.02	5,050.27	213.75	24.627	
8,300.00	6,945.00	6,317.00	6,313.36	35.86	189.29	67.08	-2,454.66	-3,045.13	5,356.04	5,141.95	214.08	25.018	
8,400.00	6,945.00	6,317.00	6,313.36	37.11	189.29	67.08	-2,454.66	-3,045.13	5,448.33	5,233.92	214.41	25.411	
8,500.00	6,945.00	6,317.00	6,313.36	38.39	189.29	67.08	-2,454.66	-3,045.13	5,540.89	5,326.16	214.73	25.804	
8,600.00	6,945.00	6,317.00	6,313.36	39.69	189.29	67.08	-2,454.66	-3,045.13	5,633.71	5,418.67	215.04	26.198	
8,700.00	6,945.00	6,317.00	6,313.36	41.01	189.29	67.08	-2,454.66	-3,045.13	5,726.77	5,511.42	215.35	26.593	
8,800.00	6,945.00	6,317.00	6,313.36	42.35	189.29	67.08	-2,454.66	-3,045.13	5,820.06	5,604.41	215.64	26.989	
8,900.00	6,945.00	6,317.00	6,313.36	43.71	189.29	67.08	-2,454.66	-3,045.13	5,913.57	5,697.63	215.93	27.386	
9,000.00	6,945.00	6,317.00	6,313.36	45.08	189.29	67.08	-2,454.66	-3,045.13	6,007.28	5,791.06	216.22	27.783	
9,100.00	6,945.00	6,317.00	6,313.36	46.47	189.29	67.08	-2,454.66	-3,045.13	6,101.20	5,884.70	216.50	28.181	
9,200.00	6,945.00	6,317.00	6,313.36	47.87	189.29	67.08	-2,454.66	-3,045.13	6,195.31	5,978.54	216.77	28.580	
9,300.00	6,945.00	6,317.00	6,313.36	49.29	189.29	67.08	-2,454.66	-3,045.13	6,289.60	6,072.56	217.03	28.980	
9,400.00	6,945.00	6,317.00	6,313.36	50.71	189.29	67.08	-2,454.66	-3,045.13	6,384.06	6,166.76	217.29	29.380	
9,500.00	6,945.00	6,317.00	6,313.36	52.15	189.29	67.08	-2,454.66	-3,045.13	6,478.69	6,261.14	217.55	29.780	
9,600.00	6,945.00	6,317.00	6,313.36	53.59	189.29	67.08	-2,454.66	-3,045.13	6,573.48	6,355.68	217.80	30.182	
9,700.00	6,945.00	6,317.00	6,313.36	55.05	189.29	67.08	-2,454.66	-3,045.13	6,668.42	6,450.37	218.04	30.583	
9,800.00	6,945.00	6,317.00	6,313.36	56.51	189.29	67.08	-2,454.66	-3,045.13	6,763.50	6,545.22	218.28	30.985	
9,900.00	6,945.00	6,317.00	6,313.36	57.98	189.29	67.08	-2,454.66	-3,045.13	6,858.73	6,640.21	218.51	31.388	
10,000.00	6,945.00	6,317.00	6,313.36	59.45	189.29	67.08	-2,454.66	-3,045.13	6,954.09	6,735.35	218.74	31.791	
10,100.00	6,945.00	6,317.00	6,313.36	60.93	189.29	67.08	-2,454.66	-3,045.13	7,049.58	6,830.61	218.97	32.195	
10,200.00	6,945.00	6,317.00	6,313.36	62.42	189.29	67.08	-2,454.66	-3,045.13	7,145.19	6,926.00	219.19	32.599	
10,300.00	6,945.00	6,317.00	6,313.36	63.92	189.29	67.08	-2,454.66	-3,045.13	7,240.92	7,021.52	219.40	33.003	
10,400.00	6,945.00	6,317.00	6,313.36	65.42	189.29	67.08	-2,454.66	-3,045.13	7,336.76	7,117.15	219.61	33.408	
10,500.00	6,945.00	6,317.00	6,313.36	66.92	189.29	67.08	-2,454.66	-3,045.13	7,432.72	7,212.90	219.82	33.813	
10,600.00	6,945.00	6,317.00	6,313.36	68.43	189.29	67.08	-2,454.66	-3,045.13	7,528.78	7,308.75	220.02	34.218	
10,700.00	6,945.00	6,317.00	6,313.36	69.94	189.29	67.08	-2,454.66	-3,045.13	7,624.94	7,404.72	220.22	34.624	
10,800.00	6,945.00	6,317.00	6,313.36	71.45	189.29	67.08	-2,454.66	-3,045.13	7,721.19	7,500.78	220.42	35.030	
10,900.00	6,945.00	6,317.00	6,313.36	72.97	189.29	67.08	-2,454.66	-3,045.13	7,817.55	7,596.94	220.61	35.436	
11,000.00	6,945.00	6,317.00	6,313.36	74.50	189.29	67.08	-2,454.66	-3,045.13	7,913.99	7,693.19	220.80	35.843	
11,100.00	6,945.00	6,317.00	6,313.36	76.02	189.29	67.08	-2,454.66	-3,045.13	8,010.52	7,789.54	220.98	36.249	
11,200.00	6,945.00	6,317.00	6,313.36	77.55	189.29	67.08	-2,454.66	-3,045.13	8,107.13	7,885.97	221.17	36.656	
11,300.00	6,945.00	6,317.00	6,313.36	79.08	189.29	67.08	-2,454.66	-3,045.13	8,203.83	7,982.48	221.35	37.063	
11,400.00	6,945.00	6,317.00	6,313.36	80.62	189.29	67.08	-2,454.66	-3,045.13	8,300.60	8,079.08	221.52	37.471	
11,500.00	6,945.00	6,317.00	6,313.36	82.16	189.29	67.08	-2,454.66	-3,045.13	8,397.45	8,175.75	221.70	37.878	
11,600.00	6,945.00	6,317.00	6,313.36	83.70	189.29	67.08	-2,454.66	-3,045.13	8,494.37	8,272.50	221.87	38.286	
11,700.00	6,945.00	6,317.00	6,313.36	85.24	189.29	67.08	-2,454.66	-3,045.13	8,591.36	8,369.33	222.04	38.694	
11,800.00	6,945.00	6,317.00	6,313.36	86.78	189.29	67.08	-2,454.66	-3,045.13	8,688.42	8,466.22	222.20	39.102	
11,900.00	6,945.00	6,317.00	6,313.36	88.33	189.29	67.08	-2,454.66	-3,045.13	8,785.55	8,563.19	222.37	39.510	
12,000.00	6,945.00	6,317.00	6,313.36	89.87	189.29	67.08	-2,454.66	-3,045.13	8,882.74	8,660.22	222.53	39.918	
12,100.00	6,945.00	6,317.00	6,313.36	91.42	189.29	67.08	-2,454.66	-3,045.13	8,979.99	8,757.31	222.69	40.326	
12,200.00	6,945.00	6,317.00	6,313.36	92.98	189.29	67.08	-2,454.66	-3,045.13	9,077.31	8,854.46	222.84	40.734	
12,300.00	6,945.00	6,317.00	6,313.36	94.53	189.29	67.08	-2,454.66	-3,045.13	9,174.68	8,951.68	223.00	41.142	
12,400.00	6,945.00	6,317.00	6,313.36	96.08	189.29	67.08	-2,454.66	-3,045.13	9,272.10	9,048.95	223.15	41.551	
12,500.00	6,945.00	6,317.00	6,313.36	97.64	189.29	67.08	-2,454.66	-3,045.13	9,369.58	9,146.28	223.30	41.959	

CC - Min centre to center distance or 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:	Plan #4	**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
12,600.00	6,945.00	6,317.00	6,313.36	99.20	189.29	67.08	-2,454.66	-3,045.13	9,467.11	9,243.66	223.45	42.368	
12,700.00	6,945.00	6,317.00	6,313.36	100.76	189.29	67.08	-2,454.66	-3,045.13	9,564.70	9,341.10	223.60	42.776	
12,800.00	6,945.00	6,317.00	6,313.36	102.32	189.29	67.08	-2,454.66	-3,045.13	9,662.33	9,438.59	223.74	43.185	
12,900.00	6,945.00	6,317.00	6,313.36	103.88	189.29	67.08	-2,454.66	-3,045.13	9,760.01	9,536.12	223.89	43.593	
13,000.00	6,945.00	6,317.00	6,313.36	105.44	189.29	67.08	-2,454.66	-3,045.13	9,857.74	9,633.71	224.03	44.002	
13,100.00	6,945.00	6,317.00	6,313.36	107.00	189.29	67.08	-2,454.66	-3,045.13	9,955.51	9,731.34	224.17	44.410	
13,200.00	6,945.00	6,317.00	6,313.36	108.57	189.29	67.08	-2,454.66	-3,045.13	10,053.33	9,829.02	224.31	44.819	
13,300.00	6,945.00	6,317.00	6,313.36	110.13	189.29	67.08	-2,454.66	-3,045.13	10,151.18	9,926.74	224.45	45.227	
13,400.00	6,945.00	6,317.00	6,313.36	111.70	189.29	67.08	-2,454.66	-3,045.13	10,249.09	10,024.50	224.58	45.636	
13,500.00	6,945.00	6,317.00	6,313.36	113.27	189.29	67.08	-2,454.66	-3,045.13	10,347.03	10,122.31	224.72	46.044	
13,600.00	6,945.00	6,317.00	6,313.36	114.84	189.29	67.08	-2,454.66	-3,045.13	10,445.00	10,220.15	224.85	46.453	
13,700.00	6,945.00	6,317.00	6,313.36	116.41	189.29	67.08	-2,454.66	-3,045.13	10,543.02	10,318.04	224.99	46.861	
13,800.00	6,945.00	6,317.00	6,313.36	117.98	189.29	67.08	-2,454.66	-3,045.13	10,641.08	10,415.96	225.12	47.269	
13,900.00	6,945.00	6,317.00	6,313.36	119.55	189.29	67.08	-2,454.66	-3,045.13	10,739.17	10,513.92	225.25	47.677	
14,000.00	6,945.00	6,317.00	6,313.36	121.12	189.29	67.08	-2,454.66	-3,045.13	10,837.29	10,611.91	225.38	48.085	
14,100.00	6,945.00	6,317.00	6,313.36	122.69	189.29	67.08	-2,454.66	-3,045.13	10,935.45	10,709.95	225.50	48.493	
14,200.00	6,945.00	6,317.00	6,313.36	124.27	189.29	67.08	-2,454.66	-3,045.13	11,033.64	10,808.01	225.63	48.901	
14,300.00	6,945.00	6,317.00	6,313.36	125.84	189.29	67.08	-2,454.66	-3,045.13	11,131.87	10,906.11	225.76	49.309	
14,400.00	6,945.00	6,317.00	6,313.36	127.41	189.29	67.08	-2,454.66	-3,045.13	11,230.12	11,004.24	225.88	49.717	
14,500.00	6,945.00	6,317.00	6,313.36	128.99	189.29	67.08	-2,454.66	-3,045.13	11,328.41	11,102.40	226.01	50.124	
14,600.00	6,945.00	6,317.00	6,313.36	130.57	189.29	67.08	-2,454.66	-3,045.13	11,426.72	11,200.59	226.13	50.532	
14,700.00	6,945.00	6,317.00	6,313.36	132.14	189.29	67.08	-2,454.66	-3,045.13	11,525.07	11,298.82	226.25	50.939	
14,800.00	6,945.00	6,317.00	6,313.36	133.72	189.29	67.08	-2,454.66	-3,045.13	11,623.44	11,397.07	226.37	51.346	
14,900.00	6,945.00	6,317.00	6,313.36	135.30	189.29	67.08	-2,454.66	-3,045.13	11,721.84	11,495.35	226.50	51.753	
15,000.00	6,945.00	6,317.00	6,313.36	136.87	189.29	67.08	-2,454.66	-3,045.13	11,820.27	11,593.65	226.62	52.160	
15,100.00	6,945.00	6,317.00	6,313.36	138.45	189.29	67.08	-2,454.66	-3,045.13	11,918.72	11,691.99	226.73	52.567	
15,200.00	6,945.00	6,317.00	6,313.36	140.03	189.29	67.08	-2,454.66	-3,045.13	12,017.20	11,790.35	226.85	52.973	
15,300.00	6,945.00	6,317.00	6,313.36	141.61	189.29	67.08	-2,454.66	-3,045.13	12,115.71	11,888.73	226.97	53.380	
15,400.00	6,945.00	6,317.00	6,313.36	143.19	189.29	67.08	-2,454.66	-3,045.13	12,214.23	11,987.15	227.09	53.786	
15,500.00	6,945.00	6,317.00	6,313.36	144.77	189.29	67.08	-2,454.66	-3,045.13	12,312.79	12,085.58	227.21	54.192	
15,600.00	6,945.00	6,317.00	6,313.36	146.35	189.29	67.08	-2,454.66	-3,045.13	12,411.36	12,184.04	227.32	54.598	
15,700.00	6,945.00	6,317.00	6,313.36	147.94	189.29	67.08	-2,454.66	-3,045.13	12,509.96	12,282.52	227.44	55.004	
15,800.00	6,945.00	6,317.00	6,313.36	149.52	189.29	67.08	-2,454.66	-3,045.13	12,608.58	12,381.03	227.55	55.410	
15,900.00	6,945.00	6,317.00	6,313.36	151.10	189.29	67.08	-2,454.66	-3,045.13	12,707.22	12,479.55	227.67	55.815	
16,000.00	6,945.00	6,317.00	6,313.36	152.68	189.29	67.08	-2,454.66	-3,045.13	12,805.88	12,578.10	227.78	56.220	
16,100.00	6,945.00	6,317.00	6,313.36	154.26	189.29	67.08	-2,454.66	-3,045.13	12,904.57	12,676.67	227.89	56.625	
16,200.00	6,945.00	6,317.00	6,313.36	155.85	189.29	67.08	-2,454.66	-3,045.13	13,003.27	12,775.26	228.01	57.030	
16,300.00	6,945.00	6,317.00	6,313.36	157.43	189.29	67.08	-2,454.66	-3,045.13	13,101.99	12,873.87	228.12	57.435	
16,400.00	6,945.00	6,317.00	6,313.36	159.02	189.29	67.08	-2,454.66	-3,045.13	13,200.73	12,972.50	228.23	57.839	
16,500.00	6,945.00	6,317.00	6,313.36	160.60	189.29	67.08	-2,454.66	-3,045.13	13,299.50	13,071.15	228.34	58.243	
16,600.00	6,945.00	6,317.00	6,313.36	162.18	189.29	67.08	-2,454.66	-3,045.13	13,398.28	13,169.82	228.45	58.647	
16,700.00	6,945.00	6,317.00	6,313.36	163.77	189.29	67.08	-2,454.66	-3,045.13	13,497.07	13,268.51	228.57	59.051	
16,800.00	6,945.00	6,317.00	6,313.36	165.35	189.29	67.08	-2,454.66	-3,045.13	13,595.89	13,367.21	228.68	59.455	
16,900.00	6,945.00	6,317.00	6,313.36	166.94	189.29	67.08	-2,454.66	-3,045.13	13,694.72	13,465.93	228.79	59.858	
17,000.00	6,945.00	6,317.00	6,313.36	168.53	189.29	67.08	-2,454.66	-3,045.13	13,793.57	13,564.67	228.90	60.261	
17,100.00	6,945.00	6,317.00	6,313.36	170.11	189.29	67.08	-2,454.66	-3,045.13	13,892.43	13,663.43	229.01	60.664	
17,200.00	6,945.00	6,317.00	6,313.36	171.70	189.29	67.08	-2,454.66	-3,045.13	13,991.32	13,762.20	229.11	61.067	
17,300.00	6,945.00	6,317.00	6,313.36	173.29	189.29	67.08	-2,454.66	-3,045.13	14,090.21	13,860.99	229.22	61.469	
17,400.00	6,945.00	6,317.00	6,313.36	174.87	189.29	67.08	-2,454.66	-3,045.13	14,189.13	13,959.79	229.33	61.872	
17,500.00	6,945.00	6,317.00	6,313.36	176.46	189.29	67.08	-2,454.66	-3,045.13	14,288.05	14,058.61	229.44	62.274	
17,600.00	6,945.00	6,317.00	6,313.36	178.05	189.29	67.08	-2,454.66	-3,045.13	14,387.00	14,157.45	229.55	62.675	
17,700.00	6,945.00	6,317.00	6,313.36	179.63	189.29	67.08	-2,454.66	-3,045.13	14,485.95	14,256.30	229.66	63.077	

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:	Plan #4	**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
17,800.00	6,945.00	6,317.00	6,313.36	181.22	189.29	67.08	-2,454.66	-3,045.13	14,584.93	14,355.16	229.76	63.478	
17,900.00	6,945.00	6,317.00	6,313.36	182.81	189.29	67.08	-2,454.66	-3,045.13	14,683.91	14,454.04	229.87	63.879	
18,000.00	6,945.00	6,317.00	6,313.36	184.40	189.29	67.08	-2,454.66	-3,045.13	14,782.91	14,552.93	229.98	64.280	
18,100.00	6,945.00	6,317.00	6,313.36	185.99	189.29	67.08	-2,454.66	-3,045.13	14,881.92	14,651.84	230.09	64.680	
18,200.00	6,945.00	6,317.00	6,313.36	187.58	189.29	67.08	-2,454.66	-3,045.13	14,980.95	14,750.76	230.19	65.080	
18,300.00	6,945.00	6,317.00	6,313.36	189.16	189.29	67.08	-2,454.66	-3,045.13	15,079.99	14,849.69	230.30	65.480	
18,400.00	6,945.00	6,317.00	6,313.36	190.75	189.29	67.08	-2,454.66	-3,045.13	15,179.04	14,948.63	230.41	65.880	
18,500.00	6,945.00	6,317.00	6,313.36	192.34	189.29	67.08	-2,454.66	-3,045.13	15,278.10	15,047.59	230.51	66.279	
18,600.00	6,945.00	6,317.00	6,313.36	193.93	189.29	67.08	-2,454.66	-3,045.13	15,377.18	15,146.56	230.62	66.678	
18,700.00	6,945.00	6,317.00	6,313.36	195.52	189.29	67.08	-2,454.66	-3,045.13	15,476.26	15,245.54	230.72	67.077	
18,800.00	6,945.00	6,317.00	6,313.36	197.11	189.29	67.08	-2,454.66	-3,045.13	15,575.36	15,344.53	230.83	67.476	
18,900.00	6,945.00	6,317.00	6,313.36	198.70	189.29	67.08	-2,454.66	-3,045.13	15,674.47	15,443.54	230.94	67.874	
19,000.00	6,945.00	6,317.00	6,313.36	200.29	189.29	67.08	-2,454.66	-3,045.13	15,773.60	15,542.55	231.04	68.272	
19,100.00	6,945.00	6,317.00	6,313.36	201.88	189.29	67.08	-2,454.66	-3,045.13	15,872.73	15,641.58	231.15	68.669	
19,200.00	6,945.00	6,317.00	6,313.36	203.47	189.29	67.08	-2,454.66	-3,045.13	15,971.87	15,740.62	231.25	69.067	
19,300.00	6,945.00	6,317.00	6,313.36	205.06	189.29	67.08	-2,454.66	-3,045.13	16,071.03	15,839.67	231.36	69.464	
19,400.00	6,945.00	6,317.00	6,313.36	206.65	189.29	67.08	-2,454.66	-3,045.13	16,170.19	15,938.73	231.46	69.861	
19,500.00	6,945.00	6,317.00	6,313.36	208.24	189.29	67.08	-2,454.66	-3,045.13	16,269.37	16,037.80	231.57	70.257	
19,600.00	6,945.00	6,317.00	6,313.36	209.84	189.29	67.08	-2,454.66	-3,045.13	16,368.55	16,136.88	231.67	70.654	
19,700.00	6,945.00	6,317.00	6,313.36	211.43	189.29	67.08	-2,454.66	-3,045.13	16,467.75	16,235.97	231.78	71.050	
19,800.00	6,945.00	6,317.00	6,313.36	213.02	189.29	67.08	-2,454.66	-3,045.13	16,566.95	16,335.07	231.88	71.445	
19,900.00	6,945.00	6,317.00	6,313.36	214.61	189.29	67.08	-2,454.66	-3,045.13	16,666.16	16,434.17	231.99	71.840	
20,000.00	6,945.00	6,317.00	6,313.36	216.20	189.29	67.08	-2,454.66	-3,045.13	16,765.39	16,533.29	232.09	72.235	
20,100.00	6,945.00	6,317.00	6,313.36	217.79	189.29	67.08	-2,454.66	-3,045.13	16,864.62	16,632.42	232.20	72.630	
20,200.00	6,945.00	6,317.00	6,313.36	219.38	189.29	67.08	-2,454.66	-3,045.13	16,963.86	16,731.56	232.30	73.025	
20,300.00	6,945.00	6,317.00	6,313.36	220.98	189.29	67.08	-2,454.66	-3,045.13	17,063.11	16,830.70	232.41	73.419	
20,400.00	6,945.00	6,317.00	6,313.36	222.57	189.29	67.08	-2,454.66	-3,045.13	17,162.37	16,929.86	232.51	73.812	
20,500.00	6,945.00	6,317.00	6,313.36	224.16	189.29	67.08	-2,454.66	-3,045.13	17,261.64	17,029.02	232.62	74.206	
20,600.00	6,945.00	6,317.00	6,313.36	225.75	189.29	67.08	-2,454.66	-3,045.13	17,360.91	17,128.19	232.72	74.599	
20,700.00	6,945.00	6,317.00	6,313.36	227.35	189.29	67.08	-2,454.66	-3,045.13	17,460.20	17,227.37	232.83	74.992	
20,800.00	6,945.00	6,317.00	6,313.36	228.94	189.29	67.08	-2,454.66	-3,045.13	17,559.49	17,326.56	232.93	75.384	
20,852.96	6,945.00	6,317.00	6,313.36	229.61	189.29	67.08	-2,454.66	-3,045.13	17,612.08	17,375.56	236.51	74.465	

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:	Plan #4	**Offset TVD Reference:**	Offset Datum

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

Survey Program: 100-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
0.00	0.00	127.71	127.71	0.00	0.27	-83.07	949.67	-7,809.91	7,867.49				
20.93	20.93	148.90	148.90	0.00	0.35	84.29	949.80	-7,809.82	7,867.41				
117.41	117.41	246.33	246.32	0.05	0.69	79.74	950.32	-7,809.40	7,867.00	7,866.28	0.72	N/A	
206.68	206.68	338.35	338.34	0.17	1.01	105.65	950.84	-7,808.99	7,866.68	7,865.58	1.10	7,129.960	
292.93	292.93	429.13	429.12	0.28	1.33	105.11	951.33	-7,808.53	7,866.45	7,864.96	1.48	5,306.685	
365.00	364.99	500.00	499.99	0.36	1.58	74.44	951.71	-7,808.15	7,866.11	7,864.31	1.80	4,374.152	
387.19	387.18	523.44	523.42	0.41	1.66	108.74	951.85	-7,808.02	7,866.03	7,864.09	1.95	4,044.205	CC, ES
451.00	450.97	583.00	582.99	0.55	1.87	127.74	952.18	-7,807.72	7,866.67	7,864.33	2.34	3,362.713	
540.00	539.81	675.40	675.38	0.83	2.19	133.22	952.72	-7,807.26	7,869.73	7,866.76	2.98	2,644.900	
665.00	664.37	790.49	790.47	1.26	2.60	135.58	953.44	-7,806.69	7,876.55	7,872.72	3.83	2,055.688	
753.00	752.01	873.83	873.80	1.58	2.89	134.63	953.98	-7,806.37	7,881.95	7,877.50	4.44	1,773.252	
847.00	845.61	955.06	955.03	1.93	3.17	137.69	954.59	-7,806.12	7,887.98	7,882.90	5.07	1,554.566	
939.00	937.22	1,038.48	1,038.45	2.27	3.47	137.97	955.37	-7,805.99	7,894.29	7,888.59	5.70	1,383.859	
1,030.00	1,027.78	1,139.57	1,139.53	2.62	3.82	126.53	956.37	-7,805.81	7,900.22	7,893.83	6.40	1,235.298	
1,120.00	1,117.25	1,249.85	1,249.80	2.96	4.21	129.45	957.64	-7,805.32	7,905.99	7,898.87	7.12	1,110.420	
1,211.00	1,207.68	1,348.30	1,348.24	3.31	4.55	126.87	958.82	-7,804.69	7,911.87	7,904.06	7.81	1,013.237	
1,306.00	1,302.14	1,443.30	1,443.24	3.68	4.89	128.80	960.09	-7,804.03	7,917.59	7,909.09	8.50	931.589	
1,400.00	1,395.63	1,545.99	1,545.91	4.04	5.25	130.13	961.38	-7,803.30	7,923.27	7,914.05	9.21	860.101	
1,495.00	1,490.19	1,651.70	1,651.62	4.40	5.62	129.54	961.95	-7,802.43	7,928.45	7,918.51	9.94	797.846	
1,589.00	1,583.83	1,730.60	1,730.52	4.76	5.89	127.14	962.19	-7,801.81	7,932.90	7,922.34	10.56	751.025	
1,684.00	1,678.44	1,800.00	1,799.92	5.12	6.14	129.54	962.39	-7,801.52	7,937.87	7,926.71	11.16	711.312	
1,779.00	1,772.98	1,865.89	1,865.80	5.48	6.37	133.97	962.62	-7,801.46	7,944.09	7,932.34	11.74	676.381	
1,873.00	1,866.49	1,936.72	1,936.63	5.84	6.61	135.51	962.97	-7,801.58	7,951.04	7,938.69	12.34	644.159	
1,967.00	1,960.05	2,009.74	2,009.65	6.20	6.87	140.23	963.58	-7,801.88	7,958.30	7,945.35	12.95	614.712	
2,062.00	2,054.59	2,107.00	2,106.90	6.56	7.21	134.88	964.66	-7,802.33	7,965.75	7,952.11	13.64	584.037	
2,156.00	2,148.09	2,191.36	2,191.26	6.92	7.50	134.22	965.74	-7,802.74	7,973.19	7,958.91	14.29	558.140	
2,251.00	2,242.55	2,279.14	2,279.03	7.29	7.81	135.61	966.83	-7,803.26	7,981.03	7,966.08	14.95	533.927	
2,345.00	2,336.00	2,431.62	2,431.50	7.65	8.35	129.71	968.51	-7,803.68	7,988.37	7,972.53	15.84	504.408	
2,440.00	2,430.43	2,532.31	2,532.18	8.02	8.70	127.15	969.74	-7,803.50	7,994.83	7,978.28	16.55	483.111	
2,535.00	2,524.86	2,616.83	2,616.69	8.38	8.99	128.48	970.80	-7,803.36	8,001.21	7,984.01	17.20	465.099	
2,629.00	2,618.31	2,700.00	2,699.86	8.75	9.29	128.54	971.78	-7,803.42	8,007.79	7,989.94	17.85	448.642	
2,724.00	2,712.77	2,777.55	2,777.40	9.12	9.56	129.36	972.61	-7,803.62	8,014.58	7,996.10	18.48	433.743	
2,818.00	2,806.24	2,872.15	2,872.00	9.48	9.89	129.99	973.46	-7,803.92	8,021.38	8,002.22	19.16	418.593	
2,913.00	2,900.71	2,967.75	2,967.59	9.84	10.22	132.26	974.13	-7,804.22	8,028.34	8,008.48	19.85	404.366	
3,008.00	2,995.25	3,084.87	3,084.71	10.21	10.63	127.93	974.66	-7,804.51	8,034.73	8,014.11	20.62	389.647	
3,102.00	3,088.80	3,224.29	3,224.13	10.57	11.12	128.21	974.55	-7,804.30	8,040.25	8,018.79	21.46	374.612	
3,197.00	3,183.30	3,332.38	3,332.22	10.93	11.49	131.20	974.15	-7,803.74	8,045.95	8,023.75	22.20	362.443	
3,291.00	3,276.71	3,419.63	3,419.47	11.30	11.80	125.10	973.85	-7,803.28	8,051.88	8,029.01	22.86	352.211	
3,386.00	3,371.01	3,500.00	3,499.84	11.67	12.08	123.98	973.55	-7,802.92	8,057.97	8,034.47	23.51	342.809	
3,480.00	3,464.23	3,571.29	3,571.13	12.04	12.32	125.30	973.27	-7,802.75	8,064.60	8,040.48	24.12	334.407	
3,575.00	3,558.47	3,667.19	3,667.03	12.42	12.66	126.89	972.95	-7,802.79	8,071.69	8,046.87	24.82	325.247	
3,670.00	3,652.84	3,766.54	3,766.38	12.79	13.00	127.91	972.76	-7,802.65	8,078.20	8,052.67	25.53	316.460	
3,764.00	3,746.36	3,863.19	3,863.02	13.15	13.34	131.18	972.69	-7,802.49	8,084.06	8,057.84	26.22	308.338	
3,859.00	3,840.97	3,956.62	3,956.45	13.51	13.66	134.96	972.62	-7,802.30	8,089.71	8,062.81	26.90	300.757	
3,954.00	3,935.57	4,050.65	4,050.49	13.87	13.99	135.03	972.62	-7,802.13	8,095.75	8,068.17	27.58	293.539	
4,049.00	4,030.14	4,155.85	4,155.69	14.23	14.36	126.00	972.41	-7,801.92	8,101.41	8,073.10	28.30	286.232	
4,143.00	4,123.75	4,262.10	4,261.93	14.59	14.73	127.15	971.92	-7,801.57	8,106.12	8,077.10	29.03	279.260	
4,238.00	4,218.33	4,383.45	4,383.28	14.95	15.15	127.42	971.17	-7,800.94	8,110.99	8,081.18	29.81	272.094	
4,333.00	4,312.74	4,496.31	4,496.13	15.32	15.54	124.65	970.22	-7,800.04	8,116.32	8,085.76	30.57	265.525	
4,427.00	4,406.05	4,604.48	4,604.29	15.69	15.92	127.10	969.13	-7,798.99	8,121.96	8,090.65	31.31	259.428	
4,522.00	4,500.34	4,695.95	4,695.75	16.06	16.24	128.06	968.23	-7,798.03	8,127.91	8,095.92	31.99	254.065	
4,616.00	4,593.47	4,787.50	4,787.30	16.44	16.56	125.82	967.49	-7,797.08	8,134.51	8,101.83	32.68	248.939	

CC - Min centre to center distance or 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:	Plan #4	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 100-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
4,710.00	4,686.44	4,873.27	4,873.06	16.82	16.86	126.62	966.97	-7,796.20	8,141.71	8,108.37	33.35	244.165	
4,899.00	4,873.89	5,041.37	5,041.15	17.57	17.45	133.18	966.25	-7,794.75	8,155.33	8,120.67	34.66	235.304	
4,962.00	4,936.56	5,103.89	5,103.67	17.81	17.67	135.61	966.02	-7,794.26	8,159.28	8,124.16	35.11	232.370	
5,024.00	4,998.27	5,163.64	5,163.42	18.04	17.87	131.85	965.80	-7,793.81	8,162.96	8,127.41	35.55	229.594	
5,150.00	5,123.66	5,288.97	5,288.74	18.53	18.31	132.92	965.32	-7,792.89	8,170.30	8,133.83	36.46	224.063	
5,213.00	5,186.37	5,347.96	5,347.73	18.77	18.52	130.56	965.08	-7,792.46	8,173.81	8,136.90	36.91	221.478	
5,276.00	5,249.09	5,406.71	5,406.48	19.01	18.72	131.48	964.78	-7,792.08	8,177.29	8,139.94	37.35	218.958	
5,339.00	5,311.83	5,471.59	5,471.35	19.25	18.95	130.58	964.37	-7,791.68	8,180.61	8,142.80	37.81	216.371	
5,401.00	5,373.58	5,531.45	5,531.21	19.48	19.16	133.12	963.92	-7,791.32	8,183.89	8,145.64	38.25	213.969	
5,464.00	5,436.33	5,589.03	5,588.79	19.72	19.36	130.44	963.41	-7,791.02	8,187.17	8,148.48	38.68	211.648	
5,590.00	5,561.87	5,700.00	5,699.75	20.19	19.75	129.17	962.26	-7,790.61	8,193.40	8,153.86	39.54	207.235	
5,653.00	5,624.66	5,746.46	5,746.21	20.43	19.91	127.85	961.74	-7,790.54	8,196.43	8,156.50	39.93	205.268	
5,715.00	5,686.48	5,800.00	5,799.75	20.66	20.09	122.92	961.12	-7,790.56	8,199.07	8,158.72	40.34	203.224	
5,778.00	5,749.29	5,856.61	5,856.35	20.90	20.29	125.61	960.43	-7,790.63	8,201.73	8,160.96	40.77	201.150	
5,841.00	5,812.10	5,923.35	5,923.09	21.13	20.52	123.35	959.60	-7,790.71	8,204.44	8,163.20	41.24	198.941	
5,904.00	5,874.94	5,995.24	5,994.97	21.36	20.77	128.69	958.75	-7,790.72	8,207.00	8,165.28	41.72	196.696	
5,967.00	5,937.80	6,050.45	6,050.18	21.60	20.97	130.25	958.12	-7,790.72	8,209.54	8,167.39	42.15	194.788	
6,030.00	6,000.68	6,105.09	6,104.82	21.83	21.16	128.36	957.51	-7,790.78	8,211.91	8,169.35	42.56	192.929	
6,093.00	6,063.59	6,166.27	6,165.99	22.05	21.37	132.05	956.82	-7,790.88	8,214.09	8,171.09	43.01	191.003	
6,156.00	6,126.51	6,230.90	6,230.62	22.28	21.60	137.34	956.08	-7,790.99	8,216.31	8,172.85	43.46	189.067	
6,235.00	6,205.43	6,337.27	6,336.98	22.56	21.97	137.05	954.82	-7,791.06	8,218.76	8,174.65	44.11	186.308	
6,300.00	6,270.38	6,461.66	6,461.35	22.68	22.40	137.06	953.01	-7,790.39	8,220.07	8,175.40	44.67	184.009	
6,355.00	6,325.34	6,555.99	6,555.67	22.69	22.73	137.07	951.51	-7,789.38	8,220.89	8,175.88	45.01	182.638	
6,400.00	6,370.23	6,622.87	6,622.54	22.71	22.96	169.75	950.53	-7,788.36	8,222.95	8,177.69	45.25	181.708	
6,450.00	6,419.74	6,678.28	6,677.93	22.73	23.16	177.31	949.93	-7,787.41	8,228.86	8,183.41	45.46	181.027	
6,500.00	6,468.57	6,739.33	6,738.97	22.77	23.37	-179.65	949.49	-7,786.26	8,238.59	8,192.91	45.68	180.349	
6,550.00	6,516.42	6,803.38	6,803.00	22.81	23.60	-177.96	949.19	-7,784.90	8,252.02	8,206.10	45.92	179.710	
6,600.00	6,562.98	6,857.41	6,857.02	22.87	23.78	-176.81	949.05	-7,783.67	8,269.10	8,222.98	46.12	179.289	
6,650.00	6,607.98	6,910.85	6,910.44	22.95	23.97	-175.91	948.98	-7,782.38	8,289.74	8,243.42	46.32	178.949	
6,700.00	6,651.14	6,964.87	6,964.44	23.03	24.16	-175.14	949.04	-7,780.99	8,313.82	8,267.29	46.53	178.672	
6,750.00	6,692.18	7,016.77	7,016.32	23.14	24.34	-174.40	949.23	-7,779.58	8,341.19	8,294.45	46.73	178.490	
6,800.00	6,730.86	7,066.53	7,066.06	23.26	24.52	-173.65	949.45	-7,778.15	8,371.67	8,324.74	46.93	178.400 SF	
6,850.00	6,766.93	7,113.69	7,113.20	23.40	24.68	-172.83	949.70	-7,776.73	8,405.09	8,357.98	47.11	178.403	
6,900.00	6,800.18	7,158.57	7,158.06	23.56	24.84	-171.90	950.02	-7,775.31	8,441.25	8,393.96	47.29	178.494	
6,950.00	6,830.39	7,199.74	7,199.20	23.74	24.98	-170.78	950.43	-7,773.94	8,479.94	8,432.48	47.46	178.686	
7,000.00	6,857.38	7,225.05	7,224.50	23.94	25.07	-169.39	950.73	-7,773.07	8,520.94	8,473.37	47.57	179.136	
7,050.00	6,880.98	7,247.31	7,246.74	24.17	25.15	-167.57	951.00	-7,772.32	8,564.02	8,516.35	47.66	179.675	
7,100.00	6,901.06	7,266.46	7,265.88	24.42	25.22	-165.10	951.26	-7,771.67	8,608.91	8,561.16	47.75	180.299	
7,150.00	6,917.47	7,282.39	7,281.80	24.70	25.27	-161.55	951.48	-7,771.14	8,655.34	8,607.52	47.82	181.007	
7,200.00	6,930.13	7,300.00	7,299.40	25.01	25.33	-156.08	951.73	-7,770.55	8,703.01	8,655.12	47.89	181.732	
7,250.00	6,938.95	7,308.87	7,308.26	25.34	25.36	-146.67	951.87	-7,770.25	8,751.63	8,703.70	47.93	182.606	
7,300.00	6,943.88	7,321.09	7,320.47	25.69	25.41	-128.99	952.05	-7,769.84	8,800.89	8,752.92	47.97	183.466	
7,337.82	6,945.00	7,325.56	7,324.94	25.97	25.42	-105.66	952.12	-7,769.68	8,838.39	8,790.41	47.98	184.195	
7,400.00	6,945.00	7,329.55	7,328.92	26.45	25.44	-103.43	952.19	-7,769.54	8,900.06	8,852.08	47.99	185.458	
7,492.38	6,945.00	7,335.65	7,335.02	27.21	25.46	-101.13	952.28	-7,769.33	8,991.37	8,943.37	48.00	187.338	
7,500.00	6,945.00	7,336.16	7,335.54	27.28	25.46	-101.15	952.29	-7,769.31	8,998.88	8,950.88	48.00	187.495	
7,600.00	6,945.00	7,342.98	7,342.34	28.17	25.48	-101.40	952.40	-7,769.07	9,097.49	9,049.48	48.00	189.513	
7,700.00	6,945.00	7,349.95	7,349.31	29.12	25.51	-101.66	952.52	-7,768.81	9,196.12	9,148.11	48.02	191.514	
7,800.00	6,945.00	7,357.08	7,356.44	30.14	25.53	-101.92	952.63	-7,768.55	9,294.79	9,246.75	48.04	193.496	
7,900.00	6,945.00	7,364.38	7,363.73	31.20	25.56	-102.19	952.76	-7,768.28	9,393.48	9,345.42	48.06	195.460	
8,000.00	6,945.00	7,371.86	7,371.20	32.31	25.59	-102.47	952.89	-7,768.00	9,492.19	9,444.10	48.08	197.405	
8,100.00	6,945.00	7,379.52	7,378.85	33.46	25.61	-102.75	953.02	-7,767.72	9,590.93	9,542.81	48.12	199.333	

CC - Min centre to center distance or 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:	Plan #4	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 100-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
8,200.00	6,945.00	7,387.36	7,386.69	34.64	25.64	-103.04	953.16	-7,767.41	9,689.69	9,641.54	48.15	201.242	
8,300.00	6,945.00	7,395.39	7,394.72	35.86	25.67	-103.33	953.30	-7,767.10	9,788.47	9,740.28	48.19	203.133	
8,400.00	6,945.00	7,403.63	7,402.95	37.11	25.70	-103.63	953.45	-7,766.78	9,887.27	9,839.04	48.23	205.005	
8,500.00	6,945.00	7,412.08	7,411.38	38.39	25.73	-103.94	953.61	-7,766.45	9,986.10	9,937.82	48.27	206.859	
8,600.00	6,945.00	7,382.58	7,381.91	39.69	25.62	-102.86	953.10	-7,767.56	10,084.93	10,036.74	48.19	209.278	
8,700.00	6,945.00	7,419.48	7,418.78	41.01	25.75	-104.21	953.75	-7,766.15	10,183.81	10,135.47	48.34	210.666	
8,800.00	6,945.00	7,425.29	7,424.59	42.35	25.77	-104.42	953.87	-7,765.92	10,282.69	10,234.31	48.39	212.517	
8,900.00	6,945.00	7,431.18	7,430.46	43.71	25.79	-104.63	953.99	-7,765.68	10,381.60	10,333.17	48.43	214.352	
9,000.00	6,945.00	7,437.13	7,436.41	45.08	25.81	-104.85	954.11	-7,765.44	10,480.52	10,432.04	48.48	216.173	
9,100.00	6,945.00	7,443.15	7,442.43	46.47	25.83	-105.07	954.23	-7,765.19	10,579.46	10,530.93	48.53	217.978	
9,200.00	6,945.00	7,449.25	7,448.51	47.87	25.86	-105.28	954.36	-7,764.94	10,678.42	10,629.83	48.59	219.768	
9,300.00	6,945.00	7,455.41	7,454.68	49.29	25.88	-105.51	954.50	-7,764.69	10,777.40	10,728.75	48.65	221.543	
9,400.00	6,945.00	7,461.66	7,460.91	50.71	25.90	-105.73	954.63	-7,764.43	10,876.39	10,827.68	48.71	223.304	
9,500.00	6,945.00	7,467.98	7,467.22	52.15	25.92	-105.95	954.78	-7,764.16	10,975.40	10,926.63	48.77	225.050	
9,600.00	6,945.00	7,474.37	7,473.61	53.59	25.94	-106.18	954.92	-7,763.89	11,074.42	11,025.59	48.83	226.781	
9,700.00	6,945.00	7,480.85	7,480.08	55.05	25.97	-106.41	955.07	-7,763.62	11,173.46	11,124.56	48.90	228.497	
9,800.00	6,945.00	7,487.40	7,486.63	56.51	25.99	-106.64	955.23	-7,763.34	11,272.51	11,223.54	48.97	230.200	
9,900.00	6,945.00	7,494.04	7,493.26	57.98	26.01	-106.88	955.39	-7,763.05	11,371.58	11,322.54	49.04	231.887	
10,000.00	6,945.00	7,503.84	7,503.04	59.45	26.05	-107.22	955.63	-7,762.63	11,470.66	11,421.54	49.12	233.508	
10,100.00	6,945.00	7,540.11	7,539.26	60.93	26.17	-108.48	956.51	-7,761.00	11,569.75	11,520.44	49.30	234.659	
10,200.00	6,945.00	7,581.08	7,580.18	62.42	26.32	-109.88	957.45	-7,759.05	11,668.83	11,619.33	49.50	235.711	
10,300.00	6,945.00	7,558.18	7,557.31	63.92	26.24	-109.10	956.90	-7,760.07	11,767.85	11,718.37	49.48	237.850	
10,400.00	6,945.00	7,562.87	7,561.99	65.42	26.25	-109.26	957.01	-7,759.85	11,866.97	11,817.42	49.55	239.504	
10,500.00	6,945.00	7,567.55	7,566.67	66.92	26.27	-109.42	957.11	-7,759.63	11,966.10	11,916.47	49.62	241.145	
10,600.00	6,945.00	7,674.17	7,673.12	68.43	26.64	-112.97	959.34	-7,754.20	12,065.22	12,015.15	50.07	240.976	
10,700.00	6,945.00	7,649.79	7,648.78	69.94	26.56	-112.18	958.87	-7,755.49	12,164.32	12,114.28	50.04	243.094	
10,800.00	6,945.00	7,655.04	7,654.02	71.45	26.58	-112.35	958.97	-7,755.21	12,263.45	12,213.33	50.12	244.681	
10,900.00	6,945.00	7,660.28	7,659.26	72.97	26.60	-112.52	959.08	-7,754.94	12,362.60	12,312.40	50.20	246.257	
11,000.00	6,945.00	7,665.53	7,664.50	74.50	26.61	-112.69	959.18	-7,754.66	12,461.76	12,411.48	50.29	247.821	
11,100.00	6,945.00	7,670.00	7,668.96	76.02	26.63	-112.84	959.27	-7,754.43	12,560.94	12,510.57	50.37	249.388	
11,200.00	6,945.00	7,670.00	7,668.96	77.55	26.63	-112.84	959.27	-7,754.43	12,660.12	12,609.69	50.43	251.027	
11,300.00	6,945.00	7,670.00	7,668.96	79.08	26.63	-112.84	959.27	-7,754.43	12,759.32	12,708.82	50.50	252.655	
11,400.00	6,945.00	7,670.00	7,668.96	80.62	26.63	-112.84	959.27	-7,754.43	12,858.53	12,807.96	50.57	254.274	
11,500.00	6,945.00	7,670.00	7,668.96	82.16	26.63	-112.84	959.27	-7,754.43	12,957.75	12,907.11	50.64	255.884	
11,600.00	6,945.00	7,670.00	7,668.96	83.70	26.63	-112.84	959.27	-7,754.43	13,056.98	13,006.27	50.71	257.484	
11,700.00	6,945.00	7,670.00	7,668.96	85.24	26.63	-112.84	959.27	-7,754.43	13,156.23	13,105.44	50.78	259.075	
11,800.00	6,945.00	7,670.00	7,668.96	86.78	26.63	-112.84	959.27	-7,754.43	13,255.48	13,204.63	50.85	260.656	
11,900.00	6,945.00	7,670.00	7,668.96	88.33	26.63	-112.84	959.27	-7,754.43	13,354.75	13,303.82	50.93	262.229	
12,000.00	6,945.00	7,670.00	7,668.96	89.87	26.63	-112.84	959.27	-7,754.43	13,454.03	13,403.02	51.00	263.792	
12,100.00	6,945.00	7,670.00	7,668.96	91.42	26.63	-112.84	959.27	-7,754.43	13,553.32	13,502.24	51.08	265.346	
12,200.00	6,945.00	7,670.00	7,668.96	92.98	26.63	-112.84	959.27	-7,754.43	13,652.62	13,601.46	51.15	266.891	
12,300.00	6,945.00	7,670.00	7,668.96	94.53	26.63	-112.84	959.27	-7,754.43	13,751.92	13,700.69	51.23	268.427	
12,400.00	6,945.00	7,670.00	7,668.96	96.08	26.63	-112.84	959.27	-7,754.43	13,851.24	13,799.93	51.31	269.954	
12,500.00	6,945.00	7,670.00	7,668.96	97.64	26.63	-112.84	959.27	-7,754.43	13,950.57	13,899.18	51.39	271.472	
12,600.00	6,945.00	7,670.00	7,668.96	99.20	26.63	-112.84	959.27	-7,754.43	14,049.91	13,998.44	51.47	272.982	
12,700.00	6,945.00	7,670.00	7,668.96	100.76	26.63	-112.84	959.27	-7,754.43	14,149.26	14,097.71	51.55	274.483	
12,800.00	6,945.00	7,670.00	7,668.96	102.32	26.63	-112.84	959.27	-7,754.43	14,248.62	14,196.99	51.63	275.975	
12,900.00	6,945.00	7,670.00	7,668.96	103.88	26.63	-112.84	959.27	-7,754.43	14,347.98	14,296.27	51.71	277.459	
13,000.00	6,945.00	7,670.00	7,668.96	105.44	26.63	-112.84	959.27	-7,754.43	14,447.36	14,395.56	51.79	278.934	
13,100.00	6,945.00	7,670.00	7,668.96	107.00	26.63	-112.84	959.27	-7,754.43	14,546.74	14,494.86	51.88	280.401	
13,200.00	6,945.00	7,670.00	7,668.96	108.57	26.63	-112.84	959.27	-7,754.43	14,646.13	14,594.17	51.96	281.859	
13,300.00	6,945.00	7,670.00	7,668.96	110.13	26.63	-112.84	959.27	-7,754.43	14,745.53	14,693.48	52.05	283.309	

CC - Min centre to center distance or 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:	Plan #4	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 100-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
13,400.00	6,945.00	7,670.00	7,668.96	111.70	26.63	-112.84	959.27	-7,754.43	14,844.94	14,792.81	52.13	284.751	
13,500.00	6,945.00	7,670.00	7,668.96	113.27	26.63	-112.84	959.27	-7,754.43	14,944.36	14,892.14	52.22	286.185	
13,600.00	6,945.00	7,670.00	7,668.96	114.84	26.63	-112.84	959.27	-7,754.43	15,043.78	14,991.47	52.31	287.610	
13,700.00	6,945.00	7,670.00	7,668.96	116.41	26.63	-112.84	959.27	-7,754.43	15,143.21	15,090.82	52.39	289.027	
13,800.00	6,945.00	7,670.00	7,668.96	117.98	26.63	-112.84	959.27	-7,754.43	15,242.65	15,190.17	52.48	290.436	
13,900.00	6,945.00	7,670.00	7,668.96	119.55	26.63	-112.84	959.27	-7,754.43	15,342.10	15,289.52	52.57	291.837	
14,000.00	6,945.00	7,670.00	7,668.96	121.12	26.63	-112.84	959.27	-7,754.43	15,441.55	15,388.89	52.66	293.231	
14,100.00	6,945.00	7,670.00	7,668.96	122.69	26.63	-112.84	959.27	-7,754.43	15,541.01	15,488.26	52.75	294.616	
14,200.00	6,945.00	7,670.00	7,668.96	124.27	26.63	-112.84	959.27	-7,754.43	15,640.48	15,587.64	52.84	295.993	
14,300.00	6,945.00	7,670.00	7,668.96	125.84	26.63	-112.84	959.27	-7,754.43	15,739.95	15,687.02	52.93	297.363	
14,400.00	6,945.00	7,670.00	7,668.96	127.41	26.63	-112.84	959.27	-7,754.43	15,839.43	15,786.41	53.02	298.725	
14,500.00	6,945.00	7,670.00	7,668.96	128.99	26.63	-112.84	959.27	-7,754.43	15,938.92	15,885.80	53.12	300.079	
14,600.00	6,945.00	7,670.00	7,668.96	130.57	26.63	-112.84	959.27	-7,754.43	16,038.41	15,985.20	53.21	301.425	
14,700.00	6,945.00	7,670.00	7,668.96	132.14	26.63	-112.84	959.27	-7,754.43	16,137.91	16,084.61	53.30	302.764	
14,800.00	6,945.00	7,670.00	7,668.96	133.72	26.63	-112.84	959.27	-7,754.43	16,237.42	16,184.02	53.40	304.095	
14,900.00	6,945.00	7,670.00	7,668.96	135.30	26.63	-112.84	959.27	-7,754.43	16,336.93	16,283.44	53.49	305.419	
15,000.00	6,945.00	7,670.00	7,668.96	136.87	26.63	-112.84	959.27	-7,754.43	16,436.44	16,382.86	53.59	306.735	
15,100.00	6,945.00	7,670.00	7,668.96	138.45	26.63	-112.84	959.27	-7,754.43	16,535.97	16,482.29	53.68	308.044	
15,200.00	6,945.00	7,670.00	7,668.96	140.03	26.63	-112.84	959.27	-7,754.43	16,635.50	16,581.72	53.78	309.346	
15,300.00	6,945.00	7,670.00	7,668.96	141.61	26.63	-112.84	959.27	-7,754.43	16,735.03	16,681.16	53.87	310.640	
15,400.00	6,945.00	7,670.00	7,668.96	143.19	26.63	-112.84	959.27	-7,754.43	16,834.57	16,780.60	53.97	311.926	
15,500.00	6,945.00	7,670.00	7,668.96	144.77	26.63	-112.84	959.27	-7,754.43	16,934.12	16,880.05	54.07	313.206	
15,600.00	6,945.00	7,670.00	7,668.96	146.35	26.63	-112.84	959.27	-7,754.43	17,033.67	16,979.50	54.16	314.478	
15,700.00	6,945.00	7,670.00	7,668.96	147.94	26.63	-112.84	959.27	-7,754.43	17,133.23	17,078.96	54.26	315.744	
15,800.00	6,945.00	7,670.00	7,668.96	149.52	26.63	-112.84	959.27	-7,754.43	17,232.79	17,178.42	54.36	317.002	
15,900.00	6,945.00	7,670.00	7,668.96	151.10	26.63	-112.84	959.27	-7,754.43	17,332.35	17,277.89	54.46	318.253	
16,000.00	6,945.00	7,670.00	7,668.96	152.68	26.63	-112.84	959.27	-7,754.43	17,431.92	17,377.36	54.56	319.497	
16,100.00	6,945.00	7,670.00	7,668.96	154.26	26.63	-112.84	959.27	-7,754.43	17,531.50	17,476.84	54.66	320.734	
16,200.00	6,945.00	7,670.00	7,668.96	155.85	26.63	-112.84	959.27	-7,754.43	17,631.08	17,576.32	54.76	321.964	
16,300.00	6,945.00	7,670.00	7,668.96	157.43	26.63	-112.84	959.27	-7,754.43	17,730.67	17,675.81	54.86	323.187	
16,400.00	6,945.00	7,670.00	7,668.96	159.02	26.63	-112.84	959.27	-7,754.43	17,830.26	17,775.29	54.96	324.404	
16,500.00	6,945.00	7,670.00	7,668.96	160.60	26.63	-112.84	959.27	-7,754.43	17,929.85	17,874.79	55.06	325.613	
16,600.00	6,945.00	7,670.00	7,668.96	162.18	26.63	-112.84	959.27	-7,754.43	18,029.45	17,974.29	55.17	326.816	
16,700.00	6,945.00	7,670.00	7,668.96	163.77	26.63	-112.84	959.27	-7,754.43	18,129.06	18,073.79	55.27	328.012	
16,800.00	6,945.00	7,670.00	7,668.96	165.35	26.63	-112.84	959.27	-7,754.43	18,228.66	18,173.29	55.37	329.201	
16,900.00	6,945.00	7,670.00	7,668.96	166.94	26.63	-112.84	959.27	-7,754.43	18,328.28	18,272.80	55.48	330.384	
17,000.00	6,945.00	7,670.00	7,668.96	168.53	26.63	-112.84	959.27	-7,754.43	18,427.89	18,372.31	55.58	331.560	
17,100.00	6,945.00	7,670.00	7,668.96	170.11	26.63	-112.84	959.27	-7,754.43	18,527.51	18,471.83	55.68	332.730	
17,200.00	6,945.00	7,670.00	7,668.96	171.70	26.63	-112.84	959.27	-7,754.43	18,627.14	18,571.35	55.79	333.893	
17,300.00	6,945.00	7,670.00	7,668.96	173.29	26.63	-112.84	959.27	-7,754.43	18,726.77	18,670.88	55.89	335.049	
17,400.00	6,945.00	7,670.00	7,668.96	174.87	26.63	-112.84	959.27	-7,754.43	18,826.40	18,770.40	56.00	336.199	
17,500.00	6,945.00	7,670.00	7,668.96	176.46	26.63	-112.84	959.27	-7,754.43	18,926.04	18,869.93	56.10	337.343	
17,600.00	6,945.00	7,670.00	7,668.96	178.05	26.63	-112.84	959.27	-7,754.43	19,025.68	18,969.47	56.21	338.480	
17,700.00	6,945.00	7,670.00	7,668.96	179.63	26.63	-112.84	959.27	-7,754.43	19,125.32	19,069.01	56.32	339.611	
17,800.00	6,945.00	7,670.00	7,668.96	181.22	26.63	-112.84	959.27	-7,754.43	19,224.97	19,168.55	56.42	340.736	
17,900.00	6,945.00	7,670.00	7,668.96	182.81	26.63	-112.84	959.27	-7,754.43	19,324.62	19,268.09	56.53	341.854	
18,000.00	6,945.00	7,670.00	7,668.96	184.40	26.63	-112.84	959.27	-7,754.43	19,424.28	19,367.64	56.64	342.966	
18,100.00	6,945.00	7,670.00	7,668.96	185.99	26.63	-112.84	959.27	-7,754.43	19,523.94	19,467.19	56.74	344.072	
18,200.00	6,945.00	7,670.00	7,668.96	187.58	26.63	-112.84	959.27	-7,754.43	19,623.60	19,566.75	56.85	345.172	
18,300.00	6,945.00	7,670.00	7,668.96	189.16	26.63	-112.84	959.27	-7,754.43	19,723.26	19,666.30	56.96	346.266	
18,400.00	6,945.00	7,670.00	7,668.96	190.75	26.63	-112.84	959.27	-7,754.43	19,822.93	19,765.86	57.07	347.354	
18,500.00	6,945.00	7,670.00	7,668.96	192.34	26.63	-112.84	959.27	-7,754.43	19,922.61	19,865.43	57.18	348.435	

CC - Min centre to center distance or 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:	Plan #4	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 100-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
18,600.00	6,945.00	7,670.00	7,668.96	193.93	26.63	-112.84	959.27	-7,754.43	20,022.28	19,964.99	57.29	349.511	
18,700.00	6,945.00	7,670.00	7,668.96	195.52	26.63	-112.84	959.27	-7,754.43	20,121.96	20,064.56	57.40	350.581	
18,800.00	6,945.00	7,670.00	7,668.96	197.11	26.63	-112.84	959.27	-7,754.43	20,221.64	20,164.14	57.51	351.645	
18,900.00	6,945.00	7,670.00	7,668.96	198.70	26.63	-112.84	959.27	-7,754.43	20,321.33	20,263.71	57.62	352.702	
19,000.00	6,945.00	7,670.00	7,668.96	200.29	26.63	-112.84	959.27	-7,754.43	20,421.01	20,363.29	57.73	353.754	
19,100.00	6,945.00	7,670.00	7,668.96	201.88	26.63	-112.84	959.27	-7,754.43	20,520.71	20,462.87	57.84	354.801	
19,200.00	6,945.00	7,670.00	7,668.96	203.47	26.63	-112.84	959.27	-7,754.43	20,620.40	20,562.45	57.95	355.841	
19,300.00	6,945.00	7,670.00	7,668.96	205.06	26.63	-112.84	959.27	-7,754.43	20,720.10	20,662.04	58.06	356.876	
19,400.00	6,945.00	7,670.00	7,668.96	206.65	26.63	-112.84	959.27	-7,754.43	20,819.80	20,761.63	58.17	357.905	
19,500.00	6,945.00	7,670.00	7,668.96	208.24	26.63	-112.84	959.27	-7,754.43	20,919.50	20,861.22	58.28	358.928	
19,600.00	6,945.00	7,670.00	7,668.96	209.84	26.63	-112.84	959.27	-7,754.43	21,019.21	20,960.81	58.40	359.946	
19,700.00	6,945.00	7,670.00	7,668.96	211.43	26.63	-112.84	959.27	-7,754.43	21,118.91	21,060.41	58.51	360.958	
19,800.00	6,945.00	7,670.00	7,668.96	213.02	26.63	-112.84	959.27	-7,754.43	21,218.63	21,160.01	58.62	361.965	
19,900.00	6,945.00	7,670.00	7,668.96	214.61	26.63	-112.84	959.27	-7,754.43	21,318.34	21,259.61	58.73	362.966	
20,000.00	6,945.00	7,670.00	7,668.96	216.20	26.63	-112.84	959.27	-7,754.43	21,418.06	21,359.21	58.85	363.961	
20,100.00	6,945.00	7,670.00	7,668.96	217.79	26.63	-112.84	959.27	-7,754.43	21,517.78	21,458.81	58.96	364.951	
20,200.00	6,945.00	7,670.00	7,668.96	219.38	26.63	-112.84	959.27	-7,754.43	21,617.50	21,558.42	59.07	365.936	
20,300.00	6,945.00	7,670.00	7,668.96	220.98	26.63	-112.84	959.27	-7,754.43	21,717.22	21,658.03	59.19	366.915	
20,400.00	6,945.00	7,670.00	7,668.96	222.57	26.63	-112.84	959.27	-7,754.43	21,816.95	21,757.65	59.30	367.889	
20,500.00	6,945.00	7,670.00	7,668.96	224.16	26.63	-112.84	959.27	-7,754.43	21,916.68	21,857.26	59.42	368.858	
20,600.00	6,945.00	7,670.00	7,668.96	225.75	26.63	-112.84	959.27	-7,754.43	22,016.41	21,956.88	59.53	369.821	
20,700.00	6,945.00	7,670.00	7,668.96	227.35	26.63	-112.84	959.27	-7,754.43	22,116.14	22,056.50	59.65	370.779	
20,800.00	6,945.00	7,670.00	7,668.96	228.94	26.63	-112.84	959.27	-7,754.43	22,215.88	22,156.12	59.76	371.732	
20,852.96	6,945.00	7,670.00	7,668.96	229.61	26.63	-112.84	959.27	-7,754.43	22,268.70	22,203.97	64.73	343.999	

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:	Plan #4	**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				
20.93	20.93	96.67	96.67	0.00	0.17	83.32	940.01	-8,992.55	9,041.57				
117.41	117.41	176.43	176.43	0.05	0.32	78.77	939.97	-8,992.81	9,041.81	9,041.46	0.35	N/A	
206.68	206.68	250.24	250.23	0.17	0.45	104.67	939.92	-8,993.18	9,042.26	9,041.72	0.54	N/A	
292.93	292.93	321.48	321.47	0.28	0.62	104.12	939.86	-8,993.67	9,042.97	9,042.20	0.77	N/A	
365.00	364.99	372.00	372.00	0.36	0.80	73.44	939.80	-8,994.08	9,043.55	9,042.53	1.02	8,872.913	
451.00	450.97	372.00	372.00	0.55	0.80	126.70	939.80	-8,994.08	9,045.71	9,044.44	1.27	7,097.061	
540.00	539.81	372.00	372.00	0.83	0.80	132.11	939.80	-8,994.08	9,051.24	9,049.64	1.59	5,676.232	
665.00	664.37	372.00	372.00	1.26	0.80	134.40	939.80	-8,994.08	9,062.92	9,060.86	2.05	4,414.152	
753.00	752.01	372.00	372.00	1.58	0.80	133.39	939.80	-8,994.08	9,072.65	9,070.27	2.38	3,816.681	
847.00	845.61	386.57	386.56	1.93	0.86	136.43	939.67	-8,994.61	9,083.76	9,080.98	2.78	3,271.309	
939.00	937.22	552.00	550.99	2.27	1.49	136.65	928.51	-9,005.70	9,095.65	9,091.93	3.72	2,443.683	
1,030.00	1,027.78	584.00	582.83	2.62	1.60	125.09	926.00	-9,007.68	9,106.50	9,102.32	4.17	2,181.216	
1,120.00	1,117.25	616.00	614.60	2.96	1.72	127.90	922.96	-9,009.99	9,117.94	9,113.31	4.63	1,968.962	
1,211.00	1,207.68	648.00	646.29	3.31	1.84	125.25	919.38	-9,012.64	9,130.35	9,125.26	5.09	1,792.427	
1,306.00	1,302.14	678.99	676.90	3.68	1.96	127.13	915.49	-9,015.42	9,143.53	9,137.97	5.57	1,642.115	
1,400.00	1,395.63	725.09	722.33	4.04	2.15	128.39	909.05	-9,019.89	9,157.17	9,151.07	6.10	1,501.070	
1,495.00	1,490.19	804.74	800.67	4.40	2.48	127.74	897.04	-9,027.91	9,170.90	9,164.12	6.78	1,353.304	
1,589.00	1,583.83	834.00	829.43	4.76	2.61	125.29	892.58	-9,030.89	9,184.10	9,176.86	7.24	1,268.526	
1,684.00	1,678.44	898.00	892.34	5.12	2.88	127.59	883.13	-9,037.88	9,198.13	9,190.27	7.86	1,170.898	
1,779.00	1,772.98	1,024.00	1,016.18	5.48	3.43	131.91	864.47	-9,051.66	9,213.08	9,204.34	8.74	1,054.006	
1,873.00	1,866.49	1,088.00	1,079.08	5.84	3.71	133.39	854.92	-9,058.58	9,228.31	9,218.95	9.36	985.994	
1,967.00	1,960.05	1,258.64	1,246.48	6.20	4.47	138.01	827.36	-9,076.92	9,243.39	9,232.94	10.45	884.565	
2,062.00	2,054.59	1,399.00	1,384.32	6.56	5.10	132.47	804.93	-9,090.97	9,257.98	9,246.56	11.41	811.257	
2,156.00	2,148.09	1,441.35	1,425.96	6.92	5.29	131.72	798.47	-9,095.17	9,272.47	9,260.53	11.94	776.601	
2,251.00	2,242.55	1,502.43	1,485.99	7.29	5.56	133.02	789.20	-9,101.64	9,287.87	9,275.32	12.55	739.822	
2,345.00	2,336.00	1,633.61	1,614.86	7.65	6.14	126.90	768.93	-9,115.37	9,302.87	9,289.39	13.48	690.263	
2,440.00	2,430.43	1,689.49	1,669.81	8.02	6.39	124.25	760.59	-9,121.14	9,317.42	9,303.35	14.07	662.203	
2,535.00	2,524.86	1,735.90	1,715.47	8.38	6.60	125.50	753.99	-9,126.16	9,332.32	9,317.70	14.62	638.298	
2,629.00	2,618.31	1,834.90	1,812.85	8.75	7.04	125.48	739.97	-9,137.29	9,347.55	9,332.16	15.40	607.083	
2,724.00	2,712.77	1,902.00	1,878.82	9.12	7.33	126.22	730.30	-9,144.80	9,362.85	9,346.81	16.04	583.781	
2,818.00	2,806.24	2,119.96	2,093.09	9.48	8.31	126.70	697.93	-9,168.14	9,377.62	9,360.28	17.35	540.603	
2,913.00	2,900.71	2,268.27	2,239.06	9.84	8.96	128.86	676.05	-9,182.56	9,391.70	9,373.36	18.35	511.946	
3,008.00	2,995.25	2,357.26	2,326.77	10.21	9.35	124.44	663.50	-9,190.84	9,404.98	9,385.90	19.08	493.017	
3,102.00	3,088.80	2,454.98	2,423.10	10.57	9.77	124.58	649.75	-9,199.94	9,417.75	9,397.91	19.84	474.635	
3,197.00	3,183.30	2,506.05	2,473.41	10.93	10.00	127.49	642.55	-9,204.80	9,431.37	9,410.96	20.41	462.092	
3,291.00	3,276.71	2,576.71	2,542.94	11.30	10.31	121.21	632.13	-9,211.91	9,445.47	9,424.41	21.07	448.385	
3,386.00	3,371.01	2,655.00	2,619.96	11.67	10.66	119.99	620.57	-9,219.86	9,459.80	9,438.04	21.76	434.673	
3,480.00	3,464.23	2,760.42	2,723.59	12.04	11.13	121.19	604.47	-9,230.61	9,474.30	9,451.72	22.58	419.516	
3,575.00	3,558.47	2,829.57	2,791.51	12.42	11.44	122.74	593.59	-9,237.72	9,489.18	9,465.93	23.25	408.196	
3,670.00	3,652.84	2,890.34	2,851.15	12.79	11.71	123.73	583.90	-9,244.18	9,504.01	9,480.14	23.87	398.196	
3,764.00	3,746.36	2,970.00	2,929.37	13.15	12.07	127.01	571.48	-9,252.79	9,518.38	9,493.82	24.56	387.484	
3,859.00	3,840.97	3,034.00	2,992.24	13.51	12.36	130.74	561.91	-9,259.94	9,533.10	9,507.91	25.19	378.499	
3,954.00	3,935.57	3,223.00	3,178.31	13.87	13.19	130.64	535.65	-9,280.11	9,547.89	9,521.53	26.36	362.213	
4,049.00	4,030.14	3,285.00	3,239.41	14.23	13.46	121.49	527.19	-9,286.39	9,561.78	9,534.81	26.97	354.548	
4,143.00	4,123.75	3,325.34	3,279.13	14.59	13.64	122.62	521.57	-9,290.71	9,575.29	9,547.81	27.48	348.456	
4,238.00	4,218.33	3,829.48	3,777.31	14.95	15.75	122.63	460.25	-9,333.89	9,586.73	9,556.77	29.96	320.017	
4,333.00	4,312.74	3,932.27	3,879.61	15.32	16.12	119.73	452.50	-9,340.25	9,597.49	9,566.79	30.69	312.701	
4,427.00	4,406.05	4,033.92	3,980.80	15.69	16.49	122.13	444.97	-9,346.43	9,608.50	9,577.08	31.42	305.781	
4,522.00	4,500.34	4,136.63	4,083.04	16.06	16.86	123.05	437.47	-9,352.58	9,619.89	9,587.73	32.16	299.115	
4,616.00	4,593.47	4,238.15	4,184.13	16.44	17.23	120.69	430.18	-9,358.56	9,631.63	9,598.73	32.90	292.788	
4,710.00	4,686.44	4,339.57	4,285.12	16.82	17.60	121.46	423.02	-9,364.43	9,643.75	9,610.12	33.64	286.715	

CC - Min centre to center distance or 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:	Plan #4	**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
4,899.00	4,873.89	4,543.81	4,488.55	17.57	18.34	128.06	408.95	-9,375.97	9,666.98	9,631.88	35.11	275.359	
4,962.00	4,936.56	4,612.01	4,556.50	17.81	18.59	130.51	404.36	-9,379.74	9,674.14	9,638.55	35.59	271.816	
5,024.00	4,998.27	4,679.17	4,623.40	18.04	18.83	126.69	399.89	-9,383.40	9,680.96	9,644.89	36.07	268.418	
5,150.00	5,123.66	4,815.68	4,759.43	18.53	19.33	127.73	390.97	-9,390.72	9,694.49	9,657.45	37.04	261.764	
5,213.00	5,186.37	4,883.97	4,827.48	18.77	19.57	125.34	386.59	-9,394.31	9,701.04	9,663.52	37.52	258.563	
5,276.00	5,249.09	4,952.28	4,895.56	19.01	19.82	126.24	382.26	-9,397.86	9,707.48	9,669.48	38.00	255.439	
5,339.00	5,311.83	5,020.61	4,963.66	19.25	20.07	125.32	377.98	-9,401.37	9,713.74	9,675.25	38.49	252.394	
5,401.00	5,373.58	5,087.86	5,030.70	19.48	20.32	127.84	373.82	-9,404.78	9,719.90	9,680.93	38.96	249.472	
5,464.00	5,436.33	5,156.21	5,098.84	19.72	20.56	125.14	369.65	-9,408.20	9,726.02	9,686.58	39.44	246.575	
5,590.00	5,561.87	5,292.99	5,235.20	20.19	21.06	123.83	361.46	-9,414.92	9,737.69	9,697.28	40.41	240.973	
5,653.00	5,624.66	5,361.40	5,303.42	20.43	21.31	122.52	357.45	-9,418.21	9,743.26	9,702.37	40.89	238.267	
5,715.00	5,686.48	5,428.78	5,370.61	20.66	21.56	117.57	353.55	-9,421.41	9,748.28	9,706.91	41.37	235.660	
5,778.00	5,749.29	5,497.26	5,438.90	20.90	21.81	120.24	349.64	-9,424.61	9,753.26	9,711.41	41.85	233.067	
5,841.00	5,812.10	5,565.74	5,507.20	21.13	22.06	117.95	345.78	-9,427.78	9,758.25	9,715.92	42.33	230.531	
5,904.00	5,874.94	5,634.23	5,575.52	21.36	22.30	123.29	341.98	-9,430.90	9,763.14	9,720.33	42.81	228.057	
5,967.00	5,937.80	5,702.73	5,643.84	21.60	22.55	124.85	338.23	-9,433.97	9,768.02	9,724.73	43.29	225.646	
6,030.00	6,000.68	5,771.25	5,712.19	21.83	22.80	122.95	334.54	-9,437.00	9,772.66	9,728.89	43.77	223.289	
6,093.00	6,063.59	5,839.78	5,780.57	22.05	23.05	126.64	330.90	-9,439.99	9,777.07	9,732.83	44.24	220.986	
6,156.00	6,126.51	5,908.32	5,848.94	22.28	23.30	131.92	327.31	-9,442.93	9,781.51	9,736.79	44.72	218.738	
6,235.00	6,205.43	5,994.27	5,934.71	22.56	23.62	131.62	322.88	-9,446.56	9,786.81	9,741.50	45.31	215.989	
6,300.00	6,270.38	6,065.01	6,005.30	22.68	23.87	131.61	319.31	-9,449.49	9,790.89	9,745.21	45.68	214.323	
6,355.00	6,325.34	6,124.88	6,065.04	22.69	24.09	131.60	316.32	-9,451.94	9,794.31	9,748.40	45.91	213.350	
6,400.00	6,370.23	6,173.72	6,113.78	22.71	24.27	164.26	313.92	-9,453.91	9,798.68	9,752.59	46.09	212.588	
6,450.00	6,419.74	6,227.44	6,167.39	22.73	24.47	171.77	311.31	-9,456.05	9,807.21	9,760.91	46.30	211.821	
6,500.00	6,468.57	6,280.27	6,220.12	22.77	24.66	174.71	308.78	-9,458.13	9,819.56	9,773.05	46.51	211.145	
6,550.00	6,516.42	6,331.90	6,271.65	22.81	24.85	176.29	306.33	-9,460.13	9,835.65	9,788.94	46.71	210.562	
6,600.00	6,562.98	6,382.00	6,321.67	22.87	25.03	177.27	303.99	-9,462.06	9,855.39	9,808.48	46.91	210.075	
6,650.00	6,607.98	6,430.28	6,369.86	22.95	25.21	177.96	301.76	-9,463.89	9,878.66	9,831.55	47.11	209.684	
6,700.00	6,651.14	6,476.43	6,415.93	23.03	25.38	178.48	299.65	-9,465.62	9,905.31	9,858.01	47.31	209.392	
6,750.00	6,692.18	6,520.18	6,459.61	23.14	25.54	178.90	297.68	-9,467.24	9,935.19	9,887.70	47.49	209.199	
6,800.00	6,730.86	6,561.26	6,500.61	23.26	25.69	179.27	295.84	-9,468.74	9,968.11	9,920.44	47.67	209.106	SF
6,850.00	6,766.93	6,599.40	6,538.70	23.40	25.82	179.61	294.16	-9,470.12	10,003.87	9,956.03	47.84	209.114	
6,900.00	6,800.18	6,634.39	6,573.62	23.56	25.95	179.95	292.62	-9,471.38	10,042.25	9,994.26	48.00	209.225	
6,950.00	6,830.39	6,665.99	6,605.17	23.74	26.07	-179.69	291.25	-9,472.50	10,083.02	10,034.88	48.14	209.438	
7,000.00	6,857.38	6,694.01	6,633.15	23.94	26.17	-179.27	290.05	-9,473.49	10,125.93	10,077.66	48.28	209.755	
7,050.00	6,880.98	6,718.28	6,657.38	24.17	26.26	-178.75	289.01	-9,474.34	10,170.72	10,122.33	48.39	210.176	
7,100.00	6,901.06	6,738.64	6,677.71	24.42	26.33	-178.03	288.14	-9,475.05	10,217.10	10,168.61	48.49	210.702	
7,150.00	6,917.47	6,754.96	6,694.01	24.70	26.39	-176.93	287.45	-9,475.62	10,264.80	10,216.23	48.57	211.332	
7,200.00	6,930.13	6,767.13	6,706.16	25.01	26.44	-174.94	286.94	-9,476.04	10,313.52	10,264.89	48.63	212.064	
7,250.00	6,938.95	6,775.08	6,714.10	25.34	26.47	-170.11	286.61	-9,476.31	10,362.97	10,314.29	48.68	212.897	
7,300.00	6,943.88	6,778.74	6,717.76	25.69	26.48	-143.81	286.45	-9,476.44	10,412.83	10,364.13	48.70	213.827	
7,337.82	6,945.00	6,778.65	6,717.67	25.97	26.48	-36.06	286.46	-9,476.44	10,450.64	10,401.94	48.70	214.592	
7,400.00	6,945.00	6,776.44	6,715.46	26.45	26.47	-54.88	286.55	-9,476.36	10,512.75	10,464.06	48.69	215.902	
7,492.38	6,945.00	6,773.03	6,712.05	27.21	26.46	-67.72	286.69	-9,476.24	10,604.92	10,556.25	48.67	217.878	
7,500.00	6,945.00	6,772.74	6,711.77	27.28	26.46	-67.70	286.71	-9,476.23	10,612.51	10,563.84	48.67	218.043	
7,600.00	6,945.00	6,768.97	6,708.00	28.17	26.44	-67.47	286.86	-9,476.10	10,712.18	10,663.53	48.65	220.194	
7,700.00	6,945.00	6,765.19	6,704.22	29.12	26.43	-67.25	287.02	-9,475.97	10,811.85	10,763.22	48.63	222.339	
7,800.00	6,945.00	6,761.40	6,700.44	30.14	26.42	-67.02	287.18	-9,475.84	10,911.53	10,862.92	48.61	224.476	
7,900.00	6,945.00	6,757.60	6,696.65	31.20	26.40	-66.80	287.34	-9,475.71	11,011.21	10,962.62	48.59	226.607	
8,000.00	6,945.00	6,753.80	6,692.85	32.31	26.39	-66.57	287.50	-9,475.58	11,110.90	11,062.32	48.58	228.731	
8,100.00	6,945.00	6,749.98	6,689.04	33.46	26.37	-66.35	287.66	-9,475.45	11,210.59	11,162.03	48.56	230.847	
8,200.00	6,945.00	6,746.16	6,685.23	34.64	26.36	-66.13	287.83	-9,475.32	11,310.29	11,261.73	48.55	232.957	

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:	Plan #4	**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
8,300.00	6,945.00	6,742.33	6,681.40	35.86	26.35	-65.90	287.99	-9,475.18	11,409.98	11,361.44	48.54	235.059	
8,400.00	6,945.00	6,738.50	6,677.57	37.11	26.33	-65.68	288.15	-9,475.05	11,509.69	11,461.16	48.53	237.154	
8,500.00	6,945.00	6,734.65	6,673.73	38.39	26.32	-65.46	288.31	-9,474.92	11,609.40	11,560.87	48.53	239.241	
8,600.00	6,945.00	6,730.80	6,669.88	39.69	26.30	-65.24	288.48	-9,474.78	11,709.11	11,660.59	48.52	241.320	
8,700.00	6,945.00	6,726.94	6,666.03	41.01	26.29	-65.01	288.64	-9,474.65	11,808.82	11,760.31	48.52	243.392	
8,800.00	6,945.00	6,723.07	6,662.16	42.35	26.28	-64.79	288.80	-9,474.51	11,908.54	11,860.03	48.52	245.457	
8,900.00	6,945.00	6,719.19	6,658.29	43.71	26.26	-64.57	288.97	-9,474.38	12,008.26	11,959.75	48.52	247.513	
9,000.00	6,945.00	6,715.30	6,654.41	45.08	26.25	-64.35	289.14	-9,474.24	12,107.99	12,059.47	48.52	249.562	
9,100.00	6,945.00	6,711.41	6,650.52	46.47	26.23	-64.13	289.30	-9,474.10	12,207.72	12,159.20	48.52	251.602	
9,200.00	6,945.00	6,707.51	6,646.63	47.87	26.22	-63.91	289.47	-9,473.97	12,307.45	12,258.93	48.52	253.635	
9,300.00	6,945.00	6,703.60	6,642.72	49.29	26.20	-63.69	289.64	-9,473.83	12,407.19	12,358.66	48.53	255.659	
9,400.00	6,945.00	6,699.68	6,638.81	50.71	26.19	-63.48	289.80	-9,473.69	12,506.93	12,458.39	48.54	257.675	
9,500.00	6,945.00	6,695.75	6,634.89	52.15	26.18	-63.26	289.97	-9,473.55	12,606.67	12,558.12	48.55	259.683	
9,600.00	6,945.00	6,691.82	6,630.96	53.59	26.16	-63.04	290.14	-9,473.42	12,706.41	12,657.86	48.56	261.683	
9,700.00	6,945.00	6,687.87	6,627.02	55.05	26.15	-62.82	290.31	-9,473.28	12,806.16	12,757.59	48.57	263.674	
9,800.00	6,945.00	6,683.92	6,623.08	56.51	26.13	-62.61	290.48	-9,473.14	12,905.91	12,857.33	48.58	265.657	
9,900.00	6,945.00	6,679.96	6,619.12	57.98	26.12	-62.39	290.65	-9,473.00	13,005.66	12,957.07	48.60	267.631	
10,000.00	6,945.00	6,675.99	6,615.16	59.45	26.10	-62.17	290.82	-9,472.86	13,105.42	13,056.81	48.61	269.597	
10,100.00	6,945.00	6,672.01	6,611.19	60.93	26.09	-61.96	290.99	-9,472.72	13,205.18	13,156.55	48.63	271.554	
10,200.00	6,945.00	6,668.03	6,607.21	62.42	26.07	-61.75	291.16	-9,472.58	13,304.94	13,256.29	48.65	273.502	
10,300.00	6,945.00	6,664.03	6,603.22	63.92	26.06	-61.53	291.34	-9,472.43	13,404.70	13,356.04	48.67	275.442	
10,400.00	6,945.00	6,660.03	6,599.22	65.42	26.05	-61.32	291.51	-9,472.29	13,504.47	13,455.78	48.69	277.373	
10,500.00	6,945.00	6,656.02	6,595.22	66.92	26.03	-61.10	291.68	-9,472.15	13,604.24	13,555.53	48.71	279.295	
10,600.00	6,945.00	6,652.00	6,591.21	68.43	26.02	-60.89	291.86	-9,472.01	13,704.01	13,655.28	48.73	281.208	
10,700.00	6,945.00	6,647.97	6,587.18	69.94	26.00	-60.68	292.03	-9,471.86	13,803.78	13,755.03	48.76	283.113	
10,800.00	6,945.00	6,643.93	6,583.15	71.45	25.99	-60.47	292.21	-9,471.72	13,903.56	13,854.78	48.78	285.008	
10,900.00	6,945.00	6,639.89	6,579.11	72.97	25.97	-60.26	292.38	-9,471.58	14,003.34	13,954.53	48.81	286.895	
11,000.00	6,945.00	6,635.83	6,575.06	74.50	25.96	-60.05	292.56	-9,471.43	14,103.12	14,054.28	48.84	288.772	
11,100.00	6,945.00	6,631.77	6,571.01	76.02	25.94	-59.84	292.74	-9,471.29	14,202.90	14,154.03	48.87	290.640	
11,200.00	6,945.00	6,627.69	6,566.94	77.55	25.93	-59.63	292.92	-9,471.14	14,302.68	14,253.78	48.90	292.500	
11,300.00	6,945.00	6,623.61	6,562.87	79.08	25.91	-59.42	293.09	-9,470.99	14,402.47	14,353.54	48.93	294.350	
11,400.00	6,945.00	6,619.52	6,558.78	80.62	25.90	-59.21	293.27	-9,470.85	14,502.26	14,453.29	48.96	296.191	
11,500.00	6,945.00	6,615.42	6,554.69	82.16	25.88	-59.00	293.45	-9,470.70	14,602.05	14,553.05	49.00	298.023	
11,600.00	6,945.00	6,611.32	6,550.59	83.70	25.87	-58.80	293.63	-9,470.55	14,701.84	14,652.81	49.03	299.846	
11,700.00	6,945.00	6,607.20	6,546.48	85.24	25.85	-58.59	293.81	-9,470.40	14,801.63	14,752.56	49.07	301.659	
11,800.00	6,945.00	6,603.07	6,542.36	86.78	25.84	-58.38	293.99	-9,470.26	14,901.43	14,852.32	49.10	303.463	
11,900.00	6,945.00	6,598.94	6,538.23	88.33	25.82	-58.18	294.18	-9,470.11	15,001.22	14,952.08	49.14	305.258	
12,000.00	6,945.00	6,594.80	6,534.10	89.87	25.81	-57.97	294.36	-9,469.96	15,101.02	15,051.84	49.18	307.044	
12,100.00	6,945.00	6,590.64	6,529.95	91.42	25.79	-57.77	294.54	-9,469.81	15,200.82	15,151.60	49.22	308.821	
12,200.00	6,945.00	6,586.48	6,525.80	92.98	25.78	-57.56	294.72	-9,469.66	15,300.62	15,251.36	49.26	310.588	
12,300.00	6,945.00	6,582.31	6,521.63	94.53	25.76	-57.36	294.91	-9,469.51	15,400.43	15,351.12	49.31	312.346	
12,400.00	6,945.00	6,578.13	6,517.46	96.08	25.75	-57.16	295.09	-9,469.35	15,500.23	15,450.88	49.35	314.095	
12,500.00	6,945.00	6,573.94	6,513.28	97.64	25.73	-56.96	295.28	-9,469.20	15,600.04	15,550.65	49.39	315.834	
12,600.00	6,945.00	6,569.75	6,509.09	99.20	25.72	-56.76	295.46	-9,469.05	15,699.85	15,650.41	49.44	317.564	
12,700.00	6,945.00	6,565.54	6,504.89	100.76	25.70	-56.55	295.65	-9,468.90	15,799.66	15,750.17	49.48	319.285	
12,800.00	6,945.00	6,561.32	6,500.68	102.32	25.69	-56.35	295.84	-9,468.74	15,899.47	15,849.94	49.53	320.997	
12,900.00	6,945.00	6,557.10	6,496.46	103.88	25.67	-56.15	296.03	-9,468.59	15,999.28	15,949.70	49.58	322.699	
13,000.00	6,945.00	6,552.86	6,492.23	105.44	25.65	-55.96	296.21	-9,468.43	16,099.09	16,049.47	49.63	324.392	
13,100.00	6,945.00	6,548.62	6,487.99	107.00	25.64	-55.76	296.40	-9,468.28	16,198.91	16,149.23	49.68	326.076	
13,200.00	6,945.00	6,544.36	6,483.74	108.57	25.62	-55.56	296.59	-9,468.12	16,298.73	16,249.00	49.73	327.750	
13,300.00	6,945.00	6,540.10	6,479.49	110.13	25.61	-55.36	296.78	-9,467.97	16,398.54	16,348.76	49.78	329.415	
13,400.00	6,945.00	6,535.83	6,475.22	111.70	25.59	-55.17	296.97	-9,467.81	16,498.36	16,448.53	49.83	331.071	

CC - Min centre to center distance or 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:	Plan #4	**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
13,500.00	6,945.00	6,531.54	6,470.95	113.27	25.58	-54.97	297.17	-9,467.65	16,598.18	16,548.30	49.89	332.718	
13,600.00	6,945.00	6,527.25	6,466.66	114.84	25.56	-54.77	297.36	-9,467.50	16,698.00	16,648.06	49.94	334.355	
13,700.00	6,945.00	6,522.95	6,462.37	116.41	25.55	-54.58	297.55	-9,467.34	16,797.83	16,747.83	50.00	335.983	
13,800.00	6,945.00	6,518.64	6,458.07	117.98	25.53	-54.38	297.74	-9,467.18	16,897.65	16,847.60	50.05	337.602	
13,900.00	6,945.00	6,514.32	6,453.75	119.55	25.51	-54.19	297.94	-9,467.02	16,997.48	16,947.37	50.11	339.212	
14,000.00	6,945.00	6,509.99	6,449.43	121.12	25.50	-54.00	298.13	-9,466.86	17,097.30	17,047.14	50.17	340.813	
14,100.00	6,945.00	6,505.65	6,445.10	122.69	25.48	-53.81	298.33	-9,466.70	17,197.13	17,146.90	50.22	342.404	
14,200.00	6,945.00	6,501.30	6,440.76	124.27	25.47	-53.61	298.53	-9,466.54	17,296.96	17,246.67	50.28	343.987	
14,300.00	6,945.00	6,496.94	6,436.41	125.84	25.45	-53.42	298.72	-9,466.38	17,396.79	17,346.44	50.34	345.560	
14,400.00	6,945.00	6,492.58	6,432.04	127.41	25.43	-53.23	298.92	-9,466.22	17,496.62	17,446.21	50.40	347.124	
14,500.00	6,945.00	6,488.20	6,427.67	128.99	25.42	-53.04	299.12	-9,466.05	17,596.45	17,545.98	50.47	348.679	
14,600.00	6,945.00	6,483.81	6,423.29	130.57	25.40	-52.85	299.32	-9,465.89	17,696.28	17,645.75	50.53	350.226	
14,700.00	6,945.00	6,479.41	6,418.90	132.14	25.39	-52.66	299.52	-9,465.73	17,796.11	17,745.52	50.59	351.763	
14,800.00	6,945.00	6,475.00	6,414.50	133.72	25.37	-52.48	299.72	-9,465.56	17,895.95	17,845.29	50.66	353.291	
14,900.00	6,945.00	6,470.59	6,410.09	135.30	25.35	-52.29	299.92	-9,465.40	17,995.78	17,945.06	50.72	354.810	
15,000.00	6,945.00	6,466.16	6,405.67	136.87	25.34	-52.10	300.12	-9,465.23	18,095.62	18,044.83	50.78	356.320	
15,100.00	6,945.00	6,461.72	6,401.24	138.45	25.32	-51.91	300.32	-9,465.07	18,195.46	18,144.61	50.85	357.822	
15,200.00	6,945.00	6,457.27	6,396.80	140.03	25.31	-51.73	300.52	-9,464.90	18,295.29	18,244.38	50.92	359.314	
15,300.00	6,945.00	6,452.81	6,392.35	141.61	25.29	-51.54	300.73	-9,464.73	18,395.13	18,344.15	50.98	360.798	
15,400.00	6,945.00	6,448.35	6,387.89	143.19	25.27	-51.36	300.93	-9,464.57	18,494.97	18,443.92	51.05	362.273	
15,500.00	6,945.00	6,443.87	6,383.42	144.77	25.26	-51.18	301.14	-9,464.40	18,594.81	18,543.69	51.12	363.739	
15,600.00	6,945.00	6,439.38	6,378.94	146.35	25.24	-50.99	301.34	-9,464.23	18,694.65	18,643.46	51.19	365.196	
15,700.00	6,945.00	6,434.88	6,374.45	147.94	25.22	-50.81	301.55	-9,464.06	18,794.50	18,743.23	51.26	366.645	
15,800.00	6,945.00	6,430.37	6,369.95	149.52	25.21	-50.63	301.75	-9,463.89	18,894.34	18,843.01	51.33	368.085	
15,900.00	6,945.00	6,425.86	6,365.44	151.10	25.19	-50.45	301.96	-9,463.72	18,994.18	18,942.78	51.40	369.517	
16,000.00	6,945.00	6,421.33	6,360.92	152.68	25.17	-50.27	302.17	-9,463.55	19,094.03	19,042.55	51.47	370.940	
16,100.00	6,945.00	6,416.79	6,356.39	154.26	25.16	-50.09	302.38	-9,463.38	19,193.87	19,142.32	51.55	372.354	
16,200.00	6,945.00	6,412.24	6,351.85	155.85	25.14	-49.91	302.59	-9,463.21	19,293.72	19,242.10	51.62	373.760	
16,300.00	6,945.00	6,407.68	6,347.30	157.43	25.12	-49.73	302.80	-9,463.03	19,393.56	19,341.87	51.69	375.157	
16,400.00	6,945.00	6,403.11	6,342.73	159.02	25.11	-49.55	303.01	-9,462.86	19,493.41	19,441.64	51.77	376.546	
16,500.00	6,945.00	6,398.53	6,338.16	160.60	25.09	-49.37	303.22	-9,462.69	19,593.26	19,541.41	51.84	377.927	
16,600.00	6,945.00	6,393.94	6,333.58	162.18	25.07	-49.20	303.44	-9,462.51	19,693.11	19,641.19	51.92	379.299	
16,700.00	6,945.00	6,389.33	6,328.98	163.77	25.06	-49.02	303.65	-9,462.34	19,792.96	19,740.96	52.00	380.663	
16,800.00	6,945.00	6,384.72	6,324.38	165.35	25.04	-48.85	303.86	-9,462.16	19,892.81	19,840.73	52.07	382.019	
16,900.00	6,945.00	6,380.10	6,319.77	166.94	25.02	-48.67	304.08	-9,461.98	19,992.66	19,940.51	52.15	383.367	
17,000.00	6,945.00	6,375.46	6,315.14	168.53	25.01	-48.50	304.29	-9,461.81	20,092.51	20,040.28	52.23	384.706	
17,100.00	6,945.00	6,370.82	6,310.50	170.11	24.99	-48.32	304.51	-9,461.63	20,192.36	20,140.05	52.31	386.037	
17,200.00	6,945.00	6,366.17	6,305.86	171.70	24.97	-48.15	304.73	-9,461.45	20,292.21	20,239.82	52.39	387.361	
17,300.00	6,945.00	6,361.50	6,301.20	173.29	24.96	-47.98	304.94	-9,461.27	20,392.06	20,339.60	52.47	388.676	
17,400.00	6,945.00	6,356.82	6,296.53	174.87	24.94	-47.81	305.16	-9,461.09	20,491.92	20,439.37	52.55	389.983	
17,500.00	6,945.00	6,352.14	6,291.85	176.46	24.92	-47.63	305.38	-9,460.91	20,591.77	20,539.14	52.63	391.282	
17,600.00	6,945.00	6,347.44	6,287.16	178.05	24.91	-47.46	305.60	-9,460.73	20,691.62	20,638.92	52.71	392.574	
17,700.00	6,945.00	6,342.73	6,282.46	179.63	24.89	-47.29	305.82	-9,460.55	20,791.48	20,738.69	52.79	393.857	
17,800.00	6,945.00	6,338.01	6,277.75	181.22	24.87	-47.13	306.05	-9,460.37	20,891.34	20,838.46	52.87	395.133	
17,900.00	6,945.00	6,333.28	6,273.03	182.81	24.85	-46.96	306.27	-9,460.19	20,991.19	20,938.24	52.95	396.401	
18,000.00	6,945.00	6,328.53	6,268.30	184.40	24.84	-46.79	306.49	-9,460.00	21,091.05	21,038.01	53.04	397.661	
18,100.00	6,945.00	6,323.78	6,263.55	185.99	24.82	-46.62	306.72	-9,459.82	21,190.90	21,137.78	53.12	398.913	
18,200.00	6,945.00	6,319.02	6,258.80	187.58	24.80	-46.46	306.94	-9,459.64	21,290.76	21,237.56	53.21	400.158	
18,300.00	6,945.00	6,314.24	6,254.03	189.16	24.78	-46.29	307.17	-9,459.45	21,390.62	21,337.33	53.29	401.396	
18,400.00	6,945.00	6,309.46	6,249.25	190.75	24.77	-46.12	307.39	-9,459.27	21,490.48	21,437.10	53.38	402.626	
18,500.00	6,945.00	6,304.66	6,244.46	192.34	24.75	-45.96	307.62	-9,459.08	21,590.34	21,536.88	53.46	403.848	
18,600.00	6,945.00	6,299.85	6,239.66	193.93	24.73	-45.80	307.85	-9,458.89	21,690.20	21,636.65	53.55	405.063	

CC - Min centre to center distance or 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:	Plan #4	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

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

Rule Assigned:

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
18,700.00	6,945.00	6,295.03	6,234.85	195.52	24.71	-45.63	308.08	-9,458.70	21,790.06	21,736.42	53.63	406.270	
18,800.00	6,945.00	6,290.20	6,230.03	197.11	24.70	-45.47	308.31	-9,458.52	21,889.92	21,836.20	53.72	407.470	
18,900.00	6,945.00	6,285.35	6,225.20	198.70	24.68	-45.31	308.54	-9,458.33	21,989.78	21,935.97	53.81	408.663	
19,000.00	6,945.00	6,280.50	6,220.35	200.29	24.66	-45.15	308.77	-9,458.14	22,089.64	22,035.74	53.90	409.849	
19,100.00	6,945.00	6,275.63	6,215.50	201.88	24.64	-44.98	309.00	-9,457.95	22,189.50	22,135.51	53.99	411.027	
19,200.00	6,945.00	6,270.76	6,210.63	203.47	24.63	-44.82	309.23	-9,457.76	22,289.36	22,235.29	54.07	412.199	
19,300.00	6,945.00	6,265.87	6,205.75	205.06	24.61	-44.66	309.47	-9,457.56	22,389.22	22,335.06	54.16	413.363	
19,400.00	6,945.00	6,260.97	6,200.86	206.65	24.59	-44.51	309.70	-9,457.37	22,489.09	22,434.83	54.25	414.520	
19,500.00	6,945.00	6,256.06	6,195.95	208.24	24.57	-44.35	309.94	-9,457.18	22,588.95	22,534.61	54.34	415.670	
19,600.00	6,945.00	6,251.13	6,191.04	209.84	24.55	-44.19	310.17	-9,456.99	22,688.81	22,634.38	54.43	416.813	
19,700.00	6,945.00	6,246.20	6,186.11	211.43	24.54	-44.03	310.41	-9,456.79	22,788.68	22,734.15	54.53	417.949	
19,800.00	6,945.00	6,241.25	6,181.18	213.02	24.52	-43.88	310.65	-9,456.60	22,888.54	22,833.92	54.62	419.078	
19,900.00	6,945.00	6,236.29	6,176.23	214.61	24.50	-43.72	310.89	-9,456.40	22,988.40	22,933.70	54.71	420.201	
20,000.00	6,945.00	6,231.32	6,171.27	216.20	24.48	-43.56	311.13	-9,456.20	23,088.27	23,033.47	54.80	421.317	
20,100.00	6,945.00	6,226.34	6,166.29	217.79	24.46	-43.41	311.37	-9,456.01	23,188.13	23,133.24	54.89	422.426	
20,200.00	6,945.00	6,221.34	6,161.31	219.38	24.45	-43.25	311.61	-9,455.81	23,288.00	23,233.01	54.99	423.528	
20,300.00	6,945.00	6,216.34	6,156.31	220.98	24.43	-43.10	311.85	-9,455.61	23,387.86	23,332.79	55.08	424.624	
20,400.00	6,945.00	6,211.32	6,151.30	222.57	24.41	-42.95	312.09	-9,455.41	23,487.73	23,432.56	55.17	425.713	
20,500.00	6,945.00	6,206.29	6,146.28	224.16	24.39	-42.80	312.34	-9,455.21	23,587.60	23,532.33	55.27	426.795	
20,600.00	6,945.00	6,201.25	6,141.25	225.75	24.37	-42.64	312.58	-9,455.01	23,687.46	23,632.10	55.36	427.871	
20,700.00	6,945.00	6,196.19	6,136.21	227.35	24.35	-42.49	312.83	-9,454.81	23,787.33	23,731.87	55.46	428.941	
20,800.00	6,945.00	6,191.12	6,131.15	228.94	24.33	-42.34	313.07	-9,454.61	23,887.20	23,831.65	55.55	430.004	
20,852.96	6,945.00	6,188.44	6,128.47	229.61	24.33	-42.26	313.20	-9,454.50	23,940.08	23,879.70	60.38	396.463	

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:	Plan #4	**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				
20.93	20.93	509.03	508.93	0.00	15.25	-105.75	977.19	18,062.99	18,089.42				
117.41	117.41	605.51	605.41	0.05	18.14	-110.30	977.19	18,062.99	18,089.56	18,071.38	18.18	995.094	
206.68	206.68	694.78	694.68	0.17	20.82	-84.40	977.19	18,062.99	18,089.60	18,068.69	20.92	864.862	
249.81	249.80	737.90	737.80	0.23	22.11	-84.76	977.19	18,062.99	18,089.58	18,067.34	22.24	813.499	
292.93	292.93	783.31	783.16	0.28	23.47	-84.96	979.33	18,062.99	18,089.67	18,066.04	23.63	765.667	
308.86	308.85	800.40	800.26	0.30	23.98	-91.37	979.28	18,062.99	18,089.66	18,065.51	24.15	748.965	
365.00	364.99	860.67	860.51	0.36	25.79	-115.64	978.94	18,062.99	18,089.74	18,063.73	26.01	695.477	
451.00	450.97	953.01	952.82	0.55	28.56	-62.36	977.93	18,062.99	18,089.06	18,060.03	29.03	623.131	
540.00	539.81	1,028.22	1,027.81	0.83	30.81	-56.92	977.19	18,062.99	18,086.31	18,054.72	31.60	572.436	
665.00	664.37	1,152.78	1,152.37	1.26	34.54	-54.65	977.19	18,062.99	18,080.41	18,044.63	35.78	505.273	
753.00	752.01	1,240.42	1,240.01	1.58	37.17	-55.66	977.19	18,062.99	18,075.84	18,037.11	38.73	466.667	
847.00	845.61	1,340.38	1,339.92	1.93	40.16	-52.68	979.08	18,062.99	18,070.89	18,028.81	42.08	429.466	
939.00	937.22	1,439.02	1,438.54	2.27	43.12	-52.46	978.12	18,062.99	18,065.62	18,020.25	45.38	398.137	
1,030.00	1,027.78	1,516.49	1,515.78	2.62	45.44	-63.96	977.19	18,062.99	18,060.89	18,012.85	48.04	375.974	
1,120.00	1,117.25	1,605.96	1,605.25	2.96	48.12	-61.15	977.19	18,062.99	18,056.36	18,005.30	51.06	353.627	
1,211.00	1,207.68	1,696.39	1,695.68	3.31	50.83	-63.82	977.19	18,062.99	18,051.63	17,997.52	54.12	333.561	
1,306.00	1,302.14	1,794.07	1,793.32	3.68	53.76	-62.00	979.30	18,062.99	18,047.13	17,989.73	57.41	314.373	
1,400.00	1,395.63	1,895.04	1,894.26	4.04	56.78	-60.77	978.63	18,062.99	18,042.44	17,981.65	60.79	296.802	
1,495.00	1,490.19	1,997.29	1,996.48	4.40	59.85	-61.44	977.23	18,062.99	18,037.91	17,973.70	64.21	280.912	
1,589.00	1,583.83	2,072.84	2,071.83	4.76	62.11	-63.90	977.19	18,062.99	18,034.09	17,967.26	66.83	269.856	
1,684.00	1,678.44	2,167.46	2,166.44	5.12	64.95	-61.56	977.19	18,062.99	18,030.14	17,960.12	70.02	257.497	
1,779.00	1,772.98	2,262.98	2,261.93	5.48	67.81	-57.20	979.36	18,062.99	18,025.47	17,952.22	73.24	246.104	
1,873.00	1,866.49	2,364.22	2,363.15	5.84	70.84	-55.74	978.91	18,062.99	18,020.16	17,943.52	76.63	235.149	
1,967.00	1,960.05	2,465.65	2,464.54	6.20	73.88	-51.09	977.74	18,062.99	18,014.64	17,934.62	80.03	225.112	
2,062.00	2,054.59	2,543.91	2,542.59	6.56	76.23	-56.49	977.19	18,062.99	18,009.10	17,926.37	82.73	217.690	
2,156.00	2,148.09	2,637.41	2,636.09	6.92	79.03	-57.23	977.19	18,062.99	18,003.78	17,917.89	85.89	209.623	
2,251.00	2,242.55	2,731.87	2,730.55	7.29	81.86	-55.92	977.19	18,062.99	17,998.21	17,909.14	89.08	202.049	
2,345.00	2,336.00	2,831.78	2,830.40	7.65	84.85	-61.94	979.14	18,062.99	17,993.05	17,900.62	92.43	194.665	
2,440.00	2,430.43	2,934.45	2,933.05	8.02	87.93	-64.59	978.18	18,062.99	17,988.31	17,892.44	95.87	187.630	
2,535.00	2,524.86	3,014.49	3,012.86	8.38	90.33	-63.35	977.19	18,062.99	17,983.68	17,885.05	98.63	182.327	
2,629.00	2,618.31	3,107.94	3,106.31	8.75	93.13	-63.37	977.19	18,062.99	17,979.09	17,877.30	101.79	176.621	
2,724.00	2,712.77	3,202.39	3,200.77	9.12	95.96	-62.64	977.19	18,062.99	17,974.46	17,869.47	104.99	171.203	
2,818.00	2,806.24	3,299.96	3,298.29	9.48	98.88	-62.11	979.28	18,062.99	17,969.95	17,861.68	108.27	165.970	
2,913.00	2,900.71	3,402.99	3,401.30	9.84	101.97	-59.93	978.55	18,062.99	17,965.07	17,853.35	111.72	160.802	
3,008.00	2,995.25	3,506.23	3,504.50	10.21	105.06	-64.35	977.08	18,062.99	17,960.55	17,845.37	115.18	155.941	
3,102.00	3,088.80	3,578.72	3,576.80	10.57	107.23	-64.16	977.19	18,062.99	17,956.54	17,838.83	117.71	152.555	
3,197.00	3,183.30	3,673.23	3,671.30	10.93	110.07	-61.27	977.19	18,062.99	17,952.06	17,831.16	120.90	148.488	
3,291.00	3,276.71	3,768.19	3,766.22	11.30	112.91	-67.44	979.36	18,062.99	17,947.68	17,823.58	124.11	144.615	
3,386.00	3,371.01	3,871.34	3,869.35	11.67	116.00	-68.64	978.85	18,062.99	17,943.31	17,815.74	127.57	140.657	
3,480.00	3,464.23	3,973.51	3,971.49	12.04	119.06	-67.40	977.62	18,062.99	17,938.70	17,807.70	131.00	136.939	
3,575.00	3,558.47	4,048.71	4,046.47	12.42	121.32	-65.93	977.19	18,062.99	17,933.87	17,800.25	133.62	134.212	
3,670.00	3,652.84	4,143.07	4,140.84	12.79	124.15	-65.00	977.19	18,062.99	17,929.31	17,792.49	136.82	131.044	
3,764.00	3,746.36	4,236.59	4,234.36	13.15	126.95	-61.83	977.19	18,062.99	17,925.08	17,785.10	139.98	128.055	
3,859.00	3,840.97	4,339.14	4,336.85	13.51	130.02	-58.13	979.09	18,062.99	17,920.92	17,777.51	143.41	124.964	
3,954.00	3,935.57	4,443.09	4,440.77	13.87	133.13	-58.13	978.07	18,062.99	17,916.22	17,769.34	146.88	121.978	
4,049.00	4,030.14	4,520.68	4,518.14	14.23	135.46	-67.21	977.19	18,062.99	17,911.99	17,762.42	149.57	119.760	
4,143.00	4,123.75	4,614.29	4,611.75	14.59	138.26	-66.15	977.19	18,062.99	17,908.60	17,755.88	152.73	117.260	
4,238.00	4,218.33	4,708.86	4,706.33	14.95	141.10	-65.95	977.19	18,062.99	17,904.96	17,749.04	155.92	114.835	
4,333.00	4,312.74	4,808.66	4,806.07	15.32	144.09	-68.82	979.25	18,062.99	17,901.05	17,741.77	159.28	112.390	
4,427.00	4,406.05	4,911.52	4,908.91	15.69	147.17	-66.48	978.46	18,062.99	17,896.65	17,733.92	162.72	109.981	
4,522.00	4,500.34	5,015.66	5,013.01	16.06	150.29	-65.61	976.90	18,062.99	17,891.82	17,725.60	166.22	107.642	

CC - Min centre to center distance or 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:	Plan #4	**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
4,616.00	4,593.47	5,084.31	5,081.47	16.44	152.35	-67.92	977.19	18,062.99	17,886.77	17,718.12	168.65	106.061	
4,710.00	4,686.44	5,177.28	5,174.44	16.82	155.13	-67.24	977.19	18,062.99	17,881.43	17,709.62	171.81	104.078	
4,899.00	4,873.89	5,376.95	5,374.05	17.57	161.12	-60.90	978.81	18,062.99	17,871.14	17,692.60	178.53	100.100	
4,962.00	4,936.56	5,446.40	5,443.47	17.81	163.20	-58.53	978.02	18,062.99	17,867.86	17,687.01	180.85	98.798	
5,024.00	4,998.27	5,514.82	5,511.87	18.04	165.25	-62.32	976.92	18,062.99	17,864.79	17,681.65	183.14	97.549	
5,150.00	5,123.66	5,614.81	5,611.66	18.53	168.25	-61.34	977.19	18,062.99	17,858.96	17,672.34	186.61	95.701	
5,213.00	5,186.37	5,677.52	5,674.37	18.77	170.12	-63.74	977.19	18,062.99	17,856.18	17,667.45	188.73	94.612	
5,276.00	5,249.09	5,740.24	5,737.09	19.01	172.00	-62.87	977.19	18,062.99	17,853.49	17,662.64	190.85	93.548	
5,339.00	5,311.83	5,808.78	5,805.59	19.25	174.06	-63.83	979.25	18,062.99	17,851.07	17,657.93	193.14	92.426	
5,401.00	5,373.58	5,877.34	5,874.13	19.48	176.11	-61.33	978.80	18,062.99	17,848.46	17,653.03	195.43	91.330	
5,464.00	5,436.33	5,947.09	5,943.86	19.72	178.20	-64.05	978.01	18,062.99	17,845.85	17,648.10	197.75	90.243	
5,590.00	5,561.87	6,053.32	6,049.87	20.19	181.38	-65.38	977.19	18,062.99	17,841.16	17,639.75	201.41	88.581	
5,653.00	5,624.66	6,116.11	6,112.66	20.43	183.27	-66.73	977.19	18,062.99	17,839.03	17,635.51	203.53	87.649	
5,715.00	5,686.48	6,177.93	6,174.48	20.66	185.12	-71.70	977.19	18,062.99	17,837.35	17,631.74	205.61	86.753	
5,778.00	5,749.29	6,240.74	6,237.29	20.90	187.00	-69.04	977.19	18,062.99	17,835.72	17,628.00	207.73	85.861	
5,841.00	5,812.10	6,309.59	6,306.09	21.13	189.06	-71.35	979.25	18,062.99	17,834.23	17,624.20	210.02	84.915	
5,904.00	5,874.94	6,379.55	6,376.04	21.36	191.16	-66.05	978.78	18,062.99	17,832.54	17,620.19	212.35	83.976	
5,967.00	5,937.80	6,449.59	6,446.05	21.60	193.26	-64.52	977.98	18,062.99	17,830.73	17,616.05	214.68	83.056	
6,030.00	6,000.68	6,519.70	6,516.13	21.83	195.36	-66.44	976.83	18,062.99	17,829.05	17,612.04	217.01	82.156	
6,093.00	6,063.59	6,555.34	6,551.59	22.05	196.43	-62.77	977.19	18,062.99	17,827.59	17,609.28	218.31	81.661	
6,156.00	6,126.51	6,618.26	6,614.51	22.28	198.31	-57.50	977.19	18,062.99	17,826.01	17,605.59	220.42	80.871	
6,235.00	6,205.43	6,697.19	6,693.43	22.56	200.68	-57.81	977.19	18,062.99	17,824.15	17,601.08	223.07	79.903	
6,300.00	6,270.38	6,763.54	6,759.74	22.68	202.67	-57.83	979.36	18,062.99	17,823.00	17,597.82	225.18	79.151	
6,355.00	6,325.34	6,824.80	6,820.99	22.69	204.50	-57.83	979.17	18,062.99	17,821.85	17,594.83	227.02	78.503	
6,400.00	6,370.23	6,874.85	6,871.03	22.71	206.00	-25.22	978.82	18,062.99	17,819.33	17,590.80	228.53	77.974	
6,450.00	6,419.74	6,930.08	6,926.25	22.73	207.66	-17.81	978.24	18,062.99	17,812.83	17,582.63	230.20	77.380	
6,500.00	6,468.57	6,984.58	6,980.73	22.77	209.29	-15.03	977.45	18,062.99	17,802.47	17,570.62	231.85	76.783	
6,550.00	6,516.42	7,008.48	7,004.42	22.81	210.01	-13.69	977.19	18,062.99	17,788.37	17,555.78	232.60	76.477	
6,600.00	6,562.98	7,055.04	7,050.98	22.87	211.40	-13.01	977.19	18,062.99	17,770.63	17,536.60	234.02	75.936	
6,650.00	6,607.98	7,100.04	7,095.98	22.95	212.75	-12.72	977.19	18,062.99	17,749.30	17,513.90	235.41	75.399	
6,700.00	6,651.14	7,143.20	7,139.14	23.03	214.04	-12.70	977.19	18,062.99	17,724.54	17,487.80	236.74	74.870	
6,750.00	6,692.18	7,184.24	7,180.18	23.14	215.27	-12.91	977.19	18,062.99	17,696.49	17,458.48	238.01	74.351	
6,800.00	6,730.86	7,222.92	7,218.86	23.26	216.43	-13.33	977.19	18,062.99	17,665.32	17,426.10	239.22	73.846	
6,850.00	6,766.93	7,260.06	7,255.96	23.40	217.54	-13.98	979.37	18,062.99	17,631.42	17,391.04	240.38	73.347	
6,900.00	6,800.18	7,297.19	7,293.08	23.56	218.66	-14.89	979.29	18,062.99	17,594.62	17,353.07	241.55	72.840	
6,950.00	6,830.39	7,330.96	7,326.84	23.74	219.67	-16.13	979.14	18,062.99	17,555.33	17,312.71	242.62	72.357	
7,000.00	6,857.38	7,361.14	7,357.02	23.94	220.57	-17.81	978.94	18,062.99	17,513.79	17,270.21	243.58	71.901	
7,050.00	6,880.98	7,387.56	7,383.44	24.17	221.36	-20.11	978.71	18,062.99	17,470.27	17,225.84	244.43	71.473	
7,100.00	6,901.06	7,410.05	7,405.92	24.42	222.04	-23.37	978.47	18,062.99	17,425.04	17,179.88	245.16	71.076	
7,150.00	6,917.47	7,428.45	7,424.31	24.70	222.59	-28.15	978.26	18,062.99	17,378.37	17,132.61	245.77	70.710	
7,200.00	6,930.13	7,442.66	7,438.52	25.01	223.02	-35.59	978.07	18,062.99	17,330.57	17,084.32	246.25	70.379	
7,250.00	6,938.95	7,452.58	7,448.44	25.34	223.31	-47.92	977.94	18,062.99	17,281.91	17,035.32	246.59	70.083	
7,300.00	6,943.88	7,458.15	7,454.00	25.69	223.48	-68.70	977.86	18,062.99	17,232.71	16,985.91	246.81	69.823	
7,337.82	6,945.00	7,459.44	7,455.30	25.97	223.52	-90.51	977.84	18,062.99	17,195.32	16,948.45	246.88	69.652	
7,400.00	6,945.00	7,459.49	7,455.34	26.45	223.52	-90.60	977.84	18,062.99	17,133.72	16,886.79	246.92	69.389	
7,492.38	6,945.00	7,459.52	7,455.38	27.21	223.52	-90.80	977.84	18,062.99	17,041.89	16,794.91	246.98	69.000	
7,500.00	6,945.00	7,459.52	7,455.38	27.28	223.52	-90.80	977.84	18,062.99	17,034.31	16,787.32	246.99	68.968	
7,600.00	6,945.00	7,459.53	7,455.38	28.17	223.52	-90.80	977.84	18,062.99	16,934.75	16,687.70	247.05	68.548	
7,700.00	6,945.00	7,459.54	7,455.39	29.12	223.52	-90.80	977.84	18,062.99	16,835.20	16,588.09	247.11	68.129	
7,800.00	6,945.00	7,459.54	7,455.40	30.14	223.52	-90.80	977.84	18,062.99	16,735.65	16,488.48	247.17	67.708	
7,900.00	6,945.00	7,459.55	7,455.40	31.20	223.52	-90.81	977.84	18,062.99	16,636.11	16,388.87	247.24	67.287	
8,000.00	6,945.00	7,459.56	7,455.41	32.31	223.52	-90.81	977.83	18,062.99	16,536.57	16,289.26	247.31	66.866	

CC - Min centre to center distance or 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:	Plan #4	**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
8,100.00	6,945.00	7,459.57	7,455.42	33.46	223.52	-90.81	977.83	18,062.99	16,437.04	16,189.66	247.38	66.444	
8,200.00	6,945.00	7,459.57	7,455.42	34.64	223.52	-90.81	977.83	18,062.99	16,337.51	16,090.06	247.45	66.022	
8,300.00	6,945.00	7,459.58	7,455.43	35.86	223.52	-90.81	977.83	18,062.99	16,237.99	15,990.46	247.53	65.600	
8,400.00	6,945.00	7,459.59	7,455.44	37.11	223.52	-90.81	977.83	18,062.99	16,138.48	15,890.87	247.61	65.177	
8,500.00	6,945.00	7,459.59	7,455.45	38.39	223.52	-90.81	977.83	18,062.99	16,038.97	15,791.28	247.69	64.753	
8,600.00	6,945.00	7,459.60	7,455.45	39.69	223.52	-90.81	977.83	18,062.99	15,939.47	15,691.69	247.78	64.329	
8,700.00	6,945.00	7,459.61	7,455.46	41.01	223.52	-90.81	977.83	18,062.99	15,839.97	15,592.11	247.87	63.905	
8,800.00	6,945.00	7,459.61	7,455.47	42.35	223.52	-90.81	977.83	18,062.99	15,740.49	15,492.53	247.96	63.480	
8,900.00	6,945.00	7,459.62	7,455.47	43.71	223.52	-90.81	977.83	18,062.99	15,641.00	15,392.95	248.05	63.055	
9,000.00	6,945.00	7,459.63	7,455.48	45.08	223.52	-90.81	977.83	18,062.99	15,541.53	15,293.38	248.15	62.630	
9,100.00	6,945.00	7,459.64	7,455.49	46.47	223.52	-90.81	977.83	18,062.99	15,442.06	15,193.81	248.25	62.204	
9,200.00	6,945.00	7,459.64	7,455.49	47.87	223.52	-90.81	977.83	18,062.99	15,342.60	15,094.25	248.35	61.778	
9,300.00	6,945.00	7,459.65	7,455.50	49.29	223.52	-90.81	977.83	18,062.99	15,243.14	14,994.68	248.46	61.352	
9,400.00	6,945.00	7,459.66	7,455.51	50.71	223.53	-90.81	977.83	18,062.99	15,143.69	14,895.13	248.56	60.925	
9,500.00	6,945.00	7,459.66	7,455.52	52.15	223.53	-90.81	977.83	18,062.99	15,044.25	14,795.58	248.68	60.497	
9,600.00	6,945.00	7,459.67	7,455.52	53.59	223.53	-90.81	977.83	18,062.99	14,944.82	14,696.03	248.79	60.070	
9,700.00	6,945.00	7,459.68	7,455.53	55.05	223.53	-90.81	977.83	18,062.99	14,845.39	14,596.48	248.91	59.642	
9,800.00	6,945.00	7,459.68	7,455.54	56.51	223.53	-90.81	977.83	18,062.99	14,745.98	14,496.95	249.03	59.214	
9,900.00	6,945.00	7,459.69	7,455.54	57.98	223.53	-90.81	977.83	18,062.99	14,646.57	14,397.41	249.15	58.785	
10,000.00	6,945.00	7,459.70	7,455.55	59.45	223.53	-90.81	977.83	18,062.99	14,547.16	14,297.88	249.28	58.356	
10,100.00	6,945.00	7,459.71	7,455.56	60.93	223.53	-90.81	977.83	18,062.99	14,447.77	14,198.36	249.41	57.927	
10,200.00	6,945.00	7,459.71	7,455.57	62.42	223.53	-90.81	977.83	18,062.99	14,348.39	14,098.84	249.55	57.498	
10,300.00	6,945.00	7,459.72	7,455.57	63.92	223.53	-90.81	977.83	18,062.99	14,249.01	13,999.32	249.69	57.068	
10,400.00	6,945.00	7,459.73	7,455.58	65.42	223.53	-90.81	977.83	18,062.99	14,149.64	13,899.81	249.83	56.638	
10,500.00	6,945.00	7,459.73	7,455.59	66.92	223.53	-90.81	977.83	18,062.99	14,050.28	13,800.31	249.97	56.207	
10,600.00	6,945.00	7,459.74	7,455.59	68.43	223.53	-90.81	977.83	18,062.99	13,950.93	13,700.81	250.12	55.777	
10,700.00	6,945.00	7,459.75	7,455.60	69.94	223.53	-90.81	977.83	18,062.99	13,851.59	13,601.32	250.27	55.346	
10,800.00	6,945.00	7,459.76	7,455.61	71.45	223.53	-90.81	977.83	18,062.99	13,752.26	13,501.83	250.43	54.914	
10,900.00	6,945.00	7,459.76	7,455.61	72.97	223.53	-90.81	977.83	18,062.99	13,652.94	13,402.35	250.59	54.483	
11,000.00	6,945.00	7,459.77	7,455.62	74.50	223.53	-90.81	977.83	18,062.99	13,553.63	13,302.88	250.75	54.051	
11,100.00	6,945.00	7,459.78	7,455.63	76.02	223.53	-90.81	977.83	18,062.99	13,454.33	13,203.41	250.92	53.619	
11,200.00	6,945.00	7,459.78	7,455.64	77.55	223.53	-90.81	977.83	18,062.99	13,355.04	13,103.95	251.09	53.187	
11,300.00	6,945.00	7,459.79	7,455.64	79.08	223.53	-90.81	977.83	18,062.99	13,255.76	13,004.49	251.27	52.755	
11,400.00	6,945.00	7,459.80	7,455.65	80.62	223.53	-90.81	977.83	18,062.99	13,156.49	12,905.04	251.45	52.322	
11,500.00	6,945.00	7,459.80	7,455.66	82.16	223.53	-90.81	977.83	18,062.99	13,057.23	12,805.60	251.64	51.890	
11,600.00	6,945.00	7,459.81	7,455.66	83.70	223.53	-90.81	977.83	18,062.99	12,957.99	12,706.16	251.82	51.457	
11,700.00	6,945.00	7,459.82	7,455.67	85.24	223.53	-90.81	977.83	18,062.99	12,858.75	12,606.74	252.02	51.023	
11,800.00	6,945.00	7,459.83	7,455.68	86.78	223.53	-90.82	977.83	18,062.99	12,759.53	12,507.32	252.21	50.590	
11,900.00	6,945.00	7,459.83	7,455.68	88.33	223.53	-90.82	977.83	18,062.99	12,660.32	12,407.91	252.42	50.156	
12,000.00	6,945.00	7,459.84	7,455.69	89.87	223.53	-90.82	977.83	18,062.99	12,561.12	12,308.50	252.62	49.723	
12,100.00	6,945.00	7,459.85	7,455.70	91.42	223.53	-90.82	977.83	18,062.99	12,461.94	12,209.10	252.83	49.289	
12,200.00	6,945.00	7,459.85	7,455.71	92.98	223.53	-90.82	977.83	18,062.99	12,362.77	12,109.72	253.05	48.855	
12,300.00	6,945.00	7,459.86	7,455.71	94.53	223.53	-90.82	977.83	18,062.99	12,263.61	12,010.34	253.27	48.421	
12,400.00	6,945.00	7,459.87	7,455.72	96.08	223.53	-90.82	977.83	18,062.99	12,164.47	11,910.97	253.50	47.986	
12,500.00	6,945.00	7,459.87	7,455.73	97.64	223.53	-90.82	977.83	18,062.99	12,065.33	11,811.60	253.73	47.552	
12,600.00	6,945.00	7,459.88	7,455.73	99.20	223.53	-90.82	977.83	18,062.99	11,966.22	11,712.25	253.97	47.117	
12,700.00	6,945.00	7,459.89	7,455.74	100.76	223.53	-90.82	977.83	18,062.99	11,867.12	11,612.91	254.21	46.683	
12,800.00	6,945.00	7,459.90	7,455.75	102.32	223.53	-90.82	977.83	18,062.99	11,768.03	11,513.58	254.46	46.248	
12,900.00	6,945.00	7,459.90	7,455.76	103.88	223.53	-90.82	977.83	18,062.99	11,668.96	11,414.25	254.71	45.813	
13,000.00	6,945.00	7,459.91	7,455.76	105.44	223.53	-90.82	977.83	18,062.99	11,569.91	11,314.94	254.97	45.378	
13,100.00	6,945.00	7,459.92	7,455.77	107.00	223.53	-90.82	977.83	18,062.99	11,470.87	11,215.64	255.23	44.943	
13,200.00	6,945.00	7,459.92	7,455.78	108.57	223.53	-90.82	977.83	18,062.99	11,371.85	11,116.35	255.50	44.508	

CC - Min centre to center distance or 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:	Plan #4	**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
13,300.00	6,945.00	7,459.93	7,455.78	110.13	223.53	-90.82	977.83	18,062.99	11,272.85	11,017.07	255.78	44.072	
13,400.00	6,945.00	7,459.94	7,455.79	111.70	223.53	-90.82	977.83	18,062.99	11,173.86	10,917.80	256.06	43.637	
13,500.00	6,945.00	7,459.95	7,455.80	113.27	223.53	-90.82	977.83	18,062.99	11,074.89	10,818.54	256.35	43.202	
13,600.00	6,945.00	7,459.95	7,455.80	114.84	223.53	-90.82	977.83	18,062.99	10,975.94	10,719.29	256.65	42.767	
13,700.00	6,945.00	7,459.96	7,455.81	116.41	223.53	-90.82	977.83	18,062.99	10,877.01	10,620.06	256.95	42.331	
13,800.00	6,945.00	7,459.97	7,455.82	117.98	223.53	-90.82	977.83	18,062.99	10,778.10	10,520.84	257.26	41.896	
13,900.00	6,945.00	7,459.97	7,455.83	119.55	223.53	-90.82	977.83	18,062.99	10,679.21	10,421.64	257.58	41.460	
14,000.00	6,945.00	7,459.98	7,455.83	121.12	223.53	-90.82	977.83	18,062.99	10,580.34	10,322.44	257.90	41.025	
14,100.00	6,945.00	7,459.99	7,455.84	122.69	223.53	-90.82	977.83	18,062.99	10,481.50	10,223.27	258.23	40.589	
14,200.00	6,945.00	7,459.99	7,455.85	124.27	223.54	-90.82	977.83	18,062.99	10,382.67	10,124.10	258.57	40.154	
14,300.00	6,945.00	7,460.00	7,455.85	125.84	223.54	-90.82	977.83	18,062.99	10,283.87	10,024.95	258.92	39.719	
14,400.00	6,945.00	7,460.01	7,455.86	127.41	223.54	-90.82	977.83	18,062.99	10,185.09	9,925.82	259.27	39.283	
14,500.00	6,945.00	7,460.02	7,455.87	128.99	223.54	-90.82	977.83	18,062.99	10,086.34	9,826.70	259.64	38.848	
14,600.00	6,945.00	7,460.02	7,455.88	130.57	223.54	-90.82	977.83	18,062.99	9,987.60	9,727.60	260.01	38.413	
14,700.00	6,945.00	7,460.03	7,455.88	132.14	223.54	-90.82	977.83	18,062.99	9,888.90	9,628.51	260.39	37.977	
14,800.00	6,945.00	7,460.04	7,455.89	133.72	223.54	-90.82	977.83	18,062.99	9,790.22	9,529.44	260.78	37.542	
14,900.00	6,945.00	7,460.04	7,455.90	135.30	223.54	-90.82	977.83	18,062.99	9,691.57	9,430.39	261.18	37.107	
15,000.00	6,945.00	7,460.05	7,455.90	136.87	223.54	-90.82	977.83	18,062.99	9,592.95	9,331.36	261.59	36.672	
15,100.00	6,945.00	7,460.06	7,455.91	138.45	223.54	-90.82	977.83	18,062.99	9,494.35	9,232.35	262.00	36.237	
15,200.00	6,945.00	7,460.07	7,455.92	140.03	223.54	-90.82	977.83	18,062.99	9,395.79	9,133.35	262.43	35.803	
15,300.00	6,945.00	7,460.07	7,455.92	141.61	223.54	-90.82	977.83	18,062.99	9,297.25	9,034.38	262.87	35.368	
15,400.00	6,945.00	7,460.08	7,455.93	143.19	223.54	-90.82	977.83	18,062.99	9,198.75	8,935.43	263.32	34.934	
15,500.00	6,945.00	7,460.09	7,455.94	144.77	223.54	-90.82	977.83	18,062.99	9,100.28	8,836.50	263.78	34.499	
15,600.00	6,945.00	7,460.09	7,455.95	146.35	223.54	-90.82	977.83	18,062.99	9,001.84	8,737.59	264.25	34.065	
15,700.00	6,945.00	7,460.10	7,455.95	147.94	223.54	-90.82	977.83	18,062.99	8,903.44	8,638.70	264.74	33.631	
15,800.00	6,945.00	7,460.11	7,455.96	149.52	223.54	-90.83	977.83	18,062.99	8,805.08	8,539.84	265.23	33.197	
15,900.00	6,945.00	7,460.11	7,455.97	151.10	223.54	-90.83	977.83	18,062.99	8,706.75	8,441.01	265.74	32.764	
16,000.00	6,945.00	7,460.12	7,455.97	152.68	223.54	-90.83	977.83	18,062.99	8,608.46	8,342.19	266.26	32.330	
16,100.00	6,945.00	7,460.13	7,455.98	154.26	223.54	-90.83	977.83	18,062.99	8,510.21	8,243.41	266.80	31.897	
16,200.00	6,945.00	7,460.14	7,455.99	155.85	223.54	-90.83	977.83	18,062.99	8,412.00	8,144.65	267.35	31.464	
16,300.00	6,945.00	7,460.14	7,456.00	157.43	223.54	-90.83	977.83	18,062.99	8,313.83	8,045.92	267.91	31.032	
16,400.00	6,945.00	7,460.15	7,456.00	159.02	223.54	-90.83	977.83	18,062.99	8,215.71	7,947.22	268.49	30.600	
16,500.00	6,945.00	7,460.16	7,456.01	160.60	223.54	-90.83	977.83	18,062.99	8,117.64	7,848.55	269.09	30.168	
16,600.00	6,945.00	7,460.16	7,456.02	162.18	223.54	-90.83	977.83	18,062.99	8,019.61	7,749.91	269.70	29.736	
16,700.00	6,945.00	7,460.17	7,456.02	163.77	223.54	-90.83	977.83	18,062.99	7,921.63	7,651.31	270.32	29.304	
16,800.00	6,945.00	7,460.18	7,456.03	165.35	223.54	-90.83	977.83	18,062.99	7,823.70	7,552.74	270.97	28.873	
16,900.00	6,945.00	7,460.19	7,456.04	166.94	223.54	-90.83	977.83	18,062.99	7,725.83	7,454.20	271.63	28.443	
17,000.00	6,945.00	7,460.19	7,456.04	168.53	223.54	-90.83	977.83	18,062.99	7,628.01	7,355.70	272.31	28.013	
17,100.00	6,945.00	7,460.20	7,456.05	170.11	223.54	-90.83	977.83	18,062.99	7,530.24	7,257.24	273.01	27.583	
17,200.00	6,945.00	7,460.21	7,456.06	171.70	223.54	-90.83	977.83	18,062.99	7,432.54	7,158.82	273.72	27.153	
17,300.00	6,945.00	7,460.21	7,456.07	173.29	223.54	-90.83	977.83	18,062.99	7,334.90	7,060.44	274.46	26.724	
17,400.00	6,945.00	7,460.22	7,456.07	174.87	223.54	-90.83	977.83	18,062.99	7,237.32	6,962.10	275.22	26.296	
17,500.00	6,945.00	7,460.23	7,456.08	176.46	223.54	-90.83	977.83	18,062.99	7,139.81	6,863.81	276.01	25.868	
17,600.00	6,945.00	7,460.23	7,456.09	178.05	223.54	-90.83	977.83	18,062.99	7,042.37	6,765.56	276.81	25.441	
17,700.00	6,945.00	7,460.24	7,456.09	179.63	223.54	-90.83	977.82	18,062.99	6,945.01	6,667.36	277.65	25.014	
17,800.00	6,945.00	7,460.25	7,456.10	181.22	223.54	-90.83	977.82	18,062.99	6,847.72	6,569.22	278.50	24.588	
17,900.00	6,945.00	7,460.26	7,456.11	182.81	223.54	-90.83	977.82	18,062.99	6,750.50	6,471.12	279.38	24.162	
18,000.00	6,945.00	7,460.26	7,456.12	184.40	223.54	-90.83	977.82	18,062.99	6,653.38	6,373.08	280.29	23.737	
18,100.00	6,945.00	7,460.27	7,456.12	185.99	223.54	-90.83	977.82	18,062.99	6,556.33	6,275.10	281.23	23.313	
18,200.00	6,945.00	7,460.28	7,456.13	187.58	223.54	-90.83	977.82	18,062.99	6,459.38	6,177.18	282.20	22.889	
18,300.00	6,945.00	7,460.28	7,456.14	189.16	223.54	-90.83	977.82	18,062.99	6,362.52	6,079.32	283.20	22.467	
18,400.00	6,945.00	7,460.29	7,456.14	190.75	223.54	-90.83	977.82	18,062.99	6,265.76	5,981.53	284.23	22.045	

CC - Min centre to center distance or 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:	Plan #4	**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
18,500.00	6,945.00	7,460.30	7,456.15	192.34	223.54	-90.83	977.82	18,062.99	6,169.11	5,883.81	285.29	21.624	
18,600.00	6,945.00	7,460.31	7,456.16	193.93	223.54	-90.83	977.82	18,062.99	6,072.56	5,786.17	286.39	21.204	
18,700.00	6,945.00	7,460.31	7,456.16	195.52	223.54	-90.83	977.82	18,062.99	5,976.12	5,688.59	287.53	20.784	
18,800.00	6,945.00	7,460.32	7,456.17	197.11	223.54	-90.83	977.82	18,062.99	5,879.81	5,591.10	288.71	20.366	
18,900.00	6,945.00	7,460.33	7,456.18	198.70	223.55	-90.83	977.82	18,062.99	5,783.62	5,493.70	289.92	19.949	
19,000.00	6,945.00	7,460.33	7,456.19	200.29	223.55	-90.83	977.82	18,062.99	5,687.56	5,396.38	291.18	19.533	
19,100.00	6,945.00	7,460.34	7,456.19	201.88	223.55	-90.83	977.82	18,062.99	5,591.64	5,299.15	292.48	19.118	
19,200.00	6,945.00	7,460.35	7,456.20	203.47	223.55	-90.83	977.82	18,062.99	5,495.86	5,202.03	293.83	18.704	
19,300.00	6,945.00	7,460.35	7,456.21	205.06	223.55	-90.83	977.82	18,062.99	5,400.24	5,105.01	295.23	18.291	
19,400.00	6,945.00	7,460.36	7,456.21	206.65	223.55	-90.83	977.82	18,062.99	5,304.78	5,008.10	296.68	17.880	
19,500.00	6,945.00	7,460.37	7,456.22	208.24	223.55	-90.83	977.82	18,062.99	5,209.49	4,911.30	298.19	17.470	
19,600.00	6,945.00	7,460.38	7,456.23	209.84	223.55	-90.83	977.82	18,062.99	5,114.38	4,814.63	299.75	17.062	
19,700.00	6,945.00	7,460.38	7,456.24	211.43	223.55	-90.84	977.82	18,062.99	5,019.46	4,718.09	301.37	16.655	
19,800.00	6,945.00	7,460.39	7,456.24	213.02	223.55	-90.84	977.82	18,062.99	4,924.74	4,621.69	303.05	16.250	
19,900.00	6,945.00	7,460.40	7,456.25	214.61	223.55	-90.84	977.82	18,062.99	4,830.24	4,525.43	304.80	15.847	
20,000.00	6,945.00	7,460.40	7,456.26	216.20	223.55	-90.84	977.82	18,062.99	4,735.95	4,429.33	306.62	15.446	
20,100.00	6,945.00	7,460.41	7,456.26	217.79	223.55	-90.84	977.82	18,062.99	4,641.91	4,333.40	308.52	15.046	
20,200.00	6,945.00	7,460.42	7,456.27	219.38	223.55	-90.84	977.82	18,062.99	4,548.13	4,237.64	310.49	14.648	
20,300.00	6,945.00	7,460.43	7,456.28	220.98	223.55	-90.84	977.82	18,062.99	4,454.61	4,142.07	312.54	14.253	
20,400.00	6,945.00	7,460.43	7,456.28	222.57	223.55	-90.84	977.82	18,062.99	4,361.38	4,046.70	314.68	13.860	
20,500.00	6,945.00	7,460.44	7,456.29	224.16	223.55	-90.84	977.82	18,062.99	4,268.46	3,951.55	316.91	13.469	
20,600.00	6,945.00	7,460.45	7,456.30	225.75	223.55	-90.84	977.82	18,062.99	4,175.86	3,856.63	319.23	13.081	
20,700.00	6,945.00	7,460.45	7,456.31	227.35	223.55	-90.84	977.82	18,062.99	4,083.62	3,761.96	321.66	12.695	
20,800.00	6,945.00	7,460.46	7,456.31	228.94	223.55	-90.84	977.82	18,062.99	3,991.74	3,667.55	324.20	12.313	
20,852.96	6,945.00	7,460.46	7,456.32	229.61	223.55	-90.84	977.82	18,062.99	3,943.25	3,616.32	326.93	12.061	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:	Plan #4	**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				
20.93	20.93	43.93	43.93	0.00	1.32	-124.91	1,865.26	4,556.48	4,923.52				
117.41	117.41	140.41	140.41	0.05	4.21	-129.47	1,865.26	4,556.48	4,923.78	4,919.53	4.25	1,158.283	
206.68	206.68	229.68	229.68	0.17	6.88	-103.57	1,865.26	4,556.48	4,923.95	4,916.95	7.00	703.294	
292.93	292.93	315.93	315.93	0.28	9.47	-104.13	1,865.26	4,556.48	4,924.08	4,914.43	9.65	510.366	
365.00	364.99	387.99	387.99	0.36	11.63	-134.81	1,865.26	4,556.48	4,924.35	4,912.48	11.87	414.815	
451.00	450.97	473.97	473.97	0.55	14.20	-81.54	1,865.26	4,556.48	4,924.34	4,909.66	14.69	335.308	
540.00	539.81	562.91	562.81	0.83	16.87	-76.12	1,865.26	4,556.48	4,923.25	4,905.60	17.66	278.835	
665.00	664.37	687.47	687.37	1.26	20.60	-73.93	1,865.26	4,556.48	4,920.53	4,898.69	21.84	225.257	
753.00	752.01	778.97	778.83	1.58	23.34	-75.04	1,867.41	4,556.48	4,919.22	4,894.30	24.91	197.460	
847.00	845.61	886.96	886.79	1.93	26.58	-72.13	1,866.78	4,556.48	4,916.56	4,888.06	28.50	172.511	
939.00	937.22	992.79	992.59	2.27	29.75	-71.99	1,865.38	4,556.48	4,913.44	4,881.42	32.02	153.467	
1,030.00	1,027.78	1,051.18	1,050.78	2.62	31.50	-83.50	1,865.26	4,556.48	4,911.42	4,877.31	34.11	143.984	
1,120.00	1,117.25	1,140.65	1,140.25	2.96	34.18	-80.76	1,865.26	4,556.48	4,910.06	4,872.93	37.14	132.214	
1,211.00	1,207.68	1,231.08	1,230.68	3.31	36.89	-83.52	1,865.26	4,556.48	4,908.66	4,868.46	40.20	122.111	
1,306.00	1,302.14	1,337.43	1,336.97	3.68	40.08	-81.83	1,867.17	4,556.48	4,908.13	4,864.38	43.75	112.185	
1,400.00	1,395.63	1,445.78	1,445.29	4.04	43.32	-80.69	1,866.10	4,556.48	4,906.28	4,858.93	47.36	103.603	
1,495.00	1,490.19	1,513.90	1,513.19	4.40	45.36	-81.42	1,865.26	4,556.48	4,904.44	4,854.68	49.76	98.560	
1,589.00	1,583.83	1,607.54	1,606.83	4.76	48.17	-83.97	1,865.26	4,556.48	4,903.38	4,850.46	52.92	92.654	
1,684.00	1,678.44	1,702.15	1,701.44	5.12	51.00	-81.69	1,865.26	4,556.48	4,902.30	4,846.18	56.12	87.359	
1,779.00	1,772.98	1,804.21	1,803.45	5.48	54.06	-77.44	1,867.33	4,556.48	4,901.42	4,841.88	59.54	82.325	
1,873.00	1,866.49	1,912.87	1,912.09	5.84	57.32	-76.07	1,866.51	4,556.48	4,898.93	4,835.78	63.15	77.573	
1,967.00	1,960.05	2,021.73	2,020.91	6.20	60.58	-71.51	1,864.86	4,556.48	4,895.80	4,829.03	66.77	73.323	
2,062.00	2,054.59	2,078.60	2,077.59	6.56	62.28	-76.94	1,865.26	4,556.48	4,893.29	4,824.45	68.84	71.083	
2,156.00	2,148.09	2,172.10	2,171.09	6.92	65.09	-77.76	1,865.26	4,556.48	4,891.16	4,819.16	72.00	67.931	
2,251.00	2,242.55	2,269.31	2,268.25	7.29	68.00	-76.56	1,867.42	4,556.48	4,889.80	4,814.52	75.28	64.955	
2,345.00	2,336.00	2,378.20	2,377.12	7.65	71.26	-82.67	1,866.86	4,556.48	4,887.76	4,808.85	78.91	61.945	
2,440.00	2,430.43	2,488.43	2,487.32	8.02	74.56	-85.40	1,865.45	4,556.48	4,886.16	4,803.59	82.57	59.173	
2,535.00	2,524.86	2,549.18	2,547.86	8.38	76.39	-84.22	1,865.26	4,556.48	4,885.02	4,800.26	84.77	57.630	
2,629.00	2,618.31	2,642.63	2,641.31	8.75	79.19	-84.33	1,865.26	4,556.48	4,884.00	4,796.07	87.93	55.545	
2,724.00	2,712.77	2,737.09	2,735.77	9.12	82.02	-83.70	1,865.26	4,556.48	4,882.93	4,791.81	91.13	53.584	
2,818.00	2,806.24	2,844.21	2,842.84	9.48	85.23	-83.28	1,867.13	4,556.48	4,882.60	4,787.90	94.70	51.559	
2,913.00	2,900.71	2,954.85	2,953.44	9.84	88.54	-81.20	1,865.97	4,556.48	4,880.83	4,782.45	98.38	49.613	
3,008.00	2,995.25	3,019.87	3,018.25	10.21	90.49	-85.67	1,865.26	4,556.48	4,879.34	4,778.64	100.69	48.458	
3,102.00	3,088.80	3,113.42	3,111.80	10.57	93.29	-85.56	1,865.26	4,556.48	4,878.63	4,774.77	103.86	46.975	
3,197.00	3,183.30	3,207.92	3,206.30	10.93	96.12	-82.75	1,865.26	4,556.48	4,877.63	4,770.58	107.05	45.563	
3,238.36	3,224.42	3,249.04	3,247.42	11.09	97.36	-85.69	1,865.26	4,556.48	4,877.19	4,768.74	108.45	44.974	
3,291.00	3,276.71	3,310.25	3,308.57	11.30	99.19	-89.00	1,867.31	4,556.48	4,877.80	4,767.32	110.48	44.150	
3,386.00	3,371.01	3,421.05	3,419.35	11.67	102.51	-90.30	1,866.41	4,556.48	4,877.40	4,763.22	114.18	42.719	
3,480.00	3,464.23	3,530.81	3,529.07	12.04	105.80	-89.16	1,864.68	4,556.48	4,876.69	4,758.85	117.83	41.386	
3,575.00	3,558.47	3,583.40	3,581.47	12.42	107.37	-87.77	1,865.26	4,556.48	4,876.43	4,756.64	119.79	40.708	
3,670.00	3,652.84	3,677.77	3,675.84	12.79	110.20	-86.97	1,865.26	4,556.48	4,875.93	4,752.94	122.99	39.645	
3,726.40	3,708.93	3,733.86	3,731.93	13.00	111.88	-85.29	1,865.26	4,556.48	4,875.54	4,750.65	124.89	39.040	
3,764.00	3,746.36	3,775.10	3,773.13	13.15	113.12	-83.94	1,867.41	4,556.48	4,876.16	4,749.89	126.27	38.618	
3,859.00	3,840.97	3,886.65	3,884.65	13.51	116.46	-80.34	1,866.78	4,556.48	4,874.75	4,744.78	129.97	37.508	
3,954.00	3,935.57	3,998.33	3,996.30	13.87	119.81	-80.41	1,865.28	4,556.48	4,872.71	4,739.04	133.67	36.453	
4,049.00	4,030.14	4,055.37	4,053.14	14.23	121.52	-89.52	1,865.26	4,556.48	4,871.75	4,736.00	135.75	35.888	
4,143.00	4,123.75	4,148.98	4,146.75	14.59	124.32	-88.54	1,865.26	4,556.48	4,871.61	4,732.70	138.91	35.071	
4,238.00	4,218.33	4,243.56	4,241.33	14.95	127.16	-88.40	1,865.26	4,556.48	4,871.37	4,729.27	142.10	34.280	
4,243.70	4,224.00	4,249.23	4,247.00	14.97	127.33	-88.61	1,865.26	4,556.48	4,871.35	4,729.06	142.30	34.234	
4,333.00	4,312.74	4,354.06	4,351.76	15.32	130.47	-91.35	1,867.06	4,556.48	4,872.20	4,726.42	145.78	33.421	
4,427.00	4,406.05	4,464.61	4,462.29	15.69	133.78	-89.12	1,865.83	4,556.48	4,871.77	4,722.31	149.46	32.595	

CC - Min centre to center distance or 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:	Plan #4	**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)	Rule Assigned: Distance Between Centres (usft)	Rule Assigned: Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
4,522.00	4,500.34	4,525.88	4,523.34	16.06	135.62	-88.30	1,865.26	4,556.48	4,871.13	4,719.46	151.68	32.115	
4,586.41	4,564.19	4,589.73	4,587.19	16.32	137.53	-90.00	1,865.26	4,556.48	4,871.02	4,717.17	153.85	31.661	
4,616.00	4,593.47	4,619.01	4,616.47	16.44	138.41	-90.65	1,865.26	4,556.48	4,871.04	4,716.20	154.84	31.458	
4,710.00	4,686.44	4,711.98	4,709.44	16.82	141.19	-90.10	1,865.26	4,556.48	4,871.13	4,713.12	158.01	30.828	
4,899.00	4,873.89	4,927.70	4,925.09	17.57	147.66	-84.13	1,866.33	4,556.48	4,870.68	4,705.46	165.22	29.480	
4,962.00	4,936.56	5,002.36	4,999.72	17.81	149.89	-81.84	1,865.21	4,556.48	4,869.46	4,701.77	167.69	29.038	
5,024.00	4,998.27	5,024.11	5,021.27	18.04	150.55	-85.62	1,865.26	4,556.48	4,868.66	4,700.07	168.59	28.879	
5,150.00	5,123.66	5,149.50	5,146.66	18.53	154.30	-84.78	1,865.26	4,556.48	4,867.63	4,694.80	172.83	28.164	
5,213.00	5,186.37	5,212.22	5,209.37	18.77	156.18	-87.22	1,865.26	4,556.48	4,867.21	4,692.26	174.95	27.821	
5,244.50	5,217.73	5,243.57	5,240.73	18.89	157.12	-86.82	1,865.26	4,556.48	4,867.05	4,691.05	176.01	27.652	
5,276.00	5,249.09	5,279.74	5,276.86	19.01	158.21	-86.44	1,867.41	4,556.48	4,867.90	4,690.68	177.21	27.469	
5,339.00	5,311.83	5,354.57	5,351.67	19.25	160.45	-87.45	1,867.05	4,556.48	4,867.45	4,687.76	179.69	27.088	
5,401.00	5,373.58	5,428.29	5,425.37	19.48	162.66	-85.01	1,866.33	4,556.48	4,866.79	4,684.65	182.13	26.721	
5,464.00	5,436.33	5,503.29	5,500.34	19.72	164.90	-87.78	1,865.19	4,556.48	4,865.98	4,681.36	184.61	26.357	
5,590.00	5,561.87	5,588.02	5,584.87	20.19	167.44	-89.17	1,865.26	4,556.48	4,865.55	4,677.91	187.64	25.931	
5,628.42	5,600.15	5,626.30	5,623.15	20.34	168.59	-90.00	1,865.26	4,556.48	4,865.52	4,676.59	188.93	25.753	
5,653.00	5,624.66	5,650.80	5,647.66	20.43	169.32	-90.58	1,865.26	4,556.48	4,865.53	4,675.78	189.75	25.641	
5,715.00	5,686.48	5,712.62	5,709.48	20.66	171.18	-95.59	1,865.26	4,556.48	4,865.78	4,673.94	191.84	25.364	
5,778.00	5,749.29	5,780.44	5,777.25	20.90	173.21	-92.99	1,867.40	4,556.48	4,867.17	4,673.07	194.10	25.075	
5,841.00	5,812.10	5,855.58	5,852.38	21.13	175.46	-95.35	1,867.05	4,556.48	4,867.38	4,670.79	196.59	24.759	
5,904.00	5,874.94	5,930.82	5,927.59	21.36	177.71	-90.11	1,866.29	4,556.48	4,867.30	4,668.23	199.07	24.450	
5,967.00	5,937.80	6,006.14	6,002.89	21.60	179.97	-88.62	1,865.14	4,556.48	4,866.79	4,665.24	201.56	24.146	
6,002.77	5,973.50	6,048.95	6,045.68	21.73	181.25	-89.67	1,864.31	4,556.48	4,866.43	4,663.46	202.97	23.976	
6,030.00	6,000.68	6,027.13	6,023.68	21.83	180.60	-90.55	1,865.26	4,556.48	4,866.63	4,664.21	202.43	24.042	
6,093.00	6,063.59	6,090.04	6,086.59	22.05	182.49	-86.92	1,865.26	4,556.48	4,866.56	4,662.03	204.54	23.793	
6,156.00	6,126.51	6,152.96	6,149.51	22.28	184.37	-81.69	1,865.26	4,556.48	4,866.25	4,659.60	206.65	23.548	
6,235.00	6,205.43	6,231.88	6,228.43	22.56	186.74	-82.04	1,865.26	4,556.48	4,865.76	4,656.46	209.30	23.248	
6,250.60	6,221.02	6,247.47	6,244.02	22.59	187.20	-82.05	1,865.26	4,556.48	4,865.68	4,655.88	209.79	23.193	
6,300.00	6,270.38	6,306.14	6,302.64	22.68	188.96	-82.10	1,867.33	4,556.48	4,866.42	4,654.78	211.64	22.993	
6,355.00	6,325.34	6,372.02	6,368.51	22.69	190.93	-82.12	1,866.92	4,556.48	4,865.97	4,652.34	213.63	22.778	
6,400.00	6,370.23	6,425.85	6,422.32	22.71	192.55	-49.59	1,866.36	4,556.48	4,864.16	4,648.91	215.25	22.598	
6,450.00	6,419.74	6,485.25	6,481.71	22.73	194.33	-42.41	1,865.50	4,556.48	4,858.91	4,641.86	217.05	22.386	
6,500.00	6,468.57	6,543.87	6,540.29	22.77	196.08	-40.00	1,864.42	4,556.48	4,850.30	4,631.46	218.84	22.164	
6,550.00	6,516.42	6,543.17	6,539.42	22.81	196.06	-39.06	1,865.26	4,556.48	4,839.08	4,620.20	218.88	22.109	
6,600.00	6,562.98	6,589.74	6,585.98	22.87	197.46	-39.01	1,865.26	4,556.48	4,824.56	4,604.23	220.33	21.897	
6,650.00	6,607.98	6,634.74	6,630.98	22.95	198.81	-39.51	1,865.26	4,556.48	4,807.02	4,585.27	221.75	21.678	
6,700.00	6,651.14	6,677.89	6,674.14	23.03	200.10	-40.45	1,865.26	4,556.48	4,786.58	4,563.45	223.12	21.453	
6,750.00	6,692.18	6,718.94	6,715.18	23.14	201.33	-41.78	1,865.26	4,556.48	4,763.37	4,538.92	224.45	21.223	
6,800.00	6,730.86	6,759.17	6,755.37	23.26	202.54	-43.54	1,867.43	4,556.48	4,738.66	4,512.90	225.76	20.990	
6,850.00	6,766.93	6,802.49	6,798.68	23.40	203.83	-45.72	1,867.34	4,556.48	4,710.41	4,483.23	227.18	20.735	
6,900.00	6,800.18	6,842.43	6,838.62	23.56	205.03	-48.34	1,867.14	4,556.48	4,679.88	4,451.38	228.51	20.480	
6,950.00	6,830.39	6,878.76	6,874.94	23.74	206.12	-51.43	1,866.86	4,556.48	4,647.31	4,417.57	229.74	20.229	
7,000.00	6,857.38	6,911.25	6,907.42	23.94	207.09	-55.03	1,866.53	4,556.48	4,612.92	4,382.05	230.87	19.981	
7,050.00	6,880.98	6,939.68	6,935.84	24.17	207.94	-59.15	1,866.18	4,556.48	4,576.97	4,345.07	231.89	19.737	
7,100.00	6,901.06	6,963.87	6,960.03	24.42	208.67	-63.80	1,865.84	4,556.48	4,539.69	4,306.89	232.80	19.500	
7,150.00	6,917.47	6,983.68	6,979.83	24.70	209.26	-68.94	1,865.53	4,556.48	4,501.35	4,267.76	233.59	19.270	
7,200.00	6,930.13	6,998.98	6,995.12	25.01	209.72	-74.52	1,865.27	4,556.48	4,462.22	4,227.96	234.26	19.048	
7,250.00	6,938.95	7,009.66	7,005.80	25.34	210.04	-80.40	1,865.08	4,556.48	4,422.55	4,187.75	234.79	18.836	
7,300.00	6,943.88	7,015.67	7,011.80	25.69	210.22	-86.43	1,864.97	4,556.48	4,382.60	4,147.40	235.20	18.633	
7,337.82	6,945.00	7,017.07	7,013.20	25.97	210.26	-90.99	1,864.94	4,556.48	4,352.37	4,116.94	235.43	18.487	
7,400.00	6,945.00	7,017.14	7,013.27	26.45	210.27	-91.02	1,864.94	4,556.48	4,302.47	4,066.73	235.73	18.251	
7,492.38	6,945.00	7,017.18	7,013.31	27.21	210.27	-91.07	1,864.94	4,556.48	4,227.43	3,991.22	236.21	17.897	

CC - Min centre to center distance or 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:	Plan #4	**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
7,500.00	6,945.00	7,017.18	7,013.31	27.28	210.27	-91.07	1,864.94	4,556.48	4,221.21	3,984.95	236.25	17.867	
7,600.00	6,945.00	7,017.19	7,013.32	28.17	210.27	-91.07	1,864.94	4,556.48	4,139.88	3,903.07	236.81	17.482	
7,700.00	6,945.00	7,017.19	7,013.33	29.12	210.27	-91.07	1,864.94	4,556.48	4,059.39	3,821.97	237.42	17.098	
7,800.00	6,945.00	7,017.20	7,013.34	30.14	210.27	-91.07	1,864.94	4,556.48	3,979.78	3,741.70	238.08	16.716	
7,900.00	6,945.00	7,017.21	7,013.35	31.20	210.27	-91.07	1,864.94	4,556.48	3,901.11	3,662.32	238.80	16.336	
8,000.00	6,945.00	7,017.22	7,013.35	32.31	210.27	-91.07	1,864.94	4,556.48	3,823.44	3,583.87	239.57	15.959	
8,100.00	6,945.00	7,017.23	7,013.36	33.46	210.27	-91.07	1,864.94	4,556.48	3,746.83	3,506.42	240.41	15.585	
8,200.00	6,945.00	7,017.24	7,013.37	34.64	210.27	-91.07	1,864.94	4,556.48	3,671.34	3,430.03	241.31	15.214	
8,300.00	6,945.00	7,017.25	7,013.38	35.86	210.27	-91.07	1,864.94	4,556.48	3,597.05	3,354.78	242.27	14.847	
8,400.00	6,945.00	7,017.25	7,013.39	37.11	210.27	-91.07	1,864.94	4,556.48	3,524.03	3,280.73	243.30	14.484	
8,500.00	6,945.00	7,017.26	7,013.40	38.39	210.27	-91.07	1,864.94	4,556.48	3,452.37	3,207.97	244.39	14.126	
8,600.00	6,945.00	7,017.27	7,013.41	39.69	210.27	-91.07	1,864.94	4,556.48	3,382.14	3,136.59	245.55	13.774	
8,700.00	6,945.00	7,017.28	7,013.41	41.01	210.27	-91.07	1,864.94	4,556.48	3,313.44	3,066.67	246.77	13.427	
8,800.00	6,945.00	7,017.29	7,013.42	42.35	210.27	-91.07	1,864.94	4,556.48	3,246.37	2,998.30	248.06	13.087	
8,900.00	6,945.00	7,017.30	7,013.43	43.71	210.27	-91.07	1,864.94	4,556.48	3,181.03	2,931.61	249.42	12.754	
9,000.00	6,945.00	7,017.31	7,013.44	45.08	210.27	-91.07	1,864.94	4,556.48	3,117.52	2,866.68	250.84	12.428	
9,100.00	6,945.00	7,017.31	7,013.45	46.47	210.27	-91.07	1,864.94	4,556.48	3,055.97	2,803.65	252.32	12.111	
9,200.00	6,945.00	7,017.32	7,013.46	47.87	210.27	-91.07	1,864.94	4,556.48	2,996.50	2,742.63	253.87	11.803	
9,300.00	6,945.00	7,017.33	7,013.47	49.29	210.27	-91.07	1,864.94	4,556.48	2,939.22	2,683.75	255.47	11.505	
9,400.00	6,945.00	7,017.34	7,013.47	50.71	210.27	-91.07	1,864.94	4,556.48	2,884.27	2,627.14	257.13	11.217	
9,500.00	6,945.00	7,017.35	7,013.48	52.15	210.27	-91.07	1,864.94	4,556.48	2,831.79	2,572.96	258.84	10.940	
9,600.00	6,945.00	7,017.36	7,013.49	53.59	210.27	-91.07	1,864.94	4,556.48	2,781.92	2,521.33	260.59	10.676	
9,700.00	6,945.00	7,017.37	7,013.50	55.05	210.27	-91.07	1,864.94	4,556.48	2,734.80	2,472.42	262.38	10.423	
9,800.00	6,945.00	7,017.37	7,013.51	56.51	210.27	-91.07	1,864.94	4,556.48	2,690.56	2,426.37	264.20	10.184	
9,900.00	6,945.00	7,017.38	7,013.52	57.98	210.27	-91.07	1,864.94	4,556.48	2,649.37	2,383.33	266.03	9.959	
10,000.00	6,945.00	7,017.39	7,013.53	59.45	210.27	-91.07	1,864.94	4,556.48	2,611.35	2,343.47	267.88	9.748	
10,100.00	6,945.00	7,017.40	7,013.53	60.93	210.27	-91.07	1,864.94	4,556.48	2,576.66	2,306.93	269.74	9.553	
10,200.00	6,945.00	7,017.41	7,013.54	62.42	210.27	-91.07	1,864.94	4,556.48	2,545.43	2,273.86	271.57	9.373	
10,300.00	6,945.00	7,017.42	7,013.55	63.92	210.27	-91.07	1,864.94	4,556.48	2,517.79	2,244.39	273.39	9.209	
10,400.00	6,945.00	7,017.43	7,013.56	65.42	210.27	-91.07	1,864.94	4,556.48	2,493.85	2,218.68	275.17	9.063	
10,500.00	6,945.00	7,017.43	7,013.57	66.92	210.27	-91.07	1,864.94	4,556.48	2,473.72	2,196.82	276.90	8.934	
10,600.00	6,945.00	7,017.44	7,013.58	68.43	210.27	-91.07	1,864.94	4,556.48	2,457.50	2,178.93	278.57	8.822	
10,700.00	6,945.00	7,017.45	7,013.59	69.94	210.27	-91.07	1,864.94	4,556.48	2,445.27	2,165.10	280.16	8.728	
10,800.00	6,945.00	7,017.46	7,013.59	71.45	210.27	-91.07	1,864.94	4,556.48	2,437.08	2,155.41	281.67	8.652	
10,900.00	6,945.00	7,017.47	7,013.60	72.97	210.28	-91.07	1,864.94	4,556.48	2,432.98	2,149.89	283.08	8.595	
10,949.88	6,945.00	7,017.47	7,013.61	73.73	210.28	-91.07	1,864.94	4,556.48	2,432.47	2,148.72	283.75	8.573 CC	
11,000.00	6,945.00	7,017.48	7,013.61	74.50	210.28	-91.07	1,864.94	4,556.48	2,432.98	2,148.59	284.39	8.555 ES	
11,100.00	6,945.00	7,017.49	7,013.62	76.02	210.28	-91.07	1,864.94	4,556.48	2,437.09	2,151.51	285.59	8.534	
11,200.00	6,945.00	7,017.49	7,013.63	77.55	210.28	-91.07	1,864.94	4,556.48	2,445.29	2,158.63	286.67	8.530 SF	
11,300.00	6,945.00	7,017.50	7,013.64	79.08	210.28	-91.07	1,864.94	4,556.48	2,457.53	2,169.91	287.62	8.544	
11,400.00	6,945.00	7,017.51	7,013.65	80.62	210.28	-91.08	1,864.94	4,556.48	2,473.76	2,185.31	288.46	8.576	
11,500.00	6,945.00	7,017.52	7,013.65	82.16	210.28	-91.08	1,864.94	4,556.48	2,493.90	2,204.73	289.17	8.624	
11,600.00	6,945.00	7,017.53	7,013.66	83.70	210.28	-91.08	1,864.94	4,556.48	2,517.84	2,228.09	289.76	8.689	
11,700.00	6,945.00	7,017.54	7,013.67	85.24	210.28	-91.08	1,864.94	4,556.48	2,545.50	2,255.27	290.23	8.771	
11,800.00	6,945.00	7,017.55	7,013.68	86.78	210.28	-91.08	1,864.94	4,556.48	2,576.74	2,286.14	290.60	8.867	
11,900.00	6,945.00	7,017.55	7,013.69	88.33	210.28	-91.08	1,864.94	4,556.48	2,611.44	2,320.58	290.86	8.978	
12,000.00	6,945.00	7,017.56	7,013.70	89.87	210.28	-91.08	1,864.94	4,556.48	2,649.46	2,358.44	291.01	9.104	
12,100.00	6,945.00	7,017.57	7,013.71	91.42	210.28	-91.08	1,864.94	4,556.48	2,690.66	2,399.58	291.08	9.244	
12,200.00	6,945.00	7,017.58	7,013.71	92.98	210.28	-91.08	1,864.94	4,556.48	2,734.90	2,443.83	291.07	9.396	
12,300.00	6,945.00	7,017.59	7,013.72	94.53	210.28	-91.08	1,864.93	4,556.48	2,782.03	2,491.05	290.98	9.561	
12,400.00	6,945.00	7,017.60	7,013.73	96.08	210.28	-91.08	1,864.93	4,556.48	2,831.91	2,541.09	290.82	9.738	
12,500.00	6,945.00	7,017.61	7,013.74	97.64	210.28	-91.08	1,864.93	4,556.48	2,884.40	2,593.79	290.61	9.925	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 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:	Plan #4	**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
12,600.00	6,945.00	7,017.61	7,013.75	99.20	210.28	-91.08	1,864.93	4,556.48	2,939.35	2,649.01	290.34	10.124	
12,700.00	6,945.00	7,017.62	7,013.76	100.76	210.28	-91.08	1,864.93	4,556.48	2,996.63	2,706.60	290.03	10.332	
12,800.00	6,945.00	7,017.63	7,013.77	102.32	210.28	-91.08	1,864.93	4,556.48	3,056.11	2,766.44	289.67	10.550	
12,900.00	6,945.00	7,017.64	7,013.77	103.88	210.28	-91.08	1,864.93	4,556.48	3,117.67	2,828.38	289.29	10.777	
13,000.00	6,945.00	7,017.65	7,013.78	105.44	210.28	-91.08	1,864.93	4,556.48	3,181.17	2,892.30	288.88	11.012	
13,100.00	6,945.00	7,017.66	7,013.79	107.00	210.28	-91.08	1,864.93	4,556.48	3,246.52	2,958.08	288.44	11.255	
13,200.00	6,945.00	7,017.67	7,013.80	108.57	210.28	-91.08	1,864.93	4,556.48	3,313.59	3,025.60	287.99	11.506	
13,300.00	6,945.00	7,017.67	7,013.81	110.13	210.28	-91.08	1,864.93	4,556.48	3,382.30	3,094.77	287.53	11.763	
13,400.00	6,945.00	7,017.68	7,013.82	111.70	210.28	-91.08	1,864.93	4,556.48	3,452.53	3,165.48	287.05	12.028	
13,500.00	6,945.00	7,017.69	7,013.83	113.27	210.28	-91.08	1,864.93	4,556.48	3,524.20	3,237.63	286.57	12.298	
13,600.00	6,945.00	7,017.70	7,013.83	114.84	210.28	-91.08	1,864.93	4,556.48	3,597.22	3,311.14	286.08	12.574	
13,700.00	6,945.00	7,017.71	7,013.84	116.41	210.28	-91.08	1,864.93	4,556.48	3,671.52	3,385.92	285.59	12.856	
13,800.00	6,945.00	7,017.72	7,013.85	117.98	210.28	-91.08	1,864.93	4,556.48	3,747.01	3,461.90	285.10	13.143	
13,900.00	6,945.00	7,017.73	7,013.86	119.55	210.28	-91.08	1,864.93	4,556.48	3,823.62	3,539.00	284.62	13.434	
14,000.00	6,945.00	7,017.73	7,013.87	121.12	210.28	-91.08	1,864.93	4,556.48	3,901.29	3,617.16	284.13	13.730	
14,100.00	6,945.00	7,017.74	7,013.88	122.69	210.28	-91.08	1,864.93	4,556.48	3,979.96	3,696.31	283.65	14.031	
14,200.00	6,945.00	7,017.75	7,013.89	124.27	210.28	-91.08	1,864.93	4,556.48	4,059.57	3,776.39	283.18	14.336	
14,300.00	6,945.00	7,017.76	7,013.89	125.84	210.28	-91.08	1,864.93	4,556.48	4,140.07	3,857.35	282.72	14.644	
14,400.00	6,945.00	7,017.77	7,013.90	127.41	210.28	-91.08	1,864.93	4,556.48	4,221.40	3,939.14	282.26	14.956	
14,500.00	6,945.00	7,017.78	7,013.91	128.99	210.28	-91.08	1,864.93	4,556.48	4,303.51	4,021.70	281.81	15.271	
14,600.00	6,945.00	7,017.79	7,013.92	130.57	210.28	-91.08	1,864.93	4,556.48	4,386.37	4,105.00	281.36	15.590	
14,700.00	6,945.00	7,017.79	7,013.93	132.14	210.28	-91.08	1,864.93	4,556.48	4,469.93	4,189.00	280.93	15.911	
14,800.00	6,945.00	7,017.80	7,013.94	133.72	210.29	-91.08	1,864.93	4,556.48	4,554.15	4,273.64	280.51	16.235	
14,900.00	6,945.00	7,017.81	7,013.95	135.30	210.29	-91.08	1,864.93	4,556.48	4,639.00	4,358.90	280.09	16.562	
15,000.00	6,945.00	7,017.82	7,013.95	136.87	210.29	-91.08	1,864.93	4,556.48	4,724.44	4,444.75	279.69	16.892	
15,100.00	6,945.00	7,017.83	7,013.96	138.45	210.29	-91.08	1,864.93	4,556.48	4,810.44	4,531.15	279.29	17.224	
15,200.00	6,945.00	7,017.84	7,013.97	140.03	210.29	-91.08	1,864.93	4,556.48	4,896.98	4,618.07	278.91	17.558	
15,300.00	6,945.00	7,017.85	7,013.98	141.61	210.29	-91.08	1,864.93	4,556.48	4,984.01	4,705.48	278.53	17.894	
15,400.00	6,945.00	7,017.85	7,013.99	143.19	210.29	-91.08	1,864.93	4,556.48	5,071.53	4,793.36	278.17	18.232	
15,500.00	6,945.00	7,017.86	7,014.00	144.77	210.29	-91.08	1,864.93	4,556.48	5,159.50	4,881.69	277.81	18.572	
15,600.00	6,945.00	7,017.87	7,014.01	146.35	210.29	-91.08	1,864.93	4,556.48	5,247.90	4,970.44	277.46	18.914	
15,700.00	6,945.00	7,017.88	7,014.01	147.94	210.29	-91.08	1,864.93	4,556.48	5,336.71	5,059.59	277.12	19.257	
15,800.00	6,945.00	7,017.89	7,014.02	149.52	210.29	-91.08	1,864.93	4,556.48	5,425.91	5,149.12	276.80	19.603	
15,900.00	6,945.00	7,017.90	7,014.03	151.10	210.29	-91.08	1,864.93	4,556.48	5,515.48	5,239.01	276.48	19.949	
16,000.00	6,945.00	7,017.91	7,014.04	152.68	210.29	-91.08	1,864.93	4,556.48	5,605.40	5,329.24	276.17	20.297	
16,100.00	6,945.00	7,017.91	7,014.05	154.26	210.29	-91.08	1,864.93	4,556.48	5,695.66	5,419.80	275.86	20.647	
16,200.00	6,945.00	7,017.92	7,014.06	155.85	210.29	-91.08	1,864.93	4,556.48	5,786.24	5,510.67	275.57	20.997	
16,300.00	6,945.00	7,017.93	7,014.07	157.43	210.29	-91.09	1,864.93	4,556.48	5,877.13	5,601.84	275.28	21.349	
16,400.00	6,945.00	7,017.94	7,014.07	159.02	210.29	-91.09	1,864.93	4,556.48	5,968.30	5,693.30	275.01	21.702	
16,500.00	6,945.00	7,017.95	7,014.08	160.60	210.29	-91.09	1,864.93	4,556.48	6,059.76	5,785.02	274.74	22.056	
16,600.00	6,945.00	7,017.96	7,014.09	162.18	210.29	-91.09	1,864.93	4,556.48	6,151.48	5,877.00	274.48	22.412	
16,700.00	6,945.00	7,017.97	7,014.10	163.77	210.29	-91.09	1,864.93	4,556.48	6,243.45	5,969.23	274.23	22.768	
16,800.00	6,945.00	7,017.97	7,014.11	165.35	210.29	-91.09	1,864.93	4,556.48	6,335.67	6,061.69	273.98	23.125	
16,900.00	6,945.00	7,017.98	7,014.12	166.94	210.29	-91.09	1,864.93	4,556.48	6,428.12	6,154.38	273.74	23.483	
17,000.00	6,945.00	7,017.99	7,014.13	168.53	210.29	-91.09	1,864.93	4,556.48	6,520.80	6,247.29	273.51	23.841	
17,100.00	6,945.00	7,018.00	7,014.13	170.11	210.29	-91.09	1,864.93	4,556.48	6,613.68	6,340.40	273.28	24.201	
17,200.00	6,945.00	7,018.01	7,014.14	171.70	210.29	-91.09	1,864.93	4,556.48	6,706.78	6,433.71	273.07	24.561	
17,300.00	6,945.00	7,018.02	7,014.15	173.29	210.29	-91.09	1,864.93	4,556.48	6,800.06	6,527.21	272.86	24.922	
17,400.00	6,945.00	7,018.03	7,014.16	174.87	210.29	-91.09	1,864.93	4,556.48	6,893.54	6,620.89	272.65	25.283	
17,500.00	6,945.00	7,018.03	7,014.17	176.46	210.29	-91.09	1,864.93	4,556.48	6,987.20	6,714.74	272.45	25.646	
17,600.00	6,945.00	7,018.04	7,014.18	178.05	210.29	-91.09	1,864.93	4,556.48	7,081.03	6,808.77	272.26	26.008	
17,700.00	6,945.00	7,018.05	7,014.19	179.63	210.29	-91.09	1,864.93	4,556.48	7,175.02	6,902.95	272.07	26.372	

CC - Min centre to center distance or 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:	Plan #4	**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

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
17,800.00	6,945.00	7,018.06	7,014.19	181.22	210.29	-91.09	1,864.93	4,556.48	7,269.18	6,997.29	271.89	26.735	
17,900.00	6,945.00	7,018.07	7,014.20	182.81	210.29	-91.09	1,864.93	4,556.48	7,363.49	7,091.77	271.72	27.100	
18,000.00	6,945.00	7,018.08	7,014.21	184.40	210.29	-91.09	1,864.93	4,556.48	7,457.95	7,186.40	271.55	27.465	
18,100.00	6,945.00	7,018.09	7,014.22	185.99	210.29	-91.09	1,864.93	4,556.48	7,552.55	7,281.17	271.38	27.830	
18,200.00	6,945.00	7,018.09	7,014.23	187.58	210.29	-91.09	1,864.93	4,556.48	7,647.29	7,376.07	271.22	28.195	
18,300.00	6,945.00	7,018.10	7,014.24	189.16	210.29	-91.09	1,864.93	4,556.48	7,742.16	7,471.09	271.07	28.561	
18,400.00	6,945.00	7,018.11	7,014.25	190.75	210.29	-91.09	1,864.93	4,556.48	7,837.16	7,566.24	270.92	28.928	
18,500.00	6,945.00	7,018.12	7,014.25	192.34	210.29	-91.09	1,864.93	4,556.48	7,932.28	7,661.51	270.78	29.294	
18,600.00	6,945.00	7,018.13	7,014.26	193.93	210.29	-91.09	1,864.92	4,556.48	8,027.52	7,756.89	270.64	29.661	
18,700.00	6,945.00	7,018.14	7,014.27	195.52	210.30	-91.09	1,864.92	4,556.48	8,122.88	7,852.38	270.50	30.029	
18,800.00	6,945.00	7,018.15	7,014.28	197.11	210.30	-91.09	1,864.92	4,556.48	8,218.35	7,947.97	270.37	30.396	
18,900.00	6,945.00	7,018.16	7,014.29	198.70	210.30	-91.09	1,864.92	4,556.48	8,313.92	8,043.67	270.25	30.764	
19,000.00	6,945.00	7,018.16	7,014.30	200.29	210.30	-91.09	1,864.92	4,556.48	8,409.59	8,139.47	270.12	31.132	
19,100.00	6,945.00	7,018.17	7,014.31	201.88	210.30	-91.09	1,864.92	4,556.48	8,505.37	8,235.36	270.01	31.501	
19,200.00	6,945.00	7,018.18	7,014.32	203.47	210.30	-91.09	1,864.92	4,556.48	8,601.24	8,331.34	269.89	31.869	
19,300.00	6,945.00	7,018.19	7,014.32	205.06	210.30	-91.09	1,864.92	4,556.48	8,697.20	8,427.42	269.78	32.238	
19,400.00	6,945.00	7,018.20	7,014.33	206.65	210.30	-91.09	1,864.92	4,556.48	8,793.26	8,523.58	269.68	32.607	
19,500.00	6,945.00	7,018.21	7,014.34	208.24	210.30	-91.09	1,864.92	4,556.48	8,889.40	8,619.82	269.58	32.976	
19,600.00	6,945.00	7,018.22	7,014.35	209.84	210.30	-91.09	1,864.92	4,556.48	8,985.62	8,716.14	269.48	33.345	
19,700.00	6,945.00	7,018.22	7,014.36	211.43	210.30	-91.09	1,864.92	4,556.48	9,081.93	8,812.55	269.38	33.714	
19,800.00	6,945.00	7,018.23	7,014.37	213.02	210.30	-91.09	1,864.92	4,556.48	9,178.31	8,909.02	269.29	34.083	
19,900.00	6,945.00	7,018.24	7,014.38	214.61	210.30	-91.09	1,864.92	4,556.48	9,274.78	9,005.57	269.20	34.453	
20,000.00	6,945.00	7,018.25	7,014.38	216.20	210.30	-91.09	1,864.92	4,556.48	9,371.31	9,102.19	269.12	34.822	
20,100.00	6,945.00	7,018.26	7,014.39	217.79	210.30	-91.09	1,864.92	4,556.48	9,467.92	9,198.88	269.04	35.192	
20,200.00	6,945.00	7,018.27	7,014.40	219.38	210.30	-91.09	1,864.92	4,556.48	9,564.60	9,295.64	268.96	35.562	
20,300.00	6,945.00	7,018.28	7,014.41	220.98	210.30	-91.09	1,864.92	4,556.48	9,661.34	9,392.46	268.88	35.931	
20,400.00	6,945.00	7,018.28	7,014.42	222.57	210.30	-91.09	1,864.92	4,556.48	9,758.15	9,489.34	268.81	36.301	
20,500.00	6,945.00	7,018.29	7,014.43	224.16	210.30	-91.09	1,864.92	4,556.48	9,855.03	9,586.29	268.74	36.671	
20,600.00	6,945.00	7,018.30	7,014.44	225.75	210.30	-91.09	1,864.92	4,556.48	9,951.97	9,683.29	268.68	37.041	
20,700.00	6,945.00	7,018.31	7,014.44	227.35	210.30	-91.09	1,864.92	4,556.48	10,048.96	9,780.35	268.61	37.411	
20,800.00	6,945.00	7,018.32	7,014.45	228.94	210.30	-91.09	1,864.92	4,556.48	10,146.02	9,877.47	268.55	37.781	
20,852.96	6,945.00	7,018.32	7,014.46	229.61	210.30	-91.09	1,864.92	4,556.48	10,197.44	9,926.25	271.19	37.603	

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:	Plan #4	**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
0.00	0.00	233.00	233.00	0.00	6.98	103.24	-1,732.60	7,362.79	7,563.90				
20.93	20.93	253.93	253.93	0.00	7.61	-89.41	-1,732.60	7,362.79	7,563.90				
35.69	35.69	268.69	268.69	0.01	8.05	-90.00	-1,732.60	7,362.79	7,563.89	7,555.84	8.06	938.915	
117.41	117.41	350.41	350.41	0.05	10.50	-93.96	-1,732.60	7,362.79	7,563.91	7,553.38	10.53	718.277	
206.68	206.68	439.68	439.68	0.17	13.17	-68.06	-1,732.60	7,362.79	7,563.85	7,550.58	13.27	570.064	
292.93	292.93	526.03	525.93	0.28	15.76	-68.62	-1,732.60	7,362.79	7,563.65	7,547.73	15.92	475.030	
343.52	343.52	576.62	576.52	0.33	17.28	-90.00	-1,732.60	7,362.79	7,563.57	7,546.09	17.49	432.534	
365.00	364.99	598.10	597.99	0.36	17.92	-99.30	-1,732.60	7,362.79	7,563.59	7,545.44	18.15	416.716	
451.00	450.97	684.07	683.97	0.55	20.50	-46.04	-1,732.60	7,362.79	7,562.47	7,541.50	20.98	360.544	
540.00	539.81	770.44	770.30	0.83	23.09	-40.63	-1,730.43	7,362.79	7,558.14	7,534.26	23.88	316.551	
665.00	664.37	881.76	881.60	1.26	26.42	-38.37	-1,731.03	7,362.79	7,550.21	7,522.55	27.66	272.934	
753.00	752.01	960.18	959.99	1.58	28.77	-39.39	-1,731.96	7,362.79	7,544.23	7,513.90	30.33	248.715	
847.00	845.61	1,079.02	1,078.61	1.93	32.33	-36.41	-1,732.60	7,362.79	7,537.52	7,503.28	34.24	220.152	
939.00	937.22	1,170.62	1,170.22	2.27	35.08	-36.22	-1,732.60	7,362.79	7,530.62	7,493.30	37.32	201.786	
1,030.00	1,027.78	1,259.99	1,259.55	2.62	37.76	-47.79	-1,730.42	7,362.79	7,523.52	7,483.18	40.33	186.531	
1,120.00	1,117.25	1,340.12	1,339.65	2.96	40.16	-44.99	-1,730.70	7,362.79	7,516.83	7,473.76	43.07	174.518	
1,211.00	1,207.68	1,421.21	1,420.73	3.31	42.59	-47.69	-1,731.44	7,362.79	7,509.97	7,464.12	45.84	163.816	
1,306.00	1,302.14	1,535.85	1,535.14	3.68	46.02	-45.88	-1,732.60	7,362.79	7,503.26	7,453.62	49.64	151.168	
1,400.00	1,395.63	1,629.35	1,628.63	4.04	48.82	-44.67	-1,732.60	7,362.79	7,496.42	7,443.63	52.79	142.007	
1,495.00	1,490.19	1,723.90	1,723.19	4.40	51.66	-45.37	-1,732.60	7,362.79	7,489.92	7,433.95	55.98	133.806	
1,589.00	1,583.83	1,810.61	1,809.85	4.76	54.25	-47.87	-1,730.55	7,362.79	7,483.78	7,424.86	58.92	127.009	
1,684.00	1,678.44	1,895.63	1,894.86	5.12	56.80	-45.55	-1,731.16	7,362.79	7,478.04	7,416.22	61.82	120.956	
1,779.00	1,772.98	2,006.99	2,005.98	5.48	60.14	-41.19	-1,732.60	7,362.79	7,471.49	7,405.98	65.52	114.040	
1,873.00	1,866.49	2,100.51	2,099.49	5.84	62.94	-39.74	-1,732.60	7,362.79	7,464.22	7,395.55	68.67	108.697	
1,967.00	1,960.05	2,194.06	2,193.05	6.20	65.74	-35.10	-1,732.60	7,362.79	7,456.97	7,385.15	71.82	103.826	
2,062.00	2,054.59	2,284.72	2,283.66	6.56	68.46	-40.56	-1,730.46	7,362.79	7,449.15	7,374.26	74.89	99.466	
2,156.00	2,148.09	2,368.92	2,367.84	6.92	70.98	-41.32	-1,730.91	7,362.79	7,441.91	7,364.15	77.77	95.696	
2,251.00	2,242.55	2,454.09	2,452.99	7.29	73.54	-40.01	-1,731.88	7,362.79	7,434.50	7,353.82	80.67	92.154	
2,345.00	2,336.00	2,570.32	2,569.00	7.65	77.02	-46.08	-1,732.60	7,362.79	7,427.15	7,342.64	84.51	87.884	
2,440.00	2,430.43	2,664.75	2,663.43	8.02	79.85	-48.77	-1,732.60	7,362.79	7,420.11	7,332.41	87.70	84.609	
2,535.00	2,524.86	2,758.27	2,756.91	8.38	82.65	-47.57	-1,730.42	7,362.79	7,412.73	7,321.87	90.86	81.583	
2,629.00	2,618.31	2,842.63	2,841.26	8.75	85.18	-47.62	-1,730.72	7,362.79	7,405.91	7,312.17	93.74	79.001	
2,724.00	2,712.77	2,928.02	2,926.62	9.12	87.74	-46.90	-1,731.53	7,362.79	7,399.18	7,302.51	96.66	76.547	
2,818.00	2,806.24	3,040.86	3,039.24	9.48	91.12	-46.39	-1,732.60	7,362.79	7,392.52	7,292.12	100.40	73.633	
2,913.00	2,900.71	3,135.34	3,133.71	9.84	93.95	-44.23	-1,732.60	7,362.79	7,385.50	7,281.92	103.59	71.298	
3,008.00	2,995.25	3,229.87	3,228.25	10.21	96.78	-48.68	-1,732.60	7,362.79	7,378.99	7,272.21	106.77	69.108	
3,102.00	3,088.80	3,316.43	3,314.76	10.57	99.38	-48.55	-1,730.57	7,362.79	7,372.49	7,262.77	109.72	67.192	
3,197.00	3,183.30	3,402.06	3,400.37	10.93	101.94	-45.66	-1,731.23	7,362.79	7,366.00	7,253.35	112.65	65.390	
3,291.00	3,276.71	3,511.64	3,509.71	11.30	105.22	-51.89	-1,732.60	7,362.79	7,359.36	7,243.08	116.29	63.287	
3,386.00	3,371.01	3,605.94	3,604.01	11.67	108.05	-53.13	-1,732.60	7,362.79	7,352.31	7,232.83	119.48	61.538	
3,480.00	3,464.23	3,699.16	3,697.23	12.04	110.84	-51.94	-1,732.60	7,362.79	7,344.95	7,222.32	122.63	59.894	
3,575.00	3,558.47	3,789.39	3,787.41	12.42	113.55	-50.50	-1,730.47	7,362.79	7,336.98	7,211.28	125.70	58.367	
3,670.00	3,652.84	3,875.15	3,873.16	12.79	116.12	-49.60	-1,730.97	7,362.79	7,330.03	7,201.39	128.64	56.982	
3,764.00	3,746.36	3,960.25	3,958.23	13.15	118.67	-46.42	-1,731.96	7,362.79	7,323.92	7,192.38	131.54	55.678	
3,859.00	3,840.97	4,076.21	4,073.97	13.51	122.14	-42.74	-1,732.60	7,362.79	7,317.91	7,182.54	135.37	54.060	
3,954.00	3,935.57	4,170.80	4,168.57	13.87	124.98	-42.76	-1,732.60	7,362.79	7,311.47	7,172.92	138.56	52.769	
4,049.00	4,030.14	4,263.98	4,261.70	14.23	127.77	-51.91	-1,730.43	7,362.79	7,304.91	7,163.21	141.70	51.550	
4,143.00	4,123.75	4,349.23	4,346.94	14.59	130.32	-50.86	-1,730.76	7,362.79	7,299.65	7,155.04	144.61	50.478	
4,238.00	4,218.33	4,435.47	4,433.16	14.95	132.91	-50.69	-1,731.62	7,362.79	7,294.16	7,146.61	147.55	49.434	
4,333.00	4,312.74	4,548.27	4,545.74	15.32	136.29	-53.61	-1,732.60	7,362.79	7,287.84	7,136.55	151.29	48.170	
4,427.00	4,406.05	4,641.59	4,639.05	15.69	139.08	-51.30	-1,732.60	7,362.79	7,280.89	7,126.44	154.45	47.140	
4,522.00	4,500.34	4,735.88	4,733.34	16.06	141.91	-50.47	-1,732.60	7,362.79	7,273.56	7,115.91	157.64	46.140	

CC - Min centre to center distance or 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:	Plan #4	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Rule Assigned:

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
4,616.00	4,593.47	4,822.15	4,819.57	16.44	144.49	-52.87	-1,730.60	7,362.79	7,265.25	7,104.65	160.60	45.240	
4,710.00	4,686.44	4,907.22	4,904.62	16.82	147.04	-52.22	-1,731.28	7,362.79	7,256.89	7,093.38	163.52	44.381	
4,899.00	4,873.89	5,109.73	5,106.89	17.57	153.11	-45.89	-1,732.60	7,362.79	7,241.42	7,071.11	170.31	42.519	
4,962.00	4,936.56	5,172.41	5,169.56	17.81	154.99	-43.52	-1,732.60	7,362.79	7,236.88	7,064.46	172.43	41.971	
5,024.00	4,998.27	5,234.11	5,231.27	18.04	156.84	-47.35	-1,732.60	7,362.79	7,232.63	7,058.12	174.51	41.446	
5,150.00	5,123.66	5,350.36	5,347.46	18.53	160.32	-46.42	-1,730.77	7,362.79	7,223.86	7,045.39	178.47	40.478	
5,213.00	5,186.37	5,407.91	5,405.00	18.77	162.05	-48.83	-1,731.29	7,362.79	7,219.91	7,039.48	180.43	40.016	
5,276.00	5,249.09	5,465.51	5,462.58	19.01	163.77	-47.97	-1,732.04	7,362.79	7,216.08	7,033.69	182.39	39.564	
5,339.00	5,311.83	5,547.98	5,544.83	19.25	166.24	-48.94	-1,732.60	7,362.79	7,212.34	7,027.25	185.09	38.966	
5,401.00	5,373.58	5,609.72	5,606.58	19.48	168.09	-46.46	-1,732.60	7,362.79	7,208.58	7,021.40	187.18	38.512	
5,464.00	5,436.33	5,672.48	5,669.33	19.72	169.97	-49.20	-1,732.60	7,362.79	7,204.85	7,015.56	189.29	38.062	
5,590.00	5,561.87	5,794.09	5,790.90	20.19	173.62	-50.59	-1,730.49	7,362.79	7,197.51	7,004.11	193.41	37.215	
5,653.00	5,624.66	5,851.80	5,848.60	20.43	175.35	-51.95	-1,730.78	7,362.79	7,194.30	6,998.93	195.37	36.824	
5,715.00	5,686.48	5,908.67	5,905.45	20.66	177.05	-56.93	-1,731.30	7,362.79	7,191.65	6,994.34	197.30	36.450	
5,778.00	5,749.29	5,966.49	5,963.25	20.90	178.78	-54.27	-1,732.06	7,362.79	7,189.06	6,989.79	199.27	36.077	
5,841.00	5,812.10	6,048.55	6,045.10	21.13	181.24	-56.60	-1,732.60	7,362.79	7,186.36	6,984.39	201.96	35.583	
5,904.00	5,874.94	6,111.39	6,107.94	21.36	183.12	-51.31	-1,732.60	7,362.79	7,183.68	6,979.60	204.08	35.201	
5,967.00	5,937.80	6,117.00	6,113.48	21.60	183.29	-49.77	-1,732.60	7,362.79	7,181.24	6,976.77	204.48	35.120	
6,030.00	6,000.68	6,117.00	6,113.48	21.83	183.29	-51.68	-1,732.60	7,362.79	7,179.59	6,974.89	204.70	35.074	
6,093.00	6,063.59	6,117.00	6,113.48	22.05	183.29	-48.01	-1,732.60	7,362.79	7,178.71	6,973.82	204.90	35.036	
6,156.00	6,126.51	6,117.00	6,113.48	22.28	183.29	-42.73	-1,732.60	7,362.79	7,178.37	6,973.29	205.08	35.003	
6,164.22	6,134.71	6,117.00	6,113.48	22.31	183.29	-42.76	-1,732.60	7,362.79	7,178.36	6,973.26	205.10	34.999	
6,235.00	6,205.43	6,117.00	6,113.48	22.56	183.29	-43.06	-1,732.60	7,362.79	7,178.97	6,973.68	205.29	34.970	
6,300.00	6,270.38	6,117.00	6,113.48	22.68	183.29	-43.06	-1,732.60	7,362.79	7,180.37	6,975.04	205.33	34.970	
6,355.00	6,325.34	6,117.00	6,113.48	22.69	183.29	-43.06	-1,732.60	7,362.79	7,182.02	6,976.76	205.26	34.991	
6,400.00	6,370.23	6,117.00	6,113.48	22.71	183.29	-10.40	-1,732.60	7,362.79	7,182.10	6,976.91	205.19	35.003	
6,450.00	6,419.74	6,117.00	6,113.48	22.73	183.29	-2.87	-1,732.60	7,362.79	7,178.81	6,973.71	205.10	35.001	
6,500.00	6,468.57	6,117.00	6,113.48	22.77	183.29	0.13	-1,732.60	7,362.79	7,171.99	6,966.98	205.01	34.983	
6,550.00	6,516.42	6,117.00	6,113.48	22.81	183.29	1.79	-1,732.60	7,362.79	7,161.66	6,956.74	204.92	34.949	
6,600.00	6,562.98	6,117.00	6,113.48	22.87	183.29	2.89	-1,732.60	7,362.79	7,147.87	6,943.06	204.81	34.900	
6,650.00	6,607.98	6,117.00	6,113.48	22.95	183.29	3.73	-1,732.60	7,362.79	7,130.69	6,925.98	204.70	34.834	
6,700.00	6,651.14	6,117.00	6,113.48	23.03	183.29	4.45	-1,732.60	7,362.79	7,110.19	6,905.60	204.59	34.753	
6,750.00	6,692.18	6,117.00	6,113.48	23.14	183.29	5.11	-1,732.60	7,362.79	7,086.49	6,882.01	204.48	34.657	
6,800.00	6,730.86	6,117.00	6,113.48	23.26	183.29	5.77	-1,732.60	7,362.79	7,059.69	6,855.33	204.36	34.545	
6,850.00	6,766.93	6,117.00	6,113.48	23.40	183.29	6.47	-1,732.60	7,362.79	7,029.92	6,825.68	204.25	34.419	
6,900.00	6,800.18	6,117.00	6,113.48	23.56	183.29	7.24	-1,732.60	7,362.79	6,997.34	6,793.21	204.14	34.278	
6,950.00	6,830.39	6,117.00	6,113.48	23.74	183.29	8.14	-1,732.60	7,362.79	6,962.10	6,758.08	204.03	34.124	
7,000.00	6,857.38	6,117.00	6,113.48	23.94	183.29	9.20	-1,732.60	7,362.79	6,924.39	6,720.47	203.92	33.956	
7,050.00	6,880.98	6,117.00	6,113.48	24.17	183.29	10.50	-1,732.60	7,362.79	6,884.39	6,680.57	203.82	33.776	
7,100.00	6,901.06	6,117.00	6,113.48	24.42	183.29	12.17	-1,732.60	7,362.79	6,842.33	6,638.60	203.73	33.585	
7,150.00	6,917.47	6,117.00	6,113.48	24.70	183.29	14.37	-1,732.60	7,362.79	6,798.41	6,594.77	203.65	33.383	
7,200.00	6,930.13	6,117.00	6,113.48	25.01	183.29	17.41	-1,732.60	7,362.79	6,752.89	6,549.32	203.57	33.172	
7,250.00	6,938.95	6,117.00	6,113.48	25.34	183.29	21.87	-1,732.60	7,362.79	6,706.01	6,502.50	203.51	32.952	
7,300.00	6,943.88	6,117.00	6,113.48	25.69	183.29	28.88	-1,732.60	7,362.79	6,658.03	6,454.58	203.45	32.725	
7,337.82	6,945.00	6,117.00	6,113.48	25.97	183.29	37.30	-1,732.60	7,362.79	6,621.19	6,417.77	203.42	32.550	
7,400.00	6,945.00	6,117.00	6,113.48	26.45	183.29	41.77	-1,732.60	7,362.79	6,560.39	6,357.03	203.36	32.260	
7,492.38	6,945.00	6,117.00	6,113.48	27.21	183.29	47.34	-1,732.60	7,362.79	6,470.49	6,267.21	203.27	31.832	
7,500.00	6,945.00	6,117.00	6,113.48	27.28	183.29	47.34	-1,732.60	7,362.79	6,463.10	6,259.84	203.26	31.797	
7,600.00	6,945.00	6,117.00	6,113.48	28.17	183.29	47.34	-1,732.60	7,362.79	6,366.14	6,162.98	203.16	31.335	
7,700.00	6,945.00	6,117.00	6,113.48	29.12	183.29	47.34	-1,732.60	7,362.79	6,269.28	6,066.22	203.07	30.873	
7,800.00	6,945.00	6,117.00	6,113.48	30.14	183.29	47.34	-1,732.60	7,362.79	6,172.53	5,969.55	202.98	30.410	
7,900.00	6,945.00	6,117.00	6,113.48	31.20	183.29	47.34	-1,732.60	7,362.79	6,075.87	5,872.99	202.89	29.947	

CC - Min centre to center distance or 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:	Plan #4	**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
8,000.00	6,945.00	6,117.00	6,113.48	32.31	183.29	47.34	-1,732.60	7,362.79	5,979.33	5,776.53	202.80	29.484	
8,100.00	6,945.00	6,117.00	6,113.48	33.46	183.29	47.34	-1,732.60	7,362.79	5,882.90	5,680.18	202.72	29.020	
8,200.00	6,945.00	6,117.00	6,113.48	34.64	183.29	47.34	-1,732.60	7,362.79	5,786.59	5,583.95	202.64	28.556	
8,300.00	6,945.00	6,117.00	6,113.48	35.86	183.29	47.34	-1,732.60	7,362.79	5,690.41	5,487.85	202.57	28.092	
8,400.00	6,945.00	6,117.00	6,113.48	37.11	183.29	47.34	-1,732.60	7,362.79	5,594.37	5,391.87	202.50	27.627	
8,500.00	6,945.00	6,117.00	6,113.48	38.39	183.29	47.34	-1,732.60	7,362.79	5,498.46	5,296.02	202.44	27.161	
8,600.00	6,945.00	6,117.00	6,113.48	39.69	183.29	47.34	-1,732.60	7,362.79	5,402.71	5,200.32	202.38	26.695	
8,700.00	6,945.00	6,117.00	6,113.48	41.01	183.29	47.34	-1,732.60	7,362.79	5,307.11	5,104.77	202.34	26.229	
8,800.00	6,945.00	6,117.00	6,113.48	42.35	183.29	47.34	-1,732.60	7,362.79	5,211.67	5,009.38	202.30	25.763	
8,900.00	6,945.00	6,117.00	6,113.48	43.71	183.29	47.34	-1,732.60	7,362.79	5,116.41	4,914.15	202.27	25.296	
9,000.00	6,945.00	6,117.00	6,113.48	45.08	183.29	47.34	-1,732.60	7,362.79	5,021.34	4,819.09	202.24	24.828	
9,100.00	6,945.00	6,117.00	6,113.48	46.47	183.29	47.34	-1,732.60	7,362.79	4,926.45	4,724.22	202.23	24.360	
9,200.00	6,945.00	6,117.00	6,113.48	47.87	183.29	47.34	-1,732.60	7,362.79	4,831.78	4,629.55	202.23	23.892	
9,300.00	6,945.00	6,117.00	6,113.48	49.29	183.29	47.34	-1,732.60	7,362.79	4,737.32	4,535.08	202.25	23.423	
9,400.00	6,945.00	6,117.00	6,113.48	50.71	183.29	47.34	-1,732.60	7,362.79	4,643.10	4,440.83	202.28	22.954	
9,500.00	6,945.00	6,117.00	6,113.48	52.15	183.29	47.34	-1,732.60	7,362.79	4,549.12	4,346.81	202.32	22.485	
9,600.00	6,945.00	6,117.00	6,113.48	53.59	183.29	47.34	-1,732.60	7,362.79	4,455.41	4,253.04	202.37	22.016	
9,700.00	6,945.00	6,117.00	6,113.48	55.05	183.29	47.34	-1,732.60	7,362.79	4,361.97	4,159.53	202.45	21.546	
9,800.00	6,945.00	6,117.00	6,113.48	56.51	183.29	47.34	-1,732.60	7,362.79	4,268.84	4,066.29	202.54	21.076	
9,900.00	6,945.00	6,117.00	6,113.48	57.98	183.29	47.34	-1,732.60	7,362.79	4,176.02	3,973.36	202.66	20.607	
10,000.00	6,945.00	6,117.00	6,113.48	59.45	183.29	47.34	-1,732.60	7,362.79	4,083.53	3,880.75	202.79	20.137	
10,100.00	6,945.00	6,117.00	6,113.48	60.93	183.29	47.34	-1,732.60	7,362.79	3,991.42	3,788.47	202.94	19.668	
10,200.00	6,945.00	6,117.00	6,113.48	62.42	183.29	47.34	-1,732.60	7,362.79	3,899.69	3,696.56	203.12	19.198	
10,300.00	6,945.00	6,117.00	6,113.48	63.92	183.29	47.34	-1,732.60	7,362.79	3,808.37	3,605.04	203.33	18.730	
10,400.00	6,945.00	6,117.00	6,113.48	65.42	183.29	47.34	-1,732.60	7,362.79	3,717.50	3,513.94	203.56	18.262	
10,500.00	6,945.00	6,117.00	6,113.48	66.92	183.29	47.34	-1,732.60	7,362.79	3,627.12	3,423.30	203.82	17.796	
10,600.00	6,945.00	6,117.00	6,113.48	68.43	183.29	47.34	-1,732.60	7,362.79	3,537.25	3,333.14	204.11	17.330	
10,700.00	6,945.00	6,117.00	6,113.48	69.94	183.29	47.34	-1,732.60	7,362.79	3,447.94	3,243.51	204.43	16.866	
10,800.00	6,945.00	6,117.00	6,113.48	71.45	183.29	47.34	-1,732.60	7,362.79	3,359.23	3,154.45	204.78	16.404	
10,900.00	6,945.00	6,117.00	6,113.48	72.97	183.29	47.34	-1,732.60	7,362.79	3,271.17	3,066.01	205.16	15.944	
11,000.00	6,945.00	6,117.00	6,113.48	74.50	183.29	47.34	-1,732.60	7,362.79	3,183.82	2,978.24	205.58	15.487	
11,100.00	6,945.00	6,117.00	6,113.48	76.02	183.29	47.34	-1,732.60	7,362.79	3,097.23	2,891.20	206.04	15.032	
11,200.00	6,945.00	6,117.00	6,113.48	77.55	183.29	47.34	-1,732.60	7,362.79	3,011.48	2,804.95	206.53	14.582	
11,300.00	6,945.00	6,117.00	6,113.48	79.08	183.29	47.34	-1,732.60	7,362.79	2,926.63	2,719.57	207.05	14.135	
11,400.00	6,945.00	6,117.00	6,113.48	80.62	183.29	47.34	-1,732.60	7,362.79	2,842.76	2,635.14	207.62	13.692	
11,500.00	6,945.00	6,117.00	6,113.48	82.16	183.29	47.34	-1,732.60	7,362.79	2,759.97	2,551.75	208.22	13.255	
11,600.00	6,945.00	6,117.00	6,113.48	83.70	183.29	47.34	-1,732.60	7,362.79	2,678.35	2,469.50	208.85	12.824	
11,700.00	6,945.00	6,117.00	6,113.48	85.24	183.29	47.34	-1,732.60	7,362.79	2,598.02	2,388.50	209.52	12.400	
11,800.00	6,945.00	6,117.00	6,113.48	86.78	183.29	47.34	-1,732.60	7,362.79	2,519.10	2,308.87	210.23	11.983	
11,900.00	6,945.00	6,117.00	6,113.48	88.33	183.29	47.34	-1,732.60	7,362.79	2,441.72	2,230.75	210.97	11.574	
12,000.00	6,945.00	6,117.00	6,113.48	89.87	183.29	47.34	-1,732.60	7,362.79	2,366.04	2,154.30	211.74	11.174	
12,100.00	6,945.00	6,117.00	6,113.48	91.42	183.29	47.34	-1,732.60	7,362.79	2,292.23	2,079.69	212.54	10.785	
12,200.00	6,945.00	6,117.00	6,113.48	92.98	183.29	47.34	-1,732.60	7,362.79	2,220.46	2,007.10	213.36	10.407	
12,300.00	6,945.00	6,117.00	6,113.48	94.53	183.29	47.34	-1,732.60	7,362.79	2,150.95	1,936.74	214.21	10.042	
12,400.00	6,945.00	6,117.00	6,113.48	96.08	183.29	47.34	-1,732.60	7,362.79	2,083.92	1,868.86	215.07	9.690	
12,500.00	6,945.00	6,117.00	6,113.48	97.64	183.29	47.34	-1,732.60	7,362.79	2,019.62	1,803.68	215.94	9.353	
12,600.00	6,945.00	6,117.00	6,113.48	99.20	183.29	47.34	-1,732.60	7,362.79	1,958.32	1,741.50	216.83	9.032	
12,700.00	6,945.00	6,117.00	6,113.48	100.76	183.29	47.34	-1,732.60	7,362.79	1,900.31	1,682.59	217.72	8.728	
12,800.00	6,945.00	6,117.00	6,113.48	102.32	183.29	47.34	-1,732.60	7,362.79	1,845.89	1,627.28	218.61	8.444	
12,900.00	6,945.00	6,117.00	6,113.48	103.88	183.29	47.34	-1,732.60	7,362.79	1,795.40	1,575.88	219.52	8.179	
13,000.00	6,945.00	6,117.00	6,113.48	105.44	183.29	47.34	-1,732.60	7,362.79	1,749.17	1,528.73	220.44	7.935	
13,100.00	6,945.00	6,117.00	6,113.48	107.00	183.29	47.34	-1,732.60	7,362.79	1,707.56	1,486.18	221.38	7.713	

CC - Min centre to center distance or 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:	Plan #4	**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
13,200.00	6,945.00	6,117.00	6,113.48	108.57	183.29	47.34	-1,732.60	7,362.79	1,670.90	1,448.54	222.36	7.514	
13,300.00	6,945.00	6,117.00	6,113.48	110.13	183.29	47.34	-1,732.60	7,362.79	1,639.52	1,416.13	223.39	7.339	
13,400.00	6,945.00	6,117.00	6,113.48	111.70	183.29	47.34	-1,732.60	7,362.79	1,613.75	1,389.25	224.49	7.188	
13,500.00	6,945.00	6,117.00	6,113.48	113.27	183.29	47.34	-1,732.60	7,362.79	1,593.84	1,368.15	225.69	7.062	
13,600.00	6,945.00	6,117.00	6,113.48	114.84	183.29	47.34	-1,732.60	7,362.79	1,580.02	1,353.02	227.00	6.960	
13,700.00	6,945.00	6,117.00	6,113.48	116.41	183.29	47.34	-1,732.60	7,362.79	1,572.46	1,344.03	228.43	6.884	
13,769.28	6,945.00	6,117.00	6,113.48	117.49	183.29	47.34	-1,732.60	7,362.79	1,570.93	1,341.45	229.48	6.846 CC	
13,800.00	6,945.00	6,117.00	6,113.48	117.98	183.29	47.34	-1,732.60	7,362.79	1,571.23	1,341.26	229.97	6.832 ES	
13,900.00	6,945.00	6,117.00	6,113.48	119.55	183.29	47.34	-1,732.60	7,362.79	1,576.36	1,344.76	231.60	6.806	
14,000.00	6,945.00	6,117.00	6,113.48	121.12	183.29	47.34	-1,732.60	7,362.79	1,587.78	1,354.48	233.30	6.806 SF	
14,100.00	6,945.00	6,117.00	6,113.48	122.69	183.29	47.34	-1,732.60	7,362.79	1,605.36	1,370.33	235.03	6.830	
14,200.00	6,945.00	6,117.00	6,113.48	124.27	183.29	47.34	-1,732.60	7,362.79	1,628.91	1,392.17	236.74	6.881	
14,300.00	6,945.00	6,117.00	6,113.48	125.84	183.29	47.34	-1,732.60	7,362.79	1,658.16	1,419.77	238.39	6.956	
14,400.00	6,945.00	6,117.00	6,113.48	127.41	183.29	47.34	-1,732.60	7,362.79	1,692.82	1,452.88	239.94	7.055	
14,500.00	6,945.00	6,117.00	6,113.48	128.99	183.29	47.34	-1,732.60	7,362.79	1,732.56	1,491.21	241.35	7.178	
14,600.00	6,945.00	6,117.00	6,113.48	130.57	183.29	47.34	-1,732.60	7,362.79	1,777.05	1,534.43	242.62	7.324	
14,700.00	6,945.00	6,117.00	6,113.48	132.14	183.29	47.34	-1,732.60	7,362.79	1,825.94	1,582.22	243.72	7.492	
14,800.00	6,945.00	6,117.00	6,113.48	133.72	183.29	47.34	-1,732.60	7,362.79	1,878.88	1,634.23	244.65	7.680	
14,900.00	6,945.00	6,117.00	6,113.48	135.30	183.29	47.34	-1,732.60	7,362.79	1,935.55	1,690.13	245.42	7.887	
15,000.00	6,945.00	6,117.00	6,113.48	136.87	183.29	47.34	-1,732.60	7,362.79	1,995.62	1,749.59	246.03	8.111	
15,100.00	6,945.00	6,117.00	6,113.48	138.45	183.29	47.34	-1,732.60	7,362.79	2,058.80	1,812.30	246.50	8.352	
15,200.00	6,945.00	6,117.00	6,113.48	140.03	183.29	47.34	-1,732.60	7,362.79	2,124.80	1,877.97	246.83	8.608	
15,300.00	6,945.00	6,117.00	6,113.48	141.61	183.29	47.34	-1,732.60	7,362.79	2,193.38	1,946.33	247.05	8.878	
15,400.00	6,945.00	6,117.00	6,113.48	143.19	183.29	47.34	-1,732.60	7,362.79	2,264.31	2,017.14	247.17	9.161	
15,500.00	6,945.00	6,117.00	6,113.48	144.77	183.29	47.34	-1,732.60	7,362.79	2,337.35	2,090.15	247.20	9.455	
15,600.00	6,945.00	6,117.00	6,113.48	146.35	183.29	47.34	-1,732.60	7,362.79	2,412.34	2,165.18	247.15	9.760	
15,700.00	6,945.00	6,117.00	6,113.48	147.94	183.29	47.34	-1,732.60	7,362.79	2,489.08	2,242.03	247.04	10.075	
15,800.00	6,945.00	6,117.00	6,113.48	149.52	183.29	47.34	-1,732.60	7,362.79	2,567.42	2,320.54	246.88	10.399	
15,900.00	6,945.00	6,117.00	6,113.48	151.10	183.29	47.34	-1,732.60	7,362.79	2,647.23	2,400.55	246.68	10.731	
16,000.00	6,945.00	6,117.00	6,113.48	152.68	183.29	47.34	-1,732.60	7,362.79	2,728.36	2,481.92	246.44	11.071	
16,100.00	6,945.00	6,117.00	6,113.48	154.26	183.29	47.34	-1,732.60	7,362.79	2,810.71	2,564.54	246.17	11.418	
16,200.00	6,945.00	6,117.00	6,113.48	155.85	183.29	47.34	-1,732.60	7,362.79	2,894.17	2,648.29	245.88	11.771	
16,300.00	6,945.00	6,117.00	6,113.48	157.43	183.29	47.34	-1,732.60	7,362.79	2,978.65	2,733.08	245.57	12.129	
16,400.00	6,945.00	6,117.00	6,113.48	159.02	183.29	47.34	-1,732.60	7,362.79	3,064.07	2,818.82	245.25	12.493	
16,500.00	6,945.00	6,117.00	6,113.48	160.60	183.29	47.34	-1,732.60	7,362.79	3,150.34	2,905.42	244.93	12.862	
16,600.00	6,945.00	6,117.00	6,113.48	162.18	183.29	47.34	-1,732.60	7,362.79	3,237.41	2,992.81	244.59	13.236	
16,700.00	6,945.00	6,117.00	6,113.48	163.77	183.29	47.34	-1,732.60	7,362.79	3,325.20	3,080.94	244.26	13.613	
16,800.00	6,945.00	6,117.00	6,113.48	165.35	183.29	47.34	-1,732.60	7,362.79	3,413.66	3,169.74	243.92	13.995	
16,900.00	6,945.00	6,117.00	6,113.48	166.94	183.29	47.34	-1,732.60	7,362.79	3,502.75	3,259.16	243.59	14.380	
17,000.00	6,945.00	6,117.00	6,113.48	168.53	183.29	47.34	-1,732.60	7,362.79	3,592.41	3,349.15	243.25	14.768	
17,100.00	6,945.00	6,117.00	6,113.48	170.11	183.29	47.34	-1,732.60	7,362.79	3,682.60	3,439.67	242.92	15.159	
17,200.00	6,945.00	6,117.00	6,113.48	171.70	183.29	47.34	-1,732.60	7,362.79	3,773.29	3,530.68	242.60	15.553	
17,300.00	6,945.00	6,117.00	6,113.48	173.29	183.29	47.34	-1,732.60	7,362.79	3,864.43	3,622.15	242.28	15.950	
17,400.00	6,945.00	6,117.00	6,113.48	174.87	183.29	47.34	-1,732.60	7,362.79	3,956.00	3,714.03	241.97	16.349	
17,500.00	6,945.00	6,117.00	6,113.48	176.46	183.29	47.34	-1,732.60	7,362.79	4,047.98	3,806.31	241.67	16.750	
17,600.00	6,945.00	6,117.00	6,113.48	178.05	183.29	47.34	-1,732.60	7,362.79	4,140.32	3,898.95	241.37	17.153	
17,700.00	6,945.00	6,117.00	6,113.48	179.63	183.29	47.34	-1,732.60	7,362.79	4,233.01	3,991.93	241.08	17.559	
17,800.00	6,945.00	6,117.00	6,113.48	181.22	183.29	47.34	-1,732.60	7,362.79	4,326.03	4,085.23	240.80	17.965	
17,900.00	6,945.00	6,117.00	6,113.48	182.81	183.29	47.34	-1,732.60	7,362.79	4,419.36	4,178.83	240.52	18.374	
18,000.00	6,945.00	6,117.00	6,113.48	184.40	183.29	47.34	-1,732.60	7,362.79	4,512.96	4,272.71	240.26	18.784	
18,100.00	6,945.00	6,117.00	6,113.48	185.99	183.29	47.34	-1,732.60	7,362.79	4,606.84	4,366.84	240.00	19.195	
18,200.00	6,945.00	6,117.00	6,113.48	187.58	183.29	47.34	-1,732.60	7,362.79	4,700.97	4,461.22	239.75	19.608	

CC - Min centre to center distance or 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:	Plan #4	**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
18,300.00	6,945.00	6,117.00	6,113.48	189.16	183.29	47.34	-1,732.60	7,362.79	4,795.34	4,555.83	239.51	20.022	
18,400.00	6,945.00	6,117.00	6,113.48	190.75	183.29	47.34	-1,732.60	7,362.79	4,889.93	4,650.66	239.27	20.437	
18,500.00	6,945.00	6,117.00	6,113.48	192.34	183.29	47.34	-1,732.60	7,362.79	4,984.73	4,745.69	239.05	20.852	
18,600.00	6,945.00	6,117.00	6,113.48	193.93	183.29	47.34	-1,732.60	7,362.79	5,079.74	4,840.91	238.83	21.269	
18,700.00	6,945.00	6,117.00	6,113.48	195.52	183.29	47.34	-1,732.60	7,362.79	5,174.93	4,936.31	238.62	21.687	
18,800.00	6,945.00	6,117.00	6,113.48	197.11	183.29	47.34	-1,732.60	7,362.79	5,270.29	5,031.88	238.41	22.106	
18,900.00	6,945.00	6,117.00	6,113.48	198.70	183.29	47.34	-1,732.60	7,362.79	5,365.83	5,127.62	238.22	22.525	
19,000.00	6,945.00	6,117.00	6,113.48	200.29	183.29	47.34	-1,732.60	7,362.79	5,461.53	5,223.50	238.03	22.945	
19,100.00	6,945.00	6,117.00	6,113.48	201.88	183.29	47.34	-1,732.60	7,362.79	5,557.38	5,319.53	237.84	23.366	
19,200.00	6,945.00	6,117.00	6,113.48	203.47	183.29	47.34	-1,732.60	7,362.79	5,653.37	5,415.70	237.67	23.787	
19,300.00	6,945.00	6,117.00	6,113.48	205.06	183.29	47.34	-1,732.60	7,362.79	5,749.50	5,512.00	237.50	24.209	
19,400.00	6,945.00	6,117.00	6,113.48	206.65	183.29	47.34	-1,732.60	7,362.79	5,845.76	5,608.42	237.33	24.631	
19,500.00	6,945.00	6,117.00	6,113.48	208.24	183.29	47.34	-1,732.60	7,362.79	5,942.14	5,704.96	237.18	25.054	
19,600.00	6,945.00	6,117.00	6,113.48	209.84	183.29	47.34	-1,732.60	7,362.79	6,038.64	5,801.61	237.03	25.477	
19,700.00	6,945.00	6,117.00	6,113.48	211.43	183.29	47.34	-1,732.60	7,362.79	6,135.25	5,898.37	236.88	25.900	
19,800.00	6,945.00	6,117.00	6,113.48	213.02	183.29	47.34	-1,732.60	7,362.79	6,231.97	5,995.23	236.74	26.324	
19,900.00	6,945.00	6,117.00	6,113.48	214.61	183.29	47.34	-1,732.60	7,362.79	6,328.79	6,092.18	236.61	26.748	
20,000.00	6,945.00	6,117.00	6,113.48	216.20	183.29	47.34	-1,732.60	7,362.79	6,425.71	6,189.23	236.48	27.172	
20,100.00	6,945.00	6,117.00	6,113.48	217.79	183.29	47.34	-1,732.60	7,362.79	6,522.72	6,286.36	236.36	27.597	
20,200.00	6,945.00	6,117.00	6,113.48	219.38	183.29	47.34	-1,732.60	7,362.79	6,619.82	6,383.58	236.24	28.022	
20,300.00	6,945.00	6,117.00	6,113.48	220.98	183.29	47.34	-1,732.60	7,362.79	6,717.01	6,480.88	236.13	28.447	
20,400.00	6,945.00	6,117.00	6,113.48	222.57	183.29	47.34	-1,732.60	7,362.79	6,814.27	6,578.26	236.02	28.872	
20,500.00	6,945.00	6,117.00	6,113.48	224.16	183.29	47.34	-1,732.60	7,362.79	6,911.62	6,675.70	235.92	29.297	
20,600.00	6,945.00	6,117.00	6,113.48	225.75	183.29	47.34	-1,732.60	7,362.79	7,009.04	6,773.22	235.82	29.722	
20,700.00	6,945.00	6,117.00	6,113.48	227.35	183.29	47.34	-1,732.60	7,362.79	7,106.53	6,870.81	235.72	30.148	
20,800.00	6,945.00	6,117.00	6,113.48	228.94	183.29	47.34	-1,732.60	7,362.79	7,204.09	6,968.46	235.63	30.573	
20,852.96	6,945.00	6,117.00	6,113.48	229.61	183.29	47.34	-1,732.60	7,362.79	7,255.78	7,017.73	238.06	30.479	

CC - Min centre to center distance or 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:	Plan #4	**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				
20.93	20.93	0.00	0.00	0.00	0.00	-70.71	-2,540.55	4,074.46	4,802.94				
117.41	117.41	0.00	0.00	0.05	0.00	-75.26	-2,540.55	4,074.46	4,801.51				
206.68	206.68	67.94	67.94	0.17	0.08	-49.37	-2,540.55	4,074.50	4,801.34	4,801.16	0.19	N/A	
292.93	292.93	148.55	148.55	0.28	0.17	-49.92	-2,540.57	4,074.64	4,801.13	4,800.76	0.36	N/A	
338.11	338.10	190.78	190.78	0.33	0.21	-68.93	-2,540.58	4,074.76	4,801.06	4,800.60	0.45	N/A	
365.00	364.99	215.92	215.92	0.36	0.24	-80.61	-2,540.58	4,074.84	4,801.08	4,800.57	0.51	9,476.570	
451.00	450.97	296.29	296.28	0.55	0.33	-27.34	-2,540.61	4,075.18	4,799.85	4,799.02	0.83	5,795.196	
540.00	539.81	411.69	411.67	0.83	0.56	-21.92	-2,539.40	4,076.25	4,795.32	4,793.96	1.36	3,522.544	
665.00	664.37	548.18	547.81	1.26	0.88	-19.76	-2,530.93	4,080.34	4,784.60	4,782.48	2.12	2,253.053	
753.00	752.01	591.00	590.32	1.58	0.99	-20.84	-2,526.58	4,083.04	4,777.18	4,774.63	2.55	1,877.082	
847.00	845.61	651.98	650.71	1.93	1.16	-17.93	-2,519.63	4,087.91	4,769.87	4,766.81	3.06	1,559.142	
939.00	937.22	717.54	715.48	2.27	1.37	-17.84	-2,511.60	4,094.06	4,763.21	4,759.60	3.60	1,322.434	
1,030.00	1,027.78	886.78	881.44	2.62	2.01	-29.84	-2,484.54	4,112.83	4,756.37	4,751.80	4.57	1,041.386	
1,120.00	1,117.25	964.02	956.28	2.96	2.36	-27.26	-2,468.32	4,122.84	4,748.15	4,742.91	5.25	905.091	
1,211.00	1,207.68	1,045.07	1,034.06	3.31	2.77	-30.25	-2,448.94	4,134.85	4,739.85	4,733.85	6.00	790.376	
1,306.00	1,302.14	1,124.43	1,109.26	3.68	3.24	-28.74	-2,427.41	4,148.22	4,732.02	4,725.21	6.81	694.716	
1,400.00	1,395.63	1,182.39	1,163.51	4.04	3.61	-27.75	-2,410.16	4,159.08	4,724.99	4,717.46	7.53	627.409	
1,495.00	1,490.19	1,236.49	1,213.70	4.40	3.97	-28.68	-2,393.24	4,170.11	4,719.33	4,711.09	8.24	572.637	
1,589.00	1,583.83	1,332.46	1,301.73	4.76	4.67	-31.65	-2,361.22	4,190.98	4,715.06	4,705.78	9.28	507.916	
1,684.00	1,678.44	1,384.44	1,348.93	5.12	5.08	-29.56	-2,343.01	4,202.90	4,711.15	4,701.12	10.04	469.311	
1,779.00	1,772.98	1,440.44	1,399.45	5.48	5.52	-25.48	-2,322.95	4,216.37	4,707.22	4,696.39	10.83	434.587	
1,873.00	1,866.49	1,500.93	1,453.73	5.84	6.02	-24.34	-2,300.91	4,231.44	4,703.73	4,692.06	11.67	403.097	
1,967.00	1,960.05	1,573.73	1,518.63	6.20	6.64	-20.11	-2,273.79	4,250.18	4,701.16	4,688.53	12.63	372.324	
2,062.00	2,054.59	1,676.27	1,609.25	6.56	7.53	-26.09	-2,234.14	4,277.20	4,698.95	4,685.10	13.85	339.241	
2,156.00	2,148.09	1,740.16	1,665.51	6.92	8.09	-27.20	-2,208.96	4,294.05	4,696.77	4,682.03	14.75	318.463	
2,251.00	2,242.55	1,794.00	1,712.67	7.29	8.56	-26.20	-2,187.54	4,308.75	4,695.35	4,679.79	15.56	301.712	
2,345.00	2,336.00	1,872.29	1,781.24	7.65	9.21	-32.67	-2,156.54	4,330.32	4,694.69	4,678.14	16.55	283.736	
2,440.00	2,430.43	2,448.00	2,289.37	8.02	13.81	-38.94	-1,920.51	4,455.01	4,686.67	4,665.22	21.44	218.567	
2,535.00	2,524.86	2,448.00	2,289.37	8.38	13.81	-37.67	-1,920.51	4,455.01	4,679.64	4,657.83	21.81	214.613	
2,629.00	2,618.31	2,448.00	2,289.37	8.75	13.81	-37.67	-1,920.51	4,455.01	4,674.54	4,652.38	22.16	210.974	
2,724.00	2,712.77	2,448.00	2,289.37	9.12	13.81	-36.91	-1,920.51	4,455.01	4,671.36	4,648.85	22.50	207.570	
2,818.00	2,806.24	2,448.00	2,289.37	9.48	13.81	-36.34	-1,920.51	4,455.01	4,670.12	4,647.28	22.84	204.457	
2,832.54	2,820.69	2,448.00	2,289.37	9.53	13.81	-36.01	-1,920.51	4,455.01	4,670.10	4,647.21	22.89	203.998	
2,913.00	2,900.71	2,469.71	2,308.40	9.84	14.00	-34.28	-1,911.66	4,460.57	4,670.74	4,647.38	23.36	199.951	
3,008.00	2,995.25	2,614.75	2,435.87	10.21	15.23	-39.62	-1,852.28	4,496.09	4,671.87	4,646.97	24.91	187.582	
3,102.00	3,088.80	2,706.59	2,517.36	10.57	15.96	-39.97	-1,815.84	4,517.65	4,673.50	4,647.54	25.96	180.024	
3,197.00	3,183.30	2,794.81	2,596.71	10.93	16.64	-37.57	-1,782.83	4,537.57	4,674.96	4,648.01	26.96	173.421	
3,291.00	3,276.71	2,878.71	2,673.16	11.30	17.26	-44.12	-1,753.50	4,555.84	4,676.34	4,648.45	27.89	167.670	
3,386.00	3,371.01	3,006.26	2,790.64	11.67	18.16	-45.98	-1,711.54	4,582.38	4,677.67	4,648.57	29.10	160.718	
3,480.00	3,464.23	3,159.94	2,935.24	12.04	19.10	-45.47	-1,667.73	4,610.26	4,677.69	4,647.33	30.37	154.046	
3,575.00	3,558.47	3,283.07	3,053.20	12.42	19.77	-44.54	-1,638.20	4,629.57	4,676.94	4,645.59	31.35	149.171	
3,670.00	3,652.84	3,533.33	3,297.29	12.79	20.83	-44.49	-1,592.04	4,659.01	4,674.58	4,641.86	32.72	142.851	
3,764.00	3,746.36	3,633.45	3,396.12	13.15	21.14	-41.58	-1,578.73	4,667.77	4,672.15	4,638.78	33.36	140.047	
3,859.00	3,840.97	3,733.47	3,495.55	13.51	21.40	-38.05	-1,570.52	4,674.78	4,669.84	4,635.89	33.95	137.547	
3,954.00	3,935.57	3,816.97	3,578.65	13.87	21.58	-38.16	-1,564.73	4,680.44	4,667.37	4,632.90	34.47	135.411	
4,049.00	4,030.14	3,900.43	3,661.73	14.23	21.77	-47.38	-1,559.14	4,686.23	4,665.39	4,630.40	34.99	133.348	
4,143.00	4,123.75	3,992.00	3,752.87	14.59	21.97	-46.46	-1,553.24	4,692.75	4,664.40	4,628.89	35.52	131.326	
4,238.00	4,218.33	4,088.40	3,848.85	14.95	22.18	-46.40	-1,547.23	4,699.55	4,663.15	4,627.10	36.05	129.344	
4,333.00	4,312.74	4,196.17	3,956.18	15.32	22.40	-49.41	-1,540.72	4,706.78	4,660.74	4,624.13	36.61	127.297	
4,427.00	4,406.05	4,302.74	4,062.35	15.69	22.63	-47.25	-1,534.48	4,713.54	4,657.53	4,620.36	37.17	125.304	
4,522.00	4,500.34	4,410.53	4,169.77	16.06	22.85	-46.55	-1,528.37	4,719.99	4,653.75	4,616.02	37.73	123.336	

CC - Min centre to center distance or 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:	Plan #4	**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
4,616.00	4,593.47	4,508.79	4,267.73	16.44	23.05	-49.02	-1,523.02	4,725.56	4,649.05	4,610.78	38.26	121.496	
4,710.00	4,686.44	4,598.39	4,357.08	16.82	23.22	-48.49	-1,518.53	4,730.55	4,643.78	4,605.00	38.77	119.767	
4,899.00	4,873.89	4,779.63	4,537.87	17.57	23.55	-42.43	-1,510.74	4,740.50	4,635.07	4,595.28	39.79	116.495	
4,962.00	4,936.56	4,840.38	4,598.49	17.81	23.67	-40.15	-1,508.52	4,743.78	4,633.04	4,592.92	40.12	115.474	
5,024.00	4,998.27	4,900.22	4,658.22	18.04	23.78	-44.00	-1,506.51	4,747.00	4,631.29	4,590.84	40.45	114.492	
5,150.00	5,123.66	5,019.77	4,777.54	18.53	23.97	-43.16	-1,503.10	4,753.37	4,628.03	4,586.94	41.09	112.633	
5,213.00	5,186.37	5,079.06	4,836.74	18.77	24.07	-45.61	-1,501.73	4,756.51	4,626.65	4,585.25	41.40	111.751	
5,276.00	5,249.09	5,138.40	4,895.98	19.01	24.16	-44.80	-1,500.57	4,759.66	4,625.39	4,583.68	41.71	110.885	
5,339.00	5,311.83	5,197.80	4,955.29	19.25	24.25	-45.81	-1,499.62	4,762.79	4,624.37	4,582.34	42.02	110.039	
5,401.00	5,373.58	5,256.31	5,013.71	19.48	24.34	-43.36	-1,498.91	4,765.88	4,623.39	4,581.06	42.33	109.219	
5,464.00	5,436.33	5,315.80	5,073.12	19.72	24.43	-46.13	-1,498.39	4,769.01	4,622.55	4,579.91	42.64	108.401	
5,590.00	5,561.87	5,435.98	5,193.14	20.19	24.62	-47.55	-1,498.00	4,775.30	4,621.51	4,578.25	43.26	106.824	
5,653.00	5,624.66	5,498.08	5,255.15	20.43	24.70	-48.95	-1,497.98	4,778.55	4,621.25	4,577.68	43.57	106.074	
5,658.02	5,629.66	5,503.03	5,260.10	20.45	24.71	-49.33	-1,497.98	4,778.81	4,621.25	4,577.65	43.59	106.016	
5,715.00	5,686.48	5,559.21	5,316.20	20.66	24.79	-53.96	-1,498.01	4,781.74	4,621.47	4,577.60	43.86	105.360	
5,778.00	5,749.29	5,621.33	5,378.23	20.90	24.87	-51.33	-1,498.10	4,784.99	4,621.77	4,577.60	44.17	104.645	
5,841.00	5,812.10	5,683.45	5,440.27	21.13	24.96	-53.68	-1,498.23	4,788.23	4,622.03	4,577.56	44.47	103.938	
5,904.00	5,874.94	5,745.60	5,502.33	21.36	25.05	-48.44	-1,498.42	4,791.47	4,622.42	4,577.65	44.77	103.246	
5,967.00	5,937.80	5,807.79	5,564.43	21.60	25.13	-46.95	-1,498.67	4,794.71	4,622.86	4,577.79	45.07	102.566	
6,030.00	6,000.68	5,869.99	5,626.55	21.83	25.22	-48.91	-1,498.96	4,797.95	4,623.56	4,578.19	45.37	101.903	
6,093.00	6,063.59	5,933.80	5,690.27	22.05	25.31	-45.28	-1,499.27	4,801.28	4,624.50	4,578.82	45.68	101.247	
6,156.00	6,126.51	5,997.85	5,754.23	22.28	25.40	-40.05	-1,499.51	4,804.61	4,625.42	4,579.44	45.98	100.600	
6,235.00	6,205.43	6,078.17	5,834.45	22.56	25.51	-40.41	-1,499.69	4,808.80	4,626.83	4,580.47	46.36	99.809	
6,300.00	6,270.38	6,144.26	5,900.45	22.68	25.61	-40.44	-1,499.76	4,812.24	4,628.24	4,581.69	46.56	99.413	
6,355.00	6,325.34	6,200.18	5,956.29	22.69	25.69	-40.47	-1,499.75	4,815.16	4,629.43	4,582.80	46.63	99.283	
6,400.00	6,370.23	6,245.93	6,001.98	22.71	25.75	-7.82	-1,499.71	4,817.55	4,628.82	4,582.13	46.69	99.141	
6,450.00	6,419.74	6,296.59	6,052.57	22.73	25.83	-0.27	-1,499.61	4,820.19	4,624.45	4,577.70	46.76	98.902	
6,500.00	6,468.57	6,346.76	6,102.67	22.77	25.90	2.77	-1,499.47	4,822.81	4,616.23	4,569.40	46.83	98.578	
6,550.00	6,516.42	6,401.05	6,156.89	22.81	25.97	4.50	-1,499.29	4,825.62	4,604.19	4,557.29	46.90	98.167	
6,600.00	6,562.98	6,461.06	6,216.83	22.87	26.04	5.72	-1,499.26	4,828.55	4,588.33	4,541.35	46.98	97.669	
6,650.00	6,607.98	6,519.17	6,274.87	22.95	26.11	6.73	-1,499.45	4,831.18	4,568.71	4,521.66	47.06	97.092	
6,700.00	6,651.14	6,574.97	6,330.62	23.03	26.18	7.66	-1,499.83	4,833.52	4,545.49	4,498.36	47.13	96.441	
6,750.00	6,692.18	6,628.09	6,383.70	23.14	26.25	8.61	-1,500.37	4,835.57	4,518.82	4,471.61	47.21	95.721	
6,800.00	6,730.86	6,678.17	6,433.75	23.26	26.31	9.64	-1,501.04	4,837.34	4,488.88	4,441.60	47.28	94.936	
6,850.00	6,766.93	6,724.90	6,480.44	23.40	26.36	10.82	-1,501.81	4,838.86	4,455.88	4,408.52	47.36	94.095	
6,900.00	6,800.18	6,767.97	6,523.49	23.56	26.42	12.21	-1,502.63	4,840.14	4,420.04	4,372.61	47.42	93.202	
6,950.00	6,830.39	6,807.12	6,562.61	23.74	26.46	13.91	-1,503.48	4,841.20	4,381.60	4,334.11	47.49	92.264	
7,000.00	6,857.38	6,842.12	6,597.59	23.94	26.51	16.06	-1,504.32	4,842.08	4,340.81	4,293.26	47.55	91.290	
7,050.00	6,880.98	6,872.78	6,628.23	24.17	26.54	18.85	-1,505.12	4,842.78	4,297.96	4,250.36	47.60	90.285	
7,100.00	6,901.06	6,910.70	6,666.14	24.42	26.57	22.76	-1,506.16	4,843.54	4,253.29	4,205.64	47.65	89.261	
7,150.00	6,917.47	6,941.58	6,697.00	24.70	26.59	28.29	-1,507.02	4,844.04	4,207.08	4,159.39	47.69	88.222	
7,200.00	6,930.13	6,965.29	6,720.70	25.01	26.61	36.45	-1,507.70	4,844.35	4,159.66	4,111.94	47.72	87.175	
7,250.00	6,938.95	6,981.87	6,737.27	25.34	26.62	48.90	-1,508.17	4,844.53	4,111.34	4,063.61	47.74	86.125	
7,300.00	6,943.88	6,991.40	6,746.80	25.69	26.63	67.49	-1,508.45	4,844.62	4,062.46	4,014.72	47.75	85.080	
7,337.82	6,945.00	6,994.02	6,749.42	25.97	26.63	85.19	-1,508.53	4,844.64	4,025.31	3,977.55	47.75	84.296	
7,400.00	6,945.00	6,995.08	6,750.47	26.45	26.63	85.76	-1,508.56	4,844.65	3,964.32	3,916.56	47.75	83.017	
7,492.38	6,945.00	6,996.47	6,751.87	27.21	26.64	86.40	-1,508.60	4,844.67	3,874.31	3,826.55	47.76	81.124	
7,500.00	6,945.00	6,996.58	6,751.97	27.28	26.64	86.41	-1,508.60	4,844.67	3,866.92	3,819.16	47.76	80.969	
7,600.00	6,945.00	6,997.96	6,753.35	28.17	26.64	86.49	-1,508.64	4,844.68	3,770.01	3,722.24	47.78	78.911	
7,700.00	6,945.00	6,999.29	6,754.68	29.12	26.64	86.57	-1,508.68	4,844.69	3,673.27	3,625.47	47.81	76.838	
7,800.00	6,945.00	7,000.58	6,755.97	30.14	26.64	86.65	-1,508.72	4,844.70	3,576.71	3,528.86	47.85	74.749	
7,900.00	6,945.00	7,001.82	6,757.21	31.20	26.64	86.73	-1,508.75	4,844.71	3,480.34	3,432.43	47.91	72.642	

CC - Min centre to center distance or 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:	Plan #4	**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
8,000.00	6,945.00	7,003.02	6,758.40	32.31	26.64	86.80	-1,508.79	4,844.72	3,384.18	3,336.19	47.99	70.516	
8,100.00	6,945.00	7,004.17	6,759.56	33.46	26.64	86.87	-1,508.82	4,844.73	3,288.25	3,240.16	48.09	68.371	
8,200.00	6,945.00	7,005.30	6,760.68	34.64	26.64	86.94	-1,508.86	4,844.73	3,192.57	3,144.35	48.22	66.205	
8,300.00	6,945.00	7,006.38	6,761.77	35.86	26.64	87.00	-1,508.89	4,844.74	3,097.16	3,048.78	48.38	64.018	
8,400.00	6,945.00	7,007.43	6,762.82	37.11	26.64	87.07	-1,508.92	4,844.75	3,002.06	2,953.48	48.57	61.808	
8,500.00	6,945.00	7,008.45	6,763.83	38.39	26.64	87.13	-1,508.95	4,844.76	2,907.28	2,858.47	48.80	59.574	
8,600.00	6,945.00	7,009.43	6,764.82	39.69	26.64	87.19	-1,508.98	4,844.76	2,812.86	2,763.78	49.08	57.317	
8,700.00	6,945.00	7,010.39	6,765.77	41.01	26.65	87.25	-1,509.00	4,844.77	2,718.84	2,669.43	49.40	55.036	
8,800.00	6,945.00	7,011.31	6,766.70	42.35	26.65	87.30	-1,509.03	4,844.78	2,625.26	2,575.47	49.78	52.732	
8,900.00	6,945.00	7,012.21	6,767.60	43.71	26.65	87.36	-1,509.06	4,844.78	2,532.17	2,481.93	50.24	50.406	
9,000.00	6,945.00	7,013.09	6,768.47	45.08	26.65	87.41	-1,509.08	4,844.79	2,439.63	2,388.87	50.76	48.060	
9,100.00	6,945.00	7,013.94	6,769.32	46.47	26.65	87.46	-1,509.11	4,844.79	2,347.70	2,296.32	51.38	45.697	
9,200.00	6,945.00	7,014.76	6,770.14	47.87	26.65	87.51	-1,509.13	4,844.80	2,256.45	2,204.37	52.09	43.321	
9,300.00	6,945.00	7,015.56	6,770.95	49.29	26.65	87.56	-1,509.16	4,844.80	2,165.98	2,113.08	52.91	40.938	
9,400.00	6,945.00	7,016.34	6,771.73	50.71	26.65	87.61	-1,509.18	4,844.81	2,076.39	2,022.53	53.86	38.554	
9,500.00	6,945.00	7,017.10	6,772.48	52.15	26.65	87.66	-1,509.20	4,844.81	1,987.79	1,932.84	54.94	36.178	
9,600.00	6,945.00	7,017.84	6,773.22	53.59	26.65	87.70	-1,509.22	4,844.82	1,900.31	1,844.12	56.19	33.820	
9,700.00	6,945.00	7,018.56	6,773.94	55.05	26.65	87.74	-1,509.25	4,844.82	1,814.13	1,756.53	57.61	31.491	
9,800.00	6,945.00	7,019.26	6,774.64	56.51	26.65	87.79	-1,509.27	4,844.83	1,729.45	1,670.23	59.22	29.205	
9,900.00	6,945.00	7,019.94	6,775.32	57.98	26.65	87.83	-1,509.29	4,844.83	1,646.47	1,585.44	61.04	26.975	
10,000.00	6,945.00	7,020.61	6,775.99	59.45	26.65	87.87	-1,509.31	4,844.83	1,565.49	1,502.41	63.08	24.816	
10,100.00	6,945.00	7,021.26	6,776.64	60.93	26.65	87.91	-1,509.32	4,844.84	1,486.83	1,421.46	65.37	22.744	
10,200.00	6,945.00	7,021.89	6,777.27	62.42	26.65	87.95	-1,509.34	4,844.84	1,410.87	1,342.96	67.91	20.776	
10,300.00	6,945.00	7,022.51	6,777.89	63.92	26.65	87.98	-1,509.36	4,844.84	1,338.08	1,267.37	70.70	18.925	
10,400.00	6,945.00	7,023.11	6,778.49	65.42	26.65	88.02	-1,509.38	4,844.85	1,268.99	1,195.25	73.74	17.208	
10,500.00	6,945.00	7,023.70	6,779.08	66.92	26.66	88.06	-1,509.40	4,844.85	1,204.26	1,127.25	77.00	15.639	
10,600.00	6,945.00	7,024.27	6,779.65	68.43	26.66	88.09	-1,509.41	4,844.85	1,144.61	1,064.17	80.44	14.230	
10,700.00	6,945.00	7,024.83	6,780.21	69.94	26.66	88.13	-1,509.43	4,844.86	1,090.88	1,006.92	83.96	12.993	
10,800.00	6,945.00	7,025.38	6,780.76	71.45	26.66	88.16	-1,509.45	4,844.86	1,043.99	956.53	87.45	11.938	
10,900.00	6,945.00	7,025.92	6,781.29	72.97	26.66	88.19	-1,509.46	4,844.86	1,004.89	914.11	90.77	11.070	
11,000.00	6,945.00	7,026.44	6,781.82	74.50	26.66	88.22	-1,509.48	4,844.87	974.52	880.78	93.74	10.396	
11,100.00	6,945.00	7,026.95	6,782.33	76.02	26.66	88.26	-1,509.49	4,844.87	953.71	857.54	96.18	9.916	
11,200.00	6,945.00	7,027.45	6,782.83	77.55	26.66	88.29	-1,509.51	4,844.87	943.11	845.17	97.94	9.630	
11,250.57	6,945.00	7,027.70	6,783.08	78.33	26.66	88.30	-1,509.52	4,844.87	941.76	843.21	98.54	9.557	CC, ES
11,300.00	6,945.00	7,027.94	6,783.32	79.08	26.66	88.32	-1,509.52	4,844.87	943.05	844.12	98.93	9.532	SF
11,400.00	6,945.00	7,028.42	6,783.80	80.62	26.66	88.34	-1,509.54	4,844.88	953.54	854.37	99.17	9.615	
11,500.00	6,945.00	7,028.89	6,784.27	82.16	26.66	88.37	-1,509.55	4,844.88	974.23	875.51	98.72	9.869	
11,600.00	6,945.00	7,029.35	6,784.73	83.70	26.66	88.40	-1,509.56	4,844.88	1,004.49	906.77	97.72	10.279	
11,700.00	6,945.00	7,029.80	6,785.17	85.24	26.66	88.43	-1,509.58	4,844.88	1,043.50	947.16	96.34	10.831	
11,800.00	6,945.00	7,030.24	6,785.61	86.78	26.66	88.46	-1,509.59	4,844.88	1,090.31	995.59	94.72	11.510	
11,900.00	6,945.00	7,030.67	6,786.05	88.33	26.66	88.48	-1,509.60	4,844.89	1,143.97	1,050.98	92.98	12.303	
12,000.00	6,945.00	7,031.09	6,786.47	89.87	26.66	88.51	-1,509.62	4,844.89	1,203.55	1,112.35	91.21	13.196	
12,100.00	6,945.00	7,031.51	6,786.88	91.42	26.66	88.53	-1,509.63	4,844.89	1,268.24	1,178.79	89.45	14.178	
12,200.00	6,945.00	7,031.91	6,787.29	92.98	26.66	88.56	-1,509.64	4,844.89	1,337.28	1,249.52	87.75	15.239	
12,300.00	6,945.00	7,032.31	6,787.68	94.53	26.66	88.58	-1,509.65	4,844.89	1,410.03	1,323.90	86.14	16.370	
12,400.00	6,945.00	7,032.70	6,788.07	96.08	26.66	88.61	-1,509.66	4,844.89	1,485.96	1,401.35	84.61	17.563	
12,500.00	6,945.00	7,033.08	6,788.46	97.64	26.66	88.63	-1,509.68	4,844.90	1,564.59	1,481.42	83.17	18.811	
12,600.00	6,945.00	7,033.46	6,788.83	99.20	26.66	88.65	-1,509.69	4,844.90	1,645.55	1,563.72	81.83	20.108	
12,700.00	6,945.00	7,033.83	6,789.20	100.76	26.66	88.67	-1,509.70	4,844.90	1,728.50	1,647.91	80.59	21.448	
12,800.00	6,945.00	7,034.19	6,789.56	102.32	26.66	88.70	-1,509.71	4,844.90	1,813.17	1,733.74	79.43	22.827	
12,900.00	6,945.00	7,034.54	6,789.92	103.88	26.66	88.72	-1,509.72	4,844.90	1,899.34	1,820.98	78.36	24.240	
13,000.00	6,945.00	7,034.89	6,790.26	105.44	26.66	88.74	-1,509.73	4,844.90	1,986.80	1,909.44	77.36	25.682	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 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:	Plan #4	**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
13,100.00	6,945.00	7,035.23	6,790.61	107.00	26.66	88.76	-1,509.74	4,844.91	2,075.39	1,998.95	76.44	27.152	
13,200.00	6,945.00	7,035.57	6,790.94	108.57	26.66	88.78	-1,509.75	4,844.91	2,164.98	2,089.40	75.58	28.645	
13,300.00	6,945.00	7,035.90	6,791.27	110.13	26.66	88.80	-1,509.76	4,844.91	2,255.44	2,180.65	74.78	30.159	
13,400.00	6,945.00	7,036.22	6,791.60	111.70	26.66	88.82	-1,509.77	4,844.91	2,346.67	2,272.63	74.05	31.692	
13,500.00	6,945.00	7,036.54	6,791.91	113.27	26.66	88.84	-1,509.78	4,844.91	2,438.60	2,365.24	73.36	33.241	
13,600.00	6,945.00	7,036.85	6,792.23	114.84	26.66	88.86	-1,509.79	4,844.91	2,531.13	2,458.41	72.72	34.805	
13,700.00	6,945.00	7,037.16	6,792.53	116.41	26.67	88.88	-1,509.80	4,844.91	2,624.22	2,552.09	72.13	36.382	
13,800.00	6,945.00	7,037.46	6,792.83	117.98	26.67	88.89	-1,509.81	4,844.91	2,717.79	2,646.22	71.58	37.970	
13,900.00	6,945.00	7,037.76	6,793.13	119.55	26.67	88.91	-1,509.81	4,844.91	2,811.81	2,740.75	71.06	39.568	
14,000.00	6,945.00	7,038.05	6,793.42	121.12	26.67	88.93	-1,509.82	4,844.92	2,906.23	2,835.64	70.58	41.175	
14,100.00	6,945.00	7,038.34	6,793.71	122.69	26.67	88.95	-1,509.83	4,844.92	3,001.00	2,930.87	70.13	42.790	
14,200.00	6,945.00	7,038.62	6,793.99	124.27	26.67	88.97	-1,509.84	4,844.92	3,096.11	3,026.40	69.72	44.411	
14,300.00	6,945.00	7,038.90	6,794.27	125.84	26.67	88.98	-1,509.85	4,844.92	3,191.52	3,122.19	69.32	46.038	
14,400.00	6,945.00	7,039.17	6,794.54	127.41	26.67	89.00	-1,509.86	4,844.92	3,287.20	3,218.24	68.96	47.669	
14,500.00	6,945.00	7,039.44	6,794.81	128.99	26.67	89.02	-1,509.87	4,844.92	3,383.13	3,314.51	68.62	49.305	
14,600.00	6,945.00	7,039.70	6,795.08	130.57	26.67	89.03	-1,509.87	4,844.92	3,479.28	3,410.99	68.30	50.945	
14,700.00	6,945.00	7,039.96	6,795.34	132.14	26.67	89.05	-1,509.88	4,844.92	3,575.65	3,507.66	67.99	52.587	
14,800.00	6,945.00	7,040.22	6,795.59	133.72	26.67	89.06	-1,509.89	4,844.92	3,672.22	3,604.50	67.71	54.232	
14,900.00	6,945.00	7,040.47	6,795.84	135.30	26.67	89.08	-1,509.90	4,844.92	3,768.96	3,701.51	67.45	55.879	
15,000.00	6,945.00	7,040.72	6,796.09	136.87	26.67	89.09	-1,509.90	4,844.93	3,865.87	3,798.66	67.20	57.527	
15,100.00	6,945.00	7,040.97	6,796.34	138.45	26.67	89.11	-1,509.91	4,844.93	3,962.93	3,895.96	66.97	59.175	
15,200.00	6,945.00	7,041.21	6,796.58	140.03	26.67	89.12	-1,509.92	4,844.93	4,060.13	3,993.38	66.75	60.825	
15,300.00	6,945.00	7,041.44	6,796.81	141.61	26.67	89.14	-1,509.92	4,844.93	4,157.47	4,090.92	66.55	62.474	
15,400.00	6,945.00	7,041.68	6,797.05	143.19	26.67	89.15	-1,509.93	4,844.93	4,254.93	4,188.57	66.36	64.124	
15,500.00	6,945.00	7,041.91	6,797.28	144.77	26.67	89.17	-1,509.94	4,844.93	4,352.50	4,286.33	66.18	65.772	
15,600.00	6,945.00	7,042.13	6,797.50	146.35	26.67	89.18	-1,509.95	4,844.93	4,450.19	4,384.18	66.01	67.420	
15,700.00	6,945.00	7,042.36	6,797.73	147.94	26.67	89.19	-1,509.95	4,844.93	4,547.97	4,482.12	65.85	69.067	
15,800.00	6,945.00	7,042.58	6,797.95	149.52	26.67	89.21	-1,509.96	4,844.93	4,645.85	4,580.15	65.70	70.713	
15,900.00	6,945.00	7,042.79	6,798.16	151.10	26.67	89.22	-1,509.97	4,844.93	4,743.82	4,678.26	65.56	72.357	
16,000.00	6,945.00	7,043.01	6,798.38	152.68	26.67	89.23	-1,509.97	4,844.93	4,841.87	4,776.44	65.43	73.999	
16,100.00	6,945.00	7,043.22	6,798.59	154.26	26.67	89.24	-1,509.98	4,844.93	4,939.99	4,874.68	65.31	75.640	
16,200.00	6,945.00	7,043.43	6,798.80	155.85	26.67	89.26	-1,509.98	4,844.93	5,038.20	4,973.00	65.20	77.278	
16,300.00	6,945.00	7,043.63	6,799.00	157.43	26.67	89.27	-1,509.99	4,844.93	5,136.47	5,071.38	65.09	78.914	
16,400.00	6,945.00	7,043.83	6,799.20	159.02	26.67	89.28	-1,510.00	4,844.94	5,234.80	5,169.81	64.99	80.547	
16,500.00	6,945.00	7,044.03	6,799.40	160.60	26.67	89.29	-1,510.00	4,844.94	5,333.20	5,268.30	64.90	82.178	
16,600.00	6,945.00	7,044.23	6,799.60	162.18	26.67	89.31	-1,510.01	4,844.94	5,431.66	5,366.85	64.81	83.805	
16,700.00	6,945.00	7,044.42	6,799.79	163.77	26.67	89.32	-1,510.01	4,844.94	5,530.17	5,465.44	64.73	85.430	
16,800.00	6,945.00	7,044.61	6,799.98	165.35	26.67	89.33	-1,510.02	4,844.94	5,628.74	5,564.08	64.66	87.052	
16,900.00	6,945.00	7,044.80	6,800.17	166.94	26.67	89.34	-1,510.03	4,844.94	5,727.35	5,662.76	64.59	88.671	
17,000.00	6,945.00	7,044.99	6,800.36	168.53	26.67	89.35	-1,510.03	4,844.94	5,826.01	5,761.48	64.53	90.286	
17,100.00	6,945.00	7,045.17	6,800.54	170.11	26.67	89.36	-1,510.04	4,844.94	5,924.72	5,860.25	64.47	91.898	
17,200.00	6,945.00	7,045.35	6,800.72	171.70	26.67	89.37	-1,510.04	4,844.94	6,023.47	5,959.05	64.42	93.506	
17,300.00	6,945.00	7,045.53	6,800.90	173.29	26.67	89.39	-1,510.05	4,844.94	6,122.26	6,057.89	64.37	95.111	
17,400.00	6,945.00	7,045.71	6,801.07	174.87	26.67	89.40	-1,510.05	4,844.94	6,221.09	6,156.76	64.33	96.712	
17,500.00	6,945.00	7,045.88	6,801.25	176.46	26.67	89.41	-1,510.06	4,844.94	6,319.95	6,255.66	64.29	98.309	
17,600.00	6,945.00	7,046.05	6,801.42	178.05	26.67	89.42	-1,510.06	4,844.94	6,418.85	6,354.60	64.25	99.903	
17,700.00	6,945.00	7,046.22	6,801.59	179.63	26.67	89.43	-1,510.07	4,844.94	6,517.78	6,453.57	64.22	101.492	
17,800.00	6,945.00	7,046.39	6,801.76	181.22	26.67	89.44	-1,510.07	4,844.94	6,616.75	6,552.56	64.19	103.078	
17,900.00	6,945.00	7,046.55	6,801.92	182.81	26.67	89.45	-1,510.08	4,844.94	6,715.75	6,651.58	64.17	104.659	
18,000.00	6,945.00	7,046.72	6,802.08	184.40	26.67	89.46	-1,510.08	4,844.94	6,814.77	6,750.63	64.15	106.236	
18,100.00	6,945.00	7,046.88	6,802.25	185.99	26.67	89.47	-1,510.09	4,844.94	6,913.83	6,849.70	64.13	107.809	
18,200.00	6,945.00	7,047.04	6,802.40	187.58	26.67	89.48	-1,510.09	4,844.94	7,012.91	6,948.79	64.12	109.377	

CC - Min centre to center distance or 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:	Plan #4	**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
18,300.00	6,945.00	7,047.19	6,802.56	189.16	26.67	89.49	-1,510.10	4,844.95	7,112.01	7,047.91	64.11	110.942	
18,400.00	6,945.00	7,047.35	6,802.72	190.75	26.67	89.50	-1,510.10	4,844.95	7,211.15	7,147.05	64.10	112.502	
18,500.00	6,945.00	7,047.50	6,802.87	192.34	26.67	89.51	-1,510.11	4,844.95	7,310.30	7,246.21	64.09	114.057	
18,600.00	6,945.00	7,047.65	6,803.02	193.93	26.67	89.51	-1,510.11	4,844.95	7,409.48	7,345.39	64.09	115.608	
18,700.00	6,945.00	7,047.80	6,803.17	195.52	26.67	89.52	-1,510.12	4,844.95	7,508.68	7,444.59	64.09	117.154	
18,800.00	6,945.00	7,047.95	6,803.32	197.11	26.67	89.53	-1,510.12	4,844.95	7,607.90	7,543.80	64.10	118.696	
18,900.00	6,945.00	7,048.10	6,803.46	198.70	26.67	89.54	-1,510.12	4,844.95	7,707.14	7,643.04	64.10	120.233	
19,000.00	6,945.00	7,048.24	6,803.61	200.29	26.67	89.55	-1,510.13	4,844.95	7,806.40	7,742.29	64.11	121.766	
19,100.00	6,945.00	7,048.38	6,803.75	201.88	26.67	89.56	-1,510.13	4,844.95	7,905.68	7,841.56	64.12	123.294	
19,200.00	6,945.00	7,048.53	6,803.89	203.47	26.67	89.57	-1,510.14	4,844.95	8,004.97	7,940.84	64.13	124.817	
19,300.00	6,945.00	7,048.66	6,804.03	205.06	26.67	89.58	-1,510.14	4,844.95	8,104.29	8,040.14	64.15	126.335	
19,400.00	6,945.00	7,048.80	6,804.17	206.65	26.67	89.58	-1,510.15	4,844.95	8,203.62	8,139.45	64.17	127.849	
19,500.00	6,945.00	7,048.94	6,804.31	208.24	26.67	89.59	-1,510.15	4,844.95	8,302.96	8,238.78	64.19	129.357	
19,600.00	6,945.00	7,049.07	6,804.44	209.84	26.67	89.60	-1,510.15	4,844.95	8,402.33	8,338.12	64.21	130.861	
19,700.00	6,945.00	7,049.21	6,804.57	211.43	26.67	89.61	-1,510.16	4,844.95	8,501.70	8,437.47	64.23	132.360	
19,800.00	6,945.00	7,049.34	6,804.70	213.02	26.67	89.62	-1,510.16	4,844.95	8,601.09	8,536.84	64.26	133.854	
19,900.00	6,945.00	7,049.47	6,804.83	214.61	26.67	89.62	-1,510.17	4,844.95	8,700.50	8,636.21	64.28	135.344	
20,000.00	6,945.00	7,049.60	6,804.96	216.20	26.67	89.63	-1,510.17	4,844.95	8,799.92	8,735.60	64.31	136.828	
20,100.00	6,945.00	7,049.72	6,805.09	217.79	26.67	89.64	-1,510.17	4,844.95	8,899.35	8,835.01	64.34	138.307	
20,200.00	6,945.00	7,049.85	6,805.22	219.38	26.67	89.65	-1,510.18	4,844.95	8,998.79	8,934.42	64.38	139.781	
20,300.00	6,945.00	7,049.97	6,805.34	220.98	26.67	89.66	-1,510.18	4,844.95	9,098.25	9,033.84	64.41	141.250	
20,400.00	6,945.00	7,050.10	6,805.46	222.57	26.67	89.66	-1,510.18	4,844.95	9,197.72	9,133.27	64.45	142.715	
20,500.00	6,945.00	7,050.22	6,805.59	224.16	26.67	89.67	-1,510.19	4,844.95	9,297.20	9,232.71	64.49	144.174	
20,600.00	6,945.00	7,050.34	6,805.71	225.75	26.67	89.68	-1,510.19	4,844.95	9,396.69	9,332.16	64.53	145.628	
20,700.00	6,945.00	7,050.46	6,805.82	227.35	26.67	89.69	-1,510.20	4,844.95	9,496.19	9,431.63	64.57	147.077	
20,800.00	6,945.00	7,050.58	6,805.94	228.94	26.68	89.69	-1,510.20	4,844.95	9,595.70	9,531.10	64.61	148.521	
20,852.96	6,945.00	7,050.64	6,806.00	229.61	26.68	89.70	-1,510.20	4,844.95	9,648.41	9,579.91	68.50	140.853	

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:	Plan #4	**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
0.00	0.00	193.00	193.00	0.00	5.78	80.73	2,140.00	13,106.49	13,280.05				
20.93	20.93	213.93	213.93	0.00	6.41	-111.92	2,140.00	13,106.49	13,280.07				
117.41	117.41	310.41	310.41	0.05	9.30	-116.48	2,140.00	13,106.49	13,280.25	13,270.91	9.34	1,422.048	
206.68	206.68	399.68	399.68	0.17	11.98	-90.58	2,140.00	13,106.49	13,280.34	13,268.26	12.08	1,099.440	
292.93	292.93	485.93	485.93	0.28	14.56	-91.13	2,140.00	13,106.49	13,280.35	13,265.63	14.72	902.170	
365.00	364.99	558.10	557.99	0.36	16.72	-121.81	2,140.00	13,106.49	13,280.50	13,263.55	16.95	783.589	
451.00	450.97	644.07	643.97	0.55	19.30	-68.53	2,140.00	13,106.49	13,280.06	13,260.29	19.77	671.601	
540.00	539.81	732.91	732.81	0.83	21.96	-63.10	2,140.00	13,106.49	13,277.86	13,255.11	22.75	583.727	
665.00	664.37	876.61	876.45	1.26	26.27	-60.85	2,141.62	13,106.49	13,273.20	13,245.69	27.51	482.507	
753.00	752.01	979.98	979.79	1.58	29.36	-61.87	2,140.33	13,106.49	13,269.18	13,238.25	30.93	428.979	
847.00	845.61	1,039.02	1,038.61	1.93	31.13	-58.88	2,140.00	13,106.49	13,264.81	13,231.76	33.05	401.348	
939.00	937.22	1,130.62	1,130.22	2.27	33.88	-58.68	2,140.00	13,106.49	13,260.36	13,224.22	36.14	366.926	
1,030.00	1,027.78	1,221.18	1,220.78	2.62	36.59	-70.17	2,140.00	13,106.49	13,256.53	13,217.34	39.20	338.220	
1,120.00	1,117.25	1,321.66	1,321.21	2.96	39.60	-67.39	2,142.00	13,106.49	13,253.31	13,210.76	42.55	311.480	
1,211.00	1,207.68	1,428.63	1,428.15	3.31	42.81	-70.08	2,141.06	13,106.49	13,249.46	13,203.35	46.10	287.383	
1,306.00	1,302.14	1,540.54	1,540.02	3.68	46.16	-68.26	2,139.23	13,106.49	13,245.59	13,195.77	49.82	265.867	
1,400.00	1,395.63	1,589.35	1,588.63	4.04	47.62	-67.03	2,140.00	13,106.49	13,241.94	13,190.29	51.64	256.419	
1,495.00	1,490.19	1,683.90	1,683.19	4.40	50.46	-67.72	2,140.00	13,106.49	13,238.39	13,183.56	54.84	241.421	
1,589.00	1,583.83	1,782.66	1,781.91	4.76	53.42	-70.21	2,142.14	13,106.49	13,235.77	13,177.62	58.15	227.621	
1,684.00	1,678.44	1,894.89	1,894.11	5.12	56.78	-67.88	2,141.45	13,106.49	13,232.59	13,170.72	61.87	213.879	
1,779.00	1,772.98	2,007.20	2,006.39	5.48	60.14	-63.53	2,139.87	13,106.49	13,228.48	13,162.88	65.60	201.666	
1,873.00	1,866.49	2,060.51	2,059.49	5.84	61.74	-62.06	2,140.00	13,106.49	13,224.06	13,156.51	67.55	195.763	
1,967.00	1,960.05	2,154.06	2,153.05	6.20	64.55	-57.43	2,140.00	13,106.49	13,219.45	13,148.74	70.71	186.953	
2,062.00	2,054.59	2,248.60	2,247.59	6.56	67.38	-62.84	2,140.00	13,106.49	13,214.81	13,140.91	73.90	178.815	
2,156.00	2,148.09	2,359.58	2,358.51	6.92	70.70	-63.60	2,141.76	13,106.49	13,210.74	13,133.15	77.59	170.273	
2,251.00	2,242.55	2,472.14	2,471.03	7.29	74.08	-62.31	2,140.45	13,106.49	13,205.95	13,124.63	81.32	162.393	
2,345.00	2,336.00	2,530.32	2,529.00	7.65	75.82	-68.31	2,140.00	13,106.49	13,201.55	13,118.12	83.43	158.243	
2,440.00	2,430.43	2,624.75	2,623.43	8.02	78.65	-70.97	2,140.00	13,106.49	13,197.92	13,111.30	86.62	152.364	
2,535.00	2,524.86	2,719.18	2,717.86	8.38	81.48	-69.75	2,140.00	13,106.49	13,194.43	13,104.61	89.82	146.904	
2,629.00	2,618.31	2,824.79	2,823.42	8.75	84.64	-69.80	2,141.98	13,106.49	13,191.24	13,097.90	93.34	141.320	
2,724.00	2,712.77	2,937.71	2,936.32	9.12	88.03	-69.09	2,140.95	13,106.49	13,187.50	13,090.41	97.09	135.826	
2,818.00	2,806.24	3,000.86	2,999.24	9.48	89.92	-68.54	2,140.00	13,106.49	13,183.68	13,084.33	99.35	132.705	
2,913.00	2,900.71	3,095.34	3,093.71	9.84	92.75	-66.37	2,140.00	13,106.49	13,179.85	13,077.31	102.54	128.533	
3,008.00	2,995.25	3,189.87	3,188.25	10.21	95.58	-70.81	2,140.00	13,106.49	13,176.38	13,070.64	105.74	124.617	
3,102.00	3,088.80	3,290.06	3,288.39	10.57	98.59	-70.65	2,142.12	13,106.49	13,173.72	13,064.62	109.10	120.754	
3,197.00	3,183.30	3,403.39	3,401.69	10.93	101.98	-67.77	2,141.36	13,106.49	13,170.13	13,057.27	112.85	116.700	
3,291.00	3,276.71	3,515.62	3,513.89	11.30	105.34	-73.94	2,139.71	13,106.49	13,166.46	13,049.88	116.58	112.939	
3,386.00	3,371.01	3,565.94	3,564.01	11.67	106.85	-75.13	2,140.00	13,106.49	13,163.34	13,044.88	118.46	111.119	
3,480.00	3,464.23	3,659.16	3,657.23	12.04	109.65	-73.90	2,140.00	13,106.49	13,160.10	13,038.48	121.63	108.202	
3,575.00	3,558.47	3,754.12	3,752.15	12.42	112.49	-72.47	2,142.18	13,106.49	13,157.01	13,032.16	124.84	105.387	
3,670.00	3,652.84	3,867.73	3,865.74	12.79	115.89	-71.57	2,141.69	13,106.49	13,153.54	13,024.92	128.62	102.268	
3,764.00	3,746.36	3,980.52	3,978.49	13.15	119.27	-68.42	2,140.32	13,106.49	13,150.10	13,017.74	132.36	99.354	
3,859.00	3,840.97	4,036.21	4,033.97	13.51	120.94	-64.71	2,140.00	13,106.49	13,146.57	13,012.18	134.38	97.828	
3,954.00	3,935.57	4,130.80	4,128.57	13.87	123.78	-64.72	2,140.00	13,106.49	13,142.82	13,005.24	137.58	95.530	
4,049.00	4,030.14	4,225.37	4,223.14	14.23	126.61	-73.82	2,140.00	13,106.49	13,139.61	12,998.84	140.77	93.339	
4,143.00	4,123.75	4,333.34	4,331.05	14.59	129.85	-72.78	2,141.94	13,106.49	13,137.52	12,993.15	144.36	91.003	
4,238.00	4,218.33	4,447.72	4,445.40	14.95	133.27	-72.59	2,140.81	13,106.49	13,134.67	12,986.52	148.15	88.658	
4,333.00	4,312.74	4,508.27	4,505.74	15.32	135.09	-75.44	2,140.00	13,106.49	13,131.57	12,981.23	150.33	87.349	
4,427.00	4,406.05	4,601.59	4,599.05	15.69	137.88	-73.11	2,140.00	13,106.49	13,128.47	12,974.97	153.50	85.528	
4,522.00	4,500.34	4,695.88	4,693.34	16.06	140.71	-72.25	2,140.00	13,106.49	13,125.00	12,968.30	156.70	83.760	
4,616.00	4,593.47	4,797.33	4,794.75	16.44	143.75	-74.58	2,142.10	13,106.49	13,121.75	12,961.64	160.11	81.954	
4,710.00	4,686.44	4,910.26	4,907.65	16.82	147.13	-73.93	2,141.28	13,106.49	13,117.82	12,953.95	163.87	80.049	

CC - Min centre to center distance or 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:	Plan #4	**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
4,899.00	4,873.89	5,069.73	5,066.89	17.57	151.91	-67.62	2,140.00	13,106.49	13,109.74	12,940.34	169.40	77.390	
4,962.00	4,936.56	5,132.41	5,129.56	17.81	153.79	-65.26	2,140.00	13,106.49	13,107.19	12,935.67	171.52	76.419	
5,024.00	4,998.27	5,194.11	5,191.27	18.04	155.64	-69.06	2,140.00	13,106.49	13,104.84	12,931.23	173.60	75.488	
5,150.00	5,123.66	5,334.70	5,331.81	18.53	159.85	-68.12	2,141.93	13,106.49	13,100.70	12,922.41	178.29	73.478	
5,213.00	5,186.37	5,411.19	5,408.27	18.77	162.14	-70.53	2,141.27	13,106.49	13,098.47	12,917.65	180.82	72.438	
5,276.00	5,249.09	5,487.76	5,484.82	19.01	164.44	-69.67	2,140.20	13,106.49	13,096.26	12,912.90	183.36	71.425	
5,339.00	5,311.83	5,507.98	5,504.83	19.25	165.04	-70.60	2,140.00	13,106.49	13,094.19	12,909.99	184.20	71.085	
5,401.00	5,373.58	5,569.72	5,566.58	19.48	166.89	-68.12	2,140.00	13,106.49	13,092.22	12,905.93	186.29	70.279	
5,464.00	5,436.33	5,632.48	5,629.33	19.72	168.77	-70.84	2,140.00	13,106.49	13,090.27	12,901.86	188.41	69.479	
5,590.00	5,561.87	5,759.83	5,756.64	20.19	172.59	-72.21	2,142.18	13,106.49	13,087.27	12,894.57	192.70	67.917	
5,653.00	5,624.66	5,836.57	5,833.37	20.43	174.89	-73.57	2,141.92	13,106.49	13,085.69	12,890.46	195.23	67.027	
5,715.00	5,686.48	5,912.20	5,908.98	20.66	177.16	-78.54	2,141.26	13,106.49	13,084.43	12,886.70	197.73	66.174	
5,778.00	5,749.29	5,989.13	5,985.88	20.90	179.46	-75.88	2,140.18	13,106.49	13,083.18	12,882.92	200.27	65.329	
5,841.00	5,812.10	6,008.55	6,005.10	21.13	180.04	-78.18	2,140.00	13,106.49	13,081.97	12,880.89	201.09	65.057	
5,904.00	5,874.94	6,071.39	6,067.94	21.36	181.93	-72.89	2,140.00	13,106.49	13,080.84	12,877.64	203.20	64.373	
5,967.00	5,937.80	6,134.25	6,130.80	21.60	183.81	-71.37	2,140.00	13,106.49	13,079.56	12,874.24	205.32	63.704	
6,030.00	6,000.68	6,197.13	6,193.68	21.83	185.69	-73.30	2,140.00	13,106.49	13,078.39	12,870.95	207.43	63.049	
6,093.00	6,063.59	6,262.33	6,258.84	22.05	187.65	-69.65	2,142.17	13,106.49	13,077.74	12,868.12	209.61	62.389	
6,156.00	6,126.51	6,339.43	6,335.92	22.28	189.96	-64.38	2,141.90	13,106.49	13,076.45	12,864.30	212.15	61.637	
6,235.00	6,205.43	6,436.21	6,432.68	22.56	192.86	-64.71	2,140.97	13,106.49	13,074.81	12,859.47	215.33	60.719	
6,300.00	6,270.38	6,515.90	6,512.34	22.68	195.25	-64.71	2,139.71	13,106.49	13,073.53	12,855.69	217.84	60.015	
6,355.00	6,325.34	6,518.00	6,514.23	22.69	195.31	-64.71	2,140.00	13,106.49	13,072.59	12,854.68	217.91	59.990	
6,400.00	6,370.23	6,518.00	6,514.23	22.71	195.31	-32.11	2,140.00	13,106.49	13,070.40	12,852.48	217.93	59.977	
6,450.00	6,419.74	6,518.00	6,514.23	22.73	195.31	-24.75	2,140.00	13,106.49	13,064.56	12,846.62	217.94	59.945	
6,500.00	6,468.57	6,518.00	6,514.23	22.77	195.31	-22.05	2,140.00	13,106.49	13,055.15	12,837.19	217.96	59.897	
6,550.00	6,516.42	6,518.00	6,514.23	22.81	195.31	-20.83	2,140.00	13,106.49	13,042.23	12,824.24	217.98	59.831	
6,600.00	6,562.98	6,518.00	6,514.23	22.87	195.31	-20.31	2,140.00	13,106.49	13,025.86	12,807.85	218.01	59.749	
6,650.00	6,607.98	6,518.00	6,514.23	22.95	195.31	-20.22	2,140.00	13,106.49	13,006.14	12,788.10	218.04	59.650	
6,700.00	6,651.14	6,518.00	6,514.23	23.03	195.31	-20.45	2,140.00	13,106.49	12,983.18	12,765.10	218.08	59.534	
6,750.00	6,692.18	6,518.00	6,514.23	23.14	195.31	-20.96	2,140.00	13,106.49	12,957.09	12,738.97	218.12	59.404	
6,800.00	6,730.86	6,518.00	6,514.23	23.26	195.31	-21.73	2,140.00	13,106.49	12,928.02	12,709.85	218.16	59.258	
6,850.00	6,766.93	6,518.00	6,514.23	23.40	195.31	-22.80	2,140.00	13,106.49	12,896.13	12,677.91	218.22	59.098	
6,900.00	6,800.18	6,518.00	6,514.23	23.56	195.31	-24.20	2,140.00	13,106.49	12,861.60	12,643.32	218.27	58.925	
6,950.00	6,830.39	6,518.00	6,514.23	23.74	195.31	-26.00	2,140.00	13,106.49	12,824.61	12,606.28	218.33	58.739	
7,000.00	6,857.38	6,518.00	6,514.23	23.94	195.31	-28.33	2,140.00	13,106.49	12,785.39	12,566.99	218.40	58.542	
7,050.00	6,880.98	6,518.00	6,514.23	24.17	195.31	-31.33	2,140.00	13,106.49	12,744.15	12,525.68	218.47	58.335	
7,100.00	6,901.06	6,518.00	6,514.23	24.42	195.31	-35.24	2,140.00	13,106.49	12,701.13	12,482.59	218.54	58.119	
7,150.00	6,917.47	6,518.00	6,514.23	24.70	195.31	-40.39	2,140.00	13,106.49	12,656.57	12,437.96	218.61	57.895	
7,200.00	6,930.13	6,518.00	6,514.23	25.01	195.31	-47.28	2,140.00	13,106.49	12,610.74	12,392.05	218.69	57.665	
7,250.00	6,938.95	6,518.00	6,514.23	25.34	195.31	-56.51	2,140.00	13,106.49	12,563.91	12,345.14	218.77	57.430	
7,300.00	6,943.88	6,518.00	6,514.23	25.69	195.31	-68.58	2,140.00	13,106.49	12,516.37	12,297.51	218.85	57.191	
7,337.82	6,945.00	6,518.00	6,514.23	25.97	195.31	-79.56	2,140.00	13,106.49	12,480.09	12,261.18	218.91	57.009	
7,400.00	6,945.00	6,518.00	6,514.23	26.45	195.31	-78.71	2,140.00	13,106.49	12,420.16	12,201.15	219.01	56.710	
7,492.38	6,945.00	6,518.00	6,514.23	27.21	195.31	-77.17	2,140.00	13,106.49	12,330.53	12,111.38	219.15	56.265	
7,500.00	6,945.00	6,518.00	6,514.23	27.28	195.31	-77.17	2,140.00	13,106.49	12,323.11	12,103.95	219.16	56.228	
7,600.00	6,945.00	6,518.00	6,514.23	28.17	195.31	-77.17	2,140.00	13,106.49	12,225.77	12,006.46	219.31	55.747	
7,700.00	6,945.00	6,518.00	6,514.23	29.12	195.31	-77.17	2,140.00	13,106.49	12,128.46	11,909.00	219.47	55.264	
7,800.00	6,945.00	6,518.00	6,514.23	30.14	195.31	-77.17	2,140.00	13,106.49	12,031.20	11,811.57	219.63	54.779	
7,900.00	6,945.00	6,518.00	6,514.23	31.20	195.31	-77.17	2,140.00	13,106.49	11,933.99	11,714.18	219.80	54.294	
8,000.00	6,945.00	6,518.00	6,514.23	32.31	195.31	-77.17	2,140.00	13,106.49	11,836.82	11,616.83	219.99	53.807	
8,100.00	6,945.00	6,518.00	6,514.23	33.46	195.31	-77.17	2,140.00	13,106.49	11,739.70	11,519.52	220.18	53.319	
8,200.00	6,945.00	6,518.00	6,514.23	34.64	195.31	-77.17	2,140.00	13,106.49	11,642.63	11,422.25	220.38	52.830	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 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:	Plan #4	**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
8,300.00	6,945.00	6,518.00	6,514.23	35.86	195.31	-77.17	2,140.00	13,106.49	11,545.61	11,325.02	220.59	52.340	
8,400.00	6,945.00	6,518.00	6,514.23	37.11	195.31	-77.17	2,140.00	13,106.49	11,448.64	11,227.83	220.81	51.849	
8,500.00	6,945.00	6,518.00	6,514.23	38.39	195.31	-77.17	2,140.00	13,106.49	11,351.72	11,130.68	221.04	51.357	
8,600.00	6,945.00	6,518.00	6,514.23	39.69	195.31	-77.17	2,140.00	13,106.49	11,254.85	11,033.58	221.28	50.863	
8,700.00	6,945.00	6,518.00	6,514.23	41.01	195.31	-77.17	2,140.00	13,106.49	11,158.04	10,936.52	221.53	50.369	
8,800.00	6,945.00	6,518.00	6,514.23	42.35	195.31	-77.17	2,140.00	13,106.49	11,061.29	10,839.51	221.79	49.874	
8,900.00	6,945.00	6,518.00	6,514.23	43.71	195.31	-77.17	2,140.00	13,106.49	10,964.60	10,742.54	222.06	49.377	
9,000.00	6,945.00	6,518.00	6,514.23	45.08	195.31	-77.17	2,140.00	13,106.49	10,867.96	10,645.63	222.34	48.880	
9,100.00	6,945.00	6,518.00	6,514.23	46.47	195.31	-77.17	2,140.00	13,106.49	10,771.39	10,548.76	222.63	48.382	
9,200.00	6,945.00	6,518.00	6,514.23	47.87	195.31	-77.17	2,140.00	13,106.49	10,674.88	10,451.95	222.93	47.883	
9,300.00	6,945.00	6,518.00	6,514.23	49.29	195.31	-77.17	2,140.00	13,106.49	10,578.44	10,355.19	223.25	47.384	
9,400.00	6,945.00	6,518.00	6,514.23	50.71	195.31	-77.17	2,140.00	13,106.49	10,482.06	10,258.48	223.58	46.883	
9,500.00	6,945.00	6,518.00	6,514.23	52.15	195.31	-77.17	2,140.00	13,106.49	10,385.75	10,161.83	223.92	46.382	
9,600.00	6,945.00	6,518.00	6,514.23	53.59	195.31	-77.17	2,140.00	13,106.49	10,289.51	10,065.24	224.27	45.881	
9,700.00	6,945.00	6,518.00	6,514.23	55.05	195.31	-77.17	2,140.00	13,106.49	10,193.34	9,968.71	224.63	45.378	
9,800.00	6,945.00	6,518.00	6,514.23	56.51	195.31	-77.17	2,140.00	13,106.49	10,097.25	9,872.25	225.01	44.875	
9,900.00	6,945.00	6,518.00	6,514.23	57.98	195.31	-77.17	2,140.00	13,106.49	10,001.24	9,775.84	225.40	44.372	
10,000.00	6,945.00	6,518.00	6,514.23	59.45	195.31	-77.17	2,140.00	13,106.49	9,905.30	9,679.50	225.80	43.868	
10,100.00	6,945.00	6,518.00	6,514.23	60.93	195.31	-77.17	2,140.00	13,106.49	9,809.44	9,583.23	226.21	43.364	
10,200.00	6,945.00	6,518.00	6,514.23	62.42	195.31	-77.17	2,140.00	13,106.49	9,713.67	9,487.03	226.64	42.859	
10,300.00	6,945.00	6,518.00	6,514.23	63.92	195.31	-77.17	2,140.00	13,106.49	9,617.99	9,390.90	227.09	42.354	
10,400.00	6,945.00	6,518.00	6,514.23	65.42	195.31	-77.17	2,140.00	13,106.49	9,522.39	9,294.85	227.54	41.848	
10,500.00	6,945.00	6,518.00	6,514.23	66.92	195.31	-77.17	2,140.00	13,106.49	9,426.88	9,198.87	228.02	41.343	
10,600.00	6,945.00	6,518.00	6,514.23	68.43	195.31	-77.17	2,140.00	13,106.49	9,331.47	9,102.97	228.50	40.837	
10,700.00	6,945.00	6,518.00	6,514.23	69.94	195.31	-77.17	2,140.00	13,106.49	9,236.16	9,007.15	229.01	40.331	
10,800.00	6,945.00	6,518.00	6,514.23	71.45	195.31	-77.17	2,140.00	13,106.49	9,140.94	8,911.42	229.53	39.825	
10,900.00	6,945.00	6,518.00	6,514.23	72.97	195.31	-77.17	2,140.00	13,106.49	9,045.83	8,815.77	230.06	39.319	
11,000.00	6,945.00	6,518.00	6,514.23	74.50	195.31	-77.17	2,140.00	13,106.49	8,950.83	8,720.22	230.61	38.814	
11,100.00	6,945.00	6,518.00	6,514.23	76.02	195.31	-77.17	2,140.00	13,106.49	8,855.93	8,624.75	231.18	38.308	
11,200.00	6,945.00	6,518.00	6,514.23	77.55	195.31	-77.17	2,140.00	13,106.49	8,761.15	8,529.39	231.76	37.802	
11,300.00	6,945.00	6,518.00	6,514.23	79.08	195.31	-77.17	2,140.00	13,106.49	8,666.49	8,434.12	232.37	37.297	
11,400.00	6,945.00	6,518.00	6,514.23	80.62	195.31	-77.17	2,140.00	13,106.49	8,571.94	8,338.96	232.99	36.792	
11,500.00	6,945.00	6,518.00	6,514.23	82.16	195.31	-77.17	2,140.00	13,106.49	8,477.53	8,243.90	233.62	36.287	
11,600.00	6,945.00	6,518.00	6,514.23	83.70	195.31	-77.17	2,140.00	13,106.49	8,383.24	8,148.96	234.28	35.783	
11,700.00	6,945.00	6,518.00	6,514.23	85.24	195.31	-77.17	2,140.00	13,106.49	8,289.09	8,054.13	234.96	35.279	
11,800.00	6,945.00	6,518.00	6,514.23	86.78	195.31	-77.17	2,140.00	13,106.49	8,195.07	7,959.41	235.66	34.776	
11,900.00	6,945.00	6,518.00	6,514.23	88.33	195.31	-77.17	2,140.00	13,106.49	8,101.20	7,864.82	236.37	34.273	
12,000.00	6,945.00	6,518.00	6,514.23	89.87	195.31	-77.17	2,140.00	13,106.49	8,007.47	7,770.36	237.11	33.771	
12,100.00	6,945.00	6,518.00	6,514.23	91.42	195.31	-77.17	2,140.00	13,106.49	7,913.90	7,676.03	237.87	33.270	
12,200.00	6,945.00	6,518.00	6,514.23	92.98	195.31	-77.17	2,140.00	13,106.49	7,820.49	7,581.84	238.65	32.769	
12,300.00	6,945.00	6,518.00	6,514.23	94.53	195.31	-77.17	2,140.00	13,106.49	7,727.25	7,487.79	239.46	32.270	
12,400.00	6,945.00	6,518.00	6,514.23	96.08	195.31	-77.17	2,140.00	13,106.49	7,634.17	7,393.88	240.29	31.771	
12,500.00	6,945.00	6,518.00	6,514.23	97.64	195.31	-77.17	2,140.00	13,106.49	7,541.27	7,300.13	241.14	31.274	
12,600.00	6,945.00	6,518.00	6,514.23	99.20	195.31	-77.17	2,140.00	13,106.49	7,448.56	7,206.54	242.02	30.777	
12,700.00	6,945.00	6,518.00	6,514.23	100.76	195.31	-77.17	2,140.00	13,106.49	7,356.04	7,113.12	242.92	30.282	
12,800.00	6,945.00	6,518.00	6,514.23	102.32	195.31	-77.17	2,140.00	13,106.49	7,263.71	7,019.86	243.85	29.788	
12,900.00	6,945.00	6,518.00	6,514.23	103.88	195.31	-77.17	2,140.00	13,106.49	7,171.59	6,926.79	244.80	29.296	
13,000.00	6,945.00	6,518.00	6,514.23	105.44	195.31	-77.17	2,140.00	13,106.49	7,079.69	6,833.90	245.78	28.804	
13,100.00	6,945.00	6,518.00	6,514.23	107.00	195.31	-77.17	2,140.00	13,106.49	6,988.00	6,741.21	246.80	28.315	
13,200.00	6,945.00	6,518.00	6,514.23	108.57	195.31	-77.17	2,140.00	13,106.49	6,896.55	6,648.71	247.84	27.827	
13,300.00	6,945.00	6,518.00	6,514.23	110.13	195.31	-77.17	2,140.00	13,106.49	6,805.34	6,556.43	248.91	27.341	
13,400.00	6,945.00	6,518.00	6,514.23	111.70	195.31	-77.17	2,140.00	13,106.49	6,714.38	6,464.37	250.01	26.856	

CC - Min centre to center distance or 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:	Plan #4	**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
13,500.00	6,945.00	6,518.00	6,514.23	113.27	195.31	-77.17	2,140.00	13,106.49	6,623.68	6,372.53	251.15	26.374	
13,600.00	6,945.00	6,518.00	6,514.23	114.84	195.31	-77.17	2,140.00	13,106.49	6,533.25	6,280.93	252.32	25.893	
13,700.00	6,945.00	6,518.00	6,514.23	116.41	195.31	-77.17	2,140.00	13,106.49	6,443.10	6,189.59	253.52	25.415	
13,800.00	6,945.00	6,518.00	6,514.23	117.98	195.31	-77.17	2,140.00	13,106.49	6,353.25	6,098.50	254.76	24.939	
13,900.00	6,945.00	6,518.00	6,514.23	119.55	195.31	-77.17	2,140.00	13,106.49	6,263.71	6,007.68	256.03	24.465	
14,000.00	6,945.00	6,518.00	6,514.23	121.12	195.31	-77.17	2,140.00	13,106.49	6,174.49	5,917.14	257.34	23.993	
14,100.00	6,945.00	6,518.00	6,514.23	122.69	195.31	-77.17	2,140.00	13,106.49	6,085.60	5,826.90	258.70	23.524	
14,200.00	6,945.00	6,518.00	6,514.23	124.27	195.31	-77.17	2,140.00	13,106.49	5,997.06	5,736.97	260.09	23.058	
14,300.00	6,945.00	6,518.00	6,514.23	125.84	195.31	-77.17	2,140.00	13,106.49	5,908.89	5,647.37	261.52	22.594	
14,400.00	6,945.00	6,518.00	6,514.23	127.41	195.31	-77.17	2,140.00	13,106.49	5,821.10	5,558.10	263.00	22.134	
14,500.00	6,945.00	6,518.00	6,514.23	128.99	195.31	-77.17	2,140.00	13,106.49	5,733.71	5,469.19	264.52	21.676	
14,600.00	6,945.00	6,518.00	6,514.23	130.57	195.31	-77.17	2,140.00	13,106.49	5,646.74	5,380.66	266.08	21.222	
14,700.00	6,945.00	6,518.00	6,514.23	132.14	195.31	-77.17	2,140.00	13,106.49	5,560.21	5,292.51	267.70	20.770	
14,800.00	6,945.00	6,518.00	6,514.23	133.72	195.31	-77.17	2,140.00	13,106.49	5,474.13	5,204.77	269.36	20.323	
14,900.00	6,945.00	6,518.00	6,514.23	135.30	195.31	-77.17	2,140.00	13,106.49	5,388.54	5,117.47	271.07	19.879	
15,000.00	6,945.00	6,518.00	6,514.23	136.87	195.31	-77.17	2,140.00	13,106.49	5,303.45	5,030.62	272.83	19.438	
15,100.00	6,945.00	6,518.00	6,514.23	138.45	195.31	-77.17	2,140.00	13,106.49	5,218.89	4,944.24	274.65	19.002	
15,200.00	6,945.00	6,518.00	6,514.23	140.03	195.31	-77.17	2,140.00	13,106.49	5,134.89	4,858.37	276.52	18.569	
15,300.00	6,945.00	6,518.00	6,514.23	141.61	195.31	-77.17	2,140.00	13,106.49	5,051.47	4,773.02	278.45	18.141	
15,400.00	6,945.00	6,518.00	6,514.23	143.19	195.31	-77.17	2,140.00	13,106.49	4,968.66	4,688.22	280.44	17.718	
15,500.00	6,945.00	6,518.00	6,514.23	144.77	195.31	-77.17	2,140.00	13,106.49	4,886.49	4,604.01	282.48	17.298	
15,600.00	6,945.00	6,518.00	6,514.23	146.35	195.31	-77.17	2,140.00	13,106.49	4,805.00	4,520.41	284.59	16.884	
15,700.00	6,945.00	6,518.00	6,514.23	147.94	195.31	-77.17	2,140.00	13,106.49	4,724.22	4,437.46	286.76	16.475	
15,800.00	6,945.00	6,518.00	6,514.23	149.52	195.31	-77.17	2,140.00	13,106.49	4,644.19	4,355.20	288.99	16.070	
15,900.00	6,945.00	6,518.00	6,514.23	151.10	195.31	-77.17	2,140.00	13,106.49	4,564.94	4,273.66	291.29	15.672	
16,000.00	6,945.00	6,518.00	6,514.23	152.68	195.31	-77.17	2,140.00	13,106.49	4,486.53	4,192.88	293.65	15.278	
16,100.00	6,945.00	6,518.00	6,514.23	154.26	195.31	-77.17	2,140.00	13,106.49	4,408.99	4,112.90	296.09	14.891	
16,200.00	6,945.00	6,518.00	6,514.23	155.85	195.31	-77.17	2,140.00	13,106.49	4,332.37	4,033.78	298.59	14.510	
16,300.00	6,945.00	6,518.00	6,514.23	157.43	195.31	-77.17	2,140.00	13,106.49	4,256.72	3,955.56	301.16	14.135	
16,400.00	6,945.00	6,518.00	6,514.23	159.02	195.31	-77.17	2,140.00	13,106.49	4,182.09	3,878.29	303.80	13.766	
16,500.00	6,945.00	6,518.00	6,514.23	160.60	195.31	-77.17	2,140.00	13,106.49	4,108.54	3,802.03	306.51	13.404	
16,600.00	6,945.00	6,518.00	6,514.23	162.18	195.31	-77.17	2,140.00	13,106.49	4,036.13	3,726.84	309.29	13.050	
16,700.00	6,945.00	6,518.00	6,514.23	163.77	195.31	-77.17	2,140.00	13,106.49	3,964.92	3,652.77	312.14	12.702	
16,800.00	6,945.00	6,518.00	6,514.23	165.35	195.31	-77.17	2,140.00	13,106.49	3,894.97	3,579.91	315.07	12.362	
16,900.00	6,945.00	6,518.00	6,514.23	166.94	195.31	-77.17	2,140.00	13,106.49	3,826.36	3,508.31	318.05	12.031	
17,000.00	6,945.00	6,518.00	6,514.23	168.53	195.31	-77.17	2,140.00	13,106.49	3,759.16	3,438.05	321.11	11.707	
17,100.00	6,945.00	6,518.00	6,514.23	170.11	195.31	-77.17	2,140.00	13,106.49	3,693.44	3,369.21	324.23	11.391	
17,200.00	6,945.00	6,518.00	6,514.23	171.70	195.31	-77.17	2,140.00	13,106.49	3,629.29	3,301.88	327.41	11.085	
17,300.00	6,945.00	6,518.00	6,514.23	173.29	195.31	-77.17	2,140.00	13,106.49	3,566.79	3,236.14	330.64	10.787	
17,400.00	6,945.00	6,518.00	6,514.23	174.87	195.31	-77.17	2,140.00	13,106.49	3,506.02	3,172.09	333.93	10.499	
17,500.00	6,945.00	6,518.00	6,514.23	176.46	195.31	-77.17	2,140.00	13,106.49	3,447.09	3,109.83	337.26	10.221	
17,600.00	6,945.00	6,518.00	6,514.23	178.05	195.31	-77.17	2,140.00	13,106.49	3,390.08	3,049.45	340.63	9.952	
17,700.00	6,945.00	6,518.00	6,514.23	179.63	195.31	-77.17	2,140.00	13,106.49	3,335.10	2,991.07	344.03	9.694	
17,800.00	6,945.00	6,518.00	6,514.23	181.22	195.31	-77.17	2,140.00	13,106.49	3,282.24	2,934.79	347.45	9.447	
17,900.00	6,945.00	6,518.00	6,514.23	182.81	195.31	-77.17	2,140.00	13,106.49	3,231.62	2,880.74	350.88	9.210	
18,000.00	6,945.00	6,518.00	6,514.23	184.40	195.31	-77.17	2,140.00	13,106.49	3,183.33	2,829.02	354.31	8.985	
18,100.00	6,945.00	6,518.00	6,514.23	185.99	195.31	-77.17	2,140.00	13,106.49	3,137.49	2,779.76	357.73	8.771	
18,200.00	6,945.00	6,518.00	6,514.23	187.58	195.31	-77.17	2,140.00	13,106.49	3,094.20	2,733.08	361.12	8.568	
18,300.00	6,945.00	6,518.00	6,514.23	189.16	195.31	-77.17	2,140.00	13,106.49	3,053.57	2,689.11	364.46	8.378	
18,400.00	6,945.00	6,518.00	6,514.23	190.75	195.31	-77.17	2,140.00	13,106.49	3,015.71	2,647.97	367.74	8.201	
18,500.00	6,945.00	6,518.00	6,514.23	192.34	195.31	-77.17	2,140.00	13,106.49	2,980.73	2,609.79	370.94	8.036	
18,600.00	6,945.00	6,518.00	6,514.23	193.93	195.31	-77.17	2,140.00	13,106.49	2,948.73	2,574.67	374.05	7.883	

CC - Min centre to center distance or 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:	Plan #4	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Rule Assigned:

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
18,700.00	6,945.00	6,518.00	6,514.23	195.52	195.31	-77.17	2,140.00	13,106.49	2,919.80	2,542.75	377.05	7.744	
18,800.00	6,945.00	6,518.00	6,514.23	197.11	195.31	-77.17	2,140.00	13,106.49	2,894.04	2,514.13	379.91	7.618	
18,900.00	6,945.00	6,518.00	6,514.23	198.70	195.31	-77.17	2,140.00	13,106.49	2,871.53	2,488.91	382.62	7.505	
19,000.00	6,945.00	6,518.00	6,514.23	200.29	195.31	-77.17	2,140.00	13,106.49	2,852.35	2,467.19	385.16	7.406	
19,100.00	6,945.00	6,518.00	6,514.23	201.88	195.31	-77.17	2,140.00	13,106.49	2,836.58	2,449.05	387.52	7.320	
19,200.00	6,945.00	6,518.00	6,514.23	203.47	195.31	-77.17	2,140.00	13,106.49	2,824.25	2,434.57	389.68	7.248	
19,300.00	6,945.00	6,518.00	6,514.23	205.06	195.31	-77.17	2,140.00	13,106.49	2,815.43	2,423.80	391.62	7.189	
19,400.00	6,945.00	6,518.00	6,514.23	206.65	195.31	-77.17	2,140.00	13,106.49	2,810.13	2,416.79	393.34	7.144	
19,498.84	6,945.00	6,518.00	6,514.23	208.23	195.31	-77.17	2,140.00	13,106.49	2,808.40	2,413.59	394.81	7.113	CC
19,500.00	6,945.00	6,518.00	6,514.23	208.24	195.31	-77.17	2,140.00	13,106.49	2,808.40	2,413.57	394.83	7.113	ES
19,600.00	6,945.00	6,518.00	6,514.23	209.84	195.31	-77.17	2,140.00	13,106.49	2,810.22	2,414.15	396.07	7.095	
19,700.00	6,945.00	6,518.00	6,514.23	211.43	195.31	-77.17	2,140.00	13,106.49	2,815.59	2,418.52	397.07	7.091	SF
19,800.00	6,945.00	6,518.00	6,514.23	213.02	195.31	-77.17	2,140.00	13,106.49	2,824.50	2,426.67	397.82	7.100	
19,900.00	6,945.00	6,518.00	6,514.23	214.61	195.31	-77.17	2,140.00	13,106.49	2,836.90	2,438.57	398.33	7.122	
20,000.00	6,945.00	6,518.00	6,514.23	216.20	195.31	-77.17	2,140.00	13,106.49	2,852.76	2,454.16	398.60	7.157	
20,100.00	6,945.00	6,518.00	6,514.23	217.79	195.31	-77.17	2,140.00	13,106.49	2,872.02	2,473.38	398.64	7.205	
20,200.00	6,945.00	6,518.00	6,514.23	219.38	195.31	-77.17	2,140.00	13,106.49	2,894.60	2,496.15	398.45	7.265	
20,300.00	6,945.00	6,518.00	6,514.23	220.98	195.31	-77.17	2,140.00	13,106.49	2,920.44	2,522.38	398.06	7.337	
20,400.00	6,945.00	6,518.00	6,514.23	222.57	195.31	-77.17	2,140.00	13,106.49	2,949.44	2,551.98	397.46	7.421	
20,500.00	6,945.00	6,518.00	6,514.23	224.16	195.31	-77.17	2,140.00	13,106.49	2,981.51	2,584.84	396.67	7.516	
20,600.00	6,945.00	6,518.00	6,514.23	225.75	195.31	-77.17	2,140.00	13,106.49	3,016.56	2,620.85	395.71	7.623	
20,700.00	6,945.00	6,518.00	6,514.23	227.35	195.31	-77.17	2,140.00	13,106.49	3,054.49	2,659.89	394.59	7.741	
20,800.00	6,945.00	6,518.00	6,514.23	228.94	195.31	-77.17	2,140.00	13,106.49	3,095.18	2,701.84	393.33	7.869	
20,852.96	6,945.00	6,518.00	6,514.23	229.61	195.31	-77.17	2,140.00	13,106.49	3,117.81	2,725.28	392.53	7.943	

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:	Plan #4	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 100-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	0.00	0.00	0.00	0.00	106.32	-891.81	3,046.60	3,175.09				
20.93	20.93	0.00	0.00	0.00	0.00	-86.34	-891.81	3,046.60	3,174.74				
76.95	76.95	12.64	12.64	0.03	0.02	-88.77	-891.81	3,046.60	3,174.43	3,174.39	0.04	N/A	
117.41	117.41	52.12	52.12	0.05	0.09	-90.89	-891.86	3,046.60	3,174.44	3,174.32	0.12	N/A	
206.68	206.68	139.86	139.86	0.17	0.31	-64.99	-892.16	3,046.57	3,174.42	3,174.02	0.41	7,751.218	
292.93	292.93	228.39	228.39	0.28	0.63	-65.54	-892.72	3,046.49	3,174.27	3,173.48	0.79	4,023.117	
365.00	364.99	307.84	307.83	0.36	0.90	-96.22	-893.34	3,046.22	3,174.10	3,172.97	1.14	2,793.667	
451.00	450.97	397.22	397.21	0.55	1.22	-42.96	-894.12	3,045.74	3,172.68	3,170.98	1.70	1,870.548	
540.00	539.81	487.60	487.58	0.83	1.53	-37.56	-894.97	3,045.17	3,168.35	3,166.02	2.33	1,362.191	
665.00	664.37	613.28	613.25	1.26	1.98	-35.34	-896.26	3,044.28	3,159.44	3,156.22	3.22	982.383	
753.00	752.01	701.82	701.79	1.58	2.29	-36.40	-897.19	3,043.62	3,152.60	3,148.75	3.84	819.935	
847.00	845.61	793.86	793.82	1.93	2.61	-33.45	-898.06	3,042.97	3,145.13	3,140.62	4.51	697.609	
939.00	937.22	883.01	882.96	2.27	2.92	-33.28	-898.81	3,042.44	3,137.65	3,132.50	5.16	608.562	
1,030.00	1,027.78	974.35	974.30	2.62	3.24	-44.89	-899.47	3,041.95	3,130.47	3,124.66	5.81	538.822	
1,120.00	1,117.25	1,066.53	1,066.48	2.96	3.56	-42.16	-900.04	3,041.43	3,123.02	3,116.56	6.47	482.867	
1,211.00	1,207.68	1,158.86	1,158.80	3.31	3.89	-44.93	-900.56	3,040.84	3,115.21	3,108.07	7.13	436.847	
1,306.00	1,302.14	1,254.07	1,254.02	3.68	4.22	-43.18	-900.89	3,040.25	3,107.45	3,099.63	7.82	397.448	
1,400.00	1,395.63	1,345.81	1,345.75	4.04	4.54	-42.03	-900.97	3,039.75	3,099.82	3,091.33	8.49	365.111	
1,495.00	1,490.19	1,438.70	1,438.64	4.40	4.87	-42.79	-900.93	3,039.37	3,092.66	3,083.49	9.17	337.330	
1,589.00	1,583.83	1,532.86	1,532.80	4.76	5.20	-45.34	-900.84	3,038.98	3,086.31	3,076.46	9.85	313.484	
1,684.00	1,678.44	1,626.48	1,626.42	5.12	5.52	-43.09	-900.82	3,038.60	3,079.77	3,069.24	10.53	292.592	
1,779.00	1,772.98	1,720.97	1,720.90	5.48	5.85	-38.80	-900.92	3,038.19	3,072.29	3,061.08	11.21	274.037	
1,873.00	1,866.49	1,814.06	1,814.00	5.84	6.18	-37.40	-901.02	3,037.80	3,064.41	3,052.52	11.89	257.785	
1,967.00	1,960.05	1,909.22	1,909.16	6.20	6.51	-32.81	-901.14	3,037.38	3,056.57	3,044.00	12.57	243.195	
2,062.00	2,054.59	2,006.37	2,006.31	6.56	6.85	-38.32	-901.24	3,036.87	3,048.54	3,035.28	13.26	229.897	
2,156.00	2,148.09	2,100.32	2,100.25	6.92	7.18	-39.14	-901.35	3,036.34	3,040.47	3,026.52	13.94	218.106	
2,251.00	2,242.55	2,198.36	2,198.29	7.29	7.53	-37.92	-901.54	3,035.69	3,032.02	3,017.38	14.64	207.126	
2,345.00	2,336.00	2,291.01	2,290.94	7.65	7.85	-44.05	-901.85	3,035.00	3,023.70	3,008.39	15.32	197.422	
2,440.00	2,430.43	2,383.89	2,383.81	8.02	8.18	-46.80	-902.25	3,034.32	3,015.83	2,999.83	16.00	188.495	
2,535.00	2,524.86	2,472.98	2,472.91	8.38	8.49	-45.66	-902.61	3,033.77	3,008.18	2,991.51	16.67	180.445	
2,629.00	2,618.31	2,558.78	2,558.70	8.75	8.79	-45.77	-902.99	3,033.42	3,000.79	2,983.46	17.33	173.187	
2,724.00	2,712.77	2,649.07	2,648.99	9.12	9.11	-45.13	-903.46	3,033.27	2,993.59	2,975.59	18.00	166.301	
2,818.00	2,806.24	2,741.78	2,741.70	9.48	9.43	-44.68	-904.01	3,033.13	2,986.51	2,967.84	18.68	159.887	
2,913.00	2,900.71	2,834.82	2,834.74	9.84	9.76	-42.58	-904.62	3,033.03	2,979.34	2,959.98	19.36	153.882	
3,008.00	2,995.25	2,929.78	2,929.69	10.21	10.09	-47.10	-905.37	3,032.92	2,972.71	2,952.67	20.05	148.277	
3,102.00	3,088.80	3,030.19	3,030.10	10.57	10.44	-47.02	-906.25	3,032.67	2,966.41	2,945.66	20.75	142.956	
3,197.00	3,183.30	3,133.93	3,133.84	10.93	10.80	-44.22	-907.04	3,032.10	2,959.23	2,937.76	21.47	137.838	
3,291.00	3,276.71	3,229.05	3,228.95	11.30	11.14	-50.53	-907.56	3,031.44	2,951.63	2,929.47	22.16	133.206	
3,386.00	3,371.01	3,320.19	3,320.09	11.67	11.46	-51.87	-907.79	3,030.92	2,943.90	2,921.05	22.84	128.873	
3,480.00	3,464.23	3,410.48	3,410.38	12.04	11.77	-50.78	-907.79	3,030.57	2,935.98	2,912.46	23.52	124.809	
3,575.00	3,558.47	3,508.15	3,508.05	12.42	12.11	-49.44	-907.61	3,030.20	2,927.86	2,903.63	24.23	120.826	
3,670.00	3,652.84	3,602.00	3,601.90	12.79	12.44	-48.64	-907.36	3,029.82	2,920.22	2,895.30	24.92	117.165	
3,764.00	3,746.36	3,694.20	3,694.09	13.15	12.76	-45.55	-907.20	3,029.45	2,913.38	2,887.78	25.60	113.796	
3,859.00	3,840.97	3,780.26	3,780.15	13.51	13.06	-41.90	-907.63	3,029.13	2,906.94	2,880.68	26.26	110.703	
3,954.00	3,935.57	3,853.09	3,852.97	13.87	13.32	-41.95	-908.71	3,029.04	2,900.62	2,873.75	26.87	107.943	
4,049.00	4,030.14	3,927.04	3,926.91	14.23	13.58	-51.11	-910.08	3,029.56	2,895.40	2,867.91	27.49	105.328	
4,143.00	4,123.75	4,000.00	3,999.85	14.59	13.83	-50.09	-911.69	3,030.35	2,891.43	2,863.33	28.10	102.904	
4,238.00	4,218.33	4,084.18	4,084.00	14.95	14.13	-49.95	-913.76	3,031.68	2,887.64	2,858.89	28.75	100.441	
4,333.00	4,312.74	4,156.50	4,156.26	15.32	14.38	-52.87	-915.68	3,033.35	2,883.73	2,854.36	29.37	98.202	
4,427.00	4,406.05	4,230.05	4,229.75	15.69	14.64	-50.60	-917.82	3,035.61	2,880.04	2,850.05	29.98	96.054	
4,522.00	4,500.34	4,309.83	4,309.43	16.06	14.92	-49.80	-920.44	3,038.48	2,876.57	2,845.95	30.63	93.923	
4,616.00	4,593.47	4,400.00	4,399.48	16.44	15.23	-52.20	-923.53	3,042.00	2,872.77	2,841.47	31.31	91.758	

CC - Min centre to center distance or 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:	Plan #4	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 100-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
4,710.00	4,686.44	4,489.99	4,489.35	16.82	15.55	-51.64	-926.63	3,045.64	2,868.53	2,836.53	31.99	89.660	
4,899.00	4,873.89	4,687.72	4,686.80	17.57	16.25	-45.54	-933.53	3,053.35	2,861.19	2,827.78	33.42	85.622	
4,962.00	4,936.56	4,757.87	4,756.86	17.81	16.49	-43.23	-936.02	3,055.86	2,859.27	2,825.37	33.90	84.346	
5,024.00	4,998.27	4,827.02	4,825.94	18.04	16.74	-47.06	-938.49	3,058.15	2,857.42	2,823.05	34.37	83.127	
5,150.00	5,123.66	4,962.73	4,961.48	18.53	17.21	-46.17	-943.74	3,062.12	2,853.47	2,818.14	35.32	80.782	
5,213.00	5,186.37	5,028.26	5,026.93	18.77	17.44	-48.59	-946.46	3,063.87	2,851.53	2,815.74	35.79	79.676	
5,276.00	5,249.09	5,092.86	5,091.46	19.01	17.67	-47.75	-949.19	3,065.54	2,849.63	2,813.38	36.25	78.606	
5,339.00	5,311.83	5,155.38	5,153.90	19.25	17.89	-48.72	-951.85	3,067.14	2,847.88	2,811.17	36.71	77.584	
5,401.00	5,373.58	5,217.47	5,215.91	19.48	18.11	-46.25	-954.44	3,068.75	2,846.15	2,808.99	37.16	76.600	
5,464.00	5,436.33	5,282.78	5,281.15	19.72	18.34	-48.99	-957.12	3,070.41	2,844.45	2,806.83	37.62	75.611	
5,590.00	5,561.87	5,411.08	5,409.30	20.19	18.79	-50.38	-962.42	3,073.56	2,841.45	2,802.91	38.54	73.729	
5,653.00	5,624.66	5,475.06	5,473.21	20.43	19.01	-51.75	-965.09	3,075.09	2,840.12	2,801.12	39.00	72.828	
5,715.00	5,686.48	5,538.58	5,536.65	20.66	19.24	-56.74	-967.70	3,076.58	2,839.25	2,799.80	39.45	71.972	
5,778.00	5,749.29	5,603.42	5,601.42	20.90	19.46	-54.09	-970.39	3,078.07	2,838.39	2,798.48	39.91	71.119	
5,841.00	5,812.10	5,667.17	5,665.10	21.13	19.69	-56.42	-973.02	3,079.50	2,837.45	2,797.09	40.37	70.291	
5,904.00	5,874.94	5,730.40	5,728.27	21.36	19.91	-51.15	-975.60	3,080.90	2,836.61	2,795.79	40.82	69.488	
5,967.00	5,937.80	5,793.08	5,790.88	21.60	20.13	-49.63	-978.13	3,082.31	2,835.77	2,794.50	41.27	68.710	
6,030.00	6,000.68	5,854.88	5,852.61	21.83	20.35	-51.56	-980.58	3,083.72	2,835.19	2,793.47	41.72	67.962	
6,093.00	6,063.59	5,917.79	5,915.45	22.05	20.57	-47.90	-983.00	3,085.19	2,834.86	2,792.69	42.17	67.231	
6,156.00	6,126.51	5,984.04	5,981.64	22.28	20.80	-42.63	-985.56	3,086.69	2,834.46	2,791.83	42.62	66.499	
6,235.00	6,205.43	6,065.12	6,062.64	22.56	21.08	-42.94	-988.73	3,088.44	2,834.13	2,790.94	43.19	65.621	
6,300.00	6,270.38	6,129.85	6,127.31	22.68	21.31	-42.92	-991.25	3,089.81	2,834.09	2,790.56	43.53	65.101	
6,330.61	6,300.97	6,159.51	6,156.93	22.69	21.41	-42.92	-992.38	3,090.45	2,834.09	2,790.45	43.64	64.940	
6,355.00	6,325.34	6,183.14	6,180.54	22.69	21.50	-42.92	-993.26	3,090.98	2,834.09	2,790.36	43.73	64.814	
6,400.00	6,370.23	6,226.32	6,223.69	22.71	21.65	-10.24	-994.82	3,091.96	2,832.54	2,788.65	43.88	64.546	
6,450.00	6,419.74	6,273.78	6,271.10	22.73	21.81	-2.67	-996.43	3,093.10	2,827.15	2,783.09	44.06	64.168	
6,500.00	6,468.57	6,321.16	6,318.45	22.77	21.98	0.39	-997.91	3,094.29	2,817.94	2,773.70	44.23	63.705	
6,550.00	6,516.42	6,368.28	6,365.53	22.81	22.14	2.11	-999.30	3,095.51	2,804.95	2,760.54	44.41	63.161	
6,600.00	6,562.98	6,415.67	6,412.89	22.87	22.31	3.31	-1,000.60	3,096.78	2,788.25	2,743.66	44.59	62.534	
6,650.00	6,607.98	6,464.61	6,461.79	22.95	22.48	4.26	-1,001.79	3,098.07	2,767.90	2,723.12	44.77	61.821	
6,700.00	6,651.14	6,513.82	6,510.98	23.03	22.65	5.13	-1,002.82	3,099.33	2,744.00	2,699.04	44.96	61.032	
6,750.00	6,692.18	6,566.99	6,564.12	23.14	22.84	5.99	-1,003.67	3,100.56	2,716.62	2,671.46	45.16	60.154	
6,800.00	6,730.86	6,617.40	6,614.52	23.26	23.01	6.91	-1,004.20	3,101.57	2,685.92	2,640.57	45.35	59.223	
6,850.00	6,766.93	6,665.03	6,662.15	23.40	23.18	7.95	-1,004.50	3,102.36	2,652.11	2,606.57	45.53	58.244	
6,900.00	6,800.18	6,708.72	6,705.83	23.56	23.33	9.17	-1,004.61	3,102.94	2,615.42	2,569.72	45.70	57.227	
6,950.00	6,830.39	6,744.91	6,742.02	23.74	23.46	10.67	-1,004.62	3,103.33	2,576.15	2,530.30	45.84	56.194	
7,000.00	6,857.38	6,777.66	6,774.77	23.94	23.57	12.59	-1,004.59	3,103.61	2,534.56	2,488.59	45.97	55.133	
7,050.00	6,880.98	6,806.20	6,803.30	24.17	23.67	15.13	-1,004.52	3,103.81	2,490.95	2,444.87	46.08	54.055	
7,100.00	6,901.06	6,829.09	6,826.19	24.42	23.75	18.64	-1,004.45	3,103.94	2,445.61	2,399.44	46.17	52.970	
7,150.00	6,917.47	6,847.99	6,845.09	24.70	23.81	23.78	-1,004.37	3,104.03	2,398.84	2,352.60	46.24	51.878	
7,200.00	6,930.13	6,862.55	6,859.65	25.01	23.86	31.79	-1,004.31	3,104.09	2,350.94	2,304.65	46.29	50.787	
7,250.00	6,938.95	6,872.70	6,869.81	25.34	23.90	45.08	-1,004.26	3,104.13	2,302.22	2,255.90	46.32	49.702	
7,300.00	6,943.88	6,878.42	6,875.53	25.69	23.92	67.17	-1,004.23	3,104.15	2,252.98	2,206.65	46.33	48.629	
7,337.82	6,945.00	6,879.80	6,876.91	25.97	23.92	89.29	-1,004.22	3,104.15	2,215.59	2,169.27	46.32	47.829	
7,400.00	6,945.00	6,880.00	6,877.10	26.45	23.92	89.41	-1,004.22	3,104.15	2,154.23	2,107.93	46.30	46.527	
7,492.38	6,945.00	6,880.30	6,877.40	27.21	23.92	89.53	-1,004.22	3,104.15	2,063.61	2,017.35	46.26	44.607	
7,500.00	6,945.00	6,880.32	6,877.43	27.28	23.93	89.54	-1,004.22	3,104.15	2,056.18	2,009.92	46.26	44.450	
7,600.00	6,945.00	6,880.65	6,877.76	28.17	23.93	89.58	-1,004.22	3,104.16	1,958.64	1,912.42	46.22	42.377	
7,700.00	6,945.00	6,880.98	6,878.08	29.12	23.93	89.62	-1,004.22	3,104.16	1,861.36	1,815.17	46.19	40.296	
7,800.00	6,945.00	6,881.30	6,878.41	30.14	23.93	89.66	-1,004.21	3,104.16	1,764.38	1,718.21	46.18	38.208	
7,900.00	6,945.00	6,881.62	6,878.73	31.20	23.93	89.71	-1,004.21	3,104.16	1,667.77	1,621.58	46.18	36.111	
8,000.00	6,945.00	6,881.94	6,879.04	32.31	23.93	89.75	-1,004.21	3,104.16	1,571.57	1,525.35	46.22	34.003	

CC - Min centre to center distance or 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:	Plan #4	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #080 - OH - OH-SVY — **Offset Site Error:** 0.00 usft

Survey Program: 100-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
8,100.00	6,945.00	6,882.25	6,879.36	33.46	23.93	89.79	-1,004.21	3,104.16	1,475.88	1,429.59	46.29	31.881	
8,200.00	6,945.00	6,882.56	6,879.67	34.64	23.93	89.83	-1,004.21	3,104.16	1,380.81	1,334.39	46.42	29.745	
8,300.00	6,945.00	6,882.87	6,879.98	35.86	23.93	89.87	-1,004.20	3,104.16	1,286.48	1,239.85	46.62	27.592	
8,400.00	6,945.00	6,883.18	6,880.28	37.11	23.93	89.91	-1,004.20	3,104.16	1,193.07	1,146.14	46.93	25.421	
8,500.00	6,945.00	6,883.48	6,880.59	38.39	23.94	89.95	-1,004.20	3,104.16	1,100.82	1,053.43	47.39	23.229	
8,600.00	6,945.00	6,883.78	6,880.89	39.69	23.94	89.99	-1,004.20	3,104.16	1,010.05	962.00	48.05	21.021	
8,700.00	6,945.00	6,884.08	6,881.18	41.01	23.94	90.02	-1,004.20	3,104.17	921.20	872.20	48.99	18.802	
8,800.00	6,945.00	6,884.37	6,881.48	42.35	23.94	90.06	-1,004.20	3,104.17	834.86	784.54	50.33	16.589	
8,900.00	6,945.00	6,884.67	6,881.77	43.71	23.94	90.10	-1,004.19	3,104.17	751.92	699.74	52.18	14.409	
9,000.00	6,945.00	6,884.95	6,882.06	45.08	23.94	90.14	-1,004.19	3,104.17	673.63	618.92	54.72	12.311	
9,100.00	6,945.00	6,885.24	6,882.35	46.47	23.94	90.17	-1,004.19	3,104.17	601.81	543.74	58.07	10.364	
9,200.00	6,945.00	6,885.53	6,882.63	47.87	23.94	90.21	-1,004.19	3,104.17	539.05	476.77	62.28	8.655	
9,300.00	6,945.00	6,885.81	6,882.91	49.29	23.94	90.25	-1,004.19	3,104.17	488.84	421.71	67.13	7.282	
9,400.00	6,945.00	6,886.09	6,883.19	50.71	23.94	90.28	-1,004.19	3,104.17	455.36	383.42	71.94	6.329	
9,500.00	6,945.00	6,886.36	6,883.47	52.15	23.95	90.32	-1,004.19	3,104.17	442.44	366.79	75.65	5.848	
9,508.04	6,945.00	6,886.38	6,883.49	52.26	23.95	90.32	-1,004.19	3,104.17	442.36	366.49	75.87	5.831	CC, ES, SF
9,600.00	6,945.00	6,886.64	6,883.74	53.59	23.95	90.35	-1,004.18	3,104.17	451.82	374.46	77.36	5.841	
9,700.00	6,945.00	6,886.91	6,884.01	55.05	23.95	90.39	-1,004.18	3,104.17	482.22	405.19	77.03	6.261	
9,800.00	6,945.00	6,887.18	6,884.28	56.51	23.95	90.42	-1,004.18	3,104.17	530.03	454.70	75.32	7.037	
9,900.00	6,945.00	6,887.44	6,884.55	57.98	23.95	90.46	-1,004.18	3,104.17	591.03	518.00	73.04	8.092	
10,000.00	6,945.00	6,887.71	6,884.81	59.45	23.95	90.49	-1,004.18	3,104.18	661.60	590.92	70.68	9.361	
10,100.00	6,945.00	6,887.97	6,885.08	60.93	23.95	90.53	-1,004.18	3,104.18	738.99	670.49	68.50	10.788	
10,200.00	6,945.00	6,888.23	6,885.34	62.42	23.95	90.56	-1,004.17	3,104.18	821.28	754.69	66.59	12.334	
10,300.00	6,945.00	6,888.49	6,885.59	63.92	23.95	90.59	-1,004.17	3,104.18	907.13	842.19	64.95	13.968	
10,400.00	6,945.00	6,888.74	6,885.85	65.42	23.95	90.63	-1,004.17	3,104.18	995.63	932.08	63.55	15.668	
10,500.00	6,945.00	6,889.00	6,886.10	66.92	23.96	90.66	-1,004.17	3,104.18	1,086.13	1,023.77	62.35	17.419	
10,600.00	6,945.00	6,889.25	6,886.35	68.43	23.96	90.69	-1,004.17	3,104.18	1,178.16	1,116.82	61.34	19.208	
10,700.00	6,945.00	6,889.50	6,886.60	69.94	23.96	90.73	-1,004.17	3,104.18	1,271.40	1,210.93	60.47	21.026	
10,800.00	6,945.00	6,889.74	6,886.85	71.45	23.96	90.76	-1,004.17	3,104.18	1,365.59	1,305.87	59.72	22.866	
10,900.00	6,945.00	6,889.99	6,887.09	72.97	23.96	90.79	-1,004.16	3,104.18	1,460.56	1,401.49	59.07	24.724	
11,000.00	6,945.00	6,890.23	6,887.34	74.50	23.96	90.82	-1,004.16	3,104.18	1,556.16	1,497.64	58.51	26.595	
11,100.00	6,945.00	6,890.47	6,887.58	76.02	23.96	90.85	-1,004.16	3,104.18	1,652.28	1,594.25	58.02	28.476	
11,200.00	6,945.00	6,890.71	6,887.82	77.55	23.96	90.88	-1,004.16	3,104.18	1,748.83	1,691.24	57.59	30.365	
11,300.00	6,945.00	6,890.95	6,888.05	79.08	23.96	90.91	-1,004.16	3,104.18	1,845.75	1,788.53	57.22	32.259	
11,400.00	6,945.00	6,891.18	6,888.29	80.62	23.96	90.94	-1,004.16	3,104.18	1,942.98	1,886.10	56.88	34.157	
11,500.00	6,945.00	6,891.42	6,888.52	82.16	23.96	90.97	-1,004.16	3,104.18	2,040.48	1,983.90	56.59	36.058	
11,600.00	6,945.00	6,891.65	6,888.75	83.70	23.96	91.00	-1,004.16	3,104.19	2,138.22	2,081.89	56.33	37.961	
11,700.00	6,945.00	6,891.88	6,888.98	85.24	23.97	91.03	-1,004.15	3,104.19	2,236.15	2,180.05	56.09	39.864	
11,800.00	6,945.00	6,892.10	6,889.21	86.78	23.97	91.06	-1,004.15	3,104.19	2,334.26	2,278.37	55.89	41.767	
11,900.00	6,945.00	6,892.33	6,889.43	88.33	23.97	91.09	-1,004.15	3,104.19	2,432.52	2,376.81	55.70	43.670	
12,000.00	6,945.00	6,892.55	6,889.66	89.87	23.97	91.12	-1,004.15	3,104.19	2,530.91	2,475.38	55.54	45.571	
12,100.00	6,945.00	6,892.78	6,889.88	91.42	23.97	91.15	-1,004.15	3,104.19	2,629.43	2,574.04	55.39	47.471	
12,200.00	6,945.00	6,893.00	6,890.10	92.98	23.97	91.18	-1,004.15	3,104.19	2,728.06	2,672.80	55.26	49.369	
12,300.00	6,945.00	6,893.21	6,890.32	94.53	23.97	91.21	-1,004.15	3,104.19	2,826.78	2,771.64	55.14	51.264	
12,400.00	6,945.00	6,893.43	6,890.54	96.08	23.97	91.23	-1,004.14	3,104.19	2,925.59	2,870.55	55.04	53.156	
12,500.00	6,945.00	6,893.65	6,890.75	97.64	23.97	91.26	-1,004.14	3,104.19	3,024.48	2,969.53	54.94	55.046	
12,600.00	6,945.00	6,893.86	6,890.96	99.20	23.97	91.29	-1,004.14	3,104.19	3,123.44	3,068.57	54.86	56.932	
12,700.00	6,945.00	6,894.07	6,891.18	100.76	23.97	91.32	-1,004.14	3,104.19	3,222.46	3,167.67	54.79	58.814	
12,800.00	6,945.00	6,894.28	6,891.39	102.32	23.97	91.34	-1,004.14	3,104.19	3,321.54	3,266.82	54.73	60.693	
12,900.00	6,945.00	6,900.00	6,897.11	103.88	23.99	92.09	-1,004.11	3,104.20	3,420.68	3,365.99	54.69	62.544	
13,000.00	6,945.00	6,900.00	6,897.11	105.44	23.99	92.09	-1,004.11	3,104.20	3,519.87	3,465.22	54.64	64.416	
13,100.00	6,945.00	6,900.00	6,897.11	107.00	23.99	92.09	-1,004.11	3,104.20	3,619.09	3,564.49	54.60	66.283	

CC - Min centre to center distance or 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:	Plan #4	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 100-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
13,200.00	6,945.00	6,900.00	6,897.11	108.57	23.99	92.09	-1,004.11	3,104.20	3,718.36	3,663.80	54.57	68.145	
13,300.00	6,945.00	6,900.00	6,897.11	110.13	23.99	92.09	-1,004.11	3,104.20	3,817.67	3,763.14	54.54	70.004	
13,400.00	6,945.00	6,900.00	6,897.11	111.70	23.99	92.09	-1,004.11	3,104.20	3,917.01	3,862.50	54.51	71.857	
13,500.00	6,945.00	6,900.00	6,897.11	113.27	23.99	92.09	-1,004.11	3,104.20	4,016.39	3,961.90	54.49	73.707	
13,600.00	6,945.00	6,900.00	6,897.11	114.84	23.99	92.09	-1,004.11	3,104.20	4,115.79	4,061.32	54.48	75.551	
13,700.00	6,945.00	6,900.00	6,897.11	116.41	23.99	92.09	-1,004.11	3,104.20	4,215.23	4,160.76	54.47	77.390	
13,800.00	6,945.00	6,900.00	6,897.11	117.98	23.99	92.09	-1,004.11	3,104.20	4,314.69	4,260.23	54.46	79.225	
13,900.00	6,945.00	6,900.00	6,897.11	119.55	23.99	92.09	-1,004.11	3,104.20	4,414.17	4,359.71	54.46	81.055	
14,000.00	6,945.00	6,900.00	6,897.11	121.12	23.99	92.09	-1,004.11	3,104.20	4,513.68	4,459.22	54.46	82.879	
14,100.00	6,945.00	6,900.00	6,897.11	122.69	23.99	92.09	-1,004.11	3,104.20	4,613.21	4,558.74	54.47	84.698	
14,200.00	6,945.00	6,900.00	6,897.11	124.27	23.99	92.09	-1,004.11	3,104.20	4,712.76	4,658.28	54.48	86.512	
14,300.00	6,945.00	6,900.00	6,897.11	125.84	23.99	92.09	-1,004.11	3,104.20	4,812.33	4,757.84	54.49	88.321	
14,400.00	6,945.00	6,900.00	6,897.11	127.41	23.99	92.09	-1,004.11	3,104.20	4,911.91	4,857.41	54.50	90.124	
14,500.00	6,945.00	6,900.00	6,897.11	128.99	23.99	92.09	-1,004.11	3,104.20	5,011.51	4,956.99	54.52	91.922	
14,600.00	6,945.00	6,900.00	6,897.11	130.57	23.99	92.09	-1,004.11	3,104.20	5,111.13	5,056.59	54.54	93.714	
14,700.00	6,945.00	6,900.00	6,897.11	132.14	23.99	92.09	-1,004.11	3,104.20	5,210.76	5,156.20	54.56	95.500	
14,800.00	6,945.00	6,900.00	6,897.11	133.72	23.99	92.09	-1,004.11	3,104.20	5,310.41	5,255.82	54.59	97.281	
14,900.00	6,945.00	6,900.00	6,897.11	135.30	23.99	92.09	-1,004.11	3,104.20	5,410.06	5,355.45	54.62	99.057	
15,000.00	6,945.00	6,900.00	6,897.11	136.87	23.99	92.09	-1,004.11	3,104.20	5,509.73	5,455.09	54.65	100.826	
15,100.00	6,945.00	6,900.00	6,897.11	138.45	23.99	92.09	-1,004.11	3,104.20	5,609.42	5,554.74	54.68	102.590	
15,200.00	6,945.00	6,900.00	6,897.11	140.03	23.99	92.09	-1,004.11	3,104.20	5,709.11	5,654.40	54.71	104.348	
15,300.00	6,945.00	6,900.00	6,897.11	141.61	23.99	92.09	-1,004.11	3,104.20	5,808.82	5,754.07	54.75	106.100	
15,400.00	6,945.00	6,900.00	6,897.11	143.19	23.99	92.09	-1,004.11	3,104.20	5,908.53	5,853.74	54.79	107.846	
15,500.00	6,945.00	6,900.00	6,897.11	144.77	23.99	92.09	-1,004.11	3,104.20	6,008.25	5,953.43	54.83	109.586	
15,600.00	6,945.00	6,900.00	6,897.11	146.35	23.99	92.09	-1,004.11	3,104.20	6,107.99	6,053.12	54.87	111.321	
15,700.00	6,945.00	6,900.00	6,897.11	147.94	23.99	92.09	-1,004.11	3,104.20	6,207.73	6,152.82	54.91	113.049	
15,800.00	6,945.00	6,900.00	6,897.11	149.52	23.99	92.09	-1,004.11	3,104.20	6,307.48	6,252.52	54.96	114.771	
15,900.00	6,945.00	6,900.00	6,897.11	151.10	23.99	92.09	-1,004.11	3,104.20	6,407.23	6,352.23	55.00	116.487	
16,000.00	6,945.00	6,900.00	6,897.11	152.68	23.99	92.09	-1,004.11	3,104.20	6,507.00	6,451.95	55.05	118.197	
16,100.00	6,945.00	6,900.00	6,897.11	154.26	23.99	92.09	-1,004.11	3,104.20	6,606.77	6,551.67	55.10	119.901	
16,200.00	6,945.00	6,900.00	6,897.11	155.85	23.99	92.09	-1,004.11	3,104.20	6,706.55	6,651.40	55.15	121.598	
16,300.00	6,945.00	6,900.00	6,897.11	157.43	23.99	92.09	-1,004.11	3,104.20	6,806.34	6,751.13	55.21	123.290	
16,400.00	6,945.00	6,900.00	6,897.11	159.02	23.99	92.09	-1,004.11	3,104.20	6,906.13	6,850.87	55.26	124.975	
16,500.00	6,945.00	6,900.00	6,897.11	160.60	23.99	92.09	-1,004.11	3,104.20	7,005.92	6,950.61	55.32	126.654	
16,600.00	6,945.00	6,900.00	6,897.11	162.18	23.99	92.09	-1,004.11	3,104.20	7,105.73	7,050.35	55.37	128.327	
16,700.00	6,945.00	6,900.00	6,897.11	163.77	23.99	92.09	-1,004.11	3,104.20	7,205.54	7,150.11	55.43	129.993	
16,800.00	6,945.00	6,900.00	6,897.11	165.35	23.99	92.09	-1,004.11	3,104.20	7,305.35	7,249.86	55.49	131.653	
16,900.00	6,945.00	6,900.00	6,897.11	166.94	23.99	92.09	-1,004.11	3,104.20	7,405.17	7,349.62	55.55	133.307	
17,000.00	6,945.00	6,900.00	6,897.11	168.53	23.99	92.09	-1,004.11	3,104.20	7,504.99	7,449.38	55.61	134.955	
17,100.00	6,945.00	6,900.00	6,897.11	170.11	23.99	92.09	-1,004.11	3,104.20	7,604.82	7,549.15	55.67	136.596	
17,200.00	6,945.00	6,900.00	6,897.11	171.70	23.99	92.09	-1,004.11	3,104.20	7,704.65	7,648.92	55.74	138.231	
17,300.00	6,945.00	6,900.00	6,897.11	173.29	23.99	92.09	-1,004.11	3,104.20	7,804.49	7,748.69	55.80	139.859	
17,400.00	6,945.00	6,900.00	6,897.11	174.87	23.99	92.09	-1,004.11	3,104.20	7,904.33	7,848.46	55.87	141.481	
17,500.00	6,945.00	6,900.00	6,897.11	176.46	23.99	92.09	-1,004.11	3,104.20	8,004.18	7,948.24	55.94	143.097	
17,600.00	6,945.00	6,900.00	6,897.11	178.05	23.99	92.09	-1,004.11	3,104.20	8,104.02	8,048.02	56.00	144.706	
17,700.00	6,945.00	6,900.00	6,897.11	179.63	23.99	92.09	-1,004.11	3,104.20	8,203.88	8,147.81	56.07	146.309	
17,800.00	6,945.00	6,900.00	6,897.11	181.22	23.99	92.09	-1,004.11	3,104.20	8,303.73	8,247.59	56.14	147.905	
17,900.00	6,945.00	6,900.00	6,897.11	182.81	23.99	92.09	-1,004.11	3,104.20	8,403.59	8,347.38	56.21	149.495	
18,000.00	6,945.00	6,900.00	6,897.11	184.40	23.99	92.09	-1,004.11	3,104.20	8,503.46	8,447.17	56.28	151.079	
18,100.00	6,945.00	6,900.00	6,897.11	185.99	23.99	92.09	-1,004.11	3,104.20	8,603.32	8,546.96	56.36	152.656	
18,200.00	6,945.00	6,900.00	6,897.11	187.58	23.99	92.09	-1,004.11	3,104.20	8,703.19	8,646.76	56.43	154.226	
18,300.00	6,945.00	6,900.00	6,897.11	189.16	23.99	92.09	-1,004.11	3,104.20	8,803.06	8,746.56	56.51	155.791	

CC - Min centre to center distance or 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:	Plan #4	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 100-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
18,400.00	6,945.00	6,900.00	6,897.11	190.75	23.99	92.09	-1,004.11	3,104.20	8,902.94	8,846.36	56.58	157.348	
18,500.00	6,945.00	6,900.00	6,897.11	192.34	23.99	92.09	-1,004.11	3,104.20	9,002.82	8,946.16	56.66	158.900	
18,600.00	6,945.00	6,900.00	6,897.11	193.93	23.99	92.09	-1,004.11	3,104.20	9,102.70	9,045.96	56.73	160.445	
18,700.00	6,945.00	6,900.00	6,897.11	195.52	23.99	92.09	-1,004.11	3,104.20	9,202.58	9,145.77	56.81	161.983	
18,800.00	6,945.00	6,900.00	6,897.11	197.11	23.99	92.09	-1,004.11	3,104.20	9,302.46	9,245.57	56.89	163.515	
18,900.00	6,945.00	6,900.00	6,897.11	198.70	23.99	92.09	-1,004.11	3,104.20	9,402.35	9,345.38	56.97	165.041	
19,000.00	6,945.00	6,900.00	6,897.11	200.29	23.99	92.09	-1,004.11	3,104.20	9,502.24	9,445.19	57.05	166.560	
19,100.00	6,945.00	6,900.00	6,897.11	201.88	23.99	92.09	-1,004.11	3,104.20	9,602.14	9,545.01	57.13	168.073	
19,200.00	6,945.00	6,900.00	6,897.11	203.47	23.99	92.09	-1,004.11	3,104.20	9,702.03	9,644.82	57.21	169.579	
19,300.00	6,945.00	6,900.00	6,897.11	205.06	23.99	92.09	-1,004.11	3,104.20	9,801.93	9,744.63	57.29	171.079	
19,400.00	6,945.00	6,900.00	6,897.11	206.65	23.99	92.09	-1,004.11	3,104.20	9,901.83	9,844.45	57.38	172.572	
19,500.00	6,945.00	6,900.00	6,897.11	208.24	23.99	92.09	-1,004.11	3,104.20	10,001.73	9,944.27	57.46	174.059	
19,600.00	6,945.00	6,900.00	6,897.11	209.84	23.99	92.09	-1,004.11	3,104.20	10,101.63	10,044.08	57.55	175.540	
19,700.00	6,945.00	6,900.00	6,897.11	211.43	23.99	92.09	-1,004.11	3,104.20	10,201.54	10,143.90	57.63	177.014	
19,800.00	6,945.00	6,900.00	6,897.11	213.02	23.99	92.09	-1,004.11	3,104.20	10,301.44	10,243.73	57.72	178.482	
19,900.00	6,945.00	6,900.00	6,897.11	214.61	23.99	92.09	-1,004.11	3,104.20	10,401.35	10,343.55	57.80	179.944	
20,000.00	6,945.00	6,900.00	6,897.11	216.20	23.99	92.09	-1,004.11	3,104.20	10,501.26	10,443.37	57.89	181.399	
20,100.00	6,945.00	6,900.00	6,897.11	217.79	23.99	92.09	-1,004.11	3,104.20	10,601.17	10,543.20	57.98	182.848	
20,200.00	6,945.00	6,900.00	6,897.11	219.38	23.99	92.09	-1,004.11	3,104.20	10,701.09	10,643.02	58.07	184.290	
20,300.00	6,945.00	6,900.00	6,897.11	220.98	23.99	92.09	-1,004.11	3,104.20	10,801.00	10,742.85	58.16	185.727	
20,400.00	6,945.00	6,900.00	6,897.11	222.57	23.99	92.09	-1,004.11	3,104.20	10,900.92	10,842.67	58.24	187.156	
20,500.00	6,945.00	6,900.00	6,897.11	224.16	23.99	92.09	-1,004.11	3,104.20	11,000.84	10,942.50	58.34	188.580	
20,600.00	6,945.00	6,900.00	6,897.11	225.75	23.99	92.09	-1,004.11	3,104.20	11,100.76	11,042.33	58.43	189.997	
20,700.00	6,945.00	6,900.00	6,897.11	227.35	23.99	92.09	-1,004.11	3,104.20	11,200.68	11,142.16	58.52	191.408	
20,800.00	6,945.00	6,908.64	6,905.74	228.94	24.02	93.20	-1,004.05	3,104.22	11,300.60	11,241.96	58.64	192.708	
20,852.96	6,945.00	6,908.72	6,905.83	229.61	24.02	93.21	-1,004.05	3,104.22	11,353.51	11,290.18	63.33	179.274	

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:	Plan #4	**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
0.00	0.00	0.00	0.00	0.00	0.00	69.16	1,075.91	2,826.69	3,024.82				
20.93	20.93	0.00	0.00	0.00	0.00	-123.49	1,075.91	2,826.69	3,024.63				
33.67	33.67	0.00	0.00	0.01	0.00	-124.00	1,075.91	2,826.69	3,024.60				
117.41	117.41	75.41	75.41	0.05	2.26	-128.05	1,075.91	2,826.69	3,024.81	3,022.51	2.30	1,313.651	
206.68	206.68	164.68	164.68	0.17	4.93	-102.15	1,075.91	2,826.69	3,024.97	3,019.92	5.05	598.804	
292.93	292.93	250.93	250.93	0.28	7.52	-102.71	1,075.91	2,826.69	3,025.09	3,017.39	7.70	392.990	
365.00	364.99	322.99	322.99	0.36	9.68	-133.40	1,075.91	2,826.69	3,025.35	3,015.43	9.92	304.950	
451.00	450.97	408.97	408.97	0.55	12.25	-80.14	1,075.91	2,826.69	3,025.29	3,012.55	12.74	237.519	
540.00	539.81	497.81	497.81	0.83	14.92	-74.77	1,075.91	2,826.69	3,024.08	3,008.38	15.71	192.554	
665.00	664.37	622.47	622.37	1.26	18.65	-72.65	1,075.91	2,826.69	3,021.13	3,001.23	19.90	151.846	
753.00	752.01	710.11	710.01	1.58	21.28	-73.78	1,075.91	2,826.69	3,018.82	2,995.97	22.85	132.121	
847.00	845.61	808.26	808.12	1.93	24.22	-70.97	1,077.97	2,826.69	3,016.95	2,990.81	26.14	115.408	
939.00	937.22	907.71	907.53	2.27	27.20	-70.89	1,077.22	2,826.69	3,013.89	2,984.42	29.47	102.281	
1,030.00	1,027.78	1,006.15	1,005.95	2.62	30.15	-82.49	1,075.80	2,826.69	3,011.38	2,978.62	32.76	91.921	
1,120.00	1,117.25	1,075.65	1,075.25	2.96	32.23	-79.78	1,075.91	2,826.69	3,009.82	2,974.63	35.19	85.533	
1,211.00	1,207.68	1,166.08	1,165.68	3.31	34.94	-82.62	1,075.91	2,826.69	3,008.25	2,970.00	38.25	78.647	
1,306.00	1,302.14	1,261.48	1,261.03	3.68	37.80	-81.01	1,078.09	2,826.69	3,007.63	2,966.16	41.47	72.519	
1,400.00	1,395.63	1,363.26	1,362.80	4.04	40.85	-79.94	1,077.64	2,826.69	3,005.86	2,960.98	44.88	66.970	
1,495.00	1,490.19	1,466.34	1,465.85	4.40	43.94	-80.77	1,076.45	2,826.69	3,003.89	2,955.56	48.33	62.149	
1,589.00	1,583.83	1,542.54	1,541.83	4.76	46.22	-83.33	1,075.91	2,826.69	3,002.48	2,951.50	50.97	58.903	
1,684.00	1,678.44	1,637.15	1,636.44	5.12	49.06	-81.12	1,075.91	2,826.69	3,001.30	2,947.14	54.17	55.407	
1,779.00	1,772.98	1,731.69	1,730.98	5.48	51.89	-76.90	1,075.91	2,826.69	2,999.49	2,942.13	57.36	52.289	
1,873.00	1,866.49	1,832.10	1,831.34	5.84	54.90	-75.64	1,077.85	2,826.69	2,998.00	2,937.26	60.73	49.364	
1,967.00	1,960.05	1,934.35	1,933.56	6.20	57.96	-71.15	1,076.90	2,826.69	2,995.04	2,930.89	64.15	46.686	
2,062.00	2,054.59	2,013.60	2,012.59	6.56	60.34	-76.64	1,075.91	2,826.69	2,992.02	2,925.13	66.89	44.730	
2,156.00	2,148.09	2,107.10	2,106.09	6.92	63.14	-77.53	1,075.91	2,826.69	2,989.84	2,919.79	70.05	42.679	
2,251.00	2,242.55	2,201.57	2,200.55	7.29	65.97	-76.38	1,075.91	2,826.69	2,987.56	2,914.31	73.25	40.786	
2,345.00	2,336.00	2,299.29	2,298.23	7.65	68.90	-82.58	1,078.01	2,826.69	2,986.55	2,910.01	76.54	39.019	
2,440.00	2,430.43	2,402.79	2,401.71	8.02	72.00	-85.40	1,077.27	2,826.69	2,985.18	2,905.17	80.01	37.310	
2,535.00	2,524.86	2,506.47	2,505.35	8.38	75.11	-84.33	1,075.79	2,826.69	2,983.68	2,900.20	83.48	35.740	
2,629.00	2,618.31	2,577.63	2,576.31	8.75	77.24	-84.47	1,075.91	2,826.69	2,982.64	2,896.66	85.98	34.689	
2,724.00	2,712.77	2,672.09	2,670.77	9.12	80.07	-83.91	1,075.91	2,826.69	2,981.61	2,892.43	89.18	33.434	
2,818.00	2,806.24	2,767.10	2,765.74	9.48	82.91	-83.57	1,078.08	2,826.69	2,981.44	2,889.05	92.39	32.270	
2,913.00	2,900.71	2,870.96	2,869.58	9.84	86.03	-81.57	1,077.58	2,826.69	2,979.95	2,884.08	95.87	31.084	
3,008.00	2,995.25	2,975.05	2,973.63	10.21	89.15	-86.15	1,076.32	2,826.69	2,978.42	2,879.08	99.35	29.980	
3,102.00	3,088.80	3,048.42	3,046.80	10.57	91.34	-86.06	1,075.91	2,826.69	2,977.55	2,875.64	101.91	29.218	
3,197.00	3,183.30	3,142.92	3,141.30	10.93	94.18	-83.33	1,075.91	2,826.69	2,976.64	2,871.53	105.11	28.320	
3,291.00	3,276.71	3,236.33	3,234.71	11.30	96.98	-89.61	1,075.91	2,826.69	2,976.03	2,867.76	108.27	27.487	
3,304.30	3,289.91	3,249.54	3,247.91	11.35	97.37	-89.81	1,075.91	2,826.69	2,976.02	2,867.30	108.72	27.374	
3,386.00	3,371.01	3,338.94	3,337.26	11.67	100.05	-91.04	1,077.81	2,826.69	2,976.95	2,865.23	111.72	26.647	
3,480.00	3,464.23	3,441.95	3,440.24	12.04	103.14	-89.99	1,076.80	2,826.69	2,976.64	2,861.46	115.17	25.845	
3,575.00	3,558.47	3,518.40	3,516.47	12.42	105.43	-88.69	1,075.91	2,826.69	2,976.04	2,858.20	117.84	25.254	
3,670.00	3,652.84	3,612.77	3,610.84	12.79	108.25	-87.97	1,075.91	2,826.69	2,975.73	2,854.68	121.04	24.584	
3,764.00	3,746.36	3,706.29	3,704.36	13.15	111.06	-84.99	1,075.91	2,826.69	2,975.17	2,850.96	124.21	23.954	
3,805.80	3,787.99	3,747.92	3,745.99	13.31	112.30	-83.45	1,075.91	2,826.69	2,974.78	2,849.17	125.61	23.683	
3,859.00	3,840.97	3,806.35	3,804.37	13.51	114.06	-81.48	1,077.98	2,826.69	2,975.11	2,847.55	127.56	23.323	
3,954.00	3,935.57	3,911.16	3,909.16	13.87	117.20	-81.62	1,077.18	2,826.69	2,973.49	2,842.42	131.06	22.688	
4,049.00	4,030.14	4,016.09	4,014.06	14.23	120.34	-90.83	1,075.62	2,826.69	2,972.23	2,837.66	134.57	22.088	
4,058.59	4,039.68	4,026.69	4,024.65	14.27	120.66	-90.75	1,075.42	2,826.69	2,972.16	2,837.24	134.92	22.029	
4,143.00	4,123.75	4,083.98	4,081.75	14.59	122.37	-89.88	1,075.91	2,826.69	2,972.31	2,835.34	136.96	21.702	
4,238.00	4,218.33	4,178.56	4,176.33	14.95	125.21	-89.80	1,075.91	2,826.69	2,972.28	2,832.12	140.16	21.207	
4,243.51	4,223.81	4,184.04	4,181.81	14.97	125.37	-90.00	1,075.91	2,826.69	2,972.28	2,831.93	140.34	21.179	

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:	Plan #4	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
4,333.00	4,312.74	4,275.51	4,273.24	15.32	128.11	-92.82	1,078.07	2,826.69	2,973.56	2,830.13	143.43	20.732	
4,427.00	4,406.05	4,379.22	4,376.93	15.69	131.22	-90.68	1,077.51	2,826.69	2,973.67	2,826.76	146.91	20.242	
4,522.00	4,500.34	4,484.22	4,481.89	16.06	134.37	-90.00	1,076.17	2,826.69	2,973.16	2,822.73	150.42	19.765	
4,560.54	4,538.56	4,526.83	4,524.49	16.21	135.64	-91.11	1,075.41	2,826.69	2,972.87	2,821.02	151.85	19.577	
4,616.00	4,593.47	4,554.01	4,551.47	16.44	136.46	-92.38	1,075.91	2,826.69	2,973.22	2,820.33	152.90	19.446	
4,710.00	4,686.44	4,646.98	4,644.44	16.82	139.24	-91.94	1,075.91	2,826.69	2,973.75	2,817.69	156.06	19.055	
4,899.00	4,873.89	4,844.22	4,841.63	17.57	145.15	-86.16	1,077.78	2,826.69	2,974.48	2,811.76	162.72	18.280	
4,962.00	4,936.56	4,914.24	4,911.63	17.81	147.25	-83.92	1,077.15	2,826.69	2,973.65	2,808.59	165.06	18.016	
5,024.00	4,998.27	4,983.24	4,980.61	18.04	149.32	-87.79	1,076.19	2,826.69	2,972.79	2,805.43	167.36	17.763	
5,150.00	5,123.66	5,084.50	5,081.66	18.53	152.35	-86.99	1,075.91	2,826.69	2,971.98	2,801.10	170.88	17.392	
5,213.00	5,186.37	5,147.22	5,144.37	18.77	154.23	-89.48	1,075.91	2,826.69	2,971.80	2,798.80	173.00	17.178	
5,276.00	5,249.09	5,209.93	5,207.09	19.01	156.11	-88.71	1,075.91	2,826.69	2,971.71	2,796.59	175.12	16.970	
5,307.50	5,280.46	5,241.30	5,238.46	19.13	157.05	-89.23	1,075.91	2,826.69	2,971.65	2,795.48	176.18	16.867	
5,339.00	5,311.83	5,275.38	5,272.50	19.25	158.07	-89.80	1,078.07	2,826.69	2,972.73	2,795.41	177.32	16.765	
5,401.00	5,373.58	5,344.51	5,341.61	19.48	160.15	-87.41	1,077.78	2,826.69	2,972.46	2,792.83	179.62	16.548	
5,464.00	5,436.33	5,414.84	5,411.92	19.72	162.25	-90.22	1,077.14	2,826.69	2,972.04	2,790.08	181.97	16.333	
5,566.52	5,538.48	5,529.44	5,526.48	20.11	165.69	-91.45	1,075.36	2,826.69	2,971.35	2,785.57	185.78	15.994	
5,590.00	5,561.87	5,523.02	5,519.87	20.19	165.49	-91.68	1,075.91	2,826.69	2,971.54	2,785.85	185.69	16.003	
5,653.00	5,624.66	5,585.80	5,582.66	20.43	167.38	-93.13	1,075.91	2,826.69	2,971.75	2,783.95	187.80	15.824	
5,715.00	5,686.48	5,647.62	5,644.48	20.66	169.23	-98.18	1,075.91	2,826.69	2,972.21	2,782.33	189.89	15.653	
5,778.00	5,749.29	5,710.44	5,707.29	20.90	171.11	-95.59	1,075.91	2,826.69	2,972.79	2,780.79	192.00	15.483	
5,841.00	5,812.10	5,776.10	5,772.91	21.13	173.08	-98.01	1,078.07	2,826.69	2,974.49	2,780.29	194.20	15.316	
5,904.00	5,874.94	5,846.65	5,843.44	21.36	175.19	-92.81	1,077.76	2,826.69	2,974.79	2,778.24	196.55	15.135	
5,967.00	5,937.80	5,917.27	5,914.05	21.60	177.31	-91.36	1,077.11	2,826.69	2,974.64	2,775.74	198.90	14.956	
6,030.00	6,000.68	5,987.97	5,984.73	21.83	179.43	-93.34	1,076.11	2,826.69	2,974.33	2,773.09	201.24	14.780	
6,067.50	6,038.13	6,030.09	6,026.83	21.96	180.69	-91.28	1,075.35	2,826.69	2,974.06	2,771.42	202.64	14.677	
6,093.00	6,063.59	6,011.00	6,007.54	22.05	180.12	-89.69	1,075.91	2,826.69	2,974.24	2,772.07	202.16	14.712	
6,156.00	6,126.51	6,011.00	6,007.54	22.28	180.12	-84.42	1,075.91	2,826.69	2,975.04	2,772.71	202.33	14.704	
6,235.00	6,205.43	6,011.00	6,007.54	22.56	180.12	-84.76	1,075.91	2,826.69	2,977.81	2,775.40	202.41	14.712	
6,300.00	6,270.38	6,011.00	6,007.54	22.68	180.12	-84.76	1,075.91	2,826.69	2,981.69	2,779.43	202.26	14.742	
6,355.00	6,325.34	6,011.00	6,007.54	22.69	180.12	-84.76	1,075.91	2,826.69	2,986.08	2,784.11	201.97	14.785	
6,400.00	6,370.23	6,011.00	6,007.54	22.71	180.12	-51.95	1,075.91	2,826.69	2,989.11	2,787.43	201.68	14.821	
6,450.00	6,419.74	6,011.00	6,007.54	22.73	180.12	-44.40	1,075.91	2,826.69	2,990.22	2,788.89	201.33	14.852	
6,500.00	6,468.57	6,011.00	6,007.54	22.77	180.12	-41.54	1,075.91	2,826.69	2,988.92	2,787.99	200.93	14.875	
6,550.00	6,516.42	6,011.00	6,007.54	22.81	180.12	-40.18	1,075.91	2,826.69	2,985.24	2,784.74	200.50	14.889	
6,600.00	6,562.98	6,011.00	6,007.54	22.87	180.12	-39.56	1,075.91	2,826.69	2,979.19	2,779.16	200.03	14.893	
6,650.00	6,607.98	6,011.00	6,007.54	22.95	180.12	-39.37	1,075.91	2,826.69	2,970.78	2,771.25	199.54	14.888	
6,700.00	6,651.14	6,011.00	6,007.54	23.03	180.12	-39.50	1,075.91	2,826.69	2,960.06	2,761.04	199.02	14.873	
6,750.00	6,692.18	6,011.00	6,007.54	23.14	180.12	-39.89	1,075.91	2,826.69	2,947.05	2,748.57	198.48	14.848	
6,800.00	6,730.86	6,011.00	6,007.54	23.26	180.12	-40.51	1,075.91	2,826.69	2,931.82	2,733.88	197.94	14.812	
6,850.00	6,766.93	6,011.00	6,007.54	23.40	180.12	-41.35	1,075.91	2,826.69	2,914.42	2,717.03	197.39	14.765	
6,900.00	6,800.18	6,011.00	6,007.54	23.56	180.12	-42.41	1,075.91	2,826.69	2,894.92	2,698.07	196.85	14.706	
6,950.00	6,830.39	6,011.00	6,007.54	23.74	180.12	-43.69	1,075.91	2,826.69	2,873.40	2,677.08	196.33	14.636	
7,000.00	6,857.38	6,011.00	6,007.54	23.94	180.12	-45.20	1,075.91	2,826.69	2,849.96	2,654.13	195.83	14.553	
7,050.00	6,880.98	6,011.00	6,007.54	24.17	180.12	-46.96	1,075.91	2,826.69	2,824.68	2,629.31	195.36	14.459	
7,100.00	6,901.06	6,011.00	6,007.54	24.42	180.12	-48.98	1,075.91	2,826.69	2,797.68	2,602.73	194.95	14.351	
7,150.00	6,917.47	6,011.00	6,007.54	24.70	180.12	-51.28	1,075.91	2,826.69	2,769.07	2,574.49	194.59	14.231	
7,200.00	6,930.13	6,011.00	6,007.54	25.01	180.12	-53.88	1,075.91	2,826.69	2,738.99	2,544.70	194.29	14.098	
7,250.00	6,938.95	6,011.00	6,007.54	25.34	180.12	-56.78	1,075.91	2,826.69	2,707.58	2,513.51	194.07	13.952	
7,300.00	6,943.88	6,011.00	6,007.54	25.69	180.12	-60.01	1,075.91	2,826.69	2,674.98	2,481.05	193.93	13.794	
7,337.82	6,945.00	6,011.00	6,007.54	25.97	180.12	-62.66	1,075.91	2,826.69	2,649.64	2,455.75	193.89	13.666	
7,400.00	6,945.00	6,011.00	6,007.54	26.45	180.12	-62.13	1,075.91	2,826.69	2,607.49	2,413.63	193.86	13.451	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 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:	Plan #4	**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
7,492.38	6,945.00	6,011.00	6,007.54	27.21	180.12	-61.32	1,075.91	2,826.69	2,544.73	2,350.92	193.81	13.130	
7,500.00	6,945.00	6,011.00	6,007.54	27.28	180.12	-61.32	1,075.91	2,826.69	2,539.55	2,345.75	193.81	13.104	
7,600.00	6,945.00	6,011.00	6,007.54	28.17	180.12	-61.32	1,075.91	2,826.69	2,472.80	2,279.03	193.77	12.762	
7,700.00	6,945.00	6,011.00	6,007.54	29.12	180.12	-61.32	1,075.91	2,826.69	2,408.35	2,214.58	193.77	12.429	
7,800.00	6,945.00	6,011.00	6,007.54	30.14	180.12	-61.32	1,075.91	2,826.69	2,346.39	2,152.57	193.82	12.106	
7,900.00	6,945.00	6,011.00	6,007.54	31.20	180.12	-61.32	1,075.91	2,826.69	2,287.13	2,093.22	193.91	11.795	
8,000.00	6,945.00	6,011.00	6,007.54	32.31	180.12	-61.32	1,075.91	2,826.69	2,230.78	2,036.72	194.05	11.496	
8,100.00	6,945.00	6,011.00	6,007.54	33.46	180.12	-61.32	1,075.91	2,826.69	2,177.56	1,983.31	194.25	11.210	
8,200.00	6,945.00	6,011.00	6,007.54	34.64	180.12	-61.32	1,075.91	2,826.69	2,127.71	1,933.20	194.51	10.939	
8,300.00	6,945.00	6,011.00	6,007.54	35.86	180.12	-61.32	1,075.91	2,826.69	2,081.48	1,886.65	194.83	10.684	
8,400.00	6,945.00	6,011.00	6,007.54	37.11	180.12	-61.32	1,075.91	2,826.69	2,039.11	1,843.89	195.22	10.445	
8,500.00	6,945.00	6,011.00	6,007.54	38.39	180.12	-61.32	1,075.91	2,826.69	2,000.85	1,805.17	195.68	10.225	
8,600.00	6,945.00	6,011.00	6,007.54	39.69	180.12	-61.32	1,075.91	2,826.69	1,966.92	1,770.72	196.21	10.025	
8,700.00	6,945.00	6,011.00	6,007.54	41.01	180.12	-61.32	1,075.91	2,826.69	1,937.57	1,740.76	196.81	9.845	
8,800.00	6,945.00	6,011.00	6,007.54	42.35	180.12	-61.32	1,075.91	2,826.69	1,913.01	1,715.51	197.50	9.686	
8,900.00	6,945.00	6,011.00	6,007.54	43.71	180.12	-61.32	1,075.91	2,826.69	1,893.41	1,695.14	198.27	9.550	
9,000.00	6,945.00	6,011.00	6,007.54	45.08	180.12	-61.32	1,075.91	2,826.69	1,878.94	1,679.83	199.11	9.437	
9,100.00	6,945.00	6,011.00	6,007.54	46.47	180.12	-61.32	1,075.91	2,826.69	1,869.71	1,669.69	200.02	9.347	
9,200.00	6,945.00	6,011.00	6,007.54	47.87	180.12	-61.32	1,075.91	2,826.69	1,865.80	1,664.80	201.00	9.283	
9,222.98	6,945.00	6,011.00	6,007.54	48.20	180.12	-61.32	1,075.91	2,826.69	1,865.66	1,664.42	201.24	9.271	CC, ES
9,300.00	6,945.00	6,011.00	6,007.54	49.29	180.12	-61.32	1,075.91	2,826.69	1,867.25	1,665.21	202.04	9.242	
9,400.00	6,945.00	6,011.00	6,007.54	50.71	180.12	-61.32	1,075.91	2,826.69	1,874.04	1,670.92	203.11	9.227	SF
9,500.00	6,945.00	6,011.00	6,007.54	52.15	180.12	-61.32	1,075.91	2,826.69	1,886.11	1,681.89	204.22	9.236	
9,600.00	6,945.00	6,011.00	6,007.54	53.59	180.12	-61.32	1,075.91	2,826.69	1,903.37	1,698.03	205.34	9.269	
9,700.00	6,945.00	6,011.00	6,007.54	55.05	180.12	-61.32	1,075.91	2,826.69	1,925.68	1,719.21	206.46	9.327	
9,800.00	6,945.00	6,011.00	6,007.54	56.51	180.12	-61.32	1,075.91	2,826.69	1,952.85	1,745.28	207.57	9.408	
9,900.00	6,945.00	6,011.00	6,007.54	57.98	180.12	-61.32	1,075.91	2,826.69	1,984.70	1,776.06	208.64	9.512	
10,000.00	6,945.00	6,011.00	6,007.54	59.45	180.12	-61.32	1,075.91	2,826.69	2,021.00	1,811.32	209.68	9.639	
10,100.00	6,945.00	6,011.00	6,007.54	60.93	180.12	-61.32	1,075.91	2,826.69	2,061.52	1,850.86	210.66	9.786	
10,200.00	6,945.00	6,011.00	6,007.54	62.42	180.12	-61.32	1,075.91	2,826.69	2,106.01	1,894.42	211.59	9.953	
10,300.00	6,945.00	6,011.00	6,007.54	63.92	180.12	-61.32	1,075.91	2,826.69	2,154.22	1,941.77	212.45	10.140	
10,400.00	6,945.00	6,011.00	6,007.54	65.42	180.12	-61.32	1,075.91	2,826.69	2,205.92	1,992.67	213.25	10.344	
10,500.00	6,945.00	6,011.00	6,007.54	66.92	180.12	-61.32	1,075.91	2,826.69	2,260.86	2,046.88	213.98	10.566	
10,600.00	6,945.00	6,011.00	6,007.54	68.43	180.12	-61.32	1,075.91	2,826.69	2,318.81	2,104.16	214.64	10.803	
10,700.00	6,945.00	6,011.00	6,007.54	69.94	180.12	-61.32	1,075.91	2,826.69	2,379.55	2,164.31	215.25	11.055	
10,800.00	6,945.00	6,011.00	6,007.54	71.45	180.12	-61.32	1,075.91	2,826.69	2,442.88	2,227.09	215.79	11.321	
10,900.00	6,945.00	6,011.00	6,007.54	72.97	180.12	-61.32	1,075.91	2,826.69	2,508.60	2,292.33	216.28	11.599	
11,000.00	6,945.00	6,011.00	6,007.54	74.50	180.12	-61.32	1,075.91	2,826.69	2,576.53	2,359.82	216.71	11.889	
11,100.00	6,945.00	6,011.00	6,007.54	76.02	180.12	-61.32	1,075.91	2,826.69	2,646.49	2,429.40	217.09	12.191	
11,200.00	6,945.00	6,011.00	6,007.54	77.55	180.12	-61.32	1,075.91	2,826.69	2,718.33	2,500.90	217.43	12.502	
11,300.00	6,945.00	6,011.00	6,007.54	79.08	180.12	-61.32	1,075.91	2,826.69	2,791.90	2,574.17	217.73	12.823	
11,400.00	6,945.00	6,011.00	6,007.54	80.62	180.12	-61.32	1,075.91	2,826.69	2,867.07	2,649.08	217.99	13.152	
11,500.00	6,945.00	6,011.00	6,007.54	82.16	180.12	-61.32	1,075.91	2,826.69	2,943.72	2,725.50	218.22	13.490	
11,600.00	6,945.00	6,011.00	6,007.54	83.70	180.12	-61.32	1,075.91	2,826.69	3,021.74	2,803.32	218.42	13.835	
11,700.00	6,945.00	6,011.00	6,007.54	85.24	180.12	-61.32	1,075.91	2,826.69	3,101.02	2,882.43	218.59	14.186	
11,800.00	6,945.00	6,011.00	6,007.54	86.78	180.12	-61.32	1,075.91	2,826.69	3,181.47	2,962.73	218.74	14.545	
11,900.00	6,945.00	6,011.00	6,007.54	88.33	180.12	-61.32	1,075.91	2,826.69	3,262.99	3,044.13	218.87	14.909	
12,000.00	6,945.00	6,011.00	6,007.54	89.87	180.12	-61.32	1,075.91	2,826.69	3,345.53	3,126.55	218.98	15.278	
12,100.00	6,945.00	6,011.00	6,007.54	91.42	180.12	-61.32	1,075.91	2,826.69	3,428.99	3,209.92	219.07	15.653	
12,200.00	6,945.00	6,011.00	6,007.54	92.98	180.12	-61.32	1,075.91	2,826.69	3,513.31	3,294.16	219.15	16.032	
12,300.00	6,945.00	6,011.00	6,007.54	94.53	180.12	-61.32	1,075.91	2,826.69	3,598.44	3,379.23	219.21	16.415	
12,400.00	6,945.00	6,011.00	6,007.54	96.08	180.12	-61.32	1,075.91	2,826.69	3,684.31	3,465.05	219.27	16.803	

CC - Min centre to center distance or 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:	Plan #4	**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
12,500.00	6,945.00	6,011.00	6,007.54	97.64	180.12	-61.32	1,075.91	2,826.69	3,770.88	3,551.57	219.31	17.194	
12,600.00	6,945.00	6,011.00	6,007.54	99.20	180.12	-61.32	1,075.91	2,826.69	3,858.10	3,638.76	219.35	17.589	
12,700.00	6,945.00	6,011.00	6,007.54	100.76	180.12	-61.32	1,075.91	2,826.69	3,945.93	3,726.55	219.38	17.987	
12,800.00	6,945.00	6,011.00	6,007.54	102.32	180.12	-61.32	1,075.91	2,826.69	4,034.32	3,814.93	219.40	18.388	
12,900.00	6,945.00	6,011.00	6,007.54	103.88	180.12	-61.32	1,075.91	2,826.69	4,123.25	3,903.83	219.42	18.792	
13,000.00	6,945.00	6,011.00	6,007.54	105.44	180.12	-61.32	1,075.91	2,826.69	4,212.67	3,993.24	219.43	19.198	
13,100.00	6,945.00	6,011.00	6,007.54	107.00	180.12	-61.32	1,075.91	2,826.69	4,302.56	4,083.12	219.44	19.607	
13,200.00	6,945.00	6,011.00	6,007.54	108.57	180.12	-61.32	1,075.91	2,826.69	4,392.88	4,173.44	219.44	20.018	
13,300.00	6,945.00	6,011.00	6,007.54	110.13	180.12	-61.32	1,075.91	2,826.69	4,483.61	4,264.17	219.44	20.432	
13,400.00	6,945.00	6,011.00	6,007.54	111.70	180.12	-61.32	1,075.91	2,826.69	4,574.73	4,355.29	219.45	20.847	
13,500.00	6,945.00	6,011.00	6,007.54	113.27	180.12	-61.32	1,075.91	2,826.69	4,666.22	4,446.78	219.44	21.264	
13,600.00	6,945.00	6,011.00	6,007.54	114.84	180.12	-61.32	1,075.91	2,826.69	4,758.05	4,538.61	219.44	21.683	
13,700.00	6,945.00	6,011.00	6,007.54	116.41	180.12	-61.32	1,075.91	2,826.69	4,850.20	4,630.76	219.44	22.103	
13,800.00	6,945.00	6,011.00	6,007.54	117.98	180.12	-61.32	1,075.91	2,826.69	4,942.65	4,723.22	219.43	22.525	
13,900.00	6,945.00	6,011.00	6,007.54	119.55	180.12	-61.32	1,075.91	2,826.69	5,035.40	4,815.97	219.43	22.948	
14,000.00	6,945.00	6,011.00	6,007.54	121.12	180.12	-61.32	1,075.91	2,826.69	5,128.41	4,908.99	219.42	23.372	
14,100.00	6,945.00	6,011.00	6,007.54	122.69	180.12	-61.32	1,075.91	2,826.69	5,221.69	5,002.27	219.42	23.798	
14,200.00	6,945.00	6,011.00	6,007.54	124.27	180.12	-61.32	1,075.91	2,826.69	5,315.21	5,095.80	219.41	24.225	
14,300.00	6,945.00	6,011.00	6,007.54	125.84	180.12	-61.32	1,075.91	2,826.69	5,408.96	5,189.55	219.40	24.653	
14,400.00	6,945.00	6,011.00	6,007.54	127.41	180.12	-61.32	1,075.91	2,826.69	5,502.93	5,283.53	219.40	25.082	
14,500.00	6,945.00	6,011.00	6,007.54	128.99	180.12	-61.32	1,075.91	2,826.69	5,597.11	5,377.72	219.40	25.512	
14,600.00	6,945.00	6,011.00	6,007.54	130.57	180.12	-61.32	1,075.91	2,826.69	5,691.49	5,472.10	219.39	25.942	
14,700.00	6,945.00	6,011.00	6,007.54	132.14	180.12	-61.32	1,075.91	2,826.69	5,786.06	5,566.67	219.39	26.374	
14,800.00	6,945.00	6,011.00	6,007.54	133.72	180.12	-61.32	1,075.91	2,826.69	5,880.80	5,661.42	219.39	26.806	
14,900.00	6,945.00	6,011.00	6,007.54	135.30	180.12	-61.32	1,075.91	2,826.69	5,975.72	5,756.34	219.39	27.238	
15,000.00	6,945.00	6,011.00	6,007.54	136.87	180.12	-61.32	1,075.91	2,826.69	6,070.80	5,851.42	219.39	27.672	
15,100.00	6,945.00	6,011.00	6,007.54	138.45	180.12	-61.32	1,075.91	2,826.69	6,166.04	5,946.66	219.39	28.106	
15,200.00	6,945.00	6,011.00	6,007.54	140.03	180.12	-61.32	1,075.91	2,826.69	6,261.43	6,042.04	219.39	28.540	
15,300.00	6,945.00	6,011.00	6,007.54	141.61	180.12	-61.32	1,075.91	2,826.69	6,356.96	6,137.57	219.39	28.976	
15,400.00	6,945.00	6,011.00	6,007.54	143.19	180.12	-61.32	1,075.91	2,826.69	6,452.62	6,233.22	219.39	29.411	
15,500.00	6,945.00	6,011.00	6,007.54	144.77	180.12	-61.32	1,075.91	2,826.69	6,548.41	6,329.01	219.40	29.847	
15,600.00	6,945.00	6,011.00	6,007.54	146.35	180.12	-61.32	1,075.91	2,826.69	6,644.33	6,424.92	219.41	30.283	
15,700.00	6,945.00	6,011.00	6,007.54	147.94	180.12	-61.32	1,075.91	2,826.69	6,740.36	6,520.95	219.41	30.720	
15,800.00	6,945.00	6,011.00	6,007.54	149.52	180.12	-61.32	1,075.91	2,826.69	6,836.51	6,617.09	219.42	31.157	
15,900.00	6,945.00	6,011.00	6,007.54	151.10	180.12	-61.32	1,075.91	2,826.69	6,932.77	6,713.34	219.43	31.594	
16,000.00	6,945.00	6,011.00	6,007.54	152.68	180.12	-61.32	1,075.91	2,826.69	7,029.13	6,809.69	219.44	32.032	
16,100.00	6,945.00	6,011.00	6,007.54	154.26	180.12	-61.32	1,075.91	2,826.69	7,125.60	6,906.14	219.46	32.469	
16,200.00	6,945.00	6,011.00	6,007.54	155.85	180.12	-61.32	1,075.91	2,826.69	7,222.16	7,002.69	219.47	32.907	
16,300.00	6,945.00	6,011.00	6,007.54	157.43	180.12	-61.32	1,075.91	2,826.69	7,318.81	7,099.32	219.48	33.346	
16,400.00	6,945.00	6,011.00	6,007.54	159.02	180.12	-61.32	1,075.91	2,826.69	7,415.55	7,196.05	219.50	33.784	
16,500.00	6,945.00	6,011.00	6,007.54	160.60	180.12	-61.32	1,075.91	2,826.69	7,512.37	7,292.86	219.52	34.222	
16,600.00	6,945.00	6,011.00	6,007.54	162.18	180.12	-61.32	1,075.91	2,826.69	7,609.28	7,389.74	219.54	34.661	
16,700.00	6,945.00	6,011.00	6,007.54	163.77	180.12	-61.32	1,075.91	2,826.69	7,706.27	7,486.71	219.56	35.099	
16,800.00	6,945.00	6,011.00	6,007.54	165.35	180.12	-61.32	1,075.91	2,826.69	7,803.33	7,583.75	219.58	35.538	
16,900.00	6,945.00	6,011.00	6,007.54	166.94	180.12	-61.32	1,075.91	2,826.69	7,900.47	7,680.87	219.60	35.977	
17,000.00	6,945.00	6,011.00	6,007.54	168.53	180.12	-61.32	1,075.91	2,826.69	7,997.67	7,778.05	219.62	36.416	
17,100.00	6,945.00	6,011.00	6,007.54	170.11	180.12	-61.32	1,075.91	2,826.69	8,094.95	7,875.30	219.65	36.854	
17,200.00	6,945.00	6,011.00	6,007.54	171.70	180.12	-61.32	1,075.91	2,826.69	8,192.29	7,972.61	219.67	37.293	
17,300.00	6,945.00	6,011.00	6,007.54	173.29	180.12	-61.32	1,075.91	2,826.69	8,289.69	8,069.99	219.70	37.732	
17,400.00	6,945.00	6,011.00	6,007.54	174.87	180.12	-61.32	1,075.91	2,826.69	8,387.16	8,167.43	219.73	38.171	
17,500.00	6,945.00	6,011.00	6,007.54	176.46	180.12	-61.32	1,075.91	2,826.69	8,484.68	8,264.92	219.76	38.609	
17,600.00	6,945.00	6,011.00	6,007.54	178.05	180.12	-61.32	1,075.91	2,826.69	8,582.26	8,362.47	219.79	39.048	

CC - Min centre to center distance or 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:	Plan #4	**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
17,700.00	6,945.00	6,011.00	6,007.54	179.63	180.12	-61.32	1,075.91	2,826.69	8,679.90	8,460.08	219.82	39.487	
17,800.00	6,945.00	6,011.00	6,007.54	181.22	180.12	-61.32	1,075.91	2,826.69	8,777.58	8,557.73	219.85	39.925	
17,900.00	6,945.00	6,011.00	6,007.54	182.81	180.12	-61.32	1,075.91	2,826.69	8,875.33	8,655.44	219.89	40.363	
18,000.00	6,945.00	6,011.00	6,007.54	184.40	180.12	-61.32	1,075.91	2,826.69	8,973.12	8,753.19	219.92	40.802	
18,100.00	6,945.00	6,011.00	6,007.54	185.99	180.12	-61.32	1,075.91	2,826.69	9,070.95	8,851.00	219.96	41.240	
18,200.00	6,945.00	6,011.00	6,007.54	187.58	180.12	-61.32	1,075.91	2,826.69	9,168.84	8,948.85	219.99	41.678	
18,300.00	6,945.00	6,011.00	6,007.54	189.16	180.12	-61.32	1,075.91	2,826.69	9,266.77	9,046.74	220.03	42.115	
18,400.00	6,945.00	6,011.00	6,007.54	190.75	180.12	-61.32	1,075.91	2,826.69	9,364.74	9,144.67	220.07	42.553	
18,500.00	6,945.00	6,011.00	6,007.54	192.34	180.12	-61.32	1,075.91	2,826.69	9,462.76	9,242.65	220.11	42.991	
18,600.00	6,945.00	6,011.00	6,007.54	193.93	180.12	-61.32	1,075.91	2,826.69	9,560.82	9,340.66	220.15	43.428	
18,700.00	6,945.00	6,011.00	6,007.54	195.52	180.12	-61.32	1,075.91	2,826.69	9,658.91	9,438.72	220.20	43.865	
18,800.00	6,945.00	6,011.00	6,007.54	197.11	180.12	-61.32	1,075.91	2,826.69	9,757.05	9,536.81	220.24	44.302	
18,900.00	6,945.00	6,011.00	6,007.54	198.70	180.12	-61.32	1,075.91	2,826.69	9,855.22	9,634.94	220.28	44.739	
19,000.00	6,945.00	6,011.00	6,007.54	200.29	180.12	-61.32	1,075.91	2,826.69	9,953.43	9,733.10	220.33	45.175	
19,100.00	6,945.00	6,011.00	6,007.54	201.88	180.12	-61.32	1,075.91	2,826.69	10,051.68	9,831.30	220.38	45.612	
19,200.00	6,945.00	6,011.00	6,007.54	203.47	180.12	-61.32	1,075.91	2,826.69	10,149.96	9,929.54	220.42	46.048	
19,300.00	6,945.00	6,011.00	6,007.54	205.06	180.12	-61.32	1,075.91	2,826.69	10,248.27	10,027.80	220.47	46.483	
19,400.00	6,945.00	6,011.00	6,007.54	206.65	180.12	-61.32	1,075.91	2,826.69	10,346.62	10,126.10	220.52	46.919	
19,500.00	6,945.00	6,011.00	6,007.54	208.24	180.12	-61.32	1,075.91	2,826.69	10,444.99	10,224.42	220.57	47.354	
19,600.00	6,945.00	6,011.00	6,007.54	209.84	180.12	-61.32	1,075.91	2,826.69	10,543.40	10,322.78	220.62	47.789	
19,700.00	6,945.00	6,011.00	6,007.54	211.43	180.12	-61.32	1,075.91	2,826.69	10,641.84	10,421.16	220.67	48.224	
19,800.00	6,945.00	6,011.00	6,007.54	213.02	180.12	-61.32	1,075.91	2,826.69	10,740.30	10,519.58	220.73	48.659	
19,900.00	6,945.00	6,011.00	6,007.54	214.61	180.12	-61.32	1,075.91	2,826.69	10,838.80	10,618.01	220.78	49.093	
20,000.00	6,945.00	6,011.00	6,007.54	216.20	180.12	-61.32	1,075.91	2,826.69	10,937.32	10,716.48	220.84	49.527	
20,100.00	6,945.00	6,011.00	6,007.54	217.79	180.12	-61.32	1,075.91	2,826.69	11,035.86	10,814.97	220.89	49.961	
20,200.00	6,945.00	6,011.00	6,007.54	219.38	180.12	-61.32	1,075.91	2,826.69	11,134.44	10,913.49	220.95	50.394	
20,300.00	6,945.00	6,011.00	6,007.54	220.98	180.12	-61.32	1,075.91	2,826.69	11,233.04	11,012.03	221.00	50.827	
20,400.00	6,945.00	6,011.00	6,007.54	222.57	180.12	-61.32	1,075.91	2,826.69	11,331.66	11,110.60	221.06	51.260	
20,500.00	6,945.00	6,011.00	6,007.54	224.16	180.12	-61.32	1,075.91	2,826.69	11,430.31	11,209.19	221.12	51.692	
20,600.00	6,945.00	6,011.00	6,007.54	225.75	180.12	-61.32	1,075.91	2,826.69	11,528.98	11,307.80	221.18	52.124	
20,700.00	6,945.00	6,011.00	6,007.54	227.35	180.12	-61.32	1,075.91	2,826.69	11,627.67	11,406.43	221.24	52.556	
20,800.00	6,945.00	6,011.00	6,007.54	228.94	180.12	-61.32	1,075.91	2,826.69	11,726.39	11,505.08	221.30	52.988	
20,852.96	6,945.00	6,011.00	6,007.54	229.61	180.12	-61.32	1,075.91	2,826.69	11,778.67	11,553.85	224.83	52.390	

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:	Plan #4	**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				
20.93	20.93	0.00	0.00	0.00	0.00	-131.25	1,151.18	2,111.59	2,405.05				
117.41	117.41	90.41	90.41	0.05	2.71	-135.81	1,151.18	2,111.59	2,405.35	2,402.59	2.76	872.882	
206.68	206.68	179.68	179.68	0.17	5.38	-109.91	1,151.18	2,111.59	2,405.55	2,400.03	5.51	436.437	
292.93	292.93	265.93	265.93	0.28	7.97	-110.48	1,151.18	2,111.59	2,405.73	2,397.57	8.16	294.693	
365.00	364.99	337.99	337.99	0.36	10.13	-141.17	1,151.18	2,111.59	2,406.06	2,395.67	10.39	231.655	
451.00	450.97	423.97	423.97	0.55	12.70	-87.91	1,151.18	2,111.59	2,406.26	2,393.06	13.19	182.366	
540.00	539.81	512.91	512.81	0.83	15.37	-82.55	1,151.18	2,111.59	2,405.74	2,389.58	16.16	148.854	
665.00	664.37	637.47	637.37	1.26	19.10	-80.48	1,151.18	2,111.59	2,404.18	2,383.83	20.35	118.154	
753.00	752.01	725.11	725.01	1.58	21.73	-81.65	1,151.18	2,111.59	2,402.94	2,379.64	23.30	103.128	
847.00	845.61	824.96	824.81	1.93	24.72	-78.90	1,153.16	2,111.59	2,402.46	2,375.81	26.64	90.167	
939.00	937.22	924.99	924.81	2.27	27.72	-78.87	1,152.29	2,111.59	2,400.40	2,370.41	29.99	80.047	
1,028.76	1,026.54	1,022.66	1,022.45	2.61	30.64	-90.35	1,150.76	2,111.59	2,398.91	2,365.66	33.25	72.141	
1,030.00	1,027.78	1,001.18	1,000.78	2.62	30.00	-90.45	1,151.18	2,111.59	2,399.01	2,366.39	32.62	73.554	
1,120.00	1,117.25	1,090.65	1,090.25	2.96	32.68	-87.82	1,151.18	2,111.59	2,398.85	2,363.21	35.64	67.304	
1,189.20	1,186.00	1,159.41	1,159.00	3.23	34.74	-90.00	1,151.18	2,111.59	2,398.70	2,360.73	37.97	63.174	
1,211.00	1,207.68	1,181.08	1,180.68	3.31	35.39	-90.72	1,151.18	2,111.59	2,398.71	2,360.01	38.70	61.977	
1,306.00	1,302.14	1,277.96	1,277.51	3.68	38.29	-89.17	1,153.33	2,111.59	2,399.80	2,357.83	41.97	57.177	
1,400.00	1,395.63	1,380.34	1,379.87	4.04	41.36	-88.15	1,152.77	2,111.59	2,399.30	2,353.90	45.40	52.849	
1,495.00	1,490.19	1,484.03	1,483.53	4.40	44.47	-89.04	1,151.45	2,111.59	2,398.45	2,349.58	48.87	49.081	
1,526.91	1,521.97	1,518.91	1,518.40	4.52	45.51	-89.90	1,150.84	2,111.59	2,398.13	2,348.10	50.03	47.932	
1,589.00	1,583.83	1,557.54	1,556.83	4.76	46.67	-91.63	1,151.18	2,111.59	2,398.27	2,346.84	51.43	46.635	
1,684.00	1,678.44	1,652.15	1,651.44	5.12	49.51	-89.46	1,151.18	2,111.59	2,398.34	2,343.72	54.62	43.909	
1,779.00	1,772.98	1,746.69	1,745.98	5.48	52.34	-85.28	1,151.18	2,111.59	2,397.89	2,340.07	57.82	41.474	
1,792.97	1,786.87	1,761.62	1,760.87	5.53	52.79	-85.15	1,153.36	2,111.59	2,398.91	2,340.60	58.32	41.135	
1,873.00	1,866.49	1,849.04	1,848.28	5.84	55.41	-84.08	1,153.02	2,111.59	2,397.98	2,336.74	61.24	39.155	
1,967.00	1,960.05	1,951.90	1,951.10	6.20	58.49	-79.65	1,151.94	2,111.59	2,396.17	2,331.49	64.68	37.045	
2,062.00	2,054.59	2,028.60	2,027.59	6.56	60.79	-85.17	1,151.18	2,111.59	2,394.48	2,327.14	67.35	35.555	
2,156.00	2,148.09	2,122.10	2,121.09	6.92	63.59	-86.10	1,151.18	2,111.59	2,393.74	2,323.23	70.51	33.950	
2,251.00	2,242.55	2,216.57	2,215.55	7.29	66.42	-85.00	1,151.18	2,111.59	2,392.95	2,319.25	73.70	32.467	
2,282.96	2,274.33	2,248.34	2,247.33	7.41	67.37	-87.15	1,151.18	2,111.59	2,392.72	2,317.94	74.78	31.997	
2,345.00	2,336.00	2,316.09	2,315.03	7.65	69.40	-91.27	1,153.21	2,111.59	2,393.74	2,316.69	77.05	31.068	
2,350.70	2,341.66	2,322.33	2,321.27	7.67	69.59	-91.44	1,153.18	2,111.59	2,393.73	2,316.48	77.26	30.983	
2,440.00	2,430.43	2,420.21	2,419.12	8.02	72.52	-94.13	1,152.35	2,111.59	2,393.79	2,313.26	80.54	29.724	
2,535.00	2,524.86	2,524.51	2,523.38	8.38	75.65	-93.11	1,150.73	2,111.59	2,393.63	2,309.61	84.02	28.487	
2,539.23	2,529.07	2,503.39	2,502.07	8.40	75.01	-93.06	1,151.18	2,111.59	2,393.77	2,310.36	83.41	28.698	
2,629.00	2,618.31	2,592.63	2,591.31	8.75	77.69	-93.30	1,151.18	2,111.59	2,394.31	2,307.88	86.43	27.701	
2,724.00	2,712.77	2,687.09	2,685.77	9.12	80.52	-92.78	1,151.18	2,111.59	2,394.86	2,305.23	89.63	26.719	
2,818.00	2,806.24	2,783.77	2,782.41	9.48	83.41	-92.50	1,153.32	2,111.59	2,396.52	2,303.63	92.89	25.799	
2,913.00	2,900.71	2,888.26	2,886.87	9.84	86.55	-90.55	1,152.69	2,111.59	2,396.46	2,300.08	96.39	24.863	
3,008.00	2,995.25	2,992.96	2,991.54	10.21	89.68	-95.18	1,151.30	2,111.59	2,396.20	2,296.31	99.88	23.990	
3,038.27	3,025.38	3,026.36	3,024.93	10.32	90.68	-95.17	1,150.69	2,111.59	2,396.15	2,295.15	101.00	23.725	
3,102.00	3,088.80	3,063.42	3,061.80	10.57	91.79	-95.12	1,151.18	2,111.59	2,396.84	2,294.48	102.36	23.416	
3,197.00	3,183.30	3,157.92	3,156.30	10.93	94.63	-92.43	1,151.18	2,111.59	2,397.48	2,291.93	105.55	22.713	
3,291.00	3,276.71	3,251.50	3,249.83	11.30	97.43	-98.79	1,153.36	2,111.59	2,399.81	2,291.09	108.72	22.073	
3,386.00	3,371.01	3,356.10	3,354.42	11.67	100.56	-100.23	1,152.97	2,111.59	2,401.52	2,289.29	112.23	21.399	
3,480.00	3,464.23	3,459.73	3,458.02	12.04	103.67	-99.22	1,151.82	2,111.59	2,402.95	2,287.25	115.70	20.769	
3,575.00	3,558.47	3,533.40	3,531.47	12.42	105.88	-97.97	1,151.18	2,111.59	2,404.29	2,286.01	118.29	20.326	
3,670.00	3,652.84	3,627.77	3,625.84	12.79	108.70	-97.31	1,151.18	2,111.59	2,405.76	2,284.28	121.48	19.803	
3,764.00	3,746.36	3,721.29	3,719.36	13.15	111.51	-94.39	1,151.18	2,111.59	2,406.76	2,282.11	124.64	19.309	
3,859.00	3,840.97	3,823.38	3,821.40	13.51	114.57	-90.93	1,153.17	2,111.59	2,408.36	2,280.30	128.06	18.806	
3,954.00	3,935.57	3,928.82	3,926.81	13.87	117.73	-91.11	1,152.24	2,111.59	2,408.01	2,276.43	131.58	18.301	

CC - Min centre to center distance or 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:	Plan #4	**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
4,004.07	3,985.41	3,984.43	3,982.41	14.06	119.39	-95.99	1,151.44	2,111.59	2,407.87	2,274.44	133.43	18.046	
4,049.00	4,030.14	4,005.37	4,003.14	14.23	120.02	-100.31	1,151.18	2,111.59	2,408.20	2,273.96	134.24	17.940	
4,143.00	4,123.75	4,098.98	4,096.75	14.59	122.82	-99.44	1,151.18	2,111.59	2,409.67	2,272.28	137.40	17.538	
4,238.00	4,218.33	4,193.56	4,191.33	14.95	125.66	-99.39	1,151.18	2,111.59	2,411.14	2,270.55	140.59	17.150	
4,333.00	4,312.74	4,292.42	4,290.14	15.32	128.62	-102.44	1,153.30	2,111.59	2,414.48	2,270.56	143.92	16.777	
4,427.00	4,406.05	4,396.75	4,394.45	15.69	131.75	-100.35	1,152.61	2,111.59	2,416.35	2,268.94	147.41	16.392	
4,522.00	4,500.34	4,502.38	4,500.05	16.06	134.91	-99.72	1,151.14	2,111.59	2,417.55	2,266.61	150.94	16.016	
4,616.00	4,593.47	4,569.01	4,566.47	16.44	136.91	-102.10	1,151.18	2,111.59	2,419.88	2,266.56	153.32	15.783	
4,710.00	4,686.44	4,661.98	4,659.44	16.82	139.69	-101.71	1,151.18	2,111.59	2,422.77	2,266.29	156.48	15.483	
4,899.00	4,873.89	4,861.62	4,859.02	17.57	145.68	-96.08	1,152.93	2,111.59	2,427.85	2,264.65	163.21	14.876	
4,962.00	4,936.56	4,932.06	4,929.45	17.81	147.79	-93.89	1,152.20	2,111.59	2,428.00	2,262.45	165.55	14.666	
4,987.92	4,962.36	4,961.08	4,958.45	17.91	148.66	-95.60	1,151.80	2,111.59	2,427.98	2,261.46	166.52	14.581	
5,024.00	4,998.27	5,001.48	4,998.84	18.04	149.87	-97.78	1,151.15	2,111.59	2,428.03	2,260.16	167.87	14.464	
5,150.00	5,123.66	5,099.50	5,096.66	18.53	152.80	-97.02	1,151.18	2,111.59	2,429.48	2,258.19	171.29	14.183	
5,213.00	5,186.37	5,162.22	5,159.37	18.77	154.68	-99.53	1,151.18	2,111.59	2,430.35	2,256.94	173.41	14.015	
5,276.00	5,249.09	5,224.93	5,222.09	19.01	156.56	-98.79	1,151.18	2,111.59	2,431.31	2,255.78	175.53	13.852	
5,339.00	5,311.83	5,292.42	5,289.53	19.25	158.58	-99.91	1,153.30	2,111.59	2,433.62	2,255.84	177.79	13.689	
5,401.00	5,373.58	5,361.97	5,359.06	19.48	160.67	-97.54	1,152.92	2,111.59	2,434.25	2,254.15	180.10	13.516	
5,464.00	5,436.33	5,432.72	5,429.80	19.72	162.79	-100.39	1,152.19	2,111.59	2,434.69	2,252.23	182.45	13.344	
5,590.00	5,561.87	5,538.02	5,534.87	20.19	165.94	-101.88	1,151.18	2,111.59	2,436.02	2,249.94	186.09	13.091	
5,653.00	5,624.66	5,600.80	5,597.66	20.43	167.83	-103.35	1,151.18	2,111.59	2,437.16	2,248.96	188.20	12.950	
5,715.00	5,686.48	5,662.62	5,659.48	20.66	169.68	-108.42	1,151.18	2,111.59	2,438.45	2,248.17	190.28	12.815	
5,778.00	5,749.29	5,725.44	5,722.29	20.90	171.56	-105.84	1,151.18	2,111.59	2,439.87	2,247.47	192.40	12.681	
5,841.00	5,812.10	5,793.19	5,790.00	21.13	173.59	-108.29	1,153.30	2,111.59	2,442.72	2,248.05	194.66	12.549	
5,904.00	5,874.94	5,864.16	5,860.95	21.36	175.72	-103.11	1,152.91	2,111.59	2,443.73	2,246.71	197.02	12.404	
5,967.00	5,937.80	5,935.22	5,931.99	21.60	177.85	-101.67	1,152.16	2,111.59	2,444.19	2,244.82	199.37	12.259	
6,030.00	6,000.68	6,006.34	6,003.09	21.83	179.98	-103.67	1,151.07	2,111.59	2,444.38	2,242.65	201.73	12.117	
6,093.00	6,063.59	6,040.04	6,036.59	22.05	180.99	-100.05	1,151.18	2,111.59	2,444.99	2,242.02	202.98	12.046	
6,156.00	6,126.51	6,102.96	6,099.51	22.28	182.87	-94.85	1,151.18	2,111.59	2,445.41	2,240.32	205.09	11.924	
6,235.00	6,205.43	6,181.88	6,178.43	22.56	185.24	-95.25	1,151.18	2,111.59	2,445.71	2,237.98	207.74	11.773	
6,300.00	6,270.38	6,246.83	6,243.38	22.68	187.18	-95.31	1,151.18	2,111.59	2,445.94	2,236.14	209.80	11.658	
6,355.00	6,325.34	6,308.58	6,305.09	22.69	189.03	-95.40	1,153.24	2,111.59	2,447.54	2,235.87	211.66	11.563	
6,400.00	6,370.23	6,359.37	6,355.86	22.71	190.56	-62.89	1,152.94	2,111.59	2,446.41	2,233.21	213.20	11.475	
6,450.00	6,419.74	6,415.40	6,411.88	22.73	192.23	-55.80	1,152.40	2,111.59	2,442.44	2,227.54	214.90	11.366	
6,500.00	6,468.57	6,470.70	6,467.15	22.77	193.89	-53.54	1,151.66	2,111.59	2,435.65	2,219.06	216.59	11.245	
6,550.00	6,516.42	6,524.90	6,521.34	22.81	195.52	-52.92	1,150.72	2,111.59	2,426.13	2,207.87	218.26	11.116	
6,600.00	6,562.98	6,539.74	6,535.98	22.87	195.96	-52.90	1,151.18	2,111.59	2,414.74	2,195.95	218.78	11.037	
6,650.00	6,607.98	6,584.74	6,580.98	22.95	197.31	-53.65	1,151.18	2,111.59	2,400.83	2,180.62	220.21	10.902	
6,700.00	6,651.14	6,627.89	6,624.14	23.03	198.60	-54.84	1,151.18	2,111.59	2,384.66	2,163.06	221.60	10.761	
6,750.00	6,692.18	6,668.94	6,665.18	23.14	199.83	-56.41	1,151.18	2,111.59	2,366.38	2,143.43	222.94	10.614	
6,800.00	6,730.86	6,707.61	6,703.86	23.26	200.99	-58.32	1,151.18	2,111.59	2,346.17	2,121.94	224.23	10.463	
6,850.00	6,766.93	6,743.69	6,739.93	23.40	202.07	-60.55	1,151.18	2,111.59	2,324.24	2,098.78	225.46	10.309	
6,900.00	6,800.18	6,780.54	6,776.74	23.56	203.18	-63.17	1,153.33	2,111.59	2,302.37	2,075.64	226.73	10.155	
6,950.00	6,830.39	6,814.79	6,810.99	23.74	204.20	-66.03	1,153.21	2,111.59	2,277.59	2,049.66	227.94	9.992	
7,000.00	6,857.38	6,845.42	6,841.61	23.94	205.12	-69.11	1,153.04	2,111.59	2,251.74	2,022.68	229.06	9.830	
7,050.00	6,880.98	6,872.22	6,868.40	24.17	205.92	-72.35	1,152.84	2,111.59	2,225.07	1,994.98	230.09	9.670	
7,100.00	6,901.06	6,895.03	6,891.21	24.42	206.61	-75.69	1,152.63	2,111.59	2,197.84	1,966.82	231.03	9.513	
7,150.00	6,917.47	6,913.70	6,909.87	24.70	207.17	-79.05	1,152.42	2,111.59	2,170.33	1,938.47	231.86	9.361	
7,200.00	6,930.13	6,928.11	6,924.28	25.01	207.60	-82.37	1,152.25	2,111.59	2,142.78	1,910.19	232.59	9.213	
7,250.00	6,938.95	6,938.17	6,934.34	25.34	207.90	-85.58	1,152.12	2,111.59	2,115.45	1,882.24	233.21	9.071	
7,300.00	6,943.88	6,943.82	6,939.98	25.69	208.07	-88.61	1,152.05	2,111.59	2,088.57	1,854.85	233.72	8.936	
7,337.82	6,945.00	6,945.13	6,941.29	25.97	208.11	-90.76	1,152.03	2,111.59	2,068.67	1,834.65	234.03	8.839	

CC - Min centre to center distance or 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:	Plan #4	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
7,400.00	6,945.00	6,945.17	6,941.34	26.45	208.11	-90.77	1,152.03	2,111.59	2,036.44	1,801.95	234.50	8.684	
7,492.38	6,945.00	6,945.20	6,941.36	27.21	208.11	-90.78	1,152.03	2,111.59	1,989.00	1,753.75	235.25	8.455	
7,500.00	6,945.00	6,945.20	6,941.36	27.28	208.11	-90.78	1,152.03	2,111.59	1,985.12	1,749.81	235.31	8.436	
7,600.00	6,945.00	6,945.21	6,941.37	28.17	208.11	-90.78	1,152.03	2,111.59	1,936.28	1,700.08	236.20	8.198	
7,700.00	6,945.00	6,945.21	6,941.38	29.12	208.11	-90.78	1,152.03	2,111.59	1,891.47	1,654.31	237.16	7.976	
7,800.00	6,945.00	6,945.22	6,941.38	30.14	208.11	-90.78	1,152.03	2,111.59	1,850.98	1,612.80	238.19	7.771	
7,900.00	6,945.00	6,945.23	6,941.39	31.20	208.11	-90.78	1,152.03	2,111.59	1,815.11	1,575.83	239.27	7.586	
8,000.00	6,945.00	6,945.23	6,941.39	32.31	208.11	-90.78	1,152.03	2,111.59	1,784.12	1,543.72	240.40	7.421	
8,100.00	6,945.00	6,945.24	6,941.40	33.46	208.11	-90.78	1,152.03	2,111.59	1,758.29	1,516.73	241.56	7.279	
8,200.00	6,945.00	6,945.24	6,941.40	34.64	208.11	-90.78	1,152.03	2,111.59	1,737.83	1,495.11	242.72	7.160	
8,300.00	6,945.00	6,945.25	6,941.41	35.86	208.11	-90.78	1,152.03	2,111.59	1,722.94	1,479.07	243.87	7.065	
8,400.00	6,945.00	6,945.25	6,941.42	37.11	208.11	-90.78	1,152.03	2,111.59	1,713.77	1,468.78	244.99	6.995	
8,500.00	6,945.00	6,945.26	6,941.42	38.39	208.11	-90.78	1,152.03	2,111.59	1,710.41	1,464.35	246.06	6.951	
8,507.61	6,945.00	6,945.26	6,941.42	38.49	208.11	-90.78	1,152.03	2,111.59	1,710.39	1,464.25	246.14	6.949	CC, ES
8,600.00	6,945.00	6,945.27	6,941.43	39.69	208.11	-90.78	1,152.03	2,111.59	1,712.88	1,465.82	247.06	6.933	SF
8,700.00	6,945.00	6,945.27	6,941.43	41.01	208.11	-90.78	1,152.03	2,111.59	1,721.17	1,473.20	247.98	6.941	
8,800.00	6,945.00	6,945.28	6,941.44	42.35	208.11	-90.79	1,152.03	2,111.59	1,735.20	1,486.40	248.80	6.974	
8,900.00	6,945.00	6,945.28	6,941.45	43.71	208.11	-90.79	1,152.03	2,111.59	1,754.82	1,505.29	249.53	7.032	
9,000.00	6,945.00	6,945.29	6,941.45	45.08	208.11	-90.79	1,152.03	2,111.59	1,779.85	1,529.69	250.16	7.115	
9,100.00	6,945.00	6,945.29	6,941.46	46.47	208.11	-90.79	1,152.03	2,111.59	1,810.07	1,559.38	250.69	7.220	
9,200.00	6,945.00	6,945.30	6,941.46	47.87	208.11	-90.79	1,152.03	2,111.59	1,845.22	1,594.10	251.12	7.348	
9,300.00	6,945.00	6,945.31	6,941.47	49.29	208.11	-90.79	1,152.03	2,111.59	1,885.02	1,633.56	251.46	7.496	
9,400.00	6,945.00	6,945.31	6,941.47	50.71	208.11	-90.79	1,152.03	2,111.59	1,929.19	1,677.48	251.72	7.664	
9,500.00	6,945.00	6,945.32	6,941.48	52.15	208.11	-90.79	1,152.03	2,111.59	1,977.44	1,725.54	251.90	7.850	
9,600.00	6,945.00	6,945.32	6,941.49	53.59	208.11	-90.79	1,152.03	2,111.59	2,029.47	1,777.46	252.01	8.053	
9,700.00	6,945.00	6,945.33	6,941.49	55.05	208.11	-90.79	1,152.03	2,111.59	2,085.00	1,832.93	252.07	8.272	
9,800.00	6,945.00	6,945.34	6,941.50	56.51	208.11	-90.79	1,152.03	2,111.59	2,143.76	1,891.69	252.07	8.505	
9,900.00	6,945.00	6,945.34	6,941.50	57.98	208.11	-90.79	1,152.03	2,111.59	2,205.49	1,953.45	252.04	8.751	
10,000.00	6,945.00	6,945.35	6,941.51	59.45	208.11	-90.79	1,152.03	2,111.59	2,269.95	2,017.98	251.97	9.009	
10,100.00	6,945.00	6,945.35	6,941.51	60.93	208.11	-90.79	1,152.03	2,111.59	2,336.91	2,085.04	251.87	9.278	
10,200.00	6,945.00	6,945.36	6,941.52	62.42	208.11	-90.79	1,152.03	2,111.59	2,406.16	2,154.41	251.75	9.558	
10,300.00	6,945.00	6,945.36	6,941.53	63.92	208.11	-90.79	1,152.03	2,111.59	2,477.52	2,225.91	251.61	9.847	
10,400.00	6,945.00	6,945.37	6,941.53	65.42	208.11	-90.79	1,152.03	2,111.59	2,550.80	2,299.34	251.46	10.144	
10,500.00	6,945.00	6,945.38	6,941.54	66.92	208.11	-90.79	1,152.03	2,111.59	2,625.84	2,374.55	251.30	10.449	
10,600.00	6,945.00	6,945.38	6,941.54	68.43	208.12	-90.79	1,152.03	2,111.59	2,702.50	2,451.38	251.13	10.762	
10,700.00	6,945.00	6,945.39	6,941.55	69.94	208.12	-90.79	1,152.03	2,111.59	2,780.65	2,529.69	250.95	11.080	
10,800.00	6,945.00	6,945.39	6,941.55	71.45	208.12	-90.79	1,152.03	2,111.59	2,860.15	2,609.38	250.78	11.405	
10,900.00	6,945.00	6,945.40	6,941.56	72.97	208.12	-90.79	1,152.03	2,111.59	2,940.91	2,690.31	250.60	11.735	
11,000.00	6,945.00	6,945.40	6,941.57	74.50	208.12	-90.79	1,152.03	2,111.59	3,022.82	2,772.39	250.43	12.071	
11,100.00	6,945.00	6,945.41	6,941.57	76.02	208.12	-90.79	1,152.03	2,111.59	3,105.79	2,855.53	250.25	12.411	
11,200.00	6,945.00	6,945.42	6,941.58	77.55	208.12	-90.79	1,152.03	2,111.59	3,189.73	2,939.65	250.08	12.755	
11,300.00	6,945.00	6,945.42	6,941.58	79.08	208.12	-90.79	1,152.03	2,111.59	3,274.58	3,024.66	249.92	13.103	
11,400.00	6,945.00	6,945.43	6,941.59	80.62	208.12	-90.79	1,152.03	2,111.59	3,360.26	3,110.51	249.75	13.454	
11,500.00	6,945.00	6,945.43	6,941.59	82.16	208.12	-90.79	1,152.03	2,111.59	3,446.71	3,197.12	249.60	13.809	
11,600.00	6,945.00	6,945.44	6,941.60	83.70	208.12	-90.79	1,152.03	2,111.59	3,533.88	3,284.44	249.44	14.167	
11,700.00	6,945.00	6,945.44	6,941.61	85.24	208.12	-90.79	1,152.03	2,111.59	3,621.71	3,372.42	249.29	14.528	
11,800.00	6,945.00	6,945.45	6,941.61	86.78	208.12	-90.79	1,152.03	2,111.59	3,710.16	3,461.01	249.15	14.891	
11,900.00	6,945.00	6,945.46	6,941.62	88.33	208.12	-90.79	1,152.03	2,111.59	3,799.18	3,550.16	249.01	15.257	
12,000.00	6,945.00	6,945.46	6,941.62	89.87	208.12	-90.79	1,152.03	2,111.59	3,888.73	3,639.85	248.88	15.625	
12,100.00	6,945.00	6,945.47	6,941.63	91.42	208.12	-90.79	1,152.03	2,111.59	3,978.78	3,730.03	248.75	15.995	
12,200.00	6,945.00	6,945.47	6,941.64	92.98	208.12	-90.79	1,152.03	2,111.59	4,069.30	3,820.67	248.63	16.367	
12,300.00	6,945.00	6,945.48	6,941.64	94.53	208.12	-90.79	1,152.03	2,111.59	4,160.25	3,911.73	248.51	16.741	

CC - Min centre to center distance or 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:	Plan #4	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
12,400.00	6,945.00	6,945.48	6,941.65	96.08	208.12	-90.79	1,152.03	2,111.59	4,251.60	4,003.20	248.40	17.116	
12,500.00	6,945.00	6,945.49	6,941.65	97.64	208.12	-90.79	1,152.03	2,111.59	4,343.34	4,095.05	248.29	17.493	
12,600.00	6,945.00	6,945.50	6,941.66	99.20	208.12	-90.79	1,152.03	2,111.59	4,435.44	4,187.24	248.19	17.871	
12,700.00	6,945.00	6,945.50	6,941.66	100.76	208.12	-90.79	1,152.03	2,111.59	4,527.87	4,279.77	248.09	18.251	
12,800.00	6,945.00	6,945.51	6,941.67	102.32	208.12	-90.79	1,152.03	2,111.59	4,620.61	4,372.61	248.00	18.631	
12,900.00	6,945.00	6,945.51	6,941.68	103.88	208.12	-90.79	1,152.03	2,111.59	4,713.65	4,465.74	247.91	19.013	
13,000.00	6,945.00	6,945.52	6,941.68	105.44	208.12	-90.79	1,152.03	2,111.59	4,806.97	4,559.14	247.83	19.396	
13,100.00	6,945.00	6,945.53	6,941.69	107.00	208.12	-90.79	1,152.03	2,111.59	4,900.56	4,652.81	247.75	19.780	
13,200.00	6,945.00	6,945.53	6,941.69	108.57	208.12	-90.79	1,152.03	2,111.59	4,994.39	4,746.71	247.68	20.165	
13,300.00	6,945.00	6,945.54	6,941.70	110.13	208.12	-90.79	1,152.03	2,111.59	5,088.46	4,840.85	247.61	20.550	
13,400.00	6,945.00	6,945.54	6,941.70	111.70	208.12	-90.79	1,152.03	2,111.59	5,182.75	4,935.21	247.54	20.937	
13,500.00	6,945.00	6,945.55	6,941.71	113.27	208.12	-90.79	1,152.02	2,111.59	5,277.25	5,029.77	247.48	21.324	
13,600.00	6,945.00	6,945.55	6,941.72	114.84	208.12	-90.79	1,152.02	2,111.59	5,371.95	5,124.53	247.42	21.712	
13,700.00	6,945.00	6,945.56	6,941.72	116.41	208.12	-90.79	1,152.02	2,111.59	5,466.84	5,219.47	247.37	22.100	
13,800.00	6,945.00	6,945.57	6,941.73	117.98	208.12	-90.79	1,152.02	2,111.59	5,561.91	5,314.59	247.31	22.489	
13,900.00	6,945.00	6,945.57	6,941.73	119.55	208.12	-90.79	1,152.02	2,111.59	5,657.15	5,409.88	247.27	22.879	
14,000.00	6,945.00	6,945.58	6,941.74	121.12	208.12	-90.80	1,152.02	2,111.59	5,752.55	5,505.32	247.22	23.269	
14,100.00	6,945.00	6,945.58	6,941.74	122.69	208.12	-90.80	1,152.02	2,111.59	5,848.10	5,600.92	247.18	23.659	
14,200.00	6,945.00	6,945.59	6,941.75	124.27	208.12	-90.80	1,152.02	2,111.59	5,943.80	5,696.66	247.14	24.050	
14,300.00	6,945.00	6,945.59	6,941.76	125.84	208.12	-90.80	1,152.02	2,111.59	6,039.64	5,792.53	247.11	24.441	
14,400.00	6,945.00	6,945.60	6,941.76	127.41	208.12	-90.80	1,152.02	2,111.59	6,135.61	5,888.53	247.08	24.833	
14,500.00	6,945.00	6,945.61	6,941.77	128.99	208.12	-90.80	1,152.02	2,111.59	6,231.71	5,984.66	247.05	25.225	
14,600.00	6,945.00	6,945.61	6,941.77	130.57	208.12	-90.80	1,152.02	2,111.59	6,327.93	6,080.90	247.02	25.617	
14,700.00	6,945.00	6,945.62	6,941.78	132.14	208.12	-90.80	1,152.02	2,111.59	6,424.26	6,177.26	247.00	26.009	
14,800.00	6,945.00	6,945.62	6,941.79	133.72	208.12	-90.80	1,152.02	2,111.59	6,520.71	6,273.73	246.98	26.402	
14,900.00	6,945.00	6,945.63	6,941.79	135.30	208.12	-90.80	1,152.02	2,111.59	6,617.26	6,370.30	246.96	26.795	
15,000.00	6,945.00	6,945.64	6,941.80	136.87	208.12	-90.80	1,152.02	2,111.59	6,713.91	6,466.96	246.94	27.188	
15,100.00	6,945.00	6,945.64	6,941.80	138.45	208.12	-90.80	1,152.02	2,111.59	6,810.66	6,563.73	246.93	27.581	
15,200.00	6,945.00	6,945.65	6,941.81	140.03	208.12	-90.80	1,152.02	2,111.59	6,907.50	6,660.58	246.92	27.975	
15,300.00	6,945.00	6,945.65	6,941.81	141.61	208.12	-90.80	1,152.02	2,111.59	7,004.43	6,757.52	246.91	28.368	
15,400.00	6,945.00	6,945.66	6,941.82	143.19	208.12	-90.80	1,152.02	2,111.59	7,101.44	6,854.54	246.90	28.762	
15,500.00	6,945.00	6,945.66	6,941.83	144.77	208.12	-90.80	1,152.02	2,111.59	7,198.54	6,951.64	246.90	29.156	
15,600.00	6,945.00	6,945.67	6,941.83	146.35	208.12	-90.80	1,152.02	2,111.59	7,295.71	7,048.81	246.90	29.549	
15,700.00	6,945.00	6,945.68	6,941.84	147.94	208.12	-90.80	1,152.02	2,111.59	7,392.96	7,146.06	246.90	29.943	
15,800.00	6,945.00	6,945.68	6,941.84	149.52	208.12	-90.80	1,152.02	2,111.59	7,490.29	7,243.38	246.90	30.337	
15,900.00	6,945.00	6,945.69	6,941.85	151.10	208.12	-90.80	1,152.02	2,111.59	7,587.68	7,340.77	246.91	30.731	
16,000.00	6,945.00	6,945.69	6,941.85	152.68	208.12	-90.80	1,152.02	2,111.59	7,685.14	7,438.23	246.91	31.125	
16,100.00	6,945.00	6,945.70	6,941.86	154.26	208.12	-90.80	1,152.02	2,111.59	7,782.66	7,535.74	246.92	31.519	
16,200.00	6,945.00	6,945.70	6,941.87	155.85	208.12	-90.80	1,152.02	2,111.59	7,880.25	7,633.32	246.93	31.913	
16,300.00	6,945.00	6,945.71	6,941.87	157.43	208.12	-90.80	1,152.02	2,111.59	7,977.89	7,730.95	246.94	32.307	
16,400.00	6,945.00	6,945.72	6,941.88	159.02	208.13	-90.80	1,152.02	2,111.59	8,075.60	7,828.64	246.96	32.701	
16,500.00	6,945.00	6,945.72	6,941.88	160.60	208.13	-90.80	1,152.02	2,111.59	8,173.36	7,926.38	246.97	33.094	
16,600.00	6,945.00	6,945.73	6,941.89	162.18	208.13	-90.80	1,152.02	2,111.59	8,271.17	8,024.18	246.99	33.488	
16,700.00	6,945.00	6,945.73	6,941.89	163.77	208.13	-90.80	1,152.02	2,111.59	8,369.03	8,122.03	247.01	33.882	
16,800.00	6,945.00	6,945.74	6,941.90	165.35	208.13	-90.80	1,152.02	2,111.59	8,466.95	8,219.92	247.03	34.275	
16,900.00	6,945.00	6,945.74	6,941.91	166.94	208.13	-90.80	1,152.02	2,111.59	8,564.91	8,317.86	247.05	34.669	
17,000.00	6,945.00	6,945.75	6,941.91	168.53	208.13	-90.80	1,152.02	2,111.59	8,662.92	8,415.84	247.07	35.062	
17,100.00	6,945.00	6,945.76	6,941.92	170.11	208.13	-90.80	1,152.02	2,111.59	8,760.97	8,513.87	247.10	35.456	
17,200.00	6,945.00	6,945.76	6,941.92	171.70	208.13	-90.80	1,152.02	2,111.59	8,859.07	8,611.94	247.12	35.849	
17,300.00	6,945.00	6,945.77	6,941.93	173.29	208.13	-90.80	1,152.02	2,111.59	8,957.21	8,710.06	247.15	36.242	
17,400.00	6,945.00	6,945.77	6,941.94	174.87	208.13	-90.80	1,152.02	2,111.59	9,055.39	8,808.21	247.18	36.635	
17,500.00	6,945.00	6,945.78	6,941.94	176.46	208.13	-90.80	1,152.02	2,111.59	9,153.61	8,906.40	247.21	37.028	

CC - Min centre to center distance or 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:	Plan #4	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
17,600.00	6,945.00	6,945.79	6,941.95	178.05	208.13	-90.80	1,152.02	2,111.59	9,251.86	9,004.62	247.24	37.420	
17,700.00	6,945.00	6,945.79	6,941.95	179.63	208.13	-90.80	1,152.02	2,111.59	9,350.16	9,102.88	247.28	37.813	
17,800.00	6,945.00	6,945.80	6,941.96	181.22	208.13	-90.80	1,152.02	2,111.59	9,448.49	9,201.18	247.31	38.205	
17,900.00	6,945.00	6,945.80	6,941.96	182.81	208.13	-90.80	1,152.02	2,111.59	9,546.85	9,299.51	247.35	38.597	
18,000.00	6,945.00	6,945.81	6,941.97	184.40	208.13	-90.80	1,152.02	2,111.59	9,645.25	9,397.87	247.38	38.989	
18,100.00	6,945.00	6,945.81	6,941.98	185.99	208.13	-90.80	1,152.02	2,111.59	9,743.68	9,496.26	247.42	39.381	
18,200.00	6,945.00	6,945.82	6,941.98	187.58	208.13	-90.80	1,152.02	2,111.59	9,842.15	9,594.69	247.46	39.772	
18,300.00	6,945.00	6,945.83	6,941.99	189.16	208.13	-90.80	1,152.02	2,111.59	9,940.64	9,693.14	247.50	40.164	
18,400.00	6,945.00	6,945.83	6,941.99	190.75	208.13	-90.80	1,152.02	2,111.59	10,039.16	9,791.62	247.54	40.555	
18,500.00	6,945.00	6,945.84	6,942.00	192.34	208.13	-90.80	1,152.02	2,111.59	10,137.72	9,890.13	247.59	40.946	
18,600.00	6,945.00	6,945.84	6,942.00	193.93	208.13	-90.80	1,152.02	2,111.59	10,236.30	9,988.67	247.63	41.337	
18,700.00	6,945.00	6,945.85	6,942.01	195.52	208.13	-90.80	1,152.02	2,111.59	10,334.90	10,087.23	247.68	41.727	
18,800.00	6,945.00	6,945.85	6,942.02	197.11	208.13	-90.80	1,152.02	2,111.59	10,433.54	10,185.82	247.72	42.118	
18,900.00	6,945.00	6,945.86	6,942.02	198.70	208.13	-90.80	1,152.02	2,111.59	10,532.20	10,284.43	247.77	42.508	
19,000.00	6,945.00	6,945.87	6,942.03	200.29	208.13	-90.80	1,152.02	2,111.59	10,630.88	10,383.06	247.82	42.898	
19,100.00	6,945.00	6,945.87	6,942.03	201.88	208.13	-90.81	1,152.02	2,111.59	10,729.59	10,481.72	247.87	43.287	
19,200.00	6,945.00	6,945.88	6,942.04	203.47	208.13	-90.81	1,152.02	2,111.59	10,828.33	10,580.41	247.92	43.677	
19,300.00	6,945.00	6,945.88	6,942.05	205.06	208.13	-90.81	1,152.02	2,111.59	10,927.08	10,679.11	247.97	44.066	
19,400.00	6,945.00	6,945.89	6,942.05	206.65	208.13	-90.81	1,152.02	2,111.59	11,025.86	10,777.84	248.02	44.455	
19,500.00	6,945.00	6,945.90	6,942.06	208.24	208.13	-90.81	1,152.02	2,111.59	11,124.66	10,876.58	248.08	44.843	
19,600.00	6,945.00	6,945.90	6,942.06	209.84	208.13	-90.81	1,152.02	2,111.59	11,223.48	10,975.35	248.13	45.232	
19,700.00	6,945.00	6,945.91	6,942.07	211.43	208.13	-90.81	1,152.02	2,111.59	11,322.32	11,074.14	248.19	45.620	
19,800.00	6,945.00	6,945.91	6,942.07	213.02	208.13	-90.81	1,152.02	2,111.59	11,421.19	11,172.94	248.24	46.008	
19,900.00	6,945.00	6,945.92	6,942.08	214.61	208.13	-90.81	1,152.02	2,111.59	11,520.07	11,271.77	248.30	46.395	
20,000.00	6,945.00	6,945.92	6,942.09	216.20	208.13	-90.81	1,152.02	2,111.59	11,618.97	11,370.61	248.36	46.783	
20,100.00	6,945.00	6,945.93	6,942.09	217.79	208.13	-90.81	1,152.02	2,111.59	11,717.89	11,469.47	248.42	47.170	
20,200.00	6,945.00	6,945.94	6,942.10	219.38	208.13	-90.81	1,152.02	2,111.59	11,816.83	11,568.35	248.48	47.557	
20,300.00	6,945.00	6,945.94	6,942.10	220.98	208.13	-90.81	1,152.02	2,111.59	11,915.78	11,667.24	248.54	47.943	
20,400.00	6,945.00	6,945.95	6,942.11	222.57	208.13	-90.81	1,152.02	2,111.59	12,014.76	11,766.16	248.60	48.329	
20,500.00	6,945.00	6,945.95	6,942.11	224.16	208.13	-90.81	1,152.02	2,111.59	12,113.75	11,865.08	248.66	48.715	
20,600.00	6,945.00	6,945.96	6,942.12	225.75	208.13	-90.81	1,152.02	2,111.59	12,212.75	11,964.03	248.73	49.101	
20,700.00	6,945.00	6,945.96	6,942.13	227.35	208.13	-90.81	1,152.02	2,111.59	12,311.78	12,062.98	248.79	49.486	
20,800.00	6,945.00	6,945.97	6,942.13	228.94	208.13	-90.81	1,152.02	2,111.59	12,410.81	12,161.96	248.86	49.871	
20,852.96	6,945.00	6,945.97	6,942.14	229.61	208.13	-90.81	1,152.02	2,111.59	12,463.27	12,210.47	252.80	49.301	

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:	Plan #4	**Offset TVD Reference:**	Offset Datum

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

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

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	481.00	481.00	0.00	14.41	81.51	1,595.99	10,688.62	10,807.11				
20.93	20.93	502.03	501.93	0.00	15.04	-111.14	1,595.99	10,688.62	10,807.13				
117.41	117.41	598.51	598.41	0.05	17.93	-115.69	1,595.99	10,688.62	10,807.31	10,789.34	17.97	601.367	
206.68	206.68	687.78	687.68	0.17	20.61	-89.80	1,595.99	10,688.62	10,807.39	10,786.68	20.71	521.814	
227.38	227.38	708.48	708.38	0.20	21.23	-90.00	1,595.99	10,688.62	10,807.39	10,786.04	21.34	506.325	
292.93	292.93	777.08	776.93	0.28	23.28	-90.36	1,598.14	10,688.62	10,807.71	10,784.26	23.44	461.007	
298.19	298.19	783.00	782.85	0.29	23.46	-92.43	1,598.13	10,688.62	10,807.71	10,784.08	23.63	457.451	
365.00	364.99	858.25	858.09	0.36	25.72	-121.04	1,597.76	10,688.62	10,807.81	10,781.86	25.94	416.625	
451.00	450.97	955.13	954.95	0.55	28.62	-67.77	1,596.70	10,688.62	10,807.20	10,778.11	29.09	371.454	
540.00	539.81	1,021.22	1,020.81	0.83	30.60	-62.33	1,595.99	10,688.62	10,804.80	10,773.42	31.39	344.261	
665.00	664.37	1,145.78	1,145.37	1.26	34.33	-60.08	1,595.99	10,688.62	10,799.75	10,764.17	35.57	303.584	
753.00	752.01	1,233.42	1,233.01	1.58	36.96	-61.11	1,595.99	10,688.62	10,795.82	10,757.29	38.53	280.224	
847.00	845.61	1,336.95	1,336.49	1.93	40.06	-58.14	1,597.91	10,688.62	10,791.74	10,749.76	41.98	257.084	
939.00	937.22	1,440.46	1,439.97	2.27	43.16	-57.95	1,596.90	10,688.62	10,787.06	10,741.64	45.42	237.482	
1,030.00	1,027.78	1,509.49	1,508.78	2.62	45.23	-69.44	1,595.99	10,688.62	10,782.97	10,735.14	47.83	225.428	
1,120.00	1,117.25	1,598.96	1,598.25	2.96	47.91	-66.65	1,595.99	10,688.62	10,779.29	10,728.43	50.86	211.951	
1,211.00	1,207.68	1,689.39	1,688.68	3.31	50.62	-69.34	1,595.99	10,688.62	10,775.45	10,721.54	53.92	199.855	
1,306.00	1,302.14	1,788.34	1,787.58	3.68	53.59	-67.55	1,598.12	10,688.62	10,772.05	10,714.81	57.24	188.176	
1,400.00	1,395.63	1,894.30	1,893.52	4.04	56.76	-66.35	1,597.44	10,688.62	10,768.15	10,707.37	60.78	177.171	
1,495.00	1,490.19	2,001.63	2,000.81	4.40	59.98	-67.04	1,595.96	10,688.62	10,764.30	10,699.95	64.35	167.267	
1,589.00	1,583.83	2,065.84	2,064.83	4.76	61.90	-69.51	1,595.99	10,688.62	10,761.19	10,694.56	66.63	161.501	
1,684.00	1,678.44	2,160.46	2,159.44	5.12	64.74	-67.19	1,595.99	10,688.62	10,758.01	10,688.19	69.83	154.069	
1,779.00	1,772.98	2,255.69	2,254.63	5.48	67.59	-62.86	1,598.17	10,688.62	10,754.37	10,681.32	73.04	147.238	
1,873.00	1,866.49	2,361.95	2,360.88	5.84	70.77	-61.41	1,597.73	10,688.62	10,749.83	10,673.25	76.58	140.370	
1,967.00	1,960.05	2,468.42	2,467.31	6.20	73.96	-56.79	1,596.50	10,688.62	10,744.96	10,664.84	80.13	134.099	
2,062.00	2,054.59	2,536.91	2,535.59	6.56	76.02	-62.19	1,595.99	10,688.62	10,740.12	10,657.58	82.54	130.122	
2,156.00	2,148.09	2,630.41	2,629.09	6.92	78.82	-62.95	1,595.99	10,688.62	10,735.63	10,649.93	85.70	125.272	
2,251.00	2,242.55	2,724.87	2,723.55	7.29	81.65	-61.66	1,595.99	10,688.62	10,730.94	10,642.05	88.89	120.718	
2,345.00	2,336.00	2,827.88	2,826.51	7.65	84.74	-67.71	1,597.96	10,688.62	10,726.89	10,634.55	92.34	116.168	
2,440.00	2,430.43	2,935.67	2,934.27	8.02	87.97	-70.38	1,596.96	10,688.62	10,723.01	10,627.08	95.93	111.774	
2,535.00	2,524.86	3,007.49	3,005.86	8.38	90.12	-69.15	1,595.99	10,688.62	10,719.23	10,620.78	98.45	108.877	
2,629.00	2,618.31	3,100.94	3,099.31	8.75	92.92	-69.20	1,595.99	10,688.62	10,715.59	10,613.98	101.62	105.453	
2,724.00	2,712.77	3,195.39	3,193.77	9.12	95.75	-68.49	1,595.99	10,688.62	10,711.91	10,607.09	104.81	102.202	
2,818.00	2,806.24	3,294.46	3,292.79	9.48	98.72	-67.98	1,598.10	10,688.62	10,708.55	10,600.41	108.14	99.025	
2,913.00	2,900.71	3,402.64	3,400.95	9.84	101.96	-65.83	1,597.36	10,688.62	10,704.52	10,592.77	111.75	95.794	
3,008.00	2,995.25	3,511.05	3,509.32	10.21	105.21	-70.27	1,595.79	10,688.62	10,700.74	10,585.38	115.35	92.764	
3,102.00	3,088.80	3,571.72	3,569.80	10.57	107.03	-70.09	1,595.99	10,688.62	10,697.59	10,580.06	117.53	91.018	
3,197.00	3,183.30	3,666.23	3,664.30	10.93	109.86	-67.22	1,595.99	10,688.62	10,694.03	10,573.30	120.73	88.580	
3,291.00	3,276.71	3,761.08	3,759.11	11.30	112.70	-73.41	1,598.17	10,688.62	10,690.89	10,566.96	123.93	86.263	
3,386.00	3,371.01	3,869.40	3,867.41	11.67	115.94	-74.63	1,597.67	10,688.62	10,687.62	10,560.07	127.55	83.791	
3,480.00	3,464.23	3,976.71	3,974.69	12.04	119.16	-73.42	1,596.37	10,688.62	10,684.09	10,552.95	131.14	81.473	
3,575.00	3,558.47	4,041.71	4,039.47	12.42	121.11	-71.97	1,595.99	10,688.62	10,680.39	10,546.93	133.46	80.027	
3,670.00	3,652.84	4,136.07	4,133.84	12.79	123.94	-71.08	1,595.99	10,688.62	10,676.90	10,540.24	136.66	78.130	
3,764.00	3,746.36	4,229.59	4,227.36	13.15	126.74	-67.93	1,595.99	10,688.62	10,673.59	10,533.77	139.82	76.339	
3,859.00	3,840.97	4,335.57	4,333.28	13.51	129.91	-64.26	1,597.91	10,688.62	10,670.46	10,527.11	143.35	74.436	
3,954.00	3,935.57	4,444.76	4,442.44	13.87	133.19	-64.28	1,596.84	10,688.62	10,666.49	10,519.50	146.98	72.570	
4,049.00	4,030.14	4,513.68	4,511.14	14.23	135.25	-73.37	1,595.99	10,688.62	10,663.03	10,513.62	149.41	71.368	
4,143.00	4,123.75	4,607.29	4,604.75	14.59	138.06	-72.32	1,595.99	10,688.62	10,660.50	10,507.94	152.57	69.873	
4,238.00	4,218.33	4,701.86	4,699.33	14.95	140.89	-72.14	1,595.99	10,688.62	10,657.76	10,502.00	155.76	68.422	
4,333.00	4,312.74	4,803.54	4,800.95	15.32	143.94	-75.03	1,598.07	10,688.62	10,655.16	10,495.98	159.18	66.938	
4,427.00	4,406.05	4,911.60	4,908.99	15.69	147.17	-72.72	1,597.26	10,688.62	10,651.86	10,489.07	162.78	65.435	
4,522.00	4,500.34	5,021.02	5,018.37	16.06	150.45	-71.88	1,595.60	10,688.62	10,648.05	10,481.62	166.43	63.978	

CC - Min centre to center distance or 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:	Plan #4	**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
4,616.00	4,593.47	5,077.31	5,074.47	16.44	152.14	-74.18	1,595.99	10,688.62	10,644.32	10,475.83	168.50	63.172	
4,710.00	4,686.44	5,170.28	5,167.44	16.82	154.93	-73.53	1,595.99	10,688.62	10,640.43	10,468.77	171.66	61.985	
4,899.00	4,873.89	5,375.28	5,372.37	17.57	161.07	-67.29	1,597.62	10,688.62	10,632.80	10,454.25	178.55	59.551	
4,962.00	4,936.56	5,448.25	5,445.33	17.81	163.25	-64.93	1,596.80	10,688.62	10,630.08	10,449.10	180.98	58.738	
5,024.00	4,998.27	5,520.16	5,517.21	18.04	165.41	-68.74	1,595.62	10,688.62	10,627.50	10,444.14	183.37	57.958	
5,150.00	5,123.66	5,607.81	5,604.66	18.53	168.04	-67.78	1,595.99	10,688.62	10,622.92	10,436.45	186.48	56.967	
5,213.00	5,186.37	5,670.52	5,667.37	18.77	169.91	-70.19	1,595.99	10,688.62	10,620.77	10,432.17	188.59	56.316	
5,276.00	5,249.09	5,733.24	5,730.09	19.01	171.79	-69.33	1,595.99	10,688.62	10,618.69	10,427.98	190.71	55.679	
5,339.00	5,311.83	5,803.63	5,800.43	19.25	173.90	-70.31	1,598.07	10,688.62	10,617.10	10,424.05	193.06	54.994	
5,401.00	5,373.58	5,875.68	5,872.47	19.48	176.06	-67.83	1,597.62	10,688.62	10,615.03	10,419.57	195.45	54.310	
5,464.00	5,436.33	5,948.98	5,945.75	19.72	178.26	-70.56	1,596.79	10,688.62	10,612.91	10,415.03	197.89	53.632	
5,590.00	5,561.87	6,046.32	6,042.87	20.19	181.18	-71.91	1,595.99	10,688.62	10,609.24	10,407.96	201.28	52.709	
5,653.00	5,624.66	6,109.11	6,105.66	20.43	183.06	-73.27	1,595.99	10,688.62	10,607.67	10,404.28	203.40	52.153	
5,715.00	5,686.48	6,170.93	6,167.48	20.66	184.91	-78.24	1,595.99	10,688.62	10,606.50	10,401.02	205.48	51.618	
5,778.00	5,749.29	6,233.74	6,230.29	20.90	186.79	-75.59	1,595.99	10,688.62	10,605.41	10,397.81	207.60	51.087	
5,841.00	5,812.10	6,296.55	6,293.10	21.13	188.67	-77.91	1,595.99	10,688.62	10,604.28	10,394.57	209.71	50.566	
5,904.00	5,874.94	6,300.00	6,296.37	21.36	188.78	-72.61	1,595.99	10,688.62	10,603.30	10,393.25	210.05	50.480	
5,967.00	5,937.80	6,300.00	6,296.37	21.60	188.78	-71.07	1,595.99	10,688.62	10,602.53	10,392.26	210.27	50.422	
6,025.72	5,996.40	6,300.00	6,296.37	21.81	188.78	-72.84	1,595.99	10,688.62	10,602.26	10,391.78	210.48	50.373	
6,030.00	6,000.68	6,300.00	6,296.37	21.83	188.78	-72.98	1,595.99	10,688.62	10,602.26	10,391.77	210.49	50.369	
6,093.00	6,063.59	6,300.00	6,296.37	22.05	188.78	-69.32	1,595.99	10,688.62	10,602.45	10,391.75	210.70	50.321	
6,156.00	6,126.51	6,300.00	6,296.37	22.28	188.78	-64.05	1,595.99	10,688.62	10,602.86	10,391.96	210.90	50.275	
6,235.00	6,205.43	6,300.00	6,296.37	22.56	188.78	-64.37	1,595.99	10,688.62	10,603.96	10,392.82	211.13	50.224	
6,300.00	6,270.38	6,300.00	6,296.37	22.68	188.78	-64.37	1,595.99	10,688.62	10,605.46	10,394.26	211.21	50.214	
6,355.00	6,325.34	6,300.00	6,296.37	22.69	188.78	-64.37	1,595.99	10,688.62	10,607.05	10,395.88	211.17	50.230	
6,400.00	6,370.23	6,300.00	6,296.37	22.71	188.78	-31.72	1,595.99	10,688.62	10,607.02	10,395.88	211.14	50.237	
6,450.00	6,419.74	6,300.00	6,296.37	22.73	188.78	-24.30	1,595.99	10,688.62	10,603.60	10,392.49	211.11	50.228	
6,500.00	6,468.57	6,300.00	6,296.37	22.77	188.78	-21.54	1,595.99	10,688.62	10,596.62	10,385.55	211.08	50.203	
6,550.00	6,516.42	6,300.00	6,296.37	22.81	188.78	-20.24	1,595.99	10,688.62	10,586.14	10,375.09	211.05	50.159	
6,600.00	6,562.98	6,300.00	6,296.37	22.87	188.78	-19.64	1,595.99	10,688.62	10,572.20	10,361.17	211.03	50.099	
6,650.00	6,607.98	6,300.00	6,296.37	22.95	188.78	-19.45	1,595.99	10,688.62	10,554.87	10,343.86	211.01	50.022	
6,700.00	6,651.14	6,300.00	6,296.37	23.03	188.78	-19.57	1,595.99	10,688.62	10,534.25	10,323.26	210.99	49.928	
6,750.00	6,692.18	6,300.00	6,296.37	23.14	188.78	-19.94	1,595.99	10,688.62	10,510.44	10,299.46	210.98	49.817	
6,800.00	6,730.86	6,300.00	6,296.37	23.26	188.78	-20.55	1,595.99	10,688.62	10,483.57	10,272.59	210.98	49.691	
6,850.00	6,766.93	6,300.00	6,296.37	23.40	188.78	-21.41	1,595.99	10,688.62	10,453.78	10,242.80	210.98	49.549	
6,900.00	6,800.18	6,300.00	6,296.37	23.56	188.78	-22.56	1,595.99	10,688.62	10,421.24	10,210.25	210.99	49.393	
6,950.00	6,830.39	6,300.00	6,296.37	23.74	188.78	-24.04	1,595.99	10,688.62	10,386.11	10,175.11	211.00	49.223	
7,000.00	6,857.38	6,300.00	6,296.37	23.94	188.78	-25.94	1,595.99	10,688.62	10,348.60	10,137.57	211.03	49.039	
7,050.00	6,880.98	6,300.00	6,296.37	24.17	188.78	-28.37	1,595.99	10,688.62	10,308.90	10,097.85	211.06	48.844	
7,100.00	6,901.06	6,300.00	6,296.37	24.42	188.78	-31.50	1,595.99	10,688.62	10,267.25	10,056.15	211.10	48.637	
7,150.00	6,917.47	6,300.00	6,296.37	24.70	188.78	-35.59	1,595.99	10,688.62	10,223.87	10,012.73	211.14	48.421	
7,200.00	6,930.13	6,300.00	6,296.37	25.01	188.78	-41.01	1,595.99	10,688.62	10,179.01	9,967.81	211.20	48.197	
7,250.00	6,938.95	6,300.00	6,296.37	25.34	188.78	-48.27	1,595.99	10,688.62	10,132.94	9,921.68	211.26	47.965	
7,300.00	6,943.88	6,300.00	6,296.37	25.69	188.78	-58.00	1,595.99	10,688.62	10,085.91	9,874.59	211.32	47.728	
7,337.82	6,945.00	6,300.00	6,296.37	25.97	188.78	-67.32	1,595.99	10,688.62	10,049.89	9,838.51	211.38	47.545	
7,400.00	6,945.00	6,300.00	6,296.37	26.45	188.78	-65.64	1,595.99	10,688.62	9,990.25	9,778.78	211.46	47.243	
7,492.38	6,945.00	6,300.00	6,296.37	27.21	188.78	-62.67	1,595.99	10,688.62	9,901.07	9,689.49	211.59	46.795	
7,500.00	6,945.00	6,300.00	6,296.37	27.28	188.78	-62.67	1,595.99	10,688.62	9,893.70	9,682.10	211.60	46.758	
7,600.00	6,945.00	6,300.00	6,296.37	28.17	188.78	-62.67	1,595.99	10,688.62	9,796.87	9,585.15	211.73	46.272	
7,700.00	6,945.00	6,300.00	6,296.37	29.12	188.78	-62.67	1,595.99	10,688.62	9,700.11	9,488.24	211.86	45.785	
7,800.00	6,945.00	6,300.00	6,296.37	30.14	188.78	-62.67	1,595.99	10,688.62	9,603.41	9,391.40	212.01	45.297	
7,900.00	6,945.00	6,300.00	6,296.37	31.20	188.78	-62.67	1,595.99	10,688.62	9,506.78	9,294.61	212.17	44.808	

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:	Plan #4	**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
8,000.00	6,945.00	6,300.00	6,296.37	32.31	188.78	-62.67	1,595.99	10,688.62	9,410.22	9,197.89	212.33	44.318	
8,100.00	6,945.00	6,300.00	6,296.37	33.46	188.78	-62.67	1,595.99	10,688.62	9,313.74	9,101.23	212.51	43.827	
8,200.00	6,945.00	6,300.00	6,296.37	34.64	188.78	-62.67	1,595.99	10,688.62	9,217.33	9,004.63	212.70	43.336	
8,300.00	6,945.00	6,300.00	6,296.37	35.86	188.78	-62.67	1,595.99	10,688.62	9,120.99	8,908.10	212.89	42.843	
8,400.00	6,945.00	6,300.00	6,296.37	37.11	188.78	-62.67	1,595.99	10,688.62	9,024.74	8,811.64	213.10	42.350	
8,500.00	6,945.00	6,300.00	6,296.37	38.39	188.78	-62.67	1,595.99	10,688.62	8,928.57	8,715.25	213.32	41.856	
8,600.00	6,945.00	6,300.00	6,296.37	39.69	188.78	-62.67	1,595.99	10,688.62	8,832.48	8,618.94	213.55	41.361	
8,700.00	6,945.00	6,300.00	6,296.37	41.01	188.78	-62.67	1,595.99	10,688.62	8,736.48	8,522.70	213.79	40.865	
8,800.00	6,945.00	6,300.00	6,296.37	42.35	188.78	-62.67	1,595.99	10,688.62	8,640.58	8,426.54	214.04	40.369	
8,900.00	6,945.00	6,300.00	6,296.37	43.71	188.78	-62.67	1,595.99	10,688.62	8,544.76	8,330.46	214.30	39.872	
9,000.00	6,945.00	6,300.00	6,296.37	45.08	188.78	-62.67	1,595.99	10,688.62	8,449.05	8,234.47	214.58	39.375	
9,100.00	6,945.00	6,300.00	6,296.37	46.47	188.78	-62.67	1,595.99	10,688.62	8,353.43	8,138.56	214.87	38.876	
9,200.00	6,945.00	6,300.00	6,296.37	47.87	188.78	-62.67	1,595.99	10,688.62	8,257.92	8,042.74	215.18	38.378	
9,300.00	6,945.00	6,300.00	6,296.37	49.29	188.78	-62.67	1,595.99	10,688.62	8,162.51	7,947.02	215.49	37.878	
9,400.00	6,945.00	6,300.00	6,296.37	50.71	188.78	-62.67	1,595.99	10,688.62	8,067.22	7,851.40	215.82	37.379	
9,500.00	6,945.00	6,300.00	6,296.37	52.15	188.78	-62.67	1,595.99	10,688.62	7,972.04	7,755.87	216.17	36.879	
9,600.00	6,945.00	6,300.00	6,296.37	53.59	188.78	-62.67	1,595.99	10,688.62	7,876.98	7,660.45	216.53	36.378	
9,700.00	6,945.00	6,300.00	6,296.37	55.05	188.78	-62.67	1,595.99	10,688.62	7,782.05	7,565.14	216.91	35.877	
9,800.00	6,945.00	6,300.00	6,296.37	56.51	188.78	-62.67	1,595.99	10,688.62	7,687.24	7,469.94	217.30	35.377	
9,900.00	6,945.00	6,300.00	6,296.37	57.98	188.78	-62.67	1,595.99	10,688.62	7,592.57	7,374.86	217.71	34.875	
10,000.00	6,945.00	6,300.00	6,296.37	59.45	188.78	-62.67	1,595.99	10,688.62	7,498.03	7,279.90	218.13	34.374	
10,100.00	6,945.00	6,300.00	6,296.37	60.93	188.78	-62.67	1,595.99	10,688.62	7,403.64	7,185.07	218.57	33.873	
10,200.00	6,945.00	6,300.00	6,296.37	62.42	188.78	-62.67	1,595.99	10,688.62	7,309.40	7,090.37	219.03	33.372	
10,300.00	6,945.00	6,300.00	6,296.37	63.92	188.78	-62.67	1,595.99	10,688.62	7,215.31	6,995.80	219.51	32.871	
10,400.00	6,945.00	6,300.00	6,296.37	65.42	188.78	-62.67	1,595.99	10,688.62	7,121.38	6,901.38	220.00	32.370	
10,500.00	6,945.00	6,300.00	6,296.37	66.92	188.78	-62.67	1,595.99	10,688.62	7,027.63	6,807.11	220.52	31.869	
10,600.00	6,945.00	6,300.00	6,296.37	68.43	188.78	-62.67	1,595.99	10,688.62	6,934.04	6,712.99	221.05	31.368	
10,700.00	6,945.00	6,300.00	6,296.37	69.94	188.78	-62.67	1,595.99	10,688.62	6,840.64	6,619.03	221.61	30.868	
10,800.00	6,945.00	6,300.00	6,296.37	71.45	188.78	-62.67	1,595.99	10,688.62	6,747.43	6,525.24	222.18	30.369	
10,900.00	6,945.00	6,300.00	6,296.37	72.97	188.78	-62.67	1,595.99	10,688.62	6,654.41	6,431.63	222.78	29.870	
11,000.00	6,945.00	6,300.00	6,296.37	74.50	188.78	-62.67	1,595.99	10,688.62	6,561.60	6,338.20	223.40	29.372	
11,100.00	6,945.00	6,300.00	6,296.37	76.02	188.78	-62.67	1,595.99	10,688.62	6,469.00	6,244.96	224.04	28.874	
11,200.00	6,945.00	6,300.00	6,296.37	77.55	188.78	-62.67	1,595.99	10,688.62	6,376.63	6,151.92	224.71	28.377	
11,300.00	6,945.00	6,300.00	6,296.37	79.08	188.78	-62.67	1,595.99	10,688.62	6,284.49	6,059.09	225.40	27.882	
11,400.00	6,945.00	6,300.00	6,296.37	80.62	188.78	-62.67	1,595.99	10,688.62	6,192.59	5,966.48	226.12	27.387	
11,500.00	6,945.00	6,300.00	6,296.37	82.16	188.78	-62.67	1,595.99	10,688.62	6,100.95	5,874.09	226.86	26.893	
11,600.00	6,945.00	6,300.00	6,296.37	83.70	188.78	-62.67	1,595.99	10,688.62	6,009.58	5,781.95	227.63	26.401	
11,700.00	6,945.00	6,300.00	6,296.37	85.24	188.78	-62.67	1,595.99	10,688.62	5,918.48	5,690.06	228.42	25.910	
11,800.00	6,945.00	6,300.00	6,296.37	86.78	188.78	-62.67	1,595.99	10,688.62	5,827.68	5,598.43	229.25	25.421	
11,900.00	6,945.00	6,300.00	6,296.37	88.33	188.78	-62.67	1,595.99	10,688.62	5,737.18	5,507.08	230.10	24.933	
12,000.00	6,945.00	6,300.00	6,296.37	89.87	188.78	-62.67	1,595.99	10,688.62	5,647.00	5,416.02	230.99	24.447	
12,100.00	6,945.00	6,300.00	6,296.37	91.42	188.78	-62.67	1,595.99	10,688.62	5,557.16	5,325.26	231.90	23.963	
12,200.00	6,945.00	6,300.00	6,296.37	92.98	188.78	-62.67	1,595.99	10,688.62	5,467.67	5,234.82	232.85	23.481	
12,300.00	6,945.00	6,300.00	6,296.37	94.53	188.78	-62.67	1,595.99	10,688.62	5,378.56	5,144.72	233.84	23.001	
12,400.00	6,945.00	6,300.00	6,296.37	96.08	188.78	-62.67	1,595.99	10,688.62	5,289.83	5,054.97	234.86	22.524	
12,500.00	6,945.00	6,300.00	6,296.37	97.64	188.78	-62.67	1,595.99	10,688.62	5,201.51	4,965.60	235.91	22.049	
12,600.00	6,945.00	6,300.00	6,296.37	99.20	188.78	-62.67	1,595.99	10,688.62	5,113.62	4,876.62	237.00	21.576	
12,700.00	6,945.00	6,300.00	6,296.37	100.76	188.78	-62.67	1,595.99	10,688.62	5,026.18	4,788.05	238.13	21.107	
12,800.00	6,945.00	6,300.00	6,296.37	102.32	188.78	-62.67	1,595.99	10,688.62	4,939.22	4,699.92	239.30	20.640	
12,900.00	6,945.00	6,300.00	6,296.37	103.88	188.78	-62.67	1,595.99	10,688.62	4,852.76	4,612.26	240.51	20.177	
13,000.00	6,945.00	6,300.00	6,296.37	105.44	188.78	-62.67	1,595.99	10,688.62	4,766.84	4,525.08	241.76	19.717	
13,100.00	6,945.00	6,300.00	6,296.37	107.00	188.78	-62.67	1,595.99	10,688.62	4,681.47	4,438.41	243.06	19.261	

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:	Plan #4	**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
13,200.00	6,945.00	6,300.00	6,296.37	108.57	188.78	-62.67	1,595.99	10,688.62	4,596.69	4,352.29	244.40	18.808	
13,300.00	6,945.00	6,300.00	6,296.37	110.13	188.78	-62.67	1,595.99	10,688.62	4,512.53	4,266.75	245.79	18.360	
13,400.00	6,945.00	6,300.00	6,296.37	111.70	188.78	-62.67	1,595.99	10,688.62	4,429.04	4,181.82	247.22	17.915	
13,500.00	6,945.00	6,300.00	6,296.37	113.27	188.78	-62.67	1,595.99	10,688.62	4,346.24	4,097.53	248.70	17.476	
13,600.00	6,945.00	6,300.00	6,296.37	114.84	188.78	-62.67	1,595.99	10,688.62	4,264.17	4,013.94	250.24	17.040	
13,700.00	6,945.00	6,300.00	6,296.37	116.41	188.78	-62.67	1,595.99	10,688.62	4,182.89	3,931.07	251.82	16.610	
13,800.00	6,945.00	6,300.00	6,296.37	117.98	188.78	-62.67	1,595.99	10,688.62	4,102.44	3,848.98	253.46	16.186	
13,900.00	6,945.00	6,300.00	6,296.37	119.55	188.78	-62.67	1,595.99	10,688.62	4,022.86	3,767.71	255.15	15.766	
14,000.00	6,945.00	6,300.00	6,296.37	121.12	188.78	-62.67	1,595.99	10,688.62	3,944.21	3,687.31	256.90	15.353	
14,100.00	6,945.00	6,300.00	6,296.37	122.69	188.78	-62.67	1,595.99	10,688.62	3,866.55	3,607.85	258.70	14.946	
14,200.00	6,945.00	6,300.00	6,296.37	124.27	188.78	-62.67	1,595.99	10,688.62	3,789.94	3,529.38	260.56	14.545	
14,300.00	6,945.00	6,300.00	6,296.37	125.84	188.78	-62.67	1,595.99	10,688.62	3,714.44	3,451.96	262.48	14.151	
14,400.00	6,945.00	6,300.00	6,296.37	127.41	188.78	-62.67	1,595.99	10,688.62	3,640.12	3,375.67	264.45	13.765	
14,500.00	6,945.00	6,300.00	6,296.37	128.99	188.78	-62.67	1,595.99	10,688.62	3,567.05	3,300.57	266.48	13.386	
14,600.00	6,945.00	6,300.00	6,296.37	130.57	188.78	-62.67	1,595.99	10,688.62	3,495.32	3,226.75	268.57	13.015	
14,700.00	6,945.00	6,300.00	6,296.37	132.14	188.78	-62.67	1,595.99	10,688.62	3,425.01	3,154.30	270.71	12.652	
14,800.00	6,945.00	6,300.00	6,296.37	133.72	188.78	-62.67	1,595.99	10,688.62	3,356.20	3,083.29	272.91	12.298	
14,900.00	6,945.00	6,300.00	6,296.37	135.30	188.78	-62.67	1,595.99	10,688.62	3,289.00	3,013.84	275.16	11.953	
15,000.00	6,945.00	6,300.00	6,296.37	136.87	188.78	-62.67	1,595.99	10,688.62	3,223.49	2,946.04	277.46	11.618	
15,100.00	6,945.00	6,300.00	6,296.37	138.45	188.78	-62.67	1,595.99	10,688.62	3,159.80	2,879.99	279.80	11.293	
15,200.00	6,945.00	6,300.00	6,296.37	140.03	188.78	-62.67	1,595.99	10,688.62	3,098.02	2,815.83	282.19	10.978	
15,300.00	6,945.00	6,300.00	6,296.37	141.61	188.78	-62.67	1,595.99	10,688.62	3,038.28	2,753.66	284.62	10.675	
15,400.00	6,945.00	6,300.00	6,296.37	143.19	188.78	-62.67	1,595.99	10,688.62	2,980.69	2,693.61	287.08	10.383	
15,500.00	6,945.00	6,300.00	6,296.37	144.77	188.78	-62.67	1,595.99	10,688.62	2,925.40	2,635.83	289.57	10.103	
15,600.00	6,945.00	6,300.00	6,296.37	146.35	188.78	-62.67	1,595.99	10,688.62	2,872.52	2,580.45	292.07	9.835	
15,700.00	6,945.00	6,300.00	6,296.37	147.94	188.78	-62.67	1,595.99	10,688.62	2,822.19	2,527.61	294.58	9.580	
15,800.00	6,945.00	6,300.00	6,296.37	149.52	188.78	-62.67	1,595.99	10,688.62	2,774.56	2,477.46	297.10	9.339	
15,900.00	6,945.00	6,300.00	6,296.37	151.10	188.78	-62.67	1,595.99	10,688.62	2,729.76	2,430.16	299.60	9.111	
16,000.00	6,945.00	6,300.00	6,296.37	152.68	188.78	-62.67	1,595.99	10,688.62	2,687.93	2,385.86	302.07	8.898	
16,100.00	6,945.00	6,300.00	6,296.37	154.26	188.78	-62.67	1,595.99	10,688.62	2,649.23	2,344.72	304.51	8.700	
16,200.00	6,945.00	6,300.00	6,296.37	155.85	188.78	-62.67	1,595.99	10,688.62	2,613.77	2,306.88	306.90	8.517	
16,300.00	6,945.00	6,300.00	6,296.37	157.43	188.78	-62.67	1,595.99	10,688.62	2,581.71	2,272.49	309.22	8.349	
16,400.00	6,945.00	6,300.00	6,296.37	159.02	188.78	-62.67	1,595.99	10,688.62	2,553.16	2,241.70	311.46	8.197	
16,500.00	6,945.00	6,300.00	6,296.37	160.60	188.78	-62.67	1,595.99	10,688.62	2,528.25	2,214.64	313.60	8.062	
16,600.00	6,945.00	6,300.00	6,296.37	162.18	188.78	-62.67	1,595.99	10,688.62	2,507.08	2,191.44	315.64	7.943	
16,700.00	6,945.00	6,300.00	6,296.37	163.77	188.78	-62.67	1,595.99	10,688.62	2,489.75	2,172.20	317.55	7.840	
16,800.00	6,945.00	6,300.00	6,296.37	165.35	188.78	-62.67	1,595.99	10,688.62	2,476.34	2,157.01	319.33	7.755	
16,900.00	6,945.00	6,300.00	6,296.37	166.94	188.78	-62.67	1,595.99	10,688.62	2,466.91	2,145.96	320.95	7.686	
17,000.00	6,945.00	6,300.00	6,296.37	168.53	188.78	-62.67	1,595.99	10,688.62	2,461.52	2,139.10	322.42	7.635	
17,082.96	6,945.00	6,300.00	6,296.37	169.84	188.78	-62.67	1,595.99	10,688.62	2,460.12	2,136.62	323.50	7.605	CC
17,100.00	6,945.00	6,300.00	6,296.37	170.11	188.78	-62.67	1,595.99	10,688.62	2,460.18	2,136.47	323.71	7.600	ES
17,200.00	6,945.00	6,300.00	6,296.37	171.70	188.78	-62.67	1,595.99	10,688.62	2,462.90	2,138.08	324.83	7.582	
17,300.00	6,945.00	6,300.00	6,296.37	173.29	188.78	-62.67	1,595.99	10,688.62	2,469.68	2,143.91	325.77	7.581	SF
17,400.00	6,945.00	6,300.00	6,296.37	174.87	188.78	-62.67	1,595.99	10,688.62	2,480.47	2,153.95	326.52	7.597	
17,500.00	6,945.00	6,300.00	6,296.37	176.46	188.78	-62.67	1,595.99	10,688.62	2,495.22	2,168.13	327.09	7.629	
17,600.00	6,945.00	6,300.00	6,296.37	178.05	188.78	-62.67	1,595.99	10,688.62	2,513.87	2,186.39	327.48	7.676	
17,700.00	6,945.00	6,300.00	6,296.37	179.63	188.78	-62.67	1,595.99	10,688.62	2,536.32	2,208.63	327.69	7.740	
17,800.00	6,945.00	6,300.00	6,296.37	181.22	188.78	-62.67	1,595.99	10,688.62	2,562.49	2,234.75	327.73	7.819	
17,900.00	6,945.00	6,300.00	6,296.37	182.81	188.78	-62.67	1,595.99	10,688.62	2,592.25	2,264.63	327.61	7.912	
18,000.00	6,945.00	6,300.00	6,296.37	184.40	188.78	-62.67	1,595.99	10,688.62	2,625.48	2,298.14	327.34	8.021	
18,100.00	6,945.00	6,300.00	6,296.37	185.99	188.78	-62.67	1,595.99	10,688.62	2,662.06	2,335.13	326.93	8.143	
18,200.00	6,945.00	6,300.00	6,296.37	187.58	188.78	-62.67	1,595.99	10,688.62	2,701.85	2,375.47	326.38	8.278	

CC - Min centre to center distance or 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:	Plan #4	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Rule Assigned:

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
18,300.00	6,945.00	6,300.00	6,296.37	189.16	188.78	-62.67	1,595.99	10,688.62	2,744.70	2,418.99	325.72	8.427	
18,400.00	6,945.00	6,300.00	6,296.37	190.75	188.78	-62.67	1,595.99	10,688.62	2,790.48	2,465.54	324.94	8.588	
18,500.00	6,945.00	6,300.00	6,296.37	192.34	188.78	-62.67	1,595.99	10,688.62	2,839.05	2,514.97	324.08	8.760	
18,600.00	6,945.00	6,300.00	6,296.37	193.93	188.78	-62.67	1,595.99	10,688.62	2,890.26	2,567.13	323.13	8.945	
18,700.00	6,945.00	6,300.00	6,296.37	195.52	188.78	-62.67	1,595.99	10,688.62	2,943.98	2,621.87	322.11	9.140	
18,800.00	6,945.00	6,300.00	6,296.37	197.11	188.78	-62.67	1,595.99	10,688.62	3,000.07	2,679.05	321.02	9.345	
18,900.00	6,945.00	6,300.00	6,296.37	198.70	188.78	-62.67	1,595.99	10,688.62	3,058.41	2,738.51	319.89	9.561	
19,000.00	6,945.00	6,300.00	6,296.37	200.29	188.78	-62.67	1,595.99	10,688.62	3,118.85	2,800.14	318.71	9.786	
19,100.00	6,945.00	6,300.00	6,296.37	201.88	188.78	-62.67	1,595.99	10,688.62	3,181.30	2,863.79	317.51	10.020	
19,200.00	6,945.00	6,300.00	6,296.37	203.47	188.78	-62.67	1,595.99	10,688.62	3,245.62	2,929.35	316.27	10.262	
19,300.00	6,945.00	6,300.00	6,296.37	205.06	188.78	-62.67	1,595.99	10,688.62	3,311.72	2,996.69	315.02	10.513	
19,400.00	6,945.00	6,300.00	6,296.37	206.65	188.78	-62.67	1,595.99	10,688.62	3,379.48	3,065.72	313.76	10.771	
19,500.00	6,945.00	6,300.00	6,296.37	208.24	188.78	-62.67	1,595.99	10,688.62	3,448.81	3,136.32	312.49	11.036	
19,600.00	6,945.00	6,300.00	6,296.37	209.84	188.78	-62.67	1,595.99	10,688.62	3,519.62	3,208.39	311.23	11.309	
19,700.00	6,945.00	6,300.00	6,296.37	211.43	188.78	-62.67	1,595.99	10,688.62	3,591.81	3,281.85	309.96	11.588	
19,800.00	6,945.00	6,300.00	6,296.37	213.02	188.78	-62.67	1,595.99	10,688.62	3,665.31	3,356.61	308.70	11.873	
19,900.00	6,945.00	6,300.00	6,296.37	214.61	188.78	-62.67	1,595.99	10,688.62	3,740.04	3,432.59	307.46	12.164	
20,000.00	6,945.00	6,300.00	6,296.37	216.20	188.78	-62.67	1,595.99	10,688.62	3,815.93	3,509.71	306.22	12.461	
20,100.00	6,945.00	6,300.00	6,296.37	217.79	188.78	-62.67	1,595.99	10,688.62	3,892.91	3,587.90	305.01	12.763	
20,200.00	6,945.00	6,300.00	6,296.37	219.38	188.78	-62.67	1,595.99	10,688.62	3,970.91	3,667.11	303.81	13.070	
20,300.00	6,945.00	6,300.00	6,296.37	220.98	188.78	-62.67	1,595.99	10,688.62	4,049.88	3,747.26	302.63	13.382	
20,400.00	6,945.00	6,300.00	6,296.37	222.57	188.78	-62.67	1,595.99	10,688.62	4,129.77	3,828.30	301.47	13.699	
20,500.00	6,945.00	6,300.00	6,296.37	224.16	188.78	-62.67	1,595.99	10,688.62	4,210.51	3,910.18	300.33	14.020	
20,600.00	6,945.00	6,300.00	6,296.37	225.75	188.78	-62.67	1,595.99	10,688.62	4,292.06	3,992.84	299.22	14.344	
20,700.00	6,945.00	6,300.00	6,296.37	227.35	188.78	-62.67	1,595.99	10,688.62	4,374.38	4,076.26	298.12	14.673	
20,800.00	6,945.00	6,300.00	6,296.37	228.94	188.78	-62.67	1,595.99	10,688.62	4,457.42	4,160.37	297.06	15.005	
20,852.96	6,945.00	6,300.00	6,296.37	229.61	188.78	-62.67	1,595.99	10,688.62	4,501.68	4,204.57	297.10	15.152	

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:	Plan #4	**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				
20.93	20.93	0.00	0.00	0.00	0.00	142.35	877.41	-409.27	968.65				
46.30	46.30	0.00	0.00	0.01	0.00	141.31	877.41	-409.27	968.32	968.30	0.01	N/A CC	
117.41	117.41	67.41	67.41	0.05	1.33	137.81	877.41	-409.27	968.55	967.18	1.38	704.251	
206.68	206.68	156.68	156.68	0.17	3.02	163.72	877.41	-409.27	968.88	965.71	3.17	305.279	
292.93	292.93	242.93	242.93	0.28	4.61	163.18	877.41	-409.27	969.40	964.53	4.87	199.019	
365.00	364.99	315.00	314.99	0.36	5.94	132.52	877.41	-409.27	969.87	963.60	6.27	154.601 ES	
451.00	450.97	402.83	402.82	0.55	7.56	-174.17	877.42	-409.27	971.78	963.68	8.10	120.021	
540.00	539.81	489.83	489.81	0.83	9.27	-168.68	877.41	-409.27	976.90	966.80	10.10	96.770	
665.00	664.37	614.39	614.37	1.26	11.71	-166.47	877.41	-409.27	987.10	974.12	12.97	76.085	
753.00	752.01	703.09	703.06	1.58	13.46	-167.54	878.21	-409.27	995.59	980.57	15.02	66.263	
847.00	845.61	798.97	798.94	1.93	15.34	-164.64	877.98	-409.27	1,003.76	986.52	17.24	58.220	
939.00	937.22	892.83	892.81	2.27	17.19	-164.54	877.52	-409.27	1,011.61	992.19	19.41	52.110	
1,030.00	1,027.78	977.84	977.78	2.62	18.81	-176.14	877.41	-409.27	1,020.28	998.91	21.37	47.744	
1,120.00	1,117.25	1,067.31	1,067.25	2.96	20.52	-173.29	877.41	-409.27	1,029.99	1,006.60	23.40	44.019	
1,211.00	1,207.68	1,159.08	1,159.01	3.31	22.26	-176.01	878.05	-409.27	1,040.70	1,015.22	25.47	40.852	
1,306.00	1,302.14	1,256.51	1,256.45	3.68	24.12	-174.21	877.76	-409.27	1,050.52	1,022.85	27.67	37.963	
1,400.00	1,395.63	1,345.72	1,345.63	4.04	25.79	-173.01	877.41	-409.27	1,059.83	1,030.16	29.68	35.712	
1,495.00	1,490.19	1,440.27	1,440.19	4.40	27.47	-173.76	877.41	-409.27	1,068.93	1,037.23	31.70	33.715	
1,589.00	1,583.83	1,535.56	1,535.47	4.76	29.17	-176.26	877.70	-409.27	1,077.43	1,043.69	33.74	31.932	
1,684.00	1,678.44	1,632.84	1,632.76	5.12	30.90	-173.91	877.40	-409.27	1,085.70	1,049.88	35.82	30.310	
1,779.00	1,772.98	1,723.07	1,722.98	5.48	32.57	-169.53	877.41	-409.27	1,094.98	1,057.15	37.83	28.945	
1,873.00	1,866.49	1,816.58	1,816.49	5.84	34.29	-168.13	877.41	-409.27	1,104.34	1,064.45	39.90	27.679	
1,967.00	1,960.05	1,910.73	1,910.64	6.20	36.03	-163.57	877.63	-409.27	1,113.39	1,071.42	41.98	26.525	
2,062.00	2,054.59	2,006.24	2,006.15	6.56	37.80	-169.07	877.53	-409.27	1,122.36	1,078.27	44.08	25.460	
2,156.00	2,148.09	2,098.19	2,098.09	6.92	39.54	-169.87	877.41	-409.27	1,131.79	1,085.62	46.17	24.513	
2,251.00	2,242.55	2,192.66	2,192.55	7.29	41.45	-168.60	877.41	-409.27	1,141.67	1,093.24	48.43	23.575	
2,345.00	2,336.00	2,291.26	2,291.15	7.65	43.44	-174.71	877.58	-409.27	1,151.93	1,101.17	50.76	22.692	
2,440.00	2,430.43	2,380.57	2,380.43	8.02	45.29	-177.39	877.41	-409.27	1,162.11	1,109.16	52.95	21.946	
2,535.00	2,524.86	2,475.00	2,474.86	8.38	47.26	-176.14	877.41	-409.27	1,172.43	1,117.16	55.27	21.212	
2,629.00	2,618.31	2,572.66	2,572.51	8.75	49.30	-176.17	878.01	-409.27	1,183.13	1,125.48	57.66	20.520	
2,724.00	2,712.77	2,672.55	2,672.39	9.12	51.39	-175.45	877.36	-409.27	1,192.73	1,132.64	60.09	19.849	
2,818.00	2,806.24	2,756.43	2,756.24	9.48	53.03	-174.92	877.41	-409.27	1,202.66	1,140.59	62.07	19.375	
2,913.00	2,900.71	2,850.90	2,850.71	9.84	54.89	-172.75	877.41	-409.27	1,212.55	1,148.27	64.28	18.864	
3,008.00	2,995.25	2,945.44	2,945.25	10.21	56.75	-177.24	877.41	-409.27	1,221.93	1,155.44	66.48	18.379	
3,102.00	3,088.80	3,040.25	3,040.05	10.57	58.62	-177.01	878.83	-409.27	1,232.36	1,163.67	68.69	17.940	
3,197.00	3,183.30	3,137.63	3,137.42	10.93	60.54	-174.10	878.59	-409.27	1,241.85	1,170.90	70.96	17.502	
3,291.00	3,276.71	3,233.95	3,233.73	11.30	62.43	179.72	878.11	-409.27	1,251.90	1,178.70	73.20	17.104	
3,386.00	3,371.01	3,331.24	3,331.01	11.67	64.35	178.55	877.38	-409.27	1,262.80	1,187.34	75.46	16.735	
3,480.00	3,464.23	3,414.48	3,414.23	12.04	65.99	179.86	877.41	-409.27	1,274.82	1,197.38	77.44	16.463	
3,575.00	3,558.47	3,508.72	3,508.47	12.42	67.84	-178.65	877.41	-409.27	1,286.82	1,207.18	79.64	16.158	
3,670.00	3,652.84	3,603.09	3,602.84	12.79	69.70	-177.73	877.41	-409.27	1,297.77	1,215.92	81.84	15.857	
3,764.00	3,746.36	3,696.61	3,696.36	13.15	71.54	-174.58	877.41	-409.27	1,307.21	1,223.18	84.03	15.557	
3,859.00	3,840.97	3,791.22	3,790.97	13.51	73.40	-170.88	877.41	-409.27	1,315.70	1,229.46	86.23	15.258	
3,954.00	3,935.57	3,885.90	3,885.65	13.87	75.27	-170.88	878.61	-409.27	1,325.41	1,236.97	88.44	14.986	
4,049.00	4,030.14	3,981.38	3,981.12	14.23	77.15	179.96	878.57	-409.27	1,334.37	1,243.70	90.67	14.717	
4,143.00	4,123.75	4,075.89	4,075.64	14.59	79.01	-178.96	878.46	-409.27	1,342.80	1,249.93	92.87	14.459	
4,238.00	4,218.33	4,171.40	4,171.14	14.95	80.89	-178.72	878.27	-409.27	1,351.58	1,256.48	95.10	14.213	
4,333.00	4,312.74	4,266.76	4,266.50	15.32	82.77	178.46	878.01	-409.27	1,361.91	1,264.59	97.32	13.994	
4,427.00	4,406.05	4,361.02	4,360.76	15.69	84.62	-179.14	877.68	-409.27	1,372.98	1,273.46	99.52	13.796	
4,522.00	4,500.34	4,450.69	4,450.34	16.06	86.39	-178.23	877.41	-409.27	1,384.29	1,282.66	101.63	13.621	
4,616.00	4,593.47	4,543.82	4,543.47	16.44	88.22	179.52	877.41	-409.27	1,397.05	1,293.24	103.81	13.458	

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:	Plan #4	**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
4,710.00	4,686.44	4,637.54	4,637.19	16.82	90.07	-179.73	878.27	-409.27	1,411.68	1,305.68	106.00	13.317	
4,899.00	4,873.89	4,824.27	4,823.89	17.57	93.74	-173.42	877.41	-409.27	1,434.96	1,324.59	110.37	13.002	
4,962.00	4,936.56	4,886.94	4,886.56	17.81	94.93	-171.10	877.41	-409.27	1,441.28	1,329.49	111.79	12.893	
5,024.00	4,998.27	4,948.65	4,948.27	18.04	96.11	-174.91	877.41	-409.27	1,447.30	1,334.11	113.19	12.787	
5,150.00	5,123.66	5,074.04	5,073.66	18.53	98.49	-173.96	877.41	-409.27	1,459.57	1,343.54	116.03	12.579	
5,213.00	5,186.37	5,136.76	5,136.37	18.77	99.69	-176.37	877.41	-409.27	1,465.54	1,348.09	117.45	12.478	
5,276.00	5,249.09	5,199.47	5,199.09	19.01	100.88	-175.51	877.41	-409.27	1,471.51	1,352.63	118.88	12.379	
5,339.00	5,311.83	5,262.21	5,261.83	19.25	102.07	-176.47	877.41	-409.27	1,477.23	1,356.93	120.30	12.280	
5,401.00	5,373.58	5,323.96	5,323.58	19.48	103.25	-173.95	877.41	-409.27	1,482.79	1,361.09	121.70	12.184	
5,464.00	5,436.33	5,386.72	5,386.33	19.72	104.44	-176.71	877.41	-409.27	1,488.31	1,365.19	123.12	12.088	
5,590.00	5,561.87	5,513.48	5,513.09	20.19	106.85	-178.02	878.60	-409.27	1,500.14	1,374.15	125.99	11.907	
5,653.00	5,624.66	5,576.92	5,576.53	20.43	108.06	-179.38	878.53	-409.27	1,505.28	1,377.85	127.43	11.813	
5,715.00	5,686.48	5,639.39	5,639.00	20.66	109.25	175.64	878.43	-409.27	1,509.90	1,381.07	128.84	11.719	
5,778.00	5,749.29	5,702.87	5,702.48	20.90	110.46	178.35	878.29	-409.27	1,514.60	1,384.32	130.27	11.626	
5,841.00	5,812.10	5,766.35	5,765.95	21.13	111.67	176.05	878.13	-409.27	1,519.33	1,387.62	131.71	11.535	
5,904.00	5,874.94	5,829.85	5,829.46	21.36	112.87	-178.63	877.93	-409.27	1,523.71	1,390.57	133.15	11.444	
5,967.00	5,937.80	5,893.39	5,892.99	21.60	114.08	-177.10	877.71	-409.27	1,527.70	1,393.12	134.58	11.351	
6,030.00	6,000.68	5,956.95	5,956.55	21.83	115.29	-179.03	877.45	-409.27	1,531.31	1,395.29	136.02	11.258	
6,093.00	6,063.59	6,014.04	6,013.59	22.05	116.41	-175.36	877.41	-409.27	1,534.69	1,397.33	137.36	11.173	
6,156.00	6,126.51	6,076.96	6,076.51	22.28	117.65	-170.09	877.41	-409.27	1,537.84	1,399.01	138.82	11.078	
6,235.00	6,205.43	6,155.88	6,155.43	22.56	119.20	-170.44	877.41	-409.27	1,541.26	1,400.60	140.66	10.958	
6,300.00	6,270.38	6,220.83	6,220.38	22.68	120.48	-170.45	877.41	-409.27	1,543.73	1,401.68	142.05	10.868	
6,355.00	6,325.34	6,275.79	6,275.34	22.69	121.56	-170.47	877.41	-409.27	1,545.82	1,402.69	143.13	10.800	
6,400.00	6,370.23	6,320.68	6,320.23	22.71	122.45	-137.68	877.41	-409.27	1,548.34	1,404.33	144.02	10.751	
6,450.00	6,419.74	6,370.19	6,369.74	22.73	123.42	-130.00	877.41	-409.27	1,553.05	1,408.05	145.00	10.711	
6,500.00	6,468.57	6,419.02	6,418.57	22.77	124.39	-126.85	877.41	-409.27	1,559.76	1,413.78	145.97	10.685	
6,550.00	6,516.42	6,466.87	6,466.42	22.81	125.33	-125.03	877.41	-409.27	1,568.48	1,421.55	146.93	10.675 SF	
6,600.00	6,562.98	6,513.43	6,512.98	22.87	126.24	-123.75	877.41	-409.27	1,579.23	1,431.37	147.86	10.680	
6,650.00	6,607.98	6,558.43	6,557.98	22.95	127.13	-122.68	877.41	-409.27	1,592.03	1,443.26	148.77	10.701	
6,700.00	6,651.14	6,601.59	6,601.14	23.03	127.98	-121.69	877.41	-409.27	1,606.90	1,457.25	149.65	10.738	
6,750.00	6,692.18	6,642.63	6,642.18	23.14	128.79	-120.68	877.41	-409.27	1,623.83	1,473.34	150.49	10.790	
6,800.00	6,730.86	6,681.31	6,680.86	23.26	129.55	-119.58	877.41	-409.27	1,642.85	1,491.56	151.29	10.859	
6,850.00	6,766.93	6,717.38	6,716.93	23.40	130.26	-118.34	877.41	-409.27	1,663.92	1,511.88	152.05	10.944	
6,900.00	6,800.18	6,750.63	6,750.18	23.56	130.91	-116.91	877.41	-409.27	1,687.03	1,534.28	152.75	11.044	
6,950.00	6,830.39	6,780.84	6,780.39	23.74	131.51	-115.24	877.41	-409.27	1,712.11	1,558.71	153.41	11.160	
7,000.00	6,857.38	6,807.83	6,807.38	23.94	132.04	-113.28	877.41	-409.27	1,739.10	1,585.10	154.01	11.292	
7,050.00	6,880.98	6,831.43	6,830.98	24.17	132.51	-110.99	877.41	-409.27	1,767.90	1,613.35	154.54	11.439	
7,100.00	6,901.06	6,851.51	6,851.06	24.42	132.90	-108.33	877.41	-409.27	1,798.37	1,643.35	155.02	11.601	
7,150.00	6,917.47	6,867.92	6,867.47	24.70	133.22	-105.26	877.41	-409.27	1,830.37	1,674.95	155.43	11.777	
7,200.00	6,930.13	6,880.58	6,880.13	25.01	133.47	-101.77	877.41	-409.27	1,863.74	1,707.97	155.76	11.965	
7,250.00	6,938.95	6,889.40	6,888.95	25.34	133.65	-97.84	877.41	-409.27	1,898.26	1,742.24	156.02	12.166	
7,300.00	6,943.88	6,894.36	6,893.89	25.69	133.74	-93.51	880.44	-409.27	1,935.96	1,779.75	156.21	12.393	
7,337.82	6,945.00	6,895.49	6,895.02	25.97	133.77	-90.00	880.44	-409.27	1,963.25	1,806.95	156.30	12.561	
7,400.00	6,945.00	6,895.49	6,895.02	26.45	133.77	-90.00	880.44	-409.27	2,008.38	1,851.97	156.41	12.840	
7,492.38	6,945.00	6,895.49	6,895.02	27.21	133.77	-90.00	880.44	-409.27	2,075.40	1,918.81	156.58	13.254	
7,500.00	6,945.00	6,895.49	6,895.02	27.28	133.77	-90.00	880.44	-409.27	2,080.92	1,924.33	156.60	13.288	
7,600.00	6,945.00	6,895.49	6,895.02	28.17	133.77	-90.00	880.44	-409.27	2,154.69	1,997.90	156.79	13.742	
7,700.00	6,945.00	6,895.49	6,895.02	29.12	133.77	-90.00	880.44	-409.27	2,230.50	2,073.52	156.99	14.208	
7,800.00	6,945.00	6,895.49	6,895.02	30.14	133.77	-90.00	880.44	-409.27	2,308.16	2,150.98	157.18	14.685	
7,900.00	6,945.00	6,895.49	6,895.02	31.20	133.77	-90.00	880.44	-409.27	2,387.48	2,230.11	157.37	15.172	
8,000.00	6,945.00	6,895.49	6,895.02	32.31	133.77	-90.00	880.44	-409.27	2,468.30	2,310.75	157.55	15.667	
8,100.00	6,945.00	6,895.49	6,895.02	33.46	133.77	-90.00	880.44	-409.27	2,550.48	2,392.75	157.73	16.170	

CC - Min centre to center distance or 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:	Plan #4	**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
8,200.00	6,945.00	6,895.49	6,895.02	34.64	133.77	-90.00	880.44	-409.27	2,633.89	2,475.99	157.90	16.681	
8,300.00	6,945.00	6,895.49	6,895.02	35.86	133.77	-90.00	880.44	-409.27	2,718.43	2,560.36	158.06	17.198	
8,400.00	6,945.00	6,895.49	6,895.02	37.11	133.77	-90.00	880.44	-409.27	2,803.98	2,645.75	158.22	17.722	
8,500.00	6,945.00	6,895.49	6,895.02	38.39	133.77	-90.00	880.44	-409.27	2,890.46	2,732.08	158.38	18.250	
8,600.00	6,945.00	6,895.49	6,895.02	39.69	133.77	-90.00	880.44	-409.27	2,977.78	2,819.26	158.53	18.784	
8,700.00	6,945.00	6,895.49	6,895.02	41.01	133.77	-90.00	880.44	-409.27	3,065.88	2,907.21	158.67	19.323	
8,800.00	6,945.00	6,895.49	6,895.02	42.35	133.77	-90.00	880.44	-409.27	3,154.69	2,995.89	158.81	19.865	
8,900.00	6,945.00	6,895.49	6,895.02	43.71	133.77	-90.00	880.44	-409.27	3,244.15	3,085.22	158.94	20.411	
9,000.00	6,945.00	6,895.49	6,895.02	45.08	133.77	-90.00	880.44	-409.27	3,334.21	3,175.15	159.07	20.961	
9,100.00	6,945.00	6,895.49	6,895.02	46.47	133.77	-90.00	880.44	-409.27	3,424.83	3,265.64	159.19	21.514	
9,200.00	6,945.00	6,895.49	6,895.02	47.87	133.77	-90.00	880.44	-409.27	3,515.95	3,356.64	159.31	22.070	
9,300.00	6,945.00	6,895.49	6,895.02	49.29	133.77	-90.00	880.44	-409.27	3,607.54	3,448.11	159.42	22.629	
9,400.00	6,945.00	6,895.49	6,895.02	50.71	133.77	-90.00	880.44	-409.27	3,699.56	3,540.03	159.54	23.190	
9,500.00	6,945.00	6,895.49	6,895.02	52.15	133.77	-90.00	880.44	-409.27	3,791.99	3,632.35	159.64	23.753	
9,600.00	6,945.00	6,895.49	6,895.02	53.59	133.77	-90.00	880.44	-409.27	3,884.80	3,725.05	159.75	24.318	
9,700.00	6,945.00	6,895.49	6,895.02	55.05	133.77	-90.00	880.44	-409.27	3,977.95	3,818.10	159.85	24.885	
9,800.00	6,945.00	6,895.49	6,895.02	56.51	133.77	-90.00	880.44	-409.27	4,071.43	3,911.48	159.95	25.454	
9,900.00	6,945.00	6,895.49	6,895.02	57.98	133.77	-90.00	880.44	-409.27	4,165.22	4,005.17	160.05	26.024	
10,000.00	6,945.00	6,895.49	6,895.02	59.45	133.77	-90.00	880.44	-409.27	4,259.28	4,099.13	160.15	26.596	
10,100.00	6,945.00	6,895.49	6,895.02	60.93	133.77	-90.00	880.44	-409.27	4,353.61	4,193.37	160.24	27.169	
10,200.00	6,945.00	6,895.49	6,895.02	62.42	133.77	-90.00	880.44	-409.27	4,448.19	4,287.86	160.33	27.744	
10,300.00	6,945.00	6,895.49	6,895.02	63.92	133.77	-90.00	880.44	-409.27	4,543.00	4,382.58	160.42	28.319	
10,400.00	6,945.00	6,895.49	6,895.02	65.42	133.77	-90.00	880.44	-409.27	4,638.02	4,477.52	160.51	28.896	
10,500.00	6,945.00	6,895.49	6,895.02	66.92	133.77	-90.00	880.44	-409.27	4,733.26	4,572.66	160.59	29.473	
10,600.00	6,945.00	6,895.49	6,895.02	68.43	133.77	-90.00	880.44	-409.27	4,828.68	4,668.00	160.68	30.052	
10,700.00	6,945.00	6,895.49	6,895.02	69.94	133.77	-90.00	880.44	-409.27	4,924.29	4,763.52	160.76	30.631	
10,800.00	6,945.00	6,895.49	6,895.02	71.45	133.77	-90.00	880.44	-409.27	5,020.07	4,859.22	160.85	31.210	
10,900.00	6,945.00	6,895.49	6,895.02	72.97	133.77	-90.00	880.44	-409.27	5,116.01	4,955.08	160.93	31.791	
11,000.00	6,945.00	6,895.49	6,895.02	74.50	133.77	-90.00	880.44	-409.27	5,212.10	5,051.09	161.01	32.371	
11,100.00	6,945.00	6,895.49	6,895.02	76.02	133.77	-90.00	880.44	-409.27	5,308.33	5,147.24	161.09	32.953	
11,200.00	6,945.00	6,895.49	6,895.02	77.55	133.77	-90.00	880.44	-409.27	5,404.71	5,243.54	161.17	33.535	
11,300.00	6,945.00	6,895.49	6,895.02	79.08	133.77	-90.00	880.44	-409.27	5,501.21	5,339.96	161.25	34.117	
11,400.00	6,945.00	6,895.49	6,895.02	80.62	133.77	-90.00	880.44	-409.27	5,597.84	5,436.51	161.32	34.699	
11,500.00	6,945.00	6,895.49	6,895.02	82.16	133.77	-90.00	880.44	-409.27	5,694.58	5,533.18	161.40	35.282	
11,600.00	6,945.00	6,895.49	6,895.02	83.70	133.77	-90.00	880.44	-409.27	5,791.43	5,629.95	161.48	35.865	
11,700.00	6,945.00	6,895.49	6,895.02	85.24	133.77	-90.00	880.44	-409.27	5,888.39	5,726.83	161.56	36.448	
11,800.00	6,945.00	6,895.49	6,895.02	86.78	133.77	-90.00	880.44	-409.27	5,985.45	5,823.81	161.63	37.032	
11,900.00	6,945.00	6,895.49	6,895.02	88.33	133.77	-90.00	880.44	-409.27	6,082.60	5,920.89	161.71	37.615	
12,000.00	6,945.00	6,895.49	6,895.02	89.87	133.77	-90.00	880.44	-409.27	6,179.84	6,018.06	161.78	38.199	
12,100.00	6,945.00	6,895.49	6,895.02	91.42	133.77	-90.00	880.44	-409.27	6,277.17	6,115.32	161.86	38.782	
12,200.00	6,945.00	6,895.49	6,895.02	92.98	133.77	-90.00	880.44	-409.27	6,374.59	6,212.65	161.93	39.366	
12,300.00	6,945.00	6,895.49	6,895.02	94.53	133.77	-90.00	880.44	-409.27	6,472.08	6,310.07	162.01	39.949	
12,400.00	6,945.00	6,895.49	6,895.02	96.08	133.77	-90.00	880.44	-409.27	6,569.65	6,407.56	162.08	40.533	
12,500.00	6,945.00	6,895.49	6,895.02	97.64	133.77	-90.00	880.44	-409.27	6,667.29	6,505.13	162.16	41.116	
12,600.00	6,945.00	6,895.49	6,895.02	99.20	133.77	-90.00	880.44	-409.27	6,764.99	6,602.76	162.23	41.700	
12,700.00	6,945.00	6,895.49	6,895.02	100.76	133.77	-90.00	880.44	-409.27	6,862.77	6,700.46	162.30	42.283	
12,800.00	6,945.00	6,895.49	6,895.02	102.32	133.77	-90.00	880.44	-409.27	6,960.61	6,798.23	162.38	42.866	
12,900.00	6,945.00	6,895.49	6,895.02	103.88	133.77	-90.00	880.44	-409.27	7,058.51	6,896.05	162.45	43.449	
13,000.00	6,945.00	6,895.49	6,895.02	105.44	133.77	-90.00	880.44	-409.27	7,156.46	6,993.93	162.53	44.032	
13,100.00	6,945.00	6,895.49	6,895.02	107.00	133.77	-90.00	880.44	-409.27	7,254.47	7,091.87	162.60	44.615	
13,200.00	6,945.00	6,895.49	6,895.02	108.57	133.77	-90.00	880.44	-409.27	7,352.54	7,189.86	162.68	45.197	
13,300.00	6,945.00	6,895.49	6,895.02	110.13	133.77	-90.00	880.44	-409.27	7,450.66	7,287.90	162.75	45.779	

CC - Min centre to center distance or 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:	Plan #4	**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
13,400.00	6,945.00	6,895.49	6,895.02	111.70	133.77	-90.00	880.44	-409.27	7,548.82	7,386.00	162.83	46.361	
13,500.00	6,945.00	6,895.49	6,895.02	113.27	133.77	-90.00	880.44	-409.27	7,647.04	7,484.14	162.90	46.942	
13,600.00	6,945.00	6,895.49	6,895.02	114.84	133.77	-90.00	880.44	-409.27	7,745.30	7,582.32	162.98	47.524	
13,700.00	6,945.00	6,895.49	6,895.02	116.41	133.77	-90.00	880.44	-409.27	7,843.60	7,680.55	163.05	48.105	
13,800.00	6,945.00	6,895.49	6,895.02	117.98	133.77	-90.00	880.44	-409.27	7,941.95	7,778.82	163.13	48.685	
13,900.00	6,945.00	6,895.49	6,895.02	119.55	133.77	-90.00	880.44	-409.27	8,040.33	7,877.13	163.20	49.265	
14,000.00	6,945.00	6,895.49	6,895.02	121.12	133.77	-90.00	880.44	-409.27	8,138.76	7,975.48	163.28	49.845	
14,100.00	6,945.00	6,895.49	6,895.02	122.69	133.77	-90.00	880.44	-409.27	8,237.23	8,073.87	163.36	50.425	
14,200.00	6,945.00	6,895.49	6,895.02	124.27	133.77	-90.00	880.44	-409.27	8,335.73	8,172.29	163.43	51.004	
14,300.00	6,945.00	6,895.49	6,895.02	125.84	133.77	-90.00	880.44	-409.27	8,434.26	8,270.75	163.51	51.583	
14,400.00	6,945.00	6,895.49	6,895.02	127.41	133.77	-90.00	880.44	-409.27	8,532.83	8,369.25	163.59	52.161	
14,500.00	6,945.00	6,895.49	6,895.02	128.99	133.77	-90.00	880.44	-409.27	8,631.44	8,467.77	163.66	52.739	
14,600.00	6,945.00	6,895.49	6,895.02	130.57	133.77	-90.00	880.44	-409.27	8,730.07	8,566.33	163.74	53.316	
14,700.00	6,945.00	6,895.49	6,895.02	132.14	133.77	-90.00	880.44	-409.27	8,828.74	8,664.92	163.82	53.893	
14,800.00	6,945.00	6,895.49	6,895.02	133.72	133.77	-90.00	880.44	-409.27	8,927.43	8,763.53	163.90	54.469	
14,900.00	6,945.00	6,895.49	6,895.02	135.30	133.77	-90.00	880.44	-409.27	9,026.16	8,862.18	163.98	55.045	
15,000.00	6,945.00	6,895.49	6,895.02	136.87	133.77	-90.00	880.44	-409.27	9,124.91	8,960.85	164.06	55.621	
15,100.00	6,945.00	6,895.49	6,895.02	138.45	133.77	-90.00	880.44	-409.27	9,223.69	9,059.55	164.13	56.196	
15,200.00	6,945.00	6,895.49	6,895.02	140.03	133.77	-90.00	880.44	-409.27	9,322.49	9,158.28	164.21	56.770	
15,300.00	6,945.00	6,895.49	6,895.02	141.61	133.77	-90.00	880.44	-409.27	9,421.32	9,257.03	164.29	57.344	
15,400.00	6,945.00	6,895.49	6,895.02	143.19	133.77	-90.00	880.44	-409.27	9,520.17	9,355.80	164.37	57.918	
15,500.00	6,945.00	6,895.49	6,895.02	144.77	133.77	-90.00	880.44	-409.27	9,619.05	9,454.60	164.46	58.490	
15,600.00	6,945.00	6,895.49	6,895.02	146.35	133.77	-90.00	880.44	-409.27	9,717.95	9,553.42	164.54	59.063	
15,700.00	6,945.00	6,895.49	6,895.02	147.94	133.77	-90.00	880.44	-409.27	9,816.88	9,652.26	164.62	59.635	
15,800.00	6,945.00	6,895.49	6,895.02	149.52	133.77	-90.00	880.44	-409.27	9,915.82	9,751.12	164.70	60.206	
15,900.00	6,945.00	6,895.49	6,895.02	151.10	133.77	-90.00	880.44	-409.27	10,014.79	9,850.01	164.78	60.776	
16,000.00	6,945.00	6,895.49	6,895.02	152.68	133.77	-90.00	880.44	-409.27	10,113.77	9,948.91	164.86	61.347	
16,100.00	6,945.00	6,895.49	6,895.02	154.26	133.77	-90.00	880.44	-409.27	10,212.78	10,047.83	164.95	61.916	
16,200.00	6,945.00	6,895.49	6,895.02	155.85	133.77	-90.00	880.44	-409.27	10,311.80	10,146.78	165.03	62.485	
16,300.00	6,945.00	6,895.49	6,895.02	157.43	133.77	-90.00	880.44	-409.27	10,410.85	10,245.74	165.11	63.053	
16,400.00	6,945.00	6,895.49	6,895.02	159.02	133.77	-90.00	880.44	-409.27	10,509.91	10,344.71	165.20	63.621	
16,500.00	6,945.00	6,895.49	6,895.02	160.60	133.77	-90.00	880.44	-409.27	10,608.99	10,443.71	165.28	64.188	
16,600.00	6,945.00	6,895.49	6,895.02	162.18	133.77	-90.00	880.44	-409.27	10,708.09	10,542.72	165.36	64.754	
16,700.00	6,945.00	6,895.49	6,895.02	163.77	133.77	-90.00	880.44	-409.27	10,807.20	10,641.75	165.45	65.320	
16,800.00	6,945.00	6,895.49	6,895.02	165.35	133.77	-90.00	880.44	-409.27	10,906.33	10,740.79	165.53	65.885	
16,900.00	6,945.00	6,895.49	6,895.02	166.94	133.77	-90.00	880.44	-409.27	11,005.47	10,839.85	165.62	66.450	
17,000.00	6,945.00	6,895.49	6,895.02	168.53	133.77	-90.00	880.44	-409.27	11,104.63	10,938.93	165.71	67.014	
17,100.00	6,945.00	6,895.49	6,895.02	170.11	133.77	-90.00	880.44	-409.27	11,203.81	11,038.02	165.79	67.577	
17,200.00	6,945.00	6,895.49	6,895.02	171.70	133.77	-90.00	880.44	-409.27	11,303.00	11,137.12	165.88	68.140	
17,300.00	6,945.00	6,895.49	6,895.02	173.29	133.77	-90.00	880.44	-409.27	11,402.20	11,236.24	165.97	68.702	
17,400.00	6,945.00	6,895.49	6,895.02	174.87	133.77	-90.00	880.44	-409.27	11,501.42	11,335.37	166.05	69.263	
17,500.00	6,945.00	6,895.49	6,895.02	176.46	133.77	-90.00	880.44	-409.27	11,600.65	11,434.51	166.14	69.824	
17,600.00	6,945.00	6,895.49	6,895.02	178.05	133.77	-90.00	880.44	-409.27	11,699.90	11,533.67	166.23	70.383	
17,700.00	6,945.00	6,895.49	6,895.02	179.63	133.77	-90.00	880.44	-409.27	11,799.15	11,632.84	166.32	70.943	
17,800.00	6,945.00	6,895.49	6,895.02	181.22	133.77	-90.00	880.44	-409.27	11,898.42	11,732.02	166.41	71.501	
17,900.00	6,945.00	6,895.49	6,895.02	182.81	133.77	-90.00	880.44	-409.27	11,997.71	11,831.21	166.50	72.059	
18,000.00	6,945.00	6,895.49	6,895.02	184.40	133.77	-90.00	880.44	-409.27	12,097.00	11,930.41	166.59	72.616	
18,100.00	6,945.00	6,895.49	6,895.02	185.99	133.77	-90.00	880.44	-409.27	12,196.30	12,029.63	166.68	73.173	
18,200.00	6,945.00	6,895.49	6,895.02	187.58	133.77	-90.00	880.44	-409.27	12,295.62	12,128.85	166.77	73.729	
18,300.00	6,945.00	6,895.49	6,895.02	189.16	133.77	-90.00	880.44	-409.27	12,394.95	12,228.09	166.86	74.284	
18,400.00	6,945.00	6,895.49	6,895.02	190.75	133.77	-90.00	880.44	-409.27	12,494.29	12,327.34	166.95	74.838	
18,500.00	6,945.00	6,895.49	6,895.02	192.34	133.77	-90.00	880.44	-409.27	12,593.64	12,426.59	167.04	75.392	

CC - Min centre to center distance or 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:	Plan #4	**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)	Rule Assigned: Distance Between Centres (usft)	Rule Assigned: Distance Between Ellipses (usft)	Rule Assigned: Minimum Separation (usft)	Separation Factor	Warning
18,600.00	6,945.00	6,895.49	6,895.02	193.93	133.77	-90.00	880.44	-409.27	12,692.99	12,525.86	167.13	75.945	
18,700.00	6,945.00	6,895.49	6,895.02	195.52	133.77	-90.00	880.44	-409.27	12,792.36	12,625.14	167.23	76.497	
18,800.00	6,945.00	6,895.49	6,895.02	197.11	133.77	-90.00	880.44	-409.27	12,891.74	12,724.42	167.32	77.048	
18,900.00	6,945.00	6,895.49	6,895.02	198.70	133.77	-90.00	880.44	-409.27	12,991.13	12,823.72	167.41	77.599	
19,000.00	6,945.00	6,895.49	6,895.02	200.29	133.77	-90.00	880.44	-409.27	13,090.53	12,923.02	167.51	78.149	
19,100.00	6,945.00	6,895.49	6,895.02	201.88	133.77	-90.00	880.44	-409.27	13,189.93	13,022.33	167.60	78.699	
19,200.00	6,945.00	6,895.49	6,895.02	203.47	133.77	-90.00	880.44	-409.27	13,289.35	13,121.65	167.69	79.247	
19,300.00	6,945.00	6,895.49	6,895.02	205.06	133.77	-90.00	880.44	-409.27	13,388.77	13,220.98	167.79	79.795	
19,400.00	6,945.00	6,895.49	6,895.02	206.65	133.77	-90.00	880.44	-409.27	13,488.21	13,320.32	167.88	80.342	
19,500.00	6,945.00	6,895.49	6,895.02	208.24	133.77	-90.00	880.44	-409.27	13,587.65	13,419.67	167.98	80.888	
19,600.00	6,945.00	6,895.49	6,895.02	209.84	133.77	-90.00	880.44	-409.27	13,687.10	13,519.02	168.08	81.434	
19,700.00	6,945.00	6,895.49	6,895.02	211.43	133.77	-90.00	880.44	-409.27	13,786.55	13,618.38	168.17	81.979	
19,800.00	6,945.00	6,895.49	6,895.02	213.02	133.77	-90.00	880.44	-409.27	13,886.02	13,717.75	168.27	82.523	
19,900.00	6,945.00	6,895.49	6,895.02	214.61	133.77	-90.00	880.44	-409.27	13,985.49	13,817.12	168.37	83.066	
20,000.00	6,945.00	6,895.49	6,895.02	216.20	133.77	-90.00	880.44	-409.27	14,084.97	13,916.51	168.46	83.609	
20,100.00	6,945.00	6,895.49	6,895.02	217.79	133.77	-90.00	880.44	-409.27	14,184.46	14,015.90	168.56	84.151	
20,200.00	6,945.00	6,895.49	6,895.02	219.38	133.77	-90.00	880.44	-409.27	14,283.95	14,115.29	168.66	84.692	
20,300.00	6,945.00	6,895.49	6,895.02	220.98	133.77	-90.00	880.44	-409.27	14,383.45	14,214.70	168.76	85.232	
20,400.00	6,945.00	6,895.49	6,895.02	222.57	133.77	-90.00	880.44	-409.27	14,482.96	14,314.11	168.85	85.772	
20,500.00	6,945.00	6,895.49	6,895.02	224.16	133.77	-90.00	880.44	-409.27	14,582.48	14,413.52	168.95	86.311	
20,600.00	6,945.00	6,895.49	6,895.02	225.75	133.77	-90.00	880.44	-409.27	14,682.00	14,512.95	169.05	86.849	
20,700.00	6,945.00	6,895.49	6,895.02	227.35	133.77	-90.00	880.44	-409.27	14,781.53	14,612.37	169.15	87.386	
20,800.00	6,945.00	6,895.49	6,895.02	228.94	133.77	-90.00	880.44	-409.27	14,881.06	14,711.81	169.25	87.922	
20,852.96	6,945.00	6,895.49	6,895.02	229.61	133.77	-90.00	880.44	-409.27	14,933.78	14,760.00	173.78	85.936	

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:	Plan #4	**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

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	295.00	295.00	0.00	8.84	100.23	-1,362.62	7,552.14	7,674.08				
20.93	20.93	315.93	315.93	0.00	9.47	-92.42	-1,362.62	7,552.14	7,674.09				
117.41	117.41	412.41	412.41	0.05	12.36	-96.98	-1,362.62	7,552.14	7,674.12	7,661.73	12.39	619.441	
206.68	206.68	501.78	501.68	0.17	15.04	-71.08	-1,362.62	7,552.14	7,674.08	7,658.95	15.13	507.257	
292.93	292.93	588.03	587.93	0.28	17.62	-71.63	-1,362.62	7,552.14	7,673.91	7,656.13	17.78	431.675	
336.66	336.65	631.75	631.65	0.33	18.93	-90.00	-1,362.62	7,552.14	7,673.85	7,654.72	19.13	401.165	
365.00	364.99	660.10	659.99	0.36	19.78	-102.32	-1,362.62	7,552.14	7,673.87	7,653.87	20.00	383.602	
451.00	450.97	746.07	745.97	0.55	22.36	-49.05	-1,362.62	7,552.14	7,672.84	7,650.01	22.83	336.069	
540.00	539.81	827.61	827.45	0.83	24.80	-43.64	-1,360.66	7,552.14	7,668.85	7,643.26	25.59	299.709	
665.00	664.37	941.60	941.42	1.26	28.21	-41.38	-1,361.73	7,552.14	7,661.33	7,631.88	29.46	260.096	
753.00	752.01	1,047.42	1,047.01	1.58	31.39	-42.42	-1,362.62	7,552.14	7,655.53	7,622.58	32.95	232.351	
847.00	845.61	1,141.02	1,140.61	1.93	34.19	-39.44	-1,362.62	7,552.14	7,649.00	7,612.90	36.10	211.901	
939.00	937.22	1,232.62	1,232.22	2.27	36.93	-39.25	-1,362.62	7,552.14	7,642.37	7,603.19	39.18	195.057	
1,030.00	1,027.78	1,317.03	1,316.58	2.62	39.46	-50.81	-1,360.60	7,552.14	7,635.74	7,593.69	42.05	181.602	
1,120.00	1,117.25	1,399.10	1,398.63	2.96	41.92	-48.01	-1,361.22	7,552.14	7,629.48	7,584.63	44.84	170.135	
1,211.00	1,207.68	1,503.39	1,502.68	3.31	45.05	-50.72	-1,362.62	7,552.14	7,623.05	7,574.74	48.31	157.788	
1,306.00	1,302.14	1,597.85	1,597.14	3.68	47.88	-48.91	-1,362.62	7,552.14	7,616.51	7,565.01	51.50	147.894	
1,400.00	1,395.63	1,691.35	1,690.63	4.04	50.68	-47.71	-1,362.62	7,552.14	7,610.05	7,555.39	54.65	139.239	
1,495.00	1,490.19	1,782.96	1,782.21	4.40	53.43	-48.42	-1,360.48	7,552.14	7,603.54	7,545.79	57.75	131.652	
1,589.00	1,583.83	1,869.04	1,868.27	4.76	56.01	-50.90	-1,360.94	7,552.14	7,598.26	7,537.58	60.68	125.211	
1,684.00	1,678.44	1,956.13	1,955.33	5.12	58.61	-48.58	-1,361.93	7,552.14	7,592.89	7,529.24	63.65	119.296	
1,779.00	1,772.98	2,068.99	2,067.98	5.48	62.00	-44.24	-1,362.62	7,552.14	7,586.49	7,519.10	67.39	112.583	
1,873.00	1,866.49	2,162.51	2,161.49	5.84	64.80	-42.79	-1,362.62	7,552.14	7,579.55	7,509.01	70.54	107.450	
1,967.00	1,960.05	2,255.57	2,254.51	6.20	67.59	-38.17	-1,360.45	7,552.14	7,572.25	7,498.57	73.68	102.774	
2,062.00	2,054.59	2,342.67	2,341.60	6.56	70.20	-43.60	-1,360.75	7,552.14	7,565.26	7,488.62	76.64	98.709	
2,156.00	2,148.09	2,428.91	2,427.82	6.92	72.78	-44.36	-1,361.56	7,552.14	7,558.40	7,478.82	79.58	94.979	
2,251.00	2,242.55	2,538.87	2,537.55	7.29	76.08	-43.07	-1,362.62	7,552.14	7,551.27	7,468.04	83.23	90.727	
2,345.00	2,336.00	2,632.32	2,631.00	7.65	78.88	-49.14	-1,362.62	7,552.14	7,544.18	7,457.80	86.39	87.331	
2,440.00	2,430.43	2,726.75	2,725.43	8.02	81.71	-51.82	-1,362.62	7,552.14	7,537.56	7,447.98	89.58	84.147	
2,535.00	2,524.86	2,815.74	2,814.37	8.38	84.37	-50.62	-1,360.60	7,552.14	7,530.74	7,438.14	92.60	81.323	
2,629.00	2,618.31	2,902.16	2,900.77	8.75	86.96	-50.67	-1,361.25	7,552.14	7,524.37	7,428.82	95.55	78.748	
2,724.00	2,712.77	3,009.39	3,007.77	9.12	90.17	-49.96	-1,362.62	7,552.14	7,518.06	7,418.94	99.12	75.847	
2,818.00	2,806.24	3,102.86	3,101.24	9.48	92.98	-49.45	-1,362.62	7,552.14	7,511.60	7,409.32	102.28	73.443	
2,913.00	2,900.71	3,197.34	3,195.71	9.84	95.81	-47.29	-1,362.62	7,552.14	7,504.97	7,399.50	105.47	71.159	
3,008.00	2,995.25	3,288.77	3,287.10	10.21	98.55	-51.76	-1,360.50	7,552.14	7,498.51	7,389.94	108.57	69.069	
3,102.00	3,088.80	3,375.49	3,373.81	10.57	101.15	-51.61	-1,361.00	7,552.14	7,492.88	7,381.36	111.52	67.190	
3,197.00	3,183.30	3,463.22	3,461.51	10.93	103.77	-48.72	-1,362.03	7,552.14	7,486.80	7,372.29	114.51	65.383	
3,291.00	3,276.71	3,573.64	3,571.71	11.30	107.08	-54.95	-1,362.62	7,552.14	7,480.40	7,362.23	118.17	63.301	
3,386.00	3,371.01	3,667.94	3,666.01	11.67	109.91	-56.19	-1,362.62	7,552.14	7,473.85	7,352.48	121.36	61.582	
3,480.00	3,464.23	3,760.36	3,758.39	12.04	112.68	-55.02	-1,360.45	7,552.14	7,466.69	7,342.19	124.50	59.974	
3,575.00	3,558.47	3,847.98	3,846.00	12.42	115.30	-53.57	-1,360.78	7,552.14	7,459.71	7,332.21	127.49	58.511	
3,670.00	3,652.84	3,935.86	3,933.85	12.79	117.94	-52.66	-1,361.65	7,552.14	7,453.25	7,322.76	130.49	57.118	
3,764.00	3,746.36	4,043.59	4,041.36	13.15	121.16	-49.50	-1,362.62	7,552.14	7,447.43	7,313.36	134.07	55.548	
3,859.00	3,840.97	4,138.21	4,135.97	13.51	124.00	-45.82	-1,362.62	7,552.14	7,441.66	7,304.40	137.26	54.215	
3,954.00	3,935.57	4,232.80	4,230.57	13.87	126.83	-45.84	-1,362.62	7,552.14	7,435.55	7,295.10	140.45	52.941	
4,049.00	4,030.14	4,322.10	4,319.82	14.23	129.51	-54.99	-1,360.63	7,552.14	7,429.50	7,286.01	143.48	51.779	
4,143.00	4,123.75	4,409.46	4,407.15	14.59	132.13	-53.93	-1,361.33	7,552.14	7,424.63	7,278.18	146.45	50.696	
4,238.00	4,218.33	4,515.86	4,513.33	14.95	135.32	-53.78	-1,362.62	7,552.14	7,419.52	7,269.52	150.00	49.464	
4,333.00	4,312.74	4,610.27	4,607.74	15.32	138.14	-56.69	-1,362.62	7,552.14	7,413.49	7,260.30	153.19	48.394	
4,427.00	4,406.05	4,703.59	4,701.05	15.69	140.94	-54.38	-1,362.62	7,552.14	7,407.03	7,250.68	156.35	47.374	
4,522.00	4,500.34	4,794.75	4,792.16	16.06	143.67	-53.57	-1,360.52	7,552.14	7,399.90	7,240.45	159.45	46.409	
4,616.00	4,593.47	4,881.92	4,879.31	16.44	146.28	-55.95	-1,361.05	7,552.14	7,392.60	7,230.17	162.43	45.513	

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:	Plan #4	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Rule Assigned: Warning
4,710.00	4,686.44	4,969.10	4,966.48	16.82	148.90	-55.29	-1,362.12	7,552.14	7,384.86	7,219.45	165.41	44.644	
4,899.00	4,873.89	5,171.73	5,168.89	17.57	154.97	-48.99	-1,362.62	7,552.14	7,370.22	7,198.00	172.22	42.796	
4,962.00	4,936.56	5,234.41	5,231.56	17.81	156.85	-46.62	-1,362.62	7,552.14	7,365.93	7,191.60	174.33	42.252	
5,024.00	4,998.27	5,293.25	5,290.36	18.04	158.61	-50.47	-1,360.51	7,552.14	7,361.64	7,185.31	176.33	41.749	
5,150.00	5,123.66	5,411.02	5,408.11	18.53	162.14	-49.52	-1,361.35	7,552.14	7,353.81	7,173.48	180.33	40.779	
5,213.00	5,186.37	5,470.00	5,467.07	18.77	163.91	-51.93	-1,362.14	7,552.14	7,350.11	7,167.77	182.34	40.310	
5,276.00	5,249.09	5,547.24	5,544.09	19.01	166.22	-51.08	-1,362.62	7,552.14	7,346.43	7,161.54	184.89	39.734	
5,339.00	5,311.83	5,609.98	5,606.83	19.25	168.10	-52.05	-1,362.62	7,552.14	7,342.86	7,155.85	187.01	39.266	
5,401.00	5,373.58	5,671.72	5,668.58	19.48	169.95	-49.57	-1,362.62	7,552.14	7,339.32	7,150.23	189.09	38.814	
5,464.00	5,436.33	5,734.48	5,731.33	19.72	171.83	-52.30	-1,362.62	7,552.14	7,335.82	7,144.62	191.20	38.367	
5,590.00	5,561.87	5,853.51	5,850.31	20.19	175.40	-53.69	-1,360.82	7,552.14	7,329.09	7,133.85	195.24	37.539	
5,653.00	5,624.66	5,912.65	5,909.43	20.43	177.17	-55.05	-1,361.37	7,552.14	7,326.13	7,128.88	197.25	37.142	
5,715.00	5,686.48	5,970.93	5,967.69	20.66	178.92	-60.03	-1,362.15	7,552.14	7,323.68	7,124.46	199.22	36.761	
5,778.00	5,749.29	6,047.74	6,044.29	20.90	181.22	-57.39	-1,362.62	7,552.14	7,321.22	7,119.46	201.76	36.287	
5,841.00	5,812.10	6,110.55	6,107.10	21.13	183.10	-59.71	-1,362.62	7,552.14	7,318.66	7,114.79	203.88	35.898	
5,904.00	5,874.94	6,173.39	6,169.94	21.36	184.98	-54.42	-1,362.62	7,552.14	7,316.19	7,110.20	205.99	35.517	
5,967.00	5,937.80	6,236.25	6,232.80	21.60	186.87	-52.90	-1,362.62	7,552.14	7,313.71	7,105.60	208.11	35.144	
6,030.00	6,000.68	6,296.30	6,292.81	21.83	188.67	-54.85	-1,360.52	7,552.14	7,311.19	7,101.05	210.14	34.793	
6,093.00	6,063.59	6,355.63	6,352.12	22.05	190.44	-51.19	-1,360.84	7,552.14	7,309.17	7,097.03	212.14	34.454	
6,156.00	6,126.51	6,415.01	6,411.48	22.28	192.22	-45.92	-1,361.40	7,552.14	7,307.14	7,092.99	214.15	34.122	
6,235.00	6,205.43	6,504.19	6,500.43	22.56	194.89	-46.24	-1,362.62	7,552.14	7,304.87	7,087.77	217.10	33.647	
6,300.00	6,270.38	6,569.14	6,565.38	22.68	196.84	-46.25	-1,362.62	7,552.14	7,303.13	7,083.97	219.16	33.323	
6,355.00	6,325.34	6,624.10	6,620.34	22.69	198.49	-46.27	-1,362.62	7,552.14	7,301.67	7,080.85	220.82	33.066	
6,400.00	6,370.23	6,668.99	6,665.23	22.71	199.83	-13.61	-1,362.62	7,552.14	7,298.88	7,076.71	222.17	32.853	
6,450.00	6,419.74	6,718.50	6,714.74	22.73	201.32	-6.08	-1,362.62	7,552.14	7,292.07	7,068.41	223.66	32.603	
6,500.00	6,468.57	6,766.34	6,762.54	22.77	202.75	-3.11	-1,360.45	7,552.14	7,281.15	7,056.04	225.11	32.345	
6,550.00	6,516.42	6,811.51	6,807.70	22.81	204.10	-1.49	-1,360.58	7,552.14	7,266.70	7,040.22	226.48	32.085	
6,600.00	6,562.98	6,855.48	6,851.67	22.87	205.42	-0.43	-1,360.83	7,552.14	7,248.56	7,020.75	227.82	31.818	
6,650.00	6,607.98	6,898.00	6,894.18	22.95	206.70	0.36	-1,361.21	7,552.14	7,226.85	6,997.74	229.11	31.543	
6,700.00	6,651.14	6,938.80	6,934.97	23.03	207.92	1.00	-1,361.69	7,552.14	7,201.68	6,971.33	230.35	31.263	
6,750.00	6,692.18	6,977.62	6,973.77	23.14	209.08	1.58	-1,362.26	7,552.14	7,173.22	6,941.68	231.54	30.980	
6,800.00	6,730.86	7,029.92	7,025.86	23.26	210.65	2.14	-1,362.62	7,552.14	7,141.60	6,908.47	233.13	30.633	
6,850.00	6,766.93	7,065.99	7,061.93	23.40	211.73	2.72	-1,362.62	7,552.14	7,107.01	6,872.77	234.24	30.341	
6,900.00	6,800.18	7,099.24	7,095.18	23.56	212.73	3.36	-1,362.62	7,552.14	7,069.70	6,834.44	235.26	30.050	
6,950.00	6,830.39	7,129.45	7,125.39	23.74	213.63	4.12	-1,362.62	7,552.14	7,029.91	6,793.72	236.19	29.763	
7,000.00	6,857.38	7,156.44	7,152.38	23.94	214.44	5.05	-1,362.62	7,552.14	6,987.88	6,750.85	237.03	29.481	
7,050.00	6,880.98	7,180.05	7,175.98	24.17	215.15	6.27	-1,362.62	7,552.14	6,943.86	6,706.10	237.76	29.206	
7,100.00	6,901.06	7,200.12	7,196.06	24.42	215.75	7.97	-1,362.62	7,552.14	6,898.14	6,659.76	238.38	28.938	
7,150.00	6,917.47	7,216.53	7,212.47	24.70	216.24	10.53	-1,362.62	7,552.14	6,850.99	6,612.10	238.89	28.679	
7,200.00	6,930.13	7,229.19	7,225.13	25.01	216.62	14.85	-1,362.62	7,552.14	6,802.70	6,563.42	239.28	28.430	
7,250.00	6,938.95	7,238.01	7,233.95	25.34	216.88	23.49	-1,362.62	7,552.14	6,753.58	6,514.03	239.55	28.193	
7,300.00	6,943.88	7,242.94	7,238.88	25.69	217.03	46.50	-1,362.62	7,552.14	6,703.93	6,464.23	239.70	27.968	
7,337.82	6,945.00	7,244.06	7,240.00	25.97	217.06	90.00	-1,362.62	7,552.14	6,666.21	6,426.48	239.73	27.807	
7,400.00	6,945.00	7,244.06	7,240.00	26.45	217.06	90.00	-1,362.62	7,552.14	6,604.21	6,364.49	239.73	27.549	
7,492.38	6,945.00	7,244.06	7,240.00	27.21	217.06	90.00	-1,362.62	7,552.14	6,512.33	6,272.62	239.71	27.168	
7,500.00	6,945.00	7,244.06	7,240.00	27.28	217.06	90.00	-1,362.62	7,552.14	6,504.77	6,265.07	239.70	27.137	
7,600.00	6,945.00	7,244.06	7,240.00	28.17	217.06	90.00	-1,362.62	7,552.14	6,405.51	6,165.83	239.68	26.725	
7,700.00	6,945.00	7,244.06	7,240.00	29.12	217.06	90.00	-1,362.62	7,552.14	6,306.28	6,066.62	239.66	26.313	
7,800.00	6,945.00	7,244.06	7,240.00	30.14	217.06	90.00	-1,362.62	7,552.14	6,207.07	5,967.43	239.64	25.902	
7,900.00	6,945.00	7,244.06	7,240.00	31.20	217.06	90.00	-1,362.62	7,552.14	6,107.88	5,868.26	239.62	25.489	
8,000.00	6,945.00	7,244.06	7,240.00	32.31	217.06	90.00	-1,362.62	7,552.14	6,008.72	5,769.11	239.61	25.077	
8,100.00	6,945.00	7,244.06	7,240.00	33.46	217.06	90.00	-1,362.62	7,552.14	5,909.59	5,669.99	239.60	24.664	

CC - Min centre to center distance or 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:	Plan #4	**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
8,200.00	6,945.00	7,244.06	7,240.00	34.64	217.06	90.00	-1,362.62	7,552.14	5,810.49	5,570.90	239.59	24.251	
8,300.00	6,945.00	7,244.06	7,240.00	35.86	217.06	90.00	-1,362.62	7,552.14	5,711.43	5,471.84	239.59	23.838	
8,400.00	6,945.00	7,244.06	7,240.00	37.11	217.06	90.00	-1,362.62	7,552.14	5,612.39	5,372.80	239.59	23.425	
8,500.00	6,945.00	7,244.06	7,240.00	38.39	217.06	90.00	-1,362.62	7,552.14	5,513.39	5,273.80	239.60	23.011	
8,600.00	6,945.00	7,244.06	7,240.00	39.69	217.06	90.00	-1,362.62	7,552.14	5,414.43	5,174.82	239.60	22.597	
8,700.00	6,945.00	7,244.06	7,240.00	41.01	217.06	90.00	-1,362.62	7,552.14	5,315.50	5,075.88	239.62	22.183	
8,800.00	6,945.00	7,244.06	7,240.00	42.35	217.06	90.00	-1,362.62	7,552.14	5,216.62	4,976.98	239.64	21.769	
8,900.00	6,945.00	7,244.06	7,240.00	43.71	217.06	90.00	-1,362.62	7,552.14	5,117.78	4,878.11	239.67	21.354	
9,000.00	6,945.00	7,244.06	7,240.00	45.08	217.06	90.00	-1,362.62	7,552.14	5,018.98	4,779.29	239.70	20.939	
9,100.00	6,945.00	7,244.06	7,240.00	46.47	217.06	90.00	-1,362.62	7,552.14	4,920.24	4,680.50	239.74	20.523	
9,200.00	6,945.00	7,244.06	7,240.00	47.87	217.06	90.00	-1,362.62	7,552.14	4,821.54	4,581.76	239.79	20.108	
9,300.00	6,945.00	7,244.06	7,240.00	49.29	217.06	90.00	-1,362.62	7,552.14	4,722.91	4,483.06	239.85	19.691	
9,400.00	6,945.00	7,244.06	7,240.00	50.71	217.06	90.00	-1,362.62	7,552.14	4,624.32	4,384.41	239.91	19.275	
9,500.00	6,945.00	7,244.06	7,240.00	52.15	217.06	90.00	-1,362.62	7,552.14	4,525.81	4,285.81	239.99	18.858	
9,600.00	6,945.00	7,244.06	7,240.00	53.59	217.06	90.00	-1,362.62	7,552.14	4,427.35	4,187.27	240.08	18.441	
9,700.00	6,945.00	7,244.06	7,240.00	55.05	217.06	90.00	-1,362.62	7,552.14	4,328.97	4,088.79	240.19	18.023	
9,800.00	6,945.00	7,244.06	7,240.00	56.51	217.06	90.00	-1,362.62	7,552.14	4,230.67	3,990.36	240.30	17.605	
9,900.00	6,945.00	7,244.06	7,240.00	57.98	217.06	90.00	-1,362.62	7,552.14	4,132.44	3,892.01	240.44	17.187	
10,000.00	6,945.00	7,244.06	7,240.00	59.45	217.06	90.00	-1,362.62	7,552.14	4,034.31	3,793.72	240.59	16.768	
10,100.00	6,945.00	7,244.06	7,240.00	60.93	217.06	90.00	-1,362.62	7,552.14	3,936.27	3,695.50	240.76	16.349	
10,200.00	6,945.00	7,244.06	7,240.00	62.42	217.06	90.00	-1,362.62	7,552.14	3,838.32	3,597.36	240.96	15.929	
10,300.00	6,945.00	7,244.06	7,240.00	63.92	217.06	90.00	-1,362.62	7,552.14	3,740.49	3,499.31	241.18	15.509	
10,400.00	6,945.00	7,244.06	7,240.00	65.42	217.06	90.00	-1,362.62	7,552.14	3,642.78	3,401.35	241.43	15.089	
10,500.00	6,945.00	7,244.06	7,240.00	66.92	217.06	90.00	-1,362.62	7,552.14	3,545.19	3,303.49	241.70	14.668	
10,600.00	6,945.00	7,244.06	7,240.00	68.43	217.06	90.00	-1,362.62	7,552.14	3,447.74	3,205.73	242.01	14.246	
10,700.00	6,945.00	7,244.06	7,240.00	69.94	217.06	90.00	-1,362.62	7,552.14	3,350.44	3,108.08	242.36	13.824	
10,800.00	6,945.00	7,244.06	7,240.00	71.45	217.06	90.00	-1,362.62	7,552.14	3,253.31	3,010.55	242.75	13.402	
10,900.00	6,945.00	7,244.06	7,240.00	72.97	217.06	90.00	-1,362.62	7,552.14	3,156.35	2,913.16	243.19	12.979	
11,000.00	6,945.00	7,244.06	7,240.00	74.50	217.06	90.00	-1,362.62	7,552.14	3,059.59	2,815.91	243.67	12.556	
11,100.00	6,945.00	7,244.06	7,240.00	76.02	217.06	90.00	-1,362.62	7,552.14	2,963.04	2,718.82	244.22	12.133	
11,200.00	6,945.00	7,244.06	7,240.00	77.55	217.06	90.00	-1,362.62	7,552.14	2,866.74	2,621.91	244.83	11.709	
11,300.00	6,945.00	7,244.06	7,240.00	79.08	217.06	90.00	-1,362.62	7,552.14	2,770.69	2,525.18	245.51	11.286	
11,400.00	6,945.00	7,244.06	7,240.00	80.62	217.06	90.00	-1,362.62	7,552.14	2,674.93	2,428.66	246.27	10.862	
11,500.00	6,945.00	7,244.06	7,240.00	82.16	217.06	90.00	-1,362.62	7,552.14	2,579.50	2,332.38	247.12	10.438	
11,600.00	6,945.00	7,244.06	7,240.00	83.70	217.06	90.00	-1,362.62	7,552.14	2,484.42	2,236.35	248.07	10.015	
11,700.00	6,945.00	7,244.06	7,240.00	85.24	217.06	90.00	-1,362.62	7,552.14	2,389.75	2,140.62	249.13	9.592	
11,800.00	6,945.00	7,244.06	7,240.00	86.78	217.06	90.00	-1,362.62	7,552.14	2,295.52	2,045.21	250.31	9.171	
11,900.00	6,945.00	7,244.06	7,240.00	88.33	217.06	90.00	-1,362.62	7,552.14	2,201.81	1,950.17	251.64	8.750	
12,000.00	6,945.00	7,244.06	7,240.00	89.87	217.06	90.00	-1,362.62	7,552.14	2,108.68	1,855.55	253.12	8.331	
12,100.00	6,945.00	7,244.06	7,240.00	91.42	217.06	90.00	-1,362.62	7,552.14	2,016.20	1,761.42	254.79	7.913	
12,200.00	6,945.00	7,244.06	7,240.00	92.98	217.06	90.00	-1,362.62	7,552.14	1,924.48	1,667.83	256.65	7.499	
12,300.00	6,945.00	7,244.06	7,240.00	94.53	217.06	90.00	-1,362.62	7,552.14	1,833.62	1,574.89	258.73	7.087	
12,400.00	6,945.00	7,244.06	7,240.00	96.08	217.06	90.00	-1,362.62	7,552.14	1,743.76	1,482.69	261.07	6.679	
12,500.00	6,945.00	7,244.06	7,240.00	97.64	217.06	90.00	-1,362.62	7,552.14	1,655.07	1,391.37	263.69	6.276	
12,600.00	6,945.00	7,244.06	7,240.00	99.20	217.06	90.00	-1,362.62	7,552.14	1,567.73	1,301.09	266.64	5.880	
12,700.00	6,945.00	7,244.06	7,240.00	100.76	217.06	90.00	-1,362.62	7,552.14	1,482.00	1,212.06	269.94	5.490	
12,800.00	6,945.00	7,244.06	7,240.00	102.32	217.06	90.00	-1,362.62	7,552.14	1,398.17	1,124.52	273.65	5.109	
12,900.00	6,945.00	7,244.06	7,240.00	103.88	217.06	90.00	-1,362.62	7,552.14	1,316.59	1,038.79	277.80	4.739	
13,000.00	6,945.00	7,244.06	7,240.00	105.44	217.06	90.00	-1,362.62	7,552.14	1,237.73	955.29	282.44	4.382	
13,100.00	6,945.00	7,244.06	7,240.00	107.00	217.06	90.00	-1,362.62	7,552.14	1,162.11	874.53	287.59	4.041	
13,200.00	6,945.00	7,244.06	7,240.00	108.57	217.06	90.00	-1,362.62	7,552.14	1,090.44	797.17	293.26	3.718	
13,300.00	6,945.00	7,244.06	7,240.00	110.13	217.06	90.00	-1,362.62	7,552.14	1,023.52	724.08	299.44	3.418	

CC - Min centre to center distance or 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:	Plan #4	**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
13,400.00	6,945.00	7,244.06	7,240.00	111.70	217.06	90.00	-1,362.62	7,552.14	962.36	656.32	306.04	3.145	
13,500.00	6,945.00	7,244.06	7,240.00	113.27	217.06	90.00	-1,362.62	7,552.14	908.12	595.23	312.89	2.902	
13,600.00	6,945.00	7,244.06	7,240.00	114.84	217.06	90.00	-1,362.62	7,552.14	862.11	542.38	319.72	2.696	
13,700.00	6,945.00	7,244.06	7,240.00	116.41	217.06	90.00	-1,362.62	7,552.14	825.69	499.56	326.13	2.532	
13,800.00	6,945.00	7,244.06	7,240.00	117.98	217.06	90.00	-1,362.62	7,552.14	800.20	468.55	331.65	2.413	
13,900.00	6,945.00	7,244.06	7,240.00	119.55	217.06	90.00	-1,362.62	7,552.14	786.68	450.89	335.78	2.343	
13,957.28	6,945.00	7,244.06	7,240.00	120.45	217.06	90.00	-1,362.62	7,552.14	784.59	447.20	337.38	2.326	CC, ES
14,000.00	6,945.00	7,244.06	7,240.00	121.12	217.06	90.00	-1,362.62	7,552.14	785.75	447.57	338.18	2.323	SF
14,100.00	6,945.00	7,244.06	7,240.00	122.69	217.06	90.00	-1,362.62	7,552.14	797.46	458.75	338.71	2.354	
14,200.00	6,945.00	7,244.06	7,240.00	124.27	217.06	90.00	-1,362.62	7,552.14	821.27	483.77	337.50	2.433	
14,300.00	6,945.00	7,244.06	7,240.00	125.84	217.06	90.00	-1,362.62	7,552.14	856.18	521.28	334.89	2.557	
14,400.00	6,945.00	7,244.06	7,240.00	127.41	217.06	90.00	-1,362.62	7,552.14	900.88	569.58	331.30	2.719	
14,500.00	6,945.00	7,244.06	7,240.00	128.99	217.06	90.00	-1,362.62	7,552.14	954.00	626.88	327.12	2.916	
14,600.00	6,945.00	7,244.06	7,240.00	130.57	217.06	90.00	-1,362.62	7,552.14	1,014.23	691.54	322.69	3.143	
14,700.00	6,945.00	7,244.06	7,240.00	132.14	217.06	90.00	-1,362.62	7,552.14	1,080.38	762.12	318.26	3.395	
14,800.00	6,945.00	7,244.06	7,240.00	133.72	217.06	90.00	-1,362.62	7,552.14	1,151.41	837.45	313.96	3.667	
14,900.00	6,945.00	7,244.06	7,240.00	135.30	217.06	90.00	-1,362.62	7,552.14	1,226.50	916.60	309.90	3.958	
15,000.00	6,945.00	7,244.06	7,240.00	136.87	217.06	90.00	-1,362.62	7,552.14	1,304.93	998.82	306.11	4.263	
15,100.00	6,945.00	7,244.06	7,240.00	138.45	217.06	90.00	-1,362.62	7,552.14	1,386.14	1,083.53	302.62	4.581	
15,200.00	6,945.00	7,244.06	7,240.00	140.03	217.06	90.00	-1,362.62	7,552.14	1,469.67	1,170.27	299.41	4.909	
15,300.00	6,945.00	7,244.06	7,240.00	141.61	217.06	90.00	-1,362.62	7,552.14	1,555.15	1,258.68	296.47	5.246	
15,400.00	6,945.00	7,244.06	7,240.00	143.19	217.06	90.00	-1,362.62	7,552.14	1,642.26	1,348.47	293.79	5.590	
15,500.00	6,945.00	7,244.06	7,240.00	144.77	217.06	90.00	-1,362.62	7,552.14	1,730.77	1,439.43	291.34	5.941	
15,600.00	6,945.00	7,244.06	7,240.00	146.35	217.06	90.00	-1,362.62	7,552.14	1,820.47	1,531.36	289.10	6.297	
15,700.00	6,945.00	7,244.06	7,240.00	147.94	217.06	90.00	-1,362.62	7,552.14	1,911.19	1,624.13	287.06	6.658	
15,800.00	6,945.00	7,244.06	7,240.00	149.52	217.06	90.00	-1,362.62	7,552.14	2,002.80	1,717.61	285.19	7.023	
15,900.00	6,945.00	7,244.06	7,240.00	151.10	217.06	90.00	-1,362.62	7,552.14	2,095.17	1,811.69	283.48	7.391	
16,000.00	6,945.00	7,244.06	7,240.00	152.68	217.06	90.00	-1,362.62	7,552.14	2,188.22	1,906.31	281.90	7.762	
16,100.00	6,945.00	7,244.06	7,240.00	154.26	217.06	90.00	-1,362.62	7,552.14	2,281.85	2,001.39	280.46	8.136	
16,200.00	6,945.00	7,244.06	7,240.00	155.85	217.06	90.00	-1,362.62	7,552.14	2,376.00	2,096.87	279.13	8.512	
16,300.00	6,945.00	7,244.06	7,240.00	157.43	217.06	90.00	-1,362.62	7,552.14	2,470.61	2,192.71	277.90	8.890	
16,400.00	6,945.00	7,244.06	7,240.00	159.02	217.06	90.00	-1,362.62	7,552.14	2,565.63	2,288.87	276.76	9.270	
16,500.00	6,945.00	7,244.06	7,240.00	160.60	217.06	90.00	-1,362.62	7,552.14	2,661.02	2,385.30	275.71	9.651	
16,600.00	6,945.00	7,244.06	7,240.00	162.18	217.06	90.00	-1,362.62	7,552.14	2,756.73	2,481.99	274.74	10.034	
16,700.00	6,945.00	7,244.06	7,240.00	163.77	217.06	90.00	-1,362.62	7,552.14	2,852.73	2,578.90	273.84	10.418	
16,800.00	6,945.00	7,244.06	7,240.00	165.35	217.06	90.00	-1,362.62	7,552.14	2,949.01	2,676.01	273.00	10.802	
16,900.00	6,945.00	7,244.06	7,240.00	166.94	217.06	90.00	-1,362.62	7,552.14	3,045.52	2,773.30	272.22	11.188	
17,000.00	6,945.00	7,244.06	7,240.00	168.53	217.06	90.00	-1,362.62	7,552.14	3,142.25	2,870.76	271.49	11.574	
17,100.00	6,945.00	7,244.06	7,240.00	170.11	217.06	90.00	-1,362.62	7,552.14	3,239.18	2,968.37	270.81	11.961	
17,200.00	6,945.00	7,244.06	7,240.00	171.70	217.06	90.00	-1,362.62	7,552.14	3,336.29	3,066.11	270.18	12.348	
17,300.00	6,945.00	7,244.06	7,240.00	173.29	217.06	90.00	-1,362.62	7,552.14	3,433.56	3,163.98	269.59	12.736	
17,400.00	6,945.00	7,244.06	7,240.00	174.87	217.06	90.00	-1,362.62	7,552.14	3,530.99	3,261.96	269.03	13.125	
17,500.00	6,945.00	7,244.06	7,240.00	176.46	217.06	90.00	-1,362.62	7,552.14	3,628.56	3,360.05	268.51	13.514	
17,600.00	6,945.00	7,244.06	7,240.00	178.05	217.06	90.00	-1,362.62	7,552.14	3,726.26	3,458.23	268.03	13.903	
17,700.00	6,945.00	7,244.06	7,240.00	179.63	217.06	90.00	-1,362.62	7,552.14	3,824.07	3,556.50	267.57	14.292	
17,800.00	6,945.00	7,244.06	7,240.00	181.22	217.06	90.00	-1,362.62	7,552.14	3,922.00	3,654.86	267.14	14.681	
17,900.00	6,945.00	7,244.06	7,240.00	182.81	217.06	90.00	-1,362.62	7,552.14	4,020.03	3,753.29	266.74	15.071	
18,000.00	6,945.00	7,244.06	7,240.00	184.40	217.06	90.00	-1,362.62	7,552.14	4,118.15	3,851.79	266.36	15.461	
18,100.00	6,945.00	7,244.06	7,240.00	185.99	217.06	90.00	-1,362.62	7,552.14	4,216.36	3,950.36	266.01	15.851	
18,200.00	6,945.00	7,244.06	7,240.00	187.58	217.06	90.00	-1,362.62	7,552.14	4,314.66	4,048.98	265.67	16.241	
18,300.00	6,945.00	7,244.06	7,240.00	189.16	217.06	90.00	-1,362.62	7,552.14	4,413.03	4,147.67	265.36	16.630	
18,400.00	6,945.00	7,244.06	7,240.00	190.75	217.06	90.00	-1,362.62	7,552.14	4,511.47	4,246.41	265.06	17.020	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 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:	Plan #4	**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
18,500.00	6,945.00	7,244.06	7,240.00	192.34	217.06	90.00	-1,362.62	7,552.14	4,609.98	4,345.19	264.78	17.410	
18,600.00	6,945.00	7,244.06	7,240.00	193.93	217.06	90.00	-1,362.62	7,552.14	4,708.55	4,444.03	264.52	17.800	
18,700.00	6,945.00	7,244.06	7,240.00	195.52	217.06	90.00	-1,362.62	7,552.14	4,807.18	4,542.90	264.28	18.190	
18,800.00	6,945.00	7,244.06	7,240.00	197.11	217.06	90.00	-1,362.62	7,552.14	4,905.87	4,641.82	264.04	18.580	
18,900.00	6,945.00	7,244.06	7,240.00	198.70	217.06	90.00	-1,362.62	7,552.14	5,004.60	4,740.78	263.83	18.969	
19,000.00	6,945.00	7,244.06	7,240.00	200.29	217.06	90.00	-1,362.62	7,552.14	5,103.39	4,839.77	263.62	19.359	
19,100.00	6,945.00	7,244.06	7,240.00	201.88	217.06	90.00	-1,362.62	7,552.14	5,202.23	4,938.80	263.43	19.748	
19,200.00	6,945.00	7,244.06	7,240.00	203.47	217.06	90.00	-1,362.62	7,552.14	5,301.10	5,037.86	263.24	20.138	
19,300.00	6,945.00	7,244.06	7,240.00	205.06	217.06	90.00	-1,362.62	7,552.14	5,400.02	5,136.95	263.07	20.527	
19,400.00	6,945.00	7,244.06	7,240.00	206.65	217.06	90.00	-1,362.62	7,552.14	5,498.98	5,236.07	262.91	20.916	
19,500.00	6,945.00	7,244.06	7,240.00	208.24	217.06	90.00	-1,362.62	7,552.14	5,597.98	5,335.21	262.76	21.304	
19,600.00	6,945.00	7,244.06	7,240.00	209.84	217.06	90.00	-1,362.62	7,552.14	5,697.01	5,434.39	262.62	21.693	
19,700.00	6,945.00	7,244.06	7,240.00	211.43	217.06	90.00	-1,362.62	7,552.14	5,796.07	5,533.58	262.49	22.081	
19,800.00	6,945.00	7,244.06	7,240.00	213.02	217.06	90.00	-1,362.62	7,552.14	5,895.16	5,632.80	262.36	22.470	
19,900.00	6,945.00	7,244.06	7,240.00	214.61	217.06	90.00	-1,362.62	7,552.14	5,994.29	5,732.04	262.24	22.858	
20,000.00	6,945.00	7,244.06	7,240.00	216.20	217.06	90.00	-1,362.62	7,552.14	6,093.44	5,831.31	262.14	23.245	
20,100.00	6,945.00	7,244.06	7,240.00	217.79	217.06	90.00	-1,362.62	7,552.14	6,192.62	5,930.59	262.03	23.633	
20,200.00	6,945.00	7,244.06	7,240.00	219.38	217.06	90.00	-1,362.62	7,552.14	6,291.83	6,029.89	261.94	24.020	
20,300.00	6,945.00	7,244.06	7,240.00	220.98	217.06	90.00	-1,362.62	7,552.14	6,391.06	6,129.21	261.85	24.407	
20,400.00	6,945.00	7,244.06	7,240.00	222.57	217.06	90.00	-1,362.62	7,552.14	6,490.32	6,228.55	261.77	24.794	
20,500.00	6,945.00	7,244.06	7,240.00	224.16	217.06	90.00	-1,362.62	7,552.14	6,589.60	6,327.90	261.69	25.181	
20,600.00	6,945.00	7,244.06	7,240.00	225.75	217.06	90.00	-1,362.62	7,552.14	6,688.89	6,427.27	261.62	25.567	
20,700.00	6,945.00	7,244.06	7,240.00	227.35	217.06	90.00	-1,362.62	7,552.14	6,788.21	6,526.66	261.56	25.953	
20,800.00	6,945.00	7,244.06	7,240.00	228.94	217.06	90.00	-1,362.62	7,552.14	6,887.55	6,626.06	261.50	26.339	
20,852.96	6,945.00	7,244.06	7,240.00	229.61	217.06	90.00	-1,362.62	7,552.14	6,940.17	6,675.03	265.14	26.176	

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:	Plan #4	**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
0.00	0.00	0.00	0.00	0.00	0.00	-70.04	1,221.73	-3,364.28	3,579.46				
20.93	20.93	0.00	0.00	0.00	0.00	97.31	1,221.73	-3,364.28	3,579.30				
36.95	36.95	0.00	0.00	0.01	0.00	96.67	1,221.73	-3,364.28	3,579.26				
117.41	117.41	78.41	78.41	0.05	1.54	92.77	1,221.73	-3,364.28	3,579.29	3,577.72	1.58	2,272.091	
206.68	206.68	167.68	167.68	0.17	3.57	118.67	1,221.73	-3,364.28	3,579.39	3,575.73	3.67	975.437	
292.93	292.93	253.93	253.93	0.28	5.73	118.13	1,221.73	-3,364.28	3,579.65	3,573.75	5.90	606.773	
365.00	364.99	326.69	326.69	0.36	7.55	87.47	1,222.35	-3,364.28	3,579.99	3,572.20	7.79	459.666	
368.87	368.86	330.73	330.72	0.36	7.65	96.83	1,222.35	-3,364.28	3,579.99	3,572.09	7.90	453.156	
451.00	450.97	416.41	416.40	0.55	9.79	140.77	1,222.17	-3,364.28	3,581.22	3,570.94	10.28	348.529	ES
540.00	539.81	509.15	509.14	0.83	12.11	146.26	1,221.68	-3,364.28	3,585.29	3,572.38	12.91	277.798	
665.00	664.37	626.05	625.88	1.26	15.74	148.67	1,222.91	-3,364.28	3,594.52	3,577.54	16.98	211.694	
753.00	752.01	736.14	735.94	1.58	19.12	147.75	1,221.87	-3,364.28	3,601.03	3,580.35	20.68	174.163	
847.00	845.61	806.93	806.61	1.93	21.02	150.82	1,221.73	-3,364.28	3,608.32	3,585.40	22.92	157.430	
939.00	937.22	904.86	904.52	2.27	23.60	151.14	1,222.73	-3,364.28	3,616.16	3,590.32	25.84	139.951	
1,030.00	1,027.78	1,015.02	1,014.65	2.62	26.51	139.70	1,221.33	-3,364.28	3,623.08	3,594.01	29.08	124.596	
1,120.00	1,117.25	1,078.66	1,078.25	2.96	27.90	142.62	1,221.73	-3,364.28	3,630.76	3,599.95	30.81	117.844	
1,211.00	1,207.68	1,169.09	1,168.68	3.31	29.99	140.07	1,221.73	-3,364.28	3,638.72	3,605.49	33.23	109.492	
1,306.00	1,302.14	1,264.86	1,264.43	3.68	32.19	142.06	1,223.07	-3,364.28	3,647.08	3,611.28	35.79	101.897	
1,400.00	1,395.63	1,364.06	1,363.63	4.04	34.48	143.41	1,222.75	-3,364.28	3,654.70	3,616.27	38.43	95.108	
1,495.00	1,490.19	1,464.48	1,464.02	4.40	36.79	142.85	1,221.99	-3,364.28	3,661.79	3,620.70	41.09	89.113	
1,589.00	1,583.83	1,545.36	1,544.83	4.76	38.60	140.46	1,221.73	-3,364.28	3,668.16	3,624.92	43.24	84.824	
1,684.00	1,678.44	1,639.97	1,639.44	5.12	40.69	142.91	1,221.73	-3,364.28	3,674.90	3,629.22	45.68	80.449	
1,779.00	1,772.98	1,734.51	1,733.98	5.48	42.77	147.40	1,221.73	-3,364.28	3,682.62	3,634.51	48.12	76.538	
1,873.00	1,866.49	1,833.59	1,833.04	5.84	44.95	149.00	1,222.89	-3,364.28	3,691.16	3,640.52	50.65	72.882	
1,967.00	1,960.05	1,933.07	1,932.50	6.20	47.14	153.75	1,222.26	-3,364.28	3,698.96	3,645.78	53.18	69.551	
2,062.00	2,054.59	2,016.22	2,015.59	6.56	48.92	148.40	1,221.73	-3,364.28	3,706.90	3,651.59	55.31	67.023	
2,156.00	2,148.09	2,109.71	2,109.09	6.92	50.79	147.76	1,221.73	-3,364.28	3,715.15	3,657.62	57.53	64.579	
2,251.00	2,242.55	2,204.18	2,203.55	7.29	52.68	149.19	1,221.73	-3,364.28	3,723.73	3,663.96	59.77	62.298	
2,345.00	2,336.00	2,301.91	2,301.27	7.65	54.64	143.27	1,222.61	-3,364.28	3,732.55	3,670.47	62.08	60.125	
2,440.00	2,430.43	2,401.60	2,400.95	8.02	56.64	140.74	1,222.11	-3,364.28	3,740.57	3,676.14	64.43	58.055	
2,535.00	2,524.86	2,486.55	2,485.86	8.38	58.34	142.09	1,221.73	-3,364.28	3,748.51	3,682.02	66.49	56.376	
2,629.00	2,618.31	2,579.99	2,579.31	8.75	60.23	142.19	1,221.73	-3,364.28	3,756.57	3,687.84	68.72	54.661	
2,724.00	2,712.77	2,674.45	2,673.77	9.12	62.13	143.05	1,221.73	-3,364.28	3,764.67	3,693.68	70.98	53.037	
2,818.00	2,806.24	2,770.31	2,769.62	9.48	64.06	143.73	1,222.50	-3,364.28	3,772.97	3,699.71	73.26	51.498	
2,913.00	2,900.71	2,868.43	2,867.73	9.84	66.04	146.03	1,222.21	-3,364.28	3,781.01	3,705.42	75.59	50.017	
3,008.00	2,995.25	2,966.64	2,965.94	10.21	68.02	141.70	1,221.68	-3,364.28	3,788.44	3,710.52	77.93	48.616	
3,102.00	3,088.80	3,050.54	3,049.80	10.57	69.63	141.98	1,221.73	-3,364.28	3,795.68	3,715.80	79.88	47.515	
3,197.00	3,183.30	3,145.04	3,144.30	10.93	71.45	145.00	1,221.73	-3,364.28	3,803.52	3,721.46	82.06	46.351	
3,291.00	3,276.71	3,238.45	3,237.71	11.30	73.25	138.92	1,221.73	-3,364.28	3,811.76	3,727.55	84.21	45.265	
3,386.00	3,371.01	3,337.24	3,336.48	11.67	75.15	137.88	1,222.80	-3,364.28	3,820.83	3,734.36	86.47	44.185	
3,480.00	3,464.23	3,435.03	3,434.27	12.04	77.04	139.27	1,222.36	-3,364.28	3,829.72	3,741.00	88.72	43.168	
3,575.00	3,558.47	3,520.27	3,519.47	12.42	78.68	140.89	1,221.73	-3,364.28	3,838.69	3,747.98	90.72	42.315	
3,670.00	3,652.84	3,614.63	3,613.84	12.79	80.69	141.96	1,221.73	-3,364.28	3,847.27	3,754.20	93.08	41.334	
3,764.00	3,746.36	3,712.31	3,711.51	13.15	82.76	145.27	1,221.88	-3,364.28	3,854.95	3,759.45	95.50	40.366	
3,859.00	3,840.97	3,802.80	3,801.97	13.51	85.33	149.08	1,221.73	-3,364.28	3,862.09	3,763.67	98.42	39.242	
3,954.00	3,935.57	3,897.40	3,896.57	13.87	88.65	149.17	1,221.73	-3,364.28	3,869.61	3,767.52	102.08	37.906	
4,049.00	4,030.14	3,991.97	3,991.14	14.23	91.96	140.14	1,221.73	-3,364.28	3,876.98	3,771.23	105.75	36.662	
4,143.00	4,123.75	4,092.69	4,091.83	14.59	95.49	141.35	1,223.16	-3,364.28	3,884.17	3,774.54	109.63	35.430	
4,238.00	4,218.33	4,195.73	4,194.86	14.95	99.11	141.64	1,222.40	-3,364.28	3,890.91	3,777.31	113.59	34.253	
4,333.00	4,312.74	4,275.18	4,273.74	15.32	102.16	138.85	1,221.73	-3,364.28	3,898.73	3,781.73	117.00	33.322	
4,427.00	4,406.05	4,382.00	4,380.20	15.69	107.32	141.37	1,221.73	-3,364.28	3,907.49	3,784.97	122.52	31.893	
4,522.00	4,500.34	4,463.22	4,461.34	16.06	111.30	142.36	1,221.73	-3,364.28	3,916.59	3,789.74	126.85	30.875	

CC - Min centre to center distance or 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:	Plan #4	**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
4,616.00	4,593.47	4,571.00	4,568.71	16.44	116.41	140.17	1,221.73	-3,364.28	3,926.59	3,794.27	132.32	29.674	
4,710.00	4,686.44	4,711.10	4,708.69	16.82	123.40	141.09	1,221.49	-3,364.28	3,937.71	3,798.04	139.67	28.193	
4,899.00	4,873.89	4,837.80	4,834.89	17.57	129.75	147.71	1,221.73	-3,364.28	3,956.83	3,810.10	146.73	26.966	
4,962.00	4,936.56	4,900.56	4,897.56	17.81	132.86	150.16	1,221.73	-3,364.28	3,962.30	3,812.22	150.08	26.402	
5,024.00	4,998.27	4,962.57	4,959.27	18.04	135.96	146.41	1,221.73	-3,364.28	3,967.45	3,814.05	153.40	25.864	
5,150.00	5,123.66	5,088.30	5,084.66	18.53	142.36	147.52	1,221.73	-3,364.28	3,977.80	3,817.54	160.26	24.821	
5,213.00	5,186.37	5,151.02	5,147.37	18.77	145.45	145.17	1,221.73	-3,364.28	3,982.80	3,819.22	163.58	24.347	
5,276.00	5,249.09	5,213.73	5,210.09	19.01	148.54	146.11	1,221.73	-3,364.28	3,987.74	3,820.83	166.91	23.892	
5,339.00	5,311.83	5,276.47	5,272.83	19.25	151.63	145.23	1,221.73	-3,364.28	3,992.48	3,822.25	170.23	23.453	
5,401.00	5,373.58	5,357.23	5,353.39	19.48	155.61	147.85	1,225.40	-3,364.28	3,998.72	3,824.28	174.44	22.923	
5,464.00	5,436.33	5,445.27	5,441.33	19.72	159.95	145.18	1,223.75	-3,364.28	4,002.85	3,823.84	179.01	22.361	
5,590.00	5,561.87	5,527.58	5,522.87	20.19	163.97	143.90	1,221.73	-3,364.28	4,010.56	3,827.06	183.49	21.857	
5,653.00	5,624.66	5,590.36	5,585.66	20.43	166.94	142.61	1,221.73	-3,364.28	4,014.73	3,828.04	186.70	21.504	
5,715.00	5,686.48	5,652.18	5,647.48	20.66	169.87	137.69	1,221.73	-3,364.28	4,018.36	3,828.52	189.85	21.166	
5,778.00	5,749.29	5,715.00	5,710.29	20.90	172.84	140.41	1,221.73	-3,364.28	4,022.01	3,828.95	193.05	20.834	
5,841.00	5,812.10	5,777.81	5,773.10	21.13	175.82	138.16	1,221.73	-3,364.28	4,025.72	3,829.46	196.26	20.512	
5,904.00	5,874.94	5,840.65	5,835.94	21.36	178.79	143.53	1,221.73	-3,364.28	4,029.25	3,829.78	199.46	20.200	
5,967.00	5,937.80	5,903.51	5,898.80	21.60	181.77	145.12	1,221.73	-3,364.28	4,032.65	3,829.99	202.67	19.898	
6,030.00	6,000.68	5,949.00	5,943.35	21.83	183.92	143.23	1,221.73	-3,364.28	4,035.81	3,830.77	205.04	19.683 SF	
6,093.00	6,063.59	5,949.00	5,943.35	22.05	183.92	146.92	1,221.73	-3,364.28	4,039.39	3,834.18	205.21	19.684	
6,156.00	6,126.51	5,949.00	5,943.35	22.28	183.92	152.21	1,221.73	-3,364.28	4,043.88	3,838.56	205.33	19.695	
6,235.00	6,205.43	5,949.00	5,943.35	22.56	183.92	151.91	1,221.73	-3,364.28	4,050.53	3,845.13	205.40	19.720	
6,300.00	6,270.38	5,949.00	5,943.35	22.68	183.92	151.91	1,221.73	-3,364.28	4,056.84	3,851.55	205.29	19.762	
6,355.00	6,325.34	5,949.00	5,943.35	22.69	183.92	151.91	1,221.73	-3,364.28	4,062.97	3,857.91	205.06	19.813	
6,400.00	6,370.23	5,949.00	5,943.35	22.71	183.92	-175.20	1,221.73	-3,364.28	4,070.00	3,865.15	204.86	19.868	
6,450.00	6,419.74	5,949.00	5,943.35	22.73	183.92	-167.29	1,221.73	-3,364.28	4,081.77	3,877.17	204.61	19.949	
6,500.00	6,468.57	5,949.00	5,943.35	22.77	183.92	-163.78	1,221.73	-3,364.28	4,097.59	3,893.26	204.34	20.053	
6,550.00	6,516.42	5,949.00	5,943.35	22.81	183.92	-161.47	1,221.73	-3,364.28	4,117.33	3,913.28	204.06	20.178	
6,600.00	6,562.98	5,949.00	5,943.35	22.87	183.92	-159.54	1,221.73	-3,364.28	4,140.81	3,937.04	203.77	20.321	
6,650.00	6,607.98	5,949.00	5,943.35	22.95	183.92	-157.67	1,221.73	-3,364.28	4,167.81	3,964.34	203.48	20.483	
6,700.00	6,651.14	5,949.00	5,943.35	23.03	183.92	-155.67	1,221.73	-3,364.28	4,198.12	3,994.93	203.19	20.661	
6,750.00	6,692.18	5,949.00	5,943.35	23.14	183.92	-153.41	1,221.73	-3,364.28	4,231.46	4,028.54	202.91	20.853	
6,800.00	6,730.86	5,949.00	5,943.35	23.26	183.92	-150.76	1,221.73	-3,364.28	4,267.57	4,064.91	202.65	21.058	
6,850.00	6,766.93	5,949.00	5,943.35	23.40	183.92	-147.56	1,221.73	-3,364.28	4,306.15	4,103.74	202.42	21.274	
6,900.00	6,800.18	5,949.00	5,943.35	23.56	183.92	-143.61	1,221.73	-3,364.28	4,346.91	4,144.71	202.20	21.498	
6,950.00	6,830.39	5,949.00	5,943.35	23.74	183.92	-138.66	1,221.73	-3,364.28	4,389.54	4,187.52	202.01	21.729	
7,000.00	6,857.38	5,949.00	5,943.35	23.94	183.92	-132.38	1,221.73	-3,364.28	4,433.71	4,231.85	201.86	21.964	
7,050.00	6,880.98	5,949.00	5,943.35	24.17	183.92	-124.44	1,221.73	-3,364.28	4,479.13	4,277.39	201.74	22.203	
7,100.00	6,901.06	5,949.00	5,943.35	24.42	183.92	-114.53	1,221.73	-3,364.28	4,525.47	4,323.82	201.65	22.442	
7,150.00	6,917.47	5,949.00	5,943.35	24.70	183.92	-102.71	1,221.73	-3,364.28	4,572.42	4,370.83	201.60	22.681	
7,200.00	6,930.13	5,949.00	5,943.35	25.01	183.92	-89.69	1,221.73	-3,364.28	4,619.68	4,418.11	201.58	22.918	
7,250.00	6,938.95	5,949.00	5,943.35	25.34	183.92	-76.76	1,221.73	-3,364.28	4,666.96	4,465.37	201.59	23.151	
7,300.00	6,943.88	5,949.00	5,943.35	25.69	183.92	-65.15	1,221.73	-3,364.28	4,713.96	4,512.32	201.64	23.378	
7,337.82	6,945.00	5,949.00	5,943.35	25.97	183.92	-57.67	1,221.73	-3,364.28	4,749.15	4,547.46	201.70	23.546	
7,400.00	6,945.00	5,949.00	5,943.35	26.45	183.92	-59.23	1,221.73	-3,364.28	4,806.53	4,604.73	201.81	23.818	
7,492.38	6,945.00	5,949.00	5,943.35	27.21	183.92	-61.32	1,221.73	-3,364.28	4,891.17	4,689.20	201.97	24.217	
7,500.00	6,945.00	5,949.00	5,943.35	27.28	183.92	-61.32	1,221.73	-3,364.28	4,898.12	4,696.13	201.98	24.250	
7,600.00	6,945.00	5,949.00	5,943.35	28.17	183.92	-61.32	1,221.73	-3,364.28	4,989.51	4,787.35	202.16	24.681	
7,700.00	6,945.00	5,949.00	5,943.35	29.12	183.92	-61.32	1,221.73	-3,364.28	5,081.23	4,878.89	202.35	25.111	
7,800.00	6,945.00	5,949.00	5,943.35	30.14	183.92	-61.32	1,221.73	-3,364.28	5,173.26	4,970.73	202.53	25.543	
7,900.00	6,945.00	5,949.00	5,943.35	31.20	183.92	-61.32	1,221.73	-3,364.28	5,265.58	5,062.86	202.72	25.975	
8,000.00	6,945.00	5,949.00	5,943.35	32.31	183.92	-61.32	1,221.73	-3,364.28	5,358.17	5,155.27	202.91	26.407	

CC - Min centre to center distance or 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:	Plan #4	**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
8,100.00	6,945.00	5,949.00	5,943.35	33.46	183.92	-61.32	1,221.73	-3,364.28	5,451.03	5,247.93	203.10	26.840	
8,200.00	6,945.00	5,949.00	5,943.35	34.64	183.92	-61.32	1,221.73	-3,364.28	5,544.13	5,340.85	203.28	27.273	
8,300.00	6,945.00	5,949.00	5,943.35	35.86	183.92	-61.32	1,221.73	-3,364.28	5,637.47	5,434.00	203.47	27.707	
8,400.00	6,945.00	5,949.00	5,943.35	37.11	183.92	-61.32	1,221.73	-3,364.28	5,731.04	5,527.38	203.66	28.141	
8,500.00	6,945.00	5,949.00	5,943.35	38.39	183.92	-61.32	1,221.73	-3,364.28	5,824.82	5,620.97	203.84	28.575	
8,600.00	6,945.00	5,949.00	5,943.35	39.69	183.92	-61.32	1,221.73	-3,364.28	5,918.80	5,714.77	204.03	29.010	
8,700.00	6,945.00	5,949.00	5,943.35	41.01	183.92	-61.32	1,221.73	-3,364.28	6,012.98	5,808.76	204.21	29.445	
8,800.00	6,945.00	5,949.00	5,943.35	42.35	183.92	-61.32	1,221.73	-3,364.28	6,107.34	5,902.94	204.40	29.880	
8,900.00	6,945.00	5,949.00	5,943.35	43.71	183.92	-61.32	1,221.73	-3,364.28	6,201.88	5,997.30	204.58	30.316	
9,000.00	6,945.00	5,949.00	5,943.35	45.08	183.92	-61.32	1,221.73	-3,364.28	6,296.59	6,091.83	204.76	30.751	
9,100.00	6,945.00	5,949.00	5,943.35	46.47	183.92	-61.32	1,221.73	-3,364.28	6,391.45	6,186.52	204.94	31.188	
9,200.00	6,945.00	5,949.00	5,943.35	47.87	183.92	-61.32	1,221.73	-3,364.28	6,486.48	6,281.36	205.11	31.624	
9,300.00	6,945.00	5,949.00	5,943.35	49.29	183.92	-61.32	1,221.73	-3,364.28	6,581.65	6,376.36	205.29	32.061	
9,400.00	6,945.00	5,949.00	5,943.35	50.71	183.92	-61.32	1,221.73	-3,364.28	6,676.96	6,471.50	205.46	32.498	
9,500.00	6,945.00	5,949.00	5,943.35	52.15	183.92	-61.32	1,221.73	-3,364.28	6,772.40	6,566.77	205.63	32.935	
9,600.00	6,945.00	5,949.00	5,943.35	53.59	183.92	-61.32	1,221.73	-3,364.28	6,867.98	6,662.18	205.80	33.372	
9,700.00	6,945.00	5,949.00	5,943.35	55.05	183.92	-61.32	1,221.73	-3,364.28	6,963.68	6,757.71	205.97	33.809	
9,800.00	6,945.00	5,949.00	5,943.35	56.51	183.92	-61.32	1,221.73	-3,364.28	7,059.50	6,853.36	206.14	34.247	
9,900.00	6,945.00	5,949.00	5,943.35	57.98	183.92	-61.32	1,221.73	-3,364.28	7,155.44	6,949.13	206.30	34.684	
10,000.00	6,945.00	5,949.00	5,943.35	59.45	183.92	-61.32	1,221.73	-3,364.28	7,251.48	7,045.02	206.46	35.122	
10,100.00	6,945.00	5,949.00	5,943.35	60.93	183.92	-61.32	1,221.73	-3,364.28	7,347.63	7,141.00	206.63	35.560	
10,200.00	6,945.00	5,949.00	5,943.35	62.42	183.92	-61.32	1,221.73	-3,364.28	7,443.88	7,237.09	206.78	35.998	
10,300.00	6,945.00	5,949.00	5,943.35	63.92	183.92	-61.32	1,221.73	-3,364.28	7,540.23	7,333.29	206.94	36.436	
10,400.00	6,945.00	5,949.00	5,943.35	65.42	183.92	-61.32	1,221.73	-3,364.28	7,636.67	7,429.57	207.10	36.874	
10,500.00	6,945.00	5,949.00	5,943.35	66.92	183.92	-61.32	1,221.73	-3,364.28	7,733.20	7,525.95	207.25	37.313	
10,600.00	6,945.00	5,949.00	5,943.35	68.43	183.92	-61.32	1,221.73	-3,364.28	7,829.82	7,622.42	207.41	37.751	
10,700.00	6,945.00	5,949.00	5,943.35	69.94	183.92	-61.32	1,221.73	-3,364.28	7,926.53	7,718.97	207.56	38.189	
10,800.00	6,945.00	5,949.00	5,943.35	71.45	183.92	-61.32	1,221.73	-3,364.28	8,023.31	7,815.60	207.71	38.628	
10,900.00	6,945.00	5,949.00	5,943.35	72.97	183.92	-61.32	1,221.73	-3,364.28	8,120.17	7,912.31	207.86	39.066	
11,000.00	6,945.00	5,949.00	5,943.35	74.50	183.92	-61.32	1,221.73	-3,364.28	8,217.11	8,009.10	208.01	39.504	
11,100.00	6,945.00	5,949.00	5,943.35	76.02	183.92	-61.32	1,221.73	-3,364.28	8,314.12	8,105.97	208.15	39.943	
11,200.00	6,945.00	5,949.00	5,943.35	77.55	183.92	-61.32	1,221.73	-3,364.28	8,411.20	8,202.90	208.30	40.381	
11,300.00	6,945.00	5,949.00	5,943.35	79.08	183.92	-61.32	1,221.73	-3,364.28	8,508.35	8,299.91	208.44	40.819	
11,400.00	6,945.00	5,949.00	5,943.35	80.62	183.92	-61.32	1,221.73	-3,364.28	8,605.56	8,396.98	208.58	41.257	
11,500.00	6,945.00	5,949.00	5,943.35	82.16	183.92	-61.32	1,221.73	-3,364.28	8,702.84	8,494.11	208.72	41.695	
11,600.00	6,945.00	5,949.00	5,943.35	83.70	183.92	-61.32	1,221.73	-3,364.28	8,800.18	8,591.31	208.86	42.134	
11,700.00	6,945.00	5,949.00	5,943.35	85.24	183.92	-61.32	1,221.73	-3,364.28	8,897.57	8,688.57	209.00	42.572	
11,800.00	6,945.00	5,949.00	5,943.35	86.78	183.92	-61.32	1,221.73	-3,364.28	8,995.03	8,785.89	209.14	43.010	
11,900.00	6,945.00	5,949.00	5,943.35	88.33	183.92	-61.32	1,221.73	-3,364.28	9,092.53	8,883.26	209.28	43.447	
12,000.00	6,945.00	5,949.00	5,943.35	89.87	183.92	-61.32	1,221.73	-3,364.28	9,190.10	8,980.68	209.41	43.885	
12,100.00	6,945.00	5,949.00	5,943.35	91.42	183.92	-61.32	1,221.73	-3,364.28	9,287.71	9,078.16	209.55	44.323	
12,200.00	6,945.00	5,949.00	5,943.35	92.98	183.92	-61.32	1,221.73	-3,364.28	9,385.38	9,175.69	209.68	44.760	
12,300.00	6,945.00	5,949.00	5,943.35	94.53	183.92	-61.32	1,221.73	-3,364.28	9,483.09	9,273.28	209.81	45.198	
12,400.00	6,945.00	5,949.00	5,943.35	96.08	183.92	-61.32	1,221.73	-3,364.28	9,580.85	9,370.90	209.95	45.635	
12,500.00	6,945.00	5,949.00	5,943.35	97.64	183.92	-61.32	1,221.73	-3,364.28	9,678.65	9,468.58	210.08	46.072	
12,600.00	6,945.00	5,949.00	5,943.35	99.20	183.92	-61.32	1,221.73	-3,364.28	9,776.51	9,566.30	210.21	46.509	
12,700.00	6,945.00	5,949.00	5,943.35	100.76	183.92	-61.32	1,221.73	-3,364.28	9,874.40	9,664.06	210.34	46.946	
12,800.00	6,945.00	5,949.00	5,943.35	102.32	183.92	-61.32	1,221.73	-3,364.28	9,972.33	9,761.87	210.46	47.383	
12,900.00	6,945.00	5,949.00	5,943.35	103.88	183.92	-61.32	1,221.73	-3,364.28	10,070.31	9,859.72	210.59	47.819	
13,000.00	6,945.00	5,949.00	5,943.35	105.44	183.92	-61.32	1,221.73	-3,364.28	10,168.33	9,957.61	210.72	48.255	
13,100.00	6,945.00	5,949.00	5,943.35	107.00	183.92	-61.32	1,221.73	-3,364.28	10,266.38	10,055.53	210.84	48.692	
13,200.00	6,945.00	5,949.00	5,943.35	108.57	183.92	-61.32	1,221.73	-3,364.28	10,364.47	10,153.50	210.97	49.128	

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:	Plan #4	**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	Rule Assigned: Warning
13,300.00	6,945.00	5,949.00	5,943.35	110.13	183.92	-61.32	1,221.73	-3,364.28	10,462.60	10,251.50	211.10	49.563	
13,400.00	6,945.00	5,949.00	5,943.35	111.70	183.92	-61.32	1,221.73	-3,364.28	10,560.76	10,349.54	211.22	49.999	
13,500.00	6,945.00	5,949.00	5,943.35	113.27	183.92	-61.32	1,221.73	-3,364.28	10,658.96	10,447.61	211.34	50.434	
13,600.00	6,945.00	5,949.00	5,943.35	114.84	183.92	-61.32	1,221.73	-3,364.28	10,757.18	10,545.72	211.47	50.869	
13,700.00	6,945.00	5,949.00	5,943.35	116.41	183.92	-61.32	1,221.73	-3,364.28	10,855.45	10,643.86	211.59	51.304	
13,800.00	6,945.00	5,949.00	5,943.35	117.98	183.92	-61.32	1,221.73	-3,364.28	10,953.74	10,742.03	211.71	51.739	
13,900.00	6,945.00	5,949.00	5,943.35	119.55	183.92	-61.32	1,221.73	-3,364.28	11,052.06	10,840.23	211.83	52.173	
14,000.00	6,945.00	5,949.00	5,943.35	121.12	183.92	-61.32	1,221.73	-3,364.28	11,150.42	10,938.46	211.95	52.608	
14,100.00	6,945.00	5,949.00	5,943.35	122.69	183.92	-61.32	1,221.73	-3,364.28	11,248.80	11,036.72	212.08	53.042	
14,200.00	6,945.00	5,949.00	5,943.35	124.27	183.92	-61.32	1,221.73	-3,364.28	11,347.21	11,135.02	212.20	53.475	
14,300.00	6,945.00	5,949.00	5,943.35	125.84	183.92	-61.32	1,221.73	-3,364.28	11,445.65	11,233.33	212.32	53.909	
14,400.00	6,945.00	5,949.00	5,943.35	127.41	183.92	-61.32	1,221.73	-3,364.28	11,544.12	11,331.68	212.44	54.342	
14,500.00	6,945.00	5,949.00	5,943.35	128.99	183.92	-61.32	1,221.73	-3,364.28	11,642.61	11,430.05	212.55	54.775	
14,600.00	6,945.00	5,949.00	5,943.35	130.57	183.92	-61.32	1,221.73	-3,364.28	11,741.12	11,528.45	212.67	55.207	
14,700.00	6,945.00	5,949.00	5,943.35	132.14	183.92	-61.32	1,221.73	-3,364.28	11,839.67	11,626.87	212.79	55.640	
14,800.00	6,945.00	5,949.00	5,943.35	133.72	183.92	-61.32	1,221.73	-3,364.28	11,938.23	11,725.32	212.91	56.072	
14,900.00	6,945.00	5,949.00	5,943.35	135.30	183.92	-61.32	1,221.73	-3,364.28	12,036.82	11,823.79	213.03	56.504	
15,000.00	6,945.00	5,949.00	5,943.35	136.87	183.92	-61.32	1,221.73	-3,364.28	12,135.43	11,922.29	213.14	56.935	
15,100.00	6,945.00	5,949.00	5,943.35	138.45	183.92	-61.32	1,221.73	-3,364.28	12,234.07	12,020.81	213.26	57.367	
15,200.00	6,945.00	5,949.00	5,943.35	140.03	183.92	-61.32	1,221.73	-3,364.28	12,332.73	12,119.35	213.38	57.797	
15,300.00	6,945.00	5,949.00	5,943.35	141.61	183.92	-61.32	1,221.73	-3,364.28	12,431.41	12,217.91	213.49	58.228	
15,400.00	6,945.00	5,949.00	5,943.35	143.19	183.92	-61.32	1,221.73	-3,364.28	12,530.11	12,316.49	213.61	58.658	
15,500.00	6,945.00	5,949.00	5,943.35	144.77	183.92	-61.32	1,221.73	-3,364.28	12,628.83	12,415.10	213.73	59.088	
15,600.00	6,945.00	5,949.00	5,943.35	146.35	183.92	-61.32	1,221.73	-3,364.28	12,727.57	12,513.72	213.84	59.518	
15,700.00	6,945.00	5,949.00	5,943.35	147.94	183.92	-61.32	1,221.73	-3,364.28	12,826.33	12,612.37	213.96	59.948	
15,800.00	6,945.00	5,949.00	5,943.35	149.52	183.92	-61.32	1,221.73	-3,364.28	12,925.11	12,711.03	214.07	60.377	
15,900.00	6,945.00	5,949.00	5,943.35	151.10	183.92	-61.32	1,221.73	-3,364.28	13,023.90	12,809.71	214.19	60.805	
16,000.00	6,945.00	5,949.00	5,943.35	152.68	183.92	-61.32	1,221.73	-3,364.28	13,122.72	12,908.41	214.30	61.234	
16,100.00	6,945.00	5,949.00	5,943.35	154.26	183.92	-61.32	1,221.73	-3,364.28	13,221.55	13,007.13	214.42	61.662	
16,200.00	6,945.00	5,949.00	5,943.35	155.85	183.92	-61.32	1,221.73	-3,364.28	13,320.40	13,105.87	214.53	62.090	
16,300.00	6,945.00	5,949.00	5,943.35	157.43	183.92	-61.32	1,221.73	-3,364.28	13,419.27	13,204.62	214.65	62.517	
16,400.00	6,945.00	5,949.00	5,943.35	159.02	183.92	-61.32	1,221.73	-3,364.28	13,518.16	13,303.39	214.76	62.944	
16,500.00	6,945.00	5,949.00	5,943.35	160.60	183.92	-61.32	1,221.73	-3,364.28	13,617.06	13,402.18	214.88	63.371	
16,600.00	6,945.00	5,949.00	5,943.35	162.18	183.92	-61.32	1,221.73	-3,364.28	13,715.97	13,500.98	214.99	63.797	
16,700.00	6,945.00	5,949.00	5,943.35	163.77	183.92	-61.32	1,221.73	-3,364.28	13,814.91	13,599.80	215.11	64.223	
16,800.00	6,945.00	5,949.00	5,943.35	165.35	183.92	-61.32	1,221.73	-3,364.28	13,913.85	13,698.63	215.22	64.649	
16,900.00	6,945.00	5,949.00	5,943.35	166.94	183.92	-61.32	1,221.73	-3,364.28	14,012.82	13,797.48	215.34	65.074	
17,000.00	6,945.00	5,949.00	5,943.35	168.53	183.92	-61.32	1,221.73	-3,364.28	14,111.79	13,896.34	215.45	65.499	
17,100.00	6,945.00	5,949.00	5,943.35	170.11	183.92	-61.32	1,221.73	-3,364.28	14,210.78	13,995.22	215.56	65.924	
17,200.00	6,945.00	5,949.00	5,943.35	171.70	183.92	-61.32	1,221.73	-3,364.28	14,309.79	14,094.11	215.68	66.348	
17,300.00	6,945.00	5,949.00	5,943.35	173.29	183.92	-61.32	1,221.73	-3,364.28	14,408.81	14,193.02	215.79	66.772	
17,400.00	6,945.00	5,949.00	5,943.35	174.87	183.92	-61.32	1,221.73	-3,364.28	14,507.84	14,291.94	215.90	67.196	
17,500.00	6,945.00	5,949.00	5,943.35	176.46	183.92	-61.32	1,221.73	-3,364.28	14,606.89	14,390.87	216.02	67.619	
17,600.00	6,945.00	5,949.00	5,943.35	178.05	183.92	-61.32	1,221.73	-3,364.28	14,705.95	14,489.82	216.13	68.042	
17,700.00	6,945.00	5,949.00	5,943.35	179.63	183.92	-61.32	1,221.73	-3,364.28	14,805.02	14,588.77	216.25	68.464	
17,800.00	6,945.00	5,949.00	5,943.35	181.22	183.92	-61.32	1,221.73	-3,364.28	14,904.10	14,687.74	216.36	68.886	
17,900.00	6,945.00	5,949.00	5,943.35	182.81	183.92	-61.32	1,221.73	-3,364.28	15,003.20	14,786.73	216.47	69.308	
18,000.00	6,945.00	5,949.00	5,943.35	184.40	183.92	-61.32	1,221.73	-3,364.28	15,102.31	14,885.72	216.59	69.729	
18,100.00	6,945.00	5,949.00	5,943.35	185.99	183.92	-61.32	1,221.73	-3,364.28	15,201.43	14,984.73	216.70	70.150	
18,200.00	6,945.00	5,949.00	5,943.35	187.58	183.92	-61.32	1,221.73	-3,364.28	15,300.56	15,083.74	216.81	70.570	
18,300.00	6,945.00	5,949.00	5,943.35	189.16	183.92	-61.32	1,221.73	-3,364.28	15,399.70	15,182.77	216.93	70.990	
18,400.00	6,945.00	5,949.00	5,943.35	190.75	183.92	-61.32	1,221.73	-3,364.28	15,498.85	15,281.81	217.04	71.410	

CC - Min centre to center distance or 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:	Plan #4	**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
18,500.00	6,945.00	5,949.00	5,943.35	192.34	183.92	-61.32	1,221.73	-3,364.28	15,598.02	15,380.86	217.15	71.829	
18,600.00	6,945.00	5,949.00	5,943.35	193.93	183.92	-61.32	1,221.73	-3,364.28	15,697.19	15,479.92	217.27	72.248	
18,700.00	6,945.00	5,949.00	5,943.35	195.52	183.92	-61.32	1,221.73	-3,364.28	15,796.38	15,579.00	217.38	72.667	
18,800.00	6,945.00	5,949.00	5,943.35	197.11	183.92	-61.32	1,221.73	-3,364.28	15,895.57	15,678.08	217.50	73.085	
18,900.00	6,945.00	5,949.00	5,943.35	198.70	183.92	-61.32	1,221.73	-3,364.28	15,994.78	15,777.17	217.61	73.502	
19,000.00	6,945.00	5,949.00	5,943.35	200.29	183.92	-61.32	1,221.73	-3,364.28	16,093.99	15,876.27	217.72	73.920	
19,100.00	6,945.00	5,949.00	5,943.35	201.88	183.92	-61.32	1,221.73	-3,364.28	16,193.22	15,975.38	217.84	74.337	
19,200.00	6,945.00	5,949.00	5,943.35	203.47	183.92	-61.32	1,221.73	-3,364.28	16,292.45	16,074.50	217.95	74.753	
19,300.00	6,945.00	5,949.00	5,943.35	205.06	183.92	-61.32	1,221.73	-3,364.28	16,391.70	16,173.63	218.06	75.169	
19,400.00	6,945.00	5,949.00	5,943.35	206.65	183.92	-61.32	1,221.73	-3,364.28	16,490.95	16,272.77	218.18	75.585	
19,500.00	6,945.00	5,949.00	5,943.35	208.24	183.92	-61.32	1,221.73	-3,364.28	16,590.21	16,371.92	218.29	76.000	
19,600.00	6,945.00	5,949.00	5,943.35	209.84	183.92	-61.32	1,221.73	-3,364.28	16,689.48	16,471.08	218.41	76.415	
19,700.00	6,945.00	5,949.00	5,943.35	211.43	183.92	-61.32	1,221.73	-3,364.28	16,788.76	16,570.24	218.52	76.829	
19,800.00	6,945.00	5,949.00	5,943.35	213.02	183.92	-61.32	1,221.73	-3,364.28	16,888.05	16,669.41	218.64	77.243	
19,900.00	6,945.00	5,949.00	5,943.35	214.61	183.92	-61.32	1,221.73	-3,364.28	16,987.35	16,768.60	218.75	77.657	
20,000.00	6,945.00	5,949.00	5,943.35	216.20	183.92	-61.32	1,221.73	-3,364.28	17,086.65	16,867.79	218.86	78.070	
20,100.00	6,945.00	5,949.00	5,943.35	217.79	183.92	-61.32	1,221.73	-3,364.28	17,185.96	16,966.98	218.98	78.483	
20,200.00	6,945.00	5,949.00	5,943.35	219.38	183.92	-61.32	1,221.73	-3,364.28	17,285.28	17,066.19	219.09	78.895	
20,300.00	6,945.00	5,949.00	5,943.35	220.98	183.92	-61.32	1,221.73	-3,364.28	17,384.61	17,165.40	219.21	79.307	
20,400.00	6,945.00	5,949.00	5,943.35	222.57	183.92	-61.32	1,221.73	-3,364.28	17,483.95	17,264.62	219.32	79.718	
20,500.00	6,945.00	5,949.00	5,943.35	224.16	183.92	-61.32	1,221.73	-3,364.28	17,583.29	17,363.85	219.44	80.129	
20,600.00	6,945.00	5,949.00	5,943.35	225.75	183.92	-61.32	1,221.73	-3,364.28	17,682.64	17,463.09	219.55	80.540	
20,700.00	6,945.00	5,949.00	5,943.35	227.35	183.92	-61.32	1,221.73	-3,364.28	17,782.00	17,562.33	219.67	80.950	
20,800.00	6,945.00	5,949.00	5,943.35	228.94	183.92	-61.32	1,221.73	-3,364.28	17,881.36	17,661.58	219.78	81.360	
20,852.96	6,945.00	5,949.00	5,943.35	229.61	183.92	-61.32	1,221.73	-3,364.28	17,933.99	17,710.00	223.99	80.066	

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:	Plan #4	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 245-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	-80.12	841.09	-4,831.32	4,904.16				
20.93	20.93	0.00	0.00	0.00	0.00	87.23	841.09	-4,831.32	4,904.03				
69.29	69.29	28.29	28.29	0.03	0.50	85.16	841.09	-4,831.32	4,903.97	4,903.45	0.52	9,486.211	
117.41	117.41	76.41	76.41	0.05	1.35	82.68	841.09	-4,831.32	4,903.95	4,902.56	1.39	3,540.636	
142.14	142.14	101.14	101.14	0.09	1.79	89.99	841.09	-4,831.32	4,903.94	4,902.10	1.84	2,664.709	CC
206.68	206.68	165.68	165.68	0.17	2.94	108.59	841.09	-4,831.32	4,903.99	4,900.96	3.03	1,619.364	
292.93	292.93	251.93	251.93	0.28	4.46	108.04	841.09	-4,831.32	4,904.16	4,899.54	4.62	1,061.466	
365.00	364.99	323.99	323.99	0.36	5.74	77.37	841.09	-4,831.32	4,904.19	4,898.22	5.97	822.126	
370.42	370.41	329.41	329.41	0.37	5.84	89.97	841.09	-4,831.32	4,904.18	4,898.11	6.08	807.005	
451.00	450.97	410.70	410.70	0.55	7.28	130.67	841.19	-4,831.32	4,905.23	4,897.48	7.75	632.785	ES
540.00	539.81	498.81	498.81	0.83	8.85	136.15	841.09	-4,831.32	4,908.84	4,899.21	9.64	509.381	
665.00	664.37	623.38	623.37	1.26	11.13	138.54	841.09	-4,831.32	4,916.55	4,904.17	12.37	397.357	
753.00	752.01	712.16	712.16	1.58	12.76	137.61	841.18	-4,831.32	4,922.51	4,908.19	14.32	343.705	
847.00	845.61	804.63	804.61	1.93	14.47	140.69	841.09	-4,831.32	4,929.03	4,912.64	16.38	300.901	
939.00	937.22	896.23	896.22	2.27	16.20	140.99	841.09	-4,831.32	4,935.67	4,917.22	18.45	267.558	
1,030.00	1,027.78	986.79	986.78	2.62	17.91	129.56	841.09	-4,831.32	4,941.99	4,921.49	20.49	241.160	
1,120.00	1,117.25	1,077.72	1,077.70	2.96	19.63	132.49	841.85	-4,831.32	4,948.56	4,926.01	22.55	219.490	
1,211.00	1,207.68	1,170.38	1,170.35	3.31	21.37	129.93	841.58	-4,831.32	4,955.24	4,930.60	24.64	201.132	
1,306.00	1,302.14	1,267.21	1,267.18	3.68	23.20	131.88	841.06	-4,831.32	4,961.79	4,934.97	26.82	185.000	
1,400.00	1,395.63	1,354.68	1,354.63	4.04	24.86	133.22	841.09	-4,831.32	4,968.36	4,939.53	28.83	172.320	
1,495.00	1,490.19	1,449.24	1,449.19	4.40	26.65	132.65	841.09	-4,831.32	4,974.62	4,943.64	30.98	160.576	
1,589.00	1,583.83	1,543.39	1,543.34	4.76	28.44	130.28	841.62	-4,831.32	4,980.21	4,947.09	33.11	150.394	
1,684.00	1,678.44	1,639.60	1,639.55	5.12	30.26	132.72	841.48	-4,831.32	4,985.88	4,950.59	35.29	141.271	
1,779.00	1,772.98	1,735.76	1,735.71	5.48	32.09	137.19	841.19	-4,831.32	4,992.48	4,955.00	37.47	133.230	
1,873.00	1,866.49	1,825.56	1,825.49	5.84	33.94	138.76	841.09	-4,831.32	4,999.56	4,959.88	39.68	125.997	
1,967.00	1,960.05	1,919.12	1,919.05	6.20	35.94	143.50	841.09	-4,831.32	5,006.67	4,964.65	42.02	119.146	
2,062.00	2,054.59	2,013.76	2,013.68	6.56	37.95	138.18	841.90	-4,831.32	5,014.05	4,969.66	44.39	112.955	
2,156.00	2,148.09	2,109.72	2,109.64	6.92	40.00	137.54	841.77	-4,831.32	5,021.23	4,974.45	46.79	107.325	
2,251.00	2,242.55	2,206.73	2,206.64	7.29	42.06	138.96	841.40	-4,831.32	5,028.68	4,979.47	49.21	102.194	
2,345.00	2,336.00	2,295.17	2,295.00	7.65	43.96	133.02	841.09	-4,831.32	5,035.97	4,984.51	51.46	97.869	
2,440.00	2,430.43	2,389.60	2,389.43	8.02	46.00	130.48	841.09	-4,831.32	5,042.90	4,989.04	53.86	93.630	
2,535.00	2,524.86	2,484.04	2,483.86	8.38	48.05	131.84	841.09	-4,831.32	5,049.73	4,993.46	56.26	89.752	
2,629.00	2,618.31	2,581.66	2,581.46	8.75	50.16	131.95	842.54	-4,831.32	5,056.84	4,998.11	58.73	86.100	
2,724.00	2,712.77	2,681.69	2,681.48	9.12	52.33	132.79	841.86	-4,831.32	5,063.59	5,002.33	61.26	82.661	
2,818.00	2,806.24	2,765.51	2,765.24	9.48	54.13	133.43	841.09	-4,831.32	5,070.25	5,006.84	63.41	79.964	
2,913.00	2,900.71	2,859.99	2,859.71	9.84	56.05	135.73	841.09	-4,831.32	5,077.25	5,011.56	65.69	77.290	
3,008.00	2,995.25	2,954.52	2,954.25	10.21	57.98	131.40	841.09	-4,831.32	5,083.77	5,015.79	67.97	74.790	
3,102.00	3,088.80	3,049.52	3,049.24	10.57	59.92	131.69	841.86	-4,831.32	5,090.03	5,019.77	70.26	72.442	
3,197.00	3,183.30	3,146.81	3,146.52	10.93	61.90	134.70	841.60	-4,831.32	5,096.66	5,024.05	72.60	70.197	
3,291.00	3,276.71	3,243.02	3,242.74	11.30	63.87	128.62	841.10	-4,831.32	5,103.51	5,028.59	74.92	68.116	
3,386.00	3,371.01	3,330.34	3,330.01	11.67	65.59	127.54	841.09	-4,831.32	5,110.65	5,033.64	77.01	66.366	
3,480.00	3,464.23	3,423.56	3,423.23	12.04	67.42	128.91	841.09	-4,831.32	5,118.13	5,038.93	79.20	64.619	
3,575.00	3,558.47	3,517.80	3,517.47	12.42	69.28	130.54	841.09	-4,831.32	5,125.83	5,044.41	81.42	62.952	
3,670.00	3,652.84	3,614.81	3,614.47	12.79	71.19	131.61	842.27	-4,831.32	5,133.31	5,049.61	83.70	61.332	
3,764.00	3,746.36	3,711.64	3,711.29	13.15	73.10	134.91	841.90	-4,831.32	5,139.72	5,053.76	85.96	59.794	
3,859.00	3,840.97	3,809.66	3,809.30	13.51	75.03	138.70	841.24	-4,831.32	5,145.82	5,057.58	88.24	58.316	
3,954.00	3,935.57	3,894.95	3,894.57	13.87	76.71	138.78	841.09	-4,831.32	5,152.37	5,062.10	90.27	57.077	
4,049.00	4,030.14	3,989.52	3,989.14	14.23	78.57	129.76	841.09	-4,831.32	5,158.69	5,066.20	92.49	55.777	
4,143.00	4,123.75	4,083.56	4,083.18	14.59	80.43	130.94	841.60	-4,831.32	5,164.34	5,069.65	94.69	54.539	
4,238.00	4,218.33	4,180.24	4,179.85	14.95	82.33	131.23	841.47	-4,831.32	5,170.20	5,073.25	96.95	53.329	
4,333.00	4,312.74	4,276.78	4,276.39	15.32	84.23	128.46	841.18	-4,831.32	5,176.91	5,077.70	99.21	52.180	
4,427.00	4,406.05	4,365.47	4,365.05	15.69	86.03	130.94	841.09	-4,831.32	5,184.17	5,082.81	101.36	51.144	

CC - Min centre to center distance or 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:	Plan #4	**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
4,522.00	4,500.34	4,459.77	4,459.34	16.06	87.95	131.94	841.09	-4,831.32	5,191.86	5,088.21	103.65	50.090	
4,616.00	4,593.47	4,553.16	4,552.72	16.44	89.86	129.73	842.17	-4,831.32	5,200.48	5,094.56	105.92	49.099	
4,710.00	4,686.44	4,650.32	4,649.88	16.82	91.84	130.58	841.98	-4,831.32	5,209.44	5,101.17	108.27	48.116	
4,899.00	4,873.89	4,833.37	4,832.89	17.57	95.52	137.23	841.09	-4,831.32	5,225.85	5,113.18	112.67	46.381	
4,962.00	4,936.56	4,896.05	4,895.56	17.81	96.71	139.69	841.09	-4,831.32	5,230.63	5,116.54	114.10	45.844	
5,024.00	4,998.27	4,957.75	4,957.27	18.04	97.88	135.94	841.09	-4,831.32	5,235.12	5,119.62	115.50	45.326	
5,150.00	5,123.66	5,084.49	5,084.00	18.53	100.29	137.05	841.88	-4,831.32	5,244.27	5,125.90	118.37	44.302	
5,213.00	5,186.37	5,149.38	5,148.88	18.77	101.52	134.71	841.75	-4,831.32	5,248.56	5,128.72	119.84	43.796	
5,276.00	5,249.09	5,214.28	5,213.79	19.01	102.75	135.64	841.52	-4,831.32	5,252.75	5,131.44	121.31	43.301	
5,339.00	5,311.83	5,279.23	5,278.74	19.25	103.99	134.76	841.17	-4,831.32	5,256.75	5,133.97	122.78	42.816	
5,401.00	5,373.58	5,333.09	5,332.58	19.48	105.07	137.31	841.09	-4,831.32	5,260.75	5,136.66	124.08	42.397	
5,464.00	5,436.33	5,395.85	5,395.33	19.72	106.35	134.64	841.09	-4,831.32	5,264.74	5,139.14	125.60	41.918	
5,590.00	5,561.87	5,521.38	5,520.87	20.19	108.91	133.41	841.09	-4,831.32	5,272.24	5,143.62	128.63	40.989	
5,653.00	5,624.66	5,585.21	5,584.69	20.43	110.21	132.13	841.61	-4,831.32	5,275.92	5,145.76	130.16	40.534	
5,715.00	5,686.48	5,648.49	5,647.98	20.66	111.50	127.21	841.52	-4,831.32	5,278.92	5,147.24	131.68	40.089	
5,778.00	5,749.29	5,712.81	5,712.29	20.90	112.82	129.93	841.36	-4,831.32	5,281.89	5,148.67	133.22	39.647	
5,841.00	5,812.10	5,777.13	5,776.61	21.13	114.13	127.68	841.13	-4,831.32	5,284.90	5,150.13	134.77	39.214	
5,904.00	5,874.94	5,834.51	5,833.94	21.36	115.47	133.03	841.09	-4,831.32	5,287.84	5,151.49	136.34	38.783	
5,967.00	5,937.80	5,897.37	5,896.80	21.60	116.98	134.62	841.09	-4,831.32	5,290.74	5,152.66	138.08	38.316	
6,030.00	6,000.68	5,960.25	5,959.68	21.83	118.49	132.74	841.09	-4,831.32	5,293.39	5,153.57	139.82	37.858	
6,093.00	6,063.59	6,000.00	5,999.35	22.05	119.45	136.43	841.09	-4,831.32	5,295.85	5,154.85	141.00	37.560	
6,156.00	6,126.51	6,000.00	5,999.35	22.28	119.45	141.72	841.09	-4,831.32	5,298.90	5,157.70	141.19	37.529	
6,235.00	6,205.43	6,000.00	5,999.35	22.56	119.45	141.42	841.09	-4,831.32	5,303.49	5,162.08	141.41	37.505 SF	
6,300.00	6,270.38	6,000.00	5,999.35	22.68	119.45	141.42	841.09	-4,831.32	5,307.87	5,166.42	141.44	37.526	
6,355.00	6,325.34	6,000.00	5,999.35	22.69	119.45	141.42	841.09	-4,831.32	5,312.19	5,170.82	141.37	37.577	
6,400.00	6,370.23	6,000.00	5,999.35	22.71	119.45	174.17	841.09	-4,831.32	5,317.70	5,176.40	141.30	37.634	
6,450.00	6,419.74	6,000.00	5,999.35	22.73	119.45	-178.14	841.09	-4,831.32	5,327.87	5,186.65	141.22	37.729	
6,500.00	6,468.57	6,000.00	5,999.35	22.77	119.45	-174.94	841.09	-4,831.32	5,342.21	5,201.08	141.12	37.854	
6,550.00	6,516.42	6,000.00	5,999.35	22.81	119.45	-173.03	841.09	-4,831.32	5,360.60	5,219.57	141.03	38.011	
6,600.00	6,562.98	6,000.00	5,999.35	22.87	119.45	-171.60	841.09	-4,831.32	5,382.89	5,241.96	140.93	38.196	
6,650.00	6,607.98	6,000.00	5,999.35	22.95	119.45	-170.35	841.09	-4,831.32	5,408.89	5,268.06	140.83	38.407	
6,700.00	6,651.14	6,000.00	5,999.35	23.03	119.45	-169.13	841.09	-4,831.32	5,438.39	5,297.66	140.73	38.644	
6,750.00	6,692.18	6,000.00	5,999.35	23.14	119.45	-167.81	841.09	-4,831.32	5,471.16	5,330.52	140.63	38.903	
6,800.00	6,730.86	6,000.00	5,999.35	23.26	119.45	-166.31	841.09	-4,831.32	5,506.92	5,366.38	140.54	39.183	
6,850.00	6,766.93	6,000.00	5,999.35	23.40	119.45	-164.52	841.09	-4,831.32	5,545.42	5,404.96	140.46	39.480	
6,900.00	6,800.18	6,000.00	5,999.35	23.56	119.45	-162.28	841.09	-4,831.32	5,586.35	5,445.96	140.38	39.794	
6,950.00	6,830.39	6,000.00	5,999.35	23.74	119.45	-159.37	841.09	-4,831.32	5,629.40	5,489.09	140.32	40.120	
7,000.00	6,857.38	6,000.00	5,999.35	23.94	119.45	-155.45	841.09	-4,831.32	5,674.28	5,534.03	140.26	40.456	
7,050.00	6,880.98	6,000.00	5,999.35	24.17	119.45	-149.89	841.09	-4,831.32	5,720.67	5,580.46	140.21	40.801	
7,100.00	6,901.06	6,000.00	5,999.35	24.42	119.45	-141.62	841.09	-4,831.32	5,768.23	5,628.06	140.17	41.151	
7,150.00	6,917.47	6,000.00	5,999.35	24.70	119.45	-128.81	841.09	-4,831.32	5,816.66	5,676.51	140.15	41.504	
7,200.00	6,930.13	6,000.00	5,999.35	25.01	119.45	-109.36	841.09	-4,831.32	5,865.64	5,725.50	140.13	41.858	
7,250.00	6,938.95	6,000.00	5,999.35	25.34	119.45	-84.58	841.09	-4,831.32	5,914.85	5,774.72	140.13	42.211	
7,300.00	6,943.88	6,000.00	5,999.35	25.69	119.45	-61.97	841.09	-4,831.32	5,963.98	5,823.85	140.13	42.560	
7,337.82	6,945.00	6,000.00	5,999.35	25.97	119.45	-49.43	841.09	-4,831.32	6,000.92	5,860.78	140.14	42.820	
7,400.00	6,945.00	6,000.00	5,999.35	26.45	119.45	-52.61	841.09	-4,831.32	6,061.30	5,921.14	140.16	43.244	
7,492.38	6,945.00	6,000.00	5,999.35	27.21	119.45	-56.64	841.09	-4,831.32	6,150.59	6,010.40	140.20	43.870	
7,500.00	6,945.00	6,000.00	5,999.35	27.28	119.45	-56.64	841.09	-4,831.32	6,157.93	6,017.73	140.20	43.922	
7,600.00	6,945.00	6,000.00	5,999.35	28.17	119.45	-56.64	841.09	-4,831.32	6,254.36	6,114.11	140.24	44.597	
7,700.00	6,945.00	6,000.00	5,999.35	29.12	119.45	-56.64	841.09	-4,831.32	6,350.89	6,210.60	140.29	45.271	
7,800.00	6,945.00	6,000.00	5,999.35	30.14	119.45	-56.64	841.09	-4,831.32	6,447.53	6,307.19	140.33	45.944	
7,900.00	6,945.00	6,000.00	5,999.35	31.20	119.45	-56.64	841.09	-4,831.32	6,544.27	6,403.88	140.38	46.617	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 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:	Plan #4	**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
8,000.00	6,945.00	6,000.00	5,999.35	32.31	119.45	-56.64	841.09	-4,831.32	6,641.10	6,500.67	140.44	47.288	
8,100.00	6,945.00	6,000.00	5,999.35	33.46	119.45	-56.64	841.09	-4,831.32	6,738.03	6,597.54	140.50	47.959	
8,200.00	6,945.00	6,000.00	5,999.35	34.64	119.45	-56.64	841.09	-4,831.32	6,835.05	6,694.50	140.55	48.629	
8,300.00	6,945.00	6,000.00	5,999.35	35.86	119.45	-56.64	841.09	-4,831.32	6,932.15	6,791.54	140.62	49.298	
8,400.00	6,945.00	6,000.00	5,999.35	37.11	119.45	-56.64	841.09	-4,831.32	7,029.34	6,888.66	140.68	49.967	
8,500.00	6,945.00	6,000.00	5,999.35	38.39	119.45	-56.64	841.09	-4,831.32	7,126.60	6,985.85	140.75	50.635	
8,600.00	6,945.00	6,000.00	5,999.35	39.69	119.45	-56.64	841.09	-4,831.32	7,223.93	7,083.12	140.81	51.301	
8,700.00	6,945.00	6,000.00	5,999.35	41.01	119.45	-56.64	841.09	-4,831.32	7,321.34	7,180.46	140.88	51.968	
8,800.00	6,945.00	6,000.00	5,999.35	42.35	119.45	-56.64	841.09	-4,831.32	7,418.82	7,277.86	140.95	52.633	
8,900.00	6,945.00	6,000.00	5,999.35	43.71	119.45	-56.64	841.09	-4,831.32	7,516.36	7,375.34	141.03	53.297	
9,000.00	6,945.00	6,000.00	5,999.35	45.08	119.45	-56.64	841.09	-4,831.32	7,613.97	7,472.87	141.10	53.961	
9,100.00	6,945.00	6,000.00	5,999.35	46.47	119.45	-56.64	841.09	-4,831.32	7,711.64	7,570.46	141.18	54.624	
9,200.00	6,945.00	6,000.00	5,999.35	47.87	119.45	-56.64	841.09	-4,831.32	7,809.36	7,668.11	141.25	55.286	
9,300.00	6,945.00	6,000.00	5,999.35	49.29	119.45	-56.64	841.09	-4,831.32	7,907.15	7,765.82	141.33	55.948	
9,400.00	6,945.00	6,000.00	5,999.35	50.71	119.45	-56.64	841.09	-4,831.32	8,004.99	7,863.58	141.41	56.609	
9,500.00	6,945.00	6,000.00	5,999.35	52.15	119.45	-56.64	841.09	-4,831.32	8,102.88	7,961.39	141.49	57.268	
9,600.00	6,945.00	6,000.00	5,999.35	53.59	119.45	-56.64	841.09	-4,831.32	8,200.82	8,059.25	141.57	57.928	
9,700.00	6,945.00	6,000.00	5,999.35	55.05	119.45	-56.64	841.09	-4,831.32	8,298.81	8,157.16	141.65	58.586	
9,800.00	6,945.00	6,000.00	5,999.35	56.51	119.45	-56.64	841.09	-4,831.32	8,396.85	8,255.12	141.73	59.244	
9,900.00	6,945.00	6,000.00	5,999.35	57.98	119.45	-56.64	841.09	-4,831.32	8,494.94	8,353.12	141.82	59.900	
10,000.00	6,945.00	6,000.00	5,999.35	59.45	119.45	-56.64	841.09	-4,831.32	8,593.07	8,451.16	141.90	60.557	
10,100.00	6,945.00	6,000.00	5,999.35	60.93	119.45	-56.64	841.09	-4,831.32	8,691.24	8,549.25	141.99	61.212	
10,200.00	6,945.00	6,000.00	5,999.35	62.42	119.45	-56.64	841.09	-4,831.32	8,789.45	8,647.38	142.07	61.866	
10,300.00	6,945.00	6,000.00	5,999.35	63.92	119.45	-56.64	841.09	-4,831.32	8,887.70	8,745.55	142.16	62.520	
10,400.00	6,945.00	6,000.00	5,999.35	65.42	119.45	-56.64	841.09	-4,831.32	8,985.99	8,843.75	142.24	63.173	
10,500.00	6,945.00	6,000.00	5,999.35	66.92	119.45	-56.64	841.09	-4,831.32	9,084.32	8,941.99	142.33	63.825	
10,600.00	6,945.00	6,000.00	5,999.35	68.43	119.45	-56.64	841.09	-4,831.32	9,182.69	9,040.27	142.42	64.477	
10,700.00	6,945.00	6,000.00	5,999.35	69.94	119.45	-56.64	841.09	-4,831.32	9,281.09	9,138.58	142.51	65.127	
10,800.00	6,945.00	6,000.00	5,999.35	71.45	119.45	-56.64	841.09	-4,831.32	9,379.52	9,236.92	142.59	65.777	
10,900.00	6,945.00	6,000.00	5,999.35	72.97	119.45	-56.64	841.09	-4,831.32	9,477.99	9,335.30	142.68	66.426	
11,000.00	6,945.00	6,000.00	5,999.35	74.50	119.45	-56.64	841.09	-4,831.32	9,576.48	9,433.71	142.77	67.075	
11,100.00	6,945.00	6,000.00	5,999.35	76.02	119.45	-56.64	841.09	-4,831.32	9,675.01	9,532.15	142.86	67.722	
11,200.00	6,945.00	6,000.00	5,999.35	77.55	119.45	-56.64	841.09	-4,831.32	9,773.57	9,630.62	142.95	68.369	
11,300.00	6,945.00	6,000.00	5,999.35	79.08	119.45	-56.64	841.09	-4,831.32	9,872.16	9,729.11	143.04	69.015	
11,400.00	6,945.00	6,000.00	5,999.35	80.62	119.45	-56.64	841.09	-4,831.32	9,970.77	9,827.64	143.14	69.660	
11,500.00	6,945.00	6,000.00	5,999.35	82.16	119.45	-56.64	841.09	-4,831.32	10,069.42	9,926.19	143.23	70.304	
11,600.00	6,945.00	6,000.00	5,999.35	83.70	119.45	-56.64	841.09	-4,831.32	10,168.09	10,024.77	143.32	70.948	
11,700.00	6,945.00	6,000.00	5,999.35	85.24	119.45	-56.64	841.09	-4,831.32	10,266.78	10,123.37	143.41	71.590	
11,800.00	6,945.00	6,000.00	5,999.35	86.78	119.45	-56.64	841.09	-4,831.32	10,365.50	10,222.00	143.50	72.232	
11,900.00	6,945.00	6,000.00	5,999.35	88.33	119.45	-56.64	841.09	-4,831.32	10,464.25	10,320.65	143.60	72.873	
12,000.00	6,945.00	6,000.00	5,999.35	89.87	119.45	-56.64	841.09	-4,831.32	10,563.02	10,419.33	143.69	73.513	
12,100.00	6,945.00	6,000.00	5,999.35	91.42	119.45	-56.64	841.09	-4,831.32	10,661.81	10,518.02	143.78	74.152	
12,200.00	6,945.00	6,000.00	5,999.35	92.98	119.45	-56.64	841.09	-4,831.32	10,760.62	10,616.74	143.88	74.791	
12,300.00	6,945.00	6,000.00	5,999.35	94.53	119.45	-56.64	841.09	-4,831.32	10,859.46	10,715.49	143.97	75.429	
12,400.00	6,945.00	6,000.00	5,999.35	96.08	119.45	-56.64	841.09	-4,831.32	10,958.31	10,814.25	144.06	76.065	
12,500.00	6,945.00	6,000.00	5,999.35	97.64	119.45	-56.64	841.09	-4,831.32	11,057.19	10,913.03	144.16	76.701	
12,600.00	6,945.00	6,000.00	5,999.35	99.20	119.45	-56.64	841.09	-4,831.32	11,156.09	11,011.83	144.25	77.337	
12,700.00	6,945.00	6,000.00	5,999.35	100.76	119.45	-56.64	841.09	-4,831.32	11,255.00	11,110.65	144.35	77.971	
12,800.00	6,945.00	6,000.00	5,999.35	102.32	119.45	-56.64	841.09	-4,831.32	11,353.94	11,209.49	144.44	78.604	
12,900.00	6,945.00	6,000.00	5,999.35	103.88	119.45	-56.64	841.09	-4,831.32	11,452.89	11,308.35	144.54	79.237	
13,000.00	6,945.00	6,000.00	5,999.35	105.44	119.45	-56.64	841.09	-4,831.32	11,551.86	11,407.23	144.64	79.868	
13,100.00	6,945.00	6,000.00	5,999.35	107.00	119.45	-56.64	841.09	-4,831.32	11,650.85	11,506.12	144.73	80.499	

CC - Min centre to center distance or 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:	Plan #4	**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)	Rule Assigned: Minimum Separation (usft)	Separation Factor	Warning
13,200.00	6,945.00	6,000.00	5,999.35	108.57	119.45	-56.64	841.09	-4,831.32	11,749.86	11,605.03	144.83	81.129	
13,300.00	6,945.00	6,000.00	5,999.35	110.13	119.45	-56.64	841.09	-4,831.32	11,848.88	11,703.96	144.93	81.758	
13,400.00	6,945.00	6,000.00	5,999.35	111.70	119.45	-56.64	841.09	-4,831.32	11,947.92	11,802.90	145.02	82.387	
13,500.00	6,945.00	6,000.00	5,999.35	113.27	119.45	-56.64	841.09	-4,831.32	12,046.98	11,901.86	145.12	83.014	
13,600.00	6,945.00	6,000.00	5,999.35	114.84	119.45	-56.64	841.09	-4,831.32	12,146.05	12,000.83	145.22	83.640	
13,700.00	6,945.00	6,000.00	5,999.35	116.41	119.45	-56.64	841.09	-4,831.32	12,245.14	12,099.82	145.32	84.266	
13,800.00	6,945.00	6,000.00	5,999.35	117.98	119.45	-56.64	841.09	-4,831.32	12,344.24	12,198.82	145.41	84.890	
13,900.00	6,945.00	6,000.00	5,999.35	119.55	119.45	-56.64	841.09	-4,831.32	12,443.35	12,297.84	145.51	85.514	
14,000.00	6,945.00	6,000.00	5,999.35	121.12	119.45	-56.64	841.09	-4,831.32	12,542.48	12,396.87	145.61	86.137	
14,100.00	6,945.00	6,000.00	5,999.35	122.69	119.45	-56.64	841.09	-4,831.32	12,641.62	12,495.91	145.71	86.759	
14,200.00	6,945.00	6,000.00	5,999.35	124.27	119.45	-56.64	841.09	-4,831.32	12,740.78	12,594.97	145.81	87.380	
14,300.00	6,945.00	6,000.00	5,999.35	125.84	119.45	-56.64	841.09	-4,831.32	12,839.95	12,694.04	145.91	88.000	
14,400.00	6,945.00	6,000.00	5,999.35	127.41	119.45	-56.64	841.09	-4,831.32	12,939.13	12,793.12	146.01	88.619	
14,500.00	6,945.00	6,000.00	5,999.35	128.99	119.45	-56.64	841.09	-4,831.32	13,038.33	12,892.22	146.11	89.238	
14,600.00	6,945.00	6,000.00	5,999.35	130.57	119.45	-56.64	841.09	-4,831.32	13,137.53	12,991.33	146.21	89.855	
14,700.00	6,945.00	6,000.00	5,999.35	132.14	119.45	-56.64	841.09	-4,831.32	13,236.75	13,090.44	146.31	90.472	
14,800.00	6,945.00	6,000.00	5,999.35	133.72	119.45	-56.64	841.09	-4,831.32	13,335.98	13,189.57	146.41	91.087	
14,900.00	6,945.00	6,000.00	5,999.35	135.30	119.45	-56.64	841.09	-4,831.32	13,435.22	13,288.71	146.51	91.702	
15,000.00	6,945.00	6,000.00	5,999.35	136.87	119.45	-56.64	841.09	-4,831.32	13,534.48	13,387.87	146.61	92.315	
15,100.00	6,945.00	6,000.00	5,999.35	138.45	119.45	-56.64	841.09	-4,831.32	13,633.74	13,487.03	146.71	92.928	
15,200.00	6,945.00	6,000.00	5,999.35	140.03	119.45	-56.64	841.09	-4,831.32	13,733.02	13,586.20	146.81	93.540	
15,300.00	6,945.00	6,000.00	5,999.35	141.61	119.45	-56.64	841.09	-4,831.32	13,832.30	13,685.39	146.92	94.151	
15,400.00	6,945.00	6,000.00	5,999.35	143.19	119.45	-56.64	841.09	-4,831.32	13,931.60	13,784.58	147.02	94.761	
15,500.00	6,945.00	6,000.00	5,999.35	144.77	119.45	-56.64	841.09	-4,831.32	14,030.90	13,883.78	147.12	95.370	
15,600.00	6,945.00	6,000.00	5,999.35	146.35	119.45	-56.64	841.09	-4,831.32	14,130.22	13,982.99	147.22	95.978	
15,700.00	6,945.00	6,000.00	5,999.35	147.94	119.45	-56.64	841.09	-4,831.32	14,229.54	14,082.22	147.33	96.585	
15,800.00	6,945.00	6,000.00	5,999.35	149.52	119.45	-56.64	841.09	-4,831.32	14,328.88	14,181.45	147.43	97.191	
15,900.00	6,945.00	6,000.00	5,999.35	151.10	119.45	-56.64	841.09	-4,831.32	14,428.22	14,280.69	147.53	97.797	
16,000.00	6,945.00	6,000.00	5,999.35	152.68	119.45	-56.64	841.09	-4,831.32	14,527.57	14,379.94	147.64	98.401	
16,100.00	6,945.00	6,000.00	5,999.35	154.26	119.45	-56.64	841.09	-4,831.32	14,626.93	14,479.19	147.74	99.004	
16,200.00	6,945.00	6,000.00	5,999.35	155.85	119.45	-56.64	841.09	-4,831.32	14,726.30	14,578.46	147.84	99.607	
16,300.00	6,945.00	6,000.00	5,999.35	157.43	119.45	-56.64	841.09	-4,831.32	14,825.68	14,677.73	147.95	100.208	
16,400.00	6,945.00	6,000.00	5,999.35	159.02	119.45	-56.64	841.09	-4,831.32	14,925.07	14,777.01	148.05	100.808	
16,500.00	6,945.00	6,000.00	5,999.35	160.60	119.45	-56.64	841.09	-4,831.32	15,024.46	14,876.30	148.16	101.408	
16,600.00	6,945.00	6,000.00	5,999.35	162.18	119.45	-56.64	841.09	-4,831.32	15,123.87	14,975.60	148.26	102.006	
16,700.00	6,945.00	6,000.00	5,999.35	163.77	119.45	-56.64	841.09	-4,831.32	15,223.28	15,074.91	148.37	102.604	
16,800.00	6,945.00	6,000.00	5,999.35	165.35	119.45	-56.64	841.09	-4,831.32	15,322.69	15,174.22	148.47	103.201	
16,900.00	6,945.00	6,000.00	5,999.35	166.94	119.45	-56.64	841.09	-4,831.32	15,422.12	15,273.54	148.58	103.796	
17,000.00	6,945.00	6,000.00	5,999.35	168.53	119.45	-56.64	841.09	-4,831.32	15,521.55	15,372.87	148.69	104.391	
17,100.00	6,945.00	6,000.00	5,999.35	170.11	119.45	-56.64	841.09	-4,831.32	15,620.99	15,472.20	148.79	104.985	
17,200.00	6,945.00	6,000.00	5,999.35	171.70	119.45	-56.64	841.09	-4,831.32	15,720.44	15,571.54	148.90	105.577	
17,300.00	6,945.00	6,000.00	5,999.35	173.29	119.45	-56.64	841.09	-4,831.32	15,819.89	15,670.89	149.01	106.169	
17,400.00	6,945.00	6,000.00	5,999.35	174.87	119.45	-56.64	841.09	-4,831.32	15,919.36	15,770.24	149.11	106.760	
17,500.00	6,945.00	6,000.00	5,999.35	176.46	119.45	-56.64	841.09	-4,831.32	16,018.82	15,869.60	149.22	107.350	
17,600.00	6,945.00	6,000.00	5,999.35	178.05	119.45	-56.64	841.09	-4,831.32	16,118.30	15,968.97	149.33	107.938	
17,700.00	6,945.00	6,000.00	5,999.35	179.63	119.45	-56.64	841.09	-4,831.32	16,217.78	16,068.34	149.44	108.526	
17,800.00	6,945.00	6,000.00	5,999.35	181.22	119.45	-56.64	841.09	-4,831.32	16,317.27	16,167.72	149.54	109.113	
17,900.00	6,945.00	6,000.00	5,999.35	182.81	119.45	-56.64	841.09	-4,831.32	16,416.76	16,267.11	149.65	109.699	
18,000.00	6,945.00	6,000.00	5,999.35	184.40	119.45	-56.64	841.09	-4,831.32	16,516.26	16,366.50	149.76	110.284	
18,100.00	6,945.00	6,000.00	5,999.35	185.99	119.45	-56.64	841.09	-4,831.32	16,615.77	16,465.90	149.87	110.868	
18,200.00	6,945.00	6,000.00	5,999.35	187.58	119.45	-56.64	841.09	-4,831.32	16,715.28	16,565.30	149.98	111.451	
18,300.00	6,945.00	6,000.00	5,999.35	189.16	119.45	-56.64	841.09	-4,831.32	16,814.80	16,664.71	150.09	112.033	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 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:	Plan #4	**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
18,400.00	6,945.00	6,000.00	5,999.35	190.75	119.45	-56.64	841.09	-4,831.32	16,914.32	16,764.12	150.20	112.614	
18,500.00	6,945.00	6,000.00	5,999.35	192.34	119.45	-56.64	841.09	-4,831.32	17,013.85	16,863.54	150.31	113.194	
18,600.00	6,945.00	6,000.00	5,999.35	193.93	119.45	-56.64	841.09	-4,831.32	17,113.38	16,962.96	150.42	113.773	
18,700.00	6,945.00	6,000.00	5,999.35	195.52	119.45	-56.64	841.09	-4,831.32	17,212.92	17,062.39	150.53	114.351	
18,800.00	6,945.00	6,000.00	5,999.35	197.11	119.45	-56.64	841.09	-4,831.32	17,312.47	17,161.83	150.64	114.928	
18,900.00	6,945.00	6,000.00	5,999.35	198.70	119.45	-56.64	841.09	-4,831.32	17,412.02	17,261.27	150.75	115.504	
19,000.00	6,945.00	6,000.00	5,999.35	200.29	119.45	-56.64	841.09	-4,831.32	17,511.57	17,360.71	150.86	116.079	
19,100.00	6,945.00	6,000.00	5,999.35	201.88	119.45	-56.64	841.09	-4,831.32	17,611.13	17,460.16	150.97	116.653	
19,200.00	6,945.00	6,000.00	5,999.35	203.47	119.45	-56.64	841.09	-4,831.32	17,710.70	17,559.61	151.08	117.226	
19,300.00	6,945.00	6,000.00	5,999.35	205.06	119.45	-56.64	841.09	-4,831.32	17,810.27	17,659.07	151.19	117.798	
19,400.00	6,945.00	6,000.00	5,999.35	206.65	119.45	-56.64	841.09	-4,831.32	17,909.84	17,758.54	151.31	118.369	
19,500.00	6,945.00	6,000.00	5,999.35	208.24	119.45	-56.64	841.09	-4,831.32	18,009.42	17,858.00	151.42	118.939	
19,600.00	6,945.00	6,000.00	5,999.35	209.84	119.45	-56.64	841.09	-4,831.32	18,109.01	17,957.48	151.53	119.508	
19,700.00	6,945.00	6,000.00	5,999.35	211.43	119.45	-56.64	841.09	-4,831.32	18,208.59	18,056.95	151.64	120.076	
19,800.00	6,945.00	6,000.00	5,999.35	213.02	119.45	-56.64	841.09	-4,831.32	18,308.19	18,156.43	151.75	120.644	
19,900.00	6,945.00	6,000.00	5,999.35	214.61	119.45	-56.64	841.09	-4,831.32	18,407.79	18,255.92	151.87	121.210	
20,000.00	6,945.00	6,000.00	5,999.35	216.20	119.45	-56.64	841.09	-4,831.32	18,507.39	18,355.41	151.98	121.775	
20,100.00	6,945.00	6,000.00	5,999.35	217.79	119.45	-56.64	841.09	-4,831.32	18,606.99	18,454.90	152.09	122.339	
20,200.00	6,945.00	6,000.00	5,999.35	219.38	119.45	-56.64	841.09	-4,831.32	18,706.60	18,554.40	152.21	122.902	
20,300.00	6,945.00	6,000.00	5,999.35	220.98	119.45	-56.64	841.09	-4,831.32	18,806.22	18,653.90	152.32	123.464	
20,400.00	6,945.00	6,000.00	5,999.35	222.57	119.45	-56.64	841.09	-4,831.32	18,905.84	18,753.40	152.44	124.026	
20,500.00	6,945.00	6,000.00	5,999.35	224.16	119.45	-56.64	841.09	-4,831.32	19,005.46	18,852.91	152.55	124.586	
20,600.00	6,945.00	6,000.00	5,999.35	225.75	119.45	-56.64	841.09	-4,831.32	19,105.09	18,952.42	152.66	125.145	
20,700.00	6,945.00	6,000.00	5,999.35	227.35	119.45	-56.64	841.09	-4,831.32	19,204.72	19,051.94	152.78	125.703	
20,800.00	6,945.00	6,000.00	5,999.35	228.94	119.45	-56.64	841.09	-4,831.32	19,304.35	19,151.46	152.89	126.260	
20,852.96	6,945.00	6,000.00	5,999.35	229.61	119.45	-56.64	841.09	-4,831.32	19,357.12	19,199.67	157.44	122.946	

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:	Plan #4	**Offset TVD Reference:**	Offset Datum

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

Survey Program: 100-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	189.35	189.34	0.00	0.18	-78.71	1,334.51	-6,681.72	6,814.32				
20.93	20.93	210.02	210.00	0.00	0.21	88.65	1,334.61	-6,681.41	6,814.03				
117.41	117.41	300.00	299.97	0.05	0.33	84.11	1,335.04	-6,680.10	6,812.72	6,812.40	0.32	N/A	
206.68	206.68	377.30	377.26	0.17	0.43	110.02	1,335.33	-6,679.10	6,811.71	6,811.23	0.48	N/A	
292.93	292.93	440.09	440.05	0.28	0.50	109.47	1,335.40	-6,678.48	6,811.07	6,810.45	0.62	N/A	
365.00	364.99	500.00	499.96	0.36	0.57	78.80	1,335.35	-6,678.16	6,810.71	6,809.95	0.77	8,883.805	
380.48	380.47	500.00	499.96	0.39	0.57	106.72	1,335.35	-6,678.16	6,810.66	6,809.85	0.81	8,395.402	CC, ES
451.00	450.97	563.44	563.39	0.55	0.64	132.09	1,335.24	-6,678.00	6,811.50	6,810.41	1.10	6,217.569	
540.00	539.81	647.96	647.92	0.83	0.73	137.57	1,335.19	-6,677.83	6,815.05	6,813.55	1.50	4,538.558	
665.00	664.37	765.31	765.27	1.26	0.84	139.93	1,335.58	-6,677.59	6,822.75	6,820.71	2.05	3,333.278	
753.00	752.01	849.94	849.90	1.58	0.92	138.98	1,336.06	-6,677.46	6,828.79	6,826.38	2.41	2,829.804	
847.00	845.61	945.67	945.63	1.93	1.01	142.05	1,336.69	-6,677.30	6,835.42	6,832.62	2.81	2,435.725	
939.00	937.22	1,034.67	1,034.62	2.27	1.09	142.33	1,337.37	-6,677.10	6,842.13	6,838.94	3.19	2,143.966	
1,030.00	1,027.78	1,100.00	1,099.95	2.62	1.16	130.87	1,337.99	-6,677.00	6,848.66	6,845.10	3.56	1,923.276	
1,120.00	1,117.25	1,178.05	1,177.99	2.96	1.23	133.77	1,338.91	-6,677.06	6,855.56	6,851.64	3.92	1,746.813	
1,211.00	1,207.68	1,248.34	1,248.28	3.31	1.28	131.17	1,339.88	-6,677.34	6,863.07	6,858.78	4.28	1,601.701	
1,306.00	1,302.14	1,326.30	1,326.22	3.68	1.34	133.10	1,340.96	-6,677.87	6,870.76	6,866.10	4.66	1,475.051	
1,400.00	1,395.63	1,409.97	1,409.89	4.04	1.40	134.43	1,342.12	-6,678.58	6,878.54	6,873.51	5.03	1,367.686	
1,495.00	1,490.19	1,500.00	1,499.90	4.40	1.46	133.85	1,343.32	-6,679.47	6,886.11	6,880.70	5.41	1,273.062	
1,589.00	1,583.83	1,581.83	1,581.72	4.76	1.52	131.45	1,344.39	-6,680.38	6,893.00	6,887.21	5.79	1,191.016	
1,684.00	1,678.44	1,660.90	1,660.78	5.12	1.58	133.86	1,345.41	-6,681.39	6,900.28	6,894.10	6.18	1,117.453	
1,779.00	1,772.98	1,736.17	1,736.03	5.48	1.63	138.31	1,346.33	-6,682.56	6,908.75	6,902.18	6.57	1,051.985	
1,873.00	1,866.49	1,810.80	1,810.65	5.84	1.69	139.86	1,347.35	-6,683.93	6,917.92	6,910.96	6.96	994.065	
1,967.00	1,960.05	1,903.23	1,903.05	6.20	1.76	144.61	1,348.72	-6,685.72	6,927.20	6,919.84	7.37	940.304	
2,062.00	2,054.59	2,013.49	2,013.27	6.56	1.86	139.26	1,350.52	-6,687.72	6,936.55	6,928.75	7.80	889.245	
2,156.00	2,148.09	2,161.39	2,161.14	6.92	2.02	138.64	1,352.94	-6,689.50	6,945.29	6,937.02	8.27	839.774	
2,251.00	2,242.55	2,270.75	2,270.49	7.29	2.15	140.06	1,354.55	-6,690.34	6,953.94	6,945.22	8.72	797.876	
2,345.00	2,336.00	2,363.05	2,362.78	7.65	2.25	134.10	1,355.66	-6,691.00	6,962.33	6,953.19	9.14	761.555	
2,440.00	2,430.43	2,445.70	2,445.43	8.02	2.33	131.54	1,356.19	-6,691.78	6,970.41	6,960.83	9.58	727.693	
2,535.00	2,524.86	2,528.00	2,527.72	8.38	2.40	132.86	1,356.51	-6,692.78	6,978.58	6,968.56	10.02	696.645	
2,629.00	2,618.31	2,615.71	2,615.42	8.75	2.47	132.92	1,356.72	-6,693.95	6,986.81	6,976.35	10.46	667.898	
2,724.00	2,712.77	2,700.00	2,699.70	9.12	2.53	133.74	1,356.85	-6,695.28	6,995.29	6,984.38	10.91	641.417	
2,818.00	2,806.24	2,777.48	2,777.17	9.48	2.59	134.36	1,356.96	-6,696.65	7,003.87	6,992.53	11.34	617.559	
2,913.00	2,900.71	2,869.42	2,869.09	9.84	2.66	136.63	1,357.16	-6,698.31	7,012.70	7,000.90	11.80	594.395	
3,008.00	2,995.25	2,962.08	2,961.73	10.21	2.74	132.29	1,357.39	-6,699.99	7,021.06	7,008.80	12.26	572.859	
3,102.00	3,088.80	3,060.14	3,059.78	10.57	2.83	132.54	1,357.64	-6,701.78	7,028.99	7,016.27	12.72	552.618	
3,197.00	3,183.30	3,158.22	3,157.85	10.93	2.92	135.53	1,358.01	-6,703.44	7,037.42	7,024.23	13.19	533.566	
3,291.00	3,276.71	3,254.23	3,253.83	11.30	3.01	129.41	1,358.23	-6,705.08	7,046.10	7,032.44	13.66	515.947	
3,386.00	3,371.01	3,350.04	3,349.64	11.67	3.10	128.30	1,358.13	-6,706.74	7,054.95	7,040.82	14.13	499.251	
3,480.00	3,464.23	3,442.95	3,442.53	12.04	3.18	129.63	1,358.09	-6,708.34	7,064.12	7,049.52	14.60	483.810	
3,575.00	3,558.47	3,540.77	3,540.34	12.42	3.28	131.24	1,358.14	-6,709.99	7,073.51	7,058.43	15.08	469.007	
3,670.00	3,652.84	3,637.89	3,637.44	12.79	3.38	132.28	1,358.33	-6,711.51	7,082.32	7,066.76	15.56	455.171	
3,764.00	3,746.36	3,740.64	3,740.18	13.15	3.48	135.58	1,358.52	-6,713.13	7,090.37	7,074.33	16.04	442.125	
3,859.00	3,840.97	3,933.24	3,932.75	13.51	3.60	139.39	1,356.38	-6,715.16	7,097.43	7,080.85	16.58	428.076	
3,954.00	3,935.57	4,000.00	3,999.47	13.87	3.62	139.43	1,354.26	-6,715.65	7,104.14	7,087.18	16.97	418.693	
4,049.00	4,030.14	4,071.32	4,070.76	14.23	3.64	130.36	1,352.19	-6,716.39	7,110.91	7,093.54	17.37	409.377	
4,143.00	4,123.75	4,136.91	4,136.33	14.59	3.67	131.49	1,351.03	-6,717.39	7,117.49	7,099.72	17.77	400.502	
4,238.00	4,218.33	4,224.92	4,224.32	14.95	3.73	131.73	1,349.80	-6,718.79	7,124.60	7,106.39	18.21	391.305	
4,333.00	4,312.74	4,314.68	4,314.06	15.32	3.79	128.91	1,348.50	-6,720.32	7,132.69	7,114.04	18.65	382.410	
4,427.00	4,406.05	4,418.20	4,417.55	15.69	3.87	131.35	1,346.87	-6,722.05	7,141.22	7,122.11	19.11	373.731	
4,522.00	4,500.34	4,529.81	4,529.14	16.06	3.95	132.32	1,345.31	-6,723.68	7,150.01	7,130.43	19.57	365.273	
4,616.00	4,593.47	4,639.95	4,639.27	16.44	4.03	130.07	1,344.08	-6,724.85	7,159.14	7,139.11	20.04	357.271	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 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:	Plan #4	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 100-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
4,710.00	4,686.44	4,727.48	4,726.79	16.82	4.10	130.87	1,343.23	-6,725.72	7,168.89	7,148.41	20.48	349.986	
4,899.00	4,873.89	4,900.00	4,899.29	17.57	4.25	137.48	1,341.71	-6,727.72	7,187.32	7,165.95	21.37	336.309	
4,962.00	4,936.56	4,960.17	4,959.45	17.81	4.31	139.92	1,341.23	-6,728.48	7,192.77	7,171.10	21.67	331.976	
5,024.00	4,998.27	5,027.51	5,026.79	18.04	4.37	136.15	1,340.67	-6,729.31	7,197.89	7,175.92	21.97	327.696	
5,150.00	5,123.66	5,163.11	5,162.37	18.53	4.49	137.23	1,339.42	-6,730.79	7,207.93	7,185.36	22.57	319.415	
5,213.00	5,186.37	5,223.07	5,222.33	18.77	4.55	134.86	1,338.91	-6,731.42	7,212.76	7,189.90	22.86	315.551	
5,276.00	5,249.09	5,278.70	5,277.95	19.01	4.61	135.78	1,338.48	-6,732.03	7,217.57	7,194.42	23.15	311.824	
5,339.00	5,311.83	5,339.80	5,339.05	19.25	4.67	134.88	1,338.05	-6,732.74	7,222.26	7,198.82	23.44	308.094	
5,401.00	5,373.58	5,403.64	5,402.88	19.48	4.74	137.42	1,337.58	-6,733.48	7,226.88	7,203.14	23.74	304.455	
5,464.00	5,436.33	5,475.02	5,474.25	19.72	4.81	134.74	1,336.99	-6,734.26	7,231.42	7,207.38	24.04	300.803	
5,590.00	5,561.87	5,568.17	5,567.38	20.19	4.90	133.46	1,335.97	-6,735.43	7,240.15	7,215.56	24.59	294.447	
5,653.00	5,624.66	5,600.00	5,599.21	20.43	4.93	132.15	1,335.53	-6,735.99	7,244.59	7,219.74	24.85	291.580	
5,715.00	5,686.48	5,655.34	5,654.53	20.66	4.99	127.21	1,334.61	-6,737.16	7,248.62	7,223.50	25.13	288.497	
5,778.00	5,749.29	5,701.88	5,701.04	20.90	5.03	129.89	1,333.65	-6,738.31	7,252.82	7,227.42	25.40	285.557	
5,841.00	5,812.10	5,791.90	5,791.02	21.13	5.12	127.63	1,331.76	-6,740.46	7,257.02	7,231.30	25.72	282.155	
5,904.00	5,874.94	5,937.73	5,936.82	21.36	5.26	133.00	1,329.41	-6,742.40	7,260.40	7,234.31	26.08	278.350	
5,967.00	5,937.80	5,994.93	5,994.00	21.60	5.30	134.56	1,328.44	-6,742.95	7,263.62	7,237.27	26.35	275.613	
6,030.00	6,000.68	6,067.01	6,066.07	21.83	5.36	132.67	1,327.02	-6,743.69	7,266.58	7,239.95	26.63	272.834	
6,093.00	6,063.59	6,135.27	6,134.31	22.05	5.42	136.36	1,325.60	-6,744.31	7,269.21	7,242.31	26.91	270.154	
6,156.00	6,126.51	6,199.20	6,198.23	22.28	5.47	141.65	1,324.40	-6,744.85	7,271.82	7,244.64	27.18	267.564	
6,235.00	6,205.43	6,268.87	6,267.88	22.56	5.54	141.35	1,323.27	-6,745.42	7,274.86	7,247.35	27.51	264.456	
6,300.00	6,270.38	6,335.53	6,334.54	22.68	5.60	141.35	1,322.38	-6,745.98	7,277.13	7,249.46	27.67	262.965	
6,355.00	6,325.34	6,401.45	6,400.45	22.69	5.66	141.36	1,321.74	-6,746.39	7,278.98	7,251.25	27.73	262.484	
6,400.00	6,370.23	6,448.14	6,447.14	22.71	5.71	174.07	1,321.42	-6,746.61	7,282.02	7,254.25	27.78	262.172	
6,450.00	6,419.74	6,499.83	6,498.83	22.73	5.76	-178.31	1,321.18	-6,746.81	7,289.03	7,261.20	27.83	261.950	
6,500.00	6,468.57	6,544.47	6,543.47	22.77	5.81	-175.19	1,321.02	-6,746.97	7,299.83	7,271.96	27.88	261.868 SF	
6,550.00	6,516.42	6,588.17	6,587.17	22.81	5.86	-173.38	1,320.87	-6,747.15	7,314.39	7,286.47	27.93	261.918	
6,600.00	6,562.98	6,633.49	6,632.49	22.87	5.91	-172.09	1,320.72	-6,747.35	7,332.60	7,304.62	27.98	262.051	
6,650.00	6,607.98	6,678.33	6,677.33	22.95	5.96	-171.02	1,320.57	-6,747.56	7,354.34	7,326.30	28.04	262.295	
6,700.00	6,651.14	6,718.25	6,717.24	23.03	6.01	-170.01	1,320.43	-6,747.75	7,379.47	7,351.37	28.09	262.677	
6,750.00	6,692.18	6,753.20	6,752.20	23.14	6.05	-168.99	1,320.37	-6,747.93	7,407.86	7,379.72	28.15	263.191	
6,800.00	6,730.86	6,786.10	6,785.09	23.26	6.09	-167.88	1,320.36	-6,748.11	7,439.35	7,411.15	28.20	263.823	
6,850.00	6,766.93	6,820.74	6,819.73	23.40	6.13	-166.61	1,320.40	-6,748.30	7,473.71	7,445.46	28.26	264.503	
6,900.00	6,800.18	6,855.70	6,854.70	23.56	6.17	-165.12	1,320.42	-6,748.50	7,510.73	7,482.41	28.32	265.248	
6,950.00	6,830.39	6,887.45	6,886.45	23.74	6.21	-163.30	1,320.41	-6,748.68	7,550.16	7,521.78	28.37	266.114	
7,000.00	6,857.38	6,914.23	6,913.22	23.94	6.24	-161.00	1,320.40	-6,748.83	7,591.76	7,563.34	28.42	267.126	
7,050.00	6,880.98	6,936.51	6,935.51	24.17	6.27	-157.97	1,320.37	-6,748.96	7,635.30	7,606.84	28.46	268.273	
7,100.00	6,901.06	6,955.40	6,954.39	24.42	6.29	-153.86	1,320.35	-6,749.07	7,680.50	7,652.00	28.50	269.532	
7,150.00	6,917.47	6,970.78	6,969.77	24.70	6.31	-148.03	1,320.33	-6,749.17	7,727.08	7,698.56	28.52	270.902	
7,200.00	6,930.13	6,982.56	6,981.55	25.01	6.33	-139.36	1,320.31	-6,749.24	7,774.75	7,746.21	28.54	272.380	
7,250.00	6,938.95	6,990.67	6,989.66	25.34	6.34	-126.07	1,320.29	-6,749.29	7,823.23	7,794.67	28.56	273.960	
7,300.00	6,943.88	6,995.07	6,994.06	25.69	6.34	-106.37	1,320.28	-6,749.32	7,872.20	7,843.64	28.56	275.637	
7,337.82	6,945.00	6,995.91	6,994.90	25.97	6.35	-88.15	1,320.28	-6,749.33	7,909.39	7,880.83	28.56	276.963	
7,400.00	6,945.00	6,995.53	6,994.52	26.45	6.34	-88.33	1,320.28	-6,749.32	7,970.43	7,941.88	28.55	279.191	
7,492.38	6,945.00	6,994.97	6,993.96	27.21	6.34	-88.54	1,320.28	-6,749.32	8,060.66	8,032.12	28.53	282.486	
7,500.00	6,945.00	6,994.92	6,993.91	27.28	6.34	-88.54	1,320.28	-6,749.32	8,068.07	8,039.54	28.53	282.763	
7,600.00	6,945.00	6,994.31	6,993.30	28.17	6.34	-88.52	1,320.28	-6,749.32	8,165.45	8,136.92	28.52	286.264	
7,700.00	6,945.00	6,993.70	6,992.69	29.12	6.34	-88.50	1,320.29	-6,749.31	8,262.89	8,234.37	28.52	289.710	
7,800.00	6,945.00	6,993.08	6,992.08	30.14	6.34	-88.48	1,320.29	-6,749.31	8,360.39	8,331.86	28.52	293.102	
7,900.00	6,945.00	6,992.48	6,991.47	31.20	6.34	-88.46	1,320.29	-6,749.30	8,457.95	8,429.41	28.53	296.442	
8,000.00	6,945.00	6,991.87	6,990.86	32.31	6.34	-88.44	1,320.29	-6,749.30	8,555.56	8,527.02	28.54	299.729	
8,100.00	6,945.00	6,991.26	6,990.25	33.46	6.34	-88.43	1,320.29	-6,749.30	8,653.23	8,624.67	28.56	302.965	

CC - Min centre to center distance or 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:	Plan #4	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 100-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
8,200.00	6,945.00	6,990.65	6,989.65	34.64	6.34	-88.41	1,320.29	-6,749.29	8,750.95	8,722.37	28.58	306.152	
8,300.00	6,945.00	6,990.05	6,989.04	35.86	6.34	-88.39	1,320.29	-6,749.29	8,848.72	8,820.11	28.61	309.290	
8,400.00	6,945.00	6,989.44	6,988.44	37.11	6.34	-88.37	1,320.29	-6,749.28	8,946.55	8,917.91	28.64	312.380	
8,500.00	6,945.00	6,988.84	6,987.83	38.39	6.34	-88.35	1,320.29	-6,749.28	9,044.41	9,015.74	28.67	315.424	
8,600.00	6,945.00	6,988.24	6,987.23	39.69	6.34	-88.33	1,320.30	-6,749.28	9,142.33	9,113.62	28.71	318.423	
8,700.00	6,945.00	6,987.64	6,986.63	41.01	6.33	-88.31	1,320.30	-6,749.27	9,240.29	9,211.54	28.75	321.377	
8,800.00	6,945.00	6,987.04	6,986.03	42.35	6.33	-88.29	1,320.30	-6,749.27	9,338.29	9,309.50	28.80	324.289	
8,900.00	6,945.00	6,986.44	6,985.43	43.71	6.33	-88.28	1,320.30	-6,749.27	9,436.34	9,407.50	28.84	327.158	
9,000.00	6,945.00	6,985.84	6,984.84	45.08	6.33	-88.26	1,320.30	-6,749.26	9,534.42	9,505.53	28.89	329.987	
9,100.00	6,945.00	6,985.25	6,984.24	46.47	6.33	-88.24	1,320.30	-6,749.26	9,632.55	9,603.60	28.95	332.775	
9,200.00	6,945.00	6,984.65	6,983.64	47.87	6.33	-88.22	1,320.30	-6,749.25	9,730.71	9,701.71	29.00	335.525	
9,300.00	6,945.00	6,984.06	6,983.05	49.29	6.33	-88.20	1,320.30	-6,749.25	9,828.91	9,799.85	29.06	338.237	
9,400.00	6,945.00	6,983.47	6,982.46	50.71	6.33	-88.18	1,320.30	-6,749.25	9,927.15	9,898.03	29.12	340.912	
9,500.00	6,945.00	6,982.87	6,981.87	52.15	6.33	-88.17	1,320.30	-6,749.24	10,025.42	9,996.24	29.18	343.552	
9,600.00	6,945.00	6,982.28	6,981.27	53.59	6.33	-88.15	1,320.31	-6,749.24	10,123.72	10,094.48	29.25	346.156	
9,700.00	6,945.00	6,981.69	6,980.68	55.05	6.33	-88.13	1,320.31	-6,749.24	10,222.06	10,192.75	29.31	348.726	
9,800.00	6,945.00	6,981.10	6,980.10	56.51	6.33	-88.11	1,320.31	-6,749.23	10,320.43	10,291.05	29.38	351.263	
9,900.00	6,945.00	6,980.52	6,979.51	57.98	6.33	-88.09	1,320.31	-6,749.23	10,418.83	10,389.38	29.45	353.768	
10,000.00	6,945.00	6,979.93	6,978.92	59.45	6.33	-88.07	1,320.31	-6,749.22	10,517.26	10,487.74	29.52	356.241	
10,100.00	6,945.00	6,979.34	6,978.34	60.93	6.32	-88.06	1,320.31	-6,749.22	10,615.72	10,586.13	29.60	358.683	
10,200.00	6,945.00	6,978.76	6,977.75	62.42	6.32	-88.04	1,320.31	-6,749.22	10,714.21	10,684.54	29.67	361.096	
10,300.00	6,945.00	6,978.18	6,977.17	63.92	6.32	-88.02	1,320.31	-6,749.21	10,812.73	10,782.98	29.75	363.479	
10,400.00	6,945.00	6,977.59	6,976.59	65.42	6.32	-88.00	1,320.31	-6,749.21	10,911.27	10,881.44	29.83	365.833	
10,500.00	6,945.00	6,977.01	6,976.00	66.92	6.32	-87.98	1,320.32	-6,749.21	11,009.84	10,979.93	29.91	368.160	
10,600.00	6,945.00	6,976.43	6,975.42	68.43	6.32	-87.97	1,320.32	-6,749.20	11,108.43	11,078.45	29.99	370.460	
10,700.00	6,945.00	6,975.85	6,974.84	69.94	6.32	-87.95	1,320.32	-6,749.20	11,207.05	11,176.99	30.07	372.732	
10,800.00	6,945.00	6,975.27	6,974.27	71.45	6.32	-87.93	1,320.32	-6,749.19	11,305.70	11,275.55	30.15	374.980	
10,900.00	6,945.00	6,974.70	6,973.69	72.97	6.32	-87.91	1,320.32	-6,749.19	11,404.37	11,374.13	30.23	377.201	
11,000.00	6,945.00	6,974.12	6,973.11	74.50	6.32	-87.89	1,320.32	-6,749.19	11,503.06	11,472.74	30.32	379.398	
11,100.00	6,945.00	6,973.54	6,972.54	76.02	6.32	-87.88	1,320.32	-6,749.18	11,601.77	11,571.36	30.41	381.571	
11,200.00	6,945.00	6,972.97	6,971.96	77.55	6.32	-87.86	1,320.32	-6,749.18	11,700.50	11,670.01	30.49	383.720	
11,300.00	6,945.00	6,972.40	6,971.39	79.08	6.32	-87.84	1,320.32	-6,749.18	11,799.26	11,768.68	30.58	385.846	
11,400.00	6,945.00	6,971.82	6,970.82	80.62	6.32	-87.82	1,320.32	-6,749.17	11,898.04	11,867.37	30.67	387.949	
11,500.00	6,945.00	6,971.25	6,970.25	82.16	6.31	-87.81	1,320.32	-6,749.17	11,996.83	11,966.08	30.76	390.030	
11,600.00	6,945.00	6,970.68	6,969.68	83.70	6.31	-87.79	1,320.33	-6,749.17	12,095.65	12,064.80	30.85	392.089	
11,700.00	6,945.00	6,970.11	6,969.11	85.24	6.31	-87.77	1,320.33	-6,749.16	12,194.49	12,163.55	30.94	394.127	
11,800.00	6,945.00	6,969.55	6,968.54	86.78	6.31	-87.75	1,320.33	-6,749.16	12,293.34	12,262.31	31.03	396.145	
11,900.00	6,945.00	6,968.98	6,967.97	88.33	6.31	-87.73	1,320.33	-6,749.16	12,392.21	12,361.09	31.13	398.141	
12,000.00	6,945.00	6,968.41	6,967.40	89.87	6.31	-87.72	1,320.33	-6,749.15	12,491.11	12,459.89	31.22	400.118	
12,100.00	6,945.00	6,967.85	6,966.84	91.42	6.31	-87.70	1,320.33	-6,749.15	12,590.01	12,558.70	31.31	402.075	
12,200.00	6,945.00	6,967.28	6,966.28	92.98	6.31	-87.68	1,320.33	-6,749.15	12,688.94	12,657.53	31.41	404.012	
12,300.00	6,945.00	6,966.72	6,965.71	94.53	6.31	-87.66	1,320.33	-6,749.14	12,787.88	12,756.38	31.50	405.931	
12,400.00	6,945.00	6,966.16	6,965.15	96.08	6.31	-87.65	1,320.33	-6,749.14	12,886.84	12,855.24	31.60	407.831	
12,500.00	6,945.00	6,965.60	6,964.59	97.64	6.31	-87.63	1,320.33	-6,749.13	12,985.82	12,954.12	31.69	409.713	
12,600.00	6,945.00	6,965.04	6,964.03	99.20	6.31	-87.61	1,320.33	-6,749.13	13,084.81	13,053.01	31.79	411.576	
12,700.00	6,945.00	6,964.48	6,963.47	100.76	6.31	-87.60	1,320.34	-6,749.13	13,183.81	13,151.92	31.89	413.422	
12,800.00	6,945.00	6,963.92	6,962.91	102.32	6.31	-87.58	1,320.34	-6,749.12	13,282.83	13,250.84	31.99	415.251	
12,900.00	6,945.00	6,963.36	6,962.35	103.88	6.30	-87.56	1,320.34	-6,749.12	13,381.87	13,349.78	32.09	417.062	
13,000.00	6,945.00	6,962.81	6,961.80	105.44	6.30	-87.54	1,320.34	-6,749.12	13,480.92	13,448.73	32.19	418.857	
13,100.00	6,945.00	6,962.25	6,961.24	107.00	6.30	-87.53	1,320.34	-6,749.11	13,579.98	13,547.69	32.28	420.635	
13,200.00	6,945.00	6,961.70	6,960.69	108.57	6.30	-87.51	1,320.34	-6,749.11	13,679.05	13,646.67	32.38	422.397	
13,300.00	6,945.00	6,961.14	6,960.13	110.13	6.30	-87.49	1,320.34	-6,749.11	13,778.14	13,745.66	32.48	424.143	

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:	Plan #4	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 100-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
13,400.00	6,945.00	6,960.59	6,959.58	111.70	6.30	-87.47	1,320.34	-6,749.10	13,877.25	13,844.66	32.59	425.873	
13,500.00	6,945.00	6,960.04	6,959.03	113.27	6.30	-87.46	1,320.34	-6,749.10	13,976.36	13,943.68	32.69	427.587	
13,600.00	6,945.00	6,959.49	6,958.48	114.84	6.30	-87.44	1,320.34	-6,749.10	14,075.49	14,042.70	32.79	429.286	
13,700.00	6,945.00	6,958.94	6,957.93	116.41	6.30	-87.42	1,320.34	-6,749.09	14,174.63	14,141.74	32.89	430.970	
13,800.00	6,945.00	6,958.39	6,957.38	117.98	6.30	-87.41	1,320.34	-6,749.09	14,273.78	14,240.79	32.99	432.639	
13,900.00	6,945.00	6,957.84	6,956.83	119.55	6.30	-87.39	1,320.35	-6,749.09	14,372.95	14,339.85	33.10	434.293	
14,000.00	6,945.00	6,957.29	6,956.29	121.12	6.30	-87.37	1,320.35	-6,749.08	14,472.12	14,438.93	33.20	435.932	
14,100.00	6,945.00	6,956.75	6,955.74	122.69	6.30	-87.36	1,320.35	-6,749.08	14,571.31	14,538.01	33.30	437.558	
14,200.00	6,945.00	6,956.20	6,955.20	124.27	6.30	-87.34	1,320.35	-6,749.08	14,670.51	14,637.10	33.41	439.169	
14,300.00	6,945.00	6,955.66	6,954.65	125.84	6.30	-87.32	1,320.35	-6,749.07	14,769.72	14,736.21	33.51	440.766	
14,400.00	6,945.00	6,955.12	6,954.11	127.41	6.29	-87.31	1,320.35	-6,749.07	14,868.94	14,835.32	33.61	442.349	
14,500.00	6,945.00	6,954.58	6,953.57	128.99	6.29	-87.29	1,320.35	-6,749.07	14,968.17	14,934.45	33.72	443.919	
14,600.00	6,945.00	6,954.03	6,953.03	130.57	6.29	-87.27	1,320.35	-6,749.06	15,067.40	15,033.58	33.82	445.475	
14,700.00	6,945.00	6,953.49	6,952.49	132.14	6.29	-87.26	1,320.35	-6,749.06	15,166.65	15,132.73	33.93	447.018	
14,800.00	6,945.00	6,952.95	6,951.95	133.72	6.29	-87.24	1,320.35	-6,749.06	15,265.91	15,231.88	34.03	448.548	
14,900.00	6,945.00	6,952.42	6,951.41	135.30	6.29	-87.22	1,320.35	-6,749.05	15,365.18	15,331.04	34.14	450.065	
15,000.00	6,945.00	6,951.88	6,950.87	136.87	6.29	-87.21	1,320.35	-6,749.05	15,464.46	15,430.22	34.25	451.569	
15,100.00	6,945.00	6,951.34	6,950.34	138.45	6.29	-87.19	1,320.35	-6,749.05	15,563.75	15,529.40	34.35	453.061	
15,200.00	6,945.00	6,950.81	6,949.80	140.03	6.29	-87.17	1,320.36	-6,749.04	15,663.05	15,628.59	34.46	454.540	
15,300.00	6,945.00	6,950.27	6,949.27	141.61	6.29	-87.16	1,320.36	-6,749.04	15,762.35	15,727.79	34.57	456.006	
15,400.00	6,945.00	6,949.74	6,948.73	143.19	6.29	-87.14	1,320.36	-6,749.04	15,861.67	15,826.99	34.67	457.460	
15,500.00	6,945.00	6,949.21	6,948.20	144.77	6.29	-87.12	1,320.36	-6,749.03	15,960.99	15,926.21	34.78	458.902	
15,600.00	6,945.00	6,948.67	6,947.67	146.35	6.29	-87.11	1,320.36	-6,749.03	16,060.32	16,025.43	34.89	460.333	
15,700.00	6,945.00	6,948.14	6,947.14	147.94	6.29	-87.09	1,320.36	-6,749.03	16,159.66	16,124.66	35.00	461.751	
15,800.00	6,945.00	6,947.61	6,946.61	149.52	6.29	-87.07	1,320.36	-6,749.03	16,259.01	16,223.90	35.10	463.157	
15,900.00	6,945.00	6,947.08	6,946.08	151.10	6.28	-87.06	1,320.36	-6,749.02	16,358.36	16,323.15	35.21	464.552	
16,000.00	6,945.00	6,946.56	6,945.55	152.68	6.28	-87.04	1,320.36	-6,749.02	16,457.73	16,422.40	35.32	465.936	
16,100.00	6,945.00	6,946.03	6,945.02	154.26	6.28	-87.02	1,320.36	-6,749.02	16,557.10	16,521.67	35.43	467.308	
16,200.00	6,945.00	6,945.50	6,944.49	155.85	6.28	-87.01	1,320.36	-6,749.01	16,656.47	16,620.93	35.54	468.668	
16,300.00	6,945.00	6,944.98	6,943.97	157.43	6.28	-86.99	1,320.36	-6,749.01	16,755.86	16,720.21	35.65	470.018	
16,400.00	6,945.00	6,944.45	6,943.44	159.02	6.28	-86.98	1,320.36	-6,749.01	16,855.25	16,819.49	35.76	471.357	
16,500.00	6,945.00	6,943.93	6,942.92	160.60	6.28	-86.96	1,320.36	-6,749.00	16,954.65	16,918.78	35.87	472.684	
16,600.00	6,945.00	6,943.40	6,942.40	162.18	6.28	-86.94	1,320.36	-6,749.00	17,054.06	17,018.08	35.98	474.001	
16,700.00	6,945.00	6,942.88	6,941.88	163.77	6.28	-86.93	1,320.37	-6,749.00	17,153.47	17,117.39	36.09	475.307	
16,800.00	6,945.00	6,942.36	6,941.35	165.35	6.28	-86.91	1,320.37	-6,748.99	17,252.90	17,216.70	36.20	476.603	
16,900.00	6,945.00	6,941.84	6,940.83	166.94	6.28	-86.89	1,320.37	-6,748.99	17,352.32	17,316.01	36.31	477.887	
17,000.00	6,945.00	6,941.32	6,940.31	168.53	6.28	-86.88	1,320.37	-6,748.99	17,451.76	17,415.33	36.42	479.162	
17,100.00	6,945.00	6,940.80	6,939.80	170.11	6.28	-86.86	1,320.37	-6,748.98	17,551.20	17,514.66	36.53	480.426	
17,200.00	6,945.00	6,940.29	6,939.28	171.70	6.28	-86.85	1,320.37	-6,748.98	17,650.64	17,614.00	36.64	481.680	
17,300.00	6,945.00	6,939.77	6,938.76	173.29	6.28	-86.83	1,320.37	-6,748.98	17,750.10	17,713.34	36.76	482.924	
17,400.00	6,945.00	6,939.25	6,938.25	174.87	6.27	-86.81	1,320.37	-6,748.98	17,849.56	17,812.69	36.87	484.158	
17,500.00	6,945.00	6,938.74	6,937.73	176.46	6.27	-86.80	1,320.37	-6,748.97	17,949.02	17,912.04	36.98	485.382	
17,600.00	6,945.00	6,938.22	6,937.22	178.05	6.27	-86.78	1,320.37	-6,748.97	18,048.49	18,011.40	37.09	486.596	
17,700.00	6,945.00	6,937.71	6,936.70	179.63	6.27	-86.77	1,320.37	-6,748.97	18,147.97	18,110.76	37.20	487.800	
17,800.00	6,945.00	6,937.20	6,936.19	181.22	6.27	-86.75	1,320.37	-6,748.96	18,247.45	18,210.13	37.32	488.995	
17,900.00	6,945.00	6,936.69	6,935.68	182.81	6.27	-86.74	1,320.37	-6,748.96	18,346.94	18,309.51	37.43	490.180	
18,000.00	6,945.00	6,936.18	6,935.17	184.40	6.27	-86.72	1,320.37	-6,748.96	18,446.43	18,408.89	37.54	491.355	
18,100.00	6,945.00	6,935.67	6,934.66	185.99	6.27	-86.70	1,320.37	-6,748.95	18,545.93	18,508.27	37.66	492.522	
18,200.00	6,945.00	6,935.16	6,934.15	187.58	6.27	-86.69	1,320.37	-6,748.95	18,645.43	18,607.67	37.77	493.678	
18,300.00	6,945.00	6,934.65	6,933.64	189.16	6.27	-86.67	1,320.38	-6,748.95	18,744.94	18,707.06	37.88	494.826	
18,400.00	6,945.00	6,934.14	6,933.13	190.75	6.27	-86.66	1,320.38	-6,748.95	18,844.46	18,806.46	38.00	495.964	
18,500.00	6,945.00	6,933.64	6,932.63	192.34	6.27	-86.64	1,320.38	-6,748.94	18,943.98	18,905.87	38.11	497.094	

CC - Min centre to center distance or 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:	Plan #4	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 100-Standard Keeper 104 **Offset Well Error:** 0.00 usft

Rule Assigned: Distance

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
18,600.00	6,945.00	6,933.13	6,932.12	193.93	6.27	-86.63	1,320.38	-6,748.94	19,043.50	19,005.28	38.22	498.214	
18,700.00	6,945.00	6,932.62	6,931.62	195.52	6.27	-86.61	1,320.38	-6,748.94	19,143.03	19,104.69	38.34	499.325	
18,800.00	6,945.00	6,932.12	6,931.11	197.11	6.27	-86.59	1,320.38	-6,748.93	19,242.57	19,204.12	38.45	500.428	
18,900.00	6,945.00	6,931.62	6,930.61	198.70	6.27	-86.58	1,320.38	-6,748.93	19,342.11	19,303.54	38.57	501.522	
19,000.00	6,945.00	6,931.12	6,930.11	200.29	6.26	-86.56	1,320.38	-6,748.93	19,441.65	19,402.97	38.68	502.607	
19,100.00	6,945.00	6,930.61	6,929.61	201.88	6.26	-86.55	1,320.38	-6,748.92	19,541.20	19,502.40	38.80	503.683	
19,200.00	6,945.00	6,930.11	6,929.11	203.47	6.26	-86.53	1,320.38	-6,748.92	19,640.75	19,601.84	38.91	504.751	
19,300.00	6,945.00	6,929.61	6,928.61	205.06	6.26	-86.52	1,320.38	-6,748.92	19,740.31	19,701.28	39.03	505.810	
19,400.00	6,945.00	6,929.11	6,928.11	206.65	6.26	-86.50	1,320.38	-6,748.92	19,839.87	19,800.73	39.14	506.861	
19,500.00	6,945.00	6,928.62	6,927.61	208.24	6.26	-86.49	1,320.38	-6,748.91	19,939.44	19,900.18	39.26	507.904	
19,600.00	6,945.00	6,928.12	6,927.11	209.84	6.26	-86.47	1,320.38	-6,748.91	20,039.01	19,999.64	39.37	508.938	
19,700.00	6,945.00	6,927.62	6,926.62	211.43	6.26	-86.45	1,320.38	-6,748.91	20,138.59	20,099.10	39.49	509.965	
19,800.00	6,945.00	6,927.13	6,926.12	213.02	6.26	-86.44	1,320.38	-6,748.90	20,238.16	20,198.56	39.61	510.983	
19,900.00	6,945.00	6,926.63	6,925.63	214.61	6.26	-86.42	1,320.38	-6,748.90	20,337.75	20,298.03	39.72	511.993	
20,000.00	6,945.00	6,926.14	6,925.13	216.20	6.26	-86.41	1,320.38	-6,748.90	20,437.34	20,397.50	39.84	512.995	
20,100.00	6,945.00	6,925.65	6,924.64	217.79	6.26	-86.39	1,320.39	-6,748.90	20,536.93	20,496.97	39.96	513.989	
20,200.00	6,945.00	6,925.15	6,924.15	219.38	6.26	-86.38	1,320.39	-6,748.89	20,636.52	20,596.45	40.07	514.975	
20,300.00	6,945.00	6,924.66	6,923.65	220.98	6.26	-86.36	1,320.39	-6,748.89	20,736.12	20,695.93	40.19	515.954	
20,400.00	6,945.00	6,924.17	6,923.16	222.57	6.26	-86.35	1,320.39	-6,748.89	20,835.73	20,795.42	40.31	516.925	
20,500.00	6,945.00	6,923.68	6,922.67	224.16	6.26	-86.33	1,320.39	-6,748.88	20,935.33	20,894.91	40.42	517.888	
20,600.00	6,945.00	6,923.19	6,922.18	225.75	6.25	-86.32	1,320.39	-6,748.88	21,034.94	20,994.40	40.54	518.844	
20,700.00	6,945.00	6,922.70	6,921.70	227.35	6.25	-86.30	1,320.39	-6,748.88	21,134.56	21,093.90	40.66	519.792	
20,800.00	6,945.00	6,922.22	6,921.21	228.94	6.25	-86.29	1,320.39	-6,748.88	21,234.17	21,193.40	40.78	520.732	
20,852.96	6,945.00	6,921.96	6,920.95	229.61	6.25	-86.28	1,320.39	-6,748.87	21,286.93	21,241.53	45.40	468.885	

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:	Plan #4	**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				
20.93	20.93	0.00	0.00	0.00	0.00	87.44	852.70	-4,794.57	4,869.80				
117.41	117.41	1,262.27	1,220.86	0.05	4.84	85.22	1,013.04	-4,624.99	4,867.01	4,862.73	4.28	1,138.316	
206.68	206.68	1,456.31	1,397.18	0.17	6.32	111.95	1,068.91	-4,566.40	4,844.59	4,838.99	5.60	864.489	
292.93	292.93	1,490.27	1,428.15	0.28	6.58	111.59	1,078.33	-4,556.14	4,823.62	4,817.72	5.90	817.299	
365.00	364.99	1,547.70	1,480.74	0.36	7.00	81.15	1,094.03	-4,539.21	4,806.59	4,799.90	6.70	717.654	
451.00	450.97	1,691.40	1,611.57	0.55	8.12	135.36	1,134.48	-4,495.67	4,786.98	4,779.19	7.79	614.648	
540.00	539.81	1,743.97	1,659.37	0.83	8.52	141.36	1,149.14	-4,479.40	4,769.00	4,760.66	8.34	572.133	
665.00	664.37	1,823.00	1,731.51	1.26	9.12	144.10	1,171.15	-4,455.80	4,747.94	4,738.67	9.26	512.533	
753.00	752.01	1,972.23	1,867.39	1.58	10.28	143.87	1,212.72	-4,410.23	4,733.40	4,722.81	10.59	446.876	
847.00	845.61	2,034.57	1,923.92	1.93	10.78	147.15	1,230.52	-4,390.91	4,718.10	4,706.72	11.39	414.372	
939.00	937.22	2,101.75	1,984.78	2.27	11.32	147.74	1,250.00	-4,370.19	4,703.87	4,691.66	12.21	385.143	
1,030.00	1,027.78	2,175.02	2,051.58	2.62	11.88	136.87	1,270.50	-4,348.13	4,690.36	4,677.29	13.07	358.889	
1,120.00	1,117.25	2,264.00	2,132.66	2.96	12.57	140.23	1,295.29	-4,321.14	4,677.41	4,663.37	14.04	333.217	
1,211.00	1,207.68	2,408.57	2,264.29	3.31	13.69	138.34	1,335.48	-4,276.91	4,664.90	4,649.52	15.39	303.172	
1,306.00	1,302.14	2,492.85	2,341.12	3.68	14.34	140.56	1,357.62	-4,250.24	4,650.27	4,633.93	16.35	284.471	
1,400.00	1,395.63	2,548.64	2,392.06	4.04	14.77	142.08	1,372.39	-4,232.98	4,636.66	4,619.53	17.12	270.819	
1,495.00	1,490.19	2,609.84	2,447.76	4.40	15.26	141.67	1,389.37	-4,214.10	4,623.15	4,605.21	17.95	257.583	
1,589.00	1,583.83	2,644.00	2,478.77	4.76	15.53	139.40	1,399.18	-4,203.67	4,609.96	4,591.37	18.59	247.973	
1,684.00	1,678.44	2,675.00	2,507.02	5.12	15.77	141.96	1,408.05	-4,194.51	4,598.07	4,578.86	19.21	239.375	
1,779.00	1,772.98	2,707.00	2,536.45	5.48	16.00	146.52	1,416.96	-4,185.62	4,588.60	4,568.78	19.82	231.486	
1,873.00	1,866.49	2,738.00	2,565.17	5.84	16.22	148.14	1,425.43	-4,177.61	4,581.21	4,560.79	20.42	224.378	
1,967.00	1,960.05	2,738.00	2,565.17	6.20	16.22	152.74	1,425.43	-4,177.61	4,575.22	4,554.41	20.81	219.899	
2,062.00	2,054.59	2,800.00	2,623.28	6.56	16.62	147.72	1,441.61	-4,163.31	4,570.54	4,548.96	21.58	211.839	
2,156.00	2,148.09	2,954.30	2,770.38	6.92	17.49	147.65	1,474.62	-4,130.61	4,567.06	4,544.29	22.77	200.542	
2,251.00	2,242.55	2,988.00	2,802.59	7.29	17.68	149.13	1,481.32	-4,123.25	4,562.70	4,539.36	23.34	195.470	
2,345.00	2,336.00	3,042.10	2,854.68	7.65	17.96	143.39	1,491.17	-4,112.48	4,559.54	4,535.56	23.99	190.097	
2,440.00	2,430.43	3,117.34	2,927.45	8.02	18.32	141.05	1,503.81	-4,098.17	4,556.49	4,531.78	24.71	184.362	
2,535.00	2,524.86	3,175.00	2,983.33	8.38	18.60	142.52	1,513.40	-4,087.68	4,554.13	4,528.77	25.36	179.569	
2,629.00	2,618.31	3,247.33	3,053.82	8.75	18.91	142.76	1,524.06	-4,075.43	4,552.45	4,526.41	26.04	174.856	
2,724.00	2,712.77	3,301.00	3,106.36	9.12	19.13	143.68	1,531.15	-4,067.11	4,551.49	4,524.87	26.62	170.976	
2,767.33	2,755.85	3,317.27	3,122.31	9.28	19.19	143.99	1,533.23	-4,064.70	4,551.35	4,524.49	26.85	169.488 CC	
2,818.00	2,806.24	3,333.00	3,137.76	9.48	19.25	144.34	1,535.25	-4,062.50	4,551.54	4,524.43	27.11	167.874 ES	
2,913.00	2,900.71	3,399.49	3,203.12	9.84	19.49	146.73	1,543.69	-4,053.67	4,552.62	4,524.90	27.72	164.212	
3,008.00	2,995.25	3,458.00	3,260.86	10.21	19.69	142.47	1,550.04	-4,046.70	4,553.82	4,525.54	28.28	161.018	
3,102.00	3,088.80	3,501.00	3,303.48	10.57	19.81	142.79	1,553.76	-4,042.38	4,555.62	4,526.86	28.76	158.395	
3,197.00	3,183.30	3,537.23	3,339.47	10.93	19.90	145.79	1,556.54	-4,039.39	4,559.16	4,529.94	29.21	156.063	
3,291.00	3,276.71	3,571.93	3,374.01	11.30	19.98	139.72	1,559.12	-4,037.05	4,564.39	4,534.73	29.65	153.935	
3,386.00	3,371.01	3,622.17	3,424.07	11.67	20.08	138.65	1,562.37	-4,034.52	4,571.13	4,541.01	30.12	151.775	
3,480.00	3,464.23	3,691.00	3,492.84	12.04	20.17	140.02	1,564.14	-4,032.66	4,578.93	4,548.36	30.57	149.771	
3,575.00	3,558.47	3,754.92	3,556.75	12.42	20.22	141.60	1,563.71	-4,032.16	4,587.38	4,556.39	30.98	148.070	
3,670.00	3,652.84	3,807.83	3,609.67	12.79	20.25	142.61	1,563.54	-4,032.32	4,596.10	4,564.73	31.37	146.507	
3,764.00	3,746.36	3,900.68	3,702.52	13.15	20.33	145.91	1,563.45	-4,032.78	4,604.17	4,572.36	31.81	144.717	
3,859.00	3,840.97	3,994.26	3,796.09	13.51	20.43	149.71	1,563.36	-4,033.28	4,611.84	4,579.57	32.27	142.917	
3,954.00	3,935.57	4,087.82	3,889.65	13.87	20.52	149.78	1,563.26	-4,033.79	4,619.85	4,587.12	32.72	141.177	
4,049.00	4,030.14	4,181.35	3,983.18	14.23	20.61	140.73	1,563.16	-4,034.34	4,627.73	4,594.55	33.18	139.470	
4,143.00	4,123.75	4,273.94	4,075.77	14.59	20.70	141.90	1,563.05	-4,034.90	4,634.88	4,601.25	33.63	137.806	
4,238.00	4,218.33	4,367.48	4,169.31	14.95	20.79	142.17	1,562.93	-4,035.49	4,642.44	4,608.35	34.09	136.174	
4,333.00	4,312.74	4,460.85	4,262.68	15.32	20.89	139.38	1,562.82	-4,036.10	4,651.15	4,616.60	34.56	134.597	
4,427.00	4,406.05	4,553.13	4,354.96	15.69	20.98	141.85	1,562.69	-4,036.73	4,660.49	4,625.47	35.02	133.088	
4,522.00	4,500.34	4,646.38	4,448.20	16.06	21.07	142.84	1,562.57	-4,037.40	4,670.24	4,634.75	35.48	131.614	
4,616.00	4,593.47	4,738.47	4,540.29	16.44	21.17	140.60	1,562.44	-4,038.07	4,680.84	4,644.89	35.95	130.205	

CC - Min centre to center distance or 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:	Plan #4	**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
4,710.00	4,686.44	4,830.41	4,632.22	16.82	21.26	141.43	1,562.30	-4,038.78	4,692.27	4,655.85	36.42	128.842	
4,899.00	4,873.89	5,015.76	4,817.57	17.57	21.45	148.09	1,562.02	-4,040.26	4,713.13	4,675.78	37.35	126.199	
4,962.00	4,936.56	5,077.73	4,879.54	17.81	21.51	150.54	1,561.92	-4,040.78	4,719.05	4,681.40	37.65	125.340	
5,024.00	4,998.27	5,138.74	4,940.54	18.04	21.57	146.77	1,561.82	-4,041.30	4,724.66	4,686.71	37.95	124.502	
5,150.00	5,123.66	5,262.72	5,064.52	18.53	21.70	147.85	1,561.61	-4,042.39	4,735.96	4,697.41	38.56	122.833	
5,213.00	5,186.37	5,324.73	5,126.53	18.77	21.76	145.50	1,561.50	-4,042.95	4,741.45	4,702.59	38.86	122.015	
5,276.00	5,249.09	5,386.74	5,188.54	19.01	21.82	146.42	1,561.39	-4,043.52	4,746.89	4,707.73	39.16	121.207	
5,339.00	5,311.83	5,448.78	5,250.57	19.25	21.89	145.53	1,561.28	-4,044.10	4,752.14	4,712.67	39.47	120.409	
5,401.00	5,373.58	5,509.83	5,311.62	19.48	21.95	148.08	1,561.17	-4,044.69	4,757.31	4,717.54	39.76	119.637	
5,464.00	5,436.33	5,571.88	5,373.66	19.72	22.01	145.40	1,561.05	-4,045.29	4,762.45	4,722.38	40.07	118.862	
5,590.00	5,561.87	5,696.00	5,497.78	20.19	22.14	144.15	1,560.81	-4,046.53	4,772.31	4,731.63	40.67	117.335	
5,653.00	5,624.66	5,758.08	5,559.86	20.43	22.21	142.85	1,560.69	-4,047.17	4,777.03	4,736.05	40.98	116.584	
5,715.00	5,686.48	5,819.21	5,620.98	20.66	22.27	137.92	1,560.57	-4,047.81	4,781.21	4,739.94	41.27	115.846	
5,778.00	5,749.29	5,881.32	5,683.09	20.90	22.33	140.63	1,560.44	-4,048.47	4,785.41	4,743.84	41.57	115.105	
5,841.00	5,812.10	5,943.43	5,745.19	21.13	22.40	138.37	1,560.31	-4,049.14	4,789.70	4,747.82	41.88	114.376	
5,904.00	5,874.94	6,005.56	5,807.32	21.36	22.46	143.73	1,560.18	-4,049.82	4,793.80	4,751.62	42.18	113.656	
5,967.00	5,937.80	6,067.71	5,869.47	21.60	22.53	145.30	1,560.05	-4,050.51	4,797.79	4,755.32	42.48	112.948	
6,030.00	6,000.68	6,129.88	5,931.64	21.83	22.59	143.42	1,559.91	-4,051.21	4,801.50	4,758.72	42.78	112.246	
6,093.00	6,063.59	6,192.08	5,993.83	22.05	22.66	147.12	1,559.78	-4,051.93	4,804.91	4,761.84	43.07	111.550	
6,156.00	6,126.51	6,254.29	6,056.04	22.28	22.72	152.42	1,559.64	-4,052.65	4,808.26	4,764.88	43.37	110.865	
6,235.00	6,205.43	6,332.33	6,134.07	22.56	22.81	152.13	1,559.46	-4,053.58	4,812.10	4,768.36	43.74	110.015	
6,300.00	6,270.38	6,396.55	6,198.28	22.68	22.87	152.14	1,559.31	-4,054.35	4,814.96	4,771.04	43.93	109.616	
6,355.00	6,325.34	6,450.88	6,252.62	22.69	22.93	152.14	1,559.18	-4,055.02	4,817.39	4,773.40	43.99	109.507	
6,400.00	6,370.23	6,495.25	6,296.97	22.71	22.98	-175.09	1,559.08	-4,055.56	4,820.85	4,776.81	44.05	109.452 SF	
6,450.00	6,419.74	6,544.13	6,345.85	22.73	23.03	-167.36	1,558.96	-4,056.17	4,828.15	4,784.05	44.10	109.471	
6,500.00	6,468.57	6,592.29	6,394.01	22.77	23.08	-164.08	1,558.85	-4,056.78	4,839.03	4,794.87	44.16	109.577	
6,550.00	6,516.42	6,639.43	6,441.14	22.81	23.13	-162.07	1,558.73	-4,057.38	4,853.42	4,809.21	44.22	109.766	
6,600.00	6,562.98	6,685.25	6,486.96	22.87	23.18	-160.51	1,558.62	-4,057.97	4,871.25	4,826.98	44.27	110.039	
6,650.00	6,607.98	6,729.47	6,531.18	22.95	23.22	-159.11	1,558.51	-4,058.55	4,892.40	4,848.08	44.32	110.391	
6,700.00	6,651.14	6,771.82	6,573.52	23.03	23.27	-157.70	1,558.40	-4,059.11	4,916.76	4,872.39	44.37	110.820	
6,750.00	6,692.18	6,812.03	6,613.73	23.14	23.31	-156.20	1,558.30	-4,059.64	4,944.17	4,899.76	44.41	111.324	
6,800.00	6,730.86	6,849.85	6,651.55	23.26	23.35	-154.51	1,558.20	-4,060.14	4,974.48	4,930.02	44.46	111.898	
6,850.00	6,766.93	6,885.06	6,686.75	23.40	23.39	-152.57	1,558.11	-4,060.62	5,007.49	4,963.00	44.50	112.538	
6,900.00	6,800.18	6,917.43	6,719.12	23.56	23.42	-150.26	1,558.02	-4,061.06	5,043.02	4,998.49	44.53	113.241	
6,950.00	6,830.39	6,946.75	6,748.44	23.74	23.46	-147.49	1,557.95	-4,061.46	5,080.86	5,036.29	44.57	114.004	
7,000.00	6,857.38	6,972.86	6,774.55	23.94	23.48	-144.09	1,557.88	-4,061.82	5,120.76	5,076.16	44.60	114.821	
7,050.00	6,880.98	6,995.60	6,797.28	24.17	23.51	-139.87	1,557.82	-4,062.13	5,162.50	5,117.88	44.62	115.690	
7,100.00	6,901.06	7,014.81	6,816.49	24.42	23.53	-134.58	1,557.77	-4,062.39	5,205.82	5,161.17	44.64	116.605	
7,150.00	6,917.47	7,030.38	6,832.06	24.70	23.54	-127.91	1,557.73	-4,062.61	5,250.45	5,205.79	44.66	117.563	
7,200.00	6,930.13	7,042.23	6,843.91	25.01	23.56	-119.55	1,557.69	-4,062.78	5,296.12	5,251.45	44.67	118.560	
7,250.00	6,938.95	7,050.27	6,851.95	25.34	23.57	-109.34	1,557.67	-4,062.89	5,342.56	5,297.88	44.67	119.589	
7,300.00	6,943.88	7,054.46	6,856.13	25.69	23.57	-97.51	1,557.66	-4,062.95	5,389.47	5,344.80	44.67	120.647	
7,337.82	6,945.00	7,055.05	6,856.73	25.97	23.57	-87.97	1,557.66	-4,062.96	5,425.09	5,380.43	44.66	121.462	
7,400.00	6,945.00	7,054.20	6,855.88	26.45	23.57	-88.06	1,557.66	-4,062.94	5,483.49	5,438.84	44.65	122.807	
7,492.38	6,945.00	7,052.93	6,854.61	27.21	23.57	-88.18	1,557.67	-4,062.93	5,569.54	5,524.90	44.64	124.774	
7,500.00	6,945.00	7,052.83	6,854.50	27.28	23.57	-88.18	1,557.67	-4,062.92	5,576.59	5,531.96	44.64	124.937	
7,600.00	6,945.00	7,051.45	6,853.13	28.17	23.57	-88.14	1,557.67	-4,062.91	5,669.40	5,624.76	44.63	127.021	
7,700.00	6,945.00	7,050.07	6,851.75	29.12	23.57	-88.11	1,557.67	-4,062.89	5,762.44	5,717.80	44.64	129.079	
7,800.00	6,945.00	7,048.69	6,850.37	30.14	23.56	-88.07	1,557.68	-4,062.87	5,855.71	5,811.05	44.66	131.112	
7,900.00	6,945.00	7,047.32	6,848.99	31.20	23.56	-88.03	1,557.68	-4,062.85	5,949.21	5,904.52	44.69	133.120	
8,000.00	6,945.00	7,045.94	6,847.62	32.31	23.56	-87.99	1,557.68	-4,062.83	6,042.91	5,998.18	44.73	135.105	
8,100.00	6,945.00	7,044.57	6,846.24	33.46	23.56	-87.95	1,557.69	-4,062.81	6,136.80	6,092.03	44.77	137.069	

CC - Min centre to center distance or 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:	Plan #4	**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
8,200.00	6,945.00	7,043.19	6,844.87	34.64	23.56	-87.92	1,557.69	-4,062.79	6,230.89	6,186.07	44.82	139.011	
8,300.00	6,945.00	7,041.82	6,843.50	35.86	23.56	-87.88	1,557.70	-4,062.77	6,325.16	6,280.28	44.88	140.934	
8,400.00	6,945.00	7,040.45	6,842.13	37.11	23.56	-87.84	1,557.70	-4,062.75	6,419.60	6,374.66	44.94	142.838	
8,500.00	6,945.00	7,039.08	6,840.75	38.39	23.55	-87.80	1,557.70	-4,062.73	6,514.21	6,469.20	45.01	144.724	
8,600.00	6,945.00	7,037.70	6,839.38	39.69	23.55	-87.77	1,557.71	-4,062.71	6,608.97	6,563.89	45.08	146.593	
8,700.00	6,945.00	7,036.33	6,838.01	41.01	23.55	-87.73	1,557.71	-4,062.69	6,703.89	6,658.73	45.16	148.446	
8,800.00	6,945.00	7,034.97	6,836.64	42.35	23.55	-87.69	1,557.71	-4,062.68	6,798.95	6,753.71	45.24	150.284	
8,900.00	6,945.00	7,033.60	6,835.28	43.71	23.55	-87.65	1,557.72	-4,062.66	6,894.16	6,848.83	45.32	152.106	
9,000.00	6,945.00	7,032.23	6,833.91	45.08	23.55	-87.62	1,557.72	-4,062.64	6,989.49	6,944.08	45.41	153.915	
9,100.00	6,945.00	7,030.86	6,832.54	46.47	23.54	-87.58	1,557.72	-4,062.62	7,084.96	7,039.46	45.50	155.711	
9,200.00	6,945.00	7,029.49	6,831.17	47.87	23.54	-87.54	1,557.73	-4,062.60	7,180.55	7,134.95	45.59	157.494	
9,300.00	6,945.00	7,028.13	6,829.81	49.29	23.54	-87.51	1,557.73	-4,062.58	7,276.25	7,230.56	45.69	159.264	
9,400.00	6,945.00	7,026.76	6,828.44	50.71	23.54	-87.47	1,557.74	-4,062.56	7,372.07	7,326.29	45.78	161.023	
9,500.00	6,945.00	7,025.40	6,827.08	52.15	23.54	-87.43	1,557.74	-4,062.54	7,468.00	7,422.12	45.88	162.771	
9,600.00	6,945.00	7,024.04	6,825.72	53.59	23.54	-87.39	1,557.74	-4,062.52	7,564.03	7,518.05	45.98	164.509	
9,700.00	6,945.00	7,022.67	6,824.35	55.05	23.54	-87.36	1,557.75	-4,062.50	7,660.17	7,614.09	46.08	166.236	
9,800.00	6,945.00	7,021.31	6,822.99	56.51	23.53	-87.32	1,557.75	-4,062.49	7,756.40	7,710.22	46.18	167.953	
9,900.00	6,945.00	7,019.95	6,821.63	57.98	23.53	-87.28	1,557.75	-4,062.47	7,852.73	7,806.45	46.28	169.661	
10,000.00	6,945.00	7,018.59	6,820.27	59.45	23.53	-87.25	1,557.76	-4,062.45	7,949.15	7,902.76	46.39	171.360	
10,100.00	6,945.00	7,017.23	6,818.91	60.93	23.53	-87.21	1,557.76	-4,062.43	8,045.65	7,999.16	46.49	173.051	
10,200.00	6,945.00	7,015.87	6,817.55	62.42	23.53	-87.17	1,557.76	-4,062.41	8,142.24	8,095.64	46.60	174.732	
10,300.00	6,945.00	7,014.51	6,816.19	63.92	23.53	-87.13	1,557.77	-4,062.39	8,238.91	8,192.21	46.70	176.406	
10,400.00	6,945.00	7,013.16	6,814.84	65.42	23.53	-87.10	1,557.77	-4,062.37	8,335.66	8,288.85	46.81	178.071	
10,500.00	6,945.00	7,011.80	6,813.48	66.92	23.52	-87.06	1,557.78	-4,062.35	8,432.48	8,385.56	46.92	179.729	
10,600.00	6,945.00	7,010.44	6,812.12	68.43	23.52	-87.02	1,557.78	-4,062.33	8,529.38	8,482.35	47.03	181.380	
10,700.00	6,945.00	7,009.09	6,810.77	69.94	23.52	-86.99	1,557.78	-4,062.32	8,626.35	8,579.21	47.13	183.023	
10,800.00	6,945.00	7,007.73	6,809.41	71.45	23.52	-86.95	1,557.79	-4,062.30	8,723.38	8,676.14	47.24	184.659	
10,900.00	6,945.00	7,006.38	6,808.06	72.97	23.52	-86.91	1,557.79	-4,062.28	8,820.48	8,773.14	47.35	186.288	
11,000.00	6,945.00	7,005.03	6,806.71	74.50	23.52	-86.88	1,557.79	-4,062.26	8,917.65	8,870.19	47.46	187.910	
11,100.00	6,945.00	7,003.67	6,805.36	76.02	23.52	-86.84	1,557.80	-4,062.24	9,014.88	8,967.31	47.57	189.526	
11,200.00	6,945.00	7,002.32	6,804.00	77.55	23.51	-86.80	1,557.80	-4,062.22	9,112.17	9,064.49	47.67	191.135	
11,300.00	6,945.00	7,000.97	6,802.65	79.08	23.51	-86.76	1,557.80	-4,062.20	9,209.51	9,161.73	47.78	192.737	
11,400.00	6,945.00	6,999.62	6,801.30	80.62	23.51	-86.73	1,557.81	-4,062.18	9,306.91	9,259.02	47.89	194.334	
11,500.00	6,945.00	6,998.27	6,799.96	82.16	23.51	-86.69	1,557.81	-4,062.17	9,404.37	9,356.37	48.00	195.924	
11,600.00	6,945.00	6,996.92	6,798.61	83.70	23.51	-86.65	1,557.81	-4,062.15	9,501.88	9,453.77	48.11	197.508	
11,700.00	6,945.00	6,995.58	6,797.26	85.24	23.51	-86.62	1,557.82	-4,062.13	9,599.44	9,551.22	48.22	199.087	
11,800.00	6,945.00	6,994.23	6,795.91	86.78	23.51	-86.58	1,557.82	-4,062.11	9,697.04	9,648.72	48.33	200.659	
11,900.00	6,945.00	6,992.88	6,794.57	88.33	23.50	-86.54	1,557.83	-4,062.09	9,794.70	9,746.27	48.43	202.226	
12,000.00	6,945.00	6,991.54	6,793.22	89.87	23.50	-86.51	1,557.83	-4,062.07	9,892.40	9,843.86	48.54	203.786	
12,100.00	6,945.00	6,990.19	6,791.88	91.42	23.50	-86.47	1,557.83	-4,062.05	9,990.15	9,941.50	48.65	205.341	
12,200.00	6,945.00	6,988.85	6,790.53	92.98	23.50	-86.43	1,557.84	-4,062.04	10,087.95	10,039.19	48.76	206.891	
12,300.00	6,945.00	6,987.50	6,789.19	94.53	23.50	-86.40	1,557.84	-4,062.02	10,185.78	10,136.91	48.87	208.434	
12,400.00	6,945.00	6,986.16	6,787.85	96.08	23.50	-86.36	1,557.84	-4,062.00	10,283.66	10,234.68	48.98	209.973	
12,500.00	6,945.00	6,984.82	6,786.50	97.64	23.50	-86.32	1,557.85	-4,061.98	10,381.58	10,332.49	49.08	211.505	
12,600.00	6,945.00	6,983.48	6,785.16	99.20	23.49	-86.29	1,557.85	-4,061.96	10,479.53	10,430.34	49.19	213.033	
12,700.00	6,945.00	6,982.14	6,783.82	100.76	23.49	-86.25	1,557.85	-4,061.94	10,577.53	10,528.23	49.30	214.555	
12,800.00	6,945.00	6,980.80	6,782.48	102.32	23.49	-86.21	1,557.86	-4,061.92	10,675.56	10,626.15	49.41	216.071	
12,900.00	6,945.00	6,979.46	6,781.14	103.88	23.49	-86.18	1,557.86	-4,061.91	10,773.63	10,724.11	49.52	217.582	
13,000.00	6,945.00	6,978.12	6,779.81	105.44	23.49	-86.14	1,557.86	-4,061.89	10,871.73	10,822.11	49.62	219.088	
13,100.00	6,945.00	6,976.78	6,778.47	107.00	23.49	-86.11	1,557.87	-4,061.87	10,969.86	10,920.13	49.73	220.588	
13,200.00	6,945.00	6,975.45	6,777.13	108.57	23.49	-86.07	1,557.87	-4,061.85	11,068.03	11,018.20	49.84	222.083	
13,300.00	6,945.00	6,974.11	6,775.80	110.13	23.48	-86.03	1,557.88	-4,061.83	11,166.24	11,116.29	49.94	223.573	

CC - Min centre to center distance or 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:	Plan #4	**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)	Rule Assigned: Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
13,400.00	6,945.00	6,972.78	6,774.46	111.70	23.48	-86.00	1,557.88	-4,061.81	11,264.47	11,214.42	50.05	225.058	
13,500.00	6,945.00	6,971.44	6,773.13	113.27	23.48	-85.96	1,557.88	-4,061.80	11,362.73	11,312.58	50.16	226.537	
13,600.00	6,945.00	6,970.11	6,771.79	114.84	23.48	-85.92	1,557.89	-4,061.78	11,461.03	11,410.76	50.27	228.011	
13,700.00	6,945.00	6,968.77	6,770.46	116.41	23.48	-85.89	1,557.89	-4,061.76	11,559.35	11,508.98	50.37	229.480	
13,800.00	6,945.00	6,967.44	6,769.13	117.98	23.48	-85.85	1,557.89	-4,061.74	11,657.70	11,607.22	50.48	230.944	
13,900.00	6,945.00	6,966.11	6,767.80	119.55	23.48	-85.81	1,557.90	-4,061.72	11,756.08	11,705.50	50.58	232.403	
14,000.00	6,945.00	6,964.78	6,766.46	121.12	23.47	-85.78	1,557.90	-4,061.70	11,854.49	11,803.80	50.69	233.856	
14,100.00	6,945.00	6,963.45	6,765.13	122.69	23.47	-85.74	1,557.90	-4,061.69	11,952.92	11,902.12	50.80	235.304	
14,200.00	6,945.00	6,962.12	6,763.80	124.27	23.47	-85.71	1,557.91	-4,061.67	12,051.38	12,000.48	50.90	236.747	
14,300.00	6,945.00	6,960.79	6,762.48	125.84	23.47	-85.67	1,557.91	-4,061.65	12,149.86	12,098.85	51.01	238.185	
14,400.00	6,945.00	6,959.46	6,761.15	127.41	23.47	-85.63	1,557.91	-4,061.63	12,248.37	12,197.25	51.12	239.618	
14,500.00	6,945.00	6,958.13	6,759.82	128.99	23.47	-85.60	1,557.92	-4,061.61	12,346.90	12,295.68	51.22	241.045	
14,600.00	6,945.00	6,956.81	6,758.49	130.57	23.47	-85.56	1,557.92	-4,061.59	12,445.46	12,394.13	51.33	242.468	
14,700.00	6,945.00	6,955.48	6,757.17	132.14	23.46	-85.53	1,557.92	-4,061.58	12,544.03	12,492.60	51.43	243.885	
14,800.00	6,945.00	6,954.16	6,755.84	133.72	23.46	-85.49	1,557.93	-4,061.56	12,642.63	12,591.09	51.54	245.297	
14,900.00	6,945.00	6,952.83	6,754.52	135.30	23.46	-85.45	1,557.93	-4,061.54	12,741.26	12,689.61	51.65	246.704	
15,000.00	6,945.00	6,951.51	6,753.19	136.87	23.46	-85.42	1,557.93	-4,061.52	12,839.90	12,788.15	51.75	248.106	
15,100.00	6,945.00	6,950.18	6,751.87	138.45	23.46	-85.38	1,557.94	-4,061.50	12,938.56	12,886.70	51.86	249.503	
15,200.00	6,945.00	6,948.86	6,750.55	140.03	23.46	-85.35	1,557.94	-4,061.49	13,037.24	12,985.28	51.96	250.895	
15,300.00	6,945.00	6,947.54	6,749.23	141.61	23.46	-85.31	1,557.95	-4,061.47	13,135.95	13,083.88	52.07	252.282	
15,400.00	6,945.00	6,946.22	6,747.91	143.19	23.45	-85.27	1,557.95	-4,061.45	13,234.67	13,182.50	52.17	253.663	
15,500.00	6,945.00	6,944.90	6,746.59	144.77	23.45	-85.24	1,557.95	-4,061.43	13,333.41	13,281.13	52.28	255.040	
15,600.00	6,945.00	6,943.58	6,745.27	146.35	23.45	-85.20	1,557.96	-4,061.41	13,432.17	13,379.79	52.39	256.411	
15,700.00	6,945.00	6,942.26	6,743.95	147.94	23.45	-85.17	1,557.96	-4,061.40	13,530.95	13,478.46	52.49	257.777	
15,800.00	6,945.00	6,940.94	6,742.63	149.52	23.45	-85.13	1,557.96	-4,061.38	13,629.75	13,577.15	52.60	259.138	
15,900.00	6,945.00	6,939.63	6,741.31	151.10	23.45	-85.09	1,557.97	-4,061.36	13,728.56	13,675.86	52.70	260.494	
16,000.00	6,945.00	6,938.31	6,740.00	152.68	23.45	-85.06	1,557.97	-4,061.34	13,827.39	13,774.58	52.81	261.845	
16,100.00	6,945.00	6,936.99	6,738.68	154.26	23.44	-85.02	1,557.97	-4,061.32	13,926.24	13,873.32	52.91	263.191	
16,200.00	6,945.00	6,935.68	6,737.37	155.85	23.44	-84.99	1,557.98	-4,061.31	14,025.10	13,972.08	53.02	264.532	
16,300.00	6,945.00	6,934.36	6,736.05	157.43	23.44	-84.95	1,557.98	-4,061.29	14,123.98	14,070.85	53.12	265.867	
16,400.00	6,945.00	6,933.05	6,734.74	159.02	23.44	-84.92	1,557.98	-4,061.27	14,222.87	14,169.64	53.23	267.198	
16,500.00	6,945.00	6,931.74	6,733.43	160.60	23.44	-84.88	1,557.99	-4,061.25	14,321.78	14,268.45	53.34	268.523	
16,600.00	6,945.00	6,930.42	6,732.11	162.18	23.44	-84.84	1,557.99	-4,061.23	14,420.71	14,367.26	53.44	269.844	
16,700.00	6,945.00	6,929.11	6,730.80	163.77	23.44	-84.81	1,557.99	-4,061.22	14,519.64	14,466.10	53.55	271.159	
16,800.00	6,945.00	6,927.80	6,729.49	165.35	23.44	-84.77	1,558.00	-4,061.20	14,618.60	14,564.95	53.65	272.469	
16,900.00	6,945.00	6,926.49	6,728.18	166.94	23.43	-84.74	1,558.00	-4,061.18	14,717.56	14,663.81	53.76	273.774	
17,000.00	6,945.00	6,925.18	6,726.87	168.53	23.43	-84.70	1,558.00	-4,061.16	14,816.55	14,762.68	53.86	275.075	
17,100.00	6,945.00	6,923.87	6,725.56	170.11	23.43	-84.67	1,558.01	-4,061.14	14,915.54	14,861.57	53.97	276.370	
17,200.00	6,945.00	6,922.56	6,724.25	171.70	23.43	-84.63	1,558.01	-4,061.13	15,014.55	14,960.47	54.08	277.660	
17,300.00	6,945.00	6,921.26	6,722.95	173.29	23.43	-84.60	1,558.01	-4,061.11	15,113.57	15,059.39	54.18	278.944	
17,400.00	6,945.00	6,919.95	6,721.64	174.87	23.43	-84.56	1,558.02	-4,061.09	15,212.60	15,158.32	54.29	280.224	
17,500.00	6,945.00	6,918.64	6,720.33	176.46	23.43	-84.53	1,558.02	-4,061.07	15,311.65	15,257.26	54.39	281.499	
17,600.00	6,945.00	6,917.34	6,719.03	178.05	23.42	-84.49	1,558.02	-4,061.06	15,410.71	15,356.21	54.50	282.769	
17,700.00	6,945.00	6,916.03	6,717.72	179.63	23.42	-84.45	1,558.03	-4,061.04	15,509.78	15,455.17	54.61	284.034	
17,800.00	6,945.00	6,914.73	6,716.42	181.22	23.42	-84.42	1,558.03	-4,061.02	15,608.86	15,554.15	54.71	285.294	
17,900.00	6,945.00	6,913.43	6,715.12	182.81	23.42	-84.38	1,558.03	-4,061.00	15,707.95	15,653.13	54.82	286.548	
18,000.00	6,945.00	6,912.12	6,713.82	184.40	23.42	-84.35	1,558.04	-4,060.98	15,807.06	15,752.13	54.92	287.798	
18,100.00	6,945.00	6,910.82	6,712.51	185.99	23.42	-84.31	1,558.04	-4,060.97	15,906.17	15,851.14	55.03	289.043	
18,200.00	6,945.00	6,909.52	6,711.21	187.58	23.42	-84.28	1,558.04	-4,060.95	16,005.30	15,950.16	55.14	290.282	
18,300.00	6,945.00	6,908.22	6,709.91	189.16	23.41	-84.24	1,558.05	-4,060.93	16,104.44	16,049.19	55.24	291.517	
18,400.00	6,945.00	6,906.92	6,708.61	190.75	23.41	-84.21	1,558.05	-4,060.91	16,203.58	16,148.23	55.35	292.747	
18,500.00	6,945.00	6,905.62	6,707.31	192.34	23.41	-84.17	1,558.05	-4,060.90	16,302.74	16,247.29	55.46	293.971	

CC - Min centre to center distance or 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:	Plan #4	**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

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
18,600.00	6,945.00	6,904.32	6,706.02	193.93	23.41	-84.14	1,558.06	-4,060.88	16,401.91	16,346.35	55.56	295.191	
18,700.00	6,945.00	6,903.03	6,704.72	195.52	23.41	-84.10	1,558.06	-4,060.86	16,501.09	16,445.42	55.67	296.406	
18,800.00	6,945.00	6,901.73	6,703.42	197.11	23.41	-84.07	1,558.07	-4,060.84	16,600.28	16,544.50	55.78	297.616	
18,900.00	6,945.00	6,900.43	6,702.12	198.70	23.41	-84.03	1,558.07	-4,060.83	16,699.47	16,643.59	55.88	298.820	
19,000.00	6,945.00	6,899.14	6,700.83	200.29	23.40	-84.00	1,558.07	-4,060.81	16,798.68	16,742.69	55.99	300.020	
19,100.00	6,945.00	6,897.84	6,699.53	201.88	23.40	-83.96	1,558.08	-4,060.79	16,897.90	16,841.80	56.10	301.215	
19,200.00	6,945.00	6,896.55	6,698.24	203.47	23.40	-83.93	1,558.08	-4,060.77	16,997.12	16,940.92	56.21	302.405	
19,300.00	6,945.00	6,895.25	6,696.95	205.06	23.40	-83.89	1,558.08	-4,060.76	17,096.36	17,040.04	56.31	303.590	
19,400.00	6,945.00	6,893.96	6,695.65	206.65	23.40	-83.86	1,558.09	-4,060.74	17,195.60	17,139.18	56.42	304.770	
19,500.00	6,945.00	6,892.67	6,694.36	208.24	23.40	-83.82	1,558.09	-4,060.72	17,294.85	17,238.32	56.53	305.946	
19,600.00	6,945.00	6,891.38	6,693.07	209.84	23.40	-83.79	1,558.09	-4,060.70	17,394.11	17,337.47	56.64	307.116	
19,700.00	6,945.00	6,890.09	6,691.78	211.43	23.40	-83.75	1,558.10	-4,060.69	17,493.38	17,436.63	56.74	308.281	
19,800.00	6,945.00	6,888.80	6,690.49	213.02	23.39	-83.72	1,558.10	-4,060.67	17,592.66	17,535.80	56.85	309.442	
19,900.00	6,945.00	6,887.51	6,689.20	214.61	23.39	-83.68	1,558.10	-4,060.65	17,691.94	17,634.98	56.96	310.598	
20,000.00	6,945.00	6,886.22	6,687.91	216.20	23.39	-83.65	1,558.11	-4,060.63	17,791.23	17,734.16	57.07	311.748	
20,100.00	6,945.00	6,884.93	6,686.62	217.79	23.39	-83.61	1,558.11	-4,060.62	17,890.53	17,833.36	57.18	312.894	
20,200.00	6,945.00	6,883.64	6,685.34	219.38	23.39	-83.58	1,558.11	-4,060.60	17,989.84	17,932.55	57.29	314.036	
20,300.00	6,945.00	6,882.36	6,684.05	220.98	23.39	-83.54	1,558.12	-4,060.58	18,089.16	18,031.76	57.39	315.172	
20,400.00	6,945.00	6,881.07	6,682.77	222.57	23.39	-83.51	1,558.12	-4,060.56	18,188.48	18,130.98	57.50	316.303	
20,500.00	6,945.00	6,879.79	6,681.48	224.16	23.38	-83.47	1,558.12	-4,060.55	18,287.81	18,230.20	57.61	317.430	
20,600.00	6,945.00	6,878.50	6,680.20	225.75	23.38	-83.44	1,558.13	-4,060.53	18,387.15	18,329.43	57.72	318.552	
20,700.00	6,945.00	6,877.22	6,678.91	227.35	23.38	-83.40	1,558.13	-4,060.51	18,486.49	18,428.66	57.83	319.669	
20,800.00	6,945.00	6,875.93	6,677.63	228.94	23.38	-83.37	1,558.13	-4,060.49	18,585.84	18,527.90	57.94	320.781	
20,852.96	6,945.00	6,875.26	6,676.95	229.61	23.38	-83.35	1,558.13	-4,060.49	18,638.46	18,576.27	62.19	299.706	

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:	Plan #4	**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				
20.93	20.93	176.93	176.93	0.00	5.30	27.53	-1,705.16	-1,439.96	2,231.78				
117.41	117.41	273.41	273.41	0.05	8.19	22.99	-1,705.16	-1,439.96	2,231.38	2,223.13	8.25	270.571	
206.68	206.68	362.68	362.68	0.17	10.87	48.89	-1,705.16	-1,439.96	2,231.08	2,220.06	11.02	202.421	
292.93	292.93	448.93	448.93	0.28	13.45	48.35	-1,705.16	-1,439.96	2,230.72	2,217.03	13.69	162.903	
365.00	364.99	521.10	520.99	0.36	15.61	17.68	-1,705.16	-1,439.96	2,230.26	2,214.33	15.92	140.078	
451.00	450.97	607.07	606.97	0.55	18.19	71.04	-1,705.16	-1,439.96	2,229.39	2,210.68	18.71	119.165	
540.00	539.81	695.91	695.81	0.83	20.85	76.70	-1,705.16	-1,439.96	2,228.02	2,206.36	21.66	102.857	
665.00	664.37	813.07	812.92	1.26	24.36	79.31	-1,703.12	-1,439.96	2,224.32	2,198.70	25.62	86.830	
753.00	752.01	891.58	891.42	1.58	26.72	78.50	-1,703.69	-1,439.96	2,223.26	2,194.96	28.29	78.581	
847.00	845.61	1,002.02	1,001.61	1.93	30.03	81.74	-1,705.16	-1,439.96	2,222.83	2,190.88	31.95	69.568	
939.00	937.22	1,093.62	1,093.22	2.27	32.77	82.20	-1,705.16	-1,439.96	2,221.63	2,186.59	35.04	63.401	
1,030.00	1,027.78	1,184.18	1,183.78	2.62	35.48	71.00	-1,705.16	-1,439.96	2,219.52	2,181.42	38.10	58.258	
1,120.00	1,117.25	1,271.20	1,270.75	2.96	38.09	74.16	-1,703.00	-1,439.96	2,214.98	2,173.93	41.05	53.960	
1,211.00	1,207.68	1,352.39	1,351.92	3.31	40.52	71.71	-1,703.35	-1,439.96	2,212.28	2,168.45	43.83	50.475	
1,306.00	1,302.14	1,437.30	1,436.82	3.68	43.07	73.75	-1,704.21	-1,439.96	2,209.97	2,163.24	46.74	47.287	
1,400.00	1,395.63	1,552.35	1,551.63	4.04	46.52	75.29	-1,705.16	-1,439.96	2,207.98	2,157.43	50.54	43.685	
1,495.00	1,490.19	1,646.90	1,646.19	4.40	49.35	74.82	-1,705.16	-1,439.96	2,205.61	2,151.87	53.74	41.045	
1,589.00	1,583.83	1,740.54	1,739.83	4.76	52.15	72.57	-1,705.16	-1,439.96	2,203.28	2,146.39	56.90	38.725	
1,684.00	1,678.44	1,826.60	1,825.84	5.12	54.73	75.19	-1,703.19	-1,439.96	2,199.48	2,139.65	59.83	36.760	
1,779.00	1,772.98	1,911.76	1,910.98	5.48	57.29	79.80	-1,703.90	-1,439.96	2,198.03	2,135.29	62.75	35.031	
1,873.00	1,866.49	2,023.51	2,022.49	5.84	60.63	81.55	-1,705.16	-1,439.96	2,197.32	2,130.87	66.45	33.065	
1,967.00	1,960.05	2,117.06	2,116.05	6.20	63.44	86.42	-1,705.16	-1,439.96	2,196.35	2,126.74	69.62	31.550	
2,062.00	2,054.59	2,211.60	2,210.59	6.56	66.27	81.32	-1,705.16	-1,439.96	2,195.33	2,122.52	72.81	30.151	
2,156.00	2,148.09	2,299.68	2,298.62	6.92	68.91	80.89	-1,703.07	-1,439.96	2,192.33	2,116.52	75.81	28.918	
2,251.00	2,242.55	2,384.96	2,383.88	7.29	71.46	82.45	-1,703.62	-1,439.96	2,191.31	2,112.58	78.73	27.833	
2,345.00	2,336.00	2,469.43	2,468.33	7.65	74.00	76.71	-1,704.67	-1,439.96	2,190.28	2,108.66	81.62	26.834	
2,440.00	2,430.43	2,587.75	2,586.43	8.02	77.54	74.41	-1,705.16	-1,439.96	2,187.91	2,102.37	85.54	25.578	
2,535.00	2,524.86	2,682.18	2,680.86	8.38	80.37	75.93	-1,705.16	-1,439.96	2,185.25	2,096.51	88.73	24.627	
2,629.00	2,618.31	2,773.16	2,771.80	8.75	83.10	76.22	-1,703.00	-1,439.96	2,181.27	2,089.45	91.82	23.755	
2,724.00	2,712.77	2,858.65	2,857.27	9.12	85.66	77.20	-1,703.40	-1,439.96	2,179.23	2,084.48	94.75	23.000	
2,818.00	2,806.24	2,943.36	2,941.96	9.48	88.20	77.98	-1,704.29	-1,439.96	2,177.77	2,080.12	97.65	22.302	
2,913.00	2,900.71	3,058.34	3,056.71	9.84	91.64	80.47	-1,705.16	-1,439.96	2,176.41	2,074.95	101.46	21.450	
3,008.00	2,995.25	3,152.87	3,151.25	10.21	94.47	76.29	-1,705.16	-1,439.96	2,174.52	2,069.87	104.66	20.777	
3,102.00	3,088.80	3,246.42	3,244.80	10.57	97.28	76.76	-1,705.16	-1,439.96	2,172.38	2,064.55	107.82	20.148	
3,197.00	3,183.30	3,332.47	3,330.79	10.93	99.86	79.95	-1,703.22	-1,439.96	2,169.10	2,058.34	110.76	19.583	
3,291.00	3,276.71	3,417.34	3,415.64	11.30	102.40	74.11	-1,703.96	-1,439.96	2,167.26	2,053.59	113.67	19.066	
3,386.00	3,371.01	3,528.94	3,527.01	11.67	105.74	73.28	-1,705.16	-1,439.96	2,164.74	2,047.36	117.39	18.441	
3,480.00	3,464.23	3,622.16	3,620.23	12.04	108.54	74.90	-1,705.16	-1,439.96	2,161.43	2,040.87	120.55	17.930	
3,575.00	3,558.47	3,716.40	3,714.47	12.42	111.36	76.65	-1,705.16	-1,439.96	2,158.45	2,034.70	123.75	17.442	
3,670.00	3,652.84	3,805.29	3,803.31	12.79	114.02	77.87	-1,703.09	-1,439.96	2,154.65	2,027.86	126.78	16.995	
3,764.00	3,746.36	3,890.49	3,888.50	13.15	116.58	81.22	-1,703.67	-1,439.96	2,153.32	2,023.63	129.70	16.603	
3,833.08	3,815.16	3,953.24	3,951.22	13.41	118.46	84.04	-1,704.43	-1,439.96	2,153.06	2,021.23	131.84	16.331	
3,859.00	3,840.97	3,976.79	3,974.77	13.51	119.16	85.12	-1,704.78	-1,439.96	2,153.10	2,020.46	132.64	16.233	
3,954.00	3,935.57	4,093.80	4,091.57	13.87	122.67	85.44	-1,705.16	-1,439.96	2,152.52	2,016.00	136.51	15.768	
4,049.00	4,030.14	4,188.37	4,186.14	14.23	125.50	76.62	-1,705.16	-1,439.96	2,151.10	2,011.39	139.71	15.397	
4,143.00	4,123.75	4,279.16	4,276.89	14.59	128.22	77.95	-1,703.01	-1,439.96	2,147.82	2,005.04	142.78	15.042	
4,238.00	4,218.33	4,365.51	4,363.22	14.95	130.81	78.41	-1,703.45	-1,439.96	2,146.30	2,000.56	145.73	14.728	
4,333.00	4,312.74	4,451.84	4,449.52	15.32	133.40	75.88	-1,704.41	-1,439.96	2,144.59	1,995.91	148.68	14.424	
4,427.00	4,406.05	4,564.59	4,562.05	15.69	136.78	78.59	-1,705.16	-1,439.96	2,142.47	1,990.03	152.44	14.055	
4,522.00	4,500.34	4,658.88	4,656.34	16.06	139.60	79.80	-1,705.16	-1,439.96	2,140.28	1,984.65	155.64	13.752	
4,616.00	4,593.47	4,751.82	4,749.25	16.44	142.39	78.01	-1,702.98	-1,439.96	2,136.41	1,977.61	158.80	13.454	

CC - Min centre to center distance or 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:	Plan #4	**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
4,710.00	4,686.44	4,836.98	4,834.38	16.82	144.94	79.05	-1,703.25	-1,439.96	2,133.81	1,972.08	161.73	13.194	
4,899.00	4,873.89	5,032.73	5,029.89	17.57	150.80	85.93	-1,705.16	-1,439.96	2,131.61	1,963.27	168.35	12.662	
4,962.00	4,936.56	5,095.41	5,092.56	17.81	152.68	88.44	-1,705.16	-1,439.96	2,131.29	1,960.82	170.47	12.503	
5,024.00	4,998.27	5,157.11	5,154.27	18.04	154.53	84.85	-1,705.16	-1,439.96	2,130.92	1,958.37	172.55	12.349	
5,150.00	5,123.66	5,279.83	5,276.95	18.53	158.21	86.20	-1,703.02	-1,439.96	2,128.65	1,951.94	176.71	12.046	
5,213.00	5,186.37	5,337.46	5,334.56	18.77	159.93	83.98	-1,703.25	-1,439.96	2,128.29	1,949.61	178.68	11.911	
5,276.00	5,249.09	5,395.13	5,392.22	19.01	161.66	84.99	-1,703.72	-1,439.96	2,128.02	1,947.38	180.65	11.780	
5,339.00	5,311.83	5,452.87	5,449.94	19.25	163.39	84.18	-1,704.42	-1,439.96	2,127.94	1,945.33	182.61	11.653	
5,401.00	5,373.58	5,532.72	5,529.58	19.48	165.79	86.86	-1,705.16	-1,439.96	2,127.87	1,942.62	185.25	11.487	
5,464.00	5,436.33	5,595.48	5,592.33	19.72	167.67	84.30	-1,705.16	-1,439.96	2,127.45	1,940.08	187.37	11.355	
5,590.00	5,561.87	5,721.02	5,717.87	20.19	171.43	83.28	-1,705.16	-1,439.96	2,126.28	1,934.67	191.60	11.097	
5,653.00	5,624.66	5,781.10	5,777.91	20.43	173.23	82.11	-1,703.02	-1,439.96	2,124.36	1,930.72	193.64	10.971	
5,715.00	5,686.48	5,838.04	5,834.84	20.66	174.93	77.26	-1,703.26	-1,439.96	2,123.67	1,928.09	195.58	10.859	
5,778.00	5,749.29	5,895.94	5,892.73	20.90	176.67	80.06	-1,703.73	-1,439.96	2,123.02	1,925.48	197.54	10.747	
5,841.00	5,812.10	5,953.88	5,950.64	21.13	178.41	77.87	-1,704.44	-1,439.96	2,122.54	1,923.02	199.51	10.639	
5,904.00	5,874.94	6,034.39	6,030.94	21.36	180.82	83.30	-1,705.16	-1,439.96	2,122.13	1,919.97	202.16	10.497	
5,967.00	5,937.80	6,097.25	6,093.80	21.60	182.70	84.94	-1,705.16	-1,439.96	2,121.70	1,917.42	204.28	10.386	
6,030.00	6,000.68	6,160.13	6,156.68	21.83	184.59	83.13	-1,705.16	-1,439.96	2,121.30	1,914.91	206.39	10.278	
6,093.00	6,063.59	6,223.04	6,219.59	22.05	186.47	86.88	-1,705.16	-1,439.96	2,121.00	1,912.49	208.51	10.172	
6,130.26	6,100.79	6,260.25	6,256.79	22.19	187.59	90.00	-1,705.16	-1,439.96	2,120.95	1,911.19	209.76	10.111	CC
6,156.00	6,126.51	6,285.96	6,282.51	22.28	188.36	92.24	-1,705.16	-1,439.96	2,120.97	1,910.35	210.62	10.070	
6,235.00	6,205.43	6,341.00	6,337.34	22.56	190.01	91.99	-1,705.16	-1,439.96	2,121.24	1,908.70	212.54	9.980	ES, SF
6,300.00	6,270.38	6,341.00	6,337.34	22.68	190.01	91.99	-1,705.16	-1,439.96	2,123.06	1,910.56	212.50	9.991	
6,355.00	6,325.34	6,341.00	6,337.34	22.69	190.01	91.99	-1,705.16	-1,439.96	2,126.15	1,913.93	212.22	10.019	
6,400.00	6,370.23	6,341.00	6,337.34	22.71	190.01	124.37	-1,705.16	-1,439.96	2,130.98	1,919.08	211.90	10.057	
6,450.00	6,419.74	6,341.00	6,337.34	22.73	190.01	131.33	-1,705.16	-1,439.96	2,140.32	1,928.86	211.45	10.122	
6,500.00	6,468.57	6,341.00	6,337.34	22.77	190.01	133.46	-1,705.16	-1,439.96	2,153.73	1,942.79	210.94	10.210	
6,550.00	6,516.42	6,341.00	6,337.34	22.81	190.01	133.93	-1,705.16	-1,439.96	2,171.07	1,960.71	210.37	10.320	
6,600.00	6,562.98	6,341.00	6,337.34	22.87	190.01	133.48	-1,705.16	-1,439.96	2,192.13	1,982.38	209.76	10.451	
6,650.00	6,607.98	6,341.00	6,337.34	22.95	190.01	132.38	-1,705.16	-1,439.96	2,216.68	2,007.55	209.13	10.600	
6,700.00	6,651.14	6,341.00	6,337.34	23.03	190.01	130.70	-1,705.16	-1,439.96	2,244.45	2,035.94	208.51	10.764	
6,750.00	6,692.18	6,341.00	6,337.34	23.14	190.01	128.45	-1,705.16	-1,439.96	2,275.16	2,067.25	207.91	10.943	
6,800.00	6,730.86	6,341.00	6,337.34	23.26	190.01	125.60	-1,705.16	-1,439.96	2,308.50	2,101.15	207.35	11.133	
6,850.00	6,766.93	6,341.00	6,337.34	23.40	190.01	122.10	-1,705.16	-1,439.96	2,344.16	2,137.31	206.86	11.332	
6,900.00	6,800.18	6,341.00	6,337.34	23.56	190.01	117.89	-1,705.16	-1,439.96	2,381.83	2,175.39	206.43	11.538	
6,950.00	6,830.39	6,341.00	6,337.34	23.74	190.01	112.92	-1,705.16	-1,439.96	2,421.17	2,215.08	206.09	11.748	
7,000.00	6,857.38	6,341.00	6,337.34	23.94	190.01	107.17	-1,705.16	-1,439.96	2,461.88	2,256.03	205.84	11.960	
7,050.00	6,880.98	6,341.00	6,337.34	24.17	190.01	100.67	-1,705.16	-1,439.96	2,503.64	2,297.95	205.69	12.172	
7,100.00	6,901.06	6,341.00	6,337.34	24.42	190.01	93.55	-1,705.16	-1,439.96	2,546.14	2,340.52	205.63	12.382	
7,150.00	6,917.47	6,341.00	6,337.34	24.70	190.01	86.04	-1,705.16	-1,439.96	2,589.10	2,383.44	205.66	12.589	
7,200.00	6,930.13	6,341.00	6,337.34	25.01	190.01	78.44	-1,705.16	-1,439.96	2,632.23	2,426.45	205.78	12.791	
7,250.00	6,938.95	6,341.00	6,337.34	25.34	190.01	71.06	-1,705.16	-1,439.96	2,675.27	2,469.28	205.99	12.987	
7,300.00	6,943.88	6,341.00	6,337.34	25.69	190.01	64.17	-1,705.16	-1,439.96	2,717.96	2,511.68	206.28	13.176	
7,337.82	6,945.00	6,341.00	6,337.34	25.97	190.01	59.38	-1,705.16	-1,439.96	2,749.87	2,543.32	206.55	13.314	
7,400.00	6,945.00	6,341.00	6,337.34	26.45	190.01	58.36	-1,705.16	-1,439.96	2,802.50	2,595.49	207.01	13.538	
7,492.38	6,945.00	6,341.00	6,337.34	27.21	190.01	56.64	-1,705.16	-1,439.96	2,882.47	2,674.81	207.66	13.880	
7,500.00	6,945.00	6,341.00	6,337.34	27.28	190.01	56.64	-1,705.16	-1,439.96	2,889.15	2,681.43	207.72	13.909	
7,600.00	6,945.00	6,341.00	6,337.34	28.17	190.01	56.64	-1,705.16	-1,439.96	2,977.23	2,768.85	208.38	14.288	
7,700.00	6,945.00	6,341.00	6,337.34	29.12	190.01	56.64	-1,705.16	-1,439.96	3,066.04	2,857.04	209.00	14.670	
7,800.00	6,945.00	6,341.00	6,337.34	30.14	190.01	56.64	-1,705.16	-1,439.96	3,155.52	2,945.94	209.58	15.056	
7,900.00	6,945.00	6,341.00	6,337.34	31.20	190.01	56.64	-1,705.16	-1,439.96	3,245.61	3,035.48	210.13	15.446	
8,000.00	6,945.00	6,341.00	6,337.34	32.31	190.01	56.64	-1,705.16	-1,439.96	3,336.27	3,125.63	210.64	15.838	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 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:	Plan #4	**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
8,100.00	6,945.00	6,341.00	6,337.34	33.46	190.01	56.64	-1,705.16	-1,439.96	3,427.45	3,216.32	211.13	16.234	
8,200.00	6,945.00	6,341.00	6,337.34	34.64	190.01	56.64	-1,705.16	-1,439.96	3,519.10	3,307.52	211.59	16.632	
8,300.00	6,945.00	6,341.00	6,337.34	35.86	190.01	56.64	-1,705.16	-1,439.96	3,611.21	3,399.18	212.02	17.032	
8,400.00	6,945.00	6,341.00	6,337.34	37.11	190.01	56.64	-1,705.16	-1,439.96	3,703.71	3,491.28	212.43	17.435	
8,500.00	6,945.00	6,341.00	6,337.34	38.39	190.01	56.64	-1,705.16	-1,439.96	3,796.60	3,583.78	212.82	17.839	
8,600.00	6,945.00	6,341.00	6,337.34	39.69	190.01	56.64	-1,705.16	-1,439.96	3,889.85	3,676.66	213.19	18.246	
8,700.00	6,945.00	6,341.00	6,337.34	41.01	190.01	56.64	-1,705.16	-1,439.96	3,983.42	3,769.88	213.54	18.654	
8,800.00	6,945.00	6,341.00	6,337.34	42.35	190.01	56.64	-1,705.16	-1,439.96	4,077.29	3,863.42	213.87	19.064	
8,900.00	6,945.00	6,341.00	6,337.34	43.71	190.01	56.64	-1,705.16	-1,439.96	4,171.45	3,957.26	214.19	19.475	
9,000.00	6,945.00	6,341.00	6,337.34	45.08	190.01	56.64	-1,705.16	-1,439.96	4,265.88	4,051.39	214.49	19.888	
9,100.00	6,945.00	6,341.00	6,337.34	46.47	190.01	56.64	-1,705.16	-1,439.96	4,360.55	4,145.77	214.78	20.302	
9,200.00	6,945.00	6,341.00	6,337.34	47.87	190.01	56.64	-1,705.16	-1,439.96	4,455.46	4,240.40	215.06	20.718	
9,300.00	6,945.00	6,341.00	6,337.34	49.29	190.01	56.64	-1,705.16	-1,439.96	4,550.58	4,335.26	215.32	21.134	
9,400.00	6,945.00	6,341.00	6,337.34	50.71	190.01	56.64	-1,705.16	-1,439.96	4,645.91	4,430.34	215.57	21.552	
9,500.00	6,945.00	6,341.00	6,337.34	52.15	190.01	56.64	-1,705.16	-1,439.96	4,741.44	4,525.62	215.81	21.970	
9,600.00	6,945.00	6,341.00	6,337.34	53.59	190.01	56.64	-1,705.16	-1,439.96	4,837.14	4,621.09	216.05	22.389	
9,700.00	6,945.00	6,341.00	6,337.34	55.05	190.01	56.64	-1,705.16	-1,439.96	4,933.01	4,716.74	216.27	22.809	
9,800.00	6,945.00	6,341.00	6,337.34	56.51	190.01	56.64	-1,705.16	-1,439.96	5,029.05	4,812.56	216.49	23.230	
9,900.00	6,945.00	6,341.00	6,337.34	57.98	190.01	56.64	-1,705.16	-1,439.96	5,125.24	4,908.54	216.69	23.652	
10,000.00	6,945.00	6,341.00	6,337.34	59.45	190.01	56.64	-1,705.16	-1,439.96	5,221.56	5,004.67	216.89	24.074	
10,100.00	6,945.00	6,341.00	6,337.34	60.93	190.01	56.64	-1,705.16	-1,439.96	5,318.03	5,100.94	217.09	24.497	
10,200.00	6,945.00	6,341.00	6,337.34	62.42	190.01	56.64	-1,705.16	-1,439.96	5,414.62	5,197.35	217.27	24.921	
10,300.00	6,945.00	6,341.00	6,337.34	63.92	190.01	56.64	-1,705.16	-1,439.96	5,511.34	5,293.88	217.46	25.345	
10,400.00	6,945.00	6,341.00	6,337.34	65.42	190.01	56.64	-1,705.16	-1,439.96	5,608.17	5,390.54	217.63	25.769	
10,500.00	6,945.00	6,341.00	6,337.34	66.92	190.01	56.64	-1,705.16	-1,439.96	5,705.11	5,487.31	217.80	26.194	
10,600.00	6,945.00	6,341.00	6,337.34	68.43	190.01	56.64	-1,705.16	-1,439.96	5,802.15	5,584.18	217.97	26.619	
10,700.00	6,945.00	6,341.00	6,337.34	69.94	190.01	56.64	-1,705.16	-1,439.96	5,899.29	5,681.16	218.13	27.045	
10,800.00	6,945.00	6,341.00	6,337.34	71.45	190.01	56.64	-1,705.16	-1,439.96	5,996.53	5,778.24	218.28	27.471	
10,900.00	6,945.00	6,341.00	6,337.34	72.97	190.01	56.64	-1,705.16	-1,439.96	6,093.85	5,875.42	218.44	27.898	
11,000.00	6,945.00	6,341.00	6,337.34	74.50	190.01	56.64	-1,705.16	-1,439.96	6,191.26	5,972.68	218.59	28.324	
11,100.00	6,945.00	6,341.00	6,337.34	76.02	190.01	56.64	-1,705.16	-1,439.96	6,288.76	6,070.03	218.73	28.751	
11,200.00	6,945.00	6,341.00	6,337.34	77.55	190.01	56.64	-1,705.16	-1,439.96	6,386.33	6,167.45	218.87	29.178	
11,300.00	6,945.00	6,341.00	6,337.34	79.08	190.01	56.64	-1,705.16	-1,439.96	6,483.97	6,264.96	219.01	29.606	
11,400.00	6,945.00	6,341.00	6,337.34	80.62	190.01	56.64	-1,705.16	-1,439.96	6,581.68	6,362.54	219.15	30.033	
11,500.00	6,945.00	6,341.00	6,337.34	82.16	190.01	56.64	-1,705.16	-1,439.96	6,679.47	6,460.19	219.28	30.461	
11,600.00	6,945.00	6,341.00	6,337.34	83.70	190.01	56.64	-1,705.16	-1,439.96	6,777.31	6,557.90	219.41	30.889	
11,700.00	6,945.00	6,341.00	6,337.34	85.24	190.01	56.64	-1,705.16	-1,439.96	6,875.22	6,655.68	219.54	31.317	
11,800.00	6,945.00	6,341.00	6,337.34	86.78	190.01	56.64	-1,705.16	-1,439.96	6,973.19	6,753.53	219.66	31.745	
11,900.00	6,945.00	6,341.00	6,337.34	88.33	190.01	56.64	-1,705.16	-1,439.96	7,071.21	6,851.43	219.79	32.173	
12,000.00	6,945.00	6,341.00	6,337.34	89.87	190.01	56.64	-1,705.16	-1,439.96	7,169.29	6,949.39	219.91	32.601	
12,100.00	6,945.00	6,341.00	6,337.34	91.42	190.01	56.64	-1,705.16	-1,439.96	7,267.43	7,047.40	220.03	33.030	
12,200.00	6,945.00	6,341.00	6,337.34	92.98	190.01	56.64	-1,705.16	-1,439.96	7,365.61	7,145.46	220.14	33.458	
12,300.00	6,945.00	6,341.00	6,337.34	94.53	190.01	56.64	-1,705.16	-1,439.96	7,463.84	7,243.58	220.26	33.887	
12,400.00	6,945.00	6,341.00	6,337.34	96.08	190.01	56.64	-1,705.16	-1,439.96	7,562.12	7,341.74	220.37	34.315	
12,500.00	6,945.00	6,341.00	6,337.34	97.64	190.01	56.64	-1,705.16	-1,439.96	7,660.44	7,439.95	220.49	34.743	
12,600.00	6,945.00	6,341.00	6,337.34	99.20	190.01	56.64	-1,705.16	-1,439.96	7,758.80	7,538.20	220.60	35.172	
12,700.00	6,945.00	6,341.00	6,337.34	100.76	190.01	56.64	-1,705.16	-1,439.96	7,857.21	7,636.50	220.71	35.600	
12,800.00	6,945.00	6,341.00	6,337.34	102.32	190.01	56.64	-1,705.16	-1,439.96	7,955.65	7,734.84	220.82	36.028	
12,900.00	6,945.00	6,341.00	6,337.34	103.88	190.01	56.64	-1,705.16	-1,439.96	8,054.14	7,833.21	220.92	36.457	
13,000.00	6,945.00	6,341.00	6,337.34	105.44	190.01	56.64	-1,705.16	-1,439.96	8,152.66	7,931.63	221.03	36.885	
13,100.00	6,945.00	6,341.00	6,337.34	107.00	190.01	56.64	-1,705.16	-1,439.96	8,251.21	8,030.08	221.13	37.313	
13,200.00	6,945.00	6,341.00	6,337.34	108.57	190.01	56.64	-1,705.16	-1,439.96	8,349.80	8,128.56	221.24	37.741	

CC - Min centre to center distance or 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:	Plan #4	**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
13,300.00	6,945.00	6,341.00	6,337.34	110.13	190.01	56.64	-1,705.16	-1,439.96	8,448.43	8,227.08	221.34	38.169	
13,400.00	6,945.00	6,341.00	6,337.34	111.70	190.01	56.64	-1,705.16	-1,439.96	8,547.08	8,325.64	221.44	38.597	
13,500.00	6,945.00	6,341.00	6,337.34	113.27	190.01	56.64	-1,705.16	-1,439.96	8,645.77	8,424.22	221.55	39.025	
13,600.00	6,945.00	6,341.00	6,337.34	114.84	190.01	56.64	-1,705.16	-1,439.96	8,744.48	8,522.84	221.65	39.452	
13,700.00	6,945.00	6,341.00	6,337.34	116.41	190.01	56.64	-1,705.16	-1,439.96	8,843.23	8,621.48	221.75	39.880	
13,800.00	6,945.00	6,341.00	6,337.34	117.98	190.01	56.64	-1,705.16	-1,439.96	8,942.00	8,720.16	221.85	40.307	
13,900.00	6,945.00	6,341.00	6,337.34	119.55	190.01	56.64	-1,705.16	-1,439.96	9,040.80	8,818.86	221.95	40.734	
14,000.00	6,945.00	6,341.00	6,337.34	121.12	190.01	56.64	-1,705.16	-1,439.96	9,139.63	8,917.59	222.04	41.161	
14,100.00	6,945.00	6,341.00	6,337.34	122.69	190.01	56.64	-1,705.16	-1,439.96	9,238.48	9,016.34	222.14	41.588	
14,200.00	6,945.00	6,341.00	6,337.34	124.27	190.01	56.64	-1,705.16	-1,439.96	9,337.36	9,115.12	222.24	42.015	
14,300.00	6,945.00	6,341.00	6,337.34	125.84	190.01	56.64	-1,705.16	-1,439.96	9,436.26	9,213.92	222.33	42.442	
14,400.00	6,945.00	6,341.00	6,337.34	127.41	190.01	56.64	-1,705.16	-1,439.96	9,535.18	9,312.75	222.43	42.868	
14,500.00	6,945.00	6,341.00	6,337.34	128.99	190.01	56.64	-1,705.16	-1,439.96	9,634.12	9,411.60	222.53	43.294	
14,600.00	6,945.00	6,341.00	6,337.34	130.57	190.01	56.64	-1,705.16	-1,439.96	9,733.09	9,510.47	222.62	43.720	
14,700.00	6,945.00	6,341.00	6,337.34	132.14	190.01	56.64	-1,705.16	-1,439.96	9,832.08	9,609.36	222.72	44.146	
14,800.00	6,945.00	6,341.00	6,337.34	133.72	190.01	56.64	-1,705.16	-1,439.96	9,931.08	9,708.27	222.81	44.572	
14,900.00	6,945.00	6,341.00	6,337.34	135.30	190.01	56.64	-1,705.16	-1,439.96	10,030.11	9,807.20	222.91	44.997	
15,000.00	6,945.00	6,341.00	6,337.34	136.87	190.01	56.64	-1,705.16	-1,439.96	10,129.16	9,906.16	223.00	45.422	
15,100.00	6,945.00	6,341.00	6,337.34	138.45	190.01	56.64	-1,705.16	-1,439.96	10,228.22	10,005.13	223.10	45.847	
15,200.00	6,945.00	6,341.00	6,337.34	140.03	190.01	56.64	-1,705.16	-1,439.96	10,327.31	10,104.12	223.19	46.272	
15,300.00	6,945.00	6,341.00	6,337.34	141.61	190.01	56.64	-1,705.16	-1,439.96	10,426.41	10,203.12	223.28	46.696	
15,400.00	6,945.00	6,341.00	6,337.34	143.19	190.01	56.64	-1,705.16	-1,439.96	10,525.52	10,302.15	223.38	47.120	
15,500.00	6,945.00	6,341.00	6,337.34	144.77	190.01	56.64	-1,705.16	-1,439.96	10,624.66	10,401.19	223.47	47.544	
15,600.00	6,945.00	6,341.00	6,337.34	146.35	190.01	56.64	-1,705.16	-1,439.96	10,723.81	10,500.25	223.56	47.968	
15,700.00	6,945.00	6,341.00	6,337.34	147.94	190.01	56.64	-1,705.16	-1,439.96	10,822.97	10,599.32	223.66	48.391	
15,800.00	6,945.00	6,341.00	6,337.34	149.52	190.01	56.64	-1,705.16	-1,439.96	10,922.15	10,698.41	223.75	48.814	
15,900.00	6,945.00	6,341.00	6,337.34	151.10	190.01	56.64	-1,705.16	-1,439.96	11,021.35	10,797.51	223.84	49.237	
16,000.00	6,945.00	6,341.00	6,337.34	152.68	190.01	56.64	-1,705.16	-1,439.96	11,120.56	10,896.63	223.93	49.660	
16,100.00	6,945.00	6,341.00	6,337.34	154.26	190.01	56.64	-1,705.16	-1,439.96	11,219.78	10,995.76	224.03	50.082	
16,200.00	6,945.00	6,341.00	6,337.34	155.85	190.01	56.64	-1,705.16	-1,439.96	11,319.02	11,094.90	224.12	50.504	
16,300.00	6,945.00	6,341.00	6,337.34	157.43	190.01	56.64	-1,705.16	-1,439.96	11,418.27	11,194.06	224.21	50.926	
16,400.00	6,945.00	6,341.00	6,337.34	159.02	190.01	56.64	-1,705.16	-1,439.96	11,517.54	11,293.23	224.30	51.348	
16,500.00	6,945.00	6,341.00	6,337.34	160.60	190.01	56.64	-1,705.16	-1,439.96	11,616.81	11,392.42	224.40	51.769	
16,600.00	6,945.00	6,341.00	6,337.34	162.18	190.01	56.64	-1,705.16	-1,439.96	11,716.10	11,491.61	224.49	52.190	
16,700.00	6,945.00	6,341.00	6,337.34	163.77	190.01	56.64	-1,705.16	-1,439.96	11,815.40	11,590.82	224.58	52.610	
16,800.00	6,945.00	6,341.00	6,337.34	165.35	190.01	56.64	-1,705.16	-1,439.96	11,914.72	11,690.04	224.68	53.031	
16,900.00	6,945.00	6,341.00	6,337.34	166.94	190.01	56.64	-1,705.16	-1,439.96	12,014.04	11,789.27	224.77	53.451	
17,000.00	6,945.00	6,341.00	6,337.34	168.53	190.01	56.64	-1,705.16	-1,439.96	12,113.38	11,888.51	224.86	53.870	
17,100.00	6,945.00	6,341.00	6,337.34	170.11	190.01	56.64	-1,705.16	-1,439.96	12,212.72	11,987.77	224.95	54.290	
17,200.00	6,945.00	6,341.00	6,337.34	171.70	190.01	56.64	-1,705.16	-1,439.96	12,312.08	12,087.03	225.05	54.709	
17,300.00	6,945.00	6,341.00	6,337.34	173.29	190.01	56.64	-1,705.16	-1,439.96	12,411.45	12,186.31	225.14	55.128	
17,400.00	6,945.00	6,341.00	6,337.34	174.87	190.01	56.64	-1,705.16	-1,439.96	12,510.82	12,285.59	225.23	55.546	
17,500.00	6,945.00	6,341.00	6,337.34	176.46	190.01	56.64	-1,705.16	-1,439.96	12,610.21	12,384.88	225.33	55.964	
17,600.00	6,945.00	6,341.00	6,337.34	178.05	190.01	56.64	-1,705.16	-1,439.96	12,709.61	12,484.19	225.42	56.382	
17,700.00	6,945.00	6,341.00	6,337.34	179.63	190.01	56.64	-1,705.16	-1,439.96	12,809.01	12,583.50	225.51	56.799	
17,800.00	6,945.00	6,341.00	6,337.34	181.22	190.01	56.64	-1,705.16	-1,439.96	12,908.43	12,682.82	225.61	57.216	
17,900.00	6,945.00	6,341.00	6,337.34	182.81	190.01	56.64	-1,705.16	-1,439.96	13,007.85	12,782.15	225.70	57.633	
18,000.00	6,945.00	6,341.00	6,337.34	184.40	190.01	56.64	-1,705.16	-1,439.96	13,107.28	12,881.49	225.79	58.050	
18,100.00	6,945.00	6,341.00	6,337.34	185.99	190.01	56.64	-1,705.16	-1,439.96	13,206.73	12,980.84	225.89	58.466	
18,200.00	6,945.00	6,341.00	6,337.34	187.58	190.01	56.64	-1,705.16	-1,439.96	13,306.18	13,080.19	225.98	58.881	
18,300.00	6,945.00	6,341.00	6,337.34	189.16	190.01	56.64	-1,705.16	-1,439.96	13,405.63	13,179.56	226.08	59.297	
18,400.00	6,945.00	6,341.00	6,337.34	190.75	190.01	56.64	-1,705.16	-1,439.96	13,505.10	13,278.93	226.17	59.712	

CC - Min centre to center distance or 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:	Plan #4	**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
18,500.00	6,945.00	6,341.00	6,337.34	192.34	190.01	56.64	-1,705.16	-1,439.96	13,604.57	13,378.31	226.27	60.126	
18,600.00	6,945.00	6,341.00	6,337.34	193.93	190.01	56.64	-1,705.16	-1,439.96	13,704.05	13,477.69	226.36	60.541	
18,700.00	6,945.00	6,341.00	6,337.34	195.52	190.01	56.64	-1,705.16	-1,439.96	13,803.54	13,577.09	226.46	60.955	
18,800.00	6,945.00	6,341.00	6,337.34	197.11	190.01	56.64	-1,705.16	-1,439.96	13,903.04	13,676.49	226.55	61.368	
18,900.00	6,945.00	6,341.00	6,337.34	198.70	190.01	56.64	-1,705.16	-1,439.96	14,002.54	13,775.90	226.65	61.781	
19,000.00	6,945.00	6,341.00	6,337.34	200.29	190.01	56.64	-1,705.16	-1,439.96	14,102.05	13,875.31	226.74	62.194	
19,100.00	6,945.00	6,341.00	6,337.34	201.88	190.01	56.64	-1,705.16	-1,439.96	14,201.57	13,974.73	226.84	62.607	
19,200.00	6,945.00	6,341.00	6,337.34	203.47	190.01	56.64	-1,705.16	-1,439.96	14,301.10	14,074.16	226.93	63.019	
19,300.00	6,945.00	6,341.00	6,337.34	205.06	190.01	56.64	-1,705.16	-1,439.96	14,400.63	14,173.60	227.03	63.431	
19,400.00	6,945.00	6,341.00	6,337.34	206.65	190.01	56.64	-1,705.16	-1,439.96	14,500.16	14,273.04	227.13	63.842	
19,500.00	6,945.00	6,341.00	6,337.34	208.24	190.01	56.64	-1,705.16	-1,439.96	14,599.71	14,372.48	227.22	64.253	
19,600.00	6,945.00	6,341.00	6,337.34	209.84	190.01	56.64	-1,705.16	-1,439.96	14,699.26	14,471.94	227.32	64.664	
19,700.00	6,945.00	6,341.00	6,337.34	211.43	190.01	56.64	-1,705.16	-1,439.96	14,798.81	14,571.40	227.42	65.074	
19,800.00	6,945.00	6,341.00	6,337.34	213.02	190.01	56.64	-1,705.16	-1,439.96	14,898.37	14,670.86	227.51	65.484	
19,900.00	6,945.00	6,341.00	6,337.34	214.61	190.01	56.64	-1,705.16	-1,439.96	14,997.94	14,770.33	227.61	65.893	
20,000.00	6,945.00	6,341.00	6,337.34	216.20	190.01	56.64	-1,705.16	-1,439.96	15,097.51	14,869.81	227.71	66.302	
20,100.00	6,945.00	6,341.00	6,337.34	217.79	190.01	56.64	-1,705.16	-1,439.96	15,197.09	14,969.29	227.80	66.711	
20,200.00	6,945.00	6,341.00	6,337.34	219.38	190.01	56.64	-1,705.16	-1,439.96	15,296.68	15,068.77	227.90	67.119	
20,300.00	6,945.00	6,341.00	6,337.34	220.98	190.01	56.64	-1,705.16	-1,439.96	15,396.27	15,168.27	228.00	67.527	
20,400.00	6,945.00	6,341.00	6,337.34	222.57	190.01	56.64	-1,705.16	-1,439.96	15,495.86	15,267.76	228.10	67.935	
20,500.00	6,945.00	6,341.00	6,337.34	224.16	190.01	56.64	-1,705.16	-1,439.96	15,595.46	15,367.26	228.20	68.342	
20,600.00	6,945.00	6,341.00	6,337.34	225.75	190.01	56.64	-1,705.16	-1,439.96	15,695.07	15,466.77	228.30	68.749	
20,700.00	6,945.00	6,341.00	6,337.34	227.35	190.01	56.64	-1,705.16	-1,439.96	15,794.68	15,566.28	228.40	69.155	
20,800.00	6,945.00	6,341.00	6,337.34	228.94	190.01	56.64	-1,705.16	-1,439.96	15,894.29	15,665.80	228.49	69.561	
20,852.96	6,945.00	6,341.00	6,337.34	229.61	190.01	56.64	-1,705.16	-1,439.96	15,947.05	15,714.53	232.52	68.584	

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:	Plan #4	**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)	Rule Assigned: 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				
20.93	20.93	50.26	50.26	0.00	0.03	-25.79	-1,605.88	374.84	1,649.00				
117.41	117.41	145.72	145.72	0.05	0.13	-30.36	-1,605.73	375.08	1,648.52	1,648.39	0.13	N/A	
206.68	206.68	232.76	232.76	0.17	0.24	-4.48	-1,605.65	375.63	1,648.21	1,647.91	0.30	5,534.862	
292.93	292.93	318.74	318.73	0.28	0.35	-5.06	-1,605.56	376.50	1,647.78	1,647.31	0.47	3,523.592	
365.00	364.99	389.33	389.31	0.36	0.44	-35.78	-1,605.47	377.40	1,647.38	1,646.79	0.59	2,800.304	
451.00	450.97	475.19	475.17	0.55	0.55	17.50	-1,605.41	378.60	1,645.71	1,644.87	0.84	1,948.233	
540.00	539.81	564.43	564.40	0.83	0.67	23.08	-1,605.31	379.81	1,641.05	1,639.86	1.19	1,373.346	
665.00	664.37	688.22	688.18	1.26	0.83	25.53	-1,605.20	381.55	1,631.82	1,630.11	1.71	952.965	
753.00	752.01	775.17	775.12	1.58	0.94	24.61	-1,605.13	382.91	1,624.84	1,622.75	2.08	779.763	
847.00	845.61	865.84	865.78	1.93	1.06	27.72	-1,605.13	384.36	1,617.43	1,614.94	2.48	651.351	
939.00	937.22	955.03	954.96	2.27	1.17	28.06	-1,605.36	385.76	1,610.41	1,607.54	2.88	559.250	
1,030.00	1,027.78	1,046.24	1,046.15	2.62	1.29	16.63	-1,605.60	387.21	1,602.71	1,599.43	3.28	488.813	
1,120.00	1,117.25	1,135.49	1,135.40	2.96	1.40	19.61	-1,605.86	388.53	1,593.98	1,590.31	3.68	433.594	
1,211.00	1,207.68	1,225.73	1,225.62	3.31	1.52	16.99	-1,606.18	389.69	1,584.89	1,580.81	4.08	388.512	
1,306.00	1,302.14	1,322.68	1,322.57	3.68	1.64	18.92	-1,606.49	390.81	1,575.81	1,571.30	4.50	350.016	
1,400.00	1,395.63	1,422.00	1,421.88	4.04	1.77	20.27	-1,606.54	391.83	1,566.92	1,562.00	4.92	318.683	
1,495.00	1,490.19	1,517.76	1,517.64	4.40	1.89	19.65	-1,606.40	392.69	1,558.35	1,553.02	5.33	292.611	
1,589.00	1,583.83	1,613.65	1,613.52	4.76	2.02	17.25	-1,606.18	393.43	1,550.46	1,544.73	5.73	270.741	
1,684.00	1,678.44	1,712.06	1,711.93	5.12	2.12	19.75	-1,605.94	393.74	1,542.17	1,536.04	6.13	251.755	
1,779.00	1,772.98	1,806.82	1,806.70	5.48	2.09	24.35	-1,605.63	393.27	1,533.08	1,526.55	6.52	235.017	
1,873.00	1,866.49	1,904.62	1,904.49	5.84	2.08	26.01	-1,605.22	392.84	1,523.97	1,517.04	6.92	220.088	
1,967.00	1,960.05	2,003.81	2,003.67	6.20	2.11	30.85	-1,604.44	392.59	1,515.16	1,507.83	7.33	206.641	
2,062.00	2,054.59	2,099.53	2,099.39	6.56	2.15	25.65	-1,603.43	392.32	1,505.91	1,498.16	7.75	194.250	
2,156.00	2,148.09	2,194.13	2,193.98	6.92	2.20	25.11	-1,602.36	392.02	1,496.03	1,487.85	8.18	182.972	
2,251.00	2,242.55	2,285.28	2,285.13	7.29	2.24	26.64	-1,601.43	391.62	1,485.96	1,477.35	8.61	172.628	
2,345.00	2,336.00	2,377.03	2,376.87	7.65	2.28	20.79	-1,600.70	391.09	1,475.76	1,466.72	9.04	163.263	
2,440.00	2,430.43	2,472.22	2,472.06	8.02	2.31	18.29	-1,599.94	390.53	1,465.13	1,455.65	9.48	154.567	
2,535.00	2,524.86	2,569.62	2,569.45	8.38	2.35	19.74	-1,599.05	389.61	1,454.35	1,444.43	9.92	146.611	
2,629.00	2,618.31	2,661.86	2,661.68	8.75	2.37	19.92	-1,598.28	388.26	1,443.73	1,433.38	10.35	139.495	
2,724.00	2,712.77	2,754.04	2,753.84	9.12	2.40	20.87	-1,597.62	386.77	1,433.25	1,422.47	10.78	132.936	
2,818.00	2,806.24	2,849.08	2,848.87	9.48	2.42	21.64	-1,596.98	385.37	1,423.09	1,411.88	11.21	126.934	
2,913.00	2,900.71	2,937.09	2,936.87	9.84	2.46	24.04	-1,596.45	384.20	1,413.13	1,401.49	11.64	121.377	
3,008.00	2,995.25	3,024.26	3,024.04	10.21	2.48	19.75	-1,596.38	383.28	1,404.15	1,392.09	12.06	116.435	
3,102.00	3,088.80	3,105.70	3,105.47	10.57	2.48	20.11	-1,596.77	382.80	1,395.86	1,383.41	12.45	112.145	
3,197.00	3,183.30	3,200.23	3,200.00	10.93	2.49	23.23	-1,597.60	382.52	1,387.58	1,374.76	12.83	108.193	
3,291.00	3,276.71	3,294.15	3,293.91	11.30	2.51	17.28	-1,598.49	382.21	1,378.57	1,365.36	13.20	104.398	
3,386.00	3,371.01	3,389.41	3,389.17	11.67	2.52	16.29	-1,599.29	381.67	1,368.21	1,354.61	13.60	100.617	
3,480.00	3,464.23	3,483.99	3,483.75	12.04	2.55	17.80	-1,599.96	381.06	1,357.26	1,343.27	13.99	96.993	
3,575.00	3,558.47	3,589.97	3,589.72	12.42	2.60	19.47	-1,600.15	380.55	1,345.96	1,331.56	14.41	93.408	
3,670.00	3,652.84	3,684.82	3,684.58	12.79	2.67	20.55	-1,599.96	380.32	1,335.44	1,320.59	14.84	89.974	
3,764.00	3,746.36	3,773.60	3,773.35	13.15	2.73	23.84	-1,599.84	380.22	1,326.53	1,311.26	15.26	86.902	
3,859.00	3,840.97	3,857.27	3,857.03	13.51	2.76	27.73	-1,600.25	380.05	1,319.24	1,303.58	15.66	84.247	
3,954.00	3,935.57	3,940.96	3,940.70	13.87	2.79	27.95	-1,601.49	379.78	1,312.84	1,296.78	16.05	81.773	
4,049.00	4,030.14	4,034.54	4,034.26	14.23	2.84	19.04	-1,603.27	379.36	1,306.28	1,289.83	16.45	79.402	
4,143.00	4,123.75	4,127.43	4,127.13	14.59	2.88	20.26	-1,605.01	378.85	1,299.91	1,283.06	16.85	77.162	
4,238.00	4,218.33	4,218.45	4,218.13	14.95	2.93	20.71	-1,606.93	378.15	1,293.41	1,276.16	17.25	74.976	
4,333.00	4,312.74	4,308.78	4,308.43	15.32	2.98	18.14	-1,609.24	377.01	1,285.68	1,268.02	17.66	72.795	
4,427.00	4,406.05	4,404.97	4,404.57	15.69	3.05	20.79	-1,611.84	375.69	1,277.31	1,259.24	18.07	70.681	
4,522.00	4,500.34	4,509.47	4,509.04	16.06	3.12	21.98	-1,614.04	374.53	1,268.38	1,249.89	18.49	68.605	
4,616.00	4,593.47	4,605.10	4,604.66	16.44	3.18	20.07	-1,615.52	373.65	1,257.78	1,238.88	18.91	66.531	
4,710.00	4,686.44	4,700.28	4,699.83	16.82	3.25	21.06	-1,616.77	372.81	1,245.90	1,226.58	19.33	64.468	

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:	Plan #4	**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
4,899.00	4,873.89	4,888.70	4,888.23	17.57	3.40	27.85	-1,619.08	371.66	1,226.04	1,205.87	20.18	60.770	
4,962.00	4,936.56	4,952.11	4,951.63	17.81	3.46	30.34	-1,619.79	371.43	1,221.14	1,200.68	20.46	59.689	
5,024.00	4,998.27	5,014.75	5,014.26	18.04	3.51	26.74	-1,620.52	371.15	1,216.49	1,195.76	20.74	58.661	
5,150.00	5,123.66	5,140.69	5,140.20	18.53	3.62	28.00	-1,621.96	370.84	1,206.94	1,185.63	21.31	56.637	
5,213.00	5,186.37	5,203.74	5,203.25	18.77	3.67	25.76	-1,622.60	370.75	1,202.21	1,180.61	21.60	55.665	
5,276.00	5,249.09	5,266.63	5,266.13	19.01	3.73	26.77	-1,623.21	370.71	1,197.45	1,175.56	21.89	54.714	
5,339.00	5,311.83	5,328.28	5,327.78	19.25	3.79	25.94	-1,623.83	370.77	1,192.94	1,170.76	22.17	53.797	
5,401.00	5,373.58	5,391.98	5,391.47	19.48	3.84	28.59	-1,624.49	370.88	1,188.62	1,166.16	22.46	52.922	
5,464.00	5,436.33	5,453.35	5,452.84	19.72	3.90	25.97	-1,625.09	370.96	1,184.33	1,161.58	22.75	52.057	
5,590.00	5,561.87	5,574.73	5,574.21	20.19	4.02	24.89	-1,626.50	370.90	1,176.03	1,152.69	23.33	50.401	
5,653.00	5,624.66	5,633.70	5,633.17	20.43	4.08	23.64	-1,627.45	370.72	1,172.27	1,148.65	23.63	49.620	
5,715.00	5,686.48	5,693.56	5,693.03	20.66	4.14	18.76	-1,628.50	370.24	1,168.92	1,145.01	23.91	48.888	
5,778.00	5,749.29	5,758.91	5,758.36	20.90	4.20	21.59	-1,629.66	369.54	1,165.46	1,141.27	24.20	48.164	
5,841.00	5,812.10	5,821.31	5,820.75	21.13	4.26	19.40	-1,630.73	368.94	1,161.92	1,137.43	24.49	47.450	
5,904.00	5,874.94	5,884.18	5,883.60	21.36	4.33	24.83	-1,631.84	368.16	1,158.74	1,133.97	24.78	46.768	
5,967.00	5,937.80	5,947.06	5,946.47	21.60	4.39	26.50	-1,632.94	367.39	1,156.02	1,130.95	25.07	46.120	
6,030.00	6,000.68	6,009.97	6,009.36	21.83	4.45	24.69	-1,634.05	366.61	1,153.61	1,128.26	25.35	45.501	
6,093.00	6,063.59	6,072.89	6,072.27	22.05	4.52	28.48	-1,635.15	365.83	1,151.60	1,125.96	25.64	44.912	
6,156.00	6,126.51	6,125.00	6,124.37	22.28	4.57	33.86	-1,636.07	365.19	1,149.99	1,124.06	25.93	44.349	
6,171.09	6,141.58	6,125.00	6,124.37	22.33	4.57	33.81	-1,636.07	365.19	1,149.88	1,123.88	26.00	44.223	CC, ES
6,235.00	6,205.43	6,125.00	6,124.37	22.56	4.57	33.55	-1,636.07	365.19	1,151.88	1,125.59	26.29	43.808	
6,300.00	6,270.38	6,125.00	6,124.37	22.68	4.57	33.55	-1,636.07	365.19	1,157.77	1,131.30	26.47	43.735	SF
6,355.00	6,325.34	6,125.00	6,124.37	22.69	4.57	33.55	-1,636.07	365.19	1,165.57	1,139.06	26.51	43.970	
6,400.00	6,370.23	6,125.00	6,124.37	22.71	4.57	65.46	-1,636.07	365.19	1,173.64	1,147.11	26.53	44.235	
6,450.00	6,419.74	6,125.00	6,124.37	22.73	4.57	72.01	-1,636.07	365.19	1,184.08	1,157.52	26.56	44.587	
6,500.00	6,468.57	6,125.00	6,124.37	22.77	4.57	73.85	-1,636.07	365.19	1,195.97	1,169.39	26.58	44.995	
6,550.00	6,516.42	6,125.00	6,124.37	22.81	4.57	74.17	-1,636.07	365.19	1,209.19	1,182.59	26.60	45.455	
6,600.00	6,562.98	6,125.00	6,124.37	22.87	4.57	73.79	-1,636.07	365.19	1,223.62	1,196.99	26.63	45.957	
6,650.00	6,607.98	6,125.00	6,124.37	22.95	4.57	72.99	-1,636.07	365.19	1,239.13	1,212.48	26.65	46.491	
6,700.00	6,651.14	6,125.00	6,124.37	23.03	4.57	71.92	-1,636.07	365.19	1,255.59	1,228.90	26.69	47.048	
6,750.00	6,692.18	6,125.00	6,124.37	23.14	4.57	70.66	-1,636.07	365.19	1,272.85	1,246.12	26.73	47.612	
6,800.00	6,730.86	6,125.00	6,124.37	23.26	4.57	69.26	-1,636.07	365.19	1,290.79	1,264.00	26.80	48.171	
6,850.00	6,766.93	6,125.00	6,124.37	23.40	4.57	67.77	-1,636.07	365.19	1,309.27	1,282.39	26.88	48.712	
6,900.00	6,800.18	6,125.00	6,124.37	23.56	4.57	66.21	-1,636.07	365.19	1,328.14	1,301.16	26.98	49.223	
6,950.00	6,830.39	6,125.00	6,124.37	23.74	4.57	64.61	-1,636.07	365.19	1,347.29	1,320.18	27.11	49.691	
7,000.00	6,857.38	6,125.00	6,124.37	23.94	4.57	62.99	-1,636.07	365.19	1,366.58	1,339.31	27.27	50.108	
7,050.00	6,880.98	6,125.00	6,124.37	24.17	4.57	61.38	-1,636.07	365.19	1,385.90	1,358.43	27.46	50.467	
7,100.00	6,901.06	6,125.00	6,124.37	24.42	4.57	59.78	-1,636.07	365.19	1,405.11	1,377.43	27.68	50.765	
7,150.00	6,917.47	6,125.00	6,124.37	24.70	4.57	58.21	-1,636.07	365.19	1,424.12	1,396.19	27.92	50.998	
7,200.00	6,930.13	6,125.00	6,124.37	25.01	4.57	56.69	-1,636.07	365.19	1,442.81	1,414.61	28.20	51.169	
7,250.00	6,938.95	6,125.00	6,124.37	25.34	4.57	55.21	-1,636.07	365.19	1,461.08	1,432.59	28.49	51.281	
7,300.00	6,943.88	6,125.00	6,124.37	25.69	4.57	53.81	-1,636.07	365.19	1,478.84	1,450.03	28.81	51.337	
7,337.82	6,945.00	6,125.00	6,124.37	25.97	4.57	52.78	-1,636.07	365.19	1,491.88	1,462.82	29.05	51.347	
7,400.00	6,945.00	6,125.00	6,124.37	26.45	4.57	52.49	-1,636.07	365.19	1,514.63	1,485.16	29.47	51.389	
7,492.38	6,945.00	6,125.00	6,124.37	27.21	4.57	51.95	-1,636.07	365.19	1,554.20	1,524.11	30.09	51.654	
7,500.00	6,945.00	6,125.00	6,124.37	27.28	4.57	51.95	-1,636.07	365.19	1,557.75	1,527.61	30.14	51.685	
7,600.00	6,945.00	6,125.00	6,124.37	28.17	4.57	51.95	-1,636.07	365.19	1,606.96	1,576.19	30.77	52.222	
7,700.00	6,945.00	6,125.00	6,124.37	29.12	4.57	51.95	-1,636.07	365.19	1,660.73	1,629.37	31.36	52.950	
7,800.00	6,945.00	6,125.00	6,124.37	30.14	4.57	51.95	-1,636.07	365.19	1,718.65	1,686.74	31.91	53.855	
7,900.00	6,945.00	6,125.00	6,124.37	31.20	4.57	51.95	-1,636.07	365.19	1,780.31	1,747.89	32.41	54.924	
8,000.00	6,945.00	6,125.00	6,124.37	32.31	4.57	51.95	-1,636.07	365.19	1,845.32	1,812.45	32.87	56.140	
8,100.00	6,945.00	6,125.00	6,124.37	33.46	4.57	51.95	-1,636.07	365.19	1,913.36	1,880.08	33.28	57.489	

CC - Min centre to center distance or 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:	Plan #4	**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
8,200.00	6,945.00	6,125.00	6,124.37	34.64	4.57	51.95	-1,636.07	365.19	1,984.10	1,950.45	33.65	58.956	
8,300.00	6,945.00	6,125.00	6,124.37	35.86	4.57	51.95	-1,636.07	365.19	2,057.28	2,023.29	33.99	60.528	
8,400.00	6,945.00	6,125.00	6,124.37	37.11	4.57	51.95	-1,636.07	365.19	2,132.63	2,098.34	34.29	62.194	
8,500.00	6,945.00	6,125.00	6,124.37	38.39	4.57	51.95	-1,636.07	365.19	2,209.94	2,175.38	34.56	63.943	
8,600.00	6,945.00	6,125.00	6,124.37	39.69	4.57	51.95	-1,636.07	365.19	2,289.01	2,254.20	34.81	65.766	
8,700.00	6,945.00	6,125.00	6,124.37	41.01	4.57	51.95	-1,636.07	365.19	2,369.66	2,334.63	35.03	67.655	
8,800.00	6,945.00	6,125.00	6,124.37	42.35	4.57	51.95	-1,636.07	365.19	2,451.74	2,416.51	35.23	69.602	
8,900.00	6,945.00	6,125.00	6,124.37	43.71	4.57	51.95	-1,636.07	365.19	2,535.10	2,499.69	35.41	71.600	
9,000.00	6,945.00	6,125.00	6,124.37	45.08	4.57	51.95	-1,636.07	365.19	2,619.63	2,584.06	35.57	73.645	
9,100.00	6,945.00	6,125.00	6,124.37	46.47	4.57	51.95	-1,636.07	365.19	2,705.22	2,669.49	35.72	75.730	
9,200.00	6,945.00	6,125.00	6,124.37	47.87	4.57	51.95	-1,636.07	365.19	2,791.76	2,755.90	35.86	77.853	
9,300.00	6,945.00	6,125.00	6,124.37	49.29	4.57	51.95	-1,636.07	365.19	2,879.17	2,843.19	35.99	80.007	
9,400.00	6,945.00	6,125.00	6,124.37	50.71	4.57	51.95	-1,636.07	365.19	2,967.38	2,931.28	36.10	82.191	
9,500.00	6,945.00	6,125.00	6,124.37	52.15	4.57	51.95	-1,636.07	365.19	3,056.32	3,020.11	36.21	84.400	
9,600.00	6,945.00	6,125.00	6,124.37	53.59	4.57	51.95	-1,636.07	365.19	3,145.92	3,109.61	36.31	86.633	
9,700.00	6,945.00	6,125.00	6,124.37	55.05	4.57	51.95	-1,636.07	365.19	3,236.13	3,199.72	36.41	88.886	
9,800.00	6,945.00	6,125.00	6,124.37	56.51	4.57	51.95	-1,636.07	365.19	3,326.90	3,290.40	36.50	91.157	
9,900.00	6,945.00	6,125.00	6,124.37	57.98	4.57	51.95	-1,636.07	365.19	3,418.19	3,381.61	36.58	93.444	
10,000.00	6,945.00	6,125.00	6,124.37	59.45	4.57	51.95	-1,636.07	365.19	3,509.95	3,473.29	36.66	95.746	
10,100.00	6,945.00	6,125.00	6,124.37	60.93	4.57	51.95	-1,636.07	365.19	3,602.14	3,565.41	36.73	98.060	
10,200.00	6,945.00	6,125.00	6,124.37	62.42	4.57	51.95	-1,636.07	365.19	3,694.75	3,657.94	36.81	100.386	
10,300.00	6,945.00	6,125.00	6,124.37	63.92	4.57	51.95	-1,636.07	365.19	3,787.73	3,750.85	36.87	102.721	
10,400.00	6,945.00	6,125.00	6,124.37	65.42	4.57	51.95	-1,636.07	365.19	3,881.06	3,844.12	36.94	105.064	
10,500.00	6,945.00	6,125.00	6,124.37	66.92	4.57	51.95	-1,636.07	365.19	3,974.71	3,937.71	37.00	107.415	
10,600.00	6,945.00	6,125.00	6,124.37	68.43	4.57	51.95	-1,636.07	365.19	4,068.67	4,031.60	37.06	109.773	
10,700.00	6,945.00	6,125.00	6,124.37	69.94	4.57	51.95	-1,636.07	365.19	4,162.91	4,125.78	37.12	112.135	
10,800.00	6,945.00	6,125.00	6,124.37	71.45	4.57	51.95	-1,636.07	365.19	4,257.41	4,220.23	37.18	114.502	
10,900.00	6,945.00	6,125.00	6,124.37	72.97	4.57	51.95	-1,636.07	365.19	4,352.15	4,314.92	37.24	116.873	
11,000.00	6,945.00	6,125.00	6,124.37	74.50	4.57	51.95	-1,636.07	365.19	4,447.13	4,409.84	37.29	119.247	
11,100.00	6,945.00	6,125.00	6,124.37	76.02	4.57	51.95	-1,636.07	365.19	4,542.32	4,504.97	37.35	121.622	
11,200.00	6,945.00	6,125.00	6,124.37	77.55	4.57	51.95	-1,636.07	365.19	4,637.72	4,600.32	37.40	123.999	
11,300.00	6,945.00	6,125.00	6,124.37	79.08	4.57	51.95	-1,636.07	365.19	4,733.30	4,695.85	37.45	126.377	
11,400.00	6,945.00	6,125.00	6,124.37	80.62	4.57	51.95	-1,636.07	365.19	4,829.06	4,791.56	37.51	128.755	
11,500.00	6,945.00	6,125.00	6,124.37	82.16	4.57	51.95	-1,636.07	365.19	4,925.00	4,887.44	37.56	131.133	
11,600.00	6,945.00	6,125.00	6,124.37	83.70	4.57	51.95	-1,636.07	365.19	5,021.09	4,983.48	37.61	133.510	
11,700.00	6,945.00	6,125.00	6,124.37	85.24	4.57	51.95	-1,636.07	365.19	5,117.33	5,079.67	37.66	135.886	
11,800.00	6,945.00	6,125.00	6,124.37	86.78	4.57	51.95	-1,636.07	365.19	5,213.71	5,176.00	37.71	138.260	
11,900.00	6,945.00	6,125.00	6,124.37	88.33	4.57	51.95	-1,636.07	365.19	5,310.23	5,272.47	37.76	140.633	
12,000.00	6,945.00	6,125.00	6,124.37	89.87	4.57	51.95	-1,636.07	365.19	5,406.87	5,369.06	37.81	143.002	
12,100.00	6,945.00	6,125.00	6,124.37	91.42	4.57	51.95	-1,636.07	365.19	5,503.63	5,465.77	37.86	145.369	
12,200.00	6,945.00	6,125.00	6,124.37	92.98	4.57	51.95	-1,636.07	365.19	5,600.51	5,562.60	37.91	147.733	
12,300.00	6,945.00	6,125.00	6,124.37	94.53	4.57	51.95	-1,636.07	365.19	5,697.49	5,659.53	37.96	150.093	
12,400.00	6,945.00	6,125.00	6,124.37	96.08	4.57	51.95	-1,636.07	365.19	5,794.58	5,756.57	38.01	152.449	
12,500.00	6,945.00	6,125.00	6,124.37	97.64	4.57	51.95	-1,636.07	365.19	5,891.76	5,853.70	38.06	154.801	
12,600.00	6,945.00	6,125.00	6,124.37	99.20	4.57	51.95	-1,636.07	365.19	5,989.04	5,950.93	38.11	157.149	
12,700.00	6,945.00	6,125.00	6,124.37	100.76	4.57	51.95	-1,636.07	365.19	6,086.40	6,048.24	38.16	159.492	
12,800.00	6,945.00	6,125.00	6,124.37	102.32	4.57	51.95	-1,636.07	365.19	6,183.85	6,145.64	38.21	161.830	
12,900.00	6,945.00	6,125.00	6,124.37	103.88	4.57	51.95	-1,636.07	365.19	6,281.38	6,243.12	38.26	164.163	
13,000.00	6,945.00	6,125.00	6,124.37	105.44	4.57	51.95	-1,636.07	365.19	6,378.99	6,340.67	38.31	166.491	
13,100.00	6,945.00	6,125.00	6,124.37	107.00	4.57	51.95	-1,636.07	365.19	6,476.67	6,438.30	38.37	168.813	
13,200.00	6,945.00	6,125.00	6,124.37	108.57	4.57	51.95	-1,636.07	365.19	6,574.41	6,536.00	38.42	171.129	
13,300.00	6,945.00	6,125.00	6,124.37	110.13	4.57	51.95	-1,636.07	365.19	6,672.23	6,633.76	38.47	173.440	

CC - Min centre to center distance or 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:	Plan #4	**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
13,400.00	6,945.00	6,125.00	6,124.37	111.70	4.57	51.95	-1,636.07	365.19	6,770.11	6,731.59	38.52	175.744	
13,500.00	6,945.00	6,125.00	6,124.37	113.27	4.57	51.95	-1,636.07	365.19	6,868.05	6,829.47	38.58	178.041	
13,600.00	6,945.00	6,125.00	6,124.37	114.84	4.57	51.95	-1,636.07	365.19	6,966.05	6,927.42	38.63	180.332	
13,700.00	6,945.00	6,125.00	6,124.37	116.41	4.57	51.95	-1,636.07	365.19	7,064.10	7,025.42	38.68	182.617	
13,800.00	6,945.00	6,125.00	6,124.37	117.98	4.57	51.95	-1,636.07	365.19	7,162.21	7,123.47	38.74	184.894	
13,900.00	6,945.00	6,125.00	6,124.37	119.55	4.57	51.95	-1,636.07	365.19	7,260.37	7,221.58	38.79	187.165	
14,000.00	6,945.00	6,125.00	6,124.37	121.12	4.57	51.95	-1,636.07	365.19	7,358.58	7,319.74	38.85	189.428	
14,100.00	6,945.00	6,125.00	6,124.37	122.69	4.57	51.95	-1,636.07	365.19	7,456.84	7,417.94	38.90	191.684	
14,200.00	6,945.00	6,125.00	6,124.37	124.27	4.57	51.95	-1,636.07	365.19	7,555.14	7,516.18	38.96	193.933	
14,300.00	6,945.00	6,125.00	6,124.37	125.84	4.57	51.95	-1,636.07	365.19	7,653.49	7,614.48	39.01	196.174	
14,400.00	6,945.00	6,125.00	6,124.37	127.41	4.57	51.95	-1,636.07	365.19	7,751.88	7,712.81	39.07	198.407	
14,500.00	6,945.00	6,125.00	6,124.37	128.99	4.57	51.95	-1,636.07	365.19	7,850.31	7,811.18	39.13	200.633	
14,600.00	6,945.00	6,125.00	6,124.37	130.57	4.57	51.95	-1,636.07	365.19	7,948.78	7,909.59	39.19	202.851	
14,700.00	6,945.00	6,125.00	6,124.37	132.14	4.57	51.95	-1,636.07	365.19	8,047.28	8,008.04	39.24	205.060	
14,800.00	6,945.00	6,125.00	6,124.37	133.72	4.57	51.95	-1,636.07	365.19	8,145.83	8,106.53	39.30	207.262	
14,900.00	6,945.00	6,125.00	6,124.37	135.30	4.57	51.95	-1,636.07	365.19	8,244.41	8,205.05	39.36	209.455	
15,000.00	6,945.00	6,125.00	6,124.37	136.87	4.57	51.95	-1,636.07	365.19	8,343.02	8,303.60	39.42	211.640	
15,100.00	6,945.00	6,125.00	6,124.37	138.45	4.57	51.95	-1,636.07	365.19	8,441.66	8,402.18	39.48	213.817	
15,200.00	6,945.00	6,125.00	6,124.37	140.03	4.57	51.95	-1,636.07	365.19	8,540.34	8,500.80	39.54	215.985	
15,300.00	6,945.00	6,125.00	6,124.37	141.61	4.57	51.95	-1,636.07	365.19	8,639.05	8,599.45	39.60	218.145	
15,400.00	6,945.00	6,125.00	6,124.37	143.19	4.57	51.95	-1,636.07	365.19	8,737.78	8,698.12	39.66	220.296	
15,500.00	6,945.00	6,125.00	6,124.37	144.77	4.57	51.95	-1,636.07	365.19	8,836.55	8,796.82	39.73	222.438	
15,600.00	6,945.00	6,125.00	6,124.37	146.35	4.57	51.95	-1,636.07	365.19	8,935.34	8,895.55	39.79	224.571	
15,700.00	6,945.00	6,125.00	6,124.37	147.94	4.57	51.95	-1,636.07	365.19	9,034.16	8,994.31	39.85	226.696	
15,800.00	6,945.00	6,125.00	6,124.37	149.52	4.57	51.95	-1,636.07	365.19	9,133.00	9,093.09	39.91	228.812	
15,900.00	6,945.00	6,125.00	6,124.37	151.10	4.57	51.95	-1,636.07	365.19	9,231.87	9,191.90	39.98	230.919	
16,000.00	6,945.00	6,125.00	6,124.37	152.68	4.57	51.95	-1,636.07	365.19	9,330.77	9,290.72	40.04	233.016	
16,100.00	6,945.00	6,125.00	6,124.37	154.26	4.57	51.95	-1,636.07	365.19	9,429.68	9,389.58	40.11	235.105	
16,200.00	6,945.00	6,125.00	6,124.37	155.85	4.57	51.95	-1,636.07	365.19	9,528.62	9,488.45	40.17	237.185	
16,300.00	6,945.00	6,125.00	6,124.37	157.43	4.57	51.95	-1,636.07	365.19	9,627.59	9,587.35	40.24	239.255	
16,400.00	6,945.00	6,125.00	6,124.37	159.02	4.57	51.95	-1,636.07	365.19	9,726.57	9,686.26	40.31	241.316	
16,500.00	6,945.00	6,125.00	6,124.37	160.60	4.57	51.95	-1,636.07	365.19	9,825.57	9,785.20	40.37	243.368	
16,600.00	6,945.00	6,125.00	6,124.37	162.18	4.57	51.95	-1,636.07	365.19	9,924.59	9,884.15	40.44	245.411	
16,700.00	6,945.00	6,125.00	6,124.37	163.77	4.57	51.95	-1,636.07	365.19	10,023.64	9,983.13	40.51	247.444	
16,800.00	6,945.00	6,125.00	6,124.37	165.35	4.57	51.95	-1,636.07	365.19	10,122.70	10,082.12	40.58	249.468	
16,900.00	6,945.00	6,125.00	6,124.37	166.94	4.57	51.95	-1,636.07	365.19	10,221.78	10,181.13	40.65	251.482	
17,000.00	6,945.00	6,125.00	6,124.37	168.53	4.57	51.95	-1,636.07	365.19	10,320.88	10,280.16	40.72	253.487	
17,100.00	6,945.00	6,125.00	6,124.37	170.11	4.57	51.95	-1,636.07	365.19	10,419.99	10,379.20	40.79	255.483	
17,200.00	6,945.00	6,125.00	6,124.37	171.70	4.57	51.95	-1,636.07	365.19	10,519.12	10,478.27	40.86	257.469	
17,300.00	6,945.00	6,125.00	6,124.37	173.29	4.57	51.95	-1,636.07	365.19	10,618.27	10,577.34	40.93	259.446	
17,400.00	6,945.00	6,125.00	6,124.37	174.87	4.57	51.95	-1,636.07	365.19	10,717.43	10,676.44	41.00	261.413	
17,500.00	6,945.00	6,125.00	6,124.37	176.46	4.57	51.95	-1,636.07	365.19	10,816.61	10,775.54	41.07	263.370	
17,600.00	6,945.00	6,125.00	6,124.37	178.05	4.57	51.95	-1,636.07	365.19	10,915.81	10,874.66	41.14	265.318	
17,700.00	6,945.00	6,125.00	6,124.37	179.63	4.57	51.95	-1,636.07	365.19	11,015.01	10,973.80	41.22	267.256	
17,800.00	6,945.00	6,125.00	6,124.37	181.22	4.57	51.95	-1,636.07	365.19	11,114.24	11,072.95	41.29	269.185	
17,900.00	6,945.00	6,125.00	6,124.37	182.81	4.57	51.95	-1,636.07	365.19	11,213.47	11,172.11	41.36	271.104	
18,000.00	6,945.00	6,125.00	6,124.37	184.40	4.57	51.95	-1,636.07	365.19	11,312.72	11,271.29	41.44	273.013	
18,100.00	6,945.00	6,125.00	6,124.37	185.99	4.57	51.95	-1,636.07	365.19	11,411.99	11,370.48	41.51	274.913	
18,200.00	6,945.00	6,125.00	6,124.37	187.58	4.57	51.95	-1,636.07	365.19	11,511.26	11,469.68	41.59	276.803	
18,300.00	6,945.00	6,125.00	6,124.37	189.16	4.57	51.95	-1,636.07	365.19	11,610.55	11,568.89	41.66	278.683	
18,400.00	6,945.00	6,125.00	6,124.37	190.75	4.57	51.95	-1,636.07	365.19	11,709.85	11,668.11	41.74	280.554	
18,500.00	6,945.00	6,125.00	6,124.37	192.34	4.57	51.95	-1,636.07	365.19	11,809.16	11,767.35	41.81	282.415	

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:	Plan #4	**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

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
18,600.00	6,945.00	6,125.00	6,124.37	193.93	4.57	51.95	-1,636.07	365.19	11,908.49	11,866.60	41.89	284.267	
18,700.00	6,945.00	6,125.00	6,124.37	195.52	4.57	51.95	-1,636.07	365.19	12,007.82	11,965.85	41.97	286.108	
18,800.00	6,945.00	6,125.00	6,124.37	197.11	4.57	51.95	-1,636.07	365.19	12,107.17	12,065.12	42.05	287.940	
18,900.00	6,945.00	6,125.00	6,124.37	198.70	4.57	51.95	-1,636.07	365.19	12,206.52	12,164.40	42.13	289.763	
19,000.00	6,945.00	6,125.00	6,124.37	200.29	4.57	51.95	-1,636.07	365.19	12,305.89	12,263.69	42.20	291.575	
19,100.00	6,945.00	6,125.00	6,124.37	201.88	4.57	51.95	-1,636.07	365.19	12,405.27	12,362.98	42.28	293.379	
19,200.00	6,945.00	6,125.00	6,124.37	203.47	4.57	51.95	-1,636.07	365.19	12,504.66	12,462.29	42.36	295.172	
19,300.00	6,945.00	6,125.00	6,124.37	205.06	4.57	51.95	-1,636.07	365.19	12,604.05	12,561.61	42.44	296.956	
19,400.00	6,945.00	6,125.00	6,124.37	206.65	4.57	51.95	-1,636.07	365.19	12,703.46	12,660.93	42.52	298.730	
19,500.00	6,945.00	6,125.00	6,124.37	208.24	4.57	51.95	-1,636.07	365.19	12,802.87	12,760.27	42.61	300.495	
19,600.00	6,945.00	6,125.00	6,124.37	209.84	4.57	51.95	-1,636.07	365.19	12,902.30	12,859.61	42.69	302.249	
19,700.00	6,945.00	6,125.00	6,124.37	211.43	4.57	51.95	-1,636.07	365.19	13,001.73	12,958.96	42.77	303.995	
19,800.00	6,945.00	6,125.00	6,124.37	213.02	4.57	51.95	-1,636.07	365.19	13,101.17	13,058.32	42.85	305.731	
19,900.00	6,945.00	6,125.00	6,124.37	214.61	4.57	51.95	-1,636.07	365.19	13,200.63	13,157.69	42.93	307.457	
20,000.00	6,945.00	6,125.00	6,124.37	216.20	4.57	51.95	-1,636.07	365.19	13,300.08	13,257.07	43.02	309.173	
20,100.00	6,945.00	6,125.00	6,124.37	217.79	4.57	51.95	-1,636.07	365.19	13,399.55	13,356.45	43.10	310.881	
20,200.00	6,945.00	6,125.00	6,124.37	219.38	4.57	51.95	-1,636.07	365.19	13,499.03	13,455.84	43.19	312.578	
20,300.00	6,945.00	6,125.00	6,124.37	220.98	4.57	51.95	-1,636.07	365.19	13,598.51	13,555.24	43.27	314.266	
20,400.00	6,945.00	6,125.00	6,124.37	222.57	4.57	51.95	-1,636.07	365.19	13,698.00	13,654.64	43.36	315.945	
20,500.00	6,945.00	6,125.00	6,124.37	224.16	4.57	51.95	-1,636.07	365.19	13,797.49	13,754.05	43.44	317.614	
20,600.00	6,945.00	6,125.00	6,124.37	225.75	4.57	51.95	-1,636.07	365.19	13,897.00	13,853.47	43.53	319.274	
20,700.00	6,945.00	6,125.00	6,124.37	227.35	4.57	51.95	-1,636.07	365.19	13,996.51	13,952.90	43.61	320.924	
20,800.00	6,945.00	6,125.00	6,124.37	228.94	4.57	51.95	-1,636.07	365.19	14,096.03	14,052.33	43.70	322.565	
20,852.96	6,945.00	6,125.00	6,124.37	229.61	4.57	51.95	-1,636.07	365.19	14,148.73	14,101.14	47.60	297.266	

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:	Plan #4	**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				
20.93	20.93	67.87	67.87	0.00	0.03	-27.06	-1,560.03	400.76	1,610.64				
117.41	117.41	161.74	161.74	0.05	0.11	-31.61	-1,560.08	400.65	1,610.27	1,610.14	0.13	N/A	
188.31	188.31	227.58	227.58	0.15	0.12	-10.81	-1,560.09	401.22	1,610.16	1,609.89	0.26	6,159.560	
206.68	206.68	244.28	244.27	0.17	0.13	-5.74	-1,560.10	401.48	1,610.16	1,609.87	0.30	5,436.925	
292.93	292.93	330.22	330.19	0.28	0.22	-6.35	-1,560.26	403.14	1,610.20	1,609.72	0.48	3,389.211	
365.00	364.99	1,099.03	1,069.64	0.36	1.16	-38.88	-1,381.73	401.11	1,580.70	1,578.62	2.08	759.061	
451.00	450.97	1,188.88	1,150.67	0.55	1.34	14.43	-1,342.94	400.02	1,542.86	1,540.54	2.32	664.547	
540.00	539.81	1,268.81	1,222.53	0.83	1.50	20.12	-1,307.92	399.33	1,500.63	1,498.01	2.62	571.687	
665.00	664.37	1,372.72	1,316.00	1.26	1.73	22.24	-1,262.55	399.33	1,439.32	1,436.27	3.05	471.779	
753.00	752.01	1,450.24	1,385.61	1.58	1.90	20.84	-1,228.45	400.34	1,395.74	1,392.36	3.38	412.893	
847.00	845.61	1,530.99	1,457.99	1.93	2.09	23.56	-1,192.66	401.40	1,348.93	1,345.19	3.74	360.470	
939.00	937.22	1,609.99	1,529.05	2.27	2.27	23.46	-1,158.16	401.56	1,303.45	1,299.34	4.11	317.021	
1,030.00	1,027.78	1,696.54	1,606.76	2.62	2.48	10.99	-1,120.05	401.53	1,257.54	1,253.03	4.51	278.878	
1,120.00	1,117.25	1,782.25	1,683.41	2.96	2.68	13.55	-1,081.68	401.72	1,210.72	1,205.81	4.91	246.518	
1,211.00	1,207.68	1,848.17	1,742.34	3.31	2.84	10.19	-1,052.14	402.15	1,163.28	1,157.99	5.29	220.052	
1,306.00	1,302.14	1,906.78	1,795.12	3.68	2.98	11.65	-1,026.68	402.50	1,115.42	1,109.75	5.67	196.689	
1,400.00	1,395.63	1,992.97	1,873.19	4.04	3.19	12.30	-990.14	402.58	1,069.24	1,063.15	6.09	175.496	
1,495.00	1,490.19	2,077.67	1,949.71	4.40	3.39	10.78	-953.82	402.71	1,022.84	1,016.32	6.52	156.860	
1,589.00	1,583.83	2,148.24	2,013.54	4.76	3.56	7.50	-923.74	403.23	978.08	971.14	6.94	140.864	
1,684.00	1,678.44	2,232.01	2,089.43	5.12	3.76	9.12	-888.30	404.20	933.23	925.84	7.39	126.274	
1,779.00	1,772.98	2,324.95	2,173.49	5.48	3.99	12.74	-848.63	404.83	887.50	879.65	7.84	113.138	
1,873.00	1,866.49	2,414.45	2,253.99	5.84	4.22	13.21	-809.53	404.83	841.24	832.94	8.29	101.452	
1,967.00	1,960.05	2,497.24	2,328.14	6.20	4.43	16.93	-772.70	404.82	794.98	786.23	8.74	90.910	
2,062.00	2,054.59	2,566.35	2,390.46	6.56	4.60	10.36	-742.83	404.88	749.44	740.22	9.22	81.256	
2,156.00	2,148.09	2,650.43	2,466.39	6.92	4.82	8.22	-706.72	405.18	704.52	694.83	9.70	72.650	
2,251.00	2,242.55	2,736.68	2,544.04	7.29	5.04	8.00	-669.19	405.37	658.77	648.59	10.18	64.685	
2,345.00	2,336.00	2,821.12	2,619.80	7.65	5.26	-0.25	-631.90	405.45	613.14	602.46	10.68	57.399	
2,440.00	2,430.43	2,899.67	2,690.24	8.02	5.47	-5.17	-597.14	405.46	567.46	556.24	11.22	50.570	
2,535.00	2,524.86	2,982.39	2,764.69	8.38	5.69	-6.30	-561.12	404.17	522.48	510.71	11.77	44.393	
2,629.00	2,618.31	3,052.08	2,828.03	8.75	5.86	-8.48	-532.14	402.15	479.66	467.29	12.37	38.768	
2,724.00	2,712.77	3,123.07	2,893.39	9.12	6.03	-10.11	-504.47	400.39	439.53	426.52	13.02	33.769	
2,818.00	2,806.24	3,193.38	2,958.93	9.48	6.19	-12.11	-479.04	399.24	403.37	389.68	13.69	29.466	
2,913.00	2,900.71	3,263.81	3,025.41	9.84	6.34	-12.66	-455.83	399.29	371.29	356.88	14.41	25.774	
3,008.00	2,995.25	3,336.21	3,095.02	10.21	6.47	-20.00	-435.96	400.00	345.16	330.05	15.12	22.834	
3,102.00	3,088.80	3,420.29	3,176.73	10.57	6.61	-23.16	-416.19	401.03	323.44	307.67	15.78	20.502	
3,197.00	3,183.30	3,507.35	3,261.65	10.93	6.74	-23.90	-397.04	402.39	303.44	286.99	16.45	18.445	
3,291.00	3,276.71	3,594.58	3,347.31	11.30	6.86	-33.92	-380.61	402.71	285.17	268.07	17.10	16.673	
3,386.00	3,371.01	3,681.70	3,433.25	11.67	6.97	-39.09	-366.39	403.06	268.89	251.13	17.77	15.135	
3,480.00	3,464.23	3,770.28	3,521.19	12.04	7.05	-41.56	-355.88	403.09	255.14	236.76	18.37	13.886	
3,575.00	3,558.47	3,863.03	3,613.79	12.42	7.09	-42.63	-351.32	400.69	242.25	223.36	18.88	12.829	
3,670.00	3,652.84	3,955.07	3,705.75	12.79	7.12	-43.84	-348.65	398.13	230.88	211.52	19.36	11.926	
3,764.00	3,746.36	4,046.09	3,796.74	13.15	7.14	-42.45	-347.06	396.31	221.71	201.89	19.81	11.189	
3,859.00	3,840.97	4,138.34	3,888.97	13.51	7.17	-40.12	-346.85	395.01	213.91	193.66	20.25	10.563	
3,954.00	3,935.57	4,232.22	3,982.85	13.87	7.19	-41.38	-347.59	394.03	206.48	185.81	20.67	9.988	
4,049.00	4,030.14	4,326.72	4,077.33	14.23	7.22	-51.89	-348.96	393.16	199.70	178.61	21.09	9.468	
4,143.00	4,123.75	4,419.82	4,170.42	14.59	7.25	-52.20	-350.66	392.38	193.98	172.47	21.50	9.020	
4,238.00	4,218.33	4,514.72	4,265.29	14.95	7.27	-53.47	-352.79	391.61	188.14	166.22	21.92	8.583	
4,333.00	4,312.74	4,609.18	4,359.72	15.32	7.30	-58.33	-354.97	390.85	181.73	159.38	22.35	8.131	
4,427.00	4,406.05	4,702.20	4,452.71	15.69	7.33	-58.37	-356.95	390.25	175.31	152.53	22.78	7.695	
4,522.00	4,500.34	4,796.17	4,546.67	16.06	7.35	-60.24	-358.49	389.91	169.10	145.88	23.22	7.283	
4,616.00	4,593.47	4,889.50	4,639.99	16.44	7.38	-65.94	-359.96	389.69	163.06	139.41	23.65	6.896	

CC - Min centre to center distance or 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:	Plan #4	**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
4,710.00	4,686.44	4,982.53	4,733.01	16.82	7.41	-69.28	-361.32	389.53	157.46	133.40	24.06	6.543	
4,899.00	4,873.89	5,170.37	4,920.83	17.57	7.47	-70.51	-363.69	388.99	148.32	123.50	24.82	5.975	
4,962.00	4,936.56	5,233.04	4,983.50	17.81	7.49	-70.18	-364.47	388.80	145.78	120.73	25.05	5.819	
5,024.00	4,998.27	5,294.90	5,045.36	18.04	7.51	-75.98	-365.25	388.58	143.58	118.30	25.28	5.681	
5,150.00	5,123.66	5,420.48	5,170.93	18.53	7.55	-79.27	-366.91	388.12	139.91	114.22	25.70	5.444	
5,213.00	5,186.37	5,483.42	5,233.86	18.77	7.58	-83.82	-367.76	387.77	138.37	112.47	25.90	5.343	
5,276.00	5,249.09	5,546.37	5,296.80	19.01	7.60	-85.17	-368.63	387.34	137.02	110.93	26.09	5.252	
5,339.00	5,311.83	5,609.31	5,359.74	19.25	7.62	-88.26	-369.53	386.90	135.88	109.61	26.27	5.172	
5,401.00	5,373.58	5,671.38	5,421.79	19.48	7.65	-87.82	-370.62	386.44	134.74	108.30	26.45	5.095	
5,464.00	5,436.33	5,734.22	5,484.62	19.72	7.67	-92.53	-371.87	385.99	133.70	107.07	26.62	5.022	
5,590.00	5,561.87	5,859.78	5,610.14	20.19	7.71	-97.53	-374.80	385.51	132.56	105.59	26.97	4.915	
5,653.00	5,624.66	5,922.61	5,672.95	20.43	7.73	-100.63	-376.32	385.30	132.28	105.14	27.14	4.874	
5,695.41	5,666.94	5,965.19	5,715.51	20.59	7.75	-105.00	-377.41	385.18	132.22	104.96	27.26	4.850	
5,715.00	5,686.48	5,984.59	5,734.91	20.66	7.76	-107.10	-377.88	385.09	132.26	104.94	27.31	4.842	
5,778.00	5,749.29	6,047.17	5,797.47	20.90	7.78	-106.01	-379.29	384.86	132.52	105.04	27.48	4.822	
5,841.00	5,812.10	6,109.34	5,859.64	21.13	7.80	-110.01	-380.32	384.68	133.19	105.55	27.64	4.818	
5,904.00	5,874.94	6,171.99	5,922.28	21.36	7.83	-106.33	-381.18	384.59	133.96	106.15	27.81	4.818	
5,967.00	5,937.80	6,234.99	5,985.27	21.60	7.85	-106.28	-382.03	384.52	134.47	106.50	27.98	4.807	
6,030.00	6,000.68	6,297.93	6,048.21	21.83	7.87	-109.53	-382.87	384.43	134.97	106.82	28.15	4.795	
6,093.00	6,063.59	6,360.69	6,110.96	22.05	7.90	-107.03	-383.73	384.33	135.34	107.01	28.33	4.777	
6,156.00	6,126.51	6,423.88	6,174.15	22.28	7.92	-102.85	-384.63	384.23	135.41	106.89	28.52	4.747	
6,165.24	6,135.74	6,432.94	6,183.21	22.31	7.92	-103.03	-384.76	384.21	135.41	106.86	28.55	4.743	
6,235.00	6,205.43	6,501.98	6,252.24	22.56	7.95	-104.29	-385.62	384.31	135.51	106.75	28.76	4.711	
6,300.00	6,270.38	6,566.96	6,317.21	22.68	7.97	-105.12	-386.18	384.44	135.79	106.93	28.86	4.705	
6,355.00	6,325.34	6,621.30	6,371.55	22.69	7.99	-105.81	-386.58	384.61	136.13	107.29	28.84	4.720	
6,400.00	6,370.23	6,665.78	6,416.03	22.71	8.00	-74.36	-386.68	384.76	135.75	106.96	28.80	4.714	
6,450.00	6,419.74	6,715.72	6,465.97	22.73	8.02	-69.72	-386.83	384.91	133.45	104.77	28.69	4.652	
6,500.00	6,468.57	6,764.00	6,514.25	22.77	8.03	-71.24	-386.91	385.12	129.80	101.33	28.47	4.559	
6,550.00	6,516.42	6,811.84	6,562.09	22.81	8.05	-75.95	-386.86	385.31	125.65	97.48	28.18	4.460	
6,600.00	6,562.98	6,858.62	6,608.87	22.87	8.06	-82.95	-386.83	385.57	122.21	94.38	27.83	4.392 SF	
6,640.34	6,599.42	6,894.95	6,645.20	22.93	8.08	-89.77	-386.83	385.76	121.04	93.48	27.56	4.392 CC, ES	
6,650.00	6,607.98	6,903.40	6,653.65	22.95	8.08	-91.49	-386.82	385.81	121.12	93.62	27.51	4.404	
6,700.00	6,651.14	6,946.37	6,696.63	23.03	8.09	-100.75	-386.66	386.03	124.50	97.11	27.39	4.545	
6,750.00	6,692.18	6,987.42	6,737.67	23.14	8.11	-109.72	-386.43	386.22	133.82	106.25	27.57	4.853	
6,800.00	6,730.86	7,026.54	6,776.79	23.26	8.12	-117.69	-386.28	386.38	149.65	121.68	27.97	5.350	
6,850.00	6,766.93	7,062.16	6,812.41	23.40	8.14	-123.91	-386.12	386.53	171.85	143.43	28.42	6.047	
6,900.00	6,800.18	7,095.70	6,845.95	23.56	8.15	-128.69	-385.88	386.66	199.70	170.86	28.84	6.925	
6,950.00	6,830.39	7,126.79	6,877.04	23.74	8.16	-132.06	-385.71	386.87	232.14	202.95	29.19	7.953	
7,000.00	6,857.38	7,153.44	6,903.68	23.94	8.17	-133.78	-385.58	387.04	268.46	239.00	29.46	9.111	
7,050.00	6,880.98	7,176.40	6,926.64	24.17	8.18	-134.06	-385.45	387.11	308.06	278.38	29.68	10.379	
7,100.00	6,901.06	7,196.32	6,946.56	24.42	8.19	-132.95	-385.33	387.14	350.31	320.45	29.86	11.733	
7,150.00	6,917.47	7,213.08	6,963.32	24.70	8.20	-130.15	-385.22	387.17	394.65	364.65	30.00	13.155	
7,200.00	6,930.13	7,225.78	6,976.02	25.01	8.20	-124.91	-385.14	387.20	440.64	410.52	30.11	14.632	
7,250.00	6,938.95	7,234.61	6,984.85	25.34	8.20	-116.29	-385.08	387.22	487.87	457.66	30.20	16.152	
7,300.00	6,943.88	7,239.53	6,989.77	25.69	8.21	-103.13	-385.05	387.22	535.94	505.67	30.27	17.703	
7,337.82	6,945.00	7,240.65	6,990.89	25.97	8.21	-89.95	-385.05	387.23	572.65	542.33	30.32	18.889	
7,400.00	6,945.00	7,240.72	6,990.96	26.45	8.21	-89.98	-385.05	387.23	633.15	602.77	30.37	20.845	
7,492.38	6,945.00	7,240.84	6,991.08	27.21	8.21	-90.03	-385.05	387.23	723.05	692.60	30.45	23.747	
7,500.00	6,945.00	7,240.85	6,991.09	27.28	8.21	-90.03	-385.05	387.23	730.46	700.01	30.45	23.986	
7,600.00	6,945.00	7,240.99	6,991.23	28.17	8.21	-90.08	-385.05	387.23	828.14	797.62	30.52	27.135	
7,700.00	6,945.00	7,241.12	6,991.37	29.12	8.21	-90.13	-385.05	387.23	926.30	895.73	30.57	30.298	
7,800.00	6,945.00	7,241.26	6,991.50	30.14	8.21	-90.17	-385.04	387.23	1,024.83	994.21	30.62	33.471	

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:	Plan #4	**Offset TVD Reference:**	Offset Datum

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

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

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Rule Assigned: Minimum Separation (usft)	Separation Factor	Warning
7,900.00	6,945.00	7,241.39	6,991.63	31.20	8.21	-90.22	-385.04	387.23	1,123.61	1,092.95	30.66	36.649	
8,000.00	6,945.00	7,241.52	6,991.76	32.31	8.21	-90.26	-385.04	387.23	1,222.59	1,191.89	30.69	39.830	
8,100.00	6,945.00	7,241.65	6,991.89	33.46	8.21	-90.31	-385.04	387.23	1,321.72	1,290.99	30.73	43.012	
8,200.00	6,945.00	7,241.78	6,992.02	34.64	8.21	-90.35	-385.04	387.23	1,420.98	1,390.22	30.76	46.194	
8,300.00	6,945.00	7,241.90	6,992.15	35.86	8.21	-90.39	-385.04	387.23	1,520.33	1,489.54	30.79	49.373	
8,400.00	6,945.00	7,242.03	6,992.27	37.11	8.21	-90.44	-385.04	387.23	1,619.77	1,588.94	30.82	52.550	
8,500.00	6,945.00	7,242.15	6,992.39	38.39	8.21	-90.48	-385.04	387.23	1,719.26	1,688.41	30.85	55.722	
8,600.00	6,945.00	7,242.27	6,992.51	39.69	8.21	-90.52	-385.04	387.23	1,818.82	1,787.93	30.88	58.891	
8,700.00	6,945.00	7,242.39	6,992.63	41.01	8.21	-90.56	-385.04	387.23	1,918.42	1,887.50	30.92	62.054	
8,800.00	6,945.00	7,242.51	6,992.75	42.35	8.21	-90.60	-385.04	387.23	2,018.06	1,987.11	30.95	65.212	
8,900.00	6,945.00	7,242.63	6,992.87	43.71	8.21	-90.64	-385.04	387.23	2,117.73	2,086.75	30.98	68.364	
9,000.00	6,945.00	7,242.74	6,992.99	45.08	8.21	-90.68	-385.04	387.23	2,217.43	2,186.43	31.01	71.510	
9,100.00	6,945.00	7,242.86	6,993.10	46.47	8.21	-90.72	-385.04	387.23	2,317.16	2,286.12	31.04	74.648	
9,200.00	6,945.00	7,242.97	6,993.21	47.87	8.21	-90.76	-385.03	387.23	2,416.91	2,385.84	31.07	77.779	
9,300.00	6,945.00	7,243.08	6,993.33	49.29	8.21	-90.80	-385.03	387.23	2,516.68	2,485.58	31.11	80.903	
9,400.00	6,945.00	7,243.19	6,993.44	50.71	8.21	-90.84	-385.03	387.23	2,616.47	2,585.33	31.14	84.018	
9,500.00	6,945.00	7,243.30	6,993.55	52.15	8.21	-90.87	-385.03	387.23	2,716.28	2,685.10	31.18	87.125	
9,600.00	6,945.00	7,243.41	6,993.66	53.59	8.21	-90.91	-385.03	387.23	2,816.09	2,784.88	31.21	90.223	
9,700.00	6,945.00	7,243.52	6,993.76	55.05	8.21	-90.95	-385.03	387.23	2,915.92	2,884.68	31.25	93.313	
9,800.00	6,945.00	7,243.63	6,993.87	56.51	8.21	-90.98	-385.03	387.23	3,015.77	2,984.48	31.29	96.393	
9,900.00	6,945.00	7,243.73	6,993.97	57.98	8.21	-91.02	-385.03	387.23	3,115.62	3,084.29	31.32	99.463	
10,000.00	6,945.00	7,243.83	6,994.08	59.45	8.21	-91.06	-385.03	387.23	3,215.48	3,184.12	31.36	102.524	
10,100.00	6,945.00	7,243.94	6,994.18	60.93	8.21	-91.09	-385.03	387.23	3,315.35	3,283.94	31.40	105.574	
10,200.00	6,945.00	7,244.04	6,994.28	62.42	8.21	-91.13	-385.03	387.23	3,415.22	3,383.78	31.44	108.614	
10,300.00	6,945.00	7,244.14	6,994.38	63.92	8.21	-91.16	-385.03	387.23	3,515.11	3,483.62	31.48	111.644	
10,400.00	6,945.00	7,244.24	6,994.48	65.42	8.21	-91.19	-385.03	387.23	3,615.00	3,583.47	31.53	114.663	
10,500.00	6,945.00	7,244.34	6,994.58	66.92	8.21	-91.23	-385.03	387.23	3,714.89	3,683.32	31.57	117.670	
10,600.00	6,945.00	7,244.43	6,994.68	68.43	8.21	-91.26	-385.03	387.23	3,814.80	3,783.18	31.61	120.667	
10,700.00	6,945.00	7,244.53	6,994.77	69.94	8.21	-91.29	-385.03	387.23	3,914.70	3,883.04	31.66	123.651	
10,800.00	6,945.00	7,244.62	6,994.87	71.45	8.21	-91.33	-385.02	387.23	4,014.61	3,982.91	31.70	126.625	
10,900.00	6,945.00	7,244.72	6,994.96	72.97	8.21	-91.36	-385.02	387.23	4,114.53	4,082.78	31.75	129.586	
11,000.00	6,945.00	7,244.81	6,995.06	74.50	8.21	-91.39	-385.02	387.23	4,214.45	4,182.65	31.80	132.535	
11,100.00	6,945.00	7,244.90	6,995.15	76.02	8.21	-91.42	-385.02	387.23	4,314.37	4,282.53	31.85	135.471	
11,200.00	6,945.00	7,245.00	6,995.24	77.55	8.21	-91.45	-385.02	387.23	4,414.30	4,382.40	31.90	138.396	
11,300.00	6,945.00	7,245.09	6,995.33	79.08	8.21	-91.49	-385.02	387.23	4,514.23	4,482.28	31.95	141.307	
11,400.00	6,945.00	7,245.18	6,995.42	80.62	8.21	-91.52	-385.02	387.23	4,614.16	4,582.17	32.00	144.206	
11,500.00	6,945.00	7,245.26	6,995.51	82.16	8.21	-91.55	-385.02	387.23	4,714.10	4,682.05	32.05	147.092	
11,600.00	6,945.00	7,245.35	6,995.60	83.70	8.21	-91.58	-385.02	387.23	4,814.04	4,781.94	32.10	149.964	
11,700.00	6,945.00	7,245.44	6,995.68	85.24	8.21	-91.61	-385.02	387.23	4,913.98	4,881.82	32.15	152.824	
11,800.00	6,945.00	7,245.53	6,995.77	86.78	8.21	-91.64	-385.02	387.23	5,013.92	4,981.71	32.21	155.669	
11,900.00	6,945.00	7,245.61	6,995.85	88.33	8.21	-91.67	-385.02	387.23	5,113.87	5,081.60	32.26	158.502	
12,000.00	6,945.00	7,245.70	6,995.94	89.87	8.21	-91.69	-385.02	387.23	5,213.82	5,181.50	32.32	161.320	
12,100.00	6,945.00	7,245.78	6,996.02	91.42	8.21	-91.72	-385.02	387.23	5,313.76	5,281.39	32.38	164.125	
12,200.00	6,945.00	7,245.86	6,996.10	92.98	8.21	-91.75	-385.02	387.23	5,413.72	5,381.28	32.43	166.915	
12,300.00	6,945.00	7,245.94	6,996.19	94.53	8.21	-91.78	-385.02	387.23	5,513.67	5,481.18	32.49	169.692	
12,400.00	6,945.00	7,246.02	6,996.27	96.08	8.21	-91.81	-385.02	387.23	5,613.62	5,581.07	32.55	172.454	
12,500.00	6,945.00	7,246.11	6,996.35	97.64	8.21	-91.83	-385.02	387.23	5,713.58	5,680.97	32.61	175.202	
12,600.00	6,945.00	7,246.18	6,996.43	99.20	8.21	-91.86	-385.02	387.23	5,813.54	5,780.87	32.67	177.936	
12,700.00	6,945.00	7,246.26	6,996.51	100.76	8.21	-91.89	-385.01	387.23	5,913.50	5,880.76	32.73	180.655	
12,800.00	6,945.00	7,246.34	6,996.59	102.32	8.21	-91.92	-385.01	387.23	6,013.46	5,980.66	32.80	183.359	
12,900.00	6,945.00	7,246.42	6,996.66	103.88	8.21	-91.94	-385.01	387.23	6,113.42	6,080.56	32.86	186.049	
13,000.00	6,945.00	7,246.50	6,996.74	105.44	8.21	-91.97	-385.01	387.23	6,213.38	6,180.46	32.92	188.724	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 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:	Plan #4	**Offset TVD Reference:**	Offset Datum

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

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

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Rule Assigned: Minimum Separation (usft)	Separation Factor	Warning
13,100.00	6,945.00	7,246.57	6,996.82	107.00	8.21	-91.99	-385.01	387.23	6,313.35	6,280.36	32.99	191.384	
13,200.00	6,945.00	7,246.65	6,996.89	108.57	8.21	-92.02	-385.01	387.23	6,413.31	6,380.26	33.05	194.029	
13,300.00	6,945.00	7,246.72	6,996.97	110.13	8.21	-92.05	-385.01	387.23	6,513.28	6,480.16	33.12	196.659	
13,400.00	6,945.00	7,246.80	6,997.04	111.70	8.21	-92.07	-385.01	387.23	6,613.25	6,580.06	33.19	199.274	
13,500.00	6,945.00	7,246.87	6,997.11	113.27	8.21	-92.10	-385.01	387.23	6,713.22	6,679.96	33.25	201.874	
13,600.00	6,945.00	7,246.94	6,997.18	114.84	8.21	-92.12	-385.01	387.23	6,813.19	6,779.86	33.32	204.459	
13,700.00	6,945.00	7,247.01	6,997.26	116.41	8.21	-92.15	-385.01	387.23	6,913.16	6,879.76	33.39	207.029	
13,800.00	6,945.00	7,247.08	6,997.33	117.98	8.21	-92.17	-385.01	387.23	7,013.13	6,979.67	33.46	209.583	
13,900.00	6,945.00	7,247.16	6,997.40	119.55	8.21	-92.19	-385.01	387.23	7,113.10	7,079.57	33.53	212.122	
14,000.00	6,945.00	7,247.23	6,997.47	121.12	8.21	-92.22	-385.01	387.23	7,213.07	7,179.47	33.60	214.646	
14,100.00	6,945.00	7,247.29	6,997.54	122.69	8.21	-92.24	-385.01	387.23	7,313.05	7,279.37	33.68	217.155	
14,200.00	6,945.00	7,247.36	6,997.61	124.27	8.21	-92.27	-385.01	387.23	7,413.02	7,379.27	33.75	219.648	
14,300.00	6,945.00	7,247.43	6,997.68	125.84	8.21	-92.29	-385.01	387.23	7,513.00	7,479.17	33.82	222.125	
14,400.00	6,945.00	7,247.50	6,997.74	127.41	8.21	-92.31	-385.01	387.23	7,612.97	7,579.07	33.90	224.587	
14,500.00	6,945.00	7,247.57	6,997.81	128.99	8.21	-92.34	-385.01	387.24	7,712.95	7,678.98	33.97	227.034	
14,600.00	6,945.00	7,247.63	6,997.88	130.57	8.21	-92.36	-385.01	387.24	7,812.92	7,778.88	34.05	229.466	
14,700.00	6,945.00	7,247.70	6,997.94	132.14	8.21	-92.38	-385.01	387.24	7,912.90	7,878.78	34.12	231.881	
14,800.00	6,945.00	7,247.76	6,998.01	133.72	8.21	-92.40	-385.01	387.24	8,012.88	7,978.68	34.20	234.282	
14,900.00	6,945.00	7,247.83	6,998.07	135.30	8.21	-92.43	-385.01	387.24	8,112.86	8,078.58	34.28	236.667	
15,000.00	6,945.00	7,247.89	6,998.14	136.87	8.21	-92.45	-385.00	387.24	8,212.84	8,178.48	34.36	239.036	
15,100.00	6,945.00	7,247.96	6,998.20	138.45	8.21	-92.47	-385.00	387.24	8,312.82	8,278.38	34.44	241.391	
15,200.00	6,945.00	7,248.02	6,998.26	140.03	8.21	-92.49	-385.00	387.24	8,412.80	8,378.28	34.52	243.729	
15,300.00	6,945.00	7,248.08	6,998.33	141.61	8.21	-92.51	-385.00	387.24	8,512.78	8,478.18	34.60	246.052	
15,400.00	6,945.00	7,248.14	6,998.39	143.19	8.21	-92.53	-385.00	387.24	8,612.76	8,578.08	34.68	248.360	
15,500.00	6,945.00	7,248.21	6,998.45	144.77	8.21	-92.55	-385.00	387.24	8,712.74	8,677.98	34.76	250.653	
15,600.00	6,945.00	7,248.27	6,998.51	146.35	8.21	-92.58	-385.00	387.24	8,812.72	8,777.88	34.84	252.930	
15,700.00	6,945.00	7,248.33	6,998.57	147.94	8.21	-92.60	-385.00	387.24	8,912.70	8,877.78	34.93	255.192	
15,800.00	6,945.00	7,248.39	6,998.63	149.52	8.21	-92.62	-385.00	387.24	9,012.69	8,977.68	35.01	257.438	
15,900.00	6,945.00	7,248.45	6,998.69	151.10	8.21	-92.64	-385.00	387.24	9,112.67	9,077.58	35.09	259.669	
16,000.00	6,945.00	7,248.51	6,998.75	152.68	8.21	-92.66	-385.00	387.24	9,212.65	9,177.48	35.18	261.885	
16,100.00	6,945.00	7,248.56	6,998.81	154.26	8.21	-92.68	-385.00	387.24	9,312.64	9,277.37	35.26	264.086	
16,200.00	6,945.00	7,248.62	6,998.87	155.85	8.21	-92.70	-385.00	387.24	9,412.62	9,377.27	35.35	266.272	
16,300.00	6,945.00	7,248.68	6,998.92	157.43	8.21	-92.72	-385.00	387.24	9,512.61	9,477.17	35.44	268.442	
16,400.00	6,945.00	7,248.74	6,998.98	159.02	8.21	-92.74	-385.00	387.24	9,612.59	9,577.07	35.52	270.597	
16,500.00	6,945.00	7,248.79	6,999.04	160.60	8.21	-92.76	-385.00	387.24	9,712.58	9,676.96	35.61	272.738	
16,600.00	6,945.00	7,248.85	6,999.09	162.18	8.21	-92.77	-385.00	387.24	9,812.56	9,776.86	35.70	274.863	
16,700.00	6,945.00	7,248.91	6,999.15	163.77	8.21	-92.79	-385.00	387.24	9,912.55	9,876.76	35.79	276.973	
16,800.00	6,945.00	7,248.96	6,999.20	165.35	8.21	-92.81	-385.00	387.24	10,012.53	9,976.65	35.88	279.069	
16,900.00	6,945.00	7,249.02	6,999.26	166.94	8.21	-92.83	-385.00	387.24	10,112.52	10,076.55	35.97	281.150	
17,000.00	6,945.00	7,249.07	6,999.31	168.53	8.21	-92.85	-385.00	387.24	10,212.50	10,176.45	36.06	283.215	
17,100.00	6,945.00	7,249.12	6,999.37	170.11	8.21	-92.87	-385.00	387.24	10,312.49	10,276.34	36.15	285.267	
17,200.00	6,945.00	7,249.18	6,999.42	171.70	8.21	-92.89	-385.00	387.24	10,412.48	10,376.24	36.24	287.303	
17,300.00	6,945.00	7,249.23	6,999.47	173.29	8.21	-92.91	-385.00	387.24	10,512.47	10,476.13	36.33	289.325	
17,400.00	6,945.00	7,249.28	6,999.53	174.87	8.21	-92.92	-385.00	387.24	10,612.45	10,576.03	36.43	291.333	
17,500.00	6,945.00	7,249.34	6,999.58	176.46	8.21	-92.94	-385.00	387.24	10,712.44	10,675.92	36.52	293.325	
17,600.00	6,945.00	7,249.39	6,999.63	178.05	8.21	-92.96	-385.00	387.24	10,812.43	10,775.81	36.61	295.304	
17,700.00	6,945.00	7,249.44	6,999.68	179.63	8.21	-92.98	-385.00	387.24	10,912.42	10,875.71	36.71	297.268	
17,800.00	6,945.00	7,249.49	6,999.73	181.22	8.21	-92.99	-384.99	387.24	11,012.41	10,975.60	36.80	299.218	
17,900.00	6,945.00	7,249.54	6,999.78	182.81	8.21	-93.01	-384.99	387.24	11,112.39	11,075.49	36.90	301.154	
18,000.00	6,945.00	7,249.59	6,999.83	184.40	8.21	-93.03	-384.99	387.24	11,212.38	11,175.39	37.00	303.075	
18,100.00	6,945.00	7,249.64	6,999.88	185.99	8.21	-93.05	-384.99	387.24	11,312.37	11,275.28	37.09	304.983	
18,200.00	6,945.00	7,249.69	6,999.93	187.58	8.21	-93.06	-384.99	387.24	11,412.36	11,375.17	37.19	306.876	

CC - Min centre to center distance or 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:	Plan #4	**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)	Minimum Separation (usft)	Separation Factor	Warning
18,300.00	6,945.00	7,249.74	6,999.98	189.16	8.21	-93.08	-384.99	387.24	11,512.35	11,475.06	37.29	308.756	
18,400.00	6,945.00	7,249.79	7,000.03	190.75	8.21	-93.10	-384.99	387.24	11,612.34	11,574.96	37.38	310.622	
18,500.00	6,945.00	7,249.84	7,000.08	192.34	8.21	-93.11	-384.99	387.24	11,712.33	11,674.85	37.48	312.474	
18,600.00	6,945.00	7,249.89	7,000.13	193.93	8.21	-93.13	-384.99	387.24	11,812.32	11,774.74	37.58	314.312	
18,700.00	6,945.00	7,249.93	7,000.18	195.52	8.21	-93.15	-384.99	387.24	11,912.31	11,874.63	37.68	316.137	
18,800.00	6,945.00	7,249.98	7,000.22	197.11	8.21	-93.16	-384.99	387.24	12,012.30	11,974.52	37.78	317.948	
18,900.00	6,945.00	7,250.03	7,000.27	198.70	8.21	-93.18	-384.99	387.24	12,112.29	12,074.41	37.88	319.746	
19,000.00	6,945.00	7,250.08	7,000.32	200.29	8.21	-93.19	-384.99	387.24	12,212.28	12,174.30	37.98	321.530	
19,100.00	6,945.00	7,250.12	7,000.37	201.88	8.21	-93.21	-384.99	387.24	12,312.27	12,274.19	38.08	323.301	
19,200.00	6,945.00	7,250.17	7,000.41	203.47	8.21	-93.23	-384.99	387.24	12,412.26	12,374.08	38.18	325.059	
19,300.00	6,945.00	7,250.21	7,000.46	205.06	8.21	-93.24	-384.99	387.24	12,512.25	12,473.97	38.29	326.804	
19,400.00	6,945.00	7,250.26	7,000.50	206.65	8.21	-93.26	-384.99	387.24	12,612.24	12,573.86	38.39	328.535	
19,500.00	6,945.00	7,250.30	7,000.55	208.24	8.21	-93.27	-384.99	387.24	12,712.24	12,673.74	38.49	330.254	
19,600.00	6,945.00	7,250.35	7,000.59	209.84	8.21	-93.29	-384.99	387.24	12,812.23	12,773.63	38.60	331.960	
19,700.00	6,945.00	7,250.39	7,000.64	211.43	8.21	-93.30	-384.99	387.24	12,912.22	12,873.52	38.70	333.653	
19,800.00	6,945.00	7,250.44	7,000.68	213.02	8.21	-93.32	-384.99	387.24	13,012.21	12,973.41	38.80	335.333	
19,900.00	6,945.00	7,250.48	7,000.73	214.61	8.21	-93.33	-384.99	387.24	13,112.20	13,073.29	38.91	337.001	
20,000.00	6,945.00	7,250.53	7,000.77	216.20	8.21	-93.35	-384.99	387.24	13,212.19	13,173.18	39.01	338.656	
20,100.00	6,945.00	7,250.57	7,000.81	217.79	8.21	-93.36	-384.99	387.24	13,312.19	13,273.07	39.12	340.299	
20,200.00	6,945.00	7,250.61	7,000.85	219.38	8.21	-93.38	-384.99	387.24	13,412.18	13,372.95	39.23	341.929	
20,300.00	6,945.00	7,250.65	7,000.90	220.98	8.21	-93.39	-384.99	387.24	13,512.17	13,472.84	39.33	343.547	
20,400.00	6,945.00	7,250.70	7,000.94	222.57	8.21	-93.41	-384.99	387.24	13,612.16	13,572.73	39.44	345.153	
20,500.00	6,945.00	7,250.74	7,000.98	224.16	8.21	-93.42	-384.99	387.24	13,712.16	13,672.61	39.55	346.747	
20,600.00	6,945.00	7,250.78	7,001.02	225.75	8.21	-93.44	-384.99	387.24	13,812.15	13,772.50	39.65	348.329	
20,700.00	6,945.00	7,250.82	7,001.07	227.35	8.21	-93.45	-384.99	387.24	13,912.14	13,872.38	39.76	349.898	
20,800.00	6,945.00	7,250.86	7,001.11	228.94	8.21	-93.46	-384.99	387.24	14,012.13	13,972.26	39.87	351.456	
20,852.96	6,945.00	7,250.88	7,001.13	229.61	8.21	-93.47	-384.99	387.24	14,065.09	14,020.15	44.94	312.984	

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:	Plan #4	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 95-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	-13.85	859.57	-211.85	887.32				
20.93	20.93	0.00	0.00	0.00	0.00	153.51	859.57	-211.85	886.20				
56.34	56.34	0.00	0.00	0.02	0.00	152.04	859.57	-211.85	885.50	885.48	0.02	N/A CC	
117.41	117.41	54.79	54.79	0.05	1.00	148.97	859.67	-211.79	885.82	884.77	1.05	843.419	
206.68	206.68	142.12	142.12	0.17	2.59	174.91	860.17	-211.45	886.58	883.83	2.75	321.865	
292.93	292.93	229.79	229.79	0.28	4.18	174.40	860.71	-211.03	887.54	883.08	4.46	198.959	
365.00	364.99	306.80	306.79	0.36	5.40	143.76	860.94	-210.57	888.17	882.42	5.75	154.586 ES	
451.00	450.97	394.46	394.46	0.55	6.28	-162.91	860.75	-210.00	889.74	882.91	6.83	130.297	
540.00	539.81	483.17	483.16	0.83	7.39	-157.44	860.54	-209.43	894.26	886.03	8.23	108.713	
665.00	664.37	608.25	608.23	1.26	9.19	-155.31	860.22	-208.59	903.32	892.86	10.46	86.400	
753.00	752.01	696.05	696.04	1.58	10.61	-156.47	860.02	-207.96	910.25	898.07	12.18	74.738	
847.00	845.61	789.41	789.39	1.93	12.13	-153.63	859.78	-207.33	917.69	903.66	14.04	65.383	
939.00	937.22	882.96	882.94	2.27	13.53	-153.60	859.43	-206.79	924.89	909.14	15.76	58.693	
1,030.00	1,027.78	974.09	974.07	2.62	14.81	-165.27	858.92	-206.26	932.63	915.25	17.38	53.674	
1,120.00	1,117.25	1,064.16	1,064.13	2.96	16.29	-162.49	858.42	-205.57	941.34	922.16	19.18	49.083	
1,211.00	1,207.68	1,156.50	1,156.47	3.31	17.87	-165.32	857.82	-204.76	950.35	929.26	21.09	45.056	
1,306.00	1,302.14	1,250.16	1,250.12	3.68	19.60	-163.58	857.25	-203.76	959.27	936.11	23.16	41.421	
1,400.00	1,395.63	1,345.79	1,345.74	4.04	21.36	-162.44	856.62	-202.76	967.70	942.43	25.26	38.303	
1,495.00	1,490.19	1,441.75	1,441.69	4.40	23.23	-163.24	855.95	-201.52	975.50	948.02	27.48	35.498	
1,589.00	1,583.83	1,537.26	1,537.19	4.76	25.22	-165.77	855.08	-199.93	982.22	952.42	29.81	32.953	
1,684.00	1,678.44	1,627.23	1,627.14	5.12	27.12	-163.41	854.46	-198.36	989.42	957.37	32.05	30.868	
1,779.00	1,772.98	1,719.50	1,719.39	5.48	28.99	-159.07	854.09	-197.05	997.58	963.32	34.26	29.116	
1,873.00	1,866.49	1,809.36	1,809.25	5.84	30.63	-157.73	853.85	-196.34	1,006.01	969.77	36.24	27.757	
1,967.00	1,960.05	1,900.70	1,900.59	6.20	32.16	-153.26	853.84	-195.88	1,014.18	976.07	38.11	26.609	
2,062.00	2,054.59	1,994.97	1,994.86	6.56	33.62	-158.82	853.87	-195.61	1,022.66	982.74	39.92	25.615	
2,156.00	2,148.09	2,088.52	2,088.41	6.92	35.11	-159.71	853.88	-195.42	1,031.70	989.94	41.76	24.704	
2,251.00	2,242.55	2,180.28	2,180.18	7.29	34.97	-158.54	853.93	-195.45	1,041.15	999.19	41.96	24.811	
2,345.00	2,336.00	2,270.70	2,270.59	7.65	33.73	-164.76	854.18	-196.00	1,051.25	1,010.19	41.06	25.601	
2,440.00	2,430.43	2,365.42	2,365.30	8.02	32.50	-167.58	854.48	-196.67	1,061.81	1,021.63	40.18	26.428	
2,535.00	2,524.86	2,458.49	2,458.37	8.38	31.36	-166.45	854.82	-197.26	1,072.39	1,033.00	39.39	27.228	
2,629.00	2,618.31	2,552.18	2,552.06	8.75	30.30	-166.60	855.17	-197.87	1,082.80	1,044.14	38.66	28.005	
2,724.00	2,712.77	2,646.28	2,646.16	9.12	29.76	-165.97	855.63	-198.10	1,093.20	1,054.73	38.48	28.413	
2,818.00	2,806.24	2,740.95	2,740.83	9.48	29.99	-165.52	856.21	-198.05	1,103.39	1,064.35	39.04	28.260	
2,913.00	2,900.71	2,833.86	2,833.74	9.84	30.64	-163.42	856.74	-197.87	1,113.44	1,073.40	40.04	27.809	
3,008.00	2,995.25	2,925.99	2,925.86	10.21	30.78	-167.99	857.44	-197.99	1,123.28	1,082.76	40.52	27.722	
3,102.00	3,088.80	3,018.78	3,018.65	10.57	30.66	-167.87	858.14	-198.35	1,133.04	1,092.30	40.74	27.810	
3,197.00	3,183.30	3,116.89	3,116.75	10.93	31.39	-165.01	858.93	-198.27	1,143.20	1,101.38	41.82	27.337	
3,291.00	3,276.71	3,211.72	3,211.59	11.30	32.76	-171.22	859.54	-197.79	1,153.88	1,110.34	43.54	26.501	
3,386.00	3,371.01	3,305.87	3,305.73	11.67	34.29	-172.43	860.11	-197.18	1,165.66	1,120.25	45.41	25.668	
3,480.00	3,464.23	3,398.76	3,398.61	12.04	35.80	-171.16	860.69	-196.59	1,177.94	1,130.67	47.27	24.919	
3,575.00	3,558.47	3,493.08	3,492.93	12.42	37.33	-169.74	861.28	-196.02	1,190.17	1,141.02	49.15	24.217	
3,670.00	3,652.84	3,590.18	3,590.03	12.79	38.94	-168.88	861.81	-195.38	1,201.22	1,150.12	51.11	23.505	
3,764.00	3,746.36	3,684.72	3,684.57	13.15	40.51	-165.79	862.17	-194.85	1,210.64	1,157.62	53.02	22.834	
3,859.00	3,840.97	3,781.51	3,781.36	13.51	41.72	-162.15	862.32	-194.60	1,218.92	1,164.35	54.57	22.335 SF	
3,954.00	3,935.57	3,876.12	3,875.97	13.87	40.79	-162.23	862.21	-194.75	1,227.20	1,173.21	53.99	22.730	
4,049.00	4,030.14	3,970.80	3,970.65	14.23	39.72	-171.49	861.87	-195.39	1,235.88	1,182.62	53.26	23.205	
4,143.00	4,123.75	4,064.77	4,064.61	14.59	38.73	-170.51	861.49	-196.08	1,244.17	1,191.55	52.61	23.647	
4,238.00	4,218.33	4,159.79	4,159.63	14.95	37.79	-170.35	861.14	-196.85	1,252.90	1,200.89	52.01	24.088	
4,333.00	4,312.74	4,253.08	4,252.91	15.32	36.98	-173.26	860.77	-197.62	1,263.26	1,211.71	51.55	24.504	
4,427.00	4,406.05	4,345.46	4,345.29	15.69	36.20	-170.96	860.40	-198.35	1,274.39	1,223.28	51.12	24.932	
4,522.00	4,500.34	4,441.66	4,441.48	16.06	35.39	-170.16	860.11	-199.06	1,285.77	1,235.11	50.66	25.380	
4,616.00	4,593.47	4,539.99	4,539.82	16.44	34.74	-172.49	859.64	-199.78	1,298.19	1,247.84	50.35	25.781	

CC - Min centre to center distance or 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:	Plan #4	**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
4,710.00	4,686.44	4,633.41	4,633.22	16.82	34.33	-171.89	859.00	-200.32	1,311.51	1,261.22	50.29	26.079	
4,899.00	4,873.89	4,822.68	4,822.49	17.57	34.04	-165.80	857.48	-201.16	1,334.03	1,283.33	50.70	26.312	
4,962.00	4,936.56	4,883.45	4,883.26	17.81	33.99	-163.54	857.06	-201.40	1,339.86	1,288.99	50.87	26.339	
5,024.00	4,998.27	4,945.04	4,944.84	18.04	33.92	-167.40	856.62	-201.82	1,345.44	1,294.42	51.03	26.367	
5,150.00	5,123.66	5,069.41	5,069.21	18.53	34.04	-166.58	855.54	-202.62	1,356.71	1,305.11	51.61	26.289	
5,213.00	5,186.37	5,133.49	5,133.28	18.77	34.09	-169.04	855.09	-202.96	1,362.27	1,310.38	51.89	26.253	
5,276.00	5,249.09	5,197.75	5,197.54	19.01	34.23	-168.24	854.57	-203.49	1,367.84	1,315.58	52.26	26.176	
5,339.00	5,311.83	5,258.22	5,258.01	19.25	34.38	-169.26	854.10	-204.00	1,373.18	1,320.55	52.63	26.091	
5,401.00	5,373.58	5,321.31	5,321.09	19.48	34.52	-166.80	853.68	-204.50	1,378.43	1,325.44	52.99	26.011	
5,464.00	5,436.33	5,382.67	5,382.44	19.72	34.90	-169.62	853.05	-205.05	1,383.44	1,329.84	53.60	25.809	
5,590.00	5,561.87	5,511.14	5,510.90	20.19	35.81	-171.08	851.75	-206.58	1,393.40	1,338.43	54.98	25.345	
5,653.00	5,624.66	5,575.89	5,575.65	20.43	36.36	-172.51	851.06	-207.25	1,398.16	1,342.41	55.75	25.079	
5,715.00	5,686.48	5,637.82	5,637.57	20.66	36.95	-177.54	850.30	-207.74	1,402.32	1,345.75	56.57	24.790	
5,778.00	5,749.29	5,701.12	5,700.86	20.90	37.58	-174.88	849.56	-208.22	1,406.60	1,349.17	57.43	24.494	
5,841.00	5,812.10	5,766.87	5,766.60	21.13	38.19	-177.23	848.89	-208.62	1,411.02	1,352.75	58.26	24.218	
5,904.00	5,874.94	5,830.16	5,829.89	21.36	38.96	-171.95	848.09	-208.83	1,414.89	1,355.63	59.26	23.878	
5,967.00	5,937.80	5,893.05	5,892.78	21.60	39.74	-170.45	847.29	-209.07	1,418.36	1,358.09	60.27	23.533	
6,030.00	6,000.68	5,955.97	5,955.69	21.83	40.53	-172.42	846.49	-209.30	1,421.49	1,360.20	61.29	23.194	
6,093.00	6,063.59	6,018.90	6,018.61	22.05	41.32	-168.79	845.69	-209.54	1,424.21	1,361.91	62.30	22.860	
6,156.00	6,126.51	6,028.00	6,027.71	22.28	41.44	-163.51	845.58	-209.58	1,427.64	1,365.08	62.56	22.819	
6,235.00	6,205.43	6,028.00	6,027.71	22.56	41.44	-163.85	845.58	-209.58	1,435.28	1,372.68	62.60	22.927	
6,300.00	6,270.38	6,028.00	6,027.71	22.68	41.44	-163.85	845.58	-209.58	1,444.45	1,382.06	62.39	23.152	
6,355.00	6,325.34	6,028.00	6,027.71	22.69	41.44	-163.85	845.58	-209.58	1,454.44	1,392.38	62.06	23.436	
6,400.00	6,370.23	6,028.00	6,027.71	22.71	41.44	-130.33	845.58	-209.58	1,464.72	1,402.97	61.75	23.721	
6,450.00	6,419.74	6,028.00	6,027.71	22.73	41.44	-121.58	845.58	-209.58	1,479.07	1,417.70	61.37	24.100	
6,500.00	6,468.57	6,028.00	6,027.71	22.77	41.44	-117.11	845.58	-209.58	1,496.33	1,435.36	60.97	24.542	
6,550.00	6,516.42	6,028.00	6,027.71	22.81	41.44	-113.71	845.58	-209.58	1,516.30	1,455.75	60.56	25.038	
6,600.00	6,562.98	6,028.00	6,027.71	22.87	41.44	-110.61	845.58	-209.58	1,538.76	1,478.61	60.15	25.584	
6,650.00	6,607.98	6,028.00	6,027.71	22.95	41.44	-107.50	845.58	-209.58	1,563.45	1,503.70	59.74	26.169	
6,700.00	6,651.14	6,028.00	6,027.71	23.03	41.44	-104.27	845.58	-209.58	1,590.13	1,530.76	59.36	26.786	
6,750.00	6,692.18	6,028.00	6,027.71	23.14	41.44	-100.87	845.58	-209.58	1,618.53	1,559.51	59.02	27.425	
6,800.00	6,730.86	6,028.00	6,027.71	23.26	41.44	-97.28	845.58	-209.58	1,648.40	1,589.70	58.71	28.079	
6,850.00	6,766.93	6,028.00	6,027.71	23.40	41.44	-93.51	845.58	-209.58	1,679.48	1,621.04	58.44	28.737	
6,900.00	6,800.18	6,028.00	6,027.71	23.56	41.44	-89.59	845.58	-209.58	1,711.52	1,653.29	58.23	29.391	
6,950.00	6,830.39	6,028.00	6,027.71	23.74	41.44	-85.57	845.58	-209.58	1,744.27	1,686.19	58.08	30.034	
7,000.00	6,857.38	6,028.00	6,027.71	23.94	41.44	-81.50	845.58	-209.58	1,777.49	1,719.51	57.98	30.658	
7,050.00	6,880.98	6,028.00	6,027.71	24.17	41.44	-77.46	845.58	-209.58	1,810.96	1,753.03	57.94	31.257	
7,100.00	6,901.06	6,028.00	6,027.71	24.42	41.44	-73.49	845.58	-209.58	1,844.47	1,786.52	57.95	31.827	
7,150.00	6,917.47	6,028.00	6,027.71	24.70	41.44	-69.66	845.58	-209.58	1,877.81	1,819.79	58.02	32.364	
7,200.00	6,930.13	6,028.00	6,027.71	25.01	41.44	-66.01	845.58	-209.58	1,910.78	1,852.64	58.14	32.863	
7,250.00	6,938.95	6,028.00	6,027.71	25.34	41.44	-62.58	845.58	-209.58	1,943.22	1,884.91	58.31	33.324	
7,300.00	6,943.88	6,028.00	6,027.71	25.69	41.44	-59.39	845.58	-209.58	1,974.95	1,916.42	58.53	33.744	
7,337.82	6,945.00	6,028.00	6,027.71	25.97	41.44	-57.14	845.58	-209.58	1,998.37	1,939.66	58.71	34.036	
7,400.00	6,945.00	6,028.00	6,027.71	26.45	41.44	-57.66	845.58	-209.58	2,036.60	1,977.56	59.04	34.495	
7,492.38	6,945.00	6,028.00	6,027.71	27.21	41.44	-58.43	845.58	-209.58	2,093.90	2,034.38	59.52	35.180	
7,500.00	6,945.00	6,028.00	6,027.71	27.28	41.44	-58.43	845.58	-209.58	2,098.65	2,039.10	59.56	35.238	
7,600.00	6,945.00	6,028.00	6,027.71	28.17	41.44	-58.43	845.58	-209.58	2,162.60	2,102.53	60.06	36.004	
7,700.00	6,945.00	6,028.00	6,027.71	29.12	41.44	-58.43	845.58	-209.58	2,229.19	2,168.64	60.56	36.811	
7,800.00	6,945.00	6,028.00	6,027.71	30.14	41.44	-58.43	845.58	-209.58	2,298.22	2,237.18	61.03	37.654	
7,900.00	6,945.00	6,028.00	6,027.71	31.20	41.44	-58.43	845.58	-209.58	2,369.45	2,307.96	61.49	38.534	
8,000.00	6,945.00	6,028.00	6,027.71	32.31	41.44	-58.43	845.58	-209.58	2,442.70	2,380.77	61.92	39.446	
8,100.00	6,945.00	6,028.00	6,027.71	33.46	41.44	-58.43	845.58	-209.58	2,517.79	2,455.45	62.34	40.390	

CC - Min centre to center distance or 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:	Plan #4	**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
8,200.00	6,945.00	6,028.00	6,027.71	34.64	41.44	-58.43	845.58	-209.58	2,594.56	2,531.83	62.73	41.362	
8,300.00	6,945.00	6,028.00	6,027.71	35.86	41.44	-58.43	845.58	-209.58	2,672.87	2,609.77	63.10	42.361	
8,400.00	6,945.00	6,028.00	6,027.71	37.11	41.44	-58.43	845.58	-209.58	2,752.58	2,689.13	63.45	43.384	
8,500.00	6,945.00	6,028.00	6,027.71	38.39	41.44	-58.43	845.58	-209.58	2,833.58	2,769.81	63.78	44.429	
8,600.00	6,945.00	6,028.00	6,027.71	39.69	41.44	-58.43	845.58	-209.58	2,915.76	2,851.67	64.09	45.495	
8,700.00	6,945.00	6,028.00	6,027.71	41.01	41.44	-58.43	845.58	-209.58	2,999.03	2,934.64	64.38	46.580	
8,800.00	6,945.00	6,028.00	6,027.71	42.35	41.44	-58.43	845.58	-209.58	3,083.29	3,018.62	64.66	47.683	
8,900.00	6,945.00	6,028.00	6,027.71	43.71	41.44	-58.43	845.58	-209.58	3,168.46	3,103.53	64.93	48.802	
9,000.00	6,945.00	6,028.00	6,027.71	45.08	41.44	-58.43	845.58	-209.58	3,254.48	3,189.30	65.17	49.935	
9,100.00	6,945.00	6,028.00	6,027.71	46.47	41.44	-58.43	845.58	-209.58	3,341.27	3,275.86	65.41	51.082	
9,200.00	6,945.00	6,028.00	6,027.71	47.87	41.44	-58.43	845.58	-209.58	3,428.79	3,363.15	65.63	52.241	
9,300.00	6,945.00	6,028.00	6,027.71	49.29	41.44	-58.43	845.58	-209.58	3,516.97	3,451.12	65.85	53.411	
9,400.00	6,945.00	6,028.00	6,027.71	50.71	41.44	-58.43	845.58	-209.58	3,605.77	3,539.72	66.05	54.592	
9,500.00	6,945.00	6,028.00	6,027.71	52.15	41.44	-58.43	845.58	-209.58	3,695.14	3,628.90	66.24	55.782	
9,600.00	6,945.00	6,028.00	6,027.71	53.59	41.44	-58.43	845.58	-209.58	3,785.04	3,718.61	66.43	56.981	
9,700.00	6,945.00	6,028.00	6,027.71	55.05	41.44	-58.43	845.58	-209.58	3,875.44	3,808.84	66.60	58.187	
9,800.00	6,945.00	6,028.00	6,027.71	56.51	41.44	-58.43	845.58	-209.58	3,966.30	3,899.53	66.77	59.401	
9,900.00	6,945.00	6,028.00	6,027.71	57.98	41.44	-58.43	845.58	-209.58	4,057.58	3,990.65	66.93	60.622	
10,000.00	6,945.00	6,028.00	6,027.71	59.45	41.44	-58.43	845.58	-209.58	4,149.27	4,082.19	67.09	61.849	
10,100.00	6,945.00	6,028.00	6,027.71	60.93	41.44	-58.43	845.58	-209.58	4,241.34	4,174.10	67.24	63.081	
10,200.00	6,945.00	6,028.00	6,027.71	62.42	41.44	-58.43	845.58	-209.58	4,333.76	4,266.38	67.38	64.318	
10,300.00	6,945.00	6,028.00	6,027.71	63.92	41.44	-58.43	845.58	-209.58	4,426.50	4,358.99	67.52	65.559	
10,400.00	6,945.00	6,028.00	6,027.71	65.42	41.44	-58.43	845.58	-209.58	4,519.56	4,451.91	67.65	66.805	
10,500.00	6,945.00	6,028.00	6,027.71	66.92	41.44	-58.43	845.58	-209.58	4,612.91	4,545.12	67.78	68.054	
10,600.00	6,945.00	6,028.00	6,027.71	68.43	41.44	-58.43	845.58	-209.58	4,706.53	4,638.62	67.91	69.307	
10,700.00	6,945.00	6,028.00	6,027.71	69.94	41.44	-58.43	845.58	-209.58	4,800.40	4,732.37	68.03	70.563	
10,800.00	6,945.00	6,028.00	6,027.71	71.45	41.44	-58.43	845.58	-209.58	4,894.52	4,826.38	68.15	71.821	
10,900.00	6,945.00	6,028.00	6,027.71	72.97	41.44	-58.43	845.58	-209.58	4,988.87	4,920.61	68.26	73.082	
11,000.00	6,945.00	6,028.00	6,027.71	74.50	41.44	-58.43	845.58	-209.58	5,083.44	5,015.06	68.38	74.345	
11,100.00	6,945.00	6,028.00	6,027.71	76.02	41.44	-58.43	845.58	-209.58	5,178.21	5,109.72	68.49	75.609	
11,200.00	6,945.00	6,028.00	6,027.71	77.55	41.44	-58.43	845.58	-209.58	5,273.17	5,204.57	68.59	76.875	
11,300.00	6,945.00	6,028.00	6,027.71	79.08	41.44	-58.43	845.58	-209.58	5,368.31	5,299.61	68.70	78.142	
11,400.00	6,945.00	6,028.00	6,027.71	80.62	41.44	-58.43	845.58	-209.58	5,463.63	5,394.83	68.80	79.411	
11,500.00	6,945.00	6,028.00	6,027.71	82.16	41.44	-58.43	845.58	-209.58	5,559.12	5,490.21	68.90	80.680	
11,600.00	6,945.00	6,028.00	6,027.71	83.70	41.44	-58.43	845.58	-209.58	5,654.75	5,585.75	69.00	81.950	
11,700.00	6,945.00	6,028.00	6,027.71	85.24	41.44	-58.43	845.58	-209.58	5,750.54	5,681.44	69.10	83.220	
11,800.00	6,945.00	6,028.00	6,027.71	86.78	41.44	-58.43	845.58	-209.58	5,846.47	5,777.27	69.20	84.491	
11,900.00	6,945.00	6,028.00	6,027.71	88.33	41.44	-58.43	845.58	-209.58	5,942.53	5,873.24	69.29	85.762	
12,000.00	6,945.00	6,028.00	6,027.71	89.87	41.44	-58.43	845.58	-209.58	6,038.72	5,969.34	69.38	87.032	
12,100.00	6,945.00	6,028.00	6,027.71	91.42	41.44	-58.43	845.58	-209.58	6,135.04	6,065.56	69.48	88.303	
12,200.00	6,945.00	6,028.00	6,027.71	92.98	41.44	-58.43	845.58	-209.58	6,231.47	6,161.90	69.57	89.573	
12,300.00	6,945.00	6,028.00	6,027.71	94.53	41.44	-58.43	845.58	-209.58	6,328.01	6,258.35	69.66	90.843	
12,400.00	6,945.00	6,028.00	6,027.71	96.08	41.44	-58.43	845.58	-209.58	6,424.65	6,354.90	69.75	92.113	
12,500.00	6,945.00	6,028.00	6,027.71	97.64	41.44	-58.43	845.58	-209.58	6,521.40	6,451.56	69.84	93.381	
12,600.00	6,945.00	6,028.00	6,027.71	99.20	41.44	-58.43	845.58	-209.58	6,618.24	6,548.32	69.92	94.649	
12,700.00	6,945.00	6,028.00	6,027.71	100.76	41.44	-58.43	845.58	-209.58	6,715.18	6,645.17	70.01	95.916	
12,800.00	6,945.00	6,028.00	6,027.71	102.32	41.44	-58.43	845.58	-209.58	6,812.20	6,742.10	70.10	97.182	
12,900.00	6,945.00	6,028.00	6,027.71	103.88	41.44	-58.43	845.58	-209.58	6,909.31	6,839.13	70.18	98.446	
13,000.00	6,945.00	6,028.00	6,027.71	105.44	41.44	-58.43	845.58	-209.58	7,006.50	6,936.23	70.27	99.710	
13,100.00	6,945.00	6,028.00	6,027.71	107.00	41.44	-58.43	845.58	-209.58	7,103.77	7,033.42	70.35	100.972	
13,200.00	6,945.00	6,028.00	6,027.71	108.57	41.44	-58.43	845.58	-209.58	7,201.11	7,130.67	70.44	102.233	
13,300.00	6,945.00	6,028.00	6,027.71	110.13	41.44	-58.43	845.58	-209.58	7,298.53	7,228.01	70.52	103.492	

CC - Min centre to center distance or 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:	Plan #4	**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
13,400.00	6,945.00	6,028.00	6,027.71	111.70	41.44	-58.43	845.58	-209.58	7,396.01	7,325.41	70.61	104.750	
13,500.00	6,945.00	6,028.00	6,027.71	113.27	41.44	-58.43	845.58	-209.58	7,493.56	7,422.87	70.69	106.006	
13,600.00	6,945.00	6,028.00	6,027.71	114.84	41.44	-58.43	845.58	-209.58	7,591.18	7,520.40	70.77	107.260	
13,700.00	6,945.00	6,028.00	6,027.71	116.41	41.44	-58.43	845.58	-209.58	7,688.85	7,618.00	70.86	108.513	
13,800.00	6,945.00	6,028.00	6,027.71	117.98	41.44	-58.43	845.58	-209.58	7,786.59	7,715.65	70.94	109.763	
13,900.00	6,945.00	6,028.00	6,027.71	119.55	41.44	-58.43	845.58	-209.58	7,884.38	7,813.36	71.02	111.012	
14,000.00	6,945.00	6,028.00	6,027.71	121.12	41.44	-58.43	845.58	-209.58	7,982.22	7,911.12	71.11	112.259	
14,100.00	6,945.00	6,028.00	6,027.71	122.69	41.44	-58.43	845.58	-209.58	8,080.12	8,008.94	71.19	113.503	
14,200.00	6,945.00	6,028.00	6,027.71	124.27	41.44	-58.43	845.58	-209.58	8,178.07	8,106.80	71.27	114.746	
14,300.00	6,945.00	6,028.00	6,027.71	125.84	41.44	-58.43	845.58	-209.58	8,276.07	8,204.72	71.35	115.987	
14,400.00	6,945.00	6,028.00	6,027.71	127.41	41.44	-58.43	845.58	-209.58	8,374.12	8,302.68	71.44	117.225	
14,500.00	6,945.00	6,028.00	6,027.71	128.99	41.44	-58.43	845.58	-209.58	8,472.21	8,400.69	71.52	118.461	
14,600.00	6,945.00	6,028.00	6,027.71	130.57	41.44	-58.43	845.58	-209.58	8,570.35	8,498.74	71.60	119.694	
14,700.00	6,945.00	6,028.00	6,027.71	132.14	41.44	-58.43	845.58	-209.58	8,668.52	8,596.84	71.68	120.925	
14,800.00	6,945.00	6,028.00	6,027.71	133.72	41.44	-58.43	845.58	-209.58	8,766.74	8,694.98	71.77	122.154	
14,900.00	6,945.00	6,028.00	6,027.71	135.30	41.44	-58.43	845.58	-209.58	8,865.00	8,793.15	71.85	123.381	
15,000.00	6,945.00	6,028.00	6,027.71	136.87	41.44	-58.43	845.58	-209.58	8,963.30	8,891.37	71.93	124.605	
15,100.00	6,945.00	6,028.00	6,027.71	138.45	41.44	-58.43	845.58	-209.58	9,061.64	8,989.62	72.02	125.826	
15,200.00	6,945.00	6,028.00	6,027.71	140.03	41.44	-58.43	845.58	-209.58	9,160.01	9,087.91	72.10	127.045	
15,300.00	6,945.00	6,028.00	6,027.71	141.61	41.44	-58.43	845.58	-209.58	9,258.41	9,186.23	72.18	128.261	
15,400.00	6,945.00	6,028.00	6,027.71	143.19	41.44	-58.43	845.58	-209.58	9,356.85	9,284.59	72.27	129.474	
15,500.00	6,945.00	6,028.00	6,027.71	144.77	41.44	-58.43	845.58	-209.58	9,455.33	9,382.97	72.35	130.685	
15,600.00	6,945.00	6,028.00	6,027.71	146.35	41.44	-58.43	845.58	-209.58	9,553.83	9,481.39	72.44	131.893	
15,700.00	6,945.00	6,028.00	6,027.71	147.94	41.44	-58.43	845.58	-209.58	9,652.37	9,579.85	72.52	133.098	
15,800.00	6,945.00	6,028.00	6,027.71	149.52	41.44	-58.43	845.58	-209.58	9,750.93	9,678.33	72.61	134.301	
15,900.00	6,945.00	6,028.00	6,027.71	151.10	41.44	-58.43	845.58	-209.58	9,849.52	9,776.83	72.69	135.501	
16,000.00	6,945.00	6,028.00	6,027.71	152.68	41.44	-58.43	845.58	-209.58	9,948.15	9,875.37	72.77	136.697	
16,100.00	6,945.00	6,028.00	6,027.71	154.26	41.44	-58.43	845.58	-209.58	10,046.80	9,973.94	72.86	137.891	
16,200.00	6,945.00	6,028.00	6,027.71	155.85	41.44	-58.43	845.58	-209.58	10,145.47	10,072.53	72.95	139.083	
16,300.00	6,945.00	6,028.00	6,027.71	157.43	41.44	-58.43	845.58	-209.58	10,244.17	10,171.14	73.03	140.271	
16,400.00	6,945.00	6,028.00	6,027.71	159.02	41.44	-58.43	845.58	-209.58	10,342.90	10,269.78	73.12	141.456	
16,500.00	6,945.00	6,028.00	6,027.71	160.60	41.44	-58.43	845.58	-209.58	10,441.65	10,368.45	73.20	142.638	
16,600.00	6,945.00	6,028.00	6,027.71	162.18	41.44	-58.43	845.58	-209.58	10,540.42	10,467.13	73.29	143.817	
16,700.00	6,945.00	6,028.00	6,027.71	163.77	41.44	-58.43	845.58	-209.58	10,639.22	10,565.84	73.38	144.994	
16,800.00	6,945.00	6,028.00	6,027.71	165.35	41.44	-58.43	845.58	-209.58	10,738.04	10,664.58	73.46	146.167	
16,900.00	6,945.00	6,028.00	6,027.71	166.94	41.44	-58.43	845.58	-209.58	10,836.88	10,763.33	73.55	147.337	
17,000.00	6,945.00	6,028.00	6,027.71	168.53	41.44	-58.43	845.58	-209.58	10,935.74	10,862.10	73.64	148.504	
17,100.00	6,945.00	6,028.00	6,027.71	170.11	41.44	-58.43	845.58	-209.58	11,034.63	10,960.90	73.73	149.668	
17,200.00	6,945.00	6,028.00	6,027.71	171.70	41.44	-58.43	845.58	-209.58	11,133.53	11,059.71	73.82	150.828	
17,300.00	6,945.00	6,028.00	6,027.71	173.29	41.44	-58.43	845.58	-209.58	11,232.45	11,158.55	73.90	151.986	
17,400.00	6,945.00	6,028.00	6,027.71	174.87	41.44	-58.43	845.58	-209.58	11,331.39	11,257.40	73.99	153.141	
17,500.00	6,945.00	6,028.00	6,027.71	176.46	41.44	-58.43	845.58	-209.58	11,430.35	11,356.27	74.08	154.292	
17,600.00	6,945.00	6,028.00	6,027.71	178.05	41.44	-58.43	845.58	-209.58	11,529.33	11,455.16	74.17	155.440	
17,700.00	6,945.00	6,028.00	6,027.71	179.63	41.44	-58.43	845.58	-209.58	11,628.32	11,554.06	74.26	156.585	
17,800.00	6,945.00	6,028.00	6,027.71	181.22	41.44	-58.43	845.58	-209.58	11,727.33	11,652.98	74.35	157.727	
17,900.00	6,945.00	6,028.00	6,027.71	182.81	41.44	-58.43	845.58	-209.58	11,826.36	11,751.92	74.44	158.865	
18,000.00	6,945.00	6,028.00	6,027.71	184.40	41.44	-58.43	845.58	-209.58	11,925.41	11,850.87	74.53	160.001	
18,100.00	6,945.00	6,028.00	6,027.71	185.99	41.44	-58.43	845.58	-209.58	12,024.47	11,949.84	74.62	161.133	
18,200.00	6,945.00	6,028.00	6,027.71	187.58	41.44	-58.43	845.58	-209.58	12,123.54	12,048.83	74.72	162.261	
18,300.00	6,945.00	6,028.00	6,027.71	189.16	41.44	-58.43	845.58	-209.58	12,222.63	12,147.83	74.81	163.387	
18,400.00	6,945.00	6,028.00	6,027.71	190.75	41.44	-58.43	845.58	-209.58	12,321.74	12,246.84	74.90	164.509	
18,500.00	6,945.00	6,028.00	6,027.71	192.34	41.44	-58.43	845.58	-209.58	12,420.86	12,345.87	74.99	165.628	

CC - Min centre to center distance or 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:	Plan #4	**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)	Rule Assigned: Minimum Separation (usft)	Separation Factor	Warning
18,600.00	6,945.00	6,028.00	6,027.71	193.93	41.44	-58.43	845.58	-209.58	12,519.99	12,444.91	75.09	166.744	
18,700.00	6,945.00	6,028.00	6,027.71	195.52	41.44	-58.43	845.58	-209.58	12,619.14	12,543.96	75.18	167.856	
18,800.00	6,945.00	6,028.00	6,027.71	197.11	41.44	-58.43	845.58	-209.58	12,718.30	12,643.03	75.27	168.965	
18,900.00	6,945.00	6,028.00	6,027.71	198.70	41.44	-58.43	845.58	-209.58	12,817.48	12,742.11	75.37	170.071	
19,000.00	6,945.00	6,028.00	6,027.71	200.29	41.44	-58.43	845.58	-209.58	12,916.66	12,841.20	75.46	171.173	
19,100.00	6,945.00	6,028.00	6,027.71	201.88	41.44	-58.43	845.58	-209.58	13,015.86	12,940.31	75.55	172.272	
19,200.00	6,945.00	6,028.00	6,027.71	203.47	41.44	-58.43	845.58	-209.58	13,115.07	13,039.43	75.65	173.368	
19,300.00	6,945.00	6,028.00	6,027.71	205.06	41.44	-58.43	845.58	-209.58	13,214.30	13,138.55	75.74	174.461	
19,400.00	6,945.00	6,028.00	6,027.71	206.65	41.44	-58.43	845.58	-209.58	13,313.53	13,237.69	75.84	175.550	
19,500.00	6,945.00	6,028.00	6,027.71	208.24	41.44	-58.43	845.58	-209.58	13,412.78	13,336.84	75.93	176.635	
19,600.00	6,945.00	6,028.00	6,027.71	209.84	41.44	-58.43	845.58	-209.58	13,512.04	13,436.00	76.03	177.718	
19,700.00	6,945.00	6,028.00	6,027.71	211.43	41.44	-58.43	845.58	-209.58	13,611.30	13,535.18	76.13	178.797	
19,800.00	6,945.00	6,028.00	6,027.71	213.02	41.44	-58.43	845.58	-209.58	13,710.58	13,634.36	76.22	179.872	
19,900.00	6,945.00	6,028.00	6,027.71	214.61	41.44	-58.43	845.58	-209.58	13,809.87	13,733.55	76.32	180.944	
20,000.00	6,945.00	6,028.00	6,027.71	216.20	41.44	-58.43	845.58	-209.58	13,909.17	13,832.75	76.42	182.013	
20,100.00	6,945.00	6,028.00	6,027.71	217.79	41.44	-58.43	845.58	-209.58	14,008.48	13,931.96	76.52	183.079	
20,200.00	6,945.00	6,028.00	6,027.71	219.38	41.44	-58.43	845.58	-209.58	14,107.80	14,031.19	76.61	184.141	
20,300.00	6,945.00	6,028.00	6,027.71	220.98	41.44	-58.43	845.58	-209.58	14,207.13	14,130.42	76.71	185.200	
20,400.00	6,945.00	6,028.00	6,027.71	222.57	41.44	-58.43	845.58	-209.58	14,306.47	14,229.66	76.81	186.255	
20,500.00	6,945.00	6,028.00	6,027.71	224.16	41.44	-58.43	845.58	-209.58	14,405.81	14,328.90	76.91	187.307	
20,600.00	6,945.00	6,028.00	6,027.71	225.75	41.44	-58.43	845.58	-209.58	14,505.17	14,428.16	77.01	188.356	
20,700.00	6,945.00	6,028.00	6,027.71	227.35	41.44	-58.43	845.58	-209.58	14,604.54	14,527.43	77.11	189.401	
20,800.00	6,945.00	6,028.00	6,027.71	228.94	41.44	-58.43	845.58	-209.58	14,703.91	14,626.70	77.21	190.443	
20,852.96	6,945.00	6,028.00	6,027.71	229.61	41.44	-58.43	845.58	-209.58	14,756.54	14,675.12	81.42	181.238	

CC - Min centre to center distance or 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:	Plan #4	**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				
20.93	20.93	0.00	0.00	0.00	0.00	148.77	855.38	-287.69	903.31				
55.37	55.37	0.00	0.00	0.02	0.00	147.34	855.38	-287.69	902.66	902.64	0.02	N/A	CC, ES
117.41	117.41	53.90	53.90	0.05	0.11	144.20	855.36	-288.17	903.03	902.87	0.16	5,593.822	
206.68	206.68	136.21	136.16	0.17	0.29	169.95	855.24	-290.80	904.16	903.72	0.44	2,055.256	
292.93	292.93	215.52	215.34	0.28	0.45	169.12	855.03	-295.48	906.13	905.41	0.71	1,267.818	
365.00	364.99	281.58	281.16	0.36	0.59	138.11	854.78	-300.98	908.35	907.42	0.93	975.783	
451.00	450.97	359.94	359.06	0.55	0.76	-169.07	854.40	-309.40	912.97	911.67	1.30	704.835	
540.00	539.81	440.08	438.47	0.83	0.93	-164.20	853.91	-320.13	921.64	919.88	1.76	524.874	
665.00	664.37	561.00	557.68	1.26	1.18	-163.20	852.99	-340.35	938.38	935.96	2.43	386.809	
753.00	752.01	638.81	634.09	1.58	1.49	-165.15	852.21	-355.01	951.54	948.52	3.02	314.645	
847.00	845.61	698.41	692.61	1.93	1.72	-162.82	852.12	-366.29	966.97	963.39	3.58	270.111	
939.00	937.22	750.33	743.15	2.27	1.98	-163.26	853.50	-378.08	985.95	981.82	4.12	239.029	
1,030.00	1,027.78	829.00	819.05	2.62	2.38	-176.05	856.24	-398.58	1,007.76	1,002.97	4.79	210.384	
1,120.00	1,117.25	878.87	866.83	2.96	2.67	-173.80	858.35	-412.75	1,032.27	1,026.93	5.34	193.364	
1,211.00	1,207.68	945.99	930.55	3.31	3.09	-177.54	862.41	-433.42	1,060.13	1,054.15	5.98	177.163	
1,306.00	1,302.14	1,017.00	997.34	3.68	3.58	-176.73	866.63	-457.13	1,090.39	1,083.71	6.68	163.341	
1,400.00	1,395.63	1,084.44	1,060.08	4.04	4.10	-176.53	870.68	-481.55	1,121.94	1,114.57	7.37	152.240	
1,495.00	1,490.19	1,154.67	1,124.83	4.40	4.65	-178.39	875.02	-508.40	1,155.00	1,146.93	8.07	143.094	
1,589.00	1,583.83	1,203.00	1,169.26	4.76	5.03	178.33	878.44	-527.10	1,188.84	1,180.24	8.60	138.247	
1,684.00	1,678.44	1,273.07	1,233.06	5.12	5.63	179.71	884.16	-555.50	1,225.30	1,216.00	9.30	131.721	
1,779.00	1,772.98	1,443.59	1,387.48	5.48	7.03	-178.49	891.78	-627.19	1,261.18	1,250.44	10.74	117.448	
1,873.00	1,866.49	1,523.46	1,460.24	5.84	7.68	-178.23	892.53	-660.14	1,294.92	1,283.43	11.49	112.673	
1,967.00	1,960.05	1,593.51	1,523.86	6.20	8.27	-174.52	893.38	-689.43	1,329.41	1,317.24	12.18	109.167	
2,062.00	2,054.59	1,654.85	1,579.29	6.56	8.82	178.99	894.67	-715.67	1,366.13	1,353.33	12.80	106.718	
2,156.00	2,148.09	1,717.01	1,635.15	6.92	9.39	177.35	896.64	-742.86	1,404.71	1,391.29	13.42	104.661	
2,251.00	2,242.55	1,779.14	1,690.76	7.29	9.97	177.90	899.29	-770.44	1,445.54	1,431.51	14.03	103.035	
2,345.00	2,336.00	1,838.07	1,743.27	7.65	10.53	170.83	902.55	-796.99	1,487.75	1,473.15	14.60	101.900	
2,440.00	2,430.43	1,887.30	1,786.90	8.02	11.01	167.49	905.94	-819.53	1,532.12	1,517.03	15.08	101.587	
2,535.00	2,524.86	1,949.00	1,840.98	8.38	11.63	168.11	911.55	-848.71	1,578.78	1,563.12	15.66	100.793	
2,629.00	2,618.31	1,995.35	1,881.31	8.75	12.11	167.62	916.31	-871.03	1,626.35	1,610.26	16.10	101.038	
2,724.00	2,712.77	2,073.86	1,949.65	9.12	12.90	167.60	924.32	-908.85	1,674.92	1,658.12	16.80	99.698	
2,818.00	2,806.24	2,150.71	2,016.55	9.48	13.67	167.44	932.36	-945.81	1,723.25	1,705.78	17.47	98.630	
2,913.00	2,900.71	2,251.51	2,104.94	9.84	14.64	168.90	944.37	-992.73	1,772.12	1,753.80	18.32	96.727	
3,008.00	2,995.25	2,367.19	2,207.63	10.21	15.71	163.40	956.29	-1,044.65	1,818.35	1,799.09	19.26	94.387	
3,102.00	3,088.80	2,506.00	2,331.56	10.57	16.98	162.54	969.04	-1,105.83	1,863.40	1,843.01	20.39	91.390	
3,197.00	3,183.30	2,554.74	2,375.25	10.93	17.43	165.23	972.62	-1,127.12	1,908.11	1,887.30	20.81	91.683	
3,291.00	3,276.71	2,598.00	2,413.60	11.30	17.84	158.30	976.38	-1,146.79	1,954.91	1,933.72	21.19	92.271	
3,386.00	3,371.01	2,702.80	2,506.25	11.67	18.85	156.32	985.16	-1,194.96	2,003.20	1,981.12	22.08	90.735	
3,480.00	3,464.23	2,783.57	2,577.83	12.04	19.61	157.06	991.27	-1,231.89	2,050.97	2,028.21	22.76	90.100	
3,575.00	3,558.47	2,851.29	2,637.84	12.42	20.26	158.37	996.76	-1,262.77	2,099.56	2,076.23	23.34	89.957	
3,670.00	3,652.84	3,259.97	3,014.97	12.79	23.31	157.86	1,032.48	-1,414.41	2,143.08	2,117.00	26.08	82.174	
3,764.00	3,746.36	3,337.00	3,088.56	13.15	23.75	161.03	1,036.22	-1,436.89	2,176.07	2,149.45	26.62	81.758	SF
3,859.00	3,840.97	3,337.00	3,088.56	13.51	23.75	164.90	1,036.22	-1,436.89	2,211.77	2,185.05	26.72	82.770	
3,954.00	3,935.57	3,337.00	3,088.56	13.87	23.75	164.89	1,036.22	-1,436.89	2,251.16	2,224.37	26.79	84.020	
4,049.00	4,030.14	3,337.00	3,088.56	14.23	23.75	155.43	1,036.22	-1,436.89	2,293.86	2,267.02	26.84	85.470	
4,143.00	4,123.75	3,337.00	3,088.56	14.59	23.75	156.67	1,036.22	-1,436.89	2,338.61	2,311.76	26.86	87.080	
4,238.00	4,218.33	3,337.00	3,088.56	14.95	23.75	156.72	1,036.22	-1,436.89	2,387.04	2,360.19	26.85	88.895	
4,333.00	4,312.74	3,337.00	3,088.56	15.32	23.75	153.46	1,036.22	-1,436.89	2,439.36	2,412.52	26.84	90.890	
4,427.00	4,406.05	3,337.00	3,088.56	15.69	23.75	156.00	1,036.22	-1,436.89	2,494.28	2,467.47	26.81	93.032	
4,522.00	4,500.34	3,337.00	3,088.56	16.06	23.75	156.96	1,036.22	-1,436.89	2,552.27	2,525.50	26.77	95.352	
4,616.00	4,593.47	3,337.00	3,088.56	16.44	23.75	154.00	1,036.22	-1,436.89	2,612.64	2,585.92	26.72	97.775	

CC - Min centre to center distance or 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:	Plan #4	**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
4,710.00	4,686.44	3,337.00	3,088.56	16.82	23.75	154.86	1,036.22	-1,436.89	2,675.67	2,649.00	26.67	100.317	
4,899.00	4,873.89	3,337.00	3,088.56	17.57	23.75	162.60	1,036.22	-1,436.89	2,805.55	2,779.02	26.53	105.753	
4,962.00	4,936.56	3,337.00	3,088.56	17.81	23.75	165.41	1,036.22	-1,436.89	2,849.34	2,822.87	26.47	107.658	
5,024.00	4,998.27	3,337.00	3,088.56	18.04	23.75	161.17	1,036.22	-1,436.89	2,892.96	2,866.56	26.41	109.550	
5,150.00	5,123.66	3,337.00	3,088.56	18.53	23.75	162.40	1,036.22	-1,436.89	2,983.58	2,957.29	26.29	113.483	
5,213.00	5,186.37	3,337.00	3,088.56	18.77	23.75	159.74	1,036.22	-1,436.89	3,029.72	3,003.49	26.23	115.493	
5,276.00	5,249.09	3,337.00	3,088.56	19.01	23.75	160.79	1,036.22	-1,436.89	3,076.42	3,050.25	26.18	117.527	
5,339.00	5,311.83	3,337.00	3,088.56	19.25	23.75	159.84	1,036.22	-1,436.89	3,123.55	3,097.43	26.12	119.587	
5,401.00	5,373.58	3,337.00	3,088.56	19.48	23.75	162.56	1,036.22	-1,436.89	3,170.44	3,144.38	26.07	121.635	
5,464.00	5,436.33	3,337.00	3,088.56	19.72	23.75	159.73	1,036.22	-1,436.89	3,218.53	3,192.52	26.01	123.737	
5,590.00	5,561.87	3,337.00	3,088.56	20.19	23.75	158.24	1,036.22	-1,436.89	3,315.96	3,290.05	25.91	127.982	
5,653.00	5,624.66	3,337.00	3,088.56	20.43	23.75	156.99	1,036.22	-1,436.89	3,365.25	3,339.39	25.86	130.127	
5,715.00	5,686.48	3,337.00	3,088.56	20.66	23.75	151.75	1,036.22	-1,436.89	3,413.90	3,388.09	25.81	132.248	
5,778.00	5,749.29	3,337.00	3,088.56	20.90	23.75	154.49	1,036.22	-1,436.89	3,463.76	3,437.99	25.77	134.405	
5,841.00	5,812.10	3,337.00	3,088.56	21.13	23.75	152.09	1,036.22	-1,436.89	3,514.09	3,488.36	25.73	136.569	
5,904.00	5,874.94	3,337.00	3,088.56	21.36	23.75	158.10	1,036.22	-1,436.89	3,564.67	3,538.98	25.69	138.749	
5,967.00	5,937.80	3,337.00	3,088.56	21.60	23.75	159.89	1,036.22	-1,436.89	3,615.51	3,589.85	25.65	140.941	
6,030.00	6,000.68	3,337.00	3,088.56	21.83	23.75	158.02	1,036.22	-1,436.89	3,666.52	3,640.91	25.62	143.139	
6,093.00	6,063.59	3,337.00	3,088.56	22.05	23.75	162.10	1,036.22	-1,436.89	3,717.70	3,692.12	25.58	145.342	
6,156.00	6,126.51	3,337.00	3,088.56	22.28	23.75	167.78	1,036.22	-1,436.89	3,769.14	3,743.59	25.54	147.549	
6,235.00	6,205.43	3,337.00	3,088.56	22.56	23.75	167.63	1,036.22	-1,436.89	3,833.87	3,808.37	25.50	150.323	
6,300.00	6,270.38	3,337.00	3,088.56	22.68	23.75	167.63	1,036.22	-1,436.89	3,887.33	3,861.99	25.34	153.394	
6,355.00	6,325.34	3,337.00	3,088.56	22.69	23.75	167.63	1,036.22	-1,436.89	3,932.84	3,907.61	25.23	155.857	
6,400.00	6,370.23	3,337.00	3,088.56	22.71	23.75	-155.61	1,036.22	-1,436.89	3,970.93	3,945.77	25.16	157.837	
6,450.00	6,419.74	3,337.00	3,088.56	22.73	23.75	-142.34	1,036.22	-1,436.89	4,014.80	3,989.71	25.09	159.998	
6,500.00	6,468.57	3,337.00	3,088.56	22.77	23.75	-132.00	1,036.22	-1,436.89	4,060.01	4,034.97	25.04	162.136	
6,550.00	6,516.42	3,337.00	3,088.56	22.81	23.75	-121.05	1,036.22	-1,436.89	4,106.23	4,081.23	25.00	164.240	
6,600.00	6,562.98	3,337.00	3,088.56	22.87	23.75	-108.63	1,036.22	-1,436.89	4,153.15	4,128.18	24.97	166.296	
6,650.00	6,607.98	3,337.00	3,088.56	22.95	23.75	-94.95	1,036.22	-1,436.89	4,200.47	4,175.51	24.96	168.291	
6,700.00	6,651.14	3,337.00	3,088.56	23.03	23.75	-81.15	1,036.22	-1,436.89	4,247.87	4,222.92	24.96	170.214	
6,750.00	6,692.18	3,337.00	3,088.56	23.14	23.75	-68.58	1,036.22	-1,436.89	4,295.08	4,270.11	24.96	172.051	
6,800.00	6,730.86	3,337.00	3,088.56	23.26	23.75	-58.03	1,036.22	-1,436.89	4,341.80	4,316.82	24.98	173.790	
6,850.00	6,766.93	3,337.00	3,088.56	23.40	23.75	-49.60	1,036.22	-1,436.89	4,387.77	4,362.76	25.01	175.420	
6,900.00	6,800.18	3,337.00	3,088.56	23.56	23.75	-43.00	1,036.22	-1,436.89	4,432.74	4,407.69	25.05	176.926	
6,950.00	6,830.39	3,337.00	3,088.56	23.74	23.75	-37.84	1,036.22	-1,436.89	4,476.46	4,451.35	25.11	178.298	
7,000.00	6,857.38	3,337.00	3,088.56	23.94	23.75	-33.78	1,036.22	-1,436.89	4,518.69	4,493.52	25.17	179.524	
7,050.00	6,880.98	3,337.00	3,088.56	24.17	23.75	-30.55	1,036.22	-1,436.89	4,559.23	4,533.99	25.25	180.591	
7,100.00	6,901.06	3,337.00	3,088.56	24.42	23.75	-27.96	1,036.22	-1,436.89	4,597.87	4,572.54	25.33	181.490	
7,150.00	6,917.47	3,337.00	3,088.56	24.70	23.75	-25.86	1,036.22	-1,436.89	4,634.43	4,608.99	25.43	182.210	
7,200.00	6,930.13	3,337.00	3,088.56	25.01	23.75	-24.15	1,036.22	-1,436.89	4,668.72	4,643.17	25.55	182.744	
7,250.00	6,938.95	3,337.00	3,088.56	25.34	23.75	-22.74	1,036.22	-1,436.89	4,700.59	4,674.91	25.67	183.087	
7,300.00	6,943.88	3,337.00	3,088.56	25.69	23.75	-21.59	1,036.22	-1,436.89	4,729.89	4,704.07	25.81	183.235	
7,337.82	6,945.00	3,337.00	3,088.56	25.97	23.75	-20.86	1,036.22	-1,436.89	4,750.26	4,724.34	25.93	183.228	
7,400.00	6,945.00	3,337.00	3,088.56	26.45	23.75	-21.56	1,036.22	-1,436.89	4,782.55	4,756.42	26.13	183.029	
7,492.38	6,945.00	3,337.00	3,088.56	27.21	23.75	-22.61	1,036.22	-1,436.89	4,830.83	4,804.38	26.45	182.651	
7,500.00	6,945.00	3,337.00	3,088.56	27.28	23.75	-22.61	1,036.22	-1,436.89	4,834.82	4,808.35	26.47	182.624	
7,600.00	6,945.00	3,337.00	3,088.56	28.17	23.75	-22.61	1,036.22	-1,436.89	4,888.11	4,861.27	26.84	182.147	
7,700.00	6,945.00	3,337.00	3,088.56	29.12	23.75	-22.61	1,036.22	-1,436.89	4,942.84	4,915.63	27.21	181.635	
7,800.00	6,945.00	3,337.00	3,088.56	30.14	23.75	-22.61	1,036.22	-1,436.89	4,998.98	4,971.37	27.60	181.110	
7,900.00	6,945.00	3,337.00	3,088.56	31.20	23.75	-22.61	1,036.22	-1,436.89	5,056.47	5,028.47	28.00	180.590	
8,000.00	6,945.00	3,337.00	3,088.56	32.31	23.75	-22.61	1,036.22	-1,436.89	5,115.27	5,086.86	28.40	180.089	
8,100.00	6,945.00	3,337.00	3,088.56	33.46	23.75	-22.61	1,036.22	-1,436.89	5,175.33	5,146.52	28.81	179.620	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 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:	Plan #4	**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
8,200.00	6,945.00	3,337.00	3,088.56	34.64	23.75	-22.61	1,036.22	-1,436.89	5,236.61	5,207.39	29.22	179.191	
8,300.00	6,945.00	3,337.00	3,088.56	35.86	23.75	-22.61	1,036.22	-1,436.89	5,299.08	5,269.44	29.64	178.810	
8,400.00	6,945.00	3,337.00	3,088.56	37.11	23.75	-22.61	1,036.22	-1,436.89	5,362.68	5,332.63	30.05	178.482	
8,500.00	6,945.00	3,337.00	3,088.56	38.39	23.75	-22.61	1,036.22	-1,436.89	5,427.37	5,396.92	30.46	178.209	
8,600.00	6,945.00	3,337.00	3,088.56	39.69	23.75	-22.61	1,036.22	-1,436.89	5,493.13	5,462.27	30.86	177.995	
8,700.00	6,945.00	3,337.00	3,088.56	41.01	23.75	-22.61	1,036.22	-1,436.89	5,559.91	5,528.64	31.26	177.841	
8,800.00	6,945.00	3,337.00	3,088.56	42.35	23.75	-22.61	1,036.22	-1,436.89	5,627.67	5,596.01	31.66	177.747	
8,900.00	6,945.00	3,337.00	3,088.56	43.71	23.75	-22.61	1,036.22	-1,436.89	5,696.38	5,664.32	32.05	177.713	
9,000.00	6,945.00	3,337.00	3,088.56	45.08	23.75	-22.61	1,036.22	-1,436.89	5,766.00	5,733.56	32.44	177.738	
9,100.00	6,945.00	3,337.00	3,088.56	46.47	23.75	-22.61	1,036.22	-1,436.89	5,836.51	5,803.69	32.82	177.822	
9,200.00	6,945.00	3,337.00	3,088.56	47.87	23.75	-22.61	1,036.22	-1,436.89	5,907.87	5,874.68	33.20	177.962	
9,300.00	6,945.00	3,337.00	3,088.56	49.29	23.75	-22.61	1,036.22	-1,436.89	5,980.06	5,946.49	33.57	178.157	
9,400.00	6,945.00	3,337.00	3,088.56	50.71	23.75	-22.61	1,036.22	-1,436.89	6,053.03	6,019.10	33.93	178.406	
9,500.00	6,945.00	3,337.00	3,088.56	52.15	23.75	-22.61	1,036.22	-1,436.89	6,126.76	6,092.48	34.28	178.706	
9,600.00	6,945.00	3,337.00	3,088.56	53.59	23.75	-22.61	1,036.22	-1,436.89	6,201.24	6,166.60	34.63	179.056	
9,700.00	6,945.00	3,337.00	3,088.56	55.05	23.75	-22.61	1,036.22	-1,436.89	6,276.42	6,241.44	34.98	179.454	
9,800.00	6,945.00	3,337.00	3,088.56	56.51	23.75	-22.61	1,036.22	-1,436.89	6,352.28	6,316.97	35.31	179.898	
9,900.00	6,945.00	3,337.00	3,088.56	57.98	23.75	-22.61	1,036.22	-1,436.89	6,428.81	6,393.17	35.64	180.385	
10,000.00	6,945.00	3,337.00	3,088.56	59.45	23.75	-22.61	1,036.22	-1,436.89	6,505.97	6,470.01	35.96	180.915	
10,100.00	6,945.00	3,337.00	3,088.56	60.93	23.75	-22.61	1,036.22	-1,436.89	6,583.75	6,547.47	36.28	181.485	
10,200.00	6,945.00	3,337.00	3,088.56	62.42	23.75	-22.61	1,036.22	-1,436.89	6,662.12	6,625.53	36.59	182.093	
10,300.00	6,945.00	3,337.00	3,088.56	63.92	23.75	-22.61	1,036.22	-1,436.89	6,741.06	6,704.17	36.89	182.738	
10,400.00	6,945.00	3,337.00	3,088.56	65.42	23.75	-22.61	1,036.22	-1,436.89	6,820.56	6,783.37	37.19	183.418	
10,500.00	6,945.00	3,337.00	3,088.56	66.92	23.75	-22.61	1,036.22	-1,436.89	6,900.59	6,863.11	37.48	184.132	
10,600.00	6,945.00	3,337.00	3,088.56	68.43	23.75	-22.61	1,036.22	-1,436.89	6,981.13	6,943.37	37.76	184.877	
10,700.00	6,945.00	3,337.00	3,088.56	69.94	23.75	-22.61	1,036.22	-1,436.89	7,062.17	7,024.13	38.04	185.652	
10,800.00	6,945.00	3,337.00	3,088.56	71.45	23.75	-22.61	1,036.22	-1,436.89	7,143.69	7,105.38	38.31	186.457	
10,900.00	6,945.00	3,337.00	3,088.56	72.97	23.75	-22.61	1,036.22	-1,436.89	7,225.68	7,187.10	38.58	187.288	
11,000.00	6,945.00	3,337.00	3,088.56	74.50	23.75	-22.61	1,036.22	-1,436.89	7,308.11	7,269.27	38.84	188.146	
11,100.00	6,945.00	3,337.00	3,088.56	76.02	23.75	-22.61	1,036.22	-1,436.89	7,390.98	7,351.88	39.10	189.029	
11,200.00	6,945.00	3,337.00	3,088.56	77.55	23.75	-22.61	1,036.22	-1,436.89	7,474.27	7,434.92	39.35	189.936	
11,300.00	6,945.00	3,337.00	3,088.56	79.08	23.75	-22.61	1,036.22	-1,436.89	7,557.96	7,518.36	39.60	190.865	
11,400.00	6,945.00	3,337.00	3,088.56	80.62	23.75	-22.61	1,036.22	-1,436.89	7,642.05	7,602.21	39.84	191.815	
11,500.00	6,945.00	3,337.00	3,088.56	82.16	23.75	-22.61	1,036.22	-1,436.89	7,726.51	7,686.43	40.08	192.786	
11,600.00	6,945.00	3,337.00	3,088.56	83.70	23.75	-22.61	1,036.22	-1,436.89	7,811.34	7,771.03	40.31	193.776	
11,700.00	6,945.00	3,337.00	3,088.56	85.24	23.75	-22.61	1,036.22	-1,436.89	7,896.53	7,855.99	40.54	194.785	
11,800.00	6,945.00	3,337.00	3,088.56	86.78	23.75	-22.61	1,036.22	-1,436.89	7,982.06	7,941.29	40.76	195.811	
11,900.00	6,945.00	3,337.00	3,088.56	88.33	23.75	-22.61	1,036.22	-1,436.89	8,067.92	8,026.93	40.98	196.854	
12,000.00	6,945.00	3,337.00	3,088.56	89.87	23.75	-22.61	1,036.22	-1,436.89	8,154.10	8,112.90	41.20	197.912	
12,100.00	6,945.00	3,337.00	3,088.56	91.42	23.75	-22.61	1,036.22	-1,436.89	8,240.60	8,199.19	41.41	198.986	
12,200.00	6,945.00	3,337.00	3,088.56	92.98	23.75	-22.61	1,036.22	-1,436.89	8,327.40	8,285.78	41.62	200.074	
12,300.00	6,945.00	3,337.00	3,088.56	94.53	23.75	-22.61	1,036.22	-1,436.89	8,414.49	8,372.66	41.83	201.175	
12,400.00	6,945.00	3,337.00	3,088.56	96.08	23.75	-22.61	1,036.22	-1,436.89	8,501.87	8,459.84	42.03	202.289	
12,500.00	6,945.00	3,337.00	3,088.56	97.64	23.75	-22.61	1,036.22	-1,436.89	8,589.52	8,547.29	42.23	203.416	
12,600.00	6,945.00	3,337.00	3,088.56	99.20	23.75	-22.61	1,036.22	-1,436.89	8,677.44	8,635.02	42.42	204.553	
12,700.00	6,945.00	3,337.00	3,088.56	100.76	23.75	-22.61	1,036.22	-1,436.89	8,765.61	8,723.00	42.61	205.702	
12,800.00	6,945.00	3,337.00	3,088.56	102.32	23.75	-22.61	1,036.22	-1,436.89	8,854.04	8,811.24	42.80	206.861	
12,900.00	6,945.00	3,337.00	3,088.56	103.88	23.75	-22.61	1,036.22	-1,436.89	8,942.72	8,899.73	42.99	208.030	
13,000.00	6,945.00	3,337.00	3,088.56	105.44	23.75	-22.61	1,036.22	-1,436.89	9,031.63	8,988.46	43.17	209.208	
13,100.00	6,945.00	3,337.00	3,088.56	107.00	23.75	-22.61	1,036.22	-1,436.89	9,120.76	9,077.41	43.35	210.395	
13,200.00	6,945.00	3,337.00	3,088.56	108.57	23.75	-22.61	1,036.22	-1,436.89	9,210.13	9,166.60	43.53	211.590	
13,300.00	6,945.00	3,337.00	3,088.56	110.13	23.75	-22.61	1,036.22	-1,436.89	9,299.71	9,256.00	43.70	212.793	

CC - Min centre to center distance or 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:	Plan #4	**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
13,400.00	6,945.00	3,337.00	3,088.56	111.70	23.75	-22.61	1,036.22	-1,436.89	9,389.49	9,345.62	43.88	214.003	
13,500.00	6,945.00	3,337.00	3,088.56	113.27	23.75	-22.61	1,036.22	-1,436.89	9,479.49	9,435.44	44.05	215.220	
13,600.00	6,945.00	3,337.00	3,088.56	114.84	23.75	-22.61	1,036.22	-1,436.89	9,569.68	9,525.47	44.21	216.444	
13,700.00	6,945.00	3,337.00	3,088.56	116.41	23.75	-22.61	1,036.22	-1,436.89	9,660.07	9,615.69	44.38	217.674	
13,800.00	6,945.00	3,337.00	3,088.56	117.98	23.75	-22.61	1,036.22	-1,436.89	9,750.64	9,706.10	44.54	218.909	
13,900.00	6,945.00	3,337.00	3,088.56	119.55	23.75	-22.61	1,036.22	-1,436.89	9,841.39	9,796.69	44.70	220.150	
14,000.00	6,945.00	3,337.00	3,088.56	121.12	23.75	-22.61	1,036.22	-1,436.89	9,932.33	9,887.46	44.86	221.396	
14,100.00	6,945.00	3,337.00	3,088.56	122.69	23.75	-22.61	1,036.22	-1,436.89	10,023.43	9,978.41	45.02	222.646	
14,200.00	6,945.00	3,337.00	3,088.56	124.27	23.75	-22.61	1,036.22	-1,436.89	10,114.71	10,069.53	45.17	223.901	
14,300.00	6,945.00	3,337.00	3,088.56	125.84	23.75	-22.61	1,036.22	-1,436.89	10,206.14	10,160.82	45.33	225.160	
14,400.00	6,945.00	1,949.00	1,840.98	127.41	11.63	-16.13	911.55	-848.71	10,292.49	10,248.35	44.13	233.224	
14,500.00	6,945.00	1,949.00	1,840.98	128.99	11.63	-16.13	911.55	-848.71	10,378.61	10,334.29	44.33	234.147	
14,600.00	6,945.00	1,949.00	1,840.98	130.57	11.63	-16.13	911.55	-848.71	10,464.99	10,420.47	44.52	235.083	
14,700.00	6,945.00	1,949.00	1,840.98	132.14	11.63	-16.13	911.55	-848.71	10,551.60	10,506.90	44.70	236.030	
14,800.00	6,945.00	1,907.10	1,804.34	133.72	11.21	-15.98	907.57	-828.78	10,638.03	10,593.18	44.85	237.189	
14,900.00	6,945.00	1,897.99	1,796.33	135.30	11.12	-15.95	906.81	-824.51	10,724.91	10,679.88	45.03	238.190	
15,000.00	6,945.00	1,856.00	1,759.21	136.87	10.70	-15.81	903.69	-805.14	10,812.23	10,767.06	45.18	239.338	
15,100.00	6,945.00	1,856.00	1,759.21	138.45	10.70	-15.81	903.69	-805.14	10,899.36	10,854.00	45.36	240.305	
15,200.00	6,945.00	1,856.00	1,759.21	140.03	10.70	-15.81	903.69	-805.14	10,986.70	10,941.17	45.53	241.282	
15,300.00	6,945.00	1,856.00	1,759.21	141.61	10.70	-15.81	903.69	-805.14	11,074.26	11,028.55	45.71	242.268	
15,400.00	6,945.00	1,856.00	1,759.21	143.19	10.70	-15.81	903.69	-805.14	11,162.03	11,116.15	45.88	243.264	
15,500.00	6,945.00	1,856.00	1,759.21	144.77	10.70	-15.81	903.69	-805.14	11,250.00	11,203.95	46.06	244.268	
15,600.00	6,945.00	1,818.87	1,726.20	146.35	10.34	-15.69	901.41	-788.30	11,338.01	11,291.80	46.21	245.374	
15,700.00	6,945.00	1,802.54	1,711.64	147.94	10.19	-15.64	900.50	-780.94	11,426.20	11,379.83	46.37	246.422	
15,800.00	6,945.00	1,763.00	1,676.34	149.52	9.81	-15.52	898.53	-763.24	11,514.58	11,468.06	46.52	247.516	
15,900.00	6,945.00	1,763.00	1,676.34	151.10	9.81	-15.52	898.53	-763.24	11,602.96	11,556.28	46.69	248.530	
16,000.00	6,945.00	1,763.00	1,676.34	152.68	9.81	-15.52	898.53	-763.24	11,691.54	11,644.69	46.85	249.552	
16,100.00	6,945.00	1,763.00	1,676.34	154.26	9.81	-15.52	898.53	-763.24	11,780.29	11,733.28	47.01	250.581	
16,200.00	6,945.00	1,720.27	1,638.08	155.85	9.42	-15.39	896.76	-744.30	11,869.02	11,821.86	47.16	251.660	
16,300.00	6,945.00	1,703.72	1,623.23	157.43	9.27	-15.34	896.16	-737.01	11,957.94	11,910.62	47.32	252.705	
16,400.00	6,945.00	1,670.00	1,592.93	159.02	8.95	-15.25	895.08	-722.26	12,047.01	11,999.54	47.47	253.758	
16,500.00	6,945.00	1,670.00	1,592.93	160.60	8.95	-15.25	895.08	-722.26	12,136.13	12,088.50	47.63	254.792	
16,600.00	6,945.00	1,670.00	1,592.93	162.18	8.95	-15.25	895.08	-722.26	12,225.41	12,177.62	47.79	255.833	
16,700.00	6,945.00	1,670.00	1,592.93	163.77	8.95	-15.25	895.08	-722.26	12,314.86	12,266.92	47.94	256.879	
16,800.00	6,945.00	1,634.97	1,561.36	165.35	8.64	-15.15	894.18	-707.10	12,404.28	12,356.19	48.09	257.917	
16,900.00	6,945.00	1,623.27	1,550.79	166.94	8.54	-15.12	893.92	-702.08	12,493.91	12,445.66	48.25	258.960	
17,000.00	6,945.00	1,611.68	1,540.31	168.53	8.43	-15.09	893.69	-697.13	12,583.65	12,535.25	48.40	260.004	
17,100.00	6,945.00	1,575.00	1,507.08	170.11	8.11	-15.00	893.12	-681.64	12,673.60	12,625.05	48.55	261.022	
17,200.00	6,945.00	1,575.00	1,507.08	171.70	8.11	-15.00	893.12	-681.64	12,763.51	12,714.81	48.70	262.075	
17,300.00	6,945.00	1,575.00	1,507.08	173.29	8.11	-15.00	893.12	-681.64	12,853.56	12,804.71	48.85	263.131	
17,400.00	6,945.00	1,575.00	1,507.08	174.87	8.11	-15.00	893.12	-681.64	12,943.76	12,894.77	48.99	264.192	
17,500.00	6,945.00	1,541.99	1,477.09	176.46	7.83	-14.92	892.73	-667.84	13,034.01	12,984.86	49.15	265.182	
17,600.00	6,945.00	1,523.55	1,460.32	178.05	7.68	-14.87	892.53	-660.18	13,124.36	13,075.06	49.30	266.199	
17,700.00	6,945.00	1,481.00	1,421.57	179.63	7.32	-14.77	892.13	-642.60	13,214.84	13,165.38	49.47	267.145	
17,800.00	6,945.00	1,297.00	1,254.58	181.22	5.83	-14.29	886.33	-565.73	13,304.96	13,255.25	49.71	267.670	
17,900.00	6,945.00	1,297.00	1,254.58	182.81	5.83	-14.29	886.33	-565.73	13,394.99	13,345.14	49.85	268.703	
18,000.00	6,945.00	1,254.33	1,216.10	184.40	5.47	-14.17	882.54	-547.67	13,484.59	13,434.56	50.03	269.557	
18,100.00	6,945.00	1,249.44	1,211.66	185.99	5.42	-14.15	882.13	-545.66	13,574.76	13,524.59	50.17	270.580	
18,200.00	6,945.00	1,244.60	1,207.27	187.58	5.38	-14.14	881.72	-543.68	13,665.05	13,614.74	50.31	271.607	
18,300.00	6,945.00	1,203.00	1,169.26	189.16	5.03	-14.02	878.44	-527.10	13,755.88	13,705.43	50.45	272.672	
18,400.00	6,945.00	1,203.00	1,169.26	190.75	5.03	-14.02	878.44	-527.10	13,846.31	13,795.72	50.59	273.709	
18,500.00	6,945.00	1,203.00	1,169.26	192.34	5.03	-14.02	878.44	-527.10	13,936.87	13,886.14	50.73	274.750	

CC - Min centre to center distance or 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:	Plan #4	**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

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
18,600.00	6,945.00	1,203.00	1,169.26	193.93	5.03	-14.02	878.44	-527.10	14,027.56	13,976.69	50.86	275.792	
18,700.00	6,945.00	1,203.00	1,169.26	195.52	5.03	-14.02	878.44	-527.10	14,118.37	14,067.37	51.00	276.838	
18,800.00	6,945.00	1,203.00	1,169.26	197.11	5.03	-14.02	878.44	-527.10	14,209.31	14,158.17	51.13	277.886	
18,900.00	6,945.00	1,203.00	1,169.26	198.70	5.03	-14.02	878.44	-527.10	14,300.36	14,249.10	51.27	278.936	
19,000.00	6,945.00	1,203.00	1,169.26	200.29	5.03	-14.02	878.44	-527.10	14,391.54	14,340.14	51.40	279.989	
19,100.00	6,945.00	1,203.00	1,169.26	201.88	5.03	-14.02	878.44	-527.10	14,482.83	14,431.30	51.53	281.043	
19,200.00	6,945.00	1,203.00	1,169.26	203.47	5.03	-14.02	878.44	-527.10	14,574.24	14,522.58	51.66	282.100	
19,300.00	6,945.00	1,169.74	1,138.69	205.06	4.76	-13.92	876.05	-514.22	14,665.67	14,613.85	51.82	283.011	
19,400.00	6,945.00	1,152.45	1,122.78	206.65	4.63	-13.87	874.87	-507.54	14,757.19	14,705.23	51.96	283.994	
19,500.00	6,945.00	1,135.24	1,106.94	208.24	4.49	-13.83	873.76	-500.92	14,848.78	14,796.67	52.10	284.979	
19,600.00	6,945.00	1,109.00	1,082.76	209.84	4.28	-13.76	872.14	-490.85	14,940.43	14,888.18	52.25	285.934	
19,700.00	6,945.00	1,109.00	1,082.76	211.43	4.28	-13.76	872.14	-490.85	15,032.14	14,979.76	52.38	286.988	
19,800.00	6,945.00	1,109.00	1,082.76	213.02	4.28	-13.76	872.14	-490.85	15,123.95	15,071.45	52.51	288.042	
19,900.00	6,945.00	1,109.00	1,082.76	214.61	4.28	-13.76	872.14	-490.85	15,215.87	15,163.24	52.63	289.098	
20,000.00	6,945.00	1,109.00	1,082.76	216.20	4.28	-13.76	872.14	-490.85	15,307.89	15,255.13	52.76	290.155	
20,100.00	6,945.00	1,109.00	1,082.76	217.79	4.28	-13.76	872.14	-490.85	15,400.01	15,347.13	52.88	291.212	
20,200.00	6,945.00	1,109.00	1,082.76	219.38	4.28	-13.76	872.14	-490.85	15,492.23	15,439.22	53.01	292.271	
20,300.00	6,945.00	1,109.00	1,082.76	220.98	4.28	-13.76	872.14	-490.85	15,584.54	15,531.41	53.13	293.329	
20,400.00	6,945.00	1,068.14	1,044.98	222.57	3.97	-13.65	869.71	-475.50	15,676.57	15,623.28	53.29	294.151	
20,500.00	6,945.00	1,062.91	1,040.12	224.16	3.93	-13.64	869.40	-473.58	15,768.97	15,715.55	53.42	295.179	
20,600.00	6,945.00	1,057.72	1,035.30	225.75	3.89	-13.62	869.09	-471.68	15,861.45	15,807.90	53.55	296.206	
20,700.00	6,945.00	1,017.00	997.34	227.35	3.58	-13.52	866.63	-457.13	15,954.29	15,900.58	53.71	297.051	
20,800.00	6,945.00	1,017.00	997.34	228.94	3.58	-13.52	866.63	-457.13	16,046.85	15,993.02	53.83	298.104	
20,852.96	6,945.00	1,017.00	997.34	229.61	3.58	-13.52	866.63	-457.13	16,095.90	16,040.45	55.45	290.302	

CC - Min centre to center distance or 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:	Plan #4	**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				
20.93	20.93	0.00	0.00	0.00	0.00	77.02	-62.17	-10,898.23	10,898.48				
117.41	117.41	165.59	165.59	0.05	0.19	72.48	-61.74	-10,897.38	10,898.00	10,897.78	0.22	N/A	
206.68	206.68	442.24	442.17	0.17	0.52	98.40	-59.11	-10,892.17	10,896.29	10,895.69	0.60	N/A	
292.93	292.93	583.00	582.84	0.28	0.71	97.87	-57.11	-10,887.69	10,893.51	10,892.66	0.85	N/A	
365.00	364.99	613.00	612.83	0.36	0.77	67.19	-56.84	-10,886.75	10,891.22	10,890.24	0.98	N/A	
451.00	450.97	626.29	626.11	0.55	0.80	120.51	-56.58	-10,886.43	10,889.78	10,888.53	1.25	8,707.867	
456.87	456.84	627.67	627.49	0.57	0.80	121.19	-56.55	-10,886.40	10,889.78	10,888.50	1.27	8,550.203	CC, ES
540.00	539.81	643.00	642.81	0.83	0.83	126.00	-56.20	-10,886.11	10,891.03	10,889.43	1.59	6,834.858	
665.00	664.37	656.93	656.74	1.26	0.86	128.31	-55.92	-10,885.96	10,896.07	10,893.99	2.08	5,245.273	
753.00	752.01	673.00	672.81	1.58	0.89	127.32	-55.74	-10,885.98	10,900.86	10,898.43	2.43	4,481.092	
847.00	845.61	673.00	672.81	1.93	0.89	130.34	-55.74	-10,885.98	10,906.82	10,904.04	2.78	3,921.500	
939.00	937.22	673.00	672.81	2.27	0.89	130.57	-55.74	-10,885.98	10,913.69	10,910.56	3.12	3,493.989	
1,030.00	1,027.78	704.00	703.79	2.62	0.95	119.08	-55.25	-10,886.70	10,920.74	10,917.21	3.52	3,100.346	
1,120.00	1,117.25	704.00	703.79	2.96	0.95	121.91	-55.25	-10,886.70	10,928.24	10,924.37	3.86	2,829.306	
1,211.00	1,207.68	704.00	703.79	3.31	0.95	119.27	-55.25	-10,886.70	10,936.73	10,932.53	4.21	2,599.043	
1,306.00	1,302.14	719.91	719.69	3.68	0.98	121.15	-54.89	-10,887.37	10,945.98	10,941.39	4.60	2,380.832	
1,400.00	1,395.63	733.00	732.76	4.04	1.00	122.43	-54.65	-10,888.04	10,955.92	10,950.94	4.98	2,201.850	
1,495.00	1,490.19	733.00	732.76	4.40	1.00	121.81	-54.65	-10,888.04	10,966.41	10,961.08	5.33	2,057.673	
1,589.00	1,583.83	747.61	747.33	4.76	1.04	119.38	-54.30	-10,888.96	10,976.86	10,971.15	5.71	1,923.658	
1,684.00	1,678.44	764.00	763.66	5.12	1.07	121.73	-53.61	-10,890.25	10,988.34	10,982.25	6.09	1,804.196	
1,779.00	1,772.98	764.00	763.66	5.48	1.07	126.11	-53.61	-10,890.25	11,001.36	10,994.91	6.44	1,707.396	
1,873.00	1,866.49	764.00	763.66	5.84	1.07	127.63	-53.61	-10,890.25	11,015.56	11,008.77	6.79	1,622.035	
1,967.00	1,960.05	779.91	779.48	6.20	1.11	132.37	-52.80	-10,891.74	11,030.54	11,023.37	7.17	1,538.620	
2,062.00	2,054.59	794.00	793.47	6.56	1.15	126.91	-52.09	-10,893.25	11,046.45	11,038.91	7.55	1,464.053	
2,156.00	2,148.09	794.00	793.47	6.92	1.15	126.18	-52.09	-10,893.25	11,062.81	11,054.92	7.89	1,402.307	
2,251.00	2,242.55	794.00	793.47	7.29	1.15	127.51	-52.09	-10,893.25	11,080.31	11,072.08	8.24	1,345.262	
2,345.00	2,336.00	825.00	824.18	7.65	1.22	121.48	-50.52	-10,897.18	11,098.08	11,089.44	8.65	1,283.472	
2,440.00	2,430.43	825.00	824.18	8.02	1.22	118.85	-50.52	-10,897.18	11,116.10	11,107.10	8.99	1,236.005	
2,535.00	2,524.86	825.00	824.18	8.38	1.22	120.12	-50.52	-10,897.18	11,134.77	11,125.43	9.34	1,192.179	
2,629.00	2,618.31	840.03	839.03	8.75	1.26	120.15	-49.89	-10,899.39	11,153.98	11,144.26	9.71	1,148.267	
2,724.00	2,712.77	855.00	853.80	9.12	1.29	120.93	-49.52	-10,901.78	11,174.12	11,164.03	10.09	1,107.580	
2,818.00	2,806.24	855.00	853.80	9.48	1.29	121.52	-49.52	-10,901.78	11,194.75	11,184.33	10.43	1,073.742	
2,913.00	2,900.71	886.00	884.33	9.84	1.37	123.78	-49.02	-10,907.16	11,216.46	11,205.63	10.83	1,035.450	
3,008.00	2,995.25	886.00	884.33	10.21	1.37	119.43	-49.02	-10,907.16	11,238.30	11,227.13	11.17	1,006.369	
3,102.00	3,088.80	886.00	884.33	10.57	1.37	119.57	-49.02	-10,907.16	11,260.30	11,248.80	11.50	979.385	
3,197.00	3,183.30	886.00	884.33	10.93	1.37	122.50	-49.02	-10,907.16	11,283.72	11,271.89	11.83	953.701	
3,291.00	3,276.71	886.00	884.33	11.30	1.37	116.12	-49.02	-10,907.16	11,307.78	11,295.62	12.16	929.648	
3,386.00	3,371.01	886.00	884.33	11.67	1.37	114.89	-49.02	-10,907.16	11,332.69	11,320.19	12.50	906.522	
3,480.00	3,464.23	948.00	944.86	12.04	1.53	116.12	-47.36	-10,920.42	11,358.06	11,345.07	12.98	874.742	
3,575.00	3,558.47	948.00	944.86	12.42	1.53	117.79	-47.36	-10,920.42	11,384.40	11,371.08	13.32	854.688	
3,670.00	3,652.84	948.00	944.86	12.79	1.53	118.88	-47.36	-10,920.42	11,411.20	11,397.55	13.65	836.020	
3,764.00	3,746.36	948.00	944.86	13.15	1.53	122.36	-47.36	-10,920.42	11,438.08	11,424.11	13.97	818.841	
3,859.00	3,840.97	948.00	944.86	13.51	1.53	126.17	-47.36	-10,920.42	11,465.89	11,451.61	14.29	802.621	
3,954.00	3,935.57	978.00	973.87	13.87	1.64	126.13	-46.03	-10,927.94	11,494.71	11,480.03	14.68	783.024	
4,049.00	4,030.14	978.00	973.87	14.23	1.64	116.94	-46.03	-10,927.94	11,523.65	11,508.65	14.99	768.524	
4,143.00	4,123.75	995.98	991.20	14.59	1.70	118.19	-45.06	-10,932.61	11,552.19	11,536.83	15.35	752.416	
4,238.00	4,218.33	1,010.00	1,004.69	14.95	1.76	118.19	-44.24	-10,936.35	11,581.87	11,566.17	15.71	737.462	
4,333.00	4,312.74	1,010.00	1,004.69	15.32	1.76	115.03	-44.24	-10,936.35	11,612.71	11,596.68	16.02	724.797	
4,427.00	4,406.05	1,010.00	1,004.69	15.69	1.76	117.44	-44.24	-10,936.35	11,644.27	11,627.93	16.34	712.771	
4,522.00	4,500.34	1,041.00	1,034.33	16.06	1.90	118.36	-42.17	-10,945.20	11,677.00	11,660.26	16.74	697.444	
4,616.00	4,593.47	1,041.00	1,034.33	16.44	1.90	115.59	-42.17	-10,945.20	11,710.42	11,693.36	17.06	686.529	

CC - Min centre to center distance or 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:	Plan #4	**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
4,710.00	4,686.44	1,051.55	1,044.36	16.82	1.95	116.39	-41.38	-10,948.38	11,744.83	11,727.42	17.41	674.736	
4,899.00	4,873.89	1,071.00	1,062.83	17.57	2.05	123.60	-39.84	-10,954.28	11,815.08	11,797.00	18.08	653.416	
4,962.00	4,936.56	1,085.96	1,076.98	17.81	2.13	126.32	-38.54	-10,958.93	11,838.60	11,820.27	18.33	645.958	
5,024.00	4,998.27	1,101.00	1,091.15	18.04	2.21	122.33	-37.10	-10,963.78	11,861.92	11,843.36	18.57	638.816	
5,150.00	5,123.66	1,101.00	1,091.15	18.53	2.21	123.50	-37.10	-10,963.78	11,909.75	11,890.79	18.96	628.180	
5,213.00	5,186.37	1,101.00	1,091.15	18.77	2.21	121.02	-37.10	-10,963.78	11,933.95	11,914.80	19.15	623.094	
5,276.00	5,249.09	1,118.76	1,107.79	19.01	2.32	122.01	-35.18	-10,969.68	11,958.28	11,938.88	19.41	616.178	
5,339.00	5,311.83	1,132.00	1,120.15	19.25	2.40	121.15	-33.57	-10,974.15	11,982.76	11,963.11	19.64	609.985	
5,401.00	5,373.58	1,132.00	1,120.15	19.48	2.40	123.67	-33.57	-10,974.15	12,007.11	11,987.27	19.83	605.445	
5,464.00	5,436.33	1,148.76	1,135.74	19.72	2.51	121.06	-31.37	-10,979.89	12,031.99	12,011.91	20.08	599.123	
5,590.00	5,561.87	1,163.00	1,148.95	20.19	2.60	119.70	-29.40	-10,984.82	12,082.01	12,061.50	20.51	589.050	
5,653.00	5,624.66	1,178.77	1,163.54	20.43	2.71	118.52	-27.18	-10,990.37	12,107.17	12,086.42	20.76	583.264	
5,715.00	5,686.48	1,194.00	1,177.60	20.66	2.82	113.62	-25.04	-10,995.83	12,131.80	12,110.80	21.00	577.783	
5,778.00	5,749.29	1,194.00	1,177.60	20.90	2.82	116.22	-25.04	-10,995.83	12,156.95	12,135.77	21.18	573.933	
5,841.00	5,812.10	1,194.00	1,177.60	21.13	2.82	113.96	-25.04	-10,995.83	12,182.43	12,161.06	21.37	570.172	
5,904.00	5,874.94	1,194.00	1,177.60	21.36	2.82	119.50	-25.04	-10,995.83	12,208.13	12,186.58	21.55	566.540	
5,967.00	5,937.80	1,225.00	1,206.03	21.60	3.04	121.19	-20.48	-11,007.32	12,234.06	12,212.20	21.85	559.855	
6,030.00	6,000.68	1,225.00	1,206.03	21.83	3.04	119.40	-20.48	-11,007.32	12,260.04	12,238.01	22.03	556.508	
6,093.00	6,063.59	1,225.00	1,206.03	22.05	3.04	123.25	-20.48	-11,007.32	12,286.14	12,263.94	22.21	553.268	
6,156.00	6,126.51	1,225.00	1,206.03	22.28	3.04	128.64	-20.48	-11,007.32	12,312.58	12,290.20	22.38	550.132	
6,235.00	6,205.43	1,257.00	1,235.10	22.56	3.29	128.57	-15.38	-11,019.68	12,345.88	12,323.15	22.73	543.107	
6,300.00	6,270.38	1,257.00	1,235.10	22.68	3.29	128.57	-15.38	-11,019.68	12,373.29	12,350.50	22.79	543.036	
6,355.00	6,325.34	1,293.49	1,268.11	22.69	3.58	128.60	-9.17	-11,033.95	12,396.65	12,373.72	22.93	540.694	
6,400.00	6,370.23	1,297.00	1,271.28	22.71	3.61	161.20	-8.57	-11,035.32	12,417.25	12,394.31	22.93	541.427	
6,450.00	6,419.74	1,311.12	1,284.02	22.73	3.73	168.63	-6.03	-11,040.86	12,443.48	12,420.48	23.00	541.052	
6,500.00	6,468.57	1,328.00	1,299.18	22.77	3.87	171.47	-2.83	-11,047.56	12,473.12	12,450.04	23.08	540.420 SF	
6,550.00	6,516.42	1,328.00	1,299.18	22.81	3.87	172.89	-2.83	-11,047.56	12,505.88	12,482.79	23.09	541.601	
6,600.00	6,562.98	1,328.00	1,299.18	22.87	3.87	173.67	-2.83	-11,047.56	12,541.61	12,518.51	23.11	542.801	
6,650.00	6,607.98	1,328.00	1,299.18	22.95	3.87	174.10	-2.83	-11,047.56	12,580.06	12,556.94	23.12	544.019	
6,700.00	6,651.14	1,341.61	1,311.36	23.03	3.98	174.30	-0.21	-11,053.02	12,620.94	12,597.73	23.21	543.780	
6,750.00	6,692.18	1,359.00	1,326.92	23.14	4.13	174.31	3.01	-11,060.10	12,664.02	12,640.71	23.31	543.176	
6,800.00	6,730.86	1,359.00	1,326.92	23.26	4.13	174.06	3.01	-11,060.10	12,708.96	12,685.61	23.34	544.452	
6,850.00	6,766.93	1,359.00	1,326.92	23.40	4.13	173.51	3.01	-11,060.10	12,755.50	12,732.13	23.37	545.755	
6,900.00	6,800.18	1,359.00	1,326.92	23.56	4.13	172.42	3.01	-11,060.10	12,803.34	12,779.94	23.40	547.090	
6,950.00	6,830.39	1,359.00	1,326.92	23.74	4.13	170.18	3.01	-11,060.10	12,852.19	12,828.75	23.43	548.459	
7,000.00	6,857.38	1,359.00	1,326.92	23.94	4.13	164.07	3.01	-11,060.10	12,901.71	12,878.25	23.46	549.864	
7,050.00	6,880.98	1,359.00	1,326.92	24.17	4.13	121.56	3.01	-11,060.10	12,951.61	12,928.12	23.49	551.305	
7,100.00	6,901.06	1,359.00	1,326.92	24.42	4.13	18.41	3.01	-11,060.10	13,001.57	12,978.05	23.52	552.776	
7,150.00	6,917.47	1,359.00	1,326.92	24.70	4.13	7.57	3.01	-11,060.10	13,051.28	13,027.74	23.55	554.269	
7,200.00	6,930.13	1,359.00	1,326.92	25.01	4.13	4.32	3.01	-11,060.10	13,100.45	13,076.87	23.57	555.771	
7,250.00	6,938.95	1,359.00	1,326.92	25.34	4.13	2.79	3.01	-11,060.10	13,148.76	13,125.17	23.60	557.264	
7,300.00	6,943.88	1,359.00	1,326.92	25.69	4.13	1.89	3.01	-11,060.10	13,195.95	13,172.33	23.62	558.728	
7,337.82	6,945.00	1,359.00	1,326.92	25.97	4.13	1.43	3.01	-11,060.10	13,230.72	13,207.08	23.63	559.819	
7,400.00	6,945.00	1,344.51	1,313.96	26.45	4.01	-1.24	0.33	-11,054.20	13,287.14	13,263.53	23.60	562.978	
7,492.38	6,945.00	1,328.00	1,299.18	27.21	3.87	-5.19	-2.83	-11,047.56	13,371.05	13,347.47	23.58	567.135	
7,500.00	6,945.00	1,328.00	1,299.18	27.28	3.87	-5.19	-2.83	-11,047.56	13,377.96	13,354.38	23.58	567.335	
7,600.00	6,945.00	1,328.00	1,299.18	28.17	3.87	-5.19	-2.83	-11,047.56	13,468.83	13,445.19	23.64	569.868	
7,700.00	6,945.00	1,328.00	1,299.18	29.12	3.87	-5.19	-2.83	-11,047.56	13,559.82	13,536.13	23.69	572.279	
7,800.00	6,945.00	1,328.00	1,299.18	30.14	3.87	-5.19	-2.83	-11,047.56	13,650.94	13,627.18	23.76	574.574	
7,900.00	6,945.00	1,310.33	1,283.31	31.20	3.72	-5.15	-6.18	-11,040.55	13,742.11	13,718.36	23.75	578.610	
8,000.00	6,945.00	1,297.00	1,271.28	32.31	3.61	-5.11	-8.57	-11,035.32	13,833.43	13,809.66	23.77	582.090	
8,100.00	6,945.00	1,297.00	1,271.28	33.46	3.61	-5.11	-8.57	-11,035.32	13,924.82	13,900.98	23.84	584.040	

CC - Min centre to center distance or 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:	Plan #4	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 553-APC_ISCWSA REV 2 MWD

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
8,200.00	6,945.00	1,257.00	1,235.10	34.64	3.29	-5.01	-15.38	-11,019.68	14,016.29	13,992.53	23.76	589.915	
8,300.00	6,945.00	1,257.00	1,235.10	35.86	3.29	-5.01	-15.38	-11,019.68	14,107.80	14,083.96	23.85	591.635	
8,400.00	6,945.00	1,257.00	1,235.10	37.11	3.29	-5.01	-15.38	-11,019.68	14,199.44	14,175.50	23.93	593.261	
8,500.00	6,945.00	1,239.98	1,219.67	38.39	3.16	-4.97	-18.14	-11,013.06	14,291.10	14,267.14	23.96	596.422	
8,600.00	6,945.00	1,225.00	1,206.03	39.69	3.04	-4.93	-20.48	-11,007.32	14,382.93	14,358.93	24.00	599.296	
8,700.00	6,945.00	1,225.00	1,206.03	41.01	3.04	-4.93	-20.48	-11,007.32	14,474.81	14,450.71	24.10	600.635	
8,800.00	6,945.00	1,225.00	1,206.03	42.35	3.04	-4.93	-20.48	-11,007.32	14,566.80	14,542.59	24.20	601.896	
8,900.00	6,945.00	1,225.00	1,206.03	43.71	3.04	-4.93	-20.48	-11,007.32	14,658.89	14,634.58	24.31	603.081	
9,000.00	6,945.00	1,225.00	1,206.03	45.08	3.04	-4.93	-20.48	-11,007.32	14,751.08	14,726.66	24.41	604.197	
9,100.00	6,945.00	1,225.00	1,206.03	46.47	3.04	-4.93	-20.48	-11,007.32	14,843.37	14,818.85	24.52	605.245	
9,200.00	6,945.00	1,225.00	1,206.03	47.87	3.04	-4.93	-20.48	-11,007.32	14,935.77	14,911.13	24.64	606.230	
9,300.00	6,945.00	1,208.31	1,190.76	49.29	2.92	-4.90	-22.99	-11,001.06	15,028.15	15,003.46	24.69	608.559	
9,400.00	6,945.00	1,194.00	1,177.60	50.71	2.82	-4.86	-25.04	-10,995.83	15,120.74	15,095.98	24.76	610.617	
9,500.00	6,945.00	1,194.00	1,177.60	52.15	2.82	-4.86	-25.04	-10,995.83	15,213.34	15,188.46	24.88	611.401	
9,600.00	6,945.00	1,194.00	1,177.60	53.59	2.82	-4.86	-25.04	-10,995.83	15,306.04	15,281.04	25.00	612.134	
9,700.00	6,945.00	1,194.00	1,177.60	55.05	2.82	-4.86	-25.04	-10,995.83	15,398.83	15,373.70	25.13	612.821	
9,800.00	6,945.00	1,194.00	1,177.60	56.51	2.82	-4.86	-25.04	-10,995.83	15,491.71	15,466.46	25.25	613.463	
9,900.00	6,945.00	1,194.00	1,177.60	57.98	2.82	-4.86	-25.04	-10,995.83	15,584.68	15,559.30	25.38	614.064	
10,000.00	6,945.00	1,194.00	1,177.60	59.45	2.82	-4.86	-25.04	-10,995.83	15,677.73	15,652.22	25.51	614.626	
10,100.00	6,945.00	1,177.78	1,162.63	60.93	2.70	-4.83	-27.32	-10,990.02	15,770.81	15,745.22	25.59	616.335	
10,200.00	6,945.00	1,163.00	1,148.95	62.42	2.60	-4.80	-29.40	-10,984.82	15,864.01	15,838.34	25.67	617.887	
10,300.00	6,945.00	1,163.00	1,148.95	63.92	2.60	-4.80	-29.40	-10,984.82	15,957.25	15,931.44	25.81	618.313	
10,400.00	6,945.00	1,163.00	1,148.95	65.42	2.60	-4.80	-29.40	-10,984.82	16,050.57	16,024.62	25.94	618.711	
10,500.00	6,945.00	1,163.00	1,148.95	66.92	2.60	-4.80	-29.40	-10,984.82	16,143.96	16,117.89	26.08	619.081	
10,600.00	6,945.00	1,163.00	1,148.95	68.43	2.60	-4.80	-29.40	-10,984.82	16,237.44	16,211.22	26.21	619.426	
10,700.00	6,945.00	1,148.43	1,135.44	69.94	2.51	-4.77	-31.41	-10,979.77	16,330.95	16,304.64	26.31	620.687	
10,800.00	6,945.00	1,132.00	1,120.15	71.45	2.40	-4.73	-33.57	-10,974.15	16,424.57	16,398.16	26.40	622.028	
10,900.00	6,945.00	1,132.00	1,120.15	72.97	2.40	-4.73	-33.57	-10,974.15	16,518.21	16,491.66	26.54	622.276	
11,000.00	6,945.00	1,132.00	1,120.15	74.50	2.40	-4.73	-33.57	-10,974.15	16,611.92	16,585.24	26.69	622.506	
11,100.00	6,945.00	1,132.00	1,120.15	76.02	2.40	-4.73	-33.57	-10,974.15	16,705.71	16,678.88	26.83	622.718	
11,200.00	6,945.00	1,132.00	1,120.15	77.55	2.40	-4.73	-33.57	-10,974.15	16,799.57	16,772.60	26.97	622.916	
11,300.00	6,945.00	1,132.00	1,120.15	79.08	2.40	-4.73	-33.57	-10,974.15	16,893.49	16,866.38	27.11	623.099	
11,400.00	6,945.00	1,116.79	1,105.95	80.62	2.31	-4.70	-35.41	-10,969.02	16,987.43	16,960.21	27.22	624.089	
11,500.00	6,945.00	1,101.00	1,091.15	82.16	2.21	-4.67	-37.10	-10,963.78	17,081.50	17,054.18	27.33	625.078	
11,600.00	6,945.00	1,101.00	1,091.15	83.70	2.21	-4.67	-37.10	-10,963.78	17,175.58	17,148.10	27.47	625.199	
11,700.00	6,945.00	1,101.00	1,091.15	85.24	2.21	-4.67	-37.10	-10,963.78	17,269.71	17,242.10	27.62	625.310	
11,800.00	6,945.00	1,101.00	1,091.15	86.78	2.21	-4.67	-37.10	-10,963.78	17,363.92	17,336.16	27.76	625.413	
11,900.00	6,945.00	1,101.00	1,091.15	88.33	2.21	-4.67	-37.10	-10,963.78	17,458.19	17,430.28	27.91	625.508	
12,000.00	6,945.00	1,101.00	1,091.15	89.87	2.21	-4.67	-37.10	-10,963.78	17,552.52	17,524.47	28.06	625.597	
12,100.00	6,945.00	1,101.00	1,091.15	91.42	2.21	-4.67	-37.10	-10,963.78	17,646.92	17,618.71	28.20	625.681	
12,200.00	6,945.00	1,101.00	1,091.15	92.98	2.21	-4.67	-37.10	-10,963.78	17,741.38	17,713.02	28.35	625.759	
12,300.00	6,945.00	1,101.00	1,091.15	94.53	2.21	-4.67	-37.10	-10,963.78	17,835.89	17,807.39	28.50	625.833	
12,400.00	6,945.00	1,101.00	1,091.15	96.08	2.21	-4.67	-37.10	-10,963.78	17,930.47	17,901.82	28.65	625.903	
12,500.00	6,945.00	1,101.00	1,091.15	97.64	2.21	-4.67	-37.10	-10,963.78	18,025.10	17,996.31	28.80	625.971	
12,600.00	6,945.00	1,085.75	1,076.79	99.20	2.13	-4.65	-38.56	-10,958.86	18,119.69	18,090.77	28.92	626.642	
12,700.00	6,945.00	1,071.00	1,062.83	100.76	2.05	-4.63	-39.84	-10,954.28	18,214.49	18,185.45	29.04	627.277	
12,800.00	6,945.00	1,071.00	1,062.83	102.32	2.05	-4.63	-39.84	-10,954.28	18,309.24	18,280.06	29.19	627.316	
12,900.00	6,945.00	1,071.00	1,062.83	103.88	2.05	-4.63	-39.84	-10,954.28	18,404.05	18,374.72	29.34	627.353	
13,000.00	6,945.00	1,071.00	1,062.83	105.44	2.05	-4.63	-39.84	-10,954.28	18,498.92	18,469.43	29.49	627.390	
13,100.00	6,945.00	1,071.00	1,062.83	107.00	2.05	-4.63	-39.84	-10,954.28	18,593.83	18,564.20	29.64	627.428	
13,200.00	6,945.00	1,071.00	1,062.83	108.57	2.05	-4.63	-39.84	-10,954.28	18,688.80	18,659.02	29.78	627.465	
13,300.00	6,945.00	1,071.00	1,062.83	110.13	2.05	-4.63	-39.84	-10,954.28	18,783.83	18,753.89	29.93	627.503	

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:	Plan #4	**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
13,400.00	6,945.00	1,071.00	1,062.83	111.70	2.05	-4.63	-39.84	-10,954.28	18,878.90	18,848.82	30.08	627.542	
13,500.00	6,945.00	1,071.00	1,062.83	113.27	2.05	-4.63	-39.84	-10,954.28	18,974.03	18,943.79	30.23	627.582	
13,600.00	6,945.00	1,058.33	1,050.80	114.84	1.98	-4.61	-40.86	-10,950.43	19,069.18	19,038.82	30.36	628.007	
13,700.00	6,945.00	1,041.00	1,034.33	116.41	1.90	-4.58	-42.17	-10,945.20	19,164.40	19,133.91	30.49	628.556	
13,800.00	6,945.00	1,041.00	1,034.33	117.98	1.90	-4.58	-42.17	-10,945.20	19,259.62	19,228.98	30.64	628.583	
13,900.00	6,945.00	1,041.00	1,034.33	119.55	1.90	-4.58	-42.17	-10,945.20	19,354.89	19,324.10	30.79	628.612	
14,000.00	6,945.00	1,041.00	1,034.33	121.12	1.90	-4.58	-42.17	-10,945.20	19,450.22	19,419.28	30.94	628.643	
14,100.00	6,945.00	1,041.00	1,034.33	122.69	1.90	-4.58	-42.17	-10,945.20	19,545.58	19,514.49	31.09	628.677	
14,200.00	6,945.00	1,041.00	1,034.33	124.27	1.90	-4.58	-42.17	-10,945.20	19,641.00	19,609.76	31.24	628.714	
14,300.00	6,945.00	1,041.00	1,034.33	125.84	1.90	-4.58	-42.17	-10,945.20	19,736.46	19,705.07	31.39	628.754	
14,400.00	6,945.00	1,041.00	1,034.33	127.41	1.90	-4.58	-42.17	-10,945.20	19,831.96	19,800.42	31.54	628.796	
14,500.00	6,945.00	1,041.00	1,034.33	128.99	1.90	-4.58	-42.17	-10,945.20	19,927.51	19,895.82	31.69	628.842	
14,600.00	6,945.00	1,041.00	1,034.33	130.57	1.90	-4.58	-42.17	-10,945.20	20,023.10	19,991.26	31.84	628.891	
14,700.00	6,945.00	1,041.00	1,034.33	132.14	1.90	-4.58	-42.17	-10,945.20	20,118.74	20,086.75	31.99	628.943	
14,800.00	6,945.00	1,041.00	1,034.33	133.72	1.90	-4.58	-42.17	-10,945.20	20,214.41	20,182.28	32.14	628.998	
14,900.00	6,945.00	1,041.00	1,034.33	135.30	1.90	-4.58	-42.17	-10,945.20	20,310.13	20,277.85	32.29	629.056	
15,000.00	6,945.00	1,025.03	1,019.09	136.87	1.82	-4.56	-43.29	-10,940.53	20,405.76	20,373.34	32.42	629.435	
15,100.00	6,945.00	1,010.00	1,004.69	138.45	1.76	-4.54	-44.24	-10,936.35	20,501.63	20,469.08	32.55	629.788	
15,200.00	6,945.00	1,010.00	1,004.69	140.03	1.76	-4.54	-44.24	-10,936.35	20,597.43	20,564.73	32.70	629.843	
15,300.00	6,945.00	1,010.00	1,004.69	141.61	1.76	-4.54	-44.24	-10,936.35	20,693.27	20,660.42	32.85	629.901	
15,400.00	6,945.00	1,010.00	1,004.69	143.19	1.76	-4.54	-44.24	-10,936.35	20,789.14	20,756.14	33.00	629.963	
15,500.00	6,945.00	1,010.00	1,004.69	144.77	1.76	-4.54	-44.24	-10,936.35	20,885.06	20,851.91	33.15	630.028	
15,600.00	6,945.00	1,010.00	1,004.69	146.35	1.76	-4.54	-44.24	-10,936.35	20,981.01	20,947.71	33.30	630.098	
15,700.00	6,945.00	1,010.00	1,004.69	147.94	1.76	-4.54	-44.24	-10,936.35	21,077.00	21,043.56	33.45	630.170	
15,800.00	6,945.00	1,010.00	1,004.69	149.52	1.76	-4.54	-44.24	-10,936.35	21,173.03	21,139.44	33.59	630.247	
15,900.00	6,945.00	1,010.00	1,004.69	151.10	1.76	-4.54	-44.24	-10,936.35	21,269.09	21,235.35	33.74	630.327	
16,000.00	6,945.00	1,010.00	1,004.69	152.68	1.76	-4.54	-44.24	-10,936.35	21,365.19	21,331.30	33.89	630.410	
16,100.00	6,945.00	1,010.00	1,004.69	154.26	1.76	-4.54	-44.24	-10,936.35	21,461.33	21,427.29	34.04	630.497	
16,200.00	6,945.00	1,010.00	1,004.69	155.85	1.76	-4.54	-44.24	-10,936.35	21,557.50	21,523.32	34.19	630.588	
16,300.00	6,945.00	1,010.00	1,004.69	157.43	1.76	-4.54	-44.24	-10,936.35	21,653.71	21,619.37	34.33	630.682	
16,400.00	6,945.00	1,010.00	1,004.69	159.02	1.76	-4.54	-44.24	-10,936.35	21,749.95	21,715.47	34.48	630.779	
16,500.00	6,945.00	1,010.00	1,004.69	160.60	1.76	-4.54	-44.24	-10,936.35	21,846.22	21,811.59	34.63	630.880	
16,600.00	6,945.00	1,010.00	1,004.69	162.18	1.76	-4.54	-44.24	-10,936.35	21,942.53	21,907.76	34.78	630.984	
16,700.00	6,945.00	1,010.00	1,004.69	163.77	1.76	-4.54	-44.24	-10,936.35	22,038.87	22,003.95	34.92	631.091	
16,800.00	6,945.00	1,010.00	1,004.69	165.35	1.76	-4.54	-44.24	-10,936.35	22,135.24	22,100.17	35.07	631.201	
16,900.00	6,945.00	994.60	989.88	166.94	1.70	-4.52	-45.14	-10,932.24	22,231.58	22,196.38	35.21	631.472	
17,000.00	6,945.00	978.00	973.87	168.53	1.64	-4.50	-46.03	-10,927.94	22,328.06	22,292.71	35.34	631.750	
17,100.00	6,945.00	978.00	973.87	170.11	1.64	-4.50	-46.03	-10,927.94	22,424.49	22,389.00	35.49	631.860	
17,200.00	6,945.00	978.00	973.87	171.70	1.64	-4.50	-46.03	-10,927.94	22,520.95	22,485.31	35.64	631.972	
17,300.00	6,945.00	978.00	973.87	173.29	1.64	-4.50	-46.03	-10,927.94	22,617.44	22,581.66	35.78	632.088	
17,400.00	6,945.00	978.00	973.87	174.87	1.64	-4.50	-46.03	-10,927.94	22,713.96	22,678.03	35.93	632.208	
17,500.00	6,945.00	978.00	973.87	176.46	1.64	-4.50	-46.03	-10,927.94	22,810.52	22,774.44	36.07	632.330	
17,600.00	6,945.00	978.00	973.87	178.05	1.64	-4.50	-46.03	-10,927.94	22,907.10	22,870.88	36.22	632.455	
17,700.00	6,945.00	978.00	973.87	179.63	1.64	-4.50	-46.03	-10,927.94	23,003.71	22,967.34	36.36	632.583	
17,800.00	6,945.00	978.00	973.87	181.22	1.64	-4.50	-46.03	-10,927.94	23,100.35	23,063.84	36.51	632.714	
17,900.00	6,945.00	978.00	973.87	182.81	1.64	-4.50	-46.03	-10,927.94	23,197.02	23,160.36	36.65	632.848	
18,000.00	6,945.00	978.00	973.87	184.40	1.64	-4.50	-46.03	-10,927.94	23,293.71	23,256.91	36.80	632.984	
18,100.00	6,945.00	978.00	973.87	185.99	1.64	-4.50	-46.03	-10,927.94	23,390.44	23,353.49	36.94	633.123	
18,200.00	6,945.00	963.85	960.20	187.58	1.59	-4.48	-46.71	-10,924.36	23,487.15	23,450.07	37.09	633.330	
18,300.00	6,945.00	948.00	944.86	189.16	1.53	-4.46	-47.36	-10,920.42	23,583.95	23,546.72	37.23	633.539	
18,400.00	6,945.00	948.00	944.86	190.75	1.53	-4.46	-47.36	-10,920.42	23,680.72	23,643.35	37.37	633.681	
18,500.00	6,945.00	948.00	944.86	192.34	1.53	-4.46	-47.36	-10,920.42	23,777.52	23,740.01	37.51	633.825	

CC - Min centre to center distance or 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:	Plan #4	**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
18,600.00	6,945.00	948.00	944.86	193.93	1.53	-4.46	-47.36	-10,920.42	23,874.35	23,836.69	37.66	633.971	
18,700.00	6,945.00	948.00	944.86	195.52	1.53	-4.46	-47.36	-10,920.42	23,971.20	23,933.40	37.80	634.120	
18,800.00	6,945.00	948.00	944.86	197.11	1.53	-4.46	-47.36	-10,920.42	24,068.08	24,030.13	37.95	634.271	
18,900.00	6,945.00	948.00	944.86	198.70	1.53	-4.46	-47.36	-10,920.42	24,164.98	24,126.89	38.09	634.425	
19,000.00	6,945.00	948.00	944.86	200.29	1.53	-4.46	-47.36	-10,920.42	24,261.91	24,223.68	38.23	634.581	
19,100.00	6,945.00	948.00	944.86	201.88	1.53	-4.46	-47.36	-10,920.42	24,358.87	24,320.49	38.38	634.739	
19,200.00	6,945.00	948.00	944.86	203.47	1.53	-4.46	-47.36	-10,920.42	24,455.85	24,417.33	38.52	634.899	
19,300.00	6,945.00	948.00	944.86	205.06	1.53	-4.46	-47.36	-10,920.42	24,552.85	24,514.19	38.66	635.061	
19,400.00	6,945.00	948.00	944.86	206.65	1.53	-4.46	-47.36	-10,920.42	24,649.88	24,611.07	38.80	635.226	
19,500.00	6,945.00	948.00	944.86	208.24	1.53	-4.46	-47.36	-10,920.42	24,746.93	24,707.98	38.95	635.392	
19,600.00	6,945.00	948.00	944.86	209.84	1.53	-4.46	-47.36	-10,920.42	24,844.00	24,804.91	39.09	635.560	
19,700.00	6,945.00	948.00	944.86	211.43	1.53	-4.46	-47.36	-10,920.42	24,941.10	24,901.87	39.23	635.730	
19,800.00	6,945.00	948.00	944.86	213.02	1.53	-4.46	-47.36	-10,920.42	25,038.22	24,998.84	39.37	635.902	
19,900.00	6,945.00	948.00	944.86	214.61	1.53	-4.46	-47.36	-10,920.42	25,135.36	25,095.84	39.52	636.076	
20,000.00	6,945.00	948.00	944.86	216.20	1.53	-4.46	-47.36	-10,920.42	25,232.53	25,192.87	39.66	636.251	
20,100.00	6,945.00	948.00	944.86	217.79	1.53	-4.46	-47.36	-10,920.42	25,329.71	25,289.91	39.80	636.428	
20,200.00	6,945.00	948.00	944.86	219.38	1.53	-4.46	-47.36	-10,920.42	25,426.92	25,386.98	39.94	636.606	
20,300.00	6,945.00	948.00	944.86	220.98	1.53	-4.46	-47.36	-10,920.42	25,524.15	25,484.07	40.08	636.787	
20,400.00	6,945.00	948.00	944.86	222.57	1.53	-4.46	-47.36	-10,920.42	25,621.40	25,581.18	40.22	636.968	
20,500.00	6,945.00	948.00	944.86	224.16	1.53	-4.46	-47.36	-10,920.42	25,718.68	25,678.31	40.37	637.151	
20,600.00	6,945.00	948.00	944.86	225.75	1.53	-4.46	-47.36	-10,920.42	25,815.97	25,775.46	40.51	637.336	
20,700.00	6,945.00	948.00	944.86	227.35	1.53	-4.46	-47.36	-10,920.42	25,913.28	25,872.64	40.65	637.521	
20,800.00	6,945.00	948.00	944.86	228.94	1.53	-4.46	-47.36	-10,920.42	26,010.62	25,969.83	40.79	637.709	
20,852.96	6,945.00	948.00	944.86	229.61	1.53	-4.46	-47.36	-10,920.42	26,062.17	26,018.35	43.82	594.777	

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:	Plan #4	**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				
20.93	20.93	0.00	0.00	0.00	0.00	121.70	520.70	-533.02	746.30				
60.23	60.23	0.00	0.00	0.02	0.00	120.05	520.70	-533.02	745.27	745.25	0.02	N/A	
117.41	117.41	56.64	56.64	0.05	0.06	117.16	520.66	-532.99	745.34	745.24	0.10	7,330.939	
206.68	206.68	147.90	147.90	0.17	0.17	143.08	520.46	-532.80	745.32	745.03	0.29	2,550.507	
292.93	292.93	236.07	236.06	0.28	0.27	142.56	520.09	-532.47	745.27	744.78	0.49	1,527.014	
365.00	364.99	309.74	309.73	0.36	0.35	111.91	519.66	-532.08	745.03	744.39	0.64	1,161.034	
381.25	381.25	326.35	326.35	0.39	0.37	140.70	519.54	-531.97	744.98	744.28	0.70	1,062.621	CC, ES
451.00	450.97	390.32	390.31	0.55	0.47	165.25	519.13	-531.67	746.09	745.11	0.98	759.101	
540.00	539.81	456.79	456.77	0.83	0.60	170.79	519.58	-532.31	752.26	750.83	1.42	528.514	
665.00	664.37	536.00	535.86	1.26	0.77	173.18	522.48	-535.39	769.42	767.38	2.05	375.468	
753.00	752.01	597.00	596.55	1.58	0.93	172.22	526.71	-539.84	786.16	783.67	2.49	315.192	
847.00	845.61	657.00	655.94	1.93	1.08	175.33	532.60	-545.95	807.80	804.85	2.96	273.147	
939.00	937.22	719.00	716.93	2.27	1.26	175.61	540.48	-553.83	832.51	829.10	3.42	243.737	
1,030.00	1,027.78	769.31	766.04	2.62	1.45	163.87	548.18	-561.52	860.48	856.63	3.84	223.818	
1,120.00	1,117.25	820.67	815.77	2.96	1.68	166.89	557.36	-570.53	892.04	887.77	4.27	208.906	
1,211.00	1,207.68	874.00	866.86	3.31	1.95	164.26	568.32	-581.15	927.35	922.65	4.70	197.474	
1,306.00	1,302.14	925.61	915.74	3.68	2.24	166.33	580.15	-592.70	966.82	961.70	5.12	188.821	
1,400.00	1,395.63	982.87	969.45	4.04	2.61	167.74	594.28	-606.68	1,008.19	1,002.63	5.56	181.324	
1,495.00	1,490.19	1,031.00	1,014.04	4.40	2.94	167.19	607.31	-619.25	1,052.13	1,046.17	5.96	176.493	
1,589.00	1,583.83	1,082.14	1,060.89	4.76	3.33	164.74	622.09	-633.48	1,097.25	1,090.88	6.37	172.229	
1,684.00	1,678.44	1,132.13	1,105.91	5.12	3.74	167.24	637.75	-648.49	1,145.79	1,139.01	6.78	168.963	
1,779.00	1,772.98	1,175.66	1,144.56	5.48	4.13	171.93	652.27	-662.30	1,197.48	1,190.32	7.16	167.135	
1,873.00	1,866.49	1,221.36	1,184.52	5.84	4.55	173.59	668.55	-677.34	1,251.09	1,243.54	7.55	165.775	
1,967.00	1,960.05	1,271.68	1,228.00	6.20	5.05	178.64	687.36	-694.29	1,306.07	1,298.11	7.95	164.187	
2,062.00	2,054.59	1,311.00	1,261.52	6.56	5.46	172.93	702.70	-707.99	1,363.49	1,355.19	8.30	164.268	
2,156.00	2,148.09	1,360.89	1,303.45	6.92	6.00	172.23	722.71	-726.15	1,422.27	1,413.55	8.72	163.114	
2,251.00	2,242.55	1,405.00	1,340.10	7.29	6.50	173.72	740.69	-742.86	1,483.22	1,474.12	9.09	163.106	
2,345.00	2,336.00	1,454.10	1,380.38	7.65	7.07	167.24	761.15	-762.08	1,544.94	1,535.44	9.51	162.524	
2,440.00	2,430.43	1,508.26	1,424.39	8.02	7.71	164.44	783.45	-784.41	1,608.17	1,598.21	9.96	161.506	
2,535.00	2,524.86	1,561.00	1,466.91	8.38	8.35	165.83	805.01	-806.98	1,672.11	1,661.71	10.40	160.732	
2,629.00	2,618.31	1,609.13	1,505.39	8.75	8.96	165.85	824.95	-827.90	1,736.13	1,725.31	10.82	160.452	
2,724.00	2,712.77	1,655.00	1,541.73	9.12	9.55	166.70	844.42	-848.03	1,801.64	1,790.41	11.22	160.527	
2,818.00	2,806.24	1,707.92	1,583.25	9.48	10.23	167.36	867.46	-871.37	1,867.19	1,855.51	11.68	159.870	
2,913.00	2,900.71	1,763.08	1,626.41	9.84	10.93	169.81	891.57	-895.85	1,933.69	1,921.54	12.15	159.118	
3,008.00	2,995.25	1,811.00	1,663.53	10.21	11.57	165.10	912.89	-917.39	2,000.57	1,987.99	12.58	159.078	
3,102.00	3,088.80	1,889.84	1,724.60	10.57	12.57	165.29	948.29	-952.49	2,066.62	2,053.38	13.23	156.169	
3,197.00	3,183.30	1,999.00	1,810.10	10.93	13.91	168.57	997.48	-999.25	2,132.80	2,118.68	14.12	151.032	
3,291.00	3,276.71	2,146.58	1,928.37	11.30	15.69	161.79	1,060.51	-1,061.03	2,196.59	2,181.31	15.29	143.704	
3,386.00	3,371.01	2,230.32	1,996.71	11.67	16.65	160.59	1,096.15	-1,093.76	2,259.99	2,244.02	15.97	141.504	
3,480.00	3,464.23	3,253.00	2,925.31	12.04	24.19	163.13	1,377.95	-1,360.38	2,289.62	2,268.53	21.09	108.570	
3,575.00	3,558.47	3,253.00	2,925.31	12.42	24.19	164.73	1,377.95	-1,360.38	2,322.30	2,300.90	21.40	108.503	SF
3,670.00	3,652.84	3,253.00	2,925.31	12.79	24.19	165.76	1,377.95	-1,360.38	2,357.47	2,335.79	21.68	108.725	
3,764.00	3,746.36	3,253.00	2,925.31	13.15	24.19	169.14	1,377.95	-1,360.38	2,394.33	2,372.40	21.93	109.189	
3,859.00	3,840.97	3,253.00	2,925.31	13.51	24.19	173.02	1,377.95	-1,360.38	2,433.91	2,411.76	22.15	109.897	
3,954.00	3,935.57	3,253.00	2,925.31	13.87	24.19	173.04	1,377.95	-1,360.38	2,476.70	2,454.36	22.34	110.858	
4,049.00	4,030.14	3,253.00	2,925.31	14.23	24.19	163.52	1,377.95	-1,360.38	2,522.49	2,499.98	22.51	112.050	
4,143.00	4,123.75	3,253.00	2,925.31	14.59	24.19	164.74	1,377.95	-1,360.38	2,569.99	2,547.33	22.66	113.422	
4,238.00	4,218.33	3,253.00	2,925.31	14.95	24.19	164.85	1,377.95	-1,360.38	2,620.83	2,598.04	22.79	115.004	
4,333.00	4,312.74	3,253.00	2,925.31	15.32	24.19	161.64	1,377.95	-1,360.38	2,675.31	2,652.40	22.91	116.794	
4,427.00	4,406.05	3,253.00	2,925.31	15.69	24.19	164.22	1,377.95	-1,360.38	2,732.08	2,709.07	23.01	118.750	
4,522.00	4,500.34	3,253.00	2,925.31	16.06	24.19	165.19	1,377.95	-1,360.38	2,791.63	2,768.54	23.09	120.880	

CC - Min centre to center distance or 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:	Plan #4	**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
4,616.00	4,593.47	3,253.00	2,925.31	16.44	24.19	162.36	1,377.95	-1,360.38	2,853.37	2,830.20	23.17	123.131	
4,710.00	4,686.44	3,253.00	2,925.31	16.82	24.19	163.22	1,377.95	-1,360.38	2,917.59	2,894.34	23.25	125.514	
4,899.00	4,873.89	3,253.00	2,925.31	17.57	24.19	170.74	1,377.95	-1,360.38	3,049.04	3,025.69	23.35	130.560	
4,962.00	4,936.56	3,253.00	2,925.31	17.81	24.19	173.44	1,377.95	-1,360.38	3,093.12	3,069.75	23.38	132.307	
5,024.00	4,998.27	3,253.00	2,925.31	18.04	24.19	169.25	1,377.95	-1,360.38	3,136.98	3,113.57	23.40	134.031	
5,150.00	5,123.66	3,253.00	2,925.31	18.53	24.19	170.42	1,377.95	-1,360.38	3,227.91	3,204.45	23.46	137.618	
5,213.00	5,186.37	3,253.00	2,925.31	18.77	24.19	167.77	1,377.95	-1,360.38	3,274.13	3,250.65	23.48	139.451	
5,276.00	5,249.09	3,253.00	2,925.31	19.01	24.19	168.79	1,377.95	-1,360.38	3,320.88	3,297.37	23.50	141.304	
5,339.00	5,311.83	3,253.00	2,925.31	19.25	24.19	167.81	1,377.95	-1,360.38	3,367.99	3,344.47	23.52	143.179	
5,401.00	5,373.58	3,253.00	2,925.31	19.48	24.19	170.55	1,377.95	-1,360.38	3,414.84	3,391.29	23.54	145.040	
5,464.00	5,436.33	3,253.00	2,925.31	19.72	24.19	167.65	1,377.95	-1,360.38	3,462.84	3,439.27	23.57	146.948	
5,590.00	5,561.87	3,253.00	2,925.31	20.19	24.19	166.18	1,377.95	-1,360.38	3,560.01	3,536.40	23.61	150.798	
5,653.00	5,624.66	3,253.00	2,925.31	20.43	24.19	164.84	1,377.95	-1,360.38	3,609.13	3,585.50	23.63	152.740	
5,715.00	5,686.48	3,253.00	2,925.31	20.66	24.19	159.54	1,377.95	-1,360.38	3,657.61	3,633.96	23.65	154.659	
5,778.00	5,749.29	3,253.00	2,925.31	20.90	24.19	162.34	1,377.95	-1,360.38	3,707.27	3,683.60	23.67	156.607	
5,841.00	5,812.10	3,253.00	2,925.31	21.13	24.19	159.91	1,377.95	-1,360.38	3,757.37	3,733.68	23.70	158.562	
5,904.00	5,874.94	3,253.00	2,925.31	21.36	24.19	165.85	1,377.95	-1,360.38	3,807.69	3,783.97	23.72	160.525	
5,967.00	5,937.80	3,253.00	2,925.31	21.60	24.19	167.60	1,377.95	-1,360.38	3,858.22	3,834.48	23.74	162.491	
6,030.00	6,000.68	3,253.00	2,925.31	21.83	24.19	165.66	1,377.95	-1,360.38	3,908.90	3,885.13	23.77	164.457	
6,093.00	6,063.59	3,253.00	2,925.31	22.05	24.19	169.69	1,377.95	-1,360.38	3,959.71	3,935.92	23.79	166.421	
6,156.00	6,126.51	3,253.00	2,925.31	22.28	24.19	175.34	1,377.95	-1,360.38	4,010.75	3,986.93	23.82	168.380	
6,235.00	6,205.43	3,253.00	2,925.31	22.56	24.19	175.08	1,377.95	-1,360.38	4,074.94	4,051.09	23.85	170.834	
6,300.00	6,270.38	3,253.00	2,925.31	22.68	24.19	175.08	1,377.95	-1,360.38	4,127.94	4,104.20	23.75	173.842	
6,355.00	6,325.34	3,253.00	2,925.31	22.69	24.19	175.08	1,377.95	-1,360.38	4,173.06	4,149.37	23.68	176.202	
6,400.00	6,370.23	3,253.00	2,925.31	22.71	24.19	-147.71	1,377.95	-1,360.38	4,210.75	4,187.10	23.64	178.086	
6,450.00	6,419.74	3,253.00	2,925.31	22.73	24.19	-134.02	1,377.95	-1,360.38	4,254.04	4,230.42	23.62	180.123	
6,500.00	6,468.57	3,253.00	2,925.31	22.77	24.19	-123.53	1,377.95	-1,360.38	4,298.53	4,274.93	23.60	182.123	
6,550.00	6,516.42	3,253.00	2,925.31	22.81	24.19	-112.99	1,377.95	-1,360.38	4,343.90	4,320.30	23.60	184.076	
6,600.00	6,562.98	3,253.00	2,925.31	22.87	24.19	-101.80	1,377.95	-1,360.38	4,389.86	4,366.25	23.61	185.969	
6,650.00	6,607.98	3,253.00	2,925.31	22.95	24.19	-90.23	1,377.95	-1,360.38	4,436.10	4,412.48	23.62	187.787	
6,700.00	6,651.14	3,253.00	2,925.31	23.03	24.19	-78.98	1,377.95	-1,360.38	4,482.33	4,458.68	23.65	189.518	
6,750.00	6,692.18	3,253.00	2,925.31	23.14	24.19	-68.73	1,377.95	-1,360.38	4,528.28	4,504.59	23.69	191.146	
6,800.00	6,730.86	3,253.00	2,925.31	23.26	24.19	-59.90	1,377.95	-1,360.38	4,573.67	4,549.93	23.74	192.658	
6,850.00	6,766.93	3,253.00	2,925.31	23.40	24.19	-52.55	1,377.95	-1,360.38	4,618.24	4,594.44	23.80	194.039	
6,900.00	6,800.18	3,253.00	2,925.31	23.56	24.19	-46.55	1,377.95	-1,360.38	4,661.75	4,637.88	23.87	195.274	
6,950.00	6,830.39	3,253.00	2,925.31	23.74	24.19	-41.67	1,377.95	-1,360.38	4,703.95	4,679.99	23.96	196.350	
7,000.00	6,857.38	3,253.00	2,925.31	23.94	24.19	-37.72	1,377.95	-1,360.38	4,744.63	4,720.58	24.05	197.252	
7,050.00	6,880.98	3,253.00	2,925.31	24.17	24.19	-34.49	1,377.95	-1,360.38	4,783.57	4,759.41	24.16	197.968	
7,100.00	6,901.06	3,253.00	2,925.31	24.42	24.19	-31.85	1,377.95	-1,360.38	4,820.59	4,796.30	24.29	198.488	
7,150.00	6,917.47	3,253.00	2,925.31	24.70	24.19	-29.67	1,377.95	-1,360.38	4,855.49	4,831.06	24.42	198.801	
7,200.00	6,930.13	3,253.00	2,925.31	25.01	24.19	-27.87	1,377.95	-1,360.38	4,888.11	4,863.53	24.58	198.901	
7,250.00	6,938.95	3,253.00	2,925.31	25.34	24.19	-26.38	1,377.95	-1,360.38	4,918.30	4,893.55	24.74	198.787	
7,300.00	6,943.88	3,253.00	2,925.31	25.69	24.19	-25.15	1,377.95	-1,360.38	4,945.91	4,920.98	24.92	198.456	
7,337.82	6,945.00	3,253.00	2,925.31	25.97	24.19	-24.36	1,377.95	-1,360.38	4,965.00	4,939.94	25.07	198.076	
7,400.00	6,945.00	3,253.00	2,925.31	26.45	24.19	-24.99	1,377.95	-1,360.38	4,995.15	4,969.82	25.33	197.229	
7,492.38	6,945.00	3,253.00	2,925.31	27.21	24.19	-25.92	1,377.95	-1,360.38	5,040.11	5,014.37	25.74	195.798	
7,500.00	6,945.00	3,253.00	2,925.31	27.28	24.19	-25.92	1,377.95	-1,360.38	5,043.83	5,018.05	25.78	195.682	
7,600.00	6,945.00	3,253.00	2,925.31	28.17	24.19	-25.92	1,377.95	-1,360.38	5,093.45	5,067.20	26.26	193.992	
7,700.00	6,945.00	3,253.00	2,925.31	29.12	24.19	-25.92	1,377.95	-1,360.38	5,144.54	5,117.78	26.76	192.246	
7,800.00	6,945.00	3,253.00	2,925.31	30.14	24.19	-25.92	1,377.95	-1,360.38	5,197.05	5,169.77	27.28	190.481	
7,900.00	6,945.00	3,253.00	2,925.31	31.20	24.19	-25.92	1,377.95	-1,360.38	5,250.94	5,223.12	27.82	188.727	
8,000.00	6,945.00	3,253.00	2,925.31	32.31	24.19	-25.92	1,377.95	-1,360.38	5,306.16	5,277.79	28.37	187.008	

CC - Min centre to center distance or 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:	Plan #4	**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
8,100.00	6,945.00	3,253.00	2,925.31	33.46	24.19	-25.92	1,377.95	-1,360.38	5,362.69	5,333.75	28.93	185.343	
8,200.00	6,945.00	3,253.00	2,925.31	34.64	24.19	-25.92	1,377.95	-1,360.38	5,420.47	5,390.97	29.50	183.747	
8,300.00	6,945.00	3,253.00	2,925.31	35.86	24.19	-25.92	1,377.95	-1,360.38	5,479.46	5,449.39	30.07	182.229	
8,400.00	6,945.00	3,253.00	2,925.31	37.11	24.19	-25.92	1,377.95	-1,360.38	5,539.63	5,508.99	30.64	180.797	
8,500.00	6,945.00	3,253.00	2,925.31	38.39	24.19	-25.92	1,377.95	-1,360.38	5,600.94	5,569.73	31.21	179.456	
8,600.00	6,945.00	3,253.00	2,925.31	39.69	24.19	-25.92	1,377.95	-1,360.38	5,663.35	5,631.58	31.78	178.208	
8,700.00	6,945.00	3,253.00	2,925.31	41.01	24.19	-25.92	1,377.95	-1,360.38	5,726.83	5,694.49	32.34	177.055	
8,800.00	6,945.00	3,253.00	2,925.31	42.35	24.19	-25.92	1,377.95	-1,360.38	5,791.34	5,758.44	32.91	175.997	
8,900.00	6,945.00	3,253.00	2,925.31	43.71	24.19	-25.92	1,377.95	-1,360.38	5,856.85	5,823.39	33.46	175.032	
9,000.00	6,945.00	3,253.00	2,925.31	45.08	24.19	-25.92	1,377.95	-1,360.38	5,923.32	5,889.31	34.01	174.159	
9,100.00	6,945.00	3,253.00	2,925.31	46.47	24.19	-25.92	1,377.95	-1,360.38	5,990.72	5,956.17	34.55	173.375	
9,200.00	6,945.00	3,253.00	2,925.31	47.87	24.19	-25.92	1,377.95	-1,360.38	6,059.03	6,023.94	35.09	172.677	
9,300.00	6,945.00	3,253.00	2,925.31	49.29	24.19	-25.92	1,377.95	-1,360.38	6,128.20	6,092.58	35.62	172.063	
9,400.00	6,945.00	3,253.00	2,925.31	50.71	24.19	-25.92	1,377.95	-1,360.38	6,198.21	6,162.08	36.13	171.530	
9,500.00	6,945.00	3,253.00	2,925.31	52.15	24.19	-25.92	1,377.95	-1,360.38	6,269.04	6,232.40	36.65	171.074	
9,600.00	6,945.00	3,253.00	2,925.31	53.59	24.19	-25.92	1,377.95	-1,360.38	6,340.66	6,303.51	37.15	170.691	
9,700.00	6,945.00	3,253.00	2,925.31	55.05	24.19	-25.92	1,377.95	-1,360.38	6,413.03	6,375.39	37.64	170.380	
9,800.00	6,945.00	3,253.00	2,925.31	56.51	24.19	-25.92	1,377.95	-1,360.38	6,486.14	6,448.01	38.12	170.136	
9,900.00	6,945.00	3,253.00	2,925.31	57.98	24.19	-25.92	1,377.95	-1,360.38	6,559.96	6,521.36	38.60	169.956	
10,000.00	6,945.00	3,253.00	2,925.31	59.45	24.19	-25.92	1,377.95	-1,360.38	6,634.46	6,595.40	39.06	169.837	
10,100.00	6,945.00	3,253.00	2,925.31	60.93	24.19	-25.92	1,377.95	-1,360.38	6,709.63	6,670.11	39.52	169.777	
10,200.00	6,945.00	3,253.00	2,925.31	62.42	24.19	-25.92	1,377.95	-1,360.38	6,785.43	6,745.47	39.97	169.772	
10,300.00	6,945.00	3,253.00	2,925.31	63.92	24.19	-25.92	1,377.95	-1,360.38	6,861.86	6,821.46	40.41	169.821	
10,400.00	6,945.00	3,253.00	2,925.31	65.42	24.19	-25.92	1,377.95	-1,360.38	6,938.89	6,898.05	40.84	169.919	
10,500.00	6,945.00	3,253.00	2,925.31	66.92	24.19	-25.92	1,377.95	-1,360.38	7,016.50	6,975.24	41.26	170.066	
10,600.00	6,945.00	3,253.00	2,925.31	68.43	24.19	-25.92	1,377.95	-1,360.38	7,094.66	7,052.99	41.67	170.257	
10,700.00	6,945.00	3,253.00	2,925.31	69.94	24.19	-25.92	1,377.95	-1,360.38	7,173.37	7,131.30	42.07	170.492	
10,800.00	6,945.00	3,253.00	2,925.31	71.45	24.19	-25.92	1,377.95	-1,360.38	7,252.61	7,210.14	42.47	170.768	
10,900.00	6,945.00	3,253.00	2,925.31	72.97	24.19	-25.92	1,377.95	-1,360.38	7,332.35	7,289.49	42.86	171.084	
11,000.00	6,945.00	3,253.00	2,925.31	74.50	24.19	-25.92	1,377.95	-1,360.38	7,412.58	7,369.35	43.24	171.436	
11,100.00	6,945.00	3,253.00	2,925.31	76.02	24.19	-25.92	1,377.95	-1,360.38	7,493.29	7,449.68	43.61	171.824	
11,200.00	6,945.00	3,253.00	2,925.31	77.55	24.19	-25.92	1,377.95	-1,360.38	7,574.46	7,530.49	43.98	172.245	
11,300.00	6,945.00	3,253.00	2,925.31	79.08	24.19	-25.92	1,377.95	-1,360.38	7,656.08	7,611.74	44.33	172.698	
11,400.00	6,945.00	3,253.00	2,925.31	80.62	24.19	-25.92	1,377.95	-1,360.38	7,738.12	7,693.44	44.68	173.181	
11,500.00	6,945.00	3,253.00	2,925.31	82.16	24.19	-25.92	1,377.95	-1,360.38	7,820.59	7,775.56	45.03	173.694	
11,600.00	6,945.00	3,253.00	2,925.31	83.70	24.19	-25.92	1,377.95	-1,360.38	7,903.45	7,858.09	45.36	174.234	
11,700.00	6,945.00	3,253.00	2,925.31	85.24	24.19	-25.92	1,377.95	-1,360.38	7,986.72	7,941.03	45.69	174.800	
11,800.00	6,945.00	3,253.00	2,925.31	86.78	24.19	-25.92	1,377.95	-1,360.38	8,070.36	8,024.34	46.01	175.391	
11,900.00	6,945.00	3,253.00	2,925.31	88.33	24.19	-25.92	1,377.95	-1,360.38	8,154.37	8,108.04	46.33	176.006	
12,000.00	6,945.00	3,253.00	2,925.31	89.87	24.19	-25.92	1,377.95	-1,360.38	8,238.73	8,192.09	46.64	176.643	
12,100.00	6,945.00	3,253.00	2,925.31	91.42	24.19	-25.92	1,377.95	-1,360.38	8,323.45	8,276.50	46.94	177.302	
12,200.00	6,945.00	3,253.00	2,925.31	92.98	24.19	-25.92	1,377.95	-1,360.38	8,408.50	8,361.25	47.24	177.982	
12,300.00	6,945.00	3,253.00	2,925.31	94.53	24.19	-25.92	1,377.95	-1,360.38	8,493.87	8,446.33	47.54	178.681	
12,400.00	6,945.00	3,253.00	2,925.31	96.08	24.19	-25.92	1,377.95	-1,360.38	8,579.56	8,531.74	47.82	179.399	
12,500.00	6,945.00	3,253.00	2,925.31	97.64	24.19	-25.92	1,377.95	-1,360.38	8,665.56	8,617.45	48.11	180.134	
12,600.00	6,945.00	3,253.00	2,925.31	99.20	24.19	-25.92	1,377.95	-1,360.38	8,751.85	8,703.47	48.38	180.886	
12,700.00	6,945.00	3,253.00	2,925.31	100.76	24.19	-25.92	1,377.95	-1,360.38	8,838.44	8,789.78	48.66	181.655	
12,800.00	6,945.00	3,253.00	2,925.31	102.32	24.19	-25.92	1,377.95	-1,360.38	8,925.30	8,876.38	48.92	182.439	
12,900.00	6,945.00	3,253.00	2,925.31	103.88	24.19	-25.92	1,377.95	-1,360.38	9,012.44	8,963.25	49.18	183.237	
13,000.00	6,945.00	3,253.00	2,925.31	105.44	24.19	-25.92	1,377.95	-1,360.38	9,099.84	9,050.40	49.44	184.050	
13,100.00	6,945.00	3,253.00	2,925.31	107.00	24.19	-25.92	1,377.95	-1,360.38	9,187.50	9,137.80	49.70	184.875	
13,200.00	6,945.00	3,253.00	2,925.31	108.57	24.19	-25.92	1,377.95	-1,360.38	9,275.40	9,225.46	49.94	185.714	

CC - Min centre to center distance or 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:	Plan #4	**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
13,300.00	6,945.00	3,253.00	2,925.31	110.13	24.19	-25.92	1,377.95	-1,360.38	9,363.56	9,313.37	50.19	186.564	
13,400.00	6,945.00	3,253.00	2,925.31	111.70	24.19	-25.92	1,377.95	-1,360.38	9,451.94	9,401.51	50.43	187.426	
13,500.00	6,945.00	3,253.00	2,925.31	113.27	24.19	-25.92	1,377.95	-1,360.38	9,540.56	9,489.89	50.67	188.299	
13,600.00	6,945.00	3,253.00	2,925.31	114.84	24.19	-25.92	1,377.95	-1,360.38	9,629.40	9,578.50	50.90	189.183	
13,700.00	6,945.00	3,253.00	2,925.31	116.41	24.19	-25.92	1,377.95	-1,360.38	9,718.45	9,667.32	51.13	190.076	
13,800.00	6,945.00	3,253.00	2,925.31	117.98	24.19	-25.92	1,377.95	-1,360.38	9,807.72	9,756.36	51.35	190.979	
13,900.00	6,945.00	3,253.00	2,925.31	119.55	24.19	-25.92	1,377.95	-1,360.38	9,897.19	9,845.61	51.58	191.891	
14,000.00	6,945.00	3,253.00	2,925.31	121.12	24.19	-25.92	1,377.95	-1,360.38	9,986.86	9,935.07	51.80	192.812	
14,100.00	6,945.00	3,253.00	2,925.31	122.69	24.19	-25.92	1,377.95	-1,360.38	10,076.73	10,024.72	52.01	193.740	
14,200.00	6,945.00	3,253.00	2,925.31	124.27	24.19	-25.92	1,377.95	-1,360.38	10,166.78	10,114.56	52.22	194.677	
14,300.00	6,945.00	3,253.00	2,925.31	125.84	24.19	-25.92	1,377.95	-1,360.38	10,257.02	10,204.59	52.43	195.621	
14,400.00	6,945.00	3,253.00	2,925.31	127.41	24.19	-25.92	1,377.95	-1,360.38	10,347.44	10,294.80	52.64	196.572	
14,500.00	6,945.00	3,253.00	2,925.31	128.99	24.19	-25.92	1,377.95	-1,360.38	10,438.03	10,385.19	52.84	197.530	
14,600.00	6,945.00	3,253.00	2,925.31	130.57	24.19	-25.92	1,377.95	-1,360.38	10,528.80	10,475.76	53.04	198.494	
14,700.00	6,945.00	3,253.00	2,925.31	132.14	24.19	-25.92	1,377.95	-1,360.38	10,619.73	10,566.49	53.24	199.464	
14,800.00	6,945.00	3,253.00	2,925.31	133.72	24.19	-25.92	1,377.95	-1,360.38	10,710.82	10,657.38	53.44	200.440	
14,900.00	6,945.00	3,253.00	2,925.31	135.30	24.19	-25.92	1,377.95	-1,360.38	10,802.07	10,748.44	53.63	201.421	
15,000.00	6,945.00	3,253.00	2,925.31	136.87	24.19	-25.92	1,377.95	-1,360.38	10,893.47	10,839.65	53.82	202.408	
15,100.00	6,945.00	3,253.00	2,925.31	138.45	24.19	-25.92	1,377.95	-1,360.38	10,985.02	10,931.02	54.01	203.399	
15,200.00	6,945.00	3,253.00	2,925.31	140.03	24.19	-25.92	1,377.95	-1,360.38	11,076.72	11,022.53	54.19	204.395	
15,300.00	6,945.00	3,253.00	2,925.31	141.61	24.19	-25.92	1,377.95	-1,360.38	11,168.56	11,114.19	54.38	205.396	
15,400.00	6,945.00	3,253.00	2,925.31	143.19	24.19	-25.92	1,377.95	-1,360.38	11,260.54	11,205.99	54.56	206.400	
15,500.00	6,945.00	3,253.00	2,925.31	144.77	24.19	-25.92	1,377.95	-1,360.38	11,352.66	11,297.93	54.74	207.409	
15,600.00	6,945.00	3,253.00	2,925.31	146.35	24.19	-25.92	1,377.95	-1,360.38	11,444.91	11,390.00	54.91	208.421	
15,700.00	6,945.00	3,253.00	2,925.31	147.94	24.19	-25.92	1,377.95	-1,360.38	11,537.29	11,482.20	55.09	209.436	
15,800.00	6,945.00	3,253.00	2,925.31	149.52	24.19	-25.92	1,377.95	-1,360.38	11,629.79	11,574.53	55.26	210.455	
15,900.00	6,945.00	1,436.00	1,365.60	151.10	6.86	-13.27	753.59	-754.89	11,719.62	11,672.43	47.19	248.335	
16,000.00	6,945.00	1,405.00	1,340.10	152.68	6.50	-13.09	740.69	-742.86	11,807.19	11,759.98	47.21	250.097	
16,100.00	6,945.00	1,405.00	1,340.10	154.26	6.50	-13.09	740.69	-742.86	11,894.91	11,847.52	47.39	251.008	
16,200.00	6,945.00	1,405.00	1,340.10	155.85	6.50	-13.09	740.69	-742.86	11,982.82	11,935.25	47.56	251.928	
16,300.00	6,945.00	1,405.00	1,340.10	157.43	6.50	-13.09	740.69	-742.86	12,070.92	12,023.18	47.74	252.856	
16,400.00	6,945.00	1,385.80	1,324.19	159.02	6.28	-12.97	732.82	-735.55	12,159.15	12,111.34	47.81	254.308	
16,500.00	6,945.00	1,374.00	1,314.38	160.60	6.15	-12.90	728.02	-731.08	12,247.53	12,199.61	47.93	255.556	
16,600.00	6,945.00	1,374.00	1,314.38	162.18	6.15	-12.90	728.02	-731.08	12,336.07	12,287.98	48.09	256.504	
16,700.00	6,945.00	1,374.00	1,314.38	163.77	6.15	-12.90	728.02	-731.08	12,424.79	12,376.53	48.26	257.459	
16,800.00	6,945.00	1,374.00	1,314.38	165.35	6.15	-12.90	728.02	-731.08	12,513.68	12,465.25	48.42	258.421	
16,900.00	6,945.00	1,374.00	1,314.38	166.94	6.15	-12.90	728.02	-731.08	12,602.73	12,554.15	48.59	259.390	
17,000.00	6,945.00	1,345.84	1,290.87	168.53	5.84	-12.74	716.64	-720.57	12,691.74	12,643.11	48.62	261.022	
17,100.00	6,945.00	1,340.40	1,286.30	170.11	5.78	-12.71	714.45	-718.57	12,781.02	12,732.27	48.76	262.133	
17,200.00	6,945.00	1,311.00	1,261.52	171.70	5.46	-12.54	702.70	-707.99	12,870.61	12,821.84	48.77	263.917	
17,300.00	6,945.00	1,311.00	1,261.52	173.29	5.46	-12.54	702.70	-707.99	12,960.11	12,911.19	48.92	264.905	
17,400.00	6,945.00	1,311.00	1,261.52	174.87	5.46	-12.54	702.70	-707.99	13,049.77	13,000.70	49.08	265.897	
17,500.00	6,945.00	1,311.00	1,261.52	176.46	5.46	-12.54	702.70	-707.99	13,139.58	13,090.35	49.23	266.894	
17,600.00	6,945.00	1,311.00	1,261.52	178.05	5.46	-12.54	702.70	-707.99	13,229.54	13,180.16	49.38	267.896	
17,700.00	6,945.00	1,311.00	1,261.52	179.63	5.46	-12.54	702.70	-707.99	13,319.64	13,270.11	49.53	268.902	
17,800.00	6,945.00	1,311.00	1,261.52	181.22	5.46	-12.54	702.70	-707.99	13,409.88	13,360.20	49.68	269.913	
17,900.00	6,945.00	1,311.00	1,261.52	182.81	5.46	-12.54	702.70	-707.99	13,500.26	13,450.43	49.83	270.927	
18,000.00	6,945.00	1,294.08	1,247.16	184.40	5.28	-12.45	696.02	-702.03	13,590.69	13,540.79	49.90	272.344	
18,100.00	6,945.00	1,279.00	1,234.28	185.99	5.13	-12.36	690.17	-696.80	13,681.32	13,631.33	49.98	273.725	
18,200.00	6,945.00	1,279.00	1,234.28	187.58	5.13	-12.36	690.17	-696.80	13,772.01	13,721.88	50.13	274.749	
18,300.00	6,945.00	1,279.00	1,234.28	189.16	5.13	-12.36	690.17	-696.80	13,862.83	13,812.56	50.27	275.775	
18,400.00	6,945.00	1,279.00	1,234.28	190.75	5.13	-12.36	690.17	-696.80	13,953.78	13,903.37	50.41	276.805	

CC - Min centre to center distance or 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:	Plan #4	**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

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
18,500.00	6,945.00	1,279.00	1,234.28	192.34	5.13	-12.36	690.17	-696.80	14,044.84	13,994.29	50.55	277.838	
18,600.00	6,945.00	1,263.70	1,221.15	193.93	4.97	-12.28	684.32	-691.56	14,135.98	14,085.35	50.63	279.208	
18,700.00	6,945.00	1,248.00	1,207.61	195.52	4.81	-12.19	678.41	-686.26	14,227.27	14,176.57	50.70	280.592	
18,800.00	6,945.00	1,248.00	1,207.61	197.11	4.81	-12.19	678.41	-686.26	14,318.62	14,267.78	50.84	281.631	
18,900.00	6,945.00	1,248.00	1,207.61	198.70	4.81	-12.19	678.41	-686.26	14,410.09	14,359.11	50.98	282.672	
19,000.00	6,945.00	1,248.00	1,207.61	200.29	4.81	-12.19	678.41	-686.26	14,501.67	14,450.55	51.11	283.715	
19,100.00	6,945.00	1,217.00	1,180.74	201.88	4.51	-12.03	666.95	-675.88	14,593.32	14,542.19	51.13	285.396	
19,200.00	6,945.00	1,217.00	1,180.74	203.47	4.51	-12.03	666.95	-675.88	14,685.05	14,633.78	51.27	286.442	
19,300.00	6,945.00	1,217.00	1,180.74	205.06	4.51	-12.03	666.95	-675.88	14,776.88	14,725.48	51.40	287.489	
19,400.00	6,945.00	1,217.00	1,180.74	206.65	4.51	-12.03	666.95	-675.88	14,868.82	14,817.29	51.53	288.538	
19,500.00	6,945.00	1,217.00	1,180.74	208.24	4.51	-12.03	666.95	-675.88	14,960.87	14,909.20	51.66	289.588	
19,600.00	6,945.00	1,217.00	1,180.74	209.84	4.51	-12.03	666.95	-675.88	15,053.01	15,001.22	51.79	290.640	
19,700.00	6,945.00	1,217.00	1,180.74	211.43	4.51	-12.03	666.95	-675.88	15,145.26	15,093.33	51.92	291.692	
19,800.00	6,945.00	1,187.16	1,154.67	213.02	4.23	-11.87	656.27	-666.04	15,237.40	15,185.45	51.96	293.278	
19,900.00	6,945.00	1,182.27	1,150.38	214.61	4.19	-11.85	654.56	-664.45	15,329.77	15,277.70	52.07	294.419	
20,000.00	6,945.00	1,155.00	1,126.30	216.20	3.94	-11.71	645.24	-655.68	15,422.34	15,370.23	52.11	295.963	
20,100.00	6,945.00	1,155.00	1,126.30	217.79	3.94	-11.71	645.24	-655.68	15,514.83	15,462.60	52.24	297.017	
20,200.00	6,945.00	1,155.00	1,126.30	219.38	3.94	-11.71	645.24	-655.68	15,607.42	15,555.06	52.36	298.072	
20,300.00	6,945.00	1,155.00	1,126.30	220.98	3.94	-11.71	645.24	-655.68	15,700.10	15,647.61	52.49	299.127	
20,400.00	6,945.00	1,155.00	1,126.30	222.57	3.94	-11.71	645.24	-655.68	15,792.87	15,740.26	52.61	300.182	
20,500.00	6,945.00	1,155.00	1,126.30	224.16	3.94	-11.71	645.24	-655.68	15,885.73	15,832.99	52.73	301.238	
20,600.00	6,945.00	1,155.00	1,126.30	225.75	3.94	-11.71	645.24	-655.68	15,978.67	15,925.81	52.86	302.294	
20,700.00	6,945.00	1,155.00	1,126.30	227.35	3.94	-11.71	645.24	-655.68	16,071.70	16,018.71	52.98	303.350	
20,800.00	6,945.00	1,155.00	1,126.30	228.94	3.94	-11.71	645.24	-655.68	16,164.81	16,111.70	53.10	304.406	
20,852.96	6,945.00	1,155.00	1,126.30	229.61	3.94	-11.71	645.24	-655.68	16,214.15	16,159.31	54.84	295.664	

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:	Plan #4	**Offset TVD Reference:**	Offset Datum

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

Survey Program: 67-Standard Keeper 104, 443-MWD+HRGM+MS, 18177-A026Ua_BLIND — **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				
20.93	20.93	21.01	21.01	0.00	0.01	132.16	102.31	-72.19	125.25				
117.41	117.41	117.76	117.76	0.05	0.09	127.93	102.36	-71.78	125.35	125.25	0.10	1,213.880	
206.68	206.68	207.21	207.20	0.17	0.21	154.11	102.32	-71.30	125.33	125.04	0.29	432.703	
217.89	217.89	218.44	218.44	0.19	0.22	154.02	102.31	-71.23	125.33	125.02	0.31	398.680	
292.93	292.93	293.83	293.82	0.28	0.32	153.82	102.12	-70.75	125.34	124.85	0.49	256.031	
365.00	364.99	366.30	366.30	0.36	0.40	123.41	101.71	-70.21	125.13	124.48	0.65	192.983	
382.03	382.02	383.43	383.42	0.39	0.42	153.08	101.58	-70.08	125.08	124.37	0.71	176.213	CC, ES
451.00	450.97	452.70	452.69	0.55	0.51	176.95	100.91	-69.49	125.93	124.96	0.97	129.326	
540.00	539.81	541.10	541.05	0.83	0.74	-176.69	101.10	-67.26	130.05	128.54	1.51	86.021	
665.00	664.37	661.58	661.31	1.26	1.12	-171.74	105.09	-61.31	140.74	138.39	2.35	59.811	
753.00	752.01	744.00	743.36	1.58	1.40	-170.44	111.40	-56.86	152.16	149.21	2.96	51.473	
847.00	845.61	829.15	827.82	1.93	1.70	-165.03	121.33	-52.77	168.29	164.69	3.60	46.750	
939.00	937.22	912.05	909.62	2.27	2.01	-162.69	134.36	-49.46	188.03	183.81	4.22	44.513	
1,030.00	1,027.78	998.34	994.39	2.62	2.35	-172.22	150.20	-46.31	210.75	205.89	4.86	43.368	
1,120.00	1,117.25	1,081.25	1,075.72	2.96	2.68	-167.40	165.97	-43.25	235.03	229.55	5.48	42.856	
1,211.00	1,207.68	1,167.60	1,160.10	3.31	3.04	-168.36	183.91	-39.37	261.34	255.21	6.13	42.650	
1,306.00	1,302.14	1,257.56	1,248.04	3.68	3.42	-164.89	202.38	-35.16	288.29	281.49	6.80	42.408	
1,400.00	1,395.63	1,344.01	1,332.43	4.04	3.79	-162.39	220.79	-31.46	315.55	308.10	7.45	42.377	
1,495.00	1,490.19	1,432.15	1,418.32	4.40	4.18	-162.17	240.34	-28.42	343.59	335.48	8.11	42.377	
1,589.00	1,583.83	1,519.98	1,503.89	4.76	4.56	-163.92	260.00	-26.18	371.12	362.36	8.76	42.342	
1,684.00	1,678.44	1,608.74	1,590.26	5.12	4.96	-160.83	280.39	-24.64	399.90	390.46	9.43	42.390	
1,779.00	1,772.98	1,703.44	1,682.39	5.48	5.38	-155.64	302.08	-21.64	428.93	418.78	10.15	42.260	
1,873.00	1,866.49	1,798.79	1,775.34	5.84	5.80	-153.52	322.88	-17.22	456.48	445.61	10.87	41.993	
1,967.00	1,960.05	1,889.58	1,863.97	6.20	6.20	-148.34	342.11	-12.96	482.93	471.37	11.56	41.783	
2,062.00	2,054.59	1,979.61	1,951.86	6.56	6.60	-153.37	361.25	-9.17	509.93	497.69	12.24	41.651	
2,156.00	2,148.09	2,069.35	2,039.54	6.92	7.00	-153.81	380.13	-6.15	537.25	524.33	12.93	41.563	
2,251.00	2,242.55	2,154.55	2,122.69	7.29	7.37	-152.23	398.57	-3.81	565.69	552.12	13.58	41.663	
2,345.00	2,336.00	2,250.54	2,216.39	7.65	7.80	-158.17	419.25	-1.30	594.19	579.89	14.30	41.537	
2,440.00	2,430.43	2,357.97	2,321.68	8.02	8.26	-160.57	440.29	2.27	621.40	606.30	15.10	41.144	
2,535.00	2,524.86	2,457.67	2,419.79	8.38	8.68	-159.08	457.77	4.97	646.86	631.02	15.84	40.833	
2,629.00	2,618.31	2,550.46	2,511.27	8.75	9.06	-158.99	473.14	7.15	671.17	654.64	16.53	40.595	
2,724.00	2,712.77	2,638.70	2,598.15	9.12	9.43	-158.04	488.26	10.16	695.96	678.76	17.20	40.463	
2,818.00	2,806.24	2,733.59	2,691.57	9.48	9.82	-157.23	504.43	14.25	720.15	702.24	17.91	40.212	
2,913.00	2,900.71	2,825.17	2,781.74	9.84	10.20	-154.78	519.90	18.19	744.27	725.67	18.60	40.018	
3,008.00	2,995.25	2,921.66	2,876.79	10.21	10.60	-159.11	535.96	22.60	767.73	748.41	19.32	39.744	
3,102.00	3,088.80	3,021.90	2,975.68	10.57	11.01	-158.62	551.74	26.78	790.20	770.15	20.05	39.406	
3,197.00	3,183.30	3,123.09	3,075.79	10.93	11.42	-155.50	566.12	30.21	811.89	791.09	20.79	39.048	
3,291.00	3,276.71	3,210.73	3,162.54	11.30	11.76	-161.62	578.38	32.53	834.15	812.70	21.45	38.886	
3,386.00	3,371.01	3,301.10	3,251.87	11.67	12.12	-162.66	591.58	35.78	858.18	836.05	22.13	38.779	
3,480.00	3,464.23	3,397.81	3,347.55	12.04	12.51	-161.16	605.16	39.65	881.95	859.10	22.84	38.606	
3,575.00	3,558.47	3,479.37	3,428.22	12.42	12.84	-159.65	616.92	42.30	906.20	882.73	23.47	38.608	
3,670.00	3,652.84	3,560.98	3,508.81	12.79	13.17	-158.71	629.55	44.61	930.44	906.34	24.09	38.616	
3,764.00	3,746.36	3,634.12	3,580.87	13.15	13.47	-155.52	641.91	46.72	954.36	929.71	24.66	38.702	
3,859.00	3,840.97	3,703.78	3,649.19	13.51	13.77	-151.64	655.21	49.32	979.35	954.16	25.19	38.872	
3,954.00	3,935.57	3,771.76	3,715.48	13.87	14.07	-151.42	669.91	52.44	1,006.58	980.87	25.71	39.148	
4,049.00	4,030.14	3,851.68	3,793.11	14.23	14.44	-160.52	688.48	56.45	1,035.82	1,009.49	26.32	39.349	
4,143.00	4,123.75	3,931.64	3,870.59	14.59	14.81	-159.23	707.82	60.56	1,065.47	1,038.54	26.93	39.560	
4,238.00	4,218.33	4,006.20	3,942.63	14.95	15.16	-158.64	726.63	64.59	1,096.65	1,069.15	27.50	39.879	
4,333.00	4,312.74	4,075.49	4,009.24	15.32	15.49	-161.18	745.23	68.76	1,130.78	1,102.75	28.02	40.351	
4,427.00	4,406.05	4,143.00	4,073.78	15.69	15.83	-158.50	764.60	72.87	1,166.99	1,138.46	28.53	40.901	
4,522.00	4,500.34	4,221.94	4,149.00	16.06	16.22	-157.34	788.13	77.40	1,204.62	1,175.48	29.14	41.332	

CC - Min centre to center distance or 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:	Plan #4	**Offset TVD Reference:**	Offset Datum

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

Survey Program: 67-Standard Keeper 104, 443-MWD+HRGM+MS, 18177-A026Ua_BLIND — **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
4,616.00	4,593.47	4,296.73	4,220.16	16.44	16.60	-159.27	810.80	81.37	1,243.55	1,213.83	29.73	41.834	
4,710.00	4,686.44	4,370.93	4,290.52	16.82	16.98	-158.40	833.98	85.50	1,284.29	1,253.98	30.31	42.377	
4,899.00	4,873.89	4,596.72	4,505.12	17.57	18.13	-151.67	902.37	100.90	1,360.91	1,328.75	32.16	42.314	
4,962.00	4,936.56	4,665.47	4,571.13	17.81	18.47	-149.30	921.19	104.83	1,383.03	1,350.32	32.71	42.287	
5,024.00	4,998.27	4,743.51	4,646.24	18.04	18.85	-152.97	941.97	109.06	1,404.28	1,370.95	33.32	42.139	
5,150.00	5,123.66	4,956.61	4,853.84	18.53	19.81	-151.90	989.18	117.10	1,442.04	1,407.11	34.93	41.284	
5,213.00	5,186.37	5,057.63	4,953.22	18.77	20.23	-154.31	1,007.10	119.67	1,458.29	1,422.65	35.64	40.919	
5,276.00	5,249.09	5,168.35	5,062.74	19.01	20.67	-153.48	1,023.17	121.74	1,472.54	1,436.17	36.37	40.490	
5,339.00	5,311.83	5,250.85	5,144.62	19.25	20.98	-154.49	1,033.10	123.19	1,485.05	1,448.13	36.92	40.219	
5,401.00	5,373.58	5,330.15	5,223.44	19.48	21.28	-151.97	1,041.76	124.43	1,496.66	1,459.20	37.45	39.959	
5,464.00	5,436.33	5,399.01	5,291.95	19.72	21.53	-154.79	1,048.62	125.50	1,507.71	1,469.77	37.94	39.743	
5,590.00	5,561.87	5,527.11	5,419.45	20.19	21.99	-156.17	1,060.90	127.23	1,529.31	1,490.46	38.85	39.362	
5,653.00	5,624.66	5,590.22	5,482.26	20.43	22.21	-157.58	1,066.88	128.14	1,539.91	1,500.61	39.31	39.178	
5,715.00	5,686.48	5,663.87	5,555.61	20.66	22.48	-162.61	1,073.52	129.27	1,549.78	1,509.98	39.80	38.940	
5,778.00	5,749.29	5,730.77	5,622.26	20.90	22.71	-159.89	1,079.18	130.34	1,559.52	1,519.25	40.27	38.730	
5,841.00	5,812.10	5,793.12	5,684.39	21.13	22.93	-162.22	1,084.38	131.32	1,569.24	1,528.53	40.71	38.544	
5,904.00	5,874.94	5,857.28	5,748.31	21.36	23.16	-156.89	1,089.72	132.34	1,578.61	1,537.45	41.17	38.346	
5,967.00	5,937.80	5,928.63	5,819.43	21.60	23.41	-155.36	1,095.38	133.50	1,587.31	1,545.65	41.65	38.109	
6,030.00	6,000.68	6,002.91	5,893.50	21.83	23.67	-157.32	1,100.82	134.68	1,595.30	1,553.15	42.14	37.853	
6,093.00	6,063.59	6,080.60	5,971.02	22.05	23.93	-153.66	1,105.79	135.60	1,602.35	1,559.70	42.65	37.573	
6,156.00	6,126.51	6,154.01	6,044.31	22.28	24.18	-148.40	1,109.86	136.24	1,608.53	1,565.41	43.13	37.297	
6,235.00	6,205.43	6,244.16	6,134.35	22.56	24.48	-148.78	1,114.30	136.96	1,615.31	1,571.59	43.72	36.947	
6,300.00	6,270.38	6,319.56	6,209.69	22.68	24.72	-148.81	1,117.36	137.42	1,620.03	1,575.94	44.09	36.747	
6,355.00	6,325.34	6,379.80	6,269.89	22.69	24.92	-148.83	1,119.57	137.80	1,623.81	1,579.51	44.30	36.658	
6,400.00	6,370.23	6,407.00	6,297.07	22.71	25.01	-115.90	1,120.50	137.97	1,627.15	1,582.76	44.40	36.649 SF	
6,450.00	6,419.74	6,439.21	6,329.25	22.73	25.11	-108.10	1,121.91	137.80	1,631.96	1,587.44	44.53	36.653	
6,500.00	6,468.57	6,461.54	6,351.53	22.77	25.19	-104.79	1,123.27	137.24	1,638.24	1,593.62	44.62	36.716	
6,550.00	6,516.42	6,502.00	6,391.81	22.81	25.32	-103.03	1,126.54	135.33	1,646.16	1,601.37	44.79	36.750	
6,600.00	6,562.98	6,502.00	6,391.81	22.87	25.32	-101.28	1,126.54	135.33	1,655.01	1,610.21	44.80	36.944	
6,650.00	6,607.98	6,502.00	6,391.81	22.95	25.32	-99.66	1,126.54	135.33	1,665.78	1,620.99	44.79	37.191	
6,700.00	6,651.14	6,502.00	6,391.81	23.03	25.32	-98.04	1,126.54	135.33	1,678.37	1,633.60	44.77	37.485	
6,750.00	6,692.18	6,538.69	6,428.12	23.14	25.46	-97.21	1,130.82	132.29	1,691.30	1,646.31	44.98	37.600	
6,800.00	6,730.86	6,548.52	6,437.78	23.26	25.50	-95.78	1,132.25	131.21	1,706.32	1,661.27	45.05	37.880	
6,850.00	6,766.93	6,557.23	6,446.32	23.40	25.53	-94.25	1,133.62	130.17	1,722.70	1,677.58	45.12	38.182	
6,900.00	6,800.18	6,596.00	6,483.98	23.56	25.68	-93.54	1,140.84	124.49	1,741.36	1,695.95	45.40	38.352	
6,950.00	6,830.39	6,596.00	6,483.98	23.74	25.68	-91.63	1,140.84	124.49	1,759.80	1,714.34	45.46	38.708	
7,000.00	6,857.38	6,596.00	6,483.98	23.94	25.68	-89.60	1,140.84	124.49	1,779.43	1,733.89	45.54	39.072	
7,050.00	6,880.98	6,596.00	6,483.98	24.17	25.68	-87.48	1,140.84	124.49	1,800.09	1,754.45	45.64	39.439	
7,100.00	6,901.06	6,596.00	6,483.98	24.42	25.68	-85.28	1,140.84	124.49	1,821.62	1,775.85	45.77	39.802	
7,150.00	6,917.47	6,596.00	6,483.98	24.70	25.68	-83.01	1,140.84	124.49	1,843.86	1,797.94	45.92	40.157	
7,200.00	6,930.13	6,596.00	6,483.98	25.01	25.68	-80.70	1,140.84	124.49	1,866.64	1,820.55	46.09	40.500	
7,250.00	6,938.95	6,596.00	6,483.98	25.34	25.68	-78.37	1,140.84	124.49	1,889.81	1,843.52	46.29	40.828	
7,300.00	6,943.88	6,596.00	6,483.98	25.69	25.68	-76.05	1,140.84	124.49	1,913.21	1,866.70	46.50	41.140	
7,337.82	6,945.00	6,596.00	6,483.98	25.97	25.68	-74.31	1,140.84	124.49	1,930.97	1,884.29	46.68	41.365	
7,400.00	6,945.00	6,596.00	6,483.98	26.45	25.68	-74.49	1,140.84	124.49	1,960.39	1,913.40	46.98	41.725	
7,492.38	6,945.00	6,596.00	6,483.98	27.21	25.68	-74.76	1,140.84	124.49	2,004.78	1,957.34	47.44	42.258	
7,500.00	6,945.00	6,596.00	6,483.98	27.28	25.68	-74.76	1,140.84	124.49	2,008.48	1,961.01	47.48	42.303	
7,600.00	6,945.00	6,596.00	6,483.98	28.17	25.68	-74.76	1,140.84	124.49	2,059.10	2,011.12	47.98	42.917	
7,700.00	6,945.00	6,596.00	6,483.98	29.12	25.68	-74.76	1,140.84	124.49	2,113.24	2,064.77	48.47	43.597	
7,800.00	6,945.00	6,596.00	6,483.98	30.14	25.68	-74.76	1,140.84	124.49	2,170.64	2,121.69	48.95	44.342	
7,900.00	6,945.00	6,596.00	6,483.98	31.20	25.68	-74.76	1,140.84	124.49	2,231.05	2,181.63	49.41	45.150	
8,000.00	6,945.00	6,596.00	6,483.98	32.31	25.68	-74.76	1,140.84	124.49	2,294.22	2,244.36	49.86	46.016	

CC - Min centre to center distance or 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:	Plan #4	**Offset TVD Reference:**	Offset Datum

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

Survey Program: 67-Standard Keeper 104, 443-MWD+HRGM+MS, 18177-A026Ua_BLIND — **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
8,100.00	6,945.00	6,596.00	6,483.98	33.46	25.68	-74.76	1,140.84	124.49	2,359.94	2,309.67	50.28	46.938	
8,200.00	6,945.00	6,596.00	6,483.98	34.64	25.68	-74.76	1,140.84	124.49	2,428.01	2,377.33	50.68	47.912	
8,300.00	6,945.00	6,555.94	6,445.05	35.86	25.53	-73.47	1,133.41	130.33	2,496.54	2,445.74	50.80	49.148	
8,400.00	6,945.00	6,553.63	6,442.79	37.11	25.52	-73.39	1,133.04	130.61	2,568.54	2,517.40	51.14	50.225	
8,500.00	6,945.00	6,551.41	6,440.62	38.39	25.51	-73.32	1,132.70	130.88	2,642.35	2,590.89	51.46	51.344	
8,600.00	6,945.00	6,549.29	6,438.54	39.69	25.50	-73.26	1,132.37	131.12	2,717.83	2,666.06	51.77	52.501	
8,700.00	6,945.00	6,547.25	6,436.54	41.01	25.50	-73.19	1,132.06	131.36	2,794.84	2,742.79	52.05	53.692	
8,800.00	6,945.00	6,545.29	6,434.61	42.35	25.49	-73.13	1,131.77	131.58	2,873.26	2,820.94	52.32	54.916	
8,900.00	6,945.00	6,543.41	6,432.76	43.71	25.48	-73.07	1,131.50	131.79	2,952.97	2,900.40	52.57	56.170	
9,000.00	6,945.00	6,541.60	6,430.98	45.08	25.47	-73.01	1,131.23	131.98	3,033.88	2,981.08	52.81	57.451	
9,100.00	6,945.00	6,502.00	6,391.81	46.47	25.32	-71.75	1,126.54	135.33	3,117.31	3,064.50	52.81	59.027	
9,200.00	6,945.00	6,502.00	6,391.81	47.87	25.32	-71.75	1,126.54	135.33	3,200.21	3,147.18	53.03	60.344	
9,300.00	6,945.00	6,502.00	6,391.81	49.29	25.32	-71.75	1,126.54	135.33	3,284.06	3,230.82	53.24	61.682	
9,400.00	6,945.00	6,502.00	6,391.81	50.71	25.32	-71.75	1,126.54	135.33	3,368.79	3,315.35	53.44	63.041	
9,500.00	6,945.00	6,502.00	6,391.81	52.15	25.32	-71.75	1,126.54	135.33	3,454.34	3,400.72	53.62	64.417	
9,600.00	6,945.00	6,502.00	6,391.81	53.59	25.32	-71.75	1,126.54	135.33	3,540.65	3,486.85	53.80	65.811	
9,700.00	6,945.00	6,502.00	6,391.81	55.05	25.32	-71.75	1,126.54	135.33	3,627.66	3,573.69	53.97	67.220	
9,800.00	6,945.00	6,502.00	6,391.81	56.51	25.32	-71.75	1,126.54	135.33	3,715.32	3,661.20	54.13	68.643	
9,900.00	6,945.00	6,502.00	6,391.81	57.98	25.32	-71.75	1,126.54	135.33	3,803.59	3,749.32	54.28	70.079	
10,000.00	6,945.00	6,502.00	6,391.81	59.45	25.32	-71.75	1,126.54	135.33	3,892.43	3,838.01	54.42	71.527	
10,100.00	6,945.00	6,502.00	6,391.81	60.93	25.32	-71.75	1,126.54	135.33	3,981.80	3,927.25	54.56	72.986	
10,200.00	6,945.00	6,502.00	6,391.81	62.42	25.32	-71.75	1,126.54	135.33	4,071.66	4,016.98	54.69	74.454	
10,300.00	6,945.00	6,502.00	6,391.81	63.92	25.32	-71.75	1,126.54	135.33	4,161.99	4,107.18	54.81	75.932	
10,400.00	6,945.00	6,502.00	6,391.81	65.42	25.32	-71.75	1,126.54	135.33	4,252.75	4,197.82	54.93	77.418	
10,500.00	6,945.00	6,502.00	6,391.81	66.92	25.32	-71.75	1,126.54	135.33	4,343.91	4,288.87	55.05	78.911	
10,600.00	6,945.00	6,502.00	6,391.81	68.43	25.32	-71.75	1,126.54	135.33	4,435.46	4,380.30	55.16	80.411	
10,700.00	6,945.00	6,502.00	6,391.81	69.94	25.32	-71.75	1,126.54	135.33	4,527.36	4,472.09	55.27	81.918	
10,800.00	6,945.00	6,502.00	6,391.81	71.45	25.32	-71.75	1,126.54	135.33	4,619.60	4,564.23	55.37	83.430	
10,900.00	6,945.00	6,502.00	6,391.81	72.97	25.32	-71.75	1,126.54	135.33	4,712.16	4,656.69	55.47	84.947	
11,000.00	6,945.00	6,502.00	6,391.81	74.50	25.32	-71.75	1,126.54	135.33	4,805.01	4,749.44	55.57	86.468	
11,100.00	6,945.00	6,502.00	6,391.81	76.02	25.32	-71.75	1,126.54	135.33	4,898.15	4,842.48	55.66	87.994	
11,200.00	6,945.00	6,502.00	6,391.81	77.55	25.32	-71.75	1,126.54	135.33	4,991.55	4,935.79	55.76	89.523	
11,300.00	6,945.00	6,502.00	6,391.81	79.08	25.32	-71.75	1,126.54	135.33	5,085.20	5,029.35	55.85	91.055	
11,400.00	6,945.00	6,502.00	6,391.81	80.62	25.32	-71.75	1,126.54	135.33	5,179.09	5,123.15	55.94	92.590	
11,500.00	6,945.00	6,502.00	6,391.81	82.16	25.32	-71.75	1,126.54	135.33	5,273.20	5,217.18	56.02	94.127	
11,600.00	6,945.00	6,502.00	6,391.81	83.70	25.32	-71.75	1,126.54	135.33	5,367.53	5,311.43	56.11	95.667	
11,700.00	6,945.00	6,502.00	6,391.81	85.24	25.32	-71.75	1,126.54	135.33	5,462.06	5,405.87	56.19	97.208	
11,800.00	6,945.00	6,502.00	6,391.81	86.78	25.32	-71.75	1,126.54	135.33	5,556.78	5,500.51	56.27	98.750	
11,900.00	6,945.00	6,502.00	6,391.81	88.33	25.32	-71.75	1,126.54	135.33	5,651.68	5,595.33	56.35	100.294	
12,000.00	6,945.00	6,502.00	6,391.81	89.87	25.32	-71.75	1,126.54	135.33	5,746.76	5,690.33	56.43	101.838	
12,100.00	6,945.00	6,502.00	6,391.81	91.42	25.32	-71.75	1,126.54	135.33	5,842.00	5,785.49	56.51	103.383	
12,200.00	6,945.00	6,502.00	6,391.81	92.98	25.32	-71.75	1,126.54	135.33	5,937.40	5,880.81	56.59	104.929	
12,300.00	6,945.00	6,502.00	6,391.81	94.53	25.32	-71.75	1,126.54	135.33	6,032.94	5,976.28	56.66	106.474	
12,400.00	6,945.00	6,502.00	6,391.81	96.08	25.32	-71.75	1,126.54	135.33	6,128.63	6,071.89	56.74	108.019	
12,500.00	6,945.00	6,502.00	6,391.81	97.64	25.32	-71.75	1,126.54	135.33	6,224.45	6,167.64	56.81	109.564	
12,600.00	6,945.00	6,502.00	6,391.81	99.20	25.32	-71.75	1,126.54	135.33	6,320.40	6,263.52	56.88	111.109	
12,700.00	6,945.00	6,502.00	6,391.81	100.76	25.32	-71.75	1,126.54	135.33	6,416.48	6,359.52	56.96	112.653	
12,800.00	6,945.00	6,502.00	6,391.81	102.32	25.32	-71.75	1,126.54	135.33	6,512.67	6,455.64	57.03	114.196	
12,900.00	6,945.00	6,502.00	6,391.81	103.88	25.32	-71.75	1,126.54	135.33	6,608.98	6,551.88	57.10	115.737	
13,000.00	6,945.00	6,502.00	6,391.81	105.44	25.32	-71.75	1,126.54	135.33	6,705.40	6,648.22	57.18	117.278	
13,100.00	6,945.00	6,502.00	6,391.81	107.00	25.32	-71.75	1,126.54	135.33	6,801.92	6,744.67	57.25	118.817	
13,200.00	6,945.00	6,502.00	6,391.81	108.57	25.32	-71.75	1,126.54	135.33	6,898.53	6,841.22	57.32	120.355	

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:	Plan #4	**Offset TVD Reference:**	Offset Datum

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

Survey Program: 67-Standard Keeper 104, 443-MWD+HRGM+MS, 18177-A026Ua_BLIND — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis 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
13,300.00	6,945.00	6,502.00	6,391.81	110.13	25.32	-71.75	1,126.54	135.33	6,995.25	6,937.86	57.39	121.891	
13,400.00	6,945.00	6,502.00	6,391.81	111.70	25.32	-71.75	1,126.54	135.33	7,092.05	7,034.59	57.46	123.425	
13,500.00	6,945.00	6,502.00	6,391.81	113.27	25.32	-71.75	1,126.54	135.33	7,188.94	7,131.41	57.53	124.958	
13,600.00	6,945.00	6,502.00	6,391.81	114.84	25.32	-71.75	1,126.54	135.33	7,285.92	7,228.32	57.60	126.488	
13,700.00	6,945.00	6,502.00	6,391.81	116.41	25.32	-71.75	1,126.54	135.33	7,382.97	7,325.30	57.67	128.016	
13,800.00	6,945.00	6,502.00	6,391.81	117.98	25.32	-71.75	1,126.54	135.33	7,480.11	7,422.37	57.74	129.542	
13,900.00	6,945.00	6,502.00	6,391.81	119.55	25.32	-71.75	1,126.54	135.33	7,577.32	7,519.50	57.81	131.065	
14,000.00	6,945.00	6,502.00	6,391.81	121.12	25.32	-71.75	1,126.54	135.33	7,674.60	7,616.71	57.88	132.586	
14,100.00	6,945.00	6,502.00	6,391.81	122.69	25.32	-71.75	1,126.54	135.33	7,771.95	7,713.99	57.95	134.104	
14,200.00	6,945.00	6,502.00	6,391.81	124.27	25.32	-71.75	1,126.54	135.33	7,869.36	7,811.34	58.03	135.620	
14,300.00	6,945.00	6,502.00	6,391.81	125.84	25.32	-71.75	1,126.54	135.33	7,966.84	7,908.75	58.10	137.133	
14,400.00	6,945.00	6,502.00	6,391.81	127.41	25.32	-71.75	1,126.54	135.33	8,064.38	8,006.22	58.17	138.643	
14,500.00	6,945.00	6,502.00	6,391.81	128.99	25.32	-71.75	1,126.54	135.33	8,161.99	8,103.75	58.24	140.150	
14,600.00	6,945.00	6,502.00	6,391.81	130.57	25.32	-71.75	1,126.54	135.33	8,259.64	8,201.34	58.31	141.654	
14,700.00	6,945.00	6,502.00	6,391.81	132.14	25.32	-71.75	1,126.54	135.33	8,357.36	8,298.98	58.38	143.155	
14,800.00	6,945.00	6,502.00	6,391.81	133.72	25.32	-71.75	1,126.54	135.33	8,455.12	8,396.67	58.45	144.653	
14,900.00	6,945.00	6,502.00	6,391.81	135.30	25.32	-71.75	1,126.54	135.33	8,552.94	8,494.42	58.52	146.147	
15,000.00	6,945.00	6,502.00	6,391.81	136.87	25.32	-71.75	1,126.54	135.33	8,650.81	8,592.22	58.59	147.638	
15,100.00	6,945.00	6,502.00	6,391.81	138.45	25.32	-71.75	1,126.54	135.33	8,748.73	8,690.06	58.67	149.126	
15,200.00	6,945.00	6,502.00	6,391.81	140.03	25.32	-71.75	1,126.54	135.33	8,846.69	8,787.95	58.74	150.610	
15,300.00	6,945.00	6,502.00	6,391.81	141.61	25.32	-71.75	1,126.54	135.33	8,944.70	8,885.89	58.81	152.091	
15,400.00	6,945.00	6,502.00	6,391.81	143.19	25.32	-71.75	1,126.54	135.33	9,042.75	8,983.87	58.88	153.568	
15,500.00	6,945.00	6,502.00	6,391.81	144.77	25.32	-71.75	1,126.54	135.33	9,140.85	9,081.89	58.96	155.041	
15,600.00	6,945.00	6,502.00	6,391.81	146.35	25.32	-71.75	1,126.54	135.33	9,238.98	9,179.95	59.03	156.511	
15,700.00	6,945.00	6,502.00	6,391.81	147.94	25.32	-71.75	1,126.54	135.33	9,337.16	9,278.05	59.10	157.977	
15,800.00	6,945.00	6,502.00	6,391.81	149.52	25.32	-71.75	1,126.54	135.33	9,435.37	9,376.19	59.18	159.440	
15,900.00	6,945.00	6,502.00	6,391.81	151.10	25.32	-71.75	1,126.54	135.33	9,533.62	9,474.37	59.25	160.898	
16,000.00	6,945.00	6,502.00	6,391.81	152.68	25.32	-71.75	1,126.54	135.33	9,631.91	9,572.58	59.33	162.353	
16,100.00	6,945.00	6,502.00	6,391.81	154.26	25.32	-71.75	1,126.54	135.33	9,730.23	9,670.83	59.40	163.803	
16,200.00	6,945.00	6,502.00	6,391.81	155.85	25.32	-71.75	1,126.54	135.33	9,828.58	9,769.11	59.48	165.250	
16,300.00	6,945.00	6,502.00	6,391.81	157.43	25.32	-71.75	1,126.54	135.33	9,926.97	9,867.42	59.55	166.693	
16,400.00	6,945.00	6,502.00	6,391.81	159.02	25.32	-71.75	1,126.54	135.33	10,025.39	9,965.76	59.63	168.131	
16,500.00	6,945.00	6,502.00	6,391.81	160.60	25.32	-71.75	1,126.54	135.33	10,123.84	10,064.14	59.70	169.566	
16,600.00	6,945.00	6,502.00	6,391.81	162.18	25.32	-71.75	1,126.54	135.33	10,222.32	10,162.54	59.78	170.996	
16,700.00	6,945.00	6,502.00	6,391.81	163.77	25.32	-71.75	1,126.54	135.33	10,320.83	10,260.98	59.86	172.422	
16,800.00	6,945.00	6,502.00	6,391.81	165.35	25.32	-71.75	1,126.54	135.33	10,419.37	10,359.44	59.94	173.844	
16,900.00	6,945.00	6,502.00	6,391.81	166.94	25.32	-71.75	1,126.54	135.33	10,517.94	10,457.93	60.01	175.262	
17,000.00	6,945.00	6,502.00	6,391.81	168.53	25.32	-71.75	1,126.54	135.33	10,616.53	10,556.44	60.09	176.675	
17,100.00	6,945.00	6,502.00	6,391.81	170.11	25.32	-71.75	1,126.54	135.33	10,715.15	10,654.98	60.17	178.085	
17,200.00	6,945.00	6,502.00	6,391.81	171.70	25.32	-71.75	1,126.54	135.33	10,813.80	10,753.55	60.25	179.489	
17,300.00	6,945.00	6,502.00	6,391.81	173.29	25.32	-71.75	1,126.54	135.33	10,912.47	10,852.14	60.33	180.890	
17,400.00	6,945.00	6,502.00	6,391.81	174.87	25.32	-71.75	1,126.54	135.33	11,011.16	10,950.75	60.41	182.286	
17,500.00	6,945.00	6,502.00	6,391.81	176.46	25.32	-71.75	1,126.54	135.33	11,109.87	11,049.39	60.49	183.678	
17,600.00	6,945.00	6,502.00	6,391.81	178.05	25.32	-71.75	1,126.54	135.33	11,208.61	11,148.05	60.57	185.065	
17,700.00	6,945.00	6,502.00	6,391.81	179.63	25.32	-71.75	1,126.54	135.33	11,307.38	11,246.73	60.65	186.448	
17,800.00	6,945.00	6,502.00	6,391.81	181.22	25.32	-71.75	1,126.54	135.33	11,406.16	11,345.43	60.73	187.826	
17,900.00	6,945.00	6,502.00	6,391.81	182.81	25.32	-71.75	1,126.54	135.33	11,504.96	11,444.15	60.81	189.200	
18,000.00	6,945.00	6,502.00	6,391.81	184.40	25.32	-71.75	1,126.54	135.33	11,603.79	11,542.90	60.89	190.570	
18,100.00	6,945.00	6,502.00	6,391.81	185.99	25.32	-71.75	1,126.54	135.33	11,702.63	11,641.66	60.97	191.935	
18,200.00	6,945.00	6,502.00	6,391.81	187.58	25.32	-71.75	1,126.54	135.33	11,801.50	11,740.44	61.05	193.295	
18,300.00	6,945.00	6,502.00	6,391.81	189.16	25.32	-71.75	1,126.54	135.33	11,900.38	11,839.24	61.14	194.651	
18,400.00	6,945.00	6,502.00	6,391.81	190.75	25.32	-71.75	1,126.54	135.33	11,999.28	11,938.06	61.22	196.002	

CC - Min centre to center distance or 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:	Plan #4	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 67-Standard Keeper 104, 443-MWD+HRGM+MS, 18177-A026Ua_BLIND

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
18,500.00	6,945.00	6,502.00	6,391.81	192.34	25.32	-71.75	1,126.54	135.33	12,098.20	12,036.90	61.30	197.349	
18,600.00	6,945.00	6,502.00	6,391.81	193.93	25.32	-71.75	1,126.54	135.33	12,197.14	12,135.75	61.39	198.691	
18,700.00	6,945.00	6,502.00	6,391.81	195.52	25.32	-71.75	1,126.54	135.33	12,296.09	12,234.62	61.47	200.028	
18,800.00	6,945.00	6,502.00	6,391.81	197.11	25.32	-71.75	1,126.54	135.33	12,395.06	12,333.51	61.56	201.361	
18,900.00	6,945.00	6,502.00	6,391.81	198.70	25.32	-71.75	1,126.54	135.33	12,494.05	12,432.41	61.64	202.689	
19,000.00	6,945.00	6,502.00	6,391.81	200.29	25.32	-71.75	1,126.54	135.33	12,593.05	12,531.33	61.73	204.012	
19,100.00	6,945.00	6,502.00	6,391.81	201.88	25.32	-71.75	1,126.54	135.33	12,692.07	12,630.26	61.81	205.331	
19,200.00	6,945.00	6,502.00	6,391.81	203.47	25.32	-71.75	1,126.54	135.33	12,791.11	12,729.21	61.90	206.645	
19,300.00	6,945.00	6,502.00	6,391.81	205.06	25.32	-71.75	1,126.54	135.33	12,890.16	12,828.17	61.99	207.955	
19,400.00	6,945.00	6,502.00	6,391.81	206.65	25.32	-71.75	1,126.54	135.33	12,989.22	12,927.15	62.07	209.260	
19,500.00	6,945.00	6,502.00	6,391.81	208.24	25.32	-71.75	1,126.54	135.33	13,088.30	13,026.14	62.16	210.560	
19,600.00	6,945.00	6,502.00	6,391.81	209.84	25.32	-71.75	1,126.54	135.33	13,187.39	13,125.14	62.25	211.855	
19,700.00	6,945.00	6,502.00	6,391.81	211.43	25.32	-71.75	1,126.54	135.33	13,286.50	13,224.16	62.34	213.146	
19,800.00	6,945.00	6,502.00	6,391.81	213.02	25.32	-71.75	1,126.54	135.33	13,385.61	13,323.19	62.42	214.432	
19,900.00	6,945.00	6,502.00	6,391.81	214.61	25.32	-71.75	1,126.54	135.33	13,484.75	13,422.23	62.51	215.713	
20,000.00	6,945.00	6,502.00	6,391.81	216.20	25.32	-71.75	1,126.54	135.33	13,583.89	13,521.29	62.60	216.990	
20,100.00	6,945.00	6,502.00	6,391.81	217.79	25.32	-71.75	1,126.54	135.33	13,683.05	13,620.36	62.69	218.262	
20,200.00	6,945.00	6,502.00	6,391.81	219.38	25.32	-71.75	1,126.54	135.33	13,782.22	13,719.44	62.78	219.529	
20,300.00	6,945.00	6,502.00	6,391.81	220.98	25.32	-71.75	1,126.54	135.33	13,881.40	13,818.53	62.87	220.791	
20,400.00	6,945.00	6,502.00	6,391.81	222.57	25.32	-71.75	1,126.54	135.33	13,980.59	13,917.63	62.96	222.049	
20,500.00	6,945.00	6,502.00	6,391.81	224.16	25.32	-71.75	1,126.54	135.33	14,079.80	14,016.74	63.05	223.302	
20,600.00	6,945.00	6,502.00	6,391.81	225.75	25.32	-71.75	1,126.54	135.33	14,179.01	14,115.87	63.14	224.550	
20,700.00	6,945.00	6,502.00	6,391.81	227.35	25.32	-71.75	1,126.54	135.33	14,278.24	14,215.00	63.24	225.794	
20,800.00	6,945.00	6,502.00	6,391.81	228.94	25.32	-71.75	1,126.54	135.33	14,377.47	14,314.15	63.33	227.033	
20,852.96	6,945.00	6,502.00	6,391.81	229.61	25.32	-71.75	1,126.54	135.33	14,430.03	14,362.65	67.38	214.143	

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:	Plan #4	**Offset TVD Reference:**	Offset Datum

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

Survey Program: 67-Standard Keeper 104, 447-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	-35.25	81.92	-57.88	100.30				
20.93	20.93	20.85	20.85	0.00	0.01	132.12	81.91	-57.90	100.35				
117.41	117.41	117.26	117.26	0.05	0.09	127.53	81.82	-58.34	100.82	100.72	0.10	1,019.234	
206.68	206.68	206.66	206.66	0.17	0.21	153.36	81.68	-58.68	101.17	100.91	0.26	388.570	
292.93	292.93	293.13	293.12	0.28	0.31	152.69	81.36	-59.00	101.59	101.17	0.42	242.212	
365.00	364.99	365.33	365.32	0.36	0.40	122.00	80.97	-59.22	101.81	101.25	0.57	179.828	
451.00	450.97	451.50	451.50	0.55	0.50	175.45	80.62	-59.14	103.33	102.45	0.88	117.267	
540.00	539.81	541.67	541.66	0.83	0.73	-179.02	79.76	-58.60	107.53	106.07	1.45	73.977	
665.00	664.37	666.54	666.50	1.26	1.12	-176.77	77.79	-56.93	115.39	113.08	2.32	49.811	
753.00	752.01	753.03	752.98	1.58	1.41	-177.43	77.50	-55.38	122.22	119.29	2.93	41.728	
847.00	845.61	845.22	845.15	1.93	1.72	-174.15	77.97	-54.30	130.58	127.00	3.58	36.461	
939.00	937.22	936.21	936.14	2.27	2.03	-173.74	79.34	-53.69	139.87	135.65	4.22	33.148	
1,030.00	1,027.78	1,027.61	1,027.53	2.62	2.33	174.44	79.16	-54.40	149.03	144.18	4.86	30.695	
1,120.00	1,117.25	1,117.57	1,117.39	2.96	2.64	176.15	77.03	-57.71	158.94	153.46	5.49	28.961	
1,211.00	1,207.68	1,209.37	1,209.01	3.31	2.95	171.79	73.11	-62.09	168.57	162.43	6.14	27.467	
1,306.00	1,302.14	1,304.19	1,303.55	3.68	3.28	171.74	67.97	-67.20	177.77	170.95	6.82	26.076	
1,400.00	1,395.63	1,397.76	1,396.72	4.04	3.61	170.74	61.90	-73.36	186.78	179.28	7.49	24.921	
1,495.00	1,490.19	1,496.51	1,495.02	4.40	3.97	167.82	54.53	-79.09	194.37	186.16	8.20	23.698	
1,589.00	1,583.83	1,594.87	1,592.99	4.76	4.32	163.65	46.34	-82.19	198.94	190.04	8.91	22.336	
1,684.00	1,678.44	1,691.06	1,688.82	5.12	4.68	164.78	38.16	-83.35	202.46	192.85	9.61	21.074	
1,779.00	1,772.98	1,784.74	1,782.21	5.48	5.02	168.10	30.68	-84.09	207.04	196.74	10.30	20.100	
1,873.00	1,866.49	1,877.48	1,874.69	5.84	5.36	168.61	24.01	-84.87	212.52	201.54	10.99	19.347	
1,967.00	1,960.05	1,971.28	1,968.32	6.20	5.70	172.44	18.15	-85.14	217.94	206.27	11.67	18.674	
2,062.00	2,054.59	2,066.22	2,063.10	6.56	6.05	166.45	12.74	-84.95	223.50	211.13	12.36	18.077	
2,156.00	2,148.09	2,160.39	2,157.11	6.92	6.39	165.30	7.28	-84.72	229.30	216.25	13.05	17.569	
2,251.00	2,242.55	2,256.33	2,252.85	7.29	6.75	166.08	1.03	-84.63	235.13	221.37	13.75	17.097	
2,345.00	2,336.00	2,351.72	2,347.99	7.65	7.10	159.56	-5.82	-84.30	240.46	226.01	14.45	16.641	
2,440.00	2,430.43	2,447.44	2,443.41	8.02	7.45	156.50	-13.40	-83.91	245.20	230.05	15.15	16.180	
2,535.00	2,524.86	2,543.15	2,538.78	8.38	7.81	157.30	-21.35	-83.48	249.61	233.75	15.86	15.737	
2,629.00	2,618.31	2,638.91	2,634.15	8.75	8.16	156.75	-29.94	-82.74	253.39	236.83	16.57	15.296	
2,724.00	2,712.77	2,734.73	2,729.53	9.12	8.52	156.87	-39.10	-81.89	256.72	239.45	17.28	14.860	
2,818.00	2,806.24	2,830.18	2,824.50	9.48	8.88	156.73	-48.70	-80.72	259.48	241.49	17.98	14.429	
2,913.00	2,900.71	2,925.22	2,918.99	9.84	9.24	158.10	-58.79	-79.51	261.94	243.24	18.70	14.011	
3,008.00	2,995.25	3,018.07	3,011.39	10.21	9.59	153.05	-67.79	-78.13	264.22	244.82	19.40	13.621	
3,102.00	3,088.80	3,108.21	3,101.23	10.57	9.93	152.95	-74.99	-77.12	267.40	247.32	20.08	13.318	
3,197.00	3,183.30	3,201.11	3,193.95	10.93	10.27	155.84	-80.72	-76.21	272.20	251.43	20.77	13.107	
3,291.00	3,276.71	3,295.60	3,288.30	11.30	10.62	150.01	-85.61	-74.85	277.71	256.26	21.46	12.943	
3,386.00	3,371.01	3,390.65	3,383.22	11.67	10.96	149.44	-90.28	-73.12	283.67	261.52	22.15	12.808	
3,480.00	3,464.23	3,484.31	3,476.76	12.04	11.30	151.37	-94.79	-71.24	290.05	267.22	22.83	12.705	
3,575.00	3,558.47	3,573.00	3,565.35	12.42	11.62	153.37	-98.79	-70.23	297.37	273.88	23.49	12.660 SF	
3,670.00	3,652.84	3,654.97	3,647.28	12.79	11.91	154.74	-100.63	-71.07	306.82	282.74	24.07	12.745	
3,764.00	3,746.36	3,737.97	3,730.22	13.15	12.18	158.41	-99.76	-74.07	318.80	294.18	24.63	12.946	
3,859.00	3,840.97	3,830.52	3,822.62	13.51	12.48	162.57	-97.09	-78.62	332.21	306.96	25.26	13.153	
3,954.00	3,935.57	3,925.17	3,917.13	13.87	12.78	163.21	-93.23	-82.09	345.66	319.75	25.91	13.342	
4,049.00	4,030.14	4,022.30	4,014.13	14.23	13.09	154.81	-89.20	-85.13	358.83	332.25	26.58	13.500	
4,143.00	4,123.75	4,119.54	4,111.29	14.59	13.40	156.68	-85.92	-87.37	370.27	343.01	27.26	13.585	
4,238.00	4,218.33	4,221.87	4,213.58	14.95	13.74	157.51	-84.19	-89.14	380.80	352.82	27.98	13.610	
4,333.00	4,312.74	4,321.19	4,312.90	15.32	14.09	155.16	-84.64	-90.20	390.97	362.28	28.69	13.627	
4,427.00	4,406.05	4,418.48	4,410.16	15.69	14.44	157.91	-86.70	-91.24	400.90	371.50	29.40	13.638	
4,522.00	4,500.34	4,514.91	4,506.52	16.06	14.78	158.97	-90.02	-92.43	410.46	380.36	30.10	13.636	
4,616.00	4,593.47	4,605.89	4,597.46	16.44	15.11	156.98	-92.55	-93.13	421.16	390.39	30.77	13.689	
4,710.00	4,686.44	4,698.38	4,689.93	16.82	15.44	158.15	-94.55	-93.82	433.20	401.76	31.44	13.777	

CC - Min centre to center distance or 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:	Plan #4	**Offset TVD Reference:**	Offset Datum

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

Survey Program: 67-Standard Keeper 104, 447-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
4,899.00	4,873.89	4,886.85	4,878.36	17.57	16.12	165.15	-98.39	-94.85	454.26	421.45	32.81	13.844	
4,962.00	4,936.56	4,948.49	4,939.99	17.81	16.34	167.60	-99.51	-95.12	459.90	426.64	33.26	13.828	
5,024.00	4,998.27	5,009.42	5,000.91	18.04	16.55	163.88	-100.41	-95.41	465.39	431.69	33.70	13.810	
5,150.00	5,123.66	5,135.53	5,127.01	18.53	17.00	165.11	-102.01	-95.75	476.46	441.85	34.61	13.767	
5,213.00	5,186.37	5,198.24	5,189.71	18.77	17.23	162.84	-102.82	-95.87	481.78	446.72	35.06	13.741	
5,276.00	5,249.09	5,260.42	5,251.89	19.01	17.45	163.86	-103.51	-95.97	487.11	451.60	35.51	13.718	
5,339.00	5,311.83	5,320.71	5,312.17	19.25	17.66	163.06	-103.88	-96.04	492.40	456.46	35.94	13.700	
5,401.00	5,373.58	5,382.07	5,373.53	19.48	17.88	165.73	-104.07	-96.21	497.78	461.40	36.38	13.682	
5,464.00	5,436.33	5,445.68	5,437.15	19.72	18.11	163.16	-104.29	-96.33	503.06	466.22	36.84	13.656	
5,590.00	5,561.87	5,572.07	5,563.54	20.19	18.55	162.15	-104.88	-96.44	513.03	475.28	37.74	13.592	
5,653.00	5,624.66	5,635.24	5,626.70	20.43	18.78	160.94	-105.31	-96.57	517.78	479.58	38.20	13.555	
5,715.00	5,686.48	5,699.58	5,691.04	20.66	19.01	156.11	-106.02	-96.62	521.74	483.08	38.66	13.496	
5,778.00	5,749.29	5,760.55	5,752.00	20.90	19.23	158.92	-106.81	-96.72	525.71	486.61	39.10	13.446	
5,841.00	5,812.10	5,819.29	5,810.75	21.13	19.43	156.76	-107.11	-96.97	530.21	490.70	39.52	13.418	
5,904.00	5,874.94	5,885.80	5,877.25	21.36	19.67	162.25	-107.31	-97.10	534.43	494.44	39.99	13.364	
5,967.00	5,937.80	5,952.72	5,944.17	21.60	19.90	163.87	-108.13	-97.08	537.90	497.43	40.47	13.292	
6,030.00	6,000.68	6,016.73	6,008.16	21.83	20.13	161.96	-109.50	-97.22	540.73	499.81	40.93	13.212	
6,093.00	6,063.59	6,079.00	6,070.42	22.05	20.36	165.63	-110.84	-97.35	543.19	501.81	41.37	13.129	
6,156.00	6,126.51	6,141.13	6,132.54	22.28	20.58	170.88	-112.02	-97.48	545.56	503.74	41.82	13.045	
6,235.00	6,205.43	6,213.00	6,204.39	22.56	20.84	170.52	-113.25	-97.56	548.17	505.83	42.34	12.948	
6,300.00	6,270.38	6,213.00	6,204.39	22.68	20.84	170.52	-113.25	-97.56	554.58	512.62	41.96	13.216	
6,355.00	6,325.34	6,213.00	6,204.39	22.69	20.84	170.52	-113.25	-97.56	565.81	524.58	41.23	13.724	
6,400.00	6,370.23	6,213.00	6,204.39	22.71	20.84	-155.96	-113.25	-97.56	579.87	539.41	40.46	14.330	
6,450.00	6,419.74	6,213.00	6,204.39	22.73	20.84	-147.00	-113.25	-97.56	601.60	562.07	39.53	15.220	
6,500.00	6,468.57	6,213.00	6,204.39	22.77	20.84	-142.03	-113.25	-97.56	628.98	590.40	38.58	16.305	
6,550.00	6,516.42	6,213.00	6,204.39	22.81	20.84	-137.76	-113.25	-97.56	661.15	623.48	37.68	17.549	
6,600.00	6,562.98	6,213.00	6,204.39	22.87	20.84	-133.24	-113.25	-97.56	697.27	660.40	36.87	18.909	
6,650.00	6,607.98	6,213.00	6,204.39	22.95	20.84	-128.01	-113.25	-97.56	736.55	700.35	36.20	20.348	
6,700.00	6,651.14	6,213.00	6,204.39	23.03	20.84	-121.72	-113.25	-97.56	778.29	742.63	35.66	21.826	
6,750.00	6,692.18	6,213.00	6,204.39	23.14	20.84	-114.11	-113.25	-97.56	821.87	786.62	35.25	23.313	
6,800.00	6,730.86	6,213.00	6,204.39	23.26	20.84	-105.05	-113.25	-97.56	866.77	831.80	34.98	24.782	
6,850.00	6,766.93	6,213.00	6,204.39	23.40	20.84	-94.69	-113.25	-97.56	912.54	877.73	34.81	26.212	
6,900.00	6,800.18	6,213.00	6,204.39	23.56	20.84	-83.60	-113.25	-97.56	958.79	924.04	34.76	27.587	
6,950.00	6,830.39	6,213.00	6,204.39	23.74	20.84	-72.60	-113.25	-97.56	1,005.19	970.41	34.79	28.896	
7,000.00	6,857.38	6,213.00	6,204.39	23.94	20.84	-62.51	-113.25	-97.56	1,051.45	1,016.56	34.89	30.132	
7,050.00	6,880.98	6,213.00	6,204.39	24.17	20.84	-53.81	-113.25	-97.56	1,097.32	1,062.26	35.07	31.291	
7,100.00	6,901.06	6,213.00	6,204.39	24.42	20.84	-46.58	-113.25	-97.56	1,142.59	1,107.29	35.30	32.369	
7,150.00	6,917.47	6,213.00	6,204.39	24.70	20.84	-40.69	-113.25	-97.56	1,187.04	1,151.47	35.57	33.368	
7,200.00	6,930.13	6,213.00	6,204.39	25.01	20.84	-35.93	-113.25	-97.56	1,230.53	1,194.64	35.89	34.288	
7,250.00	6,938.95	6,213.00	6,204.39	25.34	20.84	-32.07	-113.25	-97.56	1,272.88	1,236.64	36.23	35.132	
7,300.00	6,943.88	6,213.00	6,204.39	25.69	20.84	-28.93	-113.25	-97.56	1,313.95	1,277.36	36.60	35.902	
7,337.82	6,945.00	6,213.00	6,204.39	25.97	20.84	-26.94	-113.25	-97.56	1,344.10	1,307.22	36.89	36.438	
7,400.00	6,945.00	6,213.00	6,204.39	26.45	20.84	-28.36	-113.25	-97.56	1,393.33	1,355.97	37.36	37.299	
7,492.38	6,945.00	6,213.00	6,204.39	27.21	20.84	-30.54	-113.25	-97.56	1,467.60	1,429.62	37.98	38.640	
7,500.00	6,945.00	6,213.00	6,204.39	27.28	20.84	-30.54	-113.25	-97.56	1,473.78	1,435.75	38.03	38.754	
7,600.00	6,945.00	6,213.00	6,204.39	28.17	20.84	-30.54	-113.25	-97.56	1,556.09	1,517.47	38.62	40.296	
7,700.00	6,945.00	6,213.00	6,204.39	29.12	20.84	-30.54	-113.25	-97.56	1,640.36	1,601.23	39.13	41.921	
7,800.00	6,945.00	6,213.00	6,204.39	30.14	20.84	-30.54	-113.25	-97.56	1,726.32	1,686.74	39.58	43.616	
7,900.00	6,945.00	6,213.00	6,204.39	31.20	20.84	-30.54	-113.25	-97.56	1,813.71	1,773.74	39.98	45.370	
8,000.00	6,945.00	6,213.00	6,204.39	32.31	20.84	-30.54	-113.25	-97.56	1,902.35	1,862.03	40.33	47.174	
8,100.00	6,945.00	6,213.00	6,204.39	33.46	20.84	-30.54	-113.25	-97.56	1,992.07	1,951.43	40.64	49.019	
8,200.00	6,945.00	6,213.00	6,204.39	34.64	20.84	-30.54	-113.25	-97.56	2,082.72	2,041.80	40.92	50.901	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 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:	Plan #4	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - Rosa Unit 701H - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 67-Standard Keeper 104, 447-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
8,300.00	6,945.00	6,213.00	6,204.39	35.86	20.84	-30.54	-113.25	-97.56	2,174.19	2,133.02	41.17	52.814	
8,400.00	6,945.00	6,213.00	6,204.39	37.11	20.84	-30.54	-113.25	-97.56	2,266.38	2,224.99	41.39	54.753	
8,500.00	6,945.00	6,213.00	6,204.39	38.39	20.84	-30.54	-113.25	-97.56	2,359.21	2,317.61	41.60	56.714	
8,600.00	6,945.00	6,213.00	6,204.39	39.69	20.84	-30.54	-113.25	-97.56	2,452.60	2,410.82	41.79	58.695	
8,700.00	6,945.00	6,213.00	6,204.39	41.01	20.84	-30.54	-113.25	-97.56	2,546.50	2,504.54	41.96	60.692	
8,800.00	6,945.00	6,213.00	6,204.39	42.35	20.84	-30.54	-113.25	-97.56	2,640.84	2,598.72	42.12	62.703	
8,900.00	6,945.00	6,213.00	6,204.39	43.71	20.84	-30.54	-113.25	-97.56	2,735.58	2,693.32	42.26	64.727	
9,000.00	6,945.00	6,213.00	6,204.39	45.08	20.84	-30.54	-113.25	-97.56	2,830.69	2,788.29	42.40	66.761	
9,100.00	6,945.00	6,213.00	6,204.39	46.47	20.84	-30.54	-113.25	-97.56	2,926.12	2,883.59	42.53	68.804	
9,200.00	6,945.00	6,213.00	6,204.39	47.87	20.84	-30.54	-113.25	-97.56	3,021.85	2,979.20	42.65	70.854	
9,300.00	6,945.00	6,213.00	6,204.39	49.29	20.84	-30.54	-113.25	-97.56	3,117.84	3,075.08	42.76	72.910	
9,400.00	6,945.00	6,213.00	6,204.39	50.71	20.84	-30.54	-113.25	-97.56	3,214.08	3,171.21	42.87	74.972	
9,500.00	6,945.00	6,213.00	6,204.39	52.15	20.84	-30.54	-113.25	-97.56	3,310.55	3,267.57	42.97	77.037	
9,600.00	6,945.00	6,213.00	6,204.39	53.59	20.84	-30.54	-113.25	-97.56	3,407.21	3,364.14	43.07	79.106	
9,700.00	6,945.00	6,213.00	6,204.39	55.05	20.84	-30.54	-113.25	-97.56	3,504.07	3,460.90	43.17	81.177	
9,800.00	6,945.00	6,213.00	6,204.39	56.51	20.84	-30.54	-113.25	-97.56	3,601.09	3,557.84	43.26	83.249	
9,900.00	6,945.00	6,213.00	6,204.39	57.98	20.84	-30.54	-113.25	-97.56	3,698.28	3,654.93	43.34	85.323	
10,000.00	6,945.00	6,213.00	6,204.39	59.45	20.84	-30.54	-113.25	-97.56	3,795.61	3,752.18	43.43	87.397	
10,100.00	6,945.00	6,213.00	6,204.39	60.93	20.84	-30.54	-113.25	-97.56	3,893.07	3,849.56	43.51	89.471	
10,200.00	6,945.00	6,213.00	6,204.39	62.42	20.84	-30.54	-113.25	-97.56	3,990.67	3,947.07	43.59	91.544	
10,300.00	6,945.00	6,213.00	6,204.39	63.92	20.84	-30.54	-113.25	-97.56	4,088.37	4,044.70	43.67	93.616	
10,400.00	6,945.00	6,213.00	6,204.39	65.42	20.84	-30.54	-113.25	-97.56	4,186.19	4,142.44	43.75	95.686	
10,500.00	6,945.00	6,213.00	6,204.39	66.92	20.84	-30.54	-113.25	-97.56	4,284.11	4,240.28	43.83	97.755	
10,600.00	6,945.00	6,213.00	6,204.39	68.43	20.84	-30.54	-113.25	-97.56	4,382.12	4,338.22	43.90	99.821	
10,700.00	6,945.00	6,213.00	6,204.39	69.94	20.84	-30.54	-113.25	-97.56	4,480.22	4,436.24	43.97	101.885	
10,800.00	6,945.00	6,213.00	6,204.39	71.45	20.84	-30.54	-113.25	-97.56	4,578.40	4,534.35	44.05	103.945	
10,900.00	6,945.00	6,213.00	6,204.39	72.97	20.84	-30.54	-113.25	-97.56	4,676.66	4,632.54	44.12	106.002	
11,000.00	6,945.00	6,213.00	6,204.39	74.50	20.84	-30.54	-113.25	-97.56	4,774.99	4,730.80	44.19	108.056	
11,100.00	6,945.00	6,213.00	6,204.39	76.02	20.84	-30.54	-113.25	-97.56	4,873.38	4,829.12	44.26	110.106	
11,200.00	6,945.00	6,213.00	6,204.39	77.55	20.84	-30.54	-113.25	-97.56	4,971.85	4,927.52	44.33	112.152	
11,300.00	6,945.00	6,213.00	6,204.39	79.08	20.84	-30.54	-113.25	-97.56	5,070.37	5,025.97	44.40	114.193	
11,400.00	6,945.00	6,213.00	6,204.39	80.62	20.84	-30.54	-113.25	-97.56	5,168.95	5,124.48	44.47	116.230	
11,500.00	6,945.00	6,213.00	6,204.39	82.16	20.84	-30.54	-113.25	-97.56	5,267.58	5,223.04	44.54	118.262	
11,600.00	6,945.00	6,213.00	6,204.39	83.70	20.84	-30.54	-113.25	-97.56	5,366.27	5,321.65	44.61	120.289	
11,700.00	6,945.00	6,213.00	6,204.39	85.24	20.84	-30.54	-113.25	-97.56	5,465.00	5,420.32	44.68	122.311	
11,800.00	6,945.00	6,213.00	6,204.39	86.78	20.84	-30.54	-113.25	-97.56	5,563.77	5,519.02	44.75	124.328	
11,900.00	6,945.00	6,213.00	6,204.39	88.33	20.84	-30.54	-113.25	-97.56	5,662.59	5,617.77	44.82	126.339	
12,000.00	6,945.00	6,213.00	6,204.39	89.87	20.84	-30.54	-113.25	-97.56	5,761.45	5,716.56	44.89	128.345	
12,100.00	6,945.00	6,213.00	6,204.39	91.42	20.84	-30.54	-113.25	-97.56	5,860.35	5,815.39	44.96	130.345	
12,200.00	6,945.00	6,213.00	6,204.39	92.98	20.84	-30.54	-113.25	-97.56	5,959.29	5,914.26	45.03	132.339	
12,300.00	6,945.00	6,213.00	6,204.39	94.53	20.84	-30.54	-113.25	-97.56	6,058.26	6,013.16	45.10	134.326	
12,400.00	6,945.00	6,213.00	6,204.39	96.08	20.84	-30.54	-113.25	-97.56	6,157.26	6,112.09	45.17	136.308	
12,500.00	6,945.00	6,213.00	6,204.39	97.64	20.84	-30.54	-113.25	-97.56	6,256.30	6,211.06	45.24	138.283	
12,600.00	6,945.00	6,213.00	6,204.39	99.20	20.84	-30.54	-113.25	-97.56	6,355.36	6,310.05	45.31	140.252	
12,700.00	6,945.00	6,213.00	6,204.39	100.76	20.84	-30.54	-113.25	-97.56	6,454.46	6,409.07	45.39	142.214	
12,800.00	6,945.00	6,213.00	6,204.39	102.32	20.84	-30.54	-113.25	-97.56	6,553.58	6,508.12	45.46	144.170	
12,900.00	6,945.00	6,213.00	6,204.39	103.88	20.84	-30.54	-113.25	-97.56	6,652.73	6,607.20	45.53	146.119	
13,000.00	6,945.00	6,213.00	6,204.39	105.44	20.84	-30.54	-113.25	-97.56	6,751.90	6,706.30	45.60	148.061	
13,100.00	6,945.00	6,213.00	6,204.39	107.00	20.84	-30.54	-113.25	-97.56	6,851.10	6,805.43	45.68	149.996	
13,200.00	6,945.00	6,213.00	6,204.39	108.57	20.84	-30.54	-113.25	-97.56	6,950.32	6,904.57	45.75	151.924	
13,300.00	6,945.00	6,213.00	6,204.39	110.13	20.84	-30.54	-113.25	-97.56	7,049.56	7,003.74	45.82	153.845	
13,400.00	6,945.00	6,213.00	6,204.39	111.70	20.84	-30.54	-113.25	-97.56	7,148.83	7,102.93	45.90	155.758	

CC - Min centre to center distance or 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:	Plan #4	**Offset TVD Reference:**	Offset Datum

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

Survey Program: 67-Standard Keeper 104, 447-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
13,500.00	6,945.00	6,213.00	6,204.39	113.27	20.84	-30.54	-113.25	-97.56	7,248.11	7,202.14	45.97	157.665	
13,600.00	6,945.00	6,213.00	6,204.39	114.84	20.84	-30.54	-113.25	-97.56	7,347.41	7,301.37	46.05	159.564	
13,700.00	6,945.00	6,213.00	6,204.39	116.41	20.84	-30.54	-113.25	-97.56	7,446.74	7,400.61	46.12	161.455	
13,800.00	6,945.00	6,213.00	6,204.39	117.98	20.84	-30.54	-113.25	-97.56	7,546.08	7,499.88	46.20	163.340	
13,900.00	6,945.00	6,213.00	6,204.39	119.55	20.84	-30.54	-113.25	-97.56	7,645.43	7,599.16	46.28	165.216	
14,000.00	6,945.00	6,213.00	6,204.39	121.12	20.84	-30.54	-113.25	-97.56	7,744.81	7,698.46	46.35	167.085	
14,100.00	6,945.00	6,213.00	6,204.39	122.69	20.84	-30.54	-113.25	-97.56	7,844.20	7,797.77	46.43	168.946	
14,200.00	6,945.00	6,213.00	6,204.39	124.27	20.84	-30.54	-113.25	-97.56	7,943.60	7,897.09	46.51	170.800	
14,300.00	6,945.00	6,213.00	6,204.39	125.84	20.84	-30.54	-113.25	-97.56	8,043.02	7,996.43	46.59	172.646	
14,400.00	6,945.00	6,213.00	6,204.39	127.41	20.84	-30.54	-113.25	-97.56	8,142.46	8,095.79	46.67	174.484	
14,500.00	6,945.00	6,213.00	6,204.39	128.99	20.84	-30.54	-113.25	-97.56	8,241.90	8,195.16	46.75	176.314	
14,600.00	6,945.00	6,213.00	6,204.39	130.57	20.84	-30.54	-113.25	-97.56	8,341.36	8,294.54	46.83	178.137	
14,700.00	6,945.00	6,213.00	6,204.39	132.14	20.84	-30.54	-113.25	-97.56	8,440.84	8,393.93	46.91	179.951	
14,800.00	6,945.00	6,213.00	6,204.39	133.72	20.84	-30.54	-113.25	-97.56	8,540.32	8,493.34	46.99	181.758	
14,900.00	6,945.00	6,213.00	6,204.39	135.30	20.84	-30.54	-113.25	-97.56	8,639.82	8,592.75	47.07	183.556	
15,000.00	6,945.00	6,213.00	6,204.39	136.87	20.84	-30.54	-113.25	-97.56	8,739.33	8,692.18	47.15	185.347	
15,100.00	6,945.00	6,213.00	6,204.39	138.45	20.84	-30.54	-113.25	-97.56	8,838.85	8,791.62	47.23	187.129	
15,200.00	6,945.00	6,213.00	6,204.39	140.03	20.84	-30.54	-113.25	-97.56	8,938.38	8,891.06	47.32	188.904	
15,300.00	6,945.00	6,213.00	6,204.39	141.61	20.84	-30.54	-113.25	-97.56	9,037.92	8,990.52	47.40	190.670	
15,400.00	6,945.00	6,213.00	6,204.39	143.19	20.84	-30.54	-113.25	-97.56	9,137.47	9,089.99	47.49	192.428	
15,500.00	6,945.00	6,213.00	6,204.39	144.77	20.84	-30.54	-113.25	-97.56	9,237.04	9,189.47	47.57	194.178	
15,600.00	6,945.00	6,213.00	6,204.39	146.35	20.84	-30.54	-113.25	-97.56	9,336.61	9,288.95	47.66	195.920	
15,700.00	6,945.00	6,213.00	6,204.39	147.94	20.84	-30.54	-113.25	-97.56	9,436.19	9,388.44	47.74	197.654	
15,800.00	6,945.00	6,213.00	6,204.39	149.52	20.84	-30.54	-113.25	-97.56	9,535.77	9,487.95	47.83	199.379	
15,900.00	6,945.00	6,213.00	6,204.39	151.10	20.84	-30.54	-113.25	-97.56	9,635.37	9,587.46	47.91	201.097	
16,000.00	6,945.00	6,213.00	6,204.39	152.68	20.84	-30.54	-113.25	-97.56	9,734.98	9,686.97	48.00	202.806	
16,100.00	6,945.00	6,213.00	6,204.39	154.26	20.84	-30.54	-113.25	-97.56	9,834.59	9,786.50	48.09	204.507	
16,200.00	6,945.00	6,213.00	6,204.39	155.85	20.84	-30.54	-113.25	-97.56	9,934.21	9,886.03	48.18	206.200	
16,300.00	6,945.00	6,213.00	6,204.39	157.43	20.84	-30.54	-113.25	-97.56	10,033.84	9,985.57	48.27	207.884	
16,400.00	6,945.00	6,213.00	6,204.39	159.02	20.84	-30.54	-113.25	-97.56	10,133.47	10,085.12	48.36	209.561	
16,500.00	6,945.00	6,213.00	6,204.39	160.60	20.84	-30.54	-113.25	-97.56	10,233.12	10,184.67	48.45	211.229	
16,600.00	6,945.00	6,213.00	6,204.39	162.18	20.84	-30.54	-113.25	-97.56	10,332.77	10,284.23	48.54	212.889	
16,700.00	6,945.00	6,213.00	6,204.39	163.77	20.84	-30.54	-113.25	-97.56	10,432.42	10,383.80	48.63	214.541	
16,800.00	6,945.00	6,213.00	6,204.39	165.35	20.84	-30.54	-113.25	-97.56	10,532.09	10,483.37	48.72	216.184	
16,900.00	6,945.00	6,213.00	6,204.39	166.94	20.84	-30.54	-113.25	-97.56	10,631.75	10,582.94	48.81	217.820	
17,000.00	6,945.00	6,213.00	6,204.39	168.53	20.84	-30.54	-113.25	-97.56	10,731.43	10,682.53	48.90	219.447	
17,100.00	6,945.00	6,213.00	6,204.39	170.11	20.84	-30.54	-113.25	-97.56	10,831.11	10,782.12	49.00	221.066	
17,200.00	6,945.00	6,213.00	6,204.39	171.70	20.84	-30.54	-113.25	-97.56	10,930.80	10,881.71	49.09	222.676	
17,300.00	6,945.00	6,213.00	6,204.39	173.29	20.84	-30.54	-113.25	-97.56	11,030.49	10,981.31	49.18	224.279	
17,400.00	6,945.00	6,213.00	6,204.39	174.87	20.84	-30.54	-113.25	-97.56	11,130.19	11,080.91	49.28	225.873	
17,500.00	6,945.00	6,213.00	6,204.39	176.46	20.84	-30.54	-113.25	-97.56	11,229.89	11,180.52	49.37	227.460	
17,600.00	6,945.00	6,213.00	6,204.39	178.05	20.84	-30.54	-113.25	-97.56	11,329.60	11,280.14	49.47	229.038	
17,700.00	6,945.00	6,213.00	6,204.39	179.63	20.84	-30.54	-113.25	-97.56	11,429.32	11,379.76	49.56	230.608	
17,800.00	6,945.00	6,213.00	6,204.39	181.22	20.84	-30.54	-113.25	-97.56	11,529.04	11,479.38	49.66	232.170	
17,900.00	6,945.00	6,213.00	6,204.39	182.81	20.84	-30.54	-113.25	-97.56	11,628.76	11,579.01	49.75	233.723	
18,000.00	6,945.00	6,213.00	6,204.39	184.40	20.84	-30.54	-113.25	-97.56	11,728.49	11,678.64	49.85	235.269	
18,100.00	6,945.00	6,213.00	6,204.39	185.99	20.84	-30.54	-113.25	-97.56	11,828.22	11,778.27	49.95	236.807	
18,200.00	6,945.00	6,213.00	6,204.39	187.58	20.84	-30.54	-113.25	-97.56	11,927.96	11,877.91	50.05	238.337	
18,300.00	6,945.00	6,213.00	6,204.39	189.16	20.84	-30.54	-113.25	-97.56	12,027.70	11,977.56	50.15	239.858	
18,400.00	6,945.00	6,213.00	6,204.39	190.75	20.84	-30.54	-113.25	-97.56	12,127.45	12,077.20	50.24	241.372	
18,500.00	6,945.00	6,213.00	6,204.39	192.34	20.84	-30.54	-113.25	-97.56	12,227.20	12,176.85	50.34	242.877	
18,600.00	6,945.00	6,213.00	6,204.39	193.93	20.84	-30.54	-113.25	-97.56	12,326.95	12,276.51	50.44	244.375	

CC - Min centre to center distance or 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:	Plan #4	**Offset TVD Reference:**	Offset Datum

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

Survey Program: 67-Standard Keeper 104, 447-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
18,700.00	6,945.00	6,213.00	6,204.39	195.52	20.84	-30.54	-113.25	-97.56	12,426.71	12,376.17	50.54	245.865	
18,800.00	6,945.00	6,213.00	6,204.39	197.11	20.84	-30.54	-113.25	-97.56	12,526.47	12,475.83	50.64	247.347	
18,900.00	6,945.00	6,213.00	6,204.39	198.70	20.84	-30.54	-113.25	-97.56	12,626.24	12,575.49	50.74	248.821	
19,000.00	6,945.00	6,213.00	6,204.39	200.29	20.84	-30.54	-113.25	-97.56	12,726.01	12,675.16	50.85	250.287	
19,100.00	6,945.00	6,213.00	6,204.39	201.88	20.84	-30.54	-113.25	-97.56	12,825.78	12,774.83	50.95	251.745	
19,200.00	6,945.00	6,213.00	6,204.39	203.47	20.84	-30.54	-113.25	-97.56	12,925.56	12,874.51	51.05	253.196	
19,300.00	6,945.00	6,213.00	6,204.39	205.06	20.84	-30.54	-113.25	-97.56	13,025.34	12,974.19	51.15	254.638	
19,400.00	6,945.00	6,213.00	6,204.39	206.65	20.84	-30.54	-113.25	-97.56	13,125.12	13,073.87	51.26	256.073	
19,500.00	6,945.00	6,213.00	6,204.39	208.24	20.84	-30.54	-113.25	-97.56	13,224.91	13,173.55	51.36	257.500	
19,600.00	6,945.00	6,213.00	6,204.39	209.84	20.84	-30.54	-113.25	-97.56	13,324.70	13,273.24	51.46	258.920	
19,700.00	6,945.00	6,213.00	6,204.39	211.43	20.84	-30.54	-113.25	-97.56	13,424.49	13,372.93	51.57	260.332	
19,800.00	6,945.00	6,213.00	6,204.39	213.02	20.84	-30.54	-113.25	-97.56	13,524.29	13,472.62	51.67	261.736	
19,900.00	6,945.00	6,213.00	6,204.39	214.61	20.84	-30.54	-113.25	-97.56	13,624.09	13,572.31	51.78	263.133	
20,000.00	6,945.00	6,213.00	6,204.39	216.20	20.84	-30.54	-113.25	-97.56	13,723.89	13,672.01	51.88	264.522	
20,100.00	6,945.00	6,213.00	6,204.39	217.79	20.84	-30.54	-113.25	-97.56	13,823.69	13,771.71	51.99	265.903	
20,200.00	6,945.00	6,213.00	6,204.39	219.38	20.84	-30.54	-113.25	-97.56	13,923.50	13,871.41	52.09	267.277	
20,300.00	6,945.00	6,213.00	6,204.39	220.98	20.84	-30.54	-113.25	-97.56	14,023.31	13,971.11	52.20	268.644	
20,400.00	6,945.00	6,213.00	6,204.39	222.57	20.84	-30.54	-113.25	-97.56	14,123.13	14,070.82	52.31	270.003	
20,500.00	6,945.00	6,213.00	6,204.39	224.16	20.84	-30.54	-113.25	-97.56	14,222.94	14,170.53	52.41	271.355	
20,600.00	6,945.00	6,213.00	6,204.39	225.75	20.84	-30.54	-113.25	-97.56	14,322.76	14,270.24	52.52	272.699	
20,700.00	6,945.00	6,213.00	6,204.39	227.35	20.84	-30.54	-113.25	-97.56	14,422.58	14,369.95	52.63	274.036	
20,800.00	6,945.00	6,213.00	6,204.39	228.94	20.84	-30.54	-113.25	-97.56	14,522.40	14,469.67	52.74	275.365	
20,852.96	6,945.00	6,213.00	6,204.39	229.61	20.84	-30.54	-113.25	-97.56	14,575.27	14,517.77	57.50	253.492	

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:	Plan #4	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - Rosa Unit 701H - OH - Plan #3

Offset Site Error: 0.00 usft

Survey Program: 67-Standard Keeper 104, 306-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				
20.93	20.93	20.85	20.85	0.00	0.01	132.12	81.91	-57.90	100.35				
117.41	117.41	117.26	117.26	0.05	0.09	127.53	81.82	-58.34	100.82	100.72	0.10	1,019.234	
206.68	206.68	206.66	206.66	0.17	0.21	153.36	81.68	-58.68	101.17	100.91	0.26	388.570	
292.93	292.93	293.13	293.12	0.28	0.31	152.69	81.36	-59.00	101.59	101.17	0.42	242.212	
365.00	364.99	365.23	365.23	0.36	0.39	121.94	80.94	-59.32	101.84	101.29	0.55	183.545	
451.00	450.97	451.21	451.20	0.55	0.53	175.14	80.43	-59.69	103.50	102.56	0.94	110.194	
540.00	539.81	539.82	539.81	0.83	0.77	-179.38	80.28	-59.80	108.63	107.12	1.52	71.585	
665.00	664.37	664.38	664.37	1.26	1.16	-177.20	80.28	-59.80	119.08	116.71	2.37	50.250	
753.00	752.01	752.02	752.01	1.58	1.46	-178.34	80.28	-59.80	127.04	124.06	2.98	42.575	
847.00	845.61	845.62	845.61	1.93	1.78	-175.51	80.28	-59.80	135.66	132.01	3.65	37.207	
939.00	937.22	937.22	937.22	2.27	2.10	-175.54	80.28	-59.80	144.18	139.89	4.30	33.545	
1,030.00	1,027.78	1,028.79	1,028.78	2.62	2.42	172.98	80.14	-59.83	153.00	148.05	4.95	30.925	
1,120.00	1,117.25	1,121.74	1,121.70	2.96	2.73	175.55	77.76	-60.37	161.17	155.58	5.59	28.825	
1,211.00	1,207.68	1,212.66	1,212.52	3.31	3.04	172.17	73.79	-61.27	168.67	162.44	6.23	27.071	
1,306.00	1,302.14	1,307.36	1,307.12	3.68	3.36	173.36	69.64	-62.21	176.00	169.10	6.90	25.504	
1,400.00	1,395.63	1,401.07	1,400.74	4.04	3.69	173.91	65.55	-63.13	183.00	175.43	7.57	24.181	
1,495.00	1,490.19	1,495.82	1,495.40	4.40	4.02	172.54	61.40	-64.07	189.47	181.23	8.24	22.982	
1,589.00	1,583.83	1,589.63	1,589.12	4.76	4.35	169.47	57.30	-65.00	195.08	186.16	8.92	21.881	
1,684.00	1,678.44	1,684.43	1,683.82	5.12	4.68	171.28	53.15	-65.93	200.98	191.38	9.60	20.942	
1,779.00	1,772.98	1,779.15	1,778.45	5.48	5.02	175.05	49.01	-66.87	207.78	197.50	10.28	20.212	
1,873.00	1,866.49	1,872.85	1,872.05	5.84	5.35	175.82	44.91	-67.80	214.84	203.89	10.96	19.608	
1,967.00	1,960.05	1,966.56	1,965.66	6.20	5.69	179.68	40.81	-68.72	221.56	209.93	11.63	19.044	
2,062.00	2,054.59	2,061.26	2,060.27	6.56	6.02	173.54	36.67	-69.66	228.48	216.16	12.32	18.545	
2,156.00	2,148.09	2,154.94	2,153.86	6.92	6.36	172.26	32.57	-70.59	235.80	222.80	13.00	18.138	
2,251.00	2,242.55	2,249.61	2,248.43	7.29	6.70	173.06	28.43	-71.52	243.47	229.78	13.69	17.787	
2,345.00	2,336.00	2,343.27	2,341.99	7.65	7.04	166.63	24.33	-72.45	251.26	236.89	14.37	17.486	
2,440.00	2,430.43	2,437.94	2,436.57	8.02	7.38	163.78	20.19	-73.39	259.05	243.99	15.06	17.202	
2,535.00	2,524.86	2,532.62	2,531.16	8.38	7.72	164.87	16.05	-74.32	266.76	251.01	15.75	16.938	
2,629.00	2,618.31	2,626.31	2,624.75	8.75	8.06	164.68	11.95	-75.25	274.39	257.96	16.43	16.698	
2,724.00	2,712.77	2,721.00	2,719.35	9.12	8.40	165.24	7.81	-76.18	282.00	264.87	17.12	16.469	
2,818.00	2,806.24	2,814.70	2,812.95	9.48	8.74	165.59	3.71	-77.11	289.46	271.66	17.81	16.256	
2,913.00	2,900.71	2,909.39	2,907.55	9.84	9.08	167.55	-0.43	-78.05	296.95	278.46	18.50	16.053	
3,008.00	2,995.25	3,004.13	3,002.19	10.21	9.43	162.88	-4.57	-78.98	303.89	284.70	19.19	15.837	
3,102.00	3,088.80	3,097.89	3,095.86	10.57	9.77	162.91	-8.68	-79.91	310.53	290.66	19.87	15.626	
3,197.00	3,183.30	3,192.61	3,190.48	10.93	10.11	165.67	-12.82	-80.85	317.75	297.19	20.56	15.452	
3,291.00	3,276.71	3,286.28	3,284.05	11.30	10.45	159.42	-16.92	-81.77	325.62	304.37	21.25	15.324	
3,386.00	3,371.01	3,380.88	3,378.56	11.67	10.79	158.34	-21.05	-82.71	334.26	312.32	21.94	15.233	
3,480.00	3,464.23	3,474.43	3,472.02	12.04	11.13	159.74	-25.15	-83.63	343.38	320.75	22.63	15.174	
3,575.00	3,558.47	3,568.99	3,566.48	12.42	11.48	161.30	-29.28	-84.57	352.56	329.24	23.32	15.116	
3,670.00	3,652.84	3,663.63	3,661.03	12.79	11.82	162.21	-33.42	-85.51	360.82	336.80	24.02	15.024	
3,764.00	3,746.36	3,757.36	3,754.67	13.15	12.16	165.26	-37.52	-86.43	367.78	343.08	24.70	14.889	
3,859.00	3,840.97	3,852.14	3,849.35	13.51	12.51	168.72	-41.67	-87.37	373.98	348.59	25.39	14.728	
3,954.00	3,935.57	3,946.90	3,944.02	13.87	12.85	168.46	-45.81	-88.31	380.45	354.36	26.08	14.585	
4,049.00	4,030.14	4,041.67	4,038.69	14.23	13.19	159.18	-49.96	-89.24	387.02	360.25	26.78	14.454	
4,143.00	4,123.75	4,135.48	4,132.40	14.59	13.53	160.16	-54.06	-90.17	392.96	365.50	27.46	14.309	
4,238.00	4,218.33	4,230.26	4,227.09	14.95	13.88	160.29	-58.21	-91.11	399.30	371.14	28.15	14.182	
4,333.00	4,312.74	4,324.94	4,321.68	15.32	14.22	157.47	-62.35	-92.04	407.07	378.22	28.85	14.111	
4,427.00	4,406.05	4,418.55	4,415.19	15.69	14.56	159.93	-66.44	-92.97	415.60	386.07	29.54	14.071	
4,522.00	4,500.34	4,513.14	4,509.69	16.06	14.91	160.86	-70.58	-93.91	424.43	394.20	30.23	14.040	
4,616.00	4,593.47	4,606.61	4,603.06	16.44	15.25	158.68	-74.67	-94.83	434.34	403.42	30.92	14.048	
4,710.00	4,686.44	4,699.97	4,696.32	16.82	15.59	159.58	-78.75	-95.75	445.25	413.64	31.61	14.087	

CC - Min centre to center distance or 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:	Plan #4	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - Rosa Unit 701H - OH - Plan #3 — **Offset Site Error:** 0.00 usft

Survey Program: 67-Standard Keeper 104, 306-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
4,899.00	4,873.89	4,888.02	4,884.19	17.57	16.27	166.00	-86.98	-97.61	464.04	431.05	32.99	14.066	
4,962.00	4,936.56	4,950.82	4,946.93	17.81	16.50	168.25	-89.72	-98.23	468.86	435.41	33.45	14.017	
5,024.00	4,998.27	5,012.65	5,008.69	18.04	16.73	164.35	-92.43	-98.85	473.38	439.48	33.90	13.963	
5,150.00	5,123.66	5,138.31	5,134.22	18.53	17.18	165.15	-97.93	-100.09	482.52	447.70	34.82	13.857	
5,213.00	5,186.37	5,201.15	5,197.00	18.77	17.41	162.67	-100.67	-100.71	486.91	451.63	35.28	13.801	
5,276.00	5,249.09	5,264.00	5,259.78	19.01	17.64	163.47	-103.42	-101.33	491.26	455.52	35.74	13.745	
5,339.00	5,311.83	5,326.86	5,322.58	19.25	17.87	162.44	-106.17	-101.95	495.38	459.18	36.20	13.684	
5,401.00	5,373.58	5,388.72	5,384.38	19.48	18.09	164.86	-108.88	-102.56	499.40	462.75	36.65	13.625	
5,464.00	5,436.33	5,451.59	5,447.19	19.72	18.32	162.04	-111.63	-103.19	503.35	466.24	37.11	13.563	
5,590.00	5,561.87	5,577.36	5,572.83	20.19	18.78	160.56	-117.13	-104.43	510.87	472.83	38.03	13.433	
5,653.00	5,624.66	5,640.25	5,635.66	20.43	19.01	159.14	-119.88	-105.05	514.41	475.92	38.49	13.365	
5,715.00	5,686.48	5,702.18	5,697.52	20.66	19.24	154.11	-122.59	-105.66	517.42	478.48	38.94	13.287	
5,778.00	5,749.29	5,765.10	5,760.38	20.90	19.46	156.74	-125.34	-106.29	520.46	481.06	39.40	13.210	
5,841.00	5,812.10	5,828.02	5,823.24	21.13	19.69	154.39	-128.09	-106.91	523.57	483.72	39.86	13.136	
5,904.00	5,874.94	5,890.95	5,886.11	21.36	19.92	159.63	-130.85	-107.53	526.43	486.11	40.32	13.057	
5,967.00	5,937.80	5,953.89	5,948.98	21.60	20.15	161.06	-133.60	-108.15	529.04	488.27	40.77	12.975	
6,030.00	6,000.68	6,016.84	6,011.87	21.83	20.38	159.01	-136.35	-108.78	531.32	490.09	41.23	12.886	
6,093.00	6,063.59	6,079.79	6,074.76	22.05	20.61	162.54	-139.11	-109.40	533.23	491.54	41.69	12.790	
6,156.00	6,126.51	6,142.75	6,137.65	22.28	20.84	167.64	-141.86	-110.02	534.98	492.83	42.15	12.693	
6,235.00	6,205.43	6,221.69	6,216.52	22.56	21.13	167.07	-145.31	-110.80	536.73	494.01	42.72	12.564	
6,300.00	6,270.38	6,286.65	6,281.41	22.68	21.36	166.85	-148.16	-111.44	537.84	494.76	43.07	12.487	
6,355.00	6,325.34	6,330.87	6,325.58	22.69	21.52	166.69	-150.09	-112.09	539.05	495.84	43.21	12.476 SF	
6,400.00	6,370.23	6,350.00	6,344.67	22.71	21.59	-160.60	-150.92	-113.06	542.83	499.69	43.15	12.581	
6,450.00	6,419.74	6,386.93	6,381.40	22.73	21.73	-153.18	-152.51	-116.56	551.57	508.36	43.21	12.766	
6,500.00	6,468.57	6,414.59	6,408.73	22.77	21.83	-150.15	-153.69	-120.57	565.30	522.15	43.15	13.101	
6,550.00	6,516.42	6,450.00	6,443.43	22.81	21.95	-148.69	-155.19	-127.43	583.96	540.76	43.20	13.519	
6,600.00	6,562.98	6,463.77	6,456.82	22.87	22.00	-146.90	-155.76	-130.62	606.91	563.99	42.92	14.139	
6,650.00	6,607.98	6,484.71	6,477.03	22.95	22.08	-145.42	-156.62	-136.02	634.31	591.53	42.77	14.829	
6,700.00	6,651.14	6,500.00	6,491.67	23.03	22.13	-143.51	-157.24	-140.38	665.67	623.11	42.56	15.642	
6,750.00	6,692.18	6,518.68	6,509.41	23.14	22.20	-141.49	-157.99	-146.19	700.55	658.10	42.45	16.503	
6,800.00	6,730.86	6,531.73	6,521.70	23.26	22.24	-138.61	-158.51	-150.55	738.55	696.25	42.30	17.462	
6,850.00	6,766.93	6,550.00	6,538.74	23.40	22.30	-135.53	-159.23	-157.08	779.28	736.98	42.30	18.422	
6,900.00	6,800.18	6,550.00	6,538.74	23.56	22.30	-129.70	-159.23	-157.08	822.03	779.99	42.04	19.556	
6,950.00	6,830.39	6,550.00	6,538.74	23.74	22.30	-122.15	-159.23	-157.08	866.66	824.82	41.84	20.715	
7,000.00	6,857.38	6,550.00	6,538.74	23.94	22.30	-112.52	-159.23	-157.08	912.62	870.91	41.71	21.881	
7,050.00	6,880.98	6,550.00	6,538.74	24.17	22.30	-100.75	-159.23	-157.08	959.48	917.83	41.64	23.040	
7,100.00	6,901.06	6,550.00	6,538.74	24.42	22.30	-87.44	-159.23	-157.08	1,006.82	965.19	41.64	24.180	
7,150.00	6,917.47	6,550.00	6,538.74	24.70	22.30	-73.97	-159.23	-157.08	1,054.33	1,012.64	41.68	25.294	
7,200.00	6,930.13	6,550.00	6,538.74	25.01	22.30	-61.78	-159.23	-157.08	1,101.69	1,059.92	41.77	26.375	
7,250.00	6,938.95	6,550.00	6,538.74	25.34	22.30	-51.67	-159.23	-157.08	1,148.65	1,106.76	41.89	27.419	
7,300.00	6,943.88	6,550.00	6,538.74	25.69	22.30	-43.67	-159.23	-157.08	1,194.99	1,152.95	42.04	28.424	
7,337.82	6,945.00	6,550.00	6,538.74	25.97	22.30	-38.83	-159.23	-157.08	1,229.50	1,187.33	42.17	29.156	
7,400.00	6,945.00	6,550.00	6,538.74	26.45	22.30	-40.89	-159.23	-157.08	1,285.90	1,243.52	42.38	30.342	
7,492.38	6,945.00	6,527.14	6,517.39	27.21	22.22	-42.49	-158.33	-148.99	1,369.40	1,327.02	42.38	32.310	
7,500.00	6,945.00	6,526.31	6,516.61	27.28	22.22	-42.44	-158.30	-148.71	1,376.30	1,333.91	42.39	32.464	
7,600.00	6,945.00	6,500.00	6,491.67	28.17	22.13	-40.91	-157.24	-140.38	1,467.74	1,425.36	42.38	34.635	
7,700.00	6,945.00	6,500.00	6,491.67	29.12	22.13	-40.91	-157.24	-140.38	1,559.54	1,516.90	42.64	36.578	
7,800.00	6,945.00	6,500.00	6,491.67	30.14	22.13	-40.91	-157.24	-140.38	1,652.30	1,609.44	42.86	38.552	
7,900.00	6,945.00	6,500.00	6,491.67	31.20	22.13	-40.91	-157.24	-140.38	1,745.85	1,702.80	43.05	40.551	
8,000.00	6,945.00	6,500.00	6,491.67	32.31	22.13	-40.91	-157.24	-140.38	1,840.09	1,796.86	43.22	42.571	
8,100.00	6,945.00	6,475.64	6,468.30	33.46	22.04	-39.56	-156.25	-133.60	1,934.29	1,891.11	43.18	44.793	
8,200.00	6,945.00	6,469.36	6,462.23	34.64	22.02	-39.22	-155.99	-131.99	2,029.25	1,985.97	43.28	46.885	

CC - Min centre to center distance or 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:	Plan #4	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - Rosa Unit 701H - OH - Plan #3 — **Offset Site Error:** 0.00 usft

Survey Program: 67-Standard Keeper 104, 306-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
8,300.00	6,945.00	6,450.00	6,443.43	35.86	21.95	-38.21	-155.19	-127.43	2,124.79	2,081.52	43.28	49.098	
8,400.00	6,945.00	6,450.00	6,443.43	37.11	21.95	-38.21	-155.19	-127.43	2,220.38	2,176.97	43.41	51.153	
8,500.00	6,945.00	6,450.00	6,443.43	38.39	21.95	-38.21	-155.19	-127.43	2,316.33	2,272.81	43.52	53.219	
8,600.00	6,945.00	6,450.00	6,443.43	39.69	21.95	-38.21	-155.19	-127.43	2,412.62	2,368.98	43.63	55.293	
8,700.00	6,945.00	6,450.00	6,443.43	41.01	21.95	-38.21	-155.19	-127.43	2,509.19	2,465.46	43.73	57.373	
8,800.00	6,945.00	6,450.00	6,443.43	42.35	21.95	-38.21	-155.19	-127.43	2,606.03	2,562.20	43.83	59.459	
8,900.00	6,945.00	6,450.00	6,443.43	43.71	21.95	-38.21	-155.19	-127.43	2,703.09	2,659.17	43.92	61.550	
9,000.00	6,945.00	6,450.00	6,443.43	45.08	21.95	-38.21	-155.19	-127.43	2,800.36	2,756.36	44.00	63.643	
9,100.00	6,945.00	6,428.46	6,422.37	46.47	21.88	-37.14	-154.28	-123.02	2,897.38	2,853.41	43.97	65.898	
9,200.00	6,945.00	6,425.14	6,419.12	47.87	21.86	-36.98	-154.14	-122.41	2,994.86	2,950.83	44.03	68.018	
9,300.00	6,945.00	6,422.01	6,416.03	49.29	21.85	-36.82	-154.01	-121.84	3,092.48	3,048.39	44.09	70.138	
9,400.00	6,945.00	6,400.00	6,394.33	50.71	21.77	-35.79	-153.07	-118.30	3,190.58	3,146.52	44.06	72.415	
9,500.00	6,945.00	6,400.00	6,394.33	52.15	21.77	-35.79	-153.07	-118.30	3,288.36	3,244.22	44.13	74.508	
9,600.00	6,945.00	6,400.00	6,394.33	53.59	21.77	-35.79	-153.07	-118.30	3,386.26	3,342.06	44.21	76.602	
9,700.00	6,945.00	6,400.00	6,394.33	55.05	21.77	-35.79	-153.07	-118.30	3,484.29	3,440.02	44.28	78.694	
9,800.00	6,945.00	6,400.00	6,394.33	56.51	21.77	-35.79	-153.07	-118.30	3,582.43	3,538.08	44.34	80.786	
9,900.00	6,945.00	6,400.00	6,394.33	57.98	21.77	-35.79	-153.07	-118.30	3,680.67	3,636.25	44.41	82.876	
10,000.00	6,945.00	6,400.00	6,394.33	59.45	21.77	-35.79	-153.07	-118.30	3,778.99	3,734.52	44.48	84.964	
10,100.00	6,945.00	6,400.00	6,394.33	60.93	21.77	-35.79	-153.07	-118.30	3,877.41	3,832.87	44.54	87.050	
10,200.00	6,945.00	6,400.00	6,394.33	62.42	21.77	-35.79	-153.07	-118.30	3,975.90	3,931.30	44.61	89.133	
10,300.00	6,945.00	6,400.00	6,394.33	63.92	21.77	-35.79	-153.07	-118.30	4,074.47	4,029.80	44.67	91.213	
10,400.00	6,945.00	6,400.00	6,394.33	65.42	21.77	-35.79	-153.07	-118.30	4,173.11	4,128.37	44.73	93.291	
10,500.00	6,945.00	6,400.00	6,394.33	66.92	21.77	-35.79	-153.07	-118.30	4,271.81	4,227.01	44.79	95.364	
10,600.00	6,945.00	6,400.00	6,394.33	68.43	21.77	-35.79	-153.07	-118.30	4,370.56	4,325.71	44.86	97.434	
10,700.00	6,945.00	6,400.00	6,394.33	69.94	21.77	-35.79	-153.07	-118.30	4,469.38	4,424.46	44.92	99.500	
10,800.00	6,945.00	6,400.00	6,394.33	71.45	21.77	-35.79	-153.07	-118.30	4,568.24	4,523.26	44.98	101.562	
10,900.00	6,945.00	6,400.00	6,394.33	72.97	21.77	-35.79	-153.07	-118.30	4,667.15	4,622.11	45.04	103.620	
11,000.00	6,945.00	6,400.00	6,394.33	74.50	21.77	-35.79	-153.07	-118.30	4,766.11	4,721.01	45.10	105.672	
11,100.00	6,945.00	6,400.00	6,394.33	76.02	21.77	-35.79	-153.07	-118.30	4,865.11	4,819.95	45.16	107.720	
11,200.00	6,945.00	6,400.00	6,394.33	77.55	21.77	-35.79	-153.07	-118.30	4,964.16	4,918.93	45.23	109.763	
11,300.00	6,945.00	6,400.00	6,394.33	79.08	21.77	-35.79	-153.07	-118.30	5,063.24	5,017.95	45.29	111.801	
11,400.00	6,945.00	6,400.00	6,394.33	80.62	21.77	-35.79	-153.07	-118.30	5,162.35	5,117.00	45.35	113.833	
11,500.00	6,945.00	6,400.00	6,394.33	82.16	21.77	-35.79	-153.07	-118.30	5,261.50	5,216.09	45.41	115.860	
11,600.00	6,945.00	6,400.00	6,394.33	83.70	21.77	-35.79	-153.07	-118.30	5,360.68	5,315.20	45.48	117.882	
11,700.00	6,945.00	6,377.32	6,371.86	85.24	21.69	-34.78	-152.10	-115.44	5,459.44	5,413.97	45.46	120.087	
11,800.00	6,945.00	6,376.21	6,370.75	86.78	21.69	-34.73	-152.05	-115.32	5,558.63	5,513.11	45.52	122.107	
11,900.00	6,945.00	6,375.13	6,369.68	88.33	21.69	-34.68	-152.01	-115.21	5,657.85	5,612.27	45.58	124.120	
12,000.00	6,945.00	6,374.08	6,368.64	89.87	21.68	-34.64	-151.96	-115.10	5,757.10	5,711.45	45.65	126.127	
12,100.00	6,945.00	6,373.07	6,367.63	91.42	21.68	-34.59	-151.92	-115.00	5,856.36	5,810.66	45.71	128.128	
12,200.00	6,945.00	6,350.00	6,344.67	92.98	21.59	-33.62	-150.92	-113.06	5,956.08	5,910.38	45.70	130.332	
12,300.00	6,945.00	6,350.00	6,344.67	94.53	21.59	-33.62	-150.92	-113.06	6,055.36	6,009.59	45.77	132.311	
12,400.00	6,945.00	6,350.00	6,344.67	96.08	21.59	-33.62	-150.92	-113.06	6,154.66	6,108.82	45.83	134.284	
12,500.00	6,945.00	6,350.00	6,344.67	97.64	21.59	-33.62	-150.92	-113.06	6,253.98	6,208.08	45.90	136.250	
12,600.00	6,945.00	6,350.00	6,344.67	99.20	21.59	-33.62	-150.92	-113.06	6,353.32	6,307.35	45.97	138.210	
12,700.00	6,945.00	6,350.00	6,344.67	100.76	21.59	-33.62	-150.92	-113.06	6,452.69	6,406.65	46.04	140.162	
12,800.00	6,945.00	6,350.00	6,344.67	102.32	21.59	-33.62	-150.92	-113.06	6,552.07	6,505.96	46.11	142.108	
12,900.00	6,945.00	6,350.00	6,344.67	103.88	21.59	-33.62	-150.92	-113.06	6,651.47	6,605.30	46.18	144.047	
13,000.00	6,945.00	6,350.00	6,344.67	105.44	21.59	-33.62	-150.92	-113.06	6,750.89	6,704.65	46.25	145.978	
13,100.00	6,945.00	6,350.00	6,344.67	107.00	21.59	-33.62	-150.92	-113.06	6,850.33	6,804.01	46.32	147.903	
13,200.00	6,945.00	6,350.00	6,344.67	108.57	21.59	-33.62	-150.92	-113.06	6,949.78	6,903.39	46.39	149.820	
13,300.00	6,945.00	6,350.00	6,344.67	110.13	21.59	-33.62	-150.92	-113.06	7,049.25	7,002.79	46.46	151.730	
13,400.00	6,945.00	6,350.00	6,344.67	111.70	21.59	-33.62	-150.92	-113.06	7,148.73	7,102.20	46.53	153.633	

CC - Min centre to center distance or 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:	Plan #4	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - Rosa Unit 701H - OH - Plan #3

Offset Site Error: 0.00 usft

Survey Program: 67-Standard Keeper 104, 306-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
13,500.00	6,945.00	6,350.00	6,344.67	113.27	21.59	-33.62	-150.92	-113.06	7,248.23	7,201.62	46.60	155.528	
13,600.00	6,945.00	6,350.00	6,344.67	114.84	21.59	-33.62	-150.92	-113.06	7,347.74	7,301.06	46.68	157.416	
13,700.00	6,945.00	6,350.00	6,344.67	116.41	21.59	-33.62	-150.92	-113.06	7,447.26	7,400.51	46.75	159.296	
13,800.00	6,945.00	6,350.00	6,344.67	117.98	21.59	-33.62	-150.92	-113.06	7,546.80	7,499.97	46.83	161.169	
13,900.00	6,945.00	6,350.00	6,344.67	119.55	21.59	-33.62	-150.92	-113.06	7,646.35	7,599.45	46.90	163.034	
14,000.00	6,945.00	6,350.00	6,344.67	121.12	21.59	-33.62	-150.92	-113.06	7,745.91	7,698.93	46.98	164.891	
14,100.00	6,945.00	6,350.00	6,344.67	122.69	21.59	-33.62	-150.92	-113.06	7,845.48	7,798.43	47.05	166.741	
14,200.00	6,945.00	6,350.00	6,344.67	124.27	21.59	-33.62	-150.92	-113.06	7,945.06	7,897.93	47.13	168.583	
14,300.00	6,945.00	6,350.00	6,344.67	125.84	21.59	-33.62	-150.92	-113.06	8,044.65	7,997.45	47.21	170.417	
14,400.00	6,945.00	6,350.00	6,344.67	127.41	21.59	-33.62	-150.92	-113.06	8,144.26	8,096.97	47.28	172.243	
14,500.00	6,945.00	6,350.00	6,344.67	128.99	21.59	-33.62	-150.92	-113.06	8,243.87	8,196.51	47.36	174.061	
14,600.00	6,945.00	6,350.00	6,344.67	130.57	21.59	-33.62	-150.92	-113.06	8,343.49	8,296.05	47.44	175.872	
14,700.00	6,945.00	6,350.00	6,344.67	132.14	21.59	-33.62	-150.92	-113.06	8,443.12	8,395.60	47.52	177.674	
14,800.00	6,945.00	6,350.00	6,344.67	133.72	21.59	-33.62	-150.92	-113.06	8,542.76	8,495.16	47.60	179.468	
14,900.00	6,945.00	6,350.00	6,344.67	135.30	21.59	-33.62	-150.92	-113.06	8,642.41	8,594.73	47.68	181.255	
15,000.00	6,945.00	6,350.00	6,344.67	136.87	21.59	-33.62	-150.92	-113.06	8,742.06	8,694.30	47.76	183.033	
15,100.00	6,945.00	6,350.00	6,344.67	138.45	21.59	-33.62	-150.92	-113.06	8,841.73	8,793.88	47.84	184.803	
15,200.00	6,945.00	6,350.00	6,344.67	140.03	21.59	-33.62	-150.92	-113.06	8,941.40	8,893.47	47.93	186.565	
15,300.00	6,945.00	6,350.00	6,344.67	141.61	21.59	-33.62	-150.92	-113.06	9,041.08	8,993.07	48.01	188.319	
15,400.00	6,945.00	6,350.00	6,344.67	143.19	21.59	-33.62	-150.92	-113.06	9,140.76	9,092.67	48.09	190.065	
15,500.00	6,945.00	6,350.00	6,344.67	144.77	21.59	-33.62	-150.92	-113.06	9,240.45	9,192.28	48.18	191.803	
15,600.00	6,945.00	6,350.00	6,344.67	146.35	21.59	-33.62	-150.92	-113.06	9,340.15	9,291.89	48.26	193.533	
15,700.00	6,945.00	6,350.00	6,344.67	147.94	21.59	-33.62	-150.92	-113.06	9,439.86	9,391.51	48.35	195.255	
15,800.00	6,945.00	6,350.00	6,344.67	149.52	21.59	-33.62	-150.92	-113.06	9,539.57	9,491.13	48.43	196.968	
15,900.00	6,945.00	6,350.00	6,344.67	151.10	21.59	-33.62	-150.92	-113.06	9,639.28	9,590.77	48.52	198.673	
16,000.00	6,945.00	6,350.00	6,344.67	152.68	21.59	-33.62	-150.92	-113.06	9,739.01	9,690.40	48.61	200.370	
16,100.00	6,945.00	6,350.00	6,344.67	154.26	21.59	-33.62	-150.92	-113.06	9,838.73	9,790.04	48.69	202.059	
16,200.00	6,945.00	6,350.00	6,344.67	155.85	21.59	-33.62	-150.92	-113.06	9,938.47	9,889.69	48.78	203.740	
16,300.00	6,945.00	6,350.00	6,344.67	157.43	21.59	-33.62	-150.92	-113.06	10,038.21	9,989.34	48.87	205.412	
16,400.00	6,945.00	6,350.00	6,344.67	159.02	21.59	-33.62	-150.92	-113.06	10,137.95	10,088.99	48.96	207.077	
16,500.00	6,945.00	6,350.00	6,344.67	160.60	21.59	-33.62	-150.92	-113.06	10,237.70	10,188.65	49.05	208.733	
16,600.00	6,945.00	6,350.00	6,344.67	162.18	21.59	-33.62	-150.92	-113.06	10,337.46	10,288.32	49.14	210.381	
16,700.00	6,945.00	6,350.00	6,344.67	163.77	21.59	-33.62	-150.92	-113.06	10,437.21	10,387.99	49.23	212.021	
16,800.00	6,945.00	6,350.00	6,344.67	165.35	21.59	-33.62	-150.92	-113.06	10,536.98	10,487.66	49.32	213.652	
16,900.00	6,945.00	6,350.00	6,344.67	166.94	21.59	-33.62	-150.92	-113.06	10,636.75	10,587.34	49.41	215.276	
17,000.00	6,945.00	6,350.00	6,344.67	168.53	21.59	-33.62	-150.92	-113.06	10,736.52	10,687.02	49.50	216.891	
17,100.00	6,945.00	6,350.00	6,344.67	170.11	21.59	-33.62	-150.92	-113.06	10,836.29	10,786.70	49.59	218.498	
17,200.00	6,945.00	6,350.00	6,344.67	171.70	21.59	-33.62	-150.92	-113.06	10,936.07	10,886.39	49.69	220.097	
17,300.00	6,945.00	6,350.00	6,344.67	173.29	21.59	-33.62	-150.92	-113.06	11,035.86	10,986.08	49.78	221.688	
17,400.00	6,945.00	6,350.00	6,344.67	174.87	21.59	-33.62	-150.92	-113.06	11,135.65	11,085.77	49.87	223.271	
17,500.00	6,945.00	6,350.00	6,344.67	176.46	21.59	-33.62	-150.92	-113.06	11,235.44	11,185.47	49.97	224.846	
17,600.00	6,945.00	6,350.00	6,344.67	178.05	21.59	-33.62	-150.92	-113.06	11,335.24	11,285.17	50.06	226.413	
17,700.00	6,945.00	6,350.00	6,344.67	179.63	21.59	-33.62	-150.92	-113.06	11,435.03	11,384.87	50.16	227.971	
17,800.00	6,945.00	6,350.00	6,344.67	181.22	21.59	-33.62	-150.92	-113.06	11,534.84	11,484.58	50.26	229.522	
17,900.00	6,945.00	6,350.00	6,344.67	182.81	21.59	-33.62	-150.92	-113.06	11,634.64	11,584.29	50.35	231.064	
18,000.00	6,945.00	6,350.00	6,344.67	184.40	21.59	-33.62	-150.92	-113.06	11,734.45	11,684.00	50.45	232.599	
18,100.00	6,945.00	6,350.00	6,344.67	185.99	21.59	-33.62	-150.92	-113.06	11,834.27	11,783.72	50.55	234.125	
18,200.00	6,945.00	6,350.00	6,344.67	187.58	21.59	-33.62	-150.92	-113.06	11,934.08	11,883.44	50.64	235.644	
18,300.00	6,945.00	6,350.00	6,344.67	189.16	21.59	-33.62	-150.92	-113.06	12,033.90	11,983.16	50.74	237.155	
18,400.00	6,945.00	6,350.00	6,344.67	190.75	21.59	-33.62	-150.92	-113.06	12,133.72	12,082.88	50.84	238.657	
18,500.00	6,945.00	6,350.00	6,344.67	192.34	21.59	-33.62	-150.92	-113.06	12,233.55	12,182.61	50.94	240.152	
18,600.00	6,945.00	6,350.00	6,344.67	193.93	21.59	-33.62	-150.92	-113.06	12,333.37	12,282.33	51.04	241.639	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 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:	Plan #4	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - Rosa Unit 701H - OH - Plan #3

Offset Site Error: 0.00 usft

Survey Program: 67-Standard Keeper 104, 306-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
18,700.00	6,945.00	6,350.00	6,344.67	195.52	21.59	-33.62	-150.92	-113.06	12,433.21	12,382.06	51.14	243.118	
18,800.00	6,945.00	6,350.00	6,344.67	197.11	21.59	-33.62	-150.92	-113.06	12,533.04	12,481.80	51.24	244.589	
18,900.00	6,945.00	6,350.00	6,344.67	198.70	21.59	-33.62	-150.92	-113.06	12,632.87	12,581.53	51.34	246.053	
19,000.00	6,945.00	6,350.00	6,344.67	200.29	21.59	-33.62	-150.92	-113.06	12,732.71	12,681.27	51.44	247.508	
19,100.00	6,945.00	6,350.00	6,344.67	201.88	21.59	-33.62	-150.92	-113.06	12,832.55	12,781.01	51.55	248.956	
19,200.00	6,945.00	6,350.00	6,344.67	203.47	21.59	-33.62	-150.92	-113.06	12,932.40	12,880.75	51.65	250.396	
19,300.00	6,945.00	6,350.00	6,344.67	205.06	21.59	-33.62	-150.92	-113.06	13,032.24	12,980.49	51.75	251.829	
19,400.00	6,945.00	6,350.00	6,344.67	206.65	21.59	-33.62	-150.92	-113.06	13,132.09	13,080.24	51.85	253.254	
19,500.00	6,945.00	6,350.00	6,344.67	208.24	21.59	-33.62	-150.92	-113.06	13,231.94	13,179.98	51.96	254.671	
19,600.00	6,945.00	6,350.00	6,344.67	209.84	21.59	-33.62	-150.92	-113.06	13,331.79	13,279.73	52.06	256.080	
19,700.00	6,945.00	6,350.00	6,344.67	211.43	21.59	-33.62	-150.92	-113.06	13,431.65	13,379.48	52.17	257.482	
19,800.00	6,945.00	6,350.00	6,344.67	213.02	21.59	-33.62	-150.92	-113.06	13,531.50	13,479.23	52.27	258.877	
19,900.00	6,945.00	6,350.00	6,344.67	214.61	21.59	-33.62	-150.92	-113.06	13,631.36	13,578.99	52.38	260.264	
20,000.00	6,945.00	6,350.00	6,344.67	216.20	21.59	-33.62	-150.92	-113.06	13,731.22	13,678.74	52.48	261.643	
20,100.00	6,945.00	6,350.00	6,344.67	217.79	21.59	-33.62	-150.92	-113.06	13,831.09	13,778.50	52.59	263.015	
20,200.00	6,945.00	6,350.00	6,344.67	219.38	21.59	-33.62	-150.92	-113.06	13,930.95	13,878.26	52.69	264.380	
20,300.00	6,945.00	6,350.00	6,344.67	220.98	21.59	-33.62	-150.92	-113.06	14,030.82	13,978.02	52.80	265.737	
20,400.00	6,945.00	6,350.00	6,344.67	222.57	21.59	-33.62	-150.92	-113.06	14,130.69	14,077.78	52.91	267.087	
20,500.00	6,945.00	6,350.00	6,344.67	224.16	21.59	-33.62	-150.92	-113.06	14,230.56	14,177.55	53.01	268.429	
20,600.00	6,945.00	6,350.00	6,344.67	225.75	21.59	-33.62	-150.92	-113.06	14,330.43	14,277.31	53.12	269.764	
20,700.00	6,945.00	6,350.00	6,344.67	227.35	21.59	-33.62	-150.92	-113.06	14,430.31	14,377.08	53.23	271.092	
20,800.00	6,945.00	6,350.00	6,344.67	228.94	21.59	-33.62	-150.92	-113.06	14,530.18	14,476.84	53.34	272.413	
20,852.96	6,945.00	6,350.00	6,344.67	229.61	21.59	-33.62	-150.92	-113.06	14,583.08	14,524.90	58.17	250.687	

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:	Plan #4	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - Rosa Unit 702H - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 54-Standard Keeper 104, 454-MWD+HRGM+MS

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Rule Assigned: Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	-35.12	61.53	-43.27	75.22				
20.93	20.93	20.94	20.94	0.00	0.01	132.28	61.54	-43.25	75.25				
117.41	117.41	117.60	117.59	0.05	0.10	128.26	61.66	-42.89	75.44	75.34	0.10	745.496	
206.68	206.68	206.75	206.75	0.17	0.21	154.66	61.75	-42.44	75.55	75.28	0.27	280.272	
292.93	292.93	293.04	293.04	0.28	0.32	154.66	61.95	-41.98	75.95	75.51	0.44	173.360	
365.00	364.99	365.28	365.28	0.36	0.41	124.43	61.94	-41.68	76.20	75.62	0.59	130.099	
451.00	450.97	451.52	451.51	0.55	0.51	177.58	61.25	-41.88	77.61	76.72	0.89	87.219	
540.00	539.81	541.99	541.92	0.83	0.73	-178.79	58.55	-43.19	81.33	79.88	1.45	56.008	
665.00	664.37	666.14	665.77	1.26	1.13	178.11	51.45	-47.93	89.05	86.73	2.32	38.336	
753.00	752.01	756.05	755.32	1.58	1.44	172.67	44.51	-52.10	94.79	91.83	2.96	32.006	
847.00	845.61	851.10	849.71	1.93	1.79	170.27	34.30	-56.45	99.68	96.02	3.66	27.231	
939.00	937.22	945.22	942.67	2.27	2.16	163.69	20.36	-61.16	103.65	99.28	4.37	23.707	
1,030.00	1,027.78	1,039.26	1,035.02	2.62	2.55	145.24	2.97	-64.40	106.09	100.99	5.10	20.797	
1,120.00	1,117.25	1,130.83	1,124.65	2.96	2.94	141.76	-15.73	-65.39	107.68	101.85	5.83	18.458	
1,211.00	1,207.68	1,220.96	1,212.81	3.31	3.32	133.13	-34.50	-65.66	109.99	103.41	6.58	16.721	
1,306.00	1,302.14	1,316.63	1,306.19	3.68	3.74	128.38	-55.30	-65.42	112.63	105.26	7.37	15.284	
1,400.00	1,395.63	1,410.75	1,397.95	4.04	4.16	123.10	-76.19	-64.10	115.60	107.45	8.15	14.180	
1,495.00	1,490.19	1,503.17	1,487.90	4.40	4.58	115.83	-97.38	-63.01	120.07	111.14	8.93	13.447	
1,589.00	1,583.83	1,594.82	1,576.54	4.76	5.01	106.09	-120.65	-62.46	126.60	116.91	9.69	13.066	
1,684.00	1,678.44	1,689.71	1,667.93	5.12	5.47	101.10	-146.17	-61.23	135.09	124.63	10.46	12.914 SF	
1,779.00	1,772.98	1,783.80	1,758.54	5.48	5.93	99.28	-171.41	-59.08	145.25	134.03	11.22	12.949	
1,873.00	1,866.49	1,876.94	1,848.26	5.84	6.39	95.51	-196.29	-56.39	156.68	144.73	11.95	13.110	
1,967.00	1,960.05	1,969.05	1,936.96	6.20	6.84	95.48	-220.93	-53.41	169.48	156.82	12.67	13.382	
2,062.00	2,054.59	2,063.02	2,027.48	6.56	7.30	85.98	-245.96	-50.22	183.17	169.78	13.39	13.681	
2,156.00	2,148.09	2,156.06	2,117.14	6.92	7.75	81.87	-270.57	-46.70	196.59	182.48	14.11	13.936	
2,251.00	2,242.55	2,248.86	2,206.63	7.29	8.21	80.40	-294.89	-43.39	210.72	195.90	14.82	14.216	
2,345.00	2,336.00	2,340.87	2,295.54	7.65	8.66	72.36	-318.44	-41.16	224.91	209.37	15.54	14.475	
2,440.00	2,430.43	2,434.82	2,386.48	8.02	9.11	68.08	-341.98	-39.63	238.82	222.55	16.27	14.682	
2,535.00	2,524.86	2,528.44	2,477.16	8.38	9.57	67.88	-365.24	-38.30	252.77	235.78	16.99	14.875	
2,629.00	2,618.31	2,621.56	2,567.36	8.75	10.02	66.61	-388.34	-36.99	266.82	249.10	17.72	15.060	
2,724.00	2,712.77	2,715.25	2,658.12	9.12	10.47	66.18	-411.54	-35.59	281.17	262.72	18.44	15.245	
2,818.00	2,806.24	2,807.83	2,747.80	9.48	10.92	65.68	-434.50	-34.24	295.66	276.50	19.16	15.430	
2,913.00	2,900.71	2,903.20	2,840.25	9.84	11.38	66.92	-457.87	-32.93	310.47	290.57	19.90	15.599	
3,008.00	2,995.25	3,000.19	2,934.51	10.21	11.84	61.73	-480.71	-31.66	324.68	304.03	20.65	15.722	
3,102.00	3,088.80	3,090.46	3,022.41	10.57	12.26	61.28	-501.25	-31.25	338.34	317.00	21.34	15.852	
3,197.00	3,183.30	3,176.07	3,105.62	10.93	12.67	63.86	-521.28	-32.47	353.66	331.66	22.00	16.074	
3,291.00	3,276.71	3,265.52	3,192.21	11.30	13.10	57.53	-543.64	-34.74	369.96	347.26	22.70	16.296	
3,386.00	3,371.01	3,362.64	3,286.25	11.67	13.57	56.27	-567.79	-37.23	385.30	361.82	23.48	16.409	
3,480.00	3,464.23	3,456.92	3,377.73	12.04	14.02	57.49	-590.50	-39.25	399.32	375.08	24.24	16.473	
3,575.00	3,558.47	3,553.69	3,471.68	12.42	14.48	59.03	-613.60	-41.13	413.54	388.52	25.02	16.530	
3,670.00	3,652.84	3,647.27	3,562.63	12.79	14.93	59.92	-635.56	-42.64	428.00	402.24	25.76	16.616	
3,764.00	3,746.36	3,741.86	3,654.51	13.15	15.37	62.90	-658.01	-43.82	443.33	416.84	26.50	16.731	
3,859.00	3,840.97	3,845.40	3,755.40	13.51	15.86	66.29	-681.26	-44.92	458.65	431.35	27.30	16.802	
3,954.00	3,935.57	3,944.66	3,852.58	13.87	16.30	66.15	-701.42	-45.87	472.31	444.25	28.06	16.832	
4,049.00	4,030.14	4,029.71	3,935.80	14.23	16.69	57.04	-718.95	-46.77	485.54	456.82	28.72	16.906	
4,143.00	4,123.75	4,112.31	4,016.21	14.59	17.08	57.92	-737.81	-47.99	500.32	470.97	29.35	17.048	
4,238.00	4,218.33	4,194.89	4,096.12	14.95	17.48	57.71	-758.57	-49.18	517.13	487.15	29.97	17.254	
4,333.00	4,312.74	4,278.79	4,176.66	15.32	17.91	54.40	-782.06	-49.63	534.84	504.23	30.61	17.473	
4,427.00	4,406.05	4,364.35	4,258.22	15.69	18.36	56.23	-807.90	-48.92	553.16	521.90	31.27	17.691	
4,522.00	4,500.34	4,449.16	4,338.76	16.06	18.81	56.63	-834.46	-48.50	573.05	541.13	31.92	17.953	
4,616.00	4,593.47	4,528.22	4,413.49	16.44	19.25	53.91	-860.26	-49.31	593.67	561.16	32.51	18.259	
4,710.00	4,686.44	4,615.79	4,495.96	16.82	19.73	54.47	-889.65	-51.12	614.81	581.58	33.22	18.505	

CC - Min centre to center distance or 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:	Plan #4	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - Rosa Unit 702H - OH - OH — **Offset Site Error:** 0.00 usft

Survey Program: 54-Standard Keeper 104, 454-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
4,899.00	4,873.89	4,812.34	4,682.02	17.57	20.81	60.63	-952.87	-54.99	657.95	623.07	34.88	18.863	
4,962.00	4,936.56	4,876.95	4,743.24	17.81	21.16	62.87	-973.51	-55.81	673.38	637.97	35.41	19.018	
5,024.00	4,998.27	4,948.20	4,811.09	18.04	21.54	58.78	-995.24	-56.62	687.72	651.72	36.00	19.101	
5,150.00	5,123.66	5,081.72	4,938.36	18.53	22.25	59.34	-1,035.59	-57.72	716.32	679.24	37.08	19.319	
5,213.00	5,186.37	5,168.40	5,021.90	18.77	22.68	56.73	-1,058.69	-58.16	728.44	690.66	37.78	19.282	
5,276.00	5,249.09	5,247.65	5,098.92	19.01	23.06	57.51	-1,077.31	-58.51	738.68	700.29	38.39	19.242	
5,339.00	5,311.83	5,320.59	5,170.15	19.25	23.39	56.52	-1,093.07	-58.86	748.01	709.07	38.94	19.210	
5,401.00	5,373.58	5,388.01	5,236.16	19.48	23.70	58.96	-1,106.76	-59.20	756.54	717.09	39.44	19.180	
5,464.00	5,436.33	5,454.91	5,301.75	19.72	23.99	56.27	-1,119.90	-59.52	764.91	724.96	39.95	19.148	
5,590.00	5,561.87	5,592.13	5,436.60	20.19	24.59	54.89	-1,145.32	-59.99	780.11	739.15	40.96	19.046	
5,653.00	5,624.66	5,659.61	5,503.05	20.43	24.87	53.57	-1,157.02	-60.25	787.05	745.60	41.45	18.987	
5,715.00	5,686.48	5,727.34	5,569.84	20.66	25.15	48.60	-1,168.31	-60.38	793.48	751.54	41.94	18.920	
5,778.00	5,749.29	5,795.74	5,637.37	20.90	25.44	51.20	-1,179.17	-60.40	799.44	757.01	42.43	18.843	
5,841.00	5,812.10	5,862.24	5,703.08	21.13	25.71	48.89	-1,189.37	-60.28	804.99	762.09	42.90	18.762	
5,904.00	5,874.94	5,928.79	5,768.89	21.36	25.97	54.14	-1,199.27	-60.14	810.57	767.19	43.38	18.685	
5,967.00	5,937.80	6,000.21	5,839.60	21.60	26.25	55.65	-1,209.30	-60.02	816.12	772.25	43.87	18.604	
6,030.00	6,000.68	6,072.61	5,911.41	21.83	26.53	53.74	-1,218.53	-59.93	821.14	776.78	44.35	18.514	
6,093.00	6,063.59	6,141.57	5,979.90	22.05	26.79	57.39	-1,226.57	-59.98	825.86	781.04	44.82	18.427	
6,156.00	6,126.51	6,215.67	6,053.58	22.28	27.06	62.66	-1,234.37	-60.04	830.29	785.00	45.29	18.333	
6,235.00	6,205.43	6,311.25	6,148.81	22.56	27.40	62.37	-1,242.60	-59.91	834.79	788.92	45.87	18.200	
6,300.00	6,270.38	6,348.00	6,185.46	22.68	27.52	62.37	-1,245.29	-59.78	838.38	792.21	46.18	18.157	
6,355.00	6,325.34	6,348.00	6,185.46	22.69	27.52	62.37	-1,245.29	-59.78	844.76	798.58	46.18	18.294	
6,400.00	6,370.23	6,348.00	6,185.46	22.71	27.52	94.31	-1,245.29	-59.78	853.16	807.09	46.08	18.517	
6,450.00	6,419.74	6,348.00	6,185.46	22.73	27.52	100.64	-1,245.29	-59.78	866.46	820.57	45.89	18.882	
6,500.00	6,468.57	6,348.00	6,185.46	22.77	27.52	102.01	-1,245.29	-59.78	883.67	838.03	45.63	19.364	
6,550.00	6,516.42	6,348.00	6,185.46	22.81	27.52	101.59	-1,245.29	-59.78	904.46	859.12	45.34	19.948	
6,600.00	6,562.98	6,348.00	6,185.46	22.87	27.52	100.16	-1,245.29	-59.78	928.47	883.44	45.03	20.619	
6,650.00	6,607.98	6,348.00	6,185.46	22.95	27.52	98.00	-1,245.29	-59.78	955.31	910.58	44.73	21.359	
6,700.00	6,651.14	6,348.00	6,185.46	23.03	27.52	95.24	-1,245.29	-59.78	984.59	940.14	44.45	22.151	
6,750.00	6,692.18	6,348.00	6,185.46	23.14	27.52	91.98	-1,245.29	-59.78	1,015.93	971.72	44.21	22.978	
6,800.00	6,730.86	6,348.00	6,185.46	23.26	27.52	88.27	-1,245.29	-59.78	1,048.96	1,004.93	44.04	23.820	
6,850.00	6,766.93	6,348.00	6,185.46	23.40	27.52	84.21	-1,245.29	-59.78	1,083.33	1,039.41	43.92	24.664	
6,900.00	6,800.18	6,348.00	6,185.46	23.56	27.52	79.88	-1,245.29	-59.78	1,118.72	1,074.84	43.88	25.495	
6,950.00	6,830.39	6,348.00	6,185.46	23.74	27.52	75.38	-1,245.29	-59.78	1,154.82	1,110.91	43.91	26.301	
7,000.00	6,857.38	6,348.00	6,185.46	23.94	27.52	70.82	-1,245.29	-59.78	1,191.35	1,147.35	44.01	27.072	
7,050.00	6,880.98	6,348.00	6,185.46	24.17	27.52	66.31	-1,245.29	-59.78	1,228.07	1,183.89	44.17	27.802	
7,100.00	6,901.06	6,348.00	6,185.46	24.42	27.52	61.94	-1,245.29	-59.78	1,264.73	1,220.33	44.40	28.485	
7,150.00	6,917.47	6,348.00	6,185.46	24.70	27.52	57.78	-1,245.29	-59.78	1,301.12	1,256.44	44.68	29.118	
7,200.00	6,930.13	6,348.00	6,185.46	25.01	27.52	53.88	-1,245.29	-59.78	1,337.06	1,292.04	45.02	29.699	
7,250.00	6,938.95	6,348.00	6,185.46	25.34	27.52	50.28	-1,245.29	-59.78	1,372.36	1,326.96	45.40	30.229	
7,300.00	6,943.88	6,348.00	6,185.46	25.69	27.52	46.99	-1,245.29	-59.78	1,406.86	1,361.05	45.81	30.709	
7,337.82	6,945.00	6,348.00	6,185.46	25.97	27.52	44.70	-1,245.29	-59.78	1,432.34	1,386.19	46.15	31.040	
7,400.00	6,945.00	6,348.00	6,185.46	26.45	27.52	43.87	-1,245.29	-59.78	1,474.81	1,428.11	46.70	31.583	
7,492.38	6,945.00	6,348.00	6,185.46	27.21	27.52	42.46	-1,245.29	-59.78	1,541.57	1,494.11	47.46	32.481	
7,500.00	6,945.00	6,348.00	6,185.46	27.28	27.52	42.46	-1,245.29	-59.78	1,547.24	1,499.72	47.52	32.559	
7,600.00	6,945.00	6,348.00	6,185.46	28.17	27.52	42.46	-1,245.29	-59.78	1,623.26	1,575.00	48.26	33.636	
7,700.00	6,945.00	6,348.00	6,185.46	29.12	27.52	42.46	-1,245.29	-59.78	1,701.75	1,652.83	48.92	34.787	
7,800.00	6,945.00	6,348.00	6,185.46	30.14	27.52	42.46	-1,245.29	-59.78	1,782.41	1,732.90	49.51	36.001	
7,900.00	6,945.00	6,348.00	6,185.46	31.20	27.52	42.46	-1,245.29	-59.78	1,864.93	1,814.89	50.04	37.270	
8,000.00	6,945.00	6,348.00	6,185.46	32.31	27.52	42.46	-1,245.29	-59.78	1,949.10	1,898.58	50.51	38.587	
8,100.00	6,945.00	6,348.00	6,185.46	33.46	27.52	42.46	-1,245.29	-59.78	2,034.69	1,983.76	50.94	39.946	
8,200.00	6,945.00	6,348.00	6,185.46	34.64	27.52	42.46	-1,245.29	-59.78	2,121.55	2,070.23	51.32	41.341	

CC - Min centre to center distance or 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:	Plan #4	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - Rosa Unit 702H - OH - OH — **Offset Site Error:** 0.00 usft

Survey Program: 54-Standard Keeper 104, 454-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
8,300.00	6,945.00	6,348.00	6,185.46	35.86	27.52	42.46	-1,245.29	-59.78	2,209.52	2,157.86	51.66	42.767	
8,400.00	6,945.00	6,348.00	6,185.46	37.11	27.52	42.46	-1,245.29	-59.78	2,298.47	2,246.50	51.98	44.222	
8,500.00	6,945.00	6,348.00	6,185.46	38.39	27.52	42.46	-1,245.29	-59.78	2,388.30	2,336.04	52.26	45.700	
8,600.00	6,945.00	6,348.00	6,185.46	39.69	27.52	42.46	-1,245.29	-59.78	2,478.91	2,426.39	52.52	47.200	
8,700.00	6,945.00	6,348.00	6,185.46	41.01	27.52	42.46	-1,245.29	-59.78	2,570.21	2,517.46	52.76	48.718	
8,800.00	6,945.00	6,348.00	6,185.46	42.35	27.52	42.46	-1,245.29	-59.78	2,662.14	2,609.17	52.97	50.253	
8,900.00	6,945.00	6,348.00	6,185.46	43.71	27.52	42.46	-1,245.29	-59.78	2,754.63	2,701.46	53.18	51.803	
9,000.00	6,945.00	6,348.00	6,185.46	45.08	27.52	42.46	-1,245.29	-59.78	2,847.63	2,794.27	53.36	53.365	
9,100.00	6,945.00	6,348.00	6,185.46	46.47	27.52	42.46	-1,245.29	-59.78	2,941.09	2,887.55	53.53	54.938	
9,200.00	6,945.00	6,348.00	6,185.46	47.87	27.52	42.46	-1,245.29	-59.78	3,034.96	2,981.27	53.70	56.522	
9,300.00	6,945.00	6,348.00	6,185.46	49.29	27.52	42.46	-1,245.29	-59.78	3,129.22	3,075.37	53.85	58.114	
9,400.00	6,945.00	6,348.00	6,185.46	50.71	27.52	42.46	-1,245.29	-59.78	3,223.82	3,169.83	53.99	59.714	
9,500.00	6,945.00	6,348.00	6,185.46	52.15	27.52	42.46	-1,245.29	-59.78	3,318.74	3,264.62	54.12	61.321	
9,600.00	6,945.00	6,348.00	6,185.46	53.59	27.52	42.46	-1,245.29	-59.78	3,413.94	3,359.70	54.25	62.933	
9,700.00	6,945.00	6,348.00	6,185.46	55.05	27.52	42.46	-1,245.29	-59.78	3,509.42	3,455.05	54.37	64.551	
9,800.00	6,945.00	6,348.00	6,185.46	56.51	27.52	42.46	-1,245.29	-59.78	3,605.14	3,550.66	54.48	66.173	
9,900.00	6,945.00	6,348.00	6,185.46	57.98	27.52	42.46	-1,245.29	-59.78	3,701.08	3,646.50	54.59	67.799	
10,000.00	6,945.00	6,348.00	6,185.46	59.45	27.52	42.46	-1,245.29	-59.78	3,797.24	3,742.55	54.69	69.428	
10,100.00	6,945.00	6,348.00	6,185.46	60.93	27.52	42.46	-1,245.29	-59.78	3,893.59	3,838.80	54.79	71.060	
10,200.00	6,945.00	6,348.00	6,185.46	62.42	27.52	42.46	-1,245.29	-59.78	3,990.12	3,935.23	54.89	72.695	
10,300.00	6,945.00	6,348.00	6,185.46	63.92	27.52	42.46	-1,245.29	-59.78	4,086.81	4,031.83	54.98	74.331	
10,400.00	6,945.00	6,348.00	6,185.46	65.42	27.52	42.46	-1,245.29	-59.78	4,183.66	4,128.59	55.07	75.968	
10,500.00	6,945.00	6,348.00	6,185.46	66.92	27.52	42.46	-1,245.29	-59.78	4,280.66	4,225.50	55.16	77.607	
10,600.00	6,945.00	6,348.00	6,185.46	68.43	27.52	42.46	-1,245.29	-59.78	4,377.79	4,322.55	55.24	79.246	
10,700.00	6,945.00	6,348.00	6,185.46	69.94	27.52	42.46	-1,245.29	-59.78	4,475.05	4,419.72	55.33	80.886	
10,800.00	6,945.00	6,348.00	6,185.46	71.45	27.52	42.46	-1,245.29	-59.78	4,572.42	4,517.02	55.41	82.526	
10,900.00	6,945.00	6,348.00	6,185.46	72.97	27.52	42.46	-1,245.29	-59.78	4,669.91	4,614.42	55.48	84.166	
11,000.00	6,945.00	6,348.00	6,185.46	74.50	27.52	42.46	-1,245.29	-59.78	4,767.50	4,711.94	55.56	85.805	
11,100.00	6,945.00	6,348.00	6,185.46	76.02	27.52	42.46	-1,245.29	-59.78	4,865.19	4,809.55	55.64	87.444	
11,200.00	6,945.00	6,348.00	6,185.46	77.55	27.52	42.46	-1,245.29	-59.78	4,962.97	4,907.26	55.71	89.082	
11,300.00	6,945.00	6,348.00	6,185.46	79.08	27.52	42.46	-1,245.29	-59.78	5,060.84	5,005.05	55.79	90.719	
11,400.00	6,945.00	6,348.00	6,185.46	80.62	27.52	42.46	-1,245.29	-59.78	5,158.79	5,102.93	55.86	92.355	
11,500.00	6,945.00	6,348.00	6,185.46	82.16	27.52	42.46	-1,245.29	-59.78	5,256.81	5,200.88	55.93	93.989	
11,600.00	6,945.00	6,348.00	6,185.46	83.70	27.52	42.46	-1,245.29	-59.78	5,354.91	5,298.91	56.00	95.621	
11,700.00	6,945.00	6,348.00	6,185.46	85.24	27.52	42.46	-1,245.29	-59.78	5,453.08	5,397.01	56.07	97.252	
11,800.00	6,945.00	6,348.00	6,185.46	86.78	27.52	42.46	-1,245.29	-59.78	5,551.31	5,495.17	56.14	98.881	
11,900.00	6,945.00	6,348.00	6,185.46	88.33	27.52	42.46	-1,245.29	-59.78	5,649.61	5,593.40	56.21	100.507	
12,000.00	6,945.00	6,348.00	6,185.46	89.87	27.52	42.46	-1,245.29	-59.78	5,747.96	5,691.68	56.28	102.132	
12,100.00	6,945.00	6,348.00	6,185.46	91.42	27.52	42.46	-1,245.29	-59.78	5,846.37	5,790.03	56.35	103.754	
12,200.00	6,945.00	6,348.00	6,185.46	92.98	27.52	42.46	-1,245.29	-59.78	5,944.84	5,888.42	56.42	105.374	
12,300.00	6,945.00	6,348.00	6,185.46	94.53	27.52	42.46	-1,245.29	-59.78	6,043.35	5,986.87	56.48	106.991	
12,400.00	6,945.00	6,348.00	6,185.46	96.08	27.52	42.46	-1,245.29	-59.78	6,141.91	6,085.36	56.55	108.605	
12,500.00	6,945.00	6,348.00	6,185.46	97.64	27.52	42.46	-1,245.29	-59.78	6,240.52	6,183.90	56.62	110.216	
12,600.00	6,945.00	6,348.00	6,185.46	99.20	27.52	42.46	-1,245.29	-59.78	6,339.17	6,282.48	56.69	111.825	
12,700.00	6,945.00	6,348.00	6,185.46	100.76	27.52	42.46	-1,245.29	-59.78	6,437.86	6,381.11	56.76	113.430	
12,800.00	6,945.00	6,348.00	6,185.46	102.32	27.52	42.46	-1,245.29	-59.78	6,536.60	6,479.77	56.82	115.033	
12,900.00	6,945.00	6,348.00	6,185.46	103.88	27.52	42.46	-1,245.29	-59.78	6,635.37	6,578.48	56.89	116.632	
13,000.00	6,945.00	6,348.00	6,185.46	105.44	27.52	42.46	-1,245.29	-59.78	6,734.18	6,677.22	56.96	118.227	
13,100.00	6,945.00	6,348.00	6,185.46	107.00	27.52	42.46	-1,245.29	-59.78	6,833.02	6,775.99	57.03	119.820	
13,200.00	6,945.00	6,348.00	6,185.46	108.57	27.52	42.46	-1,245.29	-59.78	6,931.89	6,874.80	57.10	121.409	
13,300.00	6,945.00	6,348.00	6,185.46	110.13	27.52	42.46	-1,245.29	-59.78	7,030.80	6,973.63	57.16	122.994	
13,400.00	6,945.00	6,348.00	6,185.46	111.70	27.52	42.46	-1,245.29	-59.78	7,129.74	7,072.50	57.23	124.576	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 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:	Plan #4	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - Rosa Unit 702H - OH - OH — **Offset Site Error:** 0.00 usft

Survey Program: 54-Standard Keeper 104, 454-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
13,500.00	6,945.00	6,348.00	6,185.46	113.27	27.52	42.46	-1,245.29	-59.78	7,228.70	7,171.40	57.30	126.154	
13,600.00	6,945.00	6,348.00	6,185.46	114.84	27.52	42.46	-1,245.29	-59.78	7,327.70	7,270.33	57.37	127.728	
13,700.00	6,945.00	6,348.00	6,185.46	116.41	27.52	42.46	-1,245.29	-59.78	7,426.72	7,369.28	57.44	129.298	
13,800.00	6,945.00	6,348.00	6,185.46	117.98	27.52	42.46	-1,245.29	-59.78	7,525.76	7,468.26	57.51	130.865	
13,900.00	6,945.00	6,348.00	6,185.46	119.55	27.52	42.46	-1,245.29	-59.78	7,624.84	7,567.26	57.58	132.427	
14,000.00	6,945.00	6,348.00	6,185.46	121.12	27.52	42.46	-1,245.29	-59.78	7,723.93	7,666.29	57.65	133.986	
14,100.00	6,945.00	6,348.00	6,185.46	122.69	27.52	42.46	-1,245.29	-59.78	7,823.05	7,765.33	57.72	135.540	
14,200.00	6,945.00	6,348.00	6,185.46	124.27	27.52	42.46	-1,245.29	-59.78	7,922.19	7,864.41	57.79	137.090	
14,300.00	6,945.00	6,348.00	6,185.46	125.84	27.52	42.46	-1,245.29	-59.78	8,021.36	7,963.50	57.86	138.636	
14,400.00	6,945.00	6,348.00	6,185.46	127.41	27.52	42.46	-1,245.29	-59.78	8,120.54	8,062.61	57.93	140.178	
14,500.00	6,945.00	6,348.00	6,185.46	128.99	27.52	42.46	-1,245.29	-59.78	8,219.74	8,161.74	58.00	141.716	
14,600.00	6,945.00	6,348.00	6,185.46	130.57	27.52	42.46	-1,245.29	-59.78	8,318.96	8,260.89	58.07	143.249	
14,700.00	6,945.00	6,348.00	6,185.46	132.14	27.52	42.46	-1,245.29	-59.78	8,418.20	8,360.06	58.15	144.778	
14,800.00	6,945.00	6,348.00	6,185.46	133.72	27.52	42.46	-1,245.29	-59.78	8,517.46	8,459.24	58.22	146.302	
14,900.00	6,945.00	6,348.00	6,185.46	135.30	27.52	42.46	-1,245.29	-59.78	8,616.74	8,558.45	58.29	147.822	
15,000.00	6,945.00	6,348.00	6,185.46	136.87	27.52	42.46	-1,245.29	-59.78	8,716.03	8,657.66	58.36	149.338	
15,100.00	6,945.00	6,348.00	6,185.46	138.45	27.52	42.46	-1,245.29	-59.78	8,815.34	8,756.90	58.44	150.849	
15,200.00	6,945.00	6,348.00	6,185.46	140.03	27.52	42.46	-1,245.29	-59.78	8,914.66	8,856.15	58.51	152.355	
15,300.00	6,945.00	6,348.00	6,185.46	141.61	27.52	42.46	-1,245.29	-59.78	9,014.00	8,955.41	58.59	153.857	
15,400.00	6,945.00	6,348.00	6,185.46	143.19	27.52	42.46	-1,245.29	-59.78	9,113.35	9,054.69	58.66	155.354	
15,500.00	6,945.00	6,348.00	6,185.46	144.77	27.52	42.46	-1,245.29	-59.78	9,212.72	9,153.98	58.74	156.846	
15,600.00	6,945.00	6,348.00	6,185.46	146.35	27.52	42.46	-1,245.29	-59.78	9,312.10	9,253.29	58.81	158.334	
15,700.00	6,945.00	6,348.00	6,185.46	147.94	27.52	42.46	-1,245.29	-59.78	9,411.49	9,352.60	58.89	159.817	
15,800.00	6,945.00	6,348.00	6,185.46	149.52	27.52	42.46	-1,245.29	-59.78	9,510.90	9,451.93	58.97	161.295	
15,900.00	6,945.00	6,348.00	6,185.46	151.10	27.52	42.46	-1,245.29	-59.78	9,610.32	9,551.27	59.04	162.768	
16,000.00	6,945.00	6,348.00	6,185.46	152.68	27.52	42.46	-1,245.29	-59.78	9,709.75	9,650.63	59.12	164.237	
16,100.00	6,945.00	6,348.00	6,185.46	154.26	27.52	42.46	-1,245.29	-59.78	9,809.19	9,749.99	59.20	165.701	
16,200.00	6,945.00	6,348.00	6,185.46	155.85	27.52	42.46	-1,245.29	-59.78	9,908.64	9,849.37	59.28	167.160	
16,300.00	6,945.00	6,348.00	6,185.46	157.43	27.52	42.46	-1,245.29	-59.78	10,008.11	9,948.75	59.36	168.614	
16,400.00	6,945.00	6,348.00	6,185.46	159.02	27.52	42.46	-1,245.29	-59.78	10,107.58	10,048.15	59.43	170.063	
16,500.00	6,945.00	6,348.00	6,185.46	160.60	27.52	42.46	-1,245.29	-59.78	10,207.07	10,147.55	59.51	171.507	
16,600.00	6,945.00	6,348.00	6,185.46	162.18	27.52	42.46	-1,245.29	-59.78	10,306.56	10,246.97	59.59	172.946	
16,700.00	6,945.00	6,348.00	6,185.46	163.77	27.52	42.46	-1,245.29	-59.78	10,406.07	10,346.39	59.67	174.381	
16,800.00	6,945.00	6,348.00	6,185.46	165.35	27.52	42.46	-1,245.29	-59.78	10,505.58	10,445.83	59.76	175.810	
16,900.00	6,945.00	6,348.00	6,185.46	166.94	27.52	42.46	-1,245.29	-59.78	10,605.10	10,545.27	59.84	177.234	
17,000.00	6,945.00	6,348.00	6,185.46	168.53	27.52	42.46	-1,245.29	-59.78	10,704.64	10,644.72	59.92	178.654	
17,100.00	6,945.00	6,348.00	6,185.46	170.11	27.52	42.46	-1,245.29	-59.78	10,804.18	10,744.18	60.00	180.068	
17,200.00	6,945.00	6,348.00	6,185.46	171.70	27.52	42.46	-1,245.29	-59.78	10,903.73	10,843.64	60.08	181.477	
17,300.00	6,945.00	6,348.00	6,185.46	173.29	27.52	42.46	-1,245.29	-59.78	11,003.28	10,943.12	60.17	182.882	
17,400.00	6,945.00	6,348.00	6,185.46	174.87	27.52	42.46	-1,245.29	-59.78	11,102.85	11,042.60	60.25	184.281	
17,500.00	6,945.00	6,348.00	6,185.46	176.46	27.52	42.46	-1,245.29	-59.78	11,202.42	11,142.09	60.33	185.675	
17,600.00	6,945.00	6,348.00	6,185.46	178.05	27.52	42.46	-1,245.29	-59.78	11,302.00	11,241.58	60.42	187.064	
17,700.00	6,945.00	6,348.00	6,185.46	179.63	27.52	42.46	-1,245.29	-59.78	11,401.59	11,341.09	60.50	188.448	
17,800.00	6,945.00	6,348.00	6,185.46	181.22	27.52	42.46	-1,245.29	-59.78	11,501.18	11,440.60	60.59	189.826	
17,900.00	6,945.00	6,348.00	6,185.46	182.81	27.52	42.46	-1,245.29	-59.78	11,600.79	11,540.11	60.67	191.200	
18,000.00	6,945.00	6,348.00	6,185.46	184.40	27.52	42.46	-1,245.29	-59.78	11,700.40	11,639.64	60.76	192.569	
18,100.00	6,945.00	6,348.00	6,185.46	185.99	27.52	42.46	-1,245.29	-59.78	11,800.01	11,739.16	60.85	193.932	
18,200.00	6,945.00	6,348.00	6,185.46	187.58	27.52	42.46	-1,245.29	-59.78	11,899.63	11,838.70	60.93	195.291	
18,300.00	6,945.00	6,348.00	6,185.46	189.16	27.52	42.46	-1,245.29	-59.78	11,999.26	11,938.24	61.02	196.644	
18,400.00	6,945.00	6,348.00	6,185.46	190.75	27.52	42.46	-1,245.29	-59.78	12,098.90	12,037.79	61.11	197.992	
18,500.00	6,945.00	6,348.00	6,185.46	192.34	27.52	42.46	-1,245.29	-59.78	12,198.54	12,137.34	61.20	199.335	
18,600.00	6,945.00	6,348.00	6,185.46	193.93	27.52	42.46	-1,245.29	-59.78	12,298.18	12,236.90	61.28	200.673	

CC - Min centre to center distance or 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:	Plan #4	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - Rosa Unit 702H - OH - OH — **Offset Site Error:** 0.00 usft

Survey Program: 54-Standard Keeper 104, 454-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
18,700.00	6,945.00	6,348.00	6,185.46	195.52	27.52	42.46	-1,245.29	-59.78	12,397.83	12,336.46	61.37	202.005	
18,800.00	6,945.00	6,348.00	6,185.46	197.11	27.52	42.46	-1,245.29	-59.78	12,497.49	12,436.03	61.46	203.333	
18,900.00	6,945.00	6,348.00	6,185.46	198.70	27.52	42.46	-1,245.29	-59.78	12,597.15	12,535.60	61.55	204.655	
19,000.00	6,945.00	6,348.00	6,185.46	200.29	27.52	42.46	-1,245.29	-59.78	12,696.82	12,635.18	61.64	205.973	
19,100.00	6,945.00	6,348.00	6,185.46	201.88	27.52	42.46	-1,245.29	-59.78	12,796.50	12,734.76	61.73	207.285	
19,200.00	6,945.00	6,348.00	6,185.46	203.47	27.52	42.46	-1,245.29	-59.78	12,896.17	12,834.35	61.82	208.592	
19,300.00	6,945.00	6,348.00	6,185.46	205.06	27.52	42.46	-1,245.29	-59.78	12,995.86	12,933.94	61.92	209.894	
19,400.00	6,945.00	6,348.00	6,185.46	206.65	27.52	42.46	-1,245.29	-59.78	13,095.54	13,033.54	62.01	211.190	
19,500.00	6,945.00	6,348.00	6,185.46	208.24	27.52	42.46	-1,245.29	-59.78	13,195.24	13,133.14	62.10	212.482	
19,600.00	6,945.00	6,348.00	6,185.46	209.84	27.52	42.46	-1,245.29	-59.78	13,294.94	13,232.74	62.19	213.768	
19,700.00	6,945.00	6,348.00	6,185.46	211.43	27.52	42.46	-1,245.29	-59.78	13,394.64	13,332.35	62.29	215.050	
19,800.00	6,945.00	6,348.00	6,185.46	213.02	27.52	42.46	-1,245.29	-59.78	13,494.34	13,431.96	62.38	216.326	
19,900.00	6,945.00	6,348.00	6,185.46	214.61	27.52	42.46	-1,245.29	-59.78	13,594.05	13,531.58	62.47	217.597	
20,000.00	6,945.00	6,348.00	6,185.46	216.20	27.52	42.46	-1,245.29	-59.78	13,693.77	13,631.20	62.57	218.863	
20,100.00	6,945.00	6,348.00	6,185.46	217.79	27.52	42.46	-1,245.29	-59.78	13,793.49	13,730.83	62.66	220.124	
20,200.00	6,945.00	6,348.00	6,185.46	219.38	27.52	42.46	-1,245.29	-59.78	13,893.21	13,830.45	62.76	221.380	
20,300.00	6,945.00	6,348.00	6,185.46	220.98	27.52	42.46	-1,245.29	-59.78	13,992.94	13,930.09	62.85	222.630	
20,400.00	6,945.00	6,348.00	6,185.46	222.57	27.52	42.46	-1,245.29	-59.78	14,092.67	14,029.72	62.95	223.876	
20,500.00	6,945.00	6,348.00	6,185.46	224.16	27.52	42.46	-1,245.29	-59.78	14,192.40	14,129.36	63.04	225.117	
20,600.00	6,945.00	6,348.00	6,185.46	225.75	27.52	42.46	-1,245.29	-59.78	14,292.14	14,229.00	63.14	226.352	
20,700.00	6,945.00	6,348.00	6,185.46	227.35	27.52	42.46	-1,245.29	-59.78	14,391.88	14,328.65	63.24	227.582	
20,800.00	6,945.00	6,348.00	6,185.46	228.94	27.52	42.46	-1,245.29	-59.78	14,491.63	14,428.29	63.34	228.808	
20,852.96	6,945.00	6,348.00	6,185.46	229.61	27.52	42.46	-1,245.29	-59.78	14,544.45	14,476.82	67.63	215.059	

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:	Plan #4	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - Rosa Unit 702H - OH - Plan #3 — **Offset Site Error:** 0.00 usft

Survey Program: 54-Standard Keeper 104, 454-MWD+HRGM+MS, 6348-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	-35.12	61.53	-43.27	75.22				
20.93	20.93	20.94	20.94	0.00	0.01	132.28	61.54	-43.25	75.25				
117.41	117.41	117.60	117.59	0.05	0.10	128.26	61.66	-42.89	75.44	75.34	0.10	745.496	
206.68	206.68	206.75	206.75	0.17	0.21	154.66	61.75	-42.44	75.55	75.28	0.27	280.272	
292.93	292.93	293.04	293.04	0.28	0.32	154.66	61.95	-41.98	75.95	75.51	0.44	173.360	
365.00	364.99	365.28	365.28	0.36	0.41	124.43	61.94	-41.68	76.20	75.62	0.59	130.099	
451.00	450.97	451.52	451.51	0.55	0.51	177.58	61.25	-41.88	77.61	76.72	0.89	87.219	
540.00	539.81	541.99	541.92	0.83	0.73	-178.79	58.55	-43.19	81.33	79.88	1.45	56.008	
665.00	664.37	666.14	665.77	1.26	1.13	178.11	51.45	-47.93	89.05	86.73	2.32	38.336	
753.00	752.01	756.05	755.32	1.58	1.44	172.67	44.51	-52.10	94.79	91.83	2.96	32.006	
847.00	845.61	851.10	849.71	1.93	1.79	170.27	34.30	-56.45	99.68	96.02	3.66	27.231	
939.00	937.22	945.22	942.67	2.27	2.16	163.69	20.36	-61.16	103.65	99.28	4.37	23.707	
1,030.00	1,027.78	1,039.26	1,035.02	2.62	2.55	145.24	2.97	-64.40	106.09	100.99	5.10	20.797	
1,120.00	1,117.25	1,130.83	1,124.65	2.96	2.94	141.76	-15.73	-65.39	107.68	101.85	5.83	18.458	
1,211.00	1,207.68	1,220.96	1,212.81	3.31	3.32	133.13	-34.50	-65.66	109.99	103.41	6.58	16.721	
1,306.00	1,302.14	1,316.63	1,306.19	3.68	3.74	128.38	-55.30	-65.42	112.63	105.26	7.37	15.284	
1,400.00	1,395.63	1,410.75	1,397.95	4.04	4.16	123.10	-76.19	-64.10	115.60	107.45	8.15	14.180	
1,495.00	1,490.19	1,503.17	1,487.90	4.40	4.58	115.83	-97.38	-63.01	120.07	111.14	8.93	13.447	
1,589.00	1,583.83	1,594.82	1,576.54	4.76	5.01	106.09	-120.65	-62.46	126.60	116.91	9.69	13.066	
1,684.00	1,678.44	1,689.71	1,667.93	5.12	5.47	101.10	-146.17	-61.23	135.09	124.63	10.46	12.914 SF	
1,779.00	1,772.98	1,783.80	1,758.54	5.48	5.93	99.28	-171.41	-59.08	145.25	134.03	11.22	12.949	
1,873.00	1,866.49	1,876.94	1,848.26	5.84	6.39	95.51	-196.29	-56.39	156.68	144.73	11.95	13.110	
1,967.00	1,960.05	1,969.05	1,936.96	6.20	6.84	95.48	-220.93	-53.41	169.48	156.82	12.67	13.382	
2,062.00	2,054.59	2,063.02	2,027.48	6.56	7.30	85.98	-245.96	-50.22	183.17	169.78	13.39	13.681	
2,156.00	2,148.09	2,156.06	2,117.14	6.92	7.75	81.87	-270.57	-46.70	196.59	182.48	14.11	13.936	
2,251.00	2,242.55	2,248.86	2,206.63	7.29	8.21	80.40	-294.89	-43.39	210.72	195.90	14.82	14.216	
2,345.00	2,336.00	2,340.87	2,295.54	7.65	8.66	72.36	-318.44	-41.16	224.91	209.37	15.54	14.475	
2,440.00	2,430.43	2,434.82	2,386.48	8.02	9.11	68.08	-341.98	-39.63	238.82	222.55	16.27	14.682	
2,535.00	2,524.86	2,528.44	2,477.16	8.38	9.57	67.88	-365.24	-38.30	252.77	235.78	16.99	14.875	
2,629.00	2,618.31	2,621.56	2,567.36	8.75	10.02	66.61	-388.34	-36.99	266.82	249.10	17.72	15.060	
2,724.00	2,712.77	2,715.25	2,658.12	9.12	10.47	66.18	-411.54	-35.59	281.17	262.72	18.44	15.245	
2,818.00	2,806.24	2,807.83	2,747.80	9.48	10.92	65.68	-434.50	-34.24	295.66	276.50	19.16	15.430	
2,913.00	2,900.71	2,903.20	2,840.25	9.84	11.38	66.92	-457.87	-32.93	310.47	290.57	19.90	15.599	
3,008.00	2,995.25	3,000.19	2,934.51	10.21	11.84	61.73	-480.71	-31.66	324.68	304.03	20.65	15.722	
3,102.00	3,088.80	3,090.46	3,022.41	10.57	12.26	61.28	-501.25	-31.25	338.34	317.00	21.34	15.852	
3,197.00	3,183.30	3,176.07	3,105.62	10.93	12.67	63.86	-521.28	-32.47	353.66	331.66	22.00	16.074	
3,291.00	3,276.71	3,265.52	3,192.21	11.30	13.10	57.53	-543.64	-34.74	369.96	347.26	22.70	16.296	
3,386.00	3,371.01	3,362.64	3,286.25	11.67	13.57	56.27	-567.79	-37.23	385.30	361.82	23.48	16.409	
3,480.00	3,464.23	3,456.92	3,377.73	12.04	14.02	57.49	-590.50	-39.25	399.32	375.08	24.24	16.473	
3,575.00	3,558.47	3,553.69	3,471.68	12.42	14.48	59.03	-613.60	-41.13	413.54	388.52	25.02	16.530	
3,670.00	3,652.84	3,647.27	3,562.63	12.79	14.93	59.92	-635.56	-42.64	428.00	402.24	25.76	16.616	
3,764.00	3,746.36	3,741.86	3,654.51	13.15	15.37	62.90	-658.01	-43.82	443.33	416.84	26.50	16.731	
3,859.00	3,840.97	3,845.40	3,755.40	13.51	15.86	66.29	-681.26	-44.92	458.65	431.35	27.30	16.802	
3,954.00	3,935.57	3,944.66	3,852.58	13.87	16.30	66.15	-701.42	-45.87	472.31	444.25	28.06	16.832	
4,049.00	4,030.14	4,029.71	3,935.80	14.23	16.69	57.04	-718.95	-46.77	485.54	456.82	28.72	16.906	
4,143.00	4,123.75	4,112.31	4,016.21	14.59	17.08	57.92	-737.81	-47.99	500.32	470.97	29.35	17.048	
4,238.00	4,218.33	4,194.89	4,096.12	14.95	17.48	57.71	-758.57	-49.18	517.13	487.15	29.97	17.254	
4,333.00	4,312.74	4,278.79	4,176.66	15.32	17.91	54.40	-782.06	-49.63	534.84	504.23	30.61	17.473	
4,427.00	4,406.05	4,364.35	4,258.22	15.69	18.36	56.23	-807.90	-48.92	553.16	521.90	31.27	17.691	
4,522.00	4,500.34	4,449.16	4,338.76	16.06	18.81	56.63	-834.46	-48.50	573.05	541.13	31.92	17.953	
4,616.00	4,593.47	4,528.22	4,413.49	16.44	19.25	53.91	-860.26	-49.31	593.67	561.16	32.51	18.259	
4,710.00	4,686.44	4,615.79	4,495.96	16.82	19.73	54.47	-889.65	-51.12	614.81	581.58	33.22	18.505	

CC - Min centre to center distance or 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:	Plan #4	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - Rosa Unit 702H - OH - Plan #3 — **Offset Site Error:** 0.00 usft

Survey Program: 54-Standard Keeper 104, 454-MWD+HRGM+MS, 6348-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
4,899.00	4,873.89	4,812.34	4,682.02	17.57	20.81	60.63	-952.87	-54.99	657.95	623.07	34.88	18.863	
4,962.00	4,936.56	4,876.95	4,743.24	17.81	21.16	62.87	-973.51	-55.81	673.38	637.97	35.41	19.018	
5,024.00	4,998.27	4,948.20	4,811.09	18.04	21.54	58.78	-995.24	-56.62	687.72	651.72	36.00	19.101	
5,150.00	5,123.66	5,081.72	4,938.36	18.53	22.25	59.34	-1,035.59	-57.72	716.32	679.24	37.08	19.319	
5,213.00	5,186.37	5,168.40	5,021.90	18.77	22.68	56.73	-1,058.69	-58.16	728.44	690.66	37.78	19.282	
5,276.00	5,249.09	5,247.65	5,098.92	19.01	23.06	57.51	-1,077.31	-58.51	738.68	700.29	38.39	19.242	
5,339.00	5,311.83	5,320.59	5,170.15	19.25	23.39	56.52	-1,093.07	-58.86	748.01	709.07	38.94	19.210	
5,401.00	5,373.58	5,388.01	5,236.16	19.48	23.70	58.96	-1,106.76	-59.20	756.54	717.09	39.44	19.180	
5,464.00	5,436.33	5,454.91	5,301.75	19.72	23.99	56.27	-1,119.90	-59.52	764.91	724.96	39.95	19.148	
5,590.00	5,561.87	5,592.13	5,436.60	20.19	24.59	54.89	-1,145.32	-59.99	780.11	739.15	40.96	19.046	
5,653.00	5,624.66	5,659.61	5,503.05	20.43	24.87	53.57	-1,157.02	-60.25	787.05	745.60	41.45	18.987	
5,715.00	5,686.48	5,727.34	5,569.84	20.66	25.15	48.60	-1,168.31	-60.38	793.48	751.54	41.94	18.920	
5,778.00	5,749.29	5,795.74	5,637.37	20.90	25.44	51.20	-1,179.17	-60.40	799.44	757.01	42.43	18.843	
5,841.00	5,812.10	5,862.24	5,703.08	21.13	25.71	48.89	-1,189.37	-60.28	804.99	762.09	42.90	18.762	
5,904.00	5,874.94	5,928.79	5,768.89	21.36	25.97	54.14	-1,199.27	-60.14	810.57	767.19	43.38	18.685	
5,967.00	5,937.80	6,000.21	5,839.60	21.60	26.25	55.65	-1,209.30	-60.02	816.12	772.25	43.87	18.604	
6,030.00	6,000.68	6,072.61	5,911.41	21.83	26.53	53.74	-1,218.53	-59.93	821.14	776.78	44.35	18.514	
6,093.00	6,063.59	6,141.57	5,979.90	22.05	26.79	57.39	-1,226.57	-59.98	825.86	781.04	44.82	18.427	
6,156.00	6,126.51	6,215.67	6,053.58	22.28	27.06	62.66	-1,234.37	-60.04	830.29	785.00	45.29	18.333	
6,235.00	6,205.43	6,311.25	6,148.81	22.56	27.40	62.37	-1,242.60	-59.91	834.79	788.92	45.87	18.200	
6,300.00	6,270.38	6,381.98	6,219.35	22.68	27.64	62.37	-1,247.65	-59.64	837.69	791.48	46.22	18.126	
6,355.00	6,325.34	6,436.93	6,274.17	22.69	27.82	62.38	-1,251.46	-59.41	840.06	793.65	46.41	18.100	
6,400.00	6,370.23	6,481.82	6,318.96	22.71	27.98	94.92	-1,254.58	-59.22	842.60	796.01	46.59	18.086	
6,450.00	6,419.74	6,512.83	6,349.88	22.73	28.08	102.25	-1,256.81	-59.50	847.29	800.49	46.80	18.105	
6,500.00	6,468.57	6,550.00	6,386.85	22.77	28.21	105.14	-1,259.86	-61.75	854.89	807.84	47.04	18.173	
6,550.00	6,516.42	6,564.35	6,401.07	22.81	28.26	106.15	-1,261.14	-63.20	865.07	817.83	47.24	18.314	
6,600.00	6,562.98	6,587.64	6,424.06	22.87	28.34	106.61	-1,263.35	-66.23	878.23	830.77	47.46	18.507	
6,650.00	6,607.98	6,600.00	6,436.20	22.95	28.38	106.22	-1,264.58	-68.18	894.33	846.72	47.61	18.783	
6,700.00	6,651.14	6,627.87	6,463.41	23.03	28.48	106.03	-1,267.52	-73.44	913.10	865.22	47.89	19.068	
6,750.00	6,692.18	6,650.00	6,484.82	23.14	28.56	105.34	-1,270.01	-78.46	934.77	886.62	48.14	19.416	
6,800.00	6,730.86	6,650.00	6,484.82	23.26	28.56	103.20	-1,270.01	-78.46	959.10	910.88	48.22	19.889	
6,850.00	6,766.93	6,670.70	6,504.66	23.40	28.63	101.76	-1,272.45	-83.83	985.78	937.27	48.51	20.321	
6,900.00	6,800.18	6,680.38	6,513.87	23.56	28.67	99.36	-1,273.63	-86.56	1,014.82	966.10	48.72	20.830	
6,950.00	6,830.39	6,700.00	6,532.40	23.74	28.74	97.24	-1,276.10	-92.52	1,046.06	997.00	49.06	21.320	
7,000.00	6,857.38	6,700.00	6,532.40	23.94	28.74	93.47	-1,276.10	-92.52	1,078.79	1,029.56	49.23	21.915	
7,050.00	6,880.98	6,700.00	6,532.40	24.17	28.74	89.31	-1,276.10	-92.52	1,113.06	1,063.65	49.41	22.527	
7,100.00	6,901.06	6,700.00	6,532.40	24.42	28.74	84.84	-1,276.10	-92.52	1,148.55	1,098.92	49.62	23.145	
7,150.00	6,917.47	6,700.00	6,532.40	24.70	28.74	80.14	-1,276.10	-92.52	1,184.92	1,135.06	49.86	23.764	
7,200.00	6,930.13	6,700.00	6,532.40	25.01	28.74	75.31	-1,276.10	-92.52	1,221.90	1,171.77	50.13	24.377	
7,250.00	6,938.95	6,700.00	6,532.40	25.34	28.74	70.46	-1,276.10	-92.52	1,259.20	1,208.79	50.41	24.979	
7,300.00	6,943.88	6,700.00	6,532.40	25.69	28.74	65.72	-1,276.10	-92.52	1,296.58	1,245.86	50.71	25.567	
7,337.82	6,945.00	6,700.00	6,532.40	25.97	28.74	62.25	-1,276.10	-92.52	1,324.76	1,273.81	50.95	26.001	
7,400.00	6,945.00	6,682.55	6,515.93	26.45	28.68	60.54	-1,273.90	-87.19	1,371.66	1,320.51	51.15	26.818	
7,492.38	6,945.00	6,674.06	6,507.86	27.21	28.65	58.83	-1,272.86	-84.76	1,444.83	1,393.25	51.58	28.011	
7,500.00	6,945.00	6,673.39	6,507.22	27.28	28.64	58.79	-1,272.77	-84.57	1,451.02	1,399.40	51.62	28.112	
7,600.00	6,945.00	6,650.00	6,484.82	28.17	28.56	57.41	-1,270.01	-78.46	1,533.59	1,481.71	51.88	29.561	
7,700.00	6,945.00	6,650.00	6,484.82	29.12	28.56	57.41	-1,270.01	-78.46	1,617.60	1,565.27	52.33	30.913	
7,800.00	6,945.00	6,650.00	6,484.82	30.14	28.56	57.41	-1,270.01	-78.46	1,703.33	1,650.61	52.73	32.306	
7,900.00	6,945.00	6,650.00	6,484.82	31.20	28.56	57.41	-1,270.01	-78.46	1,790.55	1,737.47	53.08	33.735	
8,000.00	6,945.00	6,650.00	6,484.82	32.31	28.56	57.41	-1,270.01	-78.46	1,879.04	1,825.65	53.39	35.195	
8,100.00	6,945.00	6,650.00	6,484.82	33.46	28.56	57.41	-1,270.01	-78.46	1,968.63	1,914.96	53.67	36.682	
8,200.00	6,945.00	6,627.23	6,462.79	34.64	28.48	56.08	-1,267.45	-73.30	2,058.65	2,004.90	53.75	38.301	

CC - Min centre to center distance or 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:	Plan #4	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - Rosa Unit 702H - OH - Plan #3 — **Offset Site Error:** 0.00 usft

Survey Program: 54-Standard Keeper 104, 454-MWD+HRGM+MS, 6348-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
8,300.00	6,945.00	6,622.47	6,458.16	35.86	28.46	55.81	-1,266.94	-72.32	2,149.80	2,095.85	53.95	39.850	
8,400.00	6,945.00	6,600.00	6,436.20	37.11	28.38	54.54	-1,264.58	-68.18	2,241.99	2,187.99	54.00	41.517	
8,500.00	6,945.00	6,600.00	6,436.20	38.39	28.38	54.54	-1,264.58	-68.18	2,334.35	2,280.15	54.20	43.069	
8,600.00	6,945.00	6,600.00	6,436.20	39.69	28.38	54.54	-1,264.58	-68.18	2,427.31	2,372.93	54.38	44.635	
8,700.00	6,945.00	6,600.00	6,436.20	41.01	28.38	54.54	-1,264.58	-68.18	2,520.82	2,466.27	54.55	46.213	
8,800.00	6,945.00	6,600.00	6,436.20	42.35	28.38	54.54	-1,264.58	-68.18	2,614.80	2,560.10	54.70	47.802	
8,900.00	6,945.00	6,600.00	6,436.20	43.71	28.38	54.54	-1,264.58	-68.18	2,709.22	2,654.37	54.84	49.400	
9,000.00	6,945.00	6,600.00	6,436.20	45.08	28.38	54.54	-1,264.58	-68.18	2,804.02	2,749.04	54.97	51.006	
9,100.00	6,945.00	6,600.00	6,436.20	46.47	28.38	54.54	-1,264.58	-68.18	2,899.17	2,844.07	55.10	52.619	
9,200.00	6,945.00	6,600.00	6,436.20	47.87	28.38	54.54	-1,264.58	-68.18	2,994.64	2,939.43	55.21	54.238	
9,300.00	6,945.00	6,600.00	6,436.20	49.29	28.38	54.54	-1,264.58	-68.18	3,090.39	3,035.07	55.32	55.863	
9,400.00	6,945.00	6,600.00	6,436.20	50.71	28.38	54.54	-1,264.58	-68.18	3,186.41	3,130.98	55.42	57.492	
9,500.00	6,945.00	6,600.00	6,436.20	52.15	28.38	54.54	-1,264.58	-68.18	3,282.66	3,227.14	55.52	59.124	
9,600.00	6,945.00	6,600.00	6,436.20	53.59	28.38	54.54	-1,264.58	-68.18	3,379.13	3,323.52	55.61	60.760	
9,700.00	6,945.00	6,600.00	6,436.20	55.05	28.38	54.54	-1,264.58	-68.18	3,475.80	3,420.10	55.70	62.398	
9,800.00	6,945.00	6,577.32	6,413.88	56.51	28.30	53.28	-1,262.35	-64.78	3,572.17	3,516.50	55.68	64.160	
9,900.00	6,945.00	6,575.39	6,411.99	57.98	28.30	53.18	-1,262.17	-64.53	3,669.11	3,613.36	55.75	65.813	
10,000.00	6,945.00	6,573.55	6,410.17	59.45	28.29	53.08	-1,261.99	-64.30	3,766.21	3,710.38	55.82	67.467	
10,100.00	6,945.00	6,571.80	6,408.43	60.93	28.28	52.98	-1,261.83	-64.08	3,863.44	3,807.55	55.89	69.122	
10,200.00	6,945.00	6,550.00	6,386.85	62.42	28.21	51.81	-1,259.86	-61.75	3,961.18	3,905.32	55.87	70.904	
10,300.00	6,945.00	6,550.00	6,386.85	63.92	28.21	51.81	-1,259.86	-61.75	4,058.62	4,002.67	55.94	72.550	
10,400.00	6,945.00	6,550.00	6,386.85	65.42	28.21	51.81	-1,259.86	-61.75	4,156.17	4,100.15	56.02	74.196	
10,500.00	6,945.00	6,550.00	6,386.85	66.92	28.21	51.81	-1,259.86	-61.75	4,253.84	4,197.75	56.09	75.842	
10,600.00	6,945.00	6,550.00	6,386.85	68.43	28.21	51.81	-1,259.86	-61.75	4,351.61	4,295.45	56.16	77.487	
10,700.00	6,945.00	6,550.00	6,386.85	69.94	28.21	51.81	-1,259.86	-61.75	4,449.48	4,393.26	56.23	79.132	
10,800.00	6,945.00	6,550.00	6,386.85	71.45	28.21	51.81	-1,259.86	-61.75	4,547.45	4,491.15	56.30	80.777	
10,900.00	6,945.00	6,550.00	6,386.85	72.97	28.21	51.81	-1,259.86	-61.75	4,645.50	4,589.14	56.36	82.420	
11,000.00	6,945.00	6,550.00	6,386.85	74.50	28.21	51.81	-1,259.86	-61.75	4,743.64	4,687.21	56.43	84.062	
11,100.00	6,945.00	6,550.00	6,386.85	76.02	28.21	51.81	-1,259.86	-61.75	4,841.84	4,785.35	56.50	85.703	
11,200.00	6,945.00	6,550.00	6,386.85	77.55	28.21	51.81	-1,259.86	-61.75	4,940.13	4,883.57	56.56	87.343	
11,300.00	6,945.00	6,550.00	6,386.85	79.08	28.21	51.81	-1,259.86	-61.75	5,038.48	4,981.85	56.62	88.980	
11,400.00	6,945.00	6,550.00	6,386.85	80.62	28.21	51.81	-1,259.86	-61.75	5,136.89	5,080.20	56.69	90.616	
11,500.00	6,945.00	6,550.00	6,386.85	82.16	28.21	51.81	-1,259.86	-61.75	5,235.36	5,178.61	56.75	92.250	
11,600.00	6,945.00	6,550.00	6,386.85	83.70	28.21	51.81	-1,259.86	-61.75	5,333.89	5,277.08	56.82	93.881	
11,700.00	6,945.00	6,550.00	6,386.85	85.24	28.21	51.81	-1,259.86	-61.75	5,432.48	5,375.60	56.88	95.511	
11,800.00	6,945.00	6,550.00	6,386.85	86.78	28.21	51.81	-1,259.86	-61.75	5,531.11	5,474.17	56.94	97.138	
11,900.00	6,945.00	6,550.00	6,386.85	88.33	28.21	51.81	-1,259.86	-61.75	5,629.79	5,572.79	57.00	98.762	
12,000.00	6,945.00	6,550.00	6,386.85	89.87	28.21	51.81	-1,259.86	-61.75	5,728.52	5,671.45	57.07	100.384	
12,100.00	6,945.00	6,550.00	6,386.85	91.42	28.21	51.81	-1,259.86	-61.75	5,827.29	5,770.16	57.13	102.003	
12,200.00	6,945.00	6,550.00	6,386.85	92.98	28.21	51.81	-1,259.86	-61.75	5,926.11	5,868.91	57.19	103.619	
12,300.00	6,945.00	6,550.00	6,386.85	94.53	28.21	51.81	-1,259.86	-61.75	6,024.96	5,967.70	57.25	105.233	
12,400.00	6,945.00	6,550.00	6,386.85	96.08	28.21	51.81	-1,259.86	-61.75	6,123.85	6,066.53	57.32	106.843	
12,500.00	6,945.00	6,550.00	6,386.85	97.64	28.21	51.81	-1,259.86	-61.75	6,222.77	6,165.39	57.38	108.450	
12,600.00	6,945.00	6,550.00	6,386.85	99.20	28.21	51.81	-1,259.86	-61.75	6,321.73	6,264.29	57.44	110.054	
12,700.00	6,945.00	6,550.00	6,386.85	100.76	28.21	51.81	-1,259.86	-61.75	6,420.72	6,363.22	57.51	111.655	
12,800.00	6,945.00	6,550.00	6,386.85	102.32	28.21	51.81	-1,259.86	-61.75	6,519.74	6,462.17	57.57	113.252	
12,900.00	6,945.00	6,550.00	6,386.85	103.88	28.21	51.81	-1,259.86	-61.75	6,618.79	6,561.16	57.63	114.846	
13,000.00	6,945.00	6,550.00	6,386.85	105.44	28.21	51.81	-1,259.86	-61.75	6,717.87	6,660.18	57.70	116.436	
13,100.00	6,945.00	6,550.00	6,386.85	107.00	28.21	51.81	-1,259.86	-61.75	6,816.98	6,759.22	57.76	118.023	
13,200.00	6,945.00	6,550.00	6,386.85	108.57	28.21	51.81	-1,259.86	-61.75	6,916.11	6,858.29	57.82	119.606	
13,300.00	6,945.00	6,550.00	6,386.85	110.13	28.21	51.81	-1,259.86	-61.75	7,015.27	6,957.38	57.89	121.185	
13,400.00	6,945.00	6,550.00	6,386.85	111.70	28.21	51.81	-1,259.86	-61.75	7,114.45	7,056.49	57.95	122.760	

CC - Min centre to center distance or 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:	Plan #4	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - Rosa Unit 702H - OH - Plan #3 — **Offset Site Error:** 0.00 usft

Survey Program: 54-Standard Keeper 104, 454-MWD+HRGM+MS, 6348-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
13,500.00	6,945.00	6,550.00	6,386.85	113.27	28.21	51.81	-1,259.86	-61.75	7,213.65	7,155.63	58.02	124.332	
13,600.00	6,945.00	6,550.00	6,386.85	114.84	28.21	51.81	-1,259.86	-61.75	7,312.88	7,254.79	58.08	125.900	
13,700.00	6,945.00	6,550.00	6,386.85	116.41	28.21	51.81	-1,259.86	-61.75	7,412.12	7,353.97	58.15	127.463	
13,800.00	6,945.00	6,550.00	6,386.85	117.98	28.21	51.81	-1,259.86	-61.75	7,511.39	7,453.17	58.22	129.023	
13,900.00	6,945.00	6,550.00	6,386.85	119.55	28.21	51.81	-1,259.86	-61.75	7,610.67	7,552.39	58.28	130.579	
14,000.00	6,945.00	6,550.00	6,386.85	121.12	28.21	51.81	-1,259.86	-61.75	7,709.97	7,651.62	58.35	132.130	
14,100.00	6,945.00	6,550.00	6,386.85	122.69	28.21	51.81	-1,259.86	-61.75	7,809.30	7,750.88	58.42	133.677	
14,200.00	6,945.00	6,550.00	6,386.85	124.27	28.21	51.81	-1,259.86	-61.75	7,908.63	7,850.15	58.49	135.220	
14,300.00	6,945.00	6,550.00	6,386.85	125.84	28.21	51.81	-1,259.86	-61.75	8,007.99	7,949.43	58.56	136.759	
14,400.00	6,945.00	6,550.00	6,386.85	127.41	28.21	51.81	-1,259.86	-61.75	8,107.36	8,048.73	58.62	138.293	
14,500.00	6,945.00	6,550.00	6,386.85	128.99	28.21	51.81	-1,259.86	-61.75	8,206.74	8,148.05	58.69	139.823	
14,600.00	6,945.00	6,550.00	6,386.85	130.57	28.21	51.81	-1,259.86	-61.75	8,306.14	8,247.38	58.76	141.349	
14,700.00	6,945.00	6,550.00	6,386.85	132.14	28.21	51.81	-1,259.86	-61.75	8,405.56	8,346.73	58.83	142.870	
14,800.00	6,945.00	6,550.00	6,386.85	133.72	28.21	51.81	-1,259.86	-61.75	8,504.99	8,446.08	58.90	144.387	
14,900.00	6,945.00	6,550.00	6,386.85	135.30	28.21	51.81	-1,259.86	-61.75	8,604.43	8,545.45	58.98	145.899	
15,000.00	6,945.00	6,550.00	6,386.85	136.87	28.21	51.81	-1,259.86	-61.75	8,703.88	8,644.84	59.05	147.407	
15,100.00	6,945.00	6,550.00	6,386.85	138.45	28.21	51.81	-1,259.86	-61.75	8,803.35	8,744.23	59.12	148.910	
15,200.00	6,945.00	6,550.00	6,386.85	140.03	28.21	51.81	-1,259.86	-61.75	8,902.83	8,843.64	59.19	150.408	
15,300.00	6,945.00	6,550.00	6,386.85	141.61	28.21	51.81	-1,259.86	-61.75	9,002.32	8,943.05	59.26	151.902	
15,400.00	6,945.00	6,550.00	6,386.85	143.19	28.21	51.81	-1,259.86	-61.75	9,101.82	9,042.48	59.34	153.391	
15,500.00	6,945.00	6,550.00	6,386.85	144.77	28.21	51.81	-1,259.86	-61.75	9,201.33	9,141.92	59.41	154.876	
15,600.00	6,945.00	6,550.00	6,386.85	146.35	28.21	51.81	-1,259.86	-61.75	9,300.86	9,241.37	59.49	156.355	
15,700.00	6,945.00	6,550.00	6,386.85	147.94	28.21	51.81	-1,259.86	-61.75	9,400.39	9,340.83	59.56	157.830	
15,800.00	6,945.00	6,550.00	6,386.85	149.52	28.21	51.81	-1,259.86	-61.75	9,499.93	9,440.30	59.64	159.301	
15,900.00	6,945.00	6,550.00	6,386.85	151.10	28.21	51.81	-1,259.86	-61.75	9,599.48	9,539.77	59.71	160.766	
16,000.00	6,945.00	6,550.00	6,386.85	152.68	28.21	51.81	-1,259.86	-61.75	9,699.04	9,639.26	59.79	162.226	
16,100.00	6,945.00	6,550.00	6,386.85	154.26	28.21	51.81	-1,259.86	-61.75	9,798.61	9,738.75	59.86	163.682	
16,200.00	6,945.00	6,550.00	6,386.85	155.85	28.21	51.81	-1,259.86	-61.75	9,898.19	9,838.25	59.94	165.133	
16,300.00	6,945.00	6,526.35	6,363.35	157.43	28.13	50.58	-1,257.87	-60.07	9,997.31	9,937.37	59.94	166.800	
16,400.00	6,945.00	6,526.05	6,363.05	159.02	28.13	50.56	-1,257.85	-60.06	10,096.89	10,036.88	60.01	168.245	
16,500.00	6,945.00	6,525.74	6,362.74	160.60	28.13	50.55	-1,257.82	-60.04	10,196.49	10,136.39	60.09	169.685	
16,600.00	6,945.00	6,525.44	6,362.45	162.18	28.12	50.53	-1,257.80	-60.02	10,296.08	10,235.92	60.17	171.120	
16,700.00	6,945.00	6,525.15	6,362.16	163.77	28.12	50.52	-1,257.78	-60.01	10,395.69	10,335.44	60.25	172.551	
16,800.00	6,945.00	6,524.87	6,361.87	165.35	28.12	50.50	-1,257.75	-59.99	10,495.31	10,434.98	60.33	173.976	
16,900.00	6,945.00	6,524.58	6,361.59	166.94	28.12	50.49	-1,257.73	-59.98	10,594.93	10,534.52	60.41	175.396	
17,000.00	6,945.00	6,524.31	6,361.31	168.53	28.12	50.47	-1,257.71	-59.97	10,694.55	10,634.07	60.49	176.811	
17,100.00	6,945.00	6,524.03	6,361.04	170.11	28.12	50.46	-1,257.69	-59.95	10,794.19	10,733.62	60.57	178.222	
17,200.00	6,945.00	6,523.77	6,360.78	171.70	28.12	50.45	-1,257.67	-59.94	10,893.83	10,833.18	60.65	179.627	
17,300.00	6,945.00	6,500.00	6,337.09	173.29	28.04	49.25	-1,255.86	-59.23	10,993.94	10,933.29	60.65	181.270	
17,400.00	6,945.00	6,500.00	6,337.09	174.87	28.04	49.25	-1,255.86	-59.23	11,093.58	11,032.85	60.73	182.664	
17,500.00	6,945.00	6,500.00	6,337.09	176.46	28.04	49.25	-1,255.86	-59.23	11,193.24	11,132.42	60.82	184.052	
17,600.00	6,945.00	6,500.00	6,337.09	178.05	28.04	49.25	-1,255.86	-59.23	11,292.89	11,231.99	60.90	185.435	
17,700.00	6,945.00	6,500.00	6,337.09	179.63	28.04	49.25	-1,255.86	-59.23	11,392.55	11,331.57	60.98	186.814	
17,800.00	6,945.00	6,500.00	6,337.09	181.22	28.04	49.25	-1,255.86	-59.23	11,492.22	11,431.15	61.07	188.187	
17,900.00	6,945.00	6,500.00	6,337.09	182.81	28.04	49.25	-1,255.86	-59.23	11,591.90	11,530.74	61.15	189.555	
18,000.00	6,945.00	6,500.00	6,337.09	184.40	28.04	49.25	-1,255.86	-59.23	11,691.58	11,630.34	61.24	190.918	
18,100.00	6,945.00	6,500.00	6,337.09	185.99	28.04	49.25	-1,255.86	-59.23	11,791.26	11,729.94	61.32	192.276	
18,200.00	6,945.00	6,500.00	6,337.09	187.58	28.04	49.25	-1,255.86	-59.23	11,890.95	11,829.54	61.41	193.629	
18,300.00	6,945.00	6,500.00	6,337.09	189.16	28.04	49.25	-1,255.86	-59.23	11,990.65	11,929.15	61.50	194.976	
18,400.00	6,945.00	6,500.00	6,337.09	190.75	28.04	49.25	-1,255.86	-59.23	12,090.35	12,028.76	61.59	196.319	
18,500.00	6,945.00	6,500.00	6,337.09	192.34	28.04	49.25	-1,255.86	-59.23	12,190.05	12,128.38	61.67	197.656	
18,600.00	6,945.00	6,500.00	6,337.09	193.93	28.04	49.25	-1,255.86	-59.23	12,289.76	12,228.00	61.76	198.989	

CC - Min centre to center distance or 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:	Plan #4	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - Rosa Unit 702H - OH - Plan #3

Offset Site Error: 0.00 usft

Survey Program: 54-Standard Keeper 104, 454-MWD+HRGM+MS, 6348-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
18,700.00	6,945.00	6,500.00	6,337.09	195.52	28.04	49.25	-1,255.86	-59.23	12,389.48	12,327.63	61.85	200.316	
18,800.00	6,945.00	6,500.00	6,337.09	197.11	28.04	49.25	-1,255.86	-59.23	12,489.20	12,427.26	61.94	201.638	
18,900.00	6,945.00	6,500.00	6,337.09	198.70	28.04	49.25	-1,255.86	-59.23	12,588.92	12,526.89	62.03	202.955	
19,000.00	6,945.00	6,500.00	6,337.09	200.29	28.04	49.25	-1,255.86	-59.23	12,688.65	12,626.53	62.12	204.267	
19,100.00	6,945.00	6,500.00	6,337.09	201.88	28.04	49.25	-1,255.86	-59.23	12,788.38	12,726.17	62.21	205.574	
19,200.00	6,945.00	6,500.00	6,337.09	203.47	28.04	49.25	-1,255.86	-59.23	12,888.12	12,825.82	62.30	206.876	
19,300.00	6,945.00	6,500.00	6,337.09	205.06	28.04	49.25	-1,255.86	-59.23	12,987.86	12,925.47	62.39	208.172	
19,400.00	6,945.00	6,500.00	6,337.09	206.65	28.04	49.25	-1,255.86	-59.23	13,087.60	13,025.12	62.48	209.464	
19,500.00	6,945.00	6,500.00	6,337.09	208.24	28.04	49.25	-1,255.86	-59.23	13,187.35	13,124.78	62.57	210.750	
19,600.00	6,945.00	6,500.00	6,337.09	209.84	28.04	49.25	-1,255.86	-59.23	13,287.10	13,224.44	62.67	212.031	
19,700.00	6,945.00	6,500.00	6,337.09	211.43	28.04	49.25	-1,255.86	-59.23	13,386.86	13,324.10	62.76	213.307	
19,800.00	6,945.00	6,500.00	6,337.09	213.02	28.04	49.25	-1,255.86	-59.23	13,486.62	13,423.77	62.85	214.578	
19,900.00	6,945.00	6,500.00	6,337.09	214.61	28.04	49.25	-1,255.86	-59.23	13,586.38	13,523.44	62.95	215.844	
20,000.00	6,945.00	6,500.00	6,337.09	216.20	28.04	49.25	-1,255.86	-59.23	13,686.15	13,623.11	63.04	217.105	
20,100.00	6,945.00	6,500.00	6,337.09	217.79	28.04	49.25	-1,255.86	-59.23	13,785.92	13,722.78	63.13	218.361	
20,200.00	6,945.00	6,500.00	6,337.09	219.38	28.04	49.25	-1,255.86	-59.23	13,885.69	13,822.46	63.23	219.612	
20,300.00	6,945.00	6,500.00	6,337.09	220.98	28.04	49.25	-1,255.86	-59.23	13,985.47	13,922.14	63.32	220.857	
20,400.00	6,945.00	6,500.00	6,337.09	222.57	28.04	49.25	-1,255.86	-59.23	14,085.25	14,021.83	63.42	222.098	
20,500.00	6,945.00	6,500.00	6,337.09	224.16	28.04	49.25	-1,255.86	-59.23	14,185.03	14,121.51	63.51	223.334	
20,600.00	6,945.00	6,500.00	6,337.09	225.75	28.04	49.25	-1,255.86	-59.23	14,284.81	14,221.20	63.61	224.564	
20,700.00	6,945.00	6,500.00	6,337.09	227.35	28.04	49.25	-1,255.86	-59.23	14,384.60	14,320.90	63.71	225.790	
20,800.00	6,945.00	6,500.00	6,337.09	228.94	28.04	49.25	-1,255.86	-59.23	14,484.40	14,420.59	63.80	227.010	
20,852.96	6,945.00	6,500.00	6,337.09	229.61	28.04	49.25	-1,255.86	-59.23	14,537.24	14,469.09	68.16	213.292	

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:	Plan #4	**Offset TVD Reference:**	Offset Datum

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

Survey Program: 58-Standard Keeper 104, 446-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				
20.93	20.93	20.92	20.92	0.00	0.01	131.98	40.75	-28.98	50.04				
117.41	117.41	117.25	117.25	0.05	0.09	126.67	40.27	-29.88	50.47	50.37	0.10	524.555	
206.68	206.68	206.41	206.40	0.17	0.21	151.76	40.03	-30.89	51.15	50.89	0.26	193.815	
292.93	292.93	292.65	292.63	0.28	0.32	150.45	39.85	-31.94	52.12	51.68	0.44	118.433	
365.00	364.99	364.84	364.82	0.36	0.41	119.12	39.50	-32.93	52.85	52.26	0.59	89.001	
451.00	450.97	451.00	450.96	0.55	0.52	171.35	38.67	-34.23	54.84	53.93	0.92	59.926	
540.00	539.81	540.41	540.36	0.83	0.74	176.26	37.66	-34.79	59.60	58.13	1.48	40.396	
665.00	664.37	665.24	665.17	1.26	1.12	179.91	37.39	-33.10	68.76	66.44	2.32	29.676	
753.00	752.01	752.60	752.47	1.58	1.40	-178.56	38.60	-29.91	75.76	72.84	2.92	25.931	
847.00	845.61	844.15	843.75	1.93	1.72	-171.16	42.83	-24.52	84.86	81.29	3.58	23.730	
939.00	937.22	932.78	931.70	2.27	2.03	-165.46	51.08	-17.39	97.12	92.90	4.22	23.000	
1,030.00	1,027.78	1,021.37	1,019.51	2.62	2.34	-172.21	60.42	-10.25	111.65	106.77	4.87	22.907 SF	
1,120.00	1,117.25	1,107.48	1,104.71	2.96	2.65	-165.31	70.78	-3.38	128.95	123.44	5.51	23.396	
1,211.00	1,207.68	1,195.63	1,191.89	3.31	2.98	-165.12	82.11	3.12	148.07	141.90	6.16	24.022	
1,306.00	1,302.14	1,288.87	1,284.20	3.68	3.34	-161.08	93.78	9.24	167.74	160.89	6.85	24.489	
1,400.00	1,395.63	1,380.29	1,374.76	4.04	3.69	-158.39	105.10	14.56	187.01	179.49	7.52	24.866	
1,495.00	1,490.19	1,472.39	1,465.99	4.40	4.05	-158.06	116.74	19.36	206.30	198.11	8.20	25.166	
1,589.00	1,583.83	1,563.50	1,556.20	4.76	4.40	-159.59	128.63	23.93	225.22	216.36	8.87	25.401	
1,684.00	1,678.44	1,656.32	1,648.09	5.12	4.76	-156.31	140.93	28.50	244.79	235.24	9.55	25.630	
1,779.00	1,772.98	1,749.66	1,740.52	5.48	5.12	-151.30	153.21	32.96	264.85	254.60	10.24	25.858	
1,873.00	1,866.49	1,843.98	1,833.98	5.84	5.49	-149.56	165.13	37.23	284.25	273.31	10.94	25.985	
1,967.00	1,960.05	1,941.63	1,930.94	6.20	5.86	-144.83	175.97	41.24	301.70	290.04	11.65	25.887	
2,062.00	2,054.59	2,035.27	2,024.04	6.56	6.22	-150.25	185.39	44.66	318.53	306.19	12.34	25.806	
2,156.00	2,148.09	2,121.29	2,109.45	6.92	6.55	-150.91	195.01	48.03	336.84	323.86	12.98	25.943	
2,251.00	2,242.55	2,213.09	2,200.46	7.29	6.90	-149.40	206.33	52.14	356.54	342.87	13.67	26.090	
2,345.00	2,336.00	2,308.85	2,295.44	7.65	7.27	-155.36	217.78	56.21	376.12	361.74	14.38	26.164	
2,440.00	2,430.43	2,399.86	2,385.79	8.02	7.62	-157.96	228.32	59.35	396.04	380.99	15.05	26.316	
2,535.00	2,524.86	2,497.71	2,482.99	8.38	8.00	-156.66	239.22	62.08	415.64	399.87	15.77	26.361	
2,629.00	2,618.31	2,585.52	2,570.23	8.75	8.33	-156.69	248.91	64.53	434.86	418.44	16.42	26.488	
2,724.00	2,712.77	2,683.40	2,667.47	9.12	8.70	-155.92	259.72	67.37	454.14	437.00	17.14	26.503	
2,818.00	2,806.24	2,774.20	2,757.72	9.48	9.05	-155.36	269.31	70.02	472.63	454.83	17.81	26.545	
2,913.00	2,900.71	2,872.39	2,855.34	9.84	9.42	-153.14	279.41	73.13	490.83	472.31	18.52	26.496	
3,008.00	2,995.25	2,971.67	2,954.17	10.21	9.79	-157.70	288.43	75.76	507.57	488.32	19.25	26.373	
3,102.00	3,088.80	3,068.18	3,050.36	10.57	10.15	-157.58	296.16	77.22	523.30	503.35	19.94	26.239	
3,197.00	3,183.30	3,171.61	3,153.57	10.93	10.52	-154.89	302.94	77.95	538.24	517.57	20.68	26.031	
3,291.00	3,276.71	3,270.71	3,252.53	11.30	10.87	-161.29	307.98	78.82	552.57	531.19	21.38	25.842	
3,386.00	3,371.01	3,368.32	3,350.05	11.67	11.22	-162.63	312.12	80.15	567.31	545.23	22.08	25.691	
3,480.00	3,464.23	3,464.32	3,445.97	12.04	11.55	-161.48	315.67	81.58	581.98	559.20	22.77	25.557	
3,575.00	3,558.47	3,545.80	3,527.36	12.42	11.84	-160.18	318.99	82.84	596.95	573.55	23.39	25.518	
3,670.00	3,652.84	3,623.58	3,604.94	12.79	12.13	-159.35	324.42	84.36	613.44	589.46	23.98	25.577	
3,764.00	3,746.36	3,700.16	3,681.16	13.15	12.42	-156.22	331.63	86.13	630.59	606.04	24.55	25.682	
3,859.00	3,840.97	3,772.00	3,752.42	13.51	12.69	-152.44	340.53	87.80	649.55	624.47	25.07	25.905	
3,954.00	3,935.57	3,861.06	3,840.54	13.87	13.04	-152.36	353.27	89.72	670.33	644.60	25.73	26.053	
4,049.00	4,030.14	3,946.84	3,925.32	14.23	13.38	-161.55	366.25	91.50	692.42	666.06	26.36	26.270	
4,143.00	4,123.75	4,024.34	4,001.71	14.59	13.69	-160.35	379.11	93.55	715.40	688.49	26.91	26.582	
4,238.00	4,218.33	4,106.07	4,081.95	14.95	14.03	-159.80	394.34	96.52	740.62	713.11	27.50	26.927	
4,333.00	4,312.74	4,196.91	4,171.00	15.32	14.40	-162.34	411.96	100.12	768.06	739.87	28.19	27.245	
4,427.00	4,406.05	4,287.25	4,259.46	15.69	14.78	-159.54	429.36	105.77	795.67	766.79	28.88	27.552	
4,522.00	4,500.34	4,378.14	4,348.06	16.06	15.17	-158.07	447.58	114.60	823.93	794.36	29.57	27.859	
4,616.00	4,593.47	4,483.24	4,450.74	16.44	15.62	-159.64	467.55	124.88	852.25	821.84	30.41	28.029	
4,710.00	4,686.44	4,549.78	4,515.88	16.82	15.90	-158.68	479.94	130.35	881.54	850.65	30.89	28.542	

CC - Min centre to center distance or 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:	Plan #4	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - Rosa Unit 704H - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 58-Standard Keeper 104, 446-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
4,899.00	4,873.89	4,740.90	4,702.46	17.57	16.72	-151.95	519.13	143.60	940.14	907.78	32.36	29.048	
4,962.00	4,936.56	4,818.26	4,778.44	17.81	17.04	-149.55	533.07	147.70	956.55	923.58	32.97	29.016	
5,024.00	4,998.27	4,888.68	4,847.83	18.04	17.33	-153.25	544.63	151.06	971.60	938.10	33.50	29.001	
5,150.00	5,123.66	5,001.00	4,958.46	18.53	17.79	-152.14	563.12	156.88	1,002.38	968.04	34.34	29.189	
5,213.00	5,186.37	5,051.63	5,008.17	18.77	18.00	-154.41	572.03	160.42	1,018.27	983.56	34.71	29.332	
5,276.00	5,249.09	5,116.07	5,071.26	19.01	18.28	-153.31	583.88	166.07	1,034.58	999.37	35.21	29.384	
5,339.00	5,311.83	5,186.84	5,140.62	19.25	18.57	-154.02	596.34	172.58	1,050.18	1,014.42	35.75	29.372	
5,401.00	5,373.58	5,252.91	5,205.51	19.48	18.85	-151.23	607.43	178.15	1,065.00	1,028.74	36.26	29.373	
5,464.00	5,436.33	5,328.76	5,280.18	19.72	19.16	-153.82	619.37	184.15	1,079.31	1,042.48	36.83	29.302	
5,590.00	5,561.87	5,457.86	5,407.50	20.19	19.69	-154.80	638.44	193.68	1,106.76	1,068.96	37.80	29.276	
5,653.00	5,624.66	5,527.19	5,475.97	20.43	19.97	-156.04	648.16	198.54	1,119.92	1,081.60	38.32	29.224	
5,715.00	5,686.48	5,588.74	5,536.79	20.66	20.22	-160.93	656.65	202.78	1,132.49	1,093.71	38.78	29.203	
5,778.00	5,749.29	5,659.23	5,606.50	20.90	20.50	-158.02	666.09	207.19	1,145.12	1,105.82	39.30	29.137	
5,841.00	5,812.10	5,729.17	5,675.77	21.13	20.78	-160.22	674.77	211.41	1,157.18	1,117.37	39.81	29.065	
5,904.00	5,874.94	5,794.14	5,740.17	21.36	21.03	-154.77	682.58	215.00	1,168.70	1,128.41	40.29	29.006	
5,967.00	5,937.80	5,867.32	5,812.77	21.60	21.32	-153.13	690.98	218.85	1,179.46	1,138.64	40.82	28.894	
6,030.00	6,000.68	5,926.01	5,871.03	21.83	21.54	-155.01	697.43	221.72	1,189.61	1,148.35	41.25	28.836	
6,093.00	6,063.59	5,986.96	5,931.51	22.05	21.78	-151.24	704.31	224.89	1,199.56	1,157.86	41.70	28.765	
6,156.00	6,126.51	6,047.75	5,991.82	22.28	22.01	-145.84	711.23	228.10	1,209.22	1,167.07	42.15	28.689	
6,235.00	6,205.43	6,135.54	6,078.95	22.56	22.35	-146.08	720.99	232.51	1,220.65	1,177.87	42.78	28.532	
6,300.00	6,270.38	6,214.19	6,157.11	22.68	22.65	-145.97	728.92	236.09	1,229.12	1,185.91	43.21	28.445	
6,355.00	6,325.34	6,255.00	6,197.73	22.69	22.81	-145.93	732.62	237.77	1,235.86	1,192.53	43.33	28.521	
6,400.00	6,370.23	6,255.00	6,197.73	22.71	22.81	-112.63	732.62	237.77	1,242.90	1,199.69	43.21	28.767	
6,450.00	6,419.74	6,255.00	6,197.73	22.73	22.81	-104.22	732.62	237.77	1,252.92	1,209.89	43.03	29.119	
6,500.00	6,468.57	6,255.00	6,197.73	22.77	22.81	-100.16	732.62	237.77	1,265.14	1,222.32	42.82	29.547	
6,550.00	6,516.42	6,255.00	6,197.73	22.81	22.81	-97.27	732.62	237.77	1,279.42	1,236.84	42.58	30.047	
6,600.00	6,562.98	6,255.00	6,197.73	22.87	22.81	-94.79	732.62	237.77	1,295.61	1,253.28	42.33	30.608	
6,650.00	6,607.98	6,255.00	6,197.73	22.95	22.81	-92.42	732.62	237.77	1,313.53	1,271.46	42.07	31.223	
6,700.00	6,651.14	6,255.00	6,197.73	23.03	22.81	-90.06	732.62	237.77	1,333.03	1,291.21	41.81	31.879	
6,750.00	6,692.18	6,255.00	6,197.73	23.14	22.81	-87.66	732.62	237.77	1,353.89	1,312.32	41.57	32.567	
6,800.00	6,730.86	6,255.00	6,197.73	23.26	22.81	-85.20	732.62	237.77	1,375.94	1,334.59	41.35	33.274	
6,850.00	6,766.93	6,255.00	6,197.73	23.40	22.81	-82.69	732.62	237.77	1,399.00	1,357.83	41.16	33.987	
6,900.00	6,800.18	6,255.00	6,197.73	23.56	22.81	-80.13	732.62	237.77	1,422.86	1,381.85	41.01	34.696	
6,950.00	6,830.39	6,255.00	6,197.73	23.74	22.81	-77.54	732.62	237.77	1,447.35	1,406.45	40.90	35.390	
7,000.00	6,857.38	6,255.00	6,197.73	23.94	22.81	-74.94	732.62	237.77	1,472.28	1,431.45	40.83	36.057	
7,050.00	6,880.98	6,255.00	6,197.73	24.17	22.81	-72.36	732.62	237.77	1,497.50	1,456.68	40.82	36.689	
7,100.00	6,901.06	6,255.00	6,197.73	24.42	22.81	-69.82	732.62	237.77	1,522.82	1,481.97	40.85	37.280	
7,150.00	6,917.47	6,255.00	6,197.73	24.70	22.81	-67.35	732.62	237.77	1,548.09	1,507.16	40.93	37.823	
7,200.00	6,930.13	6,255.00	6,197.73	25.01	22.81	-64.96	732.62	237.77	1,573.17	1,532.11	41.06	38.316	
7,250.00	6,938.95	6,255.00	6,197.73	25.34	22.81	-62.67	732.62	237.77	1,597.90	1,556.67	41.23	38.755	
7,300.00	6,943.88	6,255.00	6,197.73	25.69	22.81	-60.49	732.62	237.77	1,622.16	1,580.72	41.44	39.141	
7,337.82	6,945.00	6,255.00	6,197.73	25.97	22.81	-58.93	732.62	237.77	1,640.12	1,598.49	41.63	39.398	
7,400.00	6,945.00	6,255.00	6,197.73	26.45	22.81	-59.27	732.62	237.77	1,669.73	1,627.78	41.95	39.800	
7,492.38	6,945.00	6,255.00	6,197.73	27.21	22.81	-59.80	732.62	237.77	1,715.12	1,672.69	42.43	40.422	
7,500.00	6,945.00	6,255.00	6,197.73	27.28	22.81	-59.80	732.62	237.77	1,718.93	1,676.47	42.47	40.477	
7,600.00	6,945.00	6,255.00	6,197.73	28.17	22.81	-59.80	732.62	237.77	1,771.35	1,728.37	42.98	41.217	
7,700.00	6,945.00	6,255.00	6,197.73	29.12	22.81	-59.80	732.62	237.77	1,827.73	1,784.26	43.47	42.047	
7,800.00	6,945.00	6,255.00	6,197.73	30.14	22.81	-59.80	732.62	237.77	1,887.73	1,843.79	43.94	42.961	
7,900.00	6,945.00	6,255.00	6,197.73	31.20	22.81	-59.80	732.62	237.77	1,951.02	1,906.63	44.39	43.954	
8,000.00	6,945.00	6,255.00	6,197.73	32.31	22.81	-59.80	732.62	237.77	2,017.28	1,972.47	44.81	45.021	
8,100.00	6,945.00	6,255.00	6,197.73	33.46	22.81	-59.80	732.62	237.77	2,086.23	2,041.03	45.20	46.155	
8,200.00	6,945.00	6,255.00	6,197.73	34.64	22.81	-59.80	732.62	237.77	2,157.61	2,112.04	45.57	47.351	

CC - Min centre to center distance or 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:	Plan #4	**Offset TVD Reference:**	Offset Datum

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

Survey Program: 58-Standard Keeper 104, 446-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
8,300.00	6,945.00	6,255.00	6,197.73	35.86	22.81	-59.80	732.62	237.77	2,231.19	2,185.29	45.91	48.604	
8,400.00	6,945.00	6,255.00	6,197.73	37.11	22.81	-59.80	732.62	237.77	2,306.76	2,260.54	46.22	49.907	
8,500.00	6,945.00	6,255.00	6,197.73	38.39	22.81	-59.80	732.62	237.77	2,384.13	2,337.62	46.51	51.257	
8,600.00	6,945.00	6,255.00	6,197.73	39.69	22.81	-59.80	732.62	237.77	2,463.13	2,416.35	46.78	52.649	
8,700.00	6,945.00	6,255.00	6,197.73	41.01	22.81	-59.80	732.62	237.77	2,543.61	2,496.58	47.03	54.080	
8,800.00	6,945.00	6,255.00	6,197.73	42.35	22.81	-59.80	732.62	237.77	2,625.43	2,578.17	47.27	55.544	
8,900.00	6,945.00	6,255.00	6,197.73	43.71	22.81	-59.80	732.62	237.77	2,708.47	2,660.99	47.48	57.040	
9,000.00	6,945.00	6,255.00	6,197.73	45.08	22.81	-59.80	732.62	237.77	2,792.63	2,744.94	47.69	58.564	
9,100.00	6,945.00	6,255.00	6,197.73	46.47	22.81	-59.80	732.62	237.77	2,877.80	2,829.92	47.87	60.113	
9,200.00	6,945.00	6,255.00	6,197.73	47.87	22.81	-59.80	732.62	237.77	2,963.89	2,915.84	48.05	61.685	
9,300.00	6,945.00	6,255.00	6,197.73	49.29	22.81	-59.80	732.62	237.77	3,050.83	3,002.62	48.21	63.278	
9,400.00	6,945.00	6,255.00	6,197.73	50.71	22.81	-59.80	732.62	237.77	3,138.55	3,090.18	48.37	64.889	
9,500.00	6,945.00	6,255.00	6,197.73	52.15	22.81	-59.80	732.62	237.77	3,226.99	3,178.47	48.51	66.517	
9,600.00	6,945.00	6,255.00	6,197.73	53.59	22.81	-59.80	732.62	237.77	3,316.08	3,267.43	48.65	68.161	
9,700.00	6,945.00	6,255.00	6,197.73	55.05	22.81	-59.80	732.62	237.77	3,405.78	3,357.00	48.78	69.818	
9,800.00	6,945.00	6,255.00	6,197.73	56.51	22.81	-59.80	732.62	237.77	3,496.03	3,447.13	48.90	71.487	
9,900.00	6,945.00	6,255.00	6,197.73	57.98	22.81	-59.80	732.62	237.77	3,586.81	3,537.79	49.02	73.168	
10,000.00	6,945.00	6,255.00	6,197.73	59.45	22.81	-59.80	732.62	237.77	3,678.06	3,628.93	49.13	74.858	
10,100.00	6,945.00	6,255.00	6,197.73	60.93	22.81	-59.80	732.62	237.77	3,769.76	3,720.52	49.24	76.557	
10,200.00	6,945.00	6,255.00	6,197.73	62.42	22.81	-59.80	732.62	237.77	3,861.86	3,812.52	49.34	78.264	
10,300.00	6,945.00	6,255.00	6,197.73	63.92	22.81	-59.80	732.62	237.77	3,954.36	3,904.91	49.44	79.978	
10,400.00	6,945.00	6,255.00	6,197.73	65.42	22.81	-59.80	732.62	237.77	4,047.21	3,997.67	49.54	81.698	
10,500.00	6,945.00	6,255.00	6,197.73	66.92	22.81	-59.80	732.62	237.77	4,140.39	4,090.76	49.63	83.424	
10,600.00	6,945.00	6,255.00	6,197.73	68.43	22.81	-59.80	732.62	237.77	4,233.88	4,184.16	49.72	85.155	
10,700.00	6,945.00	6,255.00	6,197.73	69.94	22.81	-59.80	732.62	237.77	4,327.66	4,277.86	49.81	86.889	
10,800.00	6,945.00	6,255.00	6,197.73	71.45	22.81	-59.80	732.62	237.77	4,421.72	4,371.83	49.89	88.627	
10,900.00	6,945.00	6,255.00	6,197.73	72.97	22.81	-59.80	732.62	237.77	4,516.03	4,466.06	49.97	90.369	
11,000.00	6,945.00	6,255.00	6,197.73	74.50	22.81	-59.80	732.62	237.77	4,610.58	4,560.53	50.05	92.112	
11,100.00	6,945.00	6,255.00	6,197.73	76.02	22.81	-59.80	732.62	237.77	4,705.36	4,655.23	50.13	93.858	
11,200.00	6,945.00	6,255.00	6,197.73	77.55	22.81	-59.80	732.62	237.77	4,800.35	4,750.14	50.21	95.606	
11,300.00	6,945.00	6,255.00	6,197.73	79.08	22.81	-59.80	732.62	237.77	4,895.54	4,845.25	50.29	97.354	
11,400.00	6,945.00	6,255.00	6,197.73	80.62	22.81	-59.80	732.62	237.77	4,990.91	4,940.55	50.36	99.103	
11,500.00	6,945.00	6,255.00	6,197.73	82.16	22.81	-59.80	732.62	237.77	5,086.47	5,036.03	50.43	100.853	
11,600.00	6,945.00	6,255.00	6,197.73	83.70	22.81	-59.80	732.62	237.77	5,182.19	5,131.68	50.51	102.603	
11,700.00	6,945.00	6,255.00	6,197.73	85.24	22.81	-59.80	732.62	237.77	5,278.07	5,227.49	50.58	104.353	
11,800.00	6,945.00	6,255.00	6,197.73	86.78	22.81	-59.80	732.62	237.77	5,374.10	5,323.45	50.65	106.102	
11,900.00	6,945.00	6,255.00	6,197.73	88.33	22.81	-59.80	732.62	237.77	5,470.27	5,419.55	50.72	107.850	
12,000.00	6,945.00	6,255.00	6,197.73	89.87	22.81	-59.80	732.62	237.77	5,566.58	5,515.79	50.79	109.597	
12,100.00	6,945.00	6,255.00	6,197.73	91.42	22.81	-59.80	732.62	237.77	5,663.02	5,612.16	50.86	111.343	
12,200.00	6,945.00	6,255.00	6,197.73	92.98	22.81	-59.80	732.62	237.77	5,759.58	5,708.65	50.93	113.088	
12,300.00	6,945.00	6,255.00	6,197.73	94.53	22.81	-59.80	732.62	237.77	5,856.25	5,805.25	51.00	114.830	
12,400.00	6,945.00	6,255.00	6,197.73	96.08	22.81	-59.80	732.62	237.77	5,953.03	5,901.96	51.07	116.571	
12,500.00	6,945.00	6,255.00	6,197.73	97.64	22.81	-59.80	732.62	237.77	6,049.92	5,998.78	51.14	118.310	
12,600.00	6,945.00	6,255.00	6,197.73	99.20	22.81	-59.80	732.62	237.77	6,146.91	6,095.70	51.20	120.046	
12,700.00	6,945.00	6,255.00	6,197.73	100.76	22.81	-59.80	732.62	237.77	6,243.99	6,192.72	51.27	121.779	
12,800.00	6,945.00	6,255.00	6,197.73	102.32	22.81	-59.80	732.62	237.77	6,341.16	6,289.82	51.34	123.510	
12,900.00	6,945.00	6,255.00	6,197.73	103.88	22.81	-59.80	732.62	237.77	6,438.42	6,387.01	51.41	125.238	
13,000.00	6,945.00	6,255.00	6,197.73	105.44	22.81	-59.80	732.62	237.77	6,535.76	6,484.29	51.48	126.962	
13,100.00	6,945.00	6,255.00	6,197.73	107.00	22.81	-59.80	732.62	237.77	6,633.18	6,581.64	51.55	128.684	
13,200.00	6,945.00	6,255.00	6,197.73	108.57	22.81	-59.80	732.62	237.77	6,730.68	6,679.07	51.61	130.402	
13,300.00	6,945.00	6,255.00	6,197.73	110.13	22.81	-59.80	732.62	237.77	6,828.25	6,776.57	51.68	132.117	
13,400.00	6,945.00	6,255.00	6,197.73	111.70	22.81	-59.80	732.62	237.77	6,925.89	6,874.14	51.75	133.828	

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:	Plan #4	**Offset TVD Reference:**	Offset Datum

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

Survey Program: 58-Standard Keeper 104, 446-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
13,500.00	6,945.00	6,255.00	6,197.73	113.27	22.81	-59.80	732.62	237.77	7,023.59	6,971.77	51.82	135.536	
13,600.00	6,945.00	6,255.00	6,197.73	114.84	22.81	-59.80	732.62	237.77	7,121.36	7,069.47	51.89	137.239	
13,700.00	6,945.00	6,255.00	6,197.73	116.41	22.81	-59.80	732.62	237.77	7,219.19	7,167.23	51.96	138.939	
13,800.00	6,945.00	6,255.00	6,197.73	117.98	22.81	-59.80	732.62	237.77	7,317.08	7,265.05	52.03	140.634	
13,900.00	6,945.00	6,255.00	6,197.73	119.55	22.81	-59.80	732.62	237.77	7,415.03	7,362.93	52.10	142.326	
14,000.00	6,945.00	6,255.00	6,197.73	121.12	22.81	-59.80	732.62	237.77	7,513.03	7,460.86	52.17	144.013	
14,100.00	6,945.00	6,255.00	6,197.73	122.69	22.81	-59.80	732.62	237.77	7,611.08	7,558.84	52.24	145.695	
14,200.00	6,945.00	6,255.00	6,197.73	124.27	22.81	-59.80	732.62	237.77	7,709.18	7,656.87	52.31	147.374	
14,300.00	6,945.00	6,255.00	6,197.73	125.84	22.81	-59.80	732.62	237.77	7,807.33	7,754.95	52.38	149.047	
14,400.00	6,945.00	6,255.00	6,197.73	127.41	22.81	-59.80	732.62	237.77	7,905.52	7,853.07	52.45	150.716	
14,500.00	6,945.00	6,255.00	6,197.73	128.99	22.81	-59.80	732.62	237.77	8,003.76	7,951.24	52.52	152.381	
14,600.00	6,945.00	6,255.00	6,197.73	130.57	22.81	-59.80	732.62	237.77	8,102.05	8,049.45	52.60	154.040	
14,700.00	6,945.00	6,255.00	6,197.73	132.14	22.81	-59.80	732.62	237.77	8,200.37	8,147.70	52.67	155.695	
14,800.00	6,945.00	6,255.00	6,197.73	133.72	22.81	-59.80	732.62	237.77	8,298.74	8,246.00	52.74	157.345	
14,900.00	6,945.00	6,255.00	6,197.73	135.30	22.81	-59.80	732.62	237.77	8,397.14	8,344.33	52.82	158.990	
15,000.00	6,945.00	6,255.00	6,197.73	136.87	22.81	-59.80	732.62	237.77	8,495.58	8,442.69	52.89	160.630	
15,100.00	6,945.00	6,255.00	6,197.73	138.45	22.81	-59.80	732.62	237.77	8,594.06	8,541.10	52.96	162.264	
15,200.00	6,945.00	6,255.00	6,197.73	140.03	22.81	-59.80	732.62	237.77	8,692.57	8,639.53	53.04	163.894	
15,300.00	6,945.00	6,255.00	6,197.73	141.61	22.81	-59.80	732.62	237.77	8,791.12	8,738.00	53.11	165.518	
15,400.00	6,945.00	6,255.00	6,197.73	143.19	22.81	-59.80	732.62	237.77	8,889.69	8,836.51	53.19	167.137	
15,500.00	6,945.00	6,255.00	6,197.73	144.77	22.81	-59.80	732.62	237.77	8,988.30	8,935.04	53.26	168.751	
15,600.00	6,945.00	6,255.00	6,197.73	146.35	22.81	-59.80	732.62	237.77	9,086.94	9,033.60	53.34	170.359	
15,700.00	6,945.00	6,255.00	6,197.73	147.94	22.81	-59.80	732.62	237.77	9,185.61	9,132.20	53.42	171.962	
15,800.00	6,945.00	6,255.00	6,197.73	149.52	22.81	-59.80	732.62	237.77	9,284.31	9,230.82	53.49	173.560	
15,900.00	6,945.00	6,255.00	6,197.73	151.10	22.81	-59.80	732.62	237.77	9,383.03	9,329.46	53.57	175.152	
16,000.00	6,945.00	6,255.00	6,197.73	152.68	22.81	-59.80	732.62	237.77	9,481.79	9,428.14	53.65	176.738	
16,100.00	6,945.00	6,255.00	6,197.73	154.26	22.81	-59.80	732.62	237.77	9,580.56	9,526.84	53.73	178.319	
16,200.00	6,945.00	6,255.00	6,197.73	155.85	22.81	-59.80	732.62	237.77	9,679.37	9,625.56	53.81	179.895	
16,300.00	6,945.00	6,255.00	6,197.73	157.43	22.81	-59.80	732.62	237.77	9,778.19	9,724.31	53.88	181.464	
16,400.00	6,945.00	6,255.00	6,197.73	159.02	22.81	-59.80	732.62	237.77	9,877.05	9,823.08	53.96	183.028	
16,500.00	6,945.00	6,255.00	6,197.73	160.60	22.81	-59.80	732.62	237.77	9,975.92	9,921.87	54.04	184.587	
16,600.00	6,945.00	6,255.00	6,197.73	162.18	22.81	-59.80	732.62	237.77	10,074.81	10,020.69	54.13	186.139	
16,700.00	6,945.00	6,255.00	6,197.73	163.77	22.81	-59.80	732.62	237.77	10,173.73	10,119.53	54.21	187.686	
16,800.00	6,945.00	6,255.00	6,197.73	165.35	22.81	-59.80	732.62	237.77	10,272.67	10,218.38	54.29	189.227	
16,900.00	6,945.00	6,255.00	6,197.73	166.94	22.81	-59.80	732.62	237.77	10,371.63	10,317.26	54.37	190.762	
17,000.00	6,945.00	6,255.00	6,197.73	168.53	22.81	-59.80	732.62	237.77	10,470.61	10,416.16	54.45	192.291	
17,100.00	6,945.00	6,255.00	6,197.73	170.11	22.81	-59.80	732.62	237.77	10,569.61	10,515.07	54.53	193.815	
17,200.00	6,945.00	6,255.00	6,197.73	171.70	22.81	-59.80	732.62	237.77	10,668.62	10,614.00	54.62	195.333	
17,300.00	6,945.00	6,255.00	6,197.73	173.29	22.81	-59.80	732.62	237.77	10,767.66	10,712.96	54.70	196.844	
17,400.00	6,945.00	6,255.00	6,197.73	174.87	22.81	-59.80	732.62	237.77	10,866.71	10,811.92	54.79	198.350	
17,500.00	6,945.00	6,255.00	6,197.73	176.46	22.81	-59.80	732.62	237.77	10,965.78	10,910.91	54.87	199.850	
17,600.00	6,945.00	6,255.00	6,197.73	178.05	22.81	-59.80	732.62	237.77	11,064.87	11,009.91	54.95	201.344	
17,700.00	6,945.00	6,255.00	6,197.73	179.63	22.81	-59.80	732.62	237.77	11,163.97	11,108.93	55.04	202.832	
17,800.00	6,945.00	6,255.00	6,197.73	181.22	22.81	-59.80	732.62	237.77	11,263.09	11,207.96	55.13	204.314	
17,900.00	6,945.00	6,255.00	6,197.73	182.81	22.81	-59.80	732.62	237.77	11,362.22	11,307.01	55.21	205.790	
18,000.00	6,945.00	6,255.00	6,197.73	184.40	22.81	-59.80	732.62	237.77	11,461.37	11,406.07	55.30	207.261	
18,100.00	6,945.00	6,255.00	6,197.73	185.99	22.81	-59.80	732.62	237.77	11,560.53	11,505.15	55.39	208.725	
18,200.00	6,945.00	6,255.00	6,197.73	187.58	22.81	-59.80	732.62	237.77	11,659.71	11,604.24	55.47	210.183	
18,300.00	6,945.00	6,255.00	6,197.73	189.16	22.81	-59.80	732.62	237.77	11,758.90	11,703.34	55.56	211.635	
18,400.00	6,945.00	6,255.00	6,197.73	190.75	22.81	-59.80	732.62	237.77	11,858.11	11,802.46	55.65	213.081	
18,500.00	6,945.00	6,255.00	6,197.73	192.34	22.81	-59.80	732.62	237.77	11,957.33	11,901.59	55.74	214.521	
18,600.00	6,945.00	6,255.00	6,197.73	193.93	22.81	-59.80	732.62	237.77	12,056.56	12,000.73	55.83	215.956	

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:	Plan #4	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - Rosa Unit 704H - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 58-Standard Keeper 104, 446-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
18,700.00	6,945.00	6,255.00	6,197.73	195.52	22.81	-59.80	732.62	237.77	12,155.80	12,099.88	55.92	217.384	
18,800.00	6,945.00	6,255.00	6,197.73	197.11	22.81	-59.80	732.62	237.77	12,255.06	12,199.05	56.01	218.806	
18,900.00	6,945.00	6,255.00	6,197.73	198.70	22.81	-59.80	732.62	237.77	12,354.33	12,298.23	56.10	220.222	
19,000.00	6,945.00	6,255.00	6,197.73	200.29	22.81	-59.80	732.62	237.77	12,453.61	12,397.42	56.19	221.632	
19,100.00	6,945.00	6,255.00	6,197.73	201.88	22.81	-59.80	732.62	237.77	12,552.90	12,496.62	56.28	223.036	
19,200.00	6,945.00	6,255.00	6,197.73	203.47	22.81	-59.80	732.62	237.77	12,652.20	12,595.83	56.37	224.434	
19,300.00	6,945.00	6,255.00	6,197.73	205.06	22.81	-59.80	732.62	237.77	12,751.52	12,695.05	56.47	225.826	
19,400.00	6,945.00	6,255.00	6,197.73	206.65	22.81	-59.80	732.62	237.77	12,850.84	12,794.28	56.56	227.212	
19,500.00	6,945.00	6,255.00	6,197.73	208.24	22.81	-59.80	732.62	237.77	12,950.17	12,893.52	56.65	228.592	
19,600.00	6,945.00	6,255.00	6,197.73	209.84	22.81	-59.80	732.62	237.77	13,049.52	12,992.77	56.75	229.966	
19,700.00	6,945.00	6,255.00	6,197.73	211.43	22.81	-59.80	732.62	237.77	13,148.87	13,092.04	56.84	231.334	
19,800.00	6,945.00	6,255.00	6,197.73	213.02	22.81	-59.80	732.62	237.77	13,248.24	13,191.31	56.93	232.697	
19,900.00	6,945.00	6,255.00	6,197.73	214.61	22.81	-59.80	732.62	237.77	13,347.61	13,290.58	57.03	234.053	
20,000.00	6,945.00	6,255.00	6,197.73	216.20	22.81	-59.80	732.62	237.77	13,447.00	13,389.87	57.12	235.403	
20,100.00	6,945.00	6,255.00	6,197.73	217.79	22.81	-59.80	732.62	237.77	13,546.39	13,489.17	57.22	236.747	
20,200.00	6,945.00	6,255.00	6,197.73	219.38	22.81	-59.80	732.62	237.77	13,645.79	13,588.48	57.31	238.085	
20,300.00	6,945.00	6,255.00	6,197.73	220.98	22.81	-59.80	732.62	237.77	13,745.20	13,687.79	57.41	239.417	
20,400.00	6,945.00	6,255.00	6,197.73	222.57	22.81	-59.80	732.62	237.77	13,844.62	13,787.11	57.51	240.744	
20,500.00	6,945.00	6,255.00	6,197.73	224.16	22.81	-59.80	732.62	237.77	13,944.04	13,886.44	57.60	242.064	
20,600.00	6,945.00	6,255.00	6,197.73	225.75	22.81	-59.80	732.62	237.77	14,043.48	13,985.78	57.70	243.378	
20,700.00	6,945.00	6,255.00	6,197.73	227.35	22.81	-59.80	732.62	237.77	14,142.92	14,085.12	57.80	244.687	
20,800.00	6,945.00	6,255.00	6,197.73	228.94	22.81	-59.80	732.62	237.77	14,242.37	14,184.48	57.90	245.990	
20,852.96	6,945.00	6,255.00	6,197.73	229.61	22.81	-59.80	732.62	237.77	14,295.04	14,232.84	62.20	229.810	

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:	Plan #4	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - Rosa Unit 704H - OH - Plan #6 — **Offset Site Error:** 0.00 usft

Survey Program: 58-Standard Keeper 104, 446-MWD+HRGM+MS, 6255-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				
20.93	20.93	20.92	20.92	0.00	0.01	131.98	40.75	-28.98	50.04				
117.41	117.41	117.25	117.25	0.05	0.09	126.67	40.27	-29.88	50.47	50.37	0.10	524.555	
206.68	206.68	206.41	206.40	0.17	0.21	151.76	40.03	-30.89	51.15	50.89	0.26	193.815	
292.93	292.93	292.65	292.63	0.28	0.32	150.45	39.85	-31.94	52.12	51.68	0.44	118.433	
365.00	364.99	364.84	364.82	0.36	0.41	119.12	39.50	-32.93	52.85	52.26	0.59	89.001	
451.00	450.97	451.00	450.96	0.55	0.52	171.35	38.67	-34.23	54.84	53.93	0.92	59.926	
540.00	539.81	540.41	540.36	0.83	0.74	176.26	37.66	-34.79	59.60	58.13	1.48	40.396	
665.00	664.37	665.24	665.17	1.26	1.12	179.91	37.39	-33.10	68.76	66.44	2.32	29.676	
753.00	752.01	752.60	752.47	1.58	1.40	-178.56	38.60	-29.91	75.76	72.84	2.92	25.931	
847.00	845.61	844.15	843.75	1.93	1.72	-171.16	42.83	-24.52	84.86	81.29	3.58	23.730	
939.00	937.22	932.78	931.70	2.27	2.03	-165.46	51.08	-17.39	97.12	92.90	4.22	23.000	
1,030.00	1,027.78	1,021.37	1,019.51	2.62	2.34	-172.21	60.42	-10.25	111.65	106.77	4.87	22.907	
1,120.00	1,117.25	1,107.48	1,104.71	2.96	2.65	-165.31	70.78	-3.38	128.95	123.44	5.51	23.396	
1,211.00	1,207.68	1,195.63	1,191.89	3.31	2.98	-165.12	82.11	3.12	148.07	141.90	6.16	24.022	
1,306.00	1,302.14	1,288.87	1,284.20	3.68	3.34	-161.08	93.78	9.24	167.74	160.89	6.85	24.489	
1,400.00	1,395.63	1,380.29	1,374.76	4.04	3.69	-158.39	105.10	14.56	187.01	179.49	7.52	24.866	
1,495.00	1,490.19	1,472.39	1,465.99	4.40	4.05	-158.06	116.74	19.36	206.30	198.11	8.20	25.166	
1,589.00	1,583.83	1,563.50	1,556.20	4.76	4.40	-159.59	128.63	23.93	225.22	216.36	8.87	25.401	
1,684.00	1,678.44	1,656.32	1,648.09	5.12	4.76	-156.31	140.93	28.50	244.79	235.24	9.55	25.630	
1,779.00	1,772.98	1,749.66	1,740.52	5.48	5.12	-151.30	153.21	32.96	264.85	254.60	10.24	25.858	
1,873.00	1,866.49	1,843.98	1,833.98	5.84	5.49	-149.56	165.13	37.23	284.25	273.31	10.94	25.985	
1,967.00	1,960.05	1,941.63	1,930.94	6.20	5.86	-144.83	175.97	41.24	301.70	290.04	11.65	25.887	
2,062.00	2,054.59	2,035.27	2,024.04	6.56	6.22	-150.25	185.39	44.66	318.53	306.19	12.34	25.806	
2,156.00	2,148.09	2,121.29	2,109.45	6.92	6.55	-150.91	195.01	48.03	336.84	323.86	12.98	25.943	
2,251.00	2,242.55	2,213.09	2,200.46	7.29	6.90	-149.40	206.33	52.14	356.54	342.87	13.67	26.090	
2,345.00	2,336.00	2,308.85	2,295.44	7.65	7.27	-155.36	217.78	56.21	376.12	361.74	14.38	26.164	
2,440.00	2,430.43	2,399.86	2,385.79	8.02	7.62	-157.96	228.32	59.35	396.04	380.99	15.05	26.316	
2,535.00	2,524.86	2,497.71	2,482.99	8.38	8.00	-156.66	239.22	62.08	415.64	399.87	15.77	26.361	
2,629.00	2,618.31	2,585.52	2,570.23	8.75	8.33	-156.69	248.91	64.53	434.86	418.44	16.42	26.488	
2,724.00	2,712.77	2,683.40	2,667.47	9.12	8.70	-155.92	259.72	67.37	454.14	437.00	17.14	26.503	
2,818.00	2,806.24	2,774.20	2,757.72	9.48	9.05	-155.36	269.31	70.02	472.63	454.83	17.81	26.545	
2,913.00	2,900.71	2,872.39	2,855.34	9.84	9.42	-153.14	279.41	73.13	490.83	472.31	18.52	26.496	
3,008.00	2,995.25	2,971.67	2,954.17	10.21	9.79	-157.70	288.43	75.76	507.57	488.32	19.25	26.373	
3,102.00	3,088.80	3,068.18	3,050.36	10.57	10.15	-157.58	296.16	77.22	523.30	503.35	19.94	26.239	
3,197.00	3,183.30	3,171.61	3,153.57	10.93	10.52	-154.89	302.94	77.95	538.24	517.57	20.68	26.031	
3,291.00	3,276.71	3,270.71	3,252.53	11.30	10.87	-161.29	307.98	78.82	552.57	531.19	21.38	25.842	
3,386.00	3,371.01	3,368.32	3,350.05	11.67	11.22	-162.63	312.12	80.15	567.31	545.23	22.08	25.691	
3,480.00	3,464.23	3,464.32	3,445.97	12.04	11.55	-161.48	315.67	81.58	581.98	559.20	22.77	25.557	
3,575.00	3,558.47	3,545.80	3,527.36	12.42	11.84	-160.18	318.99	82.84	596.95	573.55	23.39	25.518	
3,670.00	3,652.84	3,623.58	3,604.94	12.79	12.13	-159.35	324.42	84.36	613.44	589.46	23.98	25.577	
3,764.00	3,746.36	3,700.16	3,681.16	13.15	12.42	-156.22	331.63	86.13	630.59	606.04	24.55	25.682	
3,859.00	3,840.97	3,772.00	3,752.42	13.51	12.69	-152.44	340.53	87.80	649.55	624.47	25.07	25.905	
3,954.00	3,935.57	3,861.06	3,840.54	13.87	13.04	-152.36	353.27	89.72	670.33	644.60	25.73	26.053	
4,049.00	4,030.14	3,946.84	3,925.32	14.23	13.38	-161.55	366.25	91.50	692.42	666.06	26.36	26.270	
4,143.00	4,123.75	4,024.34	4,001.71	14.59	13.69	-160.35	379.11	93.55	715.40	688.49	26.91	26.582	
4,238.00	4,218.33	4,106.07	4,081.95	14.95	14.03	-159.80	394.34	96.52	740.62	713.11	27.50	26.927	
4,333.00	4,312.74	4,196.91	4,171.00	15.32	14.40	-162.34	411.96	100.12	768.06	739.87	28.19	27.245	
4,427.00	4,406.05	4,287.25	4,259.46	15.69	14.78	-159.54	429.36	105.77	795.67	766.79	28.88	27.552	
4,522.00	4,500.34	4,378.14	4,348.06	16.06	15.17	-158.07	447.58	114.60	823.93	794.36	29.57	27.859	
4,616.00	4,593.47	4,483.24	4,450.74	16.44	15.62	-159.64	467.55	124.88	852.25	821.84	30.41	28.029	
4,710.00	4,686.44	4,549.78	4,515.88	16.82	15.90	-158.68	479.94	130.35	881.54	850.65	30.89	28.542	

CC - Min centre to center distance or 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:	Plan #4	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - Rosa Unit 704H - OH - Plan #6

Offset Site Error: 0.00 usft

Survey Program: 58-Standard Keeper 104, 446-MWD+HRGM+MS, 6255-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
4,899.00	4,873.89	4,740.90	4,702.46	17.57	16.72	-151.95	519.13	143.60	940.14	907.78	32.36	29.048	
4,962.00	4,936.56	4,818.26	4,778.44	17.81	17.04	-149.55	533.07	147.70	956.55	923.58	32.97	29.016	
5,024.00	4,998.27	4,888.68	4,847.83	18.04	17.33	-153.25	544.63	151.06	971.60	938.10	33.50	29.001	
5,150.00	5,123.66	5,001.00	4,958.46	18.53	17.79	-152.14	563.12	156.88	1,002.38	968.04	34.34	29.189	
5,213.00	5,186.37	5,051.63	5,008.17	18.77	18.00	-154.41	572.03	160.42	1,018.27	983.56	34.71	29.332	
5,276.00	5,249.09	5,116.07	5,071.26	19.01	18.28	-153.31	583.88	166.07	1,034.58	999.37	35.21	29.384	
5,339.00	5,311.83	5,186.84	5,140.62	19.25	18.57	-154.02	596.34	172.58	1,050.18	1,014.42	35.75	29.372	
5,401.00	5,373.58	5,252.91	5,205.51	19.48	18.85	-151.23	607.43	178.15	1,065.00	1,028.74	36.26	29.373	
5,464.00	5,436.33	5,328.76	5,280.18	19.72	19.16	-153.82	619.37	184.15	1,079.31	1,042.48	36.83	29.302	
5,590.00	5,561.87	5,457.86	5,407.50	20.19	19.69	-154.80	638.44	193.68	1,106.76	1,068.96	37.80	29.276	
5,653.00	5,624.66	5,527.19	5,475.97	20.43	19.97	-156.04	648.16	198.54	1,119.92	1,081.60	38.32	29.224	
5,715.00	5,686.48	5,588.74	5,536.79	20.66	20.22	-160.93	656.65	202.78	1,132.49	1,093.71	38.78	29.203	
5,778.00	5,749.29	5,659.23	5,606.50	20.90	20.50	-158.02	666.09	207.19	1,145.12	1,105.82	39.30	29.137	
5,841.00	5,812.10	5,729.17	5,675.77	21.13	20.78	-160.22	674.77	211.41	1,157.18	1,117.37	39.81	29.065	
5,904.00	5,874.94	5,794.14	5,740.17	21.36	21.03	-154.77	682.58	215.00	1,168.70	1,128.41	40.29	29.006	
5,967.00	5,937.80	5,867.32	5,812.77	21.60	21.32	-153.13	690.98	218.85	1,179.46	1,138.64	40.82	28.894	
6,030.00	6,000.68	5,926.01	5,871.03	21.83	21.54	-155.01	697.43	221.72	1,189.61	1,148.35	41.25	28.836	
6,093.00	6,063.59	5,986.96	5,931.51	22.05	21.78	-151.24	704.31	224.89	1,199.56	1,157.86	41.70	28.765	
6,156.00	6,126.51	6,047.75	5,991.82	22.28	22.01	-145.84	711.23	228.10	1,209.22	1,167.07	42.15	28.689	
6,235.00	6,205.43	6,135.54	6,078.95	22.56	22.35	-146.08	720.99	232.51	1,220.65	1,177.87	42.78	28.532	
6,300.00	6,270.38	6,214.19	6,157.11	22.68	22.65	-145.97	728.92	236.09	1,229.12	1,185.91	43.21	28.445	
6,355.00	6,325.34	6,277.93	6,220.55	22.69	22.89	-145.90	734.61	238.68	1,235.65	1,192.18	43.47	28.426	
6,400.00	6,370.23	6,322.59	6,265.00	22.71	23.06	-112.79	738.49	240.47	1,241.06	1,197.42	43.64	28.438	
6,450.00	6,419.74	6,371.97	6,314.16	22.73	23.24	-104.91	742.79	242.45	1,247.44	1,203.60	43.84	28.454	
6,500.00	6,468.57	6,428.95	6,370.82	22.77	23.46	-101.77	747.68	245.75	1,254.13	1,210.03	44.10	28.440	
6,550.00	6,516.42	6,492.86	6,433.80	22.81	23.71	-100.04	752.82	255.15	1,260.69	1,216.29	44.41	28.390	
6,600.00	6,562.98	6,557.94	6,496.64	22.87	23.96	-98.85	757.59	271.24	1,267.02	1,222.28	44.74	28.320	
6,650.00	6,607.98	6,624.01	6,558.44	22.95	24.23	-97.94	761.92	294.14	1,273.05	1,227.95	45.09	28.230	
6,700.00	6,651.14	6,690.91	6,618.25	23.03	24.50	-97.16	765.71	323.79	1,278.72	1,233.25	45.47	28.120	
6,750.00	6,692.18	6,758.39	6,675.10	23.14	24.79	-96.45	768.90	359.96	1,283.99	1,238.11	45.88	27.987	
6,800.00	6,730.86	6,826.23	6,728.05	23.26	25.07	-95.78	771.42	402.23	1,288.82	1,242.50	46.31	27.827	
6,850.00	6,766.93	6,894.14	6,776.24	23.40	25.38	-95.12	773.22	450.01	1,293.16	1,246.38	46.79	27.640	
6,900.00	6,800.18	6,961.87	6,818.94	23.56	25.69	-94.47	774.28	502.53	1,297.01	1,249.71	47.30	27.423	
6,950.00	6,830.39	7,029.15	6,855.56	23.74	26.03	-93.82	774.60	558.94	1,300.33	1,252.48	47.85	27.173	
7,000.00	6,857.38	7,095.74	6,885.70	23.94	26.39	-93.16	774.19	618.27	1,303.14	1,254.68	48.46	26.894	
7,050.00	6,880.98	7,161.41	6,909.17	24.17	26.78	-92.51	773.07	679.56	1,305.42	1,256.31	49.11	26.584	
7,100.00	6,901.06	7,225.98	6,925.93	24.42	27.18	-91.85	771.30	741.86	1,307.19	1,257.39	49.80	26.249	
7,150.00	6,917.47	7,289.29	6,936.10	24.70	27.60	-91.21	768.94	804.28	1,308.45	1,257.92	50.53	25.893	
7,200.00	6,930.13	7,351.25	6,939.96	25.01	28.02	-90.58	766.05	866.03	1,309.24	1,257.95	51.30	25.523	
7,250.00	6,938.95	7,402.13	6,940.03	25.34	28.38	-90.12	763.39	916.83	1,309.73	1,257.70	52.03	25.175	
7,300.00	6,943.88	7,451.87	6,940.04	25.69	28.76	-89.86	760.79	966.51	1,310.14	1,257.35	52.79	24.817	
7,337.82	6,945.00	7,489.67	6,940.04	25.97	29.05	-89.78	758.81	1,004.25	1,310.37	1,256.99	53.38	24.548	
7,400.00	6,945.00	7,551.84	6,940.05	26.45	29.56	-89.78	755.55	1,066.35	1,310.02	1,255.62	54.41	24.078	
7,492.38	6,945.00	7,644.18	6,940.07	27.21	30.34	-89.78	750.72	1,158.55	1,307.01	1,251.00	56.02	23.333	
7,500.00	6,945.00	7,651.78	6,940.07	27.28	30.41	-89.78	750.32	1,166.15	1,306.64	1,250.49	56.15	23.270	
7,600.00	6,945.00	7,722.89	6,940.08	28.17	31.06	-89.78	747.30	1,237.19	1,302.79	1,245.01	57.78	22.548	
7,700.00	6,945.00	7,796.63	6,940.10	29.12	31.76	-89.78	746.02	1,310.91	1,301.34	1,241.84	59.50	21.870	
7,746.69	6,945.00	7,836.06	6,940.11	29.60	32.16	-89.78	745.84	1,350.34	1,301.28	1,240.88	60.40	21.545	
7,800.00	6,945.00	7,889.37	6,940.12	30.14	32.69	-89.79	745.60	1,403.66	1,301.23	1,239.73	61.50	21.158	
7,900.00	6,945.00	7,989.37	6,940.14	31.20	33.74	-89.79	745.14	1,503.65	1,301.14	1,237.48	63.66	20.438	
8,000.00	6,945.00	8,089.37	6,940.16	32.31	34.83	-89.79	744.69	1,603.65	1,301.05	1,235.15	65.91	19.741	
8,100.00	6,945.00	8,189.37	6,940.19	33.46	35.96	-89.79	744.24	1,703.65	1,300.96	1,232.74	68.23	19.068	

CC - Min centre to center distance or 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:	Plan #4	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - Rosa Unit 704H - OH - Plan #6

Offset Site Error: 0.00 usft

Survey Program: 58-Standard Keeper 104, 446-MWD+HRGM+MS, 6255-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
8,200.00	6,945.00	8,289.37	6,940.21	34.64	37.12	-89.79	743.79	1,803.65	1,300.87	1,230.26	70.62	18.421	
8,300.00	6,945.00	8,389.37	6,940.23	35.86	38.32	-89.79	743.33	1,903.65	1,300.79	1,227.72	73.07	17.802	
8,400.00	6,945.00	8,489.37	6,940.25	37.11	39.54	-89.79	742.88	2,003.65	1,300.70	1,225.12	75.58	17.210	
8,500.00	6,945.00	8,589.37	6,940.27	38.39	40.78	-89.79	742.43	2,103.65	1,300.61	1,222.47	78.14	16.645	
8,600.00	6,945.00	8,689.37	6,940.30	39.69	42.06	-89.79	741.97	2,203.65	1,300.52	1,219.78	80.74	16.107	
8,700.00	6,945.00	8,789.37	6,940.32	41.01	43.35	-89.79	741.52	2,303.65	1,300.43	1,217.04	83.39	15.595	
8,800.00	6,945.00	8,889.37	6,940.34	42.35	44.66	-89.79	741.07	2,403.64	1,300.34	1,214.27	86.07	15.108	
8,900.00	6,945.00	8,989.37	6,940.36	43.71	45.99	-89.80	740.61	2,503.64	1,300.25	1,211.46	88.79	14.644	
9,000.00	6,945.00	9,089.37	6,940.38	45.08	47.34	-89.80	740.16	2,603.64	1,300.16	1,208.62	91.54	14.203	
9,100.00	6,945.00	9,189.37	6,940.41	46.47	48.70	-89.80	739.71	2,703.64	1,300.07	1,205.76	94.32	13.784	
9,200.00	6,945.00	9,289.37	6,940.43	47.87	50.08	-89.80	739.25	2,803.64	1,299.99	1,202.87	97.12	13.385	
9,300.00	6,945.00	9,389.37	6,940.45	49.29	51.47	-89.80	738.80	2,903.64	1,299.90	1,199.95	99.95	13.006	
9,400.00	6,945.00	9,489.37	6,940.47	50.71	52.87	-89.80	738.35	3,003.64	1,299.81	1,197.01	102.80	12.644	
9,500.00	6,945.00	9,589.37	6,940.49	52.15	54.28	-89.80	737.89	3,103.64	1,299.72	1,194.05	105.67	12.300	
9,600.00	6,945.00	9,689.37	6,940.52	53.59	55.70	-89.80	737.44	3,203.64	1,299.63	1,191.08	108.56	11.972	
9,700.00	6,945.00	9,789.37	6,940.54	55.05	57.13	-89.80	736.99	3,303.64	1,299.54	1,188.08	111.46	11.659	
9,800.00	6,945.00	9,889.37	6,940.56	56.51	58.58	-89.80	736.54	3,403.63	1,299.45	1,185.07	114.38	11.361	
9,900.00	6,945.00	9,989.37	6,940.58	57.98	60.02	-89.81	736.08	3,503.63	1,299.36	1,182.05	117.32	11.076	
10,000.00	6,945.00	10,089.37	6,940.60	59.45	61.48	-89.81	735.63	3,603.63	1,299.27	1,179.01	120.27	10.803	
10,100.00	6,945.00	10,189.37	6,940.63	60.93	62.94	-89.81	735.18	3,703.63	1,299.19	1,175.96	123.23	10.543	
10,200.00	6,945.00	10,289.37	6,940.65	62.42	64.41	-89.81	734.72	3,803.63	1,299.10	1,172.90	126.20	10.294	
10,300.00	6,945.00	10,389.37	6,940.67	63.92	65.89	-89.81	734.27	3,903.63	1,299.01	1,169.82	129.18	10.055	
10,400.00	6,945.00	10,489.37	6,940.69	65.42	67.37	-89.81	733.82	4,003.63	1,298.92	1,166.74	132.18	9.827	
10,500.00	6,945.00	10,589.37	6,940.72	66.92	68.86	-89.81	733.36	4,103.63	1,298.83	1,163.65	135.18	9.608	
10,600.00	6,945.00	10,689.37	6,940.74	68.43	70.35	-89.81	732.91	4,203.63	1,298.74	1,160.55	138.20	9.398	
10,700.00	6,945.00	10,789.37	6,940.76	69.94	71.84	-89.81	732.46	4,303.62	1,298.65	1,157.44	141.22	9.196	
10,800.00	6,945.00	10,889.37	6,940.78	71.45	73.34	-89.81	732.00	4,403.62	1,298.56	1,154.32	144.24	9.003	
10,900.00	6,945.00	10,989.37	6,940.80	72.97	74.85	-89.81	731.55	4,503.62	1,298.48	1,151.19	147.28	8.816	
11,000.00	6,945.00	11,089.37	6,940.83	74.50	76.36	-89.82	731.10	4,603.62	1,298.39	1,148.06	150.32	8.637	
11,100.00	6,945.00	11,189.37	6,940.85	76.02	77.87	-89.82	730.65	4,703.62	1,298.30	1,144.92	153.37	8.465	
11,200.00	6,945.00	11,289.37	6,940.87	77.55	79.39	-89.82	730.19	4,803.62	1,298.21	1,141.78	156.43	8.299	
11,300.00	6,945.00	11,389.37	6,940.89	79.08	80.90	-89.82	729.74	4,903.62	1,298.12	1,138.63	159.49	8.139	
11,400.00	6,945.00	11,489.37	6,940.91	80.62	82.43	-89.82	729.29	5,003.62	1,298.03	1,135.48	162.56	7.985	
11,500.00	6,945.00	11,589.37	6,940.94	82.16	83.95	-89.82	728.83	5,103.62	1,297.94	1,132.32	165.63	7.837	
11,600.00	6,945.00	11,689.37	6,940.96	83.70	85.48	-89.82	728.38	5,203.62	1,297.85	1,129.15	168.70	7.693	
11,700.00	6,945.00	11,789.37	6,940.98	85.24	87.01	-89.82	727.93	5,303.61	1,297.76	1,125.98	171.78	7.555	
11,800.00	6,945.00	11,889.37	6,941.00	86.78	88.54	-89.82	727.47	5,403.61	1,297.68	1,122.81	174.87	7.421	
11,900.00	6,945.00	11,989.37	6,941.02	88.33	90.08	-89.82	727.02	5,503.61	1,297.59	1,119.63	177.96	7.292	
12,000.00	6,945.00	12,089.37	6,941.05	89.87	91.61	-89.83	726.57	5,603.61	1,297.50	1,116.45	181.05	7.166	
12,100.00	6,945.00	12,189.37	6,941.07	91.42	93.15	-89.83	726.11	5,703.61	1,297.41	1,113.26	184.15	7.045	
12,200.00	6,945.00	12,289.37	6,941.09	92.98	94.70	-89.83	725.66	5,803.61	1,297.32	1,110.07	187.25	6.928	
12,300.00	6,945.00	12,389.37	6,941.11	94.53	96.24	-89.83	725.21	5,903.61	1,297.23	1,106.88	190.35	6.815	
12,400.00	6,945.00	12,489.37	6,941.13	96.08	97.78	-89.83	724.75	6,003.61	1,297.14	1,103.68	193.46	6.705	
12,500.00	6,945.00	12,589.37	6,941.16	97.64	99.33	-89.83	724.30	6,103.61	1,297.05	1,100.49	196.57	6.598	
12,600.00	6,945.00	12,689.37	6,941.18	99.20	100.88	-89.83	723.85	6,203.60	1,296.96	1,097.28	199.68	6.495	
12,700.00	6,945.00	12,789.37	6,941.20	100.76	102.43	-89.83	723.40	6,303.60	1,296.88	1,094.08	202.80	6.395	
12,800.00	6,945.00	12,889.37	6,941.22	102.32	103.98	-89.83	722.94	6,403.60	1,296.79	1,090.87	205.91	6.298	
12,900.00	6,945.00	12,989.37	6,941.24	103.88	105.54	-89.83	722.49	6,503.60	1,296.70	1,087.66	209.03	6.203	
13,000.00	6,945.00	13,089.37	6,941.27	105.44	107.09	-89.83	722.04	6,603.60	1,296.61	1,084.45	212.16	6.112	
13,100.00	6,945.00	13,189.37	6,941.29	107.00	108.65	-89.84	721.58	6,703.60	1,296.52	1,081.24	215.28	6.022	
13,200.00	6,945.00	13,289.37	6,941.31	108.57	110.20	-89.84	721.13	6,803.60	1,296.43	1,078.02	218.41	5.936	
13,300.00	6,945.00	13,389.37	6,941.33	110.13	111.76	-89.84	720.68	6,903.60	1,296.34	1,074.80	221.54	5.852	

CC - Min centre to center distance or 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:	Plan #4	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - Rosa Unit 704H - OH - Plan #6

Offset Site Error: 0.00 usft

Survey Program: 58-Standard Keeper 104, 446-MWD+HRGM+MS, 6255-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
13,400.00	6,945.00	13,489.37	6,941.36	111.70	113.32	-89.84	720.22	7,003.60	1,296.25	1,071.58	224.67	5.770	
13,500.00	6,945.00	13,589.37	6,941.38	113.27	114.88	-89.84	719.77	7,103.59	1,296.16	1,068.36	227.80	5.690	
13,600.00	6,945.00	13,689.37	6,941.40	114.84	116.44	-89.84	719.32	7,203.59	1,296.08	1,065.14	230.94	5.612	
13,700.00	6,945.00	13,789.37	6,941.42	116.41	118.01	-89.84	718.86	7,303.59	1,295.99	1,061.91	234.08	5.537	
13,800.00	6,945.00	13,889.37	6,941.44	117.98	119.57	-89.84	718.41	7,403.59	1,295.90	1,058.68	237.22	5.463	
13,900.00	6,945.00	13,989.37	6,941.47	119.55	121.14	-89.84	717.96	7,503.59	1,295.81	1,055.45	240.36	5.391	
14,000.00	6,945.00	14,089.37	6,941.49	121.12	122.70	-89.84	717.50	7,603.59	1,295.72	1,052.22	243.50	5.321	
14,100.00	6,945.00	14,189.37	6,941.51	122.69	124.27	-89.85	717.05	7,703.59	1,295.63	1,048.99	246.64	5.253	
14,200.00	6,945.00	14,289.37	6,941.53	124.27	125.84	-89.85	716.60	7,803.59	1,295.54	1,045.76	249.79	5.187	
14,300.00	6,945.00	14,389.37	6,941.55	125.84	127.40	-89.85	716.15	7,903.59	1,295.45	1,042.52	252.93	5.122	
14,400.00	6,945.00	14,489.37	6,941.58	127.41	128.97	-89.85	715.69	8,003.59	1,295.36	1,039.28	256.08	5.058	
14,500.00	6,945.00	14,589.37	6,941.60	128.99	130.54	-89.85	715.24	8,103.58	1,295.28	1,036.05	259.23	4.997	
14,600.00	6,945.00	14,689.37	6,941.62	130.57	132.11	-89.85	714.79	8,203.58	1,295.19	1,032.81	262.38	4.936	
14,700.00	6,945.00	14,789.37	6,941.64	132.14	133.68	-89.85	714.33	8,303.58	1,295.10	1,029.57	265.53	4.877	
14,800.00	6,945.00	14,889.37	6,941.66	133.72	135.26	-89.85	713.88	8,403.58	1,295.01	1,026.33	268.68	4.820	
14,900.00	6,945.00	14,989.37	6,941.69	135.30	136.83	-89.85	713.43	8,503.58	1,294.92	1,023.08	271.84	4.764	
15,000.00	6,945.00	15,089.37	6,941.71	136.87	138.40	-89.85	712.97	8,603.58	1,294.83	1,019.84	274.99	4.709	
15,100.00	6,945.00	15,189.37	6,941.73	138.45	139.98	-89.86	712.52	8,703.58	1,294.74	1,016.59	278.15	4.655	
15,200.00	6,945.00	15,289.37	6,941.75	140.03	141.55	-89.86	712.07	8,803.58	1,294.65	1,013.35	281.30	4.602	
15,300.00	6,945.00	15,389.37	6,941.77	141.61	143.13	-89.86	711.61	8,903.58	1,294.57	1,010.10	284.46	4.551	
15,400.00	6,945.00	15,489.37	6,941.80	143.19	144.70	-89.86	711.16	9,003.57	1,294.48	1,006.85	287.62	4.501	
15,500.00	6,945.00	15,589.37	6,941.82	144.77	146.28	-89.86	710.71	9,103.57	1,294.39	1,003.61	290.78	4.451	
15,600.00	6,945.00	15,689.37	6,941.84	146.35	147.85	-89.86	710.25	9,203.57	1,294.30	1,000.36	293.94	4.403	
15,700.00	6,945.00	15,789.37	6,941.86	147.94	149.43	-89.86	709.80	9,303.57	1,294.21	997.11	297.10	4.356	
15,800.00	6,945.00	15,889.37	6,941.88	149.52	151.01	-89.86	709.35	9,403.57	1,294.12	993.85	300.27	4.310	
15,900.00	6,945.00	15,989.37	6,941.91	151.10	152.59	-89.86	708.90	9,503.57	1,294.03	990.60	303.43	4.265	
16,000.00	6,945.00	16,089.37	6,941.93	152.68	154.17	-89.86	708.44	9,603.57	1,293.94	987.35	306.59	4.220	
16,100.00	6,945.00	16,189.37	6,941.95	154.26	155.74	-89.86	707.99	9,703.57	1,293.85	984.10	309.76	4.177	
16,200.00	6,945.00	16,289.37	6,941.97	155.85	157.32	-89.87	707.54	9,803.57	1,293.77	980.84	312.92	4.134	
16,300.00	6,945.00	16,389.37	6,942.00	157.43	158.90	-89.87	707.08	9,903.56	1,293.68	977.59	316.09	4.093	
16,400.00	6,945.00	16,489.37	6,942.02	159.02	160.48	-89.87	706.63	10,003.56	1,293.59	974.33	319.26	4.052	
16,500.00	6,945.00	16,589.37	6,942.04	160.60	162.06	-89.87	706.18	10,103.56	1,293.50	971.08	322.42	4.012	
16,600.00	6,945.00	16,689.37	6,942.06	162.18	163.65	-89.87	705.72	10,203.56	1,293.41	967.82	325.59	3.972	
16,700.00	6,945.00	16,789.37	6,942.08	163.77	165.23	-89.87	705.27	10,303.56	1,293.32	964.56	328.76	3.934	
16,800.00	6,945.00	16,889.37	6,942.11	165.35	166.81	-89.87	704.82	10,403.56	1,293.23	961.30	331.93	3.896	
16,900.00	6,945.00	16,989.37	6,942.13	166.94	168.39	-89.87	704.36	10,503.56	1,293.14	958.04	335.10	3.859	
17,000.00	6,945.00	17,089.37	6,942.15	168.53	169.97	-89.87	703.91	10,603.56	1,293.05	954.78	338.27	3.823	
17,100.00	6,945.00	17,189.37	6,942.17	170.11	171.56	-89.87	703.46	10,703.56	1,292.97	951.52	341.44	3.787	
17,200.00	6,945.00	17,289.37	6,942.19	171.70	173.14	-89.88	703.00	10,803.56	1,292.88	948.26	344.61	3.752	
17,300.00	6,945.00	17,389.37	6,942.22	173.29	174.72	-89.88	702.55	10,903.55	1,292.79	945.00	347.79	3.717	
17,400.00	6,945.00	17,489.37	6,942.24	174.87	176.31	-89.88	702.10	11,003.55	1,292.70	941.74	350.96	3.683	
17,500.00	6,945.00	17,589.37	6,942.26	176.46	177.89	-89.88	701.65	11,103.55	1,292.61	938.48	354.13	3.650	
17,600.00	6,945.00	17,689.37	6,942.28	178.05	179.48	-89.88	701.19	11,203.55	1,292.52	935.22	357.31	3.617	
17,700.00	6,945.00	17,789.37	6,942.30	179.63	181.06	-89.88	700.74	11,303.55	1,292.43	931.95	360.48	3.585	
17,800.00	6,945.00	17,889.37	6,942.33	181.22	182.65	-89.88	700.29	11,403.55	1,292.34	928.69	363.65	3.554	
17,900.00	6,945.00	17,989.37	6,942.35	182.81	184.23	-89.88	699.83	11,503.55	1,292.25	925.43	366.83	3.523	
18,000.00	6,945.00	18,089.37	6,942.37	184.40	185.82	-89.88	699.38	11,603.55	1,292.17	922.16	370.01	3.492	
18,100.00	6,945.00	18,189.37	6,942.39	185.99	187.40	-89.88	698.93	11,703.55	1,292.08	918.90	373.18	3.462	
18,200.00	6,945.00	18,289.37	6,942.41	187.58	188.99	-89.89	698.47	11,803.54	1,291.99	915.63	376.36	3.433	
18,300.00	6,945.00	18,389.37	6,942.44	189.16	190.57	-89.89	698.02	11,903.54	1,291.90	912.37	379.53	3.404	
18,400.00	6,945.00	18,489.37	6,942.46	190.75	192.16	-89.89	697.57	12,003.54	1,291.81	909.10	382.71	3.375	
18,500.00	6,945.00	18,589.37	6,942.48	192.34	193.75	-89.89	697.11	12,103.54	1,291.72	905.83	385.89	3.347	

CC - Min centre to center distance or 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:	Plan #4	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - Rosa Unit 704H - OH - Plan #6

Offset Site Error: 0.00 usft

Survey Program: 58-Standard Keeper 104, 446-MWD+HRGM+MS, 6255-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
18,600.00	6,945.00	18,689.37	6,942.50	193.93	195.33	-89.89	696.66	12,203.54	1,291.63	902.57	389.07	3.320	
18,700.00	6,945.00	18,789.37	6,942.53	195.52	196.92	-89.89	696.21	12,303.54	1,291.54	899.30	392.25	3.293	
18,800.00	6,945.00	18,889.37	6,942.55	197.11	198.51	-89.89	695.76	12,403.54	1,291.46	896.03	395.42	3.266	
18,900.00	6,945.00	18,989.37	6,942.57	198.70	200.10	-89.89	695.30	12,503.54	1,291.37	892.76	398.60	3.240	
19,000.00	6,945.00	19,089.37	6,942.59	200.29	201.68	-89.89	694.85	12,603.54	1,291.28	889.49	401.78	3.214	
19,100.00	6,945.00	19,189.37	6,942.61	201.88	203.27	-89.89	694.40	12,703.53	1,291.19	886.23	404.96	3.188	
19,200.00	6,945.00	19,289.37	6,942.64	203.47	204.86	-89.90	693.94	12,803.53	1,291.10	882.96	408.14	3.163	
19,300.00	6,945.00	19,389.37	6,942.66	205.06	206.45	-89.90	693.49	12,903.53	1,291.01	879.69	411.32	3.139	
19,400.00	6,945.00	19,489.37	6,942.68	206.65	208.04	-89.90	693.04	13,003.53	1,290.92	876.42	414.50	3.114	
19,500.00	6,945.00	19,589.37	6,942.70	208.24	209.63	-89.90	692.58	13,103.53	1,290.83	873.15	417.69	3.090	
19,600.00	6,945.00	19,689.37	6,942.72	209.84	211.21	-89.90	692.13	13,203.53	1,290.74	869.88	420.87	3.067	
19,700.00	6,945.00	19,789.37	6,942.75	211.43	212.80	-89.90	691.68	13,303.53	1,290.66	866.61	424.05	3.044	
19,800.00	6,945.00	19,889.37	6,942.77	213.02	214.39	-89.90	691.22	13,403.53	1,290.57	863.34	427.23	3.021	
19,900.00	6,945.00	19,989.37	6,942.79	214.61	215.98	-89.90	690.77	13,503.53	1,290.48	860.07	430.41	2.998	
20,000.00	6,945.00	20,089.37	6,942.81	216.20	217.57	-89.90	690.32	13,603.53	1,290.39	856.79	433.59	2.976	
20,100.00	6,945.00	20,189.37	6,942.83	217.79	219.16	-89.90	689.86	13,703.52	1,290.30	853.52	436.78	2.954	
20,200.00	6,945.00	20,289.37	6,942.86	219.38	220.75	-89.90	689.41	13,803.52	1,290.21	850.25	439.96	2.933	
20,300.00	6,945.00	20,389.37	6,942.88	220.98	222.34	-89.91	688.96	13,903.52	1,290.12	846.98	443.14	2.911	
20,400.00	6,945.00	20,489.37	6,942.90	222.57	223.93	-89.91	688.51	14,003.52	1,290.03	843.71	446.33	2.890	
20,500.00	6,945.00	20,589.37	6,942.92	224.16	225.52	-89.91	688.05	14,103.52	1,289.94	840.43	449.51	2.870	
20,600.00	6,945.00	20,689.37	6,942.94	225.75	227.11	-89.91	687.60	14,203.52	1,289.86	837.16	452.70	2.849	
20,700.00	6,945.00	20,789.37	6,942.97	227.35	228.70	-89.91	687.15	14,303.52	1,289.77	833.89	455.88	2.829	
20,800.00	6,945.00	20,889.37	6,942.99	228.94	230.29	-89.91	686.69	14,403.52	1,289.68	830.61	459.06	2.809	
20,852.96	6,945.00	20,942.32	6,943.00	229.61	231.00	-89.91	686.45	14,456.47	1,289.63	829.18	460.45	2.801	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:	Plan #4	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - Rosa Unit 705H - OH - OH — **Offset Site Error:** 0.00 usft

Survey Program: 21-Standard Keeper 104, 365-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
6,241.97	6,212.39	6,235.00	6,205.43	0.04	0.00	0.00	-491.25	299.43	6.97	6.97	0.00	101.000	CC, ES
6,300.00	6,270.38	6,235.00	6,205.43	0.39	0.00	0.00	-491.25	299.43	65.00	65.00	0.00	101.000	
6,355.00	6,325.34	6,235.00	6,205.43	0.49	0.00	0.00	-491.25	299.43	120.00	120.00	0.00	101.000	
6,400.00	6,370.23	6,235.00	6,205.43	0.62	0.00	-17.14	-491.25	299.43	164.97	164.14	0.83	198.854	
6,450.00	6,419.74	6,235.00	6,205.43	0.82	0.00	-9.64	-491.25	299.43	214.76	213.19	1.57	136.553	
6,500.00	6,468.57	6,235.00	6,205.43	1.06	0.00	-6.71	-491.25	299.43	264.26	261.93	2.33	113.349	
6,550.00	6,516.42	6,235.00	6,205.43	1.31	0.00	-5.17	-491.25	299.43	313.36	310.27	3.09	101.417	
6,600.00	6,562.98	6,235.00	6,205.43	1.56	0.00	-4.22	-491.25	299.43	362.00	358.15	3.84	94.227	
6,650.00	6,607.98	6,235.00	6,205.43	1.82	0.00	-3.59	-491.25	299.43	410.07	405.49	4.58	89.495	
6,700.00	6,651.14	6,235.00	6,205.43	2.08	0.00	-3.14	-491.25	299.43	457.52	452.22	5.31	86.221	
6,750.00	6,692.18	6,235.00	6,205.43	2.47	0.00	-2.80	-491.25	299.43	504.27	498.26	6.01	83.900	
6,800.00	6,730.86	6,235.00	6,205.43	2.91	0.00	-2.54	-491.25	299.43	550.24	543.55	6.69	82.251	
6,850.00	6,766.93	6,235.00	6,205.43	3.40	0.00	-2.34	-491.25	299.43	595.36	588.02	7.34	81.107	
6,900.00	6,800.18	6,235.00	6,205.43	3.93	0.00	-2.19	-491.25	299.43	639.56	631.60	7.96	80.364	
6,950.00	6,830.39	6,235.00	6,205.43	4.51	0.00	-2.06	-491.25	299.43	682.77	674.23	8.54	79.954	
7,000.00	6,857.38	6,235.00	6,205.43	5.12	0.00	-1.96	-491.25	299.43	724.93	715.85	9.08	79.834	SF
7,050.00	6,880.98	6,235.00	6,205.43	5.78	0.00	-1.88	-491.25	299.43	765.97	756.39	9.58	79.977	
7,100.00	6,901.06	6,235.00	6,205.43	6.46	0.00	-1.81	-491.25	299.43	805.82	795.80	10.03	80.367	
7,150.00	6,917.47	6,235.00	6,205.43	7.17	0.00	-1.76	-491.25	299.43	844.43	834.01	10.43	80.994	
7,200.00	6,930.13	6,235.00	6,205.43	7.90	0.00	-1.73	-491.25	299.43	881.74	870.97	10.77	81.859	
7,250.00	6,938.95	6,235.00	6,205.43	8.65	0.00	-1.70	-491.25	299.43	917.68	906.62	11.06	82.967	
7,300.00	6,943.88	6,235.00	6,205.43	9.41	0.00	-1.69	-491.25	299.43	952.20	940.91	11.29	84.327	
7,337.82	6,945.00	6,235.00	6,205.43	9.98	0.00	-1.69	-491.25	299.43	977.34	965.92	11.43	85.534	
7,400.00	6,945.00	6,235.00	6,205.43	10.93	0.00	-2.81	-491.25	299.43	1,019.04	1,007.43	11.61	87.784	
7,492.38	6,945.00	6,235.00	6,205.43	12.36	0.00	-4.67	-491.25	299.43	1,084.53	1,072.61	11.92	91.009	
7,500.00	6,945.00	6,235.00	6,205.43	12.48	0.00	-4.67	-491.25	299.43	1,090.09	1,078.15	11.94	91.273	
7,600.00	6,945.00	6,235.00	6,205.43	14.04	0.00	-4.67	-491.25	299.43	1,165.34	1,153.02	12.31	94.639	
7,700.00	6,945.00	6,235.00	6,205.43	15.60	0.00	-4.67	-491.25	299.43	1,244.08	1,231.35	12.72	97.784	
7,800.00	6,945.00	6,235.00	6,205.43	17.17	0.00	-4.67	-491.25	299.43	1,325.68	1,312.52	13.17	100.681	
7,900.00	6,945.00	6,235.00	6,205.43	18.75	0.00	-4.67	-491.25	299.43	1,409.66	1,396.02	13.64	103.322	
8,000.00	6,945.00	6,235.00	6,205.43	20.33	0.00	-4.67	-491.25	299.43	1,495.61	1,481.46	14.15	105.711	
8,100.00	6,945.00	6,235.00	6,205.43	21.92	0.00	-4.67	-491.25	299.43	1,583.21	1,568.54	14.68	107.859	
8,200.00	6,945.00	6,235.00	6,205.43	23.50	0.00	-4.67	-491.25	299.43	1,672.21	1,656.98	15.23	109.782	
8,300.00	6,945.00	6,235.00	6,205.43	25.09	0.00	-4.67	-491.25	299.43	1,762.38	1,746.58	15.81	111.501	
8,400.00	6,945.00	6,235.00	6,205.43	26.68	0.00	-4.67	-491.25	299.43	1,853.56	1,837.17	16.40	113.034	
8,500.00	6,945.00	6,235.00	6,205.43	28.27	0.00	-4.67	-491.25	299.43	1,945.61	1,928.61	17.01	114.400	
8,600.00	6,945.00	6,235.00	6,205.43	29.86	0.00	-4.67	-491.25	299.43	2,038.41	2,020.78	17.63	115.617	
8,700.00	6,945.00	6,235.00	6,205.43	31.45	0.00	-4.67	-491.25	299.43	2,131.86	2,113.59	18.27	116.702	
8,800.00	6,945.00	6,235.00	6,205.43	33.05	0.00	-4.67	-491.25	299.43	2,225.88	2,206.96	18.92	117.669	
8,900.00	6,945.00	6,235.00	6,205.43	34.64	0.00	-4.67	-491.25	299.43	2,320.40	2,300.82	19.58	118.534	
9,000.00	6,945.00	6,235.00	6,205.43	36.24	0.00	-4.67	-491.25	299.43	2,415.36	2,395.12	20.25	119.306	
9,100.00	6,945.00	6,235.00	6,205.43	37.83	0.00	-4.67	-491.25	299.43	2,510.71	2,489.79	20.92	119.998	
9,200.00	6,945.00	6,235.00	6,205.43	39.43	0.00	-4.67	-491.25	299.43	2,606.41	2,584.80	21.61	120.618	
9,300.00	6,945.00	6,235.00	6,205.43	41.02	0.00	-4.67	-491.25	299.43	2,702.43	2,680.12	22.30	121.175	
9,400.00	6,945.00	6,235.00	6,205.43	42.62	0.00	-4.67	-491.25	299.43	2,798.72	2,775.72	23.00	121.675	
9,500.00	6,945.00	6,235.00	6,205.43	44.21	0.00	-4.67	-491.25	299.43	2,895.26	2,871.55	23.71	122.126	
9,600.00	6,945.00	6,235.00	6,205.43	45.81	0.00	-4.67	-491.25	299.43	2,992.03	2,967.61	24.42	122.533	
9,700.00	6,945.00	6,235.00	6,205.43	47.41	0.00	-4.67	-491.25	299.43	3,089.00	3,063.87	25.13	122.901	
9,800.00	6,945.00	6,235.00	6,205.43	49.01	0.00	-4.67	-491.25	299.43	3,186.17	3,160.31	25.85	123.234	
9,900.00	6,945.00	6,235.00	6,205.43	50.60	0.00	-4.67	-491.25	299.43	3,283.50	3,256.92	26.58	123.535	
10,000.00	6,945.00	6,235.00	6,205.43	52.20	0.00	-4.67	-491.25	299.43	3,380.99	3,353.68	27.31	123.809	
10,100.00	6,945.00	6,235.00	6,205.43	53.80	0.00	-4.67	-491.25	299.43	3,478.62	3,450.58	28.04	124.058	

CC - Min centre to center distance or 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:	Plan #4	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - Rosa Unit 705H - OH - OH — **Offset Site Error:** 0.00 usft

Survey Program: 21-Standard Keeper 104, 365-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
10,200.00	6,945.00	6,235.00	6,205.43	55.40	0.00	-4.67	-491.25	299.43	3,576.38	3,547.61	28.78	124.284	
10,300.00	6,945.00	6,235.00	6,205.43	56.99	0.00	-4.67	-491.25	299.43	3,674.26	3,644.75	29.51	124.491	
10,400.00	6,945.00	6,235.00	6,205.43	58.59	0.00	-4.67	-491.25	299.43	3,772.26	3,742.00	30.26	124.679	
10,500.00	6,945.00	6,235.00	6,205.43	60.19	0.00	-4.67	-491.25	299.43	3,870.35	3,839.35	31.00	124.851	
10,600.00	6,945.00	6,235.00	6,205.43	61.79	0.00	-4.67	-491.25	299.43	3,968.54	3,936.80	31.75	125.009	
10,700.00	6,945.00	6,235.00	6,205.43	63.39	0.00	-4.67	-491.25	299.43	4,066.82	4,034.33	32.49	125.153	
10,800.00	6,945.00	6,235.00	6,205.43	64.99	0.00	-4.67	-491.25	299.43	4,165.19	4,131.94	33.25	125.285	
10,900.00	6,945.00	6,235.00	6,205.43	66.59	0.00	-4.67	-491.25	299.43	4,263.62	4,229.62	34.00	125.406	
11,000.00	6,945.00	6,235.00	6,205.43	68.18	0.00	-4.67	-491.25	299.43	4,362.13	4,327.38	34.75	125.518	
11,100.00	6,945.00	6,235.00	6,205.43	69.78	0.00	-4.67	-491.25	299.43	4,460.71	4,425.20	35.51	125.620	
11,200.00	6,945.00	6,235.00	6,205.43	71.38	0.00	-4.67	-491.25	299.43	4,559.34	4,523.08	36.27	125.714	
11,300.00	6,945.00	6,235.00	6,205.43	72.98	0.00	-4.67	-491.25	299.43	4,658.04	4,621.01	37.03	125.801	
11,400.00	6,945.00	6,235.00	6,205.43	74.58	0.00	-4.67	-491.25	299.43	4,756.79	4,719.00	37.79	125.881	
11,500.00	6,945.00	6,235.00	6,205.43	76.18	0.00	-4.67	-491.25	299.43	4,855.59	4,817.04	38.55	125.955	
11,600.00	6,945.00	6,235.00	6,205.43	77.78	0.00	-4.67	-491.25	299.43	4,954.44	4,915.12	39.31	126.023	
11,700.00	6,945.00	6,235.00	6,205.43	79.38	0.00	-4.67	-491.25	299.43	5,053.33	5,013.25	40.08	126.086	
11,800.00	6,945.00	6,235.00	6,205.43	80.98	0.00	-4.67	-491.25	299.43	5,152.27	5,111.43	40.84	126.144	
11,900.00	6,945.00	6,235.00	6,205.43	82.58	0.00	-4.67	-491.25	299.43	5,251.25	5,209.64	41.61	126.198	
12,000.00	6,945.00	6,235.00	6,205.43	84.18	0.00	-4.67	-491.25	299.43	5,350.26	5,307.88	42.38	126.247	
12,100.00	6,945.00	6,235.00	6,205.43	85.78	0.00	-4.67	-491.25	299.43	5,449.31	5,406.17	43.15	126.293	
12,200.00	6,945.00	6,235.00	6,205.43	87.37	0.00	-4.67	-491.25	299.43	5,548.40	5,504.48	43.92	126.335	
12,300.00	6,945.00	6,235.00	6,205.43	88.97	0.00	-4.67	-491.25	299.43	5,647.52	5,602.83	44.69	126.375	
12,400.00	6,945.00	6,235.00	6,205.43	90.57	0.00	-4.67	-491.25	299.43	5,746.66	5,701.20	45.46	126.411	
12,500.00	6,945.00	6,235.00	6,205.43	92.17	0.00	-4.67	-491.25	299.43	5,845.84	5,799.61	46.23	126.445	
12,600.00	6,945.00	6,235.00	6,205.43	93.77	0.00	-4.67	-491.25	299.43	5,945.05	5,898.04	47.01	126.476	
12,700.00	6,945.00	6,235.00	6,205.43	95.37	0.00	-4.67	-491.25	299.43	6,044.28	5,996.50	47.78	126.505	
12,800.00	6,945.00	6,235.00	6,205.43	96.97	0.00	-4.67	-491.25	299.43	6,143.53	6,094.98	48.55	126.532	
12,900.00	6,945.00	6,235.00	6,205.43	98.57	0.00	-4.67	-491.25	299.43	6,242.81	6,193.48	49.33	126.556	
13,000.00	6,945.00	6,235.00	6,205.43	100.17	0.00	-4.67	-491.25	299.43	6,342.11	6,292.01	50.10	126.579	
13,100.00	6,945.00	6,235.00	6,205.43	101.77	0.00	-4.67	-491.25	299.43	6,441.44	6,390.56	50.88	126.600	
13,200.00	6,945.00	6,235.00	6,205.43	103.37	0.00	-4.67	-491.25	299.43	6,540.78	6,489.13	51.66	126.620	
13,300.00	6,945.00	6,235.00	6,205.43	104.97	0.00	-4.67	-491.25	299.43	6,640.15	6,587.71	52.43	126.638	
13,400.00	6,945.00	6,235.00	6,205.43	106.57	0.00	-4.67	-491.25	299.43	6,739.53	6,686.32	53.21	126.655	
13,500.00	6,945.00	6,235.00	6,205.43	108.17	0.00	-4.67	-491.25	299.43	6,838.93	6,784.94	53.99	126.670	
13,600.00	6,945.00	6,235.00	6,205.43	109.77	0.00	-4.67	-491.25	299.43	6,938.35	6,883.58	54.77	126.685	
13,700.00	6,945.00	6,235.00	6,205.43	111.37	0.00	-4.67	-491.25	299.43	7,037.78	6,982.24	55.55	126.698	
13,800.00	6,945.00	6,235.00	6,205.43	112.97	0.00	-4.67	-491.25	299.43	7,137.23	7,080.91	56.33	126.710	
13,900.00	6,945.00	6,235.00	6,205.43	114.57	0.00	-4.67	-491.25	299.43	7,236.70	7,179.59	57.11	126.721	
14,000.00	6,945.00	6,235.00	6,205.43	116.17	0.00	-4.67	-491.25	299.43	7,336.18	7,278.29	57.89	126.731	
14,100.00	6,945.00	6,235.00	6,205.43	117.77	0.00	-4.67	-491.25	299.43	7,435.67	7,377.01	58.67	126.741	
14,200.00	6,945.00	6,235.00	6,205.43	119.37	0.00	-4.67	-491.25	299.43	7,535.18	7,475.73	59.45	126.749	
14,300.00	6,945.00	6,235.00	6,205.43	120.97	0.00	-4.67	-491.25	299.43	7,634.70	7,574.47	60.23	126.757	
14,400.00	6,945.00	6,235.00	6,205.43	122.57	0.00	-4.67	-491.25	299.43	7,734.23	7,673.22	61.01	126.764	
14,500.00	6,945.00	6,235.00	6,205.43	124.17	0.00	-4.67	-491.25	299.43	7,833.78	7,771.98	61.79	126.771	
14,600.00	6,945.00	6,235.00	6,205.43	125.77	0.00	-4.67	-491.25	299.43	7,933.33	7,870.76	62.58	126.777	
14,700.00	6,945.00	6,235.00	6,205.43	127.37	0.00	-4.67	-491.25	299.43	8,032.90	7,969.54	63.36	126.782	
14,800.00	6,945.00	6,235.00	6,205.43	128.97	0.00	-4.67	-491.25	299.43	8,132.48	8,068.34	64.14	126.787	
14,900.00	6,945.00	6,235.00	6,205.43	130.57	0.00	-4.67	-491.25	299.43	8,232.07	8,167.14	64.93	126.792	
15,000.00	6,945.00	6,235.00	6,205.43	132.17	0.00	-4.67	-491.25	299.43	8,331.66	8,265.96	65.71	126.795	
15,100.00	6,945.00	6,235.00	6,205.43	133.77	0.00	-4.67	-491.25	299.43	8,431.27	8,364.78	66.49	126.799	
15,200.00	6,945.00	6,235.00	6,205.43	135.37	0.00	-4.67	-491.25	299.43	8,530.89	8,463.61	67.28	126.802	
15,300.00	6,945.00	6,235.00	6,205.43	136.97	0.00	-4.67	-491.25	299.43	8,630.51	8,562.45	68.06	126.805	

CC - Min centre to center distance or 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:	Plan #4	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - Rosa Unit 705H - OH - OH — **Offset Site Error:** 0.00 usft

Survey Program: 21-Standard Keeper 104, 365-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
15,400.00	6,945.00	6,235.00	6,205.43	138.57	0.00	-4.67	-491.25	299.43	8,730.15	8,661.30	68.85	126.807	
15,500.00	6,945.00	6,235.00	6,205.43	140.17	0.00	-4.67	-491.25	299.43	8,829.79	8,760.16	69.63	126.809	
15,600.00	6,945.00	6,235.00	6,205.43	141.77	0.00	-4.67	-491.25	299.43	8,929.44	8,859.02	70.42	126.811	
15,700.00	6,945.00	6,235.00	6,205.43	143.37	0.00	-4.67	-491.25	299.43	9,029.10	8,957.90	71.20	126.812	
15,800.00	6,945.00	6,235.00	6,205.43	144.97	0.00	-4.67	-491.25	299.43	9,128.76	9,056.78	71.99	126.813	
15,900.00	6,945.00	6,235.00	6,205.43	146.57	0.00	-4.67	-491.25	299.43	9,228.44	9,155.67	72.77	126.814	
16,000.00	6,945.00	6,235.00	6,205.43	148.17	0.00	-4.67	-491.25	299.43	9,328.12	9,254.56	73.56	126.814	
16,100.00	6,945.00	6,235.00	6,205.43	149.77	0.00	-4.67	-491.25	299.43	9,427.80	9,353.46	74.34	126.815	
16,200.00	6,945.00	6,235.00	6,205.43	151.37	0.00	-4.67	-491.25	299.43	9,527.50	9,452.37	75.13	126.815	
16,300.00	6,945.00	6,235.00	6,205.43	152.97	0.00	-4.67	-491.25	299.43	9,627.20	9,551.28	75.92	126.815	
16,400.00	6,945.00	6,235.00	6,205.43	154.57	0.00	-4.67	-491.25	299.43	9,726.90	9,650.20	76.70	126.814	
16,500.00	6,945.00	6,235.00	6,205.43	156.17	0.00	-4.67	-491.25	299.43	9,826.61	9,749.12	77.49	126.814	
16,600.00	6,945.00	6,235.00	6,205.43	157.77	0.00	-4.67	-491.25	299.43	9,926.33	9,848.05	78.28	126.813	
16,700.00	6,945.00	6,235.00	6,205.43	159.37	0.00	-4.67	-491.25	299.43	10,026.05	9,946.99	79.06	126.813	
16,800.00	6,945.00	6,235.00	6,205.43	160.97	0.00	-4.67	-491.25	299.43	10,125.78	10,045.93	79.85	126.812	
16,900.00	6,945.00	6,235.00	6,205.43	162.57	0.00	-4.67	-491.25	299.43	10,225.51	10,144.88	80.64	126.811	
17,000.00	6,945.00	6,235.00	6,205.43	164.17	0.00	-4.67	-491.25	299.43	10,325.25	10,243.83	81.42	126.809	
17,100.00	6,945.00	6,235.00	6,205.43	165.77	0.00	-4.67	-491.25	299.43	10,425.00	10,342.79	82.21	126.808	
17,200.00	6,945.00	6,235.00	6,205.43	167.37	0.00	-4.67	-491.25	299.43	10,524.75	10,441.75	83.00	126.807	
17,300.00	6,945.00	6,235.00	6,205.43	168.97	0.00	-4.67	-491.25	299.43	10,624.50	10,540.71	83.79	126.805	
17,400.00	6,945.00	6,235.00	6,205.43	170.57	0.00	-4.67	-491.25	299.43	10,724.26	10,639.68	84.57	126.803	
17,500.00	6,945.00	6,235.00	6,205.43	172.17	0.00	-4.67	-491.25	299.43	10,824.02	10,738.66	85.36	126.802	
17,600.00	6,945.00	6,235.00	6,205.43	173.77	0.00	-4.67	-491.25	299.43	10,923.79	10,837.64	86.15	126.800	
17,700.00	6,945.00	6,235.00	6,205.43	175.37	0.00	-4.67	-491.25	299.43	11,023.56	10,936.62	86.94	126.798	
17,800.00	6,945.00	6,235.00	6,205.43	176.97	0.00	-4.67	-491.25	299.43	11,123.33	11,035.61	87.73	126.796	
17,900.00	6,945.00	6,235.00	6,205.43	178.57	0.00	-4.67	-491.25	299.43	11,223.11	11,134.60	88.51	126.794	
18,000.00	6,945.00	6,235.00	6,205.43	180.17	0.00	-4.67	-491.25	299.43	11,322.90	11,233.59	89.30	126.792	
18,100.00	6,945.00	6,235.00	6,205.43	181.77	0.00	-4.67	-491.25	299.43	11,422.68	11,332.59	90.09	126.789	
18,200.00	6,945.00	6,235.00	6,205.43	183.37	0.00	-4.67	-491.25	299.43	11,522.47	11,431.59	90.88	126.787	
18,300.00	6,945.00	6,235.00	6,205.43	184.97	0.00	-4.67	-491.25	299.43	11,622.27	11,530.60	91.67	126.785	
18,400.00	6,945.00	6,235.00	6,205.43	186.57	0.00	-4.67	-491.25	299.43	11,722.07	11,629.61	92.46	126.782	
18,500.00	6,945.00	6,235.00	6,205.43	188.17	0.00	-4.67	-491.25	299.43	11,821.87	11,728.62	93.25	126.780	
18,600.00	6,945.00	6,235.00	6,205.43	189.77	0.00	-4.67	-491.25	299.43	11,921.67	11,827.64	94.04	126.777	
18,700.00	6,945.00	6,235.00	6,205.43	191.37	0.00	-4.67	-491.25	299.43	12,021.48	11,926.65	94.83	126.775	
18,800.00	6,945.00	6,235.00	6,205.43	192.97	0.00	-4.67	-491.25	299.43	12,121.29	12,025.68	95.61	126.772	
18,900.00	6,945.00	6,235.00	6,205.43	194.57	0.00	-4.67	-491.25	299.43	12,221.10	12,124.70	96.40	126.770	
19,000.00	6,945.00	6,235.00	6,205.43	196.17	0.00	-4.67	-491.25	299.43	12,320.92	12,223.73	97.19	126.767	
19,100.00	6,945.00	6,235.00	6,205.43	197.77	0.00	-4.67	-491.25	299.43	12,420.74	12,322.76	97.98	126.765	
19,200.00	6,945.00	6,235.00	6,205.43	199.37	0.00	-4.67	-491.25	299.43	12,520.56	12,421.79	98.77	126.762	
19,300.00	6,945.00	6,235.00	6,205.43	200.98	0.00	-4.67	-491.25	299.43	12,620.39	12,520.83	99.56	126.759	
19,400.00	6,945.00	6,235.00	6,205.43	202.58	0.00	-4.67	-491.25	299.43	12,720.22	12,619.87	100.35	126.756	
19,500.00	6,945.00	6,235.00	6,205.43	204.18	0.00	-4.67	-491.25	299.43	12,820.05	12,718.91	101.14	126.754	
19,600.00	6,945.00	6,235.00	6,205.43	205.78	0.00	-4.67	-491.25	299.43	12,919.88	12,817.95	101.93	126.751	
19,700.00	6,945.00	6,235.00	6,205.43	207.38	0.00	-4.67	-491.25	299.43	13,019.72	12,917.00	102.72	126.748	
19,800.00	6,945.00	6,235.00	6,205.43	208.98	0.00	-4.67	-491.25	299.43	13,119.56	13,016.05	103.51	126.745	
19,900.00	6,945.00	6,235.00	6,205.43	210.58	0.00	-4.67	-491.25	299.43	13,219.40	13,115.10	104.30	126.743	
20,000.00	6,945.00	6,235.00	6,205.43	212.18	0.00	-4.67	-491.25	299.43	13,319.24	13,214.15	105.09	126.740	
20,100.00	6,945.00	6,235.00	6,205.43	213.78	0.00	-4.67	-491.25	299.43	13,419.09	13,313.21	105.88	126.737	
20,200.00	6,945.00	6,235.00	6,205.43	215.38	0.00	-4.67	-491.25	299.43	13,518.94	13,412.26	106.67	126.734	
20,300.00	6,945.00	6,235.00	6,205.43	216.98	0.00	-4.67	-491.25	299.43	13,618.79	13,511.32	107.46	126.731	
20,400.00	6,945.00	6,235.00	6,205.43	218.58	0.00	-4.67	-491.25	299.43	13,718.64	13,610.39	108.25	126.728	
20,500.00	6,945.00	6,235.00	6,205.43	220.18	0.00	-4.67	-491.25	299.43	13,818.49	13,709.45	109.04	126.726	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 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:	Plan #4	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - Rosa Unit 705H - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 21-Standard Keeper 104, 365-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
20,600.00	6,945.00	6,235.00	6,205.43	221.78	0.00	-4.67	-491.25	299.43	13,918.35	13,808.52	109.83	126.723	
20,700.00	6,945.00	6,235.00	6,205.43	223.38	0.00	-4.67	-491.25	299.43	14,018.21	13,907.59	110.62	126.720	
20,800.00	6,945.00	6,235.00	6,205.43	224.98	0.00	-4.67	-491.25	299.43	14,118.07	14,006.66	111.41	126.717	
20,852.96	6,945.00	6,235.00	6,205.43	225.66	0.00	-4.67	-491.25	299.43	14,170.95	14,059.33	111.63	126.949	

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:	Plan #4	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - Rosa Unit 706H - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 26-Standard Keeper 104, 322-MWD+HRGM+MS, 20962-A026Ua_BLIND

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis 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	-35.09	20.39	-14.32	24.92				
20.93	20.93	20.85	20.85	0.00	0.00	132.20	20.38	-14.40	24.99				
117.41	117.41	117.37	117.37	0.05	0.05	126.80	20.18	-15.14	25.54	25.46	0.07	343.419	
206.68	206.68	206.60	206.60	0.17	0.17	152.08	20.04	-15.67	26.03	25.78	0.24	106.920	
292.93	292.93	292.85	292.85	0.28	0.28	151.31	20.03	-16.12	26.76	26.33	0.43	62.584	
365.00	364.99	364.93	364.93	0.36	0.37	120.78	20.00	-16.49	27.37	26.79	0.57	47.836	
451.00	450.97	451.04	451.03	0.55	0.49	173.62	19.68	-17.12	29.33	28.41	0.92	31.857	
540.00	539.81	540.53	540.48	0.83	0.72	176.05	17.75	-18.24	33.71	32.23	1.48	22.784	
665.00	664.37	667.03	666.75	1.26	1.13	171.46	10.22	-18.67	39.03	36.69	2.34	16.663	
753.00	752.01	755.57	754.88	1.58	1.44	164.11	1.76	-18.10	41.01	38.04	2.98	13.785	
847.00	845.61	850.06	848.66	1.93	1.80	158.05	-9.78	-17.36	42.46	38.79	3.67	11.556	
939.00	937.22	943.44	940.82	2.27	2.16	146.28	-24.54	-15.10	42.59	38.20	4.39	9.702	
1,030.00	1,027.78	1,034.34	1,030.09	2.62	2.54	121.92	-41.26	-11.30	42.34	37.21	5.12	8.264	
1,034.05	1,031.81	1,038.39	1,034.06	2.63	2.55	121.51	-42.03	-11.11	42.34	37.18	5.16	8.211	
1,120.00	1,117.25	1,124.44	1,118.52	2.96	2.91	113.64	-57.89	-6.63	43.09	37.23	5.86	7.356	
1,211.00	1,207.68	1,214.57	1,206.76	3.31	3.30	99.58	-75.56	-1.61	45.51	38.91	6.60	6.899	
1,306.00	1,302.14	1,309.08	1,298.97	3.68	3.72	88.89	-95.54	3.88	50.25	42.90	7.35	6.841	
1,400.00	1,395.63	1,402.67	1,390.37	4.04	4.13	80.24	-114.86	9.43	56.79	48.73	8.06	7.047	
1,495.00	1,490.19	1,497.62	1,483.26	4.40	4.55	71.64	-133.60	15.32	64.17	55.41	8.76	7.323	
1,589.00	1,583.83	1,591.61	1,575.32	4.76	4.96	62.24	-151.45	21.78	71.63	62.19	9.44	7.586	
1,684.00	1,678.44	1,684.00	1,665.69	5.12	5.37	59.07	-169.64	27.97	80.58	70.48	10.11	7.974	
1,779.00	1,772.98	1,776.84	1,756.14	5.48	5.80	59.37	-189.75	33.79	92.02	81.23	10.79	8.531	
1,873.00	1,866.49	1,870.33	1,847.07	5.84	6.23	57.80	-210.64	39.73	104.52	93.03	11.49	9.100	
1,967.00	1,960.05	1,963.90	1,938.15	6.20	6.67	59.93	-231.15	45.97	117.40	105.21	12.19	9.633	
2,062.00	2,054.59	2,058.21	2,029.98	6.56	7.10	52.41	-251.57	52.67	130.15	117.25	12.90	10.092	
2,156.00	2,148.09	2,151.61	2,120.90	6.92	7.54	49.77	-271.73	59.85	142.05	128.45	13.60	10.448	
2,251.00	2,242.55	2,245.53	2,212.26	7.29	7.97	49.35	-292.08	67.55	154.07	139.77	14.30	10.772	
2,345.00	2,336.00	2,339.49	2,303.76	7.65	8.41	42.17	-312.20	74.53	165.49	150.48	15.01	11.022	
2,440.00	2,430.43	2,434.53	2,396.63	8.02	8.84	39.00	-331.79	79.60	176.10	160.36	15.74	11.189	
2,535.00	2,524.86	2,528.42	2,488.47	8.38	9.26	40.01	-350.90	83.60	186.60	170.15	16.45	11.340	
2,629.00	2,618.31	2,620.74	2,578.68	8.75	9.68	39.78	-370.11	87.63	197.50	180.34	17.16	11.510	
2,724.00	2,712.77	2,715.97	2,671.69	9.12	10.12	40.26	-390.04	91.95	208.75	190.86	17.89	11.670	
2,818.00	2,806.24	2,808.54	2,762.16	9.48	10.54	40.66	-409.27	95.90	219.92	201.32	18.60	11.826	
2,913.00	2,900.71	2,903.46	2,854.90	9.84	10.97	42.70	-429.09	100.00	231.56	212.23	19.32	11.983	
3,008.00	2,995.25	2,999.83	2,949.12	10.21	11.41	37.99	-448.75	104.84	242.94	222.89	20.06	12.113	
3,102.00	3,088.80	3,097.97	3,045.32	10.57	11.84	37.73	-467.48	109.99	252.83	232.03	20.80	12.158	
3,197.00	3,183.30	3,191.59	3,137.27	10.93	12.25	40.47	-484.49	114.39	261.84	240.33	21.51	12.175	
3,291.00	3,276.71	3,276.39	3,220.28	11.30	12.64	34.31	-501.36	118.14	271.56	249.41	22.15	12.261	
3,386.00	3,371.01	3,367.96	3,309.40	11.67	13.06	32.88	-521.87	122.89	282.51	259.67	22.84	12.368	
3,480.00	3,464.23	3,461.12	3,399.89	12.04	13.50	33.71	-543.20	128.75	293.22	269.66	23.56	12.447	
3,575.00	3,558.47	3,558.51	3,494.58	12.42	13.96	34.82	-565.13	135.06	303.94	279.63	24.31	12.501	
3,670.00	3,652.84	3,656.18	3,589.72	12.79	14.42	35.25	-586.08	141.96	314.60	289.54	25.06	12.554	
3,764.00	3,746.36	3,752.83	3,684.09	13.15	14.86	37.89	-605.82	148.80	325.52	299.73	25.79	12.622	
3,859.00	3,840.97	3,856.07	3,785.31	13.51	15.32	41.16	-625.04	155.31	336.05	309.49	26.56	12.653	
3,954.00	3,935.57	3,949.51	3,877.21	13.87	15.72	41.03	-641.15	160.38	345.38	318.11	27.26	12.668	
4,049.00	4,030.14	4,050.93	3,977.07	14.23	16.15	31.82	-657.94	166.00	353.39	325.38	28.01	12.617	
4,143.00	4,123.75	4,136.72	4,061.56	14.59	16.52	32.70	-672.20	170.26	361.41	332.75	28.66	12.610	
4,238.00	4,218.33	4,218.85	4,142.09	14.95	16.88	32.85	-687.96	173.47	371.86	342.58	29.28	12.701	
4,333.00	4,312.74	4,300.78	4,221.84	15.32	17.27	30.03	-706.41	176.70	384.00	354.11	29.88	12.851	
4,427.00	4,406.05	4,394.67	4,312.72	15.69	17.72	32.29	-729.59	181.17	397.25	366.64	30.61	12.978	
4,522.00	4,500.34	4,486.64	4,401.94	16.06	18.16	33.16	-751.43	185.57	409.83	378.51	31.32	13.086	
4,616.00	4,593.47	4,568.29	4,480.68	16.44	18.57	30.75	-772.42	190.74	422.88	390.97	31.91	13.251	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 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:	Plan #4	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - Rosa Unit 706H - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 26-Standard Keeper 104, 322-MWD+HRGM+MS, 20962-A026Ua_BLIND

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis 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
4,710.00	4,686.44	4,652.86	4,561.48	16.82	19.00	31.27	-796.67	196.73	437.64	405.11	32.54	13.451	
4,899.00	4,873.89	4,852.49	4,752.75	17.57	20.03	37.12	-851.91	211.15	469.42	435.26	34.16	13.742	
4,962.00	4,936.56	4,908.72	4,806.72	17.81	20.31	39.26	-866.96	215.95	481.07	446.50	34.57	13.915	
5,024.00	4,998.27	4,966.36	4,861.75	18.04	20.61	35.12	-883.14	221.62	493.46	458.46	35.00	14.099	
5,150.00	5,123.66	5,093.09	4,982.80	18.53	21.27	35.48	-918.93	232.74	518.81	482.83	35.99	14.417	
5,213.00	5,186.37	5,168.66	5,055.51	18.77	21.65	32.85	-938.77	238.40	530.33	493.73	36.61	14.487	
5,276.00	5,249.09	5,234.53	5,119.23	19.01	21.97	33.57	-954.87	242.78	540.69	503.57	37.12	14.566	
5,339.00	5,311.83	5,288.46	5,171.32	19.25	22.24	32.49	-968.26	246.69	551.51	513.99	37.51	14.701	
5,401.00	5,373.58	5,344.28	5,224.99	19.48	22.52	34.74	-982.94	251.01	563.16	525.23	37.93	14.849	
5,464.00	5,436.33	5,406.79	5,285.03	19.72	22.84	31.86	-999.60	256.03	575.34	536.93	38.41	14.980	
5,590.00	5,561.87	5,531.63	5,405.09	20.19	23.47	30.06	-1,032.42	265.76	599.31	559.94	39.36	15.225	
5,653.00	5,624.66	5,595.84	5,466.90	20.43	23.79	28.54	-1,049.15	270.57	611.25	571.39	39.86	15.336	
5,715.00	5,686.48	5,656.03	5,524.87	20.66	24.09	23.44	-1,064.75	274.89	623.16	582.85	40.31	15.459	
5,778.00	5,749.29	5,718.38	5,584.90	20.90	24.41	25.80	-1,080.91	279.57	635.22	594.44	40.78	15.575	
5,841.00	5,812.10	5,780.48	5,644.73	21.13	24.72	23.33	-1,096.96	283.99	647.19	605.93	41.25	15.688	
5,904.00	5,874.94	5,838.79	5,700.88	21.36	25.01	28.39	-1,112.18	287.99	659.66	617.97	41.69	15.823	
5,967.00	5,937.80	5,901.58	5,761.30	21.60	25.33	29.73	-1,128.67	292.45	672.68	630.52	42.17	15.952	
6,030.00	6,000.68	5,967.50	5,824.79	21.83	25.66	27.62	-1,145.72	297.46	685.77	643.10	42.68	16.069	
6,093.00	6,063.59	6,044.94	5,899.66	22.05	26.04	30.97	-1,164.55	303.41	698.25	654.97	43.28	16.134	
6,156.00	6,126.51	6,114.45	5,967.15	22.28	26.37	36.00	-1,180.44	308.26	710.16	666.35	43.80	16.213	
6,235.00	6,205.43	6,210.28	6,060.58	22.56	26.81	35.45	-1,200.74	314.72	724.29	679.78	44.50	16.274	
6,300.00	6,270.38	6,294.09	6,142.78	22.68	27.18	35.22	-1,216.24	319.94	734.41	689.42	44.99	16.325	
6,355.00	6,325.34	6,361.64	6,209.33	22.69	27.47	35.08	-1,227.25	323.58	741.75	696.50	45.25	16.392	
6,400.00	6,370.23	6,414.26	6,261.29	22.71	27.68	67.31	-1,235.13	326.11	747.00	701.54	45.46	16.434	
6,450.00	6,419.74	6,470.95	6,317.37	22.73	27.91	74.76	-1,243.00	328.64	751.94	706.24	45.70	16.455	
6,500.00	6,468.57	6,504.00	6,350.09	22.77	28.05	77.67	-1,247.45	330.07	756.52	710.63	45.89	16.487	
6,550.00	6,516.42	6,549.06	6,394.51	22.81	28.24	79.45	-1,254.07	333.67	761.35	715.21	46.14	16.499	
6,600.00	6,562.98	6,582.79	6,427.40	22.87	28.38	80.46	-1,259.76	338.51	767.04	720.67	46.37	16.540	
6,650.00	6,607.98	6,599.00	6,443.05	22.95	28.45	80.78	-1,262.71	341.48	773.74	727.22	46.52	16.632	
6,700.00	6,651.14	6,643.85	6,485.74	23.03	28.68	81.48	-1,271.84	351.71	780.90	734.02	46.88	16.659	
6,750.00	6,692.18	6,673.21	6,513.09	23.14	28.82	81.73	-1,278.66	359.95	789.28	742.12	47.16	16.735	
6,800.00	6,730.86	6,693.00	6,531.20	23.26	28.92	81.61	-1,283.61	366.18	798.73	751.31	47.42	16.844	
6,850.00	6,766.93	6,737.39	6,570.83	23.40	29.17	82.06	-1,295.52	382.22	808.74	760.82	47.92	16.878	
6,900.00	6,800.18	6,771.21	6,599.98	23.56	29.36	82.16	-1,305.20	396.36	819.54	771.16	48.38	16.940	
6,950.00	6,830.39	6,807.54	6,630.19	23.74	29.57	82.27	-1,316.10	413.32	830.97	782.06	48.92	16.987	
7,000.00	6,857.38	6,846.33	6,661.17	23.94	29.80	82.40	-1,328.12	433.33	842.84	793.32	49.53	17.018	
7,050.00	6,880.98	6,882.00	6,688.40	24.17	30.02	82.41	-1,339.44	453.40	855.09	804.93	50.16	17.048	
7,100.00	6,901.06	6,912.48	6,710.56	24.42	30.21	82.21	-1,349.53	471.71	868.03	817.21	50.82	17.080	
7,150.00	6,917.47	6,940.16	6,729.71	24.70	30.39	81.87	-1,359.25	489.19	881.89	830.37	51.51	17.119	
7,200.00	6,930.13	6,976.00	6,753.01	25.01	30.63	81.74	-1,372.55	512.94	896.68	844.40	52.28	17.152	
7,250.00	6,938.95	6,998.19	6,766.63	25.34	30.78	81.10	-1,381.12	528.21	912.14	859.13	53.02	17.204	
7,300.00	6,943.88	7,029.82	6,785.07	25.69	31.00	80.75	-1,393.65	550.64	928.29	874.47	53.82	17.248	
7,337.82	6,945.00	7,053.78	6,798.26	25.97	31.17	80.46	-1,403.38	568.12	940.90	886.47	54.43	17.286	
7,400.00	6,945.00	7,097.94	6,820.86	26.45	31.50	81.99	-1,421.72	601.32	963.25	907.80	55.45	17.372	
7,492.38	6,945.00	7,173.13	6,855.18	27.21	32.07	84.30	-1,453.49	660.18	1,000.57	943.61	56.97	17.564	
7,500.00	6,945.00	7,180.34	6,858.18	27.28	32.13	84.51	-1,456.56	665.97	1,003.82	946.73	57.10	17.582	
7,600.00	6,945.00	7,289.93	6,897.31	28.17	33.00	87.12	-1,502.86	757.18	1,046.45	987.62	58.82	17.789	
7,700.00	6,945.00	7,410.13	6,925.93	29.12	34.01	88.90	-1,551.05	863.40	1,086.58	1,025.94	60.64	17.918	
7,800.00	6,945.00	7,515.16	6,938.05	30.14	34.93	89.62	-1,592.47	959.09	1,125.85	1,063.34	62.51	18.010	
7,900.00	6,945.00	7,615.09	6,940.67	31.20	35.83	89.77	-1,630.99	1,051.26	1,164.06	1,099.59	64.47	18.055	
8,000.00	6,945.00	7,766.35	6,939.83	32.31	37.27	89.74	-1,685.94	1,192.16	1,200.22	1,133.46	66.76	17.979	
8,100.00	6,945.00	7,943.19	6,942.28	33.46	39.01	89.87	-1,739.85	1,360.50	1,230.28	1,161.09	69.19	17.781	

CC - Min centre to center distance or 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:	Plan #4	**Offset TVD Reference:**	Offset Datum

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

Survey Program: 26-Standard Keeper 104, 322-MWD+HRGM+MS, 20962-A026Ua_BLIND — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis 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
8,200.00	6,945.00	8,068.73	6,941.97	34.64	40.29	89.86	-1,773.57	1,481.42	1,256.96	1,185.43	71.53	17.572	
8,300.00	6,945.00	8,265.43	6,941.68	35.86	42.33	89.85	-1,814.37	1,673.78	1,276.74	1,202.68	74.05	17.241	
8,400.00	6,945.00	8,450.34	6,939.83	37.11	44.27	89.77	-1,839.80	1,856.86	1,289.73	1,213.25	76.49	16.862	
8,500.00	6,945.00	8,566.65	6,936.93	38.39	45.53	89.64	-1,851.89	1,972.51	1,299.81	1,220.82	78.99	16.456	
8,600.00	6,945.00	8,766.49	6,928.47	39.69	47.69	89.27	-1,860.96	2,171.88	1,302.80	1,221.49	81.31	16.023	
8,700.00	6,945.00	8,844.44	6,925.38	41.01	48.55	89.14	-1,863.06	2,249.74	1,305.21	1,221.19	84.02	15.535	
8,800.00	6,945.00	9,013.32	6,922.06	42.35	50.45	88.99	-1,864.27	2,418.54	1,305.39	1,219.04	86.35	15.118	
8,900.00	6,945.00	9,120.86	6,921.32	43.71	51.67	88.96	-1,862.35	2,526.06	1,303.25	1,214.28	88.98	14.647	
9,000.00	6,945.00	9,245.00	6,920.77	45.08	53.10	88.93	-1,857.83	2,650.11	1,299.13	1,207.62	91.52	14.196	
9,100.00	6,945.00	9,310.08	6,920.66	46.47	53.86	88.92	-1,855.55	2,715.15	1,295.55	1,201.07	94.49	13.712	
9,151.03	6,945.00	9,339.00	6,920.88	47.18	54.21	88.93	-1,855.45	2,744.06	1,295.15	1,199.13	96.02	13.489	
9,200.00	6,945.00	9,383.99	6,921.38	47.87	54.76	88.96	-1,855.73	2,789.05	1,295.27	1,197.87	97.39	13.299	
9,300.00	6,945.00	9,512.42	6,923.04	49.29	56.34	89.03	-1,855.84	2,917.46	1,295.10	1,195.08	100.02	12.948	
9,400.00	6,945.00	9,597.55	6,923.87	50.71	57.41	89.06	-1,854.76	3,002.58	1,293.50	1,190.58	102.92	12.568	
9,500.00	6,945.00	9,698.14	6,923.77	52.15	58.68	89.06	-1,854.66	3,103.17	1,293.04	1,187.29	105.76	12.227	
9,600.00	6,945.00	9,815.03	6,924.38	53.59	60.18	89.09	-1,853.45	3,220.05	1,291.64	1,183.13	108.50	11.904	
9,698.53	6,945.00	9,886.56	6,924.94	55.02	61.11	89.11	-1,853.01	3,291.57	1,290.65	1,179.15	111.50	11.575	
9,700.00	6,945.00	9,887.64	6,924.94	55.05	61.12	89.11	-1,853.02	3,292.66	1,290.65	1,179.11	111.54	11.571	
9,800.00	6,945.00	10,010.01	6,924.40	56.51	62.73	89.08	-1,852.90	3,415.02	1,290.28	1,175.98	114.31	11.288	
9,900.00	6,945.00	10,128.27	6,923.07	57.98	64.29	89.02	-1,850.48	3,533.24	1,287.90	1,170.81	117.09	10.999	
10,000.00	6,945.00	10,223.49	6,922.58	59.45	65.56	89.00	-1,847.57	3,628.42	1,284.51	1,164.46	120.05	10.700	
10,100.00	6,945.00	10,297.20	6,922.07	60.93	66.55	88.98	-1,846.66	3,702.12	1,282.88	1,159.72	123.16	10.416	
10,200.00	6,945.00	10,396.44	6,921.64	62.42	67.90	88.96	-1,846.62	3,801.36	1,282.48	1,156.36	126.12	10.169	
10,300.00	6,945.00	10,513.21	6,921.58	63.92	69.50	88.95	-1,844.60	3,918.11	1,280.26	1,151.29	128.97	9.927	
10,398.45	6,945.00	10,583.66	6,922.49	65.39	70.47	88.99	-1,844.23	3,988.55	1,279.37	1,147.30	132.07	9.687	
10,400.00	6,945.00	10,584.69	6,922.51	65.42	70.49	88.99	-1,844.23	3,989.58	1,279.38	1,147.26	132.12	9.684	
10,500.00	6,945.00	10,662.00	6,923.34	66.92	71.57	89.03	-1,845.91	4,066.86	1,281.02	1,145.82	135.20	9.475	
10,600.00	6,945.00	10,766.07	6,923.08	68.43	73.04	89.02	-1,848.95	4,170.89	1,283.61	1,145.43	138.18	9.289	
10,700.00	6,945.00	10,891.91	6,920.31	69.94	74.83	88.90	-1,849.67	4,296.69	1,283.73	1,142.66	141.07	9.100	
10,740.13	6,945.00	10,928.42	6,919.41	70.55	75.34	88.86	-1,849.74	4,333.19	1,283.68	1,141.37	142.30	9.021	
10,800.00	6,945.00	10,985.20	6,918.14	71.45	76.15	88.80	-1,850.00	4,389.96	1,283.77	1,139.64	144.13	8.907	
10,900.00	6,945.00	11,115.67	6,915.85	72.97	78.01	88.70	-1,849.94	4,520.40	1,283.57	1,136.61	146.96	8.734	
11,000.00	6,945.00	11,193.87	6,914.92	74.50	79.13	88.66	-1,848.79	4,598.58	1,281.87	1,131.74	150.14	8.538	
11,100.00	6,945.00	11,310.88	6,914.64	76.02	80.81	88.64	-1,848.98	4,715.59	1,281.83	1,128.78	153.06	8.375	
11,174.35	6,945.00	11,362.71	6,914.72	77.16	81.56	88.65	-1,848.50	4,767.42	1,280.97	1,125.51	155.46	8.240	
11,200.00	6,945.00	11,377.83	6,914.82	77.55	81.78	88.65	-1,848.62	4,782.53	1,281.07	1,124.78	156.29	8.197	
11,300.00	6,945.00	11,459.81	6,915.81	79.08	82.97	88.70	-1,850.81	4,864.48	1,283.21	1,123.81	159.40	8.050	
11,400.00	6,945.00	11,577.58	6,917.44	80.62	84.70	88.77	-1,852.87	4,982.21	1,284.53	1,122.15	162.39	7.910	
11,500.00	6,945.00	11,669.79	6,917.50	82.16	86.05	88.77	-1,854.10	5,074.41	1,285.51	1,120.04	165.48	7.769	
11,600.00	6,945.00	11,793.54	6,917.64	83.70	87.87	88.78	-1,855.73	5,198.15	1,286.57	1,118.14	168.42	7.639	
11,700.00	6,945.00	11,912.58	6,917.89	85.24	89.61	88.79	-1,854.10	5,317.18	1,284.72	1,113.36	171.36	7.497	
11,770.42	6,945.00	11,958.88	6,917.90	86.32	90.29	88.79	-1,853.83	5,363.48	1,284.05	1,110.37	173.68	7.393	
11,800.00	6,945.00	11,984.00	6,917.86	86.78	90.66	88.79	-1,854.05	5,388.60	1,284.19	1,109.58	174.61	7.354	
11,900.00	6,945.00	12,057.76	6,917.90	88.33	91.76	88.79	-1,855.58	5,462.34	1,285.81	1,108.02	177.79	7.232	
12,000.00	6,945.00	12,199.13	6,918.26	89.87	93.86	88.81	-1,857.37	5,603.69	1,286.75	1,106.07	180.69	7.121	
12,100.00	6,945.00	12,307.37	6,918.65	91.42	95.47	88.83	-1,856.71	5,711.92	1,285.78	1,102.07	183.71	6.999	
12,200.00	6,945.00	12,393.44	6,919.11	92.98	96.75	88.84	-1,855.61	5,797.98	1,284.23	1,097.34	186.89	6.871	
12,211.43	6,945.00	12,399.94	6,919.17	93.15	96.85	88.85	-1,855.62	5,804.48	1,284.21	1,096.93	187.28	6.857	
12,300.00	6,945.00	12,456.00	6,920.05	94.53	97.69	88.89	-1,856.77	5,860.52	1,285.55	1,095.41	190.13	6.761	
12,400.00	6,945.00	12,559.67	6,920.79	96.08	99.25	88.92	-1,860.06	5,964.13	1,288.36	1,095.13	193.22	6.668	
12,500.00	6,945.00	12,676.13	6,920.10	97.64	101.01	88.89	-1,862.18	6,080.57	1,289.81	1,093.53	196.27	6.571	
12,600.00	6,945.00	12,782.50	6,919.48	99.20	102.61	88.87	-1,863.41	6,186.94	1,290.61	1,091.26	199.35	6.474	

CC - Min centre to center distance or 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:	Plan #4	**Offset TVD Reference:**	Offset Datum

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

Survey Program: 26-Standard Keeper 104, 322-MWD+HRGM+MS, 20962-A026Ua_BLIND — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis 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
12,700.00	6,945.00	12,883.87	6,919.23	100.76	104.14	88.86	-1,864.00	6,288.30	1,290.83	1,088.38	202.45	6.376	
12,800.00	6,945.00	13,008.18	6,919.32	102.32	106.02	88.86	-1,864.36	6,412.61	1,290.88	1,085.47	205.40	6.285	
12,900.00	6,945.00	13,114.65	6,919.46	103.88	107.62	88.86	-1,862.67	6,519.06	1,288.91	1,080.45	208.46	6.183	
12,996.31	6,945.00	13,184.93	6,919.36	105.38	108.68	88.86	-1,862.18	6,589.34	1,287.91	1,076.27	211.64	6.085	
13,000.00	6,945.00	13,187.59	6,919.35	105.44	108.72	88.86	-1,862.19	6,592.00	1,287.91	1,076.15	211.76	6.082	
13,100.00	6,945.00	13,272.99	6,919.16	107.00	110.02	88.85	-1,863.24	6,677.40	1,288.74	1,073.80	214.94	5.996	
13,200.00	6,945.00	13,363.69	6,919.56	108.57	111.40	88.87	-1,864.97	6,768.08	1,290.28	1,072.19	218.09	5.916	
13,300.00	6,945.00	13,498.06	6,920.47	110.13	113.45	88.91	-1,867.04	6,902.42	1,291.63	1,070.57	221.06	5.843	
13,400.00	6,945.00	13,610.63	6,920.40	111.70	115.16	88.91	-1,865.66	7,014.98	1,290.00	1,065.91	224.09	5.757	
13,475.01	6,945.00	13,663.68	6,920.18	112.88	115.97	88.90	-1,865.39	7,068.03	1,289.36	1,062.78	226.58	5.690	
13,500.00	6,945.00	13,686.00	6,920.01	113.27	116.31	88.89	-1,865.55	7,090.35	1,289.44	1,062.06	227.38	5.671	
13,600.00	6,945.00	13,776.24	6,919.68	114.84	117.69	88.88	-1,866.63	7,180.58	1,290.26	1,059.71	230.55	5.596	
13,700.00	6,945.00	13,904.84	6,920.10	116.41	119.66	88.89	-1,866.86	7,309.17	1,290.05	1,056.53	233.52	5.524	
13,800.00	6,945.00	13,999.63	6,921.04	117.98	121.11	88.93	-1,865.75	7,403.95	1,288.52	1,051.83	236.68	5.444	
13,832.89	6,945.00	14,021.60	6,921.31	118.49	121.45	88.95	-1,865.74	7,425.92	1,288.38	1,050.60	237.78	5.418	
13,900.00	6,945.00	14,068.06	6,921.90	119.55	122.16	88.97	-1,866.33	7,472.38	1,288.96	1,048.99	239.97	5.371	
14,000.00	6,945.00	14,180.49	6,923.83	121.12	123.89	89.06	-1,868.03	7,584.77	1,290.08	1,047.02	243.06	5.308	
14,100.00	6,945.00	14,279.31	6,924.52	122.69	125.41	89.09	-1,868.74	7,683.59	1,290.42	1,044.22	246.20	5.241	
14,200.00	6,945.00	14,363.94	6,924.97	124.27	126.72	89.11	-1,870.56	7,768.20	1,292.13	1,042.74	249.38	5.181	
14,285.04	6,945.00	14,473.80	6,925.86	125.60	128.41	89.15	-1,870.96	7,878.05	1,291.87	1,039.91	251.96	5.127	
14,300.00	6,945.00	14,483.21	6,925.90	125.84	128.56	89.15	-1,871.01	7,887.46	1,291.90	1,039.45	252.46	5.117	
14,400.00	6,945.00	14,550.04	6,925.83	127.41	129.59	89.15	-1,872.53	7,954.26	1,293.75	1,038.07	255.68	5.060	
14,500.00	6,945.00	14,643.51	6,925.61	128.99	131.04	89.14	-1,876.01	8,047.67	1,297.10	1,038.29	258.81	5.012	
14,600.00	6,945.00	14,784.20	6,926.21	130.57	133.22	89.17	-1,879.66	8,188.31	1,299.44	1,037.56	261.89	4.962	
14,700.00	6,945.00	14,901.91	6,927.59	132.14	135.04	89.23	-1,879.28	8,306.00	1,298.67	1,033.75	264.92	4.902	
14,750.58	6,945.00	14,939.47	6,928.16	132.94	135.62	89.26	-1,879.16	8,343.56	1,298.35	1,031.75	266.60	4.870	
14,800.00	6,945.00	14,971.42	6,928.70	133.72	136.12	89.28	-1,879.50	8,375.50	1,298.68	1,030.45	268.23	4.842	
14,900.00	6,945.00	15,051.27	6,930.24	135.30	137.36	89.35	-1,881.84	8,455.31	1,301.14	1,029.74	271.40	4.794	
15,000.00	6,945.00	15,150.32	6,932.34	136.87	138.90	89.44	-1,885.09	8,554.27	1,304.03	1,029.49	274.54	4.750	
15,100.00	6,945.00	15,254.82	6,932.07	138.45	140.53	89.43	-1,888.53	8,658.72	1,306.97	1,029.27	277.70	4.706	
15,200.00	6,945.00	15,389.72	6,930.82	140.03	142.63	89.38	-1,891.03	8,793.59	1,308.55	1,027.79	280.76	4.661	
15,210.50	6,945.00	15,405.10	6,930.79	140.20	142.87	89.38	-1,891.05	8,808.97	1,308.52	1,027.46	281.06	4.656	
15,300.00	6,945.00	15,490.41	6,930.55	141.61	144.19	89.37	-1,891.42	8,894.27	1,308.57	1,024.67	283.91	4.609	
15,400.00	6,945.00	15,645.21	6,933.67	143.19	146.59	89.50	-1,889.53	9,049.01	1,307.29	1,020.79	286.50	4.563	
15,500.00	6,945.00	15,743.38	6,935.85	144.77	148.10	89.60	-1,885.21	9,147.07	1,302.52	1,012.85	289.67	4.497	
15,600.00	6,945.00	15,813.17	6,936.93	146.35	149.18	89.64	-1,883.27	9,216.82	1,299.40	1,006.22	293.18	4.432	
15,700.00	6,945.00	15,908.26	6,938.46	147.94	150.66	89.71	-1,882.85	9,311.89	1,298.55	1,002.17	296.38	4.381	
15,800.00	6,945.00	16,018.01	6,937.98	149.52	152.36	89.69	-1,880.67	9,421.62	1,296.15	996.71	299.44	4.329	
15,900.00	6,945.00	16,104.30	6,936.65	151.10	153.70	89.63	-1,879.48	9,507.89	1,294.43	991.70	302.73	4.276	
16,000.00	6,945.00	16,212.19	6,936.14	152.68	155.38	89.61	-1,878.70	9,615.77	1,293.37	987.55	305.82	4.229	
16,100.00	6,945.00	16,293.87	6,936.21	154.26	156.65	89.61	-1,877.80	9,697.45	1,291.98	982.86	309.13	4.179	
16,115.21	6,945.00	16,304.63	6,936.19	154.51	156.82	89.61	-1,877.82	9,708.21	1,291.95	982.32	309.63	4.173	
16,200.00	6,945.00	16,382.11	6,935.57	155.85	158.03	89.58	-1,878.57	9,785.68	1,292.45	980.10	312.35	4.138	
16,300.00	6,945.00	16,534.21	6,931.84	157.43	160.40	89.42	-1,877.09	9,937.70	1,291.20	976.14	315.06	4.098	
16,400.00	6,945.00	16,614.00	6,930.00	159.02	161.64	89.33	-1,875.49	10,017.46	1,288.78	970.32	318.46	4.047	
16,500.00	6,945.00	16,699.22	6,928.57	160.60	162.97	89.27	-1,874.94	10,102.66	1,287.74	965.99	321.75	4.002	
16,538.10	6,945.00	16,727.67	6,928.11	161.20	163.41	89.25	-1,874.90	10,131.11	1,287.57	964.55	323.02	3.986	
16,600.00	6,945.00	16,769.54	6,927.22	162.18	164.07	89.21	-1,875.36	10,172.96	1,288.05	963.00	325.05	3.963	
16,700.00	6,945.00	16,875.02	6,924.55	163.77	165.72	89.09	-1,877.85	10,278.38	1,290.13	961.92	328.21	3.931	
16,800.00	6,945.00	16,974.06	6,923.22	165.35	167.28	89.03	-1,879.09	10,377.40	1,291.04	959.66	331.38	3.896	
16,900.00	6,945.00	17,069.97	6,923.17	166.94	168.78	89.03	-1,880.79	10,473.30	1,292.44	957.88	334.55	3.863	
17,000.00	6,945.00	17,166.95	6,923.19	168.53	170.31	89.03	-1,882.73	10,570.26	1,294.08	956.35	337.73	3.832	

CC - Min centre to center distance or 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:	Plan #4	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - Rosa Unit 706H - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 26-Standard Keeper 104, 322-MWD+HRGM+MS, 20962-A026Ua_BLIND

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
17,100.00	6,945.00	17,297.48	6,921.17	170.11	172.35	88.95	-1,883.54	10,700.76	1,294.28	953.50	340.77	3.798	
17,138.21	6,945.00	17,327.91	6,920.70	170.72	172.83	88.92	-1,883.55	10,731.19	1,294.16	952.13	342.03	3.784	
17,200.00	6,945.00	17,391.22	6,919.87	171.70	173.82	88.89	-1,884.01	10,794.49	1,294.41	950.43	343.98	3.763	
17,300.00	6,945.00	17,516.89	6,918.29	173.29	175.79	88.82	-1,881.88	10,920.13	1,292.13	945.19	346.93	3.724	
17,400.00	6,945.00	17,605.38	6,917.12	174.87	177.17	88.76	-1,880.86	11,008.60	1,290.63	940.42	350.21	3.685	
17,500.00	6,945.00	17,701.96	6,916.28	176.46	178.68	88.72	-1,880.16	11,105.18	1,289.55	936.14	353.41	3.649	
17,600.00	6,945.00	17,831.68	6,915.91	178.05	180.71	88.71	-1,878.48	11,234.89	1,288.04	931.79	356.24	3.616	
17,700.00	6,945.00	17,915.87	6,915.70	179.63	182.03	88.69	-1,876.41	11,319.04	1,285.25	925.64	359.61	3.574	
17,798.42	6,945.00	17,988.26	6,915.06	181.20	183.17	88.66	-1,875.87	11,391.43	1,284.19	921.25	362.94	3.538	
17,800.00	6,945.00	17,989.39	6,915.04	181.22	183.18	88.66	-1,875.87	11,392.56	1,284.19	921.19	363.00	3.538	
17,900.00	6,945.00	18,060.62	6,914.00	182.81	184.31	88.62	-1,876.93	11,463.77	1,285.34	919.11	366.23	3.510	
18,000.00	6,945.00	18,150.60	6,913.62	184.40	185.73	88.60	-1,880.30	11,553.69	1,288.67	919.28	369.38	3.489	
18,100.00	6,945.00	18,289.11	6,913.36	185.99	187.91	88.59	-1,881.77	11,692.18	1,289.03	916.52	372.51	3.460	
18,200.00	6,945.00	18,413.16	6,913.34	187.58	189.86	88.59	-1,881.42	11,816.23	1,288.44	912.95	375.49	3.431	
18,249.53	6,945.00	18,439.46	6,913.19	188.36	190.27	88.58	-1,881.33	11,842.53	1,288.05	910.80	377.25	3.414	
18,300.00	6,945.00	18,469.20	6,912.86	189.16	190.74	88.57	-1,881.67	11,872.26	1,288.46	909.54	378.92	3.400	
18,400.00	6,945.00	18,550.66	6,911.34	190.75	192.03	88.51	-1,884.33	11,953.66	1,291.29	909.22	382.07	3.380	
18,500.00	6,945.00	18,680.53	6,909.23	192.34	194.07	88.41	-1,886.68	12,083.49	1,292.66	907.43	385.24	3.356	
18,600.00	6,945.00	18,787.00	6,907.89	193.93	195.75	88.35	-1,887.16	12,189.94	1,292.76	904.38	388.38	3.329	
18,700.00	6,945.00	18,881.00	6,906.98	195.52	197.23	88.32	-1,888.03	12,283.93	1,293.34	901.76	391.58	3.303	
18,800.00	6,945.00	18,962.36	6,906.52	197.11	198.52	88.30	-1,889.14	12,365.29	1,294.43	899.66	394.77	3.279	
18,900.00	6,945.00	19,083.24	6,905.37	198.70	200.43	88.25	-1,891.49	12,486.13	1,296.10	898.19	397.91	3.257	
19,000.00	6,945.00	19,183.64	6,903.96	200.29	202.01	88.19	-1,892.44	12,586.52	1,296.72	895.64	401.08	3.233	
19,100.00	6,945.00	19,278.73	6,903.18	201.88	203.51	88.15	-1,893.21	12,681.60	1,297.21	892.94	404.27	3.209	
19,200.00	6,945.00	19,354.27	6,903.05	203.47	204.71	88.15	-1,894.87	12,757.12	1,299.04	891.60	407.44	3.188	
19,300.00	6,945.00	19,491.90	6,902.00	205.06	206.88	88.11	-1,897.84	12,894.70	1,301.05	890.48	410.57	3.169	
19,400.00	6,945.00	19,599.77	6,899.88	206.65	208.58	88.01	-1,896.67	13,002.55	1,299.59	885.91	413.68	3.142	
19,432.43	6,945.00	19,623.73	6,899.47	207.17	208.96	87.99	-1,896.64	13,026.50	1,299.45	884.69	414.76	3.133	
19,500.00	6,945.00	19,689.50	6,898.53	208.24	210.00	87.95	-1,896.94	13,092.27	1,299.54	882.63	416.91	3.117	
19,600.00	6,945.00	19,780.13	6,897.67	209.84	211.43	87.91	-1,897.39	13,182.89	1,299.74	879.62	420.12	3.094	
19,700.00	6,945.00	19,889.93	6,897.71	211.43	213.16	87.92	-1,898.84	13,292.67	1,300.74	877.48	423.26	3.073	
19,749.55	6,945.00	19,939.74	6,897.92	212.21	213.95	87.93	-1,898.86	13,342.49	1,300.57	875.74	424.84	3.061	
19,800.00	6,945.00	19,974.31	6,897.88	213.02	214.50	87.92	-1,899.19	13,377.06	1,300.88	874.39	426.49	3.050	
19,900.00	6,945.00	20,050.31	6,897.24	214.61	215.70	87.90	-1,901.24	13,453.03	1,303.19	873.56	429.63	3.033	
20,000.00	6,945.00	20,139.61	6,896.50	216.20	217.12	87.87	-1,904.72	13,542.26	1,306.74	873.99	432.74	3.020	
20,100.00	6,945.00	20,227.04	6,894.34	217.79	218.51	87.78	-1,908.55	13,629.57	1,310.88	875.09	435.80	3.008	
20,200.00	6,945.00	20,310.43	6,892.05	219.38	219.83	87.69	-1,913.77	13,712.76	1,316.80	878.04	438.75	3.001	
20,300.00	6,945.00	20,482.51	6,884.04	220.98	222.55	87.35	-1,917.43	13,884.59	1,317.76	875.48	442.28	2.979	
20,400.00	6,945.00	20,613.05	6,879.41	222.57	224.61	87.14	-1,916.29	14,015.03	1,316.52	871.33	445.20	2.957	
20,500.00	6,945.00	20,703.28	6,877.43	224.16	226.04	87.06	-1,915.63	14,105.24	1,315.51	867.06	448.45	2.933	
20,600.00	6,945.00	20,849.46	6,877.25	225.75	228.34	87.04	-1,912.61	14,251.37	1,313.22	862.26	450.96	2.912	
20,700.00	6,945.00	20,944.32	6,877.87	227.35	235.23	87.06	-1,908.91	14,346.16	1,308.93	849.18	459.74	2.847	
20,770.91	6,945.00	20,962.00	6,878.02	228.47	237.34	87.06	-1,908.26	14,363.83	1,307.13	842.65	464.47	2.814	
20,800.00	6,945.00	20,962.00	6,878.02	228.94	237.34	87.06	-1,908.26	14,363.83	1,307.45	842.03	465.42	2.809	
20,852.96	6,945.00	20,962.00	6,878.02	229.61	237.34	87.06	-1,908.26	14,363.83	1,309.70	843.31	466.39	2.808	SF

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

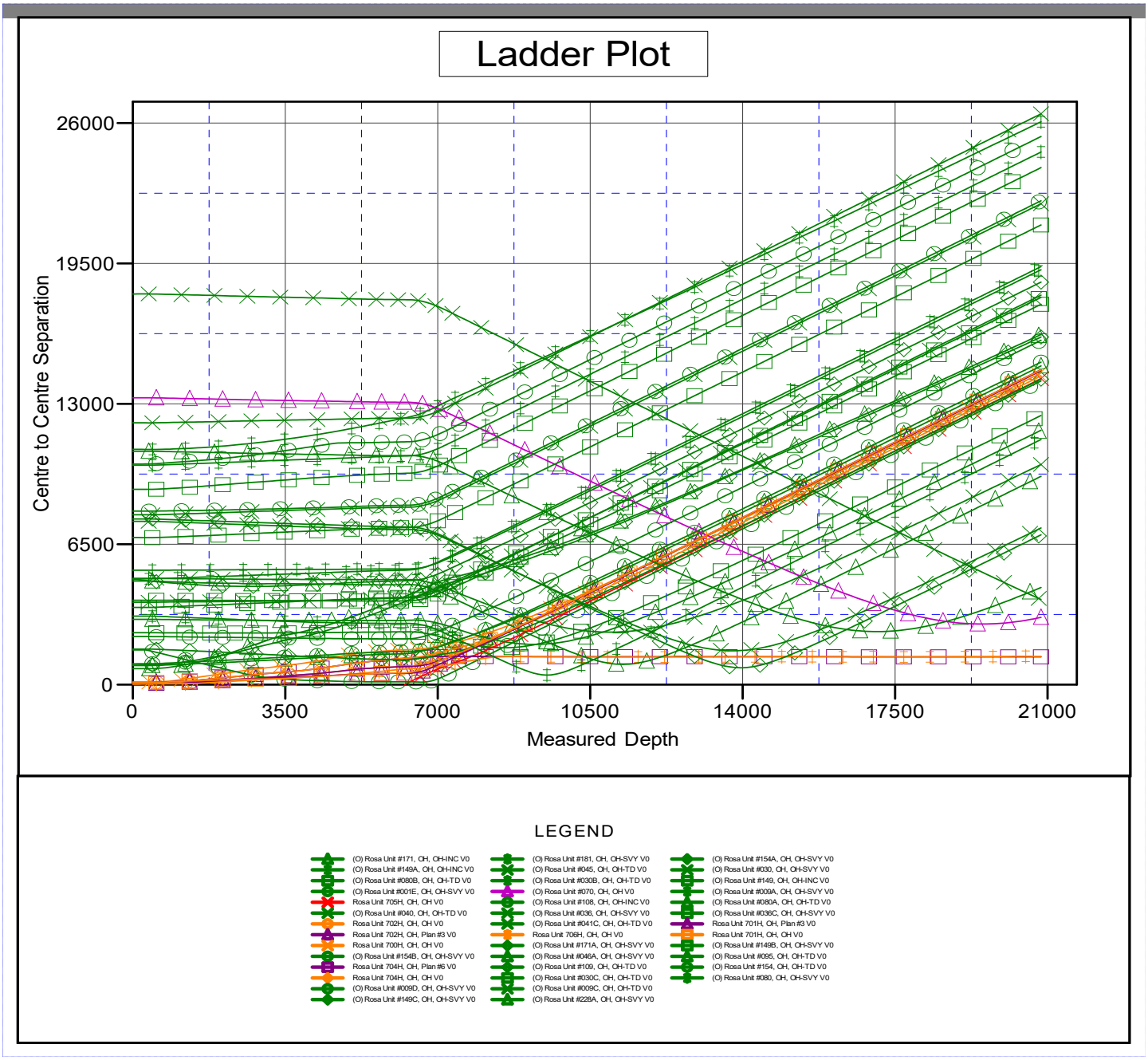
SDT

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:	Plan #4	**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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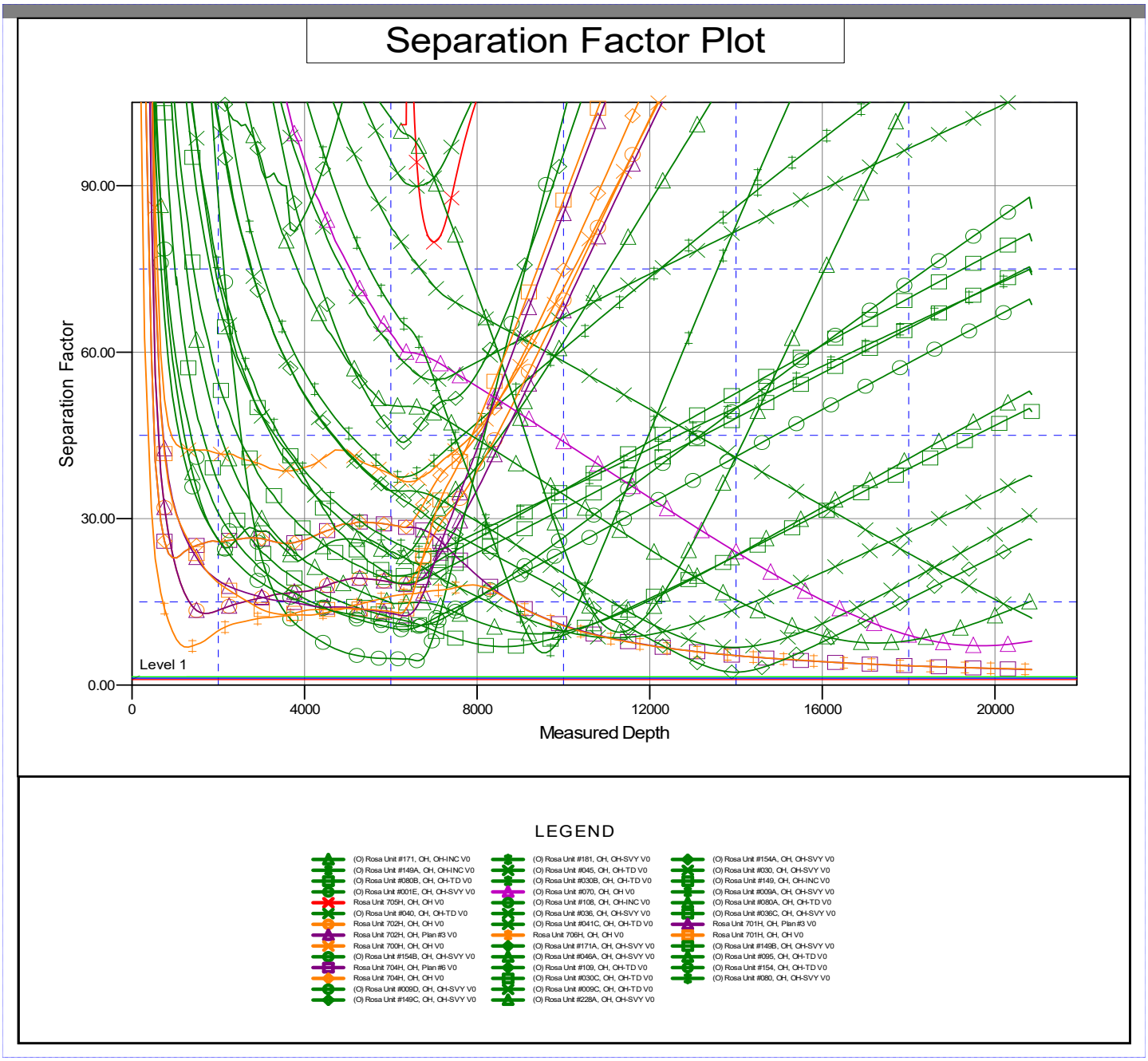

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District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
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District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 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 363158

CONDITIONS

Operator: LOGOS OPERATING, LLC 2010 Afton Place Farmington, NM 87401	OGRID: 289408
	Action Number: 363158
	Action Type: [C-103] NOI Change of Plans (C-103A)

CONDITIONS

Created By	Condition	Condition Date
ward.rikala	All original COA's still apply. Additionally, if cement is not circulated to surface during cementing operations, then a CBL is required.	7/11/2024