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: 704H	**Type of Well:** CONVENTIONAL GAS WELL	**Allottee or Tribe Name:**
Lease Number: NMSF0078767	**Unit or CA Name:**	**Unit or CA Number:** NMNM078407E
US Well Number: 3003931442	**Operator:** LOGOS OPERATING LLC	

Notice of Intent

Sundry ID: 2800086

Type of Submission: Notice of Intent

Type of Action: Other

Date Sundry Submitted: 07/11/2024

Time Sundry Submitted: 08:29

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 2202' FNL & 2537' FWL to new bottom-hole location 2202' FNL & 2633' FEL Original TD @ 20,856' (MD) 6,943' (TVD) to new TD @ 20,943' (MD) 6,943' (TVD). Geology tops have been updated per changes. Original KOP @ 6,376' MD 6,335' TVD to new KOP @ 6,393' (MD) 6,355' (TVD) Original Landing point @ 7,349' MD 6,941' TVD to new Landing point @ 7,360' (MD) 6,940' (TVD) Original 5.5" casing Production casing @ 20,856' MD to new 5.5" Production casing @ 20,943' (MD) All cementing bbls and sacks have been updated 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_704H_Change_in_Plan_6__20240711_20240711085746.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: 704H

Type of Well: CONVENTIONAL GAS WELL

Allottee or Tribe Name:

Lease Number: NMSF0078767

Unit or CA Name:

Unit or CA Number: NMNM078407E

US Well Number: 3003931442

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 08:58 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 704H

2. Name of Operator: LOGOS OPERATING, LLC

9. API Well No.: 30-039-31442

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 2592' FSL 1308' 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 2202' FNL & 2537' FWL to **new bottom-hole location 2202' FNL & 2633' FEL** Original TD @ 20,856' (MD) 6,943' (TVD) to **new TD @ 20,943' (MD) 6,943' (TVD)**.

Geology tops have been updated per changes.
Original KOP @ 6,376' MD 6,335' TVD to **new KOP @ 6,393' (MD) 6,355' (TVD)**
Original Landing point @ 7,349' MD 6,941' TVD to **new Landing point @ 7,360' (MD) 6,940' (TVD)**

Original 5.5" casing Production casing @ 20,856' MD to **new 5.5" Production casing @ 20,943' (MD)**

All cementing bbls and sacks have been updated 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 9:31:54 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
30-039-31442	97232	BASIN MANCOS

[4] Property Code	[5] Property Name	[6] Well Number
320608	ROSA UNIT	704H

[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		2592	SOUTH	1308	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
G	10	31N	5W		2202	NORTH	2633	EAST	RIO ARRIBA

[12] Dedicated Acres		[13] Joint or Infill	[14] Consolidation Code	[15] Order No.
1191.86	N/2 - Sections 7, 8, 9 & 10			R-13457

[17] OPERATOR CERTIFICATION

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

Etta Trujillo — Signature — 7/11/2024 — 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

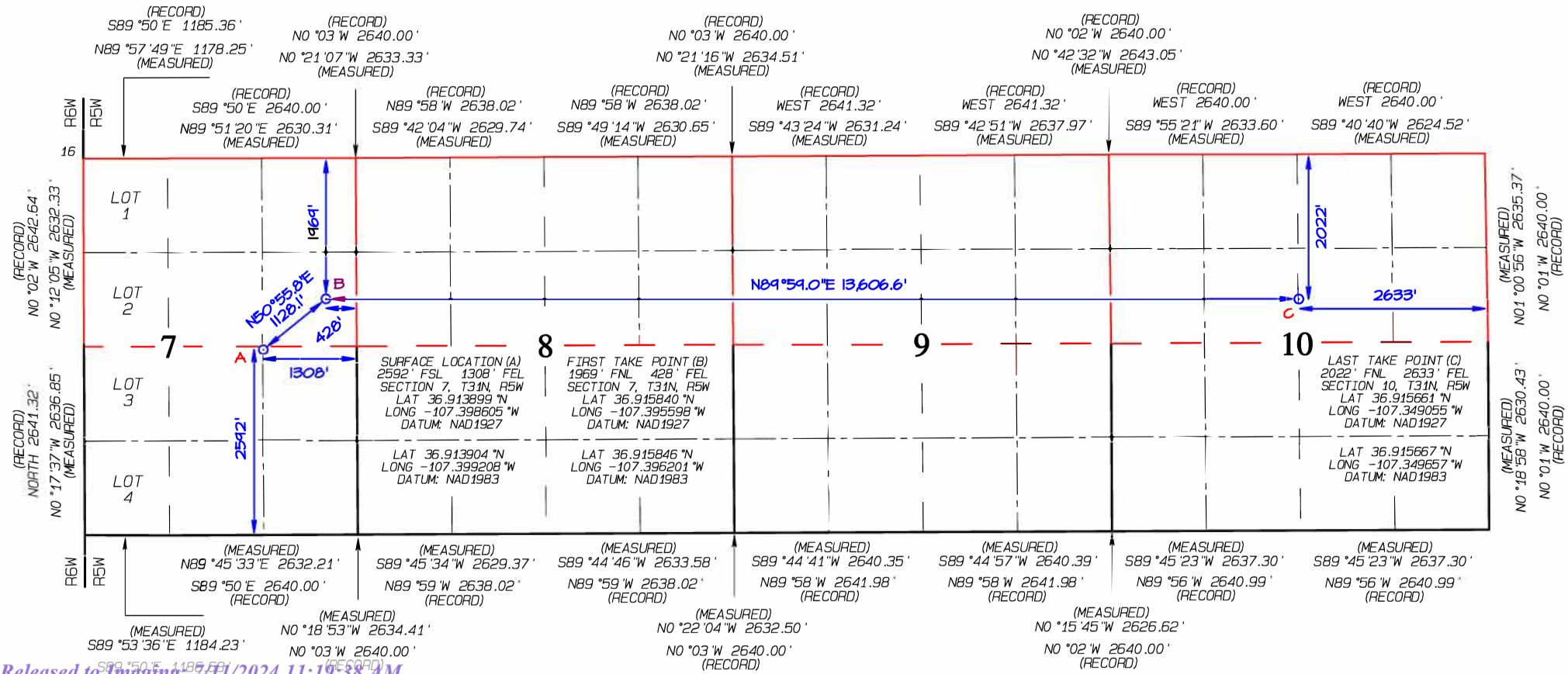
I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

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 11:19:38 AM

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 704H**	GL Elevation:	6,295’
Surface Location:	Sec 7, T31N, R5W 2592’ FSL, 1308’ FEL (36.913904º N, 107.399208º W – NAD83)	KB:	30’
Bottom Hole Location:	Sec 10, T31N, R5W 2202’ FNL, 2633’ FEL (36.915667º N, 107.349657º W – NAD83)	Measured Depth:	20,943’ (KB)
Lease Serial CA Serial	**#NMSF078767 #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	2421'	2407'	*POINT LOOKOUT	5675'	5622'
KIRTLAND	2535'	2520'	*MANCOS	6223'	6166'
*FRUITLAND	2906'	2889'	KICKOFF POINT	6,393'	6,355'
*PICTURED CLIFFS	3345'	3327'	LANDING POINT	7,360'	6,940'
LEWIS	3471'	3453'	TD	20,943'	6,943'
CHACRA	4625'	4589'			
*CLIFF HOUSE	5119'	5074'			
MENEFEE	5456'	5406'			

* 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, 17-1/2" intermediate 1 and 12-1/4” intermediate hole 2 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:** 6,943' TVD x 0.43 = 2985 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"	367' (pre-set)	20"	94 LBS	J-55	BTC
INTERMEDIATE 1	17.5"	3,444' (pre-set)	13.375"	68.0 LBS	J-55	BTC
INTERMEDIATE 2	12.25"	6,294' (pre-set)	9.625"	47.0 LBS	L-80	BTC
PRODUCTION	8.5"	20,943'	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 1: 13-3/8" cement guide 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., 2,000ft., 1,500 ft., 1,000 ft, and 500ft.
    - Casing will be kept fluid filled during drilling
3. INTERMEDIATE CASING 2: 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.

4. PRODUCTION CASING: Run 5-1/2" casing with cement nose guide Float Shoe, 5-1/2" full or pup joints as necessary, Landing Collar, 5-1/2" full or pup joints as necessary, at least (1) one Toe Sleeve (Sliding Sleeve) positioned inside the applicable production area. 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 367' (GL)

Surface - 20"	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	487	87	1.15	423	15.8
Type III		350	0.9599	1.3	487	87	1.39	350	14.6
			24" hole						
Set Depth	350								

2. INTERMEDIATE 1: Pre-set at 3,444'

Intermediate 1 -13-3/8"	Top	Footage	Cement (ft3/ft) Annular Capacity	Excess (30%)	Total (ft3)	Total (bbl)	Slurry Yield (ft3/sk)	Sacks Cement	Density (PPG)
Stage 1 Tail	2,796	600	0.6947	1.3	575	102	1.15	500	15.8
Stage 1 Lead - OH	350	2,446	0.6947	1.3	2,209	393	1.90	1163	12.4
Stage 2 Lead - Cased	-	350	1.019	1	357	64	1.90	188	12.4
					3,141	**559**		**1851**	
Set Depth	3396								

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

3. INTERMEDIATE 2: Pre-set at 6,294'

Intermediate 2 -9-5/8"	Top	Footage	Cement (ft3/ft) Annular Capacity	Excess (30%)	Total (ft3)	Total (bbl)	Slurry Yield (ft3/sk)	Sacks Cement	Density (PPG)
Stage 1 Tail	5,781	500	0.3132	1.3	220	39	1.10	200	15.8
Stage 1 Lead	4,692	1,089	0.3132	1.3	443	79	1.90	233	12.4
					663	**118**		**433**	
Stage 2 Tail	4,092	600	0.3132	1.3	244	44	1.58	155	13.2
Stage 2 Lead	3,296	796	0.3132	1.3	324	58	1.90	171	12.4
Stage 2 Lead - Cased	3,196	100	0.3627	1	36	6	1.90	19	12.4
Stage 2 Totals					**605**	**108**		**344**	
Int 2 Totals					**1,268**	**226**		**778**	
Contingency									
Stage 3 Tail	3,396	75	0.3132	1.3	31	5	1.58	19	13.2
Stage 3 Tail - Cased	2,896	500	0.3490	1	175	31	1.58	110	13.2
Stage 3 Lead - Cased	-	2,896	0.3490	1	1,011	180	1.90	532	12.4
Contingency Stage 3 Totals					**1,216**	**217**		**662**	
Set Depth	6281								

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

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

	Top	ft	Cement (ft3/ft) Annular Capacity	Excess (15%)	Total (ft3)	Total (bbl)	Slurry Yield (ft3/sk)	Sacks Cement	Density (PPG)
Cased Tail	6,194	100	0.2531	1	25	5	1.59	16	13.2
Open Hole Tail	6,294	14,649	0.2291	1.15	3,865	688	1.59	2,431	13.2
					3,890	693		2,447	
Set Depth	20943								

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 * 6,943' TVD = 1527 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.

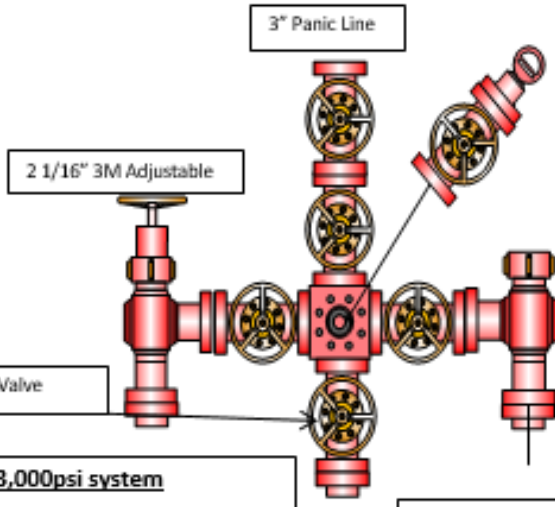
E. PRODUCTION TUBING

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.

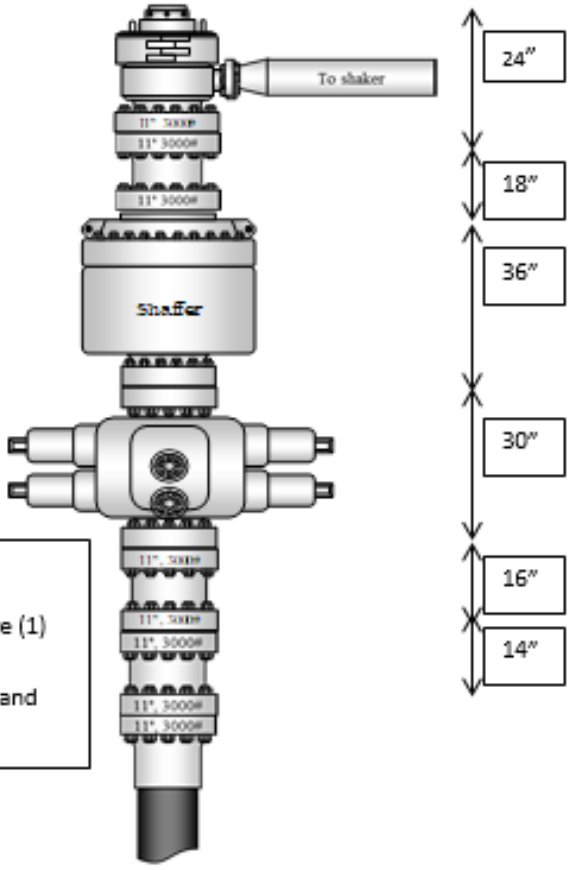
LOGOS OPERATING

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 704H

OH

Plan: Plan #6

Standard Planning Report

03 July, 2024

SDT

Planning Report

Database:	EDM 5000 Multi User Db	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
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 704H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #6		

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 704H					
Well Position	**+N/-S**	0.00 usft	**Northing:**	2,152,277.01 usft	**Latitude:**	36.913904
	+E/-W	0.00 usft	**Easting:**	2,850,002.92 usft	**Longitude:**	-107.399208
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	49,366.28736580

Design	Plan #6			
Audit Notes:				
Version:	**Phase:**	PLAN	**Tie On Depth:**	6,255.00

Vertical Section:	**Depth From (TVD) (usft)**	**+N/-S (usft)**	**+E/-W (usft)**	**Direction (°)**
	0.00	0.00	0.00	90.26

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

	Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	58.45	299.93	Survey #1 (OH)	Standard Keeper 104 Standard Wireline Keeper ver 1	
2	446.00	6,255.00	Survey #2 (OH)	MWD+HRGM+MS MWD + HRGM + Multi-Station	
3	6,255.00	20,942.16	Plan #6 (OH)	MWD+HRGM+MS MWD + HRGM + Multi-Station	

SDT

Planning Report

Database:	EDM 5000 Multi User Db	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
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 704H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #6		

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
6,255.00	5.49	24.72	6,197.73	691.84	266.71	0.00	0.00	0.00	0.00	
6,293.00	5.49	24.72	6,235.55	695.15	268.23	0.00	0.00	0.00	0.00	
6,393.00	5.49	24.72	6,335.09	703.84	272.23	0.00	0.00	0.00	0.00	
7,359.60	89.99	93.00	6,940.02	724.84	903.31	9.10	8.74	7.06	68.37	
7,659.60	89.99	93.00	6,940.07	709.14	1,202.90	0.00	0.00	0.00	0.00	
7,796.63	89.99	90.26	6,940.10	705.24	1,339.85	2.00	0.00	-2.00	-90.06	
20,942.50	89.99	90.26	6,943.00	645.69	14,485.59	0.00	0.00	0.00	0.00	RU 704H PBHL

SDT

Planning Report

Database:	EDM 5000 Multi User Db	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
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 704H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #6		

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
58.45	0.71	238.29	58.45	-0.19	-0.31	-0.31	1.21	1.21	0.00
150.25	0.66	256.59	150.24	-0.61	-1.31	-1.30	0.24	-0.05	19.93
239.43	0.69	262.07	239.42	-0.81	-2.34	-2.33	0.08	0.03	6.14
299.93	0.77	257.12	299.91	-0.95	-3.09	-3.09	0.17	0.13	-8.18
446.00	1.14	232.72	445.96	-2.04	-5.21	-5.20	0.37	0.25	-16.70
537.00	0.62	171.46	536.95	-3.08	-5.85	-5.84	1.10	-0.57	-67.32
624.00	0.97	88.49	623.95	-3.53	-5.05	-5.03	1.25	0.40	-95.37
718.00	2.33	70.65	717.90	-2.87	-2.45	-2.44	1.53	1.45	-18.98
811.00	4.57	51.22	810.73	0.08	2.22	2.22	2.68	2.41	-20.89
903.00	7.78	39.36	902.19	7.19	9.03	9.00	3.74	3.49	-12.89
994.00	7.52	37.07	992.38	16.70	16.53	16.45	0.44	-0.29	-2.52
1,084.00	8.57	32.68	1,081.50	27.04	23.70	23.57	1.35	1.17	-4.88
1,175.00	8.53	28.81	1,171.48	38.67	30.61	30.43	0.63	-0.04	-4.25
1,268.00	7.96	27.23	1,263.52	50.43	36.88	36.65	0.66	-0.61	-1.70
1,363.00	7.82	24.24	1,357.62	62.18	42.54	42.26	0.46	-0.15	-3.15
1,457.00	7.87	21.52	1,450.74	73.99	47.53	47.19	0.40	0.05	-2.89
1,552.00	8.13	20.72	1,544.82	86.33	52.29	51.90	0.30	0.27	-0.84
1,646.00	8.13	20.22	1,637.88	98.78	56.94	56.49	0.08	0.00	-0.53
1,741.00	8.00	19.76	1,731.94	111.31	61.50	60.99	0.15	-0.14	-0.48
1,835.00	7.52	19.67	1,825.07	123.26	65.78	65.22	0.51	-0.51	-0.10
1,929.00	6.33	20.81	1,918.39	133.89	69.69	69.08	1.27	-1.27	1.21
2,024.00	6.02	19.41	2,012.84	143.49	73.21	72.56	0.36	-0.33	-1.47
2,118.00	7.38	19.23	2,106.19	153.84	76.83	76.14	1.45	1.45	-0.19
2,213.00	7.69	20.55	2,200.37	165.55	81.08	80.32	0.37	0.33	1.39
2,307.00	6.90	18.53	2,293.61	176.79	85.08	84.27	0.88	-0.84	-2.15
2,402.00	6.99	14.66	2,387.91	187.79	88.35	87.50	0.50	0.09	-4.07
2,496.00	6.20	13.43	2,481.29	198.26	90.98	90.08	0.85	-0.84	-1.31
2,591.00	6.90	14.92	2,575.67	208.77	93.64	92.69	0.76	0.74	1.57
2,686.00	6.15	14.48	2,670.05	219.21	96.38	95.39	0.79	-0.79	-0.46
2,780.00	6.46	16.51	2,763.49	229.16	99.14	98.10	0.41	0.33	2.16
2,875.00	5.85	17.91	2,857.94	238.89	102.15	101.07	0.66	-0.64	1.47
2,970.00	5.01	14.31	2,952.51	247.51	104.67	103.54	0.95	-0.88	-3.79
3,064.00	4.40	7.10	3,046.19	255.07	106.13	104.97	0.90	-0.65	-7.67
3,159.00	3.34	5.08	3,140.98	261.44	106.82	105.63	1.12	-1.12	-2.13
3,253.00	2.77	12.81	3,234.84	266.38	107.57	106.36	0.75	-0.61	8.22
3,348.00	2.46	20.46	3,329.74	270.53	108.79	107.56	0.49	-0.33	8.05
3,397.00	2.37	21.34	3,378.70	272.46	109.53	108.29	0.20	-0.18	1.80
3,488.00	2.02	23.89	3,469.63	275.68	110.86	109.61	0.40	-0.38	2.80
3,583.00	4.18	15.54	3,564.49	280.55	112.47	111.19	2.32	2.27	-8.79
3,677.00	5.80	13.78	3,658.13	288.46	114.52	113.21	1.73	1.72	-1.87
3,772.00	8.13	9.30	3,752.42	299.75	116.74	115.38	2.52	2.45	-4.72
3,867.00	8.53	7.72	3,846.42	313.36	118.78	117.35	0.49	0.42	-1.66
3,961.00	9.19	7.98	3,939.30	327.71	120.76	119.27	0.70	0.70	0.28
4,056.00	10.99	11.39	4,032.83	344.10	123.60	122.03	2.00	1.89	3.59
4,151.00	11.47	10.53	4,126.01	362.26	127.11	125.47	0.54	0.51	-0.91
4,246.00	11.56	17.97	4,219.10	380.60	131.77	130.05	1.57	0.09	7.83
4,340.00	13.23	27.14	4,310.92	399.14	139.59	137.78	2.74	1.78	9.76
4,435.00	12.44	27.68	4,403.54	417.87	149.30	147.40	0.84	-0.83	0.57
4,498.00	11.16	25.56	4,465.21	429.38	155.08	153.13	2.14	-2.03	-3.37
4,561.00	12.92	20.46	4,526.82	441.48	160.18	158.17	3.26	2.79	-8.10
4,624.00	12.92	18.60	4,588.23	454.76	164.89	162.82	0.66	0.00	-2.95
4,687.00	12.28	18.07	4,649.71	467.80	169.21	167.09	1.03	-1.02	-0.84
4,749.00	11.28	16.75	4,710.40	479.88	173.00	170.82	1.67	-1.61	-2.13

SDT

Planning Report

Database:	EDM 5000 Multi User Db	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
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 704H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #6		

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)
4,812.00	10.34	15.94	4,772.28	491.21	176.33	174.10	1.51	-1.49	-1.29
4,875.00	9.56	16.37	4,834.34	501.67	179.36	177.08	1.24	-1.24	0.68
4,938.00	9.86	16.57	4,896.43	511.86	182.37	180.05	0.48	0.48	0.32
5,001.00	10.33	19.80	4,958.46	522.34	185.82	183.45	1.17	0.75	5.13
5,064.00	11.80	24.12	5,020.29	533.54	190.37	187.95	2.68	2.33	6.86
5,126.00	11.78	28.30	5,080.98	544.90	195.96	193.49	1.38	-0.03	6.74
5,189.00	11.00	26.66	5,142.74	555.93	201.71	199.18	1.34	-1.24	-2.60
5,252.00	10.65	26.63	5,204.62	566.51	207.01	204.44	0.56	-0.56	-0.05
5,315.00	9.82	26.77	5,266.61	576.51	212.04	209.42	1.32	-1.32	0.22
5,378.00	9.41	26.30	5,328.73	585.92	216.74	214.08	0.66	-0.65	-0.75
5,441.00	9.54	26.79	5,390.87	595.20	221.38	218.67	0.24	0.21	0.78
5,503.00	8.84	26.44	5,452.07	604.05	225.82	223.07	1.13	-1.13	-0.56
5,566.00	8.92	26.79	5,514.32	612.75	230.17	227.39	0.15	0.13	0.56
5,629.00	8.48	24.33	5,576.59	621.34	234.29	231.47	0.91	-0.70	-3.90
5,692.00	7.91	26.61	5,638.95	629.45	238.14	235.28	1.04	-0.90	3.62
5,747.00	7.63	24.37	5,693.45	636.16	241.34	238.46	0.75	-0.51	-4.07
5,810.00	7.50	25.10	5,755.90	643.69	244.81	241.89	0.26	-0.21	1.16
5,874.00	6.78	23.81	5,819.40	650.93	248.11	245.15	1.15	-1.13	-2.02
5,936.00	7.11	24.24	5,880.95	657.77	251.16	248.18	0.54	0.53	0.69
5,999.00	7.23	25.71	5,943.45	664.90	254.48	251.46	0.35	0.19	2.33
6,062.00	7.16	23.21	6,005.96	672.08	257.75	254.70	0.51	-0.11	-3.97
6,125.00	6.86	25.50	6,068.49	679.09	260.92	257.83	0.65	-0.48	3.63
6,188.00	6.22	23.67	6,131.08	685.61	263.91	260.79	1.07	-1.02	-2.90
6,255.00	5.49	24.72	6,197.73	691.84	266.71	263.56	1.10	-1.09	1.57
Start 38.00 hold at 6255.00 MD									
6,293.00	5.49	24.72	6,235.55	695.15	268.23	265.07	0.00	0.00	0.00
Start 100.00 hold at 6293.00 MD									
6,300.00	5.49	24.72	6,242.52	695.75	268.51	265.35	0.00	0.00	0.00
6,393.00	5.49	24.72	6,335.09	703.84	272.23	269.03	0.00	0.00	0.00
Start DLS 9.10 TFO 68.37									
6,400.00	5.76	30.64	6,342.06	704.44	272.55	269.35	9.10	3.79	84.51
6,450.00	8.83	57.92	6,391.66	708.64	277.08	273.86	9.10	6.15	54.56
6,500.00	12.81	69.88	6,440.77	712.59	285.54	282.30	9.10	7.96	23.93
6,550.00	17.07	76.10	6,489.07	716.26	297.88	294.62	9.10	8.53	12.44
6,600.00	21.45	79.87	6,536.26	719.63	314.01	310.74	9.10	8.76	7.53
6,650.00	25.89	82.40	6,582.05	722.69	333.84	330.56	9.10	8.87	5.06
6,700.00	30.36	84.23	6,626.13	725.40	357.24	353.95	9.10	8.94	3.66
6,750.00	34.84	85.63	6,668.24	727.76	384.07	380.77	9.10	8.97	2.80
6,800.00	39.34	86.75	6,708.12	729.75	414.15	410.84	9.10	9.00	2.23
6,850.00	43.85	87.67	6,745.50	731.35	447.30	443.98	9.10	9.02	1.84
6,873.30	45.96	88.05	6,762.00	731.97	463.74	460.41	9.10	9.03	1.62
Black Top									
6,900.00	48.37	88.45	6,780.15	732.57	483.31	479.98	9.10	9.03	1.51
6,950.00	52.89	89.13	6,811.86	733.37	521.94	518.61	9.10	9.04	1.36
7,000.00	57.41	89.73	6,840.42	733.78	562.96	559.62	9.10	9.05	1.20
7,050.00	61.94	90.27	6,865.66	733.77	606.11	602.77	9.10	9.05	1.09
7,100.00	66.47	90.77	6,887.42	733.36	651.11	647.77	9.10	9.06	1.00
7,150.00	70.99	91.24	6,905.55	732.54	697.68	694.35	9.10	9.06	0.93
7,200.00	75.52	91.68	6,919.95	731.32	745.54	742.21	9.10	9.06	0.88
7,250.00	80.06	92.10	6,930.52	729.70	794.37	791.05	9.10	9.06	0.85
7,300.00	84.59	92.52	6,937.20	727.71	843.86	840.55	9.10	9.06	0.82
7,350.00	89.12	92.92	6,939.94	725.34	893.72	890.42	9.10	9.06	0.81
7,359.60	89.99	93.00	6,940.02	724.84	903.31	900.01	9.10	9.06	0.81

SDT

Planning Report

Database:	EDM 5000 Multi User Db	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
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 704H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #6		

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)
Start 300.00 hold at 7359.60 MD									
7,400.00	89.99	93.00	6,940.03	722.73	943.65	940.36	0.00	0.00	0.00
7,500.00	89.99	93.00	6,940.04	717.49	1,043.51	1,040.25	0.00	0.00	0.00
7,600.00	89.99	93.00	6,940.06	712.26	1,143.38	1,140.13	0.00	0.00	0.00
7,659.60	89.99	93.00	6,940.07	709.14	1,202.90	1,199.67	0.00	0.00	0.00
Start DLS 2.00 TFO -90.06									
7,700.00	89.99	92.19	6,940.08	707.31	1,243.25	1,240.03	2.00	0.00	-2.00
7,796.63	89.99	90.26	6,940.10	705.24	1,339.85	1,336.64	2.00	0.00	-2.00
Start 13145.87 hold at 7796.63 MD									
7,800.00	89.99	90.26	6,940.10	705.23	1,343.23	1,340.01	0.00	0.00	0.00
7,900.00	89.99	90.26	6,940.12	704.78	1,443.23	1,440.01	0.00	0.00	0.00
8,000.00	89.99	90.26	6,940.14	704.32	1,543.22	1,540.01	0.00	0.00	0.00
8,100.00	89.99	90.26	6,940.17	703.87	1,643.22	1,640.01	0.00	0.00	0.00
8,200.00	89.99	90.26	6,940.19	703.42	1,743.22	1,740.01	0.00	0.00	0.00
8,300.00	89.99	90.26	6,940.21	702.96	1,843.22	1,840.01	0.00	0.00	0.00
8,400.00	89.99	90.26	6,940.23	702.51	1,943.22	1,940.01	0.00	0.00	0.00
8,500.00	89.99	90.26	6,940.25	702.06	2,043.22	2,040.01	0.00	0.00	0.00
8,600.00	89.99	90.26	6,940.28	701.60	2,143.22	2,140.01	0.00	0.00	0.00
8,700.00	89.99	90.26	6,940.30	701.15	2,243.22	2,240.01	0.00	0.00	0.00
8,800.00	89.99	90.26	6,940.32	700.70	2,343.22	2,340.01	0.00	0.00	0.00
8,900.00	89.99	90.26	6,940.34	700.25	2,443.22	2,440.01	0.00	0.00	0.00
9,000.00	89.99	90.26	6,940.36	699.79	2,543.21	2,540.01	0.00	0.00	0.00
9,100.00	89.99	90.26	6,940.39	699.34	2,643.21	2,640.01	0.00	0.00	0.00
9,200.00	89.99	90.26	6,940.41	698.89	2,743.21	2,740.01	0.00	0.00	0.00
9,300.00	89.99	90.26	6,940.43	698.43	2,843.21	2,840.01	0.00	0.00	0.00
9,400.00	89.99	90.26	6,940.45	697.98	2,943.21	2,940.01	0.00	0.00	0.00
9,500.00	89.99	90.26	6,940.47	697.53	3,043.21	3,040.01	0.00	0.00	0.00
9,600.00	89.99	90.26	6,940.50	697.07	3,143.21	3,140.01	0.00	0.00	0.00
9,700.00	89.99	90.26	6,940.52	696.62	3,243.21	3,240.01	0.00	0.00	0.00
9,800.00	89.99	90.26	6,940.54	696.17	3,343.21	3,340.01	0.00	0.00	0.00
9,900.00	89.99	90.26	6,940.56	695.72	3,443.21	3,440.01	0.00	0.00	0.00
10,000.00	89.99	90.26	6,940.59	695.26	3,543.20	3,540.01	0.00	0.00	0.00
10,100.00	89.99	90.26	6,940.61	694.81	3,643.20	3,640.01	0.00	0.00	0.00
10,200.00	89.99	90.26	6,940.63	694.36	3,743.20	3,740.01	0.00	0.00	0.00
10,300.00	89.99	90.26	6,940.65	693.90	3,843.20	3,840.01	0.00	0.00	0.00
10,400.00	89.99	90.26	6,940.67	693.45	3,943.20	3,940.01	0.00	0.00	0.00
10,500.00	89.99	90.26	6,940.70	693.00	4,043.20	4,040.01	0.00	0.00	0.00
10,600.00	89.99	90.26	6,940.72	692.54	4,143.20	4,140.01	0.00	0.00	0.00
10,700.00	89.99	90.26	6,940.74	692.09	4,243.20	4,240.01	0.00	0.00	0.00
10,800.00	89.99	90.26	6,940.76	691.64	4,343.20	4,340.01	0.00	0.00	0.00
10,900.00	89.99	90.26	6,940.78	691.18	4,443.20	4,440.01	0.00	0.00	0.00
11,000.00	89.99	90.26	6,940.81	690.73	4,543.19	4,540.01	0.00	0.00	0.00
11,100.00	89.99	90.26	6,940.83	690.28	4,643.19	4,640.01	0.00	0.00	0.00
11,200.00	89.99	90.26	6,940.85	689.83	4,743.19	4,740.01	0.00	0.00	0.00
11,300.00	89.99	90.26	6,940.87	689.37	4,843.19	4,840.01	0.00	0.00	0.00
11,400.00	89.99	90.26	6,940.89	688.92	4,943.19	4,940.01	0.00	0.00	0.00
11,500.00	89.99	90.26	6,940.92	688.47	5,043.19	5,040.01	0.00	0.00	0.00
11,600.00	89.99	90.26	6,940.94	688.01	5,143.19	5,140.01	0.00	0.00	0.00
11,700.00	89.99	90.26	6,940.96	687.56	5,243.19	5,240.01	0.00	0.00	0.00
11,800.00	89.99	90.26	6,940.98	687.11	5,343.19	5,340.01	0.00	0.00	0.00
11,900.00	89.99	90.26	6,941.00	686.65	5,443.18	5,440.01	0.00	0.00	0.00
12,000.00	89.99	90.26	6,941.03	686.20	5,543.18	5,540.01	0.00	0.00	0.00
12,100.00	89.99	90.26	6,941.05	685.75	5,643.18	5,640.01	0.00	0.00	0.00

SDT

Planning Report

Database:	EDM 5000 Multi User Db	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
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 704H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #6		

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)
12,200.00	89.99	90.26	6,941.07	685.30	5,743.18	5,740.01	0.00	0.00	0.00
12,300.00	89.99	90.26	6,941.09	684.84	5,843.18	5,840.01	0.00	0.00	0.00
12,400.00	89.99	90.26	6,941.11	684.39	5,943.18	5,940.01	0.00	0.00	0.00
12,500.00	89.99	90.26	6,941.14	683.94	6,043.18	6,040.01	0.00	0.00	0.00
12,600.00	89.99	90.26	6,941.16	683.48	6,143.18	6,140.01	0.00	0.00	0.00
12,700.00	89.99	90.26	6,941.18	683.03	6,243.18	6,240.01	0.00	0.00	0.00
12,800.00	89.99	90.26	6,941.20	682.58	6,343.18	6,340.01	0.00	0.00	0.00
12,900.00	89.99	90.26	6,941.23	682.12	6,443.17	6,440.01	0.00	0.00	0.00
13,000.00	89.99	90.26	6,941.25	681.67	6,543.17	6,540.01	0.00	0.00	0.00
13,100.00	89.99	90.26	6,941.27	681.22	6,643.17	6,640.01	0.00	0.00	0.00
13,200.00	89.99	90.26	6,941.29	680.77	6,743.17	6,740.01	0.00	0.00	0.00
13,300.00	89.99	90.26	6,941.31	680.31	6,843.17	6,840.01	0.00	0.00	0.00
13,400.00	89.99	90.26	6,941.34	679.86	6,943.17	6,940.01	0.00	0.00	0.00
13,500.00	89.99	90.26	6,941.36	679.41	7,043.17	7,040.01	0.00	0.00	0.00
13,600.00	89.99	90.26	6,941.38	678.95	7,143.17	7,140.01	0.00	0.00	0.00
13,700.00	89.99	90.26	6,941.40	678.50	7,243.17	7,240.01	0.00	0.00	0.00
13,800.00	89.99	90.26	6,941.42	678.05	7,343.17	7,340.01	0.00	0.00	0.00
13,900.00	89.99	90.26	6,941.45	677.59	7,443.16	7,440.01	0.00	0.00	0.00
14,000.00	89.99	90.26	6,941.47	677.14	7,543.16	7,540.01	0.00	0.00	0.00
14,100.00	89.99	90.26	6,941.49	676.69	7,643.16	7,640.01	0.00	0.00	0.00
14,200.00	89.99	90.26	6,941.51	676.24	7,743.16	7,740.01	0.00	0.00	0.00
14,300.00	89.99	90.26	6,941.53	675.78	7,843.16	7,840.01	0.00	0.00	0.00
14,400.00	89.99	90.26	6,941.56	675.33	7,943.16	7,940.01	0.00	0.00	0.00
14,500.00	89.99	90.26	6,941.58	674.88	8,043.16	8,040.01	0.00	0.00	0.00
14,600.00	89.99	90.26	6,941.60	674.42	8,143.16	8,140.01	0.00	0.00	0.00
14,700.00	89.99	90.26	6,941.62	673.97	8,243.16	8,240.01	0.00	0.00	0.00
14,800.00	89.99	90.26	6,941.64	673.52	8,343.16	8,340.01	0.00	0.00	0.00
14,900.00	89.99	90.26	6,941.67	673.06	8,443.15	8,440.01	0.00	0.00	0.00
15,000.00	89.99	90.26	6,941.69	672.61	8,543.15	8,540.01	0.00	0.00	0.00
15,100.00	89.99	90.26	6,941.71	672.16	8,643.15	8,640.01	0.00	0.00	0.00
15,200.00	89.99	90.26	6,941.73	671.71	8,743.15	8,740.01	0.00	0.00	0.00
15,300.00	89.99	90.26	6,941.75	671.25	8,843.15	8,840.01	0.00	0.00	0.00
15,400.00	89.99	90.26	6,941.78	670.80	8,943.15	8,940.01	0.00	0.00	0.00
15,500.00	89.99	90.26	6,941.80	670.35	9,043.15	9,040.01	0.00	0.00	0.00
15,600.00	89.99	90.26	6,941.82	669.89	9,143.15	9,140.01	0.00	0.00	0.00
15,700.00	89.99	90.26	6,941.84	669.44	9,243.15	9,240.01	0.00	0.00	0.00
15,800.00	89.99	90.26	6,941.87	668.99	9,343.14	9,340.01	0.00	0.00	0.00
15,900.00	89.99	90.26	6,941.89	668.53	9,443.14	9,440.01	0.00	0.00	0.00
16,000.00	89.99	90.26	6,941.91	668.08	9,543.14	9,540.01	0.00	0.00	0.00
16,100.00	89.99	90.26	6,941.93	667.63	9,643.14	9,640.01	0.00	0.00	0.00
16,200.00	89.99	90.26	6,941.95	667.18	9,743.14	9,740.01	0.00	0.00	0.00
16,300.00	89.99	90.26	6,941.98	666.72	9,843.14	9,840.01	0.00	0.00	0.00
16,400.00	89.99	90.26	6,942.00	666.27	9,943.14	9,940.01	0.00	0.00	0.00
16,500.00	89.99	90.26	6,942.02	665.82	10,043.14	10,040.01	0.00	0.00	0.00
16,600.00	89.99	90.26	6,942.04	665.36	10,143.14	10,140.01	0.00	0.00	0.00
16,700.00	89.99	90.26	6,942.06	664.91	10,243.14	10,240.01	0.00	0.00	0.00
16,800.00	89.99	90.26	6,942.09	664.46	10,343.13	10,340.01	0.00	0.00	0.00
16,900.00	89.99	90.26	6,942.11	664.00	10,443.13	10,440.01	0.00	0.00	0.00
17,000.00	89.99	90.26	6,942.13	663.55	10,543.13	10,540.01	0.00	0.00	0.00
17,100.00	89.99	90.26	6,942.15	663.10	10,643.13	10,640.01	0.00	0.00	0.00
17,200.00	89.99	90.26	6,942.17	662.65	10,743.13	10,740.01	0.00	0.00	0.00
17,300.00	89.99	90.26	6,942.20	662.19	10,843.13	10,840.01	0.00	0.00	0.00
17,400.00	89.99	90.26	6,942.22	661.74	10,943.13	10,940.01	0.00	0.00	0.00
17,500.00	89.99	90.26	6,942.24	661.29	11,043.13	11,040.01	0.00	0.00	0.00

SDT
Planning Report

Database:	EDM 5000 Multi User Db	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
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 704H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #6		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
17,600.00	89.99	90.26	6,942.26	660.83	11,143.13	11,140.01	0.00	0.00	0.00
17,700.00	89.99	90.26	6,942.28	660.38	11,243.13	11,240.01	0.00	0.00	0.00
17,800.00	89.99	90.26	6,942.31	659.93	11,343.12	11,340.01	0.00	0.00	0.00
17,900.00	89.99	90.26	6,942.33	659.47	11,443.12	11,440.01	0.00	0.00	0.00
18,000.00	89.99	90.26	6,942.35	659.02	11,543.12	11,540.01	0.00	0.00	0.00
18,100.00	89.99	90.26	6,942.37	658.57	11,643.12	11,640.01	0.00	0.00	0.00
18,200.00	89.99	90.26	6,942.39	658.11	11,743.12	11,740.01	0.00	0.00	0.00
18,300.00	89.99	90.26	6,942.42	657.66	11,843.12	11,840.01	0.00	0.00	0.00
18,400.00	89.99	90.26	6,942.44	657.21	11,943.12	11,940.01	0.00	0.00	0.00
18,500.00	89.99	90.26	6,942.46	656.76	12,043.12	12,040.01	0.00	0.00	0.00
18,600.00	89.99	90.26	6,942.48	656.30	12,143.12	12,140.01	0.00	0.00	0.00
18,700.00	89.99	90.26	6,942.51	655.85	12,243.12	12,240.01	0.00	0.00	0.00
18,800.00	89.99	90.26	6,942.53	655.40	12,343.11	12,340.01	0.00	0.00	0.00
18,900.00	89.99	90.26	6,942.55	654.94	12,443.11	12,440.01	0.00	0.00	0.00
19,000.00	89.99	90.26	6,942.57	654.49	12,543.11	12,540.01	0.00	0.00	0.00
19,100.00	89.99	90.26	6,942.59	654.04	12,643.11	12,640.01	0.00	0.00	0.00
19,200.00	89.99	90.26	6,942.62	653.58	12,743.11	12,740.01	0.00	0.00	0.00
19,300.00	89.99	90.26	6,942.64	653.13	12,843.11	12,840.01	0.00	0.00	0.00
19,400.00	89.99	90.26	6,942.66	652.68	12,943.11	12,940.01	0.00	0.00	0.00
19,500.00	89.99	90.26	6,942.68	652.23	13,043.11	13,040.01	0.00	0.00	0.00
19,600.00	89.99	90.26	6,942.70	651.77	13,143.11	13,140.01	0.00	0.00	0.00
19,700.00	89.99	90.26	6,942.73	651.32	13,243.10	13,240.01	0.00	0.00	0.00
19,800.00	89.99	90.26	6,942.75	650.87	13,343.10	13,340.01	0.00	0.00	0.00
19,900.00	89.99	90.26	6,942.77	650.41	13,443.10	13,440.01	0.00	0.00	0.00
20,000.00	89.99	90.26	6,942.79	649.96	13,543.10	13,540.01	0.00	0.00	0.00
20,100.00	89.99	90.26	6,942.81	649.51	13,643.10	13,640.01	0.00	0.00	0.00
20,200.00	89.99	90.26	6,942.84	649.05	13,743.10	13,740.01	0.00	0.00	0.00
20,300.00	89.99	90.26	6,942.86	648.60	13,843.10	13,840.01	0.00	0.00	0.00
20,400.00	89.99	90.26	6,942.88	648.15	13,943.10	13,940.01	0.00	0.00	0.00
20,500.00	89.99	90.26	6,942.90	647.70	14,043.10	14,040.01	0.00	0.00	0.00
20,600.00	89.99	90.26	6,942.92	647.24	14,143.10	14,140.01	0.00	0.00	0.00
20,700.00	89.99	90.26	6,942.95	646.79	14,243.09	14,240.01	0.00	0.00	0.00
20,800.00	89.99	90.26	6,942.97	646.34	14,343.09	14,340.01	0.00	0.00	0.00
20,900.00	89.99	90.26	6,942.99	645.88	14,443.09	14,440.01	0.00	0.00	0.00
20,942.50	89.99	90.26	6,943.00	645.69	14,485.59	14,482.51	0.00	0.00	0.00
TD at 20942.50									

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 704H SHL - plan hits target center - Point	0.00	0.00	0.00	0.00	0.00	2,152,277.01	2,850,002.92	36.913904	-107.399208
RU 704H POE - plan misses target center by 18.94usft at 7336.32usft MD (6939.59 TVD, 726.02 N, 880.06 E) - Point	0.00	0.00	6,941.00	707.16	879.09	2,152,988.16	2,850,878.78	36.915846	-107.396201
RU 704H PBHL - plan hits target center - Point	0.00	0.00	6,943.00	645.69	14,485.59	2,152,988.62	2,864,485.42	36.915667	-107.349657

SDT

Planning Report

Database:	EDM 5000 Multi User Db	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
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 704H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #6		

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,421.23	2,407.00	Ojo Alamo		0.00	
2,534.95	2,520.00	Kirtland		0.00	
2,906.22	2,889.00	Fruitland		0.00	
3,002.61	2,985.00	Top of Coals		0.00	
3,176.05	3,158.00	Base of Coals		0.00	
3,345.25	3,327.00	Pictured Cliffs		0.00	
3,471.36	3,453.00	Lewis		0.00	
4,624.79	4,589.00	Chacra		0.00	
5,118.87	5,074.00	Upper Cliff House		0.00	
5,405.64	5,356.00	Cliff House		0.00	
5,456.34	5,406.00	Menefee		0.00	
5,674.88	5,622.00	Point Lookout		0.00	
6,223.12	6,166.00	Mancos		0.00	
6,873.30	6,762.00	Black Top		0.00	

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
6,255.00	6,197.73	691.84	266.71	Start 38.00 hold at 6255.00 MD
6,293.00	6,235.55	695.15	268.23	Start 100.00 hold at 6293.00 MD
6,393.00	6,335.09	703.84	272.23	Start DLS 9.10 TFO 68.37
7,359.60	6,940.02	724.84	903.31	Start 300.00 hold at 7359.60 MD
7,659.60	6,940.07	709.14	1,202.90	Start DLS 2.00 TFO -90.06
7,796.63	6,940.10	705.24	1,339.85	Start 13145.87 hold at 7796.63 MD
20,942.50	6,943.00	645.69	14,485.59	TD at 20942.50

Logos Operating LLC

Rio Arriba, NM (NAD83)
Rosa Unit 24
Rosa Unit 704H

OH
Plan #6

Anticollision Report

03 July, 2024

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**Offset TVD Reference:**	Offset Datum

Reference	Plan #6		
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
58.45	299.93	Survey #1 (OH)	Standard Keeper 104	Standard Wireline Keeper ver 1.0.4
446.00	6,255.00	Survey #2 (OH)	MWD+HRGM+MS	MWD + HRGM + Multi-Station Correction
6,255.00	20,942.16	Plan #6 (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	512.18	488.41	8,010.06	8,007.77	3,504.868	CC
(O) Rosa Unit #001E - OH - OH-SVY	624.00	660.82	8,010.76	8,007.55	2,496.776	ES
(O) Rosa Unit #001E - OH - OH-SVY	6,650.00	6,275.00	8,605.77	8,561.57	194.694	SF
(O) Rosa Unit #009A - OH - OH-SVY	501.44	387.66	10,124.59	10,123.26	7,601.889	CC
(O) Rosa Unit #009A - OH - OH-SVY	537.00	443.55	10,124.68	10,123.14	6,586.986	ES
(O) Rosa Unit #009A - OH - OH-SVY	6,750.00	6,240.61	10,500.82	10,464.76	291.234	SF
(O) Rosa Unit #009C - OH - OH-TD	537.00	598.05	12,095.37	12,076.72	648.695	CC
(O) Rosa Unit #009C - OH - OH-TD	718.00	775.19	12,098.37	12,073.86	493.504	ES
(O) Rosa Unit #009C - OH - OH-TD	6,950.00	6,855.32	12,761.51	12,533.52	55.972	SF
(O) Rosa Unit #009D - OH - OH-SVY	0.00	0.00	10,178.40			
(O) Rosa Unit #009D - OH - OH-SVY	6,850.00	7,124.76	11,318.29	11,267.78	224.119	SF
(O) Rosa Unit #030 - OH - OH-SVY	522.67	665.54	3,806.35	3,803.43	1,300.500	CC
(O) Rosa Unit #030 - OH - OH-SVY	537.00	675.00	3,806.38	3,803.39	1,270.602	ES
(O) Rosa Unit #030 - OH - OH-SVY	6,500.00	6,363.79	4,524.17	4,480.15	102.773	SF
(O) Rosa Unit #030B - OH - OH-TD	588.82	749.87	5,285.59	5,262.25	226.409	CC
(O) Rosa Unit #030B - OH - OH-TD	624.00	779.75	5,286.01	5,261.66	217.113	ES
(O) Rosa Unit #030B - OH - OH-TD	6,750.00	6,817.55	5,996.41	5,770.16	26.504	SF
(O) Rosa Unit #030C - OH - OH-TD	571.88	749.92	3,906.74	3,883.45	167.770	CC
(O) Rosa Unit #030C - OH - OH-TD	624.00	794.34	3,907.19	3,882.41	157.701	ES
(O) Rosa Unit #030C - OH - OH-TD	6,255.00	6,317.00	4,576.03	4,365.12	21.697	SF
(O) Rosa Unit #036 - OH - OH-SVY	548.14	684.32	7,826.23	7,823.26	2,637.434	CC, ES
(O) Rosa Unit #036 - OH - OH-SVY	6,900.00	7,142.15	8,236.25	8,188.36	171.988	SF
(O) Rosa Unit #036C - OH - OH-SVY	402.21	372.00	9,006.63	9,005.40	7,316.768	CC, ES
(O) Rosa Unit #036C - OH - OH-SVY	6,850.00	6,515.67	9,904.34	9,856.69	207.870	SF
(O) Rosa Unit #040 - OH - OH-TD	20,942.50	7,439.05	3,618.12	3,356.52	13.831	CC, ES, SF
(O) Rosa Unit #041C - OH - OH-TD	11,037.10	6,986.54	1,134.31	850.85	4.002	CC, ES
(O) Rosa Unit #041C - OH - OH-TD	11,100.00	6,986.56	1,136.06	851.38	3.991	SF
(O) Rosa Unit #045 - OH - OH-TD	13,859.44	6,117.00	2,670.93	2,392.32	9.587	CC
(O) Rosa Unit #045 - OH - OH-TD	13,900.00	6,117.00	2,671.24	2,392.14	9.571	ES
(O) Rosa Unit #045 - OH - OH-TD	14,100.00	6,117.00	2,681.74	2,400.48	9.535	SF
(O) Rosa Unit #046A - OH - OH-SVY	11,340.50	6,986.70	2,239.23	2,140.09	22.585	CC, ES
(O) Rosa Unit #046A - OH - OH-SVY	11,600.00	6,989.08	2,254.22	2,153.51	22.383	SF
(O) Rosa Unit #070 - OH - OH	19,585.63	6,518.00	1,575.19	1,199.05	4.188	CC
(O) Rosa Unit #070 - OH - OH	19,600.00	6,518.00	1,575.26	1,198.85	4.185	ES
(O) Rosa Unit #070 - OH - OH	19,700.00	6,518.00	1,579.34	1,201.45	4.179	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 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**Offset TVD Reference:**	Offset Datum

Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Rosa Unit 24						
(O) Rosa Unit #080 - OH - OH-SVY	9,597.81	6,889.37	1,742.07	1,665.53	22.761	CC
(O) Rosa Unit #080 - OH - OH-SVY	9,600.00	6,889.38	1,742.07	1,665.51	22.753	ES
(O) Rosa Unit #080 - OH - OH-SVY	9,900.00	6,890.26	1,768.09	1,688.86	22.317	SF
(O) Rosa Unit #080A - OH - OH-TD	9,310.70	6,011.00	952.41	858.67	10.160	CC, ES
(O) Rosa Unit #080A - OH - OH-TD	10,000.00	6,011.00	1,175.68	1,025.32	7.819	SF
(O) Rosa Unit #080B - OH - OH-TD	8,595.46	6,922.10	409.96	164.00	1.667	CC
(O) Rosa Unit #080B - OH - OH-TD	8,600.00	6,922.11	409.99	163.90	1.666	ES, SF
(O) Rosa Unit #095 - OH - OH-TD	17,170.13	6,300.00	1,437.41	1,194.67	5.921	CC
(O) Rosa Unit #095 - OH - OH-TD	17,200.00	6,300.00	1,437.72	1,194.51	5.911	ES
(O) Rosa Unit #095 - OH - OH-TD	17,300.00	6,300.00	1,443.27	1,198.29	5.891	SF
(O) Rosa Unit #108 - OH - OH-INC	5,109.06	5,014.78	645.88	530.28	5.587	CC
(O) Rosa Unit #108 - OH - OH-INC	6,293.00	6,186.00	663.81	521.16	4.654	ES
(O) Rosa Unit #108 - OH - OH-INC	6,450.00	6,342.11	669.75	523.96	4.594	SF
(O) Rosa Unit #109 - OH - OH-TD	14,047.34	7,240.54	2,080.34	1,742.33	6.155	CC, ES
(O) Rosa Unit #109 - OH - OH-TD	14,200.00	7,240.57	2,085.93	1,746.31	6.142	SF
(O) Rosa Unit #149 - OH - OH-INC	519.46	487.57	3,533.73	3,521.50	289.101	CC
(O) Rosa Unit #149 - OH - OH-INC	5,999.00	5,909.16	3,626.73	3,422.94	17.797	ES
(O) Rosa Unit #149 - OH - OH-INC	6,125.00	5,949.00	3,632.13	3,426.04	17.624	SF
(O) Rosa Unit #149A - OH - OH-INC	520.95	481.65	4,863.31	4,854.11	528.441	CC
(O) Rosa Unit #149A - OH - OH-INC	624.00	582.95	4,864.21	4,852.85	428.004	ES
(O) Rosa Unit #149A - OH - OH-INC	6,255.00	6,000.00	5,072.69	4,930.69	35.724	SF
(O) Rosa Unit #149B - OH - OH-SVY	527.27	635.60	6,768.57	6,767.19	4,888.756	CC
(O) Rosa Unit #149B - OH - OH-SVY	537.00	645.13	6,768.58	6,767.16	4,771.025	ES
(O) Rosa Unit #149B - OH - OH-SVY	6,650.00	6,648.41	7,074.37	7,045.51	245.115	SF
(O) Rosa Unit #149C - OH - OH-SVY	4,194.32	4,317.93	4,292.58	4,259.60	130.144	CC, ES
(O) Rosa Unit #149C - OH - OH-SVY	6,500.00	6,562.62	4,387.90	4,344.31	100.651	SF
(O) Rosa Unit #154 - OH - OH-TD	594.22	750.22	2,236.99	2,213.64	95.803	CC
(O) Rosa Unit #154 - OH - OH-TD	718.00	860.62	2,239.74	2,212.68	82.778	ES
(O) Rosa Unit #154 - OH - OH-TD	6,255.00	6,341.00	2,959.36	2,747.87	13.993	SF
(O) Rosa Unit #154A - OH - OH-SVY	637.16	660.60	1,694.09	1,692.69	1,217.114	CC
(O) Rosa Unit #154A - OH - OH-SVY	718.00	740.69	1,694.36	1,692.64	984.397	ES
(O) Rosa Unit #154A - OH - OH-SVY	8,300.00	6,125.00	2,911.25	2,878.17	87.999	SF
(O) Rosa Unit #154B - OH - OH-SVY	3,547.84	3,856.77	742.90	725.94	43.785	CC, ES
(O) Rosa Unit #154B - OH - OH-SVY	7,050.00	7,168.63	1,175.53	1,147.32	41.672	SF
(O) Rosa Unit #171 - OH - OH-INC	5,470.76	5,358.65	452.60	398.13	8.310	CC
(O) Rosa Unit #171 - OH - OH-INC	6,062.00	5,946.28	458.04	395.57	7.332	ES
(O) Rosa Unit #171 - OH - OH-INC	6,125.00	6,008.71	459.10	395.61	7.231	SF
(O) Rosa Unit #171A - OH - OH-SVY	58.45	0.00	854.80	854.79	10,000.000	CC, ES
(O) Rosa Unit #171A - OH - OH-SVY	3,677.00	3,337.00	1,754.54	1,730.83	73.984	SF
(O) Rosa Unit #181 - OH - OH-SVY	589.50	643.00	10,852.68	10,850.99	6,426.350	CC, ES
(O) Rosa Unit #181 - OH - OH-SVY	6,450.00	1,359.00	12,387.12	12,363.50	524.609	SF
(O) Rosa Unit #228A - OH - OH-SVY	460.56	397.86	691.57	690.64	749.879	CC, ES
(O) Rosa Unit #228A - OH - OH-SVY	3,488.00	3,253.00	1,854.63	1,832.58	84.105	SF
(O) Rosa Unit #53 - OH - OH	10,935.90	6,996.93	825.30	604.64	3.740	CC, ES
(O) Rosa Unit #53 - OH - OH	11,000.00	6,996.94	827.79	605.85	3.730	SF
Rosa Unit 700H - OH - OH	515.95	516.55	71.22	70.04	60.228	CC
Rosa Unit 700H - OH - OH	537.00	537.44	71.26	69.95	54.627	ES
Rosa Unit 700H - OH - OH	6,450.00	6,469.80	391.90	346.33	8.601	SF
Rosa Unit 701H - OH - OH	899.27	898.23	45.86	42.12	12.256	CC
Rosa Unit 701H - OH - OH	903.00	901.91	45.86	42.09	12.171	ES
Rosa Unit 701H - OH - OH	1,084.00	1,079.74	51.90	46.85	10.267	SF
Rosa Unit 701H - OH - Plan #3	454.19	454.29	48.91	48.10	60.316	CC
Rosa Unit 701H - OH - Plan #3	903.00	902.20	51.34	47.50	13.363	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 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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 701H - OH - Plan #3	1,175.00	1,170.79	62.65	56.86	10.821	SF
Rosa Unit 702H - OH - OH	653.52	654.04	20.39	18.33	9.881	CC, ES
Rosa Unit 702H - OH - OH	718.00	718.38	21.46	18.91	8.420	SF
Rosa Unit 702H - OH - Plan #3	653.52	654.04	20.39	18.33	9.881	CC, ES
Rosa Unit 702H - OH - Plan #3	718.00	718.38	21.46	18.91	8.420	SF
Rosa Unit 704H - OH - OH	6,259.15	6,255.00	4.15			
Rosa Unit 704H - OH - OH	7,050.00	6,255.00	750.39	741.05	80.332	SF
Rosa Unit 705H - OH - OH	0.00	0.00	50.00			
Rosa Unit 705H - OH - OH	994.00	984.28	105.41	100.79	22.815	SF
Rosa Unit 705H - OH - Plan #4	0.00	0.00	50.00			
Rosa Unit 705H - OH - Plan #4	20,942.50	20,852.96	1,289.63	829.29	2.801	SF
Rosa Unit 706H - OH - OH	91.87	91.92	24.91	24.85	427.591	CC
Rosa Unit 706H - OH - OH	537.00	536.51	25.85	24.55	19.860	ES
Rosa Unit 706H - OH - OH	20,942.50	20,962.00	2,597.19	2,130.31	5.563	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	-102.44	-1,726.41	-7,826.78	8,014.92				
58.45	58.45	63.95	63.95	0.02	0.14	19.27	-1,726.43	-7,826.82	8,014.63	8,014.48	0.15	N/A	
150.25	150.24	160.54	160.54	0.14	0.47	0.97	-1,726.65	-7,826.95	8,013.73	8,013.12	0.61	N/A	
239.43	239.42	244.77	244.77	0.25	0.77	-4.51	-1,726.94	-7,827.01	8,012.81	8,011.79	1.02	7,845.818	
299.93	299.91	297.20	297.20	0.33	0.95	0.44	-1,727.18	-7,827.07	8,012.18	8,010.90	1.28	6,241.211	
446.00	445.96	427.22	427.22	0.50	1.41	24.84	-1,727.78	-7,827.51	8,010.50	8,008.59	1.91	4,195.827	
512.18	512.13	488.41	488.41	0.66	1.62	61.68	-1,727.95	-7,827.79	8,010.06	8,007.77	2.29	3,504.868	CC
537.00	536.95	518.58	518.58	0.73	1.73	86.10	-1,728.00	-7,827.94	8,010.11	8,007.66	2.45	3,266.316	
624.00	623.95	660.82	660.81	0.99	2.23	169.08	-1,728.27	-7,827.91	8,010.76	8,007.55	3.21	2,496.776	ES
718.00	717.90	758.47	758.46	1.29	2.57	-173.08	-1,728.58	-7,827.57	8,013.17	8,009.32	3.85	2,081.667	
811.00	810.73	857.04	857.04	1.60	2.91	-153.60	-1,728.57	-7,827.32	8,018.15	8,013.64	4.51	1,779.734	
903.00	902.19	953.02	953.01	1.92	3.24	-141.61	-1,728.31	-7,827.06	8,026.03	8,020.87	5.16	1,555.535	
994.00	992.38	1,066.86	1,066.85	2.24	3.64	-139.40	-1,727.95	-7,826.43	8,034.85	8,028.97	5.88	1,367.306	
1,084.00	1,081.50	1,154.77	1,154.76	2.56	3.95	-135.00	-1,727.72	-7,825.82	8,043.44	8,036.94	6.50	1,236.703	
1,175.00	1,171.48	1,244.68	1,244.67	2.91	4.26	-131.21	-1,727.54	-7,825.24	8,052.13	8,044.98	7.15	1,126.351	
1,268.00	1,263.52	1,343.43	1,343.41	3.26	4.60	-129.74	-1,727.11	-7,824.62	8,060.17	8,052.34	7.84	1,028.728	
1,363.00	1,357.62	1,421.65	1,421.63	3.63	4.88	-126.83	-1,726.63	-7,824.20	8,067.67	8,059.21	8.46	953.645	
1,457.00	1,450.74	1,521.26	1,521.24	3.99	5.23	-124.19	-1,725.82	-7,823.78	8,074.61	8,065.45	9.16	881.635	
1,552.00	1,544.82	1,600.00	1,599.97	4.36	5.50	-123.44	-1,725.23	-7,823.50	8,081.52	8,071.73	9.79	825.388	
1,646.00	1,637.88	1,739.82	1,739.79	4.72	5.99	-123.05	-1,724.23	-7,822.69	8,088.18	8,077.55	10.64	760.392	
1,741.00	1,731.94	1,842.49	1,842.45	5.09	6.35	-122.68	-1,723.01	-7,821.81	8,094.41	8,083.06	11.36	712.727	
1,835.00	1,825.07	1,905.64	1,905.59	5.46	6.57	-122.66	-1,721.98	-7,821.42	8,100.40	8,088.47	11.93	678.778	
1,929.00	1,918.39	1,975.00	1,974.93	5.82	6.81	-123.90	-1,720.59	-7,821.28	8,106.04	8,093.51	12.53	647.004	
2,024.00	2,012.84	2,048.07	2,047.98	6.18	7.07	-122.55	-1,719.06	-7,821.42	8,111.38	8,098.24	13.14	617.462	
2,118.00	2,106.19	2,157.75	2,157.64	6.53	7.45	-122.36	-1,717.10	-7,821.62	8,117.07	8,103.20	13.87	585.077	
2,213.00	2,200.37	2,258.11	2,257.99	6.90	7.80	-123.73	-1,715.16	-7,821.58	8,123.45	8,108.86	14.59	556.934	
2,307.00	2,293.61	2,325.00	2,324.86	7.27	8.03	-121.80	-1,713.70	-7,821.71	8,129.66	8,114.48	15.17	535.729	
2,402.00	2,387.91	2,402.12	2,401.97	7.63	8.30	-117.98	-1,712.31	-7,822.02	8,135.38	8,119.58	15.80	514.827	
2,496.00	2,481.29	2,528.85	2,528.69	7.99	8.75	-116.87	-1,710.58	-7,822.32	8,140.32	8,123.72	16.60	490.378	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
2,591.00	2,575.67	2,613.98	2,613.81	8.35	9.04	-118.38	-1,709.14	-7,822.36	8,145.05	8,127.79	17.25	472.045	
2,686.00	2,670.05	2,675.00	2,674.81	8.71	9.26	-118.01	-1,708.03	-7,822.60	8,150.14	8,132.32	17.82	457.263	
2,780.00	2,763.49	2,725.00	2,724.81	9.07	9.43	-120.05	-1,707.29	-7,823.00	8,155.59	8,137.25	18.35	444.496	
2,875.00	2,857.94	2,782.08	2,781.88	9.43	9.63	-121.51	-1,706.71	-7,823.76	8,161.78	8,142.88	18.90	431.854	
2,970.00	2,952.51	2,875.00	2,874.78	9.79	9.96	-118.00	-1,705.61	-7,825.07	8,167.31	8,147.73	19.57	417.244	
3,064.00	3,046.19	2,932.17	2,931.94	10.13	10.16	-110.86	-1,704.92	-7,826.03	8,171.82	8,151.70	20.11	406.270	
3,159.00	3,140.98	3,059.11	3,058.86	10.47	10.60	-108.93	-1,704.43	-7,828.18	8,175.53	8,154.63	20.90	391.122	
3,253.00	3,234.84	3,125.00	3,124.74	10.81	10.83	-116.69	-1,704.21	-7,829.16	8,178.74	8,157.28	21.46	381.028	
3,348.00	3,329.74	3,250.00	3,249.73	11.14	11.26	-124.38	-1,704.26	-7,831.17	8,182.47	8,160.23	22.24	367.911	
3,397.00	3,378.70	3,283.98	3,283.70	11.32	11.38	-125.27	-1,704.21	-7,831.63	8,184.28	8,161.75	22.53	363.253	
3,488.00	3,469.63	3,396.93	3,396.64	11.64	11.78	-127.85	-1,704.30	-7,833.36	8,187.78	8,164.53	23.25	352.204	
3,583.00	3,564.49	3,454.13	3,453.83	11.98	11.98	-119.44	-1,704.23	-7,834.16	8,191.78	8,168.00	23.78	344.437	
3,677.00	3,658.13	3,550.00	3,549.69	12.33	12.31	-117.65	-1,704.31	-7,835.51	8,196.98	8,172.52	24.46	335.056	
3,772.00	3,752.42	3,650.00	3,649.68	12.69	12.66	-113.12	-1,704.27	-7,837.02	8,203.26	8,178.09	25.17	325.854	
3,867.00	3,846.42	3,739.46	3,739.13	13.06	12.97	-111.60	-1,704.19	-7,838.40	8,209.96	8,184.11	25.85	317.550	
3,961.00	3,939.30	3,833.64	3,833.30	13.44	13.30	-111.91	-1,704.36	-7,839.78	8,216.77	8,190.22	26.55	309.486	
4,056.00	4,032.83	3,900.00	3,899.65	13.82	13.53	-115.22	-1,704.79	-7,840.89	8,225.23	8,198.08	27.16	302.898	
4,151.00	4,126.01	3,984.43	3,984.06	14.21	13.83	-114.43	-1,705.76	-7,842.29	8,234.94	8,207.11	27.83	295.884	
4,246.00	4,219.10	4,070.80	4,070.40	14.61	14.13	-121.91	-1,707.47	-7,843.66	8,245.97	8,217.45	28.52	289.171	
4,340.00	4,310.92	4,133.67	4,133.24	15.01	14.35	-130.93	-1,709.16	-7,844.73	8,260.35	8,231.24	29.11	283.748	
4,435.00	4,403.54	4,207.82	4,207.34	15.41	14.61	-131.67	-1,711.52	-7,846.05	8,276.88	8,247.13	29.75	278.212	
4,498.00	4,465.21	4,250.00	4,249.49	15.68	14.75	-129.76	-1,712.92	-7,846.83	8,287.08	8,256.94	30.14	274.913	
4,561.00	4,526.82	4,310.87	4,310.31	15.95	14.97	-124.54	-1,715.17	-7,848.05	8,296.91	8,266.30	30.61	271.054	
4,624.00	4,588.23	4,350.00	4,349.40	16.22	15.10	-122.75	-1,716.65	-7,848.88	8,306.77	8,275.77	31.00	267.958	
4,687.00	4,649.71	4,387.07	4,386.44	16.49	15.23	-122.36	-1,718.10	-7,849.74	8,316.36	8,284.98	31.38	265.002	
4,749.00	4,710.40	4,439.27	4,438.57	16.75	15.42	-121.24	-1,720.18	-7,850.98	8,325.25	8,293.43	31.81	261.688	
4,812.00	4,772.28	4,493.43	4,492.67	17.01	15.60	-120.62	-1,722.46	-7,852.34	8,333.65	8,301.40	32.25	258.381	
4,875.00	4,834.34	4,562.23	4,561.39	17.27	15.85	-121.22	-1,725.36	-7,853.99	8,341.48	8,308.73	32.74	254.744	
4,938.00	4,896.43	4,625.00	4,624.09	17.53	16.06	-121.46	-1,728.01	-7,855.55	8,349.29	8,316.07	33.21	251.389	
5,001.00	4,958.46	4,675.00	4,674.02	17.79	16.24	-124.70	-1,730.19	-7,856.83	8,357.69	8,324.05	33.63	248.484	
5,064.00	5,020.29	4,734.98	4,733.93	18.05	16.45	-128.91	-1,732.79	-7,858.37	8,367.33	8,333.24	34.10	245.404	
5,126.00	5,080.98	4,799.33	4,798.19	18.32	16.67	-133.19	-1,735.64	-7,860.07	8,378.07	8,343.50	34.57	242.345	
5,189.00	5,142.74	4,863.77	4,862.55	18.58	16.90	-131.72	-1,738.38	-7,861.67	8,388.80	8,353.76	35.05	239.361	
5,252.00	5,204.62	4,925.00	4,923.70	18.85	17.11	-131.81	-1,741.03	-7,863.24	8,399.06	8,363.55	35.51	236.534	
5,315.00	5,266.61	4,984.84	4,983.47	19.11	17.32	-132.11	-1,743.61	-7,864.77	8,408.91	8,372.94	35.96	233.814	
5,378.00	5,328.73	5,039.17	5,037.73	19.37	17.51	-131.75	-1,746.01	-7,866.19	8,418.34	8,381.94	36.40	231.294	
5,441.00	5,390.87	5,075.00	5,073.51	19.62	17.64	-132.26	-1,747.60	-7,867.19	8,427.78	8,391.02	36.76	229.268	
5,503.00	5,452.07	5,175.00	5,173.37	19.87	17.99	-132.09	-1,752.05	-7,869.82	8,436.81	8,399.46	37.36	225.834	
5,566.00	5,514.32	5,238.55	5,236.84	20.13	18.21	-132.50	-1,755.05	-7,871.31	8,445.64	8,407.82	37.82	223.293	
5,629.00	5,576.59	5,338.84	5,336.99	20.38	18.56	-130.19	-1,759.82	-7,873.36	8,454.07	8,415.64	38.42	220.015	
5,692.00	5,638.95	5,414.19	5,412.24	20.63	18.82	-132.60	-1,763.44	-7,874.66	8,461.94	8,423.00	38.93	217.354	
5,747.00	5,693.45	5,481.42	5,479.38	20.85	19.06	-130.45	-1,766.74	-7,875.68	8,468.46	8,429.08	39.38	215.056	
5,810.00	5,755.90	5,563.48	5,561.33	21.09	19.35	-131.27	-1,770.92	-7,876.66	8,475.54	8,435.63	39.91	212.380	
5,874.00	5,819.40	5,650.00	5,647.72	21.34	19.65	-130.12	-1,775.56	-7,877.46	8,482.31	8,441.85	40.46	209.671	
5,936.00	5,880.95	5,758.73	5,756.29	21.58	20.03	-130.63	-1,781.49	-7,877.97	8,488.45	8,447.37	41.08	206.646	
5,999.00	5,943.45	5,810.51	5,807.99	21.82	20.21	-132.14	-1,784.30	-7,878.08	8,494.78	8,453.29	41.49	204.728	
6,062.00	6,005.96	5,841.24	5,838.68	22.07	20.32	-129.68	-1,785.99	-7,878.26	8,501.29	8,459.46	41.83	203.230	
6,125.00	6,068.49	5,900.00	5,897.35	22.31	20.52	-132.05	-1,789.08	-7,878.65	8,507.71	8,465.43	42.27	201.263	
6,188.00	6,131.08	5,940.59	5,937.88	22.55	20.66	-130.30	-1,791.24	-7,878.98	8,513.93	8,471.28	42.64	199.657	
6,255.00	6,197.73	5,987.82	5,985.04	22.81	20.83	-131.45	-1,793.77	-7,879.48	8,520.14	8,477.09	43.05	197.914	
6,293.00	6,235.55	6,023.42	6,020.58	22.89	20.95	-131.47	-1,795.67	-7,879.94	8,523.61	8,480.36	43.25	197.093	
6,300.00	6,242.52	6,034.30	6,031.45	22.89	20.99	-131.48	-1,796.27	-7,880.05	8,524.24	8,480.95	43.29	196.921	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
6,393.00	6,335.09	6,100.00	6,097.05	22.94	21.22	-131.54	-1,799.79	-7,880.98	8,532.85	8,489.31	43.54	195.975	
6,400.00	6,342.06	6,100.00	6,097.05	22.94	21.22	-137.44	-1,799.79	-7,880.98	8,533.55	8,490.01	43.54	195.988	
6,450.00	6,391.66	6,137.22	6,134.21	22.97	21.35	-164.77	-1,801.74	-7,881.58	8,540.65	8,496.96	43.68	195.506	
6,500.00	6,440.77	6,175.00	6,171.93	23.02	21.48	-176.90	-1,803.77	-7,882.27	8,551.53	8,507.70	43.83	195.109	
6,550.00	6,489.07	6,200.00	6,196.89	23.07	21.57	176.58	-1,805.10	-7,882.76	8,566.07	8,522.14	43.92	195.020	
6,600.00	6,536.26	6,238.52	6,235.35	23.13	21.70	172.37	-1,807.19	-7,883.57	8,584.18	8,540.12	44.07	194.796	
6,650.00	6,582.05	6,275.00	6,271.76	23.21	21.83	169.24	-1,809.19	-7,884.42	8,605.77	8,561.57	44.20	194.694	SF
6,700.00	6,626.13	6,300.00	6,296.72	23.29	21.92	166.61	-1,810.57	-7,885.03	8,630.66	8,586.37	44.29	194.864	
6,750.00	6,668.24	6,325.00	6,321.67	23.39	22.01	164.19	-1,811.96	-7,885.65	8,658.69	8,614.31	44.38	195.110	
6,800.00	6,708.12	6,339.84	6,336.48	23.51	22.06	161.75	-1,812.81	-7,886.04	8,689.72	8,645.29	44.43	195.597	
6,850.00	6,745.50	6,350.00	6,346.62	23.64	22.10	159.16	-1,813.45	-7,886.34	8,723.60	8,679.14	44.46	196.232	
6,900.00	6,780.15	6,350.00	6,346.62	23.79	22.10	156.23	-1,813.45	-7,886.34	8,760.08	8,715.63	44.44	197.102	
6,950.00	6,811.86	6,361.95	6,358.53	23.95	22.14	152.86	-1,814.26	-7,886.74	8,798.89	8,754.41	44.48	197.829	
7,000.00	6,840.42	6,457.76	6,454.13	24.14	22.47	149.20	-1,819.65	-7,890.14	8,839.68	8,794.85	44.83	197.194	
7,050.00	6,865.66	6,491.55	6,487.86	24.35	22.59	144.51	-1,821.31	-7,891.22	8,882.08	8,837.14	44.94	197.643	
7,100.00	6,887.42	6,533.11	6,529.35	24.57	22.74	138.79	-1,823.33	-7,892.49	8,925.96	8,880.88	45.08	198.003	
7,150.00	6,905.55	6,539.13	6,535.36	24.82	22.76	131.32	-1,823.63	-7,892.67	8,971.09	8,926.01	45.08	198.986	
7,200.00	6,919.95	6,583.96	6,580.12	25.10	22.91	122.53	-1,825.76	-7,894.00	9,017.19	8,971.96	45.23	199.354	
7,250.00	6,930.52	6,587.26	6,583.42	25.39	22.93	111.33	-1,825.91	-7,894.10	9,063.96	9,018.73	45.22	200.435	
7,300.00	6,937.20	6,589.17	6,585.32	25.70	22.93	98.58	-1,826.00	-7,894.15	9,111.13	9,065.92	45.20	201.558	
7,350.00	6,939.94	6,589.67	6,585.82	26.04	22.93	85.40	-1,826.03	-7,894.16	9,158.40	9,113.22	45.18	202.717	
7,359.60	6,940.02	6,589.61	6,585.76	26.10	22.93	82.94	-1,826.02	-7,894.16	9,167.47	9,122.30	45.17	202.944	
7,400.00	6,940.03	6,589.23	6,585.39	26.39	22.93	82.93	-1,826.00	-7,894.15	9,205.60	9,160.45	45.15	203.892	
7,500.00	6,940.04	6,588.32	6,584.47	27.15	22.93	82.91	-1,825.96	-7,894.13	9,300.09	9,254.99	45.10	206.202	
7,600.00	6,940.06	6,587.41	6,583.57	27.99	22.93	82.89	-1,825.92	-7,894.10	9,394.68	9,349.62	45.07	208.465	
7,659.60	6,940.07	6,586.88	6,583.03	28.52	22.92	82.88	-1,825.89	-7,894.08	9,451.12	9,406.07	45.05	209.792	
7,700.00	6,940.08	6,586.51	6,582.67	28.89	22.92	82.57	-1,825.88	-7,894.07	9,489.48	9,444.44	45.04	210.682	
7,796.63	6,940.10	6,585.61	6,581.77	29.83	22.92	81.68	-1,825.83	-7,894.05	9,581.99	9,536.95	45.03	212.784	
7,800.00	6,940.10	6,585.58	6,581.73	29.86	22.92	81.68	-1,825.83	-7,894.05	9,585.23	9,540.20	45.03	212.852	
7,900.00	6,940.12	6,584.62	6,580.78	30.90	22.92	81.66	-1,825.79	-7,894.02	9,681.52	9,636.49	45.03	215.003	
8,000.00	6,940.14	6,583.68	6,579.84	31.98	22.91	81.64	-1,825.75	-7,893.99	9,777.88	9,732.85	45.03	217.121	
8,100.00	6,940.17	6,541.45	6,537.68	33.11	22.77	80.71	-1,823.74	-7,892.75	9,874.31	9,829.42	44.89	219.962	
8,200.00	6,940.19	6,540.41	6,536.64	34.28	22.76	80.69	-1,823.69	-7,892.71	9,970.80	9,925.89	44.91	222.023	
8,300.00	6,940.21	6,539.38	6,535.61	35.48	22.76	80.67	-1,823.64	-7,892.68	10,067.36	10,022.43	44.93	224.052	
8,400.00	6,940.23	6,538.37	6,534.60	36.71	22.75	80.65	-1,823.59	-7,892.65	10,163.99	10,119.03	44.96	226.051	
8,500.00	6,940.25	6,537.37	6,533.60	37.97	22.75	80.62	-1,823.54	-7,892.62	10,260.68	10,215.68	45.00	228.019	
8,600.00	6,940.28	6,536.37	6,532.61	39.26	22.75	80.60	-1,823.49	-7,892.59	10,357.44	10,312.39	45.04	229.957	
8,700.00	6,940.30	6,535.39	6,531.63	40.56	22.74	80.58	-1,823.44	-7,892.56	10,454.25	10,409.16	45.09	231.868	
8,800.00	6,940.32	6,534.42	6,530.66	41.89	22.74	80.56	-1,823.40	-7,892.53	10,551.12	10,505.98	45.14	233.750	
8,900.00	6,940.34	6,533.46	6,529.70	43.24	22.74	80.54	-1,823.35	-7,892.50	10,648.05	10,602.86	45.19	235.605	
9,000.00	6,940.36	6,522.56	6,518.81	44.60	22.70	80.30	-1,822.83	-7,892.18	10,745.05	10,699.83	45.22	237.630	
9,100.00	6,940.39	6,519.55	6,515.81	45.98	22.69	80.23	-1,822.68	-7,892.09	10,842.09	10,796.81	45.27	239.476	
9,200.00	6,940.41	6,516.55	6,512.81	47.38	22.68	80.17	-1,822.54	-7,892.00	10,939.18	10,893.84	45.33	241.297	
9,300.00	6,940.43	6,513.54	6,509.81	48.78	22.67	80.10	-1,822.39	-7,891.91	11,036.32	10,990.92	45.40	243.096	
9,400.00	6,940.45	6,492.44	6,488.75	50.20	22.59	79.64	-1,821.36	-7,891.25	11,133.51	11,088.11	45.40	245.235	
9,500.00	6,940.47	6,490.96	6,487.27	51.63	22.59	79.61	-1,821.28	-7,891.20	11,230.75	11,185.27	45.48	246.960	
9,600.00	6,940.50	6,489.50	6,485.81	53.07	22.58	79.58	-1,821.21	-7,891.16	11,328.03	11,282.48	45.56	248.663	
9,700.00	6,940.52	6,488.04	6,484.36	54.52	22.58	79.55	-1,821.14	-7,891.11	11,425.36	11,379.72	45.64	250.345	
9,800.00	6,940.54	6,486.60	6,482.92	55.97	22.57	79.52	-1,821.07	-7,891.06	11,522.74	11,477.01	45.72	252.007	
9,900.00	6,940.56	6,485.17	6,481.49	57.44	22.57	79.49	-1,821.00	-7,891.02	11,620.16	11,574.34	45.81	253.650	
10,000.00	6,940.59	6,461.49	6,457.85	58.91	22.49	78.97	-1,819.83	-7,890.26	11,717.62	11,671.80	45.82	255.733	
10,100.00	6,940.61	6,458.24	6,454.60	60.38	22.47	78.90	-1,819.67	-7,890.15	11,815.12	11,769.21	45.91	257.377	

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 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
10,200.00	6,940.63	6,454.99	6,451.36	61.87	22.46	78.83	-1,819.51	-7,890.05	11,912.65	11,866.66	45.99	259.005	
10,300.00	6,940.65	6,364.88	6,361.46	63.36	22.15	76.89	-1,814.46	-7,886.85	12,010.20	11,964.44	45.76	262.450	
10,400.00	6,940.67	6,364.17	6,360.74	64.85	22.14	76.87	-1,814.41	-7,886.82	12,107.80	12,061.93	45.86	263.995	
10,500.00	6,940.70	6,363.46	6,360.04	66.35	22.14	76.86	-1,814.36	-7,886.80	12,205.43	12,159.46	45.97	265.525	
10,600.00	6,940.72	6,362.76	6,359.34	67.86	22.14	76.84	-1,814.31	-7,886.77	12,303.10	12,257.02	46.07	267.038	
10,700.00	6,940.74	6,362.07	6,358.65	69.36	22.14	76.83	-1,814.27	-7,886.75	12,400.80	12,354.62	46.18	268.536	
10,800.00	6,940.76	6,361.39	6,357.97	70.88	22.13	76.81	-1,814.22	-7,886.72	12,498.55	12,452.26	46.29	270.020	
10,900.00	6,940.78	6,360.71	6,357.30	72.39	22.13	76.80	-1,814.17	-7,886.70	12,596.32	12,549.93	46.40	271.489	
11,000.00	6,940.81	6,350.00	6,346.62	73.91	22.10	76.57	-1,813.45	-7,886.34	12,694.16	12,647.68	46.47	273.163	
11,100.00	6,940.83	6,350.00	6,346.62	75.44	22.10	76.57	-1,813.45	-7,886.34	12,792.00	12,745.41	46.59	274.590	
11,200.00	6,940.85	6,350.00	6,346.62	76.96	22.10	76.57	-1,813.45	-7,886.34	12,889.87	12,843.17	46.70	276.005	
11,300.00	6,940.87	6,350.00	6,346.62	78.49	22.10	76.57	-1,813.45	-7,886.34	12,987.78	12,940.96	46.82	277.406	
11,400.00	6,940.89	6,350.00	6,346.62	80.03	22.10	76.57	-1,813.45	-7,886.34	13,085.72	13,038.79	46.94	278.796	
11,500.00	6,940.92	6,350.00	6,346.62	81.56	22.10	76.57	-1,813.45	-7,886.34	13,183.69	13,136.64	47.06	280.174	
11,600.00	6,940.94	6,350.00	6,346.62	83.10	22.10	76.57	-1,813.45	-7,886.34	13,281.69	13,234.52	47.18	281.540	
11,700.00	6,940.96	6,350.00	6,346.62	84.64	22.10	76.57	-1,813.45	-7,886.34	13,379.73	13,332.43	47.30	282.895	
11,800.00	6,940.98	6,350.00	6,346.62	86.18	22.10	76.57	-1,813.45	-7,886.34	13,477.79	13,430.37	47.42	284.239	
11,900.00	6,941.00	6,350.00	6,346.62	87.72	22.10	76.57	-1,813.45	-7,886.34	13,575.87	13,528.33	47.54	285.573	
12,000.00	6,941.03	6,350.00	6,346.62	89.27	22.10	76.57	-1,813.45	-7,886.34	13,673.99	13,626.33	47.66	286.896	
12,100.00	6,941.05	6,350.00	6,346.62	90.82	22.10	76.57	-1,813.45	-7,886.34	13,772.13	13,724.35	47.79	288.210	
12,200.00	6,941.07	6,350.00	6,346.62	92.37	22.10	76.57	-1,813.45	-7,886.34	13,870.30	13,822.39	47.91	289.514	
12,300.00	6,941.09	6,350.00	6,346.62	93.92	22.10	76.57	-1,813.45	-7,886.34	13,968.50	13,920.46	48.03	290.808	
12,400.00	6,941.11	6,350.00	6,346.62	95.47	22.10	76.57	-1,813.45	-7,886.34	14,066.72	14,018.56	48.16	292.093	
12,500.00	6,941.14	6,350.00	6,346.62	97.03	22.10	76.57	-1,813.45	-7,886.34	14,164.96	14,116.68	48.28	293.370	
12,600.00	6,941.16	6,350.00	6,346.62	98.58	22.10	76.57	-1,813.45	-7,886.34	14,263.23	14,214.82	48.41	294.637	
12,700.00	6,941.18	6,350.00	6,346.62	100.14	22.10	76.57	-1,813.45	-7,886.34	14,361.53	14,312.99	48.54	295.896	
12,800.00	6,941.20	6,350.00	6,346.62	101.70	22.10	76.57	-1,813.45	-7,886.34	14,459.84	14,411.18	48.66	297.147	
12,900.00	6,941.23	6,350.00	6,346.62	103.26	22.10	76.57	-1,813.45	-7,886.34	14,558.18	14,509.40	48.79	298.390	
13,000.00	6,941.25	6,350.00	6,346.62	104.82	22.10	76.57	-1,813.45	-7,886.34	14,656.55	14,607.63	48.92	299.625	
13,100.00	6,941.27	6,350.00	6,346.62	106.38	22.10	76.57	-1,813.45	-7,886.34	14,754.93	14,705.89	49.04	300.852	
13,200.00	6,941.29	6,350.00	6,346.62	107.95	22.10	76.57	-1,813.45	-7,886.34	14,853.34	14,804.17	49.17	302.071	
13,300.00	6,941.31	6,350.00	6,346.62	109.51	22.10	76.57	-1,813.45	-7,886.34	14,951.77	14,902.47	49.30	303.283	
13,400.00	6,941.34	6,350.00	6,346.62	111.08	22.10	76.57	-1,813.45	-7,886.34	15,050.21	15,000.79	49.43	304.488	
13,500.00	6,941.36	6,350.00	6,346.62	112.64	22.10	76.57	-1,813.45	-7,886.34	15,148.68	15,099.13	49.56	305.686	
13,600.00	6,941.38	6,350.00	6,346.62	114.21	22.10	76.57	-1,813.45	-7,886.34	15,247.17	15,197.49	49.69	306.876	
13,700.00	6,941.40	6,350.00	6,346.62	115.78	22.10	76.57	-1,813.45	-7,886.34	15,345.68	15,295.87	49.81	308.060	
13,800.00	6,941.42	6,350.00	6,346.62	117.35	22.10	76.57	-1,813.45	-7,886.34	15,444.21	15,394.26	49.94	309.237	
13,900.00	6,941.45	6,350.00	6,346.62	118.92	22.10	76.57	-1,813.45	-7,886.34	15,542.75	15,492.68	50.07	310.408	
14,000.00	6,941.47	6,350.00	6,346.62	120.49	22.10	76.57	-1,813.45	-7,886.34	15,641.32	15,591.12	50.20	311.572	
14,100.00	6,941.49	6,350.00	6,346.62	122.06	22.10	76.57	-1,813.45	-7,886.34	15,739.90	15,689.57	50.33	312.730	
14,200.00	6,941.51	6,350.00	6,346.62	123.64	22.10	76.57	-1,813.45	-7,886.34	15,838.50	15,788.04	50.46	313.882	
14,300.00	6,941.53	6,350.00	6,346.62	125.21	22.10	76.57	-1,813.45	-7,886.34	15,937.12	15,886.53	50.59	315.027	
14,400.00	6,941.56	6,350.00	6,346.62	126.78	22.10	76.57	-1,813.45	-7,886.34	16,035.75	15,985.03	50.72	316.166	
14,500.00	6,941.58	6,350.00	6,346.62	128.36	22.10	76.57	-1,813.45	-7,886.34	16,134.40	16,083.55	50.85	317.300	
14,600.00	6,941.60	6,350.00	6,346.62	129.93	22.10	76.57	-1,813.45	-7,886.34	16,233.07	16,182.09	50.98	318.428	
14,700.00	6,941.62	6,350.00	6,346.62	131.51	22.10	76.57	-1,813.45	-7,886.34	16,331.76	16,280.65	51.11	319.549	
14,800.00	6,941.64	6,350.00	6,346.62	133.08	22.10	76.57	-1,813.45	-7,886.34	16,430.46	16,379.22	51.24	320.666	
14,900.00	6,941.67	6,350.00	6,346.62	134.66	22.10	76.57	-1,813.45	-7,886.34	16,529.17	16,477.80	51.37	321.776	
15,000.00	6,941.69	6,350.00	6,346.62	136.24	22.10	76.57	-1,813.45	-7,886.34	16,627.90	16,576.41	51.50	322.881	
15,100.00	6,941.71	6,350.00	6,346.62	137.82	22.10	76.57	-1,813.45	-7,886.34	16,726.65	16,675.02	51.63	323.981	
15,200.00	6,941.73	6,350.00	6,346.62	139.40	22.10	76.57	-1,813.45	-7,886.34	16,825.41	16,773.65	51.76	325.075	
15,300.00	6,941.75	6,350.00	6,346.62	140.97	22.10	76.57	-1,813.45	-7,886.34	16,924.19	16,872.30	51.89	326.164	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
15,400.00	6,941.78	6,350.00	6,346.62	142.55	22.10	76.57	-1,813.45	-7,886.34	17,022.98	16,970.96	52.02	327.248	
15,500.00	6,941.80	6,338.75	6,335.39	144.13	22.06	76.33	-1,812.74	-7,886.01	17,121.75	17,069.64	52.11	328.583	
15,600.00	6,941.82	6,338.41	6,335.05	145.72	22.05	76.32	-1,812.72	-7,886.00	17,220.57	17,168.33	52.24	329.664	
15,700.00	6,941.84	6,338.07	6,334.71	147.30	22.05	76.31	-1,812.70	-7,885.99	17,319.40	17,267.03	52.37	330.740	
15,800.00	6,941.87	6,337.73	6,334.38	148.88	22.05	76.31	-1,812.68	-7,885.98	17,418.24	17,365.75	52.49	331.812	
15,900.00	6,941.89	6,337.40	6,334.04	150.46	22.05	76.30	-1,812.66	-7,885.97	17,517.10	17,464.47	52.62	332.878	
16,000.00	6,941.91	6,337.06	6,333.71	152.04	22.05	76.29	-1,812.64	-7,885.96	17,615.97	17,563.21	52.75	333.939	
16,100.00	6,941.93	6,336.73	6,333.38	153.62	22.05	76.28	-1,812.62	-7,885.95	17,714.85	17,661.97	52.88	334.995	
16,200.00	6,941.95	6,336.41	6,333.06	155.21	22.05	76.28	-1,812.60	-7,885.94	17,813.74	17,760.73	53.01	336.047	
16,300.00	6,941.98	6,336.08	6,332.73	156.79	22.05	76.27	-1,812.58	-7,885.93	17,912.65	17,859.51	53.14	337.093	
16,400.00	6,942.00	6,325.00	6,321.67	158.37	22.01	76.03	-1,811.96	-7,885.65	18,011.59	17,958.36	53.23	338.380	
16,500.00	6,942.02	6,325.00	6,321.67	159.96	22.01	76.03	-1,811.96	-7,885.65	18,110.52	18,057.16	53.36	339.410	
16,600.00	6,942.04	6,325.00	6,321.67	161.54	22.01	76.03	-1,811.96	-7,885.65	18,209.46	18,155.97	53.49	340.435	
16,700.00	6,942.06	6,325.00	6,321.67	163.13	22.01	76.03	-1,811.96	-7,885.65	18,308.41	18,254.79	53.62	341.456	
16,800.00	6,942.09	6,325.00	6,321.67	164.71	22.01	76.03	-1,811.96	-7,885.65	18,407.37	18,353.63	53.75	342.472	
16,900.00	6,942.11	6,325.00	6,321.67	166.30	22.01	76.03	-1,811.96	-7,885.65	18,506.35	18,452.47	53.88	343.484	
17,000.00	6,942.13	6,325.00	6,321.67	167.88	22.01	76.03	-1,811.96	-7,885.65	18,605.33	18,551.33	54.01	344.491	
17,100.00	6,942.15	6,325.00	6,321.67	169.47	22.01	76.03	-1,811.96	-7,885.65	18,704.33	18,650.19	54.14	345.493	
17,200.00	6,942.17	6,325.00	6,321.67	171.05	22.01	76.03	-1,811.96	-7,885.65	18,803.34	18,749.07	54.27	346.491	
17,300.00	6,942.20	6,325.00	6,321.67	172.64	22.01	76.03	-1,811.96	-7,885.65	18,902.35	18,847.96	54.40	347.485	
17,400.00	6,942.22	6,325.00	6,321.67	174.23	22.01	76.03	-1,811.96	-7,885.65	19,001.38	18,946.85	54.53	348.475	
17,500.00	6,942.24	6,325.00	6,321.67	175.81	22.01	76.03	-1,811.96	-7,885.65	19,100.42	19,045.76	54.66	349.460	
17,600.00	6,942.26	6,325.00	6,321.67	177.40	22.01	76.03	-1,811.96	-7,885.65	19,199.47	19,144.68	54.79	350.441	
17,700.00	6,942.28	6,325.00	6,321.67	178.99	22.01	76.03	-1,811.96	-7,885.65	19,298.52	19,243.61	54.92	351.417	
17,800.00	6,942.31	6,325.00	6,321.67	180.57	22.01	76.03	-1,811.96	-7,885.65	19,397.59	19,342.54	55.05	352.389	
17,900.00	6,942.33	6,325.00	6,321.67	182.16	22.01	76.03	-1,811.96	-7,885.65	19,496.67	19,441.49	55.18	353.358	
18,000.00	6,942.35	6,325.00	6,321.67	183.75	22.01	76.03	-1,811.96	-7,885.65	19,595.75	19,540.45	55.30	354.322	
18,100.00	6,942.37	6,325.00	6,321.67	185.34	22.01	76.03	-1,811.96	-7,885.65	19,694.85	19,639.41	55.43	355.281	
18,200.00	6,942.39	6,325.00	6,321.67	186.93	22.01	76.03	-1,811.96	-7,885.65	19,793.95	19,738.39	55.56	356.237	
18,300.00	6,942.42	6,325.00	6,321.67	188.52	22.01	76.03	-1,811.96	-7,885.65	19,893.06	19,837.37	55.69	357.189	
18,400.00	6,942.44	6,325.00	6,321.67	190.10	22.01	76.03	-1,811.96	-7,885.65	19,992.19	19,936.36	55.82	358.136	
18,500.00	6,942.46	6,325.00	6,321.67	191.69	22.01	76.03	-1,811.96	-7,885.65	20,091.32	20,035.36	55.95	359.079	
18,600.00	6,942.48	6,325.00	6,321.67	193.28	22.01	76.03	-1,811.96	-7,885.65	20,190.46	20,134.37	56.08	360.019	
18,700.00	6,942.51	6,323.19	6,319.87	194.87	22.00	76.00	-1,811.86	-7,885.61	20,289.60	20,233.40	56.20	360.996	
18,800.00	6,942.53	6,320.74	6,317.41	196.46	21.99	75.94	-1,811.72	-7,885.55	20,388.76	20,332.43	56.33	361.983	
18,900.00	6,942.55	6,318.28	6,314.96	198.05	21.98	75.89	-1,811.59	-7,885.48	20,487.92	20,431.48	56.45	362.967	
19,000.00	6,942.57	6,315.82	6,312.51	199.64	21.98	75.84	-1,811.45	-7,885.42	20,587.09	20,530.53	56.57	363.946	
19,100.00	6,942.59	6,313.36	6,310.06	201.23	21.97	75.79	-1,811.31	-7,885.36	20,686.27	20,629.59	56.69	364.922	
19,200.00	6,942.62	6,310.91	6,307.60	202.82	21.96	75.73	-1,811.17	-7,885.30	20,785.46	20,728.65	56.81	365.894	
19,300.00	6,942.64	6,308.45	6,305.15	204.41	21.95	75.68	-1,811.04	-7,885.24	20,884.65	20,827.73	56.93	366.862	
19,400.00	6,942.66	6,305.99	6,302.70	206.00	21.94	75.63	-1,810.90	-7,885.18	20,983.86	20,926.81	57.05	367.826	
19,500.00	6,942.68	6,303.54	6,300.25	207.59	21.93	75.58	-1,810.76	-7,885.12	21,083.06	21,025.90	57.17	368.786	
19,600.00	6,942.70	6,301.08	6,297.80	209.18	21.92	75.52	-1,810.63	-7,885.05	21,182.28	21,124.99	57.29	369.742	
19,700.00	6,942.73	6,300.00	6,296.72	210.78	21.92	75.50	-1,810.57	-7,885.03	21,281.50	21,224.09	57.41	370.663	
19,800.00	6,942.75	6,300.00	6,296.72	212.37	21.92	75.50	-1,810.57	-7,885.03	21,380.73	21,323.19	57.54	371.556	
19,900.00	6,942.77	6,300.00	6,296.72	213.96	21.92	75.50	-1,810.57	-7,885.03	21,479.97	21,422.30	57.67	372.445	
20,000.00	6,942.79	6,300.00	6,296.72	215.55	21.92	75.50	-1,810.57	-7,885.03	21,579.22	21,521.41	57.80	373.330	
20,100.00	6,942.81	6,300.00	6,296.72	217.14	21.92	75.50	-1,810.57	-7,885.03	21,678.47	21,620.54	57.93	374.211	
20,200.00	6,942.84	6,300.00	6,296.72	218.73	21.92	75.50	-1,810.57	-7,885.03	21,777.72	21,719.66	58.06	375.089	
20,300.00	6,942.86	6,300.00	6,296.72	220.32	21.92	75.50	-1,810.57	-7,885.03	21,876.99	21,818.80	58.19	375.963	
20,400.00	6,942.88	6,300.00	6,296.72	221.92	21.92	75.50	-1,810.57	-7,885.03	21,976.26	21,917.94	58.32	376.833	
20,500.00	6,942.90	6,289.42	6,286.16	223.51	21.88	75.28	-1,809.97	-7,884.76	22,075.52	22,017.11	58.41	377.941	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
20,600.00	6,942.92	6,289.01	6,285.75	225.10	21.88	75.27	-1,809.95	-7,884.75	22,174.81	22,116.27	58.54	378.813	
20,700.00	6,942.95	6,288.61	6,285.35	226.69	21.88	75.26	-1,809.92	-7,884.74	22,274.10	22,215.43	58.67	379.681	
20,800.00	6,942.97	6,288.21	6,284.95	228.28	21.88	75.25	-1,809.90	-7,884.73	22,373.39	22,314.60	58.79	380.546	
20,900.00	6,942.99	6,287.81	6,284.55	229.88	21.88	75.24	-1,809.88	-7,884.72	22,472.70	22,413.78	58.92	381.407	
20,942.50	6,943.00	6,287.64	6,284.38	230.42	21.88	75.24	-1,809.87	-7,884.71	22,514.90	22,451.83	63.07	356.996	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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	-81.72	1,458.81	-10,022.13	10,128.04				
58.45	58.45	0.00	0.00	0.02	0.00	40.00	1,458.81	-10,022.13	10,127.49				
150.25	150.24	43.73	43.73	0.14	0.05	21.70	1,458.82	-10,022.19	10,126.64	10,126.47	0.17	N/A	
239.43	239.42	100.00	100.00	0.25	0.11	16.22	1,458.88	-10,022.44	10,126.06	10,125.71	0.35	N/A	
299.93	299.91	146.81	146.81	0.33	0.22	21.17	1,458.94	-10,022.76	10,125.74	10,125.21	0.53	N/A	
446.00	445.96	320.37	320.37	0.50	0.58	45.58	1,459.05	-10,023.96	10,124.85	10,123.79	1.06	9,567.392	
501.44	501.40	387.66	387.65	0.64	0.71	73.42	1,459.08	-10,024.24	10,124.59	10,123.26	1.33	7,601.889	CC
537.00	536.95	443.55	443.54	0.73	0.83	106.84	1,459.14	-10,024.38	10,124.68	10,123.14	1.54	6,586.986	ES
624.00	623.95	539.82	539.81	0.99	1.03	-170.18	1,459.46	-10,024.35	10,125.55	10,123.55	2.00	5,056.235	
718.00	717.90	600.00	599.99	1.29	1.15	-152.32	1,459.68	-10,024.42	10,128.20	10,125.77	2.43	4,164.398	
811.00	810.73	675.47	675.46	1.60	1.31	-132.83	1,459.96	-10,024.70	10,132.80	10,129.90	2.90	3,489.576	
903.00	902.19	747.51	747.50	1.92	1.47	-120.84	1,460.26	-10,025.15	10,139.13	10,135.75	3.38	3,002.977	
994.00	992.38	826.36	826.34	2.24	1.63	-118.62	1,460.61	-10,025.75	10,145.94	10,142.07	3.87	2,622.115	
1,084.00	1,081.50	912.33	912.31	2.56	1.82	-114.25	1,461.03	-10,026.46	10,152.35	10,147.97	4.38	2,316.971	
1,175.00	1,171.48	991.60	991.58	2.91	1.99	-110.47	1,461.49	-10,027.15	10,158.42	10,153.52	4.89	2,076.567	
1,268.00	1,263.52	1,090.43	1,090.40	3.26	2.20	-109.00	1,462.11	-10,028.04	10,163.88	10,158.43	5.45	1,865.645	
1,363.00	1,357.62	1,199.97	1,199.94	3.63	2.42	-106.12	1,462.83	-10,028.89	10,168.68	10,162.65	6.03	1,686.036	
1,457.00	1,450.74	1,307.26	1,307.22	3.99	2.64	-103.50	1,463.55	-10,029.57	10,172.66	10,166.05	6.61	1,538.840	
1,552.00	1,544.82	1,400.00	1,399.96	4.36	2.84	-102.76	1,464.18	-10,030.06	10,176.29	10,169.12	7.17	1,419.428	
1,646.00	1,637.88	1,484.79	1,484.75	4.72	3.02	-102.33	1,464.80	-10,030.55	10,179.83	10,172.12	7.71	1,320.023	
1,741.00	1,731.94	1,559.10	1,559.05	5.09	3.18	-101.93	1,465.34	-10,031.09	10,183.46	10,175.22	8.24	1,236.450	
1,835.00	1,825.07	1,635.14	1,635.08	5.46	3.34	-101.91	1,465.85	-10,031.81	10,187.08	10,178.32	8.76	1,163.104	
1,929.00	1,918.39	1,727.86	1,727.80	5.82	3.53	-103.15	1,466.32	-10,032.83	10,190.63	10,181.32	9.31	1,094.537	
2,024.00	2,012.84	1,854.86	1,854.79	6.18	3.79	-101.84	1,466.37	-10,034.00	10,193.72	10,183.79	9.93	1,026.466	
2,118.00	2,106.19	1,955.18	1,955.11	6.53	4.00	-101.69	1,466.23	-10,034.75	10,196.66	10,186.17	10.50	971.430	
2,213.00	2,200.37	2,052.07	2,052.00	6.90	4.20	-103.06	1,466.07	-10,035.47	10,200.04	10,188.97	11.07	921.749	
2,307.00	2,293.61	2,135.96	2,135.88	7.27	4.38	-101.14	1,465.98	-10,036.07	10,203.23	10,191.63	11.60	879.338	
2,402.00	2,387.91	2,207.60	2,207.52	7.63	4.53	-97.34	1,466.06	-10,036.71	10,205.95	10,193.83	12.12	842.291	
2,496.00	2,481.29	2,288.12	2,288.04	7.99	4.70	-96.19	1,466.24	-10,037.55	10,208.24	10,195.60	12.64	807.316	
2,591.00	2,575.67	2,356.46	2,356.37	8.35	4.84	-97.69	1,466.46	-10,038.38	10,210.76	10,197.61	13.15	776.442	
2,686.00	2,670.05	2,430.57	2,430.48	8.71	5.00	-97.32	1,466.88	-10,039.46	10,213.62	10,199.95	13.67	747.220	
2,780.00	2,763.49	2,524.78	2,524.67	9.07	5.20	-99.39	1,467.34	-10,040.92	10,216.65	10,202.42	14.22	718.294	
2,875.00	2,857.94	2,628.60	2,628.48	9.43	5.42	-100.86	1,467.74	-10,042.43	10,219.87	10,205.07	14.80	690.564	
2,970.00	2,952.51	2,715.09	2,714.96	9.79	5.60	-97.35	1,468.14	-10,043.73	10,222.79	10,207.45	15.33	666.657	
3,064.00	3,046.19	2,827.93	2,827.78	10.13	5.84	-90.22	1,468.66	-10,045.32	10,224.69	10,208.78	15.92	642.397	
3,159.00	3,140.98	2,933.99	2,933.83	10.47	6.06	-88.26	1,469.18	-10,046.68	10,225.90	10,209.42	16.48	620.450	
3,253.00	3,234.84	3,159.07	3,158.90	10.81	6.53	-96.04	1,470.43	-10,048.16	10,226.85	10,209.56	17.29	591.438	
3,348.00	3,329.74	3,309.77	3,309.60	11.14	6.85	-103.72	1,471.01	-10,047.44	10,227.09	10,209.15	17.95	569.904	
3,397.00	3,378.70	3,353.01	3,352.84	11.32	6.94	-104.61	1,471.23	-10,047.18	10,227.33	10,209.13	18.21	561.671	
3,488.00	3,469.63	3,433.16	3,432.99	11.64	7.11	-107.17	1,471.61	-10,046.76	10,227.87	10,209.17	18.70	547.050	
3,583.00	3,564.49	3,519.80	3,519.62	11.98	7.29	-98.84	1,472.04	-10,046.41	10,228.56	10,209.34	19.22	532.252	
3,677.00	3,658.13	3,615.81	3,615.64	12.33	7.49	-97.12	1,472.48	-10,046.02	10,229.35	10,209.59	19.77	517.504	
3,772.00	3,752.42	3,700.00	3,699.82	12.69	7.66	-92.71	1,472.85	-10,045.72	10,229.98	10,209.67	20.31	503.767	
3,867.00	3,846.42	3,789.89	3,789.71	13.06	7.85	-91.21	1,473.28	-10,045.46	10,230.23	10,209.36	20.87	490.206	
3,961.00	3,939.30	3,889.87	3,889.69	13.44	8.06	-91.55	1,473.64	-10,045.18	10,230.36	10,208.91	21.45	476.915	
4,056.00	4,032.83	3,991.25	3,991.07	13.82	8.27	-95.00	1,473.65	-10,044.86	10,231.06	10,209.02	22.05	464.072	
4,151.00	4,126.01	4,077.99	4,077.81	14.21	8.45	-94.24	1,473.35	-10,044.60	10,232.26	10,209.64	22.62	452.370	
4,246.00	4,219.10	4,167.72	4,167.54	14.61	8.64	-101.64	1,472.76	-10,044.42	10,234.67	10,211.47	23.20	441.121	
4,340.00	4,310.92	4,243.80	4,243.61	15.01	8.80	-110.63	1,472.00	-10,044.34	10,240.29	10,216.54	23.76	431.066	
4,435.00	4,403.54	4,300.00	4,299.81	15.41	8.91	-111.29	1,471.15	-10,044.43	10,248.03	10,223.76	24.27	422.192	
4,498.00	4,465.21	4,353.44	4,353.23	15.68	9.03	-109.35	1,470.10	-10,044.65	10,252.74	10,228.10	24.65	415.977	
4,561.00	4,526.82	4,400.00	4,399.78	15.95	9.13	-104.29	1,469.00	-10,044.96	10,256.85	10,231.85	25.01	410.129	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
4,624.00	4,588.23	4,446.53	4,446.29	16.22	9.22	-102.54	1,467.74	-10,045.36	10,260.57	10,235.20	25.38	404.348	
4,687.00	4,649.71	4,500.00	4,499.74	16.49	9.34	-102.13	1,466.15	-10,045.88	10,264.01	10,238.25	25.76	398.500	
4,749.00	4,710.40	4,553.04	4,552.75	16.75	9.45	-100.95	1,464.47	-10,046.44	10,267.07	10,240.94	26.13	392.927	
4,812.00	4,772.28	4,600.00	4,599.68	17.01	9.55	-100.25	1,462.95	-10,046.96	10,269.81	10,243.32	26.49	387.692	
4,875.00	4,834.34	4,653.00	4,652.65	17.27	9.66	-100.77	1,461.25	-10,047.61	10,272.41	10,245.55	26.86	382.464	
4,938.00	4,896.43	4,700.00	4,699.62	17.53	9.76	-101.00	1,459.77	-10,048.26	10,275.14	10,247.93	27.21	377.581	
5,001.00	4,958.46	4,742.09	4,741.69	17.79	9.85	-104.21	1,458.47	-10,048.91	10,278.40	10,250.84	27.56	372.967	
5,064.00	5,020.29	4,784.71	4,784.27	18.05	9.94	-108.42	1,457.17	-10,049.65	10,282.80	10,254.89	27.91	368.440	
5,126.00	5,080.98	4,829.80	4,829.34	18.32	10.04	-112.60	1,455.81	-10,050.50	10,288.34	10,260.08	28.26	364.013	
5,189.00	5,142.74	4,877.63	4,877.14	18.58	10.14	-111.10	1,454.38	-10,051.47	10,294.18	10,265.55	28.63	359.609	
5,252.00	5,204.62	4,928.96	4,928.43	18.85	10.25	-111.16	1,452.84	-10,052.58	10,299.71	10,270.71	28.99	355.234	
5,315.00	5,266.61	4,983.38	4,982.81	19.11	10.37	-111.43	1,451.17	-10,053.79	10,305.08	10,275.71	29.37	350.908	
5,378.00	5,328.73	5,037.28	5,036.67	19.37	10.49	-111.05	1,449.49	-10,055.03	10,310.23	10,280.50	29.74	346.726	
5,441.00	5,390.87	5,090.93	5,090.28	19.62	10.60	-111.58	1,447.82	-10,056.31	10,315.40	10,285.29	30.10	342.660	
5,503.00	5,452.07	5,139.05	5,138.37	19.87	10.71	-111.34	1,446.34	-10,057.50	10,320.45	10,289.99	30.45	338.895	
5,566.00	5,514.32	5,187.03	5,186.31	20.13	10.81	-111.72	1,444.93	-10,058.75	10,325.55	10,294.74	30.80	335.197	
5,629.00	5,576.59	5,241.73	5,240.97	20.38	10.93	-109.37	1,443.42	-10,060.22	10,330.50	10,299.33	31.17	331.441	
5,692.00	5,638.95	5,300.00	5,299.20	20.63	11.05	-111.72	1,441.91	-10,061.81	10,335.27	10,303.73	31.54	327.714	
5,747.00	5,693.45	5,359.57	5,358.72	20.85	11.18	-109.57	1,440.41	-10,063.43	10,339.30	10,307.43	31.87	324.371	
5,810.00	5,755.90	5,432.98	5,432.08	21.09	11.33	-110.36	1,438.56	-10,065.37	10,343.70	10,311.43	32.27	320.523	
5,874.00	5,819.40	5,512.99	5,512.04	21.34	11.50	-109.19	1,436.57	-10,067.37	10,347.89	10,315.21	32.68	316.617	
5,936.00	5,880.95	5,579.97	5,578.99	21.58	11.63	-109.65	1,434.97	-10,068.96	10,351.77	10,318.72	33.06	313.136	
5,999.00	5,943.45	5,633.93	5,632.92	21.82	11.75	-111.14	1,433.74	-10,070.23	10,355.92	10,322.50	33.41	309.943	
6,062.00	6,005.96	5,681.56	5,680.52	22.07	11.85	-108.70	1,432.67	-10,071.42	10,360.09	10,326.34	33.75	306.934	
6,125.00	6,068.49	5,729.63	5,728.56	22.31	11.95	-111.03	1,431.58	-10,072.68	10,364.28	10,330.18	34.10	303.975	
6,188.00	6,131.08	5,778.03	5,776.93	22.55	12.06	-109.29	1,430.51	-10,074.02	10,368.41	10,333.97	34.44	301.082	
6,255.00	6,197.73	5,834.27	5,833.13	22.81	12.18	-110.41	1,429.29	-10,075.64	10,372.57	10,337.76	34.81	297.997	
6,293.00	6,235.55	5,868.16	5,867.00	22.89	12.26	-110.43	1,428.55	-10,076.64	10,374.90	10,339.94	34.96	296.775	
6,300.00	6,242.52	5,874.40	5,873.24	22.89	12.27	-110.44	1,428.41	-10,076.83	10,375.33	10,340.36	34.98	296.648	
6,393.00	6,335.09	5,975.16	5,973.93	22.94	12.49	-110.50	1,426.09	-10,079.81	10,381.06	10,345.83	35.24	294.619	
6,400.00	6,342.06	5,983.34	5,982.11	22.94	12.51	-116.39	1,425.89	-10,080.05	10,381.53	10,346.27	35.26	294.455	
6,450.00	6,391.66	6,030.39	6,029.12	22.97	12.61	-143.49	1,424.70	-10,081.41	10,387.10	10,351.72	35.38	293.558	
6,500.00	6,440.77	6,072.46	6,071.15	23.02	12.70	-155.26	1,423.66	-10,082.65	10,396.63	10,361.13	35.50	292.838	
6,550.00	6,489.07	6,100.00	6,098.68	23.07	12.76	-161.27	1,423.00	-10,083.47	10,410.07	10,374.47	35.59	292.473	
6,600.00	6,536.26	6,146.50	6,145.14	23.13	12.86	-164.83	1,421.89	-10,084.91	10,427.31	10,391.58	35.73	291.832	
6,650.00	6,582.05	6,180.00	6,178.61	23.21	12.93	-167.14	1,421.10	-10,085.99	10,448.28	10,412.44	35.84	291.517	
6,700.00	6,626.13	6,200.00	6,198.60	23.29	12.98	-168.72	1,420.62	-10,086.65	10,472.85	10,436.92	35.92	291.531	
6,750.00	6,668.24	6,240.61	6,239.18	23.39	13.07	-169.87	1,419.66	-10,088.05	10,500.82	10,464.76	36.06	291.234 SF	
6,800.00	6,708.12	6,267.98	6,266.52	23.51	13.13	-170.71	1,419.00	-10,089.02	10,532.04	10,495.88	36.16	291.259	
6,850.00	6,745.50	6,300.00	6,298.51	23.64	13.20	-171.34	1,418.23	-10,090.20	10,566.31	10,530.03	36.28	291.273	
6,900.00	6,780.15	6,333.81	6,332.29	23.79	13.27	-171.80	1,417.42	-10,091.45	10,603.36	10,566.97	36.39	291.342	
6,950.00	6,811.86	6,376.49	6,374.93	23.95	13.36	-172.13	1,416.39	-10,092.98	10,642.93	10,606.39	36.53	291.325	
7,000.00	6,840.42	6,414.76	6,413.16	24.14	13.45	-172.34	1,415.45	-10,094.31	10,684.76	10,648.10	36.66	291.457	
7,050.00	6,865.66	6,436.37	6,434.75	24.35	13.49	-172.40	1,414.95	-10,095.06	10,728.63	10,691.89	36.75	291.968	
7,100.00	6,887.42	6,457.89	6,456.25	24.57	13.54	-172.31	1,414.46	-10,095.80	10,774.26	10,737.43	36.83	292.543	
7,150.00	6,905.55	6,475.51	6,473.86	24.82	13.57	-171.99	1,414.07	-10,096.40	10,821.36	10,784.46	36.90	293.254	
7,200.00	6,919.95	6,489.13	6,487.47	25.10	13.60	-171.26	1,413.77	-10,096.87	10,869.64	10,832.68	36.96	294.099	
7,250.00	6,930.52	6,498.66	6,496.99	25.39	13.62	-169.53	1,413.57	-10,097.19	10,918.80	10,881.79	37.00	295.079	
7,300.00	6,937.20	6,505.95	6,504.28	25.70	13.64	-163.26	1,413.42	-10,097.44	10,968.51	10,931.48	37.04	296.154	
7,350.00	6,939.94	6,507.71	6,506.03	26.04	13.64	-34.19	1,413.38	-10,097.50	11,018.48	10,981.43	37.05	297.378	
7,359.60	6,940.02	6,507.33	6,505.65	26.10	13.64	-17.52	1,413.39	-10,097.48	11,028.08	10,991.03	37.05	297.630	
7,400.00	6,940.03	6,505.26	6,503.58	26.39	13.64	-17.43	1,413.43	-10,097.41	11,068.45	11,031.40	37.05	298.707	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
7,500.00	6,940.04	6,500.10	6,498.42	27.15	13.63	-17.21	1,413.54	-10,097.24	11,168.40	11,131.34	37.06	301.366	
7,600.00	6,940.06	6,496.58	6,494.91	27.99	13.62	-17.07	1,413.61	-10,097.12	11,268.34	11,231.27	37.07	303.987	
7,659.60	6,940.07	6,494.50	6,492.83	28.52	13.61	-16.98	1,413.66	-10,097.05	11,327.91	11,290.84	37.07	305.545	
7,700.00	6,940.08	6,493.08	6,491.42	28.89	13.61	-36.44	1,413.69	-10,097.00	11,368.28	11,331.20	37.08	306.588	
7,796.63	6,940.10	6,489.64	6,487.97	29.83	13.60	-60.50	1,413.76	-10,096.88	11,464.77	11,427.67	37.10	308.987	
7,800.00	6,940.10	6,489.52	6,487.85	29.86	13.60	-60.49	1,413.76	-10,096.88	11,468.14	11,431.03	37.11	309.069	
7,900.00	6,940.12	6,485.91	6,484.25	30.90	13.60	-60.25	1,413.84	-10,096.76	11,567.92	11,530.78	37.14	311.472	
8,000.00	6,940.14	6,482.29	6,480.63	31.98	13.59	-60.02	1,413.92	-10,096.63	11,667.71	11,630.53	37.17	313.864	
8,100.00	6,940.17	6,478.67	6,477.02	33.11	13.58	-59.79	1,414.00	-10,096.51	11,767.50	11,730.29	37.21	316.245	
8,200.00	6,940.19	6,475.05	6,473.39	34.28	13.57	-59.55	1,414.08	-10,096.39	11,867.29	11,830.04	37.25	318.615	
8,300.00	6,940.21	6,471.41	6,469.76	35.48	13.57	-59.32	1,414.16	-10,096.26	11,967.08	11,929.80	37.28	320.974	
8,400.00	6,940.23	6,467.77	6,466.13	36.71	13.56	-59.09	1,414.24	-10,096.14	12,066.88	12,029.56	37.32	323.322	
8,500.00	6,940.25	6,464.13	6,462.49	37.97	13.55	-58.86	1,414.32	-10,096.01	12,166.68	12,129.32	37.36	325.659	
8,600.00	6,940.28	6,460.48	6,458.84	39.26	13.54	-58.63	1,414.40	-10,095.89	12,266.48	12,229.08	37.40	327.984	
8,700.00	6,940.30	6,456.82	6,455.19	40.56	13.53	-58.40	1,414.48	-10,095.76	12,366.29	12,328.85	37.44	330.298	
8,800.00	6,940.32	6,453.16	6,451.53	41.89	13.53	-58.18	1,414.57	-10,095.64	12,466.09	12,428.61	37.48	332.601	
8,900.00	6,940.34	6,449.49	6,447.86	43.24	13.52	-57.95	1,414.65	-10,095.51	12,565.90	12,528.38	37.52	334.892	
9,000.00	6,940.36	6,445.82	6,444.19	44.60	13.51	-57.72	1,414.73	-10,095.39	12,665.71	12,628.15	37.56	337.171	
9,100.00	6,940.39	6,442.14	6,440.51	45.98	13.50	-57.50	1,414.82	-10,095.26	12,765.52	12,727.92	37.61	339.439	
9,200.00	6,940.41	6,438.45	6,436.83	47.38	13.50	-57.27	1,414.90	-10,095.13	12,865.34	12,827.69	37.65	341.696	
9,300.00	6,940.43	6,434.76	6,433.14	48.78	13.49	-57.05	1,414.99	-10,095.01	12,965.15	12,927.46	37.70	343.941	
9,400.00	6,940.45	6,431.06	6,429.44	50.20	13.48	-56.83	1,415.07	-10,094.88	13,064.97	13,027.23	37.74	346.174	
9,500.00	6,940.47	6,427.36	6,425.74	51.63	13.47	-56.61	1,415.16	-10,094.75	13,164.79	13,127.00	37.79	348.395	
9,600.00	6,940.50	6,423.64	6,422.04	53.07	13.46	-56.39	1,415.25	-10,094.62	13,264.61	13,226.78	37.83	350.605	
9,700.00	6,940.52	6,419.93	6,418.32	54.52	13.46	-56.17	1,415.34	-10,094.49	13,364.44	13,326.56	37.88	352.802	
9,800.00	6,940.54	6,416.20	6,414.60	55.97	13.45	-55.95	1,415.42	-10,094.37	13,464.26	13,426.33	37.93	354.988	
9,900.00	6,940.56	6,418.22	6,416.61	57.44	13.45	-56.06	1,415.37	-10,094.43	13,564.09	13,526.09	37.99	357.040	
10,000.00	6,940.59	6,412.81	6,411.21	58.91	13.44	-55.75	1,415.50	-10,094.25	13,663.91	13,625.88	38.04	359.237	
10,100.00	6,940.61	6,407.35	6,405.76	60.38	13.43	-55.43	1,415.63	-10,094.06	13,763.75	13,725.66	38.08	361.424	
10,200.00	6,940.63	6,401.85	6,400.26	61.87	13.42	-55.11	1,415.77	-10,093.87	13,863.58	13,825.45	38.13	363.599	
10,300.00	6,940.65	6,396.29	6,394.71	63.36	13.41	-54.79	1,415.90	-10,093.68	13,963.41	13,925.23	38.18	365.763	
10,400.00	6,940.67	6,390.69	6,389.11	64.85	13.39	-54.48	1,416.04	-10,093.48	14,063.24	14,025.02	38.22	367.916	
10,500.00	6,940.70	6,385.04	6,383.46	66.35	13.38	-54.16	1,416.18	-10,093.28	14,163.08	14,124.80	38.27	370.058	
10,600.00	6,940.72	6,379.34	6,377.77	67.86	13.37	-53.84	1,416.32	-10,093.08	14,262.91	14,224.59	38.32	372.189	
10,700.00	6,940.74	6,373.58	6,372.02	69.36	13.36	-53.52	1,416.46	-10,092.88	14,362.75	14,324.38	38.37	374.309	
10,800.00	6,940.76	6,367.78	6,366.22	70.88	13.35	-53.20	1,416.60	-10,092.67	14,462.59	14,424.17	38.42	376.418	
10,900.00	6,940.78	6,361.92	6,360.37	72.39	13.33	-52.88	1,416.74	-10,092.46	14,562.42	14,523.95	38.47	378.516	
11,000.00	6,940.81	6,356.01	6,354.46	73.91	13.32	-52.57	1,416.88	-10,092.25	14,662.26	14,623.74	38.52	380.603	
11,100.00	6,940.83	6,350.04	6,348.50	75.44	13.31	-52.25	1,417.03	-10,092.04	14,762.10	14,723.53	38.58	382.679	
11,200.00	6,940.85	6,344.02	6,342.48	76.96	13.29	-51.93	1,417.17	-10,091.82	14,861.94	14,823.32	38.63	384.743	
11,300.00	6,940.87	6,337.95	6,336.42	78.49	13.28	-51.61	1,417.32	-10,091.60	14,961.78	14,923.10	38.68	386.797	
11,400.00	6,940.89	6,331.81	6,330.29	80.03	13.27	-51.29	1,417.47	-10,091.37	15,061.63	15,022.89	38.73	388.839	
11,500.00	6,940.92	6,325.62	6,324.11	81.56	13.25	-50.97	1,417.62	-10,091.15	15,161.47	15,122.68	38.79	390.870	
11,600.00	6,940.94	6,319.38	6,317.87	83.10	13.24	-50.65	1,417.77	-10,090.92	15,261.31	15,222.47	38.84	392.890	
11,700.00	6,940.96	6,313.07	6,311.57	84.64	13.23	-50.33	1,417.92	-10,090.68	15,361.16	15,322.26	38.90	394.900	
11,800.00	6,940.98	6,306.71	6,305.21	86.18	13.21	-50.02	1,418.07	-10,090.45	15,461.00	15,422.04	38.95	396.897	
11,900.00	6,941.00	6,300.28	6,298.79	87.72	13.20	-49.70	1,418.23	-10,090.21	15,560.84	15,521.83	39.01	398.884	
12,000.00	6,941.03	6,300.00	6,298.51	89.27	13.20	-49.68	1,418.23	-10,090.20	15,660.69	15,621.61	39.08	400.730	
12,100.00	6,941.05	6,300.00	6,298.51	90.82	13.20	-49.68	1,418.23	-10,090.20	15,760.54	15,721.39	39.15	402.557	
12,200.00	6,941.07	6,300.00	6,298.51	92.37	13.20	-49.68	1,418.23	-10,090.20	15,860.39	15,821.16	39.22	404.371	
12,300.00	6,941.09	6,300.00	6,298.51	93.92	13.20	-49.68	1,418.23	-10,090.20	15,960.24	15,920.94	39.29	406.173	
12,400.00	6,941.11	6,300.00	6,298.51	95.47	13.20	-49.68	1,418.23	-10,090.20	16,060.09	16,020.72	39.37	407.963	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
12,500.00	6,941.14	6,300.00	6,298.51	97.03	13.20	-49.68	1,418.23	-10,090.20	16,159.95	16,120.51	39.44	409.741	
12,600.00	6,941.16	6,300.00	6,298.51	98.58	13.20	-49.68	1,418.23	-10,090.20	16,259.80	16,220.29	39.51	411.505	
12,700.00	6,941.18	6,300.00	6,298.51	100.14	13.20	-49.68	1,418.23	-10,090.20	16,359.66	16,320.07	39.59	413.258	
12,800.00	6,941.20	6,279.87	6,278.40	101.70	13.15	-48.71	1,418.72	-10,089.45	16,459.50	16,419.88	39.62	415.435	
12,900.00	6,941.23	6,277.68	6,276.21	103.26	13.15	-48.60	1,418.77	-10,089.37	16,559.36	16,519.67	39.69	417.211	
13,000.00	6,941.25	6,275.50	6,274.03	104.82	13.14	-48.50	1,418.82	-10,089.29	16,659.22	16,619.45	39.76	418.974	
13,100.00	6,941.27	6,273.32	6,271.86	106.38	13.14	-48.40	1,418.88	-10,089.21	16,759.08	16,719.24	39.83	420.725	
13,200.00	6,941.29	6,271.16	6,269.70	107.95	13.14	-48.29	1,418.93	-10,089.14	16,858.94	16,819.03	39.91	422.463	
13,300.00	6,941.31	6,269.01	6,267.55	109.51	13.13	-48.19	1,418.98	-10,089.06	16,958.80	16,918.82	39.98	424.189	
13,400.00	6,941.34	6,266.87	6,265.41	111.08	13.13	-48.09	1,419.03	-10,088.98	17,058.66	17,018.61	40.05	425.902	
13,500.00	6,941.36	6,264.74	6,263.28	112.64	13.12	-47.99	1,419.08	-10,088.90	17,158.53	17,118.40	40.13	427.604	
13,600.00	6,941.38	6,262.61	6,261.16	114.21	13.12	-47.89	1,419.13	-10,088.83	17,258.39	17,218.19	40.20	429.293	
13,700.00	6,941.40	6,260.50	6,259.05	115.78	13.11	-47.79	1,419.18	-10,088.75	17,358.26	17,317.98	40.28	430.969	
13,800.00	6,941.42	6,258.40	6,256.95	117.35	13.11	-47.70	1,419.23	-10,088.68	17,458.13	17,417.78	40.35	432.634	
13,900.00	6,941.45	6,256.31	6,254.86	118.92	13.10	-47.60	1,419.28	-10,088.60	17,558.00	17,517.57	40.43	434.286	
14,000.00	6,941.47	6,254.23	6,252.78	120.49	13.10	-47.50	1,419.33	-10,088.53	17,657.87	17,617.36	40.51	435.927	
14,100.00	6,941.49	6,252.15	6,250.71	122.06	13.09	-47.41	1,419.38	-10,088.45	17,757.74	17,717.15	40.58	437.555	
14,200.00	6,941.51	6,250.09	6,248.65	123.64	13.09	-47.32	1,419.43	-10,088.38	17,857.61	17,816.95	40.66	439.171	
14,300.00	6,941.53	6,248.04	6,246.59	125.21	13.08	-47.22	1,419.48	-10,088.31	17,957.48	17,916.74	40.74	440.775	
14,400.00	6,941.56	6,245.99	6,244.55	126.78	13.08	-47.13	1,419.53	-10,088.23	18,057.36	18,016.54	40.82	442.368	
14,500.00	6,941.58	6,243.96	6,242.52	128.36	13.07	-47.04	1,419.58	-10,088.16	18,157.23	18,116.33	40.90	443.948	
14,600.00	6,941.60	6,241.94	6,240.50	129.93	13.07	-46.94	1,419.63	-10,088.09	18,257.11	18,216.13	40.98	445.517	
14,700.00	6,941.62	6,239.92	6,238.48	131.51	13.07	-46.85	1,419.67	-10,088.02	18,356.99	18,315.93	41.06	447.073	
14,800.00	6,941.64	6,237.91	6,236.48	133.08	13.06	-46.76	1,419.72	-10,087.95	18,456.86	18,415.72	41.14	448.618	
14,900.00	6,941.67	6,235.92	6,234.48	134.66	13.06	-46.67	1,419.77	-10,087.88	18,556.74	18,515.52	41.22	450.152	
15,000.00	6,941.69	6,233.93	6,232.50	136.24	13.05	-46.59	1,419.82	-10,087.81	18,656.62	18,615.32	41.31	451.674	
15,100.00	6,941.71	6,231.95	6,230.52	137.82	13.05	-46.50	1,419.86	-10,087.74	18,756.50	18,715.12	41.39	453.184	
15,200.00	6,941.73	6,229.98	6,228.55	139.40	13.04	-46.41	1,419.91	-10,087.67	18,856.39	18,814.91	41.47	454.683	
15,300.00	6,941.75	6,228.02	6,226.59	140.97	13.04	-46.32	1,419.96	-10,087.61	18,956.27	18,914.71	41.56	456.170	
15,400.00	6,941.78	6,226.07	6,224.64	142.55	13.03	-46.24	1,420.00	-10,087.54	19,056.15	19,014.51	41.64	457.646	
15,500.00	6,941.80	6,224.12	6,222.70	144.13	13.03	-46.15	1,420.05	-10,087.47	19,156.04	19,114.31	41.72	459.110	
15,600.00	6,941.82	6,222.19	6,220.77	145.72	13.03	-46.07	1,420.10	-10,087.41	19,255.92	19,214.11	41.81	460.563	
15,700.00	6,941.84	6,200.00	6,198.60	147.30	12.98	-45.11	1,420.62	-10,086.65	19,355.83	19,313.97	41.86	462.439	
15,800.00	6,941.87	6,200.00	6,198.60	148.88	12.98	-45.11	1,420.62	-10,086.65	19,455.71	19,413.76	41.95	463.828	
15,900.00	6,941.89	6,200.00	6,198.60	150.46	12.98	-45.11	1,420.62	-10,086.65	19,555.59	19,513.56	42.04	465.207	
16,000.00	6,941.91	6,200.00	6,198.60	152.04	12.98	-45.11	1,420.62	-10,086.65	19,655.48	19,613.35	42.13	466.575	
16,100.00	6,941.93	6,200.00	6,198.60	153.62	12.98	-45.11	1,420.62	-10,086.65	19,755.37	19,713.15	42.22	467.932	
16,200.00	6,941.95	6,200.00	6,198.60	155.21	12.98	-45.11	1,420.62	-10,086.65	19,855.25	19,812.94	42.31	469.278	
16,300.00	6,941.98	6,200.00	6,198.60	156.79	12.98	-45.11	1,420.62	-10,086.65	19,955.14	19,912.74	42.40	470.614	
16,400.00	6,942.00	6,200.00	6,198.60	158.37	12.98	-45.11	1,420.62	-10,086.65	20,055.03	20,012.54	42.49	471.939	
16,500.00	6,942.02	6,200.00	6,198.60	159.96	12.98	-45.11	1,420.62	-10,086.65	20,154.93	20,112.34	42.59	473.254	
16,600.00	6,942.04	6,200.00	6,198.60	161.54	12.98	-45.11	1,420.62	-10,086.65	20,254.82	20,212.14	42.68	474.558	
16,700.00	6,942.06	6,200.00	6,198.60	163.13	12.98	-45.11	1,420.62	-10,086.65	20,354.71	20,311.94	42.78	475.852	
16,800.00	6,942.09	6,200.00	6,198.60	164.71	12.98	-45.11	1,420.62	-10,086.65	20,454.61	20,411.74	42.87	477.136	
16,900.00	6,942.11	6,200.00	6,198.60	166.30	12.98	-45.11	1,420.62	-10,086.65	20,554.50	20,511.54	42.96	478.410	
17,000.00	6,942.13	6,200.00	6,198.60	167.88	12.98	-45.11	1,420.62	-10,086.65	20,654.40	20,611.34	43.06	479.673	
17,100.00	6,942.15	6,200.00	6,198.60	169.47	12.98	-45.11	1,420.62	-10,086.65	20,754.30	20,711.14	43.15	480.927	
17,200.00	6,942.17	6,200.00	6,198.60	171.05	12.98	-45.11	1,420.62	-10,086.65	20,854.19	20,810.94	43.25	482.170	
17,300.00	6,942.20	6,200.00	6,198.60	172.64	12.98	-45.11	1,420.62	-10,086.65	20,954.09	20,910.75	43.35	483.404	
17,400.00	6,942.22	6,200.00	6,198.60	174.23	12.98	-45.11	1,420.62	-10,086.65	21,053.99	21,010.55	43.44	484.627	
17,500.00	6,942.24	6,200.00	6,198.60	175.81	12.98	-45.11	1,420.62	-10,086.65	21,153.90	21,110.36	43.54	485.841	
17,600.00	6,942.26	6,200.00	6,198.60	177.40	12.98	-45.11	1,420.62	-10,086.65	21,253.80	21,210.16	43.64	487.045	

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 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
17,700.00	6,942.28	6,200.00	6,198.60	178.99	12.98	-45.11	1,420.62	-10,086.65	21,353.70	21,309.97	43.74	488.239	
17,800.00	6,942.31	6,200.00	6,198.60	180.57	12.98	-45.11	1,420.62	-10,086.65	21,453.61	21,409.77	43.83	489.424	
17,900.00	6,942.33	6,178.33	6,176.94	182.16	12.93	-44.21	1,421.14	-10,085.94	21,553.49	21,509.60	43.89	491.044	
18,000.00	6,942.35	6,176.44	6,175.06	183.75	12.93	-44.14	1,421.18	-10,085.87	21,653.40	21,609.41	43.99	492.247	
18,100.00	6,942.37	6,174.56	6,173.17	185.34	12.92	-44.06	1,421.23	-10,085.81	21,753.30	21,709.21	44.08	493.441	
18,200.00	6,942.39	6,172.68	6,171.30	186.93	12.92	-43.98	1,421.27	-10,085.75	21,853.20	21,809.02	44.18	494.626	
18,300.00	6,942.42	6,170.81	6,169.43	188.52	12.91	-43.91	1,421.31	-10,085.69	21,953.11	21,908.83	44.28	495.801	
18,400.00	6,942.44	6,168.95	6,167.57	190.10	12.91	-43.83	1,421.36	-10,085.63	22,053.01	22,008.64	44.38	496.966	
18,500.00	6,942.46	6,167.10	6,165.72	191.69	12.91	-43.76	1,421.40	-10,085.57	22,152.92	22,108.44	44.47	498.122	
18,600.00	6,942.48	6,165.25	6,163.88	193.28	12.90	-43.68	1,421.45	-10,085.51	22,252.82	22,208.25	44.57	499.268	
18,700.00	6,942.51	6,163.41	6,162.04	194.87	12.90	-43.61	1,421.49	-10,085.45	22,352.73	22,308.06	44.67	500.406	
18,800.00	6,942.53	6,161.58	6,160.21	196.46	12.89	-43.54	1,421.53	-10,085.39	22,452.64	22,407.87	44.77	501.534	
18,900.00	6,942.55	6,159.75	6,158.38	198.05	12.89	-43.46	1,421.58	-10,085.33	22,552.55	22,507.68	44.87	502.653	
19,000.00	6,942.57	6,157.93	6,156.57	199.64	12.89	-43.39	1,421.62	-10,085.28	22,652.45	22,607.49	44.97	503.763	
19,100.00	6,942.59	6,156.12	6,154.75	201.23	12.88	-43.32	1,421.66	-10,085.22	22,752.36	22,707.30	45.07	504.863	
19,200.00	6,942.62	6,154.32	6,152.95	202.82	12.88	-43.25	1,421.71	-10,085.16	22,852.27	22,807.11	45.17	505.955	
19,300.00	6,942.64	6,152.52	6,151.15	204.41	12.87	-43.18	1,421.75	-10,085.10	22,952.18	22,906.92	45.27	507.038	
19,400.00	6,942.66	6,150.73	6,149.36	206.00	12.87	-43.11	1,421.79	-10,085.05	23,052.09	23,006.73	45.37	508.112	
19,500.00	6,942.68	6,148.94	6,147.58	207.59	12.87	-43.04	1,421.83	-10,084.99	23,152.00	23,106.54	45.47	509.178	
19,600.00	6,942.70	6,147.16	6,145.80	209.18	12.86	-42.97	1,421.88	-10,084.93	23,251.92	23,206.35	45.57	510.234	
19,700.00	6,942.73	6,145.39	6,144.03	210.78	12.86	-42.90	1,421.92	-10,084.88	23,351.83	23,306.16	45.67	511.282	
19,800.00	6,942.75	6,143.63	6,142.27	212.37	12.85	-42.83	1,421.96	-10,084.82	23,451.74	23,405.97	45.78	512.322	
19,900.00	6,942.77	6,141.87	6,140.51	213.96	12.85	-42.76	1,422.00	-10,084.76	23,551.65	23,505.78	45.88	513.353	
20,000.00	6,942.79	6,140.11	6,138.76	215.55	12.85	-42.70	1,422.04	-10,084.71	23,651.57	23,605.59	45.98	514.376	
20,100.00	6,942.81	6,138.37	6,137.02	217.14	12.84	-42.63	1,422.08	-10,084.65	23,751.48	23,705.40	46.08	515.390	
20,200.00	6,942.84	6,136.63	6,135.28	218.73	12.84	-42.56	1,422.13	-10,084.60	23,851.40	23,805.21	46.19	516.396	
20,300.00	6,942.86	6,134.90	6,133.55	220.32	12.83	-42.49	1,422.17	-10,084.55	23,951.31	23,905.02	46.29	517.393	
20,400.00	6,942.88	6,133.17	6,131.82	221.92	12.83	-42.43	1,422.21	-10,084.49	24,051.23	24,004.83	46.40	518.383	
20,500.00	6,942.90	6,131.45	6,130.10	223.51	12.83	-42.36	1,422.25	-10,084.44	24,151.14	24,104.64	46.50	519.364	
20,600.00	6,942.92	6,129.74	6,128.39	225.10	12.82	-42.30	1,422.29	-10,084.38	24,251.06	24,204.45	46.61	520.338	
20,700.00	6,942.95	6,128.03	6,126.68	226.69	12.82	-42.23	1,422.33	-10,084.33	24,350.98	24,304.27	46.71	521.303	
20,800.00	6,942.97	6,126.33	6,124.98	228.28	12.82	-42.17	1,422.37	-10,084.28	24,450.90	24,404.08	46.82	522.261	
20,900.00	6,942.99	6,124.63	6,123.29	229.88	12.81	-42.11	1,422.41	-10,084.23	24,550.81	24,503.89	46.92	523.210	
20,942.50	6,943.00	6,123.91	6,122.57	230.42	12.81	-42.08	1,422.43	-10,084.20	24,593.28	24,541.79	51.49	477.662	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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	-100.31	-2,165.67	-11,906.32	12,101.68				
58.45	58.45	119.45	119.45	0.02	3.58	21.40	-2,165.67	-11,906.32	12,101.34	12,097.75	3.60	3,364.161	
150.25	150.24	211.24	211.24	0.14	6.33	3.10	-2,165.67	-11,906.32	12,100.29	12,093.82	6.47	1,871.652	
239.43	239.42	300.42	300.42	0.25	9.00	-2.38	-2,165.67	-11,906.32	12,099.24	12,089.98	9.25	1,307.474	
299.93	299.91	360.91	360.91	0.33	10.81	2.57	-2,165.67	-11,906.32	12,098.47	12,087.32	11.15	1,085.468	
446.00	445.96	507.06	506.96	0.50	15.19	26.98	-2,165.67	-11,906.32	12,096.19	12,080.50	15.70	770.640	
537.00	536.95	598.05	597.95	0.73	17.92	88.24	-2,165.67	-11,906.32	12,095.37	12,076.72	18.65	648.695	CC
540.92	540.87	601.97	601.87	0.74	18.04	92.39	-2,165.67	-11,906.32	12,095.37	12,076.60	18.77	644.239	
624.00	623.95	685.05	684.95	0.99	20.53	171.21	-2,165.67	-11,906.32	12,096.08	12,074.57	21.51	562.277	
718.00	717.90	775.19	775.04	1.29	23.23	-170.93	-2,163.51	-11,906.32	12,098.37	12,073.86	24.52	493.504	ES
811.00	810.73	855.85	855.69	1.60	25.65	-151.44	-2,163.88	-11,906.32	12,103.57	12,076.33	27.25	444.241	
903.00	902.19	935.27	935.09	1.92	28.03	-139.42	-2,164.69	-11,906.32	12,111.71	12,081.76	29.95	404.460	
994.00	992.38	1,053.79	1,053.38	2.24	31.58	-137.20	-2,165.67	-11,906.32	12,120.94	12,087.12	33.82	358.432	
1,084.00	1,081.50	1,142.90	1,142.50	2.56	34.25	-132.77	-2,165.67	-11,906.32	12,129.86	12,093.05	36.81	329.546	
1,175.00	1,171.48	1,232.89	1,232.48	2.91	36.94	-128.96	-2,165.67	-11,906.32	12,138.76	12,098.93	39.84	304.721	
1,268.00	1,263.52	1,314.89	1,314.43	3.26	39.40	-127.46	-2,163.63	-11,906.32	12,146.70	12,104.07	42.63	284.903	
1,363.00	1,357.62	1,396.32	1,395.85	3.63	41.84	-124.53	-2,164.24	-11,906.32	12,154.54	12,109.12	45.43	267.565	
1,457.00	1,450.74	1,512.46	1,511.74	3.99	45.32	-121.89	-2,165.67	-11,906.32	12,161.86	12,112.60	49.26	246.902	
1,552.00	1,544.82	1,606.53	1,605.82	4.36	48.14	-121.13	-2,165.67	-11,906.32	12,168.81	12,116.38	52.44	232.074	
1,646.00	1,637.88	1,699.59	1,698.88	4.72	50.93	-120.68	-2,165.67	-11,906.32	12,175.69	12,120.11	55.58	219.064	
1,741.00	1,731.94	1,787.65	1,786.89	5.09	53.57	-120.27	-2,163.54	-11,906.32	12,182.11	12,123.53	58.58	207.954	
1,835.00	1,825.07	1,867.97	1,867.19	5.46	55.97	-120.26	-2,163.97	-11,906.32	12,188.64	12,127.30	61.34	198.692	
1,929.00	1,918.39	1,948.35	1,947.56	5.82	58.38	-121.51	-2,164.86	-11,906.32	12,194.68	12,130.57	64.11	190.226	
2,024.00	2,012.84	2,074.85	2,073.84	6.18	62.17	-120.18	-2,165.67	-11,906.32	12,200.06	12,131.81	68.25	178.751	
2,118.00	2,106.19	2,168.21	2,167.19	6.53	64.97	-119.98	-2,165.67	-11,906.32	12,205.58	12,134.18	71.40	170.939	
2,213.00	2,200.37	2,260.63	2,259.58	6.90	67.74	-121.31	-2,163.49	-11,906.32	12,211.56	12,137.02	74.54	163.836	
2,307.00	2,293.61	2,340.79	2,339.72	7.27	70.14	-119.39	-2,163.78	-11,906.32	12,217.70	12,140.41	77.29	158.069	
2,402.00	2,387.91	2,421.78	2,420.69	7.63	72.57	-115.57	-2,164.52	-11,906.32	12,223.19	12,143.12	80.08	152.638	
2,496.00	2,481.29	2,543.61	2,542.29	7.99	76.22	-114.45	-2,165.67	-11,906.32	12,227.98	12,143.90	84.09	145.423	
2,591.00	2,575.67	2,637.99	2,636.67	8.35	79.05	-115.95	-2,165.67	-11,906.32	12,232.63	12,145.35	87.27	140.166	
2,686.00	2,670.05	2,732.37	2,731.05	8.71	81.87	-115.59	-2,165.67	-11,906.32	12,237.35	12,146.89	90.46	135.281	
2,780.00	2,763.49	2,814.94	2,813.58	9.07	84.35	-117.63	-2,163.63	-11,906.32	12,241.60	12,148.32	93.29	131.226	
2,875.00	2,857.94	2,895.83	2,894.44	9.43	86.77	-119.09	-2,164.23	-11,906.32	12,246.59	12,150.53	96.07	127.482	
2,970.00	2,952.51	3,015.14	3,013.51	9.79	90.35	-115.58	-2,165.67	-11,906.32	12,251.01	12,151.02	99.99	122.518	
3,064.00	3,046.19	3,108.82	3,107.19	10.13	93.15	-108.44	-2,165.67	-11,906.32	12,253.94	12,150.79	103.15	118.803	
3,159.00	3,140.98	3,203.60	3,201.98	10.47	95.99	-106.48	-2,165.67	-11,906.32	12,255.88	12,149.55	106.33	115.264	
3,253.00	3,234.84	3,290.57	3,288.90	10.81	98.60	-114.22	-2,163.54	-11,906.32	12,257.17	12,147.90	109.27	112.173	
3,348.00	3,329.74	3,371.70	3,370.02	11.14	101.03	-121.89	-2,164.01	-11,906.32	12,259.30	12,147.26	112.04	109.421	
3,397.00	3,378.70	3,413.55	3,411.85	11.32	102.29	-122.78	-2,164.42	-11,906.32	12,260.50	12,147.04	113.46	108.056	
3,488.00	3,469.63	3,532.56	3,530.63	11.64	105.85	-125.36	-2,165.67	-11,906.32	12,262.66	12,145.31	117.35	104.494	
3,583.00	3,564.49	3,627.42	3,625.49	11.98	108.69	-116.98	-2,165.67	-11,906.32	12,265.21	12,144.67	120.53	101.756	
3,677.00	3,658.13	3,721.06	3,719.13	12.33	111.50	-115.21	-2,165.67	-11,906.32	12,268.80	12,145.11	123.69	99.191	
3,772.00	3,752.42	3,805.75	3,803.77	12.69	114.04	-110.68	-2,163.60	-11,906.32	12,272.83	12,146.24	126.59	96.952	
3,867.00	3,846.42	3,885.88	3,883.88	13.06	116.44	-109.15	-2,164.13	-11,906.32	12,277.69	12,148.33	129.36	94.914	
3,961.00	3,939.30	4,002.53	4,000.30	13.44	119.93	-109.46	-2,165.67	-11,906.32	12,282.82	12,149.60	133.22	92.199	
4,056.00	4,032.83	4,096.06	4,093.83	13.82	122.74	-112.79	-2,165.67	-11,906.32	12,288.94	12,152.53	136.40	90.093	
4,151.00	4,126.01	4,189.24	4,187.01	14.21	125.53	-111.99	-2,165.67	-11,906.32	12,296.10	12,156.52	139.58	88.094	
4,246.00	4,219.10	4,277.44	4,275.16	14.61	128.17	-119.39	-2,163.51	-11,906.32	12,304.00	12,161.39	142.61	86.278	
4,340.00	4,310.92	4,355.31	4,353.02	15.01	130.50	-128.38	-2,163.88	-11,906.32	12,315.58	12,170.25	145.32	84.746	
4,435.00	4,403.54	4,433.72	4,431.41	15.41	132.85	-129.08	-2,164.67	-11,906.32	12,329.18	12,181.12	148.06	83.272	
4,498.00	4,465.21	4,528.75	4,526.21	15.68	135.70	-127.17	-2,165.67	-11,906.32	12,337.42	12,186.26	151.16	81.617	
4,561.00	4,526.82	4,590.36	4,587.82	15.95	137.55	-121.99	-2,165.67	-11,906.32	12,344.95	12,191.68	153.26	80.547	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
4,624.00	4,588.23	4,651.77	4,649.23	16.22	139.39	-120.20	-2,165.67	-11,906.32	12,352.36	12,196.99	155.36	79.506	
4,687.00	4,649.71	4,713.25	4,710.71	16.49	141.23	-119.80	-2,165.67	-11,906.32	12,359.36	12,201.89	157.47	78.489	
4,749.00	4,710.40	4,770.19	4,767.61	16.75	142.94	-118.62	-2,163.50	-11,906.32	12,365.18	12,205.75	159.43	77.560	
4,812.00	4,772.28	4,822.39	4,819.80	17.01	144.50	-117.93	-2,163.67	-11,906.32	12,370.90	12,209.65	161.24	76.721	
4,875.00	4,834.34	4,874.69	4,872.09	17.27	146.07	-118.46	-2,164.03	-11,906.32	12,376.20	12,213.13	163.06	75.898	
4,938.00	4,896.43	4,926.96	4,924.35	17.53	147.63	-118.67	-2,164.58	-11,906.32	12,381.48	12,216.60	164.88	75.094	
5,001.00	4,958.46	5,022.30	5,019.46	17.79	150.49	-121.91	-2,165.67	-11,906.32	12,387.31	12,219.32	167.99	73.738	
5,064.00	5,020.29	5,084.13	5,081.29	18.05	152.34	-126.11	-2,165.67	-11,906.32	12,394.18	12,224.08	170.10	72.865	
5,126.00	5,080.98	5,144.82	5,141.98	18.32	154.16	-130.32	-2,165.67	-11,906.32	12,402.12	12,229.95	172.17	72.035	
5,189.00	5,142.74	5,206.58	5,203.74	18.58	156.01	-128.81	-2,165.67	-11,906.32	12,410.14	12,235.86	174.27	71.211	
5,252.00	5,204.62	5,265.48	5,262.60	18.85	157.78	-128.84	-2,163.50	-11,906.32	12,417.16	12,240.87	176.29	70.436	
5,315.00	5,266.61	5,317.53	5,314.63	19.11	159.34	-129.09	-2,163.65	-11,906.32	12,424.31	12,246.21	178.10	69.761	
5,378.00	5,328.73	5,369.62	5,366.72	19.37	160.90	-128.69	-2,163.99	-11,906.32	12,431.06	12,251.16	179.90	69.098	
5,441.00	5,390.87	5,421.69	5,418.77	19.62	162.46	-129.20	-2,164.52	-11,906.32	12,437.78	12,256.07	181.71	68.448	
5,503.00	5,452.07	5,516.22	5,513.07	19.87	165.29	-128.96	-2,165.67	-11,906.32	12,444.28	12,259.49	184.79	67.344	
5,566.00	5,514.32	5,578.47	5,575.32	20.13	167.16	-129.34	-2,165.67	-11,906.32	12,450.47	12,263.57	186.90	66.616	
5,629.00	5,576.59	5,640.74	5,637.59	20.38	169.02	-126.96	-2,165.67	-11,906.32	12,456.40	12,267.39	189.01	65.904	
5,692.00	5,638.95	5,703.10	5,699.95	20.63	170.89	-129.30	-2,165.67	-11,906.32	12,461.97	12,270.85	191.12	65.205	
5,747.00	5,693.45	5,756.33	5,753.14	20.85	172.49	-127.10	-2,163.49	-11,906.32	12,466.11	12,273.18	192.92	64.617	
5,810.00	5,755.90	5,808.55	5,805.36	21.09	174.05	-127.86	-2,163.61	-11,906.32	12,471.22	12,276.49	194.73	64.044	
5,874.00	5,819.40	5,861.62	5,858.41	21.34	175.64	-126.65	-2,163.92	-11,906.32	12,476.14	12,279.58	196.56	63.473	
5,936.00	5,880.95	5,913.02	5,909.80	21.58	177.18	-127.08	-2,164.42	-11,906.32	12,480.80	12,282.47	198.33	62.929	
5,999.00	5,943.45	6,007.91	6,004.45	21.82	180.02	-128.59	-2,165.67	-11,906.32	12,485.89	12,284.47	201.42	61.990	
6,062.00	6,005.96	6,070.41	6,066.96	22.07	181.90	-126.13	-2,165.67	-11,906.32	12,490.70	12,287.17	203.53	61.371	
6,125.00	6,068.49	6,132.94	6,129.49	22.31	183.77	-128.46	-2,165.67	-11,906.32	12,495.38	12,289.74	205.64	60.763	
6,188.00	6,131.08	6,195.53	6,192.08	22.55	185.65	-126.69	-2,165.67	-11,906.32	12,499.77	12,292.02	207.75	60.167	
6,255.00	6,197.73	6,260.13	6,256.64	22.81	187.58	-127.79	-2,163.49	-11,906.32	12,503.42	12,293.49	209.94	59.558	
6,293.00	6,235.55	6,291.66	6,288.17	22.89	188.53	-127.80	-2,163.55	-11,906.32	12,505.67	12,294.72	210.95	59.281	
6,300.00	6,242.52	6,297.47	6,293.97	22.89	188.70	-127.81	-2,163.57	-11,906.32	12,506.09	12,294.96	211.13	59.234	
6,393.00	6,335.09	6,374.61	6,371.10	22.94	191.01	-127.83	-2,164.03	-11,906.32	12,511.69	12,298.22	213.47	58.610	
6,400.00	6,342.06	6,380.41	6,376.90	22.94	191.19	-133.74	-2,164.08	-11,906.32	12,512.15	12,298.50	213.65	58.564	
6,450.00	6,391.66	6,421.72	6,418.20	22.97	192.42	-160.97	-2,164.52	-11,906.32	12,517.65	12,302.74	214.90	58.247	
6,500.00	6,440.77	6,505.53	6,501.77	23.02	194.94	-172.99	-2,165.67	-11,906.32	12,527.01	12,309.57	217.44	57.612	
6,550.00	6,489.07	6,553.83	6,550.07	23.07	196.38	-179.36	-2,165.67	-11,906.32	12,539.86	12,320.96	218.90	57.286	
6,600.00	6,536.26	6,601.02	6,597.26	23.13	197.80	176.61	-2,165.67	-11,906.32	12,556.33	12,336.01	220.33	56.989	
6,650.00	6,582.05	6,646.80	6,643.05	23.21	199.17	173.69	-2,165.67	-11,906.32	12,576.34	12,354.62	221.71	56.723	
6,700.00	6,626.13	6,690.89	6,687.13	23.29	200.49	171.33	-2,165.67	-11,906.32	12,599.74	12,376.69	223.05	56.490	
6,750.00	6,668.24	6,733.00	6,729.24	23.39	201.75	169.22	-2,165.67	-11,906.32	12,626.39	12,402.08	224.32	56.288	
6,800.00	6,708.12	6,769.00	6,765.21	23.51	202.83	167.20	-2,163.50	-11,906.32	12,655.63	12,430.23	225.40	56.147	
6,850.00	6,745.50	6,800.10	6,796.30	23.64	203.76	165.09	-2,163.58	-11,906.32	12,688.29	12,461.95	226.34	56.059	
6,900.00	6,780.15	6,828.94	6,825.13	23.79	204.63	162.80	-2,163.71	-11,906.32	12,723.66	12,496.45	227.21	56.000	
6,950.00	6,811.86	6,855.32	6,851.50	23.95	205.42	160.17	-2,163.88	-11,906.32	12,761.51	12,533.52	228.00	55.972 SF	
7,000.00	6,840.42	6,879.08	6,875.26	24.14	206.13	157.04	-2,164.07	-11,906.32	12,801.61	12,572.90	228.71	55.973	
7,050.00	6,865.66	6,900.09	6,896.26	24.35	206.76	153.19	-2,164.27	-11,906.32	12,843.70	12,614.36	229.34	56.004	
7,100.00	6,887.42	6,918.19	6,914.36	24.57	207.30	148.31	-2,164.48	-11,906.32	12,887.50	12,657.63	229.87	56.064	
7,150.00	6,905.55	6,933.29	6,929.46	24.82	207.75	141.95	-2,164.66	-11,906.32	12,932.76	12,702.44	230.31	56.153	
7,200.00	6,919.95	6,945.29	6,941.45	25.10	208.11	133.52	-2,164.82	-11,906.32	12,979.17	12,748.51	230.66	56.271	
7,250.00	6,930.52	6,954.11	6,950.27	25.39	208.38	122.41	-2,164.94	-11,906.32	13,026.44	12,795.54	230.90	56.416	
7,300.00	6,937.20	7,002.26	6,998.20	25.70	209.82	109.02	-2,165.67	-11,906.32	13,074.36	12,842.04	232.33	56.276	
7,350.00	6,939.94	7,005.01	7,000.94	26.04	209.90	93.14	-2,165.67	-11,906.32	13,122.46	12,890.08	232.38	56.470	
7,359.60	6,940.02	7,005.08	7,001.02	26.10	209.90	90.04	-2,165.67	-11,906.32	13,131.71	12,899.33	232.38	56.510	
7,400.00	6,940.03	7,005.09	7,001.03	26.39	209.90	90.04	-2,165.67	-11,906.32	13,170.60	12,938.25	232.35	56.684	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
7,500.00	6,940.04	7,005.11	7,001.04	27.15	209.90	90.04	-2,165.67	-11,906.32	13,266.91	13,034.61	232.30	57.111	
7,600.00	6,940.06	7,005.12	7,001.06	27.99	209.91	90.04	-2,165.67	-11,906.32	13,363.28	13,131.02	232.26	57.536	
7,659.60	6,940.07	7,005.13	7,001.07	28.52	209.91	90.04	-2,165.67	-11,906.32	13,420.74	13,188.50	232.24	57.789	
7,700.00	6,940.08	7,005.14	7,001.08	28.89	209.91	90.04	-2,165.67	-11,906.32	13,459.77	13,227.55	232.22	57.960	
7,796.63	6,940.10	7,005.16	7,001.10	29.83	209.91	90.06	-2,165.67	-11,906.32	13,553.72	13,321.52	232.21	58.370	
7,800.00	6,940.10	7,005.16	7,001.10	29.86	209.91	90.06	-2,165.67	-11,906.32	13,557.02	13,324.81	232.21	58.384	
7,900.00	6,940.12	7,005.18	7,001.12	30.90	209.91	90.06	-2,165.67	-11,906.32	13,654.67	13,422.47	232.19	58.807	
8,000.00	6,940.14	7,005.20	7,001.14	31.98	209.91	90.06	-2,165.67	-11,906.32	13,752.35	13,520.17	232.19	59.230	
8,100.00	6,940.17	7,005.23	7,001.17	33.11	209.91	90.06	-2,165.67	-11,906.32	13,850.07	13,617.89	232.18	59.651	
8,200.00	6,940.19	7,005.25	7,001.19	34.28	209.91	90.06	-2,165.67	-11,906.32	13,947.82	13,715.64	232.19	60.071	
8,300.00	6,940.21	7,005.27	7,001.21	35.48	209.91	90.06	-2,165.67	-11,906.32	14,045.61	13,813.41	232.20	60.490	
8,400.00	6,940.23	7,005.29	7,001.23	36.71	209.91	90.06	-2,165.67	-11,906.32	14,143.42	13,911.21	232.21	60.907	
8,500.00	6,940.25	7,005.32	7,001.25	37.97	209.91	90.06	-2,165.67	-11,906.32	14,241.27	14,009.03	232.23	61.324	
8,600.00	6,940.28	7,005.34	7,001.28	39.26	209.91	90.06	-2,165.67	-11,906.32	14,339.14	14,106.88	232.25	61.739	
8,700.00	6,940.30	7,005.36	7,001.30	40.56	209.91	90.06	-2,165.67	-11,906.32	14,437.04	14,204.76	232.28	62.153	
8,800.00	6,940.32	7,005.38	7,001.32	41.89	209.91	90.06	-2,165.67	-11,906.32	14,534.97	14,302.66	232.32	62.566	
8,900.00	6,940.34	7,005.40	7,001.34	43.24	209.91	90.06	-2,165.67	-11,906.32	14,632.93	14,400.58	232.35	62.977	
9,000.00	6,940.36	7,005.43	7,001.36	44.60	209.91	90.06	-2,165.67	-11,906.32	14,730.92	14,498.53	232.39	63.388	
9,100.00	6,940.39	7,005.45	7,001.39	45.98	209.91	90.06	-2,165.67	-11,906.32	14,828.94	14,596.50	232.44	63.798	
9,200.00	6,940.41	7,005.47	7,001.41	47.38	209.92	90.06	-2,165.67	-11,906.32	14,926.98	14,694.49	232.49	64.206	
9,300.00	6,940.43	7,005.49	7,001.43	48.78	209.92	90.06	-2,165.67	-11,906.32	15,025.04	14,792.50	232.54	64.613	
9,400.00	6,940.45	7,005.51	7,001.45	50.20	209.92	90.06	-2,165.67	-11,906.32	15,123.13	14,890.54	232.59	65.020	
9,500.00	6,940.47	7,005.54	7,001.47	51.63	209.92	90.06	-2,165.67	-11,906.32	15,221.25	14,988.60	232.65	65.425	
9,600.00	6,940.50	7,005.56	7,001.50	53.07	209.92	90.06	-2,165.67	-11,906.32	15,319.39	15,086.68	232.71	65.829	
9,700.00	6,940.52	7,005.58	7,001.52	54.52	209.92	90.07	-2,165.67	-11,906.32	15,417.56	15,184.78	232.78	66.232	
9,800.00	6,940.54	7,005.60	7,001.54	55.97	209.92	90.07	-2,165.67	-11,906.32	15,515.74	15,282.90	232.85	66.634	
9,900.00	6,940.56	7,005.62	7,001.56	57.44	209.92	90.07	-2,165.67	-11,906.32	15,613.96	15,381.04	232.92	67.036	
10,000.00	6,940.59	7,005.65	7,001.59	58.91	209.92	90.07	-2,165.67	-11,906.32	15,712.19	15,479.19	232.99	67.436	
10,100.00	6,940.61	7,005.67	7,001.61	60.38	209.92	90.07	-2,165.67	-11,906.32	15,810.44	15,577.37	233.07	67.835	
10,200.00	6,940.63	7,005.69	7,001.63	61.87	209.92	90.07	-2,165.67	-11,906.32	15,908.72	15,675.57	233.15	68.234	
10,300.00	6,940.65	7,005.71	7,001.65	63.36	209.92	90.07	-2,165.67	-11,906.32	16,007.02	15,773.79	233.23	68.631	
10,400.00	6,940.67	7,005.73	7,001.67	64.85	209.92	90.07	-2,165.67	-11,906.32	16,105.34	15,872.03	233.32	69.028	
10,500.00	6,940.70	7,005.76	7,001.70	66.35	209.92	90.07	-2,165.67	-11,906.32	16,203.68	15,970.28	233.40	69.424	
10,600.00	6,940.72	7,005.78	7,001.72	67.86	209.92	90.07	-2,165.67	-11,906.32	16,302.04	16,068.55	233.49	69.819	
10,700.00	6,940.74	7,005.80	7,001.74	69.36	209.93	90.07	-2,165.67	-11,906.32	16,400.42	16,166.84	233.58	70.213	
10,800.00	6,940.76	7,005.82	7,001.76	70.88	209.93	90.07	-2,165.67	-11,906.32	16,498.82	16,265.15	233.67	70.606	
10,900.00	6,940.78	7,005.84	7,001.78	72.39	209.93	90.07	-2,165.67	-11,906.32	16,597.24	16,363.47	233.77	70.999	
11,000.00	6,940.81	7,005.87	7,001.81	73.91	209.93	90.07	-2,165.67	-11,906.32	16,695.68	16,461.81	233.86	71.390	
11,100.00	6,940.83	7,005.89	7,001.83	75.44	209.93	90.07	-2,165.67	-11,906.32	16,794.14	16,560.17	233.96	71.781	
11,200.00	6,940.85	7,005.91	7,001.85	76.96	209.93	90.07	-2,165.67	-11,906.32	16,892.61	16,658.55	234.06	72.171	
11,300.00	6,940.87	7,005.93	7,001.87	78.49	209.93	90.07	-2,165.67	-11,906.32	16,991.10	16,756.94	234.16	72.560	
11,400.00	6,940.89	7,005.96	7,001.89	80.03	209.93	90.07	-2,165.67	-11,906.32	17,089.61	16,855.34	234.27	72.949	
11,500.00	6,940.92	7,005.98	7,001.92	81.56	209.93	90.07	-2,165.67	-11,906.32	17,188.14	16,953.77	234.37	73.337	
11,600.00	6,940.94	7,006.00	7,001.94	83.10	209.93	90.07	-2,165.67	-11,906.32	17,286.68	17,052.20	234.48	73.724	
11,700.00	6,940.96	7,006.02	7,001.96	84.64	209.93	90.07	-2,165.67	-11,906.32	17,385.24	17,150.66	234.59	74.110	
11,800.00	6,940.98	7,006.04	7,001.98	86.18	209.93	90.07	-2,165.67	-11,906.32	17,483.82	17,249.12	234.70	74.496	
11,900.00	6,941.00	7,006.07	7,002.00	87.72	209.93	90.07	-2,165.67	-11,906.32	17,582.41	17,347.61	234.81	74.881	
12,000.00	6,941.03	7,006.09	7,002.03	89.27	209.93	90.08	-2,165.67	-11,906.32	17,681.02	17,446.10	234.92	75.265	
12,100.00	6,941.05	7,006.11	7,002.05	90.82	209.93	90.08	-2,165.67	-11,906.32	17,779.65	17,544.62	235.03	75.649	
12,200.00	6,941.07	7,006.13	7,002.07	92.37	209.94	90.08	-2,165.67	-11,906.32	17,878.29	17,643.14	235.14	76.032	
12,300.00	6,941.09	7,006.15	7,002.09	93.92	209.94	90.08	-2,165.67	-11,906.32	17,976.94	17,741.68	235.26	76.414	
12,400.00	6,941.11	7,006.18	7,002.11	95.47	209.94	90.08	-2,165.67	-11,906.32	18,075.61	17,840.24	235.37	76.796	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
12,500.00	6,941.14	7,006.20	7,002.14	97.03	209.94	90.08	-2,165.67	-11,906.32	18,174.29	17,938.80	235.49	77.177	
12,600.00	6,941.16	7,006.22	7,002.16	98.58	209.94	90.08	-2,165.67	-11,906.32	18,272.99	18,037.38	235.61	77.557	
12,700.00	6,941.18	7,006.24	7,002.18	100.14	209.94	90.08	-2,165.67	-11,906.32	18,371.70	18,135.98	235.73	77.937	
12,800.00	6,941.20	7,006.26	7,002.20	101.70	209.94	90.08	-2,165.67	-11,906.32	18,470.43	18,234.58	235.85	78.316	
12,900.00	6,941.23	7,006.29	7,002.23	103.26	209.94	90.08	-2,165.67	-11,906.32	18,569.17	18,333.20	235.97	78.695	
13,000.00	6,941.25	7,006.31	7,002.25	104.82	209.94	90.08	-2,165.67	-11,906.32	18,667.92	18,431.84	236.09	79.073	
13,100.00	6,941.27	7,006.33	7,002.27	106.38	209.94	90.08	-2,165.67	-11,906.32	18,766.69	18,530.48	236.21	79.450	
13,200.00	6,941.29	7,006.35	7,002.29	107.95	209.94	90.08	-2,165.67	-11,906.32	18,865.47	18,629.14	236.33	79.827	
13,300.00	6,941.31	7,006.37	7,002.31	109.51	209.94	90.08	-2,165.67	-11,906.32	18,964.26	18,727.81	236.45	80.203	
13,400.00	6,941.34	7,006.40	7,002.34	111.08	209.94	90.08	-2,165.67	-11,906.32	19,063.07	18,826.49	236.58	80.579	
13,500.00	6,941.36	7,006.42	7,002.36	112.64	209.94	90.08	-2,165.67	-11,906.32	19,161.88	18,925.18	236.70	80.954	
13,600.00	6,941.38	7,006.44	7,002.38	114.21	209.94	90.08	-2,165.67	-11,906.32	19,260.71	19,023.89	236.83	81.328	
13,700.00	6,941.40	7,006.46	7,002.40	115.78	209.95	90.08	-2,165.67	-11,906.32	19,359.55	19,122.60	236.95	81.702	
13,800.00	6,941.42	7,006.49	7,002.42	117.35	209.95	90.08	-2,165.67	-11,906.32	19,458.41	19,221.33	237.08	82.076	
13,900.00	6,941.45	7,006.51	7,002.45	118.92	209.95	90.08	-2,165.67	-11,906.32	19,557.27	19,320.07	237.20	82.449	
14,000.00	6,941.47	7,006.53	7,002.47	120.49	209.95	90.08	-2,165.67	-11,906.32	19,656.15	19,418.82	237.33	82.821	
14,100.00	6,941.49	7,006.55	7,002.49	122.06	209.95	90.08	-2,165.67	-11,906.32	19,755.04	19,517.58	237.46	83.193	
14,200.00	6,941.51	7,006.57	7,002.51	123.64	209.95	90.08	-2,165.67	-11,906.32	19,853.93	19,616.35	237.59	83.565	
14,300.00	6,941.53	7,006.60	7,002.53	125.21	209.95	90.09	-2,165.67	-11,906.32	19,952.84	19,715.13	237.72	83.936	
14,400.00	6,941.56	7,006.62	7,002.56	126.78	209.95	90.09	-2,165.67	-11,906.32	20,051.77	19,813.92	237.85	84.306	
14,500.00	6,941.58	7,006.64	7,002.58	128.36	209.95	90.09	-2,165.67	-11,906.32	20,150.70	19,912.72	237.97	84.676	
14,600.00	6,941.60	7,006.66	7,002.60	129.93	209.95	90.09	-2,165.67	-11,906.32	20,249.64	20,011.53	238.10	85.045	
14,700.00	6,941.62	7,006.68	7,002.62	131.51	209.95	90.09	-2,165.67	-11,906.32	20,348.59	20,110.36	238.23	85.414	
14,800.00	6,941.64	7,006.71	7,002.64	133.08	209.95	90.09	-2,165.67	-11,906.32	20,447.55	20,209.19	238.36	85.783	
14,900.00	6,941.67	7,006.73	7,002.67	134.66	209.95	90.09	-2,165.67	-11,906.32	20,546.53	20,308.03	238.50	86.151	
15,000.00	6,941.69	7,006.75	7,002.69	136.24	209.95	90.09	-2,165.67	-11,906.32	20,645.51	20,406.88	238.63	86.518	
15,100.00	6,941.71	7,006.77	7,002.71	137.82	209.95	90.09	-2,165.67	-11,906.32	20,744.50	20,505.74	238.76	86.885	
15,200.00	6,941.73	7,006.79	7,002.73	139.40	209.96	90.09	-2,165.67	-11,906.32	20,843.50	20,604.61	238.89	87.252	
15,300.00	6,941.75	7,006.82	7,002.75	140.97	209.96	90.09	-2,165.67	-11,906.32	20,942.51	20,703.49	239.02	87.618	
15,400.00	6,941.78	7,006.84	7,002.78	142.55	209.96	90.09	-2,165.67	-11,906.32	21,041.53	20,802.38	239.15	87.983	
15,500.00	6,941.80	7,006.86	7,002.80	144.13	209.96	90.09	-2,165.67	-11,906.32	21,140.56	20,901.28	239.29	88.348	
15,600.00	6,941.82	7,006.88	7,002.82	145.72	209.96	90.09	-2,165.67	-11,906.32	21,239.60	21,000.18	239.42	88.713	
15,700.00	6,941.84	7,006.90	7,002.84	147.30	209.96	90.09	-2,165.67	-11,906.32	21,338.65	21,099.10	239.55	89.077	
15,800.00	6,941.87	7,006.93	7,002.87	148.88	209.96	90.09	-2,165.67	-11,906.32	21,437.71	21,198.02	239.68	89.441	
15,900.00	6,941.89	7,006.95	7,002.89	150.46	209.96	90.09	-2,165.67	-11,906.32	21,536.77	21,296.95	239.82	89.805	
16,000.00	6,941.91	7,006.97	7,002.91	152.04	209.96	90.09	-2,165.67	-11,906.32	21,635.85	21,395.89	239.95	90.168	
16,100.00	6,941.93	7,006.99	7,002.93	153.62	209.96	90.09	-2,165.67	-11,906.32	21,734.93	21,494.84	240.09	90.530	
16,200.00	6,941.95	7,007.01	7,002.95	155.21	209.96	90.09	-2,165.67	-11,906.32	21,834.02	21,593.80	240.22	90.892	
16,300.00	6,941.98	7,007.04	7,002.98	156.79	209.96	90.09	-2,165.67	-11,906.32	21,933.12	21,692.76	240.35	91.254	
16,400.00	6,942.00	7,007.06	7,003.00	158.37	209.96	90.09	-2,165.67	-11,906.32	22,032.22	21,791.74	240.49	91.615	
16,500.00	6,942.02	7,007.08	7,003.02	159.96	209.96	90.09	-2,165.67	-11,906.32	22,131.34	21,890.72	240.62	91.976	
16,600.00	6,942.04	7,007.10	7,003.04	161.54	209.96	90.10	-2,165.67	-11,906.32	22,230.46	21,989.71	240.76	92.336	
16,700.00	6,942.06	7,007.13	7,003.06	163.13	209.97	90.10	-2,165.67	-11,906.32	22,329.59	22,088.70	240.89	92.696	
16,800.00	6,942.09	7,007.15	7,003.09	164.71	209.97	90.10	-2,165.67	-11,906.32	22,428.73	22,187.71	241.03	93.055	
16,900.00	6,942.11	7,007.17	7,003.11	166.30	209.97	90.10	-2,165.67	-11,906.32	22,527.88	22,286.72	241.16	93.414	
17,000.00	6,942.13	7,007.19	7,003.13	167.88	209.97	90.10	-2,165.67	-11,906.32	22,627.03	22,385.74	241.30	93.773	
17,100.00	6,942.15	7,007.21	7,003.15	169.47	209.97	90.10	-2,165.67	-11,906.32	22,726.19	22,484.76	241.43	94.131	
17,200.00	6,942.17	7,007.24	7,003.17	171.05	209.97	90.10	-2,165.67	-11,906.32	22,825.36	22,583.80	241.57	94.489	
17,300.00	6,942.20	7,007.26	7,003.20	172.64	209.97	90.10	-2,165.67	-11,906.32	22,924.54	22,682.84	241.70	94.847	
17,400.00	6,942.22	7,007.28	7,003.22	174.23	209.97	90.10	-2,165.67	-11,906.32	23,023.72	22,781.88	241.84	95.204	
17,500.00	6,942.24	7,007.30	7,003.24	175.81	209.97	90.10	-2,165.67	-11,906.32	23,122.91	22,880.94	241.97	95.560	
17,600.00	6,942.26	7,007.32	7,003.26	177.40	209.97	90.10	-2,165.67	-11,906.32	23,222.11	22,980.00	242.11	95.916	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
17,700.00	6,942.28	7,007.35	7,003.28	178.99	209.97	90.10	-2,165.67	-11,906.32	23,321.31	23,079.07	242.24	96.272	
17,800.00	6,942.31	7,007.37	7,003.31	180.57	209.97	90.10	-2,165.67	-11,906.32	23,420.52	23,178.14	242.38	96.628	
17,900.00	6,942.33	7,007.39	7,003.33	182.16	209.97	90.10	-2,165.67	-11,906.32	23,519.74	23,277.22	242.51	96.983	
18,000.00	6,942.35	7,007.41	7,003.35	183.75	209.97	90.10	-2,165.67	-11,906.32	23,618.96	23,376.31	242.65	97.337	
18,100.00	6,942.37	7,007.43	7,003.37	185.34	209.97	90.10	-2,165.67	-11,906.32	23,718.19	23,475.41	242.79	97.691	
18,200.00	6,942.39	7,007.46	7,003.39	186.93	209.98	90.10	-2,165.67	-11,906.32	23,817.43	23,574.51	242.92	98.045	
18,300.00	6,942.42	7,007.48	7,003.42	188.52	209.98	90.10	-2,165.67	-11,906.32	23,916.67	23,673.62	243.06	98.399	
18,400.00	6,942.44	7,007.50	7,003.44	190.10	209.98	90.10	-2,165.67	-11,906.32	24,015.92	23,772.73	243.19	98.752	
18,500.00	6,942.46	7,007.52	7,003.46	191.69	209.98	90.10	-2,165.67	-11,906.32	24,115.18	23,871.85	243.33	99.104	
18,600.00	6,942.48	7,007.54	7,003.48	193.28	209.98	90.10	-2,165.67	-11,906.32	24,214.44	23,970.97	243.47	99.457	
18,700.00	6,942.51	7,007.57	7,003.51	194.87	209.98	90.10	-2,165.67	-11,906.32	24,313.71	24,070.10	243.60	99.809	
18,800.00	6,942.53	7,007.59	7,003.53	196.46	209.98	90.10	-2,165.67	-11,906.32	24,412.98	24,169.24	243.74	100.160	
18,900.00	6,942.55	7,007.61	7,003.55	198.05	209.98	90.11	-2,165.67	-11,906.32	24,512.26	24,268.39	243.88	100.511	
19,000.00	6,942.57	7,007.63	7,003.57	199.64	209.98	90.11	-2,165.67	-11,906.32	24,611.55	24,367.53	244.01	100.862	
19,100.00	6,942.59	7,007.65	7,003.59	201.23	209.98	90.11	-2,165.67	-11,906.32	24,710.84	24,466.69	244.15	101.212	
19,200.00	6,942.62	7,007.68	7,003.62	202.82	209.98	90.11	-2,165.67	-11,906.32	24,810.14	24,565.85	244.29	101.562	
19,300.00	6,942.64	7,007.70	7,003.64	204.41	209.98	90.11	-2,165.67	-11,906.32	24,909.44	24,665.02	244.42	101.912	
19,400.00	6,942.66	7,007.72	7,003.66	206.00	209.98	90.11	-2,165.67	-11,906.32	25,008.75	24,764.19	244.56	102.261	
19,500.00	6,942.68	7,007.74	7,003.68	207.59	209.98	90.11	-2,165.67	-11,906.32	25,108.06	24,863.36	244.69	102.610	
19,600.00	6,942.70	7,007.77	7,003.70	209.18	209.98	90.11	-2,165.67	-11,906.32	25,207.38	24,962.55	244.83	102.958	
19,700.00	6,942.73	7,007.79	7,003.73	210.78	209.98	90.11	-2,165.67	-11,906.32	25,306.70	25,061.74	244.97	103.306	
19,800.00	6,942.75	7,007.81	7,003.75	212.37	209.99	90.11	-2,165.67	-11,906.32	25,406.03	25,160.93	245.10	103.654	
19,900.00	6,942.77	7,007.83	7,003.77	213.96	209.99	90.11	-2,165.67	-11,906.32	25,505.37	25,260.13	245.24	104.001	
20,000.00	6,942.79	7,007.85	7,003.79	215.55	209.99	90.11	-2,165.67	-11,906.32	25,604.71	25,359.33	245.38	104.348	
20,100.00	6,942.81	7,007.88	7,003.81	217.14	209.99	90.11	-2,165.67	-11,906.32	25,704.05	25,458.54	245.51	104.695	
20,200.00	6,942.84	7,007.90	7,003.84	218.73	209.99	90.11	-2,165.67	-11,906.32	25,803.40	25,557.75	245.65	105.041	
20,300.00	6,942.86	7,007.92	7,003.86	220.32	209.99	90.11	-2,165.67	-11,906.32	25,902.76	25,656.97	245.79	105.387	
20,400.00	6,942.88	7,007.94	7,003.88	221.92	209.99	90.11	-2,165.67	-11,906.32	26,002.12	25,756.19	245.92	105.732	
20,500.00	6,942.90	7,007.96	7,003.90	223.51	209.99	90.11	-2,165.67	-11,906.32	26,101.48	25,855.42	246.06	106.077	
20,600.00	6,942.92	7,007.99	7,003.92	225.10	209.99	90.11	-2,165.67	-11,906.32	26,200.85	25,954.66	246.20	106.422	
20,700.00	6,942.95	7,008.01	7,003.95	226.69	209.99	90.11	-2,165.67	-11,906.32	26,300.23	26,053.89	246.34	106.766	
20,800.00	6,942.97	7,008.03	7,003.97	228.28	209.99	90.11	-2,165.67	-11,906.32	26,399.61	26,153.14	246.47	107.110	
20,900.00	6,942.99	7,008.05	7,003.99	229.88	209.99	90.11	-2,165.67	-11,906.32	26,498.99	26,252.38	246.61	107.454	
20,942.50	6,943.00	7,008.06	7,004.00	230.42	209.99	90.11	-2,165.67	-11,906.32	26,541.23	26,290.29	250.94	105.765	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
0.00	0.00	0.00	0.00	0.00	0.00	-81.81	1,449.36	-10,074.17	10,178.40				
58.45	58.45	0.00	0.00	0.02	0.00	39.89	1,449.36	-10,074.17	10,178.88				
150.25	150.24	0.00	0.00	0.14	0.00	21.60	1,449.36	-10,074.17	10,179.81	10,179.69	0.12	N/A	
239.43	239.42	0.00	0.00	0.25	0.00	16.12	1,449.36	-10,074.17	10,181.42	10,181.18	0.24	N/A	
299.93	299.91	0.00	0.00	0.33	0.00	21.07	1,449.36	-10,074.17	10,182.90	10,182.59	0.31	N/A	
446.00	445.96	0.00	0.00	0.50	0.00	45.44	1,449.36	-10,074.17	10,187.78	10,187.29	0.49	N/A	
537.00	536.95	0.00	0.00	0.73	0.00	106.71	1,449.36	-10,074.17	10,192.58	10,191.86	0.72	N/A	
624.00	623.95	0.00	0.00	0.99	0.00	-170.27	1,449.36	-10,074.17	10,199.27	10,198.27	0.99	N/A	
718.00	717.90	0.00	0.00	1.29	0.00	-152.34	1,449.36	-10,074.17	10,208.85	10,207.56	1.30	7,866.287	
811.00	810.73	0.00	0.00	1.60	0.00	-132.64	1,449.36	-10,074.17	10,220.92	10,219.30	1.61	6,339.745	
903.00	902.19	0.00	0.00	1.92	0.00	-120.32	1,449.36	-10,074.17	10,235.19	10,233.26	1.93	5,301.996	
994.00	992.38	538.15	521.81	2.24	2.12	-118.52	1,435.27	-10,117.62	10,248.95	10,244.58	4.38	2,340.586	
1,084.00	1,081.50	550.00	533.60	2.56	2.16	-114.04	1,434.38	-10,118.45	10,259.92	10,255.18	4.74	2,162.541	
1,175.00	1,171.48	575.00	558.44	2.91	2.24	-110.22	1,432.38	-10,120.40	10,271.16	10,266.00	5.16	1,989.342	
1,268.00	1,263.52	600.00	583.25	3.26	2.32	-108.75	1,430.17	-10,122.60	10,282.54	10,276.95	5.59	1,838.210	
1,363.00	1,357.62	625.00	608.01	3.63	2.41	-105.82	1,427.68	-10,124.98	10,294.09	10,288.06	6.04	1,705.641	
1,457.00	1,450.74	664.22	646.76	3.99	2.54	-103.17	1,423.19	-10,128.95	10,305.43	10,298.90	6.53	1,579.073	
1,552.00	1,544.82	700.00	682.04	4.36	2.67	-102.40	1,418.56	-10,132.77	10,317.03	10,310.01	7.02	1,470.648	
1,646.00	1,637.88	725.00	706.61	4.72	2.77	-101.94	1,415.02	-10,135.70	10,329.09	10,321.62	7.47	1,383.433	
1,741.00	1,731.94	725.00	706.61	5.09	2.77	-101.50	1,415.02	-10,135.70	10,341.82	10,334.00	7.83	1,320.964	
1,835.00	1,825.07	750.00	731.10	5.46	2.87	-101.52	1,411.24	-10,139.02	10,355.06	10,346.78	8.28	1,250.610	
1,929.00	1,918.39	750.00	731.10	5.82	2.87	-102.83	1,411.24	-10,139.02	10,368.78	10,360.15	8.63	1,201.339	
2,024.00	2,012.84	775.00	755.52	6.18	2.97	-101.51	1,407.31	-10,142.63	10,383.08	10,374.01	9.08	1,143.954	
2,118.00	2,106.19	800.00	779.91	6.53	3.08	-101.16	1,403.32	-10,146.44	10,397.91	10,388.38	9.52	1,091.924	
2,213.00	2,200.37	825.00	804.25	6.90	3.19	-102.47	1,399.29	-10,150.46	10,413.97	10,403.99	9.98	1,043.645	
2,307.00	2,293.61	825.00	804.25	7.27	3.19	-100.59	1,399.29	-10,150.46	10,430.40	10,420.07	10.33	1,009.975	
2,402.00	2,387.91	850.00	828.51	7.63	3.30	-96.76	1,395.15	-10,154.84	10,447.06	10,436.28	10.78	969.280	
2,496.00	2,481.29	850.00	828.51	7.99	3.30	-95.68	1,395.15	-10,154.84	10,463.68	10,452.56	11.12	940.977	
2,591.00	2,575.67	875.00	852.70	8.35	3.41	-97.08	1,390.89	-10,159.53	10,481.20	10,469.63	11.57	905.994	
2,686.00	2,670.05	900.00	876.81	8.71	3.53	-96.83	1,386.51	-10,164.48	10,499.52	10,487.50	12.02	873.654	
2,780.00	2,763.49	900.00	876.81	9.07	3.53	-98.79	1,386.51	-10,164.48	10,518.38	10,506.02	12.35	851.403	
2,875.00	2,857.94	912.07	888.40	9.43	3.59	-100.33	1,384.29	-10,167.00	10,538.44	10,525.70	12.74	826.913	
2,970.00	2,952.51	925.00	900.76	9.79	3.66	-96.95	1,381.78	-10,169.85	10,558.92	10,545.79	13.13	804.109	
3,064.00	3,046.19	950.00	924.57	10.13	3.79	-89.93	1,376.68	-10,175.52	10,578.98	10,565.42	13.56	779.917	
3,159.00	3,140.98	975.00	948.29	10.47	3.92	-88.18	1,371.31	-10,181.29	10,599.18	10,585.18	14.00	757.261	
3,253.00	3,234.84	1,010.57	981.87	10.81	4.11	-96.10	1,363.13	-10,189.70	10,619.91	10,605.44	14.47	733.689	
3,348.00	3,329.74	1,025.00	995.44	11.14	4.19	-103.85	1,359.69	-10,193.19	10,642.03	10,627.17	14.85	716.538	
3,397.00	3,378.70	1,050.00	1,018.87	11.32	4.34	-104.80	1,353.58	-10,199.41	10,653.81	10,638.67	15.13	703.993	
3,488.00	3,469.63	1,065.18	1,033.05	11.64	4.42	-107.46	1,349.79	-10,203.28	10,676.12	10,660.62	15.50	688.817	
3,583.00	3,564.49	1,100.00	1,065.53	11.98	4.63	-98.62	1,341.03	-10,212.28	10,700.00	10,684.02	15.98	669.439	
3,677.00	3,658.13	1,135.32	1,098.39	12.33	4.84	-96.50	1,332.03	-10,221.60	10,724.23	10,707.75	16.48	650.714	
3,772.00	3,752.42	1,175.00	1,135.30	12.69	5.08	-91.50	1,322.03	-10,232.17	10,748.90	10,731.88	17.02	631.708	
3,867.00	3,846.42	1,210.58	1,168.44	13.06	5.30	-89.91	1,313.32	-10,241.79	10,773.56	10,756.03	17.54	614.368	
3,961.00	3,939.30	1,225.00	1,181.86	13.44	5.38	-90.02	1,309.87	-10,245.76	10,798.41	10,780.47	17.94	601.842	
4,056.00	4,032.83	1,275.00	1,228.46	13.82	5.69	-92.98	1,298.37	-10,259.78	10,824.60	10,806.06	18.55	583.604	
4,151.00	4,126.01	1,375.00	1,321.85	14.21	6.31	-92.24	1,276.19	-10,287.82	10,851.35	10,831.93	19.43	558.551	
4,246.00	4,219.10	1,680.52	1,607.56	14.61	8.21	-100.30	1,205.73	-10,369.88	10,877.91	10,856.46	21.45	507.054	
4,340.00	4,310.92	1,770.24	1,691.45	15.01	8.77	-109.12	1,184.16	-10,393.25	10,907.03	10,884.73	22.30	489.049	
4,435.00	4,403.54	1,889.42	1,802.91	15.41	9.52	-110.23	1,155.08	-10,423.86	10,937.98	10,914.65	23.32	468.967	
4,498.00	4,465.21	1,910.59	1,822.70	15.68	9.66	-108.57	1,149.91	-10,429.30	10,958.13	10,934.46	23.67	462.998	
4,561.00	4,526.82	1,925.00	1,836.17	15.95	9.75	-102.96	1,146.42	-10,433.05	10,977.81	10,953.84	23.98	457.883	
4,624.00	4,588.23	1,950.00	1,859.53	16.22	9.91	-101.18	1,140.45	-10,439.67	10,997.26	10,972.91	24.35	451.690	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
4,687.00	4,649.71	1,961.48	1,870.25	16.49	9.98	-100.89	1,137.74	-10,442.75	11,016.59	10,991.95	24.64	447.089	
4,749.00	4,710.40	1,990.42	1,897.27	16.75	10.16	-99.97	1,130.92	-10,450.55	11,035.48	11,010.45	25.03	440.946	
4,812.00	4,772.28	5,050.00	4,869.68	17.01	23.73	-104.32	758.82	-10,864.38	11,043.95	11,005.85	38.10	289.843	
4,875.00	4,834.34	5,134.69	4,954.37	17.27	23.96	-104.86	758.11	-10,864.41	11,046.76	11,008.16	38.60	286.192	
4,938.00	4,896.43	5,475.00	5,284.23	17.53	24.99	-105.51	721.22	-10,860.44	11,048.50	11,008.58	39.92	276.768	
5,001.00	4,958.46	5,900.00	5,692.98	17.79	26.14	-109.20	691.14	-10,844.88	11,050.11	11,008.77	41.34	267.290	
5,064.00	5,020.29	5,900.00	5,692.98	18.05	26.14	-113.42	691.14	-10,844.88	11,051.12	11,009.50	41.62	265.533	
5,126.00	5,080.98	5,900.00	5,692.98	18.32	26.14	-117.53	691.14	-10,844.88	11,053.58	11,011.68	41.89	263.856	
5,189.00	5,142.74	5,900.00	5,692.98	18.58	26.14	-115.94	691.14	-10,844.88	11,056.50	11,014.33	42.17	262.204	
5,252.00	5,204.62	5,900.00	5,692.98	18.85	26.14	-115.93	691.14	-10,844.88	11,059.34	11,016.90	42.44	260.590	
5,315.00	5,266.61	5,900.00	5,692.98	19.11	26.14	-116.10	691.14	-10,844.88	11,062.27	11,019.56	42.71	259.020	
5,378.00	5,328.73	5,900.00	5,692.98	19.37	26.14	-115.65	691.14	-10,844.88	11,065.23	11,022.25	42.97	257.492	
5,441.00	5,390.87	5,900.00	5,692.98	19.62	26.14	-116.13	691.14	-10,844.88	11,068.48	11,025.24	43.24	256.001	
5,503.00	5,452.07	5,900.00	5,692.98	19.87	26.14	-115.82	691.14	-10,844.88	11,071.90	11,028.41	43.49	254.569	
5,566.00	5,514.32	5,900.00	5,692.98	20.13	26.14	-116.16	691.14	-10,844.88	11,075.59	11,031.84	43.75	253.151	
5,629.00	5,576.59	5,950.00	5,742.98	20.38	26.28	-113.78	690.61	-10,844.58	11,079.27	11,035.13	44.15	250.965	
5,692.00	5,638.95	5,975.00	5,767.98	20.63	26.34	-116.10	690.42	-10,844.45	11,082.80	11,038.33	44.47	249.220	
5,747.00	5,693.45	6,002.31	5,795.29	20.85	26.41	-113.90	690.44	-10,844.40	11,085.88	11,041.11	44.76	247.663	
5,810.00	5,755.90	6,057.22	5,850.19	21.09	26.56	-114.67	690.23	-10,844.41	11,089.32	11,044.16	45.17	245.517	
5,874.00	5,819.40	6,100.00	5,892.97	21.34	26.69	-113.45	689.96	-10,844.48	11,092.70	11,047.15	45.54	243.557	
5,936.00	5,880.95	6,136.58	5,929.55	21.58	26.79	-113.88	689.69	-10,844.63	11,095.96	11,050.07	45.90	241.764	
5,999.00	5,943.45	6,183.62	5,976.59	21.82	26.93	-115.37	689.33	-10,844.88	11,099.61	11,053.33	46.28	239.817	
6,062.00	6,005.96	6,225.00	6,017.97	22.07	27.05	-112.91	688.94	-10,845.17	11,103.30	11,056.65	46.66	237.986	
6,125.00	6,068.49	6,225.00	6,017.97	22.31	27.05	-115.20	688.94	-10,845.17	11,107.14	11,060.24	46.90	236.824	
6,188.00	6,131.08	6,225.00	6,017.97	22.55	27.05	-113.42	688.94	-10,845.17	11,111.16	11,064.02	47.14	235.694	
6,255.00	6,197.73	6,225.00	6,017.97	22.81	27.05	-114.51	688.94	-10,845.17	11,115.45	11,068.06	47.39	234.529	
6,293.00	6,235.55	6,225.00	6,017.97	22.89	27.05	-114.51	688.94	-10,845.17	11,117.99	11,070.52	47.47	234.195	
6,300.00	6,242.52	6,225.00	6,017.97	22.89	27.05	-114.51	688.94	-10,845.17	11,118.48	11,071.00	47.48	234.190	
6,393.00	6,335.09	6,225.00	6,017.97	22.94	27.05	-114.51	688.94	-10,845.17	11,125.31	11,077.79	47.52	234.128	
6,400.00	6,342.06	6,225.00	6,017.97	22.94	27.05	-120.40	688.94	-10,845.17	11,125.89	11,078.37	47.52	234.123	
6,450.00	6,391.66	6,225.00	6,017.97	22.97	27.05	-147.51	688.94	-10,845.17	11,132.44	11,084.89	47.55	234.140	
6,500.00	6,440.77	6,225.00	6,017.97	23.02	27.05	-159.32	688.94	-10,845.17	11,143.10	11,095.53	47.57	234.230	
6,550.00	6,489.07	6,225.00	6,017.97	23.07	27.05	-165.41	688.94	-10,845.17	11,157.81	11,110.21	47.60	234.398	
6,600.00	6,536.26	6,225.00	6,017.97	23.13	27.05	-169.06	688.94	-10,845.17	11,176.45	11,128.82	47.63	234.642	
6,650.00	6,582.05	6,225.00	6,017.97	23.21	27.05	-171.51	688.94	-10,845.17	11,198.89	11,151.23	47.66	234.958	
6,700.00	6,626.13	6,225.00	6,017.97	23.29	27.05	-173.29	688.94	-10,845.17	11,224.96	11,177.27	47.70	235.345	
6,750.00	6,668.24	6,225.00	6,017.97	23.39	27.05	-174.68	688.94	-10,845.17	11,254.48	11,206.75	47.73	235.800	
6,800.00	6,708.12	7,075.00	6,824.45	23.51	29.62	-176.26	660.28	-10,870.82	11,285.20	11,234.88	50.32	224.269	
6,850.00	6,745.50	7,124.76	6,874.22	23.64	29.76	-177.27	660.22	-10,870.73	11,318.29	11,267.78	50.50	224.119 SF	
6,900.00	6,780.15	7,150.00	6,899.45	23.79	29.83	-178.22	660.20	-10,870.68	11,354.23	11,303.62	50.61	224.336	
6,950.00	6,811.86	7,189.53	6,938.98	23.95	29.94	-179.17	660.13	-10,870.63	11,392.83	11,342.07	50.77	224.422	
7,000.00	6,840.42	7,220.70	6,970.15	24.14	30.02	179.82	660.08	-10,870.54	11,433.77	11,382.89	50.89	224.677	
7,050.00	6,865.66	7,248.88	6,998.33	24.35	30.10	178.65	660.04	-10,870.48	11,476.86	11,425.86	51.00	225.025	
7,100.00	6,887.42	7,263.76	7,013.21	24.57	30.14	177.17	660.01	-10,870.44	11,521.81	11,470.73	51.07	225.588	
7,150.00	6,905.55	7,278.18	7,027.64	24.82	30.18	175.13	659.99	-10,870.41	11,568.34	11,517.20	51.14	226.208	
7,200.00	6,919.95	7,305.73	7,055.18	25.10	30.26	172.01	659.93	-10,870.34	11,616.15	11,564.91	51.24	226.711	
7,250.00	6,930.52	7,314.04	7,063.49	25.39	30.28	166.30	659.92	-10,870.32	11,664.94	11,613.66	51.27	227.502	
7,300.00	6,937.20	7,319.32	7,068.77	25.70	30.30	152.81	659.91	-10,870.31	11,714.41	11,663.11	51.30	228.373	
7,350.00	6,939.94	7,321.54	7,070.99	26.04	30.30	107.49	659.90	-10,870.30	11,764.24	11,712.94	51.30	229.319	
7,359.60	6,940.02	7,321.62	7,071.07	26.10	30.30	92.61	659.90	-10,870.30	11,773.83	11,722.53	51.30	229.508	
7,400.00	6,940.03	7,321.70	7,071.16	26.39	30.30	92.62	659.90	-10,870.30	11,814.16	11,762.86	51.30	230.315	
7,500.00	6,940.04	7,321.91	7,071.37	27.15	30.31	92.64	659.90	-10,870.30	11,913.99	11,862.71	51.29	232.307	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
7,600.00	6,940.06	7,322.12	7,071.58	27.99	30.31	92.66	659.90	-10,870.30	12,013.83	11,962.55	51.28	234.292	
7,659.60	6,940.07	7,325.00	7,074.45	28.52	30.31	92.90	659.90	-10,870.29	12,073.34	12,022.06	51.28	235.436	
7,700.00	6,940.08	7,325.00	7,074.45	28.89	30.31	93.88	659.90	-10,870.29	12,113.68	12,062.40	51.28	236.230	
7,796.63	6,940.10	7,325.00	7,074.45	29.83	30.31	109.20	659.90	-10,870.29	12,210.28	12,158.99	51.28	238.088	
7,800.00	6,940.10	7,325.00	7,074.45	29.86	30.31	109.20	659.90	-10,870.29	12,213.65	12,162.36	51.29	238.151	
7,900.00	6,940.12	7,325.00	7,074.45	30.90	30.31	109.20	659.90	-10,870.29	12,313.64	12,262.35	51.30	240.041	
8,000.00	6,940.14	7,325.00	7,074.45	31.98	30.31	109.20	659.90	-10,870.29	12,413.64	12,362.33	51.31	241.925	
8,100.00	6,940.17	7,325.00	7,074.45	33.11	30.31	109.20	659.90	-10,870.29	12,513.64	12,462.31	51.33	243.803	
8,200.00	6,940.19	7,325.00	7,074.45	34.28	30.31	109.20	659.90	-10,870.29	12,613.63	12,562.29	51.34	245.674	
8,300.00	6,940.21	7,325.00	7,074.45	35.48	30.31	109.20	659.90	-10,870.29	12,713.63	12,662.27	51.36	247.539	
8,400.00	6,940.23	7,336.90	7,086.35	36.71	30.35	115.00	659.87	-10,870.25	12,813.62	12,762.21	51.41	249.232	
8,500.00	6,940.25	7,337.27	7,086.72	37.97	30.35	115.17	659.87	-10,870.25	12,913.62	12,862.18	51.43	251.078	
8,600.00	6,940.28	7,337.63	7,087.09	39.26	30.35	115.34	659.87	-10,870.25	13,013.61	12,962.16	51.45	252.918	
8,700.00	6,940.30	7,338.00	7,087.46	40.56	30.35	115.51	659.87	-10,870.25	13,113.61	13,062.13	51.48	254.750	
8,800.00	6,940.32	7,338.37	7,087.82	41.89	30.35	115.68	659.87	-10,870.25	13,213.61	13,162.11	51.50	256.576	
8,900.00	6,940.34	7,338.74	7,088.19	43.24	30.35	115.85	659.87	-10,870.25	13,313.60	13,262.08	51.52	258.395	
9,000.00	6,940.36	7,339.11	7,088.56	44.60	30.35	116.02	659.87	-10,870.25	13,413.60	13,362.05	51.55	260.208	
9,100.00	6,940.39	7,339.48	7,088.93	45.98	30.35	116.19	659.87	-10,870.24	13,513.60	13,462.02	51.58	262.013	
9,200.00	6,940.41	7,339.84	7,089.30	47.38	30.36	116.36	659.87	-10,870.24	13,613.59	13,561.99	51.60	263.811	
9,300.00	6,940.43	7,340.21	7,089.66	48.78	30.36	116.53	659.87	-10,870.24	13,713.59	13,661.96	51.63	265.602	
9,400.00	6,940.45	7,340.58	7,090.03	50.20	30.36	116.69	659.86	-10,870.24	13,813.59	13,761.92	51.66	267.385	
9,500.00	6,940.47	7,340.95	7,090.40	51.63	30.36	116.86	659.86	-10,870.24	13,913.58	13,861.89	51.69	269.162	
9,600.00	6,940.50	7,341.32	7,090.77	53.07	30.36	117.03	659.86	-10,870.24	14,013.58	13,961.85	51.72	270.930	
9,700.00	6,940.52	7,341.68	7,091.14	54.52	30.36	117.19	659.86	-10,870.24	14,113.58	14,061.82	51.76	272.692	
9,800.00	6,940.54	7,342.05	7,091.50	55.97	30.36	117.36	659.86	-10,870.24	14,213.57	14,161.78	51.79	274.446	
9,900.00	6,940.56	7,342.42	7,091.87	57.44	30.36	117.52	659.86	-10,870.23	14,313.57	14,261.74	51.82	276.193	
10,000.00	6,940.59	7,342.79	7,092.24	58.91	30.36	117.69	659.86	-10,870.23	14,413.57	14,361.71	51.86	277.931	
10,100.00	6,940.61	7,343.16	7,092.61	60.38	30.36	117.85	659.86	-10,870.23	14,513.56	14,461.67	51.90	279.663	
10,200.00	6,940.63	7,343.52	7,092.98	61.87	30.37	118.01	659.86	-10,870.23	14,613.56	14,561.63	51.93	281.386	
10,300.00	6,940.65	7,343.89	7,093.35	63.36	30.37	118.18	659.86	-10,870.23	14,713.56	14,661.58	51.97	283.102	
10,400.00	6,940.67	7,344.26	7,093.71	64.85	30.37	118.34	659.86	-10,870.23	14,813.55	14,761.54	52.01	284.810	
10,500.00	6,940.70	7,344.63	7,094.08	66.35	30.37	118.50	659.86	-10,870.23	14,913.55	14,861.50	52.05	286.510	
10,600.00	6,940.72	7,355.82	7,105.28	67.86	30.40	123.18	659.82	-10,870.18	15,013.55	14,961.42	52.13	288.025	
10,700.00	6,940.74	7,356.06	7,105.51	69.36	30.40	123.28	659.82	-10,870.18	15,113.54	15,061.38	52.17	289.710	
10,800.00	6,940.76	7,356.29	7,105.75	70.88	30.40	123.37	659.82	-10,870.18	15,213.54	15,161.33	52.21	291.388	
10,900.00	6,940.78	7,356.53	7,105.98	72.39	30.40	123.46	659.82	-10,870.18	15,313.54	15,261.28	52.25	293.057	
11,000.00	6,940.81	7,356.76	7,106.21	73.91	30.40	123.55	659.82	-10,870.18	15,413.53	15,361.23	52.30	294.718	
11,100.00	6,940.83	7,356.99	7,106.44	75.44	30.40	123.64	659.82	-10,870.18	15,513.53	15,461.19	52.34	296.371	
11,200.00	6,940.85	7,357.22	7,106.67	76.96	30.40	123.73	659.82	-10,870.18	15,613.53	15,561.14	52.39	298.016	
11,300.00	6,940.87	7,357.44	7,106.90	78.49	30.40	123.82	659.82	-10,870.18	15,713.53	15,661.09	52.44	299.653	
11,400.00	6,940.89	7,357.67	7,107.12	80.03	30.41	123.91	659.82	-10,870.17	15,813.52	15,761.03	52.49	301.282	
11,500.00	6,940.92	7,357.90	7,107.35	81.56	30.41	124.00	659.82	-10,870.17	15,913.52	15,860.98	52.54	302.902	
11,600.00	6,940.94	7,358.12	7,107.57	83.10	30.41	124.08	659.82	-10,870.17	16,013.52	15,960.93	52.59	304.514	
11,700.00	6,940.96	7,358.34	7,107.79	84.64	30.41	124.17	659.81	-10,870.17	16,113.51	16,060.88	52.64	306.118	
11,800.00	6,940.98	7,358.56	7,108.01	86.18	30.41	124.26	659.81	-10,870.17	16,213.51	16,160.82	52.69	307.714	
11,900.00	6,941.00	7,358.78	7,108.23	87.72	30.41	124.34	659.81	-10,870.17	16,313.51	16,260.76	52.74	309.302	
12,000.00	6,941.03	7,359.00	7,108.45	89.27	30.41	124.43	659.81	-10,870.17	16,413.51	16,360.71	52.80	310.881	
12,100.00	6,941.05	7,359.21	7,108.67	90.82	30.41	124.51	659.81	-10,870.17	16,513.50	16,460.65	52.85	312.452	
12,200.00	6,941.07	7,359.43	7,108.88	92.37	30.41	124.59	659.81	-10,870.17	16,613.50	16,560.59	52.91	314.014	
12,300.00	6,941.09	7,359.64	7,109.10	93.92	30.41	124.67	659.81	-10,870.17	16,713.50	16,660.53	52.96	315.568	
12,400.00	6,941.11	7,359.86	7,109.31	95.47	30.41	124.76	659.81	-10,870.17	16,813.49	16,760.47	53.02	317.114	
12,500.00	6,941.14	7,360.07	7,109.52	97.03	30.41	124.84	659.81	-10,870.17	16,913.49	16,860.41	53.08	318.651	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
12,600.00	6,941.16	7,360.28	7,109.73	98.58	30.41	124.92	659.81	-10,870.16	17,013.49	16,960.35	53.14	320.180	
12,700.00	6,941.18	7,360.49	7,109.94	100.14	30.41	125.00	659.81	-10,870.16	17,113.49	17,060.29	53.20	321.701	
12,800.00	6,941.20	7,360.70	7,110.15	101.70	30.41	125.08	659.80	-10,870.16	17,213.48	17,160.23	53.26	323.213	
12,900.00	6,941.23	7,360.90	7,110.36	103.26	30.41	125.15	659.80	-10,870.16	17,313.48	17,260.16	53.32	324.717	
13,000.00	6,941.25	7,361.11	7,110.56	104.82	30.42	125.23	659.80	-10,870.16	17,413.48	17,360.10	53.38	326.213	
13,100.00	6,941.27	7,361.31	7,110.77	106.38	30.42	125.31	659.80	-10,870.16	17,513.48	17,460.03	53.44	327.700	
13,200.00	6,941.29	7,361.52	7,110.97	107.95	30.42	125.39	659.80	-10,870.16	17,613.47	17,559.97	53.51	329.178	
13,300.00	6,941.31	7,361.72	7,111.17	109.51	30.42	125.46	659.80	-10,870.16	17,713.47	17,659.90	53.57	330.648	
13,400.00	6,941.34	7,361.92	7,111.37	111.08	30.42	125.54	659.80	-10,870.16	17,813.47	17,759.83	53.64	332.110	
13,500.00	6,941.36	7,362.12	7,111.57	112.64	30.42	125.61	659.80	-10,870.16	17,913.47	17,859.76	53.70	333.564	
13,600.00	6,941.38	7,362.32	7,111.77	114.21	30.42	125.69	659.80	-10,870.16	18,013.46	17,959.69	53.77	335.009	
13,700.00	6,941.40	7,362.52	7,111.97	115.78	30.42	125.76	659.80	-10,870.16	18,113.46	18,059.62	53.84	336.445	
13,800.00	6,941.42	7,362.72	7,112.17	117.35	30.42	125.83	659.80	-10,870.16	18,213.46	18,159.55	53.91	337.873	
13,900.00	6,941.45	7,362.91	7,112.36	118.92	30.42	125.91	659.80	-10,870.15	18,313.46	18,259.48	53.98	339.293	
14,000.00	6,941.47	7,363.11	7,112.56	120.49	30.42	125.98	659.79	-10,870.15	18,413.45	18,359.41	54.05	340.705	
14,100.00	6,941.49	7,363.30	7,112.75	122.06	30.42	126.05	659.79	-10,870.15	18,513.45	18,459.34	54.12	342.108	
14,200.00	6,941.51	7,363.49	7,112.94	123.64	30.42	126.12	659.79	-10,870.15	18,613.45	18,559.26	54.19	343.503	
14,300.00	6,941.53	7,363.68	7,113.13	125.21	30.42	126.19	659.79	-10,870.15	18,713.45	18,659.19	54.26	344.890	
14,400.00	6,941.56	7,363.87	7,113.32	126.78	30.42	126.26	659.79	-10,870.15	18,813.45	18,759.11	54.33	346.268	
14,500.00	6,941.58	7,364.06	7,113.51	128.36	30.42	126.33	659.79	-10,870.15	18,913.44	18,859.04	54.41	347.638	
14,600.00	6,941.60	7,364.25	7,113.70	129.93	30.42	126.40	659.79	-10,870.15	19,013.44	18,958.96	54.48	349.000	
14,700.00	6,941.62	7,364.44	7,113.89	131.51	30.42	126.47	659.79	-10,870.15	19,113.44	19,058.88	54.55	350.353	
14,800.00	6,941.64	7,364.62	7,114.08	133.08	30.43	126.54	659.79	-10,870.15	19,213.44	19,158.81	54.63	351.699	
14,900.00	6,941.67	7,364.81	7,114.26	134.66	30.43	126.61	659.79	-10,870.15	19,313.44	19,258.73	54.71	353.036	
15,000.00	6,941.69	7,364.99	7,114.45	136.24	30.43	126.67	659.79	-10,870.15	19,413.43	19,358.65	54.78	354.365	
15,100.00	6,941.71	7,365.18	7,114.63	137.82	30.43	126.74	659.78	-10,870.15	19,513.43	19,458.57	54.86	355.686	
15,200.00	6,941.73	7,365.36	7,114.81	139.40	30.43	126.81	659.78	-10,870.15	19,613.43	19,558.49	54.94	356.998	
15,300.00	6,941.75	7,365.54	7,114.99	140.97	30.43	126.87	659.78	-10,870.14	19,713.43	19,658.41	55.02	358.303	
15,400.00	6,941.78	7,365.72	7,115.17	142.55	30.43	126.94	659.78	-10,870.14	19,813.42	19,758.33	55.10	359.600	
15,500.00	6,941.80	7,365.90	7,115.35	144.13	30.43	127.00	659.78	-10,870.14	19,913.42	19,858.24	55.18	360.888	
15,600.00	6,941.82	7,366.08	7,115.53	145.72	30.43	127.07	659.78	-10,870.14	20,013.42	19,958.16	55.26	362.169	
15,700.00	6,941.84	7,366.26	7,115.71	147.30	30.43	127.13	659.78	-10,870.14	20,113.42	20,058.08	55.34	363.441	
15,800.00	6,941.87	7,366.43	7,115.88	148.88	30.43	127.19	659.78	-10,870.14	20,213.42	20,157.99	55.42	364.706	
15,900.00	6,941.89	7,366.61	7,116.06	150.46	30.43	127.26	659.78	-10,870.14	20,313.41	20,257.91	55.51	365.963	
16,000.00	6,941.91	7,366.78	7,116.23	152.04	30.43	127.32	659.78	-10,870.14	20,413.41	20,357.82	55.59	367.211	
16,100.00	6,941.93	7,366.96	7,116.41	153.62	30.43	127.38	659.78	-10,870.14	20,513.41	20,457.74	55.67	368.452	
16,200.00	6,941.95	7,367.13	7,116.58	155.21	30.43	127.44	659.78	-10,870.14	20,613.41	20,557.65	55.76	369.686	
16,300.00	6,941.98	7,367.30	7,116.75	156.79	30.43	127.51	659.77	-10,870.14	20,713.41	20,657.56	55.84	370.911	
16,400.00	6,942.00	7,367.47	7,116.92	158.37	30.43	127.57	659.77	-10,870.14	20,813.41	20,757.47	55.93	372.128	
16,500.00	6,942.02	7,367.64	7,117.09	159.96	30.43	127.63	659.77	-10,870.14	20,913.40	20,857.39	56.02	373.338	
16,600.00	6,942.04	6,225.00	6,017.97	161.54	27.05	4.00	688.94	-10,845.17	21,013.39	20,960.50	52.89	397.286	
16,700.00	6,942.06	6,225.00	6,017.97	163.13	27.05	4.00	688.94	-10,845.17	21,113.27	21,060.29	52.98	398.503	
16,800.00	6,942.09	6,225.00	6,017.97	164.71	27.05	4.00	688.94	-10,845.17	21,213.15	21,160.08	53.07	399.712	
16,900.00	6,942.11	6,225.00	6,017.97	166.30	27.05	4.00	688.94	-10,845.17	21,313.04	21,259.88	53.16	400.914	
17,000.00	6,942.13	6,225.00	6,017.97	167.88	27.05	4.00	688.94	-10,845.17	21,412.92	21,359.67	53.25	402.106	
17,100.00	6,942.15	6,225.00	6,017.97	169.47	27.05	4.00	688.94	-10,845.17	21,512.81	21,459.47	53.34	403.291	
17,200.00	6,942.17	6,225.00	6,017.97	171.05	27.05	4.00	688.94	-10,845.17	21,612.70	21,559.26	53.43	404.468	
17,300.00	6,942.20	6,225.00	6,017.97	172.64	27.05	4.00	688.94	-10,845.17	21,712.58	21,659.06	53.53	405.636	
17,400.00	6,942.22	6,225.00	6,017.97	174.23	27.05	4.00	688.94	-10,845.17	21,812.47	21,758.85	53.62	406.797	
17,500.00	6,942.24	6,225.00	6,017.97	175.81	27.05	4.00	688.94	-10,845.17	21,912.36	21,858.65	53.71	407.950	
17,600.00	6,942.26	6,225.00	6,017.97	177.40	27.05	4.00	688.94	-10,845.17	22,012.25	21,958.45	53.81	409.095	
17,700.00	6,942.28	6,225.00	6,017.97	178.99	27.05	4.00	688.94	-10,845.17	22,112.15	22,058.25	53.90	410.232	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
17,800.00	6,942.31	6,225.00	6,017.97	180.57	27.05	4.00	688.94	-10,845.17	22,212.04	22,158.04	54.00	411.361	
17,900.00	6,942.33	6,225.00	6,017.97	182.16	27.05	4.00	688.94	-10,845.17	22,311.93	22,257.84	54.09	412.482	
18,000.00	6,942.35	6,225.00	6,017.97	183.75	27.05	4.00	688.94	-10,845.17	22,411.83	22,357.64	54.19	413.596	
18,100.00	6,942.37	6,225.00	6,017.97	185.34	27.05	4.00	688.94	-10,845.17	22,511.73	22,457.44	54.28	414.702	
18,200.00	6,942.39	6,225.00	6,017.97	186.93	27.05	4.00	688.94	-10,845.17	22,611.62	22,557.24	54.38	415.801	
18,300.00	6,942.42	6,225.00	6,017.97	188.52	27.05	4.00	688.94	-10,845.17	22,711.52	22,657.04	54.48	416.892	
18,400.00	6,942.44	6,225.00	6,017.97	190.10	27.05	4.00	688.94	-10,845.17	22,811.42	22,756.84	54.58	417.975	
18,500.00	6,942.46	6,225.00	6,017.97	191.69	27.05	4.00	688.94	-10,845.17	22,911.32	22,856.64	54.67	419.051	
18,600.00	6,942.48	6,225.00	6,017.97	193.28	27.05	4.00	688.94	-10,845.17	23,011.22	22,956.45	54.77	420.120	
18,700.00	6,942.51	6,225.00	6,017.97	194.87	27.05	4.00	688.94	-10,845.17	23,111.12	23,056.25	54.87	421.181	
18,800.00	6,942.53	6,225.00	6,017.97	196.46	27.05	4.00	688.94	-10,845.17	23,211.02	23,156.05	54.97	422.235	
18,900.00	6,942.55	6,225.00	6,017.97	198.05	27.05	4.00	688.94	-10,845.17	23,310.93	23,255.85	55.07	423.281	
19,000.00	6,942.57	6,225.00	6,017.97	199.64	27.05	4.00	688.94	-10,845.17	23,410.83	23,355.66	55.17	424.321	
19,100.00	6,942.59	6,225.00	6,017.97	201.23	27.05	4.00	688.94	-10,845.17	23,510.73	23,455.46	55.27	425.353	
19,200.00	6,942.62	6,225.00	6,017.97	202.82	27.05	4.00	688.94	-10,845.17	23,610.64	23,555.26	55.37	426.378	
19,300.00	6,942.64	6,225.00	6,017.97	204.41	27.05	4.00	688.94	-10,845.17	23,710.55	23,655.07	55.48	427.396	
19,400.00	6,942.66	6,225.00	6,017.97	206.00	27.05	4.00	688.94	-10,845.17	23,810.45	23,754.87	55.58	428.407	
19,500.00	6,942.68	6,225.00	6,017.97	207.59	27.05	4.00	688.94	-10,845.17	23,910.36	23,854.68	55.68	429.411	
19,600.00	6,942.70	6,225.00	6,017.97	209.18	27.05	4.00	688.94	-10,845.17	24,010.27	23,954.48	55.78	430.408	
19,700.00	6,942.73	6,225.00	6,017.97	210.78	27.05	4.00	688.94	-10,845.17	24,110.18	24,054.29	55.89	431.399	
19,800.00	6,942.75	6,225.00	6,017.97	212.37	27.05	4.00	688.94	-10,845.17	24,210.09	24,154.10	55.99	432.382	
19,900.00	6,942.77	6,225.00	6,017.97	213.96	27.05	4.00	688.94	-10,845.17	24,310.00	24,253.90	56.10	433.359	
20,000.00	6,942.79	6,225.00	6,017.97	215.55	27.05	4.00	688.94	-10,845.17	24,409.91	24,353.71	56.20	434.328	
20,100.00	6,942.81	6,225.00	6,017.97	217.14	27.05	4.00	688.94	-10,845.17	24,509.82	24,453.52	56.31	435.292	
20,200.00	6,942.84	6,225.00	6,017.97	218.73	27.05	4.00	688.94	-10,845.17	24,609.74	24,553.33	56.41	436.248	
20,300.00	6,942.86	6,225.00	6,017.97	220.32	27.05	4.00	688.94	-10,845.17	24,709.65	24,653.13	56.52	437.198	
20,400.00	6,942.88	6,225.00	6,017.97	221.92	27.05	4.00	688.94	-10,845.17	24,809.57	24,752.94	56.62	438.142	
20,500.00	6,942.90	6,225.00	6,017.97	223.51	27.05	4.00	688.94	-10,845.17	24,909.48	24,852.75	56.73	439.078	
20,600.00	6,942.92	6,225.00	6,017.97	225.10	27.05	4.00	688.94	-10,845.17	25,009.40	24,952.56	56.84	440.009	
20,700.00	6,942.95	6,225.00	6,017.97	226.69	27.05	4.00	688.94	-10,845.17	25,109.31	25,052.37	56.95	440.933	
20,800.00	6,942.97	6,225.00	6,017.97	228.28	27.05	4.00	688.94	-10,845.17	25,209.23	25,152.18	57.05	441.851	
20,900.00	6,942.99	6,225.00	6,017.97	229.88	27.05	4.00	688.94	-10,845.17	25,309.15	25,251.99	57.16	442.762	
20,942.50	6,943.00	6,225.00	6,017.97	230.42	27.05	4.00	688.94	-10,845.17	25,351.61	25,289.72	61.89	409.642	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
0.00	0.00	161.37	161.37	0.00	0.48	-115.96	-1,668.19	-3,427.03	3,811.48				
58.45	58.45	225.00	225.00	0.02	0.70	5.75	-1,668.21	-3,426.97	3,811.07	3,810.36	0.72	5,310.986	
150.25	150.24	301.41	301.41	0.14	0.97	-12.54	-1,668.16	-3,427.19	3,810.19	3,809.09	1.10	3,451.107	
239.43	239.42	400.00	400.00	0.25	1.31	-18.03	-1,668.23	-3,427.35	3,809.33	3,807.77	1.56	2,437.671	
299.93	299.91	440.31	440.30	0.33	1.45	-13.08	-1,668.25	-3,427.52	3,808.83	3,807.05	1.78	2,138.548	
446.00	445.96	591.33	591.33	0.50	1.98	11.32	-1,668.83	-3,427.91	3,807.03	3,804.55	2.48	1,535.764	
522.67	522.62	665.54	665.54	0.69	2.24	58.07	-1,669.25	-3,428.02	3,806.35	3,803.43	2.93	1,300.500	CC
537.00	536.95	675.00	674.99	0.73	2.27	72.58	-1,669.30	-3,428.07	3,806.38	3,803.39	3.00	1,270.602	ES
624.00	623.95	775.00	774.99	0.99	2.62	155.55	-1,669.97	-3,428.19	3,807.25	3,803.64	3.61	1,055.607	
718.00	717.90	876.75	876.74	1.29	2.98	173.39	-1,670.33	-3,428.54	3,810.32	3,806.05	4.27	893.290	
811.00	810.73	962.08	962.07	1.60	3.28	-167.13	-1,670.08	-3,428.89	3,816.04	3,811.16	4.88	782.197	
903.00	902.19	1,073.54	1,073.53	1.92	3.67	-155.16	-1,669.56	-3,429.22	3,825.32	3,819.73	5.59	684.457	
994.00	992.38	1,167.79	1,167.77	2.24	4.00	-152.94	-1,668.57	-3,429.62	3,836.16	3,829.93	6.24	615.140	
1,084.00	1,081.50	1,250.00	1,249.97	2.56	4.28	-148.53	-1,667.41	-3,429.95	3,846.93	3,840.09	6.84	562.429	
1,175.00	1,171.48	1,346.41	1,346.38	2.91	4.62	-144.75	-1,666.30	-3,430.50	3,858.28	3,850.77	7.50	514.307	
1,268.00	1,263.52	1,425.00	1,424.95	3.26	4.89	-143.28	-1,665.17	-3,430.97	3,869.02	3,860.91	8.11	477.004	
1,363.00	1,357.62	1,533.33	1,533.27	3.63	5.27	-140.41	-1,663.78	-3,431.68	3,879.34	3,870.51	8.83	439.122	
1,457.00	1,450.74	1,612.12	1,612.05	3.99	5.55	-137.77	-1,662.60	-3,432.25	3,889.04	3,879.58	9.45	411.378	
1,552.00	1,544.82	1,717.34	1,717.26	4.36	5.92	-137.07	-1,661.26	-3,432.65	3,898.58	3,888.41	10.17	383.251	
1,646.00	1,637.88	1,825.00	1,824.91	4.72	6.29	-136.71	-1,659.99	-3,432.76	3,907.92	3,897.02	10.90	358.588	
1,741.00	1,731.94	1,918.11	1,918.01	5.09	6.62	-136.37	-1,658.77	-3,432.81	3,917.11	3,905.54	11.58	338.350	
1,835.00	1,825.07	2,008.84	2,008.74	5.46	6.93	-136.43	-1,657.84	-3,432.85	3,925.95	3,913.70	12.24	320.648	
1,929.00	1,918.39	2,098.46	2,098.36	5.82	7.25	-137.74	-1,657.21	-3,432.88	3,933.99	3,921.09	12.90	304.871	
2,024.00	2,012.84	2,189.22	2,189.11	6.18	7.56	-136.44	-1,656.59	-3,432.91	3,941.23	3,927.66	13.57	290.451	
2,118.00	2,106.19	2,275.00	2,274.89	6.53	7.86	-136.28	-1,656.05	-3,432.96	3,948.97	3,934.75	14.22	277.768	
2,213.00	2,200.37	2,358.25	2,358.14	6.90	8.16	-137.68	-1,655.72	-3,433.14	3,958.12	3,943.26	14.86	266.318	
2,307.00	2,293.61	2,434.51	2,434.41	7.27	8.42	-135.80	-1,655.55	-3,433.46	3,967.13	3,951.65	15.48	256.319	
2,402.00	2,387.91	2,532.33	2,532.22	7.63	8.76	-132.04	-1,655.59	-3,434.14	3,975.73	3,959.56	16.17	245.824	
2,496.00	2,481.29	2,634.51	2,634.40	7.99	9.12	-130.98	-1,655.34	-3,434.78	3,983.34	3,966.46	16.88	235.973	
2,591.00	2,575.67	2,729.65	2,729.53	8.35	9.46	-132.53	-1,654.72	-3,435.33	3,990.78	3,973.22	17.57	227.187	
2,686.00	2,670.05	2,842.02	2,841.90	8.71	9.85	-132.26	-1,654.17	-3,435.71	3,998.16	3,979.84	18.31	218.309	
2,780.00	2,763.49	2,934.16	2,934.04	9.07	10.17	-134.38	-1,653.68	-3,435.85	4,005.15	3,986.17	18.98	210.973	
2,875.00	2,857.94	3,017.15	3,017.03	9.43	10.46	-135.90	-1,653.50	-3,435.92	4,012.37	3,992.75	19.62	204.467	
2,970.00	2,952.51	3,100.00	3,099.88	9.79	10.75	-132.42	-1,653.55	-3,436.14	4,018.91	3,998.65	20.26	198.373	
3,064.00	3,046.19	3,175.00	3,174.88	10.13	11.01	-125.31	-1,653.89	-3,436.53	4,024.40	4,003.54	20.86	192.925	
3,159.00	3,140.98	3,260.45	3,260.32	10.47	11.31	-123.40	-1,654.71	-3,437.19	4,029.11	4,007.61	21.50	187.411	
3,253.00	3,234.84	3,353.36	3,353.21	10.81	11.63	-131.23	-1,656.34	-3,437.61	4,033.27	4,011.12	22.16	182.020	
3,348.00	3,329.74	3,459.38	3,459.22	11.14	12.00	-138.96	-1,658.36	-3,437.55	4,037.13	4,014.26	22.87	176.539	
3,397.00	3,378.70	3,504.86	3,504.69	11.32	12.16	-139.87	-1,659.11	-3,437.64	4,039.17	4,015.97	23.20	174.103	
3,488.00	3,469.63	3,620.48	3,620.30	11.64	12.56	-142.49	-1,660.76	-3,437.56	4,042.44	4,018.51	23.93	168.927	
3,583.00	3,564.49	3,701.28	3,701.09	11.98	12.84	-134.12	-1,661.58	-3,437.66	4,046.74	4,022.19	24.55	164.840	
3,677.00	3,658.13	3,817.62	3,817.43	12.33	13.25	-132.41	-1,662.88	-3,437.57	4,052.78	4,027.48	25.30	160.158	
3,772.00	3,752.42	3,900.00	3,899.80	12.69	13.54	-127.91	-1,663.50	-3,437.41	4,060.39	4,034.44	25.95	156.492	
3,867.00	3,846.42	3,977.50	3,977.30	13.06	13.81	-126.44	-1,664.25	-3,437.49	4,069.30	4,042.72	26.57	153.127	
3,961.00	3,939.30	4,065.15	4,064.94	13.44	14.11	-126.81	-1,665.73	-3,437.62	4,078.89	4,051.65	27.24	149.744	
4,056.00	4,032.83	4,160.06	4,159.83	13.82	14.44	-130.25	-1,667.41	-3,437.68	4,090.27	4,062.33	27.94	146.400	
4,151.00	4,126.01	4,231.87	4,231.63	14.21	14.69	-129.50	-1,668.69	-3,437.88	4,103.35	4,074.79	28.56	143.694	
4,246.00	4,219.10	4,300.00	4,299.74	14.61	14.93	-137.10	-1,670.23	-3,438.42	4,118.17	4,089.02	29.16	141.236	
4,340.00	4,310.92	4,369.57	4,369.27	15.01	15.18	-146.31	-1,672.35	-3,439.13	4,136.38	4,106.62	29.76	138.991	
4,435.00	4,403.54	4,450.00	4,449.65	15.41	15.46	-147.12	-1,675.10	-3,440.06	4,156.70	4,126.30	30.40	136.716	
4,498.00	4,465.21	4,500.00	4,499.61	15.68	15.63	-145.21	-1,676.90	-3,440.78	4,169.38	4,138.56	30.81	135.306	
4,561.00	4,526.82	4,547.31	4,546.89	15.95	15.80	-139.93	-1,678.59	-3,441.60	4,181.93	4,150.71	31.22	133.963	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
4,624.00	4,588.23	4,591.77	4,591.31	16.22	15.95	-138.15	-1,680.16	-3,442.49	4,194.91	4,163.30	31.61	132.701	
4,687.00	4,649.71	4,640.54	4,640.02	16.49	16.12	-137.82	-1,682.11	-3,443.66	4,207.79	4,175.76	32.02	131.402	
4,749.00	4,710.40	4,707.52	4,706.93	16.75	16.36	-136.77	-1,684.83	-3,445.22	4,219.70	4,187.20	32.50	129.834	
4,812.00	4,772.28	4,755.49	4,754.86	17.01	16.52	-136.17	-1,686.64	-3,446.45	4,230.95	4,198.04	32.90	128.583	
4,875.00	4,834.34	4,800.00	4,799.31	17.27	16.68	-136.78	-1,688.25	-3,447.79	4,241.70	4,208.40	33.29	127.410	
4,938.00	4,896.43	4,845.57	4,844.82	17.53	16.84	-137.03	-1,690.09	-3,449.29	4,252.59	4,218.90	33.68	126.256	
5,001.00	4,958.46	4,925.00	4,924.16	17.79	17.12	-140.37	-1,693.07	-3,451.80	4,263.81	4,229.60	34.21	124.626	
5,064.00	5,020.29	4,989.17	4,988.24	18.05	17.34	-144.68	-1,695.43	-3,454.02	4,276.53	4,241.85	34.68	123.305	
5,126.00	5,080.98	5,036.70	5,035.72	18.32	17.51	-149.02	-1,697.04	-3,455.61	4,290.04	4,254.96	35.08	122.291	
5,189.00	5,142.74	5,109.13	5,108.06	18.58	17.76	-147.55	-1,699.62	-3,458.14	4,303.71	4,268.13	35.58	120.955	
5,252.00	5,204.62	5,150.00	5,148.88	18.85	17.90	-147.62	-1,701.05	-3,459.62	4,316.80	4,280.85	35.95	120.076	
5,315.00	5,266.61	5,215.19	5,213.98	19.11	18.13	-147.95	-1,703.41	-3,461.97	4,329.40	4,292.99	36.42	118.877	
5,378.00	5,328.73	5,280.97	5,279.66	19.37	18.36	-147.61	-1,705.96	-3,464.38	4,341.57	4,304.68	36.89	117.693	
5,441.00	5,390.87	5,341.29	5,339.90	19.62	18.57	-148.17	-1,708.11	-3,466.68	4,353.58	4,316.24	37.34	116.604	
5,503.00	5,452.07	5,391.19	5,389.74	19.87	18.75	-147.95	-1,709.84	-3,468.62	4,365.16	4,327.42	37.74	115.675	
5,566.00	5,514.32	5,462.47	5,460.92	20.13	19.00	-148.38	-1,712.34	-3,471.31	4,376.60	4,338.38	38.23	114.487	
5,629.00	5,576.59	5,534.18	5,532.54	20.38	19.25	-146.02	-1,714.89	-3,473.94	4,387.78	4,349.06	38.72	113.317	
5,692.00	5,638.95	5,590.93	5,589.22	20.63	19.45	-148.44	-1,716.78	-3,476.03	4,398.40	4,359.25	39.15	112.344	
5,747.00	5,693.45	5,654.27	5,652.48	20.85	19.67	-146.28	-1,718.87	-3,478.35	4,407.35	4,367.76	39.58	111.344	
5,810.00	5,755.90	5,708.20	5,706.34	21.09	19.86	-147.08	-1,720.66	-3,480.33	4,417.34	4,377.34	40.00	110.435	
5,874.00	5,819.40	5,763.90	5,761.98	21.34	20.05	-145.90	-1,722.56	-3,482.41	4,427.16	4,386.73	40.43	109.514	
5,936.00	5,880.95	5,825.00	5,822.99	21.58	20.27	-146.37	-1,724.74	-3,484.67	4,436.50	4,395.64	40.87	108.558	
5,999.00	5,943.45	5,886.07	5,883.98	21.82	20.48	-147.90	-1,726.95	-3,486.93	4,446.30	4,404.98	41.31	107.624	
6,062.00	6,005.96	5,944.19	5,942.03	22.07	20.68	-145.45	-1,729.04	-3,489.01	4,456.01	4,414.27	41.75	106.740	
6,125.00	6,068.49	6,011.64	6,009.38	22.31	20.92	-147.85	-1,731.55	-3,491.42	4,465.58	4,423.36	42.22	105.772	
6,188.00	6,131.08	6,063.23	6,060.91	22.55	21.10	-146.11	-1,733.53	-3,493.24	4,474.78	4,432.16	42.62	104.987	
6,255.00	6,197.73	6,129.47	6,127.06	22.81	21.33	-147.28	-1,735.98	-3,495.67	4,483.90	4,440.80	43.10	104.040	
6,293.00	6,235.55	6,159.60	6,157.14	22.89	21.44	-147.30	-1,737.13	-3,496.86	4,488.99	4,445.73	43.26	103.756	
6,300.00	6,242.52	6,166.39	6,163.92	22.89	21.46	-147.31	-1,737.40	-3,497.12	4,489.93	4,446.64	43.29	103.718	
6,393.00	6,335.09	6,250.00	6,247.40	22.94	21.76	-147.38	-1,740.62	-3,500.42	4,502.45	4,458.86	43.60	103.279	
6,400.00	6,342.06	6,254.95	6,252.34	22.94	21.77	-153.32	-1,740.82	-3,500.63	4,503.45	4,459.83	43.61	103.260	
6,450.00	6,391.66	6,309.25	6,306.56	22.97	21.96	179.10	-1,742.86	-3,502.84	4,512.22	4,468.40	43.82	102.978	
6,500.00	6,440.77	6,363.79	6,361.02	23.02	22.15	166.69	-1,744.84	-3,505.14	4,524.17	4,480.15	44.02	102.773 SF	
6,550.00	6,489.07	6,392.11	6,389.29	23.07	22.25	159.82	-1,745.93	-3,506.34	4,539.22	4,495.11	44.11	102.907	
6,600.00	6,536.26	6,439.19	6,436.29	23.13	22.42	155.25	-1,747.57	-3,508.51	4,557.30	4,513.02	44.28	102.926	
6,650.00	6,582.05	6,496.77	6,493.78	23.21	22.62	151.74	-1,749.63	-3,511.15	4,578.26	4,533.77	44.49	102.911	
6,700.00	6,626.13	6,525.00	6,521.96	23.29	22.72	148.62	-1,750.65	-3,512.40	4,601.89	4,557.32	44.57	103.245	
6,750.00	6,668.24	6,583.77	6,580.63	23.39	22.93	145.79	-1,752.76	-3,515.00	4,628.13	4,583.34	44.79	103.337	
6,800.00	6,708.12	6,622.34	6,619.14	23.51	23.06	142.89	-1,754.21	-3,516.64	4,656.79	4,611.87	44.92	103.678	
6,850.00	6,745.50	6,675.72	6,672.44	23.64	23.25	139.96	-1,756.14	-3,518.71	4,687.59	4,642.48	45.11	103.919	
6,900.00	6,780.15	6,712.92	6,709.60	23.79	23.38	136.71	-1,757.50	-3,520.13	4,720.53	4,675.30	45.23	104.357	
6,950.00	6,811.86	6,762.09	6,758.70	23.95	23.55	133.28	-1,759.10	-3,521.84	4,755.22	4,709.81	45.41	104.712	
7,000.00	6,840.42	6,832.63	6,829.18	24.14	23.80	129.75	-1,761.25	-3,523.93	4,791.55	4,745.87	45.68	104.895	
7,050.00	6,865.66	6,856.90	6,853.43	24.35	23.88	125.30	-1,761.99	-3,524.54	4,829.34	4,783.58	45.76	105.535	
7,100.00	6,887.42	6,909.05	6,905.56	24.57	24.07	120.76	-1,763.38	-3,525.69	4,868.36	4,822.40	45.96	105.933	
7,150.00	6,905.55	6,921.27	6,917.77	24.82	24.11	115.12	-1,763.72	-3,525.92	4,908.52	4,862.52	46.00	106.714	
7,200.00	6,919.95	6,934.29	6,930.78	25.10	24.15	108.96	-1,764.10	-3,526.17	4,949.59	4,903.54	46.04	107.499	
7,250.00	6,930.52	6,945.16	6,941.64	25.39	24.19	102.30	-1,764.40	-3,526.39	4,991.31	4,945.22	46.08	108.308	
7,300.00	6,937.20	6,957.92	6,954.39	25.70	24.24	95.42	-1,764.73	-3,526.64	5,033.43	4,987.30	46.14	109.100	
7,350.00	6,939.94	6,968.43	6,964.90	26.04	24.27	88.43	-1,764.99	-3,526.84	5,075.70	5,029.52	46.18	109.906	
7,359.60	6,940.02	6,967.91	6,964.38	26.10	24.27	87.05	-1,764.98	-3,526.83	5,083.81	5,037.63	46.18	110.085	
7,400.00	6,940.03	6,963.86	6,960.33	26.39	24.26	86.97	-1,764.88	-3,526.76	5,117.98	5,071.80	46.17	110.846	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
7,500.00	6,940.04	6,953.02	6,949.49	27.15	24.22	86.74	-1,764.61	-3,526.55	5,202.93	5,156.77	46.16	112.705	
7,600.00	6,940.06	6,948.47	6,944.95	27.99	24.20	86.65	-1,764.49	-3,526.46	5,288.41	5,242.21	46.20	114.462	
7,659.60	6,940.07	6,947.26	6,943.74	28.52	24.20	86.62	-1,764.46	-3,526.43	5,339.60	5,293.36	46.24	115.476	
7,700.00	6,940.08	6,946.43	6,942.91	28.89	24.20	86.52	-1,764.43	-3,526.41	5,374.53	5,328.26	46.27	116.159	
7,796.63	6,940.10	6,944.39	6,940.88	29.83	24.19	86.25	-1,764.38	-3,526.37	5,459.50	5,413.16	46.35	117.796	
7,800.00	6,940.10	6,944.32	6,940.80	29.86	24.19	86.25	-1,764.38	-3,526.37	5,462.50	5,416.15	46.35	117.850	
7,900.00	6,940.12	6,942.19	6,938.67	30.90	24.18	86.20	-1,764.32	-3,526.33	5,551.63	5,505.19	46.44	119.543	
8,000.00	6,940.14	6,940.08	6,936.56	31.98	24.18	86.15	-1,764.26	-3,526.29	5,641.12	5,594.58	46.54	121.208	
8,100.00	6,940.17	6,937.99	6,934.48	33.11	24.17	86.11	-1,764.20	-3,526.25	5,730.96	5,684.31	46.65	122.848	
8,200.00	6,940.19	6,935.92	6,932.41	34.28	24.16	86.06	-1,764.15	-3,526.21	5,821.13	5,774.36	46.77	124.464	
8,300.00	6,940.21	6,933.87	6,930.36	35.48	24.15	86.01	-1,764.09	-3,526.17	5,911.62	5,864.72	46.90	126.058	
8,400.00	6,940.23	6,931.85	6,928.34	36.71	24.15	85.97	-1,764.03	-3,526.13	6,002.41	5,955.38	47.03	127.632	
8,500.00	6,940.25	6,929.84	6,926.33	37.97	24.14	85.92	-1,763.97	-3,526.09	6,093.48	6,046.31	47.17	129.186	
8,600.00	6,940.28	6,927.85	6,924.34	39.26	24.13	85.87	-1,763.92	-3,526.05	6,184.83	6,137.52	47.31	130.724	
8,700.00	6,940.30	6,925.88	6,922.37	40.56	24.13	85.83	-1,763.86	-3,526.01	6,276.44	6,228.98	47.46	132.246	
8,800.00	6,940.32	6,925.00	6,921.49	41.89	24.12	85.81	-1,763.83	-3,525.99	6,368.31	6,320.69	47.62	133.741	
8,900.00	6,940.34	6,925.00	6,921.49	43.24	24.12	85.81	-1,763.83	-3,525.99	6,460.41	6,412.63	47.78	135.213	
9,000.00	6,940.36	6,925.00	6,921.49	44.60	24.12	85.81	-1,763.83	-3,525.99	6,552.75	6,504.81	47.94	136.673	
9,100.00	6,940.39	6,920.30	6,916.80	45.98	24.11	85.70	-1,763.70	-3,525.90	6,645.31	6,597.21	48.09	138.174	
9,200.00	6,940.41	6,918.98	6,915.48	47.38	24.10	85.67	-1,763.66	-3,525.88	6,738.08	6,689.82	48.26	139.627	
9,300.00	6,940.43	6,917.66	6,914.15	48.78	24.10	85.64	-1,763.62	-3,525.85	6,831.05	6,782.63	48.42	141.071	
9,400.00	6,940.45	6,916.34	6,912.83	50.20	24.09	85.61	-1,763.58	-3,525.83	6,924.22	6,875.63	48.59	142.505	
9,500.00	6,940.47	6,915.02	6,911.51	51.63	24.09	85.58	-1,763.55	-3,525.80	7,017.58	6,968.82	48.76	143.932	
9,600.00	6,940.50	6,913.70	6,910.20	53.07	24.08	85.55	-1,763.51	-3,525.78	7,111.12	7,062.19	48.92	145.351	
9,700.00	6,940.52	6,912.38	6,908.88	54.52	24.08	85.52	-1,763.47	-3,525.75	7,204.83	7,155.74	49.09	146.764	
9,800.00	6,940.54	6,911.06	6,907.56	55.97	24.07	85.49	-1,763.44	-3,525.73	7,298.71	7,249.45	49.26	148.170	
9,900.00	6,940.56	6,909.74	6,906.24	57.44	24.07	85.46	-1,763.40	-3,525.70	7,392.74	7,343.32	49.43	149.570	
10,000.00	6,940.59	6,908.43	6,904.93	58.91	24.06	85.43	-1,763.37	-3,525.68	7,486.94	7,437.34	49.59	150.965	
10,100.00	6,940.61	6,907.11	6,903.61	60.38	24.06	85.40	-1,763.33	-3,525.65	7,581.28	7,531.52	49.76	152.354	
10,200.00	6,940.63	6,850.00	6,846.54	61.87	23.86	84.09	-1,761.78	-3,524.37	7,675.76	7,626.05	49.71	154.397	
10,300.00	6,940.65	6,850.00	6,846.54	63.36	23.86	84.09	-1,761.78	-3,524.37	7,770.37	7,720.48	49.89	155.764	
10,400.00	6,940.67	6,845.08	6,841.62	64.85	23.84	83.98	-1,761.63	-3,524.24	7,865.10	7,815.07	50.04	157.186	
10,500.00	6,940.70	6,843.40	6,839.94	66.35	23.84	83.94	-1,761.58	-3,524.20	7,959.97	7,909.77	50.20	158.565	
10,600.00	6,940.72	6,841.74	6,838.28	67.86	23.83	83.91	-1,761.53	-3,524.16	8,054.96	8,004.60	50.36	159.940	
10,700.00	6,940.74	6,840.08	6,836.63	69.36	23.82	83.87	-1,761.48	-3,524.12	8,150.07	8,099.54	50.52	161.312	
10,800.00	6,940.76	6,838.45	6,834.99	70.88	23.82	83.83	-1,761.43	-3,524.08	8,245.29	8,194.61	50.68	162.679	
10,900.00	6,940.78	6,759.88	6,756.50	72.39	23.54	82.04	-1,759.03	-3,521.76	8,340.63	8,290.08	50.55	164.992	
11,000.00	6,940.81	6,756.99	6,753.61	73.91	23.53	81.98	-1,758.94	-3,521.66	8,436.04	8,385.34	50.71	166.372	
11,100.00	6,940.83	6,754.11	6,750.74	75.44	23.52	81.91	-1,758.84	-3,521.57	8,531.56	8,480.70	50.86	167.749	
11,200.00	6,940.85	6,750.00	6,746.63	76.96	23.51	81.82	-1,758.71	-3,521.43	8,627.18	8,576.18	51.01	169.139	
11,300.00	6,940.87	6,748.11	6,744.75	78.49	23.50	81.78	-1,758.64	-3,521.37	8,722.90	8,671.74	51.16	170.498	
11,400.00	6,940.89	6,744.72	6,741.36	80.03	23.49	81.70	-1,758.53	-3,521.25	8,818.71	8,767.40	51.31	171.874	
11,500.00	6,940.92	6,686.64	6,683.35	81.56	23.29	80.39	-1,756.55	-3,519.12	8,914.58	8,863.33	51.25	173.943	
11,600.00	6,940.94	6,685.06	6,681.77	83.10	23.28	80.35	-1,756.49	-3,519.06	9,010.55	8,959.15	51.40	175.293	
11,700.00	6,940.96	6,683.50	6,680.22	84.64	23.28	80.32	-1,756.43	-3,519.00	9,106.60	9,055.05	51.55	176.639	
11,800.00	6,940.98	6,675.00	6,671.73	86.18	23.25	80.12	-1,756.11	-3,518.68	9,202.75	9,151.07	51.68	178.074	
11,900.00	6,941.00	6,675.00	6,671.73	87.72	23.25	80.12	-1,756.11	-3,518.68	9,298.96	9,247.13	51.84	179.395	
12,000.00	6,941.03	6,675.00	6,671.73	89.27	23.25	80.12	-1,756.11	-3,518.68	9,395.26	9,343.27	51.99	180.714	
12,100.00	6,941.05	6,675.00	6,671.73	90.82	23.25	80.12	-1,756.11	-3,518.68	9,491.63	9,439.49	52.14	182.031	
12,200.00	6,941.07	6,678.61	6,675.33	92.37	23.26	80.21	-1,756.25	-3,518.81	9,588.08	9,535.77	52.31	183.298	
12,300.00	6,941.09	6,673.24	6,669.97	93.92	23.24	80.09	-1,756.05	-3,518.61	9,684.59	9,632.15	52.44	184.680	
12,400.00	6,941.11	6,667.81	6,664.54	95.47	23.22	79.96	-1,755.85	-3,518.41	9,781.18	9,728.61	52.57	186.061	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
12,500.00	6,941.14	6,662.31	6,659.05	97.03	23.20	79.84	-1,755.65	-3,518.21	9,877.83	9,825.13	52.70	187.440	
12,600.00	6,941.16	6,600.00	6,596.84	98.58	22.98	78.44	-1,753.37	-3,515.69	9,974.54	9,921.92	52.62	189.572	
12,700.00	6,941.18	6,600.00	6,596.84	100.14	22.98	78.44	-1,753.37	-3,515.69	10,071.29	10,018.53	52.76	190.876	
12,800.00	6,941.20	6,600.00	6,596.84	101.70	22.98	78.44	-1,753.37	-3,515.69	10,168.11	10,115.20	52.91	192.177	
12,900.00	6,941.23	6,600.00	6,596.84	103.26	22.98	78.44	-1,753.37	-3,515.69	10,264.99	10,211.94	53.06	193.476	
13,000.00	6,941.25	6,591.28	6,588.13	104.82	22.95	78.25	-1,753.04	-3,515.31	10,361.92	10,308.76	53.17	194.890	
13,100.00	6,941.27	6,589.69	6,586.54	106.38	22.95	78.21	-1,752.98	-3,515.25	10,458.92	10,405.61	53.31	196.206	
13,200.00	6,941.29	6,588.11	6,584.96	107.95	22.94	78.18	-1,752.92	-3,515.18	10,555.97	10,502.52	53.44	197.519	
13,300.00	6,941.31	6,586.54	6,583.40	109.51	22.94	78.14	-1,752.87	-3,515.12	10,653.07	10,599.49	53.58	198.829	
13,400.00	6,941.34	6,585.00	6,581.86	111.08	22.93	78.11	-1,752.81	-3,515.05	10,750.22	10,696.51	53.71	200.137	
13,500.00	6,941.36	6,533.61	6,530.55	112.64	22.75	76.97	-1,750.98	-3,512.79	10,847.42	10,793.75	53.67	202.120	
13,600.00	6,941.38	6,530.55	6,527.49	114.21	22.74	76.90	-1,750.87	-3,512.65	10,944.66	10,890.86	53.80	203.444	
13,700.00	6,941.40	6,525.00	6,521.96	115.78	22.72	76.78	-1,750.65	-3,512.40	11,041.94	10,988.03	53.92	204.801	
13,800.00	6,941.42	6,525.00	6,521.96	117.35	22.72	76.78	-1,750.65	-3,512.40	11,139.27	11,085.22	54.05	206.079	
13,900.00	6,941.45	6,525.00	6,521.96	118.92	22.72	76.78	-1,750.65	-3,512.40	11,236.65	11,182.46	54.19	207.354	
14,000.00	6,941.47	6,525.00	6,521.96	120.49	22.72	76.78	-1,750.65	-3,512.40	11,334.07	11,279.75	54.33	208.626	
14,100.00	6,941.49	6,525.00	6,521.96	122.06	22.72	76.78	-1,750.65	-3,512.40	11,431.54	11,377.08	54.46	209.896	
14,200.00	6,941.51	6,516.59	6,513.56	123.64	22.69	76.59	-1,750.33	-3,512.02	11,529.05	11,474.48	54.57	211.280	
14,300.00	6,941.53	6,514.59	6,511.57	125.21	22.68	76.55	-1,750.26	-3,511.93	11,626.60	11,571.90	54.69	212.572	
14,400.00	6,941.56	6,512.61	6,509.59	126.78	22.68	76.51	-1,750.18	-3,511.84	11,724.19	11,669.36	54.82	213.862	
14,500.00	6,941.58	6,510.64	6,507.62	128.36	22.67	76.46	-1,750.11	-3,511.75	11,821.82	11,766.87	54.95	215.148	
14,600.00	6,941.60	6,508.68	6,505.67	129.93	22.66	76.42	-1,750.04	-3,511.67	11,919.48	11,864.41	55.07	216.432	
14,700.00	6,941.62	6,497.66	6,494.67	131.51	22.62	76.18	-1,749.66	-3,511.18	12,017.19	11,962.03	55.17	217.839	
14,800.00	6,941.64	6,493.21	6,490.22	133.08	22.61	76.08	-1,749.51	-3,510.98	12,114.93	12,059.65	55.28	219.152	
14,900.00	6,941.67	6,488.75	6,485.76	134.66	22.59	75.98	-1,749.35	-3,510.78	12,212.71	12,157.31	55.40	220.463	
15,000.00	6,941.69	6,460.78	6,457.84	136.24	22.49	75.37	-1,748.38	-3,509.50	12,310.51	12,255.09	55.43	222.101	
15,100.00	6,941.71	6,453.15	6,450.22	137.82	22.47	75.20	-1,748.10	-3,509.15	12,408.35	12,352.82	55.53	223.452	
15,200.00	6,941.73	6,450.00	6,447.08	139.40	22.46	75.14	-1,747.98	-3,509.00	12,506.21	12,450.56	55.65	224.736	
15,300.00	6,941.75	6,450.00	6,447.08	140.97	22.46	75.14	-1,747.98	-3,509.00	12,604.11	12,548.33	55.78	225.974	
15,400.00	6,941.78	6,450.00	6,447.08	142.55	22.46	75.14	-1,747.98	-3,509.00	12,702.04	12,646.14	55.90	227.208	
15,500.00	6,941.80	6,450.00	6,447.08	144.13	22.46	75.14	-1,747.98	-3,509.00	12,800.00	12,743.97	56.03	228.439	
15,600.00	6,941.82	6,441.61	6,438.71	145.72	22.43	74.95	-1,747.66	-3,508.62	12,897.99	12,841.86	56.13	229.787	
15,700.00	6,941.84	6,439.82	6,436.92	147.30	22.42	74.91	-1,747.59	-3,508.54	12,996.01	12,939.76	56.25	231.038	
15,800.00	6,941.87	6,438.04	6,435.15	148.88	22.42	74.88	-1,747.53	-3,508.46	13,094.06	13,037.69	56.37	232.286	
15,900.00	6,941.89	6,436.28	6,433.38	150.46	22.41	74.84	-1,747.46	-3,508.38	13,192.14	13,135.65	56.49	233.530	
16,000.00	6,941.91	6,434.52	6,431.63	152.04	22.40	74.80	-1,747.40	-3,508.30	13,290.25	13,233.64	56.61	234.771	
16,100.00	6,941.93	6,432.78	6,429.89	153.62	22.40	74.76	-1,747.34	-3,508.22	13,388.38	13,331.65	56.73	236.010	
16,200.00	6,941.95	6,411.34	6,408.48	155.21	22.32	74.30	-1,746.59	-3,507.24	13,486.54	13,429.76	56.78	237.527	
16,300.00	6,941.98	6,406.74	6,403.89	156.79	22.31	74.20	-1,746.44	-3,507.03	13,584.72	13,527.83	56.89	238.800	
16,400.00	6,942.00	6,402.14	6,399.30	158.37	22.29	74.10	-1,746.28	-3,506.81	13,682.93	13,625.93	57.00	240.071	
16,500.00	6,942.02	6,400.00	6,397.17	159.96	22.28	74.05	-1,746.20	-3,506.71	13,781.16	13,724.04	57.11	241.302	
16,600.00	6,942.04	6,400.00	6,397.17	161.54	22.28	74.05	-1,746.20	-3,506.71	13,879.41	13,822.18	57.23	242.500	
16,700.00	6,942.06	6,400.00	6,397.17	163.13	22.28	74.05	-1,746.20	-3,506.71	13,977.69	13,920.33	57.36	243.694	
16,800.00	6,942.09	6,390.06	6,387.24	164.71	22.25	73.84	-1,745.85	-3,506.25	14,075.98	14,018.53	57.45	245.029	
16,900.00	6,942.11	6,389.11	6,386.29	166.30	22.24	73.82	-1,745.82	-3,506.20	14,174.30	14,116.74	57.57	246.231	
17,000.00	6,942.13	6,388.17	6,385.35	167.88	22.24	73.80	-1,745.78	-3,506.16	14,272.65	14,214.97	57.68	247.430	
17,100.00	6,942.15	6,387.24	6,384.43	169.47	22.24	73.78	-1,745.75	-3,506.12	14,371.02	14,313.22	57.80	248.625	
17,200.00	6,942.17	6,386.32	6,383.51	171.05	22.23	73.76	-1,745.72	-3,506.08	14,469.41	14,411.49	57.92	249.816	
17,300.00	6,942.20	6,385.42	6,382.61	172.64	22.23	73.74	-1,745.68	-3,506.04	14,567.82	14,509.79	58.04	251.004	
17,400.00	6,942.22	6,375.00	6,372.21	174.23	22.19	73.51	-1,745.27	-3,505.60	14,666.27	14,608.15	58.12	252.330	
17,500.00	6,942.24	6,375.00	6,372.21	175.81	22.19	73.51	-1,745.27	-3,505.60	14,764.73	14,706.48	58.24	253.498	
17,600.00	6,942.26	6,375.00	6,372.21	177.40	22.19	73.51	-1,745.27	-3,505.60	14,863.20	14,804.84	58.36	254.663	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
17,700.00	6,942.28	6,375.00	6,372.21	178.99	22.19	73.51	-1,745.27	-3,505.60	14,961.69	14,903.21	58.48	255.824	
17,800.00	6,942.31	6,375.00	6,372.21	180.57	22.19	73.51	-1,745.27	-3,505.60	15,060.21	15,001.60	58.60	256.982	
17,900.00	6,942.33	6,375.00	6,372.21	182.16	22.19	73.51	-1,745.27	-3,505.60	15,158.74	15,100.02	58.72	258.137	
18,000.00	6,942.35	6,375.00	6,372.21	183.75	22.19	73.51	-1,745.27	-3,505.60	15,257.29	15,198.45	58.84	259.288	
18,100.00	6,942.37	6,375.00	6,372.21	185.34	22.19	73.51	-1,745.27	-3,505.60	15,355.86	15,296.90	58.96	260.435	
18,200.00	6,942.39	6,375.00	6,372.21	186.93	22.19	73.51	-1,745.27	-3,505.60	15,454.45	15,395.37	59.08	261.579	
18,300.00	6,942.42	6,375.00	6,372.21	188.52	22.19	73.51	-1,745.27	-3,505.60	15,553.06	15,493.86	59.20	262.720	
18,400.00	6,942.44	6,375.00	6,372.21	190.10	22.19	73.51	-1,745.27	-3,505.60	15,651.69	15,592.37	59.32	263.857	
18,500.00	6,942.46	6,375.00	6,372.21	191.69	22.19	73.51	-1,745.27	-3,505.60	15,750.33	15,690.89	59.44	264.991	
18,600.00	6,942.48	6,375.00	6,372.21	193.28	22.19	73.51	-1,745.27	-3,505.60	15,848.99	15,789.43	59.56	266.121	
18,700.00	6,942.51	6,375.00	6,372.21	194.87	22.19	73.51	-1,745.27	-3,505.60	15,947.66	15,887.99	59.67	267.247	
18,800.00	6,942.53	6,375.00	6,372.21	196.46	22.19	73.51	-1,745.27	-3,505.60	16,046.36	15,986.56	59.79	268.370	
18,900.00	6,942.55	6,375.00	6,372.21	198.05	22.19	73.51	-1,745.27	-3,505.60	16,145.06	16,085.16	59.91	269.490	
19,000.00	6,942.57	6,367.62	6,364.84	199.64	22.17	73.35	-1,744.98	-3,505.30	16,243.79	16,183.78	60.00	270.718	
19,100.00	6,942.59	6,365.98	6,363.20	201.23	22.16	73.32	-1,744.92	-3,505.23	16,342.52	16,282.41	60.11	271.855	
19,200.00	6,942.62	6,329.47	6,326.75	202.82	22.03	72.54	-1,743.62	-3,503.71	16,441.28	16,381.17	60.11	273.515	
19,300.00	6,942.64	6,325.24	6,322.52	204.41	22.02	72.45	-1,743.46	-3,503.53	16,540.04	16,479.82	60.21	274.685	
19,400.00	6,942.66	6,314.21	6,311.52	206.00	21.98	72.21	-1,743.04	-3,503.05	16,638.79	16,578.49	60.30	275.955	
19,500.00	6,942.68	6,313.46	6,310.76	207.59	21.98	72.20	-1,743.02	-3,503.01	16,737.57	16,677.16	60.41	277.065	
19,600.00	6,942.70	6,312.71	6,310.01	209.18	21.98	72.18	-1,742.99	-3,502.98	16,836.37	16,775.85	60.52	278.172	
19,700.00	6,942.73	6,311.97	6,309.27	210.78	21.97	72.16	-1,742.96	-3,502.95	16,935.18	16,874.54	60.64	279.276	
19,800.00	6,942.75	6,311.23	6,308.54	212.37	21.97	72.15	-1,742.93	-3,502.92	17,034.01	16,973.26	60.75	280.376	
19,900.00	6,942.77	6,310.51	6,307.82	213.96	21.97	72.13	-1,742.90	-3,502.89	17,132.85	17,071.98	60.87	281.472	
20,000.00	6,942.79	6,300.00	6,297.33	215.55	21.93	71.91	-1,742.50	-3,502.47	17,231.72	17,170.77	60.95	282.714	
20,100.00	6,942.81	6,300.00	6,297.33	217.14	21.93	71.91	-1,742.50	-3,502.47	17,330.58	17,269.51	61.07	283.792	
20,200.00	6,942.84	6,300.00	6,297.33	218.73	21.93	71.91	-1,742.50	-3,502.47	17,429.46	17,368.27	61.18	284.866	
20,300.00	6,942.86	6,300.00	6,297.33	220.32	21.93	71.91	-1,742.50	-3,502.47	17,528.35	17,467.05	61.30	285.937	
20,400.00	6,942.88	6,300.00	6,297.33	221.92	21.93	71.91	-1,742.50	-3,502.47	17,627.25	17,565.83	61.42	287.004	
20,500.00	6,942.90	6,300.00	6,297.33	223.51	21.93	71.91	-1,742.50	-3,502.47	17,726.16	17,664.63	61.53	288.067	
20,600.00	6,942.92	6,300.00	6,297.33	225.10	21.93	71.91	-1,742.50	-3,502.47	17,825.09	17,763.44	61.65	289.127	
20,700.00	6,942.95	6,300.00	6,297.33	226.69	21.93	71.91	-1,742.50	-3,502.47	17,924.03	17,862.26	61.77	290.184	
20,800.00	6,942.97	6,300.00	6,297.33	228.28	21.93	71.91	-1,742.50	-3,502.47	18,022.98	17,961.09	61.88	291.236	
20,900.00	6,942.99	6,300.00	6,297.33	229.88	21.93	71.91	-1,742.50	-3,502.47	18,121.94	18,059.94	62.00	292.285	
20,942.50	6,943.00	6,298.61	6,295.94	230.42	21.93	71.88	-1,742.45	-3,502.41	18,164.00	18,098.24	65.76	276.214	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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	-118.81	-2,550.70	-4,638.05	5,293.16				
58.45	58.45	219.45	219.45	0.02	6.58	2.90	-2,550.70	-4,638.05	5,292.80	5,286.21	6.59	802.616	
150.25	150.24	311.24	311.24	0.14	9.33	-15.40	-2,550.70	-4,638.05	5,291.72	5,282.26	9.46	559.157	
239.43	239.42	400.42	400.42	0.25	12.00	-20.88	-2,550.70	-4,638.05	5,290.72	5,278.48	12.25	431.948	
299.93	299.91	460.91	460.91	0.33	13.81	-15.94	-2,550.70	-4,638.05	5,289.99	5,275.86	14.14	374.179	
446.00	445.96	607.06	606.96	0.50	18.19	8.47	-2,550.70	-4,638.05	5,287.61	5,268.93	18.69	282.963	
537.00	536.95	698.05	697.95	0.73	20.92	69.73	-2,550.70	-4,638.05	5,286.55	5,264.91	21.64	244.322	
588.82	588.77	749.87	749.73	0.88	22.47	130.48	-2,548.52	-4,638.05	5,285.59	5,262.25	23.35	226.409	CC
624.00	623.95	779.75	779.60	0.99	23.36	152.73	-2,548.55	-4,638.05	5,286.01	5,261.66	24.35	217.113	ES
718.00	717.90	859.57	859.41	1.29	25.76	170.56	-2,548.94	-4,638.05	5,288.82	5,261.78	27.04	195.581	
811.00	810.73	938.42	938.24	1.60	28.12	-169.97	-2,549.76	-4,638.05	5,294.80	5,265.08	29.72	178.159	
903.00	902.19	1,063.60	1,063.19	1.92	31.87	-158.01	-2,550.70	-4,638.05	5,304.54	5,270.75	33.79	156.973	
994.00	992.38	1,153.79	1,153.38	2.24	34.57	-155.77	-2,550.70	-4,638.05	5,315.69	5,278.88	36.81	144.392	
1,084.00	1,081.50	1,242.90	1,242.50	2.56	37.24	-151.35	-2,550.70	-4,638.05	5,326.97	5,287.17	39.80	133.841	
1,175.00	1,171.48	1,320.22	1,319.76	2.91	39.56	-147.51	-2,548.69	-4,638.05	5,337.69	5,295.25	42.44	125.763	
1,268.00	1,263.52	1,398.12	1,397.65	3.26	41.89	-146.03	-2,549.28	-4,638.05	5,349.23	5,304.12	45.11	118.581	
1,363.00	1,357.62	1,519.33	1,518.62	3.63	45.53	-143.16	-2,550.70	-4,638.05	5,360.51	5,311.42	49.09	109.205	
1,457.00	1,450.74	1,612.46	1,611.74	3.99	48.32	-140.51	-2,550.70	-4,638.05	5,370.63	5,318.41	52.22	102.845	
1,552.00	1,544.82	1,706.53	1,705.82	4.36	51.14	-139.78	-2,550.70	-4,638.05	5,380.82	5,325.43	55.39	97.144	
1,646.00	1,637.88	1,791.84	1,791.09	4.72	53.69	-139.34	-2,548.58	-4,638.05	5,389.95	5,331.65	58.29	92.460	
1,741.00	1,731.94	1,871.19	1,870.42	5.09	56.07	-138.97	-2,549.03	-4,638.05	5,400.34	5,339.31	61.02	88.495	
1,835.00	1,825.07	1,949.67	1,948.87	5.46	58.42	-139.00	-2,549.91	-4,638.05	5,410.47	5,346.75	63.72	84.906	
1,929.00	1,918.39	2,080.40	2,079.39	5.82	62.34	-140.33	-2,550.70	-4,638.05	5,419.40	5,351.40	67.99	79.708	
2,024.00	2,012.84	2,174.85	2,173.84	6.18	65.17	-139.02	-2,550.70	-4,638.05	5,427.21	5,356.04	71.17	76.257	
2,118.00	2,106.19	2,265.30	2,264.24	6.53	67.88	-138.81	-2,548.52	-4,638.05	5,434.42	5,360.19	74.23	73.213	
2,213.00	2,200.37	2,344.50	2,343.43	6.90	70.25	-140.19	-2,548.83	-4,638.05	5,444.11	5,367.15	76.96	70.744	
2,307.00	2,293.61	2,422.84	2,421.75	7.27	72.60	-138.29	-2,549.56	-4,638.05	5,453.62	5,373.97	79.65	68.470	
2,402.00	2,387.91	2,550.23	2,548.91	7.63	76.42	-134.53	-2,550.70	-4,638.05	5,462.44	5,378.61	83.82	65.165	
2,496.00	2,481.29	2,643.61	2,642.29	7.99	79.21	-133.43	-2,550.70	-4,638.05	5,469.96	5,382.99	86.97	62.894	
2,591.00	2,575.67	2,737.99	2,736.67	8.35	82.04	-134.96	-2,550.70	-4,638.05	5,477.55	5,387.40	90.15	60.759	
2,686.00	2,670.05	2,819.04	2,817.67	8.71	84.47	-134.62	-2,548.68	-4,638.05	5,484.18	5,391.25	92.93	59.013	
2,780.00	2,763.49	2,897.31	2,895.92	9.07	86.82	-136.70	-2,549.27	-4,638.05	5,491.95	5,396.33	95.62	57.434	
2,875.00	2,857.94	3,020.56	3,018.94	9.43	90.51	-138.24	-2,550.70	-4,638.05	5,500.12	5,400.45	99.67	55.182	
2,970.00	2,952.51	3,115.14	3,113.51	9.79	93.34	-134.74	-2,550.70	-4,638.05	5,506.66	5,403.81	102.85	53.539	
3,064.00	3,046.19	3,208.82	3,207.19	10.13	96.15	-127.62	-2,550.70	-4,638.05	5,511.76	5,405.76	106.00	51.997	
3,159.00	3,140.98	3,294.80	3,293.13	10.47	98.73	-125.66	-2,548.59	-4,638.05	5,514.54	5,405.62	108.92	50.629	
3,253.00	3,234.84	3,373.29	3,371.60	10.81	101.08	-133.45	-2,549.05	-4,638.05	5,517.98	5,406.38	111.60	49.442	
3,348.00	3,329.74	3,452.62	3,450.91	11.14	103.46	-141.14	-2,549.95	-4,638.05	5,521.70	5,407.39	114.32	48.302	
3,397.00	3,378.70	3,541.63	3,539.70	11.32	106.12	-142.05	-2,550.70	-4,638.05	5,523.56	5,406.39	117.16	47.144	
3,488.00	3,469.63	3,632.56	3,630.63	11.64	108.85	-144.63	-2,550.70	-4,638.05	5,526.35	5,406.14	120.21	45.972	
3,583.00	3,564.49	3,727.42	3,725.49	11.98	111.69	-136.26	-2,550.70	-4,638.05	5,530.22	5,406.83	123.39	44.818	
3,677.00	3,658.13	3,809.31	3,807.33	12.33	114.14	-134.46	-2,548.64	-4,638.05	5,534.99	5,408.80	126.19	43.862	
3,772.00	3,752.42	3,887.98	3,885.98	12.69	116.50	-129.91	-2,549.18	-4,638.05	5,543.04	5,414.14	128.90	43.003	
3,867.00	3,846.42	4,009.65	4,007.42	13.06	120.15	-128.46	-2,550.70	-4,638.05	5,552.50	5,419.59	132.91	41.776	
3,961.00	3,939.30	4,102.53	4,100.30	13.44	122.93	-128.79	-2,550.70	-4,638.05	5,561.60	5,425.55	136.05	40.878	
4,056.00	4,032.83	4,196.06	4,193.83	13.82	125.73	-132.16	-2,550.70	-4,638.05	5,572.53	5,433.31	139.22	40.026	
4,151.00	4,126.01	4,282.60	4,280.32	14.21	128.33	-131.36	-2,548.55	-4,638.05	5,583.87	5,441.69	142.19	39.271	
4,246.00	4,219.10	4,359.90	4,357.60	14.61	130.64	-138.92	-2,548.94	-4,638.05	5,597.67	5,452.80	144.87	38.639	
4,340.00	4,310.92	4,435.98	4,433.67	15.01	132.92	-148.09	-2,549.72	-4,638.05	5,614.54	5,467.03	147.51	38.061	
4,435.00	4,403.54	4,567.08	4,564.54	15.41	136.85	-148.88	-2,550.70	-4,638.05	5,633.04	5,481.22	151.82	37.103	
4,498.00	4,465.21	4,628.75	4,626.21	15.68	138.70	-146.93	-2,550.70	-4,638.05	5,644.02	5,490.11	153.91	36.671	
4,561.00	4,526.82	4,690.36	4,687.82	15.95	140.54	-141.70	-2,550.70	-4,638.05	5,654.74	5,498.74	156.00	36.248	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
4,624.00	4,588.23	4,751.43	4,748.86	16.22	142.37	-139.89	-2,548.52	-4,638.05	5,664.61	5,506.53	158.08	35.834	
4,687.00	4,649.71	4,802.24	4,799.65	16.49	143.90	-139.51	-2,548.61	-4,638.05	5,675.26	5,515.42	159.85	35.504	
4,749.00	4,710.40	4,852.33	4,849.74	16.75	145.40	-138.36	-2,548.88	-4,638.05	5,685.07	5,523.49	161.59	35.183	
4,812.00	4,772.28	4,903.35	4,900.74	17.01	146.93	-137.71	-2,549.34	-4,638.05	5,694.23	5,530.88	163.36	34.858	
4,875.00	4,834.34	4,954.46	4,951.84	17.27	148.46	-138.28	-2,549.98	-4,638.05	5,702.79	5,537.67	165.13	34.536	
4,938.00	4,896.43	5,060.28	5,057.43	17.53	151.63	-138.58	-2,550.70	-4,638.05	5,711.02	5,542.46	168.55	33.883	
5,001.00	4,958.46	5,122.30	5,119.46	17.79	153.49	-141.85	-2,550.70	-4,638.05	5,719.56	5,548.90	170.65	33.515	
5,064.00	5,020.29	5,184.13	5,181.29	18.05	155.34	-146.13	-2,550.70	-4,638.05	5,729.41	5,556.66	172.75	33.165	
5,126.00	5,080.98	5,244.82	5,241.98	18.32	157.16	-150.41	-2,550.70	-4,638.05	5,740.24	5,565.43	174.81	32.837	
5,189.00	5,142.74	5,296.49	5,293.61	18.58	158.71	-148.86	-2,548.59	-4,638.05	5,749.90	5,573.30	176.60	32.559	
5,252.00	5,204.62	5,347.32	5,344.42	18.85	160.23	-148.91	-2,548.85	-4,638.05	5,760.25	5,581.89	178.36	32.296	
5,315.00	5,266.61	5,398.19	5,395.28	19.11	161.75	-149.17	-2,549.28	-4,638.05	5,770.18	5,590.06	180.12	32.035	
5,378.00	5,328.73	5,449.12	5,446.19	19.37	163.28	-148.78	-2,549.90	-4,638.05	5,779.64	5,597.77	181.88	31.777	
5,441.00	5,390.87	5,555.02	5,551.87	19.62	166.45	-149.36	-2,550.70	-4,638.05	5,788.84	5,603.53	185.31	31.239	
5,503.00	5,452.07	5,616.22	5,613.07	19.87	168.29	-149.11	-2,550.70	-4,638.05	5,797.38	5,610.00	187.38	30.940	
5,566.00	5,514.32	5,678.47	5,675.32	20.13	170.15	-149.50	-2,550.70	-4,638.05	5,805.77	5,616.29	189.48	30.641	
5,629.00	5,576.59	5,740.74	5,737.59	20.38	172.02	-147.11	-2,550.70	-4,638.05	5,813.90	5,622.32	191.58	30.347	
5,692.00	5,638.95	5,793.45	5,790.25	20.63	173.60	-149.46	-2,548.58	-4,638.05	5,820.41	5,627.02	193.39	30.096	
5,747.00	5,693.45	5,838.03	5,834.83	20.85	174.93	-147.26	-2,548.79	-4,638.05	5,826.90	5,631.97	194.93	29.892	
5,810.00	5,755.90	5,889.10	5,885.89	21.09	176.46	-148.04	-2,549.19	-4,638.05	5,834.19	5,637.50	196.69	29.662	
5,874.00	5,819.40	5,941.00	5,937.77	21.34	178.02	-146.83	-2,549.79	-4,638.05	5,841.32	5,642.84	198.48	29.431	
5,936.00	5,880.95	6,045.40	6,041.95	21.58	181.15	-147.31	-2,550.70	-4,638.05	5,847.97	5,646.11	201.85	28.972	
5,999.00	5,943.45	6,107.91	6,104.45	21.82	183.02	-148.82	-2,550.70	-4,638.05	5,854.65	5,650.69	203.96	28.705	
6,062.00	6,005.96	6,170.41	6,166.96	22.07	184.89	-146.36	-2,550.70	-4,638.05	5,861.33	5,655.26	206.07	28.444	
6,125.00	6,068.49	6,232.94	6,229.49	22.31	186.77	-148.71	-2,550.70	-4,638.05	5,867.83	5,659.65	208.17	28.187	
6,188.00	6,131.08	6,287.13	6,283.63	22.55	188.39	-146.93	-2,548.56	-4,638.05	5,872.75	5,662.72	210.03	27.962	
6,255.00	6,197.73	6,341.50	6,337.99	22.81	190.02	-148.04	-2,548.81	-4,638.05	5,878.68	5,666.79	211.89	27.743	
6,293.00	6,235.55	6,372.34	6,368.83	22.89	190.94	-148.06	-2,549.04	-4,638.05	5,881.93	5,669.04	212.88	27.630	
6,300.00	6,242.52	6,378.02	6,374.51	22.89	191.11	-148.07	-2,549.09	-4,638.05	5,882.53	5,669.47	213.06	27.610	
6,393.00	6,335.09	6,453.47	6,449.93	22.94	193.38	-148.11	-2,549.96	-4,638.05	5,890.68	5,675.36	215.32	27.357	
6,400.00	6,342.06	6,506.82	6,503.06	22.94	194.97	-154.06	-2,550.70	-4,638.05	5,891.51	5,674.56	216.94	27.157	
6,450.00	6,391.66	6,556.42	6,552.66	22.97	196.46	178.52	-2,550.70	-4,638.05	5,897.61	5,679.17	218.44	26.999	
6,500.00	6,440.77	6,605.53	6,601.77	23.02	197.93	166.26	-2,550.70	-4,638.05	5,906.84	5,686.92	219.92	26.859	
6,550.00	6,489.07	6,653.83	6,650.07	23.07	199.38	159.57	-2,550.70	-4,638.05	5,919.15	5,697.78	221.37	26.739	
6,600.00	6,536.26	6,701.02	6,697.26	23.13	200.79	155.16	-2,550.70	-4,638.05	5,934.47	5,711.69	222.78	26.638	
6,650.00	6,582.05	6,746.80	6,743.05	23.21	202.16	151.79	-2,550.70	-4,638.05	5,952.71	5,728.56	224.15	26.557	
6,700.00	6,626.13	6,783.26	6,779.46	23.29	203.26	148.91	-2,548.55	-4,638.05	5,972.59	5,747.36	225.23	26.517	
6,750.00	6,668.24	6,817.55	6,813.74	23.39	204.28	146.18	-2,548.68	-4,638.05	5,996.41	5,770.16	226.25	26.504 SF	
6,800.00	6,708.12	6,850.01	6,846.19	23.51	205.26	143.46	-2,548.87	-4,638.05	6,022.84	5,795.63	227.21	26.508	
6,850.00	6,745.50	6,880.43	6,876.61	23.64	206.17	140.61	-2,549.11	-4,638.05	6,051.71	5,823.60	228.11	26.530	
6,900.00	6,780.15	6,908.64	6,904.82	23.79	207.01	137.53	-2,549.40	-4,638.05	6,082.83	5,853.89	228.94	26.569	
6,950.00	6,811.86	6,934.46	6,930.62	23.95	207.79	134.14	-2,549.71	-4,638.05	6,116.04	5,886.33	229.71	26.625	
7,000.00	6,840.42	7,005.49	7,001.42	24.14	209.92	130.76	-2,550.70	-4,638.05	6,151.28	5,919.44	231.85	26.532	
7,050.00	6,865.66	7,030.72	7,026.66	24.35	210.67	126.62	-2,550.70	-4,638.05	6,187.80	5,955.21	232.60	26.603	
7,100.00	6,887.42	7,052.48	7,048.42	24.57	211.32	121.97	-2,550.70	-4,638.05	6,225.77	5,992.52	233.25	26.692	
7,150.00	6,905.55	7,070.61	7,066.55	24.82	211.87	116.77	-2,550.70	-4,638.05	6,264.96	6,031.17	233.79	26.797	
7,200.00	6,919.95	7,085.01	7,080.95	25.10	212.30	111.02	-2,550.70	-4,638.05	6,305.13	6,070.90	234.23	26.919	
7,250.00	6,930.52	7,095.58	7,091.52	25.39	212.62	104.77	-2,550.70	-4,638.05	6,346.04	6,111.49	234.55	27.056	
7,300.00	6,937.20	7,102.26	7,098.20	25.70	212.82	98.14	-2,550.70	-4,638.05	6,387.43	6,152.68	234.76	27.209	
7,350.00	6,939.94	7,105.01	7,100.94	26.04	212.90	91.33	-2,550.70	-4,638.05	6,429.06	6,194.22	234.85	27.376	
7,359.60	6,940.02	7,105.08	7,101.02	26.10	212.90	90.02	-2,550.70	-4,638.05	6,437.07	6,202.22	234.85	27.409	
7,400.00	6,940.03	7,105.09	7,101.03	26.39	212.90	90.02	-2,550.70	-4,638.05	6,470.76	6,235.89	234.86	27.551	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Rule Assigned: Warning
7,500.00	6,940.04	7,105.11	7,101.04	27.15	212.90	90.02	-2,550.70	-4,638.05	6,554.48	6,319.57	234.91	27.902	
7,600.00	6,940.06	7,105.12	7,101.06	27.99	212.90	90.02	-2,550.70	-4,638.05	6,638.66	6,403.68	234.98	28.252	
7,659.60	6,940.07	7,105.13	7,101.07	28.52	212.90	90.02	-2,550.70	-4,638.05	6,689.04	6,454.00	235.03	28.460	
7,700.00	6,940.08	7,105.14	7,101.08	28.89	212.90	90.02	-2,550.70	-4,638.05	6,723.42	6,488.34	235.07	28.601	
7,796.63	6,940.10	7,105.16	7,101.10	29.83	212.90	90.02	-2,550.70	-4,638.05	6,807.09	6,571.91	235.18	28.944	
7,800.00	6,940.10	7,105.16	7,101.10	29.86	212.90	90.02	-2,550.70	-4,638.05	6,810.05	6,574.86	235.19	28.956	
7,900.00	6,940.12	7,105.18	7,101.12	30.90	212.90	90.02	-2,550.70	-4,638.05	6,897.83	6,662.52	235.31	29.314	
8,000.00	6,940.14	7,105.20	7,101.14	31.98	212.90	90.02	-2,550.70	-4,638.05	6,985.94	6,750.49	235.45	29.671	
8,100.00	6,940.17	7,105.23	7,101.17	33.11	212.90	90.02	-2,550.70	-4,638.05	7,074.36	6,838.77	235.59	30.028	
8,200.00	6,940.19	7,105.25	7,101.19	34.28	212.91	90.02	-2,550.70	-4,638.05	7,163.09	6,927.34	235.76	30.384	
8,300.00	6,940.21	7,105.27	7,101.21	35.48	212.91	90.02	-2,550.70	-4,638.05	7,252.12	7,016.19	235.93	30.739	
8,400.00	6,940.23	7,105.29	7,101.23	36.71	212.91	90.03	-2,550.70	-4,638.05	7,341.42	7,105.32	236.11	31.094	
8,500.00	6,940.25	7,105.32	7,101.25	37.97	212.91	90.03	-2,550.70	-4,638.05	7,431.00	7,194.71	236.29	31.448	
8,600.00	6,940.28	7,105.34	7,101.28	39.26	212.91	90.03	-2,550.70	-4,638.05	7,520.84	7,284.35	236.49	31.802	
8,700.00	6,940.30	7,105.36	7,101.30	40.56	212.91	90.03	-2,550.70	-4,638.05	7,610.94	7,374.25	236.69	32.156	
8,800.00	6,940.32	7,105.38	7,101.32	41.89	212.91	90.03	-2,550.70	-4,638.05	7,701.28	7,464.38	236.90	32.509	
8,900.00	6,940.34	7,105.40	7,101.34	43.24	212.91	90.03	-2,550.70	-4,638.05	7,791.85	7,554.74	237.11	32.862	
9,000.00	6,940.36	7,105.43	7,101.36	44.60	212.91	90.03	-2,550.70	-4,638.05	7,882.65	7,645.33	237.32	33.215	
9,100.00	6,940.39	7,105.45	7,101.39	45.98	212.91	90.03	-2,550.70	-4,638.05	7,973.68	7,736.13	237.54	33.567	
9,200.00	6,940.41	7,105.47	7,101.41	47.38	212.91	90.03	-2,550.70	-4,638.05	8,064.91	7,827.15	237.77	33.920	
9,300.00	6,940.43	7,105.49	7,101.43	48.78	212.91	90.03	-2,550.70	-4,638.05	8,156.35	7,918.36	237.99	34.272	
9,400.00	6,940.45	7,105.51	7,101.45	50.20	212.91	90.03	-2,550.70	-4,638.05	8,247.99	8,009.78	238.22	34.624	
9,500.00	6,940.47	7,105.54	7,101.47	51.63	212.91	90.03	-2,550.70	-4,638.05	8,339.83	8,101.38	238.44	34.976	
9,600.00	6,940.50	7,105.56	7,101.50	53.07	212.91	90.03	-2,550.70	-4,638.05	8,431.84	8,193.17	238.67	35.328	
9,700.00	6,940.52	7,105.58	7,101.52	54.52	212.92	90.03	-2,550.70	-4,638.05	8,524.04	8,285.14	238.90	35.680	
9,800.00	6,940.54	7,105.60	7,101.54	55.97	212.92	90.03	-2,550.70	-4,638.05	8,616.41	8,377.28	239.13	36.032	
9,900.00	6,940.56	7,105.62	7,101.56	57.44	212.92	90.03	-2,550.70	-4,638.05	8,708.95	8,469.59	239.36	36.384	
10,000.00	6,940.59	7,105.65	7,101.59	58.91	212.92	90.03	-2,550.70	-4,638.05	8,801.66	8,562.06	239.59	36.736	
10,100.00	6,940.61	7,105.67	7,101.61	60.38	212.92	90.03	-2,550.70	-4,638.05	8,894.52	8,654.69	239.82	37.088	
10,200.00	6,940.63	7,105.69	7,101.63	61.87	212.92	90.03	-2,550.70	-4,638.05	8,987.53	8,747.48	240.05	37.440	
10,300.00	6,940.65	7,105.71	7,101.65	63.36	212.92	90.03	-2,550.70	-4,638.05	9,080.70	8,840.41	240.28	37.792	
10,400.00	6,940.67	7,105.73	7,101.67	64.85	212.92	90.03	-2,550.70	-4,638.05	9,174.00	8,933.49	240.51	38.144	
10,500.00	6,940.70	7,105.76	7,101.70	66.35	212.92	90.03	-2,550.70	-4,638.05	9,267.45	9,026.71	240.74	38.496	
10,600.00	6,940.72	7,105.78	7,101.72	67.86	212.92	90.03	-2,550.70	-4,638.05	9,361.03	9,120.06	240.97	38.848	
10,700.00	6,940.74	7,105.80	7,101.74	69.36	212.92	90.03	-2,550.70	-4,638.05	9,454.75	9,213.55	241.19	39.200	
10,800.00	6,940.76	7,105.82	7,101.76	70.88	212.92	90.03	-2,550.70	-4,638.05	9,548.59	9,307.17	241.42	39.552	
10,900.00	6,940.78	7,105.84	7,101.78	72.39	212.92	90.03	-2,550.70	-4,638.05	9,642.55	9,400.91	241.64	39.904	
11,000.00	6,940.81	7,105.87	7,101.81	73.91	212.92	90.04	-2,550.70	-4,638.05	9,736.64	9,494.77	241.86	40.257	
11,100.00	6,940.83	7,105.89	7,101.83	75.44	212.92	90.04	-2,550.70	-4,638.05	9,830.84	9,588.75	242.08	40.609	
11,200.00	6,940.85	7,105.91	7,101.85	76.96	212.93	90.04	-2,550.70	-4,638.05	9,925.15	9,682.85	242.30	40.962	
11,300.00	6,940.87	7,105.93	7,101.87	78.49	212.93	90.04	-2,550.70	-4,638.05	10,019.58	9,777.06	242.52	41.314	
11,400.00	6,940.89	7,105.96	7,101.89	80.03	212.93	90.04	-2,550.70	-4,638.05	10,114.11	9,871.37	242.74	41.667	
11,500.00	6,940.92	7,105.98	7,101.92	81.56	212.93	90.04	-2,550.70	-4,638.05	10,208.75	9,965.80	242.95	42.020	
11,600.00	6,940.94	7,106.00	7,101.94	83.10	212.93	90.04	-2,550.70	-4,638.05	10,303.49	10,060.32	243.17	42.372	
11,700.00	6,940.96	7,106.02	7,101.96	84.64	212.93	90.04	-2,550.70	-4,638.05	10,398.32	10,154.95	243.38	42.725	
11,800.00	6,940.98	7,106.04	7,101.98	86.18	212.93	90.04	-2,550.70	-4,638.05	10,493.26	10,249.67	243.59	43.078	
11,900.00	6,941.00	7,106.07	7,102.00	87.72	212.93	90.04	-2,550.70	-4,638.05	10,588.28	10,344.49	243.80	43.431	
12,000.00	6,941.03	7,106.09	7,102.03	89.27	212.93	90.04	-2,550.70	-4,638.05	10,683.40	10,439.40	244.00	43.784	
12,100.00	6,941.05	7,106.11	7,102.05	90.82	212.93	90.04	-2,550.70	-4,638.05	10,778.60	10,534.40	244.21	44.137	
12,200.00	6,941.07	7,106.13	7,102.07	92.37	212.93	90.04	-2,550.70	-4,638.05	10,873.90	10,629.48	244.41	44.490	
12,300.00	6,941.09	7,106.15	7,102.09	93.92	212.93	90.04	-2,550.70	-4,638.05	10,969.27	10,724.66	244.61	44.843	
12,400.00	6,941.11	7,106.18	7,102.11	95.47	212.93	90.04	-2,550.70	-4,638.05	11,064.73	10,819.91	244.81	45.196	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
12,500.00	6,941.14	7,106.20	7,102.14	97.03	212.93	90.04	-2,550.70	-4,638.05	11,160.26	10,915.25	245.01	45.550	
12,600.00	6,941.16	7,106.22	7,102.16	98.58	212.93	90.04	-2,550.70	-4,638.05	11,255.88	11,010.67	245.21	45.903	
12,700.00	6,941.18	7,106.24	7,102.18	100.14	212.94	90.04	-2,550.70	-4,638.05	11,351.57	11,106.16	245.41	46.256	
12,800.00	6,941.20	7,106.26	7,102.20	101.70	212.94	90.04	-2,550.70	-4,638.05	11,447.33	11,201.73	245.60	46.609	
12,900.00	6,941.23	7,106.29	7,102.23	103.26	212.94	90.04	-2,550.70	-4,638.05	11,543.17	11,297.37	245.79	46.963	
13,000.00	6,941.25	7,106.31	7,102.25	104.82	212.94	90.04	-2,550.70	-4,638.05	11,639.07	11,393.09	245.99	47.316	
13,100.00	6,941.27	7,106.33	7,102.27	106.38	212.94	90.04	-2,550.70	-4,638.05	11,735.04	11,488.87	246.17	47.670	
13,200.00	6,941.29	7,106.35	7,102.29	107.95	212.94	90.04	-2,550.70	-4,638.05	11,831.08	11,584.72	246.36	48.023	
13,300.00	6,941.31	7,106.37	7,102.31	109.51	212.94	90.04	-2,550.70	-4,638.05	11,927.19	11,680.64	246.55	48.376	
13,400.00	6,941.34	7,106.40	7,102.34	111.08	212.94	90.04	-2,550.70	-4,638.05	12,023.36	11,776.62	246.74	48.730	
13,500.00	6,941.36	7,106.42	7,102.36	112.64	212.94	90.04	-2,550.70	-4,638.05	12,119.59	11,872.67	246.92	49.083	
13,600.00	6,941.38	7,106.44	7,102.38	114.21	212.94	90.05	-2,550.70	-4,638.05	12,215.88	11,968.78	247.10	49.437	
13,700.00	6,941.40	7,106.46	7,102.40	115.78	212.94	90.05	-2,550.70	-4,638.05	12,312.23	12,064.95	247.28	49.790	
13,800.00	6,941.42	7,106.49	7,102.42	117.35	212.94	90.05	-2,550.70	-4,638.05	12,408.64	12,161.17	247.46	50.143	
13,900.00	6,941.45	7,106.51	7,102.45	118.92	212.94	90.05	-2,550.70	-4,638.05	12,505.10	12,257.46	247.64	50.497	
14,000.00	6,941.47	7,106.53	7,102.47	120.49	212.94	90.05	-2,550.70	-4,638.05	12,601.62	12,353.80	247.82	50.850	
14,100.00	6,941.49	7,106.55	7,102.49	122.06	212.94	90.05	-2,550.70	-4,638.05	12,698.20	12,450.20	248.00	51.203	
14,200.00	6,941.51	7,106.57	7,102.51	123.64	212.95	90.05	-2,550.70	-4,638.05	12,794.82	12,546.65	248.17	51.557	
14,300.00	6,941.53	7,106.60	7,102.53	125.21	212.95	90.05	-2,550.70	-4,638.05	12,891.50	12,643.16	248.34	51.910	
14,400.00	6,941.56	7,106.62	7,102.56	126.78	212.95	90.05	-2,550.70	-4,638.05	12,988.23	12,739.71	248.52	52.263	
14,500.00	6,941.58	7,106.64	7,102.58	128.36	212.95	90.05	-2,550.70	-4,638.05	13,085.01	12,836.32	248.69	52.616	
14,600.00	6,941.60	7,106.66	7,102.60	129.93	212.95	90.05	-2,550.70	-4,638.05	13,181.83	12,932.97	248.86	52.970	
14,700.00	6,941.62	7,106.68	7,102.62	131.51	212.95	90.05	-2,550.70	-4,638.05	13,278.70	13,029.68	249.03	53.323	
14,800.00	6,941.64	7,106.71	7,102.64	133.08	212.95	90.05	-2,550.70	-4,638.05	13,375.62	13,126.43	249.19	53.676	
14,900.00	6,941.67	7,106.73	7,102.67	134.66	212.95	90.05	-2,550.70	-4,638.05	13,472.58	13,223.22	249.36	54.029	
15,000.00	6,941.69	7,106.75	7,102.69	136.24	212.95	90.05	-2,550.70	-4,638.05	13,569.59	13,320.07	249.53	54.382	
15,100.00	6,941.71	7,106.77	7,102.71	137.82	212.95	90.05	-2,550.70	-4,638.05	13,666.64	13,416.95	249.69	54.735	
15,200.00	6,941.73	7,106.79	7,102.73	139.40	212.95	90.05	-2,550.70	-4,638.05	13,763.74	13,513.88	249.85	55.087	
15,300.00	6,941.75	7,106.82	7,102.75	140.97	212.95	90.05	-2,550.70	-4,638.05	13,860.87	13,610.85	250.02	55.440	
15,400.00	6,941.78	7,106.84	7,102.78	142.55	212.95	90.05	-2,550.70	-4,638.05	13,958.04	13,707.87	250.18	55.793	
15,500.00	6,941.80	7,106.86	7,102.80	144.13	212.95	90.05	-2,550.70	-4,638.05	14,055.26	13,804.92	250.34	56.145	
15,600.00	6,941.82	7,106.88	7,102.82	145.72	212.95	90.05	-2,550.70	-4,638.05	14,152.51	13,902.02	250.50	56.498	
15,700.00	6,941.84	7,106.90	7,102.84	147.30	212.95	90.05	-2,550.70	-4,638.05	14,249.80	13,999.15	250.65	56.850	
15,800.00	6,941.87	7,106.93	7,102.87	148.88	212.96	90.05	-2,550.70	-4,638.05	14,347.13	14,096.32	250.81	57.203	
15,900.00	6,941.89	7,106.95	7,102.89	150.46	212.96	90.05	-2,550.70	-4,638.05	14,444.50	14,193.53	250.97	57.555	
16,000.00	6,941.91	7,106.97	7,102.91	152.04	212.96	90.05	-2,550.70	-4,638.05	14,541.90	14,290.77	251.12	57.907	
16,100.00	6,941.93	7,106.99	7,102.93	153.62	212.96	90.05	-2,550.70	-4,638.05	14,639.33	14,388.05	251.28	58.259	
16,200.00	6,941.95	7,107.01	7,102.95	155.21	212.96	90.06	-2,550.70	-4,638.05	14,736.80	14,485.37	251.43	58.611	
16,300.00	6,941.98	7,107.04	7,102.98	156.79	212.96	90.06	-2,550.70	-4,638.05	14,834.31	14,582.72	251.59	58.963	
16,400.00	6,942.00	7,107.06	7,103.00	158.37	212.96	90.06	-2,550.70	-4,638.05	14,931.84	14,680.10	251.74	59.315	
16,500.00	6,942.02	7,107.08	7,103.02	159.96	212.96	90.06	-2,550.70	-4,638.05	15,029.41	14,777.52	251.89	59.666	
16,600.00	6,942.04	7,107.10	7,103.04	161.54	212.96	90.06	-2,550.70	-4,638.05	15,127.01	14,874.97	252.04	60.018	
16,700.00	6,942.06	7,107.13	7,103.06	163.13	212.96	90.06	-2,550.70	-4,638.05	15,224.64	14,972.45	252.19	60.369	
16,800.00	6,942.09	7,107.15	7,103.09	164.71	212.96	90.06	-2,550.70	-4,638.05	15,322.31	15,069.97	252.34	60.721	
16,900.00	6,942.11	7,107.17	7,103.11	166.30	212.96	90.06	-2,550.70	-4,638.05	15,420.00	15,167.51	252.49	61.072	
17,000.00	6,942.13	7,107.19	7,103.13	167.88	212.96	90.06	-2,550.70	-4,638.05	15,517.72	15,265.08	252.64	61.423	
17,100.00	6,942.15	7,107.21	7,103.15	169.47	212.96	90.06	-2,550.70	-4,638.05	15,615.47	15,362.69	252.78	61.774	
17,200.00	6,942.17	7,107.24	7,103.17	171.05	212.96	90.06	-2,550.70	-4,638.05	15,713.25	15,460.32	252.93	62.125	
17,300.00	6,942.20	7,107.26	7,103.20	172.64	212.97	90.06	-2,550.70	-4,638.05	15,811.06	15,557.98	253.08	62.475	
17,400.00	6,942.22	7,107.28	7,103.22	174.23	212.97	90.06	-2,550.70	-4,638.05	15,908.89	15,655.67	253.22	62.826	
17,500.00	6,942.24	7,107.30	7,103.24	175.81	212.97	90.06	-2,550.70	-4,638.05	16,006.75	15,753.39	253.37	63.176	
17,600.00	6,942.26	7,107.32	7,103.26	177.40	212.97	90.06	-2,550.70	-4,638.05	16,104.64	15,851.13	253.51	63.527	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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	6,942.28	7,107.35	7,103.28	178.99	212.97	90.06	-2,550.70	-4,638.05	16,202.55	15,948.90	253.65	63.877	
17,800.00	6,942.31	7,107.37	7,103.31	180.57	212.97	90.06	-2,550.70	-4,638.05	16,300.49	16,046.70	253.80	64.227	
17,900.00	6,942.33	7,107.39	7,103.33	182.16	212.97	90.06	-2,550.70	-4,638.05	16,398.45	16,144.52	253.94	64.576	
18,000.00	6,942.35	7,107.41	7,103.35	183.75	212.97	90.06	-2,550.70	-4,638.05	16,496.44	16,242.36	254.08	64.926	
18,100.00	6,942.37	7,107.43	7,103.37	185.34	212.97	90.06	-2,550.70	-4,638.05	16,594.45	16,340.23	254.22	65.276	
18,200.00	6,942.39	7,107.46	7,103.39	186.93	212.97	90.06	-2,550.70	-4,638.05	16,692.49	16,438.13	254.36	65.625	
18,300.00	6,942.42	7,107.48	7,103.42	188.52	212.97	90.06	-2,550.70	-4,638.05	16,790.55	16,536.05	254.50	65.974	
18,400.00	6,942.44	7,107.50	7,103.44	190.10	212.97	90.06	-2,550.70	-4,638.05	16,888.63	16,633.99	254.64	66.323	
18,500.00	6,942.46	7,107.52	7,103.46	191.69	212.97	90.06	-2,550.70	-4,638.05	16,986.73	16,731.95	254.78	66.672	
18,600.00	6,942.48	7,107.54	7,103.48	193.28	212.97	90.06	-2,550.70	-4,638.05	17,084.86	16,829.94	254.92	67.021	
18,700.00	6,942.51	7,107.57	7,103.51	194.87	212.97	90.06	-2,550.70	-4,638.05	17,183.01	16,927.95	255.06	67.370	
18,800.00	6,942.53	7,107.59	7,103.53	196.46	212.98	90.07	-2,550.70	-4,638.05	17,281.17	17,025.98	255.19	67.718	
18,900.00	6,942.55	7,107.61	7,103.55	198.05	212.98	90.07	-2,550.70	-4,638.05	17,379.36	17,124.03	255.33	68.066	
19,000.00	6,942.57	7,107.63	7,103.57	199.64	212.98	90.07	-2,550.70	-4,638.05	17,477.57	17,222.11	255.47	68.414	
19,100.00	6,942.59	7,107.65	7,103.59	201.23	212.98	90.07	-2,550.70	-4,638.05	17,575.80	17,320.20	255.60	68.762	
19,200.00	6,942.62	7,107.68	7,103.62	202.82	212.98	90.07	-2,550.70	-4,638.05	17,674.05	17,418.31	255.74	69.110	
19,300.00	6,942.64	7,107.70	7,103.64	204.41	212.98	90.07	-2,550.70	-4,638.05	17,772.32	17,516.45	255.87	69.457	
19,400.00	6,942.66	7,107.72	7,103.66	206.00	212.98	90.07	-2,550.70	-4,638.05	17,870.61	17,614.60	256.01	69.805	
19,500.00	6,942.68	7,107.74	7,103.68	207.59	212.98	90.07	-2,550.70	-4,638.05	17,968.92	17,712.77	256.14	70.152	
19,600.00	6,942.70	7,107.77	7,103.70	209.18	212.98	90.07	-2,550.70	-4,638.05	18,067.24	17,810.97	256.28	70.499	
19,700.00	6,942.73	7,107.79	7,103.73	210.78	212.98	90.07	-2,550.70	-4,638.05	18,165.59	17,909.18	256.41	70.846	
19,800.00	6,942.75	7,107.81	7,103.75	212.37	212.98	90.07	-2,550.70	-4,638.05	18,263.95	18,007.41	256.54	71.192	
19,900.00	6,942.77	7,107.83	7,103.77	213.96	212.98	90.07	-2,550.70	-4,638.05	18,362.33	18,105.65	256.68	71.539	
20,000.00	6,942.79	7,107.85	7,103.79	215.55	212.98	90.07	-2,550.70	-4,638.05	18,460.73	18,203.92	256.81	71.885	
20,100.00	6,942.81	7,107.88	7,103.81	217.14	212.98	90.07	-2,550.70	-4,638.05	18,559.14	18,302.20	256.94	72.231	
20,200.00	6,942.84	7,107.90	7,103.84	218.73	212.98	90.07	-2,550.70	-4,638.05	18,657.57	18,400.50	257.07	72.577	
20,300.00	6,942.86	7,107.92	7,103.86	220.32	212.99	90.07	-2,550.70	-4,638.05	18,756.02	18,498.82	257.21	72.922	
20,400.00	6,942.88	7,107.94	7,103.88	221.92	212.99	90.07	-2,550.70	-4,638.05	18,854.49	18,597.15	257.34	73.268	
20,500.00	6,942.90	7,107.96	7,103.90	223.51	212.99	90.07	-2,550.70	-4,638.05	18,952.97	18,695.50	257.47	73.613	
20,600.00	6,942.92	7,107.99	7,103.92	225.10	212.99	90.07	-2,550.70	-4,638.05	19,051.46	18,793.86	257.60	73.958	
20,700.00	6,942.95	7,108.01	7,103.95	226.69	212.99	90.07	-2,550.70	-4,638.05	19,149.97	18,892.25	257.73	74.303	
20,800.00	6,942.97	7,108.03	7,103.97	228.28	212.99	90.07	-2,550.70	-4,638.05	19,248.50	18,990.64	257.86	74.647	
20,900.00	6,942.99	7,108.05	7,103.99	229.88	212.99	90.07	-2,550.70	-4,638.05	19,347.04	19,089.06	257.99	74.992	
20,942.50	6,943.00	7,108.06	7,104.00	230.42	212.99	90.07	-2,550.70	-4,638.05	19,388.93	19,127.42	261.50	74.144	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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	-129.60	-2,495.44	-3,016.19	3,914.66				
58.45	58.45	236.45	236.45	0.02	7.09	-7.89	-2,495.44	-3,016.19	3,914.30	3,907.20	7.10	551.022	
150.25	150.24	328.24	328.24	0.14	9.84	-26.20	-2,495.44	-3,016.19	3,913.27	3,903.30	9.97	392.510	
239.43	239.42	417.42	417.42	0.25	12.51	-31.69	-2,495.44	-3,016.19	3,912.35	3,899.60	12.75	306.888	
299.93	299.91	477.91	477.91	0.33	14.32	-26.74	-2,495.44	-3,016.19	3,911.68	3,897.04	14.63	267.313	
446.00	445.96	624.06	623.96	0.50	18.70	-2.35	-2,495.44	-3,016.19	3,909.35	3,890.17	19.18	203.818	
537.00	536.95	715.05	714.95	0.73	21.43	58.92	-2,495.44	-3,016.19	3,908.19	3,886.05	22.14	176.550	
571.88	571.83	749.92	749.78	0.83	22.47	101.59	-2,493.26	-3,016.19	3,906.74	3,883.45	23.29	167.770 CC	
624.00	623.95	794.34	794.19	0.99	23.80	141.92	-2,493.33	-3,016.19	3,907.19	3,882.41	24.78	157.701 ES	
718.00	717.90	874.43	874.27	1.29	26.20	159.76	-2,493.80	-3,016.19	3,909.96	3,882.48	27.48	142.281	
811.00	810.73	953.54	953.35	1.60	28.57	179.20	-2,494.70	-3,016.19	3,916.12	3,885.95	30.17	129.811	
903.00	902.19	1,080.60	1,080.19	1.92	32.38	-168.86	-2,495.44	-3,016.19	3,926.20	3,891.90	34.30	114.467	
994.00	992.38	1,170.79	1,170.38	2.24	35.08	-166.60	-2,495.44	-3,016.19	3,938.04	3,900.72	37.32	105.515	
1,084.00	1,081.50	1,258.40	1,257.95	2.56	37.71	-162.15	-2,493.26	-3,016.19	3,948.78	3,908.51	40.26	98.076	
1,175.00	1,171.48	1,334.90	1,334.45	2.91	40.00	-158.31	-2,493.51	-3,016.19	3,961.71	3,918.83	42.88	92.395	
1,268.00	1,263.52	1,413.06	1,412.59	3.26	42.34	-156.82	-2,494.19	-3,016.19	3,974.56	3,929.01	45.55	87.258	
1,363.00	1,357.62	1,536.33	1,535.62	3.63	46.04	-153.93	-2,495.44	-3,016.19	3,987.13	3,937.55	49.59	80.410	
1,457.00	1,450.74	1,629.46	1,628.74	3.99	48.83	-151.28	-2,495.44	-3,016.19	3,998.54	3,945.83	52.72	75.851	
1,552.00	1,544.82	1,723.53	1,722.82	4.36	51.64	-150.55	-2,495.44	-3,016.19	4,010.12	3,954.24	55.88	71.762	
1,646.00	1,637.88	1,806.38	1,805.63	4.72	54.13	-150.11	-2,493.37	-3,016.19	4,020.38	3,961.67	58.71	68.482	
1,741.00	1,731.94	1,885.98	1,885.21	5.09	56.51	-149.74	-2,493.90	-3,016.19	4,032.35	3,970.92	61.44	65.631	
1,835.00	1,825.07	2,004.09	2,003.07	5.46	60.05	-149.81	-2,495.44	-3,016.19	4,044.26	3,978.94	65.33	61.909	
1,929.00	1,918.39	2,097.40	2,096.39	5.82	62.85	-151.09	-2,495.44	-3,016.19	4,054.14	3,985.67	68.47	59.214	
2,024.00	2,012.84	2,191.85	2,190.84	6.18	65.68	-149.78	-2,495.44	-3,016.19	4,063.04	3,991.40	71.64	56.713	
2,118.00	2,106.19	2,279.70	2,278.65	6.53	68.31	-149.58	-2,493.29	-3,016.19	4,071.13	3,996.51	74.62	54.559	
2,213.00	2,200.37	2,359.16	2,358.09	6.90	70.69	-150.96	-2,493.67	-3,016.19	4,082.27	4,004.92	77.35	52.777	
2,307.00	2,293.61	2,437.75	2,436.65	7.27	73.05	-149.06	-2,494.49	-3,016.19	4,093.26	4,013.22	80.05	51.136	
2,402.00	2,387.91	2,567.23	2,565.91	7.63	76.93	-145.30	-2,495.44	-3,016.19	4,103.40	4,019.12	84.28	48.686	
2,496.00	2,481.29	2,660.61	2,659.29	7.99	79.72	-144.19	-2,495.44	-3,016.19	4,112.24	4,024.81	87.43	47.037	
2,591.00	2,575.67	2,754.18	2,752.82	8.35	82.53	-145.71	-2,493.26	-3,016.19	4,119.71	4,029.13	90.58	45.481	
2,686.00	2,670.05	2,833.57	2,832.20	8.71	84.91	-145.39	-2,493.50	-3,016.19	4,128.82	4,035.51	93.31	44.251	
2,780.00	2,763.49	2,912.09	2,910.70	9.07	87.26	-147.48	-2,494.18	-3,016.19	4,137.97	4,041.97	96.00	43.104	
2,875.00	2,857.94	3,037.56	3,035.94	9.43	91.02	-149.02	-2,495.44	-3,016.19	4,147.36	4,047.24	100.12	41.426	
2,970.00	2,952.51	3,132.14	3,130.51	9.79	93.85	-145.52	-2,495.44	-3,016.19	4,154.94	4,051.64	103.30	40.224	
3,064.00	3,046.19	3,225.82	3,224.19	10.13	96.66	-138.39	-2,495.44	-3,016.19	4,161.02	4,054.58	106.44	39.092	
3,159.00	3,140.98	3,309.21	3,307.54	10.47	99.16	-136.44	-2,493.38	-3,016.19	4,164.42	4,055.13	109.28	38.108	
3,253.00	3,234.84	3,387.95	3,386.26	10.81	101.52	-144.23	-2,493.92	-3,016.19	4,168.67	4,056.70	111.97	37.230	
3,348.00	3,329.74	3,509.67	3,507.74	11.14	105.17	-151.95	-2,495.44	-3,016.19	4,173.26	4,057.29	115.96	35.988	
3,397.00	3,378.70	3,558.63	3,556.70	11.32	106.63	-152.85	-2,495.44	-3,016.19	4,175.09	4,057.48	117.60	35.501	
3,488.00	3,469.63	3,649.56	3,647.63	11.64	109.36	-155.42	-2,495.44	-3,016.19	4,178.22	4,057.57	120.65	34.631	
3,583.00	3,564.49	3,744.42	3,742.49	11.98	112.20	-147.05	-2,495.44	-3,016.19	4,182.65	4,058.82	123.83	33.776	
3,677.00	3,658.13	3,823.75	3,821.77	12.33	114.58	-145.26	-2,493.45	-3,016.19	4,188.14	4,061.59	126.55	33.095	
3,772.00	3,752.42	3,902.66	3,900.67	12.69	116.94	-140.71	-2,494.07	-3,016.19	4,197.81	4,068.55	129.26	32.475	
3,867.00	3,846.42	4,026.65	4,024.42	13.06	120.66	-139.26	-2,495.44	-3,016.19	4,209.20	4,075.86	133.34	31.567	
3,961.00	3,939.30	4,119.53	4,117.30	13.44	123.44	-139.60	-2,495.44	-3,016.19	4,220.25	4,083.77	136.48	30.922	
4,056.00	4,032.83	4,213.06	4,210.83	13.82	126.24	-143.01	-2,495.44	-3,016.19	4,233.34	4,093.70	139.64	30.315	
4,151.00	4,126.01	4,296.89	4,294.61	14.21	128.75	-142.21	-2,493.33	-3,016.19	4,246.74	4,104.23	142.52	29.798	
4,246.00	4,219.10	4,374.42	4,372.13	14.61	131.08	-149.83	-2,493.80	-3,016.19	4,262.92	4,117.72	145.20	29.359	
4,340.00	4,310.92	4,450.74	4,448.42	15.01	133.36	-159.11	-2,494.67	-3,016.19	4,281.90	4,134.06	147.84	28.964	
4,435.00	4,403.54	4,584.08	4,581.54	15.41	137.36	-159.87	-2,495.44	-3,016.19	4,302.06	4,149.85	152.21	28.264	
4,498.00	4,465.21	4,645.75	4,643.21	15.68	139.21	-157.87	-2,495.44	-3,016.19	4,314.11	4,159.81	154.29	27.960	
4,561.00	4,526.82	4,707.36	4,704.82	15.95	141.05	-152.62	-2,495.44	-3,016.19	4,326.06	4,169.68	156.38	27.664	

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 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
4,624.00	4,588.23	4,765.54	4,762.96	16.22	142.80	-150.80	-2,493.27	-3,016.19	4,337.06	4,178.69	158.36	27.386	
4,687.00	4,649.71	4,816.50	4,813.92	16.49	144.32	-150.40	-2,493.41	-3,016.19	4,349.22	4,189.09	160.13	27.161	
4,749.00	4,710.40	4,866.75	4,864.15	16.75	145.83	-149.23	-2,493.73	-3,016.19	4,360.49	4,198.62	161.87	26.939	
4,812.00	4,772.28	4,917.93	4,915.32	17.01	147.36	-148.56	-2,494.24	-3,016.19	4,371.08	4,207.45	163.63	26.713	
4,875.00	4,834.34	5,015.18	5,012.34	17.27	150.28	-149.18	-2,495.44	-3,016.19	4,381.11	4,214.31	166.80	26.265	
4,938.00	4,896.43	5,077.28	5,074.43	17.53	152.14	-149.43	-2,495.44	-3,016.19	4,390.29	4,221.38	168.90	25.993	
5,001.00	4,958.46	5,139.30	5,136.46	17.79	154.00	-152.72	-2,495.44	-3,016.19	4,399.99	4,228.99	171.00	25.731	
5,064.00	5,020.29	5,201.13	5,198.29	18.05	155.85	-157.05	-2,495.44	-3,016.19	4,410.97	4,237.88	173.09	25.483	
5,126.00	5,080.98	5,259.73	5,256.85	18.32	157.61	-161.34	-2,493.26	-3,016.19	4,421.35	4,246.26	175.08	25.253	
5,189.00	5,142.74	5,310.67	5,307.78	18.58	159.13	-159.77	-2,493.39	-3,016.19	4,433.21	4,256.37	176.84	25.069	
5,252.00	5,204.62	5,361.65	5,358.75	18.85	160.66	-159.80	-2,493.69	-3,016.19	4,444.59	4,265.99	178.60	24.885	
5,315.00	5,266.61	5,412.68	5,409.77	19.11	162.19	-160.04	-2,494.18	-3,016.19	4,455.54	4,275.18	180.36	24.704	
5,378.00	5,328.73	5,509.88	5,506.73	19.37	165.10	-159.67	-2,495.44	-3,016.19	4,466.16	4,282.64	183.53	24.335	
5,441.00	5,390.87	5,572.02	5,568.87	19.62	166.96	-160.21	-2,495.44	-3,016.19	4,475.92	4,290.30	185.62	24.113	
5,503.00	5,452.07	5,629.09	5,625.93	19.87	168.67	-159.92	-2,494.40	-3,016.19	4,484.53	4,296.96	187.56	23.909	
5,566.00	5,514.32	5,671.98	5,668.80	20.13	169.96	-160.30	-2,494.59	-3,016.19	4,493.88	4,304.80	189.07	23.768	
5,629.00	5,576.59	5,757.89	5,754.59	20.38	172.53	-157.91	-2,495.44	-3,016.19	4,503.32	4,311.42	191.89	23.468	
5,692.00	5,638.95	5,820.24	5,816.95	20.63	174.40	-160.27	-2,495.44	-3,016.19	4,511.71	4,317.72	194.00	23.257	
5,747.00	5,693.45	5,873.31	5,870.00	20.85	175.99	-158.05	-2,494.30	-3,016.19	4,517.89	4,322.10	195.79	23.075	
5,810.00	5,755.90	5,917.27	5,913.95	21.09	177.31	-158.82	-2,494.45	-3,016.19	4,525.76	4,328.43	197.33	22.935	
5,874.00	5,819.40	6,000.85	5,997.40	21.34	179.81	-157.61	-2,495.44	-3,016.19	4,533.79	4,333.71	200.08	22.660	
5,936.00	5,880.95	6,062.40	6,058.95	21.58	181.66	-158.07	-2,495.44	-3,016.19	4,540.74	4,338.59	202.15	22.462	
5,999.00	5,943.45	6,124.91	6,121.45	21.82	183.53	-159.58	-2,495.44	-3,016.19	4,548.08	4,343.82	204.26	22.266	
6,062.00	6,005.96	6,187.41	6,183.96	22.07	185.40	-157.10	-2,495.44	-3,016.19	4,555.42	4,349.06	206.36	22.075	
6,125.00	6,068.49	6,249.94	6,246.49	22.31	187.28	-159.45	-2,495.44	-3,016.19	4,562.57	4,354.10	208.47	21.886	
6,188.00	6,131.08	6,312.53	6,309.08	22.55	189.15	-157.67	-2,495.44	-3,016.19	4,569.25	4,358.68	210.57	21.699	
6,255.00	6,197.73	6,317.00	6,313.36	22.81	189.29	-158.76	-2,495.44	-3,016.19	4,576.03	4,365.12	210.90	21.697 SF	
6,293.00	6,235.55	6,317.00	6,313.36	22.89	189.29	-158.76	-2,495.44	-3,016.19	4,580.09	4,369.17	210.92	21.715	
6,300.00	6,242.52	6,317.00	6,313.36	22.89	189.29	-158.76	-2,495.44	-3,016.19	4,580.87	4,369.96	210.91	21.719	
6,393.00	6,335.09	6,317.00	6,313.36	22.94	189.29	-158.76	-2,495.44	-3,016.19	4,592.27	4,381.52	210.75	21.791	
6,400.00	6,342.06	6,317.00	6,313.36	22.94	189.29	-164.71	-2,495.44	-3,016.19	4,593.23	4,382.50	210.73	21.797	
6,450.00	6,391.66	6,317.00	6,313.36	22.97	189.29	167.62	-2,495.44	-3,016.19	4,601.89	4,391.29	210.61	21.851	
6,500.00	6,440.77	6,317.00	6,313.36	23.02	189.29	155.04	-2,495.44	-3,016.19	4,613.69	4,403.23	210.46	21.922	
6,550.00	6,489.07	6,317.00	6,313.36	23.07	189.29	147.96	-2,495.44	-3,016.19	4,628.51	4,418.22	210.29	22.010	
6,600.00	6,536.26	6,317.00	6,313.36	23.13	189.29	143.07	-2,495.44	-3,016.19	4,646.25	4,436.14	210.11	22.114	
6,650.00	6,582.05	6,317.00	6,313.36	23.21	189.29	139.14	-2,495.44	-3,016.19	4,666.75	4,456.84	209.91	22.232	
6,700.00	6,626.13	6,317.00	6,313.36	23.29	189.29	135.61	-2,495.44	-3,016.19	4,689.85	4,480.14	209.71	22.363	
6,750.00	6,668.24	6,317.00	6,313.36	23.39	189.29	132.20	-2,495.44	-3,016.19	4,715.37	4,505.87	209.51	22.507	
6,800.00	6,708.12	6,317.00	6,313.36	23.51	189.29	128.74	-2,495.44	-3,016.19	4,743.11	4,533.81	209.31	22.661	
6,850.00	6,745.50	6,317.00	6,313.36	23.64	189.29	125.11	-2,495.44	-3,016.19	4,772.86	4,563.75	209.11	22.824	
6,900.00	6,780.15	6,317.00	6,313.36	23.79	189.29	121.24	-2,495.44	-3,016.19	4,804.40	4,595.46	208.93	22.995	
6,950.00	6,811.86	6,317.00	6,313.36	23.95	189.29	117.10	-2,495.44	-3,016.19	4,837.48	4,628.71	208.77	23.171	
7,000.00	6,840.42	6,317.00	6,313.36	24.14	189.29	112.67	-2,495.44	-3,016.19	4,871.88	4,663.25	208.63	23.351	
7,050.00	6,865.66	6,317.00	6,313.36	24.35	189.29	107.96	-2,495.44	-3,016.19	4,907.36	4,698.84	208.52	23.534	
7,100.00	6,887.42	6,317.00	6,313.36	24.57	189.29	103.01	-2,495.44	-3,016.19	4,943.66	4,735.23	208.43	23.718	
7,150.00	6,905.55	6,317.00	6,313.36	24.82	189.29	97.89	-2,495.44	-3,016.19	4,980.55	4,772.18	208.37	23.902	
7,200.00	6,919.95	6,317.00	6,313.36	25.10	189.29	92.69	-2,495.44	-3,016.19	5,017.78	4,809.43	208.35	24.084	
7,250.00	6,930.52	6,317.00	6,313.36	25.39	189.29	87.51	-2,495.44	-3,016.19	5,055.11	4,846.76	208.35	24.262	
7,300.00	6,937.20	6,317.00	6,313.36	25.70	189.29	82.47	-2,495.44	-3,016.19	5,092.31	4,883.92	208.39	24.436	
7,350.00	6,939.94	6,317.00	6,313.36	26.04	189.29	77.66	-2,495.44	-3,016.19	5,129.14	4,920.68	208.46	24.605	
7,359.60	6,940.02	6,317.00	6,313.36	26.10	189.29	76.77	-2,495.44	-3,016.19	5,136.16	4,927.68	208.48	24.636	
7,400.00	6,940.03	6,317.00	6,313.36	26.39	189.29	76.77	-2,495.44	-3,016.19	5,165.69	4,957.14	208.56	24.769	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
7,500.00	6,940.04	6,317.00	6,313.36	27.15	189.29	76.77	-2,495.44	-3,016.19	5,239.43	5,030.66	208.77	25.096	
7,600.00	6,940.06	6,317.00	6,313.36	27.99	189.29	76.77	-2,495.44	-3,016.19	5,314.02	5,105.01	209.02	25.424	
7,659.60	6,940.07	6,317.00	6,313.36	28.52	189.29	76.77	-2,495.44	-3,016.19	5,358.88	5,149.71	209.17	25.620	
7,700.00	6,940.08	6,317.00	6,313.36	28.89	189.29	76.56	-2,495.44	-3,016.19	5,389.62	5,180.34	209.28	25.753	
7,796.63	6,940.10	6,317.00	6,313.36	29.83	189.29	75.99	-2,495.44	-3,016.19	5,465.08	5,255.52	209.56	26.079	
7,800.00	6,940.10	6,317.00	6,313.36	29.86	189.29	75.99	-2,495.44	-3,016.19	5,467.76	5,258.19	209.57	26.091	
7,900.00	6,940.12	6,317.00	6,313.36	30.90	189.29	75.99	-2,495.44	-3,016.19	5,547.56	5,337.70	209.86	26.434	
8,000.00	6,940.14	6,317.00	6,313.36	31.98	189.29	75.99	-2,495.44	-3,016.19	5,628.00	5,417.83	210.17	26.779	
8,100.00	6,940.17	6,317.00	6,313.36	33.11	189.29	75.99	-2,495.44	-3,016.19	5,709.06	5,498.58	210.48	27.124	
8,200.00	6,940.19	6,317.00	6,313.36	34.28	189.29	75.99	-2,495.44	-3,016.19	5,790.72	5,579.91	210.81	27.469	
8,300.00	6,940.21	6,317.00	6,313.36	35.48	189.29	75.99	-2,495.44	-3,016.19	5,872.94	5,661.80	211.14	27.816	
8,400.00	6,940.23	6,317.00	6,313.36	36.71	189.29	75.99	-2,495.44	-3,016.19	5,955.71	5,744.23	211.47	28.163	
8,500.00	6,940.25	6,317.00	6,313.36	37.97	189.29	75.99	-2,495.44	-3,016.19	6,038.99	5,827.18	211.81	28.511	
8,600.00	6,940.28	6,317.00	6,313.36	39.26	189.29	75.99	-2,495.44	-3,016.19	6,122.78	5,910.63	212.15	28.860	
8,700.00	6,940.30	6,317.00	6,313.36	40.56	189.29	75.99	-2,495.44	-3,016.19	6,207.05	5,994.55	212.50	29.210	
8,800.00	6,940.32	6,317.00	6,313.36	41.89	189.29	75.99	-2,495.44	-3,016.19	6,291.78	6,078.93	212.84	29.561	
8,900.00	6,940.34	6,317.00	6,313.36	43.24	189.29	75.99	-2,495.44	-3,016.19	6,376.95	6,163.76	213.19	29.912	
9,000.00	6,940.36	6,317.00	6,313.36	44.60	189.29	75.99	-2,495.44	-3,016.19	6,462.54	6,249.01	213.53	30.265	
9,100.00	6,940.39	6,317.00	6,313.36	45.98	189.29	75.99	-2,495.44	-3,016.19	6,548.55	6,334.68	213.87	30.619	
9,200.00	6,940.41	6,317.00	6,313.36	47.38	189.29	75.99	-2,495.44	-3,016.19	6,634.95	6,420.73	214.21	30.974	
9,300.00	6,940.43	6,317.00	6,313.36	48.78	189.29	75.99	-2,495.44	-3,016.19	6,721.72	6,507.17	214.55	31.329	
9,400.00	6,940.45	6,317.00	6,313.36	50.20	189.29	75.99	-2,495.44	-3,016.19	6,808.86	6,593.97	214.89	31.686	
9,500.00	6,940.47	6,317.00	6,313.36	51.63	189.29	75.99	-2,495.44	-3,016.19	6,896.34	6,681.12	215.22	32.043	
9,600.00	6,940.50	6,317.00	6,313.36	53.07	189.29	75.99	-2,495.44	-3,016.19	6,984.16	6,768.62	215.55	32.402	
9,700.00	6,940.52	6,317.00	6,313.36	54.52	189.29	75.99	-2,495.44	-3,016.19	7,072.31	6,856.44	215.87	32.762	
9,800.00	6,940.54	6,317.00	6,313.36	55.97	189.29	75.99	-2,495.44	-3,016.19	7,160.77	6,944.57	216.19	33.122	
9,900.00	6,940.56	6,317.00	6,313.36	57.44	189.29	75.99	-2,495.44	-3,016.19	7,249.52	7,033.01	216.51	33.483	
10,000.00	6,940.59	6,317.00	6,313.36	58.91	189.29	75.99	-2,495.44	-3,016.19	7,338.57	7,121.74	216.82	33.846	
10,100.00	6,940.61	6,317.00	6,313.36	60.38	189.29	75.99	-2,495.44	-3,016.19	7,427.89	7,210.76	217.13	34.209	
10,200.00	6,940.63	6,317.00	6,313.36	61.87	189.29	75.99	-2,495.44	-3,016.19	7,517.49	7,300.05	217.44	34.573	
10,300.00	6,940.65	6,317.00	6,313.36	63.36	189.29	75.99	-2,495.44	-3,016.19	7,607.34	7,389.60	217.74	34.938	
10,400.00	6,940.67	6,317.00	6,313.36	64.85	189.29	75.99	-2,495.44	-3,016.19	7,697.44	7,479.40	218.04	35.303	
10,500.00	6,940.70	6,317.00	6,313.36	66.35	189.29	75.99	-2,495.44	-3,016.19	7,787.79	7,569.46	218.33	35.670	
10,600.00	6,940.72	6,317.00	6,313.36	67.86	189.29	75.99	-2,495.44	-3,016.19	7,878.36	7,659.75	218.62	36.037	
10,700.00	6,940.74	6,317.00	6,313.36	69.36	189.29	75.99	-2,495.44	-3,016.19	7,969.17	7,750.26	218.90	36.405	
10,800.00	6,940.76	6,317.00	6,313.36	70.88	189.29	75.99	-2,495.44	-3,016.19	8,060.19	7,841.00	219.18	36.773	
10,900.00	6,940.78	6,317.00	6,313.36	72.39	189.29	75.99	-2,495.44	-3,016.19	8,151.42	7,931.96	219.46	37.143	
11,000.00	6,940.81	6,317.00	6,313.36	73.91	189.29	75.99	-2,495.44	-3,016.19	8,242.86	8,023.12	219.73	37.513	
11,100.00	6,940.83	6,317.00	6,313.36	75.44	189.29	75.99	-2,495.44	-3,016.19	8,334.49	8,114.49	220.00	37.884	
11,200.00	6,940.85	6,317.00	6,313.36	76.96	189.29	75.99	-2,495.44	-3,016.19	8,426.31	8,206.04	220.27	38.255	
11,300.00	6,940.87	6,317.00	6,313.36	78.49	189.29	75.99	-2,495.44	-3,016.19	8,518.32	8,297.79	220.53	38.627	
11,400.00	6,940.89	6,317.00	6,313.36	80.03	189.29	75.99	-2,495.44	-3,016.19	8,610.50	8,389.72	220.78	39.000	
11,500.00	6,940.92	6,317.00	6,313.36	81.56	189.29	75.99	-2,495.44	-3,016.19	8,702.86	8,481.82	221.04	39.373	
11,600.00	6,940.94	6,317.00	6,313.36	83.10	189.29	75.99	-2,495.44	-3,016.19	8,795.38	8,574.09	221.29	39.746	
11,700.00	6,940.96	6,317.00	6,313.36	84.64	189.29	75.99	-2,495.44	-3,016.19	8,888.07	8,666.53	221.53	40.121	
11,800.00	6,940.98	6,317.00	6,313.36	86.18	189.29	75.99	-2,495.44	-3,016.19	8,980.91	8,759.13	221.78	40.496	
11,900.00	6,941.00	6,317.00	6,313.36	87.72	189.29	75.99	-2,495.44	-3,016.19	9,073.91	8,851.89	222.01	40.871	
12,000.00	6,941.03	6,317.00	6,313.36	89.27	189.29	75.99	-2,495.44	-3,016.19	9,167.05	8,944.80	222.25	41.247	
12,100.00	6,941.05	6,317.00	6,313.36	90.82	189.29	75.99	-2,495.44	-3,016.19	9,260.33	9,037.85	222.48	41.623	
12,200.00	6,941.07	6,317.00	6,313.36	92.37	189.29	75.99	-2,495.44	-3,016.19	9,353.76	9,131.05	222.71	41.999	
12,300.00	6,941.09	6,317.00	6,313.36	93.92	189.29	75.99	-2,495.44	-3,016.19	9,447.32	9,224.38	222.94	42.377	
12,400.00	6,941.11	6,317.00	6,313.36	95.47	189.29	75.99	-2,495.44	-3,016.19	9,541.01	9,317.85	223.16	42.754	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
12,500.00	6,941.14	6,317.00	6,313.36	97.03	189.29	75.99	-2,495.44	-3,016.19	9,634.82	9,411.44	223.38	43.132	
12,600.00	6,941.16	6,317.00	6,313.36	98.58	189.29	75.99	-2,495.44	-3,016.19	9,728.76	9,505.17	223.60	43.510	
12,700.00	6,941.18	6,317.00	6,313.36	100.14	189.29	75.99	-2,495.44	-3,016.19	9,822.82	9,599.01	223.81	43.889	
12,800.00	6,941.20	6,317.00	6,313.36	101.70	189.29	75.99	-2,495.44	-3,016.19	9,917.00	9,692.97	224.02	44.268	
12,900.00	6,941.23	6,317.00	6,313.36	103.26	189.29	75.99	-2,495.44	-3,016.19	10,011.29	9,787.05	224.23	44.647	
13,000.00	6,941.25	6,317.00	6,313.36	104.82	189.29	75.99	-2,495.44	-3,016.19	10,105.68	9,881.25	224.44	45.027	
13,100.00	6,941.27	6,317.00	6,313.36	106.38	189.29	75.99	-2,495.44	-3,016.19	10,200.19	9,975.55	224.64	45.407	
13,200.00	6,941.29	6,317.00	6,313.36	107.95	189.29	75.99	-2,495.44	-3,016.19	10,294.80	10,069.96	224.84	45.787	
13,300.00	6,941.31	6,317.00	6,313.36	109.51	189.29	75.99	-2,495.44	-3,016.19	10,389.51	10,164.47	225.04	46.167	
13,400.00	6,941.34	6,317.00	6,313.36	111.08	189.29	75.99	-2,495.44	-3,016.19	10,484.32	10,259.08	225.24	46.548	
13,500.00	6,941.36	6,317.00	6,313.36	112.64	189.29	75.99	-2,495.44	-3,016.19	10,579.22	10,353.79	225.43	46.929	
13,600.00	6,941.38	6,317.00	6,313.36	114.21	189.29	75.99	-2,495.44	-3,016.19	10,674.22	10,448.60	225.62	47.310	
13,700.00	6,941.40	6,317.00	6,313.36	115.78	189.29	75.99	-2,495.44	-3,016.19	10,769.31	10,543.49	225.81	47.692	
13,800.00	6,941.42	6,317.00	6,313.36	117.35	189.29	75.99	-2,495.44	-3,016.19	10,864.48	10,638.48	226.00	48.073	
13,900.00	6,941.45	6,317.00	6,313.36	118.92	189.29	75.99	-2,495.44	-3,016.19	10,959.74	10,733.56	226.18	48.455	
14,000.00	6,941.47	6,317.00	6,313.36	120.49	189.29	75.99	-2,495.44	-3,016.19	11,055.09	10,828.72	226.37	48.837	
14,100.00	6,941.49	6,317.00	6,313.36	122.06	189.29	75.99	-2,495.44	-3,016.19	11,150.51	10,923.97	226.55	49.219	
14,200.00	6,941.51	6,317.00	6,313.36	123.64	189.29	75.99	-2,495.44	-3,016.19	11,246.02	11,019.29	226.73	49.602	
14,300.00	6,941.53	6,317.00	6,313.36	125.21	189.29	75.99	-2,495.44	-3,016.19	11,341.60	11,114.70	226.90	49.984	
14,400.00	6,941.56	6,317.00	6,313.36	126.78	189.29	75.99	-2,495.44	-3,016.19	11,437.26	11,210.18	227.08	50.367	
14,500.00	6,941.58	6,317.00	6,313.36	128.36	189.29	75.99	-2,495.44	-3,016.19	11,533.00	11,305.74	227.25	50.750	
14,600.00	6,941.60	6,317.00	6,313.36	129.93	189.29	75.99	-2,495.44	-3,016.19	11,628.80	11,401.38	227.42	51.133	
14,700.00	6,941.62	6,317.00	6,313.36	131.51	189.29	75.99	-2,495.44	-3,016.19	11,724.68	11,497.08	227.59	51.516	
14,800.00	6,941.64	6,317.00	6,313.36	133.08	189.29	75.99	-2,495.44	-3,016.19	11,820.62	11,592.86	227.76	51.899	
14,900.00	6,941.67	6,317.00	6,313.36	134.66	189.29	75.99	-2,495.44	-3,016.19	11,916.63	11,688.70	227.93	52.282	
15,000.00	6,941.69	6,317.00	6,313.36	136.24	189.29	75.99	-2,495.44	-3,016.19	12,012.70	11,784.61	228.10	52.665	
15,100.00	6,941.71	6,317.00	6,313.36	137.82	189.29	75.99	-2,495.44	-3,016.19	12,108.84	11,880.58	228.26	53.049	
15,200.00	6,941.73	6,317.00	6,313.36	139.40	189.29	75.99	-2,495.44	-3,016.19	12,205.04	11,976.62	228.42	53.432	
15,300.00	6,941.75	6,317.00	6,313.36	140.97	189.29	75.99	-2,495.44	-3,016.19	12,301.30	12,072.72	228.58	53.816	
15,400.00	6,941.78	6,317.00	6,313.36	142.55	189.29	75.99	-2,495.44	-3,016.19	12,397.62	12,168.88	228.74	54.199	
15,500.00	6,941.80	6,317.00	6,313.36	144.13	189.29	75.99	-2,495.44	-3,016.19	12,494.00	12,265.10	228.90	54.583	
15,600.00	6,941.82	6,317.00	6,313.36	145.72	189.29	75.99	-2,495.44	-3,016.19	12,590.44	12,361.38	229.06	54.966	
15,700.00	6,941.84	6,317.00	6,313.36	147.30	189.29	75.99	-2,495.44	-3,016.19	12,686.93	12,457.71	229.21	55.350	
15,800.00	6,941.87	6,317.00	6,313.36	148.88	189.29	75.99	-2,495.44	-3,016.19	12,783.47	12,554.10	229.37	55.734	
15,900.00	6,941.89	6,317.00	6,313.36	150.46	189.29	75.99	-2,495.44	-3,016.19	12,880.07	12,650.55	229.52	56.117	
16,000.00	6,941.91	6,317.00	6,313.36	152.04	189.29	75.99	-2,495.44	-3,016.19	12,976.72	12,747.04	229.67	56.501	
16,100.00	6,941.93	6,317.00	6,313.36	153.62	189.29	75.99	-2,495.44	-3,016.19	13,073.41	12,843.59	229.82	56.885	
16,200.00	6,941.95	6,317.00	6,313.36	155.21	189.29	75.99	-2,495.44	-3,016.19	13,170.16	12,940.19	229.97	57.268	
16,300.00	6,941.98	6,317.00	6,313.36	156.79	189.29	75.99	-2,495.44	-3,016.19	13,266.96	13,036.84	230.12	57.652	
16,400.00	6,942.00	6,317.00	6,313.36	158.37	189.29	75.99	-2,495.44	-3,016.19	13,363.80	13,133.53	230.27	58.036	
16,500.00	6,942.02	6,317.00	6,313.36	159.96	189.29	75.99	-2,495.44	-3,016.19	13,460.69	13,230.28	230.41	58.419	
16,600.00	6,942.04	6,317.00	6,313.36	161.54	189.29	75.99	-2,495.44	-3,016.19	13,557.63	13,327.07	230.56	58.803	
16,700.00	6,942.06	6,317.00	6,313.36	163.13	189.29	75.99	-2,495.44	-3,016.19	13,654.60	13,423.90	230.70	59.187	
16,800.00	6,942.09	6,317.00	6,313.36	164.71	189.29	75.99	-2,495.44	-3,016.19	13,751.63	13,520.78	230.85	59.570	
16,900.00	6,942.11	6,317.00	6,313.36	166.30	189.29	75.99	-2,495.44	-3,016.19	13,848.69	13,617.70	230.99	59.953	
17,000.00	6,942.13	6,317.00	6,313.36	167.88	189.29	75.99	-2,495.44	-3,016.19	13,945.80	13,714.66	231.13	60.337	
17,100.00	6,942.15	6,317.00	6,313.36	169.47	189.29	75.99	-2,495.44	-3,016.19	14,042.94	13,811.67	231.27	60.720	
17,200.00	6,942.17	6,317.00	6,313.36	171.05	189.29	75.99	-2,495.44	-3,016.19	14,140.13	13,908.72	231.41	61.103	
17,300.00	6,942.20	6,317.00	6,313.36	172.64	189.29	75.99	-2,495.44	-3,016.19	14,237.36	14,005.80	231.55	61.487	
17,400.00	6,942.22	6,317.00	6,313.36	174.23	189.29	75.99	-2,495.44	-3,016.19	14,334.62	14,102.93	231.69	61.870	
17,500.00	6,942.24	6,317.00	6,313.36	175.81	189.29	75.99	-2,495.44	-3,016.19	14,431.92	14,200.09	231.83	62.253	
17,600.00	6,942.26	6,317.00	6,313.36	177.40	189.29	75.99	-2,495.44	-3,016.19	14,529.26	14,297.29	231.96	62.636	

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 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Rule Assigned:

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
17,700.00	6,942.28	6,317.00	6,313.36	178.99	189.29	75.99	-2,495.44	-3,016.19	14,626.63	14,394.53	232.10	63.018	
17,800.00	6,942.31	6,317.00	6,313.36	180.57	189.29	75.99	-2,495.44	-3,016.19	14,724.04	14,491.80	232.24	63.401	
17,900.00	6,942.33	6,317.00	6,313.36	182.16	189.29	75.99	-2,495.44	-3,016.19	14,821.48	14,589.11	232.37	63.784	
18,000.00	6,942.35	6,317.00	6,313.36	183.75	189.29	75.99	-2,495.44	-3,016.19	14,918.96	14,686.45	232.50	64.166	
18,100.00	6,942.37	6,317.00	6,313.36	185.34	189.29	75.99	-2,495.44	-3,016.19	15,016.47	14,783.83	232.64	64.549	
18,200.00	6,942.39	6,317.00	6,313.36	186.93	189.29	75.99	-2,495.44	-3,016.19	15,114.01	14,881.24	232.77	64.931	
18,300.00	6,942.42	6,317.00	6,313.36	188.52	189.29	75.99	-2,495.44	-3,016.19	15,211.59	14,978.68	232.90	65.313	
18,400.00	6,942.44	6,317.00	6,313.36	190.10	189.29	75.99	-2,495.44	-3,016.19	15,309.19	15,076.16	233.03	65.695	
18,500.00	6,942.46	6,317.00	6,313.36	191.69	189.29	75.99	-2,495.44	-3,016.19	15,406.83	15,173.66	233.16	66.077	
18,600.00	6,942.48	6,317.00	6,313.36	193.28	189.29	75.99	-2,495.44	-3,016.19	15,504.50	15,271.20	233.30	66.459	
18,700.00	6,942.51	6,317.00	6,313.36	194.87	189.29	75.99	-2,495.44	-3,016.19	15,602.19	15,368.77	233.42	66.840	
18,800.00	6,942.53	6,317.00	6,313.36	196.46	189.29	75.99	-2,495.44	-3,016.19	15,699.92	15,466.36	233.55	67.222	
18,900.00	6,942.55	6,317.00	6,313.36	198.05	189.29	75.99	-2,495.44	-3,016.19	15,797.67	15,563.99	233.68	67.603	
19,000.00	6,942.57	6,317.00	6,313.36	199.64	189.29	75.99	-2,495.44	-3,016.19	15,895.45	15,661.64	233.81	67.984	
19,100.00	6,942.59	6,317.00	6,313.36	201.23	189.29	75.99	-2,495.44	-3,016.19	15,993.26	15,759.32	233.94	68.365	
19,200.00	6,942.62	6,317.00	6,313.36	202.82	189.29	75.99	-2,495.44	-3,016.19	16,091.10	15,857.03	234.07	68.746	
19,300.00	6,942.64	6,317.00	6,313.36	204.41	189.29	75.99	-2,495.44	-3,016.19	16,188.96	15,954.77	234.19	69.127	
19,400.00	6,942.66	6,317.00	6,313.36	206.00	189.29	75.99	-2,495.44	-3,016.19	16,286.85	16,052.53	234.32	69.507	
19,500.00	6,942.68	6,317.00	6,313.36	207.59	189.29	75.99	-2,495.44	-3,016.19	16,384.76	16,150.32	234.44	69.888	
19,600.00	6,942.70	6,317.00	6,313.36	209.18	189.29	75.99	-2,495.44	-3,016.19	16,482.70	16,248.13	234.57	70.268	
19,700.00	6,942.73	6,317.00	6,313.36	210.78	189.29	75.99	-2,495.44	-3,016.19	16,580.67	16,345.97	234.69	70.648	
19,800.00	6,942.75	6,317.00	6,313.36	212.37	189.29	75.99	-2,495.44	-3,016.19	16,678.65	16,443.84	234.82	71.028	
19,900.00	6,942.77	6,317.00	6,313.36	213.96	189.29	75.99	-2,495.44	-3,016.19	16,776.67	16,541.72	234.94	71.408	
20,000.00	6,942.79	6,317.00	6,313.36	215.55	189.29	75.99	-2,495.44	-3,016.19	16,874.70	16,639.64	235.07	71.787	
20,100.00	6,942.81	6,317.00	6,313.36	217.14	189.29	75.99	-2,495.44	-3,016.19	16,972.76	16,737.57	235.19	72.166	
20,200.00	6,942.84	6,317.00	6,313.36	218.73	189.29	75.99	-2,495.44	-3,016.19	17,070.84	16,835.53	235.31	72.545	
20,300.00	6,942.86	6,317.00	6,313.36	220.32	189.29	75.99	-2,495.44	-3,016.19	17,168.94	16,933.51	235.44	72.924	
20,400.00	6,942.88	6,317.00	6,313.36	221.92	189.29	75.99	-2,495.44	-3,016.19	17,267.07	17,031.51	235.56	73.303	
20,500.00	6,942.90	6,317.00	6,313.36	223.51	189.29	75.99	-2,495.44	-3,016.19	17,365.21	17,129.53	235.68	73.682	
20,600.00	6,942.92	6,317.00	6,313.36	225.10	189.29	75.99	-2,495.44	-3,016.19	17,463.38	17,227.58	235.80	74.060	
20,700.00	6,942.95	6,317.00	6,313.36	226.69	189.29	75.99	-2,495.44	-3,016.19	17,561.57	17,325.64	235.92	74.438	
20,800.00	6,942.97	6,317.00	6,313.36	228.28	189.29	75.99	-2,495.44	-3,016.19	17,659.77	17,423.73	236.04	74.816	
20,900.00	6,942.99	6,317.00	6,313.36	229.88	189.29	75.99	-2,495.44	-3,016.19	17,758.00	17,521.84	236.16	75.193	
20,942.50	6,943.00	6,317.00	6,313.36	230.42	189.29	75.99	-2,495.44	-3,016.19	17,799.75	17,560.41	239.35	74.369	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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	127.85	127.85	0.00	0.27	-83.34	908.88	-7,780.97	7,833.92				
58.45	58.45	186.98	186.98	0.02	0.48	38.38	909.23	-7,780.72	7,833.43	7,832.93	0.50	N/A	
150.25	150.24	279.48	279.48	0.14	0.80	20.09	909.72	-7,780.31	7,832.15	7,831.22	0.93	8,428.337	
239.43	239.42	373.33	373.32	0.25	1.13	14.61	910.25	-7,779.88	7,830.79	7,829.42	1.37	5,714.834	
299.93	299.91	436.34	436.33	0.33	1.35	19.57	910.58	-7,779.55	7,829.78	7,828.11	1.67	4,696.031	
446.00	445.96	578.39	578.38	0.50	1.85	43.99	911.37	-7,778.80	7,827.14	7,824.80	2.34	3,352.089	
537.00	536.95	672.43	672.41	0.73	2.18	105.26	911.92	-7,778.34	7,826.24	7,823.34	2.89	2,706.030	
548.14	548.09	684.32	684.30	0.76	2.22	117.76	911.99	-7,778.27	7,826.23	7,823.26	2.97	2,637.434	CC, ES
624.00	623.95	754.56	754.54	0.99	2.47	-171.77	912.43	-7,777.91	7,826.70	7,823.26	3.44	2,273.718	
718.00	717.90	841.32	841.30	1.29	2.77	-153.92	912.98	-7,777.55	7,828.89	7,824.84	4.05	1,933.944	
811.00	810.73	926.42	926.40	1.60	3.07	-134.44	913.57	-7,777.25	7,832.94	7,828.28	4.66	1,681.522	
903.00	902.19	1,003.25	1,003.22	1.92	3.34	-122.48	914.24	-7,777.10	7,838.78	7,833.54	5.25	1,494.302	
994.00	992.38	1,096.08	1,096.05	2.24	3.67	-120.28	915.15	-7,776.96	7,845.11	7,839.21	5.89	1,331.136	
1,084.00	1,081.50	1,210.36	1,210.32	2.56	4.07	-115.95	916.39	-7,776.59	7,850.87	7,844.26	6.62	1,185.957	
1,175.00	1,171.48	1,312.96	1,312.91	2.91	4.43	-112.20	917.60	-7,775.99	7,856.03	7,848.71	7.32	1,073.630	
1,268.00	1,263.52	1,406.75	1,406.69	3.26	4.76	-110.74	918.80	-7,775.34	7,860.46	7,852.46	8.00	983.157	
1,363.00	1,357.62	1,500.80	1,500.73	3.63	5.09	-107.86	920.08	-7,774.68	7,864.28	7,855.60	8.68	905.649	
1,457.00	1,450.74	1,612.76	1,612.68	3.99	5.48	-105.26	921.01	-7,773.82	7,867.32	7,857.89	9.43	834.015	
1,552.00	1,544.82	1,700.00	1,699.92	4.36	5.79	-104.54	921.32	-7,773.09	7,870.00	7,859.90	10.10	779.002	
1,646.00	1,637.88	1,767.43	1,767.35	4.72	6.02	-104.11	921.52	-7,772.68	7,872.78	7,862.08	10.70	735.707	
1,741.00	1,731.94	1,835.21	1,835.12	5.09	6.26	-103.73	921.72	-7,772.53	7,875.83	7,864.53	11.30	696.688	
1,835.00	1,825.07	1,900.00	1,899.92	5.46	6.49	-103.71	921.98	-7,772.56	7,878.97	7,867.07	11.89	662.507	
1,929.00	1,918.39	1,977.75	1,977.67	5.82	6.76	-104.95	922.49	-7,772.79	7,882.13	7,869.61	12.52	629.510	
2,024.00	2,012.84	2,068.52	2,068.43	6.18	7.07	-103.63	923.42	-7,773.22	7,885.22	7,872.03	13.19	597.601	
2,118.00	2,106.19	2,157.54	2,157.44	6.53	7.39	-103.47	924.51	-7,773.63	7,888.35	7,874.49	13.86	569.043	
2,213.00	2,200.37	2,244.04	2,243.94	6.90	7.69	-104.84	925.63	-7,774.10	7,892.06	7,877.53	14.53	543.129	
2,307.00	2,293.61	2,375.11	2,375.00	7.27	8.15	-102.97	927.10	-7,774.75	7,895.59	7,880.24	15.35	514.344	
2,402.00	2,387.91	2,496.82	2,496.69	7.63	8.57	-99.22	928.51	-7,774.63	7,897.80	7,881.66	16.14	489.328	
2,496.00	2,481.29	2,583.93	2,583.80	7.99	8.88	-98.07	929.61	-7,774.46	7,899.37	7,882.57	16.80	470.146	
2,591.00	2,575.67	2,661.23	2,661.09	8.35	9.15	-99.60	930.55	-7,774.42	7,901.12	7,883.68	17.43	453.235	
2,686.00	2,670.05	2,742.29	2,742.14	8.71	9.43	-99.24	931.46	-7,774.58	7,903.17	7,885.10	18.08	437.205	
2,780.00	2,763.49	2,832.13	2,831.98	9.07	9.75	-101.31	932.34	-7,774.85	7,905.40	7,886.65	18.75	421.709	
2,875.00	2,857.94	2,928.45	2,928.29	9.43	10.09	-102.79	933.09	-7,775.16	7,907.89	7,888.45	19.44	406.761	
2,970.00	2,952.51	3,029.90	3,029.75	9.79	10.44	-99.28	933.70	-7,775.47	7,909.99	7,889.84	20.15	392.568	
3,064.00	3,046.19	3,161.84	3,161.68	10.13	10.90	-92.18	933.89	-7,775.55	7,910.87	7,889.91	20.96	377.492	
3,159.00	3,140.98	3,287.43	3,287.27	10.47	11.34	-90.23	933.55	-7,775.05	7,910.61	7,888.88	21.74	363.887	
3,236.81	3,218.67	3,363.07	3,362.91	10.75	11.60	-96.43	933.26	-7,774.63	7,910.38	7,888.10	22.28	355.034	
3,253.00	3,234.84	3,378.15	3,377.99	10.81	11.65	-97.98	933.20	-7,774.55	7,910.39	7,888.00	22.39	353.285	
3,348.00	3,329.74	3,467.92	3,467.76	11.14	11.96	-105.65	932.89	-7,774.12	7,910.78	7,887.73	23.04	343.340	
3,397.00	3,378.70	3,500.00	3,499.84	11.32	12.08	-106.54	932.77	-7,773.98	7,911.13	7,887.81	23.33	339.167	
3,488.00	3,469.63	3,573.51	3,573.35	11.64	12.33	-109.12	932.48	-7,773.81	7,911.98	7,888.08	23.90	331.029	
3,583.00	3,564.49	3,672.79	3,672.63	11.98	12.67	-100.79	932.15	-7,773.85	7,913.19	7,888.60	24.59	321.831	
3,677.00	3,658.13	3,770.92	3,770.75	12.33	13.02	-99.08	931.97	-7,773.70	7,914.43	7,889.15	25.28	313.077	
3,772.00	3,752.42	3,868.91	3,868.75	12.69	13.36	-94.69	931.90	-7,773.54	7,915.58	7,889.60	25.99	304.606	
3,867.00	3,846.42	3,961.52	3,961.36	13.06	13.68	-93.22	931.84	-7,773.35	7,916.33	7,889.65	26.68	296.687	
3,961.00	3,939.30	4,053.83	4,053.67	13.44	14.00	-93.57	931.84	-7,773.19	7,917.04	7,889.66	27.38	289.186	
4,056.00	4,032.83	4,155.86	4,155.70	13.82	14.36	-97.04	931.63	-7,772.98	7,918.43	7,890.32	28.12	281.618	
4,151.00	4,126.01	4,259.91	4,259.74	14.21	14.72	-96.33	931.15	-7,772.63	7,920.27	7,891.40	28.87	274.314	
4,246.00	4,219.10	4,376.18	4,376.01	14.61	15.12	-103.80	930.43	-7,772.05	7,923.13	7,893.46	29.67	267.009	
4,340.00	4,310.92	4,484.78	4,484.61	15.01	15.50	-112.86	929.54	-7,771.20	7,928.89	7,898.44	30.45	260.414	
4,435.00	4,403.54	4,590.74	4,590.55	15.41	15.87	-113.61	928.49	-7,770.19	7,936.41	7,905.20	31.22	254.233	
4,498.00	4,465.21	4,652.85	4,652.66	15.68	16.09	-111.70	927.86	-7,769.54	7,940.77	7,909.07	31.69	250.538	

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 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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

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
4,561.00	4,526.82	4,713.80	4,713.61	15.95	16.30	-106.68	927.29	-7,768.91	7,944.43	7,912.26	32.17	246.943	
4,624.00	4,588.23	4,775.14	4,774.94	16.22	16.52	-104.96	926.79	-7,768.27	7,947.66	7,915.00	32.65	243.392	
4,687.00	4,649.71	4,834.08	4,833.87	16.49	16.72	-104.56	926.40	-7,767.65	7,950.55	7,917.42	33.13	240.000	
4,749.00	4,710.40	4,890.60	4,890.39	16.75	16.92	-103.39	926.10	-7,767.08	7,953.02	7,919.43	33.58	236.804	
4,812.00	4,772.28	4,944.40	4,944.19	17.01	17.11	-102.70	925.87	-7,766.58	7,955.12	7,921.09	34.03	233.747	
4,875.00	4,834.34	5,000.00	4,999.78	17.27	17.30	-103.21	925.64	-7,766.12	7,957.05	7,922.57	34.48	230.748	
4,938.00	4,896.43	5,059.51	5,059.29	17.53	17.51	-103.47	925.40	-7,765.67	7,959.04	7,924.09	34.95	227.744	
5,001.00	4,958.46	5,120.97	5,120.75	17.79	17.72	-106.72	925.17	-7,765.19	7,961.46	7,926.04	35.42	224.777	
5,064.00	5,020.29	5,180.77	5,180.55	18.05	17.93	-110.98	924.95	-7,764.74	7,964.96	7,929.07	35.89	221.931	
5,126.00	5,080.98	5,241.24	5,241.01	18.32	18.15	-115.18	924.72	-7,764.30	7,969.54	7,933.18	36.36	219.185	
5,189.00	5,142.74	5,300.00	5,299.77	18.58	18.35	-113.69	924.50	-7,763.86	7,974.29	7,937.47	36.83	216.541	
5,252.00	5,204.62	5,359.74	5,359.51	18.85	18.56	-113.76	924.24	-7,763.44	7,978.67	7,941.37	37.29	213.945	
5,315.00	5,266.61	5,418.01	5,417.78	19.11	18.76	-114.02	923.93	-7,763.07	7,982.84	7,945.09	37.75	211.453	
5,378.00	5,328.73	5,480.69	5,480.45	19.37	18.98	-113.65	923.53	-7,762.69	7,986.73	7,948.51	38.22	208.943	
5,441.00	5,390.87	5,538.60	5,538.36	19.62	19.18	-114.19	923.08	-7,762.34	7,990.59	7,951.91	38.68	206.587	
5,503.00	5,452.07	5,593.51	5,593.27	19.87	19.38	-113.94	922.58	-7,762.05	7,994.32	7,955.21	39.12	204.367	
5,566.00	5,514.32	5,646.73	5,646.48	20.13	19.56	-114.34	922.05	-7,761.83	7,998.05	7,958.50	39.55	202.215	
5,629.00	5,576.59	5,700.00	5,699.75	20.38	19.75	-111.98	921.48	-7,761.67	8,001.62	7,961.63	39.99	200.108	
5,692.00	5,638.95	5,747.51	5,747.26	20.63	19.91	-114.32	920.94	-7,761.60	8,005.05	7,964.65	40.40	198.157	
5,747.00	5,693.45	5,800.00	5,799.75	20.85	20.09	-112.16	920.33	-7,761.62	8,008.01	7,967.21	40.79	196.305	
5,810.00	5,755.90	5,849.05	5,848.80	21.09	20.27	-112.94	919.74	-7,761.68	8,011.26	7,970.05	41.21	194.415	
5,874.00	5,819.40	5,915.18	5,914.92	21.34	20.50	-111.75	918.92	-7,761.76	8,014.36	7,972.67	41.68	192.269	
5,936.00	5,880.95	5,986.63	5,986.36	21.58	20.74	-112.23	918.06	-7,761.79	8,017.18	7,975.01	42.17	190.116	
5,999.00	5,943.45	6,043.83	6,043.56	21.82	20.94	-113.74	917.41	-7,761.78	8,020.24	7,977.63	42.61	188.222	
6,062.00	6,005.96	6,100.00	6,099.73	22.07	21.14	-111.30	916.78	-7,761.83	8,023.31	7,980.27	43.05	186.383	
6,125.00	6,068.49	6,157.87	6,157.59	22.31	21.34	-113.65	916.13	-7,761.92	8,026.35	7,982.86	43.49	184.559	
6,188.00	6,131.08	6,220.82	6,220.54	22.55	21.56	-111.90	915.41	-7,762.03	8,029.24	7,985.29	43.95	182.702	
6,255.00	6,197.73	6,293.33	6,293.04	22.81	21.81	-113.03	914.57	-7,762.12	8,031.92	7,987.47	44.45	180.693	
6,293.00	6,235.55	6,367.86	6,367.57	22.89	22.07	-113.09	913.63	-7,762.03	8,033.30	7,988.51	44.79	179.347	
6,300.00	6,242.52	6,382.78	6,382.48	22.89	22.12	-113.10	913.42	-7,761.97	8,033.53	7,988.68	44.85	179.130	
6,393.00	6,335.09	6,537.19	6,536.87	22.94	22.66	-113.21	911.02	-7,760.68	8,036.22	7,990.79	45.43	176.884	
6,400.00	6,342.06	6,550.11	6,549.79	22.94	22.71	-119.11	910.82	-7,760.51	8,036.43	7,990.95	45.48	176.699	
6,450.00	6,391.66	6,628.21	6,627.87	22.97	22.98	-146.25	909.68	-7,759.33	8,040.08	7,994.30	45.78	175.625	
6,500.00	6,440.77	6,689.31	6,688.95	23.02	23.20	-158.07	909.05	-7,758.27	8,047.57	8,001.55	46.02	174.865	
6,550.00	6,489.07	6,756.43	6,756.07	23.07	23.43	-164.16	908.61	-7,756.97	8,058.87	8,012.59	46.29	174.108	
6,600.00	6,536.26	6,820.20	6,819.82	23.13	23.65	-167.81	908.35	-7,755.58	8,073.89	8,027.35	46.54	173.476	
6,650.00	6,582.05	6,876.03	6,875.63	23.21	23.85	-170.22	908.23	-7,754.28	8,092.57	8,045.80	46.77	173.026	
6,700.00	6,626.13	6,933.07	6,932.66	23.29	24.05	-171.95	908.21	-7,752.88	8,114.81	8,067.81	47.01	172.634	
6,750.00	6,668.24	6,990.20	6,989.77	23.39	24.25	-173.27	908.33	-7,751.37	8,140.46	8,093.22	47.24	172.312	
6,800.00	6,708.12	7,042.56	7,042.11	23.51	24.43	-174.31	908.56	-7,749.90	8,169.37	8,121.90	47.46	172.119	
6,850.00	6,745.50	7,091.52	7,091.04	23.64	24.60	-175.19	908.79	-7,748.46	8,201.36	8,153.69	47.67	172.033	
6,900.00	6,780.15	7,142.15	7,141.65	23.79	24.78	-175.96	909.11	-7,746.90	8,236.25	8,188.36	47.89	171.988	SF
6,950.00	6,811.86	7,189.96	7,189.43	23.95	24.95	-176.68	909.54	-7,745.33	8,273.80	8,225.71	48.09	172.037	
7,000.00	6,840.42	7,221.40	7,220.85	24.14	25.06	-177.38	909.90	-7,744.26	8,313.81	8,265.57	48.24	172.343	
7,050.00	6,865.66	7,246.19	7,245.62	24.35	25.15	-178.12	910.21	-7,743.42	8,356.08	8,307.72	48.36	172.784	
7,100.00	6,887.42	7,267.78	7,267.20	24.57	25.22	-178.98	910.49	-7,742.69	8,400.33	8,351.86	48.47	173.315	
7,150.00	6,905.55	7,286.04	7,285.44	24.82	25.28	179.92	910.75	-7,742.08	8,446.28	8,397.72	48.56	173.936	
7,200.00	6,919.95	7,301.82	7,301.22	25.10	25.34	178.34	910.98	-7,741.55	8,493.65	8,445.01	48.64	174.632	
7,250.00	6,930.52	7,326.17	7,325.55	25.39	25.43	175.73	911.35	-7,740.72	8,542.11	8,493.38	48.74	175.263	
7,300.00	6,937.20	7,343.01	7,342.37	25.70	25.48	170.16	911.62	-7,740.12	8,591.38	8,542.57	48.81	176.024	
7,350.00	6,939.94	7,352.09	7,351.45	26.04	25.52	150.24	911.77	-7,739.79	8,641.14	8,592.30	48.84	176.913	
7,359.60	6,940.02	7,352.93	7,352.29	26.10	25.52	139.75	911.78	-7,739.76	8,650.74	8,601.89	48.85	177.096	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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)	Rule Assigned: Minimum Separation (usft)	Separation Factor	Warning
7,400.00	6,940.03	7,355.87	7,355.23	26.39	25.53	140.02	911.83	-7,739.66	8,691.08	8,642.23	48.86	177.888	
7,500.00	6,940.04	7,363.26	7,362.61	27.15	25.56	140.68	911.95	-7,739.38	8,790.97	8,742.09	48.88	179.842	
7,600.00	6,940.06	7,370.82	7,370.17	27.99	25.58	141.34	912.08	-7,739.10	8,890.86	8,841.95	48.91	181.787	
7,659.60	6,940.07	7,375.42	7,374.76	28.52	25.60	141.73	912.16	-7,738.93	8,950.39	8,901.47	48.93	182.941	
7,700.00	6,940.08	7,378.58	7,377.92	28.89	25.61	157.76	912.22	-7,738.81	8,990.75	8,941.81	48.94	183.717	
7,796.63	6,940.10	7,386.38	7,385.71	29.83	25.64	-154.48	912.36	-7,738.51	9,087.30	9,038.32	48.98	185.529	
7,800.00	6,940.10	7,386.66	7,385.99	29.86	25.64	-154.49	912.36	-7,738.50	9,090.67	9,041.69	48.98	185.591	
7,900.00	6,940.12	7,395.00	7,394.32	30.90	25.67	-155.00	912.51	-7,738.18	9,190.58	9,141.55	49.04	187.428	
8,000.00	6,940.14	7,403.56	7,402.88	31.98	25.70	-155.49	912.67	-7,737.84	9,290.49	9,241.40	49.09	189.255	
8,100.00	6,940.17	7,412.35	7,411.66	33.11	25.73	-155.98	912.83	-7,737.49	9,390.40	9,341.25	49.15	191.071	
8,200.00	6,940.19	7,381.74	7,381.07	34.28	25.62	-154.18	912.30	-7,738.65	9,490.29	9,441.23	49.07	193.417	
8,300.00	6,940.21	7,421.50	7,420.80	35.48	25.76	-156.47	913.01	-7,737.13	9,590.21	9,540.98	49.23	194.794	
8,400.00	6,940.23	7,427.98	7,427.27	36.71	25.78	-156.80	913.14	-7,736.87	9,690.11	9,640.83	49.28	196.620	
8,500.00	6,940.25	7,434.55	7,433.83	37.97	25.80	-157.13	913.27	-7,736.60	9,790.02	9,740.68	49.34	198.436	
8,600.00	6,940.28	7,441.20	7,440.47	39.26	25.83	-157.45	913.41	-7,736.33	9,889.92	9,840.53	49.39	200.243	
8,700.00	6,940.30	7,447.93	7,447.20	40.56	25.85	-157.77	913.55	-7,736.05	9,989.82	9,940.38	49.44	202.042	
8,800.00	6,940.32	7,454.76	7,454.02	41.89	25.88	-158.08	913.70	-7,735.77	10,089.72	10,040.22	49.50	203.831	
8,900.00	6,940.34	7,461.68	7,460.93	43.24	25.90	-158.39	913.85	-7,735.48	10,189.63	10,140.07	49.56	205.611	
9,000.00	6,940.36	7,468.69	7,467.94	44.60	25.92	-158.69	914.01	-7,735.19	10,289.53	10,239.91	49.62	207.382	
9,100.00	6,940.39	7,475.80	7,475.03	45.98	25.95	-158.99	914.17	-7,734.89	10,389.42	10,339.75	49.68	209.143	
9,200.00	6,940.41	7,483.00	7,482.23	47.38	25.97	-159.28	914.34	-7,734.59	10,489.32	10,439.58	49.74	210.894	
9,300.00	6,940.43	7,490.30	7,489.52	48.78	26.00	-159.57	914.52	-7,734.27	10,589.22	10,539.42	49.80	212.635	
9,400.00	6,940.45	7,497.70	7,496.91	50.20	26.03	-159.85	914.70	-7,733.95	10,689.12	10,639.25	49.86	214.367	
9,500.00	6,940.47	7,514.50	7,513.69	51.63	26.08	-160.46	915.11	-7,733.22	10,789.01	10,739.05	49.96	215.946	
9,600.00	6,940.50	7,536.73	7,535.90	53.07	26.16	-161.22	915.64	-7,732.22	10,888.90	10,838.82	50.08	217.429	
9,700.00	6,940.52	7,560.65	7,559.78	54.52	26.25	-161.96	916.20	-7,731.10	10,988.78	10,938.57	50.21	218.875	
9,800.00	6,940.54	7,586.46	7,585.55	55.97	26.34	-162.71	916.79	-7,729.84	11,088.65	11,038.31	50.34	220.279	
9,900.00	6,940.56	7,614.38	7,613.43	57.44	26.43	-163.44	917.40	-7,728.43	11,188.51	11,138.03	50.48	221.637	
10,000.00	6,940.59	7,566.17	7,565.29	58.91	26.27	-162.13	916.30	-7,730.75	11,288.32	11,237.97	50.35	224.188	
10,100.00	6,940.61	7,570.87	7,569.98	60.38	26.28	-162.27	916.41	-7,730.53	11,388.20	11,337.79	50.41	225.899	
10,200.00	6,940.63	7,651.68	7,650.67	61.87	26.56	-164.33	918.15	-7,726.47	11,488.07	11,437.32	50.75	226.376	
10,300.00	6,940.65	7,667.53	7,666.49	63.36	26.62	-164.68	918.44	-7,725.62	11,587.91	11,537.06	50.85	227.881	
10,400.00	6,940.67	7,683.91	7,682.85	64.85	26.68	-165.03	918.73	-7,724.72	11,687.75	11,636.79	50.96	229.365	
10,500.00	6,940.70	7,656.54	7,655.52	66.35	26.58	-164.44	918.22	-7,726.19	11,787.59	11,736.68	50.91	231.555	
10,600.00	6,940.72	7,661.80	7,660.78	67.86	26.60	-164.56	918.32	-7,725.92	11,887.44	11,836.47	50.97	233.207	
10,700.00	6,940.74	7,667.07	7,666.03	69.36	26.62	-164.67	918.43	-7,725.64	11,987.30	11,936.25	51.04	234.850	
10,800.00	6,940.76	7,670.00	7,668.96	70.88	26.63	-164.73	918.49	-7,725.48	12,087.15	12,036.04	51.10	236.524	
10,900.00	6,940.78	7,670.00	7,668.96	72.39	26.63	-164.73	918.49	-7,725.48	12,187.00	12,135.85	51.15	238.239	
11,000.00	6,940.81	7,670.00	7,668.96	73.91	26.63	-164.73	918.49	-7,725.48	12,286.86	12,235.65	51.21	239.948	
11,100.00	6,940.83	7,670.00	7,668.96	75.44	26.63	-164.73	918.49	-7,725.48	12,386.72	12,335.46	51.26	241.650	
11,200.00	6,940.85	7,670.00	7,668.96	76.96	26.63	-164.73	918.49	-7,725.48	12,486.58	12,435.27	51.31	243.345	
11,300.00	6,940.87	7,670.00	7,668.96	78.49	26.63	-164.73	918.49	-7,725.48	12,586.44	12,535.08	51.37	245.032	
11,400.00	6,940.89	7,670.00	7,668.96	80.03	26.63	-164.73	918.49	-7,725.48	12,686.31	12,634.89	51.42	246.713	
11,500.00	6,940.92	7,670.00	7,668.96	81.56	26.63	-164.73	918.49	-7,725.48	12,786.18	12,734.70	51.48	248.386	
11,600.00	6,940.94	7,670.00	7,668.96	83.10	26.63	-164.73	918.49	-7,725.48	12,886.05	12,834.52	51.53	250.052	
11,700.00	6,940.96	7,670.00	7,668.96	84.64	26.63	-164.73	918.49	-7,725.48	12,985.92	12,934.33	51.59	251.711	
11,800.00	6,940.98	7,670.00	7,668.96	86.18	26.63	-164.73	918.49	-7,725.48	13,085.80	13,034.15	51.65	253.362	
11,900.00	6,941.00	7,670.00	7,668.96	87.72	26.63	-164.73	918.49	-7,725.48	13,185.67	13,133.96	51.71	255.006	
12,000.00	6,941.03	7,670.00	7,668.96	89.27	26.63	-164.73	918.49	-7,725.48	13,285.55	13,233.78	51.77	256.643	
12,100.00	6,941.05	7,670.00	7,668.96	90.82	26.63	-164.73	918.49	-7,725.48	13,385.43	13,333.60	51.83	258.273	
12,200.00	6,941.07	7,670.00	7,668.96	92.37	26.63	-164.73	918.49	-7,725.48	13,485.31	13,433.42	51.89	259.895	
12,300.00	6,941.09	7,670.00	7,668.96	93.92	26.63	-164.73	918.49	-7,725.48	13,585.19	13,533.24	51.95	261.509	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
12,400.00	6,941.11	7,670.00	7,668.96	95.47	26.63	-164.73	918.49	-7,725.48	13,685.08	13,633.07	52.01	263.117	
12,500.00	6,941.14	7,670.00	7,668.96	97.03	26.63	-164.73	918.49	-7,725.48	13,784.97	13,732.89	52.07	264.716	
12,600.00	6,941.16	7,670.00	7,668.96	98.58	26.63	-164.73	918.49	-7,725.48	13,884.85	13,832.72	52.14	266.309	
12,700.00	6,941.18	7,670.00	7,668.96	100.14	26.63	-164.73	918.49	-7,725.48	13,984.74	13,932.54	52.20	267.894	
12,800.00	6,941.20	7,670.00	7,668.96	101.70	26.63	-164.73	918.49	-7,725.48	14,084.63	14,032.37	52.27	269.471	
12,900.00	6,941.23	7,670.00	7,668.96	103.26	26.63	-164.73	918.49	-7,725.48	14,184.53	14,132.19	52.33	271.041	
13,000.00	6,941.25	7,670.00	7,668.96	104.82	26.63	-164.73	918.49	-7,725.48	14,284.42	14,232.02	52.40	272.603	
13,100.00	6,941.27	7,670.00	7,668.96	106.38	26.63	-164.73	918.49	-7,725.48	14,384.32	14,331.85	52.47	274.158	
13,200.00	6,941.29	7,670.00	7,668.96	107.95	26.63	-164.73	918.49	-7,725.48	14,484.22	14,431.68	52.54	275.705	
13,300.00	6,941.31	7,670.00	7,668.96	109.51	26.63	-164.73	918.49	-7,725.48	14,584.11	14,531.51	52.60	277.245	
13,400.00	6,941.34	7,670.00	7,668.96	111.08	26.63	-164.73	918.49	-7,725.48	14,684.01	14,631.34	52.67	278.777	
13,500.00	6,941.36	7,670.00	7,668.96	112.64	26.63	-164.73	918.49	-7,725.48	14,783.92	14,731.17	52.74	280.301	
13,600.00	6,941.38	7,670.00	7,668.96	114.21	26.63	-164.73	918.49	-7,725.48	14,883.82	14,831.00	52.81	281.818	
13,700.00	6,941.40	7,670.00	7,668.96	115.78	26.63	-164.73	918.49	-7,725.48	14,983.72	14,930.84	52.88	283.328	
13,800.00	6,941.42	7,670.00	7,668.96	117.35	26.63	-164.73	918.49	-7,725.48	15,083.63	15,030.67	52.96	284.829	
13,900.00	6,941.45	7,670.00	7,668.96	118.92	26.63	-164.73	918.49	-7,725.48	15,183.53	15,130.50	53.03	286.324	
14,000.00	6,941.47	7,670.00	7,668.96	120.49	26.63	-164.73	918.49	-7,725.48	15,283.44	15,230.34	53.10	287.810	
14,100.00	6,941.49	7,670.00	7,668.96	122.06	26.63	-164.73	918.49	-7,725.48	15,383.35	15,330.17	53.18	289.289	
14,200.00	6,941.51	7,670.00	7,668.96	123.64	26.63	-164.73	918.49	-7,725.48	15,483.26	15,430.01	53.25	290.761	
14,300.00	6,941.53	7,670.00	7,668.96	125.21	26.63	-164.73	918.49	-7,725.48	15,583.17	15,529.85	53.33	292.225	
14,400.00	6,941.56	7,670.00	7,668.96	126.78	26.63	-164.73	918.49	-7,725.48	15,683.09	15,629.68	53.40	293.681	
14,500.00	6,941.58	7,670.00	7,668.96	128.36	26.63	-164.73	918.49	-7,725.48	15,783.00	15,729.52	53.48	295.130	
14,600.00	6,941.60	7,670.00	7,668.96	129.93	26.63	-164.73	918.49	-7,725.48	15,882.91	15,829.36	53.56	296.571	
14,700.00	6,941.62	7,670.00	7,668.96	131.51	26.63	-164.73	918.49	-7,725.48	15,982.83	15,929.20	53.63	298.005	
14,800.00	6,941.64	7,670.00	7,668.96	133.08	26.63	-164.73	918.49	-7,725.48	16,082.75	16,029.03	53.71	299.431	
14,900.00	6,941.67	7,670.00	7,668.96	134.66	26.63	-164.73	918.49	-7,725.48	16,182.66	16,128.87	53.79	300.850	
15,000.00	6,941.69	7,670.00	7,668.96	136.24	26.63	-164.73	918.49	-7,725.48	16,282.58	16,228.71	53.87	302.261	
15,100.00	6,941.71	7,670.00	7,668.96	137.82	26.63	-164.73	918.49	-7,725.48	16,382.50	16,328.55	53.95	303.665	
15,200.00	6,941.73	7,670.00	7,668.96	139.40	26.63	-164.73	918.49	-7,725.48	16,482.42	16,428.39	54.03	305.061	
15,300.00	6,941.75	7,670.00	7,668.96	140.97	26.63	-164.73	918.49	-7,725.48	16,582.34	16,528.23	54.11	306.450	
15,400.00	6,941.78	7,670.00	7,668.96	142.55	26.63	-164.73	918.49	-7,725.48	16,682.27	16,628.07	54.19	307.831	
15,500.00	6,941.80	7,670.00	7,668.96	144.13	26.63	-164.73	918.49	-7,725.48	16,782.19	16,727.92	54.28	309.205	
15,600.00	6,941.82	7,670.00	7,668.96	145.72	26.63	-164.73	918.49	-7,725.48	16,882.12	16,827.76	54.36	310.571	
15,700.00	6,941.84	7,670.00	7,668.96	147.30	26.63	-164.73	918.49	-7,725.48	16,982.04	16,927.60	54.44	311.930	
15,800.00	6,941.87	7,670.00	7,668.96	148.88	26.63	-164.73	918.49	-7,725.48	17,081.97	17,027.44	54.53	313.282	
15,900.00	6,941.89	7,670.00	7,668.96	150.46	26.63	-164.73	918.49	-7,725.48	17,181.89	17,127.28	54.61	314.626	
16,000.00	6,941.91	7,670.00	7,668.96	152.04	26.63	-164.73	918.49	-7,725.48	17,281.82	17,227.13	54.70	315.963	
16,100.00	6,941.93	7,670.00	7,668.96	153.62	26.63	-164.73	918.49	-7,725.48	17,381.75	17,326.97	54.78	317.292	
16,200.00	6,941.95	7,670.00	7,668.96	155.21	26.63	-164.73	918.49	-7,725.48	17,481.68	17,426.81	54.87	318.614	
16,300.00	6,941.98	7,670.00	7,668.96	156.79	26.63	-164.73	918.49	-7,725.48	17,581.61	17,526.66	54.95	319.929	
16,400.00	6,942.00	7,670.00	7,668.96	158.37	26.63	-164.73	918.49	-7,725.48	17,681.54	17,626.50	55.04	321.237	
16,500.00	6,942.02	7,670.00	7,668.96	159.96	26.63	-164.73	918.49	-7,725.48	17,781.47	17,726.34	55.13	322.537	
16,600.00	6,942.04	7,670.00	7,668.96	161.54	26.63	-164.73	918.49	-7,725.48	17,881.41	17,826.19	55.22	323.830	
16,700.00	6,942.06	7,670.00	7,668.96	163.13	26.63	-164.73	918.49	-7,725.48	17,981.34	17,926.03	55.31	325.116	
16,800.00	6,942.09	7,670.00	7,668.96	164.71	26.63	-164.73	918.49	-7,725.48	18,081.27	18,025.88	55.40	326.395	
16,900.00	6,942.11	7,670.00	7,668.96	166.30	26.63	-164.73	918.49	-7,725.48	18,181.21	18,125.72	55.49	327.667	
17,000.00	6,942.13	7,670.00	7,668.96	167.88	26.63	-164.73	918.49	-7,725.48	18,281.15	18,225.57	55.58	328.931	
17,100.00	6,942.15	7,670.00	7,668.96	169.47	26.63	-164.73	918.49	-7,725.48	18,381.08	18,325.41	55.67	330.189	
17,200.00	6,942.17	7,670.00	7,668.96	171.05	26.63	-164.73	918.49	-7,725.48	18,481.02	18,425.26	55.76	331.439	
17,300.00	6,942.20	7,670.00	7,668.96	172.64	26.63	-164.73	918.49	-7,725.48	18,580.96	18,525.10	55.85	332.682	
17,400.00	6,942.22	7,670.00	7,668.96	174.23	26.63	-164.73	918.49	-7,725.48	18,680.89	18,624.95	55.94	333.918	
17,500.00	6,942.24	7,670.00	7,668.96	175.81	26.63	-164.73	918.49	-7,725.48	18,780.83	18,724.80	56.04	335.147	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
17,600.00	6,942.26	7,670.00	7,668.96	177.40	26.63	-164.73	918.49	-7,725.48	18,880.77	18,824.64	56.13	336.370	
17,700.00	6,942.28	7,670.00	7,668.96	178.99	26.63	-164.73	918.49	-7,725.48	18,980.71	18,924.49	56.22	337.585	
17,800.00	6,942.31	7,670.00	7,668.96	180.57	26.63	-164.73	918.49	-7,725.48	19,080.65	19,024.34	56.32	338.793	
17,900.00	6,942.33	7,670.00	7,668.96	182.16	26.63	-164.73	918.49	-7,725.48	19,180.60	19,124.18	56.41	339.995	
18,000.00	6,942.35	7,670.00	7,668.96	183.75	26.63	-164.73	918.49	-7,725.48	19,280.54	19,224.03	56.51	341.190	
18,100.00	6,942.37	7,670.00	7,668.96	185.34	26.63	-164.73	918.49	-7,725.48	19,380.48	19,323.88	56.61	342.377	
18,200.00	6,942.39	7,670.00	7,668.96	186.93	26.63	-164.73	918.49	-7,725.48	19,480.42	19,423.72	56.70	343.558	
18,300.00	6,942.42	7,670.00	7,668.96	188.52	26.63	-164.73	918.49	-7,725.48	19,580.37	19,523.57	56.80	344.733	
18,400.00	6,942.44	7,670.00	7,668.96	190.10	26.63	-164.73	918.49	-7,725.48	19,680.31	19,623.42	56.90	345.900	
18,500.00	6,942.46	7,670.00	7,668.96	191.69	26.63	-164.73	918.49	-7,725.48	19,780.26	19,723.26	56.99	347.061	
18,600.00	6,942.48	7,670.00	7,668.96	193.28	26.63	-164.73	918.49	-7,725.48	19,880.20	19,823.11	57.09	348.215	
18,700.00	6,942.51	7,670.00	7,668.96	194.87	26.63	-164.73	918.49	-7,725.48	19,980.15	19,922.96	57.19	349.363	
18,800.00	6,942.53	7,670.00	7,668.96	196.46	26.63	-164.73	918.49	-7,725.48	20,080.10	20,022.81	57.29	350.504	
18,900.00	6,942.55	7,670.00	7,668.96	198.05	26.63	-164.73	918.49	-7,725.48	20,180.04	20,122.66	57.39	351.638	
19,000.00	6,942.57	7,670.00	7,668.96	199.64	26.63	-164.73	918.49	-7,725.48	20,279.99	20,222.50	57.49	352.766	
19,100.00	6,942.59	7,670.00	7,668.96	201.23	26.63	-164.73	918.49	-7,725.48	20,379.94	20,322.35	57.59	353.887	
19,200.00	6,942.62	7,670.00	7,668.96	202.82	26.63	-164.73	918.49	-7,725.48	20,479.89	20,422.20	57.69	355.002	
19,300.00	6,942.64	7,670.00	7,668.96	204.41	26.63	-164.73	918.49	-7,725.48	20,579.84	20,522.05	57.79	356.110	
19,400.00	6,942.66	7,670.00	7,668.96	206.00	26.63	-164.73	918.49	-7,725.48	20,679.79	20,621.90	57.89	357.212	
19,500.00	6,942.68	7,670.00	7,668.96	207.59	26.63	-164.73	918.49	-7,725.48	20,779.74	20,721.74	57.99	358.308	
19,600.00	6,942.70	7,670.00	7,668.96	209.18	26.63	-164.73	918.49	-7,725.48	20,879.69	20,821.59	58.10	359.397	
19,700.00	6,942.73	7,670.00	7,668.96	210.78	26.63	-164.73	918.49	-7,725.48	20,979.64	20,921.44	58.20	360.480	
19,800.00	6,942.75	7,670.00	7,668.96	212.37	26.63	-164.73	918.49	-7,725.48	21,079.59	21,021.29	58.30	361.557	
19,900.00	6,942.77	7,670.00	7,668.96	213.96	26.63	-164.73	918.49	-7,725.48	21,179.54	21,121.14	58.41	362.627	
20,000.00	6,942.79	7,670.00	7,668.96	215.55	26.63	-164.73	918.49	-7,725.48	21,279.50	21,220.99	58.51	363.691	
20,100.00	6,942.81	7,670.00	7,668.96	217.14	26.63	-164.73	918.49	-7,725.48	21,379.45	21,320.83	58.61	364.749	
20,200.00	6,942.84	7,670.00	7,668.96	218.73	26.63	-164.73	918.49	-7,725.48	21,479.40	21,420.68	58.72	365.801	
20,300.00	6,942.86	7,670.00	7,668.96	220.32	26.63	-164.73	918.49	-7,725.48	21,579.36	21,520.53	58.82	366.847	
20,400.00	6,942.88	7,670.00	7,668.96	221.92	26.63	-164.73	918.49	-7,725.48	21,679.31	21,620.38	58.93	367.887	
20,500.00	6,942.90	7,670.00	7,668.96	223.51	26.63	-164.73	918.49	-7,725.48	21,779.27	21,720.23	59.04	368.920	
20,600.00	6,942.92	7,670.00	7,668.96	225.10	26.63	-164.73	918.49	-7,725.48	21,879.22	21,820.08	59.14	369.948	
20,700.00	6,942.95	7,670.00	7,668.96	226.69	26.63	-164.73	918.49	-7,725.48	21,979.18	21,919.93	59.25	370.969	
20,800.00	6,942.97	7,670.00	7,668.96	228.28	26.63	-164.73	918.49	-7,725.48	22,079.13	22,019.78	59.35	371.985	
20,900.00	6,942.99	7,670.00	7,668.96	229.88	26.63	-164.73	918.49	-7,725.48	22,179.09	22,119.63	59.46	372.995	
20,942.50	6,943.00	7,670.00	7,668.96	230.42	26.63	-164.73	918.49	-7,725.48	22,221.57	22,157.10	64.46	344.718	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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	79.40	79.40	0.00	0.14	-84.27	899.23	-8,963.58	9,008.59				
58.45	58.45	127.75	127.75	0.02	0.23	37.44	899.21	-8,963.70	9,008.44	9,008.19	0.25	N/A	
150.25	150.24	203.68	203.68	0.14	0.37	19.14	899.17	-8,963.99	9,007.84	9,007.35	0.49	N/A	
239.43	239.42	300.00	300.00	0.25	0.54	13.66	899.09	-8,964.57	9,007.36	9,006.59	0.78	N/A	
299.93	299.91	327.40	327.40	0.33	0.64	18.61	899.07	-8,964.77	9,007.02	9,006.06	0.95	9,460.715	
402.21	402.18	372.00	372.00	0.45	0.80	37.61	899.02	-8,965.14	9,006.63	9,005.40	1.23	7,316.768	CC, ES
446.00	445.96	372.00	372.00	0.50	0.80	43.01	899.02	-8,965.14	9,006.73	9,005.45	1.28	7,026.238	
537.00	536.95	372.00	372.00	0.73	0.80	104.27	899.02	-8,965.14	9,008.37	9,006.85	1.51	5,950.806	
624.00	623.95	372.00	372.00	0.99	0.80	-172.73	899.02	-8,965.14	9,012.15	9,010.37	1.78	5,056.298	
718.00	717.90	372.00	372.00	1.29	0.80	-154.84	899.02	-8,965.14	9,018.79	9,016.69	2.09	4,313.717	
811.00	810.73	372.00	372.00	1.60	0.80	-135.21	899.02	-8,965.14	9,028.16	9,025.75	2.41	3,747.470	
903.00	902.19	552.00	550.99	1.92	1.49	-123.20	887.73	-8,976.75	9,039.89	9,036.50	3.39	2,666.443	
994.00	992.38	584.00	582.83	2.24	1.60	-120.97	885.21	-8,978.74	9,051.23	9,047.40	3.83	2,363.252	
1,084.00	1,081.50	601.59	600.30	2.56	1.67	-116.50	883.61	-8,979.96	9,062.71	9,058.49	4.22	2,147.895	
1,175.00	1,171.48	616.00	614.60	2.91	1.72	-112.66	882.17	-8,981.05	9,074.57	9,069.96	4.61	1,969.771	
1,268.00	1,263.52	648.00	646.29	3.26	1.84	-111.21	878.59	-8,983.70	9,086.55	9,081.48	5.07	1,791.281	
1,363.00	1,357.62	709.00	706.49	3.63	2.08	-108.35	870.59	-8,989.36	9,098.73	9,093.07	5.67	1,606.028	
1,457.00	1,450.74	748.36	745.23	3.99	2.24	-105.71	864.84	-8,993.27	9,110.65	9,104.47	6.18	1,475.240	
1,552.00	1,544.82	827.52	823.06	4.36	2.58	-105.02	852.78	-9,001.29	9,122.69	9,115.83	6.86	1,330.037	
1,646.00	1,637.88	859.46	854.45	4.72	2.72	-104.59	847.96	-9,004.61	9,134.90	9,127.55	7.35	1,243.351	
1,741.00	1,731.94	898.00	892.34	5.09	2.88	-104.22	842.34	-9,008.93	9,147.81	9,139.95	7.87	1,162.871	
1,835.00	1,825.07	1,044.30	1,036.14	5.46	3.52	-104.45	820.65	-9,024.87	9,160.21	9,151.37	8.84	1,036.165	
1,929.00	1,918.39	1,115.16	1,105.77	5.82	3.83	-105.86	810.02	-9,032.63	9,172.51	9,163.02	9.49	966.265	
2,024.00	2,012.84	1,267.90	1,255.56	6.18	4.52	-104.76	785.01	-9,048.94	9,184.40	9,173.89	10.51	873.965	
2,118.00	2,106.19	1,399.00	1,384.32	6.53	5.10	-104.65	764.14	-9,062.03	9,195.66	9,184.23	11.43	804.568	
2,213.00	2,200.37	1,462.00	1,446.26	6.90	5.38	-106.04	754.55	-9,068.39	9,207.74	9,195.68	12.06	763.537	
2,307.00	2,293.61	1,502.24	1,485.80	7.27	5.56	-104.20	748.44	-9,072.68	9,219.99	9,207.41	12.58	732.649	
2,402.00	2,387.91	1,630.18	1,611.49	7.63	6.13	-100.55	728.67	-9,086.08	9,231.68	9,218.18	13.50	684.031	
2,496.00	2,481.29	1,688.02	1,668.37	7.99	6.39	-99.52	720.02	-9,092.04	9,242.64	9,228.54	14.09	655.840	
2,591.00	2,575.67	1,733.97	1,713.57	8.35	6.59	-100.99	713.47	-9,097.00	9,254.22	9,239.58	14.64	632.122	
2,686.00	2,670.05	1,812.76	1,791.07	8.71	6.94	-100.77	702.32	-9,105.89	9,266.38	9,251.05	15.33	604.508	
2,780.00	2,763.49	1,886.84	1,863.92	9.07	7.27	-102.87	691.73	-9,114.13	9,278.44	9,262.45	15.99	580.168	
2,875.00	2,857.94	2,105.31	2,078.69	9.43	8.24	-104.69	659.39	-9,137.74	9,290.77	9,273.48	17.29	537.203	
2,970.00	2,952.51	2,281.32	2,251.92	9.79	9.02	-101.46	633.41	-9,154.84	9,301.71	9,283.31	18.40	505.490	
3,064.00	3,046.19	2,341.00	2,310.75	10.13	9.28	-94.41	624.99	-9,160.37	9,311.08	9,292.08	18.99	490.312	
3,159.00	3,140.98	2,442.00	2,410.30	10.47	9.72	-92.62	610.78	-9,169.78	9,319.92	9,300.16	19.75	471.778	
3,253.00	3,234.84	2,496.66	2,464.17	10.81	9.95	-100.47	603.11	-9,174.95	9,328.96	9,308.65	20.31	459.278	
3,348.00	3,329.74	2,554.65	2,521.24	11.14	10.21	-108.22	594.62	-9,180.74	9,339.09	9,318.20	20.89	447.140	
3,397.00	3,378.70	2,600.89	2,566.73	11.32	10.42	-109.16	587.76	-9,185.41	9,344.50	9,323.24	21.25	439.659	
3,488.00	3,469.63	2,679.67	2,644.23	11.64	10.77	-111.84	576.13	-9,193.45	9,354.64	9,332.74	21.90	427.063	
3,583.00	3,564.49	2,776.34	2,739.23	11.98	11.20	-103.38	561.20	-9,203.29	9,365.40	9,342.75	22.66	413.368	
3,677.00	3,658.13	2,844.00	2,805.67	12.33	11.50	-101.53	550.50	-9,210.29	9,376.58	9,353.29	23.29	402.620	
3,772.00	3,752.42	2,907.00	2,867.50	12.69	11.79	-96.90	540.48	-9,217.05	9,388.28	9,364.37	23.92	392.563	
3,867.00	3,846.42	2,970.00	2,929.37	13.06	12.07	-95.40	530.69	-9,223.85	9,399.90	9,375.36	24.55	382.926	
3,961.00	3,939.30	3,034.00	2,992.24	13.44	12.36	-95.69	521.12	-9,231.00	9,411.73	9,386.55	25.18	373.761	
4,056.00	4,032.83	3,242.11	3,197.15	13.82	13.28	-99.22	492.26	-9,253.06	9,424.00	9,397.55	26.45	356.277	
4,151.00	4,126.01	3,285.00	3,239.41	14.21	13.46	-98.40	486.40	-9,257.44	9,436.67	9,409.67	27.00	349.444	
4,246.00	4,219.10	3,325.20	3,278.98	14.61	13.64	-105.81	480.81	-9,261.75	9,451.02	9,423.47	27.55	343.065	
4,340.00	4,310.92	3,873.36	3,820.98	15.01	15.91	-115.68	416.14	-9,307.68	9,465.43	9,435.24	30.19	313.522	
4,435.00	4,403.54	3,972.48	3,919.64	15.41	16.26	-116.50	408.72	-9,313.76	9,480.82	9,449.88	30.94	306.444	
4,498.00	4,465.21	4,038.65	3,985.50	15.68	16.50	-114.67	403.83	-9,317.77	9,490.37	9,458.94	31.43	301.939	
4,561.00	4,526.82	4,104.80	4,051.36	15.95	16.74	-109.51	398.99	-9,321.74	9,499.22	9,467.29	31.93	297.529	

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 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
4,624.00	4,588.23	4,170.69	4,116.96	16.22	16.98	-107.79	394.22	-9,325.65	9,507.67	9,475.24	32.43	293.204	
4,687.00	4,649.71	4,236.75	4,182.74	16.49	17.22	-107.46	389.49	-9,329.53	9,515.73	9,482.81	32.93	288.998	
4,749.00	4,710.40	4,302.10	4,247.81	16.75	17.46	-106.37	384.86	-9,333.33	9,523.21	9,489.79	33.42	284.980	
4,812.00	4,772.28	4,368.87	4,314.30	17.01	17.70	-105.78	380.18	-9,337.17	9,530.26	9,496.35	33.91	281.019	
4,875.00	4,834.34	4,435.95	4,381.11	17.27	17.95	-106.38	375.53	-9,340.98	9,537.01	9,502.60	34.41	277.180	
4,938.00	4,896.43	4,503.13	4,448.03	17.53	18.19	-106.64	370.93	-9,344.76	9,543.72	9,508.82	34.90	273.453	
5,001.00	4,958.46	4,570.22	4,514.86	17.79	18.43	-109.88	366.38	-9,348.49	9,550.85	9,515.45	35.40	269.832	
5,064.00	5,020.29	4,637.02	4,581.40	18.05	18.68	-114.08	361.90	-9,352.16	9,559.05	9,523.16	35.89	266.323	
5,126.00	5,080.98	4,702.52	4,646.67	18.32	18.91	-118.33	357.56	-9,355.72	9,568.23	9,531.84	36.38	262.989	
5,189.00	5,142.74	4,769.25	4,713.16	18.58	19.16	-116.90	353.19	-9,359.31	9,577.59	9,540.72	36.88	259.708	
5,252.00	5,204.62	4,836.21	4,779.88	18.85	19.40	-117.01	348.86	-9,362.86	9,586.50	9,549.13	37.37	256.510	
5,315.00	5,266.61	4,903.39	4,846.84	19.11	19.64	-117.34	344.56	-9,366.38	9,595.11	9,557.24	37.87	253.397	
5,378.00	5,328.73	4,970.80	4,914.02	19.37	19.89	-117.00	340.31	-9,369.88	9,603.36	9,565.00	38.36	250.366	
5,441.00	5,390.87	5,038.28	4,981.28	19.62	20.14	-117.56	336.10	-9,373.33	9,611.51	9,572.66	38.85	247.410	
5,503.00	5,452.07	5,104.80	5,047.59	19.87	20.38	-117.37	332.00	-9,376.69	9,619.39	9,580.06	39.33	244.574	
5,566.00	5,514.32	5,172.52	5,115.09	20.13	20.62	-117.79	327.88	-9,380.07	9,627.21	9,587.39	39.82	241.764	
5,629.00	5,576.59	5,240.32	5,182.69	20.38	20.87	-115.46	323.81	-9,383.41	9,634.76	9,594.45	40.31	239.016	
5,692.00	5,638.95	5,308.29	5,250.46	20.63	21.12	-117.87	319.78	-9,386.71	9,642.02	9,601.22	40.80	236.336	
5,747.00	5,693.45	5,367.75	5,309.75	20.85	21.33	-115.73	316.30	-9,389.57	9,648.16	9,606.93	41.22	234.050	
5,810.00	5,755.90	5,435.93	5,377.74	21.09	21.58	-116.54	312.35	-9,392.80	9,654.96	9,613.25	41.71	231.485	
5,874.00	5,819.40	5,505.33	5,446.95	21.34	21.84	-115.39	308.40	-9,396.05	9,661.60	9,619.40	42.20	228.942	
5,936.00	5,880.95	5,572.64	5,514.08	21.58	22.08	-115.85	304.61	-9,399.15	9,667.86	9,625.18	42.68	226.532	
5,999.00	5,943.45	5,641.00	5,582.27	21.82	22.33	-117.38	300.82	-9,402.26	9,674.41	9,631.25	43.16	224.138	
6,062.00	6,005.96	5,709.39	5,650.48	22.07	22.58	-114.96	297.09	-9,405.33	9,680.88	9,637.24	43.65	221.794	
6,125.00	6,068.49	5,777.84	5,718.77	22.31	22.83	-117.33	293.40	-9,408.35	9,687.22	9,643.08	44.13	219.501	
6,188.00	6,131.08	5,846.43	5,787.20	22.55	23.08	-115.63	289.76	-9,411.34	9,693.32	9,648.71	44.62	217.262	
6,255.00	6,197.73	5,919.55	5,860.16	22.81	23.34	-116.79	285.94	-9,414.47	9,699.38	9,654.25	45.13	214.935	
6,293.00	6,235.55	5,961.08	5,901.59	22.89	23.50	-116.83	283.80	-9,416.23	9,702.72	9,657.36	45.35	213.938	
6,300.00	6,242.52	5,968.73	5,909.22	22.89	23.52	-116.83	283.40	-9,416.55	9,703.33	9,657.95	45.38	213.809	
6,393.00	6,335.09	6,070.40	6,010.68	22.94	23.89	-116.92	278.25	-9,420.77	9,711.44	9,665.66	45.79	212.096	
6,400.00	6,342.06	6,078.06	6,018.31	22.94	23.92	-122.81	277.87	-9,421.09	9,712.09	9,666.27	45.82	211.968	
6,450.00	6,391.66	6,132.45	6,072.60	22.97	24.12	-149.99	275.17	-9,423.30	9,718.93	9,672.89	46.04	211.106	
6,500.00	6,440.77	6,186.15	6,126.19	23.02	24.32	-161.88	272.53	-9,425.47	9,729.64	9,683.38	46.26	210.336	
6,550.00	6,489.07	6,238.83	6,178.76	23.07	24.51	-168.07	269.98	-9,427.56	9,744.14	9,697.67	46.47	209.667	
6,600.00	6,536.26	6,290.15	6,229.99	23.13	24.70	-171.84	267.52	-9,429.57	9,762.36	9,715.67	46.69	209.101	
6,650.00	6,582.05	6,339.80	6,279.54	23.21	24.88	-174.43	265.18	-9,431.50	9,784.17	9,737.27	46.89	208.640	
6,700.00	6,626.13	6,387.47	6,327.12	23.29	25.05	-176.36	262.95	-9,433.32	9,809.44	9,762.34	47.10	208.286	
6,750.00	6,668.24	6,432.86	6,372.43	23.39	25.22	-177.94	260.85	-9,435.04	9,838.01	9,790.73	47.29	208.038	
6,800.00	6,708.12	6,475.68	6,415.18	23.51	25.37	-179.31	258.90	-9,436.65	9,869.71	9,822.24	47.47	207.900	
6,850.00	6,745.50	6,515.67	6,455.10	23.64	25.52	179.40	257.09	-9,438.13	9,904.34	9,856.69	47.65	207.870	SF
6,900.00	6,780.15	6,552.56	6,491.93	23.79	25.65	178.11	255.44	-9,439.48	9,941.68	9,893.87	47.81	207.950	
6,950.00	6,811.86	6,586.14	6,525.45	23.95	25.78	176.72	253.95	-9,440.70	9,981.50	9,933.54	47.96	208.140	
7,000.00	6,840.42	6,616.18	6,555.44	24.14	25.89	175.11	252.63	-9,441.79	10,023.55	9,975.46	48.09	208.441	
7,050.00	6,865.66	6,642.49	6,581.71	24.35	25.98	173.12	251.49	-9,442.73	10,067.57	10,019.37	48.20	208.853	
7,100.00	6,887.42	6,664.90	6,604.08	24.57	26.06	170.45	250.51	-9,443.52	10,113.29	10,064.99	48.30	209.376	
7,150.00	6,905.55	6,683.26	6,622.42	24.82	26.13	166.57	249.72	-9,444.17	10,160.42	10,112.04	48.38	210.008	
7,200.00	6,919.95	6,697.45	6,636.59	25.10	26.18	160.26	249.11	-9,444.67	10,208.66	10,160.22	48.44	210.750	
7,250.00	6,930.52	6,707.38	6,646.50	25.39	26.22	148.35	248.69	-9,445.02	10,257.72	10,209.24	48.48	211.597	
7,300.00	6,937.20	6,712.98	6,652.09	25.70	26.24	122.30	248.45	-9,445.22	10,307.29	10,258.79	48.49	212.548	
7,350.00	6,939.94	6,714.20	6,653.31	26.04	26.24	77.40	248.40	-9,445.26	10,357.05	10,308.56	48.49	213.596	
7,359.60	6,940.02	6,713.93	6,653.05	26.10	26.24	69.46	248.41	-9,445.25	10,366.60	10,318.11	48.49	213.809	
7,400.00	6,940.03	6,712.47	6,651.58	26.39	26.24	69.39	248.47	-9,445.20	10,406.77	10,358.30	48.47	214.708	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
7,500.00	6,940.04	6,708.83	6,647.95	27.15	26.22	69.21	248.63	-9,445.07	10,506.23	10,457.80	48.43	216.928	
7,600.00	6,940.06	6,705.19	6,644.31	27.99	26.21	69.02	248.78	-9,444.94	10,605.70	10,557.30	48.40	219.140	
7,659.60	6,940.07	6,703.01	6,642.14	28.52	26.20	68.92	248.87	-9,444.87	10,664.99	10,616.61	48.38	220.454	
7,700.00	6,940.08	6,701.52	6,640.65	28.89	26.20	65.59	248.94	-9,444.82	10,705.20	10,656.83	48.37	221.340	
7,796.63	6,940.10	6,697.84	6,636.98	29.83	26.18	51.85	249.10	-9,444.69	10,801.56	10,753.21	48.35	223.421	
7,800.00	6,940.10	6,697.71	6,636.85	29.86	26.18	51.84	249.10	-9,444.68	10,804.93	10,756.58	48.35	223.492	
7,900.00	6,940.12	6,693.81	6,632.96	30.90	26.17	51.56	249.27	-9,444.55	10,904.75	10,856.42	48.33	225.619	
8,000.00	6,940.14	6,689.91	6,629.06	31.98	26.15	51.28	249.44	-9,444.41	11,004.58	10,956.26	48.32	227.741	
8,100.00	6,940.17	6,686.00	6,625.15	33.11	26.14	51.00	249.60	-9,444.27	11,104.40	11,056.09	48.31	229.856	
8,200.00	6,940.19	6,682.08	6,621.24	34.28	26.13	50.72	249.77	-9,444.13	11,204.23	11,155.93	48.30	231.966	
8,300.00	6,940.21	6,678.15	6,617.31	35.48	26.11	50.44	249.94	-9,443.99	11,304.07	11,255.77	48.29	234.069	
8,400.00	6,940.23	6,674.21	6,613.38	36.71	26.10	50.17	250.11	-9,443.85	11,403.90	11,355.61	48.29	236.166	
8,500.00	6,940.25	6,670.26	6,609.44	37.97	26.08	49.90	250.28	-9,443.71	11,503.73	11,455.45	48.28	238.256	
8,600.00	6,940.28	6,666.31	6,605.49	39.26	26.07	49.63	250.45	-9,443.57	11,603.57	11,555.29	48.28	240.340	
8,700.00	6,940.30	6,662.34	6,601.54	40.56	26.05	49.36	250.62	-9,443.43	11,703.41	11,655.13	48.28	242.417	
8,800.00	6,940.32	6,658.37	6,597.57	41.89	26.04	49.09	250.80	-9,443.29	11,803.25	11,754.97	48.28	244.488	
8,900.00	6,940.34	6,654.39	6,593.60	43.24	26.02	48.82	250.97	-9,443.15	11,903.09	11,854.81	48.28	246.552	
9,000.00	6,940.36	6,650.40	6,589.61	44.60	26.01	48.56	251.14	-9,443.01	12,002.93	11,954.65	48.28	248.608	
9,100.00	6,940.39	6,646.41	6,585.62	45.98	26.00	48.29	251.32	-9,442.87	12,102.78	12,054.49	48.28	250.658	
9,200.00	6,940.41	6,642.40	6,581.62	47.38	25.98	48.03	251.49	-9,442.72	12,202.62	12,154.34	48.29	252.700	
9,300.00	6,940.43	6,638.39	6,577.62	48.78	25.97	47.77	251.66	-9,442.58	12,302.47	12,254.18	48.30	254.736	
9,400.00	6,940.45	6,634.37	6,573.60	50.20	25.95	47.51	251.84	-9,442.44	12,402.32	12,354.02	48.30	256.764	
9,500.00	6,940.47	6,630.33	6,569.58	51.63	25.94	47.25	252.01	-9,442.29	12,502.17	12,453.86	48.31	258.784	
9,600.00	6,940.50	6,626.29	6,565.54	53.07	25.92	46.99	252.19	-9,442.15	12,602.02	12,553.70	48.32	260.797	
9,700.00	6,940.52	6,622.24	6,561.50	54.52	25.91	46.73	252.37	-9,442.00	12,701.87	12,653.54	48.33	262.802	
9,800.00	6,940.54	6,618.19	6,557.45	55.97	25.89	46.48	252.55	-9,441.86	12,801.73	12,753.38	48.34	264.800	
9,900.00	6,940.56	6,614.12	6,553.39	57.44	25.88	46.23	252.72	-9,441.71	12,901.58	12,853.22	48.36	266.790	
10,000.00	6,940.59	6,610.05	6,549.32	58.91	25.86	45.98	252.90	-9,441.56	13,001.44	12,953.06	48.37	268.772	
10,100.00	6,940.61	6,605.96	6,545.24	60.38	25.85	45.72	253.08	-9,441.42	13,101.29	13,052.90	48.39	270.746	
10,200.00	6,940.63	6,601.87	6,541.16	61.87	25.83	45.48	253.26	-9,441.27	13,201.15	13,152.74	48.41	272.712	
10,300.00	6,940.65	6,597.77	6,537.06	63.36	25.82	45.23	253.44	-9,441.12	13,301.01	13,252.58	48.43	274.670	
10,400.00	6,940.67	6,593.66	6,532.96	64.85	25.80	44.98	253.62	-9,440.97	13,400.87	13,352.42	48.45	276.620	
10,500.00	6,940.70	6,589.54	6,528.84	66.35	25.79	44.74	253.80	-9,440.83	13,500.73	13,452.26	48.47	278.561	
10,600.00	6,940.72	6,585.41	6,524.72	67.86	25.77	44.49	253.99	-9,440.68	13,600.59	13,552.10	48.49	280.495	
10,700.00	6,940.74	6,581.27	6,520.59	69.36	25.76	44.25	254.17	-9,440.53	13,700.45	13,651.94	48.51	282.420	
10,800.00	6,940.76	6,577.12	6,516.45	70.88	25.74	44.01	254.35	-9,440.38	13,800.32	13,751.78	48.54	284.336	
10,900.00	6,940.78	6,572.97	6,512.30	72.39	25.73	43.77	254.54	-9,440.22	13,900.18	13,851.62	48.56	286.244	
11,000.00	6,940.81	6,568.80	6,508.14	73.91	25.71	43.53	254.72	-9,440.07	14,000.05	13,951.46	48.59	288.144	
11,100.00	6,940.83	6,564.63	6,503.98	75.44	25.70	43.30	254.91	-9,439.92	14,099.91	14,051.30	48.61	290.035	
11,200.00	6,940.85	6,560.45	6,499.80	76.96	25.68	43.06	255.09	-9,439.77	14,199.78	14,151.14	48.64	291.918	
11,300.00	6,940.87	6,556.25	6,495.62	78.49	25.67	42.83	255.28	-9,439.62	14,299.65	14,250.98	48.67	293.792	
11,400.00	6,940.89	6,552.05	6,491.42	80.03	25.65	42.60	255.46	-9,439.46	14,399.52	14,350.81	48.70	295.657	
11,500.00	6,940.92	6,547.84	6,487.22	81.56	25.64	42.37	255.65	-9,439.31	14,499.39	14,450.65	48.74	297.513	
11,600.00	6,940.94	6,543.62	6,483.01	83.10	25.62	42.14	255.84	-9,439.15	14,599.26	14,550.49	48.77	299.361	
11,700.00	6,940.96	6,539.39	6,478.78	84.64	25.61	41.91	256.03	-9,439.00	14,699.13	14,650.33	48.80	301.199	
11,800.00	6,940.98	6,535.16	6,474.55	86.18	25.59	41.68	256.22	-9,438.84	14,799.00	14,750.16	48.84	303.029	
11,900.00	6,941.00	6,530.91	6,470.31	87.72	25.57	41.45	256.41	-9,438.69	14,898.87	14,850.00	48.87	304.850	
12,000.00	6,941.03	6,526.65	6,466.06	89.27	25.56	41.23	256.60	-9,438.53	14,998.75	14,949.84	48.91	306.663	
12,100.00	6,941.05	6,522.38	6,461.80	90.82	25.54	41.01	256.79	-9,438.38	15,098.62	15,049.67	48.95	308.466	
12,200.00	6,941.07	6,518.11	6,457.53	92.37	25.53	40.78	256.98	-9,438.22	15,198.49	15,149.51	48.99	310.260	
12,300.00	6,941.09	6,513.82	6,453.26	93.92	25.51	40.56	257.18	-9,438.06	15,298.37	15,249.34	49.03	312.045	
12,400.00	6,941.11	6,509.53	6,448.97	95.47	25.50	40.34	257.37	-9,437.90	15,398.24	15,349.18	49.07	313.821	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
12,500.00	6,941.14	6,505.22	6,444.67	97.03	25.48	40.13	257.56	-9,437.74	15,498.12	15,449.01	49.11	315.588	
12,600.00	6,941.16	6,500.91	6,440.36	98.58	25.46	39.91	257.76	-9,437.58	15,598.00	15,548.85	49.15	317.346	
12,700.00	6,941.18	6,496.58	6,436.05	100.14	25.45	39.69	257.95	-9,437.42	15,697.87	15,648.68	49.19	319.095	
12,800.00	6,941.20	6,492.25	6,431.72	101.70	25.43	39.48	258.15	-9,437.26	15,797.75	15,748.51	49.24	320.835	
12,900.00	6,941.23	6,487.91	6,427.38	103.26	25.42	39.27	258.34	-9,437.10	15,897.63	15,848.35	49.28	322.566	
13,000.00	6,941.25	6,483.55	6,423.04	104.82	25.40	39.06	258.54	-9,436.94	15,997.51	15,948.18	49.33	324.287	
13,100.00	6,941.27	6,479.19	6,418.68	106.38	25.39	38.85	258.74	-9,436.78	16,097.39	16,048.01	49.38	326.000	
13,200.00	6,941.29	6,474.82	6,414.32	107.95	25.37	38.64	258.94	-9,436.61	16,197.27	16,147.84	49.43	327.703	
13,300.00	6,941.31	6,470.44	6,409.95	109.51	25.35	38.43	259.14	-9,436.45	16,297.15	16,247.67	49.48	329.397	
13,400.00	6,941.34	6,466.05	6,405.56	111.08	25.34	38.22	259.34	-9,436.29	16,397.03	16,347.50	49.53	331.083	
13,500.00	6,941.36	6,461.64	6,401.17	112.64	25.32	38.02	259.54	-9,436.12	16,496.91	16,447.33	49.58	332.758	
13,600.00	6,941.38	6,457.23	6,396.76	114.21	25.31	37.81	259.74	-9,435.96	16,596.79	16,547.16	49.63	334.425	
13,700.00	6,941.40	6,452.81	6,392.35	115.78	25.29	37.61	259.94	-9,435.79	16,696.67	16,646.99	49.68	336.083	
13,800.00	6,941.42	6,448.38	6,387.92	117.35	25.27	37.41	260.14	-9,435.63	16,796.56	16,746.82	49.73	337.731	
13,900.00	6,941.45	6,443.94	6,383.49	118.92	25.26	37.21	260.35	-9,435.46	16,896.44	16,846.65	49.79	339.371	
14,000.00	6,941.47	6,439.49	6,379.05	120.49	25.24	37.01	260.55	-9,435.29	16,996.32	16,946.48	49.84	341.001	
14,100.00	6,941.49	6,435.02	6,374.59	122.06	25.22	36.81	260.75	-9,435.12	17,096.21	17,046.31	49.90	342.622	
14,200.00	6,941.51	6,430.55	6,370.13	123.64	25.21	36.61	260.96	-9,434.96	17,196.09	17,146.14	49.95	344.234	
14,300.00	6,941.53	6,426.07	6,365.66	125.21	25.19	36.42	261.17	-9,434.79	17,295.98	17,245.96	50.01	345.837	
14,400.00	6,941.56	6,421.58	6,361.17	126.78	25.18	36.22	261.37	-9,434.62	17,395.86	17,345.79	50.07	347.431	
14,500.00	6,941.58	6,417.08	6,356.68	128.36	25.16	36.03	261.58	-9,434.45	17,495.75	17,445.62	50.13	349.016	
14,600.00	6,941.60	6,412.56	6,352.17	129.93	25.14	35.84	261.79	-9,434.28	17,595.63	17,545.44	50.19	350.592	
14,700.00	6,941.62	6,408.04	6,347.66	131.51	25.13	35.65	262.00	-9,434.11	17,695.52	17,645.27	50.25	352.158	
14,800.00	6,941.64	6,403.51	6,343.13	133.08	25.11	35.46	262.21	-9,433.93	17,795.40	17,745.09	50.31	353.716	
14,900.00	6,941.67	6,398.96	6,338.60	134.66	25.09	35.27	262.42	-9,433.76	17,895.29	17,844.92	50.37	355.265	
15,000.00	6,941.69	6,394.41	6,334.05	136.24	25.08	35.08	262.63	-9,433.59	17,995.18	17,944.74	50.43	356.805	
15,100.00	6,941.71	6,389.84	6,329.49	137.82	25.06	34.90	262.84	-9,433.41	18,095.06	18,044.57	50.50	358.335	
15,200.00	6,941.73	6,385.27	6,324.93	139.40	25.04	34.71	263.05	-9,433.24	18,194.95	18,144.39	50.56	359.857	
15,300.00	6,941.75	6,380.68	6,320.35	140.97	25.03	34.53	263.27	-9,433.07	18,294.84	18,244.21	50.63	361.370	
15,400.00	6,941.78	6,376.09	6,315.76	142.55	25.01	34.34	263.48	-9,432.89	18,394.73	18,344.04	50.69	362.875	
15,500.00	6,941.80	6,371.48	6,311.17	144.13	24.99	34.16	263.69	-9,432.71	18,494.62	18,443.86	50.76	364.370	
15,600.00	6,941.82	6,366.87	6,306.56	145.72	24.98	33.98	263.91	-9,432.54	18,594.51	18,543.68	50.82	365.856	
15,700.00	6,941.84	6,362.24	6,301.94	147.30	24.96	33.80	264.12	-9,432.36	18,694.39	18,643.50	50.89	367.334	
15,800.00	6,941.87	6,357.60	6,297.31	148.88	24.94	33.62	264.34	-9,432.18	18,794.28	18,743.32	50.96	368.803	
15,900.00	6,941.89	6,352.95	6,292.67	150.46	24.93	33.45	264.56	-9,432.00	18,894.17	18,843.14	51.03	370.263	
16,000.00	6,941.91	6,348.29	6,288.02	152.04	24.91	33.27	264.78	-9,431.82	18,994.06	18,942.96	51.10	371.715	
16,100.00	6,941.93	6,343.62	6,283.35	153.62	24.89	33.09	265.00	-9,431.65	19,093.95	19,042.78	51.17	373.158	
16,200.00	6,941.95	6,338.94	6,278.68	155.21	24.87	32.92	265.22	-9,431.46	19,193.84	19,142.60	51.24	374.592	
16,300.00	6,941.98	6,334.25	6,274.00	156.79	24.86	32.75	265.44	-9,431.28	19,293.73	19,242.42	51.31	376.017	
16,400.00	6,942.00	6,329.54	6,269.30	158.37	24.84	32.57	265.66	-9,431.10	19,393.62	19,342.24	51.38	377.435	
16,500.00	6,942.02	6,324.83	6,264.60	159.96	24.82	32.40	265.88	-9,430.92	19,493.51	19,442.06	51.46	378.843	
16,600.00	6,942.04	6,320.10	6,259.88	161.54	24.81	32.23	266.10	-9,430.74	19,593.40	19,541.88	51.53	380.243	
16,700.00	6,942.06	6,315.37	6,255.15	163.13	24.79	32.06	266.33	-9,430.55	19,693.29	19,641.69	51.60	381.635	
16,800.00	6,942.09	6,310.62	6,250.42	164.71	24.77	31.90	266.55	-9,430.37	19,793.19	19,741.51	51.68	383.018	
16,900.00	6,942.11	6,305.86	6,245.67	166.30	24.75	31.73	266.78	-9,430.18	19,893.08	19,841.33	51.75	384.393	
17,000.00	6,942.13	6,301.09	6,240.91	167.88	24.74	31.56	267.00	-9,430.00	19,992.97	19,941.14	51.83	385.760	
17,100.00	6,942.15	6,296.31	6,236.14	169.47	24.72	31.40	267.23	-9,429.81	20,092.86	20,040.96	51.90	387.118	
17,200.00	6,942.17	6,291.52	6,231.35	171.05	24.70	31.23	267.46	-9,429.63	20,192.75	20,140.77	51.98	388.468	
17,300.00	6,942.20	6,286.72	6,226.56	172.64	24.68	31.07	267.69	-9,429.44	20,292.64	20,240.59	52.06	389.810	
17,400.00	6,942.22	6,281.90	6,221.75	174.23	24.67	30.91	267.92	-9,429.25	20,392.54	20,340.40	52.14	391.144	
17,500.00	6,942.24	6,277.08	6,216.94	175.81	24.65	30.75	268.15	-9,429.06	20,492.43	20,440.22	52.21	392.469	
17,600.00	6,942.26	6,272.24	6,212.11	177.40	24.63	30.59	268.38	-9,428.87	20,592.32	20,540.03	52.29	393.787	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

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

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
17,700.00	6,942.28	6,267.39	6,207.27	178.99	24.61	30.43	268.61	-9,428.68	20,692.21	20,639.84	52.37	395.096	
17,800.00	6,942.31	6,262.53	6,202.42	180.57	24.60	30.27	268.84	-9,428.49	20,792.11	20,739.65	52.45	396.397	
17,900.00	6,942.33	6,257.66	6,197.56	182.16	24.58	30.11	269.07	-9,428.30	20,892.00	20,839.47	52.53	397.691	
18,000.00	6,942.35	6,252.78	6,192.69	183.75	24.56	29.96	269.31	-9,428.11	20,991.89	20,939.28	52.61	398.976	
18,100.00	6,942.37	6,247.89	6,187.80	185.34	24.54	29.80	269.54	-9,427.92	21,091.79	21,039.09	52.70	400.254	
18,200.00	6,942.39	6,242.98	6,182.90	186.93	24.52	29.65	269.78	-9,427.72	21,191.68	21,138.90	52.78	401.524	
18,300.00	6,942.42	6,238.06	6,178.00	188.52	24.51	29.49	270.02	-9,427.53	21,291.57	21,238.71	52.86	402.786	
18,400.00	6,942.44	6,233.13	6,173.08	190.10	24.49	29.34	270.25	-9,427.33	21,391.47	21,338.52	52.94	404.041	
18,500.00	6,942.46	6,228.19	6,168.14	191.69	24.47	29.19	270.49	-9,427.14	21,491.36	21,438.33	53.03	405.287	
18,600.00	6,942.48	6,223.24	6,163.20	193.28	24.45	29.04	270.73	-9,426.94	21,591.25	21,538.14	53.11	406.526	
18,700.00	6,942.51	6,218.27	6,158.25	194.87	24.43	28.89	270.97	-9,426.75	21,691.15	21,637.95	53.20	407.758	
18,800.00	6,942.53	6,213.30	6,153.28	196.46	24.42	28.74	271.21	-9,426.55	21,791.04	21,737.76	53.28	408.982	
18,900.00	6,942.55	6,208.31	6,148.30	198.05	24.40	28.59	271.45	-9,426.35	21,890.93	21,837.57	53.37	410.198	
19,000.00	6,942.57	6,203.31	6,143.31	199.64	24.38	28.44	271.70	-9,426.15	21,990.83	21,937.38	53.45	411.407	
19,100.00	6,942.59	6,198.30	6,138.31	201.23	24.36	28.30	271.94	-9,425.95	22,090.72	22,037.18	53.54	412.609	
19,200.00	6,942.62	6,193.27	6,133.29	202.82	24.34	28.15	272.18	-9,425.75	22,190.62	22,136.99	53.63	413.803	
19,300.00	6,942.64	6,188.24	6,128.27	204.41	24.32	28.01	272.43	-9,425.55	22,290.51	22,236.80	53.71	414.990	
19,400.00	6,942.66	6,183.19	6,123.23	206.00	24.31	27.86	272.68	-9,425.35	22,390.40	22,336.60	53.80	416.170	
19,500.00	6,942.68	6,178.13	6,118.18	207.59	24.29	27.72	272.92	-9,425.14	22,490.30	22,436.41	53.89	417.342	
19,600.00	6,942.70	6,173.05	6,113.12	209.18	24.27	27.58	273.17	-9,424.94	22,590.19	22,536.21	53.98	418.507	
19,700.00	6,942.73	6,167.97	6,108.04	210.78	24.25	27.44	273.42	-9,424.74	22,690.09	22,636.02	54.07	419.665	
19,800.00	6,942.75	6,162.87	6,102.95	212.37	24.23	27.30	273.67	-9,424.53	22,789.98	22,735.82	54.16	420.817	
19,900.00	6,942.77	6,157.76	6,097.85	213.96	24.21	27.16	273.92	-9,424.33	22,889.88	22,835.63	54.25	421.961	
20,000.00	6,942.79	6,152.64	6,092.74	215.55	24.19	27.02	274.17	-9,424.12	22,989.77	22,935.43	54.34	423.098	
20,100.00	6,942.81	6,147.50	6,087.62	217.14	24.18	26.88	274.42	-9,423.91	23,089.66	23,035.24	54.43	424.228	
20,200.00	6,942.84	6,142.36	6,082.48	218.73	24.16	26.74	274.68	-9,423.71	23,189.56	23,135.04	54.52	425.351	
20,300.00	6,942.86	6,137.20	6,077.33	220.32	24.14	26.61	274.93	-9,423.50	23,289.45	23,234.84	54.61	426.467	
20,400.00	6,942.88	6,132.03	6,072.17	221.92	24.12	26.47	275.19	-9,423.29	23,389.35	23,334.65	54.70	427.577	
20,500.00	6,942.90	6,126.84	6,067.00	223.51	24.10	26.34	275.44	-9,423.08	23,489.24	23,434.45	54.79	428.680	
20,600.00	6,942.92	6,121.64	6,061.81	225.10	24.08	26.20	275.70	-9,422.87	23,589.14	23,534.25	54.89	429.776	
20,700.00	6,942.95	6,116.43	6,056.61	226.69	24.06	26.07	275.96	-9,422.66	23,689.03	23,634.05	54.98	430.865	
20,800.00	6,942.97	6,111.21	6,051.40	228.28	24.04	25.94	276.22	-9,422.44	23,788.93	23,733.85	55.07	431.948	
20,900.00	6,942.99	6,105.97	6,046.17	229.88	24.02	25.81	276.48	-9,422.23	23,888.82	23,833.65	55.17	433.025	
20,942.50	6,943.00	6,103.75	6,043.95	230.42	24.02	25.75	276.59	-9,422.14	23,931.27	23,871.34	59.93	399.296	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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	87.04	936.43	18,091.93	18,116.15				
58.45	58.45	546.55	546.45	0.02	16.38	-151.25	936.43	18,091.93	18,116.47	18,100.07	16.39	1,105.055	
150.25	150.24	638.34	638.24	0.14	19.13	-169.55	936.43	18,091.93	18,117.49	18,098.23	19.26	940.720	
239.43	239.42	727.52	727.42	0.25	21.80	-175.03	936.43	18,091.93	18,118.53	18,096.48	22.05	821.802	
299.93	299.91	790.68	790.53	0.33	23.69	-170.09	938.55	18,091.93	18,119.40	18,095.38	24.02	754.386	
446.00	445.96	947.00	946.82	0.50	28.38	-145.69	937.26	18,091.93	18,121.50	18,092.63	28.87	627.611	
537.00	536.95	1,025.36	1,024.95	0.73	30.72	-84.43	936.43	18,091.93	18,122.16	18,090.71	31.45	576.288	
624.00	623.95	1,112.35	1,111.95	0.99	33.33	-1.46	936.43	18,091.93	18,121.38	18,087.06	34.31	528.100	
718.00	717.90	1,206.31	1,205.90	1.29	36.15	16.39	936.43	18,091.93	18,118.75	18,081.32	37.43	484.050	
811.00	810.73	1,302.58	1,302.13	1.60	39.03	35.90	938.52	18,091.93	18,114.04	18,073.41	40.63	445.841	
903.00	902.19	1,400.37	1,399.90	1.92	41.96	47.96	937.82	18,091.93	18,106.84	18,062.96	43.88	412.659	
994.00	992.38	1,496.68	1,496.18	2.24	44.85	50.27	936.49	18,091.93	18,098.80	18,051.71	47.09	384.378	
1,084.00	1,081.50	1,570.21	1,569.50	2.56	47.05	54.74	936.43	18,091.93	18,091.11	18,041.49	49.61	364.648	
1,175.00	1,171.48	1,660.20	1,659.48	2.91	49.75	58.63	936.43	18,091.93	18,083.62	18,030.98	52.64	343.511	
1,268.00	1,263.52	1,752.39	1,751.64	3.26	52.51	60.19	938.61	18,091.93	18,076.88	18,021.13	55.75	324.240	
1,363.00	1,357.62	1,852.61	1,851.84	3.63	55.51	63.20	938.24	18,091.93	18,070.64	18,011.53	59.11	305.712	
1,457.00	1,450.74	1,951.63	1,950.84	3.99	58.48	65.95	937.19	18,091.93	18,065.04	18,002.61	62.43	289.356	
1,552.00	1,544.82	2,033.84	2,032.82	4.36	60.94	66.79	936.43	18,091.93	18,059.66	17,994.40	65.26	276.747	
1,646.00	1,637.88	2,126.89	2,125.88	4.72	63.73	67.33	936.43	18,091.93	18,054.43	17,986.03	68.41	263.932	
1,741.00	1,731.94	2,220.95	2,219.94	5.09	66.55	67.82	936.43	18,091.93	18,049.30	17,977.72	71.59	252.123	
1,835.00	1,825.07	2,317.95	2,316.89	5.46	69.46	67.92	938.45	18,091.93	18,044.57	17,969.72	74.86	241.056	
1,929.00	1,918.39	2,416.77	2,415.68	5.82	72.42	66.77	937.64	18,091.93	18,040.16	17,961.98	78.17	230.770	
2,024.00	2,012.84	2,502.16	2,500.84	6.18	74.98	68.18	936.43	18,091.93	18,036.16	17,955.07	81.09	222.424	
2,118.00	2,106.19	2,595.51	2,594.19	6.53	77.77	68.45	936.43	18,091.93	18,032.09	17,947.85	84.24	214.049	
2,213.00	2,200.37	2,689.69	2,688.37	6.90	80.60	67.18	936.43	18,091.93	18,027.35	17,939.92	87.43	206.191	
2,307.00	2,293.61	2,784.78	2,783.41	7.27	83.44	69.19	938.57	18,091.93	18,022.96	17,932.32	90.64	198.842	
2,402.00	2,387.91	2,884.26	2,882.88	7.63	86.43	73.08	937.98	18,091.93	18,019.20	17,925.22	93.98	191.728	
2,496.00	2,481.29	2,982.65	2,981.23	7.99	89.37	74.31	936.72	18,091.93	18,016.10	17,918.81	97.29	185.183	
2,591.00	2,575.67	3,065.29	3,063.67	8.35	91.85	72.88	936.43	18,091.93	18,013.00	17,912.87	100.13	179.904	
2,686.00	2,670.05	3,159.68	3,158.05	8.71	94.68	73.33	936.43	18,091.93	18,009.84	17,906.52	103.31	174.320	
2,780.00	2,763.49	3,253.28	3,251.62	9.07	97.48	71.34	938.61	18,091.93	18,006.77	17,900.29	106.48	169.117	
2,875.00	2,857.94	3,352.56	3,350.88	9.43	100.46	69.96	938.24	18,091.93	18,003.37	17,893.56	109.81	163.952	
2,970.00	2,952.51	3,451.88	3,450.17	9.79	103.43	73.56	937.19	18,091.93	18,000.49	17,887.35	113.14	159.102	
3,064.00	3,046.19	3,536.12	3,534.19	10.13	105.96	80.76	936.43	18,091.93	17,998.71	17,882.70	116.01	155.150	
3,159.00	3,140.98	3,630.91	3,628.98	10.47	108.80	82.78	936.43	18,091.93	17,997.77	17,878.58	119.19	150.997	
3,253.00	3,234.84	3,724.77	3,722.84	10.81	111.61	75.07	936.43	18,091.93	17,996.84	17,874.50	122.34	147.104	
3,348.00	3,329.74	3,823.07	3,821.09	11.14	114.56	67.43	938.43	18,091.93	17,995.54	17,869.92	125.62	143.251	
3,397.00	3,378.70	3,874.41	3,872.42	11.32	116.09	66.56	938.07	18,091.93	17,994.72	17,867.39	127.33	141.319	
3,488.00	3,469.63	3,969.74	3,967.72	11.64	118.95	64.02	936.93	18,091.93	17,993.23	17,862.72	130.51	137.868	
3,583.00	3,564.49	4,054.72	4,052.49	11.98	121.50	72.41	936.43	18,091.93	17,991.43	17,858.03	133.40	134.870	
3,677.00	3,658.13	4,148.36	4,146.13	12.33	124.30	74.23	936.43	18,091.93	17,989.09	17,852.54	136.55	131.738	
3,772.00	3,752.42	4,242.66	4,240.42	12.69	127.13	78.78	936.43	18,091.93	17,986.46	17,846.72	139.74	128.712	
3,867.00	3,846.42	4,340.60	4,338.31	13.06	130.06	80.40	938.32	18,091.93	17,984.02	17,840.97	143.05	125.720	
3,961.00	3,939.30	4,437.53	4,435.22	13.44	132.97	80.21	937.38	18,091.93	17,981.52	17,835.19	146.32	122.888	
4,056.00	4,032.83	4,523.36	4,520.83	13.82	135.54	76.96	936.43	18,091.93	17,978.10	17,828.82	149.28	120.432	
4,151.00	4,126.01	4,616.55	4,614.01	14.21	138.33	77.88	936.43	18,091.93	17,973.99	17,821.53	152.46	117.891	
4,246.00	4,219.10	4,709.64	4,707.10	14.61	141.12	70.63	936.43	18,091.93	17,968.76	17,813.11	155.65	115.447	
4,340.00	4,310.92	4,803.46	4,800.87	15.01	143.93	61.79	938.51	18,091.93	17,960.44	17,801.60	158.85	113.067	
4,435.00	4,403.54	4,899.51	4,896.90	15.41	146.81	61.24	937.83	18,091.93	17,950.16	17,788.04	162.12	110.720	
4,498.00	4,465.21	4,963.34	4,960.71	15.68	148.72	63.27	937.02	18,091.93	17,944.03	17,779.74	164.29	109.219	
4,561.00	4,526.82	5,017.66	5,014.82	15.95	150.35	68.47	936.43	18,091.93	17,938.59	17,772.40	166.18	107.944	
4,624.00	4,588.23	5,079.07	5,076.23	16.22	152.19	70.33	936.43	18,091.93	17,933.52	17,765.23	168.29	106.562	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
4,687.00	4,649.71	5,140.55	5,137.71	16.49	154.03	70.85	936.43	18,091.93	17,928.85	17,758.45	170.40	105.216	
4,749.00	4,710.40	5,201.25	5,198.40	16.75	155.85	72.12	936.43	18,091.93	17,924.75	17,752.27	172.48	103.925	
4,812.00	4,772.28	5,263.55	5,260.67	17.01	157.72	72.90	938.61	18,091.93	17,921.19	17,746.58	174.61	102.638	
4,875.00	4,834.34	5,327.53	5,324.64	17.27	159.64	72.47	938.40	18,091.93	17,917.90	17,741.12	176.78	101.358	
4,938.00	4,896.43	5,391.48	5,388.57	17.53	161.55	72.32	937.91	18,091.93	17,914.63	17,735.68	178.95	100.110	
5,001.00	4,958.46	5,455.27	5,452.34	17.79	163.46	69.19	937.14	18,091.93	17,910.91	17,729.80	181.12	98.891	
5,064.00	5,020.29	5,511.43	5,508.29	18.05	165.15	65.06	936.43	18,091.93	17,906.10	17,723.03	183.06	97.814	
5,126.00	5,080.98	5,572.13	5,568.98	18.32	166.97	60.97	936.43	18,091.93	17,900.26	17,715.12	185.14	96.685	
5,189.00	5,142.74	5,633.89	5,630.74	18.58	168.82	62.56	936.43	18,091.93	17,894.27	17,707.02	187.25	95.564	
5,252.00	5,204.62	5,695.77	5,692.62	18.85	170.67	62.59	936.43	18,091.93	17,888.75	17,699.38	189.36	94.469	
5,315.00	5,266.61	5,757.96	5,754.78	19.11	172.53	62.42	938.61	18,091.93	17,883.56	17,692.08	191.48	93.396	
5,378.00	5,328.73	5,821.63	5,818.43	19.37	174.44	62.89	938.43	18,091.93	17,878.66	17,685.02	193.64	92.329	
5,441.00	5,390.87	5,885.25	5,882.04	19.62	176.35	62.44	937.97	18,091.93	17,873.84	17,678.04	195.80	91.286	
5,503.00	5,452.07	5,947.84	5,944.61	19.87	178.22	62.77	937.24	18,091.93	17,869.22	17,671.30	197.92	90.284	
5,566.00	5,514.32	6,005.77	6,002.32	20.13	179.96	62.46	936.43	18,091.93	17,864.69	17,664.79	199.91	89.364	
5,629.00	5,576.59	6,068.05	6,064.59	20.38	181.83	64.90	936.43	18,091.93	17,860.43	17,658.40	202.02	88.408	
5,692.00	5,638.95	6,130.40	6,126.95	20.63	183.69	62.63	936.43	18,091.93	17,856.43	17,652.29	204.14	87.472	
5,747.00	5,693.45	6,184.90	6,181.45	20.85	185.33	64.86	936.43	18,091.93	17,853.11	17,647.13	205.99	86.672	
5,810.00	5,755.90	6,247.35	6,243.90	21.09	187.20	64.15	936.43	18,091.93	17,849.52	17,641.42	208.10	85.773	
5,874.00	5,819.40	6,312.09	6,308.59	21.34	189.14	65.42	938.48	18,091.93	17,846.14	17,635.85	210.29	84.866	
5,936.00	5,880.95	6,374.83	6,371.32	21.58	191.02	65.03	938.07	18,091.93	17,842.97	17,630.57	212.40	84.005	
5,999.00	5,943.45	6,438.51	6,434.97	21.82	192.93	63.60	937.37	18,091.93	17,839.53	17,624.97	214.55	83.147	
6,062.00	6,005.96	6,502.12	6,498.56	22.07	194.83	66.11	936.39	18,091.93	17,836.14	17,619.44	216.70	82.307	
6,125.00	6,068.49	6,560.24	6,556.49	22.31	196.57	63.84	936.43	18,091.93	17,832.87	17,614.19	218.69	81.546	
6,188.00	6,131.08	6,622.83	6,619.08	22.55	198.45	65.65	936.43	18,091.93	17,829.79	17,608.99	220.80	80.751	
6,255.00	6,197.73	6,689.48	6,685.73	22.81	200.45	64.60	936.43	18,091.93	17,826.90	17,603.86	223.05	79.924	
6,293.00	6,235.55	6,727.31	6,723.55	22.89	201.58	64.61	936.43	18,091.93	17,825.34	17,601.08	224.26	79.485	
6,300.00	6,242.52	6,734.28	6,730.52	22.89	201.79	64.61	936.43	18,091.93	17,825.05	17,600.58	224.47	79.409	
6,393.00	6,335.09	6,828.12	6,824.31	22.94	204.60	64.63	938.40	18,091.93	17,821.25	17,593.92	227.32	78.396	
6,400.00	6,342.06	6,835.20	6,831.39	22.94	204.81	58.74	938.36	18,091.93	17,820.92	17,593.38	227.54	78.320	
6,450.00	6,391.66	6,885.59	6,881.76	22.97	206.32	31.65	937.97	18,091.93	17,816.33	17,587.25	229.08	77.775	
6,500.00	6,440.77	6,935.45	6,931.62	23.02	207.82	19.85	937.41	18,091.93	17,807.81	17,577.22	230.60	77.225	
6,550.00	6,489.07	6,984.48	6,980.63	23.07	209.29	13.78	936.69	18,091.93	17,795.42	17,563.33	232.10	76.673	
6,600.00	6,536.26	7,028.32	7,024.26	23.13	210.60	10.12	936.43	18,091.93	17,779.24	17,545.80	233.44	76.162	
6,650.00	6,582.05	7,074.11	7,070.05	23.21	211.97	7.67	936.43	18,091.93	17,759.38	17,524.53	234.84	75.622	
6,700.00	6,626.13	7,118.19	7,114.13	23.29	213.29	5.89	936.43	18,091.93	17,735.94	17,499.75	236.20	75.089	
6,750.00	6,668.24	7,160.31	7,156.24	23.39	214.56	4.50	936.43	18,091.93	17,709.09	17,471.60	237.49	74.567	
6,800.00	6,708.12	7,200.18	7,196.12	23.51	215.75	3.34	936.43	18,091.93	17,678.99	17,440.26	238.72	74.057	
6,850.00	6,745.50	7,237.56	7,233.50	23.64	216.87	2.31	936.43	18,091.93	17,645.82	17,405.94	239.88	73.562	
6,900.00	6,780.15	7,272.53	7,268.43	23.79	217.92	1.33	938.59	18,091.93	17,609.83	17,368.87	240.96	73.082	
6,950.00	6,811.86	7,304.69	7,300.59	23.95	218.88	0.34	938.51	18,091.93	17,571.19	17,329.23	241.96	72.621	
7,000.00	6,840.42	7,333.67	7,329.56	24.14	219.75	-0.74	938.37	18,091.93	17,530.17	17,287.31	242.85	72.184	
7,050.00	6,865.66	7,359.28	7,355.16	24.35	220.52	-2.00	938.19	18,091.93	17,487.02	17,243.37	243.65	71.771	
7,100.00	6,887.42	7,381.35	7,377.23	24.57	221.18	-3.61	938.01	18,091.93	17,442.02	17,197.69	244.33	71.386	
7,150.00	6,905.55	7,399.76	7,395.63	24.82	221.73	-5.86	937.83	18,091.93	17,395.46	17,150.55	244.91	71.029	
7,200.00	6,919.95	7,414.39	7,410.25	25.10	222.17	-9.37	937.67	18,091.93	17,347.62	17,102.27	245.36	70.703	
7,250.00	6,930.52	7,425.14	7,421.00	25.39	222.49	-15.78	937.54	18,091.93	17,298.81	17,053.13	245.69	70.410	
7,300.00	6,937.20	7,431.94	7,427.80	25.70	222.69	-30.80	937.46	18,091.93	17,249.34	17,003.45	245.89	70.150	
7,350.00	6,939.94	7,434.76	7,430.62	26.04	222.78	-76.51	937.42	18,091.93	17,199.52	16,953.55	245.97	69.925	
7,359.60	6,940.02	7,434.84	7,430.70	26.10	222.78	-89.98	937.42	18,091.93	17,189.94	16,943.96	245.97	69.886	
7,400.00	6,940.03	7,434.88	7,430.74	26.39	222.78	-89.99	937.42	18,091.93	17,149.62	16,903.66	245.97	69.724	
7,500.00	6,940.04	7,434.96	7,430.82	27.15	222.79	-89.99	937.42	18,091.93	17,049.84	16,803.89	245.95	69.323	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
7,600.00	6,940.06	7,435.05	7,430.91	27.99	222.79	-89.99	937.42	18,091.93	16,950.05	16,704.12	245.93	68.922	
7,659.60	6,940.07	7,435.10	7,430.96	28.52	222.79	-90.00	937.41	18,091.93	16,890.57	16,644.65	245.92	68.682	
7,700.00	6,940.08	7,435.13	7,431.00	28.89	222.79	-89.98	937.41	18,091.93	16,850.25	16,604.33	245.92	68.520	
7,796.63	6,940.10	7,435.18	7,431.04	29.83	222.79	-89.86	937.41	18,091.93	16,753.69	16,507.77	245.92	68.127	
7,800.00	6,940.10	7,435.18	7,431.04	29.86	222.79	-89.86	937.41	18,091.93	16,750.31	16,504.40	245.92	68.113	
7,900.00	6,940.12	7,435.21	7,431.07	30.90	222.79	-89.87	937.41	18,091.93	16,650.33	16,404.40	245.93	67.704	
8,000.00	6,940.14	7,435.24	7,431.10	31.98	222.79	-89.87	937.41	18,091.93	16,550.35	16,304.41	245.94	67.295	
8,100.00	6,940.17	7,435.27	7,431.13	33.11	222.79	-89.88	937.41	18,091.93	16,450.37	16,204.42	245.95	66.886	
8,200.00	6,940.19	7,435.30	7,431.16	34.28	222.80	-89.88	937.41	18,091.93	16,350.38	16,104.43	245.96	66.477	
8,300.00	6,940.21	7,435.33	7,431.19	35.48	222.80	-89.89	937.41	18,091.93	16,250.40	16,004.43	245.97	66.067	
8,400.00	6,940.23	7,435.36	7,431.22	36.71	222.80	-89.89	937.41	18,091.93	16,150.42	15,904.44	245.98	65.657	
8,500.00	6,940.25	7,435.39	7,431.25	37.97	222.80	-89.90	937.41	18,091.93	16,050.44	15,804.44	246.00	65.247	
8,600.00	6,940.28	7,435.42	7,431.28	39.26	222.80	-89.90	937.41	18,091.93	15,950.46	15,704.45	246.01	64.836	
8,700.00	6,940.30	7,435.45	7,431.31	40.56	222.80	-89.91	937.41	18,091.93	15,850.48	15,604.45	246.03	64.426	
8,800.00	6,940.32	7,435.48	7,431.34	41.89	222.80	-89.91	937.41	18,091.93	15,750.49	15,504.45	246.04	64.015	
8,900.00	6,940.34	7,435.51	7,431.37	43.24	222.80	-89.92	937.41	18,091.93	15,650.51	15,404.45	246.06	63.604	
9,000.00	6,940.36	7,435.53	7,431.40	44.60	222.80	-89.93	937.41	18,091.93	15,550.53	15,304.45	246.08	63.193	
9,100.00	6,940.39	7,435.56	7,431.42	45.98	222.80	-89.93	937.41	18,091.93	15,450.55	15,204.45	246.10	62.782	
9,200.00	6,940.41	7,435.59	7,431.45	47.38	222.80	-89.94	937.41	18,091.93	15,350.57	15,104.45	246.12	62.371	
9,300.00	6,940.43	7,435.62	7,431.48	48.78	222.80	-89.94	937.41	18,091.93	15,250.59	15,004.45	246.14	61.959	
9,400.00	6,940.45	7,435.65	7,431.51	50.20	222.81	-89.95	937.41	18,091.93	15,150.61	14,904.45	246.16	61.547	
9,500.00	6,940.47	7,435.68	7,431.54	51.63	222.81	-89.95	937.41	18,091.93	15,050.63	14,804.45	246.19	61.135	
9,600.00	6,940.50	7,435.71	7,431.57	53.07	222.81	-89.96	937.41	18,091.93	14,950.66	14,704.45	246.21	60.723	
9,700.00	6,940.52	7,435.74	7,431.60	54.52	222.81	-89.96	937.41	18,091.93	14,850.68	14,604.44	246.24	60.311	
9,800.00	6,940.54	7,435.77	7,431.63	55.97	222.81	-89.97	937.41	18,091.93	14,750.70	14,504.44	246.26	59.899	
9,900.00	6,940.56	7,435.80	7,431.66	57.44	222.81	-89.97	937.41	18,091.93	14,650.72	14,404.43	246.29	59.486	
10,000.00	6,940.59	7,435.83	7,431.69	58.91	222.81	-89.98	937.41	18,091.93	14,550.74	14,304.43	246.32	59.073	
10,100.00	6,940.61	7,435.86	7,431.72	60.38	222.81	-89.99	937.40	18,091.93	14,450.77	14,204.42	246.35	58.661	
10,200.00	6,940.63	7,435.89	7,431.75	61.87	222.81	-89.99	937.40	18,091.93	14,350.79	14,104.41	246.37	58.248	
10,300.00	6,940.65	7,435.92	7,431.78	63.36	222.81	-90.00	937.40	18,091.93	14,250.81	14,004.41	246.41	57.835	
10,400.00	6,940.67	7,435.95	7,431.81	64.85	222.81	-90.00	937.40	18,091.93	14,150.84	13,904.40	246.44	57.422	
10,500.00	6,940.70	7,435.97	7,431.83	66.35	222.82	-90.01	937.40	18,091.93	14,050.86	13,804.39	246.47	57.009	
10,600.00	6,940.72	7,436.00	7,431.86	67.86	222.82	-90.01	937.40	18,091.93	13,950.88	13,704.38	246.50	56.595	
10,700.00	6,940.74	7,436.03	7,431.89	69.36	222.82	-90.02	937.40	18,091.93	13,850.91	13,604.37	246.54	56.182	
10,800.00	6,940.76	7,436.06	7,431.92	70.88	222.82	-90.02	937.40	18,091.93	13,750.93	13,504.36	246.57	55.768	
10,900.00	6,940.78	7,436.09	7,431.95	72.39	222.82	-90.03	937.40	18,091.93	13,650.96	13,404.35	246.61	55.355	
11,000.00	6,940.81	7,436.12	7,431.98	73.91	222.82	-90.03	937.40	18,091.93	13,550.98	13,304.34	246.65	54.941	
11,100.00	6,940.83	7,436.15	7,432.01	75.44	222.82	-90.04	937.40	18,091.93	13,451.01	13,204.33	246.68	54.527	
11,200.00	6,940.85	7,436.18	7,432.04	76.96	222.82	-90.05	937.40	18,091.93	13,351.04	13,104.31	246.72	54.114	
11,300.00	6,940.87	7,436.21	7,432.07	78.49	222.82	-90.05	937.40	18,091.93	13,251.06	13,004.30	246.76	53.700	
11,400.00	6,940.89	7,436.24	7,432.10	80.03	222.82	-90.06	937.40	18,091.93	13,151.09	12,904.29	246.80	53.286	
11,500.00	6,940.92	7,436.27	7,432.13	81.56	222.82	-90.06	937.40	18,091.93	13,051.12	12,804.27	246.84	52.872	
11,600.00	6,940.94	7,436.30	7,432.16	83.10	222.83	-90.07	937.40	18,091.93	12,951.15	12,704.26	246.89	52.458	
11,700.00	6,940.96	7,436.33	7,432.19	84.64	222.83	-90.07	937.40	18,091.93	12,851.17	12,604.25	246.93	52.044	
11,800.00	6,940.98	7,436.36	7,432.22	86.18	222.83	-90.08	937.40	18,091.93	12,751.20	12,504.23	246.97	51.630	
11,900.00	6,941.00	7,436.39	7,432.25	87.72	222.83	-90.08	937.40	18,091.93	12,651.23	12,404.22	247.02	51.216	
12,000.00	6,941.03	7,436.41	7,432.27	89.27	222.83	-90.09	937.40	18,091.93	12,551.26	12,304.20	247.06	50.802	
12,100.00	6,941.05	7,436.44	7,432.30	90.82	222.83	-90.09	937.40	18,091.93	12,451.29	12,204.18	247.11	50.388	
12,200.00	6,941.07	7,436.47	7,432.33	92.37	222.83	-90.10	937.40	18,091.93	12,351.32	12,104.17	247.16	49.974	
12,300.00	6,941.09	7,436.50	7,432.36	93.92	222.83	-90.11	937.40	18,091.93	12,251.36	12,004.15	247.21	49.559	
12,400.00	6,941.11	7,436.53	7,432.39	95.47	222.83	-90.11	937.40	18,091.93	12,151.39	11,904.13	247.25	49.145	
12,500.00	6,941.14	7,436.56	7,432.42	97.03	222.83	-90.12	937.40	18,091.93	12,051.42	11,804.12	247.30	48.731	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
12,600.00	6,941.16	7,436.59	7,432.45	98.58	222.83	-90.12	937.40	18,091.93	11,951.45	11,704.10	247.36	48.317	
12,700.00	6,941.18	7,436.62	7,432.48	100.14	222.83	-90.13	937.39	18,091.93	11,851.49	11,604.08	247.41	47.903	
12,800.00	6,941.20	7,436.65	7,432.51	101.70	222.84	-90.13	937.39	18,091.93	11,751.52	11,504.06	247.46	47.489	
12,900.00	6,941.23	7,436.68	7,432.54	103.26	222.84	-90.14	937.39	18,091.93	11,651.55	11,404.04	247.51	47.075	
13,000.00	6,941.25	7,436.71	7,432.57	104.82	222.84	-90.14	937.39	18,091.93	11,551.59	11,304.02	247.57	46.661	
13,100.00	6,941.27	7,436.74	7,432.60	106.38	222.84	-90.15	937.39	18,091.93	11,451.63	11,204.00	247.62	46.246	
13,200.00	6,941.29	7,436.77	7,432.63	107.95	222.84	-90.15	937.39	18,091.93	11,351.66	11,103.98	247.68	45.832	
13,300.00	6,941.31	7,436.80	7,432.66	109.51	222.84	-90.16	937.39	18,091.93	11,251.70	11,003.97	247.73	45.418	
13,400.00	6,941.34	7,436.83	7,432.69	111.08	222.84	-90.17	937.39	18,091.93	11,151.74	10,903.95	247.79	45.004	
13,500.00	6,941.36	7,436.85	7,432.71	112.64	222.84	-90.17	937.39	18,091.93	11,051.78	10,803.93	247.85	44.591	
13,600.00	6,941.38	7,436.88	7,432.74	114.21	222.84	-90.18	937.39	18,091.93	10,951.81	10,703.91	247.91	44.177	
13,700.00	6,941.40	7,436.91	7,432.77	115.78	222.84	-90.18	937.39	18,091.93	10,851.85	10,603.89	247.97	43.763	
13,800.00	6,941.42	7,436.94	7,432.80	117.35	222.84	-90.19	937.39	18,091.93	10,751.90	10,503.87	248.03	43.349	
13,900.00	6,941.45	7,436.97	7,432.83	118.92	222.85	-90.19	937.39	18,091.93	10,651.94	10,403.85	248.09	42.935	
14,000.00	6,941.47	7,437.00	7,432.86	120.49	222.85	-90.20	937.39	18,091.93	10,551.98	10,303.82	248.15	42.522	
14,100.00	6,941.49	7,437.03	7,432.89	122.06	222.85	-90.20	937.39	18,091.93	10,452.02	10,203.80	248.22	42.108	
14,200.00	6,941.51	7,437.06	7,432.92	123.64	222.85	-90.21	937.39	18,091.93	10,352.07	10,103.78	248.28	41.695	
14,300.00	6,941.53	7,437.09	7,432.95	125.21	222.85	-90.21	937.39	18,091.93	10,252.11	10,003.76	248.35	41.281	
14,400.00	6,941.56	7,437.12	7,432.98	126.78	222.85	-90.22	937.39	18,091.93	10,152.16	9,903.74	248.41	40.868	
14,500.00	6,941.58	7,437.15	7,433.01	128.36	222.85	-90.23	937.39	18,091.93	10,052.20	9,803.72	248.48	40.455	
14,600.00	6,941.60	7,437.18	7,433.04	129.93	222.85	-90.23	937.39	18,091.93	9,952.25	9,703.70	248.55	40.042	
14,700.00	6,941.62	7,437.21	7,433.07	131.51	222.85	-90.24	937.39	18,091.93	9,852.30	9,603.68	248.62	39.629	
14,800.00	6,941.64	7,437.24	7,433.10	133.08	222.85	-90.24	937.39	18,091.93	9,752.35	9,503.66	248.69	39.216	
14,900.00	6,941.67	7,437.27	7,433.13	134.66	222.85	-90.25	937.39	18,091.93	9,652.40	9,403.64	248.76	38.803	
15,000.00	6,941.69	7,437.30	7,433.16	136.24	222.86	-90.25	937.39	18,091.93	9,552.45	9,303.62	248.83	38.390	
15,100.00	6,941.71	7,437.33	7,433.18	137.82	222.86	-90.26	937.39	18,091.93	9,452.50	9,203.60	248.90	37.977	
15,200.00	6,941.73	7,437.35	7,433.21	139.40	222.86	-90.26	937.39	18,091.93	9,352.56	9,103.58	248.97	37.565	
15,300.00	6,941.75	7,437.38	7,433.24	140.97	222.86	-90.27	937.38	18,091.93	9,252.61	9,003.56	249.05	37.152	
15,400.00	6,941.78	7,437.41	7,433.27	142.55	222.86	-90.27	937.38	18,091.93	9,152.67	8,903.55	249.12	36.740	
15,500.00	6,941.80	7,437.44	7,433.30	144.13	222.86	-90.28	937.38	18,091.93	9,052.72	8,803.53	249.20	36.328	
15,600.00	6,941.82	7,437.47	7,433.33	145.72	222.86	-90.29	937.38	18,091.93	8,952.78	8,703.51	249.27	35.916	
15,700.00	6,941.84	7,437.50	7,433.36	147.30	222.86	-90.29	937.38	18,091.93	8,852.84	8,603.49	249.35	35.504	
15,800.00	6,941.87	7,437.53	7,433.39	148.88	222.86	-90.30	937.38	18,091.93	8,752.90	8,503.47	249.43	35.092	
15,900.00	6,941.89	7,437.56	7,433.42	150.46	222.86	-90.30	937.38	18,091.93	8,652.97	8,403.46	249.51	34.680	
16,000.00	6,941.91	7,437.59	7,433.45	152.04	222.86	-90.31	937.38	18,091.93	8,553.03	8,303.44	249.59	34.268	
16,100.00	6,941.93	7,437.62	7,433.48	153.62	222.86	-90.31	937.38	18,091.93	8,453.10	8,203.42	249.67	33.857	
16,200.00	6,941.95	7,437.65	7,433.51	155.21	222.87	-90.32	937.38	18,091.93	8,353.16	8,103.41	249.76	33.445	
16,300.00	6,941.98	7,437.68	7,433.54	156.79	222.87	-90.32	937.38	18,091.93	8,253.23	8,003.39	249.84	33.034	
16,400.00	6,942.00	7,437.71	7,433.57	158.37	222.87	-90.33	937.38	18,091.93	8,153.30	7,903.38	249.92	32.623	
16,500.00	6,942.02	7,437.74	7,433.60	159.96	222.87	-90.33	937.38	18,091.93	8,053.38	7,803.36	250.01	32.212	
16,600.00	6,942.04	7,437.77	7,433.63	161.54	222.87	-90.34	937.38	18,091.93	7,953.45	7,703.35	250.10	31.801	
16,700.00	6,942.06	7,437.80	7,433.66	163.13	222.87	-90.35	937.38	18,091.93	7,853.53	7,603.34	250.19	31.391	
16,800.00	6,942.09	7,437.83	7,433.69	164.71	222.87	-90.35	937.38	18,091.93	7,753.60	7,503.33	250.28	30.980	
16,900.00	6,942.11	7,437.85	7,433.71	166.30	222.87	-90.36	937.38	18,091.93	7,653.68	7,403.31	250.37	30.570	
17,000.00	6,942.13	7,437.88	7,433.74	167.88	222.87	-90.36	937.38	18,091.93	7,553.77	7,303.30	250.46	30.159	
17,100.00	6,942.15	7,437.91	7,433.77	169.47	222.87	-90.37	937.38	18,091.93	7,453.85	7,203.29	250.56	29.749	
17,200.00	6,942.17	7,437.94	7,433.80	171.05	222.87	-90.37	937.38	18,091.93	7,353.94	7,103.28	250.65	29.339	
17,300.00	6,942.20	7,437.97	7,433.83	172.64	222.88	-90.38	937.38	18,091.93	7,254.03	7,003.28	250.75	28.929	
17,400.00	6,942.22	7,438.00	7,433.86	174.23	222.88	-90.38	937.38	18,091.93	7,154.12	6,903.27	250.85	28.520	
17,500.00	6,942.24	7,438.03	7,433.89	175.81	222.88	-90.39	937.38	18,091.93	7,054.21	6,803.26	250.95	28.110	
17,600.00	6,942.26	7,438.06	7,433.92	177.40	222.88	-90.40	937.38	18,091.93	6,954.31	6,703.26	251.05	27.701	
17,700.00	6,942.28	7,438.09	7,433.95	178.99	222.88	-90.40	937.38	18,091.93	6,854.41	6,603.25	251.15	27.292	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Rule Assigned:

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
17,800.00	6,942.31	7,438.12	7,433.98	180.57	222.88	-90.41	937.38	18,091.93	6,754.51	6,503.25	251.26	26.882	
17,900.00	6,942.33	7,438.15	7,434.01	182.16	222.88	-90.41	937.37	18,091.93	6,654.62	6,403.25	251.37	26.473	
18,000.00	6,942.35	7,438.18	7,434.04	183.75	222.88	-90.42	937.37	18,091.93	6,554.72	6,303.24	251.48	26.065	
18,100.00	6,942.37	7,438.21	7,434.07	185.34	222.88	-90.42	937.37	18,091.93	6,454.84	6,203.24	251.59	25.656	
18,200.00	6,942.39	7,438.24	7,434.10	186.93	222.88	-90.43	937.37	18,091.93	6,354.95	6,103.24	251.71	25.247	
18,300.00	6,942.42	7,438.27	7,434.13	188.52	222.88	-90.43	937.37	18,091.93	6,255.07	6,003.25	251.83	24.839	
18,400.00	6,942.44	7,438.30	7,434.16	190.10	222.89	-90.44	937.37	18,091.93	6,155.19	5,903.25	251.95	24.431	
18,500.00	6,942.46	7,438.33	7,434.19	191.69	222.89	-90.44	937.37	18,091.93	6,055.32	5,803.25	252.07	24.022	
18,600.00	6,942.48	7,438.36	7,434.22	193.28	222.89	-90.45	937.37	18,091.93	5,955.45	5,703.26	252.20	23.614	
18,700.00	6,942.51	7,438.39	7,434.24	194.87	222.89	-90.46	937.37	18,091.93	5,855.59	5,603.26	252.33	23.207	
18,800.00	6,942.53	7,438.42	7,434.27	196.46	222.89	-90.46	937.37	18,091.93	5,755.73	5,503.27	252.46	22.799	
18,900.00	6,942.55	7,438.44	7,434.30	198.05	222.89	-90.47	937.37	18,091.93	5,655.88	5,403.28	252.60	22.391	
19,000.00	6,942.57	7,438.47	7,434.33	199.64	222.89	-90.47	937.37	18,091.93	5,556.03	5,303.29	252.74	21.984	
19,100.00	6,942.59	7,438.50	7,434.36	201.23	222.89	-90.48	937.37	18,091.93	5,456.18	5,203.30	252.88	21.576	
19,200.00	6,942.62	7,438.53	7,434.39	202.82	222.89	-90.48	937.37	18,091.93	5,356.35	5,103.31	253.03	21.169	
19,300.00	6,942.64	7,438.56	7,434.42	204.41	222.89	-90.49	937.37	18,091.93	5,256.52	5,003.33	253.19	20.761	
19,400.00	6,942.66	7,438.59	7,434.45	206.00	222.89	-90.49	937.37	18,091.93	5,156.69	4,903.34	253.35	20.354	
19,500.00	6,942.68	7,438.62	7,434.48	207.59	222.89	-90.50	937.37	18,091.93	5,056.87	4,803.36	253.51	19.947	
19,600.00	6,942.70	7,438.65	7,434.51	209.18	222.90	-90.50	937.37	18,091.93	4,957.06	4,703.38	253.69	19.540	
19,700.00	6,942.73	7,438.68	7,434.54	210.78	222.90	-90.51	937.37	18,091.93	4,857.26	4,603.39	253.87	19.133	
19,800.00	6,942.75	7,438.71	7,434.57	212.37	222.90	-90.52	937.37	18,091.93	4,757.46	4,503.41	254.05	18.726	
19,900.00	6,942.77	7,438.74	7,434.60	213.96	222.90	-90.52	937.37	18,091.93	4,657.68	4,403.43	254.25	18.319	
20,000.00	6,942.79	7,438.77	7,434.63	215.55	222.90	-90.53	937.37	18,091.93	4,557.90	4,303.45	254.45	17.913	
20,100.00	6,942.81	7,438.80	7,434.66	217.14	222.90	-90.53	937.37	18,091.93	4,458.14	4,203.47	254.66	17.506	
20,200.00	6,942.84	7,438.83	7,434.69	218.73	222.90	-90.54	937.37	18,091.93	4,358.38	4,103.49	254.89	17.099	
20,300.00	6,942.86	7,438.86	7,434.72	220.32	222.90	-90.54	937.37	18,091.93	4,258.64	4,003.51	255.12	16.692	
20,400.00	6,942.88	7,438.89	7,434.75	221.92	222.90	-90.55	937.37	18,091.93	4,158.90	3,903.53	255.37	16.286	
20,500.00	6,942.90	7,438.92	7,434.78	223.51	222.90	-90.55	937.36	18,091.93	4,059.19	3,803.55	255.64	15.879	
20,600.00	6,942.92	7,438.95	7,434.81	225.10	222.90	-90.56	937.36	18,091.93	3,959.48	3,703.57	255.91	15.472	
20,700.00	6,942.95	7,438.98	7,434.84	226.69	222.91	-90.57	937.36	18,091.93	3,859.79	3,603.58	256.21	15.065	
20,800.00	6,942.97	7,439.01	7,434.86	228.28	222.91	-90.57	937.36	18,091.93	3,760.12	3,503.60	256.52	14.658	
20,900.00	6,942.99	7,439.03	7,434.89	229.88	222.91	-90.58	937.36	18,091.93	3,660.47	3,403.61	256.86	14.251	
20,942.50	6,943.00	7,439.05	7,434.91	230.42	222.91	-90.58	937.36	18,091.93	3,618.12	3,356.52	261.60	13.831	CC, ES, SF

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	23.00	23.00	0.00	0.69	68.30	1,824.49	4,585.42	4,935.06				
58.45	58.45	81.45	81.45	0.02	2.44	-169.99	1,824.49	4,585.42	4,935.42	4,932.96	2.46	2,006.919	
150.25	150.24	173.24	173.24	0.14	5.19	171.71	1,824.49	4,585.42	4,936.50	4,931.17	5.33	926.346	
239.43	239.42	262.42	262.42	0.25	7.86	166.23	1,824.49	4,585.42	4,937.53	4,929.42	8.12	608.343	
299.93	299.91	322.91	322.91	0.33	9.68	171.19	1,824.49	4,585.42	4,938.29	4,928.28	10.01	493.472	
446.00	445.96	468.96	468.96	0.50	14.05	-164.41	1,824.49	4,585.42	4,940.66	4,926.10	14.55	339.471	
537.00	536.95	560.05	559.95	0.73	16.78	-103.16	1,824.49	4,585.42	4,941.64	4,924.14	17.51	282.276	
624.00	623.95	647.05	646.95	0.99	19.39	-20.21	1,824.49	4,585.42	4,941.06	4,920.68	20.37	242.525	
718.00	717.90	741.01	740.90	1.29	22.20	-2.37	1,824.49	4,585.42	4,938.40	4,914.91	23.49	210.227	
811.00	810.73	846.18	846.02	1.60	25.36	17.11	1,826.34	4,585.42	4,933.67	4,906.72	26.96	183.024	
903.00	902.19	950.99	950.81	1.92	28.50	29.22	1,825.25	4,585.42	4,924.37	4,893.95	30.42	161.883	
994.00	992.38	1,015.79	1,015.38	2.24	30.44	31.56	1,824.49	4,585.42	4,913.54	4,880.86	32.68	150.356	
1,084.00	1,081.50	1,104.90	1,104.50	2.56	33.11	36.12	1,824.49	4,585.42	4,903.07	4,867.41	35.67	137.467	
1,175.00	1,171.48	1,194.89	1,194.48	2.91	35.80	40.09	1,824.49	4,585.42	4,892.39	4,853.70	38.69	126.448	
1,268.00	1,263.52	1,292.20	1,291.75	3.26	38.72	41.72	1,826.60	4,585.42	4,883.04	4,841.09	41.94	116.418	
1,363.00	1,357.62	1,399.57	1,399.10	3.63	41.94	44.83	1,825.88	4,585.42	4,873.27	4,827.76	45.51	107.086	
1,457.00	1,450.74	1,505.66	1,505.15	3.99	45.12	47.69	1,824.38	4,585.42	4,863.88	4,814.85	49.03	99.196	
1,552.00	1,544.82	1,568.53	1,567.82	4.36	47.00	48.59	1,824.49	4,585.42	4,854.94	4,803.67	51.27	94.689	
1,646.00	1,637.88	1,661.59	1,660.88	4.72	49.79	49.21	1,824.49	4,585.42	4,846.15	4,791.74	54.41	89.061	
1,741.00	1,731.94	1,756.44	1,755.69	5.09	52.63	49.75	1,826.66	4,585.42	4,838.22	4,780.60	57.61	83.977	
1,835.00	1,825.07	1,862.22	1,861.45	5.46	55.80	49.94	1,826.22	4,585.42	4,829.85	4,768.71	61.14	79.001	
1,929.00	1,918.39	1,968.05	1,967.25	5.82	58.97	48.86	1,825.00	4,585.42	4,822.07	4,757.41	64.66	74.580	
2,024.00	2,012.84	2,036.85	2,035.84	6.18	61.03	50.31	1,824.49	4,585.42	4,815.17	4,748.10	67.07	71.790	
2,118.00	2,106.19	2,130.21	2,129.19	6.53	63.83	50.67	1,824.49	4,585.42	4,808.16	4,737.94	70.22	68.471	
2,213.00	2,200.37	2,224.39	2,223.37	6.90	66.65	49.49	1,824.49	4,585.42	4,800.13	4,726.72	73.40	65.393	
2,307.00	2,293.61	2,326.50	2,325.43	7.27	69.71	51.55	1,826.46	4,585.42	4,793.18	4,716.36	76.82	62.397	
2,402.00	2,387.91	2,433.02	2,431.92	7.63	72.90	55.55	1,825.49	4,585.42	4,786.04	4,705.67	80.36	59.554	
2,496.00	2,481.29	2,505.61	2,504.29	7.99	75.08	56.83	1,824.49	4,585.42	4,779.60	4,696.71	82.90	57.658	
2,591.00	2,575.67	2,599.99	2,598.67	8.35	77.91	55.49	1,824.49	4,585.42	4,773.54	4,687.45	86.08	55.454	
2,686.00	2,670.05	2,694.37	2,693.05	8.71	80.74	56.00	1,824.49	4,585.42	4,767.43	4,678.16	89.27	53.407	
2,780.00	2,763.49	2,792.59	2,791.23	9.07	83.68	54.07	1,826.60	4,585.42	4,762.20	4,669.64	92.56	51.449	
2,875.00	2,857.94	2,898.88	2,897.49	9.43	86.86	52.76	1,825.89	4,585.42	4,755.90	4,659.80	96.10	49.490	
2,970.00	2,952.51	3,005.18	3,003.76	9.79	90.05	56.43	1,824.39	4,585.42	4,750.21	4,650.58	99.63	47.677	
3,064.00	3,046.19	3,070.82	3,069.19	10.13	92.02	63.66	1,824.49	4,585.42	4,746.28	4,644.33	101.95	46.555	
3,159.00	3,140.98	3,165.60	3,163.98	10.47	94.86	65.72	1,824.49	4,585.42	4,743.52	4,638.39	105.13	45.119	
3,253.00	3,234.84	3,260.65	3,258.98	10.81	97.70	58.01	1,826.66	4,585.42	4,741.90	4,633.59	108.32	43.778	
3,348.00	3,329.74	3,367.19	3,365.51	11.14	100.90	50.41	1,826.18	4,585.42	4,739.25	4,627.40	111.85	42.373	
3,397.00	3,378.70	3,422.14	3,420.44	11.32	102.54	49.55	1,825.63	4,585.42	4,737.76	4,624.09	113.66	41.682	
3,488.00	3,469.63	3,524.19	3,522.45	11.64	105.60	47.05	1,824.04	4,585.42	4,734.98	4,617.94	117.04	40.456	
3,583.00	3,564.49	3,589.42	3,587.49	11.98	107.56	55.49	1,824.49	4,585.42	4,731.92	4,612.58	119.34	39.650	
3,677.00	3,658.13	3,683.06	3,681.13	12.33	110.36	57.39	1,824.49	4,585.42	4,727.41	4,604.91	122.50	38.592	
3,772.00	3,752.42	3,780.65	3,778.68	12.69	113.29	62.08	1,826.63	4,585.42	4,722.34	4,596.55	125.78	37.544	
3,867.00	3,846.42	3,885.80	3,883.81	13.06	116.44	63.85	1,826.02	4,585.42	4,715.85	4,586.55	129.30	36.473	
3,961.00	3,939.30	3,989.49	3,987.47	13.44	119.54	63.82	1,824.66	4,585.42	4,709.01	4,576.24	132.77	35.468	
4,056.00	4,032.83	4,058.06	4,055.83	13.82	121.60	60.71	1,824.49	4,585.42	4,701.00	4,565.80	135.21	34.769	
4,151.00	4,126.01	4,151.24	4,149.01	14.21	124.39	61.80	1,824.49	4,585.42	4,691.98	4,553.59	138.38	33.906	
4,246.00	4,219.10	4,244.33	4,242.10	14.61	127.18	54.62	1,824.49	4,585.42	4,681.86	4,540.30	141.56	33.074	
4,340.00	4,310.92	4,345.76	4,343.48	15.01	130.22	45.85	1,826.34	4,585.42	4,669.31	4,524.33	144.98	32.208	
4,435.00	4,403.54	4,448.45	4,446.14	15.41	133.30	45.44	1,825.29	4,585.42	4,654.07	4,505.64	148.43	31.354	
4,498.00	4,465.21	4,516.69	4,514.35	15.68	135.34	47.56	1,824.18	4,585.42	4,644.79	4,494.06	150.73	30.816	
4,561.00	4,526.82	4,552.36	4,549.82	15.95	136.41	52.89	1,824.49	4,585.42	4,636.32	4,484.26	152.06	30.490	
4,624.00	4,588.23	4,613.77	4,611.23	16.22	138.25	54.88	1,824.49	4,585.42	4,627.88	4,473.72	154.16	30.020	

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 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
4,687.00	4,649.71	4,675.25	4,672.71	16.49	140.09	55.47	1,824.49	4,585.42	4,619.91	4,463.64	156.26	29.565	
4,749.00	4,710.40	4,735.94	4,733.40	16.75	141.91	56.82	1,824.49	4,585.42	4,612.75	4,454.41	158.33	29.133	
4,812.00	4,772.28	4,802.79	4,800.20	17.01	143.91	57.65	1,826.57	4,585.42	4,606.87	4,446.28	160.59	28.687	
4,875.00	4,834.34	4,871.17	4,868.58	17.27	145.96	57.28	1,826.15	4,585.42	4,600.85	4,437.95	162.89	28.245	
4,938.00	4,896.43	4,939.52	4,936.90	17.53	148.01	57.24	1,825.41	4,585.42	4,594.84	4,429.65	165.19	27.816	
5,001.00	4,958.46	5,007.68	5,005.04	17.79	150.05	54.20	1,824.35	4,585.42	4,588.27	4,420.79	167.48	27.395	
5,064.00	5,020.29	5,046.13	5,043.29	18.05	151.20	50.11	1,824.49	4,585.42	4,580.73	4,411.83	168.90	27.121	
5,126.00	5,080.98	5,106.82	5,103.98	18.32	153.02	46.06	1,824.49	4,585.42	4,572.17	4,401.20	170.97	26.743	
5,189.00	5,142.74	5,168.58	5,165.74	18.58	154.87	47.73	1,824.49	4,585.42	4,563.57	4,390.50	173.07	26.368	
5,252.00	5,204.62	5,230.46	5,227.62	18.85	156.73	47.84	1,824.49	4,585.42	4,555.55	4,380.36	175.18	26.005	
5,315.00	5,266.61	5,296.56	5,293.67	19.11	158.71	47.71	1,826.59	4,585.42	4,548.54	4,371.13	177.41	25.639	
5,378.00	5,328.73	5,364.58	5,361.68	19.37	160.75	48.25	1,826.21	4,585.42	4,541.34	4,361.64	179.69	25.272	
5,441.00	5,390.87	5,432.55	5,429.63	19.62	162.78	47.89	1,825.50	4,585.42	4,534.18	4,352.20	181.98	24.916	
5,503.00	5,452.07	5,499.42	5,496.47	19.87	164.79	48.29	1,824.49	4,585.42	4,527.26	4,343.04	184.22	24.575	
5,566.00	5,514.32	5,540.47	5,537.32	20.13	166.02	48.01	1,824.49	4,585.42	4,520.68	4,334.97	185.71	24.343	
5,629.00	5,576.59	5,602.74	5,599.59	20.38	167.88	50.52	1,824.49	4,585.42	4,514.42	4,326.60	187.82	24.036	
5,692.00	5,638.95	5,665.10	5,661.95	20.63	169.75	48.29	1,824.49	4,585.42	4,508.54	4,318.61	189.93	23.738	
5,747.00	5,693.45	5,719.59	5,716.45	20.85	171.38	50.58	1,824.49	4,585.42	4,503.68	4,311.91	191.78	23.484	
5,810.00	5,755.90	5,784.96	5,781.77	21.09	173.34	49.90	1,826.62	4,585.42	4,498.91	4,304.94	193.97	23.193	
5,874.00	5,819.40	5,854.17	5,850.97	21.34	175.42	51.23	1,826.29	4,585.42	4,493.75	4,297.46	196.29	22.893	
5,936.00	5,880.95	5,921.20	5,917.97	21.58	177.43	50.91	1,825.64	4,585.42	4,488.86	4,290.33	198.53	22.610	
5,999.00	5,943.45	5,989.20	5,985.96	21.82	179.46	49.55	1,824.67	4,585.42	4,483.58	4,282.77	200.81	22.328	
6,062.00	6,005.96	6,032.41	6,028.96	22.07	180.76	52.10	1,824.49	4,585.42	4,478.48	4,276.13	202.35	22.132	
6,125.00	6,068.49	6,094.94	6,091.49	22.31	182.63	49.87	1,824.49	4,585.42	4,473.62	4,269.15	204.46	21.880	
6,188.00	6,131.08	6,157.53	6,154.08	22.55	184.51	51.73	1,824.49	4,585.42	4,469.06	4,262.48	206.58	21.634	
6,255.00	6,197.73	6,224.18	6,220.73	22.81	186.50	50.71	1,824.49	4,585.42	4,464.77	4,255.95	208.83	21.380	
6,293.00	6,235.55	6,263.05	6,259.56	22.89	187.67	50.72	1,826.66	4,585.42	4,463.01	4,252.95	210.06	21.246	
6,300.00	6,242.52	6,270.62	6,267.13	22.89	187.90	50.73	1,826.65	4,585.42	4,462.59	4,252.29	210.29	21.221	
6,393.00	6,335.09	6,371.13	6,367.62	22.94	190.91	50.83	1,826.15	4,585.42	4,456.83	4,243.49	213.34	20.891	
6,400.00	6,342.06	6,378.69	6,375.17	22.94	191.13	44.94	1,826.09	4,585.42	4,456.35	4,242.79	213.57	20.866	
6,450.00	6,391.66	6,432.50	6,428.97	22.97	192.75	17.76	1,825.50	4,585.42	4,450.78	4,235.58	215.20	20.682	
6,500.00	6,440.77	6,485.76	6,482.21	23.02	194.34	5.77	1,824.72	4,585.42	4,441.42	4,224.61	216.81	20.485	
6,550.00	6,489.07	6,515.83	6,512.07	23.07	195.24	-0.62	1,824.49	4,585.42	4,428.46	4,210.73	217.73	20.339	
6,600.00	6,536.26	6,563.02	6,559.26	23.13	196.66	-4.69	1,824.49	4,585.42	4,411.99	4,192.83	219.16	20.132	
6,650.00	6,582.05	6,608.80	6,605.05	23.21	198.03	-7.69	1,824.49	4,585.42	4,392.03	4,171.49	220.54	19.915	
6,700.00	6,626.13	6,652.89	6,649.13	23.29	199.35	-10.17	1,824.49	4,585.42	4,368.69	4,146.82	221.87	19.691	
6,750.00	6,668.24	6,695.00	6,691.24	23.39	200.61	-12.44	1,824.49	4,585.42	4,342.14	4,119.00	223.13	19.460	
6,800.00	6,708.12	6,734.87	6,731.12	23.51	201.81	-14.68	1,824.49	4,585.42	4,312.53	4,088.20	224.33	19.224	
6,850.00	6,745.50	6,774.12	6,770.32	23.64	202.98	-17.09	1,826.64	4,585.42	4,280.62	4,055.12	225.50	18.982	
6,900.00	6,780.15	6,811.66	6,807.86	23.79	204.11	-19.73	1,826.53	4,585.42	4,245.49	4,018.86	226.62	18.734	
6,950.00	6,811.86	6,846.01	6,842.20	23.95	205.14	-22.77	1,826.34	4,585.42	4,207.91	3,980.27	227.65	18.484	
7,000.00	6,840.42	6,876.96	6,873.14	24.14	206.06	-26.41	1,826.10	4,585.42	4,168.15	3,939.59	228.56	18.237	
7,050.00	6,865.66	6,904.31	6,900.49	24.35	206.88	-30.86	1,825.83	4,585.42	4,126.46	3,897.10	229.36	17.991	
7,100.00	6,887.42	6,927.89	6,924.06	24.57	207.59	-36.41	1,825.56	4,585.42	4,083.12	3,853.07	230.05	17.749	
7,150.00	6,905.55	6,947.56	6,943.72	24.82	208.18	-43.41	1,825.30	4,585.42	4,038.42	3,807.81	230.61	17.512	
7,200.00	6,919.95	6,963.18	6,959.34	25.10	208.65	-52.20	1,825.08	4,585.42	3,992.66	3,761.60	231.05	17.280	
7,250.00	6,930.52	6,974.67	6,970.82	25.39	208.99	-62.94	1,824.90	4,585.42	3,946.12	3,714.76	231.36	17.056	
7,300.00	6,937.20	6,981.95	6,978.10	25.70	209.21	-75.32	1,824.79	4,585.42	3,899.12	3,667.58	231.54	16.840	
7,350.00	6,939.94	6,984.96	6,981.11	26.04	209.30	-88.32	1,824.74	4,585.42	3,851.97	3,620.38	231.59	16.632	
7,359.60	6,940.02	6,985.05	6,981.20	26.10	209.30	-90.78	1,824.73	4,585.42	3,842.92	3,611.33	231.59	16.594	
7,400.00	6,940.03	6,985.10	6,981.25	26.39	209.31	-90.78	1,824.73	4,585.42	3,804.90	3,573.34	231.56	16.432	
7,500.00	6,940.04	6,985.21	6,981.36	27.15	209.31	-90.79	1,824.73	4,585.42	3,710.99	3,479.50	231.49	16.031	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
7,600.00	6,940.06	6,985.33	6,981.47	27.99	209.31	-90.79	1,824.73	4,585.42	3,617.40	3,385.96	231.44	15.630	
7,659.60	6,940.07	6,985.39	6,981.54	28.52	209.31	-90.79	1,824.73	4,585.42	3,561.79	3,330.37	231.42	15.391	
7,700.00	6,940.08	6,985.43	6,981.58	28.89	209.32	-90.82	1,824.73	4,585.42	3,524.07	3,292.65	231.42	15.228	
7,796.63	6,940.10	6,985.49	6,981.64	29.83	209.32	-90.90	1,824.73	4,585.42	3,433.26	3,201.85	231.42	14.836	
7,800.00	6,940.10	6,985.49	6,981.64	29.86	209.32	-90.90	1,824.73	4,585.42	3,430.08	3,198.66	231.42	14.822	
7,900.00	6,940.12	6,985.53	6,981.67	30.90	209.32	-90.90	1,824.73	4,585.42	3,335.87	3,104.43	231.45	14.413	
8,000.00	6,940.14	6,985.56	6,981.71	31.98	209.32	-90.90	1,824.73	4,585.42	3,242.01	3,010.51	231.50	14.004	
8,100.00	6,940.17	6,985.59	6,981.74	33.11	209.32	-90.91	1,824.73	4,585.42	3,148.52	2,916.94	231.59	13.595	
8,200.00	6,940.19	6,985.62	6,981.77	34.28	209.32	-90.91	1,824.73	4,585.42	3,055.45	2,823.74	231.71	13.186	
8,300.00	6,940.21	6,985.65	6,981.80	35.48	209.32	-90.91	1,824.72	4,585.42	2,962.83	2,730.95	231.88	12.777	
8,400.00	6,940.23	6,985.69	6,981.83	36.71	209.32	-90.91	1,824.72	4,585.42	2,870.70	2,638.60	232.10	12.368	
8,500.00	6,940.25	6,985.72	6,981.87	37.97	209.32	-90.91	1,824.72	4,585.42	2,779.12	2,546.74	232.38	11.959	
8,600.00	6,940.28	6,985.75	6,981.90	39.26	209.32	-90.91	1,824.72	4,585.42	2,688.14	2,455.41	232.73	11.550	
8,700.00	6,940.30	6,985.78	6,981.93	40.56	209.33	-90.92	1,824.72	4,585.42	2,597.82	2,364.67	233.15	11.142	
8,800.00	6,940.32	6,985.82	6,981.96	41.89	209.33	-90.92	1,824.72	4,585.42	2,508.24	2,274.57	233.67	10.734	
8,900.00	6,940.34	6,985.85	6,982.00	43.24	209.33	-90.92	1,824.72	4,585.42	2,419.47	2,185.20	234.27	10.328	
9,000.00	6,940.36	6,985.88	6,982.03	44.60	209.33	-90.92	1,824.72	4,585.42	2,331.61	2,096.62	234.99	9.922	
9,100.00	6,940.39	6,985.91	6,982.06	45.98	209.33	-90.92	1,824.72	4,585.42	2,244.77	2,008.94	235.84	9.518	
9,200.00	6,940.41	6,985.95	6,982.09	47.38	209.33	-90.92	1,824.72	4,585.42	2,159.07	1,922.26	236.81	9.117	
9,300.00	6,940.43	6,985.98	6,982.13	48.78	209.33	-90.93	1,824.72	4,585.42	2,074.65	1,836.71	237.94	8.719	
9,400.00	6,940.45	6,986.01	6,982.16	50.20	209.33	-90.93	1,824.72	4,585.42	1,991.67	1,752.43	239.24	8.325	
9,500.00	6,940.47	6,986.04	6,982.19	51.63	209.33	-90.93	1,824.72	4,585.42	1,910.32	1,669.61	240.71	7.936	
9,600.00	6,940.50	6,986.08	6,982.22	53.07	209.33	-90.93	1,824.72	4,585.42	1,830.82	1,588.44	242.38	7.553	
9,700.00	6,940.52	6,986.11	6,982.26	54.52	209.34	-90.93	1,824.72	4,585.42	1,753.42	1,509.16	244.26	7.178	
9,800.00	6,940.54	6,986.14	6,982.29	55.97	209.34	-90.93	1,824.72	4,585.42	1,678.41	1,432.06	246.36	6.813	
9,900.00	6,940.56	6,986.17	6,982.32	57.44	209.34	-90.93	1,824.72	4,585.42	1,606.13	1,357.44	248.69	6.458	
10,000.00	6,940.59	6,986.21	6,982.35	58.91	209.34	-90.94	1,824.72	4,585.42	1,536.96	1,285.71	251.25	6.117	
10,100.00	6,940.61	6,986.24	6,982.39	60.38	209.34	-90.94	1,824.72	4,585.42	1,471.33	1,217.29	254.04	5.792	
10,200.00	6,940.63	6,986.27	6,982.42	61.87	209.34	-90.94	1,824.71	4,585.42	1,409.75	1,152.70	257.05	5.484	
10,300.00	6,940.65	6,986.30	6,982.45	63.36	209.34	-90.94	1,824.71	4,585.42	1,352.77	1,092.50	260.27	5.198	
10,400.00	6,940.67	6,986.34	6,982.48	64.85	209.34	-90.94	1,824.71	4,585.42	1,300.98	1,037.35	263.63	4.935	
10,500.00	6,940.70	6,986.37	6,982.51	66.35	209.34	-90.94	1,824.71	4,585.42	1,255.05	987.95	267.10	4.699	
10,600.00	6,940.72	6,986.40	6,982.55	67.86	209.34	-90.95	1,824.71	4,585.42	1,215.62	945.03	270.59	4.492	
10,700.00	6,940.74	6,986.43	6,982.58	69.36	209.35	-90.95	1,824.71	4,585.42	1,183.34	909.35	274.00	4.319	
10,800.00	6,940.76	6,986.46	6,982.61	70.88	209.35	-90.95	1,824.71	4,585.42	1,158.83	881.61	277.22	4.180	
10,900.00	6,940.78	6,986.50	6,982.64	72.39	209.35	-90.95	1,824.71	4,585.42	1,142.57	862.43	280.14	4.079	
11,000.00	6,940.81	6,986.53	6,982.68	73.91	209.35	-90.95	1,824.71	4,585.42	1,134.92	852.26	282.66	4.015	
11,037.10	6,940.81	6,986.54	6,982.69	74.48	209.35	-90.95	1,824.71	4,585.42	1,134.31	850.85	283.47	4.002	CC, ES
11,100.00	6,940.83	6,986.56	6,982.71	75.44	209.35	-90.95	1,824.71	4,585.42	1,136.06	851.38	284.68	3.991	SF
11,200.00	6,940.85	6,986.59	6,982.74	76.96	209.35	-90.96	1,824.71	4,585.42	1,145.95	859.78	286.17	4.004	
11,300.00	6,940.87	6,986.63	6,982.77	78.49	209.35	-90.96	1,824.71	4,585.42	1,164.38	877.27	287.11	4.055	
11,400.00	6,940.89	6,986.66	6,982.81	80.03	209.35	-90.96	1,824.71	4,585.42	1,190.95	903.41	287.54	4.142	
11,500.00	6,940.92	6,986.69	6,982.84	81.56	209.35	-90.96	1,824.71	4,585.42	1,225.13	937.63	287.50	4.261	
11,600.00	6,940.94	6,986.72	6,982.87	83.10	209.35	-90.96	1,824.71	4,585.42	1,266.31	979.23	287.08	4.411	
11,700.00	6,940.96	6,986.76	6,982.90	84.64	209.35	-90.96	1,824.71	4,585.42	1,313.82	1,027.47	286.34	4.588	
11,800.00	6,940.98	6,986.79	6,982.94	86.18	209.36	-90.97	1,824.71	4,585.42	1,367.00	1,081.63	285.37	4.790	
11,900.00	6,941.00	6,986.82	6,982.97	87.72	209.36	-90.97	1,824.71	4,585.42	1,425.23	1,140.99	284.24	5.014	
12,000.00	6,941.03	6,986.85	6,983.00	89.27	209.36	-90.97	1,824.70	4,585.42	1,487.90	1,204.90	283.00	5.258	
12,100.00	6,941.05	6,986.89	6,983.03	90.82	209.36	-90.97	1,824.70	4,585.42	1,554.49	1,272.78	281.71	5.518	
12,200.00	6,941.07	6,986.92	6,983.07	92.37	209.36	-90.97	1,824.70	4,585.42	1,624.51	1,344.11	280.39	5.794	
12,300.00	6,941.09	6,986.95	6,983.10	93.92	209.36	-90.97	1,824.70	4,585.42	1,697.53	1,418.45	279.08	6.083	
12,400.00	6,941.11	6,986.98	6,983.13	95.47	209.36	-90.98	1,824.70	4,585.42	1,773.18	1,495.39	277.79	6.383	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
12,500.00	6,941.14	6,987.02	6,983.16	97.03	209.36	-90.98	1,824.70	4,585.42	1,851.15	1,574.61	276.54	6.694	
12,600.00	6,941.16	6,987.05	6,983.20	98.58	209.36	-90.98	1,824.70	4,585.42	1,931.15	1,655.81	275.34	7.014	
12,700.00	6,941.18	6,987.08	6,983.23	100.14	209.36	-90.98	1,824.70	4,585.42	2,012.94	1,738.75	274.19	7.341	
12,800.00	6,941.20	6,987.11	6,983.26	101.70	209.37	-90.98	1,824.70	4,585.42	2,096.31	1,823.22	273.09	7.676	
12,900.00	6,941.23	6,987.15	6,983.29	103.26	209.37	-90.98	1,824.70	4,585.42	2,181.07	1,909.02	272.05	8.017	
13,000.00	6,941.25	6,987.18	6,983.33	104.82	209.37	-90.99	1,824.70	4,585.42	2,267.08	1,996.02	271.07	8.364	
13,100.00	6,941.27	6,987.21	6,983.36	106.38	209.37	-90.99	1,824.70	4,585.42	2,354.20	2,084.06	270.13	8.715	
13,200.00	6,941.29	6,987.24	6,983.39	107.95	209.37	-90.99	1,824.70	4,585.42	2,442.30	2,173.05	269.25	9.071	
13,300.00	6,941.31	6,987.28	6,983.42	109.51	209.37	-90.99	1,824.70	4,585.42	2,531.29	2,262.86	268.42	9.430	
13,400.00	6,941.34	6,987.31	6,983.46	111.08	209.37	-90.99	1,824.70	4,585.42	2,621.07	2,353.43	267.64	9.793	
13,500.00	6,941.36	6,987.34	6,983.49	112.64	209.37	-90.99	1,824.70	4,585.42	2,711.56	2,444.66	266.90	10.159	
13,600.00	6,941.38	6,987.37	6,983.52	114.21	209.37	-91.00	1,824.70	4,585.42	2,802.70	2,536.50	266.21	10.528	
13,700.00	6,941.40	6,987.41	6,983.55	115.78	209.37	-91.00	1,824.70	4,585.42	2,894.43	2,628.88	265.55	10.900	
13,800.00	6,941.42	6,987.44	6,983.59	117.35	209.38	-91.00	1,824.70	4,585.42	2,986.69	2,721.76	264.93	11.273	
13,900.00	6,941.45	6,987.47	6,983.62	118.92	209.38	-91.00	1,824.69	4,585.42	3,079.43	2,815.08	264.35	11.649	
14,000.00	6,941.47	6,987.50	6,983.65	120.49	209.38	-91.00	1,824.69	4,585.42	3,172.61	2,908.82	263.80	12.027	
14,100.00	6,941.49	6,987.54	6,983.68	122.06	209.38	-91.00	1,824.69	4,585.42	3,266.20	3,002.92	263.28	12.406	
14,200.00	6,941.51	6,987.57	6,983.72	123.64	209.38	-91.01	1,824.69	4,585.42	3,360.15	3,097.37	262.79	12.787	
14,300.00	6,941.53	6,987.60	6,983.75	125.21	209.38	-91.01	1,824.69	4,585.42	3,454.45	3,192.13	262.32	13.169	
14,400.00	6,941.56	6,987.63	6,983.78	126.78	209.38	-91.01	1,824.69	4,585.42	3,549.06	3,287.17	261.88	13.552	
14,500.00	6,941.58	6,987.67	6,983.81	128.36	209.38	-91.01	1,824.69	4,585.42	3,643.95	3,382.48	261.47	13.936	
14,600.00	6,941.60	6,987.70	6,983.85	129.93	209.38	-91.01	1,824.69	4,585.42	3,739.11	3,478.04	261.08	14.322	
14,700.00	6,941.62	6,987.73	6,983.88	131.51	209.38	-91.01	1,824.69	4,585.42	3,834.52	3,573.82	260.70	14.708	
14,800.00	6,941.64	6,987.76	6,983.91	133.08	209.39	-91.02	1,824.69	4,585.42	3,930.16	3,669.80	260.35	15.096	
14,900.00	6,941.67	6,987.80	6,983.94	134.66	209.39	-91.02	1,824.69	4,585.42	4,026.00	3,765.98	260.02	15.483	
15,000.00	6,941.69	6,987.83	6,983.98	136.24	209.39	-91.02	1,824.69	4,585.42	4,122.05	3,862.34	259.70	15.872	
15,100.00	6,941.71	6,987.86	6,984.01	137.82	209.39	-91.02	1,824.69	4,585.42	4,218.28	3,958.87	259.40	16.261	
15,200.00	6,941.73	6,987.89	6,984.04	139.40	209.39	-91.02	1,824.69	4,585.42	4,314.68	4,055.56	259.12	16.651	
15,300.00	6,941.75	6,987.93	6,984.07	140.97	209.39	-91.02	1,824.69	4,585.42	4,411.24	4,152.39	258.85	17.042	
15,400.00	6,941.78	6,987.96	6,984.11	142.55	209.39	-91.03	1,824.69	4,585.42	4,507.95	4,249.35	258.60	17.432	
15,500.00	6,941.80	6,987.99	6,984.14	144.13	209.39	-91.03	1,824.69	4,585.42	4,604.80	4,346.45	258.36	17.824	
15,600.00	6,941.82	6,988.02	6,984.17	145.72	209.39	-91.03	1,824.69	4,585.42	4,701.78	4,443.66	258.13	18.215	
15,700.00	6,941.84	6,988.06	6,984.20	147.30	209.39	-91.03	1,824.69	4,585.42	4,798.89	4,540.98	257.91	18.607	
15,800.00	6,941.87	6,988.09	6,984.24	148.88	209.39	-91.03	1,824.68	4,585.42	4,896.11	4,638.41	257.70	18.999	
15,900.00	6,941.89	6,988.12	6,984.27	150.46	209.40	-91.03	1,824.68	4,585.42	4,993.45	4,735.94	257.51	19.392	
16,000.00	6,941.91	6,988.15	6,984.30	152.04	209.40	-91.03	1,824.68	4,585.42	5,090.88	4,833.56	257.32	19.784	
16,100.00	6,941.93	6,988.19	6,984.33	153.62	209.40	-91.04	1,824.68	4,585.42	5,188.42	4,931.27	257.14	20.177	
16,200.00	6,941.95	6,988.22	6,984.37	155.21	209.40	-91.04	1,824.68	4,585.42	5,286.04	5,029.07	256.98	20.570	
16,300.00	6,941.98	6,988.25	6,984.40	156.79	209.40	-91.04	1,824.68	4,585.42	5,383.76	5,126.94	256.82	20.963	
16,400.00	6,942.00	6,988.28	6,984.43	158.37	209.40	-91.04	1,824.68	4,585.42	5,481.55	5,224.88	256.67	21.357	
16,500.00	6,942.02	6,988.32	6,984.46	159.96	209.40	-91.04	1,824.68	4,585.42	5,579.43	5,322.90	256.53	21.750	
16,600.00	6,942.04	6,988.35	6,984.50	161.54	209.40	-91.04	1,824.68	4,585.42	5,677.37	5,420.98	256.39	22.143	
16,700.00	6,942.06	6,988.38	6,984.53	163.13	209.40	-91.05	1,824.68	4,585.42	5,775.39	5,519.13	256.26	22.537	
16,800.00	6,942.09	6,988.41	6,984.56	164.71	209.40	-91.05	1,824.68	4,585.42	5,873.48	5,617.34	256.14	22.931	
16,900.00	6,942.11	6,988.45	6,984.59	166.30	209.41	-91.05	1,824.68	4,585.42	5,971.63	5,715.60	256.03	23.324	
17,000.00	6,942.13	6,988.48	6,984.63	167.88	209.41	-91.05	1,824.68	4,585.42	6,069.84	5,813.92	255.92	23.718	
17,100.00	6,942.15	6,988.51	6,984.66	169.47	209.41	-91.05	1,824.68	4,585.42	6,168.10	5,912.28	255.82	24.111	
17,200.00	6,942.17	6,988.55	6,984.69	171.05	209.41	-91.05	1,824.68	4,585.42	6,266.42	6,010.70	255.72	24.505	
17,300.00	6,942.20	6,988.58	6,984.72	172.64	209.41	-91.06	1,824.68	4,585.42	6,364.80	6,109.17	255.63	24.898	
17,400.00	6,942.22	6,988.61	6,984.76	174.23	209.41	-91.06	1,824.68	4,585.42	6,463.22	6,207.68	255.55	25.292	
17,500.00	6,942.24	6,988.64	6,984.79	175.81	209.41	-91.06	1,824.68	4,585.42	6,561.69	6,306.23	255.47	25.685	
17,600.00	6,942.26	6,988.68	6,984.82	177.40	209.41	-91.06	1,824.67	4,585.42	6,660.21	6,404.82	255.39	26.079	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
17,700.00	6,942.28	6,988.71	6,984.85	178.99	209.41	-91.06	1,824.67	4,585.42	6,758.77	6,503.45	255.32	26.472	
17,800.00	6,942.31	6,988.74	6,984.89	180.57	209.41	-91.06	1,824.67	4,585.42	6,857.37	6,602.12	255.25	26.865	
17,900.00	6,942.33	6,988.77	6,984.92	182.16	209.42	-91.07	1,824.67	4,585.42	6,956.01	6,700.82	255.19	27.258	
18,000.00	6,942.35	6,988.81	6,984.95	183.75	209.42	-91.07	1,824.67	4,585.42	7,054.69	6,799.56	255.13	27.651	
18,100.00	6,942.37	6,988.84	6,984.98	185.34	209.42	-91.07	1,824.67	4,585.42	7,153.41	6,898.33	255.08	28.044	
18,200.00	6,942.39	6,988.87	6,985.02	186.93	209.42	-91.07	1,824.67	4,585.42	7,252.16	6,997.13	255.03	28.436	
18,300.00	6,942.42	6,988.90	6,985.05	188.52	209.42	-91.07	1,824.67	4,585.42	7,350.95	7,095.96	254.99	28.829	
18,400.00	6,942.44	6,988.94	6,985.08	190.10	209.42	-91.07	1,824.67	4,585.42	7,449.77	7,194.82	254.94	29.221	
18,500.00	6,942.46	6,988.97	6,985.12	191.69	209.42	-91.08	1,824.67	4,585.42	7,548.62	7,293.71	254.91	29.613	
18,600.00	6,942.48	6,989.00	6,985.15	193.28	209.42	-91.08	1,824.67	4,585.42	7,647.50	7,392.62	254.87	30.005	
18,700.00	6,942.51	6,989.03	6,985.18	194.87	209.42	-91.08	1,824.67	4,585.42	7,746.40	7,491.56	254.84	30.397	
18,800.00	6,942.53	6,989.07	6,985.21	196.46	209.42	-91.08	1,824.67	4,585.42	7,845.34	7,590.53	254.81	30.789	
18,900.00	6,942.55	6,989.10	6,985.25	198.05	209.43	-91.08	1,824.67	4,585.42	7,944.30	7,689.52	254.79	31.180	
19,000.00	6,942.57	6,989.13	6,985.28	199.64	209.43	-91.08	1,824.67	4,585.42	8,043.29	7,788.53	254.76	31.572	
19,100.00	6,942.59	6,989.16	6,985.31	201.23	209.43	-91.09	1,824.67	4,585.42	8,142.30	7,887.56	254.74	31.963	
19,200.00	6,942.62	6,989.20	6,985.34	202.82	209.43	-91.09	1,824.67	4,585.42	8,241.34	7,986.61	254.73	32.354	
19,300.00	6,942.64	6,989.23	6,985.38	204.41	209.43	-91.09	1,824.67	4,585.42	8,340.40	8,085.69	254.71	32.744	
19,400.00	6,942.66	6,989.26	6,985.41	206.00	209.43	-91.09	1,824.66	4,585.42	8,439.48	8,184.78	254.70	33.135	
19,500.00	6,942.68	6,989.30	6,985.44	207.59	209.43	-91.09	1,824.66	4,585.42	8,538.58	8,283.89	254.69	33.525	
19,600.00	6,942.70	6,989.33	6,985.47	209.18	209.43	-91.09	1,824.66	4,585.42	8,637.71	8,383.02	254.69	33.915	
19,700.00	6,942.73	6,989.36	6,985.51	210.78	209.43	-91.10	1,824.66	4,585.42	8,736.85	8,482.17	254.68	34.305	
19,800.00	6,942.75	6,989.39	6,985.54	212.37	209.43	-91.10	1,824.66	4,585.42	8,836.02	8,581.33	254.68	34.694	
19,900.00	6,942.77	6,989.43	6,985.57	213.96	209.43	-91.10	1,824.66	4,585.42	8,935.20	8,680.52	254.68	35.084	
20,000.00	6,942.79	6,989.46	6,985.60	215.55	209.44	-91.10	1,824.66	4,585.42	9,034.40	8,779.71	254.69	35.473	
20,100.00	6,942.81	6,989.49	6,985.64	217.14	209.44	-91.10	1,824.66	4,585.42	9,133.61	8,878.92	254.69	35.862	
20,200.00	6,942.84	6,989.52	6,985.67	218.73	209.44	-91.10	1,824.66	4,585.42	9,232.85	8,978.15	254.70	36.250	
20,300.00	6,942.86	6,989.56	6,985.70	220.32	209.44	-91.11	1,824.66	4,585.42	9,332.10	9,077.39	254.71	36.639	
20,400.00	6,942.88	6,989.59	6,985.73	221.92	209.44	-91.11	1,824.66	4,585.42	9,431.37	9,176.65	254.72	37.027	
20,500.00	6,942.90	6,989.62	6,985.77	223.51	209.44	-91.11	1,824.66	4,585.42	9,530.65	9,275.91	254.73	37.414	
20,600.00	6,942.92	6,989.65	6,985.80	225.10	209.44	-91.11	1,824.66	4,585.42	9,629.94	9,375.20	254.75	37.802	
20,700.00	6,942.95	6,989.69	6,985.83	226.69	209.44	-91.11	1,824.66	4,585.42	9,729.25	9,474.49	254.76	38.189	
20,800.00	6,942.97	6,989.72	6,985.87	228.28	209.44	-91.11	1,824.66	4,585.42	9,828.58	9,573.80	254.78	38.576	
20,900.00	6,942.99	6,989.75	6,985.90	229.88	209.44	-91.12	1,824.66	4,585.42	9,927.92	9,673.11	254.80	38.963	
20,942.50	6,943.00	6,989.77	6,985.91	230.42	209.45	-91.12	1,824.66	4,585.42	9,970.14	9,711.73	258.41	38.583	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Rule Assigned: Warning
0.00	0.00	233.00	233.00	0.00	6.98	103.49	-1,773.37	7,391.73	7,601.48				
58.45	58.45	291.45	291.45	0.02	8.73	-134.80	-1,773.37	7,391.73	7,601.74	7,592.99	8.75	868.952	
150.25	150.24	383.24	383.24	0.14	11.48	-153.10	-1,773.37	7,391.73	7,602.61	7,591.01	11.60	655.266	
239.43	239.42	472.42	472.42	0.25	14.16	-158.59	-1,773.37	7,391.73	7,603.57	7,589.18	14.38	528.619	
299.93	299.91	533.01	532.91	0.33	15.97	-153.64	-1,773.37	7,391.73	7,604.27	7,588.00	16.27	467.265	
446.00	445.96	679.06	678.96	0.50	20.35	-129.25	-1,773.37	7,391.73	7,606.07	7,585.25	20.82	365.326	
537.00	536.95	767.84	767.70	0.73	23.01	-68.02	-1,771.20	7,391.73	7,605.95	7,582.24	23.71	320.748	
624.00	623.95	845.31	845.16	0.99	25.33	14.95	-1,771.51	7,391.73	7,605.14	7,578.84	26.30	289.167	
718.00	717.90	929.00	928.83	1.29	27.84	32.83	-1,772.31	7,391.73	7,602.98	7,573.87	29.11	261.167	
811.00	810.73	1,044.14	1,043.73	1.60	31.29	52.36	-1,773.37	7,391.73	7,599.34	7,566.46	32.88	231.158	
903.00	902.19	1,135.60	1,135.19	1.92	34.03	64.41	-1,773.37	7,391.73	7,594.38	7,558.45	35.93	211.338	
994.00	992.38	1,225.79	1,225.38	2.24	36.73	66.75	-1,773.37	7,391.73	7,589.33	7,550.37	38.96	194.785	
1,084.00	1,081.50	1,307.67	1,307.21	2.56	39.18	71.23	-1,771.30	7,391.73	7,584.33	7,542.58	41.75	181.679	
1,175.00	1,171.48	1,387.57	1,387.10	2.91	41.58	75.15	-1,771.85	7,391.73	7,580.52	7,536.04	44.48	170.422	
1,268.00	1,263.52	1,469.19	1,468.69	3.26	44.02	76.79	-1,772.87	7,391.73	7,577.53	7,530.25	47.28	160.273	
1,363.00	1,357.62	1,591.33	1,590.62	3.63	47.68	79.88	-1,773.37	7,391.73	7,574.94	7,523.64	51.30	147.657	
1,457.00	1,450.74	1,684.46	1,683.74	3.99	50.47	82.67	-1,773.37	7,391.73	7,572.98	7,518.53	54.45	139.078	
1,552.00	1,544.82	1,775.25	1,774.49	4.36	53.19	83.54	-1,771.21	7,391.73	7,570.85	7,513.31	57.54	131.579	
1,646.00	1,637.88	1,857.58	1,856.81	4.72	55.66	84.13	-1,771.59	7,391.73	7,569.52	7,509.15	60.37	125.385	
1,741.00	1,731.94	1,940.69	1,939.90	5.09	58.15	84.68	-1,772.46	7,391.73	7,568.45	7,505.22	63.23	119.696	
1,835.00	1,825.07	2,059.09	2,058.07	5.46	61.70	84.89	-1,773.37	7,391.73	7,567.48	7,500.33	67.14	112.707	
1,929.00	1,918.39	2,152.40	2,151.39	5.82	64.50	83.83	-1,773.37	7,391.73	7,566.36	7,496.07	70.30	107.631	
2,024.00	2,012.84	2,246.85	2,245.84	6.18	67.33	85.29	-1,773.37	7,391.73	7,565.39	7,491.90	73.49	102.947	
2,118.00	2,106.19	2,329.53	2,328.47	6.53	69.80	85.54	-1,771.41	7,391.73	7,564.02	7,487.69	76.33	99.103	
2,213.00	2,200.37	2,412.50	2,411.41	6.90	72.29	84.32	-1,772.11	7,391.73	7,563.11	7,483.93	79.18	95.518	
2,307.00	2,293.61	2,527.93	2,526.61	7.27	75.75	86.44	-1,773.37	7,391.73	7,562.43	7,479.42	83.00	91.111	
2,392.99	2,378.97	2,613.29	2,611.97	7.60	78.31	90.00	-1,773.37	7,391.73	7,562.10	7,476.21	85.89	88.043	
2,402.00	2,387.91	2,622.23	2,620.91	7.63	78.57	90.37	-1,773.37	7,391.73	7,562.11	7,475.91	86.19	87.734	
2,496.00	2,481.29	2,715.61	2,714.29	7.99	81.37	91.67	-1,773.37	7,391.73	7,562.29	7,472.94	89.35	84.636	
2,534.04	2,519.09	2,752.98	2,751.62	8.14	82.49	91.06	-1,771.19	7,391.73	7,561.82	7,471.21	90.62	83.450	
2,591.00	2,575.67	2,802.71	2,801.34	8.35	83.98	90.25	-1,771.29	7,391.73	7,561.93	7,469.61	92.32	81.908	
2,686.00	2,670.05	2,885.59	2,884.20	8.71	86.47	90.77	-1,771.83	7,391.73	7,562.19	7,467.02	95.17	79.461	
2,780.00	2,763.49	2,967.56	2,966.15	9.07	88.92	88.82	-1,772.84	7,391.73	7,562.45	7,464.47	97.98	77.182	
2,875.00	2,857.94	3,092.56	3,090.94	9.43	92.67	87.53	-1,773.37	7,391.73	7,562.22	7,460.13	102.09	74.075	
2,942.22	2,924.84	3,159.47	3,157.84	9.68	94.67	90.00	-1,773.37	7,391.73	7,562.07	7,457.72	104.34	72.472	
2,970.00	2,952.51	3,187.14	3,185.51	9.79	95.50	91.19	-1,773.37	7,391.73	7,562.09	7,456.82	105.28	71.830	
3,037.12	3,019.40	3,253.51	3,251.84	10.03	97.49	96.15	-1,771.19	7,391.73	7,561.86	7,454.34	107.51	70.334	
3,064.00	3,046.19	3,276.99	3,275.32	10.13	98.19	98.42	-1,771.21	7,391.73	7,562.13	7,453.82	108.32	69.816	
3,159.00	3,140.98	3,360.02	3,358.34	10.47	100.68	100.49	-1,771.61	7,391.73	7,563.29	7,452.15	111.15	68.047	
3,253.00	3,234.84	3,442.23	3,440.52	10.81	103.14	92.81	-1,772.48	7,391.73	7,564.17	7,450.23	113.94	66.384	
3,348.00	3,329.74	3,564.67	3,562.74	11.14	106.81	85.22	-1,773.37	7,391.73	7,564.31	7,446.36	117.95	64.131	
3,397.00	3,378.70	3,613.63	3,611.70	11.32	108.28	84.36	-1,773.37	7,391.73	7,564.12	7,444.53	119.59	63.250	
3,488.00	3,469.63	3,704.56	3,702.63	11.64	111.01	81.83	-1,773.37	7,391.73	7,563.71	7,441.07	122.63	61.677	
3,568.11	3,549.64	3,780.23	3,778.26	11.92	113.27	89.51	-1,771.22	7,391.73	7,562.90	7,437.71	125.19	60.412	
3,583.00	3,564.49	3,793.22	3,791.25	11.98	113.66	90.20	-1,771.25	7,391.73	7,562.91	7,437.28	125.63	60.199	
3,677.00	3,658.13	3,875.12	3,873.12	12.33	116.12	92.00	-1,771.74	7,391.73	7,563.24	7,434.80	128.44	58.888	
3,772.00	3,752.42	3,957.48	3,955.46	12.69	118.58	96.50	-1,772.69	7,391.73	7,564.48	7,433.21	131.27	57.626	
3,867.00	3,846.42	4,081.65	4,079.42	13.06	122.30	98.20	-1,773.37	7,391.73	7,566.39	7,431.03	135.36	55.897	
3,961.00	3,939.30	4,174.53	4,172.30	13.44	125.09	98.03	-1,773.37	7,391.73	7,568.46	7,429.94	138.52	54.639	
4,056.00	4,032.83	4,265.72	4,263.45	13.82	127.82	94.75	-1,771.20	7,391.73	7,569.69	7,428.06	141.64	53.445	
4,151.00	4,126.01	4,346.84	4,344.55	14.21	130.25	95.70	-1,771.52	7,391.73	7,571.52	7,427.06	144.46	52.413	
4,246.00	4,219.10	4,427.73	4,425.42	14.61	132.67	88.54	-1,772.29	7,391.73	7,572.49	7,425.21	147.28	51.416	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**Offset TVD Reference:**	Offset Datum

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

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

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Rule Assigned: Warning
4,340.00	4,310.92	4,546.45	4,543.92	15.01	136.23	79.81	-1,773.37	7,391.73	7,570.56	7,419.32	151.24	50.058	
4,435.00	4,403.54	4,639.08	4,636.54	15.41	139.01	79.40	-1,773.37	7,391.73	7,566.66	7,412.24	154.42	49.001	
4,498.00	4,465.21	4,700.75	4,698.21	15.68	140.86	81.53	-1,773.37	7,391.73	7,564.47	7,407.94	156.53	48.326	
4,561.00	4,526.82	4,760.69	4,758.11	15.95	142.65	86.64	-1,771.19	7,391.73	7,562.49	7,403.90	158.59	47.685	
4,624.00	4,588.23	4,813.85	4,811.26	16.22	144.24	88.54	-1,771.33	7,391.73	7,561.93	7,401.48	160.46	47.127	
4,687.00	4,649.71	4,867.00	4,864.40	16.49	145.84	89.15	-1,771.67	7,391.73	7,561.77	7,399.45	162.32	46.585	
4,694.56	4,657.10	4,873.38	4,870.78	16.52	146.03	89.30	-1,771.72	7,391.73	7,561.77	7,399.22	162.54	46.521	
4,749.00	4,710.40	4,919.40	4,916.79	16.75	147.41	90.53	-1,772.19	7,391.73	7,561.91	7,397.76	164.15	46.066	
4,812.00	4,772.28	5,008.13	5,005.28	17.01	150.07	91.46	-1,773.37	7,391.73	7,562.43	7,395.35	167.08	45.263	
4,875.00	4,834.34	5,070.18	5,067.34	17.27	151.93	91.12	-1,773.37	7,391.73	7,562.68	7,393.48	169.19	44.698	
4,938.00	4,896.43	5,132.28	5,129.43	17.53	153.79	91.00	-1,773.37	7,391.73	7,562.88	7,391.56	171.31	44.147	
5,001.00	4,958.46	5,194.30	5,191.46	17.79	155.64	87.91	-1,773.37	7,391.73	7,562.76	7,389.33	173.43	43.607	
5,064.00	5,020.29	5,255.26	5,252.38	18.05	157.47	83.76	-1,771.19	7,391.73	7,561.17	7,385.65	175.52	43.078	
5,126.00	5,080.98	5,307.52	5,304.63	18.32	159.04	79.74	-1,771.30	7,391.73	7,559.36	7,382.01	177.35	42.624	
5,189.00	5,142.74	5,360.64	5,357.74	18.58	160.63	81.41	-1,771.62	7,391.73	7,557.40	7,378.19	179.21	42.171	
5,252.00	5,204.62	5,413.80	5,410.89	18.85	162.22	81.51	-1,772.13	7,391.73	7,555.80	7,374.73	181.06	41.730	
5,315.00	5,266.61	5,502.76	5,499.61	19.11	164.89	81.48	-1,773.37	7,391.73	7,554.46	7,370.47	183.99	41.059	
5,378.00	5,328.73	5,564.88	5,561.73	19.37	166.75	82.01	-1,773.37	7,391.73	7,552.93	7,366.81	186.11	40.583	
5,441.00	5,390.87	5,627.02	5,623.87	19.62	168.61	81.61	-1,773.37	7,391.73	7,551.43	7,363.20	188.23	40.118	
5,503.00	5,452.07	5,688.22	5,685.07	19.87	170.44	82.01	-1,773.37	7,391.73	7,550.00	7,359.68	190.31	39.671	
5,566.00	5,514.32	5,750.38	5,747.19	20.13	172.31	81.72	-1,771.19	7,391.73	7,547.92	7,355.49	192.43	39.224	
5,629.00	5,576.59	5,803.76	5,800.56	20.38	173.91	84.21	-1,771.29	7,391.73	7,546.77	7,352.49	194.28	38.844	
5,692.00	5,638.95	5,857.17	5,853.96	20.63	175.51	82.00	-1,771.59	7,391.73	7,545.80	7,349.67	196.13	38.473	
5,747.00	5,693.45	5,903.81	5,900.59	20.85	176.90	84.27	-1,772.02	7,391.73	7,545.06	7,347.32	197.75	38.155	
5,810.00	5,755.90	5,957.23	5,953.99	21.09	178.51	83.60	-1,772.69	7,391.73	7,544.43	7,344.84	199.59	37.799	
5,874.00	5,819.40	6,055.85	6,052.40	21.34	181.46	84.97	-1,773.37	7,391.73	7,543.77	7,340.97	202.80	37.199	
5,936.00	5,880.95	6,117.00	6,113.48	21.58	183.29	84.60	-1,773.37	7,391.73	7,543.09	7,338.22	204.87	36.819	
5,999.00	5,943.45	6,117.00	6,113.48	21.82	183.29	83.15	-1,773.37	7,391.73	7,542.51	7,337.40	205.11	36.773	
6,029.43	5,973.64	6,117.00	6,113.48	21.94	183.29	84.34	-1,773.37	7,391.73	7,542.40	7,337.19	205.22	36.753	
6,062.00	6,005.96	6,117.00	6,113.48	22.07	183.29	85.63	-1,773.37	7,391.73	7,542.52	7,337.19	205.33	36.733	
6,125.00	6,068.49	6,117.00	6,113.48	22.31	183.29	83.36	-1,773.37	7,391.73	7,543.10	7,337.56	205.54	36.699	
6,188.00	6,131.08	6,117.00	6,113.48	22.55	183.29	85.19	-1,773.37	7,391.73	7,544.22	7,338.48	205.74	36.670	
6,255.00	6,197.73	6,117.00	6,113.48	22.81	183.29	84.16	-1,773.37	7,391.73	7,546.12	7,340.19	205.92	36.646	
6,293.00	6,235.55	6,117.00	6,113.48	22.89	183.29	84.16	-1,773.37	7,391.73	7,547.45	7,341.49	205.96	36.646	
6,300.00	6,242.52	6,117.00	6,113.48	22.89	183.29	84.16	-1,773.37	7,391.73	7,547.71	7,341.76	205.95	36.648	
6,393.00	6,335.09	6,117.00	6,113.48	22.94	183.29	84.16	-1,773.37	7,391.73	7,551.86	7,345.99	205.87	36.683	
6,400.00	6,342.06	6,117.00	6,113.48	22.94	183.29	78.27	-1,773.37	7,391.73	7,552.18	7,346.32	205.86	36.686	
6,450.00	6,391.66	6,117.00	6,113.48	22.97	183.29	51.18	-1,773.37	7,391.73	7,552.48	7,346.67	205.81	36.697	
6,500.00	6,440.77	6,117.00	6,113.48	23.02	183.29	39.50	-1,773.37	7,391.73	7,549.30	7,343.54	205.75	36.691	
6,550.00	6,489.07	6,117.00	6,113.48	23.07	183.29	33.65	-1,773.37	7,391.73	7,542.64	7,336.94	205.70	36.668	
6,600.00	6,536.26	6,117.00	6,113.48	23.13	183.29	30.36	-1,773.37	7,391.73	7,532.54	7,326.89	205.65	36.628	
6,650.00	6,582.05	6,117.00	6,113.48	23.21	183.29	28.40	-1,773.37	7,391.73	7,519.06	7,313.46	205.60	36.571	
6,700.00	6,626.13	6,117.00	6,113.48	23.29	183.29	27.25	-1,773.37	7,391.73	7,502.26	7,296.70	205.55	36.498	
6,750.00	6,668.24	6,117.00	6,113.48	23.39	183.29	26.67	-1,773.37	7,391.73	7,482.21	7,276.70	205.51	36.408	
6,800.00	6,708.12	6,117.00	6,113.48	23.51	183.29	26.52	-1,773.37	7,391.73	7,459.03	7,253.56	205.47	36.302	
6,850.00	6,745.50	6,117.00	6,113.48	23.64	183.29	26.73	-1,773.37	7,391.73	7,432.83	7,227.39	205.44	36.179	
6,900.00	6,780.15	6,117.00	6,113.48	23.79	183.29	27.30	-1,773.37	7,391.73	7,403.74	7,198.32	205.42	36.042	
6,950.00	6,811.86	6,117.00	6,113.48	23.95	183.29	28.23	-1,773.37	7,391.73	7,371.92	7,166.52	205.41	35.889	
7,000.00	6,840.42	6,117.00	6,113.48	24.14	183.29	29.54	-1,773.37	7,391.73	7,337.53	7,132.13	205.40	35.722	
7,050.00	6,865.66	6,117.00	6,113.48	24.35	183.29	31.32	-1,773.37	7,391.73	7,300.76	7,095.34	205.41	35.542	
7,100.00	6,887.42	6,117.00	6,113.48	24.57	183.29	33.66	-1,773.37	7,391.73	7,261.79	7,056.36	205.43	35.349	
7,150.00	6,905.55	6,117.00	6,113.48	24.82	183.29	36.71	-1,773.37	7,391.73	7,220.84	7,015.38	205.46	35.144	

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 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Rule Assigned: Warning
7,200.00	6,919.95	6,117.00	6,113.48	25.10	183.29	40.69	-1,773.37	7,391.73	7,178.15	6,972.64	205.51	34.929	
7,250.00	6,930.52	6,117.00	6,113.48	25.39	183.29	45.91	-1,773.37	7,391.73	7,133.94	6,928.38	205.56	34.704	
7,300.00	6,937.20	6,117.00	6,113.48	25.70	183.29	52.78	-1,773.37	7,391.73	7,088.48	6,882.85	205.63	34.472	
7,350.00	6,939.94	6,117.00	6,113.48	26.04	183.29	61.79	-1,773.37	7,391.73	7,042.03	6,836.31	205.72	34.232	
7,359.60	6,940.02	6,117.00	6,113.48	26.10	183.29	63.80	-1,773.37	7,391.73	7,033.01	6,827.28	205.73	34.185	
7,400.00	6,940.03	6,117.00	6,113.48	26.39	183.29	63.80	-1,773.37	7,391.73	6,995.06	6,789.25	205.81	33.988	
7,500.00	6,940.04	6,117.00	6,113.48	27.15	183.29	63.80	-1,773.37	7,391.73	6,901.23	6,695.23	206.00	33.502	
7,600.00	6,940.06	6,117.00	6,113.48	27.99	183.29	63.80	-1,773.37	7,391.73	6,807.57	6,601.37	206.20	33.014	
7,659.60	6,940.07	6,117.00	6,113.48	28.52	183.29	63.80	-1,773.37	7,391.73	6,751.83	6,545.50	206.33	32.723	
7,700.00	6,940.08	6,117.00	6,113.48	28.89	183.29	64.70	-1,773.37	7,391.73	6,714.19	6,507.76	206.42	32.526	
7,796.63	6,940.10	6,117.00	6,113.48	29.83	183.29	66.60	-1,773.37	7,391.73	6,625.07	6,418.39	206.68	32.055	
7,800.00	6,940.10	6,117.00	6,113.48	29.86	183.29	66.60	-1,773.37	7,391.73	6,621.98	6,415.29	206.69	32.039	
7,900.00	6,940.12	6,117.00	6,113.48	30.90	183.29	66.60	-1,773.37	7,391.73	6,530.60	6,323.61	206.99	31.551	
8,000.00	6,940.14	6,117.00	6,113.48	31.98	183.29	66.60	-1,773.37	7,391.73	6,439.48	6,232.17	207.31	31.063	
8,100.00	6,940.17	6,117.00	6,113.48	33.11	183.29	66.60	-1,773.37	7,391.73	6,348.62	6,140.97	207.65	30.574	
8,200.00	6,940.19	6,117.00	6,113.48	34.28	183.29	66.60	-1,773.37	7,391.73	6,258.04	6,050.03	208.01	30.085	
8,300.00	6,940.21	6,117.00	6,113.48	35.48	183.29	66.60	-1,773.37	7,391.73	6,167.75	5,959.35	208.40	29.595	
8,400.00	6,940.23	6,117.00	6,113.48	36.71	183.29	66.60	-1,773.37	7,391.73	6,077.77	5,868.96	208.82	29.106	
8,500.00	6,940.25	6,117.00	6,113.48	37.97	183.29	66.60	-1,773.37	7,391.73	5,988.11	5,778.85	209.25	28.617	
8,600.00	6,940.28	6,117.00	6,113.48	39.26	183.29	66.60	-1,773.37	7,391.73	5,898.77	5,689.06	209.72	28.127	
8,700.00	6,940.30	6,117.00	6,113.48	40.56	183.29	66.60	-1,773.37	7,391.73	5,809.79	5,599.58	210.21	27.638	
8,800.00	6,940.32	6,117.00	6,113.48	41.89	183.29	66.60	-1,773.37	7,391.73	5,721.17	5,510.44	210.73	27.150	
8,900.00	6,940.34	6,117.00	6,113.48	43.24	183.29	66.60	-1,773.37	7,391.73	5,632.93	5,421.66	211.27	26.662	
9,000.00	6,940.36	6,117.00	6,113.48	44.60	183.29	66.60	-1,773.37	7,391.73	5,545.09	5,333.24	211.85	26.175	
9,100.00	6,940.39	6,117.00	6,113.48	45.98	183.29	66.60	-1,773.37	7,391.73	5,457.66	5,245.21	212.45	25.689	
9,200.00	6,940.41	6,117.00	6,113.48	47.38	183.29	66.60	-1,773.37	7,391.73	5,370.68	5,157.59	213.09	25.204	
9,300.00	6,940.43	6,117.00	6,113.48	48.78	183.29	66.60	-1,773.37	7,391.73	5,284.16	5,070.40	213.75	24.721	
9,400.00	6,940.45	6,117.00	6,113.48	50.20	183.29	66.60	-1,773.37	7,391.73	5,198.12	4,983.67	214.45	24.239	
9,500.00	6,940.47	6,117.00	6,113.48	51.63	183.29	66.60	-1,773.37	7,391.73	5,112.59	4,897.40	215.18	23.759	
9,600.00	6,940.50	6,117.00	6,113.48	53.07	183.29	66.60	-1,773.37	7,391.73	5,027.59	4,811.64	215.95	23.281	
9,700.00	6,940.52	6,117.00	6,113.48	54.52	183.29	66.60	-1,773.37	7,391.73	4,943.15	4,726.40	216.75	22.806	
9,800.00	6,940.54	6,117.00	6,113.48	55.97	183.29	66.60	-1,773.37	7,391.73	4,859.31	4,641.72	217.59	22.332	
9,900.00	6,940.56	6,117.00	6,113.48	57.44	183.29	66.60	-1,773.37	7,391.73	4,776.09	4,557.62	218.46	21.862	
10,000.00	6,940.59	6,117.00	6,113.48	58.91	183.29	66.60	-1,773.37	7,391.73	4,693.52	4,474.14	219.37	21.395	
10,100.00	6,940.61	6,117.00	6,113.48	60.38	183.29	66.60	-1,773.37	7,391.73	4,611.64	4,391.32	220.32	20.931	
10,200.00	6,940.63	6,117.00	6,113.48	61.87	183.29	66.60	-1,773.37	7,391.73	4,530.49	4,309.18	221.31	20.471	
10,300.00	6,940.65	6,117.00	6,113.48	63.36	183.29	66.60	-1,773.37	7,391.73	4,450.11	4,227.76	222.34	20.014	
10,400.00	6,940.67	6,117.00	6,113.48	64.85	183.29	66.60	-1,773.37	7,391.73	4,370.53	4,147.12	223.42	19.562	
10,500.00	6,940.70	6,117.00	6,113.48	66.35	183.29	66.60	-1,773.37	7,391.73	4,291.82	4,067.29	224.53	19.115	
10,600.00	6,940.72	6,117.00	6,113.48	67.86	183.29	66.60	-1,773.37	7,391.73	4,214.00	3,988.31	225.68	18.672	
10,700.00	6,940.74	6,117.00	6,113.48	69.36	183.29	66.60	-1,773.37	7,391.73	4,137.14	3,910.25	226.88	18.235	
10,800.00	6,940.76	6,117.00	6,113.48	70.88	183.29	66.60	-1,773.37	7,391.73	4,061.28	3,833.16	228.13	17.803	
10,900.00	6,940.78	6,117.00	6,113.48	72.39	183.29	66.60	-1,773.37	7,391.73	3,986.49	3,757.08	229.41	17.377	
11,000.00	6,940.81	6,117.00	6,113.48	73.91	183.29	66.60	-1,773.37	7,391.73	3,912.83	3,682.08	230.75	16.957	
11,100.00	6,940.83	6,117.00	6,113.48	75.44	183.29	66.60	-1,773.37	7,391.73	3,840.36	3,608.23	232.13	16.544	
11,200.00	6,940.85	6,117.00	6,113.48	76.96	183.29	66.60	-1,773.37	7,391.73	3,769.15	3,535.60	233.55	16.139	
11,300.00	6,940.87	6,117.00	6,113.48	78.49	183.29	66.60	-1,773.37	7,391.73	3,699.27	3,464.25	235.02	15.740	
11,400.00	6,940.89	6,117.00	6,113.48	80.03	183.29	66.60	-1,773.37	7,391.73	3,630.80	3,394.27	236.53	15.350	
11,500.00	6,940.92	6,117.00	6,113.48	81.56	183.29	66.60	-1,773.37	7,391.73	3,563.82	3,325.73	238.09	14.968	
11,600.00	6,940.94	6,117.00	6,113.48	83.10	183.29	66.60	-1,773.37	7,391.73	3,498.42	3,258.73	239.69	14.596	
11,700.00	6,940.96	6,117.00	6,113.48	84.64	183.29	66.60	-1,773.37	7,391.73	3,434.68	3,193.35	241.33	14.232	
11,800.00	6,940.98	6,117.00	6,113.48	86.18	183.29	66.60	-1,773.37	7,391.73	3,372.71	3,129.69	243.02	13.879	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
11,900.00	6,941.00	6,117.00	6,113.48	87.72	183.29	66.60	-1,773.37	7,391.73	3,312.59	3,067.85	244.74	13.535	
12,000.00	6,941.03	6,117.00	6,113.48	89.27	183.29	66.60	-1,773.37	7,391.73	3,254.44	3,007.95	246.49	13.203	
12,100.00	6,941.05	6,117.00	6,113.48	90.82	183.29	66.60	-1,773.37	7,391.73	3,198.36	2,950.07	248.28	12.882	
12,200.00	6,941.07	6,117.00	6,113.48	92.37	183.29	66.60	-1,773.37	7,391.73	3,144.46	2,894.35	250.10	12.573	
12,300.00	6,941.09	6,117.00	6,113.48	93.92	183.29	66.60	-1,773.37	7,391.73	3,092.85	2,840.90	251.94	12.276	
12,400.00	6,941.11	6,117.00	6,113.48	95.47	183.29	66.60	-1,773.37	7,391.73	3,043.65	2,789.85	253.81	11.992	
12,500.00	6,941.14	6,117.00	6,113.48	97.03	183.29	66.60	-1,773.37	7,391.73	2,996.99	2,741.31	255.68	11.722	
12,600.00	6,941.16	6,117.00	6,113.48	98.58	183.29	66.60	-1,773.37	7,391.73	2,952.97	2,695.41	257.57	11.465	
12,700.00	6,941.18	6,117.00	6,113.48	100.14	183.29	66.60	-1,773.37	7,391.73	2,911.73	2,652.28	259.45	11.223	
12,800.00	6,941.20	6,117.00	6,113.48	101.70	183.29	66.60	-1,773.37	7,391.73	2,873.37	2,612.04	261.33	10.995	
12,900.00	6,941.23	6,117.00	6,113.48	103.26	183.29	66.60	-1,773.37	7,391.73	2,838.03	2,574.83	263.19	10.783	
13,000.00	6,941.25	6,117.00	6,113.48	104.82	183.29	66.60	-1,773.37	7,391.73	2,805.80	2,540.76	265.04	10.586	
13,100.00	6,941.27	6,117.00	6,113.48	106.38	183.29	66.60	-1,773.37	7,391.73	2,776.80	2,509.95	266.85	10.406	
13,200.00	6,941.29	6,117.00	6,113.48	107.95	183.29	66.60	-1,773.37	7,391.73	2,751.13	2,482.52	268.62	10.242	
13,300.00	6,941.31	6,117.00	6,113.48	109.51	183.29	66.60	-1,773.37	7,391.73	2,728.89	2,458.56	270.33	10.095	
13,400.00	6,941.34	6,117.00	6,113.48	111.08	183.29	66.60	-1,773.37	7,391.73	2,710.16	2,438.16	271.99	9.964	
13,500.00	6,941.36	6,117.00	6,113.48	112.64	183.29	66.60	-1,773.37	7,391.73	2,695.01	2,421.42	273.58	9.851	
13,600.00	6,941.38	6,117.00	6,113.48	114.21	183.29	66.60	-1,773.37	7,391.73	2,683.50	2,408.40	275.10	9.755	
13,700.00	6,941.40	6,117.00	6,113.48	115.78	183.29	66.60	-1,773.37	7,391.73	2,675.69	2,399.16	276.53	9.676	
13,800.00	6,941.42	6,117.00	6,113.48	117.35	183.29	66.60	-1,773.37	7,391.73	2,671.59	2,393.73	277.86	9.615	
13,859.44	6,941.44	6,117.00	6,113.48	118.28	183.29	66.60	-1,773.37	7,391.73	2,670.93	2,392.32	278.61	9.587 CC	
13,900.00	6,941.45	6,117.00	6,113.48	118.92	183.29	66.60	-1,773.37	7,391.73	2,671.24	2,392.14	279.10	9.571 ES	
14,000.00	6,941.47	6,117.00	6,113.48	120.49	183.29	66.60	-1,773.37	7,391.73	2,674.63	2,394.39	280.24	9.544	
14,100.00	6,941.49	6,117.00	6,113.48	122.06	183.29	66.60	-1,773.37	7,391.73	2,681.74	2,400.48	281.26	9.535 SF	
14,200.00	6,941.51	6,117.00	6,113.48	123.64	183.29	66.60	-1,773.37	7,391.73	2,692.56	2,410.38	282.17	9.542	
14,300.00	6,941.53	6,117.00	6,113.48	125.21	183.29	66.60	-1,773.37	7,391.73	2,707.02	2,424.05	282.97	9.566	
14,400.00	6,941.56	6,117.00	6,113.48	126.78	183.29	66.60	-1,773.37	7,391.73	2,725.08	2,441.42	283.66	9.607	
14,500.00	6,941.58	6,117.00	6,113.48	128.36	183.29	66.60	-1,773.37	7,391.73	2,746.67	2,462.44	284.23	9.663	
14,600.00	6,941.60	6,117.00	6,113.48	129.93	183.29	66.60	-1,773.37	7,391.73	2,771.70	2,487.00	284.70	9.736	
14,700.00	6,941.62	6,117.00	6,113.48	131.51	183.29	66.60	-1,773.37	7,391.73	2,800.08	2,515.03	285.05	9.823	
14,800.00	6,941.64	6,117.00	6,113.48	133.08	183.29	66.60	-1,773.37	7,391.73	2,831.70	2,546.40	285.30	9.925	
14,900.00	6,941.67	6,117.00	6,113.48	134.66	183.29	66.60	-1,773.37	7,391.73	2,866.47	2,581.02	285.45	10.042	
15,000.00	6,941.69	6,117.00	6,113.48	136.24	183.29	66.60	-1,773.37	7,391.73	2,904.27	2,618.76	285.51	10.172	
15,100.00	6,941.71	6,117.00	6,113.48	137.82	183.29	66.60	-1,773.37	7,391.73	2,944.97	2,659.50	285.48	10.316	
15,200.00	6,941.73	6,117.00	6,113.48	139.40	183.29	66.60	-1,773.37	7,391.73	2,988.48	2,703.11	285.36	10.473	
15,300.00	6,941.75	6,117.00	6,113.48	140.97	183.29	66.60	-1,773.37	7,391.73	3,034.65	2,749.48	285.17	10.641	
15,400.00	6,941.78	6,117.00	6,113.48	142.55	183.29	66.60	-1,773.37	7,391.73	3,083.38	2,798.46	284.92	10.822	
15,500.00	6,941.80	6,117.00	6,113.48	144.13	183.29	66.60	-1,773.37	7,391.73	3,134.54	2,849.94	284.60	11.014	
15,600.00	6,941.82	6,117.00	6,113.48	145.72	183.29	66.60	-1,773.37	7,391.73	3,188.02	2,903.79	284.22	11.217	
15,700.00	6,941.84	6,117.00	6,113.48	147.30	183.29	66.60	-1,773.37	7,391.73	3,243.69	2,959.90	283.80	11.430	
15,800.00	6,941.87	6,117.00	6,113.48	148.88	183.29	66.60	-1,773.37	7,391.73	3,301.46	3,018.14	283.33	11.652	
15,900.00	6,941.89	6,117.00	6,113.48	150.46	183.29	66.60	-1,773.37	7,391.73	3,361.22	3,078.39	282.82	11.885	
16,000.00	6,941.91	6,117.00	6,113.48	152.04	183.29	66.60	-1,773.37	7,391.73	3,422.85	3,140.56	282.28	12.126	
16,100.00	6,941.93	6,117.00	6,113.48	153.62	183.29	66.60	-1,773.37	7,391.73	3,486.26	3,204.54	281.72	12.375	
16,200.00	6,941.95	6,117.00	6,113.48	155.21	183.29	66.60	-1,773.37	7,391.73	3,551.35	3,270.23	281.13	12.633	
16,300.00	6,941.98	6,117.00	6,113.48	156.79	183.29	66.60	-1,773.37	7,391.73	3,618.04	3,337.53	280.52	12.898	
16,400.00	6,942.00	6,117.00	6,113.48	158.37	183.29	66.60	-1,773.37	7,391.73	3,686.24	3,406.34	279.89	13.170	
16,500.00	6,942.02	6,117.00	6,113.48	159.96	183.29	66.60	-1,773.37	7,391.73	3,755.86	3,476.60	279.26	13.450	
16,600.00	6,942.04	6,117.00	6,113.48	161.54	183.29	66.60	-1,773.37	7,391.73	3,826.82	3,548.21	278.61	13.735	
16,700.00	6,942.06	6,117.00	6,113.48	163.13	183.29	66.60	-1,773.37	7,391.73	3,899.06	3,621.10	277.96	14.027	
16,800.00	6,942.09	6,117.00	6,113.48	164.71	183.29	66.60	-1,773.37	7,391.73	3,972.51	3,695.20	277.31	14.325	
16,900.00	6,942.11	6,117.00	6,113.48	166.30	183.29	66.60	-1,773.37	7,391.73	4,047.09	3,770.44	276.65	14.629	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
17,000.00	6,942.13	6,117.00	6,113.48	167.88	183.29	66.60	-1,773.37	7,391.73	4,122.74	3,846.75	276.00	14.938	
17,100.00	6,942.15	6,117.00	6,113.48	169.47	183.29	66.60	-1,773.37	7,391.73	4,199.42	3,924.08	275.34	15.252	
17,200.00	6,942.17	6,117.00	6,113.48	171.05	183.29	66.60	-1,773.37	7,391.73	4,277.06	4,002.36	274.70	15.570	
17,300.00	6,942.20	6,117.00	6,113.48	172.64	183.29	66.60	-1,773.37	7,391.73	4,355.61	4,081.56	274.05	15.893	
17,400.00	6,942.22	6,117.00	6,113.48	174.23	183.29	66.60	-1,773.37	7,391.73	4,435.03	4,161.61	273.42	16.221	
17,500.00	6,942.24	6,117.00	6,113.48	175.81	183.29	66.60	-1,773.37	7,391.73	4,515.26	4,242.47	272.79	16.552	
17,600.00	6,942.26	6,117.00	6,113.48	177.40	183.29	66.60	-1,773.37	7,391.73	4,596.27	4,324.10	272.17	16.888	
17,700.00	6,942.28	6,117.00	6,113.48	178.99	183.29	66.60	-1,773.37	7,391.73	4,678.01	4,406.46	271.56	17.227	
17,800.00	6,942.31	6,117.00	6,113.48	180.57	183.29	66.60	-1,773.37	7,391.73	4,760.45	4,489.50	270.95	17.569	
17,900.00	6,942.33	6,117.00	6,113.48	182.16	183.29	66.60	-1,773.37	7,391.73	4,843.56	4,573.19	270.36	17.915	
18,000.00	6,942.35	6,117.00	6,113.48	183.75	183.29	66.60	-1,773.37	7,391.73	4,927.29	4,657.51	269.78	18.264	
18,100.00	6,942.37	6,117.00	6,113.48	185.34	183.29	66.60	-1,773.37	7,391.73	5,011.61	4,742.40	269.21	18.616	
18,200.00	6,942.39	6,117.00	6,113.48	186.93	183.29	66.60	-1,773.37	7,391.73	5,096.51	4,827.86	268.65	18.971	
18,300.00	6,942.42	6,117.00	6,113.48	188.52	183.29	66.60	-1,773.37	7,391.73	5,181.94	4,913.84	268.10	19.328	
18,400.00	6,942.44	6,117.00	6,113.48	190.10	183.29	66.60	-1,773.37	7,391.73	5,267.88	5,000.32	267.56	19.688	
18,500.00	6,942.46	6,117.00	6,113.48	191.69	183.29	66.60	-1,773.37	7,391.73	5,354.32	5,087.28	267.04	20.051	
18,600.00	6,942.48	6,117.00	6,113.48	193.28	183.29	66.60	-1,773.37	7,391.73	5,441.22	5,174.70	266.52	20.416	
18,700.00	6,942.51	6,117.00	6,113.48	194.87	183.29	66.60	-1,773.37	7,391.73	5,528.56	5,262.54	266.02	20.783	
18,800.00	6,942.53	6,117.00	6,113.48	196.46	183.29	66.60	-1,773.37	7,391.73	5,616.32	5,350.80	265.52	21.152	
18,900.00	6,942.55	6,117.00	6,113.48	198.05	183.29	66.60	-1,773.37	7,391.73	5,704.49	5,439.45	265.04	21.523	
19,000.00	6,942.57	6,117.00	6,113.48	199.64	183.29	66.60	-1,773.37	7,391.73	5,793.04	5,528.47	264.57	21.896	
19,100.00	6,942.59	6,117.00	6,113.48	201.23	183.29	66.60	-1,773.37	7,391.73	5,881.96	5,617.84	264.11	22.271	
19,200.00	6,942.62	6,117.00	6,113.48	202.82	183.29	66.60	-1,773.37	7,391.73	5,971.22	5,707.56	263.66	22.647	
19,300.00	6,942.64	6,117.00	6,113.48	204.41	183.29	66.60	-1,773.37	7,391.73	6,060.83	5,797.60	263.22	23.025	
19,400.00	6,942.66	6,117.00	6,113.48	206.00	183.29	66.60	-1,773.37	7,391.73	6,150.75	5,887.96	262.80	23.405	
19,500.00	6,942.68	6,117.00	6,113.48	207.59	183.29	66.60	-1,773.37	7,391.73	6,240.98	5,978.60	262.38	23.786	
19,600.00	6,942.70	6,117.00	6,113.48	209.18	183.29	66.60	-1,773.37	7,391.73	6,331.51	6,069.53	261.97	24.169	
19,700.00	6,942.73	6,117.00	6,113.48	210.78	183.29	66.60	-1,773.37	7,391.73	6,422.31	6,160.74	261.57	24.553	
19,800.00	6,942.75	6,117.00	6,113.48	212.37	183.29	66.60	-1,773.37	7,391.73	6,513.39	6,252.20	261.19	24.938	
19,900.00	6,942.77	6,117.00	6,113.48	213.96	183.29	66.60	-1,773.37	7,391.73	6,604.72	6,343.91	260.81	25.324	
20,000.00	6,942.79	6,117.00	6,113.48	215.55	183.29	66.60	-1,773.37	7,391.73	6,696.30	6,435.86	260.44	25.712	
20,100.00	6,942.81	6,117.00	6,113.48	217.14	183.29	66.60	-1,773.37	7,391.73	6,788.12	6,528.04	260.08	26.100	
20,200.00	6,942.84	6,117.00	6,113.48	218.73	183.29	66.60	-1,773.37	7,391.73	6,880.16	6,620.43	259.73	26.490	
20,300.00	6,942.86	6,117.00	6,113.48	220.32	183.29	66.60	-1,773.37	7,391.73	6,972.43	6,713.04	259.39	26.880	
20,400.00	6,942.88	6,117.00	6,113.48	221.92	183.29	66.60	-1,773.37	7,391.73	7,064.90	6,805.85	259.05	27.272	
20,500.00	6,942.90	6,117.00	6,113.48	223.51	183.29	66.60	-1,773.37	7,391.73	7,157.58	6,898.85	258.73	27.664	
20,600.00	6,942.92	6,117.00	6,113.48	225.10	183.29	66.60	-1,773.37	7,391.73	7,250.45	6,992.04	258.41	28.058	
20,700.00	6,942.95	6,117.00	6,113.48	226.69	183.29	66.60	-1,773.37	7,391.73	7,343.51	7,085.41	258.10	28.452	
20,800.00	6,942.97	6,117.00	6,113.48	228.28	183.29	66.60	-1,773.37	7,391.73	7,436.75	7,178.95	257.80	28.847	
20,900.00	6,942.99	6,117.00	6,113.48	229.88	183.29	66.60	-1,773.37	7,391.73	7,530.17	7,272.66	257.51	29.242	
20,942.50	6,943.00	6,117.00	6,113.48	230.42	183.29	66.60	-1,773.37	7,391.73	7,569.92	7,311.00	258.91	29.237	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**Offset TVD Reference:**	Offset Datum

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

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

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	122.17	-2,581.32	4,103.41	4,849.65				
58.45	58.45	0.00	0.00	0.02	0.00	-116.13	-2,581.32	4,103.41	4,848.55				
101.60	101.59	0.00	0.00	0.07	0.00	-124.39	-2,581.32	4,103.41	4,848.33	4,848.28	0.05	N/A	
150.25	150.24	15.17	15.17	0.14	0.02	-134.43	-2,581.32	4,103.41	4,848.58	4,848.47	0.12	N/A	
239.43	239.42	98.48	98.48	0.25	0.11	-139.92	-2,581.33	4,103.49	4,849.43	4,849.12	0.30	N/A	
299.93	299.91	155.00	155.00	0.33	0.17	-134.97	-2,581.34	4,103.60	4,850.10	4,849.67	0.43	N/A	
446.00	445.96	291.43	291.43	0.50	0.33	-110.60	-2,581.38	4,104.10	4,851.78	4,851.03	0.75	6,427.660	
537.00	536.95	408.16	408.14	0.73	0.55	-49.38	-2,580.27	4,105.14	4,852.03	4,850.80	1.23	3,960.054	
624.00	623.95	528.00	527.73	0.99	0.83	33.51	-2,573.50	4,108.31	4,850.35	4,848.58	1.77	2,734.398	
718.00	717.90	591.00	590.32	1.29	0.99	51.31	-2,567.35	4,111.99	4,848.22	4,845.97	2.24	2,162.240	
811.00	810.73	633.34	632.25	1.60	1.11	70.72	-2,562.58	4,115.28	4,846.28	4,843.60	2.68	1,808.678	
903.00	902.19	693.00	691.26	1.92	1.29	82.52	-2,555.48	4,120.61	4,845.43	4,842.25	3.19	1,520.780	
994.00	992.38	820.39	816.53	2.24	1.74	84.72	-2,536.95	4,134.18	4,845.41	4,841.44	3.96	1,222.259	
1,084.00	1,081.50	954.00	946.62	2.56	2.30	88.93	-2,511.32	4,150.40	4,844.89	4,840.03	4.86	996.344	
1,100.93	1,098.23	967.27	959.43	2.63	2.37	89.62	-2,508.36	4,152.24	4,844.88	4,839.88	4.99	970.160	
1,175.00	1,171.48	1,039.89	1,029.11	2.91	2.74	92.62	-2,491.02	4,162.98	4,845.19	4,839.55	5.65	857.846	
1,268.00	1,263.52	1,127.17	1,111.84	3.26	3.25	94.00	-2,467.39	4,177.65	4,846.21	4,839.70	6.51	744.215	
1,363.00	1,357.62	1,190.09	1,170.69	3.63	3.66	96.80	-2,448.56	4,189.54	4,848.11	4,840.83	7.28	665.544	
1,457.00	1,450.74	1,260.28	1,235.63	3.99	4.14	99.29	-2,426.32	4,204.12	4,851.33	4,843.20	8.13	596.792	
1,552.00	1,544.82	1,351.42	1,318.98	4.36	4.82	99.78	-2,395.40	4,224.21	4,855.13	4,845.95	9.17	529.377	
1,646.00	1,637.88	1,420.00	1,381.04	4.72	5.35	100.03	-2,371.09	4,240.33	4,859.64	4,849.57	10.07	482.568	
1,741.00	1,731.94	1,475.86	1,431.27	5.09	5.81	100.29	-2,350.86	4,254.08	4,864.96	4,854.06	10.90	446.527	
1,835.00	1,825.07	1,550.95	1,498.39	5.46	6.44	100.13	-2,323.15	4,273.20	4,870.77	4,858.88	11.89	409.801	
1,929.00	1,918.39	1,654.80	1,590.32	5.82	7.34	98.63	-2,283.29	4,300.50	4,876.50	4,863.36	13.14	371.224	
2,024.00	2,012.84	1,737.04	1,662.77	6.18	8.06	99.68	-2,250.97	4,322.16	4,881.98	4,867.77	14.21	343.619	
2,118.00	2,106.19	1,794.00	1,712.67	6.53	8.56	99.51	-2,228.32	4,337.69	4,888.44	4,873.38	15.06	324.576	
2,213.00	2,200.37	2,448.00	2,289.37	6.90	13.81	95.53	-1,961.28	4,483.96	4,894.74	4,874.12	20.63	237.297	
2,307.00	2,293.61	2,448.00	2,289.37	7.27	13.81	97.52	-1,961.28	4,483.96	4,892.68	4,871.67	21.01	232.890	
2,344.24	2,330.58	2,448.00	2,289.37	7.41	13.81	99.04	-1,961.28	4,483.96	4,892.48	4,871.32	21.16	231.249	
2,402.00	2,387.91	2,448.00	2,289.37	7.63	13.81	101.36	-1,961.28	4,483.96	4,892.97	4,871.58	21.38	228.808	
2,496.00	2,481.29	2,448.00	2,289.37	7.99	13.81	102.60	-1,961.28	4,483.96	4,895.43	4,873.68	21.75	225.109	
2,591.00	2,575.67	2,448.00	2,289.37	8.35	13.81	101.09	-1,961.28	4,483.96	4,899.71	4,877.61	22.11	221.653	
2,686.00	2,670.05	2,448.00	2,289.37	8.71	13.81	101.58	-1,961.28	4,483.96	4,905.73	4,883.28	22.46	218.461	
2,780.00	2,763.49	2,585.74	2,410.29	9.07	14.99	98.92	-1,904.84	4,518.08	4,912.12	4,888.15	23.97	204.889	
2,875.00	2,857.94	2,677.79	2,491.69	9.43	15.73	97.17	-1,867.84	4,539.92	4,917.92	4,892.85	25.07	196.166	
2,970.00	2,952.51	2,760.43	2,565.64	9.79	16.38	100.47	-1,836.18	4,558.85	4,923.97	4,897.91	26.06	188.979	
3,064.00	3,046.19	2,837.89	2,635.88	10.13	16.96	107.40	-1,808.36	4,575.95	4,930.86	4,903.90	26.97	182.855	
3,159.00	3,140.98	2,921.20	2,712.11	10.47	17.56	109.16	-1,779.93	4,593.87	4,938.40	4,910.51	27.89	177.053	
3,253.00	3,234.84	3,049.28	2,830.73	10.81	18.43	100.99	-1,739.09	4,619.65	4,945.07	4,915.99	29.08	170.067	
3,348.00	3,329.74	3,165.73	2,940.76	11.14	19.13	92.99	-1,707.01	4,640.16	4,950.66	4,920.56	30.10	164.475	
3,397.00	3,378.70	3,221.39	2,993.95	11.32	19.44	91.95	-1,693.25	4,649.10	4,953.24	4,922.67	30.57	162.022	
3,488.00	3,469.63	3,337.98	3,106.25	11.64	20.03	89.11	-1,667.15	4,666.37	4,957.81	4,926.35	31.46	157.569	
3,583.00	3,564.49	3,529.00	3,293.03	11.98	20.81	97.03	-1,633.46	4,687.55	4,961.22	4,928.65	32.58	152.287	
3,677.00	3,658.13	3,608.24	3,371.16	12.33	21.07	98.64	-1,622.37	4,694.67	4,965.13	4,931.96	33.17	149.666	
3,772.00	3,752.42	3,694.00	3,456.27	12.69	21.31	102.97	-1,614.10	4,701.09	4,970.45	4,936.67	33.78	147.148	
3,867.00	3,846.42	3,772.47	3,534.37	13.06	21.48	104.56	-1,608.56	4,706.35	4,977.08	4,942.76	34.32	145.016	
3,961.00	3,939.30	3,854.05	3,615.56	13.44	21.67	104.31	-1,602.99	4,711.94	4,984.23	4,949.36	34.87	142.939	
4,056.00	4,032.83	3,936.31	3,697.44	13.82	21.85	100.88	-1,597.57	4,717.71	4,991.64	4,956.21	35.43	140.875	
4,151.00	4,126.01	4,026.39	3,787.10	14.21	22.04	101.80	-1,591.85	4,724.16	4,999.33	4,963.31	36.02	138.794	
4,246.00	4,219.10	4,133.36	3,893.62	14.61	22.27	94.63	-1,585.26	4,731.55	5,005.92	4,969.28	36.64	136.620	
4,340.00	4,310.92	4,239.09	3,998.93	15.01	22.49	85.77	-1,578.95	4,738.49	5,009.43	4,972.17	37.26	134.429	
4,435.00	4,403.54	4,345.81	4,105.26	15.41	22.72	85.44	-1,572.78	4,745.11	5,011.10	4,973.20	37.90	132.223	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 321-APC_ISCWSA REV 2 MWD

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
4,498.00	4,465.21	4,416.70	4,175.92	15.68	22.87	87.64	-1,568.80	4,749.30	5,012.35	4,974.03	38.32	130.817	
4,561.00	4,526.82	4,487.49	4,246.49	15.95	23.02	92.68	-1,564.91	4,753.31	5,014.37	4,975.63	38.73	129.457	
4,624.00	4,588.23	4,541.18	4,300.02	16.22	23.11	94.59	-1,562.12	4,756.32	5,017.25	4,978.15	39.10	128.317	
4,687.00	4,649.71	4,598.93	4,357.62	16.49	23.22	95.24	-1,559.28	4,759.53	5,020.47	4,980.99	39.48	127.167	
4,749.00	4,710.40	4,655.83	4,414.36	16.75	23.32	96.68	-1,556.65	4,762.67	5,023.82	4,983.97	39.85	126.074	
4,812.00	4,772.28	4,713.72	4,472.11	17.01	23.43	97.61	-1,554.15	4,765.85	5,027.40	4,987.19	40.22	125.004	
4,875.00	4,834.34	4,771.67	4,529.93	17.27	23.54	97.31	-1,551.82	4,769.01	5,030.98	4,990.39	40.58	123.967	
4,938.00	4,896.43	4,829.61	4,587.75	17.53	23.65	97.17	-1,549.67	4,772.15	5,034.52	4,993.58	40.95	122.951	
5,001.00	4,958.46	4,887.47	4,645.49	17.79	23.75	94.04	-1,547.69	4,775.26	5,037.86	4,996.54	41.31	121.941	
5,064.00	5,020.29	4,941.00	4,698.92	18.05	23.85	89.82	-1,546.02	4,778.12	5,040.55	4,998.87	41.68	120.942	
5,126.00	5,080.98	4,999.77	4,757.57	18.32	23.94	85.84	-1,544.38	4,781.25	5,042.40	5,000.37	42.03	119.965	
5,189.00	5,142.74	5,055.39	4,813.10	18.58	24.03	87.56	-1,543.02	4,784.20	5,044.12	5,001.73	42.38	119.011	
5,252.00	5,204.62	5,111.03	4,868.65	18.85	24.12	87.70	-1,541.85	4,787.15	5,046.15	5,003.42	42.73	118.087	
5,315.00	5,266.61	5,166.70	4,924.24	19.11	24.20	87.68	-1,540.86	4,790.09	5,048.29	5,005.21	43.08	117.189	
5,378.00	5,328.73	5,222.40	4,979.85	19.37	24.29	88.24	-1,540.07	4,793.03	5,050.59	5,007.17	43.42	116.318	
5,441.00	5,390.87	5,278.06	5,035.43	19.62	24.38	87.83	-1,539.47	4,795.97	5,052.99	5,009.22	43.76	115.466	
5,503.00	5,452.07	5,332.82	5,090.12	19.87	24.46	88.29	-1,539.06	4,798.84	5,055.44	5,011.34	44.10	114.646	
5,566.00	5,514.32	5,409.00	5,166.19	20.13	24.58	88.05	-1,538.80	4,802.83	5,058.08	5,013.61	44.47	113.739	
5,629.00	5,576.59	5,447.33	5,204.47	20.38	24.63	90.56	-1,538.76	4,804.84	5,060.90	5,016.13	44.77	113.042	
5,692.00	5,638.95	5,508.16	5,265.22	20.63	24.72	88.41	-1,538.75	4,808.02	5,063.83	5,018.72	45.10	112.275	
5,747.00	5,693.45	5,561.31	5,318.29	20.85	24.79	90.71	-1,538.78	4,810.80	5,066.40	5,021.01	45.39	111.619	
5,810.00	5,755.90	5,622.19	5,379.09	21.09	24.87	90.07	-1,538.87	4,813.98	5,069.49	5,023.77	45.72	110.885	
5,874.00	5,819.40	5,684.08	5,440.89	21.34	24.96	91.46	-1,539.01	4,817.21	5,072.69	5,026.64	46.05	110.156	
5,936.00	5,880.95	5,744.04	5,500.77	21.58	25.04	91.08	-1,539.19	4,820.33	5,075.88	5,029.51	46.37	109.465	
5,999.00	5,943.45	5,804.93	5,561.58	21.82	25.13	89.69	-1,539.43	4,823.51	5,079.02	5,032.33	46.70	108.767	
6,062.00	6,005.96	5,865.81	5,622.37	22.07	25.21	92.25	-1,539.71	4,826.68	5,082.27	5,035.24	47.02	108.080	
6,125.00	6,068.49	5,930.10	5,686.58	22.31	25.30	90.07	-1,540.03	4,830.03	5,085.54	5,038.18	47.36	107.389	
6,188.00	6,131.08	5,995.31	5,751.70	22.55	25.40	91.99	-1,540.27	4,833.42	5,088.73	5,041.05	47.69	106.708	
6,255.00	6,197.73	6,064.76	5,821.05	22.81	25.50	91.04	-1,540.44	4,837.04	5,092.15	5,044.11	48.04	106.004	
6,293.00	6,235.55	6,104.17	5,860.42	22.89	25.55	91.08	-1,540.50	4,839.10	5,094.03	5,045.86	48.17	105.748	
6,300.00	6,242.52	6,111.44	5,867.67	22.89	25.56	91.08	-1,540.51	4,839.48	5,094.37	5,046.19	48.18	105.726	
6,393.00	6,335.09	6,207.92	5,964.02	22.94	25.70	91.16	-1,540.52	4,844.51	5,098.93	5,050.56	48.37	105.421	
6,400.00	6,342.06	6,215.19	5,971.28	22.94	25.71	85.27	-1,540.51	4,844.89	5,099.23	5,050.85	48.38	105.397	
6,450.00	6,391.66	6,267.04	6,023.06	22.97	25.78	58.24	-1,540.44	4,847.59	5,099.31	5,050.83	48.49	105.169	
6,500.00	6,440.77	6,318.60	6,074.55	23.02	25.86	46.68	-1,540.32	4,850.28	5,095.72	5,047.12	48.60	104.843	
6,550.00	6,489.07	6,369.53	6,125.41	23.07	25.93	41.02	-1,540.16	4,852.94	5,088.49	5,039.76	48.73	104.422	
6,600.00	6,536.26	6,424.31	6,180.12	23.13	26.00	37.98	-1,540.02	4,855.73	5,077.65	5,028.79	48.86	103.912	
6,650.00	6,582.05	6,478.25	6,234.00	23.21	26.06	36.36	-1,540.07	4,858.30	5,063.26	5,014.25	49.01	103.313	
6,700.00	6,626.13	6,530.26	6,285.95	23.29	26.13	35.65	-1,540.28	4,860.61	5,045.40	4,996.24	49.16	102.628	
6,750.00	6,668.24	6,579.97	6,335.62	23.39	26.19	35.59	-1,540.64	4,862.66	5,024.23	4,974.91	49.32	101.861	
6,800.00	6,708.12	6,627.07	6,382.68	23.51	26.24	36.08	-1,541.13	4,864.47	4,999.89	4,950.39	49.49	101.020	
6,850.00	6,745.50	6,671.24	6,426.82	23.64	26.30	37.06	-1,541.71	4,866.05	4,972.55	4,922.87	49.67	100.108	
6,900.00	6,780.15	6,712.19	6,467.75	23.79	26.35	38.54	-1,542.35	4,867.40	4,942.40	4,892.55	49.86	99.133	
6,950.00	6,811.86	6,749.68	6,505.21	23.95	26.39	40.54	-1,543.04	4,868.55	4,909.67	4,859.62	50.05	98.101	
7,000.00	6,840.42	6,783.49	6,539.00	24.14	26.43	43.11	-1,543.73	4,869.51	4,874.57	4,824.33	50.24	97.019	
7,050.00	6,865.66	6,813.40	6,568.90	24.35	26.47	46.34	-1,544.40	4,870.31	4,837.35	4,786.91	50.44	95.895	
7,100.00	6,887.42	6,839.28	6,594.75	24.57	26.50	50.32	-1,545.02	4,870.95	4,798.26	4,747.61	50.65	94.738	
7,150.00	6,905.55	6,860.97	6,616.43	24.82	26.53	55.18	-1,545.58	4,871.46	4,757.55	4,706.70	50.85	93.553	
7,200.00	6,919.95	6,881.26	6,636.71	25.10	26.55	61.05	-1,546.12	4,871.91	4,715.50	4,664.44	51.06	92.349	
7,250.00	6,930.52	6,901.15	6,656.59	25.39	26.56	68.06	-1,546.67	4,872.31	4,672.37	4,621.10	51.27	91.132	
7,300.00	6,937.20	6,914.13	6,669.56	25.70	26.57	76.01	-1,547.03	4,872.55	4,628.45	4,576.97	51.48	89.914	
7,350.00	6,939.94	6,920.30	6,675.73	26.04	26.58	84.66	-1,547.20	4,872.65	4,584.02	4,532.34	51.68	88.700	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
7,359.60	6,940.02	6,920.72	6,676.15	26.10	26.58	86.37	-1,547.21	4,872.66	4,575.46	4,523.74	51.72	88.467	
7,400.00	6,940.03	6,921.95	6,677.38	26.39	26.58	86.41	-1,547.24	4,872.68	4,539.45	4,487.56	51.88	87.494	
7,500.00	6,940.04	6,924.93	6,680.35	27.15	26.58	86.49	-1,547.33	4,872.73	4,450.63	4,398.32	52.31	85.078	
7,600.00	6,940.06	6,927.80	6,683.22	27.99	26.58	86.57	-1,547.41	4,872.77	4,362.29	4,309.51	52.78	82.656	
7,659.60	6,940.07	6,929.46	6,684.89	28.52	26.59	86.62	-1,547.45	4,872.80	4,309.88	4,256.81	53.07	81.210	
7,700.00	6,940.08	6,930.56	6,685.98	28.89	26.59	86.73	-1,547.48	4,872.82	4,274.61	4,221.33	53.28	80.230	
7,796.63	6,940.10	6,933.02	6,688.44	29.83	26.59	86.97	-1,547.55	4,872.86	4,191.78	4,137.96	53.83	77.874	
7,800.00	6,940.10	6,933.10	6,688.53	29.86	26.59	86.97	-1,547.56	4,872.86	4,188.93	4,135.09	53.85	77.794	
7,900.00	6,940.12	6,935.50	6,690.92	30.90	26.59	87.03	-1,547.62	4,872.89	4,104.78	4,050.30	54.48	75.349	
8,000.00	6,940.14	6,937.81	6,693.23	31.98	26.59	87.09	-1,547.69	4,872.93	4,021.35	3,966.19	55.15	72.912	
8,100.00	6,940.17	6,940.05	6,695.47	33.11	26.59	87.15	-1,547.75	4,872.96	3,938.69	3,882.81	55.88	70.486	
8,200.00	6,940.19	6,942.22	6,697.64	34.28	26.60	87.20	-1,547.81	4,872.99	3,856.85	3,800.19	56.65	68.076	
8,300.00	6,940.21	6,944.32	6,699.73	35.48	26.60	87.26	-1,547.87	4,873.02	3,775.88	3,718.40	57.48	65.688	
8,400.00	6,940.23	6,946.35	6,701.77	36.71	26.60	87.31	-1,547.93	4,873.05	3,695.85	3,637.49	58.36	63.325	
8,500.00	6,940.25	6,948.32	6,703.74	37.97	26.60	87.36	-1,547.98	4,873.08	3,616.81	3,557.51	59.30	60.994	
8,600.00	6,940.28	6,950.23	6,705.65	39.26	26.60	87.41	-1,548.04	4,873.10	3,538.83	3,478.54	60.29	58.697	
8,700.00	6,940.30	6,952.09	6,707.50	40.56	26.60	87.46	-1,548.09	4,873.13	3,461.98	3,400.64	61.34	56.441	
8,800.00	6,940.32	6,953.89	6,709.30	41.89	26.60	87.50	-1,548.14	4,873.15	3,386.34	3,323.89	62.44	54.230	
8,900.00	6,940.34	6,955.63	6,711.04	43.24	26.60	87.55	-1,548.19	4,873.18	3,311.99	3,248.38	63.61	52.069	
9,000.00	6,940.36	6,957.33	6,712.74	44.60	26.61	87.59	-1,548.24	4,873.20	3,239.02	3,174.19	64.83	49.961	
9,100.00	6,940.39	6,958.98	6,714.39	45.98	26.61	87.63	-1,548.29	4,873.22	3,167.52	3,101.41	66.11	47.912	
9,200.00	6,940.41	6,960.59	6,715.99	47.38	26.61	87.67	-1,548.33	4,873.24	3,097.61	3,030.16	67.45	45.924	
9,300.00	6,940.43	6,962.15	6,717.55	48.78	26.61	87.71	-1,548.38	4,873.26	3,029.38	2,960.53	68.85	44.002	
9,400.00	6,940.45	6,963.66	6,719.07	50.20	26.61	87.75	-1,548.42	4,873.28	2,962.96	2,892.66	70.30	42.150	
9,500.00	6,940.47	6,965.14	6,720.55	51.63	26.61	87.79	-1,548.46	4,873.29	2,898.46	2,826.66	71.80	40.370	
9,600.00	6,940.50	6,966.58	6,721.99	53.07	26.61	87.83	-1,548.50	4,873.31	2,836.02	2,762.67	73.35	38.665	
9,700.00	6,940.52	6,967.98	6,723.39	54.52	26.61	87.86	-1,548.55	4,873.33	2,775.78	2,700.84	74.94	37.038	
9,800.00	6,940.54	6,969.35	6,724.75	55.97	26.62	87.90	-1,548.58	4,873.34	2,717.89	2,641.31	76.58	35.491	
9,900.00	6,940.56	6,970.68	6,726.08	57.44	26.62	87.93	-1,548.62	4,873.36	2,662.49	2,584.25	78.25	34.027	
10,000.00	6,940.59	6,971.98	6,727.38	58.91	26.62	87.97	-1,548.66	4,873.37	2,609.75	2,529.81	79.94	32.647	
10,100.00	6,940.61	6,973.25	6,728.65	60.38	26.62	88.00	-1,548.70	4,873.39	2,559.83	2,478.19	81.64	31.353	
10,200.00	6,940.63	6,974.48	6,729.88	61.87	26.62	88.03	-1,548.73	4,873.40	2,512.90	2,429.54	83.36	30.146	
10,300.00	6,940.65	6,975.69	6,731.09	63.36	26.62	88.06	-1,548.77	4,873.41	2,469.13	2,384.07	85.07	29.026	
10,400.00	6,940.67	6,976.86	6,732.26	64.85	26.62	88.09	-1,548.80	4,873.42	2,428.69	2,341.94	86.75	27.995	
10,500.00	6,940.70	6,978.01	6,733.41	66.35	26.62	88.12	-1,548.83	4,873.44	2,391.75	2,303.34	88.41	27.053	
10,600.00	6,940.72	6,979.14	6,734.53	67.86	26.62	88.15	-1,548.87	4,873.45	2,358.47	2,268.45	90.02	26.199	
10,700.00	6,940.74	6,980.23	6,735.63	69.36	26.62	88.18	-1,548.90	4,873.46	2,329.02	2,237.45	91.57	25.434	
10,800.00	6,940.76	6,981.30	6,736.70	70.88	26.62	88.20	-1,548.93	4,873.47	2,303.53	2,210.48	93.04	24.758	
10,900.00	6,940.78	6,982.35	6,737.75	72.39	26.62	88.23	-1,548.96	4,873.48	2,282.14	2,187.71	94.43	24.168	
11,000.00	6,940.81	6,983.38	6,738.77	73.91	26.63	88.26	-1,548.99	4,873.49	2,264.97	2,169.26	95.71	23.666	
11,100.00	6,940.83	6,984.38	6,739.78	75.44	26.63	88.28	-1,549.02	4,873.50	2,252.11	2,155.24	96.87	23.248	
11,200.00	6,940.85	6,985.36	6,740.76	76.96	26.63	88.31	-1,549.05	4,873.51	2,243.63	2,145.72	97.91	22.915	
11,300.00	6,940.87	6,986.32	6,741.71	78.49	26.63	88.33	-1,549.07	4,873.52	2,239.60	2,140.78	98.82	22.664	
11,340.50	6,940.88	6,986.70	6,742.10	79.11	26.63	88.34	-1,549.08	4,873.52	2,239.23	2,140.09	99.15	22.585	CC, ES
11,400.00	6,940.89	6,987.26	6,742.65	80.03	26.63	88.36	-1,549.10	4,873.53	2,240.03	2,140.44	99.59	22.493	
11,500.00	6,940.92	6,988.18	6,743.57	81.56	26.63	88.38	-1,549.13	4,873.54	2,244.91	2,144.69	100.22	22.400	
11,600.00	6,940.94	6,989.08	6,744.47	83.10	26.63	88.40	-1,549.15	4,873.54	2,254.22	2,153.51	100.71	22.383	SF
11,700.00	6,940.96	6,989.96	6,745.35	84.64	26.63	88.43	-1,549.18	4,873.55	2,267.91	2,166.84	101.07	22.439	
11,800.00	6,940.98	6,990.82	6,746.22	86.18	26.63	88.45	-1,549.20	4,873.56	2,285.90	2,184.60	101.30	22.566	
11,900.00	6,941.00	6,991.67	6,747.06	87.72	26.63	88.47	-1,549.23	4,873.57	2,308.08	2,206.67	101.41	22.761	
12,000.00	6,941.03	6,992.50	6,747.89	89.27	26.63	88.49	-1,549.25	4,873.57	2,334.34	2,232.94	101.40	23.021	
12,100.00	6,941.05	6,993.31	6,748.70	90.82	26.63	88.51	-1,549.28	4,873.58	2,364.54	2,263.24	101.30	23.343	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 321-APC_ISCWSA REV 2 MWD

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
12,200.00	6,941.07	6,994.11	6,749.50	92.37	26.63	88.53	-1,549.30	4,873.59	2,398.53	2,297.42	101.10	23.724	
12,300.00	6,941.09	6,994.89	6,750.28	93.92	26.63	88.55	-1,549.32	4,873.60	2,436.15	2,335.32	100.83	24.161	
12,400.00	6,941.11	6,995.66	6,751.05	95.47	26.63	88.57	-1,549.34	4,873.60	2,477.24	2,376.75	100.49	24.652	
12,500.00	6,941.14	6,996.41	6,751.80	97.03	26.64	88.59	-1,549.37	4,873.61	2,521.63	2,421.53	100.09	25.193	
12,600.00	6,941.16	6,997.15	6,752.54	98.58	26.64	88.61	-1,549.39	4,873.61	2,569.14	2,469.49	99.65	25.782	
12,700.00	6,941.18	6,997.87	6,753.26	100.14	26.64	88.63	-1,549.41	4,873.62	2,619.61	2,520.45	99.16	26.417	
12,800.00	6,941.20	6,998.58	6,753.97	101.70	26.64	88.65	-1,549.43	4,873.63	2,672.88	2,574.23	98.65	27.095	
12,900.00	6,941.23	6,999.28	6,754.67	103.26	26.64	88.66	-1,549.45	4,873.63	2,728.76	2,630.65	98.11	27.813	
13,000.00	6,941.25	6,999.96	6,755.35	104.82	26.64	88.68	-1,549.47	4,873.64	2,787.12	2,689.57	97.56	28.570	
13,100.00	6,941.27	7,000.64	6,756.03	106.38	26.64	88.70	-1,549.49	4,873.64	2,847.79	2,750.81	96.99	29.363	
13,200.00	6,941.29	7,001.30	6,756.69	107.95	26.64	88.72	-1,549.51	4,873.65	2,910.64	2,814.23	96.41	30.190	
13,300.00	6,941.31	7,001.95	6,757.33	109.51	26.64	88.73	-1,549.53	4,873.65	2,975.51	2,879.69	95.83	31.050	
13,400.00	6,941.34	7,002.58	6,757.97	111.08	26.64	88.75	-1,549.55	4,873.66	3,042.30	2,947.05	95.25	31.941	
13,500.00	6,941.36	7,003.21	6,758.60	112.64	26.64	88.76	-1,549.57	4,873.66	3,110.86	3,016.19	94.67	32.861	
13,600.00	6,941.38	7,003.83	6,759.21	114.21	26.64	88.78	-1,549.58	4,873.67	3,181.09	3,087.00	94.09	33.808	
13,700.00	6,941.40	7,004.43	6,759.82	115.78	26.64	88.80	-1,549.60	4,873.67	3,252.88	3,159.35	93.52	34.782	
13,800.00	6,941.42	7,005.03	6,760.41	117.35	26.64	88.81	-1,549.62	4,873.68	3,326.12	3,233.16	92.96	35.780	
13,900.00	6,941.45	7,005.61	6,761.00	118.92	26.64	88.83	-1,549.64	4,873.68	3,400.73	3,308.32	92.41	36.801	
14,000.00	6,941.47	7,006.19	6,761.57	120.49	26.64	88.84	-1,549.65	4,873.68	3,476.61	3,384.75	91.86	37.845	
14,100.00	6,941.49	7,006.75	6,762.14	122.06	26.64	88.86	-1,549.67	4,873.69	3,553.69	3,462.36	91.33	38.910	
14,200.00	6,941.51	7,007.31	6,762.69	123.64	26.64	88.87	-1,549.69	4,873.69	3,631.88	3,541.07	90.81	39.994	
14,300.00	6,941.53	7,007.86	6,763.24	125.21	26.64	88.88	-1,549.70	4,873.70	3,711.13	3,620.82	90.30	41.097	
14,400.00	6,941.56	7,008.39	6,763.78	126.78	26.64	88.90	-1,549.72	4,873.70	3,791.35	3,701.54	89.80	42.218	
14,500.00	6,941.58	7,008.92	6,764.31	128.36	26.64	88.91	-1,549.73	4,873.70	3,872.49	3,783.17	89.32	43.355	
14,600.00	6,941.60	7,009.45	6,764.83	129.93	26.64	88.92	-1,549.75	4,873.71	3,954.50	3,865.65	88.85	44.508	
14,700.00	6,941.62	7,009.96	6,765.34	131.51	26.65	88.94	-1,549.76	4,873.71	4,037.32	3,948.93	88.39	45.676	
14,800.00	6,941.64	7,010.46	6,765.85	133.08	26.65	88.95	-1,549.78	4,873.71	4,120.90	4,032.95	87.94	46.858	
14,900.00	6,941.67	7,010.96	6,766.35	134.66	26.65	88.96	-1,549.79	4,873.72	4,205.20	4,117.69	87.51	48.054	
15,000.00	6,941.69	7,011.45	6,766.84	136.24	26.65	88.98	-1,549.81	4,873.72	4,290.17	4,203.08	87.09	49.262	
15,100.00	6,941.71	7,011.93	6,767.32	137.82	26.65	88.99	-1,549.82	4,873.72	4,375.78	4,289.09	86.68	50.481	
15,200.00	6,941.73	7,012.41	6,767.79	139.40	26.65	89.00	-1,549.83	4,873.73	4,461.98	4,375.70	86.28	51.712	
15,300.00	6,941.75	7,012.88	6,768.26	140.97	26.65	89.01	-1,549.85	4,873.73	4,548.75	4,462.85	85.90	52.954	
15,400.00	6,941.78	7,013.34	6,768.72	142.55	26.65	89.02	-1,549.86	4,873.73	4,636.05	4,550.53	85.53	54.205	
15,500.00	6,941.80	7,013.79	6,769.18	144.13	26.65	89.04	-1,549.88	4,873.74	4,723.86	4,638.69	85.17	55.466	
15,600.00	6,941.82	7,014.24	6,769.62	145.72	26.65	89.05	-1,549.89	4,873.74	4,812.14	4,727.33	84.82	56.735	
15,700.00	6,941.84	7,014.68	6,770.06	147.30	26.65	89.06	-1,549.90	4,873.74	4,900.88	4,816.40	84.48	58.013	
15,800.00	6,941.87	7,015.12	6,770.50	148.88	26.65	89.07	-1,549.91	4,873.74	4,990.04	4,905.88	84.15	59.298	
15,900.00	6,941.89	7,015.54	6,770.93	150.46	26.65	89.08	-1,549.93	4,873.75	5,079.60	4,995.76	83.83	60.591	
16,000.00	6,941.91	7,015.97	6,771.35	152.04	26.65	89.09	-1,549.94	4,873.75	5,169.54	5,086.02	83.53	61.890	
16,100.00	6,941.93	7,016.38	6,771.77	153.62	26.65	89.10	-1,549.95	4,873.75	5,259.85	5,176.62	83.23	63.196	
16,200.00	6,941.95	7,016.79	6,772.18	155.21	26.65	89.11	-1,549.96	4,873.76	5,350.50	5,267.56	82.94	64.508	
16,300.00	6,941.98	7,017.20	6,772.58	156.79	26.65	89.12	-1,549.98	4,873.76	5,441.49	5,358.82	82.67	65.825	
16,400.00	6,942.00	7,017.60	6,772.98	158.37	26.65	89.13	-1,549.99	4,873.76	5,532.78	5,450.38	82.40	67.148	
16,500.00	6,942.02	7,017.99	6,773.37	159.96	26.65	89.14	-1,550.00	4,873.76	5,624.36	5,542.23	82.14	68.475	
16,600.00	6,942.04	7,018.38	6,773.76	161.54	26.65	89.15	-1,550.01	4,873.76	5,716.23	5,634.35	81.89	69.807	
16,700.00	6,942.06	7,018.76	6,774.14	163.13	26.65	89.16	-1,550.02	4,873.77	5,808.37	5,726.73	81.64	71.143	
16,800.00	6,942.09	7,019.14	6,774.52	164.71	26.65	89.17	-1,550.03	4,873.77	5,900.77	5,819.36	81.41	72.483	
16,900.00	6,942.11	7,019.51	6,774.89	166.30	26.65	89.18	-1,550.04	4,873.77	5,993.41	5,912.22	81.18	73.827	
17,000.00	6,942.13	7,019.88	6,775.26	167.88	26.65	89.19	-1,550.06	4,873.77	6,086.28	6,005.31	80.96	75.173	
17,100.00	6,942.15	7,020.24	6,775.62	169.47	26.65	89.20	-1,550.07	4,873.78	6,179.37	6,098.62	80.75	76.523	
17,200.00	6,942.17	7,020.60	6,775.98	171.05	26.65	89.21	-1,550.08	4,873.78	6,272.68	6,192.13	80.55	77.876	
17,300.00	6,942.20	7,020.95	6,776.33	172.64	26.65	89.22	-1,550.09	4,873.78	6,366.19	6,285.84	80.35	79.231	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
17,400.00	6,942.22	7,021.30	6,776.68	174.23	26.65	89.23	-1,550.10	4,873.78	6,459.89	6,379.73	80.16	80.588	
17,500.00	6,942.24	7,021.65	6,777.03	175.81	26.65	89.24	-1,550.11	4,873.78	6,553.78	6,473.80	79.98	81.947	
17,600.00	6,942.26	7,021.99	6,777.37	177.40	26.65	89.24	-1,550.12	4,873.79	6,647.85	6,568.05	79.80	83.308	
17,700.00	6,942.28	7,022.32	6,777.70	178.99	26.65	89.25	-1,550.13	4,873.79	6,742.09	6,662.46	79.63	84.671	
17,800.00	6,942.31	7,022.65	6,778.03	180.57	26.65	89.26	-1,550.14	4,873.79	6,836.49	6,757.03	79.46	86.035	
17,900.00	6,942.33	7,022.98	6,778.36	182.16	26.65	89.27	-1,550.15	4,873.79	6,931.05	6,851.75	79.30	87.400	
18,000.00	6,942.35	7,023.31	6,778.68	183.75	26.65	89.28	-1,550.16	4,873.79	7,025.76	6,946.61	79.15	88.767	
18,100.00	6,942.37	7,023.62	6,779.00	185.34	26.66	89.29	-1,550.17	4,873.79	7,120.61	7,041.61	79.00	90.134	
18,200.00	6,942.39	7,023.94	6,779.32	186.93	26.66	89.29	-1,550.18	4,873.80	7,215.61	7,136.75	78.86	91.501	
18,300.00	6,942.42	7,024.25	6,779.63	188.52	26.66	89.30	-1,550.18	4,873.80	7,310.74	7,232.02	78.72	92.870	
18,400.00	6,942.44	7,024.56	6,779.94	190.10	26.66	89.31	-1,550.19	4,873.80	7,405.99	7,327.40	78.59	94.238	
18,500.00	6,942.46	7,024.86	6,780.24	191.69	26.66	89.32	-1,550.20	4,873.80	7,501.37	7,422.91	78.46	95.607	
18,600.00	6,942.48	7,025.16	6,780.54	193.28	26.66	89.33	-1,550.21	4,873.80	7,596.87	7,518.53	78.34	96.976	
18,700.00	6,942.51	7,025.46	6,780.84	194.87	26.66	89.33	-1,550.22	4,873.80	7,692.48	7,614.26	78.22	98.344	
18,800.00	6,942.53	7,025.75	6,781.13	196.46	26.66	89.34	-1,550.23	4,873.81	7,788.20	7,710.10	78.11	99.713	
18,900.00	6,942.55	7,026.04	6,781.42	198.05	26.66	89.35	-1,550.24	4,873.81	7,884.03	7,806.03	78.00	101.081	
19,000.00	6,942.57	7,026.33	6,781.70	199.64	26.66	89.36	-1,550.25	4,873.81	7,979.96	7,902.07	77.89	102.449	
19,100.00	6,942.59	7,026.61	6,781.99	201.23	26.66	89.36	-1,550.25	4,873.81	8,075.99	7,998.20	77.79	103.815	
19,200.00	6,942.62	7,026.89	6,782.27	202.82	26.66	89.37	-1,550.26	4,873.81	8,172.12	8,094.42	77.70	105.182	
19,300.00	6,942.64	7,027.17	6,782.54	204.41	26.66	89.38	-1,550.27	4,873.81	8,268.33	8,190.73	77.60	106.547	
19,400.00	6,942.66	7,027.44	6,782.82	206.00	26.66	89.38	-1,550.28	4,873.81	8,364.64	8,287.13	77.51	107.911	
19,500.00	6,942.68	7,027.71	6,783.09	207.59	26.66	89.39	-1,550.29	4,873.82	8,461.03	8,383.60	77.43	109.274	
19,600.00	6,942.70	7,027.98	6,783.35	209.18	26.66	89.40	-1,550.29	4,873.82	8,557.51	8,480.16	77.35	110.637	
19,700.00	6,942.73	7,028.24	6,783.62	210.78	26.66	89.40	-1,550.30	4,873.82	8,654.06	8,576.79	77.27	111.997	
19,800.00	6,942.75	7,028.50	6,783.88	212.37	26.66	89.41	-1,550.31	4,873.82	8,750.69	8,673.49	77.20	113.357	
19,900.00	6,942.77	7,028.76	6,784.13	213.96	26.66	89.42	-1,550.32	4,873.82	8,847.40	8,770.27	77.13	114.715	
20,000.00	6,942.79	7,029.01	6,784.39	215.55	26.66	89.42	-1,550.33	4,873.82	8,944.18	8,867.12	77.06	116.071	
20,100.00	6,942.81	7,029.27	6,784.64	217.14	26.66	89.43	-1,550.33	4,873.82	9,041.02	8,964.03	76.99	117.426	
20,200.00	6,942.84	7,029.52	6,784.89	218.73	26.66	89.44	-1,550.34	4,873.82	9,137.94	9,061.01	76.93	118.779	
20,300.00	6,942.86	7,029.76	6,785.14	220.32	26.66	89.44	-1,550.35	4,873.82	9,234.92	9,158.05	76.87	120.130	
20,400.00	6,942.88	7,030.01	6,785.38	221.92	26.66	89.45	-1,550.36	4,873.83	9,331.97	9,255.15	76.82	121.480	
20,500.00	6,942.90	7,030.25	6,785.62	223.51	26.66	89.46	-1,550.36	4,873.83	9,429.08	9,352.31	76.77	122.827	
20,600.00	6,942.92	7,030.49	6,785.86	225.10	26.66	89.46	-1,550.37	4,873.83	9,526.25	9,449.53	76.72	124.173	
20,700.00	6,942.95	7,030.72	6,786.10	226.69	26.66	89.47	-1,550.38	4,873.83	9,623.47	9,546.80	76.67	125.516	
20,800.00	6,942.97	7,030.96	6,786.33	228.28	26.66	89.47	-1,550.38	4,873.83	9,720.75	9,644.13	76.63	126.857	
20,900.00	6,942.99	7,031.19	6,786.56	229.88	26.66	89.48	-1,550.39	4,873.83	9,818.09	9,741.50	76.59	128.196	
20,942.50	6,943.00	7,031.29	6,786.66	230.42	26.66	89.48	-1,550.39	4,873.83	9,859.47	9,780.15	79.32	124.295	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
0.00	0.00	193.00	193.00	0.00	5.78	80.92	2,099.24	13,135.43	13,302.12				
58.45	58.45	251.45	251.45	0.02	7.53	-157.37	2,099.24	13,135.43	13,302.45	13,294.90	7.55	1,761.379	
150.25	150.24	343.24	343.24	0.14	10.29	-175.67	2,099.24	13,135.43	13,303.51	13,293.09	10.42	1,276.754	
239.43	239.42	432.42	432.42	0.25	12.96	178.85	2,099.24	13,135.43	13,304.55	13,291.35	13.21	1,007.262	
299.93	299.91	492.91	492.91	0.33	14.77	-176.20	2,099.24	13,135.43	13,305.32	13,290.22	15.10	881.114	
446.00	445.96	639.06	638.96	0.50	19.15	-151.80	2,099.24	13,135.43	13,307.58	13,287.93	19.65	677.194	
537.00	536.95	730.05	729.95	0.73	21.88	-90.55	2,099.24	13,135.43	13,308.39	13,285.79	22.60	588.850	
624.00	623.95	828.64	828.49	0.99	24.83	-7.59	2,101.20	13,135.43	13,307.98	13,282.16	25.82	515.510	
718.00	717.90	938.83	938.65	1.29	28.13	10.26	2,100.17	13,135.43	13,305.17	13,275.75	29.42	452.268	
811.00	810.73	1,004.14	1,003.73	1.60	30.09	29.78	2,099.24	13,135.43	13,299.91	13,268.23	31.69	419.710	
903.00	902.19	1,095.60	1,095.19	1.92	32.83	41.85	2,099.24	13,135.43	13,292.07	13,257.32	34.75	382.521	
994.00	992.38	1,185.79	1,185.38	2.24	35.53	44.16	2,099.24	13,135.43	13,283.17	13,245.40	37.77	351.671	
1,084.00	1,081.50	1,279.15	1,278.70	2.56	38.33	48.65	2,101.39	13,135.43	13,274.81	13,233.92	40.89	324.642	
1,175.00	1,171.48	1,384.29	1,383.82	2.91	41.48	52.57	2,100.79	13,135.43	13,266.09	13,221.71	44.37	298.968	
1,268.00	1,263.52	1,491.65	1,491.14	3.26	44.70	54.16	2,099.38	13,135.43	13,257.88	13,209.95	47.93	276.595	
1,363.00	1,357.62	1,551.33	1,550.62	3.63	46.49	57.16	2,099.24	13,135.43	13,250.41	13,200.34	50.07	264.616	
1,457.00	1,450.74	1,644.46	1,643.74	3.99	49.28	59.92	2,099.24	13,135.43	13,243.67	13,190.45	53.22	248.863	
1,552.00	1,544.82	1,738.53	1,737.82	4.36	52.09	60.78	2,099.24	13,135.43	13,237.08	13,180.69	56.39	234.721	
1,646.00	1,637.88	1,844.90	1,844.13	4.72	55.28	61.33	2,101.10	13,135.43	13,230.89	13,170.95	59.94	220.736	
1,741.00	1,731.94	1,954.10	1,953.30	5.09	58.55	61.84	2,099.96	13,135.43	13,224.34	13,160.77	63.57	208.013	
1,835.00	1,825.07	2,019.09	2,018.07	5.46	60.50	61.94	2,099.24	13,135.43	13,218.18	13,152.30	65.88	200.637	
1,929.00	1,918.39	2,112.40	2,111.39	5.82	63.30	60.79	2,099.24	13,135.43	13,212.73	13,143.70	69.03	191.401	
2,024.00	2,012.84	2,206.85	2,205.84	6.18	66.13	62.21	2,099.24	13,135.43	13,207.83	13,135.61	72.22	182.891	
2,118.00	2,106.19	2,308.14	2,307.08	6.53	69.16	62.49	2,101.30	13,135.43	13,203.02	13,127.41	75.61	174.627	
2,213.00	2,200.37	2,417.03	2,415.95	6.90	72.43	61.25	2,100.44	13,135.43	13,196.99	13,117.76	79.23	166.559	
2,307.00	2,293.61	2,524.67	2,523.54	7.27	75.65	63.28	2,098.78	13,135.43	13,191.18	13,108.36	82.82	159.282	
2,402.00	2,387.91	2,582.23	2,580.91	7.63	77.38	67.16	2,099.24	13,135.43	13,186.35	13,101.45	84.90	155.310	
2,496.00	2,481.29	2,675.61	2,674.29	7.99	80.17	68.39	2,099.24	13,135.43	13,182.24	13,094.18	88.06	149.701	
2,591.00	2,575.67	2,773.06	2,771.70	8.35	83.09	66.97	2,101.40	13,135.43	13,178.40	13,087.07	91.34	144.284	
2,686.00	2,670.05	2,881.74	2,880.36	8.71	86.35	67.43	2,100.81	13,135.43	13,174.12	13,079.17	94.95	138.744	
2,780.00	2,763.49	2,989.19	2,987.77	9.07	89.57	65.48	2,099.42	13,135.43	13,169.80	13,071.27	98.53	133.668	
2,875.00	2,857.94	3,052.56	3,050.94	9.43	91.47	64.08	2,099.24	13,135.43	13,165.38	13,064.60	100.78	130.630	
2,970.00	2,952.51	3,147.14	3,145.51	9.79	94.30	67.68	2,099.24	13,135.43	13,161.68	13,057.71	103.97	126.590	
3,064.00	3,046.19	3,240.82	3,239.19	10.13	97.11	74.89	2,099.24	13,135.43	13,159.17	13,052.05	107.12	122.841	
3,159.00	3,140.98	3,348.26	3,346.58	10.47	100.33	76.91	2,101.08	13,135.43	13,157.85	13,047.17	110.69	118.875	
3,253.00	3,234.84	3,455.95	3,454.24	10.81	103.56	69.21	2,099.93	13,135.43	13,156.29	13,042.04	114.25	115.156	
3,348.00	3,329.74	3,524.67	3,522.74	11.14	105.62	61.57	2,099.24	13,135.43	13,154.37	13,037.73	116.65	112.772	
3,397.00	3,378.70	3,573.63	3,571.70	11.32	107.08	60.70	2,099.24	13,135.43	13,153.38	13,035.09	118.29	111.200	
3,488.00	3,469.63	3,664.56	3,662.63	11.64	109.81	58.16	2,099.24	13,135.43	13,151.61	13,030.28	121.33	108.394	
3,583.00	3,564.49	3,760.81	3,758.84	11.98	112.69	66.56	2,101.41	13,135.43	13,149.65	13,025.09	124.56	105.573	
3,677.00	3,658.13	3,868.05	3,866.06	12.33	115.90	68.40	2,100.93	13,135.43	13,146.46	13,018.35	128.12	102.613	
3,772.00	3,752.42	3,975.87	3,973.85	12.69	119.14	73.01	2,099.63	13,135.43	13,142.55	13,010.84	131.71	99.784	
3,867.00	3,846.42	4,041.65	4,039.42	13.06	121.11	74.63	2,099.24	13,135.43	13,138.59	13,004.54	134.05	98.011	
3,961.00	3,939.30	4,134.53	4,132.30	13.44	123.89	74.46	2,099.24	13,135.43	13,134.69	12,997.49	137.21	95.730	
4,056.00	4,032.83	4,228.06	4,225.83	13.82	126.69	71.25	2,099.24	13,135.43	13,129.68	12,989.29	140.39	93.523	
4,151.00	4,126.01	4,331.13	4,328.84	14.21	129.78	72.20	2,101.19	13,135.43	13,124.04	12,980.17	143.87	91.224	
4,246.00	4,219.10	4,436.87	4,434.55	14.61	132.95	64.97	2,100.20	13,135.43	13,116.88	12,969.46	147.42	88.974	
4,340.00	4,310.92	4,506.45	4,503.92	15.01	135.03	56.12	2,099.24	13,135.43	13,106.57	12,956.68	149.90	87.436	
4,435.00	4,403.54	4,599.08	4,596.54	15.41	137.81	55.58	2,099.24	13,135.43	13,094.53	12,941.46	153.07	85.548	
4,498.00	4,465.21	4,660.75	4,658.21	15.68	139.66	57.61	2,099.24	13,135.43	13,087.32	12,932.15	155.17	84.341	
4,561.00	4,526.82	4,722.36	4,719.82	15.95	141.50	62.86	2,099.24	13,135.43	13,080.73	12,923.45	157.28	83.170	
4,624.00	4,588.23	4,788.18	4,785.59	16.22	143.48	64.74	2,101.37	13,135.43	13,074.65	12,915.13	159.51	81.966	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
4,687.00	4,649.71	4,857.56	4,854.96	16.49	145.55	65.27	2,101.01	13,135.43	13,068.68	12,906.83	161.86	80.743	
4,749.00	4,710.40	4,925.93	4,923.32	16.75	147.60	66.55	2,100.33	13,135.43	13,063.34	12,899.18	164.16	79.576	
4,812.00	4,772.28	4,995.54	4,992.91	17.01	149.69	67.34	2,099.31	13,135.43	13,058.52	12,892.02	166.51	78.427	
4,875.00	4,834.34	5,030.18	5,027.34	17.27	150.73	66.89	2,099.24	13,135.43	13,054.20	12,886.40	167.80	77.796	
4,938.00	4,896.43	5,092.28	5,089.43	17.53	152.59	66.75	2,099.24	13,135.43	13,049.96	12,880.05	169.91	76.803	
5,001.00	4,958.46	5,154.30	5,151.46	17.79	154.45	63.63	2,099.24	13,135.43	13,045.27	12,873.24	172.03	75.832	
5,064.00	5,020.29	5,216.13	5,213.29	18.05	156.30	59.52	2,099.24	13,135.43	13,039.40	12,865.27	174.14	74.879	
5,126.00	5,080.98	5,280.12	5,277.23	18.32	158.22	55.42	2,101.38	13,135.43	13,032.75	12,856.44	176.31	73.918	
5,189.00	5,142.74	5,349.34	5,346.44	18.58	160.29	57.02	2,101.07	13,135.43	13,025.70	12,847.05	178.64	72.914	
5,252.00	5,204.62	5,418.60	5,415.68	18.85	162.37	57.07	2,100.42	13,135.43	13,019.11	12,838.14	180.97	71.939	
5,315.00	5,266.61	5,487.90	5,484.96	19.11	164.44	56.91	2,099.44	13,135.43	13,012.84	12,829.54	183.30	70.990	
5,378.00	5,328.73	5,524.88	5,521.73	19.37	165.55	57.37	2,099.24	13,135.43	13,007.02	12,822.36	184.67	70.436	
5,441.00	5,390.87	5,587.02	5,583.87	19.62	167.41	56.93	2,099.24	13,135.43	13,001.34	12,814.57	186.78	69.609	
5,503.00	5,452.07	5,648.22	5,645.07	19.87	169.25	57.27	2,099.24	13,135.43	12,995.91	12,807.06	188.86	68.813	
5,566.00	5,514.32	5,710.47	5,707.32	20.13	171.11	56.96	2,099.24	13,135.43	12,990.59	12,799.62	190.97	68.024	
5,629.00	5,576.59	5,775.38	5,772.19	20.38	173.06	59.40	2,101.39	13,135.43	12,985.77	12,792.60	193.16	67.227	
5,692.00	5,638.95	5,844.89	5,841.68	20.63	175.14	57.14	2,101.10	13,135.43	12,980.98	12,785.49	195.49	66.402	
5,747.00	5,693.45	5,905.57	5,902.35	20.85	176.96	59.38	2,100.57	13,135.43	12,976.99	12,779.47	197.52	65.699	
5,810.00	5,755.90	5,975.05	5,971.81	21.09	179.04	58.69	2,099.65	13,135.43	12,972.60	12,772.76	199.85	64.913	
5,874.00	5,819.40	6,015.85	6,012.40	21.34	180.26	59.95	2,099.24	13,135.43	12,968.45	12,767.13	201.31	64.419	
5,936.00	5,880.95	6,077.40	6,073.95	21.58	182.11	59.57	2,099.24	13,135.43	12,964.65	12,761.26	203.40	63.741	
5,999.00	5,943.45	6,139.91	6,136.45	21.82	183.98	58.14	2,099.24	13,135.43	12,960.56	12,755.05	205.51	63.065	
6,062.00	6,005.96	6,202.41	6,198.96	22.07	185.85	60.66	2,099.24	13,135.43	12,956.52	12,748.90	207.62	62.404	
6,125.00	6,068.49	6,266.60	6,263.11	22.31	187.78	58.38	2,101.41	13,135.43	12,952.84	12,743.05	209.79	61.743	
6,188.00	6,131.08	6,336.07	6,332.56	22.55	189.86	60.20	2,101.16	13,135.43	12,949.13	12,737.02	212.11	61.050	
6,255.00	6,197.73	6,409.99	6,406.46	22.81	192.07	59.15	2,100.52	13,135.43	12,945.61	12,731.03	214.57	60.332	
6,293.00	6,235.55	6,451.92	6,448.38	22.89	193.33	59.17	2,099.99	13,135.43	12,943.68	12,727.78	215.90	59.951	
6,300.00	6,242.52	6,459.64	6,456.10	22.89	193.56	59.18	2,099.88	13,135.43	12,943.33	12,727.19	216.14	59.884	
6,393.00	6,335.09	6,518.00	6,514.23	22.94	195.31	59.20	2,099.24	13,135.43	12,938.68	12,720.75	217.93	59.371	
6,400.00	6,342.06	6,518.00	6,514.23	22.94	195.31	53.31	2,099.24	13,135.43	12,938.30	12,720.37	217.93	59.368	
6,450.00	6,391.66	6,518.00	6,514.23	22.97	195.31	26.16	2,099.24	13,135.43	12,933.52	12,715.57	217.96	59.340	
6,500.00	6,440.77	6,518.00	6,514.23	23.02	195.31	14.27	2,099.24	13,135.43	12,925.05	12,707.07	217.98	59.295	
6,550.00	6,489.07	6,518.00	6,514.23	23.07	195.31	8.07	2,099.24	13,135.43	12,912.93	12,694.93	217.99	59.235	
6,600.00	6,536.26	6,518.00	6,514.23	23.13	195.31	4.26	2,099.24	13,135.43	12,897.23	12,679.22	218.01	59.159	
6,650.00	6,582.05	6,518.00	6,514.23	23.21	195.31	1.61	2,099.24	13,135.43	12,878.03	12,660.01	218.02	59.068	
6,700.00	6,626.13	6,518.00	6,514.23	23.29	195.31	-0.42	2,099.24	13,135.43	12,855.44	12,637.41	218.03	58.962	
6,750.00	6,668.24	6,518.00	6,514.23	23.39	195.31	-2.12	2,099.24	13,135.43	12,829.60	12,611.56	218.04	58.842	
6,800.00	6,708.12	6,518.00	6,514.23	23.51	195.31	-3.65	2,099.24	13,135.43	12,800.63	12,582.59	218.04	58.708	
6,850.00	6,745.50	6,518.00	6,514.23	23.64	195.31	-5.13	2,099.24	13,135.43	12,768.70	12,550.66	218.04	58.561	
6,900.00	6,780.15	6,518.00	6,514.23	23.79	195.31	-6.66	2,099.24	13,135.43	12,734.00	12,515.96	218.04	58.402	
6,950.00	6,811.86	6,518.00	6,514.23	23.95	195.31	-8.33	2,099.24	13,135.43	12,696.71	12,478.67	218.04	58.231	
7,000.00	6,840.42	6,518.00	6,514.23	24.14	195.31	-10.26	2,099.24	13,135.43	12,657.06	12,439.02	218.04	58.051	
7,050.00	6,865.66	6,518.00	6,514.23	24.35	195.31	-12.61	2,099.24	13,135.43	12,615.26	12,397.24	218.03	57.861	
7,100.00	6,887.42	6,518.00	6,514.23	24.57	195.31	-15.59	2,099.24	13,135.43	12,571.58	12,353.56	218.02	57.663	
7,150.00	6,905.55	6,518.00	6,514.23	24.82	195.31	-19.60	2,099.24	13,135.43	12,526.25	12,308.24	218.01	57.459	
7,200.00	6,919.95	6,518.00	6,514.23	25.10	195.31	-25.27	2,099.24	13,135.43	12,479.55	12,261.56	217.99	57.249	
7,250.00	6,930.52	6,518.00	6,514.23	25.39	195.31	-33.80	2,099.24	13,135.43	12,431.76	12,213.79	217.97	57.034	
7,300.00	6,937.20	6,518.00	6,514.23	25.70	195.31	-47.24	2,099.24	13,135.43	12,383.18	12,165.23	217.95	56.817	
7,350.00	6,939.94	6,518.00	6,514.23	26.04	195.31	-68.03	2,099.24	13,135.43	12,334.10	12,116.17	217.92	56.599	
7,359.60	6,940.02	6,518.00	6,514.23	26.10	195.31	-72.86	2,099.24	13,135.43	12,324.64	12,106.72	217.92	56.557	
7,400.00	6,940.03	6,518.00	6,514.23	26.39	195.31	-72.86	2,099.24	13,135.43	12,284.84	12,066.94	217.89	56.380	
7,500.00	6,940.04	6,518.00	6,514.23	27.15	195.31	-72.86	2,099.24	13,135.43	12,186.33	11,968.49	217.84	55.942	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
7,600.00	6,940.06	6,518.00	6,514.23	27.99	195.31	-72.86	2,099.24	13,135.43	12,087.85	11,870.06	217.79	55.503	
7,659.60	6,940.07	6,518.00	6,514.23	28.52	195.31	-72.86	2,099.24	13,135.43	12,029.16	11,811.40	217.76	55.241	
7,700.00	6,940.08	6,518.00	6,514.23	28.89	195.31	-71.40	2,099.24	13,135.43	11,989.34	11,771.60	217.74	55.063	
7,796.63	6,940.10	6,518.00	6,514.23	29.83	195.31	-66.76	2,099.24	13,135.43	11,893.78	11,676.07	217.71	54.632	
7,800.00	6,940.10	6,518.00	6,514.23	29.86	195.31	-66.76	2,099.24	13,135.43	11,890.43	11,672.73	217.71	54.617	
7,900.00	6,940.12	6,518.00	6,514.23	30.90	195.31	-66.76	2,099.24	13,135.43	11,791.32	11,573.64	217.68	54.168	
8,000.00	6,940.14	6,518.00	6,514.23	31.98	195.31	-66.76	2,099.24	13,135.43	11,692.22	11,474.57	217.66	53.719	
8,100.00	6,940.17	6,518.00	6,514.23	33.11	195.31	-66.76	2,099.24	13,135.43	11,593.14	11,375.51	217.63	53.269	
8,200.00	6,940.19	6,518.00	6,514.23	34.28	195.31	-66.76	2,099.24	13,135.43	11,494.08	11,276.46	217.62	52.818	
8,300.00	6,940.21	6,518.00	6,514.23	35.48	195.31	-66.76	2,099.24	13,135.43	11,395.03	11,177.43	217.60	52.367	
8,400.00	6,940.23	6,518.00	6,514.23	36.71	195.31	-66.76	2,099.24	13,135.43	11,296.00	11,078.41	217.59	51.915	
8,500.00	6,940.25	6,518.00	6,514.23	37.97	195.31	-66.76	2,099.24	13,135.43	11,196.99	10,979.41	217.58	51.462	
8,600.00	6,940.28	6,518.00	6,514.23	39.26	195.31	-66.76	2,099.24	13,135.43	11,097.99	10,880.42	217.57	51.009	
8,700.00	6,940.30	6,518.00	6,514.23	40.56	195.31	-66.76	2,099.24	13,135.43	10,999.01	10,781.44	217.57	50.555	
8,800.00	6,940.32	6,518.00	6,514.23	41.89	195.31	-66.76	2,099.24	13,135.43	10,900.05	10,682.48	217.57	50.100	
8,900.00	6,940.34	6,518.00	6,514.23	43.24	195.31	-66.76	2,099.24	13,135.43	10,801.11	10,583.54	217.57	49.644	
9,000.00	6,940.36	6,518.00	6,514.23	44.60	195.31	-66.76	2,099.24	13,135.43	10,702.19	10,484.61	217.58	49.188	
9,100.00	6,940.39	6,518.00	6,514.23	45.98	195.31	-66.76	2,099.24	13,135.43	10,603.29	10,385.70	217.59	48.731	
9,200.00	6,940.41	6,518.00	6,514.23	47.38	195.31	-66.76	2,099.24	13,135.43	10,504.41	10,286.80	217.60	48.273	
9,300.00	6,940.43	6,518.00	6,514.23	48.78	195.31	-66.76	2,099.24	13,135.43	10,405.55	10,187.93	217.62	47.814	
9,400.00	6,940.45	6,518.00	6,514.23	50.20	195.31	-66.76	2,099.24	13,135.43	10,306.71	10,089.07	217.65	47.355	
9,500.00	6,940.47	6,518.00	6,514.23	51.63	195.31	-66.76	2,099.24	13,135.43	10,207.90	9,990.22	217.68	46.895	
9,600.00	6,940.50	6,518.00	6,514.23	53.07	195.31	-66.76	2,099.24	13,135.43	10,109.11	9,891.40	217.71	46.434	
9,700.00	6,940.52	6,518.00	6,514.23	54.52	195.31	-66.76	2,099.24	13,135.43	10,010.34	9,792.60	217.75	45.972	
9,800.00	6,940.54	6,518.00	6,514.23	55.97	195.31	-66.76	2,099.24	13,135.43	9,911.60	9,693.81	217.79	45.510	
9,900.00	6,940.56	6,518.00	6,514.23	57.44	195.31	-66.76	2,099.24	13,135.43	9,812.88	9,595.05	217.84	45.046	
10,000.00	6,940.59	6,518.00	6,514.23	58.91	195.31	-66.76	2,099.24	13,135.43	9,714.19	9,496.30	217.89	44.582	
10,100.00	6,940.61	6,518.00	6,514.23	60.38	195.31	-66.76	2,099.24	13,135.43	9,615.53	9,397.58	217.95	44.117	
10,200.00	6,940.63	6,518.00	6,514.23	61.87	195.31	-66.76	2,099.24	13,135.43	9,516.90	9,298.88	218.02	43.652	
10,300.00	6,940.65	6,518.00	6,514.23	63.36	195.31	-66.76	2,099.24	13,135.43	9,418.29	9,200.20	218.09	43.185	
10,400.00	6,940.67	6,518.00	6,514.23	64.85	195.31	-66.76	2,099.24	13,135.43	9,319.71	9,101.54	218.17	42.717	
10,500.00	6,940.70	6,518.00	6,514.23	66.35	195.31	-66.76	2,099.24	13,135.43	9,221.17	9,002.91	218.26	42.249	
10,600.00	6,940.72	6,518.00	6,514.23	67.86	195.31	-66.76	2,099.24	13,135.43	9,122.65	8,904.30	218.35	41.780	
10,700.00	6,940.74	6,518.00	6,514.23	69.36	195.31	-66.76	2,099.24	13,135.43	9,024.17	8,805.72	218.45	41.310	
10,800.00	6,940.76	6,518.00	6,514.23	70.88	195.31	-66.76	2,099.24	13,135.43	8,925.73	8,707.17	218.56	40.839	
10,900.00	6,940.78	6,518.00	6,514.23	72.39	195.31	-66.76	2,099.24	13,135.43	8,827.31	8,608.64	218.68	40.367	
11,000.00	6,940.81	6,518.00	6,514.23	73.91	195.31	-66.76	2,099.24	13,135.43	8,728.94	8,510.14	218.80	39.895	
11,100.00	6,940.83	6,518.00	6,514.23	75.44	195.31	-66.76	2,099.24	13,135.43	8,630.60	8,411.66	218.93	39.421	
11,200.00	6,940.85	6,518.00	6,514.23	76.96	195.31	-66.76	2,099.24	13,135.43	8,532.30	8,313.22	219.08	38.947	
11,300.00	6,940.87	6,518.00	6,514.23	78.49	195.31	-66.76	2,099.24	13,135.43	8,434.03	8,214.81	219.23	38.471	
11,400.00	6,940.89	6,518.00	6,514.23	80.03	195.31	-66.76	2,099.24	13,135.43	8,335.81	8,116.42	219.39	37.995	
11,500.00	6,940.92	6,518.00	6,514.23	81.56	195.31	-66.76	2,099.24	13,135.43	8,237.64	8,018.07	219.56	37.518	
11,600.00	6,940.94	6,518.00	6,514.23	83.10	195.31	-66.76	2,099.24	13,135.43	8,139.51	7,919.76	219.75	37.040	
11,700.00	6,940.96	6,518.00	6,514.23	84.64	195.31	-66.76	2,099.24	13,135.43	8,041.42	7,821.48	219.94	36.562	
11,800.00	6,940.98	6,518.00	6,514.23	86.18	195.31	-66.76	2,099.24	13,135.43	7,943.38	7,723.23	220.15	36.082	
11,900.00	6,941.00	6,518.00	6,514.23	87.72	195.31	-66.76	2,099.24	13,135.43	7,845.39	7,625.03	220.37	35.602	
12,000.00	6,941.03	6,518.00	6,514.23	89.27	195.31	-66.76	2,099.24	13,135.43	7,747.45	7,526.86	220.60	35.120	
12,100.00	6,941.05	6,518.00	6,514.23	90.82	195.31	-66.76	2,099.24	13,135.43	7,649.57	7,428.73	220.84	34.638	
12,200.00	6,941.07	6,518.00	6,514.23	92.37	195.31	-66.76	2,099.24	13,135.43	7,551.74	7,330.64	221.10	34.155	
12,300.00	6,941.09	6,518.00	6,514.23	93.92	195.31	-66.76	2,099.24	13,135.43	7,453.97	7,232.60	221.37	33.672	
12,400.00	6,941.11	6,518.00	6,514.23	95.47	195.31	-66.76	2,099.24	13,135.43	7,356.26	7,134.60	221.66	33.187	
12,500.00	6,941.14	6,518.00	6,514.23	97.03	195.31	-66.76	2,099.24	13,135.43	7,258.61	7,036.65	221.96	32.702	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
12,600.00	6,941.16	6,518.00	6,514.23	98.58	195.31	-66.76	2,099.24	13,135.43	7,161.03	6,938.75	222.28	32.216	
12,700.00	6,941.18	6,518.00	6,514.23	100.14	195.31	-66.76	2,099.24	13,135.43	7,063.51	6,840.90	222.61	31.730	
12,800.00	6,941.20	6,518.00	6,514.23	101.70	195.31	-66.76	2,099.24	13,135.43	6,966.06	6,743.10	222.97	31.243	
12,900.00	6,941.23	6,518.00	6,514.23	103.26	195.31	-66.76	2,099.24	13,135.43	6,868.69	6,645.35	223.34	30.755	
13,000.00	6,941.25	6,518.00	6,514.23	104.82	195.31	-66.76	2,099.24	13,135.43	6,771.39	6,547.67	223.73	30.266	
13,100.00	6,941.27	6,518.00	6,514.23	106.38	195.31	-66.76	2,099.24	13,135.43	6,674.18	6,450.04	224.14	29.777	
13,200.00	6,941.29	6,518.00	6,514.23	107.95	195.31	-66.76	2,099.24	13,135.43	6,577.05	6,352.48	224.57	29.288	
13,300.00	6,941.31	6,518.00	6,514.23	109.51	195.31	-66.76	2,099.24	13,135.43	6,480.00	6,254.98	225.02	28.798	
13,400.00	6,941.34	6,518.00	6,514.23	111.08	195.31	-66.76	2,099.24	13,135.43	6,383.05	6,157.56	225.49	28.308	
13,500.00	6,941.36	6,518.00	6,514.23	112.64	195.31	-66.76	2,099.24	13,135.43	6,286.19	6,060.20	225.99	27.817	
13,600.00	6,941.38	6,518.00	6,514.23	114.21	195.31	-66.76	2,099.24	13,135.43	6,189.43	5,962.92	226.51	27.326	
13,700.00	6,941.40	6,518.00	6,514.23	115.78	195.31	-66.76	2,099.24	13,135.43	6,092.77	5,865.72	227.05	26.834	
13,800.00	6,941.42	6,518.00	6,514.23	117.35	195.31	-66.76	2,099.24	13,135.43	5,996.23	5,768.61	227.62	26.343	
13,900.00	6,941.45	6,518.00	6,514.23	118.92	195.31	-66.76	2,099.24	13,135.43	5,899.80	5,671.58	228.22	25.851	
14,000.00	6,941.47	6,518.00	6,514.23	120.49	195.31	-66.76	2,099.24	13,135.43	5,803.49	5,574.64	228.85	25.359	
14,100.00	6,941.49	6,518.00	6,514.23	122.06	195.31	-66.76	2,099.24	13,135.43	5,707.31	5,477.80	229.51	24.867	
14,200.00	6,941.51	6,518.00	6,514.23	123.64	195.31	-66.76	2,099.24	13,135.43	5,611.26	5,381.06	230.20	24.375	
14,300.00	6,941.53	6,518.00	6,514.23	125.21	195.31	-66.76	2,099.24	13,135.43	5,515.36	5,284.43	230.92	23.884	
14,400.00	6,941.56	6,518.00	6,514.23	126.78	195.31	-66.76	2,099.24	13,135.43	5,419.60	5,187.91	231.68	23.393	
14,500.00	6,941.58	6,518.00	6,514.23	128.36	195.31	-66.76	2,099.24	13,135.43	5,323.99	5,091.52	232.47	22.901	
14,600.00	6,941.60	6,518.00	6,514.23	129.93	195.31	-66.76	2,099.24	13,135.43	5,228.55	4,995.25	233.30	22.411	
14,700.00	6,941.62	6,518.00	6,514.23	131.51	195.31	-66.76	2,099.24	13,135.43	5,133.29	4,899.11	234.17	21.921	
14,800.00	6,941.64	6,518.00	6,514.23	133.08	195.31	-66.76	2,099.24	13,135.43	5,038.20	4,803.12	235.09	21.431	
14,900.00	6,941.67	6,518.00	6,514.23	134.66	195.31	-66.76	2,099.24	13,135.43	4,943.32	4,707.28	236.04	20.943	
15,000.00	6,941.69	6,518.00	6,514.23	136.24	195.31	-66.76	2,099.24	13,135.43	4,848.63	4,611.59	237.04	20.455	
15,100.00	6,941.71	6,518.00	6,514.23	137.82	195.31	-66.76	2,099.24	13,135.43	4,754.17	4,516.08	238.09	19.968	
15,200.00	6,941.73	6,518.00	6,514.23	139.40	195.31	-66.76	2,099.24	13,135.43	4,659.94	4,420.75	239.19	19.482	
15,300.00	6,941.75	6,518.00	6,514.23	140.97	195.31	-66.76	2,099.24	13,135.43	4,565.95	4,325.61	240.34	18.998	
15,400.00	6,941.78	6,518.00	6,514.23	142.55	195.31	-66.76	2,099.24	13,135.43	4,472.22	4,230.68	241.54	18.515	
15,500.00	6,941.80	6,518.00	6,514.23	144.13	195.31	-66.76	2,099.24	13,135.43	4,378.77	4,135.96	242.81	18.034	
15,600.00	6,941.82	6,518.00	6,514.23	145.72	195.31	-66.76	2,099.24	13,135.43	4,285.62	4,041.48	244.14	17.554	
15,700.00	6,941.84	6,518.00	6,514.23	147.30	195.31	-66.76	2,099.24	13,135.43	4,192.78	3,947.25	245.53	17.077	
15,800.00	6,941.87	6,518.00	6,514.23	148.88	195.31	-66.76	2,099.24	13,135.43	4,100.27	3,853.28	246.99	16.601	
15,900.00	6,941.89	6,518.00	6,514.23	150.46	195.31	-66.76	2,099.24	13,135.43	4,008.13	3,759.61	248.52	16.128	
16,000.00	6,941.91	6,518.00	6,514.23	152.04	195.31	-66.76	2,099.24	13,135.43	3,916.37	3,666.24	250.13	15.657	
16,100.00	6,941.93	6,518.00	6,514.23	153.62	195.31	-66.76	2,099.24	13,135.43	3,825.03	3,573.21	251.82	15.189	
16,200.00	6,941.95	6,518.00	6,514.23	155.21	195.31	-66.76	2,099.24	13,135.43	3,734.13	3,480.53	253.60	14.725	
16,300.00	6,941.98	6,518.00	6,514.23	156.79	195.31	-66.76	2,099.24	13,135.43	3,643.71	3,388.25	255.46	14.263	
16,400.00	6,942.00	6,518.00	6,514.23	158.37	195.31	-66.76	2,099.24	13,135.43	3,553.80	3,296.37	257.42	13.805	
16,500.00	6,942.02	6,518.00	6,514.23	159.96	195.31	-66.76	2,099.24	13,135.43	3,464.44	3,204.96	259.49	13.351	
16,600.00	6,942.04	6,518.00	6,514.23	161.54	195.31	-66.76	2,099.24	13,135.43	3,375.68	3,114.03	261.65	12.901	
16,700.00	6,942.06	6,518.00	6,514.23	163.13	195.31	-66.76	2,099.24	13,135.43	3,287.57	3,023.63	263.93	12.456	
16,800.00	6,942.09	6,518.00	6,514.23	164.71	195.31	-66.76	2,099.24	13,135.43	3,200.15	2,933.82	266.33	12.016	
16,900.00	6,942.11	6,518.00	6,514.23	166.30	195.31	-66.76	2,099.24	13,135.43	3,113.50	2,844.64	268.86	11.580	
17,000.00	6,942.13	6,518.00	6,514.23	167.88	195.31	-66.76	2,099.24	13,135.43	3,027.66	2,756.15	271.51	11.151	
17,100.00	6,942.15	6,518.00	6,514.23	169.47	195.31	-66.76	2,099.24	13,135.43	2,942.72	2,668.41	274.31	10.728	
17,200.00	6,942.17	6,518.00	6,514.23	171.05	195.31	-66.76	2,099.24	13,135.43	2,858.75	2,581.50	277.25	10.311	
17,300.00	6,942.20	6,518.00	6,514.23	172.64	195.31	-66.76	2,099.24	13,135.43	2,775.85	2,495.51	280.34	9.902	
17,400.00	6,942.22	6,518.00	6,514.23	174.23	195.31	-66.76	2,099.24	13,135.43	2,694.11	2,410.51	283.60	9.500	
17,500.00	6,942.24	6,518.00	6,514.23	175.81	195.31	-66.76	2,099.24	13,135.43	2,613.64	2,326.62	287.01	9.106	
17,600.00	6,942.26	6,518.00	6,514.23	177.40	195.31	-66.76	2,099.24	13,135.43	2,534.55	2,243.95	290.60	8.722	
17,700.00	6,942.28	6,518.00	6,514.23	178.99	195.31	-66.76	2,099.24	13,135.43	2,457.00	2,162.63	294.37	8.347	

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 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
17,800.00	6,942.31	6,518.00	6,514.23	180.57	195.31	-66.76	2,099.24	13,135.43	2,381.12	2,082.80	298.32	7.982	
17,900.00	6,942.33	6,518.00	6,514.23	182.16	195.31	-66.76	2,099.24	13,135.43	2,307.07	2,004.63	302.44	7.628	
18,000.00	6,942.35	6,518.00	6,514.23	183.75	195.31	-66.76	2,099.24	13,135.43	2,235.05	1,928.30	306.75	7.286	
18,100.00	6,942.37	6,518.00	6,514.23	185.34	195.31	-66.76	2,099.24	13,135.43	2,165.26	1,854.03	311.23	6.957	
18,200.00	6,942.39	6,518.00	6,514.23	186.93	195.31	-66.76	2,099.24	13,135.43	2,097.91	1,782.03	315.87	6.642	
18,300.00	6,942.42	6,518.00	6,514.23	188.52	195.31	-66.76	2,099.24	13,135.43	2,033.24	1,712.58	320.67	6.341	
18,400.00	6,942.44	6,518.00	6,514.23	190.10	195.31	-66.76	2,099.24	13,135.43	1,971.54	1,645.94	325.60	6.055	
18,500.00	6,942.46	6,518.00	6,514.23	191.69	195.31	-66.76	2,099.24	13,135.43	1,913.07	1,582.44	330.63	5.786	
18,600.00	6,942.48	6,518.00	6,514.23	193.28	195.31	-66.76	2,099.24	13,135.43	1,858.14	1,522.42	335.72	5.535	
18,700.00	6,942.51	6,518.00	6,514.23	194.87	195.31	-66.76	2,099.24	13,135.43	1,807.09	1,466.25	340.84	5.302	
18,800.00	6,942.53	6,518.00	6,514.23	196.46	195.31	-66.76	2,099.24	13,135.43	1,760.24	1,414.33	345.92	5.089	
18,900.00	6,942.55	6,518.00	6,514.23	198.05	195.31	-66.76	2,099.24	13,135.43	1,717.94	1,367.05	350.89	4.896	
19,000.00	6,942.57	6,518.00	6,514.23	199.64	195.31	-66.76	2,099.24	13,135.43	1,680.53	1,324.83	355.70	4.725	
19,100.00	6,942.59	6,518.00	6,514.23	201.23	195.31	-66.76	2,099.24	13,135.43	1,648.35	1,288.10	360.25	4.576	
19,200.00	6,942.62	6,518.00	6,514.23	202.82	195.31	-66.76	2,099.24	13,135.43	1,621.71	1,257.25	364.46	4.450	
19,300.00	6,942.64	6,518.00	6,514.23	204.41	195.31	-66.76	2,099.24	13,135.43	1,600.88	1,232.62	368.26	4.347	
19,400.00	6,942.66	6,518.00	6,514.23	206.00	195.31	-66.76	2,099.24	13,135.43	1,586.09	1,214.54	371.55	4.269	
19,500.00	6,942.68	6,518.00	6,514.23	207.59	195.31	-66.76	2,099.24	13,135.43	1,577.52	1,203.23	374.29	4.215	
19,585.63	6,942.70	6,518.00	6,514.23	208.96	195.31	-66.76	2,099.24	13,135.43	1,575.19	1,199.05	376.14	4.188	CC
19,600.00	6,942.70	6,518.00	6,514.23	209.18	195.31	-66.76	2,099.24	13,135.43	1,575.26	1,198.85	376.41	4.185	ES
19,700.00	6,942.73	6,518.00	6,514.23	210.78	195.31	-66.76	2,099.24	13,135.43	1,579.34	1,201.45	377.89	4.179	SF
19,800.00	6,942.75	6,518.00	6,514.23	212.37	195.31	-66.76	2,099.24	13,135.43	1,589.71	1,211.00	378.71	4.198	
19,900.00	6,942.77	6,518.00	6,514.23	213.96	195.31	-66.76	2,099.24	13,135.43	1,606.26	1,227.35	378.90	4.239	
20,000.00	6,942.79	6,518.00	6,514.23	215.55	195.31	-66.76	2,099.24	13,135.43	1,628.78	1,250.30	378.48	4.303	
20,100.00	6,942.81	6,518.00	6,514.23	217.14	195.31	-66.76	2,099.24	13,135.43	1,657.05	1,279.54	377.51	4.389	
20,200.00	6,942.84	6,518.00	6,514.23	218.73	195.31	-66.76	2,099.24	13,135.43	1,690.76	1,314.73	376.03	4.496	
20,300.00	6,942.86	6,518.00	6,514.23	220.32	195.31	-66.76	2,099.24	13,135.43	1,729.61	1,355.48	374.13	4.623	
20,400.00	6,942.88	6,518.00	6,514.23	221.92	195.31	-66.76	2,099.24	13,135.43	1,773.25	1,401.38	371.87	4.768	
20,500.00	6,942.90	6,518.00	6,514.23	223.51	195.31	-66.76	2,099.24	13,135.43	1,821.35	1,452.03	369.32	4.932	
20,600.00	6,942.92	6,518.00	6,514.23	225.10	195.31	-66.76	2,099.24	13,135.43	1,873.55	1,507.00	366.55	5.111	
20,700.00	6,942.95	6,518.00	6,514.23	226.69	195.31	-66.76	2,099.24	13,135.43	1,929.52	1,565.91	363.61	5.307	
20,800.00	6,942.97	6,518.00	6,514.23	228.28	195.31	-66.76	2,099.24	13,135.43	1,988.95	1,628.39	360.56	5.516	
20,900.00	6,942.99	6,518.00	6,514.23	229.88	195.31	-66.76	2,099.24	13,135.43	2,051.53	1,694.08	357.45	5.739	
20,942.50	6,943.00	6,518.00	6,514.23	230.42	195.31	-66.76	2,099.24	13,135.43	2,079.02	1,722.74	356.28	5.835	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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	106.87	-932.58	3,075.55	3,214.46				
58.45	58.45	0.00	0.00	0.02	0.00	-131.43	-932.58	3,075.55	3,214.07				
150.25	150.24	84.05	84.05	0.14	0.15	-149.73	-932.71	3,075.54	3,214.93	3,214.67	0.26	N/A	
239.43	239.42	172.10	172.10	0.25	0.43	-155.22	-933.11	3,075.50	3,215.94	3,215.29	0.65	4,946.532	
299.93	299.91	235.88	235.88	0.33	0.65	-150.26	-933.55	3,075.42	3,216.67	3,215.73	0.95	3,398.291	
446.00	445.96	391.83	391.82	0.50	1.20	-125.87	-934.85	3,074.72	3,218.10	3,216.44	1.66	1,936.648	
537.00	536.95	484.51	484.49	0.73	1.52	-64.62	-935.71	3,074.13	3,218.11	3,215.89	2.22	1,448.304	
624.00	623.95	572.25	572.23	0.99	1.83	18.37	-936.59	3,073.52	3,216.89	3,214.09	2.80	1,150.405	
718.00	717.90	667.12	667.09	1.29	2.16	36.28	-937.60	3,072.82	3,214.22	3,210.79	3.43	936.258	
811.00	810.73	759.25	759.21	1.60	2.49	55.88	-938.52	3,072.15	3,210.23	3,206.16	4.07	789.033	
903.00	902.19	848.54	848.50	1.92	2.80	68.02	-939.30	3,071.58	3,205.48	3,200.78	4.70	682.045	
994.00	992.38	937.87	937.82	2.24	3.11	70.50	-939.99	3,071.09	3,200.89	3,195.55	5.34	599.677	
1,084.00	1,081.50	1,029.01	1,028.96	2.56	3.43	75.13	-940.58	3,070.59	3,196.88	3,190.89	5.99	534.006	
1,175.00	1,171.48	1,121.67	1,121.62	2.91	3.76	79.21	-941.14	3,070.02	3,193.47	3,186.81	6.65	480.052	
1,268.00	1,263.52	1,215.00	1,214.94	3.26	4.08	81.01	-941.56	3,069.43	3,190.71	3,183.38	7.33	435.198	
1,363.00	1,357.62	1,309.45	1,309.39	3.63	4.42	84.20	-941.73	3,068.88	3,188.54	3,180.52	8.02	397.363	
1,457.00	1,450.74	1,400.00	1,399.94	3.99	4.73	87.12	-941.73	3,068.46	3,187.15	3,178.45	8.70	366.272	
1,552.00	1,544.82	1,494.66	1,494.60	4.36	5.06	88.16	-941.65	3,068.09	3,186.21	3,176.81	9.40	338.964	
1,646.00	1,637.88	1,586.27	1,586.21	4.72	5.38	88.89	-941.59	3,067.71	3,185.47	3,175.39	10.09	315.836	
1,741.00	1,731.94	1,679.91	1,679.85	5.09	5.71	89.58	-941.63	3,067.32	3,184.93	3,174.15	10.78	295.350	
1,835.00	1,825.07	1,772.50	1,772.43	5.46	6.03	89.90	-941.75	3,066.92	3,184.52	3,173.05	11.47	277.577	
1,929.00	1,918.39	1,866.59	1,866.53	5.82	6.36	88.97	-941.86	3,066.52	3,184.08	3,171.91	12.16	261.804	
2,024.00	2,012.84	1,963.46	1,963.40	6.18	6.70	90.55	-941.97	3,066.05	3,183.63	3,170.77	12.86	247.555	
2,118.00	2,106.19	2,058.05	2,057.99	6.53	7.03	90.94	-942.06	3,065.52	3,183.32	3,169.77	13.55	234.921	
2,213.00	2,200.37	2,154.19	2,154.12	6.90	7.37	89.86	-942.22	3,064.94	3,182.91	3,168.65	14.26	223.267	
2,307.00	2,293.61	2,248.12	2,248.05	7.27	7.70	92.09	-942.45	3,064.26	3,182.54	3,167.60	14.95	212.899	
2,321.73	2,308.23	2,262.48	2,262.41	7.32	7.75	92.72	-942.50	3,064.15	3,182.53	3,167.48	15.06	211.388	
2,402.00	2,387.91	2,340.82	2,340.75	7.63	8.03	96.14	-942.84	3,063.57	3,182.85	3,167.21	15.64	203.532	
2,496.00	2,481.29	2,431.00	2,430.93	7.99	8.34	97.56	-943.21	3,062.95	3,183.67	3,167.35	16.31	195.170	
2,591.00	2,575.67	2,518.42	2,518.34	8.35	8.65	96.26	-943.58	3,062.50	3,184.66	3,167.68	16.98	187.551	
2,686.00	2,670.05	2,604.22	2,604.14	8.71	8.95	96.89	-943.99	3,062.27	3,185.84	3,168.20	17.64	180.582	
2,780.00	2,763.49	2,697.03	2,696.94	9.07	9.27	95.06	-944.51	3,062.14	3,186.98	3,168.66	18.32	173.937	
2,875.00	2,857.94	2,789.71	2,789.63	9.43	9.60	93.86	-945.09	3,062.02	3,187.89	3,168.88	19.01	167.732	
2,970.00	2,952.51	2,881.95	2,881.86	9.79	9.92	97.62	-945.75	3,061.92	3,188.93	3,169.25	19.68	162.020	
3,064.00	3,046.19	2,978.75	2,978.66	10.13	10.26	104.98	-946.57	3,061.77	3,190.58	3,170.21	20.37	156.668	
3,159.00	3,140.98	3,085.00	3,084.90	10.47	10.63	107.15	-947.46	3,061.35	3,192.30	3,171.22	21.08	151.446	
3,253.00	3,234.84	3,185.06	3,184.97	10.81	10.98	99.55	-948.12	3,060.69	3,193.14	3,171.38	21.76	146.727	
3,348.00	3,329.74	3,279.63	3,279.53	11.14	11.31	91.99	-948.50	3,060.08	3,193.17	3,170.74	22.43	142.367	
3,397.00	3,378.70	3,327.48	3,327.37	11.32	11.48	91.15	-948.57	3,059.83	3,193.02	3,170.25	22.77	140.234	
3,488.00	3,469.63	3,417.07	3,416.96	11.64	11.80	88.67	-948.55	3,059.49	3,192.70	3,169.29	23.40	136.424	
3,538.36	3,519.94	3,470.00	3,469.90	11.82	11.98	94.55	-948.47	3,059.30	3,192.59	3,168.82	23.77	134.321	
3,583.00	3,564.49	3,516.01	3,515.90	11.98	12.14	97.10	-948.36	3,059.11	3,192.67	3,168.59	24.09	132.536	
3,677.00	3,658.13	3,609.17	3,609.07	12.33	12.47	98.98	-948.11	3,058.73	3,193.39	3,168.63	24.76	128.952	
3,772.00	3,752.42	3,700.00	3,699.89	12.69	12.78	103.58	-947.97	3,058.37	3,195.33	3,169.88	25.45	125.570	
3,867.00	3,846.42	3,778.96	3,778.85	13.06	13.06	105.34	-948.39	3,058.07	3,198.67	3,172.58	26.09	122.580	
3,961.00	3,939.30	3,847.55	3,847.43	13.44	13.30	105.25	-949.39	3,057.97	3,202.97	3,176.26	26.70	119.945	
4,056.00	4,032.83	3,916.32	3,916.19	13.82	13.54	102.02	-950.64	3,058.40	3,208.15	3,180.82	27.32	117.413	
4,151.00	4,126.01	4,000.00	3,999.85	14.21	13.83	103.14	-952.46	3,059.29	3,214.04	3,186.03	28.00	114.770	
4,246.00	4,219.10	4,068.47	4,068.29	14.61	14.07	96.09	-954.13	3,060.32	3,219.54	3,190.91	28.63	112.448	
4,340.00	4,310.92	4,137.32	4,137.10	15.01	14.31	87.35	-955.93	3,061.80	3,222.97	3,193.71	29.26	110.142	
4,435.00	4,403.54	4,200.00	4,199.73	15.41	14.53	87.11	-957.69	3,063.57	3,225.63	3,195.76	29.88	107.970	
4,498.00	4,465.21	4,254.83	4,254.50	15.68	14.72	89.45	-959.37	3,065.40	3,228.02	3,197.69	30.33	106.435	

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 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
4,561.00	4,526.82	4,304.46	4,304.07	15.95	14.90	94.53	-961.02	3,067.22	3,231.58	3,200.82	30.76	105.049	
4,624.00	4,588.23	4,361.68	4,361.22	16.22	15.10	96.59	-962.99	3,069.43	3,236.19	3,204.96	31.23	103.624	
4,687.00	4,649.71	4,419.97	4,419.43	16.49	15.31	97.40	-964.99	3,071.75	3,241.19	3,209.49	31.70	102.244	
4,749.00	4,710.40	4,479.52	4,478.89	16.75	15.51	99.00	-967.04	3,074.15	3,246.28	3,214.11	32.17	100.916	
4,812.00	4,772.28	4,542.48	4,541.76	17.01	15.74	100.10	-969.21	3,076.69	3,251.57	3,218.92	32.65	99.593	
4,875.00	4,834.34	4,606.87	4,606.06	17.27	15.96	99.94	-971.46	3,079.23	3,256.74	3,223.61	33.13	98.300	
4,938.00	4,896.43	4,672.24	4,671.34	17.53	16.19	99.93	-973.76	3,081.72	3,261.78	3,228.17	33.62	97.033	
5,001.00	4,958.46	4,740.12	4,739.14	17.79	16.43	96.93	-976.16	3,084.19	3,266.52	3,232.41	34.11	95.758	
5,064.00	5,020.29	4,809.15	4,808.08	18.05	16.67	92.85	-978.62	3,086.52	3,270.52	3,235.90	34.62	94.472	
5,126.00	5,080.98	4,873.45	4,872.31	18.32	16.90	89.01	-981.00	3,088.52	3,273.56	3,238.45	35.11	93.245	
5,189.00	5,142.74	4,937.44	4,936.22	18.58	17.13	90.89	-983.50	3,090.36	3,276.35	3,240.76	35.60	92.041	
5,252.00	5,204.62	5,000.54	4,999.25	18.85	17.35	91.17	-986.07	3,092.08	3,279.35	3,243.27	36.08	90.891	
5,315.00	5,266.61	5,063.13	5,061.76	19.11	17.57	91.29	-988.70	3,093.72	3,282.35	3,245.79	36.56	89.784	
5,378.00	5,328.73	5,125.47	5,124.03	19.37	17.79	91.99	-991.35	3,095.32	3,285.39	3,248.36	37.03	88.716	
5,441.00	5,390.87	5,187.34	5,185.82	19.62	18.00	91.70	-993.96	3,096.91	3,288.46	3,250.96	37.50	87.682	
5,503.00	5,452.07	5,250.63	5,249.04	19.87	18.23	92.28	-996.57	3,098.54	3,291.49	3,253.51	37.98	86.671	
5,566.00	5,514.32	5,314.90	5,313.23	20.13	18.45	92.13	-999.20	3,100.16	3,294.53	3,256.08	38.45	85.673	
5,629.00	5,576.59	5,376.83	5,375.09	20.38	18.67	94.77	-1,001.75	3,101.67	3,297.76	3,258.84	38.92	84.725	
5,692.00	5,638.95	5,439.95	5,438.13	20.63	18.89	92.73	-1,004.40	3,103.19	3,301.01	3,261.62	39.39	83.797	
5,747.00	5,693.45	5,495.70	5,493.82	20.85	19.09	95.12	-1,006.71	3,104.52	3,303.81	3,264.01	39.80	83.003	
5,810.00	5,755.90	5,559.49	5,557.54	21.09	19.31	94.57	-1,009.34	3,106.01	3,307.11	3,266.84	40.27	82.117	
5,874.00	5,819.40	5,624.27	5,622.25	21.34	19.54	96.06	-1,012.03	3,107.48	3,310.46	3,269.71	40.75	81.244	
5,936.00	5,880.95	5,686.92	5,684.83	21.58	19.76	95.77	-1,014.60	3,108.88	3,313.74	3,272.53	41.21	80.420	
5,999.00	5,943.45	5,749.51	5,747.35	21.82	19.98	94.46	-1,017.15	3,110.27	3,316.97	3,275.30	41.67	79.606	
6,062.00	6,005.96	5,811.84	5,809.61	22.07	20.20	97.11	-1,019.66	3,111.68	3,320.30	3,278.17	42.13	78.813	
6,125.00	6,068.49	5,874.29	5,872.00	22.31	20.41	95.00	-1,022.11	3,113.11	3,323.65	3,281.06	42.59	78.039	
6,188.00	6,131.08	5,938.21	5,935.86	22.55	20.64	97.00	-1,024.56	3,114.61	3,326.92	3,283.86	43.05	77.274	
6,255.00	6,197.73	6,007.15	6,004.73	22.81	20.88	96.14	-1,027.23	3,116.14	3,330.34	3,286.79	43.55	76.477	
6,293.00	6,235.55	6,045.53	6,043.07	22.89	21.01	96.22	-1,028.73	3,116.97	3,332.20	3,288.44	43.76	76.147	
6,300.00	6,242.52	6,052.60	6,050.13	22.89	21.04	96.23	-1,029.01	3,117.12	3,332.55	3,288.76	43.79	76.106	
6,393.00	6,335.09	6,145.73	6,143.17	22.94	21.37	96.42	-1,032.63	3,119.10	3,337.12	3,292.96	44.16	75.568	
6,400.00	6,342.06	6,152.68	6,150.12	22.94	21.39	90.54	-1,032.89	3,119.25	3,337.43	3,293.24	44.19	75.527	
6,450.00	6,391.66	6,202.29	6,199.67	22.97	21.56	63.57	-1,034.73	3,120.35	3,337.66	3,293.26	44.39	75.181	
6,500.00	6,440.77	6,252.29	6,249.63	23.02	21.74	52.10	-1,036.49	3,121.52	3,334.40	3,289.78	44.61	74.739	
6,550.00	6,489.07	6,301.65	6,298.95	23.07	21.91	46.56	-1,038.09	3,122.74	3,327.68	3,282.84	44.84	74.208	
6,600.00	6,536.26	6,350.36	6,347.62	23.13	22.08	43.67	-1,039.55	3,123.99	3,317.57	3,272.48	45.08	73.590	
6,650.00	6,582.05	6,397.77	6,395.00	23.21	22.25	42.22	-1,040.89	3,125.24	3,304.13	3,258.80	45.33	72.894	
6,700.00	6,626.13	6,450.38	6,447.57	23.29	22.43	41.75	-1,042.24	3,126.64	3,287.43	3,241.82	45.61	72.081	
6,750.00	6,668.24	6,501.43	6,498.60	23.39	22.61	41.98	-1,043.35	3,127.96	3,267.56	3,221.66	45.89	71.197	
6,800.00	6,708.12	6,564.05	6,561.19	23.51	22.83	42.91	-1,044.40	3,129.44	3,244.57	3,198.33	46.24	70.167	
6,850.00	6,745.50	6,622.35	6,619.47	23.64	23.03	44.40	-1,045.01	3,130.60	3,218.61	3,172.02	46.58	69.094	
6,900.00	6,780.15	6,675.75	6,672.86	23.79	23.22	46.43	-1,045.31	3,131.46	3,189.89	3,142.97	46.92	67.987	
6,950.00	6,811.86	6,720.76	6,717.87	23.95	23.37	48.97	-1,045.39	3,132.02	3,158.70	3,111.47	47.24	66.868	
7,000.00	6,840.42	6,757.94	6,755.05	24.14	23.50	52.04	-1,045.38	3,132.39	3,125.36	3,077.82	47.54	65.742	
7,050.00	6,865.66	6,790.67	6,787.77	24.35	23.61	55.71	-1,045.33	3,132.65	3,090.12	3,042.28	47.84	64.593	
7,100.00	6,887.42	6,817.78	6,814.89	24.57	23.71	59.98	-1,045.26	3,132.82	3,053.27	3,005.14	48.13	63.436	
7,150.00	6,905.55	6,839.92	6,837.03	24.82	23.79	64.85	-1,045.18	3,132.94	3,015.09	2,966.67	48.42	62.271	
7,200.00	6,919.95	6,857.48	6,854.58	25.10	23.85	70.30	-1,045.11	3,133.02	2,975.86	2,927.16	48.70	61.104	
7,250.00	6,930.52	6,870.36	6,867.46	25.39	23.89	76.22	-1,045.04	3,133.07	2,935.85	2,886.88	48.98	59.941	
7,300.00	6,937.20	6,878.52	6,875.63	25.70	23.92	82.48	-1,045.00	3,133.09	2,895.35	2,846.10	49.25	58.788	
7,350.00	6,939.94	6,881.96	6,879.06	26.04	23.93	88.87	-1,044.98	3,133.10	2,854.62	2,805.11	49.52	57.651	
7,359.60	6,940.02	6,882.08	6,879.18	26.10	23.93	90.10	-1,044.98	3,133.10	2,846.80	2,797.23	49.57	57.434	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
7,400.00	6,940.03	6,882.21	6,879.32	26.39	23.93	90.10	-1,044.98	3,133.10	2,813.98	2,764.20	49.78	56.529	
7,500.00	6,940.04	6,882.54	6,879.65	27.15	23.93	90.11	-1,044.98	3,133.10	2,733.63	2,683.27	50.35	54.290	
7,600.00	6,940.06	6,882.87	6,879.97	27.99	23.93	90.12	-1,044.98	3,133.10	2,654.60	2,603.61	50.99	52.063	
7,659.60	6,940.07	6,883.06	6,880.17	28.52	23.93	90.13	-1,044.98	3,133.11	2,608.19	2,556.79	51.40	50.743	
7,700.00	6,940.08	6,883.19	6,880.30	28.89	23.93	90.13	-1,044.98	3,133.11	2,577.22	2,525.53	51.69	49.855	
7,796.63	6,940.10	6,883.53	6,880.63	29.83	23.94	90.14	-1,044.97	3,133.11	2,505.80	2,453.33	52.47	47.758	
7,800.00	6,940.10	6,883.54	6,880.64	29.86	23.94	90.14	-1,044.97	3,133.11	2,503.38	2,450.88	52.50	47.687	
7,900.00	6,940.12	6,883.89	6,881.00	30.90	23.94	90.15	-1,044.97	3,133.11	2,432.56	2,379.16	53.39	45.559	
8,000.00	6,940.14	6,884.24	6,881.34	31.98	23.94	90.16	-1,044.97	3,133.11	2,363.85	2,309.47	54.37	43.474	
8,100.00	6,940.17	6,884.59	6,881.69	33.11	23.94	90.17	-1,044.97	3,133.11	2,297.44	2,242.00	55.44	41.443	
8,200.00	6,940.19	6,884.93	6,882.03	34.28	23.94	90.18	-1,044.97	3,133.11	2,233.53	2,176.95	56.58	39.474	
8,300.00	6,940.21	6,885.27	6,882.37	35.48	23.94	90.19	-1,044.96	3,133.11	2,172.35	2,114.54	57.81	37.578	
8,400.00	6,940.23	6,885.60	6,882.71	36.71	23.94	90.20	-1,044.96	3,133.11	2,114.13	2,055.01	59.12	35.763	
8,500.00	6,940.25	6,885.93	6,883.04	37.97	23.94	90.22	-1,044.96	3,133.11	2,059.12	1,998.63	60.49	34.038	
8,600.00	6,940.28	6,886.26	6,883.37	39.26	23.95	90.23	-1,044.96	3,133.11	2,007.59	1,945.65	61.94	32.412	
8,700.00	6,940.30	6,886.59	6,883.69	40.56	23.95	90.24	-1,044.96	3,133.12	1,959.81	1,896.37	63.44	30.893	
8,800.00	6,940.32	6,886.91	6,884.02	41.89	23.95	90.25	-1,044.95	3,133.12	1,916.06	1,851.08	64.98	29.486	
8,900.00	6,940.34	6,887.23	6,884.33	43.24	23.95	90.26	-1,044.95	3,133.12	1,876.63	1,810.08	66.55	28.197	
9,000.00	6,940.36	6,887.55	6,884.65	44.60	23.95	90.27	-1,044.95	3,133.12	1,841.79	1,773.66	68.13	27.033	
9,100.00	6,940.39	6,887.86	6,884.96	45.98	23.95	90.28	-1,044.95	3,133.12	1,811.80	1,742.10	69.70	25.995	
9,200.00	6,940.41	6,888.17	6,885.27	47.38	23.95	90.29	-1,044.95	3,133.12	1,786.91	1,715.68	71.23	25.086	
9,300.00	6,940.43	6,888.48	6,885.58	48.78	23.95	90.30	-1,044.95	3,133.12	1,767.34	1,694.64	72.71	24.308	
9,400.00	6,940.45	6,888.78	6,885.89	50.20	23.95	90.31	-1,044.94	3,133.12	1,753.27	1,679.17	74.10	23.661	
9,500.00	6,940.47	6,889.08	6,886.19	51.63	23.96	90.32	-1,044.94	3,133.12	1,744.81	1,669.42	75.39	23.143	
9,597.81	6,940.50	6,889.37	6,886.48	53.04	23.96	90.33	-1,044.94	3,133.12	1,742.07	1,665.53	76.54	22.761 CC	
9,600.00	6,940.50	6,889.38	6,886.49	53.07	23.96	90.33	-1,044.94	3,133.12	1,742.07	1,665.51	76.56	22.753 ES	
9,700.00	6,940.52	6,889.68	6,886.78	54.52	23.96	90.34	-1,044.94	3,133.12	1,745.07	1,667.47	77.60	22.488	
9,800.00	6,940.54	6,889.97	6,887.08	55.97	23.96	90.35	-1,044.94	3,133.12	1,753.77	1,675.28	78.49	22.344	
9,900.00	6,940.56	6,890.26	6,887.37	57.44	23.96	90.36	-1,044.94	3,133.12	1,768.09	1,688.86	79.23	22.317 SF	
10,000.00	6,940.59	6,890.55	6,887.65	58.91	23.96	90.37	-1,044.93	3,133.13	1,787.90	1,708.09	79.81	22.402	
10,100.00	6,940.61	6,890.83	6,887.94	60.38	23.96	90.38	-1,044.93	3,133.13	1,813.01	1,732.77	80.25	22.593	
10,200.00	6,940.63	6,891.12	6,888.22	61.87	23.96	90.39	-1,044.93	3,133.13	1,843.22	1,762.68	80.54	22.886	
10,300.00	6,940.65	6,891.40	6,888.50	63.36	23.96	90.39	-1,044.93	3,133.13	1,878.27	1,797.56	80.70	23.274	
10,400.00	6,940.67	6,891.67	6,888.78	64.85	23.96	90.40	-1,044.93	3,133.13	1,917.89	1,837.15	80.75	23.752	
10,500.00	6,940.70	6,891.95	6,889.05	66.35	23.97	90.41	-1,044.93	3,133.13	1,961.82	1,881.14	80.68	24.315	
10,600.00	6,940.72	6,892.22	6,889.33	67.86	23.97	90.42	-1,044.92	3,133.13	2,009.77	1,929.24	80.53	24.956	
10,700.00	6,940.74	6,892.49	6,889.60	69.36	23.97	90.43	-1,044.92	3,133.13	2,061.46	1,981.16	80.30	25.671	
10,800.00	6,940.76	6,892.76	6,889.87	70.88	23.97	90.44	-1,044.92	3,133.13	2,116.62	2,036.60	80.01	26.453	
10,900.00	6,940.78	6,893.03	6,890.13	72.39	23.97	90.45	-1,044.92	3,133.13	2,174.97	2,095.30	79.67	27.300	
11,000.00	6,940.81	6,893.29	6,890.39	73.91	23.97	90.46	-1,044.92	3,133.13	2,236.28	2,156.99	79.29	28.205	
11,100.00	6,940.83	6,893.55	6,890.66	75.44	23.97	90.47	-1,044.92	3,133.13	2,300.30	2,221.42	78.87	29.164	
11,200.00	6,940.85	6,893.81	6,890.91	76.96	23.97	90.47	-1,044.92	3,133.13	2,366.81	2,288.38	78.44	30.174	
11,300.00	6,940.87	6,894.07	6,891.17	78.49	23.97	90.48	-1,044.91	3,133.13	2,435.62	2,357.63	77.99	31.230	
11,400.00	6,940.89	6,894.32	6,891.42	80.03	23.97	90.49	-1,044.91	3,133.13	2,506.53	2,429.00	77.53	32.329	
11,500.00	6,940.92	6,894.57	6,891.68	81.56	23.97	90.50	-1,044.91	3,133.14	2,579.36	2,502.30	77.07	33.468	
11,600.00	6,940.94	6,894.82	6,891.93	83.10	23.98	90.51	-1,044.91	3,133.14	2,653.97	2,577.36	76.61	34.644	
11,700.00	6,940.96	6,895.07	6,892.17	84.64	23.98	90.52	-1,044.91	3,133.14	2,730.20	2,654.05	76.15	35.854	
11,800.00	6,940.98	6,895.31	6,892.42	86.18	23.98	90.52	-1,044.91	3,133.14	2,807.92	2,732.22	75.70	37.094	
11,900.00	6,941.00	6,895.56	6,892.66	87.72	23.98	90.53	-1,044.90	3,133.14	2,887.02	2,811.76	75.25	38.364	
12,000.00	6,941.03	6,895.80	6,892.90	89.27	23.98	90.54	-1,044.90	3,133.14	2,967.37	2,892.55	74.82	39.660	
12,100.00	6,941.05	6,896.04	6,893.14	90.82	23.98	90.55	-1,044.90	3,133.14	3,048.89	2,974.49	74.40	40.980	
12,200.00	6,941.07	6,896.28	6,893.38	92.37	23.98	90.56	-1,044.90	3,133.14	3,131.48	3,057.49	73.99	42.323	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
12,300.00	6,941.09	6,896.51	6,893.62	93.92	23.98	90.56	-1,044.90	3,133.14	3,215.06	3,141.47	73.59	43.687	
12,400.00	6,941.11	6,896.75	6,893.85	95.47	23.98	90.57	-1,044.90	3,133.14	3,299.55	3,226.34	73.21	45.070	
12,500.00	6,941.14	6,900.00	6,897.11	97.03	23.99	90.68	-1,044.88	3,133.15	3,384.89	3,312.04	72.85	46.463	
12,600.00	6,941.16	6,900.00	6,897.11	98.58	23.99	90.68	-1,044.88	3,133.15	3,471.01	3,398.52	72.49	47.880	
12,700.00	6,941.18	6,900.00	6,897.11	100.14	23.99	90.68	-1,044.88	3,133.15	3,557.86	3,485.71	72.15	49.312	
12,800.00	6,941.20	6,900.00	6,897.11	101.70	23.99	90.68	-1,044.88	3,133.15	3,645.38	3,573.56	71.82	50.758	
12,900.00	6,941.23	6,900.00	6,897.11	103.26	23.99	90.68	-1,044.88	3,133.15	3,733.53	3,662.03	71.50	52.217	
13,000.00	6,941.25	6,900.00	6,897.11	104.82	23.99	90.68	-1,044.88	3,133.15	3,822.26	3,751.06	71.19	53.688	
13,100.00	6,941.27	6,900.00	6,897.11	106.38	23.99	90.68	-1,044.88	3,133.15	3,911.53	3,840.63	70.90	55.169	
13,200.00	6,941.29	6,900.00	6,897.11	107.95	23.99	90.68	-1,044.88	3,133.15	4,001.31	3,930.69	70.62	56.659	
13,300.00	6,941.31	6,900.00	6,897.11	109.51	23.99	90.68	-1,044.88	3,133.15	4,091.57	4,021.22	70.35	58.159	
13,400.00	6,941.34	6,900.00	6,897.11	111.08	23.99	90.68	-1,044.88	3,133.15	4,182.27	4,112.18	70.09	59.667	
13,500.00	6,941.36	6,900.00	6,897.11	112.64	23.99	90.68	-1,044.88	3,133.15	4,273.38	4,203.54	69.85	61.183	
13,600.00	6,941.38	6,900.00	6,897.11	114.21	23.99	90.68	-1,044.88	3,133.15	4,364.89	4,295.28	69.61	62.705	
13,700.00	6,941.40	6,900.00	6,897.11	115.78	23.99	90.68	-1,044.88	3,133.15	4,456.76	4,387.37	69.38	64.233	
13,800.00	6,941.42	6,900.00	6,897.11	117.35	23.99	90.68	-1,044.88	3,133.15	4,548.97	4,479.80	69.17	65.767	
13,900.00	6,941.45	6,900.00	6,897.11	118.92	23.99	90.68	-1,044.88	3,133.15	4,641.50	4,572.54	68.96	67.306	
14,000.00	6,941.47	6,900.00	6,897.11	120.49	23.99	90.68	-1,044.88	3,133.15	4,734.34	4,665.58	68.76	68.850	
14,100.00	6,941.49	6,900.00	6,897.11	122.06	23.99	90.68	-1,044.88	3,133.15	4,827.46	4,758.89	68.57	70.397	
14,200.00	6,941.51	6,900.00	6,897.11	123.64	23.99	90.68	-1,044.88	3,133.15	4,920.86	4,852.46	68.39	71.949	
14,300.00	6,941.53	6,900.00	6,897.11	125.21	23.99	90.68	-1,044.88	3,133.15	5,014.51	4,946.28	68.22	73.503	
14,400.00	6,941.56	6,900.00	6,897.11	126.78	23.99	90.68	-1,044.88	3,133.15	5,108.40	5,040.34	68.06	75.060	
14,500.00	6,941.58	6,900.00	6,897.11	128.36	23.99	90.68	-1,044.88	3,133.15	5,202.51	5,134.61	67.90	76.619	
14,600.00	6,941.60	6,900.00	6,897.11	129.93	23.99	90.68	-1,044.88	3,133.15	5,296.85	5,229.09	67.75	78.180	
14,700.00	6,941.62	6,900.00	6,897.11	131.51	23.99	90.68	-1,044.88	3,133.15	5,391.38	5,323.77	67.61	79.743	
14,800.00	6,941.64	6,900.00	6,897.11	133.08	23.99	90.68	-1,044.88	3,133.15	5,486.11	5,418.64	67.47	81.308	
14,900.00	6,941.67	6,900.00	6,897.11	134.66	23.99	90.68	-1,044.88	3,133.15	5,581.03	5,513.68	67.34	82.873	
15,000.00	6,941.69	6,900.00	6,897.11	136.24	23.99	90.68	-1,044.88	3,133.15	5,676.12	5,608.90	67.22	84.439	
15,100.00	6,941.71	6,900.00	6,897.11	137.82	23.99	90.68	-1,044.88	3,133.15	5,771.37	5,704.27	67.10	86.006	
15,200.00	6,941.73	6,900.00	6,897.11	139.40	23.99	90.68	-1,044.88	3,133.15	5,866.79	5,799.79	66.99	87.572	
15,300.00	6,941.75	6,900.00	6,897.11	140.97	23.99	90.68	-1,044.88	3,133.15	5,962.35	5,895.46	66.89	89.139	
15,400.00	6,941.78	6,900.00	6,897.11	142.55	23.99	90.68	-1,044.88	3,133.15	6,058.06	5,991.27	66.79	90.706	
15,500.00	6,941.80	6,900.00	6,897.11	144.13	23.99	90.68	-1,044.88	3,133.15	6,153.90	6,087.21	66.69	92.272	
15,600.00	6,941.82	6,900.00	6,897.11	145.72	23.99	90.68	-1,044.88	3,133.15	6,249.87	6,183.27	66.60	93.837	
15,700.00	6,941.84	6,900.00	6,897.11	147.30	23.99	90.68	-1,044.88	3,133.15	6,345.97	6,279.45	66.52	95.401	
15,800.00	6,941.87	6,900.00	6,897.11	148.88	23.99	90.68	-1,044.88	3,133.15	6,442.19	6,375.75	66.44	96.965	
15,900.00	6,941.89	6,900.00	6,897.11	150.46	23.99	90.68	-1,044.88	3,133.15	6,538.52	6,472.15	66.36	98.527	
16,000.00	6,941.91	6,900.00	6,897.11	152.04	23.99	90.68	-1,044.88	3,133.15	6,634.96	6,568.66	66.29	100.087	
16,100.00	6,941.93	6,900.00	6,897.11	153.62	23.99	90.68	-1,044.88	3,133.15	6,731.50	6,665.27	66.22	101.647	
16,200.00	6,941.95	6,900.00	6,897.11	155.21	23.99	90.68	-1,044.88	3,133.15	6,828.14	6,761.98	66.16	103.204	
16,300.00	6,941.98	6,900.00	6,897.11	156.79	23.99	90.68	-1,044.88	3,133.15	6,924.88	6,858.78	66.10	104.760	
16,400.00	6,942.00	6,900.00	6,897.11	158.37	23.99	90.68	-1,044.88	3,133.15	7,021.71	6,955.66	66.05	106.313	
16,500.00	6,942.02	6,900.00	6,897.11	159.96	23.99	90.68	-1,044.88	3,133.15	7,118.62	7,052.63	66.00	107.864	
16,600.00	6,942.04	6,900.00	6,897.11	161.54	23.99	90.68	-1,044.88	3,133.15	7,215.62	7,149.68	65.95	109.413	
16,700.00	6,942.06	6,900.00	6,897.11	163.13	23.99	90.68	-1,044.88	3,133.15	7,312.71	7,246.80	65.90	110.960	
16,800.00	6,942.09	6,900.00	6,897.11	164.71	23.99	90.68	-1,044.88	3,133.15	7,409.86	7,344.00	65.86	112.504	
16,900.00	6,942.11	6,900.00	6,897.11	166.30	23.99	90.68	-1,044.88	3,133.15	7,507.10	7,441.27	65.83	114.046	
17,000.00	6,942.13	6,906.33	6,903.44	167.88	24.02	90.89	-1,044.84	3,133.16	7,604.40	7,538.59	65.81	115.543	
17,100.00	6,942.15	6,906.53	6,903.63	169.47	24.02	90.89	-1,044.84	3,133.16	7,701.78	7,635.99	65.78	117.077	
17,200.00	6,942.17	6,906.72	6,903.82	171.05	24.02	90.90	-1,044.84	3,133.16	7,799.22	7,733.46	65.76	118.608	
17,300.00	6,942.20	6,906.91	6,904.02	172.64	24.02	90.91	-1,044.84	3,133.16	7,896.72	7,830.99	65.73	120.136	
17,400.00	6,942.22	6,907.10	6,904.21	174.23	24.02	90.91	-1,044.83	3,133.16	7,994.29	7,928.58	65.71	121.661	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
17,500.00	6,942.24	6,907.29	6,904.40	175.81	24.02	90.92	-1,044.83	3,133.16	8,091.91	8,026.22	65.69	123.182	
17,600.00	6,942.26	6,907.48	6,904.59	177.40	24.02	90.92	-1,044.83	3,133.16	8,189.60	8,123.92	65.67	124.700	
17,700.00	6,942.28	6,907.67	6,904.78	178.99	24.02	90.93	-1,044.83	3,133.16	8,287.34	8,221.68	65.66	126.215	
17,800.00	6,942.31	6,907.86	6,904.97	180.57	24.02	90.94	-1,044.83	3,133.16	8,385.13	8,319.48	65.65	127.727	
17,900.00	6,942.33	6,908.05	6,905.15	182.16	24.02	90.94	-1,044.83	3,133.16	8,482.97	8,417.33	65.64	129.234	
18,000.00	6,942.35	6,908.24	6,905.34	183.75	24.02	90.95	-1,044.83	3,133.16	8,580.86	8,515.23	65.63	130.739	
18,100.00	6,942.37	6,908.42	6,905.53	185.34	24.02	90.95	-1,044.83	3,133.17	8,678.80	8,613.17	65.63	132.239	
18,200.00	6,942.39	6,908.61	6,905.71	186.93	24.02	90.96	-1,044.83	3,133.17	8,776.79	8,711.16	65.63	133.736	
18,300.00	6,942.42	6,908.80	6,905.90	188.52	24.02	90.97	-1,044.82	3,133.17	8,874.82	8,809.20	65.63	135.229	
18,400.00	6,942.44	6,908.98	6,906.09	190.10	24.02	90.97	-1,044.82	3,133.17	8,972.90	8,907.27	65.63	136.718	
18,500.00	6,942.46	6,909.17	6,906.27	191.69	24.02	90.98	-1,044.82	3,133.17	9,071.02	9,005.38	65.64	138.203	
18,600.00	6,942.48	6,909.35	6,906.45	193.28	24.03	90.99	-1,044.82	3,133.17	9,169.18	9,103.53	65.64	139.684	
18,700.00	6,942.51	6,909.53	6,906.64	194.87	24.03	90.99	-1,044.82	3,133.17	9,267.37	9,201.72	65.65	141.162	
18,800.00	6,942.53	6,909.72	6,906.82	196.46	24.03	91.00	-1,044.82	3,133.17	9,365.61	9,299.95	65.66	142.635	
18,900.00	6,942.55	6,909.90	6,907.00	198.05	24.03	91.00	-1,044.82	3,133.17	9,463.88	9,398.21	65.67	144.104	
19,000.00	6,942.57	6,910.08	6,907.18	199.64	24.03	91.01	-1,044.82	3,133.17	9,562.19	9,496.50	65.69	145.568	
19,100.00	6,942.59	6,910.26	6,907.37	201.23	24.03	91.02	-1,044.82	3,133.17	9,660.53	9,594.83	65.70	147.029	
19,200.00	6,942.62	6,910.44	6,907.55	202.82	24.03	91.02	-1,044.81	3,133.17	9,758.91	9,693.19	65.72	148.485	
19,300.00	6,942.64	6,910.62	6,907.73	204.41	24.03	91.03	-1,044.81	3,133.17	9,857.32	9,791.58	65.74	149.937	
19,400.00	6,942.66	6,910.80	6,907.91	206.00	24.03	91.03	-1,044.81	3,133.17	9,955.76	9,890.00	65.76	151.385	
19,500.00	6,942.68	6,910.98	6,908.08	207.59	24.03	91.04	-1,044.81	3,133.17	10,054.24	9,988.45	65.79	152.829	
19,600.00	6,942.70	6,911.16	6,908.26	209.18	24.03	91.04	-1,044.81	3,133.17	10,152.74	10,086.92	65.81	154.268	
19,700.00	6,942.73	6,911.34	6,908.44	210.78	24.03	91.05	-1,044.81	3,133.17	10,251.27	10,185.43	65.84	155.702	
19,800.00	6,942.75	6,911.51	6,908.62	212.37	24.03	91.06	-1,044.81	3,133.17	10,349.83	10,283.96	65.87	157.132	
19,900.00	6,942.77	6,911.69	6,908.79	213.96	24.03	91.06	-1,044.81	3,133.17	10,448.41	10,382.52	65.90	158.558	
20,000.00	6,942.79	6,911.87	6,908.97	215.55	24.03	91.07	-1,044.81	3,133.17	10,547.03	10,481.10	65.93	159.979	
20,100.00	6,942.81	6,912.04	6,909.15	217.14	24.03	91.07	-1,044.81	3,133.17	10,645.67	10,579.71	65.96	161.395	
20,200.00	6,942.84	6,912.22	6,909.32	218.73	24.04	91.08	-1,044.80	3,133.17	10,744.33	10,678.34	65.99	162.807	
20,300.00	6,942.86	6,912.39	6,909.50	220.32	24.04	91.09	-1,044.80	3,133.17	10,843.02	10,776.99	66.03	164.215	
20,400.00	6,942.88	6,912.57	6,909.67	221.92	24.04	91.09	-1,044.80	3,133.17	10,941.73	10,875.67	66.07	165.617	
20,500.00	6,942.90	6,912.74	6,909.84	223.51	24.04	91.10	-1,044.80	3,133.17	11,040.47	10,974.36	66.10	167.016	
20,600.00	6,942.92	6,912.91	6,910.02	225.10	24.04	91.10	-1,044.80	3,133.17	11,139.23	11,073.08	66.14	168.409	
20,700.00	6,942.95	6,913.09	6,910.19	226.69	24.04	91.11	-1,044.80	3,133.17	11,238.01	11,171.82	66.18	169.798	
20,800.00	6,942.97	6,913.26	6,910.36	228.28	24.04	91.11	-1,044.80	3,133.17	11,336.81	11,270.58	66.23	171.182	
20,900.00	6,942.99	6,913.43	6,910.53	229.88	24.04	91.12	-1,044.80	3,133.17	11,435.63	11,369.36	66.27	172.561	
20,942.50	6,943.00	6,913.50	6,910.61	230.42	24.04	91.12	-1,044.80	3,133.17	11,477.63	11,407.64	70.00	163.969	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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)	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	70.07	1,035.14	2,855.63	3,037.75				
58.45	58.45	16.45	16.45	0.02	0.49	-168.22	1,035.14	2,855.63	3,037.81	3,037.30	0.51	5,939.521	
150.25	150.24	108.24	108.24	0.14	3.24	173.48	1,035.14	2,855.63	3,038.89	3,035.51	3.38	898.767	
239.43	239.42	197.42	197.42	0.25	5.92	168.00	1,035.14	2,855.63	3,039.93	3,033.76	6.17	492.776	
299.93	299.91	257.91	257.91	0.33	7.73	172.96	1,035.14	2,855.63	3,040.69	3,032.63	8.06	377.249	
446.00	445.96	403.96	403.96	0.50	12.10	-162.64	1,035.14	2,855.63	3,043.05	3,030.44	12.61	241.376	
537.00	536.95	494.95	494.95	0.73	14.83	-101.40	1,035.14	2,855.63	3,044.01	3,028.45	15.56	195.678	
624.00	623.95	582.05	581.95	0.99	17.44	-18.45	1,035.14	2,855.63	3,043.40	3,024.98	18.43	165.168	
718.00	717.90	676.01	675.90	1.29	20.26	-0.61	1,035.14	2,855.63	3,040.74	3,019.20	21.54	141.145	
811.00	810.73	770.33	770.19	1.60	23.08	18.86	1,037.30	2,855.63	3,036.08	3,011.40	24.68	123.000	
903.00	902.19	868.94	868.77	1.92	26.04	31.00	1,036.82	2,855.63	3,027.10	2,999.14	27.96	108.265	
994.00	992.38	966.06	965.87	2.24	28.95	33.43	1,035.69	2,855.63	3,016.47	2,985.28	31.19	96.713	
1,084.00	1,081.50	1,039.90	1,039.50	2.56	31.16	38.04	1,035.14	2,855.63	3,006.01	2,972.29	33.72	89.146	
1,175.00	1,171.48	1,129.89	1,129.48	2.91	33.86	42.08	1,035.14	2,855.63	2,995.61	2,958.87	36.74	81.526	
1,268.00	1,263.52	1,221.93	1,221.52	3.26	36.61	43.79	1,035.14	2,855.63	2,985.80	2,945.96	39.84	74.944	
1,363.00	1,357.62	1,320.91	1,320.45	3.63	39.58	46.92	1,037.14	2,855.63	2,977.25	2,934.10	43.15	68.991	
1,457.00	1,450.74	1,420.77	1,420.29	3.99	42.57	49.85	1,036.30	2,855.63	2,968.43	2,921.94	46.49	63.845	
1,552.00	1,544.82	1,503.53	1,502.82	4.36	45.05	50.86	1,035.14	2,855.63	2,959.55	2,910.22	49.33	59.995	
1,646.00	1,637.88	1,596.59	1,595.88	4.72	47.84	51.56	1,035.14	2,855.63	2,951.17	2,898.70	52.47	56.242	
1,741.00	1,731.94	1,690.65	1,689.94	5.09	50.66	52.22	1,035.14	2,855.63	2,942.90	2,887.25	55.65	52.882	
1,835.00	1,825.07	1,786.12	1,785.36	5.46	53.52	52.43	1,037.27	2,855.63	2,935.76	2,876.90	58.87	49.872	
1,929.00	1,918.39	1,885.76	1,884.99	5.82	56.51	51.42	1,036.67	2,855.63	2,928.57	2,866.37	62.20	47.081	
2,024.00	2,012.84	1,986.51	1,985.70	6.18	59.52	52.99	1,035.36	2,855.63	2,921.91	2,856.33	65.57	44.560	
2,118.00	2,106.19	2,065.21	2,064.19	6.53	61.88	53.40	1,035.14	2,855.63	2,915.20	2,846.91	68.29	42.691	
2,213.00	2,200.37	2,159.39	2,158.37	6.90	64.70	52.30	1,035.14	2,855.63	2,907.64	2,836.17	71.47	40.683	
2,307.00	2,293.61	2,252.80	2,251.75	7.27	67.50	54.41	1,037.32	2,855.63	2,901.12	2,826.49	74.63	38.876	
2,402.00	2,387.91	2,353.12	2,352.05	7.63	70.51	58.48	1,036.95	2,855.63	2,894.64	2,816.65	77.99	37.116	
2,496.00	2,481.29	2,452.32	2,451.22	7.99	73.48	59.88	1,035.89	2,855.63	2,888.78	2,807.46	81.31	35.526	
2,591.00	2,575.67	2,534.99	2,533.67	8.35	75.96	58.61	1,035.14	2,855.63	2,882.96	2,798.81	84.15	34.259	
2,686.00	2,670.05	2,629.37	2,628.05	8.71	78.79	59.19	1,035.14	2,855.63	2,877.36	2,790.02	87.34	32.945	
2,780.00	2,763.49	2,722.81	2,721.49	9.07	81.59	57.36	1,035.14	2,855.63	2,871.90	2,781.41	90.49	31.736	
2,875.00	2,857.94	2,821.28	2,819.91	9.43	84.54	56.07	1,037.14	2,855.63	2,866.86	2,773.06	93.80	30.564	
2,970.00	2,952.51	2,921.42	2,920.02	9.79	87.54	59.80	1,036.29	2,855.63	2,861.83	2,764.68	97.15	29.458	
3,064.00	3,046.19	3,005.82	3,004.19	10.13	90.07	67.12	1,035.14	2,855.63	2,858.02	2,757.99	100.03	28.572	
3,159.00	3,140.98	3,100.60	3,098.98	10.47	92.91	69.23	1,035.14	2,855.63	2,855.62	2,752.41	103.21	27.667	
3,253.00	3,234.84	3,194.47	3,192.84	10.81	95.72	61.59	1,035.14	2,855.63	2,853.56	2,747.20	106.36	26.829	
3,348.00	3,329.74	3,291.63	3,289.96	11.14	98.63	53.97	1,037.26	2,855.63	2,851.84	2,742.23	109.61	26.018	
3,397.00	3,378.70	3,343.38	3,341.70	11.32	100.18	53.13	1,037.01	2,855.63	2,850.55	2,739.22	111.33	25.604	
3,488.00	3,469.63	3,439.49	3,437.78	11.64	103.06	50.65	1,036.06	2,855.63	2,848.17	2,733.63	114.53	24.868	
3,583.00	3,564.49	3,524.42	3,522.49	11.98	105.61	59.15	1,035.14	2,855.63	2,845.06	2,727.64	117.42	24.229	
3,677.00	3,658.13	3,618.06	3,616.13	12.33	108.41	61.11	1,035.14	2,855.63	2,840.99	2,720.42	120.58	23.562	
3,772.00	3,752.42	3,712.35	3,710.42	12.69	111.24	65.89	1,035.14	2,855.63	2,835.89	2,712.13	123.76	22.914	
3,867.00	3,846.42	3,809.39	3,807.42	13.06	114.15	67.70	1,037.19	2,855.63	2,830.95	2,703.91	127.04	22.284	
3,961.00	3,939.30	3,907.13	3,905.13	13.44	117.08	67.78	1,036.45	2,855.63	2,825.23	2,694.89	130.34	21.676	
4,056.00	4,032.83	4,005.34	4,003.30	13.82	120.02	64.87	1,035.04	2,855.63	2,818.08	2,684.42	133.66	21.084	
4,151.00	4,126.01	4,086.24	4,084.01	14.21	122.44	66.05	1,035.14	2,855.63	2,810.26	2,673.79	136.48	20.592	
4,246.00	4,219.10	4,179.33	4,177.10	14.61	125.23	59.04	1,035.14	2,855.63	2,801.39	2,661.74	139.65	20.060	
4,340.00	4,310.92	4,272.15	4,269.88	15.01	128.01	50.40	1,037.30	2,855.63	2,790.01	2,647.19	142.82	19.535	
4,435.00	4,403.54	4,369.01	4,366.71	15.41	130.92	50.13	1,036.82	2,855.63	2,776.21	2,630.10	146.11	19.001	
4,498.00	4,465.21	4,433.37	4,431.06	15.68	132.84	52.33	1,036.14	2,855.63	2,767.88	2,619.59	148.29	18.665	
4,561.00	4,526.82	4,497.57	4,495.23	15.95	134.77	57.83	1,035.18	2,855.63	2,760.08	2,609.61	150.48	18.342	
4,624.00	4,588.23	4,548.77	4,546.23	16.22	136.30	59.87	1,035.14	2,855.63	2,752.63	2,600.35	152.28	18.076	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
4,687.00	4,649.71	4,610.25	4,607.71	16.49	138.14	60.58	1,035.14	2,855.63	2,745.67	2,591.29	154.39	17.785	
4,749.00	4,710.40	4,670.94	4,668.40	16.75	139.96	62.02	1,035.14	2,855.63	2,739.49	2,583.03	156.46	17.509	
4,812.00	4,772.28	4,732.82	4,730.28	17.01	141.82	62.97	1,035.14	2,855.63	2,733.95	2,575.38	158.58	17.241	
4,875.00	4,834.34	4,796.65	4,794.07	17.27	143.73	62.65	1,037.24	2,855.63	2,729.34	2,568.59	160.74	16.980	
4,938.00	4,896.43	4,861.13	4,858.53	17.53	145.66	62.68	1,036.89	2,855.63	2,724.33	2,561.40	162.93	16.721	
5,001.00	4,958.46	4,925.44	4,922.83	17.79	147.59	59.73	1,036.24	2,855.63	2,718.82	2,553.71	165.11	16.467	
5,064.00	5,020.29	4,989.45	4,986.81	18.05	149.51	55.82	1,035.31	2,855.63	2,712.10	2,544.81	167.29	16.212	
5,126.00	5,080.98	5,041.82	5,038.98	18.32	151.08	51.85	1,035.14	2,855.63	2,704.47	2,535.36	169.12	15.992	
5,189.00	5,142.74	5,103.58	5,100.74	18.58	152.93	53.61	1,035.14	2,855.63	2,696.84	2,525.61	171.23	15.750	
5,252.00	5,204.62	5,165.46	5,162.62	18.85	154.78	53.81	1,035.14	2,855.63	2,689.76	2,516.42	173.34	15.517	
5,315.00	5,266.61	5,227.46	5,224.61	19.11	156.64	53.79	1,035.14	2,855.63	2,683.08	2,507.63	175.45	15.293	
5,378.00	5,328.73	5,290.89	5,288.00	19.37	158.54	54.37	1,037.26	2,855.63	2,677.21	2,499.60	177.60	15.074	
5,441.00	5,390.87	5,355.03	5,352.13	19.62	160.46	54.08	1,036.93	2,855.63	2,671.03	2,491.26	179.78	14.858	
5,503.00	5,452.07	5,418.13	5,415.21	19.87	162.35	54.56	1,036.33	2,855.63	2,665.11	2,483.20	181.91	14.651	
5,566.00	5,514.32	5,482.24	5,479.30	20.13	164.27	54.41	1,035.43	2,855.63	2,659.28	2,475.19	184.08	14.446	
5,629.00	5,576.59	5,537.74	5,534.59	20.38	165.94	56.99	1,035.14	2,855.63	2,653.80	2,467.80	186.00	14.268	
5,692.00	5,638.95	5,600.10	5,596.95	20.63	167.80	54.84	1,035.14	2,855.63	2,648.74	2,460.63	188.11	14.081	
5,747.00	5,693.45	5,654.59	5,651.45	20.85	169.44	57.19	1,035.14	2,855.63	2,644.56	2,454.60	189.96	13.922	
5,810.00	5,755.90	5,717.04	5,713.90	21.09	171.31	56.60	1,035.14	2,855.63	2,640.00	2,447.92	192.08	13.744	
5,874.00	5,819.40	5,781.42	5,778.23	21.34	173.24	57.94	1,037.28	2,855.63	2,635.99	2,441.74	194.25	13.570	
5,936.00	5,880.95	5,844.66	5,841.46	21.58	175.13	57.68	1,037.00	2,855.63	2,631.93	2,435.55	196.38	13.402	
5,999.00	5,943.45	5,908.85	5,905.63	21.82	177.06	56.38	1,036.44	2,855.63	2,627.55	2,429.00	198.55	13.234	
6,062.00	6,005.96	5,972.97	5,969.74	22.07	178.98	59.04	1,035.58	2,855.63	2,623.19	2,422.48	200.71	13.069	
6,125.00	6,068.49	6,011.00	6,007.54	22.31	180.12	56.83	1,035.14	2,855.63	2,619.10	2,416.99	202.10	12.959	
6,188.00	6,131.08	6,011.00	6,007.54	22.55	180.12	58.63	1,035.14	2,855.63	2,616.46	2,414.18	202.28	12.935	
6,243.26	6,186.05	6,011.00	6,007.54	22.76	180.12	57.78	1,035.14	2,855.63	2,615.75	2,413.42	202.33	12.928	
6,255.00	6,197.73	6,011.00	6,007.54	22.81	180.12	57.58	1,035.14	2,855.63	2,615.79	2,413.45	202.33	12.928	
6,293.00	6,235.55	6,011.00	6,007.54	22.89	180.12	57.58	1,035.14	2,855.63	2,616.27	2,414.02	202.25	12.936	
6,300.00	6,242.52	6,011.00	6,007.54	22.89	180.12	57.58	1,035.14	2,855.63	2,616.42	2,414.20	202.21	12.939	
6,393.00	6,335.09	6,011.00	6,007.54	22.94	180.12	57.58	1,035.14	2,855.63	2,620.17	2,418.51	201.66	12.993	
6,400.00	6,342.06	6,011.00	6,007.54	22.94	180.12	51.70	1,035.14	2,855.63	2,620.54	2,418.94	201.60	12.998	
6,450.00	6,391.66	6,011.00	6,007.54	22.97	180.12	24.64	1,035.14	2,855.63	2,621.56	2,420.37	201.19	13.030	
6,500.00	6,440.77	6,011.00	6,007.54	23.02	180.12	12.85	1,035.14	2,855.63	2,619.63	2,418.92	200.71	13.052	
6,550.00	6,489.07	6,011.00	6,007.54	23.07	180.12	6.75	1,035.14	2,855.63	2,614.76	2,414.61	200.16	13.064	
6,600.00	6,536.26	6,011.00	6,007.54	23.13	180.12	3.06	1,035.14	2,855.63	2,606.97	2,407.43	199.53	13.065	
6,650.00	6,582.05	6,011.00	6,007.54	23.21	180.12	0.54	1,035.14	2,855.63	2,596.27	2,397.42	198.85	13.057	
6,700.00	6,626.13	6,011.00	6,007.54	23.29	180.12	-1.33	1,035.14	2,855.63	2,582.70	2,384.60	198.10	13.037	
6,750.00	6,668.24	6,011.00	6,007.54	23.39	180.12	-2.83	1,035.14	2,855.63	2,566.30	2,369.00	197.30	13.007	
6,800.00	6,708.12	6,011.00	6,007.54	23.51	180.12	-4.11	1,035.14	2,855.63	2,547.11	2,350.67	196.44	12.966	
6,850.00	6,745.50	6,011.00	6,007.54	23.64	180.12	-5.28	1,035.14	2,855.63	2,525.21	2,329.66	195.55	12.913	
6,900.00	6,780.15	6,011.00	6,007.54	23.79	180.12	-6.39	1,035.14	2,855.63	2,500.65	2,306.04	194.62	12.849	
6,950.00	6,811.86	6,011.00	6,007.54	23.95	180.12	-7.51	1,035.14	2,855.63	2,473.52	2,279.86	193.66	12.773	
7,000.00	6,840.42	6,011.00	6,007.54	24.14	180.12	-8.68	1,035.14	2,855.63	2,443.90	2,251.22	192.68	12.684	
7,050.00	6,865.66	6,011.00	6,007.54	24.35	180.12	-9.96	1,035.14	2,855.63	2,411.89	2,220.21	191.69	12.582	
7,100.00	6,887.42	6,011.00	6,007.54	24.57	180.12	-11.38	1,035.14	2,855.63	2,377.61	2,186.91	190.70	12.468	
7,150.00	6,905.55	6,011.00	6,007.54	24.82	180.12	-13.02	1,035.14	2,855.63	2,341.17	2,151.44	189.73	12.340	
7,200.00	6,919.95	6,011.00	6,007.54	25.10	180.12	-14.96	1,035.14	2,855.63	2,302.70	2,113.92	188.77	12.198	
7,250.00	6,930.52	6,011.00	6,007.54	25.39	180.12	-17.32	1,035.14	2,855.63	2,262.35	2,074.49	187.86	12.043	
7,300.00	6,937.20	6,011.00	6,007.54	25.70	180.12	-20.25	1,035.14	2,855.63	2,220.28	2,033.29	187.00	11.873	
7,350.00	6,939.94	6,011.00	6,007.54	26.04	180.12	-23.99	1,035.14	2,855.63	2,176.67	1,990.47	186.20	11.690	
7,359.60	6,940.02	6,011.00	6,007.54	26.10	180.12	-24.82	1,035.14	2,855.63	2,168.13	1,982.07	186.06	11.653	
7,400.00	6,940.03	6,011.00	6,007.54	26.39	180.12	-24.82	1,035.14	2,855.63	2,132.19	1,946.75	185.43	11.498	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
7,500.00	6,940.04	6,011.00	6,007.54	27.15	180.12	-24.82	1,035.14	2,855.63	2,043.93	1,860.16	183.77	11.122	
7,600.00	6,940.06	6,011.00	6,007.54	27.99	180.12	-24.82	1,035.14	2,855.63	1,956.81	1,774.90	181.91	10.757	
7,659.60	6,940.07	6,011.00	6,007.54	28.52	180.12	-24.82	1,035.14	2,855.63	1,905.48	1,724.79	180.69	10.546	
7,700.00	6,940.08	6,011.00	6,007.54	28.89	180.12	-23.60	1,035.14	2,855.63	1,870.91	1,691.09	179.81	10.405	
7,796.63	6,940.10	6,011.00	6,007.54	29.83	180.12	-20.71	1,035.14	2,855.63	1,788.71	1,611.19	177.52	10.076	
7,800.00	6,940.10	6,011.00	6,007.54	29.86	180.12	-20.71	1,035.14	2,855.63	1,785.86	1,608.42	177.44	10.065	
7,900.00	6,940.12	6,011.00	6,007.54	30.90	180.12	-20.71	1,035.14	2,855.63	1,702.10	1,527.37	174.73	9.741	
8,000.00	6,940.14	6,011.00	6,007.54	31.98	180.12	-20.71	1,035.14	2,855.63	1,620.19	1,448.54	171.65	9.439	
8,100.00	6,940.17	6,011.00	6,007.54	33.11	180.12	-20.71	1,035.14	2,855.63	1,540.42	1,372.28	168.13	9.162	
8,200.00	6,940.19	6,011.00	6,007.54	34.28	180.12	-20.71	1,035.14	2,855.63	1,463.13	1,299.02	164.10	8.916	
8,300.00	6,940.21	6,011.00	6,007.54	35.48	180.12	-20.71	1,035.14	2,855.63	1,388.74	1,229.25	159.49	8.707	
8,400.00	6,940.23	6,011.00	6,007.54	36.71	180.12	-20.71	1,035.14	2,855.63	1,317.75	1,163.52	154.22	8.544	
8,500.00	6,940.25	6,011.00	6,007.54	37.97	180.12	-20.71	1,035.14	2,855.63	1,250.73	1,102.50	148.23	8.438	
8,600.00	6,940.28	6,011.00	6,007.54	39.26	180.12	-20.71	1,035.14	2,855.63	1,188.35	1,046.91	141.45	8.401	
8,700.00	6,940.30	6,011.00	6,007.54	40.56	180.12	-20.71	1,035.14	2,855.63	1,131.39	997.51	133.88	8.451	
8,800.00	6,940.32	6,011.00	6,007.54	41.89	180.12	-20.71	1,035.14	2,855.63	1,080.70	955.07	125.62	8.603	
8,900.00	6,940.34	6,011.00	6,007.54	43.24	180.12	-20.71	1,035.14	2,855.63	1,037.19	920.27	116.92	8.871	
9,000.00	6,940.36	6,011.00	6,007.54	44.60	180.12	-20.71	1,035.14	2,855.63	1,001.81	893.53	108.28	9.252	
9,100.00	6,940.39	6,011.00	6,007.54	45.98	180.12	-20.71	1,035.14	2,855.63	975.44	874.82	100.62	9.694	
9,200.00	6,940.41	6,011.00	6,007.54	47.38	180.12	-20.71	1,035.14	2,855.63	958.83	863.56	95.27	10.065	
9,300.00	6,940.43	6,011.00	6,007.54	48.78	180.12	-20.71	1,035.14	2,855.63	952.47	858.82	93.65	10.171	
9,310.70	6,940.43	6,011.00	6,007.54	48.93	180.12	-20.71	1,035.14	2,855.63	952.41	858.67	93.74	10.160	CC, ES
9,400.00	6,940.45	6,011.00	6,007.54	50.20	180.12	-20.71	1,035.14	2,855.63	956.59	860.08	96.52	9.911	
9,500.00	6,940.47	6,011.00	6,007.54	51.63	180.12	-20.71	1,035.14	2,855.63	971.05	867.78	103.27	9.403	
9,600.00	6,940.50	6,011.00	6,007.54	53.07	180.12	-20.71	1,035.14	2,855.63	995.38	882.95	112.44	8.853	
9,700.00	6,940.52	6,011.00	6,007.54	54.52	180.12	-20.71	1,035.14	2,855.63	1,028.91	906.36	122.55	8.396	
9,800.00	6,940.54	6,011.00	6,007.54	55.97	180.12	-20.71	1,035.14	2,855.63	1,070.75	938.17	132.58	8.076	
9,900.00	6,940.56	6,011.00	6,007.54	57.44	180.12	-20.71	1,035.14	2,855.63	1,119.99	978.04	141.94	7.890	
10,000.00	6,940.59	6,011.00	6,007.54	58.91	180.12	-20.71	1,035.14	2,855.63	1,175.68	1,025.32	150.36	7.819	SF
10,100.00	6,940.61	6,011.00	6,007.54	60.38	180.12	-20.71	1,035.14	2,855.63	1,236.97	1,079.21	157.76	7.841	
10,200.00	6,940.63	6,011.00	6,007.54	61.87	180.12	-20.71	1,035.14	2,855.63	1,303.06	1,138.87	164.18	7.937	
10,300.00	6,940.65	6,011.00	6,007.54	63.36	180.12	-20.71	1,035.14	2,855.63	1,373.25	1,203.55	169.70	8.092	
10,400.00	6,940.67	6,011.00	6,007.54	64.85	180.12	-20.71	1,035.14	2,855.63	1,446.95	1,272.52	174.43	8.295	
10,500.00	6,940.70	6,011.00	6,007.54	66.35	180.12	-20.71	1,035.14	2,855.63	1,523.66	1,345.17	178.49	8.537	
10,600.00	6,940.72	6,011.00	6,007.54	67.86	180.12	-20.71	1,035.14	2,855.63	1,602.93	1,420.98	181.96	8.809	
10,700.00	6,940.74	6,011.00	6,007.54	69.36	180.12	-20.71	1,035.14	2,855.63	1,684.42	1,499.48	184.94	9.108	
10,800.00	6,940.76	6,011.00	6,007.54	70.88	180.12	-20.71	1,035.14	2,855.63	1,767.80	1,580.30	187.50	9.428	
10,900.00	6,940.78	6,011.00	6,007.54	72.39	180.12	-20.71	1,035.14	2,855.63	1,852.83	1,663.11	189.72	9.766	
11,000.00	6,940.81	6,011.00	6,007.54	73.91	180.12	-20.71	1,035.14	2,855.63	1,939.29	1,747.65	191.64	10.119	
11,100.00	6,940.83	6,011.00	6,007.54	75.44	180.12	-20.71	1,035.14	2,855.63	2,026.99	1,833.68	193.32	10.485	
11,200.00	6,940.85	6,011.00	6,007.54	76.96	180.12	-20.71	1,035.14	2,855.63	2,115.79	1,921.01	194.78	10.862	
11,300.00	6,940.87	6,011.00	6,007.54	78.49	180.12	-20.71	1,035.14	2,855.63	2,205.54	2,009.47	196.07	11.249	
11,400.00	6,940.89	6,011.00	6,007.54	80.03	180.12	-20.71	1,035.14	2,855.63	2,296.14	2,098.94	197.21	11.643	
11,500.00	6,940.92	6,011.00	6,007.54	81.56	180.12	-20.71	1,035.14	2,855.63	2,387.50	2,189.28	198.21	12.045	
11,600.00	6,940.94	6,011.00	6,007.54	83.10	180.12	-20.71	1,035.14	2,855.63	2,479.52	2,280.41	199.11	12.453	
11,700.00	6,940.96	6,011.00	6,007.54	84.64	180.12	-20.71	1,035.14	2,855.63	2,572.13	2,372.22	199.91	12.867	
11,800.00	6,940.98	6,011.00	6,007.54	86.18	180.12	-20.71	1,035.14	2,855.63	2,665.28	2,464.66	200.62	13.285	
11,900.00	6,941.00	6,011.00	6,007.54	87.72	180.12	-20.71	1,035.14	2,855.63	2,758.91	2,557.64	201.27	13.707	
12,000.00	6,941.03	6,011.00	6,007.54	89.27	180.12	-20.71	1,035.14	2,855.63	2,852.97	2,651.12	201.85	14.134	
12,100.00	6,941.05	6,011.00	6,007.54	90.82	180.12	-20.71	1,035.14	2,855.63	2,947.42	2,745.04	202.38	14.564	
12,200.00	6,941.07	6,011.00	6,007.54	92.37	180.12	-20.71	1,035.14	2,855.63	3,042.23	2,839.36	202.87	14.996	
12,300.00	6,941.09	6,011.00	6,007.54	93.92	180.12	-20.71	1,035.14	2,855.63	3,137.36	2,934.05	203.31	15.432	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
12,400.00	6,941.11	6,011.00	6,007.54	95.47	180.12	-20.71	1,035.14	2,855.63	3,232.78	3,029.07	203.71	15.869	
12,500.00	6,941.14	6,011.00	6,007.54	97.03	180.12	-20.71	1,035.14	2,855.63	3,328.48	3,124.39	204.08	16.309	
12,600.00	6,941.16	6,011.00	6,007.54	98.58	180.12	-20.71	1,035.14	2,855.63	3,424.41	3,219.99	204.43	16.751	
12,700.00	6,941.18	6,011.00	6,007.54	100.14	180.12	-20.71	1,035.14	2,855.63	3,520.58	3,315.83	204.74	17.195	
12,800.00	6,941.20	6,011.00	6,007.54	101.70	180.12	-20.71	1,035.14	2,855.63	3,616.95	3,411.91	205.04	17.640	
12,900.00	6,941.23	6,011.00	6,007.54	103.26	180.12	-20.71	1,035.14	2,855.63	3,713.51	3,508.20	205.32	18.087	
13,000.00	6,941.25	6,011.00	6,007.54	104.82	180.12	-20.71	1,035.14	2,855.63	3,810.26	3,604.68	205.57	18.535	
13,100.00	6,941.27	6,011.00	6,007.54	106.38	180.12	-20.71	1,035.14	2,855.63	3,907.16	3,701.35	205.81	18.984	
13,200.00	6,941.29	6,011.00	6,007.54	107.95	180.12	-20.71	1,035.14	2,855.63	4,004.22	3,798.18	206.04	19.434	
13,300.00	6,941.31	6,011.00	6,007.54	109.51	180.12	-20.71	1,035.14	2,855.63	4,101.42	3,895.16	206.26	19.885	
13,400.00	6,941.34	6,011.00	6,007.54	111.08	180.12	-20.71	1,035.14	2,855.63	4,198.75	3,992.29	206.46	20.337	
13,500.00	6,941.36	6,011.00	6,007.54	112.64	180.12	-20.71	1,035.14	2,855.63	4,296.20	4,089.55	206.65	20.790	
13,600.00	6,941.38	6,011.00	6,007.54	114.21	180.12	-20.71	1,035.14	2,855.63	4,393.77	4,186.93	206.84	21.243	
13,700.00	6,941.40	6,011.00	6,007.54	115.78	180.12	-20.71	1,035.14	2,855.63	4,491.44	4,284.43	207.01	21.697	
13,800.00	6,941.42	6,011.00	6,007.54	117.35	180.12	-20.71	1,035.14	2,855.63	4,589.22	4,382.04	207.18	22.151	
13,900.00	6,941.45	6,011.00	6,007.54	118.92	180.12	-20.71	1,035.14	2,855.63	4,687.09	4,479.75	207.34	22.606	
14,000.00	6,941.47	6,011.00	6,007.54	120.49	180.12	-20.71	1,035.14	2,855.63	4,785.05	4,577.55	207.49	23.061	
14,100.00	6,941.49	6,011.00	6,007.54	122.06	180.12	-20.71	1,035.14	2,855.63	4,883.08	4,675.45	207.64	23.517	
14,200.00	6,941.51	6,011.00	6,007.54	123.64	180.12	-20.71	1,035.14	2,855.63	4,981.20	4,773.42	207.78	23.973	
14,300.00	6,941.53	6,011.00	6,007.54	125.21	180.12	-20.71	1,035.14	2,855.63	5,079.39	4,871.47	207.92	24.429	
14,400.00	6,941.56	6,011.00	6,007.54	126.78	180.12	-20.71	1,035.14	2,855.63	5,177.65	4,969.60	208.06	24.886	
14,500.00	6,941.58	6,011.00	6,007.54	128.36	180.12	-20.71	1,035.14	2,855.63	5,275.98	5,067.79	208.19	25.343	
14,600.00	6,941.60	6,011.00	6,007.54	129.93	180.12	-20.71	1,035.14	2,855.63	5,374.37	5,166.05	208.31	25.800	
14,700.00	6,941.62	6,011.00	6,007.54	131.51	180.12	-20.71	1,035.14	2,855.63	5,472.81	5,264.38	208.44	26.257	
14,800.00	6,941.64	6,011.00	6,007.54	133.08	180.12	-20.71	1,035.14	2,855.63	5,571.31	5,362.76	208.56	26.714	
14,900.00	6,941.67	6,011.00	6,007.54	134.66	180.12	-20.71	1,035.14	2,855.63	5,669.87	5,461.19	208.67	27.171	
15,000.00	6,941.69	6,011.00	6,007.54	136.24	180.12	-20.71	1,035.14	2,855.63	5,768.47	5,559.68	208.79	27.628	
15,100.00	6,941.71	6,011.00	6,007.54	137.82	180.12	-20.71	1,035.14	2,855.63	5,867.12	5,658.22	208.90	28.085	
15,200.00	6,941.73	6,011.00	6,007.54	139.40	180.12	-20.71	1,035.14	2,855.63	5,965.82	5,756.80	209.01	28.543	
15,300.00	6,941.75	6,011.00	6,007.54	140.97	180.12	-20.71	1,035.14	2,855.63	6,064.56	5,855.43	209.12	29.000	
15,400.00	6,941.78	6,011.00	6,007.54	142.55	180.12	-20.71	1,035.14	2,855.63	6,163.34	5,954.10	209.23	29.457	
15,500.00	6,941.80	6,011.00	6,007.54	144.13	180.12	-20.71	1,035.14	2,855.63	6,262.15	6,052.81	209.34	29.914	
15,600.00	6,941.82	6,011.00	6,007.54	145.72	180.12	-20.71	1,035.14	2,855.63	6,361.01	6,151.56	209.44	30.371	
15,700.00	6,941.84	6,011.00	6,007.54	147.30	180.12	-20.71	1,035.14	2,855.63	6,459.90	6,250.35	209.55	30.828	
15,800.00	6,941.87	6,011.00	6,007.54	148.88	180.12	-20.71	1,035.14	2,855.63	6,558.82	6,349.17	209.65	31.285	
15,900.00	6,941.89	6,011.00	6,007.54	150.46	180.12	-20.71	1,035.14	2,855.63	6,657.78	6,448.03	209.75	31.741	
16,000.00	6,941.91	6,011.00	6,007.54	152.04	180.12	-20.71	1,035.14	2,855.63	6,756.76	6,546.91	209.85	32.198	
16,100.00	6,941.93	6,011.00	6,007.54	153.62	180.12	-20.71	1,035.14	2,855.63	6,855.78	6,645.83	209.95	32.654	
16,200.00	6,941.95	6,011.00	6,007.54	155.21	180.12	-20.71	1,035.14	2,855.63	6,954.83	6,744.77	210.05	33.110	
16,300.00	6,941.98	6,011.00	6,007.54	156.79	180.12	-20.71	1,035.14	2,855.63	7,053.90	6,843.75	210.15	33.566	
16,400.00	6,942.00	6,011.00	6,007.54	158.37	180.12	-20.71	1,035.14	2,855.63	7,152.99	6,942.74	210.25	34.022	
16,500.00	6,942.02	6,011.00	6,007.54	159.96	180.12	-20.71	1,035.14	2,855.63	7,252.12	7,041.77	210.35	34.477	
16,600.00	6,942.04	6,011.00	6,007.54	161.54	180.12	-20.71	1,035.14	2,855.63	7,351.26	7,140.82	210.44	34.932	
16,700.00	6,942.06	6,011.00	6,007.54	163.13	180.12	-20.71	1,035.14	2,855.63	7,450.43	7,239.89	210.54	35.387	
16,800.00	6,942.09	6,011.00	6,007.54	164.71	180.12	-20.71	1,035.14	2,855.63	7,549.62	7,338.98	210.64	35.842	
16,900.00	6,942.11	6,011.00	6,007.54	166.30	180.12	-20.71	1,035.14	2,855.63	7,648.83	7,438.10	210.73	36.296	
17,000.00	6,942.13	6,011.00	6,007.54	167.88	180.12	-20.71	1,035.14	2,855.63	7,748.06	7,537.23	210.83	36.751	
17,100.00	6,942.15	6,011.00	6,007.54	169.47	180.12	-20.71	1,035.14	2,855.63	7,847.31	7,636.39	210.92	37.204	
17,200.00	6,942.17	6,011.00	6,007.54	171.05	180.12	-20.71	1,035.14	2,855.63	7,946.58	7,735.56	211.02	37.658	
17,300.00	6,942.20	6,011.00	6,007.54	172.64	180.12	-20.71	1,035.14	2,855.63	8,045.87	7,834.76	211.12	38.111	
17,400.00	6,942.22	6,011.00	6,007.54	174.23	180.12	-20.71	1,035.14	2,855.63	8,145.18	7,933.97	211.21	38.564	
17,500.00	6,942.24	6,011.00	6,007.54	175.81	180.12	-20.71	1,035.14	2,855.63	8,244.50	8,033.19	211.31	39.017	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
17,600.00	6,942.26	6,011.00	6,007.54	177.40	180.12	-20.71	1,035.14	2,855.63	8,343.84	8,132.44	211.40	39.469	
17,700.00	6,942.28	6,011.00	6,007.54	178.99	180.12	-20.71	1,035.14	2,855.63	8,443.19	8,231.70	211.50	39.921	
17,800.00	6,942.31	6,011.00	6,007.54	180.57	180.12	-20.71	1,035.14	2,855.63	8,542.56	8,330.97	211.59	40.373	
17,900.00	6,942.33	6,011.00	6,007.54	182.16	180.12	-20.71	1,035.14	2,855.63	8,641.95	8,430.26	211.69	40.824	
18,000.00	6,942.35	6,011.00	6,007.54	183.75	180.12	-20.71	1,035.14	2,855.63	8,741.34	8,529.56	211.78	41.275	
18,100.00	6,942.37	6,011.00	6,007.54	185.34	180.12	-20.71	1,035.14	2,855.63	8,840.75	8,628.88	211.88	41.726	
18,200.00	6,942.39	6,011.00	6,007.54	186.93	180.12	-20.71	1,035.14	2,855.63	8,940.18	8,728.21	211.97	42.176	
18,300.00	6,942.42	6,011.00	6,007.54	188.52	180.12	-20.71	1,035.14	2,855.63	9,039.62	8,827.55	212.07	42.626	
18,400.00	6,942.44	6,011.00	6,007.54	190.10	180.12	-20.71	1,035.14	2,855.63	9,139.07	8,926.90	212.16	43.075	
18,500.00	6,942.46	6,011.00	6,007.54	191.69	180.12	-20.71	1,035.14	2,855.63	9,238.53	9,026.27	212.26	43.525	
18,600.00	6,942.48	6,011.00	6,007.54	193.28	180.12	-20.71	1,035.14	2,855.63	9,338.00	9,125.64	212.36	43.973	
18,700.00	6,942.51	6,011.00	6,007.54	194.87	180.12	-20.71	1,035.14	2,855.63	9,437.48	9,225.03	212.45	44.422	
18,800.00	6,942.53	6,011.00	6,007.54	196.46	180.12	-20.71	1,035.14	2,855.63	9,536.98	9,324.43	212.55	44.870	
18,900.00	6,942.55	6,011.00	6,007.54	198.05	180.12	-20.71	1,035.14	2,855.63	9,636.48	9,423.84	212.65	45.317	
19,000.00	6,942.57	6,011.00	6,007.54	199.64	180.12	-20.71	1,035.14	2,855.63	9,736.00	9,523.26	212.74	45.764	
19,100.00	6,942.59	6,011.00	6,007.54	201.23	180.12	-20.71	1,035.14	2,855.63	9,835.53	9,622.69	212.84	46.211	
19,200.00	6,942.62	6,011.00	6,007.54	202.82	180.12	-20.71	1,035.14	2,855.63	9,935.06	9,722.12	212.94	46.657	
19,300.00	6,942.64	6,011.00	6,007.54	204.41	180.12	-20.71	1,035.14	2,855.63	10,034.60	9,821.57	213.03	47.103	
19,400.00	6,942.66	6,011.00	6,007.54	206.00	180.12	-20.71	1,035.14	2,855.63	10,134.16	9,921.03	213.13	47.549	
19,500.00	6,942.68	6,011.00	6,007.54	207.59	180.12	-20.71	1,035.14	2,855.63	10,233.72	10,020.49	213.23	47.994	
19,600.00	6,942.70	6,011.00	6,007.54	209.18	180.12	-20.71	1,035.14	2,855.63	10,333.29	10,119.96	213.33	48.438	
19,700.00	6,942.73	6,011.00	6,007.54	210.78	180.12	-20.71	1,035.14	2,855.63	10,432.87	10,219.44	213.43	48.883	
19,800.00	6,942.75	6,011.00	6,007.54	212.37	180.12	-20.71	1,035.14	2,855.63	10,532.45	10,318.93	213.53	49.326	
19,900.00	6,942.77	6,011.00	6,007.54	213.96	180.12	-20.71	1,035.14	2,855.63	10,632.05	10,418.42	213.62	49.770	
20,000.00	6,942.79	6,011.00	6,007.54	215.55	180.12	-20.71	1,035.14	2,855.63	10,731.65	10,517.93	213.72	50.213	
20,100.00	6,942.81	6,011.00	6,007.54	217.14	180.12	-20.71	1,035.14	2,855.63	10,831.26	10,617.44	213.82	50.655	
20,200.00	6,942.84	6,011.00	6,007.54	218.73	180.12	-20.71	1,035.14	2,855.63	10,930.87	10,716.95	213.92	51.097	
20,300.00	6,942.86	6,011.00	6,007.54	220.32	180.12	-20.71	1,035.14	2,855.63	11,030.50	10,816.47	214.02	51.539	
20,400.00	6,942.88	6,011.00	6,007.54	221.92	180.12	-20.71	1,035.14	2,855.63	11,130.13	10,916.00	214.12	51.980	
20,500.00	6,942.90	6,011.00	6,007.54	223.51	180.12	-20.71	1,035.14	2,855.63	11,229.76	11,015.54	214.22	52.421	
20,600.00	6,942.92	6,011.00	6,007.54	225.10	180.12	-20.71	1,035.14	2,855.63	11,329.41	11,115.08	214.33	52.861	
20,700.00	6,942.95	6,011.00	6,007.54	226.69	180.12	-20.71	1,035.14	2,855.63	11,429.06	11,214.63	214.43	53.300	
20,800.00	6,942.97	6,011.00	6,007.54	228.28	180.12	-20.71	1,035.14	2,855.63	11,528.71	11,314.18	214.53	53.740	
20,900.00	6,942.99	6,011.00	6,007.54	229.88	180.12	-20.71	1,035.14	2,855.63	11,628.37	11,413.74	214.63	54.179	
20,942.50	6,943.00	6,011.00	6,007.54	230.42	180.12	-20.71	1,035.14	2,855.63	11,670.73	11,451.88	218.85	53.327	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
0.00	0.00	0.00	0.00	0.00	0.00	62.58	1,110.41	2,140.53	2,411.56				
58.45	58.45	31.45	31.45	0.02	0.94	-175.71	1,110.41	2,140.53	2,411.77	2,410.81	0.96	2,509.228	
150.25	150.24	123.24	123.24	0.14	3.69	165.99	1,110.41	2,140.53	2,412.85	2,409.02	3.83	629.877	
239.43	239.42	212.42	212.42	0.25	6.37	160.52	1,110.41	2,140.53	2,413.86	2,407.24	6.62	364.849	
299.93	299.91	272.91	272.91	0.33	8.18	165.47	1,110.41	2,140.53	2,414.59	2,406.09	8.51	283.885	
446.00	445.96	418.96	418.96	0.50	12.55	-170.12	1,110.41	2,140.53	2,416.97	2,403.92	13.05	185.185	
537.00	536.95	510.05	509.95	0.73	15.28	-108.88	1,110.41	2,140.53	2,418.02	2,402.02	16.01	151.077	
624.00	623.95	597.05	596.95	0.99	17.89	-25.93	1,110.41	2,140.53	2,417.51	2,398.64	18.87	128.095	
718.00	717.90	691.01	690.90	1.29	20.71	-8.11	1,110.41	2,140.53	2,414.91	2,392.92	21.99	109.814	
811.00	810.73	786.72	786.57	1.60	23.57	11.33	1,112.54	2,140.53	2,410.39	2,385.21	25.17	95.750	
903.00	902.19	885.88	885.72	1.92	26.55	23.45	1,111.94	2,140.53	2,400.81	2,372.34	28.47	84.332	
994.00	992.38	983.55	983.36	2.24	29.47	25.90	1,110.68	2,140.53	2,389.25	2,357.54	31.71	75.337	
1,084.00	1,081.50	1,054.90	1,054.50	2.56	31.61	30.50	1,110.41	2,140.53	2,377.96	2,343.79	34.17	69.596	
1,175.00	1,171.48	1,144.89	1,144.48	2.91	34.31	34.56	1,110.41	2,140.53	2,366.52	2,329.33	37.19	63.633	
1,268.00	1,263.52	1,236.93	1,236.52	3.26	37.06	36.29	1,110.41	2,140.53	2,355.61	2,315.33	40.28	58.477	
1,363.00	1,357.62	1,337.51	1,337.05	3.63	40.08	39.45	1,112.32	2,140.53	2,346.15	2,302.51	43.64	53.760	
1,457.00	1,450.74	1,437.93	1,437.45	3.99	43.09	42.42	1,111.35	2,140.53	2,336.02	2,289.02	46.99	49.708	
1,552.00	1,544.82	1,518.53	1,517.82	4.36	45.50	43.45	1,110.41	2,140.53	2,325.83	2,276.07	49.76	46.738	
1,646.00	1,637.88	1,611.59	1,610.88	4.72	48.29	44.17	1,110.41	2,140.53	2,316.19	2,263.29	52.90	43.782	
1,741.00	1,731.94	1,705.65	1,704.94	5.09	51.11	44.85	1,110.41	2,140.53	2,306.64	2,250.56	56.08	41.134	
1,835.00	1,825.07	1,802.45	1,801.69	5.46	54.01	45.09	1,112.49	2,140.53	2,298.52	2,239.19	59.33	38.742	
1,929.00	1,918.39	1,902.65	1,901.87	5.82	57.01	44.11	1,111.77	2,140.53	2,290.14	2,227.46	62.68	36.538	
2,024.00	2,012.84	2,003.95	2,003.14	6.18	60.05	45.72	1,110.33	2,140.53	2,282.31	2,216.25	66.06	34.547	
2,118.00	2,106.19	2,080.21	2,079.19	6.53	62.33	46.14	1,110.41	2,140.53	2,274.62	2,205.92	68.70	33.108	
2,213.00	2,200.37	2,174.39	2,173.37	6.90	65.15	45.06	1,110.41	2,140.53	2,265.86	2,193.98	71.88	31.521	
2,307.00	2,293.61	2,268.88	2,267.82	7.27	67.99	47.20	1,112.58	2,140.53	2,258.45	2,183.38	75.07	30.085	
2,402.00	2,387.91	2,369.75	2,368.67	7.63	71.01	51.32	1,112.09	2,140.53	2,250.74	2,172.29	78.45	28.692	
2,496.00	2,481.29	2,469.50	2,468.40	7.99	74.00	52.76	1,110.90	2,140.53	2,243.61	2,161.82	81.78	27.433	
2,591.00	2,575.67	2,549.99	2,548.67	8.35	76.41	51.51	1,110.41	2,140.53	2,236.68	2,152.12	84.56	26.451	
2,686.00	2,670.05	2,644.37	2,643.05	8.71	79.24	52.12	1,110.41	2,140.53	2,229.98	2,142.23	87.74	25.415	
2,780.00	2,763.49	2,737.81	2,736.49	9.07	82.04	50.32	1,110.41	2,140.53	2,223.48	2,132.59	90.89	24.462	
2,875.00	2,857.94	2,837.67	2,836.29	9.43	85.03	49.05	1,112.32	2,140.53	2,217.64	2,123.40	94.24	23.532	
2,970.00	2,952.51	2,938.36	2,936.96	9.79	88.05	52.82	1,111.35	2,140.53	2,211.58	2,113.98	97.61	22.658	
3,064.00	3,046.19	3,020.82	3,019.19	10.13	90.52	60.17	1,110.41	2,140.53	2,206.90	2,106.48	100.43	21.975	
3,159.00	3,140.98	3,115.60	3,113.98	10.47	93.36	62.30	1,110.41	2,140.53	2,203.80	2,100.19	103.61	21.270	
3,253.00	3,234.84	3,209.47	3,207.84	10.81	96.17	54.67	1,110.41	2,140.53	2,201.21	2,094.45	106.76	20.618	
3,348.00	3,329.74	3,307.81	3,306.14	11.14	99.12	47.06	1,112.47	2,140.53	2,199.29	2,089.24	110.04	19.986	
3,397.00	3,378.70	3,359.85	3,358.17	11.32	100.68	46.23	1,112.17	2,140.53	2,197.76	2,085.98	111.77	19.662	
3,488.00	3,469.63	3,456.50	3,454.79	11.64	103.57	43.76	1,111.10	2,140.53	2,194.91	2,079.92	114.99	19.088	
3,583.00	3,564.49	3,539.42	3,537.49	11.98	106.06	52.28	1,110.41	2,140.53	2,191.29	2,073.46	117.82	18.598	
3,677.00	3,658.13	3,633.06	3,631.13	12.33	108.86	54.28	1,110.41	2,140.53	2,186.40	2,065.43	120.97	18.073	
3,772.00	3,752.42	3,727.35	3,725.42	12.69	111.69	59.13	1,110.41	2,140.53	2,180.11	2,055.95	124.16	17.559	
3,867.00	3,846.42	3,825.62	3,823.64	13.06	114.63	61.00	1,112.39	2,140.53	2,173.93	2,046.46	127.47	17.054	
3,961.00	3,939.30	3,923.89	3,921.89	13.44	117.58	61.16	1,111.53	2,140.53	2,166.56	2,035.78	130.78	16.566	
4,056.00	4,032.83	4,008.06	4,005.83	13.82	120.10	58.28	1,110.41	2,140.53	2,157.61	2,023.92	133.69	16.139	
4,151.00	4,126.01	4,101.24	4,099.01	14.21	122.89	59.59	1,110.41	2,140.53	2,147.93	2,011.07	136.86	15.694	
4,246.00	4,219.10	4,194.33	4,192.10	14.61	125.68	52.63	1,110.41	2,140.53	2,137.23	1,997.19	140.04	15.262	
4,340.00	4,310.92	4,288.07	4,285.80	15.01	128.49	44.02	1,112.54	2,140.53	2,124.32	1,981.09	143.23	14.832	
4,435.00	4,403.54	4,385.44	4,383.15	15.41	131.41	43.81	1,111.95	2,140.53	2,108.74	1,962.21	146.53	14.391	
4,498.00	4,465.21	4,450.15	4,447.84	15.68	133.35	46.07	1,111.19	2,140.53	2,099.28	1,950.56	148.72	14.116	
4,561.00	4,526.82	4,502.36	4,499.82	15.95	134.91	51.59	1,110.41	2,140.53	2,090.28	1,939.74	150.54	13.885	
4,624.00	4,588.23	4,563.77	4,561.23	16.22	136.75	53.74	1,110.41	2,140.53	2,081.60	1,928.96	152.65	13.637	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
4,687.00	4,649.71	4,625.25	4,622.71	16.49	138.59	54.50	1,110.41	2,140.53	2,073.42	1,918.67	154.75	13.398	
4,749.00	4,710.40	4,685.94	4,683.40	16.75	140.41	56.00	1,110.41	2,140.53	2,066.10	1,909.27	156.82	13.175	
4,812.00	4,772.28	4,747.82	4,745.28	17.01	142.27	56.99	1,110.41	2,140.53	2,059.49	1,900.55	158.94	12.958	
4,875.00	4,834.34	4,812.59	4,810.00	17.27	144.21	56.71	1,112.45	2,140.53	2,054.09	1,892.96	161.13	12.748	
4,938.00	4,896.43	4,877.41	4,874.81	17.53	146.15	56.80	1,112.02	2,140.53	2,048.08	1,884.76	163.32	12.540	
5,001.00	4,958.46	4,942.07	4,939.45	17.79	148.09	53.91	1,111.30	2,140.53	2,041.53	1,876.01	165.51	12.334	
5,064.00	5,020.29	5,006.42	5,003.77	18.05	150.01	50.06	1,110.29	2,140.53	2,033.69	1,865.99	167.70	12.127	
5,126.00	5,080.98	5,056.82	5,053.98	18.32	151.53	46.09	1,110.41	2,140.53	2,025.14	1,855.66	169.47	11.950	
5,189.00	5,142.74	5,118.58	5,115.74	18.58	153.38	47.91	1,110.41	2,140.53	2,016.56	1,844.98	171.58	11.753	
5,252.00	5,204.62	5,180.46	5,177.62	18.85	155.23	48.15	1,110.41	2,140.53	2,008.57	1,834.88	173.69	11.564	
5,315.00	5,266.61	5,242.46	5,239.61	19.11	157.09	48.18	1,110.41	2,140.53	2,001.03	1,825.24	175.80	11.383	
5,378.00	5,328.73	5,306.69	5,303.80	19.37	159.01	48.79	1,112.48	2,140.53	1,994.55	1,816.58	177.97	11.207	
5,441.00	5,390.87	5,371.18	5,368.27	19.62	160.94	48.55	1,112.07	2,140.53	1,987.55	1,807.39	180.15	11.032	
5,503.00	5,452.07	5,434.62	5,431.70	19.87	162.85	49.08	1,111.40	2,140.53	1,980.81	1,798.51	182.30	10.866	
5,566.00	5,514.32	5,499.07	5,496.13	20.13	164.78	48.98	1,110.42	2,140.53	1,974.14	1,789.67	184.48	10.701	
5,629.00	5,576.59	5,552.74	5,549.59	20.38	166.39	51.59	1,110.41	2,140.53	1,967.99	1,781.64	186.34	10.561	
5,692.00	5,638.95	5,615.10	5,611.95	20.63	168.25	49.47	1,110.41	2,140.53	1,962.25	1,773.79	188.46	10.412	
5,747.00	5,693.45	5,669.59	5,666.45	20.85	169.89	51.86	1,110.41	2,140.53	1,957.51	1,767.20	190.30	10.286	
5,810.00	5,755.90	5,732.04	5,728.90	21.09	171.76	51.31	1,110.41	2,140.53	1,952.33	1,759.91	192.42	10.146	
5,874.00	5,819.40	5,797.10	5,793.90	21.34	173.71	52.68	1,112.51	2,140.53	1,947.90	1,753.29	194.61	10.009	
5,936.00	5,880.95	5,860.69	5,857.48	21.58	175.61	52.46	1,112.16	2,140.53	1,943.24	1,746.49	196.76	9.876	
5,999.00	5,943.45	5,925.21	5,921.99	21.82	177.55	51.21	1,111.51	2,140.53	1,938.22	1,739.28	198.93	9.743	
6,062.00	6,005.96	5,989.68	5,986.44	22.07	179.48	53.92	1,110.58	2,140.53	1,933.19	1,732.08	201.10	9.613	
6,125.00	6,068.49	6,044.94	6,041.49	22.31	181.13	51.78	1,110.41	2,140.53	1,928.47	1,725.46	203.01	9.499	
6,188.00	6,131.08	6,107.53	6,104.08	22.55	183.01	53.74	1,110.41	2,140.53	1,924.10	1,718.98	205.12	9.380	
6,255.00	6,197.73	6,174.18	6,170.73	22.81	185.01	52.82	1,110.41	2,140.53	1,920.01	1,712.63	207.37	9.259	
6,293.00	6,235.55	6,212.00	6,208.55	22.89	186.14	52.90	1,110.41	2,140.53	1,917.81	1,709.22	208.58	9.194	
6,300.00	6,242.52	6,218.97	6,215.52	22.89	186.35	52.92	1,110.41	2,140.53	1,917.40	1,708.60	208.80	9.183	
6,393.00	6,335.09	6,313.40	6,309.89	22.94	189.18	53.07	1,112.45	2,140.53	1,912.47	1,700.81	211.66	9.035	
6,400.00	6,342.06	6,320.57	6,317.07	22.94	189.39	47.19	1,112.41	2,140.53	1,912.02	1,700.14	211.88	9.024	
6,450.00	6,391.66	6,371.63	6,368.12	22.97	190.92	20.09	1,112.07	2,140.53	1,906.63	1,693.20	213.43	8.933	
6,500.00	6,440.77	6,422.16	6,418.64	23.02	192.44	8.19	1,111.55	2,140.53	1,897.42	1,682.46	214.96	8.827	
6,550.00	6,489.07	6,471.85	6,468.30	23.07	193.93	1.90	1,110.87	2,140.53	1,884.45	1,667.98	216.47	8.705	
6,600.00	6,536.26	6,513.02	6,509.26	23.13	195.16	-2.09	1,110.41	2,140.53	1,867.86	1,650.13	217.72	8.579	
6,650.00	6,582.05	6,558.80	6,555.05	23.21	196.53	-5.01	1,110.41	2,140.53	1,847.83	1,628.72	219.11	8.433	
6,700.00	6,626.13	6,602.89	6,599.13	23.29	197.85	-7.42	1,110.41	2,140.53	1,824.38	1,603.94	220.44	8.276	
6,750.00	6,668.24	6,645.00	6,641.24	23.39	199.11	-9.62	1,110.41	2,140.53	1,797.66	1,575.95	221.71	8.108	
6,800.00	6,708.12	6,684.87	6,681.12	23.51	200.31	-11.81	1,110.41	2,140.53	1,767.85	1,544.94	222.91	7.931	
6,850.00	6,745.50	6,722.25	6,718.50	23.64	201.43	-14.13	1,110.41	2,140.53	1,735.14	1,511.11	224.03	7.745	
6,900.00	6,780.15	6,757.10	6,753.31	23.79	202.47	-16.83	1,112.59	2,140.53	1,700.24	1,475.18	225.07	7.554	
6,950.00	6,811.86	6,789.69	6,785.89	23.95	203.45	-19.90	1,112.53	2,140.53	1,662.41	1,436.38	226.03	7.355	
7,000.00	6,840.42	6,819.05	6,815.25	24.14	204.33	-23.61	1,112.42	2,140.53	1,622.38	1,395.48	226.90	7.150	
7,050.00	6,865.66	6,845.00	6,841.18	24.35	205.11	-28.22	1,112.27	2,140.53	1,580.42	1,352.77	227.65	6.942	
7,100.00	6,887.42	6,867.36	6,863.55	24.57	205.78	-34.07	1,112.11	2,140.53	1,536.83	1,308.54	228.29	6.732	
7,150.00	6,905.55	6,886.02	6,882.20	24.82	206.34	-41.52	1,111.94	2,140.53	1,491.90	1,263.09	228.82	6.520	
7,200.00	6,919.95	6,900.83	6,897.01	25.10	206.78	-50.94	1,111.79	2,140.53	1,445.96	1,216.74	229.22	6.308	
7,250.00	6,930.52	6,911.72	6,907.90	25.39	207.11	-62.38	1,111.67	2,140.53	1,399.32	1,169.83	229.49	6.097	
7,300.00	6,937.20	6,918.62	6,914.79	25.70	207.31	-75.24	1,111.59	2,140.53	1,352.31	1,122.67	229.64	5.889	
7,350.00	6,939.94	6,921.47	6,917.64	26.04	207.40	-88.20	1,111.56	2,140.53	1,305.27	1,075.61	229.67	5.683	
7,359.60	6,940.02	6,921.55	6,917.72	26.10	207.40	-90.57	1,111.56	2,140.53	1,296.26	1,066.60	229.66	5.644	
7,400.00	6,940.03	6,921.59	6,917.76	26.39	207.40	-90.57	1,111.56	2,140.53	1,258.47	1,028.86	229.61	5.481	
7,500.00	6,940.04	6,921.67	6,917.84	27.15	207.40	-90.59	1,111.56	2,140.53	1,165.66	936.15	229.51	5.079	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
7,600.00	6,940.06	6,921.75	6,917.92	27.99	207.41	-90.60	1,111.56	2,140.53	1,074.14	844.69	229.46	4.681	
7,659.60	6,940.07	6,921.80	6,917.97	28.52	207.41	-90.60	1,111.56	2,140.53	1,020.35	790.90	229.46	4.447	
7,700.00	6,940.08	6,921.83	6,918.00	28.89	207.41	-90.62	1,111.56	2,140.53	984.15	754.67	229.48	4.289	
7,796.63	6,940.10	6,921.88	6,918.05	29.83	207.41	-90.67	1,111.55	2,140.53	897.89	668.28	229.61	3.910	
7,800.00	6,940.10	6,921.88	6,918.05	29.86	207.41	-90.67	1,111.55	2,140.53	894.89	665.27	229.62	3.897	
7,900.00	6,940.12	6,921.91	6,918.08	30.90	207.41	-90.67	1,111.55	2,140.53	807.30	577.37	229.93	3.511	
8,000.00	6,940.14	6,921.93	6,918.10	31.98	207.41	-90.67	1,111.55	2,140.53	722.94	492.41	230.53	3.136	
8,100.00	6,940.17	6,921.96	6,918.13	33.11	207.41	-90.68	1,111.55	2,140.53	643.08	411.50	231.57	2.777	
8,200.00	6,940.19	6,921.99	6,918.16	34.28	207.41	-90.68	1,111.55	2,140.53	569.61	336.35	233.26	2.442	
8,300.00	6,940.21	6,922.02	6,918.19	35.48	207.42	-90.69	1,111.55	2,140.53	505.34	269.57	235.77	2.143	
8,400.00	6,940.23	6,922.05	6,918.22	36.71	207.42	-90.69	1,111.55	2,140.53	454.17	215.06	239.11	1.899	
8,500.00	6,940.25	6,922.08	6,918.25	37.97	207.42	-90.69	1,111.55	2,140.53	420.93	178.07	242.86	1.733	
8,595.46	6,940.28	6,922.10	6,918.27	39.20	207.42	-90.70	1,111.55	2,140.53	409.96	164.00	245.97	1.667	CC
8,600.00	6,940.28	6,922.11	6,918.27	39.26	207.42	-90.70	1,111.55	2,140.53	409.99	163.90	246.09	1.666	ES, SF
8,700.00	6,940.30	6,922.13	6,918.30	40.56	207.42	-90.70	1,111.55	2,140.53	423.08	175.16	247.92	1.706	
8,800.00	6,940.32	6,922.16	6,918.33	41.89	207.42	-90.71	1,111.55	2,140.53	458.15	209.92	248.23	1.846	
8,900.00	6,940.34	6,922.19	6,918.36	43.24	207.42	-90.71	1,111.55	2,140.53	510.70	263.19	247.51	2.063	
9,000.00	6,940.36	6,922.22	6,918.39	44.60	207.42	-90.71	1,111.55	2,140.53	575.95	329.61	246.34	2.338	
9,100.00	6,940.39	6,922.25	6,918.42	45.98	207.42	-90.72	1,111.55	2,140.53	650.10	405.01	245.09	2.652	
9,200.00	6,940.41	6,922.28	6,918.45	47.38	207.42	-90.72	1,111.55	2,140.53	730.44	486.51	243.92	2.995	
9,300.00	6,940.43	6,922.30	6,918.47	48.78	207.42	-90.73	1,111.55	2,140.53	815.14	572.24	242.89	3.356	
9,400.00	6,940.45	6,922.33	6,918.50	50.20	207.42	-90.73	1,111.55	2,140.53	902.97	660.96	242.01	3.731	
9,500.00	6,940.47	6,922.36	6,918.53	51.63	207.43	-90.73	1,111.55	2,140.53	993.11	751.85	241.25	4.116	
9,600.00	6,940.50	6,922.39	6,918.56	53.07	207.43	-90.74	1,111.55	2,140.53	1,084.97	844.36	240.61	4.509	
9,700.00	6,940.52	6,922.42	6,918.59	54.52	207.43	-90.74	1,111.55	2,140.53	1,178.17	938.10	240.06	4.908	
9,800.00	6,940.54	6,922.45	6,918.62	55.97	207.43	-90.75	1,111.55	2,140.53	1,272.39	1,032.80	239.60	5.311	
9,900.00	6,940.56	6,922.48	6,918.64	57.44	207.43	-90.75	1,111.55	2,140.53	1,367.44	1,128.24	239.20	5.717	
10,000.00	6,940.59	6,922.50	6,918.67	58.91	207.43	-90.75	1,111.55	2,140.53	1,463.15	1,224.30	238.85	6.126	
10,100.00	6,940.61	6,922.53	6,918.70	60.38	207.43	-90.76	1,111.55	2,140.53	1,559.39	1,320.85	238.55	6.537	
10,200.00	6,940.63	6,922.56	6,918.73	61.87	207.43	-90.76	1,111.55	2,140.53	1,656.09	1,417.80	238.29	6.950	
10,300.00	6,940.65	6,922.59	6,918.76	63.36	207.43	-90.77	1,111.55	2,140.53	1,753.15	1,515.09	238.06	7.364	
10,400.00	6,940.67	6,922.62	6,918.79	64.85	207.43	-90.77	1,111.55	2,140.53	1,850.52	1,612.66	237.86	7.780	
10,500.00	6,940.70	6,922.65	6,918.82	66.35	207.43	-90.77	1,111.55	2,140.53	1,948.16	1,710.48	237.69	8.196	
10,600.00	6,940.72	6,922.68	6,918.84	67.86	207.43	-90.78	1,111.55	2,140.53	2,046.03	1,808.50	237.53	8.614	
10,700.00	6,940.74	6,922.70	6,918.87	69.36	207.44	-90.78	1,111.55	2,140.53	2,144.10	1,906.70	237.40	9.032	
10,800.00	6,940.76	6,922.73	6,918.90	70.88	207.44	-90.79	1,111.54	2,140.53	2,242.33	2,005.06	237.28	9.450	
10,900.00	6,940.78	6,922.76	6,918.93	72.39	207.44	-90.79	1,111.54	2,140.53	2,340.72	2,103.55	237.17	9.869	
11,000.00	6,940.81	6,922.79	6,918.96	73.91	207.44	-90.79	1,111.54	2,140.53	2,439.24	2,202.16	237.08	10.289	
11,100.00	6,940.83	6,922.82	6,918.99	75.44	207.44	-90.80	1,111.54	2,140.53	2,537.87	2,300.87	237.00	10.708	
11,200.00	6,940.85	6,922.85	6,919.01	76.96	207.44	-90.80	1,111.54	2,140.53	2,636.61	2,399.68	236.93	11.128	
11,300.00	6,940.87	6,922.87	6,919.04	78.49	207.44	-90.81	1,111.54	2,140.53	2,735.44	2,498.57	236.87	11.548	
11,400.00	6,940.89	6,922.90	6,919.07	80.03	207.44	-90.81	1,111.54	2,140.53	2,834.35	2,597.53	236.82	11.969	
11,500.00	6,940.92	6,922.93	6,919.10	81.56	207.44	-90.81	1,111.54	2,140.53	2,933.33	2,696.56	236.77	12.389	
11,600.00	6,940.94	6,922.96	6,919.13	83.10	207.44	-90.82	1,111.54	2,140.53	3,032.38	2,795.65	236.73	12.809	
11,700.00	6,940.96	6,922.99	6,919.16	84.64	207.44	-90.82	1,111.54	2,140.53	3,131.49	2,894.79	236.70	13.230	
11,800.00	6,940.98	6,923.02	6,919.19	86.18	207.44	-90.83	1,111.54	2,140.53	3,230.66	2,993.98	236.67	13.650	
11,900.00	6,941.00	6,923.05	6,919.21	87.72	207.45	-90.83	1,111.54	2,140.53	3,329.87	3,093.22	236.65	14.071	
12,000.00	6,941.03	6,923.07	6,919.24	89.27	207.45	-90.83	1,111.54	2,140.53	3,429.13	3,192.50	236.64	14.491	
12,100.00	6,941.05	6,923.10	6,919.27	90.82	207.45	-90.84	1,111.54	2,140.53	3,528.44	3,291.81	236.63	14.911	
12,200.00	6,941.07	6,923.13	6,919.30	92.37	207.45	-90.84	1,111.54	2,140.53	3,627.78	3,391.16	236.62	15.332	
12,300.00	6,941.09	6,923.16	6,919.33	93.92	207.45	-90.85	1,111.54	2,140.53	3,727.16	3,490.54	236.62	15.752	
12,400.00	6,941.11	6,923.19	6,919.36	95.47	207.45	-90.85	1,111.54	2,140.53	3,826.56	3,589.95	236.62	16.172	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
12,500.00	6,941.14	6,923.22	6,919.39	97.03	207.45	-90.85	1,111.54	2,140.53	3,926.00	3,689.38	236.62	16.592	
12,600.00	6,941.16	6,923.25	6,919.41	98.58	207.45	-90.86	1,111.54	2,140.53	4,025.47	3,788.84	236.63	17.012	
12,700.00	6,941.18	6,923.27	6,919.44	100.14	207.45	-90.86	1,111.54	2,140.53	4,124.96	3,888.32	236.64	17.431	
12,800.00	6,941.20	6,923.30	6,919.47	101.70	207.45	-90.87	1,111.54	2,140.53	4,224.48	3,987.83	236.65	17.851	
12,900.00	6,941.23	6,923.33	6,919.50	103.26	207.45	-90.87	1,111.54	2,140.53	4,324.02	4,087.35	236.67	18.270	
13,000.00	6,941.25	6,923.36	6,919.53	104.82	207.46	-90.87	1,111.54	2,140.53	4,423.58	4,186.89	236.69	18.690	
13,100.00	6,941.27	6,923.39	6,919.56	106.38	207.46	-90.88	1,111.54	2,140.53	4,523.16	4,286.45	236.71	19.109	
13,200.00	6,941.29	6,923.42	6,919.59	107.95	207.46	-90.88	1,111.54	2,140.53	4,622.75	4,386.02	236.73	19.527	
13,300.00	6,941.31	6,923.45	6,919.61	109.51	207.46	-90.89	1,111.54	2,140.53	4,722.37	4,485.61	236.76	19.946	
13,400.00	6,941.34	6,923.47	6,919.64	111.08	207.46	-90.89	1,111.54	2,140.53	4,822.00	4,585.21	236.78	20.365	
13,500.00	6,941.36	6,923.50	6,919.67	112.64	207.46	-90.89	1,111.54	2,140.53	4,921.64	4,684.83	236.81	20.783	
13,600.00	6,941.38	6,923.53	6,919.70	114.21	207.46	-90.90	1,111.54	2,140.53	5,021.30	4,784.46	236.85	21.201	
13,700.00	6,941.40	6,923.56	6,919.73	115.78	207.46	-90.90	1,111.53	2,140.53	5,120.98	4,884.10	236.88	21.618	
13,800.00	6,941.42	6,923.59	6,919.76	117.35	207.46	-90.91	1,111.53	2,140.53	5,220.66	4,983.75	236.92	22.036	
13,900.00	6,941.45	6,923.62	6,919.78	118.92	207.46	-90.91	1,111.53	2,140.53	5,320.36	5,083.41	236.95	22.453	
14,000.00	6,941.47	6,923.64	6,919.81	120.49	207.46	-90.91	1,111.53	2,140.53	5,420.07	5,183.07	236.99	22.870	
14,100.00	6,941.49	6,923.67	6,919.84	122.06	207.46	-90.92	1,111.53	2,140.53	5,519.79	5,282.75	237.03	23.287	
14,200.00	6,941.51	6,923.70	6,919.87	123.64	207.47	-90.92	1,111.53	2,140.53	5,619.51	5,382.44	237.08	23.703	
14,300.00	6,941.53	6,923.73	6,919.90	125.21	207.47	-90.93	1,111.53	2,140.53	5,719.25	5,482.13	237.12	24.120	
14,400.00	6,941.56	6,923.76	6,919.93	126.78	207.47	-90.93	1,111.53	2,140.53	5,819.00	5,581.83	237.16	24.536	
14,500.00	6,941.58	6,923.79	6,919.96	128.36	207.47	-90.93	1,111.53	2,140.53	5,918.76	5,681.54	237.21	24.951	
14,600.00	6,941.60	6,923.82	6,919.98	129.93	207.47	-90.94	1,111.53	2,140.53	6,018.52	5,781.26	237.26	25.367	
14,700.00	6,941.62	6,923.84	6,920.01	131.51	207.47	-90.94	1,111.53	2,140.53	6,118.29	5,880.98	237.31	25.782	
14,800.00	6,941.64	6,923.87	6,920.04	133.08	207.47	-90.95	1,111.53	2,140.53	6,218.07	5,980.71	237.36	26.197	
14,900.00	6,941.67	6,923.90	6,920.07	134.66	207.47	-90.95	1,111.53	2,140.53	6,317.86	6,080.44	237.41	26.611	
15,000.00	6,941.69	6,923.93	6,920.10	136.24	207.47	-90.95	1,111.53	2,140.53	6,417.65	6,180.18	237.46	27.026	
15,100.00	6,941.71	6,923.96	6,920.13	137.82	207.47	-90.96	1,111.53	2,140.53	6,517.45	6,279.93	237.52	27.440	
15,200.00	6,941.73	6,923.99	6,920.16	139.40	207.47	-90.96	1,111.53	2,140.53	6,617.25	6,379.68	237.58	27.853	
15,300.00	6,941.75	6,924.02	6,920.18	140.97	207.47	-90.97	1,111.53	2,140.53	6,717.06	6,479.43	237.63	28.267	
15,400.00	6,941.78	6,924.04	6,920.21	142.55	207.48	-90.97	1,111.53	2,140.53	6,816.88	6,579.19	237.69	28.680	
15,500.00	6,941.80	6,924.07	6,920.24	144.13	207.48	-90.97	1,111.53	2,140.53	6,916.70	6,678.95	237.75	29.092	
15,600.00	6,941.82	6,924.10	6,920.27	145.72	207.48	-90.98	1,111.53	2,140.53	7,016.53	6,778.72	237.81	29.505	
15,700.00	6,941.84	6,924.13	6,920.30	147.30	207.48	-90.98	1,111.53	2,140.53	7,116.36	6,878.49	237.87	29.917	
15,800.00	6,941.87	6,924.16	6,920.33	148.88	207.48	-90.99	1,111.53	2,140.53	7,216.19	6,978.26	237.93	30.329	
15,900.00	6,941.89	6,924.19	6,920.36	150.46	207.48	-90.99	1,111.53	2,140.53	7,316.04	7,078.04	238.00	30.740	
16,000.00	6,941.91	6,924.22	6,920.38	152.04	207.48	-90.99	1,111.53	2,140.53	7,415.88	7,177.82	238.06	31.151	
16,100.00	6,941.93	6,924.25	6,920.41	153.62	207.48	-91.00	1,111.53	2,140.53	7,515.73	7,277.60	238.12	31.562	
16,200.00	6,941.95	6,924.27	6,920.44	155.21	207.48	-91.00	1,111.53	2,140.53	7,615.58	7,377.39	238.19	31.973	
16,300.00	6,941.98	6,924.30	6,920.47	156.79	207.48	-91.01	1,111.53	2,140.53	7,715.44	7,477.18	238.26	32.383	
16,400.00	6,942.00	6,924.33	6,920.50	158.37	207.48	-91.01	1,111.53	2,140.53	7,815.30	7,576.97	238.33	32.792	
16,500.00	6,942.02	6,924.36	6,920.53	159.96	207.49	-91.01	1,111.52	2,140.53	7,915.16	7,676.77	238.39	33.202	
16,600.00	6,942.04	6,924.39	6,920.56	161.54	207.49	-91.02	1,111.52	2,140.53	8,015.03	7,776.57	238.46	33.611	
16,700.00	6,942.06	6,924.42	6,920.59	163.13	207.49	-91.02	1,111.52	2,140.53	8,114.90	7,876.37	238.54	34.020	
16,800.00	6,942.09	6,924.45	6,920.61	164.71	207.49	-91.03	1,111.52	2,140.53	8,214.78	7,976.17	238.61	34.428	
16,900.00	6,942.11	6,924.47	6,920.64	166.30	207.49	-91.03	1,111.52	2,140.53	8,314.65	8,075.97	238.68	34.836	
17,000.00	6,942.13	6,924.50	6,920.67	167.88	207.49	-91.03	1,111.52	2,140.53	8,414.53	8,175.78	238.75	35.244	
17,100.00	6,942.15	6,924.53	6,920.70	169.47	207.49	-91.04	1,111.52	2,140.53	8,514.42	8,275.59	238.83	35.651	
17,200.00	6,942.17	6,924.56	6,920.73	171.05	207.49	-91.04	1,111.52	2,140.53	8,614.30	8,375.40	238.90	36.058	
17,300.00	6,942.20	6,924.59	6,920.76	172.64	207.49	-91.05	1,111.52	2,140.53	8,714.19	8,475.21	238.98	36.465	
17,400.00	6,942.22	6,924.62	6,920.79	174.23	207.49	-91.05	1,111.52	2,140.53	8,814.08	8,575.03	239.05	36.871	
17,500.00	6,942.24	6,924.65	6,920.81	175.81	207.49	-91.05	1,111.52	2,140.53	8,913.97	8,674.84	239.13	37.277	
17,600.00	6,942.26	6,924.67	6,920.84	177.40	207.49	-91.06	1,111.52	2,140.53	9,013.87	8,774.66	239.21	37.682	

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 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Rule Assigned:

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
17,700.00	6,942.28	6,924.70	6,920.87	178.99	207.50	-91.06	1,111.52	2,140.53	9,113.77	8,874.48	239.28	38.088	
17,800.00	6,942.31	6,924.73	6,920.90	180.57	207.50	-91.07	1,111.52	2,140.53	9,213.67	8,974.30	239.36	38.492	
17,900.00	6,942.33	6,924.76	6,920.93	182.16	207.50	-91.07	1,111.52	2,140.53	9,313.57	9,074.12	239.44	38.897	
18,000.00	6,942.35	6,924.79	6,920.96	183.75	207.50	-91.07	1,111.52	2,140.53	9,413.47	9,173.95	239.52	39.301	
18,100.00	6,942.37	6,924.82	6,920.99	185.34	207.50	-91.08	1,111.52	2,140.53	9,513.38	9,273.77	239.61	39.704	
18,200.00	6,942.39	6,924.85	6,921.01	186.93	207.50	-91.08	1,111.52	2,140.53	9,613.29	9,373.60	239.69	40.108	
18,300.00	6,942.42	6,924.87	6,921.04	188.52	207.50	-91.09	1,111.52	2,140.53	9,713.20	9,473.43	239.77	40.511	
18,400.00	6,942.44	6,924.90	6,921.07	190.10	207.50	-91.09	1,111.52	2,140.53	9,813.11	9,573.25	239.85	40.913	
18,500.00	6,942.46	6,924.93	6,921.10	191.69	207.50	-91.09	1,111.52	2,140.53	9,913.02	9,673.08	239.94	41.315	
18,600.00	6,942.48	6,924.96	6,921.13	193.28	207.50	-91.10	1,111.52	2,140.53	10,012.94	9,772.91	240.02	41.717	
18,700.00	6,942.51	6,924.99	6,921.16	194.87	207.50	-91.10	1,111.52	2,140.53	10,112.85	9,872.75	240.11	42.118	
18,800.00	6,942.53	6,925.02	6,921.19	196.46	207.50	-91.11	1,111.52	2,140.53	10,212.77	9,972.58	240.19	42.519	
18,900.00	6,942.55	6,925.05	6,921.21	198.05	207.51	-91.11	1,111.52	2,140.53	10,312.69	10,072.41	240.28	42.920	
19,000.00	6,942.57	6,925.08	6,921.24	199.64	207.51	-91.11	1,111.52	2,140.53	10,412.61	10,172.25	240.37	43.320	
19,100.00	6,942.59	6,925.10	6,921.27	201.23	207.51	-91.12	1,111.52	2,140.53	10,512.54	10,272.08	240.45	43.720	
19,200.00	6,942.62	6,925.13	6,921.30	202.82	207.51	-91.12	1,111.52	2,140.53	10,612.46	10,371.92	240.54	44.119	
19,300.00	6,942.64	6,925.16	6,921.33	204.41	207.51	-91.13	1,111.52	2,140.53	10,712.39	10,471.76	240.63	44.518	
19,400.00	6,942.66	6,925.19	6,921.36	206.00	207.51	-91.13	1,111.51	2,140.53	10,812.31	10,571.60	240.72	44.917	
19,500.00	6,942.68	6,925.22	6,921.39	207.59	207.51	-91.13	1,111.51	2,140.53	10,912.24	10,671.43	240.81	45.315	
19,600.00	6,942.70	6,925.25	6,921.42	209.18	207.51	-91.14	1,111.51	2,140.53	11,012.17	10,771.27	240.90	45.713	
19,700.00	6,942.73	6,925.28	6,921.44	210.78	207.51	-91.14	1,111.51	2,140.53	11,112.11	10,871.11	240.99	46.110	
19,800.00	6,942.75	6,925.30	6,921.47	212.37	207.51	-91.15	1,111.51	2,140.53	11,212.04	10,970.96	241.08	46.507	
19,900.00	6,942.77	6,925.33	6,921.50	213.96	207.51	-91.15	1,111.51	2,140.53	11,311.97	11,070.80	241.17	46.904	
20,000.00	6,942.79	6,925.36	6,921.53	215.55	207.52	-91.15	1,111.51	2,140.53	11,411.91	11,170.64	241.27	47.300	
20,100.00	6,942.81	6,925.39	6,921.56	217.14	207.52	-91.16	1,111.51	2,140.53	11,511.84	11,270.48	241.36	47.696	
20,200.00	6,942.84	6,925.42	6,921.59	218.73	207.52	-91.16	1,111.51	2,140.53	11,611.78	11,370.33	241.45	48.091	
20,300.00	6,942.86	6,925.45	6,921.62	220.32	207.52	-91.17	1,111.51	2,140.53	11,711.72	11,470.17	241.55	48.486	
20,400.00	6,942.88	6,925.48	6,921.64	221.92	207.52	-91.17	1,111.51	2,140.53	11,811.66	11,570.01	241.64	48.881	
20,500.00	6,942.90	6,925.51	6,921.67	223.51	207.52	-91.17	1,111.51	2,140.53	11,911.60	11,669.86	241.74	49.275	
20,600.00	6,942.92	6,925.53	6,921.70	225.10	207.52	-91.18	1,111.51	2,140.53	12,011.54	11,769.70	241.83	49.669	
20,700.00	6,942.95	6,925.56	6,921.73	226.69	207.52	-91.18	1,111.51	2,140.53	12,111.48	11,869.55	241.93	50.062	
20,800.00	6,942.97	6,925.59	6,921.76	228.28	207.52	-91.19	1,111.51	2,140.53	12,211.42	11,969.40	242.03	50.455	
20,900.00	6,942.99	6,925.62	6,921.79	229.88	207.52	-91.19	1,111.51	2,140.53	12,311.37	12,069.24	242.12	50.847	
20,942.50	6,943.00	6,925.63	6,921.80	230.42	207.52	-91.19	1,111.51	2,140.53	12,353.84	12,107.06	246.78	50.060	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	481.00	481.00	0.00	14.41	81.74	1,555.23	10,717.56	10,829.81				
58.45	58.45	539.55	539.45	0.02	16.17	-156.55	1,555.23	10,717.56	10,830.14	10,813.95	16.18	669.149	
150.25	150.24	631.34	631.24	0.14	18.92	-174.85	1,555.23	10,717.56	10,831.19	10,812.14	19.05	568.501	
239.43	239.42	720.52	720.42	0.25	21.59	179.67	1,555.23	10,717.56	10,832.24	10,810.40	21.84	495.958	
299.93	299.91	784.83	784.68	0.33	23.52	-175.39	1,557.36	10,717.56	10,833.31	10,809.47	23.85	454.279	
446.00	445.96	948.82	948.64	0.50	28.43	-150.98	1,556.02	10,717.56	10,835.39	10,806.46	28.93	374.511	
537.00	536.95	1,018.36	1,017.95	0.73	30.51	-89.73	1,555.23	10,717.56	10,836.04	10,804.81	31.24	346.872	
624.00	623.95	1,105.35	1,104.95	0.99	33.12	-6.76	1,555.23	10,717.56	10,835.31	10,801.20	34.11	317.691	
718.00	717.90	1,199.31	1,198.90	1.29	35.94	11.09	1,555.23	10,717.56	10,832.65	10,795.42	37.22	291.017	
811.00	810.73	1,297.31	1,296.86	1.60	38.87	30.59	1,557.33	10,717.56	10,827.90	10,787.43	40.47	267.534	
903.00	902.19	1,399.90	1,399.43	1.92	41.95	42.68	1,556.62	10,717.56	10,820.05	10,776.18	43.87	246.656	
994.00	992.38	1,500.94	1,500.43	2.24	44.97	45.01	1,555.21	10,717.56	10,811.09	10,763.88	47.21	228.976	
1,084.00	1,081.50	1,563.21	1,562.50	2.56	46.84	49.51	1,555.23	10,717.56	10,802.50	10,753.10	49.40	218.664	
1,175.00	1,171.48	1,653.20	1,652.48	2.91	49.54	53.42	1,555.23	10,717.56	10,794.02	10,741.58	52.43	205.870	
1,268.00	1,263.52	1,745.23	1,744.52	3.26	52.30	55.01	1,555.23	10,717.56	10,786.16	10,730.63	55.53	194.233	
1,363.00	1,357.62	1,849.81	1,849.04	3.63	55.43	58.04	1,557.06	10,717.56	10,779.18	10,720.16	59.02	182.640	
1,457.00	1,450.74	1,953.67	1,952.87	3.99	58.54	60.82	1,555.96	10,717.56	10,772.47	10,709.99	62.48	172.405	
1,552.00	1,544.82	2,026.84	2,025.82	4.36	60.73	61.68	1,555.23	10,717.56	10,765.94	10,700.91	65.04	165.539	
1,646.00	1,637.88	2,119.89	2,118.88	4.72	63.52	62.24	1,555.23	10,717.56	10,759.64	10,691.46	68.18	157.806	
1,741.00	1,731.94	2,213.95	2,212.94	5.09	66.34	62.75	1,555.23	10,717.56	10,753.44	10,682.08	71.36	150.684	
1,835.00	1,825.07	2,313.48	2,312.42	5.46	69.32	62.87	1,557.26	10,717.56	10,747.87	10,673.17	74.71	143.870	
1,929.00	1,918.39	2,417.10	2,416.01	5.82	72.43	61.74	1,556.43	10,717.56	10,742.48	10,664.32	78.17	137.433	
2,024.00	2,012.84	2,521.86	2,520.73	6.18	75.57	63.18	1,554.82	10,717.56	10,737.54	10,655.88	81.66	131.492	
2,118.00	2,106.19	2,588.51	2,587.19	6.53	77.56	63.46	1,555.23	10,717.56	10,732.61	10,648.59	84.01	127.750	
2,213.00	2,200.37	2,682.69	2,681.37	6.90	80.39	62.22	1,555.23	10,717.56	10,726.88	10,639.68	87.20	123.017	
2,307.00	2,293.61	2,778.72	2,777.36	7.27	83.26	64.24	1,557.38	10,717.56	10,721.74	10,631.30	90.43	118.558	
2,402.00	2,387.91	2,883.02	2,881.64	7.63	86.39	68.16	1,556.79	10,717.56	10,717.01	10,623.09	93.92	114.107	
2,496.00	2,481.29	2,986.16	2,984.75	7.99	89.48	69.41	1,555.46	10,717.56	10,712.92	10,615.55	97.37	110.026	
2,591.00	2,575.67	3,058.29	3,056.67	8.35	91.64	68.00	1,555.23	10,717.56	10,708.90	10,609.01	99.89	107.207	
2,686.00	2,670.05	3,152.68	3,151.05	8.71	94.47	68.46	1,555.23	10,717.56	10,704.87	10,601.79	103.08	103.852	
2,780.00	2,763.49	3,246.11	3,244.49	9.07	97.27	66.51	1,555.23	10,717.56	10,700.89	10,594.66	106.23	100.731	
2,875.00	2,857.94	3,349.80	3,348.12	9.43	100.38	65.13	1,557.06	10,717.56	10,696.94	10,587.24	109.70	97.514	
2,970.00	2,952.51	3,453.90	3,452.19	9.79	103.49	68.74	1,555.95	10,717.56	10,693.26	10,580.09	113.17	94.489	
3,064.00	3,046.19	3,529.12	3,527.19	10.13	105.75	75.95	1,555.23	10,717.56	10,690.78	10,575.01	115.77	92.346	
3,159.00	3,140.98	3,623.91	3,621.98	10.47	108.59	77.99	1,555.23	10,717.56	10,689.32	10,570.37	118.95	89.861	
3,253.00	3,234.84	3,717.77	3,715.84	10.81	111.40	70.29	1,555.23	10,717.56	10,687.98	10,565.88	122.10	87.533	
3,348.00	3,329.74	3,818.90	3,816.92	11.14	114.43	62.65	1,557.24	10,717.56	10,686.51	10,561.04	125.47	85.173	
3,397.00	3,378.70	3,872.70	3,870.71	11.32	116.04	61.78	1,556.88	10,717.56	10,685.51	10,558.26	127.25	83.970	
3,488.00	3,469.63	3,972.61	3,970.59	11.64	119.04	59.25	1,555.67	10,717.56	10,683.67	10,553.10	130.57	81.825	
3,583.00	3,564.49	4,047.72	4,045.49	11.98	121.29	67.66	1,555.23	10,717.56	10,681.42	10,548.26	133.16	80.215	
3,677.00	3,658.13	4,141.36	4,139.13	12.33	124.09	69.50	1,555.23	10,717.56	10,678.44	10,542.13	136.31	78.337	
3,772.00	3,752.42	4,235.66	4,233.42	12.69	126.92	74.10	1,555.23	10,717.56	10,674.90	10,535.39	139.50	76.521	
3,867.00	3,846.42	4,337.28	4,334.99	13.06	129.96	75.75	1,557.14	10,717.56	10,671.51	10,528.59	142.92	74.669	
3,961.00	3,939.30	4,438.85	4,436.54	13.44	133.01	75.60	1,556.16	10,717.56	10,667.78	10,521.45	146.33	72.901	
4,056.00	4,032.83	4,516.36	4,513.83	13.82	135.33	72.40	1,555.23	10,717.56	10,662.96	10,513.93	149.04	71.545	
4,151.00	4,126.01	4,609.55	4,607.01	14.21	138.12	73.36	1,555.23	10,717.56	10,657.42	10,505.20	152.22	70.014	
4,246.00	4,219.10	4,702.64	4,700.10	14.61	140.91	66.14	1,555.23	10,717.56	10,650.75	10,495.35	155.40	68.538	
4,340.00	4,310.92	4,798.39	4,795.81	15.01	143.78	57.32	1,557.32	10,717.56	10,641.18	10,482.53	158.66	67.070	
4,435.00	4,403.54	4,899.01	4,896.40	15.41	146.80	56.81	1,556.63	10,717.56	10,629.44	10,467.37	162.07	65.587	
4,498.00	4,465.21	4,965.87	4,963.25	15.68	148.80	58.85	1,555.78	10,717.56	10,622.38	10,458.05	164.33	64.642	
4,561.00	4,526.82	5,010.66	5,007.82	15.95	150.14	64.10	1,555.23	10,717.56	10,615.96	10,450.03	165.93	63.979	
4,624.00	4,588.23	5,072.07	5,069.23	16.22	151.98	66.00	1,555.23	10,717.56	10,609.90	10,441.86	168.03	63.141	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
4,687.00	4,649.71	5,133.55	5,130.71	16.49	153.82	66.53	1,555.23	10,717.56	10,604.25	10,434.11	170.14	62.326	
4,749.00	4,710.40	5,194.25	5,191.40	16.75	155.64	67.82	1,555.23	10,717.56	10,599.24	10,427.03	172.22	61.545	
4,812.00	4,772.28	5,256.63	5,253.75	17.01	157.51	68.61	1,557.40	10,717.56	10,595.01	10,420.66	174.35	60.770	
4,875.00	4,834.34	5,323.64	5,320.75	17.27	159.52	68.19	1,557.22	10,717.56	10,590.93	10,414.32	176.61	59.968	
4,938.00	4,896.43	5,390.61	5,387.70	17.53	161.53	68.07	1,556.71	10,717.56	10,586.88	10,408.01	178.87	59.187	
5,001.00	4,958.46	5,457.41	5,454.48	17.79	163.53	64.97	1,555.90	10,717.56	10,582.34	10,401.21	181.13	58.425	
5,064.00	5,020.29	5,504.43	5,501.29	18.05	164.94	60.86	1,555.23	10,717.56	10,576.65	10,393.85	182.80	57.860	
5,126.00	5,080.98	5,565.13	5,561.98	18.32	166.76	56.78	1,555.23	10,717.56	10,569.99	10,385.12	184.87	57.174	
5,189.00	5,142.74	5,626.89	5,623.74	18.58	168.61	58.39	1,555.23	10,717.56	10,563.22	10,376.24	186.98	56.493	
5,252.00	5,204.62	5,688.77	5,685.62	18.85	170.46	58.44	1,555.23	10,717.56	10,556.95	10,367.85	189.09	55.829	
5,315.00	5,266.61	5,750.83	5,747.64	19.11	172.32	58.28	1,557.41	10,717.56	10,551.21	10,360.00	191.21	55.182	
5,378.00	5,328.73	5,817.49	5,814.29	19.37	174.32	58.76	1,557.25	10,717.56	10,545.64	10,352.19	193.46	54.512	
5,441.00	5,390.87	5,884.09	5,880.88	19.62	176.31	58.34	1,556.78	10,717.56	10,540.14	10,344.43	195.70	53.858	
5,503.00	5,452.07	5,949.62	5,946.39	19.87	178.28	58.69	1,556.01	10,717.56	10,534.85	10,336.94	197.91	53.230	
5,566.00	5,514.32	6,016.19	6,012.93	20.13	180.27	58.40	1,554.93	10,717.56	10,529.64	10,329.48	200.15	52.608	
5,629.00	5,576.59	6,061.05	6,057.59	20.38	181.62	60.85	1,555.23	10,717.56	10,524.78	10,323.04	201.75	52.168	
5,692.00	5,638.95	6,123.40	6,119.95	20.63	183.48	58.59	1,555.23	10,717.56	10,520.23	10,316.36	203.86	51.604	
5,747.00	5,693.45	6,177.90	6,174.45	20.85	185.12	60.83	1,555.23	10,717.56	10,516.45	10,310.74	205.71	51.123	
5,810.00	5,755.90	6,240.35	6,236.90	21.09	186.99	60.14	1,555.23	10,717.56	10,512.34	10,304.51	207.82	50.583	
5,874.00	5,819.40	6,300.00	6,296.37	21.34	188.78	61.42	1,555.23	10,717.56	10,508.43	10,298.57	209.86	50.074	
5,936.00	5,880.95	6,300.00	6,296.37	21.58	188.78	61.01	1,555.23	10,717.56	10,505.00	10,294.91	210.09	50.001	
5,999.00	5,943.45	6,300.00	6,296.37	21.82	188.78	59.55	1,555.23	10,717.56	10,501.66	10,291.33	210.33	49.929	
6,062.00	6,005.96	6,300.00	6,296.37	22.07	188.78	62.03	1,555.23	10,717.56	10,498.75	10,288.19	210.56	49.861	
6,125.00	6,068.49	6,300.00	6,296.37	22.31	188.78	59.75	1,555.23	10,717.56	10,496.33	10,285.55	210.78	49.797	
6,188.00	6,131.08	6,300.00	6,296.37	22.55	188.78	61.55	1,555.23	10,717.56	10,494.51	10,283.51	210.99	49.739	
6,255.00	6,197.73	6,300.00	6,296.37	22.81	188.78	60.50	1,555.23	10,717.56	10,493.42	10,282.22	211.20	49.684	
6,293.00	6,235.55	6,300.00	6,296.37	22.89	188.78	60.50	1,555.23	10,717.56	10,493.08	10,281.82	211.26	49.670	
6,300.00	6,242.52	6,300.00	6,296.37	22.89	188.78	60.50	1,555.23	10,717.56	10,493.04	10,281.78	211.26	49.670	
6,367.55	6,309.76	6,300.00	6,296.37	22.92	188.78	60.50	1,555.23	10,717.56	10,492.82	10,281.58	211.23	49.674	
6,393.00	6,335.09	6,300.00	6,296.37	22.94	188.78	60.50	1,555.23	10,717.56	10,492.85	10,281.63	211.22	49.677	
6,400.00	6,342.06	6,300.00	6,296.37	22.94	188.78	54.61	1,555.23	10,717.56	10,492.83	10,281.61	211.22	49.677	
6,450.00	6,391.66	6,300.00	6,296.37	22.97	188.78	27.50	1,555.23	10,717.56	10,490.59	10,279.39	211.19	49.673	
6,500.00	6,440.77	6,300.00	6,296.37	23.02	188.78	15.67	1,555.23	10,717.56	10,484.66	10,273.50	211.17	49.651	
6,550.00	6,489.07	6,300.00	6,296.37	23.07	188.78	9.53	1,555.23	10,717.56	10,475.09	10,263.95	211.13	49.613	
6,600.00	6,536.26	6,300.00	6,296.37	23.13	188.78	5.79	1,555.23	10,717.56	10,461.92	10,250.82	211.10	49.559	
6,650.00	6,582.05	6,300.00	6,296.37	23.21	188.78	3.24	1,555.23	10,717.56	10,445.21	10,234.15	211.06	49.489	
6,700.00	6,626.13	6,300.00	6,296.37	23.29	188.78	1.32	1,555.23	10,717.56	10,425.07	10,214.05	211.02	49.403	
6,750.00	6,668.24	6,300.00	6,296.37	23.39	188.78	-0.24	1,555.23	10,717.56	10,401.59	10,190.61	210.98	49.302	
6,800.00	6,708.12	6,300.00	6,296.37	23.51	188.78	-1.60	1,555.23	10,717.56	10,374.90	10,163.96	210.94	49.185	
6,850.00	6,745.50	6,300.00	6,296.37	23.64	188.78	-2.88	1,555.23	10,717.56	10,345.15	10,134.25	210.89	49.054	
6,900.00	6,780.15	6,300.00	6,296.37	23.79	188.78	-4.14	1,555.23	10,717.56	10,312.49	10,101.64	210.85	48.910	
6,950.00	6,811.86	6,300.00	6,296.37	23.95	188.78	-5.47	1,555.23	10,717.56	10,277.11	10,066.31	210.80	48.752	
7,000.00	6,840.42	6,300.00	6,296.37	24.14	188.78	-6.96	1,555.23	10,717.56	10,239.21	10,028.45	210.76	48.582	
7,050.00	6,865.66	6,300.00	6,296.37	24.35	188.78	-8.70	1,555.23	10,717.56	10,198.99	9,988.27	210.72	48.401	
7,100.00	6,887.42	6,300.00	6,296.37	24.57	188.78	-10.85	1,555.23	10,717.56	10,156.68	9,946.00	210.68	48.210	
7,150.00	6,905.55	6,300.00	6,296.37	24.82	188.78	-13.62	1,555.23	10,717.56	10,112.52	9,901.89	210.64	48.009	
7,200.00	6,919.95	6,300.00	6,296.37	25.10	188.78	-17.43	1,555.23	10,717.56	10,066.78	9,856.18	210.60	47.801	
7,250.00	6,930.52	6,300.00	6,296.37	25.39	188.78	-22.97	1,555.23	10,717.56	10,019.72	9,809.16	210.56	47.586	
7,300.00	6,937.20	6,300.00	6,296.37	25.70	188.78	-31.66	1,555.23	10,717.56	9,971.61	9,761.09	210.53	47.365	
7,350.00	6,939.94	6,300.00	6,296.37	26.04	188.78	-46.21	1,555.23	10,717.56	9,922.76	9,712.27	210.49	47.141	
7,359.60	6,940.02	6,300.00	6,296.37	26.10	188.78	-50.01	1,555.23	10,717.56	9,913.31	9,702.83	210.49	47.097	
7,400.00	6,940.03	6,300.00	6,296.37	26.39	188.78	-50.01	1,555.23	10,717.56	9,873.56	9,663.10	210.46	46.914	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
7,500.00	6,940.04	6,300.00	6,296.37	27.15	188.78	-50.01	1,555.23	10,717.56	9,775.16	9,564.77	210.39	46.462	
7,600.00	6,940.06	6,300.00	6,296.37	27.99	188.78	-50.01	1,555.23	10,717.56	9,676.80	9,466.47	210.32	46.009	
7,659.60	6,940.07	6,300.00	6,296.37	28.52	188.78	-50.01	1,555.23	10,717.56	9,618.19	9,407.90	210.29	45.739	
7,700.00	6,940.08	6,300.00	6,296.37	28.89	188.78	-47.04	1,555.23	10,717.56	9,578.43	9,368.17	210.26	45.555	
7,796.63	6,940.10	6,300.00	6,296.37	29.83	188.78	-38.38	1,555.23	10,717.56	9,483.08	9,272.87	210.21	45.112	
7,800.00	6,940.10	6,300.00	6,296.37	29.86	188.78	-38.38	1,555.23	10,717.56	9,479.75	9,269.53	210.21	45.096	
7,900.00	6,940.12	6,300.00	6,296.37	30.90	188.78	-38.38	1,555.23	10,717.56	9,380.91	9,170.74	210.17	44.635	
8,000.00	6,940.14	6,300.00	6,296.37	31.98	188.78	-38.38	1,555.23	10,717.56	9,282.11	9,071.98	210.13	44.173	
8,100.00	6,940.17	6,300.00	6,296.37	33.11	188.78	-38.38	1,555.23	10,717.56	9,183.33	8,973.24	210.09	43.712	
8,200.00	6,940.19	6,300.00	6,296.37	34.28	188.78	-38.38	1,555.23	10,717.56	9,084.57	8,874.52	210.05	43.250	
8,300.00	6,940.21	6,300.00	6,296.37	35.48	188.78	-38.38	1,555.23	10,717.56	8,985.85	8,775.83	210.01	42.787	
8,400.00	6,940.23	6,300.00	6,296.37	36.71	188.78	-38.38	1,555.23	10,717.56	8,887.15	8,677.17	209.98	42.324	
8,500.00	6,940.25	6,300.00	6,296.37	37.97	188.78	-38.38	1,555.23	10,717.56	8,788.48	8,578.54	209.94	41.861	
8,600.00	6,940.28	6,300.00	6,296.37	39.26	188.78	-38.38	1,555.23	10,717.56	8,689.84	8,479.93	209.91	41.398	
8,700.00	6,940.30	6,300.00	6,296.37	40.56	188.78	-38.38	1,555.23	10,717.56	8,591.24	8,381.35	209.88	40.934	
8,800.00	6,940.32	6,300.00	6,296.37	41.89	188.78	-38.38	1,555.23	10,717.56	8,492.66	8,282.81	209.85	40.470	
8,900.00	6,940.34	6,300.00	6,296.37	43.24	188.78	-38.38	1,555.23	10,717.56	8,394.12	8,184.30	209.83	40.005	
9,000.00	6,940.36	6,300.00	6,296.37	44.60	188.78	-38.38	1,555.23	10,717.56	8,295.62	8,085.81	209.80	39.540	
9,100.00	6,940.39	6,300.00	6,296.37	45.98	188.78	-38.38	1,555.23	10,717.56	8,197.15	7,987.37	209.78	39.075	
9,200.00	6,940.41	6,300.00	6,296.37	47.38	188.78	-38.38	1,555.23	10,717.56	8,098.72	7,888.96	209.76	38.610	
9,300.00	6,940.43	6,300.00	6,296.37	48.78	188.78	-38.38	1,555.23	10,717.56	8,000.32	7,790.58	209.74	38.144	
9,400.00	6,940.45	6,300.00	6,296.37	50.20	188.78	-38.38	1,555.23	10,717.56	7,901.97	7,692.24	209.73	37.677	
9,500.00	6,940.47	6,300.00	6,296.37	51.63	188.78	-38.38	1,555.23	10,717.56	7,803.66	7,593.94	209.72	37.211	
9,600.00	6,940.50	6,300.00	6,296.37	53.07	188.78	-38.38	1,555.23	10,717.56	7,705.39	7,495.69	209.71	36.744	
9,700.00	6,940.52	6,300.00	6,296.37	54.52	188.78	-38.38	1,555.23	10,717.56	7,607.17	7,397.47	209.70	36.276	
9,800.00	6,940.54	6,300.00	6,296.37	55.97	188.78	-38.38	1,555.23	10,717.56	7,509.00	7,299.30	209.70	35.808	
9,900.00	6,940.56	6,300.00	6,296.37	57.44	188.78	-38.38	1,555.23	10,717.56	7,410.87	7,201.17	209.70	35.340	
10,000.00	6,940.59	6,300.00	6,296.37	58.91	188.78	-38.38	1,555.23	10,717.56	7,312.80	7,103.09	209.71	34.872	
10,100.00	6,940.61	6,300.00	6,296.37	60.38	188.78	-38.38	1,555.23	10,717.56	7,214.77	7,005.06	209.71	34.403	
10,200.00	6,940.63	6,300.00	6,296.37	61.87	188.78	-38.38	1,555.23	10,717.56	7,116.81	6,907.08	209.73	33.934	
10,300.00	6,940.65	6,300.00	6,296.37	63.36	188.78	-38.38	1,555.23	10,717.56	7,018.90	6,809.15	209.75	33.464	
10,400.00	6,940.67	6,300.00	6,296.37	64.85	188.78	-38.38	1,555.23	10,717.56	6,921.05	6,711.28	209.77	32.994	
10,500.00	6,940.70	6,300.00	6,296.37	66.35	188.78	-38.38	1,555.23	10,717.56	6,823.26	6,613.46	209.79	32.524	
10,600.00	6,940.72	6,300.00	6,296.37	67.86	188.78	-38.38	1,555.23	10,717.56	6,725.53	6,515.71	209.83	32.053	
10,700.00	6,940.74	6,300.00	6,296.37	69.36	188.78	-38.38	1,555.23	10,717.56	6,627.88	6,418.01	209.87	31.582	
10,800.00	6,940.76	6,300.00	6,296.37	70.88	188.78	-38.38	1,555.23	10,717.56	6,530.30	6,320.39	209.91	31.110	
10,900.00	6,940.78	6,300.00	6,296.37	72.39	188.78	-38.38	1,555.23	10,717.56	6,432.79	6,222.83	209.96	30.638	
11,000.00	6,940.81	6,300.00	6,296.37	73.91	188.78	-38.38	1,555.23	10,717.56	6,335.35	6,125.34	210.02	30.166	
11,100.00	6,940.83	6,300.00	6,296.37	75.44	188.78	-38.38	1,555.23	10,717.56	6,238.00	6,027.92	210.08	29.693	
11,200.00	6,940.85	6,300.00	6,296.37	76.96	188.78	-38.38	1,555.23	10,717.56	6,140.74	5,930.58	210.15	29.220	
11,300.00	6,940.87	6,300.00	6,296.37	78.49	188.78	-38.38	1,555.23	10,717.56	6,043.56	5,833.33	210.23	28.747	
11,400.00	6,940.89	6,300.00	6,296.37	80.03	188.78	-38.38	1,555.23	10,717.56	5,946.48	5,736.16	210.32	28.273	
11,500.00	6,940.92	6,300.00	6,296.37	81.56	188.78	-38.38	1,555.23	10,717.56	5,849.49	5,639.07	210.42	27.799	
11,600.00	6,940.94	6,300.00	6,296.37	83.10	188.78	-38.38	1,555.23	10,717.56	5,752.61	5,542.09	210.53	27.325	
11,700.00	6,940.96	6,300.00	6,296.37	84.64	188.78	-38.38	1,555.23	10,717.56	5,655.84	5,445.20	210.64	26.850	
11,800.00	6,940.98	6,300.00	6,296.37	86.18	188.78	-38.38	1,555.23	10,717.56	5,559.18	5,348.41	210.77	26.376	
11,900.00	6,941.00	6,300.00	6,296.37	87.72	188.78	-38.38	1,555.23	10,717.56	5,462.64	5,251.73	210.91	25.901	
12,000.00	6,941.03	6,300.00	6,296.37	89.27	188.78	-38.38	1,555.23	10,717.56	5,366.23	5,155.17	211.06	25.425	
12,100.00	6,941.05	6,300.00	6,296.37	90.82	188.78	-38.38	1,555.23	10,717.56	5,269.95	5,058.73	211.22	24.950	
12,200.00	6,941.07	6,300.00	6,296.37	92.37	188.78	-38.38	1,555.23	10,717.56	5,173.82	4,962.42	211.40	24.474	
12,300.00	6,941.09	6,300.00	6,296.37	93.92	188.78	-38.38	1,555.23	10,717.56	5,077.83	4,866.24	211.59	23.998	
12,400.00	6,941.11	6,300.00	6,296.37	95.47	188.78	-38.38	1,555.23	10,717.56	4,982.00	4,770.21	211.80	23.523	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
12,500.00	6,941.14	6,300.00	6,296.37	97.03	188.78	-38.38	1,555.23	10,717.56	4,886.34	4,674.32	212.02	23.047	
12,600.00	6,941.16	6,300.00	6,296.37	98.58	188.78	-38.38	1,555.23	10,717.56	4,790.85	4,578.60	212.25	22.571	
12,700.00	6,941.18	6,300.00	6,296.37	100.14	188.78	-38.38	1,555.23	10,717.56	4,695.56	4,483.05	212.51	22.096	
12,800.00	6,941.20	6,300.00	6,296.37	101.70	188.78	-38.38	1,555.23	10,717.56	4,600.46	4,387.68	212.78	21.620	
12,900.00	6,941.23	6,300.00	6,296.37	103.26	188.78	-38.38	1,555.23	10,717.56	4,505.57	4,292.50	213.08	21.145	
13,000.00	6,941.25	6,300.00	6,296.37	104.82	188.78	-38.38	1,555.23	10,717.56	4,410.92	4,197.53	213.39	20.671	
13,100.00	6,941.27	6,300.00	6,296.37	106.38	188.78	-38.38	1,555.23	10,717.56	4,316.50	4,102.77	213.72	20.197	
13,200.00	6,941.29	6,300.00	6,296.37	107.95	188.78	-38.38	1,555.23	10,717.56	4,222.34	4,008.26	214.08	19.723	
13,300.00	6,941.31	6,300.00	6,296.37	109.51	188.78	-38.38	1,555.23	10,717.56	4,128.45	3,913.99	214.46	19.251	
13,400.00	6,941.34	6,300.00	6,296.37	111.08	188.78	-38.38	1,555.23	10,717.56	4,034.86	3,819.99	214.86	18.779	
13,500.00	6,941.36	6,300.00	6,296.37	112.64	188.78	-38.38	1,555.23	10,717.56	3,941.58	3,726.29	215.29	18.308	
13,600.00	6,941.38	6,300.00	6,296.37	114.21	188.78	-38.38	1,555.23	10,717.56	3,848.64	3,632.89	215.75	17.838	
13,700.00	6,941.40	6,300.00	6,296.37	115.78	188.78	-38.38	1,555.23	10,717.56	3,756.06	3,539.83	216.23	17.370	
13,800.00	6,941.42	6,300.00	6,296.37	117.35	188.78	-38.38	1,555.23	10,717.56	3,663.87	3,447.13	216.75	16.904	
13,900.00	6,941.45	6,300.00	6,296.37	118.92	188.78	-38.38	1,555.23	10,717.56	3,572.10	3,354.82	217.29	16.439	
14,000.00	6,941.47	6,300.00	6,296.37	120.49	188.78	-38.38	1,555.23	10,717.56	3,480.79	3,262.93	217.86	15.977	
14,100.00	6,941.49	6,300.00	6,296.37	122.06	188.78	-38.38	1,555.23	10,717.56	3,389.97	3,171.50	218.47	15.517	
14,200.00	6,941.51	6,300.00	6,296.37	123.64	188.78	-38.38	1,555.23	10,717.56	3,299.67	3,080.57	219.11	15.060	
14,300.00	6,941.53	6,300.00	6,296.37	125.21	188.78	-38.38	1,555.23	10,717.56	3,209.96	2,990.18	219.78	14.605	
14,400.00	6,941.56	6,300.00	6,296.37	126.78	188.78	-38.38	1,555.23	10,717.56	3,120.87	2,900.38	220.48	14.155	
14,500.00	6,941.58	6,300.00	6,296.37	128.36	188.78	-38.38	1,555.23	10,717.56	3,032.45	2,811.23	221.22	13.708	
14,600.00	6,941.60	6,300.00	6,296.37	129.93	188.78	-38.38	1,555.23	10,717.56	2,944.78	2,722.78	222.00	13.265	
14,700.00	6,941.62	6,300.00	6,296.37	131.51	188.78	-38.38	1,555.23	10,717.56	2,857.92	2,635.12	222.81	12.827	
14,800.00	6,941.64	6,300.00	6,296.37	133.08	188.78	-38.38	1,555.23	10,717.56	2,771.95	2,548.30	223.65	12.394	
14,900.00	6,941.67	6,300.00	6,296.37	134.66	188.78	-38.38	1,555.23	10,717.56	2,686.94	2,462.42	224.52	11.967	
15,000.00	6,941.69	6,300.00	6,296.37	136.24	188.78	-38.38	1,555.23	10,717.56	2,603.01	2,377.58	225.42	11.547	
15,100.00	6,941.71	6,300.00	6,296.37	137.82	188.78	-38.38	1,555.23	10,717.56	2,520.24	2,293.89	226.35	11.134	
15,200.00	6,941.73	6,300.00	6,296.37	139.40	188.78	-38.38	1,555.23	10,717.56	2,438.77	2,211.46	227.30	10.729	
15,300.00	6,941.75	6,300.00	6,296.37	140.97	188.78	-38.38	1,555.23	10,717.56	2,358.72	2,130.45	228.27	10.333	
15,400.00	6,941.78	6,300.00	6,296.37	142.55	188.78	-38.38	1,555.23	10,717.56	2,280.25	2,050.99	229.25	9.946	
15,500.00	6,941.80	6,300.00	6,296.37	144.13	188.78	-38.38	1,555.23	10,717.56	2,203.52	1,973.28	230.24	9.571	
15,600.00	6,941.82	6,300.00	6,296.37	145.72	188.78	-38.38	1,555.23	10,717.56	2,128.73	1,897.51	231.22	9.207	
15,700.00	6,941.84	6,300.00	6,296.37	147.30	188.78	-38.38	1,555.23	10,717.56	2,056.08	1,823.90	232.18	8.855	
15,800.00	6,941.87	6,300.00	6,296.37	148.88	188.78	-38.38	1,555.23	10,717.56	1,985.81	1,752.69	233.12	8.519	
15,900.00	6,941.89	6,300.00	6,296.37	150.46	188.78	-38.38	1,555.23	10,717.56	1,918.18	1,684.17	234.01	8.197	
16,000.00	6,941.91	6,300.00	6,296.37	152.04	188.78	-38.38	1,555.23	10,717.56	1,853.48	1,618.64	234.84	7.893	
16,100.00	6,941.93	6,300.00	6,296.37	153.62	188.78	-38.38	1,555.23	10,717.56	1,792.02	1,556.42	235.60	7.606	
16,200.00	6,941.95	6,300.00	6,296.37	155.21	188.78	-38.38	1,555.23	10,717.56	1,734.16	1,497.88	236.28	7.339	
16,300.00	6,941.98	6,300.00	6,296.37	156.79	188.78	-38.38	1,555.23	10,717.56	1,680.27	1,443.39	236.88	7.093	
16,400.00	6,942.00	6,300.00	6,296.37	158.37	188.78	-38.38	1,555.23	10,717.56	1,630.73	1,393.34	237.39	6.870	
16,500.00	6,942.02	6,300.00	6,296.37	159.96	188.78	-38.38	1,555.23	10,717.56	1,585.95	1,348.12	237.83	6.669	
16,600.00	6,942.04	6,300.00	6,296.37	161.54	188.78	-38.38	1,555.23	10,717.56	1,546.35	1,308.13	238.23	6.491	
16,700.00	6,942.06	6,300.00	6,296.37	163.13	188.78	-38.38	1,555.23	10,717.56	1,512.34	1,273.71	238.64	6.337	
16,800.00	6,942.09	6,300.00	6,296.37	164.71	188.78	-38.38	1,555.23	10,717.56	1,484.30	1,245.18	239.12	6.207	
16,900.00	6,942.11	6,300.00	6,296.37	166.30	188.78	-38.38	1,555.23	10,717.56	1,462.58	1,222.82	239.75	6.100	
17,000.00	6,942.13	6,300.00	6,296.37	167.88	188.78	-38.38	1,555.23	10,717.56	1,447.45	1,206.84	240.61	6.016	
17,100.00	6,942.15	6,300.00	6,296.37	169.47	188.78	-38.38	1,555.23	10,717.56	1,439.12	1,197.37	241.76	5.953	
17,170.13	6,942.17	6,300.00	6,296.37	170.58	188.78	-38.38	1,555.23	10,717.56	1,437.41	1,194.67	242.75	5.921	CC
17,200.00	6,942.17	6,300.00	6,296.37	171.05	188.78	-38.38	1,555.23	10,717.56	1,437.72	1,194.51	243.22	5.911	ES
17,300.00	6,942.20	6,300.00	6,296.37	172.64	188.78	-38.38	1,555.23	10,717.56	1,443.27	1,198.29	244.98	5.891	SF
17,400.00	6,942.22	6,300.00	6,296.37	174.23	188.78	-38.38	1,555.23	10,717.56	1,455.68	1,208.69	246.99	5.894	
17,500.00	6,942.24	6,300.00	6,296.37	175.81	188.78	-38.38	1,555.23	10,717.56	1,474.78	1,225.62	249.15	5.919	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
17,600.00	6,942.26	6,300.00	6,296.37	177.40	188.78	-38.38	1,555.23	10,717.56	1,500.31	1,248.94	251.37	5.969	
17,700.00	6,942.28	6,300.00	6,296.37	178.99	188.78	-38.38	1,555.23	10,717.56	1,531.97	1,278.43	253.53	6.042	
17,800.00	6,942.31	6,300.00	6,296.37	180.57	188.78	-38.38	1,555.23	10,717.56	1,569.36	1,313.81	255.55	6.141	
17,900.00	6,942.33	6,300.00	6,296.37	182.16	188.78	-38.38	1,555.23	10,717.56	1,612.10	1,354.73	257.37	6.264	
18,000.00	6,942.35	6,300.00	6,296.37	183.75	188.78	-38.38	1,555.23	10,717.56	1,659.77	1,400.83	258.94	6.410	
18,100.00	6,942.37	6,300.00	6,296.37	185.34	188.78	-38.38	1,555.23	10,717.56	1,711.96	1,451.72	260.24	6.578	
18,200.00	6,942.39	6,300.00	6,296.37	186.93	188.78	-38.38	1,555.23	10,717.56	1,768.27	1,506.99	261.28	6.768	
18,300.00	6,942.42	6,300.00	6,296.37	188.52	188.78	-38.38	1,555.23	10,717.56	1,828.32	1,566.25	262.07	6.976	
18,400.00	6,942.44	6,300.00	6,296.37	190.10	188.78	-38.38	1,555.23	10,717.56	1,891.75	1,629.12	262.63	7.203	
18,500.00	6,942.46	6,300.00	6,296.37	191.69	188.78	-38.38	1,555.23	10,717.56	1,958.24	1,695.26	262.98	7.446	
18,600.00	6,942.48	6,300.00	6,296.37	193.28	188.78	-38.38	1,555.23	10,717.56	2,027.48	1,764.33	263.15	7.705	
18,700.00	6,942.51	6,300.00	6,296.37	194.87	188.78	-38.38	1,555.23	10,717.56	2,099.20	1,836.04	263.16	7.977	
18,800.00	6,942.53	6,300.00	6,296.37	196.46	188.78	-38.38	1,555.23	10,717.56	2,173.16	1,910.11	263.05	8.261	
18,900.00	6,942.55	6,300.00	6,296.37	198.05	188.78	-38.38	1,555.23	10,717.56	2,249.13	1,986.30	262.83	8.557	
19,000.00	6,942.57	6,300.00	6,296.37	199.64	188.78	-38.38	1,555.23	10,717.56	2,326.92	2,064.40	262.52	8.864	
19,100.00	6,942.59	6,300.00	6,296.37	201.23	188.78	-38.38	1,555.23	10,717.56	2,406.35	2,144.21	262.15	9.179	
19,200.00	6,942.62	6,300.00	6,296.37	202.82	188.78	-38.38	1,555.23	10,717.56	2,487.27	2,225.56	261.71	9.504	
19,300.00	6,942.64	6,300.00	6,296.37	204.41	188.78	-38.38	1,555.23	10,717.56	2,569.53	2,308.29	261.24	9.836	
19,400.00	6,942.66	6,300.00	6,296.37	206.00	188.78	-38.38	1,555.23	10,717.56	2,653.01	2,392.28	260.73	10.175	
19,500.00	6,942.68	6,300.00	6,296.37	207.59	188.78	-38.38	1,555.23	10,717.56	2,737.60	2,477.39	260.21	10.521	
19,600.00	6,942.70	6,300.00	6,296.37	209.18	188.78	-38.38	1,555.23	10,717.56	2,823.19	2,563.53	259.66	10.872	
19,700.00	6,942.73	6,300.00	6,296.37	210.78	188.78	-38.38	1,555.23	10,717.56	2,909.71	2,650.59	259.11	11.229	
19,800.00	6,942.75	6,300.00	6,296.37	212.37	188.78	-38.38	1,555.23	10,717.56	2,997.06	2,738.50	258.56	11.591	
19,900.00	6,942.77	6,300.00	6,296.37	213.96	188.78	-38.38	1,555.23	10,717.56	3,085.18	2,827.17	258.00	11.958	
20,000.00	6,942.79	6,300.00	6,296.37	215.55	188.78	-38.38	1,555.23	10,717.56	3,174.00	2,916.55	257.45	12.328	
20,100.00	6,942.81	6,300.00	6,296.37	217.14	188.78	-38.38	1,555.23	10,717.56	3,263.48	3,006.57	256.91	12.703	
20,200.00	6,942.84	6,300.00	6,296.37	218.73	188.78	-38.38	1,555.23	10,717.56	3,353.54	3,097.17	256.37	13.081	
20,300.00	6,942.86	6,300.00	6,296.37	220.32	188.78	-38.38	1,555.23	10,717.56	3,444.16	3,188.31	255.85	13.462	
20,400.00	6,942.88	6,300.00	6,296.37	221.92	188.78	-38.38	1,555.23	10,717.56	3,535.28	3,279.94	255.33	13.846	
20,500.00	6,942.90	6,300.00	6,296.37	223.51	188.78	-38.38	1,555.23	10,717.56	3,626.87	3,372.04	254.83	14.232	
20,600.00	6,942.92	6,300.00	6,296.37	225.10	188.78	-38.38	1,555.23	10,717.56	3,718.89	3,464.55	254.34	14.622	
20,700.00	6,942.95	6,300.00	6,296.37	226.69	188.78	-38.38	1,555.23	10,717.56	3,811.31	3,557.45	253.87	15.013	
20,800.00	6,942.97	6,300.00	6,296.37	228.28	188.78	-38.38	1,555.23	10,717.56	3,904.11	3,650.70	253.41	15.406	
20,900.00	6,942.99	6,300.00	6,296.37	229.88	188.78	-38.38	1,555.23	10,717.56	3,997.26	3,744.30	252.96	15.802	
20,942.50	6,943.00	6,300.00	6,296.37	230.42	188.78	-38.38	1,555.23	10,717.56	4,036.94	3,782.77	254.17	15.883	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 107-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Rule Assigned:

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	-24.45	836.64	-380.33	920.38				
58.45	58.45	8.45	8.45	0.02	0.17	97.29	836.64	-380.33	919.07	918.89	0.18	5,196.637	
150.25	150.24	100.24	100.24	0.14	1.97	79.05	836.64	-380.33	919.04	916.99	2.05	448.449	
239.43	239.42	191.82	191.82	0.25	3.67	73.64	836.79	-380.33	918.94	915.13	3.81	241.408	
299.93	299.91	249.92	249.91	0.33	4.74	78.64	836.64	-380.33	918.61	913.69	4.92	186.664	
353.87	353.85	303.86	303.85	0.40	5.73	90.00	836.64	-380.33	918.54	912.56	5.98	153.587	
446.00	445.96	397.63	397.62	0.50	7.46	103.18	836.65	-380.33	918.77	910.95	7.82	117.522	
537.00	536.95	486.97	486.95	0.73	9.21	164.50	836.64	-380.33	919.43	909.59	9.84	93.418	
624.00	623.95	573.96	573.95	0.99	10.92	-112.56	836.64	-380.33	920.17	908.33	11.84	77.735	
718.00	717.90	668.14	668.12	1.29	12.77	-94.86	837.46	-380.33	921.38	907.38	14.00	65.797	
811.00	810.73	763.04	763.02	1.60	14.63	-75.83	837.32	-380.33	920.50	904.31	16.19	56.859	
903.00	902.19	856.51	856.48	1.92	16.47	-64.74	836.95	-380.33	916.58	898.23	18.36	49.935	
994.00	992.38	942.44	942.38	2.24	18.14	-63.10	836.64	-380.33	910.93	890.57	20.36	44.746	
1,084.00	1,081.50	1,031.55	1,031.50	2.56	19.84	-59.48	836.64	-380.33	904.81	882.42	22.39	40.413	
1,175.00	1,171.48	1,121.73	1,121.67	2.91	21.55	-56.33	837.30	-380.33	898.16	873.71	24.45	36.735	
1,268.00	1,263.52	1,216.15	1,216.09	3.26	23.35	-55.45	837.14	-380.33	890.49	863.89	26.60	33.478	
1,363.00	1,357.62	1,312.62	1,312.55	3.63	25.19	-53.17	836.68	-380.33	882.44	853.64	28.79	30.646	
1,457.00	1,450.74	1,400.83	1,400.74	3.99	26.77	-51.08	836.64	-380.33	874.46	843.73	30.73	28.455	
1,552.00	1,544.82	1,495.33	1,495.25	4.36	28.45	-50.96	836.97	-380.33	866.39	833.61	32.78	26.433	
1,646.00	1,637.88	1,590.35	1,590.26	4.72	30.14	-51.17	836.79	-380.33	857.83	823.00	34.83	24.629	
1,741.00	1,731.94	1,682.03	1,681.94	5.09	31.81	-51.38	836.64	-380.33	849.30	812.44	36.86	23.041	
1,835.00	1,825.07	1,775.16	1,775.07	5.46	33.53	-51.93	836.64	-380.33	841.38	802.44	38.94	21.608	
1,929.00	1,918.39	1,868.60	1,868.51	5.82	35.26	-53.60	836.87	-380.33	834.69	793.67	41.02	20.349	
2,024.00	2,012.84	1,963.71	1,963.62	6.18	37.01	-52.76	836.81	-380.33	828.49	785.36	43.13	19.209	
2,118.00	2,106.19	2,057.69	2,057.60	6.53	38.75	-53.27	836.66	-380.33	821.74	776.52	45.22	18.172	
2,213.00	2,200.37	2,150.48	2,150.37	6.90	40.60	-55.30	836.64	-380.33	814.40	766.96	47.44	17.167	
2,307.00	2,293.61	2,245.44	2,245.33	7.27	42.52	-53.92	836.98	-380.33	807.75	758.03	49.72	16.246	
2,402.00	2,387.91	2,338.05	2,337.91	7.63	44.40	-50.71	836.64	-380.33	800.41	748.45	51.96	15.403	
2,496.00	2,481.29	2,431.43	2,431.29	7.99	46.35	-50.03	836.64	-380.33	793.50	739.23	54.27	14.621	
2,591.00	2,575.67	2,526.86	2,526.71	8.35	48.35	-52.15	837.36	-380.33	787.26	730.64	56.62	13.903	
2,686.00	2,670.05	2,624.28	2,624.13	8.71	50.38	-52.32	836.96	-380.33	780.31	721.29	59.02	13.222	
2,780.00	2,763.49	2,713.68	2,713.49	9.07	52.19	-54.96	836.64	-380.33	773.90	712.72	61.19	12.648	
2,875.00	2,857.94	2,808.13	2,807.94	9.43	54.05	-56.96	836.64	-380.33	768.17	704.77	63.40	12.115	
2,970.00	2,952.51	2,902.70	2,902.51	9.79	55.91	-53.88	836.64	-380.33	763.08	697.46	65.62	11.629	
3,064.00	3,046.19	2,996.38	2,996.19	10.13	57.76	-47.10	836.64	-380.33	758.19	690.39	67.81	11.181	
3,159.00	3,140.98	3,092.64	3,092.43	10.47	59.65	-45.33	837.95	-380.33	754.77	684.73	70.04	10.776	
3,253.00	3,234.84	3,187.95	3,187.74	10.81	61.53	-53.35	837.59	-380.33	751.22	678.97	72.25	10.397	
3,348.00	3,329.74	3,284.31	3,284.09	11.14	63.42	-61.30	836.98	-380.33	748.41	673.93	74.49	10.048	
3,397.00	3,378.70	3,328.95	3,328.70	11.32	64.30	-62.33	836.64	-380.33	747.16	671.62	75.54	9.891	
3,488.00	3,469.63	3,419.88	3,419.63	11.64	66.09	-65.11	836.64	-380.33	745.61	667.96	77.65	9.602	
3,583.00	3,564.49	3,514.74	3,514.49	11.98	67.96	-57.16	836.64	-380.33	743.02	663.16	79.86	9.304	
3,677.00	3,658.13	3,608.38	3,608.13	12.33	69.80	-55.99	836.64	-380.33	738.49	656.43	82.06	9.000	
3,772.00	3,752.42	3,702.67	3,702.42	12.69	71.66	-52.38	836.64	-380.33	731.66	647.38	84.28	8.681	
3,867.00	3,846.42	3,796.67	3,796.42	13.06	73.51	-51.68	836.64	-380.33	723.13	636.63	86.50	8.360	
3,961.00	3,939.30	3,889.60	3,889.34	13.44	75.34	-52.82	837.84	-380.33	715.06	626.36	88.70	8.062	
4,056.00	4,032.83	3,983.50	3,983.24	13.82	77.19	-57.47	837.79	-380.33	705.46	614.53	90.93	7.758	
4,151.00	4,126.01	4,077.02	4,076.76	14.21	79.03	-57.93	837.68	-380.33	695.35	602.19	93.16	7.464	
4,246.00	4,219.10	4,170.43	4,170.17	14.61	80.87	-66.68	837.49	-380.33	686.29	590.90	95.40	7.194	
4,340.00	4,310.92	4,262.52	4,262.27	15.01	82.68	-77.38	837.25	-380.33	679.89	582.28	97.61	6.965	
4,435.00	4,403.54	4,355.41	4,355.15	15.41	84.51	-79.60	836.93	-380.33	675.36	575.50	99.86	6.763	
4,498.00	4,465.21	4,417.24	4,416.97	15.68	85.73	-78.54	836.68	-380.33	672.72	571.37	101.35	6.638	
4,561.00	4,526.82	4,477.17	4,476.82	15.95	86.91	-74.67	836.64	-380.33	669.54	566.74	102.80	6.513	

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 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 107-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Rule Assigned:

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
4,624.00	4,588.23	4,538.57	4,538.23	16.22	88.12	-73.99	836.64	-380.33	665.65	561.36	104.29	6.383	
4,687.00	4,649.71	4,600.06	4,599.71	16.49	89.33	-74.55	836.64	-380.33	661.84	556.06	105.78	6.257	
4,749.00	4,710.40	4,661.35	4,660.99	16.75	90.54	-74.18	837.46	-380.33	658.82	551.57	107.25	6.143	
4,812.00	4,772.28	4,724.19	4,723.83	17.01	91.77	-74.34	837.27	-380.33	655.46	546.71	108.75	6.027	
4,875.00	4,834.34	4,787.14	4,786.78	17.27	93.01	-75.68	836.91	-380.33	652.41	542.15	110.26	5.917	
4,938.00	4,896.43	4,846.82	4,846.43	17.53	94.17	-76.77	836.64	-380.33	649.70	538.02	111.68	5.818	
5,001.00	4,958.46	4,908.84	4,908.46	17.79	95.35	-80.91	836.64	-380.33	647.54	534.42	113.12	5.724	
5,064.00	5,020.29	4,970.67	4,970.29	18.05	96.53	-86.23	836.64	-380.33	646.19	531.62	114.57	5.640	
5,109.06	5,064.40	5,014.78	5,014.40	18.25	97.37	-90.00	836.64	-380.33	645.88	530.28	115.60	5.587 CC	
5,126.00	5,080.98	5,031.36	5,030.98	18.32	97.68	-91.42	836.64	-380.33	645.92	529.94	115.99	5.569	
5,189.00	5,142.74	5,093.12	5,092.74	18.58	98.86	-90.90	836.64	-380.33	646.19	528.75	117.43	5.503	
5,252.00	5,204.62	5,155.00	5,154.62	18.85	100.03	-91.90	836.64	-380.33	646.48	527.60	118.88	5.438	
5,315.00	5,266.61	5,217.00	5,216.61	19.11	101.21	-93.02	836.64	-380.33	646.97	526.65	120.32	5.377	
5,378.00	5,328.73	5,279.11	5,278.73	19.37	102.40	-93.47	836.64	-380.33	647.57	525.81	121.76	5.318	
5,441.00	5,390.87	5,341.25	5,340.87	19.62	103.58	-94.86	836.64	-380.33	648.34	525.14	123.20	5.262	
5,503.00	5,452.07	5,402.47	5,402.09	19.87	104.74	-95.28	837.88	-380.33	649.68	525.07	124.62	5.213	
5,566.00	5,514.32	5,464.83	5,464.44	20.13	105.93	-96.47	837.86	-380.33	650.68	524.63	126.05	5.162	
5,629.00	5,576.59	5,527.20	5,526.81	20.38	107.12	-94.88	837.82	-380.33	651.62	524.13	127.49	5.111	
5,692.00	5,638.95	5,589.65	5,589.26	20.63	108.30	-97.93	837.74	-380.33	652.60	523.67	128.93	5.062	
5,747.00	5,693.45	5,644.22	5,643.83	20.85	109.34	-96.36	837.64	-380.33	653.51	523.32	130.18	5.020	
5,810.00	5,755.90	5,706.76	5,706.37	21.09	110.53	-97.81	837.51	-380.33	654.50	522.88	131.62	4.973	
5,874.00	5,819.40	5,770.34	5,769.95	21.34	111.74	-97.24	837.34	-380.33	655.50	522.43	133.07	4.926	
5,936.00	5,880.95	5,831.95	5,831.56	21.58	112.91	-98.33	837.15	-380.33	656.47	521.99	134.48	4.882	
5,999.00	5,943.45	5,894.52	5,894.13	21.82	114.10	-100.47	836.92	-380.33	657.71	521.80	135.91	4.839	
6,062.00	6,005.96	5,957.08	5,956.69	22.07	115.29	-98.69	836.67	-380.33	658.96	521.62	137.34	4.798	
6,125.00	6,068.49	6,018.94	6,018.49	22.31	116.51	-101.61	836.64	-380.33	660.32	521.52	138.79	4.758	
6,188.00	6,131.08	6,081.53	6,081.08	22.55	117.74	-100.42	836.64	-380.33	661.70	521.44	140.26	4.718	
6,255.00	6,197.73	6,148.18	6,147.73	22.81	119.05	-102.05	836.64	-380.33	663.04	521.21	141.82	4.675	
6,293.00	6,235.55	6,186.00	6,185.55	22.89	119.80	-102.36	836.64	-380.33	663.81	521.16	142.64	4.654 ES	
6,300.00	6,242.52	6,192.97	6,192.52	22.89	119.93	-102.41	836.64	-380.33	663.95	521.17	142.78	4.650	
6,393.00	6,335.09	6,285.54	6,285.09	22.94	121.76	-103.16	836.64	-380.33	665.93	521.28	144.65	4.604	
6,400.00	6,342.06	6,292.51	6,292.06	22.94	121.89	-109.10	836.64	-380.33	666.12	521.34	144.79	4.601	
6,450.00	6,391.66	6,342.11	6,341.66	22.97	122.87	-136.56	836.64	-380.33	669.75	523.96	145.79	4.594 SF	
6,500.00	6,440.77	6,391.22	6,390.77	23.02	123.84	-148.69	836.64	-380.33	677.32	530.53	146.79	4.614	
6,550.00	6,489.07	6,439.52	6,439.07	23.07	124.79	-155.06	836.64	-380.33	688.80	541.03	147.77	4.661	
6,600.00	6,536.26	6,486.71	6,486.26	23.13	125.72	-158.96	836.64	-380.33	704.12	555.39	148.74	4.734	
6,650.00	6,582.05	6,532.50	6,532.05	23.21	126.62	-161.59	836.64	-380.33	723.20	573.52	149.68	4.832	
6,700.00	6,626.13	6,576.58	6,576.13	23.29	127.49	-163.49	836.64	-380.33	745.91	595.32	150.59	4.953	
6,750.00	6,668.24	6,618.69	6,618.24	23.39	128.32	-164.91	836.64	-380.33	772.11	620.64	151.47	5.098	
6,800.00	6,708.12	6,658.57	6,658.12	23.51	129.10	-166.00	836.64	-380.33	801.64	649.34	152.30	5.264	
6,850.00	6,745.50	6,695.95	6,695.50	23.64	129.84	-166.83	836.64	-380.33	834.30	681.21	153.08	5.450	
6,900.00	6,780.15	6,730.60	6,730.15	23.79	130.52	-167.44	836.64	-380.33	869.88	716.07	153.81	5.655	
6,950.00	6,811.86	6,762.31	6,761.86	23.95	131.14	-167.85	836.64	-380.33	908.16	753.67	154.48	5.879	
7,000.00	6,840.42	6,790.88	6,790.42	24.14	131.71	-168.07	836.64	-380.33	948.88	793.79	155.09	6.118	
7,050.00	6,865.66	6,816.11	6,815.66	24.35	132.20	-168.06	836.64	-380.33	991.78	836.15	155.63	6.373	
7,100.00	6,887.42	6,837.87	6,837.42	24.57	132.63	-167.77	836.64	-380.33	1,036.59	880.50	156.10	6.641	
7,150.00	6,905.55	6,856.00	6,855.55	24.82	132.99	-167.07	836.64	-380.33	1,083.02	926.54	156.49	6.921	
7,200.00	6,919.95	6,870.40	6,869.95	25.10	133.27	-165.63	836.64	-380.33	1,130.78	973.98	156.80	7.212	
7,250.00	6,930.52	6,880.97	6,880.52	25.39	133.48	-162.60	836.64	-380.33	1,179.55	1,022.51	157.03	7.511	
7,300.00	6,937.20	6,887.65	6,887.20	25.70	133.61	-154.56	836.64	-380.33	1,229.03	1,071.84	157.19	7.819	
7,350.00	6,939.94	6,890.40	6,889.94	26.04	133.67	-113.03	836.64	-380.33	1,278.90	1,121.65	157.25	8.133	
7,359.60	6,940.02	6,890.47	6,890.02	26.10	133.67	-90.29	836.64	-380.33	1,288.50	1,131.24	157.26	8.194	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 107-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Rule Assigned:

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
7,400.00	6,940.03	6,890.48	6,890.03	26.39	133.67	-90.30	836.64	-380.33	1,328.87	1,171.60	157.26	8.450	
7,500.00	6,940.04	6,890.49	6,890.04	27.15	133.67	-90.32	836.64	-380.33	1,428.82	1,271.53	157.28	9.084	
7,600.00	6,940.06	6,890.51	6,890.06	27.99	133.67	-90.34	836.64	-380.33	1,528.77	1,371.47	157.30	9.719	
7,659.60	6,940.07	6,890.52	6,890.07	28.52	133.67	-90.36	836.64	-380.33	1,588.35	1,431.04	157.31	10.097	
7,700.00	6,940.08	6,890.53	6,890.08	28.89	133.67	-90.26	836.64	-380.33	1,628.72	1,471.40	157.32	10.353	
7,796.63	6,940.10	6,890.55	6,890.10	29.83	133.67	-90.18	836.64	-380.33	1,725.19	1,567.85	157.34	10.965	
7,800.00	6,940.10	6,890.55	6,890.10	29.86	133.67	-90.18	836.64	-380.33	1,728.56	1,571.21	157.34	10.986	
7,900.00	6,940.12	6,890.57	6,890.12	30.90	133.67	-90.19	836.64	-380.33	1,828.31	1,670.95	157.37	11.618	
8,000.00	6,940.14	6,890.59	6,890.14	31.98	133.67	-90.20	836.64	-380.33	1,928.10	1,770.70	157.39	12.250	
8,100.00	6,940.17	6,890.62	6,890.17	33.11	133.67	-90.21	836.64	-380.33	2,027.90	1,870.48	157.42	12.882	
8,200.00	6,940.19	6,890.64	6,890.19	34.28	133.67	-90.22	836.64	-380.33	2,127.72	1,970.28	157.45	13.514	
8,300.00	6,940.21	6,890.66	6,890.21	35.48	133.67	-90.23	836.64	-380.33	2,227.56	2,070.09	157.47	14.146	
8,400.00	6,940.23	6,890.68	6,890.23	36.71	133.67	-90.24	836.64	-380.33	2,327.41	2,169.91	157.50	14.777	
8,500.00	6,940.25	6,890.70	6,890.25	37.97	133.67	-90.25	836.64	-380.33	2,427.28	2,269.75	157.53	15.409	
8,600.00	6,940.28	6,890.73	6,890.28	39.26	133.67	-90.26	836.64	-380.33	2,527.15	2,369.60	157.56	16.040	
8,700.00	6,940.30	6,890.75	6,890.30	40.56	133.67	-90.27	836.64	-380.33	2,627.04	2,469.45	157.58	16.671	
8,800.00	6,940.32	6,890.77	6,890.32	41.89	133.67	-90.28	836.64	-380.33	2,726.93	2,569.32	157.61	17.301	
8,900.00	6,940.34	6,890.79	6,890.34	43.24	133.67	-90.29	836.64	-380.33	2,826.83	2,669.19	157.64	17.932	
9,000.00	6,940.36	6,890.82	6,890.36	44.60	133.67	-90.30	836.64	-380.33	2,926.74	2,769.07	157.67	18.562	
9,100.00	6,940.39	6,890.84	6,890.39	45.98	133.68	-90.31	836.64	-380.33	3,026.66	2,868.95	157.71	19.192	
9,200.00	6,940.41	6,890.86	6,890.41	47.38	133.68	-90.32	836.64	-380.33	3,126.57	2,968.84	157.74	19.821	
9,300.00	6,940.43	6,890.88	6,890.43	48.78	133.68	-90.33	836.64	-380.33	3,226.50	3,068.73	157.77	20.451	
9,400.00	6,940.45	6,890.90	6,890.45	50.20	133.68	-90.34	836.64	-380.33	3,326.43	3,168.62	157.80	21.080	
9,500.00	6,940.47	6,890.93	6,890.47	51.63	133.68	-90.35	836.64	-380.33	3,426.36	3,268.52	157.84	21.708	
9,600.00	6,940.50	6,890.95	6,890.50	53.07	133.68	-90.36	836.64	-380.33	3,526.30	3,368.42	157.87	22.336	
9,700.00	6,940.52	6,890.97	6,890.52	54.52	133.68	-90.37	836.64	-380.33	3,626.24	3,468.33	157.91	22.964	
9,800.00	6,940.54	6,890.99	6,890.54	55.97	133.68	-90.38	836.64	-380.33	3,726.18	3,568.24	157.94	23.592	
9,900.00	6,940.56	6,891.01	6,890.56	57.44	133.68	-90.39	836.64	-380.33	3,826.13	3,668.15	157.98	24.219	
10,000.00	6,940.59	6,891.04	6,890.59	58.91	133.68	-90.40	836.64	-380.33	3,926.08	3,768.06	158.02	24.845	
10,100.00	6,940.61	6,891.06	6,890.61	60.38	133.68	-90.41	836.64	-380.33	4,026.03	3,867.97	158.06	25.472	
10,200.00	6,940.63	6,891.08	6,890.63	61.87	133.68	-90.42	836.64	-380.33	4,125.98	3,967.88	158.10	26.098	
10,300.00	6,940.65	6,891.10	6,890.65	63.36	133.68	-90.43	836.64	-380.33	4,225.94	4,067.80	158.14	26.723	
10,400.00	6,940.67	6,891.12	6,890.67	64.85	133.68	-90.44	836.64	-380.33	4,325.90	4,167.72	158.18	27.348	
10,500.00	6,940.70	6,891.15	6,890.70	66.35	133.68	-90.45	836.64	-380.33	4,425.86	4,267.63	158.22	27.972	
10,600.00	6,940.72	6,891.17	6,890.72	67.86	133.68	-90.46	836.64	-380.33	4,525.82	4,367.55	158.27	28.596	
10,700.00	6,940.74	6,891.19	6,890.74	69.36	133.68	-90.47	836.64	-380.33	4,625.78	4,467.47	158.31	29.220	
10,800.00	6,940.76	6,891.21	6,890.76	70.88	133.68	-90.48	836.64	-380.33	4,725.75	4,567.39	158.35	29.843	
10,900.00	6,940.78	6,891.23	6,890.78	72.39	133.68	-90.49	836.64	-380.33	4,825.71	4,667.31	158.40	30.466	
11,000.00	6,940.81	6,891.26	6,890.81	73.91	133.68	-90.50	836.64	-380.33	4,925.68	4,767.24	158.45	31.088	
11,100.00	6,940.83	6,891.28	6,890.83	75.44	133.68	-90.51	836.64	-380.33	5,025.65	4,867.16	158.49	31.709	
11,200.00	6,940.85	6,891.30	6,890.85	76.96	133.68	-90.52	836.64	-380.33	5,125.62	4,967.08	158.54	32.330	
11,300.00	6,940.87	6,891.32	6,890.87	78.49	133.68	-90.53	836.64	-380.33	5,225.59	5,067.00	158.59	32.951	
11,400.00	6,940.89	6,891.34	6,890.89	80.03	133.69	-90.54	836.64	-380.33	5,325.56	5,166.93	158.64	33.570	
11,500.00	6,940.92	6,891.37	6,890.92	81.56	133.69	-90.55	836.64	-380.33	5,425.54	5,266.85	158.69	34.190	
11,600.00	6,940.94	6,891.39	6,890.94	83.10	133.69	-90.57	836.64	-380.33	5,525.51	5,366.77	158.74	34.809	
11,700.00	6,940.96	6,891.41	6,890.96	84.64	133.69	-90.58	836.64	-380.33	5,625.49	5,466.70	158.79	35.427	
11,800.00	6,940.98	6,891.43	6,890.96	86.18	133.69	-90.56	839.67	-380.33	5,725.54	5,566.69	158.86	36.042	
11,900.00	6,941.00	6,891.46	6,890.98	87.72	133.69	-90.57	839.67	-380.33	5,825.52	5,666.61	158.91	36.659	
12,000.00	6,941.03	6,891.48	6,891.01	89.27	133.69	-90.58	839.67	-380.33	5,925.50	5,766.53	158.97	37.275	
12,100.00	6,941.05	6,891.50	6,891.03	90.82	133.69	-90.59	839.67	-380.33	6,025.47	5,866.45	159.02	37.891	
12,200.00	6,941.07	6,891.52	6,891.05	92.37	133.69	-90.60	839.67	-380.33	6,125.45	5,966.38	159.08	38.506	
12,300.00	6,941.09	6,891.54	6,891.07	93.92	133.69	-90.61	839.67	-380.33	6,225.43	6,066.30	159.13	39.121	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 107-A027Ua_INC-ONLY

Rule Assigned:

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
12,400.00	6,941.11	6,891.57	6,891.10	95.47	133.69	-90.62	839.67	-380.33	6,325.41	6,166.22	159.19	39.734	
12,500.00	6,941.14	6,891.59	6,891.12	97.03	133.69	-90.63	839.67	-380.33	6,425.39	6,266.14	159.25	40.348	
12,600.00	6,941.16	6,891.61	6,891.14	98.58	133.69	-90.64	839.67	-380.33	6,525.37	6,366.06	159.31	40.960	
12,700.00	6,941.18	6,891.63	6,891.16	100.14	133.69	-90.65	839.67	-380.33	6,625.35	6,465.99	159.37	41.572	
12,800.00	6,941.20	6,891.65	6,891.18	101.70	133.69	-90.66	839.67	-380.33	6,725.34	6,565.91	159.43	42.184	
12,900.00	6,941.23	6,891.68	6,891.21	103.26	133.69	-90.67	839.67	-380.33	6,825.32	6,665.83	159.49	42.794	
13,000.00	6,941.25	6,891.70	6,891.23	104.82	133.69	-90.68	839.67	-380.33	6,925.30	6,765.75	159.55	43.404	
13,100.00	6,941.27	6,891.72	6,891.25	106.38	133.69	-90.69	839.67	-380.33	7,025.29	6,865.67	159.62	44.014	
13,200.00	6,941.29	6,891.74	6,891.27	107.95	133.69	-90.70	839.67	-380.33	7,125.27	6,965.59	159.68	44.622	
13,300.00	6,941.31	6,891.76	6,891.29	109.51	133.69	-90.71	839.67	-380.33	7,225.25	7,065.51	159.74	45.230	
13,400.00	6,941.34	6,891.79	6,891.32	111.08	133.69	-90.72	839.67	-380.33	7,325.24	7,165.43	159.81	45.838	
13,500.00	6,941.36	6,891.81	6,891.34	112.64	133.69	-90.73	839.67	-380.33	7,425.22	7,265.35	159.87	46.444	
13,600.00	6,941.38	6,891.83	6,891.36	114.21	133.69	-90.74	839.67	-380.33	7,525.21	7,365.27	159.94	47.050	
13,700.00	6,941.40	6,891.85	6,891.38	115.78	133.70	-90.75	839.67	-380.33	7,625.20	7,465.19	160.01	47.655	
13,800.00	6,941.42	6,891.88	6,891.40	117.35	133.70	-90.76	839.67	-380.33	7,725.18	7,565.11	160.08	48.259	
13,900.00	6,941.45	6,891.90	6,891.43	118.92	133.70	-90.77	839.67	-380.33	7,825.17	7,665.02	160.14	48.863	
14,000.00	6,941.47	6,891.92	6,891.45	120.49	133.70	-90.78	839.67	-380.33	7,925.16	7,764.94	160.21	49.466	
14,100.00	6,941.49	6,891.94	6,891.47	122.06	133.70	-90.79	839.67	-380.33	8,025.14	7,864.86	160.28	50.068	
14,200.00	6,941.51	6,891.96	6,891.49	123.64	133.70	-90.80	839.67	-380.33	8,125.13	7,964.78	160.35	50.670	
14,300.00	6,941.53	6,891.99	6,891.52	125.21	133.70	-90.81	839.67	-380.33	8,225.12	8,064.69	160.43	51.270	
14,400.00	6,941.56	6,892.01	6,891.54	126.78	133.70	-90.82	839.67	-380.33	8,325.11	8,164.61	160.50	51.870	
14,500.00	6,941.58	6,892.03	6,891.56	128.36	133.70	-90.83	839.67	-380.33	8,425.10	8,264.52	160.57	52.469	
14,600.00	6,941.60	6,892.05	6,891.58	129.93	133.70	-90.84	839.67	-380.33	8,525.08	8,364.44	160.64	53.068	
14,700.00	6,941.62	6,892.07	6,891.60	131.51	133.70	-90.85	839.67	-380.33	8,625.07	8,464.35	160.72	53.666	
14,800.00	6,941.64	6,892.10	6,891.63	133.08	133.70	-90.86	839.67	-380.33	8,725.06	8,564.27	160.79	54.262	
14,900.00	6,941.67	6,892.12	6,891.65	134.66	133.70	-90.87	839.67	-380.33	8,825.05	8,664.18	160.87	54.859	
15,000.00	6,941.69	6,892.14	6,891.67	136.24	133.70	-90.88	839.67	-380.33	8,925.04	8,764.10	160.95	55.454	
15,100.00	6,941.71	6,892.16	6,891.69	137.82	133.70	-90.89	839.67	-380.33	9,025.03	8,864.01	161.02	56.048	
15,200.00	6,941.73	6,892.18	6,891.71	139.40	133.70	-90.90	839.67	-380.33	9,125.02	8,963.92	161.10	56.642	
15,300.00	6,941.75	6,892.21	6,891.74	140.97	133.70	-90.91	839.67	-380.33	9,225.01	9,063.84	161.18	57.235	
15,400.00	6,941.78	6,892.23	6,891.76	142.55	133.70	-90.92	839.67	-380.33	9,325.00	9,163.75	161.26	57.827	
15,500.00	6,941.80	6,892.25	6,891.78	144.13	133.70	-90.93	839.67	-380.33	9,424.99	9,263.66	161.34	58.419	
15,600.00	6,941.82	6,892.27	6,891.80	145.72	133.70	-90.94	839.67	-380.33	9,524.99	9,363.57	161.42	59.009	
15,700.00	6,941.84	6,892.30	6,891.82	147.30	133.70	-90.95	839.67	-380.33	9,624.98	9,463.48	161.50	59.599	
15,800.00	6,941.87	6,892.32	6,891.85	148.88	133.70	-90.96	839.67	-380.33	9,724.97	9,563.39	161.58	60.188	
15,900.00	6,941.89	6,892.34	6,891.87	150.46	133.70	-90.97	839.67	-380.33	9,824.96	9,663.30	161.66	60.776	
16,000.00	6,941.91	6,892.36	6,891.89	152.04	133.71	-90.98	839.67	-380.33	9,924.95	9,763.21	161.74	61.363	
16,100.00	6,941.93	6,892.38	6,891.91	153.62	133.71	-90.99	839.67	-380.33	10,024.94	9,863.12	161.82	61.949	
16,200.00	6,941.95	6,892.41	6,891.93	155.21	133.71	-91.00	839.67	-380.33	10,124.94	9,963.03	161.91	62.535	
16,300.00	6,941.98	6,892.43	6,891.96	156.79	133.71	-91.01	839.67	-380.33	10,224.93	10,062.94	161.99	63.120	
16,400.00	6,942.00	6,892.45	6,891.98	158.37	133.71	-91.02	839.67	-380.33	10,324.92	10,162.84	162.08	63.704	
16,500.00	6,942.02	6,892.47	6,892.00	159.96	133.71	-91.03	839.67	-380.33	10,424.91	10,262.75	162.16	64.287	
16,600.00	6,942.04	6,892.49	6,892.02	161.54	133.71	-91.04	839.67	-380.33	10,524.91	10,362.66	162.25	64.869	
16,700.00	6,942.06	6,892.52	6,892.05	163.13	133.71	-91.05	839.67	-380.33	10,624.90	10,462.56	162.34	65.450	
16,800.00	6,942.09	6,892.54	6,892.07	164.71	133.71	-91.06	839.67	-380.33	10,724.89	10,562.47	162.42	66.031	
16,900.00	6,942.11	6,892.56	6,892.09	166.30	133.71	-91.07	839.67	-380.33	10,824.88	10,662.37	162.51	66.611	
17,000.00	6,942.13	6,892.58	6,892.11	167.88	133.71	-91.08	839.67	-380.33	10,924.88	10,762.28	162.60	67.189	
17,100.00	6,942.15	6,892.60	6,892.13	169.47	133.71	-91.09	839.67	-380.33	11,024.87	10,862.18	162.69	67.767	
17,200.00	6,942.17	6,892.63	6,892.16	171.05	133.71	-91.10	839.67	-380.33	11,124.86	10,962.09	162.78	68.345	
17,300.00	6,942.20	6,892.65	6,892.18	172.64	133.71	-91.11	839.67	-380.33	11,224.86	11,061.99	162.87	68.921	
17,400.00	6,942.22	6,892.67	6,892.20	174.23	133.71	-91.12	839.67	-380.33	11,324.85	11,161.90	162.96	69.496	
17,500.00	6,942.24	6,892.69	6,892.22	175.81	133.71	-91.13	839.67	-380.33	11,424.85	11,261.80	163.05	70.071	

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 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 107-A027Ua_INC-ONLY

Rule Assigned:

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
17,600.00	6,942.26	6,892.72	6,892.24	177.40	133.71	-91.14	839.67	-380.33	11,524.84	11,361.70	163.14	70.644	
17,700.00	6,942.28	6,892.74	6,892.27	178.99	133.71	-91.15	839.67	-380.33	11,624.83	11,461.60	163.23	71.217	
17,800.00	6,942.31	6,892.76	6,892.29	180.57	133.71	-91.16	839.67	-380.33	11,724.83	11,561.50	163.32	71.789	
17,900.00	6,942.33	6,892.78	6,892.31	182.16	133.71	-91.17	839.67	-380.33	11,824.82	11,661.41	163.42	72.360	
18,000.00	6,942.35	6,892.80	6,892.33	183.75	133.71	-91.18	839.67	-380.33	11,924.82	11,761.31	163.51	72.930	
18,100.00	6,942.37	6,892.83	6,892.35	185.34	133.71	-91.19	839.67	-380.33	12,024.81	11,861.21	163.60	73.500	
18,200.00	6,942.39	6,892.85	6,892.38	186.93	133.71	-91.20	839.67	-380.33	12,124.81	11,961.11	163.70	74.068	
18,300.00	6,942.42	6,892.87	6,892.40	188.52	133.72	-91.21	839.67	-380.33	12,224.80	12,061.01	163.79	74.636	
18,400.00	6,942.44	6,892.89	6,892.42	190.10	133.72	-91.22	839.67	-380.33	12,324.79	12,160.91	163.89	75.202	
18,500.00	6,942.46	6,892.91	6,892.44	191.69	133.72	-91.23	839.67	-380.33	12,424.79	12,260.81	163.98	75.768	
18,600.00	6,942.48	6,892.94	6,892.47	193.28	133.72	-91.24	839.67	-380.33	12,524.78	12,360.70	164.08	76.333	
18,700.00	6,942.51	6,892.96	6,892.49	194.87	133.72	-91.25	839.67	-380.33	12,624.78	12,460.60	164.18	76.897	
18,800.00	6,942.53	6,892.98	6,892.51	196.46	133.72	-91.26	839.67	-380.33	12,724.77	12,560.50	164.28	77.460	
18,900.00	6,942.55	6,893.00	6,892.53	198.05	133.72	-91.27	839.67	-380.33	12,824.77	12,660.40	164.37	78.022	
19,000.00	6,942.57	6,893.02	6,892.55	199.64	133.72	-91.28	839.67	-380.33	12,924.76	12,760.29	164.47	78.584	
19,100.00	6,942.59	6,893.05	6,892.58	201.23	133.72	-91.29	839.67	-380.33	13,024.76	12,860.19	164.57	79.144	
19,200.00	6,942.62	6,893.07	6,892.60	202.82	133.72	-91.30	839.67	-380.33	13,124.76	12,960.09	164.67	79.704	
19,300.00	6,942.64	6,893.09	6,892.62	204.41	133.72	-91.31	839.67	-380.33	13,224.75	13,059.98	164.77	80.262	
19,400.00	6,942.66	6,893.11	6,892.64	206.00	133.72	-91.32	839.67	-380.33	13,324.75	13,159.88	164.87	80.820	
19,500.00	6,942.68	6,893.14	6,892.66	207.59	133.72	-91.33	839.67	-380.33	13,424.74	13,259.77	164.97	81.377	
19,600.00	6,942.70	6,893.16	6,892.69	209.18	133.72	-91.34	839.67	-380.33	13,524.74	13,359.67	165.07	81.933	
19,700.00	6,942.73	6,893.18	6,892.71	210.78	133.72	-91.35	839.67	-380.33	13,624.73	13,459.56	165.17	82.488	
19,800.00	6,942.75	6,893.20	6,892.73	212.37	133.72	-91.36	839.67	-380.33	13,724.73	13,559.45	165.27	83.042	
19,900.00	6,942.77	6,893.22	6,892.75	213.96	133.72	-91.37	839.67	-380.33	13,824.72	13,659.35	165.38	83.596	
20,000.00	6,942.79	6,893.25	6,892.77	215.55	133.72	-91.38	839.67	-380.33	13,924.72	13,759.24	165.48	84.148	
20,100.00	6,942.81	6,893.27	6,892.80	217.14	133.72	-91.39	839.67	-380.33	14,024.72	13,859.13	165.58	84.700	
20,200.00	6,942.84	6,893.29	6,892.82	218.73	133.72	-91.40	839.67	-380.33	14,124.71	13,959.03	165.69	85.250	
20,300.00	6,942.86	6,893.31	6,892.84	220.32	133.72	-91.41	839.67	-380.33	14,224.71	14,058.92	165.79	85.800	
20,400.00	6,942.88	6,893.33	6,892.86	221.92	133.72	-91.42	839.67	-380.33	14,324.70	14,158.81	165.89	86.349	
20,500.00	6,942.90	6,893.36	6,892.89	223.51	133.72	-91.43	839.67	-380.33	14,424.70	14,258.70	166.00	86.897	
20,600.00	6,942.92	6,893.38	6,892.91	225.10	133.73	-91.44	839.67	-380.33	14,524.70	14,358.59	166.10	87.444	
20,700.00	6,942.95	6,893.40	6,892.93	226.69	133.73	-91.45	839.67	-380.33	14,624.69	14,458.48	166.21	87.990	
20,800.00	6,942.97	6,893.42	6,892.95	228.28	133.73	-91.46	839.67	-380.33	14,724.69	14,558.37	166.31	88.535	
20,900.00	6,942.99	6,893.44	6,892.97	229.88	133.73	-91.47	839.67	-380.33	14,824.69	14,658.26	166.42	89.079	
20,942.50	6,943.00	6,893.45	6,892.98	230.42	133.73	-91.48	839.67	-380.33	14,867.18	14,695.87	171.31	86.786	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	295.00	295.00	0.00	8.84	100.49	-1,403.39	7,581.08	7,709.88				
58.45	58.45	353.45	353.45	0.02	10.59	-137.80	-1,403.39	7,581.08	7,710.15	7,699.55	10.61	726.936	
150.25	150.24	445.24	445.24	0.14	13.34	-156.11	-1,403.39	7,581.08	7,711.06	7,697.60	13.46	572.764	
239.43	239.42	534.52	534.42	0.25	16.02	-161.59	-1,403.39	7,581.08	7,712.04	7,695.79	16.25	474.613	
299.93	299.91	595.01	594.91	0.33	17.83	-156.64	-1,403.39	7,581.08	7,712.76	7,694.62	18.14	425.241	
446.00	445.96	741.06	740.96	0.50	22.21	-132.25	-1,403.39	7,581.08	7,714.63	7,691.95	22.68	340.097	
537.00	536.95	824.77	824.62	0.73	24.71	-71.02	-1,401.41	7,581.08	7,714.73	7,689.30	25.42	303.453	
624.00	623.95	904.09	903.92	0.99	27.09	11.96	-1,402.04	7,581.08	7,713.98	7,685.91	28.06	274.870	
718.00	717.90	1,013.31	1,012.90	1.29	30.36	29.83	-1,403.39	7,581.08	7,711.77	7,680.13	31.64	243.731	
811.00	810.73	1,106.14	1,105.73	1.60	33.14	49.36	-1,403.39	7,581.08	7,707.71	7,672.98	34.73	221.901	
903.00	902.19	1,197.60	1,197.19	1.92	35.89	61.42	-1,403.39	7,581.08	7,702.32	7,664.52	37.79	203.794	
994.00	992.38	1,284.38	1,283.93	2.24	38.49	63.74	-1,401.25	7,581.08	7,696.31	7,655.59	40.72	189.008	
1,084.00	1,081.50	1,365.44	1,364.97	2.56	40.91	68.24	-1,401.68	7,581.08	7,691.26	7,647.78	43.48	176.905	
1,175.00	1,171.48	1,447.18	1,446.70	2.91	43.36	72.16	-1,402.57	7,581.08	7,686.82	7,640.55	46.27	166.143	
1,268.00	1,263.52	1,559.23	1,558.52	3.26	46.72	73.83	-1,403.39	7,581.08	7,683.01	7,633.03	49.98	153.736	
1,363.00	1,357.62	1,653.33	1,652.62	3.63	49.54	76.88	-1,403.39	7,581.08	7,679.68	7,626.52	53.16	144.475	
1,457.00	1,450.74	1,746.46	1,745.74	3.99	52.33	79.67	-1,403.39	7,581.08	7,677.05	7,620.74	56.31	136.346	
1,552.00	1,544.82	1,832.03	1,831.27	4.36	54.90	80.54	-1,401.45	7,581.08	7,674.39	7,615.15	59.24	129.557	
1,646.00	1,637.88	1,916.26	1,915.48	4.72	57.42	81.13	-1,402.18	7,581.08	7,672.41	7,610.29	62.12	123.501	
1,741.00	1,731.94	2,027.95	2,026.94	5.09	60.77	81.71	-1,403.39	7,581.08	7,670.62	7,604.78	65.84	116.504	
1,835.00	1,825.07	2,121.09	2,120.07	5.46	63.56	81.88	-1,403.39	7,581.08	7,668.80	7,599.80	69.00	111.150	
1,929.00	1,918.39	2,214.40	2,213.39	5.82	66.35	80.81	-1,403.39	7,581.08	7,667.09	7,594.94	72.15	106.265	
2,024.00	2,012.84	2,303.13	2,302.06	6.18	69.01	82.25	-1,401.31	7,581.08	7,665.16	7,589.99	75.17	101.973	
2,118.00	2,106.19	2,387.36	2,386.28	6.53	71.54	82.53	-1,401.87	7,581.08	7,663.82	7,585.77	78.05	98.190	
2,213.00	2,200.37	2,472.22	2,471.11	6.90	74.08	81.32	-1,402.94	7,581.08	7,662.30	7,581.34	80.96	94.640	
2,307.00	2,293.61	2,589.93	2,588.61	7.27	77.61	83.42	-1,403.39	7,581.08	7,660.75	7,575.90	84.85	90.282	
2,402.00	2,387.91	2,684.23	2,682.91	7.63	80.43	87.35	-1,403.39	7,581.08	7,659.82	7,571.78	88.04	87.000	
2,496.00	2,481.29	2,774.83	2,773.47	7.99	83.15	88.63	-1,401.23	7,581.08	7,658.98	7,567.87	91.12	84.056	
2,591.00	2,575.67	2,859.70	2,858.32	8.35	85.69	87.23	-1,401.63	7,581.08	7,658.68	7,564.65	94.02	81.455	
2,686.00	2,670.05	2,944.48	2,943.08	8.71	88.23	87.74	-1,402.54	7,581.08	7,658.41	7,561.49	96.93	79.013	
2,780.00	2,763.49	3,060.11	3,058.49	9.07	91.69	85.83	-1,403.39	7,581.08	7,657.98	7,557.23	100.75	76.011	
2,875.00	2,857.94	3,154.56	3,152.94	9.43	94.52	84.50	-1,403.39	7,581.08	7,657.12	7,553.18	103.94	73.670	
2,970.00	2,952.51	3,249.14	3,247.51	9.79	97.36	88.15	-1,403.39	7,581.08	7,656.52	7,549.39	107.13	71.471	
2,993.79	2,976.21	3,270.46	3,268.80	9.87	98.00	89.79	-1,401.23	7,581.08	7,656.01	7,548.16	107.85	70.985	
3,064.00	3,046.19	3,333.22	3,331.54	10.13	99.88	95.37	-1,401.46	7,581.08	7,656.31	7,546.32	109.99	69.607	
3,159.00	3,140.98	3,418.17	3,416.47	10.47	102.42	97.45	-1,402.20	7,581.08	7,657.20	7,544.31	112.88	67.833	
3,253.00	3,234.84	3,531.77	3,529.84	10.81	105.83	89.78	-1,403.39	7,581.08	7,657.78	7,541.16	116.62	65.664	
3,348.00	3,329.74	3,626.67	3,624.74	11.14	108.67	82.17	-1,403.39	7,581.08	7,657.49	7,537.69	119.80	63.918	
3,397.00	3,378.70	3,675.63	3,673.70	11.32	110.14	81.31	-1,403.39	7,581.08	7,657.20	7,535.75	121.44	63.053	
3,488.00	3,469.63	3,764.82	3,762.85	11.64	112.81	78.77	-1,401.22	7,581.08	7,656.12	7,531.69	124.43	61.528	
3,583.00	3,564.49	3,849.74	3,847.75	11.98	115.36	87.15	-1,401.56	7,581.08	7,655.71	7,528.39	127.32	60.130	
3,646.53	3,627.80	3,906.39	3,904.39	12.21	117.05	88.50	-1,402.07	7,581.08	7,655.64	7,526.39	129.25	59.230	
3,677.00	3,658.13	3,933.51	3,931.50	12.33	117.87	88.97	-1,402.39	7,581.08	7,655.66	7,525.48	130.18	58.809	
3,772.00	3,752.42	4,049.66	4,047.42	12.69	121.35	93.52	-1,403.39	7,581.08	7,656.18	7,522.15	134.02	57.126	
3,867.00	3,846.42	4,143.65	4,141.42	13.06	124.16	95.18	-1,403.39	7,581.08	7,657.24	7,520.02	137.21	55.805	
3,961.00	3,939.30	4,236.53	4,234.30	13.44	126.95	95.02	-1,403.39	7,581.08	7,658.54	7,518.17	140.37	54.560	
4,056.00	4,032.83	4,321.38	4,319.09	13.82	129.49	91.74	-1,401.39	7,581.08	7,659.04	7,515.74	143.30	53.449	
4,151.00	4,126.01	4,404.32	4,402.01	14.21	131.97	92.70	-1,402.05	7,581.08	7,659.95	7,513.77	146.18	52.402	
4,246.00	4,219.10	4,516.64	4,514.10	14.61	135.34	85.59	-1,403.39	7,581.08	7,659.95	7,510.01	149.94	51.088	
4,340.00	4,310.92	4,608.45	4,605.92	15.01	138.09	76.82	-1,403.39	7,581.08	7,656.69	7,503.61	153.09	50.015	
4,435.00	4,403.54	4,701.08	4,698.54	15.41	140.87	76.40	-1,403.39	7,581.08	7,651.69	7,495.42	156.27	48.965	
4,498.00	4,465.21	4,761.29	4,758.71	15.68	142.67	78.50	-1,401.22	7,581.08	7,648.30	7,489.97	158.34	48.304	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
4,561.00	4,526.82	4,815.89	4,813.30	15.95	144.31	83.64	-1,401.37	7,581.08	7,646.31	7,486.07	160.24	47.718	
4,624.00	4,588.23	4,870.23	4,867.63	16.22	145.93	85.54	-1,401.72	7,581.08	7,645.05	7,482.91	162.14	47.151	
4,687.00	4,649.71	4,924.56	4,921.95	16.49	147.56	86.14	-1,402.28	7,581.08	7,644.19	7,480.15	164.04	46.600	
4,749.00	4,710.40	5,008.25	5,005.40	16.75	150.07	87.56	-1,403.39	7,581.08	7,643.71	7,476.90	166.81	45.823	
4,812.00	4,772.28	5,070.13	5,067.28	17.01	151.92	88.44	-1,403.39	7,581.08	7,643.29	7,474.36	168.93	45.246	
4,875.00	4,834.34	5,132.18	5,129.34	17.27	153.78	88.09	-1,403.39	7,581.08	7,642.96	7,471.91	171.04	44.684	
4,938.00	4,896.43	5,194.28	5,191.43	17.53	155.64	87.97	-1,403.39	7,581.08	7,642.59	7,469.42	173.16	44.135	
5,001.00	4,958.46	5,255.54	5,252.66	17.79	157.48	84.86	-1,401.21	7,581.08	7,641.33	7,466.07	175.26	43.601	
5,064.00	5,020.29	5,310.03	5,307.14	18.05	159.11	80.73	-1,401.34	7,581.08	7,639.79	7,462.64	177.15	43.125	
5,126.00	5,080.98	5,363.45	5,360.55	18.32	160.71	76.72	-1,401.66	7,581.08	7,637.37	7,458.35	179.02	42.662	
5,189.00	5,142.74	5,417.75	5,414.83	18.58	162.34	78.38	-1,402.20	7,581.08	7,634.79	7,453.88	180.91	42.202	
5,252.00	5,204.62	5,502.77	5,499.62	18.85	164.89	78.52	-1,403.39	7,581.08	7,632.65	7,448.93	183.72	41.545	
5,315.00	5,266.61	5,564.76	5,561.61	19.11	166.75	78.44	-1,403.39	7,581.08	7,630.38	7,444.55	185.84	41.059	
5,378.00	5,328.73	5,626.88	5,623.73	19.37	168.61	78.96	-1,403.39	7,581.08	7,628.29	7,440.34	187.96	40.585	
5,441.00	5,390.87	5,689.02	5,685.87	19.62	170.47	78.56	-1,403.39	7,581.08	7,626.25	7,436.17	190.08	40.122	
5,503.00	5,452.07	5,750.18	5,746.99	19.87	172.30	78.94	-1,401.21	7,581.08	7,623.72	7,431.56	192.16	39.674	
5,566.00	5,514.32	5,804.77	5,801.57	20.13	173.94	78.66	-1,401.32	7,581.08	7,621.84	7,427.79	194.05	39.278	
5,629.00	5,576.59	5,859.34	5,856.13	20.38	175.57	81.14	-1,401.63	7,581.08	7,620.24	7,424.30	195.94	38.891	
5,692.00	5,638.95	5,913.94	5,910.72	20.63	177.21	78.94	-1,402.15	7,581.08	7,618.84	7,421.02	197.82	38.514	
5,747.00	5,693.45	5,961.62	5,958.38	20.85	178.64	81.20	-1,402.78	7,581.08	7,617.74	7,418.27	199.47	38.191	
5,810.00	5,755.90	6,054.35	6,050.90	21.09	181.42	80.57	-1,403.39	7,581.08	7,616.52	7,414.03	202.49	37.614	
5,874.00	5,819.40	6,117.85	6,114.40	21.34	183.32	81.90	-1,403.39	7,581.08	7,615.29	7,410.65	204.64	37.212	
5,936.00	5,880.95	6,179.40	6,175.95	21.58	185.16	81.53	-1,403.39	7,581.08	7,614.20	7,407.48	206.73	36.832	
5,999.00	5,943.45	6,241.91	6,238.45	21.82	187.04	80.13	-1,403.39	7,581.08	7,612.94	7,404.10	208.84	36.453	
6,062.00	6,005.96	6,297.53	6,294.03	22.07	188.70	82.65	-1,401.29	7,581.08	7,611.18	7,400.43	210.76	36.114	
6,125.00	6,068.49	6,352.13	6,348.63	22.31	190.34	80.42	-1,401.58	7,581.08	7,610.14	7,397.50	212.64	35.790	
6,188.00	6,131.08	6,406.76	6,403.24	22.55	191.98	82.28	-1,402.07	7,581.08	7,609.20	7,394.69	214.51	35.472	
6,255.00	6,197.73	6,464.90	6,461.36	22.81	193.72	81.28	-1,402.83	7,581.08	7,608.46	7,391.96	216.51	35.142	
6,293.00	6,235.55	6,534.31	6,530.55	22.89	195.80	81.33	-1,403.39	7,581.08	7,608.00	7,389.34	218.67	34.793	
6,300.00	6,242.52	6,541.28	6,537.52	22.89	196.01	81.34	-1,403.39	7,581.08	7,607.90	7,389.02	218.88	34.758	
6,393.00	6,335.09	6,633.85	6,630.09	22.94	198.78	81.40	-1,403.39	7,581.08	7,606.56	7,384.86	221.70	34.310	
6,400.00	6,342.06	6,640.82	6,637.06	22.94	198.99	75.52	-1,403.39	7,581.08	7,606.42	7,384.51	221.91	34.276	
6,450.00	6,391.66	6,690.42	6,686.66	22.97	200.48	48.55	-1,403.39	7,581.08	7,603.23	7,379.80	223.43	34.029	
6,500.00	6,440.77	6,739.53	6,735.77	23.02	201.95	36.99	-1,403.39	7,581.08	7,596.21	7,371.26	224.94	33.769	
6,550.00	6,489.07	6,782.95	6,779.15	23.07	203.25	31.24	-1,401.25	7,581.08	7,584.79	7,358.50	226.29	33.518	
6,600.00	6,536.26	6,824.06	6,820.26	23.13	204.48	28.06	-1,401.41	7,581.08	7,570.29	7,342.71	227.58	33.265	
6,650.00	6,582.05	6,863.94	6,860.13	23.21	205.67	26.24	-1,401.67	7,581.08	7,552.20	7,323.36	228.83	33.003	
6,700.00	6,626.13	6,902.34	6,898.51	23.29	206.83	25.24	-1,402.02	7,581.08	7,530.62	7,300.57	230.05	32.735	
6,750.00	6,668.24	6,939.01	6,935.17	23.39	207.92	24.84	-1,402.46	7,581.08	7,505.70	7,274.48	231.22	32.461	
6,800.00	6,708.12	7,007.18	7,003.12	23.51	209.97	25.00	-1,403.39	7,581.08	7,477.64	7,244.30	233.35	32.045	
6,850.00	6,745.50	7,044.56	7,040.50	23.64	211.09	25.51	-1,403.39	7,581.08	7,446.34	7,211.78	234.55	31.747	
6,900.00	6,780.15	7,079.21	7,075.15	23.79	212.13	26.46	-1,403.39	7,581.08	7,412.20	7,176.52	235.69	31.450	
6,950.00	6,811.86	7,110.92	7,106.86	23.95	213.08	27.90	-1,403.39	7,581.08	7,375.45	7,138.72	236.73	31.155	
7,000.00	6,840.42	7,139.49	7,135.42	24.14	213.93	29.90	-1,403.39	7,581.08	7,336.32	7,098.63	237.69	30.865	
7,050.00	6,865.66	7,164.72	7,160.66	24.35	214.69	32.63	-1,403.39	7,581.08	7,295.05	7,056.50	238.55	30.581	
7,100.00	6,887.42	7,186.48	7,182.42	24.57	215.34	36.33	-1,403.39	7,581.08	7,251.91	7,012.61	239.31	30.304	
7,150.00	6,905.55	7,204.61	7,200.55	24.82	215.88	41.37	-1,403.39	7,581.08	7,207.18	6,967.22	239.95	30.036	
7,200.00	6,919.95	7,219.01	7,214.95	25.10	216.31	48.28	-1,403.39	7,581.08	7,161.12	6,920.63	240.49	29.777	
7,250.00	6,930.52	7,229.58	7,225.52	25.39	216.63	57.82	-1,403.39	7,581.08	7,114.04	6,873.13	240.91	29.530	
7,300.00	6,937.20	7,236.26	7,232.20	25.70	216.83	70.65	-1,403.39	7,581.08	7,066.24	6,825.02	241.21	29.294	
7,350.00	6,939.94	7,239.01	7,234.94	26.04	216.91	86.66	-1,403.39	7,581.08	7,018.00	6,776.60	241.40	29.073	
7,359.60	6,940.02	7,239.08	7,235.02	26.10	216.92	89.96	-1,403.39	7,581.08	7,008.71	6,767.29	241.42	29.032	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
7,400.00	6,940.03	7,239.09	7,235.03	26.39	216.92	89.96	-1,403.39	7,581.08	6,969.64	6,728.14	241.50	28.860	
7,500.00	6,940.04	7,239.11	7,235.04	27.15	216.92	89.96	-1,403.39	7,581.08	6,872.99	6,631.29	241.70	28.436	
7,600.00	6,940.06	7,239.12	7,235.06	27.99	216.92	89.96	-1,403.39	7,581.08	6,776.43	6,534.52	241.91	28.012	
7,659.60	6,940.07	7,239.13	7,235.07	28.52	216.92	89.96	-1,403.39	7,581.08	6,718.93	6,476.88	242.05	27.759	
7,700.00	6,940.08	7,239.14	7,235.08	28.89	216.92	89.96	-1,403.39	7,581.08	6,680.06	6,437.91	242.15	27.587	
7,796.63	6,940.10	7,239.16	7,235.10	29.83	216.92	89.96	-1,403.39	7,581.08	6,587.81	6,345.41	242.40	27.177	
7,800.00	6,940.10	7,239.16	7,235.10	29.86	216.92	89.96	-1,403.39	7,581.08	6,584.61	6,342.20	242.41	27.163	
7,900.00	6,940.12	7,239.18	7,235.12	30.90	216.92	89.96	-1,403.39	7,581.08	6,489.81	6,247.10	242.72	26.738	
8,000.00	6,940.14	7,239.20	7,235.14	31.98	216.92	89.96	-1,403.39	7,581.08	6,395.17	6,152.13	243.04	26.313	
8,100.00	6,940.17	7,239.23	7,235.17	33.11	216.92	89.96	-1,403.39	7,581.08	6,300.69	6,057.31	243.38	25.888	
8,200.00	6,940.19	7,239.25	7,235.19	34.28	216.92	89.96	-1,403.39	7,581.08	6,206.39	5,962.64	243.74	25.463	
8,300.00	6,940.21	7,239.27	7,235.21	35.48	216.92	89.97	-1,403.39	7,581.08	6,112.26	5,868.13	244.13	25.037	
8,400.00	6,940.23	7,239.29	7,235.23	36.71	216.92	89.97	-1,403.39	7,581.08	6,018.33	5,773.79	244.54	24.611	
8,500.00	6,940.25	7,239.32	7,235.25	37.97	216.92	89.97	-1,403.39	7,581.08	5,924.60	5,679.63	244.97	24.185	
8,600.00	6,940.28	7,239.34	7,235.28	39.26	216.92	89.97	-1,403.39	7,581.08	5,831.07	5,585.64	245.43	23.759	
8,700.00	6,940.30	7,239.36	7,235.30	40.56	216.92	89.97	-1,403.39	7,581.08	5,737.76	5,491.85	245.91	23.333	
8,800.00	6,940.32	7,239.38	7,235.32	41.89	216.92	89.97	-1,403.39	7,581.08	5,644.68	5,398.26	246.42	22.906	
8,900.00	6,940.34	7,239.40	7,235.34	43.24	216.93	89.97	-1,403.39	7,581.08	5,551.84	5,304.88	246.96	22.481	
9,000.00	6,940.36	7,239.43	7,235.36	44.60	216.93	89.97	-1,403.39	7,581.08	5,459.26	5,211.73	247.53	22.055	
9,100.00	6,940.39	7,239.45	7,235.39	45.98	216.93	89.97	-1,403.39	7,581.08	5,366.94	5,118.81	248.13	21.630	
9,200.00	6,940.41	7,239.47	7,235.41	47.38	216.93	89.97	-1,403.39	7,581.08	5,274.90	5,026.14	248.76	21.205	
9,300.00	6,940.43	7,239.49	7,235.43	48.78	216.93	89.97	-1,403.39	7,581.08	5,183.15	4,933.73	249.43	20.780	
9,400.00	6,940.45	7,239.51	7,235.45	50.20	216.93	89.97	-1,403.39	7,581.08	5,091.72	4,841.59	250.13	20.357	
9,500.00	6,940.47	7,239.54	7,235.47	51.63	216.93	89.97	-1,403.39	7,581.08	5,000.62	4,749.75	250.86	19.934	
9,600.00	6,940.50	7,239.56	7,235.50	53.07	216.93	89.97	-1,403.39	7,581.08	4,909.86	4,658.22	251.64	19.512	
9,700.00	6,940.52	7,239.58	7,235.52	54.52	216.93	89.97	-1,403.39	7,581.08	4,819.46	4,567.01	252.45	19.091	
9,800.00	6,940.54	7,239.60	7,235.54	55.97	216.93	89.97	-1,403.39	7,581.08	4,729.46	4,476.15	253.31	18.671	
9,900.00	6,940.56	7,239.62	7,235.56	57.44	216.93	89.97	-1,403.39	7,581.08	4,639.86	4,385.65	254.21	18.252	
10,000.00	6,940.59	7,239.65	7,235.59	58.91	216.93	89.98	-1,403.39	7,581.08	4,550.69	4,295.54	255.15	17.835	
10,100.00	6,940.61	7,239.67	7,235.61	60.38	216.93	89.98	-1,403.39	7,581.08	4,461.99	4,205.85	256.14	17.420	
10,200.00	6,940.63	7,239.69	7,235.63	61.87	216.93	89.98	-1,403.39	7,581.08	4,373.77	4,116.59	257.18	17.007	
10,300.00	6,940.65	7,239.71	7,235.65	63.36	216.93	89.98	-1,403.39	7,581.08	4,286.07	4,027.80	258.27	16.595	
10,400.00	6,940.67	7,239.73	7,235.67	64.85	216.94	89.98	-1,403.39	7,581.08	4,198.92	3,939.51	259.42	16.186	
10,500.00	6,940.70	7,239.76	7,235.70	66.35	216.94	89.98	-1,403.39	7,581.08	4,112.36	3,851.74	260.62	15.779	
10,600.00	6,940.72	7,239.78	7,235.72	67.86	216.94	89.98	-1,403.39	7,581.08	4,026.41	3,764.54	261.87	15.375	
10,700.00	6,940.74	7,239.80	7,235.74	69.36	216.94	89.98	-1,403.39	7,581.08	3,941.13	3,677.94	263.19	14.974	
10,800.00	6,940.76	7,239.82	7,235.76	70.88	216.94	89.98	-1,403.39	7,581.08	3,856.56	3,591.99	264.57	14.577	
10,900.00	6,940.78	7,239.84	7,235.78	72.39	216.94	89.98	-1,403.39	7,581.08	3,772.74	3,506.72	266.02	14.182	
11,000.00	6,940.81	7,239.87	7,235.81	73.91	216.94	89.98	-1,403.39	7,581.08	3,689.73	3,422.20	267.54	13.792	
11,100.00	6,940.83	7,239.89	7,235.83	75.44	216.94	89.98	-1,403.39	7,581.08	3,607.58	3,338.46	269.12	13.405	
11,200.00	6,940.85	7,239.91	7,235.85	76.96	216.94	89.98	-1,403.39	7,581.08	3,526.36	3,255.57	270.78	13.023	
11,300.00	6,940.87	7,239.93	7,235.87	78.49	216.94	89.98	-1,403.39	7,581.08	3,446.12	3,173.60	272.52	12.646	
11,400.00	6,940.89	7,239.96	7,235.89	80.03	216.94	89.98	-1,403.39	7,581.08	3,366.93	3,092.61	274.33	12.273	
11,500.00	6,940.92	7,239.98	7,235.92	81.56	216.94	89.98	-1,403.39	7,581.08	3,288.89	3,012.66	276.22	11.907	
11,600.00	6,940.94	7,240.00	7,235.94	83.10	216.94	89.99	-1,403.39	7,581.08	3,212.06	2,933.86	278.20	11.546	
11,700.00	6,940.96	7,240.02	7,235.96	84.64	216.94	89.99	-1,403.39	7,581.08	3,136.53	2,856.27	280.26	11.192	
11,800.00	6,940.98	7,240.04	7,235.98	86.18	216.94	89.99	-1,403.39	7,581.08	3,062.41	2,780.01	282.40	10.844	
11,900.00	6,941.00	7,240.07	7,236.00	87.72	216.95	89.99	-1,403.39	7,581.08	2,989.80	2,705.16	284.64	10.504	
12,000.00	6,941.03	7,240.09	7,236.03	89.27	216.95	89.99	-1,403.39	7,581.08	2,918.81	2,631.86	286.95	10.172	
12,100.00	6,941.05	7,240.11	7,236.05	90.82	216.95	89.99	-1,403.39	7,581.08	2,849.56	2,560.20	289.35	9.848	
12,200.00	6,941.07	7,240.13	7,236.07	92.37	216.95	89.99	-1,403.39	7,581.08	2,782.18	2,490.34	291.84	9.533	
12,300.00	6,941.09	7,240.15	7,236.09	93.92	216.95	89.99	-1,403.39	7,581.08	2,716.81	2,422.40	294.40	9.228	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
12,400.00	6,941.11	7,240.18	7,236.11	95.47	216.95	89.99	-1,403.39	7,581.08	2,653.59	2,356.55	297.04	8.933	
12,500.00	6,941.14	7,240.20	7,236.14	97.03	216.95	89.99	-1,403.39	7,581.08	2,592.70	2,292.95	299.75	8.650	
12,600.00	6,941.16	7,240.22	7,236.16	98.58	216.95	89.99	-1,403.39	7,581.08	2,534.29	2,231.77	302.52	8.377	
12,700.00	6,941.18	7,240.24	7,236.18	100.14	216.95	89.99	-1,403.39	7,581.08	2,478.54	2,173.21	305.33	8.118	
12,800.00	6,941.20	7,240.26	7,236.20	101.70	216.95	89.99	-1,403.39	7,581.08	2,425.63	2,117.45	308.19	7.871	
12,900.00	6,941.23	7,240.29	7,236.23	103.26	216.95	89.99	-1,403.39	7,581.08	2,375.76	2,064.70	311.06	7.638	
13,000.00	6,941.25	7,240.31	7,236.25	104.82	216.95	89.99	-1,403.39	7,581.08	2,329.11	2,015.17	313.94	7.419	
13,100.00	6,941.27	7,240.33	7,236.27	106.38	216.95	89.99	-1,403.39	7,581.08	2,285.89	1,969.09	316.79	7.216	
13,200.00	6,941.29	7,240.35	7,236.29	107.95	216.95	89.99	-1,403.39	7,581.08	2,246.29	1,926.68	319.61	7.028	
13,300.00	6,941.31	7,240.37	7,236.31	109.51	216.95	90.00	-1,403.39	7,581.08	2,210.51	1,888.15	322.36	6.857	
13,400.00	6,941.34	7,240.40	7,236.34	111.08	216.96	90.00	-1,403.39	7,581.08	2,178.73	1,853.72	325.01	6.704	
13,500.00	6,941.36	7,240.42	7,236.36	112.64	216.96	90.00	-1,403.39	7,581.08	2,151.14	1,823.60	327.54	6.568	
13,600.00	6,941.38	7,240.44	7,236.38	114.21	216.96	90.00	-1,403.39	7,581.08	2,127.89	1,797.98	329.92	6.450	
13,700.00	6,941.40	7,240.46	7,236.40	115.78	216.96	90.00	-1,403.39	7,581.08	2,109.14	1,777.03	332.11	6.351	
13,800.00	6,941.42	7,240.49	7,236.42	117.35	216.96	90.00	-1,403.39	7,581.08	2,094.99	1,760.89	334.11	6.270	
13,900.00	6,941.45	7,240.51	7,236.45	118.92	216.96	90.00	-1,403.39	7,581.08	2,085.55	1,749.68	335.87	6.209	
14,000.00	6,941.47	7,240.53	7,236.47	120.49	216.96	90.00	-1,403.39	7,581.08	2,080.88	1,743.50	337.38	6.168	
14,047.34	6,941.48	7,240.54	7,236.48	121.24	216.96	90.00	-1,403.39	7,581.08	2,080.34	1,742.33	338.01	6.155 CC, ES	
14,100.00	6,941.49	7,240.55	7,236.49	122.06	216.96	90.00	-1,403.39	7,581.08	2,081.01	1,742.37	338.64	6.145	
14,200.00	6,941.51	7,240.57	7,236.51	123.64	216.96	90.00	-1,403.39	7,581.08	2,085.93	1,746.31	339.62	6.142 SF	
14,300.00	6,941.53	7,240.60	7,236.53	125.21	216.96	90.00	-1,403.39	7,581.08	2,095.63	1,755.30	340.33	6.158	
14,400.00	6,941.56	7,240.62	7,236.56	126.78	216.96	90.00	-1,403.39	7,581.08	2,110.02	1,769.25	340.77	6.192	
14,500.00	6,941.58	7,240.64	7,236.58	128.36	216.96	90.00	-1,403.39	7,581.08	2,129.02	1,788.07	340.95	6.244	
14,600.00	6,941.60	7,240.66	7,236.60	129.93	216.96	90.00	-1,403.39	7,581.08	2,152.50	1,811.63	340.87	6.315	
14,700.00	6,941.62	7,240.68	7,236.62	131.51	216.96	90.00	-1,403.39	7,581.08	2,180.32	1,839.75	340.56	6.402	
14,800.00	6,941.64	7,240.71	7,236.64	133.08	216.96	90.00	-1,403.39	7,581.08	2,212.31	1,872.27	340.04	6.506	
14,900.00	6,941.67	7,240.73	7,236.67	134.66	216.96	90.01	-1,403.39	7,581.08	2,248.30	1,908.97	339.33	6.626	
15,000.00	6,941.69	7,240.75	7,236.69	136.24	216.97	90.01	-1,403.39	7,581.08	2,288.09	1,949.65	338.44	6.761	
15,100.00	6,941.71	7,240.77	7,236.71	137.82	216.97	90.01	-1,403.39	7,581.08	2,331.50	1,994.09	337.41	6.910	
15,200.00	6,941.73	7,240.79	7,236.73	139.40	216.97	90.01	-1,403.39	7,581.08	2,378.33	2,042.07	336.26	7.073	
15,300.00	6,941.75	7,240.82	7,236.75	140.97	216.97	90.01	-1,403.39	7,581.08	2,428.37	2,093.37	335.00	7.249	
15,400.00	6,941.78	7,240.84	7,236.78	142.55	216.97	90.01	-1,403.39	7,581.08	2,481.43	2,147.77	333.66	7.437	
15,500.00	6,941.80	7,240.86	7,236.80	144.13	216.97	90.01	-1,403.39	7,581.08	2,537.33	2,205.07	332.26	7.637	
15,600.00	6,941.82	7,240.88	7,236.82	145.72	216.97	90.01	-1,403.39	7,581.08	2,595.87	2,265.07	330.81	7.847	
15,700.00	6,941.84	7,240.90	7,236.84	147.30	216.97	90.01	-1,403.39	7,581.08	2,656.90	2,327.57	329.33	8.068	
15,800.00	6,941.87	7,240.93	7,236.87	148.88	216.97	90.01	-1,403.39	7,581.08	2,720.23	2,392.40	327.82	8.298	
15,900.00	6,941.89	7,240.95	7,236.89	150.46	216.97	90.01	-1,403.39	7,581.08	2,785.71	2,459.39	326.31	8.537	
16,000.00	6,941.91	7,240.97	7,236.91	152.04	216.97	90.01	-1,403.39	7,581.08	2,853.19	2,528.39	324.80	8.784	
16,100.00	6,941.93	7,240.99	7,236.93	153.62	216.97	90.01	-1,403.39	7,581.08	2,922.54	2,599.23	323.30	9.040	
16,200.00	6,941.95	7,241.01	7,236.95	155.21	216.97	90.01	-1,403.39	7,581.08	2,993.62	2,671.80	321.82	9.302	
16,300.00	6,941.98	7,241.04	7,236.98	156.79	216.97	90.01	-1,403.39	7,581.08	3,066.31	2,745.96	320.36	9.572	
16,400.00	6,942.00	7,241.06	7,237.00	158.37	216.97	90.01	-1,403.39	7,581.08	3,140.51	2,821.59	318.92	9.847	
16,500.00	6,942.02	7,241.08	7,237.02	159.96	216.98	90.01	-1,403.39	7,581.08	3,216.11	2,898.59	317.51	10.129	
16,600.00	6,942.04	7,241.10	7,237.04	161.54	216.98	90.02	-1,403.39	7,581.08	3,293.00	2,976.87	316.14	10.416	
16,700.00	6,942.06	7,241.13	7,237.06	163.13	216.98	90.02	-1,403.39	7,581.08	3,371.11	3,056.32	314.80	10.709	
16,800.00	6,942.09	7,241.15	7,237.09	164.71	216.98	90.02	-1,403.39	7,581.08	3,450.35	3,136.86	313.49	11.006	
16,900.00	6,942.11	7,241.17	7,237.11	166.30	216.98	90.02	-1,403.39	7,581.08	3,530.65	3,218.43	312.22	11.308	
17,000.00	6,942.13	7,241.19	7,237.13	167.88	216.98	90.02	-1,403.39	7,581.08	3,611.92	3,300.94	310.99	11.614	
17,100.00	6,942.15	7,241.21	7,237.15	169.47	216.98	90.02	-1,403.39	7,581.08	3,694.12	3,384.33	309.79	11.925	
17,200.00	6,942.17	7,241.24	7,237.17	171.05	216.98	90.02	-1,403.39	7,581.08	3,777.18	3,468.55	308.63	12.238	
17,300.00	6,942.20	7,241.26	7,237.20	172.64	216.98	90.02	-1,403.39	7,581.08	3,861.04	3,553.53	307.51	12.556	
17,400.00	6,942.22	7,241.28	7,237.22	174.23	216.98	90.02	-1,403.39	7,581.08	3,945.65	3,639.23	306.42	12.877	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
17,500.00	6,942.24	7,241.30	7,237.24	175.81	216.98	90.02	-1,403.39	7,581.08	4,030.96	3,725.59	305.37	13.200	
17,600.00	6,942.26	7,241.32	7,237.26	177.40	216.98	90.02	-1,403.39	7,581.08	4,116.94	3,812.59	304.35	13.527	
17,700.00	6,942.28	7,241.35	7,237.28	178.99	216.98	90.02	-1,403.39	7,581.08	4,203.54	3,900.17	303.37	13.856	
17,800.00	6,942.31	7,241.37	7,237.31	180.57	216.98	90.02	-1,403.39	7,581.08	4,290.72	3,988.30	302.42	14.188	
17,900.00	6,942.33	7,241.39	7,237.33	182.16	216.98	90.02	-1,403.39	7,581.08	4,378.44	4,076.94	301.50	14.522	
18,000.00	6,942.35	7,241.41	7,237.35	183.75	216.99	90.02	-1,403.39	7,581.08	4,466.69	4,166.08	300.61	14.859	
18,100.00	6,942.37	7,241.43	7,237.37	185.34	216.99	90.02	-1,403.39	7,581.08	4,555.42	4,255.66	299.76	15.197	
18,200.00	6,942.39	7,241.46	7,237.39	186.93	216.99	90.03	-1,403.39	7,581.08	4,644.61	4,345.68	298.93	15.538	
18,300.00	6,942.42	7,241.48	7,237.42	188.52	216.99	90.03	-1,403.39	7,581.08	4,734.23	4,436.10	298.13	15.880	
18,400.00	6,942.44	7,241.50	7,237.44	190.10	216.99	90.03	-1,403.39	7,581.08	4,824.25	4,526.90	297.36	16.224	
18,500.00	6,942.46	7,241.52	7,237.46	191.69	216.99	90.03	-1,403.39	7,581.08	4,914.67	4,618.06	296.61	16.569	
18,600.00	6,942.48	7,241.54	7,237.48	193.28	216.99	90.03	-1,403.39	7,581.08	5,005.45	4,709.56	295.89	16.917	
18,700.00	6,942.51	7,241.57	7,237.51	194.87	216.99	90.03	-1,403.39	7,581.08	5,096.57	4,801.38	295.19	17.265	
18,800.00	6,942.53	7,241.59	7,237.53	196.46	216.99	90.03	-1,403.39	7,581.08	5,188.02	4,893.50	294.52	17.615	
18,900.00	6,942.55	7,241.61	7,237.55	198.05	216.99	90.03	-1,403.39	7,581.08	5,279.78	4,985.91	293.87	17.966	
19,000.00	6,942.57	7,241.63	7,237.57	199.64	216.99	90.03	-1,403.39	7,581.08	5,371.84	5,078.59	293.24	18.319	
19,100.00	6,942.59	7,241.65	7,237.59	201.23	216.99	90.03	-1,403.39	7,581.08	5,464.17	5,171.53	292.64	18.672	
19,200.00	6,942.62	7,241.68	7,237.62	202.82	216.99	90.03	-1,403.39	7,581.08	5,556.77	5,264.72	292.05	19.027	
19,300.00	6,942.64	7,241.70	7,237.64	204.41	216.99	90.03	-1,403.39	7,581.08	5,649.62	5,358.14	291.49	19.382	
19,400.00	6,942.66	7,241.72	7,237.66	206.00	216.99	90.03	-1,403.39	7,581.08	5,742.71	5,451.77	290.94	19.739	
19,500.00	6,942.68	7,241.74	7,237.68	207.59	217.00	90.03	-1,403.39	7,581.08	5,836.03	5,545.62	290.41	20.096	
19,600.00	6,942.70	7,241.77	7,237.70	209.18	217.00	90.03	-1,403.39	7,581.08	5,929.57	5,639.67	289.90	20.454	
19,700.00	6,942.73	7,241.79	7,237.73	210.78	217.00	90.03	-1,403.39	7,581.08	6,023.32	5,733.91	289.40	20.813	
19,800.00	6,942.75	7,241.81	7,237.75	212.37	217.00	90.03	-1,403.39	7,581.08	6,117.26	5,828.34	288.92	21.173	
19,900.00	6,942.77	7,241.83	7,237.77	213.96	217.00	90.04	-1,403.39	7,581.08	6,211.39	5,922.93	288.46	21.533	
20,000.00	6,942.79	7,241.85	7,237.79	215.55	217.00	90.04	-1,403.39	7,581.08	6,305.71	6,017.69	288.01	21.894	
20,100.00	6,942.81	7,241.88	7,237.81	217.14	217.00	90.04	-1,403.39	7,581.08	6,400.19	6,112.61	287.58	22.255	
20,200.00	6,942.84	7,241.90	7,237.84	218.73	217.00	90.04	-1,403.39	7,581.08	6,494.84	6,207.68	287.16	22.617	
20,300.00	6,942.86	7,241.92	7,237.86	220.32	217.00	90.04	-1,403.39	7,581.08	6,589.65	6,302.89	286.76	22.980	
20,400.00	6,942.88	7,241.94	7,237.88	221.92	217.00	90.04	-1,403.39	7,581.08	6,684.61	6,398.25	286.37	23.343	
20,500.00	6,942.90	7,241.96	7,237.90	223.51	217.00	90.04	-1,403.39	7,581.08	6,779.72	6,493.73	285.99	23.706	
20,600.00	6,942.92	7,241.99	7,237.92	225.10	217.00	90.04	-1,403.39	7,581.08	6,874.96	6,589.34	285.62	24.070	
20,700.00	6,942.95	7,242.01	7,237.95	226.69	217.00	90.04	-1,403.39	7,581.08	6,970.34	6,685.07	285.27	24.434	
20,800.00	6,942.97	7,242.03	7,237.97	228.28	217.00	90.04	-1,403.39	7,581.08	7,065.85	6,780.92	284.92	24.799	
20,900.00	6,942.99	7,242.05	7,237.99	229.88	217.00	90.04	-1,403.39	7,581.08	7,161.47	6,876.88	284.59	25.164	
20,942.50	6,943.00	7,242.06	7,238.00	230.42	217.00	90.04	-1,403.39	7,581.08	7,202.15	6,915.52	286.63	25.127	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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	-70.50	1,180.95	-3,335.34	3,538.45				
58.45	58.45	19.45	19.45	0.02	0.38	51.21	1,180.95	-3,335.34	3,538.01	3,537.61	0.40	8,903.579	
150.25	150.24	111.24	111.24	0.14	2.19	32.93	1,180.95	-3,335.34	3,537.21	3,534.91	2.30	1,535.231	
239.43	239.42	200.42	200.42	0.25	4.39	27.45	1,180.95	-3,335.34	3,536.30	3,531.69	4.61	767.239	
299.93	299.91	260.91	260.91	0.33	5.90	32.41	1,180.95	-3,335.34	3,535.64	3,529.44	6.19	570.836	
446.00	445.96	411.03	411.02	0.50	9.66	56.85	1,181.40	-3,335.34	3,534.17	3,524.05	10.12	349.329	
519.46	519.41	487.57	487.56	0.68	11.57	100.48	1,181.04	-3,335.34	3,533.73	3,521.50	12.22	289.101	CC
537.00	536.95	505.85	505.83	0.73	12.03	118.12	1,180.93	-3,335.34	3,533.75	3,521.03	12.73	277.685	
624.00	623.95	585.09	584.95	0.99	14.48	-158.91	1,180.95	-3,335.34	3,534.66	3,519.22	15.44	228.886	
718.00	717.90	692.43	692.25	1.29	17.77	-141.07	1,181.74	-3,335.34	3,537.18	3,518.14	19.04	185.744	
811.00	810.73	772.05	771.73	1.60	20.10	-121.65	1,180.95	-3,335.34	3,540.31	3,518.63	21.68	163.293	
903.00	902.19	863.50	863.19	1.92	22.51	-109.85	1,180.95	-3,335.34	3,544.36	3,519.95	24.41	145.179	
994.00	992.38	970.25	969.89	2.24	25.33	-107.80	1,181.32	-3,335.34	3,548.47	3,520.91	27.56	128.770	
1,084.00	1,081.50	1,042.91	1,042.50	2.56	27.08	-103.57	1,180.95	-3,335.34	3,551.71	3,522.06	29.64	119.818	
1,175.00	1,171.48	1,132.90	1,132.48	2.91	29.15	-99.96	1,180.95	-3,335.34	3,554.49	3,522.43	32.06	110.874	
1,268.00	1,263.52	1,224.94	1,224.52	3.26	31.28	-98.61	1,180.95	-3,335.34	3,556.67	3,522.14	34.53	102.993	
1,363.00	1,357.62	1,323.05	1,322.62	3.63	33.54	-95.85	1,182.15	-3,335.34	3,558.72	3,521.56	37.16	95.776	
1,457.00	1,450.74	1,420.94	1,420.49	3.99	35.79	-93.38	1,181.59	-3,335.34	3,559.59	3,519.81	39.77	89.498	
1,552.00	1,544.82	1,506.35	1,505.82	4.36	37.74	-92.78	1,180.95	-3,335.34	3,560.09	3,518.00	42.09	84.580	
1,646.00	1,637.88	1,599.41	1,598.88	4.72	39.79	-92.50	1,180.95	-3,335.34	3,560.71	3,516.20	44.51	80.004	
1,741.00	1,731.94	1,693.47	1,692.94	5.09	41.87	-92.26	1,180.95	-3,335.34	3,561.27	3,514.32	46.95	75.855	
1,835.00	1,825.07	1,788.94	1,788.39	5.46	43.97	-92.36	1,182.25	-3,335.34	3,562.17	3,512.76	49.42	72.085	
1,929.00	1,918.39	1,886.75	1,886.19	5.82	46.12	-93.69	1,181.83	-3,335.34	3,562.65	3,510.71	51.93	68.603	
2,024.00	2,012.84	1,985.67	1,985.10	6.18	48.30	-92.49	1,180.97	-3,335.34	3,562.96	3,508.49	54.47	65.412	
2,118.00	2,106.19	2,067.82	2,067.19	6.53	49.95	-92.46	1,180.95	-3,335.34	3,563.41	3,506.93	56.48	63.093	
2,213.00	2,200.37	2,162.00	2,161.37	6.90	51.84	-93.96	1,180.95	-3,335.34	3,564.12	3,505.38	58.73	60.683	
2,307.00	2,293.61	2,256.65	2,256.01	7.27	53.73	-92.14	1,181.93	-3,335.34	3,565.05	3,504.05	60.99	58.451	
2,402.00	2,387.91	2,354.63	2,353.99	7.63	55.70	-88.49	1,181.61	-3,335.34	3,565.02	3,501.70	63.32	56.302	
2,496.00	2,481.29	2,451.57	2,450.92	7.99	57.64	-87.46	1,180.94	-3,335.34	3,564.46	3,498.84	65.62	54.321	
2,591.00	2,575.67	2,537.35	2,536.67	8.35	59.37	-89.10	1,180.95	-3,335.34	3,564.13	3,496.42	67.71	52.638	
2,686.00	2,670.05	2,631.74	2,631.05	8.71	61.27	-88.83	1,180.95	-3,335.34	3,563.94	3,493.96	69.97	50.933	
2,735.26	2,719.02	2,680.70	2,680.02	8.90	62.26	-90.00	1,180.95	-3,335.34	3,563.88	3,492.74	71.15	50.092	
2,780.00	2,763.49	2,725.68	2,724.99	9.07	63.16	-91.00	1,181.77	-3,335.34	3,564.15	3,491.93	72.22	49.349	
2,875.00	2,857.94	2,822.49	2,821.79	9.43	65.11	-92.57	1,181.60	-3,335.34	3,564.42	3,489.88	74.53	47.823	
2,970.00	2,952.51	2,919.38	2,918.68	9.79	67.07	-89.14	1,181.19	-3,335.34	3,564.47	3,487.62	76.84	46.387	
3,064.00	3,046.19	3,007.94	3,007.19	10.13	68.81	-82.07	1,180.95	-3,335.34	3,563.84	3,484.91	78.93	45.153	
3,159.00	3,140.98	3,102.72	3,101.98	10.47	70.63	-80.14	1,180.95	-3,335.34	3,562.86	3,481.76	81.10	43.933	
3,253.00	3,234.84	3,196.59	3,195.84	10.81	72.44	-87.94	1,180.95	-3,335.34	3,562.31	3,479.07	83.24	42.794	
3,280.65	3,262.46	3,224.20	3,223.46	10.91	72.98	-90.00	1,180.95	-3,335.34	3,562.28	3,478.41	83.87	42.473	
3,348.00	3,329.74	3,293.01	3,292.26	11.14	74.30	-95.63	1,182.13	-3,335.34	3,562.73	3,477.29	85.44	41.700	
3,397.00	3,378.70	3,343.40	3,342.64	11.32	75.27	-96.55	1,182.00	-3,335.34	3,562.92	3,476.33	86.58	41.151	
3,488.00	3,469.63	3,436.98	3,436.22	11.64	77.08	-99.16	1,181.56	-3,335.34	3,563.28	3,474.57	88.70	40.170	
3,583.00	3,564.49	3,526.28	3,525.49	11.98	78.81	-90.90	1,180.95	-3,335.34	3,563.44	3,472.66	90.78	39.254	
3,677.00	3,658.13	3,619.92	3,619.13	12.33	80.80	-89.28	1,180.95	-3,335.34	3,563.43	3,470.31	93.12	38.269	
3,772.00	3,752.42	3,716.79	3,715.99	12.69	82.86	-85.03	1,181.09	-3,335.34	3,562.81	3,467.28	95.54	37.292	
3,867.00	3,846.42	3,808.25	3,807.42	13.06	85.52	-83.69	1,180.95	-3,335.34	3,561.41	3,462.83	98.58	36.129	
3,961.00	3,939.30	3,901.13	3,900.30	13.44	88.78	-84.19	1,180.95	-3,335.34	3,559.86	3,457.66	102.20	34.831	
4,056.00	4,032.83	3,994.66	3,993.83	13.82	92.06	-87.83	1,180.95	-3,335.34	3,558.73	3,452.86	105.87	33.615	
4,151.00	4,126.01	4,091.59	4,090.73	14.21	95.46	-87.27	1,182.38	-3,335.34	3,558.25	3,448.60	109.66	32.449	
4,190.33	4,164.55	4,131.83	4,130.97	14.38	96.87	-90.44	1,182.16	-3,335.34	3,558.04	3,446.81	111.23	31.987	
4,246.00	4,219.10	4,188.74	4,187.86	14.61	98.86	-94.88	1,181.69	-3,335.34	3,558.47	3,445.01	113.46	31.364	
4,340.00	4,310.92	4,273.36	4,271.92	15.01	102.07	-104.09	1,180.95	-3,335.34	3,561.79	3,444.72	117.07	30.426	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
4,435.00	4,403.54	4,400.98	4,399.39	15.41	108.24	-105.11	1,180.18	-3,335.34	3,567.22	3,443.58	123.63	28.853	
4,498.00	4,465.21	4,428.00	4,426.21	15.68	109.57	-103.16	1,180.95	-3,335.34	3,570.42	3,445.18	125.24	28.510	
4,561.00	4,526.82	4,489.88	4,487.82	15.95	112.58	-98.30	1,180.95	-3,335.34	3,572.88	3,444.37	128.51	27.803	
4,624.00	4,588.23	4,583.67	4,581.51	16.22	117.01	-96.83	1,180.44	-3,335.34	3,574.80	3,441.60	133.20	26.838	
4,687.00	4,649.71	4,613.00	4,610.71	16.49	118.51	-96.42	1,180.95	-3,335.34	3,576.37	3,441.40	134.97	26.497	
4,749.00	4,710.40	4,694.66	4,692.28	16.75	122.58	-95.40	1,181.27	-3,335.34	3,577.83	3,438.52	139.31	25.683	
4,812.00	4,772.28	4,735.94	4,733.28	17.01	124.65	-94.75	1,180.95	-3,335.34	3,578.77	3,437.12	141.64	25.266	
4,875.00	4,834.34	4,798.09	4,795.34	17.27	127.78	-95.36	1,180.95	-3,335.34	3,579.74	3,434.71	145.03	24.683	
4,938.00	4,896.43	4,860.35	4,857.43	17.53	130.87	-95.72	1,180.95	-3,335.34	3,580.78	3,432.40	148.37	24.134	
5,001.00	4,958.46	4,944.20	4,941.17	17.79	135.03	-99.12	1,181.10	-3,335.34	3,582.32	3,429.53	152.79	23.447	
5,064.00	5,020.29	4,984.59	4,981.29	18.05	137.08	-103.44	1,180.95	-3,335.34	3,584.66	3,429.55	155.11	23.111	
5,126.00	5,080.98	5,067.40	5,063.99	18.32	141.32	-107.80	1,181.10	-3,335.34	3,588.22	3,428.62	159.60	22.483	
5,189.00	5,142.74	5,107.38	5,103.74	18.58	143.30	-106.35	1,180.95	-3,335.34	3,591.84	3,430.00	161.84	22.194	
5,252.00	5,204.62	5,169.26	5,165.62	18.85	146.34	-106.52	1,180.95	-3,335.34	3,595.25	3,430.10	165.15	21.770	
5,315.00	5,266.61	5,231.26	5,227.61	19.11	149.40	-106.86	1,180.95	-3,335.34	3,598.51	3,430.05	168.46	21.361	
5,378.00	5,328.73	5,293.71	5,289.91	19.37	152.48	-106.51	1,185.00	-3,335.34	3,602.25	3,430.45	171.79	20.968	
5,441.00	5,390.87	5,362.95	5,359.10	19.62	155.89	-107.17	1,184.55	-3,335.34	3,605.22	3,429.76	175.46	20.547	
5,503.00	5,452.07	5,430.99	5,427.07	19.87	159.24	-107.04	1,183.33	-3,335.34	3,607.99	3,428.93	179.06	20.149	
5,566.00	5,514.32	5,500.04	5,496.01	20.13	162.65	-107.58	1,181.28	-3,335.34	3,610.61	3,427.90	182.71	19.761	
5,629.00	5,576.59	5,542.30	5,537.59	20.38	164.67	-105.26	1,180.95	-3,335.34	3,613.22	3,428.24	184.99	19.533	
5,692.00	5,638.95	5,604.66	5,599.95	20.63	167.62	-107.68	1,180.95	-3,335.34	3,615.79	3,427.60	188.19	19.214	
5,747.00	5,693.45	5,659.16	5,654.45	20.85	170.20	-105.58	1,180.95	-3,335.34	3,617.94	3,426.96	190.98	18.944	
5,810.00	5,755.90	5,721.61	5,716.90	21.09	173.16	-106.43	1,180.95	-3,335.34	3,620.24	3,426.06	194.18	18.644	
5,874.00	5,819.40	5,785.11	5,780.40	21.34	176.16	-105.29	1,180.95	-3,335.34	3,622.44	3,425.00	197.43	18.348	
5,936.00	5,880.95	5,846.66	5,841.95	21.58	179.08	-105.82	1,180.95	-3,335.34	3,624.46	3,423.87	200.59	18.069	
5,999.00	5,943.45	5,909.16	5,904.45	21.82	182.04	-107.40	1,180.95	-3,335.34	3,626.73	3,422.94	203.79	17.797 ES	
6,062.00	6,005.96	5,949.00	5,943.35	22.07	183.92	-104.99	1,180.95	-3,335.34	3,629.02	3,423.11	205.91	17.624	
6,125.00	6,068.49	5,949.00	5,943.35	22.31	183.92	-107.28	1,180.95	-3,335.34	3,632.13	3,426.04	206.09	17.624 SF	
6,188.00	6,131.08	5,949.00	5,943.35	22.55	183.92	-105.50	1,180.95	-3,335.34	3,636.22	3,430.01	206.21	17.634	
6,255.00	6,197.73	5,949.00	5,943.35	22.81	183.92	-106.60	1,180.95	-3,335.34	3,641.47	3,435.21	206.27	17.654	
6,293.00	6,235.55	5,949.00	5,943.35	22.89	183.92	-106.60	1,180.95	-3,335.34	3,644.97	3,438.76	206.21	17.676	
6,300.00	6,242.52	5,949.00	5,943.35	22.89	183.92	-106.60	1,180.95	-3,335.34	3,645.66	3,439.47	206.18	17.682	
6,393.00	6,335.09	5,949.00	5,943.35	22.94	183.92	-106.60	1,180.95	-3,335.34	3,656.04	3,450.25	205.79	17.766	
6,400.00	6,342.06	5,949.00	5,943.35	22.94	183.92	-112.48	1,180.95	-3,335.34	3,656.95	3,451.20	205.75	17.773	
6,450.00	6,391.66	5,949.00	5,943.35	22.97	183.92	-139.48	1,180.95	-3,335.34	3,666.08	3,460.59	205.50	17.840	
6,500.00	6,440.77	5,949.00	5,943.35	23.02	183.92	-151.13	1,180.95	-3,335.34	3,679.71	3,474.49	205.22	17.931	
6,550.00	6,489.07	5,949.00	5,943.35	23.07	183.92	-156.98	1,180.95	-3,335.34	3,697.69	3,492.77	204.92	18.044	
6,600.00	6,536.26	5,949.00	5,943.35	23.13	183.92	-160.32	1,180.95	-3,335.34	3,719.86	3,515.25	204.62	18.180	
6,650.00	6,582.05	5,949.00	5,943.35	23.21	183.92	-162.37	1,180.95	-3,335.34	3,746.00	3,541.69	204.31	18.335	
6,700.00	6,626.13	5,949.00	5,943.35	23.29	183.92	-163.62	1,180.95	-3,335.34	3,775.86	3,571.86	204.01	18.508	
6,750.00	6,668.24	5,949.00	5,943.35	23.39	183.92	-164.35	1,180.95	-3,335.34	3,809.18	3,605.46	203.72	18.698	
6,800.00	6,708.12	5,949.00	5,943.35	23.51	183.92	-164.65	1,180.95	-3,335.34	3,845.65	3,642.21	203.44	18.903	
6,850.00	6,745.50	5,949.00	5,943.35	23.64	183.92	-164.56	1,180.95	-3,335.34	3,884.96	3,681.76	203.19	19.119	
6,900.00	6,780.15	5,949.00	5,943.35	23.79	183.92	-164.06	1,180.95	-3,335.34	3,926.78	3,723.80	202.97	19.346	
6,950.00	6,811.86	5,949.00	5,943.35	23.95	183.92	-163.05	1,180.95	-3,335.34	3,970.77	3,767.99	202.78	19.581	
7,000.00	6,840.42	5,949.00	5,943.35	24.14	183.92	-161.30	1,180.95	-3,335.34	4,016.59	3,813.96	202.63	19.822	
7,050.00	6,865.66	5,949.00	5,943.35	24.35	183.92	-158.28	1,180.95	-3,335.34	4,063.89	3,861.38	202.51	20.067	
7,100.00	6,887.42	5,949.00	5,943.35	24.57	183.92	-152.74	1,180.95	-3,335.34	4,112.33	3,909.89	202.44	20.314	
7,150.00	6,905.55	5,949.00	5,943.35	24.82	183.92	-140.84	1,180.95	-3,335.34	4,161.57	3,959.17	202.40	20.561	
7,200.00	6,919.95	5,949.00	5,943.35	25.10	183.92	-109.24	1,180.95	-3,335.34	4,211.27	4,008.88	202.39	20.807	
7,250.00	6,930.52	5,949.00	5,943.35	25.39	183.92	-53.88	1,180.95	-3,335.34	4,261.12	4,058.69	202.43	21.050	
7,300.00	6,937.20	5,949.00	5,943.35	25.70	183.92	-25.89	1,180.95	-3,335.34	4,310.79	4,108.29	202.50	21.288	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
7,350.00	6,939.94	5,949.00	5,943.35	26.04	183.92	-15.02	1,180.95	-3,335.34	4,359.99	4,157.38	202.61	21.520	
7,359.60	6,940.02	5,949.00	5,943.35	26.10	183.92	-13.72	1,180.95	-3,335.34	4,369.36	4,166.73	202.63	21.563	
7,400.00	6,940.03	5,949.00	5,943.35	26.39	183.92	-13.72	1,180.95	-3,335.34	4,408.73	4,206.00	202.73	21.747	
7,500.00	6,940.04	5,949.00	5,943.35	27.15	183.92	-13.72	1,180.95	-3,335.34	4,506.25	4,303.28	202.98	22.201	
7,600.00	6,940.06	5,949.00	5,943.35	27.99	183.92	-13.72	1,180.95	-3,335.34	4,603.89	4,400.68	203.21	22.656	
7,659.60	6,940.07	5,949.00	5,943.35	28.52	183.92	-13.72	1,180.95	-3,335.34	4,662.13	4,458.78	203.35	22.927	
7,700.00	6,940.08	5,949.00	5,943.35	28.89	183.92	-17.31	1,180.95	-3,335.34	4,701.60	4,498.17	203.44	23.111	
7,796.63	6,940.10	5,949.00	5,943.35	29.83	183.92	-25.41	1,180.95	-3,335.34	4,795.94	4,592.28	203.65	23.550	
7,800.00	6,940.10	5,949.00	5,943.35	29.86	183.92	-25.41	1,180.95	-3,335.34	4,799.23	4,595.57	203.66	23.565	
7,900.00	6,940.12	5,949.00	5,943.35	30.90	183.92	-25.41	1,180.95	-3,335.34	4,896.81	4,692.93	203.88	24.018	
8,000.00	6,940.14	5,949.00	5,943.35	31.98	183.92	-25.41	1,180.95	-3,335.34	4,994.49	4,790.40	204.09	24.472	
8,100.00	6,940.17	5,949.00	5,943.35	33.11	183.92	-25.41	1,180.95	-3,335.34	5,092.26	4,887.96	204.30	24.926	
8,200.00	6,940.19	5,949.00	5,943.35	34.28	183.92	-25.41	1,180.95	-3,335.34	5,190.11	4,985.62	204.49	25.380	
8,300.00	6,940.21	5,949.00	5,943.35	35.48	183.92	-25.41	1,180.95	-3,335.34	5,288.05	5,083.37	204.68	25.835	
8,400.00	6,940.23	5,949.00	5,943.35	36.71	183.92	-25.41	1,180.95	-3,335.34	5,386.06	5,181.19	204.87	26.291	
8,500.00	6,940.25	5,949.00	5,943.35	37.97	183.92	-25.41	1,180.95	-3,335.34	5,484.14	5,279.10	205.04	26.746	
8,600.00	6,940.28	5,949.00	5,943.35	39.26	183.92	-25.41	1,180.95	-3,335.34	5,582.29	5,377.08	205.21	27.203	
8,700.00	6,940.30	5,949.00	5,943.35	40.56	183.92	-25.41	1,180.95	-3,335.34	5,680.51	5,475.13	205.38	27.659	
8,800.00	6,940.32	5,949.00	5,943.35	41.89	183.92	-25.41	1,180.95	-3,335.34	5,778.78	5,573.25	205.54	28.116	
8,900.00	6,940.34	5,949.00	5,943.35	43.24	183.92	-25.41	1,180.95	-3,335.34	5,877.12	5,671.43	205.69	28.573	
9,000.00	6,940.36	5,949.00	5,943.35	44.60	183.92	-25.41	1,180.95	-3,335.34	5,975.51	5,769.67	205.84	29.030	
9,100.00	6,940.39	5,949.00	5,943.35	45.98	183.92	-25.41	1,180.95	-3,335.34	6,073.95	5,867.96	205.99	29.487	
9,200.00	6,940.41	5,949.00	5,943.35	47.38	183.92	-25.41	1,180.95	-3,335.34	6,172.44	5,966.31	206.13	29.945	
9,300.00	6,940.43	5,949.00	5,943.35	48.78	183.92	-25.41	1,180.95	-3,335.34	6,270.98	6,064.71	206.27	30.402	
9,400.00	6,940.45	5,949.00	5,943.35	50.20	183.92	-25.41	1,180.95	-3,335.34	6,369.57	6,163.17	206.40	30.860	
9,500.00	6,940.47	5,949.00	5,943.35	51.63	183.92	-25.41	1,180.95	-3,335.34	6,468.20	6,261.66	206.54	31.318	
9,600.00	6,940.50	5,949.00	5,943.35	53.07	183.92	-25.41	1,180.95	-3,335.34	6,566.87	6,360.20	206.66	31.775	
9,700.00	6,940.52	5,949.00	5,943.35	54.52	183.92	-25.41	1,180.95	-3,335.34	6,665.58	6,458.79	206.79	32.233	
9,800.00	6,940.54	5,949.00	5,943.35	55.97	183.92	-25.41	1,180.95	-3,335.34	6,764.33	6,557.41	206.92	32.691	
9,900.00	6,940.56	5,949.00	5,943.35	57.44	183.92	-25.41	1,180.95	-3,335.34	6,863.11	6,656.07	207.04	33.149	
10,000.00	6,940.59	5,949.00	5,943.35	58.91	183.92	-25.41	1,180.95	-3,335.34	6,961.93	6,754.77	207.16	33.607	
10,100.00	6,940.61	5,949.00	5,943.35	60.38	183.92	-25.41	1,180.95	-3,335.34	7,060.78	6,853.51	207.27	34.065	
10,200.00	6,940.63	5,949.00	5,943.35	61.87	183.92	-25.41	1,180.95	-3,335.34	7,159.67	6,952.28	207.39	34.523	
10,300.00	6,940.65	5,949.00	5,943.35	63.36	183.92	-25.41	1,180.95	-3,335.34	7,258.58	7,051.08	207.50	34.981	
10,400.00	6,940.67	5,949.00	5,943.35	64.85	183.92	-25.41	1,180.95	-3,335.34	7,357.52	7,149.91	207.61	35.439	
10,500.00	6,940.70	5,949.00	5,943.35	66.35	183.92	-25.41	1,180.95	-3,335.34	7,456.50	7,248.77	207.72	35.896	
10,600.00	6,940.72	5,949.00	5,943.35	67.86	183.92	-25.41	1,180.95	-3,335.34	7,555.50	7,347.66	207.83	36.354	
10,700.00	6,940.74	5,949.00	5,943.35	69.36	183.92	-25.41	1,180.95	-3,335.34	7,654.52	7,446.58	207.94	36.811	
10,800.00	6,940.76	5,949.00	5,943.35	70.88	183.92	-25.41	1,180.95	-3,335.34	7,753.57	7,545.53	208.05	37.269	
10,900.00	6,940.78	5,949.00	5,943.35	72.39	183.92	-25.41	1,180.95	-3,335.34	7,852.65	7,644.50	208.15	37.726	
11,000.00	6,940.81	5,949.00	5,943.35	73.91	183.92	-25.41	1,180.95	-3,335.34	7,951.74	7,743.49	208.25	38.183	
11,100.00	6,940.83	5,949.00	5,943.35	75.44	183.92	-25.41	1,180.95	-3,335.34	8,050.86	7,842.51	208.36	38.640	
11,200.00	6,940.85	5,949.00	5,943.35	76.96	183.92	-25.41	1,180.95	-3,335.34	8,150.01	7,941.55	208.46	39.097	
11,300.00	6,940.87	5,949.00	5,943.35	78.49	183.92	-25.41	1,180.95	-3,335.34	8,249.17	8,040.61	208.56	39.553	
11,400.00	6,940.89	5,949.00	5,943.35	80.03	183.92	-25.41	1,180.95	-3,335.34	8,348.35	8,139.69	208.66	40.010	
11,500.00	6,940.92	5,949.00	5,943.35	81.56	183.92	-25.41	1,180.95	-3,335.34	8,447.55	8,238.79	208.76	40.466	
11,600.00	6,940.94	5,949.00	5,943.35	83.10	183.92	-25.41	1,180.95	-3,335.34	8,546.77	8,337.92	208.86	40.922	
11,700.00	6,940.96	5,949.00	5,943.35	84.64	183.92	-25.41	1,180.95	-3,335.34	8,646.01	8,437.06	208.95	41.378	
11,800.00	6,940.98	5,949.00	5,943.35	86.18	183.92	-25.41	1,180.95	-3,335.34	8,745.26	8,536.21	209.05	41.833	
11,900.00	6,941.00	5,949.00	5,943.35	87.72	183.92	-25.41	1,180.95	-3,335.34	8,844.54	8,635.39	209.15	42.289	
12,000.00	6,941.03	5,949.00	5,943.35	89.27	183.92	-25.41	1,180.95	-3,335.34	8,943.82	8,734.58	209.24	42.744	
12,100.00	6,941.05	5,949.00	5,943.35	90.82	183.92	-25.41	1,180.95	-3,335.34	9,043.13	8,833.79	209.34	43.199	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
12,200.00	6,941.07	5,949.00	5,943.35	92.37	183.92	-25.41	1,180.95	-3,335.34	9,142.45	8,933.02	209.43	43.653	
12,300.00	6,941.09	5,949.00	5,943.35	93.92	183.92	-25.41	1,180.95	-3,335.34	9,241.78	9,032.25	209.53	44.108	
12,400.00	6,941.11	5,949.00	5,943.35	95.47	183.92	-25.41	1,180.95	-3,335.34	9,341.13	9,131.51	209.62	44.562	
12,500.00	6,941.14	5,949.00	5,943.35	97.03	183.92	-25.41	1,180.95	-3,335.34	9,440.49	9,230.78	209.72	45.016	
12,600.00	6,941.16	5,949.00	5,943.35	98.58	183.92	-25.41	1,180.95	-3,335.34	9,539.87	9,330.06	209.81	45.469	
12,700.00	6,941.18	5,949.00	5,943.35	100.14	183.92	-25.41	1,180.95	-3,335.34	9,639.26	9,429.35	209.90	45.923	
12,800.00	6,941.20	5,949.00	5,943.35	101.70	183.92	-25.41	1,180.95	-3,335.34	9,738.66	9,528.66	210.00	46.376	
12,900.00	6,941.23	5,949.00	5,943.35	103.26	183.92	-25.41	1,180.95	-3,335.34	9,838.07	9,627.98	210.09	46.828	
13,000.00	6,941.25	5,949.00	5,943.35	104.82	183.92	-25.41	1,180.95	-3,335.34	9,937.49	9,727.31	210.18	47.281	
13,100.00	6,941.27	5,949.00	5,943.35	106.38	183.92	-25.41	1,180.95	-3,335.34	10,036.93	9,826.66	210.27	47.733	
13,200.00	6,941.29	5,949.00	5,943.35	107.95	183.92	-25.41	1,180.95	-3,335.34	10,136.38	9,926.01	210.37	48.185	
13,300.00	6,941.31	5,949.00	5,943.35	109.51	183.92	-25.41	1,180.95	-3,335.34	10,235.83	10,025.38	210.46	48.636	
13,400.00	6,941.34	5,949.00	5,943.35	111.08	183.92	-25.41	1,180.95	-3,335.34	10,335.30	10,124.75	210.55	49.087	
13,500.00	6,941.36	5,949.00	5,943.35	112.64	183.92	-25.41	1,180.95	-3,335.34	10,434.78	10,224.14	210.64	49.538	
13,600.00	6,941.38	5,949.00	5,943.35	114.21	183.92	-25.41	1,180.95	-3,335.34	10,534.27	10,323.53	210.73	49.988	
13,700.00	6,941.40	5,949.00	5,943.35	115.78	183.92	-25.41	1,180.95	-3,335.34	10,633.77	10,422.94	210.83	50.438	
13,800.00	6,941.42	5,949.00	5,943.35	117.35	183.92	-25.41	1,180.95	-3,335.34	10,733.27	10,522.36	210.92	50.888	
13,900.00	6,941.45	5,949.00	5,943.35	118.92	183.92	-25.41	1,180.95	-3,335.34	10,832.79	10,621.78	211.01	51.337	
14,000.00	6,941.47	5,949.00	5,943.35	120.49	183.92	-25.41	1,180.95	-3,335.34	10,932.32	10,721.21	211.10	51.786	
14,100.00	6,941.49	5,949.00	5,943.35	122.06	183.92	-25.41	1,180.95	-3,335.34	11,031.85	10,820.65	211.20	52.235	
14,200.00	6,941.51	5,949.00	5,943.35	123.64	183.92	-25.41	1,180.95	-3,335.34	11,131.39	10,920.10	211.29	52.683	
14,300.00	6,941.53	5,949.00	5,943.35	125.21	183.92	-25.41	1,180.95	-3,335.34	11,230.94	11,019.56	211.38	53.131	
14,400.00	6,941.56	5,949.00	5,943.35	126.78	183.92	-25.41	1,180.95	-3,335.34	11,330.50	11,119.03	211.47	53.579	
14,500.00	6,941.58	5,949.00	5,943.35	128.36	183.92	-25.41	1,180.95	-3,335.34	11,430.07	11,218.50	211.57	54.026	
14,600.00	6,941.60	5,949.00	5,943.35	129.93	183.92	-25.41	1,180.95	-3,335.34	11,529.64	11,317.98	211.66	54.473	
14,700.00	6,941.62	5,949.00	5,943.35	131.51	183.92	-25.41	1,180.95	-3,335.34	11,629.22	11,417.47	211.75	54.919	
14,800.00	6,941.64	5,949.00	5,943.35	133.08	183.92	-25.41	1,180.95	-3,335.34	11,728.81	11,516.96	211.84	55.365	
14,900.00	6,941.67	5,949.00	5,943.35	134.66	183.92	-25.41	1,180.95	-3,335.34	11,828.40	11,616.47	211.94	55.811	
15,000.00	6,941.69	5,949.00	5,943.35	136.24	183.92	-25.41	1,180.95	-3,335.34	11,928.01	11,715.97	212.03	56.256	
15,100.00	6,941.71	5,949.00	5,943.35	137.82	183.92	-25.41	1,180.95	-3,335.34	12,027.61	11,815.49	212.12	56.701	
15,200.00	6,941.73	5,949.00	5,943.35	139.40	183.92	-25.41	1,180.95	-3,335.34	12,127.23	11,915.01	212.22	57.145	
15,300.00	6,941.75	5,949.00	5,943.35	140.97	183.92	-25.41	1,180.95	-3,335.34	12,226.85	12,014.54	212.31	57.589	
15,400.00	6,941.78	5,949.00	5,943.35	142.55	183.92	-25.41	1,180.95	-3,335.34	12,326.48	12,114.07	212.41	58.033	
15,500.00	6,941.80	5,949.00	5,943.35	144.13	183.92	-25.41	1,180.95	-3,335.34	12,426.11	12,213.61	212.50	58.476	
15,600.00	6,941.82	5,949.00	5,943.35	145.72	183.92	-25.41	1,180.95	-3,335.34	12,525.75	12,313.15	212.59	58.919	
15,700.00	6,941.84	5,949.00	5,943.35	147.30	183.92	-25.41	1,180.95	-3,335.34	12,625.39	12,412.70	212.69	59.361	
15,800.00	6,941.87	5,949.00	5,943.35	148.88	183.92	-25.41	1,180.95	-3,335.34	12,725.04	12,512.26	212.78	59.803	
15,900.00	6,941.89	5,949.00	5,943.35	150.46	183.92	-25.41	1,180.95	-3,335.34	12,824.70	12,611.82	212.88	60.244	
16,000.00	6,941.91	5,949.00	5,943.35	152.04	183.92	-25.41	1,180.95	-3,335.34	12,924.36	12,711.39	212.97	60.685	
16,100.00	6,941.93	5,949.00	5,943.35	153.62	183.92	-25.41	1,180.95	-3,335.34	13,024.03	12,810.96	213.07	61.126	
16,200.00	6,941.95	5,949.00	5,943.35	155.21	183.92	-25.41	1,180.95	-3,335.34	13,123.70	12,910.53	213.16	61.566	
16,300.00	6,941.98	5,949.00	5,943.35	156.79	183.92	-25.41	1,180.95	-3,335.34	13,223.37	13,010.11	213.26	62.006	
16,400.00	6,942.00	5,949.00	5,943.35	158.37	183.92	-25.41	1,180.95	-3,335.34	13,323.05	13,109.70	213.36	62.445	
16,500.00	6,942.02	5,949.00	5,943.35	159.96	183.92	-25.41	1,180.95	-3,335.34	13,422.74	13,209.29	213.45	62.884	
16,600.00	6,942.04	5,949.00	5,943.35	161.54	183.92	-25.41	1,180.95	-3,335.34	13,522.43	13,308.88	213.55	63.322	
16,700.00	6,942.06	5,949.00	5,943.35	163.13	183.92	-25.41	1,180.95	-3,335.34	13,622.13	13,408.48	213.65	63.760	
16,800.00	6,942.09	5,949.00	5,943.35	164.71	183.92	-25.41	1,180.95	-3,335.34	13,721.83	13,508.08	213.74	64.198	
16,900.00	6,942.11	5,949.00	5,943.35	166.30	183.92	-25.41	1,180.95	-3,335.34	13,821.53	13,607.69	213.84	64.635	
17,000.00	6,942.13	5,949.00	5,943.35	167.88	183.92	-25.41	1,180.95	-3,335.34	13,921.24	13,707.30	213.94	65.071	
17,100.00	6,942.15	5,949.00	5,943.35	169.47	183.92	-25.41	1,180.95	-3,335.34	14,020.95	13,806.91	214.04	65.507	
17,200.00	6,942.17	5,949.00	5,943.35	171.05	183.92	-25.41	1,180.95	-3,335.34	14,120.67	13,906.53	214.13	65.943	
17,300.00	6,942.20	5,949.00	5,943.35	172.64	183.92	-25.41	1,180.95	-3,335.34	14,220.39	14,006.15	214.23	66.378	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 117-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Rule Assigned:

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
17,400.00	6,942.22	5,949.00	5,943.35	174.23	183.92	-25.41	1,180.95	-3,335.34	14,320.11	14,105.78	214.33	66.813	
17,500.00	6,942.24	5,949.00	5,943.35	175.81	183.92	-25.41	1,180.95	-3,335.34	14,419.84	14,205.41	214.43	67.247	
17,600.00	6,942.26	5,949.00	5,943.35	177.40	183.92	-25.41	1,180.95	-3,335.34	14,519.57	14,305.04	214.53	67.681	
17,700.00	6,942.28	5,949.00	5,943.35	178.99	183.92	-25.41	1,180.95	-3,335.34	14,619.31	14,404.68	214.63	68.114	
17,800.00	6,942.31	5,949.00	5,943.35	180.57	183.92	-25.41	1,180.95	-3,335.34	14,719.04	14,504.32	214.73	68.547	
17,900.00	6,942.33	5,949.00	5,943.35	182.16	183.92	-25.41	1,180.95	-3,335.34	14,818.79	14,603.96	214.83	68.979	
18,000.00	6,942.35	5,949.00	5,943.35	183.75	183.92	-25.41	1,180.95	-3,335.34	14,918.53	14,703.60	214.93	69.411	
18,100.00	6,942.37	5,949.00	5,943.35	185.34	183.92	-25.41	1,180.95	-3,335.34	15,018.28	14,803.25	215.03	69.843	
18,200.00	6,942.39	5,949.00	5,943.35	186.93	183.92	-25.41	1,180.95	-3,335.34	15,118.03	14,902.90	215.13	70.274	
18,300.00	6,942.42	5,949.00	5,943.35	188.52	183.92	-25.41	1,180.95	-3,335.34	15,217.79	15,002.56	215.23	70.704	
18,400.00	6,942.44	5,949.00	5,943.35	190.10	183.92	-25.41	1,180.95	-3,335.34	15,317.55	15,102.22	215.33	71.134	
18,500.00	6,942.46	5,949.00	5,943.35	191.69	183.92	-25.41	1,180.95	-3,335.34	15,417.31	15,201.88	215.44	71.563	
18,600.00	6,942.48	5,949.00	5,943.35	193.28	183.92	-25.41	1,180.95	-3,335.34	15,517.08	15,301.54	215.54	71.992	
18,700.00	6,942.51	5,949.00	5,943.35	194.87	183.92	-25.41	1,180.95	-3,335.34	15,616.85	15,401.21	215.64	72.421	
18,800.00	6,942.53	5,949.00	5,943.35	196.46	183.92	-25.41	1,180.95	-3,335.34	15,716.62	15,500.87	215.74	72.849	
18,900.00	6,942.55	5,949.00	5,943.35	198.05	183.92	-25.41	1,180.95	-3,335.34	15,816.39	15,600.55	215.85	73.276	
19,000.00	6,942.57	5,949.00	5,943.35	199.64	183.92	-25.41	1,180.95	-3,335.34	15,916.17	15,700.22	215.95	73.704	
19,100.00	6,942.59	5,949.00	5,943.35	201.23	183.92	-25.41	1,180.95	-3,335.34	16,015.95	15,799.90	216.05	74.130	
19,200.00	6,942.62	5,949.00	5,943.35	202.82	183.92	-25.41	1,180.95	-3,335.34	16,115.73	15,899.57	216.16	74.556	
19,300.00	6,942.64	5,949.00	5,943.35	204.41	183.92	-25.41	1,180.95	-3,335.34	16,215.51	15,999.26	216.26	74.982	
19,400.00	6,942.66	5,949.00	5,943.35	206.00	183.92	-25.41	1,180.95	-3,335.34	16,315.30	16,098.94	216.36	75.407	
19,500.00	6,942.68	5,949.00	5,943.35	207.59	183.92	-25.41	1,180.95	-3,335.34	16,415.09	16,198.62	216.47	75.831	
19,600.00	6,942.70	5,949.00	5,943.35	209.18	183.92	-25.41	1,180.95	-3,335.34	16,514.89	16,298.31	216.57	76.255	
19,700.00	6,942.73	5,949.00	5,943.35	210.78	183.92	-25.41	1,180.95	-3,335.34	16,614.68	16,398.00	216.68	76.679	
19,800.00	6,942.75	5,949.00	5,943.35	212.37	183.92	-25.41	1,180.95	-3,335.34	16,714.48	16,497.70	216.78	77.102	
19,900.00	6,942.77	5,949.00	5,943.35	213.96	183.92	-25.41	1,180.95	-3,335.34	16,814.28	16,597.39	216.89	77.525	
20,000.00	6,942.79	5,949.00	5,943.35	215.55	183.92	-25.41	1,180.95	-3,335.34	16,914.08	16,697.09	217.00	77.947	
20,100.00	6,942.81	5,949.00	5,943.35	217.14	183.92	-25.41	1,180.95	-3,335.34	17,013.89	16,796.78	217.10	78.368	
20,200.00	6,942.84	5,949.00	5,943.35	218.73	183.92	-25.41	1,180.95	-3,335.34	17,113.69	16,896.49	217.21	78.789	
20,300.00	6,942.86	5,949.00	5,943.35	220.32	183.92	-25.41	1,180.95	-3,335.34	17,213.50	16,996.19	217.32	79.210	
20,400.00	6,942.88	5,949.00	5,943.35	221.92	183.92	-25.41	1,180.95	-3,335.34	17,313.31	17,095.89	217.42	79.630	
20,500.00	6,942.90	5,949.00	5,943.35	223.51	183.92	-25.41	1,180.95	-3,335.34	17,413.13	17,195.60	217.53	80.050	
20,600.00	6,942.92	5,949.00	5,943.35	225.10	183.92	-25.41	1,180.95	-3,335.34	17,512.94	17,295.31	217.64	80.469	
20,700.00	6,942.95	5,949.00	5,943.35	226.69	183.92	-25.41	1,180.95	-3,335.34	17,612.76	17,395.02	217.74	80.887	
20,800.00	6,942.97	5,949.00	5,943.35	228.28	183.92	-25.41	1,180.95	-3,335.34	17,712.58	17,494.73	217.85	81.305	
20,900.00	6,942.99	5,949.00	5,943.35	229.88	183.92	-25.41	1,180.95	-3,335.34	17,812.40	17,594.44	217.96	81.723	
20,942.50	6,943.00	5,949.00	5,943.35	230.42	183.92	-25.41	1,180.95	-3,335.34	17,854.83	17,632.44	222.39	80.287	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**Offset TVD Reference:**	Offset Datum

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

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

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	-80.54	800.30	-4,802.38	4,868.78				
58.45	58.45	17.45	17.45	0.02	0.31	41.18	800.30	-4,802.38	4,868.34	4,868.01	0.32	N/A	
150.25	150.24	109.24	109.24	0.14	1.94	22.88	800.30	-4,802.38	4,867.42	4,865.36	2.06	2,365.309	
239.43	239.42	198.42	198.42	0.25	3.52	17.41	800.30	-4,802.38	4,866.44	4,862.69	3.75	1,297.951	
299.93	299.91	258.91	258.91	0.33	4.59	22.36	800.30	-4,802.38	4,865.71	4,860.82	4.90	993.618	
446.00	445.96	405.58	405.58	0.50	7.19	46.78	800.42	-4,802.38	4,863.83	4,856.16	7.67	634.502	
520.95	520.90	481.65	481.64	0.69	8.53	91.86	800.31	-4,802.38	4,863.31	4,854.11	9.20	528.441	CC
537.00	536.95	495.95	495.95	0.73	8.80	108.05	800.30	-4,802.38	4,863.34	4,853.84	9.51	511.623	
624.00	623.95	582.95	582.95	0.99	10.39	-168.98	800.30	-4,802.38	4,864.21	4,852.85	11.36	428.004	ES
718.00	717.90	677.55	677.55	1.29	12.12	-151.13	800.44	-4,802.38	4,866.69	4,853.29	13.40	363.116	
811.00	810.73	769.75	769.73	1.60	13.82	-131.67	800.30	-4,802.38	4,870.79	4,855.38	15.41	316.147	
903.00	902.19	861.21	861.19	1.92	15.54	-119.77	800.30	-4,802.38	4,876.34	4,858.89	17.45	279.426	
994.00	992.38	951.40	951.38	2.24	17.24	-117.63	800.30	-4,802.38	4,882.20	4,862.73	19.48	250.663	
1,084.00	1,081.50	1,041.02	1,041.00	2.56	18.93	-113.33	801.11	-4,802.38	4,887.76	4,866.27	21.50	227.379	
1,175.00	1,171.48	1,132.86	1,132.84	2.91	20.67	-109.65	800.94	-4,802.38	4,892.74	4,869.17	23.57	207.601	
1,268.00	1,263.52	1,226.73	1,226.71	3.26	22.44	-108.26	800.53	-4,802.38	4,897.05	4,871.36	25.69	190.626	
1,363.00	1,357.62	1,316.67	1,316.62	3.63	24.14	-105.44	800.30	-4,802.38	4,900.83	4,873.08	27.75	176.598	
1,457.00	1,450.74	1,409.79	1,409.74	3.99	25.91	-102.88	800.30	-4,802.38	4,904.00	4,874.12	29.88	164.145	
1,552.00	1,544.82	1,503.86	1,503.82	4.36	27.69	-102.23	800.30	-4,802.38	4,906.90	4,874.87	32.03	153.219	
1,646.00	1,637.88	1,597.98	1,597.94	4.72	29.48	-101.88	800.78	-4,802.38	4,909.77	4,875.60	34.17	143.670	
1,741.00	1,731.94	1,693.18	1,693.14	5.09	31.28	-101.59	800.56	-4,802.38	4,912.47	4,876.13	36.35	135.153	
1,835.00	1,825.07	1,784.15	1,784.07	5.46	33.06	-101.65	800.30	-4,802.38	4,915.02	4,876.53	38.49	127.688	
1,929.00	1,918.39	1,877.46	1,877.39	5.82	35.05	-102.94	800.30	-4,802.38	4,917.44	4,876.60	40.84	120.413	
2,024.00	2,012.84	1,971.91	1,971.84	6.18	37.06	-101.67	800.30	-4,802.38	4,919.63	4,876.43	43.21	113.860	
2,118.00	2,106.19	2,066.22	2,066.14	6.53	39.07	-101.58	801.08	-4,802.38	4,921.96	4,876.39	45.57	107.998	
2,213.00	2,200.37	2,161.99	2,161.90	6.90	41.11	-103.03	800.82	-4,802.38	4,924.61	4,876.62	47.98	102.636	
2,307.00	2,293.61	2,256.74	2,256.65	7.27	43.13	-101.19	800.33	-4,802.38	4,927.08	4,876.71	50.36	97.834	
2,402.00	2,387.91	2,347.09	2,346.91	7.63	45.08	-97.47	800.30	-4,802.38	4,928.94	4,876.26	52.68	93.563	
2,496.00	2,481.29	2,440.47	2,440.29	7.99	47.11	-96.38	800.30	-4,802.38	4,930.26	4,875.20	55.06	89.543	
2,591.00	2,575.67	2,535.81	2,535.61	8.35	49.17	-97.96	801.89	-4,802.38	4,931.82	4,874.33	57.49	85.791	
2,686.00	2,670.05	2,633.24	2,633.03	8.71	51.28	-97.66	801.48	-4,802.38	4,933.25	4,873.29	59.96	82.278	
2,780.00	2,763.49	2,729.60	2,729.37	9.07	53.37	-99.81	800.57	-4,802.38	4,934.73	4,872.33	62.40	79.081	
2,875.00	2,857.94	2,817.21	2,816.94	9.43	55.18	-101.32	800.30	-4,802.38	4,936.56	4,871.99	64.57	76.448	
2,970.00	2,952.51	2,911.78	2,911.51	9.79	57.11	-97.85	800.30	-4,802.38	4,938.09	4,871.23	66.86	73.860	
3,064.00	3,046.19	3,005.58	3,005.30	10.13	59.02	-90.75	801.11	-4,802.38	4,938.79	4,869.67	69.12	71.457	
3,159.00	3,140.98	3,101.74	3,101.46	10.47	60.98	-88.81	800.97	-4,802.38	4,938.76	4,867.34	71.42	69.150	
3,180.81	3,162.75	3,123.83	3,123.55	10.55	61.43	-90.37	800.90	-4,802.38	4,938.75	4,866.80	71.95	68.643	
3,253.00	3,234.84	3,196.95	3,196.67	10.81	62.93	-96.59	800.59	-4,802.38	4,938.93	4,865.23	73.70	67.016	
3,348.00	3,329.74	3,289.07	3,288.74	11.14	64.77	-104.29	800.30	-4,802.38	4,939.66	4,863.78	75.88	65.097	
3,397.00	3,378.70	3,338.03	3,337.70	11.32	65.74	-105.19	800.30	-4,802.38	4,940.19	4,863.17	77.02	64.143	
3,488.00	3,469.63	3,428.96	3,428.63	11.64	67.53	-107.78	800.30	-4,802.38	4,941.17	4,862.04	79.13	62.444	
3,583.00	3,564.49	3,523.82	3,523.49	11.98	69.40	-99.48	800.30	-4,802.38	4,942.26	4,860.92	81.34	60.761	
3,677.00	3,658.13	3,618.73	3,618.39	12.33	71.27	-97.79	801.48	-4,802.38	4,943.59	4,860.03	83.56	59.164	
3,772.00	3,752.42	3,714.46	3,714.10	12.69	73.15	-93.45	801.10	-4,802.38	4,944.61	4,858.80	85.81	57.625	
3,867.00	3,846.42	3,809.80	3,809.44	13.06	75.03	-92.05	800.46	-4,802.38	4,945.21	4,857.15	88.06	56.159	
3,961.00	3,939.30	3,898.68	3,898.30	13.44	76.78	-92.46	800.30	-4,802.38	4,945.77	4,855.59	90.18	54.843	
4,056.00	4,032.83	3,992.21	3,991.83	13.82	78.63	-95.99	800.30	-4,802.38	4,947.06	4,854.65	92.41	53.536	
4,151.00	4,126.01	4,085.57	4,085.18	14.21	80.46	-95.34	800.81	-4,802.38	4,948.96	4,854.33	94.64	52.295	
4,246.00	4,219.10	4,179.39	4,179.00	14.61	82.31	-102.85	800.69	-4,802.38	4,952.01	4,855.13	96.88	51.116	
4,340.00	4,310.92	4,271.86	4,271.47	15.01	84.13	-111.96	800.42	-4,802.38	4,958.24	4,859.14	99.09	50.036	
4,435.00	4,403.54	4,362.97	4,362.54	15.41	85.97	-112.77	800.30	-4,802.38	4,966.43	4,865.10	101.33	49.011	
4,498.00	4,465.21	4,424.63	4,424.21	15.68	87.23	-110.91	800.30	-4,802.38	4,971.32	4,868.47	102.85	48.335	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
4,561.00	4,526.82	4,486.25	4,485.82	15.95	88.49	-105.93	800.30	-4,802.38	4,975.52	4,871.14	104.37	47.671	
4,624.00	4,588.23	4,547.66	4,547.23	16.22	89.74	-104.25	801.39	-4,802.38	4,979.35	4,873.45	105.89	47.023	
4,687.00	4,649.71	4,609.88	4,609.44	16.49	91.01	-103.92	801.32	-4,802.38	4,982.77	4,875.34	107.43	46.382	
4,749.00	4,710.40	4,671.25	4,670.81	16.75	92.27	-102.82	801.11	-4,802.38	4,985.75	4,876.80	108.94	45.765	
4,812.00	4,772.28	4,733.78	4,733.33	17.01	93.54	-102.19	800.77	-4,802.38	4,988.33	4,877.85	110.48	45.152	
4,875.00	4,834.34	4,796.44	4,795.99	17.27	94.82	-102.77	800.29	-4,802.38	4,990.68	4,878.67	112.01	44.555	
4,938.00	4,896.43	4,855.92	4,855.43	17.53	95.95	-103.07	800.30	-4,802.38	4,993.09	4,879.70	113.39	44.033	
5,001.00	4,958.46	4,917.94	4,917.46	17.79	97.13	-106.36	800.30	-4,802.38	4,995.94	4,881.12	114.83	43.508	
5,064.00	5,020.29	4,979.77	4,979.29	18.05	98.30	-110.65	800.30	-4,802.38	4,999.87	4,883.61	116.26	43.005	
5,126.00	5,080.98	5,040.46	5,039.98	18.32	99.45	-114.91	800.30	-4,802.38	5,004.86	4,887.19	117.67	42.531	
5,189.00	5,142.74	5,102.60	5,102.11	18.58	100.63	-113.47	801.07	-4,802.38	5,010.09	4,890.98	119.11	42.061	
5,252.00	5,204.62	5,164.85	5,164.36	18.85	101.82	-113.58	800.93	-4,802.38	5,014.88	4,894.32	120.55	41.599	
5,315.00	5,266.61	5,227.20	5,226.70	19.11	103.00	-113.90	800.68	-4,802.38	5,019.43	4,897.44	121.99	41.145	
5,378.00	5,328.73	5,289.63	5,289.13	19.37	104.18	-113.57	800.33	-4,802.38	5,023.70	4,900.27	123.43	40.701	
5,441.00	5,390.87	5,350.38	5,349.87	19.62	105.42	-114.15	800.30	-4,802.38	5,027.95	4,903.03	124.92	40.250	
5,503.00	5,452.07	5,411.59	5,411.07	19.87	106.67	-113.95	800.30	-4,802.38	5,032.03	4,905.61	126.41	39.806	
5,566.00	5,514.32	5,473.83	5,473.32	20.13	107.94	-114.39	800.30	-4,802.38	5,036.05	4,908.12	127.93	39.365	
5,629.00	5,576.59	5,536.11	5,535.59	20.38	109.21	-112.07	800.30	-4,802.38	5,039.85	4,910.40	129.45	38.932	
5,692.00	5,638.95	5,598.64	5,598.13	20.63	110.49	-114.46	800.81	-4,802.38	5,043.44	4,912.46	130.97	38.507	
5,747.00	5,693.45	5,653.29	5,652.77	20.85	111.60	-112.32	800.73	-4,802.38	5,046.41	4,914.11	132.30	38.143	
5,810.00	5,755.90	5,715.90	5,715.39	21.09	112.88	-113.14	800.57	-4,802.38	5,049.63	4,915.81	133.82	37.734	
5,874.00	5,819.40	5,779.56	5,779.04	21.34	114.18	-111.98	800.34	-4,802.38	5,052.70	4,917.34	135.37	37.326	
5,936.00	5,880.95	5,840.52	5,839.95	21.58	115.62	-112.47	800.30	-4,802.38	5,055.56	4,918.52	137.04	36.891	
5,999.00	5,943.45	5,903.03	5,902.45	21.82	117.12	-114.01	800.30	-4,802.38	5,058.68	4,919.90	138.78	36.450	
6,062.00	6,005.96	5,965.53	5,964.96	22.07	118.62	-111.60	800.30	-4,802.38	5,061.76	4,921.23	140.53	36.020	
6,125.00	6,068.49	6,000.00	5,999.35	22.31	119.45	-113.94	800.30	-4,802.38	5,064.83	4,923.24	141.59	35.771	
6,188.00	6,131.08	6,000.00	5,999.35	22.55	119.45	-112.15	800.30	-4,802.38	5,068.40	4,926.60	141.80	35.743	
6,255.00	6,197.73	6,000.00	5,999.35	22.81	119.45	-113.24	800.30	-4,802.38	5,072.69	4,930.69	142.00	35.724 SF	
6,293.00	6,235.55	6,000.00	5,999.35	22.89	119.45	-113.24	800.30	-4,802.38	5,075.45	4,933.42	142.03	35.734	
6,300.00	6,242.52	6,000.00	5,999.35	22.89	119.45	-113.24	800.30	-4,802.38	5,075.99	4,933.97	142.03	35.739	
6,393.00	6,335.09	6,000.00	5,999.35	22.94	119.45	-113.24	800.30	-4,802.38	5,084.08	4,942.14	141.94	35.819	
6,400.00	6,342.06	6,000.00	5,999.35	22.94	119.45	-119.13	800.30	-4,802.38	5,084.79	4,942.87	141.93	35.827	
6,450.00	6,391.66	6,000.00	5,999.35	22.97	119.45	-146.23	800.30	-4,802.38	5,092.42	4,950.56	141.86	35.897	
6,500.00	6,440.77	6,000.00	5,999.35	23.02	119.45	-158.02	800.30	-4,802.38	5,104.41	4,962.61	141.79	35.999	
6,550.00	6,489.07	6,000.00	5,999.35	23.07	119.45	-164.08	800.30	-4,802.38	5,120.65	4,978.93	141.71	36.133	
6,600.00	6,536.26	6,000.00	5,999.35	23.13	119.45	-167.70	800.30	-4,802.38	5,141.00	4,999.37	141.63	36.298	
6,650.00	6,582.05	6,000.00	5,999.35	23.21	119.45	-170.10	800.30	-4,802.38	5,165.29	5,023.74	141.55	36.491	
6,700.00	6,626.13	6,000.00	5,999.35	23.29	119.45	-171.82	800.30	-4,802.38	5,193.31	5,051.85	141.47	36.710	
6,750.00	6,668.24	6,000.00	5,999.35	23.39	119.45	-173.13	800.30	-4,802.38	5,224.83	5,083.44	141.39	36.954	
6,800.00	6,708.12	6,000.00	5,999.35	23.51	119.45	-174.19	800.30	-4,802.38	5,259.58	5,118.27	141.31	37.221	
6,850.00	6,745.50	6,000.00	5,999.35	23.64	119.45	-175.10	800.30	-4,802.38	5,297.28	5,156.04	141.24	37.507	
6,900.00	6,780.15	6,000.00	5,999.35	23.79	119.45	-175.92	800.30	-4,802.38	5,337.64	5,196.47	141.17	37.810	
6,950.00	6,811.86	6,000.00	5,999.35	23.95	119.45	-176.74	800.30	-4,802.38	5,380.35	5,239.23	141.11	38.128	
7,000.00	6,840.42	6,000.00	5,999.35	24.14	119.45	-177.62	800.30	-4,802.38	5,425.08	5,284.01	141.06	38.458	
7,050.00	6,865.66	6,000.00	5,999.35	24.35	119.45	-178.71	800.30	-4,802.38	5,471.50	5,330.48	141.03	38.798	
7,100.00	6,887.42	6,000.00	5,999.35	24.57	119.45	179.73	800.30	-4,802.38	5,519.29	5,378.29	141.00	39.145	
7,150.00	6,905.55	6,000.00	5,999.35	24.82	119.45	176.99	800.30	-4,802.38	5,568.11	5,427.14	140.98	39.497	
7,200.00	6,919.95	6,000.00	5,999.35	25.10	119.45	170.07	800.30	-4,802.38	5,617.64	5,476.67	140.97	39.851	
7,250.00	6,930.52	6,000.00	5,999.35	25.39	119.45	123.56	800.30	-4,802.38	5,667.54	5,526.57	140.97	40.205	
7,300.00	6,937.20	6,000.00	5,999.35	25.70	119.45	25.94	800.30	-4,802.38	5,717.49	5,576.52	140.98	40.556	
7,350.00	6,939.94	6,000.00	5,999.35	26.04	119.45	14.86	800.30	-4,802.38	5,767.19	5,626.19	141.00	40.903	
7,359.60	6,940.02	6,000.00	5,999.35	26.10	119.45	13.95	800.30	-4,802.38	5,776.68	5,635.68	141.00	40.970	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
7,400.00	6,940.03	6,000.00	5,999.35	26.39	119.45	13.95	800.30	-4,802.38	5,816.56	5,675.54	141.02	41.246	
7,500.00	6,940.04	6,000.00	5,999.35	27.15	119.45	13.95	800.30	-4,802.38	5,915.30	5,774.23	141.07	41.931	
7,600.00	6,940.06	6,000.00	5,999.35	27.99	119.45	13.95	800.30	-4,802.38	6,014.09	5,872.97	141.13	42.615	
7,659.60	6,940.07	6,000.00	5,999.35	28.52	119.45	13.95	800.30	-4,802.38	6,072.99	5,931.84	141.16	43.023	
7,700.00	6,940.08	6,000.00	5,999.35	28.89	119.45	8.75	800.30	-4,802.38	6,112.93	5,971.75	141.18	43.299	
7,796.63	6,940.10	6,000.00	5,999.35	29.83	119.45	-4.28	800.30	-4,802.38	6,208.51	6,067.28	141.24	43.957	
7,800.00	6,940.10	6,000.00	5,999.35	29.86	119.45	-4.28	800.30	-4,802.38	6,211.85	6,070.61	141.24	43.980	
7,900.00	6,940.12	6,000.00	5,999.35	30.90	119.45	-4.28	800.30	-4,802.38	6,310.81	6,169.50	141.31	44.660	
8,000.00	6,940.14	6,000.00	5,999.35	31.98	119.45	-4.28	800.30	-4,802.38	6,409.80	6,268.43	141.38	45.339	
8,100.00	6,940.17	6,000.00	5,999.35	33.11	119.45	-4.28	800.30	-4,802.38	6,508.83	6,367.38	141.44	46.017	
8,200.00	6,940.19	6,000.00	5,999.35	34.28	119.45	-4.28	800.30	-4,802.38	6,607.88	6,466.37	141.51	46.696	
8,300.00	6,940.21	6,000.00	5,999.35	35.48	119.45	-4.28	800.30	-4,802.38	6,706.96	6,565.38	141.57	47.375	
8,400.00	6,940.23	6,000.00	5,999.35	36.71	119.45	-4.28	800.30	-4,802.38	6,806.06	6,664.43	141.64	48.053	
8,500.00	6,940.25	6,000.00	5,999.35	37.97	119.45	-4.28	800.30	-4,802.38	6,905.20	6,763.50	141.70	48.731	
8,600.00	6,940.28	6,000.00	5,999.35	39.26	119.45	-4.28	800.30	-4,802.38	7,004.35	6,862.59	141.76	49.408	
8,700.00	6,940.30	6,000.00	5,999.35	40.56	119.45	-4.28	800.30	-4,802.38	7,103.54	6,961.71	141.83	50.086	
8,800.00	6,940.32	6,000.00	5,999.35	41.89	119.45	-4.28	800.30	-4,802.38	7,202.74	7,060.85	141.89	50.763	
8,900.00	6,940.34	6,000.00	5,999.35	43.24	119.45	-4.28	800.30	-4,802.38	7,301.96	7,160.01	141.95	51.439	
9,000.00	6,940.36	6,000.00	5,999.35	44.60	119.45	-4.28	800.30	-4,802.38	7,401.21	7,259.20	142.01	52.116	
9,100.00	6,940.39	6,000.00	5,999.35	45.98	119.45	-4.28	800.30	-4,802.38	7,500.48	7,358.40	142.08	52.792	
9,200.00	6,940.41	6,000.00	5,999.35	47.38	119.45	-4.28	800.30	-4,802.38	7,599.76	7,457.62	142.14	53.467	
9,300.00	6,940.43	6,000.00	5,999.35	48.78	119.45	-4.28	800.30	-4,802.38	7,699.07	7,556.87	142.20	54.142	
9,400.00	6,940.45	6,000.00	5,999.35	50.20	119.45	-4.28	800.30	-4,802.38	7,798.39	7,656.13	142.26	54.817	
9,500.00	6,940.47	6,000.00	5,999.35	51.63	119.45	-4.28	800.30	-4,802.38	7,897.73	7,755.40	142.32	55.491	
9,600.00	6,940.50	6,000.00	5,999.35	53.07	119.45	-4.28	800.30	-4,802.38	7,997.08	7,854.70	142.39	56.165	
9,700.00	6,940.52	6,000.00	5,999.35	54.52	119.45	-4.28	800.30	-4,802.38	8,096.45	7,954.01	142.45	56.838	
9,800.00	6,940.54	6,000.00	5,999.35	55.97	119.45	-4.28	800.30	-4,802.38	8,195.84	8,053.33	142.51	57.510	
9,900.00	6,940.56	6,000.00	5,999.35	57.44	119.45	-4.28	800.30	-4,802.38	8,295.24	8,152.67	142.57	58.182	
10,000.00	6,940.59	6,000.00	5,999.35	58.91	119.45	-4.28	800.30	-4,802.38	8,394.66	8,252.02	142.64	58.854	
10,100.00	6,940.61	6,000.00	5,999.35	60.38	119.45	-4.28	800.30	-4,802.38	8,494.09	8,351.39	142.70	59.525	
10,200.00	6,940.63	6,000.00	5,999.35	61.87	119.45	-4.28	800.30	-4,802.38	8,593.53	8,450.77	142.76	60.195	
10,300.00	6,940.65	6,000.00	5,999.35	63.36	119.45	-4.28	800.30	-4,802.38	8,692.98	8,550.16	142.82	60.865	
10,400.00	6,940.67	6,000.00	5,999.35	64.85	119.45	-4.28	800.30	-4,802.38	8,792.45	8,649.56	142.89	61.534	
10,500.00	6,940.70	6,000.00	5,999.35	66.35	119.45	-4.28	800.30	-4,802.38	8,891.93	8,748.98	142.95	62.202	
10,600.00	6,940.72	6,000.00	5,999.35	67.86	119.45	-4.28	800.30	-4,802.38	8,991.42	8,848.41	143.02	62.870	
10,700.00	6,940.74	6,000.00	5,999.35	69.36	119.45	-4.28	800.30	-4,802.38	9,090.93	8,947.85	143.08	63.538	
10,800.00	6,940.76	6,000.00	5,999.35	70.88	119.45	-4.28	800.30	-4,802.38	9,190.44	9,047.29	143.14	64.204	
10,900.00	6,940.78	6,000.00	5,999.35	72.39	119.45	-4.28	800.30	-4,802.38	9,289.96	9,146.75	143.21	64.870	
11,000.00	6,940.81	6,000.00	5,999.35	73.91	119.45	-4.28	800.30	-4,802.38	9,389.50	9,246.22	143.27	65.535	
11,100.00	6,940.83	6,000.00	5,999.35	75.44	119.45	-4.28	800.30	-4,802.38	9,489.04	9,345.70	143.34	66.200	
11,200.00	6,940.85	6,000.00	5,999.35	76.96	119.45	-4.28	800.30	-4,802.38	9,588.59	9,445.19	143.41	66.863	
11,300.00	6,940.87	6,000.00	5,999.35	78.49	119.45	-4.28	800.30	-4,802.38	9,688.15	9,544.68	143.47	67.526	
11,400.00	6,940.89	6,000.00	5,999.35	80.03	119.45	-4.28	800.30	-4,802.38	9,787.73	9,644.19	143.54	68.189	
11,500.00	6,940.92	6,000.00	5,999.35	81.56	119.45	-4.28	800.30	-4,802.38	9,887.31	9,743.70	143.61	68.850	
11,600.00	6,940.94	6,000.00	5,999.35	83.10	119.45	-4.28	800.30	-4,802.38	9,986.89	9,843.22	143.67	69.511	
11,700.00	6,940.96	6,000.00	5,999.35	84.64	119.45	-4.28	800.30	-4,802.38	10,086.49	9,942.75	143.74	70.171	
11,800.00	6,940.98	6,000.00	5,999.35	86.18	119.45	-4.28	800.30	-4,802.38	10,186.09	10,042.28	143.81	70.830	
11,900.00	6,941.00	6,000.00	5,999.35	87.72	119.45	-4.28	800.30	-4,802.38	10,285.71	10,141.83	143.88	71.488	
12,000.00	6,941.03	6,000.00	5,999.35	89.27	119.45	-4.28	800.30	-4,802.38	10,385.33	10,241.38	143.95	72.146	
12,100.00	6,941.05	6,000.00	5,999.35	90.82	119.45	-4.28	800.30	-4,802.38	10,484.95	10,340.93	144.02	72.803	
12,200.00	6,941.07	6,000.00	5,999.35	92.37	119.45	-4.28	800.30	-4,802.38	10,584.59	10,440.50	144.09	73.459	
12,300.00	6,941.09	6,000.00	5,999.35	93.92	119.45	-4.28	800.30	-4,802.38	10,684.23	10,540.07	144.16	74.114	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
12,400.00	6,941.11	6,000.00	5,999.35	95.47	119.45	-4.28	800.30	-4,802.38	10,783.87	10,639.64	144.23	74.768	
12,500.00	6,941.14	6,000.00	5,999.35	97.03	119.45	-4.28	800.30	-4,802.38	10,883.53	10,739.22	144.30	75.421	
12,600.00	6,941.16	6,000.00	5,999.35	98.58	119.45	-4.28	800.30	-4,802.38	10,983.19	10,838.81	144.38	76.074	
12,700.00	6,941.18	6,000.00	5,999.35	100.14	119.45	-4.28	800.30	-4,802.38	11,082.85	10,938.40	144.45	76.726	
12,800.00	6,941.20	6,000.00	5,999.35	101.70	119.45	-4.28	800.30	-4,802.38	11,182.52	11,038.00	144.52	77.376	
12,900.00	6,941.23	6,000.00	5,999.35	103.26	119.45	-4.28	800.30	-4,802.38	11,282.20	11,137.61	144.60	78.026	
13,000.00	6,941.25	6,000.00	5,999.35	104.82	119.45	-4.28	800.30	-4,802.38	11,381.89	11,237.22	144.67	78.675	
13,100.00	6,941.27	6,000.00	5,999.35	106.38	119.45	-4.28	800.30	-4,802.38	11,481.58	11,336.83	144.74	79.323	
13,200.00	6,941.29	6,000.00	5,999.35	107.95	119.45	-4.28	800.30	-4,802.38	11,581.27	11,436.45	144.82	79.971	
13,300.00	6,941.31	6,000.00	5,999.35	109.51	119.45	-4.28	800.30	-4,802.38	11,680.97	11,536.07	144.89	80.617	
13,400.00	6,941.34	6,000.00	5,999.35	111.08	119.45	-4.28	800.30	-4,802.38	11,780.67	11,635.70	144.97	81.262	
13,500.00	6,941.36	6,000.00	5,999.35	112.64	119.45	-4.28	800.30	-4,802.38	11,880.38	11,735.34	145.05	81.907	
13,600.00	6,941.38	6,000.00	5,999.35	114.21	119.45	-4.28	800.30	-4,802.38	11,980.10	11,834.97	145.12	82.550	
13,700.00	6,941.40	6,000.00	5,999.35	115.78	119.45	-4.28	800.30	-4,802.38	12,079.82	11,934.61	145.20	83.193	
13,800.00	6,941.42	6,000.00	5,999.35	117.35	119.45	-4.28	800.30	-4,802.38	12,179.54	12,034.26	145.28	83.834	
13,900.00	6,941.45	6,000.00	5,999.35	118.92	119.45	-4.28	800.30	-4,802.38	12,279.27	12,133.91	145.36	84.475	
14,000.00	6,941.47	6,000.00	5,999.35	120.49	119.45	-4.28	800.30	-4,802.38	12,379.00	12,233.56	145.44	85.115	
14,100.00	6,941.49	6,000.00	5,999.35	122.06	119.45	-4.28	800.30	-4,802.38	12,478.74	12,333.22	145.52	85.754	
14,200.00	6,941.51	6,000.00	5,999.35	123.64	119.45	-4.28	800.30	-4,802.38	12,578.48	12,432.88	145.60	86.391	
14,300.00	6,941.53	6,000.00	5,999.35	125.21	119.45	-4.28	800.30	-4,802.38	12,678.23	12,532.55	145.68	87.028	
14,400.00	6,941.56	6,000.00	5,999.35	126.78	119.45	-4.28	800.30	-4,802.38	12,777.97	12,632.21	145.76	87.664	
14,500.00	6,941.58	6,000.00	5,999.35	128.36	119.45	-4.28	800.30	-4,802.38	12,877.73	12,731.88	145.84	88.299	
14,600.00	6,941.60	6,000.00	5,999.35	129.93	119.45	-4.28	800.30	-4,802.38	12,977.48	12,831.56	145.92	88.933	
14,700.00	6,941.62	6,000.00	5,999.35	131.51	119.45	-4.28	800.30	-4,802.38	13,077.24	12,931.24	146.01	89.565	
14,800.00	6,941.64	6,000.00	5,999.35	133.08	119.45	-4.28	800.30	-4,802.38	13,177.01	13,030.92	146.09	90.197	
14,900.00	6,941.67	6,000.00	5,999.35	134.66	119.45	-4.28	800.30	-4,802.38	13,276.78	13,130.60	146.17	90.828	
15,000.00	6,941.69	6,000.00	5,999.35	136.24	119.45	-4.28	800.30	-4,802.38	13,376.55	13,230.29	146.26	91.458	
15,100.00	6,941.71	6,000.00	5,999.35	137.82	119.45	-4.28	800.30	-4,802.38	13,476.32	13,329.98	146.34	92.087	
15,200.00	6,941.73	6,000.00	5,999.35	139.40	119.45	-4.28	800.30	-4,802.38	13,576.10	13,429.67	146.43	92.715	
15,300.00	6,941.75	6,000.00	5,999.35	140.97	119.45	-4.28	800.30	-4,802.38	13,675.88	13,529.37	146.51	93.341	
15,400.00	6,941.78	6,000.00	5,999.35	142.55	119.45	-4.28	800.30	-4,802.38	13,775.67	13,629.07	146.60	93.967	
15,500.00	6,941.80	6,000.00	5,999.35	144.13	119.45	-4.28	800.30	-4,802.38	13,875.45	13,728.77	146.69	94.592	
15,600.00	6,941.82	6,000.00	5,999.35	145.72	119.45	-4.28	800.30	-4,802.38	13,975.24	13,828.47	146.77	95.216	
15,700.00	6,941.84	6,000.00	5,999.35	147.30	119.45	-4.28	800.30	-4,802.38	14,075.04	13,928.18	146.86	95.838	
15,800.00	6,941.87	6,000.00	5,999.35	148.88	119.45	-4.28	800.30	-4,802.38	14,174.83	14,027.88	146.95	96.460	
15,900.00	6,941.89	6,000.00	5,999.35	150.46	119.45	-4.28	800.30	-4,802.38	14,274.63	14,127.59	147.04	97.080	
16,000.00	6,941.91	6,000.00	5,999.35	152.04	119.45	-4.28	800.30	-4,802.38	14,374.44	14,227.31	147.13	97.700	
16,100.00	6,941.93	6,000.00	5,999.35	153.62	119.45	-4.28	800.30	-4,802.38	14,474.24	14,327.02	147.22	98.318	
16,200.00	6,941.95	6,000.00	5,999.35	155.21	119.45	-4.28	800.30	-4,802.38	14,574.05	14,426.74	147.31	98.936	
16,300.00	6,941.98	6,000.00	5,999.35	156.79	119.45	-4.28	800.30	-4,802.38	14,673.86	14,526.46	147.40	99.552	
16,400.00	6,942.00	6,000.00	5,999.35	158.37	119.45	-4.28	800.30	-4,802.38	14,773.67	14,626.18	147.49	100.168	
16,500.00	6,942.02	6,000.00	5,999.35	159.96	119.45	-4.28	800.30	-4,802.38	14,873.49	14,725.90	147.58	100.782	
16,600.00	6,942.04	6,000.00	5,999.35	161.54	119.45	-4.28	800.30	-4,802.38	14,973.30	14,825.63	147.67	101.395	
16,700.00	6,942.06	6,000.00	5,999.35	163.13	119.45	-4.28	800.30	-4,802.38	15,073.12	14,925.36	147.77	102.007	
16,800.00	6,942.09	6,000.00	5,999.35	164.71	119.45	-4.28	800.30	-4,802.38	15,172.95	15,025.09	147.86	102.618	
16,900.00	6,942.11	6,000.00	5,999.35	166.30	119.45	-4.28	800.30	-4,802.38	15,272.77	15,124.82	147.95	103.228	
17,000.00	6,942.13	6,000.00	5,999.35	167.88	119.45	-4.28	800.30	-4,802.38	15,372.60	15,224.55	148.05	103.837	
17,100.00	6,942.15	6,000.00	5,999.35	169.47	119.45	-4.28	800.30	-4,802.38	15,472.43	15,324.29	148.14	104.445	
17,200.00	6,942.17	6,000.00	5,999.35	171.05	119.45	-4.28	800.30	-4,802.38	15,572.26	15,424.02	148.23	105.052	
17,300.00	6,942.20	6,000.00	5,999.35	172.64	119.45	-4.28	800.30	-4,802.38	15,672.09	15,523.76	148.33	105.657	
17,400.00	6,942.22	6,000.00	5,999.35	174.23	119.45	-4.28	800.30	-4,802.38	15,771.93	15,623.50	148.42	106.262	
17,500.00	6,942.24	6,000.00	5,999.35	175.81	119.45	-4.28	800.30	-4,802.38	15,871.76	15,723.24	148.52	106.866	

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 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
17,600.00	6,942.26	6,000.00	5,999.35	177.40	119.45	-4.28	800.30	-4,802.38	15,971.60	15,822.99	148.62	107.468	
17,700.00	6,942.28	6,000.00	5,999.35	178.99	119.45	-4.28	800.30	-4,802.38	16,071.45	15,922.73	148.71	108.070	
17,800.00	6,942.31	6,000.00	5,999.35	180.57	119.45	-4.28	800.30	-4,802.38	16,171.29	16,022.48	148.81	108.670	
17,900.00	6,942.33	6,000.00	5,999.35	182.16	119.45	-4.28	800.30	-4,802.38	16,271.14	16,122.23	148.91	109.269	
18,000.00	6,942.35	6,000.00	5,999.35	183.75	119.45	-4.28	800.30	-4,802.38	16,370.98	16,221.98	149.01	109.867	
18,100.00	6,942.37	6,000.00	5,999.35	185.34	119.45	-4.28	800.30	-4,802.38	16,470.83	16,321.73	149.11	110.464	
18,200.00	6,942.39	6,000.00	5,999.35	186.93	119.45	-4.28	800.30	-4,802.38	16,570.68	16,421.48	149.20	111.060	
18,300.00	6,942.42	6,000.00	5,999.35	188.52	119.45	-4.28	800.30	-4,802.38	16,670.54	16,521.23	149.30	111.655	
18,400.00	6,942.44	6,000.00	5,999.35	190.10	119.45	-4.28	800.30	-4,802.38	16,770.39	16,620.99	149.40	112.249	
18,500.00	6,942.46	6,000.00	5,999.35	191.69	119.45	-4.28	800.30	-4,802.38	16,870.25	16,720.74	149.50	112.842	
18,600.00	6,942.48	6,000.00	5,999.35	193.28	119.45	-4.28	800.30	-4,802.38	16,970.11	16,820.50	149.60	113.433	
18,700.00	6,942.51	6,000.00	5,999.35	194.87	119.45	-4.28	800.30	-4,802.38	17,069.97	16,920.26	149.71	114.024	
18,800.00	6,942.53	6,000.00	5,999.35	196.46	119.45	-4.28	800.30	-4,802.38	17,169.83	17,020.02	149.81	114.613	
18,900.00	6,942.55	6,000.00	5,999.35	198.05	119.45	-4.28	800.30	-4,802.38	17,269.69	17,119.78	149.91	115.202	
19,000.00	6,942.57	6,000.00	5,999.35	199.64	119.45	-4.28	800.30	-4,802.38	17,369.56	17,219.54	150.01	115.789	
19,100.00	6,942.59	6,000.00	5,999.35	201.23	119.45	-4.28	800.30	-4,802.38	17,469.42	17,319.31	150.11	116.375	
19,200.00	6,942.62	6,000.00	5,999.35	202.82	119.45	-4.28	800.30	-4,802.38	17,569.29	17,419.07	150.22	116.960	
19,300.00	6,942.64	6,000.00	5,999.35	204.41	119.45	-4.28	800.30	-4,802.38	17,669.16	17,518.84	150.32	117.544	
19,400.00	6,942.66	6,000.00	5,999.35	206.00	119.45	-4.28	800.30	-4,802.38	17,769.03	17,618.61	150.42	118.127	
19,500.00	6,942.68	6,000.00	5,999.35	207.59	119.45	-4.28	800.30	-4,802.38	17,868.90	17,718.37	150.53	118.709	
19,600.00	6,942.70	6,000.00	5,999.35	209.18	119.45	-4.28	800.30	-4,802.38	17,968.77	17,818.14	150.63	119.290	
19,700.00	6,942.73	6,000.00	5,999.35	210.78	119.45	-4.28	800.30	-4,802.38	18,068.65	17,917.91	150.74	119.869	
19,800.00	6,942.75	6,000.00	5,999.35	212.37	119.45	-4.28	800.30	-4,802.38	18,168.53	18,017.68	150.84	120.448	
19,900.00	6,942.77	6,000.00	5,999.35	213.96	119.45	-4.28	800.30	-4,802.38	18,268.40	18,117.46	150.95	121.025	
20,000.00	6,942.79	6,000.00	5,999.35	215.55	119.45	-4.28	800.30	-4,802.38	18,368.28	18,217.23	151.05	121.602	
20,100.00	6,942.81	6,000.00	5,999.35	217.14	119.45	-4.28	800.30	-4,802.38	18,468.16	18,317.00	151.16	122.177	
20,200.00	6,942.84	6,000.00	5,999.35	218.73	119.45	-4.28	800.30	-4,802.38	18,568.04	18,416.78	151.27	122.751	
20,300.00	6,942.86	6,000.00	5,999.35	220.32	119.45	-4.28	800.30	-4,802.38	18,667.93	18,516.55	151.37	123.324	
20,400.00	6,942.88	6,000.00	5,999.35	221.92	119.45	-4.28	800.30	-4,802.38	18,767.81	18,616.33	151.48	123.896	
20,500.00	6,942.90	6,000.00	5,999.35	223.51	119.45	-4.28	800.30	-4,802.38	18,867.70	18,716.11	151.59	124.467	
20,600.00	6,942.92	6,000.00	5,999.35	225.10	119.45	-4.28	800.30	-4,802.38	18,967.58	18,815.89	151.70	125.037	
20,700.00	6,942.95	6,000.00	5,999.35	226.69	119.45	-4.28	800.30	-4,802.38	19,067.47	18,915.67	151.80	125.606	
20,800.00	6,942.97	6,000.00	5,999.35	228.28	119.45	-4.28	800.30	-4,802.38	19,167.36	19,015.45	151.91	126.174	
20,900.00	6,942.99	6,000.00	5,999.35	229.88	119.45	-4.28	800.30	-4,802.38	19,267.25	19,115.23	152.02	126.740	
20,942.50	6,943.00	6,000.00	5,999.35	230.42	119.45	-4.28	800.30	-4,802.38	19,309.70	19,153.03	156.67	123.252	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
0.00	0.00	189.12	189.10	0.00	0.18	-79.00	1,293.72	-6,652.78	6,778.04				
58.45	58.45	245.36	245.34	0.02	0.26	42.73	1,293.99	-6,651.95	6,776.98	6,776.74	0.24	N/A	
150.25	150.24	329.05	329.02	0.14	0.36	24.44	1,294.39	-6,650.76	6,774.89	6,774.44	0.45	N/A	
239.43	239.42	400.00	399.96	0.25	0.46	18.96	1,294.59	-6,649.91	6,772.92	6,772.27	0.65	N/A	
299.93	299.91	444.64	444.60	0.33	0.51	23.91	1,294.62	-6,649.50	6,771.67	6,770.90	0.78	8,696.667	
446.00	445.96	558.70	558.66	0.50	0.63	48.33	1,294.47	-6,649.07	6,769.20	6,768.11	1.09	6,200.012	
527.27	527.22	635.60	635.56	0.70	0.72	99.69	1,294.40	-6,648.92	6,768.57	6,767.19	1.38	4,888.756	CC
537.00	536.95	645.13	645.09	0.73	0.73	109.59	1,294.41	-6,648.90	6,768.58	6,767.16	1.42	4,771.025	ES
624.00	623.95	728.40	728.36	0.99	0.81	-167.43	1,294.64	-6,648.72	6,769.32	6,767.56	1.76	3,853.761	
718.00	717.90	815.98	815.93	1.29	0.89	-149.58	1,295.07	-6,648.57	6,771.68	6,769.56	2.11	3,206.117	
811.00	810.73	909.63	909.59	1.60	0.97	-130.11	1,295.66	-6,648.43	6,775.67	6,773.19	2.47	2,740.403	
903.00	902.19	1,000.00	999.95	1.92	1.06	-118.18	1,296.30	-6,648.23	6,780.93	6,778.09	2.84	2,385.757	
994.00	992.38	1,083.77	1,083.72	2.24	1.14	-116.00	1,297.04	-6,648.08	6,786.48	6,783.26	3.21	2,113.397	
1,084.00	1,081.50	1,152.68	1,152.62	2.56	1.21	-111.65	1,297.80	-6,648.07	6,791.76	6,788.19	3.57	1,903.811	
1,175.00	1,171.48	1,221.19	1,221.13	2.91	1.26	-107.88	1,298.72	-6,648.27	6,796.86	6,792.93	3.93	1,729.731	
1,268.00	1,263.52	1,300.00	1,299.93	3.26	1.32	-106.43	1,299.81	-6,648.73	6,801.61	6,797.31	4.30	1,582.116	
1,363.00	1,357.62	1,378.20	1,378.12	3.63	1.38	-103.55	1,300.90	-6,649.36	6,806.00	6,801.32	4.68	1,454.949	
1,457.00	1,450.74	1,463.70	1,463.61	3.99	1.44	-100.93	1,302.06	-6,650.16	6,809.85	6,804.79	5.06	1,345.768	
1,552.00	1,544.82	1,549.63	1,549.53	4.36	1.50	-100.22	1,303.18	-6,651.07	6,813.53	6,808.07	5.45	1,249.218	
1,646.00	1,637.88	1,630.58	1,630.46	4.72	1.56	-99.81	1,304.25	-6,652.04	6,817.20	6,811.35	5.85	1,165.378	
1,741.00	1,731.94	1,700.00	1,699.87	5.09	1.61	-99.44	1,305.10	-6,653.03	6,821.03	6,814.79	6.25	1,091.681	
1,835.00	1,825.07	1,779.95	1,779.80	5.46	1.67	-99.45	1,306.13	-6,654.40	6,824.95	6,818.30	6.65	1,025.780	
1,929.00	1,918.39	1,866.93	1,866.76	5.82	1.73	-100.71	1,307.39	-6,656.07	6,828.97	6,821.91	7.06	966.767	
2,024.00	2,012.84	1,968.21	1,968.01	6.18	1.82	-99.41	1,308.97	-6,657.99	6,832.80	6,825.31	7.49	912.340	
2,118.00	2,106.19	2,114.55	2,114.31	6.53	1.97	-99.31	1,311.41	-6,660.12	6,836.24	6,828.29	7.96	859.269	
2,213.00	2,200.37	2,230.49	2,230.24	6.90	2.10	-100.72	1,313.19	-6,661.11	6,839.48	6,831.07	8.41	812.876	
2,307.00	2,293.61	2,327.34	2,327.07	7.27	2.21	-98.83	1,314.51	-6,661.79	6,842.40	6,833.55	8.85	773.086	
2,402.00	2,387.91	2,412.84	2,412.56	7.63	2.30	-95.07	1,315.23	-6,662.50	6,844.73	6,835.44	9.29	736.961	
2,496.00	2,481.29	2,489.47	2,489.18	7.99	2.37	-93.93	1,315.60	-6,663.35	6,846.69	6,836.97	9.71	704.769	
2,591.00	2,575.67	2,579.31	2,579.02	8.35	2.44	-95.48	1,315.86	-6,664.52	6,848.86	6,838.70	10.16	673.956	
2,686.00	2,670.05	2,658.16	2,657.87	8.71	2.50	-95.14	1,316.01	-6,665.64	6,851.25	6,840.65	10.60	646.272	
2,780.00	2,763.49	2,738.75	2,738.44	9.07	2.56	-97.22	1,316.11	-6,667.02	6,853.98	6,842.94	11.04	620.899	
2,875.00	2,857.94	2,829.53	2,829.20	9.43	2.63	-98.72	1,316.28	-6,668.64	6,857.11	6,845.62	11.49	596.670	
2,970.00	2,952.51	2,922.63	2,922.29	9.79	2.71	-95.23	1,316.51	-6,670.33	6,859.98	6,848.03	11.95	574.263	
3,064.00	3,046.19	3,016.12	3,015.76	10.13	2.79	-88.12	1,316.73	-6,672.05	6,861.98	6,849.59	12.39	553.709	
3,159.00	3,140.98	3,119.13	3,118.76	10.47	2.89	-86.18	1,317.08	-6,673.84	6,863.36	6,850.51	12.85	534.088	
3,253.00	3,234.84	3,212.94	3,212.55	10.81	2.98	-93.95	1,317.39	-6,675.43	6,864.96	6,851.67	13.29	516.514	
3,348.00	3,329.74	3,309.85	3,309.45	11.14	3.06	-101.64	1,317.40	-6,677.10	6,867.15	6,853.42	13.74	499.898	
3,397.00	3,378.70	3,358.52	3,358.11	11.32	3.11	-102.54	1,317.34	-6,677.95	6,868.42	6,854.45	13.97	491.811	
3,488.00	3,469.63	3,449.89	3,449.47	11.64	3.19	-105.13	1,317.31	-6,679.52	6,870.79	6,856.40	14.39	477.443	
3,583.00	3,564.49	3,549.77	3,549.33	11.98	3.29	-96.78	1,317.37	-6,681.20	6,873.22	6,858.38	14.85	462.909	
3,677.00	3,658.13	3,645.61	3,645.16	12.33	3.39	-95.05	1,317.57	-6,682.70	6,875.54	6,860.23	15.31	449.101	
3,772.00	3,752.42	3,751.58	3,751.12	12.69	3.50	-90.66	1,317.74	-6,684.34	6,877.54	6,861.74	15.80	435.298	
3,867.00	3,846.42	3,919.93	3,919.44	13.06	3.60	-89.32	1,315.96	-6,686.12	6,878.40	6,862.06	16.34	421.041	
3,961.00	3,939.30	4,000.00	3,999.47	13.44	3.62	-89.70	1,313.47	-6,686.71	6,878.56	6,861.80	16.76	410.481	
4,056.00	4,032.83	4,064.79	4,064.23	13.82	3.64	-93.14	1,311.56	-6,687.37	6,879.64	6,862.45	17.19	400.252	
4,151.00	4,126.01	4,129.97	4,129.40	14.21	3.67	-92.41	1,310.36	-6,688.34	6,881.71	6,864.07	17.63	390.273	
4,246.00	4,219.10	4,217.88	4,217.28	14.61	3.73	-99.85	1,309.11	-6,689.74	6,885.11	6,867.00	18.11	380.167	
4,340.00	4,310.92	4,301.75	4,301.13	15.01	3.79	-108.89	1,307.92	-6,691.15	6,891.74	6,873.15	18.59	370.784	
4,435.00	4,403.54	4,402.34	4,401.70	15.41	3.86	-109.68	1,306.34	-6,692.86	6,900.29	6,881.21	19.08	361.567	
4,498.00	4,465.21	4,473.64	4,472.98	15.68	3.91	-107.81	1,305.26	-6,693.96	6,905.39	6,885.97	19.41	355.683	
4,561.00	4,526.82	4,553.82	4,553.14	15.95	3.96	-102.84	1,304.23	-6,695.03	6,909.64	6,889.88	19.76	349.759	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
4,624.00	4,588.23	4,627.19	4,626.51	16.22	4.02	-101.16	1,303.43	-6,695.79	6,913.20	6,893.11	20.09	344.040	
4,687.00	4,649.71	4,686.70	4,686.01	16.49	4.06	-100.78	1,302.84	-6,696.37	6,916.43	6,896.01	20.42	338.739	
4,749.00	4,710.40	4,742.25	4,741.55	16.75	4.11	-99.63	1,302.31	-6,696.93	6,919.29	6,898.56	20.73	333.741	
4,812.00	4,772.28	4,800.00	4,799.30	17.01	4.16	-98.97	1,301.77	-6,697.57	6,921.87	6,900.82	21.05	328.831	
4,875.00	4,834.34	4,853.89	4,853.18	17.27	4.21	-99.50	1,301.30	-6,698.20	6,924.32	6,902.96	21.36	324.139	
4,938.00	4,896.43	4,911.43	4,910.71	17.53	4.26	-99.77	1,300.83	-6,698.93	6,926.86	6,905.19	21.68	319.537	
5,001.00	4,958.46	4,976.03	4,975.31	17.79	4.32	-103.03	1,300.32	-6,699.74	6,929.83	6,907.82	22.00	314.932	
5,064.00	5,020.29	5,044.12	5,043.39	18.05	4.38	-107.30	1,299.74	-6,700.56	6,933.78	6,911.44	22.34	310.418	
5,126.00	5,080.98	5,111.65	5,110.91	18.32	4.45	-111.53	1,299.11	-6,701.31	6,938.70	6,916.03	22.67	306.126	
5,189.00	5,142.74	5,174.15	5,173.40	18.58	4.50	-110.08	1,298.54	-6,701.96	6,943.80	6,920.81	22.99	302.029	
5,252.00	5,204.62	5,232.69	5,231.94	18.85	4.56	-110.16	1,298.05	-6,702.58	6,948.55	6,925.24	23.31	298.095	
5,315.00	5,266.61	5,288.48	5,287.73	19.11	4.62	-110.44	1,297.62	-6,703.20	6,953.14	6,929.52	23.62	294.318	
5,378.00	5,328.73	5,350.34	5,349.59	19.37	4.68	-110.08	1,297.19	-6,703.92	6,957.53	6,933.58	23.94	290.564	
5,441.00	5,390.87	5,414.85	5,414.09	19.62	4.75	-110.65	1,296.72	-6,704.66	6,961.86	6,937.59	24.27	286.881	
5,503.00	5,452.07	5,482.18	5,481.41	19.87	4.81	-110.43	1,296.14	-6,705.40	6,966.00	6,941.42	24.59	283.341	
5,566.00	5,514.32	5,529.35	5,528.58	20.13	4.86	-110.84	1,295.66	-6,705.93	6,970.12	6,945.23	24.88	280.124	
5,629.00	5,576.59	5,569.02	5,568.24	20.38	4.90	-108.47	1,295.17	-6,706.51	6,974.21	6,949.04	25.17	277.087	
5,692.00	5,638.95	5,600.00	5,599.21	20.63	4.93	-110.81	1,294.75	-6,707.05	6,978.31	6,952.86	25.44	274.251	
5,747.00	5,693.45	5,646.59	5,645.78	20.85	4.98	-108.66	1,293.99	-6,708.02	6,981.90	6,956.20	25.71	271.608	
5,810.00	5,755.90	5,700.00	5,699.17	21.09	5.03	-109.46	1,292.91	-6,709.32	6,986.04	6,960.03	26.00	268.654	
5,874.00	5,819.40	5,770.43	5,769.56	21.34	5.10	-108.30	1,291.41	-6,711.05	6,990.09	6,963.77	26.32	265.567	
5,936.00	5,880.95	5,927.95	5,927.04	21.58	5.25	-108.88	1,288.78	-6,713.38	6,993.25	6,966.53	26.71	261.786	
5,999.00	5,943.45	5,981.34	5,980.42	21.82	5.29	-110.39	1,287.91	-6,713.87	6,996.40	6,969.40	27.00	259.133	
6,062.00	6,005.96	6,045.85	6,044.91	22.07	5.35	-107.98	1,286.66	-6,714.54	6,999.56	6,972.26	27.29	256.457	
6,125.00	6,068.49	6,115.43	6,114.47	22.31	5.40	-110.35	1,285.22	-6,715.20	7,002.58	6,974.99	27.59	253.809	
6,188.00	6,131.08	6,181.94	6,180.97	22.55	5.46	-108.63	1,283.92	-6,715.77	7,005.42	6,977.54	27.88	251.256	
6,255.00	6,197.73	6,245.60	6,244.61	22.81	5.51	-109.76	1,282.84	-6,716.28	7,008.13	6,979.94	28.18	248.666	
6,293.00	6,235.55	6,280.34	6,279.35	22.89	5.55	-109.79	1,282.32	-6,716.58	7,009.64	6,981.35	28.29	247.781	
6,300.00	6,242.52	6,286.74	6,285.75	22.89	5.55	-109.80	1,282.23	-6,716.63	7,009.92	6,981.62	28.30	247.719	
6,393.00	6,335.09	6,401.82	6,400.82	22.94	5.66	-109.89	1,280.96	-6,717.46	7,013.53	6,985.09	28.44	246.582	
6,400.00	6,342.06	6,410.90	6,409.90	22.94	5.67	-115.79	1,280.89	-6,717.50	7,013.83	6,985.38	28.45	246.492	
6,450.00	6,391.66	6,464.04	6,463.04	22.97	5.72	-142.89	1,280.55	-6,717.74	7,018.20	6,989.67	28.53	245.980	
6,500.00	6,440.77	6,515.21	6,514.21	23.02	5.78	-154.67	1,280.34	-6,717.92	7,026.47	6,997.86	28.61	245.582	
6,550.00	6,489.07	6,559.53	6,558.53	23.07	5.83	-160.69	1,280.19	-6,718.09	7,038.64	7,009.95	28.69	245.326	
6,600.00	6,536.26	6,603.03	6,602.03	23.13	5.87	-164.24	1,280.04	-6,718.27	7,054.64	7,025.87	28.77	245.185	
6,650.00	6,582.05	6,648.41	6,647.40	23.21	5.93	-166.55	1,279.89	-6,718.48	7,074.37	7,045.51	28.86	245.115 SF	
6,700.00	6,626.13	6,692.08	6,691.08	23.29	5.98	-168.14	1,279.74	-6,718.68	7,097.68	7,068.73	28.95	245.163	
6,750.00	6,668.24	6,730.76	6,729.76	23.39	6.02	-169.27	1,279.62	-6,718.87	7,124.43	7,095.39	29.04	245.336	
6,800.00	6,708.12	6,766.68	6,765.68	23.51	6.06	-170.09	1,279.58	-6,719.06	7,154.47	7,125.35	29.13	245.628	
6,850.00	6,745.50	6,800.36	6,799.36	23.64	6.10	-170.69	1,279.59	-6,719.25	7,187.61	7,158.40	29.21	246.034	
6,900.00	6,780.15	6,835.82	6,834.81	23.79	6.15	-171.11	1,279.63	-6,719.45	7,223.62	7,194.31	29.31	246.487	
6,950.00	6,811.86	6,868.23	6,867.23	23.95	6.19	-171.38	1,279.64	-6,719.63	7,262.26	7,232.87	29.39	247.060	
7,000.00	6,840.42	6,897.40	6,896.39	24.14	6.22	-171.51	1,279.63	-6,719.80	7,303.29	7,273.81	29.48	247.755	
7,050.00	6,865.66	6,921.12	6,920.11	24.35	6.25	-171.48	1,279.61	-6,719.93	7,346.46	7,316.91	29.55	248.598	
7,100.00	6,887.42	6,941.31	6,940.31	24.57	6.28	-171.26	1,279.58	-6,720.05	7,391.49	7,361.88	29.62	249.562	
7,150.00	6,905.55	6,958.08	6,957.07	24.82	6.30	-170.76	1,279.56	-6,720.15	7,438.11	7,408.43	29.68	250.645	
7,200.00	6,919.95	6,971.32	6,970.32	25.10	6.31	-169.78	1,279.54	-6,720.23	7,486.01	7,456.28	29.72	251.844	
7,250.00	6,930.52	6,980.96	6,979.95	25.39	6.33	-167.70	1,279.53	-6,720.29	7,534.89	7,505.12	29.76	253.157	
7,300.00	6,937.20	6,986.93	6,985.92	25.70	6.33	-161.83	1,279.51	-6,720.33	7,584.44	7,554.65	29.79	254.578	
7,350.00	6,939.94	6,989.21	6,988.20	26.04	6.34	-112.82	1,279.51	-6,720.34	7,634.35	7,604.54	29.81	256.102	
7,359.60	6,940.02	6,989.22	6,988.21	26.10	6.34	-73.30	1,279.51	-6,720.34	7,643.95	7,614.14	29.81	256.403	
7,400.00	6,940.03	6,988.99	6,987.98	26.39	6.34	-73.22	1,279.51	-6,720.34	7,684.34	7,654.52	29.82	257.691	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
7,500.00	6,940.04	6,988.42	6,987.41	27.15	6.34	-73.03	1,279.51	-6,720.34	7,784.32	7,754.48	29.84	260.872	
7,600.00	6,940.06	6,987.84	6,986.84	27.99	6.34	-72.84	1,279.51	-6,720.33	7,884.30	7,854.44	29.86	264.041	
7,659.60	6,940.07	6,987.50	6,986.50	28.52	6.33	-72.72	1,279.51	-6,720.33	7,943.89	7,914.02	29.87	265.925	
7,700.00	6,940.08	6,987.27	6,986.26	28.89	6.33	-79.75	1,279.51	-6,720.33	7,984.27	7,954.39	29.88	267.188	
7,796.63	6,940.10	6,986.72	6,985.71	29.83	6.33	-84.83	1,279.52	-6,720.33	8,080.77	8,050.85	29.92	270.102	
7,800.00	6,940.10	6,986.70	6,985.69	29.86	6.33	-84.83	1,279.52	-6,720.33	8,084.14	8,054.22	29.92	270.203	
7,900.00	6,940.12	6,986.13	6,985.12	30.90	6.33	-84.77	1,279.52	-6,720.32	8,183.91	8,153.95	29.96	273.131	
8,000.00	6,940.14	6,985.55	6,984.54	31.98	6.33	-84.71	1,279.52	-6,720.32	8,283.70	8,253.69	30.01	276.045	
8,100.00	6,940.17	6,984.98	6,983.97	33.11	6.33	-84.65	1,279.52	-6,720.32	8,383.49	8,353.44	30.05	278.947	
8,200.00	6,940.19	6,984.41	6,983.40	34.28	6.33	-84.59	1,279.52	-6,720.31	8,483.28	8,453.18	30.10	281.834	
8,300.00	6,940.21	6,983.84	6,982.83	35.48	6.33	-84.53	1,279.52	-6,720.31	8,583.08	8,552.94	30.15	284.708	
8,400.00	6,940.23	6,983.27	6,982.26	36.71	6.33	-84.47	1,279.52	-6,720.30	8,682.89	8,652.69	30.19	287.569	
8,500.00	6,940.25	6,982.70	6,981.70	37.97	6.33	-84.41	1,279.52	-6,720.30	8,782.70	8,752.45	30.24	290.415	
8,600.00	6,940.28	6,982.14	6,981.13	39.26	6.33	-84.35	1,279.52	-6,720.30	8,882.51	8,852.22	30.29	293.248	
8,700.00	6,940.30	6,981.57	6,980.56	40.56	6.33	-84.29	1,279.52	-6,720.29	8,982.33	8,951.99	30.34	296.067	
8,800.00	6,940.32	6,981.01	6,980.00	41.89	6.33	-84.23	1,279.53	-6,720.29	9,082.15	9,051.76	30.39	298.871	
8,900.00	6,940.34	6,980.44	6,979.43	43.24	6.33	-84.17	1,279.53	-6,720.29	9,181.97	9,151.53	30.44	301.662	
9,000.00	6,940.36	6,979.88	6,978.87	44.60	6.33	-84.11	1,279.53	-6,720.28	9,281.80	9,251.31	30.49	304.438	
9,100.00	6,940.39	6,979.32	6,978.31	45.98	6.32	-84.05	1,279.53	-6,720.28	9,381.63	9,351.09	30.54	307.200	
9,200.00	6,940.41	6,978.76	6,977.75	47.38	6.32	-83.99	1,279.53	-6,720.28	9,481.47	9,450.88	30.59	309.947	
9,300.00	6,940.43	6,978.20	6,977.19	48.78	6.32	-83.94	1,279.53	-6,720.27	9,581.31	9,550.66	30.64	312.680	
9,400.00	6,940.45	6,977.64	6,976.63	50.20	6.32	-83.88	1,279.53	-6,720.27	9,681.15	9,650.45	30.70	315.398	
9,500.00	6,940.47	6,977.08	6,976.07	51.63	6.32	-83.82	1,279.53	-6,720.27	9,780.99	9,750.25	30.75	318.101	
9,600.00	6,940.50	6,976.52	6,975.52	53.07	6.32	-83.76	1,279.53	-6,720.26	9,880.84	9,850.04	30.80	320.790	
9,700.00	6,940.52	6,975.97	6,974.96	54.52	6.32	-83.70	1,279.53	-6,720.26	9,980.69	9,949.84	30.86	323.464	
9,800.00	6,940.54	6,975.41	6,974.41	55.97	6.32	-83.64	1,279.53	-6,720.26	10,080.55	10,049.64	30.91	326.123	
9,900.00	6,940.56	6,974.86	6,973.85	57.44	6.32	-83.58	1,279.54	-6,720.25	10,180.40	10,149.44	30.97	328.766	
10,000.00	6,940.59	6,974.31	6,973.30	58.91	6.32	-83.53	1,279.54	-6,720.25	10,280.26	10,249.24	31.02	331.395	
10,100.00	6,940.61	6,973.76	6,972.75	60.38	6.32	-83.47	1,279.54	-6,720.24	10,380.13	10,349.05	31.08	334.009	
10,200.00	6,940.63	6,973.20	6,972.20	61.87	6.32	-83.41	1,279.54	-6,720.24	10,479.99	10,448.86	31.13	336.607	
10,300.00	6,940.65	6,972.65	6,971.65	63.36	6.32	-83.35	1,279.54	-6,720.24	10,579.86	10,548.67	31.19	339.190	
10,400.00	6,940.67	6,972.11	6,971.10	64.85	6.32	-83.30	1,279.54	-6,720.23	10,679.73	10,648.48	31.25	341.758	
10,500.00	6,940.70	6,971.56	6,970.55	66.35	6.31	-83.24	1,279.54	-6,720.23	10,779.60	10,748.30	31.31	344.310	
10,600.00	6,940.72	6,971.01	6,970.00	67.86	6.31	-83.18	1,279.54	-6,720.23	10,879.48	10,848.11	31.37	346.846	
10,700.00	6,940.74	6,970.46	6,969.46	69.36	6.31	-83.12	1,279.54	-6,720.22	10,979.36	10,947.93	31.43	349.368	
10,800.00	6,940.76	6,969.92	6,968.91	70.88	6.31	-83.07	1,279.54	-6,720.22	11,079.23	11,047.75	31.49	351.873	
10,900.00	6,940.78	6,969.38	6,968.37	72.39	6.31	-83.01	1,279.54	-6,720.22	11,179.12	11,147.57	31.55	354.363	
11,000.00	6,940.81	6,968.83	6,967.82	73.91	6.31	-82.95	1,279.55	-6,720.21	11,279.00	11,247.39	31.61	356.837	
11,100.00	6,940.83	6,968.29	6,967.28	75.44	6.31	-82.89	1,279.55	-6,720.21	11,378.88	11,347.21	31.67	359.296	
11,200.00	6,940.85	6,967.75	6,966.74	76.96	6.31	-82.84	1,279.55	-6,720.21	11,478.77	11,447.04	31.73	361.739	
11,300.00	6,940.87	6,967.21	6,966.20	78.49	6.31	-82.78	1,279.55	-6,720.20	11,578.66	11,546.87	31.80	364.166	
11,400.00	6,940.89	6,966.67	6,965.66	80.03	6.31	-82.72	1,279.55	-6,720.20	11,678.55	11,646.69	31.86	366.577	
11,500.00	6,940.92	6,966.13	6,965.12	81.56	6.31	-82.67	1,279.55	-6,720.20	11,778.45	11,746.52	31.92	368.972	
11,600.00	6,940.94	6,965.59	6,964.58	83.10	6.31	-82.61	1,279.55	-6,720.19	11,878.34	11,846.35	31.99	371.352	
11,700.00	6,940.96	6,965.06	6,964.05	84.64	6.31	-82.56	1,279.55	-6,720.19	11,978.24	11,946.19	32.05	373.715	
11,800.00	6,940.98	6,964.52	6,963.51	86.18	6.31	-82.50	1,279.55	-6,720.19	12,078.14	12,046.02	32.12	376.063	
11,900.00	6,941.00	6,963.99	6,962.98	87.72	6.31	-82.44	1,279.55	-6,720.18	12,178.04	12,145.85	32.18	378.394	
12,000.00	6,941.03	6,963.45	6,962.44	89.27	6.30	-82.39	1,279.55	-6,720.18	12,277.94	12,245.69	32.25	380.710	
12,100.00	6,941.05	6,962.92	6,961.91	90.82	6.30	-82.33	1,279.55	-6,720.18	12,377.84	12,345.52	32.32	383.010	
12,200.00	6,941.07	6,962.39	6,961.38	92.37	6.30	-82.28	1,279.56	-6,720.17	12,477.75	12,445.36	32.39	385.294	
12,300.00	6,941.09	6,961.86	6,960.85	93.92	6.30	-82.22	1,279.56	-6,720.17	12,577.65	12,545.20	32.45	387.562	
12,400.00	6,941.11	6,961.33	6,960.32	95.47	6.30	-82.17	1,279.56	-6,720.17	12,677.56	12,645.04	32.52	389.814	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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)	Rule Assigned: Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
12,500.00	6,941.14	6,960.80	6,959.79	97.03	6.30	-82.11	1,279.56	-6,720.16	12,777.47	12,744.88	32.59	392.050	
12,600.00	6,941.16	6,960.27	6,959.26	98.58	6.30	-82.05	1,279.56	-6,720.16	12,877.38	12,844.72	32.66	394.270	
12,700.00	6,941.18	6,959.74	6,958.73	100.14	6.30	-82.00	1,279.56	-6,720.16	12,977.29	12,944.56	32.73	396.474	
12,800.00	6,941.20	6,959.21	6,958.21	101.70	6.30	-81.94	1,279.56	-6,720.15	13,077.20	13,044.40	32.80	398.662	
12,900.00	6,941.23	6,958.69	6,957.68	103.26	6.30	-81.89	1,279.56	-6,720.15	13,177.12	13,144.24	32.87	400.834	
13,000.00	6,941.25	6,958.16	6,957.16	104.82	6.30	-81.83	1,279.56	-6,720.15	13,277.03	13,244.09	32.95	402.990	
13,100.00	6,941.27	6,957.64	6,956.63	106.38	6.30	-81.78	1,279.56	-6,720.15	13,376.95	13,343.93	33.02	405.131	
13,200.00	6,941.29	6,957.12	6,956.11	107.95	6.30	-81.73	1,279.56	-6,720.14	13,476.87	13,443.78	33.09	407.255	
13,300.00	6,941.31	6,956.60	6,955.59	109.51	6.30	-81.67	1,279.56	-6,720.14	13,576.79	13,543.62	33.17	409.364	
13,400.00	6,941.34	6,956.07	6,955.07	111.08	6.30	-81.62	1,279.56	-6,720.14	13,676.71	13,643.47	33.24	411.457	
13,500.00	6,941.36	6,955.55	6,954.55	112.64	6.29	-81.56	1,279.57	-6,720.13	13,776.63	13,743.31	33.31	413.534	
13,600.00	6,941.38	6,955.03	6,954.03	114.21	6.29	-81.51	1,279.57	-6,720.13	13,876.55	13,843.16	33.39	415.595	
13,700.00	6,941.40	6,954.52	6,953.51	115.78	6.29	-81.45	1,279.57	-6,720.13	13,976.48	13,943.01	33.47	417.641	
13,800.00	6,941.42	6,954.00	6,952.99	117.35	6.29	-81.40	1,279.57	-6,720.12	14,076.40	14,042.86	33.54	419.671	
13,900.00	6,941.45	6,953.48	6,952.47	118.92	6.29	-81.35	1,279.57	-6,720.12	14,176.33	14,142.71	33.62	421.685	
14,000.00	6,941.47	6,952.97	6,951.96	120.49	6.29	-81.29	1,279.57	-6,720.12	14,276.25	14,242.56	33.70	423.684	
14,100.00	6,941.49	6,952.45	6,951.44	122.06	6.29	-81.24	1,279.57	-6,720.11	14,376.18	14,342.41	33.77	425.667	
14,200.00	6,941.51	6,951.94	6,950.93	123.64	6.29	-81.19	1,279.57	-6,720.11	14,476.11	14,442.26	33.85	427.634	
14,300.00	6,941.53	6,951.42	6,950.42	125.21	6.29	-81.13	1,279.57	-6,720.11	14,576.04	14,542.11	33.93	429.586	
14,400.00	6,941.56	6,950.91	6,949.91	126.78	6.29	-81.08	1,279.57	-6,720.10	14,675.97	14,641.96	34.01	431.523	
14,500.00	6,941.58	6,950.40	6,949.39	128.36	6.29	-81.03	1,279.57	-6,720.10	14,775.90	14,741.81	34.09	433.444	
14,600.00	6,941.60	6,949.89	6,948.88	129.93	6.29	-80.97	1,279.57	-6,720.10	14,875.83	14,841.66	34.17	435.350	
14,700.00	6,941.62	6,949.38	6,948.37	131.51	6.29	-80.92	1,279.57	-6,720.10	14,975.77	14,941.52	34.25	437.241	
14,800.00	6,941.64	6,948.87	6,947.86	133.08	6.29	-80.87	1,279.57	-6,720.09	15,075.70	15,041.37	34.33	439.116	
14,900.00	6,941.67	6,948.36	6,947.36	134.66	6.29	-80.81	1,279.58	-6,720.09	15,175.64	15,141.22	34.41	440.977	
15,000.00	6,941.69	6,947.86	6,946.85	136.24	6.29	-80.76	1,279.58	-6,720.09	15,275.57	15,241.08	34.50	442.822	
15,100.00	6,941.71	6,947.35	6,946.34	137.82	6.28	-80.71	1,279.58	-6,720.08	15,375.51	15,340.93	34.58	444.652	
15,200.00	6,941.73	6,946.85	6,945.84	139.40	6.28	-80.66	1,279.58	-6,720.08	15,475.45	15,440.79	34.66	446.467	
15,300.00	6,941.75	6,946.34	6,945.33	140.97	6.28	-80.61	1,279.58	-6,720.08	15,575.39	15,540.64	34.75	448.268	
15,400.00	6,941.78	6,945.84	6,944.83	142.55	6.28	-80.55	1,279.58	-6,720.07	15,675.32	15,640.49	34.83	450.053	
15,500.00	6,941.80	6,945.33	6,944.33	144.13	6.28	-80.50	1,279.58	-6,720.07	15,775.26	15,740.35	34.91	451.824	
15,600.00	6,941.82	6,944.83	6,943.83	145.72	6.28	-80.45	1,279.58	-6,720.07	15,875.21	15,840.21	35.00	453.580	
15,700.00	6,941.84	6,944.33	6,943.32	147.30	6.28	-80.40	1,279.58	-6,720.06	15,975.15	15,940.06	35.09	455.321	
15,800.00	6,941.87	6,943.83	6,942.82	148.88	6.28	-80.35	1,279.58	-6,720.06	16,075.09	16,039.92	35.17	457.048	
15,900.00	6,941.89	6,943.33	6,942.32	150.46	6.28	-80.29	1,279.58	-6,720.06	16,175.03	16,139.77	35.26	458.760	
16,000.00	6,941.91	6,942.83	6,941.83	152.04	6.28	-80.24	1,279.58	-6,720.06	16,274.97	16,239.63	35.35	460.458	
16,100.00	6,941.93	6,942.34	6,941.33	153.62	6.28	-80.19	1,279.58	-6,720.05	16,374.92	16,339.49	35.43	462.142	
16,200.00	6,941.95	6,941.84	6,940.83	155.21	6.28	-80.14	1,279.58	-6,720.05	16,474.86	16,439.34	35.52	463.811	
16,300.00	6,941.98	6,941.34	6,940.34	156.79	6.28	-80.09	1,279.58	-6,720.05	16,574.81	16,539.20	35.61	465.466	
16,400.00	6,942.00	6,940.85	6,939.84	158.37	6.28	-80.04	1,279.59	-6,720.04	16,674.76	16,639.06	35.70	467.107	
16,500.00	6,942.02	6,940.35	6,939.35	159.96	6.28	-79.99	1,279.59	-6,720.04	16,774.70	16,738.91	35.79	468.734	
16,600.00	6,942.04	6,939.86	6,938.85	161.54	6.28	-79.93	1,279.59	-6,720.04	16,874.65	16,838.77	35.88	470.348	
16,700.00	6,942.06	6,939.37	6,938.36	163.13	6.27	-79.88	1,279.59	-6,720.04	16,974.60	16,938.63	35.97	471.947	
16,800.00	6,942.09	6,938.87	6,937.87	164.71	6.27	-79.83	1,279.59	-6,720.03	17,074.55	17,038.49	36.06	473.532	
16,900.00	6,942.11	6,938.38	6,937.38	166.30	6.27	-79.78	1,279.59	-6,720.03	17,174.49	17,138.35	36.15	475.104	
17,000.00	6,942.13	6,937.89	6,936.89	167.88	6.27	-79.73	1,279.59	-6,720.03	17,274.44	17,238.20	36.24	476.662	
17,100.00	6,942.15	6,937.40	6,936.40	169.47	6.27	-79.68	1,279.59	-6,720.02	17,374.39	17,338.06	36.33	478.207	
17,200.00	6,942.17	6,936.91	6,935.91	171.05	6.27	-79.63	1,279.59	-6,720.02	17,474.35	17,437.92	36.42	479.738	
17,300.00	6,942.20	6,936.43	6,935.42	172.64	6.27	-79.58	1,279.59	-6,720.02	17,574.30	17,537.78	36.52	481.256	
17,400.00	6,942.22	6,935.94	6,934.93	174.23	6.27	-79.53	1,279.59	-6,720.02	17,674.25	17,637.64	36.61	482.760	
17,500.00	6,942.24	6,935.45	6,934.45	175.81	6.27	-79.48	1,279.59	-6,720.01	17,774.20	17,737.50	36.70	484.252	
17,600.00	6,942.26	6,934.97	6,933.96	177.40	6.27	-79.43	1,279.59	-6,720.01	17,874.15	17,837.36	36.80	485.730	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
17,700.00	6,942.28	6,934.48	6,933.48	178.99	6.27	-79.38	1,279.59	-6,720.01	17,974.11	17,937.21	36.89	487.195	
17,800.00	6,942.31	6,934.00	6,932.99	180.57	6.27	-79.33	1,279.59	-6,720.00	18,074.06	18,037.07	36.99	488.648	
17,900.00	6,942.33	6,933.52	6,932.51	182.16	6.27	-79.28	1,279.59	-6,720.00	18,174.02	18,136.93	37.08	490.087	
18,000.00	6,942.35	6,933.03	6,932.03	183.75	6.27	-79.23	1,279.59	-6,720.00	18,273.97	18,236.79	37.18	491.514	
18,100.00	6,942.37	6,932.55	6,931.55	185.34	6.27	-79.18	1,279.60	-6,720.00	18,373.93	18,336.65	37.28	492.928	
18,200.00	6,942.39	6,932.07	6,931.07	186.93	6.27	-79.13	1,279.60	-6,719.99	18,473.88	18,436.51	37.37	494.330	
18,300.00	6,942.42	6,931.59	6,930.59	188.52	6.27	-79.08	1,279.60	-6,719.99	18,573.84	18,536.37	37.47	495.719	
18,400.00	6,942.44	6,931.11	6,930.11	190.10	6.26	-79.03	1,279.60	-6,719.99	18,673.79	18,636.23	37.57	497.095	
18,500.00	6,942.46	6,930.63	6,929.63	191.69	6.26	-78.98	1,279.60	-6,719.98	18,773.75	18,736.09	37.66	498.460	
18,600.00	6,942.48	6,930.16	6,929.15	193.28	6.26	-78.94	1,279.60	-6,719.98	18,873.71	18,835.95	37.76	499.812	
18,700.00	6,942.51	6,929.68	6,928.67	194.87	6.26	-78.89	1,279.60	-6,719.98	18,973.67	18,935.81	37.86	501.152	
18,800.00	6,942.53	6,929.20	6,928.20	196.46	6.26	-78.84	1,279.60	-6,719.98	19,073.63	19,035.67	37.96	502.480	
18,900.00	6,942.55	6,928.73	6,927.72	198.05	6.26	-78.79	1,279.60	-6,719.97	19,173.58	19,135.53	38.06	503.796	
19,000.00	6,942.57	6,928.26	6,927.25	199.64	6.26	-78.74	1,279.60	-6,719.97	19,273.54	19,235.39	38.16	505.101	
19,100.00	6,942.59	6,927.78	6,926.77	201.23	6.26	-78.69	1,279.60	-6,719.97	19,373.50	19,335.25	38.26	506.393	
19,200.00	6,942.62	6,927.31	6,926.30	202.82	6.26	-78.64	1,279.60	-6,719.96	19,473.46	19,435.11	38.36	507.674	
19,300.00	6,942.64	6,926.84	6,925.83	204.41	6.26	-78.60	1,279.60	-6,719.96	19,573.42	19,534.97	38.46	508.943	
19,400.00	6,942.66	6,926.37	6,925.36	206.00	6.26	-78.55	1,279.60	-6,719.96	19,673.39	19,634.83	38.56	510.201	
19,500.00	6,942.68	6,925.89	6,924.89	207.59	6.26	-78.50	1,279.60	-6,719.96	19,773.35	19,734.68	38.66	511.448	
19,600.00	6,942.70	6,925.42	6,924.42	209.18	6.26	-78.45	1,279.60	-6,719.95	19,873.31	19,834.54	38.76	512.683	
19,700.00	6,942.73	6,924.96	6,923.95	210.78	6.26	-78.40	1,279.60	-6,719.95	19,973.27	19,934.40	38.87	513.907	
19,800.00	6,942.75	6,924.49	6,923.48	212.37	6.26	-78.36	1,279.60	-6,719.95	20,073.23	20,034.26	38.97	515.119	
19,900.00	6,942.77	6,924.02	6,923.01	213.96	6.26	-78.31	1,279.60	-6,719.95	20,173.20	20,134.12	39.07	516.321	
20,000.00	6,942.79	6,923.55	6,922.55	215.55	6.26	-78.26	1,279.60	-6,719.94	20,273.16	20,233.98	39.17	517.512	
20,100.00	6,942.81	6,923.09	6,922.08	217.14	6.25	-78.21	1,279.61	-6,719.94	20,373.12	20,333.84	39.28	518.692	
20,200.00	6,942.84	6,922.62	6,921.62	218.73	6.25	-78.17	1,279.61	-6,719.94	20,473.09	20,433.70	39.38	519.861	
20,300.00	6,942.86	6,922.16	6,921.15	220.32	6.25	-78.12	1,279.61	-6,719.94	20,573.05	20,533.56	39.49	521.020	
20,400.00	6,942.88	6,921.69	6,920.69	221.92	6.25	-78.07	1,279.61	-6,719.93	20,673.01	20,633.42	39.59	522.168	
20,500.00	6,942.90	6,921.23	6,920.22	223.51	6.25	-78.02	1,279.61	-6,719.93	20,772.98	20,733.28	39.70	523.306	
20,600.00	6,942.92	6,920.77	6,919.76	225.10	6.25	-77.98	1,279.61	-6,719.93	20,872.94	20,833.14	39.80	524.433	
20,700.00	6,942.95	6,920.31	6,919.30	226.69	6.25	-77.93	1,279.61	-6,719.92	20,972.91	20,933.00	39.91	525.549	
20,800.00	6,942.97	6,919.85	6,918.84	228.28	6.25	-77.88	1,279.61	-6,719.92	21,072.88	21,032.86	40.01	526.656	
20,900.00	6,942.99	6,919.39	6,918.38	229.88	6.25	-77.84	1,279.61	-6,719.92	21,172.84	21,132.72	40.12	527.753	
20,942.50	6,943.00	6,919.19	6,918.18	230.42	6.25	-77.82	1,279.61	-6,719.92	21,215.33	21,170.49	44.83	473.222	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

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

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	-80.33	811.92	-4,765.62	4,834.35				
58.45	58.45	38.58	38.58	0.02	0.04	41.38	811.97	-4,765.60	4,834.01	4,833.95	0.06	N/A	
150.25	150.24	1,426.03	1,369.79	0.14	6.08	26.14	1,019.35	-4,546.90	4,821.73	4,816.34	5.39	894.573	
239.43	239.42	1,477.00	1,416.02	0.25	6.48	20.86	1,033.93	-4,531.16	4,798.16	4,792.31	5.85	820.148	
299.93	299.91	1,494.13	1,431.69	0.33	6.60	25.91	1,038.61	-4,526.05	4,782.63	4,776.59	6.04	791.866	
446.00	445.96	1,687.96	1,608.45	0.50	8.09	51.30	1,092.74	-4,467.80	4,745.63	4,737.85	7.79	609.580	
537.00	536.95	1,743.22	1,658.68	0.73	8.52	112.72	1,108.15	-4,450.69	4,722.72	4,714.42	8.30	568.797	
624.00	623.95	1,790.80	1,702.09	0.99	8.88	-164.31	1,121.37	-4,436.40	4,702.87	4,694.05	8.82	533.113	
718.00	717.90	1,929.94	1,829.00	1.29	9.95	-146.12	1,160.07	-4,394.46	4,683.01	4,672.99	10.02	467.399	
811.00	810.73	2,013.00	1,904.36	1.60	10.61	-126.89	1,183.55	-4,368.63	4,664.12	4,653.24	10.89	428.431	
903.00	902.19	2,088.19	1,972.49	1.92	11.21	-115.48	1,205.31	-4,345.40	4,646.94	4,635.22	11.73	396.314	
994.00	992.38	2,148.63	2,027.49	2.24	11.68	-113.01	1,222.42	-4,327.12	4,630.63	4,618.16	12.47	371.448	
1,084.00	1,081.50	2,253.26	2,122.91	2.56	12.48	-108.60	1,251.44	-4,295.48	4,614.05	4,600.55	13.50	341.705	
1,175.00	1,171.48	2,359.13	2,219.22	2.91	13.31	-104.51	1,281.32	-4,263.25	4,596.74	4,582.17	14.57	315.422	
1,268.00	1,263.52	2,490.12	2,338.63	3.26	14.32	-102.50	1,316.12	-4,222.15	4,577.04	4,561.24	15.80	289.690	
1,363.00	1,357.62	2,550.58	2,393.84	3.63	14.79	-99.36	1,332.14	-4,203.44	4,556.88	4,540.30	16.59	274.757	
1,457.00	1,450.74	2,615.81	2,453.18	3.99	15.30	-96.50	1,350.28	-4,183.33	4,536.81	4,519.40	17.42	260.509	
1,552.00	1,544.82	2,658.33	2,491.80	4.36	15.64	-95.64	1,362.53	-4,170.43	4,516.95	4,498.85	18.10	249.525	
1,646.00	1,637.88	2,675.00	2,507.02	4.72	15.77	-95.10	1,367.27	-4,165.57	4,498.48	4,479.88	18.61	241.771	
1,741.00	1,731.94	2,707.00	2,536.45	5.09	16.00	-94.53	1,376.18	-4,156.68	4,481.00	4,461.80	19.21	233.283	
1,835.00	1,825.07	2,738.00	2,565.17	5.46	16.22	-94.28	1,384.65	-4,148.67	4,465.04	4,445.24	19.79	225.595	
1,929.00	1,918.39	2,764.83	2,590.21	5.82	16.39	-95.15	1,391.80	-4,142.21	4,450.47	4,430.13	20.34	218.857	
2,024.00	2,012.84	2,800.00	2,623.28	6.18	16.62	-93.62	1,400.83	-4,134.37	4,437.02	4,416.09	20.93	212.023	
2,118.00	2,106.19	2,958.00	2,773.92	6.53	17.51	-93.33	1,434.59	-4,100.84	4,424.00	4,401.89	22.11	200.067	
2,213.00	2,200.37	3,001.49	2,815.53	6.90	17.75	-94.61	1,443.12	-4,091.50	4,410.34	4,387.63	22.71	194.165	
2,307.00	2,293.61	3,052.33	2,864.57	7.27	18.01	-92.44	1,452.12	-4,081.59	4,397.91	4,374.58	23.32	188.559	
2,402.00	2,387.91	3,125.79	2,935.64	7.63	18.36	-88.52	1,464.45	-4,067.66	4,385.11	4,361.09	24.02	182.539	
2,496.00	2,481.29	3,187.59	2,995.57	7.99	18.65	-87.11	1,474.62	-4,056.52	4,372.71	4,348.05	24.66	177.335	
2,591.00	2,575.67	3,250.52	3,056.93	8.35	18.92	-88.62	1,483.72	-4,045.98	4,360.88	4,335.60	25.27	172.539	
2,686.00	2,670.05	3,301.00	3,106.36	8.71	19.13	-88.06	1,490.37	-4,038.17	4,349.97	4,324.14	25.83	168.408	
2,780.00	2,763.49	3,339.61	3,144.26	9.07	19.27	-90.08	1,495.31	-4,032.66	4,340.37	4,314.04	26.33	164.837	
2,875.00	2,857.94	3,404.59	3,208.14	9.43	19.51	-91.37	1,503.52	-4,024.09	4,331.88	4,304.96	26.92	160.929	
2,970.00	2,952.51	3,458.00	3,260.86	9.79	19.69	-87.69	1,509.26	-4,017.76	4,323.99	4,296.54	27.44	157.571	
3,064.00	3,046.19	3,498.05	3,300.55	10.13	19.80	-80.43	1,512.74	-4,013.71	4,316.51	4,288.61	27.90	154.736	
3,159.00	3,140.98	3,534.47	3,336.73	10.47	19.89	-78.33	1,515.55	-4,010.66	4,309.84	4,281.51	28.33	152.141	
3,253.00	3,234.84	3,569.30	3,371.38	10.81	19.97	-86.00	1,518.15	-4,008.27	4,304.97	4,276.23	28.74	149.789	
3,348.00	3,329.74	3,613.00	3,414.93	11.14	20.06	-93.61	1,521.07	-4,005.98	4,301.98	4,272.82	29.16	147.513	
3,397.00	3,378.70	3,644.00	3,445.86	11.32	20.11	-94.49	1,522.58	-4,004.78	4,301.00	4,271.61	29.39	146.357	
3,488.00	3,469.63	3,695.32	3,497.17	11.64	20.17	-97.04	1,523.36	-4,003.67	4,299.85	4,270.09	29.76	144.501	
3,583.00	3,564.49	3,755.54	3,557.38	11.98	20.22	-88.76	1,522.93	-4,003.22	4,299.15	4,269.02	30.13	142.700	
3,677.00	3,658.13	3,813.00	3,614.84	12.33	20.26	-87.08	1,522.76	-4,003.40	4,298.97	4,268.47	30.50	140.960	
3,772.00	3,752.42	3,906.55	3,708.38	12.69	20.34	-82.80	1,522.67	-4,003.87	4,298.30	4,267.37	30.94	138.932	
3,867.00	3,846.42	3,999.50	3,801.34	13.06	20.43	-81.43	1,522.57	-4,004.36	4,296.85	4,265.46	31.39	136.877	
3,961.00	3,939.30	4,091.35	3,893.18	13.44	20.52	-81.89	1,522.48	-4,004.87	4,295.20	4,263.36	31.84	134.886	
4,056.00	4,032.83	4,183.83	3,985.66	13.82	20.61	-85.49	1,522.37	-4,005.41	4,293.90	4,261.60	32.30	132.921	
4,151.00	4,126.01	4,275.96	4,077.79	14.21	20.70	-84.89	1,522.27	-4,005.97	4,292.85	4,260.08	32.77	131.000	
4,194.32	4,168.46	4,317.93	4,119.76	14.39	20.75	-88.34	1,522.21	-4,006.23	4,292.58	4,259.60	32.98	130.144	CC, ES
4,246.00	4,219.10	4,367.99	4,169.81	14.61	20.80	-92.43	1,522.15	-4,006.55	4,292.96	4,259.72	33.24	129.158	
4,340.00	4,310.92	4,458.72	4,260.55	15.01	20.89	-101.60	1,522.04	-4,007.15	4,296.16	4,262.46	33.71	127.462	
4,435.00	4,403.54	4,550.25	4,352.07	15.41	20.98	-102.44	1,521.92	-4,007.77	4,301.27	4,267.09	34.18	125.842	
4,498.00	4,465.21	4,611.18	4,413.00	15.68	21.04	-100.58	1,521.84	-4,008.20	4,304.32	4,269.83	34.49	124.789	
4,561.00	4,526.82	4,672.06	4,473.88	15.95	21.10	-95.70	1,521.75	-4,008.64	4,306.61	4,271.80	34.81	123.728	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 327-APC_ISCWSA REV 2 MWD

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
4,624.00	4,588.23	4,732.74	4,534.56	16.22	21.16	-94.07	1,521.67	-4,009.09	4,308.28	4,273.15	35.12	122.659	
4,687.00	4,649.71	4,793.49	4,595.31	16.49	21.22	-93.74	1,521.58	-4,009.55	4,309.69	4,274.25	35.44	121.601	
4,749.00	4,710.40	4,853.46	4,655.28	16.75	21.28	-92.63	1,521.49	-4,010.01	4,310.86	4,275.11	35.75	120.579	
4,812.00	4,772.28	4,914.62	4,716.43	17.01	21.34	-92.01	1,521.40	-4,010.50	4,311.82	4,275.76	36.06	119.558	
4,875.00	4,834.34	4,975.94	4,777.75	17.27	21.41	-92.58	1,521.30	-4,010.99	4,312.74	4,276.37	36.38	118.560	
4,938.00	4,896.43	5,037.31	4,839.11	17.53	21.47	-92.92	1,521.20	-4,011.50	4,313.75	4,277.06	36.69	117.584	
5,001.00	4,958.46	5,098.59	4,900.40	17.79	21.53	-96.23	1,521.10	-4,012.01	4,315.15	4,278.15	37.00	116.629	
5,064.00	5,020.29	5,159.67	4,961.48	18.05	21.59	-100.58	1,521.00	-4,012.54	4,317.49	4,280.18	37.31	115.708	
5,126.00	5,080.98	5,219.62	5,021.42	18.32	21.65	-104.84	1,520.90	-4,013.06	4,320.85	4,283.22	37.63	114.838	
5,189.00	5,142.74	5,280.62	5,082.42	18.58	21.72	-103.43	1,520.80	-4,013.61	4,324.48	4,286.54	37.94	113.978	
5,252.00	5,204.62	5,341.74	5,143.53	18.85	21.78	-103.57	1,520.69	-4,014.16	4,327.84	4,289.58	38.26	113.129	
5,315.00	5,266.61	5,402.97	5,204.77	19.11	21.84	-103.90	1,520.58	-4,014.73	4,331.09	4,292.52	38.57	112.295	
5,378.00	5,328.73	5,464.33	5,266.12	19.37	21.90	-103.59	1,520.47	-4,015.31	4,334.18	4,295.30	38.88	111.476	
5,441.00	5,390.87	5,525.70	5,327.49	19.62	21.97	-104.20	1,520.36	-4,015.90	4,337.28	4,298.09	39.19	110.670	
5,503.00	5,452.07	5,586.16	5,387.94	19.87	22.03	-104.01	1,520.24	-4,016.49	4,340.30	4,300.80	39.50	109.891	
5,566.00	5,514.32	5,647.63	5,449.42	20.13	22.09	-104.48	1,520.13	-4,017.10	4,343.31	4,303.51	39.81	109.112	
5,629.00	5,576.59	5,709.14	5,510.92	20.38	22.16	-102.19	1,520.01	-4,017.73	4,346.14	4,306.03	40.12	108.341	
5,692.00	5,638.95	5,770.74	5,572.51	20.63	22.22	-104.59	1,519.89	-4,018.36	4,348.85	4,308.43	40.42	107.583	
5,747.00	5,693.45	5,824.56	5,626.34	20.85	22.28	-102.47	1,519.78	-4,018.93	4,351.15	4,310.46	40.69	106.933	
5,810.00	5,755.90	5,886.25	5,688.02	21.09	22.34	-103.31	1,519.65	-4,019.58	4,353.65	4,312.66	41.00	106.195	
5,874.00	5,819.40	5,948.98	5,750.75	21.34	22.41	-102.16	1,519.52	-4,020.26	4,356.08	4,314.77	41.31	105.458	
5,936.00	5,880.95	6,009.77	5,811.53	21.58	22.47	-102.67	1,519.39	-4,020.92	4,358.35	4,316.74	41.61	104.754	
5,999.00	5,943.45	6,071.51	5,873.27	21.82	22.53	-104.23	1,519.26	-4,021.61	4,360.86	4,318.95	41.91	104.051	
6,062.00	6,005.96	6,133.25	5,935.00	22.07	22.60	-101.85	1,519.13	-4,022.31	4,363.33	4,321.11	42.22	103.357	
6,125.00	6,068.49	6,195.01	5,996.76	22.31	22.66	-104.24	1,518.99	-4,023.02	4,365.76	4,323.24	42.52	102.673	
6,188.00	6,131.08	6,256.83	6,058.57	22.55	22.73	-102.53	1,518.85	-4,023.74	4,368.13	4,325.31	42.82	102.001	
6,255.00	6,197.73	6,322.66	6,124.40	22.81	22.80	-103.69	1,518.70	-4,024.52	4,370.44	4,327.30	43.14	101.298	
6,293.00	6,235.55	6,360.03	6,161.76	22.89	22.83	-103.74	1,518.62	-4,024.97	4,371.74	4,328.48	43.26	101.049	
6,300.00	6,242.52	6,366.91	6,168.65	22.89	22.84	-103.75	1,518.60	-4,025.05	4,371.98	4,328.71	43.27	101.030	
6,393.00	6,335.09	6,458.35	6,260.08	22.94	22.94	-103.87	1,518.39	-4,026.17	4,375.19	4,331.77	43.42	100.771	
6,400.00	6,342.06	6,465.23	6,266.96	22.94	22.95	-109.76	1,518.37	-4,026.25	4,375.47	4,332.04	43.43	100.751	
6,450.00	6,391.66	6,514.19	6,315.92	22.97	23.00	-136.85	1,518.25	-4,026.86	4,379.73	4,336.22	43.51	100.661	
6,500.00	6,440.77	6,562.62	6,364.34	23.02	23.05	-148.58	1,518.14	-4,027.47	4,387.90	4,344.31	43.60	100.651 SF	
6,550.00	6,489.07	6,610.19	6,411.91	23.07	23.10	-154.52	1,518.02	-4,028.07	4,399.94	4,356.25	43.68	100.721	
6,600.00	6,536.26	6,656.62	6,458.33	23.13	23.15	-157.96	1,517.91	-4,028.66	4,415.76	4,371.99	43.78	100.870	
6,650.00	6,582.05	6,701.60	6,503.31	23.21	23.20	-160.10	1,517.80	-4,029.25	4,435.28	4,391.41	43.87	101.098	
6,700.00	6,626.13	6,744.86	6,546.57	23.29	23.24	-161.48	1,517.69	-4,029.81	4,458.37	4,414.40	43.97	101.401	
6,750.00	6,668.24	6,786.12	6,587.82	23.39	23.28	-162.35	1,517.58	-4,030.35	4,484.88	4,440.82	44.07	101.778	
6,800.00	6,708.12	6,825.11	6,626.81	23.51	23.33	-162.83	1,517.48	-4,030.87	4,514.65	4,470.49	44.16	102.227	
6,850.00	6,745.50	6,861.60	6,663.30	23.64	23.36	-162.99	1,517.39	-4,031.36	4,547.49	4,503.23	44.26	102.745	
6,900.00	6,780.15	6,895.35	6,697.04	23.79	23.40	-162.86	1,517.30	-4,031.82	4,583.19	4,538.84	44.36	103.328	
6,950.00	6,811.86	6,926.15	6,727.84	23.95	23.43	-162.42	1,517.22	-4,032.24	4,621.53	4,577.08	44.45	103.975	
7,000.00	6,840.42	6,953.81	6,755.50	24.14	23.46	-161.61	1,517.15	-4,032.61	4,662.26	4,617.72	44.54	104.682	
7,050.00	6,865.66	6,978.15	6,779.83	24.35	23.49	-160.33	1,517.08	-4,032.95	4,705.13	4,660.51	44.62	105.446	
7,100.00	6,887.42	6,999.02	6,800.70	24.57	23.51	-158.37	1,517.03	-4,033.24	4,749.86	4,705.16	44.70	106.265	
7,150.00	6,905.55	7,016.28	6,817.97	24.82	23.53	-155.34	1,516.98	-4,033.48	4,796.17	4,751.40	44.77	107.134	
7,200.00	6,919.95	7,029.84	6,831.52	25.10	23.54	-150.44	1,516.95	-4,033.66	4,843.77	4,798.94	44.83	108.049	
7,250.00	6,930.52	7,039.61	6,841.29	25.39	23.55	-141.78	1,516.92	-4,033.80	4,892.36	4,847.48	44.88	109.007	
7,300.00	6,937.20	7,045.53	6,847.20	25.70	23.56	-124.67	1,516.91	-4,033.88	4,941.62	4,896.70	44.92	110.003	
7,350.00	6,939.94	7,047.55	6,849.23	26.04	23.56	-91.01	1,516.90	-4,033.91	4,991.25	4,946.30	44.95	111.032	
7,359.60	6,940.02	7,047.50	6,849.17	26.10	23.56	-82.94	1,516.90	-4,033.91	5,000.80	4,955.84	44.96	111.232	
7,400.00	6,940.03	7,046.95	6,848.63	26.39	23.56	-82.88	1,516.90	-4,033.90	5,040.96	4,995.98	44.98	112.079	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 327-APC_ISCWSA REV 2 MWD

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
7,500.00	6,940.04	7,045.61	6,847.29	27.15	23.56	-82.74	1,516.90	-4,033.88	5,140.40	5,095.38	45.02	114.173	
7,600.00	6,940.06	7,044.26	6,845.94	27.99	23.56	-82.60	1,516.91	-4,033.86	5,239.87	5,194.80	45.07	116.263	
7,659.60	6,940.07	7,043.46	6,845.14	28.52	23.56	-82.51	1,516.91	-4,033.85	5,299.16	5,254.06	45.10	117.506	
7,700.00	6,940.08	7,042.92	6,844.60	28.89	23.56	-83.38	1,516.91	-4,033.85	5,339.32	5,294.20	45.12	118.345	
7,796.63	6,940.10	7,041.62	6,843.29	29.83	23.56	-84.80	1,516.92	-4,033.83	5,435.12	5,389.95	45.17	120.322	
7,800.00	6,940.10	7,041.57	6,843.25	29.86	23.56	-84.80	1,516.92	-4,033.83	5,438.46	5,393.29	45.17	120.391	
7,900.00	6,940.12	7,040.22	6,841.90	30.90	23.55	-84.70	1,516.92	-4,033.81	5,537.42	5,492.18	45.24	122.409	
8,000.00	6,940.14	7,038.87	6,840.55	31.98	23.55	-84.60	1,516.92	-4,033.79	5,636.41	5,591.11	45.30	124.422	
8,100.00	6,940.17	7,037.52	6,839.20	33.11	23.55	-84.51	1,516.93	-4,033.77	5,735.44	5,690.07	45.36	126.429	
8,200.00	6,940.19	7,036.17	6,837.85	34.28	23.55	-84.41	1,516.93	-4,033.75	5,834.50	5,789.07	45.43	128.431	
8,300.00	6,940.21	7,034.82	6,836.50	35.48	23.55	-84.31	1,516.93	-4,033.73	5,933.59	5,888.10	45.49	130.429	
8,400.00	6,940.23	7,033.47	6,835.15	36.71	23.55	-84.22	1,516.94	-4,033.71	6,032.71	5,987.15	45.56	132.421	
8,500.00	6,940.25	7,032.12	6,833.80	37.97	23.55	-84.12	1,516.94	-4,033.70	6,131.86	6,086.24	45.62	134.408	
8,600.00	6,940.28	7,030.78	6,832.46	39.26	23.54	-84.02	1,516.94	-4,033.68	6,231.04	6,185.35	45.69	136.389	
8,700.00	6,940.30	7,029.43	6,831.11	40.56	23.54	-83.92	1,516.95	-4,033.66	6,330.24	6,284.49	45.75	138.366	
8,800.00	6,940.32	7,028.09	6,829.77	41.89	23.54	-83.83	1,516.95	-4,033.64	6,429.47	6,383.65	45.81	140.338	
8,900.00	6,940.34	7,026.74	6,828.42	43.24	23.54	-83.73	1,516.96	-4,033.62	6,528.72	6,482.84	45.88	142.304	
9,000.00	6,940.36	7,025.40	6,827.08	44.60	23.54	-83.63	1,516.96	-4,033.60	6,627.99	6,582.05	45.94	144.266	
9,100.00	6,940.39	7,024.06	6,825.74	45.98	23.54	-83.54	1,516.96	-4,033.58	6,727.28	6,681.28	46.01	146.222	
9,200.00	6,940.41	7,022.71	6,824.39	47.38	23.54	-83.44	1,516.97	-4,033.56	6,826.60	6,780.53	46.07	148.173	
9,300.00	6,940.43	7,021.37	6,823.05	48.78	23.53	-83.35	1,516.97	-4,033.55	6,925.93	6,879.79	46.14	150.119	
9,400.00	6,940.45	7,020.03	6,821.71	50.20	23.53	-83.25	1,516.97	-4,033.53	7,025.28	6,979.08	46.20	152.059	
9,500.00	6,940.47	7,018.69	6,820.37	51.63	23.53	-83.15	1,516.98	-4,033.51	7,124.65	7,078.39	46.27	153.995	
9,600.00	6,940.50	7,017.35	6,819.03	53.07	23.53	-83.06	1,516.98	-4,033.49	7,224.04	7,177.71	46.33	155.925	
9,700.00	6,940.52	7,016.02	6,817.70	54.52	23.53	-82.96	1,516.98	-4,033.47	7,323.44	7,277.05	46.40	157.849	
9,800.00	6,940.54	7,014.68	6,816.36	55.97	23.53	-82.87	1,516.99	-4,033.45	7,422.86	7,376.40	46.46	159.768	
9,900.00	6,940.56	7,013.34	6,815.02	57.44	23.53	-82.77	1,516.99	-4,033.43	7,522.30	7,475.77	46.53	161.682	
10,000.00	6,940.59	7,012.00	6,813.69	58.91	23.52	-82.67	1,516.99	-4,033.42	7,621.75	7,575.16	46.59	163.590	
10,100.00	6,940.61	7,010.67	6,812.35	60.38	23.52	-82.58	1,517.00	-4,033.40	7,721.21	7,674.55	46.66	165.493	
10,200.00	6,940.63	7,009.33	6,811.02	61.87	23.52	-82.48	1,517.00	-4,033.38	7,820.68	7,773.96	46.72	167.390	
10,300.00	6,940.65	7,008.00	6,809.68	63.36	23.52	-82.39	1,517.01	-4,033.36	7,920.17	7,873.39	46.79	169.282	
10,400.00	6,940.67	7,006.67	6,808.35	64.85	23.52	-82.29	1,517.01	-4,033.34	8,019.68	7,972.82	46.85	171.168	
10,500.00	6,940.70	7,005.34	6,807.02	66.35	23.52	-82.20	1,517.01	-4,033.32	8,119.19	8,072.27	46.92	173.048	
10,600.00	6,940.72	7,004.00	6,805.69	67.86	23.52	-82.10	1,517.02	-4,033.30	8,218.72	8,171.73	46.98	174.923	
10,700.00	6,940.74	7,002.67	6,804.35	69.36	23.51	-82.01	1,517.02	-4,033.29	8,318.25	8,271.20	47.05	176.792	
10,800.00	6,940.76	7,001.34	6,803.02	70.88	23.51	-81.91	1,517.02	-4,033.27	8,417.80	8,370.68	47.12	178.655	
10,900.00	6,940.78	7,000.01	6,801.69	72.39	23.51	-81.82	1,517.03	-4,033.25	8,517.36	8,470.17	47.18	180.512	
11,000.00	6,940.81	6,998.68	6,800.37	73.91	23.51	-81.72	1,517.03	-4,033.23	8,616.93	8,569.67	47.25	182.363	
11,100.00	6,940.83	6,997.36	6,799.04	75.44	23.51	-81.63	1,517.03	-4,033.21	8,716.50	8,669.18	47.32	184.208	
11,200.00	6,940.85	6,996.03	6,797.71	76.96	23.51	-81.53	1,517.04	-4,033.19	8,816.09	8,768.70	47.39	186.048	
11,300.00	6,940.87	6,994.70	6,796.38	78.49	23.51	-81.44	1,517.04	-4,033.18	8,915.69	8,868.23	47.45	187.881	
11,400.00	6,940.89	6,993.38	6,795.06	80.03	23.50	-81.35	1,517.04	-4,033.16	9,015.29	8,967.77	47.52	189.708	
11,500.00	6,940.92	6,992.05	6,793.73	81.56	23.50	-81.25	1,517.05	-4,033.14	9,114.90	9,067.31	47.59	191.529	
11,600.00	6,940.94	6,990.73	6,792.41	83.10	23.50	-81.16	1,517.05	-4,033.12	9,214.52	9,166.87	47.66	193.344	
11,700.00	6,940.96	6,989.40	6,791.09	84.64	23.50	-81.06	1,517.05	-4,033.10	9,314.15	9,266.43	47.73	195.153	
11,800.00	6,940.98	6,988.08	6,789.76	86.18	23.50	-80.97	1,517.06	-4,033.08	9,413.79	9,365.99	47.80	196.956	
11,900.00	6,941.00	6,986.76	6,788.44	87.72	23.50	-80.88	1,517.06	-4,033.07	9,513.43	9,465.57	47.87	198.752	
12,000.00	6,941.03	6,985.44	6,787.12	89.27	23.50	-80.78	1,517.07	-4,033.05	9,613.09	9,565.15	47.94	200.542	
12,100.00	6,941.05	6,984.11	6,785.80	90.82	23.50	-80.69	1,517.07	-4,033.03	9,712.74	9,664.74	48.01	202.326	
12,200.00	6,941.07	6,982.79	6,784.48	92.37	23.49	-80.60	1,517.07	-4,033.01	9,812.41	9,764.33	48.08	204.103	
12,300.00	6,941.09	6,981.47	6,783.16	93.92	23.49	-80.50	1,517.08	-4,032.99	9,912.08	9,863.94	48.15	205.874	
12,400.00	6,941.11	6,980.16	6,781.84	95.47	23.49	-80.41	1,517.08	-4,032.98	10,011.76	9,963.54	48.22	207.639	

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 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
12,500.00	6,941.14	6,978.84	6,780.52	97.03	23.49	-80.32	1,517.08	-4,032.96	10,111.44	10,063.16	48.29	209.397	
12,600.00	6,941.16	6,977.52	6,779.21	98.58	23.49	-80.22	1,517.09	-4,032.94	10,211.14	10,162.78	48.36	211.149	
12,700.00	6,941.18	6,976.20	6,777.89	100.14	23.49	-80.13	1,517.09	-4,032.92	10,310.83	10,262.40	48.43	212.894	
12,800.00	6,941.20	6,974.89	6,776.57	101.70	23.49	-80.04	1,517.09	-4,032.90	10,410.53	10,362.03	48.50	214.632	
12,900.00	6,941.23	6,973.57	6,775.26	103.26	23.48	-79.94	1,517.10	-4,032.88	10,510.24	10,461.66	48.58	216.364	
13,000.00	6,941.25	6,972.26	6,773.94	104.82	23.48	-79.85	1,517.10	-4,032.87	10,609.95	10,561.30	48.65	218.090	
13,100.00	6,941.27	6,970.95	6,772.63	106.38	23.48	-79.76	1,517.10	-4,032.85	10,709.67	10,660.95	48.72	219.809	
13,200.00	6,941.29	6,969.63	6,771.32	107.95	23.48	-79.67	1,517.11	-4,032.83	10,809.39	10,760.60	48.80	221.521	
13,300.00	6,941.31	6,968.32	6,770.01	109.51	23.48	-79.57	1,517.11	-4,032.81	10,909.12	10,860.25	48.87	223.226	
13,400.00	6,941.34	6,967.01	6,768.69	111.08	23.48	-79.48	1,517.11	-4,032.79	11,008.85	10,959.91	48.94	224.925	
13,500.00	6,941.36	6,965.70	6,767.38	112.64	23.48	-79.39	1,517.12	-4,032.78	11,108.59	11,059.57	49.02	226.617	
13,600.00	6,941.38	6,964.39	6,766.07	114.21	23.47	-79.30	1,517.12	-4,032.76	11,208.33	11,159.24	49.09	228.303	
13,700.00	6,941.40	6,963.08	6,764.76	115.78	23.47	-79.21	1,517.12	-4,032.74	11,308.08	11,258.91	49.17	229.982	
13,800.00	6,941.42	6,961.77	6,763.46	117.35	23.47	-79.11	1,517.13	-4,032.72	11,407.83	11,358.58	49.25	231.653	
13,900.00	6,941.45	6,960.46	6,762.15	118.92	23.47	-79.02	1,517.13	-4,032.70	11,507.58	11,458.26	49.32	233.318	
14,000.00	6,941.47	6,959.15	6,760.84	120.49	23.47	-78.93	1,517.13	-4,032.69	11,607.34	11,557.95	49.40	234.977	
14,100.00	6,941.49	6,957.85	6,759.53	122.06	23.47	-78.84	1,517.14	-4,032.67	11,707.11	11,657.63	49.47	236.628	
14,200.00	6,941.51	6,956.54	6,758.23	123.64	23.47	-78.75	1,517.14	-4,032.65	11,806.87	11,757.32	49.55	238.273	
14,300.00	6,941.53	6,955.24	6,756.92	125.21	23.46	-78.66	1,517.15	-4,032.63	11,906.64	11,857.01	49.63	239.911	
14,400.00	6,941.56	6,953.93	6,755.62	126.78	23.46	-78.57	1,517.15	-4,032.62	12,006.42	11,956.71	49.71	241.542	
14,500.00	6,941.58	6,952.63	6,754.32	128.36	23.46	-78.47	1,517.15	-4,032.60	12,106.19	12,056.41	49.79	243.166	
14,600.00	6,941.60	6,951.33	6,753.01	129.93	23.46	-78.38	1,517.16	-4,032.58	12,205.98	12,156.11	49.86	244.783	
14,700.00	6,941.62	6,950.02	6,751.71	131.51	23.46	-78.29	1,517.16	-4,032.56	12,305.76	12,255.82	49.94	246.393	
14,800.00	6,941.64	6,948.72	6,750.41	133.08	23.46	-78.20	1,517.16	-4,032.54	12,405.55	12,355.53	50.02	247.996	
14,900.00	6,941.67	6,947.42	6,749.11	134.66	23.46	-78.11	1,517.17	-4,032.53	12,505.34	12,455.24	50.10	249.593	
15,000.00	6,941.69	6,946.12	6,747.81	136.24	23.45	-78.02	1,517.17	-4,032.51	12,605.13	12,554.95	50.18	251.182	
15,100.00	6,941.71	6,944.82	6,746.51	137.82	23.45	-77.93	1,517.17	-4,032.49	12,704.93	12,654.67	50.26	252.765	
15,200.00	6,941.73	6,943.52	6,745.21	139.40	23.45	-77.84	1,517.18	-4,032.47	12,804.73	12,754.39	50.34	254.340	
15,300.00	6,941.75	6,942.22	6,743.91	140.97	23.45	-77.75	1,517.18	-4,032.45	12,904.53	12,854.11	50.43	255.909	
15,400.00	6,941.78	6,940.93	6,742.61	142.55	23.45	-77.66	1,517.18	-4,032.44	13,004.34	12,953.83	50.51	257.471	
15,500.00	6,941.80	6,939.63	6,741.32	144.13	23.45	-77.57	1,517.19	-4,032.42	13,104.15	13,053.56	50.59	259.025	
15,600.00	6,941.82	6,938.33	6,740.02	145.72	23.45	-77.48	1,517.19	-4,032.40	13,203.96	13,153.29	50.67	260.573	
15,700.00	6,941.84	6,937.04	6,738.73	147.30	23.44	-77.39	1,517.19	-4,032.38	13,303.78	13,253.02	50.76	262.114	
15,800.00	6,941.87	6,935.74	6,737.43	148.88	23.44	-77.30	1,517.20	-4,032.37	13,403.59	13,352.75	50.84	263.648	
15,900.00	6,941.89	6,934.45	6,736.14	150.46	23.44	-77.21	1,517.20	-4,032.35	13,503.41	13,452.49	50.92	265.175	
16,000.00	6,941.91	6,933.16	6,734.85	152.04	23.44	-77.12	1,517.20	-4,032.33	13,603.24	13,552.23	51.01	266.695	
16,100.00	6,941.93	6,931.86	6,733.55	153.62	23.44	-77.03	1,517.21	-4,032.31	13,703.06	13,651.97	51.09	268.208	
16,200.00	6,941.95	6,930.57	6,732.26	155.21	23.44	-76.94	1,517.21	-4,032.30	13,802.89	13,751.71	51.18	269.714	
16,300.00	6,941.98	6,929.28	6,730.97	156.79	23.44	-76.85	1,517.21	-4,032.28	13,902.72	13,851.46	51.26	271.213	
16,400.00	6,942.00	6,927.99	6,729.68	158.37	23.44	-76.77	1,517.22	-4,032.26	14,002.55	13,951.20	51.35	272.705	
16,500.00	6,942.02	6,926.70	6,728.39	159.96	23.43	-76.68	1,517.22	-4,032.24	14,102.38	14,050.95	51.43	274.191	
16,600.00	6,942.04	6,925.41	6,727.10	161.54	23.43	-76.59	1,517.22	-4,032.23	14,202.22	14,150.70	51.52	275.669	
16,700.00	6,942.06	6,924.12	6,725.81	163.13	23.43	-76.50	1,517.23	-4,032.21	14,302.06	14,250.45	51.61	277.140	
16,800.00	6,942.09	6,922.84	6,724.53	164.71	23.43	-76.41	1,517.23	-4,032.19	14,401.90	14,350.20	51.69	278.605	
16,900.00	6,942.11	6,921.55	6,723.24	166.30	23.43	-76.32	1,517.23	-4,032.17	14,501.74	14,449.96	51.78	280.062	
17,000.00	6,942.13	6,920.26	6,721.95	167.88	23.43	-76.23	1,517.24	-4,032.16	14,601.58	14,549.72	51.87	281.513	
17,100.00	6,942.15	6,918.98	6,720.67	169.47	23.43	-76.15	1,517.24	-4,032.14	14,701.43	14,649.47	51.96	282.957	
17,200.00	6,942.17	6,917.69	6,719.38	171.05	23.42	-76.06	1,517.24	-4,032.12	14,801.28	14,749.23	52.05	284.394	
17,300.00	6,942.20	6,916.41	6,718.10	172.64	23.42	-75.97	1,517.25	-4,032.10	14,901.13	14,849.00	52.13	285.824	
17,400.00	6,942.22	6,915.13	6,716.82	174.23	23.42	-75.88	1,517.25	-4,032.09	15,000.98	14,948.76	52.22	287.247	
17,500.00	6,942.24	6,913.84	6,715.53	175.81	23.42	-75.80	1,517.25	-4,032.07	15,100.84	15,048.52	52.31	288.663	
17,600.00	6,942.26	6,912.56	6,714.25	177.40	23.42	-75.71	1,517.26	-4,032.05	15,200.69	15,148.29	52.40	290.072	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
17,700.00	6,942.28	6,911.28	6,712.97	178.99	23.42	-75.62	1,517.26	-4,032.03	15,300.55	15,248.06	52.49	291.475	
17,800.00	6,942.31	6,910.00	6,711.69	180.57	23.42	-75.53	1,517.26	-4,032.02	15,400.41	15,347.83	52.58	292.871	
17,900.00	6,942.33	6,908.72	6,710.41	182.16	23.41	-75.45	1,517.27	-4,032.00	15,500.27	15,447.60	52.68	294.260	
18,000.00	6,942.35	6,907.44	6,709.13	183.75	23.41	-75.36	1,517.27	-4,031.98	15,600.13	15,547.37	52.77	295.642	
18,100.00	6,942.37	6,906.16	6,707.85	185.34	23.41	-75.27	1,517.27	-4,031.96	15,700.00	15,647.14	52.86	297.017	
18,200.00	6,942.39	6,904.88	6,706.57	186.93	23.41	-75.18	1,517.28	-4,031.95	15,799.87	15,746.91	52.95	298.386	
18,300.00	6,942.42	6,903.61	6,705.30	188.52	23.41	-75.10	1,517.28	-4,031.93	15,899.73	15,846.69	53.04	299.747	
18,400.00	6,942.44	6,902.33	6,704.02	190.10	23.41	-75.01	1,517.28	-4,031.91	15,999.60	15,946.47	53.14	301.102	
18,500.00	6,942.46	6,901.05	6,702.74	191.69	23.41	-74.93	1,517.29	-4,031.89	16,099.47	16,046.24	53.23	302.451	
18,600.00	6,942.48	6,899.78	6,701.47	193.28	23.41	-74.84	1,517.29	-4,031.88	16,199.35	16,146.02	53.32	303.792	
18,700.00	6,942.51	6,898.50	6,700.20	194.87	23.40	-74.75	1,517.29	-4,031.86	16,299.22	16,245.80	53.42	305.127	
18,800.00	6,942.53	6,897.23	6,698.92	196.46	23.40	-74.67	1,517.30	-4,031.84	16,399.09	16,345.58	53.51	306.456	
18,900.00	6,942.55	6,895.96	6,697.65	198.05	23.40	-74.58	1,517.30	-4,031.83	16,498.97	16,445.36	53.61	307.777	
19,000.00	6,942.57	6,894.68	6,696.38	199.64	23.40	-74.49	1,517.30	-4,031.81	16,598.85	16,545.15	53.70	309.092	
19,100.00	6,942.59	6,893.41	6,695.10	201.23	23.40	-74.41	1,517.31	-4,031.79	16,698.73	16,644.93	53.80	310.401	
19,200.00	6,942.62	6,892.14	6,693.83	202.82	23.40	-74.32	1,517.31	-4,031.77	16,798.61	16,744.72	53.89	311.703	
19,300.00	6,942.64	6,890.87	6,692.56	204.41	23.40	-74.24	1,517.31	-4,031.76	16,898.49	16,844.50	53.99	312.998	
19,400.00	6,942.66	6,889.60	6,691.29	206.00	23.39	-74.15	1,517.32	-4,031.74	16,998.37	16,944.29	54.09	314.286	
19,500.00	6,942.68	6,888.33	6,690.02	207.59	23.39	-74.07	1,517.32	-4,031.72	17,098.26	17,044.08	54.18	315.569	
19,600.00	6,942.70	6,887.06	6,688.76	209.18	23.39	-73.98	1,517.32	-4,031.70	17,198.14	17,143.87	54.28	316.844	
19,700.00	6,942.73	6,885.80	6,687.49	210.78	23.39	-73.90	1,517.33	-4,031.69	17,298.03	17,243.65	54.38	318.113	
19,800.00	6,942.75	6,884.53	6,686.22	212.37	23.39	-73.81	1,517.33	-4,031.67	17,397.92	17,343.45	54.47	319.376	
19,900.00	6,942.77	6,883.26	6,684.96	213.96	23.39	-73.73	1,517.33	-4,031.65	17,497.81	17,443.24	54.57	320.632	
20,000.00	6,942.79	6,882.00	6,683.69	215.55	23.39	-73.64	1,517.34	-4,031.64	17,597.70	17,543.03	54.67	321.882	
20,100.00	6,942.81	6,880.73	6,682.43	217.14	23.39	-73.56	1,517.34	-4,031.62	17,697.59	17,642.82	54.77	323.125	
20,200.00	6,942.84	6,879.47	6,681.16	218.73	23.38	-73.47	1,517.34	-4,031.60	17,797.48	17,742.62	54.87	324.362	
20,300.00	6,942.86	6,878.20	6,679.90	220.32	23.38	-73.39	1,517.35	-4,031.59	17,897.38	17,842.41	54.97	325.593	
20,400.00	6,942.88	6,876.94	6,678.63	221.92	23.38	-73.30	1,517.35	-4,031.57	17,997.27	17,942.20	55.07	326.817	
20,500.00	6,942.90	6,875.68	6,677.37	223.51	23.38	-73.22	1,517.35	-4,031.55	18,097.17	18,042.00	55.17	328.035	
20,600.00	6,942.92	6,874.42	6,676.11	225.10	23.38	-73.14	1,517.36	-4,031.53	18,197.07	18,141.80	55.27	329.247	
20,700.00	6,942.95	6,873.16	6,674.85	226.69	23.38	-73.05	1,517.36	-4,031.52	18,296.96	18,241.59	55.37	330.452	
20,800.00	6,942.97	6,871.90	6,673.59	228.28	23.38	-72.97	1,517.36	-4,031.50	18,396.86	18,341.39	55.47	331.652	
20,900.00	6,942.99	6,870.64	6,672.33	229.88	23.37	-72.88	1,517.37	-4,031.48	18,496.76	18,441.19	55.57	332.845	
20,942.50	6,943.00	6,870.10	6,671.80	230.42	23.37	-72.85	1,517.37	-4,031.48	18,539.22	18,479.16	60.06	308.689	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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	-141.06	-1,745.94	-1,411.01	2,244.83				
58.45	58.45	214.45	214.45	0.02	6.43	-19.35	-1,745.94	-1,411.01	2,244.49	2,238.05	6.44	348.313	
150.25	150.24	306.24	306.24	0.14	9.18	-37.66	-1,745.94	-1,411.01	2,243.54	2,234.23	9.30	241.145	
239.43	239.42	395.42	395.42	0.25	11.85	-43.16	-1,745.94	-1,411.01	2,242.74	2,230.66	12.07	185.760	
299.93	299.91	455.91	455.91	0.33	13.66	-38.22	-1,745.94	-1,411.01	2,242.15	2,228.20	13.95	160.704	
446.00	445.96	602.06	601.96	0.50	18.04	-13.85	-1,745.94	-1,411.01	2,239.97	2,221.47	18.50	121.098	
537.00	536.95	693.05	692.95	0.73	20.77	47.42	-1,745.94	-1,411.01	2,238.76	2,217.30	21.46	104.317	
594.22	594.17	750.22	750.08	0.90	22.48	112.83	-1,743.76	-1,411.01	2,236.99	2,213.64	23.35	95.803	CC
624.00	623.95	776.79	776.64	0.99	23.28	130.44	-1,743.79	-1,411.01	2,237.24	2,213.01	24.24	92.303	
718.00	717.90	860.62	860.46	1.29	25.79	148.29	-1,744.19	-1,411.01	2,239.74	2,212.68	27.06	82.778	ES
811.00	810.73	943.42	943.24	1.60	28.27	167.73	-1,745.07	-1,411.01	2,245.73	2,215.88	29.86	75.216	
903.00	902.19	1,058.60	1,058.19	1.92	31.72	179.64	-1,745.94	-1,411.01	2,256.10	2,222.46	33.64	67.074	
994.00	992.38	1,148.79	1,148.38	2.24	34.42	-178.05	-1,745.94	-1,411.01	2,268.21	2,231.55	36.66	61.872	
1,084.00	1,081.50	1,237.90	1,237.50	2.56	37.09	-173.63	-1,745.94	-1,411.01	2,280.76	2,241.12	39.65	57.529	
1,175.00	1,171.48	1,319.29	1,318.83	2.91	39.53	-169.73	-1,743.93	-1,411.01	2,292.60	2,250.19	42.41	54.062	
1,268.00	1,263.52	1,401.09	1,400.62	3.26	41.98	-168.22	-1,744.56	-1,411.01	2,306.24	2,261.06	45.19	51.039	
1,363.00	1,357.62	1,514.33	1,513.62	3.63	45.38	-165.31	-1,745.94	-1,411.01	2,319.94	2,271.02	48.92	47.424	
1,457.00	1,450.74	1,607.46	1,606.74	3.99	48.17	-162.66	-1,745.94	-1,411.01	2,332.28	2,280.23	52.05	44.811	
1,552.00	1,544.82	1,701.53	1,700.82	4.36	50.99	-161.94	-1,745.94	-1,411.01	2,344.88	2,289.67	55.21	42.472	
1,646.00	1,637.88	1,789.50	1,788.75	4.72	53.62	-161.50	-1,743.82	-1,411.01	2,355.86	2,297.68	58.19	40.488	
1,741.00	1,731.94	1,872.81	1,872.03	5.09	56.12	-161.14	-1,744.29	-1,411.01	2,368.92	2,307.89	61.03	38.818	
1,835.00	1,825.07	1,955.19	1,954.39	5.46	58.59	-161.17	-1,745.23	-1,411.01	2,381.78	2,317.95	63.83	37.313	
1,929.00	1,918.39	2,075.40	2,074.39	5.82	62.19	-162.48	-1,745.94	-1,411.01	2,392.96	2,325.18	67.78	35.303	
2,024.00	2,012.84	2,169.85	2,168.84	6.18	65.02	-161.16	-1,745.94	-1,411.01	2,402.68	2,331.72	70.96	33.861	
2,118.00	2,106.19	2,261.65	2,260.59	6.53	67.77	-160.98	-1,743.77	-1,411.01	2,411.35	2,337.30	74.05	32.564	
2,213.00	2,200.37	2,344.79	2,343.72	6.90	70.26	-162.39	-1,744.08	-1,411.01	2,423.46	2,346.57	76.89	31.520	
2,307.00	2,293.61	2,427.01	2,425.92	7.27	72.72	-160.47	-1,744.86	-1,411.01	2,435.48	2,355.79	79.69	30.562	
2,402.00	2,387.91	2,545.23	2,543.91	7.63	76.27	-156.72	-1,745.94	-1,411.01	2,446.92	2,363.34	83.59	29.274	
2,496.00	2,481.29	2,638.61	2,637.29	7.99	79.06	-155.62	-1,745.94	-1,411.01	2,456.81	2,370.08	86.73	28.328	
2,591.00	2,575.67	2,732.99	2,731.67	8.35	81.89	-157.18	-1,745.94	-1,411.01	2,466.76	2,376.85	89.90	27.438	
2,686.00	2,670.05	2,818.06	2,816.69	8.71	84.44	-156.83	-1,743.92	-1,411.01	2,475.12	2,382.33	92.80	26.673	
2,780.00	2,763.49	2,900.20	2,898.82	9.07	86.90	-158.95	-1,744.55	-1,411.01	2,485.26	2,389.67	95.59	25.998	
2,875.00	2,857.94	3,015.56	3,013.94	9.43	90.36	-160.50	-1,745.94	-1,411.01	2,495.84	2,396.43	99.41	25.107	
2,970.00	2,952.51	3,110.14	3,108.51	9.79	93.19	-156.98	-1,745.94	-1,411.01	2,504.23	2,401.64	102.58	24.411	
3,064.00	3,046.19	3,203.82	3,202.19	10.13	96.00	-149.86	-1,745.94	-1,411.01	2,511.13	2,405.40	105.73	23.750	
3,159.00	3,140.98	3,292.63	3,290.96	10.47	98.66	-147.91	-1,743.83	-1,411.01	2,514.95	2,406.22	108.73	23.130	
3,253.00	3,234.84	3,374.99	3,373.30	10.81	101.13	-155.71	-1,744.31	-1,411.01	2,519.78	2,408.25	111.53	22.593	
3,348.00	3,329.74	3,458.23	3,456.52	11.14	103.62	-163.42	-1,745.28	-1,411.01	2,524.71	2,410.36	114.35	22.079	
3,397.00	3,378.70	3,536.63	3,534.70	11.32	105.97	-164.34	-1,745.94	-1,411.01	2,527.05	2,410.16	116.89	21.619	
3,488.00	3,469.63	3,627.56	3,625.63	11.64	108.70	-166.91	-1,745.94	-1,411.01	2,530.43	2,410.49	119.94	21.097	
3,583.00	3,564.49	3,722.42	3,720.49	11.98	111.54	-158.55	-1,745.94	-1,411.01	2,535.28	2,412.16	123.12	20.592	
3,677.00	3,658.13	3,807.86	3,805.88	12.33	114.10	-156.77	-1,743.88	-1,411.01	2,541.20	2,415.18	126.02	20.165	
3,772.00	3,752.42	3,890.40	3,888.40	12.69	116.57	-152.26	-1,744.45	-1,411.01	2,552.10	2,423.26	128.84	19.809	
3,867.00	3,846.42	4,004.65	4,002.42	13.06	120.00	-150.84	-1,745.94	-1,411.01	2,565.35	2,432.72	132.62	19.343	
3,961.00	3,939.30	4,097.53	4,095.30	13.44	122.78	-151.22	-1,745.94	-1,411.01	2,578.05	2,442.29	135.76	18.990	
4,056.00	4,032.83	4,191.06	4,188.83	13.82	125.58	-154.69	-1,745.94	-1,411.01	2,592.93	2,454.02	138.91	18.666	
4,151.00	4,126.01	4,279.85	4,277.57	14.21	128.24	-153.93	-1,743.79	-1,411.01	2,607.93	2,466.00	141.93	18.375	
4,246.00	4,219.10	4,360.93	4,358.64	14.61	130.67	-161.62	-1,744.19	-1,411.01	2,625.88	2,481.17	144.71	18.146	
4,340.00	4,310.92	4,440.74	4,438.43	15.01	133.06	-171.01	-1,745.03	-1,411.01	2,646.25	2,498.81	147.44	17.948	
4,435.00	4,403.54	4,562.08	4,559.54	15.41	136.70	-171.69	-1,745.94	-1,411.01	2,667.71	2,516.26	151.45	17.614	
4,498.00	4,465.21	4,623.75	4,621.21	15.68	138.55	-169.62	-1,745.94	-1,411.01	2,680.43	2,526.89	153.54	17.458	
4,561.00	4,526.82	4,685.36	4,682.82	15.95	140.39	-164.39	-1,745.94	-1,411.01	2,693.23	2,537.61	155.62	17.307	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
4,624.00	4,588.23	4,746.77	4,744.23	16.22	142.23	-162.58	-1,745.94	-1,411.01	2,706.76	2,549.06	157.70	17.164	
4,687.00	4,649.71	4,800.46	4,797.88	16.49	143.84	-162.13	-1,743.85	-1,411.01	2,718.19	2,558.66	159.54	17.038	
4,749.00	4,710.40	4,852.99	4,850.40	16.75	145.42	-160.93	-1,744.13	-1,411.01	2,730.49	2,569.15	161.34	16.924	
4,812.00	4,772.28	4,906.50	4,903.89	17.01	147.02	-160.24	-1,744.62	-1,411.01	2,742.12	2,578.95	163.17	16.805	
4,875.00	4,834.34	4,960.09	4,957.47	17.27	148.63	-160.79	-1,745.30	-1,411.01	2,753.05	2,588.05	165.00	16.685	
4,938.00	4,896.43	5,055.28	5,052.43	17.53	151.48	-161.10	-1,745.94	-1,411.01	2,763.43	2,595.31	168.12	16.438	
5,001.00	4,958.46	5,117.30	5,114.46	17.79	153.34	-164.41	-1,745.94	-1,411.01	2,773.99	2,603.78	170.21	16.297	
5,064.00	5,020.29	5,179.13	5,176.29	18.05	155.19	-168.80	-1,745.94	-1,411.01	2,785.76	2,613.46	172.30	16.168	
5,126.00	5,080.98	5,239.82	5,236.98	18.32	157.01	-173.11	-1,745.94	-1,411.01	2,798.27	2,623.92	174.35	16.049	
5,189.00	5,142.74	5,294.44	5,291.56	18.58	158.65	-171.46	-1,743.83	-1,411.01	2,808.88	2,632.66	176.22	15.940	
5,252.00	5,204.62	5,347.73	5,344.84	18.85	160.24	-171.47	-1,744.10	-1,411.01	2,820.84	2,642.80	178.04	15.844	
5,315.00	5,266.61	5,401.07	5,398.16	19.11	161.84	-171.67	-1,744.56	-1,411.01	2,832.36	2,652.49	179.87	15.747	
5,378.00	5,328.73	5,454.46	5,451.53	19.37	163.44	-171.24	-1,745.22	-1,411.01	2,843.40	2,661.71	181.69	15.650	
5,441.00	5,390.87	5,550.02	5,546.87	19.62	166.30	-171.79	-1,745.94	-1,411.01	2,854.06	2,669.24	184.82	15.442	
5,503.00	5,452.07	5,611.22	5,608.07	19.87	168.14	-171.48	-1,745.94	-1,411.01	2,863.86	2,676.97	186.88	15.324	
5,566.00	5,514.32	5,673.47	5,670.32	20.13	170.00	-171.86	-1,745.94	-1,411.01	2,873.48	2,684.50	188.98	15.205	
5,629.00	5,576.59	5,735.74	5,732.59	20.38	171.87	-169.42	-1,745.94	-1,411.01	2,882.89	2,691.81	191.08	15.087	
5,692.00	5,638.95	5,791.26	5,788.07	20.63	173.53	-171.73	-1,743.82	-1,411.01	2,890.01	2,697.04	192.97	14.976	
5,747.00	5,693.45	5,838.00	5,834.80	20.85	174.93	-169.50	-1,744.03	-1,411.01	2,897.55	2,702.98	194.57	14.892	
5,810.00	5,755.90	5,891.53	5,888.32	21.09	176.54	-170.27	-1,744.46	-1,411.01	2,906.13	2,709.74	196.39	14.798	
5,874.00	5,819.40	5,945.92	5,942.70	21.34	178.17	-169.02	-1,745.10	-1,411.01	2,914.57	2,716.33	198.24	14.702	
5,936.00	5,880.95	6,040.40	6,036.95	21.58	181.00	-169.50	-1,745.94	-1,411.01	2,922.45	2,721.11	201.34	14.515	
5,999.00	5,943.45	6,102.91	6,099.45	21.82	182.87	-171.00	-1,745.94	-1,411.01	2,930.20	2,726.76	203.44	14.403	
6,062.00	6,005.96	6,165.41	6,161.96	22.07	184.74	-168.51	-1,745.94	-1,411.01	2,937.96	2,732.42	205.54	14.294	
6,125.00	6,068.49	6,227.94	6,224.49	22.31	186.62	-170.85	-1,745.94	-1,411.01	2,945.53	2,737.88	207.65	14.185	
6,188.00	6,131.08	6,290.53	6,287.08	22.55	188.49	-169.05	-1,745.94	-1,411.01	2,952.59	2,742.84	209.75	14.076	
6,255.00	6,197.73	6,341.00	6,337.34	22.81	190.01	-170.13	-1,745.94	-1,411.01	2,959.36	2,747.87	211.49	13.993 SF	
6,293.00	6,235.55	6,341.00	6,337.34	22.89	190.01	-170.13	-1,745.94	-1,411.01	2,963.39	2,751.89	211.50	14.011	
6,300.00	6,242.52	6,341.00	6,337.34	22.89	190.01	-170.13	-1,745.94	-1,411.01	2,964.19	2,752.70	211.49	14.016	
6,393.00	6,335.09	6,341.00	6,337.34	22.94	190.01	-170.13	-1,745.94	-1,411.01	2,976.30	2,765.11	211.19	14.093	
6,400.00	6,342.06	6,341.00	6,337.34	22.94	190.01	-176.10	-1,745.94	-1,411.01	2,977.35	2,766.18	211.16	14.100	
6,450.00	6,391.66	6,341.00	6,337.34	22.97	190.01	156.10	-1,745.94	-1,411.01	2,986.45	2,775.52	210.92	14.159	
6,500.00	6,440.77	6,341.00	6,337.34	23.02	190.01	143.38	-1,745.94	-1,411.01	2,998.33	2,787.69	210.63	14.235	
6,550.00	6,489.07	6,341.00	6,337.34	23.07	190.01	136.15	-1,745.94	-1,411.01	3,012.88	2,802.57	210.30	14.326	
6,600.00	6,536.26	6,341.00	6,337.34	23.13	190.01	131.13	-1,745.94	-1,411.01	3,029.97	2,820.03	209.94	14.433	
6,650.00	6,582.05	6,341.00	6,337.34	23.21	190.01	127.08	-1,745.94	-1,411.01	3,049.46	2,839.91	209.55	14.552	
6,700.00	6,626.13	6,341.00	6,337.34	23.29	190.01	123.46	-1,745.94	-1,411.01	3,071.18	2,862.03	209.15	14.684	
6,750.00	6,668.24	6,341.00	6,337.34	23.39	190.01	120.01	-1,745.94	-1,411.01	3,094.93	2,886.19	208.74	14.826	
6,800.00	6,708.12	6,341.00	6,337.34	23.51	190.01	116.56	-1,745.94	-1,411.01	3,120.54	2,912.19	208.35	14.978	
6,850.00	6,745.50	6,341.00	6,337.34	23.64	190.01	113.04	-1,745.94	-1,411.01	3,147.79	2,939.82	207.97	15.136	
6,900.00	6,780.15	6,341.00	6,337.34	23.79	190.01	109.41	-1,745.94	-1,411.01	3,176.48	2,968.86	207.62	15.299	
6,950.00	6,811.86	6,341.00	6,337.34	23.95	190.01	105.65	-1,745.94	-1,411.01	3,206.38	2,999.07	207.31	15.467	
7,000.00	6,840.42	6,341.00	6,337.34	24.14	190.01	101.76	-1,745.94	-1,411.01	3,237.28	3,030.24	207.04	15.636	
7,050.00	6,865.66	6,341.00	6,337.34	24.35	190.01	97.77	-1,745.94	-1,411.01	3,268.95	3,062.13	206.83	15.805	
7,100.00	6,887.42	6,341.00	6,337.34	24.57	190.01	93.71	-1,745.94	-1,411.01	3,301.19	3,094.52	206.67	15.973	
7,150.00	6,905.55	6,341.00	6,337.34	24.82	190.01	89.65	-1,745.94	-1,411.01	3,333.76	3,127.19	206.57	16.138	
7,200.00	6,919.95	6,341.00	6,337.34	25.10	190.01	85.62	-1,745.94	-1,411.01	3,366.46	3,159.92	206.54	16.299	
7,250.00	6,930.52	6,341.00	6,337.34	25.39	190.01	81.69	-1,745.94	-1,411.01	3,399.09	3,192.52	206.56	16.455	
7,300.00	6,937.20	6,341.00	6,337.34	25.70	190.01	77.92	-1,745.94	-1,411.01	3,431.43	3,224.78	206.65	16.605	
7,350.00	6,939.94	6,341.00	6,337.34	26.04	190.01	74.33	-1,745.94	-1,411.01	3,463.31	3,256.51	206.80	16.747	
7,359.60	6,940.02	6,341.00	6,337.34	26.10	190.01	73.67	-1,745.94	-1,411.01	3,469.36	3,262.53	206.83	16.774	
7,400.00	6,940.03	6,341.00	6,337.34	26.39	190.01	73.67	-1,745.94	-1,411.01	3,494.91	3,287.92	206.99	16.885	

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 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
7,500.00	6,940.04	6,341.00	6,337.34	27.15	190.01	73.67	-1,745.94	-1,411.01	3,559.33	3,351.95	207.39	17.163	
7,600.00	6,940.06	6,341.00	6,337.34	27.99	190.01	73.67	-1,745.94	-1,411.01	3,625.37	3,417.57	207.81	17.446	
7,659.60	6,940.07	6,341.00	6,337.34	28.52	190.01	73.67	-1,745.94	-1,411.01	3,665.47	3,457.40	208.06	17.617	
7,700.00	6,940.08	6,341.00	6,337.34	28.89	190.01	73.46	-1,745.94	-1,411.01	3,693.14	3,484.90	208.24	17.735	
7,796.63	6,940.10	6,341.00	6,337.34	29.83	190.01	72.89	-1,745.94	-1,411.01	3,761.82	3,553.15	208.67	18.028	
7,800.00	6,940.10	6,341.00	6,337.34	29.86	190.01	72.89	-1,745.94	-1,411.01	3,764.28	3,555.59	208.69	18.038	
7,900.00	6,940.12	6,341.00	6,337.34	30.90	190.01	72.89	-1,745.94	-1,411.01	3,837.77	3,628.64	209.13	18.351	
8,000.00	6,940.14	6,341.00	6,337.34	31.98	190.01	72.89	-1,745.94	-1,411.01	3,912.43	3,702.86	209.57	18.669	
8,100.00	6,940.17	6,341.00	6,337.34	33.11	190.01	72.89	-1,745.94	-1,411.01	3,988.20	3,778.19	210.02	18.990	
8,200.00	6,940.19	6,341.00	6,337.34	34.28	190.01	72.89	-1,745.94	-1,411.01	4,065.02	3,854.57	210.46	19.315	
8,300.00	6,940.21	6,341.00	6,337.34	35.48	190.01	72.89	-1,745.94	-1,411.01	4,142.83	3,931.94	210.89	19.645	
8,400.00	6,940.23	6,341.00	6,337.34	36.71	190.01	72.89	-1,745.94	-1,411.01	4,221.58	4,010.26	211.32	19.977	
8,500.00	6,940.25	6,341.00	6,337.34	37.97	190.01	72.89	-1,745.94	-1,411.01	4,301.21	4,089.47	211.74	20.314	
8,600.00	6,940.28	6,341.00	6,337.34	39.26	190.01	72.89	-1,745.94	-1,411.01	4,381.67	4,169.52	212.15	20.653	
8,700.00	6,940.30	6,341.00	6,337.34	40.56	190.01	72.89	-1,745.94	-1,411.01	4,462.92	4,250.36	212.56	20.996	
8,800.00	6,940.32	6,341.00	6,337.34	41.89	190.01	72.89	-1,745.94	-1,411.01	4,544.93	4,331.97	212.96	21.342	
8,900.00	6,940.34	6,341.00	6,337.34	43.24	190.01	72.89	-1,745.94	-1,411.01	4,627.63	4,414.29	213.35	21.691	
9,000.00	6,940.36	6,341.00	6,337.34	44.60	190.01	72.89	-1,745.94	-1,411.01	4,711.01	4,497.29	213.72	22.043	
9,100.00	6,940.39	6,341.00	6,337.34	45.98	190.01	72.89	-1,745.94	-1,411.01	4,795.03	4,580.94	214.09	22.397	
9,200.00	6,940.41	6,341.00	6,337.34	47.38	190.01	72.89	-1,745.94	-1,411.01	4,879.65	4,665.19	214.45	22.754	
9,300.00	6,940.43	6,341.00	6,337.34	48.78	190.01	72.89	-1,745.94	-1,411.01	4,964.84	4,750.03	214.81	23.113	
9,400.00	6,940.45	6,341.00	6,337.34	50.20	190.01	72.89	-1,745.94	-1,411.01	5,050.57	4,835.42	215.15	23.475	
9,500.00	6,940.47	6,341.00	6,337.34	51.63	190.01	72.89	-1,745.94	-1,411.01	5,136.82	4,921.34	215.48	23.839	
9,600.00	6,940.50	6,341.00	6,337.34	53.07	190.01	72.89	-1,745.94	-1,411.01	5,223.56	5,007.75	215.81	24.205	
9,700.00	6,940.52	6,341.00	6,337.34	54.52	190.01	72.89	-1,745.94	-1,411.01	5,310.77	5,094.64	216.12	24.573	
9,800.00	6,940.54	6,341.00	6,337.34	55.97	190.01	72.89	-1,745.94	-1,411.01	5,398.42	5,181.99	216.43	24.943	
9,900.00	6,940.56	6,341.00	6,337.34	57.44	190.01	72.89	-1,745.94	-1,411.01	5,486.49	5,269.76	216.73	25.315	
10,000.00	6,940.59	6,341.00	6,337.34	58.91	190.01	72.89	-1,745.94	-1,411.01	5,574.96	5,357.94	217.02	25.688	
10,100.00	6,940.61	6,341.00	6,337.34	60.38	190.01	72.89	-1,745.94	-1,411.01	5,663.82	5,446.51	217.31	26.064	
10,200.00	6,940.63	6,341.00	6,337.34	61.87	190.01	72.89	-1,745.94	-1,411.01	5,753.04	5,535.46	217.58	26.440	
10,300.00	6,940.65	6,341.00	6,337.34	63.36	190.01	72.89	-1,745.94	-1,411.01	5,842.62	5,624.76	217.86	26.819	
10,400.00	6,940.67	6,341.00	6,337.34	64.85	190.01	72.89	-1,745.94	-1,411.01	5,932.52	5,714.41	218.12	27.199	
10,500.00	6,940.70	6,341.00	6,337.34	66.35	190.01	72.89	-1,745.94	-1,411.01	6,022.75	5,804.37	218.38	27.580	
10,600.00	6,940.72	6,341.00	6,337.34	67.86	190.01	72.89	-1,745.94	-1,411.01	6,113.28	5,894.65	218.63	27.962	
10,700.00	6,940.74	6,341.00	6,337.34	69.36	190.01	72.89	-1,745.94	-1,411.01	6,204.10	5,985.23	218.87	28.346	
10,800.00	6,940.76	6,341.00	6,337.34	70.88	190.01	72.89	-1,745.94	-1,411.01	6,295.19	6,076.08	219.11	28.731	
10,900.00	6,940.78	6,341.00	6,337.34	72.39	190.01	72.89	-1,745.94	-1,411.01	6,386.56	6,167.22	219.34	29.117	
11,000.00	6,940.81	6,341.00	6,337.34	73.91	190.01	72.89	-1,745.94	-1,411.01	6,478.18	6,258.61	219.57	29.504	
11,100.00	6,940.83	6,341.00	6,337.34	75.44	190.01	72.89	-1,745.94	-1,411.01	6,570.04	6,350.25	219.79	29.892	
11,200.00	6,940.85	6,341.00	6,337.34	76.96	190.01	72.89	-1,745.94	-1,411.01	6,662.14	6,442.13	220.01	30.281	
11,300.00	6,940.87	6,341.00	6,337.34	78.49	190.01	72.89	-1,745.94	-1,411.01	6,754.46	6,534.24	220.22	30.671	
11,400.00	6,940.89	6,341.00	6,337.34	80.03	190.01	72.89	-1,745.94	-1,411.01	6,847.00	6,626.57	220.43	31.062	
11,500.00	6,940.92	6,341.00	6,337.34	81.56	190.01	72.89	-1,745.94	-1,411.01	6,939.74	6,719.11	220.63	31.454	
11,600.00	6,940.94	6,341.00	6,337.34	83.10	190.01	72.89	-1,745.94	-1,411.01	7,032.69	6,811.86	220.83	31.846	
11,700.00	6,940.96	6,341.00	6,337.34	84.64	190.01	72.89	-1,745.94	-1,411.01	7,125.82	6,904.80	221.03	32.240	
11,800.00	6,940.98	6,341.00	6,337.34	86.18	190.01	72.89	-1,745.94	-1,411.01	7,219.14	6,997.92	221.22	32.634	
11,900.00	6,941.00	6,341.00	6,337.34	87.72	190.01	72.89	-1,745.94	-1,411.01	7,312.64	7,091.23	221.41	33.028	
12,000.00	6,941.03	6,341.00	6,337.34	89.27	190.01	72.89	-1,745.94	-1,411.01	7,406.30	7,184.71	221.59	33.423	
12,100.00	6,941.05	6,341.00	6,337.34	90.82	190.01	72.89	-1,745.94	-1,411.01	7,500.13	7,278.36	221.77	33.819	
12,200.00	6,941.07	6,341.00	6,337.34	92.37	190.01	72.89	-1,745.94	-1,411.01	7,594.12	7,372.17	221.95	34.216	
12,300.00	6,941.09	6,341.00	6,337.34	93.92	190.01	72.89	-1,745.94	-1,411.01	7,688.26	7,466.13	222.12	34.613	
12,400.00	6,941.11	6,341.00	6,337.34	95.47	190.01	72.89	-1,745.94	-1,411.01	7,782.54	7,560.25	222.29	35.010	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
12,500.00	6,941.14	6,341.00	6,337.34	97.03	190.01	72.89	-1,745.94	-1,411.01	7,876.97	7,654.51	222.46	35.408	
12,600.00	6,941.16	6,341.00	6,337.34	98.58	190.01	72.89	-1,745.94	-1,411.01	7,971.53	7,748.90	222.63	35.807	
12,700.00	6,941.18	6,341.00	6,337.34	100.14	190.01	72.89	-1,745.94	-1,411.01	8,066.22	7,843.43	222.79	36.206	
12,800.00	6,941.20	6,341.00	6,337.34	101.70	190.01	72.89	-1,745.94	-1,411.01	8,161.04	7,938.09	222.95	36.605	
12,900.00	6,941.23	6,341.00	6,337.34	103.26	190.01	72.89	-1,745.94	-1,411.01	8,255.98	8,032.88	223.11	37.005	
13,000.00	6,941.25	6,341.00	6,337.34	104.82	190.01	72.89	-1,745.94	-1,411.01	8,351.04	8,127.78	223.26	37.405	
13,100.00	6,941.27	6,341.00	6,337.34	106.38	190.01	72.89	-1,745.94	-1,411.01	8,446.21	8,222.80	223.41	37.805	
13,200.00	6,941.29	6,341.00	6,337.34	107.95	190.01	72.89	-1,745.94	-1,411.01	8,541.50	8,317.93	223.56	38.206	
13,300.00	6,941.31	6,341.00	6,337.34	109.51	190.01	72.89	-1,745.94	-1,411.01	8,636.89	8,413.18	223.71	38.607	
13,400.00	6,941.34	6,341.00	6,337.34	111.08	190.01	72.89	-1,745.94	-1,411.01	8,732.38	8,508.52	223.86	39.008	
13,500.00	6,941.36	6,341.00	6,337.34	112.64	190.01	72.89	-1,745.94	-1,411.01	8,827.98	8,603.97	224.00	39.410	
13,600.00	6,941.38	6,341.00	6,337.34	114.21	190.01	72.89	-1,745.94	-1,411.01	8,923.67	8,699.52	224.15	39.812	
13,700.00	6,941.40	6,341.00	6,337.34	115.78	190.01	72.89	-1,745.94	-1,411.01	9,019.45	8,795.16	224.29	40.214	
13,800.00	6,941.42	6,341.00	6,337.34	117.35	190.01	72.89	-1,745.94	-1,411.01	9,115.32	8,890.90	224.43	40.616	
13,900.00	6,941.45	6,341.00	6,337.34	118.92	190.01	72.89	-1,745.94	-1,411.01	9,211.29	8,986.72	224.56	41.019	
14,000.00	6,941.47	6,341.00	6,337.34	120.49	190.01	72.89	-1,745.94	-1,411.01	9,307.33	9,082.63	224.70	41.421	
14,100.00	6,941.49	6,341.00	6,337.34	122.06	190.01	72.89	-1,745.94	-1,411.01	9,403.46	9,178.63	224.83	41.824	
14,200.00	6,941.51	6,341.00	6,337.34	123.64	190.01	72.89	-1,745.94	-1,411.01	9,499.67	9,274.70	224.97	42.227	
14,300.00	6,941.53	6,341.00	6,337.34	125.21	190.01	72.89	-1,745.94	-1,411.01	9,595.96	9,370.86	225.10	42.630	
14,400.00	6,941.56	6,341.00	6,337.34	126.78	190.01	72.89	-1,745.94	-1,411.01	9,692.32	9,467.09	225.23	43.033	
14,500.00	6,941.58	6,341.00	6,337.34	128.36	190.01	72.89	-1,745.94	-1,411.01	9,788.75	9,563.40	225.36	43.437	
14,600.00	6,941.60	6,341.00	6,337.34	129.93	190.01	72.89	-1,745.94	-1,411.01	9,885.26	9,659.77	225.49	43.840	
14,700.00	6,941.62	6,341.00	6,337.34	131.51	190.01	72.89	-1,745.94	-1,411.01	9,981.83	9,756.22	225.61	44.243	
14,800.00	6,941.64	6,341.00	6,337.34	133.08	190.01	72.89	-1,745.94	-1,411.01	10,078.48	9,852.74	225.74	44.647	
14,900.00	6,941.67	6,341.00	6,337.34	134.66	190.01	72.89	-1,745.94	-1,411.01	10,175.18	9,949.32	225.86	45.050	
15,000.00	6,941.69	6,341.00	6,337.34	136.24	190.01	72.89	-1,745.94	-1,411.01	10,271.95	10,045.97	225.99	45.454	
15,100.00	6,941.71	6,341.00	6,337.34	137.82	190.01	72.89	-1,745.94	-1,411.01	10,368.78	10,142.67	226.11	45.858	
15,200.00	6,941.73	6,341.00	6,337.34	139.40	190.01	72.89	-1,745.94	-1,411.01	10,465.67	10,239.44	226.23	46.261	
15,300.00	6,941.75	6,341.00	6,337.34	140.97	190.01	72.89	-1,745.94	-1,411.01	10,562.62	10,336.27	226.35	46.665	
15,400.00	6,941.78	6,341.00	6,337.34	142.55	190.01	72.89	-1,745.94	-1,411.01	10,659.63	10,433.16	226.47	47.069	
15,500.00	6,941.80	6,341.00	6,337.34	144.13	190.01	72.89	-1,745.94	-1,411.01	10,756.68	10,530.10	226.59	47.472	
15,600.00	6,941.82	6,341.00	6,337.34	145.72	190.01	72.89	-1,745.94	-1,411.01	10,853.80	10,627.09	226.71	47.876	
15,700.00	6,941.84	6,341.00	6,337.34	147.30	190.01	72.89	-1,745.94	-1,411.01	10,950.96	10,724.14	226.82	48.280	
15,800.00	6,941.87	6,341.00	6,337.34	148.88	190.01	72.89	-1,745.94	-1,411.01	11,048.18	10,821.24	226.94	48.683	
15,900.00	6,941.89	6,341.00	6,337.34	150.46	190.01	72.89	-1,745.94	-1,411.01	11,145.44	10,918.39	227.06	49.087	
16,000.00	6,941.91	6,341.00	6,337.34	152.04	190.01	72.89	-1,745.94	-1,411.01	11,242.76	11,015.58	227.17	49.490	
16,100.00	6,941.93	6,341.00	6,337.34	153.62	190.01	72.89	-1,745.94	-1,411.01	11,340.11	11,112.83	227.29	49.894	
16,200.00	6,941.95	6,341.00	6,337.34	155.21	190.01	72.89	-1,745.94	-1,411.01	11,437.52	11,210.12	227.40	50.297	
16,300.00	6,941.98	6,341.00	6,337.34	156.79	190.01	72.89	-1,745.94	-1,411.01	11,534.97	11,307.46	227.51	50.700	
16,400.00	6,942.00	6,341.00	6,337.34	158.37	190.01	72.89	-1,745.94	-1,411.01	11,632.46	11,404.84	227.62	51.104	
16,500.00	6,942.02	6,341.00	6,337.34	159.96	190.01	72.89	-1,745.94	-1,411.01	11,730.00	11,502.26	227.74	51.507	
16,600.00	6,942.04	6,341.00	6,337.34	161.54	190.01	72.89	-1,745.94	-1,411.01	11,827.57	11,599.72	227.85	51.910	
16,700.00	6,942.06	6,341.00	6,337.34	163.13	190.01	72.89	-1,745.94	-1,411.01	11,925.19	11,697.23	227.96	52.313	
16,800.00	6,942.09	6,341.00	6,337.34	164.71	190.01	72.89	-1,745.94	-1,411.01	12,022.84	11,794.77	228.07	52.715	
16,900.00	6,942.11	6,341.00	6,337.34	166.30	190.01	72.89	-1,745.94	-1,411.01	12,120.54	11,892.36	228.18	53.118	
17,000.00	6,942.13	6,341.00	6,337.34	167.88	190.01	72.89	-1,745.94	-1,411.01	12,218.27	11,989.98	228.29	53.521	
17,100.00	6,942.15	6,341.00	6,337.34	169.47	190.01	72.89	-1,745.94	-1,411.01	12,316.04	12,087.64	228.40	53.923	
17,200.00	6,942.17	6,341.00	6,337.34	171.05	190.01	72.89	-1,745.94	-1,411.01	12,413.84	12,185.33	228.51	54.325	
17,300.00	6,942.20	6,341.00	6,337.34	172.64	190.01	72.89	-1,745.94	-1,411.01	12,511.68	12,283.06	228.62	54.727	
17,400.00	6,942.22	6,341.00	6,337.34	174.23	190.01	72.89	-1,745.94	-1,411.01	12,609.55	12,380.82	228.73	55.129	
17,500.00	6,942.24	6,341.00	6,337.34	175.81	190.01	72.89	-1,745.94	-1,411.01	12,707.45	12,478.62	228.83	55.531	
17,600.00	6,942.26	6,341.00	6,337.34	177.40	190.01	72.89	-1,745.94	-1,411.01	12,805.39	12,576.45	228.94	55.933	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
17,700.00	6,942.28	6,341.00	6,337.34	178.99	190.01	72.89	-1,745.94	-1,411.01	12,903.36	12,674.31	229.05	56.334	
17,800.00	6,942.31	6,341.00	6,337.34	180.57	190.01	72.89	-1,745.94	-1,411.01	13,001.36	12,772.20	229.16	56.736	
17,900.00	6,942.33	6,341.00	6,337.34	182.16	190.01	72.89	-1,745.94	-1,411.01	13,099.39	12,870.13	229.26	57.137	
18,000.00	6,942.35	6,341.00	6,337.34	183.75	190.01	72.89	-1,745.94	-1,411.01	13,197.45	12,968.08	229.37	57.538	
18,100.00	6,942.37	6,341.00	6,337.34	185.34	190.01	72.89	-1,745.94	-1,411.01	13,295.54	13,066.06	229.48	57.939	
18,200.00	6,942.39	6,341.00	6,337.34	186.93	190.01	72.89	-1,745.94	-1,411.01	13,393.65	13,164.07	229.58	58.339	
18,300.00	6,942.42	6,341.00	6,337.34	188.52	190.01	72.89	-1,745.94	-1,411.01	13,491.80	13,262.11	229.69	58.740	
18,400.00	6,942.44	6,341.00	6,337.34	190.10	190.01	72.89	-1,745.94	-1,411.01	13,589.97	13,360.18	229.79	59.140	
18,500.00	6,942.46	6,341.00	6,337.34	191.69	190.01	72.89	-1,745.94	-1,411.01	13,688.17	13,458.27	229.90	59.540	
18,600.00	6,942.48	6,341.00	6,337.34	193.28	190.01	72.89	-1,745.94	-1,411.01	13,786.39	13,556.39	230.01	59.939	
18,700.00	6,942.51	6,341.00	6,337.34	194.87	190.01	72.89	-1,745.94	-1,411.01	13,884.64	13,654.53	230.11	60.339	
18,800.00	6,942.53	6,341.00	6,337.34	196.46	190.01	72.89	-1,745.94	-1,411.01	13,982.91	13,752.70	230.22	60.738	
18,900.00	6,942.55	6,341.00	6,337.34	198.05	190.01	72.89	-1,745.94	-1,411.01	14,081.21	13,850.89	230.32	61.137	
19,000.00	6,942.57	6,341.00	6,337.34	199.64	190.01	72.89	-1,745.94	-1,411.01	14,179.53	13,949.11	230.43	61.536	
19,100.00	6,942.59	6,341.00	6,337.34	201.23	190.01	72.89	-1,745.94	-1,411.01	14,277.88	14,047.35	230.53	61.935	
19,200.00	6,942.62	6,341.00	6,337.34	202.82	190.01	72.89	-1,745.94	-1,411.01	14,376.25	14,145.61	230.63	62.333	
19,300.00	6,942.64	6,341.00	6,337.34	204.41	190.01	72.89	-1,745.94	-1,411.01	14,474.64	14,243.90	230.74	62.732	
19,400.00	6,942.66	6,341.00	6,337.34	206.00	190.01	72.89	-1,745.94	-1,411.01	14,573.05	14,342.21	230.84	63.129	
19,500.00	6,942.68	6,341.00	6,337.34	207.59	190.01	72.89	-1,745.94	-1,411.01	14,671.49	14,440.54	230.95	63.527	
19,600.00	6,942.70	6,341.00	6,337.34	209.18	190.01	72.89	-1,745.94	-1,411.01	14,769.94	14,538.89	231.05	63.925	
19,700.00	6,942.73	6,341.00	6,337.34	210.78	190.01	72.89	-1,745.94	-1,411.01	14,868.42	14,637.26	231.16	64.322	
19,800.00	6,942.75	6,341.00	6,337.34	212.37	190.01	72.89	-1,745.94	-1,411.01	14,966.91	14,735.65	231.26	64.719	
19,900.00	6,942.77	6,341.00	6,337.34	213.96	190.01	72.89	-1,745.94	-1,411.01	15,065.43	14,834.06	231.36	65.115	
20,000.00	6,942.79	6,341.00	6,337.34	215.55	190.01	72.89	-1,745.94	-1,411.01	15,163.96	14,932.49	231.47	65.512	
20,100.00	6,942.81	6,341.00	6,337.34	217.14	190.01	72.89	-1,745.94	-1,411.01	15,262.52	15,030.94	231.57	65.908	
20,200.00	6,942.84	6,341.00	6,337.34	218.73	190.01	72.89	-1,745.94	-1,411.01	15,361.09	15,129.41	231.68	66.304	
20,300.00	6,942.86	6,341.00	6,337.34	220.32	190.01	72.89	-1,745.94	-1,411.01	15,459.68	15,227.90	231.78	66.700	
20,400.00	6,942.88	6,341.00	6,337.34	221.92	190.01	72.89	-1,745.94	-1,411.01	15,558.29	15,326.40	231.88	67.095	
20,500.00	6,942.90	6,341.00	6,337.34	223.51	190.01	72.89	-1,745.94	-1,411.01	15,656.92	15,424.93	231.99	67.490	
20,600.00	6,942.92	6,341.00	6,337.34	225.10	190.01	72.89	-1,745.94	-1,411.01	15,755.56	15,523.47	232.09	67.885	
20,700.00	6,942.95	6,341.00	6,337.34	226.69	190.01	72.89	-1,745.94	-1,411.01	15,854.22	15,622.03	232.20	68.279	
20,800.00	6,942.97	6,341.00	6,337.34	228.28	190.01	72.89	-1,745.94	-1,411.01	15,952.90	15,720.60	232.30	68.673	
20,900.00	6,942.99	6,341.00	6,337.34	229.88	190.01	72.89	-1,745.94	-1,411.01	16,051.59	15,819.19	232.40	69.067	
20,942.50	6,943.00	6,341.00	6,337.34	230.42	190.01	72.89	-1,745.94	-1,411.01	16,093.54	15,857.62	235.92	68.215	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**Offset TVD Reference:**	Offset Datum

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

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

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	28.77	28.77	0.00	0.02	166.22	-1,646.68	403.76	1,695.45				
58.45	58.45	88.82	88.82	0.02	0.06	-72.08	-1,646.60	403.85	1,695.29	1,695.24	0.05	N/A	
141.87	141.86	169.40	169.40	0.13	0.16	-88.66	-1,646.48	404.14	1,695.07	1,694.91	0.16	N/A	
150.25	150.24	177.55	177.55	0.14	0.17	-90.43	-1,646.47	404.18	1,695.08	1,694.90	0.18	9,682.068	
239.43	239.42	265.14	265.13	0.25	0.28	-95.97	-1,646.40	404.87	1,695.23	1,694.93	0.29	5,789.235	
299.93	299.91	325.35	325.34	0.33	0.36	-91.07	-1,646.32	405.53	1,695.36	1,694.98	0.37	4,526.265	
446.00	445.96	469.67	469.65	0.50	0.54	-66.81	-1,646.19	407.46	1,695.15	1,694.50	0.65	2,628.031	
537.00	536.95	561.11	561.08	0.73	0.66	-5.62	-1,646.09	408.71	1,694.51	1,693.52	0.99	1,711.276	
624.00	623.95	647.56	647.53	0.99	0.78	77.33	-1,646.01	409.90	1,694.09	1,692.76	1.34	1,265.951	
637.16	637.10	660.60	660.56	1.03	0.79	82.32	-1,646.00	410.09	1,694.09	1,692.69	1.39	1,217.114	CC
718.00	717.90	740.69	740.64	1.29	0.90	95.20	-1,645.93	411.30	1,694.36	1,692.64	1.72	984.397	ES
811.00	810.73	832.09	832.03	1.60	1.02	114.69	-1,645.88	412.76	1,696.40	1,694.29	2.11	804.081	
903.00	902.19	918.66	918.59	1.92	1.13	126.57	-1,646.02	414.14	1,702.16	1,699.66	2.51	679.314	
994.00	992.38	1,009.90	1,009.82	2.24	1.24	129.16	-1,646.28	415.58	1,710.23	1,707.32	2.91	587.981	
1,084.00	1,081.50	1,098.96	1,098.87	2.56	1.36	133.74	-1,646.52	416.95	1,719.18	1,715.87	3.31	519.630	
1,175.00	1,171.48	1,188.47	1,188.37	2.91	1.47	137.89	-1,646.81	418.18	1,729.50	1,725.78	3.72	465.160	
1,268.00	1,263.52	1,281.92	1,281.81	3.26	1.59	139.77	-1,647.15	419.30	1,740.15	1,736.01	4.14	420.578	
1,363.00	1,357.62	1,382.28	1,382.16	3.63	1.72	143.03	-1,647.35	420.38	1,750.78	1,746.22	4.57	383.422	
1,457.00	1,450.74	1,479.04	1,478.92	3.99	1.84	145.98	-1,647.24	421.30	1,761.35	1,756.37	4.98	353.627	
1,552.00	1,544.82	1,573.56	1,573.43	4.36	1.97	146.97	-1,647.05	422.09	1,772.39	1,766.99	5.39	328.562	
1,646.00	1,637.88	1,669.12	1,668.99	4.72	2.08	147.69	-1,646.81	422.64	1,783.49	1,777.69	5.80	307.450	
1,741.00	1,731.94	1,769.10	1,768.98	5.09	2.10	148.41	-1,646.53	422.42	1,794.53	1,788.32	6.21	289.108	
1,835.00	1,825.07	1,862.65	1,862.52	5.46	2.07	148.75	-1,646.23	421.93	1,804.99	1,798.38	6.61	273.039	
1,929.00	1,918.39	1,961.91	1,961.78	5.82	2.09	147.87	-1,645.60	421.63	1,814.03	1,807.01	7.02	258.353	
2,024.00	2,012.84	2,061.69	2,061.55	6.18	2.14	149.47	-1,644.62	421.38	1,821.80	1,814.36	7.44	244.729	
2,118.00	2,106.19	2,156.00	2,155.86	6.53	2.18	149.76	-1,643.56	421.09	1,830.20	1,822.33	7.87	232.576	
2,213.00	2,200.37	2,248.21	2,248.06	6.90	2.23	148.62	-1,642.54	420.74	1,839.82	1,831.51	8.31	221.527	
2,307.00	2,293.61	2,338.03	2,337.87	7.27	2.26	150.88	-1,641.78	420.27	1,849.27	1,840.54	8.74	211.676	
2,402.00	2,387.91	2,433.04	2,432.88	7.63	2.30	154.93	-1,641.03	419.71	1,858.68	1,849.50	9.18	202.531	
2,496.00	2,481.29	2,529.84	2,529.67	7.99	2.34	156.36	-1,640.21	418.97	1,867.61	1,857.99	9.62	194.206	
2,591.00	2,575.67	2,623.57	2,623.39	8.35	2.36	155.00	-1,639.38	417.81	1,876.47	1,866.42	10.05	186.662	
2,686.00	2,670.05	2,716.53	2,716.34	8.71	2.39	155.65	-1,638.63	416.32	1,885.27	1,874.79	10.48	179.812	
2,780.00	2,763.49	2,808.08	2,807.88	9.07	2.41	153.77	-1,638.05	414.90	1,893.78	1,882.87	10.91	173.600	
2,875.00	2,857.94	2,900.04	2,899.82	9.43	2.44	152.56	-1,637.42	413.59	1,902.02	1,890.68	11.34	167.737	
2,970.00	2,952.51	2,983.80	2,983.58	9.79	2.47	156.33	-1,637.14	412.59	1,909.65	1,897.90	11.75	162.525	
3,064.00	3,046.19	3,064.61	3,064.39	10.13	2.48	163.67	-1,637.26	411.92	1,916.90	1,904.77	12.13	157.978	
3,159.00	3,140.98	3,152.69	3,152.46	10.47	2.49	165.77	-1,637.96	411.59	1,923.76	1,911.27	12.50	153.944	
3,253.00	3,234.84	3,246.45	3,246.21	10.81	2.50	158.10	-1,638.82	411.29	1,929.33	1,916.47	12.86	150.033	
3,348.00	3,329.74	3,342.72	3,342.49	11.14	2.52	150.52	-1,639.69	410.91	1,934.03	1,920.79	13.23	146.138	
3,397.00	3,378.70	3,392.90	3,392.66	11.32	2.53	149.68	-1,640.09	410.59	1,936.15	1,922.72	13.43	144.142	
3,488.00	3,469.63	3,485.77	3,485.52	11.64	2.55	147.22	-1,640.75	410.00	1,939.67	1,925.87	13.80	140.529	
3,583.00	3,564.49	3,597.88	3,597.64	11.98	2.60	155.62	-1,640.91	409.47	1,944.28	1,930.06	14.23	136.658	
3,677.00	3,658.13	3,692.60	3,692.35	12.33	2.67	157.44	-1,640.71	409.26	1,951.57	1,936.91	14.65	133.181	
3,772.00	3,752.42	3,779.21	3,778.97	12.69	2.73	161.96	-1,640.62	409.15	1,962.29	1,947.22	15.07	130.209	
3,867.00	3,846.42	3,856.88	3,856.63	13.06	2.76	163.64	-1,641.02	409.00	1,975.89	1,960.44	15.45	127.891	
3,961.00	3,939.30	3,933.27	3,933.02	13.44	2.79	163.46	-1,642.13	408.75	1,991.07	1,975.25	15.82	125.830	
4,056.00	4,032.83	4,023.67	4,023.40	13.82	2.83	160.05	-1,643.84	408.35	2,008.58	1,992.36	16.22	123.831	
4,151.00	4,126.01	4,117.06	4,116.77	14.21	2.88	161.09	-1,645.59	407.86	2,027.72	2,011.09	16.63	121.956	
4,246.00	4,219.10	4,204.82	4,204.50	14.61	2.92	153.73	-1,647.39	407.23	2,047.06	2,030.03	17.03	120.194	
4,340.00	4,310.92	4,289.38	4,289.03	15.01	2.97	144.53	-1,649.50	406.21	2,066.52	2,049.08	17.44	118.510	
4,435.00	4,403.54	4,379.08	4,378.69	15.41	3.03	144.45	-1,651.93	405.00	2,086.20	2,068.35	17.86	116.817	
4,498.00	4,465.21	4,448.91	4,448.50	15.68	3.07	147.00	-1,653.65	404.11	2,098.34	2,080.19	18.15	115.608	

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 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
4,561.00	4,526.82	4,522.83	4,522.40	15.95	3.12	152.23	-1,655.03	403.35	2,110.82	2,092.37	18.45	114.406	
4,624.00	4,588.23	4,587.64	4,587.20	16.22	3.17	154.33	-1,656.04	402.74	2,124.36	2,105.62	18.74	113.359	
4,687.00	4,649.71	4,653.99	4,653.54	16.49	3.22	155.11	-1,656.95	402.13	2,137.61	2,118.58	19.03	112.325	
4,749.00	4,710.40	4,718.82	4,718.36	16.75	3.27	156.70	-1,657.76	401.61	2,149.92	2,130.60	19.32	111.307	
4,812.00	4,772.28	4,773.80	4,773.34	17.01	3.31	157.71	-1,658.48	401.18	2,161.59	2,142.00	19.59	110.351	
4,875.00	4,834.34	4,840.24	4,839.77	17.27	3.36	157.46	-1,659.29	400.81	2,172.39	2,152.51	19.88	109.288	
4,938.00	4,896.43	4,901.58	4,901.11	17.53	3.41	157.35	-1,660.00	400.57	2,182.92	2,162.76	20.16	108.273	
5,001.00	4,958.46	4,965.91	4,965.43	17.79	3.47	154.18	-1,660.71	400.31	2,193.67	2,173.22	20.45	107.260	
5,064.00	5,020.29	5,025.68	5,025.20	18.05	3.52	149.83	-1,661.41	400.05	2,205.06	2,184.32	20.74	106.323	
5,126.00	5,080.98	5,082.88	5,082.39	18.32	3.57	145.78	-1,662.09	399.90	2,216.55	2,195.52	21.02	105.435	
5,189.00	5,142.74	5,149.13	5,148.64	18.58	3.63	147.70	-1,662.82	399.78	2,227.68	2,206.36	21.32	104.467	
5,252.00	5,204.62	5,212.53	5,212.03	18.85	3.68	147.93	-1,663.46	399.68	2,238.36	2,216.74	21.62	103.527	
5,315.00	5,266.61	5,273.67	5,273.17	19.11	3.74	148.02	-1,664.05	399.66	2,248.50	2,226.59	21.91	102.604	
5,378.00	5,328.73	5,334.45	5,333.95	19.37	3.79	148.66	-1,664.66	399.72	2,258.13	2,235.92	22.21	101.687	
5,441.00	5,390.87	5,398.62	5,398.12	19.62	3.85	148.29	-1,665.32	399.84	2,267.65	2,245.14	22.51	100.759	
5,503.00	5,452.07	5,459.09	5,458.58	19.87	3.91	148.83	-1,665.92	399.91	2,276.74	2,253.95	22.80	99.878	
5,566.00	5,514.32	5,516.78	5,516.27	20.13	3.96	148.59	-1,666.50	399.92	2,285.71	2,262.62	23.08	99.021	
5,629.00	5,576.59	5,574.56	5,574.05	20.38	4.02	151.21	-1,667.27	399.84	2,294.79	2,271.42	23.37	98.191	
5,692.00	5,638.95	5,629.27	5,628.75	20.63	4.07	149.06	-1,668.15	399.69	2,303.58	2,279.93	23.65	97.396	
5,747.00	5,693.45	5,680.95	5,680.42	20.85	4.12	151.43	-1,669.04	399.29	2,310.96	2,287.06	23.90	96.683	
5,810.00	5,755.90	5,746.44	5,745.89	21.09	4.19	150.83	-1,670.22	398.61	2,319.33	2,295.13	24.20	95.841	
5,874.00	5,819.40	5,809.15	5,808.59	21.34	4.25	152.28	-1,671.30	398.03	2,327.38	2,302.89	24.49	95.016	
5,936.00	5,880.95	5,870.40	5,869.83	21.58	4.31	151.93	-1,672.37	397.28	2,335.05	2,310.27	24.78	94.230	
5,999.00	5,943.45	5,932.73	5,932.14	21.82	4.38	150.56	-1,673.47	396.51	2,343.01	2,317.93	25.07	93.452	
6,062.00	6,005.96	5,995.05	5,994.45	22.07	4.44	153.19	-1,674.56	395.74	2,351.03	2,325.66	25.36	92.695	
6,125.00	6,068.49	6,057.40	6,056.79	22.31	4.50	151.01	-1,675.65	394.97	2,358.89	2,333.23	25.65	91.950	
6,188.00	6,131.08	6,119.83	6,119.20	22.55	4.57	152.99	-1,676.75	394.20	2,366.29	2,340.34	25.94	91.208	
6,255.00	6,197.73	6,125.00	6,124.37	22.81	4.57	151.98	-1,676.84	394.13	2,374.28	2,348.14	26.14	90.845	
6,293.00	6,235.55	6,125.00	6,124.37	22.89	4.57	151.98	-1,676.84	394.13	2,379.40	2,353.24	26.16	90.950	
6,300.00	6,242.52	6,125.00	6,124.37	22.89	4.57	151.98	-1,676.84	394.13	2,380.41	2,354.26	26.16	91.010	
6,393.00	6,335.09	6,125.00	6,124.37	22.94	4.57	151.98	-1,676.84	394.13	2,395.72	2,369.65	26.07	91.882	
6,400.00	6,342.06	6,125.00	6,124.37	22.94	4.57	145.98	-1,676.84	394.13	2,397.01	2,370.94	26.07	91.953	
6,450.00	6,391.66	6,125.00	6,124.37	22.97	4.57	118.02	-1,676.84	394.13	2,406.54	2,380.51	26.03	92.455	
6,500.00	6,440.77	6,125.00	6,124.37	23.02	4.57	105.34	-1,676.84	394.13	2,416.56	2,390.57	26.00	92.950	
6,550.00	6,489.07	6,125.00	6,124.37	23.07	4.57	98.36	-1,676.84	394.13	2,427.02	2,401.04	25.98	93.433	
6,600.00	6,536.26	6,125.00	6,124.37	23.13	4.57	93.81	-1,676.84	394.13	2,437.83	2,411.87	25.96	93.897	
6,650.00	6,582.05	6,125.00	6,124.37	23.21	4.57	90.47	-1,676.84	394.13	2,448.93	2,422.97	25.96	94.337	
6,700.00	6,626.13	6,125.00	6,124.37	23.29	4.57	87.82	-1,676.84	394.13	2,460.24	2,434.27	25.97	94.745	
6,750.00	6,668.24	6,125.00	6,124.37	23.39	4.57	85.60	-1,676.84	394.13	2,471.69	2,445.70	25.99	95.113	
6,800.00	6,708.12	6,125.00	6,124.37	23.51	4.57	83.66	-1,676.84	394.13	2,483.21	2,457.19	26.02	95.434	
6,850.00	6,745.50	6,125.00	6,124.37	23.64	4.57	81.93	-1,676.84	394.13	2,494.71	2,468.65	26.07	95.698	
6,900.00	6,780.15	6,125.00	6,124.37	23.79	4.57	80.36	-1,676.84	394.13	2,506.14	2,480.01	26.13	95.897	
6,950.00	6,811.86	6,125.00	6,124.37	23.95	4.57	78.93	-1,676.84	394.13	2,517.42	2,491.20	26.22	96.023	
7,000.00	6,840.42	6,125.00	6,124.37	24.14	4.57	77.60	-1,676.84	394.13	2,528.48	2,502.16	26.32	96.069	
7,050.00	6,865.66	6,125.00	6,124.37	24.35	4.57	76.38	-1,676.84	394.13	2,539.25	2,512.81	26.44	96.029	
7,100.00	6,887.42	6,125.00	6,124.37	24.57	4.57	75.25	-1,676.84	394.13	2,549.68	2,523.09	26.59	95.900	
7,150.00	6,905.55	6,125.00	6,124.37	24.82	4.57	74.21	-1,676.84	394.13	2,559.69	2,532.94	26.75	95.681	
7,200.00	6,919.95	6,125.00	6,124.37	25.10	4.57	73.26	-1,676.84	394.13	2,569.24	2,542.30	26.94	95.374	
7,250.00	6,930.52	6,125.00	6,124.37	25.39	4.57	72.39	-1,676.84	394.13	2,578.27	2,551.12	27.15	94.981	
7,300.00	6,937.20	6,125.00	6,124.37	25.70	4.57	71.62	-1,676.84	394.13	2,586.72	2,559.35	27.37	94.510	
7,350.00	6,939.94	6,125.00	6,124.37	26.04	4.57	70.94	-1,676.84	394.13	2,594.55	2,566.94	27.61	93.967	
7,359.60	6,940.02	6,125.00	6,124.37	26.10	4.57	70.82	-1,676.84	394.13	2,595.98	2,568.32	27.66	93.858	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
7,400.00	6,940.03	6,125.00	6,124.37	26.39	4.57	70.82	-1,676.84	394.13	2,602.24	2,574.38	27.87	93.385	
7,500.00	6,940.04	6,125.00	6,124.37	27.15	4.57	70.82	-1,676.84	394.13	2,620.37	2,591.96	28.41	92.241	
7,600.00	6,940.06	6,125.00	6,124.37	27.99	4.57	70.82	-1,676.84	394.13	2,642.16	2,613.18	28.98	91.176	
7,659.60	6,940.07	6,125.00	6,124.37	28.52	4.57	70.82	-1,676.84	394.13	2,656.85	2,627.52	29.33	90.592	
7,700.00	6,940.08	6,125.00	6,124.37	28.89	4.57	70.74	-1,676.84	394.13	2,667.78	2,638.21	29.57	90.229	
7,796.63	6,940.10	6,125.00	6,124.37	29.83	4.57	70.53	-1,676.84	394.13	2,698.26	2,668.11	30.15	89.505	
7,800.00	6,940.10	6,125.00	6,124.37	29.86	4.57	70.53	-1,676.84	394.13	2,699.43	2,669.26	30.17	89.481	
7,900.00	6,940.12	6,125.00	6,124.37	30.90	4.57	70.53	-1,676.84	394.13	2,735.80	2,705.04	30.77	88.922	
8,000.00	6,940.14	6,125.00	6,124.37	31.98	4.57	70.53	-1,676.84	394.13	2,775.30	2,743.94	31.36	88.493	
8,100.00	6,940.17	6,125.00	6,124.37	33.11	4.57	70.53	-1,676.84	394.13	2,817.80	2,785.85	31.95	88.197	
8,200.00	6,940.19	6,125.00	6,124.37	34.28	4.57	70.53	-1,676.84	394.13	2,863.16	2,830.64	32.52	88.034	
8,300.00	6,940.21	6,125.00	6,124.37	35.48	4.57	70.53	-1,676.84	394.13	2,911.25	2,878.17	33.08	87.999 SF	
8,400.00	6,940.23	6,125.00	6,124.37	36.71	4.57	70.53	-1,676.84	394.13	2,961.94	2,928.32	33.62	88.090	
8,500.00	6,940.25	6,125.00	6,124.37	37.97	4.57	70.53	-1,676.84	394.13	3,015.09	2,980.95	34.15	88.300	
8,600.00	6,940.28	6,125.00	6,124.37	39.26	4.57	70.53	-1,676.84	394.13	3,070.58	3,035.94	34.65	88.625	
8,700.00	6,940.30	6,125.00	6,124.37	40.56	4.57	70.53	-1,676.84	394.13	3,128.29	3,093.16	35.13	89.057	
8,800.00	6,940.32	6,125.00	6,124.37	41.89	4.57	70.53	-1,676.84	394.13	3,188.08	3,152.50	35.59	89.590	
8,900.00	6,940.34	6,125.00	6,124.37	43.24	4.57	70.53	-1,676.84	394.13	3,249.86	3,213.84	36.02	90.218	
9,000.00	6,940.36	6,125.00	6,124.37	44.60	4.57	70.53	-1,676.84	394.13	3,313.50	3,277.06	36.44	90.936	
9,100.00	6,940.39	6,125.00	6,124.37	45.98	4.57	70.53	-1,676.84	394.13	3,378.90	3,342.07	36.83	91.737	
9,200.00	6,940.41	6,125.00	6,124.37	47.38	4.57	70.53	-1,676.84	394.13	3,445.96	3,408.76	37.21	92.615	
9,300.00	6,940.43	6,125.00	6,124.37	48.78	4.57	70.53	-1,676.84	394.13	3,514.59	3,477.03	37.56	93.565	
9,400.00	6,940.45	6,125.00	6,124.37	50.20	4.57	70.53	-1,676.84	394.13	3,584.70	3,546.80	37.90	94.583	
9,500.00	6,940.47	6,125.00	6,124.37	51.63	4.57	70.53	-1,676.84	394.13	3,656.19	3,617.97	38.22	95.663	
9,600.00	6,940.50	6,125.00	6,124.37	53.07	4.57	70.53	-1,676.84	394.13	3,729.00	3,690.48	38.52	96.801	
9,700.00	6,940.52	6,125.00	6,124.37	54.52	4.57	70.53	-1,676.84	394.13	3,803.04	3,764.23	38.81	97.994	
9,800.00	6,940.54	6,125.00	6,124.37	55.97	4.57	70.53	-1,676.84	394.13	3,878.25	3,839.17	39.08	99.236	
9,900.00	6,940.56	6,125.00	6,124.37	57.44	4.57	70.53	-1,676.84	394.13	3,954.56	3,915.22	39.34	100.525	
10,000.00	6,940.59	6,125.00	6,124.37	58.91	4.57	70.53	-1,676.84	394.13	4,031.90	3,992.32	39.58	101.858	
10,100.00	6,940.61	6,125.00	6,124.37	60.38	4.57	70.53	-1,676.84	394.13	4,110.22	4,070.41	39.82	103.231	
10,200.00	6,940.63	6,125.00	6,124.37	61.87	4.57	70.53	-1,676.84	394.13	4,189.46	4,149.43	40.04	104.642	
10,300.00	6,940.65	6,125.00	6,124.37	63.36	4.57	70.53	-1,676.84	394.13	4,269.58	4,229.33	40.25	106.087	
10,400.00	6,940.67	6,125.00	6,124.37	64.85	4.57	70.53	-1,676.84	394.13	4,350.52	4,310.07	40.45	107.565	
10,500.00	6,940.70	6,125.00	6,124.37	66.35	4.57	70.53	-1,676.84	394.13	4,432.23	4,391.60	40.64	109.073	
10,600.00	6,940.72	6,125.00	6,124.37	67.86	4.57	70.53	-1,676.84	394.13	4,514.69	4,473.87	40.82	110.609	
10,700.00	6,940.74	6,125.00	6,124.37	69.36	4.57	70.53	-1,676.84	394.13	4,597.84	4,556.85	40.99	112.171	
10,800.00	6,940.76	6,125.00	6,124.37	70.88	4.57	70.53	-1,676.84	394.13	4,681.64	4,640.49	41.15	113.758	
10,900.00	6,940.78	6,125.00	6,124.37	72.39	4.57	70.53	-1,676.84	394.13	4,766.08	4,724.76	41.31	115.367	
11,000.00	6,940.81	6,125.00	6,124.37	73.91	4.57	70.53	-1,676.84	394.13	4,851.10	4,809.64	41.46	116.997	
11,100.00	6,940.83	6,125.00	6,124.37	75.44	4.57	70.53	-1,676.84	394.13	4,936.69	4,895.08	41.61	118.646	
11,200.00	6,940.85	6,125.00	6,124.37	76.96	4.57	70.53	-1,676.84	394.13	5,022.81	4,981.06	41.75	120.314	
11,300.00	6,940.87	6,125.00	6,124.37	78.49	4.57	70.53	-1,676.84	394.13	5,109.43	5,067.55	41.88	121.998	
11,400.00	6,940.89	6,125.00	6,124.37	80.03	4.57	70.53	-1,676.84	394.13	5,196.53	5,154.52	42.01	123.698	
11,500.00	6,940.92	6,125.00	6,124.37	81.56	4.57	70.53	-1,676.84	394.13	5,284.10	5,241.96	42.13	125.413	
11,600.00	6,940.94	6,125.00	6,124.37	83.10	4.57	70.53	-1,676.84	394.13	5,372.09	5,329.84	42.25	127.141	
11,700.00	6,940.96	6,125.00	6,124.37	84.64	4.57	70.53	-1,676.84	394.13	5,460.50	5,418.13	42.37	128.881	
11,800.00	6,940.98	6,125.00	6,124.37	86.18	4.57	70.53	-1,676.84	394.13	5,549.30	5,506.82	42.48	130.633	
11,900.00	6,941.00	6,125.00	6,124.37	87.72	4.57	70.53	-1,676.84	394.13	5,638.48	5,595.89	42.59	132.396	
12,000.00	6,941.03	6,125.00	6,124.37	89.27	4.57	70.53	-1,676.84	394.13	5,728.01	5,685.32	42.69	134.168	
12,100.00	6,941.05	6,125.00	6,124.37	90.82	4.57	70.53	-1,676.84	394.13	5,817.89	5,775.09	42.79	135.950	
12,200.00	6,941.07	6,125.00	6,124.37	92.37	4.57	70.53	-1,676.84	394.13	5,908.09	5,865.20	42.89	137.739	
12,300.00	6,941.09	6,125.00	6,124.37	93.92	4.57	70.53	-1,676.84	394.13	5,998.60	5,955.61	42.99	139.536	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
12,400.00	6,941.11	6,125.00	6,124.37	95.47	4.57	70.53	-1,676.84	394.13	6,089.41	6,046.33	43.08	141.341	
12,500.00	6,941.14	6,125.00	6,124.37	97.03	4.57	70.53	-1,676.84	394.13	6,180.50	6,137.33	43.17	143.151	
12,600.00	6,941.16	6,125.00	6,124.37	98.58	4.57	70.53	-1,676.84	394.13	6,271.87	6,228.60	43.26	144.967	
12,700.00	6,941.18	6,125.00	6,124.37	100.14	4.57	70.53	-1,676.84	394.13	6,363.49	6,320.14	43.35	146.789	
12,800.00	6,941.20	6,125.00	6,124.37	101.70	4.57	70.53	-1,676.84	394.13	6,455.36	6,411.93	43.44	148.615	
12,900.00	6,941.23	6,125.00	6,124.37	103.26	4.57	70.53	-1,676.84	394.13	6,547.47	6,503.95	43.52	150.445	
13,000.00	6,941.25	6,125.00	6,124.37	104.82	4.57	70.53	-1,676.84	394.13	6,639.81	6,596.21	43.60	152.279	
13,100.00	6,941.27	6,125.00	6,124.37	106.38	4.57	70.53	-1,676.84	394.13	6,732.37	6,688.69	43.68	154.117	
13,200.00	6,941.29	6,125.00	6,124.37	107.95	4.57	70.53	-1,676.84	394.13	6,825.14	6,781.37	43.76	155.957	
13,300.00	6,941.31	6,125.00	6,124.37	109.51	4.57	70.53	-1,676.84	394.13	6,918.11	6,874.26	43.84	157.800	
13,400.00	6,941.34	6,125.00	6,124.37	111.08	4.57	70.53	-1,676.84	394.13	7,011.27	6,967.35	43.92	159.644	
13,500.00	6,941.36	6,125.00	6,124.37	112.64	4.57	70.53	-1,676.84	394.13	7,104.62	7,060.62	43.99	161.490	
13,600.00	6,941.38	6,125.00	6,124.37	114.21	4.57	70.53	-1,676.84	394.13	7,198.14	7,154.07	44.07	163.338	
13,700.00	6,941.40	6,125.00	6,124.37	115.78	4.57	70.53	-1,676.84	394.13	7,291.84	7,247.70	44.14	165.187	
13,800.00	6,941.42	6,125.00	6,124.37	117.35	4.57	70.53	-1,676.84	394.13	7,385.71	7,341.49	44.22	167.036	
13,900.00	6,941.45	6,125.00	6,124.37	118.92	4.57	70.53	-1,676.84	394.13	7,479.73	7,435.44	44.29	168.886	
14,000.00	6,941.47	6,125.00	6,124.37	120.49	4.57	70.53	-1,676.84	394.13	7,573.91	7,529.55	44.36	170.736	
14,100.00	6,941.49	6,125.00	6,124.37	122.06	4.57	70.53	-1,676.84	394.13	7,668.23	7,623.80	44.43	172.585	
14,200.00	6,941.51	6,125.00	6,124.37	123.64	4.57	70.53	-1,676.84	394.13	7,762.70	7,718.19	44.50	174.435	
14,300.00	6,941.53	6,125.00	6,124.37	125.21	4.57	70.53	-1,676.84	394.13	7,857.30	7,812.73	44.57	176.283	
14,400.00	6,941.56	6,125.00	6,124.37	126.78	4.57	70.53	-1,676.84	394.13	7,952.03	7,907.39	44.64	178.131	
14,500.00	6,941.58	6,125.00	6,124.37	128.36	4.57	70.53	-1,676.84	394.13	8,046.90	8,002.19	44.71	179.977	
14,600.00	6,941.60	6,125.00	6,124.37	129.93	4.57	70.53	-1,676.84	394.13	8,141.88	8,097.10	44.78	181.822	
14,700.00	6,941.62	6,125.00	6,124.37	131.51	4.57	70.53	-1,676.84	394.13	8,236.99	8,192.14	44.85	183.666	
14,800.00	6,941.64	6,125.00	6,124.37	133.08	4.57	70.53	-1,676.84	394.13	8,332.20	8,287.29	44.92	185.507	
14,900.00	6,941.67	6,125.00	6,124.37	134.66	4.57	70.53	-1,676.84	394.13	8,427.53	8,382.55	44.98	187.347	
15,000.00	6,941.69	6,125.00	6,124.37	136.24	4.57	70.53	-1,676.84	394.13	8,522.97	8,477.92	45.05	189.184	
15,100.00	6,941.71	6,125.00	6,124.37	137.82	4.57	70.53	-1,676.84	394.13	8,618.51	8,573.39	45.12	191.019	
15,200.00	6,941.73	6,125.00	6,124.37	139.40	4.57	70.53	-1,676.84	394.13	8,714.15	8,668.96	45.19	192.852	
15,300.00	6,941.75	6,125.00	6,124.37	140.97	4.57	70.53	-1,676.84	394.13	8,809.89	8,764.63	45.25	194.682	
15,400.00	6,941.78	6,125.00	6,124.37	142.55	4.57	70.53	-1,676.84	394.13	8,905.72	8,860.40	45.32	196.508	
15,500.00	6,941.80	6,125.00	6,124.37	144.13	4.57	70.53	-1,676.84	394.13	9,001.64	8,956.25	45.39	198.332	
15,600.00	6,941.82	6,125.00	6,124.37	145.72	4.57	70.53	-1,676.84	394.13	9,097.65	9,052.19	45.45	200.153	
15,700.00	6,941.84	6,125.00	6,124.37	147.30	4.57	70.53	-1,676.84	394.13	9,193.74	9,148.22	45.52	201.970	
15,800.00	6,941.87	6,125.00	6,124.37	148.88	4.57	70.53	-1,676.84	394.13	9,289.92	9,244.33	45.59	203.784	
15,900.00	6,941.89	6,125.00	6,124.37	150.46	4.57	70.53	-1,676.84	394.13	9,386.17	9,340.52	45.65	205.595	
16,000.00	6,941.91	6,125.00	6,124.37	152.04	4.57	70.53	-1,676.84	394.13	9,482.51	9,436.79	45.72	207.401	
16,100.00	6,941.93	6,125.00	6,124.37	153.62	4.57	70.53	-1,676.84	394.13	9,578.92	9,533.13	45.79	209.204	
16,200.00	6,941.95	6,125.00	6,124.37	155.21	4.57	70.53	-1,676.84	394.13	9,675.40	9,629.55	45.85	211.003	
16,300.00	6,941.98	6,125.00	6,124.37	156.79	4.57	70.53	-1,676.84	394.13	9,771.95	9,726.03	45.92	212.798	
16,400.00	6,942.00	6,125.00	6,124.37	158.37	4.57	70.53	-1,676.84	394.13	9,868.57	9,822.59	45.99	214.588	
16,500.00	6,942.02	6,125.00	6,124.37	159.96	4.57	70.53	-1,676.84	394.13	9,965.26	9,919.21	46.06	216.375	
16,600.00	6,942.04	6,125.00	6,124.37	161.54	4.57	70.53	-1,676.84	394.13	10,062.02	10,015.89	46.12	218.157	
16,700.00	6,942.06	6,125.00	6,124.37	163.13	4.57	70.53	-1,676.84	394.13	10,158.83	10,112.64	46.19	219.934	
16,800.00	6,942.09	6,125.00	6,124.37	164.71	4.57	70.53	-1,676.84	394.13	10,255.71	10,209.45	46.26	221.707	
16,900.00	6,942.11	6,125.00	6,124.37	166.30	4.57	70.53	-1,676.84	394.13	10,352.64	10,306.32	46.33	223.475	
17,000.00	6,942.13	6,125.00	6,124.37	167.88	4.57	70.53	-1,676.84	394.13	10,449.64	10,403.24	46.39	225.238	
17,100.00	6,942.15	6,125.00	6,124.37	169.47	4.57	70.53	-1,676.84	394.13	10,546.69	10,500.23	46.46	226.997	
17,200.00	6,942.17	6,125.00	6,124.37	171.05	4.57	70.53	-1,676.84	394.13	10,643.79	10,597.26	46.53	228.751	
17,300.00	6,942.20	6,125.00	6,124.37	172.64	4.57	70.53	-1,676.84	394.13	10,740.95	10,694.35	46.60	230.499	
17,400.00	6,942.22	6,125.00	6,124.37	174.23	4.57	70.53	-1,676.84	394.13	10,838.16	10,791.49	46.67	232.243	
17,500.00	6,942.24	6,125.00	6,124.37	175.81	4.57	70.53	-1,676.84	394.13	10,935.42	10,888.68	46.74	233.982	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
17,600.00	6,942.26	6,125.00	6,124.37	177.40	4.57	70.53	-1,676.84	394.13	11,032.73	10,985.92	46.81	235.715	
17,700.00	6,942.28	6,125.00	6,124.37	178.99	4.57	70.53	-1,676.84	394.13	11,130.09	11,083.21	46.87	237.443	
17,800.00	6,942.31	6,125.00	6,124.37	180.57	4.57	70.53	-1,676.84	394.13	11,227.49	11,180.54	46.94	239.166	
17,900.00	6,942.33	6,125.00	6,124.37	182.16	4.57	70.53	-1,676.84	394.13	11,324.94	11,277.92	47.01	240.883	
18,000.00	6,942.35	6,125.00	6,124.37	183.75	4.57	70.53	-1,676.84	394.13	11,422.43	11,375.34	47.08	242.595	
18,100.00	6,942.37	6,125.00	6,124.37	185.34	4.57	70.53	-1,676.84	394.13	11,519.96	11,472.81	47.15	244.301	
18,200.00	6,942.39	6,125.00	6,124.37	186.93	4.57	70.53	-1,676.84	394.13	11,617.54	11,570.32	47.23	246.002	
18,300.00	6,942.42	6,125.00	6,124.37	188.52	4.57	70.53	-1,676.84	394.13	11,715.16	11,667.86	47.30	247.697	
18,400.00	6,942.44	6,125.00	6,124.37	190.10	4.57	70.53	-1,676.84	394.13	11,812.82	11,765.45	47.37	249.386	
18,500.00	6,942.46	6,125.00	6,124.37	191.69	4.57	70.53	-1,676.84	394.13	11,910.52	11,863.08	47.44	251.070	
18,600.00	6,942.48	6,125.00	6,124.37	193.28	4.57	70.53	-1,676.84	394.13	12,008.25	11,960.74	47.51	252.748	
18,700.00	6,942.51	6,125.00	6,124.37	194.87	4.57	70.53	-1,676.84	394.13	12,106.02	12,058.44	47.58	254.420	
18,800.00	6,942.53	6,125.00	6,124.37	196.46	4.57	70.53	-1,676.84	394.13	12,203.83	12,156.17	47.66	256.086	
18,900.00	6,942.55	6,125.00	6,124.37	198.05	4.57	70.53	-1,676.84	394.13	12,301.67	12,253.95	47.73	257.747	
19,000.00	6,942.57	6,125.00	6,124.37	199.64	4.57	70.53	-1,676.84	394.13	12,399.55	12,351.75	47.80	259.401	
19,100.00	6,942.59	6,125.00	6,124.37	201.23	4.57	70.53	-1,676.84	394.13	12,497.46	12,449.59	47.87	261.050	
19,200.00	6,942.62	6,125.00	6,124.37	202.82	4.57	70.53	-1,676.84	394.13	12,595.41	12,547.46	47.95	262.692	
19,300.00	6,942.64	6,125.00	6,124.37	204.41	4.57	70.53	-1,676.84	394.13	12,693.38	12,645.36	48.02	264.329	
19,400.00	6,942.66	6,125.00	6,124.37	206.00	4.57	70.53	-1,676.84	394.13	12,791.39	12,743.29	48.10	265.959	
19,500.00	6,942.68	6,125.00	6,124.37	207.59	4.57	70.53	-1,676.84	394.13	12,889.43	12,841.26	48.17	267.584	
19,600.00	6,942.70	6,125.00	6,124.37	209.18	4.57	70.53	-1,676.84	394.13	12,987.49	12,939.25	48.24	269.202	
19,700.00	6,942.73	6,125.00	6,124.37	210.78	4.57	70.53	-1,676.84	394.13	13,085.59	13,037.27	48.32	270.814	
19,800.00	6,942.75	6,125.00	6,124.37	212.37	4.57	70.53	-1,676.84	394.13	13,183.72	13,135.32	48.39	272.420	
19,900.00	6,942.77	6,125.00	6,124.37	213.96	4.57	70.53	-1,676.84	394.13	13,281.87	13,233.40	48.47	274.019	
20,000.00	6,942.79	6,125.00	6,124.37	215.55	4.57	70.53	-1,676.84	394.13	13,380.05	13,331.51	48.55	275.613	
20,100.00	6,942.81	6,125.00	6,124.37	217.14	4.57	70.53	-1,676.84	394.13	13,478.26	13,429.64	48.62	277.200	
20,200.00	6,942.84	6,125.00	6,124.37	218.73	4.57	70.53	-1,676.84	394.13	13,576.49	13,527.79	48.70	278.781	
20,300.00	6,942.86	6,125.00	6,124.37	220.32	4.57	70.53	-1,676.84	394.13	13,674.75	13,625.98	48.78	280.355	
20,400.00	6,942.88	6,125.00	6,124.37	221.92	4.57	70.53	-1,676.84	394.13	13,773.04	13,724.18	48.85	281.924	
20,500.00	6,942.90	6,125.00	6,124.37	223.51	4.57	70.53	-1,676.84	394.13	13,871.35	13,822.42	48.93	283.485	
20,600.00	6,942.92	6,125.00	6,124.37	225.10	4.57	70.53	-1,676.84	394.13	13,969.68	13,920.67	49.01	285.041	
20,700.00	6,942.95	6,125.00	6,124.37	226.69	4.57	70.53	-1,676.84	394.13	14,068.04	14,018.95	49.09	286.590	
20,800.00	6,942.97	6,125.00	6,124.37	228.28	4.57	70.53	-1,676.84	394.13	14,166.42	14,117.25	49.17	288.133	
20,900.00	6,942.99	6,125.00	6,124.37	229.88	4.57	70.53	-1,676.84	394.13	14,264.82	14,215.57	49.25	289.670	
20,942.50	6,943.00	6,125.00	6,124.37	230.42	4.57	70.53	-1,676.84	394.13	14,306.65	14,254.13	52.52	272.414	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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 — **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	46.68	46.68	0.00	0.02	164.97	-1,600.81	429.74	1,657.49				
58.45	58.45	105.36	105.36	0.02	0.05	-73.33	-1,600.80	429.63	1,657.35	1,657.30	0.05	N/A	
116.17	116.17	160.34	160.34	0.09	0.11	-84.56	-1,600.86	429.59	1,657.26	1,657.13	0.13	N/A	
150.25	150.24	193.16	193.16	0.14	0.11	-91.67	-1,600.85	429.78	1,657.29	1,657.12	0.17	9,581.983	
239.43	239.42	273.00	272.99	0.25	0.16	-97.22	-1,600.93	430.93	1,657.79	1,657.50	0.29	5,658.116	
299.93	299.91	1,033.98	1,010.63	0.33	1.04	-94.15	-1,449.82	431.50	1,652.26	1,651.09	1.17	1,413.067	
446.00	445.96	1,203.34	1,163.69	0.50	1.37	-70.74	-1,377.40	428.84	1,590.97	1,588.74	2.24	710.740	
537.00	536.95	1,284.58	1,236.70	0.73	1.54	-9.47	-1,341.79	428.18	1,551.75	1,549.28	2.47	627.228	
624.00	623.95	1,359.47	1,304.09	0.99	1.70	73.58	-1,309.13	428.21	1,514.75	1,512.01	2.73	554.332	
718.00	717.90	1,445.31	1,381.19	1.29	1.89	91.63	-1,271.40	429.21	1,475.30	1,472.24	3.06	482.055	
811.00	810.73	1,530.29	1,457.36	1.60	2.09	111.54	-1,233.75	430.34	1,437.48	1,434.07	3.41	421.774	
903.00	902.19	1,615.86	1,534.34	1.92	2.29	124.07	-1,196.36	430.51	1,403.47	1,399.70	3.77	372.483	
994.00	992.38	1,711.38	1,620.06	2.24	2.51	126.08	-1,154.23	430.49	1,371.42	1,367.23	4.18	327.828	
1,084.00	1,081.50	1,800.77	1,699.93	2.56	2.73	130.46	-1,114.09	430.75	1,339.98	1,335.37	4.61	290.623	
1,175.00	1,171.48	1,870.02	1,761.93	2.91	2.90	134.03	-1,083.25	431.28	1,309.83	1,304.81	5.02	260.862	
1,268.00	1,263.52	1,938.36	1,823.76	3.26	3.06	135.29	-1,054.13	431.47	1,280.70	1,275.25	5.45	234.847	
1,363.00	1,357.62	2,035.74	1,911.85	3.63	3.29	137.93	-1,012.62	431.56	1,250.92	1,244.98	5.94	210.676	
1,457.00	1,450.74	2,118.27	1,986.39	3.99	3.49	140.33	-977.20	431.88	1,221.67	1,215.27	6.40	190.820	
1,552.00	1,544.82	2,205.75	2,065.64	4.36	3.70	140.88	-940.19	432.85	1,193.32	1,186.44	6.88	173.405	
1,646.00	1,637.88	2,305.49	2,155.92	4.72	3.94	141.05	-897.79	433.71	1,165.30	1,157.93	7.37	158.048	
1,741.00	1,731.94	2,410.77	2,250.68	5.09	4.21	141.14	-851.92	433.78	1,135.74	1,127.86	7.87	144.235	
1,835.00	1,825.07	2,500.95	2,331.46	5.46	4.44	140.79	-811.83	433.76	1,105.33	1,096.97	8.36	132.191	
1,929.00	1,918.39	2,572.85	2,396.33	5.82	4.62	139.13	-780.83	433.84	1,075.13	1,066.29	8.84	121.630	
2,024.00	2,012.84	2,668.17	2,482.38	6.18	4.86	139.93	-739.82	434.18	1,044.00	1,034.66	9.33	111.856	
2,118.00	2,106.19	2,765.51	2,569.94	6.53	5.11	139.90	-697.29	434.34	1,013.28	1,003.46	9.82	103.158	
2,213.00	2,200.37	2,857.99	2,652.82	6.90	5.36	138.25	-656.27	434.47	982.58	972.26	10.32	95.190	
2,307.00	2,293.61	2,945.20	2,731.19	7.27	5.59	139.59	-618.04	433.86	952.23	941.41	10.82	88.019	
2,402.00	2,387.91	3,019.74	2,798.52	7.63	5.78	143.00	-586.09	432.06	921.94	910.62	11.32	81.450	
2,496.00	2,481.29	3,088.07	2,861.07	7.99	5.95	143.75	-558.66	430.13	894.07	882.25	11.82	75.670	
2,591.00	2,575.67	3,151.21	2,919.52	8.35	6.10	142.16	-534.84	428.77	868.32	856.00	12.32	70.474	
2,686.00	2,670.05	3,214.06	2,978.35	8.71	6.24	142.21	-512.74	428.08	845.32	832.49	12.83	65.898	
2,780.00	2,763.49	3,272.41	3,033.60	9.07	6.36	140.01	-493.99	428.29	825.54	812.21	13.33	61.946	
2,875.00	2,857.94	3,328.02	3,087.09	9.43	6.46	138.37	-478.78	428.85	809.51	795.69	13.82	58.588	
2,970.00	2,952.51	3,404.57	3,161.43	9.79	6.58	141.57	-460.57	429.76	796.00	781.70	14.30	55.671	
3,064.00	3,046.19	3,488.31	3,243.04	10.13	6.71	148.28	-441.84	431.08	783.60	768.82	14.77	53.043	
3,159.00	3,140.98	3,563.95	3,317.15	10.47	6.82	149.90	-426.77	431.66	772.08	756.84	15.24	50.665	
3,253.00	3,234.84	3,639.47	3,391.58	10.81	6.91	141.93	-413.92	431.78	761.70	746.01	15.69	48.557	
3,348.00	3,329.74	3,714.19	3,465.42	11.14	7.00	134.06	-402.56	432.24	752.14	736.00	16.13	46.628	
3,397.00	3,378.70	3,744.78	3,495.79	11.32	7.03	133.13	-398.96	432.27	748.35	732.00	16.34	45.788	
3,488.00	3,469.63	3,807.37	3,558.19	11.64	7.07	130.62	-394.28	431.25	743.85	727.13	16.72	44.487	
3,547.84	3,529.41	3,856.77	3,607.53	11.85	7.09	137.30	-392.31	429.81	742.90	725.94	16.97	43.785	CC, ES
3,583.00	3,564.49	3,890.30	3,641.03	11.98	7.10	139.28	-391.22	428.82	743.16	726.04	17.12	43.421	
3,677.00	3,658.13	3,974.59	3,725.26	12.33	7.12	141.44	-388.99	426.63	746.19	728.68	17.51	42.618	
3,772.00	3,752.42	4,058.69	3,809.34	12.69	7.15	146.34	-387.71	425.04	753.50	735.60	17.90	42.086	
3,867.00	3,846.42	4,142.12	3,892.75	13.06	7.17	148.48	-387.64	423.91	764.54	746.27	18.27	41.840	
3,961.00	3,939.30	4,228.96	3,979.59	13.44	7.19	148.77	-388.32	423.00	777.23	758.62	18.61	41.761	
4,056.00	4,032.83	4,319.35	4,069.96	13.82	7.22	145.91	-389.62	422.17	792.19	773.25	18.94	41.828	
4,151.00	4,126.01	4,408.93	4,159.53	14.21	7.24	147.52	-391.23	421.39	809.01	789.75	19.26	41.999	
4,246.00	4,219.10	4,499.18	4,249.75	14.61	7.27	140.85	-393.20	420.69	826.12	806.54	19.58	42.187	
4,340.00	4,310.92	4,591.15	4,341.69	15.01	7.29	132.48	-395.34	419.94	842.63	822.73	19.90	42.339	
4,435.00	4,403.54	4,684.01	4,434.53	15.41	7.32	133.16	-397.37	419.29	858.92	838.69	20.23	42.463	
4,498.00	4,465.21	4,748.33	4,498.84	15.68	7.34	136.10	-398.51	418.98	869.02	848.58	20.45	42.502	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

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

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Rule Assigned: Warning
4,561.00	4,526.82	4,808.66	4,559.16	15.95	7.36	141.61	-399.48	418.83	879.94	859.28	20.66	42.584	
4,624.00	4,588.23	4,871.37	4,621.87	16.22	7.38	144.07	-400.46	418.68	892.17	871.28	20.89	42.717	
4,687.00	4,649.71	4,933.93	4,684.42	16.49	7.40	145.22	-401.40	418.56	904.33	883.22	21.11	42.844	
4,749.00	4,710.40	4,994.79	4,745.27	16.75	7.41	147.12	-402.26	418.45	915.71	894.39	21.33	42.940	
4,812.00	4,772.28	5,057.61	4,808.08	17.01	7.43	148.44	-403.11	418.29	926.53	904.98	21.55	42.996	
4,875.00	4,834.34	5,120.16	4,870.63	17.27	7.45	148.45	-403.86	418.08	936.52	914.75	21.77	43.010	
4,938.00	4,896.43	5,181.29	4,931.76	17.53	7.47	148.58	-404.60	417.90	946.31	924.31	22.00	43.015	
5,001.00	4,958.46	5,242.98	4,993.44	17.79	7.49	145.66	-405.37	417.71	956.32	934.09	22.23	43.025	
5,064.00	5,020.29	5,304.83	5,055.29	18.05	7.52	141.62	-406.15	417.48	966.81	944.35	22.46	43.051	
5,126.00	5,080.98	5,364.48	5,114.93	18.32	7.54	137.91	-406.94	417.28	977.30	954.62	22.68	43.085	
5,189.00	5,142.74	5,426.62	5,177.06	18.58	7.56	140.14	-407.76	417.04	987.53	964.61	22.92	43.095	
5,252.00	5,204.62	5,489.07	5,239.51	18.85	7.58	140.67	-408.61	416.68	997.47	974.32	23.15	43.087	
5,315.00	5,266.61	5,549.88	5,300.31	19.11	7.60	141.04	-409.45	416.25	1,006.96	983.58	23.38	43.062	
5,378.00	5,328.73	5,611.54	5,361.96	19.37	7.62	141.95	-410.34	415.82	1,016.03	992.41	23.62	43.016	
5,441.00	5,390.87	5,668.35	5,418.76	19.62	7.64	141.81	-411.33	415.41	1,025.22	1,001.37	23.85	42.987	
5,503.00	5,452.07	5,727.36	5,477.75	19.87	7.67	142.58	-412.49	414.97	1,034.19	1,010.11	24.08	42.949	
5,566.00	5,514.32	5,787.67	5,538.05	20.13	7.69	142.57	-413.85	414.63	1,043.28	1,018.96	24.31	42.909	
5,629.00	5,576.59	5,847.12	5,597.48	20.38	7.71	145.40	-415.26	414.48	1,052.45	1,027.90	24.55	42.874	
5,692.00	5,638.95	5,910.67	5,661.01	20.63	7.73	143.47	-416.81	414.28	1,061.25	1,036.46	24.79	42.816	
5,747.00	5,693.45	5,961.66	5,711.99	20.85	7.75	145.98	-418.09	414.13	1,068.66	1,043.67	24.99	42.763	
5,810.00	5,755.90	6,028.66	5,778.97	21.09	7.77	145.55	-419.69	413.90	1,076.98	1,051.75	25.24	42.677	
5,874.00	5,819.40	6,099.23	5,849.53	21.34	7.80	147.17	-420.94	413.64	1,084.69	1,059.21	25.49	42.555	
5,936.00	5,880.95	6,162.99	5,913.28	21.58	7.82	146.96	-421.84	413.55	1,091.84	1,066.11	25.73	42.432	
5,999.00	5,943.45	6,224.64	5,974.93	21.82	7.84	145.71	-422.67	413.48	1,099.22	1,073.25	25.98	42.318	
6,062.00	6,005.96	6,287.62	6,037.90	22.07	7.87	148.46	-423.50	413.39	1,106.68	1,080.45	26.22	42.204	
6,125.00	6,068.49	6,349.63	6,099.90	22.31	7.89	146.40	-424.36	413.28	1,114.01	1,087.54	26.47	42.087	
6,188.00	6,131.08	6,410.03	6,160.30	22.55	7.91	148.48	-425.20	413.20	1,120.92	1,094.21	26.71	41.959	
6,255.00	6,197.73	6,479.46	6,229.72	22.81	7.94	147.66	-426.14	413.19	1,127.63	1,100.64	26.98	41.792	
6,293.00	6,235.55	6,521.38	6,271.64	22.89	7.95	147.77	-426.57	413.31	1,131.10	1,104.04	27.07	41.792	
6,300.00	6,242.52	6,528.72	6,278.98	22.89	7.96	147.78	-426.63	413.32	1,131.73	1,104.66	27.07	41.809	
6,393.00	6,335.09	6,625.18	6,375.44	22.94	7.99	148.03	-427.38	413.57	1,140.02	1,112.90	27.12	42.035	
6,400.00	6,342.06	6,633.71	6,383.97	22.94	7.99	142.11	-427.41	413.60	1,140.61	1,113.49	27.13	42.048	
6,450.00	6,391.66	6,684.02	6,434.27	22.97	8.01	114.94	-427.49	413.76	1,144.33	1,117.17	27.16	42.132	
6,500.00	6,440.77	6,733.99	6,484.24	23.02	8.02	103.34	-427.66	413.91	1,147.45	1,120.26	27.20	42.190	
6,550.00	6,489.07	6,786.02	6,536.27	23.07	8.04	97.76	-427.67	414.15	1,149.82	1,122.57	27.25	42.201	
6,600.00	6,536.26	6,832.53	6,582.78	23.13	8.06	94.79	-427.62	414.37	1,151.63	1,124.34	27.30	42.190	
6,650.00	6,582.05	6,877.12	6,627.38	23.21	8.07	93.21	-427.61	414.61	1,153.13	1,125.78	27.35	42.161	
6,700.00	6,626.13	6,926.03	6,676.28	23.29	8.09	92.61	-427.52	414.88	1,154.37	1,126.95	27.42	42.098	
6,750.00	6,668.24	6,970.66	6,720.91	23.39	8.10	92.51	-427.30	415.09	1,155.50	1,128.00	27.50	42.019	
6,800.00	6,708.12	7,008.03	6,758.28	23.51	8.12	92.60	-427.11	415.25	1,156.87	1,129.28	27.58	41.943	
6,850.00	6,745.50	7,046.33	6,796.58	23.64	8.13	92.99	-426.99	415.41	1,158.80	1,131.12	27.68	41.866	
6,900.00	6,780.15	7,083.90	6,834.15	23.79	8.15	93.55	-426.73	415.57	1,161.30	1,133.51	27.79	41.785	
6,950.00	6,811.86	7,114.87	6,865.12	23.95	8.16	93.98	-426.55	415.72	1,164.80	1,136.88	27.92	41.725	
7,000.00	6,840.42	7,142.54	6,892.79	24.14	8.17	94.32	-426.40	415.93	1,169.48	1,141.43	28.05	41.687	
7,050.00	6,865.66	7,168.63	6,918.88	24.35	8.18	94.59	-426.27	416.04	1,175.53	1,147.32	28.21	41.672 SF	
7,100.00	6,887.42	7,190.25	6,940.50	24.57	8.19	94.63	-426.14	416.07	1,183.10	1,154.72	28.38	41.691	
7,150.00	6,905.55	7,209.69	6,959.94	24.82	8.19	94.49	-426.02	416.10	1,192.31	1,163.75	28.56	41.746	
7,200.00	6,919.95	7,223.78	6,974.02	25.10	8.20	94.00	-425.92	416.14	1,203.24	1,174.48	28.75	41.847	
7,250.00	6,930.52	7,233.68	6,983.92	25.39	8.20	93.19	-425.86	416.16	1,215.91	1,186.95	28.95	41.997	
7,300.00	6,937.20	7,240.10	6,990.35	25.70	8.21	92.09	-425.83	416.17	1,230.29	1,201.13	29.16	42.197	
7,350.00	6,939.94	7,243.08	6,993.33	26.04	8.21	90.67	-425.81	416.17	1,246.29	1,216.93	29.36	42.448	
7,359.60	6,940.02	7,243.17	6,993.42	26.10	8.21	90.36	-425.81	416.17	1,249.54	1,220.14	29.40	42.503	

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 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 95-Standard Keeper 104

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
7,400.00	6,940.03	7,243.23	6,993.47	26.39	8.21	90.37	-425.81	416.17	1,263.89	1,234.33	29.56	42.753	
7,500.00	6,940.04	7,243.35	6,993.59	27.15	8.21	90.37	-425.81	416.17	1,304.13	1,274.16	29.97	43.518	
7,600.00	6,940.06	7,243.47	6,993.72	27.99	8.21	90.38	-425.81	416.17	1,350.59	1,320.23	30.36	44.489	
7,659.60	6,940.07	7,243.55	6,993.79	28.52	8.21	90.38	-425.81	416.17	1,380.98	1,350.40	30.58	45.163	
7,700.00	6,940.08	7,243.60	6,993.84	28.89	8.21	90.39	-425.81	416.17	1,402.88	1,372.16	30.72	45.666	
7,796.63	6,940.10	7,243.74	6,993.98	29.83	8.21	90.41	-425.81	416.17	1,460.32	1,429.27	31.04	47.044	
7,800.00	6,940.10	7,243.74	6,993.98	29.86	8.21	90.41	-425.81	416.17	1,462.44	1,431.39	31.05	47.095	
7,900.00	6,940.12	7,243.89	6,994.14	30.90	8.21	90.42	-425.80	416.17	1,527.45	1,496.11	31.35	48.728	
8,000.00	6,940.14	7,244.04	6,994.29	31.98	8.21	90.42	-425.80	416.17	1,596.09	1,564.48	31.61	50.494	
8,100.00	6,940.17	7,244.19	6,994.43	33.11	8.21	90.43	-425.80	416.17	1,667.90	1,636.05	31.84	52.376	
8,200.00	6,940.19	7,244.34	6,994.58	34.28	8.21	90.44	-425.80	416.17	1,742.49	1,710.43	32.05	54.362	
8,300.00	6,940.21	7,244.48	6,994.72	35.48	8.21	90.45	-425.80	416.17	1,819.52	1,787.28	32.24	56.437	
8,400.00	6,940.23	7,244.62	6,994.86	36.71	8.21	90.45	-425.80	416.17	1,898.69	1,866.29	32.41	58.592	
8,500.00	6,940.25	7,244.76	6,995.00	37.97	8.21	90.46	-425.80	416.17	1,979.75	1,947.20	32.55	60.815	
8,600.00	6,940.28	7,244.90	6,995.14	39.26	8.21	90.47	-425.80	416.17	2,062.47	2,029.79	32.69	63.097	
8,700.00	6,940.30	7,245.04	6,995.28	40.56	8.21	90.47	-425.80	416.17	2,146.67	2,113.86	32.81	65.433	
8,800.00	6,940.32	7,245.17	6,995.41	41.89	8.21	90.48	-425.80	416.17	2,232.17	2,199.25	32.92	67.814	
8,900.00	6,940.34	7,245.30	6,995.55	43.24	8.21	90.49	-425.80	416.17	2,318.82	2,285.81	33.02	70.235	
9,000.00	6,940.36	7,245.44	6,995.68	44.60	8.21	90.49	-425.80	416.18	2,406.52	2,373.41	33.11	72.690	
9,100.00	6,940.39	7,245.57	6,995.81	45.98	8.21	90.50	-425.79	416.18	2,495.14	2,461.95	33.19	75.176	
9,200.00	6,940.41	7,245.69	6,995.94	47.38	8.21	90.51	-425.79	416.18	2,584.59	2,551.32	33.27	77.689	
9,300.00	6,940.43	7,245.82	6,996.06	48.78	8.21	90.51	-425.79	416.18	2,674.79	2,641.44	33.34	80.224	
9,400.00	6,940.45	7,245.95	6,996.19	50.20	8.21	90.52	-425.79	416.18	2,765.66	2,732.25	33.41	82.779	
9,500.00	6,940.47	7,246.07	6,996.31	51.63	8.21	90.53	-425.79	416.18	2,857.14	2,823.66	33.48	85.351	
9,600.00	6,940.50	7,246.19	6,996.43	53.07	8.21	90.53	-425.79	416.18	2,949.17	2,915.64	33.54	87.938	
9,700.00	6,940.52	7,246.31	6,996.55	54.52	8.21	90.54	-425.79	416.18	3,041.71	3,008.12	33.60	90.537	
9,800.00	6,940.54	7,246.43	6,996.67	55.97	8.21	90.54	-425.79	416.18	3,134.71	3,101.06	33.65	93.147	
9,900.00	6,940.56	7,246.55	6,996.79	57.44	8.21	90.55	-425.79	416.18	3,228.12	3,194.41	33.71	95.766	
10,000.00	6,940.59	7,246.66	6,996.91	58.91	8.21	90.56	-425.79	416.18	3,321.92	3,288.16	33.76	98.391	
10,100.00	6,940.61	7,246.78	6,997.02	60.38	8.21	90.56	-425.79	416.18	3,416.07	3,382.26	33.81	101.023	
10,200.00	6,940.63	7,246.89	6,997.14	61.87	8.21	90.57	-425.79	416.18	3,510.55	3,476.68	33.87	103.659	
10,300.00	6,940.65	7,247.00	6,997.25	63.36	8.21	90.57	-425.79	416.18	3,605.32	3,571.40	33.92	106.298	
10,400.00	6,940.67	7,247.12	6,997.36	64.85	8.21	90.58	-425.79	416.18	3,700.36	3,666.40	33.97	108.940	
10,500.00	6,940.70	7,247.23	6,997.47	66.35	8.21	90.58	-425.78	416.18	3,795.67	3,761.65	34.02	111.582	
10,600.00	6,940.72	7,247.33	6,997.58	67.86	8.21	90.59	-425.78	416.18	3,891.20	3,857.14	34.07	114.225	
10,700.00	6,940.74	7,247.44	6,997.68	69.36	8.21	90.59	-425.78	416.18	3,986.96	3,952.84	34.12	116.868	
10,800.00	6,940.76	7,247.55	6,997.79	70.88	8.21	90.60	-425.78	416.18	4,082.92	4,048.75	34.16	119.509	
10,900.00	6,940.78	7,247.65	6,997.89	72.39	8.21	90.61	-425.78	416.18	4,179.07	4,144.85	34.21	122.148	
11,000.00	6,940.81	7,247.75	6,998.00	73.91	8.21	90.61	-425.78	416.18	4,275.39	4,241.13	34.26	124.784	
11,100.00	6,940.83	7,247.86	6,998.10	75.44	8.21	90.62	-425.78	416.18	4,371.88	4,337.57	34.31	127.417	
11,200.00	6,940.85	7,247.96	6,998.20	76.96	8.21	90.62	-425.78	416.18	4,468.53	4,434.17	34.36	130.046	
11,300.00	6,940.87	7,248.06	6,998.30	78.49	8.21	90.63	-425.78	416.18	4,565.32	4,530.91	34.41	132.671	
11,400.00	6,940.89	7,248.16	6,998.40	80.03	8.21	90.63	-425.78	416.18	4,662.24	4,627.78	34.46	135.291	
11,500.00	6,940.92	7,248.26	6,998.50	81.56	8.21	90.64	-425.78	416.18	4,759.30	4,724.79	34.51	137.905	
11,600.00	6,940.94	7,248.35	6,998.60	83.10	8.21	90.64	-425.78	416.18	4,856.47	4,821.91	34.56	140.513	
11,700.00	6,940.96	7,248.45	6,998.69	84.64	8.21	90.65	-425.78	416.18	4,953.75	4,919.14	34.61	143.116	
11,800.00	6,940.98	7,248.54	6,998.79	86.18	8.21	90.65	-425.78	416.18	5,051.14	5,016.48	34.67	145.711	
11,900.00	6,941.00	7,248.64	6,998.88	87.72	8.21	90.66	-425.78	416.18	5,148.63	5,113.92	34.72	148.300	
12,000.00	6,941.03	7,248.73	6,998.97	89.27	8.21	90.66	-425.78	416.18	5,246.22	5,211.45	34.77	150.881	
12,100.00	6,941.05	7,248.82	6,999.06	90.82	8.21	90.66	-425.77	416.18	5,343.89	5,309.07	34.82	153.455	
12,200.00	6,941.07	7,248.91	6,999.16	92.37	8.21	90.67	-425.77	416.18	5,441.65	5,406.77	34.88	156.021	
12,300.00	6,941.09	7,249.00	6,999.24	93.92	8.21	90.67	-425.77	416.18	5,539.49	5,504.56	34.93	158.578	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
12,400.00	6,941.11	7,249.09	6,999.33	95.47	8.21	90.68	-425.77	416.18	5,637.41	5,602.42	34.99	161.127	
12,500.00	6,941.14	7,249.18	6,999.42	97.03	8.21	90.68	-425.77	416.18	5,735.39	5,700.35	35.04	163.668	
12,600.00	6,941.16	7,249.27	6,999.51	98.58	8.21	90.69	-425.77	416.18	5,833.45	5,798.35	35.10	166.199	
12,700.00	6,941.18	7,249.35	6,999.60	100.14	8.21	90.69	-425.77	416.18	5,931.57	5,896.41	35.16	168.721	
12,800.00	6,941.20	7,249.44	6,999.68	101.70	8.21	90.70	-425.77	416.18	6,029.75	5,994.54	35.21	171.233	
12,900.00	6,941.23	7,249.52	6,999.77	103.26	8.21	90.70	-425.77	416.18	6,127.99	6,092.72	35.27	173.736	
13,000.00	6,941.25	7,249.61	6,999.85	104.82	8.21	90.70	-425.77	416.18	6,226.29	6,190.96	35.33	176.229	
13,100.00	6,941.27	7,249.69	6,999.93	106.38	8.21	90.71	-425.77	416.18	6,324.64	6,289.25	35.39	178.712	
13,200.00	6,941.29	7,249.77	7,000.01	107.95	8.21	90.71	-425.77	416.18	6,423.04	6,387.59	35.45	181.185	
13,300.00	6,941.31	7,249.85	7,000.09	109.51	8.21	90.72	-425.77	416.18	6,521.49	6,485.98	35.51	183.647	
13,400.00	6,941.34	7,249.93	7,000.17	111.08	8.21	90.72	-425.77	416.18	6,619.98	6,584.41	35.57	186.099	
13,500.00	6,941.36	7,250.01	7,000.25	112.64	8.21	90.72	-425.77	416.18	6,718.52	6,682.89	35.63	188.540	
13,600.00	6,941.38	7,250.09	7,000.33	114.21	8.21	90.73	-425.77	416.18	6,817.11	6,781.41	35.70	190.970	
13,700.00	6,941.40	7,250.17	7,000.41	115.78	8.21	90.73	-425.77	416.18	6,915.73	6,879.97	35.76	193.389	
13,800.00	6,941.42	7,250.25	7,000.49	117.35	8.21	90.74	-425.77	416.18	7,014.39	6,978.57	35.82	195.798	
13,900.00	6,941.45	7,250.32	7,000.56	118.92	8.21	90.74	-425.76	416.18	7,113.09	7,077.20	35.89	198.195	
14,000.00	6,941.47	7,250.40	7,000.64	120.49	8.21	90.74	-425.76	416.18	7,211.83	7,175.87	35.95	200.580	
14,100.00	6,941.49	7,250.47	7,000.72	122.06	8.21	90.75	-425.76	416.18	7,310.60	7,274.58	36.02	202.955	
14,200.00	6,941.51	7,250.55	7,000.79	123.64	8.21	90.75	-425.76	416.18	7,409.40	7,373.31	36.09	205.317	
14,300.00	6,941.53	7,250.62	7,000.86	125.21	8.21	90.76	-425.76	416.18	7,508.24	7,472.08	36.15	207.669	
14,400.00	6,941.56	7,250.69	7,000.94	126.78	8.21	90.76	-425.76	416.18	7,607.10	7,570.88	36.22	210.008	
14,500.00	6,941.58	7,250.77	7,001.01	128.36	8.21	90.76	-425.76	416.18	7,706.00	7,669.70	36.29	212.336	
14,600.00	6,941.60	7,250.84	7,001.08	129.93	8.21	90.77	-425.76	416.18	7,804.92	7,768.56	36.36	214.652	
14,700.00	6,941.62	7,250.91	7,001.15	131.51	8.21	90.77	-425.76	416.18	7,903.87	7,867.44	36.43	216.956	
14,800.00	6,941.64	7,250.98	7,001.22	133.08	8.21	90.77	-425.76	416.18	8,002.84	7,966.34	36.50	219.248	
14,900.00	6,941.67	7,251.05	7,001.29	134.66	8.21	90.78	-425.76	416.18	8,101.85	8,065.27	36.57	221.527	
15,000.00	6,941.69	7,251.12	7,001.36	136.24	8.21	90.78	-425.76	416.18	8,200.87	8,164.23	36.64	223.795	
15,100.00	6,941.71	7,251.19	7,001.43	137.82	8.21	90.78	-425.76	416.18	8,299.92	8,263.20	36.72	226.051	
15,200.00	6,941.73	7,251.25	7,001.50	139.40	8.21	90.79	-425.76	416.18	8,398.99	8,362.20	36.79	228.294	
15,300.00	6,941.75	7,251.32	7,001.56	140.97	8.21	90.79	-425.76	416.18	8,498.08	8,461.22	36.86	230.526	
15,400.00	6,941.78	7,251.39	7,001.63	142.55	8.21	90.79	-425.76	416.18	8,597.20	8,560.26	36.94	232.745	
15,500.00	6,941.80	7,251.45	7,001.70	144.13	8.21	90.80	-425.76	416.18	8,696.33	8,659.32	37.01	234.951	
15,600.00	6,941.82	7,251.52	7,001.76	145.72	8.21	90.80	-425.76	416.18	8,795.49	8,758.40	37.09	237.145	
15,700.00	6,941.84	7,251.58	7,001.83	147.30	8.21	90.80	-425.76	416.18	8,894.66	8,857.49	37.17	239.327	
15,800.00	6,941.87	7,251.65	7,001.89	148.88	8.21	90.81	-425.76	416.18	8,993.85	8,956.61	37.24	241.497	
15,900.00	6,941.89	7,251.71	7,001.95	150.46	8.21	90.81	-425.76	416.18	9,093.06	9,055.74	37.32	243.654	
16,000.00	6,941.91	7,251.77	7,002.02	152.04	8.21	90.81	-425.76	416.18	9,192.29	9,154.89	37.40	245.799	
16,100.00	6,941.93	7,251.84	7,002.08	153.62	8.21	90.82	-425.76	416.18	9,291.53	9,254.05	37.48	247.931	
16,200.00	6,941.95	7,251.90	7,002.14	155.21	8.21	90.82	-425.75	416.18	9,390.79	9,353.23	37.56	250.051	
16,300.00	6,941.98	7,251.96	7,002.20	156.79	8.21	90.82	-425.75	416.18	9,490.06	9,452.43	37.64	252.158	
16,400.00	6,942.00	7,252.02	7,002.26	158.37	8.21	90.83	-425.75	416.18	9,589.35	9,551.63	37.72	254.253	
16,500.00	6,942.02	7,252.08	7,002.32	159.96	8.21	90.83	-425.75	416.18	9,688.65	9,650.86	37.80	256.335	
16,600.00	6,942.04	7,252.14	7,002.38	161.54	8.21	90.83	-425.75	416.18	9,787.97	9,750.09	37.88	258.405	
16,700.00	6,942.06	7,252.20	7,002.44	163.13	8.21	90.84	-425.75	416.18	9,887.30	9,849.34	37.96	260.463	
16,800.00	6,942.09	7,252.26	7,002.50	164.71	8.21	90.84	-425.75	416.18	9,986.65	9,948.61	38.04	262.508	
16,900.00	6,942.11	7,252.32	7,002.56	166.30	8.21	90.84	-425.75	416.18	10,086.01	10,047.88	38.13	264.540	
17,000.00	6,942.13	7,252.37	7,002.62	167.88	8.21	90.84	-425.75	416.18	10,185.38	10,147.17	38.21	266.560	
17,100.00	6,942.15	7,252.43	7,002.68	169.47	8.21	90.85	-425.75	416.18	10,284.76	10,246.47	38.29	268.568	
17,200.00	6,942.17	7,252.49	7,002.73	171.05	8.21	90.85	-425.75	416.18	10,384.16	10,345.78	38.38	270.563	
17,300.00	6,942.20	7,252.55	7,002.79	172.64	8.21	90.85	-425.75	416.18	10,483.56	10,445.10	38.47	272.546	
17,400.00	6,942.22	7,252.60	7,002.84	174.23	8.21	90.86	-425.75	416.18	10,582.98	10,544.43	38.55	274.517	
17,500.00	6,942.24	7,252.66	7,002.90	175.81	8.21	90.86	-425.75	416.18	10,682.41	10,643.77	38.64	276.475	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
17,600.00	6,942.26	7,252.71	7,002.95	177.40	8.21	90.86	-425.75	416.18	10,781.85	10,743.12	38.72	278.421	
17,700.00	6,942.28	7,252.77	7,003.01	178.99	8.21	90.86	-425.75	416.18	10,881.30	10,842.48	38.81	280.355	
17,800.00	6,942.31	7,252.82	7,003.06	180.57	8.21	90.87	-425.75	416.18	10,980.75	10,941.85	38.90	282.276	
17,900.00	6,942.33	7,252.87	7,003.12	182.16	8.21	90.87	-425.75	416.18	11,080.22	11,041.23	38.99	284.185	
18,000.00	6,942.35	7,252.93	7,003.17	183.75	8.21	90.87	-425.75	416.18	11,179.70	11,140.62	39.08	286.082	
18,100.00	6,942.37	7,252.98	7,003.22	185.34	8.21	90.87	-425.75	416.18	11,279.19	11,240.02	39.17	287.967	
18,200.00	6,942.39	7,253.03	7,003.28	186.93	8.21	90.88	-425.75	416.18	11,378.69	11,339.43	39.26	289.839	
18,300.00	6,942.42	7,253.08	7,003.33	188.52	8.21	90.88	-425.75	416.18	11,478.19	11,438.84	39.35	291.700	
18,400.00	6,942.44	7,253.14	7,003.38	190.10	8.21	90.88	-425.75	416.18	11,577.71	11,538.27	39.44	293.548	
18,500.00	6,942.46	7,253.19	7,003.43	191.69	8.21	90.88	-425.75	416.18	11,677.23	11,637.70	39.53	295.385	
18,600.00	6,942.48	7,253.24	7,003.48	193.28	8.21	90.89	-425.75	416.18	11,776.76	11,737.13	39.62	297.209	
18,700.00	6,942.51	7,253.29	7,003.53	194.87	8.21	90.89	-425.75	416.18	11,876.30	11,836.58	39.72	299.022	
18,800.00	6,942.53	7,253.34	7,003.58	196.46	8.21	90.89	-425.75	416.18	11,975.84	11,936.03	39.81	300.822	
18,900.00	6,942.55	7,253.39	7,003.63	198.05	8.21	90.90	-425.74	416.18	12,075.40	12,035.49	39.90	302.611	
19,000.00	6,942.57	7,253.44	7,003.68	199.64	8.21	90.90	-425.74	416.18	12,174.96	12,134.96	40.00	304.388	
19,100.00	6,942.59	7,253.49	7,003.73	201.23	8.21	90.90	-425.74	416.18	12,274.52	12,234.43	40.09	306.154	
19,200.00	6,942.62	7,253.53	7,003.78	202.82	8.21	90.90	-425.74	416.18	12,374.10	12,333.91	40.19	307.907	
19,300.00	6,942.64	7,253.58	7,003.83	204.41	8.21	90.90	-425.74	416.18	12,473.68	12,433.40	40.28	309.649	
19,400.00	6,942.66	7,253.63	7,003.87	206.00	8.21	90.91	-425.74	416.18	12,573.27	12,532.89	40.38	311.379	
19,500.00	6,942.68	7,253.68	7,003.92	207.59	8.21	90.91	-425.74	416.18	12,672.86	12,632.39	40.48	313.098	
19,600.00	6,942.70	7,253.73	7,003.97	209.18	8.21	90.91	-425.74	416.18	12,772.46	12,731.89	40.57	314.805	
19,700.00	6,942.73	7,253.77	7,004.01	210.78	8.21	90.91	-425.74	416.18	12,872.07	12,831.40	40.67	316.501	
19,800.00	6,942.75	7,253.82	7,004.06	212.37	8.21	90.92	-425.74	416.18	12,971.69	12,930.92	40.77	318.186	
19,900.00	6,942.77	7,253.86	7,004.11	213.96	8.21	90.92	-425.74	416.18	13,071.30	13,030.44	40.87	319.859	
20,000.00	6,942.79	7,253.91	7,004.15	215.55	8.21	90.92	-425.74	416.18	13,170.93	13,129.96	40.96	321.520	
20,100.00	6,942.81	7,253.95	7,004.20	217.14	8.21	90.92	-425.74	416.18	13,270.56	13,229.50	41.06	323.171	
20,200.00	6,942.84	7,254.00	7,004.24	218.73	8.21	90.93	-425.74	416.18	13,370.20	13,329.03	41.16	324.810	
20,300.00	6,942.86	7,254.04	7,004.29	220.32	8.21	90.93	-425.74	416.18	13,469.84	13,428.57	41.26	326.439	
20,400.00	6,942.88	7,254.09	7,004.33	221.92	8.21	90.93	-425.74	416.18	13,569.48	13,528.12	41.36	328.056	
20,500.00	6,942.90	7,254.13	7,004.38	223.51	8.21	90.93	-425.74	416.18	13,669.14	13,627.67	41.46	329.662	
20,600.00	6,942.92	7,254.18	7,004.42	225.10	8.21	90.93	-425.74	416.18	13,768.79	13,727.23	41.57	331.257	
20,700.00	6,942.95	7,254.22	7,004.46	226.69	8.21	90.94	-425.74	416.18	13,868.46	13,826.79	41.67	332.842	
20,800.00	6,942.97	7,254.26	7,004.51	228.28	8.21	90.94	-425.74	416.18	13,968.12	13,926.35	41.77	334.415	
20,900.00	6,942.99	7,254.31	7,004.55	229.88	8.21	90.94	-425.74	416.18	14,067.79	14,025.92	41.87	335.978	
20,942.50	6,943.00	7,254.32	7,004.57	230.42	8.21	90.94	-425.74	416.18	14,110.15	14,063.58	46.57	302.980	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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	-12.59	818.79	-182.91	841.12				
58.45	58.45	0.00	0.00	0.02	0.00	109.14	818.79	-182.91	839.10	839.09	0.01	N/A	
150.25	150.24	86.24	86.24	0.14	1.57	90.92	819.04	-182.75	839.51	837.86	1.65	508.916	
239.43	239.42	174.88	174.88	0.25	3.19	85.55	819.60	-182.37	839.94	836.61	3.33	252.348	
299.93	299.91	237.09	237.09	0.33	4.31	90.58	819.97	-182.04	840.19	835.70	4.49	186.957	
446.00	445.96	389.10	389.09	0.50	6.23	115.20	819.98	-181.10	840.64	834.06	6.58	127.833	
537.00	536.95	479.91	479.90	0.73	7.35	176.56	819.77	-180.51	841.19	833.21	7.98	105.422	
624.00	623.95	567.39	567.37	0.99	8.57	-100.49	819.55	-179.94	841.46	831.97	9.49	88.672	
718.00	717.90	660.89	660.87	1.29	10.03	-82.80	819.32	-179.28	841.00	829.73	11.26	74.658	
811.00	810.73	754.19	754.17	1.60	11.56	-63.76	819.10	-178.62	838.76	825.64	13.11	63.955	
903.00	902.19	846.68	846.66	1.92	13.01	-52.63	818.82	-178.05	832.92	818.02	14.90	55.907	
994.00	992.38	938.18	938.15	2.24	14.28	-50.96	818.34	-177.54	824.82	808.32	16.50	49.979	
1,084.00	1,081.50	1,027.47	1,027.44	2.56	15.67	-47.28	817.85	-176.93	815.88	797.66	18.22	44.768	
1,175.00	1,171.48	1,118.90	1,118.87	2.91	17.22	-44.05	817.32	-176.16	805.67	785.56	20.11	40.056	
1,268.00	1,263.52	1,210.36	1,210.33	3.26	18.85	-43.03	816.70	-175.25	795.11	773.02	22.09	35.995	
1,363.00	1,357.62	1,304.90	1,304.86	3.63	20.60	-40.59	816.15	-174.27	784.56	760.37	24.19	32.429	
1,457.00	1,450.74	1,398.43	1,398.38	3.99	22.37	-38.41	815.49	-173.19	773.68	747.37	26.31	29.404	
1,552.00	1,544.82	1,495.60	1,495.54	4.36	24.34	-38.17	814.70	-171.71	762.12	733.48	28.64	26.612	
1,646.00	1,637.88	1,586.55	1,586.46	4.72	26.27	-38.17	813.91	-170.11	750.36	719.44	30.92	24.270	
1,741.00	1,731.94	1,678.13	1,678.03	5.09	28.16	-38.22	813.47	-168.66	738.95	705.78	33.17	22.278	
1,835.00	1,825.07	1,768.67	1,768.56	5.46	29.91	-38.63	813.16	-167.63	728.33	693.06	35.27	20.650	
1,929.00	1,918.39	1,859.72	1,859.61	5.82	31.49	-40.21	813.05	-167.13	719.26	682.06	37.20	19.334	
2,024.00	2,012.84	1,953.53	1,953.42	6.18	32.97	-39.29	813.08	-166.78	711.31	672.27	39.04	18.220	
2,118.00	2,106.19	2,046.84	2,046.74	6.53	34.45	-39.73	813.11	-166.55	702.76	661.90	40.86	17.198	
2,213.00	2,200.37	2,140.13	2,140.02	6.90	35.49	-41.72	813.12	-166.45	693.27	650.99	42.27	16.400	
2,307.00	2,293.61	2,230.21	2,230.10	7.27	34.27	-40.30	813.27	-166.77	684.51	643.10	41.41	16.531	
2,402.00	2,387.91	2,324.04	2,323.93	7.63	33.03	-37.07	813.58	-167.45	676.06	635.53	40.53	16.682	
2,496.00	2,481.29	2,417.71	2,417.60	7.99	31.84	-36.39	813.87	-168.06	667.90	628.22	39.68	16.831	
2,591.00	2,575.67	2,512.11	2,511.99	8.35	30.73	-38.53	814.24	-168.71	659.87	620.94	38.93	16.948	
2,686.00	2,670.05	2,606.98	2,606.86	8.71	29.92	-38.65	814.66	-169.08	651.95	613.47	38.48	16.942	
2,780.00	2,763.49	2,700.21	2,700.09	9.07	29.81	-41.27	815.17	-169.16	644.53	605.81	38.72	16.647	
2,875.00	2,857.94	2,795.53	2,795.41	9.43	30.43	-43.22	815.74	-168.97	637.40	597.70	39.70	16.057	
2,970.00	2,952.51	2,887.87	2,887.75	9.79	30.77	-40.08	816.37	-168.97	631.26	590.88	40.38	15.631	
3,064.00	3,046.19	2,981.12	2,980.99	10.13	30.64	-33.27	817.06	-169.30	625.88	585.28	40.60	15.415	
3,159.00	3,140.98	3,077.50	3,077.37	10.47	30.96	-31.52	817.87	-169.45	621.25	579.99	41.26	15.056	
3,253.00	3,234.84	3,173.65	3,173.51	10.81	32.17	-39.45	818.54	-169.07	617.58	574.77	42.81	14.427	
3,348.00	3,329.74	3,268.55	3,268.41	11.14	33.68	-47.30	819.09	-168.49	614.66	570.00	44.66	13.764	
3,397.00	3,378.70	3,316.77	3,316.63	11.32	34.46	-48.28	819.41	-168.17	613.41	567.80	45.61	13.449	
3,488.00	3,469.63	3,407.67	3,407.53	11.64	35.95	-50.99	819.98	-167.59	611.39	563.97	47.42	12.893	
3,583.00	3,564.49	3,502.53	3,502.38	11.98	37.49	-42.97	820.58	-167.01	608.07	558.77	49.30	12.334	
3,677.00	3,658.13	3,597.16	3,597.01	12.33	39.06	-41.73	821.07	-166.40	602.15	550.92	51.22	11.755	
3,772.00	3,752.42	3,693.02	3,692.87	12.69	40.65	-38.03	821.41	-165.87	593.29	540.13	53.17	11.159	
3,867.00	3,846.42	3,786.69	3,786.53	13.06	41.72	-37.26	821.54	-165.65	582.36	527.75	54.61	10.664	
3,961.00	3,939.30	3,879.03	3,878.88	13.44	40.76	-38.47	821.43	-165.82	570.86	516.86	54.01	10.570	
4,056.00	4,032.83	3,972.24	3,972.08	13.82	39.70	-43.21	821.09	-166.46	558.26	504.93	53.33	10.468	
4,151.00	4,126.01	4,065.51	4,065.35	14.21	38.72	-43.79	820.71	-167.14	544.76	492.02	52.74	10.330	
4,246.00	4,219.10	4,158.72	4,158.55	14.61	37.80	-52.80	820.37	-167.90	532.16	479.96	52.20	10.194	
4,340.00	4,310.92	4,249.52	4,249.35	15.01	37.01	-63.94	820.01	-168.65	521.67	469.85	51.82	10.066	
4,435.00	4,403.54	4,341.95	4,341.78	15.41	36.23	-66.56	819.63	-169.38	512.80	461.34	51.46	9.965	
4,498.00	4,465.21	4,404.35	4,404.17	15.68	35.70	-65.75	819.43	-169.84	507.65	456.45	51.21	9.914	
4,561.00	4,526.82	4,467.09	4,466.91	15.95	35.20	-62.25	819.23	-170.28	501.89	450.91	50.98	9.845	
4,624.00	4,588.23	4,528.17	4,527.99	16.22	34.79	-61.87	818.96	-170.74	495.26	444.41	50.86	9.739	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
4,687.00	4,649.71	4,589.79	4,589.61	16.49	34.50	-62.75	818.51	-171.17	488.73	437.89	50.84	9.613	
4,749.00	4,710.40	4,651.25	4,651.06	16.75	34.26	-62.74	818.11	-171.44	482.74	431.87	50.88	9.488	
4,812.00	4,772.28	4,714.02	4,713.84	17.01	34.09	-63.19	817.62	-171.79	477.21	426.24	50.97	9.362	
4,875.00	4,834.34	4,775.78	4,775.59	17.27	34.02	-64.80	817.07	-172.11	472.24	421.07	51.17	9.228	
4,938.00	4,896.43	4,837.31	4,837.12	17.53	34.05	-66.22	816.61	-172.24	467.57	416.11	51.47	9.085	
5,001.00	4,958.46	4,898.45	4,898.25	17.79	33.97	-70.74	816.19	-172.54	463.43	411.77	51.66	8.971	
5,064.00	5,020.29	4,960.42	4,960.22	18.05	33.93	-76.57	815.70	-173.01	460.07	408.17	51.90	8.865	
5,126.00	5,080.98	5,021.04	5,020.84	18.32	33.98	-82.26	815.18	-173.38	457.67	405.45	52.23	8.763	
5,189.00	5,142.74	5,082.39	5,082.19	18.58	34.04	-82.22	814.69	-173.74	455.98	403.41	52.57	8.674	
5,252.00	5,204.62	5,143.85	5,143.64	18.85	34.11	-83.69	814.24	-174.08	454.53	401.62	52.91	8.590	
5,315.00	5,266.61	5,205.73	5,205.52	19.11	34.25	-85.29	813.72	-174.61	453.62	400.30	53.32	8.507	
5,378.00	5,328.73	5,267.41	5,267.19	19.37	34.40	-86.20	813.25	-175.13	453.05	399.30	53.74	8.430	
5,441.00	5,390.87	5,330.94	5,330.72	19.62	34.57	-88.08	812.82	-175.61	452.72	398.55	54.17	8.357	
5,470.76	5,420.23	5,358.65	5,358.43	19.74	34.74	-88.54	812.52	-175.79	452.60	398.13	54.47	8.310	CC
5,503.00	5,452.07	5,389.60	5,389.38	19.87	34.94	-89.02	812.21	-176.19	452.71	397.91	54.80	8.261	
5,566.00	5,514.32	5,451.26	5,451.03	20.13	35.31	-90.67	811.66	-176.90	453.09	397.65	55.43	8.174	
5,629.00	5,576.59	5,513.45	5,513.21	20.38	35.84	-89.56	810.95	-177.67	453.51	397.30	56.21	8.068	
5,692.00	5,638.95	5,577.51	5,577.26	20.63	36.37	-93.08	810.27	-178.33	454.03	397.03	57.00	7.965	
5,747.00	5,693.45	5,632.55	5,632.30	20.85	36.90	-91.90	809.59	-178.75	454.49	396.75	57.74	7.871	
5,810.00	5,755.90	5,695.40	5,695.14	21.09	37.53	-93.78	808.85	-179.24	455.08	396.46	58.62	7.763	
5,874.00	5,819.40	5,759.64	5,759.38	21.34	38.12	-93.60	808.20	-179.65	455.76	396.30	59.46	7.665	
5,936.00	5,880.95	5,821.49	5,821.22	21.58	38.85	-95.06	807.43	-179.86	456.26	395.84	60.42	7.551	
5,999.00	5,943.45	5,883.89	5,883.62	21.82	39.63	-97.59	806.63	-180.09	457.10	395.66	61.45	7.439	
6,062.00	6,005.96	5,946.28	5,946.00	22.07	40.41	-96.18	805.84	-180.33	458.04	395.57	62.47	7.332	ES
6,125.00	6,068.49	6,008.71	6,008.42	22.31	41.20	-99.51	805.05	-180.56	459.10	395.61	63.49	7.231	SF
6,188.00	6,131.08	6,028.00	6,027.71	22.55	41.44	-98.03	804.80	-180.63	462.28	398.56	63.72	7.254	
6,255.00	6,197.73	6,028.00	6,027.71	22.81	41.44	-99.21	804.80	-180.63	474.32	411.55	62.76	7.557	
6,293.00	6,235.55	6,028.00	6,027.71	22.89	41.44	-99.21	804.80	-180.63	485.14	423.35	61.79	7.852	
6,300.00	6,242.52	6,028.00	6,027.71	22.89	41.44	-99.21	804.80	-180.63	487.43	425.86	61.57	7.917	
6,393.00	6,335.09	6,028.00	6,027.71	22.94	41.44	-99.21	804.80	-180.63	525.81	467.55	58.26	9.026	
6,400.00	6,342.06	6,028.00	6,027.71	22.94	41.44	-105.02	804.80	-180.63	529.28	471.29	57.99	9.128	
6,450.00	6,391.66	6,028.00	6,027.71	22.97	41.44	-131.39	804.80	-180.63	557.79	501.69	56.10	9.943	
6,500.00	6,440.77	6,028.00	6,027.71	23.02	41.44	-142.13	804.80	-180.63	592.01	537.62	54.38	10.886	
6,550.00	6,489.07	6,028.00	6,027.71	23.07	41.44	-146.70	804.80	-180.63	630.79	577.88	52.91	11.921	
6,600.00	6,536.26	6,028.00	6,027.71	23.13	41.44	-148.17	804.80	-180.63	673.14	621.42	51.73	13.014	
6,650.00	6,582.05	6,028.00	6,027.71	23.21	41.44	-147.34	804.80	-180.63	718.19	667.37	50.82	14.132	
6,700.00	6,626.13	6,028.00	6,027.71	23.29	41.44	-143.95	804.80	-180.63	765.19	715.02	50.17	15.251	
6,750.00	6,668.24	6,028.00	6,027.71	23.39	41.44	-136.35	804.80	-180.63	813.54	763.78	49.76	16.350	
6,800.00	6,708.12	6,028.00	6,027.71	23.51	41.44	-119.95	804.80	-180.63	862.73	813.19	49.54	17.414	
6,850.00	6,745.50	6,028.00	6,027.71	23.64	41.44	-86.85	804.80	-180.63	912.35	862.85	49.50	18.432	
6,900.00	6,780.15	6,028.00	6,027.71	23.79	41.44	-49.17	804.80	-180.63	962.03	912.43	49.60	19.396	
6,950.00	6,811.86	6,028.00	6,027.71	23.95	41.44	-28.03	804.80	-180.63	1,011.49	961.66	49.82	20.302	
7,000.00	6,840.42	6,028.00	6,027.71	24.14	41.44	-17.68	804.80	-180.63	1,060.45	1,010.30	50.15	21.147	
7,050.00	6,865.66	6,028.00	6,027.71	24.35	41.44	-12.01	804.80	-180.63	1,108.70	1,058.15	50.55	21.931	
7,100.00	6,887.42	6,028.00	6,027.71	24.57	41.44	-8.55	804.80	-180.63	1,156.04	1,105.01	51.03	22.653	
7,150.00	6,905.55	6,028.00	6,027.71	24.82	41.44	-6.24	804.80	-180.63	1,202.30	1,150.73	51.57	23.315	
7,200.00	6,919.95	6,028.00	6,027.71	25.10	41.44	-4.61	804.80	-180.63	1,247.32	1,195.17	52.15	23.918	
7,250.00	6,930.52	6,028.00	6,027.71	25.39	41.44	-3.40	804.80	-180.63	1,290.97	1,238.20	52.77	24.464	
7,300.00	6,937.20	6,028.00	6,027.71	25.70	41.44	-2.45	804.80	-180.63	1,333.11	1,279.69	53.42	24.957	
7,350.00	6,939.94	6,028.00	6,027.71	26.04	41.44	-1.69	804.80	-180.63	1,373.63	1,319.54	54.08	25.398	
7,359.60	6,940.02	6,028.00	6,027.71	26.10	41.44	-1.55	804.80	-180.63	1,381.22	1,327.01	54.21	25.479	
7,400.00	6,940.03	6,028.00	6,027.71	26.39	41.44	-1.55	804.80	-180.63	1,413.22	1,358.47	54.75	25.813	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
7,500.00	6,940.04	6,028.00	6,027.71	27.15	41.44	-1.55	804.80	-180.63	1,494.20	1,438.25	55.95	26.706	
7,600.00	6,940.06	6,028.00	6,027.71	27.99	41.44	-1.55	804.80	-180.63	1,577.36	1,520.38	56.98	27.681	
7,659.60	6,940.07	6,028.00	6,027.71	28.52	41.44	-1.55	804.80	-180.63	1,627.83	1,570.30	57.53	28.295	
7,700.00	6,940.08	6,028.00	6,027.71	28.89	41.44	-2.89	804.80	-180.63	1,662.38	1,604.50	57.88	28.723	
7,796.63	6,940.10	6,028.00	6,027.71	29.83	41.44	-6.21	804.80	-180.63	1,745.96	1,687.33	58.63	29.780	
7,800.00	6,940.10	6,028.00	6,027.71	29.86	41.44	-6.21	804.80	-180.63	1,748.89	1,690.24	58.65	29.818	
7,900.00	6,940.12	6,028.00	6,027.71	30.90	41.44	-6.21	804.80	-180.63	1,836.72	1,777.39	59.33	30.958	
8,000.00	6,940.14	6,028.00	6,027.71	31.98	41.44	-6.21	804.80	-180.63	1,925.73	1,865.80	59.92	32.137	
8,100.00	6,940.17	6,028.00	6,027.71	33.11	41.44	-6.21	804.80	-180.63	2,015.77	1,955.32	60.45	33.348	
8,200.00	6,940.19	6,028.00	6,027.71	34.28	41.44	-6.21	804.80	-180.63	2,106.71	2,045.80	60.91	34.587	
8,300.00	6,940.21	6,028.00	6,027.71	35.48	41.44	-6.21	804.80	-180.63	2,198.44	2,137.11	61.32	35.850	
8,400.00	6,940.23	6,028.00	6,027.71	36.71	41.44	-6.21	804.80	-180.63	2,290.85	2,229.16	61.69	37.133	
8,500.00	6,940.25	6,028.00	6,027.71	37.97	41.44	-6.21	804.80	-180.63	2,383.89	2,321.86	62.03	38.434	
8,600.00	6,940.28	6,028.00	6,027.71	39.26	41.44	-6.21	804.80	-180.63	2,477.46	2,415.13	62.33	39.750	
8,700.00	6,940.30	6,028.00	6,027.71	40.56	41.44	-6.21	804.80	-180.63	2,571.52	2,508.92	62.60	41.080	
8,800.00	6,940.32	6,028.00	6,027.71	41.89	41.44	-6.21	804.80	-180.63	2,666.01	2,603.16	62.85	42.420	
8,900.00	6,940.34	6,028.00	6,027.71	43.24	41.44	-6.21	804.80	-180.63	2,760.89	2,697.81	63.08	43.771	
9,000.00	6,940.36	6,028.00	6,027.71	44.60	41.44	-6.21	804.80	-180.63	2,856.12	2,792.83	63.29	45.130	
9,100.00	6,940.39	6,028.00	6,027.71	45.98	41.44	-6.21	804.80	-180.63	2,951.66	2,888.18	63.48	46.497	
9,200.00	6,940.41	6,028.00	6,027.71	47.38	41.44	-6.21	804.80	-180.63	3,047.49	2,983.83	63.66	47.871	
9,300.00	6,940.43	6,028.00	6,027.71	48.78	41.44	-6.21	804.80	-180.63	3,143.58	3,079.75	63.83	49.250	
9,400.00	6,940.45	6,028.00	6,027.71	50.20	41.44	-6.21	804.80	-180.63	3,239.91	3,175.92	63.99	50.634	
9,500.00	6,940.47	6,028.00	6,027.71	51.63	41.44	-6.21	804.80	-180.63	3,336.45	3,272.31	64.13	52.023	
9,600.00	6,940.50	6,028.00	6,027.71	53.07	41.44	-6.21	804.80	-180.63	3,433.19	3,368.91	64.27	53.415	
9,700.00	6,940.52	6,028.00	6,027.71	54.52	41.44	-6.21	804.80	-180.63	3,530.11	3,465.70	64.41	54.810	
9,800.00	6,940.54	6,028.00	6,027.71	55.97	41.44	-6.21	804.80	-180.63	3,627.20	3,562.67	64.53	56.208	
9,900.00	6,940.56	6,028.00	6,027.71	57.44	41.44	-6.21	804.80	-180.63	3,724.44	3,659.79	64.65	57.608	
10,000.00	6,940.59	6,028.00	6,027.71	58.91	41.44	-6.21	804.80	-180.63	3,821.83	3,757.06	64.77	59.010	
10,100.00	6,940.61	6,028.00	6,027.71	60.38	41.44	-6.21	804.80	-180.63	3,919.35	3,854.47	64.88	60.413	
10,200.00	6,940.63	6,028.00	6,027.71	61.87	41.44	-6.21	804.80	-180.63	4,016.98	3,952.00	64.98	61.818	
10,300.00	6,940.65	6,028.00	6,027.71	63.36	41.44	-6.21	804.80	-180.63	4,114.74	4,049.65	65.08	63.223	
10,400.00	6,940.67	6,028.00	6,027.71	64.85	41.44	-6.21	804.80	-180.63	4,212.60	4,147.41	65.18	64.629	
10,500.00	6,940.70	6,028.00	6,027.71	66.35	41.44	-6.21	804.80	-180.63	4,310.55	4,245.27	65.28	66.034	
10,600.00	6,940.72	6,028.00	6,027.71	67.86	41.44	-6.21	804.80	-180.63	4,408.60	4,343.23	65.37	67.440	
10,700.00	6,940.74	6,028.00	6,027.71	69.36	41.44	-6.21	804.80	-180.63	4,506.73	4,441.27	65.46	68.846	
10,800.00	6,940.76	6,028.00	6,027.71	70.88	41.44	-6.21	804.80	-180.63	4,604.95	4,539.40	65.55	70.251	
10,900.00	6,940.78	6,028.00	6,027.71	72.39	41.44	-6.21	804.80	-180.63	4,703.24	4,637.60	65.64	71.656	
11,000.00	6,940.81	6,028.00	6,027.71	73.91	41.44	-6.21	804.80	-180.63	4,801.60	4,735.88	65.72	73.060	
11,100.00	6,940.83	6,028.00	6,027.71	75.44	41.44	-6.21	804.80	-180.63	4,900.02	4,834.22	65.81	74.463	
11,200.00	6,940.85	6,028.00	6,027.71	76.96	41.44	-6.21	804.80	-180.63	4,998.51	4,932.63	65.89	75.864	
11,300.00	6,940.87	6,028.00	6,027.71	78.49	41.44	-6.21	804.80	-180.63	5,097.06	5,031.09	65.97	77.265	
11,400.00	6,940.89	6,028.00	6,027.71	80.03	41.44	-6.21	804.80	-180.63	5,195.66	5,129.62	66.05	78.664	
11,500.00	6,940.92	6,028.00	6,027.71	81.56	41.44	-6.21	804.80	-180.63	5,294.32	5,228.19	66.13	80.061	
11,600.00	6,940.94	6,028.00	6,027.71	83.10	41.44	-6.21	804.80	-180.63	5,393.03	5,326.82	66.21	81.457	
11,700.00	6,940.96	6,028.00	6,027.71	84.64	41.44	-6.21	804.80	-180.63	5,491.78	5,425.49	66.28	82.852	
11,800.00	6,940.98	6,028.00	6,027.71	86.18	41.44	-6.21	804.80	-180.63	5,590.57	5,524.21	66.36	84.244	
11,900.00	6,941.00	6,028.00	6,027.71	87.72	41.44	-6.21	804.80	-180.63	5,689.41	5,622.97	66.44	85.634	
12,000.00	6,941.03	6,028.00	6,027.71	89.27	41.44	-6.21	804.80	-180.63	5,788.29	5,721.78	66.52	87.022	
12,100.00	6,941.05	6,028.00	6,027.71	90.82	41.44	-6.21	804.80	-180.63	5,887.21	5,820.62	66.59	88.408	
12,200.00	6,941.07	6,028.00	6,027.71	92.37	41.44	-6.21	804.80	-180.63	5,986.16	5,919.49	66.67	89.792	
12,300.00	6,941.09	6,028.00	6,027.71	93.92	41.44	-6.21	804.80	-180.63	6,085.15	6,018.40	66.74	91.173	
12,400.00	6,941.11	6,028.00	6,027.71	95.47	41.44	-6.21	804.80	-180.63	6,184.17	6,117.35	66.82	92.552	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 95-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Rule Assigned:

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
12,500.00	6,941.14	6,028.00	6,027.71	97.03	41.44	-6.21	804.80	-180.63	6,283.22	6,216.32	66.89	93.929	
12,600.00	6,941.16	6,028.00	6,027.71	98.58	41.44	-6.21	804.80	-180.63	6,382.30	6,315.33	66.97	95.302	
12,700.00	6,941.18	6,028.00	6,027.71	100.14	41.44	-6.21	804.80	-180.63	6,481.40	6,414.36	67.04	96.674	
12,800.00	6,941.20	6,028.00	6,027.71	101.70	41.44	-6.21	804.80	-180.63	6,580.54	6,513.42	67.12	98.042	
12,900.00	6,941.23	6,028.00	6,027.71	103.26	41.44	-6.21	804.80	-180.63	6,679.70	6,612.50	67.19	99.408	
13,000.00	6,941.25	6,028.00	6,027.71	104.82	41.44	-6.21	804.80	-180.63	6,778.89	6,711.61	67.27	100.771	
13,100.00	6,941.27	6,028.00	6,027.71	106.38	41.44	-6.21	804.80	-180.63	6,878.09	6,810.75	67.35	102.130	
13,200.00	6,941.29	6,028.00	6,027.71	107.95	41.44	-6.21	804.80	-180.63	6,977.33	6,909.90	67.42	103.487	
13,300.00	6,941.31	6,028.00	6,027.71	109.51	41.44	-6.21	804.80	-180.63	7,076.58	7,009.08	67.50	104.841	
13,400.00	6,941.34	6,028.00	6,027.71	111.08	41.44	-6.21	804.80	-180.63	7,175.85	7,108.28	67.57	106.192	
13,500.00	6,941.36	6,028.00	6,027.71	112.64	41.44	-6.21	804.80	-180.63	7,275.15	7,207.50	67.65	107.540	
13,600.00	6,941.38	6,028.00	6,027.71	114.21	41.44	-6.21	804.80	-180.63	7,374.46	7,306.73	67.73	108.884	
13,700.00	6,941.40	6,028.00	6,027.71	115.78	41.44	-6.21	804.80	-180.63	7,473.79	7,405.99	67.80	110.226	
13,800.00	6,941.42	6,028.00	6,027.71	117.35	41.44	-6.21	804.80	-180.63	7,573.14	7,505.26	67.88	111.564	
13,900.00	6,941.45	6,028.00	6,027.71	118.92	41.44	-6.21	804.80	-180.63	7,672.51	7,604.55	67.96	112.898	
14,000.00	6,941.47	6,028.00	6,027.71	120.49	41.44	-6.21	804.80	-180.63	7,771.89	7,703.85	68.04	114.230	
14,100.00	6,941.49	6,028.00	6,027.71	122.06	41.44	-6.21	804.80	-180.63	7,871.29	7,803.17	68.12	115.558	
14,200.00	6,941.51	6,028.00	6,027.71	123.64	41.44	-6.21	804.80	-180.63	7,970.70	7,902.51	68.19	116.882	
14,300.00	6,941.53	6,028.00	6,027.71	125.21	41.44	-6.21	804.80	-180.63	8,070.13	8,001.85	68.27	118.203	
14,400.00	6,941.56	6,028.00	6,027.71	126.78	41.44	-6.21	804.80	-180.63	8,169.57	8,101.22	68.35	119.521	
14,500.00	6,941.58	6,028.00	6,027.71	128.36	41.44	-6.21	804.80	-180.63	8,269.02	8,200.59	68.43	120.835	
14,600.00	6,941.60	6,028.00	6,027.71	129.93	41.44	-6.21	804.80	-180.63	8,368.49	8,299.98	68.51	122.146	
14,700.00	6,941.62	6,028.00	6,027.71	131.51	41.44	-6.21	804.80	-180.63	8,467.97	8,399.38	68.59	123.453	
14,800.00	6,941.64	6,028.00	6,027.71	133.08	41.44	-6.21	804.80	-180.63	8,567.46	8,498.79	68.67	124.756	
14,900.00	6,941.67	6,028.00	6,027.71	134.66	41.44	-6.21	804.80	-180.63	8,666.97	8,598.21	68.76	126.056	
15,000.00	6,941.69	6,028.00	6,027.71	136.24	41.44	-6.21	804.80	-180.63	8,766.48	8,697.65	68.84	127.352	
15,100.00	6,941.71	6,028.00	6,027.71	137.82	41.44	-6.21	804.80	-180.63	8,866.01	8,797.09	68.92	128.644	
15,200.00	6,941.73	6,028.00	6,027.71	139.40	41.44	-6.21	804.80	-180.63	8,965.55	8,896.54	69.00	129.933	
15,300.00	6,941.75	6,028.00	6,027.71	140.97	41.44	-6.21	804.80	-180.63	9,065.09	8,996.01	69.08	131.217	
15,400.00	6,941.78	6,028.00	6,027.71	142.55	41.44	-6.21	804.80	-180.63	9,164.65	9,095.48	69.17	132.499	
15,500.00	6,941.80	6,028.00	6,027.71	144.13	41.44	-6.21	804.80	-180.63	9,264.22	9,194.96	69.25	133.776	
15,600.00	6,941.82	6,028.00	6,027.71	145.72	41.44	-6.21	804.80	-180.63	9,363.79	9,294.46	69.34	135.049	
15,700.00	6,941.84	6,028.00	6,027.71	147.30	41.44	-6.21	804.80	-180.63	9,463.38	9,393.96	69.42	136.319	
15,800.00	6,941.87	6,028.00	6,027.71	148.88	41.44	-6.21	804.80	-180.63	9,562.97	9,493.46	69.51	137.585	
15,900.00	6,941.89	6,028.00	6,027.71	150.46	41.44	-6.21	804.80	-180.63	9,662.57	9,592.98	69.59	138.847	
16,000.00	6,941.91	6,028.00	6,027.71	152.04	41.44	-6.21	804.80	-180.63	9,762.18	9,692.50	69.68	140.105	
16,100.00	6,941.93	6,028.00	6,027.71	153.62	41.44	-6.21	804.80	-180.63	9,861.80	9,792.04	69.76	141.359	
16,200.00	6,941.95	6,028.00	6,027.71	155.21	41.44	-6.21	804.80	-180.63	9,961.43	9,891.57	69.85	142.609	
16,300.00	6,941.98	6,028.00	6,027.71	156.79	41.44	-6.21	804.80	-180.63	10,061.06	9,991.12	69.94	143.856	
16,400.00	6,942.00	6,028.00	6,027.71	158.37	41.44	-6.21	804.80	-180.63	10,160.70	10,090.67	70.03	145.098	
16,500.00	6,942.02	6,028.00	6,027.71	159.96	41.44	-6.21	804.80	-180.63	10,260.35	10,190.23	70.11	146.337	
16,600.00	6,942.04	6,028.00	6,027.71	161.54	41.44	-6.21	804.80	-180.63	10,360.00	10,289.80	70.20	147.571	
16,700.00	6,942.06	6,028.00	6,027.71	163.13	41.44	-6.21	804.80	-180.63	10,459.66	10,389.37	70.29	148.802	
16,800.00	6,942.09	6,028.00	6,027.71	164.71	41.44	-6.21	804.80	-180.63	10,559.33	10,488.94	70.38	150.028	
16,900.00	6,942.11	6,028.00	6,027.71	166.30	41.44	-6.21	804.80	-180.63	10,659.00	10,588.53	70.47	151.251	
17,000.00	6,942.13	6,028.00	6,027.71	167.88	41.44	-6.21	804.80	-180.63	10,758.68	10,688.12	70.56	152.469	
17,100.00	6,942.15	6,028.00	6,027.71	169.47	41.44	-6.21	804.80	-180.63	10,858.36	10,787.71	70.65	153.684	
17,200.00	6,942.17	6,028.00	6,027.71	171.05	41.44	-6.21	804.80	-180.63	10,958.05	10,887.31	70.75	154.895	
17,300.00	6,942.20	6,028.00	6,027.71	172.64	41.44	-6.21	804.80	-180.63	11,057.75	10,986.91	70.84	156.101	
17,400.00	6,942.22	6,028.00	6,027.71	174.23	41.44	-6.21	804.80	-180.63	11,157.45	11,086.52	70.93	157.304	
17,500.00	6,942.24	6,028.00	6,027.71	175.81	41.44	-6.21	804.80	-180.63	11,257.16	11,186.14	71.02	158.502	
17,600.00	6,942.26	6,028.00	6,027.71	177.40	41.44	-6.21	804.80	-180.63	11,356.87	11,285.76	71.12	159.697	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 95-A027Ua_INC-ONLY

Rule Assigned:

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
17,700.00	6,942.28	6,028.00	6,027.71	178.99	41.44	-6.21	804.80	-180.63	11,456.59	11,385.38	71.21	160.887	
17,800.00	6,942.31	6,028.00	6,027.71	180.57	41.44	-6.21	804.80	-180.63	11,556.31	11,485.01	71.30	162.073	
17,900.00	6,942.33	6,028.00	6,027.71	182.16	41.44	-6.21	804.80	-180.63	11,656.04	11,584.64	71.40	163.256	
18,000.00	6,942.35	6,028.00	6,027.71	183.75	41.44	-6.21	804.80	-180.63	11,755.77	11,684.28	71.49	164.434	
18,100.00	6,942.37	6,028.00	6,027.71	185.34	41.44	-6.21	804.80	-180.63	11,855.51	11,783.92	71.59	165.608	
18,200.00	6,942.39	6,028.00	6,027.71	186.93	41.44	-6.21	804.80	-180.63	11,955.25	11,883.56	71.68	166.778	
18,300.00	6,942.42	6,028.00	6,027.71	188.52	41.44	-6.21	804.80	-180.63	12,054.99	11,983.21	71.78	167.945	
18,400.00	6,942.44	6,028.00	6,027.71	190.10	41.44	-6.21	804.80	-180.63	12,154.74	12,082.86	71.88	169.107	
18,500.00	6,942.46	6,028.00	6,027.71	191.69	41.44	-6.21	804.80	-180.63	12,254.49	12,182.52	71.97	170.265	
18,600.00	6,942.48	6,028.00	6,027.71	193.28	41.44	-6.21	804.80	-180.63	12,354.25	12,282.18	72.07	171.419	
18,700.00	6,942.51	6,028.00	6,027.71	194.87	41.44	-6.21	804.80	-180.63	12,454.01	12,381.84	72.17	172.569	
18,800.00	6,942.53	6,028.00	6,027.71	196.46	41.44	-6.21	804.80	-180.63	12,553.78	12,481.51	72.27	173.714	
18,900.00	6,942.55	6,028.00	6,027.71	198.05	41.44	-6.21	804.80	-180.63	12,653.55	12,581.18	72.37	174.856	
19,000.00	6,942.57	6,028.00	6,027.71	199.64	41.44	-6.21	804.80	-180.63	12,753.32	12,680.85	72.46	175.994	
19,100.00	6,942.59	6,028.00	6,027.71	201.23	41.44	-6.21	804.80	-180.63	12,853.09	12,780.53	72.56	177.128	
19,200.00	6,942.62	6,028.00	6,027.71	202.82	41.44	-6.21	804.80	-180.63	12,952.87	12,880.21	72.66	178.258	
19,300.00	6,942.64	6,028.00	6,027.71	204.41	41.44	-6.21	804.80	-180.63	13,052.66	12,979.89	72.76	179.383	
19,400.00	6,942.66	6,028.00	6,027.71	206.00	41.44	-6.21	804.80	-180.63	13,152.44	13,079.58	72.86	180.505	
19,500.00	6,942.68	6,028.00	6,027.71	207.59	41.44	-6.21	804.80	-180.63	13,252.23	13,179.26	72.97	181.622	
19,600.00	6,942.70	6,028.00	6,027.71	209.18	41.44	-6.21	804.80	-180.63	13,352.02	13,278.95	73.07	182.736	
19,700.00	6,942.73	6,028.00	6,027.71	210.78	41.44	-6.21	804.80	-180.63	13,451.82	13,378.65	73.17	183.846	
19,800.00	6,942.75	6,028.00	6,027.71	212.37	41.44	-6.21	804.80	-180.63	13,551.62	13,478.34	73.27	184.951	
19,900.00	6,942.77	6,028.00	6,027.71	213.96	41.44	-6.21	804.80	-180.63	13,651.42	13,578.04	73.37	186.053	
20,000.00	6,942.79	6,028.00	6,027.71	215.55	41.44	-6.21	804.80	-180.63	13,751.22	13,677.74	73.48	187.150	
20,100.00	6,942.81	6,028.00	6,027.71	217.14	41.44	-6.21	804.80	-180.63	13,851.03	13,777.45	73.58	188.244	
20,200.00	6,942.84	6,028.00	6,027.71	218.73	41.44	-6.21	804.80	-180.63	13,950.84	13,877.15	73.68	189.333	
20,300.00	6,942.86	6,028.00	6,027.71	220.32	41.44	-6.21	804.80	-180.63	14,050.65	13,976.86	73.79	190.419	
20,400.00	6,942.88	6,028.00	6,027.71	221.92	41.44	-6.21	804.80	-180.63	14,150.47	14,076.57	73.89	191.500	
20,500.00	6,942.90	6,028.00	6,027.71	223.51	41.44	-6.21	804.80	-180.63	14,250.28	14,176.29	74.00	192.578	
20,600.00	6,942.92	6,028.00	6,027.71	225.10	41.44	-6.21	804.80	-180.63	14,350.10	14,276.00	74.10	193.652	
20,700.00	6,942.95	6,028.00	6,027.71	226.69	41.44	-6.21	804.80	-180.63	14,449.93	14,375.72	74.21	194.721	
20,800.00	6,942.97	6,028.00	6,027.71	228.28	41.44	-6.21	804.80	-180.63	14,549.75	14,475.44	74.31	195.787	
20,900.00	6,942.99	6,028.00	6,027.71	229.88	41.44	-6.21	804.80	-180.63	14,649.58	14,575.16	74.42	196.849	
20,942.50	6,943.00	6,028.00	6,027.71	230.42	41.44	-6.21	804.80	-180.63	14,692.00	14,613.04	78.96	186.058	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**Offset TVD Reference:**	Offset Datum

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

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

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	-17.62	814.61	-258.74	856.75				
58.45	58.45	0.00	0.00	0.02	0.00	104.11	814.61	-258.74	854.80	854.79	0.01	N/A CC, ES	
150.25	150.24	84.93	84.92	0.14	0.18	85.80	814.55	-259.96	855.24	854.99	0.25	3,398.720	
239.43	239.42	167.86	167.77	0.25	0.35	80.16	814.39	-263.47	856.10	855.61	0.48	1,767.675	
299.93	299.91	224.02	223.81	0.33	0.47	84.92	814.23	-267.16	857.05	856.40	0.64	1,333.542	
446.00	445.96	359.00	358.13	0.50	0.76	108.60	813.63	-280.35	861.31	860.21	1.10	782.601	
537.00	536.95	442.39	440.76	0.73	0.93	169.24	813.12	-291.53	865.55	864.00	1.55	557.597	
624.00	623.95	521.27	518.61	0.99	1.10	-108.57	812.54	-304.23	870.42	868.42	2.00	435.608	
718.00	717.90	613.17	608.88	1.29	1.39	-91.90	811.74	-321.41	876.26	873.67	2.59	337.822	
811.00	810.73	682.00	676.53	1.60	1.65	-73.41	811.20	-334.10	881.30	878.15	3.16	279.106	
903.00	902.19	737.41	730.63	1.92	1.91	-62.49	812.29	-346.03	887.09	883.38	3.71	239.279	
994.00	992.38	813.18	803.81	2.24	2.30	-61.87	814.98	-365.41	894.38	890.02	4.36	205.032	
1,084.00	1,081.50	864.00	852.63	2.56	2.58	-58.60	816.81	-379.43	902.83	897.92	4.91	183.781	
1,175.00	1,171.48	933.61	918.83	2.91	3.01	-56.42	820.88	-400.57	913.94	908.36	5.58	163.877	
1,268.00	1,263.52	1,004.43	985.58	3.26	3.50	-56.61	825.10	-423.83	927.52	921.25	6.27	147.980	
1,363.00	1,357.62	1,075.89	1,052.16	3.63	4.03	-55.41	829.40	-449.42	944.14	937.16	6.98	135.180	
1,457.00	1,450.74	1,147.47	1,118.20	3.99	4.59	-54.48	833.77	-476.68	962.75	955.07	7.68	125.330	
1,552.00	1,544.82	1,203.00	1,169.26	4.36	5.03	-54.95	837.67	-498.16	983.73	975.48	8.25	119.255	
1,646.00	1,637.88	1,273.13	1,233.11	4.72	5.63	-56.10	843.39	-526.58	1,007.22	998.30	8.91	112.982	
1,741.00	1,731.94	1,423.51	1,369.19	5.09	6.88	-59.26	850.79	-589.97	1,031.27	1,021.16	10.11	101.998	
1,835.00	1,825.07	1,506.61	1,444.91	5.46	7.54	-61.21	851.58	-624.22	1,053.43	1,042.61	10.82	97.381	
1,929.00	1,918.39	1,575.00	1,507.08	5.82	8.11	-64.13	852.34	-652.70	1,078.02	1,066.60	11.42	94.388	
2,024.00	2,012.84	1,646.71	1,571.95	6.18	8.75	-64.34	853.68	-683.21	1,105.61	1,093.56	12.05	91.757	
2,118.00	2,106.19	1,712.88	1,631.45	6.53	9.35	-65.11	855.71	-712.10	1,134.85	1,122.24	12.61	89.981	
2,213.00	2,200.37	1,779.73	1,691.29	6.90	9.97	-67.64	858.55	-741.76	1,166.14	1,152.98	13.16	88.603	
2,307.00	2,293.61	1,844.03	1,748.57	7.27	10.58	-67.16	862.14	-770.75	1,199.33	1,185.65	13.67	87.707	
2,402.00	2,387.91	1,897.75	1,796.12	7.63	11.12	-64.30	866.01	-795.46	1,234.90	1,220.81	14.09	87.642	
2,496.00	2,481.29	1,949.00	1,840.98	7.99	11.63	-64.24	870.77	-819.77	1,272.66	1,258.19	14.47	87.931	
2,591.00	2,575.67	2,029.65	1,911.17	8.35	12.46	-66.62	879.03	-858.62	1,312.51	1,297.43	15.08	87.064	
2,686.00	2,670.05	2,110.49	1,981.53	8.71	13.27	-67.69	887.33	-897.55	1,352.99	1,337.33	15.66	86.375	
2,780.00	2,763.49	2,200.79	2,060.35	9.07	14.16	-70.70	897.35	-940.46	1,393.62	1,377.31	16.31	85.450	
2,875.00	2,857.94	2,308.94	2,155.86	9.43	15.17	-73.60	909.66	-989.65	1,433.70	1,416.64	17.07	84.011	
2,970.00	2,952.51	2,404.75	2,241.00	9.79	16.06	-71.45	919.38	-1,032.50	1,473.20	1,455.47	17.73	83.084	
3,064.00	3,046.19	2,528.97	2,352.22	10.13	17.19	-65.81	929.86	-1,086.81	1,510.51	1,491.91	18.59	81.246	
3,159.00	3,140.98	2,575.49	2,393.70	10.47	17.63	-64.66	933.57	-1,107.52	1,549.23	1,530.32	18.91	81.910	
3,253.00	3,234.84	2,653.51	2,462.60	10.81	18.37	-73.18	940.50	-1,143.46	1,590.04	1,570.57	19.47	81.678	
3,348.00	3,329.74	2,746.70	2,545.16	11.14	19.26	-81.65	947.72	-1,186.09	1,631.49	1,611.37	20.13	81.060	
3,397.00	3,378.70	2,789.65	2,583.22	11.32	19.67	-82.89	950.95	-1,205.73	1,653.07	1,632.64	20.43	80.916	
3,488.00	3,469.63	2,864.01	2,649.12	11.64	20.38	-86.10	957.11	-1,239.61	1,693.53	1,672.57	20.95	80.821	
3,583.00	3,564.49	3,194.91	2,953.19	11.98	22.91	-78.63	987.19	-1,365.61	1,728.89	1,705.95	22.95	75.338	
3,677.00	3,658.13	3,337.00	3,088.56	12.33	23.75	-77.21	995.44	-1,407.95	1,754.54	1,730.83	23.72	73.984 SF	
3,772.00	3,752.42	3,337.00	3,088.56	12.69	23.75	-72.13	995.44	-1,407.95	1,781.73	1,757.90	23.83	74.772	
3,867.00	3,846.42	3,337.00	3,088.56	13.06	23.75	-70.47	995.44	-1,407.95	1,812.33	1,788.44	23.89	75.852	
3,961.00	3,939.30	3,337.00	3,088.56	13.44	23.75	-70.47	995.44	-1,407.95	1,846.53	1,822.61	23.92	77.209	
4,056.00	4,032.83	3,337.00	3,088.56	13.82	23.75	-72.99	995.44	-1,407.95	1,885.10	1,861.20	23.90	78.862	
4,151.00	4,126.01	3,337.00	3,088.56	14.21	23.75	-71.94	995.44	-1,407.95	1,927.36	1,903.50	23.86	80.772	
4,246.00	4,219.10	3,337.00	3,088.56	14.61	23.75	-78.97	995.44	-1,407.95	1,974.08	1,950.28	23.80	82.941	
4,340.00	4,310.92	3,337.00	3,088.56	15.01	23.75	-86.68	995.44	-1,407.95	2,025.80	2,002.07	23.73	85.362	
4,435.00	4,403.54	3,337.00	3,088.56	15.41	23.75	-87.79	995.44	-1,407.95	2,082.34	2,058.68	23.65	88.037	
4,498.00	4,465.21	3,337.00	3,088.56	15.68	23.75	-86.73	995.44	-1,407.95	2,121.25	2,097.66	23.59	89.908	
4,561.00	4,526.82	3,337.00	3,088.56	15.95	23.75	-80.44	995.44	-1,407.95	2,160.62	2,137.09	23.53	91.828	
4,624.00	4,588.23	3,337.00	3,088.56	16.22	23.75	-78.69	995.44	-1,407.95	2,200.38	2,176.92	23.46	93.781	

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 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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)	Minimum Separation (usft)	Separation Factor	Warning
4,687.00	4,649.71	3,337.00	3,088.56	16.49	23.75	-78.72	995.44	-1,407.95	2,241.05	2,217.65	23.40	95.780	
4,749.00	4,710.40	3,337.00	3,088.56	16.75	23.75	-78.34	995.44	-1,407.95	2,282.04	2,258.71	23.33	97.802	
4,812.00	4,772.28	3,337.00	3,088.56	17.01	23.75	-78.42	995.44	-1,407.95	2,324.64	2,301.37	23.27	99.913	
4,875.00	4,834.34	3,337.00	3,088.56	17.27	23.75	-79.56	995.44	-1,407.95	2,368.25	2,345.05	23.20	102.080	
4,938.00	4,896.43	3,337.00	3,088.56	17.53	23.75	-79.46	995.44	-1,407.95	2,412.79	2,389.66	23.13	104.295	
5,001.00	4,958.46	3,337.00	3,088.56	17.79	23.75	-82.06	995.44	-1,407.95	2,458.31	2,435.24	23.07	106.548	
5,064.00	5,020.29	3,337.00	3,088.56	18.05	23.75	-84.58	995.44	-1,407.95	2,505.02	2,482.00	23.02	108.831	
5,126.00	5,080.98	3,337.00	3,088.56	18.32	23.75	-88.64	995.44	-1,407.95	2,552.19	2,529.22	22.97	111.109	
5,189.00	5,142.74	3,337.00	3,088.56	18.58	23.75	-87.99	995.44	-1,407.95	2,600.95	2,578.02	22.92	113.463	
5,252.00	5,204.62	3,337.00	3,088.56	18.85	23.75	-88.40	995.44	-1,407.95	2,650.21	2,627.33	22.88	115.847	
5,315.00	5,266.61	3,337.00	3,088.56	19.11	23.75	-89.61	995.44	-1,407.95	2,700.06	2,677.22	22.83	118.254	
5,378.00	5,328.73	3,337.00	3,088.56	19.37	23.75	-89.70	995.44	-1,407.95	2,750.43	2,727.64	22.79	120.682	
5,441.00	5,390.87	3,337.00	3,088.56	19.62	23.75	-90.00	995.44	-1,407.95	2,801.32	2,778.56	22.75	123.125	
5,503.00	5,452.07	3,337.00	3,088.56	19.87	23.75	-90.64	995.44	-1,407.95	2,851.87	2,829.16	22.72	125.541	
5,566.00	5,514.32	3,337.00	3,088.56	20.13	23.75	-90.87	995.44	-1,407.95	2,903.70	2,881.02	22.68	128.007	
5,629.00	5,576.59	3,337.00	3,088.56	20.38	23.75	-89.09	995.44	-1,407.95	2,955.86	2,933.21	22.65	130.482	
5,692.00	5,638.95	3,337.00	3,088.56	20.63	23.75	-92.22	995.44	-1,407.95	3,008.43	2,985.80	22.63	132.963	
5,747.00	5,693.45	3,337.00	3,088.56	20.85	23.75	-90.42	995.44	-1,407.95	3,054.64	3,032.04	22.60	135.134	
5,810.00	5,755.90	3,337.00	3,088.56	21.09	23.75	-91.35	995.44	-1,407.95	3,107.86	3,085.28	22.58	137.624	
5,874.00	5,819.40	3,337.00	3,088.56	21.34	23.75	-91.23	995.44	-1,407.95	3,162.28	3,139.71	22.56	140.154	
5,936.00	5,880.95	3,337.00	3,088.56	21.58	23.75	-91.11	995.44	-1,407.95	3,215.29	3,192.75	22.55	142.603	
5,999.00	5,943.45	3,337.00	3,088.56	21.82	23.75	-92.38	995.44	-1,407.95	3,269.56	3,247.02	22.54	145.078	
6,062.00	6,005.96	3,337.00	3,088.56	22.07	23.75	-90.01	995.44	-1,407.95	3,324.09	3,301.56	22.53	147.547	
6,125.00	6,068.49	3,337.00	3,088.56	22.31	23.75	-92.82	995.44	-1,407.95	3,378.91	3,356.39	22.53	150.006	
6,188.00	6,131.08	3,337.00	3,088.56	22.55	23.75	-92.14	995.44	-1,407.95	3,434.02	3,411.50	22.52	152.459	
6,255.00	6,197.73	3,337.00	3,088.56	22.81	23.75	-94.54	995.44	-1,407.95	3,492.88	3,470.35	22.53	155.065	
6,293.00	6,235.55	3,337.00	3,088.56	22.89	23.75	-94.54	995.44	-1,407.95	3,526.40	3,503.88	22.52	156.588	
6,300.00	6,242.52	3,337.00	3,088.56	22.89	23.75	-94.54	995.44	-1,407.95	3,532.58	3,510.07	22.51	156.917	
6,393.00	6,335.09	3,337.00	3,088.56	22.94	23.75	-94.54	995.44	-1,407.95	3,615.03	3,592.61	22.42	161.245	
6,400.00	6,342.06	3,337.00	3,088.56	22.94	23.75	-100.05	995.44	-1,407.95	3,621.27	3,598.86	22.41	161.561	
6,450.00	6,391.66	3,337.00	3,088.56	22.97	23.75	-123.81	995.44	-1,407.95	3,666.85	3,644.46	22.39	163.767	
6,500.00	6,440.77	3,337.00	3,088.56	23.02	23.75	-130.54	995.44	-1,407.95	3,713.92	3,691.52	22.39	165.843	
6,550.00	6,489.07	3,337.00	3,088.56	23.07	23.75	-128.30	995.44	-1,407.95	3,762.12	3,739.70	22.42	167.821	
6,600.00	6,536.26	3,337.00	3,088.56	23.13	23.75	-117.03	995.44	-1,407.95	3,811.11	3,788.65	22.46	169.690	
6,650.00	6,582.05	3,337.00	3,088.56	23.21	23.75	-92.42	995.44	-1,407.95	3,860.57	3,838.05	22.52	171.444	
6,700.00	6,626.13	3,337.00	3,088.56	23.29	23.75	-59.19	995.44	-1,407.95	3,910.16	3,887.57	22.59	173.076	
6,750.00	6,668.24	3,337.00	3,088.56	23.39	23.75	-35.68	995.44	-1,407.95	3,959.58	3,936.90	22.68	174.581	
6,800.00	6,708.12	3,337.00	3,088.56	23.51	23.75	-23.15	995.44	-1,407.95	4,008.52	3,985.74	22.78	175.953	
6,850.00	6,745.50	3,337.00	3,088.56	23.64	23.75	-16.26	995.44	-1,407.95	4,056.71	4,033.81	22.90	177.187	
6,900.00	6,780.15	3,337.00	3,088.56	23.79	23.75	-12.11	995.44	-1,407.95	4,103.87	4,080.85	23.02	178.278	
6,950.00	6,811.86	3,337.00	3,088.56	23.95	23.75	-9.40	995.44	-1,407.95	4,149.73	4,126.58	23.15	179.220	
7,000.00	6,840.42	3,337.00	3,088.56	24.14	23.75	-7.53	995.44	-1,407.95	4,194.07	4,170.77	23.30	180.008	
7,050.00	6,865.66	3,337.00	3,088.56	24.35	23.75	-6.17	995.44	-1,407.95	4,236.65	4,213.20	23.45	180.636	
7,100.00	6,887.42	3,337.00	3,088.56	24.57	23.75	-5.14	995.44	-1,407.95	4,277.27	4,253.65	23.62	181.098	
7,150.00	6,905.55	3,337.00	3,088.56	24.82	23.75	-4.34	995.44	-1,407.95	4,315.71	4,291.92	23.79	181.390	
7,200.00	6,919.95	3,337.00	3,088.56	25.10	23.75	-3.69	995.44	-1,407.95	4,351.81	4,327.83	23.98	181.507	
7,250.00	6,930.52	3,337.00	3,088.56	25.39	23.75	-3.16	995.44	-1,407.95	4,385.39	4,361.22	24.17	181.447	
7,300.00	6,937.20	3,337.00	3,088.56	25.70	23.75	-2.71	995.44	-1,407.95	4,416.31	4,391.94	24.37	181.209	
7,350.00	6,939.94	3,337.00	3,088.56	26.04	23.75	-2.32	995.44	-1,407.95	4,444.42	4,419.84	24.58	180.793	
7,359.60	6,940.02	3,337.00	3,088.56	26.10	23.75	-2.25	995.44	-1,407.95	4,449.49	4,424.87	24.62	180.728	
7,400.00	6,940.03	3,337.00	3,088.56	26.39	23.75	-2.25	995.44	-1,407.95	4,470.71	4,445.91	24.80	180.237	
7,500.00	6,940.04	3,337.00	3,088.56	27.15	23.75	-2.25	995.44	-1,407.95	4,524.37	4,499.10	25.27	179.036	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
7,600.00	6,940.06	3,337.00	3,088.56	27.99	23.75	-2.25	995.44	-1,407.95	4,579.58	4,553.84	25.74	177.900	
7,659.60	6,940.07	3,337.00	3,088.56	28.52	23.75	-2.25	995.44	-1,407.95	4,613.21	4,587.18	26.03	177.260	
7,700.00	6,940.08	3,337.00	3,088.56	28.89	23.75	-2.82	995.44	-1,407.95	4,636.29	4,610.07	26.22	176.840	
7,796.63	6,940.10	3,337.00	3,088.56	29.83	23.75	-4.19	995.44	-1,407.95	4,692.34	4,665.66	26.68	175.877	
7,800.00	6,940.10	3,337.00	3,088.56	29.86	23.75	-4.19	995.44	-1,407.95	4,694.32	4,667.62	26.70	175.845	
7,900.00	6,940.12	3,337.00	3,088.56	30.90	23.75	-4.19	995.44	-1,407.95	4,753.66	4,726.48	27.18	174.926	
8,000.00	6,940.14	3,337.00	3,088.56	31.98	23.75	-4.19	995.44	-1,407.95	4,814.35	4,786.69	27.65	174.105	
8,100.00	6,940.17	3,337.00	3,088.56	33.11	23.75	-4.19	995.44	-1,407.95	4,876.33	4,848.20	28.12	173.383	
8,200.00	6,940.19	3,337.00	3,088.56	34.28	23.75	-4.19	995.44	-1,407.95	4,939.56	4,910.97	28.59	172.762	
8,300.00	6,940.21	3,337.00	3,088.56	35.48	23.75	-4.19	995.44	-1,407.95	5,003.99	4,974.94	29.05	172.240	
8,400.00	6,940.23	3,337.00	3,088.56	36.71	23.75	-4.19	995.44	-1,407.95	5,069.57	5,040.07	29.51	171.817	
8,500.00	6,940.25	3,337.00	3,088.56	37.97	23.75	-4.19	995.44	-1,407.95	5,136.27	5,106.31	29.95	171.488	
8,600.00	6,940.28	3,337.00	3,088.56	39.26	23.75	-4.19	995.44	-1,407.95	5,204.03	5,173.64	30.39	171.251	
8,700.00	6,940.30	3,337.00	3,088.56	40.56	23.75	-4.19	995.44	-1,407.95	5,272.81	5,242.00	30.82	171.103	
8,800.00	6,940.32	3,337.00	3,088.56	41.89	23.75	-4.19	995.44	-1,407.95	5,342.58	5,311.35	31.24	171.040	
8,900.00	6,940.34	3,337.00	3,088.56	43.24	23.75	-4.19	995.44	-1,407.95	5,413.30	5,381.66	31.65	171.059	
9,000.00	6,940.36	3,337.00	3,088.56	44.60	23.75	-4.19	995.44	-1,407.95	5,484.94	5,452.89	32.05	171.155	
9,100.00	6,940.39	3,337.00	3,088.56	45.98	23.75	-4.19	995.44	-1,407.95	5,557.44	5,525.01	32.44	171.325	
9,200.00	6,940.41	3,337.00	3,088.56	47.38	23.75	-4.19	995.44	-1,407.95	5,630.79	5,597.97	32.82	171.566	
9,300.00	6,940.43	3,337.00	3,088.56	48.78	23.75	-4.19	995.44	-1,407.95	5,704.95	5,671.76	33.19	171.873	
9,400.00	6,940.45	3,337.00	3,088.56	50.20	23.75	-4.19	995.44	-1,407.95	5,779.89	5,746.34	33.56	172.243	
9,500.00	6,940.47	3,337.00	3,088.56	51.63	23.75	-4.19	995.44	-1,407.95	5,855.58	5,821.67	33.91	172.674	
9,600.00	6,940.50	3,337.00	3,088.56	53.07	23.75	-4.19	995.44	-1,407.95	5,931.99	5,897.73	34.26	173.161	
9,700.00	6,940.52	3,337.00	3,088.56	54.52	23.75	-4.19	995.44	-1,407.95	6,009.09	5,974.49	34.59	173.702	
9,800.00	6,940.54	3,337.00	3,088.56	55.97	23.75	-4.19	995.44	-1,407.95	6,086.86	6,051.93	34.92	174.294	
9,900.00	6,940.56	3,337.00	3,088.56	57.44	23.75	-4.19	995.44	-1,407.95	6,165.26	6,130.02	35.24	174.934	
10,000.00	6,940.59	3,337.00	3,088.56	58.91	23.75	-4.19	995.44	-1,407.95	6,244.29	6,208.73	35.56	175.619	
10,100.00	6,940.61	3,337.00	3,088.56	60.38	23.75	-4.19	995.44	-1,407.95	6,323.91	6,288.05	35.86	176.348	
10,200.00	6,940.63	3,337.00	3,088.56	61.87	23.75	-4.19	995.44	-1,407.95	6,404.10	6,367.94	36.16	177.117	
10,300.00	6,940.65	3,337.00	3,088.56	63.36	23.75	-4.19	995.44	-1,407.95	6,484.84	6,448.39	36.45	177.925	
10,400.00	6,940.67	3,337.00	3,088.56	64.85	23.75	-4.19	995.44	-1,407.95	6,566.11	6,529.38	36.73	178.769	
10,500.00	6,940.70	3,337.00	3,088.56	66.35	23.75	-4.19	995.44	-1,407.95	6,647.89	6,610.88	37.01	179.647	
10,600.00	6,940.72	3,337.00	3,088.56	67.86	23.75	-4.19	995.44	-1,407.95	6,730.16	6,692.89	37.27	180.558	
10,700.00	6,940.74	3,337.00	3,088.56	69.36	23.75	-4.19	995.44	-1,407.95	6,812.91	6,775.37	37.54	181.500	
10,800.00	6,940.76	3,337.00	3,088.56	70.88	23.75	-4.19	995.44	-1,407.95	6,896.12	6,858.32	37.79	182.471	
10,900.00	6,940.78	3,337.00	3,088.56	72.39	23.75	-4.19	995.44	-1,407.95	6,979.76	6,941.72	38.04	183.469	
11,000.00	6,940.81	3,337.00	3,088.56	73.91	23.75	-4.19	995.44	-1,407.95	7,063.83	7,025.55	38.29	184.493	
11,100.00	6,940.83	3,337.00	3,088.56	75.44	23.75	-4.19	995.44	-1,407.95	7,148.31	7,109.79	38.53	185.542	
11,200.00	6,940.85	3,337.00	3,088.56	76.96	23.75	-4.19	995.44	-1,407.95	7,233.19	7,194.43	38.76	186.614	
11,300.00	6,940.87	3,337.00	3,088.56	78.49	23.75	-4.19	995.44	-1,407.95	7,318.45	7,279.46	38.99	187.707	
11,400.00	6,940.89	3,337.00	3,088.56	80.03	23.75	-4.19	995.44	-1,407.95	7,404.08	7,364.87	39.21	188.822	
11,500.00	6,940.92	3,337.00	3,088.56	81.56	23.75	-4.19	995.44	-1,407.95	7,490.06	7,450.63	39.43	189.956	
11,600.00	6,940.94	3,337.00	3,088.56	83.10	23.75	-4.19	995.44	-1,407.95	7,576.39	7,536.75	39.64	191.109	
11,700.00	6,940.96	3,337.00	3,088.56	84.64	23.75	-4.19	995.44	-1,407.95	7,663.05	7,623.20	39.85	192.279	
11,800.00	6,940.98	3,337.00	3,088.56	86.18	23.75	-4.19	995.44	-1,407.95	7,750.03	7,709.97	40.06	193.465	
11,900.00	6,941.00	3,337.00	3,088.56	87.72	23.75	-4.19	995.44	-1,407.95	7,837.33	7,797.07	40.26	194.668	
12,000.00	6,941.03	3,337.00	3,088.56	89.27	23.75	-4.19	995.44	-1,407.95	7,924.92	7,884.46	40.46	195.885	
12,100.00	6,941.05	3,337.00	3,088.56	90.82	23.75	-4.19	995.44	-1,407.95	8,012.80	7,972.15	40.65	197.115	
12,200.00	6,941.07	3,337.00	3,088.56	92.37	23.75	-4.19	995.44	-1,407.95	8,100.97	8,060.13	40.84	198.359	
12,300.00	6,941.09	3,337.00	3,088.56	93.92	23.75	-4.19	995.44	-1,407.95	8,189.40	8,148.38	41.03	199.615	
12,400.00	6,941.11	3,337.00	3,088.56	95.47	23.75	-4.19	995.44	-1,407.95	8,278.10	8,236.89	41.21	200.883	
12,500.00	6,941.14	3,337.00	3,088.56	97.03	23.75	-4.19	995.44	-1,407.95	8,367.06	8,325.67	41.39	202.162	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
12,600.00	6,941.16	3,337.00	3,088.56	98.58	23.75	-4.19	995.44	-1,407.95	8,456.26	8,414.69	41.56	203.451	
12,700.00	6,941.18	3,337.00	3,088.56	100.14	23.75	-4.19	995.44	-1,407.95	8,545.70	8,503.96	41.74	204.749	
12,800.00	6,941.20	3,337.00	3,088.56	101.70	23.75	-4.19	995.44	-1,407.95	8,635.37	8,593.46	41.91	206.057	
12,900.00	6,941.23	3,337.00	3,088.56	103.26	23.75	-4.19	995.44	-1,407.95	8,725.27	8,683.19	42.08	207.373	
13,000.00	6,941.25	3,337.00	3,088.56	104.82	23.75	-4.19	995.44	-1,407.95	8,815.38	8,773.14	42.24	208.697	
13,100.00	6,941.27	3,337.00	3,088.56	106.38	23.75	-4.19	995.44	-1,407.95	8,905.71	8,863.30	42.40	210.028	
13,200.00	6,941.29	3,337.00	3,088.56	107.95	23.75	-4.19	995.44	-1,407.95	8,996.24	8,953.67	42.56	211.367	
13,300.00	6,941.31	3,337.00	3,088.56	109.51	23.75	-4.19	995.44	-1,407.95	9,086.97	9,044.25	42.72	212.711	
13,400.00	6,941.34	3,337.00	3,088.56	111.08	23.75	-4.19	995.44	-1,407.95	9,177.89	9,135.01	42.87	214.062	
13,500.00	6,941.36	3,337.00	3,088.56	112.64	23.75	-4.19	995.44	-1,407.95	9,268.99	9,225.97	43.03	215.419	
13,600.00	6,941.38	3,337.00	3,088.56	114.21	23.75	-4.19	995.44	-1,407.95	9,360.28	9,317.11	43.18	216.780	
13,700.00	6,941.40	3,337.00	3,088.56	115.78	23.75	-4.19	995.44	-1,407.95	9,451.75	9,408.42	43.33	218.147	
13,800.00	6,941.42	3,337.00	3,088.56	117.35	23.75	-4.19	995.44	-1,407.95	9,543.39	9,499.91	43.47	219.518	
13,900.00	6,941.45	3,337.00	3,088.56	118.92	23.75	-4.19	995.44	-1,407.95	9,635.19	9,591.57	43.62	220.893	
14,000.00	6,941.47	3,337.00	3,088.56	120.49	23.75	-4.19	995.44	-1,407.95	9,727.16	9,683.39	43.76	222.271	
14,100.00	6,941.49	3,337.00	3,088.56	122.06	23.75	-4.19	995.44	-1,407.95	9,819.28	9,775.37	43.90	223.653	
14,200.00	6,941.51	3,337.00	3,088.56	123.64	23.75	-4.19	995.44	-1,407.95	9,911.55	9,867.51	44.04	225.038	
14,300.00	6,941.53	3,337.00	3,088.56	125.21	23.75	-4.19	995.44	-1,407.95	10,003.98	9,959.79	44.18	226.426	
14,400.00	6,941.56	3,337.00	3,088.56	126.78	23.75	-4.19	995.44	-1,407.95	10,096.54	10,052.23	44.32	227.816	
14,500.00	6,941.58	3,337.00	3,088.56	128.36	23.75	-4.19	995.44	-1,407.95	10,189.25	10,144.80	44.45	229.209	
14,600.00	6,941.60	3,337.00	3,088.56	129.93	23.75	-4.19	995.44	-1,407.95	10,282.10	10,237.51	44.59	230.603	
14,700.00	6,941.62	1,952.94	1,844.41	131.51	11.67	-1.78	871.18	-821.67	10,372.73	10,329.27	43.46	238.679	
14,800.00	6,941.64	1,949.00	1,840.98	133.08	11.63	-1.77	870.77	-819.77	10,460.24	10,416.61	43.63	239.752	
14,900.00	6,941.67	1,949.00	1,840.98	134.66	11.63	-1.77	870.77	-819.77	10,547.96	10,504.16	43.80	240.812	
15,000.00	6,941.69	1,949.00	1,840.98	136.24	11.63	-1.77	870.77	-819.77	10,635.91	10,591.94	43.97	241.881	
15,100.00	6,941.71	1,908.62	1,805.67	137.82	11.23	-1.72	866.93	-800.55	10,723.71	10,679.60	44.11	243.136	
15,200.00	6,941.73	1,898.60	1,796.87	139.40	11.13	-1.70	866.08	-795.86	10,811.87	10,767.60	44.26	244.254	
15,300.00	6,941.75	1,856.00	1,759.21	140.97	10.70	-1.66	862.91	-776.20	10,900.43	10,856.03	44.40	245.504	
15,400.00	6,941.78	1,856.00	1,759.21	142.55	10.70	-1.66	862.91	-776.20	10,988.79	10,944.23	44.56	246.583	
15,500.00	6,941.80	1,856.00	1,759.21	144.13	10.70	-1.66	862.91	-776.20	11,077.36	11,032.63	44.73	247.670	
15,600.00	6,941.82	1,856.00	1,759.21	145.72	10.70	-1.66	862.91	-776.20	11,166.11	11,121.23	44.89	248.765	
15,700.00	6,941.84	1,856.00	1,759.21	147.30	10.70	-1.66	862.91	-776.20	11,255.06	11,210.01	45.04	249.867	
15,800.00	6,941.87	1,826.53	1,733.01	148.88	10.42	-1.63	861.08	-762.82	11,344.09	11,298.90	45.19	251.028	
15,900.00	6,941.89	1,808.39	1,716.86	150.46	10.24	-1.61	860.04	-754.63	11,433.25	11,387.91	45.34	252.164	
16,000.00	6,941.91	1,763.00	1,676.34	152.04	9.81	-1.58	857.76	-734.30	11,522.59	11,477.11	45.48	253.332	
16,100.00	6,941.93	1,763.00	1,676.34	153.62	9.81	-1.58	857.76	-734.30	11,611.89	11,566.25	45.64	254.437	
16,200.00	6,941.95	1,763.00	1,676.34	155.21	9.81	-1.58	857.76	-734.30	11,701.36	11,655.57	45.79	255.549	
16,300.00	6,941.98	1,763.00	1,676.34	156.79	9.81	-1.58	857.76	-734.30	11,791.00	11,745.06	45.94	256.666	
16,400.00	6,942.00	1,718.12	1,636.15	158.37	9.40	-1.54	855.90	-714.41	11,880.60	11,834.52	46.09	257.787	
16,500.00	6,942.02	1,700.14	1,620.02	159.96	9.23	-1.53	855.26	-706.50	11,970.37	11,924.14	46.24	258.899	
16,600.00	6,942.04	1,670.00	1,592.93	161.54	8.95	-1.52	854.31	-693.32	12,060.25	12,013.87	46.39	260.002	
16,700.00	6,942.06	1,670.00	1,592.93	163.13	8.95	-1.52	854.31	-693.32	12,150.20	12,103.67	46.53	261.120	
16,800.00	6,942.09	1,670.00	1,592.93	164.71	8.95	-1.52	854.31	-693.32	12,240.30	12,193.63	46.68	262.242	
16,900.00	6,942.11	1,670.00	1,592.93	166.30	8.95	-1.52	854.31	-693.32	12,330.56	12,283.74	46.82	263.368	
17,000.00	6,942.13	1,628.28	1,555.32	167.88	8.58	-1.49	853.25	-675.28	12,420.72	12,373.75	46.97	264.428	
17,100.00	6,942.15	1,615.92	1,544.16	169.47	8.47	-1.49	853.00	-670.00	12,511.11	12,463.99	47.12	265.531	
17,200.00	6,942.17	1,575.00	1,507.08	171.05	8.11	-1.47	852.34	-652.70	12,601.72	12,554.44	47.27	266.573	
17,300.00	6,942.20	1,575.00	1,507.08	172.64	8.11	-1.47	852.34	-652.70	12,692.24	12,644.82	47.41	267.696	
17,400.00	6,942.22	1,575.00	1,507.08	174.23	8.11	-1.47	852.34	-652.70	12,782.89	12,735.34	47.55	268.823	
17,500.00	6,942.24	1,575.00	1,507.08	175.81	8.11	-1.47	852.34	-652.70	12,873.69	12,826.00	47.69	269.952	
17,600.00	6,942.26	1,544.26	1,479.15	177.40	7.85	-1.46	851.98	-639.85	12,964.54	12,916.70	47.84	270.978	
17,700.00	6,942.28	1,525.39	1,462.00	178.99	7.69	-1.45	851.77	-632.00	13,055.48	13,007.49	47.99	272.038	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
17,800.00	6,942.31	1,481.00	1,421.57	180.57	7.32	-1.44	851.35	-613.65	13,146.55	13,098.39	48.16	272.991	
17,900.00	6,942.33	1,481.00	1,421.57	182.16	7.32	-1.44	851.35	-613.65	13,237.58	13,189.29	48.29	274.115	
18,000.00	6,942.35	1,297.00	1,254.58	183.75	5.83	-1.34	845.55	-536.79	13,328.24	13,279.69	48.55	274.502	
18,100.00	6,942.37	1,297.00	1,254.58	185.34	5.83	-1.34	845.55	-536.79	13,418.96	13,370.27	48.69	275.601	
18,200.00	6,942.39	1,297.00	1,254.58	186.93	5.83	-1.34	845.55	-536.79	13,509.81	13,460.98	48.82	276.702	
18,300.00	6,942.42	1,297.00	1,254.58	188.52	5.83	-1.34	845.55	-536.79	13,600.78	13,551.82	48.96	277.806	
18,400.00	6,942.44	1,251.47	1,213.51	190.10	5.44	-1.29	841.52	-517.55	13,691.25	13,642.12	49.13	278.675	
18,500.00	6,942.46	1,246.54	1,209.03	191.69	5.40	-1.29	841.11	-515.53	13,782.33	13,733.07	49.26	279.762	
18,600.00	6,942.48	1,203.00	1,169.26	193.28	5.03	-1.24	837.67	-498.16	13,873.98	13,824.58	49.40	280.853	
18,700.00	6,942.51	1,203.00	1,169.26	194.87	5.03	-1.24	837.67	-498.16	13,965.16	13,915.63	49.53	281.953	
18,800.00	6,942.53	1,203.00	1,169.26	196.46	5.03	-1.24	837.67	-498.16	14,056.47	14,006.81	49.66	283.055	
18,900.00	6,942.55	1,203.00	1,169.26	198.05	5.03	-1.24	837.67	-498.16	14,147.90	14,098.11	49.79	284.158	
19,000.00	6,942.57	1,203.00	1,169.26	199.64	5.03	-1.24	837.67	-498.16	14,239.44	14,189.53	49.92	285.263	
19,100.00	6,942.59	1,203.00	1,169.26	201.23	5.03	-1.24	837.67	-498.16	14,331.10	14,281.06	50.04	286.369	
19,200.00	6,942.62	1,203.00	1,169.26	202.82	5.03	-1.24	837.67	-498.16	14,422.87	14,372.70	50.17	287.477	
19,300.00	6,942.64	1,203.00	1,169.26	204.41	5.03	-1.24	837.67	-498.16	14,514.74	14,464.45	50.30	288.586	
19,400.00	6,942.66	1,203.00	1,169.26	206.00	5.03	-1.24	837.67	-498.16	14,606.72	14,556.30	50.42	289.695	
19,500.00	6,942.68	1,203.00	1,169.26	207.59	5.03	-1.24	837.67	-498.16	14,698.81	14,648.26	50.55	290.806	
19,600.00	6,942.70	1,171.53	1,140.34	209.18	4.78	-1.22	835.40	-485.97	14,790.93	14,740.23	50.70	291.740	
19,700.00	6,942.73	1,152.54	1,122.86	210.78	4.63	-1.20	834.10	-478.64	14,883.11	14,832.28	50.84	292.746	
19,800.00	6,942.75	1,133.65	1,105.48	212.37	4.48	-1.18	832.88	-471.37	14,975.35	14,924.37	50.98	293.754	
19,900.00	6,942.77	1,109.00	1,082.76	213.96	4.28	-1.17	831.37	-461.91	15,067.64	15,016.52	51.12	294.737	
20,000.00	6,942.79	1,109.00	1,082.76	215.55	4.28	-1.17	831.37	-461.91	15,159.99	15,108.74	51.24	295.839	
20,100.00	6,942.81	1,109.00	1,082.76	217.14	4.28	-1.17	831.37	-461.91	15,252.43	15,201.06	51.36	296.943	
20,200.00	6,942.84	1,109.00	1,082.76	218.73	4.28	-1.17	831.37	-461.91	15,344.96	15,293.48	51.49	298.046	
20,300.00	6,942.86	1,109.00	1,082.76	220.32	4.28	-1.17	831.37	-461.91	15,437.59	15,385.99	51.60	299.149	
20,400.00	6,942.88	1,109.00	1,082.76	221.92	4.28	-1.17	831.37	-461.91	15,530.32	15,478.59	51.72	300.253	
20,500.00	6,942.90	1,109.00	1,082.76	223.51	4.28	-1.17	831.37	-461.91	15,623.13	15,571.28	51.84	301.356	
20,600.00	6,942.92	1,109.00	1,082.76	225.10	4.28	-1.17	831.37	-461.91	15,716.03	15,664.07	51.96	302.459	
20,700.00	6,942.95	1,067.50	1,044.38	226.69	3.97	-1.13	828.89	-446.32	15,808.63	15,756.50	52.13	303.268	
20,800.00	6,942.97	1,062.34	1,039.59	228.28	3.93	-1.13	828.59	-444.43	15,901.60	15,849.35	52.25	304.331	
20,900.00	6,942.99	1,057.23	1,034.84	229.88	3.89	-1.13	828.28	-442.56	15,994.64	15,942.27	52.37	305.394	
20,942.50	6,943.00	1,017.00	997.34	230.42	3.58	-1.10	825.86	-428.19	16,034.53	15,980.45	54.08	296.505	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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	-90.54	-102.95	-10,869.29	10,869.96				
58.45	58.45	0.00	0.00	0.02	0.00	31.17	-102.95	-10,869.29	10,869.47				
150.25	150.24	266.88	266.87	0.14	0.31	12.88	-101.84	-10,867.08	10,867.75	10,867.31	0.43	N/A	
239.43	239.42	542.52	542.40	0.25	0.64	7.42	-98.35	-10,860.17	10,864.47	10,863.60	0.86	N/A	
299.93	299.91	583.00	582.84	0.33	0.71	12.37	-97.90	-10,858.75	10,861.63	10,860.61	1.02	N/A	
446.00	445.96	625.14	624.96	0.50	0.80	36.80	-97.39	-10,857.52	10,855.45	10,854.17	1.28	8,508.783	
537.00	536.95	643.00	642.81	0.73	0.83	98.05	-96.99	-10,857.17	10,853.05	10,851.52	1.53	7,083.831	
589.50	589.45	643.00	642.81	0.88	0.83	159.39	-96.99	-10,857.17	10,852.68	10,850.99	1.69	6,426.350	CC, ES
624.00	623.95	643.00	642.81	0.99	0.83	-178.98	-96.99	-10,857.17	10,852.84	10,851.05	1.79	6,055.487	
718.00	717.90	673.00	672.81	1.29	0.89	-161.13	-96.53	-10,857.04	10,855.01	10,852.86	2.15	5,045.771	
811.00	810.73	673.00	672.81	1.60	0.89	-141.62	-96.53	-10,857.04	10,859.95	10,857.48	2.47	4,404.897	
903.00	902.19	673.00	672.81	1.92	0.89	-129.55	-96.53	-10,857.04	10,867.83	10,865.04	2.79	3,899.754	
994.00	992.38	687.80	687.61	2.24	0.92	-127.29	-96.37	-10,857.27	10,877.05	10,873.91	3.14	3,464.724	
1,084.00	1,081.50	704.00	703.79	2.56	0.95	-122.83	-96.04	-10,857.75	10,886.67	10,883.18	3.49	3,116.820	
1,175.00	1,171.48	704.00	703.79	2.91	0.95	-118.97	-96.04	-10,857.75	10,896.68	10,892.85	3.83	2,847.285	
1,268.00	1,263.52	704.00	703.79	3.26	0.95	-117.45	-96.04	-10,857.75	10,906.89	10,902.72	4.17	2,614.695	
1,363.00	1,357.62	733.00	732.76	3.63	1.00	-114.50	-95.44	-10,859.10	10,917.20	10,912.62	4.58	2,383.245	
1,457.00	1,450.74	733.00	732.76	3.99	1.00	-111.78	-95.44	-10,859.10	10,927.54	10,922.60	4.93	2,215.528	
1,552.00	1,544.82	733.00	732.76	4.36	1.00	-110.96	-95.44	-10,859.10	10,938.52	10,933.23	5.29	2,067.661	
1,646.00	1,637.88	764.00	763.66	4.72	1.07	-110.48	-94.40	-10,861.31	10,949.97	10,944.26	5.71	1,918.061	
1,741.00	1,731.94	764.00	763.66	5.09	1.07	-110.03	-94.40	-10,861.31	10,962.10	10,956.03	6.07	1,806.510	
1,835.00	1,825.07	764.00	763.66	5.46	1.07	-110.00	-94.40	-10,861.31	10,974.67	10,968.25	6.42	1,708.883	
1,929.00	1,918.39	777.84	777.42	5.82	1.11	-111.30	-93.69	-10,862.59	10,987.56	10,980.76	6.80	1,615.616	
2,024.00	2,012.84	794.00	793.47	6.18	1.15	-109.95	-92.88	-10,864.31	11,000.91	10,993.72	7.18	1,531.611	
2,118.00	2,106.19	794.00	793.47	6.53	1.15	-109.57	-92.88	-10,864.31	11,014.93	11,007.40	7.53	1,462.946	
2,213.00	2,200.37	794.00	793.47	6.90	1.15	-110.84	-92.88	-10,864.31	11,030.48	11,022.60	7.88	1,399.050	
2,307.00	2,293.61	825.00	824.18	7.27	1.22	-108.96	-91.31	-10,868.24	11,046.37	11,038.07	8.30	1,330.989	
2,402.00	2,387.91	825.00	824.18	7.63	1.22	-105.08	-91.31	-10,868.24	11,062.28	11,053.63	8.65	1,279.255	
2,496.00	2,481.29	825.00	824.18	7.99	1.22	-103.99	-91.31	-10,868.24	11,078.19	11,069.20	8.99	1,232.347	
2,591.00	2,575.67	825.00	824.18	8.35	1.22	-105.35	-91.31	-10,868.24	11,095.07	11,085.73	9.33	1,188.569	
2,686.00	2,670.05	855.00	853.80	8.71	1.29	-105.06	-90.31	-10,872.84	11,112.60	11,102.86	9.74	1,140.495	
2,780.00	2,763.49	855.00	853.80	9.07	1.29	-107.03	-90.31	-10,872.84	11,130.72	11,120.64	10.08	1,104.136	
2,875.00	2,857.94	869.45	868.04	9.43	1.33	-108.56	-90.08	-10,875.29	11,149.95	11,139.50	10.45	1,066.845	
2,970.00	2,952.51	886.00	884.33	9.79	1.37	-105.13	-89.81	-10,878.22	11,169.35	11,158.53	10.82	1,032.292	
3,064.00	3,046.19	886.00	884.33	10.13	1.37	-98.04	-89.81	-10,878.22	11,188.20	11,177.06	11.14	1,004.083	
3,159.00	3,140.98	886.00	884.33	10.47	1.37	-96.24	-89.81	-10,878.22	11,207.24	11,195.78	11.46	977.682	
3,253.00	3,234.84	886.00	884.33	10.81	1.37	-104.09	-89.81	-10,878.22	11,226.87	11,215.10	11.77	953.453	
3,348.00	3,329.74	886.00	884.33	11.14	1.37	-111.83	-89.81	-10,878.22	11,247.91	11,235.82	12.09	930.594	
3,397.00	3,378.70	917.20	914.90	11.32	1.45	-112.73	-89.14	-10,884.39	11,258.60	11,246.28	12.32	913.769	
3,488.00	3,469.63	948.00	944.86	11.64	1.53	-115.36	-88.15	-10,891.48	11,280.04	11,267.35	12.69	888.958	
3,583.00	3,564.49	948.00	944.86	11.98	1.53	-106.49	-88.15	-10,891.48	11,302.83	11,289.83	13.00	869.447	
3,677.00	3,658.13	948.00	944.86	12.33	1.53	-104.31	-88.15	-10,891.48	11,326.62	11,313.30	13.32	850.511	
3,772.00	3,752.42	948.00	944.86	12.69	1.53	-99.21	-88.15	-10,891.48	11,351.59	11,337.94	13.65	831.780	
3,867.00	3,846.42	960.28	956.74	13.06	1.58	-97.54	-87.66	-10,894.52	11,377.08	11,363.07	14.02	811.749	
3,961.00	3,939.30	978.00	973.87	13.44	1.64	-97.62	-86.82	-10,899.00	11,402.85	11,388.46	14.40	792.083	
4,056.00	4,032.83	992.99	988.32	13.82	1.69	-100.48	-86.01	-10,902.88	11,430.29	11,415.51	14.78	773.328	
4,151.00	4,126.01	1,010.00	1,004.69	14.21	1.76	-99.49	-85.03	-10,907.41	11,458.97	11,443.79	15.18	755.092	
4,246.00	4,219.10	1,010.00	1,004.69	14.61	1.76	-106.86	-85.03	-10,907.41	11,489.37	11,473.84	15.52	740.179	
4,340.00	4,310.92	1,010.00	1,004.69	15.01	1.76	-115.50	-85.03	-10,907.41	11,523.14	11,507.27	15.87	726.259	
4,435.00	4,403.54	1,041.00	1,034.33	15.41	1.90	-116.36	-82.96	-10,916.26	11,559.50	11,543.20	16.30	709.088	
4,498.00	4,465.21	1,041.00	1,034.33	15.68	1.90	-114.68	-82.96	-10,916.26	11,583.31	11,566.79	16.52	701.045	
4,561.00	4,526.82	1,041.00	1,034.33	15.95	1.90	-108.88	-82.96	-10,916.26	11,606.77	11,590.03	16.75	693.111	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
4,624.00	4,588.23	1,052.58	1,045.34	16.22	1.95	-107.02	-82.09	-10,919.75	11,630.13	11,613.12	17.01	683.716	
4,687.00	4,649.71	1,071.00	1,062.83	16.49	2.05	-106.75	-80.63	-10,925.34	11,653.34	11,636.05	17.30	673.789	
4,749.00	4,710.40	1,071.00	1,062.83	16.75	2.05	-105.80	-80.63	-10,925.34	11,676.02	11,658.50	17.51	666.634	
4,812.00	4,772.28	1,071.00	1,062.83	17.01	2.05	-105.34	-80.63	-10,925.34	11,698.86	11,681.13	17.73	659.685	
4,875.00	4,834.34	1,101.00	1,091.15	17.27	2.21	-106.08	-77.89	-10,934.84	11,721.68	11,703.63	18.05	649.377	
4,938.00	4,896.43	1,101.00	1,091.15	17.53	2.21	-106.16	-77.89	-10,934.84	11,744.68	11,726.41	18.26	643.020	
5,001.00	4,958.46	1,101.00	1,091.15	17.79	2.21	-109.23	-77.89	-10,934.84	11,768.37	11,749.89	18.48	636.817	
5,064.00	5,020.29	1,101.00	1,091.15	18.05	2.21	-113.01	-77.89	-10,934.84	11,793.36	11,774.67	18.70	630.741	
5,126.00	5,080.98	1,117.58	1,106.68	18.32	2.31	-117.28	-76.11	-10,940.34	11,819.19	11,800.22	18.97	622.979	
5,189.00	5,142.74	1,132.00	1,120.15	18.58	2.40	-115.94	-74.36	-10,945.21	11,845.73	11,826.49	19.24	615.766	
5,252.00	5,204.62	1,132.00	1,120.15	18.85	2.40	-116.05	-74.36	-10,945.21	11,872.10	11,852.66	19.45	610.489	
5,315.00	5,266.61	1,163.00	1,148.95	19.11	2.60	-116.54	-70.19	-10,955.88	11,898.44	11,878.67	19.77	601.692	
5,378.00	5,328.73	1,163.00	1,148.95	19.37	2.60	-116.23	-70.19	-10,955.88	11,924.67	11,904.69	19.98	596.865	
5,441.00	5,390.87	1,163.00	1,148.95	19.62	2.60	-116.67	-70.19	-10,955.88	11,951.10	11,930.92	20.18	592.171	
5,503.00	5,452.07	1,194.00	1,177.60	19.87	2.82	-116.60	-65.82	-10,966.89	11,977.20	11,956.70	20.51	584.072	
5,566.00	5,514.32	1,194.00	1,177.60	20.13	2.82	-116.93	-65.82	-10,966.89	12,003.78	11,983.07	20.71	579.739	
5,629.00	5,576.59	1,194.00	1,177.60	20.38	2.82	-114.61	-65.82	-10,966.89	12,030.41	12,009.50	20.90	575.525	
5,692.00	5,638.95	1,194.00	1,177.60	20.63	2.82	-117.17	-65.82	-10,966.89	12,057.06	12,035.97	21.10	571.466	
5,747.00	5,693.45	1,225.00	1,206.03	20.85	3.04	-115.00	-61.27	-10,978.38	12,080.36	12,058.96	21.40	564.493	
5,810.00	5,755.90	1,225.00	1,206.03	21.09	3.04	-115.80	-61.27	-10,978.38	12,107.02	12,085.43	21.59	560.717	
5,874.00	5,819.40	1,225.00	1,206.03	21.34	3.04	-114.79	-61.27	-10,978.38	12,134.17	12,112.38	21.78	557.016	
5,936.00	5,880.95	1,225.00	1,206.03	21.58	3.04	-115.08	-61.27	-10,978.38	12,160.60	12,138.63	21.97	553.530	
5,999.00	5,943.45	1,242.13	1,221.62	21.82	3.18	-116.52	-58.58	-10,984.95	12,187.85	12,165.61	22.24	548.103	
6,062.00	6,005.96	1,257.00	1,235.10	22.07	3.29	-114.00	-56.17	-10,990.74	12,215.29	12,192.80	22.49	543.087	
6,125.00	6,068.49	1,295.46	1,269.89	22.31	3.60	-116.45	-49.62	-11,005.78	12,242.79	12,219.93	22.86	535.492	
6,188.00	6,131.08	1,310.38	1,283.35	22.55	3.72	-114.86	-46.95	-11,011.63	12,270.22	12,247.10	23.12	530.692	
6,255.00	6,197.73	1,328.00	1,299.18	22.81	3.87	-116.23	-43.61	-11,018.62	12,299.28	12,275.88	23.40	525.583	
6,293.00	6,235.55	1,328.00	1,299.18	22.89	3.87	-116.23	-43.61	-11,018.62	12,315.79	12,292.34	23.45	525.162	
6,300.00	6,242.52	1,328.00	1,299.18	22.89	3.87	-116.23	-43.61	-11,018.62	12,318.84	12,295.39	23.45	525.304	
6,393.00	6,335.09	1,345.15	1,314.54	22.94	4.01	-116.22	-40.33	-11,025.52	12,359.62	12,336.09	23.54	525.156	
6,400.00	6,342.06	1,346.37	1,315.62	22.94	4.02	-122.13	-40.11	-11,026.01	12,362.75	12,339.20	23.54	525.139	
6,450.00	6,391.66	1,359.00	1,326.92	22.97	4.13	-149.41	-37.78	-11,031.15	12,387.12	12,363.50	23.61	524.609 SF	
6,500.00	6,440.77	1,359.00	1,326.92	23.02	4.13	-161.44	-37.78	-11,031.15	12,414.97	12,391.35	23.62	525.515	
6,550.00	6,489.07	1,359.00	1,326.92	23.07	4.13	-167.78	-37.78	-11,031.15	12,446.15	12,422.51	23.64	526.501	
6,600.00	6,536.26	1,372.74	1,339.18	23.13	4.25	-171.75	-35.26	-11,036.82	12,480.37	12,456.64	23.73	525.961	
6,650.00	6,582.05	1,391.00	1,355.41	23.21	4.41	-174.58	-31.84	-11,044.47	12,517.51	12,493.67	23.84	524.993	
6,700.00	6,626.13	1,391.00	1,355.41	23.29	4.41	-176.89	-31.84	-11,044.47	12,557.17	12,533.30	23.86	526.199	
6,750.00	6,668.24	1,391.00	1,355.41	23.39	4.41	-178.99	-31.84	-11,044.47	12,599.16	12,575.27	23.89	527.479	
6,800.00	6,708.12	1,391.00	1,355.41	23.51	4.41	178.86	-31.84	-11,044.47	12,643.20	12,619.29	23.91	528.833	
6,850.00	6,745.50	1,391.00	1,355.41	23.64	4.41	176.34	-31.84	-11,044.47	12,688.99	12,665.06	23.93	530.264	
6,900.00	6,780.15	1,391.00	1,355.41	23.79	4.41	172.96	-31.84	-11,044.47	12,736.23	12,712.28	23.95	531.771	
6,950.00	6,811.86	1,391.00	1,355.41	23.95	4.41	167.63	-31.84	-11,044.47	12,784.60	12,760.63	23.97	533.357	
7,000.00	6,840.42	1,391.00	1,355.41	24.14	4.41	157.14	-31.84	-11,044.47	12,833.78	12,809.79	23.99	535.021	
7,050.00	6,865.66	1,391.00	1,355.41	24.35	4.41	129.35	-31.84	-11,044.47	12,883.47	12,859.47	24.00	536.759	
7,100.00	6,887.42	1,391.00	1,355.41	24.57	4.41	69.36	-31.84	-11,044.47	12,933.34	12,909.32	24.01	538.566	
7,150.00	6,905.55	1,391.00	1,355.41	24.82	4.41	36.63	-31.84	-11,044.47	12,983.07	12,959.05	24.02	540.431	
7,200.00	6,919.95	1,391.00	1,355.41	25.10	4.41	24.92	-31.84	-11,044.47	13,032.37	13,008.34	24.03	542.341	
7,250.00	6,930.52	1,391.00	1,355.41	25.39	4.41	19.43	-31.84	-11,044.47	13,080.91	13,056.88	24.03	544.276	
7,300.00	6,937.20	1,391.00	1,355.41	25.70	4.41	16.31	-31.84	-11,044.47	13,128.42	13,104.38	24.04	546.213	
7,350.00	6,939.94	1,391.00	1,355.41	26.04	4.41	14.34	-31.84	-11,044.47	13,174.60	13,150.56	24.04	548.126	
7,359.60	6,940.02	1,391.00	1,355.41	26.10	4.41	14.05	-31.84	-11,044.47	13,183.29	13,159.26	24.03	548.552	
7,400.00	6,940.03	1,391.00	1,355.41	26.39	4.41	14.05	-31.84	-11,044.47	13,219.74	13,195.70	24.04	549.947	

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 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
7,500.00	6,940.04	1,391.00	1,355.41	27.15	4.41	14.05	-31.84	-11,044.47	13,310.08	13,286.02	24.06	553.257	
7,600.00	6,940.06	1,374.65	1,340.88	27.99	4.27	14.04	-34.91	-11,037.61	13,400.48	13,376.48	24.00	558.370	
7,659.60	6,940.07	1,359.00	1,326.92	28.52	4.13	14.03	-37.78	-11,031.15	13,454.48	13,430.54	23.94	562.080	
7,700.00	6,940.08	1,359.00	1,326.92	28.89	4.13	12.35	-37.78	-11,031.15	13,491.08	13,467.13	23.95	563.261	
7,796.63	6,940.10	1,359.00	1,326.92	29.83	4.13	8.20	-37.78	-11,031.15	13,578.93	13,554.93	24.00	565.834	
7,800.00	6,940.10	1,359.00	1,326.92	29.86	4.13	8.20	-37.78	-11,031.15	13,582.00	13,558.00	24.00	565.911	
7,900.00	6,940.12	1,359.00	1,326.92	30.90	4.13	8.20	-37.78	-11,031.15	13,673.15	13,649.10	24.06	568.343	
8,000.00	6,940.14	1,359.00	1,326.92	31.98	4.13	8.20	-37.78	-11,031.15	13,764.43	13,740.31	24.12	570.662	
8,100.00	6,940.17	1,342.69	1,312.33	33.11	3.99	8.21	-40.80	-11,024.52	13,855.78	13,831.67	24.11	574.788	
8,200.00	6,940.19	1,328.00	1,299.18	34.28	3.87	8.22	-43.61	-11,018.62	13,947.24	13,923.14	24.10	578.628	
8,300.00	6,940.21	1,328.00	1,299.18	35.48	3.87	8.22	-43.61	-11,018.62	14,038.79	14,014.61	24.18	580.614	
8,400.00	6,940.23	1,328.00	1,299.18	36.71	3.87	8.22	-43.61	-11,018.62	14,130.44	14,106.19	24.26	582.501	
8,500.00	6,940.25	1,328.00	1,299.18	37.97	3.87	8.22	-43.61	-11,018.62	14,222.21	14,197.87	24.34	584.294	
8,600.00	6,940.28	1,297.00	1,271.28	39.26	3.61	8.23	-49.36	-11,006.38	14,314.05	14,289.77	24.28	589.555	
8,700.00	6,940.30	1,297.00	1,271.28	40.56	3.61	8.23	-49.36	-11,006.38	14,405.95	14,381.58	24.37	591.144	
8,800.00	6,940.32	1,257.00	1,235.10	41.89	3.29	8.25	-56.17	-10,990.74	14,497.95	14,473.66	24.28	597.005	
8,900.00	6,940.34	1,257.00	1,235.10	43.24	3.29	8.25	-56.17	-10,990.74	14,589.96	14,565.58	24.38	598.392	
9,000.00	6,940.36	1,257.00	1,235.10	44.60	3.29	8.25	-56.17	-10,990.74	14,682.07	14,657.59	24.48	599.702	
9,100.00	6,940.39	1,240.39	1,220.04	45.98	3.16	8.25	-58.86	-10,984.27	14,774.22	14,749.70	24.52	602.645	
9,200.00	6,940.41	1,225.00	1,206.03	47.38	3.04	8.26	-61.27	-10,978.38	14,866.51	14,841.95	24.56	605.375	
9,300.00	6,940.43	1,225.00	1,206.03	48.78	3.04	8.26	-61.27	-10,978.38	14,958.84	14,934.17	24.67	606.442	
9,400.00	6,940.45	1,225.00	1,206.03	50.20	3.04	8.26	-61.27	-10,978.38	15,051.27	15,026.49	24.78	607.444	
9,500.00	6,940.47	1,225.00	1,206.03	51.63	3.04	8.26	-61.27	-10,978.38	15,143.80	15,118.91	24.89	608.386	
9,600.00	6,940.50	1,225.00	1,206.03	53.07	3.04	8.26	-61.27	-10,978.38	15,236.42	15,211.41	25.01	609.271	
9,700.00	6,940.52	1,225.00	1,206.03	54.52	3.04	8.26	-61.27	-10,978.38	15,329.13	15,304.01	25.13	610.102	
9,800.00	6,940.54	1,225.00	1,206.03	55.97	3.04	8.26	-61.27	-10,978.38	15,421.94	15,396.69	25.25	610.882	
9,900.00	6,940.56	1,194.00	1,177.60	57.44	2.82	8.26	-65.82	-10,966.89	15,514.80	15,489.54	25.25	614.393	
10,000.00	6,940.59	1,194.00	1,177.60	58.91	2.82	8.26	-65.82	-10,966.89	15,607.70	15,582.33	25.38	615.046	
10,100.00	6,940.61	1,194.00	1,177.60	60.38	2.82	8.26	-65.82	-10,966.89	15,700.70	15,675.20	25.50	615.657	
10,200.00	6,940.63	1,194.00	1,177.60	61.87	2.82	8.26	-65.82	-10,966.89	15,793.78	15,768.15	25.63	616.228	
10,300.00	6,940.65	1,194.00	1,177.60	63.36	2.82	8.26	-65.82	-10,966.89	15,886.95	15,861.19	25.76	616.762	
10,400.00	6,940.67	1,194.00	1,177.60	64.85	2.82	8.26	-65.82	-10,966.89	15,980.20	15,954.31	25.89	617.261	
10,500.00	6,940.70	1,194.00	1,177.60	66.35	2.82	8.26	-65.82	-10,966.89	16,073.52	16,047.50	26.02	617.728	
10,600.00	6,940.72	1,194.00	1,177.60	67.86	2.82	8.26	-65.82	-10,966.89	16,166.93	16,140.78	26.15	618.164	
10,700.00	6,940.74	1,177.20	1,162.09	69.36	2.70	8.26	-68.19	-10,960.87	16,260.35	16,234.12	26.23	619.863	
10,800.00	6,940.76	1,163.00	1,148.95	70.88	2.60	8.26	-70.19	-10,955.88	16,353.90	16,327.58	26.32	621.309	
10,900.00	6,940.78	1,163.00	1,148.95	72.39	2.60	8.26	-70.19	-10,955.88	16,447.47	16,421.01	26.46	621.631	
11,000.00	6,940.81	1,163.00	1,148.95	73.91	2.60	8.26	-70.19	-10,955.88	16,541.12	16,514.53	26.60	621.931	
11,100.00	6,940.83	1,163.00	1,148.95	75.44	2.60	8.26	-70.19	-10,955.88	16,634.84	16,608.11	26.74	622.210	
11,200.00	6,940.85	1,163.00	1,148.95	76.96	2.60	8.26	-70.19	-10,955.88	16,728.64	16,701.77	26.87	622.470	
11,300.00	6,940.87	1,147.29	1,134.38	78.49	2.50	8.26	-72.35	-10,950.44	16,822.46	16,795.49	26.97	623.771	
11,400.00	6,940.89	1,132.00	1,120.15	80.03	2.40	8.26	-74.36	-10,945.21	16,916.38	16,889.31	27.07	625.002	
11,500.00	6,940.92	1,132.00	1,120.15	81.56	2.40	8.26	-74.36	-10,945.21	17,010.32	16,983.11	27.21	625.179	
11,600.00	6,940.94	1,132.00	1,120.15	83.10	2.40	8.26	-74.36	-10,945.21	17,104.34	17,076.98	27.35	625.343	
11,700.00	6,940.96	1,132.00	1,120.15	84.64	2.40	8.26	-74.36	-10,945.21	17,198.42	17,170.92	27.50	625.495	
11,800.00	6,940.98	1,132.00	1,120.15	86.18	2.40	8.26	-74.36	-10,945.21	17,292.56	17,264.92	27.64	625.636	
11,900.00	6,941.00	1,117.45	1,106.57	87.72	2.31	8.26	-76.12	-10,940.30	17,386.73	17,358.98	27.75	626.586	
12,000.00	6,941.03	1,101.00	1,091.15	89.27	2.21	8.25	-77.89	-10,934.84	17,481.00	17,453.15	27.85	627.606	
12,100.00	6,941.05	1,101.00	1,091.15	90.82	2.21	8.25	-77.89	-10,934.84	17,575.28	17,547.28	28.00	627.690	
12,200.00	6,941.07	1,101.00	1,091.15	92.37	2.21	8.25	-77.89	-10,934.84	17,669.63	17,641.48	28.15	627.767	
12,300.00	6,941.09	1,101.00	1,091.15	93.92	2.21	8.25	-77.89	-10,934.84	17,764.03	17,735.74	28.29	627.838	
12,400.00	6,941.11	1,101.00	1,091.15	95.47	2.21	8.25	-77.89	-10,934.84	17,858.50	17,830.06	28.44	627.903	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
12,500.00	6,941.14	1,101.00	1,091.15	97.03	2.21	8.25	-77.89	-10,934.84	17,953.03	17,924.44	28.59	627.964	
12,600.00	6,941.16	1,101.00	1,091.15	98.58	2.21	8.25	-77.89	-10,934.84	18,047.61	18,018.87	28.74	628.020	
12,700.00	6,941.18	1,101.00	1,091.15	100.14	2.21	8.25	-77.89	-10,934.84	18,142.26	18,113.37	28.89	628.073	
12,800.00	6,941.20	1,101.00	1,091.15	101.70	2.21	8.25	-77.89	-10,934.84	18,236.96	18,207.92	29.03	628.123	
12,900.00	6,941.23	1,101.00	1,091.15	103.26	2.21	8.25	-77.89	-10,934.84	18,331.71	18,302.53	29.18	628.170	
13,000.00	6,941.25	1,086.61	1,077.60	104.82	2.13	8.25	-79.27	-10,930.19	18,426.43	18,397.13	29.30	628.815	
13,100.00	6,941.27	1,071.00	1,062.83	106.38	2.05	8.24	-80.63	-10,925.34	18,521.36	18,491.93	29.42	629.490	
13,200.00	6,941.29	1,071.00	1,062.83	107.95	2.05	8.24	-80.63	-10,925.34	18,616.23	18,586.65	29.57	629.509	
13,300.00	6,941.31	1,071.00	1,062.83	109.51	2.05	8.24	-80.63	-10,925.34	18,711.15	18,681.43	29.72	629.529	
13,400.00	6,941.34	1,071.00	1,062.83	111.08	2.05	8.24	-80.63	-10,925.34	18,806.13	18,776.25	29.87	629.548	
13,500.00	6,941.36	1,071.00	1,062.83	112.64	2.05	8.24	-80.63	-10,925.34	18,901.15	18,871.13	30.02	629.568	
13,600.00	6,941.38	1,071.00	1,062.83	114.21	2.05	8.24	-80.63	-10,925.34	18,996.23	18,966.06	30.17	629.589	
13,700.00	6,941.40	1,071.00	1,062.83	115.78	2.05	8.24	-80.63	-10,925.34	19,091.36	19,061.04	30.32	629.610	
13,800.00	6,941.42	1,071.00	1,062.83	117.35	2.05	8.24	-80.63	-10,925.34	19,186.54	19,156.07	30.47	629.633	
13,900.00	6,941.45	1,071.00	1,062.83	118.92	2.05	8.24	-80.63	-10,925.34	19,281.77	19,251.14	30.62	629.657	
14,000.00	6,941.47	1,058.95	1,051.39	120.49	1.99	8.23	-81.60	-10,921.68	19,377.03	19,346.27	30.75	630.059	
14,100.00	6,941.49	1,041.00	1,034.33	122.06	1.90	8.22	-82.96	-10,916.26	19,472.34	19,441.46	30.88	630.627	
14,200.00	6,941.51	1,041.00	1,034.33	123.64	1.90	8.22	-82.96	-10,916.26	19,567.66	19,536.63	31.03	630.638	
14,300.00	6,941.53	1,041.00	1,034.33	125.21	1.90	8.22	-82.96	-10,916.26	19,663.03	19,631.85	31.18	630.651	
14,400.00	6,941.56	1,041.00	1,034.33	126.78	1.90	8.22	-82.96	-10,916.26	19,758.44	19,727.12	31.33	630.668	
14,500.00	6,941.58	1,041.00	1,034.33	128.36	1.90	8.22	-82.96	-10,916.26	19,853.91	19,822.43	31.48	630.687	
14,600.00	6,941.60	1,041.00	1,034.33	129.93	1.90	8.22	-82.96	-10,916.26	19,949.41	19,917.78	31.63	630.708	
14,700.00	6,941.62	1,041.00	1,034.33	131.51	1.90	8.22	-82.96	-10,916.26	20,044.96	20,013.18	31.78	630.733	
14,800.00	6,941.64	1,041.00	1,034.33	133.08	1.90	8.22	-82.96	-10,916.26	20,140.55	20,108.62	31.93	630.761	
14,900.00	6,941.67	1,041.00	1,034.33	134.66	1.90	8.22	-82.96	-10,916.26	20,236.19	20,204.11	32.08	630.792	
15,000.00	6,941.69	1,041.00	1,034.33	136.24	1.90	8.22	-82.96	-10,916.26	20,331.86	20,299.63	32.23	630.826	
15,100.00	6,941.71	1,041.00	1,034.33	137.82	1.90	8.22	-82.96	-10,916.26	20,427.58	20,395.20	32.38	630.863	
15,200.00	6,941.73	1,041.00	1,034.33	139.40	1.90	8.22	-82.96	-10,916.26	20,523.34	20,490.81	32.53	630.904	
15,300.00	6,941.75	1,026.03	1,020.05	140.97	1.83	8.21	-84.01	-10,911.87	20,619.02	20,586.36	32.66	631.259	
15,400.00	6,941.78	1,010.00	1,004.69	142.55	1.76	8.20	-85.03	-10,907.41	20,714.95	20,682.16	32.80	631.627	
15,500.00	6,941.80	1,010.00	1,004.69	144.13	1.76	8.20	-85.03	-10,907.41	20,810.79	20,777.84	32.95	631.663	
15,600.00	6,941.82	1,010.00	1,004.69	145.72	1.76	8.20	-85.03	-10,907.41	20,906.66	20,873.57	33.10	631.703	
15,700.00	6,941.84	1,010.00	1,004.69	147.30	1.76	8.20	-85.03	-10,907.41	21,002.58	20,969.33	33.25	631.747	
15,800.00	6,941.87	1,010.00	1,004.69	148.88	1.76	8.20	-85.03	-10,907.41	21,098.53	21,065.13	33.39	631.795	
15,900.00	6,941.89	1,010.00	1,004.69	150.46	1.76	8.20	-85.03	-10,907.41	21,194.51	21,160.97	33.54	631.846	
16,000.00	6,941.91	1,010.00	1,004.69	152.04	1.76	8.20	-85.03	-10,907.41	21,290.54	21,256.85	33.69	631.900	
16,100.00	6,941.93	1,010.00	1,004.69	153.62	1.76	8.20	-85.03	-10,907.41	21,386.60	21,352.76	33.84	631.959	
16,200.00	6,941.95	1,010.00	1,004.69	155.21	1.76	8.20	-85.03	-10,907.41	21,482.70	21,448.71	33.99	632.021	
16,300.00	6,941.98	1,010.00	1,004.69	156.79	1.76	8.20	-85.03	-10,907.41	21,578.83	21,544.69	34.14	632.086	
16,400.00	6,942.00	1,010.00	1,004.69	158.37	1.76	8.20	-85.03	-10,907.41	21,675.00	21,640.71	34.29	632.155	
16,500.00	6,942.02	1,010.00	1,004.69	159.96	1.76	8.20	-85.03	-10,907.41	21,771.20	21,736.77	34.44	632.228	
16,600.00	6,942.04	1,010.00	1,004.69	161.54	1.76	8.20	-85.03	-10,907.41	21,867.44	21,832.86	34.58	632.303	
16,700.00	6,942.06	1,010.00	1,004.69	163.13	1.76	8.20	-85.03	-10,907.41	21,963.71	21,928.98	34.73	632.383	
16,800.00	6,942.09	1,010.00	1,004.69	164.71	1.76	8.20	-85.03	-10,907.41	22,060.02	22,025.14	34.88	632.466	
16,900.00	6,942.11	1,010.00	1,004.69	166.30	1.76	8.20	-85.03	-10,907.41	22,156.35	22,121.32	35.03	632.552	
17,000.00	6,942.13	1,010.00	1,004.69	167.88	1.76	8.20	-85.03	-10,907.41	22,252.72	22,217.55	35.17	632.641	
17,100.00	6,942.15	1,010.00	1,004.69	169.47	1.76	8.20	-85.03	-10,907.41	22,349.12	22,313.80	35.32	632.734	
17,200.00	6,942.17	1,010.00	1,004.69	171.05	1.76	8.20	-85.03	-10,907.41	22,445.55	22,410.08	35.47	632.830	
17,300.00	6,942.20	993.47	988.79	172.64	1.69	8.19	-85.99	-10,903.00	22,541.94	22,506.34	35.61	633.099	
17,400.00	6,942.22	978.00	973.87	174.23	1.64	8.17	-86.82	-10,899.00	22,638.46	22,602.72	35.74	633.351	
17,500.00	6,942.24	978.00	973.87	175.81	1.64	8.17	-86.82	-10,899.00	22,734.95	22,699.06	35.89	633.446	
17,600.00	6,942.26	978.00	973.87	177.40	1.64	8.17	-86.82	-10,899.00	22,831.47	22,795.43	36.04	633.545	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
17,700.00	6,942.28	978.00	973.87	178.99	1.64	8.17	-86.82	-10,899.00	22,928.02	22,891.83	36.18	633.646	
17,800.00	6,942.31	978.00	973.87	180.57	1.64	8.17	-86.82	-10,899.00	23,024.59	22,988.26	36.33	633.750	
17,900.00	6,942.33	978.00	973.87	182.16	1.64	8.17	-86.82	-10,899.00	23,121.20	23,084.72	36.48	633.858	
18,000.00	6,942.35	978.00	973.87	183.75	1.64	8.17	-86.82	-10,899.00	23,217.83	23,181.21	36.62	633.968	
18,100.00	6,942.37	978.00	973.87	185.34	1.64	8.17	-86.82	-10,899.00	23,314.50	23,277.73	36.77	634.081	
18,200.00	6,942.39	978.00	973.87	186.93	1.64	8.17	-86.82	-10,899.00	23,411.19	23,374.27	36.91	634.198	
18,300.00	6,942.42	978.00	973.87	188.52	1.64	8.17	-86.82	-10,899.00	23,507.91	23,470.85	37.06	634.317	
18,400.00	6,942.44	978.00	973.87	190.10	1.64	8.17	-86.82	-10,899.00	23,604.65	23,567.45	37.21	634.438	
18,500.00	6,942.46	963.99	960.33	191.69	1.59	8.16	-87.49	-10,895.45	23,701.39	23,664.05	37.35	634.630	
18,600.00	6,942.48	948.00	944.86	193.28	1.53	8.15	-88.15	-10,891.48	23,798.21	23,760.72	37.49	634.824	
18,700.00	6,942.51	948.00	944.86	194.87	1.53	8.15	-88.15	-10,891.48	23,895.00	23,857.37	37.63	634.948	
18,800.00	6,942.53	948.00	944.86	196.46	1.53	8.15	-88.15	-10,891.48	23,991.82	23,954.04	37.78	635.075	
18,900.00	6,942.55	948.00	944.86	198.05	1.53	8.15	-88.15	-10,891.48	24,088.67	24,050.75	37.92	635.204	
19,000.00	6,942.57	948.00	944.86	199.64	1.53	8.15	-88.15	-10,891.48	24,185.54	24,147.47	38.07	635.336	
19,100.00	6,942.59	948.00	944.86	201.23	1.53	8.15	-88.15	-10,891.48	24,282.44	24,244.23	38.21	635.470	
19,200.00	6,942.62	948.00	944.86	202.82	1.53	8.15	-88.15	-10,891.48	24,379.36	24,341.01	38.36	635.606	
19,300.00	6,942.64	948.00	944.86	204.41	1.53	8.15	-88.15	-10,891.48	24,476.31	24,437.81	38.50	635.745	
19,400.00	6,942.66	948.00	944.86	206.00	1.53	8.15	-88.15	-10,891.48	24,573.28	24,534.64	38.64	635.886	
19,500.00	6,942.68	948.00	944.86	207.59	1.53	8.15	-88.15	-10,891.48	24,670.28	24,631.49	38.79	636.029	
19,600.00	6,942.70	948.00	944.86	209.18	1.53	8.15	-88.15	-10,891.48	24,767.30	24,728.37	38.93	636.175	
19,700.00	6,942.73	948.00	944.86	210.78	1.53	8.15	-88.15	-10,891.48	24,864.35	24,825.27	39.08	636.322	
19,800.00	6,942.75	948.00	944.86	212.37	1.53	8.15	-88.15	-10,891.48	24,961.41	24,922.19	39.22	636.472	
19,900.00	6,942.77	948.00	944.86	213.96	1.53	8.15	-88.15	-10,891.48	25,058.50	25,019.14	39.36	636.623	
20,000.00	6,942.79	948.00	944.86	215.55	1.53	8.15	-88.15	-10,891.48	25,155.62	25,116.11	39.50	636.777	
20,100.00	6,942.81	948.00	944.86	217.14	1.53	8.15	-88.15	-10,891.48	25,252.75	25,213.10	39.65	636.932	
20,200.00	6,942.84	948.00	944.86	218.73	1.53	8.15	-88.15	-10,891.48	25,349.91	25,310.12	39.79	637.089	
20,300.00	6,942.86	948.00	944.86	220.32	1.53	8.15	-88.15	-10,891.48	25,447.09	25,407.16	39.93	637.248	
20,400.00	6,942.88	948.00	944.86	221.92	1.53	8.15	-88.15	-10,891.48	25,544.29	25,504.22	40.08	637.409	
20,500.00	6,942.90	948.00	944.86	223.51	1.53	8.15	-88.15	-10,891.48	25,641.52	25,601.30	40.22	637.571	
20,600.00	6,942.92	948.00	944.86	225.10	1.53	8.15	-88.15	-10,891.48	25,738.76	25,698.40	40.36	637.735	
20,700.00	6,942.95	948.00	944.86	226.69	1.53	8.15	-88.15	-10,891.48	25,836.03	25,795.52	40.50	637.900	
20,800.00	6,942.97	948.00	944.86	228.28	1.53	8.15	-88.15	-10,891.48	25,933.31	25,892.67	40.64	638.067	
20,900.00	6,942.99	948.00	944.86	229.88	1.53	8.15	-88.15	-10,891.48	26,030.62	25,989.83	40.79	638.236	
20,942.50	6,943.00	948.00	944.86	230.42	1.53	8.15	-88.15	-10,891.48	26,071.98	26,028.22	43.76	595.750	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**Offset TVD Reference:**	Offset Datum

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

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

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	-46.41	479.92	-504.08	698.76				
58.45	58.45	0.00	0.00	0.02	0.00	75.34	479.92	-504.08	695.92	695.91	0.01	N/A	
150.25	150.24	90.07	90.07	0.14	0.10	57.12	479.83	-504.00	695.36	695.18	0.19	3,693.617	
239.43	239.42	181.09	181.08	0.25	0.20	51.71	479.57	-503.76	694.40	694.02	0.37	1,855.089	
299.93	299.91	242.83	242.83	0.33	0.27	56.71	479.28	-503.50	693.58	693.07	0.50	1,384.320	
446.00	445.96	386.22	386.22	0.50	0.46	81.28	478.37	-502.73	691.61	690.76	0.86	805.285	
460.56	460.52	397.86	397.85	0.54	0.49	86.24	478.34	-502.74	691.57	690.64	0.92	749.879	CC, ES
537.00	536.95	455.95	455.93	0.73	0.60	142.61	478.79	-503.35	692.86	691.61	1.25	552.163	
624.00	623.95	515.91	515.82	0.99	0.73	-134.38	480.74	-505.42	697.86	696.19	1.67	418.602	
718.00	717.90	578.29	577.97	1.29	0.88	-116.53	484.44	-509.32	707.44	705.31	2.12	333.292	
811.00	810.73	640.97	640.11	1.60	1.04	-97.07	490.07	-515.23	720.87	718.29	2.58	279.311	
903.00	902.19	702.57	700.81	1.92	1.21	-85.22	497.42	-522.62	736.49	733.45	3.04	242.340	
994.00	992.38	762.23	759.16	2.24	1.42	-83.60	506.25	-531.43	754.48	750.98	3.50	215.847	
1,084.00	1,081.50	818.19	813.38	2.56	1.67	-79.56	516.11	-541.12	775.04	771.09	3.95	196.252	
1,175.00	1,171.48	874.00	866.86	2.91	1.95	-76.30	527.55	-552.21	798.47	794.06	4.41	181.100	
1,268.00	1,263.52	936.00	925.52	3.26	2.31	-75.44	541.89	-566.22	825.49	820.59	4.90	168.454	
1,363.00	1,357.62	999.00	984.45	3.63	2.71	-73.02	557.74	-581.87	855.75	850.35	5.40	158.354	
1,457.00	1,450.74	1,056.47	1,037.45	3.99	3.13	-70.69	573.76	-597.26	888.22	882.33	5.89	150.893	
1,552.00	1,544.82	1,108.94	1,085.09	4.36	3.55	-70.10	589.67	-612.45	923.81	917.46	6.35	145.452	
1,646.00	1,637.88	1,155.00	1,126.30	4.72	3.94	-69.86	604.46	-626.73	961.90	955.12	6.78	141.879	
1,741.00	1,731.94	1,217.00	1,180.74	5.09	4.51	-69.72	626.18	-646.94	1,003.14	995.84	7.30	137.411	
1,835.00	1,825.07	1,279.00	1,234.28	5.46	5.13	-70.02	649.39	-667.86	1,046.27	1,038.44	7.83	133.666	
1,929.00	1,918.39	1,329.69	1,277.30	5.82	5.66	-71.81	669.38	-685.74	1,092.14	1,083.83	8.31	131.469	
2,024.00	2,012.84	1,385.95	1,324.31	6.18	6.28	-70.64	692.10	-706.67	1,140.93	1,132.15	8.78	129.986	
2,118.00	2,106.19	1,436.00	1,365.60	6.53	6.86	-69.71	712.81	-725.95	1,190.55	1,181.32	9.23	128.988	
2,213.00	2,200.37	1,498.00	1,416.09	6.90	7.59	-70.94	738.49	-751.16	1,242.00	1,232.23	9.77	127.087	
2,307.00	2,293.61	1,561.00	1,466.91	7.27	8.35	-69.66	764.24	-778.04	1,294.15	1,283.83	10.33	125.335	
2,402.00	2,387.91	1,620.31	1,514.28	7.63	9.11	-66.01	788.88	-803.85	1,347.62	1,336.76	10.85	124.161	
2,496.00	2,481.29	1,678.47	1,560.18	7.99	9.86	-65.39	813.80	-829.43	1,401.46	1,390.09	11.37	123.216	
2,591.00	2,575.67	1,747.00	1,613.85	8.35	10.72	-66.42	843.73	-859.77	1,456.66	1,444.68	11.98	121.604	
2,686.00	2,670.05	1,805.12	1,658.99	8.71	11.49	-66.53	869.49	-885.79	1,512.70	1,500.19	12.51	120.938	
2,780.00	2,763.49	1,892.77	1,726.88	9.07	12.60	-68.28	908.84	-924.83	1,568.55	1,555.27	13.28	118.144	
2,875.00	2,857.94	1,999.37	1,810.39	9.43	13.91	-70.00	956.87	-970.46	1,623.98	1,609.78	14.20	114.384	
2,970.00	2,952.51	2,137.89	1,921.29	9.79	15.59	-66.97	1,016.05	-1,028.62	1,677.61	1,662.26	15.35	109.289	
3,064.00	3,046.19	2,233.24	1,999.09	10.13	16.69	-60.15	1,056.64	-1,065.95	1,728.21	1,712.06	16.15	107.043	
3,159.00	3,140.98	2,363.96	2,106.49	10.47	18.17	-58.44	1,111.86	-1,115.91	1,778.77	1,761.58	17.19	103.467	
3,253.00	3,234.84	3,253.00	2,925.31	10.81	24.19	-65.83	1,337.18	-1,331.44	1,810.70	1,789.59	21.11	85.775	
3,348.00	3,329.74	3,253.00	2,925.31	11.14	24.19	-73.50	1,337.18	-1,331.44	1,824.63	1,803.10	21.53	84.745	
3,397.00	3,378.70	3,253.00	2,925.31	11.32	24.19	-74.39	1,337.18	-1,331.44	1,833.90	1,812.18	21.73	84.408	
3,488.00	3,469.63	3,253.00	2,925.31	11.64	24.19	-77.02	1,337.18	-1,331.44	1,854.63	1,832.58	22.05	84.105	SF
3,583.00	3,564.49	3,253.00	2,925.31	11.98	24.19	-68.14	1,337.18	-1,331.44	1,880.02	1,857.67	22.35	84.114	
3,677.00	3,658.13	3,253.00	2,925.31	12.33	24.19	-65.94	1,337.18	-1,331.44	1,908.03	1,885.42	22.62	84.356	
3,772.00	3,752.42	3,253.00	2,925.31	12.69	24.19	-60.87	1,337.18	-1,331.44	1,938.79	1,915.92	22.86	84.800	
3,867.00	3,846.42	3,253.00	2,925.31	13.06	24.19	-59.22	1,337.18	-1,331.44	1,972.15	1,949.08	23.08	85.466	
3,961.00	3,939.30	3,253.00	2,925.31	13.44	24.19	-59.23	1,337.18	-1,331.44	2,008.53	1,985.28	23.25	86.385	
4,056.00	4,032.83	3,253.00	2,925.31	13.82	24.19	-61.72	1,337.18	-1,331.44	2,048.52	2,025.12	23.40	87.526	
4,151.00	4,126.01	3,253.00	2,925.31	14.21	24.19	-60.70	1,337.18	-1,331.44	2,091.52	2,067.99	23.54	88.861	
4,246.00	4,219.10	3,253.00	2,925.31	14.61	24.19	-67.58	1,337.18	-1,331.44	2,138.54	2,114.89	23.65	90.436	
4,340.00	4,310.92	3,253.00	2,925.31	15.01	24.19	-75.10	1,337.18	-1,331.44	2,189.93	2,166.18	23.75	92.211	
4,435.00	4,403.54	3,253.00	2,925.31	15.41	24.19	-76.16	1,337.18	-1,331.44	2,245.76	2,221.92	23.84	94.215	
4,498.00	4,465.21	3,253.00	2,925.31	15.68	24.19	-75.12	1,337.18	-1,331.44	2,284.30	2,260.43	23.87	95.678	
4,561.00	4,526.82	3,253.00	2,925.31	15.95	24.19	-69.08	1,337.18	-1,331.44	2,323.21	2,299.30	23.90	97.193	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

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

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
4,624.00	4,588.23	3,253.00	2,925.31	16.22	24.19	-67.39	1,337.18	-1,331.44	2,362.33	2,338.40	23.93	98.725	
4,687.00	4,649.71	3,253.00	2,925.31	16.49	24.19	-67.39	1,337.18	-1,331.44	2,402.36	2,378.41	23.95	100.316	
4,749.00	4,710.40	3,253.00	2,925.31	16.75	24.19	-66.98	1,337.18	-1,331.44	2,442.82	2,418.86	23.96	101.965	
4,812.00	4,772.28	3,253.00	2,925.31	17.01	24.19	-67.02	1,337.18	-1,331.44	2,484.99	2,461.03	23.96	103.731	
4,875.00	4,834.34	3,253.00	2,925.31	17.27	24.19	-68.10	1,337.18	-1,331.44	2,528.26	2,504.31	23.95	105.580	
4,938.00	4,896.43	3,253.00	2,925.31	17.53	24.19	-68.01	1,337.18	-1,331.44	2,572.46	2,548.52	23.93	107.488	
5,001.00	4,958.46	3,253.00	2,925.31	17.79	24.19	-70.54	1,337.18	-1,331.44	2,617.53	2,593.61	23.92	109.427	
5,064.00	5,020.29	3,253.00	2,925.31	18.05	24.19	-73.00	1,337.18	-1,331.44	2,663.59	2,639.68	23.92	111.373	
5,126.00	5,080.98	3,253.00	2,925.31	18.32	24.19	-76.87	1,337.18	-1,331.44	2,710.00	2,686.08	23.92	113.303	
5,189.00	5,142.74	3,253.00	2,925.31	18.58	24.19	-76.24	1,337.18	-1,331.44	2,758.03	2,734.12	23.92	115.315	
5,252.00	5,204.62	3,253.00	2,925.31	18.85	24.19	-76.63	1,337.18	-1,331.44	2,806.64	2,782.73	23.91	117.377	
5,315.00	5,266.61	3,253.00	2,925.31	19.11	24.19	-77.77	1,337.18	-1,331.44	2,855.90	2,832.00	23.90	119.481	
5,378.00	5,328.73	3,253.00	2,925.31	19.37	24.19	-77.85	1,337.18	-1,331.44	2,905.77	2,881.88	23.89	121.629	
5,441.00	5,390.87	3,253.00	2,925.31	19.62	24.19	-78.14	1,337.18	-1,331.44	2,956.16	2,932.28	23.88	123.800	
5,503.00	5,452.07	3,253.00	2,925.31	19.87	24.19	-78.75	1,337.18	-1,331.44	3,006.26	2,982.39	23.87	125.960	
5,566.00	5,514.32	3,253.00	2,925.31	20.13	24.19	-78.97	1,337.18	-1,331.44	3,057.65	3,033.79	23.85	128.178	
5,629.00	5,576.59	3,253.00	2,925.31	20.38	24.19	-77.27	1,337.18	-1,331.44	3,109.39	3,085.55	23.84	130.415	
5,692.00	5,638.95	3,253.00	2,925.31	20.63	24.19	-80.26	1,337.18	-1,331.44	3,161.59	3,137.76	23.83	132.672	
5,747.00	5,693.45	3,253.00	2,925.31	20.85	24.19	-78.54	1,337.18	-1,331.44	3,207.53	3,183.71	23.82	134.661	
5,810.00	5,755.90	3,253.00	2,925.31	21.09	24.19	-79.44	1,337.18	-1,331.44	3,260.46	3,236.65	23.81	136.950	
5,874.00	5,819.40	3,253.00	2,925.31	21.34	24.19	-79.33	1,337.18	-1,331.44	3,314.61	3,290.82	23.80	139.290	
5,936.00	5,880.95	3,253.00	2,925.31	21.58	24.19	-79.21	1,337.18	-1,331.44	3,367.39	3,343.61	23.79	141.563	
5,999.00	5,943.45	3,253.00	2,925.31	21.82	24.19	-80.42	1,337.18	-1,331.44	3,421.39	3,397.60	23.78	143.861	
6,062.00	6,005.96	3,253.00	2,925.31	22.07	24.19	-78.15	1,337.18	-1,331.44	3,475.64	3,451.86	23.78	146.157	
6,125.00	6,068.49	3,253.00	2,925.31	22.31	24.19	-80.85	1,337.18	-1,331.44	3,530.20	3,506.42	23.78	148.451	
6,188.00	6,131.08	3,253.00	2,925.31	22.55	24.19	-80.21	1,337.18	-1,331.44	3,585.10	3,561.32	23.78	150.751	
6,255.00	6,197.73	3,253.00	2,925.31	22.81	24.19	-82.54	1,337.18	-1,331.44	3,643.80	3,620.02	23.78	153.211	
6,293.00	6,235.55	3,253.00	2,925.31	22.89	24.19	-82.54	1,337.18	-1,331.44	3,677.25	3,653.47	23.78	154.612	
6,300.00	6,242.52	3,253.00	2,925.31	22.89	24.19	-82.54	1,337.18	-1,331.44	3,683.43	3,659.65	23.78	154.924	
6,393.00	6,335.09	3,253.00	2,925.31	22.94	24.19	-82.54	1,337.18	-1,331.44	3,765.70	3,742.02	23.68	159.040	
6,400.00	6,342.06	3,253.00	2,925.31	22.94	24.19	-87.82	1,337.18	-1,331.44	3,771.93	3,748.26	23.67	159.342	
6,450.00	6,391.66	3,253.00	2,925.31	22.97	24.19	-109.61	1,337.18	-1,331.44	3,817.33	3,793.68	23.65	161.428	
6,500.00	6,440.77	3,253.00	2,925.31	23.02	24.19	-113.85	1,337.18	-1,331.44	3,864.08	3,840.43	23.65	163.367	
6,550.00	6,489.07	3,253.00	2,925.31	23.07	24.19	-108.94	1,337.18	-1,331.44	3,911.84	3,888.16	23.68	165.184	
6,600.00	6,536.26	3,253.00	2,925.31	23.13	24.19	-96.89	1,337.18	-1,331.44	3,960.29	3,936.56	23.73	166.868	
6,650.00	6,582.05	3,253.00	2,925.31	23.21	24.19	-79.23	1,337.18	-1,331.44	4,009.10	3,985.29	23.81	168.413	
6,700.00	6,626.13	3,253.00	2,925.31	23.29	24.19	-60.39	1,337.18	-1,331.44	4,057.95	4,034.05	23.90	169.812	
6,750.00	6,668.24	3,253.00	2,925.31	23.39	24.19	-45.04	1,337.18	-1,331.44	4,106.54	4,082.53	24.01	171.058	
6,800.00	6,708.12	3,253.00	2,925.31	23.51	24.19	-34.21	1,337.18	-1,331.44	4,154.57	4,130.44	24.13	172.148	
6,850.00	6,745.50	3,253.00	2,925.31	23.64	24.19	-26.83	1,337.18	-1,331.44	4,201.77	4,177.50	24.28	173.077	
6,900.00	6,780.15	3,253.00	2,925.31	23.79	24.19	-21.72	1,337.18	-1,331.44	4,247.88	4,223.45	24.44	173.840	
6,950.00	6,811.86	3,253.00	2,925.31	23.95	24.19	-18.07	1,337.18	-1,331.44	4,292.64	4,268.03	24.61	174.434	
7,000.00	6,840.42	3,253.00	2,925.31	24.14	24.19	-15.37	1,337.18	-1,331.44	4,335.82	4,311.02	24.80	174.854	
7,050.00	6,865.66	3,253.00	2,925.31	24.35	24.19	-13.32	1,337.18	-1,331.44	4,377.19	4,352.19	25.00	175.098	
7,100.00	6,887.42	3,253.00	2,925.31	24.57	24.19	-11.72	1,337.18	-1,331.44	4,416.55	4,391.34	25.21	175.164	
7,150.00	6,905.55	3,253.00	2,925.31	24.82	24.19	-10.45	1,337.18	-1,331.44	4,453.71	4,428.27	25.44	175.050	
7,200.00	6,919.95	3,253.00	2,925.31	25.10	24.19	-9.42	1,337.18	-1,331.44	4,488.49	4,462.81	25.68	174.756	
7,250.00	6,930.52	3,253.00	2,925.31	25.39	24.19	-8.56	1,337.18	-1,331.44	4,520.73	4,494.79	25.94	174.283	
7,300.00	6,937.20	3,253.00	2,925.31	25.70	24.19	-7.85	1,337.18	-1,331.44	4,550.28	4,524.07	26.21	173.637	
7,350.00	6,939.94	3,253.00	2,925.31	26.04	24.19	-7.24	1,337.18	-1,331.44	4,577.01	4,550.52	26.48	172.820	
7,359.60	6,940.02	3,253.00	2,925.31	26.10	24.19	-7.13	1,337.18	-1,331.44	4,581.81	4,555.27	26.53	172.673	
7,400.00	6,940.03	3,253.00	2,925.31	26.39	24.19	-7.13	1,337.18	-1,331.44	4,601.91	4,575.13	26.77	171.877	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

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

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Rule Assigned: Warning
7,500.00	6,940.04	3,253.00	2,925.31	27.15	24.19	-7.13	1,337.18	-1,331.44	4,652.80	4,625.42	27.38	169.942	
7,600.00	6,940.06	3,253.00	2,925.31	27.99	24.19	-7.13	1,337.18	-1,331.44	4,705.26	4,677.27	27.99	168.099	
7,659.60	6,940.07	3,253.00	2,925.31	28.52	24.19	-7.13	1,337.18	-1,331.44	4,737.26	4,708.90	28.36	167.051	
7,700.00	6,940.08	3,253.00	2,925.31	28.89	24.19	-7.65	1,337.18	-1,331.44	4,759.22	4,730.61	28.61	166.358	
7,796.63	6,940.10	3,253.00	2,925.31	29.83	24.19	-8.91	1,337.18	-1,331.44	4,812.45	4,783.24	29.21	164.736	
7,800.00	6,940.10	3,253.00	2,925.31	29.86	24.19	-8.91	1,337.18	-1,331.44	4,814.33	4,785.09	29.23	164.682	
7,900.00	6,940.12	3,253.00	2,925.31	30.90	24.19	-8.91	1,337.18	-1,331.44	4,870.67	4,840.80	29.86	163.093	
8,000.00	6,940.14	3,253.00	2,925.31	31.98	24.19	-8.91	1,337.18	-1,331.44	4,928.40	4,897.90	30.49	161.628	
8,100.00	6,940.17	3,253.00	2,925.31	33.11	24.19	-8.91	1,337.18	-1,331.44	4,987.46	4,956.35	31.12	160.288	
8,200.00	6,940.19	3,253.00	2,925.31	34.28	24.19	-8.91	1,337.18	-1,331.44	5,047.82	5,016.08	31.73	159.072	
8,300.00	6,940.21	3,253.00	2,925.31	35.48	24.19	-8.91	1,337.18	-1,331.44	5,109.41	5,077.07	32.34	157.978	
8,400.00	6,940.23	3,253.00	2,925.31	36.71	24.19	-8.91	1,337.18	-1,331.44	5,172.21	5,139.27	32.94	157.002	
8,500.00	6,940.25	3,253.00	2,925.31	37.97	24.19	-8.91	1,337.18	-1,331.44	5,236.17	5,202.63	33.54	156.140	
8,600.00	6,940.28	3,253.00	2,925.31	39.26	24.19	-8.91	1,337.18	-1,331.44	5,301.24	5,267.12	34.12	155.388	
8,700.00	6,940.30	3,253.00	2,925.31	40.56	24.19	-8.91	1,337.18	-1,331.44	5,367.38	5,332.70	34.69	154.742	
8,800.00	6,940.32	3,253.00	2,925.31	41.89	24.19	-8.91	1,337.18	-1,331.44	5,434.57	5,399.32	35.24	154.195	
8,900.00	6,940.34	3,253.00	2,925.31	43.24	24.19	-8.91	1,337.18	-1,331.44	5,502.74	5,466.95	35.79	153.743	
9,000.00	6,940.36	3,253.00	2,925.31	44.60	24.19	-8.91	1,337.18	-1,331.44	5,571.88	5,535.55	36.33	153.381	
9,100.00	6,940.39	3,253.00	2,925.31	45.98	24.19	-8.91	1,337.18	-1,331.44	5,641.94	5,605.09	36.85	153.105	
9,200.00	6,940.41	3,253.00	2,925.31	47.38	24.19	-8.91	1,337.18	-1,331.44	5,712.90	5,675.54	37.36	152.909	
9,300.00	6,940.43	3,253.00	2,925.31	48.78	24.19	-8.91	1,337.18	-1,331.44	5,784.71	5,746.85	37.86	152.790	
9,400.00	6,940.45	3,253.00	2,925.31	50.20	24.19	-8.91	1,337.18	-1,331.44	5,857.35	5,819.00	38.35	152.743	
9,500.00	6,940.47	3,253.00	2,925.31	51.63	24.19	-8.91	1,337.18	-1,331.44	5,930.79	5,891.96	38.82	152.764	
9,600.00	6,940.50	3,253.00	2,925.31	53.07	24.19	-8.91	1,337.18	-1,331.44	6,004.99	5,965.70	39.29	152.850	
9,700.00	6,940.52	3,253.00	2,925.31	54.52	24.19	-8.91	1,337.18	-1,331.44	6,079.93	6,040.19	39.74	152.996	
9,800.00	6,940.54	3,253.00	2,925.31	55.97	24.19	-8.91	1,337.18	-1,331.44	6,155.59	6,115.41	40.18	153.200	
9,900.00	6,940.56	3,253.00	2,925.31	57.44	24.19	-8.91	1,337.18	-1,331.44	6,231.93	6,191.32	40.61	153.457	
10,000.00	6,940.59	3,253.00	2,925.31	58.91	24.19	-8.91	1,337.18	-1,331.44	6,308.93	6,267.90	41.03	153.766	
10,100.00	6,940.61	3,253.00	2,925.31	60.38	24.19	-8.91	1,337.18	-1,331.44	6,386.57	6,345.13	41.44	154.123	
10,200.00	6,940.63	3,253.00	2,925.31	61.87	24.19	-8.91	1,337.18	-1,331.44	6,464.82	6,422.99	41.84	154.526	
10,300.00	6,940.65	3,253.00	2,925.31	63.36	24.19	-8.91	1,337.18	-1,331.44	6,543.67	6,501.45	42.23	154.971	
10,400.00	6,940.67	3,253.00	2,925.31	64.85	24.19	-8.91	1,337.18	-1,331.44	6,623.09	6,580.49	42.60	155.457	
10,500.00	6,940.70	3,253.00	2,925.31	66.35	24.19	-8.91	1,337.18	-1,331.44	6,703.06	6,660.08	42.97	155.982	
10,600.00	6,940.72	3,253.00	2,925.31	67.86	24.19	-8.91	1,337.18	-1,331.44	6,783.56	6,740.22	43.33	156.543	
10,700.00	6,940.74	3,253.00	2,925.31	69.36	24.19	-8.91	1,337.18	-1,331.44	6,864.57	6,820.89	43.68	157.138	
10,800.00	6,940.76	3,253.00	2,925.31	70.88	24.19	-8.91	1,337.18	-1,331.44	6,946.08	6,902.05	44.03	157.766	
10,900.00	6,940.78	3,253.00	2,925.31	72.39	24.19	-8.91	1,337.18	-1,331.44	7,028.06	6,983.70	44.36	158.424	
11,000.00	6,940.81	3,253.00	2,925.31	73.91	24.19	-8.91	1,337.18	-1,331.44	7,110.51	7,065.82	44.69	159.112	
11,100.00	6,940.83	3,253.00	2,925.31	75.44	24.19	-8.91	1,337.18	-1,331.44	7,193.40	7,148.39	45.01	159.827	
11,200.00	6,940.85	3,253.00	2,925.31	76.96	24.19	-8.91	1,337.18	-1,331.44	7,276.72	7,231.41	45.32	160.568	
11,300.00	6,940.87	3,253.00	2,925.31	78.49	24.19	-8.91	1,337.18	-1,331.44	7,360.46	7,314.84	45.62	161.334	
11,400.00	6,940.89	3,253.00	2,925.31	80.03	24.19	-8.91	1,337.18	-1,331.44	7,444.60	7,398.68	45.92	162.123	
11,500.00	6,940.92	3,253.00	2,925.31	81.56	24.19	-8.91	1,337.18	-1,331.44	7,529.13	7,482.92	46.21	162.934	
11,600.00	6,940.94	3,253.00	2,925.31	83.10	24.19	-8.91	1,337.18	-1,331.44	7,614.03	7,567.53	46.49	163.767	
11,700.00	6,940.96	3,253.00	2,925.31	84.64	24.19	-8.91	1,337.18	-1,331.44	7,699.29	7,652.52	46.77	164.619	
11,800.00	6,940.98	3,253.00	2,925.31	86.18	24.19	-8.91	1,337.18	-1,331.44	7,784.91	7,737.86	47.04	165.490	
11,900.00	6,941.00	3,253.00	2,925.31	87.72	24.19	-8.91	1,337.18	-1,331.44	7,870.86	7,823.55	47.31	166.379	
12,000.00	6,941.03	3,253.00	2,925.31	89.27	24.19	-8.91	1,337.18	-1,331.44	7,957.14	7,909.58	47.57	167.285	
12,100.00	6,941.05	3,253.00	2,925.31	90.82	24.19	-8.91	1,337.18	-1,331.44	8,043.74	7,995.92	47.82	168.207	
12,200.00	6,941.07	3,253.00	2,925.31	92.37	24.19	-8.91	1,337.18	-1,331.44	8,130.65	8,082.58	48.07	169.145	
12,300.00	6,941.09	3,253.00	2,925.31	93.92	24.19	-8.91	1,337.18	-1,331.44	8,217.86	8,169.54	48.31	170.096	
12,400.00	6,941.11	3,253.00	2,925.31	95.47	24.19	-8.91	1,337.18	-1,331.44	8,305.35	8,256.80	48.55	171.062	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
12,500.00	6,941.14	3,253.00	2,925.31	97.03	24.19	-8.91	1,337.18	-1,331.44	8,393.12	8,344.34	48.79	172.040	
12,600.00	6,941.16	3,253.00	2,925.31	98.58	24.19	-8.91	1,337.18	-1,331.44	8,481.17	8,432.15	49.02	173.031	
12,700.00	6,941.18	3,253.00	2,925.31	100.14	24.19	-8.91	1,337.18	-1,331.44	8,569.47	8,520.23	49.24	174.034	
12,800.00	6,941.20	3,253.00	2,925.31	101.70	24.19	-8.91	1,337.18	-1,331.44	8,658.03	8,608.57	49.46	175.047	
12,900.00	6,941.23	3,253.00	2,925.31	103.26	24.19	-8.91	1,337.18	-1,331.44	8,746.84	8,697.16	49.68	176.071	
13,000.00	6,941.25	3,253.00	2,925.31	104.82	24.19	-8.91	1,337.18	-1,331.44	8,835.89	8,786.00	49.89	177.105	
13,100.00	6,941.27	3,253.00	2,925.31	106.38	24.19	-8.91	1,337.18	-1,331.44	8,925.16	8,875.06	50.10	178.149	
13,200.00	6,941.29	3,253.00	2,925.31	107.95	24.19	-8.91	1,337.18	-1,331.44	9,014.67	8,964.36	50.30	179.201	
13,300.00	6,941.31	3,253.00	2,925.31	109.51	24.19	-8.91	1,337.18	-1,331.44	9,104.39	9,053.88	50.51	180.262	
13,400.00	6,941.34	3,253.00	2,925.31	111.08	24.19	-8.91	1,337.18	-1,331.44	9,194.32	9,143.62	50.70	181.330	
13,500.00	6,941.36	3,253.00	2,925.31	112.64	24.19	-8.91	1,337.18	-1,331.44	9,284.46	9,233.56	50.90	182.407	
13,600.00	6,941.38	3,253.00	2,925.31	114.21	24.19	-8.91	1,337.18	-1,331.44	9,374.80	9,323.71	51.09	183.490	
13,700.00	6,941.40	3,253.00	2,925.31	115.78	24.19	-8.91	1,337.18	-1,331.44	9,465.34	9,414.06	51.28	184.580	
13,800.00	6,941.42	3,253.00	2,925.31	117.35	24.19	-8.91	1,337.18	-1,331.44	9,556.06	9,504.59	51.47	185.677	
13,900.00	6,941.45	3,253.00	2,925.31	118.92	24.19	-8.91	1,337.18	-1,331.44	9,646.97	9,595.32	51.65	186.779	
14,000.00	6,941.47	3,253.00	2,925.31	120.49	24.19	-8.91	1,337.18	-1,331.44	9,738.05	9,686.22	51.83	187.887	
14,100.00	6,941.49	3,253.00	2,925.31	122.06	24.19	-8.91	1,337.18	-1,331.44	9,829.31	9,777.30	52.01	189.000	
14,200.00	6,941.51	3,253.00	2,925.31	123.64	24.19	-8.91	1,337.18	-1,331.44	9,920.74	9,868.55	52.18	190.119	
14,300.00	6,941.53	3,253.00	2,925.31	125.21	24.19	-8.91	1,337.18	-1,331.44	10,012.33	9,959.97	52.35	191.241	
14,400.00	6,941.56	3,253.00	2,925.31	126.78	24.19	-8.91	1,337.18	-1,331.44	10,104.08	10,051.55	52.52	192.369	
14,500.00	6,941.58	3,253.00	2,925.31	128.36	24.19	-8.91	1,337.18	-1,331.44	10,195.98	10,143.29	52.69	193.500	
14,600.00	6,941.60	3,253.00	2,925.31	129.93	24.19	-8.91	1,337.18	-1,331.44	10,288.04	10,235.18	52.86	194.635	
14,700.00	6,941.62	3,253.00	2,925.31	131.51	24.19	-8.91	1,337.18	-1,331.44	10,380.24	10,327.22	53.02	195.774	
14,800.00	6,941.64	3,253.00	2,925.31	133.08	24.19	-8.91	1,337.18	-1,331.44	10,472.59	10,419.40	53.18	196.916	
14,900.00	6,941.67	3,253.00	2,925.31	134.66	24.19	-8.91	1,337.18	-1,331.44	10,565.07	10,511.73	53.34	198.061	
15,000.00	6,941.69	3,253.00	2,925.31	136.24	24.19	-8.91	1,337.18	-1,331.44	10,657.69	10,604.19	53.50	199.209	
15,100.00	6,941.71	3,253.00	2,925.31	137.82	24.19	-8.91	1,337.18	-1,331.44	10,750.44	10,696.79	53.66	200.360	
15,200.00	6,941.73	3,253.00	2,925.31	139.40	24.19	-8.91	1,337.18	-1,331.44	10,843.33	10,789.52	53.81	201.513	
15,300.00	6,941.75	3,253.00	2,925.31	140.97	24.19	-8.91	1,337.18	-1,331.44	10,936.33	10,882.37	53.96	202.668	
15,400.00	6,941.78	3,253.00	2,925.31	142.55	24.19	-8.91	1,337.18	-1,331.44	11,029.46	10,975.35	54.11	203.825	
15,500.00	6,941.80	3,253.00	2,925.31	144.13	24.19	-8.91	1,337.18	-1,331.44	11,122.71	11,068.45	54.26	204.985	
15,600.00	6,941.82	3,253.00	2,925.31	145.72	24.19	-8.91	1,337.18	-1,331.44	11,216.08	11,161.67	54.41	206.145	
15,700.00	6,941.84	3,253.00	2,925.31	147.30	24.19	-8.91	1,337.18	-1,331.44	11,309.56	11,255.00	54.55	207.307	
15,800.00	6,941.87	3,253.00	2,925.31	148.88	24.19	-8.91	1,337.18	-1,331.44	11,403.15	11,348.45	54.70	208.471	
15,900.00	6,941.89	3,253.00	2,925.31	150.46	24.19	-8.91	1,337.18	-1,331.44	11,496.85	11,442.00	54.84	209.635	
16,000.00	6,941.91	3,253.00	2,925.31	152.04	24.19	-8.91	1,337.18	-1,331.44	11,590.65	11,535.67	54.98	210.801	
16,100.00	6,941.93	3,253.00	2,925.31	153.62	24.19	-8.91	1,337.18	-1,331.44	11,684.55	11,629.43	55.12	211.967	
16,200.00	6,941.95	3,253.00	2,925.31	155.21	24.19	-8.91	1,337.18	-1,331.44	11,778.56	11,723.30	55.26	213.134	
16,300.00	6,941.98	3,253.00	2,925.31	156.79	24.19	-8.91	1,337.18	-1,331.44	11,872.66	11,817.26	55.40	214.302	
16,400.00	6,942.00	3,253.00	2,925.31	158.37	24.19	-8.91	1,337.18	-1,331.44	11,966.86	11,911.33	55.54	215.470	
16,500.00	6,942.02	3,253.00	2,925.31	159.96	24.19	-8.91	1,337.18	-1,331.44	12,061.16	12,005.48	55.67	216.638	
16,600.00	6,942.04	3,253.00	2,925.31	161.54	24.19	-8.91	1,337.18	-1,331.44	12,155.54	12,099.73	55.81	217.806	
16,700.00	6,942.06	3,253.00	2,925.31	163.13	24.19	-8.91	1,337.18	-1,331.44	12,250.02	12,194.07	55.94	218.975	
16,800.00	6,942.09	3,253.00	2,925.31	164.71	24.19	-8.91	1,337.18	-1,331.44	12,344.58	12,288.50	56.08	220.143	
16,900.00	6,942.11	3,253.00	2,925.31	166.30	24.19	-8.91	1,337.18	-1,331.44	12,439.22	12,383.01	56.21	221.311	
17,000.00	6,942.13	3,253.00	2,925.31	167.88	24.19	-8.91	1,337.18	-1,331.44	12,533.95	12,477.61	56.34	222.479	
17,100.00	6,942.15	3,253.00	2,925.31	169.47	24.19	-8.91	1,337.18	-1,331.44	12,628.76	12,572.29	56.47	223.646	
17,200.00	6,942.17	3,253.00	2,925.31	171.05	24.19	-8.91	1,337.18	-1,331.44	12,723.65	12,667.05	56.60	224.813	
17,300.00	6,942.20	1,436.00	1,365.60	172.64	6.86	0.02	712.81	-725.95	12,816.27	12,767.63	48.64	263.483	
17,400.00	6,942.22	1,420.96	1,353.27	174.23	6.68	0.08	706.53	-720.07	12,906.56	12,857.85	48.71	264.972	
17,500.00	6,942.24	1,405.00	1,340.10	175.81	6.50	0.15	699.92	-713.92	12,997.03	12,948.26	48.77	266.484	
17,600.00	6,942.26	1,405.00	1,340.10	177.40	6.50	0.15	699.92	-713.92	13,087.57	13,038.65	48.92	267.549	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
17,700.00	6,942.28	1,405.00	1,340.10	178.99	6.50	0.15	699.92	-713.92	13,178.25	13,129.19	49.06	268.619	
17,800.00	6,942.31	1,393.32	1,330.43	180.57	6.37	0.20	695.12	-709.47	13,269.04	13,219.90	49.14	270.012	
17,900.00	6,942.33	1,374.00	1,314.38	182.16	6.15	0.28	687.24	-702.14	13,359.94	13,310.75	49.19	271.601	
18,000.00	6,942.35	1,374.00	1,314.38	183.75	6.15	0.28	687.24	-702.14	13,450.92	13,401.59	49.33	272.677	
18,100.00	6,942.37	1,374.00	1,314.38	185.34	6.15	0.28	687.24	-702.14	13,542.03	13,492.56	49.47	273.756	
18,200.00	6,942.39	1,374.00	1,314.38	186.93	6.15	0.28	687.24	-702.14	13,633.26	13,583.65	49.60	274.838	
18,300.00	6,942.42	1,374.00	1,314.38	188.52	6.15	0.28	687.24	-702.14	13,724.62	13,674.87	49.74	275.922	
18,400.00	6,942.44	1,374.00	1,314.38	190.10	6.15	0.28	687.24	-702.14	13,816.09	13,766.21	49.88	277.008	
18,500.00	6,942.46	1,345.08	1,290.22	191.69	5.83	0.40	675.56	-691.35	13,907.47	13,857.58	49.89	278.785	
18,600.00	6,942.48	1,339.93	1,285.90	193.28	5.78	0.42	673.49	-689.46	13,999.09	13,949.10	50.00	280.002	
18,700.00	6,942.51	1,311.00	1,261.52	194.87	5.46	0.54	661.92	-679.05	14,090.96	14,040.97	49.99	281.872	
18,800.00	6,942.53	1,311.00	1,261.52	196.46	5.46	0.54	661.92	-679.05	14,182.73	14,132.61	50.12	282.962	
18,900.00	6,942.55	1,311.00	1,261.52	198.05	5.46	0.54	661.92	-679.05	14,274.61	14,224.36	50.25	284.053	
19,000.00	6,942.57	1,311.00	1,261.52	199.64	5.46	0.54	661.92	-679.05	14,366.60	14,316.22	50.38	285.145	
19,100.00	6,942.59	1,311.00	1,261.52	201.23	5.46	0.54	661.92	-679.05	14,458.70	14,408.18	50.51	286.239	
19,200.00	6,942.62	1,311.00	1,261.52	202.82	5.46	0.54	661.92	-679.05	14,550.90	14,500.26	50.64	287.334	
19,300.00	6,942.64	1,311.00	1,261.52	204.41	5.46	0.54	661.92	-679.05	14,643.20	14,592.43	50.77	288.429	
19,400.00	6,942.66	1,311.00	1,261.52	206.00	5.46	0.54	661.92	-679.05	14,735.60	14,684.70	50.90	289.526	
19,500.00	6,942.68	1,294.97	1,247.92	207.59	5.29	0.60	655.59	-673.41	14,828.04	14,777.08	50.96	290.998	
19,600.00	6,942.70	1,279.00	1,234.28	209.18	5.13	0.66	649.39	-667.86	14,920.62	14,869.61	51.02	292.473	
19,700.00	6,942.73	1,279.00	1,234.28	210.78	5.13	0.66	649.39	-667.86	15,013.24	14,962.10	51.14	293.569	
19,800.00	6,942.75	1,279.00	1,234.28	212.37	5.13	0.66	649.39	-667.86	15,105.95	15,054.69	51.26	294.666	
19,900.00	6,942.77	1,279.00	1,234.28	213.96	5.13	0.66	649.39	-667.86	15,198.76	15,147.37	51.39	295.764	
20,000.00	6,942.79	1,279.00	1,234.28	215.55	5.13	0.66	649.39	-667.86	15,291.65	15,240.14	51.51	296.861	
20,100.00	6,942.81	1,264.28	1,221.65	217.14	4.98	0.71	643.76	-662.82	15,384.59	15,333.01	51.58	298.275	
20,200.00	6,942.84	1,248.00	1,207.61	218.73	4.81	0.77	637.63	-657.32	15,477.65	15,426.01	51.64	299.724	
20,300.00	6,942.86	1,248.00	1,207.61	220.32	4.81	0.77	637.63	-657.32	15,570.74	15,518.98	51.76	300.820	
20,400.00	6,942.88	1,248.00	1,207.61	221.92	4.81	0.77	637.63	-657.32	15,663.91	15,612.03	51.88	301.916	
20,500.00	6,942.90	1,248.00	1,207.61	223.51	4.81	0.77	637.63	-657.32	15,757.17	15,705.17	52.00	303.011	
20,600.00	6,942.92	1,217.00	1,180.74	225.10	4.51	0.89	626.18	-646.94	15,850.48	15,798.47	52.02	304.724	
20,700.00	6,942.95	1,217.00	1,180.74	226.69	4.51	0.89	626.18	-646.94	15,943.84	15,891.70	52.14	305.818	
20,800.00	6,942.97	1,217.00	1,180.74	228.28	4.51	0.89	626.18	-646.94	16,037.27	15,985.02	52.25	306.911	
20,900.00	6,942.99	1,217.00	1,180.74	229.88	4.51	0.89	626.18	-646.94	16,130.79	16,078.42	52.37	308.003	
20,942.50	6,943.00	1,217.00	1,180.74	230.42	4.51	0.89	626.18	-646.94	16,170.56	16,116.40	54.16	298.573	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #53 - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 300-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	55.00	55.00	0.00	0.93	71.31	1,516.31	4,482.83	4,732.33				
58.45	58.45	113.45	113.45	0.02	1.92	-166.98	1,516.31	4,482.83	4,732.69	4,730.75	1.93	2,446.469	
150.25	150.24	205.24	205.24	0.14	3.47	174.72	1,516.31	4,482.83	4,733.77	4,730.16	3.60	1,313.472	
239.43	239.42	294.42	294.42	0.25	4.97	169.24	1,516.31	4,482.83	4,734.81	4,729.58	5.23	905.969	
299.93	299.91	354.91	354.91	0.33	6.06	174.19	1,516.31	4,482.83	4,735.57	4,729.18	6.39	741.244	
446.00	445.96	500.96	500.96	0.50	8.69	-161.41	1,516.31	4,482.83	4,737.92	4,728.73	9.19	515.492	
537.00	536.95	592.49	592.49	0.73	10.34	-100.16	1,516.58	4,482.83	4,738.95	4,727.89	11.06	428.363	
624.00	623.95	680.65	680.65	0.99	11.93	-17.20	1,516.52	4,482.83	4,738.31	4,725.40	12.91	366.984	
718.00	717.90	775.86	775.86	1.29	13.64	0.64	1,516.37	4,482.83	4,735.59	4,720.66	14.93	317.209	
811.00	810.73	865.75	865.73	1.60	15.37	20.14	1,516.31	4,482.83	4,730.20	4,713.23	16.97	278.690	
903.00	902.19	957.20	957.19	1.92	17.18	32.24	1,516.31	4,482.83	4,721.48	4,702.37	19.10	247.148	
994.00	992.38	1,048.64	1,048.62	2.24	18.99	34.60	1,516.75	4,482.83	4,711.48	4,690.24	21.23	221.900	
1,084.00	1,081.50	1,140.64	1,140.62	2.56	20.81	39.17	1,516.58	4,482.83	4,701.34	4,677.97	23.37	201.157	
1,175.00	1,171.48	1,226.55	1,226.48	2.91	22.54	43.15	1,516.31	4,482.83	4,691.02	4,665.60	25.43	184.482	
1,268.00	1,263.52	1,318.59	1,318.52	3.26	24.61	44.80	1,516.31	4,482.83	4,681.37	4,653.54	27.84	168.174	
1,363.00	1,357.62	1,427.18	1,427.10	3.63	27.05	47.91	1,516.42	4,482.83	4,672.38	4,641.76	30.63	152.555	
1,457.00	1,450.74	1,505.87	1,505.74	3.99	28.97	50.73	1,516.31	4,482.83	4,663.92	4,631.03	32.90	141.780	
1,552.00	1,544.82	1,599.95	1,599.82	4.36	31.29	51.67	1,516.31	4,482.83	4,655.59	4,620.02	35.57	130.883	
1,646.00	1,637.88	1,701.53	1,701.38	4.72	33.80	52.30	1,517.25	4,482.83	4,647.65	4,609.22	38.43	120.940	
1,741.00	1,731.94	1,806.19	1,806.02	5.09	36.38	52.91	1,516.23	4,482.83	4,639.22	4,597.85	41.37	112.144	
1,835.00	1,825.07	1,880.35	1,880.07	5.46	38.20	53.06	1,516.31	4,482.83	4,631.52	4,587.97	43.55	106.357	
1,929.00	1,918.39	1,973.66	1,973.39	5.82	40.49	51.97	1,516.31	4,482.83	4,624.60	4,578.40	46.19	100.115	
2,024.00	2,012.84	2,068.11	2,067.84	6.18	42.81	53.45	1,516.31	4,482.83	4,618.38	4,569.51	48.87	94.509	
2,118.00	2,106.19	2,169.00	2,168.68	6.53	45.29	53.80	1,518.12	4,482.83	4,612.39	4,560.69	51.70	89.216	
2,213.00	2,200.37	2,270.94	2,270.60	6.90	47.80	52.65	1,517.27	4,482.83	4,604.65	4,550.09	54.57	84.388	
2,307.00	2,293.61	2,349.07	2,348.61	7.27	49.72	54.73	1,516.31	4,482.83	4,597.23	4,540.39	56.84	80.881	
2,402.00	2,387.91	2,443.37	2,442.91	7.63	51.97	58.71	1,516.31	4,482.83	4,590.90	4,531.45	59.46	77.215	
2,496.00	2,481.29	2,536.75	2,536.29	7.99	54.21	60.01	1,516.31	4,482.83	4,585.37	4,523.32	62.05	73.902	
2,591.00	2,575.67	2,636.91	2,636.43	8.35	56.61	58.67	1,517.27	4,482.83	4,580.09	4,515.28	64.80	70.678	
2,686.00	2,670.05	2,738.12	2,737.63	8.71	59.03	59.20	1,516.56	4,482.83	4,574.30	4,506.71	67.58	67.684	
2,780.00	2,763.49	2,819.07	2,818.49	9.07	60.98	57.29	1,516.31	4,482.83	4,568.75	4,498.87	69.88	65.379	
2,875.00	2,857.94	2,913.52	2,912.94	9.43	63.25	55.97	1,516.31	4,482.83	4,563.13	4,490.62	72.51	62.935	
2,970.00	2,952.51	3,008.09	3,007.51	9.79	65.52	59.62	1,516.31	4,482.83	4,558.31	4,483.18	75.13	60.672	
3,064.00	3,046.19	3,104.66	3,104.05	10.13	67.84	66.87	1,518.17	4,482.83	4,555.32	4,477.53	77.79	58.556	
3,159.00	3,140.98	3,205.13	3,204.51	10.47	70.25	68.94	1,517.71	4,482.83	4,552.77	4,472.22	80.55	56.520	
3,253.00	3,234.84	3,304.60	3,303.96	10.81	72.64	61.28	1,516.82	4,482.83	4,550.46	4,467.18	83.28	54.642	
3,348.00	3,329.74	3,385.49	3,384.74	11.14	74.44	53.67	1,516.31	4,482.83	4,547.99	4,462.57	85.41	53.246	
3,397.00	3,378.70	3,434.45	3,433.70	11.32	75.43	52.81	1,516.31	4,482.83	4,546.75	4,460.17	86.58	52.513	
3,488.00	3,469.63	3,525.38	3,524.63	11.64	77.28	50.29	1,516.31	4,482.83	4,544.59	4,455.84	88.75	51.204	
3,583.00	3,564.49	3,621.98	3,621.22	11.98	79.25	58.72	1,517.62	4,482.83	4,542.08	4,451.02	91.06	49.880	
3,677.00	3,658.13	3,721.07	3,720.30	12.33	81.26	60.64	1,517.27	4,482.83	4,537.86	4,444.44	93.42	48.574	
3,772.00	3,752.42	3,820.75	3,819.97	12.69	83.29	65.37	1,516.46	4,482.83	4,532.47	4,436.66	95.81	47.307	
3,867.00	3,846.42	3,902.23	3,901.42	13.06	84.83	67.10	1,516.31	4,482.83	4,526.81	4,429.10	97.72	46.325	
3,961.00	3,939.30	3,995.11	3,994.30	13.44	86.55	67.04	1,516.31	4,482.83	4,521.12	4,421.30	99.81	45.297	
4,056.00	4,032.83	4,088.88	4,088.06	13.82	88.29	63.97	1,516.84	4,482.83	4,514.23	4,412.29	101.93	44.287	
4,151.00	4,126.01	4,184.04	4,183.22	14.21	90.06	65.07	1,516.74	4,482.83	4,506.12	4,402.04	104.08	43.293	
4,246.00	4,219.10	4,279.04	4,278.22	14.61	91.82	57.94	1,516.48	4,482.83	4,496.88	4,390.64	106.23	42.330	
4,340.00	4,310.92	4,366.76	4,365.92	15.01	93.38	49.20	1,516.31	4,482.83	4,484.62	4,376.45	108.17	41.458	
4,435.00	4,403.54	4,459.38	4,458.54	15.41	94.95	48.77	1,516.31	4,482.83	4,470.58	4,360.45	110.13	40.594	
4,498.00	4,465.21	4,521.05	4,520.21	15.68	95.99	50.88	1,516.31	4,482.83	4,462.15	4,350.73	111.43	40.045	
4,561.00	4,526.82	4,582.88	4,582.03	15.95	97.04	56.25	1,517.15	4,482.83	4,454.48	4,341.75	112.73	39.514	
4,624.00	4,588.23	4,646.01	4,645.16	16.22	98.11	58.24	1,517.08	4,482.83	4,446.71	4,332.64	114.06	38.985	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #53 - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 300-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
4,687.00	4,649.71	4,709.17	4,708.33	16.49	99.18	58.86	1,516.92	4,482.83	4,439.37	4,323.97	115.39	38.471	
4,749.00	4,710.40	4,771.49	4,770.64	16.75	100.23	60.22	1,516.65	4,482.83	4,432.78	4,316.07	116.71	37.982	
4,812.00	4,772.28	4,835.00	4,834.14	17.01	101.31	61.08	1,516.28	4,482.83	4,426.82	4,308.78	118.04	37.503	
4,875.00	4,834.34	4,890.19	4,889.34	17.27	102.51	60.71	1,516.31	4,482.83	4,421.47	4,301.98	119.49	37.003	
4,938.00	4,896.43	4,952.29	4,951.43	17.53	103.83	60.65	1,516.31	4,482.83	4,416.21	4,295.14	121.06	36.478	
5,001.00	4,958.46	5,014.31	5,013.46	17.79	105.15	57.60	1,516.31	4,482.83	4,410.47	4,287.83	122.64	35.963	
5,064.00	5,020.29	5,076.14	5,075.29	18.05	106.46	53.57	1,516.31	4,482.83	4,403.53	4,279.32	124.21	35.452	
5,126.00	5,080.98	5,136.84	5,135.98	18.32	107.75	49.54	1,516.31	4,482.83	4,395.56	4,269.80	125.76	34.952	
5,189.00	5,142.74	5,198.59	5,197.74	18.58	109.07	51.22	1,516.31	4,482.83	4,387.52	4,260.19	127.33	34.458	
5,252.00	5,204.62	5,260.47	5,259.62	18.85	110.39	51.33	1,516.31	4,482.83	4,380.04	4,251.14	128.90	33.980	
5,315.00	5,266.61	5,322.47	5,321.61	19.11	111.70	51.23	1,516.31	4,482.83	4,372.97	4,242.50	130.47	33.517	
5,378.00	5,328.73	5,384.61	5,383.73	19.37	113.03	51.77	1,516.31	4,482.83	4,366.36	4,234.32	132.04	33.068	
5,441.00	5,390.87	5,446.75	5,445.87	19.62	114.35	51.40	1,516.31	4,482.83	4,359.87	4,226.25	133.62	32.630	
5,503.00	5,452.07	5,507.96	5,507.07	19.87	115.65	51.80	1,516.31	4,482.83	4,353.67	4,218.50	135.16	32.210	
5,566.00	5,514.32	5,570.20	5,569.32	20.13	116.98	51.55	1,516.31	4,482.83	4,347.59	4,210.85	136.74	31.796	
5,629.00	5,576.59	5,634.29	5,633.40	20.38	118.34	54.06	1,517.26	4,482.83	4,341.98	4,203.63	138.35	31.385	
5,692.00	5,638.95	5,698.83	5,697.93	20.63	119.71	51.85	1,517.05	4,482.83	4,336.50	4,196.54	139.96	30.983	
5,747.00	5,693.45	5,755.20	5,754.30	20.85	120.91	54.15	1,516.73	4,482.83	4,331.93	4,190.56	141.38	30.641	
5,810.00	5,755.90	5,811.85	5,810.90	21.09	122.12	53.50	1,516.31	4,482.83	4,326.92	4,184.10	142.83	30.295	
5,874.00	5,819.40	5,875.35	5,874.40	21.34	123.47	54.83	1,516.31	4,482.83	4,322.24	4,177.82	144.42	29.928	
5,936.00	5,880.95	5,936.90	5,935.95	21.58	124.78	54.50	1,516.31	4,482.83	4,317.88	4,171.91	145.97	29.581	
5,999.00	5,943.45	5,999.40	5,998.45	21.82	126.11	53.13	1,516.31	4,482.83	4,313.21	4,165.67	147.54	29.234	
6,062.00	6,005.96	6,061.91	6,060.96	22.07	127.44	55.70	1,516.31	4,482.83	4,308.60	4,159.49	149.11	28.895	
6,125.00	6,068.49	6,126.20	6,125.24	22.31	128.81	53.47	1,517.36	4,482.83	4,304.33	4,153.61	150.72	28.558	
6,188.00	6,131.08	6,190.62	6,189.66	22.55	130.18	55.34	1,517.16	4,482.83	4,300.09	4,147.76	152.33	28.229	
6,255.00	6,197.73	6,259.20	6,258.23	22.81	131.64	54.34	1,516.78	4,482.83	4,296.07	4,142.04	154.04	27.890	
6,293.00	6,235.55	6,298.11	6,297.13	22.89	132.47	54.38	1,516.50	4,482.83	4,293.90	4,138.95	154.94	27.713	
6,300.00	6,242.52	6,305.27	6,304.30	22.89	132.62	54.39	1,516.44	4,482.83	4,293.49	4,138.40	155.10	27.683	
6,393.00	6,335.09	6,391.12	6,390.09	22.94	134.51	54.48	1,516.31	4,482.83	4,288.27	4,131.25	157.02	27.310	
6,400.00	6,342.06	6,398.09	6,397.06	22.94	134.66	48.59	1,516.31	4,482.83	4,287.85	4,130.66	157.18	27.279	
6,450.00	6,391.66	6,447.69	6,446.66	22.97	135.76	21.45	1,516.31	4,482.83	4,282.60	4,124.30	158.30	27.054	
6,500.00	6,440.77	6,496.80	6,495.77	23.02	136.85	9.51	1,516.31	4,482.83	4,273.55	4,114.14	159.41	26.809	
6,550.00	6,489.07	6,545.10	6,544.07	23.07	137.92	3.22	1,516.31	4,482.83	4,260.74	4,100.25	160.50	26.547	
6,600.00	6,536.26	6,592.29	6,591.26	23.13	138.96	-0.74	1,516.31	4,482.83	4,244.26	4,082.70	161.56	26.271	
6,650.00	6,582.05	6,639.20	6,638.15	23.21	140.00	-3.61	1,517.48	4,482.83	4,224.43	4,061.82	162.61	25.979	
6,700.00	6,626.13	6,684.42	6,683.38	23.29	141.00	-5.91	1,517.39	4,482.83	4,200.92	4,037.29	163.63	25.674	
6,750.00	6,668.24	6,727.62	6,726.57	23.39	141.96	-7.95	1,517.23	4,482.83	4,174.10	4,009.50	164.59	25.360	
6,800.00	6,708.12	6,768.51	6,767.46	23.51	142.86	-9.92	1,517.04	4,482.83	4,144.15	3,978.64	165.51	25.039	
6,850.00	6,745.50	6,806.85	6,805.80	23.64	143.71	-11.97	1,516.80	4,482.83	4,111.26	3,944.89	166.37	24.712	
6,900.00	6,780.15	6,842.39	6,841.34	23.79	144.50	-14.22	1,516.54	4,482.83	4,075.64	3,908.48	167.16	24.382	
6,950.00	6,811.86	6,874.91	6,873.85	23.95	145.22	-16.81	1,516.27	4,482.83	4,037.53	3,869.65	167.88	24.050	
7,000.00	6,840.42	6,896.56	6,895.42	24.14	145.72	-19.88	1,516.31	4,482.83	3,997.22	3,828.84	168.38	23.739	
7,050.00	6,865.66	6,921.80	6,920.66	24.35	146.30	-23.73	1,516.31	4,482.83	3,954.92	3,785.96	168.95	23.408	
7,100.00	6,887.42	6,943.55	6,942.42	24.57	146.80	-28.68	1,516.31	4,482.83	3,910.90	3,741.45	169.44	23.081	
7,150.00	6,905.55	6,961.69	6,960.55	24.82	147.22	-35.20	1,516.31	4,482.83	3,865.44	3,695.60	169.84	22.759	
7,200.00	6,919.95	6,976.09	6,974.95	25.10	147.55	-43.94	1,516.31	4,482.83	3,818.85	3,648.70	170.15	22.444	
7,250.00	6,930.52	6,986.66	6,985.52	25.39	147.79	-55.58	1,516.31	4,482.83	3,771.41	3,601.05	170.36	22.138	
7,300.00	6,937.20	6,993.34	6,992.20	25.70	147.95	-70.28	1,516.31	4,482.83	3,723.44	3,552.95	170.48	21.841	
7,350.00	6,939.94	6,996.08	6,994.94	26.04	148.01	-86.80	1,516.31	4,482.83	3,675.24	3,504.73	170.50	21.555	
7,359.60	6,940.02	6,996.15	6,995.02	26.10	148.01	-89.96	1,516.31	4,482.83	3,665.98	3,495.48	170.50	21.502	
7,400.00	6,940.03	6,996.16	6,995.03	26.39	148.01	-89.96	1,516.31	4,482.83	3,627.06	3,456.60	170.46	21.278	
7,500.00	6,940.04	6,996.18	6,995.04	27.15	148.01	-89.97	1,516.31	4,482.83	3,530.87	3,360.48	170.38	20.723	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #53 - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 300-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
7,600.00	6,940.06	6,996.20	6,995.06	27.99	148.01	-89.97	1,516.31	4,482.83	3,434.89	3,264.57	170.32	20.168	
7,659.60	6,940.07	6,996.21	6,995.07	28.52	148.01	-89.97	1,516.31	4,482.83	3,377.79	3,207.51	170.28	19.837	
7,700.00	6,940.08	6,996.21	6,995.08	28.89	148.01	-89.96	1,516.31	4,482.83	3,339.06	3,168.80	170.26	19.612	
7,796.63	6,940.10	6,996.23	6,995.10	29.83	148.01	-89.95	1,516.31	4,482.83	3,245.94	3,075.72	170.23	19.068	
7,800.00	6,940.10	6,996.23	6,995.10	29.86	148.01	-89.95	1,516.31	4,482.83	3,242.68	3,072.45	170.23	19.049	
7,900.00	6,940.12	6,996.26	6,995.12	30.90	148.02	-89.95	1,516.31	4,482.83	3,146.08	2,975.87	170.21	18.484	
8,000.00	6,940.14	6,996.28	6,995.14	31.98	148.02	-89.96	1,516.31	4,482.83	3,049.69	2,879.49	170.20	17.918	
8,100.00	6,940.17	6,996.30	6,995.17	33.11	148.02	-89.96	1,516.31	4,482.83	2,953.55	2,783.33	170.21	17.352	
8,200.00	6,940.19	6,996.32	6,995.19	34.28	148.02	-89.96	1,516.31	4,482.83	2,857.67	2,687.42	170.25	16.785	
8,300.00	6,940.21	6,996.35	6,995.21	35.48	148.02	-89.96	1,516.31	4,482.83	2,762.08	2,591.77	170.31	16.218	
8,400.00	6,940.23	6,996.37	6,995.23	36.71	148.02	-89.96	1,516.31	4,482.83	2,666.81	2,496.41	170.41	15.650	
8,500.00	6,940.25	6,996.39	6,995.25	37.97	148.02	-89.96	1,516.31	4,482.83	2,571.91	2,401.37	170.54	15.081	
8,600.00	6,940.28	6,996.41	6,995.28	39.26	148.02	-89.96	1,516.31	4,482.83	2,477.40	2,306.69	170.71	14.512	
8,700.00	6,940.30	6,996.43	6,995.30	40.56	148.02	-89.97	1,516.31	4,482.83	2,383.35	2,212.41	170.94	13.942	
8,800.00	6,940.32	6,996.46	6,995.32	41.89	148.02	-89.97	1,516.31	4,482.83	2,289.80	2,118.56	171.24	13.372	
8,900.00	6,940.34	6,996.48	6,995.34	43.24	148.02	-89.97	1,516.31	4,482.83	2,196.81	2,025.21	171.60	12.802	
9,000.00	6,940.36	6,996.50	6,995.36	44.60	148.02	-89.97	1,516.31	4,482.83	2,104.48	1,932.41	172.06	12.231	
9,100.00	6,940.39	6,996.52	6,995.39	45.98	148.02	-89.97	1,516.31	4,482.83	2,012.87	1,840.24	172.62	11.660	
9,200.00	6,940.41	6,996.54	6,995.41	47.38	148.02	-89.97	1,516.31	4,482.83	1,922.10	1,748.79	173.31	11.091	
9,300.00	6,940.43	6,996.57	6,995.43	48.78	148.02	-89.97	1,516.31	4,482.83	1,832.29	1,658.15	174.14	10.522	
9,400.00	6,940.45	6,996.59	6,995.45	50.20	148.02	-89.98	1,516.31	4,482.83	1,743.59	1,568.46	175.13	9.956	
9,500.00	6,940.47	6,996.61	6,995.47	51.63	148.02	-89.98	1,516.31	4,482.83	1,656.18	1,479.86	176.31	9.393	
9,600.00	6,940.50	6,996.63	6,995.50	53.07	148.02	-89.98	1,516.31	4,482.83	1,570.27	1,392.55	177.72	8.836	
9,700.00	6,940.52	6,996.65	6,995.52	54.52	148.02	-89.98	1,516.31	4,482.83	1,486.12	1,306.75	179.37	8.285	
9,800.00	6,940.54	6,996.68	6,995.54	55.97	148.03	-89.98	1,516.31	4,482.83	1,404.06	1,222.75	181.31	7.744	
9,900.00	6,940.56	6,996.70	6,995.56	57.44	148.03	-89.98	1,516.31	4,482.83	1,324.46	1,140.90	183.57	7.215	
10,000.00	6,940.59	6,996.72	6,995.59	58.91	148.03	-89.99	1,516.31	4,482.83	1,247.81	1,061.64	186.17	6.703	
10,100.00	6,940.61	6,996.74	6,995.61	60.38	148.03	-89.99	1,516.31	4,482.83	1,174.67	985.53	189.13	6.211	
10,200.00	6,940.63	6,996.76	6,995.63	61.87	148.03	-89.99	1,516.31	4,482.83	1,105.74	913.26	192.48	5.745	
10,300.00	6,940.65	6,996.79	6,995.65	63.36	148.03	-89.99	1,516.31	4,482.83	1,041.87	845.67	196.19	5.310	
10,400.00	6,940.67	6,996.81	6,995.67	64.85	148.03	-89.99	1,516.31	4,482.83	984.02	783.80	200.23	4.915	
10,500.00	6,940.70	6,996.83	6,995.70	66.35	148.03	-89.99	1,516.31	4,482.83	933.34	728.85	204.49	4.564	
10,600.00	6,940.72	6,996.85	6,995.72	67.86	148.03	-89.99	1,516.31	4,482.83	891.04	682.23	208.81	4.267	
10,700.00	6,940.74	6,996.87	6,995.74	69.36	148.03	-90.00	1,516.31	4,482.83	858.35	645.37	212.98	4.030	
10,800.00	6,940.76	6,996.90	6,995.76	70.88	148.03	-90.00	1,516.31	4,482.83	836.41	619.69	216.72	3.859	
10,900.00	6,940.78	6,996.92	6,995.78	72.39	148.03	-90.00	1,516.31	4,482.83	826.08	606.31	219.77	3.759	
10,935.90	6,940.79	6,996.93	6,995.79	72.94	148.03	-90.00	1,516.31	4,482.83	825.30	604.64	220.66	3.740	CC, ES
11,000.00	6,940.81	6,996.94	6,995.81	73.91	148.03	-90.00	1,516.31	4,482.83	827.79	605.85	221.93	3.730	SF
11,100.00	6,940.83	6,996.96	6,995.83	75.44	148.03	-90.00	1,516.31	4,482.83	841.46	618.35	223.11	3.771	
11,200.00	6,940.85	6,996.99	6,995.85	76.96	148.03	-90.00	1,516.31	4,482.83	866.53	643.18	223.35	3.880	
11,300.00	6,940.87	6,997.01	6,995.87	78.49	148.03	-90.01	1,516.31	4,482.83	902.05	679.27	222.78	4.049	
11,400.00	6,940.89	6,997.03	6,995.89	80.03	148.03	-90.01	1,516.31	4,482.83	946.84	725.25	221.60	4.273	
11,500.00	6,940.92	6,997.05	6,995.92	81.56	148.03	-90.01	1,516.31	4,482.83	999.67	779.66	220.01	4.544	
11,600.00	6,940.94	6,997.07	6,995.94	83.10	148.03	-90.01	1,516.31	4,482.83	1,059.32	841.14	218.18	4.855	
11,700.00	6,940.96	6,997.10	6,995.96	84.64	148.03	-90.01	1,516.31	4,482.83	1,124.71	908.46	216.25	5.201	
11,800.00	6,940.98	6,997.12	6,995.98	86.18	148.04	-90.01	1,516.31	4,482.83	1,194.90	980.60	214.30	5.576	
11,900.00	6,941.00	6,997.14	6,996.00	87.72	148.04	-90.01	1,516.31	4,482.83	1,269.10	1,056.69	212.41	5.975	
12,000.00	6,941.03	6,997.16	6,996.03	89.27	148.04	-90.02	1,516.31	4,482.83	1,346.64	1,136.03	210.60	6.394	
12,100.00	6,941.05	6,997.18	6,996.05	90.82	148.04	-90.02	1,516.31	4,482.83	1,426.97	1,218.07	208.90	6.831	
12,200.00	6,941.07	6,997.21	6,996.07	92.37	148.04	-90.02	1,516.31	4,482.83	1,509.66	1,302.34	207.32	7.282	
12,300.00	6,941.09	6,997.23	6,996.09	93.92	148.04	-90.02	1,516.31	4,482.83	1,594.33	1,388.48	205.85	7.745	
12,400.00	6,941.11	6,997.25	6,996.11	95.47	148.04	-90.02	1,516.31	4,482.83	1,680.69	1,476.20	204.49	8.219	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #53 - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 300-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	6,941.14	6,997.27	6,996.14	97.03	148.04	-90.02	1,516.31	4,482.83	1,768.48	1,565.24	203.24	8.701	
12,600.00	6,941.16	6,997.29	6,996.16	98.58	148.04	-90.03	1,516.31	4,482.83	1,857.51	1,655.42	202.09	9.191	
12,700.00	6,941.18	6,997.32	6,996.18	100.14	148.04	-90.03	1,516.31	4,482.83	1,947.61	1,746.58	201.03	9.688	
12,800.00	6,941.20	6,997.34	6,996.20	101.70	148.04	-90.03	1,516.31	4,482.83	2,038.63	1,838.57	200.06	10.190	
12,900.00	6,941.23	6,997.36	6,996.23	103.26	148.04	-90.03	1,516.31	4,482.83	2,130.45	1,931.29	199.16	10.697	
13,000.00	6,941.25	6,997.38	6,996.25	104.82	148.04	-90.03	1,516.31	4,482.83	2,222.98	2,024.65	198.33	11.208	
13,100.00	6,941.27	6,997.40	6,996.27	106.38	148.04	-90.03	1,516.31	4,482.83	2,316.13	2,118.56	197.57	11.723	
13,200.00	6,941.29	6,997.43	6,996.29	107.95	148.04	-90.03	1,516.31	4,482.83	2,409.83	2,212.97	196.86	12.241	
13,300.00	6,941.31	6,997.45	6,996.31	109.51	148.04	-90.04	1,516.31	4,482.83	2,504.02	2,307.81	196.21	12.762	
13,400.00	6,941.34	6,997.47	6,996.34	111.08	148.04	-90.04	1,516.31	4,482.83	2,598.64	2,403.03	195.61	13.285	
13,500.00	6,941.36	6,997.49	6,996.36	112.64	148.04	-90.04	1,516.31	4,482.83	2,693.65	2,498.60	195.05	13.810	
13,600.00	6,941.38	6,997.52	6,996.38	114.21	148.04	-90.04	1,516.31	4,482.83	2,789.01	2,594.48	194.53	14.337	
13,700.00	6,941.40	6,997.54	6,996.40	115.78	148.04	-90.04	1,516.31	4,482.83	2,884.68	2,690.63	194.05	14.866	
13,800.00	6,941.42	6,997.56	6,996.42	117.35	148.05	-90.04	1,516.31	4,482.83	2,980.64	2,787.04	193.60	15.396	
13,900.00	6,941.45	6,997.58	6,996.45	118.92	148.05	-90.05	1,516.31	4,482.83	3,076.85	2,883.67	193.18	15.927	
14,000.00	6,941.47	6,997.60	6,996.47	120.49	148.05	-90.05	1,516.31	4,482.83	3,173.30	2,980.51	192.79	16.460	
14,100.00	6,941.49	6,997.63	6,996.49	122.06	148.05	-90.05	1,516.31	4,482.83	3,269.96	3,077.54	192.43	16.993	
14,200.00	6,941.51	6,997.65	6,996.51	123.64	148.05	-90.05	1,516.31	4,482.83	3,366.82	3,174.73	192.09	17.527	
14,300.00	6,941.53	6,997.67	6,996.53	125.21	148.05	-90.05	1,516.31	4,482.83	3,463.86	3,272.08	191.78	18.062	
14,400.00	6,941.56	6,997.69	6,996.56	126.78	148.05	-90.05	1,516.31	4,482.83	3,561.06	3,369.58	191.48	18.598	
14,500.00	6,941.58	6,997.71	6,996.58	128.36	148.05	-90.05	1,516.31	4,482.83	3,658.41	3,467.20	191.20	19.133	
14,600.00	6,941.60	6,997.74	6,996.60	129.93	148.05	-90.06	1,516.31	4,482.83	3,755.90	3,564.95	190.95	19.670	
14,700.00	6,941.62	6,997.76	6,996.62	131.51	148.05	-90.06	1,516.31	4,482.83	3,853.52	3,662.81	190.71	20.207	
14,800.00	6,941.64	6,997.78	6,996.64	133.08	148.05	-90.06	1,516.31	4,482.83	3,951.25	3,760.77	190.48	20.744	
14,900.00	6,941.67	6,997.80	6,996.67	134.66	148.05	-90.06	1,516.31	4,482.83	4,049.10	3,858.83	190.27	21.281	
15,000.00	6,941.69	6,997.82	6,996.69	136.24	148.05	-90.06	1,516.31	4,482.83	4,147.05	3,956.98	190.07	21.818	
15,100.00	6,941.71	6,997.85	6,996.71	137.82	148.05	-90.06	1,516.31	4,482.83	4,245.10	4,055.21	189.89	22.356	
15,200.00	6,941.73	6,997.87	6,996.73	139.40	148.05	-90.07	1,516.31	4,482.83	4,343.24	4,153.52	189.71	22.894	
15,300.00	6,941.75	6,997.89	6,996.75	140.97	148.05	-90.07	1,516.31	4,482.83	4,441.45	4,251.90	189.55	23.431	
15,400.00	6,941.78	6,997.91	6,996.78	142.55	148.05	-90.07	1,516.31	4,482.83	4,539.75	4,350.35	189.40	23.969	
15,500.00	6,941.80	6,997.93	6,996.80	144.13	148.05	-90.07	1,516.31	4,482.83	4,638.12	4,448.86	189.26	24.507	
15,600.00	6,941.82	6,997.96	6,996.82	145.72	148.05	-90.07	1,516.31	4,482.83	4,736.56	4,547.43	189.13	25.044	
15,700.00	6,941.84	6,997.98	6,996.84	147.30	148.06	-90.07	1,516.31	4,482.83	4,835.06	4,646.06	189.00	25.582	
15,800.00	6,941.87	6,998.00	6,996.87	148.88	148.06	-90.07	1,516.31	4,482.83	4,933.62	4,744.73	188.89	26.119	
15,900.00	6,941.89	6,998.02	6,996.89	150.46	148.06	-90.08	1,516.31	4,482.83	5,032.24	4,843.46	188.78	26.657	
16,000.00	6,941.91	6,998.04	6,996.91	152.04	148.06	-90.08	1,516.31	4,482.83	5,130.91	4,942.23	188.68	27.194	
16,100.00	6,941.93	6,998.07	6,996.93	153.62	148.06	-90.08	1,516.31	4,482.83	5,229.63	5,041.05	188.59	27.731	
16,200.00	6,941.95	6,998.09	6,996.95	155.21	148.06	-90.08	1,516.31	4,482.83	5,328.41	5,139.90	188.50	28.267	
16,300.00	6,941.98	6,998.11	6,996.98	156.79	148.06	-90.08	1,516.31	4,482.83	5,427.22	5,238.80	188.42	28.804	
16,400.00	6,942.00	6,998.13	6,997.00	158.37	148.06	-90.08	1,516.31	4,482.83	5,526.08	5,337.73	188.35	29.340	
16,500.00	6,942.02	6,998.16	6,997.02	159.96	148.06	-90.09	1,516.31	4,482.83	5,624.98	5,436.70	188.28	29.876	
16,600.00	6,942.04	6,998.18	6,997.04	161.54	148.06	-90.09	1,516.31	4,482.83	5,723.91	5,535.70	188.22	30.411	
16,700.00	6,942.06	6,998.20	6,997.06	163.13	148.06	-90.09	1,516.31	4,482.83	5,822.89	5,634.73	188.16	30.947	
16,800.00	6,942.09	6,998.22	6,997.09	164.71	148.06	-90.09	1,516.31	4,482.83	5,921.89	5,733.79	188.11	31.481	
16,900.00	6,942.11	6,998.24	6,997.11	166.30	148.06	-90.09	1,516.31	4,482.83	6,020.93	5,832.87	188.06	32.016	
17,000.00	6,942.13	6,998.27	6,997.13	167.88	148.06	-90.09	1,516.31	4,482.83	6,120.01	5,931.99	188.02	32.550	
17,100.00	6,942.15	6,998.29	6,997.15	169.47	148.06	-90.09	1,516.31	4,482.83	6,219.11	6,031.13	187.98	33.084	
17,200.00	6,942.17	6,998.31	6,997.17	171.05	148.06	-90.10	1,516.31	4,482.83	6,318.24	6,130.29	187.94	33.618	
17,300.00	6,942.20	6,998.33	6,997.20	172.64	148.06	-90.10	1,516.31	4,482.83	6,417.39	6,229.48	187.91	34.151	
17,400.00	6,942.22	6,998.35	6,997.22	174.23	148.06	-90.10	1,516.31	4,482.83	6,516.57	6,328.69	187.89	34.684	
17,500.00	6,942.24	6,998.38	6,997.24	175.81	148.06	-90.10	1,516.31	4,482.83	6,615.78	6,427.92	187.86	35.216	
17,600.00	6,942.26	6,998.40	6,997.26	177.40	148.06	-90.10	1,516.31	4,482.83	6,715.01	6,527.17	187.84	35.748	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #53 - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 300-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	6,942.28	6,998.42	6,997.28	178.99	148.07	-90.10	1,516.31	4,482.83	6,814.27	6,626.44	187.83	36.279	
17,800.00	6,942.31	6,998.44	6,997.31	180.57	148.07	-90.11	1,516.31	4,482.83	6,913.54	6,725.72	187.82	36.810	
17,900.00	6,942.33	6,998.46	6,997.33	182.16	148.07	-90.11	1,516.31	4,482.83	7,012.83	6,825.03	187.81	37.341	
18,000.00	6,942.35	6,998.49	6,997.35	183.75	148.07	-90.11	1,516.31	4,482.83	7,112.15	6,924.35	187.80	37.871	
18,100.00	6,942.37	6,998.51	6,997.37	185.34	148.07	-90.11	1,516.31	4,482.83	7,211.48	7,023.69	187.80	38.401	
18,200.00	6,942.39	6,998.53	6,997.39	186.93	148.07	-90.11	1,516.31	4,482.83	7,310.84	7,123.04	187.80	38.930	
18,300.00	6,942.42	6,998.55	6,997.42	188.52	148.07	-90.11	1,516.31	4,482.83	7,410.20	7,222.41	187.80	39.458	
18,400.00	6,942.44	6,998.57	6,997.44	190.10	148.07	-90.11	1,516.31	4,482.83	7,509.59	7,321.79	187.80	39.987	
18,500.00	6,942.46	6,998.60	6,997.46	191.69	148.07	-90.12	1,516.31	4,482.83	7,608.99	7,421.18	187.81	40.514	
18,600.00	6,942.48	6,998.62	6,997.48	193.28	148.07	-90.12	1,516.31	4,482.83	7,708.41	7,520.59	187.82	41.042	
18,700.00	6,942.51	6,998.64	6,997.51	194.87	148.07	-90.12	1,516.31	4,482.83	7,807.84	7,620.01	187.83	41.568	
18,800.00	6,942.53	6,998.66	6,997.53	196.46	148.07	-90.12	1,516.31	4,482.83	7,907.29	7,719.44	187.85	42.094	
18,900.00	6,942.55	6,998.68	6,997.55	198.05	148.07	-90.12	1,516.31	4,482.83	8,006.75	7,818.89	187.86	42.620	
19,000.00	6,942.57	6,998.71	6,997.57	199.64	148.07	-90.12	1,516.31	4,482.83	8,106.22	7,918.34	187.88	43.145	
19,100.00	6,942.59	6,998.73	6,997.59	201.23	148.07	-90.13	1,516.31	4,482.83	8,205.71	8,017.81	187.90	43.670	
19,200.00	6,942.62	6,998.75	6,997.62	202.82	148.07	-90.13	1,516.31	4,482.83	8,305.21	8,117.28	187.93	44.194	
19,300.00	6,942.64	6,998.77	6,997.64	204.41	148.07	-90.13	1,516.31	4,482.83	8,404.72	8,216.77	187.95	44.718	
19,400.00	6,942.66	6,998.80	6,997.66	206.00	148.07	-90.13	1,516.31	4,482.83	8,504.24	8,316.27	187.98	45.241	
19,500.00	6,942.68	6,998.82	6,997.68	207.59	148.07	-90.13	1,516.31	4,482.83	8,603.78	8,415.77	188.01	45.763	
19,600.00	6,942.70	6,998.84	6,997.70	209.18	148.07	-90.13	1,516.31	4,482.83	8,703.32	8,515.28	188.04	46.285	
19,700.00	6,942.73	6,998.86	6,997.73	210.78	148.08	-90.13	1,516.31	4,482.83	8,802.88	8,614.81	188.07	46.806	
19,800.00	6,942.75	6,998.88	6,997.75	212.37	148.08	-90.14	1,516.31	4,482.83	8,902.44	8,714.34	188.10	47.327	
19,900.00	6,942.77	6,998.91	6,997.77	213.96	148.08	-90.14	1,516.31	4,482.83	9,002.01	8,813.87	188.14	47.847	
20,000.00	6,942.79	6,998.93	6,997.79	215.55	148.08	-90.14	1,516.31	4,482.83	9,101.60	8,913.42	188.18	48.367	
20,100.00	6,942.81	6,998.95	6,997.81	217.14	148.08	-90.14	1,516.31	4,482.83	9,201.19	9,012.97	188.22	48.886	
20,200.00	6,942.84	6,998.97	6,997.84	218.73	148.08	-90.14	1,516.31	4,482.83	9,300.79	9,112.53	188.26	49.405	
20,300.00	6,942.86	6,998.99	6,997.86	220.32	148.08	-90.14	1,516.31	4,482.83	9,400.40	9,212.10	188.30	49.923	
20,400.00	6,942.88	6,999.02	6,997.88	221.92	148.08	-90.15	1,516.31	4,482.83	9,500.02	9,311.68	188.34	50.440	
20,500.00	6,942.90	6,999.04	6,997.90	223.51	148.08	-90.15	1,516.31	4,482.83	9,599.65	9,411.26	188.39	50.957	
20,600.00	6,942.92	6,999.06	6,997.92	225.10	148.08	-90.15	1,516.31	4,482.83	9,699.28	9,510.84	188.44	51.473	
20,700.00	6,942.95	6,999.08	6,997.95	226.69	148.08	-90.15	1,516.31	4,482.83	9,798.92	9,610.44	188.48	51.988	
20,800.00	6,942.97	6,999.10	6,997.97	228.28	148.08	-90.15	1,516.31	4,482.83	9,898.57	9,710.04	188.53	52.503	
20,900.00	6,942.99	6,999.13	6,997.99	229.88	148.08	-90.15	1,516.31	4,482.83	9,998.22	9,809.64	188.58	53.018	
20,942.50	6,943.00	6,999.14	6,998.00	230.42	148.08	-90.15	1,516.31	4,482.83	10,040.58	9,847.97	192.60	52.131	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
0.00	0.00	0.00	0.00	0.00	0.00	-35.11	61.53	-43.27	75.22				
58.45	58.45	58.59	58.59	0.02	0.02	86.96	61.55	-43.14	75.14	75.12	0.02	3,193.508	
150.25	150.24	150.48	150.48	0.14	0.13	69.79	61.59	-42.67	74.70	74.53	0.17	440.940	
239.43	239.42	239.79	239.79	0.25	0.25	65.35	61.50	-42.16	73.95	73.62	0.32	228.212	
299.93	299.91	300.45	300.44	0.33	0.33	71.04	61.31	-41.76	73.29	72.85	0.44	166.470	
446.00	445.96	446.95	446.93	0.50	0.50	97.66	60.19	-40.61	71.61	70.82	0.78	91.225	
515.95	515.90	516.55	516.51	0.67	0.67	139.67	60.08	-39.18	71.22	70.04	1.18	60.228	CC
537.00	536.95	537.44	537.39	0.73	0.73	161.32	60.28	-38.45	71.26	69.95	1.30	54.627	ES
624.00	623.95	623.15	622.98	0.99	0.99	-112.50	62.47	-34.47	72.26	70.40	1.87	38.723	
718.00	717.90	714.03	713.55	1.29	1.30	-91.44	67.96	-29.53	75.96	73.46	2.50	30.360	
811.00	810.73	803.35	802.27	1.60	1.61	-70.26	77.17	-24.97	82.19	79.05	3.14	26.163	
903.00	902.19	891.46	889.36	1.92	1.93	-58.74	90.05	-21.31	89.17	85.39	3.78	23.595	
994.00	992.38	980.51	976.88	2.24	2.28	-57.37	106.14	-17.99	97.12	92.69	4.43	21.911	
1,084.00	1,081.50	1,068.96	1,063.70	2.56	2.63	-53.71	122.73	-14.81	104.67	99.57	5.10	20.537	
1,175.00	1,171.48	1,159.04	1,151.73	2.91	3.01	-49.93	141.36	-10.83	112.49	106.71	5.78	19.458	
1,268.00	1,263.52	1,251.54	1,242.16	3.26	3.40	-47.97	160.35	-6.49	120.08	113.58	6.49	18.498	
1,363.00	1,357.62	1,344.66	1,333.06	3.63	3.80	-44.34	180.15	-2.49	128.65	121.45	7.20	17.862	
1,457.00	1,450.74	1,437.10	1,423.14	3.99	4.20	-41.03	200.67	0.67	137.85	129.94	7.91	17.425	
1,552.00	1,544.82	1,530.59	1,514.22	4.36	4.61	-39.92	221.63	2.97	147.23	138.60	8.63	17.061	
1,646.00	1,637.88	1,623.89	1,605.00	4.72	5.02	-39.32	243.11	4.64	156.99	147.64	9.35	16.790	
1,741.00	1,731.94	1,720.70	1,699.20	5.09	5.45	-38.20	265.16	8.02	166.14	156.04	10.10	16.450	
1,835.00	1,825.07	1,816.10	1,792.24	5.46	5.88	-37.16	285.79	12.56	174.15	163.32	10.83	16.077	
1,929.00	1,918.39	1,909.55	1,883.46	5.82	6.29	-37.34	305.57	16.87	182.98	171.44	11.54	15.850	
2,024.00	2,012.84	2,003.71	1,975.40	6.18	6.71	-34.97	325.58	20.67	193.18	180.92	12.26	15.761	
2,118.00	2,106.19	2,096.17	2,065.74	6.53	7.11	-34.17	345.06	23.56	202.59	189.63	12.96	15.633	
2,213.00	2,200.37	2,190.14	2,157.41	6.90	7.53	-35.25	365.57	26.06	211.85	198.17	13.68	15.486	
2,307.00	2,293.61	2,287.68	2,252.72	7.27	7.96	-33.07	386.08	28.75	220.56	206.13	14.43	15.287	
2,402.00	2,387.91	2,387.01	2,350.22	7.63	8.38	-28.80	404.77	32.14	227.29	212.12	15.17	14.980	
2,496.00	2,481.29	2,483.14	2,444.89	7.99	8.78	-27.33	421.26	34.50	232.90	217.01	15.89	14.658	
2,591.00	2,575.67	2,577.76	2,538.17	8.35	9.17	-28.53	436.95	36.89	238.11	221.51	16.60	14.346	
2,686.00	2,670.05	2,672.83	2,631.74	8.71	9.57	-27.59	453.37	40.50	243.76	226.46	17.31	14.085	
2,780.00	2,763.49	2,767.24	2,724.70	9.07	9.96	-28.95	469.33	44.67	249.31	231.30	18.01	13.844	
2,875.00	2,857.94	2,862.59	2,818.59	9.43	10.36	-29.80	485.40	48.77	255.28	236.56	18.72	13.638	
2,970.00	2,952.51	2,959.23	2,913.82	9.79	10.76	-25.54	501.23	53.21	261.76	242.34	19.43	13.475	
3,064.00	3,046.19	3,056.54	3,009.93	10.13	11.15	-17.63	516.07	56.98	268.05	247.93	20.12	13.320	
3,159.00	3,140.98	3,152.15	3,104.55	10.47	11.53	-14.91	529.37	59.97	274.43	253.62	20.81	13.188	
3,253.00	3,234.84	3,244.34	3,195.78	10.81	11.90	-21.96	542.45	62.52	282.43	260.95	21.48	13.151	
3,348.00	3,329.74	3,340.40	3,290.74	11.14	12.28	-28.77	556.45	66.32	291.67	269.51	22.16	13.162	
3,397.00	3,378.70	3,389.93	3,339.75	11.32	12.48	-29.28	563.29	68.30	296.31	273.80	22.51	13.161	
3,488.00	3,469.63	3,476.69	3,425.57	11.64	12.83	-31.29	575.74	71.16	305.87	282.72	23.15	13.213	
3,583.00	3,564.49	3,567.32	3,515.07	11.98	13.19	-22.48	589.80	73.72	315.56	291.74	23.82	13.250	
3,677.00	3,658.13	3,653.35	3,599.76	12.33	13.55	-20.39	604.65	76.32	323.79	299.33	24.46	13.238	
3,772.00	3,752.42	3,738.10	3,682.71	12.69	13.92	-15.53	621.64	79.77	331.42	306.33	25.09	13.210	
3,867.00	3,846.42	3,826.78	3,768.95	13.06	14.32	-13.42	641.83	84.13	339.26	313.51	25.74	13.178	
3,961.00	3,939.30	3,916.81	3,856.23	13.44	14.74	-13.08	663.41	88.73	347.31	320.89	26.42	13.147	
4,056.00	4,032.83	4,005.94	3,942.37	13.82	15.16	-15.91	685.79	93.52	354.74	327.65	27.08	13.099	
4,151.00	4,126.01	4,092.49	4,025.53	14.21	15.58	-14.65	709.21	98.74	362.31	334.60	27.72	13.073	
4,246.00	4,219.10	4,180.91	4,109.91	14.61	16.02	-21.54	735.10	104.05	371.96	343.59	28.38	13.109	
4,340.00	4,310.92	4,271.65	4,196.32	15.01	16.48	-30.52	762.34	108.98	382.08	352.99	29.10	13.132	
4,435.00	4,403.54	4,361.60	4,281.69	15.41	16.94	-31.60	790.25	113.88	393.41	363.60	29.81	13.197	
4,498.00	4,465.21	4,421.71	4,338.52	15.68	17.25	-29.78	809.41	117.90	402.31	372.02	30.29	13.283	
4,561.00	4,526.82	4,492.89	4,405.93	15.95	17.61	-24.78	831.66	123.07	410.16	379.24	30.92	13.266	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
4,624.00	4,588.23	4,562.73	4,472.57	16.22	17.96	-23.01	852.04	127.75	415.44	383.92	31.52	13.180	
4,687.00	4,649.71	4,630.09	4,537.14	16.49	18.30	-22.54	870.79	131.77	420.08	388.00	32.08	13.095	
4,749.00	4,710.40	4,693.90	4,598.46	16.75	18.61	-21.28	888.09	135.35	424.95	392.36	32.60	13.036	
4,812.00	4,772.28	4,764.88	4,666.88	17.01	18.95	-20.46	906.60	139.06	430.17	396.99	33.18	12.964	
4,875.00	4,834.34	4,839.43	4,739.25	17.27	19.30	-20.90	924.21	142.21	434.70	400.92	33.78	12.868	
4,938.00	4,896.43	4,910.98	4,809.12	17.53	19.61	-21.18	939.42	144.63	438.02	403.68	34.34	12.757	
5,001.00	4,958.46	4,982.00	4,878.76	17.79	19.92	-24.54	953.17	146.78	439.87	404.99	34.88	12.612	
5,064.00	5,020.29	5,053.74	4,949.37	18.05	20.22	-29.23	965.69	148.53	439.93	404.51	35.42	12.421	
5,126.00	5,080.98	5,125.56	5,020.34	18.32	20.51	-34.03	976.64	149.94	438.40	402.45	35.95	12.194	
5,189.00	5,142.74	5,196.52	5,090.68	18.58	20.78	-33.12	985.93	151.18	436.07	399.60	36.47	11.957	
5,252.00	5,204.62	5,262.98	5,156.67	18.85	21.03	-33.72	993.71	152.33	433.35	396.37	36.97	11.720	
5,315.00	5,266.61	5,330.61	5,223.89	19.11	21.28	-34.48	1,001.03	153.38	430.69	393.21	37.47	11.494	
5,378.00	5,328.73	5,395.27	5,288.22	19.37	21.51	-34.57	1,007.47	154.38	428.06	390.10	37.96	11.275	
5,441.00	5,390.87	5,458.85	5,351.51	19.62	21.74	-35.63	1,013.63	155.30	425.44	386.98	38.46	11.063	
5,503.00	5,452.07	5,521.01	5,413.37	19.87	21.97	-35.82	1,019.55	156.09	423.08	384.14	38.94	10.864	
5,566.00	5,514.32	5,584.16	5,476.23	20.13	22.19	-36.69	1,025.53	156.99	420.95	381.51	39.43	10.675	
5,629.00	5,576.59	5,650.00	5,541.79	20.38	22.43	-34.76	1,031.54	158.00	418.68	378.76	39.92	10.488	
5,692.00	5,638.95	5,714.50	5,606.04	20.63	22.66	-37.48	1,037.04	159.02	416.51	376.11	40.40	10.309	
5,747.00	5,693.45	5,769.46	5,660.81	20.85	22.85	-35.62	1,041.63	159.89	414.86	374.03	40.82	10.162	
5,810.00	5,755.90	5,832.35	5,723.47	21.09	23.07	-36.74	1,046.87	160.88	413.10	371.80	41.31	10.001	
5,874.00	5,819.40	5,898.11	5,789.01	21.34	23.30	-35.82	1,052.23	161.95	411.58	369.79	41.79	9.849	
5,936.00	5,880.95	5,962.09	5,852.79	21.58	23.53	-36.61	1,057.13	162.99	409.94	367.68	42.25	9.702	
5,999.00	5,943.45	6,027.93	5,918.46	21.82	23.75	-38.51	1,061.73	163.96	407.79	365.07	42.72	9.545	
6,062.00	6,005.96	6,093.76	5,984.16	22.07	23.98	-36.50	1,065.78	164.66	405.14	361.95	43.20	9.379	
6,125.00	6,068.49	6,158.71	6,049.02	22.31	24.19	-39.27	1,069.33	165.22	402.27	358.61	43.67	9.212	
6,188.00	6,131.08	6,223.07	6,113.29	22.55	24.41	-37.90	1,072.54	165.74	399.59	355.45	44.14	9.053	
6,255.00	6,197.73	6,293.09	6,183.25	22.81	24.64	-39.40	1,075.56	166.20	396.92	352.30	44.62	8.895	
6,293.00	6,235.55	6,331.70	6,221.82	22.89	24.76	-39.65	1,077.05	166.44	395.47	350.63	44.84	8.820	
6,300.00	6,242.52	6,338.83	6,228.95	22.89	24.79	-39.70	1,077.31	166.49	395.20	350.33	44.86	8.809	
6,393.00	6,335.09	6,426.82	6,316.88	22.94	25.07	-40.31	1,080.51	166.90	391.55	346.29	45.26	8.651	
6,400.00	6,342.06	6,432.13	6,322.18	22.94	25.09	-46.26	1,080.76	166.84	391.39	346.09	45.30	8.640	
6,416.30	6,358.27	6,444.46	6,334.49	22.95	25.13	-57.93	1,081.42	166.64	391.24	345.85	45.39	8.620	
6,450.00	6,391.66	6,469.80	6,359.76	22.97	25.22	-73.94	1,083.08	165.89	391.90	346.33	45.57	8.601 SF	
6,500.00	6,440.77	6,502.00	6,391.81	23.02	25.32	-86.35	1,085.77	164.27	395.43	349.60	45.83	8.628	
6,550.00	6,489.07	6,534.86	6,424.34	23.07	25.45	-93.15	1,089.52	161.62	402.59	356.51	46.09	8.735	
6,600.00	6,536.26	6,562.12	6,451.10	23.13	25.55	-97.22	1,093.65	158.49	413.92	367.64	46.28	8.944	
6,650.00	6,582.05	6,596.00	6,483.98	23.21	25.68	-100.42	1,100.06	153.43	429.62	383.06	46.56	9.228	
6,700.00	6,626.13	6,596.00	6,483.98	23.29	25.68	-100.18	1,100.06	153.43	449.57	403.33	46.24	9.723	
6,750.00	6,668.24	6,634.80	6,521.07	23.39	25.84	-102.34	1,108.57	145.90	472.65	425.96	46.70	10.122	
6,800.00	6,708.12	6,654.33	6,539.51	23.51	25.91	-102.31	1,113.13	141.35	499.83	453.03	46.80	10.679	
6,850.00	6,745.50	6,670.60	6,554.73	23.64	25.98	-101.36	1,117.07	137.18	530.42	483.53	46.89	11.311	
6,900.00	6,780.15	6,691.00	6,573.63	23.79	26.06	-100.27	1,122.18	131.45	564.14	516.99	47.15	11.965	
6,950.00	6,811.86	6,691.00	6,573.63	23.95	26.06	-96.08	1,122.18	131.45	600.34	553.35	46.98	12.778	
7,000.00	6,840.42	6,691.00	6,573.63	24.14	26.06	-90.97	1,122.18	131.45	638.93	592.05	46.89	13.627	
7,050.00	6,865.66	6,691.00	6,573.63	24.35	26.06	-85.04	1,122.18	131.45	679.29	632.43	46.87	14.493	
7,100.00	6,887.42	6,691.00	6,573.63	24.57	26.06	-78.44	1,122.18	131.45	720.89	673.96	46.93	15.360	
7,150.00	6,905.55	6,691.00	6,573.63	24.82	26.06	-71.43	1,122.18	131.45	763.29	716.22	47.07	16.215	
7,200.00	6,919.95	6,691.00	6,573.63	25.10	26.06	-64.34	1,122.18	131.45	806.11	758.83	47.27	17.052	
7,250.00	6,930.52	6,691.00	6,573.63	25.39	26.06	-57.47	1,122.18	131.45	849.04	801.51	47.53	17.864	
7,300.00	6,937.20	6,691.00	6,573.63	25.70	26.06	-51.06	1,122.18	131.45	891.81	843.99	47.82	18.650	
7,350.00	6,939.94	6,691.00	6,573.63	26.04	26.06	-45.26	1,122.18	131.45	934.20	886.06	48.14	19.407	
7,359.60	6,940.02	6,691.00	6,573.63	26.10	26.06	-44.22	1,122.18	131.45	942.28	894.08	48.20	19.550	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
7,400.00	6,940.03	6,691.00	6,573.63	26.39	26.06	-44.22	1,122.18	131.45	976.46	928.00	48.46	20.151	
7,500.00	6,940.04	6,691.00	6,573.63	27.15	26.06	-44.22	1,122.18	131.45	1,062.96	1,013.95	49.01	21.689	
7,600.00	6,940.06	6,691.00	6,573.63	27.99	26.06	-44.22	1,122.18	131.45	1,151.65	1,102.20	49.45	23.289	
7,659.60	6,940.07	6,691.00	6,573.63	28.52	26.06	-44.22	1,122.18	131.45	1,205.36	1,155.68	49.67	24.267	
7,700.00	6,940.08	6,657.42	6,542.41	28.89	25.93	-42.49	1,113.87	140.58	1,240.69	1,191.36	49.33	25.148	
7,796.63	6,940.10	6,649.10	6,534.59	29.83	25.89	-44.71	1,111.89	142.62	1,327.85	1,278.30	49.54	26.801	
7,800.00	6,940.10	6,648.83	6,534.33	29.86	25.89	-44.69	1,111.83	142.68	1,330.89	1,281.34	49.55	26.859	
7,900.00	6,940.12	6,641.10	6,527.04	30.90	25.86	-44.05	1,110.02	144.49	1,421.82	1,372.08	49.74	28.586	
8,000.00	6,940.14	6,634.00	6,520.32	31.98	25.83	-43.47	1,108.39	146.07	1,513.79	1,463.88	49.90	30.335	
8,100.00	6,940.17	6,596.00	6,483.98	33.11	25.68	-40.51	1,100.06	153.43	1,607.65	1,557.97	49.68	32.358	
8,200.00	6,940.19	6,596.00	6,483.98	34.28	25.68	-40.51	1,100.06	153.43	1,700.85	1,650.95	49.89	34.089	
8,300.00	6,940.21	6,596.00	6,483.98	35.48	25.68	-40.51	1,100.06	153.43	1,794.78	1,744.70	50.08	35.841	
8,400.00	6,940.23	6,596.00	6,483.98	36.71	25.68	-40.51	1,100.06	153.43	1,889.33	1,839.09	50.24	37.608	
8,500.00	6,940.25	6,596.00	6,483.98	37.97	25.68	-40.51	1,100.06	153.43	1,984.41	1,934.03	50.38	39.389	
8,600.00	6,940.28	6,596.00	6,483.98	39.26	25.68	-40.51	1,100.06	153.43	2,079.96	2,029.45	50.51	41.182	
8,700.00	6,940.30	6,596.00	6,483.98	40.56	25.68	-40.51	1,100.06	153.43	2,175.90	2,125.28	50.62	42.984	
8,800.00	6,940.32	6,596.00	6,483.98	41.89	25.68	-40.51	1,100.06	153.43	2,272.20	2,221.47	50.73	44.794	
8,900.00	6,940.34	6,596.00	6,483.98	43.24	25.68	-40.51	1,100.06	153.43	2,368.80	2,317.98	50.82	46.611	
9,000.00	6,940.36	6,596.00	6,483.98	44.60	25.68	-40.51	1,100.06	153.43	2,465.68	2,414.77	50.91	48.433	
9,100.00	6,940.39	6,596.00	6,483.98	45.98	25.68	-40.51	1,100.06	153.43	2,562.79	2,511.80	50.99	50.259	
9,200.00	6,940.41	6,596.00	6,483.98	47.38	25.68	-40.51	1,100.06	153.43	2,660.12	2,609.05	51.07	52.089	
9,300.00	6,940.43	6,596.00	6,483.98	48.78	25.68	-40.51	1,100.06	153.43	2,757.64	2,706.50	51.14	53.922	
9,400.00	6,940.45	6,596.00	6,483.98	50.20	25.68	-40.51	1,100.06	153.43	2,855.33	2,804.12	51.21	55.756	
9,500.00	6,940.47	6,596.00	6,483.98	51.63	25.68	-40.51	1,100.06	153.43	2,953.17	2,901.90	51.28	57.593	
9,600.00	6,940.50	6,596.00	6,483.98	53.07	25.68	-40.51	1,100.06	153.43	3,051.16	2,999.82	51.34	59.430	
9,700.00	6,940.52	6,596.00	6,483.98	54.52	25.68	-40.51	1,100.06	153.43	3,149.27	3,097.87	51.40	61.268	
9,800.00	6,940.54	6,596.00	6,483.98	55.97	25.68	-40.51	1,100.06	153.43	3,247.50	3,196.04	51.46	63.106	
9,900.00	6,940.56	6,596.00	6,483.98	57.44	25.68	-40.51	1,100.06	153.43	3,345.83	3,294.31	51.52	64.944	
10,000.00	6,940.59	6,556.73	6,445.84	58.91	25.53	-37.73	1,092.77	159.17	3,443.03	3,391.70	51.33	67.071	
10,100.00	6,940.61	6,554.51	6,443.65	60.38	25.52	-37.58	1,092.41	159.45	3,541.41	3,490.03	51.38	68.926	
10,200.00	6,940.63	6,552.37	6,441.56	61.87	25.51	-37.44	1,092.07	159.70	3,639.88	3,588.45	51.43	70.780	
10,300.00	6,940.65	6,550.31	6,439.54	63.36	25.51	-37.30	1,091.75	159.95	3,738.42	3,686.95	51.47	72.631	
10,400.00	6,940.67	6,548.33	6,437.60	64.85	25.50	-37.17	1,091.45	160.18	3,837.03	3,785.51	51.52	74.481	
10,500.00	6,940.70	6,546.43	6,435.73	66.35	25.49	-37.05	1,091.16	160.39	3,935.70	3,884.14	51.56	76.329	
10,600.00	6,940.72	6,544.60	6,433.93	67.86	25.49	-36.93	1,090.89	160.60	4,034.43	3,982.82	51.61	78.174	
10,700.00	6,940.74	6,542.83	6,432.19	69.36	25.48	-36.82	1,090.64	160.79	4,133.22	4,081.57	51.65	80.017	
10,800.00	6,940.76	6,502.00	6,391.81	70.88	25.32	-34.40	1,085.77	164.27	4,233.22	4,181.72	51.50	82.198	
10,900.00	6,940.78	6,502.00	6,391.81	72.39	25.32	-34.40	1,085.77	164.27	4,332.01	4,280.45	51.56	84.023	
11,000.00	6,940.81	6,502.00	6,391.81	73.91	25.32	-34.40	1,085.77	164.27	4,430.85	4,379.24	51.61	85.845	
11,100.00	6,940.83	6,502.00	6,391.81	75.44	25.32	-34.40	1,085.77	164.27	4,529.75	4,478.08	51.67	87.664	
11,200.00	6,940.85	6,502.00	6,391.81	76.96	25.32	-34.40	1,085.77	164.27	4,628.69	4,576.96	51.73	89.481	
11,300.00	6,940.87	6,502.00	6,391.81	78.49	25.32	-34.40	1,085.77	164.27	4,727.68	4,675.89	51.79	91.294	
11,400.00	6,940.89	6,502.00	6,391.81	80.03	25.32	-34.40	1,085.77	164.27	4,826.71	4,774.86	51.84	93.104	
11,500.00	6,940.92	6,502.00	6,391.81	81.56	25.32	-34.40	1,085.77	164.27	4,925.77	4,873.87	51.90	94.911	
11,600.00	6,940.94	6,502.00	6,391.81	83.10	25.32	-34.40	1,085.77	164.27	5,024.88	4,972.92	51.96	96.714	
11,700.00	6,940.96	6,502.00	6,391.81	84.64	25.32	-34.40	1,085.77	164.27	5,124.02	5,072.00	52.01	98.513	
11,800.00	6,940.98	6,502.00	6,391.81	86.18	25.32	-34.40	1,085.77	164.27	5,223.19	5,171.12	52.07	100.309	
11,900.00	6,941.00	6,502.00	6,391.81	87.72	25.32	-34.40	1,085.77	164.27	5,322.39	5,270.27	52.13	102.101	
12,000.00	6,941.03	6,502.00	6,391.81	89.27	25.32	-34.40	1,085.77	164.27	5,421.63	5,369.44	52.19	103.889	
12,100.00	6,941.05	6,502.00	6,391.81	90.82	25.32	-34.40	1,085.77	164.27	5,520.89	5,468.64	52.25	105.672	
12,200.00	6,941.07	6,502.00	6,391.81	92.37	25.32	-34.40	1,085.77	164.27	5,620.17	5,567.87	52.30	107.452	
12,300.00	6,941.09	6,502.00	6,391.81	93.92	25.32	-34.40	1,085.77	164.27	5,719.49	5,667.12	52.36	109.227	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
12,400.00	6,941.11	6,502.00	6,391.81	95.47	25.32	-34.40	1,085.77	164.27	5,818.82	5,766.40	52.42	110.998	
12,500.00	6,941.14	6,502.00	6,391.81	97.03	25.32	-34.40	1,085.77	164.27	5,918.18	5,865.70	52.48	112.764	
12,600.00	6,941.16	6,502.00	6,391.81	98.58	25.32	-34.40	1,085.77	164.27	6,017.56	5,965.01	52.54	114.526	
12,700.00	6,941.18	6,502.00	6,391.81	100.14	25.32	-34.40	1,085.77	164.27	6,116.96	6,064.35	52.60	116.283	
12,800.00	6,941.20	6,502.00	6,391.81	101.70	25.32	-34.40	1,085.77	164.27	6,216.37	6,163.71	52.67	118.035	
12,900.00	6,941.23	6,502.00	6,391.81	103.26	25.32	-34.40	1,085.77	164.27	6,315.81	6,263.08	52.73	119.783	
13,000.00	6,941.25	6,502.00	6,391.81	104.82	25.32	-34.40	1,085.77	164.27	6,415.26	6,362.48	52.79	121.526	
13,100.00	6,941.27	6,502.00	6,391.81	106.38	25.32	-34.40	1,085.77	164.27	6,514.74	6,461.88	52.85	123.263	
13,200.00	6,941.29	6,502.00	6,391.81	107.95	25.32	-34.40	1,085.77	164.27	6,614.22	6,561.31	52.92	124.996	
13,300.00	6,941.31	6,502.00	6,391.81	109.51	25.32	-34.40	1,085.77	164.27	6,713.72	6,660.75	52.98	126.724	
13,400.00	6,941.34	6,502.00	6,391.81	111.08	25.32	-34.40	1,085.77	164.27	6,813.24	6,760.20	53.04	128.446	
13,500.00	6,941.36	6,502.00	6,391.81	112.64	25.32	-34.40	1,085.77	164.27	6,912.77	6,859.66	53.11	130.163	
13,600.00	6,941.38	6,502.00	6,391.81	114.21	25.32	-34.40	1,085.77	164.27	7,012.32	6,959.14	53.17	131.875	
13,700.00	6,941.40	6,502.00	6,391.81	115.78	25.32	-34.40	1,085.77	164.27	7,111.87	7,058.63	53.24	133.582	
13,800.00	6,941.42	6,502.00	6,391.81	117.35	25.32	-34.40	1,085.77	164.27	7,211.44	7,158.14	53.31	135.283	
13,900.00	6,941.45	6,502.00	6,391.81	118.92	25.32	-34.40	1,085.77	164.27	7,311.02	7,257.65	53.37	136.979	
14,000.00	6,941.47	6,502.00	6,391.81	120.49	25.32	-34.40	1,085.77	164.27	7,410.61	7,357.17	53.44	138.669	
14,100.00	6,941.49	6,502.00	6,391.81	122.06	25.32	-34.40	1,085.77	164.27	7,510.22	7,456.71	53.51	140.354	
14,200.00	6,941.51	6,502.00	6,391.81	123.64	25.32	-34.40	1,085.77	164.27	7,609.83	7,556.25	53.58	142.033	
14,300.00	6,941.53	6,502.00	6,391.81	125.21	25.32	-34.40	1,085.77	164.27	7,709.45	7,655.81	53.65	143.707	
14,400.00	6,941.56	6,502.00	6,391.81	126.78	25.32	-34.40	1,085.77	164.27	7,809.09	7,755.37	53.72	145.375	
14,500.00	6,941.58	6,502.00	6,391.81	128.36	25.32	-34.40	1,085.77	164.27	7,908.73	7,854.94	53.79	147.037	
14,600.00	6,941.60	6,502.00	6,391.81	129.93	25.32	-34.40	1,085.77	164.27	8,008.38	7,954.52	53.86	148.693	
14,700.00	6,941.62	6,502.00	6,391.81	131.51	25.32	-34.40	1,085.77	164.27	8,108.04	8,054.11	53.93	150.344	
14,800.00	6,941.64	6,502.00	6,391.81	133.08	25.32	-34.40	1,085.77	164.27	8,207.71	8,153.71	54.00	151.989	
14,900.00	6,941.67	6,502.00	6,391.81	134.66	25.32	-34.40	1,085.77	164.27	8,307.38	8,253.31	54.07	153.628	
15,000.00	6,941.69	6,502.00	6,391.81	136.24	25.32	-34.40	1,085.77	164.27	8,407.07	8,352.92	54.15	155.261	
15,100.00	6,941.71	6,502.00	6,391.81	137.82	25.32	-34.40	1,085.77	164.27	8,506.76	8,452.54	54.22	156.889	
15,200.00	6,941.73	6,502.00	6,391.81	139.40	25.32	-34.40	1,085.77	164.27	8,606.46	8,552.16	54.30	158.510	
15,300.00	6,941.75	6,502.00	6,391.81	140.97	25.32	-34.40	1,085.77	164.27	8,706.16	8,651.79	54.37	160.126	
15,400.00	6,941.78	6,502.00	6,391.81	142.55	25.32	-34.40	1,085.77	164.27	8,805.87	8,751.43	54.45	161.735	
15,500.00	6,941.80	6,502.00	6,391.81	144.13	25.32	-34.40	1,085.77	164.27	8,905.59	8,851.07	54.52	163.339	
15,600.00	6,941.82	6,502.00	6,391.81	145.72	25.32	-34.40	1,085.77	164.27	9,005.32	8,950.72	54.60	164.936	
15,700.00	6,941.84	6,502.00	6,391.81	147.30	25.32	-34.40	1,085.77	164.27	9,105.05	9,050.37	54.68	166.527	
15,800.00	6,941.87	6,502.00	6,391.81	148.88	25.32	-34.40	1,085.77	164.27	9,204.78	9,150.03	54.75	168.113	
15,900.00	6,941.89	6,502.00	6,391.81	150.46	25.32	-34.40	1,085.77	164.27	9,304.53	9,249.70	54.83	169.692	
16,000.00	6,941.91	6,502.00	6,391.81	152.04	25.32	-34.40	1,085.77	164.27	9,404.27	9,349.36	54.91	171.265	
16,100.00	6,941.93	6,502.00	6,391.81	153.62	25.32	-34.40	1,085.77	164.27	9,504.03	9,449.04	54.99	172.832	
16,200.00	6,941.95	6,502.00	6,391.81	155.21	25.32	-34.40	1,085.77	164.27	9,603.79	9,548.72	55.07	174.393	
16,300.00	6,941.98	6,502.00	6,391.81	156.79	25.32	-34.40	1,085.77	164.27	9,703.55	9,648.40	55.15	175.948	
16,400.00	6,942.00	6,502.00	6,391.81	158.37	25.32	-34.40	1,085.77	164.27	9,803.32	9,748.09	55.23	177.497	
16,500.00	6,942.02	6,502.00	6,391.81	159.96	25.32	-34.40	1,085.77	164.27	9,903.09	9,847.78	55.31	179.039	
16,600.00	6,942.04	6,502.00	6,391.81	161.54	25.32	-34.40	1,085.77	164.27	10,002.87	9,947.47	55.39	180.575	
16,700.00	6,942.06	6,502.00	6,391.81	163.13	25.32	-34.40	1,085.77	164.27	10,102.65	10,047.17	55.48	182.105	
16,800.00	6,942.09	6,502.00	6,391.81	164.71	25.32	-34.40	1,085.77	164.27	10,202.43	10,146.87	55.56	183.629	
16,900.00	6,942.11	6,502.00	6,391.81	166.30	25.32	-34.40	1,085.77	164.27	10,302.22	10,246.58	55.64	185.147	
17,000.00	6,942.13	6,502.00	6,391.81	167.88	25.32	-34.40	1,085.77	164.27	10,402.02	10,346.29	55.73	186.658	
17,100.00	6,942.15	6,502.00	6,391.81	169.47	25.32	-34.40	1,085.77	164.27	10,501.82	10,446.00	55.81	188.163	
17,200.00	6,942.17	6,502.00	6,391.81	171.05	25.32	-34.40	1,085.77	164.27	10,601.62	10,545.72	55.90	189.662	
17,300.00	6,942.20	6,502.00	6,391.81	172.64	25.32	-34.40	1,085.77	164.27	10,701.42	10,645.44	55.98	191.155	
17,400.00	6,942.22	6,502.00	6,391.81	174.23	25.32	-34.40	1,085.77	164.27	10,801.23	10,745.16	56.07	192.642	
17,500.00	6,942.24	6,502.00	6,391.81	175.81	25.32	-34.40	1,085.77	164.27	10,901.04	10,844.89	56.16	194.122	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
17,600.00	6,942.26	6,502.00	6,391.81	177.40	25.32	-34.40	1,085.77	164.27	11,000.86	10,944.62	56.24	195.596	
17,700.00	6,942.28	6,502.00	6,391.81	178.99	25.32	-34.40	1,085.77	164.27	11,100.68	11,044.35	56.33	197.064	
17,800.00	6,942.31	6,502.00	6,391.81	180.57	25.32	-34.40	1,085.77	164.27	11,200.50	11,144.08	56.42	198.526	
17,900.00	6,942.33	6,502.00	6,391.81	182.16	25.32	-34.40	1,085.77	164.27	11,300.33	11,243.82	56.51	199.981	
18,000.00	6,942.35	6,502.00	6,391.81	183.75	25.32	-34.40	1,085.77	164.27	11,400.16	11,343.56	56.60	201.430	
18,100.00	6,942.37	6,502.00	6,391.81	185.34	25.32	-34.40	1,085.77	164.27	11,499.99	11,443.30	56.69	202.873	
18,200.00	6,942.39	6,502.00	6,391.81	186.93	25.32	-34.40	1,085.77	164.27	11,599.82	11,543.05	56.78	204.310	
18,300.00	6,942.42	6,502.00	6,391.81	188.52	25.32	-34.40	1,085.77	164.27	11,699.66	11,642.79	56.87	205.740	
18,400.00	6,942.44	6,502.00	6,391.81	190.10	25.32	-34.40	1,085.77	164.27	11,799.50	11,742.54	56.96	207.164	
18,500.00	6,942.46	6,502.00	6,391.81	191.69	25.32	-34.40	1,085.77	164.27	11,899.34	11,842.29	57.05	208.582	
18,600.00	6,942.48	6,502.00	6,391.81	193.28	25.32	-34.40	1,085.77	164.27	11,999.19	11,942.05	57.14	209.994	
18,700.00	6,942.51	6,502.00	6,391.81	194.87	25.32	-34.40	1,085.77	164.27	12,099.04	12,041.80	57.23	211.400	
18,800.00	6,942.53	6,502.00	6,391.81	196.46	25.32	-34.40	1,085.77	164.27	12,198.89	12,141.56	57.33	212.799	
18,900.00	6,942.55	6,502.00	6,391.81	198.05	25.32	-34.40	1,085.77	164.27	12,298.74	12,241.32	57.42	214.193	
19,000.00	6,942.57	6,502.00	6,391.81	199.64	25.32	-34.40	1,085.77	164.27	12,398.59	12,341.08	57.51	215.580	
19,100.00	6,942.59	6,502.00	6,391.81	201.23	25.32	-34.40	1,085.77	164.27	12,498.45	12,440.84	57.61	216.961	
19,200.00	6,942.62	6,502.00	6,391.81	202.82	25.32	-34.40	1,085.77	164.27	12,598.31	12,540.61	57.70	218.335	
19,300.00	6,942.64	6,502.00	6,391.81	204.41	25.32	-34.40	1,085.77	164.27	12,698.17	12,640.38	57.80	219.704	
19,400.00	6,942.66	6,502.00	6,391.81	206.00	25.32	-34.40	1,085.77	164.27	12,798.04	12,740.15	57.89	221.067	
19,500.00	6,942.68	6,502.00	6,391.81	207.59	25.32	-34.40	1,085.77	164.27	12,897.90	12,839.92	57.99	222.423	
19,600.00	6,942.70	6,502.00	6,391.81	209.18	25.32	-34.40	1,085.77	164.27	12,997.77	12,939.69	58.08	223.773	
19,700.00	6,942.73	6,502.00	6,391.81	210.78	25.32	-34.40	1,085.77	164.27	13,097.64	13,039.46	58.18	225.118	
19,800.00	6,942.75	6,502.00	6,391.81	212.37	25.32	-34.40	1,085.77	164.27	13,197.52	13,139.24	58.28	226.456	
19,900.00	6,942.77	6,502.00	6,391.81	213.96	25.32	-34.40	1,085.77	164.27	13,297.39	13,239.01	58.38	227.788	
20,000.00	6,942.79	6,502.00	6,391.81	215.55	25.32	-34.40	1,085.77	164.27	13,397.27	13,338.79	58.47	229.114	
20,100.00	6,942.81	6,502.00	6,391.81	217.14	25.32	-34.40	1,085.77	164.27	13,497.14	13,438.57	58.57	230.434	
20,200.00	6,942.84	6,502.00	6,391.81	218.73	25.32	-34.40	1,085.77	164.27	13,597.02	13,538.35	58.67	231.748	
20,300.00	6,942.86	6,502.00	6,391.81	220.32	25.32	-34.40	1,085.77	164.27	13,696.90	13,638.13	58.77	233.056	
20,400.00	6,942.88	6,502.00	6,391.81	221.92	25.32	-34.40	1,085.77	164.27	13,796.79	13,737.92	58.87	234.358	
20,500.00	6,942.90	6,502.00	6,391.81	223.51	25.32	-34.40	1,085.77	164.27	13,896.67	13,837.70	58.97	235.654	
20,600.00	6,942.92	6,502.00	6,391.81	225.10	25.32	-34.40	1,085.77	164.27	13,996.56	13,937.49	59.07	236.944	
20,700.00	6,942.95	6,502.00	6,391.81	226.69	25.32	-34.40	1,085.77	164.27	14,096.45	14,037.28	59.17	238.228	
20,800.00	6,942.97	6,502.00	6,391.81	228.28	25.32	-34.40	1,085.77	164.27	14,196.34	14,137.06	59.27	239.506	
20,900.00	6,942.99	6,502.00	6,391.81	229.88	25.32	-34.40	1,085.77	164.27	14,296.23	14,236.85	59.38	240.778	
20,942.50	6,943.00	6,502.00	6,391.81	230.42	25.32	-34.40	1,085.77	164.27	14,338.68	14,274.79	63.89	224.412	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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	-35.13	41.14	-28.94	50.30				
58.45	58.45	58.34	58.34	0.02	0.02	86.83	41.11	-29.10	50.35	50.32	0.02	2,134.495	
150.25	150.24	150.20	150.20	0.14	0.13	69.27	41.00	-29.53	50.28	50.13	0.16	319.273	
239.43	239.42	239.45	239.45	0.25	0.25	64.47	40.81	-29.85	49.89	49.60	0.29	172.849	
299.93	299.91	300.03	300.03	0.33	0.32	69.83	40.55	-30.09	49.50	49.13	0.37	132.016	
446.00	445.96	446.18	446.18	0.50	0.49	96.46	39.86	-30.21	48.80	48.09	0.70	69.355	
537.00	536.95	537.78	537.77	0.73	0.71	159.04	39.04	-29.69	48.40	47.14	1.26	38.427	
624.00	623.95	625.08	625.05	0.99	0.99	-118.36	37.61	-28.65	47.44	45.59	1.84	25.749	
718.00	717.90	718.46	718.41	1.29	1.30	-102.52	36.71	-27.05	46.61	44.13	2.48	18.783	
811.00	810.73	810.88	810.82	1.60	1.61	-88.37	36.92	-25.68	46.22	43.10	3.12	14.797	
899.27	898.50	898.23	898.16	1.91	1.90	-86.80	37.97	-24.93	45.86	42.12	3.74	12.256	CC
903.00	902.19	901.91	901.84	1.92	1.91	-87.05	38.04	-24.90	45.86	42.09	3.77	12.171	ES
994.00	992.38	992.22	992.14	2.24	2.21	-98.98	38.71	-24.92	46.93	42.51	4.42	10.627	
1,084.00	1,081.50	1,079.74	1,079.62	2.56	2.51	-110.69	37.37	-27.13	51.90	46.85	5.06	10.267	SF
1,175.00	1,171.48	1,168.58	1,168.31	2.91	2.81	-122.24	34.25	-31.14	61.99	56.29	5.70	10.878	
1,268.00	1,263.52	1,259.02	1,258.52	3.26	3.13	-132.45	29.77	-35.72	75.65	69.31	6.34	11.926	
1,363.00	1,357.62	1,350.44	1,349.62	3.63	3.45	-137.85	24.32	-41.15	92.21	85.22	6.99	13.189	
1,457.00	1,450.74	1,442.17	1,440.93	3.99	3.77	-141.42	17.92	-47.27	110.58	102.94	7.64	14.471	
1,552.00	1,544.82	1,536.63	1,534.98	4.36	4.11	-146.19	10.51	-51.75	129.11	120.79	8.32	15.519	
1,646.00	1,637.88	1,630.11	1,628.10	4.72	4.45	-150.69	2.55	-53.83	147.06	138.07	8.99	16.362	
1,741.00	1,731.94	1,723.92	1,721.57	5.09	4.80	-154.44	-5.32	-54.66	164.93	155.27	9.66	17.069	
1,835.00	1,825.07	1,816.71	1,814.09	5.46	5.14	-157.56	-12.48	-55.41	182.30	171.97	10.33	17.648	
1,929.00	1,918.39	1,910.95	1,908.09	5.82	5.48	-161.14	-18.96	-56.11	198.23	187.23	11.01	18.011	
2,024.00	2,012.84	2,006.43	2,003.41	6.18	5.83	-161.66	-24.66	-56.16	212.36	200.67	11.69	18.165	
2,118.00	2,106.19	2,099.13	2,095.95	6.53	6.17	-163.16	-29.91	-55.91	226.91	214.55	12.36	18.358	
2,213.00	2,200.37	2,191.08	2,187.74	6.90	6.51	-166.09	-35.40	-55.74	243.43	230.40	13.03	18.683	
2,307.00	2,293.61	2,282.06	2,278.52	7.27	6.84	-165.53	-41.55	-55.65	260.20	246.51	13.69	19.007	
2,402.00	2,387.91	2,374.12	2,370.32	7.63	7.18	-163.10	-48.30	-55.25	276.90	262.54	14.36	19.288	
2,496.00	2,481.29	2,464.97	2,460.88	7.99	7.52	-163.33	-55.62	-54.90	293.52	278.51	15.01	19.551	
2,591.00	2,575.67	2,557.37	2,552.95	8.35	7.86	-166.15	-63.35	-54.45	310.64	294.96	15.68	19.807	
2,686.00	2,670.05	2,648.79	2,643.99	8.71	8.20	-167.00	-71.64	-53.71	328.33	311.98	16.35	20.085	
2,780.00	2,763.49	2,739.70	2,734.48	9.07	8.54	-170.20	-80.37	-52.90	346.07	329.06	17.01	20.349	
2,875.00	2,857.94	2,831.51	2,825.82	9.43	8.89	-172.70	-89.61	-51.76	364.18	346.51	17.67	20.606	
2,970.00	2,952.51	2,924.20	2,917.98	9.79	9.24	-170.09	-99.46	-50.58	381.69	363.34	18.34	20.806	
3,064.00	3,046.19	3,023.05	3,016.35	10.13	9.61	-163.87	-109.00	-49.11	396.91	377.84	19.06	20.820	
3,159.00	3,140.98	3,123.71	3,116.69	10.47	9.99	-162.73	-116.84	-48.04	409.48	389.69	19.79	20.693	
3,253.00	3,234.84	3,223.33	3,216.14	10.81	10.35	-171.11	-122.68	-47.00	419.06	398.57	20.50	20.443	
3,348.00	3,329.74	3,320.09	3,312.76	11.14	10.70	-179.28	-127.61	-45.48	427.32	406.13	21.19	20.167	
3,397.00	3,378.70	3,369.40	3,362.00	11.32	10.88	179.61	-130.02	-44.58	431.30	409.76	21.54	20.022	
3,488.00	3,469.63	3,460.60	3,453.08	11.64	11.21	176.64	-134.43	-42.79	438.26	416.06	22.19	19.747	
3,583.00	3,564.49	3,554.78	3,547.14	11.98	11.56	-175.37	-138.78	-41.38	446.99	424.12	22.87	19.545	
3,677.00	3,658.13	3,662.40	3,654.72	12.33	11.93	-173.70	-141.41	-42.31	457.60	433.98	23.61	19.379	
3,772.00	3,752.42	3,762.47	3,754.68	12.69	12.26	-168.84	-139.98	-46.39	469.02	444.72	24.30	19.301	
3,867.00	3,846.42	3,866.68	3,858.73	13.06	12.59	-166.94	-136.45	-51.07	480.97	455.98	24.99	19.243	
3,961.00	3,939.30	3,961.26	3,953.16	13.44	12.90	-167.04	-132.46	-54.37	492.56	466.91	25.65	19.203	
4,056.00	4,032.83	4,053.86	4,045.65	13.82	13.19	-170.36	-128.80	-56.97	506.36	480.05	26.31	19.248	
4,151.00	4,126.01	4,141.00	4,132.73	14.21	13.47	-169.51	-126.12	-58.86	522.64	495.69	26.95	19.395	
4,246.00	4,219.10	4,226.03	4,217.74	14.61	13.76	-177.11	-124.95	-60.25	540.80	513.22	27.58	19.609	
4,340.00	4,310.92	4,312.38	4,304.09	15.01	14.06	173.62	-125.33	-61.18	561.62	533.40	28.22	19.900	
4,435.00	4,403.54	4,394.59	4,386.28	15.41	14.35	173.33	-126.76	-61.98	584.44	555.59	28.84	20.262	
4,498.00	4,465.21	4,451.51	4,443.16	15.68	14.55	175.65	-128.60	-62.75	599.40	570.13	29.27	20.480	
4,561.00	4,526.82	4,512.87	4,504.49	15.95	14.78	-179.08	-130.73	-63.47	614.77	585.05	29.72	20.685	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
4,624.00	4,588.23	4,581.60	4,573.18	16.22	15.02	-177.23	-132.77	-64.03	630.73	600.51	30.22	20.870	
4,687.00	4,649.71	4,642.82	4,634.38	16.49	15.24	-176.76	-134.16	-64.47	645.91	615.24	30.67	21.057	
4,749.00	4,710.40	4,705.54	4,697.09	16.75	15.47	-175.51	-135.47	-64.93	659.88	628.74	31.13	21.195	
4,812.00	4,772.28	4,766.44	4,757.98	17.01	15.69	-174.79	-136.68	-65.29	672.92	641.34	31.58	21.308	
4,875.00	4,834.34	4,828.16	4,819.68	17.27	15.91	-175.33	-137.98	-65.63	685.11	653.08	32.03	21.388	
4,938.00	4,896.43	4,891.13	4,882.63	17.53	16.13	-175.62	-139.25	-65.93	696.98	664.49	32.49	21.450	
5,001.00	4,958.46	4,955.20	4,946.69	17.79	16.36	-178.96	-140.40	-66.21	709.14	676.18	32.96	21.515	
5,064.00	5,020.29	5,018.73	5,010.22	18.05	16.59	176.64	-141.31	-66.51	722.15	688.72	33.43	21.604	
5,126.00	5,080.98	5,080.46	5,071.95	18.32	16.81	172.45	-142.10	-66.70	735.55	701.67	33.88	21.709	
5,189.00	5,142.74	5,141.82	5,133.30	18.58	17.03	174.24	-142.87	-66.82	748.67	714.34	34.33	21.805	
5,252.00	5,204.62	5,203.99	5,195.46	18.85	17.25	174.36	-143.66	-66.94	761.23	726.44	34.79	21.880	
5,315.00	5,266.61	5,267.87	5,259.33	19.11	17.48	174.30	-144.36	-67.04	773.04	737.78	35.26	21.925	
5,378.00	5,328.73	5,334.51	5,325.98	19.37	17.71	174.86	-144.70	-67.12	783.83	748.10	35.74	21.933	
5,441.00	5,390.87	5,396.24	5,387.70	19.62	17.93	174.44	-144.89	-67.30	794.41	758.22	36.19	21.952	
5,503.00	5,452.07	5,457.40	5,448.86	19.87	18.15	174.87	-145.11	-67.40	804.50	767.86	36.64	21.959	
5,566.00	5,514.32	5,518.93	5,510.39	20.13	18.37	174.58	-145.37	-67.46	814.46	777.37	37.09	21.961	
5,629.00	5,576.59	5,580.08	5,571.54	20.38	18.58	177.11	-145.71	-67.50	824.29	786.76	37.54	21.960	
5,692.00	5,638.95	5,640.10	5,631.56	20.63	18.80	174.85	-146.12	-67.64	833.71	795.73	37.98	21.953	
5,747.00	5,693.45	5,691.90	5,683.36	20.85	18.98	177.14	-146.70	-67.67	841.70	803.34	38.36	21.943	
5,810.00	5,755.90	5,753.93	5,745.39	21.09	19.20	176.42	-147.51	-67.76	850.77	811.96	38.81	21.922	
5,874.00	5,819.40	5,825.53	5,816.99	21.34	19.45	177.77	-147.89	-68.05	859.11	819.80	39.31	21.853	
5,936.00	5,880.95	5,884.58	5,876.03	21.58	19.66	177.35	-148.08	-68.16	866.83	827.09	39.74	21.810	
5,999.00	5,943.45	5,937.00	5,928.45	21.82	19.85	175.88	-148.65	-68.14	875.32	835.18	40.14	21.807	
6,062.00	6,005.96	5,994.68	5,986.12	22.07	20.06	178.41	-149.76	-68.21	884.35	843.78	40.56	21.801	
6,125.00	6,068.49	6,058.96	6,050.38	22.31	20.29	176.10	-151.20	-68.37	893.39	852.36	41.03	21.774	
6,188.00	6,131.08	6,123.46	6,114.87	22.55	20.52	177.95	-152.48	-68.50	901.75	860.25	41.50	21.731	
6,255.00	6,197.73	6,191.88	6,183.28	22.81	20.76	176.89	-153.68	-68.61	909.70	867.71	41.99	21.666	
6,293.00	6,235.55	6,213.00	6,204.39	22.89	20.84	176.89	-154.03	-68.62	914.08	872.00	42.08	21.723	
6,300.00	6,242.52	6,213.00	6,204.39	22.89	20.84	176.89	-154.03	-68.62	915.01	872.95	42.06	21.756	
6,393.00	6,335.09	6,213.00	6,204.39	22.94	20.84	176.89	-154.03	-68.62	932.31	890.71	41.59	22.414	
6,400.00	6,342.06	6,213.00	6,204.39	22.94	20.84	170.86	-154.03	-68.62	933.98	892.43	41.55	22.479	
6,450.00	6,391.66	6,213.00	6,204.39	22.97	20.84	142.51	-154.03	-68.62	948.04	906.86	41.18	23.021	
6,500.00	6,440.77	6,213.00	6,204.39	23.02	20.84	129.11	-154.03	-68.62	965.57	924.81	40.76	23.688	
6,550.00	6,489.07	6,213.00	6,204.39	23.07	20.84	121.09	-154.03	-68.62	986.29	945.98	40.31	24.468	
6,600.00	6,536.26	6,213.00	6,204.39	23.13	20.84	115.15	-154.03	-68.62	1,009.87	970.02	39.84	25.347	
6,650.00	6,582.05	6,213.00	6,204.39	23.21	20.84	110.09	-154.03	-68.62	1,035.97	996.59	39.38	26.308	
6,700.00	6,626.13	6,213.00	6,204.39	23.29	20.84	105.37	-154.03	-68.62	1,064.25	1,025.31	38.94	27.333	
6,750.00	6,668.24	6,213.00	6,204.39	23.39	20.84	100.76	-154.03	-68.62	1,094.37	1,055.84	38.53	28.403	
6,800.00	6,708.12	6,213.00	6,204.39	23.51	20.84	96.15	-154.03	-68.62	1,126.00	1,087.83	38.17	29.501	
6,850.00	6,745.50	6,213.00	6,204.39	23.64	20.84	91.51	-154.03	-68.62	1,158.82	1,120.96	37.86	30.607	
6,900.00	6,780.15	6,213.00	6,204.39	23.79	20.84	86.86	-154.03	-68.62	1,192.55	1,154.94	37.61	31.706	
6,950.00	6,811.86	6,213.00	6,204.39	23.95	20.84	82.22	-154.03	-68.62	1,226.89	1,189.47	37.43	32.782	
7,000.00	6,840.42	6,213.00	6,204.39	24.14	20.84	77.67	-154.03	-68.62	1,261.60	1,224.30	37.30	33.822	
7,050.00	6,865.66	6,213.00	6,204.39	24.35	20.84	73.25	-154.03	-68.62	1,296.43	1,259.19	37.24	34.816	
7,100.00	6,887.42	6,213.00	6,204.39	24.57	20.84	69.04	-154.03	-68.62	1,331.16	1,293.93	37.23	35.753	
7,150.00	6,905.55	6,213.00	6,204.39	24.82	20.84	65.07	-154.03	-68.62	1,365.60	1,328.31	37.28	36.628	
7,200.00	6,919.95	6,213.00	6,204.39	25.10	20.84	61.38	-154.03	-68.62	1,399.54	1,362.16	37.38	37.436	
7,250.00	6,930.52	6,213.00	6,204.39	25.39	20.84	57.99	-154.03	-68.62	1,432.83	1,395.29	37.53	38.176	
7,300.00	6,937.20	6,213.00	6,204.39	25.70	20.84	54.90	-154.03	-68.62	1,465.30	1,427.58	37.72	38.846	
7,350.00	6,939.94	6,213.00	6,204.39	26.04	20.84	52.12	-154.03	-68.62	1,496.80	1,458.86	37.94	39.447	
7,359.60	6,940.02	6,213.00	6,204.39	26.10	20.84	51.62	-154.03	-68.62	1,502.73	1,464.75	37.99	39.558	
7,400.00	6,940.03	6,213.00	6,204.39	26.39	20.84	51.62	-154.03	-68.62	1,527.92	1,489.74	38.19	40.010	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
7,500.00	6,940.04	6,213.00	6,204.39	27.15	20.84	51.62	-154.03	-68.62	1,592.98	1,554.30	38.67	41.190	
7,600.00	6,940.06	6,213.00	6,204.39	27.99	20.84	51.62	-154.03	-68.62	1,661.51	1,622.38	39.13	42.462	
7,659.60	6,940.07	6,213.00	6,204.39	28.52	20.84	51.62	-154.03	-68.62	1,703.83	1,664.45	39.39	43.260	
7,700.00	6,940.08	6,213.00	6,204.39	28.89	20.84	51.08	-154.03	-68.62	1,733.25	1,693.70	39.55	43.820	
7,796.63	6,940.10	6,213.00	6,204.39	29.83	20.84	49.65	-154.03	-68.62	1,806.49	1,766.55	39.94	45.231	
7,800.00	6,940.10	6,213.00	6,204.39	29.86	20.84	49.65	-154.03	-68.62	1,809.12	1,769.16	39.95	45.281	
7,900.00	6,940.12	6,213.00	6,204.39	30.90	20.84	49.65	-154.03	-68.62	1,888.00	1,847.68	40.32	46.829	
8,000.00	6,940.14	6,213.00	6,204.39	31.98	20.84	49.65	-154.03	-68.62	1,968.79	1,928.14	40.65	48.434	
8,100.00	6,940.17	6,213.00	6,204.39	33.11	20.84	49.65	-154.03	-68.62	2,051.28	2,010.33	40.95	50.089	
8,200.00	6,940.19	6,213.00	6,204.39	34.28	20.84	49.65	-154.03	-68.62	2,135.27	2,094.04	41.23	51.788	
8,300.00	6,940.21	6,213.00	6,204.39	35.48	20.84	49.65	-154.03	-68.62	2,220.59	2,179.10	41.49	53.526	
8,400.00	6,940.23	6,213.00	6,204.39	36.71	20.84	49.65	-154.03	-68.62	2,307.08	2,265.36	41.72	55.299	
8,500.00	6,940.25	6,213.00	6,204.39	37.97	20.84	49.65	-154.03	-68.62	2,394.63	2,352.69	41.94	57.102	
8,600.00	6,940.28	6,213.00	6,204.39	39.26	20.84	49.65	-154.03	-68.62	2,483.12	2,440.98	42.14	58.931	
8,700.00	6,940.30	6,213.00	6,204.39	40.56	20.84	49.65	-154.03	-68.62	2,572.45	2,530.13	42.32	60.784	
8,800.00	6,940.32	6,213.00	6,204.39	41.89	20.84	49.65	-154.03	-68.62	2,662.54	2,620.05	42.49	62.658	
8,900.00	6,940.34	6,213.00	6,204.39	43.24	20.84	49.65	-154.03	-68.62	2,753.31	2,710.66	42.65	64.550	
9,000.00	6,940.36	6,213.00	6,204.39	44.60	20.84	49.65	-154.03	-68.62	2,844.71	2,801.90	42.80	66.458	
9,100.00	6,940.39	6,213.00	6,204.39	45.98	20.84	49.65	-154.03	-68.62	2,936.66	2,893.71	42.95	68.380	
9,200.00	6,940.41	6,213.00	6,204.39	47.38	20.84	49.65	-154.03	-68.62	3,029.13	2,986.05	43.08	70.314	
9,300.00	6,940.43	6,213.00	6,204.39	48.78	20.84	49.65	-154.03	-68.62	3,122.05	3,078.85	43.21	72.260	
9,400.00	6,940.45	6,213.00	6,204.39	50.20	20.84	49.65	-154.03	-68.62	3,215.41	3,172.08	43.33	74.214	
9,500.00	6,940.47	6,213.00	6,204.39	51.63	20.84	49.65	-154.03	-68.62	3,309.15	3,265.71	43.44	76.177	
9,600.00	6,940.50	6,213.00	6,204.39	53.07	20.84	49.65	-154.03	-68.62	3,403.25	3,359.70	43.55	78.147	
9,700.00	6,940.52	6,213.00	6,204.39	54.52	20.84	49.65	-154.03	-68.62	3,497.67	3,454.02	43.65	80.122	
9,800.00	6,940.54	6,213.00	6,204.39	55.97	20.84	49.65	-154.03	-68.62	3,592.40	3,548.64	43.76	82.103	
9,900.00	6,940.56	6,213.00	6,204.39	57.44	20.84	49.65	-154.03	-68.62	3,687.40	3,643.55	43.85	84.087	
10,000.00	6,940.59	6,213.00	6,204.39	58.91	20.84	49.65	-154.03	-68.62	3,782.67	3,738.72	43.95	86.075	
10,100.00	6,940.61	6,213.00	6,204.39	60.38	20.84	49.65	-154.03	-68.62	3,878.17	3,834.13	44.04	88.065	
10,200.00	6,940.63	6,213.00	6,204.39	61.87	20.84	49.65	-154.03	-68.62	3,973.89	3,929.77	44.13	90.058	
10,300.00	6,940.65	6,213.00	6,204.39	63.36	20.84	49.65	-154.03	-68.62	4,069.82	4,025.61	44.21	92.052	
10,400.00	6,940.67	6,213.00	6,204.39	64.85	20.84	49.65	-154.03	-68.62	4,165.94	4,121.64	44.30	94.046	
10,500.00	6,940.70	6,213.00	6,204.39	66.35	20.84	49.65	-154.03	-68.62	4,262.24	4,217.86	44.38	96.041	
10,600.00	6,940.72	6,213.00	6,204.39	67.86	20.84	49.65	-154.03	-68.62	4,358.70	4,314.24	44.46	98.036	
10,700.00	6,940.74	6,213.00	6,204.39	69.36	20.84	49.65	-154.03	-68.62	4,455.32	4,410.78	44.54	100.029	
10,800.00	6,940.76	6,213.00	6,204.39	70.88	20.84	49.65	-154.03	-68.62	4,552.09	4,507.47	44.62	102.022	
10,900.00	6,940.78	6,213.00	6,204.39	72.39	20.84	49.65	-154.03	-68.62	4,649.00	4,604.30	44.70	104.014	
11,000.00	6,940.81	6,213.00	6,204.39	73.91	20.84	49.65	-154.03	-68.62	4,746.03	4,701.26	44.77	106.003	
11,100.00	6,940.83	6,213.00	6,204.39	75.44	20.84	49.65	-154.03	-68.62	4,843.18	4,798.33	44.85	107.990	
11,200.00	6,940.85	6,213.00	6,204.39	76.96	20.84	49.65	-154.03	-68.62	4,940.45	4,895.52	44.92	109.975	
11,300.00	6,940.87	6,213.00	6,204.39	78.49	20.84	49.65	-154.03	-68.62	5,037.82	4,992.82	45.00	111.957	
11,400.00	6,940.89	6,213.00	6,204.39	80.03	20.84	49.65	-154.03	-68.62	5,135.30	5,090.22	45.07	113.936	
11,500.00	6,940.92	6,213.00	6,204.39	81.56	20.84	49.65	-154.03	-68.62	5,232.87	5,187.72	45.15	115.912	
11,600.00	6,940.94	6,213.00	6,204.39	83.10	20.84	49.65	-154.03	-68.62	5,330.53	5,285.31	45.22	117.884	
11,700.00	6,940.96	6,213.00	6,204.39	84.64	20.84	49.65	-154.03	-68.62	5,428.27	5,382.98	45.29	119.852	
11,800.00	6,940.98	6,213.00	6,204.39	86.18	20.84	49.65	-154.03	-68.62	5,526.10	5,480.73	45.36	121.816	
11,900.00	6,941.00	6,213.00	6,204.39	87.72	20.84	49.65	-154.03	-68.62	5,624.00	5,578.56	45.44	123.776	
12,000.00	6,941.03	6,213.00	6,204.39	89.27	20.84	49.65	-154.03	-68.62	5,721.97	5,676.46	45.51	125.732	
12,100.00	6,941.05	6,213.00	6,204.39	90.82	20.84	49.65	-154.03	-68.62	5,820.02	5,774.44	45.58	127.683	
12,200.00	6,941.07	6,213.00	6,204.39	92.37	20.84	49.65	-154.03	-68.62	5,918.13	5,872.47	45.65	129.629	
12,300.00	6,941.09	6,213.00	6,204.39	93.92	20.84	49.65	-154.03	-68.62	6,016.30	5,970.57	45.73	131.570	
12,400.00	6,941.11	6,213.00	6,204.39	95.47	20.84	49.65	-154.03	-68.62	6,114.53	6,068.73	45.80	133.506	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
12,500.00	6,941.14	6,213.00	6,204.39	97.03	20.84	49.65	-154.03	-68.62	6,212.82	6,166.94	45.87	135.436	
12,600.00	6,941.16	6,213.00	6,204.39	98.58	20.84	49.65	-154.03	-68.62	6,311.16	6,265.21	45.95	137.362	
12,700.00	6,941.18	6,213.00	6,204.39	100.14	20.84	49.65	-154.03	-68.62	6,409.55	6,363.53	46.02	139.281	
12,800.00	6,941.20	6,213.00	6,204.39	101.70	20.84	49.65	-154.03	-68.62	6,507.99	6,461.90	46.09	141.195	
12,900.00	6,941.23	6,213.00	6,204.39	103.26	20.84	49.65	-154.03	-68.62	6,606.48	6,560.31	46.17	143.103	
13,000.00	6,941.25	6,213.00	6,204.39	104.82	20.84	49.65	-154.03	-68.62	6,705.01	6,658.77	46.24	145.005	
13,100.00	6,941.27	6,213.00	6,204.39	106.38	20.84	49.65	-154.03	-68.62	6,803.59	6,757.27	46.31	146.902	
13,200.00	6,941.29	6,213.00	6,204.39	107.95	20.84	49.65	-154.03	-68.62	6,902.21	6,855.82	46.39	148.791	
13,300.00	6,941.31	6,213.00	6,204.39	109.51	20.84	49.65	-154.03	-68.62	7,000.86	6,954.40	46.46	150.675	
13,400.00	6,941.34	6,213.00	6,204.39	111.08	20.84	49.65	-154.03	-68.62	7,099.56	7,053.02	46.54	152.552	
13,500.00	6,941.36	6,213.00	6,204.39	112.64	20.84	49.65	-154.03	-68.62	7,198.28	7,151.67	46.61	154.423	
13,600.00	6,941.38	6,213.00	6,204.39	114.21	20.84	49.65	-154.03	-68.62	7,297.05	7,250.36	46.69	156.288	
13,700.00	6,941.40	6,213.00	6,204.39	115.78	20.84	49.65	-154.03	-68.62	7,395.85	7,349.08	46.77	158.145	
13,800.00	6,941.42	6,213.00	6,204.39	117.35	20.84	49.65	-154.03	-68.62	7,494.68	7,447.83	46.84	159.996	
13,900.00	6,941.45	6,213.00	6,204.39	118.92	20.84	49.65	-154.03	-68.62	7,593.54	7,546.62	46.92	161.841	
14,000.00	6,941.47	6,213.00	6,204.39	120.49	20.84	49.65	-154.03	-68.62	7,692.43	7,645.43	47.00	163.678	
14,100.00	6,941.49	6,213.00	6,204.39	122.06	20.84	49.65	-154.03	-68.62	7,791.34	7,744.27	47.08	165.508	
14,200.00	6,941.51	6,213.00	6,204.39	123.64	20.84	49.65	-154.03	-68.62	7,890.29	7,843.13	47.15	167.332	
14,300.00	6,941.53	6,213.00	6,204.39	125.21	20.84	49.65	-154.03	-68.62	7,989.26	7,942.03	47.23	169.148	
14,400.00	6,941.56	6,213.00	6,204.39	126.78	20.84	49.65	-154.03	-68.62	8,088.26	8,040.95	47.31	170.957	
14,500.00	6,941.58	6,213.00	6,204.39	128.36	20.84	49.65	-154.03	-68.62	8,187.28	8,139.89	47.39	172.759	
14,600.00	6,941.60	6,213.00	6,204.39	129.93	20.84	49.65	-154.03	-68.62	8,286.32	8,238.85	47.47	174.554	
14,700.00	6,941.62	6,213.00	6,204.39	131.51	20.84	49.65	-154.03	-68.62	8,385.39	8,337.84	47.55	176.342	
14,800.00	6,941.64	6,213.00	6,204.39	133.08	20.84	49.65	-154.03	-68.62	8,484.48	8,436.85	47.63	178.122	
14,900.00	6,941.67	6,213.00	6,204.39	134.66	20.84	49.65	-154.03	-68.62	8,583.59	8,535.87	47.71	179.895	
15,000.00	6,941.69	6,213.00	6,204.39	136.24	20.84	49.65	-154.03	-68.62	8,682.72	8,634.92	47.80	181.661	
15,100.00	6,941.71	6,213.00	6,204.39	137.82	20.84	49.65	-154.03	-68.62	8,781.87	8,733.99	47.88	183.419	
15,200.00	6,941.73	6,213.00	6,204.39	139.40	20.84	49.65	-154.03	-68.62	8,881.04	8,833.08	47.96	185.170	
15,300.00	6,941.75	6,213.00	6,204.39	140.97	20.84	49.65	-154.03	-68.62	8,980.23	8,932.18	48.04	186.913	
15,400.00	6,941.78	6,213.00	6,204.39	142.55	20.84	49.65	-154.03	-68.62	9,079.43	9,031.30	48.13	188.649	
15,500.00	6,941.80	6,213.00	6,204.39	144.13	20.84	49.65	-154.03	-68.62	9,178.66	9,130.44	48.21	190.377	
15,600.00	6,941.82	6,213.00	6,204.39	145.72	20.84	49.65	-154.03	-68.62	9,277.90	9,229.60	48.30	192.098	
15,700.00	6,941.84	6,213.00	6,204.39	147.30	20.84	49.65	-154.03	-68.62	9,377.15	9,328.77	48.38	193.811	
15,800.00	6,941.87	6,213.00	6,204.39	148.88	20.84	49.65	-154.03	-68.62	9,476.42	9,427.95	48.47	195.516	
15,900.00	6,941.89	6,213.00	6,204.39	150.46	20.84	49.65	-154.03	-68.62	9,575.71	9,527.15	48.55	197.214	
16,000.00	6,941.91	6,213.00	6,204.39	152.04	20.84	49.65	-154.03	-68.62	9,675.01	9,626.37	48.64	198.904	
16,100.00	6,941.93	6,213.00	6,204.39	153.62	20.84	49.65	-154.03	-68.62	9,774.33	9,725.60	48.73	200.586	
16,200.00	6,941.95	6,213.00	6,204.39	155.21	20.84	49.65	-154.03	-68.62	9,873.66	9,824.84	48.82	202.261	
16,300.00	6,941.98	6,213.00	6,204.39	156.79	20.84	49.65	-154.03	-68.62	9,973.00	9,924.09	48.90	203.928	
16,400.00	6,942.00	6,213.00	6,204.39	158.37	20.84	49.65	-154.03	-68.62	10,072.35	10,023.36	48.99	205.587	
16,500.00	6,942.02	6,213.00	6,204.39	159.96	20.84	49.65	-154.03	-68.62	10,171.72	10,122.64	49.08	207.239	
16,600.00	6,942.04	6,213.00	6,204.39	161.54	20.84	49.65	-154.03	-68.62	10,271.10	10,221.93	49.17	208.882	
16,700.00	6,942.06	6,213.00	6,204.39	163.13	20.84	49.65	-154.03	-68.62	10,370.50	10,321.23	49.26	210.519	
16,800.00	6,942.09	6,213.00	6,204.39	164.71	20.84	49.65	-154.03	-68.62	10,469.90	10,420.55	49.35	212.147	
16,900.00	6,942.11	6,213.00	6,204.39	166.30	20.84	49.65	-154.03	-68.62	10,569.32	10,519.87	49.44	213.767	
17,000.00	6,942.13	6,213.00	6,204.39	167.88	20.84	49.65	-154.03	-68.62	10,668.74	10,619.21	49.53	215.380	
17,100.00	6,942.15	6,213.00	6,204.39	169.47	20.84	49.65	-154.03	-68.62	10,768.18	10,718.55	49.63	216.985	
17,200.00	6,942.17	6,213.00	6,204.39	171.05	20.84	49.65	-154.03	-68.62	10,867.63	10,817.91	49.72	218.583	
17,300.00	6,942.20	6,213.00	6,204.39	172.64	20.84	49.65	-154.03	-68.62	10,967.08	10,917.27	49.81	220.172	
17,400.00	6,942.22	6,213.00	6,204.39	174.23	20.84	49.65	-154.03	-68.62	11,066.55	11,016.65	49.90	221.754	
17,500.00	6,942.24	6,213.00	6,204.39	175.81	20.84	49.65	-154.03	-68.62	11,166.03	11,116.03	50.00	223.329	
17,600.00	6,942.26	6,213.00	6,204.39	177.40	20.84	49.65	-154.03	-68.62	11,265.51	11,215.42	50.09	224.895	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
17,700.00	6,942.28	6,213.00	6,204.39	178.99	20.84	49.65	-154.03	-68.62	11,365.01	11,314.82	50.19	226.454	
17,800.00	6,942.31	6,213.00	6,204.39	180.57	20.84	49.65	-154.03	-68.62	11,464.51	11,414.23	50.28	228.005	
17,900.00	6,942.33	6,213.00	6,204.39	182.16	20.84	49.65	-154.03	-68.62	11,564.02	11,513.65	50.38	229.548	
18,000.00	6,942.35	6,213.00	6,204.39	183.75	20.84	49.65	-154.03	-68.62	11,663.54	11,613.07	50.47	231.084	
18,100.00	6,942.37	6,213.00	6,204.39	185.34	20.84	49.65	-154.03	-68.62	11,763.07	11,712.50	50.57	232.612	
18,200.00	6,942.39	6,213.00	6,204.39	186.93	20.84	49.65	-154.03	-68.62	11,862.61	11,811.94	50.67	234.132	
18,300.00	6,942.42	6,213.00	6,204.39	188.52	20.84	49.65	-154.03	-68.62	11,962.15	11,911.39	50.76	235.645	
18,400.00	6,942.44	6,213.00	6,204.39	190.10	20.84	49.65	-154.03	-68.62	12,061.71	12,010.84	50.86	237.150	
18,500.00	6,942.46	6,213.00	6,204.39	191.69	20.84	49.65	-154.03	-68.62	12,161.26	12,110.31	50.96	238.647	
18,600.00	6,942.48	6,213.00	6,204.39	193.28	20.84	49.65	-154.03	-68.62	12,260.83	12,209.77	51.06	240.137	
18,700.00	6,942.51	6,213.00	6,204.39	194.87	20.84	49.65	-154.03	-68.62	12,360.40	12,309.25	51.16	241.619	
18,800.00	6,942.53	6,213.00	6,204.39	196.46	20.84	49.65	-154.03	-68.62	12,459.98	12,408.73	51.26	243.093	
18,900.00	6,942.55	6,213.00	6,204.39	198.05	20.84	49.65	-154.03	-68.62	12,559.57	12,508.22	51.36	244.561	
19,000.00	6,942.57	6,213.00	6,204.39	199.64	20.84	49.65	-154.03	-68.62	12,659.17	12,607.71	51.46	246.020	
19,100.00	6,942.59	6,213.00	6,204.39	201.23	20.84	49.65	-154.03	-68.62	12,758.77	12,707.21	51.56	247.472	
19,200.00	6,942.62	6,213.00	6,204.39	202.82	20.84	49.65	-154.03	-68.62	12,858.37	12,806.71	51.66	248.917	
19,300.00	6,942.64	6,213.00	6,204.39	204.41	20.84	49.65	-154.03	-68.62	12,957.98	12,906.22	51.76	250.354	
19,400.00	6,942.66	6,213.00	6,204.39	206.00	20.84	49.65	-154.03	-68.62	13,057.60	13,005.74	51.86	251.783	
19,500.00	6,942.68	6,213.00	6,204.39	207.59	20.84	49.65	-154.03	-68.62	13,157.23	13,105.26	51.96	253.206	
19,600.00	6,942.70	6,213.00	6,204.39	209.18	20.84	49.65	-154.03	-68.62	13,256.85	13,204.79	52.07	254.620	
19,700.00	6,942.73	6,213.00	6,204.39	210.78	20.84	49.65	-154.03	-68.62	13,356.49	13,304.32	52.17	256.028	
19,800.00	6,942.75	6,213.00	6,204.39	212.37	20.84	49.65	-154.03	-68.62	13,456.13	13,403.86	52.27	257.428	
19,900.00	6,942.77	6,213.00	6,204.39	213.96	20.84	49.65	-154.03	-68.62	13,555.78	13,503.40	52.38	258.821	
20,000.00	6,942.79	6,213.00	6,204.39	215.55	20.84	49.65	-154.03	-68.62	13,655.43	13,602.95	52.48	260.206	
20,100.00	6,942.81	6,213.00	6,204.39	217.14	20.84	49.65	-154.03	-68.62	13,755.08	13,702.50	52.58	261.584	
20,200.00	6,942.84	6,213.00	6,204.39	218.73	20.84	49.65	-154.03	-68.62	13,854.74	13,802.05	52.69	262.955	
20,300.00	6,942.86	6,213.00	6,204.39	220.32	20.84	49.65	-154.03	-68.62	13,954.41	13,901.62	52.79	264.319	
20,400.00	6,942.88	6,213.00	6,204.39	221.92	20.84	49.65	-154.03	-68.62	14,054.08	14,001.18	52.90	265.675	
20,500.00	6,942.90	6,213.00	6,204.39	223.51	20.84	49.65	-154.03	-68.62	14,153.76	14,100.75	53.01	267.025	
20,600.00	6,942.92	6,213.00	6,204.39	225.10	20.84	49.65	-154.03	-68.62	14,253.43	14,200.32	53.11	268.367	
20,700.00	6,942.95	6,213.00	6,204.39	226.69	20.84	49.65	-154.03	-68.62	14,353.12	14,299.90	53.22	269.702	
20,800.00	6,942.97	6,213.00	6,204.39	228.28	20.84	49.65	-154.03	-68.62	14,452.81	14,399.48	53.33	271.030	
20,900.00	6,942.99	6,213.00	6,204.39	229.88	20.84	49.65	-154.03	-68.62	14,552.50	14,499.07	53.43	272.351	
20,942.50	6,943.00	6,213.00	6,204.39	230.42	20.84	49.65	-154.03	-68.62	14,594.87	14,536.84	58.03	251.525	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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	-35.13	41.14	-28.94	50.30				
58.45	58.45	58.34	58.34	0.02	0.02	86.83	41.11	-29.10	50.35	50.32	0.02	2,134.495	
150.25	150.24	150.20	150.20	0.14	0.13	69.27	41.00	-29.53	50.28	50.13	0.16	319.273	
239.43	239.42	239.45	239.45	0.25	0.25	64.47	40.81	-29.85	49.89	49.60	0.29	172.849	
299.93	299.91	300.03	300.03	0.33	0.32	69.83	40.55	-30.09	49.50	49.13	0.37	132.016	
446.00	445.96	446.10	446.10	0.50	0.52	95.84	39.68	-30.73	48.91	48.15	0.76	64.025	
454.19	454.15	454.29	454.29	0.52	0.53	98.59	39.64	-30.76	48.91	48.10	0.81	60.316	CC
537.00	536.95	536.96	536.95	0.73	0.76	158.12	39.50	-30.86	49.38	48.06	1.32	37.342	
624.00	623.95	623.95	623.95	0.99	1.03	-119.44	39.50	-30.86	50.18	48.28	1.90	26.473	
718.00	717.90	717.91	717.90	1.29	1.34	-104.48	39.50	-30.86	51.02	48.48	2.54	20.114	
811.00	810.73	810.74	810.73	1.60	1.66	-91.21	39.50	-30.86	51.47	48.28	3.19	16.157	
898.15	897.39	897.40	897.39	1.91	1.96	-90.00	39.50	-30.86	51.33	47.53	3.81	13.484	
903.00	902.19	902.20	902.19	1.92	1.98	-90.35	39.50	-30.86	51.34	47.50	3.84	13.363	ES
994.00	992.38	992.39	992.38	2.24	2.29	-101.28	39.50	-30.86	52.59	48.08	4.50	11.680	
1,084.00	1,081.50	1,081.48	1,081.47	2.56	2.60	-110.78	38.37	-31.11	55.97	50.82	5.15	10.870	
1,175.00	1,171.48	1,170.79	1,170.70	2.91	2.90	-121.93	34.84	-31.91	62.65	56.86	5.79	10.821	SF
1,268.00	1,263.52	1,262.16	1,261.98	3.26	3.21	-132.53	30.85	-32.82	72.41	65.98	6.43	11.254	
1,363.00	1,357.62	1,355.60	1,355.32	3.63	3.53	-138.74	26.76	-33.74	84.14	77.05	7.09	11.864	
1,457.00	1,450.74	1,448.06	1,447.69	3.99	3.85	-143.07	22.71	-34.65	96.92	89.18	7.74	12.516	
1,552.00	1,544.82	1,541.45	1,540.99	4.36	4.18	-147.92	18.63	-35.58	110.99	102.59	8.41	13.204	
1,646.00	1,637.88	1,633.82	1,633.26	4.72	4.50	-151.86	14.59	-36.49	125.86	116.79	9.06	13.885	
1,741.00	1,731.94	1,727.20	1,726.54	5.09	4.83	-154.96	10.50	-37.42	141.33	131.60	9.73	14.524	
1,835.00	1,825.07	1,819.68	1,818.93	5.46	5.16	-157.67	6.46	-38.33	156.58	146.19	10.39	15.066	
1,929.00	1,918.39	1,912.39	1,911.55	5.82	5.49	-160.98	2.40	-39.25	170.89	159.83	11.06	15.458	
2,024.00	2,012.84	2,006.29	2,005.36	6.18	5.83	-161.25	-1.70	-40.17	184.37	172.64	11.73	15.723	
2,118.00	2,106.19	2,099.06	2,098.04	6.53	6.16	-162.54	-5.76	-41.09	198.61	186.21	12.39	16.024	
2,213.00	2,200.37	2,192.59	2,191.47	6.90	6.50	-165.28	-9.85	-42.02	214.47	201.40	13.07	16.408	
2,307.00	2,293.61	2,285.21	2,283.99	7.27	6.83	-164.47	-13.90	-42.93	229.88	216.14	13.74	16.731	
2,402.00	2,387.91	2,378.90	2,377.59	7.63	7.17	-161.72	-18.00	-43.86	244.82	230.41	14.42	16.984	
2,496.00	2,481.29	2,471.70	2,470.30	7.99	7.50	-161.61	-22.06	-44.78	259.03	243.94	15.08	17.172	
2,591.00	2,575.67	2,565.50	2,564.00	8.35	7.84	-164.06	-26.16	-45.70	273.40	257.64	15.76	17.346	
2,686.00	2,670.05	2,659.31	2,657.72	8.71	8.18	-164.50	-30.27	-46.63	287.83	271.39	16.44	17.509	
2,780.00	2,763.49	2,752.18	2,750.50	9.07	8.52	-167.26	-34.33	-47.55	301.85	284.74	17.11	17.642	
2,875.00	2,857.94	2,846.08	2,844.30	9.43	8.86	-169.30	-38.44	-48.48	315.89	298.10	17.79	17.758	
2,970.00	2,952.51	2,940.16	2,938.29	9.79	9.20	-166.23	-42.55	-49.41	328.75	310.29	18.47	17.804	
3,064.00	3,046.19	3,033.40	3,031.44	10.13	9.53	-159.57	-46.63	-50.33	340.17	321.04	19.13	17.778	
3,159.00	3,140.98	3,127.80	3,125.74	10.47	9.88	-158.14	-50.76	-51.26	350.28	330.46	19.81	17.681	
3,253.00	3,234.84	3,221.35	3,219.20	10.81	10.22	-166.32	-54.85	-52.19	359.11	338.63	20.48	17.536	
3,348.00	3,329.74	3,315.96	3,313.71	11.14	10.56	-174.28	-58.99	-53.13	367.50	346.35	21.15	17.372	
3,397.00	3,378.70	3,364.78	3,362.48	11.32	10.74	-175.27	-61.13	-53.61	371.69	350.19	21.50	17.285	
3,488.00	3,469.63	3,455.47	3,453.08	11.64	11.06	-178.00	-65.09	-54.50	379.14	356.99	22.15	17.116	
3,583.00	3,564.49	3,550.00	3,547.51	11.98	11.41	-169.84	-69.23	-55.44	388.36	365.53	22.83	17.011	
3,677.00	3,658.13	3,643.18	3,640.60	12.33	11.75	-168.39	-73.30	-56.36	400.47	376.97	23.50	17.039	
3,772.00	3,752.42	3,736.86	3,734.19	12.69	12.09	-164.28	-77.40	-57.29	415.77	391.58	24.19	17.190	
3,867.00	3,846.42	3,830.15	3,827.38	13.06	12.43	-163.29	-81.48	-58.21	433.12	408.25	24.87	17.417	
3,961.00	3,939.30	3,922.29	3,919.43	13.44	12.76	-164.15	-85.51	-59.12	451.11	425.57	25.54	17.662	
4,056.00	4,032.83	4,014.98	4,012.02	13.82	13.10	-168.13	-89.57	-60.04	471.40	445.18	26.22	17.976	
4,151.00	4,126.01	4,107.23	4,104.19	14.21	13.43	-167.77	-93.60	-60.95	493.61	466.71	26.90	18.347	
4,246.00	4,219.10	4,199.38	4,196.24	14.61	13.77	-175.81	-97.63	-61.86	516.46	488.87	27.58	18.723	
4,340.00	4,310.92	4,290.22	4,286.99	15.01	14.10	174.67	-101.60	-62.76	540.61	512.35	28.26	19.131	
4,435.00	4,403.54	4,381.84	4,378.51	15.41	14.43	174.27	-105.61	-63.67	565.70	536.76	28.94	19.548	
4,498.00	4,465.21	4,442.88	4,439.50	15.68	14.65	176.54	-108.28	-64.27	581.26	551.87	29.39	19.778	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
4,561.00	4,526.82	4,503.85	4,500.41	15.95	14.87	-178.23	-110.95	-64.87	597.10	567.26	29.84	20.009	
4,624.00	4,588.23	4,564.57	4,561.06	16.22	15.10	-176.41	-113.61	-65.47	613.87	583.58	30.29	20.264	
4,687.00	4,649.71	4,625.38	4,621.81	16.49	15.32	-176.00	-116.27	-66.07	630.29	599.55	30.74	20.501	
4,749.00	4,710.40	4,685.44	4,681.81	16.75	15.53	-174.79	-118.89	-66.67	645.59	614.40	31.19	20.700	
4,812.00	4,772.28	4,746.73	4,743.04	17.01	15.76	-174.12	-121.57	-67.27	660.08	628.44	31.64	20.862	
4,875.00	4,834.34	4,808.24	4,804.48	17.27	15.98	-174.70	-124.26	-67.88	673.66	641.56	32.09	20.991	
4,938.00	4,896.43	4,869.79	4,865.98	17.53	16.21	-175.02	-126.96	-68.49	686.98	654.44	32.55	21.109	
5,001.00	4,958.46	4,931.26	4,927.39	17.79	16.43	-178.41	-129.64	-69.10	700.74	667.74	33.00	21.235	
5,064.00	5,020.29	4,992.50	4,988.56	18.05	16.65	177.13	-132.32	-69.70	715.55	682.10	33.45	21.390	
5,126.00	5,080.98	5,052.58	5,048.58	18.32	16.87	172.87	-134.95	-70.30	730.85	696.95	33.90	21.559	
5,189.00	5,142.74	5,113.73	5,109.67	18.58	17.09	174.65	-137.63	-70.90	745.94	711.59	34.35	21.714	
5,252.00	5,204.62	5,175.03	5,170.91	18.85	17.32	174.74	-140.31	-71.51	760.46	725.65	34.81	21.848	
5,315.00	5,266.61	5,236.48	5,232.30	19.11	17.54	174.66	-143.00	-72.12	774.34	739.08	35.26	21.961	
5,378.00	5,328.73	5,298.08	5,293.83	19.37	17.76	175.19	-145.69	-72.73	787.57	751.86	35.71	22.053	
5,441.00	5,390.87	5,359.70	5,355.40	19.62	17.99	174.72	-148.39	-73.33	800.64	764.48	36.17	22.137	
5,503.00	5,452.07	5,420.41	5,416.05	19.87	18.21	175.12	-151.04	-73.94	813.21	776.60	36.61	22.211	
5,566.00	5,514.32	5,482.17	5,477.74	20.13	18.43	174.79	-153.74	-74.55	825.65	788.58	37.07	22.274	
5,629.00	5,576.59	5,543.97	5,539.48	20.38	18.66	177.32	-156.45	-75.16	837.90	800.38	37.52	22.332	
5,692.00	5,638.95	5,605.87	5,601.31	20.63	18.88	175.02	-159.15	-75.77	849.61	811.64	37.97	22.373	
5,747.00	5,693.45	5,659.99	5,655.38	20.85	19.08	177.30	-161.52	-76.30	859.44	821.07	38.37	22.399	
5,810.00	5,755.90	5,722.01	5,717.34	21.09	19.31	176.56	-164.23	-76.92	870.48	831.66	38.82	22.421	
5,874.00	5,819.40	5,785.10	5,780.36	21.34	19.54	177.87	-166.99	-77.54	881.23	841.95	39.28	22.432	
5,936.00	5,880.95	5,846.25	5,841.46	21.58	19.76	177.43	-169.67	-78.15	891.44	851.71	39.73	22.438	
5,999.00	5,943.45	5,908.35	5,903.49	21.82	19.99	175.94	-172.38	-78.76	902.05	861.87	40.18	22.448	
6,062.00	6,005.96	5,970.45	5,965.53	22.07	20.21	178.47	-175.10	-79.37	912.69	872.06	40.64	22.460	
6,125.00	6,068.49	6,032.58	6,027.59	22.31	20.44	176.15	-177.82	-79.99	923.13	882.04	41.09	22.466	
6,188.00	6,131.08	6,094.79	6,089.74	22.55	20.67	178.00	-180.54	-80.60	933.06	891.52	41.54	22.460	
6,255.00	6,197.73	6,161.07	6,155.96	22.81	20.91	176.93	-183.44	-81.26	942.84	900.81	42.02	22.436	
6,293.00	6,235.55	6,198.70	6,193.55	22.89	21.04	176.93	-185.08	-81.63	948.14	905.92	42.22	22.457	
6,300.00	6,242.52	6,205.63	6,200.47	22.89	21.07	176.93	-185.39	-81.70	949.12	906.87	42.25	22.467	
6,393.00	6,335.09	6,297.72	6,292.47	22.94	21.40	176.92	-189.42	-82.61	962.09	919.51	42.58	22.594	
6,400.00	6,342.06	6,304.65	6,299.39	22.94	21.43	170.95	-189.72	-82.68	963.08	920.48	42.61	22.603	
6,450.00	6,391.66	6,339.77	6,334.47	22.97	21.56	143.28	-191.25	-83.53	971.14	928.45	42.69	22.748	
6,500.00	6,440.77	6,370.43	6,365.01	23.02	21.67	130.96	-192.58	-85.79	981.30	938.57	42.74	22.962	
6,550.00	6,489.07	6,400.00	6,394.33	23.07	21.77	124.36	-193.85	-89.36	993.59	950.82	42.77	23.231	
6,600.00	6,536.26	6,426.34	6,420.29	23.13	21.87	120.13	-194.97	-93.69	1,008.05	965.28	42.77	23.567	
6,650.00	6,582.05	6,450.00	6,443.43	23.21	21.95	116.97	-195.96	-98.49	1,024.71	981.96	42.75	23.967	
6,700.00	6,626.13	6,472.31	6,465.08	23.29	22.03	114.35	-196.89	-103.80	1,043.61	1,000.88	42.73	24.425	
6,750.00	6,668.24	6,500.00	6,491.67	23.39	22.13	112.26	-198.02	-111.44	1,064.79	1,022.03	42.76	24.900	
6,800.00	6,708.12	6,500.00	6,491.67	23.51	22.13	109.04	-198.02	-111.44	1,088.05	1,045.51	42.54	25.579	
6,850.00	6,745.50	6,520.02	6,510.68	23.64	22.20	106.69	-198.82	-117.68	1,113.36	1,070.83	42.53	26.177	
6,900.00	6,780.15	6,530.46	6,520.51	23.79	22.24	103.76	-199.24	-121.17	1,140.64	1,098.19	42.45	26.869	
6,950.00	6,811.86	6,550.00	6,538.74	23.95	22.30	101.21	-200.01	-128.14	1,169.79	1,127.28	42.50	27.523	
7,000.00	6,840.42	6,550.00	6,538.74	24.14	22.30	97.37	-200.01	-128.14	1,200.24	1,157.87	42.37	28.326	
7,050.00	6,865.66	6,550.00	6,538.74	24.35	22.30	93.35	-200.01	-128.14	1,232.05	1,189.77	42.28	29.143	
7,100.00	6,887.42	6,550.00	6,538.74	24.57	22.30	89.18	-200.01	-128.14	1,264.90	1,222.68	42.22	29.962	
7,150.00	6,905.55	6,550.00	6,538.74	24.82	22.30	84.92	-200.01	-128.14	1,298.53	1,256.33	42.19	30.775	
7,200.00	6,919.95	6,550.00	6,538.74	25.10	22.30	80.64	-200.01	-128.14	1,332.66	1,290.46	42.21	31.573	
7,250.00	6,930.52	6,550.00	6,538.74	25.39	22.30	76.42	-200.01	-128.14	1,367.07	1,324.81	42.26	32.352	
7,300.00	6,937.20	6,550.00	6,538.74	25.70	22.30	72.33	-200.01	-128.14	1,401.50	1,359.17	42.34	33.105	
7,350.00	6,939.94	6,534.12	6,523.94	26.04	22.25	67.65	-199.38	-122.44	1,435.53	1,393.25	42.28	33.956	
7,359.60	6,940.02	6,532.92	6,522.82	26.10	22.25	66.88	-199.34	-122.02	1,442.04	1,399.75	42.29	34.102	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
7,400.00	6,940.03	6,527.92	6,518.12	26.39	22.23	66.64	-199.14	-120.31	1,469.64	1,427.30	42.34	34.710	
7,500.00	6,940.04	6,500.00	6,491.67	27.15	22.13	65.31	-198.02	-111.44	1,540.49	1,498.17	42.33	36.396	
7,600.00	6,940.06	6,500.00	6,491.67	27.99	22.13	65.31	-198.02	-111.44	1,613.76	1,571.17	42.59	37.894	
7,659.60	6,940.07	6,500.00	6,491.67	28.52	22.13	65.31	-198.02	-111.44	1,658.76	1,616.03	42.73	38.817	
7,700.00	6,940.08	6,500.00	6,491.67	28.89	22.13	64.89	-198.02	-111.44	1,689.94	1,647.11	42.83	39.457	
7,796.63	6,940.10	6,500.00	6,491.67	29.83	22.13	63.78	-198.02	-111.44	1,767.26	1,724.21	43.05	41.052	
7,800.00	6,940.10	6,500.00	6,491.67	29.86	22.13	63.78	-198.02	-111.44	1,770.03	1,726.97	43.06	41.107	
7,900.00	6,940.12	6,480.04	6,472.54	30.90	22.06	62.80	-197.20	-105.82	1,852.49	1,809.39	43.11	42.975	
8,000.00	6,940.14	6,472.78	6,465.54	31.98	22.03	62.44	-196.91	-103.92	1,936.63	1,893.38	43.25	44.778	
8,100.00	6,940.17	6,450.00	6,443.43	33.11	21.95	61.33	-195.96	-98.49	2,022.37	1,979.11	43.27	46.741	
8,200.00	6,940.19	6,450.00	6,443.43	34.28	21.95	61.33	-195.96	-98.49	2,108.92	2,065.47	43.45	48.539	
8,300.00	6,940.21	6,450.00	6,443.43	35.48	21.95	61.33	-195.96	-98.49	2,196.61	2,152.99	43.61	50.365	
8,400.00	6,940.23	6,450.00	6,443.43	36.71	21.95	61.33	-195.96	-98.49	2,285.31	2,241.54	43.77	52.215	
8,500.00	6,940.25	6,450.00	6,443.43	37.97	21.95	61.33	-195.96	-98.49	2,374.91	2,330.99	43.91	54.086	
8,600.00	6,940.28	6,450.00	6,443.43	39.26	21.95	61.33	-195.96	-98.49	2,465.30	2,421.26	44.04	55.974	
8,700.00	6,940.30	6,450.00	6,443.43	40.56	21.95	61.33	-195.96	-98.49	2,556.42	2,512.25	44.17	57.879	
8,800.00	6,940.32	6,450.00	6,443.43	41.89	21.95	61.33	-195.96	-98.49	2,648.17	2,603.89	44.29	59.798	
8,900.00	6,940.34	6,427.23	6,421.16	43.24	21.87	60.23	-195.01	-93.85	2,740.03	2,695.75	44.27	61.890	
9,000.00	6,940.36	6,423.66	6,417.66	44.60	21.86	60.06	-194.86	-93.20	2,832.72	2,788.36	44.36	63.855	
9,100.00	6,940.39	6,400.00	6,394.33	45.98	21.77	58.94	-193.85	-89.36	2,926.25	2,881.91	44.34	65.992	
9,200.00	6,940.41	6,400.00	6,394.33	47.38	21.77	58.94	-193.85	-89.36	3,019.71	2,975.27	44.44	67.943	
9,300.00	6,940.43	6,400.00	6,394.33	48.78	21.77	58.94	-193.85	-89.36	3,113.58	3,069.04	44.54	69.901	
9,400.00	6,940.45	6,400.00	6,394.33	50.20	21.77	58.94	-193.85	-89.36	3,207.82	3,163.18	44.64	71.866	
9,500.00	6,940.47	6,400.00	6,394.33	51.63	21.77	58.94	-193.85	-89.36	3,302.40	3,257.67	44.73	73.836	
9,600.00	6,940.50	6,400.00	6,394.33	53.07	21.77	58.94	-193.85	-89.36	3,397.29	3,352.47	44.81	75.810	
9,700.00	6,940.52	6,400.00	6,394.33	54.52	21.77	58.94	-193.85	-89.36	3,492.46	3,447.56	44.90	77.788	
9,800.00	6,940.54	6,400.00	6,394.33	55.97	21.77	58.94	-193.85	-89.36	3,587.90	3,542.92	44.98	79.769	
9,900.00	6,940.56	6,400.00	6,394.33	57.44	21.77	58.94	-193.85	-89.36	3,683.57	3,638.52	45.06	81.752	
10,000.00	6,940.59	6,400.00	6,394.33	58.91	21.77	58.94	-193.85	-89.36	3,779.48	3,734.34	45.14	83.736	
10,100.00	6,940.61	6,400.00	6,394.33	60.38	21.77	58.94	-193.85	-89.36	3,875.59	3,830.38	45.21	85.722	
10,200.00	6,940.63	6,400.00	6,394.33	61.87	21.77	58.94	-193.85	-89.36	3,971.89	3,926.60	45.29	87.707	
10,300.00	6,940.65	6,400.00	6,394.33	63.36	21.77	58.94	-193.85	-89.36	4,068.37	4,023.01	45.36	89.693	
10,400.00	6,940.67	6,400.00	6,394.33	64.85	21.77	58.94	-193.85	-89.36	4,165.01	4,119.58	45.43	91.679	
10,500.00	6,940.70	6,400.00	6,394.33	66.35	21.77	58.94	-193.85	-89.36	4,261.82	4,216.31	45.50	93.663	
10,600.00	6,940.72	6,400.00	6,394.33	67.86	21.77	58.94	-193.85	-89.36	4,358.76	4,313.19	45.57	95.646	
10,700.00	6,940.74	6,400.00	6,394.33	69.36	21.77	58.94	-193.85	-89.36	4,455.84	4,410.20	45.64	97.628	
10,800.00	6,940.76	6,400.00	6,394.33	70.88	21.77	58.94	-193.85	-89.36	4,553.05	4,507.34	45.71	99.607	
10,900.00	6,940.78	6,400.00	6,394.33	72.39	21.77	58.94	-193.85	-89.36	4,650.37	4,604.59	45.78	101.584	
11,000.00	6,940.81	6,400.00	6,394.33	73.91	21.77	58.94	-193.85	-89.36	4,747.81	4,701.96	45.85	103.559	
11,100.00	6,940.83	6,400.00	6,394.33	75.44	21.77	58.94	-193.85	-89.36	4,845.35	4,799.44	45.91	105.531	
11,200.00	6,940.85	6,377.70	6,372.23	76.96	21.69	57.90	-192.89	-86.54	4,942.56	4,896.66	45.90	107.681	
11,300.00	6,940.87	6,376.46	6,371.00	78.49	21.69	57.84	-192.84	-86.41	5,040.24	4,994.27	45.96	109.658	
11,400.00	6,940.89	6,375.26	6,369.81	80.03	21.69	57.78	-192.79	-86.28	5,138.01	5,091.98	46.03	111.630	
11,500.00	6,940.92	6,374.11	6,368.67	81.56	21.68	57.73	-192.74	-86.16	5,235.86	5,189.77	46.09	113.599	
11,600.00	6,940.94	6,373.00	6,367.56	83.10	21.68	57.68	-192.69	-86.05	5,333.79	5,287.63	46.15	115.563	
11,700.00	6,940.96	6,350.00	6,344.67	84.64	21.59	56.62	-191.70	-84.12	5,432.21	5,386.06	46.14	117.728	
11,800.00	6,940.98	6,350.00	6,344.67	86.18	21.59	56.62	-191.70	-84.12	5,530.24	5,484.03	46.21	119.674	
11,900.00	6,941.00	6,350.00	6,344.67	87.72	21.59	56.62	-191.70	-84.12	5,628.34	5,582.06	46.28	121.616	
12,000.00	6,941.03	6,350.00	6,344.67	89.27	21.59	56.62	-191.70	-84.12	5,726.51	5,680.16	46.35	123.554	
12,100.00	6,941.05	6,350.00	6,344.67	90.82	21.59	56.62	-191.70	-84.12	5,824.74	5,778.32	46.42	125.486	
12,200.00	6,941.07	6,350.00	6,344.67	92.37	21.59	56.62	-191.70	-84.12	5,923.03	5,876.54	46.49	127.413	
12,300.00	6,941.09	6,350.00	6,344.67	93.92	21.59	56.62	-191.70	-84.12	6,021.37	5,974.82	46.56	129.336	

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 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
12,400.00	6,941.11	6,350.00	6,344.67	95.47	21.59	56.62	-191.70	-84.12	6,119.77	6,073.15	46.63	131.253	
12,500.00	6,941.14	6,350.00	6,344.67	97.03	21.59	56.62	-191.70	-84.12	6,218.22	6,171.53	46.70	133.165	
12,600.00	6,941.16	6,350.00	6,344.67	98.58	21.59	56.62	-191.70	-84.12	6,316.72	6,269.96	46.77	135.071	
12,700.00	6,941.18	6,350.00	6,344.67	100.14	21.59	56.62	-191.70	-84.12	6,415.27	6,368.43	46.84	136.971	
12,800.00	6,941.20	6,350.00	6,344.67	101.70	21.59	56.62	-191.70	-84.12	6,513.86	6,466.95	46.91	138.866	
12,900.00	6,941.23	6,350.00	6,344.67	103.26	21.59	56.62	-191.70	-84.12	6,612.49	6,565.51	46.98	140.755	
13,000.00	6,941.25	6,350.00	6,344.67	104.82	21.59	56.62	-191.70	-84.12	6,711.16	6,664.11	47.05	142.638	
13,100.00	6,941.27	6,350.00	6,344.67	106.38	21.59	56.62	-191.70	-84.12	6,809.87	6,762.75	47.12	144.514	
13,200.00	6,941.29	6,350.00	6,344.67	107.95	21.59	56.62	-191.70	-84.12	6,908.62	6,861.43	47.19	146.385	
13,300.00	6,941.31	6,350.00	6,344.67	109.51	21.59	56.62	-191.70	-84.12	7,007.41	6,960.14	47.27	148.249	
13,400.00	6,941.34	6,350.00	6,344.67	111.08	21.59	56.62	-191.70	-84.12	7,106.22	7,058.88	47.34	150.107	
13,500.00	6,941.36	6,350.00	6,344.67	112.64	21.59	56.62	-191.70	-84.12	7,205.08	7,157.66	47.41	151.959	
13,600.00	6,941.38	6,350.00	6,344.67	114.21	21.59	56.62	-191.70	-84.12	7,303.96	7,256.47	47.49	153.804	
13,700.00	6,941.40	6,350.00	6,344.67	115.78	21.59	56.62	-191.70	-84.12	7,402.87	7,355.31	47.56	155.642	
13,800.00	6,941.42	6,350.00	6,344.67	117.35	21.59	56.62	-191.70	-84.12	7,501.81	7,454.17	47.64	157.474	
13,900.00	6,941.45	6,350.00	6,344.67	118.92	21.59	56.62	-191.70	-84.12	7,600.78	7,553.06	47.71	159.299	
14,000.00	6,941.47	6,350.00	6,344.67	120.49	21.59	56.62	-191.70	-84.12	7,699.77	7,651.98	47.79	161.117	
14,100.00	6,941.49	6,350.00	6,344.67	122.06	21.59	56.62	-191.70	-84.12	7,798.79	7,750.93	47.87	162.929	
14,200.00	6,941.51	6,350.00	6,344.67	123.64	21.59	56.62	-191.70	-84.12	7,897.84	7,849.90	47.94	164.733	
14,300.00	6,941.53	6,350.00	6,344.67	125.21	21.59	56.62	-191.70	-84.12	7,996.91	7,948.89	48.02	166.530	
14,400.00	6,941.56	6,350.00	6,344.67	126.78	21.59	56.62	-191.70	-84.12	8,096.00	8,047.90	48.10	168.321	
14,500.00	6,941.58	6,350.00	6,344.67	128.36	21.59	56.62	-191.70	-84.12	8,195.12	8,146.94	48.18	170.104	
14,600.00	6,941.60	6,350.00	6,344.67	129.93	21.59	56.62	-191.70	-84.12	8,294.25	8,245.99	48.26	171.880	
14,700.00	6,941.62	6,350.00	6,344.67	131.51	21.59	56.62	-191.70	-84.12	8,393.41	8,345.07	48.34	173.650	
14,800.00	6,941.64	6,350.00	6,344.67	133.08	21.59	56.62	-191.70	-84.12	8,492.58	8,444.17	48.42	175.411	
14,900.00	6,941.67	6,350.00	6,344.67	134.66	21.59	56.62	-191.70	-84.12	8,591.78	8,543.28	48.50	177.166	
15,000.00	6,941.69	6,350.00	6,344.67	136.24	21.59	56.62	-191.70	-84.12	8,690.99	8,642.41	48.58	178.913	
15,100.00	6,941.71	6,350.00	6,344.67	137.82	21.59	56.62	-191.70	-84.12	8,790.22	8,741.56	48.66	180.653	
15,200.00	6,941.73	6,350.00	6,344.67	139.40	21.59	56.62	-191.70	-84.12	8,889.47	8,840.73	48.74	182.386	
15,300.00	6,941.75	6,350.00	6,344.67	140.97	21.59	56.62	-191.70	-84.12	8,988.74	8,939.91	48.82	184.111	
15,400.00	6,941.78	6,350.00	6,344.67	142.55	21.59	56.62	-191.70	-84.12	9,088.02	9,039.11	48.91	185.829	
15,500.00	6,941.80	6,350.00	6,344.67	144.13	21.59	56.62	-191.70	-84.12	9,187.31	9,138.32	48.99	187.540	
15,600.00	6,941.82	6,350.00	6,344.67	145.72	21.59	56.62	-191.70	-84.12	9,286.62	9,237.55	49.07	189.243	
15,700.00	6,941.84	6,350.00	6,344.67	147.30	21.59	56.62	-191.70	-84.12	9,385.95	9,336.79	49.16	190.938	
15,800.00	6,941.87	6,350.00	6,344.67	148.88	21.59	56.62	-191.70	-84.12	9,485.29	9,436.05	49.24	192.626	
15,900.00	6,941.89	6,350.00	6,344.67	150.46	21.59	56.62	-191.70	-84.12	9,584.65	9,535.32	49.33	194.307	
16,000.00	6,941.91	6,350.00	6,344.67	152.04	21.59	56.62	-191.70	-84.12	9,684.01	9,634.60	49.41	195.980	
16,100.00	6,941.93	6,350.00	6,344.67	153.62	21.59	56.62	-191.70	-84.12	9,783.39	9,733.89	49.50	197.645	
16,200.00	6,941.95	6,350.00	6,344.67	155.21	21.59	56.62	-191.70	-84.12	9,882.79	9,833.20	49.59	199.303	
16,300.00	6,941.98	6,350.00	6,344.67	156.79	21.59	56.62	-191.70	-84.12	9,982.19	9,932.52	49.67	200.954	
16,400.00	6,942.00	6,350.00	6,344.67	158.37	21.59	56.62	-191.70	-84.12	10,081.61	10,031.85	49.76	202.597	
16,500.00	6,942.02	6,350.00	6,344.67	159.96	21.59	56.62	-191.70	-84.12	10,181.04	10,131.19	49.85	204.232	
16,600.00	6,942.04	6,350.00	6,344.67	161.54	21.59	56.62	-191.70	-84.12	10,280.48	10,230.54	49.94	205.859	
16,700.00	6,942.06	6,350.00	6,344.67	163.13	21.59	56.62	-191.70	-84.12	10,379.93	10,329.90	50.03	207.479	
16,800.00	6,942.09	6,350.00	6,344.67	164.71	21.59	56.62	-191.70	-84.12	10,479.39	10,429.27	50.12	209.092	
16,900.00	6,942.11	6,350.00	6,344.67	166.30	21.59	56.62	-191.70	-84.12	10,578.86	10,528.65	50.21	210.697	
17,000.00	6,942.13	6,350.00	6,344.67	167.88	21.59	56.62	-191.70	-84.12	10,678.34	10,628.04	50.30	212.294	
17,100.00	6,942.15	6,350.00	6,344.67	169.47	21.59	56.62	-191.70	-84.12	10,777.83	10,727.44	50.39	213.884	
17,200.00	6,942.17	6,350.00	6,344.67	171.05	21.59	56.62	-191.70	-84.12	10,877.33	10,826.85	50.48	215.466	
17,300.00	6,942.20	6,350.00	6,344.67	172.64	21.59	56.62	-191.70	-84.12	10,976.84	10,926.26	50.58	217.040	
17,400.00	6,942.22	6,350.00	6,344.67	174.23	21.59	56.62	-191.70	-84.12	11,076.36	11,025.69	50.67	218.607	
17,500.00	6,942.24	6,350.00	6,344.67	175.81	21.59	56.62	-191.70	-84.12	11,175.88	11,125.12	50.76	220.166	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
17,600.00	6,942.26	6,350.00	6,344.67	177.40	21.59	56.62	-191.70	-84.12	11,275.42	11,224.56	50.85	221.718	
17,700.00	6,942.28	6,350.00	6,344.67	178.99	21.59	56.62	-191.70	-84.12	11,374.96	11,324.01	50.95	223.262	
17,800.00	6,942.31	6,350.00	6,344.67	180.57	21.59	56.62	-191.70	-84.12	11,474.51	11,423.47	51.04	224.799	
17,900.00	6,942.33	6,350.00	6,344.67	182.16	21.59	56.62	-191.70	-84.12	11,574.07	11,522.93	51.14	226.328	
18,000.00	6,942.35	6,350.00	6,344.67	183.75	21.59	56.62	-191.70	-84.12	11,673.63	11,622.40	51.23	227.850	
18,100.00	6,942.37	6,350.00	6,344.67	185.34	21.59	56.62	-191.70	-84.12	11,773.21	11,721.88	51.33	229.364	
18,200.00	6,942.39	6,350.00	6,344.67	186.93	21.59	56.62	-191.70	-84.12	11,872.79	11,821.36	51.43	230.870	
18,300.00	6,942.42	6,350.00	6,344.67	188.52	21.59	56.62	-191.70	-84.12	11,972.38	11,920.85	51.52	232.369	
18,400.00	6,942.44	6,350.00	6,344.67	190.10	21.59	56.62	-191.70	-84.12	12,071.97	12,020.35	51.62	233.861	
18,500.00	6,942.46	6,350.00	6,344.67	191.69	21.59	56.62	-191.70	-84.12	12,171.57	12,119.85	51.72	235.345	
18,600.00	6,942.48	6,350.00	6,344.67	193.28	21.59	56.62	-191.70	-84.12	12,271.18	12,219.36	51.82	236.821	
18,700.00	6,942.51	6,350.00	6,344.67	194.87	21.59	56.62	-191.70	-84.12	12,370.79	12,318.88	51.91	238.290	
18,800.00	6,942.53	6,350.00	6,344.67	196.46	21.59	56.62	-191.70	-84.12	12,470.41	12,418.40	52.01	239.752	
18,900.00	6,942.55	6,350.00	6,344.67	198.05	21.59	56.62	-191.70	-84.12	12,570.04	12,517.92	52.11	241.207	
19,000.00	6,942.57	6,350.00	6,344.67	199.64	21.59	56.62	-191.70	-84.12	12,669.67	12,617.46	52.21	242.653	
19,100.00	6,942.59	6,350.00	6,344.67	201.23	21.59	56.62	-191.70	-84.12	12,769.31	12,716.99	52.31	244.093	
19,200.00	6,942.62	6,350.00	6,344.67	202.82	21.59	56.62	-191.70	-84.12	12,868.95	12,816.54	52.41	245.525	
19,300.00	6,942.64	6,350.00	6,344.67	204.41	21.59	56.62	-191.70	-84.12	12,968.60	12,916.08	52.52	246.950	
19,400.00	6,942.66	6,350.00	6,344.67	206.00	21.59	56.62	-191.70	-84.12	13,068.25	13,015.64	52.62	248.368	
19,500.00	6,942.68	6,350.00	6,344.67	207.59	21.59	56.62	-191.70	-84.12	13,167.91	13,115.19	52.72	249.778	
19,600.00	6,942.70	6,350.00	6,344.67	209.18	21.59	56.62	-191.70	-84.12	13,267.58	13,214.76	52.82	251.181	
19,700.00	6,942.73	6,350.00	6,344.67	210.78	21.59	56.62	-191.70	-84.12	13,367.25	13,314.32	52.92	252.577	
19,800.00	6,942.75	6,350.00	6,344.67	212.37	21.59	56.62	-191.70	-84.12	13,466.92	13,413.90	53.03	253.966	
19,900.00	6,942.77	6,350.00	6,344.67	213.96	21.59	56.62	-191.70	-84.12	13,566.60	13,513.47	53.13	255.348	
20,000.00	6,942.79	6,350.00	6,344.67	215.55	21.59	56.62	-191.70	-84.12	13,666.28	13,613.05	53.23	256.722	
20,100.00	6,942.81	6,350.00	6,344.67	217.14	21.59	56.62	-191.70	-84.12	13,765.97	13,712.64	53.34	258.089	
20,200.00	6,942.84	6,350.00	6,344.67	218.73	21.59	56.62	-191.70	-84.12	13,865.67	13,812.22	53.44	259.449	
20,300.00	6,942.86	6,350.00	6,344.67	220.32	21.59	56.62	-191.70	-84.12	13,965.36	13,911.82	53.55	260.802	
20,400.00	6,942.88	6,350.00	6,344.67	221.92	21.59	56.62	-191.70	-84.12	14,065.07	14,011.41	53.65	262.148	
20,500.00	6,942.90	6,350.00	6,344.67	223.51	21.59	56.62	-191.70	-84.12	14,164.77	14,111.01	53.76	263.487	
20,600.00	6,942.92	6,350.00	6,344.67	225.10	21.59	56.62	-191.70	-84.12	14,264.48	14,210.62	53.86	264.819	
20,700.00	6,942.95	6,350.00	6,344.67	226.69	21.59	56.62	-191.70	-84.12	14,364.20	14,310.22	53.97	266.144	
20,800.00	6,942.97	6,350.00	6,344.67	228.28	21.59	56.62	-191.70	-84.12	14,463.91	14,409.83	54.08	267.462	
20,900.00	6,942.99	6,350.00	6,344.67	229.88	21.59	56.62	-191.70	-84.12	14,563.63	14,509.45	54.19	268.774	
20,942.50	6,943.00	6,350.00	6,344.67	230.42	21.59	56.62	-191.70	-84.12	14,606.02	14,547.19	58.83	248.287	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
0.00	0.00	0.00	0.00	0.00	0.00	-34.62	20.75	-14.32	25.22				
58.45	58.45	58.46	58.46	0.02	0.02	88.21	20.81	-14.21	25.19	25.17	0.02	1,149.240	
150.25	150.24	150.29	150.29	0.14	0.14	73.29	20.89	-13.78	24.86	24.71	0.16	159.040	
239.43	239.42	239.42	239.42	0.25	0.25	71.24	21.06	-13.33	24.47	24.18	0.28	86.106	
299.93	299.91	299.93	299.92	0.33	0.33	78.78	21.19	-13.00	24.25	23.88	0.37	66.223	
446.00	445.96	446.19	446.18	0.50	0.50	108.45	20.54	-12.91	23.86	23.17	0.69	34.369	
537.00	536.95	537.80	537.74	0.73	0.72	167.03	17.98	-14.16	22.65	21.40	1.25	18.129	
624.00	623.95	624.68	624.44	0.99	1.00	-123.89	13.28	-16.99	20.63	18.78	1.85	11.147	
653.52	653.46	654.04	653.72	1.08	1.09	-122.16	11.46	-18.36	20.39	18.33	2.06	9.881	CC, ES
718.00	717.90	718.38	717.81	1.29	1.31	-133.57	6.89	-21.56	21.46	18.91	2.55	8.420	SF
811.00	810.73	810.29	809.24	1.60	1.64	-144.55	-1.65	-25.49	27.81	24.56	3.25	8.568	
903.00	902.19	899.08	897.17	1.92	1.98	-156.27	-13.08	-29.96	44.22	40.32	3.91	11.315	
994.00	992.38	985.51	982.30	2.24	2.32	-167.97	-27.51	-33.90	67.82	63.28	4.53	14.959	
1,084.00	1,081.50	1,070.78	1,065.89	2.56	2.68	-172.42	-44.15	-36.02	94.22	89.08	5.14	18.335	
1,175.00	1,171.48	1,156.65	1,149.91	2.91	3.05	-174.90	-61.88	-36.50	122.80	117.04	5.76	21.312	
1,268.00	1,263.52	1,243.67	1,235.00	3.26	3.42	-177.72	-80.08	-36.76	152.54	146.15	6.39	23.859	
1,363.00	1,357.62	1,332.24	1,321.40	3.63	3.81	-178.18	-99.56	-36.33	183.56	176.52	7.04	26.078	
1,457.00	1,450.74	1,420.93	1,407.87	3.99	4.21	-178.33	-119.23	-34.99	214.44	206.75	7.69	27.870	
1,552.00	1,544.82	1,505.46	1,490.12	4.36	4.59	-179.72	-138.70	-34.05	247.15	238.83	8.33	29.682	
1,646.00	1,637.88	1,585.07	1,567.15	4.72	4.97	179.10	-158.81	-33.57	282.04	273.12	8.92	31.603	
1,741.00	1,731.94	1,672.79	1,651.63	5.09	5.39	177.91	-182.40	-32.60	318.69	309.10	9.59	33.234	
1,835.00	1,825.07	1,760.33	1,735.93	5.46	5.82	176.52	-205.90	-30.73	354.41	344.15	10.25	34.561	
1,929.00	1,918.39	1,848.42	1,820.78	5.82	6.25	174.08	-229.46	-28.33	388.79	377.87	10.92	35.600	
2,024.00	2,012.84	1,936.76	1,905.87	6.18	6.68	174.39	-253.05	-25.52	422.41	410.82	11.59	36.445	
2,118.00	2,106.19	2,025.07	1,990.91	6.53	7.11	173.50	-276.68	-22.58	456.64	444.37	12.27	37.217	
2,213.00	2,200.37	2,113.88	2,076.49	6.90	7.55	171.25	-300.17	-19.42	492.28	479.32	12.96	37.992	
2,307.00	2,293.61	2,201.92	2,161.34	7.27	7.98	172.61	-323.44	-15.99	527.20	513.56	13.63	38.668	
2,402.00	2,387.91	2,292.52	2,248.80	7.63	8.42	175.94	-346.91	-13.26	561.78	547.45	14.33	39.205	
2,496.00	2,481.29	2,382.52	2,335.85	7.99	8.86	176.69	-369.70	-11.50	595.18	580.16	15.02	39.632	
2,591.00	2,575.67	2,472.65	2,423.13	8.35	9.30	174.68	-392.16	-10.13	628.61	612.90	15.71	40.021	
2,686.00	2,670.05	2,561.56	2,509.24	8.71	9.73	174.79	-414.24	-8.90	661.97	645.58	16.39	40.394	
2,780.00	2,763.49	2,650.21	2,595.11	9.07	10.16	172.34	-436.20	-7.62	694.58	677.52	17.07	40.699	
2,875.00	2,857.94	2,738.97	2,681.09	9.43	10.58	170.65	-458.20	-6.30	727.30	709.55	17.75	40.984	
2,970.00	2,952.51	2,828.95	2,768.26	9.79	11.02	174.11	-480.51	-5.00	758.94	740.51	18.43	41.177	
3,064.00	3,046.19	2,924.50	2,860.93	10.13	11.48	-178.84	-503.76	-3.71	788.80	769.64	19.16	41.179	
3,159.00	3,140.98	3,023.95	2,957.64	10.47	11.95	-177.15	-526.91	-2.43	816.72	796.82	19.90	41.038	
3,253.00	3,234.84	3,105.00	3,036.57	10.81	12.33	174.84	-545.32	-2.42	842.78	822.27	20.51	41.093	
3,348.00	3,329.74	3,185.18	3,114.46	11.14	12.71	167.06	-564.30	-3.73	869.46	848.34	21.11	41.186	
3,397.00	3,378.70	3,228.09	3,155.99	11.32	12.92	166.19	-575.02	-4.81	883.69	862.25	21.43	41.230	
3,488.00	3,469.63	3,317.10	3,242.12	11.64	13.35	163.65	-597.36	-7.17	909.89	887.78	22.11	41.161	
3,583.00	3,564.49	3,416.32	3,338.33	11.98	13.83	171.99	-621.50	-9.46	937.93	915.07	22.86	41.029	
3,677.00	3,658.13	3,506.90	3,426.23	12.33	14.26	173.72	-643.30	-11.32	968.40	944.84	23.55	41.113	
3,772.00	3,752.42	3,601.17	3,517.84	12.69	14.71	178.28	-665.46	-13.00	1,001.75	977.47	24.28	41.259	
3,867.00	3,846.42	3,685.02	3,599.29	13.06	15.10	179.86	-685.34	-14.20	1,037.39	1,012.46	24.93	41.615	
3,961.00	3,939.30	3,783.69	3,695.19	13.44	15.57	179.48	-708.51	-15.33	1,073.24	1,047.56	25.68	41.788	
4,056.00	4,032.83	3,899.92	3,808.75	13.82	16.10	175.78	-733.23	-16.52	1,109.27	1,082.71	26.55	41.773	
4,151.00	4,126.01	3,984.26	3,891.38	14.21	16.48	176.66	-750.13	-17.30	1,146.00	1,118.80	27.21	42.121	
4,246.00	4,219.10	4,052.00	3,957.54	14.61	16.79	168.76	-764.64	-18.14	1,184.26	1,156.51	27.75	42.679	
4,340.00	4,310.92	4,113.80	4,017.65	15.01	17.08	158.84	-778.94	-19.07	1,224.36	1,196.11	28.25	43.342	
4,435.00	4,403.54	4,174.99	4,076.92	15.41	17.38	158.61	-794.13	-20.00	1,266.61	1,237.87	28.74	44.068	
4,498.00	4,465.21	4,213.70	4,114.24	15.68	17.57	161.20	-804.41	-20.42	1,294.69	1,265.65	29.05	44.571	
4,561.00	4,526.82	4,253.02	4,151.99	15.95	17.77	166.52	-815.40	-20.66	1,323.99	1,294.63	29.36	45.097	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
4,624.00	4,588.23	4,294.63	4,191.81	16.22	17.99	168.57	-827.49	-20.63	1,354.89	1,325.20	29.69	45.631	
4,687.00	4,649.71	4,336.00	4,231.25	16.49	18.21	169.21	-839.95	-20.29	1,386.09	1,356.07	30.02	46.176	
4,749.00	4,710.40	4,382.72	4,275.69	16.75	18.46	170.71	-854.37	-19.82	1,416.46	1,386.08	30.39	46.612	
4,812.00	4,772.28	4,430.00	4,320.59	17.01	18.71	171.63	-869.17	-19.57	1,446.73	1,415.97	30.76	47.032	
4,875.00	4,834.34	4,471.93	4,360.33	17.27	18.94	171.20	-882.55	-19.64	1,476.60	1,445.51	31.08	47.502	
4,938.00	4,896.43	4,524.00	4,409.51	17.53	19.22	170.94	-899.63	-20.29	1,506.81	1,475.30	31.50	47.834	
5,001.00	4,958.46	4,560.56	4,443.97	17.79	19.43	167.41	-911.84	-20.99	1,537.65	1,505.87	31.78	48.384	
5,064.00	5,020.29	4,609.87	4,490.39	18.05	19.70	162.54	-928.43	-22.04	1,569.48	1,537.30	32.18	48.772	
5,126.00	5,080.98	4,698.26	4,573.85	18.32	20.19	158.15	-957.48	-24.01	1,600.85	1,567.92	32.93	48.609	
5,189.00	5,142.74	4,754.63	4,627.33	18.58	20.49	160.19	-975.23	-25.13	1,631.42	1,598.03	33.39	48.856	
5,252.00	5,204.62	4,807.00	4,676.97	18.85	20.78	160.37	-991.93	-25.97	1,661.75	1,627.93	33.82	49.141	
5,315.00	5,266.61	4,862.83	4,729.86	19.11	21.08	160.43	-1,009.79	-26.70	1,691.58	1,657.31	34.27	49.362	
5,378.00	5,328.73	4,952.64	4,815.33	19.37	21.56	161.08	-1,037.35	-27.73	1,719.98	1,684.98	35.01	49.131	
5,441.00	5,390.87	4,997.92	4,858.48	19.62	21.81	160.57	-1,051.08	-28.16	1,748.13	1,712.76	35.37	49.425	
5,503.00	5,452.07	5,086.18	4,942.78	19.87	22.27	161.11	-1,077.16	-28.77	1,775.01	1,738.93	36.08	49.192	
5,566.00	5,514.32	5,273.93	5,124.56	20.13	23.18	160.86	-1,123.90	-29.68	1,798.71	1,761.23	37.49	47.982	
5,629.00	5,576.59	5,363.22	5,211.88	20.38	23.59	163.54	-1,142.56	-30.13	1,820.51	1,782.37	38.14	47.734	
5,692.00	5,638.95	5,434.69	5,281.92	20.63	23.90	161.28	-1,156.75	-30.48	1,841.23	1,802.56	38.67	47.616	
5,747.00	5,693.45	5,499.28	5,345.31	20.85	24.19	163.66	-1,169.15	-30.79	1,858.60	1,819.46	39.14	47.485	
5,810.00	5,755.90	5,579.37	5,424.04	21.09	24.53	162.95	-1,183.83	-31.02	1,877.78	1,838.06	39.71	47.282	
5,874.00	5,819.40	5,655.12	5,498.63	21.34	24.85	164.37	-1,197.03	-31.29	1,896.29	1,856.03	40.26	47.103	
5,936.00	5,880.95	5,731.51	5,573.95	21.58	25.17	163.93	-1,209.76	-31.44	1,913.58	1,872.78	40.80	46.903	
5,999.00	5,943.45	5,806.61	5,648.10	21.82	25.48	162.44	-1,221.64	-31.44	1,930.81	1,889.48	41.33	46.716	
6,062.00	6,005.96	5,876.34	5,717.02	22.07	25.76	165.03	-1,232.28	-31.30	1,947.72	1,905.89	41.83	46.561	
6,125.00	6,068.49	5,951.90	5,791.76	22.31	26.06	162.73	-1,243.39	-31.15	1,964.13	1,921.77	42.36	46.368	
6,188.00	6,131.08	6,046.35	5,885.35	22.55	26.43	164.68	-1,256.06	-31.02	1,979.26	1,936.28	42.97	46.057	
6,255.00	6,197.73	6,137.85	5,976.20	22.81	26.78	163.68	-1,266.93	-31.03	1,993.62	1,950.04	43.57	45.754	
6,293.00	6,235.55	6,193.63	6,031.65	22.89	26.98	163.70	-1,272.93	-31.09	2,001.13	1,957.28	43.85	45.639	
6,300.00	6,242.52	6,207.85	6,045.80	22.89	27.04	163.70	-1,274.37	-31.09	2,002.46	1,958.56	43.90	45.611	
6,393.00	6,335.09	6,341.77	6,179.25	22.94	27.50	163.75	-1,285.57	-30.85	2,018.39	1,973.99	44.40	45.456	
6,400.00	6,342.06	6,348.00	6,185.46	22.94	27.52	157.76	-1,286.06	-30.83	2,019.57	1,975.15	44.43	45.460	
6,450.00	6,391.66	6,348.00	6,185.46	22.97	27.52	129.83	-1,286.06	-30.83	2,028.83	1,984.42	44.41	45.684	
6,500.00	6,440.77	6,348.00	6,185.46	23.02	27.52	117.07	-1,286.06	-30.83	2,039.58	1,995.19	44.38	45.953	
6,550.00	6,489.07	6,348.00	6,185.46	23.07	27.52	109.92	-1,286.06	-30.83	2,051.71	2,007.36	44.35	46.263	
6,600.00	6,536.26	6,348.00	6,185.46	23.13	27.52	105.09	-1,286.06	-30.83	2,065.14	2,020.83	44.31	46.610	
6,650.00	6,582.05	6,348.00	6,185.46	23.21	27.52	101.38	-1,286.06	-30.83	2,079.75	2,035.48	44.26	46.988	
6,700.00	6,626.13	6,348.00	6,185.46	23.29	27.52	98.26	-1,286.06	-30.83	2,095.42	2,051.20	44.22	47.390	
6,750.00	6,668.24	6,348.00	6,185.46	23.39	27.52	95.48	-1,286.06	-30.83	2,112.04	2,067.86	44.18	47.809	
6,800.00	6,708.12	6,348.00	6,185.46	23.51	27.52	92.90	-1,286.06	-30.83	2,129.48	2,085.33	44.15	48.238	
6,850.00	6,745.50	6,348.00	6,185.46	23.64	27.52	90.45	-1,286.06	-30.83	2,147.61	2,103.48	44.13	48.668	
6,900.00	6,780.15	6,348.00	6,185.46	23.79	27.52	88.09	-1,286.06	-30.83	2,166.30	2,122.17	44.13	49.093	
6,950.00	6,811.86	6,348.00	6,185.46	23.95	27.52	85.81	-1,286.06	-30.83	2,185.42	2,141.27	44.15	49.504	
7,000.00	6,840.42	6,348.00	6,185.46	24.14	27.52	83.58	-1,286.06	-30.83	2,204.84	2,160.65	44.19	49.894	
7,050.00	6,865.66	6,348.00	6,185.46	24.35	27.52	81.42	-1,286.06	-30.83	2,224.43	2,180.17	44.26	50.256	
7,100.00	6,887.42	6,348.00	6,185.46	24.57	27.52	79.33	-1,286.06	-30.83	2,244.07	2,199.71	44.36	50.586	
7,150.00	6,905.55	6,348.00	6,185.46	24.82	27.52	77.31	-1,286.06	-30.83	2,263.63	2,219.14	44.49	50.879	
7,200.00	6,919.95	6,348.00	6,185.46	25.10	27.52	75.38	-1,286.06	-30.83	2,282.99	2,238.34	44.65	51.131	
7,250.00	6,930.52	6,348.00	6,185.46	25.39	27.52	73.54	-1,286.06	-30.83	2,302.04	2,257.20	44.84	51.341	
7,300.00	6,937.20	6,348.00	6,185.46	25.70	27.52	71.79	-1,286.06	-30.83	2,320.66	2,275.61	45.05	51.508	
7,350.00	6,939.94	6,348.00	6,185.46	26.04	27.52	70.16	-1,286.06	-30.83	2,338.75	2,293.46	45.30	51.633	
7,359.60	6,940.02	6,348.00	6,185.46	26.10	27.52	69.86	-1,286.06	-30.83	2,342.16	2,296.82	45.34	51.654	
7,400.00	6,940.03	6,348.00	6,185.46	26.39	27.52	69.86	-1,286.06	-30.83	2,356.74	2,311.18	45.56	51.733	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
7,500.00	6,940.04	6,348.00	6,185.46	27.15	27.52	69.86	-1,286.06	-30.83	2,395.38	2,349.27	46.11	51.952	
7,600.00	6,940.06	6,348.00	6,185.46	27.99	27.52	69.86	-1,286.06	-30.83	2,437.52	2,390.84	46.68	52.216	
7,659.60	6,940.07	6,348.00	6,185.46	28.52	27.52	69.86	-1,286.06	-30.83	2,464.22	2,417.19	47.03	52.399	
7,700.00	6,940.08	6,348.00	6,185.46	28.89	27.52	69.71	-1,286.06	-30.83	2,483.20	2,435.94	47.26	52.539	
7,796.63	6,940.10	6,348.00	6,185.46	29.83	27.52	69.31	-1,286.06	-30.83	2,532.50	2,484.67	47.83	52.948	
7,800.00	6,940.10	6,348.00	6,185.46	29.86	27.52	69.31	-1,286.06	-30.83	2,534.32	2,486.47	47.85	52.963	
7,900.00	6,940.12	6,348.00	6,185.46	30.90	27.52	69.31	-1,286.06	-30.83	2,589.56	2,541.13	48.43	53.475	
8,000.00	6,940.14	6,348.00	6,185.46	31.98	27.52	69.31	-1,286.06	-30.83	2,647.42	2,598.43	48.99	54.040	
8,100.00	6,940.17	6,348.00	6,185.46	33.11	27.52	69.31	-1,286.06	-30.83	2,707.74	2,658.20	49.54	54.657	
8,200.00	6,940.19	6,348.00	6,185.46	34.28	27.52	69.31	-1,286.06	-30.83	2,770.36	2,720.29	50.08	55.323	
8,300.00	6,940.21	6,348.00	6,185.46	35.48	27.52	69.31	-1,286.06	-30.83	2,835.13	2,784.54	50.59	56.039	
8,400.00	6,940.23	6,348.00	6,185.46	36.71	27.52	69.31	-1,286.06	-30.83	2,901.89	2,850.81	51.09	56.801	
8,500.00	6,940.25	6,348.00	6,185.46	37.97	27.52	69.31	-1,286.06	-30.83	2,970.53	2,918.96	51.57	57.607	
8,600.00	6,940.28	6,348.00	6,185.46	39.26	27.52	69.31	-1,286.06	-30.83	3,040.90	2,988.88	52.02	58.455	
8,700.00	6,940.30	6,348.00	6,185.46	40.56	27.52	69.31	-1,286.06	-30.83	3,112.89	3,060.44	52.46	59.342	
8,800.00	6,940.32	6,348.00	6,185.46	41.89	27.52	69.31	-1,286.06	-30.83	3,186.40	3,133.53	52.87	60.266	
8,900.00	6,940.34	6,348.00	6,185.46	43.24	27.52	69.31	-1,286.06	-30.83	3,261.32	3,208.05	53.27	61.224	
9,000.00	6,940.36	6,348.00	6,185.46	44.60	27.52	69.31	-1,286.06	-30.83	3,337.55	3,283.90	53.65	62.215	
9,100.00	6,940.39	6,348.00	6,185.46	45.98	27.52	69.31	-1,286.06	-30.83	3,415.01	3,361.00	54.00	63.236	
9,200.00	6,940.41	6,348.00	6,185.46	47.38	27.52	69.31	-1,286.06	-30.83	3,493.61	3,439.26	54.35	64.286	
9,300.00	6,940.43	6,348.00	6,185.46	48.78	27.52	69.31	-1,286.06	-30.83	3,573.28	3,518.61	54.67	65.361	
9,400.00	6,940.45	6,348.00	6,185.46	50.20	27.52	69.31	-1,286.06	-30.83	3,653.95	3,598.98	54.98	66.461	
9,500.00	6,940.47	6,348.00	6,185.46	51.63	27.52	69.31	-1,286.06	-30.83	3,735.56	3,680.29	55.27	67.584	
9,600.00	6,940.50	6,348.00	6,185.46	53.07	27.52	69.31	-1,286.06	-30.83	3,818.04	3,762.49	55.55	68.727	
9,700.00	6,940.52	6,348.00	6,185.46	54.52	27.52	69.31	-1,286.06	-30.83	3,901.35	3,845.52	55.82	69.890	
9,800.00	6,940.54	6,348.00	6,185.46	55.97	27.52	69.31	-1,286.06	-30.83	3,985.42	3,929.34	56.08	71.072	
9,900.00	6,940.56	6,348.00	6,185.46	57.44	27.52	69.31	-1,286.06	-30.83	4,070.21	4,013.89	56.32	72.270	
10,000.00	6,940.59	6,348.00	6,185.46	58.91	27.52	69.31	-1,286.06	-30.83	4,155.67	4,099.12	56.55	73.484	
10,100.00	6,940.61	6,348.00	6,185.46	60.38	27.52	69.31	-1,286.06	-30.83	4,241.77	4,185.00	56.77	74.713	
10,200.00	6,940.63	6,348.00	6,185.46	61.87	27.52	69.31	-1,286.06	-30.83	4,328.47	4,271.49	56.99	75.955	
10,300.00	6,940.65	6,348.00	6,185.46	63.36	27.52	69.31	-1,286.06	-30.83	4,415.74	4,358.55	57.19	77.210	
10,400.00	6,940.67	6,348.00	6,185.46	64.85	27.52	69.31	-1,286.06	-30.83	4,503.53	4,446.14	57.39	78.477	
10,500.00	6,940.70	6,348.00	6,185.46	66.35	27.52	69.31	-1,286.06	-30.83	4,591.82	4,534.24	57.57	79.754	
10,600.00	6,940.72	6,348.00	6,185.46	67.86	27.52	69.31	-1,286.06	-30.83	4,680.58	4,622.83	57.76	81.041	
10,700.00	6,940.74	6,348.00	6,185.46	69.36	27.52	69.31	-1,286.06	-30.83	4,769.79	4,711.86	57.93	82.338	
10,800.00	6,940.76	6,348.00	6,185.46	70.88	27.52	69.31	-1,286.06	-30.83	4,859.42	4,801.32	58.10	83.643	
10,900.00	6,940.78	6,348.00	6,185.46	72.39	27.52	69.31	-1,286.06	-30.83	4,949.44	4,891.18	58.26	84.956	
11,000.00	6,940.81	6,348.00	6,185.46	73.91	27.52	69.31	-1,286.06	-30.83	5,039.84	4,981.43	58.41	86.277	
11,100.00	6,940.83	6,348.00	6,185.46	75.44	27.52	69.31	-1,286.06	-30.83	5,130.60	5,072.03	58.57	87.604	
11,200.00	6,940.85	6,348.00	6,185.46	76.96	27.52	69.31	-1,286.06	-30.83	5,221.69	5,162.98	58.71	88.938	
11,300.00	6,940.87	6,348.00	6,185.46	78.49	27.52	69.31	-1,286.06	-30.83	5,313.11	5,254.25	58.85	90.277	
11,400.00	6,940.89	6,348.00	6,185.46	80.03	27.52	69.31	-1,286.06	-30.83	5,404.83	5,345.84	58.99	91.621	
11,500.00	6,940.92	6,348.00	6,185.46	81.56	27.52	69.31	-1,286.06	-30.83	5,496.83	5,437.71	59.12	92.971	
11,600.00	6,940.94	6,348.00	6,185.46	83.10	27.52	69.31	-1,286.06	-30.83	5,589.12	5,529.86	59.25	94.325	
11,700.00	6,940.96	6,348.00	6,185.46	84.64	27.52	69.31	-1,286.06	-30.83	5,681.66	5,622.28	59.38	95.682	
11,800.00	6,940.98	6,348.00	6,185.46	86.18	27.52	69.31	-1,286.06	-30.83	5,774.45	5,714.95	59.50	97.044	
11,900.00	6,941.00	6,348.00	6,185.46	87.72	27.52	69.31	-1,286.06	-30.83	5,867.48	5,807.86	59.62	98.409	
12,000.00	6,941.03	6,348.00	6,185.46	89.27	27.52	69.31	-1,286.06	-30.83	5,960.74	5,901.00	59.74	99.776	
12,100.00	6,941.05	6,348.00	6,185.46	90.82	27.52	69.31	-1,286.06	-30.83	6,054.21	5,994.35	59.86	101.147	
12,200.00	6,941.07	6,348.00	6,185.46	92.37	27.52	69.31	-1,286.06	-30.83	6,147.88	6,087.91	59.97	102.520	
12,300.00	6,941.09	6,348.00	6,185.46	93.92	27.52	69.31	-1,286.06	-30.83	6,241.75	6,181.68	60.08	103.894	
12,400.00	6,941.11	6,348.00	6,185.46	95.47	27.52	69.31	-1,286.06	-30.83	6,335.81	6,275.63	60.19	105.271	

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 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
12,500.00	6,941.14	6,348.00	6,185.46	97.03	27.52	69.31	-1,286.06	-30.83	6,430.05	6,369.76	60.29	106.650	
12,600.00	6,941.16	6,348.00	6,185.46	98.58	27.52	69.31	-1,286.06	-30.83	6,524.46	6,464.07	60.40	108.029	
12,700.00	6,941.18	6,348.00	6,185.46	100.14	27.52	69.31	-1,286.06	-30.83	6,619.04	6,558.54	60.50	109.410	
12,800.00	6,941.20	6,348.00	6,185.46	101.70	27.52	69.31	-1,286.06	-30.83	6,713.77	6,653.17	60.60	110.792	
12,900.00	6,941.23	6,348.00	6,185.46	103.26	27.52	69.31	-1,286.06	-30.83	6,808.65	6,747.95	60.70	112.174	
13,000.00	6,941.25	6,348.00	6,185.46	104.82	27.52	69.31	-1,286.06	-30.83	6,903.68	6,842.88	60.79	113.557	
13,100.00	6,941.27	6,348.00	6,185.46	106.38	27.52	69.31	-1,286.06	-30.83	6,998.84	6,937.95	60.89	114.941	
13,200.00	6,941.29	6,348.00	6,185.46	107.95	27.52	69.31	-1,286.06	-30.83	7,094.14	7,033.16	60.99	116.324	
13,300.00	6,941.31	6,348.00	6,185.46	109.51	27.52	69.31	-1,286.06	-30.83	7,189.57	7,128.49	61.08	117.708	
13,400.00	6,941.34	6,348.00	6,185.46	111.08	27.52	69.31	-1,286.06	-30.83	7,285.12	7,223.94	61.17	119.091	
13,500.00	6,941.36	6,348.00	6,185.46	112.64	27.52	69.31	-1,286.06	-30.83	7,380.78	7,319.52	61.26	120.474	
13,600.00	6,941.38	6,348.00	6,185.46	114.21	27.52	69.31	-1,286.06	-30.83	7,476.56	7,415.21	61.36	121.856	
13,700.00	6,941.40	6,348.00	6,185.46	115.78	27.52	69.31	-1,286.06	-30.83	7,572.45	7,511.01	61.45	123.238	
13,800.00	6,941.42	6,348.00	6,185.46	117.35	27.52	69.31	-1,286.06	-30.83	7,668.45	7,606.91	61.53	124.619	
13,900.00	6,941.45	6,348.00	6,185.46	118.92	27.52	69.31	-1,286.06	-30.83	7,764.54	7,702.92	61.62	126.000	
14,000.00	6,941.47	6,348.00	6,185.46	120.49	27.52	69.31	-1,286.06	-30.83	7,860.74	7,799.02	61.71	127.379	
14,100.00	6,941.49	6,348.00	6,185.46	122.06	27.52	69.31	-1,286.06	-30.83	7,957.02	7,895.22	61.80	128.757	
14,200.00	6,941.51	6,348.00	6,185.46	123.64	27.52	69.31	-1,286.06	-30.83	8,053.40	7,991.51	61.89	130.134	
14,300.00	6,941.53	6,348.00	6,185.46	125.21	27.52	69.31	-1,286.06	-30.83	8,149.86	8,087.89	61.97	131.510	
14,400.00	6,941.56	6,348.00	6,185.46	126.78	27.52	69.31	-1,286.06	-30.83	8,246.41	8,184.35	62.06	132.884	
14,500.00	6,941.58	6,348.00	6,185.46	128.36	27.52	69.31	-1,286.06	-30.83	8,343.04	8,280.90	62.14	134.257	
14,600.00	6,941.60	6,348.00	6,185.46	129.93	27.52	69.31	-1,286.06	-30.83	8,439.75	8,377.52	62.23	135.628	
14,700.00	6,941.62	6,348.00	6,185.46	131.51	27.52	69.31	-1,286.06	-30.83	8,536.54	8,474.22	62.31	136.997	
14,800.00	6,941.64	6,348.00	6,185.46	133.08	27.52	69.31	-1,286.06	-30.83	8,633.39	8,571.00	62.40	138.364	
14,900.00	6,941.67	6,348.00	6,185.46	134.66	27.52	69.31	-1,286.06	-30.83	8,730.32	8,667.84	62.48	139.730	
15,000.00	6,941.69	6,348.00	6,185.46	136.24	27.52	69.31	-1,286.06	-30.83	8,827.32	8,764.75	62.56	141.093	
15,100.00	6,941.71	6,348.00	6,185.46	137.82	27.52	69.31	-1,286.06	-30.83	8,924.38	8,861.73	62.65	142.455	
15,200.00	6,941.73	6,348.00	6,185.46	139.40	27.52	69.31	-1,286.06	-30.83	9,021.51	8,958.78	62.73	143.814	
15,300.00	6,941.75	6,348.00	6,185.46	140.97	27.52	69.31	-1,286.06	-30.83	9,118.70	9,055.89	62.81	145.171	
15,400.00	6,941.78	6,348.00	6,185.46	142.55	27.52	69.31	-1,286.06	-30.83	9,215.95	9,153.05	62.90	146.526	
15,500.00	6,941.80	6,348.00	6,185.46	144.13	27.52	69.31	-1,286.06	-30.83	9,313.26	9,250.28	62.98	147.879	
15,600.00	6,941.82	6,348.00	6,185.46	145.72	27.52	69.31	-1,286.06	-30.83	9,410.62	9,347.56	63.06	149.229	
15,700.00	6,941.84	6,348.00	6,185.46	147.30	27.52	69.31	-1,286.06	-30.83	9,508.04	9,444.90	63.14	150.577	
15,800.00	6,941.87	6,348.00	6,185.46	148.88	27.52	69.31	-1,286.06	-30.83	9,605.51	9,542.29	63.23	151.922	
15,900.00	6,941.89	6,348.00	6,185.46	150.46	27.52	69.31	-1,286.06	-30.83	9,703.04	9,639.73	63.31	153.264	
16,000.00	6,941.91	6,348.00	6,185.46	152.04	27.52	69.31	-1,286.06	-30.83	9,800.61	9,737.22	63.39	154.604	
16,100.00	6,941.93	6,348.00	6,185.46	153.62	27.52	69.31	-1,286.06	-30.83	9,898.23	9,834.76	63.47	155.941	
16,200.00	6,941.95	6,348.00	6,185.46	155.21	27.52	69.31	-1,286.06	-30.83	9,995.90	9,932.34	63.56	157.276	
16,300.00	6,941.98	6,348.00	6,185.46	156.79	27.52	69.31	-1,286.06	-30.83	10,093.61	10,029.98	63.64	158.607	
16,400.00	6,942.00	6,348.00	6,185.46	158.37	27.52	69.31	-1,286.06	-30.83	10,191.37	10,127.65	63.72	159.936	
16,500.00	6,942.02	6,348.00	6,185.46	159.96	27.52	69.31	-1,286.06	-30.83	10,289.18	10,225.37	63.80	161.262	
16,600.00	6,942.04	6,348.00	6,185.46	161.54	27.52	69.31	-1,286.06	-30.83	10,387.02	10,323.13	63.89	162.585	
16,700.00	6,942.06	6,348.00	6,185.46	163.13	27.52	69.31	-1,286.06	-30.83	10,484.90	10,420.93	63.97	163.905	
16,800.00	6,942.09	6,348.00	6,185.46	164.71	27.52	69.31	-1,286.06	-30.83	10,582.83	10,518.78	64.05	165.221	
16,900.00	6,942.11	6,348.00	6,185.46	166.30	27.52	69.31	-1,286.06	-30.83	10,680.79	10,616.65	64.14	166.535	
17,000.00	6,942.13	6,348.00	6,185.46	167.88	27.52	69.31	-1,286.06	-30.83	10,778.79	10,714.57	64.22	167.846	
17,100.00	6,942.15	6,348.00	6,185.46	169.47	27.52	69.31	-1,286.06	-30.83	10,876.83	10,812.53	64.30	169.153	
17,200.00	6,942.17	6,348.00	6,185.46	171.05	27.52	69.31	-1,286.06	-30.83	10,974.90	10,910.51	64.38	170.458	
17,300.00	6,942.20	6,348.00	6,185.46	172.64	27.52	69.31	-1,286.06	-30.83	11,073.00	11,008.54	64.47	171.759	
17,400.00	6,942.22	6,348.00	6,185.46	174.23	27.52	69.31	-1,286.06	-30.83	11,171.14	11,106.59	64.55	173.057	
17,500.00	6,942.24	6,348.00	6,185.46	175.81	27.52	69.31	-1,286.06	-30.83	11,269.32	11,204.68	64.64	174.351	
17,600.00	6,942.26	6,348.00	6,185.46	177.40	27.52	69.31	-1,286.06	-30.83	11,367.52	11,302.80	64.72	175.642	

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 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
17,700.00	6,942.28	6,348.00	6,185.46	178.99	27.52	69.31	-1,286.06	-30.83	11,465.76	11,400.95	64.80	176.930	
17,800.00	6,942.31	6,348.00	6,185.46	180.57	27.52	69.31	-1,286.06	-30.83	11,564.02	11,499.13	64.89	178.215	
17,900.00	6,942.33	6,348.00	6,185.46	182.16	27.52	69.31	-1,286.06	-30.83	11,662.32	11,597.35	64.97	179.496	
18,000.00	6,942.35	6,348.00	6,185.46	183.75	27.52	69.31	-1,286.06	-30.83	11,760.64	11,695.58	65.06	180.773	
18,100.00	6,942.37	6,348.00	6,185.46	185.34	27.52	69.31	-1,286.06	-30.83	11,858.99	11,793.85	65.14	182.047	
18,200.00	6,942.39	6,348.00	6,185.46	186.93	27.52	69.31	-1,286.06	-30.83	11,957.37	11,892.15	65.23	183.318	
18,300.00	6,942.42	6,348.00	6,185.46	188.52	27.52	69.31	-1,286.06	-30.83	12,055.78	11,990.47	65.31	184.585	
18,400.00	6,942.44	6,348.00	6,185.46	190.10	27.52	69.31	-1,286.06	-30.83	12,154.21	12,088.81	65.40	185.849	
18,500.00	6,942.46	6,348.00	6,185.46	191.69	27.52	69.31	-1,286.06	-30.83	12,252.67	12,187.18	65.48	187.109	
18,600.00	6,942.48	6,348.00	6,185.46	193.28	27.52	69.31	-1,286.06	-30.83	12,351.15	12,285.58	65.57	188.365	
18,700.00	6,942.51	6,348.00	6,185.46	194.87	27.52	69.31	-1,286.06	-30.83	12,449.66	12,384.00	65.66	189.618	
18,800.00	6,942.53	6,348.00	6,185.46	196.46	27.52	69.31	-1,286.06	-30.83	12,548.19	12,482.44	65.74	190.867	
18,900.00	6,942.55	6,348.00	6,185.46	198.05	27.52	69.31	-1,286.06	-30.83	12,646.74	12,580.91	65.83	192.113	
19,000.00	6,942.57	6,348.00	6,185.46	199.64	27.52	69.31	-1,286.06	-30.83	12,745.32	12,679.40	65.92	193.355	
19,100.00	6,942.59	6,348.00	6,185.46	201.23	27.52	69.31	-1,286.06	-30.83	12,843.91	12,777.91	66.00	194.593	
19,200.00	6,942.62	6,348.00	6,185.46	202.82	27.52	69.31	-1,286.06	-30.83	12,942.53	12,876.44	66.09	195.828	
19,300.00	6,942.64	6,348.00	6,185.46	204.41	27.52	69.31	-1,286.06	-30.83	13,041.17	12,974.99	66.18	197.059	
19,400.00	6,942.66	6,348.00	6,185.46	206.00	27.52	69.31	-1,286.06	-30.83	13,139.83	13,073.57	66.27	198.286	
19,500.00	6,942.68	6,348.00	6,185.46	207.59	27.52	69.31	-1,286.06	-30.83	13,238.52	13,172.16	66.36	199.509	
19,600.00	6,942.70	6,348.00	6,185.46	209.18	27.52	69.31	-1,286.06	-30.83	13,337.22	13,270.77	66.44	200.729	
19,700.00	6,942.73	6,348.00	6,185.46	210.78	27.52	69.31	-1,286.06	-30.83	13,435.94	13,369.40	66.53	201.945	
19,800.00	6,942.75	6,348.00	6,185.46	212.37	27.52	69.31	-1,286.06	-30.83	13,534.67	13,468.05	66.62	203.157	
19,900.00	6,942.77	6,348.00	6,185.46	213.96	27.52	69.31	-1,286.06	-30.83	13,633.43	13,566.72	66.71	204.366	
20,000.00	6,942.79	6,348.00	6,185.46	215.55	27.52	69.31	-1,286.06	-30.83	13,732.21	13,665.41	66.80	205.570	
20,100.00	6,942.81	6,348.00	6,185.46	217.14	27.52	69.31	-1,286.06	-30.83	13,831.00	13,764.11	66.89	206.771	
20,200.00	6,942.84	6,348.00	6,185.46	218.73	27.52	69.31	-1,286.06	-30.83	13,929.81	13,862.83	66.98	207.968	
20,300.00	6,942.86	6,348.00	6,185.46	220.32	27.52	69.31	-1,286.06	-30.83	14,028.63	13,961.56	67.07	209.161	
20,400.00	6,942.88	6,348.00	6,185.46	221.92	27.52	69.31	-1,286.06	-30.83	14,127.48	14,060.32	67.16	210.351	
20,500.00	6,942.90	6,348.00	6,185.46	223.51	27.52	69.31	-1,286.06	-30.83	14,226.34	14,159.08	67.25	211.536	
20,600.00	6,942.92	6,348.00	6,185.46	225.10	27.52	69.31	-1,286.06	-30.83	14,325.21	14,257.87	67.34	212.718	
20,700.00	6,942.95	6,348.00	6,185.46	226.69	27.52	69.31	-1,286.06	-30.83	14,424.10	14,356.67	67.44	213.896	
20,800.00	6,942.97	6,348.00	6,185.46	228.28	27.52	69.31	-1,286.06	-30.83	14,523.01	14,455.48	67.53	215.070	
20,900.00	6,942.99	6,348.00	6,185.46	229.88	27.52	69.31	-1,286.06	-30.83	14,621.93	14,554.31	67.62	216.240	
20,942.50	6,943.00	6,348.00	6,185.46	230.42	27.52	69.31	-1,286.06	-30.83	14,663.97	14,592.64	71.33	205.574	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
0.00	0.00	0.00	0.00	0.00	0.00	-34.62	20.75	-14.32	25.22				
58.45	58.45	58.46	58.46	0.02	0.02	88.21	20.81	-14.21	25.19	25.17	0.02	1,149.240	
150.25	150.24	150.29	150.29	0.14	0.14	73.29	20.89	-13.78	24.86	24.71	0.16	159.040	
239.43	239.42	239.42	239.42	0.25	0.25	71.24	21.06	-13.33	24.47	24.18	0.28	86.106	
299.93	299.91	299.93	299.92	0.33	0.33	78.78	21.19	-13.00	24.25	23.88	0.37	66.223	
446.00	445.96	446.19	446.18	0.50	0.50	108.45	20.54	-12.91	23.86	23.17	0.69	34.369	
537.00	536.95	537.80	537.74	0.73	0.72	167.03	17.98	-14.16	22.65	21.40	1.25	18.129	
624.00	623.95	624.68	624.44	0.99	1.00	-123.89	13.28	-16.99	20.63	18.78	1.85	11.147	
653.52	653.46	654.04	653.72	1.08	1.09	-122.16	11.46	-18.36	20.39	18.33	2.06	9.881	CC, ES
718.00	717.90	718.38	717.81	1.29	1.31	-133.57	6.89	-21.56	21.46	18.91	2.55	8.420	SF
811.00	810.73	810.29	809.24	1.60	1.64	-144.55	-1.65	-25.49	27.81	24.56	3.25	8.568	
903.00	902.19	899.08	897.17	1.92	1.98	-156.27	-13.08	-29.96	44.22	40.32	3.91	11.315	
994.00	992.38	985.51	982.30	2.24	2.32	-167.97	-27.51	-33.90	67.82	63.28	4.53	14.959	
1,084.00	1,081.50	1,070.78	1,065.89	2.56	2.68	-172.42	-44.15	-36.02	94.22	89.08	5.14	18.335	
1,175.00	1,171.48	1,156.65	1,149.91	2.91	3.05	-174.90	-61.88	-36.50	122.80	117.04	5.76	21.312	
1,268.00	1,263.52	1,243.67	1,235.00	3.26	3.42	-177.72	-80.08	-36.76	152.54	146.15	6.39	23.859	
1,363.00	1,357.62	1,332.24	1,321.40	3.63	3.81	-178.18	-99.56	-36.33	183.56	176.52	7.04	26.078	
1,457.00	1,450.74	1,420.93	1,407.87	3.99	4.21	-178.33	-119.23	-34.99	214.44	206.75	7.69	27.870	
1,552.00	1,544.82	1,505.46	1,490.12	4.36	4.59	-179.72	-138.70	-34.05	247.15	238.83	8.33	29.682	
1,646.00	1,637.88	1,585.07	1,567.15	4.72	4.97	179.10	-158.81	-33.57	282.04	273.12	8.92	31.603	
1,741.00	1,731.94	1,672.79	1,651.63	5.09	5.39	177.91	-182.40	-32.60	318.69	309.10	9.59	33.234	
1,835.00	1,825.07	1,760.33	1,735.93	5.46	5.82	176.52	-205.90	-30.73	354.41	344.15	10.25	34.561	
1,929.00	1,918.39	1,848.42	1,820.78	5.82	6.25	174.08	-229.46	-28.33	388.79	377.87	10.92	35.600	
2,024.00	2,012.84	1,936.76	1,905.87	6.18	6.68	174.39	-253.05	-25.52	422.41	410.82	11.59	36.445	
2,118.00	2,106.19	2,025.07	1,990.91	6.53	7.11	173.50	-276.68	-22.58	456.64	444.37	12.27	37.217	
2,213.00	2,200.37	2,113.88	2,076.49	6.90	7.55	171.25	-300.17	-19.42	492.28	479.32	12.96	37.992	
2,307.00	2,293.61	2,201.92	2,161.34	7.27	7.98	172.61	-323.44	-15.99	527.20	513.56	13.63	38.668	
2,402.00	2,387.91	2,292.52	2,248.80	7.63	8.42	175.94	-346.91	-13.26	561.78	547.45	14.33	39.205	
2,496.00	2,481.29	2,382.52	2,335.85	7.99	8.86	176.69	-369.70	-11.50	595.18	580.16	15.02	39.632	
2,591.00	2,575.67	2,472.65	2,423.13	8.35	9.30	174.68	-392.16	-10.13	628.61	612.90	15.71	40.021	
2,686.00	2,670.05	2,561.56	2,509.24	8.71	9.73	174.79	-414.24	-8.90	661.97	645.58	16.39	40.394	
2,780.00	2,763.49	2,650.21	2,595.11	9.07	10.16	172.34	-436.20	-7.62	694.58	677.52	17.07	40.699	
2,875.00	2,857.94	2,738.97	2,681.09	9.43	10.58	170.65	-458.20	-6.30	727.30	709.55	17.75	40.984	
2,970.00	2,952.51	2,828.95	2,768.26	9.79	11.02	174.11	-480.51	-5.00	758.94	740.51	18.43	41.177	
3,064.00	3,046.19	2,924.50	2,860.93	10.13	11.48	-178.84	-503.76	-3.71	788.80	769.64	19.16	41.179	
3,159.00	3,140.98	3,023.95	2,957.64	10.47	11.95	-177.15	-526.91	-2.43	816.72	796.82	19.90	41.038	
3,253.00	3,234.84	3,105.00	3,036.57	10.81	12.33	174.84	-545.32	-2.42	842.78	822.27	20.51	41.093	
3,348.00	3,329.74	3,185.18	3,114.46	11.14	12.71	167.06	-564.30	-3.73	869.46	848.34	21.11	41.186	
3,397.00	3,378.70	3,228.09	3,155.99	11.32	12.92	166.19	-575.02	-4.81	883.69	862.25	21.43	41.230	
3,488.00	3,469.63	3,317.10	3,242.12	11.64	13.35	163.65	-597.36	-7.17	909.89	887.78	22.11	41.161	
3,583.00	3,564.49	3,416.32	3,338.33	11.98	13.83	171.99	-621.50	-9.46	937.93	915.07	22.86	41.029	
3,677.00	3,658.13	3,506.90	3,426.23	12.33	14.26	173.72	-643.30	-11.32	968.40	944.84	23.55	41.113	
3,772.00	3,752.42	3,601.17	3,517.84	12.69	14.71	178.28	-665.46	-13.00	1,001.75	977.47	24.28	41.259	
3,867.00	3,846.42	3,685.02	3,599.29	13.06	15.10	179.86	-685.34	-14.20	1,037.39	1,012.46	24.93	41.615	
3,961.00	3,939.30	3,783.69	3,695.19	13.44	15.57	179.48	-708.51	-15.33	1,073.24	1,047.56	25.68	41.788	
4,056.00	4,032.83	3,899.92	3,808.75	13.82	16.10	175.78	-733.23	-16.52	1,109.27	1,082.71	26.55	41.773	
4,151.00	4,126.01	3,984.26	3,891.38	14.21	16.48	176.66	-750.13	-17.30	1,146.00	1,118.80	27.21	42.121	
4,246.00	4,219.10	4,052.00	3,957.54	14.61	16.79	168.76	-764.64	-18.14	1,184.26	1,156.51	27.75	42.679	
4,340.00	4,310.92	4,113.80	4,017.65	15.01	17.08	158.84	-778.94	-19.07	1,224.36	1,196.11	28.25	43.342	
4,435.00	4,403.54	4,174.99	4,076.92	15.41	17.38	158.61	-794.13	-20.00	1,266.61	1,237.87	28.74	44.068	
4,498.00	4,465.21	4,213.70	4,114.24	15.68	17.57	161.20	-804.41	-20.42	1,294.69	1,265.65	29.05	44.571	
4,561.00	4,526.82	4,253.02	4,151.99	15.95	17.77	166.52	-815.40	-20.66	1,323.99	1,294.63	29.36	45.097	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
4,624.00	4,588.23	4,294.63	4,191.81	16.22	17.99	168.57	-827.49	-20.63	1,354.89	1,325.20	29.69	45.631	
4,687.00	4,649.71	4,336.00	4,231.25	16.49	18.21	169.21	-839.95	-20.29	1,386.09	1,356.07	30.02	46.176	
4,749.00	4,710.40	4,382.72	4,275.69	16.75	18.46	170.71	-854.37	-19.82	1,416.46	1,386.08	30.39	46.612	
4,812.00	4,772.28	4,430.00	4,320.59	17.01	18.71	171.63	-869.17	-19.57	1,446.73	1,415.97	30.76	47.032	
4,875.00	4,834.34	4,471.93	4,360.33	17.27	18.94	171.20	-882.55	-19.64	1,476.60	1,445.51	31.08	47.502	
4,938.00	4,896.43	4,524.00	4,409.51	17.53	19.22	170.94	-899.63	-20.29	1,506.81	1,475.30	31.50	47.834	
5,001.00	4,958.46	4,560.56	4,443.97	17.79	19.43	167.41	-911.84	-20.99	1,537.65	1,505.87	31.78	48.384	
5,064.00	5,020.29	4,609.87	4,490.39	18.05	19.70	162.54	-928.43	-22.04	1,569.48	1,537.30	32.18	48.772	
5,126.00	5,080.98	4,698.26	4,573.85	18.32	20.19	158.15	-957.48	-24.01	1,600.85	1,567.92	32.93	48.609	
5,189.00	5,142.74	4,754.63	4,627.33	18.58	20.49	160.19	-975.23	-25.13	1,631.42	1,598.03	33.39	48.856	
5,252.00	5,204.62	4,807.00	4,676.97	18.85	20.78	160.37	-991.93	-25.97	1,661.75	1,627.93	33.82	49.141	
5,315.00	5,266.61	4,862.83	4,729.86	19.11	21.08	160.43	-1,009.79	-26.70	1,691.58	1,657.31	34.27	49.362	
5,378.00	5,328.73	4,952.64	4,815.33	19.37	21.56	161.08	-1,037.35	-27.73	1,719.98	1,684.98	35.01	49.131	
5,441.00	5,390.87	4,997.92	4,858.48	19.62	21.81	160.57	-1,051.08	-28.16	1,748.13	1,712.76	35.37	49.425	
5,503.00	5,452.07	5,086.18	4,942.78	19.87	22.27	161.11	-1,077.16	-28.77	1,775.01	1,738.93	36.08	49.192	
5,566.00	5,514.32	5,273.93	5,124.56	20.13	23.18	160.86	-1,123.90	-29.68	1,798.71	1,761.23	37.49	47.982	
5,629.00	5,576.59	5,363.22	5,211.88	20.38	23.59	163.54	-1,142.56	-30.13	1,820.51	1,782.37	38.14	47.734	
5,692.00	5,638.95	5,434.69	5,281.92	20.63	23.90	161.28	-1,156.75	-30.48	1,841.23	1,802.56	38.67	47.616	
5,747.00	5,693.45	5,499.28	5,345.31	20.85	24.19	163.66	-1,169.15	-30.79	1,858.60	1,819.46	39.14	47.485	
5,810.00	5,755.90	5,579.37	5,424.04	21.09	24.53	162.95	-1,183.83	-31.02	1,877.78	1,838.06	39.71	47.282	
5,874.00	5,819.40	5,655.12	5,498.63	21.34	24.85	164.37	-1,197.03	-31.29	1,896.29	1,856.03	40.26	47.103	
5,936.00	5,880.95	5,731.51	5,573.95	21.58	25.17	163.93	-1,209.76	-31.44	1,913.58	1,872.78	40.80	46.903	
5,999.00	5,943.45	5,806.61	5,648.10	21.82	25.48	162.44	-1,221.64	-31.44	1,930.81	1,889.48	41.33	46.716	
6,062.00	6,005.96	5,876.34	5,717.02	22.07	25.76	165.03	-1,232.28	-31.30	1,947.72	1,905.89	41.83	46.561	
6,125.00	6,068.49	5,951.90	5,791.76	22.31	26.06	162.73	-1,243.39	-31.15	1,964.13	1,921.77	42.36	46.368	
6,188.00	6,131.08	6,046.35	5,885.35	22.55	26.43	164.68	-1,256.06	-31.02	1,979.26	1,936.28	42.97	46.057	
6,255.00	6,197.73	6,137.85	5,976.20	22.81	26.78	163.68	-1,266.93	-31.03	1,993.62	1,950.04	43.57	45.754	
6,293.00	6,235.55	6,193.63	6,031.65	22.89	26.98	163.70	-1,272.93	-31.09	2,001.13	1,957.28	43.85	45.639	
6,300.00	6,242.52	6,207.85	6,045.80	22.89	27.04	163.70	-1,274.37	-31.09	2,002.46	1,958.56	43.90	45.611	
6,393.00	6,335.09	6,360.31	6,197.74	22.94	27.57	163.76	-1,286.92	-30.78	2,018.36	1,973.89	44.47	45.385	
6,400.00	6,342.06	6,367.22	6,204.64	22.94	27.59	157.77	-1,287.40	-30.75	2,019.48	1,974.98	44.50	45.385	
6,450.00	6,391.66	6,416.43	6,253.73	22.97	27.75	130.03	-1,290.82	-30.55	2,027.68	1,983.00	44.68	45.385	
6,500.00	6,440.77	6,465.18	6,302.36	23.02	27.92	117.69	-1,294.20	-30.35	2,036.21	1,991.34	44.87	45.385	
6,550.00	6,489.07	6,500.00	6,337.09	23.07	28.04	111.06	-1,296.63	-30.28	2,045.12	2,000.11	45.01	45.437	
6,600.00	6,536.26	6,522.51	6,359.52	23.13	28.11	106.81	-1,298.34	-30.94	2,054.86	2,009.75	45.11	45.548	
6,650.00	6,582.05	6,550.00	6,386.85	23.21	28.21	103.85	-1,300.63	-32.81	2,065.52	2,020.27	45.24	45.653	
6,700.00	6,626.13	6,550.00	6,386.85	23.29	28.21	101.15	-1,300.63	-32.81	2,077.07	2,031.80	45.27	45.887	
6,750.00	6,668.24	6,578.25	6,414.80	23.39	28.31	99.29	-1,303.21	-35.96	2,089.38	2,043.97	45.41	46.009	
6,800.00	6,708.12	6,600.00	6,436.20	23.51	28.38	97.58	-1,305.36	-39.24	2,102.66	2,057.11	45.55	46.166	
6,850.00	6,745.50	6,600.00	6,436.20	23.64	28.38	95.56	-1,305.36	-39.24	2,116.74	2,071.15	45.59	46.430	
6,900.00	6,780.15	6,617.30	6,453.12	23.79	28.44	93.99	-1,307.16	-42.36	2,131.61	2,085.88	45.73	46.614	
6,950.00	6,811.86	6,626.47	6,462.05	23.95	28.48	92.29	-1,308.15	-44.20	2,147.25	2,101.41	45.85	46.836	
7,000.00	6,840.42	6,633.79	6,469.16	24.14	28.50	90.57	-1,308.95	-45.76	2,163.59	2,117.62	45.97	47.061	
7,050.00	6,865.66	6,650.00	6,484.82	24.35	28.56	89.10	-1,310.78	-49.51	2,180.62	2,134.45	46.17	47.232	
7,100.00	6,887.42	6,650.00	6,484.82	24.57	28.56	87.20	-1,310.78	-49.51	2,198.06	2,151.76	46.30	47.472	
7,150.00	6,905.55	6,650.00	6,484.82	24.82	28.56	85.31	-1,310.78	-49.51	2,215.96	2,169.50	46.46	47.698	
7,200.00	6,919.95	6,650.00	6,484.82	25.10	28.56	83.43	-1,310.78	-49.51	2,234.19	2,187.56	46.64	47.907	
7,250.00	6,930.52	6,650.00	6,484.82	25.39	28.56	81.58	-1,310.78	-49.51	2,252.64	2,205.80	46.84	48.097	
7,300.00	6,937.20	6,650.00	6,484.82	25.70	28.56	79.77	-1,310.78	-49.51	2,271.17	2,224.11	47.06	48.265	
7,350.00	6,939.94	6,650.00	6,484.82	26.04	28.56	78.01	-1,310.78	-49.51	2,289.68	2,242.38	47.29	48.413	
7,359.60	6,940.02	6,650.00	6,484.82	26.10	28.56	77.67	-1,310.78	-49.51	2,293.22	2,245.88	47.34	48.440	
7,400.00	6,940.03	6,650.00	6,484.82	26.39	28.56	77.67	-1,310.78	-49.51	2,308.41	2,260.86	47.55	48.550	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
7,500.00	6,940.04	6,631.76	6,467.19	27.15	28.50	77.20	-1,308.73	-45.32	2,348.34	2,300.36	47.98	48.941	
7,600.00	6,940.06	6,625.83	6,461.43	27.99	28.47	77.04	-1,308.08	-44.07	2,391.83	2,343.33	48.50	49.312	
7,659.60	6,940.07	6,622.54	6,458.22	28.52	28.46	76.96	-1,307.72	-43.39	2,419.33	2,370.51	48.82	49.555	
7,700.00	6,940.08	6,620.38	6,456.13	28.89	28.46	76.80	-1,307.49	-42.96	2,438.85	2,389.81	49.04	49.734	
7,796.63	6,940.10	6,600.00	6,436.20	29.83	28.38	75.98	-1,305.36	-39.24	2,489.64	2,440.17	49.47	50.325	
7,800.00	6,940.10	6,600.00	6,436.20	29.86	28.38	75.98	-1,305.36	-39.24	2,491.50	2,442.01	49.49	50.342	
7,900.00	6,940.12	6,600.00	6,436.20	30.90	28.38	75.98	-1,305.36	-39.24	2,547.99	2,497.95	50.04	50.917	
8,000.00	6,940.14	6,600.00	6,436.20	31.98	28.38	75.98	-1,305.36	-39.24	2,607.10	2,556.52	50.58	51.542	
8,100.00	6,940.17	6,600.00	6,436.20	33.11	28.38	75.98	-1,305.36	-39.24	2,668.64	2,617.53	51.11	52.216	
8,200.00	6,940.19	6,600.00	6,436.20	34.28	28.38	75.98	-1,305.36	-39.24	2,732.46	2,680.84	51.62	52.937	
8,300.00	6,940.21	6,600.00	6,436.20	35.48	28.38	75.98	-1,305.36	-39.24	2,798.40	2,746.29	52.11	53.703	
8,400.00	6,940.23	6,600.00	6,436.20	36.71	28.38	75.98	-1,305.36	-39.24	2,866.31	2,813.73	52.58	54.513	
8,500.00	6,940.25	6,600.00	6,436.20	37.97	28.38	75.98	-1,305.36	-39.24	2,936.05	2,883.02	53.03	55.363	
8,600.00	6,940.28	6,600.00	6,436.20	39.26	28.38	75.98	-1,305.36	-39.24	3,007.51	2,954.04	53.46	56.252	
8,700.00	6,940.30	6,600.00	6,436.20	40.56	28.38	75.98	-1,305.36	-39.24	3,080.55	3,026.67	53.88	57.177	
8,800.00	6,940.32	6,600.00	6,436.20	41.89	28.38	75.98	-1,305.36	-39.24	3,155.07	3,100.80	54.27	58.137	
8,900.00	6,940.34	6,577.53	6,414.10	43.24	28.30	75.38	-1,303.15	-35.87	3,230.54	3,176.00	54.54	59.232	
9,000.00	6,940.36	6,575.22	6,411.81	44.60	28.30	75.31	-1,302.93	-35.57	3,307.62	3,252.74	54.89	60.263	
9,100.00	6,940.39	6,573.03	6,409.65	45.98	28.29	75.25	-1,302.72	-35.29	3,385.90	3,330.68	55.22	61.320	
9,200.00	6,940.41	6,570.95	6,407.60	47.38	28.28	75.20	-1,302.53	-35.03	3,465.28	3,409.75	55.53	62.403	
9,300.00	6,940.43	6,550.00	6,386.85	48.78	28.21	74.63	-1,300.63	-32.81	3,546.01	3,490.27	55.74	63.615	
9,400.00	6,940.45	6,550.00	6,386.85	50.20	28.21	74.63	-1,300.63	-32.81	3,627.34	3,571.31	56.04	64.732	
9,500.00	6,940.47	6,550.00	6,386.85	51.63	28.21	74.63	-1,300.63	-32.81	3,709.59	3,653.27	56.32	65.871	
9,600.00	6,940.50	6,550.00	6,386.85	53.07	28.21	74.63	-1,300.63	-32.81	3,792.68	3,736.10	56.58	67.030	
9,700.00	6,940.52	6,550.00	6,386.85	54.52	28.21	74.63	-1,300.63	-32.81	3,876.58	3,819.74	56.84	68.206	
9,800.00	6,940.54	6,550.00	6,386.85	55.97	28.21	74.63	-1,300.63	-32.81	3,961.22	3,904.14	57.08	69.400	
9,900.00	6,940.56	6,550.00	6,386.85	57.44	28.21	74.63	-1,300.63	-32.81	4,046.57	3,989.26	57.31	70.609	
10,000.00	6,940.59	6,550.00	6,386.85	58.91	28.21	74.63	-1,300.63	-32.81	4,132.57	4,075.04	57.53	71.833	
10,100.00	6,940.61	6,550.00	6,386.85	60.38	28.21	74.63	-1,300.63	-32.81	4,219.18	4,161.44	57.74	73.070	
10,200.00	6,940.63	6,550.00	6,386.85	61.87	28.21	74.63	-1,300.63	-32.81	4,306.38	4,248.44	57.94	74.320	
10,300.00	6,940.65	6,550.00	6,386.85	63.36	28.21	74.63	-1,300.63	-32.81	4,394.13	4,335.99	58.14	75.581	
10,400.00	6,940.67	6,550.00	6,386.85	64.85	28.21	74.63	-1,300.63	-32.81	4,482.38	4,424.06	58.32	76.853	
10,500.00	6,940.70	6,550.00	6,386.85	66.35	28.21	74.63	-1,300.63	-32.81	4,571.12	4,512.62	58.50	78.136	
10,600.00	6,940.72	6,550.00	6,386.85	67.86	28.21	74.63	-1,300.63	-32.81	4,660.32	4,601.64	58.67	79.427	
10,700.00	6,940.74	6,550.00	6,386.85	69.36	28.21	74.63	-1,300.63	-32.81	4,749.95	4,691.11	58.84	80.727	
10,800.00	6,940.76	6,550.00	6,386.85	70.88	28.21	74.63	-1,300.63	-32.81	4,839.98	4,780.98	59.00	82.035	
10,900.00	6,940.78	6,550.00	6,386.85	72.39	28.21	74.63	-1,300.63	-32.81	4,930.40	4,871.24	59.15	83.350	
11,000.00	6,940.81	6,550.00	6,386.85	73.91	28.21	74.63	-1,300.63	-32.81	5,021.18	4,961.88	59.30	84.672	
11,100.00	6,940.83	6,550.00	6,386.85	75.44	28.21	74.63	-1,300.63	-32.81	5,112.30	5,052.86	59.45	85.999	
11,200.00	6,940.85	6,550.00	6,386.85	76.96	28.21	74.63	-1,300.63	-32.81	5,203.75	5,144.17	59.59	87.333	
11,300.00	6,940.87	6,550.00	6,386.85	78.49	28.21	74.63	-1,300.63	-32.81	5,295.51	5,235.79	59.72	88.672	
11,400.00	6,940.89	6,550.00	6,386.85	80.03	28.21	74.63	-1,300.63	-32.81	5,387.57	5,327.71	59.85	90.016	
11,500.00	6,940.92	6,550.00	6,386.85	81.56	28.21	74.63	-1,300.63	-32.81	5,479.90	5,419.92	59.98	91.364	
11,600.00	6,940.94	6,550.00	6,386.85	83.10	28.21	74.63	-1,300.63	-32.81	5,572.49	5,512.39	60.10	92.716	
11,700.00	6,940.96	6,550.00	6,386.85	84.64	28.21	74.63	-1,300.63	-32.81	5,665.34	5,605.12	60.22	94.071	
11,800.00	6,940.98	6,550.00	6,386.85	86.18	28.21	74.63	-1,300.63	-32.81	5,758.43	5,698.09	60.34	95.430	
11,900.00	6,941.00	6,550.00	6,386.85	87.72	28.21	74.63	-1,300.63	-32.81	5,851.75	5,791.29	60.46	96.792	
12,000.00	6,941.03	6,550.00	6,386.85	89.27	28.21	74.63	-1,300.63	-32.81	5,945.28	5,884.71	60.57	98.156	
12,100.00	6,941.05	6,550.00	6,386.85	90.82	28.21	74.63	-1,300.63	-32.81	6,039.02	5,978.34	60.68	99.523	
12,200.00	6,941.07	6,550.00	6,386.85	92.37	28.21	74.63	-1,300.63	-32.81	6,132.96	6,072.17	60.79	100.892	
12,300.00	6,941.09	6,550.00	6,386.85	93.92	28.21	74.63	-1,300.63	-32.81	6,227.08	6,166.19	60.89	102.263	
12,400.00	6,941.11	6,550.00	6,386.85	95.47	28.21	74.63	-1,300.63	-32.81	6,321.39	6,260.39	61.00	103.635	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
12,500.00	6,941.14	6,550.00	6,386.85	97.03	28.21	74.63	-1,300.63	-32.81	6,415.87	6,354.77	61.10	105.009	
12,600.00	6,941.16	6,550.00	6,386.85	98.58	28.21	74.63	-1,300.63	-32.81	6,510.52	6,449.32	61.20	106.383	
12,700.00	6,941.18	6,550.00	6,386.85	100.14	28.21	74.63	-1,300.63	-32.81	6,605.32	6,544.02	61.30	107.759	
12,800.00	6,941.20	6,550.00	6,386.85	101.70	28.21	74.63	-1,300.63	-32.81	6,700.27	6,638.88	61.39	109.135	
12,900.00	6,941.23	6,550.00	6,386.85	103.26	28.21	74.63	-1,300.63	-32.81	6,795.37	6,733.88	61.49	110.512	
13,000.00	6,941.25	6,550.00	6,386.85	104.82	28.21	74.63	-1,300.63	-32.81	6,890.61	6,829.02	61.58	111.889	
13,100.00	6,941.27	6,550.00	6,386.85	106.38	28.21	74.63	-1,300.63	-32.81	6,985.98	6,924.30	61.68	113.267	
13,200.00	6,941.29	6,550.00	6,386.85	107.95	28.21	74.63	-1,300.63	-32.81	7,081.47	7,019.71	61.77	114.644	
13,300.00	6,941.31	6,550.00	6,386.85	109.51	28.21	74.63	-1,300.63	-32.81	7,177.10	7,115.24	61.86	116.021	
13,400.00	6,941.34	6,550.00	6,386.85	111.08	28.21	74.63	-1,300.63	-32.81	7,272.83	7,210.88	61.95	117.398	
13,500.00	6,941.36	6,550.00	6,386.85	112.64	28.21	74.63	-1,300.63	-32.81	7,368.69	7,306.65	62.04	118.774	
13,600.00	6,941.38	6,550.00	6,386.85	114.21	28.21	74.63	-1,300.63	-32.81	7,464.65	7,402.52	62.13	120.150	
13,700.00	6,941.40	6,550.00	6,386.85	115.78	28.21	74.63	-1,300.63	-32.81	7,560.71	7,498.50	62.22	121.525	
13,800.00	6,941.42	6,550.00	6,386.85	117.35	28.21	74.63	-1,300.63	-32.81	7,656.88	7,594.57	62.30	122.899	
13,900.00	6,941.45	6,550.00	6,386.85	118.92	28.21	74.63	-1,300.63	-32.81	7,753.14	7,690.75	62.39	124.272	
14,000.00	6,941.47	6,550.00	6,386.85	120.49	28.21	74.63	-1,300.63	-32.81	7,849.50	7,787.02	62.47	125.644	
14,100.00	6,941.49	6,550.00	6,386.85	122.06	28.21	74.63	-1,300.63	-32.81	7,945.94	7,883.38	62.56	127.015	
14,200.00	6,941.51	6,550.00	6,386.85	123.64	28.21	74.63	-1,300.63	-32.81	8,042.48	7,979.83	62.64	128.384	
14,300.00	6,941.53	6,526.47	6,363.47	125.21	28.13	74.00	-1,298.66	-31.13	8,138.62	8,075.98	62.64	129.928	
14,400.00	6,941.56	6,526.10	6,363.10	126.78	28.13	73.99	-1,298.63	-31.11	8,235.30	8,172.58	62.72	131.298	
14,500.00	6,941.58	6,525.74	6,362.74	128.36	28.13	73.98	-1,298.60	-31.10	8,332.06	8,269.26	62.80	132.667	
14,600.00	6,941.60	6,525.38	6,362.39	129.93	28.12	73.97	-1,298.57	-31.08	8,428.90	8,366.01	62.89	134.035	
14,700.00	6,941.62	6,525.04	6,362.04	131.51	28.12	73.96	-1,298.54	-31.06	8,525.81	8,462.84	62.97	135.400	
14,800.00	6,941.64	6,524.70	6,361.70	133.08	28.12	73.95	-1,298.52	-31.04	8,622.79	8,559.74	63.05	136.764	
14,900.00	6,941.67	6,524.36	6,361.37	134.66	28.12	73.94	-1,298.49	-31.03	8,719.83	8,656.70	63.13	138.125	
15,000.00	6,941.69	6,524.04	6,361.05	136.24	28.12	73.94	-1,298.46	-31.01	8,816.95	8,753.74	63.21	139.485	
15,100.00	6,941.71	6,523.72	6,360.73	137.82	28.12	73.93	-1,298.44	-30.99	8,914.12	8,850.83	63.29	140.842	
15,200.00	6,941.73	6,523.41	6,360.42	139.40	28.12	73.92	-1,298.41	-30.98	9,011.36	8,947.99	63.37	142.197	
15,300.00	6,941.75	6,500.00	6,337.09	140.97	28.04	73.29	-1,296.63	-30.28	9,109.12	9,045.75	63.37	143.751	
15,400.00	6,941.78	6,500.00	6,337.09	142.55	28.04	73.29	-1,296.63	-30.28	9,206.46	9,143.01	63.45	145.100	
15,500.00	6,941.80	6,500.00	6,337.09	144.13	28.04	73.29	-1,296.63	-30.28	9,303.86	9,240.33	63.53	146.447	
15,600.00	6,941.82	6,500.00	6,337.09	145.72	28.04	73.29	-1,296.63	-30.28	9,401.32	9,337.70	63.61	147.791	
15,700.00	6,941.84	6,500.00	6,337.09	147.30	28.04	73.29	-1,296.63	-30.28	9,498.82	9,435.13	63.69	149.133	
15,800.00	6,941.87	6,500.00	6,337.09	148.88	28.04	73.29	-1,296.63	-30.28	9,596.38	9,532.61	63.77	150.473	
15,900.00	6,941.89	6,500.00	6,337.09	150.46	28.04	73.29	-1,296.63	-30.28	9,693.99	9,630.13	63.86	151.809	
16,000.00	6,941.91	6,500.00	6,337.09	152.04	28.04	73.29	-1,296.63	-30.28	9,791.65	9,727.71	63.94	153.143	
16,100.00	6,941.93	6,500.00	6,337.09	153.62	28.04	73.29	-1,296.63	-30.28	9,889.35	9,825.33	64.02	154.475	
16,200.00	6,941.95	6,500.00	6,337.09	155.21	28.04	73.29	-1,296.63	-30.28	9,987.10	9,923.00	64.10	155.803	
16,300.00	6,941.98	6,500.00	6,337.09	156.79	28.04	73.29	-1,296.63	-30.28	10,084.90	10,020.71	64.18	157.129	
16,400.00	6,942.00	6,500.00	6,337.09	158.37	28.04	73.29	-1,296.63	-30.28	10,182.73	10,118.47	64.26	158.452	
16,500.00	6,942.02	6,500.00	6,337.09	159.96	28.04	73.29	-1,296.63	-30.28	10,280.61	10,216.26	64.35	159.772	
16,600.00	6,942.04	6,500.00	6,337.09	161.54	28.04	73.29	-1,296.63	-30.28	10,378.53	10,314.10	64.43	161.089	
16,700.00	6,942.06	6,500.00	6,337.09	163.13	28.04	73.29	-1,296.63	-30.28	10,476.49	10,411.98	64.51	162.403	
16,800.00	6,942.09	6,500.00	6,337.09	164.71	28.04	73.29	-1,296.63	-30.28	10,574.48	10,509.89	64.59	163.714	
16,900.00	6,942.11	6,500.00	6,337.09	166.30	28.04	73.29	-1,296.63	-30.28	10,672.52	10,607.84	64.67	165.021	
17,000.00	6,942.13	6,500.00	6,337.09	167.88	28.04	73.29	-1,296.63	-30.28	10,770.58	10,705.83	64.76	166.326	
17,100.00	6,942.15	6,500.00	6,337.09	169.47	28.04	73.29	-1,296.63	-30.28	10,868.69	10,803.85	64.84	167.628	
17,200.00	6,942.17	6,500.00	6,337.09	171.05	28.04	73.29	-1,296.63	-30.28	10,966.83	10,901.91	64.92	168.926	
17,300.00	6,942.20	6,500.00	6,337.09	172.64	28.04	73.29	-1,296.63	-30.28	11,065.00	11,000.00	65.00	170.221	
17,400.00	6,942.22	6,500.00	6,337.09	174.23	28.04	73.29	-1,296.63	-30.28	11,163.20	11,098.12	65.09	171.513	
17,500.00	6,942.24	6,500.00	6,337.09	175.81	28.04	73.29	-1,296.63	-30.28	11,261.44	11,196.27	65.17	172.802	
17,600.00	6,942.26	6,500.00	6,337.09	177.40	28.04	73.29	-1,296.63	-30.28	11,359.71	11,294.46	65.25	174.087	

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 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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

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
17,700.00	6,942.28	6,500.00	6,337.09	178.99	28.04	73.29	-1,296.63	-30.28	11,458.00	11,392.67	65.34	175.369	
17,800.00	6,942.31	6,500.00	6,337.09	180.57	28.04	73.29	-1,296.63	-30.28	11,556.33	11,490.91	65.42	176.648	
17,900.00	6,942.33	6,500.00	6,337.09	182.16	28.04	73.29	-1,296.63	-30.28	11,654.69	11,589.18	65.50	177.923	
18,000.00	6,942.35	6,500.00	6,337.09	183.75	28.04	73.29	-1,296.63	-30.28	11,753.07	11,687.48	65.59	179.195	
18,100.00	6,942.37	6,500.00	6,337.09	185.34	28.04	73.29	-1,296.63	-30.28	11,851.48	11,785.81	65.67	180.463	
18,200.00	6,942.39	6,500.00	6,337.09	186.93	28.04	73.29	-1,296.63	-30.28	11,949.91	11,884.16	65.76	181.728	
18,300.00	6,942.42	6,500.00	6,337.09	188.52	28.04	73.29	-1,296.63	-30.28	12,048.38	11,982.53	65.84	182.990	
18,400.00	6,942.44	6,500.00	6,337.09	190.10	28.04	73.29	-1,296.63	-30.28	12,146.86	12,080.94	65.93	184.248	
18,500.00	6,942.46	6,500.00	6,337.09	191.69	28.04	73.29	-1,296.63	-30.28	12,245.37	12,179.36	66.01	185.502	
18,600.00	6,942.48	6,500.00	6,337.09	193.28	28.04	73.29	-1,296.63	-30.28	12,343.91	12,277.81	66.10	186.753	
18,700.00	6,942.51	6,500.00	6,337.09	194.87	28.04	73.29	-1,296.63	-30.28	12,442.47	12,376.28	66.18	188.000	
18,800.00	6,942.53	6,500.00	6,337.09	196.46	28.04	73.29	-1,296.63	-30.28	12,541.05	12,474.78	66.27	189.244	
18,900.00	6,942.55	6,500.00	6,337.09	198.05	28.04	73.29	-1,296.63	-30.28	12,639.65	12,573.30	66.36	190.484	
19,000.00	6,942.57	6,500.00	6,337.09	199.64	28.04	73.29	-1,296.63	-30.28	12,738.28	12,671.84	66.44	191.720	
19,100.00	6,942.59	6,500.00	6,337.09	201.23	28.04	73.29	-1,296.63	-30.28	12,836.93	12,770.40	66.53	192.953	
19,200.00	6,942.62	6,500.00	6,337.09	202.82	28.04	73.29	-1,296.63	-30.28	12,935.59	12,868.98	66.62	194.182	
19,300.00	6,942.64	6,500.00	6,337.09	204.41	28.04	73.29	-1,296.63	-30.28	13,034.28	12,967.58	66.70	195.407	
19,400.00	6,942.66	6,500.00	6,337.09	206.00	28.04	73.29	-1,296.63	-30.28	13,132.99	13,066.20	66.79	196.629	
19,500.00	6,942.68	6,500.00	6,337.09	207.59	28.04	73.29	-1,296.63	-30.28	13,231.72	13,164.84	66.88	197.847	
19,600.00	6,942.70	6,500.00	6,337.09	209.18	28.04	73.29	-1,296.63	-30.28	13,330.46	13,263.49	66.97	199.061	
19,700.00	6,942.73	6,500.00	6,337.09	210.78	28.04	73.29	-1,296.63	-30.28	13,429.23	13,362.17	67.05	200.272	
19,800.00	6,942.75	6,500.00	6,337.09	212.37	28.04	73.29	-1,296.63	-30.28	13,528.01	13,460.87	67.14	201.479	
19,900.00	6,942.77	6,500.00	6,337.09	213.96	28.04	73.29	-1,296.63	-30.28	13,626.81	13,559.58	67.23	202.682	
20,000.00	6,942.79	6,500.00	6,337.09	215.55	28.04	73.29	-1,296.63	-30.28	13,725.63	13,658.31	67.32	203.881	
20,100.00	6,942.81	6,500.00	6,337.09	217.14	28.04	73.29	-1,296.63	-30.28	13,824.46	13,757.05	67.41	205.077	
20,200.00	6,942.84	6,500.00	6,337.09	218.73	28.04	73.29	-1,296.63	-30.28	13,923.31	13,855.81	67.50	206.268	
20,300.00	6,942.86	6,500.00	6,337.09	220.32	28.04	73.29	-1,296.63	-30.28	14,022.18	13,954.59	67.59	207.456	
20,400.00	6,942.88	6,500.00	6,337.09	221.92	28.04	73.29	-1,296.63	-30.28	14,121.07	14,053.38	67.68	208.640	
20,500.00	6,942.90	6,500.00	6,337.09	223.51	28.04	73.29	-1,296.63	-30.28	14,219.97	14,152.19	67.77	209.821	
20,600.00	6,942.92	6,500.00	6,337.09	225.10	28.04	73.29	-1,296.63	-30.28	14,318.88	14,251.02	67.86	210.997	
20,700.00	6,942.95	6,500.00	6,337.09	226.69	28.04	73.29	-1,296.63	-30.28	14,417.81	14,349.86	67.95	212.170	
20,800.00	6,942.97	6,500.00	6,337.09	228.28	28.04	73.29	-1,296.63	-30.28	14,516.75	14,448.71	68.05	213.339	
20,900.00	6,942.99	6,500.00	6,337.09	229.88	28.04	73.29	-1,296.63	-30.28	14,615.71	14,547.58	68.14	214.504	
20,942.50	6,943.00	6,500.00	6,337.09	230.42	28.04	73.29	-1,296.63	-30.28	14,657.77	14,585.88	71.89	203.878	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
6,259.15	6,201.85	6,255.00	6,197.73	0.10	0.00	0.00	691.84	266.71	4.15				
6,293.00	6,235.55	6,255.00	6,197.73	0.91	0.00	0.00	691.84	266.71	38.00				
6,300.00	6,242.52	6,255.00	6,197.73	0.92	0.00	0.00	691.84	266.71	45.00				
6,393.00	6,335.09	6,255.00	6,197.73	1.03	0.00	0.00	691.84	266.71	138.00				
6,400.00	6,342.06	6,255.00	6,197.73	1.04	0.00	62.48	691.84	266.71	145.00	144.51	0.49	298.498	
6,450.00	6,391.66	6,255.00	6,197.73	1.15	0.00	35.41	691.84	266.71	194.94	193.85	1.09	178.433	
6,500.00	6,440.77	6,255.00	6,197.73	1.30	0.00	23.65	691.84	266.71	244.65	242.82	1.84	133.058	
6,550.00	6,489.07	6,255.00	6,197.73	1.47	0.00	17.63	691.84	266.71	294.02	291.42	2.60	112.959	
6,600.00	6,536.26	6,255.00	6,197.73	1.68	0.00	14.07	691.84	266.71	342.95	339.59	3.37	101.833	
6,650.00	6,582.05	6,255.00	6,197.73	1.90	0.00	11.75	691.84	266.71	391.36	387.23	4.13	94.862	
6,700.00	6,626.13	6,255.00	6,197.73	2.16	0.00	10.14	691.84	266.71	439.15	434.28	4.87	90.167	
6,750.00	6,668.24	6,255.00	6,197.73	2.48	0.00	8.95	691.84	266.71	486.26	480.67	5.60	86.870	
6,800.00	6,708.12	6,255.00	6,197.73	2.86	0.00	8.06	691.84	266.71	532.61	526.31	6.30	84.509	
6,850.00	6,745.50	6,255.00	6,197.73	3.31	0.00	7.38	691.84	266.71	578.13	571.14	6.98	82.821	
6,900.00	6,780.15	6,255.00	6,197.73	3.80	0.00	6.83	691.84	266.71	622.73	615.10	7.63	81.644	
6,950.00	6,811.86	6,255.00	6,197.73	4.34	0.00	6.40	691.84	266.71	666.36	658.12	8.24	80.877	
7,000.00	6,840.42	6,255.00	6,197.73	4.93	0.00	6.06	691.84	266.71	708.93	700.12	8.81	80.454	
7,050.00	6,865.66	6,255.00	6,197.73	5.55	0.00	5.78	691.84	266.71	750.39	741.05	9.34	80.332 SF	
7,100.00	6,887.42	6,255.00	6,197.73	6.21	0.00	5.57	691.84	266.71	790.67	780.85	9.82	80.484	
7,150.00	6,905.55	6,255.00	6,197.73	6.90	0.00	5.40	691.84	266.71	829.71	819.45	10.26	80.893	
7,200.00	6,919.95	6,255.00	6,197.73	7.61	0.00	5.27	691.84	266.71	867.44	856.80	10.64	81.553	
7,250.00	6,930.52	6,255.00	6,197.73	8.35	0.00	5.18	691.84	266.71	903.80	892.84	10.96	82.463	
7,300.00	6,937.20	6,255.00	6,197.73	9.09	0.00	5.13	691.84	266.71	938.73	927.51	11.22	83.630	
7,350.00	6,939.94	6,255.00	6,197.73	9.85	0.00	5.10	691.84	266.71	972.19	960.76	11.43	85.064	
7,359.60	6,940.02	6,255.00	6,197.73	9.99	0.00	5.10	691.84	266.71	978.44	966.98	11.46	85.373	
7,400.00	6,940.03	6,255.00	6,197.73	10.60	0.00	5.10	691.84	266.71	1,005.10	993.52	11.58	86.833	
7,500.00	6,940.04	6,255.00	6,197.73	12.14	0.00	5.10	691.84	266.71	1,074.77	1,062.88	11.89	90.390	
7,600.00	6,940.06	6,255.00	6,197.73	13.69	0.00	5.10	691.84	266.71	1,148.93	1,136.68	12.25	93.798	
7,659.60	6,940.07	6,255.00	6,197.73	14.62	0.00	5.10	691.84	266.71	1,194.92	1,182.44	12.48	95.734	
7,700.00	6,940.08	6,255.00	6,197.73	15.25	0.00	4.07	691.84	266.71	1,226.77	1,214.14	12.63	97.128	
7,796.63	6,940.10	6,255.00	6,197.73	16.76	0.00	1.41	691.84	266.71	1,304.97	1,291.96	13.01	100.312	
7,800.00	6,940.10	6,255.00	6,197.73	16.82	0.00	1.41	691.84	266.71	1,307.74	1,294.72	13.02	100.410	
7,900.00	6,940.12	6,255.00	6,197.73	18.39	0.00	1.41	691.84	266.71	1,391.23	1,377.74	13.48	103.176	
8,000.00	6,940.14	6,255.00	6,197.73	19.97	0.00	1.41	691.84	266.71	1,476.77	1,462.79	13.97	105.687	
8,100.00	6,940.17	6,255.00	6,197.73	21.56	0.00	1.41	691.84	266.71	1,564.02	1,549.53	14.49	107.953	
8,200.00	6,940.19	6,255.00	6,197.73	23.14	0.00	1.41	691.84	266.71	1,652.72	1,637.69	15.03	109.987	
8,300.00	6,940.21	6,255.00	6,197.73	24.73	0.00	1.41	691.84	266.71	1,742.64	1,727.06	15.59	111.809	
8,400.00	6,940.23	6,255.00	6,197.73	26.32	0.00	1.41	691.84	266.71	1,833.61	1,817.45	16.16	113.438	
8,500.00	6,940.25	6,255.00	6,197.73	27.91	0.00	1.41	691.84	266.71	1,925.47	1,908.72	16.76	114.892	
8,600.00	6,940.28	6,255.00	6,197.73	29.50	0.00	1.41	691.84	266.71	2,018.11	2,000.74	17.37	116.189	
8,700.00	6,940.30	6,255.00	6,197.73	31.09	0.00	1.41	691.84	266.71	2,111.42	2,093.43	17.99	117.348	
8,800.00	6,940.32	6,255.00	6,197.73	32.68	0.00	1.41	691.84	266.71	2,205.32	2,186.69	18.63	118.382	
8,900.00	6,940.34	6,255.00	6,197.73	34.28	0.00	1.41	691.84	266.71	2,299.73	2,280.45	19.28	119.307	
9,000.00	6,940.36	6,255.00	6,197.73	35.87	0.00	1.41	691.84	266.71	2,394.59	2,374.66	19.93	120.135	
9,100.00	6,940.39	6,255.00	6,197.73	37.47	0.00	1.41	691.84	266.71	2,489.86	2,469.26	20.60	120.876	
9,200.00	6,940.41	6,255.00	6,197.73	39.06	0.00	1.41	691.84	266.71	2,585.48	2,564.21	21.27	121.542	
9,300.00	6,940.43	6,255.00	6,197.73	40.66	0.00	1.41	691.84	266.71	2,681.42	2,659.47	21.95	122.140	
9,400.00	6,940.45	6,255.00	6,197.73	42.25	0.00	1.41	691.84	266.71	2,777.65	2,755.01	22.64	122.678	
9,500.00	6,940.47	6,255.00	6,197.73	43.85	0.00	1.41	691.84	266.71	2,874.14	2,850.80	23.34	123.163	
9,600.00	6,940.50	6,255.00	6,197.73	45.45	0.00	1.41	691.84	266.71	2,970.86	2,946.82	24.04	123.601	
9,700.00	6,940.52	6,255.00	6,197.73	47.04	0.00	1.41	691.84	266.71	3,067.79	3,043.05	24.74	123.997	
9,800.00	6,940.54	6,255.00	6,197.73	48.64	0.00	1.41	691.84	266.71	3,164.91	3,139.46	25.45	124.356	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
9,900.00	6,940.56	6,255.00	6,197.73	50.24	0.00	1.41	691.84	266.71	3,262.20	3,236.04	26.16	124.681	
10,000.00	6,940.59	6,255.00	6,197.73	51.84	0.00	1.41	691.84	266.71	3,359.66	3,332.77	26.88	124.977	
10,100.00	6,940.61	6,255.00	6,197.73	53.43	0.00	1.41	691.84	266.71	3,457.26	3,429.65	27.60	125.246	
10,200.00	6,940.63	6,255.00	6,197.73	55.03	0.00	1.41	691.84	266.71	3,554.99	3,526.66	28.33	125.490	
10,300.00	6,940.65	6,255.00	6,197.73	56.63	0.00	1.41	691.84	266.71	3,652.84	3,623.79	29.06	125.714	
10,400.00	6,940.67	6,255.00	6,197.73	58.23	0.00	1.41	691.84	266.71	3,750.81	3,721.02	29.79	125.918	
10,500.00	6,940.70	6,255.00	6,197.73	59.83	0.00	1.41	691.84	266.71	3,848.88	3,818.36	30.52	126.104	
10,600.00	6,940.72	6,255.00	6,197.73	61.43	0.00	1.41	691.84	266.71	3,947.05	3,915.80	31.26	126.275	
10,700.00	6,940.74	6,255.00	6,197.73	63.02	0.00	1.41	691.84	266.71	4,045.31	4,013.32	32.00	126.431	
10,800.00	6,940.76	6,255.00	6,197.73	64.62	0.00	1.41	691.84	266.71	4,143.65	4,110.92	32.74	126.575	
10,900.00	6,940.78	6,255.00	6,197.73	66.22	0.00	1.41	691.84	266.71	4,242.07	4,208.59	33.48	126.707	
11,000.00	6,940.81	6,255.00	6,197.73	67.82	0.00	1.41	691.84	266.71	4,340.57	4,306.34	34.22	126.828	
11,100.00	6,940.83	6,255.00	6,197.73	69.42	0.00	1.41	691.84	266.71	4,439.13	4,404.16	34.97	126.939	
11,200.00	6,940.85	6,255.00	6,197.73	71.02	0.00	1.41	691.84	266.71	4,537.75	4,502.03	35.72	127.042	
11,300.00	6,940.87	6,255.00	6,197.73	72.62	0.00	1.41	691.84	266.71	4,636.43	4,599.96	36.47	127.137	
11,400.00	6,940.89	6,255.00	6,197.73	74.22	0.00	1.41	691.84	266.71	4,735.17	4,697.95	37.22	127.224	
11,500.00	6,940.92	6,255.00	6,197.73	75.82	0.00	1.41	691.84	266.71	4,833.96	4,795.98	37.97	127.305	
11,600.00	6,940.94	6,255.00	6,197.73	77.41	0.00	1.41	691.84	266.71	4,932.79	4,894.07	38.73	127.379	
11,700.00	6,940.96	6,255.00	6,197.73	79.01	0.00	1.41	691.84	266.71	5,031.68	4,992.20	39.48	127.448	
11,800.00	6,940.98	6,255.00	6,197.73	80.61	0.00	1.41	691.84	266.71	5,130.60	5,090.37	40.24	127.512	
11,900.00	6,941.00	6,255.00	6,197.73	82.21	0.00	1.41	691.84	266.71	5,229.57	5,188.58	40.99	127.571	
12,000.00	6,941.03	6,255.00	6,197.73	83.81	0.00	1.41	691.84	266.71	5,328.58	5,286.83	41.75	127.625	
12,100.00	6,941.05	6,255.00	6,197.73	85.41	0.00	1.41	691.84	266.71	5,427.62	5,385.11	42.51	127.676	
12,200.00	6,941.07	6,255.00	6,197.73	87.01	0.00	1.41	691.84	266.71	5,526.70	5,483.43	43.27	127.723	
12,300.00	6,941.09	6,255.00	6,197.73	88.61	0.00	1.41	691.84	266.71	5,625.81	5,581.78	44.03	127.766	
12,400.00	6,941.11	6,255.00	6,197.73	90.21	0.00	1.41	691.84	266.71	5,724.95	5,680.15	44.79	127.807	
12,500.00	6,941.14	6,255.00	6,197.73	91.81	0.00	1.41	691.84	266.71	5,824.12	5,778.56	45.56	127.844	
12,600.00	6,941.16	6,255.00	6,197.73	93.41	0.00	1.41	691.84	266.71	5,923.32	5,877.00	46.32	127.879	
12,700.00	6,941.18	6,255.00	6,197.73	95.01	0.00	1.41	691.84	266.71	6,022.54	5,975.46	47.08	127.911	
12,800.00	6,941.20	6,255.00	6,197.73	96.61	0.00	1.41	691.84	266.71	6,121.79	6,073.94	47.85	127.940	
12,900.00	6,941.23	6,255.00	6,197.73	98.21	0.00	1.41	691.84	266.71	6,221.06	6,172.45	48.61	127.968	
13,000.00	6,941.25	6,255.00	6,197.73	99.81	0.00	1.41	691.84	266.71	6,320.36	6,270.98	49.38	127.994	
13,100.00	6,941.27	6,255.00	6,197.73	101.41	0.00	1.41	691.84	266.71	6,419.68	6,369.53	50.15	128.018	
13,200.00	6,941.29	6,255.00	6,197.73	103.01	0.00	1.41	691.84	266.71	6,519.02	6,468.11	50.91	128.040	
13,300.00	6,941.31	6,255.00	6,197.73	104.61	0.00	1.41	691.84	266.71	6,618.38	6,566.70	51.68	128.060	
13,400.00	6,941.34	6,255.00	6,197.73	106.21	0.00	1.41	691.84	266.71	6,717.76	6,665.31	52.45	128.079	
13,500.00	6,941.36	6,255.00	6,197.73	107.81	0.00	1.41	691.84	266.71	6,817.15	6,763.93	53.22	128.097	
13,600.00	6,941.38	6,255.00	6,197.73	109.41	0.00	1.41	691.84	266.71	6,916.57	6,862.58	53.99	128.113	
13,700.00	6,941.40	6,255.00	6,197.73	111.01	0.00	1.41	691.84	266.71	7,016.00	6,961.24	54.76	128.128	
13,800.00	6,941.42	6,255.00	6,197.73	112.61	0.00	1.41	691.84	266.71	7,115.44	7,059.92	55.53	128.142	
13,900.00	6,941.45	6,255.00	6,197.73	114.21	0.00	1.41	691.84	266.71	7,214.91	7,158.61	56.30	128.155	
14,000.00	6,941.47	6,255.00	6,197.73	115.81	0.00	1.41	691.84	266.71	7,314.38	7,257.31	57.07	128.167	
14,100.00	6,941.49	6,255.00	6,197.73	117.41	0.00	1.41	691.84	266.71	7,413.87	7,356.03	57.84	128.178	
14,200.00	6,941.51	6,255.00	6,197.73	119.01	0.00	1.41	691.84	266.71	7,513.38	7,454.77	58.61	128.188	
14,300.00	6,941.53	6,255.00	6,197.73	120.61	0.00	1.41	691.84	266.71	7,612.89	7,553.51	59.38	128.197	
14,400.00	6,941.56	6,255.00	6,197.73	122.21	0.00	1.41	691.84	266.71	7,712.42	7,652.27	60.16	128.206	
14,500.00	6,941.58	6,255.00	6,197.73	123.81	0.00	1.41	691.84	266.71	7,811.97	7,751.04	60.93	128.214	
14,600.00	6,941.60	6,255.00	6,197.73	125.41	0.00	1.41	691.84	266.71	7,911.52	7,849.82	61.70	128.221	
14,700.00	6,941.62	6,255.00	6,197.73	127.01	0.00	1.41	691.84	266.71	8,011.08	7,948.61	62.48	128.228	
14,800.00	6,941.64	6,255.00	6,197.73	128.61	0.00	1.41	691.84	266.71	8,110.66	8,047.41	63.25	128.234	
14,900.00	6,941.67	6,255.00	6,197.73	130.21	0.00	1.41	691.84	266.71	8,210.24	8,146.22	64.02	128.239	
15,000.00	6,941.69	6,255.00	6,197.73	131.81	0.00	1.41	691.84	266.71	8,309.84	8,245.04	64.80	128.244	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
15,100.00	6,941.71	6,255.00	6,197.73	133.41	0.00	1.41	691.84	266.71	8,409.44	8,343.87	65.57	128.248	
15,200.00	6,941.73	6,255.00	6,197.73	135.01	0.00	1.41	691.84	266.71	8,509.06	8,442.71	66.35	128.252	
15,300.00	6,941.75	6,255.00	6,197.73	136.61	0.00	1.41	691.84	266.71	8,608.68	8,541.56	67.12	128.256	
15,400.00	6,941.78	6,255.00	6,197.73	138.21	0.00	1.41	691.84	266.71	8,708.31	8,640.42	67.90	128.259	
15,500.00	6,941.80	6,255.00	6,197.73	139.81	0.00	1.41	691.84	266.71	8,807.95	8,739.28	68.67	128.262	
15,600.00	6,941.82	6,255.00	6,197.73	141.41	0.00	1.41	691.84	266.71	8,907.60	8,838.15	69.45	128.265	
15,700.00	6,941.84	6,255.00	6,197.73	143.01	0.00	1.41	691.84	266.71	9,007.26	8,937.03	70.22	128.267	
15,800.00	6,941.87	6,255.00	6,197.73	144.61	0.00	1.41	691.84	266.71	9,106.92	9,035.92	71.00	128.268	
15,900.00	6,941.89	6,255.00	6,197.73	146.21	0.00	1.41	691.84	266.71	9,206.59	9,134.82	71.78	128.270	
16,000.00	6,941.91	6,255.00	6,197.73	147.81	0.00	1.41	691.84	266.71	9,306.27	9,233.72	72.55	128.271	
16,100.00	6,941.93	6,255.00	6,197.73	149.41	0.00	1.41	691.84	266.71	9,405.95	9,332.63	73.33	128.272	
16,200.00	6,941.95	6,255.00	6,197.73	151.01	0.00	1.41	691.84	266.71	9,505.65	9,431.54	74.10	128.273	
16,300.00	6,941.98	6,255.00	6,197.73	152.61	0.00	1.41	691.84	266.71	9,605.34	9,530.46	74.88	128.273	
16,400.00	6,942.00	6,255.00	6,197.73	154.21	0.00	1.41	691.84	266.71	9,705.05	9,629.39	75.66	128.274	
16,500.00	6,942.02	6,255.00	6,197.73	155.81	0.00	1.41	691.84	266.71	9,804.76	9,728.32	76.44	128.274	
16,600.00	6,942.04	6,255.00	6,197.73	157.41	0.00	1.41	691.84	266.71	9,904.47	9,827.26	77.21	128.274	
16,700.00	6,942.06	6,255.00	6,197.73	159.01	0.00	1.41	691.84	266.71	10,004.19	9,926.20	77.99	128.274	
16,800.00	6,942.09	6,255.00	6,197.73	160.61	0.00	1.41	691.84	266.71	10,103.92	10,025.15	78.77	128.273	
16,900.00	6,942.11	6,255.00	6,197.73	162.21	0.00	1.41	691.84	266.71	10,203.65	10,124.11	79.55	128.273	
17,000.00	6,942.13	6,255.00	6,197.73	163.81	0.00	1.41	691.84	266.71	10,303.39	10,223.07	80.32	128.272	
17,100.00	6,942.15	6,255.00	6,197.73	165.41	0.00	1.41	691.84	266.71	10,403.13	10,322.03	81.10	128.271	
17,200.00	6,942.17	6,255.00	6,197.73	167.01	0.00	1.41	691.84	266.71	10,502.88	10,421.00	81.88	128.270	
17,300.00	6,942.20	6,255.00	6,197.73	168.61	0.00	1.41	691.84	266.71	10,602.63	10,519.97	82.66	128.269	
17,400.00	6,942.22	6,255.00	6,197.73	170.21	0.00	1.41	691.84	266.71	10,702.39	10,618.95	83.44	128.267	
17,500.00	6,942.24	6,255.00	6,197.73	171.81	0.00	1.41	691.84	266.71	10,802.15	10,717.94	84.22	128.266	
17,600.00	6,942.26	6,255.00	6,197.73	173.41	0.00	1.41	691.84	266.71	10,901.92	10,816.92	85.00	128.265	
17,700.00	6,942.28	6,255.00	6,197.73	175.01	0.00	1.41	691.84	266.71	11,001.69	10,915.91	85.77	128.263	
17,800.00	6,942.31	6,255.00	6,197.73	176.61	0.00	1.41	691.84	266.71	11,101.46	11,014.91	86.55	128.261	
17,900.00	6,942.33	6,255.00	6,197.73	178.21	0.00	1.41	691.84	266.71	11,201.24	11,113.91	87.33	128.260	
18,000.00	6,942.35	6,255.00	6,197.73	179.81	0.00	1.41	691.84	266.71	11,301.02	11,212.91	88.11	128.258	
18,100.00	6,942.37	6,255.00	6,197.73	181.41	0.00	1.41	691.84	266.71	11,400.81	11,311.92	88.89	128.256	
18,200.00	6,942.39	6,255.00	6,197.73	183.01	0.00	1.41	691.84	266.71	11,500.60	11,410.93	89.67	128.254	
18,300.00	6,942.42	6,255.00	6,197.73	184.61	0.00	1.41	691.84	266.71	11,600.39	11,509.94	90.45	128.252	
18,400.00	6,942.44	6,255.00	6,197.73	186.21	0.00	1.41	691.84	266.71	11,700.19	11,608.96	91.23	128.250	
18,500.00	6,942.46	6,255.00	6,197.73	187.81	0.00	1.41	691.84	266.71	11,799.99	11,707.98	92.01	128.248	
18,600.00	6,942.48	6,255.00	6,197.73	189.41	0.00	1.41	691.84	266.71	11,899.79	11,807.00	92.79	128.245	
18,700.00	6,942.51	6,255.00	6,197.73	191.01	0.00	1.41	691.84	266.71	11,999.60	11,906.03	93.57	128.243	
18,800.00	6,942.53	6,255.00	6,197.73	192.61	0.00	1.41	691.84	266.71	12,099.41	12,005.06	94.35	128.241	
18,900.00	6,942.55	6,255.00	6,197.73	194.21	0.00	1.41	691.84	266.71	12,199.22	12,104.09	95.13	128.239	
19,000.00	6,942.57	6,255.00	6,197.73	195.81	0.00	1.41	691.84	266.71	12,299.04	12,203.13	95.91	128.236	
19,100.00	6,942.59	6,255.00	6,197.73	197.41	0.00	1.41	691.84	266.71	12,398.86	12,302.17	96.69	128.234	
19,200.00	6,942.62	6,255.00	6,197.73	199.01	0.00	1.41	691.84	266.71	12,498.68	12,401.21	97.47	128.231	
19,300.00	6,942.64	6,255.00	6,197.73	200.61	0.00	1.41	691.84	266.71	12,598.50	12,500.25	98.25	128.229	
19,400.00	6,942.66	6,255.00	6,197.73	202.22	0.00	1.41	691.84	266.71	12,698.33	12,599.30	99.03	128.226	
19,500.00	6,942.68	6,255.00	6,197.73	203.82	0.00	1.41	691.84	266.71	12,798.16	12,698.35	99.81	128.224	
19,600.00	6,942.70	6,255.00	6,197.73	205.42	0.00	1.41	691.84	266.71	12,897.99	12,797.40	100.59	128.221	
19,700.00	6,942.73	6,255.00	6,197.73	207.02	0.00	1.41	691.84	266.71	12,997.83	12,896.46	101.37	128.219	
19,800.00	6,942.75	6,255.00	6,197.73	208.62	0.00	1.41	691.84	266.71	13,097.67	12,995.51	102.15	128.216	
19,900.00	6,942.77	6,255.00	6,197.73	210.22	0.00	1.41	691.84	266.71	13,197.51	13,094.57	102.93	128.213	
20,000.00	6,942.79	6,255.00	6,197.73	211.82	0.00	1.41	691.84	266.71	13,297.35	13,193.64	103.71	128.211	
20,100.00	6,942.81	6,255.00	6,197.73	213.42	0.00	1.41	691.84	266.71	13,397.20	13,292.70	104.50	128.208	
20,200.00	6,942.84	6,255.00	6,197.73	215.02	0.00	1.41	691.84	266.71	13,497.04	13,391.77	105.28	128.205	

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 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
20,300.00	6,942.86	6,255.00	6,197.73	216.62	0.00	1.41	691.84	266.71	13,596.89	13,490.84	106.06	128.203	
20,400.00	6,942.88	6,255.00	6,197.73	218.22	0.00	1.41	691.84	266.71	13,696.75	13,589.91	106.84	128.200	
20,500.00	6,942.90	6,255.00	6,197.73	219.82	0.00	1.41	691.84	266.71	13,796.60	13,688.98	107.62	128.197	
20,600.00	6,942.92	6,255.00	6,197.73	221.42	0.00	1.41	691.84	266.71	13,896.46	13,788.05	108.40	128.194	
20,700.00	6,942.95	6,255.00	6,197.73	223.02	0.00	1.41	691.84	266.71	13,996.31	13,887.13	109.18	128.192	
20,800.00	6,942.97	6,255.00	6,197.73	224.62	0.00	1.41	691.84	266.71	14,096.17	13,986.21	109.96	128.189	
20,900.00	6,942.99	6,255.00	6,197.73	226.22	0.00	1.41	691.84	266.71	14,196.04	14,085.29	110.75	128.186	
20,942.50	6,943.00	6,255.00	6,197.73	226.76	0.00	1.41	691.84	266.71	14,238.48	14,127.57	110.91	128.376	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	144.63	-40.78	28.94	50.00				
58.45	58.45	58.30	58.30	0.02	0.02	-93.86	-41.01	28.89	50.18	50.16	0.03	1,890.315	
150.25	150.24	150.09	150.09	0.14	0.10	-113.01	-41.39	28.79	50.68	50.53	0.16	324.036	
239.43	239.42	239.16	239.15	0.25	0.21	-119.30	-41.79	28.82	51.48	51.15	0.33	155.356	
299.93	299.91	299.56	299.55	0.33	0.29	-114.88	-42.22	28.88	52.21	51.76	0.45	115.253	
446.00	445.96	444.03	444.00	0.50	0.53	-92.03	-44.25	29.40	54.62	53.72	0.89	61.188	
537.00	536.95	532.71	532.54	0.73	0.81	-31.47	-48.31	32.14	59.24	57.79	1.45	40.741	
624.00	623.95	618.83	618.38	0.99	1.11	52.03	-53.88	36.34	65.42	63.40	2.02	32.315	
718.00	717.90	712.13	711.31	1.29	1.43	71.79	-60.38	41.47	72.66	69.99	2.66	27.299	
811.00	810.73	804.56	803.36	1.60	1.77	94.81	-67.03	46.70	80.84	77.54	3.31	24.453	
903.00	902.19	895.45	893.86	1.92	2.11	111.66	-73.40	52.12	91.76	87.80	3.96	23.154	
994.00	992.38	984.28	982.29	2.24	2.44	119.13	-79.92	57.45	105.41	100.79	4.62	22.815 SF	
1,084.00	1,081.50	1,071.13	1,068.68	2.56	2.77	127.78	-87.54	62.05	121.51	116.24	5.27	23.065	
1,175.00	1,171.48	1,159.35	1,156.35	2.91	3.11	135.00	-95.95	67.24	140.33	134.41	5.93	23.684	
1,268.00	1,263.52	1,250.78	1,247.22	3.26	3.47	139.10	-104.61	72.28	159.86	153.27	6.60	24.231	
1,363.00	1,357.62	1,344.36	1,340.29	3.63	3.83	143.82	-112.97	77.35	179.41	172.13	7.28	24.628	
1,457.00	1,450.74	1,437.30	1,432.75	3.99	4.18	147.71	-120.96	82.42	198.87	190.90	7.97	24.959	
1,552.00	1,544.82	1,531.86	1,526.91	4.36	4.54	149.49	-128.35	87.05	218.21	209.55	8.66	25.194	
1,646.00	1,637.88	1,623.63	1,618.33	4.72	4.89	150.91	-135.26	91.07	237.32	227.98	9.34	25.413	
1,741.00	1,731.94	1,715.10	1,709.39	5.09	5.23	152.03	-142.51	95.56	257.08	247.07	10.02	25.667	
1,835.00	1,825.07	1,806.65	1,800.48	5.46	5.58	152.49	-150.02	100.92	276.62	265.93	10.69	25.871	
1,929.00	1,918.39	1,900.40	1,893.76	5.82	5.94	151.56	-157.48	106.68	294.74	283.36	11.38	25.901	
2,024.00	2,012.84	1,994.89	1,987.80	6.18	6.30	152.94	-164.31	112.64	311.32	299.25	12.07	25.791	
2,118.00	2,106.19	2,084.36	2,076.83	6.53	6.64	153.03	-171.31	118.20	329.08	316.35	12.74	25.838	
2,213.00	2,200.37	2,176.55	2,168.52	6.90	7.00	151.81	-178.98	123.92	348.64	335.22	13.42	25.973	
2,307.00	2,293.61	2,267.69	2,259.15	7.27	7.35	154.01	-186.70	129.79	367.85	353.75	14.10	26.090	
2,402.00	2,387.91	2,358.22	2,349.13	7.63	7.70	157.94	-194.89	135.29	387.49	372.72	14.77	26.235	
2,496.00	2,481.29	2,450.07	2,440.44	7.99	8.06	159.24	-203.54	140.32	406.88	391.43	15.45	26.341	
2,591.00	2,575.67	2,543.15	2,532.96	8.35	8.42	157.67	-212.32	145.38	426.40	410.27	16.13	26.432	
2,686.00	2,670.05	2,636.84	2,626.11	8.71	8.78	158.17	-221.06	150.52	445.76	428.93	16.82	26.498	
2,780.00	2,763.49	2,729.59	2,718.32	9.07	9.14	156.08	-229.57	155.61	464.39	446.89	17.50	26.530	
2,875.00	2,857.94	2,823.57	2,811.78	9.43	9.50	154.72	-238.06	160.82	482.75	464.56	18.20	26.530	
2,970.00	2,952.51	2,918.57	2,906.25	9.79	9.87	158.34	-246.39	166.23	499.87	480.98	18.89	26.460	
3,064.00	3,046.19	3,013.77	3,000.99	10.13	10.23	165.49	-254.38	171.15	515.57	495.98	19.58	26.328	
3,159.00	3,140.98	3,104.56	3,091.35	10.47	10.58	167.35	-262.11	175.55	530.37	510.13	20.24	26.202	
3,253.00	3,234.84	3,197.00	3,183.30	10.81	10.93	159.34	-270.20	180.47	543.96	523.05	20.91	26.015	
3,348.00	3,329.74	3,281.93	3,267.70	11.14	11.26	151.47	-278.36	185.13	557.64	536.11	21.53	25.904	
3,397.00	3,378.70	3,328.27	3,313.71	11.32	11.44	150.51	-283.33	187.61	565.00	543.13	21.86	25.843	
3,488.00	3,469.63	3,415.20	3,399.97	11.64	11.79	147.82	-292.97	192.26	578.66	556.16	22.49	25.727	
3,583.00	3,564.49	3,507.93	3,491.92	11.98	12.15	155.90	-303.73	197.62	594.89	571.72	23.17	25.675	
3,677.00	3,658.13	3,607.52	3,590.76	12.33	12.54	157.49	-314.53	203.34	613.21	589.31	23.90	25.652	
3,772.00	3,752.42	3,709.74	3,692.35	12.69	12.94	161.90	-324.40	208.85	633.77	609.11	24.66	25.702	
3,867.00	3,846.42	3,811.08	3,793.25	13.06	13.33	163.53	-332.46	213.91	654.96	629.56	25.40	25.785	
3,961.00	3,939.30	3,902.47	3,884.27	13.44	13.67	163.25	-339.15	218.69	676.25	650.17	26.08	25.931	
4,056.00	4,032.83	3,990.77	3,972.17	13.82	14.01	159.70	-345.93	223.50	699.86	673.11	26.74	26.169	
4,151.00	4,126.01	4,081.90	4,062.89	14.21	14.36	160.79	-353.48	227.66	725.52	698.09	27.43	26.451	
4,246.00	4,219.10	4,174.16	4,154.78	14.61	14.71	153.46	-360.75	231.50	750.79	722.67	28.12	26.699	
4,340.00	4,310.92	4,254.28	4,234.51	15.01	15.01	144.26	-367.67	235.21	776.52	747.77	28.74	27.018	
4,435.00	4,403.54	4,333.00	4,312.74	15.41	15.32	144.39	-375.61	239.19	803.70	774.35	29.35	27.381	
4,498.00	4,465.21	4,393.06	4,372.35	15.68	15.55	147.11	-382.11	242.40	821.44	791.63	29.81	27.555	
4,561.00	4,526.82	4,453.45	4,432.30	15.95	15.79	152.37	-388.58	245.80	839.81	809.54	30.27	27.741	
4,624.00	4,588.23	4,513.04	4,491.44	16.22	16.03	154.54	-394.97	249.26	859.37	828.64	30.73	27.963	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	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
4,687.00	4,649.71	4,562.66	4,540.67	16.49	16.22	155.33	-400.52	252.26	879.07	847.96	31.12	28.252	
4,749.00	4,710.40	4,616.00	4,593.47	16.75	16.44	156.95	-407.23	255.70	898.60	867.08	31.52	28.507	
4,812.00	4,772.28	4,669.62	4,646.50	17.01	16.65	157.97	-414.32	259.29	917.99	886.06	31.93	28.752	
4,875.00	4,834.34	4,736.41	4,712.58	17.27	16.92	157.66	-422.95	263.75	936.41	903.98	32.44	28.870	
4,938.00	4,896.43	4,811.99	4,787.48	17.53	17.22	157.47	-431.76	268.65	953.80	920.79	33.01	28.897	
5,001.00	4,958.46	4,888.15	4,863.10	17.79	17.52	154.19	-439.44	273.39	970.46	936.88	33.58	28.903	
5,064.00	5,020.29	4,968.08	4,942.62	18.05	17.83	149.77	-446.13	278.01	986.64	952.48	34.16	28.880	
5,126.00	5,080.98	5,016.92	4,991.22	18.32	18.02	145.67	-450.09	280.69	1,002.61	968.06	34.55	29.018	
5,189.00	5,142.74	5,080.28	5,054.26	18.58	18.26	147.69	-455.45	284.10	1,018.58	983.55	35.03	29.077	
5,252.00	5,204.62	5,145.74	5,119.42	18.85	18.51	147.98	-460.73	287.52	1,033.90	998.38	35.52	29.105	
5,315.00	5,266.61	5,203.02	5,176.45	19.11	18.73	148.10	-465.32	290.42	1,048.66	1,012.70	35.96	29.162	
5,378.00	5,328.73	5,267.39	5,240.52	19.37	18.97	148.79	-470.57	293.61	1,062.95	1,026.51	36.44	29.169	
5,441.00	5,390.87	5,331.99	5,304.85	19.62	19.22	148.43	-475.62	296.68	1,076.90	1,039.98	36.92	29.165	
5,503.00	5,452.07	5,392.82	5,365.43	19.87	19.45	149.01	-480.26	299.56	1,090.27	1,052.89	37.38	29.167	
5,566.00	5,514.32	5,458.26	5,430.62	20.13	19.70	148.77	-485.16	302.66	1,103.47	1,065.61	37.87	29.142	
5,629.00	5,576.59	5,518.92	5,491.06	20.38	19.93	151.44	-489.61	305.26	1,116.49	1,078.17	38.32	29.136	
5,692.00	5,638.95	5,579.14	5,551.05	20.63	20.15	149.29	-494.10	307.83	1,129.13	1,090.36	38.77	29.124	
5,747.00	5,693.45	5,638.44	5,610.14	20.85	20.38	151.68	-498.47	310.24	1,139.76	1,100.56	39.20	29.073	
5,810.00	5,755.90	5,703.94	5,675.44	21.09	20.62	151.06	-503.00	312.49	1,151.49	1,111.81	39.68	29.017	
5,874.00	5,819.40	5,763.89	5,735.23	21.34	20.84	152.53	-507.13	314.33	1,163.00	1,122.87	40.13	28.982	
5,936.00	5,880.95	5,825.47	5,796.62	21.58	21.07	152.15	-511.49	316.36	1,174.12	1,133.54	40.58	28.932	
5,999.00	5,943.45	5,897.94	5,868.89	21.82	21.34	150.76	-516.31	318.63	1,185.30	1,144.20	41.10	28.839	
6,062.00	6,005.96	5,966.63	5,937.43	22.07	21.59	153.40	-520.31	320.87	1,196.02	1,154.43	41.60	28.753	
6,125.00	6,068.49	6,036.03	6,006.70	22.31	21.85	151.21	-523.97	322.93	1,206.24	1,164.15	42.09	28.657	
6,188.00	6,131.08	6,106.96	6,077.53	22.55	22.10	153.19	-527.24	324.86	1,215.56	1,172.97	42.59	28.538	
6,255.00	6,197.73	6,180.74	6,151.22	22.81	22.37	152.25	-530.19	326.99	1,224.41	1,181.29	43.11	28.399	
6,293.00	6,235.55	6,224.43	6,194.87	22.89	22.53	152.29	-531.69	328.12	1,228.97	1,185.63	43.34	28.354	
6,300.00	6,242.52	6,232.48	6,202.92	22.89	22.55	152.30	-531.94	328.31	1,229.79	1,186.42	43.38	28.352	
6,393.00	6,335.09	6,235.00	6,205.43	22.94	22.56	152.30	-532.02	328.37	1,243.91	1,200.73	43.18	28.805	
6,400.00	6,342.06	6,235.00	6,205.43	22.94	22.56	146.29	-532.02	328.37	1,245.24	1,202.08	43.16	28.851	
6,450.00	6,391.66	6,235.00	6,205.43	22.97	22.56	118.26	-532.02	328.37	1,255.61	1,212.63	42.98	29.214	
6,500.00	6,440.77	6,235.00	6,205.43	23.02	22.56	105.41	-532.02	328.37	1,267.39	1,224.63	42.76	29.639	
6,550.00	6,489.07	6,235.00	6,205.43	23.07	22.56	98.17	-532.02	328.37	1,280.47	1,237.95	42.51	30.119	
6,600.00	6,536.26	6,235.00	6,205.43	23.13	22.56	93.28	-532.02	328.37	1,294.72	1,252.47	42.25	30.647	
6,650.00	6,582.05	6,235.00	6,205.43	23.21	22.56	89.53	-532.02	328.37	1,310.02	1,268.06	41.96	31.218	
6,700.00	6,626.13	6,235.00	6,205.43	23.29	22.56	86.39	-532.02	328.37	1,326.25	1,284.57	41.68	31.823	
6,750.00	6,668.24	6,235.00	6,205.43	23.39	22.56	83.61	-532.02	328.37	1,343.26	1,301.87	41.39	32.451	
6,800.00	6,708.12	6,235.00	6,205.43	23.51	22.56	81.07	-532.02	328.37	1,360.93	1,319.80	41.12	33.094	
6,850.00	6,745.50	6,235.00	6,205.43	23.64	22.56	78.69	-532.02	328.37	1,379.11	1,338.23	40.87	33.740	
6,900.00	6,780.15	6,235.00	6,205.43	23.79	22.56	76.44	-532.02	328.37	1,397.67	1,357.02	40.65	34.379	
6,950.00	6,811.86	6,235.00	6,205.43	23.95	22.56	74.28	-532.02	328.37	1,416.49	1,376.02	40.47	35.001	
7,000.00	6,840.42	6,235.00	6,205.43	24.14	22.56	72.22	-532.02	328.37	1,435.44	1,395.12	40.33	35.594	
7,050.00	6,865.66	6,235.00	6,205.43	24.35	22.56	70.26	-532.02	328.37	1,454.40	1,414.17	40.23	36.151	
7,100.00	6,887.42	6,235.00	6,205.43	24.57	22.56	68.38	-532.02	328.37	1,473.25	1,433.06	40.18	36.663	
7,150.00	6,905.55	6,235.00	6,205.43	24.82	22.56	66.60	-532.02	328.37	1,491.87	1,451.68	40.19	37.123	
7,200.00	6,919.95	6,235.00	6,205.43	25.10	22.56	64.91	-532.02	328.37	1,510.16	1,469.92	40.24	37.526	
7,250.00	6,930.52	6,235.00	6,205.43	25.39	22.56	63.33	-532.02	328.37	1,528.03	1,487.68	40.35	37.870	
7,300.00	6,937.20	6,235.00	6,205.43	25.70	22.56	61.86	-532.02	328.37	1,545.36	1,504.86	40.50	38.154	
7,350.00	6,939.94	6,235.00	6,205.43	26.04	22.56	60.50	-532.02	328.37	1,562.08	1,521.37	40.70	38.378	
7,359.60	6,940.02	6,235.00	6,205.43	26.10	22.56	60.25	-532.02	328.37	1,565.21	1,524.47	40.74	38.415	
7,400.00	6,940.03	6,235.00	6,205.43	26.39	22.56	60.25	-532.02	328.37	1,578.80	1,537.86	40.93	38.569	
7,500.00	6,940.04	6,235.00	6,205.43	27.15	22.56	60.25	-532.02	328.37	1,616.28	1,574.86	41.42	39.022	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
7,600.00	6,940.06	6,235.00	6,205.43	27.99	22.56	60.25	-532.02	328.37	1,658.96	1,617.05	41.91	39.581	
7,659.60	6,940.07	6,235.00	6,205.43	28.52	22.56	60.25	-532.02	328.37	1,686.71	1,644.50	42.20	39.965	
7,700.00	6,940.08	6,235.00	6,205.43	28.89	22.56	60.02	-532.02	328.37	1,706.65	1,664.25	42.40	40.251	
7,796.63	6,940.10	6,235.00	6,205.43	29.83	22.56	59.40	-532.02	328.37	1,758.88	1,716.01	42.87	41.032	
7,800.00	6,940.10	6,235.00	6,205.43	29.86	22.56	59.40	-532.02	328.37	1,760.81	1,717.93	42.88	41.060	
7,900.00	6,940.12	6,235.00	6,205.43	30.90	22.56	59.40	-532.02	328.37	1,819.98	1,776.64	43.34	41.991	
8,000.00	6,940.14	6,235.00	6,205.43	31.98	22.56	59.40	-532.02	328.37	1,882.61	1,838.84	43.77	43.007	
8,100.00	6,940.17	6,235.00	6,205.43	33.11	22.56	59.40	-532.02	328.37	1,948.36	1,904.18	44.18	44.103	
8,200.00	6,940.19	6,235.00	6,205.43	34.28	22.56	59.40	-532.02	328.37	2,016.92	1,972.37	44.55	45.272	
8,300.00	6,940.21	6,235.00	6,205.43	35.48	22.56	59.40	-532.02	328.37	2,088.03	2,043.13	44.90	46.507	
8,400.00	6,940.23	6,235.00	6,205.43	36.71	22.56	59.40	-532.02	328.37	2,161.42	2,116.20	45.22	47.801	
8,500.00	6,940.25	6,235.00	6,205.43	37.97	22.56	59.40	-532.02	328.37	2,236.88	2,191.37	45.51	49.150	
8,600.00	6,940.28	6,235.00	6,205.43	39.26	22.56	59.40	-532.02	328.37	2,314.20	2,268.41	45.78	50.547	
8,700.00	6,940.30	6,235.00	6,205.43	40.56	22.56	59.40	-532.02	328.37	2,393.19	2,347.16	46.03	51.989	
8,800.00	6,940.32	6,235.00	6,205.43	41.89	22.56	59.40	-532.02	328.37	2,473.71	2,427.45	46.26	53.470	
8,900.00	6,940.34	6,235.00	6,205.43	43.24	22.56	59.40	-532.02	328.37	2,555.61	2,509.13	46.48	54.987	
9,000.00	6,940.36	6,235.00	6,205.43	44.60	22.56	59.40	-532.02	328.37	2,638.75	2,592.08	46.67	56.536	
9,100.00	6,940.39	6,235.00	6,205.43	45.98	22.56	59.40	-532.02	328.37	2,723.03	2,676.17	46.86	58.114	
9,200.00	6,940.41	6,235.00	6,205.43	47.38	22.56	59.40	-532.02	328.37	2,808.34	2,761.31	47.03	59.717	
9,300.00	6,940.43	6,235.00	6,205.43	48.78	22.56	59.40	-532.02	328.37	2,894.59	2,847.41	47.19	61.344	
9,400.00	6,940.45	6,235.00	6,205.43	50.20	22.56	59.40	-532.02	328.37	2,981.70	2,934.37	47.33	62.993	
9,500.00	6,940.47	6,235.00	6,205.43	51.63	22.56	59.40	-532.02	328.37	3,069.60	3,022.12	47.47	64.660	
9,600.00	6,940.50	6,235.00	6,205.43	53.07	22.56	59.40	-532.02	328.37	3,158.21	3,110.61	47.60	66.343	
9,700.00	6,940.52	6,235.00	6,205.43	54.52	22.56	59.40	-532.02	328.37	3,247.49	3,199.76	47.73	68.043	
9,800.00	6,940.54	6,235.00	6,205.43	55.97	22.56	59.40	-532.02	328.37	3,337.37	3,289.53	47.84	69.755	
9,900.00	6,940.56	6,235.00	6,205.43	57.44	22.56	59.40	-532.02	328.37	3,427.82	3,379.86	47.95	71.480	
10,000.00	6,940.59	6,235.00	6,205.43	58.91	22.56	59.40	-532.02	328.37	3,518.78	3,470.72	48.06	73.216	
10,100.00	6,940.61	6,235.00	6,205.43	60.38	22.56	59.40	-532.02	328.37	3,610.22	3,562.06	48.16	74.961	
10,200.00	6,940.63	6,235.00	6,205.43	61.87	22.56	59.40	-532.02	328.37	3,702.11	3,653.85	48.26	76.716	
10,300.00	6,940.65	6,235.00	6,205.43	63.36	22.56	59.40	-532.02	328.37	3,794.40	3,746.05	48.35	78.477	
10,400.00	6,940.67	6,235.00	6,205.43	64.85	22.56	59.40	-532.02	328.37	3,887.07	3,838.63	48.44	80.246	
10,500.00	6,940.70	6,235.00	6,205.43	66.35	22.56	59.40	-532.02	328.37	3,980.10	3,931.58	48.53	82.020	
10,600.00	6,940.72	6,235.00	6,205.43	67.86	22.56	59.40	-532.02	328.37	4,073.46	4,024.85	48.61	83.799	
10,700.00	6,940.74	6,235.00	6,205.43	69.36	22.56	59.40	-532.02	328.37	4,167.13	4,118.44	48.69	85.583	
10,800.00	6,940.76	6,235.00	6,205.43	70.88	22.56	59.40	-532.02	328.37	4,261.09	4,212.32	48.77	87.371	
10,900.00	6,940.78	6,235.00	6,205.43	72.39	22.56	59.40	-532.02	328.37	4,355.31	4,306.47	48.85	89.162	
11,000.00	6,940.81	6,235.00	6,205.43	73.91	22.56	59.40	-532.02	328.37	4,449.79	4,400.87	48.92	90.955	
11,100.00	6,940.83	6,235.00	6,205.43	75.44	22.56	59.40	-532.02	328.37	4,544.50	4,495.51	49.00	92.750	
11,200.00	6,940.85	6,235.00	6,205.43	76.96	22.56	59.40	-532.02	328.37	4,639.44	4,590.37	49.07	94.547	
11,300.00	6,940.87	6,235.00	6,205.43	78.49	22.56	59.40	-532.02	328.37	4,734.58	4,685.44	49.14	96.346	
11,400.00	6,940.89	6,235.00	6,205.43	80.03	22.56	59.40	-532.02	328.37	4,829.92	4,780.71	49.21	98.144	
11,500.00	6,940.92	6,235.00	6,205.43	81.56	22.56	59.40	-532.02	328.37	4,925.45	4,876.16	49.28	99.944	
11,600.00	6,940.94	6,235.00	6,205.43	83.10	22.56	59.40	-532.02	328.37	5,021.15	4,971.79	49.35	101.743	
11,700.00	6,940.96	6,235.00	6,205.43	84.64	22.56	59.40	-532.02	328.37	5,117.01	5,067.59	49.42	103.542	
11,800.00	6,940.98	6,235.00	6,205.43	86.18	22.56	59.40	-532.02	328.37	5,213.03	5,163.54	49.49	105.340	
11,900.00	6,941.00	6,235.00	6,205.43	87.72	22.56	59.40	-532.02	328.37	5,309.19	5,259.64	49.56	107.137	
12,000.00	6,941.03	6,235.00	6,205.43	89.27	22.56	59.40	-532.02	328.37	5,405.50	5,355.88	49.62	108.932	
12,100.00	6,941.05	6,235.00	6,205.43	90.82	22.56	59.40	-532.02	328.37	5,501.94	5,452.25	49.69	110.726	
12,200.00	6,941.07	6,235.00	6,205.43	92.37	22.56	59.40	-532.02	328.37	5,598.50	5,548.74	49.76	112.519	
12,300.00	6,941.09	6,235.00	6,205.43	93.92	22.56	59.40	-532.02	328.37	5,695.18	5,645.36	49.82	114.309	
12,400.00	6,941.11	6,235.00	6,205.43	95.47	22.56	59.40	-532.02	328.37	5,791.97	5,742.08	49.89	116.097	
12,500.00	6,941.14	6,235.00	6,205.43	97.03	22.56	59.40	-532.02	328.37	5,888.87	5,838.92	49.96	117.882	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
12,600.00	6,941.16	6,235.00	6,205.43	98.58	22.56	59.40	-532.02	328.37	5,985.88	5,935.85	50.02	119.665	
12,700.00	6,941.18	6,235.00	6,205.43	100.14	22.56	59.40	-532.02	328.37	6,082.98	6,032.89	50.09	121.445	
12,800.00	6,941.20	6,235.00	6,205.43	101.70	22.56	59.40	-532.02	328.37	6,180.17	6,130.01	50.15	123.222	
12,900.00	6,941.23	6,235.00	6,205.43	103.26	22.56	59.40	-532.02	328.37	6,277.45	6,227.23	50.22	124.995	
13,000.00	6,941.25	6,235.00	6,205.43	104.82	22.56	59.40	-532.02	328.37	6,374.81	6,324.52	50.29	126.765	
13,100.00	6,941.27	6,235.00	6,205.43	106.38	22.56	59.40	-532.02	328.37	6,472.26	6,421.90	50.36	128.532	
13,200.00	6,941.29	6,235.00	6,205.43	107.95	22.56	59.40	-532.02	328.37	6,569.78	6,519.36	50.42	130.295	
13,300.00	6,941.31	6,235.00	6,205.43	109.51	22.56	59.40	-532.02	328.37	6,667.37	6,616.88	50.49	132.053	
13,400.00	6,941.34	6,235.00	6,205.43	111.08	22.56	59.40	-532.02	328.37	6,765.04	6,714.48	50.56	133.808	
13,500.00	6,941.36	6,235.00	6,205.43	112.64	22.56	59.40	-532.02	328.37	6,862.77	6,812.15	50.63	135.559	
13,600.00	6,941.38	6,235.00	6,205.43	114.21	22.56	59.40	-532.02	328.37	6,960.57	6,909.87	50.69	137.305	
13,700.00	6,941.40	6,235.00	6,205.43	115.78	22.56	59.40	-532.02	328.37	7,058.43	7,007.66	50.76	139.047	
13,800.00	6,941.42	6,235.00	6,205.43	117.35	22.56	59.40	-532.02	328.37	7,156.35	7,105.51	50.83	140.785	
13,900.00	6,941.45	6,235.00	6,205.43	118.92	22.56	59.40	-532.02	328.37	7,254.32	7,203.42	50.90	142.518	
14,000.00	6,941.47	6,235.00	6,205.43	120.49	22.56	59.40	-532.02	328.37	7,352.35	7,301.38	50.97	144.246	
14,100.00	6,941.49	6,235.00	6,205.43	122.06	22.56	59.40	-532.02	328.37	7,450.43	7,399.39	51.04	145.970	
14,200.00	6,941.51	6,235.00	6,205.43	123.64	22.56	59.40	-532.02	328.37	7,548.56	7,497.45	51.11	147.688	
14,300.00	6,941.53	6,235.00	6,205.43	125.21	22.56	59.40	-532.02	328.37	7,646.74	7,595.56	51.18	149.402	
14,400.00	6,941.56	6,235.00	6,205.43	126.78	22.56	59.40	-532.02	328.37	7,744.97	7,693.72	51.25	151.111	
14,500.00	6,941.58	6,235.00	6,205.43	128.36	22.56	59.40	-532.02	328.37	7,843.24	7,791.92	51.33	152.814	
14,600.00	6,941.60	6,235.00	6,205.43	129.93	22.56	59.40	-532.02	328.37	7,941.56	7,890.16	51.40	154.512	
14,700.00	6,941.62	6,235.00	6,205.43	131.51	22.56	59.40	-532.02	328.37	8,039.91	7,988.44	51.47	156.205	
14,800.00	6,941.64	6,235.00	6,205.43	133.08	22.56	59.40	-532.02	328.37	8,138.31	8,086.77	51.54	157.893	
14,900.00	6,941.67	6,235.00	6,205.43	134.66	22.56	59.40	-532.02	328.37	8,236.74	8,185.13	51.62	159.575	
15,000.00	6,941.69	6,235.00	6,205.43	136.24	22.56	59.40	-532.02	328.37	8,335.22	8,283.53	51.69	161.251	
15,100.00	6,941.71	6,235.00	6,205.43	137.82	22.56	59.40	-532.02	328.37	8,433.73	8,381.96	51.77	162.922	
15,200.00	6,941.73	6,235.00	6,205.43	139.40	22.56	59.40	-532.02	328.37	8,532.27	8,480.43	51.84	164.588	
15,300.00	6,941.75	6,235.00	6,205.43	140.97	22.56	59.40	-532.02	328.37	8,630.84	8,578.93	51.92	166.248	
15,400.00	6,941.78	6,235.00	6,205.43	142.55	22.56	59.40	-532.02	328.37	8,729.45	8,677.46	51.99	167.902	
15,500.00	6,941.80	6,235.00	6,205.43	144.13	22.56	59.40	-532.02	328.37	8,828.09	8,776.03	52.07	169.550	
15,600.00	6,941.82	6,235.00	6,205.43	145.72	22.56	59.40	-532.02	328.37	8,926.76	8,874.62	52.14	171.192	
15,700.00	6,941.84	6,235.00	6,205.43	147.30	22.56	59.40	-532.02	328.37	9,025.46	8,973.24	52.22	172.829	
15,800.00	6,941.87	6,235.00	6,205.43	148.88	22.56	59.40	-532.02	328.37	9,124.19	9,071.89	52.30	174.460	
15,900.00	6,941.89	6,235.00	6,205.43	150.46	22.56	59.40	-532.02	328.37	9,222.95	9,170.57	52.38	176.085	
16,000.00	6,941.91	6,235.00	6,205.43	152.04	22.56	59.40	-532.02	328.37	9,321.73	9,269.27	52.46	177.703	
16,100.00	6,941.93	6,235.00	6,205.43	153.62	22.56	59.40	-532.02	328.37	9,420.54	9,368.00	52.54	179.316	
16,200.00	6,941.95	6,235.00	6,205.43	155.21	22.56	59.40	-532.02	328.37	9,519.37	9,466.75	52.62	180.923	
16,300.00	6,941.98	6,235.00	6,205.43	156.79	22.56	59.40	-532.02	328.37	9,618.23	9,565.53	52.70	182.523	
16,400.00	6,942.00	6,235.00	6,205.43	158.37	22.56	59.40	-532.02	328.37	9,717.11	9,664.33	52.78	184.118	
16,500.00	6,942.02	6,235.00	6,205.43	159.96	22.56	59.40	-532.02	328.37	9,816.01	9,763.15	52.86	185.706	
16,600.00	6,942.04	6,235.00	6,205.43	161.54	22.56	59.40	-532.02	328.37	9,914.93	9,862.00	52.94	187.289	
16,700.00	6,942.06	6,235.00	6,205.43	163.13	22.56	59.40	-532.02	328.37	10,013.88	9,960.86	53.02	188.865	
16,800.00	6,942.09	6,235.00	6,205.43	164.71	22.56	59.40	-532.02	328.37	10,112.85	10,059.74	53.10	190.434	
16,900.00	6,942.11	6,235.00	6,205.43	166.30	22.56	59.40	-532.02	328.37	10,211.83	10,158.65	53.19	191.998	
17,000.00	6,942.13	6,235.00	6,205.43	167.88	22.56	59.40	-532.02	328.37	10,310.84	10,257.57	53.27	193.555	
17,100.00	6,942.15	6,235.00	6,205.43	169.47	22.56	59.40	-532.02	328.37	10,409.87	10,356.51	53.35	195.106	
17,200.00	6,942.17	6,235.00	6,205.43	171.05	22.56	59.40	-532.02	328.37	10,508.91	10,455.47	53.44	196.651	
17,300.00	6,942.20	6,235.00	6,205.43	172.64	22.56	59.40	-532.02	328.37	10,607.97	10,554.45	53.52	198.190	
17,400.00	6,942.22	6,235.00	6,205.43	174.23	22.56	59.40	-532.02	328.37	10,707.05	10,653.44	53.61	199.722	
17,500.00	6,942.24	6,235.00	6,205.43	175.81	22.56	59.40	-532.02	328.37	10,806.15	10,752.45	53.70	201.248	
17,600.00	6,942.26	6,235.00	6,205.43	177.40	22.56	59.40	-532.02	328.37	10,905.26	10,851.48	53.78	202.767	
17,700.00	6,942.28	6,235.00	6,205.43	178.99	22.56	59.40	-532.02	328.37	11,004.39	10,950.52	53.87	204.280	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
17,800.00	6,942.31	6,235.00	6,205.43	180.57	22.56	59.40	-532.02	328.37	11,103.54	11,049.58	53.96	205.787	
17,900.00	6,942.33	6,235.00	6,205.43	182.16	22.56	59.40	-532.02	328.37	11,202.69	11,148.65	54.04	207.287	
18,000.00	6,942.35	6,235.00	6,205.43	183.75	22.56	59.40	-532.02	328.37	11,301.87	11,247.74	54.13	208.781	
18,100.00	6,942.37	6,235.00	6,205.43	185.34	22.56	59.40	-532.02	328.37	11,401.06	11,346.84	54.22	210.269	
18,200.00	6,942.39	6,235.00	6,205.43	186.93	22.56	59.40	-532.02	328.37	11,500.26	11,445.95	54.31	211.750	
18,300.00	6,942.42	6,235.00	6,205.43	188.52	22.56	59.40	-532.02	328.37	11,599.48	11,545.08	54.40	213.225	
18,400.00	6,942.44	6,235.00	6,205.43	190.10	22.56	59.40	-532.02	328.37	11,698.71	11,644.22	54.49	214.693	
18,500.00	6,942.46	6,235.00	6,205.43	191.69	22.56	59.40	-532.02	328.37	11,797.95	11,743.37	54.58	216.155	
18,600.00	6,942.48	6,235.00	6,205.43	193.28	22.56	59.40	-532.02	328.37	11,897.21	11,842.54	54.67	217.611	
18,700.00	6,942.51	6,235.00	6,205.43	194.87	22.56	59.40	-532.02	328.37	11,996.48	11,941.71	54.76	219.060	
18,800.00	6,942.53	6,235.00	6,205.43	196.46	22.56	59.40	-532.02	328.37	12,095.76	12,040.90	54.86	220.503	
18,900.00	6,942.55	6,235.00	6,205.43	198.05	22.56	59.40	-532.02	328.37	12,195.05	12,140.10	54.95	221.939	
19,000.00	6,942.57	6,235.00	6,205.43	199.64	22.56	59.40	-532.02	328.37	12,294.35	12,239.31	55.04	223.370	
19,100.00	6,942.59	6,235.00	6,205.43	201.23	22.56	59.40	-532.02	328.37	12,393.67	12,338.53	55.13	224.793	
19,200.00	6,942.62	6,235.00	6,205.43	202.82	22.56	59.40	-532.02	328.37	12,492.99	12,437.76	55.23	226.211	
19,300.00	6,942.64	6,235.00	6,205.43	204.41	22.56	59.40	-532.02	328.37	12,592.33	12,537.01	55.32	227.621	
19,400.00	6,942.66	6,235.00	6,205.43	206.00	22.56	59.40	-532.02	328.37	12,691.67	12,636.26	55.42	229.026	
19,500.00	6,942.68	6,235.00	6,205.43	207.59	22.56	59.40	-532.02	328.37	12,791.03	12,735.52	55.51	230.424	
19,600.00	6,942.70	6,235.00	6,205.43	209.18	22.56	59.40	-532.02	328.37	12,890.40	12,834.79	55.61	231.816	
19,700.00	6,942.73	6,235.00	6,205.43	210.78	22.56	59.40	-532.02	328.37	12,989.77	12,934.07	55.70	233.202	
19,800.00	6,942.75	6,235.00	6,205.43	212.37	22.56	59.40	-532.02	328.37	13,089.16	13,033.36	55.80	234.581	
19,900.00	6,942.77	6,235.00	6,205.43	213.96	22.56	59.40	-532.02	328.37	13,188.55	13,132.66	55.89	235.954	
20,000.00	6,942.79	6,235.00	6,205.43	215.55	22.56	59.40	-532.02	328.37	13,287.96	13,231.97	55.99	237.320	
20,100.00	6,942.81	6,235.00	6,205.43	217.14	22.56	59.40	-532.02	328.37	13,387.37	13,331.28	56.09	238.681	
20,200.00	6,942.84	6,235.00	6,205.43	218.73	22.56	59.40	-532.02	328.37	13,486.79	13,430.61	56.19	240.035	
20,300.00	6,942.86	6,235.00	6,205.43	220.32	22.56	59.40	-532.02	328.37	13,586.22	13,529.94	56.29	241.382	
20,400.00	6,942.88	6,235.00	6,205.43	221.92	22.56	59.40	-532.02	328.37	13,685.66	13,629.28	56.38	242.724	
20,500.00	6,942.90	6,235.00	6,205.43	223.51	22.56	59.40	-532.02	328.37	13,785.11	13,728.63	56.48	244.059	
20,600.00	6,942.92	6,235.00	6,205.43	225.10	22.56	59.40	-532.02	328.37	13,884.56	13,827.98	56.58	245.388	
20,700.00	6,942.95	6,235.00	6,205.43	226.69	22.56	59.40	-532.02	328.37	13,984.03	13,927.35	56.68	246.711	
20,800.00	6,942.97	6,235.00	6,205.43	228.28	22.56	59.40	-532.02	328.37	14,083.50	14,026.72	56.78	248.028	
20,900.00	6,942.99	6,235.00	6,205.43	229.88	22.56	59.40	-532.02	328.37	14,182.98	14,126.09	56.88	249.338	
20,942.50	6,943.00	6,235.00	6,205.43	230.42	22.56	59.40	-532.02	328.37	14,225.25	14,164.04	61.21	232.403	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - Rosa Unit 705H - OH - Plan #4

Offset Site Error: 0.00 usft

Survey Program: 21-Standard Keeper 104, 365-MWD+HRGM+MS, 6235-MWD+HRGM+MS

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	144.63	-40.78	28.94	50.00				
58.45	58.45	58.30	58.30	0.02	0.02	-93.86	-41.01	28.89	50.18	50.16	0.03	1,890.315	
150.25	150.24	150.09	150.09	0.14	0.10	-113.01	-41.39	28.79	50.68	50.53	0.16	324.036	
239.43	239.42	239.16	239.15	0.25	0.21	-119.30	-41.79	28.82	51.48	51.15	0.33	155.356	
299.93	299.91	299.56	299.55	0.33	0.29	-114.88	-42.22	28.88	52.21	51.76	0.45	115.253	
446.00	445.96	444.03	444.00	0.50	0.53	-92.03	-44.25	29.40	54.62	53.72	0.89	61.188	
537.00	536.95	532.71	532.54	0.73	0.81	-31.47	-48.31	32.14	59.24	57.79	1.45	40.741	
624.00	623.95	618.83	618.38	0.99	1.11	52.03	-53.88	36.34	65.42	63.40	2.02	32.315	
718.00	717.90	712.13	711.31	1.29	1.43	71.79	-60.38	41.47	72.66	69.99	2.66	27.299	
811.00	810.73	804.56	803.36	1.60	1.77	94.81	-67.03	46.70	80.84	77.54	3.31	24.453	
903.00	902.19	895.45	893.86	1.92	2.11	111.66	-73.40	52.12	91.76	87.80	3.96	23.154	
994.00	992.38	984.28	982.29	2.24	2.44	119.13	-79.92	57.45	105.41	100.79	4.62	22.815	
1,084.00	1,081.50	1,071.13	1,068.68	2.56	2.77	127.78	-87.54	62.05	121.51	116.24	5.27	23.065	
1,175.00	1,171.48	1,159.35	1,156.35	2.91	3.11	135.00	-95.95	67.24	140.33	134.41	5.93	23.684	
1,268.00	1,263.52	1,250.78	1,247.22	3.26	3.47	139.10	-104.61	72.28	159.86	153.27	6.60	24.231	
1,363.00	1,357.62	1,344.36	1,340.29	3.63	3.83	143.82	-112.97	77.35	179.41	172.13	7.28	24.628	
1,457.00	1,450.74	1,437.30	1,432.75	3.99	4.18	147.71	-120.96	82.42	198.87	190.90	7.97	24.959	
1,552.00	1,544.82	1,531.86	1,526.91	4.36	4.54	149.49	-128.35	87.05	218.21	209.55	8.66	25.194	
1,646.00	1,637.88	1,623.63	1,618.33	4.72	4.89	150.91	-135.26	91.07	237.32	227.98	9.34	25.413	
1,741.00	1,731.94	1,715.10	1,709.39	5.09	5.23	152.03	-142.51	95.56	257.08	247.07	10.02	25.667	
1,835.00	1,825.07	1,806.65	1,800.48	5.46	5.58	152.49	-150.02	100.92	276.62	265.93	10.69	25.871	
1,929.00	1,918.39	1,900.40	1,893.76	5.82	5.94	151.56	-157.48	106.68	294.74	283.36	11.38	25.901	
2,024.00	2,012.84	1,994.89	1,987.80	6.18	6.30	152.94	-164.31	112.64	311.32	299.25	12.07	25.791	
2,118.00	2,106.19	2,084.36	2,076.83	6.53	6.64	153.03	-171.31	118.20	329.08	316.35	12.74	25.838	
2,213.00	2,200.37	2,176.55	2,168.52	6.90	7.00	151.81	-178.98	123.92	348.64	335.22	13.42	25.973	
2,307.00	2,293.61	2,267.69	2,259.15	7.27	7.35	154.01	-186.70	129.79	367.85	353.75	14.10	26.090	
2,402.00	2,387.91	2,358.22	2,349.13	7.63	7.70	157.94	-194.89	135.29	387.49	372.72	14.77	26.235	
2,496.00	2,481.29	2,450.07	2,440.44	7.99	8.06	159.24	-203.54	140.32	406.88	391.43	15.45	26.341	
2,591.00	2,575.67	2,543.15	2,532.96	8.35	8.42	157.67	-212.32	145.38	426.40	410.27	16.13	26.432	
2,686.00	2,670.05	2,636.84	2,626.11	8.71	8.78	158.17	-221.06	150.52	445.76	428.93	16.82	26.498	
2,780.00	2,763.49	2,729.59	2,718.32	9.07	9.14	156.08	-229.57	155.61	464.39	446.89	17.50	26.530	
2,875.00	2,857.94	2,823.57	2,811.78	9.43	9.50	154.72	-238.06	160.82	482.75	464.56	18.20	26.530	
2,970.00	2,952.51	2,918.57	2,906.25	9.79	9.87	158.34	-246.39	166.23	499.87	480.98	18.89	26.460	
3,064.00	3,046.19	3,013.77	3,000.99	10.13	10.23	165.49	-254.38	171.15	515.57	495.98	19.58	26.328	
3,159.00	3,140.98	3,104.56	3,091.35	10.47	10.58	167.35	-262.11	175.55	530.37	510.13	20.24	26.202	
3,253.00	3,234.84	3,197.00	3,183.30	10.81	10.93	159.34	-270.20	180.47	543.96	523.05	20.91	26.015	
3,348.00	3,329.74	3,281.93	3,267.70	11.14	11.26	151.47	-278.36	185.13	557.64	536.11	21.53	25.904	
3,397.00	3,378.70	3,328.27	3,313.71	11.32	11.44	150.51	-283.33	187.61	565.00	543.13	21.86	25.843	
3,488.00	3,469.63	3,415.20	3,399.97	11.64	11.79	147.82	-292.97	192.26	578.66	556.16	22.49	25.727	
3,583.00	3,564.49	3,507.93	3,491.92	11.98	12.15	155.90	-303.73	197.62	594.89	571.72	23.17	25.675	
3,677.00	3,658.13	3,607.52	3,590.76	12.33	12.54	157.49	-314.53	203.34	613.21	589.31	23.90	25.652	
3,772.00	3,752.42	3,709.74	3,692.35	12.69	12.94	161.90	-324.40	208.85	633.77	609.11	24.66	25.702	
3,867.00	3,846.42	3,811.08	3,793.25	13.06	13.33	163.53	-332.46	213.91	654.96	629.56	25.40	25.785	
3,961.00	3,939.30	3,902.47	3,884.27	13.44	13.67	163.25	-339.15	218.69	676.25	650.17	26.08	25.931	
4,056.00	4,032.83	3,990.77	3,972.17	13.82	14.01	159.70	-345.93	223.50	699.86	673.11	26.74	26.169	
4,151.00	4,126.01	4,081.90	4,062.89	14.21	14.36	160.79	-353.48	227.66	725.52	698.09	27.43	26.451	
4,246.00	4,219.10	4,174.16	4,154.78	14.61	14.71	153.46	-360.75	231.50	750.79	722.67	28.12	26.699	
4,340.00	4,310.92	4,254.28	4,234.51	15.01	15.01	144.26	-367.67	235.21	776.52	747.77	28.74	27.018	
4,435.00	4,403.54	4,333.00	4,312.74	15.41	15.32	144.39	-375.61	239.19	803.70	774.35	29.35	27.381	
4,498.00	4,465.21	4,393.06	4,372.35	15.68	15.55	147.11	-382.11	242.40	821.44	791.63	29.81	27.555	
4,561.00	4,526.82	4,453.45	4,432.30	15.95	15.79	152.37	-388.58	245.80	839.81	809.54	30.27	27.741	
4,624.00	4,588.23	4,513.04	4,491.44	16.22	16.03	154.54	-394.97	249.26	859.37	828.64	30.73	27.963	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - Rosa Unit 705H - OH - Plan #4 — **Offset Site Error:** 0.00 usft

Survey Program: 21-Standard Keeper 104, 365-MWD+HRGM+MS, 6235-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
4,687.00	4,649.71	4,562.66	4,540.67	16.49	16.22	155.33	-400.52	252.26	879.07	847.96	31.12	28.252	
4,749.00	4,710.40	4,616.00	4,593.47	16.75	16.44	156.95	-407.23	255.70	898.60	867.08	31.52	28.507	
4,812.00	4,772.28	4,669.62	4,646.50	17.01	16.65	157.97	-414.32	259.29	917.99	886.06	31.93	28.752	
4,875.00	4,834.34	4,736.41	4,712.58	17.27	16.92	157.66	-422.95	263.75	936.41	903.98	32.44	28.870	
4,938.00	4,896.43	4,811.99	4,787.48	17.53	17.22	157.47	-431.76	268.65	953.80	920.79	33.01	28.897	
5,001.00	4,958.46	4,888.15	4,863.10	17.79	17.52	154.19	-439.44	273.39	970.46	936.88	33.58	28.903	
5,064.00	5,020.29	4,968.08	4,942.62	18.05	17.83	149.77	-446.13	278.01	986.64	952.48	34.16	28.880	
5,126.00	5,080.98	5,016.92	4,991.22	18.32	18.02	145.67	-450.09	280.69	1,002.61	968.06	34.55	29.018	
5,189.00	5,142.74	5,080.28	5,054.26	18.58	18.26	147.69	-455.45	284.10	1,018.58	983.55	35.03	29.077	
5,252.00	5,204.62	5,145.74	5,119.42	18.85	18.51	147.98	-460.73	287.52	1,033.90	998.38	35.52	29.105	
5,315.00	5,266.61	5,203.02	5,176.45	19.11	18.73	148.10	-465.32	290.42	1,048.66	1,012.70	35.96	29.162	
5,378.00	5,328.73	5,267.39	5,240.52	19.37	18.97	148.79	-470.57	293.61	1,062.95	1,026.51	36.44	29.169	
5,441.00	5,390.87	5,331.99	5,304.85	19.62	19.22	148.43	-475.62	296.68	1,076.90	1,039.98	36.92	29.165	
5,503.00	5,452.07	5,392.82	5,365.43	19.87	19.45	149.01	-480.26	299.56	1,090.27	1,052.89	37.38	29.167	
5,566.00	5,514.32	5,458.26	5,430.62	20.13	19.70	148.77	-485.16	302.66	1,103.47	1,065.61	37.87	29.142	
5,629.00	5,576.59	5,518.92	5,491.06	20.38	19.93	151.44	-489.61	305.26	1,116.49	1,078.17	38.32	29.136	
5,692.00	5,638.95	5,579.14	5,551.05	20.63	20.15	149.29	-494.10	307.83	1,129.13	1,090.36	38.77	29.124	
5,747.00	5,693.45	5,638.44	5,610.14	20.85	20.38	151.68	-498.47	310.24	1,139.76	1,100.56	39.20	29.073	
5,810.00	5,755.90	5,703.94	5,675.44	21.09	20.62	151.06	-503.00	312.49	1,151.49	1,111.81	39.68	29.017	
5,874.00	5,819.40	5,763.89	5,735.23	21.34	20.84	152.53	-507.13	314.33	1,163.00	1,122.87	40.13	28.982	
5,936.00	5,880.95	5,825.47	5,796.62	21.58	21.07	152.15	-511.49	316.36	1,174.12	1,133.54	40.58	28.932	
5,999.00	5,943.45	5,897.94	5,868.89	21.82	21.34	150.76	-516.31	318.63	1,185.30	1,144.20	41.10	28.839	
6,062.00	6,005.96	5,966.63	5,937.43	22.07	21.59	153.40	-520.31	320.87	1,196.02	1,154.43	41.60	28.753	
6,125.00	6,068.49	6,036.03	6,006.70	22.31	21.85	151.21	-523.97	322.93	1,206.24	1,164.15	42.09	28.657	
6,188.00	6,131.08	6,106.96	6,077.53	22.55	22.10	153.19	-527.24	324.86	1,215.56	1,172.97	42.59	28.538	
6,255.00	6,197.73	6,180.74	6,151.22	22.81	22.37	152.25	-530.19	326.99	1,224.41	1,181.29	43.11	28.399	
6,293.00	6,235.55	6,224.43	6,194.87	22.89	22.53	152.29	-531.69	328.12	1,228.97	1,185.63	43.34	28.354	
6,300.00	6,242.52	6,232.48	6,202.92	22.89	22.55	152.30	-531.94	328.31	1,229.79	1,186.42	43.38	28.352	
6,393.00	6,335.09	6,325.17	6,295.53	22.94	22.88	152.40	-534.80	330.46	1,240.64	1,196.92	43.72	28.377	
6,400.00	6,342.06	6,332.12	6,302.48	22.94	22.91	146.45	-535.02	330.62	1,241.45	1,197.70	43.75	28.378	
6,450.00	6,391.66	6,377.23	6,347.54	22.97	23.07	118.99	-536.43	332.06	1,247.06	1,203.15	43.92	28.396	
6,500.00	6,440.77	6,418.62	6,388.72	23.02	23.22	106.90	-537.86	335.80	1,252.54	1,208.46	44.08	28.415	
6,550.00	6,489.07	6,460.18	6,429.74	23.07	23.38	100.58	-539.44	342.24	1,257.88	1,213.63	44.26	28.422	
6,600.00	6,536.26	6,500.00	6,468.57	23.13	23.53	96.76	-541.09	350.92	1,263.08	1,218.64	44.44	28.422	
6,650.00	6,582.05	6,543.98	6,510.72	23.21	23.71	94.24	-543.05	363.29	1,268.08	1,223.42	44.66	28.391	
6,700.00	6,626.13	6,586.30	6,550.37	23.29	23.88	92.45	-545.06	377.93	1,272.89	1,227.99	44.90	28.351	
6,750.00	6,668.24	6,628.96	6,589.26	23.39	24.06	91.14	-547.21	395.31	1,277.46	1,232.31	45.15	28.293	
6,800.00	6,708.12	6,672.00	6,627.22	23.51	24.24	90.17	-549.49	415.46	1,281.80	1,236.36	45.43	28.214	
6,850.00	6,745.50	6,715.46	6,664.07	23.64	24.42	89.45	-551.90	438.35	1,285.86	1,240.12	45.74	28.112	
6,900.00	6,780.15	6,759.39	6,699.63	23.79	24.62	88.92	-554.43	463.99	1,289.65	1,243.57	46.08	27.987	
6,950.00	6,811.86	6,803.82	6,733.71	23.95	24.82	88.55	-557.07	492.37	1,293.15	1,246.69	46.45	27.837	
7,000.00	6,840.42	6,850.00	6,766.93	24.14	25.03	88.33	-559.89	524.31	1,296.33	1,249.46	46.87	27.655	
7,050.00	6,865.66	6,894.42	6,796.61	24.35	25.24	88.20	-562.66	557.22	1,299.19	1,251.88	47.32	27.456	
7,100.00	6,887.42	6,940.68	6,825.00	24.57	25.48	88.18	-565.60	593.62	1,301.73	1,253.91	47.82	27.224	
7,150.00	6,905.55	6,987.65	6,851.02	24.82	25.72	88.26	-568.62	632.59	1,303.92	1,255.57	48.35	26.966	
7,200.00	6,919.95	7,035.37	6,874.44	25.10	25.99	88.43	-571.70	674.05	1,305.77	1,256.83	48.94	26.682	
7,250.00	6,930.52	7,083.91	6,894.99	25.39	26.27	88.68	-574.83	717.89	1,307.26	1,257.69	49.57	26.375	
7,300.00	6,937.20	7,133.30	6,912.40	25.70	26.57	89.01	-578.00	763.99	1,308.38	1,258.15	50.23	26.045	
7,350.00	6,939.94	7,183.60	6,926.40	26.04	26.90	89.42	-581.19	812.19	1,309.14	1,258.20	50.94	25.698	
7,359.60	6,940.02	7,193.37	6,928.67	26.10	26.96	89.50	-581.81	821.67	1,309.25	1,258.16	51.08	25.629	
7,400.00	6,940.03	7,235.10	6,936.73	26.39	27.24	89.86	-584.40	862.53	1,309.65	1,257.96	51.69	25.335	
7,500.00	6,940.04	7,344.22	6,945.00	27.15	28.02	90.22	-590.89	971.01	1,310.40	1,257.07	53.33	24.570	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - Rosa Unit 705H - OH - Plan #4 — **Offset Site Error:** 0.00 usft

Survey Program: 21-Standard Keeper 104, 365-MWD+HRGM+MS, 6235-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
7,600.00	6,940.06	7,511.91	6,945.00	27.99	29.34	90.22	-595.34	1,138.61	1,307.61	1,251.95	55.66	23.491	
7,659.60	6,940.07	7,571.45	6,945.00	28.52	29.84	90.22	-595.55	1,198.15	1,304.71	1,247.95	56.76	22.987	
7,700.00	6,940.08	7,611.81	6,945.00	28.89	30.20	90.22	-595.70	1,238.51	1,303.03	1,245.51	57.52	22.653	
7,796.63	6,940.10	7,708.41	6,945.00	29.83	31.09	90.22	-596.05	1,335.11	1,301.31	1,241.89	59.43	21.898	
7,800.00	6,940.10	7,711.79	6,945.00	29.86	31.12	90.22	-596.06	1,338.49	1,301.31	1,241.81	59.50	21.873	
7,900.00	6,940.12	7,811.79	6,945.00	30.90	32.10	90.21	-596.43	1,438.49	1,301.22	1,239.65	61.57	21.133	
8,000.00	6,940.14	7,911.79	6,945.00	31.98	33.12	90.21	-596.79	1,538.49	1,301.13	1,237.39	63.74	20.412	
8,100.00	6,940.17	8,011.79	6,945.00	33.11	34.19	90.21	-597.16	1,638.49	1,301.04	1,235.04	66.00	19.713	
8,200.00	6,940.19	8,111.79	6,945.00	34.28	35.31	90.21	-597.52	1,738.48	1,300.95	1,232.62	68.33	19.039	
8,300.00	6,940.21	8,211.79	6,945.00	35.48	36.45	90.21	-597.88	1,838.48	1,300.86	1,230.14	70.73	18.393	
8,400.00	6,940.23	8,311.79	6,945.00	36.71	37.64	90.21	-598.25	1,938.48	1,300.78	1,227.59	73.19	17.773	
8,500.00	6,940.25	8,411.79	6,945.00	37.97	38.85	90.21	-598.61	2,038.48	1,300.69	1,224.98	75.70	17.182	
8,600.00	6,940.28	8,511.79	6,945.00	39.26	40.09	90.21	-598.98	2,138.48	1,300.60	1,222.33	78.27	16.617	
8,700.00	6,940.30	8,611.79	6,945.00	40.56	41.35	90.21	-599.34	2,238.48	1,300.51	1,219.63	80.88	16.080	
8,800.00	6,940.32	8,711.79	6,945.00	41.89	42.64	90.21	-599.71	2,338.48	1,300.42	1,216.89	83.53	15.569	
8,900.00	6,940.34	8,811.79	6,945.00	43.24	43.95	90.21	-600.07	2,438.48	1,300.33	1,214.11	86.22	15.082	
9,000.00	6,940.36	8,911.79	6,945.00	44.60	45.27	90.20	-600.43	2,538.48	1,300.24	1,211.30	88.94	14.619	
9,100.00	6,940.39	9,011.79	6,945.00	45.98	46.62	90.20	-600.80	2,638.48	1,300.15	1,208.46	91.69	14.179	
9,200.00	6,940.41	9,111.79	6,945.00	47.38	47.97	90.20	-601.16	2,738.48	1,300.06	1,205.59	94.48	13.761	
9,300.00	6,940.43	9,211.79	6,945.00	48.78	49.35	90.20	-601.53	2,838.48	1,299.98	1,202.69	97.28	13.363	
9,400.00	6,940.45	9,311.79	6,945.00	50.20	50.74	90.20	-601.89	2,938.48	1,299.89	1,199.77	100.11	12.984	
9,500.00	6,940.47	9,411.79	6,945.00	51.63	52.14	90.20	-602.25	3,038.48	1,299.80	1,196.83	102.97	12.624	
9,600.00	6,940.50	9,511.79	6,945.00	53.07	53.55	90.20	-602.62	3,138.47	1,299.71	1,193.87	105.84	12.280	
9,700.00	6,940.52	9,611.79	6,945.00	54.52	54.97	90.20	-602.98	3,238.47	1,299.62	1,190.89	108.73	11.953	
9,800.00	6,940.54	9,711.79	6,945.00	55.97	56.40	90.20	-603.35	3,338.47	1,299.53	1,187.89	111.64	11.641	
9,900.00	6,940.56	9,811.79	6,945.00	57.44	57.84	90.20	-603.71	3,438.47	1,299.44	1,184.88	114.56	11.343	
10,000.00	6,940.59	9,911.79	6,945.00	58.91	59.29	90.19	-604.08	3,538.47	1,299.35	1,181.86	117.50	11.058	
10,100.00	6,940.61	10,011.79	6,945.00	60.38	60.74	90.19	-604.44	3,638.47	1,299.26	1,178.82	120.45	10.787	
10,200.00	6,940.63	10,111.79	6,945.00	61.87	62.21	90.19	-604.80	3,738.47	1,299.18	1,175.76	123.41	10.527	
10,300.00	6,940.65	10,211.79	6,945.00	63.36	63.68	90.19	-605.17	3,838.47	1,299.09	1,172.70	126.39	10.278	
10,400.00	6,940.67	10,311.79	6,945.00	64.85	65.15	90.19	-605.53	3,938.47	1,299.00	1,169.62	129.38	10.041	
10,500.00	6,940.70	10,411.78	6,945.00	66.35	66.63	90.19	-605.90	4,038.47	1,298.91	1,166.54	132.37	9.813	
10,600.00	6,940.72	10,511.78	6,945.00	67.86	68.12	90.19	-606.26	4,138.47	1,298.82	1,163.44	135.38	9.594	
10,700.00	6,940.74	10,611.78	6,945.00	69.36	69.61	90.19	-606.63	4,238.47	1,298.73	1,160.34	138.39	9.385	
10,800.00	6,940.76	10,711.78	6,945.00	70.88	71.11	90.19	-606.99	4,338.47	1,298.64	1,157.23	141.41	9.183	
10,900.00	6,940.78	10,811.78	6,945.00	72.39	72.61	90.19	-607.35	4,438.47	1,298.55	1,154.11	144.44	8.990	
11,000.00	6,940.81	10,911.78	6,945.00	73.91	74.11	90.19	-607.72	4,538.47	1,298.47	1,150.98	147.48	8.804	
11,100.00	6,940.83	11,011.78	6,945.00	75.44	75.62	90.18	-608.08	4,638.46	1,298.38	1,147.85	150.52	8.626	
11,200.00	6,940.85	11,111.78	6,945.00	76.96	77.14	90.18	-608.45	4,738.46	1,298.29	1,144.71	153.58	8.454	
11,300.00	6,940.87	11,211.78	6,945.00	78.49	78.65	90.18	-608.81	4,838.46	1,298.20	1,141.57	156.63	8.288	
11,400.00	6,940.89	11,311.78	6,945.00	80.03	80.17	90.18	-609.17	4,938.46	1,298.11	1,138.42	159.69	8.129	
11,500.00	6,940.92	11,411.78	6,945.00	81.56	81.69	90.18	-609.54	5,038.46	1,298.02	1,135.26	162.76	7.975	
11,600.00	6,940.94	11,511.78	6,945.00	83.10	83.22	90.18	-609.90	5,138.46	1,297.93	1,132.10	165.83	7.827	
11,700.00	6,940.96	11,611.78	6,945.00	84.64	84.75	90.18	-610.27	5,238.46	1,297.84	1,128.93	168.91	7.684	
11,800.00	6,940.98	11,711.78	6,945.00	86.18	86.28	90.18	-610.63	5,338.46	1,297.75	1,125.76	171.99	7.545	
11,900.00	6,941.00	11,811.78	6,945.00	87.72	87.81	90.18	-611.00	5,438.46	1,297.67	1,122.59	175.08	7.412	
12,000.00	6,941.03	11,911.78	6,945.00	89.27	89.35	90.18	-611.36	5,538.46	1,297.58	1,119.41	178.17	7.283	
12,100.00	6,941.05	12,011.78	6,945.00	90.82	90.89	90.17	-611.72	5,638.46	1,297.49	1,116.22	181.26	7.158	
12,200.00	6,941.07	12,111.78	6,945.00	92.37	92.43	90.17	-612.09	5,738.46	1,297.40	1,113.04	184.36	7.037	
12,300.00	6,941.09	12,211.78	6,945.00	93.92	93.97	90.17	-612.45	5,838.46	1,297.31	1,109.85	187.46	6.920	
12,400.00	6,941.11	12,311.78	6,945.00	95.47	95.51	90.17	-612.82	5,938.46	1,297.22	1,106.65	190.57	6.807	
12,500.00	6,941.14	12,411.78	6,945.00	97.03	97.06	90.17	-613.18	6,038.45	1,297.13	1,103.46	193.67	6.697	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - Rosa Unit 705H - OH - Plan #4

Offset Site Error: 0.00 usft

Survey Program: 21-Standard Keeper 104, 365-MWD+HRGM+MS, 6235-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
12,600.00	6,941.16	12,511.78	6,945.00	98.58	98.61	90.17	-613.55	6,138.45	1,297.04	1,100.26	196.78	6.591	
12,700.00	6,941.18	12,611.78	6,945.00	100.14	100.16	90.17	-613.91	6,238.45	1,296.95	1,097.06	199.90	6.488	
12,800.00	6,941.20	12,711.78	6,945.00	101.70	101.71	90.17	-614.27	6,338.45	1,296.87	1,093.85	203.01	6.388	
12,900.00	6,941.23	12,811.78	6,945.00	103.26	103.26	90.17	-614.64	6,438.45	1,296.78	1,090.64	206.13	6.291	
13,000.00	6,941.25	12,911.78	6,945.00	104.82	104.81	90.17	-615.00	6,538.45	1,296.69	1,087.43	209.25	6.197	
13,100.00	6,941.27	13,011.78	6,945.00	106.38	106.37	90.16	-615.37	6,638.45	1,296.60	1,084.22	212.38	6.105	
13,200.00	6,941.29	13,111.78	6,945.00	107.95	107.93	90.16	-615.73	6,738.45	1,296.51	1,081.01	215.50	6.016	
13,300.00	6,941.31	13,211.78	6,945.00	109.51	109.48	90.16	-616.09	6,838.45	1,296.42	1,077.79	218.63	5.930	
13,400.00	6,941.34	13,311.78	6,945.00	111.08	111.04	90.16	-616.46	6,938.45	1,296.33	1,074.57	221.76	5.846	
13,500.00	6,941.36	13,411.78	6,945.00	112.64	112.60	90.16	-616.82	7,038.45	1,296.24	1,071.35	224.89	5.764	
13,600.00	6,941.38	13,511.78	6,945.00	114.21	114.16	90.16	-617.19	7,138.45	1,296.15	1,068.13	228.03	5.684	
13,700.00	6,941.40	13,611.78	6,945.00	115.78	115.73	90.16	-617.55	7,238.45	1,296.07	1,064.90	231.16	5.607	
13,800.00	6,941.42	13,711.78	6,945.00	117.35	117.29	90.16	-617.92	7,338.45	1,295.98	1,061.68	234.30	5.531	
13,900.00	6,941.45	13,811.78	6,945.00	118.92	118.85	90.16	-618.28	7,438.44	1,295.89	1,058.45	237.44	5.458	
14,000.00	6,941.47	13,911.78	6,945.00	120.49	120.42	90.16	-618.64	7,538.44	1,295.80	1,055.22	240.58	5.386	
14,100.00	6,941.49	14,011.78	6,945.00	122.06	121.99	90.16	-619.01	7,638.44	1,295.71	1,051.99	243.72	5.316	
14,200.00	6,941.51	14,111.78	6,945.00	123.64	123.55	90.15	-619.37	7,738.44	1,295.62	1,048.75	246.87	5.248	
14,300.00	6,941.53	14,211.78	6,945.00	125.21	125.12	90.15	-619.74	7,838.44	1,295.53	1,045.52	250.01	5.182	
14,400.00	6,941.56	14,311.78	6,945.00	126.78	126.69	90.15	-620.10	7,938.44	1,295.44	1,042.28	253.16	5.117	
14,500.00	6,941.58	14,411.78	6,945.00	128.36	128.26	90.15	-620.47	8,038.44	1,295.35	1,039.05	256.31	5.054	
14,600.00	6,941.60	14,511.78	6,945.00	129.93	129.83	90.15	-620.83	8,138.44	1,295.27	1,035.81	259.46	4.992	
14,700.00	6,941.62	14,611.78	6,945.00	131.51	131.40	90.15	-621.19	8,238.44	1,295.18	1,032.57	262.61	4.932	
14,800.00	6,941.64	14,711.78	6,945.00	133.08	132.97	90.15	-621.56	8,338.44	1,295.09	1,029.33	265.76	4.873	
14,900.00	6,941.67	14,811.78	6,945.00	134.66	134.55	90.15	-621.92	8,438.44	1,295.00	1,026.09	268.91	4.816	
15,000.00	6,941.69	14,911.78	6,945.00	136.24	136.12	90.15	-622.29	8,538.44	1,294.91	1,022.84	272.07	4.760	
15,100.00	6,941.71	15,011.78	6,945.00	137.82	137.69	90.15	-622.65	8,638.44	1,294.82	1,019.60	275.22	4.705	
15,200.00	6,941.73	15,111.78	6,945.00	139.40	139.27	90.14	-623.01	8,738.44	1,294.73	1,016.35	278.38	4.651	
15,300.00	6,941.75	15,211.78	6,945.00	140.97	140.84	90.14	-623.38	8,838.43	1,294.64	1,013.11	281.54	4.598	
15,400.00	6,941.78	15,311.78	6,945.00	142.55	142.42	90.14	-623.74	8,938.43	1,294.56	1,009.86	284.70	4.547	
15,500.00	6,941.80	15,411.78	6,945.00	144.13	143.99	90.14	-624.11	9,038.43	1,294.47	1,006.61	287.85	4.497	
15,600.00	6,941.82	15,511.78	6,945.00	145.72	145.57	90.14	-624.47	9,138.43	1,294.38	1,003.36	291.01	4.448	
15,700.00	6,941.84	15,611.78	6,945.00	147.30	147.15	90.14	-624.84	9,238.43	1,294.29	1,000.11	294.18	4.400	
15,800.00	6,941.87	15,711.78	6,945.00	148.88	148.72	90.14	-625.20	9,338.43	1,294.20	996.86	297.34	4.353	
15,900.00	6,941.89	15,811.78	6,945.00	150.46	150.30	90.14	-625.56	9,438.43	1,294.11	993.61	300.50	4.307	
16,000.00	6,941.91	15,911.78	6,945.00	152.04	151.88	90.14	-625.93	9,538.43	1,294.02	990.36	303.66	4.261	
16,100.00	6,941.93	16,011.78	6,945.00	153.62	153.46	90.14	-626.29	9,638.43	1,293.93	987.10	306.83	4.217	
16,200.00	6,941.95	16,111.78	6,945.00	155.21	155.04	90.13	-626.66	9,738.43	1,293.84	983.85	309.99	4.174	
16,300.00	6,941.98	16,211.78	6,945.00	156.79	156.62	90.13	-627.02	9,838.43	1,293.76	980.60	313.16	4.131	
16,400.00	6,942.00	16,311.78	6,945.00	158.37	158.20	90.13	-627.39	9,938.43	1,293.67	977.34	316.33	4.090	
16,500.00	6,942.02	16,411.78	6,945.00	159.96	159.78	90.13	-627.75	10,038.43	1,293.58	974.08	319.49	4.049	
16,600.00	6,942.04	16,511.78	6,945.00	161.54	161.36	90.13	-628.11	10,138.43	1,293.49	970.83	322.66	4.009	
16,700.00	6,942.06	16,611.78	6,945.00	163.13	162.94	90.13	-628.48	10,238.42	1,293.40	967.57	325.83	3.970	
16,800.00	6,942.09	16,711.78	6,945.00	164.71	164.52	90.13	-628.84	10,338.42	1,293.31	964.31	329.00	3.931	
16,900.00	6,942.11	16,811.78	6,945.00	166.30	166.11	90.13	-629.21	10,438.42	1,293.22	961.05	332.17	3.893	
17,000.00	6,942.13	16,911.78	6,945.00	167.88	167.69	90.13	-629.57	10,538.42	1,293.13	957.80	335.34	3.856	
17,100.00	6,942.15	17,011.78	6,945.00	169.47	169.27	90.13	-629.93	10,638.42	1,293.04	954.54	338.51	3.820	
17,200.00	6,942.17	17,111.78	6,945.00	171.05	170.86	90.13	-630.30	10,738.42	1,292.96	951.28	341.68	3.784	
17,300.00	6,942.20	17,211.78	6,945.00	172.64	172.44	90.12	-630.66	10,838.42	1,292.87	948.01	344.85	3.749	
17,400.00	6,942.22	17,311.78	6,945.00	174.23	174.02	90.12	-631.03	10,938.42	1,292.78	944.75	348.03	3.715	
17,500.00	6,942.24	17,411.78	6,945.00	175.81	175.61	90.12	-631.39	11,038.42	1,292.69	941.49	351.20	3.681	
17,600.00	6,942.26	17,511.78	6,945.00	177.40	177.19	90.12	-631.76	11,138.42	1,292.60	938.23	354.37	3.648	
17,700.00	6,942.28	17,611.78	6,945.00	178.99	178.78	90.12	-632.12	11,238.42	1,292.51	934.97	357.55	3.615	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - Rosa Unit 705H - OH - Plan #4

Offset Site Error: 0.00 usft

Survey Program: 21-Standard Keeper 104, 365-MWD+HRGM+MS, 6235-MWD+HRGM+MS

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	6,942.31	17,711.78	6,945.00	180.57	180.36	90.12	-632.48	11,338.42	1,292.42	931.70	360.72	3.583	
17,900.00	6,942.33	17,811.78	6,945.00	182.16	181.95	90.12	-632.85	11,438.42	1,292.33	928.44	363.90	3.551	
18,000.00	6,942.35	17,911.78	6,945.00	183.75	183.53	90.12	-633.21	11,538.42	1,292.24	925.17	367.07	3.520	
18,100.00	6,942.37	18,011.78	6,945.00	185.34	185.12	90.12	-633.58	11,638.42	1,292.16	921.91	370.25	3.490	
18,200.00	6,942.39	18,111.78	6,945.00	186.93	186.70	90.12	-633.94	11,738.41	1,292.07	918.64	373.42	3.460	
18,300.00	6,942.42	18,211.78	6,945.00	188.52	188.29	90.11	-634.31	11,838.41	1,291.98	915.38	376.60	3.431	
18,400.00	6,942.44	18,311.78	6,945.00	190.10	189.88	90.11	-634.67	11,938.41	1,291.89	912.11	379.78	3.402	
18,500.00	6,942.46	18,411.78	6,945.00	191.69	191.46	90.11	-635.03	12,038.41	1,291.80	908.85	382.95	3.373	
18,600.00	6,942.48	18,511.78	6,945.00	193.28	193.05	90.11	-635.40	12,138.41	1,291.71	905.58	386.13	3.345	
18,700.00	6,942.51	18,611.78	6,945.00	194.87	194.64	90.11	-635.76	12,238.41	1,291.62	902.31	389.31	3.318	
18,800.00	6,942.53	18,711.78	6,945.00	196.46	196.22	90.11	-636.13	12,338.41	1,291.53	899.05	392.49	3.291	
18,900.00	6,942.55	18,811.78	6,945.00	198.05	197.81	90.11	-636.49	12,438.41	1,291.45	895.78	395.67	3.264	
19,000.00	6,942.57	18,911.78	6,945.00	199.64	199.40	90.11	-636.85	12,538.41	1,291.36	892.51	398.85	3.238	
19,100.00	6,942.59	19,011.78	6,945.00	201.23	200.99	90.11	-637.22	12,638.41	1,291.27	889.24	402.03	3.212	
19,200.00	6,942.62	19,111.78	6,945.00	202.82	202.58	90.11	-637.58	12,738.41	1,291.18	885.97	405.21	3.186	
19,300.00	6,942.64	19,211.78	6,945.00	204.41	204.16	90.10	-637.95	12,838.41	1,291.09	882.70	408.39	3.161	
19,400.00	6,942.66	19,311.78	6,945.00	206.00	205.75	90.10	-638.31	12,938.41	1,291.00	879.43	411.57	3.137	
19,500.00	6,942.68	19,411.78	6,945.00	207.59	207.34	90.10	-638.68	13,038.41	1,290.91	876.16	414.75	3.113	
19,600.00	6,942.70	19,511.78	6,945.00	209.18	208.93	90.10	-639.04	13,138.40	1,290.82	872.89	417.93	3.089	
19,700.00	6,942.73	19,611.78	6,945.00	210.78	210.52	90.10	-639.40	13,238.40	1,290.73	869.62	421.11	3.065	
19,800.00	6,942.75	19,711.78	6,945.00	212.37	212.11	90.10	-639.77	13,338.40	1,290.65	866.35	424.29	3.042	
19,900.00	6,942.77	19,811.78	6,945.00	213.96	213.70	90.10	-640.13	13,438.40	1,290.56	863.08	427.48	3.019	
20,000.00	6,942.79	19,911.78	6,945.00	215.55	215.29	90.10	-640.50	13,538.40	1,290.47	859.81	430.66	2.996	
20,100.00	6,942.81	20,011.78	6,945.00	217.14	216.88	90.10	-640.86	13,638.40	1,290.38	856.54	433.84	2.974	
20,200.00	6,942.84	20,111.78	6,945.00	218.73	218.47	90.10	-641.23	13,738.40	1,290.29	853.27	437.02	2.952	
20,300.00	6,942.86	20,211.78	6,945.00	220.32	220.06	90.10	-641.59	13,838.40	1,290.20	849.99	440.21	2.931	
20,400.00	6,942.88	20,311.78	6,945.00	221.92	221.65	90.09	-641.95	13,938.40	1,290.11	846.72	443.39	2.910	
20,500.00	6,942.90	20,411.78	6,945.00	223.51	223.24	90.09	-642.32	14,038.40	1,290.02	843.45	446.57	2.889	
20,600.00	6,942.92	20,511.78	6,945.00	225.10	224.83	90.09	-642.68	14,138.40	1,289.93	840.18	449.76	2.868	
20,700.00	6,942.95	20,611.78	6,945.00	226.69	226.42	90.09	-643.05	14,238.40	1,289.85	836.90	452.94	2.848	
20,800.00	6,942.97	20,711.78	6,945.00	228.28	228.01	90.09	-643.41	14,338.40	1,289.76	833.63	456.13	2.828	
20,900.00	6,942.99	20,811.78	6,945.00	229.88	229.56	90.09	-643.77	14,438.40	1,289.67	830.39	459.27	2.808	
20,942.30	6,943.00	20,852.96	6,945.00	230.42	230.09	90.09	-643.92	14,479.57	1,289.63	829.29	460.34	2.801	
20,942.50	6,943.00	20,852.96	6,945.00	230.42	230.09	90.09	-643.92	14,479.57	1,289.63	829.29	460.34	2.801 SF	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	144.36	-20.39	14.62	25.09				
58.45	58.45	58.53	58.53	0.02	0.02	-93.97	-20.45	14.24	24.94	24.92	0.02	1,154.969	
91.87	91.86	91.92	91.92	0.06	0.04	-100.66	-20.52	13.99	24.91	24.85	0.06	427.591 CC	
150.25	150.24	150.30	150.29	0.14	0.10	-113.18	-20.68	13.59	24.99	24.86	0.14	180.799	
239.43	239.42	239.50	239.49	0.25	0.21	-119.82	-20.74	13.10	25.21	24.92	0.29	85.958	
299.93	299.91	300.00	299.99	0.33	0.29	-115.85	-20.75	12.79	25.39	24.98	0.41	62.402	
446.00	445.96	445.96	445.95	0.50	0.48	-94.66	-21.05	11.87	25.55	24.77	0.78	32.758	
537.00	536.95	536.51	536.47	0.73	0.71	-31.43	-22.89	10.75	25.85	24.55	1.30	19.860 ES	
624.00	623.95	622.54	622.38	0.99	0.98	58.80	-27.23	10.15	28.20	26.34	1.86	15.136	
718.00	717.90	715.19	714.71	1.29	1.30	86.99	-34.88	10.58	34.70	32.20	2.50	13.876	
811.00	810.73	806.12	805.09	1.60	1.63	116.89	-44.86	11.22	46.17	43.02	3.15	14.640	
903.00	902.19	893.81	891.93	1.92	1.97	136.60	-56.97	12.30	65.05	61.23	3.82	17.024	
994.00	992.38	979.20	975.97	2.24	2.31	142.67	-71.77	15.26	89.99	85.52	4.46	20.156	
1,084.00	1,081.50	1,064.81	1,059.98	2.56	2.67	148.49	-87.75	19.10	116.88	111.79	5.09	22.951	
1,175.00	1,171.48	1,150.70	1,144.28	2.91	3.03	152.93	-103.55	23.81	144.95	139.22	5.73	25.292	
1,268.00	1,263.52	1,235.46	1,227.15	3.26	3.39	154.64	-120.71	28.49	175.17	168.81	6.36	27.531	
1,363.00	1,357.62	1,325.05	1,314.54	3.63	3.79	157.41	-139.70	33.80	206.61	199.58	7.03	29.400	
1,457.00	1,450.74	1,416.53	1,403.92	3.99	4.19	159.82	-158.40	39.18	237.21	229.50	7.71	30.765	
1,552.00	1,544.82	1,507.93	1,493.36	4.36	4.60	160.16	-176.38	44.95	267.80	259.40	8.40	31.893	
1,646.00	1,637.88	1,598.71	1,582.28	4.72	5.00	160.19	-193.55	51.22	297.63	288.55	9.08	32.780	
1,741.00	1,731.94	1,684.00	1,665.69	5.09	5.37	160.33	-210.42	56.91	328.51	318.78	9.73	33.771	
1,835.00	1,825.07	1,765.20	1,744.81	5.46	5.75	160.21	-227.91	62.01	360.24	349.90	10.35	34.823	
1,929.00	1,918.39	1,854.22	1,831.39	5.82	6.16	158.86	-247.84	67.63	391.53	380.51	11.02	35.538	
2,024.00	2,012.84	1,946.03	1,920.75	6.18	6.58	159.96	-268.04	73.70	421.70	409.99	11.71	36.010	
2,118.00	2,106.19	2,035.53	2,007.90	6.53	7.00	159.64	-287.44	79.95	452.10	439.70	12.39	36.475	
2,213.00	2,200.37	2,125.23	2,095.21	6.90	7.42	157.95	-306.82	86.71	483.96	470.88	13.09	36.986	
2,307.00	2,293.61	2,213.07	2,180.69	7.27	7.82	159.81	-325.80	93.78	515.19	501.43	13.76	37.449	
2,402.00	2,387.91	2,305.26	2,270.39	7.63	8.25	163.41	-345.75	101.18	546.48	532.02	14.46	37.792	
2,496.00	2,481.29	2,399.27	2,362.14	7.99	8.68	164.52	-365.37	106.87	576.31	561.14	15.17	37.986	
2,591.00	2,575.67	2,490.49	2,451.37	8.35	9.09	162.87	-383.92	110.94	605.83	589.97	15.86	38.195	
2,686.00	2,670.05	2,577.93	2,536.86	8.71	9.49	163.37	-401.91	114.66	635.50	618.98	16.52	38.459	
2,780.00	2,763.49	2,666.39	2,623.25	9.07	9.89	161.21	-420.51	118.66	664.91	647.72	17.19	38.671	
2,875.00	2,857.94	2,758.23	2,713.01	9.43	10.31	159.83	-439.55	122.74	694.05	676.16	17.89	38.798	
2,970.00	2,952.51	2,847.81	2,800.52	9.79	10.72	163.56	-458.27	126.46	722.29	703.73	18.56	38.908	
3,064.00	3,046.19	2,940.72	2,891.31	10.13	11.14	170.80	-477.56	130.73	749.22	729.96	19.26	38.900	
3,159.00	3,140.98	3,041.99	2,990.39	10.47	11.60	172.62	-497.81	136.04	774.60	754.58	20.01	38.708	
3,253.00	3,234.84	3,142.00	3,088.56	10.81	12.04	164.58	-516.22	141.09	796.86	776.11	20.75	38.410	
3,348.00	3,329.74	3,223.76	3,168.83	11.14	12.40	156.76	-531.33	144.73	818.63	797.28	21.36	38.331	
3,397.00	3,378.70	3,259.15	3,203.46	11.32	12.56	155.84	-538.47	146.30	830.47	808.84	21.62	38.406	
3,488.00	3,469.63	3,332.84	3,275.25	11.64	12.90	153.20	-554.69	149.83	853.71	831.54	22.17	38.503	
3,583.00	3,564.49	3,420.07	3,360.01	11.98	13.31	161.24	-574.58	155.12	880.27	857.44	22.83	38.554	
3,677.00	3,658.13	3,513.12	3,450.42	12.33	13.75	162.73	-595.82	160.96	909.53	885.98	23.55	38.627	
3,772.00	3,752.42	3,612.64	3,547.28	12.69	14.22	166.98	-617.64	167.80	941.44	917.12	24.31	38.721	
3,867.00	3,846.42	3,711.86	3,644.06	13.06	14.67	168.42	-638.35	174.87	974.61	949.54	25.07	38.869	
3,961.00	3,939.30	3,823.98	3,753.77	13.44	15.18	167.94	-660.16	182.40	1,007.03	981.12	25.91	38.860	
4,056.00	4,032.83	3,921.29	3,849.46	13.82	15.60	164.20	-677.02	187.80	1,039.44	1,012.79	26.65	39.002	
4,151.00	4,126.01	4,022.96	3,949.50	14.21	16.03	165.11	-694.28	193.34	1,073.23	1,045.82	27.41	39.149	
4,246.00	4,219.10	4,104.16	4,029.52	14.61	16.38	157.38	-707.36	197.74	1,106.33	1,078.28	28.05	39.444	
4,340.00	4,310.92	4,169.46	4,093.72	15.01	16.66	147.68	-718.93	200.53	1,140.60	1,112.01	28.58	39.904	
4,435.00	4,403.54	4,238.00	4,160.79	15.41	16.97	147.63	-732.81	203.10	1,177.24	1,148.10	29.14	40.400	
4,498.00	4,465.21	4,267.18	4,189.22	15.68	17.11	150.26	-739.30	204.21	1,201.83	1,172.45	29.38	40.905	
4,561.00	4,526.82	4,305.36	4,226.28	15.95	17.29	155.44	-748.29	205.85	1,227.99	1,198.31	29.69	41.366	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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 — **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
4,624.00	4,588.23	4,354.09	4,273.41	16.22	17.52	157.57	-760.46	208.21	1,256.08	1,226.00	30.08	41.764	
4,687.00	4,649.71	4,436.25	4,353.10	16.49	17.92	158.45	-780.12	211.95	1,283.40	1,252.67	30.73	41.764	
4,749.00	4,710.40	4,474.60	4,390.29	16.75	18.10	160.09	-789.27	213.86	1,309.54	1,278.50	31.03	42.199	
4,812.00	4,772.28	4,522.00	4,436.12	17.01	18.33	161.12	-801.02	216.64	1,335.86	1,304.45	31.40	42.539	
4,875.00	4,834.34	4,554.62	4,467.55	17.27	18.50	160.78	-809.51	218.77	1,362.09	1,330.44	31.65	43.036	
4,938.00	4,896.43	4,590.18	4,501.65	17.53	18.68	160.52	-819.26	221.19	1,388.97	1,357.06	31.92	43.520	
5,001.00	4,958.46	4,631.37	4,540.98	17.79	18.89	157.00	-831.17	224.12	1,416.96	1,384.72	32.23	43.961	
5,064.00	5,020.29	4,689.62	4,596.54	18.05	19.19	152.11	-848.14	228.35	1,445.70	1,412.99	32.71	44.200	
5,126.00	5,080.98	4,763.39	4,667.13	18.32	19.58	147.79	-868.93	233.60	1,473.63	1,440.31	33.32	44.224	
5,189.00	5,142.74	4,842.18	4,742.85	18.58	19.97	149.87	-889.97	239.29	1,500.65	1,466.68	33.97	44.177	
5,252.00	5,204.62	4,889.44	4,788.25	18.85	20.21	150.03	-902.48	243.14	1,527.28	1,492.93	34.35	44.466	
5,315.00	5,266.61	4,930.00	4,827.05	19.11	20.42	150.08	-913.66	246.95	1,554.04	1,519.38	34.67	44.830	
5,378.00	5,328.73	4,983.68	4,878.28	19.37	20.70	150.66	-928.79	252.27	1,580.67	1,545.57	35.10	45.038	
5,441.00	5,390.87	5,036.30	4,928.52	19.62	20.98	150.11	-943.68	257.13	1,607.23	1,571.71	35.52	45.250	
5,503.00	5,452.07	5,131.67	5,019.84	19.87	21.47	150.67	-970.08	264.71	1,632.86	1,596.55	36.30	44.979	
5,566.00	5,514.32	5,222.93	5,108.00	20.13	21.92	150.34	-992.82	270.92	1,656.69	1,619.66	37.03	44.739	
5,629.00	5,576.59	5,268.47	5,152.04	20.38	22.14	153.01	-1,003.96	274.16	1,680.31	1,642.92	37.39	44.938	
5,692.00	5,638.95	5,307.00	5,189.16	20.63	22.33	150.74	-1,013.86	277.04	1,704.19	1,666.50	37.69	45.212	
5,747.00	5,693.45	5,349.21	5,229.74	20.85	22.55	153.12	-1,025.03	280.35	1,725.14	1,687.11	38.03	45.368	
5,810.00	5,755.90	5,411.29	5,289.36	21.09	22.86	152.36	-1,041.57	285.32	1,749.11	1,710.59	38.52	45.409	
5,874.00	5,819.40	5,473.44	5,349.14	21.34	23.17	153.80	-1,057.90	290.07	1,772.85	1,733.84	39.01	45.445	
5,936.00	5,880.95	5,531.20	5,404.68	21.58	23.47	153.26	-1,073.09	294.67	1,795.72	1,756.25	39.47	45.499	
5,999.00	5,943.45	5,597.60	5,468.59	21.82	23.80	151.70	-1,090.38	299.64	1,818.94	1,778.94	39.99	45.480	
6,062.00	6,005.96	5,654.32	5,523.22	22.07	24.08	154.29	-1,105.08	303.71	1,842.13	1,801.69	40.44	45.550	
6,125.00	6,068.49	5,714.25	5,580.93	22.31	24.38	151.95	-1,120.62	308.20	1,865.18	1,824.26	40.92	45.586	
6,188.00	6,131.08	5,775.05	5,639.50	22.55	24.69	153.93	-1,136.34	312.58	1,887.72	1,846.33	41.39	45.605	
6,255.00	6,197.73	5,829.03	5,691.49	22.81	24.96	152.95	-1,150.39	316.25	1,911.16	1,869.35	41.81	45.707	
6,293.00	6,235.55	5,864.02	5,725.15	22.89	25.14	152.93	-1,159.60	318.72	1,924.35	1,882.34	42.01	45.811	
6,300.00	6,242.52	5,871.02	5,731.89	22.89	25.17	152.92	-1,161.44	319.22	1,926.78	1,884.74	42.04	45.834	
6,393.00	6,335.09	5,981.40	5,838.18	22.94	25.73	152.84	-1,190.01	327.51	1,958.73	1,916.13	42.60	45.981	
6,400.00	6,342.06	6,000.48	5,856.61	22.94	25.82	146.72	-1,194.74	329.01	1,961.05	1,918.33	42.72	45.901	
6,450.00	6,391.66	6,081.39	5,935.03	22.97	26.21	118.22	-1,213.74	334.95	1,976.72	1,933.54	43.18	45.777	
6,500.00	6,440.77	6,158.76	6,010.28	23.02	26.58	105.36	-1,230.90	340.23	1,991.34	1,947.73	43.61	45.661	
6,550.00	6,489.07	6,292.25	6,140.97	23.07	27.18	98.95	-1,256.69	348.78	2,004.07	1,959.68	44.39	45.146	
6,600.00	6,536.26	6,383.34	6,230.74	23.13	27.56	95.17	-1,271.34	353.59	2,014.67	1,969.79	44.87	44.897	
6,650.00	6,582.05	6,460.58	6,307.10	23.21	27.87	92.81	-1,282.38	357.13	2,023.96	1,978.68	45.28	44.701	
6,700.00	6,626.13	6,504.00	6,350.09	23.29	28.05	90.96	-1,288.23	359.02	2,032.47	1,986.95	45.52	44.652	
6,750.00	6,668.24	6,504.00	6,350.09	23.39	28.05	88.99	-1,288.23	359.02	2,041.09	1,995.55	45.55	44.814	
6,800.00	6,708.12	6,544.65	6,390.18	23.51	28.22	87.94	-1,294.15	362.12	2,049.38	2,003.56	45.82	44.729	
6,850.00	6,745.50	6,563.96	6,409.08	23.64	28.30	86.78	-1,297.28	364.53	2,058.01	2,012.02	45.99	44.750	
6,900.00	6,780.15	6,599.00	6,443.05	23.79	28.45	86.05	-1,303.48	370.42	2,066.85	2,020.58	46.27	44.666	
6,950.00	6,811.86	6,599.00	6,443.05	23.95	28.45	84.83	-1,303.48	370.42	2,075.52	2,029.14	46.38	44.754	
7,000.00	6,840.42	6,599.00	6,443.05	24.14	28.45	83.67	-1,303.48	370.42	2,084.57	2,038.07	46.50	44.832	
7,050.00	6,865.66	6,629.02	6,471.74	24.35	28.60	83.18	-1,309.43	376.95	2,093.41	2,046.56	46.85	44.682	
7,100.00	6,887.42	6,642.11	6,484.11	24.57	28.67	82.42	-1,312.24	380.21	2,102.50	2,055.38	47.12	44.621	
7,150.00	6,905.55	6,654.57	6,495.78	24.82	28.73	81.70	-1,315.03	383.52	2,111.67	2,064.26	47.41	44.539	
7,200.00	6,919.95	6,666.31	6,506.71	25.10	28.79	81.01	-1,317.77	386.85	2,120.90	2,073.17	47.73	44.437	
7,250.00	6,930.52	6,693.00	6,531.20	25.39	28.92	80.73	-1,324.39	395.13	2,130.29	2,082.11	48.18	44.216	
7,300.00	6,937.20	6,693.00	6,531.20	25.70	28.92	79.85	-1,324.39	395.13	2,139.46	2,090.99	48.47	44.143	
7,350.00	6,939.94	6,693.00	6,531.20	26.04	28.92	79.01	-1,324.39	395.13	2,148.73	2,099.95	48.77	44.054	
7,359.60	6,940.02	6,693.00	6,531.20	26.10	28.92	78.85	-1,324.39	395.13	2,150.52	2,101.68	48.84	44.036	
7,400.00	6,940.03	6,709.68	6,546.26	26.39	29.02	79.27	-1,328.75	400.81	2,158.31	2,109.08	49.23	43.841	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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 — **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
7,500.00	6,940.04	6,737.51	6,570.94	27.15	29.17	79.96	-1,336.33	411.21	2,180.42	2,130.29	50.13	43.494	
7,600.00	6,940.06	6,772.32	6,600.92	27.99	29.37	80.80	-1,346.30	425.79	2,206.26	2,155.15	51.12	43.162	
7,659.60	6,940.07	6,801.77	6,625.48	28.52	29.54	81.49	-1,355.12	439.45	2,223.29	2,171.50	51.79	42.933	
7,700.00	6,940.08	6,829.86	6,648.19	28.89	29.70	82.09	-1,363.75	453.54	2,235.65	2,183.34	52.31	42.735	
7,796.63	6,940.10	6,882.00	6,688.40	29.83	30.02	83.14	-1,380.21	482.34	2,268.88	2,215.42	53.46	42.439	
7,800.00	6,940.10	6,882.00	6,688.40	29.86	30.02	83.14	-1,380.21	482.34	2,270.14	2,216.65	53.49	42.442	
7,900.00	6,940.12	6,929.22	6,722.26	30.90	30.32	84.10	-1,396.12	511.13	2,308.69	2,254.04	54.65	42.244	
8,000.00	6,940.14	6,976.00	6,753.01	31.98	30.63	84.97	-1,413.32	541.88	2,349.92	2,294.10	55.82	42.099	
8,100.00	6,940.17	7,025.47	6,782.60	33.11	30.97	85.80	-1,432.68	576.46	2,393.26	2,336.21	57.05	41.952	
8,200.00	6,940.19	7,100.63	6,822.18	34.28	31.52	86.90	-1,463.62	632.32	2,438.05	2,379.49	58.56	41.632	
8,300.00	6,940.21	7,231.50	6,877.99	35.48	32.53	88.41	-1,519.06	736.77	2,483.04	2,422.29	60.75	40.876	
8,400.00	6,940.23	7,463.57	6,933.54	36.71	34.47	89.84	-1,613.01	940.81	2,523.19	2,458.97	64.23	39.285	
8,500.00	6,940.25	7,591.80	6,940.48	37.97	35.62	90.01	-1,662.82	1,058.70	2,561.63	2,494.96	66.66	38.426	
8,600.00	6,940.28	7,990.60	6,942.10	39.26	39.49	90.05	-1,793.60	1,435.05	2,593.75	2,521.29	72.47	35.793	
8,700.00	6,940.30	8,756.71	6,928.89	40.56	47.58	89.75	-1,901.54	2,191.07	2,603.24	2,521.56	81.68	31.872	
8,800.00	6,940.32	8,825.64	6,926.08	41.89	48.34	89.69	-1,903.20	2,259.91	2,605.27	2,521.23	84.04	31.001	
8,900.00	6,940.34	9,051.15	6,921.74	43.24	50.88	89.59	-1,904.44	2,485.31	2,605.09	2,517.38	87.71	29.701	
9,000.00	6,940.36	9,214.36	6,920.92	44.60	52.74	89.57	-1,899.85	2,648.44	2,601.84	2,510.97	90.87	28.632	
9,100.00	6,940.39	9,285.83	6,920.60	45.98	53.58	89.56	-1,896.85	2,719.84	2,597.39	2,504.00	93.39	27.812	
9,200.00	6,940.41	9,339.00	6,920.88	47.38	54.21	89.57	-1,896.22	2,773.01	2,595.35	2,499.57	95.78	27.096	
9,241.54	6,940.42	9,339.00	6,920.88	47.96	54.21	89.57	-1,896.22	2,773.01	2,595.02	2,498.42	96.59	26.865	
9,300.00	6,940.43	9,391.06	6,921.46	48.78	54.85	89.58	-1,896.56	2,825.06	2,595.12	2,496.96	98.17	26.436	
9,400.00	6,940.45	9,548.20	6,923.54	50.20	56.79	89.63	-1,895.99	2,982.18	2,594.32	2,492.88	101.44	25.575	
9,500.00	6,940.47	9,623.00	6,923.85	51.63	57.73	89.63	-1,895.51	3,056.97	2,593.13	2,489.07	104.06	24.919	
9,600.00	6,940.50	9,727.30	6,923.82	53.07	59.05	89.63	-1,895.27	3,161.28	2,592.46	2,485.52	106.95	24.241	
9,700.00	6,940.52	9,835.83	6,924.57	54.52	60.45	89.65	-1,893.95	3,269.79	2,590.75	2,480.87	109.88	23.577	
9,800.00	6,940.54	9,906.00	6,925.04	55.97	61.36	89.66	-1,893.91	3,339.96	2,590.13	2,477.61	112.51	23.021	
9,900.00	6,940.56	10,058.78	6,923.76	57.44	63.37	89.63	-1,892.89	3,492.72	2,589.13	2,473.27	115.86	22.347	
10,000.00	6,940.59	10,202.86	6,922.68	58.91	65.28	89.60	-1,888.87	3,636.74	2,585.89	2,466.77	119.12	21.708	
10,100.00	6,940.61	10,249.53	6,922.43	60.38	65.91	89.60	-1,887.83	3,683.40	2,583.01	2,461.38	121.64	21.236	
10,200.00	6,940.63	10,314.92	6,921.95	61.87	66.79	89.59	-1,887.38	3,748.79	2,581.81	2,457.52	124.28	20.773	
10,300.00	6,940.65	10,441.06	6,921.55	63.36	68.51	89.58	-1,886.63	3,874.92	2,580.79	2,453.33	127.47	20.247	
10,400.00	6,940.67	10,534.38	6,921.76	64.85	69.79	89.58	-1,885.11	3,968.23	2,578.75	2,448.37	130.38	19.779	
10,470.31	6,940.69	10,568.00	6,922.23	65.91	70.25	89.59	-1,884.95	4,001.84	2,578.17	2,446.03	132.14	19.510	
10,500.00	6,940.70	10,568.00	6,922.23	66.35	70.25	89.59	-1,884.95	4,001.84	2,578.34	2,445.60	132.75	19.423	
10,600.00	6,940.72	10,662.00	6,923.34	67.86	71.57	89.61	-1,886.68	4,095.81	2,579.72	2,444.04	135.68	19.014	
10,700.00	6,940.74	10,744.98	6,923.28	69.36	72.75	89.61	-1,889.23	4,178.74	2,582.19	2,443.69	138.50	18.644	
10,800.00	6,940.76	10,905.41	6,919.97	70.88	75.02	89.54	-1,890.45	4,339.13	2,582.18	2,440.08	142.10	18.171	
10,848.20	6,940.77	10,946.00	6,919.00	71.61	75.59	89.52	-1,890.57	4,379.71	2,582.11	2,438.62	143.49	17.995	
10,900.00	6,940.78	10,993.88	6,917.97	72.39	76.27	89.49	-1,890.82	4,427.58	2,582.16	2,437.14	145.02	17.806	
11,000.00	6,940.81	11,131.42	6,915.62	73.91	78.24	89.44	-1,890.33	4,565.09	2,581.28	2,432.90	148.38	17.396	
11,100.00	6,940.83	11,202.54	6,914.87	75.44	79.25	89.42	-1,889.57	4,636.20	2,579.99	2,428.83	151.15	17.069	
11,200.00	6,940.85	11,315.58	6,914.64	76.96	80.88	89.42	-1,889.57	4,749.23	2,579.54	2,425.23	154.31	16.717	
11,266.34	6,940.86	11,364.21	6,914.73	77.98	81.58	89.42	-1,889.28	4,797.86	2,578.96	2,422.80	156.17	16.514	
11,300.00	6,940.87	11,378.18	6,914.82	78.49	81.78	89.42	-1,889.40	4,811.83	2,579.09	2,422.09	157.00	16.427	
11,400.00	6,940.89	11,425.84	6,915.32	80.03	82.48	89.43	-1,890.58	4,859.47	2,580.98	2,421.48	159.50	16.182	
11,500.00	6,940.92	11,578.37	6,917.45	81.56	84.71	89.48	-1,893.65	5,011.95	2,582.41	2,419.31	163.10	15.833	
11,600.00	6,940.94	11,664.44	6,917.50	83.10	85.97	89.48	-1,894.77	5,098.01	2,583.29	2,417.26	166.02	15.560	
11,700.00	6,940.96	11,840.63	6,917.74	84.64	88.56	89.48	-1,896.21	5,274.19	2,584.06	2,414.26	169.81	15.218	
11,800.00	6,940.98	11,930.24	6,917.91	86.18	89.87	89.49	-1,894.67	5,363.78	2,581.96	2,409.17	172.79	14.943	
11,855.57	6,940.99	11,957.39	6,917.90	87.04	90.27	89.49	-1,894.60	5,390.94	2,581.57	2,407.34	174.24	14.817	
11,900.00	6,941.00	11,984.00	6,917.86	87.72	90.66	89.49	-1,894.82	5,417.54	2,581.71	2,406.28	175.43	14.717	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
12,000.00	6,941.03	12,044.72	6,917.86	89.27	91.57	89.49	-1,896.01	5,478.25	2,583.13	2,405.03	178.10	14.504	
12,100.00	6,941.05	12,222.19	6,918.30	90.82	94.21	89.50	-1,898.03	5,655.69	2,583.91	2,401.96	181.95	14.201	
12,200.00	6,941.07	12,355.71	6,918.86	92.37	96.19	89.51	-1,896.79	5,789.21	2,582.59	2,397.26	185.33	13.935	
12,300.00	6,941.09	12,399.95	6,919.17	93.92	96.85	89.51	-1,896.39	5,833.43	2,581.34	2,393.42	187.93	13.736	
12,304.45	6,941.09	12,401.71	6,919.19	93.99	96.87	89.51	-1,896.40	5,835.19	2,581.34	2,393.31	188.04	13.728	
12,400.00	6,941.11	12,456.00	6,920.05	95.47	97.69	89.53	-1,897.54	5,889.47	2,582.57	2,392.00	190.57	13.552	
12,500.00	6,941.14	12,535.07	6,920.87	97.03	98.88	89.55	-1,900.15	5,968.49	2,585.25	2,391.81	193.44	13.365	
12,600.00	6,941.16	12,675.55	6,920.10	98.58	101.00	89.53	-1,902.95	6,108.94	2,586.74	2,389.76	196.98	13.132	
12,700.00	6,941.18	12,789.92	6,919.45	100.14	102.72	89.52	-1,904.24	6,223.30	2,587.44	2,387.21	200.23	12.922	
12,800.00	6,941.20	12,889.84	6,919.22	101.70	104.23	89.51	-1,904.82	6,323.22	2,587.56	2,384.22	203.34	12.725	
12,900.00	6,941.23	13,051.46	6,919.41	103.26	106.67	89.52	-1,904.48	6,484.82	2,587.03	2,380.02	207.00	12.497	
13,000.00	6,941.25	13,118.00	6,919.46	104.82	107.67	89.52	-1,903.39	6,551.36	2,585.16	2,375.34	209.83	12.320	
13,100.00	6,941.27	13,213.00	6,919.26	106.38	109.11	89.51	-1,903.17	6,646.35	2,584.49	2,371.59	212.90	12.140	
13,114.00	6,941.27	13,213.00	6,919.26	106.60	109.11	89.51	-1,903.17	6,646.35	2,584.44	2,371.24	213.20	12.122	
13,200.00	6,941.29	13,269.57	6,919.16	107.95	109.97	89.51	-1,903.95	6,702.92	2,585.13	2,369.54	215.59	11.991	
13,300.00	6,941.31	13,352.76	6,919.47	109.51	111.24	89.52	-1,905.50	6,786.09	2,586.53	2,368.00	218.53	11.836	
13,400.00	6,941.34	13,535.10	6,920.45	111.08	114.02	89.54	-1,907.56	6,968.40	2,587.63	2,365.17	222.46	11.632	
13,500.00	6,941.36	13,629.19	6,920.35	112.64	115.45	89.53	-1,906.23	7,062.48	2,585.80	2,360.26	225.53	11.465	
13,562.57	6,941.37	13,663.43	6,920.18	113.63	115.97	89.53	-1,906.16	7,096.72	2,585.39	2,358.16	227.23	11.378	
13,600.00	6,941.38	13,686.00	6,920.01	114.21	116.31	89.53	-1,906.32	7,119.29	2,585.47	2,357.22	228.25	11.327	
13,700.00	6,941.40	13,775.56	6,919.68	115.78	117.68	89.52	-1,907.39	7,208.84	2,586.21	2,354.94	231.28	11.182	
13,800.00	6,941.42	13,944.10	6,920.41	117.35	120.26	89.53	-1,907.20	7,377.38	2,585.56	2,350.51	235.05	11.000	
13,900.00	6,941.45	14,010.86	6,921.18	118.92	121.28	89.55	-1,906.49	7,444.13	2,584.16	2,346.28	237.89	10.863	
13,925.36	6,941.45	14,023.56	6,921.34	119.32	121.48	89.55	-1,906.52	7,456.82	2,584.10	2,345.54	238.56	10.832	
14,000.00	6,941.47	14,064.00	6,921.85	120.49	122.10	89.57	-1,907.02	7,497.26	2,584.64	2,344.10	240.55	10.745	
14,100.00	6,941.49	14,184.49	6,923.90	122.06	123.95	89.61	-1,908.84	7,617.72	2,585.72	2,341.82	243.90	10.602	
14,200.00	6,941.51	14,280.63	6,924.52	123.64	125.43	89.62	-1,909.53	7,713.85	2,585.98	2,338.98	247.00	10.470	
14,300.00	6,941.53	14,348.00	6,924.85	125.21	126.47	89.63	-1,910.91	7,781.21	2,587.49	2,337.71	249.78	10.359	
14,376.50	6,941.55	14,475.24	6,925.86	126.41	128.43	89.65	-1,911.73	7,908.43	2,587.24	2,334.52	252.72	10.237	
14,400.00	6,941.56	14,486.03	6,925.91	126.78	128.60	89.65	-1,911.81	7,919.21	2,587.29	2,333.96	253.33	10.213	
14,500.00	6,941.58	14,537.00	6,925.88	128.36	129.39	89.65	-1,912.87	7,970.18	2,588.82	2,332.89	255.93	10.115	
14,600.00	6,941.60	14,610.20	6,925.66	129.93	130.52	89.65	-1,915.47	8,043.33	2,591.86	2,333.12	258.74	10.017	
14,700.00	6,941.62	14,827.51	6,926.64	131.51	133.89	89.67	-1,920.44	8,260.56	2,594.51	2,331.35	263.16	9.859	
14,800.00	6,941.64	14,915.00	6,927.78	133.08	135.24	89.69	-1,919.96	8,348.04	2,593.52	2,327.32	266.20	9.743	
14,842.89	6,941.65	14,941.27	6,928.19	133.76	135.65	89.70	-1,919.94	8,374.30	2,593.32	2,325.93	267.39	9.699	
14,900.00	6,941.67	14,968.56	6,928.65	134.66	136.07	89.71	-1,920.22	8,401.59	2,593.65	2,324.77	268.88	9.646	
15,000.00	6,941.69	15,024.63	6,929.68	136.24	136.94	89.74	-1,921.73	8,457.63	2,595.78	2,324.27	271.51	9.561	
15,100.00	6,941.71	15,124.92	6,931.97	137.82	138.51	89.79	-1,925.01	8,557.84	2,598.59	2,323.93	274.66	9.461	
15,200.00	6,941.73	15,226.94	6,932.31	139.40	140.10	89.79	-1,928.43	8,659.80	2,601.49	2,323.65	277.84	9.363	
15,300.00	6,941.75	15,370.27	6,930.97	140.97	142.33	89.76	-1,931.55	8,803.08	2,603.13	2,321.62	281.51	9.247	
15,400.00	6,941.78	15,510.14	6,930.63	142.55	144.50	89.75	-1,932.22	8,942.95	2,603.04	2,317.98	285.06	9.131	
15,500.00	6,941.80	15,719.21	6,935.41	144.13	147.73	89.86	-1,926.94	9,151.86	2,599.57	2,310.59	288.98	8.996	
15,600.00	6,941.82	15,764.00	6,936.16	145.72	148.42	89.87	-1,925.24	9,196.61	2,595.69	2,303.88	291.80	8.895	
15,700.00	6,941.84	15,830.46	6,937.24	147.30	149.45	89.90	-1,923.84	9,263.05	2,593.36	2,298.67	294.69	8.800	
15,800.00	6,941.87	15,969.64	6,938.47	148.88	151.61	89.92	-1,922.43	9,402.20	2,592.10	2,293.95	298.15	8.694	
15,900.00	6,941.89	16,048.00	6,937.49	150.46	152.82	89.90	-1,920.92	9,480.54	2,589.73	2,288.58	301.15	8.599	
16,000.00	6,941.91	16,123.94	6,936.46	152.04	154.00	89.88	-1,920.12	9,556.47	2,588.24	2,284.13	304.11	8.511	
16,100.00	6,941.93	16,237.00	6,936.19	153.62	155.76	89.87	-1,919.07	9,669.52	2,586.84	2,279.46	307.38	8.416	
16,200.00	6,941.95	16,302.78	6,936.19	155.21	156.79	89.87	-1,918.58	9,735.29	2,585.77	2,275.53	310.24	8.335	
16,208.50	6,941.96	16,307.43	6,936.18	155.34	156.86	89.87	-1,918.60	9,739.95	2,585.77	2,275.30	310.47	8.329	
16,300.00	6,941.98	16,387.52	6,935.48	156.79	158.11	89.86	-1,919.38	9,820.04	2,586.22	2,272.97	313.25	8.256	
16,400.00	6,942.00	16,567.29	6,930.98	158.37	160.91	89.76	-1,916.97	9,999.71	2,583.89	2,266.79	317.10	8.149	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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
16,500.00	6,942.02	16,631.01	6,929.69	159.96	161.90	89.73	-1,916.11	10,063.40	2,582.03	2,262.05	319.99	8.069	
16,600.00	6,942.04	16,709.00	6,928.42	161.54	163.12	89.70	-1,915.66	10,141.39	2,581.06	2,258.11	322.96	7.992	
16,634.45	6,942.05	16,732.01	6,928.03	162.09	163.48	89.69	-1,915.68	10,164.39	2,580.96	2,257.02	323.94	7.967	
16,700.00	6,942.06	16,765.52	6,927.32	163.13	164.01	89.67	-1,916.06	10,197.90	2,581.41	2,255.74	325.67	7.926	
16,800.00	6,942.09	16,869.05	6,924.67	164.71	165.63	89.61	-1,918.53	10,301.36	2,583.38	2,254.50	328.88	7.855	
16,900.00	6,942.11	16,970.99	6,923.24	166.30	167.23	89.58	-1,919.81	10,403.28	2,584.19	2,252.12	332.07	7.782	
17,000.00	6,942.13	17,062.39	6,923.13	167.88	168.66	89.58	-1,921.41	10,494.67	2,585.48	2,250.34	335.14	7.715	
17,100.00	6,942.15	17,156.86	6,923.28	169.47	170.15	89.58	-1,923.28	10,589.11	2,587.01	2,248.77	338.24	7.648	
17,200.00	6,942.17	17,310.70	6,920.96	171.05	172.56	89.53	-1,924.29	10,742.93	2,587.02	2,245.04	341.99	7.565	
17,300.00	6,942.20	17,463.00	6,918.98	172.64	174.95	89.49	-1,923.86	10,895.20	2,586.68	2,241.11	345.57	7.485	
17,400.00	6,942.22	17,557.00	6,917.73	174.23	176.41	89.46	-1,922.08	10,989.18	2,584.35	2,235.65	348.70	7.411	
17,500.00	6,942.24	17,631.22	6,916.84	175.81	177.58	89.44	-1,921.41	11,063.39	2,582.90	2,231.23	351.67	7.345	
17,600.00	6,942.26	17,724.55	6,916.16	177.40	179.04	89.42	-1,920.80	11,156.71	2,581.80	2,227.01	354.79	7.277	
17,700.00	6,942.28	17,874.50	6,915.87	178.99	181.38	89.41	-1,918.03	11,306.63	2,579.33	2,221.01	358.32	7.198	
17,800.00	6,942.31	17,935.00	6,915.58	180.57	182.33	89.41	-1,916.89	11,367.12	2,577.07	2,215.86	361.21	7.135	
17,892.33	6,942.33	17,991.66	6,915.01	182.04	183.22	89.39	-1,916.65	11,423.77	2,576.33	2,212.51	363.82	7.081	
17,900.00	6,942.33	17,995.92	6,914.96	182.16	183.29	89.39	-1,916.67	11,428.04	2,576.33	2,212.30	364.03	7.077	
18,000.00	6,942.35	18,030.00	6,914.43	183.75	183.82	89.38	-1,917.04	11,462.11	2,577.49	2,211.07	366.42	7.034	
18,100.00	6,942.37	18,124.00	6,913.63	185.34	185.31	89.36	-1,919.99	11,556.05	2,580.19	2,210.68	369.51	6.983	
18,200.00	6,942.39	18,299.26	6,913.36	186.93	188.07	89.36	-1,922.58	11,731.27	2,580.88	2,207.30	373.58	6.908	
18,300.00	6,942.42	18,408.00	6,913.36	188.52	189.78	89.35	-1,922.25	11,840.01	2,580.08	2,203.24	376.84	6.847	
18,341.78	6,942.43	18,441.27	6,913.17	189.18	190.30	89.35	-1,922.10	11,873.28	2,579.77	2,201.68	378.09	6.823	
18,400.00	6,942.44	18,465.63	6,912.91	190.10	190.68	89.34	-1,922.37	11,897.64	2,580.15	2,200.58	379.57	6.798	
18,500.00	6,942.46	18,516.50	6,912.00	191.69	191.49	89.32	-1,923.89	11,948.48	2,582.57	2,200.47	382.09	6.759	
18,600.00	6,942.48	18,716.61	6,908.71	193.28	194.64	89.25	-1,927.43	12,148.50	2,583.96	2,197.51	386.45	6.686	
18,642.31	6,942.49	18,741.84	6,908.39	193.96	195.04	89.24	-1,927.46	12,173.73	2,583.82	2,196.19	387.63	6.666	
18,700.00	6,942.51	18,787.00	6,907.89	194.87	195.75	89.23	-1,927.92	12,218.89	2,584.12	2,194.78	389.33	6.637	
18,800.00	6,942.53	18,881.00	6,906.98	196.46	197.23	89.21	-1,928.79	12,312.88	2,584.61	2,192.16	392.44	6.586	
18,900.00	6,942.55	18,953.18	6,906.54	198.05	198.37	89.20	-1,929.68	12,385.05	2,585.53	2,190.24	395.29	6.541	
19,000.00	6,942.57	19,083.49	6,905.39	199.64	200.43	89.18	-1,932.27	12,515.32	2,587.18	2,188.35	398.83	6.487	
19,100.00	6,942.59	19,189.73	6,903.89	201.23	202.11	89.14	-1,933.25	12,621.55	2,587.67	2,185.60	402.07	6.436	
19,200.00	6,942.62	19,279.14	6,903.18	202.82	203.52	89.13	-1,933.98	12,710.95	2,588.07	2,182.93	405.13	6.388	
19,300.00	6,942.64	19,353.00	6,903.05	204.41	204.69	89.12	-1,935.60	12,784.79	2,589.69	2,181.69	408.00	6.347	
19,400.00	6,942.66	19,509.10	6,901.58	206.00	207.15	89.09	-1,938.12	12,940.84	2,591.12	2,179.33	411.79	6.292	
19,500.00	6,942.68	19,612.74	6,899.65	207.59	208.79	89.05	-1,937.40	13,044.46	2,589.98	2,174.97	415.00	6.241	
19,536.33	6,942.69	19,636.00	6,899.28	208.17	209.15	89.04	-1,937.45	13,067.72	2,589.90	2,173.87	416.03	6.225	
19,600.00	6,942.70	19,702.41	6,898.37	209.18	210.20	89.02	-1,937.74	13,134.11	2,589.91	2,171.83	418.08	6.195	
19,647.85	6,942.71	19,745.94	6,897.90	209.95	210.89	89.01	-1,937.88	13,177.64	2,589.86	2,170.29	419.56	6.173	
19,700.00	6,942.73	19,781.51	6,897.66	210.78	211.45	89.00	-1,938.17	13,213.22	2,590.05	2,169.01	421.05	6.151	
19,800.00	6,942.75	19,919.44	6,897.84	212.37	213.63	89.01	-1,939.61	13,351.13	2,590.88	2,166.28	424.60	6.102	
19,844.45	6,942.76	19,943.20	6,897.92	213.07	214.01	89.01	-1,939.63	13,374.89	2,590.72	2,164.90	425.82	6.084	
19,900.00	6,942.77	19,972.33	6,897.89	213.96	214.47	89.01	-1,939.92	13,404.02	2,591.02	2,163.72	427.30	6.064	
20,000.00	6,942.79	20,029.56	6,897.43	215.55	215.37	89.00	-1,941.32	13,461.23	2,592.97	2,163.05	429.93	6.031	
20,100.00	6,942.81	20,109.00	6,896.80	217.14	216.63	88.98	-1,944.21	13,540.62	2,596.15	2,163.35	432.80	5.998	
20,200.00	6,942.84	20,197.58	6,895.23	218.73	218.04	88.95	-1,947.95	13,629.10	2,599.94	2,164.14	435.80	5.966	
20,300.00	6,942.86	20,255.27	6,893.53	220.32	218.95	88.91	-1,950.87	13,686.69	2,604.64	2,166.42	438.23	5.944	
20,400.00	6,942.88	20,501.92	6,883.07	221.92	222.86	88.69	-1,958.30	13,932.92	2,607.16	2,163.65	443.51	5.879	
20,500.00	6,942.90	20,636.68	6,878.84	223.51	224.99	88.59	-1,956.76	14,067.60	2,605.36	2,158.38	446.98	5.829	
20,600.00	6,942.92	20,744.14	6,877.05	225.10	226.68	88.55	-1,956.00	14,175.04	2,604.28	2,154.07	450.21	5.785	
20,700.00	6,942.95	20,908.12	6,877.55	226.69	230.92	88.56	-1,951.00	14,338.92	2,600.38	2,144.98	455.40	5.710	
20,800.00	6,942.97	20,962.00	6,878.02	228.28	237.34	88.57	-1,949.03	14,392.77	2,596.65	2,132.60	464.05	5.596	
20,861.42	6,942.98	20,962.00	6,878.02	229.26	237.34	88.57	-1,949.03	14,392.77	2,595.92	2,130.43	465.50	5.577	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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

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
20,900.00	6,942.99	20,962.00	6,878.02	229.88	237.34	88.57	-1,949.03	14,392.77	2,596.21	2,129.93	466.28	5.568	
20,942.50	6,943.00	20,962.00	6,878.02	230.42	237.34	88.57	-1,949.03	14,392.77	2,597.19	2,130.31	466.88	5.563	SF

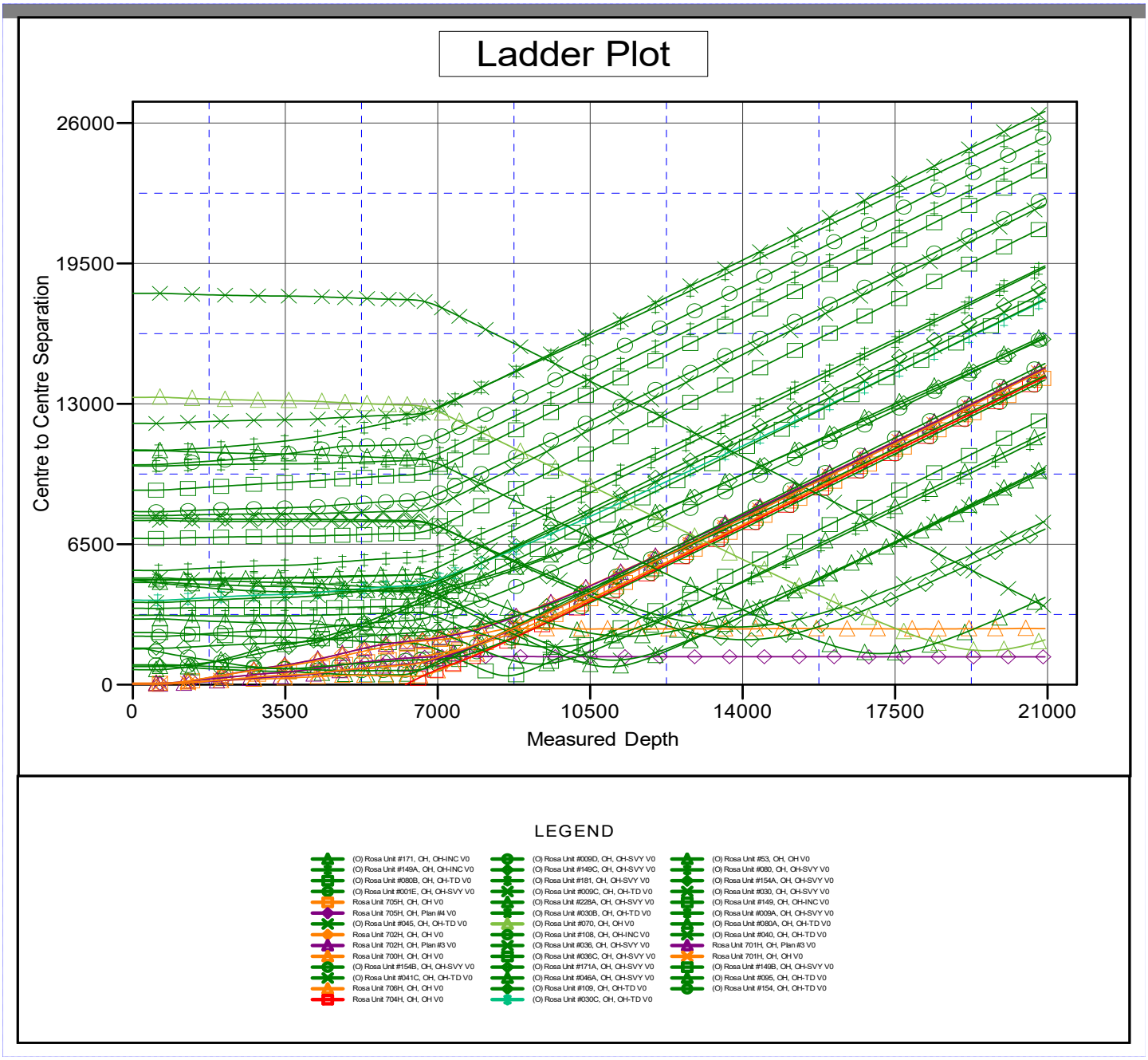
SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**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 704H
Coordinate System is US State Plane 1983, New Mexico Western Zone
Grid Convergence at Surface is: 0.26°



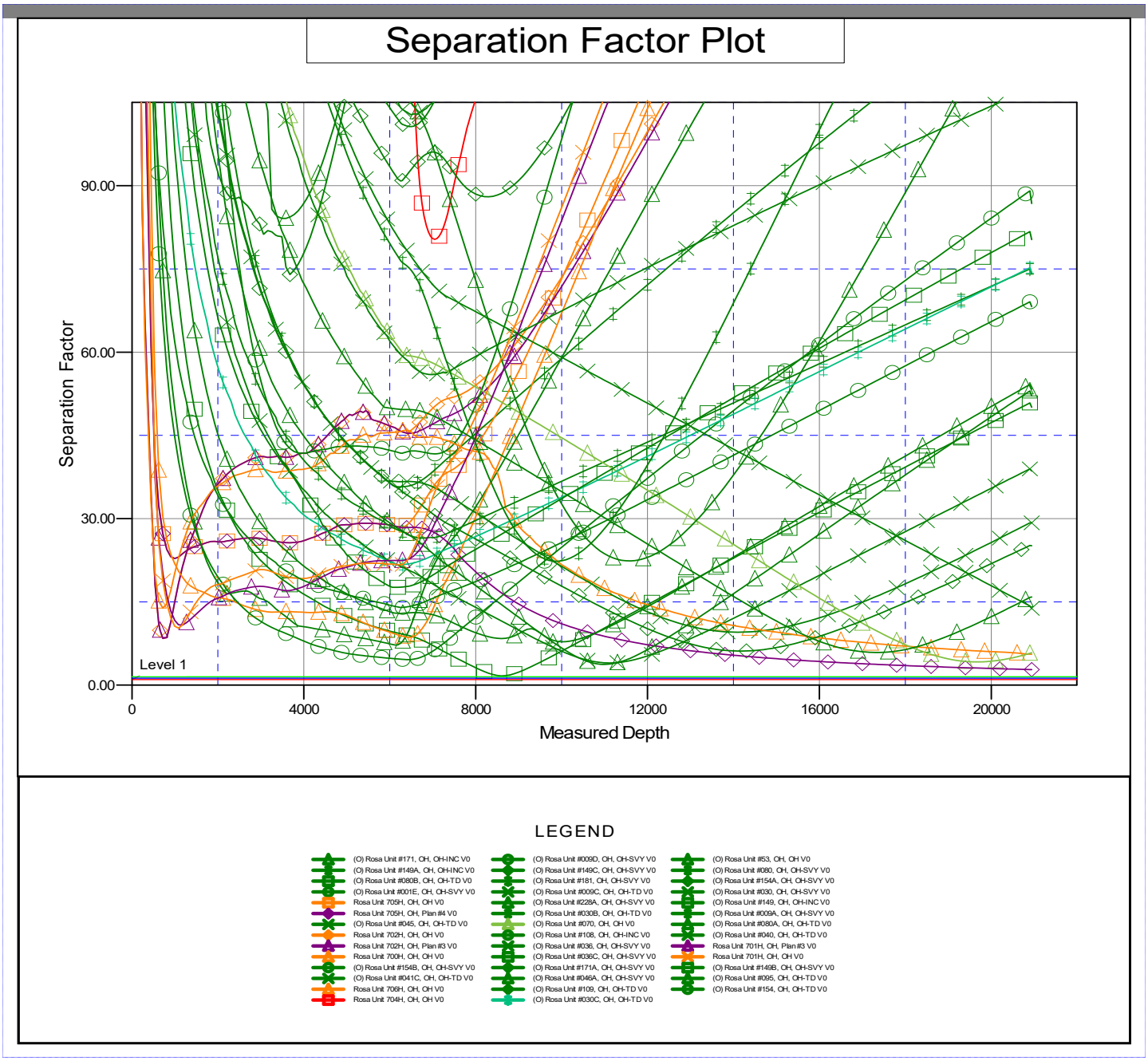
CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 704H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 704H	**Survey Calculation Method:**	Minimum 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 #6	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to 6295+30 @ 6325.00usft (H&P 530)	Coordinates are relative to: Rosa Unit 704H
Offset Depths are relative to Offset Datum	Coordinate System is US State Plane 1983, New Mexico Western Zone
Central Meridian is -107.833334	Grid Convergence at Surface is: 0.26°



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 363160

CONDITIONS

Operator: LOGOS OPERATING, LLC 2010 Afton Place Farmington, NM 87401	OGRID: 289408
	Action Number: 363160
	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 drilling operations, then a CBL is required.	7/11/2024