Received by OCD: 6/28/2024 7:44:09 AM

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

Sundry Print Report

06/28/2024

Well Name: ROSA UNIT

Well Location: T31N / R5W / SEC 33 / SWNW / 36.856169 / -107.373412

County or Parish/State: RIO ARRIBA / NM

Well Number: 754H

Type of Well: CONVENTIONAL GAS WELL

Allottee or Tribe Name:

Lease Number: NMSF078773

Unit or CA Name:

Unit or CA Number: NMNM078407E

US Well Number: 3003931459

Operator: LOGOS OPERATING LLC

Notice of Intent

Sundry ID: 2797732

Type of Submission: Notice of Intent

Type of Action: Other

Date Sundry Submitted: 06/27/2024

Time Sundry Submitted: 03:24

Date proposed operation will begin: 06/27/2024

Procedure Description: LOGOS Operating request a change in plans for the following (based on KB elevation): Original bottom-hole location from 1780' FSL & 1409' FEL to new bottom-hole location 1837' FSL & 10' FEL Original TD @ 20,215' (MD) 7,104' (TVD) to new TD @ 21,865' (MD) 7,364' (TVD). Geology tops have been updated per changes. Original KOP @ 6,528' MD 6,485' TVD to new KOP @ 6,779' MD 6,744' TVD Original Landing point @ 7,515' MD 7,104' TVD to new Landing point @ 7,766' MD 7,364' TVD Original 9,625" casing Intermediate @ 6,407' MD to new 9.625" Intermediate casing @ 6,397' MD Original 5.5" casing Production casing @ 20,215' MD to new 5.5" Production casing @ 21,865' 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_754H_Change_in_Plan_7__20240627_20240627152323.pdf

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Allottee or Tribe Name:

Lease Number: NMSF078773

Unit or CA Name:

Unit or CA Number: NMNM078407E

US Well Number: 3003931459

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: JUN 27, 2024 03:24 PM

Name: LOGOS OPERATING LLC

Title: Regulatory Specialist

Street Address: 2010 AFTON PLACE

City: Farmington **State:** NM

Phone: (505) 324-4154

Email address: ETRUJILLO@LOGOSRESOURCESLLC.COM

Field

Representative Name:

Street Address:

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

Phone:

Email address:

BLM Point of Contact

BLM POC Name: KENNETH G RENNICK

BLM POC Title: Petroleum Engineer

BLM POC Phone: 5055647742

BLM POC Email Address: krennick@blm.gov

Disposition: Approved

Disposition Date: 06/27/2024

Signature: Kenneth Rennick

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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.: NMSF078773

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 754H

2. Name of Operator: LOGOS OPERATING, LLC

9. API Well No.: 30-039-31459

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 E SEC 33 T31N 5W 2636' FNL 951' FWL

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 1780' FSL & 1409' FEL to **new bottom-hole location 1837' FSL & 10' FEL**
Original TD @ 20,215' (MD) 7,104' (TVD) to **new TD @ 21,865' (MD) 7,364' (TVD)**.

Geology tops have been updated per changes.
Original KOP @ 6,528' MD 6,485' TVD to **new KOP @ 6,779' MD 6,744' TVD**
Original Landing point @ 7,515' MD 7,104' TVD to **new Landing point @ 7,766' MD 7,364' TVD**

Original 9,625" casing Intermediate @ 6,407' MD to **new 9.625" Intermediate casing @ 6,397' MD**
Original 5.5" casing Production casing @ 20,215' MD to **new 5.5" Production casing @ 21,865' 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: 6/27/2024

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: 6/28/2024 7:44:09 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
30-039-31459	97232	BASIN MANCOS

[4] Property Code	[5] Property Name	[6] Well Number
320608	ROSA UNIT	754H

[7] OGRID No.	[8] Operator Name	[9] Elevation
289408	LOGOS OPERATING, LLC	6534'

[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
E	33	31N	5W		2636	NORTH	951	WEST	RIO ARRIBA

[11] Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
I	35	31N	5W		1837	SOUTH	10	EAST	RIO ARRIBA

[12] Dedicated Acres		[13] Joint or Infill	[14] Consolidation Code	[15] Order No.
960.00	S/2 - Section 33 S/2 - Section 34 S/2 - Section 35			R-13457

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

[17] OPERATOR CERTIFICATION

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

Etta Trujillo — 6/27/2024
Signature — Date

Etta Trujillo
Printed Name

etrujillo@logosresourcesllc.com
E-mail Address

[18] SURVEYOR CERTIFICATION

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

Date Revised: JUNE 12, 2024
Date of Survey: JUNE 28, 2022

Signature and Seal of Professional Surveyor

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

JASON C. EDWARDS
Certificate Number 15269

SURFACE LOCATION (A)
2636' FNL 951' FWL
SEC 33, T31N, R5W
LAT 36.856107 °N
LONG -107.372807 °W
DATUM: NAD1927

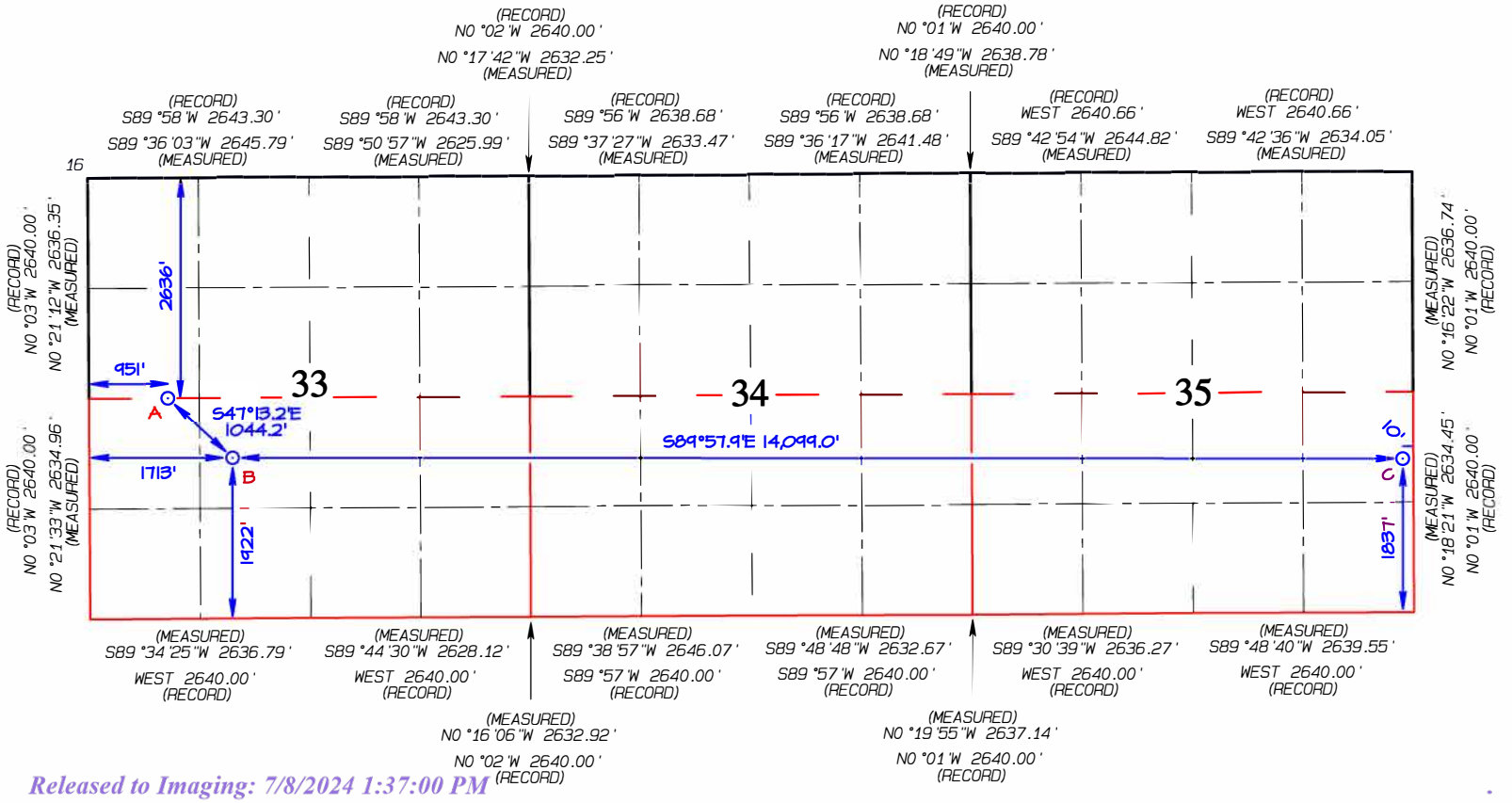
LAT 36.856114 °N
LONG -107.373409 °W
DATUM: NAD1983

FIRST TAKE POINT (B)
1922' FSL 1713' FWL
SEC 33, T31N, R5W
LAT 36.854149 °N
LONG -107.370199 °W
DATUM: NAD1927

LAT 36.854156 °N
LONG -107.370801 °W
DATUM: NAD1983

LAST TAKE POINT (C)
1837' FSL 10' FEL
SEC 35, T31N, R5W
LAT 36.853927 °N
LONG -107.322011 °W
DATUM: NAD1927

LAT 36.853934 °N
LONG -107.322612 °W
DATUM: NAD1983



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LOGOS Operating, LLC
Operations Plan

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

Date:	June 27, 2024	Pool:	Basin Mancos
Well Name:	**Rosa Unit 754H**	GL Elevation:	6,534’
Surface Location:	Sec 33, T31N, R5W 2636’ FNL, 951’ FWL (36.856114º N, -170.373409º W – NAD83)	KB:	30’
Bottom Hole Location:	Sec 35, T31N, R5W 1837’ FSL, 10’ FEL (36.853934º N, -107.322612º W – NAD83)	Measured Depth:	21,865’ (KB)
Lease Serial CA Serial	**# NMSF078773 # 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	2714’	2702’	*POINT LOOKOUT	5849’	5819’
KIRTLAND	2859’	2847’	*MANCOS	6322’	6290’
*FRUITLAND	3222’	3207’	KICKOFF POINT	6779’	6744’
*PICTURED CLIFFS	3586’	3569’	LANDING POINT	7766’	7364’
LEWIS	3695’	3678’	TD	21865’	7364’
CHACRA	4770’	4746’			
*CLIFF HOUSE	5606’	5578’			
MENEFEE	5635’	5606’			

* indicates depth at which anticipated water, oil, gas or other mineral bearing formations are expected to be encountered.

B. **MUD LOGGING PROGRAM:** Mudlogger on location from KOP to TD.

C. **LOGGING PROGRAM:** LWD GR from surface casing to TD.

D. **NATURAL GAUGES:** Gauge any noticeable increases in gas flow. Record all gauges in Tour book and on morning reports.

II. DRILLING

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

Above ground steel pits will be used for fluid and cuttings while drilling. In the unlikely event that a tank develops a leak, upon immediate visual discovery, the fluid would be transferred to another tank and contaminated soil would be removed and disposed. Any leaks, spills or other undesirable events will be reported in accordance with BLM NTL 3A. Rig crews will monitor the tanks at all times.

B. **BOP TESTING:** The BOPE will be tested to **250 psi (Low) for 5 minutes** and **3000 psi (High) for 10 minutes.** Pressure test surface casing to **600 psi for 30 minutes** and intermediate casing to **1500 psi for 30 minutes.** Utilize a BOPE Testing Unit with a recording chart and appropriate test plug for testing. The drum brakes will be inspected and tested each tour. BOP equipment will be tested every 30 days, after any repairs are made to the BOP equipment, and after the BOP equipment is subjected to pressure. Annular preventers will be functionally operated at least once per week. Pipe and blind rams shall be activated each trip or but not more than once a day. The New Mexico Oil & Gas Conservation Commission and the BLM will be notified 24 hours in advance of testing of BOPE. **All tests and inspections will be recorded and logged with time and results.** A full BOP test will be conducted when initially installed for the first well on the pad or if seals subject to test pressure are broken, following related repairs and at a minimum of 30 day intervals. A BOPE Shell Test only will be conducted for subsequent wells on the pad when seals subject to pressure have not been broken or repaired and fall within the 30 day interval of first full test.

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

D. **Maximum Anticipated Pressure:** 7,364' TVD x 0.43 = 3,167 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 (Pre-Set)	26"	349' (GL)	20"	94 LBS	J-55	BTC
INTERMEDIATE	12.25"	6,397'	9.625"	43.5 LBS	N-80 or equiv	LTC/BTC
PRODUCTION	8.5"	21,865'	5.5"	20 LBS	P-110 or equiv	LTC/BTC

NOTE: All casing depths are approximate, based on KB elevation and will be based on drilling conditions +/- 50'. Weights, grades and connections will be based on availability and may vary but will be equivalent or greater.

B. FLOAT EQUIPMENT:

1. SURFACE CASING: 20" cement nose guide shoe. Place float shoe 1 joint above shoe. Run (1) standard centralizer on each of the bottom (3) joints of Surface Casing.
2. INTERMEDIATE CASING: 9-5/8" cement float shoe. Place float collar one joint above the shoe. Install (1) centralizer on each of the bottom (3) joints and one standard centralizer every (3) joints to 2,500 ft. Run (1) centralizer at 2,500 ft., 2,300ft., 2,000ft., 1,500 ft., and 1,000 ft. Optional use of DV Tools (2) will be strategically placed above loss circulation zones anticipated in the Mesaverde and Fruitland Coal. Optional use of cancelation plugs for DV tools may be used if losses while cementing are not encountered. Optional use of an ICP may be used in conjunction with DV Tools.
3. PRODUCTION CASING: Run 5-1/2" casing with cement nose guide Float Shoe, 5-1/2" full or pup joints as necessary, Landing Collar, 5-1/2" full or pup joints as necessary, at least (1) one Toe Sleeve (Sliding Sleeve) positioned inside the applicable production area. Centralizer program will be determined by wellbore conditions. Production casing to be pressure tested during completion operations with frac stack installed.

C. CEMENTING:

(Note: Cement type and volumes may be adjusted onsite due to actual conditions and availability)

1. SURFACE: Pre-set at 349' (GL)

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

Intermediate - 9-5/8" csg	Top	Footage	Cement (ft3/ft) Annular Capacity		Excess (30%)	Total (ft3)	Total (bbl)	Slurry Yield (ft3/sk)	Sacks Cement	Density (PPG)
Stage 1 Tail	5,897	500	0.3132		1.3	221	39	1.10	201	15.8
Stage 1 Lead	4,845	1,052	0.3132		1.3	428	76	1.90	225	12.4
						649	**116**		**426**	
Stage 2 Tail	4,245	600	0.3132		1.3	244	44	1.58	155	13.2
Stage 2 Lead	3,272	973	0.3132		1.3	396	71	1.90	209	12.4
						640	**114**		**363**	
Stage 3 Tail	2,622	650	0.3132		1.3	265	47	1.58	168	13.2
Stage 3 Lead	354	2,268	0.3132		1.3	923	164	1.58	584	12.4
Stage 3 Lead	-	354	1.4895	0.2653	1	527	94	1.90	278	12.4
						1,715	**306**		**1029**	
						3,005	**535**		**1,819**	
Set Depth, ft RKB	6397									

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

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

Production - 5-1/2"	Top	ft	Cement (ft3/ft) Annular Capacity	Excess (15%)	Total (ft3)	Total (bbl)	Slurry Yield (ft3/sk)	Sacks Cement	Density (PPG)
Cased hole Tail	6,297	100	0.2531	1	25	5	1.59	16	13.2
Open Hole Tail	6,397	15,468	0.2291	1.15	4,086	728	1.59	2,570	13.2
					4,111	732		2,586	
Set Depth, ft RKB	21865								

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 * 7,364' TVD = 1620 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.

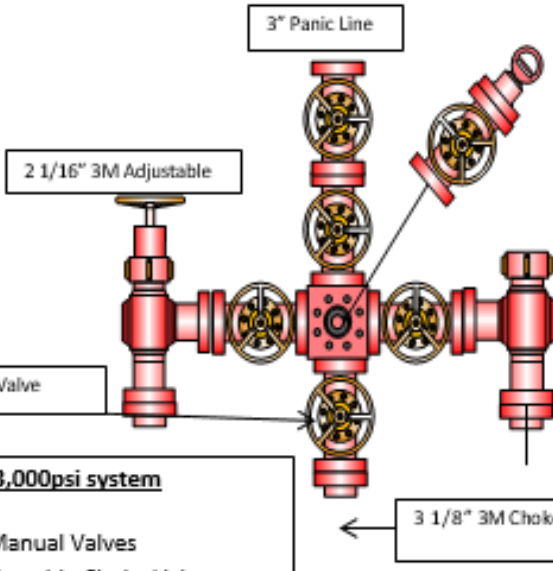
E. PRODUCTION TUBING

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.

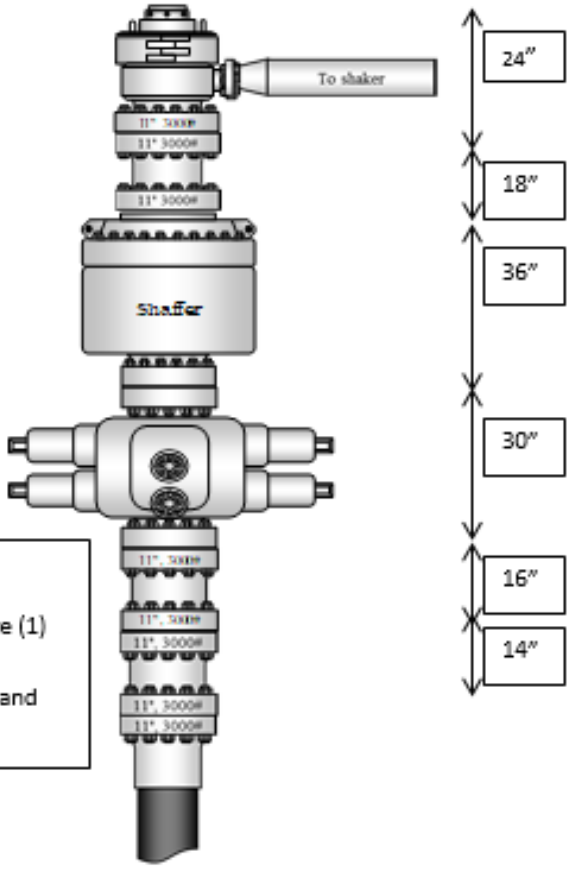
LOGOS OPERATING

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 32
Rosa Unit 754H

OH

Plan: Plan #7

Standard Planning Report

24 May, 2024

SDT

Planning Report

Database:	EDM 5000 Multi User Db	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Company:	Logos Operating LLC	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Project:	Rio Arriba, NM (NAD83)	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site:	Rosa Unit 32	**North Reference:**	True
Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #7		

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 32

Site Position:		**Northing:**	2,131,320.20 usft	**Latitude:**	36.856242
From:	Lat/Long	**Easting:**	2,857,795.25 usft	**Longitude:**	-107.372900
Position Uncertainty:	0.00 usft	**Slot Radius:**	13-3/16 "		

Well Rosa Unit 754H

Well Position	**+N/-S**	0.00 usft	**Northing:**	2,131,273.03 usft	**Latitude:**	36.856114
	+E/-W	0.00 usft	**Easting:**	2,857,646.36 usft	**Longitude:**	-107.373409
Position Uncertainty		3.28 usft	**Wellhead Elevation:**	usft	**Ground Level:**	6,534.00 usft
Grid Convergence:		0.28 °				

Wellbore OH

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	11/21/2022	8.56	63.43	49,565.66399944

Design Plan #7

Audit Notes:

Version:	**Phase:**	PLAN	**Tie On Depth:**	0.00

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	90.31

Plan Survey Tool Program **Date** 5/24/2024

	Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	21,864.93	Plan #7 (OH)	MWD+HRGM+MS	
				MWD + HRGM + Multi-Station	

Plan Sections

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00	
808.00	6.16	150.00	807.41	-14.32	8.27	2.00	2.00	0.00	150.00	
912.12	6.16	169.50	910.94	-24.66	12.08	2.00	0.00	18.73	99.66	
6,778.75	6.16	169.50	6,743.68	-643.76	126.85	0.00	0.00	0.00	0.00	
7,765.93	90.00	90.31	7,364.00	-713.00	762.98	9.00	8.49	-8.02	-79.25	RU 754H POE
21,864.93	90.00	90.31	7,364.00	-789.75	14,861.77	0.00	0.00	0.00	0.00	RU 754H PBHL

SDT

Planning Report

Database:	EDM 5000 Multi User Db	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Company:	Logos Operating LLC	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Project:	Rio Arriba, NM (NAD83)	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site:	Rosa Unit 32	**North Reference:**	True
Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #7		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 2.00									
600.00	2.00	150.00	599.98	-1.51	0.87	0.88	2.00	2.00	0.00
700.00	4.00	150.00	699.84	-6.04	3.49	3.52	2.00	2.00	0.00
808.00	6.16	150.00	807.41	-14.32	8.27	8.35	2.00	2.00	0.00
Start DLS 2.00 TFO 99.66									
900.00	6.12	167.26	898.89	-23.39	11.82	11.95	2.00	-0.04	18.76
912.12	6.16	169.50	910.94	-24.66	12.08	12.22	2.00	0.30	18.48
Start 5866.62 hold at 912.12 MD									
1,000.00	6.16	169.50	998.31	-33.93	13.80	13.99	0.00	0.00	0.00
1,100.00	6.16	169.50	1,097.73	-44.48	15.76	16.00	0.00	0.00	0.00
1,200.00	6.16	169.50	1,197.15	-55.04	17.71	18.01	0.00	0.00	0.00
1,300.00	6.16	169.50	1,296.58	-65.59	19.67	20.03	0.00	0.00	0.00
1,400.00	6.16	169.50	1,396.00	-76.14	21.63	22.04	0.00	0.00	0.00
1,500.00	6.16	169.50	1,495.42	-86.70	23.58	24.05	0.00	0.00	0.00
1,600.00	6.16	169.50	1,594.84	-97.25	25.54	26.07	0.00	0.00	0.00
1,700.00	6.16	169.50	1,694.27	-107.80	27.50	28.08	0.00	0.00	0.00
1,800.00	6.16	169.50	1,793.69	-118.36	29.45	30.09	0.00	0.00	0.00
1,900.00	6.16	169.50	1,893.11	-128.91	31.41	32.11	0.00	0.00	0.00
2,000.00	6.16	169.50	1,992.53	-139.46	33.36	34.12	0.00	0.00	0.00
2,100.00	6.16	169.50	2,091.96	-150.01	35.32	36.13	0.00	0.00	0.00
2,200.00	6.16	169.50	2,191.38	-160.57	37.28	38.15	0.00	0.00	0.00
2,300.00	6.16	169.50	2,290.80	-171.12	39.23	40.16	0.00	0.00	0.00
2,400.00	6.16	169.50	2,390.22	-181.67	41.19	42.17	0.00	0.00	0.00
2,500.00	6.16	169.50	2,489.65	-192.23	43.15	44.19	0.00	0.00	0.00
2,600.00	6.16	169.50	2,589.07	-202.78	45.10	46.20	0.00	0.00	0.00
2,700.00	6.16	169.50	2,688.49	-213.33	47.06	48.21	0.00	0.00	0.00
2,713.59	6.16	169.50	2,702.00	-214.77	47.32	48.49	0.00	0.00	0.00
Ojo Alamo									
2,800.00	6.16	169.50	2,787.91	-223.89	49.02	50.23	0.00	0.00	0.00
2,859.43	6.16	169.50	2,847.00	-230.16	50.18	51.42	0.00	0.00	0.00
Kirtland									
2,900.00	6.16	169.50	2,887.33	-234.44	50.97	52.24	0.00	0.00	0.00
3,000.00	6.16	169.50	2,986.76	-244.99	52.93	54.25	0.00	0.00	0.00
3,100.00	6.16	169.50	3,086.18	-255.54	54.88	56.27	0.00	0.00	0.00
3,200.00	6.16	169.50	3,185.60	-266.10	56.84	58.28	0.00	0.00	0.00
3,221.52	6.16	169.50	3,207.00	-268.37	57.26	58.71	0.00	0.00	0.00
Fruitland									
3,291.93	6.16	169.50	3,277.00	-275.80	58.64	60.13	0.00	0.00	0.00
T/Coals									
3,300.00	6.16	169.50	3,285.02	-276.65	58.80	60.29	0.00	0.00	0.00
3,400.00	6.16	169.50	3,384.45	-287.20	60.75	62.31	0.00	0.00	0.00
3,423.69	6.16	169.50	3,408.00	-289.70	61.22	62.78	0.00	0.00	0.00
B/Coals									
3,500.00	6.16	169.50	3,483.87	-297.76	62.71	64.32	0.00	0.00	0.00
3,585.63	6.16	169.50	3,569.00	-306.79	64.38	66.04	0.00	0.00	0.00
Pictured Cliffs									
3,600.00	6.16	169.50	3,583.29	-308.31	64.67	66.33	0.00	0.00	0.00

SDT

Planning Report

Database:	EDM 5000 Multi User Db	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Company:	Logos Operating LLC	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Project:	Rio Arriba, NM (NAD83)	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site:	Rosa Unit 32	**North Reference:**	True
Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #7		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
3,695.26	6.16	169.50	3,678.00	-318.36	66.53	68.25	0.00	0.00	0.00
Lewis									
3,700.00	6.16	169.50	3,682.71	-318.86	66.62	68.35	0.00	0.00	0.00
3,800.00	6.16	169.50	3,782.14	-329.41	68.58	70.36	0.00	0.00	0.00
3,900.00	6.16	169.50	3,881.56	-339.97	70.53	72.37	0.00	0.00	0.00
4,000.00	6.16	169.50	3,980.98	-350.52	72.49	74.39	0.00	0.00	0.00
4,100.00	6.16	169.50	4,080.40	-361.07	74.45	76.40	0.00	0.00	0.00
4,200.00	6.16	169.50	4,179.83	-371.63	76.40	78.41	0.00	0.00	0.00
4,300.00	6.16	169.50	4,279.25	-382.18	78.36	80.43	0.00	0.00	0.00
4,400.00	6.16	169.50	4,378.67	-392.73	80.32	82.44	0.00	0.00	0.00
4,500.00	6.16	169.50	4,478.09	-403.29	82.27	84.45	0.00	0.00	0.00
4,600.00	6.16	169.50	4,577.51	-413.84	84.23	86.47	0.00	0.00	0.00
4,700.00	6.16	169.50	4,676.94	-424.39	86.19	88.48	0.00	0.00	0.00
4,769.46	6.16	169.50	4,746.00	-431.72	87.54	89.88	0.00	0.00	0.00
Chacra									
4,800.00	6.16	169.50	4,776.36	-434.94	88.14	90.49	0.00	0.00	0.00
4,900.00	6.16	169.50	4,875.78	-445.50	90.10	92.51	0.00	0.00	0.00
5,000.00	6.16	169.50	4,975.20	-456.05	92.05	94.52	0.00	0.00	0.00
5,100.00	6.16	169.50	5,074.63	-466.60	94.01	96.53	0.00	0.00	0.00
5,200.00	6.16	169.50	5,174.05	-477.16	95.97	98.55	0.00	0.00	0.00
5,277.40	6.16	169.50	5,251.00	-485.32	97.48	100.11	0.00	0.00	0.00
U/Cliff House									
5,300.00	6.16	169.50	5,273.47	-487.71	97.92	100.56	0.00	0.00	0.00
5,400.00	6.16	169.50	5,372.89	-498.26	99.88	102.57	0.00	0.00	0.00
5,500.00	6.16	169.50	5,472.32	-508.82	101.84	104.59	0.00	0.00	0.00
5,600.00	6.16	169.50	5,571.74	-519.37	103.79	106.60	0.00	0.00	0.00
5,606.30	6.16	169.50	5,578.00	-520.03	103.92	106.73	0.00	0.00	0.00
Cliff House									
5,634.46	6.16	169.50	5,606.00	-523.00	104.47	107.29	0.00	0.00	0.00
Menefee									
5,700.00	6.16	169.50	5,671.16	-529.92	105.75	108.61	0.00	0.00	0.00
5,800.00	6.16	169.50	5,770.58	-540.47	107.70	110.63	0.00	0.00	0.00
5,848.70	6.16	169.50	5,819.00	-545.61	108.66	111.61	0.00	0.00	0.00
Point Lookout									
5,900.00	6.16	169.50	5,870.01	-551.03	109.66	112.64	0.00	0.00	0.00
6,000.00	6.16	169.50	5,969.43	-561.58	111.62	114.65	0.00	0.00	0.00
6,100.00	6.16	169.50	6,068.85	-572.13	113.57	116.67	0.00	0.00	0.00
6,200.00	6.16	169.50	6,168.27	-582.69	115.53	118.68	0.00	0.00	0.00
6,300.00	6.16	169.50	6,267.70	-593.24	117.49	120.69	0.00	0.00	0.00
6,322.43	6.16	169.50	6,290.00	-595.61	117.93	121.15	0.00	0.00	0.00
Mancos									
6,400.00	6.16	169.50	6,367.12	-603.79	119.44	122.71	0.00	0.00	0.00
6,500.00	6.16	169.50	6,466.54	-614.34	121.40	124.72	0.00	0.00	0.00
6,600.00	6.16	169.50	6,565.96	-624.90	123.36	126.73	0.00	0.00	0.00
6,700.00	6.16	169.50	6,665.38	-635.45	125.31	128.75	0.00	0.00	0.00
6,778.75	6.16	169.50	6,743.68	-643.76	126.85	130.33	0.00	0.00	0.00
Start DLS 9.00 TFO -79.25									
6,800.00	6.78	153.38	6,764.80	-646.00	127.62	131.12	9.00	2.92	-75.85
6,850.00	9.68	128.75	6,814.29	-651.28	132.23	135.75	9.00	5.79	-49.25
6,900.00	13.48	116.57	6,863.27	-656.52	140.72	144.27	9.00	7.60	-24.37
6,950.00	17.61	109.83	6,911.44	-661.69	153.05	156.63	9.00	8.26	-13.48
6,968.51	19.18	108.06	6,929.00	-663.58	158.58	162.16	9.00	8.48	-9.55
Black Top									

SDT

Planning Report

Database:	EDM 5000 Multi User Db	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Company:	Logos Operating LLC	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Project:	Rio Arriba, NM (NAD83)	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site:	Rosa Unit 32	**North Reference:**	True
Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #7		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
7,000.00	21.88	105.62	6,958.49	-666.77	169.15	172.75	9.00	8.58	-7.75
7,050.00	26.23	102.74	7,004.14	-671.72	188.91	192.54	9.00	8.69	-5.76
7,100.00	30.61	100.63	7,048.10	-676.51	212.21	215.86	9.00	8.78	-4.21
7,150.00	35.03	99.01	7,090.11	-681.11	238.91	242.59	9.00	8.83	-3.24
7,200.00	39.46	97.71	7,129.90	-685.49	268.84	272.54	9.00	8.86	-2.60
7,250.00	43.90	96.64	7,167.24	-689.63	301.82	305.54	9.00	8.89	-2.15
7,300.00	48.35	95.72	7,201.88	-693.49	337.64	341.39	9.00	8.90	-1.83
7,350.00	52.81	94.93	7,233.63	-697.07	376.09	379.86	9.00	8.92	-1.59
7,400.00	57.27	94.22	7,262.27	-700.33	416.93	420.71	9.00	8.93	-1.41
7,450.00	61.74	93.58	7,287.63	-703.25	459.91	463.70	9.00	8.93	-1.28
7,500.00	66.21	92.99	7,309.57	-705.82	504.75	508.56	9.00	8.94	-1.18
7,550.00	70.68	92.44	7,327.93	-708.02	551.19	555.01	9.00	8.94	-1.10
7,600.00	75.15	91.92	7,342.62	-709.84	598.94	602.77	9.00	8.95	-1.04
7,650.00	79.63	91.42	7,353.53	-711.26	647.70	651.53	9.00	8.95	-1.00
7,700.00	84.10	90.94	7,360.61	-712.28	697.17	701.01	9.00	8.95	-0.97
7,750.00	88.57	90.46	7,363.80	-712.89	747.05	750.90	9.00	8.95	-0.95
7,765.93	90.00	90.31	7,364.00	-713.00	762.98	766.82	9.00	8.95	-0.95
Start 14099.00 hold at 7765.93 MD									
7,800.00	90.00	90.31	7,364.00	-713.19	797.05	800.89	0.00	0.00	0.00
7,900.00	90.00	90.31	7,364.00	-713.73	897.05	900.89	0.00	0.00	0.00
8,000.00	90.00	90.31	7,364.00	-714.27	997.04	1,000.89	0.00	0.00	0.00
8,100.00	90.00	90.31	7,364.00	-714.82	1,097.04	1,100.89	0.00	0.00	0.00
8,200.00	90.00	90.31	7,364.00	-715.36	1,197.04	1,200.89	0.00	0.00	0.00
8,300.00	90.00	90.31	7,364.00	-715.91	1,297.04	1,300.89	0.00	0.00	0.00
8,400.00	90.00	90.31	7,364.00	-716.45	1,397.04	1,400.89	0.00	0.00	0.00
8,500.00	90.00	90.31	7,364.00	-717.00	1,497.04	1,500.89	0.00	0.00	0.00
8,600.00	90.00	90.31	7,364.00	-717.54	1,597.04	1,600.89	0.00	0.00	0.00
8,700.00	90.00	90.31	7,364.00	-718.08	1,697.03	1,700.89	0.00	0.00	0.00
8,800.00	90.00	90.31	7,364.00	-718.63	1,797.03	1,800.89	0.00	0.00	0.00
8,900.00	90.00	90.31	7,364.00	-719.17	1,897.03	1,900.89	0.00	0.00	0.00
9,000.00	90.00	90.31	7,364.00	-719.72	1,997.03	2,000.89	0.00	0.00	0.00
9,100.00	90.00	90.31	7,364.00	-720.26	2,097.03	2,100.89	0.00	0.00	0.00
9,200.00	90.00	90.31	7,364.00	-720.81	2,197.03	2,200.89	0.00	0.00	0.00
9,300.00	90.00	90.31	7,364.00	-721.35	2,297.03	2,300.89	0.00	0.00	0.00
9,400.00	90.00	90.31	7,364.00	-721.89	2,397.02	2,400.89	0.00	0.00	0.00
9,500.00	90.00	90.31	7,364.00	-722.44	2,497.02	2,500.89	0.00	0.00	0.00
9,600.00	90.00	90.31	7,364.00	-722.98	2,597.02	2,600.89	0.00	0.00	0.00
9,700.00	90.00	90.31	7,364.00	-723.53	2,697.02	2,700.89	0.00	0.00	0.00
9,800.00	90.00	90.31	7,364.00	-724.07	2,797.02	2,800.89	0.00	0.00	0.00
9,900.00	90.00	90.31	7,364.00	-724.62	2,897.02	2,900.89	0.00	0.00	0.00
10,000.00	90.00	90.31	7,364.00	-725.16	2,997.02	3,000.89	0.00	0.00	0.00
10,100.00	90.00	90.31	7,364.00	-725.71	3,097.01	3,100.89	0.00	0.00	0.00
10,200.00	90.00	90.31	7,364.00	-726.25	3,197.01	3,200.89	0.00	0.00	0.00
10,300.00	90.00	90.31	7,364.00	-726.79	3,297.01	3,300.89	0.00	0.00	0.00
10,400.00	90.00	90.31	7,364.00	-727.34	3,397.01	3,400.89	0.00	0.00	0.00
10,500.00	90.00	90.31	7,364.00	-727.88	3,497.01	3,500.89	0.00	0.00	0.00
10,600.00	90.00	90.31	7,364.00	-728.43	3,597.01	3,600.89	0.00	0.00	0.00
10,700.00	90.00	90.31	7,364.00	-728.97	3,697.00	3,700.89	0.00	0.00	0.00
10,800.00	90.00	90.31	7,364.00	-729.52	3,797.00	3,800.89	0.00	0.00	0.00
10,900.00	90.00	90.31	7,364.00	-730.06	3,897.00	3,900.89	0.00	0.00	0.00
11,000.00	90.00	90.31	7,364.00	-730.60	3,997.00	4,000.89	0.00	0.00	0.00
11,100.00	90.00	90.31	7,364.00	-731.15	4,097.00	4,100.89	0.00	0.00	0.00
11,200.00	90.00	90.31	7,364.00	-731.69	4,197.00	4,200.89	0.00	0.00	0.00

SDT

Planning Report

Database:	EDM 5000 Multi User Db	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Company:	Logos Operating LLC	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Project:	Rio Arriba, NM (NAD83)	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site:	Rosa Unit 32	**North Reference:**	True
Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #7		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
11,300.00	90.00	90.31	7,364.00	-732.24	4,297.00	4,300.89	0.00	0.00	0.00
11,400.00	90.00	90.31	7,364.00	-732.78	4,396.99	4,400.89	0.00	0.00	0.00
11,500.00	90.00	90.31	7,364.00	-733.33	4,496.99	4,500.89	0.00	0.00	0.00
11,600.00	90.00	90.31	7,364.00	-733.87	4,596.99	4,600.89	0.00	0.00	0.00
11,700.00	90.00	90.31	7,364.00	-734.41	4,696.99	4,700.89	0.00	0.00	0.00
11,800.00	90.00	90.31	7,364.00	-734.96	4,796.99	4,800.89	0.00	0.00	0.00
11,900.00	90.00	90.31	7,364.00	-735.50	4,896.99	4,900.89	0.00	0.00	0.00
12,000.00	90.00	90.31	7,364.00	-736.05	4,996.99	5,000.89	0.00	0.00	0.00
12,100.00	90.00	90.31	7,364.00	-736.59	5,096.98	5,100.89	0.00	0.00	0.00
12,200.00	90.00	90.31	7,364.00	-737.14	5,196.98	5,200.89	0.00	0.00	0.00
12,300.00	90.00	90.31	7,364.00	-737.68	5,296.98	5,300.89	0.00	0.00	0.00
12,400.00	90.00	90.31	7,364.00	-738.22	5,396.98	5,400.89	0.00	0.00	0.00
12,500.00	90.00	90.31	7,364.00	-738.77	5,496.98	5,500.89	0.00	0.00	0.00
12,600.00	90.00	90.31	7,364.00	-739.31	5,596.98	5,600.89	0.00	0.00	0.00
12,700.00	90.00	90.31	7,364.00	-739.86	5,696.98	5,700.89	0.00	0.00	0.00
12,800.00	90.00	90.31	7,364.00	-740.40	5,796.97	5,800.89	0.00	0.00	0.00
12,900.00	90.00	90.31	7,364.00	-740.95	5,896.97	5,900.89	0.00	0.00	0.00
13,000.00	90.00	90.31	7,364.00	-741.49	5,996.97	6,000.89	0.00	0.00	0.00
13,100.00	90.00	90.31	7,364.00	-742.04	6,096.97	6,100.89	0.00	0.00	0.00
13,200.00	90.00	90.31	7,364.00	-742.58	6,196.97	6,200.89	0.00	0.00	0.00
13,300.00	90.00	90.31	7,364.00	-743.12	6,296.97	6,300.89	0.00	0.00	0.00
13,400.00	90.00	90.31	7,364.00	-743.67	6,396.96	6,400.89	0.00	0.00	0.00
13,500.00	90.00	90.31	7,364.00	-744.21	6,496.96	6,500.89	0.00	0.00	0.00
13,600.00	90.00	90.31	7,364.00	-744.76	6,596.96	6,600.89	0.00	0.00	0.00
13,700.00	90.00	90.31	7,364.00	-745.30	6,696.96	6,700.89	0.00	0.00	0.00
13,800.00	90.00	90.31	7,364.00	-745.85	6,796.96	6,800.89	0.00	0.00	0.00
13,900.00	90.00	90.31	7,364.00	-746.39	6,896.96	6,900.89	0.00	0.00	0.00
14,000.00	90.00	90.31	7,364.00	-746.93	6,996.96	7,000.89	0.00	0.00	0.00
14,100.00	90.00	90.31	7,364.00	-747.48	7,096.95	7,100.89	0.00	0.00	0.00
14,200.00	90.00	90.31	7,364.00	-748.02	7,196.95	7,200.89	0.00	0.00	0.00
14,300.00	90.00	90.31	7,364.00	-748.57	7,296.95	7,300.89	0.00	0.00	0.00
14,400.00	90.00	90.31	7,364.00	-749.11	7,396.95	7,400.89	0.00	0.00	0.00
14,500.00	90.00	90.31	7,364.00	-749.66	7,496.95	7,500.89	0.00	0.00	0.00
14,600.00	90.00	90.31	7,364.00	-750.20	7,596.95	7,600.89	0.00	0.00	0.00
14,700.00	90.00	90.31	7,364.00	-750.74	7,696.95	7,700.89	0.00	0.00	0.00
14,800.00	90.00	90.31	7,364.00	-751.29	7,796.94	7,800.89	0.00	0.00	0.00
14,900.00	90.00	90.31	7,364.00	-751.83	7,896.94	7,900.89	0.00	0.00	0.00
15,000.00	90.00	90.31	7,364.00	-752.38	7,996.94	8,000.89	0.00	0.00	0.00
15,100.00	90.00	90.31	7,364.00	-752.92	8,096.94	8,100.89	0.00	0.00	0.00
15,200.00	90.00	90.31	7,364.00	-753.47	8,196.94	8,200.89	0.00	0.00	0.00
15,300.00	90.00	90.31	7,364.00	-754.01	8,296.94	8,300.89	0.00	0.00	0.00
15,400.00	90.00	90.31	7,364.00	-754.55	8,396.94	8,400.89	0.00	0.00	0.00
15,500.00	90.00	90.31	7,364.00	-755.10	8,496.93	8,500.89	0.00	0.00	0.00
15,600.00	90.00	90.31	7,364.00	-755.64	8,596.93	8,600.89	0.00	0.00	0.00
15,700.00	90.00	90.31	7,364.00	-756.19	8,696.93	8,700.89	0.00	0.00	0.00
15,800.00	90.00	90.31	7,364.00	-756.73	8,796.93	8,800.89	0.00	0.00	0.00
15,900.00	90.00	90.31	7,364.00	-757.28	8,896.93	8,900.89	0.00	0.00	0.00
16,000.00	90.00	90.31	7,364.00	-757.82	8,996.93	9,000.89	0.00	0.00	0.00
16,100.00	90.00	90.31	7,364.00	-758.36	9,096.92	9,100.89	0.00	0.00	0.00
16,200.00	90.00	90.31	7,364.00	-758.91	9,196.92	9,200.89	0.00	0.00	0.00
16,300.00	90.00	90.31	7,364.00	-759.45	9,296.92	9,300.89	0.00	0.00	0.00
16,400.00	90.00	90.31	7,364.00	-760.00	9,396.92	9,400.89	0.00	0.00	0.00
16,500.00	90.00	90.31	7,364.00	-760.54	9,496.92	9,500.89	0.00	0.00	0.00
16,600.00	90.00	90.31	7,364.00	-761.09	9,596.92	9,600.89	0.00	0.00	0.00

SDT

Planning Report

Database:	EDM 5000 Multi User Db	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Company:	Logos Operating LLC	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Project:	Rio Arriba, NM (NAD83)	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site:	Rosa Unit 32	**North Reference:**	True
Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #7		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
16,700.00	90.00	90.31	7,364.00	-761.63	9,696.92	9,700.89	0.00	0.00	0.00
16,800.00	90.00	90.31	7,364.00	-762.18	9,796.91	9,800.89	0.00	0.00	0.00
16,900.00	90.00	90.31	7,364.00	-762.72	9,896.91	9,900.89	0.00	0.00	0.00
17,000.00	90.00	90.31	7,364.00	-763.26	9,996.91	10,000.89	0.00	0.00	0.00
17,100.00	90.00	90.31	7,364.00	-763.81	10,096.91	10,100.89	0.00	0.00	0.00
17,200.00	90.00	90.31	7,364.00	-764.35	10,196.91	10,200.89	0.00	0.00	0.00
17,300.00	90.00	90.31	7,364.00	-764.90	10,296.91	10,300.89	0.00	0.00	0.00
17,400.00	90.00	90.31	7,364.00	-765.44	10,396.91	10,400.89	0.00	0.00	0.00
17,500.00	90.00	90.31	7,364.00	-765.99	10,496.90	10,500.89	0.00	0.00	0.00
17,600.00	90.00	90.31	7,364.00	-766.53	10,596.90	10,600.89	0.00	0.00	0.00
17,700.00	90.00	90.31	7,364.00	-767.07	10,696.90	10,700.89	0.00	0.00	0.00
17,800.00	90.00	90.31	7,364.00	-767.62	10,796.90	10,800.89	0.00	0.00	0.00
17,900.00	90.00	90.31	7,364.00	-768.16	10,896.90	10,900.89	0.00	0.00	0.00
18,000.00	90.00	90.31	7,364.00	-768.71	10,996.90	11,000.89	0.00	0.00	0.00
18,100.00	90.00	90.31	7,364.00	-769.25	11,096.90	11,100.89	0.00	0.00	0.00
18,200.00	90.00	90.31	7,364.00	-769.80	11,196.89	11,200.89	0.00	0.00	0.00
18,300.00	90.00	90.31	7,364.00	-770.34	11,296.89	11,300.89	0.00	0.00	0.00
18,400.00	90.00	90.31	7,364.00	-770.88	11,396.89	11,400.89	0.00	0.00	0.00
18,500.00	90.00	90.31	7,364.00	-771.43	11,496.89	11,500.89	0.00	0.00	0.00
18,600.00	90.00	90.31	7,364.00	-771.97	11,596.89	11,600.89	0.00	0.00	0.00
18,700.00	90.00	90.31	7,364.00	-772.52	11,696.89	11,700.89	0.00	0.00	0.00
18,800.00	90.00	90.31	7,364.00	-773.06	11,796.88	11,800.89	0.00	0.00	0.00
18,900.00	90.00	90.31	7,364.00	-773.61	11,896.88	11,900.89	0.00	0.00	0.00
19,000.00	90.00	90.31	7,364.00	-774.15	11,996.88	12,000.89	0.00	0.00	0.00
19,100.00	90.00	90.31	7,364.00	-774.69	12,096.88	12,100.89	0.00	0.00	0.00
19,200.00	90.00	90.31	7,364.00	-775.24	12,196.88	12,200.89	0.00	0.00	0.00
19,300.00	90.00	90.31	7,364.00	-775.78	12,296.88	12,300.89	0.00	0.00	0.00
19,400.00	90.00	90.31	7,364.00	-776.33	12,396.88	12,400.89	0.00	0.00	0.00
19,500.00	90.00	90.31	7,364.00	-776.87	12,496.87	12,500.89	0.00	0.00	0.00
19,600.00	90.00	90.31	7,364.00	-777.42	12,596.87	12,600.89	0.00	0.00	0.00
19,700.00	90.00	90.31	7,364.00	-777.96	12,696.87	12,700.89	0.00	0.00	0.00
19,800.00	90.00	90.31	7,364.00	-778.51	12,796.87	12,800.89	0.00	0.00	0.00
19,900.00	90.00	90.31	7,364.00	-779.05	12,896.87	12,900.89	0.00	0.00	0.00
20,000.00	90.00	90.31	7,364.00	-779.59	12,996.87	13,000.89	0.00	0.00	0.00
20,100.00	90.00	90.31	7,364.00	-780.14	13,096.87	13,100.89	0.00	0.00	0.00
20,200.00	90.00	90.31	7,364.00	-780.68	13,196.86	13,200.89	0.00	0.00	0.00
20,300.00	90.00	90.31	7,364.00	-781.23	13,296.86	13,300.89	0.00	0.00	0.00
20,400.00	90.00	90.31	7,364.00	-781.77	13,396.86	13,400.89	0.00	0.00	0.00
20,500.00	90.00	90.31	7,364.00	-782.32	13,496.86	13,500.89	0.00	0.00	0.00
20,600.00	90.00	90.31	7,364.00	-782.86	13,596.86	13,600.89	0.00	0.00	0.00
20,700.00	90.00	90.31	7,364.00	-783.40	13,696.86	13,700.89	0.00	0.00	0.00
20,800.00	90.00	90.31	7,364.00	-783.95	13,796.86	13,800.89	0.00	0.00	0.00
20,900.00	90.00	90.31	7,364.00	-784.49	13,896.85	13,900.89	0.00	0.00	0.00
21,000.00	90.00	90.31	7,364.00	-785.04	13,996.85	14,000.89	0.00	0.00	0.00
21,100.00	90.00	90.31	7,364.00	-785.58	14,096.85	14,100.89	0.00	0.00	0.00
21,200.00	90.00	90.31	7,364.00	-786.13	14,196.85	14,200.89	0.00	0.00	0.00
21,300.00	90.00	90.31	7,364.00	-786.67	14,296.85	14,300.89	0.00	0.00	0.00
21,400.00	90.00	90.31	7,364.00	-787.21	14,396.85	14,400.89	0.00	0.00	0.00
21,500.00	90.00	90.31	7,364.00	-787.76	14,496.84	14,500.89	0.00	0.00	0.00
21,600.00	90.00	90.31	7,364.00	-788.30	14,596.84	14,600.89	0.00	0.00	0.00
21,700.00	90.00	90.31	7,364.00	-788.85	14,696.84	14,700.89	0.00	0.00	0.00
21,800.00	90.00	90.31	7,364.00	-789.39	14,796.84	14,800.89	0.00	0.00	0.00
21,864.93	90.00	90.31	7,364.00	-789.75	14,861.77	14,865.82	0.00	0.00	0.00

SDT

Planning Report

Database:	EDM 5000 Multi User Db	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Company:	Logos Operating LLC	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Project:	Rio Arriba, NM (NAD83)	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site:	Rosa Unit 32	**North Reference:**	True
Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #7		

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)
TD at 21864.93									

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 754H SHL - plan hits target center - Point	0.00	0.00	0.00	0.00	0.00	2,131,273.03	2,857,646.36	36.856114	-107.373409
RU 754H PBHL - plan hits target center - Point	0.00	0.00	7,364.00	-789.75	14,861.77	2,130,554.85	2,872,511.76	36.853934	-107.322612
RU 754H POE - plan hits target center - Point	0.00	0.00	7,364.00	-713.00	762.98	2,130,563.71	2,858,412.76	36.854156	-107.370801

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,713.59	2,702.00	Ojo Alamo		0.00	0.00
2,859.43	2,847.00	Kirtland		0.00	0.00
3,221.52	3,207.00	Fruitland		0.00	0.00
3,291.93	3,277.00	T/Coals		0.00	0.00
3,423.69	3,408.00	B/Coals		0.00	0.00
3,585.63	3,569.00	Pictured Cliffs		0.00	0.00
3,695.26	3,678.00	Lewis		0.00	0.00
4,769.46	4,746.00	Chacra		0.00	0.00
5,277.40	5,251.00	U/Cliff House		0.00	0.00
5,606.30	5,578.00	Cliff House		0.00	0.00
5,634.46	5,606.00	Menefee			
5,848.70	5,819.00	Point Lookout			
6,322.43	6,290.00	Mancos			
6,968.51	6,929.00	Black Top			

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
500.00	500.00	0.00	0.00	Start Build 2.00
808.00	807.41	-14.32	8.27	Start DLS 2.00 TFO 99.66
912.12	910.94	-24.66	12.08	Start 5866.62 hold at 912.12 MD
6,778.75	6,743.68	-643.76	126.85	Start DLS 9.00 TFO -79.25
7,765.93	7,364.00	-713.00	762.98	Start 14099.00 hold at 7765.93 MD
21,864.93	7,364.00	-789.75	14,861.77	TD at 21864.93

Logos Operating LLC

Rio Arriba, NM (NAD83)
Rosa Unit 32
Rosa Unit 754H

OH
Plan #7

Anticollision Report

24 May, 2024

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Reference	Plan #7		
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** 5/24/2024

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	21,864.93	Plan #7 (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 32						
(O) RU #024 - OH - OH	6,029.16	5,952.00	5,455.55	5,328.83	43.052	CC, ES
(O) RU #024 - OH - OH	6,500.00	5,952.00	5,475.83	5,347.76	42.759	SF
(O) RU #024B - OH - OH-SVY	5,762.92	5,637.76	4,556.96	4,529.38	165.193	CC
(O) RU #024B - OH - OH-SVY	5,800.00	5,657.95	4,557.03	4,529.29	164.266	ES
(O) RU #024B - OH - OH-SVY	7,150.00	6,980.48	4,670.54	4,636.39	136.764	SF
(O) RU #026A - OH - OH-SVY	6,318.92	6,139.60	2,818.41	2,788.71	94.901	CC
(O) RU #026A - OH - OH-SVY	6,781.94	6,618.04	2,818.61	2,786.70	88.346	ES
(O) RU #026A - OH - OH-SVY	7,100.00	6,948.07	2,888.17	2,854.71	86.316	SF
(O) RU #026C - OH - OH-SVY	510.20	519.01	1,064.30	1,057.30	152.032	CC, ES
(O) RU #026C - OH - OH-SVY	6,850.00	6,802.24	1,340.89	1,309.34	42.499	SF
(O) RU #055 - OH - OH-SVY	15,428.68	7,383.20	399.95	257.59	2.809	CC, ES, SF
(O) RU #077 - OH - OH-SVY	6,817.00	6,759.07	391.85	358.69	11.818	CC, ES
(O) RU #077 - OH - OH-SVY	6,850.00	6,792.22	392.47	359.17	11.786	SF
(O) RU #077A - OH - OH-SVY	10,155.92	7,300.57	361.80	299.65	5.822	CC, ES
(O) RU #077A - OH - OH-SVY	10,200.00	7,300.23	364.48	301.12	5.753	SF
(O) RU #077B - OH - OH	6,462.71	6,219.00	1,850.92	1,704.89	12.675	SF
(O) RU #077B - OH - OH	8,583.32	6,219.00	1,494.00	1,379.26	13.021	CC
(O) RU #077B - OH - OH	8,600.00	6,219.00	1,494.09	1,379.18	13.001	ES
(O) RU #077C - OH - OH-SVY	10,794.94	7,498.37	1,229.97	1,158.68	17.253	CC
(O) RU #077C - OH - OH-SVY	10,800.00	7,498.41	1,229.98	1,158.59	17.229	ES
(O) RU #077C - OH - OH-SVY	11,000.00	7,500.00	1,246.95	1,172.33	16.712	SF
(O) RU #097 - OH - OH-INC	212.31	193.24	9,336.42	9,328.31	1,151.668	CC
(O) RU #097 - OH - OH-INC	6,778.75	6,725.00	9,432.08	9,263.73	56.028	ES
(O) RU #097 - OH - OH-INC	7,400.00	7,243.86	9,721.55	9,538.09	52.990	SF
(O) RU #137 - OH - OH	381.47	365.49	9,338.52	9,328.72	953.377	CC
(O) RU #137 - OH - OH	6,200.00	6,155.00	9,389.26	9,210.00	52.377	ES
(O) RU #137 - OH - OH	6,800.00	6,170.00	9,414.54	9,232.78	51.797	SF
(O) RU #137A - OH - OH	500.00	440.00	7,270.55	7,261.35	790.888	CC
(O) RU #137A - OH - OH	6,300.00	6,208.88	7,346.97	7,185.51	45.503	ES
(O) RU #137A - OH - OH	6,800.00	6,210.00	7,372.56	7,209.52	45.220	SF
(O) RU #137B - OH - OH	6,320.85	6,165.00	6,750.09	6,601.16	45.324	CC, ES
(O) RU #137B - OH - OH	6,800.00	6,165.00	6,767.42	6,617.03	44.999	SF
(O) RU #137C - OH - OH	300.00	200.00	8,614.21	8,607.51	1,285.183	CC
(O) RU #137C - OH - OH	304.45	200.00	8,614.21	8,607.51	1,284.311	ES
(O) RU #137C - OH - OH	7,350.00	7,073.44	8,937.06	8,902.10	255.636	SF
(O) RU #184 - OH - OH	15,365.61	6,308.00	1,134.29	1,010.82	9.187	CC, ES
(O) RU #184 - OH - OH	15,900.00	6,308.00	1,253.87	1,108.22	8.609	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 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**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 32						
(O) RU #184B - OH - OH	16,370.59	6,298.00	1,634.96	1,338.62	5.517	CC
(O) RU #184B - OH - OH	16,400.00	6,298.00	1,635.23	1,338.40	5.509	ES
(O) RU #184B - OH - OH	16,500.00	6,298.00	1,640.08	1,341.57	5.494	SF
(O) RU #188 - OH - OH	13,061.36	6,476.00	1,066.71	992.82	14.436	CC, ES
(O) RU #188 - OH - OH	13,800.00	6,476.00	1,297.48	1,175.22	10.613	SF
(O) RU #188C - OH - OH-SVY	13,880.68	7,522.00	987.64	869.41	8.354	CC
(O) RU #188C - OH - OH-SVY	13,900.00	7,522.00	987.83	869.19	8.327	ES
(O) RU #188C - OH - OH-SVY	14,000.00	7,521.98	994.82	874.71	8.282	SF
(O) RU #231 - OH - OH	500.00	479.00	9,435.70	9,425.48	923.745	CC
(O) RU #231 - OH - OH	3,400.00	3,337.00	9,458.79	9,382.87	124.586	ES
(O) RU #231 - OH - OH	5,600.00	3,337.00	9,733.10	9,650.96	118.495	SF
(O) RU #231A - OH - OH	3,528.40	3,384.00	6,615.59	6,535.15	82.240	CC, ES
(O) RU #231A - OH - OH	4,600.00	3,384.00	6,701.81	6,618.39	80.344	SF
(O) RU #259 - OH - OH-INC	3,500.00	3,392.00	1,042.84	924.67	8.825	SF
(O) RU #259 - OH - OH-INC	3,554.72	3,392.00	1,041.40	923.46	8.830	CC, ES
(O) RU #259A - OH - OH	3,622.01	3,414.00	3,232.55	3,152.28	40.272	CC, ES
(O) RU #259A - OH - OH	3,800.00	3,414.00	3,237.45	3,156.79	40.137	SF
(O) RU #269A - OH - OH	15,621.82	3,512.00	4,031.28	3,947.35	48.034	CC, ES
(O) RU #269A - OH - OH	16,500.00	3,512.00	4,125.82	4,035.86	45.862	SF
(O) RU #270 - OH - OH	12,945.13	3,597.00	3,933.58	3,875.41	67.623	CC
(O) RU #270 - OH - OH	13,000.00	3,597.00	3,933.96	3,875.37	67.144	ES
(O) RU #270 - OH - OH	15,500.00	3,597.00	4,690.46	4,594.50	48.880	SF
(O) RU #271A - OH - OH	20,900.00	3,527.00	4,097.72	3,978.38	34.337	CC
(O) RU #271A - OH - OH	20,904.45	3,527.00	4,097.72	3,978.34	34.327	ES
(O) RU #271A - OH - OH	21,500.00	3,527.00	4,141.21	4,018.36	33.709	SF
(O) RU #272 - OH - OH	17,400.00	3,569.00	3,999.15	3,900.37	40.488	CC
(O) RU #272 - OH - OH	17,404.45	3,569.00	3,999.15	3,900.34	40.475	ES
(O) RU #272 - OH - OH	19,100.00	3,569.00	4,345.46	4,226.68	36.583	SF
(O) RU #334A - OH - OH	500.00	472.01	2,872.61	2,862.82	293.185	CC
(O) RU #334A - OH - OH	3,500.00	3,456.39	2,936.69	2,851.52	34.482	ES
(O) RU #334A - OH - OH	3,700.00	3,468.00	2,947.80	2,861.78	34.270	SF
(O) RU #337 - OH - OH	341.16	302.16	4,810.95	4,802.99	603.825	CC
(O) RU #337 - OH - OH	3,400.00	3,345.82	4,844.33	4,764.23	60.482	ES
(O) RU #337 - OH - OH	3,900.00	3,351.00	4,875.86	4,794.20	59.707	SF
Rosa Unit #746H - OH - OH	17,754.00	16,903.97	1,259.74	931.99	3.844	CC
Rosa Unit #746H - OH - OH	21,802.92	20,952.96	1,288.68	825.54	2.782	ES, SF
Rosa Unit 750H - OH - Plan #6	500.00	500.00	49.92	42.55	6.769	CC
Rosa Unit 750H - OH - Plan #6	600.00	601.46	50.00	42.29	6.484	ES
Rosa Unit 750H - OH - Plan #6	700.00	702.66	50.62	42.54	6.265	SF
Rosa Unit 752H - OH - Plan #5	1,112.51	1,115.78	19.96	9.85	1.975	CC, ES, SF
Rosa Unit 756H - OH - Plan #7	500.00	500.00	25.14	17.77	3.409	CC
Rosa Unit 756H - OH - Plan #7	600.00	599.12	25.33	17.63	3.287	ES
Rosa Unit 756H - OH - Plan #7	21,864.93	21,798.31	1,207.12	738.28	2.575	SF

Offset Design: Rosa Unit 32 - (O) RU #024 - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 5952-A027Ua_INC-ONLY

Offset Well Error: 3.28 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	3.28	3.28	-107.54	-1,653.79	-5,233.53	5,488.73				

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #024 - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 5952-A027Ua_INC-ONLY

Rule Assigned:

Offset Well Error: 3.28 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
100.00	100.00	64.00	64.00	3.29	3.46	-107.54	-1,653.79	-5,233.53	5,488.61	5,481.85	6.75	812.650	
200.00	200.00	164.00	164.00	3.34	4.35	-107.54	-1,653.79	-5,233.53	5,488.61	5,480.92	7.69	714.078	
300.00	300.00	264.00	264.00	3.42	5.65	-107.54	-1,653.79	-5,233.53	5,488.61	5,479.54	9.07	605.179	
400.00	400.00	364.00	364.00	3.54	7.14	-107.54	-1,653.79	-5,233.53	5,488.61	5,477.93	10.68	513.997	
500.00	500.00	464.00	464.00	3.69	8.72	-107.54	-1,653.79	-5,233.53	5,488.61	5,476.20	12.41	442.196	
600.00	599.98	563.98	563.98	3.86	10.36	102.47	-1,653.79	-5,233.53	5,488.99	5,474.77	14.22	386.123	
700.00	699.84	663.84	663.84	4.04	12.02	102.51	-1,653.79	-5,233.53	5,490.12	5,474.05	16.06	341.749	
808.00	807.41	771.41	771.41	4.27	13.84	102.56	-1,653.79	-5,233.53	5,492.20	5,474.10	18.11	303.328	
900.00	898.89	862.89	862.89	4.49	15.39	85.50	-1,653.79	-5,233.53	5,492.89	5,473.02	19.88	276.367	
912.12	910.94	874.94	874.94	4.52	15.59	83.29	-1,653.79	-5,233.53	5,492.77	5,472.66	20.11	273.129	
1,000.00	998.31	962.31	962.31	4.74	17.09	83.38	-1,653.79	-5,233.53	5,491.67	5,469.84	21.83	251.622	
1,100.00	1,097.73	1,061.73	1,061.73	5.01	18.79	83.50	-1,653.79	-5,233.53	5,490.43	5,466.63	23.80	230.707	
1,200.00	1,197.15	1,161.15	1,161.15	5.29	20.50	83.61	-1,653.79	-5,233.53	5,489.22	5,463.43	25.79	212.835	
1,300.00	1,296.58	1,260.58	1,260.58	5.59	22.21	83.72	-1,653.79	-5,233.53	5,488.03	5,460.23	27.80	197.413	
1,400.00	1,396.00	1,360.00	1,360.00	5.90	23.92	83.83	-1,653.79	-5,233.53	5,486.86	5,457.04	29.82	183.987	
1,500.00	1,495.42	1,459.42	1,459.42	6.22	25.64	83.94	-1,653.79	-5,233.53	5,485.71	5,453.85	31.86	172.206	
1,600.00	1,594.84	1,558.84	1,558.84	6.54	27.36	84.05	-1,653.79	-5,233.53	5,484.58	5,450.68	33.90	161.794	
1,700.00	1,694.27	1,658.27	1,658.27	6.87	29.08	84.16	-1,653.79	-5,233.53	5,483.47	5,447.52	35.95	152.532	
1,800.00	1,793.69	1,757.69	1,757.69	7.21	30.80	84.27	-1,653.79	-5,233.53	5,482.38	5,444.37	38.01	144.243	
1,900.00	1,893.11	1,857.11	1,857.11	7.55	32.52	84.38	-1,653.79	-5,233.53	5,481.31	5,441.24	40.07	136.786	
2,000.00	1,992.53	1,956.53	1,956.53	7.89	34.25	84.49	-1,653.79	-5,233.53	5,480.27	5,438.13	42.14	130.045	
2,100.00	2,091.96	2,055.96	2,055.96	8.24	35.97	84.60	-1,653.79	-5,233.53	5,479.24	5,435.03	44.22	123.922	
2,200.00	2,191.38	2,155.38	2,155.38	8.60	37.70	84.72	-1,653.79	-5,233.53	5,478.24	5,431.94	46.29	118.338	
2,300.00	2,290.80	2,254.80	2,254.80	8.95	39.42	84.83	-1,653.79	-5,233.53	5,477.25	5,428.88	48.37	113.226	
2,400.00	2,390.22	2,354.22	2,354.22	9.31	41.15	84.94	-1,653.79	-5,233.53	5,476.29	5,425.83	50.46	108.529	
2,500.00	2,489.65	2,453.65	2,453.65	9.67	42.88	85.05	-1,653.79	-5,233.53	5,475.35	5,422.80	52.55	104.200	
2,600.00	2,589.07	2,553.07	2,553.07	10.03	44.61	85.16	-1,653.79	-5,233.53	5,474.43	5,419.79	54.64	100.198	
2,700.00	2,688.49	2,652.49	2,652.49	10.40	46.33	85.27	-1,653.79	-5,233.53	5,473.53	5,416.80	56.73	96.487	
2,800.00	2,787.91	2,751.91	2,751.91	10.76	48.06	85.38	-1,653.79	-5,233.53	5,472.65	5,413.83	58.82	93.038	
2,900.00	2,887.33	2,851.33	2,851.33	11.13	49.79	85.49	-1,653.79	-5,233.53	5,471.79	5,410.87	60.92	89.823	
3,000.00	2,986.76	2,950.76	2,950.76	11.50	51.52	85.61	-1,653.79	-5,233.53	5,470.95	5,407.94	63.01	86.820	
3,100.00	3,086.18	3,050.18	3,050.18	11.87	53.25	85.72	-1,653.79	-5,233.53	5,470.14	5,405.02	65.11	84.009	
3,200.00	3,185.60	3,149.60	3,149.60	12.24	54.98	85.83	-1,653.79	-5,233.53	5,469.34	5,402.13	67.21	81.373	
3,300.00	3,285.02	3,249.02	3,249.02	12.61	56.71	85.94	-1,653.79	-5,233.53	5,468.56	5,399.25	69.31	78.895	
3,400.00	3,384.45	3,348.45	3,348.45	12.98	58.44	86.05	-1,653.79	-5,233.53	5,467.81	5,396.39	71.42	76.562	
3,500.00	3,483.87	3,447.87	3,447.87	13.36	60.17	86.16	-1,653.79	-5,233.53	5,467.08	5,393.56	73.52	74.362	
3,600.00	3,583.29	3,547.29	3,547.29	13.73	61.89	86.27	-1,653.79	-5,233.53	5,466.37	5,390.74	75.62	72.283	
3,700.00	3,682.71	3,646.71	3,646.71	14.11	63.62	86.39	-1,653.79	-5,233.53	5,465.68	5,387.95	77.73	70.317	
3,800.00	3,782.14	3,746.14	3,746.14	14.48	65.35	86.50	-1,653.79	-5,233.53	5,465.01	5,385.17	79.84	68.453	
3,900.00	3,881.56	3,845.56	3,845.56	14.86	67.09	86.61	-1,653.79	-5,233.53	5,464.36	5,382.41	81.94	66.686	
4,000.00	3,980.98	3,944.98	3,944.98	15.24	68.82	86.72	-1,653.79	-5,233.53	5,463.73	5,379.68	84.05	65.006	
4,100.00	4,080.40	4,044.40	4,044.40	15.61	70.55	86.83	-1,653.79	-5,233.53	5,463.12	5,376.96	86.16	63.409	
4,200.00	4,179.83	4,143.83	4,143.83	15.99	72.28	86.94	-1,653.79	-5,233.53	5,462.54	5,374.27	88.27	61.887	
4,300.00	4,279.25	4,243.25	4,243.25	16.37	74.01	87.06	-1,653.79	-5,233.53	5,461.97	5,371.60	90.37	60.437	
4,400.00	4,378.67	4,342.67	4,342.67	16.75	75.74	87.17	-1,653.79	-5,233.53	5,461.43	5,368.94	92.48	59.052	
4,500.00	4,478.09	4,442.09	4,442.09	17.13	77.47	87.28	-1,653.79	-5,233.53	5,460.90	5,366.31	94.59	57.730	
4,600.00	4,577.51	4,541.51	4,541.51	17.51	79.20	87.39	-1,653.79	-5,233.53	5,460.40	5,363.70	96.70	56.465	
4,700.00	4,676.94	4,640.94	4,640.94	17.89	80.93	87.50	-1,653.79	-5,233.53	5,459.92	5,361.11	98.82	55.254	
4,800.00	4,776.36	4,740.36	4,740.36	18.27	82.66	87.62	-1,653.79	-5,233.53	5,459.46	5,358.54	100.93	54.093	
4,900.00	4,875.78	4,839.78	4,839.78	18.65	84.39	87.73	-1,653.79	-5,233.53	5,459.02	5,355.99	103.04	52.980	
5,000.00	4,975.20	4,939.20	4,939.20	19.03	86.12	87.84	-1,653.79	-5,233.53	5,458.61	5,353.46	105.15	51.912	
5,100.00	5,074.63	5,038.63	5,038.63	19.41	87.85	87.95	-1,653.79	-5,233.53	5,458.21	5,350.95	107.26	50.886	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #024 - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 5952-A027Ua_INC-ONLY

Rule Assigned:

Offset Well Error: 3.28 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,200.00	5,174.05	5,138.05	5,138.05	19.79	89.59	88.06	-1,653.79	-5,233.53	5,457.84	5,348.46	109.38	49.900	
5,300.00	5,273.47	5,237.47	5,237.47	20.17	91.32	88.18	-1,653.79	-5,233.53	5,457.48	5,345.99	111.49	48.951	
5,400.00	5,372.89	5,336.89	5,336.89	20.56	93.05	88.29	-1,653.79	-5,233.53	5,457.15	5,343.55	113.60	48.038	
5,500.00	5,472.32	5,436.32	5,436.32	20.94	94.78	88.40	-1,653.79	-5,233.53	5,456.84	5,341.12	115.71	47.158	
5,600.00	5,571.74	5,535.74	5,535.74	21.32	96.51	88.51	-1,653.79	-5,233.53	5,456.54	5,338.72	117.83	46.309	
5,700.00	5,671.16	5,635.16	5,635.16	21.70	98.24	88.62	-1,653.79	-5,233.53	5,456.27	5,336.33	119.94	45.491	
5,800.00	5,770.58	5,734.58	5,734.58	22.08	99.97	88.74	-1,653.79	-5,233.53	5,456.03	5,333.97	122.06	44.701	
5,900.00	5,870.01	5,834.01	5,834.01	22.47	101.70	88.85	-1,653.79	-5,233.53	5,455.80	5,331.63	124.17	43.938	
6,000.00	5,969.43	5,933.43	5,933.43	22.85	103.44	88.96	-1,653.79	-5,233.53	5,455.59	5,329.31	126.29	43.201	
6,029.16	5,998.42	5,952.00	5,952.00	22.96	103.76	88.98	-1,653.79	-5,233.53	5,455.55	5,328.83	126.72	43.052	CC, ES
6,100.00	6,068.85	5,952.00	5,952.00	23.23	103.76	88.98	-1,653.79	-5,233.53	5,456.01	5,329.03	126.98	42.968	
6,200.00	6,168.27	5,952.00	5,952.00	23.62	103.76	88.98	-1,653.79	-5,233.53	5,458.22	5,330.91	127.31	42.874	
6,300.00	6,267.70	5,952.00	5,952.00	24.00	103.76	88.98	-1,653.79	-5,233.53	5,462.26	5,334.66	127.60	42.808	
6,400.00	6,367.12	5,952.00	5,952.00	24.38	103.76	88.98	-1,653.79	-5,233.53	5,468.14	5,340.28	127.85	42.770	
6,500.00	6,466.54	5,952.00	5,952.00	24.77	103.76	88.98	-1,653.79	-5,233.53	5,475.83	5,347.76	128.06	42.759	SF
6,600.00	6,565.96	5,952.00	5,952.00	25.15	103.76	88.98	-1,653.79	-5,233.53	5,485.33	5,357.10	128.23	42.776	
6,700.00	6,665.38	5,952.00	5,952.00	25.53	103.76	88.98	-1,653.79	-5,233.53	5,496.64	5,368.27	128.36	42.820	
6,778.75	6,743.68	5,952.00	5,952.00	25.84	103.76	88.98	-1,653.79	-5,233.53	5,506.80	5,378.36	128.44	42.874	
6,800.00	6,764.80	5,952.00	5,952.00	25.92	103.76	104.94	-1,653.79	-5,233.53	5,510.08	5,381.62	128.46	42.894	
6,850.00	6,814.29	5,952.00	5,952.00	26.11	103.76	129.12	-1,653.79	-5,233.53	5,520.79	5,392.29	128.49	42.965	
6,900.00	6,863.27	5,952.00	5,952.00	26.30	103.76	140.77	-1,653.79	-5,233.53	5,535.63	5,407.10	128.52	43.071	
6,950.00	6,911.44	5,952.00	5,952.00	26.50	103.76	146.87	-1,653.79	-5,233.53	5,554.48	5,425.93	128.55	43.210	
7,000.00	6,958.49	5,952.00	5,952.00	26.68	103.76	150.32	-1,653.79	-5,233.53	5,577.18	5,448.62	128.56	43.380	
7,050.00	7,004.14	5,952.00	5,952.00	26.87	103.76	152.29	-1,653.79	-5,233.53	5,603.55	5,474.97	128.58	43.581	
7,100.00	7,048.10	5,952.00	5,952.00	27.05	103.76	153.32	-1,653.79	-5,233.53	5,633.37	5,504.79	128.59	43.810	
7,150.00	7,090.11	5,952.00	5,952.00	27.23	103.76	153.64	-1,653.79	-5,233.53	5,666.42	5,537.82	128.59	44.065	
7,200.00	7,129.90	5,952.00	5,952.00	27.41	103.76	153.35	-1,653.79	-5,233.53	5,702.42	5,573.82	128.60	44.343	
7,250.00	7,167.24	5,952.00	5,952.00	27.59	103.76	152.46	-1,653.79	-5,233.53	5,741.10	5,612.50	128.60	44.642	
7,300.00	7,201.88	5,952.00	5,952.00	27.76	103.76	150.88	-1,653.79	-5,233.53	5,782.18	5,653.57	128.61	44.959	
7,350.00	7,233.63	5,952.00	5,952.00	27.94	103.76	148.44	-1,653.79	-5,233.53	5,825.35	5,696.73	128.62	45.291	
7,400.00	7,262.27	5,952.00	5,952.00	28.13	103.76	144.79	-1,653.79	-5,233.53	5,870.31	5,741.67	128.64	45.635	
7,450.00	7,287.63	5,952.00	5,952.00	28.32	103.76	139.33	-1,653.79	-5,233.53	5,916.73	5,788.08	128.66	45.989	
7,500.00	7,309.57	5,952.00	5,952.00	28.53	103.76	130.98	-1,653.79	-5,233.53	5,964.31	5,835.63	128.68	46.349	
7,550.00	7,327.93	5,952.00	5,952.00	28.74	103.76	118.03	-1,653.79	-5,233.53	6,012.72	5,884.00	128.72	46.712	
7,600.00	7,342.62	5,952.00	5,952.00	28.97	103.76	98.80	-1,653.79	-5,233.53	6,061.65	5,932.89	128.76	47.076	
7,650.00	7,353.53	5,952.00	5,952.00	29.22	103.76	75.15	-1,653.79	-5,233.53	6,110.79	5,981.98	128.82	47.438	
7,700.00	7,360.61	5,952.00	5,952.00	29.48	103.76	53.90	-1,653.79	-5,233.53	6,159.84	6,030.96	128.88	47.794	
7,750.00	7,363.80	5,952.00	5,952.00	29.75	103.76	38.88	-1,653.79	-5,233.53	6,208.50	6,079.54	128.96	48.143	
7,765.93	7,364.00	5,952.00	5,952.00	29.84	103.76	35.28	-1,653.79	-5,233.53	6,223.86	6,094.88	128.99	48.252	
7,800.00	7,364.00	5,952.00	5,952.00	30.04	103.76	35.28	-1,653.79	-5,233.53	6,256.67	6,127.62	129.05	48.483	
7,900.00	7,364.00	5,952.00	5,952.00	30.67	103.76	35.28	-1,653.79	-5,233.53	6,353.03	6,223.81	129.23	49.162	
8,000.00	7,364.00	5,952.00	5,952.00	31.37	103.76	35.28	-1,653.79	-5,233.53	6,449.50	6,320.10	129.40	49.842	
8,100.00	7,364.00	5,952.00	5,952.00	32.14	103.76	35.28	-1,653.79	-5,233.53	6,546.08	6,416.51	129.57	50.521	
8,200.00	7,364.00	5,952.00	5,952.00	32.96	103.76	35.28	-1,653.79	-5,233.53	6,642.76	6,513.02	129.74	51.201	
8,300.00	7,364.00	5,952.00	5,952.00	33.85	103.76	35.28	-1,653.79	-5,233.53	6,739.53	6,609.63	129.90	51.881	
8,400.00	7,364.00	5,952.00	5,952.00	34.79	103.76	35.28	-1,653.79	-5,233.53	6,836.40	6,706.34	130.06	52.561	
8,500.00	7,364.00	5,952.00	5,952.00	35.77	103.76	35.28	-1,653.79	-5,233.53	6,933.36	6,803.13	130.22	53.242	
8,600.00	7,364.00	5,952.00	5,952.00	36.80	103.76	35.28	-1,653.79	-5,233.53	7,030.40	6,900.02	130.38	53.922	
8,700.00	7,364.00	5,952.00	5,952.00	37.87	103.76	35.28	-1,653.79	-5,233.53	7,127.52	6,996.99	130.53	54.603	
8,800.00	7,364.00	5,952.00	5,952.00	38.98	103.76	35.28	-1,653.79	-5,233.53	7,224.73	7,094.04	130.68	55.284	
8,900.00	7,364.00	5,952.00	5,952.00	40.12	103.76	35.28	-1,653.79	-5,233.53	7,322.00	7,191.17	130.83	55.965	
9,000.00	7,364.00	5,952.00	5,952.00	41.29	103.76	35.28	-1,653.79	-5,233.53	7,419.35	7,288.38	130.98	56.646	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #024 - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 5952-A027Ua_INC-ONLY

Rule Assigned:

Offset Well Error: 3.28 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,100.00	7,364.00	5,952.00	5,952.00	42.49	103.76	35.28	-1,653.79	-5,233.53	7,516.77	7,385.65	131.12	57.326	
9,200.00	7,364.00	5,952.00	5,952.00	43.71	103.76	35.28	-1,653.79	-5,233.53	7,614.26	7,483.00	131.26	58.007	
9,300.00	7,364.00	5,952.00	5,952.00	44.96	103.76	35.28	-1,653.79	-5,233.53	7,711.81	7,580.41	131.40	58.688	
9,400.00	7,364.00	5,952.00	5,952.00	46.23	103.76	35.28	-1,653.79	-5,233.53	7,809.42	7,677.88	131.54	59.369	
9,500.00	7,364.00	5,952.00	5,952.00	47.52	103.76	35.28	-1,653.79	-5,233.53	7,907.10	7,775.42	131.68	60.050	
9,600.00	7,364.00	5,952.00	5,952.00	48.83	103.76	35.28	-1,653.79	-5,233.53	8,004.83	7,873.02	131.81	60.730	
9,700.00	7,364.00	5,952.00	5,952.00	50.15	103.76	35.28	-1,653.79	-5,233.53	8,102.61	7,970.67	131.94	61.411	
9,800.00	7,364.00	5,952.00	5,952.00	51.49	103.76	35.28	-1,653.79	-5,233.53	8,200.45	8,068.38	132.07	62.091	
9,900.00	7,364.00	5,952.00	5,952.00	52.85	103.76	35.28	-1,653.79	-5,233.53	8,298.34	8,166.14	132.20	62.771	
10,000.00	7,364.00	5,952.00	5,952.00	54.22	103.76	35.28	-1,653.79	-5,233.53	8,396.28	8,263.95	132.33	63.451	
10,100.00	7,364.00	5,952.00	5,952.00	55.60	103.76	35.28	-1,653.79	-5,233.53	8,494.27	8,361.82	132.45	64.131	
10,200.00	7,364.00	5,952.00	5,952.00	56.99	103.76	35.28	-1,653.79	-5,233.53	8,592.30	8,459.73	132.58	64.810	
10,300.00	7,364.00	5,952.00	5,952.00	58.40	103.76	35.28	-1,653.79	-5,233.53	8,690.38	8,557.68	132.70	65.490	
10,400.00	7,364.00	5,952.00	5,952.00	59.81	103.76	35.28	-1,653.79	-5,233.53	8,788.51	8,655.69	132.82	66.169	
10,500.00	7,364.00	5,952.00	5,952.00	61.23	103.76	35.28	-1,653.79	-5,233.53	8,886.67	8,753.73	132.94	66.848	
10,600.00	7,364.00	5,952.00	5,952.00	62.66	103.76	35.28	-1,653.79	-5,233.53	8,984.87	8,851.82	133.06	67.526	
10,700.00	7,364.00	5,952.00	5,952.00	64.10	103.76	35.28	-1,653.79	-5,233.53	9,083.12	8,949.94	133.18	68.204	
10,800.00	7,364.00	5,952.00	5,952.00	65.55	103.76	35.28	-1,653.79	-5,233.53	9,181.40	9,048.11	133.29	68.882	
10,900.00	7,364.00	5,952.00	5,952.00	67.01	103.76	35.28	-1,653.79	-5,233.53	9,279.72	9,146.31	133.41	69.560	
11,000.00	7,364.00	5,952.00	5,952.00	68.47	103.76	35.28	-1,653.79	-5,233.53	9,378.07	9,244.55	133.52	70.237	
11,100.00	7,364.00	5,952.00	5,952.00	69.93	103.76	35.28	-1,653.79	-5,233.53	9,476.46	9,342.83	133.63	70.914	
11,200.00	7,364.00	5,952.00	5,952.00	71.41	103.76	35.28	-1,653.79	-5,233.53	9,574.88	9,441.14	133.75	71.590	
11,300.00	7,364.00	5,952.00	5,952.00	72.88	103.76	35.28	-1,653.79	-5,233.53	9,673.34	9,539.48	133.86	72.266	
11,400.00	7,364.00	5,952.00	5,952.00	74.37	103.76	35.28	-1,653.79	-5,233.53	9,771.82	9,637.86	133.97	72.941	
11,500.00	7,364.00	5,952.00	5,952.00	75.85	103.76	35.28	-1,653.79	-5,233.53	9,870.34	9,736.26	134.08	73.616	
11,600.00	7,364.00	5,952.00	5,952.00	77.35	103.76	35.28	-1,653.79	-5,233.53	9,968.89	9,834.70	134.19	74.291	
11,700.00	7,364.00	5,952.00	5,952.00	78.84	103.76	35.28	-1,653.79	-5,233.53	10,067.46	9,933.17	134.29	74.965	
11,800.00	7,364.00	5,952.00	5,952.00	80.34	103.76	35.28	-1,653.79	-5,233.53	10,166.06	10,031.66	134.40	75.639	
11,900.00	7,364.00	5,952.00	5,952.00	81.85	103.76	35.28	-1,653.79	-5,233.53	10,264.69	10,130.18	134.51	76.312	
12,000.00	7,364.00	5,952.00	5,952.00	83.36	103.76	35.28	-1,653.79	-5,233.53	10,363.35	10,228.73	134.62	76.985	
12,100.00	7,364.00	5,952.00	5,952.00	84.87	103.76	35.28	-1,653.79	-5,233.53	10,462.03	10,327.31	134.72	77.657	
12,200.00	7,364.00	5,952.00	5,952.00	86.38	103.76	35.28	-1,653.79	-5,233.53	10,560.74	10,425.91	134.83	78.329	
12,300.00	7,364.00	5,952.00	5,952.00	87.90	103.76	35.28	-1,653.79	-5,233.53	10,659.47	10,524.54	134.93	79.000	
12,400.00	7,364.00	5,952.00	5,952.00	89.42	103.76	35.28	-1,653.79	-5,233.53	10,758.22	10,623.19	135.03	79.670	
12,500.00	7,364.00	5,952.00	5,952.00	90.95	103.76	35.28	-1,653.79	-5,233.53	10,857.00	10,721.86	135.14	80.340	
12,600.00	7,364.00	5,952.00	5,952.00	92.47	103.76	35.28	-1,653.79	-5,233.53	10,955.79	10,820.55	135.24	81.010	
12,700.00	7,364.00	5,952.00	5,952.00	94.00	103.76	35.28	-1,653.79	-5,233.53	11,054.61	10,919.27	135.34	81.679	
12,800.00	7,364.00	5,952.00	5,952.00	95.53	103.76	35.28	-1,653.79	-5,233.53	11,153.46	11,018.01	135.44	82.347	
12,900.00	7,364.00	5,952.00	5,952.00	97.06	103.76	35.28	-1,653.79	-5,233.53	11,252.32	11,116.77	135.55	83.015	
13,000.00	7,364.00	5,952.00	5,952.00	98.60	103.76	35.28	-1,653.79	-5,233.53	11,351.20	11,215.55	135.65	83.682	
13,100.00	7,364.00	5,952.00	5,952.00	100.14	103.76	35.28	-1,653.79	-5,233.53	11,450.10	11,314.35	135.75	84.348	
13,200.00	7,364.00	5,952.00	5,952.00	101.68	103.76	35.28	-1,653.79	-5,233.53	11,549.02	11,413.17	135.85	85.014	
13,300.00	7,364.00	5,952.00	5,952.00	103.22	103.76	35.28	-1,653.79	-5,233.53	11,647.96	11,512.01	135.95	85.679	
13,400.00	7,364.00	5,952.00	5,952.00	104.76	103.76	35.28	-1,653.79	-5,233.53	11,746.92	11,610.87	136.05	86.343	
13,500.00	7,364.00	5,952.00	5,952.00	106.31	103.76	35.28	-1,653.79	-5,233.53	11,845.89	11,709.74	136.15	87.007	
13,600.00	7,364.00	5,952.00	5,952.00	107.85	103.76	35.28	-1,653.79	-5,233.53	11,944.88	11,808.63	136.25	87.670	
13,700.00	7,364.00	5,952.00	5,952.00	109.40	103.76	35.28	-1,653.79	-5,233.53	12,043.89	11,907.54	136.35	88.332	
13,800.00	7,364.00	5,952.00	5,952.00	110.95	103.76	35.28	-1,653.79	-5,233.53	12,142.91	12,006.47	136.45	88.994	
13,900.00	7,364.00	5,952.00	5,952.00	112.50	103.76	35.28	-1,653.79	-5,233.53	12,241.95	12,105.41	136.55	89.655	
14,000.00	7,364.00	5,952.00	5,952.00	114.05	103.76	35.28	-1,653.79	-5,233.53	12,341.01	12,204.36	136.64	90.315	
14,100.00	7,364.00	5,952.00	5,952.00	115.61	103.76	35.28	-1,653.79	-5,233.53	12,440.08	12,303.34	136.74	90.975	
14,200.00	7,364.00	5,952.00	5,952.00	117.16	103.76	35.28	-1,653.79	-5,233.53	12,539.16	12,402.32	136.84	91.633	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #024 - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 5952-A027Ua_INC-ONLY

Rule Assigned:

Offset Well Error: 3.28 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,300.00	7,364.00	5,952.00	5,952.00	118.72	103.76	35.28	-1,653.79	-5,233.53	12,638.26	12,501.32	136.94	92.291	
14,400.00	7,364.00	5,952.00	5,952.00	120.28	103.76	35.28	-1,653.79	-5,233.53	12,737.38	12,600.34	137.04	92.949	
14,500.00	7,364.00	5,952.00	5,952.00	121.84	103.76	35.28	-1,653.79	-5,233.53	12,836.50	12,699.37	137.13	93.605	
14,600.00	7,364.00	5,952.00	5,952.00	123.40	103.76	35.28	-1,653.79	-5,233.53	12,935.64	12,798.41	137.23	94.261	
14,700.00	7,364.00	5,952.00	5,952.00	124.96	103.76	35.28	-1,653.79	-5,233.53	13,034.80	12,897.47	137.33	94.916	
14,800.00	7,364.00	5,952.00	5,952.00	126.52	103.76	35.28	-1,653.79	-5,233.53	13,133.97	12,996.54	137.43	95.570	
14,900.00	7,364.00	5,952.00	5,952.00	128.08	103.76	35.28	-1,653.79	-5,233.53	13,233.14	13,095.62	137.53	96.224	
15,000.00	7,364.00	5,952.00	5,952.00	129.64	103.76	35.28	-1,653.79	-5,233.53	13,332.34	13,194.71	137.62	96.876	
15,100.00	7,364.00	5,952.00	5,952.00	131.21	103.76	35.28	-1,653.79	-5,233.53	13,431.54	13,293.82	137.72	97.528	
15,200.00	7,364.00	5,952.00	5,952.00	132.77	103.76	35.28	-1,653.79	-5,233.53	13,530.75	13,392.94	137.82	98.179	
15,300.00	7,364.00	5,952.00	5,952.00	134.34	103.76	35.28	-1,653.79	-5,233.53	13,629.98	13,492.07	137.91	98.829	
15,400.00	7,364.00	5,952.00	5,952.00	135.91	103.76	35.28	-1,653.79	-5,233.53	13,729.22	13,591.21	138.01	99.478	
15,500.00	7,364.00	5,952.00	5,952.00	137.48	103.76	35.28	-1,653.79	-5,233.53	13,828.47	13,690.36	138.11	100.127	
15,600.00	7,364.00	5,952.00	5,952.00	139.04	103.76	35.28	-1,653.79	-5,233.53	13,927.73	13,789.52	138.21	100.775	
15,700.00	7,364.00	5,952.00	5,952.00	140.61	103.76	35.28	-1,653.79	-5,233.53	14,027.00	13,888.69	138.30	101.422	
15,800.00	7,364.00	5,952.00	5,952.00	142.18	103.76	35.28	-1,653.79	-5,233.53	14,126.28	13,987.88	138.40	102.068	
15,900.00	7,364.00	5,952.00	5,952.00	143.75	103.76	35.28	-1,653.79	-5,233.53	14,225.57	14,087.07	138.50	102.713	
16,000.00	7,364.00	5,952.00	5,952.00	145.33	103.76	35.28	-1,653.79	-5,233.53	14,324.87	14,186.27	138.60	103.357	
16,100.00	7,364.00	5,952.00	5,952.00	146.90	103.76	35.28	-1,653.79	-5,233.53	14,424.18	14,285.49	138.69	104.000	
16,200.00	7,364.00	5,952.00	5,952.00	148.47	103.76	35.28	-1,653.79	-5,233.53	14,523.50	14,384.71	138.79	104.643	
16,300.00	7,364.00	5,952.00	5,952.00	150.04	103.76	35.28	-1,653.79	-5,233.53	14,622.83	14,483.94	138.89	105.285	
16,400.00	7,364.00	5,952.00	5,952.00	151.62	103.76	35.28	-1,653.79	-5,233.53	14,722.17	14,583.18	138.99	105.925	
16,500.00	7,364.00	5,952.00	5,952.00	153.19	103.76	35.28	-1,653.79	-5,233.53	14,821.51	14,682.43	139.08	106.565	
16,600.00	7,364.00	5,952.00	5,952.00	154.77	103.76	35.28	-1,653.79	-5,233.53	14,920.87	14,781.69	139.18	107.204	
16,700.00	7,364.00	5,952.00	5,952.00	156.34	103.76	35.28	-1,653.79	-5,233.53	15,020.23	14,880.95	139.28	107.842	
16,800.00	7,364.00	5,952.00	5,952.00	157.92	103.76	35.28	-1,653.79	-5,233.53	15,119.61	14,980.23	139.38	108.479	
16,900.00	7,364.00	5,952.00	5,952.00	159.49	103.76	35.28	-1,653.79	-5,233.53	15,218.99	15,079.51	139.48	109.116	
17,000.00	7,364.00	5,952.00	5,952.00	161.07	103.76	35.28	-1,653.79	-5,233.53	15,318.38	15,178.80	139.57	109.751	
17,100.00	7,364.00	5,952.00	5,952.00	162.65	103.76	35.28	-1,653.79	-5,233.53	15,417.77	15,278.10	139.67	110.386	
17,200.00	7,364.00	5,952.00	5,952.00	164.23	103.76	35.28	-1,653.79	-5,233.53	15,517.18	15,377.41	139.77	111.019	
17,300.00	7,364.00	5,952.00	5,952.00	165.81	103.76	35.28	-1,653.79	-5,233.53	15,616.59	15,476.72	139.87	111.652	
17,400.00	7,364.00	5,952.00	5,952.00	167.38	103.76	35.28	-1,653.79	-5,233.53	15,716.01	15,576.04	139.97	112.283	
17,500.00	7,364.00	5,952.00	5,952.00	168.96	103.76	35.28	-1,653.79	-5,233.53	15,815.44	15,675.37	140.07	112.914	
17,600.00	7,364.00	5,952.00	5,952.00	170.54	103.76	35.28	-1,653.79	-5,233.53	15,914.87	15,774.70	140.16	113.544	
17,700.00	7,364.00	5,952.00	5,952.00	172.12	103.76	35.28	-1,653.79	-5,233.53	16,014.31	15,874.05	140.26	114.173	
17,800.00	7,364.00	5,952.00	5,952.00	173.70	103.76	35.28	-1,653.79	-5,233.53	16,113.76	15,973.40	140.36	114.801	
17,900.00	7,364.00	5,952.00	5,952.00	175.28	103.76	35.28	-1,653.79	-5,233.53	16,213.21	16,072.75	140.46	115.428	
18,000.00	7,364.00	5,952.00	5,952.00	176.87	103.76	35.28	-1,653.79	-5,233.53	16,312.68	16,172.11	140.56	116.054	
18,100.00	7,364.00	5,952.00	5,952.00	178.45	103.76	35.28	-1,653.79	-5,233.53	16,412.14	16,271.48	140.66	116.679	
18,200.00	7,364.00	5,952.00	5,952.00	180.03	103.76	35.28	-1,653.79	-5,233.53	16,511.62	16,370.86	140.76	117.303	
18,300.00	7,364.00	5,952.00	5,952.00	181.61	103.76	35.28	-1,653.79	-5,233.53	16,611.10	16,470.24	140.86	117.926	
18,400.00	7,364.00	5,952.00	5,952.00	183.19	103.76	35.28	-1,653.79	-5,233.53	16,710.59	16,569.63	140.96	118.548	
18,500.00	7,364.00	5,952.00	5,952.00	184.78	103.76	35.28	-1,653.79	-5,233.53	16,810.08	16,669.02	141.06	119.169	
18,600.00	7,364.00	5,952.00	5,952.00	186.36	103.76	35.28	-1,653.79	-5,233.53	16,909.58	16,768.42	141.16	119.789	
18,700.00	7,364.00	5,952.00	5,952.00	187.94	103.76	35.28	-1,653.79	-5,233.53	17,009.08	16,867.82	141.26	120.409	
18,800.00	7,364.00	5,952.00	5,952.00	189.53	103.76	35.28	-1,653.79	-5,233.53	17,108.59	16,967.23	141.36	121.027	
18,900.00	7,364.00	5,952.00	5,952.00	191.11	103.76	35.28	-1,653.79	-5,233.53	17,208.11	17,066.65	141.46	121.644	
19,000.00	7,364.00	5,952.00	5,952.00	192.70	103.76	35.28	-1,653.79	-5,233.53	17,307.63	17,166.07	141.56	122.260	
19,100.00	7,364.00	5,952.00	5,952.00	194.28	103.76	35.28	-1,653.79	-5,233.53	17,407.16	17,265.49	141.66	122.876	
19,200.00	7,364.00	5,952.00	5,952.00	195.87	103.76	35.28	-1,653.79	-5,233.53	17,506.69	17,364.93	141.77	123.490	
19,300.00	7,364.00	5,952.00	5,952.00	197.45	103.76	35.28	-1,653.79	-5,233.53	17,606.23	17,464.36	141.87	124.103	
19,400.00	7,364.00	5,952.00	5,952.00	199.04	103.76	35.28	-1,653.79	-5,233.53	17,705.77	17,563.80	141.97	124.716	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #024 - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 5952-A027Ua_INC-ONLY

Rule Assigned:

Offset Well Error: 3.28 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
19,500.00	7,364.00	5,952.00	5,952.00	200.62	103.76	35.28	-1,653.79	-5,233.53	17,805.32	17,663.25	142.07	125.327	
19,600.00	7,364.00	5,952.00	5,952.00	202.21	103.76	35.28	-1,653.79	-5,233.53	17,904.87	17,762.70	142.17	125.937	
19,700.00	7,364.00	5,952.00	5,952.00	203.79	103.76	35.28	-1,653.79	-5,233.53	18,004.43	17,862.16	142.28	126.547	
19,800.00	7,364.00	5,952.00	5,952.00	205.38	103.76	35.28	-1,653.79	-5,233.53	18,104.00	17,961.62	142.38	127.155	
19,900.00	7,364.00	5,952.00	5,952.00	206.97	103.76	35.28	-1,653.79	-5,233.53	18,203.56	18,061.08	142.48	127.762	
20,000.00	7,364.00	5,952.00	5,952.00	208.55	103.76	35.28	-1,653.79	-5,233.53	18,303.14	18,160.55	142.58	128.368	
20,100.00	7,364.00	5,952.00	5,952.00	210.14	103.76	35.28	-1,653.79	-5,233.53	18,402.71	18,260.03	142.69	128.974	
20,200.00	7,364.00	5,952.00	5,952.00	211.73	103.76	35.28	-1,653.79	-5,233.53	18,502.30	18,359.51	142.79	129.578	
20,300.00	7,364.00	5,952.00	5,952.00	213.32	103.76	35.28	-1,653.79	-5,233.53	18,601.88	18,458.99	142.89	130.181	
20,400.00	7,364.00	5,952.00	5,952.00	214.90	103.76	35.28	-1,653.79	-5,233.53	18,701.47	18,558.48	143.00	130.783	
20,500.00	7,364.00	5,952.00	5,952.00	216.49	103.76	35.28	-1,653.79	-5,233.53	18,801.07	18,657.97	143.10	131.385	
20,600.00	7,364.00	5,952.00	5,952.00	218.08	103.76	35.28	-1,653.79	-5,233.53	18,900.67	18,757.47	143.20	131.985	
20,700.00	7,364.00	5,952.00	5,952.00	219.67	103.76	35.28	-1,653.79	-5,233.53	19,000.27	18,856.96	143.31	132.584	
20,800.00	7,364.00	5,952.00	5,952.00	221.26	103.76	35.28	-1,653.79	-5,233.53	19,099.88	18,956.47	143.41	133.182	
20,900.00	7,364.00	5,952.00	5,952.00	222.84	103.76	35.28	-1,653.79	-5,233.53	19,199.49	19,055.98	143.52	133.779	
21,000.00	7,364.00	5,952.00	5,952.00	224.43	103.76	35.28	-1,653.79	-5,233.53	19,299.11	19,155.49	143.62	134.375	
21,100.00	7,364.00	5,952.00	5,952.00	226.02	103.76	35.28	-1,653.79	-5,233.53	19,398.73	19,255.00	143.73	134.970	
21,200.00	7,364.00	5,952.00	5,952.00	227.61	103.76	35.28	-1,653.79	-5,233.53	19,498.35	19,354.52	143.83	135.564	
21,300.00	7,364.00	5,952.00	5,952.00	229.20	103.76	35.28	-1,653.79	-5,233.53	19,597.98	19,454.04	143.94	136.157	
21,400.00	7,364.00	5,952.00	5,952.00	230.79	103.76	35.28	-1,653.79	-5,233.53	19,697.61	19,553.57	144.04	136.749	
21,500.00	7,364.00	5,952.00	5,952.00	232.38	103.76	35.28	-1,653.79	-5,233.53	19,797.25	19,653.10	144.15	137.340	
21,600.00	7,364.00	5,952.00	5,952.00	233.97	103.76	35.28	-1,653.79	-5,233.53	19,896.88	19,752.63	144.25	137.930	
21,700.00	7,364.00	5,952.00	5,952.00	235.56	103.76	35.28	-1,653.79	-5,233.53	19,996.53	19,852.17	144.36	138.519	
21,800.00	7,364.00	5,952.00	5,952.00	237.15	103.76	35.28	-1,653.79	-5,233.53	20,096.17	19,951.71	144.47	139.106	
21,864.93	7,364.00	5,952.00	5,952.00	238.18	103.76	35.28	-1,653.79	-5,233.53	20,160.87	20,016.34	144.54	139.488	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #024B - OH - OH-SVY — **Offset Site Error:** 0.00 usft

Survey Program: 100-Standard Keeper 104 — **Rule Assigned:** — **Offset Well Error:** 3.28 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	3.28	3.28	-113.06	-1,801.08	-4,231.33	4,598.93				
100.00	100.00	50.28	50.28	3.29	3.28	-113.06	-1,801.00	-4,231.38	4,598.72	4,592.15	6.57	699.996	
200.00	200.00	133.71	133.71	3.34	3.28	-113.05	-1,800.57	-4,231.74	4,598.93	4,592.31	6.62	695.045	
300.00	300.00	207.63	207.62	3.42	3.29	-113.04	-1,800.07	-4,232.55	4,599.67	4,592.96	6.70	686.305	
400.00	400.00	300.00	299.98	3.54	3.30	-113.02	-1,799.35	-4,233.97	4,600.77	4,593.94	6.82	674.112	
500.00	500.00	396.73	396.70	3.69	3.31	-113.01	-1,798.61	-4,235.56	4,601.98	4,595.00	6.98	659.101	
600.00	599.98	497.47	497.42	3.86	3.33	97.00	-1,798.01	-4,237.17	4,603.43	4,596.27	7.16	642.697	
700.00	699.84	594.33	594.27	4.04	3.35	97.03	-1,797.73	-4,238.61	4,605.34	4,597.97	7.36	625.322	
808.00	807.41	696.97	696.90	4.27	3.38	97.10	-1,797.77	-4,240.10	4,607.98	4,600.36	7.62	605.004	
900.00	898.89	781.31	781.22	4.49	3.41	80.06	-1,797.88	-4,241.40	4,609.10	4,601.25	7.85	586.800	
912.12	910.94	792.41	792.32	4.52	3.41	77.85	-1,797.90	-4,241.58	4,609.04	4,601.16	7.89	584.345	
1,000.00	998.31	874.55	874.45	4.74	3.44	77.96	-1,798.08	-4,242.96	4,608.50	4,600.36	8.14	566.403	
1,100.00	1,097.73	969.99	969.88	5.01	3.48	78.09	-1,798.39	-4,244.63	4,608.01	4,599.57	8.44	545.950	
1,200.00	1,197.15	1,072.16	1,072.04	5.29	3.52	78.22	-1,798.76	-4,246.42	4,607.57	4,598.80	8.77	525.617	
1,300.00	1,296.58	1,181.84	1,181.69	5.59	3.57	78.37	-1,799.16	-4,248.18	4,607.01	4,597.90	9.11	505.575	
1,400.00	1,396.00	1,298.78	1,298.63	5.90	3.63	78.53	-1,799.47	-4,249.71	4,606.17	4,596.69	9.48	485.992	
1,500.00	1,495.42	1,411.79	1,411.63	6.22	3.70	78.68	-1,799.49	-4,250.86	4,605.00	4,595.14	9.85	467.369	
1,600.00	1,594.84	1,512.30	1,512.13	6.54	3.76	78.82	-1,799.37	-4,251.77	4,603.69	4,593.46	10.23	449.983	
1,700.00	1,694.27	1,603.51	1,603.34	6.87	3.82	78.94	-1,799.23	-4,252.70	4,602.50	4,591.89	10.61	433.686	
1,800.00	1,793.69	1,702.44	1,702.26	7.21	3.89	79.08	-1,799.08	-4,253.81	4,601.43	4,590.43	11.01	418.029	
1,900.00	1,893.11	1,800.00	1,799.82	7.55	3.96	79.21	-1,798.88	-4,254.94	4,600.42	4,589.01	11.41	403.242	
2,000.00	1,992.53	1,904.32	1,904.13	7.89	4.04	79.36	-1,798.53	-4,256.17	4,599.39	4,587.58	11.82	389.186	
2,100.00	2,091.96	2,018.23	2,018.03	8.24	4.12	79.52	-1,798.11	-4,257.25	4,598.17	4,585.93	12.24	375.780	
2,200.00	2,191.38	2,122.08	2,121.88	8.60	4.21	79.66	-1,797.79	-4,257.99	4,596.78	4,584.13	12.65	363.295	
2,300.00	2,290.80	2,226.80	2,226.59	8.95	4.29	79.81	-1,797.43	-4,258.65	4,595.32	4,582.25	13.07	351.583	
2,400.00	2,390.22	2,336.59	2,336.38	9.31	4.37	79.97	-1,796.66	-4,259.27	4,593.72	4,580.24	13.48	340.812	
2,500.00	2,489.65	2,438.81	2,438.60	9.67	4.43	80.12	-1,795.57	-4,259.78	4,591.94	4,578.07	13.87	330.955	
2,600.00	2,589.07	2,528.05	2,527.83	10.03	4.50	80.25	-1,794.49	-4,260.37	4,590.31	4,576.03	14.27	321.638	
2,700.00	2,688.49	2,615.89	2,615.66	10.40	4.57	80.38	-1,793.71	-4,261.13	4,588.98	4,574.30	14.68	312.607	
2,800.00	2,787.91	2,733.39	2,733.15	10.76	4.66	80.55	-1,792.81	-4,262.03	4,587.67	4,572.56	15.11	303.718	
2,900.00	2,887.33	2,856.74	2,856.50	11.13	4.74	80.73	-1,791.43	-4,262.29	4,585.70	4,570.20	15.51	295.733	
3,000.00	2,986.76	2,957.59	2,957.34	11.50	4.80	80.88	-1,790.19	-4,262.36	4,583.63	4,567.74	15.89	288.411	
3,100.00	3,086.18	3,061.71	3,061.45	11.87	4.85	81.03	-1,789.14	-4,262.30	4,581.53	4,565.26	16.28	281.503	
3,200.00	3,185.60	3,183.21	3,182.95	12.24	4.87	81.19	-1,788.37	-4,261.72	4,579.21	4,562.57	16.64	275.118	
3,300.00	3,285.02	3,322.44	3,322.15	12.61	4.84	81.37	-1,788.52	-4,259.49	4,576.05	4,559.05	17.00	269.111	
3,400.00	3,384.45	3,400.00	3,399.70	12.98	4.82	81.46	-1,788.80	-4,258.04	4,572.80	4,555.42	17.38	263.149	
3,500.00	3,483.87	3,487.94	3,487.64	13.36	4.80	81.57	-1,789.09	-4,256.74	4,569.92	4,552.16	17.75	257.414	
3,600.00	3,583.29	3,578.00	3,577.69	13.73	4.79	81.68	-1,789.33	-4,255.73	4,567.37	4,549.23	18.13	251.895	
3,700.00	3,682.71	3,672.70	3,672.38	14.11	4.77	81.80	-1,789.61	-4,254.80	4,564.99	4,546.47	18.52	246.539	
3,800.00	3,782.14	3,765.80	3,765.48	14.48	4.75	81.92	-1,790.06	-4,253.94	4,562.73	4,543.83	18.91	241.345	
3,900.00	3,881.56	3,857.01	3,856.68	14.86	4.74	82.03	-1,790.35	-4,253.31	4,560.67	4,541.37	19.30	236.342	
4,000.00	3,980.98	3,932.40	3,932.07	15.24	4.74	82.13	-1,790.59	-4,252.99	4,558.90	4,539.21	19.69	231.477	
4,100.00	4,080.40	4,000.00	3,999.67	15.61	4.75	82.21	-1,791.40	-4,253.09	4,557.92	4,537.82	20.10	226.761	
4,200.00	4,179.83	4,072.19	4,071.84	15.99	4.77	82.29	-1,792.89	-4,253.48	4,557.60	4,537.08	20.52	222.069	
4,217.95	4,197.67	4,086.54	4,086.19	16.06	4.77	82.31	-1,793.25	-4,253.58	4,557.60	4,537.00	20.60	221.241	
4,300.00	4,279.25	4,167.69	4,167.31	16.37	4.80	82.39	-1,795.39	-4,254.14	4,557.64	4,536.67	20.96	217.426	
4,400.00	4,378.67	4,257.07	4,256.65	16.75	4.83	82.49	-1,797.68	-4,254.81	4,557.73	4,536.33	21.40	212.992	
4,500.00	4,478.09	4,346.11	4,345.66	17.13	4.87	82.58	-1,800.00	-4,255.76	4,558.16	4,536.32	21.84	208.722	
4,600.00	4,577.51	4,452.54	4,452.05	17.51	4.93	82.70	-1,802.55	-4,257.04	4,558.67	4,536.38	22.29	204.477	
4,700.00	4,676.94	4,587.25	4,586.74	17.89	4.99	82.85	-1,805.11	-4,258.21	4,558.74	4,535.97	22.77	200.206	
4,800.00	4,776.36	4,675.98	4,675.45	18.27	5.04	82.96	-1,806.59	-4,258.70	4,558.45	4,535.23	23.21	196.372	
4,834.45	4,810.61	4,705.42	4,704.89	18.40	5.06	82.99	-1,807.09	-4,258.93	4,558.43	4,535.06	23.37	195.093	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #024B - OH - OH-SVY

Offset Site Error: 0.00 usft

Survey Program: 100-Standard Keeper 104 **Offset Well Error:** 3.28 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Rule Assigned: Warning
4,900.00	4,875.78	4,768.59	4,768.04	18.65	5.10	83.06	-1,808.13	-4,259.49	4,558.45	4,534.79	23.66	192.636	
5,000.00	4,975.20	4,867.08	4,866.51	19.03	5.16	83.18	-1,809.65	-4,260.43	4,558.54	4,534.42	24.12	188.982	
5,100.00	5,074.63	4,977.74	4,977.16	19.41	5.23	83.31	-1,811.39	-4,261.38	4,558.57	4,533.98	24.59	185.380	
5,200.00	5,174.05	5,089.78	5,089.18	19.79	5.30	83.44	-1,813.15	-4,261.99	4,558.31	4,533.26	25.05	181.961	
5,292.82	5,266.33	5,165.82	5,165.21	20.15	5.35	83.53	-1,814.59	-4,262.34	4,558.11	4,532.65	25.46	179.021	
5,300.00	5,273.47	5,171.47	5,170.86	20.17	5.35	83.54	-1,814.69	-4,262.39	4,558.11	4,532.62	25.49	178.800	
5,400.00	5,372.89	5,271.46	5,270.82	20.56	5.42	83.65	-1,816.51	-4,263.21	4,558.23	4,532.28	25.95	175.646	
5,500.00	5,472.32	5,385.09	5,384.44	20.94	5.50	83.78	-1,818.43	-4,263.91	4,558.14	4,531.72	26.42	172.532	
5,600.00	5,571.74	5,497.17	5,496.50	21.32	5.57	83.91	-1,820.81	-4,264.11	4,557.76	4,530.89	26.88	169.585	
5,700.00	5,671.16	5,600.00	5,599.29	21.70	5.63	84.01	-1,823.47	-4,263.90	4,557.16	4,529.84	27.32	166.820	
5,762.92	5,733.72	5,637.76	5,637.03	21.94	5.66	84.05	-1,824.38	-4,263.93	4,556.96	4,529.38	27.59	165.193 CC	
5,800.00	5,770.58	5,657.95	5,657.22	22.08	5.67	84.07	-1,824.86	-4,264.06	4,557.03	4,529.29	27.74	164.266 ES	
5,900.00	5,870.01	5,717.11	5,716.36	22.47	5.72	84.14	-1,826.22	-4,264.89	4,557.89	4,529.72	28.17	161.810	
6,000.00	5,969.43	5,800.00	5,799.20	22.85	5.79	84.23	-1,828.53	-4,266.51	4,559.45	4,530.83	28.62	159.300	
6,100.00	6,068.85	5,906.19	5,905.32	23.23	5.88	84.34	-1,831.65	-4,268.66	4,561.16	4,532.06	29.10	156.757	
6,200.00	6,168.27	6,024.10	6,023.18	23.62	5.99	84.47	-1,834.57	-4,270.70	4,562.46	4,532.88	29.58	154.216	
6,300.00	6,267.70	6,125.85	6,124.90	24.00	6.08	84.59	-1,836.42	-4,272.41	4,563.56	4,533.50	30.06	151.805	
6,400.00	6,367.12	6,221.58	6,220.60	24.38	6.18	84.71	-1,838.05	-4,274.15	4,564.77	4,534.23	30.54	149.488	
6,500.00	6,466.54	6,338.31	6,337.29	24.77	6.29	84.84	-1,840.05	-4,276.04	4,565.82	4,534.79	31.03	147.143	
6,600.00	6,565.96	6,452.93	6,451.89	25.15	6.41	84.98	-1,841.86	-4,277.47	4,566.50	4,534.98	31.52	144.872	
6,700.00	6,665.38	6,555.68	6,554.62	25.53	6.51	85.11	-1,843.01	-4,278.68	4,567.00	4,535.00	32.00	142.697	
6,778.75	6,743.68	6,636.91	6,635.84	25.84	6.59	85.22	-1,843.58	-4,279.71	4,567.40	4,535.01	32.39	141.012	
6,800.00	6,764.80	6,660.26	6,659.20	25.92	6.62	101.26	-1,843.70	-4,280.00	4,567.84	4,535.34	32.50	140.564	
6,850.00	6,814.29	6,713.43	6,712.37	26.11	6.68	125.64	-1,843.91	-4,280.63	4,571.52	4,538.77	32.75	139.605	
6,900.00	6,863.27	6,761.98	6,760.91	26.30	6.73	137.49	-1,844.02	-4,281.22	4,578.96	4,545.97	32.99	138.792	
6,950.00	6,911.44	6,809.68	6,808.61	26.50	6.78	143.81	-1,844.06	-4,281.82	4,590.13	4,556.89	33.23	138.112	
7,000.00	6,958.49	6,856.40	6,855.32	26.68	6.82	147.51	-1,844.08	-4,282.41	4,604.96	4,571.49	33.47	137.566	
7,050.00	7,004.14	6,900.00	6,898.92	26.87	6.87	149.77	-1,844.10	-4,282.97	4,623.38	4,589.67	33.71	137.161	
7,100.00	7,048.10	6,941.97	6,940.88	27.05	6.91	151.13	-1,844.10	-4,283.52	4,645.28	4,611.34	33.93	136.892	
7,150.00	7,090.11	6,980.48	6,979.39	27.23	6.95	151.86	-1,844.08	-4,284.06	4,670.54	4,636.39	34.15	136.764 SF	
7,200.00	7,129.90	7,016.97	7,015.88	27.41	6.99	152.09	-1,844.04	-4,284.61	4,699.01	4,664.66	34.36	136.768	
7,250.00	7,167.24	7,051.22	7,050.12	27.59	7.02	151.88	-1,843.99	-4,285.14	4,730.52	4,695.97	34.55	136.903	
7,300.00	7,201.88	7,082.88	7,081.77	27.76	7.05	151.24	-1,843.94	-4,285.65	4,764.86	4,730.12	34.74	137.162	
7,350.00	7,233.63	7,111.42	7,110.31	27.94	7.08	150.13	-1,843.88	-4,286.13	4,801.82	4,766.91	34.91	137.544	
7,400.00	7,262.27	7,136.61	7,135.50	28.13	7.11	148.47	-1,843.85	-4,286.57	4,841.18	4,806.11	35.07	138.044	
7,450.00	7,287.63	7,158.79	7,157.68	28.32	7.13	146.11	-1,843.85	-4,286.95	4,882.69	4,847.48	35.21	138.654	
7,500.00	7,309.57	7,177.84	7,176.72	28.53	7.15	142.81	-1,843.85	-4,287.29	4,926.09	4,890.74	35.35	139.367	
7,550.00	7,327.93	7,193.62	7,192.50	28.74	7.17	138.19	-1,843.87	-4,287.58	4,971.10	4,935.63	35.46	140.177	
7,600.00	7,342.62	7,200.00	7,198.88	28.97	7.18	131.49	-1,843.88	-4,287.69	5,017.44	4,981.88	35.56	141.104	
7,650.00	7,353.53	7,213.92	7,212.80	29.22	7.19	122.20	-1,843.90	-4,287.95	5,064.83	5,029.17	35.65	142.052	
7,700.00	7,360.61	7,219.02	7,217.90	29.48	7.20	108.85	-1,843.91	-4,288.05	5,112.96	5,077.23	35.73	143.095	
7,750.00	7,363.80	7,220.88	7,219.75	29.75	7.20	91.32	-1,843.91	-4,288.08	5,161.53	5,125.73	35.80	144.192	
7,765.93	7,364.00	7,220.79	7,219.66	29.84	7.20	85.15	-1,843.91	-4,288.08	5,177.05	5,141.23	35.81	144.550	
7,800.00	7,364.00	7,220.25	7,219.13	30.04	7.20	85.12	-1,843.91	-4,288.07	5,210.25	5,174.40	35.85	145.323	
7,900.00	7,364.00	7,218.68	7,217.55	30.67	7.20	85.04	-1,843.91	-4,288.04	5,307.78	5,271.82	35.96	147.583	
8,000.00	7,364.00	7,217.11	7,215.99	31.37	7.19	84.97	-1,843.91	-4,288.01	5,405.40	5,369.32	36.08	149.833	
8,100.00	7,364.00	7,215.56	7,214.44	32.14	7.19	84.89	-1,843.90	-4,287.98	5,503.10	5,466.91	36.19	152.073	
8,200.00	7,364.00	7,214.02	7,212.90	32.96	7.19	84.82	-1,843.90	-4,287.95	5,600.88	5,564.58	36.30	154.305	
8,300.00	7,364.00	7,212.49	7,211.37	33.85	7.19	84.74	-1,843.90	-4,287.92	5,698.73	5,662.33	36.41	156.527	
8,400.00	7,364.00	7,210.97	7,209.84	34.79	7.19	84.67	-1,843.90	-4,287.90	5,796.66	5,760.15	36.52	158.742	
8,500.00	7,364.00	7,200.00	7,198.88	35.77	7.18	84.13	-1,843.88	-4,287.69	5,894.67	5,858.06	36.61	161.001	
8,600.00	7,364.00	7,200.00	7,198.88	36.80	7.18	84.13	-1,843.88	-4,287.69	5,992.73	5,956.01	36.72	163.192	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #024B - OH - OH-SVY

Offset Site Error: 0.00 usft

Survey Program: 100-Standard Keeper 104 **Offset Well Error:** 3.28 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Rule Assigned: Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
8,700.00	7,364.00	7,200.00	7,198.88	37.87	7.18	84.13	-1,843.88	-4,287.69	6,090.86	6,054.03	36.83	165.375	
8,800.00	7,364.00	7,200.00	7,198.88	38.98	7.18	84.13	-1,843.88	-4,287.69	6,189.04	6,152.11	36.94	167.550	
8,900.00	7,364.00	7,200.00	7,198.88	40.12	7.18	84.13	-1,843.88	-4,287.69	6,287.29	6,250.24	37.05	169.719	
9,000.00	7,364.00	7,200.00	7,198.88	41.29	7.18	84.13	-1,843.88	-4,287.69	6,385.58	6,348.43	37.15	171.880	
9,100.00	7,364.00	7,200.00	7,198.88	42.49	7.18	84.13	-1,843.88	-4,287.69	6,483.93	6,446.68	37.26	174.035	
9,200.00	7,364.00	7,200.00	7,198.88	43.71	7.18	84.13	-1,843.88	-4,287.69	6,582.33	6,544.97	37.36	176.183	
9,300.00	7,364.00	7,200.00	7,198.88	44.96	7.18	84.13	-1,843.88	-4,287.69	6,680.78	6,643.31	37.46	178.324	
9,400.00	7,364.00	7,200.00	7,198.88	46.23	7.18	84.13	-1,843.88	-4,287.69	6,779.27	6,741.70	37.57	180.459	
9,500.00	7,364.00	7,200.00	7,198.88	47.52	7.18	84.13	-1,843.88	-4,287.69	6,877.80	6,840.14	37.67	182.587	
9,600.00	7,364.00	7,192.67	7,191.55	48.83	7.17	83.77	-1,843.87	-4,287.56	6,976.38	6,938.62	37.76	184.753	
9,700.00	7,364.00	7,191.08	7,189.96	50.15	7.17	83.69	-1,843.87	-4,287.53	7,074.99	7,037.13	37.86	186.879	
9,800.00	7,364.00	7,189.49	7,188.38	51.49	7.17	83.61	-1,843.87	-4,287.50	7,173.64	7,135.69	37.96	188.998	
9,900.00	7,364.00	7,187.91	7,186.79	52.85	7.16	83.54	-1,843.86	-4,287.47	7,272.33	7,234.28	38.05	191.112	
10,000.00	7,364.00	7,186.33	7,185.22	54.22	7.16	83.46	-1,843.86	-4,287.45	7,371.06	7,332.91	38.15	193.218	
10,100.00	7,364.00	7,184.76	7,183.64	55.60	7.16	83.38	-1,843.86	-4,287.42	7,469.82	7,431.57	38.24	195.319	
10,200.00	7,364.00	7,183.19	7,182.07	56.99	7.16	83.31	-1,843.86	-4,287.39	7,568.60	7,530.27	38.34	197.414	
10,300.00	7,364.00	7,181.62	7,180.51	58.40	7.16	83.23	-1,843.86	-4,287.36	7,667.43	7,628.99	38.43	199.502	
10,400.00	7,364.00	7,180.06	7,178.95	59.81	7.16	83.15	-1,843.86	-4,287.33	7,766.28	7,727.75	38.53	201.585	
10,500.00	7,364.00	7,178.50	7,177.39	61.23	7.15	83.08	-1,843.85	-4,287.30	7,865.16	7,826.54	38.62	203.661	
10,600.00	7,364.00	7,176.95	7,175.83	62.66	7.15	83.00	-1,843.85	-4,287.28	7,964.06	7,925.35	38.71	205.731	
10,700.00	7,364.00	7,175.40	7,174.28	64.10	7.15	82.93	-1,843.85	-4,287.25	8,063.00	8,024.19	38.80	207.795	
10,800.00	7,364.00	7,173.85	7,172.74	65.55	7.15	82.85	-1,843.85	-4,287.22	8,161.96	8,123.06	38.89	209.852	
10,900.00	7,364.00	7,172.31	7,171.19	67.01	7.15	82.78	-1,843.85	-4,287.19	8,260.94	8,221.96	38.98	211.903	
11,000.00	7,364.00	7,170.77	7,169.65	68.47	7.15	82.70	-1,843.85	-4,287.17	8,359.95	8,320.87	39.07	213.948	
11,100.00	7,364.00	7,169.23	7,168.12	69.93	7.14	82.63	-1,843.85	-4,287.14	8,458.98	8,419.81	39.16	215.987	
11,200.00	7,364.00	7,167.70	7,166.59	71.41	7.14	82.55	-1,843.85	-4,287.11	8,558.03	8,518.78	39.25	218.019	
11,300.00	7,364.00	7,166.17	7,165.06	72.88	7.14	82.48	-1,843.85	-4,287.08	8,657.11	8,617.76	39.34	220.045	
11,400.00	7,364.00	7,164.65	7,163.54	74.37	7.14	82.40	-1,843.85	-4,287.06	8,756.20	8,716.77	39.43	222.064	
11,500.00	7,364.00	7,163.13	7,162.02	75.85	7.14	82.33	-1,843.85	-4,287.03	8,855.32	8,815.80	39.52	224.077	
11,600.00	7,364.00	7,161.61	7,160.50	77.35	7.14	82.26	-1,843.85	-4,287.00	8,954.45	8,914.85	39.61	226.084	
11,700.00	7,364.00	7,160.10	7,158.99	78.84	7.13	82.18	-1,843.85	-4,286.98	9,053.61	9,013.91	39.69	228.084	
11,800.00	7,364.00	7,158.59	7,157.48	80.34	7.13	82.11	-1,843.85	-4,286.95	9,152.78	9,113.00	39.78	230.077	
11,900.00	7,364.00	7,157.08	7,155.97	81.85	7.13	82.04	-1,843.85	-4,286.92	9,251.97	9,212.10	39.87	232.064	
12,000.00	7,364.00	7,155.58	7,154.47	83.36	7.13	81.96	-1,843.85	-4,286.90	9,351.17	9,311.22	39.95	234.044	
12,100.00	7,364.00	7,154.08	7,152.97	84.87	7.13	81.89	-1,843.85	-4,286.87	9,450.40	9,410.35	40.04	236.017	
12,200.00	7,364.00	7,152.59	7,151.48	86.38	7.13	81.82	-1,843.85	-4,286.84	9,549.63	9,509.51	40.13	237.984	
12,300.00	7,364.00	7,151.10	7,149.99	87.90	7.13	81.75	-1,843.85	-4,286.82	9,648.89	9,608.67	40.21	239.944	
12,400.00	7,364.00	7,149.61	7,148.50	89.42	7.12	81.67	-1,843.85	-4,286.79	9,748.16	9,707.86	40.30	241.897	
12,500.00	7,364.00	7,148.13	7,147.02	90.95	7.12	81.60	-1,843.85	-4,286.77	9,847.44	9,807.06	40.38	243.843	
12,600.00	7,364.00	7,146.65	7,145.54	92.47	7.12	81.53	-1,843.85	-4,286.74	9,946.74	9,906.27	40.47	245.782	
12,700.00	7,364.00	7,145.17	7,144.06	94.00	7.12	81.46	-1,843.85	-4,286.71	10,046.05	10,005.49	40.55	247.715	
12,800.00	7,364.00	7,143.70	7,142.59	95.53	7.12	81.39	-1,843.85	-4,286.69	10,145.37	10,104.73	40.64	249.640	
12,900.00	7,364.00	7,142.23	7,141.12	97.06	7.12	81.32	-1,843.85	-4,286.66	10,244.71	10,203.99	40.72	251.558	
13,000.00	7,364.00	7,140.76	7,139.65	98.60	7.11	81.25	-1,843.85	-4,286.64	10,344.06	10,303.25	40.81	253.470	
13,100.00	7,364.00	7,139.30	7,138.19	100.14	7.11	81.18	-1,843.85	-4,286.61	10,443.42	10,402.53	40.89	255.374	
13,200.00	7,364.00	7,137.84	7,136.73	101.68	7.11	81.11	-1,843.85	-4,286.59	10,542.80	10,501.82	40.98	257.271	
13,300.00	7,364.00	7,136.38	7,135.27	103.22	7.11	81.04	-1,843.85	-4,286.56	10,642.18	10,601.12	41.06	259.161	
13,400.00	7,364.00	7,134.93	7,133.82	104.76	7.11	80.97	-1,843.85	-4,286.54	10,741.58	10,700.43	41.15	261.044	
13,500.00	7,364.00	7,133.48	7,132.37	106.31	7.11	80.90	-1,843.86	-4,286.51	10,840.99	10,799.75	41.23	262.920	
13,600.00	7,364.00	7,132.04	7,130.93	107.85	7.11	80.83	-1,843.86	-4,286.49	10,940.40	10,899.09	41.32	264.788	
13,700.00	7,364.00	7,130.60	7,129.49	109.40	7.10	80.76	-1,843.86	-4,286.46	11,039.83	10,998.43	41.40	266.649	
13,800.00	7,364.00	7,129.16	7,128.05	110.95	7.10	80.69	-1,843.86	-4,286.44	11,139.27	11,097.78	41.49	268.503	

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 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #024B - OH - OH-SVY — **Offset Site Error:** 0.00 usft

Survey Program: 100-Standard Keeper 104 — **Offset Well Error:** 3.28 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
13,900.00	7,364.00	7,127.72	7,126.61	112.50	7.10	80.62	-1,843.86	-4,286.41	11,238.72	11,197.15	41.57	270.349	
14,000.00	7,364.00	7,126.29	7,125.18	114.05	7.10	80.55	-1,843.86	-4,286.39	11,338.18	11,296.52	41.66	272.189	
14,100.00	7,364.00	7,124.86	7,123.76	115.61	7.10	80.48	-1,843.86	-4,286.36	11,437.64	11,395.90	41.74	274.020	
14,200.00	7,364.00	7,123.44	7,122.33	117.16	7.10	80.41	-1,843.87	-4,286.34	11,537.12	11,495.29	41.82	275.844	
14,300.00	7,364.00	7,122.02	7,120.91	118.72	7.10	80.34	-1,843.87	-4,286.31	11,636.60	11,594.69	41.91	277.661	
14,400.00	7,364.00	7,120.60	7,119.49	120.28	7.09	80.28	-1,843.87	-4,286.29	11,736.10	11,694.10	41.99	279.471	
14,500.00	7,364.00	7,119.19	7,118.08	121.84	7.09	80.21	-1,843.87	-4,286.27	11,835.60	11,793.52	42.08	281.272	
14,600.00	7,364.00	7,117.77	7,116.67	123.40	7.09	80.14	-1,843.87	-4,286.24	11,935.11	11,892.94	42.16	283.067	
14,700.00	7,364.00	7,116.37	7,115.26	124.96	7.09	80.07	-1,843.87	-4,286.22	12,034.63	11,992.38	42.25	284.853	
14,800.00	7,364.00	7,114.96	7,113.86	126.52	7.09	80.00	-1,843.88	-4,286.19	12,134.15	12,091.82	42.33	286.633	
14,900.00	7,364.00	7,113.56	7,112.45	128.08	7.09	79.94	-1,843.88	-4,286.17	12,233.68	12,191.27	42.42	288.404	
15,000.00	7,364.00	7,112.16	7,111.06	129.64	7.08	79.87	-1,843.88	-4,286.15	12,333.22	12,290.72	42.50	290.168	
15,100.00	7,364.00	7,110.77	7,109.66	131.21	7.08	79.80	-1,843.88	-4,286.12	12,432.77	12,390.18	42.59	291.925	
15,200.00	7,364.00	7,109.38	7,108.27	132.77	7.08	79.74	-1,843.89	-4,286.10	12,532.33	12,489.65	42.67	293.673	
15,300.00	7,364.00	7,100.00	7,098.90	134.34	7.07	79.29	-1,843.90	-4,285.94	12,631.89	12,589.14	42.75	295.476	
15,400.00	7,364.00	7,100.00	7,098.90	135.91	7.07	79.29	-1,843.90	-4,285.94	12,731.46	12,688.62	42.84	297.199	
15,500.00	7,364.00	7,100.00	7,098.90	137.48	7.07	79.29	-1,843.90	-4,285.94	12,831.03	12,788.11	42.93	298.914	
15,600.00	7,364.00	7,100.00	7,098.90	139.04	7.07	79.29	-1,843.90	-4,285.94	12,930.61	12,887.60	43.01	300.621	
15,700.00	7,364.00	7,100.00	7,098.90	140.61	7.07	79.29	-1,843.90	-4,285.94	13,030.20	12,987.10	43.10	302.321	
15,800.00	7,364.00	7,100.00	7,098.90	142.18	7.07	79.29	-1,843.90	-4,285.94	13,129.79	13,086.60	43.19	304.013	
15,900.00	7,364.00	7,100.00	7,098.90	143.75	7.07	79.29	-1,843.90	-4,285.94	13,229.39	13,186.11	43.28	305.697	
16,000.00	7,364.00	7,100.00	7,098.90	145.33	7.07	79.29	-1,843.90	-4,285.94	13,329.00	13,285.63	43.36	307.374	
16,100.00	7,364.00	7,100.00	7,098.90	146.90	7.07	79.29	-1,843.90	-4,285.94	13,428.61	13,385.15	43.45	309.042	
16,200.00	7,364.00	7,100.00	7,098.90	148.47	7.07	79.29	-1,843.90	-4,285.94	13,528.22	13,484.68	43.54	310.703	
16,300.00	7,364.00	7,100.00	7,098.90	150.04	7.07	79.29	-1,843.90	-4,285.94	13,627.85	13,584.22	43.63	312.356	
16,400.00	7,364.00	7,100.00	7,098.90	151.62	7.07	79.29	-1,843.90	-4,285.94	13,727.47	13,683.76	43.72	314.001	
16,500.00	7,364.00	7,100.00	7,098.90	153.19	7.07	79.29	-1,843.90	-4,285.94	13,827.11	13,783.30	43.81	315.639	
16,600.00	7,364.00	7,100.00	7,098.90	154.77	7.07	79.29	-1,843.90	-4,285.94	13,926.75	13,882.85	43.90	317.269	
16,700.00	7,364.00	7,088.96	7,087.86	156.34	7.06	78.76	-1,843.92	-4,285.76	14,026.38	13,982.41	43.97	318.977	
16,800.00	7,364.00	7,087.63	7,086.53	157.92	7.06	78.70	-1,843.93	-4,285.73	14,126.03	14,081.97	44.06	320.602	
16,900.00	7,364.00	7,086.31	7,085.21	159.49	7.06	78.64	-1,843.93	-4,285.71	14,225.68	14,181.53	44.15	322.219	
17,000.00	7,364.00	7,084.99	7,083.89	161.07	7.06	78.57	-1,843.93	-4,285.69	14,325.34	14,281.10	44.24	323.828	
17,100.00	7,364.00	7,083.67	7,082.57	162.65	7.06	78.51	-1,843.93	-4,285.67	14,425.00	14,380.67	44.33	325.429	
17,200.00	7,364.00	7,082.36	7,081.26	164.23	7.05	78.45	-1,843.94	-4,285.65	14,524.67	14,480.25	44.41	327.022	
17,300.00	7,364.00	7,081.05	7,079.95	165.81	7.05	78.39	-1,843.94	-4,285.62	14,624.34	14,579.83	44.50	328.608	
17,400.00	7,364.00	7,079.75	7,078.65	167.38	7.05	78.33	-1,843.94	-4,285.60	14,724.01	14,679.42	44.59	330.186	
17,500.00	7,364.00	7,078.45	7,077.35	168.96	7.05	78.26	-1,843.94	-4,285.58	14,823.69	14,779.01	44.68	331.756	
17,600.00	7,364.00	7,077.15	7,076.05	170.54	7.05	78.20	-1,843.95	-4,285.56	14,923.37	14,878.60	44.77	333.318	
17,700.00	7,364.00	7,075.86	7,074.76	172.12	7.05	78.14	-1,843.95	-4,285.54	15,023.06	14,978.20	44.86	334.873	
17,800.00	7,364.00	7,074.57	7,073.47	173.70	7.05	78.08	-1,843.95	-4,285.52	15,122.75	15,077.80	44.95	336.419	
17,900.00	7,364.00	7,073.28	7,072.18	175.28	7.05	78.02	-1,843.95	-4,285.50	15,222.45	15,177.40	45.04	337.958	
18,000.00	7,364.00	7,072.00	7,070.90	176.87	7.04	77.96	-1,843.96	-4,285.48	15,322.15	15,277.01	45.13	339.489	
18,100.00	7,364.00	7,070.72	7,069.62	178.45	7.04	77.90	-1,843.96	-4,285.46	15,421.85	15,376.62	45.22	341.013	
18,200.00	7,364.00	7,069.45	7,068.35	180.03	7.04	77.84	-1,843.96	-4,285.44	15,521.55	15,476.24	45.31	342.528	
18,300.00	7,364.00	7,068.18	7,067.08	181.61	7.04	77.78	-1,843.96	-4,285.41	15,621.26	15,575.86	45.41	344.036	
18,400.00	7,364.00	7,066.91	7,065.81	183.19	7.04	77.72	-1,843.96	-4,285.39	15,720.98	15,675.48	45.50	345.536	
18,500.00	7,364.00	7,065.65	7,064.55	184.78	7.04	77.66	-1,843.97	-4,285.37	15,820.70	15,775.11	45.59	347.028	
18,600.00	7,364.00	7,064.39	7,063.29	186.36	7.04	77.60	-1,843.97	-4,285.35	15,920.42	15,874.73	45.68	348.513	
18,700.00	7,364.00	7,063.13	7,062.03	187.94	7.03	77.54	-1,843.97	-4,285.33	16,020.14	15,974.37	45.77	349.990	
18,800.00	7,364.00	7,061.88	7,060.78	189.53	7.03	77.48	-1,843.97	-4,285.31	16,119.87	16,074.00	45.87	351.459	
18,900.00	7,364.00	7,060.63	7,059.53	191.11	7.03	77.42	-1,843.98	-4,285.29	16,219.60	16,173.64	45.96	352.921	
19,000.00	7,364.00	7,059.38	7,058.28	192.70	7.03	77.36	-1,843.98	-4,285.27	16,319.33	16,273.28	46.05	354.374	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #024B - OH - OH-SVY

Offset Site Error: 0.00 usft

Survey Program: 100-Standard Keeper 104 **Offset Well Error:** 3.28 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
19,100.00	7,364.00	7,058.14	7,057.04	194.28	7.03	77.31	-1,843.98	-4,285.25	16,419.07	16,372.92	46.14	355.821	
19,200.00	7,364.00	7,056.90	7,055.80	195.87	7.03	77.25	-1,843.98	-4,285.23	16,518.81	16,472.57	46.24	357.259	
19,300.00	7,364.00	7,055.67	7,054.57	197.45	7.03	77.19	-1,843.98	-4,285.21	16,618.55	16,572.22	46.33	358.690	
19,400.00	7,364.00	7,054.44	7,053.34	199.04	7.03	77.13	-1,843.99	-4,285.19	16,718.29	16,671.87	46.43	360.113	
19,500.00	7,364.00	7,053.21	7,052.11	200.62	7.02	77.07	-1,843.99	-4,285.17	16,818.04	16,771.52	46.52	361.529	
19,600.00	7,364.00	7,051.99	7,050.89	202.21	7.02	77.02	-1,843.99	-4,285.15	16,917.79	16,871.18	46.61	362.937	
19,700.00	7,364.00	7,050.76	7,049.67	203.79	7.02	76.96	-1,843.99	-4,285.13	17,017.55	16,970.84	46.71	364.338	
19,800.00	7,364.00	7,049.55	7,048.45	205.38	7.02	76.90	-1,843.99	-4,285.12	17,117.31	17,070.50	46.80	365.731	
19,900.00	7,364.00	7,048.33	7,047.24	206.97	7.02	76.84	-1,844.00	-4,285.10	17,217.07	17,170.17	46.90	367.116	
20,000.00	7,364.00	7,047.12	7,046.03	208.55	7.02	76.79	-1,844.00	-4,285.08	17,316.83	17,269.83	46.99	368.494	
20,100.00	7,364.00	7,045.92	7,044.82	210.14	7.02	76.73	-1,844.00	-4,285.06	17,416.59	17,369.50	47.09	369.865	
20,200.00	7,364.00	7,044.71	7,043.61	211.73	7.02	76.67	-1,844.00	-4,285.04	17,516.36	17,469.18	47.18	371.228	
20,300.00	7,364.00	7,043.51	7,042.41	213.32	7.01	76.62	-1,844.00	-4,285.02	17,616.13	17,568.85	47.28	372.583	
20,400.00	7,364.00	7,042.31	7,041.22	214.90	7.01	76.56	-1,844.00	-4,285.00	17,715.90	17,668.53	47.38	373.931	
20,500.00	7,364.00	7,041.12	7,040.02	216.49	7.01	76.51	-1,844.01	-4,284.98	17,815.68	17,768.20	47.47	375.272	
20,600.00	7,364.00	7,039.93	7,038.83	218.08	7.01	76.45	-1,844.01	-4,284.96	17,915.45	17,867.88	47.57	376.605	
20,700.00	7,364.00	7,038.74	7,037.65	219.67	7.01	76.40	-1,844.01	-4,284.95	18,015.23	17,967.57	47.67	377.931	
20,800.00	7,364.00	7,037.56	7,036.46	221.26	7.01	76.34	-1,844.01	-4,284.93	18,115.02	18,067.25	47.77	379.250	
20,900.00	7,364.00	7,036.38	7,035.28	222.84	7.01	76.29	-1,844.01	-4,284.91	18,214.80	18,166.94	47.86	380.561	
21,000.00	7,364.00	7,035.20	7,034.11	224.43	7.01	76.23	-1,844.02	-4,284.89	18,314.59	18,266.63	47.96	381.865	
21,100.00	7,364.00	7,034.03	7,032.93	226.02	7.01	76.18	-1,844.02	-4,284.87	18,414.38	18,366.32	48.06	383.162	
21,200.00	7,364.00	7,032.86	7,031.76	227.61	7.00	76.12	-1,844.02	-4,284.85	18,514.17	18,466.01	48.16	384.451	
21,300.00	7,364.00	7,031.69	7,030.60	229.20	7.00	76.07	-1,844.02	-4,284.84	18,613.96	18,565.70	48.26	385.733	
21,400.00	7,364.00	7,030.53	7,029.43	230.79	7.00	76.01	-1,844.02	-4,284.82	18,713.76	18,665.40	48.35	387.008	
21,500.00	7,364.00	7,029.37	7,028.27	232.38	7.00	75.96	-1,844.02	-4,284.80	18,813.55	18,765.10	48.45	388.276	
21,600.00	7,364.00	7,028.21	7,027.12	233.97	7.00	75.90	-1,844.03	-4,284.78	18,913.35	18,864.80	48.55	389.537	
21,700.00	7,364.00	7,027.06	7,025.96	235.56	7.00	75.85	-1,844.03	-4,284.76	19,013.15	18,964.50	48.65	390.790	
21,800.00	7,364.00	7,025.90	7,024.81	237.15	7.00	75.80	-1,844.03	-4,284.75	19,112.96	19,064.20	48.75	392.037	
21,864.93	7,364.00	7,025.16	7,024.06	238.18	7.00	75.76	-1,844.03	-4,284.73	19,177.76	19,128.94	48.82	392.842	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #026A - OH - OH-SVY

Offset Site Error: 0.00 usft

Survey Program: 100-Standard Keeper 104 **Offset Well Error:** 3.28 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	3.28	3.28	-126.40	-1,775.81	-2,408.25	2,992.98				
100.00	100.00	27.98	27.98	3.29	3.28	-126.40	-1,775.81	-2,408.27	2,992.20	2,985.63	6.57	455.460	
200.00	200.00	122.95	122.95	3.34	3.28	-126.40	-1,775.78	-2,408.58	2,992.45	2,985.83	6.62	452.240	
300.00	300.00	231.51	231.51	3.42	3.29	-126.39	-1,775.55	-2,408.86	2,992.52	2,985.81	6.70	446.427	
326.20	326.20	257.20	257.20	3.45	3.29	-126.39	-1,775.48	-2,408.91	2,992.52	2,985.78	6.73	444.537	
400.00	400.00	326.41	326.41	3.54	3.30	-126.39	-1,775.32	-2,409.06	2,992.55	2,985.72	6.83	438.466	
500.00	500.00	416.06	416.06	3.69	3.31	-126.39	-1,775.47	-2,409.35	2,992.90	2,985.92	6.98	428.712	
600.00	599.98	516.49	516.48	3.86	3.32	83.64	-1,775.90	-2,409.64	2,993.20	2,986.04	7.16	417.872	
700.00	699.84	616.40	616.39	4.04	3.33	83.73	-1,776.48	-2,409.81	2,993.10	2,985.74	7.36	406.453	
808.00	807.41	721.18	721.17	4.27	3.34	83.91	-1,777.15	-2,409.98	2,992.63	2,985.02	7.61	393.066	
900.00	898.89	807.01	806.99	4.49	3.36	66.90	-1,777.83	-2,410.21	2,990.79	2,982.94	7.85	381.009	
912.12	910.94	818.98	818.97	4.52	3.37	64.69	-1,777.94	-2,410.25	2,990.35	2,982.47	7.88	379.345	
1,000.00	998.31	905.69	905.67	4.74	3.39	64.84	-1,778.74	-2,410.51	2,987.00	2,978.87	8.13	367.470	
1,100.00	1,097.73	1,002.45	1,002.43	5.01	3.42	65.01	-1,779.62	-2,410.86	2,983.27	2,974.84	8.43	354.021	
1,200.00	1,197.15	1,100.00	1,099.97	5.29	3.46	65.19	-1,780.47	-2,411.37	2,979.66	2,970.91	8.74	340.735	
1,300.00	1,296.58	1,196.80	1,196.76	5.59	3.50	65.37	-1,781.22	-2,412.03	2,976.16	2,967.08	9.08	327.780	
1,400.00	1,396.00	1,299.61	1,299.57	5.90	3.54	65.56	-1,781.73	-2,412.90	2,972.66	2,963.23	9.43	315.175	
1,500.00	1,495.42	1,400.85	1,400.81	6.22	3.59	65.76	-1,781.98	-2,413.83	2,969.11	2,959.32	9.79	303.126	
1,600.00	1,594.84	1,491.52	1,491.48	6.54	3.64	65.94	-1,782.27	-2,414.75	2,965.72	2,955.55	10.16	291.783	
1,700.00	1,694.27	1,588.13	1,588.08	6.87	3.69	66.13	-1,782.66	-2,415.90	2,962.56	2,952.01	10.55	280.903	
1,800.00	1,793.69	1,687.65	1,687.58	7.21	3.75	66.32	-1,783.03	-2,417.17	2,959.47	2,948.53	10.94	270.538	
1,900.00	1,893.11	1,787.45	1,787.38	7.55	3.81	66.52	-1,783.38	-2,418.44	2,956.41	2,945.07	11.34	260.705	
2,000.00	1,992.53	1,895.84	1,895.76	7.89	3.88	66.74	-1,783.59	-2,419.74	2,953.25	2,941.50	11.75	251.307	
2,100.00	2,091.96	1,996.11	1,996.02	8.24	3.95	66.94	-1,783.52	-2,420.90	2,949.93	2,937.77	12.16	242.596	
2,200.00	2,191.38	2,088.86	2,088.77	8.60	4.01	67.13	-1,783.55	-2,422.02	2,946.75	2,934.18	12.57	234.408	
2,300.00	2,290.80	2,187.07	2,186.97	8.95	4.08	67.33	-1,783.93	-2,423.15	2,943.76	2,930.76	13.00	226.504	
2,400.00	2,390.22	2,294.18	2,294.07	9.31	4.16	67.53	-1,784.63	-2,424.06	2,940.69	2,927.26	13.43	218.884	
2,500.00	2,489.65	2,400.27	2,400.16	9.67	4.24	67.73	-1,785.41	-2,424.58	2,937.40	2,923.53	13.87	211.719	
2,600.00	2,589.07	2,516.52	2,516.41	10.03	4.32	67.95	-1,785.97	-2,424.79	2,933.75	2,919.44	14.31	205.043	
2,700.00	2,688.49	2,633.37	2,633.25	10.40	4.33	68.17	-1,786.12	-2,424.45	2,929.54	2,914.86	14.68	199.503	
2,800.00	2,787.91	2,746.64	2,746.52	10.76	4.32	68.39	-1,786.03	-2,423.52	2,924.81	2,909.78	15.03	194.648	
2,900.00	2,887.33	2,847.88	2,847.76	11.13	4.30	68.58	-1,785.76	-2,422.45	2,919.81	2,904.44	15.37	189.943	
3,000.00	2,986.76	2,948.04	2,947.91	11.50	4.28	68.77	-1,785.40	-2,421.54	2,914.92	2,899.20	15.72	185.409	
3,100.00	3,086.18	3,053.73	3,053.60	11.87	4.27	68.98	-1,784.77	-2,420.49	2,909.87	2,893.79	16.07	181.025	
3,200.00	3,185.60	3,150.88	3,150.73	12.24	4.26	69.18	-1,783.95	-2,419.55	2,904.74	2,888.31	16.43	176.743	
3,300.00	3,285.02	3,240.70	3,240.56	12.61	4.26	69.36	-1,783.27	-2,418.88	2,899.89	2,883.09	16.80	172.592	
3,400.00	3,384.45	3,332.65	3,332.50	12.98	4.26	69.55	-1,782.76	-2,418.47	2,895.44	2,878.26	17.17	168.585	
3,500.00	3,483.87	3,432.87	3,432.72	13.36	4.26	69.76	-1,781.98	-2,418.23	2,891.07	2,873.52	17.56	164.674	
3,600.00	3,583.29	3,533.29	3,533.14	13.73	4.28	69.97	-1,781.09	-2,418.03	2,886.74	2,868.79	17.94	160.877	
3,700.00	3,682.71	3,635.07	3,634.91	14.11	4.29	70.18	-1,780.35	-2,417.63	2,882.35	2,864.02	18.33	157.241	
3,800.00	3,782.14	3,730.67	3,730.51	14.48	4.31	70.38	-1,779.86	-2,417.13	2,877.99	2,859.27	18.72	153.751	
3,900.00	3,881.56	3,820.93	3,820.77	14.86	4.32	70.56	-1,779.56	-2,416.87	2,873.97	2,854.86	19.11	150.389	
4,000.00	3,980.98	3,919.17	3,919.00	15.24	4.34	70.76	-1,779.48	-2,416.62	2,870.13	2,850.63	19.51	147.127	
4,100.00	4,080.40	4,019.90	4,019.73	15.61	4.37	70.96	-1,779.62	-2,416.25	2,866.34	2,846.43	19.91	143.945	
4,200.00	4,179.83	4,123.30	4,123.13	15.99	4.41	71.16	-1,779.93	-2,415.63	2,862.46	2,842.14	20.32	140.845	
4,300.00	4,279.25	4,222.26	4,222.09	16.37	4.45	71.35	-1,780.32	-2,414.92	2,858.56	2,837.83	20.74	137.854	
4,400.00	4,378.67	4,318.37	4,318.19	16.75	4.49	71.53	-1,780.83	-2,414.23	2,854.75	2,833.60	21.15	134.965	
4,500.00	4,478.09	4,410.48	4,410.30	17.13	4.54	71.70	-1,781.49	-2,413.69	2,851.18	2,829.61	21.57	132.177	
4,600.00	4,577.51	4,505.28	4,505.10	17.51	4.60	71.87	-1,782.27	-2,413.29	2,847.85	2,825.85	22.00	129.476	
4,700.00	4,676.94	4,600.00	4,599.81	17.89	4.66	72.05	-1,783.14	-2,413.08	2,844.75	2,822.33	22.42	126.865	
4,800.00	4,776.36	4,693.84	4,693.65	18.27	4.72	72.23	-1,784.06	-2,413.04	2,841.87	2,819.01	22.86	124.343	
4,900.00	4,875.78	4,791.14	4,790.94	18.65	4.79	72.41	-1,785.06	-2,413.08	2,839.11	2,815.82	23.29	121.899	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #026A - OH - OH-SVY

Offset Site Error: 0.00 usft

Survey Program: 100-Standard Keeper 104 **Offset Well Error:** 3.28 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,000.00	4,975.20	4,888.20	4,887.99	19.03	4.86	72.59	-1,786.13	-2,413.17	2,836.47	2,812.74	23.73	119.541	
5,100.00	5,074.63	4,982.42	4,982.21	19.41	4.94	72.77	-1,787.23	-2,413.36	2,833.99	2,809.83	24.17	117.270	
5,200.00	5,174.05	5,073.79	5,073.57	19.79	5.01	72.95	-1,788.34	-2,413.77	2,831.78	2,807.17	24.61	115.081	
5,300.00	5,273.47	5,166.80	5,166.57	20.17	5.08	73.12	-1,789.63	-2,414.39	2,829.87	2,804.82	25.05	112.966	
5,400.00	5,372.89	5,264.83	5,264.59	20.56	5.17	73.31	-1,791.11	-2,415.16	2,828.15	2,802.65	25.50	110.909	
5,500.00	5,472.32	5,364.48	5,364.22	20.94	5.25	73.49	-1,792.65	-2,415.93	2,826.46	2,800.51	25.95	108.914	
5,600.00	5,571.74	5,464.36	5,464.08	21.32	5.34	73.68	-1,794.13	-2,416.72	2,824.80	2,798.39	26.40	106.980	
5,700.00	5,671.16	5,561.08	5,560.80	21.70	5.42	73.87	-1,795.51	-2,417.53	2,823.18	2,796.33	26.86	105.113	
5,800.00	5,770.58	5,655.55	5,655.25	22.08	5.50	74.05	-1,796.82	-2,418.52	2,821.76	2,794.45	27.31	103.310	
5,900.00	5,870.01	5,749.55	5,749.23	22.47	5.59	74.23	-1,798.21	-2,419.65	2,820.56	2,792.79	27.77	101.568	
6,000.00	5,969.43	5,842.87	5,842.53	22.85	5.67	74.41	-1,799.69	-2,420.94	2,819.59	2,791.37	28.23	99.887	
6,100.00	6,068.85	5,934.79	5,934.43	23.23	5.75	74.59	-1,801.19	-2,422.43	2,818.90	2,790.21	28.69	98.266	
6,200.00	6,168.27	6,026.51	6,026.11	23.62	5.84	74.77	-1,802.83	-2,424.16	2,818.54	2,789.39	29.15	96.703	
6,300.00	6,267.70	6,121.41	6,120.98	24.00	5.93	74.96	-1,804.61	-2,426.13	2,818.41	2,788.80	29.61	95.183	
6,318.92	6,286.51	6,139.60	6,139.17	24.07	5.94	74.99	-1,804.96	-2,426.52	2,818.41	2,788.71	29.70	94.901 CC	
6,400.00	6,367.12	6,217.36	6,216.89	24.38	6.01	75.14	-1,806.47	-2,428.24	2,818.46	2,788.38	30.08	93.709	
6,500.00	6,466.54	6,313.51	6,312.99	24.77	6.10	75.33	-1,808.33	-2,430.51	2,818.69	2,788.14	30.54	92.281	
6,600.00	6,565.96	6,418.64	6,418.07	25.15	6.20	75.54	-1,810.16	-2,433.03	2,818.90	2,787.88	31.02	90.866	
6,700.00	6,665.38	6,527.81	6,527.21	25.53	6.31	75.76	-1,811.79	-2,435.44	2,818.87	2,787.36	31.51	89.471	
6,778.75	6,743.68	6,614.56	6,613.94	25.84	6.39	75.94	-1,812.93	-2,437.12	2,818.62	2,786.73	31.89	88.390	
6,781.94	6,746.85	6,618.04	6,617.42	25.85	6.39	78.53	-1,812.97	-2,437.18	2,818.61	2,786.70	31.90	88.346 ES	
6,800.00	6,764.80	6,637.76	6,637.13	25.92	6.41	92.00	-1,813.21	-2,437.53	2,818.83	2,786.84	31.99	88.110	
6,850.00	6,814.29	6,692.09	6,691.45	26.11	6.46	116.42	-1,813.84	-2,438.43	2,821.83	2,789.60	32.24	87.531	
6,900.00	6,863.27	6,747.00	6,746.35	26.30	6.52	128.30	-1,814.43	-2,439.25	2,828.31	2,795.82	32.49	87.060	
6,950.00	6,911.44	6,801.18	6,800.52	26.50	6.57	134.63	-1,814.95	-2,439.96	2,838.22	2,805.49	32.74	86.701	
7,000.00	6,958.49	6,853.47	6,852.81	26.68	6.62	138.32	-1,815.40	-2,440.56	2,851.54	2,818.55	32.98	86.457	
7,050.00	7,004.14	6,904.23	6,903.56	26.87	6.68	140.55	-1,815.78	-2,441.05	2,868.20	2,834.97	33.23	86.324	
7,100.00	7,048.10	6,948.07	6,947.40	27.05	6.72	141.82	-1,816.08	-2,441.45	2,888.17	2,854.71	33.46	86.316 SF	
7,150.00	7,090.11	6,990.30	6,989.62	27.23	6.76	142.44	-1,816.35	-2,441.83	2,911.38	2,877.69	33.69	86.419	
7,200.00	7,129.90	7,033.68	7,033.00	27.41	6.81	142.56	-1,816.62	-2,442.21	2,937.68	2,903.77	33.91	86.622	
7,250.00	7,167.24	7,075.46	7,074.78	27.59	6.85	142.22	-1,816.85	-2,442.50	2,966.90	2,932.77	34.13	86.926	
7,300.00	7,201.88	7,113.09	7,112.41	27.76	6.89	141.42	-1,817.05	-2,442.72	2,998.87	2,964.53	34.34	87.337	
7,350.00	7,233.63	7,145.70	7,145.02	27.94	6.92	140.09	-1,817.24	-2,442.87	3,033.44	2,998.91	34.53	87.852	
7,400.00	7,262.27	7,175.15	7,174.47	28.13	6.96	138.21	-1,817.43	-2,443.00	3,070.42	3,035.71	34.71	88.460	
7,450.00	7,287.63	7,201.29	7,200.61	28.32	6.98	135.65	-1,817.61	-2,443.09	3,109.59	3,074.71	34.88	89.155	
7,500.00	7,309.57	7,224.66	7,223.98	28.53	7.01	132.27	-1,817.78	-2,443.17	3,150.71	3,115.67	35.03	89.934	
7,550.00	7,327.93	7,244.24	7,243.56	28.74	7.03	127.82	-1,817.91	-2,443.22	3,193.53	3,158.35	35.18	90.788	
7,600.00	7,342.62	7,259.89	7,259.21	28.97	7.05	121.99	-1,818.02	-2,443.26	3,237.78	3,202.48	35.30	91.710	
7,650.00	7,353.53	7,271.51	7,270.83	29.22	7.06	114.45	-1,818.09	-2,443.29	3,283.21	3,247.79	35.42	92.691	
7,700.00	7,360.61	7,279.02	7,278.34	29.48	7.07	104.89	-1,818.14	-2,443.31	3,329.52	3,293.99	35.52	93.724	
7,750.00	7,363.80	7,282.35	7,281.67	29.75	7.07	93.34	-1,818.16	-2,443.31	3,376.42	3,340.80	35.62	94.799	
7,765.93	7,364.00	7,282.54	7,281.85	29.84	7.07	89.33	-1,818.16	-2,443.31	3,391.44	3,355.79	35.64	95.148	
7,800.00	7,364.00	7,282.47	7,281.78	30.04	7.07	89.33	-1,818.16	-2,443.31	3,423.61	3,387.91	35.70	95.900	
7,900.00	7,364.00	7,282.26	7,281.58	30.67	7.07	89.32	-1,818.16	-2,443.31	3,518.23	3,482.37	35.86	98.106	
8,000.00	7,364.00	7,282.05	7,281.37	31.37	7.07	89.30	-1,818.16	-2,443.31	3,613.14	3,577.12	36.02	100.307	
8,100.00	7,364.00	7,281.85	7,281.16	32.14	7.07	89.29	-1,818.16	-2,443.31	3,708.32	3,672.15	36.18	102.504	
8,200.00	7,364.00	7,281.64	7,280.96	32.96	7.07	89.28	-1,818.16	-2,443.31	3,803.75	3,767.42	36.33	104.699	
8,300.00	7,364.00	7,281.43	7,280.75	33.85	7.07	89.27	-1,818.16	-2,443.31	3,899.41	3,862.93	36.48	106.890	
8,400.00	7,364.00	7,281.22	7,280.54	34.79	7.07	89.26	-1,818.16	-2,443.31	3,995.28	3,958.65	36.63	109.078	
8,500.00	7,364.00	7,281.01	7,280.33	35.77	7.07	89.25	-1,818.15	-2,443.31	4,091.34	4,054.57	36.77	111.265	
8,600.00	7,364.00	7,280.80	7,280.12	36.80	7.07	89.24	-1,818.15	-2,443.31	4,187.60	4,150.68	36.91	113.448	
8,700.00	7,364.00	7,280.59	7,279.90	37.87	7.07	89.23	-1,818.15	-2,443.31	4,284.02	4,246.97	37.05	115.630	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #026A - OH - OH-SVY

Offset Site Error: 0.00 usft

Survey Program: 100-Standard Keeper 104 **Offset Well Error:** 3.28 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Rule Assigned: Warning
8,800.00	7,364.00	7,280.37	7,279.69	38.98	7.07	89.22	-1,818.15	-2,443.31	4,380.60	4,343.42	37.18	117.809	
8,900.00	7,364.00	7,280.16	7,279.48	40.12	7.07	89.21	-1,818.15	-2,443.31	4,477.34	4,440.02	37.32	119.985	
9,000.00	7,364.00	7,279.94	7,279.26	41.29	7.07	89.20	-1,818.15	-2,443.31	4,574.21	4,536.76	37.44	122.160	
9,100.00	7,364.00	7,279.73	7,279.05	42.49	7.07	89.19	-1,818.15	-2,443.31	4,671.21	4,633.64	37.57	124.332	
9,200.00	7,364.00	7,279.51	7,278.83	43.71	7.07	89.17	-1,818.14	-2,443.31	4,768.34	4,730.65	37.69	126.502	
9,300.00	7,364.00	7,279.29	7,278.61	44.96	7.07	89.16	-1,818.14	-2,443.31	4,865.59	4,827.78	37.81	128.669	
9,400.00	7,364.00	7,279.07	7,278.39	46.23	7.07	89.15	-1,818.14	-2,443.31	4,962.94	4,925.01	37.93	130.834	
9,500.00	7,364.00	7,278.86	7,278.17	47.52	7.07	89.14	-1,818.14	-2,443.31	5,060.40	5,022.35	38.05	132.996	
9,600.00	7,364.00	7,278.64	7,277.95	48.83	7.07	89.13	-1,818.14	-2,443.30	5,157.96	5,119.80	38.16	135.155	
9,700.00	7,364.00	7,278.41	7,277.73	50.15	7.06	89.12	-1,818.14	-2,443.30	5,255.61	5,217.33	38.28	137.311	
9,800.00	7,364.00	7,278.19	7,277.51	51.49	7.06	89.11	-1,818.14	-2,443.30	5,353.34	5,314.96	38.38	139.465	
9,900.00	7,364.00	7,277.97	7,277.29	52.85	7.06	89.10	-1,818.13	-2,443.30	5,451.16	5,412.66	38.49	141.615	
10,000.00	7,364.00	7,277.75	7,277.06	54.22	7.06	89.08	-1,818.13	-2,443.30	5,549.05	5,510.45	38.60	143.762	
10,100.00	7,364.00	7,277.52	7,276.84	55.60	7.06	89.07	-1,818.13	-2,443.30	5,647.02	5,608.32	38.70	145.906	
10,200.00	7,364.00	7,277.30	7,276.61	56.99	7.06	89.06	-1,818.13	-2,443.30	5,745.06	5,706.25	38.81	148.046	
10,300.00	7,364.00	7,277.07	7,276.39	58.40	7.06	89.05	-1,818.13	-2,443.30	5,843.16	5,804.26	38.91	150.183	
10,400.00	7,364.00	7,276.84	7,276.16	59.81	7.06	89.04	-1,818.13	-2,443.30	5,941.33	5,902.32	39.01	152.316	
10,500.00	7,364.00	7,276.61	7,275.93	61.23	7.06	89.03	-1,818.13	-2,443.30	6,039.56	6,000.45	39.10	154.446	
10,600.00	7,364.00	7,276.38	7,275.70	62.66	7.06	89.02	-1,818.12	-2,443.30	6,137.84	6,098.64	39.20	156.571	
10,700.00	7,364.00	7,276.15	7,275.47	64.10	7.06	89.00	-1,818.12	-2,443.30	6,236.18	6,196.89	39.30	158.693	
10,800.00	7,364.00	7,275.92	7,275.24	65.55	7.06	88.99	-1,818.12	-2,443.30	6,334.57	6,295.18	39.39	160.810	
10,900.00	7,364.00	7,275.69	7,275.01	67.01	7.06	88.98	-1,818.12	-2,443.30	6,433.02	6,393.53	39.49	162.923	
11,000.00	7,364.00	7,275.46	7,274.77	68.47	7.06	88.97	-1,818.12	-2,443.30	6,531.50	6,491.93	39.58	165.032	
11,100.00	7,364.00	7,275.22	7,274.54	69.93	7.06	88.96	-1,818.12	-2,443.30	6,630.04	6,590.37	39.67	167.136	
11,200.00	7,364.00	7,274.99	7,274.30	71.41	7.06	88.94	-1,818.12	-2,443.30	6,728.61	6,688.86	39.76	169.236	
11,300.00	7,364.00	7,274.75	7,274.07	72.88	7.06	88.93	-1,818.11	-2,443.30	6,827.23	6,787.38	39.85	171.331	
11,400.00	7,364.00	7,274.51	7,273.83	74.37	7.06	88.92	-1,818.11	-2,443.30	6,925.89	6,885.95	39.94	173.421	
11,500.00	7,364.00	7,274.27	7,273.59	75.85	7.06	88.91	-1,818.11	-2,443.30	7,024.59	6,984.56	40.02	175.506	
11,600.00	7,364.00	7,274.03	7,273.35	77.35	7.06	88.90	-1,818.11	-2,443.30	7,123.32	7,083.21	40.11	177.587	
11,700.00	7,364.00	7,273.79	7,273.11	78.84	7.06	88.88	-1,818.11	-2,443.29	7,222.09	7,181.89	40.20	179.662	
11,800.00	7,364.00	7,273.55	7,272.87	80.34	7.06	88.87	-1,818.11	-2,443.29	7,320.89	7,280.60	40.28	181.733	
11,900.00	7,364.00	7,273.31	7,272.63	81.85	7.06	88.86	-1,818.11	-2,443.29	7,419.72	7,379.35	40.37	183.798	
12,000.00	7,364.00	7,273.07	7,272.38	83.36	7.06	88.85	-1,818.10	-2,443.29	7,518.58	7,478.13	40.45	185.857	
12,100.00	7,364.00	7,272.82	7,272.14	84.87	7.06	88.83	-1,818.10	-2,443.29	7,617.48	7,576.94	40.54	187.911	
12,200.00	7,364.00	7,272.58	7,271.89	86.38	7.06	88.82	-1,818.10	-2,443.29	7,716.40	7,675.78	40.62	189.960	
12,300.00	7,364.00	7,272.33	7,271.65	87.90	7.06	88.81	-1,818.10	-2,443.29	7,815.35	7,774.64	40.70	192.003	
12,400.00	7,364.00	7,272.08	7,271.40	89.42	7.06	88.80	-1,818.10	-2,443.29	7,914.32	7,873.54	40.79	194.041	
12,500.00	7,364.00	7,271.83	7,271.15	90.95	7.06	88.78	-1,818.10	-2,443.29	8,013.33	7,972.46	40.87	196.072	
12,600.00	7,364.00	7,271.58	7,270.90	92.47	7.06	88.77	-1,818.09	-2,443.29	8,112.35	8,071.40	40.95	198.098	
12,700.00	7,364.00	7,271.33	7,270.65	94.00	7.06	88.76	-1,818.09	-2,443.29	8,211.40	8,170.37	41.03	200.118	
12,800.00	7,364.00	7,271.08	7,270.40	95.53	7.06	88.74	-1,818.09	-2,443.29	8,310.47	8,269.36	41.11	202.132	
12,900.00	7,364.00	7,270.83	7,270.14	97.06	7.06	88.73	-1,818.09	-2,443.29	8,409.57	8,368.37	41.20	204.140	
13,000.00	7,364.00	7,270.57	7,269.89	98.60	7.06	88.72	-1,818.09	-2,443.29	8,508.68	8,467.41	41.28	206.142	
13,100.00	7,364.00	7,270.32	7,269.63	100.14	7.06	88.71	-1,818.09	-2,443.29	8,607.82	8,566.46	41.36	208.137	
13,200.00	7,364.00	7,270.06	7,269.38	101.68	7.06	88.69	-1,818.08	-2,443.29	8,706.97	8,665.54	41.44	210.127	
13,300.00	7,364.00	7,269.80	7,269.12	103.22	7.06	88.68	-1,818.08	-2,443.29	8,806.15	8,764.63	41.52	212.110	
13,400.00	7,364.00	7,269.54	7,268.86	104.76	7.06	88.67	-1,818.08	-2,443.29	8,905.34	8,863.74	41.60	214.086	
13,500.00	7,364.00	7,269.28	7,268.60	106.31	7.06	88.65	-1,818.08	-2,443.29	9,004.55	8,962.87	41.68	216.056	
13,600.00	7,364.00	7,269.02	7,268.34	107.85	7.05	88.64	-1,818.08	-2,443.28	9,103.78	9,062.02	41.76	218.020	
13,700.00	7,364.00	7,268.76	7,268.08	109.40	7.05	88.63	-1,818.08	-2,443.28	9,203.02	9,161.19	41.84	219.977	
13,800.00	7,364.00	7,268.50	7,267.81	110.95	7.05	88.61	-1,818.07	-2,443.28	9,302.28	9,260.37	41.92	221.927	
13,900.00	7,364.00	7,268.23	7,267.55	112.50	7.05	88.60	-1,818.07	-2,443.28	9,401.56	9,359.57	42.00	223.871	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #026A - OH - OH-SVY — **Offset Site Error:** 0.00 usft

Survey Program: 100-Standard Keeper 104 — **Rule Assigned:** — **Offset Well Error:** 3.28 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,000.00	7,364.00	7,267.96	7,267.28	114.05	7.05	88.59	-1,818.07	-2,443.28	9,500.85	9,458.78	42.07	225.808	
14,100.00	7,364.00	7,267.70	7,267.02	115.61	7.05	88.57	-1,818.07	-2,443.28	9,600.16	9,558.00	42.15	227.738	
14,200.00	7,364.00	7,267.43	7,266.75	117.16	7.05	88.56	-1,818.07	-2,443.28	9,699.48	9,657.25	42.23	229.662	
14,300.00	7,364.00	7,267.16	7,266.48	118.72	7.05	88.54	-1,818.07	-2,443.28	9,798.81	9,756.50	42.31	231.578	
14,400.00	7,364.00	7,266.89	7,266.21	120.28	7.05	88.53	-1,818.06	-2,443.28	9,898.16	9,855.77	42.39	233.488	
14,500.00	7,364.00	7,266.62	7,265.93	121.84	7.05	88.52	-1,818.06	-2,443.28	9,997.52	9,955.05	42.47	235.390	
14,600.00	7,364.00	7,266.34	7,265.66	123.40	7.05	88.50	-1,818.06	-2,443.28	10,096.90	10,054.34	42.55	237.285	
14,700.00	7,364.00	7,266.07	7,265.39	124.96	7.05	88.49	-1,818.06	-2,443.28	10,196.28	10,153.65	42.63	239.174	
14,800.00	7,364.00	7,265.79	7,265.11	126.52	7.05	88.47	-1,818.06	-2,443.28	10,295.68	10,252.97	42.71	241.055	
14,900.00	7,364.00	7,265.52	7,264.83	128.08	7.05	88.46	-1,818.06	-2,443.28	10,395.09	10,352.30	42.79	242.929	
15,000.00	7,364.00	7,265.24	7,264.56	129.64	7.05	88.45	-1,818.05	-2,443.28	10,494.51	10,451.64	42.87	244.796	
15,100.00	7,364.00	7,264.96	7,264.28	131.21	7.05	88.43	-1,818.05	-2,443.28	10,593.94	10,550.99	42.95	246.656	
15,200.00	7,364.00	7,264.68	7,264.00	132.77	7.05	88.42	-1,818.05	-2,443.27	10,693.38	10,650.35	43.03	248.508	
15,300.00	7,364.00	7,264.39	7,263.71	134.34	7.05	88.40	-1,818.05	-2,443.27	10,792.83	10,749.72	43.11	250.354	
15,400.00	7,364.00	7,264.11	7,263.43	135.91	7.05	88.39	-1,818.05	-2,443.27	10,892.30	10,849.11	43.19	252.191	
15,500.00	7,364.00	7,263.83	7,263.14	137.48	7.05	88.37	-1,818.04	-2,443.27	10,991.77	10,948.50	43.27	254.022	
15,600.00	7,364.00	7,263.54	7,262.86	139.04	7.05	88.36	-1,818.04	-2,443.27	11,091.25	11,047.90	43.35	255.845	
15,700.00	7,364.00	7,263.25	7,262.57	140.61	7.05	88.35	-1,818.04	-2,443.27	11,190.74	11,147.31	43.43	257.661	
15,800.00	7,364.00	7,262.96	7,262.28	142.18	7.05	88.33	-1,818.04	-2,443.27	11,290.24	11,246.73	43.51	259.469	
15,900.00	7,364.00	7,262.67	7,261.99	143.75	7.05	88.32	-1,818.04	-2,443.27	11,389.75	11,346.16	43.59	261.270	
16,000.00	7,364.00	7,262.38	7,261.70	145.33	7.05	88.30	-1,818.03	-2,443.27	11,489.27	11,445.59	43.67	263.063	
16,100.00	7,364.00	7,262.09	7,261.41	146.90	7.05	88.29	-1,818.03	-2,443.27	11,588.79	11,545.04	43.76	264.849	
16,200.00	7,364.00	7,261.79	7,261.11	148.47	7.05	88.27	-1,818.03	-2,443.27	11,688.33	11,644.49	43.84	266.627	
16,300.00	7,364.00	7,261.50	7,260.82	150.04	7.05	88.26	-1,818.03	-2,443.27	11,787.87	11,743.95	43.92	268.397	
16,400.00	7,364.00	7,261.20	7,260.52	151.62	7.05	88.24	-1,818.03	-2,443.27	11,887.42	11,843.41	44.00	270.160	
16,500.00	7,364.00	7,260.90	7,260.22	153.19	7.05	88.23	-1,818.03	-2,443.27	11,986.97	11,942.89	44.08	271.916	
16,600.00	7,364.00	7,260.60	7,259.92	154.77	7.05	88.21	-1,818.02	-2,443.27	12,086.54	12,042.37	44.17	273.664	
16,700.00	7,364.00	7,260.30	7,259.62	156.34	7.05	88.19	-1,818.02	-2,443.26	12,186.11	12,141.86	44.25	275.404	
16,800.00	7,364.00	7,260.00	7,259.32	157.92	7.05	88.18	-1,818.02	-2,443.26	12,285.68	12,241.35	44.33	277.136	
16,900.00	7,364.00	7,259.69	7,259.01	159.49	7.04	88.16	-1,818.02	-2,443.26	12,385.27	12,340.86	44.41	278.861	
17,000.00	7,364.00	7,259.39	7,258.71	161.07	7.04	88.15	-1,818.02	-2,443.26	12,484.86	12,440.36	44.50	280.578	
17,100.00	7,364.00	7,259.08	7,258.40	162.65	7.04	88.13	-1,818.01	-2,443.26	12,584.46	12,539.88	44.58	282.288	
17,200.00	7,364.00	7,258.77	7,258.09	164.23	7.04	88.12	-1,818.01	-2,443.26	12,684.06	12,639.40	44.66	283.989	
17,300.00	7,364.00	7,258.46	7,257.78	165.81	7.04	88.10	-1,818.01	-2,443.26	12,783.67	12,738.93	44.75	285.683	
17,400.00	7,364.00	7,258.15	7,257.47	167.38	7.04	88.08	-1,818.01	-2,443.26	12,883.29	12,838.46	44.83	287.370	
17,500.00	7,364.00	7,257.84	7,257.16	168.96	7.04	88.07	-1,818.01	-2,443.26	12,982.91	12,938.00	44.92	289.048	
17,600.00	7,364.00	7,257.52	7,256.84	170.54	7.04	88.05	-1,818.00	-2,443.26	13,082.54	13,037.54	45.00	290.719	
17,700.00	7,364.00	7,257.20	7,256.52	172.12	7.04	88.04	-1,818.00	-2,443.26	13,182.17	13,137.09	45.09	292.382	
17,800.00	7,364.00	7,256.89	7,256.21	173.70	7.04	88.02	-1,818.00	-2,443.26	13,281.81	13,236.64	45.17	294.038	
17,900.00	7,364.00	7,256.57	7,255.89	175.28	7.04	88.00	-1,818.00	-2,443.26	13,381.46	13,336.20	45.26	295.685	
18,000.00	7,364.00	7,256.25	7,255.57	176.87	7.04	87.99	-1,817.99	-2,443.26	13,481.11	13,435.77	45.34	297.325	
18,100.00	7,364.00	7,255.92	7,255.24	178.45	7.04	87.97	-1,817.99	-2,443.25	13,580.76	13,535.33	45.43	298.957	
18,200.00	7,364.00	7,255.60	7,254.92	180.03	7.04	87.95	-1,817.99	-2,443.25	13,680.42	13,634.91	45.51	300.582	
18,300.00	7,364.00	7,255.27	7,254.59	181.61	7.04	87.94	-1,817.99	-2,443.25	13,780.09	13,734.49	45.60	302.198	
18,400.00	7,364.00	7,254.95	7,254.26	183.19	7.04	87.92	-1,817.99	-2,443.25	13,879.76	13,834.07	45.69	303.807	
18,500.00	7,364.00	7,254.62	7,253.94	184.78	7.04	87.90	-1,817.98	-2,443.25	13,979.43	13,933.66	45.77	305.408	
18,600.00	7,364.00	7,254.29	7,253.60	186.36	7.04	87.89	-1,817.98	-2,443.25	14,079.11	14,033.25	45.86	307.002	
18,700.00	7,364.00	7,253.95	7,253.27	187.94	7.04	87.87	-1,817.98	-2,443.25	14,178.79	14,132.85	45.95	308.587	
18,800.00	7,364.00	7,253.62	7,252.94	189.53	7.04	87.85	-1,817.98	-2,443.25	14,278.48	14,232.45	46.04	310.165	
18,900.00	7,364.00	7,253.28	7,252.60	191.11	7.04	87.84	-1,817.97	-2,443.25	14,378.17	14,332.05	46.12	311.735	
19,000.00	7,364.00	7,252.94	7,252.26	192.70	7.04	87.82	-1,817.97	-2,443.25	14,477.87	14,431.66	46.21	313.297	
19,100.00	7,364.00	7,252.61	7,251.92	194.28	7.04	87.80	-1,817.97	-2,443.25	14,577.57	14,531.27	46.30	314.852	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #026A - OH - OH-SVY

Offset Site Error: 0.00 usft

Survey Program: 100-Standard Keeper 104 **Offset Well Error:** 3.28 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
19,200.00	7,364.00	7,252.26	7,251.58	195.87	7.04	87.78	-1,817.97	-2,443.25	14,677.28	14,630.89	46.39	316.399	
19,300.00	7,364.00	7,251.92	7,251.24	197.45	7.04	87.77	-1,817.97	-2,443.24	14,776.98	14,730.51	46.48	317.938	
19,400.00	7,364.00	7,251.58	7,250.90	199.04	7.04	87.75	-1,817.96	-2,443.24	14,876.70	14,830.13	46.57	319.469	
19,500.00	7,364.00	7,251.23	7,250.55	200.62	7.04	87.73	-1,817.96	-2,443.24	14,976.41	14,929.76	46.66	320.993	
19,600.00	7,364.00	7,250.88	7,250.20	202.21	7.04	87.71	-1,817.96	-2,443.24	15,076.13	15,029.39	46.75	322.509	
19,700.00	7,364.00	7,250.53	7,249.85	203.79	7.04	87.70	-1,817.96	-2,443.24	15,175.86	15,129.02	46.84	324.018	
19,800.00	7,364.00	7,250.18	7,249.50	205.38	7.03	87.68	-1,817.95	-2,443.24	15,275.58	15,228.66	46.93	325.518	
19,900.00	7,364.00	7,249.83	7,249.15	206.97	7.03	87.66	-1,817.95	-2,443.24	15,375.32	15,328.30	47.02	327.012	
20,000.00	7,364.00	7,249.47	7,248.79	208.55	7.03	87.64	-1,817.95	-2,443.24	15,475.05	15,427.94	47.11	328.497	
20,100.00	7,364.00	7,249.11	7,248.43	210.14	7.03	87.62	-1,817.95	-2,443.24	15,574.79	15,527.59	47.20	329.975	
20,200.00	7,364.00	7,248.75	7,248.07	211.73	7.03	87.61	-1,817.94	-2,443.24	15,674.53	15,627.24	47.29	331.445	
20,300.00	7,364.00	7,248.39	7,247.71	213.32	7.03	87.59	-1,817.94	-2,443.24	15,774.27	15,726.89	47.38	332.908	
20,400.00	7,364.00	7,248.03	7,247.35	214.90	7.03	87.57	-1,817.94	-2,443.23	15,874.02	15,826.55	47.48	334.363	
20,500.00	7,364.00	7,247.67	7,246.99	216.49	7.03	87.55	-1,817.94	-2,443.23	15,973.77	15,926.20	47.57	335.810	
20,600.00	7,364.00	7,247.30	7,246.62	218.08	7.03	87.53	-1,817.94	-2,443.23	16,073.53	16,025.87	47.66	337.250	
20,700.00	7,364.00	7,246.93	7,246.25	219.67	7.03	87.51	-1,817.93	-2,443.23	16,173.28	16,125.53	47.75	338.682	
20,800.00	7,364.00	7,246.56	7,245.88	221.26	7.03	87.49	-1,817.93	-2,443.23	16,273.04	16,225.20	47.85	340.107	
20,900.00	7,364.00	7,246.19	7,245.51	222.84	7.03	87.48	-1,817.93	-2,443.23	16,372.81	16,324.87	47.94	341.524	
21,000.00	7,364.00	7,245.81	7,245.13	224.43	7.03	87.46	-1,817.93	-2,443.23	16,472.57	16,424.54	48.03	342.934	
21,100.00	7,364.00	7,245.44	7,244.75	226.02	7.03	87.44	-1,817.92	-2,443.23	16,572.34	16,524.21	48.13	344.337	
21,200.00	7,364.00	7,245.06	7,244.38	227.61	7.03	87.42	-1,817.92	-2,443.23	16,672.11	16,623.89	48.22	345.732	
21,300.00	7,364.00	7,244.68	7,244.00	229.20	7.03	87.40	-1,817.92	-2,443.23	16,771.89	16,723.57	48.32	347.119	
21,400.00	7,364.00	7,244.29	7,243.61	230.79	7.03	87.38	-1,817.91	-2,443.22	16,871.66	16,823.25	48.41	348.499	
21,500.00	7,364.00	7,243.91	7,243.23	232.38	7.03	87.36	-1,817.91	-2,443.22	16,971.44	16,922.93	48.51	349.872	
21,600.00	7,364.00	7,243.52	7,242.84	233.97	7.03	87.34	-1,817.91	-2,443.22	17,071.22	17,022.62	48.60	351.237	
21,700.00	7,364.00	7,243.13	7,242.45	235.56	7.03	87.32	-1,817.91	-2,443.22	17,171.01	17,122.31	48.70	352.595	
21,800.00	7,364.00	7,242.74	7,242.06	237.15	7.03	87.30	-1,817.90	-2,443.22	17,270.79	17,222.00	48.80	353.946	
21,864.93	7,364.00	7,242.49	7,241.81	238.18	7.03	87.29	-1,817.90	-2,443.22	17,335.58	17,286.73	48.86	354.819	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #026C - OH - OH-SVY

Offset Site Error: 0.00 usft

Survey Program: 100-Standard Keeper 104 **Offset Well Error:** 3.28 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	7.04	7.04	3.28	3.28	-91.64	-30.56	-1,064.35	1,064.79				
100.00	100.00	107.57	107.57	3.29	3.28	-91.65	-30.74	-1,064.31	1,064.76	1,058.19	6.57	162.067	
200.00	200.00	207.48	207.48	3.34	3.29	-91.68	-31.20	-1,064.25	1,064.71	1,058.09	6.62	160.880	
300.00	300.00	308.16	308.15	3.42	3.30	-91.72	-32.00	-1,064.15	1,064.63	1,057.93	6.70	158.783	
400.00	400.00	408.59	408.58	3.54	3.31	-91.78	-33.00	-1,063.99	1,064.51	1,057.68	6.83	155.905	
500.00	500.00	509.15	509.14	3.69	3.33	-91.83	-34.03	-1,063.77	1,064.32	1,057.33	6.98	152.399	
510.20	510.20	519.01	519.00	3.70	3.34	118.16	-34.13	-1,063.75	1,064.30	1,057.30	7.00	152.032	CC, ES
600.00	599.98	605.99	605.97	3.86	3.36	118.19	-34.83	-1,063.70	1,065.09	1,057.93	7.16	148.764	
700.00	699.84	705.29	705.27	4.04	3.39	118.36	-35.44	-1,063.80	1,067.70	1,060.34	7.35	145.179	
808.00	807.41	812.57	812.54	4.27	3.42	118.70	-35.93	-1,063.97	1,072.46	1,064.87	7.59	141.224	
900.00	898.89	905.45	905.43	4.49	3.46	102.00	-36.11	-1,064.07	1,075.97	1,068.15	7.82	137.600	
912.12	910.94	917.68	917.66	4.52	3.46	99.83	-36.12	-1,064.07	1,076.22	1,068.37	7.85	137.095	
1,000.00	998.31	1,006.28	1,006.26	4.74	3.49	100.33	-36.17	-1,064.04	1,077.85	1,069.76	8.08	133.325	
1,100.00	1,097.73	1,106.09	1,106.07	5.01	3.52	100.89	-36.24	-1,063.94	1,079.73	1,071.36	8.37	129.004	
1,200.00	1,197.15	1,207.17	1,207.15	5.29	3.55	101.45	-36.27	-1,063.76	1,081.64	1,072.96	8.68	124.684	
1,300.00	1,296.58	1,314.37	1,314.35	5.59	3.58	102.05	-36.19	-1,063.06	1,083.18	1,074.18	9.00	120.351	
1,400.00	1,396.00	1,418.12	1,418.08	5.90	3.60	102.63	-36.17	-1,061.79	1,084.26	1,074.92	9.34	116.080	
1,500.00	1,495.42	1,518.20	1,518.16	6.22	3.64	103.18	-36.26	-1,060.37	1,085.24	1,075.54	9.69	111.947	
1,600.00	1,594.84	1,618.03	1,617.98	6.54	3.68	103.72	-36.43	-1,058.92	1,086.28	1,076.22	10.06	107.979	
1,700.00	1,694.27	1,718.73	1,718.66	6.87	3.73	104.25	-36.98	-1,057.39	1,087.33	1,076.89	10.44	104.184	
1,800.00	1,793.69	1,818.13	1,818.05	7.21	3.79	104.76	-37.82	-1,055.83	1,088.41	1,077.59	10.82	100.582	
1,900.00	1,893.11	1,915.00	1,914.90	7.55	3.86	105.24	-38.85	-1,054.47	1,089.71	1,078.50	11.21	97.203	
2,000.00	1,992.53	2,011.03	2,010.92	7.89	3.92	105.70	-40.21	-1,053.44	1,091.39	1,079.79	11.60	94.068	
2,100.00	2,091.96	2,107.96	2,107.83	8.24	3.99	106.15	-41.67	-1,052.68	1,093.42	1,081.43	12.00	91.153	
2,200.00	2,191.38	2,206.93	2,206.79	8.60	4.07	106.61	-43.03	-1,052.04	1,095.68	1,083.28	12.39	88.403	
2,300.00	2,290.80	2,307.19	2,307.04	8.95	4.14	107.09	-44.31	-1,051.37	1,097.99	1,085.19	12.80	85.781	
2,400.00	2,390.22	2,406.88	2,406.72	9.31	4.22	107.57	-45.40	-1,050.64	1,100.35	1,087.13	13.21	83.275	
2,500.00	2,489.65	2,504.33	2,504.16	9.67	4.30	108.05	-46.29	-1,049.99	1,102.86	1,089.23	13.63	80.907	
2,600.00	2,589.07	2,600.00	2,599.83	10.03	4.38	108.52	-46.99	-1,049.73	1,105.86	1,091.82	14.04	78.766	
2,700.00	2,688.49	2,691.25	2,691.08	10.40	4.43	108.97	-47.51	-1,049.96	1,109.49	1,095.06	14.42	76.928	
2,800.00	2,787.91	2,789.71	2,789.54	10.76	4.47	109.46	-47.96	-1,050.48	1,113.50	1,098.70	14.80	75.257	
2,900.00	2,887.33	2,888.94	2,888.76	11.13	4.51	109.95	-48.32	-1,051.04	1,117.63	1,102.46	15.17	73.681	
3,000.00	2,986.76	2,988.83	2,988.66	11.50	4.53	110.45	-48.54	-1,051.56	1,121.84	1,106.29	15.54	72.186	
3,100.00	3,086.18	3,088.78	3,088.60	11.87	4.56	110.95	-48.70	-1,052.03	1,126.08	1,110.17	15.92	70.752	
3,200.00	3,185.60	3,187.97	3,187.79	12.24	4.59	111.44	-48.87	-1,052.48	1,130.40	1,114.10	16.29	69.371	
3,300.00	3,285.02	3,287.47	3,287.29	12.61	4.63	111.93	-49.06	-1,052.94	1,134.81	1,118.13	16.68	68.043	
3,400.00	3,384.45	3,388.41	3,388.23	12.98	4.68	112.42	-49.33	-1,053.37	1,139.24	1,122.17	17.07	66.745	
3,500.00	3,483.87	3,489.76	3,489.58	13.36	4.76	112.90	-49.73	-1,053.66	1,143.59	1,126.12	17.47	65.460	
3,600.00	3,583.29	3,589.82	3,589.64	13.73	4.84	113.37	-50.19	-1,053.85	1,147.91	1,130.03	17.88	64.205	
3,700.00	3,682.71	3,690.24	3,690.06	14.11	4.93	113.84	-50.74	-1,053.99	1,152.24	1,133.95	18.29	62.988	
3,800.00	3,782.14	3,789.97	3,789.78	14.48	5.02	114.29	-51.45	-1,054.12	1,156.60	1,137.89	18.71	61.816	
3,900.00	3,881.56	3,889.05	3,888.86	14.86	5.12	114.73	-52.24	-1,054.27	1,161.03	1,141.90	19.13	60.698	
4,000.00	3,980.98	3,986.68	3,986.48	15.24	5.21	115.14	-53.26	-1,054.59	1,165.62	1,146.07	19.54	59.642	
4,100.00	4,080.40	4,082.23	4,082.03	15.61	5.30	115.52	-54.69	-1,055.25	1,170.52	1,150.56	19.95	58.659	
4,200.00	4,179.83	4,181.21	4,180.98	15.99	5.38	115.90	-56.33	-1,056.22	1,175.70	1,155.34	20.37	57.726	
4,300.00	4,279.25	4,281.42	4,281.17	16.37	5.48	116.28	-58.08	-1,057.20	1,180.91	1,160.13	20.78	56.825	
4,400.00	4,378.67	4,381.69	4,381.42	16.75	5.57	116.63	-60.17	-1,058.21	1,186.11	1,164.91	21.20	55.951	
4,500.00	4,478.09	4,481.46	4,481.15	17.13	5.67	116.97	-62.53	-1,059.26	1,191.32	1,169.70	21.62	55.107	
4,600.00	4,577.51	4,582.92	4,582.59	17.51	5.77	117.33	-64.57	-1,060.15	1,196.50	1,174.46	22.04	54.287	
4,700.00	4,676.94	4,683.00	4,682.65	17.89	5.87	117.70	-66.18	-1,060.78	1,201.60	1,179.14	22.46	53.493	
4,800.00	4,776.36	4,782.41	4,782.05	18.27	5.97	118.08	-67.69	-1,061.37	1,206.75	1,183.86	22.89	52.731	
4,900.00	4,875.78	4,880.72	4,880.35	18.65	6.07	118.44	-69.21	-1,062.01	1,212.00	1,188.69	23.31	51.999	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #026C - OH - OH-SVY

Offset Site Error: 0.00 usft

Survey Program: 100-Standard Keeper 104 **Offset Well Error:** 3.28 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,000.00	4,975.20	4,979.49	4,979.10	19.03	6.18	118.80	-70.77	-1,062.77	1,217.40	1,193.67	23.73	51.303	
5,100.00	5,074.63	5,078.30	5,077.89	19.41	6.28	119.15	-72.35	-1,063.59	1,222.90	1,198.75	24.15	50.635	
5,200.00	5,174.05	5,178.87	5,178.45	19.79	6.38	119.51	-73.93	-1,064.42	1,228.46	1,203.88	24.58	49.987	
5,300.00	5,273.47	5,278.91	5,278.47	20.17	6.49	119.87	-75.49	-1,065.16	1,233.98	1,208.97	25.00	49.357	
5,400.00	5,372.89	5,379.31	5,378.86	20.56	6.60	120.22	-77.06	-1,065.86	1,239.50	1,214.07	25.43	48.745	
5,500.00	5,472.32	5,480.43	5,479.96	20.94	6.71	120.57	-78.69	-1,066.48	1,244.97	1,219.12	25.86	48.145	
5,600.00	5,571.74	5,585.57	5,585.09	21.32	6.82	120.94	-80.40	-1,066.83	1,250.23	1,223.94	26.30	47.539	
5,700.00	5,671.16	5,686.46	5,685.97	21.70	6.94	121.29	-82.13	-1,066.84	1,255.21	1,228.47	26.74	46.941	
5,800.00	5,770.58	5,779.52	5,779.00	22.08	7.04	121.59	-83.95	-1,067.14	1,260.43	1,233.26	27.17	46.394	
5,900.00	5,870.01	5,874.10	5,873.56	22.47	7.15	121.89	-85.85	-1,067.99	1,266.20	1,238.61	27.59	45.890	
6,000.00	5,969.43	5,971.41	5,970.85	22.85	7.25	122.21	-87.50	-1,069.04	1,272.30	1,244.28	28.02	45.415	
6,100.00	6,068.85	6,070.93	6,070.35	23.23	7.36	122.53	-88.95	-1,070.11	1,278.52	1,250.08	28.44	44.955	
6,200.00	6,168.27	6,171.24	6,170.65	23.62	7.46	122.86	-90.38	-1,071.13	1,284.74	1,255.87	28.87	44.506	
6,300.00	6,267.70	6,272.32	6,271.71	24.00	7.57	123.19	-91.88	-1,072.09	1,290.92	1,261.62	29.30	44.065	
6,400.00	6,367.12	6,365.77	6,365.15	24.38	7.67	123.49	-93.21	-1,073.04	1,297.22	1,267.51	29.71	43.658	
6,500.00	6,466.54	6,443.28	6,442.64	24.77	7.74	123.74	-94.01	-1,074.47	1,304.53	1,274.43	30.10	43.335	
6,600.00	6,565.96	6,518.41	6,517.72	25.15	7.79	123.98	-94.05	-1,077.38	1,314.00	1,283.52	30.48	43.109	
6,700.00	6,665.38	6,622.78	6,621.99	25.53	7.83	124.34	-93.35	-1,081.77	1,324.18	1,293.28	30.90	42.860	
6,778.75	6,743.68	6,717.92	6,717.08	25.84	7.88	124.66	-93.05	-1,084.93	1,331.47	1,300.23	31.24	42.618	
6,800.00	6,764.80	6,743.14	6,742.28	25.92	7.90	140.83	-93.12	-1,085.61	1,333.60	1,302.27	31.34	42.559	
6,850.00	6,814.29	6,802.24	6,801.37	26.11	7.94	165.60	-93.53	-1,087.00	1,340.89	1,309.34	31.55	42.499	SF
6,900.00	6,863.27	6,857.52	6,856.63	26.30	8.00	177.96	-94.18	-1,088.06	1,351.41	1,319.65	31.76	42.551	
6,950.00	6,911.44	6,911.63	6,910.73	26.50	8.05	-175.06	-94.99	-1,088.89	1,365.15	1,333.19	31.96	42.714	
7,000.00	6,958.49	6,963.11	6,962.20	26.68	8.11	-170.54	-95.85	-1,089.51	1,382.09	1,349.94	32.15	42.987	
7,050.00	7,004.14	7,013.02	7,012.10	26.87	8.17	-167.26	-96.72	-1,089.95	1,402.17	1,369.84	32.33	43.366	
7,100.00	7,048.10	7,060.82	7,059.90	27.05	8.22	-164.64	-97.66	-1,090.26	1,425.31	1,392.80	32.50	43.849	
7,150.00	7,090.11	7,106.35	7,105.41	27.23	8.28	-162.37	-98.66	-1,090.47	1,451.40	1,418.73	32.66	44.435	
7,200.00	7,129.90	7,148.14	7,147.19	27.41	8.33	-160.23	-99.70	-1,090.64	1,480.34	1,447.54	32.81	45.123	
7,250.00	7,167.24	7,187.35	7,186.39	27.59	8.37	-158.09	-100.80	-1,090.78	1,512.02	1,479.08	32.94	45.907	
7,300.00	7,201.88	7,223.56	7,222.58	27.76	8.41	-155.83	-101.90	-1,090.91	1,546.27	1,513.22	33.05	46.784	
7,350.00	7,233.63	7,256.68	7,255.68	27.94	8.45	-153.30	-102.94	-1,091.01	1,582.91	1,549.76	33.15	47.750	
7,400.00	7,262.27	7,286.59	7,285.57	28.13	8.49	-150.36	-103.91	-1,091.08	1,621.76	1,588.52	33.23	48.798	
7,450.00	7,287.63	7,313.82	7,312.78	28.32	8.52	-146.86	-104.82	-1,091.14	1,662.58	1,629.28	33.30	49.922	
7,500.00	7,309.57	7,338.08	7,337.03	28.53	8.55	-142.57	-105.65	-1,091.16	1,705.15	1,671.79	33.36	51.114	
7,550.00	7,327.93	7,358.48	7,357.42	28.74	8.57	-137.15	-106.37	-1,091.15	1,749.22	1,715.82	33.40	52.371	
7,600.00	7,342.62	7,374.89	7,373.82	28.97	8.59	-130.21	-106.96	-1,091.13	1,794.54	1,761.12	33.43	53.686	
7,650.00	7,353.53	7,387.17	7,386.09	29.22	8.61	-121.31	-107.40	-1,091.11	1,840.86	1,807.42	33.44	55.051	
7,700.00	7,360.61	7,395.21	7,394.12	29.48	8.62	-110.16	-107.70	-1,091.10	1,887.89	1,854.45	33.44	56.457	
7,750.00	7,363.80	7,398.93	7,397.84	29.75	8.62	-97.04	-107.84	-1,091.09	1,935.35	1,901.92	33.43	57.896	
7,765.93	7,364.00	7,399.20	7,398.11	29.84	8.62	-92.61	-107.85	-1,091.09	1,950.51	1,917.09	33.42	58.359	
7,800.00	7,364.00	7,399.30	7,398.22	30.04	8.62	-92.62	-107.85	-1,091.09	1,982.98	1,949.57	33.41	59.353	
7,900.00	7,364.00	7,399.60	7,398.52	30.67	8.62	-92.65	-107.86	-1,091.09	2,078.58	2,045.20	33.38	62.273	
8,000.00	7,364.00	7,399.91	7,398.82	31.37	8.62	-92.68	-107.88	-1,091.09	2,174.58	2,141.22	33.36	65.195	
8,100.00	7,364.00	7,400.22	7,399.13	32.14	8.62	-92.71	-107.89	-1,091.09	2,270.92	2,237.58	33.34	68.118	
8,200.00	7,364.00	7,400.53	7,399.44	32.96	8.62	-92.74	-107.90	-1,091.08	2,367.56	2,334.23	33.33	71.041	
8,300.00	7,364.00	7,400.84	7,399.75	33.85	8.62	-92.77	-107.91	-1,091.08	2,464.47	2,431.15	33.32	73.963	
8,400.00	7,364.00	7,401.16	7,400.07	34.79	8.62	-92.80	-107.92	-1,091.08	2,561.62	2,528.30	33.32	76.885	
8,500.00	7,364.00	7,401.48	7,400.39	35.77	8.62	-92.83	-107.93	-1,091.08	2,658.98	2,625.66	33.32	79.804	
8,600.00	7,364.00	7,401.80	7,400.71	36.80	8.62	-92.86	-107.95	-1,091.08	2,756.53	2,723.21	33.32	82.722	
8,700.00	7,364.00	7,402.13	7,401.04	37.87	8.62	-92.89	-107.96	-1,091.08	2,854.25	2,820.92	33.33	85.636	
8,800.00	7,364.00	7,402.46	7,401.37	38.98	8.62	-92.92	-107.97	-1,091.08	2,952.12	2,918.78	33.34	88.547	
8,900.00	7,364.00	7,402.79	7,401.70	40.12	8.62	-92.95	-107.98	-1,091.08	3,050.13	3,016.78	33.35	91.454	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #026C - OH - OH-SVY

Offset Site Error: 0.00 usft

Survey Program: 100-Standard Keeper 104 **Offset Well Error:** 3.28 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,000.00	7,364.00	7,403.13	7,402.04	41.29	8.62	-92.99	-108.00	-1,091.08	3,148.27	3,114.90	33.37	94.357	
9,100.00	7,364.00	7,403.47	7,402.38	42.49	8.63	-93.02	-108.01	-1,091.08	3,246.51	3,213.13	33.38	97.255	
9,200.00	7,364.00	7,403.82	7,402.73	43.71	8.63	-93.05	-108.02	-1,091.08	3,344.87	3,311.47	33.40	100.148	
9,300.00	7,364.00	7,404.16	7,403.07	44.96	8.63	-93.09	-108.03	-1,091.08	3,443.31	3,409.90	33.42	103.036	
9,400.00	7,364.00	7,404.52	7,403.43	46.23	8.63	-93.12	-108.05	-1,091.07	3,541.85	3,508.41	33.44	105.918	
9,500.00	7,364.00	7,404.87	7,403.78	47.52	8.63	-93.15	-108.06	-1,091.07	3,640.46	3,607.00	33.46	108.795	
9,600.00	7,364.00	7,405.23	7,404.14	48.83	8.63	-93.19	-108.07	-1,091.07	3,739.15	3,705.66	33.49	111.665	
9,700.00	7,364.00	7,405.60	7,404.51	50.15	8.63	-93.22	-108.09	-1,091.07	3,837.91	3,804.40	33.51	114.529	
9,800.00	7,364.00	7,405.97	7,404.88	51.49	8.63	-93.26	-108.10	-1,091.07	3,936.72	3,903.19	33.54	117.386	
9,900.00	7,364.00	7,406.34	7,405.25	52.85	8.63	-93.30	-108.12	-1,091.07	4,035.60	4,002.04	33.56	120.236	
10,000.00	7,364.00	7,406.72	7,405.62	54.22	8.63	-93.33	-108.13	-1,091.07	4,134.53	4,100.94	33.59	123.078	
10,100.00	7,364.00	7,407.10	7,406.01	55.60	8.63	-93.37	-108.14	-1,091.07	4,233.51	4,199.89	33.62	125.914	
10,200.00	7,364.00	7,407.48	7,406.39	56.99	8.63	-93.41	-108.16	-1,091.07	4,332.54	4,298.89	33.65	128.741	
10,300.00	7,364.00	7,407.87	7,406.78	58.40	8.63	-93.44	-108.17	-1,091.06	4,431.61	4,397.93	33.69	131.560	
10,400.00	7,364.00	7,408.27	7,407.17	59.81	8.63	-93.48	-108.19	-1,091.06	4,530.72	4,497.01	33.72	134.371	
10,500.00	7,364.00	7,408.67	7,407.57	61.23	8.63	-93.52	-108.20	-1,091.06	4,629.87	4,596.12	33.75	137.174	
10,600.00	7,364.00	7,409.07	7,407.98	62.66	8.63	-93.56	-108.22	-1,091.06	4,729.06	4,695.27	33.79	139.968	
10,700.00	7,364.00	7,409.48	7,408.38	64.10	8.63	-93.60	-108.23	-1,091.06	4,828.28	4,794.46	33.82	142.753	
10,800.00	7,364.00	7,409.89	7,408.80	65.55	8.63	-93.64	-108.25	-1,091.06	4,927.53	4,893.67	33.86	145.530	
10,900.00	7,364.00	7,410.31	7,409.22	67.01	8.63	-93.68	-108.27	-1,091.06	5,026.81	4,992.91	33.90	148.297	
11,000.00	7,364.00	7,410.73	7,409.64	68.47	8.63	-93.72	-108.28	-1,091.06	5,126.12	5,092.18	33.94	151.054	
11,100.00	7,364.00	7,411.16	7,410.07	69.93	8.63	-93.76	-108.30	-1,091.06	5,225.45	5,191.48	33.98	153.802	
11,200.00	7,364.00	7,411.60	7,410.50	71.41	8.63	-93.80	-108.31	-1,091.05	5,324.81	5,290.80	34.02	156.540	
11,300.00	7,364.00	7,412.04	7,410.94	72.88	8.64	-93.84	-108.33	-1,091.05	5,424.20	5,390.14	34.06	159.268	
11,400.00	7,364.00	7,412.48	7,411.38	74.37	8.64	-93.89	-108.35	-1,091.05	5,523.60	5,489.50	34.10	161.986	
11,500.00	7,364.00	7,412.93	7,411.83	75.85	8.64	-93.93	-108.36	-1,091.05	5,623.03	5,588.89	34.14	164.694	
11,600.00	7,364.00	7,413.39	7,412.29	77.35	8.64	-93.97	-108.38	-1,091.05	5,722.48	5,688.29	34.19	167.391	
11,700.00	7,364.00	7,413.85	7,412.75	78.84	8.64	-94.02	-108.40	-1,091.05	5,821.94	5,787.71	34.23	170.078	
11,800.00	7,364.00	7,414.31	7,413.22	80.34	8.64	-94.06	-108.42	-1,091.05	5,921.43	5,887.15	34.28	172.754	
11,900.00	7,364.00	7,414.79	7,413.69	81.85	8.64	-94.11	-108.43	-1,091.04	6,020.93	5,986.60	34.32	175.419	
12,000.00	7,364.00	7,415.27	7,414.17	83.36	8.64	-94.15	-108.45	-1,091.04	6,120.44	6,086.07	34.37	178.073	
12,100.00	7,364.00	7,415.75	7,414.65	84.87	8.64	-94.20	-108.47	-1,091.04	6,219.98	6,185.56	34.42	180.716	
12,200.00	7,364.00	7,416.24	7,415.14	86.38	8.64	-94.25	-108.49	-1,091.04	6,319.52	6,285.06	34.47	183.348	
12,300.00	7,364.00	7,416.74	7,415.64	87.90	8.64	-94.30	-108.51	-1,091.04	6,419.08	6,384.57	34.52	185.968	
12,400.00	7,364.00	7,417.25	7,416.15	89.42	8.64	-94.34	-108.53	-1,091.04	6,518.66	6,484.09	34.57	188.576	
12,500.00	7,364.00	7,417.76	7,416.66	90.95	8.64	-94.39	-108.55	-1,091.03	6,618.25	6,583.63	34.62	191.173	
12,600.00	7,364.00	7,418.27	7,417.17	92.47	8.64	-94.44	-108.57	-1,091.03	6,717.85	6,683.17	34.67	193.759	
12,700.00	7,364.00	7,418.80	7,417.70	94.00	8.64	-94.49	-108.59	-1,091.03	6,817.46	6,782.73	34.72	196.332	
12,800.00	7,364.00	7,419.33	7,418.23	95.53	8.64	-94.54	-108.61	-1,091.03	6,917.08	6,882.30	34.78	198.893	
12,900.00	7,364.00	7,419.87	7,418.77	97.06	8.64	-94.60	-108.63	-1,091.03	7,016.71	6,981.88	34.83	201.442	
13,000.00	7,364.00	7,420.42	7,419.31	98.60	8.65	-94.65	-108.65	-1,091.03	7,116.36	7,081.47	34.89	203.980	
13,100.00	7,364.00	7,420.37	7,419.27	100.14	8.64	-94.64	-108.64	-1,091.03	7,216.01	7,181.07	34.94	206.510	
13,200.00	7,364.00	7,420.91	7,419.80	101.68	8.65	-94.70	-108.66	-1,091.02	7,315.67	7,280.67	35.00	209.023	
13,300.00	7,364.00	7,421.45	7,420.35	103.22	8.65	-94.75	-108.68	-1,091.02	7,415.34	7,380.29	35.06	211.523	
13,400.00	7,364.00	7,422.00	7,420.90	104.76	8.65	-94.80	-108.70	-1,091.02	7,515.02	7,479.91	35.12	214.011	
13,500.00	7,364.00	7,422.56	7,421.46	106.31	8.65	-94.85	-108.73	-1,091.02	7,614.71	7,579.54	35.17	216.486	
13,600.00	7,364.00	7,423.13	7,422.03	107.85	8.65	-94.91	-108.75	-1,091.02	7,714.41	7,679.18	35.23	218.948	
13,700.00	7,364.00	7,423.71	7,422.60	109.40	8.65	-94.96	-108.77	-1,091.01	7,814.11	7,778.82	35.29	221.398	
13,800.00	7,364.00	7,424.29	7,423.18	110.95	8.65	-95.02	-108.79	-1,091.01	7,913.83	7,878.47	35.36	223.835	
13,900.00	7,364.00	7,424.88	7,423.77	112.50	8.65	-95.08	-108.81	-1,091.01	8,013.55	7,978.13	35.42	226.259	
14,000.00	7,364.00	7,425.48	7,424.37	114.05	8.65	-95.13	-108.84	-1,091.01	8,113.27	8,077.79	35.48	228.669	
14,100.00	7,364.00	7,426.09	7,424.98	115.61	8.65	-95.19	-108.86	-1,091.01	8,213.00	8,177.46	35.54	231.067	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #026C - OH - OH-SVY

Offset Site Error: 0.00 usft

Survey Program: 100-Standard Keeper 104 **Offset Well Error:** 3.28 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,200.00	7,364.00	7,426.70	7,425.59	117.16	8.65	-95.25	-108.88	-1,091.00	8,312.74	8,277.14	35.61	233.452	
14,300.00	7,364.00	7,427.33	7,426.22	118.72	8.65	-95.31	-108.91	-1,091.00	8,412.49	8,376.82	35.67	235.824	
14,400.00	7,364.00	7,427.96	7,426.85	120.28	8.65	-95.37	-108.93	-1,091.00	8,512.24	8,476.50	35.74	238.183	
14,500.00	7,364.00	7,428.60	7,427.49	121.84	8.65	-95.43	-108.95	-1,091.00	8,612.00	8,576.19	35.80	240.528	
14,600.00	7,364.00	7,429.25	7,428.14	123.40	8.65	-95.50	-108.98	-1,090.99	8,711.76	8,675.89	35.87	242.860	
14,700.00	7,364.00	7,429.91	7,428.81	124.96	8.66	-95.56	-109.00	-1,090.99	8,811.53	8,775.59	35.94	245.179	
14,800.00	7,364.00	7,430.59	7,429.48	126.52	8.66	-95.62	-109.03	-1,090.99	8,911.30	8,875.29	36.01	247.484	
14,900.00	7,364.00	7,431.27	7,430.16	128.08	8.66	-95.69	-109.05	-1,090.99	9,011.08	8,975.00	36.08	249.777	
15,000.00	7,364.00	7,431.96	7,430.85	129.64	8.66	-95.75	-109.08	-1,090.98	9,110.86	9,074.71	36.15	252.055	
15,100.00	7,364.00	7,432.66	7,431.55	131.21	8.66	-95.82	-109.11	-1,090.98	9,210.65	9,174.43	36.22	254.321	
15,200.00	7,364.00	7,433.37	7,432.26	132.77	8.66	-95.89	-109.13	-1,090.98	9,310.44	9,274.15	36.29	256.573	
15,300.00	7,364.00	7,434.09	7,432.98	134.34	8.66	-95.96	-109.16	-1,090.98	9,410.24	9,373.88	36.36	258.811	
15,400.00	7,364.00	7,434.83	7,433.71	135.91	8.66	-96.03	-109.19	-1,090.97	9,510.04	9,473.61	36.43	261.036	
15,500.00	7,364.00	7,435.57	7,434.46	137.48	8.66	-96.10	-109.22	-1,090.97	9,609.84	9,573.34	36.50	263.248	
15,600.00	7,364.00	7,436.33	7,435.21	139.04	8.66	-96.17	-109.25	-1,090.97	9,709.65	9,673.07	36.58	265.446	
15,700.00	7,364.00	7,437.10	7,435.98	140.61	8.66	-96.25	-109.28	-1,090.96	9,809.46	9,772.81	36.65	267.631	
15,800.00	7,364.00	7,437.88	7,436.76	142.18	8.66	-96.32	-109.31	-1,090.96	9,909.28	9,872.55	36.73	269.802	
15,900.00	7,364.00	7,438.67	7,437.56	143.75	8.67	-96.40	-109.34	-1,090.96	10,009.10	9,972.30	36.80	271.959	
16,000.00	7,364.00	7,439.48	7,438.36	145.33	8.67	-96.47	-109.37	-1,090.95	10,108.92	10,072.04	36.88	274.104	
16,100.00	7,364.00	7,440.29	7,439.18	146.90	8.67	-96.55	-109.40	-1,090.95	10,208.75	10,171.79	36.96	276.234	
16,200.00	7,364.00	7,441.13	7,440.01	148.47	8.67	-96.63	-109.43	-1,090.95	10,308.58	10,271.55	37.03	278.351	
16,300.00	7,364.00	7,441.97	7,440.86	150.04	8.67	-96.71	-109.46	-1,090.94	10,408.41	10,371.30	37.11	280.455	
16,400.00	7,364.00	7,442.83	7,441.71	151.62	8.67	-96.80	-109.49	-1,090.94	10,508.25	10,471.06	37.19	282.545	
16,500.00	7,364.00	7,443.71	7,442.59	153.19	8.67	-96.88	-109.53	-1,090.94	10,608.09	10,570.82	37.27	284.621	
16,600.00	7,364.00	7,444.60	7,443.48	154.77	8.67	-96.96	-109.56	-1,090.93	10,707.93	10,670.58	37.35	286.684	
16,700.00	7,364.00	7,445.50	7,444.38	156.34	8.67	-97.05	-109.60	-1,090.93	10,807.78	10,770.35	37.43	288.734	
16,800.00	7,364.00	7,446.42	7,445.30	157.92	8.67	-97.14	-109.63	-1,090.92	10,907.63	10,870.11	37.51	290.770	
16,900.00	7,364.00	7,447.36	7,446.23	159.49	8.68	-97.23	-109.67	-1,090.92	11,007.48	10,969.88	37.59	292.793	
17,000.00	7,364.00	7,448.31	7,447.19	161.07	8.68	-97.32	-109.70	-1,090.91	11,107.33	11,069.65	37.68	294.803	
17,100.00	7,364.00	7,449.28	7,448.15	162.65	8.68	-97.41	-109.74	-1,090.91	11,207.19	11,169.43	37.76	296.799	
17,200.00	7,364.00	7,450.26	7,449.14	164.23	8.68	-97.51	-109.78	-1,090.91	11,307.05	11,269.20	37.84	298.781	
17,300.00	7,364.00	7,451.27	7,450.14	165.81	8.68	-97.60	-109.82	-1,090.90	11,406.91	11,368.98	37.93	300.751	
17,400.00	7,364.00	7,452.29	7,451.16	167.38	8.68	-97.70	-109.86	-1,090.90	11,506.77	11,468.76	38.01	302.707	
17,500.00	7,364.00	7,453.33	7,452.20	168.96	8.68	-97.80	-109.90	-1,090.89	11,606.64	11,568.54	38.10	304.649	
17,600.00	7,364.00	7,454.39	7,453.26	170.54	8.68	-97.90	-109.94	-1,090.89	11,706.51	11,668.32	38.18	306.579	
17,700.00	7,364.00	7,455.47	7,454.34	172.12	8.68	-98.00	-109.98	-1,090.88	11,806.38	11,768.10	38.27	308.495	
17,800.00	7,364.00	7,456.57	7,455.44	173.70	8.69	-98.11	-110.02	-1,090.87	11,906.25	11,867.89	38.36	310.398	
17,900.00	7,364.00	7,457.69	7,456.56	175.28	8.69	-98.21	-110.06	-1,090.87	12,006.12	11,967.68	38.45	312.288	
18,000.00	7,364.00	7,458.83	7,457.70	176.87	8.69	-98.32	-110.11	-1,090.86	12,106.00	12,067.47	38.53	314.165	
18,100.00	7,364.00	7,459.99	7,458.86	178.45	8.69	-98.43	-110.15	-1,090.86	12,205.88	12,167.25	38.62	316.028	
18,200.00	7,364.00	7,461.18	7,460.05	180.03	8.69	-98.54	-110.20	-1,090.85	12,305.76	12,267.05	38.71	317.879	
18,300.00	7,364.00	7,462.39	7,461.26	181.61	8.69	-98.66	-110.24	-1,090.85	12,405.64	12,366.84	38.80	319.717	
18,400.00	7,364.00	7,463.62	7,462.49	183.19	8.69	-98.78	-110.29	-1,090.84	12,505.52	12,466.63	38.89	321.542	
18,500.00	7,364.00	7,464.88	7,463.75	184.78	8.70	-98.90	-110.34	-1,090.83	12,605.41	12,566.43	38.98	323.353	
18,600.00	7,364.00	7,466.17	7,465.03	186.36	8.70	-99.02	-110.39	-1,090.82	12,705.30	12,666.22	39.07	325.152	
18,700.00	7,364.00	7,467.48	7,466.34	187.94	8.70	-99.14	-110.44	-1,090.82	12,805.19	12,766.02	39.17	326.938	
18,800.00	7,364.00	7,468.82	7,467.68	189.53	8.70	-99.27	-110.49	-1,090.81	12,905.08	12,865.82	39.26	328.712	
18,900.00	7,364.00	7,470.18	7,469.04	191.11	8.70	-99.40	-110.55	-1,090.80	13,004.97	12,965.62	39.35	330.472	
19,000.00	7,364.00	7,471.58	7,470.44	192.70	8.70	-99.53	-110.60	-1,090.80	13,104.86	13,065.42	39.45	332.220	
19,100.00	7,364.00	7,473.00	7,471.86	194.28	8.70	-99.66	-110.66	-1,090.79	13,204.76	13,165.22	39.54	333.955	
19,200.00	7,364.00	7,474.46	7,473.31	195.87	8.71	-99.80	-110.71	-1,090.78	13,304.66	13,265.02	39.64	335.677	
19,300.00	7,364.00	7,475.94	7,474.80	197.45	8.71	-99.94	-110.77	-1,090.77	13,404.56	13,364.83	39.73	337.387	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #026C - OH - OH-SVY

Offset Site Error: 0.00 usft

Survey Program: 100-Standard Keeper 104 **Offset Well Error:** 3.28 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
19,400.00	7,364.00	7,477.46	7,476.32	199.04	8.71	-100.09	-110.83	-1,090.76	13,504.46	13,464.63	39.83	339.085	
19,500.00	7,364.00	7,479.02	7,477.87	200.62	8.71	-100.23	-110.89	-1,090.75	13,604.36	13,564.44	39.92	340.770	
19,600.00	7,364.00	7,480.61	7,479.46	202.21	8.71	-100.38	-110.95	-1,090.74	13,704.26	13,664.24	40.02	342.442	
19,700.00	7,364.00	7,482.23	7,481.08	203.79	8.72	-100.54	-111.01	-1,090.73	13,804.16	13,764.05	40.12	344.102	
19,800.00	7,364.00	7,483.90	7,482.75	205.38	8.72	-100.69	-111.08	-1,090.72	13,904.07	13,863.86	40.21	345.750	
19,900.00	7,364.00	7,485.60	7,484.45	206.97	8.72	-100.85	-111.15	-1,090.71	14,003.98	13,963.66	40.31	347.386	
20,000.00	7,364.00	7,487.34	7,486.19	208.55	8.72	-101.02	-111.21	-1,090.70	14,103.89	14,063.47	40.41	349.009	
20,100.00	7,364.00	7,489.12	7,487.97	210.14	8.72	-101.18	-111.28	-1,090.69	14,203.79	14,163.28	40.51	350.620	
20,200.00	7,364.00	7,490.95	7,489.80	211.73	8.73	-101.36	-111.35	-1,090.68	14,303.70	14,263.09	40.61	352.219	
20,300.00	7,364.00	7,492.82	7,491.67	213.32	8.73	-101.53	-111.43	-1,090.67	14,403.62	14,362.91	40.71	353.806	
20,400.00	7,364.00	7,494.74	7,493.58	214.90	8.73	-101.71	-111.50	-1,090.65	14,503.53	14,462.72	40.81	355.381	
20,500.00	7,364.00	7,496.71	7,495.55	216.49	8.73	-101.89	-111.58	-1,090.64	14,603.44	14,562.53	40.91	356.943	
20,600.00	7,364.00	7,498.72	7,497.56	218.08	8.73	-102.08	-111.66	-1,090.63	14,703.36	14,662.34	41.01	358.494	
20,700.00	7,364.00	7,500.79	7,499.63	219.67	8.74	-102.28	-111.74	-1,090.61	14,803.27	14,762.16	41.12	360.033	
20,800.00	7,364.00	7,502.92	7,501.75	221.26	8.74	-102.47	-111.83	-1,090.60	14,903.19	14,861.97	41.22	361.560	
20,900.00	7,364.00	7,505.09	7,503.93	222.84	8.74	-102.68	-111.91	-1,090.58	15,003.11	14,961.79	41.32	363.075	
21,000.00	7,364.00	7,507.33	7,506.16	224.43	8.74	-102.88	-112.00	-1,090.57	15,103.03	15,061.60	41.43	364.579	
21,100.00	7,364.00	7,509.63	7,508.46	226.02	8.75	-103.10	-112.09	-1,090.55	15,202.95	15,161.42	41.53	366.071	
21,200.00	7,364.00	7,511.99	7,510.82	227.61	8.75	-103.32	-112.18	-1,090.53	15,302.87	15,261.23	41.63	367.551	
21,300.00	7,364.00	7,514.42	7,513.25	229.20	8.75	-103.54	-112.28	-1,090.51	15,402.79	15,361.05	41.74	369.019	
21,400.00	7,364.00	7,516.92	7,515.74	230.79	8.76	-103.77	-112.38	-1,090.50	15,502.71	15,460.87	41.85	370.476	
21,500.00	7,364.00	7,519.48	7,518.31	232.38	8.76	-104.01	-112.48	-1,090.48	15,602.64	15,560.68	41.95	371.921	
21,600.00	7,364.00	7,471.66	7,470.51	233.97	8.70	-99.54	-110.62	-1,090.75	15,702.54	15,660.53	42.01	373.818	
21,700.00	7,364.00	7,472.15	7,471.00	235.56	8.70	-99.58	-110.64	-1,090.75	15,802.47	15,760.36	42.11	375.262	
21,800.00	7,364.00	7,472.63	7,471.49	237.15	8.70	-99.63	-110.66	-1,090.75	15,902.40	15,860.18	42.22	376.695	
21,864.93	7,364.00	7,472.95	7,471.81	238.18	8.70	-99.66	-110.67	-1,090.74	15,967.28	15,924.99	42.28	377.619	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #055 - OH - OH-SVY

Offset Site Error: 0.00 usft

Survey Program: 100-Standard Keeper 104 **Offset Well Error:** 3.28 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	24.68	24.68	3.28	3.28	97.68	-1,134.99	8,420.33	8,496.48				
100.00	100.00	123.69	123.69	3.29	3.28	97.68	-1,134.99	8,420.34	8,496.49	8,489.92	6.57	1,293.108	
200.00	200.00	222.51	222.51	3.34	3.29	97.68	-1,134.98	8,420.36	8,496.50	8,489.88	6.62	1,283.020	
300.00	300.00	322.38	322.38	3.42	3.30	97.68	-1,134.97	8,420.39	8,496.53	8,489.82	6.72	1,265.205	
400.00	400.00	421.07	421.07	3.54	3.32	97.68	-1,134.95	8,420.43	8,496.58	8,489.73	6.85	1,240.827	
500.00	500.00	519.76	519.76	3.69	3.34	97.68	-1,134.93	8,420.49	8,496.63	8,489.62	7.01	1,211.227	
600.00	599.98	618.76	618.76	3.86	3.36	-52.35	-1,134.90	8,420.56	8,495.63	8,488.42	7.21	1,179.019	
700.00	699.84	718.29	718.29	4.04	3.39	-52.43	-1,134.87	8,420.64	8,492.51	8,485.09	7.42	1,144.771	
808.00	807.41	824.56	824.56	4.27	3.43	-52.57	-1,134.84	8,420.74	8,486.77	8,479.09	7.68	1,105.052	
900.00	898.89	914.73	914.73	4.49	3.47	-69.83	-1,134.80	8,420.84	8,482.15	8,474.23	7.93	1,070.296	
912.12	910.94	926.78	926.78	4.52	3.47	-72.07	-1,134.80	8,420.85	8,481.74	8,473.78	7.96	1,065.777	
1,000.00	998.31	1,013.44	1,013.44	4.74	3.51	-72.13	-1,134.76	8,420.95	8,478.92	8,470.71	8.21	1,032.293	
1,100.00	1,097.73	1,112.26	1,112.26	5.01	3.56	-72.20	-1,134.71	8,421.08	8,475.74	8,467.21	8.52	994.336	
1,200.00	1,197.15	1,210.37	1,210.37	5.29	3.62	-72.27	-1,134.66	8,421.22	8,472.58	8,463.73	8.85	957.117	
1,300.00	1,296.58	1,308.48	1,308.48	5.59	3.67	-72.33	-1,134.60	8,421.37	8,469.44	8,460.25	9.20	920.977	
1,400.00	1,396.00	1,407.50	1,407.50	5.90	3.73	-72.40	-1,134.54	8,421.53	8,466.33	8,456.78	9.55	886.119	
1,500.00	1,495.42	1,506.00	1,506.00	6.22	3.80	-72.47	-1,134.48	8,421.71	8,463.25	8,453.32	9.92	852.762	
1,600.00	1,594.84	1,604.11	1,604.11	6.54	3.86	-72.54	-1,134.41	8,421.89	8,460.18	8,449.88	10.31	820.968	
1,700.00	1,694.27	1,702.22	1,702.22	6.87	3.93	-72.61	-1,134.34	8,422.09	8,457.14	8,446.45	10.70	790.739	
1,800.00	1,793.69	1,801.56	1,801.55	7.21	4.01	-72.68	-1,134.26	8,422.30	8,454.13	8,443.03	11.09	762.004	
1,900.00	1,893.11	1,899.74	1,899.74	7.55	4.08	-72.75	-1,134.17	8,422.52	8,451.14	8,439.64	11.50	734.827	
2,000.00	1,992.53	1,997.85	1,997.85	7.89	4.16	-72.82	-1,134.09	8,422.75	8,448.17	8,436.25	11.91	709.104	
2,100.00	2,091.96	2,096.15	2,096.15	8.24	4.24	-72.89	-1,134.00	8,423.00	8,445.22	8,432.89	12.33	684.755	
2,200.00	2,191.38	2,195.37	2,195.37	8.60	4.32	-72.96	-1,133.90	8,423.26	8,442.30	8,429.54	12.76	661.683	
2,300.00	2,290.80	2,293.47	2,293.47	8.95	4.41	-73.02	-1,133.80	8,423.53	8,439.41	8,426.22	13.19	639.894	
2,400.00	2,390.22	2,391.57	2,391.57	9.31	4.50	-73.09	-1,133.70	8,423.80	8,436.54	8,422.91	13.62	619.270	
2,500.00	2,489.65	2,490.19	2,490.19	9.67	4.59	-73.16	-1,133.59	8,424.10	8,433.69	8,419.62	14.06	599.723	
2,600.00	2,589.07	2,589.09	2,589.09	10.03	4.68	-73.23	-1,133.48	8,424.40	8,430.87	8,416.36	14.51	581.194	
2,700.00	2,688.49	2,687.19	2,687.19	10.40	4.77	-73.30	-1,133.36	8,424.72	8,428.07	8,413.12	14.95	563.653	
2,800.00	2,787.91	2,785.29	2,785.29	10.76	4.87	-73.37	-1,133.24	8,425.05	8,425.29	8,409.89	15.40	547.011	
2,900.00	2,887.33	2,884.22	2,884.22	11.13	4.96	-73.44	-1,133.11	8,425.39	8,422.54	8,406.69	15.86	531.188	
3,000.00	2,986.76	2,982.81	2,982.80	11.50	5.06	-73.51	-1,132.98	8,425.74	8,419.82	8,403.51	16.31	516.163	
3,100.00	3,086.18	3,080.90	3,080.90	11.87	5.16	-73.58	-1,132.85	8,426.10	8,417.12	8,400.34	16.77	501.889	
3,200.00	3,185.60	3,179.00	3,178.99	12.24	5.26	-73.65	-1,132.71	8,426.47	8,414.44	8,397.20	17.23	488.306	
3,300.00	3,285.02	3,278.24	3,278.23	12.61	5.36	-73.72	-1,132.57	8,426.86	8,411.78	8,394.09	17.70	475.340	
3,400.00	3,384.45	3,376.51	3,376.50	12.98	5.47	-73.79	-1,132.42	8,427.26	8,409.16	8,391.00	18.16	463.006	
3,500.00	3,483.87	3,474.61	3,474.59	13.36	5.57	-73.87	-1,132.27	8,427.67	8,406.55	8,387.92	18.63	451.244	
3,600.00	3,583.29	3,572.82	3,572.80	13.73	5.67	-73.94	-1,132.11	8,428.09	8,403.97	8,384.87	19.10	440.012	
3,700.00	3,682.71	3,672.11	3,672.10	14.11	5.78	-74.01	-1,131.95	8,428.53	8,401.42	8,381.85	19.57	429.258	
3,800.00	3,782.14	3,770.21	3,770.19	14.48	5.89	-74.08	-1,131.78	8,428.97	8,398.89	8,378.85	20.05	419.000	
3,900.00	3,881.56	3,868.30	3,868.28	14.86	6.00	-74.15	-1,131.61	8,429.43	8,396.39	8,375.87	20.52	409.184	
4,000.00	3,980.98	3,966.82	3,966.81	15.24	6.11	-74.22	-1,131.44	8,429.90	8,393.90	8,372.91	21.00	399.776	
4,100.00	4,080.40	4,057.06	4,057.04	15.61	6.21	-74.28	-1,131.29	8,430.37	8,391.48	8,370.02	21.47	390.891	
4,200.00	4,179.83	4,160.15	4,160.13	15.99	6.32	-74.36	-1,131.03	8,430.93	8,389.09	8,367.14	21.95	382.223	
4,300.00	4,279.25	4,267.37	4,267.35	16.37	6.44	-74.44	-1,130.85	8,431.35	8,386.55	8,364.12	22.43	373.834	
4,400.00	4,378.67	4,387.39	4,387.37	16.75	6.57	-74.52	-1,130.78	8,431.70	8,383.94	8,361.01	22.94	365.516	
4,500.00	4,478.09	4,497.09	4,497.07	17.13	6.68	-74.60	-1,130.84	8,431.99	8,381.36	8,357.92	23.44	357.587	
4,600.00	4,577.51	4,583.08	4,583.06	17.51	6.71	-74.66	-1,131.02	8,432.06	8,378.60	8,354.72	23.88	350.910	
4,700.00	4,676.94	4,696.36	4,696.34	17.89	6.74	-74.74	-1,131.31	8,432.11	8,375.81	8,351.50	24.31	344.472	
4,800.00	4,776.36	4,793.19	4,793.17	18.27	6.75	-74.80	-1,131.61	8,432.11	8,373.00	8,348.27	24.74	338.477	
4,900.00	4,875.78	4,898.82	4,898.79	18.65	6.76	-74.88	-1,131.97	8,432.10	8,370.20	8,345.04	25.16	332.659	
5,000.00	4,975.20	5,011.42	5,011.39	19.03	6.76	-74.95	-1,132.39	8,431.98	8,367.31	8,341.74	25.57	327.261	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #055 - OH - OH-SVY — **Offset Site Error:** 0.00 usft

Survey Program: 100-Standard Keeper 104 — **Offset Well Error:** 3.28 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,100.00	5,074.63	5,106.45	5,106.43	19.41	6.75	-75.02	-1,132.82	8,431.81	8,364.38	8,338.41	25.96	322.156	
5,200.00	5,174.05	5,216.19	5,216.17	19.79	6.75	-75.09	-1,133.31	8,431.67	8,361.50	8,335.13	26.37	317.091	
5,300.00	5,273.47	5,326.74	5,326.71	20.17	6.74	-75.17	-1,133.93	8,431.28	8,358.43	8,331.67	26.75	312.408	
5,400.00	5,372.89	5,425.00	5,424.97	20.56	6.73	-75.23	-1,134.49	8,430.92	8,355.35	8,328.21	27.14	307.851	
5,500.00	5,472.32	5,525.00	5,524.97	20.94	6.71	-75.30	-1,135.04	8,430.51	8,352.23	8,324.71	27.52	303.454	
5,600.00	5,571.74	5,625.00	5,624.96	21.32	6.70	-75.37	-1,135.55	8,430.03	8,349.05	8,321.15	27.90	299.235	
5,700.00	5,671.16	5,732.72	5,732.68	21.70	6.68	-75.44	-1,136.10	8,429.54	8,345.92	8,317.64	28.28	295.112	
5,800.00	5,770.58	5,845.08	5,845.04	22.08	6.67	-75.51	-1,136.85	8,428.91	8,342.69	8,314.03	28.66	291.056	
5,900.00	5,870.01	5,950.00	5,949.95	22.47	6.66	-75.58	-1,137.56	8,428.11	8,339.29	8,310.25	29.04	287.154	
6,000.00	5,969.43	6,034.89	6,034.84	22.85	6.66	-75.64	-1,138.14	8,427.59	8,336.04	8,306.61	29.43	283.279	
6,100.00	6,068.85	6,125.00	6,124.94	23.23	6.66	-75.70	-1,138.75	8,426.94	8,332.72	8,302.90	29.81	279.497	
6,200.00	6,168.27	6,225.00	6,224.94	23.62	6.66	-75.77	-1,139.50	8,426.25	8,329.41	8,299.20	30.20	275.767	
6,300.00	6,267.70	6,329.70	6,329.63	24.00	6.68	-75.83	-1,140.57	8,425.64	8,326.25	8,295.64	30.61	272.032	
6,400.00	6,367.12	6,432.87	6,432.79	24.38	6.70	-75.90	-1,141.69	8,425.14	8,323.20	8,292.19	31.02	268.357	
6,500.00	6,466.54	6,525.00	6,524.91	24.77	6.72	-75.96	-1,142.93	8,424.72	8,320.19	8,288.77	31.43	264.751	
6,600.00	6,565.96	6,613.20	6,613.10	25.15	6.76	-76.01	-1,144.16	8,424.37	8,317.27	8,285.43	31.84	261.215	
6,700.00	6,665.38	6,700.00	6,699.89	25.53	6.79	-76.07	-1,145.45	8,424.18	8,314.53	8,282.27	32.26	257.729	
6,778.75	6,743.68	6,775.00	6,774.88	25.84	6.83	-76.11	-1,146.45	8,424.02	8,312.39	8,279.79	32.59	255.024	
6,800.00	6,764.80	6,784.50	6,784.39	25.92	6.83	-60.10	-1,146.55	8,424.02	8,311.48	8,278.80	32.68	254.317	
6,850.00	6,814.29	6,842.43	6,842.31	26.11	6.87	-35.72	-1,147.37	8,424.03	8,306.63	8,273.73	32.90	252.473	
6,900.00	6,863.27	6,879.19	6,879.07	26.30	6.89	-23.75	-1,147.90	8,424.01	8,297.86	8,264.75	33.11	250.639	
6,950.00	6,911.44	6,938.74	6,938.60	26.50	6.92	-17.22	-1,148.77	8,423.95	8,285.23	8,251.91	33.32	248.680	
7,000.00	6,958.49	6,967.02	6,966.89	26.68	6.94	-13.19	-1,149.18	8,423.94	8,268.90	8,235.39	33.51	246.769	
7,050.00	7,004.14	7,035.10	7,034.96	26.87	6.97	-10.48	-1,150.20	8,423.83	8,248.82	8,215.11	33.71	244.715	
7,100.00	7,048.10	7,095.43	7,095.28	27.05	7.01	-8.51	-1,150.96	8,423.75	8,225.27	8,191.38	33.89	242.680	
7,150.00	7,090.11	7,116.30	7,116.15	27.23	7.02	-6.98	-1,151.20	8,423.69	8,198.28	8,164.22	34.05	240.743	
7,200.00	7,129.90	7,136.42	7,136.27	27.41	7.03	-5.74	-1,151.43	8,423.71	8,168.20	8,133.99	34.21	238.797	
7,250.00	7,167.24	7,184.37	7,184.22	27.59	7.06	-4.68	-1,152.11	8,423.77	8,135.11	8,100.75	34.36	236.766	
7,300.00	7,201.88	7,256.67	7,256.51	27.76	7.10	-3.73	-1,152.94	8,423.66	8,099.11	8,064.61	34.50	234.742	
7,350.00	7,233.63	7,275.00	7,274.84	27.94	7.11	-2.79	-1,153.15	8,423.60	8,060.43	8,025.82	34.61	232.889	
7,400.00	7,262.27	7,291.16	7,290.99	28.13	7.12	-1.82	-1,153.35	8,423.57	8,019.44	7,984.74	34.71	231.064	
7,450.00	7,287.63	7,321.45	7,321.28	28.32	7.14	-0.72	-1,153.78	8,423.52	7,976.35	7,941.56	34.79	229.253	
7,500.00	7,309.57	7,340.94	7,340.77	28.53	7.15	0.62	-1,154.04	8,423.47	7,931.40	7,896.54	34.86	227.513	
7,550.00	7,327.93	7,351.51	7,351.34	28.74	7.16	2.42	-1,154.17	8,423.46	7,884.91	7,850.00	34.91	225.844	
7,600.00	7,342.62	7,366.54	7,366.37	28.97	7.17	5.17	-1,154.36	8,423.46	7,837.14	7,802.18	34.95	224.217	
7,650.00	7,353.53	7,401.28	7,401.10	29.22	7.19	10.28	-1,154.87	8,423.39	7,788.37	7,753.39	34.99	222.617	
7,700.00	7,360.61	7,395.86	7,395.69	29.48	7.19	21.91	-1,154.79	8,423.41	7,738.91	7,703.91	35.00	221.142	
7,750.00	7,363.80	7,398.96	7,398.78	29.75	7.19	64.52	-1,154.84	8,423.40	7,689.07	7,654.07	35.00	219.707	
7,765.93	7,364.00	7,399.12	7,398.95	29.84	7.19	91.42	-1,154.84	8,423.40	7,673.16	7,638.17	35.00	219.261	
7,800.00	7,364.00	7,399.05	7,398.88	30.04	7.19	91.41	-1,154.84	8,423.40	7,639.14	7,604.14	34.99	218.318	
7,900.00	7,364.00	7,398.85	7,398.67	30.67	7.19	91.38	-1,154.84	8,423.40	7,539.27	7,504.30	34.98	215.545	
8,000.00	7,364.00	7,398.64	7,398.47	31.37	7.19	91.36	-1,154.83	8,423.40	7,439.42	7,404.45	34.97	212.767	
8,100.00	7,364.00	7,398.43	7,398.26	32.14	7.19	91.33	-1,154.83	8,423.40	7,339.56	7,304.61	34.95	209.983	
8,200.00	7,364.00	7,398.23	7,398.05	32.96	7.19	91.30	-1,154.83	8,423.40	7,239.72	7,204.77	34.94	207.194	
8,300.00	7,364.00	7,398.02	7,397.85	33.85	7.19	91.27	-1,154.82	8,423.40	7,139.87	7,104.94	34.93	204.399	
8,400.00	7,364.00	7,397.82	7,397.64	34.79	7.19	91.24	-1,154.82	8,423.40	7,040.03	7,005.11	34.92	201.599	
8,500.00	7,364.00	7,397.61	7,397.44	35.77	7.19	91.21	-1,154.82	8,423.40	6,940.19	6,905.28	34.91	198.793	
8,600.00	7,364.00	7,397.40	7,397.23	36.80	7.19	91.18	-1,154.81	8,423.40	6,840.36	6,805.46	34.90	195.983	
8,700.00	7,364.00	7,397.20	7,397.02	37.87	7.19	91.15	-1,154.81	8,423.40	6,740.54	6,705.64	34.89	193.167	
8,800.00	7,364.00	7,396.99	7,396.82	38.98	7.19	91.12	-1,154.81	8,423.40	6,640.72	6,605.83	34.89	190.347	
8,900.00	7,364.00	7,396.79	7,396.61	40.12	7.19	91.09	-1,154.81	8,423.40	6,540.90	6,506.02	34.88	187.522	
9,000.00	7,364.00	7,396.58	7,396.41	41.29	7.19	91.06	-1,154.80	8,423.40	6,441.09	6,406.22	34.87	184.693	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #055 - OH - OH-SVY

Offset Site Error: 0.00 usft

Survey Program: 100-Standard Keeper 104 **Offset Well Error:** 3.28 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,100.00	7,364.00	7,396.37	7,396.20	42.49	7.19	91.03	-1,154.80	8,423.40	6,341.29	6,306.42	34.87	181.858	
9,200.00	7,364.00	7,396.17	7,395.99	43.71	7.19	91.00	-1,154.80	8,423.41	6,241.49	6,206.62	34.86	179.020	
9,300.00	7,364.00	7,395.96	7,395.79	44.96	7.19	90.97	-1,154.79	8,423.41	6,141.70	6,106.84	34.86	176.176	
9,400.00	7,364.00	7,395.75	7,395.58	46.23	7.19	90.94	-1,154.79	8,423.41	6,041.91	6,007.06	34.86	173.329	
9,500.00	7,364.00	7,395.55	7,395.37	47.52	7.19	90.91	-1,154.79	8,423.41	5,942.14	5,907.28	34.86	170.477	
9,600.00	7,364.00	7,395.34	7,395.17	48.83	7.19	90.88	-1,154.78	8,423.41	5,842.37	5,807.51	34.85	167.621	
9,700.00	7,364.00	7,395.14	7,394.96	50.15	7.19	90.85	-1,154.78	8,423.41	5,742.61	5,707.75	34.85	164.760	
9,800.00	7,364.00	7,394.93	7,394.76	51.49	7.19	90.82	-1,154.78	8,423.41	5,642.85	5,608.00	34.85	161.895	
9,900.00	7,364.00	7,394.72	7,394.55	52.85	7.19	90.79	-1,154.78	8,423.41	5,543.11	5,508.25	34.86	159.026	
10,000.00	7,364.00	7,394.52	7,394.34	54.22	7.19	90.77	-1,154.77	8,423.41	5,443.38	5,408.52	34.86	156.153	
10,100.00	7,364.00	7,394.31	7,394.14	55.60	7.18	90.74	-1,154.77	8,423.41	5,343.65	5,308.79	34.86	153.275	
10,200.00	7,364.00	7,404.63	7,404.46	56.99	7.19	92.21	-1,154.92	8,423.38	5,243.94	5,209.07	34.87	150.396	
10,300.00	7,364.00	7,403.63	7,403.46	58.40	7.19	92.07	-1,154.90	8,423.38	5,144.24	5,109.36	34.87	147.510	
10,400.00	7,364.00	7,402.68	7,402.51	59.81	7.19	91.93	-1,154.89	8,423.39	5,044.55	5,009.67	34.88	144.620	
10,500.00	7,364.00	7,401.78	7,401.61	61.23	7.19	91.80	-1,154.88	8,423.39	4,944.87	4,909.98	34.89	141.724	
10,600.00	7,364.00	7,400.93	7,400.76	62.66	7.19	91.68	-1,154.87	8,423.39	4,845.20	4,810.30	34.90	138.824	
10,700.00	7,364.00	7,400.13	7,399.95	64.10	7.19	91.57	-1,154.85	8,423.40	4,745.55	4,710.64	34.91	135.918	
10,800.00	7,364.00	7,399.36	7,399.18	65.55	7.19	91.46	-1,154.84	8,423.40	4,645.92	4,610.99	34.93	133.007	
10,900.00	7,364.00	7,398.63	7,398.45	67.01	7.19	91.35	-1,154.83	8,423.40	4,546.30	4,511.35	34.95	130.091	
11,000.00	7,364.00	7,397.93	7,397.76	68.47	7.19	91.25	-1,154.82	8,423.40	4,446.69	4,411.73	34.97	127.169	
11,100.00	7,364.00	7,397.27	7,397.09	69.93	7.19	91.16	-1,154.81	8,423.41	4,347.11	4,312.12	34.99	124.241	
11,200.00	7,364.00	7,396.63	7,396.46	71.41	7.19	91.07	-1,154.81	8,423.41	4,247.54	4,212.53	35.02	121.306	
11,300.00	7,364.00	7,396.03	7,395.85	72.88	7.19	90.98	-1,154.80	8,423.41	4,148.00	4,112.96	35.04	118.365	
11,400.00	7,364.00	7,395.45	7,395.27	74.37	7.19	90.90	-1,154.79	8,423.41	4,048.48	4,013.40	35.08	115.416	
11,500.00	7,364.00	7,394.89	7,394.72	75.85	7.19	90.82	-1,154.78	8,423.41	3,948.98	3,913.86	35.11	112.460	
11,600.00	7,364.00	7,394.36	7,394.19	77.35	7.18	90.74	-1,154.77	8,423.41	3,849.51	3,814.35	35.16	109.495	
11,700.00	7,364.00	7,393.85	7,393.67	78.84	7.18	90.67	-1,154.77	8,423.42	3,750.06	3,714.86	35.20	106.521	
11,800.00	7,364.00	7,393.36	7,393.18	80.34	7.18	90.60	-1,154.76	8,423.42	3,650.65	3,615.39	35.26	103.537	
11,900.00	7,364.00	7,392.89	7,392.71	81.85	7.18	90.53	-1,154.75	8,423.42	3,551.27	3,515.95	35.32	100.543	
12,000.00	7,364.00	7,392.43	7,392.26	83.36	7.18	90.47	-1,154.75	8,423.42	3,451.92	3,416.53	35.39	97.538	
12,100.00	7,364.00	7,391.99	7,391.82	84.87	7.18	90.40	-1,154.74	8,423.42	3,352.62	3,317.15	35.47	94.520	
12,200.00	7,364.00	7,391.57	7,391.40	86.38	7.18	90.34	-1,154.73	8,423.42	3,253.35	3,217.79	35.56	91.489	
12,300.00	7,364.00	7,391.17	7,391.00	87.90	7.18	90.29	-1,154.73	8,423.42	3,154.14	3,118.47	35.66	88.444	
12,400.00	7,364.00	7,390.78	7,390.60	89.42	7.18	90.23	-1,154.72	8,423.42	3,054.97	3,019.19	35.78	85.383	
12,500.00	7,364.00	7,390.40	7,390.23	90.95	7.18	90.18	-1,154.72	8,423.43	2,955.86	2,919.95	35.91	82.305	
12,600.00	7,364.00	7,390.04	7,389.86	92.47	7.18	90.12	-1,154.71	8,423.43	2,856.81	2,820.75	36.07	79.209	
12,700.00	7,364.00	7,389.68	7,389.51	94.00	7.18	90.07	-1,154.71	8,423.43	2,757.83	2,721.59	36.24	76.094	
12,800.00	7,364.00	7,389.34	7,389.17	95.53	7.18	90.02	-1,154.70	8,423.43	2,658.93	2,622.49	36.44	72.958	
12,900.00	7,364.00	7,389.01	7,388.84	97.06	7.18	89.98	-1,154.70	8,423.43	2,560.11	2,523.43	36.68	69.800	
13,000.00	7,364.00	7,388.69	7,388.52	98.60	7.18	89.93	-1,154.69	8,423.43	2,461.39	2,424.44	36.95	66.618	
13,100.00	7,364.00	7,388.38	7,388.21	100.14	7.18	89.89	-1,154.69	8,423.43	2,362.77	2,325.51	37.26	63.412	
13,200.00	7,364.00	7,388.08	7,387.91	101.68	7.18	89.84	-1,154.68	8,423.43	2,264.28	2,226.66	37.62	60.181	
13,300.00	7,364.00	7,387.79	7,387.62	103.22	7.18	89.80	-1,154.68	8,423.43	2,165.93	2,127.88	38.05	56.924	
13,400.00	7,364.00	7,387.51	7,387.34	104.76	7.18	89.76	-1,154.68	8,423.43	2,067.73	2,029.18	38.55	53.643	
13,500.00	7,364.00	7,387.24	7,387.07	106.31	7.18	89.72	-1,154.67	8,423.43	1,969.71	1,930.58	39.13	50.338	
13,600.00	7,364.00	7,386.97	7,386.80	107.85	7.18	89.69	-1,154.67	8,423.43	1,871.91	1,832.09	39.82	47.012	
13,700.00	7,364.00	7,386.72	7,386.54	109.40	7.18	89.65	-1,154.66	8,423.43	1,774.34	1,733.71	40.63	43.670	
13,800.00	7,364.00	7,386.47	7,386.29	110.95	7.18	89.61	-1,154.66	8,423.43	1,677.07	1,635.47	41.60	40.317	
13,900.00	7,364.00	7,386.22	7,386.05	112.50	7.18	89.58	-1,154.66	8,423.43	1,580.13	1,537.39	42.75	36.963	
14,000.00	7,364.00	7,385.99	7,385.81	114.05	7.18	89.54	-1,154.65	8,423.44	1,483.61	1,439.48	44.13	33.621	
14,100.00	7,364.00	7,385.76	7,385.58	115.61	7.18	89.51	-1,154.65	8,423.44	1,387.57	1,341.78	45.79	30.305	
14,200.00	7,364.00	7,385.53	7,385.36	117.16	7.18	89.48	-1,154.65	8,423.44	1,292.14	1,244.35	47.79	27.038	

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 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #055 - OH - OH-SVY — **Offset Site Error:** 0.00 usft

Survey Program: 100-Standard Keeper 104 — **Offset Well Error:** 3.28 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,300.00	7,364.00	7,385.32	7,385.14	118.72	7.18	89.45	-1,154.64	8,423.44	1,197.45	1,147.23	50.22	23.843	
14,400.00	7,364.00	7,385.10	7,384.93	120.28	7.18	89.42	-1,154.64	8,423.44	1,103.70	1,050.51	53.19	20.750	
14,500.00	7,364.00	7,384.90	7,384.72	121.84	7.18	89.39	-1,154.64	8,423.44	1,011.14	954.31	56.83	17.791	
14,600.00	7,364.00	7,384.69	7,384.52	123.40	7.18	89.36	-1,154.63	8,423.44	920.15	858.82	61.32	15.005	
14,700.00	7,364.00	7,384.50	7,384.33	124.96	7.18	89.33	-1,154.63	8,423.44	831.23	764.34	66.89	12.427	
14,800.00	7,364.00	7,384.31	7,384.13	126.52	7.18	89.30	-1,154.63	8,423.44	745.12	671.32	73.80	10.096	
14,900.00	7,364.00	7,384.12	7,383.95	128.08	7.18	89.28	-1,154.63	8,423.44	662.92	580.55	82.37	8.048	
15,000.00	7,364.00	7,383.94	7,383.77	129.64	7.18	89.25	-1,154.62	8,423.44	586.28	493.39	92.89	6.311	
15,100.00	7,364.00	7,383.76	7,383.59	131.21	7.18	89.22	-1,154.62	8,423.44	517.68	412.28	105.40	4.912	
15,200.00	7,364.00	7,383.59	7,383.41	132.77	7.18	89.20	-1,154.62	8,423.44	460.71	341.49	119.23	3.864	
15,300.00	7,364.00	7,383.42	7,383.24	134.34	7.18	89.18	-1,154.62	8,423.44	420.14	287.83	132.32	3.175	
15,400.00	7,364.00	7,383.25	7,383.08	135.91	7.18	89.15	-1,154.61	8,423.44	400.98	259.86	141.12	2.841	
15,428.68	7,364.00	7,383.20	7,383.03	136.36	7.18	89.14	-1,154.61	8,423.44	399.95	257.59	142.36	2.809	CC, ES, SF
15,500.00	7,364.00	7,383.09	7,382.92	137.48	7.18	89.13	-1,154.61	8,423.44	406.26	263.63	142.63	2.848	
15,600.00	7,364.00	7,382.93	7,382.76	139.04	7.18	89.11	-1,154.61	8,423.44	435.10	297.98	137.12	3.173	
15,700.00	7,364.00	7,382.78	7,382.60	140.61	7.18	89.08	-1,154.61	8,423.44	483.30	355.65	127.65	3.786	
15,800.00	7,364.00	7,382.62	7,382.45	142.18	7.18	89.06	-1,154.60	8,423.44	545.75	428.51	117.23	4.655	
15,900.00	7,364.00	7,382.48	7,382.30	143.75	7.18	89.04	-1,154.60	8,423.44	618.14	510.61	107.54	5.748	
16,000.00	7,364.00	7,382.33	7,382.16	145.33	7.18	89.02	-1,154.60	8,423.44	697.40	598.26	99.14	7.035	
16,100.00	7,364.00	7,382.19	7,382.02	146.90	7.18	89.00	-1,154.60	8,423.44	781.43	689.36	92.07	8.487	
16,200.00	7,364.00	7,382.05	7,381.88	148.47	7.18	88.98	-1,154.60	8,423.44	868.84	782.66	86.19	10.081	
16,300.00	7,364.00	7,381.92	7,381.74	150.04	7.18	88.96	-1,154.59	8,423.44	958.73	877.44	81.28	11.795	
16,400.00	7,364.00	7,381.78	7,381.61	151.62	7.18	88.94	-1,154.59	8,423.44	1,050.44	973.26	77.18	13.610	
16,500.00	7,364.00	7,381.65	7,381.48	153.19	7.18	88.92	-1,154.59	8,423.44	1,143.54	1,069.81	73.73	15.510	
16,600.00	7,364.00	7,381.52	7,381.35	154.77	7.18	88.90	-1,154.59	8,423.44	1,237.72	1,166.92	70.80	17.482	
16,700.00	7,364.00	7,381.40	7,381.23	156.34	7.18	88.89	-1,154.59	8,423.44	1,332.74	1,264.45	68.30	19.514	
16,800.00	7,364.00	7,381.28	7,381.10	157.92	7.18	88.87	-1,154.58	8,423.44	1,428.45	1,362.30	66.15	21.595	
16,900.00	7,364.00	7,381.16	7,380.98	159.49	7.18	88.85	-1,154.58	8,423.44	1,524.71	1,460.42	64.28	23.718	
17,000.00	7,364.00	7,381.04	7,380.87	161.07	7.18	88.83	-1,154.58	8,423.44	1,621.42	1,558.76	62.66	25.875	
17,100.00	7,364.00	7,380.92	7,380.75	162.65	7.18	88.82	-1,154.58	8,423.44	1,718.50	1,657.26	61.24	28.061	
17,200.00	7,364.00	7,380.81	7,380.64	164.23	7.18	88.80	-1,154.58	8,423.44	1,815.91	1,755.91	59.99	30.268	
17,300.00	7,364.00	7,380.70	7,380.53	165.81	7.18	88.79	-1,154.57	8,423.44	1,913.58	1,854.69	58.89	32.495	
17,400.00	7,364.00	7,380.59	7,380.42	167.38	7.18	88.77	-1,154.57	8,423.44	2,011.48	1,953.57	57.91	34.735	
17,500.00	7,364.00	7,380.48	7,380.31	168.96	7.18	88.76	-1,154.57	8,423.44	2,109.58	2,052.54	57.04	36.987	
17,600.00	7,364.00	7,380.38	7,380.21	170.54	7.18	88.74	-1,154.57	8,423.44	2,207.84	2,151.59	56.25	39.248	
17,700.00	7,364.00	7,380.27	7,380.10	172.12	7.18	88.73	-1,154.57	8,423.44	2,306.26	2,250.71	55.55	41.515	
17,800.00	7,364.00	7,380.17	7,380.00	173.70	7.18	88.71	-1,154.57	8,423.44	2,404.81	2,349.88	54.92	43.785	
17,900.00	7,364.00	7,380.07	7,379.90	175.28	7.18	88.70	-1,154.57	8,423.45	2,503.47	2,449.12	54.35	46.058	
18,000.00	7,364.00	7,379.98	7,379.80	176.87	7.18	88.68	-1,154.56	8,423.45	2,602.23	2,548.39	53.84	48.332	
18,100.00	7,364.00	7,379.88	7,379.71	178.45	7.18	88.67	-1,154.56	8,423.45	2,701.09	2,647.71	53.38	50.605	
18,200.00	7,364.00	7,379.79	7,379.61	180.03	7.18	88.66	-1,154.56	8,423.45	2,800.03	2,747.07	52.95	52.877	
18,300.00	7,364.00	7,379.69	7,379.52	181.61	7.18	88.64	-1,154.56	8,423.45	2,899.04	2,846.47	52.57	55.146	
18,400.00	7,364.00	7,379.60	7,379.43	183.19	7.18	88.63	-1,154.56	8,423.45	2,998.11	2,945.89	52.22	57.411	
18,500.00	7,364.00	7,379.51	7,379.34	184.78	7.18	88.62	-1,154.56	8,423.45	3,097.25	3,045.34	51.90	59.672	
18,600.00	7,364.00	7,379.42	7,379.25	186.36	7.18	88.60	-1,154.56	8,423.45	3,196.44	3,144.82	51.62	61.928	
18,700.00	7,364.00	7,379.34	7,379.17	187.94	7.18	88.59	-1,154.55	8,423.45	3,295.67	3,244.32	51.35	64.178	
18,800.00	7,364.00	7,379.25	7,379.08	189.53	7.18	88.58	-1,154.55	8,423.45	3,394.96	3,343.84	51.11	66.422	
18,900.00	7,364.00	7,379.17	7,379.00	191.11	7.18	88.57	-1,154.55	8,423.45	3,494.28	3,443.39	50.89	68.660	
19,000.00	7,364.00	7,379.09	7,378.92	192.70	7.18	88.56	-1,154.55	8,423.45	3,593.64	3,542.95	50.69	70.891	
19,100.00	7,364.00	7,379.01	7,378.83	194.28	7.18	88.54	-1,154.55	8,423.45	3,693.04	3,642.52	50.51	73.114	
19,200.00	7,364.00	7,378.93	7,378.75	195.87	7.18	88.53	-1,154.55	8,423.45	3,792.46	3,742.12	50.34	75.330	
19,300.00	7,364.00	7,378.85	7,378.68	197.45	7.18	88.52	-1,154.55	8,423.45	3,891.92	3,841.73	50.19	77.538	

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 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #055 - OH - OH-SVY

Offset Site Error: 0.00 usft

Survey Program: 100-Standard Keeper 104 **Offset Well Error:** 3.28 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
19,400.00	7,364.00	7,378.77	7,378.60	199.04	7.18	88.51	-1,154.55	8,423.45	3,991.40	3,941.35	50.06	79.738	
19,500.00	7,364.00	7,375.00	7,374.83	200.62	7.17	87.97	-1,154.49	8,423.45	4,090.91	4,040.99	49.93	81.937	
19,600.00	7,364.00	7,375.00	7,374.83	202.21	7.17	87.97	-1,154.49	8,423.45	4,190.45	4,140.63	49.81	84.121	
19,700.00	7,364.00	7,375.00	7,374.83	203.79	7.17	87.97	-1,154.49	8,423.45	4,290.00	4,240.29	49.71	86.295	
19,800.00	7,364.00	7,375.00	7,374.83	205.38	7.17	87.97	-1,154.49	8,423.45	4,389.57	4,339.95	49.62	88.461	
19,900.00	7,364.00	7,375.00	7,374.83	206.97	7.17	87.97	-1,154.49	8,423.45	4,489.17	4,439.63	49.54	90.617	
20,000.00	7,364.00	7,375.00	7,374.83	208.55	7.17	87.97	-1,154.49	8,423.45	4,588.78	4,539.31	49.47	92.765	
20,100.00	7,364.00	7,375.00	7,374.83	210.14	7.17	87.97	-1,154.49	8,423.45	4,688.41	4,639.00	49.40	94.903	
20,200.00	7,364.00	7,375.00	7,374.83	211.73	7.17	87.97	-1,154.49	8,423.45	4,788.05	4,738.70	49.34	97.033	
20,300.00	7,364.00	7,375.00	7,374.83	213.32	7.17	87.97	-1,154.49	8,423.45	4,887.71	4,838.41	49.29	99.152	
20,400.00	7,364.00	7,375.00	7,374.83	214.90	7.17	87.97	-1,154.49	8,423.45	4,987.38	4,938.13	49.25	101.263	
20,500.00	7,364.00	7,375.00	7,374.83	216.49	7.17	87.97	-1,154.49	8,423.45	5,087.06	5,037.85	49.22	103.364	
20,600.00	7,364.00	7,375.00	7,374.83	218.08	7.17	87.97	-1,154.49	8,423.45	5,186.76	5,137.57	49.18	105.455	
20,700.00	7,364.00	7,375.00	7,374.83	219.67	7.17	87.97	-1,154.49	8,423.45	5,286.47	5,237.31	49.16	107.537	
20,800.00	7,364.00	7,375.00	7,374.83	221.26	7.17	87.97	-1,154.49	8,423.45	5,386.18	5,337.04	49.14	109.610	
20,900.00	7,364.00	7,375.00	7,374.83	222.84	7.17	87.97	-1,154.49	8,423.45	5,485.91	5,436.79	49.13	111.672	
21,000.00	7,364.00	7,375.00	7,374.83	224.43	7.17	87.97	-1,154.49	8,423.45	5,585.65	5,536.54	49.12	113.725	
21,100.00	7,364.00	7,375.00	7,374.83	226.02	7.17	87.97	-1,154.49	8,423.45	5,685.40	5,636.29	49.11	115.769	
21,200.00	7,364.00	7,375.00	7,374.83	227.61	7.17	87.97	-1,154.49	8,423.45	5,785.16	5,736.05	49.11	117.802	
21,300.00	7,364.00	7,375.00	7,374.83	229.20	7.17	87.97	-1,154.49	8,423.45	5,884.92	5,835.81	49.11	119.826	
21,400.00	7,364.00	7,375.00	7,374.83	230.79	7.17	87.97	-1,154.49	8,423.45	5,984.69	5,935.57	49.12	121.840	
21,500.00	7,364.00	7,375.00	7,374.83	232.38	7.17	87.97	-1,154.49	8,423.45	6,084.47	6,035.34	49.13	123.845	
21,600.00	7,364.00	7,375.00	7,374.83	233.97	7.17	87.97	-1,154.49	8,423.45	6,184.26	6,135.12	49.14	125.839	
21,700.00	7,364.00	7,375.00	7,374.83	235.56	7.17	87.97	-1,154.49	8,423.45	6,284.05	6,234.89	49.16	127.824	
21,800.00	7,364.00	7,375.00	7,374.83	237.15	7.17	87.97	-1,154.49	8,423.45	6,383.85	6,334.67	49.18	129.800	
21,864.93	7,364.00	7,375.00	7,374.83	238.18	7.17	87.97	-1,154.49	8,423.45	6,448.66	6,399.46	49.20	131.077	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #077 - OH - OH-SVY

Offset Site Error: 0.00 usft

Survey Program: 100-Standard Keeper 104 **Offset Well Error:** 3.28 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	3.28	3.28	-170.25	-813.69	-139.85	825.82				
100.00	100.00	80.89	80.89	3.29	3.28	-170.25	-813.75	-139.85	825.67	819.11	6.57	125.676	
200.00	200.00	179.60	179.60	3.34	3.28	-170.25	-813.96	-139.81	825.89	819.27	6.62	124.761	
300.00	300.00	278.27	278.27	3.42	3.29	-170.26	-814.35	-139.75	826.26	819.55	6.71	123.108	
400.00	400.00	376.92	376.91	3.54	3.31	-170.27	-814.89	-139.67	826.79	819.95	6.84	120.826	
500.00	500.00	475.55	475.55	3.69	3.33	-170.29	-815.61	-139.56	827.49	820.48	7.01	118.047	
600.00	599.98	573.47	573.46	3.86	3.35	39.76	-816.58	-139.31	827.08	819.88	7.20	114.877	
700.00	699.84	672.19	672.17	4.04	3.38	39.98	-817.77	-138.81	824.16	816.75	7.41	111.212	
808.00	807.41	780.43	780.40	4.27	3.41	40.42	-819.21	-138.06	818.13	810.46	7.67	106.680	
900.00	898.89	871.83	871.79	4.49	3.45	23.43	-820.40	-137.25	810.88	802.98	7.91	102.537	
912.12	910.94	883.90	883.86	4.52	3.45	21.21	-820.56	-137.14	809.82	801.88	7.94	101.973	
1,000.00	998.31	971.95	971.90	4.74	3.49	21.38	-821.68	-136.34	801.97	793.79	8.18	97.983	
1,100.00	1,097.73	1,074.36	1,074.29	5.01	3.53	21.59	-822.83	-135.41	792.90	784.43	8.48	93.532	
1,200.00	1,197.15	1,173.39	1,173.32	5.29	3.58	21.78	-823.73	-134.25	783.59	774.81	8.78	89.268	
1,300.00	1,296.58	1,270.78	1,270.69	5.59	3.63	21.96	-824.87	-132.93	774.50	765.41	9.09	85.184	
1,400.00	1,396.00	1,372.81	1,372.70	5.90	3.69	22.18	-825.97	-131.98	765.42	755.99	9.42	81.230	
1,500.00	1,495.42	1,469.21	1,469.09	6.22	3.74	22.40	-826.97	-131.19	756.32	746.56	9.76	77.470	
1,600.00	1,594.84	1,569.29	1,569.17	6.54	3.81	22.67	-828.18	-130.80	747.50	737.38	10.12	73.851	
1,700.00	1,694.27	1,667.95	1,667.82	6.87	3.87	22.95	-829.34	-130.62	738.70	728.21	10.49	70.413	
1,800.00	1,793.69	1,771.44	1,771.31	7.21	3.94	23.29	-830.20	-130.80	729.68	718.80	10.87	67.106	
1,900.00	1,893.11	1,872.03	1,871.90	7.55	4.01	23.62	-830.77	-130.77	720.36	709.10	11.26	63.971	
2,000.00	1,992.53	1,969.76	1,969.63	7.89	4.08	23.94	-831.31	-130.64	711.04	699.39	11.65	61.028	
2,100.00	2,091.96	2,068.43	2,068.29	8.24	4.15	24.26	-831.99	-130.36	701.84	689.79	12.05	58.268	
2,200.00	2,191.38	2,170.91	2,170.77	8.60	4.22	24.63	-832.46	-130.44	692.52	680.07	12.45	55.613	
2,300.00	2,290.80	2,271.25	2,271.11	8.95	4.27	25.03	-832.67	-130.76	683.04	670.19	12.85	53.159	
2,400.00	2,390.22	2,370.59	2,370.44	9.31	4.28	25.47	-832.73	-131.41	673.55	660.32	13.23	50.906	
2,500.00	2,489.65	2,469.25	2,469.10	9.67	4.30	25.94	-832.86	-132.31	664.23	650.61	13.62	48.771	
2,600.00	2,589.07	2,570.63	2,570.48	10.03	4.32	26.45	-832.86	-133.36	654.86	640.86	14.00	46.764	
2,700.00	2,688.49	2,670.76	2,670.60	10.40	4.33	26.95	-832.63	-134.25	645.29	630.91	14.38	44.877	
2,800.00	2,787.91	2,769.53	2,769.38	10.76	4.35	27.43	-832.52	-134.71	635.76	620.99	14.76	43.066	
2,900.00	2,887.33	2,868.87	2,868.72	11.13	4.38	27.91	-832.57	-135.05	626.39	611.22	15.16	41.306	
3,000.00	2,986.76	2,967.78	2,967.62	11.50	4.42	28.40	-832.55	-135.37	617.00	601.43	15.56	39.645	
3,100.00	3,086.18	3,065.40	3,065.24	11.87	4.48	28.89	-832.82	-135.64	607.91	591.92	15.99	38.008	
3,200.00	3,185.60	3,164.84	3,164.68	12.24	4.57	29.39	-833.25	-135.84	599.00	582.56	16.44	36.444	
3,300.00	3,285.02	3,261.75	3,261.58	12.61	4.66	29.88	-834.02	-135.95	590.44	573.56	16.88	34.980	
3,400.00	3,384.45	3,360.96	3,360.79	12.98	4.74	30.36	-834.90	-135.82	581.93	564.61	17.32	33.598	
3,500.00	3,483.87	3,460.62	3,460.44	13.36	4.84	30.86	-835.97	-135.74	573.66	555.89	17.77	32.290	
3,600.00	3,583.29	3,560.27	3,560.09	13.73	4.93	31.38	-837.06	-135.74	565.48	547.26	18.21	31.046	
3,700.00	3,682.71	3,658.99	3,658.81	14.11	5.03	31.91	-838.18	-135.74	557.39	538.72	18.67	29.862	
3,800.00	3,782.14	3,757.98	3,757.79	14.48	5.13	32.46	-839.22	-135.76	549.27	530.15	19.12	28.730	
3,900.00	3,881.56	3,858.88	3,858.68	14.86	5.23	33.02	-840.39	-135.70	541.27	521.70	19.57	27.658	
4,000.00	3,980.98	3,957.94	3,957.73	15.24	5.33	33.61	-841.48	-135.77	533.33	513.31	20.03	26.630	
4,100.00	4,080.40	4,057.49	4,057.28	15.61	5.43	34.22	-842.51	-135.83	525.38	504.89	20.49	25.646	
4,200.00	4,179.83	4,155.54	4,155.32	15.99	5.53	34.83	-843.61	-135.93	517.59	496.64	20.95	24.710	
4,300.00	4,279.25	4,253.00	4,252.77	16.37	5.63	35.46	-845.13	-136.10	510.28	488.87	21.41	23.835	
4,400.00	4,378.67	4,350.00	4,349.75	16.75	5.74	36.08	-847.01	-136.37	503.43	481.56	21.87	23.016	
4,500.00	4,478.09	4,447.67	4,447.39	17.13	5.84	36.74	-849.36	-136.93	497.18	474.84	22.34	22.256	
4,600.00	4,577.51	4,546.65	4,546.34	17.51	5.95	37.40	-852.02	-137.48	491.25	468.45	22.81	21.540	
4,700.00	4,676.94	4,646.17	4,645.82	17.89	6.05	38.08	-854.79	-138.03	485.48	462.20	23.27	20.860	
4,800.00	4,776.36	4,745.69	4,745.30	18.27	6.16	38.77	-857.56	-138.57	479.76	456.02	23.74	20.208	
4,900.00	4,875.78	4,844.86	4,844.42	18.65	6.27	39.49	-860.32	-139.20	474.17	449.96	24.21	19.586	
5,000.00	4,975.20	4,944.48	4,944.00	19.03	6.38	40.22	-863.13	-139.84	468.68	444.00	24.68	18.991	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #077 - OH - OH-SVY

Offset Site Error: 0.00 usft

Survey Program: 100-Standard Keeper 104 **Offset Well Error:** 3.28 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,100.00	5,074.63	5,043.93	5,043.41	19.41	6.49	40.97	-866.02	-140.51	463.36	438.21	25.15	18.424	
5,200.00	5,174.05	5,143.91	5,143.34	19.79	6.60	41.74	-868.94	-141.21	458.16	432.54	25.62	17.883	
5,300.00	5,273.47	5,243.01	5,242.40	20.17	6.71	42.52	-871.88	-141.92	453.08	426.99	26.09	17.366	
5,400.00	5,372.89	5,341.96	5,341.30	20.56	6.82	43.32	-874.92	-142.67	448.20	421.64	26.56	16.874	
5,500.00	5,472.32	5,441.43	5,440.72	20.94	6.94	44.13	-878.03	-143.44	443.47	416.44	27.03	16.406	
5,600.00	5,571.74	5,540.62	5,539.85	21.32	7.05	44.95	-881.20	-144.19	438.87	411.37	27.50	15.958	
5,700.00	5,671.16	5,639.95	5,639.13	21.70	7.16	45.79	-884.42	-144.96	434.42	406.45	27.97	15.531	
5,800.00	5,770.58	5,739.26	5,738.38	22.08	7.28	46.65	-887.75	-145.78	430.18	401.74	28.44	15.125	
5,900.00	5,870.01	5,839.31	5,838.37	22.47	7.39	47.51	-891.22	-146.57	426.11	397.20	28.91	14.739	
6,000.00	5,969.43	5,939.16	5,938.16	22.85	7.51	48.41	-894.49	-147.44	422.04	392.66	29.38	14.366	
6,100.00	6,068.85	6,039.07	6,038.01	23.23	7.62	49.33	-897.73	-148.30	418.04	388.19	29.85	14.006	
6,200.00	6,168.27	6,138.12	6,137.00	23.62	7.74	50.27	-901.01	-149.24	414.26	383.95	30.31	13.666	
6,300.00	6,267.70	6,237.69	6,236.51	24.00	7.85	51.22	-904.35	-150.23	410.66	379.88	30.78	13.341	
6,400.00	6,367.12	6,337.32	6,336.08	24.38	7.97	52.20	-907.70	-151.30	407.22	375.98	31.25	13.033	
6,500.00	6,466.54	6,437.86	6,436.56	24.77	8.09	53.22	-910.97	-152.40	403.85	372.14	31.71	12.735	
6,600.00	6,565.96	6,539.97	6,538.62	25.15	8.21	54.28	-913.94	-153.20	400.14	367.97	32.17	12.438	
6,700.00	6,665.38	6,641.35	6,639.97	25.53	8.33	55.35	-916.50	-153.64	396.05	363.43	32.63	12.139	
6,778.75	6,743.68	6,720.87	6,719.47	25.84	8.42	56.22	-918.25	-153.93	392.71	359.72	32.98	11.906	
6,800.00	6,764.80	6,742.19	6,740.78	25.92	8.45	72.56	-918.65	-154.00	392.02	358.94	33.08	11.851	
6,817.00	6,781.66	6,759.07	6,757.66	25.98	8.47	83.16	-918.96	-154.06	391.85	358.69	33.16	11.818	CC, ES
6,850.00	6,814.29	6,792.22	6,790.81	26.11	8.51	97.87	-919.54	-154.20	392.47	359.17	33.30	11.786	SF
6,900.00	6,863.27	6,841.64	6,840.22	26.30	8.57	110.93	-920.32	-154.34	395.82	362.31	33.51	11.810	
6,950.00	6,911.44	6,889.37	6,887.95	26.50	8.63	118.64	-921.08	-154.53	402.39	368.67	33.72	11.933	
7,000.00	6,958.49	6,936.82	6,935.39	26.68	8.68	123.91	-921.86	-154.68	412.27	378.35	33.91	12.156	
7,050.00	7,004.14	6,981.76	6,980.32	26.87	8.74	127.80	-922.57	-154.88	425.62	391.52	34.10	12.483	
7,100.00	7,048.10	7,026.69	7,025.25	27.05	8.79	130.91	-923.35	-155.01	442.50	408.23	34.27	12.914	
7,150.00	7,090.11	7,069.04	7,067.59	27.23	8.84	133.37	-924.01	-155.09	462.88	428.46	34.42	13.449	
7,200.00	7,129.90	7,108.45	7,106.99	27.41	8.89	135.26	-924.59	-155.21	486.83	452.28	34.56	14.087	
7,250.00	7,167.24	7,145.64	7,144.18	27.59	8.94	136.67	-925.16	-155.32	514.27	479.59	34.69	14.827	
7,300.00	7,201.88	7,180.96	7,179.49	27.76	8.98	137.64	-925.74	-155.39	545.02	510.22	34.80	15.662	
7,350.00	7,233.63	7,213.98	7,212.51	27.94	9.02	138.13	-926.26	-155.39	578.80	543.91	34.90	16.586	
7,400.00	7,262.27	7,243.50	7,242.03	28.13	9.06	138.02	-926.71	-155.35	615.44	580.46	34.98	17.593	
7,450.00	7,287.63	7,269.51	7,268.03	28.32	9.09	137.20	-927.04	-155.31	654.66	619.60	35.05	18.676	
7,500.00	7,309.57	7,291.50	7,290.02	28.53	9.11	135.47	-927.29	-155.27	696.19	661.08	35.11	19.827	
7,550.00	7,327.93	7,310.01	7,308.54	28.74	9.13	132.57	-927.50	-155.25	739.75	704.59	35.16	21.039	
7,600.00	7,342.62	7,325.02	7,323.54	28.97	9.15	128.05	-927.67	-155.22	784.99	749.79	35.20	22.302	
7,650.00	7,353.53	7,336.36	7,334.88	29.22	9.17	121.15	-927.81	-155.20	831.58	796.36	35.22	23.608	
7,700.00	7,360.61	7,343.80	7,342.32	29.48	9.17	110.75	-927.90	-155.18	879.20	843.96	35.24	24.948	
7,750.00	7,363.80	7,347.25	7,345.77	29.75	9.18	95.75	-927.95	-155.17	927.49	892.24	35.25	26.312	
7,765.93	7,364.00	7,347.51	7,346.03	29.84	9.18	90.01	-927.95	-155.17	942.97	907.72	35.25	26.750	
7,800.00	7,364.00	7,347.62	7,346.14	30.04	9.18	90.04	-927.95	-155.17	976.13	940.88	35.25	27.689	
7,900.00	7,364.00	7,347.94	7,346.46	30.67	9.18	90.12	-927.96	-155.17	1,073.80	1,038.54	35.26	30.454	
8,000.00	7,364.00	7,348.27	7,346.79	31.37	9.18	90.21	-927.96	-155.16	1,171.86	1,136.59	35.27	33.228	
8,100.00	7,364.00	7,348.60	7,347.12	32.14	9.18	90.29	-927.96	-155.16	1,270.22	1,234.94	35.28	36.007	
8,200.00	7,364.00	7,348.93	7,347.45	32.96	9.18	90.38	-927.97	-155.16	1,368.82	1,333.53	35.29	38.789	
8,300.00	7,364.00	7,349.26	7,347.78	33.85	9.18	90.46	-927.97	-155.16	1,467.61	1,432.30	35.30	41.574	
8,400.00	7,364.00	7,349.60	7,348.12	34.79	9.18	90.55	-927.98	-155.16	1,566.55	1,531.23	35.31	44.360	
8,500.00	7,364.00	7,349.94	7,348.46	35.77	9.18	90.64	-927.98	-155.16	1,665.62	1,630.29	35.33	47.146	
8,600.00	7,364.00	7,350.31	7,348.83	36.80	9.18	90.74	-927.99	-155.16	1,764.79	1,729.44	35.34	49.931	
8,700.00	7,364.00	7,350.69	7,349.22	37.87	9.18	90.84	-927.99	-155.16	1,864.05	1,828.69	35.36	52.715	
8,800.00	7,364.00	7,351.08	7,349.60	38.98	9.18	90.94	-928.00	-155.16	1,963.39	1,928.01	35.38	55.497	
8,900.00	7,364.00	7,351.48	7,350.00	40.12	9.18	91.04	-928.00	-155.15	2,062.79	2,027.39	35.40	58.277	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #077 - OH - OH-SVY

Offset Site Error: 0.00 usft

Survey Program: 100-Standard Keeper 104 **Offset Well Error:** 3.28 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,000.00	7,364.00	7,351.88	7,350.40	41.29	9.18	91.15	-928.01	-155.15	2,162.24	2,126.83	35.42	61.053	
9,100.00	7,364.00	7,352.29	7,350.81	42.49	9.18	91.25	-928.01	-155.15	2,261.75	2,226.31	35.44	63.827	
9,200.00	7,364.00	7,352.71	7,351.23	43.71	9.18	91.36	-928.02	-155.15	2,361.29	2,325.84	35.46	66.597	
9,300.00	7,364.00	7,353.13	7,351.65	44.96	9.18	91.47	-928.02	-155.15	2,460.87	2,425.40	35.48	69.363	
9,400.00	7,364.00	7,353.57	7,352.09	46.23	9.19	91.58	-928.03	-155.15	2,560.49	2,524.99	35.50	72.125	
9,500.00	7,364.00	7,354.01	7,352.53	47.52	9.19	91.70	-928.03	-155.15	2,660.13	2,624.61	35.52	74.883	
9,600.00	7,364.00	7,354.46	7,352.98	48.83	9.19	91.82	-928.04	-155.14	2,759.80	2,724.25	35.55	77.636	
9,700.00	7,364.00	7,354.92	7,353.44	50.15	9.19	91.94	-928.04	-155.14	2,859.50	2,823.92	35.57	80.384	
9,800.00	7,364.00	7,355.38	7,353.91	51.49	9.19	92.06	-928.05	-155.14	2,959.21	2,923.61	35.60	83.127	
9,900.00	7,364.00	7,355.86	7,354.38	52.85	9.19	92.18	-928.06	-155.14	3,058.94	3,023.31	35.63	85.864	
10,000.00	7,364.00	7,356.35	7,354.87	54.22	9.19	92.31	-928.06	-155.14	3,158.69	3,123.04	35.65	88.596	
10,100.00	7,364.00	7,356.85	7,355.37	55.60	9.19	92.44	-928.07	-155.14	3,258.45	3,222.77	35.68	91.322	
10,200.00	7,364.00	7,357.35	7,355.87	56.99	9.19	92.57	-928.08	-155.13	3,358.23	3,322.52	35.71	94.042	
10,300.00	7,364.00	7,357.87	7,356.39	58.40	9.19	92.70	-928.08	-155.13	3,458.02	3,422.28	35.74	96.755	
10,400.00	7,364.00	7,358.40	7,356.92	59.81	9.19	92.84	-928.09	-155.13	3,557.82	3,522.05	35.77	99.462	
10,500.00	7,364.00	7,358.94	7,357.46	61.23	9.19	92.98	-928.10	-155.13	3,657.64	3,621.84	35.80	102.162	
10,600.00	7,364.00	7,359.49	7,358.01	62.66	9.19	93.12	-928.10	-155.13	3,757.46	3,721.63	35.83	104.856	
10,700.00	7,364.00	7,360.05	7,358.57	64.10	9.19	93.27	-928.11	-155.12	3,857.29	3,821.43	35.87	107.542	
10,800.00	7,364.00	7,360.63	7,359.15	65.55	9.19	93.42	-928.12	-155.12	3,957.13	3,921.23	35.90	110.222	
10,900.00	7,364.00	7,361.22	7,359.74	67.01	9.19	93.57	-928.12	-155.12	4,056.98	4,021.05	35.94	112.894	
11,000.00	7,364.00	7,361.82	7,360.34	68.47	9.19	93.73	-928.13	-155.12	4,156.84	4,120.87	35.97	115.558	
11,100.00	7,364.00	7,362.43	7,360.95	69.93	9.20	93.89	-928.14	-155.11	4,256.70	4,220.69	36.01	118.215	
11,200.00	7,364.00	7,363.06	7,361.58	71.41	9.20	94.05	-928.15	-155.11	4,356.57	4,320.52	36.05	120.864	
11,300.00	7,364.00	7,363.71	7,362.23	72.88	9.20	94.22	-928.15	-155.11	4,456.44	4,420.36	36.08	123.504	
11,400.00	7,364.00	7,364.37	7,362.89	74.37	9.20	94.39	-928.16	-155.11	4,556.32	4,520.20	36.12	126.137	
11,500.00	7,364.00	7,365.04	7,363.56	75.85	9.20	94.56	-928.17	-155.10	4,656.21	4,620.05	36.16	128.761	
11,600.00	7,364.00	7,365.73	7,364.25	77.35	9.20	94.74	-928.18	-155.10	4,756.10	4,719.90	36.20	131.377	
11,700.00	7,364.00	7,366.44	7,364.96	78.84	9.20	94.92	-928.19	-155.10	4,855.99	4,819.75	36.24	133.984	
11,800.00	7,364.00	7,367.16	7,365.68	80.34	9.20	95.11	-928.20	-155.09	4,955.89	4,919.61	36.28	136.583	
11,900.00	7,364.00	7,367.91	7,366.43	81.85	9.20	95.30	-928.20	-155.09	5,055.79	5,019.47	36.33	139.172	
12,000.00	7,364.00	7,368.67	7,367.19	83.36	9.20	95.50	-928.21	-155.09	5,155.70	5,119.33	36.37	141.753	
12,100.00	7,364.00	7,369.45	7,367.97	84.87	9.20	95.70	-928.22	-155.08	5,255.61	5,219.19	36.42	144.324	
12,200.00	7,364.00	7,370.25	7,368.77	86.38	9.20	95.90	-928.23	-155.08	5,355.52	5,319.06	36.46	146.886	
12,300.00	7,364.00	7,371.08	7,369.59	87.90	9.20	96.11	-928.24	-155.08	5,455.44	5,418.93	36.51	149.439	
12,400.00	7,364.00	7,371.92	7,370.44	89.42	9.21	96.33	-928.25	-155.07	5,555.36	5,518.80	36.55	151.982	
12,500.00	7,364.00	7,372.79	7,371.31	90.95	9.21	96.55	-928.26	-155.07	5,655.28	5,618.68	36.60	154.515	
12,600.00	7,364.00	7,373.68	7,372.20	92.47	9.21	96.78	-928.27	-155.06	5,755.20	5,718.55	36.65	157.039	
12,700.00	7,364.00	7,374.59	7,373.11	94.00	9.21	97.02	-928.28	-155.06	5,855.13	5,818.43	36.70	159.553	
12,800.00	7,364.00	7,375.53	7,374.05	95.53	9.21	97.26	-928.29	-155.05	5,955.06	5,918.31	36.75	162.056	
12,900.00	7,364.00	7,376.50	7,375.02	97.06	9.21	97.50	-928.30	-155.05	6,054.99	6,018.19	36.80	164.550	
13,000.00	7,364.00	7,377.50	7,376.02	98.60	9.21	97.76	-928.32	-155.04	6,154.92	6,118.08	36.85	167.033	
13,100.00	7,364.00	7,378.52	7,377.04	100.14	9.21	98.02	-928.33	-155.04	6,254.86	6,217.96	36.90	169.506	
13,200.00	7,364.00	7,379.58	7,378.10	101.68	9.21	98.29	-928.34	-155.03	6,354.80	6,317.84	36.95	171.969	
13,300.00	7,364.00	7,371.59	7,370.11	103.22	9.21	96.25	-928.25	-155.07	6,454.74	6,417.74	37.00	174.466	
13,400.00	7,364.00	7,377.90	7,376.42	104.76	9.21	97.86	-928.32	-155.04	6,554.68	6,517.62	37.06	176.882	
13,500.00	7,364.00	7,378.33	7,376.85	106.31	9.21	97.97	-928.33	-155.04	6,654.62	6,617.51	37.11	179.317	
13,600.00	7,364.00	7,378.76	7,377.28	107.85	9.21	98.08	-928.33	-155.04	6,754.57	6,717.40	37.17	181.741	
13,700.00	7,364.00	7,379.19	7,377.71	109.40	9.21	98.19	-928.33	-155.04	6,854.51	6,817.29	37.22	184.155	
13,800.00	7,364.00	7,379.62	7,378.14	110.95	9.21	98.30	-928.34	-155.03	6,954.46	6,917.18	37.28	186.558	
13,900.00	7,364.00	7,380.05	7,378.57	112.50	9.21	98.41	-928.34	-155.03	7,054.41	7,017.08	37.33	188.950	
14,000.00	7,364.00	7,380.47	7,378.99	114.05	9.22	98.52	-928.35	-155.03	7,154.36	7,116.97	37.39	191.331	
14,100.00	7,364.00	7,380.90	7,379.41	115.61	9.22	98.62	-928.35	-155.03	7,254.31	7,216.86	37.45	193.701	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #077 - OH - OH-SVY

Offset Site Error: 0.00 usft

Survey Program: 100-Standard Keeper 104 **Offset Well Error:** 3.28 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,200.00	7,364.00	7,381.32	7,379.84	117.16	9.22	98.73	-928.36	-155.03	7,354.27	7,316.76	37.51	196.061	
14,300.00	7,364.00	7,381.74	7,380.25	118.72	9.22	98.84	-928.36	-155.02	7,454.22	7,416.65	37.57	198.409	
14,400.00	7,364.00	7,382.15	7,380.67	120.28	9.22	98.94	-928.37	-155.02	7,554.18	7,516.55	37.63	200.747	
14,500.00	7,364.00	7,382.57	7,381.09	121.84	9.22	99.05	-928.37	-155.02	7,654.14	7,616.44	37.69	203.073	
14,600.00	7,364.00	7,382.98	7,381.50	123.40	9.22	99.15	-928.38	-155.02	7,754.09	7,716.34	37.75	205.388	
14,700.00	7,364.00	7,383.39	7,381.91	124.96	9.22	99.26	-928.38	-155.02	7,854.05	7,816.24	37.82	207.692	
14,800.00	7,364.00	7,383.80	7,382.32	126.52	9.22	99.36	-928.39	-155.01	7,954.01	7,916.13	37.88	209.984	
14,900.00	7,364.00	7,384.21	7,382.73	128.08	9.22	99.46	-928.39	-155.01	8,053.97	8,016.03	37.94	212.266	
15,000.00	7,364.00	7,384.62	7,383.14	129.64	9.22	99.56	-928.39	-155.01	8,153.94	8,115.93	38.01	214.535	
15,100.00	7,364.00	7,385.02	7,383.54	131.21	9.22	99.67	-928.40	-155.01	8,253.90	8,215.83	38.07	216.794	
15,200.00	7,364.00	7,385.43	7,383.94	132.77	9.22	99.77	-928.40	-155.01	8,353.86	8,315.72	38.14	219.041	
15,300.00	7,364.00	7,385.83	7,384.35	134.34	9.22	99.87	-928.41	-155.00	8,453.83	8,415.62	38.20	221.277	
15,400.00	7,364.00	7,386.23	7,384.75	135.91	9.22	99.97	-928.41	-155.00	8,553.79	8,515.52	38.27	223.501	
15,500.00	7,364.00	7,386.63	7,385.14	137.48	9.22	100.07	-928.42	-155.00	8,653.76	8,615.42	38.34	225.713	
15,600.00	7,364.00	7,387.02	7,385.54	139.04	9.22	100.17	-928.42	-155.00	8,753.73	8,715.32	38.41	227.914	
15,700.00	7,364.00	7,387.42	7,385.93	140.61	9.22	100.27	-928.42	-155.00	8,853.69	8,815.22	38.48	230.104	
15,800.00	7,364.00	7,387.81	7,386.33	142.18	9.22	100.37	-928.43	-154.99	8,953.66	8,915.11	38.55	232.282	
15,900.00	7,364.00	7,388.20	7,386.72	143.75	9.22	100.47	-928.43	-154.99	9,053.63	9,015.01	38.62	234.448	
16,000.00	7,364.00	7,388.59	7,387.11	145.33	9.22	100.56	-928.44	-154.99	9,153.60	9,114.91	38.69	236.603	
16,100.00	7,364.00	7,388.98	7,387.49	146.90	9.22	100.66	-928.44	-154.99	9,253.57	9,214.81	38.76	238.746	
16,200.00	7,364.00	7,389.36	7,387.88	148.47	9.23	100.76	-928.45	-154.99	9,353.54	9,314.71	38.83	240.877	
16,300.00	7,364.00	7,389.75	7,388.27	150.04	9.23	100.85	-928.45	-154.99	9,453.51	9,414.61	38.90	242.997	
16,400.00	7,364.00	7,390.13	7,388.65	151.62	9.23	100.95	-928.45	-154.98	9,553.48	9,514.51	38.98	245.105	
16,500.00	7,364.00	7,390.51	7,389.03	153.19	9.23	101.04	-928.46	-154.98	9,653.46	9,614.41	39.05	247.201	
16,600.00	7,364.00	7,390.89	7,389.41	154.77	9.23	101.14	-928.46	-154.98	9,753.43	9,714.30	39.13	249.286	
16,700.00	7,364.00	7,391.27	7,389.79	156.34	9.23	101.23	-928.47	-154.98	9,853.40	9,814.20	39.20	251.358	
16,800.00	7,364.00	7,391.65	7,390.16	157.92	9.23	101.33	-928.47	-154.98	9,953.38	9,914.10	39.28	253.420	
16,900.00	7,364.00	7,392.02	7,390.54	159.49	9.23	101.42	-928.47	-154.97	10,053.35	10,014.00	39.35	255.469	
17,000.00	7,364.00	7,392.40	7,390.91	161.07	9.23	101.51	-928.48	-154.97	10,153.33	10,113.90	39.43	257.507	
17,100.00	7,364.00	7,392.77	7,391.28	162.65	9.23	101.61	-928.48	-154.97	10,253.30	10,213.80	39.51	259.533	
17,200.00	7,364.00	7,393.14	7,391.66	164.23	9.23	101.70	-928.49	-154.97	10,353.28	10,313.70	39.58	261.547	
17,300.00	7,364.00	7,393.51	7,392.02	165.81	9.23	101.79	-928.49	-154.97	10,453.26	10,413.59	39.66	263.550	
17,400.00	7,364.00	7,393.87	7,392.39	167.38	9.23	101.88	-928.49	-154.97	10,553.23	10,513.49	39.74	265.541	
17,500.00	7,364.00	7,394.24	7,392.76	168.96	9.23	101.97	-928.50	-154.96	10,653.21	10,613.39	39.82	267.521	
17,600.00	7,364.00	7,394.60	7,393.12	170.54	9.23	102.06	-928.50	-154.96	10,753.19	10,713.29	39.90	269.488	
17,700.00	7,364.00	7,394.97	7,393.48	172.12	9.23	102.15	-928.50	-154.96	10,853.17	10,813.18	39.98	271.445	
17,800.00	7,364.00	7,395.33	7,393.85	173.70	9.23	102.24	-928.51	-154.96	10,953.15	10,913.08	40.06	273.389	
17,900.00	7,364.00	7,395.69	7,394.21	175.28	9.23	102.33	-928.51	-154.96	11,053.12	11,012.98	40.15	275.322	
18,000.00	7,364.00	7,396.05	7,394.56	176.87	9.23	102.42	-928.51	-154.96	11,153.10	11,112.88	40.23	277.243	
18,100.00	7,364.00	7,396.40	7,394.92	178.45	9.23	102.51	-928.52	-154.96	11,253.08	11,212.77	40.31	279.153	
18,200.00	7,364.00	7,396.76	7,395.28	180.03	9.23	102.60	-928.52	-154.95	11,353.06	11,312.67	40.39	281.051	
18,300.00	7,364.00	7,397.11	7,395.63	181.61	9.23	102.68	-928.53	-154.95	11,453.04	11,412.57	40.48	282.938	
18,400.00	7,364.00	7,400.00	7,398.52	183.19	9.24	103.39	-928.55	-154.94	11,553.03	11,512.46	40.57	284.796	
18,500.00	7,364.00	7,400.00	7,398.52	184.78	9.24	103.39	-928.55	-154.94	11,653.01	11,612.36	40.65	286.662	
18,600.00	7,364.00	7,400.00	7,398.52	186.36	9.24	103.39	-928.55	-154.94	11,752.99	11,712.25	40.74	288.517	
18,700.00	7,364.00	7,400.00	7,398.52	187.94	9.24	103.39	-928.55	-154.94	11,852.97	11,812.15	40.82	290.360	
18,800.00	7,364.00	7,400.00	7,398.52	189.53	9.24	103.39	-928.55	-154.94	11,952.95	11,912.04	40.91	292.192	
18,900.00	7,364.00	7,400.00	7,398.52	191.11	9.24	103.39	-928.55	-154.94	12,052.93	12,011.94	40.99	294.013	
19,000.00	7,364.00	7,400.00	7,398.52	192.70	9.24	103.39	-928.55	-154.94	12,152.92	12,111.83	41.08	295.822	
19,100.00	7,364.00	7,400.00	7,398.52	194.28	9.24	103.39	-928.55	-154.94	12,252.90	12,211.73	41.17	297.620	
19,200.00	7,364.00	7,400.47	7,398.99	195.87	9.24	103.51	-928.56	-154.94	12,352.88	12,311.62	41.26	299.404	
19,300.00	7,364.00	7,401.16	7,399.67	197.45	9.24	103.68	-928.57	-154.93	12,452.86	12,411.52	41.35	301.174	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #077 - OH - OH-SVY

Offset Site Error: 0.00 usft

Survey Program: 100-Standard Keeper 104 **Offset Well Error:** 3.28 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
19,400.00	7,364.00	7,401.85	7,400.36	199.04	9.24	103.85	-928.57	-154.93	12,552.85	12,511.41	41.44	302.934	
19,500.00	7,364.00	7,402.54	7,401.06	200.62	9.24	104.02	-928.58	-154.93	12,652.83	12,611.30	41.53	304.682	
19,600.00	7,364.00	7,403.24	7,401.76	202.21	9.24	104.19	-928.59	-154.92	12,752.82	12,711.20	41.62	306.419	
19,700.00	7,364.00	7,403.95	7,402.47	203.79	9.24	104.36	-928.59	-154.92	12,852.80	12,811.09	41.71	308.145	
19,800.00	7,364.00	7,404.66	7,403.18	205.38	9.24	104.53	-928.60	-154.92	12,952.78	12,910.98	41.80	309.860	
19,900.00	7,364.00	7,405.38	7,403.90	206.97	9.24	104.71	-928.61	-154.91	13,052.77	13,010.87	41.89	311.564	
20,000.00	7,364.00	7,406.11	7,404.63	208.55	9.24	104.88	-928.62	-154.91	13,152.75	13,110.77	41.99	313.257	
20,100.00	7,364.00	7,406.84	7,405.36	210.14	9.24	105.06	-928.62	-154.91	13,252.74	13,210.66	42.08	314.939	
20,200.00	7,364.00	7,407.58	7,406.10	211.73	9.25	105.24	-928.63	-154.90	13,352.72	13,310.55	42.17	316.610	
20,300.00	7,364.00	7,408.33	7,406.85	213.32	9.25	105.42	-928.64	-154.90	13,452.71	13,410.44	42.27	318.270	
20,400.00	7,364.00	7,409.09	7,407.60	214.90	9.25	105.60	-928.65	-154.90	13,552.69	13,510.33	42.36	319.919	
20,500.00	7,364.00	7,409.85	7,408.36	216.49	9.25	105.78	-928.65	-154.89	13,652.68	13,610.22	42.46	321.558	
20,600.00	7,364.00	7,410.61	7,409.13	218.08	9.25	105.97	-928.66	-154.89	13,752.67	13,710.11	42.55	323.185	
20,700.00	7,364.00	7,411.39	7,409.91	219.67	9.25	106.15	-928.67	-154.89	13,852.65	13,810.00	42.65	324.802	
20,800.00	7,364.00	7,412.17	7,410.69	221.26	9.25	106.34	-928.68	-154.88	13,952.64	13,909.89	42.75	326.409	
20,900.00	7,364.00	7,412.96	7,411.48	222.84	9.25	106.53	-928.69	-154.88	14,052.63	14,009.78	42.84	328.005	
21,000.00	7,364.00	7,413.76	7,412.28	224.43	9.25	106.72	-928.70	-154.88	14,152.61	14,109.67	42.94	329.590	
21,100.00	7,364.00	7,414.57	7,413.08	226.02	9.25	106.91	-928.70	-154.87	14,252.60	14,209.56	43.04	331.164	
21,200.00	7,364.00	7,415.38	7,413.89	227.61	9.25	107.10	-928.71	-154.87	14,352.59	14,309.45	43.14	332.729	
21,300.00	7,364.00	7,416.20	7,414.71	229.20	9.25	107.29	-928.72	-154.86	14,452.57	14,409.34	43.23	334.282	
21,400.00	7,364.00	7,417.03	7,415.54	230.79	9.26	107.49	-928.73	-154.86	14,552.56	14,509.23	43.33	335.826	
21,500.00	7,364.00	7,417.86	7,416.38	232.38	9.26	107.68	-928.74	-154.86	14,652.55	14,609.12	43.43	337.359	
21,600.00	7,364.00	7,418.71	7,417.22	233.97	9.26	107.88	-928.75	-154.85	14,752.54	14,709.00	43.53	338.882	
21,700.00	7,364.00	7,419.56	7,418.08	235.56	9.26	108.08	-928.76	-154.85	14,852.52	14,808.89	43.63	340.394	
21,800.00	7,364.00	7,420.42	7,418.94	237.15	9.26	108.28	-928.77	-154.84	14,952.51	14,908.78	43.73	341.897	
21,864.93	7,364.00	7,420.99	7,419.50	238.18	9.26	108.41	-928.77	-154.84	15,017.43	14,973.63	43.80	342.867	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #077A - OH - OH-SVY

Offset Site Error: 0.00 usft

Survey Program: 100-Standard Keeper 104 **Offset Well Error:** 3.28 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	3.28	3.28	108.56	-1,065.45	3,173.85	3,348.46				
100.00	100.00	40.70	40.70	3.29	3.28	108.56	-1,065.47	3,173.83	3,347.90	3,341.33	6.57	509.602	
200.00	200.00	142.22	142.22	3.34	3.28	108.56	-1,065.70	3,173.64	3,347.80	3,341.18	6.62	505.945	
300.00	300.00	244.46	244.46	3.42	3.29	108.57	-1,065.90	3,173.48	3,347.71	3,341.00	6.70	499.385	
400.00	400.00	349.22	349.22	3.54	3.30	108.57	-1,065.87	3,173.20	3,347.44	3,340.61	6.83	490.165	
500.00	500.00	450.52	450.51	3.69	3.31	108.57	-1,065.89	3,172.85	3,347.12	3,340.13	6.99	478.771	
600.00	599.98	552.83	552.82	3.86	3.33	-41.47	-1,065.85	3,172.46	3,345.44	3,338.26	7.18	466.093	
700.00	699.84	655.91	655.91	4.04	3.36	-41.59	-1,065.64	3,172.03	3,341.06	3,333.67	7.39	452.242	
808.00	807.41	766.44	766.44	4.27	3.38	-41.81	-1,065.23	3,171.51	3,333.30	3,325.66	7.65	435.901	
900.00	898.89	858.24	858.23	4.49	3.41	-59.19	-1,064.81	3,171.06	3,326.52	3,318.64	7.89	421.835	
912.12	910.94	870.21	870.21	4.52	3.41	-61.45	-1,064.76	3,171.00	3,325.80	3,317.88	7.92	420.019	
1,000.00	998.31	959.57	959.56	4.74	3.44	-61.60	-1,064.33	3,170.55	3,320.73	3,312.56	8.17	406.437	
1,100.00	1,097.73	1,063.55	1,063.53	5.01	3.48	-61.77	-1,063.68	3,169.96	3,314.88	3,306.41	8.48	391.064	
1,200.00	1,197.15	1,170.86	1,170.84	5.29	3.52	-61.96	-1,062.98	3,169.15	3,308.88	3,300.08	8.80	375.867	
1,300.00	1,296.58	1,276.77	1,276.74	5.59	3.57	-62.14	-1,062.20	3,168.11	3,302.67	3,293.52	9.15	361.066	
1,400.00	1,396.00	1,378.82	1,378.79	5.90	3.63	-62.31	-1,061.44	3,166.96	3,296.34	3,286.84	9.50	346.847	
1,500.00	1,495.42	1,475.02	1,474.97	6.22	3.68	-62.48	-1,060.65	3,165.90	3,290.05	3,280.18	9.87	333.356	
1,600.00	1,594.84	1,568.10	1,568.04	6.54	3.74	-62.64	-1,059.89	3,165.02	3,283.93	3,273.69	10.24	320.603	
1,700.00	1,694.27	1,661.12	1,661.06	6.87	3.79	-62.81	-1,059.15	3,164.33	3,278.04	3,267.42	10.62	308.543	
1,800.00	1,793.69	1,755.12	1,755.05	7.21	3.85	-62.97	-1,058.51	3,163.78	3,272.37	3,261.35	11.01	297.149	
1,900.00	1,893.11	1,853.79	1,853.72	7.55	3.92	-63.15	-1,057.86	3,163.31	3,266.84	3,255.43	11.41	286.334	
2,000.00	1,992.53	1,952.12	1,952.05	7.89	3.98	-63.32	-1,057.15	3,162.83	3,261.31	3,249.50	11.81	276.172	
2,100.00	2,091.96	2,048.37	2,048.29	8.24	4.04	-63.50	-1,056.28	3,162.51	3,255.91	3,243.70	12.21	266.727	
2,200.00	2,191.38	2,144.73	2,144.65	8.60	4.10	-63.68	-1,055.34	3,162.29	3,250.61	3,238.01	12.60	257.909	
2,300.00	2,290.80	2,241.93	2,241.85	8.95	4.17	-63.85	-1,054.52	3,162.13	3,245.46	3,232.45	13.01	249.532	
2,400.00	2,390.22	2,340.76	2,340.67	9.31	4.24	-64.03	-1,054.09	3,161.87	3,240.35	3,226.92	13.42	241.397	
2,500.00	2,489.65	2,438.59	2,438.50	9.67	4.31	-64.20	-1,054.06	3,161.55	3,235.32	3,221.47	13.85	233.578	
2,600.00	2,589.07	2,538.07	2,537.98	10.03	4.36	-64.36	-1,054.25	3,161.18	3,230.33	3,216.05	14.28	226.235	
2,700.00	2,688.49	2,637.85	2,637.77	10.40	4.41	-64.53	-1,054.61	3,160.76	3,225.37	3,210.67	14.70	219.399	
2,800.00	2,787.91	2,738.67	2,738.58	10.76	4.46	-64.69	-1,055.03	3,160.30	3,220.41	3,205.29	15.12	212.937	
2,900.00	2,887.33	2,842.06	2,841.97	11.13	4.52	-64.86	-1,055.53	3,159.73	3,215.40	3,199.85	15.55	206.754	
3,000.00	2,986.76	2,943.93	2,943.83	11.50	4.57	-65.02	-1,056.20	3,158.97	3,210.28	3,194.30	15.98	200.884	
3,100.00	3,086.18	3,042.76	3,042.65	11.87	4.63	-65.17	-1,057.02	3,158.20	3,205.19	3,188.78	16.41	195.349	
3,200.00	3,185.60	3,140.95	3,140.84	12.24	4.68	-65.33	-1,057.88	3,157.43	3,200.13	3,183.29	16.83	190.100	
3,300.00	3,285.02	3,238.70	3,238.58	12.61	4.74	-65.48	-1,058.63	3,156.77	3,195.18	3,177.91	17.26	185.080	
3,400.00	3,384.45	3,340.57	3,340.45	12.98	4.81	-65.65	-1,059.09	3,156.14	3,190.23	3,172.52	17.71	180.152	
3,500.00	3,483.87	3,441.19	3,441.08	13.36	4.90	-65.83	-1,059.06	3,155.56	3,185.22	3,167.05	18.17	175.302	
3,600.00	3,583.29	3,537.13	3,537.01	13.73	5.00	-66.00	-1,058.92	3,155.06	3,180.28	3,161.65	18.63	170.670	
3,700.00	3,682.71	3,632.58	3,632.46	14.11	5.08	-66.17	-1,058.67	3,154.76	3,175.53	3,156.44	19.10	166.298	
3,800.00	3,782.14	3,732.06	3,731.93	14.48	5.17	-66.35	-1,058.40	3,154.47	3,170.84	3,151.28	19.56	162.109	
3,900.00	3,881.56	3,830.57	3,830.44	14.86	5.27	-66.53	-1,058.16	3,154.20	3,166.21	3,146.18	20.03	158.104	
4,000.00	3,980.98	3,929.50	3,929.37	15.24	5.36	-66.71	-1,057.90	3,153.94	3,161.61	3,141.12	20.49	154.278	
4,100.00	4,080.40	4,027.14	4,027.02	15.61	5.46	-66.88	-1,057.71	3,153.72	3,157.10	3,136.14	20.96	150.617	
4,200.00	4,179.83	4,125.53	4,125.41	15.99	5.55	-67.06	-1,057.66	3,153.49	3,152.65	3,131.21	21.43	147.105	
4,300.00	4,279.25	4,223.38	4,223.26	16.37	5.64	-67.24	-1,057.49	3,153.37	3,148.29	3,126.40	21.89	143.817	
4,400.00	4,378.67	4,324.22	4,324.10	16.75	5.72	-67.43	-1,057.21	3,153.22	3,143.93	3,121.58	22.35	140.692	
4,500.00	4,478.09	4,417.92	4,417.79	17.13	5.79	-67.60	-1,057.00	3,153.14	3,139.67	3,116.89	22.79	137.785	
4,600.00	4,577.51	4,507.86	4,507.73	17.51	5.82	-67.76	-1,056.88	3,153.30	3,135.72	3,112.54	23.18	135.260	
4,700.00	4,676.94	4,609.94	4,609.81	17.89	5.80	-67.95	-1,056.95	3,153.52	3,131.88	3,108.34	23.54	133.034	
4,800.00	4,776.36	4,704.79	4,704.66	18.27	5.78	-68.12	-1,057.37	3,153.70	3,128.12	3,104.21	23.92	130.791	
4,900.00	4,875.78	4,805.28	4,805.15	18.65	5.79	-68.29	-1,058.06	3,153.89	3,124.45	3,100.14	24.31	128.551	
5,000.00	4,975.20	4,910.72	4,910.58	19.03	5.80	-68.47	-1,058.78	3,153.97	3,120.68	3,095.97	24.71	126.311	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #077A - OH - OH-SVY

Offset Site Error: 0.00 usft

Survey Program: 100-Standard Keeper 104 **Offset Well Error:** 3.28 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,100.00	5,074.63	5,011.40	5,011.26	19.41	5.83	-68.64	-1,059.58	3,153.90	3,116.82	3,091.70	25.12	124.081	
5,200.00	5,174.05	5,105.47	5,105.33	19.79	5.85	-68.79	-1,060.55	3,153.88	3,113.07	3,087.54	25.53	121.933	
5,300.00	5,273.47	5,206.93	5,206.78	20.17	5.88	-68.96	-1,061.75	3,153.87	3,109.40	3,083.46	25.94	119.856	
5,400.00	5,372.89	5,307.64	5,307.49	20.56	5.92	-69.12	-1,063.02	3,153.80	3,105.71	3,079.35	26.36	117.824	
5,500.00	5,472.32	5,408.61	5,408.44	20.94	5.96	-69.29	-1,064.37	3,153.67	3,101.98	3,075.21	26.78	115.838	
5,600.00	5,571.74	5,503.18	5,503.00	21.32	5.99	-69.44	-1,065.69	3,153.60	3,098.36	3,071.16	27.20	113.926	
5,700.00	5,671.16	5,607.48	5,607.29	21.70	6.04	-69.61	-1,067.10	3,153.51	3,094.74	3,067.13	27.62	112.060	
5,800.00	5,770.58	5,701.35	5,701.16	22.08	6.08	-69.76	-1,068.40	3,153.46	3,091.18	3,063.15	28.04	110.257	
5,900.00	5,870.01	5,800.13	5,799.93	22.47	6.12	-69.91	-1,069.89	3,153.49	3,087.75	3,059.29	28.45	108.519	
6,000.00	5,969.43	5,899.88	5,899.66	22.85	6.17	-70.07	-1,071.39	3,153.53	3,084.35	3,055.48	28.87	106.829	
6,100.00	6,068.85	5,997.09	5,996.87	23.23	6.21	-70.23	-1,072.80	3,153.61	3,081.01	3,051.72	29.29	105.193	
6,200.00	6,168.27	6,100.16	6,099.92	23.62	6.26	-70.40	-1,074.23	3,153.69	3,077.67	3,047.97	29.71	103.595	
6,300.00	6,267.70	6,198.33	6,198.09	24.00	6.31	-70.56	-1,075.61	3,153.73	3,074.33	3,044.20	30.13	102.035	
6,400.00	6,367.12	6,302.94	6,302.69	24.38	6.37	-70.73	-1,077.06	3,153.70	3,070.95	3,040.39	30.56	100.502	
6,500.00	6,466.54	6,402.33	6,402.06	24.77	6.43	-70.89	-1,078.35	3,153.62	3,067.52	3,036.53	30.99	99.000	
6,600.00	6,565.96	6,501.12	6,500.85	25.15	6.50	-71.06	-1,079.62	3,153.55	3,064.13	3,032.71	31.41	97.540	
6,700.00	6,665.38	6,601.47	6,601.19	25.53	6.56	-71.22	-1,080.90	3,153.48	3,060.76	3,028.91	31.84	96.116	
6,778.75	6,743.68	6,682.02	6,681.74	25.84	6.62	-71.36	-1,081.91	3,153.39	3,058.09	3,025.90	32.19	95.013	
6,800.00	6,764.80	6,703.74	6,703.46	25.92	6.63	-55.36	-1,082.19	3,153.35	3,057.01	3,024.73	32.28	94.708	
6,850.00	6,814.29	6,754.55	6,754.25	26.11	6.67	-30.99	-1,082.84	3,153.25	3,051.70	3,019.20	32.49	93.914	
6,900.00	6,863.27	6,804.95	6,804.66	26.30	6.71	-18.99	-1,083.45	3,153.14	3,042.52	3,009.82	32.71	93.024	
6,950.00	6,911.44	6,855.86	6,855.56	26.50	6.75	-12.39	-1,084.01	3,153.00	3,029.53	2,996.61	32.92	92.036	
7,000.00	6,958.49	6,905.19	6,904.89	26.68	6.79	-8.25	-1,084.47	3,152.83	3,012.78	2,979.67	33.12	90.970	
7,050.00	7,004.14	6,950.28	6,949.98	26.87	6.83	-5.36	-1,084.86	3,152.66	2,992.42	2,959.11	33.31	89.831	
7,100.00	7,048.10	6,993.70	6,993.40	27.05	6.87	-3.16	-1,085.24	3,152.51	2,968.59	2,935.09	33.49	88.631	
7,150.00	7,090.11	7,036.58	7,036.27	27.23	6.91	-1.36	-1,085.62	3,152.37	2,941.42	2,907.75	33.66	87.374	
7,200.00	7,129.90	7,077.39	7,077.08	27.41	6.94	0.25	-1,085.98	3,152.21	2,911.06	2,877.24	33.82	86.070	
7,250.00	7,167.24	7,115.81	7,115.49	27.59	6.98	1.79	-1,086.32	3,152.04	2,877.71	2,843.75	33.97	84.725	
7,300.00	7,201.88	7,151.61	7,151.30	27.76	7.01	3.37	-1,086.62	3,151.88	2,841.58	2,807.49	34.09	83.346	
7,350.00	7,233.63	7,184.36	7,184.05	27.94	7.05	5.09	-1,086.89	3,151.71	2,802.88	2,768.68	34.21	81.943	
7,400.00	7,262.27	7,214.28	7,213.96	28.13	7.08	7.11	-1,087.13	3,151.55	2,761.87	2,727.57	34.30	80.519	
7,450.00	7,287.63	7,241.12	7,240.80	28.32	7.10	9.62	-1,087.34	3,151.39	2,718.78	2,684.41	34.38	79.082	
7,500.00	7,309.57	7,264.23	7,263.91	28.53	7.13	12.91	-1,087.52	3,151.23	2,673.91	2,639.47	34.44	77.641	
7,550.00	7,327.93	7,283.47	7,283.15	28.74	7.15	17.54	-1,087.66	3,151.10	2,627.53	2,593.05	34.48	76.201	
7,600.00	7,342.62	7,298.73	7,298.41	28.97	7.16	24.51	-1,087.78	3,150.98	2,579.93	2,545.43	34.51	74.768	
7,650.00	7,353.53	7,309.38	7,309.06	29.22	7.17	35.78	-1,087.86	3,150.90	2,531.43	2,496.91	34.51	73.344	
7,700.00	7,360.61	7,316.10	7,315.78	29.48	7.18	54.78	-1,087.91	3,150.85	2,482.32	2,447.81	34.51	71.936	
7,750.00	7,363.80	7,318.92	7,318.60	29.75	7.18	82.93	-1,087.93	3,150.82	2,432.91	2,398.42	34.49	70.548	
7,765.93	7,364.00	7,318.99	7,318.67	29.84	7.18	92.48	-1,087.93	3,150.82	2,417.16	2,382.68	34.48	70.110	
7,800.00	7,364.00	7,318.73	7,318.41	30.04	7.18	92.44	-1,087.93	3,150.83	2,383.47	2,349.02	34.45	69.176	
7,900.00	7,364.00	7,317.96	7,317.64	30.67	7.18	92.32	-1,087.92	3,150.83	2,284.68	2,250.29	34.39	66.434	
8,000.00	7,364.00	7,317.19	7,316.87	31.37	7.18	92.19	-1,087.92	3,150.84	2,186.01	2,151.68	34.32	63.687	
8,100.00	7,364.00	7,316.42	7,316.10	32.14	7.18	92.07	-1,087.91	3,150.84	2,087.45	2,053.20	34.26	60.935	
8,200.00	7,364.00	7,315.65	7,315.33	32.96	7.18	91.95	-1,087.91	3,150.85	1,989.05	1,954.86	34.19	58.176	
8,300.00	7,364.00	7,314.88	7,314.56	33.85	7.18	91.83	-1,087.90	3,150.86	1,890.81	1,856.68	34.12	55.410	
8,400.00	7,364.00	7,314.11	7,313.79	34.79	7.18	91.71	-1,087.90	3,150.86	1,792.76	1,758.70	34.06	52.636	
8,500.00	7,364.00	7,313.34	7,313.02	35.77	7.18	91.59	-1,087.89	3,150.87	1,694.94	1,660.94	34.00	49.852	
8,600.00	7,364.00	7,312.57	7,312.25	36.80	7.18	91.46	-1,087.88	3,150.87	1,597.39	1,563.44	33.95	47.056	
8,700.00	7,364.00	7,311.80	7,311.48	37.87	7.18	91.34	-1,087.88	3,150.88	1,500.16	1,466.26	33.91	44.245	
8,800.00	7,364.00	7,311.03	7,310.71	38.98	7.17	91.22	-1,087.87	3,150.89	1,403.32	1,369.44	33.88	41.415	
8,900.00	7,364.00	7,310.26	7,309.93	40.12	7.17	91.10	-1,087.87	3,150.89	1,306.96	1,273.07	33.89	38.563	
9,000.00	7,364.00	7,309.48	7,309.16	41.29	7.17	90.98	-1,087.86	3,150.90	1,211.19	1,177.24	33.94	35.683	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #077A - OH - OH-SVY — **Offset Site Error:** 0.00 usft

Survey Program: 100-Standard Keeper 104 — **Offset Well Error:** 3.28 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,100.00	7,364.00	7,308.71	7,308.39	42.49	7.17	90.85	-1,087.86	3,150.90	1,116.16	1,082.09	34.06	32.767	
9,200.00	7,364.00	7,307.94	7,307.62	43.71	7.17	90.73	-1,087.85	3,150.91	1,022.07	987.79	34.29	29.811	
9,300.00	7,364.00	7,307.17	7,306.85	44.96	7.17	90.61	-1,087.84	3,150.91	929.23	894.56	34.66	26.806	
9,400.00	7,364.00	7,306.40	7,306.08	46.23	7.17	90.49	-1,087.84	3,150.92	838.02	802.74	35.28	23.751	
9,500.00	7,364.00	7,305.63	7,305.31	47.52	7.17	90.37	-1,087.83	3,150.93	749.07	712.81	36.27	20.655	
9,600.00	7,364.00	7,304.86	7,304.54	48.83	7.17	90.24	-1,087.83	3,150.93	663.27	625.48	37.80	17.549	
9,700.00	7,364.00	7,304.09	7,303.77	50.15	7.17	90.12	-1,087.82	3,150.94	582.02	541.90	40.13	14.504	
9,800.00	7,364.00	7,303.32	7,302.99	51.49	7.17	90.00	-1,087.81	3,150.94	507.52	463.95	43.56	11.650	
9,900.00	7,364.00	7,302.54	7,302.22	52.85	7.17	89.88	-1,087.81	3,150.95	443.16	394.85	48.31	9.173	
10,000.00	7,364.00	7,301.77	7,301.45	54.22	7.17	89.75	-1,087.80	3,150.96	393.97	339.85	54.12	7.279	
10,100.00	7,364.00	7,301.00	7,300.68	55.60	7.16	89.63	-1,087.80	3,150.96	366.10	306.31	59.78	6.124	
10,155.92	7,364.00	7,300.57	7,300.25	56.38	7.16	89.56	-1,087.79	3,150.97	361.80	299.65	62.15	5.822	CC, ES
10,200.00	7,364.00	7,300.23	7,299.91	56.99	7.16	89.51	-1,087.79	3,150.97	364.48	301.12	63.35	5.753	SF
10,300.00	7,364.00	7,299.46	7,299.14	58.40	7.16	89.39	-1,087.79	3,150.97	389.43	325.62	63.81	6.103	
10,400.00	7,364.00	7,298.70	7,298.37	59.81	7.16	89.27	-1,087.78	3,150.98	436.43	374.44	61.99	7.041	
10,500.00	7,364.00	7,297.93	7,297.61	61.23	7.16	89.15	-1,087.77	3,150.99	499.28	440.03	59.26	8.426	
10,600.00	7,364.00	7,297.18	7,296.86	62.66	7.16	89.03	-1,087.77	3,150.99	572.79	516.29	56.50	10.137	
10,700.00	7,364.00	7,296.42	7,296.10	64.10	7.16	88.91	-1,087.76	3,151.00	653.38	599.30	54.08	12.082	
10,800.00	7,364.00	7,295.67	7,295.35	65.55	7.16	88.79	-1,087.76	3,151.00	738.72	686.68	52.04	14.194	
10,900.00	7,364.00	7,294.93	7,294.60	67.01	7.16	88.67	-1,087.75	3,151.01	827.36	776.99	50.37	16.426	
11,000.00	7,364.00	7,294.18	7,293.86	68.47	7.16	88.55	-1,087.75	3,151.01	918.33	869.34	48.99	18.745	
11,100.00	7,364.00	7,293.44	7,293.12	69.93	7.16	88.44	-1,087.74	3,151.02	1,011.00	963.15	47.85	21.127	
11,200.00	7,364.00	7,292.70	7,292.38	71.41	7.16	88.32	-1,087.73	3,151.03	1,104.96	1,058.05	46.91	23.555	
11,300.00	7,364.00	7,291.97	7,291.65	72.88	7.15	88.20	-1,087.73	3,151.03	1,199.89	1,153.77	46.12	26.017	
11,400.00	7,364.00	7,291.24	7,290.92	74.37	7.15	88.09	-1,087.72	3,151.04	1,295.58	1,250.13	45.45	28.504	
11,500.00	7,364.00	7,290.51	7,290.19	75.85	7.15	87.97	-1,087.72	3,151.04	1,391.88	1,347.00	44.89	31.009	
11,600.00	7,364.00	7,289.79	7,289.47	77.35	7.15	87.86	-1,087.71	3,151.05	1,488.67	1,444.27	44.40	33.528	
11,700.00	7,364.00	7,289.07	7,288.75	78.84	7.15	87.74	-1,087.71	3,151.05	1,585.86	1,541.87	43.98	36.056	
11,800.00	7,364.00	7,288.35	7,288.03	80.34	7.15	87.63	-1,087.70	3,151.06	1,683.37	1,639.75	43.62	38.591	
11,900.00	7,364.00	7,287.64	7,287.32	81.85	7.15	87.52	-1,087.70	3,151.06	1,781.16	1,737.85	43.31	41.130	
12,000.00	7,364.00	7,286.93	7,286.61	83.36	7.15	87.40	-1,087.69	3,151.07	1,879.18	1,836.15	43.03	43.671	
12,100.00	7,364.00	7,286.22	7,285.90	84.87	7.15	87.29	-1,087.69	3,151.07	1,977.40	1,934.61	42.79	46.213	
12,200.00	7,364.00	7,285.51	7,285.19	86.38	7.15	87.18	-1,087.68	3,151.08	2,075.79	2,033.22	42.58	48.754	
12,300.00	7,364.00	7,284.81	7,284.49	87.90	7.15	87.07	-1,087.67	3,151.09	2,174.33	2,131.94	42.39	51.294	
12,400.00	7,364.00	7,284.11	7,283.79	89.42	7.15	86.96	-1,087.67	3,151.09	2,272.99	2,230.77	42.22	53.831	
12,500.00	7,364.00	7,283.42	7,283.10	90.95	7.15	86.85	-1,087.66	3,151.10	2,371.77	2,329.69	42.08	56.365	
12,600.00	7,364.00	7,282.72	7,282.40	92.47	7.15	86.74	-1,087.66	3,151.10	2,470.64	2,428.69	41.95	58.895	
12,700.00	7,364.00	7,282.03	7,281.71	94.00	7.14	86.63	-1,087.65	3,151.11	2,569.60	2,527.77	41.84	61.421	
12,800.00	7,364.00	7,281.35	7,281.03	95.53	7.14	86.52	-1,087.65	3,151.11	2,668.64	2,626.91	41.74	63.942	
12,900.00	7,364.00	7,280.66	7,280.34	97.06	7.14	86.42	-1,087.64	3,151.12	2,767.75	2,726.10	41.65	66.458	
13,000.00	7,364.00	7,279.98	7,279.66	98.60	7.14	86.31	-1,087.64	3,151.12	2,866.92	2,825.35	41.57	68.968	
13,100.00	7,364.00	7,279.31	7,278.99	100.14	7.14	86.20	-1,087.63	3,151.13	2,966.14	2,924.64	41.50	71.472	
13,200.00	7,364.00	7,278.63	7,278.31	101.68	7.14	86.09	-1,087.63	3,151.13	3,065.42	3,023.98	41.44	73.970	
13,300.00	7,364.00	7,277.96	7,277.64	103.22	7.14	85.99	-1,087.62	3,151.14	3,164.74	3,123.35	41.39	76.462	
13,400.00	7,364.00	7,277.29	7,276.97	104.76	7.14	85.88	-1,087.62	3,151.14	3,264.10	3,222.76	41.35	78.947	
13,500.00	7,364.00	7,276.62	7,276.31	106.31	7.14	85.78	-1,087.61	3,151.14	3,363.50	3,322.19	41.31	81.425	
13,600.00	7,364.00	7,275.96	7,275.64	107.85	7.14	85.67	-1,087.61	3,151.15	3,462.93	3,421.66	41.28	83.896	
13,700.00	7,364.00	7,275.30	7,274.98	109.40	7.14	85.57	-1,087.60	3,151.15	3,562.40	3,521.15	41.25	86.360	
13,800.00	7,364.00	7,274.64	7,274.32	110.95	7.14	85.47	-1,087.60	3,151.16	3,661.89	3,620.66	41.23	88.816	
13,900.00	7,364.00	7,273.99	7,273.67	112.50	7.14	85.36	-1,087.59	3,151.16	3,761.42	3,720.20	41.21	91.265	
14,000.00	7,364.00	7,273.34	7,273.02	114.05	7.14	85.26	-1,087.59	3,151.17	3,860.96	3,819.76	41.20	93.705	
14,100.00	7,364.00	7,272.69	7,272.37	115.61	7.14	85.16	-1,087.58	3,151.17	3,960.53	3,919.33	41.20	96.138	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #077A - OH - OH-SVY

Offset Site Error: 0.00 usft

Survey Program: 100-Standard Keeper 104 **Offset Well Error:** 3.28 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,200.00	7,364.00	7,272.04	7,271.72	117.16	7.13	85.06	-1,087.58	3,151.18	4,060.12	4,018.93	41.19	98.563	
14,300.00	7,364.00	7,271.40	7,271.08	118.72	7.13	84.95	-1,087.57	3,151.18	4,159.73	4,118.54	41.19	100.980	
14,400.00	7,364.00	7,270.76	7,270.44	120.28	7.13	84.85	-1,087.57	3,151.19	4,259.36	4,218.16	41.20	103.388	
14,500.00	7,364.00	7,270.12	7,269.80	121.84	7.13	84.75	-1,087.56	3,151.19	4,359.00	4,317.80	41.21	105.788	
14,600.00	7,364.00	7,269.48	7,269.16	123.40	7.13	84.65	-1,087.56	3,151.20	4,458.66	4,417.45	41.22	108.179	
14,700.00	7,364.00	7,268.85	7,268.53	124.96	7.13	84.55	-1,087.55	3,151.20	4,558.34	4,517.11	41.23	110.562	
14,800.00	7,364.00	7,268.22	7,267.90	126.52	7.13	84.45	-1,087.55	3,151.20	4,658.03	4,616.78	41.24	112.936	
14,900.00	7,364.00	7,267.59	7,267.27	128.08	7.13	84.36	-1,087.54	3,151.21	4,757.73	4,716.46	41.26	115.301	
15,000.00	7,364.00	7,266.97	7,266.65	129.64	7.13	84.26	-1,087.54	3,151.21	4,857.44	4,816.16	41.28	117.657	
15,100.00	7,364.00	7,266.34	7,266.02	131.21	7.13	84.16	-1,087.53	3,151.22	4,957.17	4,915.86	41.31	120.004	
15,200.00	7,364.00	7,265.72	7,265.40	132.77	7.13	84.06	-1,087.53	3,151.22	5,056.90	5,015.57	41.33	122.342	
15,300.00	7,364.00	7,265.11	7,264.79	134.34	7.13	83.97	-1,087.52	3,151.23	5,156.65	5,115.29	41.36	124.671	
15,400.00	7,364.00	7,264.49	7,264.17	135.91	7.13	83.87	-1,087.52	3,151.23	5,256.40	5,215.01	41.39	126.991	
15,500.00	7,364.00	7,263.88	7,263.56	137.48	7.13	83.77	-1,087.51	3,151.23	5,356.17	5,314.75	41.42	129.301	
15,600.00	7,364.00	7,263.27	7,262.95	139.04	7.13	83.68	-1,087.51	3,151.24	5,455.94	5,414.49	41.46	131.602	
15,700.00	7,364.00	7,262.66	7,262.34	140.61	7.12	83.58	-1,087.50	3,151.24	5,555.72	5,514.23	41.49	133.894	
15,800.00	7,364.00	7,262.06	7,261.74	142.18	7.12	83.49	-1,087.50	3,151.25	5,655.51	5,613.98	41.53	136.176	
15,900.00	7,364.00	7,261.45	7,261.14	143.75	7.12	83.39	-1,087.50	3,151.25	5,755.31	5,713.74	41.57	138.449	
16,000.00	7,364.00	7,260.85	7,260.54	145.33	7.12	83.30	-1,087.49	3,151.26	5,855.11	5,813.50	41.61	140.712	
16,100.00	7,364.00	7,260.26	7,259.94	146.90	7.12	83.21	-1,087.49	3,151.26	5,954.92	5,913.27	41.65	142.965	
16,200.00	7,364.00	7,259.66	7,259.34	148.47	7.12	83.11	-1,087.48	3,151.26	6,054.74	6,013.04	41.70	145.209	
16,300.00	7,364.00	7,259.07	7,258.75	150.04	7.12	83.02	-1,087.48	3,151.27	6,154.56	6,112.82	41.74	147.443	
16,400.00	7,364.00	7,258.48	7,258.16	151.62	7.12	82.93	-1,087.47	3,151.27	6,254.39	6,212.60	41.79	149.667	
16,500.00	7,364.00	7,257.89	7,257.57	153.19	7.12	82.84	-1,087.47	3,151.28	6,354.22	6,312.38	41.84	151.881	
16,600.00	7,364.00	7,257.31	7,256.99	154.77	7.12	82.75	-1,087.46	3,151.28	6,454.06	6,412.17	41.89	154.085	
16,700.00	7,364.00	7,256.72	7,256.40	156.34	7.12	82.65	-1,087.46	3,151.28	6,553.90	6,511.97	41.94	156.280	
16,800.00	7,364.00	7,256.14	7,255.82	157.92	7.12	82.56	-1,087.45	3,151.29	6,653.75	6,611.76	41.99	158.464	
16,900.00	7,364.00	7,255.56	7,255.24	159.49	7.12	82.47	-1,087.45	3,151.29	6,753.60	6,711.56	42.04	160.639	
17,000.00	7,364.00	7,254.99	7,254.67	161.07	7.12	82.38	-1,087.45	3,151.30	6,853.46	6,811.36	42.10	162.804	
17,100.00	7,364.00	7,254.41	7,254.09	162.65	7.12	82.29	-1,087.44	3,151.30	6,953.32	6,911.17	42.15	164.958	
17,200.00	7,364.00	7,253.84	7,253.52	164.23	7.12	82.21	-1,087.44	3,151.30	7,053.18	7,010.97	42.21	167.103	
17,300.00	7,364.00	7,253.27	7,252.95	165.81	7.12	82.12	-1,087.43	3,151.31	7,153.05	7,110.78	42.27	169.237	
17,400.00	7,364.00	7,252.70	7,252.39	167.38	7.11	82.03	-1,087.43	3,151.31	7,252.92	7,210.60	42.33	171.361	
17,500.00	7,364.00	7,252.14	7,251.82	168.96	7.11	81.94	-1,087.42	3,151.31	7,352.80	7,310.41	42.39	173.475	
17,600.00	7,364.00	7,251.58	7,251.26	170.54	7.11	81.85	-1,087.42	3,151.32	7,452.68	7,410.23	42.45	175.579	
17,700.00	7,364.00	7,251.02	7,250.70	172.12	7.11	81.77	-1,087.41	3,151.32	7,552.56	7,510.05	42.51	177.673	
17,800.00	7,364.00	7,250.46	7,250.14	173.70	7.11	81.68	-1,087.41	3,151.33	7,652.44	7,609.87	42.57	179.757	
17,900.00	7,364.00	7,249.90	7,249.58	175.28	7.11	81.59	-1,087.41	3,151.33	7,752.33	7,709.69	42.63	181.830	
18,000.00	7,364.00	7,249.35	7,249.03	176.87	7.11	81.51	-1,087.40	3,151.33	7,852.22	7,809.52	42.70	183.894	
18,100.00	7,364.00	7,248.80	7,248.48	178.45	7.11	81.42	-1,087.40	3,151.34	7,952.11	7,909.35	42.77	185.947	
18,200.00	7,364.00	7,248.25	7,247.93	180.03	7.11	81.34	-1,087.39	3,151.34	8,052.01	8,009.18	42.83	187.989	
18,300.00	7,364.00	7,247.70	7,247.38	181.61	7.11	81.25	-1,087.39	3,151.34	8,151.91	8,109.01	42.90	190.022	
18,400.00	7,364.00	7,247.15	7,246.84	183.19	7.11	81.17	-1,087.38	3,151.35	8,251.81	8,208.84	42.97	192.044	
18,500.00	7,364.00	7,246.61	7,246.29	184.78	7.11	81.08	-1,087.38	3,151.35	8,351.71	8,308.67	43.04	194.057	
18,600.00	7,364.00	7,246.07	7,245.75	186.36	7.11	81.00	-1,087.38	3,151.35	8,451.62	8,408.51	43.11	196.059	
18,700.00	7,364.00	7,245.53	7,245.21	187.94	7.11	80.91	-1,087.37	3,151.36	8,551.52	8,508.34	43.18	198.050	
18,800.00	7,364.00	7,244.99	7,244.68	189.53	7.11	80.83	-1,087.37	3,151.36	8,651.43	8,608.18	43.25	200.032	
18,900.00	7,364.00	7,244.46	7,244.14	191.11	7.11	80.75	-1,087.36	3,151.36	8,751.34	8,708.02	43.32	202.003	
19,000.00	7,364.00	7,243.93	7,243.61	192.70	7.11	80.67	-1,087.36	3,151.37	8,851.26	8,807.86	43.40	203.964	
19,100.00	7,364.00	7,243.40	7,243.08	194.28	7.11	80.58	-1,087.36	3,151.37	8,951.17	8,907.70	43.47	205.915	
19,200.00	7,364.00	7,242.87	7,242.55	195.87	7.10	80.50	-1,087.35	3,151.37	9,051.09	9,007.54	43.55	207.856	
19,300.00	7,364.00	7,242.34	7,242.02	197.45	7.10	80.42	-1,087.35	3,151.38	9,151.01	9,107.39	43.62	209.786	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #077A - OH - OH-SVY

Offset Site Error: 0.00 usft

Survey Program: 100-Standard Keeper 104 **Offset Well Error:** 3.28 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
19,400.00	7,364.00	7,241.82	7,241.50	199.04	7.10	80.34	-1,087.34	3,151.38	9,250.93	9,207.23	43.70	211.706	
19,500.00	7,364.00	7,241.29	7,240.97	200.62	7.10	80.26	-1,087.34	3,151.38	9,350.85	9,307.08	43.77	213.616	
19,600.00	7,364.00	7,240.77	7,240.45	202.21	7.10	80.18	-1,087.34	3,151.39	9,450.78	9,406.92	43.85	215.516	
19,700.00	7,364.00	7,240.25	7,239.94	203.79	7.10	80.10	-1,087.33	3,151.39	9,550.70	9,506.77	43.93	217.406	
19,800.00	7,364.00	7,239.74	7,239.42	205.38	7.10	80.02	-1,087.33	3,151.39	9,650.63	9,606.62	44.01	219.286	
19,900.00	7,364.00	7,239.22	7,238.90	206.97	7.10	79.94	-1,087.32	3,151.40	9,750.56	9,706.47	44.09	221.155	
20,000.00	7,364.00	7,238.71	7,238.39	208.55	7.10	79.86	-1,087.32	3,151.40	9,850.49	9,806.32	44.17	223.014	
20,100.00	7,364.00	7,238.20	7,237.88	210.14	7.10	79.78	-1,087.32	3,151.40	9,950.42	9,906.17	44.25	224.864	
20,200.00	7,364.00	7,237.69	7,237.37	211.73	7.10	79.70	-1,087.31	3,151.41	10,050.35	10,006.02	44.33	226.703	
20,300.00	7,364.00	7,237.18	7,236.86	213.32	7.10	79.63	-1,087.31	3,151.41	10,150.28	10,105.87	44.42	228.532	
20,400.00	7,364.00	7,236.68	7,236.36	214.90	7.10	79.55	-1,087.30	3,151.41	10,250.22	10,205.72	44.50	230.351	
20,500.00	7,364.00	7,236.17	7,235.85	216.49	7.10	79.47	-1,087.30	3,151.42	10,350.16	10,305.57	44.58	232.161	
20,600.00	7,364.00	7,235.67	7,235.35	218.08	7.10	79.39	-1,087.30	3,151.42	10,450.09	10,405.43	44.67	233.960	
20,700.00	7,364.00	7,235.17	7,234.85	219.67	7.10	79.32	-1,087.29	3,151.42	10,550.03	10,505.28	44.75	235.749	
20,800.00	7,364.00	7,234.67	7,234.36	221.26	7.10	79.24	-1,087.29	3,151.43	10,649.97	10,605.13	44.84	237.528	
20,900.00	7,364.00	7,234.18	7,233.86	222.84	7.10	79.17	-1,087.28	3,151.43	10,749.91	10,704.99	44.92	239.298	
21,000.00	7,364.00	7,233.68	7,233.37	224.43	7.10	79.09	-1,087.28	3,151.43	10,849.85	10,804.84	45.01	241.057	
21,100.00	7,364.00	7,233.19	7,232.87	226.02	7.09	79.01	-1,087.28	3,151.44	10,949.80	10,904.70	45.10	242.807	
21,200.00	7,364.00	7,232.70	7,232.38	227.61	7.09	78.94	-1,087.27	3,151.44	11,049.74	11,004.56	45.18	244.547	
21,300.00	7,364.00	7,232.21	7,231.89	229.20	7.09	78.86	-1,087.27	3,151.44	11,149.69	11,104.41	45.27	246.277	
21,400.00	7,364.00	7,231.72	7,231.41	230.79	7.09	78.79	-1,087.26	3,151.44	11,249.63	11,204.27	45.36	247.998	
21,500.00	7,364.00	7,231.24	7,230.92	232.38	7.09	78.72	-1,087.26	3,151.45	11,349.58	11,304.13	45.45	249.708	
21,600.00	7,364.00	7,230.76	7,230.44	233.97	7.09	78.64	-1,087.26	3,151.45	11,449.53	11,403.99	45.54	251.409	
21,700.00	7,364.00	7,230.27	7,229.96	235.56	7.09	78.57	-1,087.25	3,151.45	11,549.48	11,503.84	45.63	253.100	
21,800.00	7,364.00	7,229.79	7,229.48	237.15	7.09	78.50	-1,087.25	3,151.46	11,649.42	11,603.70	45.72	254.782	
21,864.93	7,364.00	7,229.48	7,229.17	238.18	7.09	78.45	-1,087.25	3,151.46	11,714.32	11,668.54	45.78	255.869	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #077B - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 295-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Rule Assigned: Warning
0.00	0.00	0.00	0.00	3.28	0.00	137.95	-1,745.88	1,574.76	2,351.98				
100.00	100.00	38.00	38.00	3.29	0.34	137.95	-1,745.88	1,574.76	2,351.16	2,347.53	3.63	648.348	
200.00	200.00	138.00	138.00	3.34	1.22	137.95	-1,745.88	1,574.76	2,351.16	2,346.60	4.56	515.751	
300.00	300.00	238.00	238.00	3.42	2.11	137.95	-1,745.88	1,574.76	2,351.16	2,345.63	5.53	425.304	
400.00	400.00	338.00	338.00	3.54	3.41	137.95	-1,745.88	1,574.76	2,351.16	2,344.22	6.94	338.597	
500.00	500.00	438.00	438.00	3.69	5.25	137.95	-1,745.88	1,574.76	2,351.16	2,342.22	8.94	263.101	
600.00	599.98	537.98	537.98	3.86	7.09	-12.07	-1,745.88	1,574.76	2,349.45	2,338.50	10.95	214.602	
700.00	699.84	636.45	636.45	4.04	8.91	-12.12	-1,745.64	1,574.76	2,344.16	2,331.21	12.95	181.014	
808.00	807.41	742.43	742.42	4.27	10.86	-12.20	-1,745.77	1,574.76	2,334.91	2,319.78	15.13	154.305	
900.00	898.89	836.91	836.89	4.49	12.62	-29.62	-1,745.88	1,574.76	2,325.88	2,308.78	17.11	135.963	
912.12	910.94	848.96	848.94	4.52	12.85	-31.88	-1,745.88	1,574.76	2,324.77	2,307.40	17.36	133.889	
1,000.00	998.31	936.33	936.31	4.74	14.51	-32.01	-1,745.88	1,574.76	2,316.75	2,297.52	19.24	120.433	
1,100.00	1,097.73	1,035.75	1,035.73	5.01	16.40	-32.15	-1,745.88	1,574.76	2,307.64	2,286.26	21.38	107.917	
1,200.00	1,197.15	1,130.98	1,130.95	5.29	18.20	-32.29	-1,745.20	1,574.76	2,298.05	2,274.59	23.46	97.938	
1,300.00	1,296.58	1,226.15	1,226.11	5.59	20.01	-32.42	-1,745.55	1,574.76	2,289.24	2,263.69	25.56	89.580	
1,400.00	1,396.00	1,334.05	1,334.00	5.90	22.06	-32.58	-1,745.88	1,574.76	2,280.40	2,252.50	27.90	81.735	
1,500.00	1,495.42	1,433.47	1,433.42	6.22	23.95	-32.72	-1,745.88	1,574.76	2,271.35	2,241.25	30.09	75.476	
1,600.00	1,594.84	1,532.86	1,532.80	6.54	25.84	-32.88	-1,745.33	1,574.76	2,261.91	2,229.62	32.29	70.040	
1,700.00	1,694.27	1,629.51	1,629.46	6.87	27.68	-33.02	-1,745.42	1,574.76	2,252.96	2,218.51	34.45	65.398	
1,800.00	1,793.69	1,726.21	1,726.15	7.21	29.52	-33.16	-1,745.66	1,574.76	2,244.13	2,207.52	36.61	61.296	
1,900.00	1,893.11	1,831.19	1,831.11	7.55	31.54	-33.32	-1,745.88	1,574.76	2,235.29	2,196.32	38.96	57.368	
2,000.00	1,992.53	1,930.61	1,930.53	7.89	33.49	-33.47	-1,745.88	1,574.76	2,226.31	2,185.07	41.24	53.979	
2,100.00	2,091.96	2,030.04	2,029.96	8.24	35.44	-33.62	-1,745.88	1,574.76	2,217.35	2,173.82	43.53	50.940	
2,200.00	2,191.38	2,125.54	2,125.46	8.60	37.31	-33.78	-1,745.18	1,574.76	2,207.91	2,162.17	45.74	48.271	
2,300.00	2,290.80	2,221.07	2,220.98	8.95	39.19	-33.92	-1,745.53	1,574.76	2,199.24	2,151.29	47.95	45.861	
2,400.00	2,390.22	2,328.35	2,328.22	9.31	41.29	-34.09	-1,745.88	1,574.76	2,190.56	2,140.16	50.40	43.462	
2,500.00	2,489.65	2,427.77	2,427.65	9.67	43.24	-34.24	-1,745.88	1,574.76	2,181.67	2,128.96	52.70	41.397	
2,600.00	2,589.07	2,527.19	2,527.07	10.03	45.20	-34.40	-1,745.88	1,574.76	2,172.79	2,117.78	55.00	39.504	
2,700.00	2,688.49	2,622.91	2,622.78	10.40	47.08	-34.57	-1,745.17	1,574.76	2,163.43	2,106.19	57.23	37.800	
2,800.00	2,787.91	2,718.55	2,718.42	10.76	48.95	-34.72	-1,745.52	1,574.76	2,154.84	2,095.37	59.46	36.237	
2,900.00	2,887.33	2,825.50	2,825.33	11.13	51.08	-34.89	-1,745.88	1,574.76	2,146.25	2,084.30	61.95	34.647	
3,000.00	2,986.76	2,924.92	2,924.76	11.50	53.10	-35.05	-1,745.88	1,574.76	2,137.43	2,073.11	64.32	33.231	
3,100.00	3,086.18	3,024.35	3,024.18	11.87	55.12	-35.22	-1,745.88	1,574.76	2,128.64	2,061.95	66.69	31.917	
3,200.00	3,185.60	3,120.28	3,120.11	12.24	57.07	-35.39	-1,745.17	1,574.76	2,119.37	2,050.37	69.00	30.716	
3,300.00	3,285.02	3,216.06	3,215.88	12.61	59.01	-35.55	-1,745.51	1,574.76	2,110.86	2,039.56	71.30	29.604	
3,400.00	3,384.45	3,322.67	3,322.45	12.98	61.21	-35.72	-1,745.88	1,574.76	2,102.37	2,028.51	73.86	28.465	
3,500.00	3,483.87	3,422.09	3,421.87	13.36	63.30	-35.89	-1,745.88	1,574.76	2,093.64	2,017.33	76.32	27.434	
3,600.00	3,583.29	3,521.52	3,521.29	13.73	65.40	-36.06	-1,745.88	1,574.76	2,084.94	2,006.17	78.77	26.468	
3,700.00	3,682.71	3,620.94	3,620.71	14.11	67.50	-36.24	-1,745.88	1,574.76	2,076.26	1,995.03	81.23	25.560	
3,800.00	3,782.14	3,720.36	3,720.14	14.48	69.59	-36.41	-1,745.88	1,574.76	2,067.59	1,983.90	83.69	24.705	
3,900.00	3,881.56	3,819.78	3,819.56	14.86	71.69	-36.59	-1,745.88	1,574.76	2,058.95	1,972.80	86.15	23.899	
4,000.00	3,980.98	3,919.21	3,918.98	15.24	73.79	-36.77	-1,745.88	1,574.76	2,050.32	1,961.71	88.61	23.138	
4,100.00	4,080.40	4,018.63	4,018.40	15.61	75.88	-36.95	-1,745.88	1,574.76	2,041.72	1,950.64	91.07	22.418	
4,200.00	4,179.83	4,118.05	4,117.83	15.99	77.98	-37.13	-1,745.88	1,574.76	2,033.13	1,939.60	93.54	21.736	
4,300.00	4,279.25	4,216.58	4,216.32	16.37	80.06	-37.39	-1,742.10	1,574.76	2,022.03	1,926.04	95.98	21.067	
4,400.00	4,378.67	4,314.69	4,314.43	16.75	82.12	-37.57	-1,742.21	1,574.76	2,013.57	1,915.15	98.42	20.459	
4,500.00	4,478.09	4,412.83	4,412.56	17.13	84.19	-37.75	-1,742.42	1,574.76	2,005.20	1,904.34	100.86	19.882	
4,600.00	4,577.51	4,511.00	4,510.72	17.51	86.26	-37.93	-1,742.73	1,574.76	1,996.91	1,893.62	103.30	19.332	
4,700.00	4,676.94	4,609.18	4,608.90	17.89	88.33	-38.11	-1,743.13	1,574.76	1,988.71	1,882.97	105.74	18.808	
4,800.00	4,776.36	4,707.39	4,707.10	18.27	90.40	-38.29	-1,743.63	1,574.76	1,980.59	1,872.42	108.18	18.309	
4,900.00	4,875.78	4,805.62	4,805.32	18.65	92.48	-38.46	-1,744.23	1,574.76	1,972.56	1,861.94	110.62	17.832	
5,000.00	4,975.20	4,903.87	4,903.57	19.03	94.55	-38.64	-1,744.92	1,574.76	1,964.61	1,851.55	113.06	17.377	

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 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #077B - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 295-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,100.00	5,074.63	5,002.14	5,001.83	19.41	96.62	-38.82	-1,745.72	1,574.76	1,956.75	1,841.24	115.50	16.941	
5,200.00	5,174.05	5,112.54	5,112.05	19.79	98.96	-39.03	-1,745.88	1,574.76	1,948.45	1,830.25	118.21	16.483	
5,300.00	5,273.47	5,211.96	5,211.47	20.17	101.06	-39.23	-1,745.88	1,574.76	1,940.11	1,819.42	120.68	16.076	
5,400.00	5,372.89	5,311.38	5,310.89	20.56	103.17	-39.43	-1,745.88	1,574.76	1,931.79	1,808.63	123.16	15.685	
5,500.00	5,472.32	5,410.81	5,410.32	20.94	105.27	-39.63	-1,745.88	1,574.76	1,923.49	1,797.85	125.64	15.309	
5,600.00	5,571.74	5,510.23	5,509.74	21.32	107.38	-39.84	-1,745.88	1,574.76	1,915.22	1,787.10	128.12	14.948	
5,700.00	5,671.16	5,609.65	5,609.16	21.70	109.49	-40.05	-1,745.88	1,574.76	1,906.97	1,776.37	130.60	14.601	
5,800.00	5,770.58	5,709.07	5,708.58	22.08	111.59	-40.25	-1,745.88	1,574.76	1,898.75	1,765.67	133.08	14.268	
5,900.00	5,870.01	5,808.50	5,808.01	22.47	113.70	-40.46	-1,745.88	1,574.76	1,890.55	1,754.99	135.56	13.946	
6,000.00	5,969.43	5,907.92	5,907.43	22.85	115.81	-40.67	-1,745.88	1,574.76	1,882.38	1,744.33	138.04	13.636	
6,100.00	6,068.85	6,007.34	6,006.85	23.23	117.91	-40.89	-1,745.88	1,574.76	1,874.23	1,733.70	140.52	13.337	
6,200.00	6,168.27	6,106.76	6,106.27	23.62	120.02	-41.10	-1,745.88	1,574.76	1,866.11	1,723.10	143.01	13.049	
6,300.00	6,267.70	6,206.19	6,205.70	24.00	122.13	-41.32	-1,745.88	1,574.76	1,858.01	1,712.53	145.49	12.771	
6,400.00	6,367.12	6,219.00	6,218.33	24.38	122.40	-41.35	-1,745.88	1,574.76	1,851.98	1,705.93	146.05	12.681	
6,462.71	6,429.46	6,219.00	6,218.33	24.62	122.40	-41.35	-1,745.88	1,574.76	1,850.92	1,704.89	146.03	12.675 SF	
6,500.00	6,466.54	6,219.00	6,218.33	24.77	122.40	-41.35	-1,745.88	1,574.76	1,851.29	1,705.35	145.95	12.685	
6,600.00	6,565.96	6,219.00	6,218.33	25.15	122.40	-41.35	-1,745.88	1,574.76	1,856.00	1,710.56	145.45	12.761	
6,700.00	6,665.38	6,219.00	6,218.33	25.53	122.40	-41.35	-1,745.88	1,574.76	1,866.07	1,721.51	144.55	12.909	
6,778.75	6,743.68	6,219.00	6,218.33	25.84	122.40	-41.35	-1,745.88	1,574.76	1,877.71	1,734.11	143.59	13.077	
6,800.00	6,764.80	6,219.00	6,218.33	25.92	122.40	-25.52	-1,745.88	1,574.76	1,881.12	1,737.83	143.29	13.128	
6,850.00	6,814.29	6,219.00	6,218.33	26.11	122.40	-1.51	-1,745.88	1,574.76	1,887.90	1,745.38	142.52	13.247	
6,900.00	6,863.27	6,219.00	6,218.33	26.30	122.40	10.17	-1,745.88	1,574.76	1,892.88	1,751.24	141.64	13.364	
6,950.00	6,911.44	6,219.00	6,218.33	26.50	122.40	16.49	-1,745.88	1,574.76	1,896.05	1,755.39	140.66	13.479	
7,000.00	6,958.49	6,219.00	6,218.33	26.68	122.40	20.38	-1,745.88	1,574.76	1,897.40	1,757.80	139.59	13.592	
7,050.00	7,004.14	6,219.00	6,218.33	26.87	122.40	23.04	-1,745.88	1,574.76	1,896.92	1,758.48	138.44	13.702	
7,100.00	7,048.10	6,219.00	6,218.33	27.05	122.40	25.02	-1,745.88	1,574.76	1,894.62	1,757.42	137.20	13.809	
7,150.00	7,090.11	6,219.00	6,218.33	27.23	122.40	26.61	-1,745.88	1,574.76	1,890.50	1,754.61	135.89	13.912	
7,200.00	7,129.90	6,219.00	6,218.33	27.41	122.40	27.97	-1,745.88	1,574.76	1,884.58	1,750.06	134.52	14.009	
7,250.00	7,167.24	6,219.00	6,218.33	27.59	122.40	29.20	-1,745.88	1,574.76	1,876.87	1,743.77	133.10	14.101	
7,300.00	7,201.88	6,219.00	6,218.33	27.76	122.40	30.37	-1,745.88	1,574.76	1,867.41	1,735.77	131.65	14.185	
7,350.00	7,233.63	6,219.00	6,218.33	27.94	122.40	31.52	-1,745.88	1,574.76	1,856.22	1,726.06	130.17	14.260	
7,400.00	7,262.27	6,219.00	6,218.33	28.13	122.40	32.69	-1,745.88	1,574.76	1,843.35	1,714.67	128.68	14.325	
7,450.00	7,287.63	6,219.00	6,218.33	28.32	122.40	33.90	-1,745.88	1,574.76	1,828.83	1,701.62	127.21	14.376	
7,500.00	7,309.57	6,219.00	6,218.33	28.53	122.40	35.17	-1,745.88	1,574.76	1,812.72	1,686.95	125.77	14.413	
7,550.00	7,327.93	6,219.00	6,218.33	28.74	122.40	36.52	-1,745.88	1,574.76	1,795.08	1,670.70	124.38	14.433	
7,600.00	7,342.62	6,219.00	6,218.33	28.97	122.40	37.95	-1,745.88	1,574.76	1,775.97	1,652.91	123.06	14.432	
7,650.00	7,353.53	6,219.00	6,218.33	29.22	122.40	39.49	-1,745.88	1,574.76	1,755.46	1,633.62	121.84	14.408	
7,700.00	7,360.61	6,219.00	6,218.33	29.48	122.40	41.14	-1,745.88	1,574.76	1,733.63	1,612.90	120.73	14.359	
7,750.00	7,363.80	6,219.00	6,218.33	29.75	122.40	42.91	-1,745.88	1,574.76	1,710.58	1,590.81	119.77	14.282	
7,765.93	7,364.00	6,219.00	6,218.33	29.84	122.40	43.50	-1,745.88	1,574.76	1,702.99	1,583.49	119.50	14.251	
7,800.00	7,364.00	6,219.00	6,218.33	30.04	122.40	43.50	-1,745.88	1,574.76	1,686.90	1,567.96	118.94	14.183	
7,900.00	7,364.00	6,219.00	6,218.33	30.67	122.40	43.50	-1,745.88	1,574.76	1,642.85	1,525.47	117.38	13.996	
8,000.00	7,364.00	6,219.00	6,218.33	31.37	122.40	43.50	-1,745.88	1,574.76	1,603.84	1,487.84	116.00	13.826	
8,100.00	7,364.00	6,219.00	6,218.33	32.14	122.40	43.50	-1,745.88	1,574.76	1,570.24	1,455.36	114.87	13.669	
8,200.00	7,364.00	6,219.00	6,218.33	32.96	122.40	43.50	-1,745.88	1,574.76	1,542.39	1,428.33	114.06	13.523	
8,300.00	7,364.00	6,219.00	6,218.33	33.85	122.40	43.50	-1,745.88	1,574.76	1,520.63	1,407.01	113.62	13.384	
8,400.00	7,364.00	6,219.00	6,218.33	34.79	122.40	43.50	-1,745.88	1,574.76	1,505.21	1,391.61	113.60	13.250	
8,500.00	7,364.00	6,219.00	6,218.33	35.77	122.40	43.50	-1,745.88	1,574.76	1,496.32	1,382.29	114.03	13.122	
8,583.32	7,364.00	6,219.00	6,218.33	36.63	122.40	43.50	-1,745.88	1,574.76	1,494.00	1,379.26	114.74	13.021 CC	
8,600.00	7,364.00	6,219.00	6,218.33	36.80	122.40	43.50	-1,745.88	1,574.76	1,494.09	1,379.18	114.92	13.001 ES	
8,700.00	7,364.00	6,219.00	6,218.33	37.87	122.40	43.50	-1,745.88	1,574.76	1,498.55	1,382.31	116.24	12.892	
8,800.00	7,364.00	6,219.00	6,218.33	38.98	122.40	43.50	-1,745.88	1,574.76	1,509.63	1,391.69	117.95	12.799	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #077B - OH - OH — **Offset Site Error:** 0.00 usft

Survey Program: 295-A027Ua_INC-ONLY — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
8,900.00	7,364.00	6,219.00	6,218.33	40.12	122.40	43.50	-1,745.88	1,574.76	1,527.20	1,407.23	119.97	12.730	
9,000.00	7,364.00	6,219.00	6,218.33	41.29	122.40	43.50	-1,745.88	1,574.76	1,551.02	1,428.79	122.23	12.689	
9,100.00	7,364.00	6,219.00	6,218.33	42.49	122.40	43.50	-1,745.88	1,574.76	1,580.82	1,456.18	124.64	12.683	
9,200.00	7,364.00	6,219.00	6,218.33	43.71	122.40	43.50	-1,745.88	1,574.76	1,616.27	1,489.14	127.13	12.714	
9,300.00	7,364.00	6,219.00	6,218.33	44.96	122.40	43.50	-1,745.88	1,574.76	1,657.01	1,527.39	129.62	12.784	
9,400.00	7,364.00	6,219.00	6,218.33	46.23	122.40	43.50	-1,745.88	1,574.76	1,702.65	1,570.60	132.05	12.894	
9,500.00	7,364.00	6,219.00	6,218.33	47.52	122.40	43.50	-1,745.88	1,574.76	1,752.81	1,618.42	134.39	13.043	
9,600.00	7,364.00	6,219.00	6,218.33	48.83	122.40	43.50	-1,745.88	1,574.76	1,807.12	1,670.51	136.60	13.229	
9,700.00	7,364.00	6,219.00	6,218.33	50.15	122.40	43.50	-1,745.88	1,574.76	1,865.21	1,726.53	138.68	13.450	
9,800.00	7,364.00	6,219.00	6,218.33	51.49	122.40	43.50	-1,745.88	1,574.76	1,926.75	1,786.14	140.60	13.704	
9,900.00	7,364.00	6,219.00	6,218.33	52.85	122.40	43.50	-1,745.88	1,574.76	1,991.40	1,849.03	142.38	13.987	
10,000.00	7,364.00	6,219.00	6,218.33	54.22	122.40	43.50	-1,745.88	1,574.76	2,058.89	1,914.89	144.00	14.298	
10,100.00	7,364.00	6,219.00	6,218.33	55.60	122.40	43.50	-1,745.88	1,574.76	2,128.93	1,983.45	145.48	14.634	
10,200.00	7,364.00	6,219.00	6,218.33	56.99	122.40	43.50	-1,745.88	1,574.76	2,201.29	2,054.46	146.83	14.992	
10,300.00	7,364.00	6,219.00	6,218.33	58.40	122.40	43.50	-1,745.88	1,574.76	2,275.75	2,127.69	148.06	15.371	
10,400.00	7,364.00	6,219.00	6,218.33	59.81	122.40	43.50	-1,745.88	1,574.76	2,352.10	2,202.93	149.17	15.768	
10,500.00	7,364.00	6,219.00	6,218.33	61.23	122.40	43.50	-1,745.88	1,574.76	2,430.17	2,279.99	150.18	16.182	
10,600.00	7,364.00	6,219.00	6,218.33	62.66	122.40	43.50	-1,745.88	1,574.76	2,509.79	2,358.70	151.09	16.611	
10,700.00	7,364.00	6,219.00	6,218.33	64.10	122.40	43.50	-1,745.88	1,574.76	2,590.83	2,438.90	151.92	17.053	
10,800.00	7,364.00	6,219.00	6,218.33	65.55	122.40	43.50	-1,745.88	1,574.76	2,673.15	2,520.47	152.68	17.508	
10,900.00	7,364.00	6,219.00	6,218.33	67.01	122.40	43.50	-1,745.88	1,574.76	2,756.64	2,603.27	153.36	17.975	
11,000.00	7,364.00	6,219.00	6,218.33	68.47	122.40	43.50	-1,745.88	1,574.76	2,841.19	2,687.21	153.99	18.451	
11,100.00	7,364.00	6,219.00	6,218.33	69.93	122.40	43.50	-1,745.88	1,574.76	2,926.73	2,772.17	154.56	18.936	
11,200.00	7,364.00	6,219.00	6,218.33	71.41	122.40	43.50	-1,745.88	1,574.76	3,013.15	2,858.07	155.07	19.430	
11,300.00	7,364.00	6,219.00	6,218.33	72.88	122.40	43.50	-1,745.88	1,574.76	3,100.39	2,944.84	155.55	19.932	
11,400.00	7,364.00	6,219.00	6,218.33	74.37	122.40	43.50	-1,745.88	1,574.76	3,188.37	3,032.39	155.98	20.440	
11,500.00	7,364.00	6,219.00	6,218.33	75.85	122.40	43.50	-1,745.88	1,574.76	3,277.05	3,120.67	156.38	20.955	
11,600.00	7,364.00	6,219.00	6,218.33	77.35	122.40	43.50	-1,745.88	1,574.76	3,366.36	3,209.61	156.75	21.476	
11,700.00	7,364.00	6,219.00	6,218.33	78.84	122.40	43.50	-1,745.88	1,574.76	3,456.26	3,299.17	157.09	22.002	
11,800.00	7,364.00	6,219.00	6,218.33	80.34	122.40	43.50	-1,745.88	1,574.76	3,546.70	3,389.30	157.40	22.533	
11,900.00	7,364.00	6,219.00	6,218.33	81.85	122.40	43.50	-1,745.88	1,574.76	3,637.64	3,479.95	157.69	23.069	
12,000.00	7,364.00	6,219.00	6,218.33	83.36	122.40	43.50	-1,745.88	1,574.76	3,729.04	3,571.09	157.95	23.608	
12,100.00	7,364.00	6,219.00	6,218.33	84.87	122.40	43.50	-1,745.88	1,574.76	3,820.87	3,662.67	158.20	24.152	
12,200.00	7,364.00	6,219.00	6,218.33	86.38	122.40	43.50	-1,745.88	1,574.76	3,913.11	3,754.67	158.43	24.699	
12,300.00	7,364.00	6,219.00	6,218.33	87.90	122.40	43.50	-1,745.88	1,574.76	4,005.71	3,847.07	158.65	25.249	
12,400.00	7,364.00	6,219.00	6,218.33	89.42	122.40	43.50	-1,745.88	1,574.76	4,098.67	3,939.82	158.85	25.802	
12,500.00	7,364.00	6,219.00	6,218.33	90.95	122.40	43.50	-1,745.88	1,574.76	4,191.95	4,032.91	159.04	26.358	
12,600.00	7,364.00	6,219.00	6,218.33	92.47	122.40	43.50	-1,745.88	1,574.76	4,285.53	4,126.31	159.22	26.916	
12,700.00	7,364.00	6,219.00	6,218.33	94.00	122.40	43.50	-1,745.88	1,574.76	4,379.39	4,220.01	159.38	27.477	
12,800.00	7,364.00	6,219.00	6,218.33	95.53	122.40	43.50	-1,745.88	1,574.76	4,473.53	4,313.98	159.54	28.040	
12,900.00	7,364.00	6,219.00	6,218.33	97.06	122.40	43.50	-1,745.88	1,574.76	4,567.91	4,408.22	159.69	28.605	
13,000.00	7,364.00	6,219.00	6,218.33	98.60	122.40	43.50	-1,745.88	1,574.76	4,662.52	4,502.69	159.83	29.171	
13,100.00	7,364.00	6,219.00	6,218.33	100.14	122.40	43.50	-1,745.88	1,574.76	4,757.36	4,597.39	159.97	29.740	
13,200.00	7,364.00	6,219.00	6,218.33	101.68	122.40	43.50	-1,745.88	1,574.76	4,852.40	4,692.30	160.09	30.310	
13,300.00	7,364.00	6,219.00	6,218.33	103.22	122.40	43.50	-1,745.88	1,574.76	4,947.64	4,787.42	160.22	30.881	
13,400.00	7,364.00	6,219.00	6,218.33	104.76	122.40	43.50	-1,745.88	1,574.76	5,043.06	4,882.73	160.33	31.454	
13,500.00	7,364.00	6,219.00	6,218.33	106.31	122.40	43.50	-1,745.88	1,574.76	5,138.66	4,978.21	160.44	32.028	
13,600.00	7,364.00	6,219.00	6,218.33	107.85	122.40	43.50	-1,745.88	1,574.76	5,234.42	5,073.87	160.55	32.603	
13,700.00	7,364.00	6,219.00	6,218.33	109.40	122.40	43.50	-1,745.88	1,574.76	5,330.33	5,169.68	160.65	33.179	
13,800.00	7,364.00	6,219.00	6,218.33	110.95	122.40	43.50	-1,745.88	1,574.76	5,426.40	5,265.64	160.75	33.756	
13,900.00	7,364.00	6,219.00	6,218.33	112.50	122.40	43.50	-1,745.88	1,574.76	5,522.60	5,361.75	160.85	34.334	
14,000.00	7,364.00	6,219.00	6,218.33	114.05	122.40	43.50	-1,745.88	1,574.76	5,618.94	5,457.99	160.94	34.913	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #077B - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 295-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,100.00	7,364.00	6,219.00	6,218.33	115.61	122.40	43.50	-1,745.88	1,574.76	5,715.40	5,554.37	161.03	35.492	
14,200.00	7,364.00	6,219.00	6,218.33	117.16	122.40	43.50	-1,745.88	1,574.76	5,811.98	5,650.86	161.12	36.072	
14,300.00	7,364.00	6,219.00	6,218.33	118.72	122.40	43.50	-1,745.88	1,574.76	5,908.68	5,747.47	161.21	36.653	
14,400.00	7,364.00	6,219.00	6,218.33	120.28	122.40	43.50	-1,745.88	1,574.76	6,005.48	5,844.19	161.29	37.234	
14,500.00	7,364.00	6,219.00	6,218.33	121.84	122.40	43.50	-1,745.88	1,574.76	6,102.39	5,941.02	161.37	37.816	
14,600.00	7,364.00	6,219.00	6,218.33	123.40	122.40	43.50	-1,745.88	1,574.76	6,199.39	6,037.94	161.45	38.398	
14,700.00	7,364.00	6,219.00	6,218.33	124.96	122.40	43.50	-1,745.88	1,574.76	6,296.49	6,134.96	161.53	38.981	
14,800.00	7,364.00	6,219.00	6,218.33	126.52	122.40	43.50	-1,745.88	1,574.76	6,393.68	6,232.07	161.61	39.563	
14,900.00	7,364.00	6,219.00	6,218.33	128.08	122.40	43.50	-1,745.88	1,574.76	6,490.95	6,329.27	161.68	40.147	
15,000.00	7,364.00	6,219.00	6,218.33	129.64	122.40	43.50	-1,745.88	1,574.76	6,588.31	6,426.55	161.76	40.730	
15,100.00	7,364.00	6,219.00	6,218.33	131.21	122.40	43.50	-1,745.88	1,574.76	6,685.74	6,523.91	161.83	41.314	
15,200.00	7,364.00	6,219.00	6,218.33	132.77	122.40	43.50	-1,745.88	1,574.76	6,783.25	6,621.35	161.90	41.897	
15,300.00	7,364.00	6,219.00	6,218.33	134.34	122.40	43.50	-1,745.88	1,574.76	6,880.83	6,718.86	161.97	42.481	
15,400.00	7,364.00	6,219.00	6,218.33	135.91	122.40	43.50	-1,745.88	1,574.76	6,978.48	6,816.44	162.04	43.065	
15,500.00	7,364.00	6,219.00	6,218.33	137.48	122.40	43.50	-1,745.88	1,574.76	7,076.19	6,914.08	162.11	43.650	
15,600.00	7,364.00	6,219.00	6,218.33	139.04	122.40	43.50	-1,745.88	1,574.76	7,173.97	7,011.79	162.18	44.234	
15,700.00	7,364.00	6,219.00	6,218.33	140.61	122.40	43.50	-1,745.88	1,574.76	7,271.81	7,109.56	162.25	44.818	
15,800.00	7,364.00	6,219.00	6,218.33	142.18	122.40	43.50	-1,745.88	1,574.76	7,369.70	7,207.38	162.32	45.402	
15,900.00	7,364.00	6,219.00	6,218.33	143.75	122.40	43.50	-1,745.88	1,574.76	7,467.65	7,305.27	162.39	45.986	
16,000.00	7,364.00	6,219.00	6,218.33	145.33	122.40	43.50	-1,745.88	1,574.76	7,565.66	7,403.20	162.46	46.570	
16,100.00	7,364.00	6,219.00	6,218.33	146.90	122.40	43.50	-1,745.88	1,574.76	7,663.71	7,501.19	162.52	47.154	
16,200.00	7,364.00	6,219.00	6,218.33	148.47	122.40	43.50	-1,745.88	1,574.76	7,761.82	7,599.23	162.59	47.738	
16,300.00	7,364.00	6,219.00	6,218.33	150.04	122.40	43.50	-1,745.88	1,574.76	7,859.97	7,697.32	162.66	48.322	
16,400.00	7,364.00	6,219.00	6,218.33	151.62	122.40	43.50	-1,745.88	1,574.76	7,958.17	7,795.45	162.73	48.906	
16,500.00	7,364.00	6,219.00	6,218.33	153.19	122.40	43.50	-1,745.88	1,574.76	8,056.42	7,893.63	162.79	49.489	
16,600.00	7,364.00	6,219.00	6,218.33	154.77	122.40	43.50	-1,745.88	1,574.76	8,154.70	7,991.85	162.86	50.072	
16,700.00	7,364.00	6,219.00	6,218.33	156.34	122.40	43.50	-1,745.88	1,574.76	8,253.03	8,090.11	162.93	50.655	
16,800.00	7,364.00	6,219.00	6,218.33	157.92	122.40	43.50	-1,745.88	1,574.76	8,351.40	8,188.41	162.99	51.238	
16,900.00	7,364.00	6,219.00	6,218.33	159.49	122.40	43.50	-1,745.88	1,574.76	8,449.81	8,286.75	163.06	51.820	
17,000.00	7,364.00	6,219.00	6,218.33	161.07	122.40	43.50	-1,745.88	1,574.76	8,548.25	8,385.12	163.13	52.402	
17,100.00	7,364.00	6,219.00	6,218.33	162.65	122.40	43.50	-1,745.88	1,574.76	8,646.73	8,483.53	163.19	52.984	
17,200.00	7,364.00	6,219.00	6,218.33	164.23	122.40	43.50	-1,745.88	1,574.76	8,745.24	8,581.98	163.26	53.566	
17,300.00	7,364.00	6,219.00	6,218.33	165.81	122.40	43.50	-1,745.88	1,574.76	8,843.79	8,680.46	163.33	54.147	
17,400.00	7,364.00	6,219.00	6,218.33	167.38	122.40	43.50	-1,745.88	1,574.76	8,942.36	8,778.97	163.40	54.728	
17,500.00	7,364.00	6,219.00	6,218.33	168.96	122.40	43.50	-1,745.88	1,574.76	9,040.97	8,877.51	163.46	55.309	
17,600.00	7,364.00	6,219.00	6,218.33	170.54	122.40	43.50	-1,745.88	1,574.76	9,139.62	8,976.08	163.53	55.889	
17,700.00	7,364.00	6,219.00	6,218.33	172.12	122.40	43.50	-1,745.88	1,574.76	9,238.28	9,074.69	163.60	56.469	
17,800.00	7,364.00	6,219.00	6,218.33	173.70	122.40	43.50	-1,745.88	1,574.76	9,336.98	9,173.31	163.67	57.048	
17,900.00	7,364.00	6,219.00	6,218.33	175.28	122.40	43.50	-1,745.88	1,574.76	9,435.71	9,271.97	163.74	57.628	
18,000.00	7,364.00	6,219.00	6,218.33	176.87	122.40	43.50	-1,745.88	1,574.76	9,534.46	9,370.65	163.80	58.206	
18,100.00	7,364.00	6,219.00	6,218.33	178.45	122.40	43.50	-1,745.88	1,574.76	9,633.24	9,469.36	163.87	58.784	
18,200.00	7,364.00	6,219.00	6,218.33	180.03	122.40	43.50	-1,745.88	1,574.76	9,732.04	9,568.10	163.94	59.362	
18,300.00	7,364.00	6,219.00	6,218.33	181.61	122.40	43.50	-1,745.88	1,574.76	9,830.87	9,666.85	164.01	59.940	
18,400.00	7,364.00	6,219.00	6,218.33	183.19	122.40	43.50	-1,745.88	1,574.76	9,929.72	9,765.63	164.08	60.517	
18,500.00	7,364.00	6,219.00	6,218.33	184.78	122.40	43.50	-1,745.88	1,574.76	10,028.59	9,864.44	164.15	61.093	
18,600.00	7,364.00	6,219.00	6,218.33	186.36	122.40	43.50	-1,745.88	1,574.76	10,127.48	9,963.26	164.22	61.669	
18,700.00	7,364.00	6,219.00	6,218.33	187.94	122.40	43.50	-1,745.88	1,574.76	10,226.40	10,062.11	164.29	62.244	
18,800.00	7,364.00	6,219.00	6,218.33	189.53	122.40	43.50	-1,745.88	1,574.76	10,325.34	10,160.97	164.37	62.819	
18,900.00	7,364.00	6,219.00	6,218.33	191.11	122.40	43.50	-1,745.88	1,574.76	10,424.30	10,259.86	164.44	63.394	
19,000.00	7,364.00	6,219.00	6,218.33	192.70	122.40	43.50	-1,745.88	1,574.76	10,523.27	10,358.76	164.51	63.968	
19,100.00	7,364.00	6,219.00	6,218.33	194.28	122.40	43.50	-1,745.88	1,574.76	10,622.27	10,457.69	164.58	64.541	
19,200.00	7,364.00	6,219.00	6,218.33	195.87	122.40	43.50	-1,745.88	1,574.76	10,721.28	10,556.63	164.65	65.114	

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 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #077B - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 295-A027Ua_INC-ONLY

Rule Assigned:

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
19,300.00	7,364.00	6,219.00	6,218.33	197.45	122.40	43.50	-1,745.88	1,574.76	10,820.32	10,655.59	164.73	65.686	
19,400.00	7,364.00	6,219.00	6,218.33	199.04	122.40	43.50	-1,745.88	1,574.76	10,919.37	10,754.57	164.80	66.258	
19,500.00	7,364.00	6,219.00	6,218.33	200.62	122.40	43.50	-1,745.88	1,574.76	11,018.44	10,853.56	164.87	66.830	
19,600.00	7,364.00	6,219.00	6,218.33	202.21	122.40	43.50	-1,745.88	1,574.76	11,117.52	10,952.57	164.95	67.400	
19,700.00	7,364.00	6,219.00	6,218.33	203.79	122.40	43.50	-1,745.88	1,574.76	11,216.62	11,051.60	165.02	67.970	
19,800.00	7,364.00	6,219.00	6,218.33	205.38	122.40	43.50	-1,745.88	1,574.76	11,315.74	11,150.64	165.10	68.540	
19,900.00	7,364.00	6,219.00	6,218.33	206.97	122.40	43.50	-1,745.88	1,574.76	11,414.87	11,249.70	165.17	69.109	
20,000.00	7,364.00	6,219.00	6,218.33	208.55	122.40	43.50	-1,745.88	1,574.76	11,514.02	11,348.77	165.25	69.677	
20,100.00	7,364.00	6,219.00	6,218.33	210.14	122.40	43.50	-1,745.88	1,574.76	11,613.18	11,447.86	165.32	70.245	
20,200.00	7,364.00	6,219.00	6,218.33	211.73	122.40	43.50	-1,745.88	1,574.76	11,712.36	11,546.96	165.40	70.812	
20,300.00	7,364.00	6,219.00	6,218.33	213.32	122.40	43.50	-1,745.88	1,574.76	11,811.55	11,646.07	165.48	71.379	
20,400.00	7,364.00	6,219.00	6,218.33	214.90	122.40	43.50	-1,745.88	1,574.76	11,910.75	11,745.20	165.55	71.945	
20,500.00	7,364.00	6,219.00	6,218.33	216.49	122.40	43.50	-1,745.88	1,574.76	12,009.97	11,844.34	165.63	72.510	
20,600.00	7,364.00	6,219.00	6,218.33	218.08	122.40	43.50	-1,745.88	1,574.76	12,109.20	11,943.49	165.71	73.075	
20,700.00	7,364.00	6,219.00	6,218.33	219.67	122.40	43.50	-1,745.88	1,574.76	12,208.44	12,042.65	165.79	73.639	
20,800.00	7,364.00	6,219.00	6,218.33	221.26	122.40	43.50	-1,745.88	1,574.76	12,307.69	12,141.83	165.87	74.203	
20,900.00	7,364.00	6,219.00	6,218.33	222.84	122.40	43.50	-1,745.88	1,574.76	12,406.96	12,241.01	165.95	74.765	
21,000.00	7,364.00	6,219.00	6,218.33	224.43	122.40	43.50	-1,745.88	1,574.76	12,506.24	12,340.21	166.02	75.328	
21,100.00	7,364.00	6,219.00	6,218.33	226.02	122.40	43.50	-1,745.88	1,574.76	12,605.53	12,439.42	166.10	75.889	
21,200.00	7,364.00	6,219.00	6,218.33	227.61	122.40	43.50	-1,745.88	1,574.76	12,704.83	12,538.64	166.18	76.450	
21,300.00	7,364.00	6,219.00	6,218.33	229.20	122.40	43.50	-1,745.88	1,574.76	12,804.14	12,637.87	166.27	77.010	
21,400.00	7,364.00	6,219.00	6,218.33	230.79	122.40	43.50	-1,745.88	1,574.76	12,903.46	12,737.12	166.35	77.570	
21,500.00	7,364.00	6,219.00	6,218.33	232.38	122.40	43.50	-1,745.88	1,574.76	13,002.79	12,836.37	166.43	78.129	
21,600.00	7,364.00	6,219.00	6,218.33	233.97	122.40	43.50	-1,745.88	1,574.76	13,102.14	12,935.63	166.51	78.687	
21,700.00	7,364.00	6,219.00	6,218.33	235.56	122.40	43.50	-1,745.88	1,574.76	13,201.49	13,034.90	166.59	79.244	
21,800.00	7,364.00	6,219.00	6,218.33	237.15	122.40	43.50	-1,745.88	1,574.76	13,300.85	13,134.18	166.67	79.801	
21,864.93	7,364.00	6,219.00	6,218.33	238.18	122.40	43.50	-1,745.88	1,574.76	13,365.37	13,198.64	166.73	80.162	

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 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #077C - OH - OH-SVY

Offset Site Error: 0.00 usft

Survey Program: 100-Standard Keeper 104 **Offset Well Error:** 3.28 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Rule Assigned: Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	148.44	148.44	3.28	3.28	117.58	-1,972.49	3,776.37	4,260.48				
100.00	100.00	245.13	245.13	3.29	3.29	117.58	-1,972.89	3,776.35	4,260.65	4,254.08	6.57	648.167	
200.00	200.00	341.52	341.51	3.34	3.30	117.59	-1,973.46	3,776.32	4,260.91	4,254.28	6.62	643.173	
300.00	300.00	437.90	437.90	3.42	3.32	117.60	-1,974.23	3,776.29	4,261.24	4,254.53	6.72	634.549	
400.00	400.00	540.37	540.36	3.54	3.34	117.61	-1,974.92	3,776.35	4,261.61	4,254.77	6.84	622.675	
500.00	500.00	644.91	644.90	3.69	3.34	117.60	-1,974.58	3,776.85	4,261.89	4,254.88	7.01	608.271	
600.00	599.98	787.21	787.19	3.86	3.34	-32.46	-1,972.84	3,777.18	4,260.01	4,252.83	7.19	592.833	
700.00	699.84	896.71	896.66	4.04	3.34	-32.58	-1,970.64	3,777.14	4,254.64	4,247.25	7.38	576.397	
808.00	807.41	994.09	994.03	4.27	3.35	-32.77	-1,968.74	3,777.16	4,245.63	4,238.01	7.62	557.170	
900.00	898.89	1,087.34	1,087.26	4.49	3.36	-50.16	-1,966.86	3,777.36	4,237.63	4,229.79	7.84	540.277	
912.12	910.94	1,100.31	1,100.22	4.52	3.36	-52.42	-1,966.56	3,777.39	4,236.72	4,228.85	7.87	538.124	
1,000.00	998.31	1,190.66	1,190.55	4.74	3.38	-52.55	-1,964.61	3,777.44	4,230.13	4,222.02	8.10	521.930	
1,100.00	1,097.73	1,287.18	1,287.05	5.01	3.40	-52.68	-1,962.68	3,777.59	4,222.80	4,214.42	8.39	503.607	
1,200.00	1,197.15	1,386.73	1,386.58	5.29	3.43	-52.82	-1,960.63	3,777.59	4,215.36	4,206.67	8.68	485.531	
1,300.00	1,296.58	1,495.71	1,495.54	5.59	3.47	-52.97	-1,958.53	3,777.56	4,207.97	4,198.97	8.99	467.832	
1,400.00	1,396.00	1,586.58	1,586.40	5.90	3.50	-53.10	-1,956.91	3,777.41	4,200.54	4,191.22	9.32	450.874	
1,500.00	1,495.42	1,693.32	1,693.12	6.22	3.54	-53.25	-1,954.84	3,777.18	4,193.01	4,183.36	9.65	434.395	
1,600.00	1,594.84	1,799.72	1,799.50	6.54	3.59	-53.40	-1,952.73	3,777.02	4,185.57	4,175.57	10.00	418.633	
1,700.00	1,694.27	1,888.74	1,888.50	6.87	3.64	-53.53	-1,950.90	3,776.86	4,178.07	4,167.73	10.35	403.742	
1,800.00	1,793.69	1,998.10	1,997.83	7.21	3.70	-53.68	-1,948.54	3,776.56	4,170.48	4,159.77	10.71	389.347	
1,900.00	1,893.11	2,113.06	2,112.76	7.55	3.76	-53.85	-1,946.13	3,775.91	4,162.68	4,151.60	11.08	375.528	
2,000.00	1,992.53	2,206.14	2,205.82	7.89	3.82	-53.98	-1,944.23	3,775.28	4,154.83	4,143.38	11.46	362.574	
2,100.00	2,091.96	2,273.13	2,272.80	8.24	3.86	-54.08	-1,942.88	3,775.22	4,147.52	4,135.69	11.83	350.643	
2,200.00	2,191.38	2,368.31	2,367.95	8.60	3.92	-54.21	-1,941.02	3,775.38	4,140.52	4,128.31	12.21	339.158	
2,300.00	2,290.80	2,469.77	2,469.41	8.95	3.99	-54.36	-1,939.23	3,775.49	4,133.57	4,120.98	12.59	328.204	
2,400.00	2,390.22	2,581.14	2,580.76	9.31	4.08	-54.52	-1,937.40	3,775.40	4,126.52	4,113.53	12.99	317.669	
2,500.00	2,489.65	2,683.47	2,683.08	9.67	4.15	-54.66	-1,935.65	3,775.20	4,119.38	4,105.99	13.39	307.705	
2,600.00	2,589.07	2,766.37	2,765.96	10.03	4.22	-54.79	-1,934.04	3,775.29	4,112.43	4,098.66	13.78	298.459	
2,700.00	2,688.49	2,861.02	2,860.59	10.40	4.30	-54.93	-1,932.14	3,775.66	4,105.74	4,091.57	14.17	289.664	
2,800.00	2,787.91	2,953.94	2,953.49	10.76	4.37	-55.07	-1,930.36	3,776.11	4,099.20	4,084.63	14.57	281.337	
2,900.00	2,887.33	3,052.52	3,052.05	11.13	4.46	-55.21	-1,928.67	3,776.56	4,092.74	4,077.77	14.97	273.388	
3,000.00	2,986.76	3,152.67	3,152.19	11.50	4.54	-55.36	-1,927.04	3,776.98	4,086.32	4,070.94	15.37	265.808	
3,100.00	3,086.18	3,246.83	3,246.34	11.87	4.63	-55.50	-1,925.70	3,777.38	4,080.01	4,064.23	15.78	258.631	
3,200.00	3,185.60	3,343.99	3,343.49	12.24	4.71	-55.64	-1,924.41	3,777.80	4,073.77	4,057.59	16.18	251.780	
3,300.00	3,285.02	3,440.17	3,439.66	12.61	4.80	-55.77	-1,923.31	3,778.15	4,067.56	4,050.97	16.59	245.240	
3,400.00	3,384.45	3,543.50	3,542.98	12.98	4.90	-55.92	-1,922.00	3,778.60	4,061.40	4,044.40	17.00	238.965	
3,500.00	3,483.87	3,638.88	3,638.36	13.36	4.99	-56.06	-1,920.94	3,778.95	4,055.26	4,037.86	17.40	233.003	
3,600.00	3,583.29	3,728.74	3,728.21	13.73	5.07	-56.18	-1,920.09	3,779.38	4,049.33	4,031.52	17.81	227.363	
3,700.00	3,682.71	3,832.99	3,832.46	14.11	5.17	-56.33	-1,919.13	3,779.91	4,043.43	4,025.21	18.22	221.919	
3,800.00	3,782.14	3,914.29	3,913.75	14.48	5.23	-56.44	-1,918.85	3,780.36	4,037.84	4,019.22	18.62	216.877	
3,900.00	3,881.56	3,991.31	3,990.77	14.86	5.23	-56.54	-1,919.34	3,780.88	4,032.75	4,013.74	19.01	212.118	
4,000.00	3,980.98	4,062.90	4,062.35	15.24	5.23	-56.62	-1,920.45	3,781.63	4,028.36	4,008.95	19.41	207.560	
4,100.00	4,080.40	4,158.75	4,158.18	15.61	5.22	-56.72	-1,922.27	3,782.79	4,024.30	4,004.48	19.81	203.117	
4,200.00	4,179.83	4,252.38	4,251.78	15.99	5.22	-56.82	-1,924.09	3,783.97	4,020.31	4,000.09	20.22	198.828	
4,300.00	4,279.25	4,383.72	4,383.09	16.37	5.22	-56.97	-1,926.43	3,785.47	4,016.21	3,995.57	20.64	194.569	
4,400.00	4,378.67	4,510.88	4,510.24	16.75	5.22	-57.12	-1,927.89	3,786.01	4,011.15	3,990.09	21.07	190.401	
4,500.00	4,478.09	4,622.92	4,622.27	17.13	5.21	-57.25	-1,929.01	3,786.00	4,005.69	3,984.20	21.49	186.383	
4,600.00	4,577.51	4,725.00	4,724.35	17.51	5.20	-57.37	-1,929.79	3,785.89	4,000.05	3,978.14	21.92	182.524	
4,700.00	4,676.94	4,828.60	4,827.95	17.89	5.19	-57.49	-1,930.61	3,785.74	3,994.43	3,972.09	22.34	178.797	
4,800.00	4,776.36	4,923.46	4,922.80	18.27	5.19	-57.60	-1,931.45	3,785.64	3,988.87	3,966.10	22.76	175.226	
4,900.00	4,875.78	5,019.25	5,018.58	18.65	5.19	-57.72	-1,932.37	3,785.51	3,983.34	3,960.16	23.19	171.777	
5,000.00	4,975.20	5,116.35	5,115.68	19.03	5.20	-57.83	-1,933.41	3,785.39	3,977.87	3,954.26	23.62	168.444	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #077C - OH - OH-SVY

Offset Site Error: 0.00 usft

Survey Program: 100-Standard Keeper 104 **Offset Well Error:** 3.28 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Rule Assigned: Warning
5,100.00	5,074.63	5,213.94	5,213.26	19.41	5.21	-57.94	-1,934.45	3,785.32	3,972.48	3,948.43	24.04	165.223	
5,200.00	5,174.05	5,310.33	5,309.65	19.79	5.22	-58.05	-1,935.47	3,785.31	3,967.15	3,942.68	24.47	162.113	
5,300.00	5,273.47	5,400.00	5,399.31	20.17	5.24	-58.16	-1,936.44	3,785.51	3,962.05	3,937.15	24.90	159.124	
5,400.00	5,372.89	5,498.86	5,498.17	20.56	5.27	-58.28	-1,937.52	3,785.88	3,957.13	3,931.80	25.33	156.211	
5,500.00	5,472.32	5,595.01	5,594.31	20.94	5.30	-58.39	-1,938.61	3,786.30	3,952.30	3,926.53	25.77	153.394	
5,600.00	5,571.74	5,691.43	5,690.72	21.32	5.33	-58.51	-1,939.91	3,786.70	3,947.52	3,921.32	26.20	150.665	
5,700.00	5,671.16	5,812.39	5,811.66	21.70	5.36	-58.64	-1,941.84	3,786.75	3,942.53	3,915.88	26.64	147.970	
5,800.00	5,770.58	5,922.09	5,921.35	22.08	5.39	-58.77	-1,943.41	3,786.38	3,937.12	3,910.04	27.08	145.380	
5,900.00	5,870.01	6,024.29	6,023.54	22.47	5.43	-58.89	-1,944.46	3,786.06	3,931.61	3,904.09	27.52	142.881	
6,000.00	5,969.43	6,125.00	6,124.25	22.85	5.46	-59.01	-1,945.39	3,785.70	3,926.04	3,898.09	27.95	140.461	
6,100.00	6,068.85	6,222.22	6,221.46	23.23	5.49	-59.12	-1,946.34	3,785.33	3,920.49	3,892.11	28.39	138.118	
6,200.00	6,168.27	6,314.18	6,313.42	23.62	5.53	-59.23	-1,947.40	3,785.08	3,915.11	3,886.29	28.82	135.853	
6,300.00	6,267.70	6,408.11	6,407.35	24.00	5.57	-59.34	-1,948.48	3,784.95	3,909.88	3,880.62	29.25	133.649	
6,400.00	6,367.12	6,504.16	6,503.39	24.38	5.62	-59.46	-1,949.60	3,784.93	3,904.78	3,875.09	29.69	131.505	
6,500.00	6,466.54	6,611.58	6,610.80	24.77	5.67	-59.59	-1,950.72	3,784.92	3,899.67	3,869.53	30.14	129.400	
6,600.00	6,565.96	6,719.05	6,718.27	25.15	5.73	-59.72	-1,951.66	3,784.77	3,894.38	3,863.81	30.58	127.357	
6,700.00	6,665.38	6,818.72	6,817.93	25.53	5.78	-59.85	-1,952.47	3,784.52	3,889.01	3,857.99	31.02	125.384	
6,778.75	6,743.68	6,897.82	6,897.03	25.84	5.83	-59.94	-1,953.18	3,784.30	3,884.78	3,853.41	31.36	123.868	
6,800.00	6,764.80	6,920.01	6,919.22	25.92	5.84	-43.91	-1,953.38	3,784.23	3,883.30	3,851.84	31.46	123.454	
6,850.00	6,814.29	6,965.63	6,964.83	26.11	5.86	-19.38	-1,953.81	3,784.11	3,877.22	3,845.55	31.67	122.429	
6,900.00	6,863.27	7,012.60	7,011.81	26.30	5.89	-7.15	-1,954.24	3,784.01	3,867.51	3,835.63	31.88	121.326	
6,950.00	6,911.44	7,058.48	7,057.68	26.50	5.92	-0.24	-1,954.62	3,783.95	3,854.24	3,822.16	32.08	120.156	
7,000.00	6,958.49	7,105.01	7,104.21	26.68	5.95	4.30	-1,955.01	3,783.92	3,837.47	3,805.20	32.27	118.926	
7,050.00	7,004.14	7,149.04	7,148.24	26.87	5.98	7.68	-1,955.38	3,783.90	3,817.31	3,784.86	32.45	117.646	
7,100.00	7,048.10	7,189.08	7,188.27	27.05	6.00	10.49	-1,955.73	3,783.92	3,793.91	3,761.30	32.61	116.327	
7,150.00	7,090.11	7,226.94	7,226.14	27.23	6.03	13.03	-1,956.08	3,783.96	3,767.39	3,734.63	32.77	114.974	
7,200.00	7,129.90	7,263.97	7,263.17	27.41	6.05	15.53	-1,956.43	3,784.03	3,737.96	3,705.05	32.91	113.593	
7,250.00	7,167.24	7,302.71	7,301.90	27.59	6.08	18.15	-1,956.85	3,784.11	3,705.75	3,672.72	33.03	112.189	
7,300.00	7,201.88	7,332.93	7,332.12	27.76	6.10	21.00	-1,957.15	3,784.18	3,670.97	3,637.83	33.14	110.779	
7,350.00	7,233.63	7,359.26	7,358.45	27.94	6.12	24.22	-1,957.44	3,784.28	3,633.88	3,600.66	33.23	109.364	
7,400.00	7,262.27	7,384.11	7,383.29	28.13	6.14	27.99	-1,957.72	3,784.41	3,594.72	3,561.42	33.30	107.947	
7,450.00	7,287.63	7,408.22	7,407.41	28.32	6.16	32.53	-1,958.00	3,784.54	3,553.70	3,520.34	33.36	106.533	
7,500.00	7,309.57	7,425.00	7,424.18	28.53	6.17	37.96	-1,958.21	3,784.64	3,511.09	3,477.69	33.40	105.131	
7,550.00	7,327.93	7,441.32	7,440.51	28.74	6.18	44.64	-1,958.43	3,784.76	3,467.16	3,433.74	33.42	103.740	
7,600.00	7,342.62	7,453.68	7,452.86	28.97	6.19	52.71	-1,958.59	3,784.86	3,422.19	3,388.76	33.43	102.366	
7,650.00	7,353.53	7,463.39	7,462.57	29.22	6.20	62.27	-1,958.73	3,784.94	3,376.46	3,343.04	33.43	101.011	
7,700.00	7,360.61	7,469.84	7,469.02	29.48	6.20	73.03	-1,958.82	3,785.00	3,330.26	3,296.85	33.41	99.678	
7,750.00	7,363.80	7,472.97	7,472.15	29.75	6.21	84.32	-1,958.87	3,785.02	3,283.87	3,250.49	33.38	98.368	
7,765.93	7,364.00	7,475.00	7,474.18	29.84	6.21	87.96	-1,958.90	3,785.04	3,269.11	3,235.74	33.37	97.956	
7,800.00	7,364.00	7,475.00	7,474.18	30.04	6.21	87.96	-1,958.90	3,785.04	3,237.57	3,204.22	33.35	97.076	
7,900.00	7,364.00	7,475.00	7,474.18	30.67	6.21	87.96	-1,958.90	3,785.04	3,145.30	3,112.00	33.30	94.457	
8,000.00	7,364.00	7,475.00	7,474.18	31.37	6.21	87.96	-1,958.90	3,785.04	3,053.51	3,020.25	33.27	91.784	
8,100.00	7,364.00	7,475.97	7,475.15	32.14	6.21	88.00	-1,958.92	3,785.05	2,962.26	2,929.00	33.26	89.052	
8,200.00	7,364.00	7,476.84	7,476.02	32.96	6.21	88.04	-1,958.93	3,785.06	2,871.59	2,838.30	33.29	86.256	
8,300.00	7,364.00	7,477.70	7,476.88	33.85	6.21	88.08	-1,958.94	3,785.07	2,781.56	2,748.21	33.36	83.390	
8,400.00	7,364.00	7,478.57	7,477.74	34.79	6.21	88.12	-1,958.96	3,785.07	2,692.24	2,658.77	33.46	80.450	
8,500.00	7,364.00	7,479.43	7,478.60	35.77	6.21	88.16	-1,958.97	3,785.08	2,603.69	2,570.06	33.63	77.431	
8,600.00	7,364.00	7,480.28	7,479.46	36.80	6.21	88.20	-1,958.98	3,785.09	2,516.00	2,482.15	33.85	74.332	
8,700.00	7,364.00	7,481.13	7,480.31	37.87	6.21	88.24	-1,958.99	3,785.10	2,429.26	2,395.11	34.14	71.151	
8,800.00	7,364.00	7,481.98	7,481.16	38.98	6.21	88.28	-1,959.01	3,785.10	2,343.57	2,309.05	34.52	67.890	
8,900.00	7,364.00	7,482.83	7,482.01	40.12	6.21	88.32	-1,959.02	3,785.11	2,259.06	2,224.07	34.99	64.556	
9,000.00	7,364.00	7,483.68	7,482.85	41.29	6.21	88.36	-1,959.03	3,785.12	2,175.87	2,140.29	35.58	61.158	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #077C - OH - OH-SVY

Offset Site Error: 0.00 usft

Survey Program: 100-Standard Keeper 104 **Offset Well Error:** 3.28 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,100.00	7,364.00	7,484.52	7,483.70	42.49	6.21	88.40	-1,959.05	3,785.13	2,094.14	2,057.86	36.29	57.711	
9,200.00	7,364.00	7,485.36	7,484.53	43.71	6.22	88.44	-1,959.06	3,785.13	2,014.07	1,976.93	37.14	54.235	
9,300.00	7,364.00	7,486.19	7,485.37	44.96	6.22	88.48	-1,959.07	3,785.14	1,935.85	1,897.71	38.14	50.754	
9,400.00	7,364.00	7,487.03	7,486.20	46.23	6.22	88.52	-1,959.09	3,785.15	1,859.72	1,820.40	39.32	47.298	
9,500.00	7,364.00	7,487.86	7,487.03	47.52	6.22	88.56	-1,959.10	3,785.16	1,785.94	1,745.26	40.68	43.899	
9,600.00	7,364.00	7,488.69	7,487.86	48.83	6.22	88.60	-1,959.11	3,785.16	1,714.82	1,672.57	42.25	40.592	
9,700.00	7,364.00	7,489.51	7,488.69	50.15	6.22	88.63	-1,959.13	3,785.17	1,646.70	1,602.69	44.01	37.413	
9,800.00	7,364.00	7,490.33	7,489.51	51.49	6.22	88.67	-1,959.14	3,785.18	1,581.98	1,535.99	46.00	34.395	
9,900.00	7,364.00	7,491.15	7,490.33	52.85	6.22	88.71	-1,959.15	3,785.19	1,521.08	1,472.90	48.18	31.568	
10,000.00	7,364.00	7,491.97	7,491.15	54.22	6.22	88.75	-1,959.17	3,785.19	1,464.48	1,413.91	50.57	28.960	
10,100.00	7,364.00	7,492.78	7,491.96	55.60	6.22	88.79	-1,959.18	3,785.20	1,412.71	1,359.58	53.13	26.590	
10,200.00	7,364.00	7,493.60	7,492.77	56.99	6.22	88.82	-1,959.19	3,785.21	1,366.29	1,310.47	55.83	24.473	
10,300.00	7,364.00	7,494.41	7,493.58	58.40	6.22	88.86	-1,959.21	3,785.21	1,325.81	1,267.20	58.62	22.619	
10,400.00	7,364.00	7,495.21	7,494.39	59.81	6.22	88.90	-1,959.22	3,785.22	1,291.82	1,230.39	61.43	21.029	
10,500.00	7,364.00	7,496.02	7,495.19	61.23	6.22	88.94	-1,959.23	3,785.23	1,264.84	1,200.64	64.19	19.703	
10,600.00	7,364.00	7,496.82	7,495.99	62.66	6.22	88.97	-1,959.25	3,785.23	1,245.32	1,178.49	66.83	18.635	
10,700.00	7,364.00	7,497.62	7,496.79	64.10	6.22	89.01	-1,959.26	3,785.24	1,233.63	1,164.38	69.25	17.814	
10,794.94	7,364.00	7,498.37	7,497.54	65.48	6.23	89.05	-1,959.27	3,785.25	1,229.97	1,158.68	71.29	17.253 CC	
10,800.00	7,364.00	7,498.41	7,497.59	65.55	6.23	89.05	-1,959.27	3,785.25	1,229.98	1,158.59	71.39	17.229 ES	
10,900.00	7,364.00	7,500.00	7,499.17	67.01	6.23	89.12	-1,959.30	3,785.26	1,234.45	1,161.26	73.19	16.867	
11,000.00	7,364.00	7,500.00	7,499.17	68.47	6.23	89.12	-1,959.30	3,785.26	1,246.95	1,172.33	74.62	16.712 SF	
11,100.00	7,364.00	7,500.85	7,500.03	69.93	6.23	89.16	-1,959.31	3,785.27	1,267.24	1,191.58	75.66	16.750	
11,200.00	7,364.00	7,501.74	7,500.91	71.41	6.23	89.20	-1,959.33	3,785.28	1,294.95	1,218.62	76.33	16.965	
11,300.00	7,364.00	7,502.65	7,501.82	72.88	6.23	89.25	-1,959.34	3,785.28	1,329.62	1,252.96	76.66	17.344	
11,400.00	7,364.00	7,503.58	7,502.76	74.37	6.23	89.29	-1,959.36	3,785.29	1,370.73	1,294.03	76.70	17.872	
11,500.00	7,364.00	7,504.55	7,503.72	75.85	6.23	89.33	-1,959.38	3,785.30	1,417.71	1,341.22	76.49	18.535	
11,600.00	7,364.00	7,505.54	7,504.71	77.35	6.23	89.38	-1,959.39	3,785.31	1,470.00	1,393.92	76.08	19.321	
11,700.00	7,364.00	7,506.56	7,505.73	78.84	6.23	89.43	-1,959.41	3,785.32	1,527.06	1,451.53	75.53	20.219	
11,800.00	7,364.00	7,507.61	7,506.79	80.34	6.23	89.48	-1,959.43	3,785.33	1,588.36	1,513.51	74.86	21.218	
11,900.00	7,364.00	7,508.70	7,507.87	81.85	6.23	89.53	-1,959.45	3,785.34	1,653.45	1,579.33	74.11	22.309	
12,000.00	7,364.00	7,509.82	7,508.99	83.36	6.23	89.58	-1,959.47	3,785.35	1,721.88	1,648.56	73.32	23.483	
12,100.00	7,364.00	7,510.98	7,510.15	84.87	6.23	89.63	-1,959.48	3,785.36	1,793.29	1,720.78	72.51	24.732	
12,200.00	7,364.00	7,512.17	7,511.34	86.38	6.24	89.69	-1,959.51	3,785.38	1,867.31	1,795.63	71.68	26.049	
12,300.00	7,364.00	7,513.41	7,512.58	87.90	6.24	89.75	-1,959.53	3,785.39	1,943.67	1,872.80	70.87	27.427	
12,400.00	7,364.00	7,514.68	7,513.86	89.42	6.24	89.81	-1,959.55	3,785.40	2,022.09	1,952.02	70.06	28.861	
12,500.00	7,364.00	7,516.00	7,515.18	90.95	6.24	89.87	-1,959.57	3,785.42	2,102.33	2,033.06	69.28	30.346	
12,600.00	7,364.00	7,517.37	7,516.54	92.47	6.24	89.93	-1,959.60	3,785.43	2,184.21	2,115.69	68.52	31.876	
12,700.00	7,364.00	7,518.79	7,517.96	94.00	6.24	90.00	-1,959.62	3,785.45	2,267.55	2,199.75	67.80	33.447	
12,800.00	7,364.00	7,520.25	7,519.42	95.53	6.24	90.07	-1,959.65	3,785.46	2,352.18	2,285.08	67.10	35.056	
12,900.00	7,364.00	7,521.77	7,520.94	97.06	6.24	90.14	-1,959.67	3,785.48	2,437.97	2,371.54	66.43	36.699	
13,000.00	7,364.00	7,523.35	7,522.52	98.60	6.24	90.21	-1,959.70	3,785.50	2,524.81	2,459.01	65.80	38.372	
13,100.00	7,364.00	7,524.99	7,524.16	100.14	6.25	90.29	-1,959.73	3,785.52	2,612.59	2,547.40	65.19	40.074	
13,200.00	7,364.00	7,526.69	7,525.86	101.68	6.25	90.37	-1,959.76	3,785.54	2,701.22	2,636.60	64.62	41.802	
13,300.00	7,364.00	7,528.47	7,527.63	103.22	6.25	90.45	-1,959.79	3,785.56	2,790.61	2,726.54	64.08	43.552	
13,400.00	7,364.00	7,530.19	7,529.36	104.76	6.25	90.53	-1,959.82	3,785.58	2,880.71	2,817.15	63.56	45.323	
13,500.00	7,364.00	7,532.09	7,531.25	106.31	6.25	90.62	-1,959.86	3,785.61	2,971.43	2,908.36	63.07	47.113	
13,600.00	7,364.00	7,534.07	7,533.23	107.85	6.25	90.71	-1,959.90	3,785.63	3,062.74	3,000.13	62.61	48.921	
13,700.00	7,364.00	7,536.14	7,535.31	109.40	6.25	90.81	-1,959.93	3,785.66	3,154.57	3,092.40	62.17	50.744	
13,800.00	7,364.00	7,538.32	7,537.48	110.95	6.26	90.91	-1,959.97	3,785.69	3,246.88	3,185.13	61.75	52.581	
13,900.00	7,364.00	7,540.60	7,539.76	112.50	6.26	91.01	-1,960.02	3,785.73	3,339.63	3,278.27	61.36	54.430	
14,000.00	7,364.00	7,543.00	7,542.16	114.05	6.26	91.12	-1,960.06	3,785.76	3,432.79	3,371.81	60.98	56.291	
14,100.00	7,364.00	7,545.53	7,544.69	115.61	6.26	91.24	-1,960.11	3,785.80	3,526.32	3,465.69	60.63	58.162	

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 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #077C - OH - OH-SVY — **Offset Site Error:** 0.00 usft

Survey Program: 100-Standard Keeper 104 — **Offset Well Error:** 3.28 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Rule Assigned: Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,200.00	7,364.00	7,548.19	7,547.35	117.16	6.26	91.37	-1,960.17	3,785.84	3,620.20	3,559.91	60.29	60.042	
14,300.00	7,364.00	7,551.00	7,550.16	118.72	6.27	91.50	-1,960.22	3,785.88	3,714.40	3,654.42	59.98	61.930	
14,400.00	7,364.00	7,553.98	7,553.14	120.28	6.27	91.64	-1,960.28	3,785.93	3,808.89	3,749.21	59.68	63.825	
14,500.00	7,364.00	7,553.31	7,552.47	121.84	6.27	91.60	-1,960.27	3,785.92	3,903.65	3,844.26	59.39	65.731	
14,600.00	7,364.00	7,554.73	7,553.89	123.40	6.27	91.67	-1,960.30	3,785.94	3,998.67	3,939.56	59.12	67.641	
14,700.00	7,364.00	7,556.15	7,555.31	124.96	6.27	91.74	-1,960.33	3,785.97	4,093.93	4,035.07	58.86	69.556	
14,800.00	7,364.00	7,557.57	7,556.73	126.52	6.27	91.80	-1,960.36	3,785.99	4,189.40	4,130.79	58.61	71.475	
14,900.00	7,364.00	7,559.00	7,558.16	128.08	6.27	91.87	-1,960.39	3,786.01	4,285.09	4,226.71	58.38	73.398	
15,000.00	7,364.00	7,560.44	7,559.60	129.64	6.27	91.94	-1,960.42	3,786.03	4,380.96	4,322.80	58.16	75.325	
15,100.00	7,364.00	7,561.88	7,561.03	131.21	6.27	92.00	-1,960.45	3,786.06	4,477.02	4,419.06	57.95	77.254	
15,200.00	7,364.00	7,563.32	7,562.47	132.77	6.27	92.07	-1,960.48	3,786.08	4,573.24	4,515.49	57.75	79.185	
15,300.00	7,364.00	7,564.76	7,563.92	134.34	6.28	92.14	-1,960.51	3,786.10	4,669.62	4,612.06	57.57	81.118	
15,400.00	7,364.00	7,566.21	7,565.37	135.91	6.28	92.20	-1,960.55	3,786.13	4,766.15	4,708.76	57.39	83.052	
15,500.00	7,364.00	7,567.67	7,566.83	137.48	6.28	92.27	-1,960.58	3,786.15	4,862.82	4,805.60	57.22	84.987	
15,600.00	7,364.00	7,569.13	7,568.28	139.04	6.28	92.34	-1,960.61	3,786.18	4,959.62	4,902.57	57.06	86.923	
15,700.00	7,364.00	7,570.59	7,569.75	140.61	6.28	92.41	-1,960.65	3,786.20	5,056.55	4,999.64	56.91	88.859	
15,800.00	7,364.00	7,572.06	7,571.22	142.18	6.28	92.47	-1,960.68	3,786.22	5,153.59	5,096.83	56.76	90.794	
15,900.00	7,364.00	7,573.53	7,572.69	143.75	6.28	92.54	-1,960.71	3,786.25	5,250.74	5,194.12	56.62	92.729	
16,000.00	7,364.00	7,575.03	7,574.18	145.33	6.28	92.61	-1,960.75	3,786.27	5,348.00	5,291.51	56.50	94.663	
16,100.00	7,364.00	7,578.44	7,577.59	146.90	6.29	92.77	-1,960.83	3,786.33	5,445.36	5,388.98	56.38	96.591	
16,200.00	7,364.00	7,582.02	7,581.17	148.47	6.29	92.94	-1,960.92	3,786.39	5,542.81	5,486.55	56.26	98.517	
16,300.00	7,364.00	7,585.79	7,584.93	150.04	6.29	93.11	-1,961.01	3,786.45	5,640.34	5,584.19	56.16	100.441	
16,400.00	7,364.00	7,589.75	7,588.89	151.62	6.30	93.29	-1,961.11	3,786.52	5,737.97	5,681.91	56.06	102.361	
16,500.00	7,364.00	7,593.92	7,593.06	153.19	6.30	93.49	-1,961.22	3,786.60	5,835.67	5,779.70	55.96	104.279	
16,600.00	7,364.00	7,598.32	7,597.46	154.77	6.30	93.69	-1,961.33	3,786.68	5,933.44	5,877.57	55.87	106.193	
16,700.00	7,364.00	7,602.96	7,602.10	156.34	6.31	93.91	-1,961.45	3,786.77	6,031.29	5,975.50	55.79	108.103	
16,800.00	7,364.00	7,595.66	7,594.80	157.92	6.30	93.57	-1,961.27	3,786.64	6,129.20	6,073.51	55.70	110.046	
16,900.00	7,364.00	7,604.40	7,603.54	159.49	6.31	93.97	-1,961.49	3,786.80	6,227.19	6,171.56	55.63	111.938	
17,000.00	7,364.00	7,606.08	7,605.22	161.07	6.31	94.05	-1,961.54	3,786.83	6,325.23	6,269.67	55.56	113.848	
17,100.00	7,364.00	7,607.77	7,606.91	162.65	6.31	94.13	-1,961.58	3,786.86	6,423.34	6,367.85	55.49	115.754	
17,200.00	7,364.00	7,609.47	7,608.61	164.23	6.31	94.21	-1,961.63	3,786.90	6,521.50	6,466.07	55.43	117.657	
17,300.00	7,364.00	7,611.18	7,610.31	165.81	6.31	94.28	-1,961.68	3,786.93	6,619.71	6,564.34	55.37	119.557	
17,400.00	7,364.00	7,612.89	7,612.02	167.38	6.31	94.36	-1,961.73	3,786.96	6,717.98	6,662.67	55.31	121.452	
17,500.00	7,364.00	7,614.60	7,613.74	168.96	6.31	94.44	-1,961.78	3,787.00	6,816.30	6,761.04	55.26	123.343	
17,600.00	7,364.00	7,616.33	7,615.46	170.54	6.32	94.52	-1,961.83	3,787.03	6,914.67	6,859.45	55.22	125.231	
17,700.00	7,364.00	7,618.06	7,617.19	172.12	6.32	94.60	-1,961.88	3,787.06	7,013.08	6,957.90	55.17	127.113	
17,800.00	7,364.00	7,619.79	7,618.92	173.70	6.32	94.68	-1,961.93	3,787.10	7,111.53	7,056.40	55.13	128.992	
17,900.00	7,364.00	7,621.54	7,620.67	175.28	6.32	94.76	-1,961.99	3,787.13	7,210.03	7,154.93	55.09	130.866	
18,000.00	7,364.00	7,623.29	7,622.42	176.87	6.32	94.84	-1,962.04	3,787.17	7,308.57	7,253.51	55.06	132.735	
18,100.00	7,364.00	7,625.00	7,624.13	178.45	6.32	94.92	-1,962.10	3,787.20	7,407.14	7,352.11	55.03	134.600	
18,200.00	7,364.00	7,625.00	7,624.13	180.03	6.32	94.92	-1,962.10	3,787.20	7,505.76	7,450.76	55.00	136.467	
18,300.00	7,364.00	7,625.00	7,624.13	181.61	6.32	94.92	-1,962.10	3,787.20	7,604.41	7,549.43	54.97	138.330	
18,400.00	7,364.00	7,625.00	7,624.13	183.19	6.32	94.92	-1,962.10	3,787.20	7,703.09	7,648.14	54.95	140.187	
18,500.00	7,364.00	7,625.00	7,624.13	184.78	6.32	94.92	-1,962.10	3,787.20	7,801.81	7,746.88	54.93	142.040	
18,600.00	7,364.00	7,630.95	7,630.07	186.36	6.33	95.19	-1,962.29	3,787.32	7,900.56	7,845.64	54.92	143.862	
18,700.00	7,364.00	7,632.10	7,631.22	187.94	6.33	95.25	-1,962.33	3,787.34	7,999.34	7,944.43	54.90	145.699	
18,800.00	7,364.00	7,633.24	7,632.36	189.53	6.33	95.30	-1,962.36	3,787.36	8,098.15	8,043.26	54.89	147.531	
18,900.00	7,364.00	7,634.37	7,633.49	191.11	6.33	95.35	-1,962.40	3,787.38	8,196.99	8,142.10	54.88	149.358	
19,000.00	7,364.00	7,635.49	7,634.61	192.70	6.33	95.40	-1,962.44	3,787.40	8,295.85	8,240.98	54.87	151.179	
19,100.00	7,364.00	7,636.61	7,635.72	194.28	6.33	95.45	-1,962.47	3,787.42	8,394.74	8,339.87	54.87	152.995	
19,200.00	7,364.00	7,637.71	7,636.83	195.87	6.33	95.50	-1,962.51	3,787.45	8,493.66	8,438.80	54.87	154.806	
19,300.00	7,364.00	7,638.81	7,637.92	197.45	6.33	95.55	-1,962.55	3,787.47	8,592.61	8,537.74	54.87	156.611	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #077C - OH - OH-SVY

Offset Site Error: 0.00 usft

Survey Program: 100-Standard Keeper 104 **Offset Well Error:** 3.28 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
19,400.00	7,364.00	7,639.89	7,639.01	199.04	6.33	95.60	-1,962.58	3,787.49	8,691.57	8,636.70	54.87	158.410	
19,500.00	7,364.00	7,640.97	7,640.08	200.62	6.33	95.65	-1,962.62	3,787.51	8,790.56	8,735.69	54.87	160.204	
19,600.00	7,364.00	7,642.03	7,641.15	202.21	6.34	95.70	-1,962.65	3,787.53	8,889.58	8,834.70	54.88	161.992	
19,700.00	7,364.00	7,643.09	7,642.20	203.79	6.34	95.75	-1,962.69	3,787.55	8,988.61	8,933.73	54.88	163.774	
19,800.00	7,364.00	7,644.14	7,643.25	205.38	6.34	95.80	-1,962.72	3,787.56	9,087.66	9,032.77	54.89	165.550	
19,900.00	7,364.00	7,650.00	7,649.11	206.97	6.34	96.07	-1,962.92	3,787.67	9,186.74	9,131.83	54.91	167.296	
20,000.00	7,364.00	7,650.00	7,649.11	208.55	6.34	96.07	-1,962.92	3,787.67	9,285.84	9,230.91	54.92	169.066	
20,100.00	7,364.00	7,650.00	7,649.11	210.14	6.34	96.07	-1,962.92	3,787.67	9,384.95	9,330.01	54.94	170.830	
20,200.00	7,364.00	7,650.00	7,649.11	211.73	6.34	96.07	-1,962.92	3,787.67	9,484.08	9,429.13	54.95	172.587	
20,300.00	7,364.00	7,650.00	7,649.11	213.32	6.34	96.07	-1,962.92	3,787.67	9,583.23	9,528.26	54.97	174.339	
20,400.00	7,364.00	7,650.00	7,649.11	214.90	6.34	96.07	-1,962.92	3,787.67	9,682.40	9,627.41	54.99	176.085	
20,500.00	7,364.00	7,650.00	7,649.11	216.49	6.34	96.07	-1,962.92	3,787.67	9,781.58	9,726.58	55.01	177.825	
20,600.00	7,364.00	7,650.00	7,649.11	218.08	6.34	96.07	-1,962.92	3,787.67	9,880.78	9,825.76	55.03	179.558	
20,700.00	7,364.00	7,650.00	7,649.11	219.67	6.34	96.07	-1,962.92	3,787.67	9,980.00	9,924.95	55.05	181.286	
20,800.00	7,364.00	7,650.00	7,649.11	221.26	6.34	96.07	-1,962.92	3,787.67	10,079.23	10,024.16	55.08	183.007	
20,900.00	7,364.00	7,650.00	7,649.11	222.84	6.34	96.07	-1,962.92	3,787.67	10,178.48	10,123.38	55.10	184.722	
21,000.00	7,364.00	7,650.00	7,649.11	224.43	6.34	96.07	-1,962.92	3,787.67	10,277.74	10,222.61	55.13	186.431	
21,100.00	7,364.00	7,650.00	7,649.11	226.02	6.34	96.07	-1,962.92	3,787.67	10,377.02	10,321.86	55.16	188.134	
21,200.00	7,364.00	7,650.00	7,649.11	227.61	6.34	96.07	-1,962.92	3,787.67	10,476.31	10,421.12	55.19	189.830	
21,300.00	7,364.00	7,650.00	7,649.11	229.20	6.34	96.07	-1,962.92	3,787.67	10,575.61	10,520.39	55.22	191.520	
21,400.00	7,364.00	7,650.00	7,649.11	230.79	6.34	96.07	-1,962.92	3,787.67	10,674.93	10,619.68	55.25	193.203	
21,500.00	7,364.00	7,650.00	7,649.11	232.38	6.34	96.07	-1,962.92	3,787.67	10,774.26	10,718.97	55.29	194.881	
21,600.00	7,364.00	7,650.00	7,649.11	233.97	6.34	96.07	-1,962.92	3,787.67	10,873.60	10,818.28	55.32	196.552	
21,700.00	7,364.00	7,650.00	7,649.11	235.56	6.34	96.07	-1,962.92	3,787.67	10,972.95	10,917.59	55.36	198.216	
21,800.00	7,364.00	7,650.00	7,649.11	237.15	6.34	96.07	-1,962.92	3,787.67	11,072.32	11,016.92	55.40	199.874	
21,864.93	7,364.00	7,650.00	7,649.11	238.18	6.34	96.07	-1,962.92	3,787.67	11,136.84	11,081.42	55.42	200.947	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #097 - OH - OH-INC — **Offset Site Error:** 0.00 usft

Survey Program: 97-A027Ua_INC-ONLY — **Rule Assigned:** — **Offset Well Error:** 3.28 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	3.28	3.28	-94.75	-773.18	-9,304.35	9,336.44				
100.00	100.00	81.00	81.00	3.29	3.58	-94.75	-773.18	-9,304.35	9,336.42	9,329.55	6.87	1,359.053	
200.00	200.00	181.00	181.00	3.34	4.60	-94.75	-773.18	-9,304.35	9,336.42	9,328.48	7.94	1,175.711	
212.31	212.31	193.24	193.24	3.34	4.76	-94.75	-773.08	-9,304.35	9,336.42	9,328.31	8.11	1,151.668	CC
300.00	300.00	279.36	279.36	3.42	5.98	-94.75	-773.17	-9,304.35	9,336.42	9,327.02	9.40	992.869	
400.00	400.00	381.01	381.00	3.54	7.66	-94.75	-773.18	-9,304.35	9,336.42	9,325.23	11.20	833.856	
500.00	500.00	481.01	481.00	3.69	9.52	-94.75	-773.18	-9,304.35	9,336.42	9,323.22	13.21	707.005	
600.00	599.98	580.99	580.98	3.86	11.43	115.25	-773.18	-9,304.35	9,337.17	9,321.88	15.29	610.838	
700.00	699.84	679.70	679.68	4.04	13.35	115.24	-772.41	-9,304.35	9,339.34	9,321.95	17.39	537.086	
808.00	807.41	785.16	785.14	4.27	15.42	115.21	-772.72	-9,304.35	9,343.45	9,323.77	19.69	474.624	
900.00	898.89	879.95	879.89	4.49	17.31	98.10	-773.18	-9,304.35	9,346.30	9,324.50	21.80	428.822	
912.12	910.94	892.01	891.94	4.52	17.58	95.87	-773.18	-9,304.35	9,346.46	9,324.37	22.09	423.070	
1,000.00	998.31	979.38	979.31	4.74	19.52	95.93	-773.18	-9,304.35	9,347.43	9,323.18	24.26	385.344	
1,100.00	1,097.73	1,078.79	1,078.71	5.01	21.74	96.00	-772.27	-9,304.35	9,348.48	9,321.74	26.74	349.551	
1,200.00	1,197.15	1,175.32	1,175.24	5.29	23.89	96.06	-772.47	-9,304.35	9,349.63	9,320.45	29.19	320.340	
1,300.00	1,296.58	1,271.94	1,271.85	5.59	26.06	96.12	-773.05	-9,304.35	9,350.83	9,319.18	31.65	295.472	
1,400.00	1,396.00	1,377.17	1,377.00	5.90	28.37	96.19	-773.18	-9,304.35	9,351.99	9,317.73	34.27	272.916	
1,500.00	1,495.42	1,476.59	1,476.42	6.22	30.55	96.26	-773.18	-9,304.35	9,353.16	9,316.40	36.76	254.419	
1,600.00	1,594.84	1,573.02	1,572.83	6.54	32.67	96.33	-771.94	-9,304.35	9,354.26	9,315.05	39.20	238.612	
1,700.00	1,694.27	1,668.63	1,668.42	6.87	34.77	96.39	-772.65	-9,304.35	9,355.51	9,313.87	41.63	224.717	
1,800.00	1,793.69	1,774.94	1,774.69	7.21	36.95	96.45	-773.18	-9,304.35	9,356.75	9,312.59	44.16	211.894	
1,900.00	1,893.11	1,874.36	1,874.11	7.55	38.90	96.52	-773.18	-9,304.35	9,357.97	9,311.52	46.44	201.486	
2,000.00	1,992.53	1,973.79	1,973.53	7.89	40.85	96.58	-773.18	-9,304.35	9,359.20	9,310.46	48.74	192.035	
2,100.00	2,091.96	2,073.21	2,072.96	8.24	42.79	96.65	-773.18	-9,304.35	9,360.44	9,309.41	51.03	183.418	
2,200.00	2,191.38	2,172.63	2,172.38	8.60	44.74	96.71	-773.18	-9,304.35	9,361.70	9,308.36	53.33	175.531	
2,300.00	2,290.80	2,271.75	2,271.48	8.95	46.68	96.79	-771.50	-9,304.35	9,362.86	9,307.22	55.63	168.303	
2,400.00	2,390.22	2,370.44	2,370.17	9.31	48.62	96.85	-771.61	-9,304.35	9,364.14	9,306.22	57.92	161.665	
2,500.00	2,489.65	2,469.17	2,468.89	9.67	50.55	96.91	-771.85	-9,304.35	9,365.45	9,305.23	60.22	155.524	
2,600.00	2,589.07	2,567.92	2,567.64	10.03	52.49	96.98	-772.21	-9,304.35	9,366.78	9,304.26	62.52	149.828	
2,700.00	2,688.49	2,666.70	2,666.42	10.40	54.43	97.04	-772.69	-9,304.35	9,368.13	9,303.31	64.82	144.530	
2,800.00	2,787.91	2,769.25	2,768.91	10.76	56.46	97.10	-773.18	-9,304.35	9,369.48	9,302.27	67.21	139.402	
2,900.00	2,887.33	2,868.68	2,868.33	11.13	58.49	97.17	-773.18	-9,304.35	9,370.82	9,301.22	69.61	134.621	
3,000.00	2,986.76	2,968.10	2,967.76	11.50	60.52	97.23	-773.18	-9,304.35	9,372.18	9,300.17	72.01	130.156	
3,100.00	3,086.18	3,067.52	3,067.18	11.87	62.55	97.29	-773.18	-9,304.35	9,373.54	9,299.13	74.41	125.977	
3,200.00	3,185.60	3,166.94	3,166.60	12.24	64.58	97.36	-773.18	-9,304.35	9,374.92	9,298.11	76.81	122.057	
3,300.00	3,285.02	3,266.37	3,266.02	12.61	66.61	97.42	-773.18	-9,304.35	9,376.31	9,297.10	79.21	118.373	
3,400.00	3,384.45	3,365.79	3,365.45	12.98	68.64	97.49	-773.18	-9,304.35	9,377.71	9,296.09	81.61	114.904	
3,500.00	3,483.87	3,465.21	3,464.87	13.36	70.67	97.55	-773.18	-9,304.35	9,379.12	9,295.10	84.02	111.633	
3,600.00	3,583.29	3,564.36	3,564.00	13.73	72.69	97.63	-770.76	-9,304.35	9,380.42	9,294.01	86.42	108.549	
3,700.00	3,682.71	3,663.40	3,663.04	14.11	74.72	97.70	-770.86	-9,304.35	9,381.87	9,293.05	88.81	105.634	
3,800.00	3,782.14	3,762.46	3,762.09	14.48	76.74	97.76	-771.05	-9,304.35	9,383.33	9,292.12	91.21	102.871	
3,900.00	3,881.56	3,861.54	3,861.17	14.86	78.77	97.82	-771.32	-9,304.35	9,384.81	9,291.19	93.61	100.249	
4,000.00	3,980.98	3,960.64	3,960.27	15.24	80.79	97.88	-771.69	-9,304.35	9,386.30	9,290.28	96.02	97.758	
4,100.00	4,080.40	4,059.76	4,059.39	15.61	82.82	97.95	-772.13	-9,304.35	9,387.80	9,289.39	98.42	95.387	
4,200.00	4,179.83	4,158.91	4,158.52	15.99	84.84	98.01	-772.67	-9,304.35	9,389.33	9,288.50	100.82	93.128	
4,300.00	4,279.25	4,260.77	4,260.25	16.37	86.92	98.07	-773.18	-9,304.35	9,390.86	9,287.58	103.28	90.925	
4,400.00	4,378.67	4,360.19	4,359.67	16.75	88.96	98.13	-773.18	-9,304.35	9,392.38	9,286.69	105.69	88.866	
4,500.00	4,478.09	4,458.17	4,457.65	17.13	90.96	98.20	-772.66	-9,304.35	9,393.89	9,285.82	108.07	86.922	
4,600.00	4,577.51	4,559.07	4,558.51	17.51	93.06	98.26	-773.18	-9,304.35	9,395.46	9,284.90	110.56	84.983	
4,700.00	4,676.94	4,658.49	4,657.94	17.89	95.33	98.33	-773.18	-9,304.35	9,397.01	9,283.81	113.21	83.008	
4,800.00	4,776.36	4,757.91	4,757.36	18.27	97.60	98.39	-773.18	-9,304.35	9,398.58	9,282.73	115.86	81.123	
4,900.00	4,875.78	4,856.45	4,855.89	18.65	99.85	98.46	-772.57	-9,304.35	9,400.14	9,281.66	118.49	79.336	

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 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #097 - OH - OH-INC — **Offset Site Error:** 0.00 usft

Survey Program: 97-A027Ua_INC-ONLY — **Offset Well Error:** 3.28 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,000.00	4,975.20	4,955.00	4,954.43	19.03	102.10	98.52	-772.98	-9,304.35	9,401.75	9,280.64	121.12	77.626	
5,100.00	5,074.63	5,056.29	5,055.63	19.41	104.48	98.58	-773.18	-9,304.35	9,403.36	9,279.49	123.87	75.914	
5,200.00	5,174.05	5,153.17	5,152.48	19.79	106.77	98.65	-772.63	-9,304.35	9,404.96	9,278.42	126.54	74.321	
5,300.00	5,273.47	5,255.20	5,254.47	20.17	109.10	98.71	-773.18	-9,304.35	9,406.61	9,277.36	129.25	72.776	
5,400.00	5,372.89	5,354.62	5,353.89	20.56	111.30	98.78	-773.18	-9,304.35	9,408.25	9,276.42	131.83	71.365	
5,500.00	5,472.32	5,454.04	5,453.32	20.94	113.49	98.84	-773.18	-9,304.35	9,409.90	9,275.49	134.41	70.009	
5,600.00	5,571.74	5,553.47	5,552.74	21.32	115.69	98.91	-773.18	-9,304.35	9,411.57	9,274.58	136.99	68.703	
5,700.00	5,671.16	5,652.89	5,652.16	21.70	117.89	98.97	-773.18	-9,304.35	9,413.25	9,273.68	139.57	67.445	
5,800.00	5,770.58	5,752.31	5,751.58	22.08	120.08	99.03	-773.18	-9,304.35	9,414.93	9,272.79	142.15	66.234	
5,900.00	5,870.01	5,851.50	5,850.74	22.47	122.28	99.11	-770.69	-9,304.35	9,416.58	9,271.85	144.72	65.067	
6,000.00	5,969.43	5,950.63	5,949.87	22.85	124.47	99.18	-770.88	-9,304.35	9,418.30	9,271.00	147.29	63.942	
6,100.00	6,068.85	6,049.80	6,049.04	23.23	126.66	99.24	-771.21	-9,304.35	9,420.03	9,270.16	149.87	62.855	
6,200.00	6,168.27	6,149.00	6,148.23	23.62	128.85	99.30	-771.69	-9,304.35	9,421.78	9,269.34	152.44	61.805	
6,300.00	6,267.70	6,248.24	6,247.46	24.00	131.05	99.36	-772.31	-9,304.35	9,423.54	9,268.52	155.02	60.789	
6,400.00	6,367.12	6,347.51	6,346.72	24.38	133.24	99.42	-773.09	-9,304.35	9,425.32	9,267.72	157.60	59.807	
6,500.00	6,466.54	6,448.49	6,447.54	24.77	135.71	99.48	-773.18	-9,304.35	9,427.09	9,266.64	160.45	58.755	
6,600.00	6,565.96	6,547.91	6,546.96	25.15	138.16	99.55	-773.18	-9,304.35	9,428.87	9,265.59	163.29	57.745	
6,700.00	6,665.38	6,647.11	6,646.14	25.53	140.61	99.62	-771.84	-9,304.35	9,430.65	9,264.53	166.12	56.770	
6,778.75	6,743.68	6,725.00	6,724.02	25.84	142.54	99.67	-772.10	-9,304.35	9,432.08	9,263.73	168.35	56.028 ES	
6,800.00	6,764.80	6,746.02	6,745.04	25.92	143.06	115.70	-772.22	-9,304.35	9,432.82	9,263.87	168.95	55.833	
6,850.00	6,814.29	6,795.30	6,794.31	26.11	144.27	140.11	-772.57	-9,304.35	9,437.36	9,267.00	170.35	55.398	
6,900.00	6,863.27	6,844.09	6,843.10	26.30	145.48	152.07	-773.01	-9,304.35	9,445.79	9,274.04	171.75	54.998	
6,950.00	6,911.44	6,893.56	6,892.44	26.50	146.73	158.58	-773.18	-9,304.35	9,458.06	9,284.88	173.19	54.612	
7,000.00	6,958.49	6,940.61	6,939.49	26.68	147.94	162.55	-773.18	-9,304.35	9,474.10	9,299.52	174.57	54.270	
7,050.00	7,004.14	6,986.26	6,985.14	26.87	149.12	165.18	-773.18	-9,304.35	9,493.80	9,317.88	175.92	53.967	
7,100.00	7,048.10	7,030.23	7,029.10	27.05	150.24	167.02	-773.18	-9,304.35	9,517.05	9,339.84	177.21	53.704	
7,150.00	7,090.11	7,072.24	7,071.11	27.23	151.32	168.37	-773.18	-9,304.35	9,543.70	9,365.26	178.45	53.482	
7,200.00	7,129.90	7,112.02	7,110.87	27.41	152.35	169.39	-771.27	-9,304.35	9,573.57	9,393.96	179.61	53.301	
7,250.00	7,167.24	7,149.18	7,148.02	27.59	153.30	170.16	-771.31	-9,304.35	9,606.52	9,425.82	180.70	53.162	
7,300.00	7,201.88	7,183.68	7,182.52	27.76	154.19	170.74	-771.43	-9,304.35	9,642.31	9,460.60	181.71	53.064	
7,350.00	7,233.63	7,215.31	7,214.14	27.94	155.00	171.16	-771.60	-9,304.35	9,680.73	9,498.10	182.63	53.007	
7,400.00	7,262.27	7,243.86	7,242.69	28.13	155.73	171.46	-771.81	-9,304.35	9,721.55	9,538.09	183.46	52.990 SF	
7,450.00	7,287.63	7,269.16	7,267.98	28.32	156.38	171.63	-772.04	-9,304.35	9,764.50	9,580.31	184.19	53.012	
7,500.00	7,309.57	7,291.04	7,289.86	28.53	156.94	171.67	-772.26	-9,304.35	9,809.33	9,624.50	184.82	53.074	
7,550.00	7,327.93	7,309.37	7,308.18	28.74	157.41	171.54	-772.47	-9,304.35	9,855.75	9,670.40	185.35	53.173	
7,600.00	7,342.62	7,324.03	7,322.84	28.97	157.79	171.14	-772.66	-9,304.35	9,903.49	9,717.72	185.77	53.310	
7,650.00	7,353.53	7,334.93	7,333.74	29.22	158.07	170.21	-772.80	-9,304.35	9,952.24	9,766.15	186.09	53.482	
7,700.00	7,360.61	7,342.00	7,340.81	29.48	158.25	167.66	-772.90	-9,304.35	10,001.71	9,815.42	186.29	53.689	
7,750.00	7,363.80	7,345.20	7,344.00	29.75	158.33	150.45	-772.95	-9,304.35	10,051.58	9,865.20	186.38	53.929	
7,765.93	7,364.00	7,345.39	7,344.20	29.84	158.34	89.60	-772.95	-9,304.35	10,067.51	9,881.12	186.39	54.013	
7,800.00	7,364.00	7,345.40	7,344.20	30.04	158.34	89.60	-772.95	-9,304.35	10,101.58	9,915.18	186.40	54.194	
7,900.00	7,364.00	7,345.40	7,344.21	30.67	158.34	89.60	-772.95	-9,304.35	10,201.57	10,015.16	186.41	54.726	
8,000.00	7,364.00	7,345.41	7,344.21	31.37	158.34	89.61	-772.95	-9,304.35	10,301.57	10,115.14	186.42	55.259	
8,100.00	7,364.00	7,345.42	7,344.22	32.14	158.34	89.61	-772.95	-9,304.35	10,401.56	10,215.12	186.44	55.790	
8,200.00	7,364.00	7,345.43	7,344.23	32.96	158.34	89.61	-772.95	-9,304.35	10,501.55	10,315.10	186.46	56.322	
8,300.00	7,364.00	7,345.43	7,344.24	33.85	158.34	89.62	-772.95	-9,304.35	10,601.55	10,415.07	186.47	56.853	
8,400.00	7,364.00	7,345.44	7,344.24	34.79	158.34	89.62	-772.95	-9,304.35	10,701.54	10,515.05	186.49	57.384	
8,500.00	7,364.00	7,345.45	7,344.25	35.77	158.34	89.63	-772.95	-9,304.35	10,801.54	10,615.03	186.51	57.914	
8,600.00	7,364.00	7,345.46	7,344.26	36.80	158.34	89.63	-772.95	-9,304.35	10,901.53	10,715.00	186.53	58.444	
8,700.00	7,364.00	7,345.46	7,344.26	37.87	158.34	89.63	-772.95	-9,304.35	11,001.52	10,814.98	186.55	58.974	
8,800.00	7,364.00	7,345.47	7,344.27	38.98	158.34	89.64	-772.95	-9,304.35	11,101.52	10,914.95	186.57	59.504	
8,900.00	7,364.00	7,345.48	7,344.28	40.12	158.34	89.64	-772.95	-9,304.35	11,201.51	11,014.92	186.59	60.032	

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 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #097 - OH - OH-INC

Offset Site Error: 0.00 usft

Survey Program: 97-A027Ua_INC-ONLY **Rule Assigned:** **Offset Well Error:** 3.28 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,000.00	7,364.00	7,345.48	7,344.29	41.29	158.34	89.64	-772.95	-9,304.35	11,301.51	11,114.90	186.61	60.561	
9,100.00	7,364.00	7,345.49	7,344.29	42.49	158.34	89.65	-772.95	-9,304.35	11,401.50	11,214.87	186.64	61.089	
9,200.00	7,364.00	7,345.50	7,344.30	43.71	158.34	89.65	-772.95	-9,304.35	11,501.50	11,314.84	186.66	61.617	
9,300.00	7,364.00	7,345.51	7,344.31	44.96	158.34	89.65	-772.95	-9,304.35	11,601.49	11,414.81	186.69	62.144	
9,400.00	7,364.00	7,345.51	7,344.32	46.23	158.34	89.66	-772.95	-9,304.35	11,701.49	11,514.78	186.71	62.671	
9,500.00	7,364.00	7,345.52	7,344.32	47.52	158.34	89.66	-772.95	-9,304.35	11,801.48	11,614.75	186.74	63.198	
9,600.00	7,364.00	7,345.53	7,344.33	48.83	158.34	89.67	-772.95	-9,304.35	11,901.48	11,714.71	186.77	63.724	
9,700.00	7,364.00	7,345.54	7,344.34	50.15	158.34	89.67	-772.95	-9,304.35	12,001.47	11,814.68	186.79	64.250	
9,800.00	7,364.00	7,345.54	7,344.34	51.49	158.34	89.67	-772.95	-9,304.35	12,101.47	11,914.65	186.82	64.775	
9,900.00	7,364.00	7,345.55	7,344.35	52.85	158.34	89.68	-772.95	-9,304.35	12,201.47	12,014.61	186.85	65.300	
10,000.00	7,364.00	7,345.56	7,344.36	54.22	158.34	89.68	-772.95	-9,304.35	12,301.46	12,114.58	186.88	65.824	
10,100.00	7,364.00	7,345.57	7,344.37	55.60	158.34	89.68	-772.95	-9,304.35	12,401.46	12,214.54	186.91	66.348	
10,200.00	7,364.00	7,345.57	7,344.37	56.99	158.34	89.69	-772.95	-9,304.35	12,501.45	12,314.51	186.95	66.872	
10,300.00	7,364.00	7,345.58	7,344.38	58.40	158.34	89.69	-772.95	-9,304.35	12,601.45	12,414.47	186.98	67.395	
10,400.00	7,364.00	7,345.59	7,344.39	59.81	158.34	89.69	-772.95	-9,304.35	12,701.44	12,514.43	187.01	67.917	
10,500.00	7,364.00	7,345.59	7,344.40	61.23	158.34	89.70	-772.95	-9,304.35	12,801.44	12,614.39	187.05	68.439	
10,600.00	7,364.00	7,345.60	7,344.40	62.66	158.35	89.70	-772.95	-9,304.35	12,901.44	12,714.35	187.08	68.961	
10,700.00	7,364.00	7,345.61	7,344.41	64.10	158.35	89.71	-772.95	-9,304.35	13,001.43	12,814.31	187.12	69.482	
10,800.00	7,364.00	7,345.62	7,344.42	65.55	158.35	89.71	-772.95	-9,304.35	13,101.43	12,914.27	187.16	70.002	
10,900.00	7,364.00	7,345.62	7,344.42	67.01	158.35	89.71	-772.95	-9,304.35	13,201.43	13,014.23	187.20	70.522	
11,000.00	7,364.00	7,345.63	7,344.43	68.47	158.35	89.72	-772.95	-9,304.35	13,301.42	13,114.19	187.23	71.042	
11,100.00	7,364.00	7,345.64	7,344.44	69.93	158.35	89.72	-772.95	-9,304.35	13,401.42	13,214.14	187.27	71.561	
11,200.00	7,364.00	7,345.65	7,344.45	71.41	158.35	89.72	-772.95	-9,304.35	13,501.41	13,314.10	187.31	72.079	
11,300.00	7,364.00	7,345.65	7,344.45	72.88	158.35	89.73	-772.95	-9,304.35	13,601.41	13,414.06	187.35	72.597	
11,400.00	7,364.00	7,345.66	7,344.46	74.37	158.35	89.73	-772.95	-9,304.35	13,701.41	13,514.01	187.40	73.115	
11,500.00	7,364.00	7,345.67	7,344.47	75.85	158.35	89.73	-772.95	-9,304.35	13,801.40	13,613.97	187.44	73.632	
11,600.00	7,364.00	7,345.67	7,344.48	77.35	158.35	89.74	-772.95	-9,304.35	13,901.40	13,713.92	187.48	74.148	
11,700.00	7,364.00	7,345.68	7,344.48	78.84	158.35	89.74	-772.96	-9,304.35	14,001.40	13,813.87	187.53	74.664	
11,800.00	7,364.00	7,345.69	7,344.49	80.34	158.35	89.75	-772.96	-9,304.35	14,101.39	13,913.82	187.57	75.179	
11,900.00	7,364.00	7,345.70	7,344.50	81.85	158.35	89.75	-772.96	-9,304.35	14,201.39	14,013.77	187.62	75.694	
12,000.00	7,364.00	7,345.70	7,344.51	83.36	158.35	89.75	-772.96	-9,304.35	14,301.39	14,113.72	187.66	76.208	
12,100.00	7,364.00	7,345.71	7,344.51	84.87	158.35	89.76	-772.96	-9,304.35	14,401.38	14,213.67	187.71	76.722	
12,200.00	7,364.00	7,345.72	7,344.52	86.38	158.35	89.76	-772.96	-9,304.35	14,501.38	14,313.62	187.76	77.235	
12,300.00	7,364.00	7,345.73	7,344.53	87.90	158.35	89.76	-772.96	-9,304.35	14,601.38	14,413.57	187.81	77.747	
12,400.00	7,364.00	7,345.73	7,344.53	89.42	158.35	89.77	-772.96	-9,304.35	14,701.37	14,513.52	187.85	78.259	
12,500.00	7,364.00	7,345.74	7,344.54	90.95	158.35	89.77	-772.96	-9,304.35	14,801.37	14,613.47	187.90	78.771	
12,600.00	7,364.00	7,345.75	7,344.55	92.47	158.35	89.77	-772.96	-9,304.35	14,901.37	14,713.41	187.96	79.281	
12,700.00	7,364.00	7,345.76	7,344.56	94.00	158.35	89.78	-772.96	-9,304.35	15,001.37	14,813.36	188.01	79.792	
12,800.00	7,364.00	7,345.76	7,344.56	95.53	158.35	89.78	-772.96	-9,304.35	15,101.36	14,913.30	188.06	80.301	
12,900.00	7,364.00	7,345.77	7,344.57	97.06	158.35	89.79	-772.96	-9,304.35	15,201.36	15,013.25	188.11	80.810	
13,000.00	7,364.00	7,345.78	7,344.58	98.60	158.35	89.79	-772.96	-9,304.35	15,301.36	15,113.19	188.17	81.319	
13,100.00	7,364.00	7,345.78	7,344.59	100.14	158.35	89.79	-772.96	-9,304.35	15,401.35	15,213.13	188.22	81.826	
13,200.00	7,364.00	7,345.79	7,344.59	101.68	158.35	89.80	-772.96	-9,304.35	15,501.35	15,313.08	188.28	82.334	
13,300.00	7,364.00	7,345.80	7,344.60	103.22	158.35	89.80	-772.96	-9,304.35	15,601.35	15,413.02	188.33	82.840	
13,400.00	7,364.00	7,345.81	7,344.61	104.76	158.35	89.80	-772.96	-9,304.35	15,701.35	15,512.96	188.39	83.346	
13,500.00	7,364.00	7,345.81	7,344.62	106.31	158.35	89.81	-772.96	-9,304.35	15,801.34	15,612.90	188.44	83.851	
13,600.00	7,364.00	7,345.82	7,344.62	107.85	158.35	89.81	-772.96	-9,304.35	15,901.34	15,712.84	188.50	84.356	
13,700.00	7,364.00	7,345.83	7,344.63	109.40	158.35	89.82	-772.96	-9,304.35	16,001.34	15,812.78	188.56	84.860	
13,800.00	7,364.00	7,345.84	7,344.64	110.95	158.35	89.82	-772.96	-9,304.35	16,101.34	15,912.71	188.62	85.364	
13,900.00	7,364.00	7,345.84	7,344.64	112.50	158.35	89.82	-772.96	-9,304.35	16,201.33	16,012.65	188.68	85.866	
14,000.00	7,364.00	7,345.85	7,344.65	114.05	158.35	89.83	-772.96	-9,304.35	16,301.33	16,112.59	188.74	86.369	
14,100.00	7,364.00	7,345.86	7,344.66	115.61	158.35	89.83	-772.96	-9,304.35	16,401.33	16,212.53	188.80	86.870	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #097 - OH - OH-INC

Offset Site Error: 0.00 usft

Survey Program: 97-A027Ua_INC-ONLY

Offset Well Error: 3.28 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,200.00	7,364.00	7,345.87	7,344.67	117.16	158.35	89.83	-772.96	-9,304.35	16,501.33	16,312.46	188.86	87.371	
14,300.00	7,364.00	7,345.87	7,344.67	118.72	158.35	89.84	-772.96	-9,304.35	16,601.32	16,412.40	188.93	87.871	
14,400.00	7,364.00	7,345.88	7,344.68	120.28	158.35	89.84	-772.96	-9,304.35	16,701.32	16,512.33	188.99	88.371	
14,500.00	7,364.00	7,345.89	7,344.69	121.84	158.35	89.84	-772.96	-9,304.35	16,801.32	16,612.26	189.06	88.870	
14,600.00	7,364.00	7,345.89	7,344.70	123.40	158.35	89.85	-772.96	-9,304.35	16,901.32	16,712.20	189.12	89.368	
14,700.00	7,364.00	7,345.90	7,344.70	124.96	158.35	89.85	-772.96	-9,304.35	17,001.31	16,812.13	189.19	89.866	
14,800.00	7,364.00	7,345.91	7,344.71	126.52	158.35	89.86	-772.96	-9,304.35	17,101.31	16,912.06	189.25	90.363	
14,900.00	7,364.00	7,345.92	7,344.72	128.08	158.35	89.86	-772.96	-9,304.35	17,201.31	17,011.99	189.32	90.859	
15,000.00	7,364.00	7,345.92	7,344.73	129.64	158.35	89.86	-772.96	-9,304.35	17,301.31	17,111.92	189.39	91.355	
15,100.00	7,364.00	7,345.93	7,344.73	131.21	158.35	89.87	-772.96	-9,304.35	17,401.30	17,211.85	189.45	91.850	
15,200.00	7,364.00	7,345.94	7,344.74	132.77	158.35	89.87	-772.96	-9,304.35	17,501.30	17,311.78	189.52	92.344	
15,300.00	7,364.00	7,345.95	7,344.75	134.34	158.35	89.87	-772.96	-9,304.35	17,601.30	17,411.71	189.59	92.838	
15,400.00	7,364.00	7,345.95	7,344.75	135.91	158.35	89.88	-772.96	-9,304.35	17,701.30	17,511.64	189.66	93.331	
15,500.00	7,364.00	7,345.96	7,344.76	137.48	158.35	89.88	-772.96	-9,304.35	17,801.30	17,611.56	189.73	93.823	
15,600.00	7,364.00	7,345.97	7,344.77	139.04	158.35	89.88	-772.96	-9,304.35	17,901.29	17,711.49	189.80	94.315	
15,700.00	7,364.00	7,345.98	7,344.78	140.61	158.35	89.89	-772.96	-9,304.35	18,001.29	17,811.42	189.88	94.806	
15,800.00	7,364.00	7,345.98	7,344.78	142.18	158.35	89.89	-772.96	-9,304.35	18,101.29	17,911.34	189.95	95.296	
15,900.00	7,364.00	7,345.99	7,344.79	143.75	158.36	89.90	-772.96	-9,304.35	18,201.29	18,011.27	190.02	95.786	
16,000.00	7,364.00	7,346.00	7,344.80	145.33	158.36	89.90	-772.96	-9,304.35	18,301.29	18,111.19	190.09	96.275	
16,100.00	7,364.00	7,346.00	7,344.81	146.90	158.36	89.90	-772.96	-9,304.35	18,401.28	18,211.12	190.17	96.763	
16,200.00	7,364.00	7,346.01	7,344.81	148.47	158.36	89.91	-772.96	-9,304.35	18,501.28	18,311.04	190.24	97.250	
16,300.00	7,364.00	7,346.02	7,344.82	150.04	158.36	89.91	-772.96	-9,304.35	18,601.28	18,410.96	190.32	97.737	
16,400.00	7,364.00	7,346.03	7,344.83	151.62	158.36	89.91	-772.96	-9,304.35	18,701.28	18,510.88	190.40	98.223	
16,500.00	7,364.00	7,346.03	7,344.84	153.19	158.36	89.92	-772.96	-9,304.35	18,801.28	18,610.80	190.47	98.709	
16,600.00	7,364.00	7,346.04	7,344.84	154.77	158.36	89.92	-772.96	-9,304.35	18,901.27	18,710.73	190.55	99.194	
16,700.00	7,364.00	7,346.05	7,344.85	156.34	158.36	89.92	-772.96	-9,304.35	19,001.27	18,810.65	190.63	99.678	
16,800.00	7,364.00	7,346.06	7,344.86	157.92	158.36	89.93	-772.96	-9,304.35	19,101.27	18,910.57	190.71	100.161	
16,900.00	7,364.00	7,346.06	7,344.86	159.49	158.36	89.93	-772.96	-9,304.35	19,201.27	19,010.48	190.78	100.644	
17,000.00	7,364.00	7,346.07	7,344.87	161.07	158.36	89.94	-772.96	-9,304.35	19,301.27	19,110.40	190.86	101.126	
17,100.00	7,364.00	7,346.08	7,344.88	162.65	158.36	89.94	-772.96	-9,304.35	19,401.27	19,210.32	190.94	101.607	
17,200.00	7,364.00	7,346.09	7,344.89	164.23	158.36	89.94	-772.96	-9,304.35	19,501.26	19,310.24	191.02	102.088	
17,300.00	7,364.00	7,346.09	7,344.89	165.81	158.36	89.95	-772.96	-9,304.35	19,601.26	19,410.16	191.11	102.567	
17,400.00	7,364.00	7,346.10	7,344.90	167.38	158.36	89.95	-772.96	-9,304.35	19,701.26	19,510.07	191.19	103.047	
17,500.00	7,364.00	7,346.11	7,344.91	168.96	158.36	89.95	-772.96	-9,304.35	19,801.26	19,609.99	191.27	103.525	
17,600.00	7,364.00	7,346.11	7,344.92	170.54	158.36	89.96	-772.96	-9,304.35	19,901.26	19,709.90	191.35	104.003	
17,700.00	7,364.00	7,346.12	7,344.92	172.12	158.36	89.96	-772.96	-9,304.35	20,001.26	19,809.82	191.44	104.480	
17,800.00	7,364.00	7,346.13	7,344.93	173.70	158.36	89.97	-772.96	-9,304.35	20,101.25	19,909.73	191.52	104.956	
17,900.00	7,364.00	7,346.14	7,344.94	175.28	158.36	89.97	-772.96	-9,304.35	20,201.25	20,009.65	191.61	105.432	
18,000.00	7,364.00	7,346.14	7,344.95	176.87	158.36	89.97	-772.96	-9,304.35	20,301.25	20,109.56	191.69	105.907	
18,100.00	7,364.00	7,346.15	7,344.95	178.45	158.36	89.98	-772.96	-9,304.35	20,401.25	20,209.47	191.78	106.381	
18,200.00	7,364.00	7,346.16	7,344.96	180.03	158.36	89.98	-772.96	-9,304.35	20,501.25	20,309.39	191.86	106.854	
18,300.00	7,364.00	7,346.17	7,344.97	181.61	158.36	89.98	-772.96	-9,304.35	20,601.25	20,409.30	191.95	107.327	
18,400.00	7,364.00	7,346.17	7,344.97	183.19	158.36	89.99	-772.96	-9,304.35	20,701.24	20,509.21	192.04	107.799	
18,500.00	7,364.00	7,346.18	7,344.98	184.78	158.36	89.99	-772.96	-9,304.35	20,801.24	20,609.12	192.12	108.270	
18,600.00	7,364.00	7,346.19	7,344.99	186.36	158.36	89.99	-772.96	-9,304.35	20,901.24	20,709.03	192.21	108.741	
18,700.00	7,364.00	7,346.20	7,345.00	187.94	158.36	90.00	-772.96	-9,304.35	21,001.24	20,808.94	192.30	109.211	
18,800.00	7,364.00	7,346.20	7,345.00	189.53	158.36	90.00	-772.96	-9,304.35	21,101.24	20,908.85	192.39	109.680	
18,900.00	7,364.00	7,346.21	7,345.01	191.11	158.36	90.01	-772.96	-9,304.35	21,201.24	21,008.76	192.48	110.148	
19,000.00	7,364.00	7,346.22	7,345.02	192.70	158.36	90.01	-772.96	-9,304.35	21,301.24	21,108.67	192.57	110.616	
19,100.00	7,364.00	7,346.22	7,345.03	194.28	158.36	90.01	-772.96	-9,304.35	21,401.23	21,208.57	192.66	111.083	
19,200.00	7,364.00	7,346.23	7,345.03	195.87	158.36	90.02	-772.96	-9,304.35	21,501.23	21,308.48	192.75	111.549	
19,300.00	7,364.00	7,346.24	7,345.04	197.45	158.36	90.02	-772.96	-9,304.35	21,601.23	21,408.39	192.84	112.015	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #097 - OH - OH-INC

Offset Site Error: 0.00 usft

Survey Program: 97-A027Ua_INC-ONLY

Rule Assigned:

Offset Well Error: 3.28 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
19,400.00	7,364.00	7,346.25	7,345.05	199.04	158.36	90.02	-772.96	-9,304.35	21,701.23	21,508.30	192.93	112.480	
19,500.00	7,364.00	7,346.25	7,345.06	200.62	158.36	90.03	-772.96	-9,304.35	21,801.23	21,608.20	193.03	112.944	
19,600.00	7,364.00	7,346.26	7,345.06	202.21	158.36	90.03	-772.96	-9,304.35	21,901.23	21,708.11	193.12	113.407	
19,700.00	7,364.00	7,346.27	7,345.07	203.79	158.36	90.03	-772.96	-9,304.35	22,001.23	21,808.01	193.21	113.870	
19,800.00	7,364.00	7,346.28	7,345.08	205.38	158.36	90.04	-772.96	-9,304.35	22,101.22	21,907.92	193.31	114.332	
19,900.00	7,364.00	7,346.28	7,345.08	206.97	158.36	90.04	-772.96	-9,304.35	22,201.22	22,007.82	193.40	114.793	
20,000.00	7,364.00	7,346.29	7,345.09	208.55	158.36	90.05	-772.96	-9,304.35	22,301.22	22,107.72	193.50	115.254	
20,100.00	7,364.00	7,346.30	7,345.10	210.14	158.36	90.05	-772.96	-9,304.35	22,401.22	22,207.63	193.59	115.713	
20,200.00	7,364.00	7,346.31	7,345.11	211.73	158.36	90.05	-772.96	-9,304.35	22,501.22	22,307.53	193.69	116.172	
20,300.00	7,364.00	7,346.31	7,345.11	213.32	158.36	90.06	-772.96	-9,304.35	22,601.22	22,407.43	193.78	116.631	
20,400.00	7,364.00	7,346.32	7,345.12	214.90	158.36	90.06	-772.96	-9,304.35	22,701.22	22,507.34	193.88	117.088	
20,500.00	7,364.00	7,346.33	7,345.13	216.49	158.36	90.06	-772.96	-9,304.35	22,801.22	22,607.24	193.98	117.545	
20,600.00	7,364.00	7,346.34	7,345.14	218.08	158.36	90.07	-772.96	-9,304.35	22,901.21	22,707.14	194.08	118.001	
20,700.00	7,364.00	7,346.34	7,345.14	219.67	158.36	90.07	-772.96	-9,304.35	23,001.21	22,807.04	194.17	118.457	
20,800.00	7,364.00	7,346.35	7,345.15	221.26	158.36	90.08	-772.96	-9,304.35	23,101.21	22,906.94	194.27	118.912	
20,900.00	7,364.00	7,346.36	7,345.16	222.84	158.36	90.08	-772.96	-9,304.35	23,201.21	23,006.84	194.37	119.366	
21,000.00	7,364.00	7,346.36	7,345.17	224.43	158.36	90.08	-772.96	-9,304.35	23,301.21	23,106.74	194.47	119.819	
21,100.00	7,364.00	7,346.37	7,345.17	226.02	158.36	90.09	-772.96	-9,304.35	23,401.21	23,206.64	194.57	120.272	
21,200.00	7,364.00	7,346.38	7,345.18	227.61	158.37	90.09	-772.97	-9,304.35	23,501.21	23,306.54	194.67	120.723	
21,300.00	7,364.00	7,346.39	7,345.19	229.20	158.37	90.09	-772.97	-9,304.35	23,601.21	23,406.44	194.77	121.175	
21,400.00	7,364.00	7,346.39	7,345.20	230.79	158.37	90.10	-772.97	-9,304.35	23,701.20	23,506.33	194.87	121.625	
21,500.00	7,364.00	7,346.40	7,345.20	232.38	158.37	90.10	-772.97	-9,304.35	23,801.20	23,606.23	194.97	122.075	
21,600.00	7,364.00	7,346.41	7,345.21	233.97	158.37	90.10	-772.97	-9,304.35	23,901.20	23,706.13	195.07	122.524	
21,700.00	7,364.00	7,346.42	7,345.22	235.56	158.37	90.11	-772.97	-9,304.35	24,001.20	23,806.02	195.18	122.972	
21,800.00	7,364.00	7,346.42	7,345.22	237.15	158.37	90.11	-772.97	-9,304.35	24,101.20	23,905.92	195.28	123.419	
21,864.93	7,364.00	7,346.43	7,345.23	238.18	158.37	90.11	-772.97	-9,304.35	24,166.13	23,970.78	195.35	123.710	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #137 - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 122-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	3.28	0.00	-98.13	-1,320.83	-9,244.68	9,338.57				
100.00	100.00	84.00	84.00	3.29	0.89	-98.13	-1,320.83	-9,244.68	9,338.55	9,334.37	4.18	2,232.211	
197.57	197.57	181.56	181.55	3.33	2.47	-98.13	-1,320.57	-9,244.68	9,338.52	9,332.72	5.80	1,609.316	
200.00	200.00	183.60	183.59	3.34	2.51	-98.13	-1,320.57	-9,244.68	9,338.52	9,332.67	5.84	1,597.868	
300.00	300.00	284.02	284.00	3.42	4.55	-98.13	-1,320.83	-9,244.68	9,338.55	9,330.59	7.97	1,171.738	
381.47	381.47	365.49	365.47	3.51	6.28	-98.13	-1,320.56	-9,244.68	9,338.52	9,328.72	9.80	953.377 CC	
400.00	400.00	383.20	383.18	3.54	6.66	-98.13	-1,320.56	-9,244.68	9,338.52	9,328.32	10.20	915.907	
500.00	500.00	478.77	478.75	3.69	8.69	-98.13	-1,320.78	-9,244.68	9,338.55	9,326.17	12.38	754.537	
600.00	599.98	584.04	583.98	3.86	11.01	111.87	-1,320.83	-9,244.68	9,339.21	9,324.34	14.87	628.253	
700.00	699.84	677.16	677.09	4.04	13.07	111.86	-1,320.08	-9,244.68	9,341.05	9,323.94	17.11	545.850	
808.00	807.41	791.52	791.41	4.27	15.60	111.85	-1,320.83	-9,244.68	9,344.73	9,324.85	19.87	470.192	
900.00	898.89	883.00	882.89	4.49	17.63	94.74	-1,320.83	-9,244.68	9,346.98	9,324.86	22.12	422.604	
912.12	910.94	895.05	894.94	4.52	17.90	92.52	-1,320.83	-9,244.68	9,347.06	9,324.65	22.41	417.014	
1,000.00	998.31	982.42	982.31	4.74	19.84	92.57	-1,320.83	-9,244.68	9,347.49	9,322.91	24.57	380.375	
1,100.00	1,097.73	1,079.47	1,079.35	5.01	21.99	92.64	-1,320.08	-9,244.68	9,347.87	9,320.88	27.00	346.268	
1,200.00	1,197.15	1,175.72	1,175.60	5.29	24.12	92.70	-1,320.38	-9,244.68	9,348.42	9,319.01	29.41	317.815	
1,300.00	1,296.58	1,280.79	1,280.58	5.59	26.52	92.77	-1,320.83	-9,244.68	9,349.00	9,316.89	32.11	291.195	
1,400.00	1,396.00	1,380.21	1,380.00	5.90	29.00	92.84	-1,320.83	-9,244.68	9,349.52	9,314.63	34.90	267.908	
1,500.00	1,495.42	1,478.72	1,478.49	6.22	31.46	92.91	-1,319.47	-9,244.67	9,349.88	9,312.21	37.68	248.157	
1,600.00	1,594.84	1,571.10	1,570.86	6.54	33.77	92.97	-1,319.80	-9,244.67	9,350.49	9,310.17	40.31	231.962	
1,700.00	1,694.27	1,678.62	1,678.27	6.87	36.46	93.03	-1,320.83	-9,244.68	9,351.18	9,307.85	43.33	215.818	
1,800.00	1,793.69	1,778.04	1,777.69	7.21	38.96	93.10	-1,320.83	-9,244.68	9,351.76	9,305.60	46.16	202.587	
1,900.00	1,893.11	1,872.24	1,871.87	7.55	41.32	93.16	-1,319.97	-9,244.67	9,352.24	9,303.37	48.87	191.378	
2,000.00	1,992.53	1,976.99	1,976.53	7.89	43.93	93.23	-1,320.83	-9,244.68	9,352.95	9,301.13	51.82	180.479	
2,100.00	2,091.96	2,076.41	2,075.96	8.24	46.14	93.29	-1,320.83	-9,244.68	9,353.56	9,299.19	54.38	172.014	
2,200.00	2,191.38	2,175.83	2,175.38	8.60	48.34	93.36	-1,320.83	-9,244.68	9,354.19	9,297.26	56.93	164.299	
2,300.00	2,290.80	2,273.31	2,272.83	8.95	50.50	93.43	-1,319.10	-9,244.67	9,354.61	9,295.16	59.45	157.350	
2,400.00	2,390.22	2,367.55	2,367.06	9.31	52.59	93.49	-1,319.48	-9,244.67	9,355.32	9,293.42	61.90	151.139	
2,500.00	2,489.65	2,461.90	2,461.39	9.67	54.68	93.55	-1,320.29	-9,244.68	9,356.08	9,291.73	64.35	145.391	
2,600.00	2,589.07	2,573.63	2,573.07	10.03	56.97	93.62	-1,320.83	-9,244.68	9,356.82	9,289.82	67.00	139.653	
2,700.00	2,688.49	2,673.05	2,672.49	10.40	58.89	93.68	-1,320.83	-9,244.68	9,357.50	9,288.22	69.28	135.059	
2,800.00	2,787.91	2,771.89	2,771.32	10.76	60.80	93.75	-1,320.03	-9,244.67	9,358.11	9,286.55	71.56	130.775	
2,900.00	2,887.33	2,868.52	2,867.95	11.13	62.67	93.82	-1,320.21	-9,244.68	9,358.84	9,285.05	73.79	126.827	
3,000.00	2,986.76	2,965.20	2,964.63	11.50	64.53	93.88	-1,320.63	-9,244.68	9,359.62	9,283.59	76.03	123.108	
3,100.00	3,086.18	3,070.78	3,070.18	11.87	66.65	93.94	-1,320.83	-9,244.68	9,360.38	9,281.86	78.51	119.223	
3,200.00	3,185.60	3,170.21	3,169.60	12.24	68.67	94.01	-1,320.83	-9,244.68	9,361.12	9,280.22	80.90	115.707	
3,300.00	3,285.02	3,269.20	3,268.59	12.61	70.68	94.08	-1,319.99	-9,244.67	9,361.79	9,278.50	83.29	112.403	
3,400.00	3,384.45	3,366.07	3,365.45	12.98	72.65	94.14	-1,320.15	-9,244.68	9,362.58	9,276.95	85.63	109.338	
3,500.00	3,483.87	3,462.99	3,462.37	13.36	74.62	94.20	-1,320.55	-9,244.68	9,363.42	9,275.44	87.97	106.434	
3,600.00	3,583.29	3,567.96	3,567.29	13.73	76.70	94.27	-1,320.83	-9,244.68	9,364.24	9,273.81	90.43	103.553	
3,700.00	3,682.71	3,666.03	3,665.35	14.11	78.61	94.34	-1,320.25	-9,244.68	9,364.99	9,272.28	92.71	101.012	
3,800.00	3,782.14	3,759.52	3,758.84	14.48	80.43	94.40	-1,320.66	-9,244.68	9,365.86	9,270.95	94.90	98.687	
3,900.00	3,881.56	3,866.25	3,865.56	14.86	82.43	94.47	-1,320.83	-9,244.68	9,366.71	9,269.43	97.28	96.283	
4,000.00	3,980.98	3,964.30	3,963.61	15.24	84.25	94.53	-1,320.56	-9,244.68	9,367.53	9,268.05	99.48	94.163	
4,100.00	4,080.40	4,065.11	4,064.40	15.61	86.19	94.60	-1,320.83	-9,244.68	9,368.41	9,266.62	101.80	92.030	
4,200.00	4,179.83	4,164.53	4,163.83	15.99	88.94	94.66	-1,320.83	-9,244.68	9,369.28	9,264.36	104.93	89.294	
4,300.00	4,279.25	4,263.95	4,263.25	16.37	91.69	94.73	-1,320.83	-9,244.68	9,370.17	9,262.11	108.06	86.715	
4,400.00	4,378.67	4,362.09	4,361.38	16.75	94.41	94.79	-1,320.04	-9,244.67	9,370.99	9,259.83	111.15	84.308	
4,500.00	4,478.09	4,459.21	4,458.49	17.13	97.10	94.86	-1,320.30	-9,244.68	9,371.92	9,257.70	114.22	82.053	
4,600.00	4,577.51	4,562.52	4,561.51	17.51	99.98	94.92	-1,320.83	-9,244.68	9,372.89	9,255.41	117.48	79.783	
4,700.00	4,676.94	4,658.12	4,657.02	17.89	103.39	94.99	-1,320.43	-9,244.68	9,373.79	9,252.51	121.27	77.294	
4,800.00	4,776.36	4,757.96	4,756.78	18.27	106.87	95.05	-1,320.17	-9,244.68	9,374.71	9,249.58	125.13	74.921	

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 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #137 - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 122-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
4,900.00	4,875.78	4,859.05	4,857.72	18.65	110.40	95.12	-1,320.23	-9,244.68	9,375.67	9,246.63	129.04	72.657	
5,000.00	4,975.20	4,960.62	4,959.20	19.03	113.91	95.18	-1,320.83	-9,244.68	9,376.69	9,243.76	132.93	70.538	
5,100.00	5,074.63	5,060.17	5,058.63	19.41	117.36	95.25	-1,320.83	-9,244.68	9,377.67	9,240.91	136.76	68.570	
5,200.00	5,174.05	5,159.73	5,158.05	19.79	120.87	95.31	-1,320.83	-9,244.68	9,378.67	9,238.01	140.65	66.680	
5,300.00	5,273.47	5,252.77	5,251.06	20.17	124.08	95.38	-1,319.92	-9,244.67	9,379.59	9,235.35	144.25	65.025	
5,400.00	5,372.89	5,358.75	5,356.89	20.56	127.70	95.44	-1,320.83	-9,244.68	9,380.69	9,232.44	148.25	63.278	
5,500.00	5,472.32	5,458.31	5,456.32	20.94	131.06	95.51	-1,320.83	-9,244.68	9,381.72	9,229.73	151.99	61.727	
5,600.00	5,571.74	5,554.41	5,552.40	21.32	134.40	95.57	-1,319.91	-9,244.67	9,382.68	9,226.97	155.72	60.255	
5,700.00	5,671.16	5,657.33	5,655.16	21.70	138.03	95.63	-1,320.83	-9,244.68	9,383.81	9,224.09	159.72	58.751	
5,800.00	5,770.58	5,746.50	5,744.29	22.08	141.24	95.70	-1,320.17	-9,244.68	9,384.83	9,221.51	163.32	57.463	
5,900.00	5,870.01	5,856.36	5,854.01	22.47	145.13	95.76	-1,320.83	-9,244.68	9,385.96	9,218.37	167.59	56.005	
6,000.00	5,969.43	5,942.87	5,940.46	22.85	148.17	95.82	-1,320.27	-9,244.68	9,387.01	9,216.00	171.01	54.892	
6,100.00	6,068.85	6,054.99	6,052.42	23.23	152.11	95.90	-1,319.92	-9,244.67	9,388.08	9,212.74	175.34	53.543	
6,200.00	6,168.27	6,155.00	6,152.27	23.62	155.66	95.96	-1,320.83	-9,244.68	9,389.26	9,210.00	179.26	52.377 ES	
6,300.00	6,267.70	6,170.00	6,167.24	24.00	156.20	95.97	-1,320.83	-9,244.68	9,390.77	9,210.59	180.18	52.118	
6,400.00	6,367.12	6,170.00	6,167.24	24.38	156.20	95.97	-1,320.83	-9,244.68	9,393.33	9,212.79	180.54	52.030	
6,500.00	6,466.54	6,170.00	6,167.24	24.77	156.20	95.97	-1,320.83	-9,244.68	9,396.95	9,216.08	180.87	51.954	
6,600.00	6,565.96	6,170.00	6,167.24	25.15	156.20	95.97	-1,320.83	-9,244.68	9,401.64	9,220.45	181.19	51.889	
6,700.00	6,665.38	6,170.00	6,167.24	25.53	156.20	95.97	-1,320.83	-9,244.68	9,407.38	9,225.90	181.48	51.836	
6,778.75	6,743.68	6,170.00	6,167.24	25.84	156.20	95.97	-1,320.83	-9,244.68	9,412.65	9,230.95	181.70	51.803	
6,800.00	6,764.80	6,170.00	6,167.24	25.92	156.20	111.97	-1,320.83	-9,244.68	9,414.54	9,232.78	181.76	51.797 SF	
6,850.00	6,814.29	6,170.00	6,167.24	26.11	156.20	136.30	-1,320.83	-9,244.68	9,421.93	9,240.04	181.89	51.800	
6,900.00	6,863.27	6,170.00	6,167.24	26.30	156.20	148.16	-1,320.83	-9,244.68	9,433.42	9,251.40	182.02	51.827	
6,950.00	6,911.44	6,170.00	6,167.24	26.50	156.20	154.53	-1,320.83	-9,244.68	9,448.92	9,266.78	182.14	51.879	
7,000.00	6,958.49	6,170.00	6,167.24	26.68	156.20	158.32	-1,320.83	-9,244.68	9,468.31	9,286.06	182.25	51.953	
7,050.00	7,004.14	6,170.00	6,167.24	26.87	156.20	160.73	-1,320.83	-9,244.68	9,491.45	9,309.10	182.35	52.051	
7,100.00	7,048.10	6,170.00	6,167.24	27.05	156.20	162.31	-1,320.83	-9,244.68	9,518.18	9,335.74	182.44	52.171	
7,150.00	7,090.11	6,170.00	6,167.24	27.23	156.20	163.32	-1,320.83	-9,244.68	9,548.30	9,365.77	182.53	52.311	
7,200.00	7,129.90	6,170.00	6,167.24	27.41	156.20	163.91	-1,320.83	-9,244.68	9,581.58	9,398.98	182.61	52.471	
7,250.00	7,167.24	6,170.00	6,167.24	27.59	156.20	164.16	-1,320.83	-9,244.68	9,617.81	9,435.13	182.68	52.650	
7,300.00	7,201.88	6,170.00	6,167.24	27.76	156.20	164.07	-1,320.83	-9,244.68	9,656.71	9,473.97	182.74	52.845	
7,350.00	7,233.63	6,170.00	6,167.24	27.94	156.20	163.62	-1,320.83	-9,244.68	9,698.02	9,515.23	182.79	53.056	
7,400.00	7,262.27	6,170.00	6,167.24	28.13	156.20	162.73	-1,320.83	-9,244.68	9,741.46	9,558.62	182.84	53.280	
7,450.00	7,287.63	6,170.00	6,167.24	28.32	156.20	161.22	-1,320.83	-9,244.68	9,786.72	9,603.85	182.88	53.516	
7,500.00	7,309.57	6,170.00	6,167.24	28.53	156.20	158.73	-1,320.83	-9,244.68	9,833.52	9,650.61	182.91	53.761	
7,550.00	7,327.93	6,170.00	6,167.24	28.74	156.20	154.40	-1,320.83	-9,244.68	9,881.54	9,698.60	182.94	54.015	
7,600.00	7,342.62	6,170.00	6,167.24	28.97	156.20	146.00	-1,320.83	-9,244.68	9,930.47	9,747.50	182.97	54.274	
7,650.00	7,353.53	6,170.00	6,167.24	29.22	156.20	126.25	-1,320.83	-9,244.68	9,979.99	9,796.99	183.00	54.537	
7,700.00	7,360.61	6,170.00	6,167.24	29.48	156.20	78.98	-1,320.83	-9,244.68	10,029.80	9,846.77	183.02	54.801	
7,750.00	7,363.80	6,170.00	6,167.24	29.75	156.20	36.47	-1,320.83	-9,244.68	10,079.58	9,896.53	183.05	55.065	
7,765.93	7,364.00	6,170.00	6,167.24	29.84	156.20	29.29	-1,320.83	-9,244.68	10,095.38	9,912.32	183.06	55.149	
7,800.00	7,364.00	6,170.00	6,167.24	30.04	156.20	29.29	-1,320.83	-9,244.68	10,129.15	9,946.07	183.08	55.327	
7,900.00	7,364.00	6,170.00	6,167.24	30.67	156.20	29.29	-1,320.83	-9,244.68	10,228.26	10,045.12	183.14	55.850	
8,000.00	7,364.00	6,170.00	6,167.24	31.37	156.20	29.29	-1,320.83	-9,244.68	10,327.39	10,144.19	183.20	56.373	
8,100.00	7,364.00	6,170.00	6,167.24	32.14	156.20	29.29	-1,320.83	-9,244.68	10,426.53	10,243.27	183.26	56.895	
8,200.00	7,364.00	6,170.00	6,167.24	32.96	156.20	29.29	-1,320.83	-9,244.68	10,525.69	10,342.37	183.32	57.417	
8,300.00	7,364.00	6,170.00	6,167.24	33.85	156.20	29.29	-1,320.83	-9,244.68	10,624.87	10,441.49	183.38	57.939	
8,400.00	7,364.00	6,170.00	6,167.24	34.79	156.20	29.29	-1,320.83	-9,244.68	10,724.06	10,540.62	183.44	58.460	
8,500.00	7,364.00	6,170.00	6,167.24	35.77	156.20	29.29	-1,320.83	-9,244.68	10,823.27	10,639.77	183.50	58.981	
8,600.00	7,364.00	6,170.00	6,167.24	36.80	156.20	29.29	-1,320.83	-9,244.68	10,922.49	10,738.93	183.57	59.502	
8,700.00	7,364.00	6,170.00	6,167.24	37.87	156.20	29.29	-1,320.83	-9,244.68	11,021.73	10,838.10	183.63	60.022	
8,800.00	7,364.00	6,170.00	6,167.24	38.98	156.20	29.29	-1,320.83	-9,244.68	11,120.98	10,937.29	183.69	60.542	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #137 - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 122-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
8,900.00	7,364.00	6,170.00	6,167.24	40.12	156.20	29.29	-1,320.83	-9,244.68	11,220.24	11,036.49	183.75	61.061	
9,000.00	7,364.00	6,170.00	6,167.24	41.29	156.20	29.29	-1,320.83	-9,244.68	11,319.52	11,135.70	183.82	61.581	
9,100.00	7,364.00	6,170.00	6,167.24	42.49	156.20	29.29	-1,320.83	-9,244.68	11,418.81	11,234.93	183.88	62.099	
9,200.00	7,364.00	6,170.00	6,167.24	43.71	156.20	29.29	-1,320.83	-9,244.68	11,518.11	11,334.16	183.94	62.618	
9,300.00	7,364.00	6,170.00	6,167.24	44.96	156.20	29.29	-1,320.83	-9,244.68	11,617.42	11,433.41	184.01	63.136	
9,400.00	7,364.00	6,170.00	6,167.24	46.23	156.20	29.29	-1,320.83	-9,244.68	11,716.74	11,532.67	184.07	63.654	
9,500.00	7,364.00	6,170.00	6,167.24	47.52	156.20	29.29	-1,320.83	-9,244.68	11,816.08	11,631.95	184.13	64.171	
9,600.00	7,364.00	6,170.00	6,167.24	48.83	156.20	29.29	-1,320.83	-9,244.68	11,915.43	11,731.23	184.20	64.688	
9,700.00	7,364.00	6,170.00	6,167.24	50.15	156.20	29.29	-1,320.83	-9,244.68	12,014.78	11,830.52	184.26	65.204	
9,800.00	7,364.00	6,170.00	6,167.24	51.49	156.20	29.29	-1,320.83	-9,244.68	12,114.15	11,929.82	184.33	65.721	
9,900.00	7,364.00	6,170.00	6,167.24	52.85	156.20	29.29	-1,320.83	-9,244.68	12,213.53	12,029.14	184.39	66.236	
10,000.00	7,364.00	6,170.00	6,167.24	54.22	156.20	29.29	-1,320.83	-9,244.68	12,312.92	12,128.46	184.46	66.752	
10,100.00	7,364.00	6,170.00	6,167.24	55.60	156.20	29.29	-1,320.83	-9,244.68	12,412.32	12,227.79	184.52	67.266	
10,200.00	7,364.00	6,170.00	6,167.24	56.99	156.20	29.29	-1,320.83	-9,244.68	12,511.73	12,327.14	184.59	67.781	
10,300.00	7,364.00	6,170.00	6,167.24	58.40	156.20	29.29	-1,320.83	-9,244.68	12,611.14	12,426.49	184.66	68.295	
10,400.00	7,364.00	6,170.00	6,167.24	59.81	156.20	29.29	-1,320.83	-9,244.68	12,710.57	12,525.85	184.72	68.809	
10,500.00	7,364.00	6,170.00	6,167.24	61.23	156.20	29.29	-1,320.83	-9,244.68	12,810.01	12,625.22	184.79	69.322	
10,600.00	7,364.00	6,170.00	6,167.24	62.66	156.20	29.29	-1,320.83	-9,244.68	12,909.45	12,724.59	184.86	69.834	
10,700.00	7,364.00	6,170.00	6,167.24	64.10	156.20	29.29	-1,320.83	-9,244.68	13,008.90	12,823.98	184.93	70.347	
10,800.00	7,364.00	6,170.00	6,167.24	65.55	156.20	29.29	-1,320.83	-9,244.68	13,108.36	12,923.37	184.99	70.858	
10,900.00	7,364.00	6,170.00	6,167.24	67.01	156.20	29.29	-1,320.83	-9,244.68	13,207.83	13,022.77	185.06	71.370	
11,000.00	7,364.00	6,170.00	6,167.24	68.47	156.20	29.29	-1,320.83	-9,244.68	13,307.31	13,122.18	185.13	71.881	
11,100.00	7,364.00	6,170.00	6,167.24	69.93	156.20	29.29	-1,320.83	-9,244.68	13,406.80	13,221.60	185.20	72.391	
11,200.00	7,364.00	6,170.00	6,167.24	71.41	156.20	29.29	-1,320.83	-9,244.68	13,506.29	13,321.02	185.27	72.901	
11,300.00	7,364.00	6,170.00	6,167.24	72.88	156.20	29.29	-1,320.83	-9,244.68	13,605.79	13,420.45	185.34	73.411	
11,400.00	7,364.00	6,170.00	6,167.24	74.37	156.20	29.29	-1,320.83	-9,244.68	13,705.30	13,519.89	185.41	73.920	
11,500.00	7,364.00	6,170.00	6,167.24	75.85	156.20	29.29	-1,320.83	-9,244.68	13,804.81	13,619.33	185.48	74.428	
11,600.00	7,364.00	6,170.00	6,167.24	77.35	156.20	29.29	-1,320.83	-9,244.68	13,904.33	13,718.78	185.55	74.936	
11,700.00	7,364.00	6,170.00	6,167.24	78.84	156.20	29.29	-1,320.83	-9,244.68	14,003.86	13,818.24	185.62	75.444	
11,800.00	7,364.00	6,170.00	6,167.24	80.34	156.20	29.29	-1,320.83	-9,244.68	14,103.40	13,917.70	185.69	75.951	
11,900.00	7,364.00	6,170.00	6,167.24	81.85	156.20	29.29	-1,320.83	-9,244.68	14,202.94	14,017.17	185.76	76.457	
12,000.00	7,364.00	6,170.00	6,167.24	83.36	156.20	29.29	-1,320.83	-9,244.68	14,302.48	14,116.65	185.84	76.963	
12,100.00	7,364.00	6,170.00	6,167.24	84.87	156.20	29.29	-1,320.83	-9,244.68	14,402.04	14,216.13	185.91	77.469	
12,200.00	7,364.00	6,170.00	6,167.24	86.38	156.20	29.29	-1,320.83	-9,244.68	14,501.60	14,315.62	185.98	77.974	
12,300.00	7,364.00	6,170.00	6,167.24	87.90	156.20	29.29	-1,320.83	-9,244.68	14,601.17	14,415.11	186.05	78.478	
12,400.00	7,364.00	6,170.00	6,167.24	89.42	156.20	29.29	-1,320.83	-9,244.68	14,700.74	14,514.61	186.13	78.982	
12,500.00	7,364.00	6,170.00	6,167.24	90.95	156.20	29.29	-1,320.83	-9,244.68	14,800.32	14,614.11	186.20	79.486	
12,600.00	7,364.00	6,170.00	6,167.24	92.47	156.20	29.29	-1,320.83	-9,244.68	14,899.90	14,713.62	186.28	79.988	
12,700.00	7,364.00	6,170.00	6,167.24	94.00	156.20	29.29	-1,320.83	-9,244.68	14,999.49	14,813.14	186.35	80.491	
12,800.00	7,364.00	6,170.00	6,167.24	95.53	156.20	29.29	-1,320.83	-9,244.68	15,099.08	14,912.66	186.43	80.993	
12,900.00	7,364.00	6,170.00	6,167.24	97.06	156.20	29.29	-1,320.83	-9,244.68	15,198.68	15,012.18	186.50	81.494	
13,000.00	7,364.00	6,170.00	6,167.24	98.60	156.20	29.29	-1,320.83	-9,244.68	15,298.29	15,111.71	186.58	81.995	
13,100.00	7,364.00	6,170.00	6,167.24	100.14	156.20	29.29	-1,320.83	-9,244.68	15,397.90	15,211.25	186.65	82.495	
13,200.00	7,364.00	6,170.00	6,167.24	101.68	156.20	29.29	-1,320.83	-9,244.68	15,497.51	15,310.78	186.73	82.995	
13,300.00	7,364.00	6,170.00	6,167.24	103.22	156.20	29.29	-1,320.83	-9,244.68	15,597.13	15,410.33	186.81	83.494	
13,400.00	7,364.00	6,170.00	6,167.24	104.76	156.20	29.29	-1,320.83	-9,244.68	15,696.76	15,509.88	186.88	83.992	
13,500.00	7,364.00	6,170.00	6,167.24	106.31	156.20	29.29	-1,320.83	-9,244.68	15,796.39	15,609.43	186.96	84.490	
13,600.00	7,364.00	6,170.00	6,167.24	107.85	156.20	29.29	-1,320.83	-9,244.68	15,896.02	15,708.98	187.04	84.988	
13,700.00	7,364.00	6,170.00	6,167.24	109.40	156.20	29.29	-1,320.83	-9,244.68	15,995.66	15,808.54	187.12	85.485	
13,800.00	7,364.00	6,170.00	6,167.24	110.95	156.20	29.29	-1,320.83	-9,244.68	16,095.30	15,908.11	187.20	85.981	
13,900.00	7,364.00	6,170.00	6,167.24	112.50	156.20	29.29	-1,320.83	-9,244.68	16,194.95	16,007.68	187.27	86.477	
14,000.00	7,364.00	6,170.00	6,167.24	114.05	156.20	29.29	-1,320.83	-9,244.68	16,294.60	16,107.25	187.35	86.972	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #137 - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 122-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,100.00	7,364.00	6,170.00	6,167.24	115.61	156.20	29.29	-1,320.83	-9,244.68	16,394.26	16,206.83	187.43	87.467	
14,200.00	7,364.00	6,170.00	6,167.24	117.16	156.20	29.29	-1,320.83	-9,244.68	16,493.92	16,306.41	187.51	87.961	
14,300.00	7,364.00	6,170.00	6,167.24	118.72	156.20	29.29	-1,320.83	-9,244.68	16,593.59	16,405.99	187.60	88.454	
14,400.00	7,364.00	6,170.00	6,167.24	120.28	156.20	29.29	-1,320.83	-9,244.68	16,693.25	16,505.58	187.68	88.947	
14,500.00	7,364.00	6,170.00	6,167.24	121.84	156.20	29.29	-1,320.83	-9,244.68	16,792.93	16,605.17	187.76	89.439	
14,600.00	7,364.00	6,170.00	6,167.24	123.40	156.20	29.29	-1,320.83	-9,244.68	16,892.60	16,704.76	187.84	89.931	
14,700.00	7,364.00	6,170.00	6,167.24	124.96	156.20	29.29	-1,320.83	-9,244.68	16,992.28	16,804.36	187.92	90.422	
14,800.00	7,364.00	6,170.00	6,167.24	126.52	156.20	29.29	-1,320.83	-9,244.68	17,091.97	16,903.96	188.00	90.913	
14,900.00	7,364.00	6,170.00	6,167.24	128.08	156.20	29.29	-1,320.83	-9,244.68	17,191.66	17,003.57	188.09	91.402	
15,000.00	7,364.00	6,170.00	6,167.24	129.64	156.20	29.29	-1,320.83	-9,244.68	17,291.35	17,103.18	188.17	91.892	
15,100.00	7,364.00	6,170.00	6,167.24	131.21	156.20	29.29	-1,320.83	-9,244.68	17,391.04	17,202.79	188.25	92.380	
15,200.00	7,364.00	6,170.00	6,167.24	132.77	156.20	29.29	-1,320.83	-9,244.68	17,490.74	17,302.40	188.34	92.869	
15,300.00	7,364.00	6,170.00	6,167.24	134.34	156.20	29.29	-1,320.83	-9,244.68	17,590.44	17,402.02	188.42	93.356	
15,400.00	7,364.00	6,170.00	6,167.24	135.91	156.20	29.29	-1,320.83	-9,244.68	17,690.15	17,501.64	188.51	93.843	
15,500.00	7,364.00	6,170.00	6,167.24	137.48	156.20	29.29	-1,320.83	-9,244.68	17,789.85	17,601.26	188.59	94.329	
15,600.00	7,364.00	6,170.00	6,167.24	139.04	156.20	29.29	-1,320.83	-9,244.68	17,889.57	17,700.89	188.68	94.815	
15,700.00	7,364.00	6,170.00	6,167.24	140.61	156.20	29.29	-1,320.83	-9,244.68	17,989.28	17,800.52	188.76	95.300	
15,800.00	7,364.00	6,170.00	6,167.24	142.18	156.20	29.29	-1,320.83	-9,244.68	18,089.00	17,900.15	188.85	95.784	
15,900.00	7,364.00	6,170.00	6,167.24	143.75	156.20	29.29	-1,320.83	-9,244.68	18,188.72	17,999.78	188.94	96.268	
16,000.00	7,364.00	6,170.00	6,167.24	145.33	156.20	29.29	-1,320.83	-9,244.68	18,288.44	18,099.42	189.03	96.751	
16,100.00	7,364.00	6,170.00	6,167.24	146.90	156.20	29.29	-1,320.83	-9,244.68	18,388.17	18,199.06	189.11	97.234	
16,200.00	7,364.00	6,170.00	6,167.24	148.47	156.20	29.29	-1,320.83	-9,244.68	18,487.90	18,298.70	189.20	97.716	
16,300.00	7,364.00	6,170.00	6,167.24	150.04	156.20	29.29	-1,320.83	-9,244.68	18,587.63	18,398.35	189.29	98.197	
16,400.00	7,364.00	6,170.00	6,167.24	151.62	156.20	29.29	-1,320.83	-9,244.68	18,687.37	18,497.99	189.38	98.678	
16,500.00	7,364.00	6,170.00	6,167.24	153.19	156.20	29.29	-1,320.83	-9,244.68	18,787.11	18,597.64	189.47	99.158	
16,600.00	7,364.00	6,170.00	6,167.24	154.77	156.20	29.29	-1,320.83	-9,244.68	18,886.85	18,697.30	189.56	99.638	
16,700.00	7,364.00	6,170.00	6,167.24	156.34	156.20	29.29	-1,320.83	-9,244.68	18,986.59	18,796.95	189.65	100.116	
16,800.00	7,364.00	6,170.00	6,167.24	157.92	156.20	29.29	-1,320.83	-9,244.68	19,086.34	18,896.61	189.74	100.595	
16,900.00	7,364.00	6,170.00	6,167.24	159.49	156.20	29.29	-1,320.83	-9,244.68	19,186.09	18,996.27	189.83	101.072	
17,000.00	7,364.00	6,170.00	6,167.24	161.07	156.20	29.29	-1,320.83	-9,244.68	19,285.84	19,095.93	189.92	101.549	
17,100.00	7,364.00	6,170.00	6,167.24	162.65	156.20	29.29	-1,320.83	-9,244.68	19,385.60	19,195.59	190.01	102.025	
17,200.00	7,364.00	6,170.00	6,167.24	164.23	156.20	29.29	-1,320.83	-9,244.68	19,485.35	19,295.26	190.10	102.501	
17,300.00	7,364.00	6,170.00	6,167.24	165.81	156.20	29.29	-1,320.83	-9,244.68	19,585.11	19,394.92	190.19	102.976	
17,400.00	7,364.00	6,170.00	6,167.24	167.38	156.20	29.29	-1,320.83	-9,244.68	19,684.88	19,494.59	190.28	103.450	
17,500.00	7,364.00	6,170.00	6,167.24	168.96	156.20	29.29	-1,320.83	-9,244.68	19,784.64	19,594.26	190.38	103.924	
17,600.00	7,364.00	6,170.00	6,167.24	170.54	156.20	29.29	-1,320.83	-9,244.68	19,884.41	19,693.94	190.47	104.397	
17,700.00	7,364.00	6,170.00	6,167.24	172.12	156.20	29.29	-1,320.83	-9,244.68	19,984.18	19,793.61	190.56	104.869	
17,800.00	7,364.00	6,170.00	6,167.24	173.70	156.20	29.29	-1,320.83	-9,244.68	20,083.95	19,893.29	190.66	105.341	
17,900.00	7,364.00	6,170.00	6,167.24	175.28	156.20	29.29	-1,320.83	-9,244.68	20,183.72	19,992.97	190.75	105.812	
18,000.00	7,364.00	6,170.00	6,167.24	176.87	156.20	29.29	-1,320.83	-9,244.68	20,283.50	20,092.65	190.84	106.283	
18,100.00	7,364.00	6,170.00	6,167.24	178.45	156.20	29.29	-1,320.83	-9,244.68	20,383.28	20,192.34	190.94	106.753	
18,200.00	7,364.00	6,170.00	6,167.24	180.03	156.20	29.29	-1,320.83	-9,244.68	20,483.06	20,292.02	191.03	107.222	
18,300.00	7,364.00	6,170.00	6,167.24	181.61	156.20	29.29	-1,320.83	-9,244.68	20,582.84	20,391.71	191.13	107.690	
18,400.00	7,364.00	6,170.00	6,167.24	183.19	156.20	29.29	-1,320.83	-9,244.68	20,682.62	20,491.40	191.23	108.158	
18,500.00	7,364.00	6,170.00	6,167.24	184.78	156.20	29.29	-1,320.83	-9,244.68	20,782.41	20,591.09	191.32	108.625	
18,600.00	7,364.00	6,170.00	6,167.24	186.36	156.20	29.29	-1,320.83	-9,244.68	20,882.20	20,690.78	191.42	109.092	
18,700.00	7,364.00	6,170.00	6,167.24	187.94	156.20	29.29	-1,320.83	-9,244.68	20,981.99	20,790.47	191.52	109.558	
18,800.00	7,364.00	6,170.00	6,167.24	189.53	156.20	29.29	-1,320.83	-9,244.68	21,081.78	20,890.17	191.61	110.023	
18,900.00	7,364.00	6,170.00	6,167.24	191.11	156.20	29.29	-1,320.83	-9,244.68	21,181.58	20,989.87	191.71	110.488	
19,000.00	7,364.00	6,170.00	6,167.24	192.70	156.20	29.29	-1,320.83	-9,244.68	21,281.37	21,089.56	191.81	110.952	
19,100.00	7,364.00	6,170.00	6,167.24	194.28	156.20	29.29	-1,320.83	-9,244.68	21,381.17	21,189.26	191.91	111.415	
19,200.00	7,364.00	6,170.00	6,167.24	195.87	156.20	29.29	-1,320.83	-9,244.68	21,480.97	21,288.97	192.00	111.877	

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 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #137 - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 122-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
19,300.00	7,364.00	6,170.00	6,167.24	197.45	156.20	29.29	-1,320.83	-9,244.68	21,580.77	21,388.67	192.10	112.339	
19,400.00	7,364.00	6,170.00	6,167.24	199.04	156.20	29.29	-1,320.83	-9,244.68	21,680.58	21,488.37	192.20	112.801	
19,500.00	7,364.00	6,170.00	6,167.24	200.62	156.20	29.29	-1,320.83	-9,244.68	21,780.38	21,588.08	192.30	113.261	
19,600.00	7,364.00	6,170.00	6,167.24	202.21	156.20	29.29	-1,320.83	-9,244.68	21,880.19	21,687.79	192.40	113.721	
19,700.00	7,364.00	6,170.00	6,167.24	203.79	156.20	29.29	-1,320.83	-9,244.68	21,980.00	21,787.50	192.50	114.181	
19,800.00	7,364.00	6,170.00	6,167.24	205.38	156.20	29.29	-1,320.83	-9,244.68	22,079.81	21,887.21	192.60	114.639	
19,900.00	7,364.00	6,170.00	6,167.24	206.97	156.20	29.29	-1,320.83	-9,244.68	22,179.62	21,986.92	192.70	115.097	
20,000.00	7,364.00	6,170.00	6,167.24	208.55	156.20	29.29	-1,320.83	-9,244.68	22,279.44	22,086.63	192.80	115.555	
20,100.00	7,364.00	6,170.00	6,167.24	210.14	156.20	29.29	-1,320.83	-9,244.68	22,379.25	22,186.35	192.91	116.011	
20,200.00	7,364.00	6,170.00	6,167.24	211.73	156.20	29.29	-1,320.83	-9,244.68	22,479.07	22,286.06	193.01	116.467	
20,300.00	7,364.00	6,170.00	6,167.24	213.32	156.20	29.29	-1,320.83	-9,244.68	22,578.89	22,385.78	193.11	116.923	
20,400.00	7,364.00	6,170.00	6,167.24	214.90	156.20	29.29	-1,320.83	-9,244.68	22,678.71	22,485.50	193.21	117.377	
20,500.00	7,364.00	6,170.00	6,167.24	216.49	156.20	29.29	-1,320.83	-9,244.68	22,778.53	22,585.22	193.31	117.831	
20,600.00	7,364.00	6,170.00	6,167.24	218.08	156.20	29.29	-1,320.83	-9,244.68	22,878.36	22,684.94	193.42	118.285	
20,700.00	7,364.00	6,170.00	6,167.24	219.67	156.20	29.29	-1,320.83	-9,244.68	22,978.18	22,784.66	193.52	118.737	
20,800.00	7,364.00	6,170.00	6,167.24	221.26	156.20	29.29	-1,320.83	-9,244.68	23,078.01	22,884.39	193.62	119.189	
20,900.00	7,364.00	6,170.00	6,167.24	222.84	156.20	29.29	-1,320.83	-9,244.68	23,177.84	22,984.11	193.73	119.641	
21,000.00	7,364.00	6,170.00	6,167.24	224.43	156.20	29.29	-1,320.83	-9,244.68	23,277.67	23,083.84	193.83	120.091	
21,100.00	7,364.00	6,170.00	6,167.24	226.02	156.20	29.29	-1,320.83	-9,244.68	23,377.50	23,183.56	193.94	120.541	
21,200.00	7,364.00	6,170.00	6,167.24	227.61	156.20	29.29	-1,320.83	-9,244.68	23,477.33	23,283.29	194.04	120.991	
21,300.00	7,364.00	6,170.00	6,167.24	229.20	156.20	29.29	-1,320.83	-9,244.68	23,577.17	23,383.02	194.15	121.439	
21,400.00	7,364.00	6,170.00	6,167.24	230.79	156.20	29.29	-1,320.83	-9,244.68	23,677.00	23,482.75	194.25	121.887	
21,500.00	7,364.00	6,170.00	6,167.24	232.38	156.20	29.29	-1,320.83	-9,244.68	23,776.84	23,582.48	194.36	122.335	
21,600.00	7,364.00	6,170.00	6,167.24	233.97	156.20	29.29	-1,320.83	-9,244.68	23,876.68	23,682.21	194.46	122.781	
21,700.00	7,364.00	6,170.00	6,167.24	235.56	156.20	29.29	-1,320.83	-9,244.68	23,976.52	23,781.95	194.57	123.227	
21,800.00	7,364.00	6,170.00	6,167.24	237.15	156.20	29.29	-1,320.83	-9,244.68	24,076.36	23,881.68	194.68	123.673	
21,864.93	7,364.00	6,170.00	6,167.24	238.18	156.20	29.29	-1,320.83	-9,244.68	24,141.18	23,946.44	194.75	123.962	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #137A - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 293-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	3.28	0.00	-96.30	-797.82	-7,226.64	7,270.79				
100.00	100.00	40.00	40.00	3.29	0.37	-96.30	-797.82	-7,226.64	7,270.55	7,266.89	3.66	1,986.778	
200.00	200.00	140.00	140.00	3.34	1.29	-96.30	-797.82	-7,226.64	7,270.55	7,265.92	4.63	1,570.240	
300.00	300.00	240.00	240.00	3.42	2.22	-96.30	-797.82	-7,226.64	7,270.55	7,264.91	5.64	1,289.537	
400.00	400.00	340.00	340.00	3.54	3.60	-96.30	-797.82	-7,226.64	7,270.55	7,263.40	7.14	1,018.202	
500.00	500.00	440.00	440.00	3.69	5.51	-96.30	-797.82	-7,226.64	7,270.55	7,261.35	9.19	790.888	CC
600.00	599.98	539.98	539.98	3.86	7.41	113.70	-797.82	-7,226.64	7,271.25	7,259.98	11.26	645.534	
700.00	699.84	638.48	638.47	4.04	9.28	113.70	-797.37	-7,226.64	7,273.30	7,259.98	13.32	545.868	
808.00	807.41	744.60	744.59	4.27	11.30	113.70	-797.65	-7,226.64	7,277.19	7,261.62	15.57	467.308	
900.00	898.89	838.92	838.89	4.49	13.16	96.60	-797.82	-7,226.64	7,279.77	7,262.12	17.65	412.497	
912.12	910.94	850.97	850.94	4.52	13.41	94.38	-797.82	-7,226.64	7,279.90	7,261.97	17.92	406.192	
1,000.00	998.31	938.34	938.31	4.74	15.18	94.45	-797.82	-7,226.64	7,280.63	7,260.71	19.92	365.484	
1,100.00	1,097.73	1,037.70	1,037.66	5.01	17.20	94.54	-797.02	-7,226.64	7,281.39	7,259.18	22.21	327.855	
1,200.00	1,197.15	1,135.21	1,135.17	5.29	19.18	94.62	-797.15	-7,226.64	7,282.27	7,257.79	24.47	297.541	
1,300.00	1,296.58	1,232.77	1,232.73	5.59	21.16	94.70	-797.54	-7,226.64	7,283.18	7,256.43	26.75	272.227	
1,400.00	1,396.00	1,336.09	1,336.00	5.90	23.31	94.79	-797.82	-7,226.64	7,284.10	7,254.90	29.21	249.408	
1,500.00	1,495.42	1,435.51	1,435.42	6.22	25.41	94.87	-797.82	-7,226.64	7,285.01	7,253.39	31.62	230.371	
1,600.00	1,594.84	1,534.84	1,534.74	6.54	27.51	94.96	-796.73	-7,226.64	7,285.83	7,251.79	34.05	214.000	
1,700.00	1,694.27	1,631.94	1,631.83	6.87	29.56	95.04	-796.91	-7,226.64	7,286.79	7,250.36	36.43	200.030	
1,800.00	1,793.69	1,729.11	1,729.00	7.21	31.61	95.12	-797.42	-7,226.64	7,287.80	7,248.98	38.82	187.742	
1,900.00	1,893.11	1,833.28	1,833.11	7.55	33.82	95.21	-797.82	-7,226.64	7,288.81	7,247.44	41.36	176.209	
2,000.00	1,992.53	1,932.70	1,932.53	7.89	35.93	95.29	-797.82	-7,226.64	7,289.79	7,245.98	43.82	166.364	
2,100.00	2,091.96	2,032.12	2,031.96	8.24	38.04	95.37	-797.82	-7,226.64	7,290.80	7,244.52	46.28	157.551	
2,200.00	2,191.38	2,129.62	2,129.44	8.60	40.10	95.46	-796.83	-7,226.64	7,291.73	7,243.03	48.70	149.740	
2,300.00	2,290.80	2,227.03	2,226.84	8.95	42.17	95.54	-797.29	-7,226.64	7,292.81	7,241.69	51.12	142.669	
2,400.00	2,390.22	2,330.47	2,330.22	9.31	44.36	95.62	-797.82	-7,226.64	7,293.90	7,240.23	53.67	135.904	
2,500.00	2,489.65	2,429.89	2,429.65	9.67	46.48	95.71	-797.82	-7,226.64	7,294.97	7,238.82	56.14	129.940	
2,600.00	2,589.07	2,529.31	2,529.07	10.03	48.59	95.79	-797.82	-7,226.64	7,296.05	7,237.43	58.61	124.475	
2,700.00	2,688.49	2,627.16	2,626.90	10.40	50.66	95.88	-796.84	-7,226.64	7,297.06	7,236.01	61.06	119.514	
2,800.00	2,787.91	2,724.68	2,724.42	10.76	52.74	95.96	-797.27	-7,226.64	7,298.21	7,234.72	63.49	114.945	
2,900.00	2,887.33	2,827.66	2,827.33	11.13	54.95	96.04	-797.82	-7,226.64	7,299.38	7,233.31	66.07	110.480	
3,000.00	2,986.76	2,927.08	2,926.76	11.50	57.14	96.12	-797.82	-7,226.64	7,300.53	7,231.90	68.63	106.372	
3,100.00	3,086.18	3,026.50	3,026.18	11.87	59.33	96.21	-797.82	-7,226.64	7,301.69	7,230.49	71.20	102.558	
3,200.00	3,185.60	3,124.45	3,124.12	12.24	61.50	96.30	-796.86	-7,226.64	7,302.79	7,229.06	73.73	99.051	
3,300.00	3,285.02	3,222.12	3,221.78	12.61	63.65	96.38	-797.30	-7,226.64	7,304.02	7,227.76	76.25	95.785	
3,400.00	3,384.45	3,324.86	3,324.45	12.98	65.92	96.46	-797.82	-7,226.64	7,305.26	7,226.36	78.90	92.594	
3,500.00	3,483.87	3,424.29	3,423.87	13.36	68.12	96.54	-797.82	-7,226.64	7,306.48	7,225.01	81.47	89.687	
3,600.00	3,583.29	3,523.71	3,523.29	13.73	70.31	96.62	-797.82	-7,226.64	7,307.72	7,223.68	84.04	86.957	
3,700.00	3,682.71	3,621.53	3,621.09	14.11	72.48	96.71	-796.58	-7,226.64	7,308.89	7,222.32	86.57	84.423	
3,800.00	3,782.14	3,719.04	3,718.59	14.48	74.63	96.79	-797.12	-7,226.64	7,310.20	7,221.09	89.11	82.040	
3,900.00	3,881.56	3,822.07	3,821.56	14.86	76.84	96.87	-797.82	-7,226.64	7,311.52	7,219.83	91.69	79.741	
4,000.00	3,980.98	3,921.50	3,920.98	15.24	78.79	96.96	-797.82	-7,226.64	7,312.82	7,218.81	94.02	77.782	
4,100.00	4,080.40	4,020.92	4,020.40	15.61	80.74	97.04	-797.82	-7,226.64	7,314.14	7,217.79	96.34	75.917	
4,200.00	4,179.83	4,119.20	4,118.67	15.99	82.67	97.13	-796.85	-7,226.64	7,315.41	7,216.76	98.65	74.156	
4,300.00	4,279.25	4,217.23	4,216.70	16.37	84.59	97.21	-797.28	-7,226.64	7,316.78	7,215.83	100.95	72.480	
4,400.00	4,378.67	4,319.23	4,318.67	16.75	86.64	97.29	-797.82	-7,226.64	7,318.18	7,214.80	103.38	70.792	
4,500.00	4,478.09	4,418.65	4,418.09	17.13	88.75	97.37	-797.82	-7,226.64	7,319.55	7,213.68	105.87	69.137	
4,600.00	4,577.51	4,518.07	4,517.51	17.51	90.87	97.45	-797.82	-7,226.64	7,320.94	7,212.58	108.36	67.559	
4,700.00	4,676.94	4,617.15	4,616.59	17.89	92.97	97.54	-797.26	-7,226.64	7,322.32	7,211.47	110.85	66.056	
4,800.00	4,776.36	4,716.01	4,715.44	18.27	95.08	97.62	-797.43	-7,226.64	7,323.76	7,210.42	113.33	64.622	
4,900.00	4,875.78	4,814.90	4,814.33	18.65	97.18	97.70	-797.76	-7,226.64	7,325.21	7,209.40	115.82	63.249	
5,000.00	4,975.20	4,915.85	4,915.20	19.03	99.69	97.78	-797.82	-7,226.64	7,326.67	7,207.96	118.71	61.720	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #137A - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 293-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,100.00	5,074.63	5,015.28	5,014.63	19.41	102.23	97.87	-797.82	-7,226.64	7,328.14	7,206.51	121.63	60.251	
5,200.00	5,174.05	5,113.92	5,113.25	19.79	104.75	97.96	-796.32	-7,226.64	7,329.56	7,205.03	124.53	58.859	
5,300.00	5,273.47	5,211.75	5,211.06	20.17	107.25	98.04	-796.82	-7,226.64	7,331.08	7,203.68	127.41	57.541	
5,400.00	5,372.89	5,313.73	5,312.89	20.56	109.87	98.11	-797.82	-7,226.64	7,332.64	7,202.23	130.41	56.227	
5,500.00	5,472.32	5,413.16	5,412.32	20.94	112.79	98.20	-797.82	-7,226.64	7,334.17	7,200.46	133.71	54.851	
5,600.00	5,571.74	5,512.58	5,511.74	21.32	115.71	98.28	-797.82	-7,226.64	7,335.72	7,198.71	137.01	53.541	
5,700.00	5,671.16	5,611.06	5,610.19	21.70	118.60	98.37	-796.05	-7,226.64	7,337.21	7,196.93	140.28	52.303	
5,800.00	5,770.58	5,709.02	5,708.13	22.08	121.48	98.45	-796.70	-7,226.64	7,338.82	7,195.28	143.54	51.127	
5,900.00	5,870.01	5,811.19	5,810.01	22.47	124.51	98.53	-797.82	-7,226.64	7,340.45	7,193.49	146.96	49.948	
6,000.00	5,969.43	5,910.61	5,909.43	22.85	127.76	98.61	-797.82	-7,226.64	7,342.06	7,191.47	150.59	48.757	
6,100.00	6,068.85	6,010.03	6,008.85	23.23	131.00	98.69	-797.82	-7,226.64	7,343.68	7,189.47	154.21	47.621	
6,200.00	6,168.27	6,109.46	6,108.27	23.62	134.24	98.77	-797.82	-7,226.64	7,345.32	7,187.48	157.84	46.537	
6,300.00	6,267.70	6,208.88	6,207.70	24.00	137.49	98.86	-797.82	-7,226.64	7,346.97	7,185.51	161.46	45.503 ES	
6,400.00	6,367.12	6,210.00	6,208.43	24.38	137.52	98.86	-797.82	-7,226.64	7,349.31	7,187.44	161.86	45.404	
6,500.00	6,466.54	6,210.00	6,208.43	24.77	137.52	98.86	-797.82	-7,226.64	7,353.00	7,190.80	162.20	45.333	
6,600.00	6,565.96	6,210.00	6,208.43	25.15	137.52	98.86	-797.82	-7,226.64	7,358.05	7,195.54	162.51	45.278	
6,700.00	6,665.38	6,210.00	6,208.43	25.53	137.52	98.86	-797.82	-7,226.64	7,364.45	7,201.66	162.79	45.240	
6,778.75	6,743.68	6,210.00	6,208.43	25.84	137.52	98.86	-797.82	-7,226.64	7,370.44	7,207.46	162.99	45.221	
6,800.00	6,764.80	6,210.00	6,208.43	25.92	137.52	114.87	-797.82	-7,226.64	7,372.56	7,209.52	163.04	45.220 SF	
6,850.00	6,814.29	6,210.00	6,208.43	26.11	137.52	139.23	-797.82	-7,226.64	7,380.54	7,217.38	163.15	45.237	
6,900.00	6,863.27	6,210.00	6,208.43	26.30	137.52	151.14	-797.82	-7,226.64	7,392.68	7,229.42	163.26	45.282	
6,950.00	6,911.44	6,210.00	6,208.43	26.50	137.52	157.58	-797.82	-7,226.64	7,408.90	7,245.55	163.36	45.354	
7,000.00	6,958.49	6,210.00	6,208.43	26.68	137.52	161.47	-797.82	-7,226.64	7,429.07	7,265.62	163.44	45.453	
7,050.00	7,004.14	6,210.00	6,208.43	26.87	137.52	164.01	-797.82	-7,226.64	7,453.02	7,289.50	163.52	45.578	
7,100.00	7,048.10	6,210.00	6,208.43	27.05	137.52	165.75	-797.82	-7,226.64	7,480.58	7,316.99	163.59	45.727	
7,150.00	7,090.11	6,210.00	6,208.43	27.23	137.52	166.97	-797.82	-7,226.64	7,511.53	7,347.88	163.65	45.900	
7,200.00	7,129.90	6,210.00	6,208.43	27.41	137.52	167.82	-797.82	-7,226.64	7,545.66	7,381.95	163.70	46.094	
7,250.00	7,167.24	6,210.00	6,208.43	27.59	137.52	168.38	-797.82	-7,226.64	7,582.69	7,418.95	163.74	46.308	
7,300.00	7,201.88	6,210.00	6,208.43	27.76	137.52	168.71	-797.82	-7,226.64	7,622.37	7,458.59	163.78	46.540	
7,350.00	7,233.63	6,210.00	6,208.43	27.94	137.52	168.80	-797.82	-7,226.64	7,664.42	7,500.61	163.81	46.789	
7,400.00	7,262.27	6,210.00	6,208.43	28.13	137.52	168.63	-797.82	-7,226.64	7,708.53	7,544.70	163.83	47.052	
7,450.00	7,287.63	6,210.00	6,208.43	28.32	137.52	168.13	-797.82	-7,226.64	7,754.40	7,590.55	163.85	47.326	
7,500.00	7,309.57	6,210.00	6,208.43	28.53	137.52	167.08	-797.82	-7,226.64	7,801.72	7,637.85	163.86	47.611	
7,550.00	7,327.93	6,210.00	6,208.43	28.74	137.52	164.98	-797.82	-7,226.64	7,850.17	7,686.29	163.88	47.903	
7,600.00	7,342.62	6,210.00	6,208.43	28.97	137.52	160.04	-797.82	-7,226.64	7,899.45	7,735.55	163.89	48.200	
7,650.00	7,353.53	6,210.00	6,208.43	29.22	137.52	141.10	-797.82	-7,226.64	7,949.22	7,785.32	163.90	48.499	
7,700.00	7,360.61	6,210.00	6,208.43	29.48	137.52	38.38	-797.82	-7,226.64	7,999.18	7,835.26	163.92	48.800	
7,750.00	7,363.80	6,210.00	6,208.43	29.75	137.52	9.46	-797.82	-7,226.64	8,049.02	7,885.08	163.94	49.098	
7,765.93	7,364.00	6,210.00	6,208.43	29.84	137.52	6.68	-797.82	-7,226.64	8,064.83	7,900.88	163.95	49.192	
7,800.00	7,364.00	6,210.00	6,208.43	30.04	137.52	6.68	-797.82	-7,226.64	8,098.58	7,934.62	163.96	49.393	
7,900.00	7,364.00	6,210.00	6,208.43	30.67	137.52	6.68	-797.82	-7,226.64	8,197.66	8,033.65	164.01	49.982	
8,000.00	7,364.00	6,210.00	6,208.43	31.37	137.52	6.68	-797.82	-7,226.64	8,296.76	8,132.70	164.06	50.570	
8,100.00	7,364.00	6,210.00	6,208.43	32.14	137.52	6.68	-797.82	-7,226.64	8,395.88	8,231.77	164.11	51.159	
8,200.00	7,364.00	6,210.00	6,208.43	32.96	137.52	6.68	-797.82	-7,226.64	8,495.03	8,330.86	164.16	51.747	
8,300.00	7,364.00	6,210.00	6,208.43	33.85	137.52	6.68	-797.82	-7,226.64	8,594.19	8,429.97	164.21	52.335	
8,400.00	7,364.00	6,210.00	6,208.43	34.79	137.52	6.68	-797.82	-7,226.64	8,693.37	8,529.11	164.26	52.923	
8,500.00	7,364.00	6,210.00	6,208.43	35.77	137.52	6.68	-797.82	-7,226.64	8,792.57	8,628.26	164.31	53.511	
8,600.00	7,364.00	6,210.00	6,208.43	36.80	137.52	6.68	-797.82	-7,226.64	8,891.79	8,727.43	164.36	54.098	
8,700.00	7,364.00	6,210.00	6,208.43	37.87	137.52	6.68	-797.82	-7,226.64	8,991.03	8,826.61	164.41	54.685	
8,800.00	7,364.00	6,210.00	6,208.43	38.98	137.52	6.68	-797.82	-7,226.64	9,090.28	8,925.82	164.47	55.272	
8,900.00	7,364.00	6,210.00	6,208.43	40.12	137.52	6.68	-797.82	-7,226.64	9,189.55	9,025.03	164.52	55.858	
9,000.00	7,364.00	6,210.00	6,208.43	41.29	137.52	6.68	-797.82	-7,226.64	9,288.83	9,124.27	164.57	56.444	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #137A - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 293-A027Ua_INC-ONLY

Rule Assigned:

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,100.00	7,364.00	6,210.00	6,208.43	42.49	137.52	6.68	-797.82	-7,226.64	9,388.13	9,223.52	164.62	57.030	
9,200.00	7,364.00	6,210.00	6,208.43	43.71	137.52	6.68	-797.82	-7,226.64	9,487.45	9,322.78	164.67	57.616	
9,300.00	7,364.00	6,210.00	6,208.43	44.96	137.52	6.68	-797.82	-7,226.64	9,586.78	9,422.06	164.72	58.201	
9,400.00	7,364.00	6,210.00	6,208.43	46.23	137.52	6.68	-797.82	-7,226.64	9,686.12	9,521.35	164.77	58.786	
9,500.00	7,364.00	6,210.00	6,208.43	47.52	137.52	6.68	-797.82	-7,226.64	9,785.48	9,620.66	164.82	59.370	
9,600.00	7,364.00	6,210.00	6,208.43	48.83	137.52	6.68	-797.82	-7,226.64	9,884.85	9,719.97	164.87	59.955	
9,700.00	7,364.00	6,210.00	6,208.43	50.15	137.52	6.68	-797.82	-7,226.64	9,984.23	9,819.30	164.92	60.538	
9,800.00	7,364.00	6,210.00	6,208.43	51.49	137.52	6.68	-797.82	-7,226.64	10,083.62	9,918.64	164.98	61.122	
9,900.00	7,364.00	6,210.00	6,208.43	52.85	137.52	6.68	-797.82	-7,226.64	10,183.03	10,018.00	165.03	61.705	
10,000.00	7,364.00	6,210.00	6,208.43	54.22	137.52	6.68	-797.82	-7,226.64	10,282.44	10,117.36	165.08	62.287	
10,100.00	7,364.00	6,210.00	6,208.43	55.60	137.52	6.68	-797.82	-7,226.64	10,381.87	10,216.74	165.13	62.869	
10,200.00	7,364.00	6,210.00	6,208.43	56.99	137.52	6.68	-797.82	-7,226.64	10,481.31	10,316.12	165.19	63.451	
10,300.00	7,364.00	6,210.00	6,208.43	58.40	137.52	6.68	-797.82	-7,226.64	10,580.76	10,415.52	165.24	64.032	
10,400.00	7,364.00	6,210.00	6,208.43	59.81	137.52	6.68	-797.82	-7,226.64	10,680.22	10,514.93	165.30	64.613	
10,500.00	7,364.00	6,210.00	6,208.43	61.23	137.52	6.68	-797.82	-7,226.64	10,779.69	10,614.34	165.35	65.193	
10,600.00	7,364.00	6,210.00	6,208.43	62.66	137.52	6.68	-797.82	-7,226.64	10,879.17	10,713.77	165.40	65.773	
10,700.00	7,364.00	6,210.00	6,208.43	64.10	137.52	6.68	-797.82	-7,226.64	10,978.66	10,813.20	165.46	66.352	
10,800.00	7,364.00	6,210.00	6,208.43	65.55	137.52	6.68	-797.82	-7,226.64	11,078.16	10,912.64	165.52	66.931	
10,900.00	7,364.00	6,210.00	6,208.43	67.01	137.52	6.68	-797.82	-7,226.64	11,177.67	11,012.10	165.57	67.510	
11,000.00	7,364.00	6,210.00	6,208.43	68.47	137.52	6.68	-797.82	-7,226.64	11,277.18	11,111.56	165.63	68.087	
11,100.00	7,364.00	6,210.00	6,208.43	69.93	137.52	6.68	-797.82	-7,226.64	11,376.71	11,211.02	165.68	68.665	
11,200.00	7,364.00	6,210.00	6,208.43	71.41	137.52	6.68	-797.82	-7,226.64	11,476.24	11,310.50	165.74	69.242	
11,300.00	7,364.00	6,210.00	6,208.43	72.88	137.52	6.68	-797.82	-7,226.64	11,575.78	11,409.98	165.80	69.818	
11,400.00	7,364.00	6,210.00	6,208.43	74.37	137.52	6.68	-797.82	-7,226.64	11,675.33	11,509.47	165.86	70.394	
11,500.00	7,364.00	6,210.00	6,208.43	75.85	137.52	6.68	-797.82	-7,226.64	11,774.89	11,608.97	165.92	70.969	
11,600.00	7,364.00	6,210.00	6,208.43	77.35	137.52	6.68	-797.82	-7,226.64	11,874.45	11,708.48	165.98	71.543	
11,700.00	7,364.00	6,210.00	6,208.43	78.84	137.52	6.68	-797.82	-7,226.64	11,974.02	11,807.99	166.03	72.117	
11,800.00	7,364.00	6,210.00	6,208.43	80.34	137.52	6.68	-797.82	-7,226.64	12,073.60	11,907.51	166.09	72.691	
11,900.00	7,364.00	6,210.00	6,208.43	81.85	137.52	6.68	-797.82	-7,226.64	12,173.19	12,007.03	166.16	73.264	
12,000.00	7,364.00	6,210.00	6,208.43	83.36	137.52	6.68	-797.82	-7,226.64	12,272.78	12,106.56	166.22	73.836	
12,100.00	7,364.00	6,210.00	6,208.43	84.87	137.52	6.68	-797.82	-7,226.64	12,372.38	12,206.10	166.28	74.408	
12,200.00	7,364.00	6,210.00	6,208.43	86.38	137.52	6.68	-797.82	-7,226.64	12,471.98	12,305.64	166.34	74.979	
12,300.00	7,364.00	6,210.00	6,208.43	87.90	137.52	6.68	-797.82	-7,226.64	12,571.59	12,405.19	166.40	75.550	
12,400.00	7,364.00	6,210.00	6,208.43	89.42	137.52	6.68	-797.82	-7,226.64	12,671.21	12,504.75	166.46	76.120	
12,500.00	7,364.00	6,210.00	6,208.43	90.95	137.52	6.68	-797.82	-7,226.64	12,770.83	12,604.31	166.53	76.689	
12,600.00	7,364.00	6,210.00	6,208.43	92.47	137.52	6.68	-797.82	-7,226.64	12,870.46	12,703.87	166.59	77.258	
12,700.00	7,364.00	6,210.00	6,208.43	94.00	137.52	6.68	-797.82	-7,226.64	12,970.10	12,803.44	166.66	77.826	
12,800.00	7,364.00	6,210.00	6,208.43	95.53	137.52	6.68	-797.82	-7,226.64	13,069.74	12,903.02	166.72	78.393	
12,900.00	7,364.00	6,210.00	6,208.43	97.06	137.52	6.68	-797.82	-7,226.64	13,169.38	13,002.60	166.79	78.960	
13,000.00	7,364.00	6,210.00	6,208.43	98.60	137.52	6.68	-797.82	-7,226.64	13,269.04	13,102.18	166.85	79.526	
13,100.00	7,364.00	6,210.00	6,208.43	100.14	137.52	6.68	-797.82	-7,226.64	13,368.69	13,201.77	166.92	80.092	
13,200.00	7,364.00	6,210.00	6,208.43	101.68	137.52	6.68	-797.82	-7,226.64	13,468.35	13,301.37	166.98	80.656	
13,300.00	7,364.00	6,210.00	6,208.43	103.22	137.52	6.68	-797.82	-7,226.64	13,568.02	13,400.97	167.05	81.221	
13,400.00	7,364.00	6,210.00	6,208.43	104.76	137.52	6.68	-797.82	-7,226.64	13,667.69	13,500.57	167.12	81.784	
13,500.00	7,364.00	6,210.00	6,208.43	106.31	137.52	6.68	-797.82	-7,226.64	13,767.37	13,600.18	167.19	82.347	
13,600.00	7,364.00	6,210.00	6,208.43	107.85	137.52	6.68	-797.82	-7,226.64	13,867.05	13,699.79	167.26	82.909	
13,700.00	7,364.00	6,210.00	6,208.43	109.40	137.52	6.68	-797.82	-7,226.64	13,966.73	13,799.41	167.33	83.470	
13,800.00	7,364.00	6,210.00	6,208.43	110.95	137.52	6.68	-797.82	-7,226.64	14,066.42	13,899.03	167.40	84.031	
13,900.00	7,364.00	6,210.00	6,208.43	112.50	137.52	6.68	-797.82	-7,226.64	14,166.12	13,998.65	167.47	84.591	
14,000.00	7,364.00	6,210.00	6,208.43	114.05	137.52	6.68	-797.82	-7,226.64	14,265.82	14,098.28	167.54	85.151	
14,100.00	7,364.00	6,210.00	6,208.43	115.61	137.52	6.68	-797.82	-7,226.64	14,365.52	14,197.91	167.61	85.709	
14,200.00	7,364.00	6,210.00	6,208.43	117.16	137.52	6.68	-797.82	-7,226.64	14,465.23	14,297.55	167.68	86.267	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #137A - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 293-A027Ua_INC-ONLY

Rule Assigned:

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,300.00	7,364.00	6,210.00	6,208.43	118.72	137.52	6.68	-797.82	-7,226.64	14,564.94	14,397.18	167.75	86.824	
14,400.00	7,364.00	6,210.00	6,208.43	120.28	137.52	6.68	-797.82	-7,226.64	14,664.65	14,496.83	167.82	87.381	
14,500.00	7,364.00	6,210.00	6,208.43	121.84	137.52	6.68	-797.82	-7,226.64	14,764.37	14,596.47	167.90	87.937	
14,600.00	7,364.00	6,210.00	6,208.43	123.40	137.52	6.68	-797.82	-7,226.64	14,864.09	14,696.12	167.97	88.492	
14,700.00	7,364.00	6,210.00	6,208.43	124.96	137.52	6.68	-797.82	-7,226.64	14,963.82	14,795.77	168.05	89.046	
14,800.00	7,364.00	6,210.00	6,208.43	126.52	137.52	6.68	-797.82	-7,226.64	15,063.55	14,895.43	168.12	89.600	
14,900.00	7,364.00	6,210.00	6,208.43	128.08	137.52	6.68	-797.82	-7,226.64	15,163.28	14,995.09	168.20	90.152	
15,000.00	7,364.00	6,210.00	6,208.43	129.64	137.52	6.68	-797.82	-7,226.64	15,263.02	15,094.75	168.27	90.705	
15,100.00	7,364.00	6,210.00	6,208.43	131.21	137.52	6.68	-797.82	-7,226.64	15,362.76	15,194.41	168.35	91.256	
15,200.00	7,364.00	6,210.00	6,208.43	132.77	137.52	6.68	-797.82	-7,226.64	15,462.50	15,294.08	168.42	91.807	
15,300.00	7,364.00	6,210.00	6,208.43	134.34	137.52	6.68	-797.82	-7,226.64	15,562.25	15,393.75	168.50	92.356	
15,400.00	7,364.00	6,210.00	6,208.43	135.91	137.52	6.68	-797.82	-7,226.64	15,662.00	15,493.42	168.58	92.905	
15,500.00	7,364.00	6,210.00	6,208.43	137.48	137.52	6.68	-797.82	-7,226.64	15,761.75	15,593.09	168.66	93.454	
15,600.00	7,364.00	6,210.00	6,208.43	139.04	137.52	6.68	-797.82	-7,226.64	15,861.51	15,692.77	168.74	94.001	
15,700.00	7,364.00	6,210.00	6,208.43	140.61	137.52	6.68	-797.82	-7,226.64	15,961.27	15,792.45	168.82	94.548	
15,800.00	7,364.00	6,210.00	6,208.43	142.18	137.52	6.68	-797.82	-7,226.64	16,061.03	15,892.13	168.90	95.094	
15,900.00	7,364.00	6,210.00	6,208.43	143.75	137.52	6.68	-797.82	-7,226.64	16,160.80	15,991.82	168.98	95.639	
16,000.00	7,364.00	6,210.00	6,208.43	145.33	137.52	6.68	-797.82	-7,226.64	16,260.56	16,091.51	169.06	96.184	
16,100.00	7,364.00	6,210.00	6,208.43	146.90	137.52	6.68	-797.82	-7,226.64	16,360.34	16,191.20	169.14	96.727	
16,200.00	7,364.00	6,210.00	6,208.43	148.47	137.52	6.68	-797.82	-7,226.64	16,460.11	16,290.89	169.22	97.270	
16,300.00	7,364.00	6,210.00	6,208.43	150.04	137.52	6.68	-797.82	-7,226.64	16,559.89	16,390.58	169.30	97.812	
16,400.00	7,364.00	6,210.00	6,208.43	151.62	137.52	6.68	-797.82	-7,226.64	16,659.66	16,490.28	169.39	98.354	
16,500.00	7,364.00	6,210.00	6,208.43	153.19	137.52	6.68	-797.82	-7,226.64	16,759.45	16,589.98	169.47	98.894	
16,600.00	7,364.00	6,210.00	6,208.43	154.77	137.52	6.68	-797.82	-7,226.64	16,859.23	16,689.68	169.55	99.434	
16,700.00	7,364.00	6,210.00	6,208.43	156.34	137.52	6.68	-797.82	-7,226.64	16,959.02	16,789.38	169.64	99.973	
16,800.00	7,364.00	6,210.00	6,208.43	157.92	137.52	6.68	-797.82	-7,226.64	17,058.81	16,889.09	169.72	100.511	
16,900.00	7,364.00	6,210.00	6,208.43	159.49	137.52	6.68	-797.82	-7,226.64	17,158.60	16,988.79	169.81	101.048	
17,000.00	7,364.00	6,210.00	6,208.43	161.07	137.52	6.68	-797.82	-7,226.64	17,258.39	17,088.50	169.89	101.585	
17,100.00	7,364.00	6,210.00	6,208.43	162.65	137.52	6.68	-797.82	-7,226.64	17,358.19	17,188.21	169.98	102.121	
17,200.00	7,364.00	6,210.00	6,208.43	164.23	137.52	6.68	-797.82	-7,226.64	17,457.99	17,287.93	170.06	102.656	
17,300.00	7,364.00	6,210.00	6,208.43	165.81	137.52	6.68	-797.82	-7,226.64	17,557.79	17,387.64	170.15	103.190	
17,400.00	7,364.00	6,210.00	6,208.43	167.38	137.52	6.68	-797.82	-7,226.64	17,657.59	17,487.36	170.24	103.723	
17,500.00	7,364.00	6,210.00	6,208.43	168.96	137.52	6.68	-797.82	-7,226.64	17,757.40	17,587.07	170.33	104.255	
17,600.00	7,364.00	6,210.00	6,208.43	170.54	137.52	6.68	-797.82	-7,226.64	17,857.21	17,686.79	170.41	104.787	
17,700.00	7,364.00	6,210.00	6,208.43	172.12	137.52	6.68	-797.82	-7,226.64	17,957.02	17,786.52	170.50	105.318	
17,800.00	7,364.00	6,210.00	6,208.43	173.70	137.52	6.68	-797.82	-7,226.64	18,056.83	17,886.24	170.59	105.848	
17,900.00	7,364.00	6,210.00	6,208.43	175.28	137.52	6.68	-797.82	-7,226.64	18,156.64	17,985.96	170.68	106.377	
18,000.00	7,364.00	6,210.00	6,208.43	176.87	137.52	6.68	-797.82	-7,226.64	18,256.46	18,085.69	170.77	106.905	
18,100.00	7,364.00	6,210.00	6,208.43	178.45	137.52	6.68	-797.82	-7,226.64	18,356.28	18,185.42	170.86	107.433	
18,200.00	7,364.00	6,210.00	6,208.43	180.03	137.52	6.68	-797.82	-7,226.64	18,456.10	18,285.15	170.95	107.960	
18,300.00	7,364.00	6,210.00	6,208.43	181.61	137.52	6.68	-797.82	-7,226.64	18,555.92	18,384.88	171.04	108.486	
18,400.00	7,364.00	6,210.00	6,208.43	183.19	137.52	6.68	-797.82	-7,226.64	18,655.75	18,484.61	171.14	109.011	
18,500.00	7,364.00	6,210.00	6,208.43	184.78	137.52	6.68	-797.82	-7,226.64	18,755.57	18,584.34	171.23	109.535	
18,600.00	7,364.00	6,210.00	6,208.43	186.36	137.52	6.68	-797.82	-7,226.64	18,855.40	18,684.08	171.32	110.058	
18,700.00	7,364.00	6,210.00	6,208.43	187.94	137.52	6.68	-797.82	-7,226.64	18,955.23	18,783.81	171.41	110.581	
18,800.00	7,364.00	6,210.00	6,208.43	189.53	137.52	6.68	-797.82	-7,226.64	19,055.06	18,883.55	171.51	111.103	
18,900.00	7,364.00	6,210.00	6,208.43	191.11	137.52	6.68	-797.82	-7,226.64	19,154.89	18,983.29	171.60	111.624	
19,000.00	7,364.00	6,210.00	6,208.43	192.70	137.52	6.68	-797.82	-7,226.64	19,254.73	19,083.03	171.70	112.144	
19,100.00	7,364.00	6,210.00	6,208.43	194.28	137.52	6.68	-797.82	-7,226.64	19,354.57	19,182.77	171.79	112.663	
19,200.00	7,364.00	6,210.00	6,208.43	195.87	137.52	6.68	-797.82	-7,226.64	19,454.40	19,282.52	171.89	113.181	
19,300.00	7,364.00	6,210.00	6,208.43	197.45	137.52	6.68	-797.82	-7,226.64	19,554.24	19,382.26	171.98	113.699	
19,400.00	7,364.00	6,210.00	6,208.43	199.04	137.52	6.68	-797.82	-7,226.64	19,654.09	19,482.01	172.08	114.216	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #137A - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 293-A027Ua_INC-ONLY

Rule Assigned:

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
19,500.00	7,364.00	6,210.00	6,208.43	200.62	137.52	6.68	-797.82	-7,226.64	19,753.93	19,581.75	172.18	114.732	
19,600.00	7,364.00	6,210.00	6,208.43	202.21	137.52	6.68	-797.82	-7,226.64	19,853.77	19,681.50	172.27	115.247	
19,700.00	7,364.00	6,210.00	6,208.43	203.79	137.52	6.68	-797.82	-7,226.64	19,953.62	19,781.25	172.37	115.761	
19,800.00	7,364.00	6,210.00	6,208.43	205.38	137.52	6.68	-797.82	-7,226.64	20,053.47	19,881.00	172.47	116.274	
19,900.00	7,364.00	6,210.00	6,208.43	206.97	137.52	6.68	-797.82	-7,226.64	20,153.32	19,980.75	172.57	116.787	
20,000.00	7,364.00	6,210.00	6,208.43	208.55	137.52	6.68	-797.82	-7,226.64	20,253.17	20,080.50	172.66	117.298	
20,100.00	7,364.00	6,210.00	6,208.43	210.14	137.52	6.68	-797.82	-7,226.64	20,353.02	20,180.26	172.76	117.809	
20,200.00	7,364.00	6,210.00	6,208.43	211.73	137.52	6.68	-797.82	-7,226.64	20,452.87	20,280.01	172.86	118.319	
20,300.00	7,364.00	6,210.00	6,208.43	213.32	137.52	6.68	-797.82	-7,226.64	20,552.73	20,379.77	172.96	118.828	
20,400.00	7,364.00	6,210.00	6,208.43	214.90	137.52	6.68	-797.82	-7,226.64	20,652.59	20,479.52	173.06	119.337	
20,500.00	7,364.00	6,210.00	6,208.43	216.49	137.52	6.68	-797.82	-7,226.64	20,752.44	20,579.28	173.16	119.844	
20,600.00	7,364.00	6,210.00	6,208.43	218.08	137.52	6.68	-797.82	-7,226.64	20,852.30	20,679.04	173.26	120.351	
20,700.00	7,364.00	6,210.00	6,208.43	219.67	137.52	6.68	-797.82	-7,226.64	20,952.16	20,778.80	173.36	120.857	
20,800.00	7,364.00	6,210.00	6,208.43	221.26	137.52	6.68	-797.82	-7,226.64	21,052.03	20,878.56	173.47	121.362	
20,900.00	7,364.00	6,210.00	6,208.43	222.84	137.52	6.68	-797.82	-7,226.64	21,151.89	20,978.32	173.57	121.866	
21,000.00	7,364.00	6,210.00	6,208.43	224.43	137.52	6.68	-797.82	-7,226.64	21,251.75	21,078.08	173.67	122.369	
21,100.00	7,364.00	6,210.00	6,208.43	226.02	137.52	6.68	-797.82	-7,226.64	21,351.62	21,177.85	173.77	122.871	
21,200.00	7,364.00	6,210.00	6,208.43	227.61	137.52	6.68	-797.82	-7,226.64	21,451.49	21,277.61	173.88	123.373	
21,300.00	7,364.00	6,210.00	6,208.43	229.20	137.52	6.68	-797.82	-7,226.64	21,551.35	21,377.38	173.98	123.874	
21,400.00	7,364.00	6,210.00	6,208.43	230.79	137.52	6.68	-797.82	-7,226.64	21,651.22	21,477.14	174.08	124.374	
21,500.00	7,364.00	6,210.00	6,208.43	232.38	137.52	6.68	-797.82	-7,226.64	21,751.09	21,576.91	174.19	124.873	
21,600.00	7,364.00	6,210.00	6,208.43	233.97	137.52	6.68	-797.82	-7,226.64	21,850.97	21,676.68	174.29	125.371	
21,700.00	7,364.00	6,210.00	6,208.43	235.56	137.52	6.68	-797.82	-7,226.64	21,950.84	21,776.44	174.40	125.868	
21,800.00	7,364.00	6,210.00	6,208.43	237.15	137.52	6.68	-797.82	-7,226.64	22,050.71	21,876.21	174.50	126.365	
21,864.93	7,364.00	6,210.00	6,208.43	238.18	137.52	6.68	-797.82	-7,226.64	22,115.56	21,940.99	174.57	126.687	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #137B - 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	0.00	0.00	3.28	0.00	-106.99	-1,982.68	-6,488.08	6,785.11				
100.00	100.00	0.00	0.00	3.29	0.00	-106.99	-1,982.68	-6,488.08	6,784.27	6,780.98	3.29	2,062.223	
135.84	135.84	28.84	28.84	3.30	0.27	-106.99	-1,982.68	-6,488.08	6,784.27	6,780.70	3.57	1,901.082	
200.00	200.00	93.00	93.00	3.34	0.86	-106.99	-1,982.68	-6,488.08	6,784.27	6,780.07	4.20	1,616.902	
300.00	300.00	193.00	193.00	3.42	1.78	-106.99	-1,982.68	-6,488.08	6,784.27	6,779.06	5.20	1,303.730	
400.00	400.00	293.00	293.00	3.54	2.71	-106.99	-1,982.68	-6,488.08	6,784.27	6,778.02	6.25	1,086.153	
500.00	500.00	393.00	393.00	3.69	4.49	-106.99	-1,982.68	-6,488.08	6,784.27	6,776.09	8.18	829.429	
600.00	599.98	492.98	492.98	3.86	6.34	103.01	-1,982.68	-6,488.08	6,784.66	6,774.46	10.20	665.417	
700.00	699.84	590.29	590.28	4.04	8.14	103.04	-1,982.23	-6,488.08	6,785.71	6,773.53	12.18	557.076	
808.00	807.41	693.90	693.89	4.27	10.05	103.07	-1,982.47	-6,488.08	6,787.95	6,773.62	14.33	473.843	
900.00	898.89	791.91	791.89	4.49	11.89	85.99	-1,982.68	-6,488.08	6,788.78	6,772.41	16.38	414.560	
912.12	910.94	803.96	803.94	4.52	12.12	83.77	-1,982.68	-6,488.08	6,788.67	6,772.03	16.63	408.099	
1,000.00	998.31	891.33	891.31	4.74	13.78	83.85	-1,982.68	-6,488.08	6,787.65	6,769.13	18.52	366.519	
1,100.00	1,097.73	990.75	990.73	5.01	15.67	83.94	-1,982.68	-6,488.08	6,786.50	6,765.82	20.68	328.173	
1,200.00	1,197.15	1,087.00	1,086.97	5.29	17.50	84.03	-1,982.22	-6,488.08	6,785.24	6,762.44	22.79	297.675	
1,300.00	1,296.58	1,183.17	1,183.14	5.59	19.33	84.12	-1,982.46	-6,488.08	6,784.19	6,759.28	24.92	272.243	
1,400.00	1,396.00	1,289.05	1,289.00	5.90	21.37	84.21	-1,982.68	-6,488.08	6,783.16	6,755.89	27.27	248.743	
1,500.00	1,495.42	1,388.47	1,388.42	6.22	23.32	84.30	-1,982.68	-6,488.08	6,782.08	6,752.54	29.54	229.616	
1,600.00	1,594.84	1,487.89	1,487.84	6.54	25.27	84.39	-1,982.68	-6,488.08	6,781.01	6,749.20	31.81	213.165	
1,700.00	1,694.27	1,583.05	1,582.99	6.87	27.14	84.48	-1,981.95	-6,488.08	6,779.77	6,745.76	34.01	199.356	
1,800.00	1,793.69	1,677.96	1,677.90	7.21	29.00	84.57	-1,982.28	-6,488.08	6,778.83	6,742.63	36.21	187.227	
1,900.00	1,893.11	1,786.20	1,786.11	7.55	31.12	84.66	-1,982.68	-6,488.08	6,777.92	6,739.25	38.67	175.264	
2,000.00	1,992.53	1,885.63	1,885.53	7.89	33.08	84.75	-1,982.68	-6,488.08	6,776.93	6,735.96	40.97	165.402	
2,100.00	2,091.96	1,985.05	1,984.96	8.24	35.03	84.84	-1,982.68	-6,488.08	6,775.95	6,732.67	43.28	156.575	
2,200.00	2,191.38	2,080.58	2,080.48	8.60	36.91	84.93	-1,981.95	-6,488.08	6,774.79	6,729.28	45.51	148.875	
2,300.00	2,290.80	2,175.54	2,175.43	8.95	38.78	85.02	-1,982.27	-6,488.08	6,773.94	6,726.21	47.73	141.927	
2,400.00	2,390.22	2,283.36	2,283.22	9.31	40.92	85.11	-1,982.68	-6,488.08	6,773.11	6,722.88	50.23	134.845	
2,500.00	2,489.65	2,382.78	2,382.65	9.67	42.94	85.20	-1,982.68	-6,488.08	6,772.20	6,719.59	52.61	128.724	
2,600.00	2,589.07	2,482.20	2,482.07	10.03	44.96	85.29	-1,982.68	-6,488.08	6,771.31	6,716.31	54.99	123.129	
2,700.00	2,688.49	2,578.85	2,578.71	10.40	46.93	85.38	-1,981.86	-6,488.08	6,770.21	6,712.89	57.32	118.107	
2,800.00	2,787.91	2,674.17	2,674.03	10.76	48.87	85.47	-1,982.12	-6,488.08	6,769.42	6,709.80	59.63	113.531	
2,900.00	2,887.33	2,769.55	2,769.40	11.13	50.80	85.55	-1,982.61	-6,488.08	6,768.71	6,706.78	61.93	109.293	
3,000.00	2,986.76	2,879.96	2,879.76	11.50	53.26	85.65	-1,982.68	-6,488.08	6,767.89	6,703.14	64.76	104.509	
3,100.00	3,086.18	2,979.38	2,979.18	11.87	55.50	85.74	-1,982.68	-6,488.08	6,767.08	6,699.72	67.36	100.455	
3,200.00	3,185.60	3,075.15	3,074.94	12.24	57.65	85.83	-1,981.71	-6,488.08	6,766.05	6,696.16	69.89	96.811	
3,300.00	3,285.02	3,168.72	3,168.51	12.61	59.76	85.92	-1,982.07	-6,488.08	6,765.37	6,693.00	72.37	93.489	
3,400.00	3,384.45	3,277.76	3,277.45	12.98	62.20	86.01	-1,982.68	-6,488.08	6,764.76	6,689.58	75.18	89.985	
3,500.00	3,483.87	3,377.18	3,376.87	13.36	64.38	86.10	-1,982.68	-6,488.08	6,764.01	6,686.28	77.73	87.019	
3,600.00	3,583.29	3,476.60	3,476.29	13.73	66.55	86.19	-1,982.68	-6,488.08	6,763.29	6,683.00	80.28	84.242	
3,700.00	3,682.71	3,568.67	3,568.33	14.11	68.57	86.29	-1,981.32	-6,488.08	6,762.25	6,679.57	82.68	81.790	
3,800.00	3,782.14	3,659.79	3,659.44	14.48	70.57	86.36	-1,981.95	-6,488.08	6,761.73	6,676.68	85.05	79.502	
3,900.00	3,881.56	3,774.97	3,774.56	14.86	73.06	86.46	-1,982.68	-6,488.08	6,761.21	6,673.29	87.92	76.904	
4,000.00	3,980.98	3,874.39	3,873.98	15.24	75.17	86.55	-1,982.68	-6,488.08	6,760.55	6,670.15	90.40	74.782	
4,100.00	4,080.40	3,973.81	3,973.40	15.61	77.28	86.64	-1,982.68	-6,488.08	6,759.91	6,667.02	92.89	72.772	
4,200.00	4,179.83	4,073.23	4,072.83	15.99	79.39	86.73	-1,982.68	-6,488.08	6,759.29	6,663.91	95.38	70.867	
4,300.00	4,279.25	4,172.66	4,172.25	16.37	81.50	86.82	-1,982.68	-6,488.08	6,758.68	6,660.81	97.87	69.059	
4,400.00	4,378.67	4,272.08	4,271.67	16.75	83.61	86.91	-1,982.68	-6,488.08	6,758.09	6,657.74	100.36	67.340	
4,500.00	4,478.09	4,370.44	4,370.02	17.13	85.70	87.02	-1,980.78	-6,488.08	6,757.08	6,654.25	102.82	65.715	
4,600.00	4,577.51	4,468.16	4,467.74	17.51	87.77	87.11	-1,980.90	-6,488.08	6,756.55	6,651.27	105.28	64.178	
4,700.00	4,676.94	4,565.91	4,565.49	17.89	89.85	87.19	-1,981.13	-6,488.08	6,756.07	6,648.34	107.73	62.712	
4,800.00	4,776.36	4,663.69	4,663.26	18.27	91.92	87.28	-1,981.46	-6,488.08	6,755.63	6,645.44	110.19	61.310	
4,900.00	4,875.78	4,761.49	4,761.05	18.65	94.00	87.36	-1,981.90	-6,488.08	6,755.23	6,642.58	112.64	59.970	

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 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #137B - 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
5,000.00	4,975.20	4,859.31	4,858.87	19.03	96.07	87.45	-1,982.45	-6,488.08	6,754.86	6,639.76	115.10	58.687	
5,100.00	5,074.63	4,968.22	4,967.63	19.41	98.45	87.55	-1,982.68	-6,488.08	6,754.44	6,636.59	117.85	57.312	
5,200.00	5,174.05	5,067.64	5,067.05	19.79	100.64	87.64	-1,982.68	-6,488.08	6,753.99	6,633.56	120.43	56.083	
5,300.00	5,273.47	5,167.06	5,166.47	20.17	102.83	87.73	-1,982.68	-6,488.08	6,753.55	6,630.54	123.00	54.905	
5,400.00	5,372.89	5,266.48	5,265.89	20.56	105.03	87.82	-1,982.68	-6,488.08	6,753.13	6,627.55	125.58	53.776	
5,500.00	5,472.32	5,365.91	5,365.32	20.94	107.22	87.91	-1,982.68	-6,488.08	6,752.73	6,624.57	128.16	52.692	
5,600.00	5,571.74	5,465.33	5,464.74	21.32	109.41	88.00	-1,982.68	-6,488.08	6,752.34	6,621.61	130.73	51.650	
5,700.00	5,671.16	5,564.75	5,564.16	21.70	111.61	88.09	-1,982.68	-6,488.08	6,751.97	6,618.66	133.31	50.649	
5,800.00	5,770.58	5,664.17	5,663.58	22.08	113.80	88.18	-1,982.68	-6,488.08	6,751.62	6,615.74	135.88	49.687	
5,900.00	5,870.01	5,763.60	5,763.01	22.47	116.00	88.27	-1,982.68	-6,488.08	6,751.29	6,612.83	138.46	48.760	
6,000.00	5,969.43	5,863.02	5,862.43	22.85	118.19	88.36	-1,982.68	-6,488.08	6,750.97	6,609.93	141.04	47.867	
6,100.00	6,068.85	5,962.44	5,961.85	23.23	120.38	88.45	-1,982.68	-6,488.08	6,750.67	6,607.05	143.61	47.006	
6,200.00	6,168.27	6,061.86	6,061.27	23.62	122.58	88.54	-1,982.68	-6,488.08	6,750.39	6,604.19	146.19	46.175	
6,300.00	6,267.70	6,161.28	6,160.70	24.00	124.77	88.63	-1,982.68	-6,488.08	6,750.12	6,601.35	148.77	45.373	
6,320.85	6,288.42	6,165.00	6,164.16	24.08	124.85	88.63	-1,982.68	-6,488.08	6,750.09	6,601.16	148.93	45.324	CC, ES
6,400.00	6,367.12	6,165.00	6,164.16	24.38	124.85	88.63	-1,982.68	-6,488.08	6,750.55	6,601.33	149.22	45.239	
6,500.00	6,466.54	6,165.00	6,164.16	24.77	124.85	88.63	-1,982.68	-6,488.08	6,752.46	6,602.91	149.56	45.149	
6,600.00	6,565.96	6,165.00	6,164.16	25.15	124.85	88.63	-1,982.68	-6,488.08	6,755.86	6,605.99	149.87	45.079	
6,700.00	6,665.38	6,165.00	6,164.16	25.53	124.85	88.63	-1,982.68	-6,488.08	6,760.73	6,610.58	150.14	45.029	
6,778.75	6,743.68	6,165.00	6,164.16	25.84	124.85	88.63	-1,982.68	-6,488.08	6,765.60	6,615.26	150.34	45.002	
6,800.00	6,764.80	6,165.00	6,164.16	25.92	124.85	104.62	-1,982.68	-6,488.08	6,767.42	6,617.03	150.39	44.999	SF
6,850.00	6,814.29	6,165.00	6,164.16	26.11	124.85	128.86	-1,982.68	-6,488.08	6,774.67	6,624.16	150.50	45.014	
6,900.00	6,863.27	6,165.00	6,164.16	26.30	124.85	140.59	-1,982.68	-6,488.08	6,786.04	6,635.43	150.61	45.057	
6,950.00	6,911.44	6,165.00	6,164.16	26.50	124.85	146.76	-1,982.68	-6,488.08	6,801.44	6,650.74	150.71	45.130	
7,000.00	6,958.49	6,165.00	6,164.16	26.68	124.85	150.30	-1,982.68	-6,488.08	6,820.76	6,669.96	150.80	45.230	
7,050.00	7,004.14	6,165.00	6,164.16	26.87	124.85	152.38	-1,982.68	-6,488.08	6,843.83	6,692.95	150.88	45.358	
7,100.00	7,048.10	6,165.00	6,164.16	27.05	124.85	153.54	-1,982.68	-6,488.08	6,870.49	6,719.53	150.96	45.511	
7,150.00	7,090.11	6,165.00	6,164.16	27.23	124.85	154.03	-1,982.68	-6,488.08	6,900.52	6,749.49	151.03	45.689	
7,200.00	7,129.90	6,165.00	6,164.16	27.41	124.85	153.97	-1,982.68	-6,488.08	6,933.69	6,782.60	151.10	45.889	
7,250.00	7,167.24	6,165.00	6,164.16	27.59	124.85	153.39	-1,982.68	-6,488.08	6,969.77	6,818.61	151.16	46.110	
7,300.00	7,201.88	6,165.00	6,164.16	27.76	124.85	152.25	-1,982.68	-6,488.08	7,008.48	6,857.27	151.21	46.349	
7,350.00	7,233.63	6,165.00	6,164.16	27.94	124.85	150.46	-1,982.68	-6,488.08	7,049.54	6,898.28	151.26	46.605	
7,400.00	7,262.27	6,165.00	6,164.16	28.13	124.85	147.81	-1,982.68	-6,488.08	7,092.67	6,941.36	151.31	46.875	
7,450.00	7,287.63	6,165.00	6,164.16	28.32	124.85	143.95	-1,982.68	-6,488.08	7,137.56	6,986.20	151.36	47.158	
7,500.00	7,309.57	6,165.00	6,164.16	28.53	124.85	138.29	-1,982.68	-6,488.08	7,183.90	7,032.49	151.40	47.449	
7,550.00	7,327.93	6,165.00	6,164.16	28.74	124.85	129.81	-1,982.68	-6,488.08	7,231.38	7,079.93	151.45	47.748	
7,600.00	7,342.62	6,165.00	6,164.16	28.97	124.85	116.97	-1,982.68	-6,488.08	7,279.70	7,128.20	151.50	48.052	
7,650.00	7,353.53	6,165.00	6,164.16	29.22	124.85	98.42	-1,982.68	-6,488.08	7,328.53	7,176.98	151.55	48.358	
7,700.00	7,360.61	6,165.00	6,164.16	29.48	124.85	75.95	-1,982.68	-6,488.08	7,377.58	7,225.97	151.60	48.663	
7,750.00	7,363.80	6,165.00	6,164.16	29.75	124.85	55.51	-1,982.68	-6,488.08	7,426.53	7,274.87	151.67	48.967	
7,765.93	7,364.00	6,165.00	6,164.16	29.84	124.85	50.15	-1,982.68	-6,488.08	7,442.06	7,290.37	151.69	49.062	
7,800.00	7,364.00	6,165.00	6,164.16	30.04	124.85	50.15	-1,982.68	-6,488.08	7,475.23	7,323.50	151.73	49.266	
7,900.00	7,364.00	6,165.00	6,164.16	30.67	124.85	50.15	-1,982.68	-6,488.08	7,572.63	7,420.76	151.87	49.864	
8,000.00	7,364.00	6,165.00	6,164.16	31.37	124.85	50.15	-1,982.68	-6,488.08	7,670.09	7,518.09	152.00	50.461	
8,100.00	7,364.00	6,165.00	6,164.16	32.14	124.85	50.15	-1,982.68	-6,488.08	7,767.62	7,615.49	152.13	51.058	
8,200.00	7,364.00	6,165.00	6,164.16	32.96	124.85	50.15	-1,982.68	-6,488.08	7,865.21	7,712.94	152.27	51.654	
8,300.00	7,364.00	6,165.00	6,164.16	33.85	124.85	50.15	-1,982.68	-6,488.08	7,962.86	7,810.46	152.40	52.250	
8,400.00	7,364.00	6,165.00	6,164.16	34.79	124.85	50.15	-1,982.68	-6,488.08	8,060.57	7,908.04	152.53	52.846	
8,500.00	7,364.00	6,165.00	6,164.16	35.77	124.85	50.15	-1,982.68	-6,488.08	8,158.33	8,005.67	152.66	53.442	
8,600.00	7,364.00	6,165.00	6,164.16	36.80	124.85	50.15	-1,982.68	-6,488.08	8,256.15	8,103.36	152.79	54.037	
8,700.00	7,364.00	6,165.00	6,164.16	37.87	124.85	50.15	-1,982.68	-6,488.08	8,354.02	8,201.10	152.92	54.631	
8,800.00	7,364.00	6,165.00	6,164.16	38.98	124.85	50.15	-1,982.68	-6,488.08	8,451.94	8,298.89	153.04	55.225	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #137B - 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
8,900.00	7,364.00	6,165.00	6,164.16	40.12	124.85	50.15	-1,982.68	-6,488.08	8,549.91	8,396.74	153.17	55.819	
9,000.00	7,364.00	6,165.00	6,164.16	41.29	124.85	50.15	-1,982.68	-6,488.08	8,647.92	8,494.62	153.30	56.413	
9,100.00	7,364.00	6,165.00	6,164.16	42.49	124.85	50.15	-1,982.68	-6,488.08	8,745.98	8,592.56	153.42	57.006	
9,200.00	7,364.00	6,165.00	6,164.16	43.71	124.85	50.15	-1,982.68	-6,488.08	8,844.08	8,690.53	153.55	57.599	
9,300.00	7,364.00	6,165.00	6,164.16	44.96	124.85	50.15	-1,982.68	-6,488.08	8,942.23	8,788.56	153.67	58.191	
9,400.00	7,364.00	6,165.00	6,164.16	46.23	124.85	50.15	-1,982.68	-6,488.08	9,040.41	8,886.62	153.79	58.783	
9,500.00	7,364.00	6,165.00	6,164.16	47.52	124.85	50.15	-1,982.68	-6,488.08	9,138.63	8,984.72	153.91	59.375	
9,600.00	7,364.00	6,165.00	6,164.16	48.83	124.85	50.15	-1,982.68	-6,488.08	9,236.90	9,082.86	154.04	59.966	
9,700.00	7,364.00	6,165.00	6,164.16	50.15	124.85	50.15	-1,982.68	-6,488.08	9,335.20	9,181.04	154.16	60.557	
9,800.00	7,364.00	6,165.00	6,164.16	51.49	124.85	50.15	-1,982.68	-6,488.08	9,433.53	9,279.26	154.27	61.148	
9,900.00	7,364.00	6,165.00	6,164.16	52.85	124.85	50.15	-1,982.68	-6,488.08	9,531.90	9,377.51	154.39	61.738	
10,000.00	7,364.00	6,165.00	6,164.16	54.22	124.85	50.15	-1,982.68	-6,488.08	9,630.30	9,475.79	154.51	62.327	
10,100.00	7,364.00	6,165.00	6,164.16	55.60	124.85	50.15	-1,982.68	-6,488.08	9,728.74	9,574.11	154.63	62.917	
10,200.00	7,364.00	6,165.00	6,164.16	56.99	124.85	50.15	-1,982.68	-6,488.08	9,827.21	9,672.46	154.75	63.506	
10,300.00	7,364.00	6,165.00	6,164.16	58.40	124.85	50.15	-1,982.68	-6,488.08	9,925.70	9,770.84	154.86	64.094	
10,400.00	7,364.00	6,165.00	6,164.16	59.81	124.85	50.15	-1,982.68	-6,488.08	10,024.23	9,869.26	154.98	64.682	
10,500.00	7,364.00	6,165.00	6,164.16	61.23	124.85	50.15	-1,982.68	-6,488.08	10,122.79	9,967.70	155.09	65.270	
10,600.00	7,364.00	6,165.00	6,164.16	62.66	124.85	50.15	-1,982.68	-6,488.08	10,221.37	10,066.17	155.21	65.857	
10,700.00	7,364.00	6,165.00	6,164.16	64.10	124.85	50.15	-1,982.68	-6,488.08	10,319.99	10,164.67	155.32	66.444	
10,800.00	7,364.00	6,165.00	6,164.16	65.55	124.85	50.15	-1,982.68	-6,488.08	10,418.62	10,263.19	155.43	67.030	
10,900.00	7,364.00	6,165.00	6,164.16	67.01	124.85	50.15	-1,982.68	-6,488.08	10,517.29	10,361.74	155.54	67.616	
11,000.00	7,364.00	6,165.00	6,164.16	68.47	124.85	50.15	-1,982.68	-6,488.08	10,615.98	10,460.32	155.66	68.202	
11,100.00	7,364.00	6,165.00	6,164.16	69.93	124.85	50.15	-1,982.68	-6,488.08	10,714.69	10,558.92	155.77	68.787	
11,200.00	7,364.00	6,165.00	6,164.16	71.41	124.85	50.15	-1,982.68	-6,488.08	10,813.43	10,657.55	155.88	69.372	
11,300.00	7,364.00	6,165.00	6,164.16	72.88	124.85	50.15	-1,982.68	-6,488.08	10,912.19	10,756.20	155.99	69.956	
11,400.00	7,364.00	6,165.00	6,164.16	74.37	124.85	50.15	-1,982.68	-6,488.08	11,010.97	10,854.87	156.10	70.539	
11,500.00	7,364.00	6,165.00	6,164.16	75.85	124.85	50.15	-1,982.68	-6,488.08	11,109.77	10,953.57	156.21	71.123	
11,600.00	7,364.00	6,165.00	6,164.16	77.35	124.85	50.15	-1,982.68	-6,488.08	11,208.60	11,052.29	156.31	71.705	
11,700.00	7,364.00	6,165.00	6,164.16	78.84	124.85	50.15	-1,982.68	-6,488.08	11,307.45	11,151.02	156.42	72.288	
11,800.00	7,364.00	6,165.00	6,164.16	80.34	124.85	50.15	-1,982.68	-6,488.08	11,406.31	11,249.78	156.53	72.870	
11,900.00	7,364.00	6,165.00	6,164.16	81.85	124.85	50.15	-1,982.68	-6,488.08	11,505.20	11,348.56	156.64	73.451	
12,000.00	7,364.00	6,165.00	6,164.16	83.36	124.85	50.15	-1,982.68	-6,488.08	11,604.10	11,447.36	156.75	74.032	
12,100.00	7,364.00	6,165.00	6,164.16	84.87	124.85	50.15	-1,982.68	-6,488.08	11,703.03	11,546.17	156.85	74.612	
12,200.00	7,364.00	6,165.00	6,164.16	86.38	124.85	50.15	-1,982.68	-6,488.08	11,801.97	11,645.01	156.96	75.192	
12,300.00	7,364.00	6,165.00	6,164.16	87.90	124.85	50.15	-1,982.68	-6,488.08	11,900.93	11,743.86	157.06	75.771	
12,400.00	7,364.00	6,165.00	6,164.16	89.42	124.85	50.15	-1,982.68	-6,488.08	11,999.90	11,842.73	157.17	76.350	
12,500.00	7,364.00	6,165.00	6,164.16	90.95	124.85	50.15	-1,982.68	-6,488.08	12,098.90	11,941.62	157.27	76.928	
12,600.00	7,364.00	6,165.00	6,164.16	92.47	124.85	50.15	-1,982.68	-6,488.08	12,197.91	12,040.53	157.38	77.506	
12,700.00	7,364.00	6,165.00	6,164.16	94.00	124.85	50.15	-1,982.68	-6,488.08	12,296.93	12,139.45	157.48	78.083	
12,800.00	7,364.00	6,165.00	6,164.16	95.53	124.85	50.15	-1,982.68	-6,488.08	12,395.97	12,238.39	157.59	78.660	
12,900.00	7,364.00	6,165.00	6,164.16	97.06	124.85	50.15	-1,982.68	-6,488.08	12,495.03	12,337.34	157.69	79.236	
13,000.00	7,364.00	6,165.00	6,164.16	98.60	124.85	50.15	-1,982.68	-6,488.08	12,594.10	12,436.31	157.80	79.812	
13,100.00	7,364.00	6,165.00	6,164.16	100.14	124.85	50.15	-1,982.68	-6,488.08	12,693.19	12,535.29	157.90	80.387	
13,200.00	7,364.00	6,165.00	6,164.16	101.68	124.85	50.15	-1,982.68	-6,488.08	12,792.29	12,634.29	158.00	80.962	
13,300.00	7,364.00	6,165.00	6,164.16	103.22	124.85	50.15	-1,982.68	-6,488.08	12,891.40	12,733.30	158.11	81.536	
13,400.00	7,364.00	6,165.00	6,164.16	104.76	124.85	50.15	-1,982.68	-6,488.08	12,990.53	12,832.32	158.21	82.109	
13,500.00	7,364.00	6,165.00	6,164.16	106.31	124.85	50.15	-1,982.68	-6,488.08	13,089.67	12,931.36	158.31	82.682	
13,600.00	7,364.00	6,165.00	6,164.16	107.85	124.85	50.15	-1,982.68	-6,488.08	13,188.83	13,030.41	158.42	83.254	
13,700.00	7,364.00	6,165.00	6,164.16	109.40	124.85	50.15	-1,982.68	-6,488.08	13,287.99	13,129.48	158.52	83.826	
13,800.00	7,364.00	6,165.00	6,164.16	110.95	124.85	50.15	-1,982.68	-6,488.08	13,387.17	13,228.55	158.62	84.397	
13,900.00	7,364.00	6,165.00	6,164.16	112.50	124.85	50.15	-1,982.68	-6,488.08	13,486.36	13,327.64	158.72	84.968	
14,000.00	7,364.00	6,165.00	6,164.16	114.05	124.85	50.15	-1,982.68	-6,488.08	13,585.57	13,426.74	158.83	85.538	

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 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #137B - 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
14,100.00	7,364.00	6,165.00	6,164.16	115.61	124.85	50.15	-1,982.68	-6,488.08	13,684.78	13,525.86	158.93	86.107	
14,200.00	7,364.00	6,165.00	6,164.16	117.16	124.85	50.15	-1,982.68	-6,488.08	13,784.01	13,624.98	159.03	86.676	
14,300.00	7,364.00	6,165.00	6,164.16	118.72	124.85	50.15	-1,982.68	-6,488.08	13,883.25	13,724.12	159.13	87.244	
14,400.00	7,364.00	6,165.00	6,164.16	120.28	124.85	50.15	-1,982.68	-6,488.08	13,982.49	13,823.26	159.23	87.812	
14,500.00	7,364.00	6,165.00	6,164.16	121.84	124.85	50.15	-1,982.68	-6,488.08	14,081.75	13,922.42	159.33	88.379	
14,600.00	7,364.00	6,165.00	6,164.16	123.40	124.85	50.15	-1,982.68	-6,488.08	14,181.02	14,021.59	159.44	88.945	
14,700.00	7,364.00	6,165.00	6,164.16	124.96	124.85	50.15	-1,982.68	-6,488.08	14,280.30	14,120.77	159.54	89.511	
14,800.00	7,364.00	6,165.00	6,164.16	126.52	124.85	50.15	-1,982.68	-6,488.08	14,379.59	14,219.95	159.64	90.076	
14,900.00	7,364.00	6,165.00	6,164.16	128.08	124.85	50.15	-1,982.68	-6,488.08	14,478.89	14,319.15	159.74	90.641	
15,000.00	7,364.00	6,165.00	6,164.16	129.64	124.85	50.15	-1,982.68	-6,488.08	14,578.20	14,418.36	159.84	91.205	
15,100.00	7,364.00	6,165.00	6,164.16	131.21	124.85	50.15	-1,982.68	-6,488.08	14,677.52	14,517.58	159.94	91.768	
15,200.00	7,364.00	6,165.00	6,164.16	132.77	124.85	50.15	-1,982.68	-6,488.08	14,776.84	14,616.80	160.04	92.331	
15,300.00	7,364.00	6,165.00	6,164.16	134.34	124.85	50.15	-1,982.68	-6,488.08	14,876.18	14,716.04	160.14	92.893	
15,400.00	7,364.00	6,165.00	6,164.16	135.91	124.85	50.15	-1,982.68	-6,488.08	14,975.53	14,815.28	160.24	93.454	
15,500.00	7,364.00	6,165.00	6,164.16	137.48	124.85	50.15	-1,982.68	-6,488.08	15,074.88	14,914.53	160.35	94.015	
15,600.00	7,364.00	6,165.00	6,164.16	139.04	124.85	50.15	-1,982.68	-6,488.08	15,174.24	15,013.80	160.45	94.575	
15,700.00	7,364.00	6,165.00	6,164.16	140.61	124.85	50.15	-1,982.68	-6,488.08	15,273.61	15,113.06	160.55	95.134	
15,800.00	7,364.00	6,165.00	6,164.16	142.18	124.85	50.15	-1,982.68	-6,488.08	15,372.99	15,212.34	160.65	95.693	
15,900.00	7,364.00	6,165.00	6,164.16	143.75	124.85	50.15	-1,982.68	-6,488.08	15,472.38	15,311.63	160.75	96.251	
16,000.00	7,364.00	6,165.00	6,164.16	145.33	124.85	50.15	-1,982.68	-6,488.08	15,571.77	15,410.92	160.85	96.809	
16,100.00	7,364.00	6,165.00	6,164.16	146.90	124.85	50.15	-1,982.68	-6,488.08	15,671.18	15,510.22	160.95	97.365	
16,200.00	7,364.00	6,165.00	6,164.16	148.47	124.85	50.15	-1,982.68	-6,488.08	15,770.59	15,609.53	161.05	97.921	
16,300.00	7,364.00	6,165.00	6,164.16	150.04	124.85	50.15	-1,982.68	-6,488.08	15,870.00	15,708.85	161.15	98.477	
16,400.00	7,364.00	6,165.00	6,164.16	151.62	124.85	50.15	-1,982.68	-6,488.08	15,969.43	15,808.17	161.26	99.032	
16,500.00	7,364.00	6,165.00	6,164.16	153.19	124.85	50.15	-1,982.68	-6,488.08	16,068.86	15,907.50	161.36	99.586	
16,600.00	7,364.00	6,165.00	6,164.16	154.77	124.85	50.15	-1,982.68	-6,488.08	16,168.30	16,006.84	161.46	100.139	
16,700.00	7,364.00	6,165.00	6,164.16	156.34	124.85	50.15	-1,982.68	-6,488.08	16,267.74	16,106.18	161.56	100.692	
16,800.00	7,364.00	6,165.00	6,164.16	157.92	124.85	50.15	-1,982.68	-6,488.08	16,367.20	16,205.53	161.66	101.244	
16,900.00	7,364.00	6,165.00	6,164.16	159.49	124.85	50.15	-1,982.68	-6,488.08	16,466.65	16,304.89	161.76	101.795	
17,000.00	7,364.00	6,165.00	6,164.16	161.07	124.85	50.15	-1,982.68	-6,488.08	16,566.12	16,404.26	161.86	102.346	
17,100.00	7,364.00	6,165.00	6,164.16	162.65	124.85	50.15	-1,982.68	-6,488.08	16,665.59	16,503.63	161.97	102.896	
17,200.00	7,364.00	6,165.00	6,164.16	164.23	124.85	50.15	-1,982.68	-6,488.08	16,765.07	16,603.00	162.07	103.445	
17,300.00	7,364.00	6,165.00	6,164.16	165.81	124.85	50.15	-1,982.68	-6,488.08	16,864.56	16,702.39	162.17	103.994	
17,400.00	7,364.00	6,165.00	6,164.16	167.38	124.85	50.15	-1,982.68	-6,488.08	16,964.05	16,801.77	162.27	104.541	
17,500.00	7,364.00	6,165.00	6,164.16	168.96	124.85	50.15	-1,982.68	-6,488.08	17,063.54	16,901.17	162.37	105.088	
17,600.00	7,364.00	6,165.00	6,164.16	170.54	124.85	50.15	-1,982.68	-6,488.08	17,163.04	17,000.57	162.48	105.635	
17,700.00	7,364.00	6,165.00	6,164.16	172.12	124.85	50.15	-1,982.68	-6,488.08	17,262.55	17,099.97	162.58	106.181	
17,800.00	7,364.00	6,165.00	6,164.16	173.70	124.85	50.15	-1,982.68	-6,488.08	17,362.07	17,199.39	162.68	106.726	
17,900.00	7,364.00	6,165.00	6,164.16	175.28	124.85	50.15	-1,982.68	-6,488.08	17,461.59	17,298.80	162.78	107.270	
18,000.00	7,364.00	6,165.00	6,164.16	176.87	124.85	50.15	-1,982.68	-6,488.08	17,561.11	17,398.23	162.88	107.813	
18,100.00	7,364.00	6,165.00	6,164.16	178.45	124.85	50.15	-1,982.68	-6,488.08	17,660.64	17,497.65	162.99	108.356	
18,200.00	7,364.00	6,165.00	6,164.16	180.03	124.85	50.15	-1,982.68	-6,488.08	17,760.18	17,597.09	163.09	108.898	
18,300.00	7,364.00	6,165.00	6,164.16	181.61	124.85	50.15	-1,982.68	-6,488.08	17,859.72	17,696.52	163.19	109.440	
18,400.00	7,364.00	6,165.00	6,164.16	183.19	124.85	50.15	-1,982.68	-6,488.08	17,959.26	17,795.97	163.29	109.981	
18,500.00	7,364.00	6,165.00	6,164.16	184.78	124.85	50.15	-1,982.68	-6,488.08	18,058.81	17,895.41	163.40	110.520	
18,600.00	7,364.00	6,165.00	6,164.16	186.36	124.85	50.15	-1,982.68	-6,488.08	18,158.37	17,994.87	163.50	111.060	
18,700.00	7,364.00	6,165.00	6,164.16	187.94	124.85	50.15	-1,982.68	-6,488.08	18,257.93	18,094.32	163.60	111.598	
18,800.00	7,364.00	6,165.00	6,164.16	189.53	124.85	50.15	-1,982.68	-6,488.08	18,357.49	18,193.79	163.71	112.136	
18,900.00	7,364.00	6,165.00	6,164.16	191.11	124.85	50.15	-1,982.68	-6,488.08	18,457.06	18,293.25	163.81	112.673	
19,000.00	7,364.00	6,165.00	6,164.16	192.70	124.85	50.15	-1,982.68	-6,488.08	18,556.64	18,392.72	163.91	113.209	
19,100.00	7,364.00	6,165.00	6,164.16	194.28	124.85	50.15	-1,982.68	-6,488.08	18,656.22	18,492.20	164.02	113.745	
19,200.00	7,364.00	6,165.00	6,164.16	195.87	124.85	50.15	-1,982.68	-6,488.08	18,755.80	18,591.68	164.12	114.279	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #137B - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 300-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
19,300.00	7,364.00	6,165.00	6,164.16	197.45	124.85	50.15	-1,982.68	-6,488.08	18,855.39	18,691.16	164.23	114.813	
19,400.00	7,364.00	6,165.00	6,164.16	199.04	124.85	50.15	-1,982.68	-6,488.08	18,954.98	18,790.65	164.33	115.347	
19,500.00	7,364.00	6,165.00	6,164.16	200.62	124.85	50.15	-1,982.68	-6,488.08	19,054.58	18,890.14	164.43	115.879	
19,600.00	7,364.00	6,165.00	6,164.16	202.21	124.85	50.15	-1,982.68	-6,488.08	19,154.18	18,989.64	164.54	116.411	
19,700.00	7,364.00	6,165.00	6,164.16	203.79	124.85	50.15	-1,982.68	-6,488.08	19,253.78	19,089.14	164.64	116.942	
19,800.00	7,364.00	6,165.00	6,164.16	205.38	124.85	50.15	-1,982.68	-6,488.08	19,353.39	19,188.64	164.75	117.472	
19,900.00	7,364.00	6,165.00	6,164.16	206.97	124.85	50.15	-1,982.68	-6,488.08	19,453.01	19,288.15	164.85	118.002	
20,000.00	7,364.00	6,165.00	6,164.16	208.55	124.85	50.15	-1,982.68	-6,488.08	19,552.62	19,387.66	164.96	118.531	
20,100.00	7,364.00	6,165.00	6,164.16	210.14	124.85	50.15	-1,982.68	-6,488.08	19,652.24	19,487.18	165.06	119.059	
20,200.00	7,364.00	6,165.00	6,164.16	211.73	124.85	50.15	-1,982.68	-6,488.08	19,751.87	19,586.70	165.17	119.586	
20,300.00	7,364.00	6,165.00	6,164.16	213.32	124.85	50.15	-1,982.68	-6,488.08	19,851.50	19,686.22	165.27	120.113	
20,400.00	7,364.00	6,165.00	6,164.16	214.90	124.85	50.15	-1,982.68	-6,488.08	19,951.13	19,785.75	165.38	120.638	
20,500.00	7,364.00	6,165.00	6,164.16	216.49	124.85	50.15	-1,982.68	-6,488.08	20,050.76	19,885.28	165.49	121.163	
20,600.00	7,364.00	6,165.00	6,164.16	218.08	124.85	50.15	-1,982.68	-6,488.08	20,150.40	19,984.81	165.59	121.687	
20,700.00	7,364.00	6,165.00	6,164.16	219.67	124.85	50.15	-1,982.68	-6,488.08	20,250.05	20,084.35	165.70	122.211	
20,800.00	7,364.00	6,165.00	6,164.16	221.26	124.85	50.15	-1,982.68	-6,488.08	20,349.69	20,183.89	165.80	122.734	
20,900.00	7,364.00	6,165.00	6,164.16	222.84	124.85	50.15	-1,982.68	-6,488.08	20,449.34	20,283.43	165.91	123.256	
21,000.00	7,364.00	6,165.00	6,164.16	224.43	124.85	50.15	-1,982.68	-6,488.08	20,549.00	20,382.98	166.02	123.777	
21,100.00	7,364.00	6,165.00	6,164.16	226.02	124.85	50.15	-1,982.68	-6,488.08	20,648.65	20,482.53	166.12	124.297	
21,200.00	7,364.00	6,165.00	6,164.16	227.61	124.85	50.15	-1,982.68	-6,488.08	20,748.31	20,582.08	166.23	124.817	
21,300.00	7,364.00	6,165.00	6,164.16	229.20	124.85	50.15	-1,982.68	-6,488.08	20,847.98	20,681.64	166.34	125.336	
21,400.00	7,364.00	6,165.00	6,164.16	230.79	124.85	50.15	-1,982.68	-6,488.08	20,947.64	20,781.20	166.44	125.854	
21,500.00	7,364.00	6,165.00	6,164.16	232.38	124.85	50.15	-1,982.68	-6,488.08	21,047.31	20,880.76	166.55	126.371	
21,600.00	7,364.00	6,165.00	6,164.16	233.97	124.85	50.15	-1,982.68	-6,488.08	21,146.99	20,980.33	166.66	126.887	
21,700.00	7,364.00	6,165.00	6,164.16	235.56	124.85	50.15	-1,982.68	-6,488.08	21,246.66	21,079.89	166.77	127.403	
21,800.00	7,364.00	6,165.00	6,164.16	237.15	124.85	50.15	-1,982.68	-6,488.08	21,346.34	21,179.47	166.87	127.918	
21,864.93	7,364.00	6,165.00	6,164.16	238.18	124.85	50.15	-1,982.68	-6,488.08	21,411.06	21,244.12	166.95	128.252	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #137C - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 100-Standard Keeper 104

Offset Well Error: 3.28 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	3.28	3.28	-102.85	-1,915.54	-8,398.90	8,615.17				
100.00	100.00	0.00	0.00	3.29	3.28	-102.85	-1,915.54	-8,398.90	8,614.57	8,608.00	6.57	1,311.281	
200.00	200.00	118.59	118.59	3.34	3.28	-102.85	-1,915.67	-8,398.72	8,614.45	8,607.83	6.62	1,301.924	
300.00	300.00	200.00	200.00	3.42	3.29	-102.85	-1,915.92	-8,398.45	8,614.21	8,607.51	6.70	1,285.183 CC	
304.45	304.45	200.00	200.00	3.42	3.29	-102.85	-1,915.92	-8,398.45	8,614.21	8,607.51	6.71	1,284.311 ES	
400.00	400.00	225.00	225.00	3.54	3.29	-102.85	-1,916.03	-8,398.54	8,614.64	8,607.82	6.82	1,262.969	
500.00	500.00	293.90	293.90	3.69	3.29	-102.85	-1,916.30	-8,399.10	8,615.56	8,608.59	6.97	1,235.875	
600.00	599.98	350.00	349.99	3.86	3.29	107.12	-1,916.61	-8,399.86	8,617.53	8,610.39	7.14	1,206.599	
700.00	699.84	431.54	431.52	4.04	3.30	107.07	-1,917.48	-8,401.29	8,621.00	8,613.66	7.33	1,175.392	
808.00	807.41	542.44	542.39	4.27	3.32	107.04	-1,918.73	-8,403.17	8,625.87	8,618.30	7.58	1,138.351	
900.00	898.89	623.64	623.57	4.49	3.33	89.92	-1,919.81	-8,404.58	8,629.16	8,621.35	7.81	1,105.459	
912.12	910.94	632.79	632.72	4.52	3.33	87.70	-1,919.95	-8,404.74	8,629.37	8,621.54	7.84	1,101.134	
1,000.00	998.31	700.00	699.91	4.74	3.35	87.74	-1,920.91	-8,406.02	8,630.92	8,622.84	8.07	1,069.080	
1,100.00	1,097.73	775.00	774.88	5.01	3.37	87.79	-1,922.07	-8,407.58	8,632.88	8,624.52	8.36	1,032.599	
1,200.00	1,197.15	863.66	863.50	5.29	3.40	87.85	-1,923.82	-8,409.62	8,635.15	8,626.49	8.67	996.207	
1,300.00	1,296.58	967.82	967.61	5.59	3.44	87.91	-1,926.01	-8,411.92	8,637.38	8,628.39	9.00	960.144	
1,400.00	1,396.00	1,057.86	1,057.60	5.90	3.47	87.96	-1,928.01	-8,413.98	8,639.72	8,630.39	9.33	925.731	
1,500.00	1,495.42	1,150.00	1,149.70	6.22	3.52	88.02	-1,930.10	-8,416.05	8,642.04	8,632.36	9.68	892.567	
1,600.00	1,594.84	1,244.60	1,244.24	6.54	3.56	88.07	-1,932.31	-8,418.34	8,644.55	8,634.51	10.04	860.714	
1,700.00	1,694.27	1,360.22	1,359.81	6.87	3.62	88.14	-1,934.93	-8,420.98	8,646.92	8,636.50	10.42	829.523	
1,800.00	1,793.69	1,450.00	1,449.54	7.21	3.67	88.20	-1,936.96	-8,423.05	8,649.32	8,638.52	10.80	800.766	
1,900.00	1,893.11	1,600.00	1,599.47	7.55	3.77	88.29	-1,940.38	-8,426.16	8,651.51	8,640.29	11.22	771.330	
2,000.00	1,992.53	1,696.92	1,696.35	7.89	3.83	88.34	-1,942.38	-8,427.99	8,653.48	8,641.87	11.61	745.209	
2,100.00	2,091.96	1,761.29	1,760.69	8.24	3.87	88.38	-1,943.75	-8,429.39	8,655.71	8,643.72	12.00	721.561	
2,200.00	2,191.38	1,880.17	1,879.52	8.60	3.96	88.46	-1,946.20	-8,432.08	8,658.09	8,645.67	12.42	697.190	
2,300.00	2,290.80	2,025.90	2,025.20	8.95	4.07	88.55	-1,948.67	-8,434.90	8,660.11	8,647.24	12.87	673.086	
2,400.00	2,390.22	2,131.73	2,131.00	9.31	4.15	88.61	-1,950.40	-8,436.51	8,661.67	8,648.38	13.29	651.692	
2,500.00	2,489.65	2,225.00	2,224.24	9.67	4.22	88.67	-1,951.94	-8,438.01	8,663.33	8,649.62	13.71	631.789	
2,600.00	2,589.07	2,325.43	2,324.65	10.03	4.31	88.73	-1,953.59	-8,439.61	8,664.99	8,650.85	14.14	612.684	
2,700.00	2,688.49	2,419.80	2,419.00	10.40	4.39	88.79	-1,954.97	-8,441.13	8,666.64	8,652.07	14.57	594.665	
2,800.00	2,787.91	2,513.44	2,512.62	10.76	4.47	88.85	-1,956.32	-8,442.74	8,668.40	8,653.39	15.01	577.551	
2,900.00	2,887.33	2,629.29	2,628.43	11.13	4.57	88.93	-1,957.69	-8,444.71	8,670.11	8,654.64	15.47	560.536	
3,000.00	2,986.76	2,780.88	2,780.01	11.50	4.71	89.03	-1,959.32	-8,446.64	8,671.37	8,655.41	15.96	543.431	
3,100.00	3,086.18	2,886.29	2,885.41	11.87	4.81	89.10	-1,960.28	-8,447.71	8,672.37	8,655.95	16.41	528.458	
3,200.00	3,185.60	2,988.44	2,987.55	12.24	4.91	89.17	-1,961.21	-8,448.65	8,673.29	8,656.43	16.86	514.322	
3,300.00	3,285.02	3,088.32	3,087.42	12.61	5.01	89.23	-1,962.21	-8,449.59	8,674.27	8,656.96	17.32	500.958	
3,400.00	3,384.45	3,162.64	3,161.73	12.98	5.08	89.28	-1,963.17	-8,450.33	8,675.36	8,657.62	17.74	488.897	
3,500.00	3,483.87	3,243.29	3,242.37	13.36	5.16	89.33	-1,964.31	-8,451.35	8,676.76	8,658.57	18.18	477.192	
3,600.00	3,583.29	3,329.52	3,328.57	13.73	5.25	89.39	-1,965.60	-8,452.59	8,678.34	8,659.71	18.63	465.863	
3,700.00	3,682.71	3,441.63	3,440.66	14.11	5.37	89.46	-1,967.44	-8,454.19	8,679.96	8,660.87	19.10	454.534	
3,800.00	3,782.14	3,550.00	3,549.01	14.48	5.48	89.52	-1,968.94	-8,455.47	8,681.29	8,661.72	19.56	443.773	
3,900.00	3,881.56	3,673.05	3,672.04	14.86	5.61	89.60	-1,970.60	-8,456.90	8,682.61	8,662.56	20.04	433.194	
4,000.00	3,980.98	3,849.38	3,848.35	15.24	5.79	89.71	-1,972.92	-8,458.04	8,683.50	8,662.95	20.55	422.561	
4,100.00	4,080.40	3,988.49	3,987.44	15.61	5.90	89.80	-1,975.21	-8,457.73	8,683.52	8,662.54	20.98	413.879	
4,200.00	4,179.83	4,095.89	4,094.81	15.99	5.98	89.86	-1,977.73	-8,457.16	8,683.40	8,662.01	21.39	405.887	
4,300.00	4,279.25	4,190.29	4,189.18	16.37	6.06	89.91	-1,980.11	-8,456.58	8,683.24	8,661.44	21.80	398.276	
4,400.00	4,378.67	4,284.27	4,283.13	16.75	6.13	89.96	-1,982.51	-8,456.04	8,683.13	8,660.92	22.21	390.914	
4,435.18	4,413.65	4,312.36	4,311.20	16.88	6.16	89.97	-1,983.18	-8,455.90	8,683.11	8,660.76	22.36	388.410	
4,500.00	4,478.09	4,364.54	4,363.38	17.13	6.20	90.00	-1,984.30	-8,455.75	8,683.18	8,660.56	22.62	383.840	
4,600.00	4,577.51	4,461.49	4,460.30	17.51	6.29	90.06	-1,986.23	-8,455.64	8,683.43	8,660.39	23.05	376.801	
4,700.00	4,676.94	4,553.88	4,552.68	17.89	6.38	90.11	-1,988.07	-8,455.57	8,683.73	8,660.26	23.47	370.030	
4,800.00	4,776.36	4,636.77	4,635.55	18.27	6.46	90.16	-1,989.70	-8,455.60	8,684.14	8,660.25	23.89	363.519	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #137C - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 100-Standard Keeper 104 **Offset Well Error:** 3.28 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
4,900.00	4,875.78	4,754.39	4,753.15	18.65	6.58	90.23	-1,991.95	-8,455.69	8,684.61	8,660.28	24.33	356.924	
5,000.00	4,975.20	4,838.54	4,837.28	19.03	6.67	90.28	-1,993.58	-8,455.75	8,685.06	8,660.30	24.76	350.826	
5,100.00	5,074.63	4,948.12	4,946.84	19.41	6.78	90.34	-1,995.73	-8,455.83	8,685.54	8,660.35	25.19	344.735	
5,200.00	5,174.05	5,053.11	5,051.81	19.79	6.88	90.40	-1,997.85	-8,455.76	8,685.90	8,660.27	25.63	338.930	
5,300.00	5,273.47	5,139.45	5,138.13	20.17	6.97	90.45	-1,999.55	-8,455.78	8,686.34	8,660.29	26.05	333.408	
5,400.00	5,372.89	5,260.63	5,259.29	20.56	7.10	90.52	-2,001.91	-8,455.73	8,686.75	8,660.25	26.50	327.850	
5,500.00	5,472.32	5,364.97	5,363.61	20.94	7.20	90.58	-2,003.89	-8,455.49	8,686.95	8,660.03	26.92	322.640	
5,600.00	5,571.74	5,466.36	5,464.98	21.32	7.30	90.64	-2,005.90	-8,455.21	8,687.14	8,659.79	27.35	317.619	
5,700.00	5,671.16	5,585.33	5,583.92	21.70	7.42	90.71	-2,008.56	-8,454.73	8,687.26	8,659.48	27.78	312.678	
5,800.00	5,770.58	5,686.41	5,684.96	22.08	7.52	90.76	-2,011.34	-8,454.11	8,687.25	8,659.04	28.21	307.994	
5,825.86	5,796.29	5,708.33	5,706.87	22.18	7.54	90.77	-2,011.97	-8,453.96	8,687.24	8,658.93	28.31	306.824	
5,900.00	5,870.01	5,768.85	5,767.36	22.47	7.60	90.80	-2,013.68	-8,453.61	8,687.29	8,658.66	28.62	303.521	
6,000.00	5,969.43	5,840.28	5,838.77	22.85	7.67	90.84	-2,015.46	-8,453.36	8,687.55	8,658.51	29.04	299.200	
6,100.00	6,068.85	5,921.40	5,919.88	23.23	7.76	90.89	-2,017.32	-8,453.46	8,688.20	8,658.74	29.46	294.878	
6,200.00	6,168.27	6,011.00	6,009.45	23.62	7.86	90.94	-2,019.21	-8,453.66	8,688.95	8,659.05	29.90	290.600	
6,300.00	6,267.70	6,100.00	6,098.43	24.00	7.97	90.99	-2,021.04	-8,453.97	8,689.82	8,659.48	30.34	286.423	
6,400.00	6,367.12	6,200.00	6,198.41	24.38	8.08	91.05	-2,023.16	-8,454.39	8,690.78	8,659.99	30.79	282.283	
6,500.00	6,466.54	6,289.78	6,288.17	24.77	8.19	91.10	-2,024.87	-8,454.93	8,691.88	8,660.65	31.23	278.278	
6,600.00	6,565.96	6,416.94	6,415.32	25.15	8.34	91.18	-2,026.75	-8,455.64	8,692.91	8,661.20	31.71	274.114	
6,700.00	6,665.38	6,499.93	6,498.29	25.53	8.44	91.23	-2,027.74	-8,456.08	8,693.85	8,661.69	32.16	270.334	
6,778.75	6,743.68	6,566.52	6,564.89	25.84	8.52	91.28	-2,028.34	-8,456.55	8,694.70	8,662.18	32.52	267.363	
6,800.00	6,764.80	6,586.05	6,584.42	25.92	8.54	107.30	-2,028.48	-8,456.70	8,695.29	8,662.67	32.62	266.559	
6,850.00	6,814.29	6,633.93	6,632.29	26.11	8.60	131.66	-2,028.79	-8,457.11	8,699.46	8,666.60	32.86	264.747	
6,900.00	6,863.27	6,675.00	6,673.36	26.30	8.64	143.52	-2,029.06	-8,457.47	8,707.49	8,674.40	33.09	263.137	
6,950.00	6,911.44	6,724.04	6,722.39	26.50	8.70	149.88	-2,029.35	-8,457.92	8,719.34	8,686.01	33.33	261.612	
7,000.00	6,958.49	6,775.00	6,773.35	26.68	8.75	153.65	-2,029.66	-8,458.35	8,734.88	8,701.31	33.57	260.235	
7,050.00	7,004.14	6,825.00	6,823.35	26.87	8.81	156.01	-2,029.96	-8,458.78	8,754.06	8,720.26	33.80	259.029	
7,100.00	7,048.10	6,870.06	6,868.41	27.05	8.86	157.51	-2,030.21	-8,459.16	8,776.74	8,742.72	34.01	258.026	
7,150.00	7,090.11	6,925.00	6,923.34	27.23	8.92	158.45	-2,030.51	-8,459.55	8,802.74	8,768.50	34.24	257.115	
7,200.00	7,129.90	6,954.32	6,952.66	27.41	8.95	158.90	-2,030.66	-8,459.76	8,831.96	8,797.54	34.42	256.574	
7,250.00	7,167.24	6,992.82	6,991.16	27.59	9.00	159.00	-2,030.87	-8,460.06	8,864.25	8,829.64	34.61	256.118	
7,300.00	7,201.88	7,032.70	7,031.04	27.76	9.04	158.75	-2,031.05	-8,460.36	8,899.36	8,864.57	34.79	255.806	
7,350.00	7,233.63	7,073.44	7,071.78	27.94	9.08	158.14	-2,031.20	-8,460.62	8,937.06	8,902.10	34.96	255.636	SF
7,400.00	7,262.27	7,091.98	7,090.32	28.13	9.10	157.04	-2,031.25	-8,460.75	8,977.16	8,942.06	35.09	255.798	
7,450.00	7,287.63	7,120.10	7,118.44	28.32	9.13	155.43	-2,031.34	-8,460.95	9,019.42	8,984.19	35.23	256.022	
7,500.00	7,309.57	7,143.14	7,141.48	28.53	9.16	153.05	-2,031.40	-8,461.10	9,063.55	9,028.21	35.35	256.419	
7,550.00	7,327.93	7,160.03	7,158.37	28.74	9.17	149.50	-2,031.43	-8,461.23	9,109.31	9,073.87	35.45	256.992	
7,600.00	7,342.62	7,180.47	7,178.81	28.97	9.19	144.16	-2,031.47	-8,461.37	9,156.40	9,120.86	35.54	257.643	
7,650.00	7,353.53	7,200.34	7,198.68	29.22	9.21	135.66	-2,031.50	-8,461.49	9,204.51	9,168.89	35.62	258.395	
7,700.00	7,360.61	7,204.91	7,203.25	29.48	9.21	121.04	-2,031.50	-8,461.52	9,253.37	9,217.70	35.68	259.365	
7,750.00	7,363.80	7,206.95	7,205.29	29.75	9.22	97.05	-2,031.50	-8,461.53	9,302.68	9,266.96	35.72	260.423	
7,765.93	7,364.00	7,207.02	7,205.36	29.84	9.22	87.63	-2,031.50	-8,461.53	9,318.43	9,282.70	35.73	260.774	
7,800.00	7,364.00	7,206.88	7,205.21	30.04	9.22	87.62	-2,031.50	-8,461.53	9,352.13	9,316.38	35.76	261.540	
7,900.00	7,364.00	7,206.46	7,204.79	30.67	9.21	87.61	-2,031.50	-8,461.53	9,451.07	9,415.24	35.83	263.776	
8,000.00	7,364.00	7,206.04	7,204.37	31.37	9.21	87.59	-2,031.50	-8,461.52	9,550.02	9,514.12	35.90	265.997	
8,100.00	7,364.00	7,205.62	7,203.95	32.14	9.21	87.57	-2,031.50	-8,461.52	9,649.00	9,613.02	35.98	268.204	
8,200.00	7,364.00	7,205.21	7,203.54	32.96	9.21	87.55	-2,031.50	-8,461.52	9,748.00	9,711.94	36.05	270.396	
8,300.00	7,364.00	7,204.79	7,203.13	33.85	9.21	87.54	-2,031.50	-8,461.52	9,847.01	9,810.89	36.13	272.574	
8,400.00	7,364.00	7,204.39	7,202.72	34.79	9.21	87.52	-2,031.50	-8,461.51	9,946.05	9,909.85	36.20	274.738	
8,500.00	7,364.00	7,203.98	7,202.32	35.77	9.21	87.50	-2,031.50	-8,461.51	10,045.11	10,008.83	36.28	276.888	
8,600.00	7,364.00	7,198.91	7,197.25	36.80	9.21	87.29	-2,031.50	-8,461.48	10,144.18	10,107.83	36.35	279.070	
8,700.00	7,364.00	7,198.29	7,196.63	37.87	9.21	87.27	-2,031.50	-8,461.48	10,243.27	10,206.85	36.43	281.196	

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 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #137C - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 100-Standard Keeper 104 **Offset Well Error:** 3.28 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
8,800.00	7,364.00	7,197.67	7,196.01	38.98	9.21	87.24	-2,031.49	-8,461.47	10,342.38	10,305.88	36.51	283.310	
8,900.00	7,364.00	7,197.05	7,195.38	40.12	9.21	87.21	-2,031.49	-8,461.47	10,441.51	10,404.93	36.58	285.412	
9,000.00	7,364.00	7,196.43	7,194.76	41.29	9.21	87.19	-2,031.49	-8,461.47	10,540.65	10,503.99	36.66	287.501	
9,100.00	7,364.00	7,205.09	7,203.43	42.49	9.21	87.55	-2,031.50	-8,461.52	10,639.81	10,603.06	36.75	289.489	
9,200.00	7,364.00	7,203.92	7,202.26	43.71	9.21	87.50	-2,031.50	-8,461.51	10,738.99	10,702.16	36.83	291.559	
9,300.00	7,364.00	7,202.73	7,201.06	44.96	9.21	87.45	-2,031.50	-8,461.50	10,838.18	10,801.27	36.91	293.618	
9,400.00	7,364.00	7,201.51	7,199.85	46.23	9.21	87.40	-2,031.50	-8,461.50	10,937.38	10,900.39	36.99	295.666	
9,500.00	7,364.00	7,200.28	7,198.61	47.52	9.21	87.35	-2,031.50	-8,461.49	11,036.60	10,999.53	37.07	297.703	
9,600.00	7,364.00	7,199.02	7,197.35	48.83	9.21	87.30	-2,031.50	-8,461.48	11,135.84	11,098.68	37.15	299.728	
9,700.00	7,364.00	7,197.74	7,196.07	50.15	9.21	87.24	-2,031.50	-8,461.47	11,235.08	11,197.85	37.23	301.743	
9,800.00	7,364.00	7,196.43	7,194.76	51.49	9.21	87.19	-2,031.50	-8,461.47	11,334.34	11,297.03	37.31	303.748	
9,900.00	7,364.00	7,195.10	7,193.43	52.85	9.20	87.13	-2,031.49	-8,461.46	11,433.62	11,396.22	37.40	305.742	
10,000.00	7,364.00	7,193.74	7,192.07	54.22	9.20	87.08	-2,031.49	-8,461.45	11,532.90	11,495.42	37.48	307.726	
10,100.00	7,364.00	7,192.35	7,190.69	55.60	9.20	87.02	-2,031.49	-8,461.44	11,632.20	11,594.64	37.56	309.699	
10,200.00	7,364.00	7,190.94	7,189.27	56.99	9.20	86.96	-2,031.49	-8,461.43	11,731.51	11,693.87	37.64	311.663	
10,300.00	7,364.00	7,189.50	7,187.83	58.40	9.20	86.90	-2,031.49	-8,461.43	11,830.83	11,793.11	37.72	313.616	
10,400.00	7,364.00	7,188.03	7,186.36	59.81	9.20	86.84	-2,031.48	-8,461.42	11,930.16	11,892.36	37.81	315.560	
10,500.00	7,364.00	7,186.53	7,184.86	61.23	9.20	86.77	-2,031.48	-8,461.41	12,029.51	11,991.62	37.89	317.493	
10,600.00	7,364.00	7,184.99	7,183.33	62.66	9.20	86.71	-2,031.48	-8,461.40	12,128.86	12,090.89	37.97	319.418	
10,700.00	7,364.00	7,183.43	7,181.77	64.10	9.19	86.65	-2,031.48	-8,461.39	12,228.22	12,190.17	38.05	321.332	
10,800.00	7,364.00	7,181.83	7,180.17	65.55	9.19	86.58	-2,031.47	-8,461.38	12,327.60	12,289.46	38.14	323.237	
10,900.00	7,364.00	7,180.20	7,178.54	67.01	9.19	86.51	-2,031.47	-8,461.37	12,426.98	12,388.76	38.22	325.133	
11,000.00	7,364.00	7,178.54	7,176.87	68.47	9.19	86.44	-2,031.47	-8,461.36	12,526.38	12,488.07	38.30	327.019	
11,100.00	7,364.00	7,176.83	7,175.17	69.93	9.19	86.37	-2,031.46	-8,461.34	12,625.78	12,587.39	38.39	328.896	
11,200.00	7,364.00	7,175.09	7,173.43	71.41	9.19	86.30	-2,031.46	-8,461.33	12,725.19	12,686.72	38.47	330.764	
11,300.00	7,364.00	7,174.01	7,172.34	72.88	9.18	86.25	-2,031.46	-8,461.32	12,824.62	12,786.06	38.56	332.616	
11,400.00	7,364.00	7,172.95	7,171.28	74.37	9.18	86.21	-2,031.45	-8,461.32	12,924.05	12,885.40	38.64	334.458	
11,500.00	7,364.00	7,171.87	7,170.21	75.85	9.18	86.16	-2,031.45	-8,461.31	13,023.49	12,984.76	38.73	336.290	
11,600.00	7,364.00	7,170.79	7,169.13	77.35	9.18	86.12	-2,031.45	-8,461.30	13,122.93	13,084.12	38.81	338.114	
11,700.00	7,364.00	7,169.70	7,168.03	78.84	9.18	86.07	-2,031.45	-8,461.30	13,222.39	13,183.49	38.90	339.928	
11,800.00	7,364.00	7,168.59	7,166.93	80.34	9.18	86.03	-2,031.44	-8,461.29	13,321.85	13,282.87	38.98	341.733	
11,900.00	7,364.00	7,167.48	7,165.81	81.85	9.18	85.98	-2,031.44	-8,461.28	13,421.33	13,382.26	39.07	343.528	
12,000.00	7,364.00	7,166.35	7,164.68	83.36	9.18	85.93	-2,031.44	-8,461.27	13,520.81	13,481.65	39.15	345.315	
12,100.00	7,364.00	7,165.21	7,163.54	84.87	9.18	85.89	-2,031.44	-8,461.26	13,620.29	13,581.05	39.24	347.093	
12,200.00	7,364.00	7,164.06	7,162.39	86.38	9.18	85.84	-2,031.44	-8,461.26	13,719.79	13,680.46	39.33	348.861	
12,300.00	7,364.00	7,162.89	7,161.23	87.90	9.17	85.79	-2,031.43	-8,461.25	13,819.29	13,779.88	39.41	350.621	
12,400.00	7,364.00	7,161.72	7,160.05	89.42	9.17	85.74	-2,031.43	-8,461.24	13,918.80	13,879.30	39.50	352.372	
12,500.00	7,364.00	7,160.53	7,158.86	90.95	9.17	85.69	-2,031.43	-8,461.23	14,018.32	13,978.73	39.59	354.114	
12,600.00	7,364.00	7,159.32	7,157.66	92.47	9.17	85.64	-2,031.43	-8,461.22	14,117.84	14,078.17	39.67	355.847	
12,700.00	7,364.00	7,158.11	7,156.44	94.00	9.17	85.59	-2,031.42	-8,461.21	14,217.37	14,177.61	39.76	357.571	
12,800.00	7,364.00	7,156.88	7,155.22	95.53	9.17	85.54	-2,031.42	-8,461.20	14,316.90	14,277.06	39.85	359.286	
12,900.00	7,364.00	7,155.64	7,153.97	97.06	9.17	85.49	-2,031.42	-8,461.19	14,416.45	14,376.51	39.94	360.993	
13,000.00	7,364.00	7,154.38	7,152.72	98.60	9.17	85.43	-2,031.42	-8,461.19	14,516.00	14,475.97	40.02	362.691	
13,100.00	7,364.00	7,153.11	7,151.45	100.14	9.16	85.38	-2,031.42	-8,461.18	14,615.55	14,575.44	40.11	364.380	
13,200.00	7,364.00	7,151.83	7,150.16	101.68	9.16	85.33	-2,031.42	-8,461.17	14,715.11	14,674.91	40.20	366.061	
13,300.00	7,364.00	7,150.53	7,148.87	103.22	9.16	85.27	-2,031.41	-8,461.16	14,814.68	14,774.39	40.29	367.733	
13,400.00	7,364.00	7,150.00	7,148.34	104.76	9.16	85.25	-2,031.41	-8,461.15	14,914.25	14,873.87	40.38	369.387	
13,500.00	7,364.00	7,150.00	7,148.34	106.31	9.16	85.25	-2,031.41	-8,461.15	15,013.83	14,973.36	40.47	371.027	
13,600.00	7,364.00	7,150.00	7,148.34	107.85	9.16	85.25	-2,031.41	-8,461.15	15,113.41	15,072.86	40.56	372.659	
13,700.00	7,364.00	7,150.00	7,148.34	109.40	9.16	85.25	-2,031.41	-8,461.15	15,213.00	15,172.35	40.65	374.282	
13,800.00	7,364.00	7,150.00	7,148.34	110.95	9.16	85.25	-2,031.41	-8,461.15	15,312.59	15,271.86	40.74	375.896	
13,900.00	7,364.00	7,150.00	7,148.34	112.50	9.16	85.25	-2,031.41	-8,461.15	15,412.19	15,371.37	40.83	377.501	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #137C - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 100-Standard Keeper 104 **Offset Well Error:** 3.28 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Rule Assigned: Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,000.00	7,364.00	7,150.00	7,148.34	114.05	9.16	85.25	-2,031.41	-8,461.15	15,511.80	15,470.88	40.92	379.098	
14,100.00	7,364.00	7,150.00	7,148.34	115.61	9.16	85.25	-2,031.41	-8,461.15	15,611.41	15,570.40	41.01	380.686	
14,200.00	7,364.00	7,150.00	7,148.34	117.16	9.16	85.25	-2,031.41	-8,461.15	15,711.02	15,669.92	41.10	382.265	
14,300.00	7,364.00	7,150.00	7,148.34	118.72	9.16	85.25	-2,031.41	-8,461.15	15,810.64	15,769.45	41.19	383.836	
14,400.00	7,364.00	7,150.00	7,148.34	120.28	9.16	85.25	-2,031.41	-8,461.15	15,910.27	15,868.99	41.28	385.398	
14,500.00	7,364.00	7,150.00	7,148.34	121.84	9.16	85.25	-2,031.41	-8,461.15	16,009.90	15,968.52	41.37	386.952	
14,600.00	7,364.00	7,150.00	7,148.34	123.40	9.16	85.25	-2,031.41	-8,461.15	16,109.53	16,068.06	41.47	388.497	
14,700.00	7,364.00	7,150.00	7,148.34	124.96	9.16	85.25	-2,031.41	-8,461.15	16,209.17	16,167.61	41.56	390.033	
14,800.00	7,364.00	7,150.00	7,148.34	126.52	9.16	85.25	-2,031.41	-8,461.15	16,308.81	16,267.16	41.65	391.562	
14,900.00	7,364.00	7,150.00	7,148.34	128.08	9.16	85.25	-2,031.41	-8,461.15	16,408.46	16,366.72	41.74	393.081	
15,000.00	7,364.00	7,150.00	7,148.34	129.64	9.16	85.25	-2,031.41	-8,461.15	16,508.11	16,466.27	41.84	394.593	
15,100.00	7,364.00	7,143.42	7,141.76	131.21	9.16	84.98	-2,031.40	-8,461.10	16,607.76	16,565.84	41.92	396.168	
15,200.00	7,364.00	7,143.07	7,141.41	132.77	9.16	84.96	-2,031.40	-8,461.10	16,707.42	16,665.41	42.01	397.666	
15,300.00	7,364.00	7,142.72	7,141.06	134.34	9.15	84.95	-2,031.40	-8,461.10	16,807.09	16,764.98	42.11	399.156	
15,400.00	7,364.00	7,142.38	7,140.71	135.91	9.15	84.94	-2,031.40	-8,461.10	16,906.75	16,864.55	42.20	400.638	
15,500.00	7,364.00	7,142.03	7,140.37	137.48	9.15	84.92	-2,031.40	-8,461.09	17,006.42	16,964.13	42.29	402.112	
15,600.00	7,364.00	7,141.69	7,140.03	139.04	9.15	84.91	-2,031.40	-8,461.09	17,106.10	17,063.71	42.39	403.577	
15,700.00	7,364.00	7,141.35	7,139.69	140.61	9.15	84.89	-2,031.40	-8,461.09	17,205.78	17,163.30	42.48	405.034	
15,800.00	7,364.00	7,141.02	7,139.35	142.18	9.15	84.88	-2,031.40	-8,461.09	17,305.46	17,262.89	42.57	406.482	
15,900.00	7,364.00	7,140.68	7,139.02	143.75	9.15	84.87	-2,031.40	-8,461.08	17,405.15	17,362.48	42.67	407.922	
16,000.00	7,364.00	7,140.35	7,138.68	145.33	9.15	84.85	-2,031.40	-8,461.08	17,504.84	17,462.07	42.76	409.355	
16,100.00	7,364.00	7,140.02	7,138.35	146.90	9.15	84.84	-2,031.40	-8,461.08	17,604.53	17,561.67	42.86	410.778	
16,200.00	7,364.00	7,139.69	7,138.03	148.47	9.15	84.82	-2,031.40	-8,461.08	17,704.23	17,661.27	42.95	412.194	
16,300.00	7,364.00	7,139.36	7,137.70	150.04	9.15	84.81	-2,031.39	-8,461.08	17,803.93	17,760.88	43.05	413.602	
16,400.00	7,364.00	7,139.04	7,137.37	151.62	9.15	84.80	-2,031.39	-8,461.07	17,903.63	17,860.49	43.14	415.001	
16,500.00	7,364.00	7,138.72	7,137.05	153.19	9.15	84.78	-2,031.39	-8,461.07	18,003.34	17,960.10	43.24	416.393	
16,600.00	7,364.00	7,138.40	7,136.73	154.77	9.15	84.77	-2,031.39	-8,461.07	18,103.05	18,059.71	43.33	417.776	
16,700.00	7,364.00	7,138.08	7,136.41	156.34	9.15	84.76	-2,031.39	-8,461.07	18,202.76	18,159.33	43.43	419.152	
16,800.00	7,364.00	7,137.76	7,136.10	157.92	9.15	84.74	-2,031.39	-8,461.06	18,302.47	18,258.95	43.52	420.519	
16,900.00	7,364.00	7,137.45	7,135.78	159.49	9.15	84.73	-2,031.39	-8,461.06	18,402.19	18,358.57	43.62	421.878	
17,000.00	7,364.00	7,137.13	7,135.47	161.07	9.15	84.72	-2,031.39	-8,461.06	18,501.92	18,458.20	43.72	423.230	
17,100.00	7,364.00	7,136.82	7,135.16	162.65	9.15	84.71	-2,031.39	-8,461.06	18,601.64	18,557.83	43.81	424.573	
17,200.00	7,364.00	7,136.52	7,134.85	164.23	9.15	84.69	-2,031.39	-8,461.06	18,701.37	18,657.46	43.91	425.909	
17,300.00	7,364.00	7,136.21	7,134.55	165.81	9.15	84.68	-2,031.39	-8,461.05	18,801.10	18,757.09	44.01	427.236	
17,400.00	7,364.00	7,135.91	7,134.24	167.38	9.15	84.67	-2,031.39	-8,461.05	18,900.83	18,856.73	44.10	428.556	
17,500.00	7,364.00	7,135.60	7,133.94	168.96	9.15	84.65	-2,031.39	-8,461.05	19,000.57	18,956.37	44.20	429.868	
17,600.00	7,364.00	7,135.30	7,133.64	170.54	9.15	84.64	-2,031.39	-8,461.05	19,100.31	19,056.01	44.30	431.173	
17,700.00	7,364.00	7,135.00	7,133.34	172.12	9.15	84.63	-2,031.39	-8,461.05	19,200.05	19,155.66	44.40	432.469	
17,800.00	7,364.00	7,134.71	7,133.04	173.70	9.15	84.62	-2,031.38	-8,461.04	19,299.80	19,255.30	44.49	433.758	
17,900.00	7,364.00	7,134.41	7,132.75	175.28	9.15	84.60	-2,031.38	-8,461.04	19,399.54	19,354.95	44.59	435.039	
18,000.00	7,364.00	7,134.12	7,132.45	176.87	9.15	84.59	-2,031.38	-8,461.04	19,499.29	19,454.60	44.69	436.312	
18,100.00	7,364.00	7,133.83	7,132.16	178.45	9.15	84.58	-2,031.38	-8,461.04	19,599.05	19,554.26	44.79	437.578	
18,200.00	7,364.00	7,133.54	7,131.87	180.03	9.15	84.57	-2,031.38	-8,461.04	19,698.80	19,653.91	44.89	438.836	
18,300.00	7,364.00	7,133.25	7,131.59	181.61	9.15	84.56	-2,031.38	-8,461.04	19,798.56	19,753.57	44.99	440.087	
18,400.00	7,364.00	7,132.96	7,131.30	183.19	9.15	84.54	-2,031.38	-8,461.03	19,898.32	19,853.23	45.09	441.329	
18,500.00	7,364.00	7,132.68	7,131.01	184.78	9.14	84.53	-2,031.38	-8,461.03	19,998.08	19,952.89	45.19	442.565	
18,600.00	7,364.00	7,132.39	7,130.73	186.36	9.14	84.52	-2,031.38	-8,461.03	20,097.85	20,052.56	45.29	443.793	
18,700.00	7,364.00	7,132.11	7,130.45	187.94	9.14	84.51	-2,031.38	-8,461.03	20,197.61	20,152.23	45.39	445.013	
18,800.00	7,364.00	7,116.77	7,115.11	189.53	9.13	83.87	-2,031.33	-8,460.93	20,297.38	20,251.91	45.47	446.395	
18,900.00	7,364.00	7,116.07	7,114.41	191.11	9.13	83.84	-2,031.33	-8,460.92	20,397.15	20,351.58	45.57	447.605	
19,000.00	7,364.00	7,115.36	7,113.70	192.70	9.13	83.82	-2,031.33	-8,460.92	20,496.93	20,451.26	45.67	448.808	
19,100.00	7,364.00	7,114.66	7,113.00	194.28	9.13	83.79	-2,031.32	-8,460.91	20,596.70	20,550.93	45.77	450.003	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #137C - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 100-Standard Keeper 104

Offset Well Error: 3.28 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Rule Assigned: Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
19,200.00	7,364.00	7,113.96	7,112.30	195.87	9.13	83.76	-2,031.32	-8,460.91	20,696.48	20,650.61	45.87	451.192	
19,300.00	7,364.00	7,113.25	7,111.59	197.45	9.12	83.73	-2,031.32	-8,460.90	20,796.26	20,750.29	45.97	452.373	
19,400.00	7,364.00	7,112.55	7,110.89	199.04	9.12	83.70	-2,031.32	-8,460.90	20,896.04	20,849.97	46.07	453.546	
19,500.00	7,364.00	7,111.85	7,110.19	200.62	9.12	83.67	-2,031.32	-8,460.89	20,995.82	20,949.65	46.17	454.713	
19,600.00	7,364.00	7,111.15	7,109.48	202.21	9.12	83.64	-2,031.31	-8,460.89	21,095.61	21,049.33	46.28	455.872	
19,700.00	7,364.00	7,110.44	7,108.78	203.79	9.12	83.61	-2,031.31	-8,460.88	21,195.40	21,149.02	46.38	457.024	
19,800.00	7,364.00	7,109.74	7,108.08	205.38	9.12	83.58	-2,031.31	-8,460.88	21,295.19	21,248.71	46.48	458.169	
19,900.00	7,364.00	7,109.04	7,107.37	206.97	9.12	83.55	-2,031.31	-8,460.87	21,394.98	21,348.40	46.58	459.307	
20,000.00	7,364.00	7,108.33	7,106.67	208.55	9.12	83.52	-2,031.30	-8,460.87	21,494.77	21,448.09	46.68	460.438	
20,100.00	7,364.00	7,107.63	7,105.97	210.14	9.12	83.50	-2,031.30	-8,460.86	21,594.57	21,547.78	46.79	461.562	
20,200.00	7,364.00	7,106.93	7,105.26	211.73	9.12	83.47	-2,031.30	-8,460.86	21,694.37	21,647.48	46.89	462.679	
20,300.00	7,364.00	7,106.22	7,104.56	213.32	9.12	83.44	-2,031.30	-8,460.85	21,794.16	21,747.17	46.99	463.789	
20,400.00	7,364.00	7,105.52	7,103.86	214.90	9.12	83.41	-2,031.29	-8,460.85	21,893.97	21,846.87	47.09	464.892	
20,500.00	7,364.00	7,104.82	7,103.15	216.49	9.12	83.38	-2,031.29	-8,460.84	21,993.77	21,946.57	47.20	465.988	
20,600.00	7,364.00	7,104.11	7,102.45	218.08	9.12	83.35	-2,031.29	-8,460.84	22,093.57	22,046.27	47.30	467.077	
20,700.00	7,364.00	7,103.41	7,101.75	219.67	9.11	83.32	-2,031.29	-8,460.83	22,193.38	22,145.97	47.41	468.159	
20,800.00	7,364.00	7,102.71	7,101.05	221.26	9.11	83.29	-2,031.29	-8,460.83	22,293.19	22,245.68	47.51	469.235	
20,900.00	7,364.00	7,102.00	7,100.34	222.84	9.11	83.26	-2,031.28	-8,460.82	22,393.00	22,345.38	47.61	470.304	
21,000.00	7,364.00	7,101.30	7,099.64	224.43	9.11	83.23	-2,031.28	-8,460.82	22,492.81	22,445.09	47.72	471.366	
21,100.00	7,364.00	7,100.60	7,098.94	226.02	9.11	83.20	-2,031.28	-8,460.81	22,592.62	22,544.80	47.82	472.421	
21,200.00	7,364.00	7,100.00	7,098.34	227.61	9.11	83.18	-2,031.28	-8,460.81	22,692.44	22,644.51	47.93	473.469	
21,300.00	7,364.00	7,100.00	7,098.34	229.20	9.11	83.18	-2,031.28	-8,460.81	22,792.25	22,744.22	48.03	474.503	
21,400.00	7,364.00	7,100.00	7,098.34	230.79	9.11	83.18	-2,031.28	-8,460.81	22,892.07	22,843.93	48.14	475.531	
21,500.00	7,364.00	7,100.00	7,098.34	232.38	9.11	83.18	-2,031.28	-8,460.81	22,991.89	22,943.64	48.25	476.552	
21,600.00	7,364.00	7,091.11	7,089.45	233.97	9.10	82.81	-2,031.25	-8,460.74	23,091.70	23,043.36	48.34	477.664	
21,700.00	7,364.00	7,090.90	7,089.24	235.56	9.10	82.80	-2,031.25	-8,460.74	23,191.53	23,143.08	48.45	478.674	
21,800.00	7,364.00	7,090.68	7,089.02	237.15	9.10	82.80	-2,031.25	-8,460.74	23,291.35	23,242.79	48.56	479.678	
21,864.93	7,364.00	7,090.54	7,088.88	238.18	9.10	82.79	-2,031.25	-8,460.74	23,356.16	23,307.54	48.63	480.327	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #184 - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 293-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	15.00	15.00	3.28	0.14	97.67	-1,125.29	8,360.52	8,435.91				
100.00	100.00	115.00	115.00	3.29	1.06	97.67	-1,125.29	8,360.52	8,435.91	8,431.56	4.35	1,938.124	
200.00	200.00	215.00	215.00	3.34	1.99	97.67	-1,125.29	8,360.52	8,435.91	8,430.59	5.32	1,584.695	
300.00	300.00	315.00	315.00	3.42	3.11	97.67	-1,125.29	8,360.52	8,435.91	8,429.37	6.53	1,290.944	
400.00	400.00	415.00	415.00	3.54	4.96	97.67	-1,125.29	8,360.52	8,435.91	8,427.41	8.50	992.294	
500.00	500.00	515.00	515.00	3.69	6.81	97.67	-1,125.29	8,360.52	8,435.91	8,425.41	10.50	803.470	
600.00	599.98	613.60	613.59	3.86	8.63	-52.36	-1,124.79	8,360.52	8,434.78	8,422.29	12.49	675.297	
700.00	699.84	711.55	711.54	4.04	10.45	-52.44	-1,124.99	8,360.52	8,431.61	8,417.12	14.49	581.992	
808.00	807.41	822.43	822.41	4.27	12.53	-52.58	-1,125.29	8,360.52	8,425.81	8,409.01	16.80	501.591	
900.00	898.89	913.91	913.89	4.49	14.32	-69.85	-1,125.29	8,360.52	8,421.10	8,402.30	18.80	447.850	
912.12	910.94	925.96	925.94	4.52	14.55	-72.08	-1,125.29	8,360.52	8,420.68	8,401.61	19.07	441.608	
1,000.00	998.31	1,013.33	1,013.31	4.74	16.27	-72.15	-1,125.29	8,360.52	8,417.76	8,396.76	21.00	400.825	
1,100.00	1,097.73	1,111.60	1,111.58	5.01	18.19	-72.22	-1,124.76	8,360.52	8,414.40	8,391.20	23.19	362.781	
1,200.00	1,197.15	1,209.26	1,209.23	5.29	20.10	-72.28	-1,124.95	8,360.52	8,411.13	8,385.74	25.39	331.280	
1,300.00	1,296.58	1,311.64	1,311.58	5.59	22.12	-72.35	-1,125.29	8,360.52	8,407.90	8,380.19	27.70	303.484	
1,400.00	1,396.00	1,411.07	1,411.00	5.90	24.28	-72.42	-1,125.29	8,360.52	8,404.63	8,374.46	30.17	278.590	
1,500.00	1,495.42	1,510.49	1,510.42	6.22	26.44	-72.49	-1,125.29	8,360.52	8,401.38	8,368.74	32.64	257.384	
1,600.00	1,594.84	1,609.42	1,609.34	6.54	28.59	-72.57	-1,124.03	8,360.52	8,397.99	8,362.88	35.11	239.182	
1,700.00	1,694.27	1,705.89	1,705.80	6.87	30.68	-72.64	-1,124.22	8,360.52	8,394.78	8,357.25	37.53	223.656	
1,800.00	1,793.69	1,802.42	1,802.33	7.21	32.78	-72.70	-1,124.69	8,360.52	8,391.63	8,351.66	39.96	209.977	
1,900.00	1,893.11	1,908.29	1,908.11	7.55	35.04	-72.77	-1,125.29	8,360.52	8,388.50	8,345.93	42.57	197.058	
2,000.00	1,992.53	2,007.71	2,007.53	7.89	37.07	-72.84	-1,125.29	8,360.52	8,385.31	8,340.36	44.94	186.572	
2,100.00	2,091.96	2,107.14	2,106.96	8.24	39.10	-72.91	-1,125.29	8,360.52	8,382.13	8,334.81	47.32	177.126	
2,200.00	2,191.38	2,203.24	2,203.04	8.60	41.07	-72.99	-1,124.09	8,360.52	8,378.83	8,329.19	49.64	168.800	
2,300.00	2,290.80	2,298.66	2,298.45	8.95	43.02	-73.05	-1,124.62	8,360.52	8,375.74	8,323.80	51.94	161.254	
2,400.00	2,390.22	2,405.46	2,405.22	9.31	45.22	-73.12	-1,125.29	8,360.52	8,372.67	8,318.17	54.51	153.606	
2,500.00	2,489.65	2,504.89	2,504.65	9.67	47.33	-73.19	-1,125.29	8,360.52	8,369.55	8,312.57	56.97	146.899	
2,600.00	2,589.07	2,604.31	2,604.07	10.03	49.44	-73.26	-1,125.29	8,360.52	8,366.43	8,306.99	59.44	140.745	
2,700.00	2,688.49	2,703.73	2,703.49	10.40	51.55	-73.33	-1,125.29	8,360.52	8,363.33	8,301.42	61.92	135.077	
2,800.00	2,787.91	2,802.71	2,802.47	10.76	53.65	-73.40	-1,124.45	8,360.52	8,360.15	8,295.77	64.38	129.859	
2,900.00	2,887.33	2,901.16	2,900.91	11.13	55.74	-73.47	-1,124.55	8,360.52	8,357.09	8,290.25	66.83	125.045	
3,000.00	2,986.76	2,999.63	2,999.38	11.50	57.82	-73.54	-1,124.76	8,360.52	8,354.05	8,284.76	69.29	120.570	
3,100.00	3,086.18	3,098.12	3,097.87	11.87	59.91	-73.61	-1,125.08	8,360.52	8,351.03	8,279.28	71.75	116.398	
3,200.00	3,185.60	3,200.97	3,200.60	12.24	62.27	-73.68	-1,125.29	8,360.52	8,348.01	8,273.54	74.47	112.098	
3,300.00	3,285.02	3,300.39	3,300.02	12.61	64.70	-73.75	-1,125.29	8,360.52	8,344.99	8,267.71	77.28	107.988	
3,400.00	3,384.45	3,399.56	3,399.17	12.98	67.13	-73.83	-1,123.68	8,360.52	8,341.81	8,261.73	80.08	104.171	
3,500.00	3,483.87	3,494.83	3,494.43	13.36	69.47	-73.90	-1,123.95	8,360.52	8,338.84	8,256.06	82.78	100.730	
3,600.00	3,583.29	3,590.21	3,589.79	13.73	71.80	-73.96	-1,124.70	8,360.52	8,335.93	8,250.44	85.49	97.503	
3,700.00	3,682.71	3,698.25	3,697.71	14.11	74.36	-74.03	-1,125.29	8,360.52	8,333.01	8,244.59	88.43	94.238	
3,800.00	3,782.14	3,795.53	3,794.98	14.48	76.60	-74.11	-1,124.48	8,360.52	8,329.97	8,238.94	91.03	91.503	
3,900.00	3,881.56	3,887.67	3,887.11	14.86	78.71	-74.17	-1,125.16	8,360.52	8,327.09	8,233.57	93.53	89.035	
4,000.00	3,980.98	3,996.58	3,995.98	15.24	81.05	-74.24	-1,125.29	8,360.52	8,324.16	8,227.93	96.24	86.496	
4,100.00	4,080.40	4,096.00	4,095.40	15.61	83.16	-74.31	-1,125.29	8,360.52	8,321.24	8,222.51	98.73	84.283	
4,200.00	4,179.83	4,195.42	4,194.83	15.99	85.28	-74.39	-1,125.29	8,360.52	8,318.33	8,217.11	101.22	82.179	
4,300.00	4,279.25	4,294.85	4,294.25	16.37	87.39	-74.46	-1,125.29	8,360.52	8,315.43	8,211.71	103.72	80.175	
4,400.00	4,378.67	4,394.27	4,393.67	16.75	89.51	-74.53	-1,125.29	8,360.52	8,312.55	8,206.34	106.21	78.266	
4,500.00	4,478.09	4,493.69	4,493.09	17.13	91.63	-74.60	-1,125.29	8,360.52	8,309.67	8,200.97	108.70	76.443	
4,600.00	4,577.51	4,592.23	4,591.60	17.51	93.72	-74.69	-1,122.70	8,360.52	8,306.59	8,195.41	111.18	74.713	
4,700.00	4,676.94	4,690.69	4,690.06	17.89	95.82	-74.76	-1,122.89	8,360.52	8,303.77	8,190.11	113.65	73.062	
4,800.00	4,776.36	4,789.18	4,788.54	18.27	97.91	-74.82	-1,123.22	8,360.52	8,300.96	8,184.83	116.13	71.480	
4,900.00	4,875.78	4,887.70	4,887.06	18.65	100.01	-74.89	-1,123.70	8,360.52	8,298.18	8,179.58	118.61	69.964	
5,000.00	4,975.20	4,986.26	4,985.61	19.03	102.11	-74.96	-1,124.31	8,360.52	8,295.43	8,174.34	121.08	68.510	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #184 - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 293-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,100.00	5,074.63	5,084.85	5,084.19	19.41	104.21	-75.02	-1,125.07	8,360.52	8,292.69	8,169.13	123.56	67.113	
5,200.00	5,174.05	5,189.83	5,189.05	19.79	106.37	-75.10	-1,125.29	8,360.52	8,289.93	8,163.82	126.11	65.736	
5,300.00	5,273.47	5,289.26	5,288.47	20.17	108.41	-75.17	-1,125.29	8,360.52	8,287.16	8,158.64	128.52	64.480	
5,400.00	5,372.89	5,388.68	5,387.89	20.56	110.44	-75.24	-1,125.29	8,360.52	8,284.40	8,153.47	130.93	63.271	
5,500.00	5,472.32	5,488.10	5,487.32	20.94	112.47	-75.31	-1,125.29	8,360.52	8,281.66	8,148.31	133.35	62.106	
5,600.00	5,571.74	5,587.52	5,586.74	21.32	114.50	-75.38	-1,125.29	8,360.52	8,278.93	8,143.17	135.76	60.982	
5,700.00	5,671.16	5,686.95	5,686.16	21.70	116.53	-75.45	-1,125.29	8,360.52	8,276.21	8,138.04	138.17	59.897	
5,800.00	5,770.58	5,785.69	5,784.88	22.08	118.55	-75.54	-1,122.74	8,360.52	8,273.33	8,132.76	140.57	58.854	
5,900.00	5,870.01	5,884.31	5,883.49	22.47	120.56	-75.61	-1,122.93	8,360.52	8,270.66	8,127.69	142.97	57.849	
6,000.00	5,969.43	5,982.96	5,982.14	22.85	122.58	-75.68	-1,123.26	8,360.52	8,268.00	8,122.64	145.37	56.876	
6,100.00	6,068.85	6,081.65	6,080.82	23.23	124.59	-75.75	-1,123.73	8,360.52	8,265.37	8,117.61	147.77	55.935	
6,200.00	6,168.27	6,180.37	6,179.54	23.62	126.61	-75.82	-1,124.35	8,360.52	8,262.76	8,112.60	150.17	55.024	
6,300.00	6,267.70	6,279.12	6,278.28	24.00	128.63	-75.88	-1,125.11	8,360.52	8,260.18	8,107.61	152.57	54.141	
6,400.00	6,367.12	6,308.00	6,307.08	24.38	129.21	-75.90	-1,125.29	8,360.52	8,257.90	8,104.37	153.53	53.786	
6,500.00	6,466.54	6,308.00	6,307.08	24.77	129.21	-75.90	-1,125.29	8,360.52	8,256.79	8,102.90	153.89	53.653	
6,541.60	6,507.90	6,308.00	6,307.08	24.93	129.21	-75.90	-1,125.29	8,360.52	8,256.69	8,102.65	154.04	53.602	
6,600.00	6,565.96	6,308.00	6,307.08	25.15	129.21	-75.90	-1,125.29	8,360.52	8,256.89	8,102.66	154.23	53.535	
6,700.00	6,665.38	6,308.00	6,307.08	25.53	129.21	-75.90	-1,125.29	8,360.52	8,258.21	8,103.65	154.55	53.432	
6,778.75	6,743.68	6,308.00	6,307.08	25.84	129.21	-75.90	-1,125.29	8,360.52	8,260.09	8,105.30	154.79	53.363	
6,800.00	6,764.80	6,308.00	6,307.08	25.92	129.21	-59.88	-1,125.29	8,360.52	8,260.37	8,105.52	154.85	53.344	
6,850.00	6,814.29	6,308.00	6,307.08	26.11	129.21	-35.49	-1,125.29	8,360.52	8,258.46	8,103.47	154.99	53.283	
6,900.00	6,863.27	6,308.00	6,307.08	26.30	129.21	-23.51	-1,125.29	8,360.52	8,252.95	8,097.82	155.12	53.202	
6,950.00	6,911.44	6,308.00	6,307.08	26.50	129.21	-16.97	-1,125.29	8,360.52	8,243.85	8,088.60	155.25	53.102	
7,000.00	6,958.49	6,308.00	6,307.08	26.68	129.21	-12.93	-1,125.29	8,360.52	8,231.22	8,075.86	155.36	52.982	
7,050.00	7,004.14	6,308.00	6,307.08	26.87	129.21	-10.20	-1,125.29	8,360.52	8,215.11	8,059.65	155.46	52.843	
7,100.00	7,048.10	6,308.00	6,307.08	27.05	129.21	-8.23	-1,125.29	8,360.52	8,195.61	8,040.05	155.56	52.686	
7,150.00	7,090.11	6,308.00	6,307.08	27.23	129.21	-6.71	-1,125.29	8,360.52	8,172.81	8,017.17	155.64	52.512	
7,200.00	7,129.90	6,308.00	6,307.08	27.41	129.21	-5.49	-1,125.29	8,360.52	8,146.82	7,991.11	155.71	52.321	
7,250.00	7,167.24	6,308.00	6,307.08	27.59	129.21	-4.45	-1,125.29	8,360.52	8,117.78	7,962.01	155.77	52.114	
7,300.00	7,201.88	6,308.00	6,307.08	27.76	129.21	-3.52	-1,125.29	8,360.52	8,085.84	7,930.02	155.82	51.893	
7,350.00	7,233.63	6,308.00	6,307.08	27.94	129.21	-2.66	-1,125.29	8,360.52	8,051.15	7,895.29	155.86	51.657	
7,400.00	7,262.27	6,308.00	6,307.08	28.13	129.21	-1.80	-1,125.29	8,360.52	8,013.89	7,858.01	155.88	51.409	
7,450.00	7,287.63	6,308.00	6,307.08	28.32	129.21	-0.89	-1,125.29	8,360.52	7,974.27	7,818.37	155.90	51.149	
7,500.00	7,309.57	6,308.00	6,307.08	28.53	129.21	0.12	-1,125.29	8,360.52	7,932.49	7,776.58	155.91	50.878	
7,550.00	7,327.93	6,308.00	6,307.08	28.74	129.21	1.35	-1,125.29	8,360.52	7,888.78	7,732.86	155.91	50.597	
7,600.00	7,342.62	6,308.00	6,307.08	28.97	129.21	2.95	-1,125.29	8,360.52	7,843.37	7,687.46	155.91	50.307	
7,650.00	7,353.53	6,308.00	6,307.08	29.22	129.21	5.22	-1,125.29	8,360.52	7,796.52	7,640.62	155.90	50.010	
7,700.00	7,360.61	6,308.00	6,307.08	29.48	129.21	8.82	-1,125.29	8,360.52	7,748.50	7,592.62	155.89	49.706	
7,750.00	7,363.80	6,308.00	6,307.08	29.75	129.21	15.55	-1,125.29	8,360.52	7,699.58	7,543.71	155.87	49.398	
7,765.93	7,364.00	6,308.00	6,307.08	29.84	129.21	19.09	-1,125.29	8,360.52	7,683.86	7,527.99	155.86	49.298	
7,800.00	7,364.00	6,308.00	6,307.08	30.04	129.21	19.09	-1,125.29	8,360.52	7,650.16	7,494.31	155.85	49.086	
7,900.00	7,364.00	6,308.00	6,307.08	30.67	129.21	19.09	-1,125.29	8,360.52	7,551.28	7,395.47	155.81	48.464	
8,000.00	7,364.00	6,308.00	6,307.08	31.37	129.21	19.09	-1,125.29	8,360.52	7,452.43	7,296.66	155.77	47.841	
8,100.00	7,364.00	6,308.00	6,307.08	32.14	129.21	19.09	-1,125.29	8,360.52	7,353.61	7,197.88	155.74	47.219	
8,200.00	7,364.00	6,308.00	6,307.08	32.96	129.21	19.09	-1,125.29	8,360.52	7,254.83	7,099.13	155.70	46.596	
8,300.00	7,364.00	6,308.00	6,307.08	33.85	129.21	19.09	-1,125.29	8,360.52	7,156.07	7,000.42	155.66	45.973	
8,400.00	7,364.00	6,308.00	6,307.08	34.79	129.21	19.09	-1,125.29	8,360.52	7,057.35	6,901.74	155.62	45.351	
8,500.00	7,364.00	6,308.00	6,307.08	35.77	129.21	19.09	-1,125.29	8,360.52	6,958.67	6,803.10	155.58	44.728	
8,600.00	7,364.00	6,308.00	6,307.08	36.80	129.21	19.09	-1,125.29	8,360.52	6,860.03	6,704.49	155.54	44.105	
8,700.00	7,364.00	6,308.00	6,307.08	37.87	129.21	19.09	-1,125.29	8,360.52	6,761.43	6,605.93	155.50	43.483	
8,800.00	7,364.00	6,308.00	6,307.08	38.98	129.21	19.09	-1,125.29	8,360.52	6,662.86	6,507.41	155.46	42.860	
8,900.00	7,364.00	6,308.00	6,307.08	40.12	129.21	19.09	-1,125.29	8,360.52	6,564.35	6,408.93	155.42	42.237	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #184 - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 293-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,000.00	7,364.00	6,308.00	6,307.08	41.29	129.21	19.09	-1,125.29	8,360.52	6,465.87	6,310.50	155.37	41.615	
9,100.00	7,364.00	6,308.00	6,307.08	42.49	129.21	19.09	-1,125.29	8,360.52	6,367.45	6,212.12	155.33	40.992	
9,200.00	7,364.00	6,308.00	6,307.08	43.71	129.21	19.09	-1,125.29	8,360.52	6,269.07	6,113.78	155.29	40.370	
9,300.00	7,364.00	6,308.00	6,307.08	44.96	129.21	19.09	-1,125.29	8,360.52	6,170.75	6,015.50	155.25	39.747	
9,400.00	7,364.00	6,308.00	6,307.08	46.23	129.21	19.09	-1,125.29	8,360.52	6,072.48	5,917.28	155.21	39.125	
9,500.00	7,364.00	6,308.00	6,307.08	47.52	129.21	19.09	-1,125.29	8,360.52	5,974.27	5,819.11	155.16	38.503	
9,600.00	7,364.00	6,308.00	6,307.08	48.83	129.21	19.09	-1,125.29	8,360.52	5,876.12	5,721.00	155.12	37.882	
9,700.00	7,364.00	6,308.00	6,307.08	50.15	129.21	19.09	-1,125.29	8,360.52	5,778.03	5,622.96	155.07	37.260	
9,800.00	7,364.00	6,308.00	6,307.08	51.49	129.21	19.09	-1,125.29	8,360.52	5,680.01	5,524.99	155.03	36.639	
9,900.00	7,364.00	6,308.00	6,307.08	52.85	129.21	19.09	-1,125.29	8,360.52	5,582.06	5,427.08	154.98	36.017	
10,000.00	7,364.00	6,308.00	6,307.08	54.22	129.21	19.09	-1,125.29	8,360.52	5,484.19	5,329.25	154.94	35.397	
10,100.00	7,364.00	6,308.00	6,307.08	55.60	129.21	19.09	-1,125.29	8,360.52	5,386.39	5,231.50	154.89	34.776	
10,200.00	7,364.00	6,308.00	6,307.08	56.99	129.21	19.09	-1,125.29	8,360.52	5,288.67	5,133.83	154.84	34.156	
10,300.00	7,364.00	6,308.00	6,307.08	58.40	129.21	19.09	-1,125.29	8,360.52	5,191.05	5,036.26	154.79	33.536	
10,400.00	7,364.00	6,308.00	6,307.08	59.81	129.21	19.09	-1,125.29	8,360.52	5,093.51	4,938.77	154.74	32.917	
10,500.00	7,364.00	6,308.00	6,307.08	61.23	129.21	19.09	-1,125.29	8,360.52	4,996.07	4,841.38	154.69	32.298	
10,600.00	7,364.00	6,308.00	6,307.08	62.66	129.21	19.09	-1,125.29	8,360.52	4,898.73	4,744.10	154.64	31.679	
10,700.00	7,364.00	6,308.00	6,307.08	64.10	129.21	19.09	-1,125.29	8,360.52	4,801.51	4,646.92	154.58	31.061	
10,800.00	7,364.00	6,308.00	6,307.08	65.55	129.21	19.09	-1,125.29	8,360.52	4,704.40	4,549.87	154.53	30.444	
10,900.00	7,364.00	6,308.00	6,307.08	67.01	129.21	19.09	-1,125.29	8,360.52	4,607.41	4,452.94	154.47	29.827	
11,000.00	7,364.00	6,308.00	6,307.08	68.47	129.21	19.09	-1,125.29	8,360.52	4,510.55	4,356.14	154.42	29.210	
11,100.00	7,364.00	6,308.00	6,307.08	69.93	129.21	19.09	-1,125.29	8,360.52	4,413.84	4,259.48	154.36	28.595	
11,200.00	7,364.00	6,308.00	6,307.08	71.41	129.21	19.09	-1,125.29	8,360.52	4,317.27	4,162.98	154.30	27.980	
11,300.00	7,364.00	6,308.00	6,307.08	72.88	129.21	19.09	-1,125.29	8,360.52	4,220.87	4,066.63	154.24	27.366	
11,400.00	7,364.00	6,308.00	6,307.08	74.37	129.21	19.09	-1,125.29	8,360.52	4,124.64	3,970.46	154.18	26.753	
11,500.00	7,364.00	6,308.00	6,307.08	75.85	129.21	19.09	-1,125.29	8,360.52	4,028.59	3,874.47	154.11	26.141	
11,600.00	7,364.00	6,308.00	6,307.08	77.35	129.21	19.09	-1,125.29	8,360.52	3,932.73	3,778.69	154.05	25.530	
11,700.00	7,364.00	6,308.00	6,307.08	78.84	129.21	19.09	-1,125.29	8,360.52	3,837.09	3,683.11	153.98	24.920	
11,800.00	7,364.00	6,308.00	6,307.08	80.34	129.21	19.09	-1,125.29	8,360.52	3,741.68	3,587.77	153.91	24.311	
11,900.00	7,364.00	6,308.00	6,307.08	81.85	129.21	19.09	-1,125.29	8,360.52	3,646.51	3,492.67	153.84	23.704	
12,000.00	7,364.00	6,308.00	6,307.08	83.36	129.21	19.09	-1,125.29	8,360.52	3,551.60	3,397.84	153.76	23.098	
12,100.00	7,364.00	6,308.00	6,307.08	84.87	129.21	19.09	-1,125.29	8,360.52	3,456.99	3,303.30	153.69	22.494	
12,200.00	7,364.00	6,308.00	6,307.08	86.38	129.21	19.09	-1,125.29	8,360.52	3,362.69	3,209.08	153.61	21.891	
12,300.00	7,364.00	6,308.00	6,307.08	87.90	129.21	19.09	-1,125.29	8,360.52	3,268.72	3,115.19	153.53	21.291	
12,400.00	7,364.00	6,308.00	6,307.08	89.42	129.21	19.09	-1,125.29	8,360.52	3,175.12	3,021.68	153.44	20.693	
12,500.00	7,364.00	6,308.00	6,307.08	90.95	129.21	19.09	-1,125.29	8,360.52	3,081.93	2,928.58	153.35	20.097	
12,600.00	7,364.00	6,308.00	6,307.08	92.47	129.21	19.09	-1,125.29	8,360.52	2,989.18	2,835.92	153.25	19.505	
12,700.00	7,364.00	6,308.00	6,307.08	94.00	129.21	19.09	-1,125.29	8,360.52	2,896.90	2,743.75	153.15	18.915	
12,800.00	7,364.00	6,308.00	6,307.08	95.53	129.21	19.09	-1,125.29	8,360.52	2,805.16	2,652.12	153.04	18.330	
12,900.00	7,364.00	6,308.00	6,307.08	97.06	129.21	19.09	-1,125.29	8,360.52	2,714.00	2,561.08	152.92	17.748	
13,000.00	7,364.00	6,308.00	6,307.08	98.60	129.21	19.09	-1,125.29	8,360.52	2,623.49	2,470.70	152.79	17.171	
13,100.00	7,364.00	6,308.00	6,307.08	100.14	129.21	19.09	-1,125.29	8,360.52	2,533.69	2,381.05	152.64	16.599	
13,200.00	7,364.00	6,308.00	6,307.08	101.68	129.21	19.09	-1,125.29	8,360.52	2,444.68	2,292.20	152.47	16.033	
13,300.00	7,364.00	6,308.00	6,307.08	103.22	129.21	19.09	-1,125.29	8,360.52	2,356.55	2,204.27	152.28	15.475	
13,400.00	7,364.00	6,308.00	6,307.08	104.76	129.21	19.09	-1,125.29	8,360.52	2,269.41	2,117.34	152.06	14.924	
13,500.00	7,364.00	6,308.00	6,307.08	106.31	129.21	19.09	-1,125.29	8,360.52	2,183.37	2,031.56	151.81	14.382	
13,600.00	7,364.00	6,308.00	6,307.08	107.85	129.21	19.09	-1,125.29	8,360.52	2,098.56	1,947.06	151.50	13.852	
13,700.00	7,364.00	6,308.00	6,307.08	109.40	129.21	19.09	-1,125.29	8,360.52	2,015.15	1,864.01	151.14	13.333	
13,800.00	7,364.00	6,308.00	6,307.08	110.95	129.21	19.09	-1,125.29	8,360.52	1,933.32	1,782.62	150.70	12.829	
13,900.00	7,364.00	6,308.00	6,307.08	112.50	129.21	19.09	-1,125.29	8,360.52	1,853.27	1,703.10	150.17	12.342	
14,000.00	7,364.00	6,308.00	6,307.08	114.05	129.21	19.09	-1,125.29	8,360.52	1,775.24	1,625.73	149.51	11.874	
14,100.00	7,364.00	6,308.00	6,307.08	115.61	129.21	19.09	-1,125.29	8,360.52	1,699.52	1,550.81	148.71	11.428	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #184 - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 293-A027Ua_INC-ONLY

Rule Assigned:

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,200.00	7,364.00	6,308.00	6,307.08	117.16	129.21	19.09	-1,125.29	8,360.52	1,626.42	1,478.69	147.73	11.010	
14,300.00	7,364.00	6,308.00	6,307.08	118.72	129.21	19.09	-1,125.29	8,360.52	1,556.32	1,409.79	146.52	10.622	
14,400.00	7,364.00	6,308.00	6,307.08	120.28	129.21	19.09	-1,125.29	8,360.52	1,489.63	1,344.57	145.06	10.269	
14,500.00	7,364.00	6,308.00	6,307.08	121.84	129.21	19.09	-1,125.29	8,360.52	1,426.84	1,283.56	143.28	9.959	
14,600.00	7,364.00	6,308.00	6,307.08	123.40	129.21	19.09	-1,125.29	8,360.52	1,368.49	1,227.33	141.15	9.695	
14,700.00	7,364.00	6,308.00	6,307.08	124.96	129.21	19.09	-1,125.29	8,360.52	1,315.16	1,176.50	138.66	9.485	
14,800.00	7,364.00	6,308.00	6,307.08	126.52	129.21	19.09	-1,125.29	8,360.52	1,267.48	1,131.68	135.80	9.333	
14,900.00	7,364.00	6,308.00	6,307.08	128.08	129.21	19.09	-1,125.29	8,360.52	1,226.13	1,093.47	132.66	9.242	
15,000.00	7,364.00	6,308.00	6,307.08	129.64	129.21	19.09	-1,125.29	8,360.52	1,191.75	1,062.33	129.42	9.208	
15,100.00	7,364.00	6,308.00	6,307.08	131.21	129.21	19.09	-1,125.29	8,360.52	1,164.97	1,038.57	126.40	9.216	
15,200.00	7,364.00	6,308.00	6,307.08	132.77	129.21	19.09	-1,125.29	8,360.52	1,146.31	1,022.20	124.11	9.236	
15,300.00	7,364.00	6,308.00	6,307.08	134.34	129.21	19.09	-1,125.29	8,360.52	1,136.18	1,013.04	123.14	9.227	
15,365.61	7,364.00	6,308.00	6,307.08	135.37	129.21	19.09	-1,125.29	8,360.52	1,134.29	1,010.82	123.47	9.187	CC, ES
15,400.00	7,364.00	6,308.00	6,307.08	135.91	129.21	19.09	-1,125.29	8,360.52	1,134.81	1,010.84	123.97	9.154	
15,500.00	7,364.00	6,308.00	6,307.08	137.48	129.21	19.09	-1,125.29	8,360.52	1,142.22	1,015.57	126.65	9.018	
15,600.00	7,364.00	6,308.00	6,307.08	139.04	129.21	19.09	-1,125.29	8,360.52	1,158.25	1,027.49	130.76	8.858	
15,700.00	7,364.00	6,308.00	6,307.08	140.61	129.21	19.09	-1,125.29	8,360.52	1,182.55	1,046.90	135.66	8.717	
15,800.00	7,364.00	6,308.00	6,307.08	142.18	129.21	19.09	-1,125.29	8,360.52	1,214.62	1,073.87	140.75	8.629	
15,900.00	7,364.00	6,308.00	6,307.08	143.75	129.21	19.09	-1,125.29	8,360.52	1,253.87	1,108.22	145.65	8.609	SF
16,000.00	7,364.00	6,308.00	6,307.08	145.33	129.21	19.09	-1,125.29	8,360.52	1,299.64	1,149.53	150.11	8.658	
16,100.00	7,364.00	6,308.00	6,307.08	146.90	129.21	19.09	-1,125.29	8,360.52	1,351.28	1,197.23	154.04	8.772	
16,200.00	7,364.00	6,308.00	6,307.08	148.47	129.21	19.09	-1,125.29	8,360.52	1,408.13	1,250.71	157.42	8.945	
16,300.00	7,364.00	6,308.00	6,307.08	150.04	129.21	19.09	-1,125.29	8,360.52	1,469.59	1,309.33	160.26	9.170	
16,400.00	7,364.00	6,308.00	6,307.08	151.62	129.21	19.09	-1,125.29	8,360.52	1,535.12	1,372.48	162.63	9.439	
16,500.00	7,364.00	6,308.00	6,307.08	153.19	129.21	19.09	-1,125.29	8,360.52	1,604.20	1,439.61	164.59	9.747	
16,600.00	7,364.00	6,308.00	6,307.08	154.77	129.21	19.09	-1,125.29	8,360.52	1,676.41	1,510.22	166.19	10.087	
16,700.00	7,364.00	6,308.00	6,307.08	156.34	129.21	19.09	-1,125.29	8,360.52	1,751.35	1,583.86	167.49	10.456	
16,800.00	7,364.00	6,308.00	6,307.08	157.92	129.21	19.09	-1,125.29	8,360.52	1,828.69	1,660.15	168.54	10.850	
16,900.00	7,364.00	6,308.00	6,307.08	159.49	129.21	19.09	-1,125.29	8,360.52	1,908.14	1,738.75	169.39	11.265	
17,000.00	7,364.00	6,308.00	6,307.08	161.07	129.21	19.09	-1,125.29	8,360.52	1,989.44	1,819.37	170.06	11.698	
17,100.00	7,364.00	6,308.00	6,307.08	162.65	129.21	19.09	-1,125.29	8,360.52	2,072.38	1,901.77	170.60	12.147	
17,200.00	7,364.00	6,308.00	6,307.08	164.23	129.21	19.09	-1,125.29	8,360.52	2,156.76	1,985.73	171.03	12.611	
17,300.00	7,364.00	6,308.00	6,307.08	165.81	129.21	19.09	-1,125.29	8,360.52	2,242.43	2,071.07	171.36	13.086	
17,400.00	7,364.00	6,308.00	6,307.08	167.38	129.21	19.09	-1,125.29	8,360.52	2,329.24	2,157.63	171.62	13.572	
17,500.00	7,364.00	6,308.00	6,307.08	168.96	129.21	19.09	-1,125.29	8,360.52	2,417.08	2,245.26	171.82	14.068	
17,600.00	7,364.00	6,308.00	6,307.08	170.54	129.21	19.09	-1,125.29	8,360.52	2,505.82	2,333.86	171.96	14.572	
17,700.00	7,364.00	6,308.00	6,307.08	172.12	129.21	19.09	-1,125.29	8,360.52	2,595.38	2,423.31	172.07	15.083	
17,800.00	7,364.00	6,308.00	6,307.08	173.70	129.21	19.09	-1,125.29	8,360.52	2,685.68	2,513.53	172.15	15.601	
17,900.00	7,364.00	6,308.00	6,307.08	175.28	129.21	19.09	-1,125.29	8,360.52	2,776.65	2,604.45	172.20	16.124	
18,000.00	7,364.00	6,308.00	6,307.08	176.87	129.21	19.09	-1,125.29	8,360.52	2,868.21	2,695.98	172.23	16.653	
18,100.00	7,364.00	6,308.00	6,307.08	178.45	129.21	19.09	-1,125.29	8,360.52	2,960.33	2,788.08	172.25	17.186	
18,200.00	7,364.00	6,308.00	6,307.08	180.03	129.21	19.09	-1,125.29	8,360.52	3,052.93	2,880.68	172.25	17.724	
18,300.00	7,364.00	6,308.00	6,307.08	181.61	129.21	19.09	-1,125.29	8,360.52	3,146.00	2,973.75	172.24	18.265	
18,400.00	7,364.00	6,308.00	6,307.08	183.19	129.21	19.09	-1,125.29	8,360.52	3,239.47	3,067.24	172.23	18.809	
18,500.00	7,364.00	6,308.00	6,307.08	184.78	129.21	19.09	-1,125.29	8,360.52	3,333.32	3,161.11	172.21	19.356	
18,600.00	7,364.00	6,308.00	6,307.08	186.36	129.21	19.09	-1,125.29	8,360.52	3,427.53	3,255.34	172.19	19.906	
18,700.00	7,364.00	6,308.00	6,307.08	187.94	129.21	19.09	-1,125.29	8,360.52	3,522.05	3,349.89	172.16	20.458	
18,800.00	7,364.00	6,308.00	6,307.08	189.53	129.21	19.09	-1,125.29	8,360.52	3,616.86	3,444.73	172.13	21.012	
18,900.00	7,364.00	6,308.00	6,307.08	191.11	129.21	19.09	-1,125.29	8,360.52	3,711.95	3,539.85	172.10	21.568	
19,000.00	7,364.00	6,308.00	6,307.08	192.70	129.21	19.09	-1,125.29	8,360.52	3,807.29	3,635.21	172.07	22.126	
19,100.00	7,364.00	6,308.00	6,307.08	194.28	129.21	19.09	-1,125.29	8,360.52	3,902.86	3,730.82	172.05	22.685	
19,200.00	7,364.00	6,308.00	6,307.08	195.87	129.21	19.09	-1,125.29	8,360.52	3,998.65	3,826.63	172.02	23.245	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #184 - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 293-A027Ua_INC-ONLY

Rule Assigned:

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
19,300.00	7,364.00	6,308.00	6,307.08	197.45	129.21	19.09	-1,125.29	8,360.52	4,094.64	3,922.65	171.99	23.807	
19,400.00	7,364.00	6,308.00	6,307.08	199.04	129.21	19.09	-1,125.29	8,360.52	4,190.82	4,018.85	171.97	24.370	
19,500.00	7,364.00	6,308.00	6,307.08	200.62	129.21	19.09	-1,125.29	8,360.52	4,287.17	4,115.22	171.95	24.933	
19,600.00	7,364.00	6,308.00	6,307.08	202.21	129.21	19.09	-1,125.29	8,360.52	4,383.69	4,211.76	171.93	25.497	
19,700.00	7,364.00	6,308.00	6,307.08	203.79	129.21	19.09	-1,125.29	8,360.52	4,480.36	4,308.45	171.91	26.062	
19,800.00	7,364.00	6,308.00	6,307.08	205.38	129.21	19.09	-1,125.29	8,360.52	4,577.17	4,405.27	171.89	26.628	
19,900.00	7,364.00	6,308.00	6,307.08	206.97	129.21	19.09	-1,125.29	8,360.52	4,674.12	4,502.23	171.88	27.194	
20,000.00	7,364.00	6,308.00	6,307.08	208.55	129.21	19.09	-1,125.29	8,360.52	4,771.19	4,599.32	171.87	27.760	
20,100.00	7,364.00	6,308.00	6,307.08	210.14	129.21	19.09	-1,125.29	8,360.52	4,868.38	4,696.51	171.86	28.327	
20,200.00	7,364.00	6,308.00	6,307.08	211.73	129.21	19.09	-1,125.29	8,360.52	4,965.68	4,793.82	171.86	28.894	
20,300.00	7,364.00	6,308.00	6,307.08	213.32	129.21	19.09	-1,125.29	8,360.52	5,063.09	4,891.23	171.86	29.461	
20,400.00	7,364.00	6,308.00	6,307.08	214.90	129.21	19.09	-1,125.29	8,360.52	5,160.60	4,988.74	171.86	30.028	
20,500.00	7,364.00	6,308.00	6,307.08	216.49	129.21	19.09	-1,125.29	8,360.52	5,258.20	5,086.34	171.86	30.596	
20,600.00	7,364.00	6,308.00	6,307.08	218.08	129.21	19.09	-1,125.29	8,360.52	5,355.89	5,184.02	171.87	31.163	
20,700.00	7,364.00	6,308.00	6,307.08	219.67	129.21	19.09	-1,125.29	8,360.52	5,453.66	5,281.79	171.87	31.731	
20,800.00	7,364.00	6,308.00	6,307.08	221.26	129.21	19.09	-1,125.29	8,360.52	5,551.51	5,379.63	171.88	32.298	
20,900.00	7,364.00	6,308.00	6,307.08	222.84	129.21	19.09	-1,125.29	8,360.52	5,649.44	5,477.54	171.90	32.866	
21,000.00	7,364.00	6,308.00	6,307.08	224.43	129.21	19.09	-1,125.29	8,360.52	5,747.44	5,575.53	171.91	33.433	
21,100.00	7,364.00	6,308.00	6,307.08	226.02	129.21	19.09	-1,125.29	8,360.52	5,845.50	5,673.58	171.93	34.000	
21,200.00	7,364.00	6,308.00	6,307.08	227.61	129.21	19.09	-1,125.29	8,360.52	5,943.63	5,771.69	171.95	34.567	
21,300.00	7,364.00	6,308.00	6,307.08	229.20	129.21	19.09	-1,125.29	8,360.52	6,041.83	5,869.86	171.97	35.133	
21,400.00	7,364.00	6,308.00	6,307.08	230.79	129.21	19.09	-1,125.29	8,360.52	6,140.08	5,968.09	171.99	35.700	
21,500.00	7,364.00	6,308.00	6,307.08	232.38	129.21	19.09	-1,125.29	8,360.52	6,238.38	6,066.37	172.02	36.266	
21,600.00	7,364.00	6,308.00	6,307.08	233.97	129.21	19.09	-1,125.29	8,360.52	6,336.74	6,164.70	172.05	36.832	
21,700.00	7,364.00	6,308.00	6,307.08	235.56	129.21	19.09	-1,125.29	8,360.52	6,435.15	6,263.08	172.08	37.397	
21,800.00	7,364.00	6,308.00	6,307.08	237.15	129.21	19.09	-1,125.29	8,360.52	6,533.61	6,361.50	172.11	37.962	
21,864.93	7,364.00	6,308.00	6,307.08	238.18	129.21	19.09	-1,125.29	8,360.52	6,597.56	6,425.43	172.13	38.329	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #184B - OH - OH — **Offset Site Error:** 0.00 usft

Survey Program: 350-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	5.00	5.00	3.28	0.05	101.98	-1,986.03	9,360.83	9,569.20				
100.00	100.00	105.00	105.00	3.29	1.12	101.98	-1,986.03	9,360.83	9,569.20	9,564.79	4.41	2,171.316	
200.00	200.00	205.00	205.00	3.34	2.18	101.98	-1,986.03	9,360.83	9,569.20	9,563.68	5.52	1,734.257	
300.00	300.00	305.00	305.00	3.42	3.25	101.98	-1,986.03	9,360.83	9,569.20	9,562.53	6.67	1,435.621	
400.00	400.00	405.02	405.00	3.54	4.85	101.98	-1,986.03	9,360.83	9,569.20	9,560.81	8.39	1,140.922	
500.00	500.00	505.02	505.00	3.69	6.89	101.98	-1,986.03	9,360.83	9,569.20	9,558.61	10.58	904.391	
600.00	599.98	605.00	604.98	3.86	8.94	-48.05	-1,986.03	9,360.83	9,568.03	9,555.24	12.79	747.902	
700.00	699.84	703.35	703.32	4.04	10.95	-48.13	-1,984.62	9,360.83	9,564.24	9,549.25	14.99	638.039	
808.00	807.41	805.53	805.49	4.27	13.04	-48.26	-1,984.84	9,360.83	9,557.90	9,540.59	17.31	552.246	
900.00	898.89	892.47	892.43	4.49	14.81	-65.52	-1,985.25	9,360.83	9,552.65	9,533.35	19.30	495.012	
912.12	910.94	903.93	903.89	4.52	15.05	-67.76	-1,985.31	9,360.83	9,552.14	9,532.58	19.56	488.334	
1,000.00	998.31	1,003.40	1,003.31	4.74	17.11	-67.82	-1,986.03	9,360.83	9,548.70	9,526.85	21.85	437.070	
1,100.00	1,097.73	1,102.83	1,102.73	5.01	20.08	-67.88	-1,986.03	9,360.83	9,544.63	9,519.56	25.08	380.602	
1,200.00	1,197.15	1,202.25	1,202.15	5.29	23.04	-67.94	-1,986.03	9,360.83	9,540.58	9,512.25	28.32	336.850	
1,300.00	1,296.58	1,299.19	1,299.09	5.59	25.93	-68.00	-1,985.24	9,360.83	9,536.37	9,504.87	31.51	302.681	
1,400.00	1,396.00	1,393.89	1,393.79	5.90	28.75	-68.05	-1,985.48	9,360.83	9,532.39	9,497.75	34.63	275.235	
1,500.00	1,495.42	1,500.91	1,500.42	6.22	31.96	-68.11	-1,986.03	9,360.83	9,528.47	9,490.31	38.16	249.710	
1,600.00	1,594.84	1,600.61	1,599.84	6.54	37.71	-68.17	-1,986.03	9,360.83	9,524.45	9,480.22	44.23	215.335	
1,700.00	1,694.27	1,700.03	1,699.27	6.87	45.07	-68.23	-1,986.03	9,360.83	9,520.45	9,468.53	51.92	183.384	
1,800.00	1,793.69	1,765.71	1,764.68	7.21	49.93	-68.29	-1,982.87	9,360.83	9,515.89	9,458.78	57.11	166.628	
1,900.00	1,893.11	1,900.66	1,898.11	7.55	60.35	-68.35	-1,986.03	9,360.83	9,512.47	9,444.60	67.87	140.166	
2,000.00	1,992.53	2,000.08	1,997.53	7.89	68.69	-68.41	-1,986.03	9,360.83	9,508.49	9,431.94	76.55	124.212	
2,100.00	2,091.96	2,098.62	2,095.62	8.24	76.96	-68.52	-1,978.72	9,360.83	9,503.12	9,417.95	85.17	111.584	
2,200.00	2,191.38	2,167.01	2,163.86	8.60	82.69	-68.55	-1,979.34	9,360.83	9,499.35	9,408.10	91.25	104.098	
2,300.00	2,290.80	2,235.84	2,232.51	8.95	88.47	-68.58	-1,981.16	9,360.83	9,495.92	9,398.54	97.38	97.513	
2,400.00	2,390.22	2,401.37	2,395.22	9.31	101.07	-68.65	-1,986.03	9,360.83	9,492.70	9,382.37	110.34	86.033	
2,500.00	2,489.65	2,500.80	2,494.65	9.67	107.33	-68.71	-1,986.03	9,360.83	9,488.78	9,371.83	116.95	81.135	
2,600.00	2,589.07	2,600.22	2,594.07	10.03	113.58	-68.77	-1,986.03	9,360.83	9,484.87	9,361.31	123.57	76.759	
2,700.00	2,688.49	2,679.76	2,672.96	10.40	118.59	-68.87	-1,977.62	9,360.83	9,479.42	9,350.49	128.93	73.522	
2,800.00	2,787.91	2,752.77	2,745.80	10.76	123.18	-68.91	-1,979.02	9,360.83	9,475.90	9,342.01	133.89	70.774	
2,900.00	2,887.33	2,826.20	2,818.99	11.13	127.80	-68.94	-1,981.56	9,360.83	9,472.66	9,333.79	138.87	68.212	
3,000.00	2,986.76	3,000.21	2,991.76	11.50	136.56	-69.01	-1,986.03	9,360.83	9,469.34	9,321.33	148.00	63.982	
3,100.00	3,086.18	3,099.63	3,091.18	11.87	140.29	-69.07	-1,986.03	9,360.83	9,465.48	9,313.38	152.10	62.231	
3,200.00	3,185.60	3,196.04	3,187.49	12.24	143.91	-69.15	-1,982.59	9,360.83	9,461.00	9,304.91	156.09	60.613	
3,300.00	3,285.02	3,281.20	3,272.62	12.61	147.11	-69.20	-1,983.10	9,360.83	9,457.28	9,297.62	159.66	59.235	
3,400.00	3,384.45	3,366.57	3,357.93	12.98	150.31	-69.25	-1,984.33	9,360.83	9,453.71	9,290.48	163.23	57.916	
3,500.00	3,483.87	3,497.93	3,488.87	13.36	154.94	-69.32	-1,986.03	9,360.83	9,450.15	9,281.92	168.23	56.174	
3,600.00	3,583.29	3,597.35	3,588.29	13.73	158.12	-69.38	-1,986.03	9,360.83	9,446.35	9,274.57	171.78	54.990	
3,700.00	3,682.71	3,695.75	3,686.63	14.11	161.27	-69.45	-1,983.35	9,360.83	9,442.08	9,266.78	175.30	53.862	
3,800.00	3,782.14	3,782.52	3,773.37	14.48	164.04	-69.50	-1,983.74	9,360.83	9,438.38	9,259.93	178.45	52.891	
3,900.00	3,881.56	3,869.47	3,860.29	14.86	166.82	-69.55	-1,984.79	9,360.83	9,434.82	9,253.21	181.60	51.952	
4,000.00	3,980.98	3,995.42	3,985.98	15.24	170.69	-69.62	-1,986.03	9,360.83	9,431.23	9,245.39	185.85	50.747	
4,100.00	4,080.40	4,094.85	4,085.40	15.61	173.60	-69.68	-1,986.03	9,360.83	9,427.48	9,238.35	189.14	49.844	
4,200.00	4,179.83	4,194.27	4,184.83	15.99	176.52	-69.74	-1,986.03	9,360.83	9,423.74	9,231.31	192.43	48.972	
4,300.00	4,279.25	4,293.69	4,284.25	16.37	179.43	-69.80	-1,986.03	9,360.83	9,420.01	9,224.29	195.72	48.130	
4,400.00	4,378.67	4,393.11	4,383.67	16.75	182.35	-69.86	-1,986.03	9,360.83	9,416.29	9,217.28	199.01	47.315	
4,500.00	4,478.09	4,486.94	4,477.42	17.13	185.10	-69.94	-1,982.20	9,360.83	9,411.94	9,209.80	202.14	46.561	
4,600.00	4,577.51	4,580.86	4,571.31	17.51	187.85	-70.00	-1,982.70	9,360.83	9,408.34	9,203.06	205.27	45.833	
4,700.00	4,676.94	4,674.85	4,665.28	17.89	190.61	-70.05	-1,983.54	9,360.83	9,404.80	9,196.39	208.41	45.127	
4,800.00	4,776.36	4,768.94	4,759.34	18.27	193.37	-70.10	-1,984.72	9,360.83	9,401.33	9,189.79	211.55	44.441	
4,900.00	4,875.78	4,890.78	4,880.78	18.65	196.69	-70.17	-1,986.03	9,360.83	9,397.86	9,182.62	215.24	43.662	
5,000.00	4,975.20	4,990.21	4,980.20	19.03	198.95	-70.23	-1,986.03	9,360.83	9,394.21	9,176.32	217.88	43.116	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #184B - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 350-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,100.00	5,074.63	5,089.63	5,079.63	19.41	201.21	-70.29	-1,986.03	9,360.83	9,390.56	9,170.04	220.52	42.583	
5,200.00	5,174.05	5,189.05	5,179.05	19.79	203.47	-70.35	-1,986.03	9,360.83	9,386.93	9,163.77	223.16	42.063	
5,300.00	5,273.47	5,288.47	5,278.47	20.17	205.73	-70.41	-1,986.03	9,360.83	9,383.31	9,157.50	225.80	41.555	
5,400.00	5,372.89	5,387.90	5,377.89	20.56	207.99	-70.48	-1,986.03	9,360.83	9,379.70	9,151.25	228.44	41.059	
5,500.00	5,472.32	5,487.32	5,477.32	20.94	210.25	-70.54	-1,986.03	9,360.83	9,376.10	9,145.01	231.08	40.574	
5,600.00	5,571.74	5,585.76	5,575.65	21.32	212.49	-70.64	-1,979.88	9,360.83	9,371.54	9,137.84	233.70	40.100	
5,700.00	5,671.16	5,681.80	5,671.67	21.70	214.67	-70.69	-1,980.05	9,360.83	9,368.00	9,131.73	236.27	39.650	
5,800.00	5,770.58	5,777.89	5,767.75	22.08	216.86	-70.75	-1,980.46	9,360.83	9,364.51	9,125.67	238.84	39.209	
5,900.00	5,870.01	5,874.05	5,863.88	22.47	219.04	-70.81	-1,981.10	9,360.83	9,361.06	9,119.65	241.40	38.778	
6,000.00	5,969.43	5,970.26	5,960.07	22.85	221.23	-70.86	-1,981.96	9,360.83	9,357.65	9,113.68	243.97	38.355	
6,100.00	6,068.85	6,066.54	6,056.32	23.23	223.42	-70.91	-1,983.06	9,360.83	9,354.29	9,107.75	246.54	37.942	
6,200.00	6,168.27	6,162.86	6,152.61	23.62	225.61	-70.97	-1,984.38	9,360.83	9,350.98	9,101.86	249.11	37.537	
6,300.00	6,267.70	6,283.13	6,272.70	24.00	228.23	-71.03	-1,986.03	9,360.83	9,347.69	9,095.58	252.11	37.077	
6,400.00	6,367.12	6,298.00	6,287.56	24.38	228.47	-71.04	-1,986.03	9,360.83	9,344.57	9,091.84	252.73	36.974	
6,500.00	6,466.54	6,298.00	6,287.56	24.77	228.47	-71.04	-1,986.03	9,360.83	9,342.51	9,089.43	253.08	36.915	
6,600.00	6,565.96	6,298.00	6,287.56	25.15	228.47	-71.04	-1,986.03	9,360.83	9,341.52	9,088.11	253.41	36.864	
6,642.59	6,608.31	6,298.00	6,287.56	25.31	228.47	-71.04	-1,986.03	9,360.83	9,341.42	9,087.89	253.53	36.845	
6,700.00	6,665.38	6,298.00	6,287.56	25.53	228.47	-71.04	-1,986.03	9,360.83	9,341.60	9,087.90	253.70	36.821	
6,778.75	6,743.68	6,298.00	6,287.56	25.84	228.47	-71.04	-1,986.03	9,360.83	9,342.42	9,088.50	253.91	36.794	
6,800.00	6,764.80	6,298.00	6,287.56	25.92	228.47	-55.02	-1,986.03	9,360.83	9,342.40	9,088.43	253.97	36.786	
6,850.00	6,814.29	6,298.00	6,287.56	26.11	228.47	-30.60	-1,986.03	9,360.83	9,339.78	9,085.69	254.09	36.758	
6,900.00	6,863.27	6,298.00	6,287.56	26.30	228.47	-18.57	-1,986.03	9,360.83	9,333.56	9,079.36	254.20	36.718	
6,950.00	6,911.44	6,298.00	6,287.56	26.50	228.47	-11.95	-1,986.03	9,360.83	9,323.76	9,069.47	254.30	36.665	
7,000.00	6,958.49	6,298.00	6,287.56	26.68	228.47	-7.80	-1,986.03	9,360.83	9,310.45	9,056.06	254.39	36.600	
7,050.00	7,004.14	6,298.00	6,287.56	26.87	228.47	-4.92	-1,986.03	9,360.83	9,293.67	9,039.21	254.46	36.523	
7,100.00	7,048.10	6,298.00	6,287.56	27.05	228.47	-2.76	-1,986.03	9,360.83	9,273.52	9,019.00	254.52	36.435	
7,150.00	7,090.11	6,298.00	6,287.56	27.23	228.47	-1.00	-1,986.03	9,360.83	9,250.11	8,995.54	254.57	36.336	
7,200.00	7,129.90	6,298.00	6,287.56	27.41	228.47	0.51	-1,986.03	9,360.83	9,223.55	8,968.93	254.61	36.226	
7,250.00	7,167.24	6,298.00	6,287.56	27.59	228.47	1.91	-1,986.03	9,360.83	9,193.97	8,939.33	254.64	36.106	
7,300.00	7,201.88	6,298.00	6,287.56	27.76	228.47	3.28	-1,986.03	9,360.83	9,161.54	8,906.88	254.65	35.976	
7,350.00	7,233.63	6,298.00	6,287.56	27.94	228.47	4.70	-1,986.03	9,360.83	9,126.42	8,871.76	254.66	35.838	
7,400.00	7,262.27	6,298.00	6,287.56	28.13	228.47	6.25	-1,986.03	9,360.83	9,088.80	8,834.14	254.65	35.691	
7,450.00	7,287.63	6,298.00	6,287.56	28.32	228.47	8.04	-1,986.03	9,360.83	9,048.88	8,794.24	254.64	35.536	
7,500.00	7,309.57	6,298.00	6,287.56	28.53	228.47	10.21	-1,986.03	9,360.83	9,006.88	8,752.27	254.61	35.375	
7,550.00	7,327.93	6,298.00	6,287.56	28.74	228.47	12.96	-1,986.03	9,360.83	8,963.03	8,708.45	254.59	35.206	
7,600.00	7,342.62	6,298.00	6,287.56	28.97	228.47	16.66	-1,986.03	9,360.83	8,917.58	8,663.03	254.55	35.032	
7,650.00	7,353.53	6,298.00	6,287.56	29.22	228.47	21.93	-1,986.03	9,360.83	8,870.78	8,616.27	254.52	34.854	
7,700.00	7,360.61	6,298.00	6,287.56	29.48	228.47	29.93	-1,986.03	9,360.83	8,822.91	8,568.43	254.48	34.671	
7,750.00	7,363.80	6,298.00	6,287.56	29.75	228.47	42.89	-1,986.03	9,360.83	8,774.24	8,519.79	254.44	34.484	
7,765.93	7,364.00	6,298.00	6,287.56	29.84	228.47	48.59	-1,986.03	9,360.83	8,758.61	8,504.18	254.43	34.424	
7,800.00	7,364.00	6,298.00	6,287.56	30.04	228.47	48.59	-1,986.03	9,360.83	8,725.14	8,470.73	254.41	34.296	
7,900.00	7,364.00	6,298.00	6,287.56	30.67	228.47	48.59	-1,986.03	9,360.83	8,626.93	8,372.60	254.33	33.920	
8,000.00	7,364.00	6,298.00	6,287.56	31.37	228.47	48.59	-1,986.03	9,360.83	8,528.76	8,274.50	254.26	33.543	
8,100.00	7,364.00	6,298.00	6,287.56	32.14	228.47	48.59	-1,986.03	9,360.83	8,430.64	8,176.45	254.19	33.166	
8,200.00	7,364.00	6,298.00	6,287.56	32.96	228.47	48.59	-1,986.03	9,360.83	8,332.56	8,078.44	254.12	32.789	
8,300.00	7,364.00	6,298.00	6,287.56	33.85	228.47	48.59	-1,986.03	9,360.83	8,234.53	7,980.47	254.06	32.412	
8,400.00	7,364.00	6,298.00	6,287.56	34.79	228.47	48.59	-1,986.03	9,360.83	8,136.54	7,882.55	253.99	32.035	
8,500.00	7,364.00	6,298.00	6,287.56	35.77	228.47	48.59	-1,986.03	9,360.83	8,038.61	7,784.68	253.93	31.657	
8,600.00	7,364.00	6,298.00	6,287.56	36.80	228.47	48.59	-1,986.03	9,360.83	7,940.73	7,686.86	253.87	31.279	
8,700.00	7,364.00	6,298.00	6,287.56	37.87	228.47	48.59	-1,986.03	9,360.83	7,842.90	7,589.09	253.81	30.901	
8,800.00	7,364.00	6,298.00	6,287.56	38.98	228.47	48.59	-1,986.03	9,360.83	7,745.12	7,491.37	253.75	30.523	
8,900.00	7,364.00	6,298.00	6,287.56	40.12	228.47	48.59	-1,986.03	9,360.83	7,647.40	7,393.71	253.70	30.144	

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 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #184B - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 350-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,000.00	7,364.00	6,298.00	6,287.56	41.29	228.47	48.59	-1,986.03	9,360.83	7,549.75	7,296.10	253.64	29.765	
9,100.00	7,364.00	6,298.00	6,287.56	42.49	228.47	48.59	-1,986.03	9,360.83	7,452.15	7,198.56	253.59	29.386	
9,200.00	7,364.00	6,298.00	6,287.56	43.71	228.47	48.59	-1,986.03	9,360.83	7,354.62	7,101.07	253.55	29.007	
9,300.00	7,364.00	6,298.00	6,287.56	44.96	228.47	48.59	-1,986.03	9,360.83	7,257.16	7,003.65	253.51	28.627	
9,400.00	7,364.00	6,298.00	6,287.56	46.23	228.47	48.59	-1,986.03	9,360.83	7,159.76	6,906.29	253.47	28.247	
9,500.00	7,364.00	6,298.00	6,287.56	47.52	228.47	48.59	-1,986.03	9,360.83	7,062.44	6,809.01	253.43	27.867	
9,600.00	7,364.00	6,298.00	6,287.56	48.83	228.47	48.59	-1,986.03	9,360.83	6,965.20	6,711.79	253.40	27.487	
9,700.00	7,364.00	6,298.00	6,287.56	50.15	228.47	48.59	-1,986.03	9,360.83	6,868.03	6,614.65	253.38	27.106	
9,800.00	7,364.00	6,298.00	6,287.56	51.49	228.47	48.59	-1,986.03	9,360.83	6,770.95	6,517.59	253.35	26.725	
9,900.00	7,364.00	6,298.00	6,287.56	52.85	228.47	48.59	-1,986.03	9,360.83	6,673.95	6,420.61	253.34	26.344	
10,000.00	7,364.00	6,298.00	6,287.56	54.22	228.47	48.59	-1,986.03	9,360.83	6,577.04	6,323.71	253.33	25.963	
10,100.00	7,364.00	6,298.00	6,287.56	55.60	228.47	48.59	-1,986.03	9,360.83	6,480.23	6,226.91	253.32	25.581	
10,200.00	7,364.00	6,298.00	6,287.56	56.99	228.47	48.59	-1,986.03	9,360.83	6,383.51	6,130.19	253.33	25.199	
10,300.00	7,364.00	6,298.00	6,287.56	58.40	228.47	48.59	-1,986.03	9,360.83	6,286.90	6,033.57	253.34	24.817	
10,400.00	7,364.00	6,298.00	6,287.56	59.81	228.47	48.59	-1,986.03	9,360.83	6,190.40	5,937.04	253.35	24.434	
10,500.00	7,364.00	6,298.00	6,287.56	61.23	228.47	48.59	-1,986.03	9,360.83	6,094.00	5,840.63	253.38	24.051	
10,600.00	7,364.00	6,298.00	6,287.56	62.66	228.47	48.59	-1,986.03	9,360.83	5,997.73	5,744.32	253.41	23.668	
10,700.00	7,364.00	6,298.00	6,287.56	64.10	228.47	48.59	-1,986.03	9,360.83	5,901.58	5,648.13	253.45	23.285	
10,800.00	7,364.00	6,298.00	6,287.56	65.55	228.47	48.59	-1,986.03	9,360.83	5,805.56	5,552.05	253.51	22.901	
10,900.00	7,364.00	6,298.00	6,287.56	67.01	228.47	48.59	-1,986.03	9,360.83	5,709.68	5,456.11	253.57	22.517	
11,000.00	7,364.00	6,298.00	6,287.56	68.47	228.47	48.59	-1,986.03	9,360.83	5,613.94	5,360.29	253.64	22.133	
11,100.00	7,364.00	6,298.00	6,287.56	69.93	228.47	48.59	-1,986.03	9,360.83	5,518.35	5,264.62	253.73	21.749	
11,200.00	7,364.00	6,298.00	6,287.56	71.41	228.47	48.59	-1,986.03	9,360.83	5,422.92	5,169.09	253.83	21.364	
11,300.00	7,364.00	6,298.00	6,287.56	72.88	228.47	48.59	-1,986.03	9,360.83	5,327.66	5,073.71	253.95	20.980	
11,400.00	7,364.00	6,298.00	6,287.56	74.37	228.47	48.59	-1,986.03	9,360.83	5,232.57	4,978.50	254.07	20.595	
11,500.00	7,364.00	6,298.00	6,287.56	75.85	228.47	48.59	-1,986.03	9,360.83	5,137.68	4,883.46	254.22	20.210	
11,600.00	7,364.00	6,298.00	6,287.56	77.35	228.47	48.59	-1,986.03	9,360.83	5,042.98	4,788.60	254.38	19.825	
11,700.00	7,364.00	6,298.00	6,287.56	78.84	228.47	48.59	-1,986.03	9,360.83	4,948.48	4,693.93	254.56	19.440	
11,800.00	7,364.00	6,298.00	6,287.56	80.34	228.47	48.59	-1,986.03	9,360.83	4,854.21	4,599.46	254.75	19.055	
11,900.00	7,364.00	6,298.00	6,287.56	81.85	228.47	48.59	-1,986.03	9,360.83	4,760.17	4,505.20	254.97	18.670	
12,000.00	7,364.00	6,298.00	6,287.56	83.36	228.47	48.59	-1,986.03	9,360.83	4,666.38	4,411.18	255.21	18.285	
12,100.00	7,364.00	6,298.00	6,287.56	84.87	228.47	48.59	-1,986.03	9,360.83	4,572.86	4,317.39	255.47	17.900	
12,200.00	7,364.00	6,298.00	6,287.56	86.38	228.47	48.59	-1,986.03	9,360.83	4,479.61	4,223.86	255.75	17.515	
12,300.00	7,364.00	6,298.00	6,287.56	87.90	228.47	48.59	-1,986.03	9,360.83	4,386.66	4,130.60	256.06	17.131	
12,400.00	7,364.00	6,298.00	6,287.56	89.42	228.47	48.59	-1,986.03	9,360.83	4,294.03	4,037.63	256.39	16.748	
12,500.00	7,364.00	6,298.00	6,287.56	90.95	228.47	48.59	-1,986.03	9,360.83	4,201.73	3,944.98	256.75	16.365	
12,600.00	7,364.00	6,298.00	6,287.56	92.47	228.47	48.59	-1,986.03	9,360.83	4,109.80	3,852.65	257.14	15.982	
12,700.00	7,364.00	6,298.00	6,287.56	94.00	228.47	48.59	-1,986.03	9,360.83	4,018.25	3,760.68	257.57	15.601	
12,800.00	7,364.00	6,298.00	6,287.56	95.53	228.47	48.59	-1,986.03	9,360.83	3,927.11	3,669.09	258.02	15.220	
12,900.00	7,364.00	6,298.00	6,287.56	97.06	228.47	48.59	-1,986.03	9,360.83	3,836.41	3,577.91	258.50	14.841	
13,000.00	7,364.00	6,298.00	6,287.56	98.60	228.47	48.59	-1,986.03	9,360.83	3,746.19	3,487.17	259.02	14.463	
13,100.00	7,364.00	6,298.00	6,287.56	100.14	228.47	48.59	-1,986.03	9,360.83	3,656.48	3,396.90	259.58	14.086	
13,200.00	7,364.00	6,298.00	6,287.56	101.68	228.47	48.59	-1,986.03	9,360.83	3,567.31	3,307.14	260.17	13.712	
13,300.00	7,364.00	6,298.00	6,287.56	103.22	228.47	48.59	-1,986.03	9,360.83	3,478.74	3,217.94	260.80	13.339	
13,400.00	7,364.00	6,298.00	6,287.56	104.76	228.47	48.59	-1,986.03	9,360.83	3,390.79	3,129.33	261.47	12.968	
13,500.00	7,364.00	6,298.00	6,287.56	106.31	228.47	48.59	-1,986.03	9,360.83	3,303.54	3,041.36	262.18	12.600	
13,600.00	7,364.00	6,298.00	6,287.56	107.85	228.47	48.59	-1,986.03	9,360.83	3,217.03	2,954.09	262.93	12.235	
13,700.00	7,364.00	6,298.00	6,287.56	109.40	228.47	48.59	-1,986.03	9,360.83	3,131.32	2,867.59	263.73	11.873	
13,800.00	7,364.00	6,298.00	6,287.56	110.95	228.47	48.59	-1,986.03	9,360.83	3,046.48	2,781.91	264.57	11.515	
13,900.00	7,364.00	6,298.00	6,287.56	112.50	228.47	48.59	-1,986.03	9,360.83	2,962.58	2,697.13	265.45	11.161	
14,000.00	7,364.00	6,298.00	6,287.56	114.05	228.47	48.59	-1,986.03	9,360.83	2,879.72	2,613.34	266.38	10.811	
14,100.00	7,364.00	6,298.00	6,287.56	115.61	228.47	48.59	-1,986.03	9,360.83	2,797.98	2,530.63	267.35	10.466	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #184B - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 350-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,200.00	7,364.00	6,298.00	6,287.56	117.16	228.47	48.59	-1,986.03	9,360.83	2,717.45	2,449.09	268.36	10.126	
14,300.00	7,364.00	6,298.00	6,287.56	118.72	228.47	48.59	-1,986.03	9,360.83	2,638.26	2,368.84	269.42	9.792	
14,400.00	7,364.00	6,298.00	6,287.56	120.28	228.47	48.59	-1,986.03	9,360.83	2,560.53	2,290.01	270.52	9.465	
14,500.00	7,364.00	6,298.00	6,287.56	121.84	228.47	48.59	-1,986.03	9,360.83	2,484.39	2,212.74	271.65	9.146	
14,600.00	7,364.00	6,298.00	6,287.56	123.40	228.47	48.59	-1,986.03	9,360.83	2,410.00	2,137.18	272.82	8.834	
14,700.00	7,364.00	6,298.00	6,287.56	124.96	228.47	48.59	-1,986.03	9,360.83	2,337.51	2,063.49	274.02	8.530	
14,800.00	7,364.00	6,298.00	6,287.56	126.52	228.47	48.59	-1,986.03	9,360.83	2,267.12	1,991.87	275.25	8.237	
14,900.00	7,364.00	6,298.00	6,287.56	128.08	228.47	48.59	-1,986.03	9,360.83	2,199.03	1,922.53	276.50	7.953	
15,000.00	7,364.00	6,298.00	6,287.56	129.64	228.47	48.59	-1,986.03	9,360.83	2,133.45	1,855.68	277.77	7.681	
15,100.00	7,364.00	6,298.00	6,287.56	131.21	228.47	48.59	-1,986.03	9,360.83	2,070.63	1,791.58	279.04	7.420	
15,200.00	7,364.00	6,298.00	6,287.56	132.77	228.47	48.59	-1,986.03	9,360.83	2,010.81	1,730.49	280.33	7.173	
15,300.00	7,364.00	6,298.00	6,287.56	134.34	228.47	48.59	-1,986.03	9,360.83	1,954.29	1,672.68	281.61	6.940	
15,400.00	7,364.00	6,298.00	6,287.56	135.91	228.47	48.59	-1,986.03	9,360.83	1,901.35	1,618.46	282.89	6.721	
15,500.00	7,364.00	6,298.00	6,287.56	137.48	228.47	48.59	-1,986.03	9,360.83	1,852.30	1,568.13	284.17	6.518	
15,600.00	7,364.00	6,298.00	6,287.56	139.04	228.47	48.59	-1,986.03	9,360.83	1,807.46	1,522.01	285.45	6.332	
15,700.00	7,364.00	6,298.00	6,287.56	140.61	228.47	48.59	-1,986.03	9,360.83	1,767.14	1,480.41	286.73	6.163	
15,800.00	7,364.00	6,298.00	6,287.56	142.18	228.47	48.59	-1,986.03	9,360.83	1,731.67	1,443.65	288.02	6.012	
15,900.00	7,364.00	6,298.00	6,287.56	143.75	228.47	48.59	-1,986.03	9,360.83	1,701.34	1,411.99	289.34	5.880	
16,000.00	7,364.00	6,298.00	6,287.56	145.33	228.47	48.59	-1,986.03	9,360.83	1,676.44	1,385.72	290.71	5.767	
16,100.00	7,364.00	6,298.00	6,287.56	146.90	228.47	48.59	-1,986.03	9,360.83	1,657.20	1,365.07	292.13	5.673	
16,200.00	7,364.00	6,298.00	6,287.56	148.47	228.47	48.59	-1,986.03	9,360.83	1,643.84	1,350.21	293.63	5.598	
16,300.00	7,364.00	6,298.00	6,287.56	150.04	228.47	48.59	-1,986.03	9,360.83	1,636.49	1,341.29	295.19	5.544	
16,370.59	7,364.00	6,298.00	6,287.56	151.15	228.47	48.59	-1,986.03	9,360.83	1,634.96	1,338.62	296.34	5.517	CC
16,400.00	7,364.00	6,298.00	6,287.56	151.62	228.47	48.59	-1,986.03	9,360.83	1,635.23	1,338.40	296.82	5.509	ES
16,500.00	7,364.00	6,298.00	6,287.56	153.19	228.47	48.59	-1,986.03	9,360.83	1,640.08	1,341.57	298.51	5.494	SF
16,600.00	7,364.00	6,298.00	6,287.56	154.77	228.47	48.59	-1,986.03	9,360.83	1,650.98	1,350.76	300.21	5.499	
16,700.00	7,364.00	6,298.00	6,287.56	156.34	228.47	48.59	-1,986.03	9,360.83	1,667.82	1,365.91	301.91	5.524	
16,800.00	7,364.00	6,298.00	6,287.56	157.92	228.47	48.59	-1,986.03	9,360.83	1,690.41	1,386.86	303.55	5.569	
16,900.00	7,364.00	6,298.00	6,287.56	159.49	228.47	48.59	-1,986.03	9,360.83	1,718.54	1,413.44	305.10	5.633	
17,000.00	7,364.00	6,298.00	6,287.56	161.07	228.47	48.59	-1,986.03	9,360.83	1,751.93	1,445.40	306.53	5.715	
17,100.00	7,364.00	6,298.00	6,287.56	162.65	228.47	48.59	-1,986.03	9,360.83	1,790.29	1,482.49	307.81	5.816	
17,200.00	7,364.00	6,298.00	6,287.56	164.23	228.47	48.59	-1,986.03	9,360.83	1,833.31	1,524.40	308.91	5.935	
17,300.00	7,364.00	6,298.00	6,287.56	165.81	228.47	48.59	-1,986.03	9,360.83	1,880.67	1,570.83	309.83	6.070	
17,400.00	7,364.00	6,298.00	6,287.56	167.38	228.47	48.59	-1,986.03	9,360.83	1,932.04	1,621.47	310.57	6.221	
17,500.00	7,364.00	6,298.00	6,287.56	168.96	228.47	48.59	-1,986.03	9,360.83	1,987.13	1,675.99	311.14	6.387	
17,600.00	7,364.00	6,298.00	6,287.56	170.54	228.47	48.59	-1,986.03	9,360.83	2,045.62	1,734.09	311.53	6.566	
17,700.00	7,364.00	6,298.00	6,287.56	172.12	228.47	48.59	-1,986.03	9,360.83	2,107.24	1,795.46	311.77	6.759	
17,800.00	7,364.00	6,298.00	6,287.56	173.70	228.47	48.59	-1,986.03	9,360.83	2,171.71	1,859.84	311.87	6.963	
17,900.00	7,364.00	6,298.00	6,287.56	175.28	228.47	48.59	-1,986.03	9,360.83	2,238.80	1,926.94	311.85	7.179	
18,000.00	7,364.00	6,298.00	6,287.56	176.87	228.47	48.59	-1,986.03	9,360.83	2,308.27	1,996.54	311.72	7.405	
18,100.00	7,364.00	6,298.00	6,287.56	178.45	228.47	48.59	-1,986.03	9,360.83	2,379.91	2,068.41	311.50	7.640	
18,200.00	7,364.00	6,298.00	6,287.56	180.03	228.47	48.59	-1,986.03	9,360.83	2,453.54	2,142.33	311.21	7.884	
18,300.00	7,364.00	6,298.00	6,287.56	181.61	228.47	48.59	-1,986.03	9,360.83	2,528.98	2,218.13	310.84	8.136	
18,400.00	7,364.00	6,298.00	6,287.56	183.19	228.47	48.59	-1,986.03	9,360.83	2,606.07	2,295.64	310.43	8.395	
18,500.00	7,364.00	6,298.00	6,287.56	184.78	228.47	48.59	-1,986.03	9,360.83	2,684.68	2,374.71	309.97	8.661	
18,600.00	7,364.00	6,298.00	6,287.56	186.36	228.47	48.59	-1,986.03	9,360.83	2,764.67	2,455.18	309.48	8.933	
18,700.00	7,364.00	6,298.00	6,287.56	187.94	228.47	48.59	-1,986.03	9,360.83	2,845.92	2,536.95	308.97	9.211	
18,800.00	7,364.00	6,298.00	6,287.56	189.53	228.47	48.59	-1,986.03	9,360.83	2,928.34	2,619.90	308.43	9.494	
18,900.00	7,364.00	6,298.00	6,287.56	191.11	228.47	48.59	-1,986.03	9,360.83	3,011.82	2,703.93	307.89	9.782	
19,000.00	7,364.00	6,298.00	6,287.56	192.70	228.47	48.59	-1,986.03	9,360.83	3,096.27	2,788.94	307.33	10.075	
19,100.00	7,364.00	6,298.00	6,287.56	194.28	228.47	48.59	-1,986.03	9,360.83	3,181.63	2,874.86	306.78	10.371	
19,200.00	7,364.00	6,298.00	6,287.56	195.87	228.47	48.59	-1,986.03	9,360.83	3,267.82	2,961.61	306.22	10.672	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #184B - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 350-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
19,300.00	7,364.00	6,298.00	6,287.56	197.45	228.47	48.59	-1,986.03	9,360.83	3,354.78	3,049.12	305.66	10.975	
19,400.00	7,364.00	6,298.00	6,287.56	199.04	228.47	48.59	-1,986.03	9,360.83	3,442.45	3,137.33	305.11	11.282	
19,500.00	7,364.00	6,298.00	6,287.56	200.62	228.47	48.59	-1,986.03	9,360.83	3,530.77	3,226.20	304.57	11.593	
19,600.00	7,364.00	6,298.00	6,287.56	202.21	228.47	48.59	-1,986.03	9,360.83	3,619.70	3,315.66	304.04	11.905	
19,700.00	7,364.00	6,298.00	6,287.56	203.79	228.47	48.59	-1,986.03	9,360.83	3,709.19	3,405.68	303.51	12.221	
19,800.00	7,364.00	6,298.00	6,287.56	205.38	228.47	48.59	-1,986.03	9,360.83	3,799.21	3,496.21	303.00	12.539	
19,900.00	7,364.00	6,298.00	6,287.56	206.97	228.47	48.59	-1,986.03	9,360.83	3,889.71	3,587.22	302.49	12.859	
20,000.00	7,364.00	6,298.00	6,287.56	208.55	228.47	48.59	-1,986.03	9,360.83	3,980.67	3,678.67	302.00	13.181	
20,100.00	7,364.00	6,298.00	6,287.56	210.14	228.47	48.59	-1,986.03	9,360.83	4,072.05	3,770.53	301.52	13.505	
20,200.00	7,364.00	6,298.00	6,287.56	211.73	228.47	48.59	-1,986.03	9,360.83	4,163.83	3,862.78	301.06	13.831	
20,300.00	7,364.00	6,298.00	6,287.56	213.32	228.47	48.59	-1,986.03	9,360.83	4,255.98	3,955.38	300.60	14.158	
20,400.00	7,364.00	6,298.00	6,287.56	214.90	228.47	48.59	-1,986.03	9,360.83	4,348.48	4,048.32	300.16	14.487	
20,500.00	7,364.00	6,298.00	6,287.56	216.49	228.47	48.59	-1,986.03	9,360.83	4,441.30	4,141.57	299.73	14.818	
20,600.00	7,364.00	6,298.00	6,287.56	218.08	228.47	48.59	-1,986.03	9,360.83	4,534.43	4,235.11	299.32	15.149	
20,700.00	7,364.00	6,298.00	6,287.56	219.67	228.47	48.59	-1,986.03	9,360.83	4,627.84	4,328.93	298.91	15.482	
20,800.00	7,364.00	6,298.00	6,287.56	221.26	228.47	48.59	-1,986.03	9,360.83	4,721.53	4,423.00	298.52	15.816	
20,900.00	7,364.00	6,298.00	6,287.56	222.84	228.47	48.59	-1,986.03	9,360.83	4,815.46	4,517.32	298.14	16.151	
21,000.00	7,364.00	6,298.00	6,287.56	224.43	228.47	48.59	-1,986.03	9,360.83	4,909.64	4,611.86	297.78	16.488	
21,100.00	7,364.00	6,298.00	6,287.56	226.02	228.47	48.59	-1,986.03	9,360.83	5,004.04	4,706.62	297.42	16.825	
21,200.00	7,364.00	6,298.00	6,287.56	227.61	228.47	48.59	-1,986.03	9,360.83	5,098.66	4,801.58	297.08	17.163	
21,300.00	7,364.00	6,298.00	6,287.56	229.20	228.47	48.59	-1,986.03	9,360.83	5,193.48	4,896.73	296.75	17.501	
21,400.00	7,364.00	6,298.00	6,287.56	230.79	228.47	48.59	-1,986.03	9,360.83	5,288.49	4,992.06	296.43	17.841	
21,500.00	7,364.00	6,298.00	6,287.56	232.38	228.47	48.59	-1,986.03	9,360.83	5,383.68	5,087.56	296.12	18.181	
21,600.00	7,364.00	6,298.00	6,287.56	233.97	228.47	48.59	-1,986.03	9,360.83	5,479.04	5,183.22	295.82	18.522	
21,700.00	7,364.00	6,298.00	6,287.56	235.56	228.47	48.59	-1,986.03	9,360.83	5,574.56	5,279.04	295.53	18.863	
21,800.00	7,364.00	6,298.00	6,287.56	237.15	228.47	48.59	-1,986.03	9,360.83	5,670.24	5,375.00	295.24	19.205	
21,864.93	7,364.00	6,298.00	6,287.56	238.18	228.47	48.59	-1,986.03	9,360.83	5,732.44	5,437.37	295.07	19.428	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #188 - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 280-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Rule Assigned: Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	170.00	170.00	3.28	1.57	95.77	-612.00	6,059.04	6,089.87				
100.00	100.00	270.00	270.00	3.29	2.50	95.77	-612.00	6,059.04	6,089.87	6,084.08	5.79	1,052.677	
200.00	200.00	370.00	370.00	3.34	4.36	95.77	-612.00	6,059.04	6,089.87	6,082.17	7.69	791.593	
300.00	300.00	470.00	470.00	3.42	6.32	95.77	-612.00	6,059.04	6,089.87	6,080.12	9.74	625.086	
362.57	362.57	532.57	532.57	3.49	7.55	95.76	-611.45	6,059.04	6,089.81	6,078.77	11.04	551.493	
400.00	400.00	569.61	569.61	3.54	8.28	95.76	-611.46	6,059.04	6,089.81	6,077.99	11.82	515.277	
500.00	500.00	668.57	668.56	3.69	10.23	95.76	-611.61	6,059.04	6,089.83	6,075.91	13.91	437.708	
600.00	599.98	767.51	767.50	3.86	12.17	-54.26	-611.92	6,059.04	6,088.84	6,072.81	16.03	379.927	
700.00	699.84	869.89	869.84	4.04	14.19	-54.35	-612.00	6,059.04	6,085.79	6,067.56	18.23	333.867	
808.00	807.41	977.46	977.41	4.27	16.30	-54.52	-612.00	6,059.04	6,080.21	6,059.64	20.58	295.509	
900.00	898.89	1,068.29	1,068.23	4.49	18.09	-71.81	-610.92	6,059.04	6,075.69	6,053.11	22.58	269.097	
912.12	910.94	1,080.11	1,080.05	4.52	18.33	-74.05	-610.93	6,059.04	6,075.31	6,052.47	22.84	265.998	
1,000.00	998.31	1,165.79	1,165.72	4.74	20.01	-74.13	-611.19	6,059.04	6,072.73	6,047.98	24.75	245.372	
1,100.00	1,097.73	1,263.36	1,263.29	5.01	21.94	-74.22	-611.79	6,059.04	6,069.85	6,042.91	26.94	225.314	
1,200.00	1,197.15	1,367.25	1,367.15	5.29	23.98	-74.32	-612.00	6,059.04	6,066.94	6,037.67	29.27	207.281	
1,300.00	1,296.58	1,466.67	1,466.58	5.59	25.94	-74.41	-612.00	6,059.04	6,064.03	6,032.51	31.52	192.366	
1,400.00	1,396.00	1,565.84	1,565.74	5.90	27.89	-74.52	-611.46	6,059.04	6,061.09	6,027.31	33.78	179.413	
1,500.00	1,495.42	1,664.37	1,664.27	6.22	29.83	-74.61	-611.59	6,059.04	6,058.23	6,022.20	36.04	168.102	
1,600.00	1,594.84	1,762.93	1,762.83	6.54	31.78	-74.71	-611.89	6,059.04	6,055.41	6,017.10	38.30	158.090	
1,700.00	1,694.27	1,864.40	1,864.27	6.87	33.83	-74.80	-612.00	6,059.04	6,052.58	6,011.89	40.68	148.767	
1,800.00	1,793.69	1,963.83	1,963.69	7.21	35.86	-74.90	-612.00	6,059.04	6,049.76	6,006.71	43.05	140.533	
1,900.00	1,893.11	2,062.87	2,062.72	7.55	37.88	-75.01	-610.91	6,059.04	6,046.87	6,001.46	45.41	133.162	
2,000.00	1,992.53	2,160.71	2,160.55	7.89	39.87	-75.10	-611.16	6,059.04	6,044.11	5,996.35	47.75	126.577	
2,100.00	2,091.96	2,258.62	2,258.46	8.24	41.87	-75.19	-611.73	6,059.04	6,041.39	5,991.29	50.10	120.595	
2,200.00	2,191.38	2,361.57	2,361.38	8.60	43.97	-75.29	-612.00	6,059.04	6,038.66	5,986.11	52.55	114.913	
2,300.00	2,290.80	2,461.00	2,460.80	8.95	46.00	-75.39	-612.00	6,059.04	6,035.93	5,980.99	54.93	109.874	
2,400.00	2,390.22	2,560.12	2,559.92	9.31	48.03	-75.50	-611.21	6,059.04	6,033.16	5,975.84	57.32	105.261	
2,500.00	2,489.65	2,658.45	2,658.25	9.67	50.04	-75.59	-611.41	6,059.04	6,030.48	5,970.79	59.68	101.041	
2,600.00	2,589.07	2,756.84	2,756.63	10.03	52.04	-75.68	-611.87	6,059.04	6,027.83	5,965.78	62.05	97.138	
2,700.00	2,688.49	2,858.74	2,858.49	10.40	54.19	-75.78	-612.00	6,059.04	6,025.18	5,960.62	64.56	93.327	
2,800.00	2,787.91	2,958.17	2,957.91	10.76	56.29	-75.88	-612.00	6,059.04	6,022.54	5,955.51	67.03	89.848	
2,900.00	2,887.33	3,057.02	3,056.76	11.13	58.39	-75.99	-610.99	6,059.04	6,019.85	5,950.36	69.49	86.629	
3,000.00	2,986.76	3,155.16	3,154.89	11.50	60.46	-76.08	-611.31	6,059.04	6,017.27	5,945.33	71.94	83.647	
3,100.00	3,086.18	3,256.51	3,256.18	11.87	62.60	-76.18	-612.00	6,059.04	6,014.72	5,940.28	74.45	80.793	
3,200.00	3,185.60	3,355.93	3,355.60	12.24	64.49	-76.28	-612.00	6,059.04	6,012.15	5,935.45	76.70	78.385	
3,300.00	3,285.02	3,455.35	3,455.02	12.61	66.37	-76.38	-612.00	6,059.04	6,009.60	5,930.65	78.96	76.114	
3,400.00	3,384.45	3,554.19	3,553.85	12.98	68.24	-76.48	-610.96	6,059.04	6,007.01	5,925.81	81.20	73.978	
3,500.00	3,483.87	3,652.57	3,652.22	13.36	70.11	-76.58	-611.31	6,059.04	6,004.52	5,921.08	83.44	71.965	
3,600.00	3,583.29	3,753.65	3,753.29	13.73	72.03	-76.67	-612.00	6,059.04	6,002.06	5,916.33	85.73	70.011	
3,700.00	3,682.71	3,853.07	3,852.71	14.11	74.06	-76.77	-612.00	6,059.04	5,999.58	5,911.44	88.14	68.072	
3,800.00	3,782.14	3,952.42	3,952.06	14.48	76.09	-76.87	-611.80	6,059.04	5,997.11	5,906.57	90.54	66.236	
3,900.00	3,881.56	4,051.52	4,051.16	14.86	78.11	-76.97	-611.89	6,059.04	5,994.67	5,901.73	92.94	64.499	
4,000.00	3,980.98	4,151.39	4,150.98	15.24	80.22	-77.07	-612.00	6,059.04	5,992.25	5,896.83	95.42	62.798	
4,100.00	4,080.40	4,250.81	4,250.40	15.61	82.40	-77.17	-612.00	6,059.04	5,989.85	5,891.86	97.98	61.131	
4,200.00	4,179.83	4,350.23	4,349.83	15.99	84.59	-77.27	-612.00	6,059.04	5,987.46	5,886.91	100.55	59.549	
4,300.00	4,279.25	4,449.66	4,449.25	16.37	86.77	-77.37	-612.00	6,059.04	5,985.09	5,881.98	103.11	58.046	
4,400.00	4,378.67	4,549.08	4,548.67	16.75	88.96	-77.47	-612.00	6,059.04	5,982.74	5,877.07	105.67	56.615	
4,500.00	4,478.09	4,648.50	4,648.09	17.13	91.14	-77.57	-612.00	6,059.04	5,980.41	5,872.17	108.24	55.252	
4,600.00	4,577.51	4,747.60	4,747.14	17.51	93.32	-77.70	-608.39	6,059.04	5,977.97	5,867.18	110.80	53.955	
4,700.00	4,676.94	4,846.66	4,846.18	17.89	95.50	-77.80	-608.67	6,059.04	5,975.69	5,862.34	113.35	52.718	
4,800.00	4,776.36	4,945.76	4,945.28	18.27	97.68	-77.89	-609.19	6,059.04	5,973.44	5,857.52	115.91	51.535	
4,900.00	4,875.78	5,044.93	5,044.43	18.65	99.86	-77.99	-609.93	6,059.04	5,971.20	5,852.73	118.47	50.402	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #188 - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 280-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,000.00	4,975.20	5,144.14	5,143.62	19.03	102.04	-78.08	-610.91	6,059.04	5,968.99	5,847.96	121.03	49.317	
5,100.00	5,074.63	5,245.26	5,244.63	19.41	104.24	-78.17	-612.00	6,059.04	5,966.80	5,843.18	123.62	48.267	
5,200.00	5,174.05	5,344.68	5,344.05	19.79	106.28	-78.27	-612.00	6,059.04	5,964.59	5,838.56	126.03	47.325	
5,300.00	5,273.47	5,444.10	5,443.47	20.17	108.31	-78.37	-612.00	6,059.04	5,962.41	5,833.96	128.45	46.418	
5,400.00	5,372.89	5,543.53	5,542.89	20.56	110.34	-78.47	-612.00	6,059.04	5,960.24	5,829.38	130.86	45.545	
5,500.00	5,472.32	5,642.95	5,642.32	20.94	112.38	-78.57	-612.00	6,059.04	5,958.09	5,824.81	133.28	44.704	
5,600.00	5,571.74	5,742.37	5,741.74	21.32	114.41	-78.67	-612.00	6,059.04	5,955.96	5,820.27	135.69	43.892	
5,700.00	5,671.16	5,841.79	5,841.16	21.70	116.44	-78.77	-612.00	6,059.04	5,953.85	5,815.74	138.11	43.109	
5,800.00	5,770.58	5,941.22	5,940.58	22.08	118.48	-78.87	-612.00	6,059.04	5,951.76	5,811.23	140.53	42.353	
5,900.00	5,870.01	6,040.64	6,040.01	22.47	120.51	-78.97	-612.00	6,059.04	5,949.69	5,806.75	142.94	41.623	
6,000.00	5,969.43	6,140.06	6,139.43	22.85	122.54	-79.07	-612.00	6,059.04	5,947.63	5,802.27	145.36	40.917	
6,100.00	6,068.85	6,239.48	6,238.85	23.23	124.58	-79.17	-612.00	6,059.04	5,945.60	5,797.82	147.77	40.234	
6,200.00	6,168.27	6,338.91	6,338.27	23.62	126.61	-79.28	-612.00	6,059.04	5,943.58	5,793.39	150.19	39.573	
6,300.00	6,267.70	6,438.33	6,437.70	24.00	128.64	-79.38	-612.00	6,059.04	5,941.58	5,788.97	152.61	38.934	
6,400.00	6,367.12	6,476.00	6,475.22	24.38	129.41	-79.42	-612.00	6,059.04	5,939.92	5,786.16	153.76	38.632	
6,455.52	6,422.32	6,476.00	6,475.22	24.60	129.41	-79.42	-612.00	6,059.04	5,939.66	5,785.71	153.95	38.581	
6,500.00	6,466.54	6,476.00	6,475.22	24.77	129.41	-79.42	-612.00	6,059.04	5,939.83	5,785.73	154.10	38.545	
6,600.00	6,565.96	6,476.00	6,475.22	25.15	129.41	-79.42	-612.00	6,059.04	5,941.42	5,787.02	154.40	38.480	
6,700.00	6,665.38	6,476.00	6,475.22	25.53	129.41	-79.42	-612.00	6,059.04	5,944.69	5,790.03	154.66	38.436	
6,778.75	6,743.68	6,476.00	6,475.22	25.84	129.41	-79.42	-612.00	6,059.04	5,948.45	5,793.61	154.84	38.416	
6,800.00	6,764.80	6,476.00	6,475.22	25.92	129.41	-63.40	-612.00	6,059.04	5,949.29	5,794.40	154.88	38.411	
6,850.00	6,814.29	6,476.00	6,475.22	26.11	129.41	-39.01	-612.00	6,059.04	5,948.76	5,793.78	154.98	38.385	
6,900.00	6,863.27	6,476.00	6,475.22	26.30	129.41	-27.06	-612.00	6,059.04	5,944.73	5,789.68	155.06	38.338	
6,950.00	6,911.44	6,476.00	6,475.22	26.50	129.41	-20.57	-612.00	6,059.04	5,937.22	5,782.09	155.13	38.273	
7,000.00	6,958.49	6,476.00	6,475.22	26.68	129.41	-16.61	-612.00	6,059.04	5,926.26	5,771.07	155.18	38.188	
7,050.00	7,004.14	6,476.00	6,475.22	26.87	129.41	-13.98	-612.00	6,059.04	5,911.89	5,756.66	155.23	38.085	
7,100.00	7,048.10	6,476.00	6,475.22	27.05	129.41	-12.13	-612.00	6,059.04	5,894.19	5,738.93	155.26	37.964	
7,150.00	7,090.11	6,476.00	6,475.22	27.23	129.41	-10.78	-612.00	6,059.04	5,873.22	5,717.95	155.28	37.824	
7,200.00	7,129.90	6,476.00	6,475.22	27.41	129.41	-9.75	-612.00	6,059.04	5,849.09	5,693.81	155.28	37.667	
7,250.00	7,167.24	6,476.00	6,475.22	27.59	129.41	-8.96	-612.00	6,059.04	5,821.91	5,666.63	155.28	37.493	
7,300.00	7,201.88	6,476.00	6,475.22	27.76	129.41	-8.33	-612.00	6,059.04	5,791.80	5,636.54	155.26	37.303	
7,350.00	7,233.63	6,476.00	6,475.22	27.94	129.41	-7.84	-612.00	6,059.04	5,758.91	5,603.67	155.24	37.097	
7,400.00	7,262.27	6,476.00	6,475.22	28.13	129.41	-7.46	-612.00	6,059.04	5,723.38	5,568.18	155.21	36.876	
7,450.00	7,287.63	6,476.00	6,475.22	28.32	129.41	-7.16	-612.00	6,059.04	5,685.40	5,530.23	155.17	36.641	
7,500.00	7,309.57	6,476.00	6,475.22	28.53	129.41	-6.93	-612.00	6,059.04	5,645.14	5,490.02	155.12	36.392	
7,550.00	7,327.93	6,476.00	6,475.22	28.74	129.41	-6.77	-612.00	6,059.04	5,602.82	5,447.74	155.07	36.130	
7,600.00	7,342.62	6,476.00	6,475.22	28.97	129.41	-6.68	-612.00	6,059.04	5,558.64	5,403.61	155.03	35.856	
7,650.00	7,353.53	6,476.00	6,475.22	29.22	129.41	-6.65	-612.00	6,059.04	5,512.84	5,357.86	154.98	35.572	
7,700.00	7,360.61	6,476.00	6,475.22	29.48	129.41	-6.71	-612.00	6,059.04	5,465.67	5,310.73	154.93	35.277	
7,750.00	7,363.80	6,476.00	6,475.22	29.75	129.41	-6.89	-612.00	6,059.04	5,417.38	5,262.48	154.90	34.974	
7,765.93	7,364.00	6,476.00	6,475.22	29.84	129.41	-6.99	-612.00	6,059.04	5,401.80	5,246.92	154.89	34.876	
7,800.00	7,364.00	6,476.00	6,475.22	30.04	129.41	-6.99	-612.00	6,059.04	5,368.41	5,213.54	154.86	34.666	
7,900.00	7,364.00	6,476.00	6,475.22	30.67	129.41	-6.99	-612.00	6,059.04	5,270.44	5,115.65	154.79	34.049	
8,000.00	7,364.00	6,476.00	6,475.22	31.37	129.41	-6.99	-612.00	6,059.04	5,172.55	5,017.83	154.71	33.433	
8,100.00	7,364.00	6,476.00	6,475.22	32.14	129.41	-6.99	-612.00	6,059.04	5,074.74	4,920.11	154.63	32.818	
8,200.00	7,364.00	6,476.00	6,475.22	32.96	129.41	-6.99	-612.00	6,059.04	4,977.02	4,822.47	154.55	32.204	
8,300.00	7,364.00	6,476.00	6,475.22	33.85	129.41	-6.99	-612.00	6,059.04	4,879.39	4,724.93	154.46	31.590	
8,400.00	7,364.00	6,476.00	6,475.22	34.79	129.41	-6.99	-612.00	6,059.04	4,781.86	4,627.49	154.37	30.977	
8,500.00	7,364.00	6,476.00	6,475.22	35.77	129.41	-6.99	-612.00	6,059.04	4,684.43	4,530.16	154.27	30.366	
8,600.00	7,364.00	6,476.00	6,475.22	36.80	129.41	-6.99	-612.00	6,059.04	4,587.11	4,432.95	154.16	29.755	
8,700.00	7,364.00	6,476.00	6,475.22	37.87	129.41	-6.99	-612.00	6,059.04	4,489.91	4,335.86	154.05	29.145	
8,800.00	7,364.00	6,476.00	6,475.22	38.98	129.41	-6.99	-612.00	6,059.04	4,392.84	4,238.90	153.94	28.537	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #188 - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 280-A027Ua_INC-ONLY

Rule Assigned:

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
8,900.00	7,364.00	6,476.00	6,475.22	40.12	129.41	-6.99	-612.00	6,059.04	4,295.90	4,142.09	153.81	27.930	
9,000.00	7,364.00	6,476.00	6,475.22	41.29	129.41	-6.99	-612.00	6,059.04	4,199.11	4,045.43	153.68	27.324	
9,100.00	7,364.00	6,476.00	6,475.22	42.49	129.41	-6.99	-612.00	6,059.04	4,102.47	3,948.93	153.54	26.719	
9,200.00	7,364.00	6,476.00	6,475.22	43.71	129.41	-6.99	-612.00	6,059.04	4,005.99	3,852.60	153.39	26.117	
9,300.00	7,364.00	6,476.00	6,475.22	44.96	129.41	-6.99	-612.00	6,059.04	3,909.69	3,756.47	153.23	25.516	
9,400.00	7,364.00	6,476.00	6,475.22	46.23	129.41	-6.99	-612.00	6,059.04	3,813.58	3,660.53	153.05	24.917	
9,500.00	7,364.00	6,476.00	6,475.22	47.52	129.41	-6.99	-612.00	6,059.04	3,717.68	3,564.82	152.86	24.320	
9,600.00	7,364.00	6,476.00	6,475.22	48.83	129.41	-6.99	-612.00	6,059.04	3,622.00	3,469.34	152.66	23.725	
9,700.00	7,364.00	6,476.00	6,475.22	50.15	129.41	-6.99	-612.00	6,059.04	3,526.56	3,374.11	152.44	23.133	
9,800.00	7,364.00	6,476.00	6,475.22	51.49	129.41	-6.99	-612.00	6,059.04	3,431.38	3,279.17	152.21	22.544	
9,900.00	7,364.00	6,476.00	6,475.22	52.85	129.41	-6.99	-612.00	6,059.04	3,336.47	3,184.52	151.95	21.957	
10,000.00	7,364.00	6,476.00	6,475.22	54.22	129.41	-6.99	-612.00	6,059.04	3,241.88	3,090.21	151.67	21.374	
10,100.00	7,364.00	6,476.00	6,475.22	55.60	129.41	-6.99	-612.00	6,059.04	3,147.62	2,996.25	151.37	20.794	
10,200.00	7,364.00	6,476.00	6,475.22	56.99	129.41	-6.99	-612.00	6,059.04	3,053.73	2,902.69	151.04	20.219	
10,300.00	7,364.00	6,476.00	6,475.22	58.40	129.41	-6.99	-612.00	6,059.04	2,960.23	2,809.56	150.67	19.647	
10,400.00	7,364.00	6,476.00	6,475.22	59.81	129.41	-6.99	-612.00	6,059.04	2,867.18	2,716.91	150.27	19.080	
10,500.00	7,364.00	6,476.00	6,475.22	61.23	129.41	-6.99	-612.00	6,059.04	2,774.60	2,624.78	149.83	18.519	
10,600.00	7,364.00	6,476.00	6,475.22	62.66	129.41	-6.99	-612.00	6,059.04	2,682.57	2,533.23	149.34	17.963	
10,700.00	7,364.00	6,476.00	6,475.22	64.10	129.41	-6.99	-612.00	6,059.04	2,591.12	2,442.33	148.79	17.414	
10,800.00	7,364.00	6,476.00	6,475.22	65.55	129.41	-6.99	-612.00	6,059.04	2,500.32	2,352.14	148.19	16.873	
10,900.00	7,364.00	6,476.00	6,475.22	67.01	129.41	-6.99	-612.00	6,059.04	2,410.26	2,262.75	147.51	16.340	
11,000.00	7,364.00	6,476.00	6,475.22	68.47	129.41	-6.99	-612.00	6,059.04	2,321.01	2,174.25	146.75	15.816	
11,100.00	7,364.00	6,476.00	6,475.22	69.93	129.41	-6.99	-612.00	6,059.04	2,232.67	2,086.76	145.90	15.303	
11,200.00	7,364.00	6,476.00	6,475.22	71.41	129.41	-6.99	-612.00	6,059.04	2,145.35	2,000.41	144.94	14.802	
11,300.00	7,364.00	6,476.00	6,475.22	72.88	129.41	-6.99	-612.00	6,059.04	2,059.19	1,915.34	143.85	14.315	
11,400.00	7,364.00	6,476.00	6,475.22	74.37	129.41	-6.99	-612.00	6,059.04	1,974.33	1,831.72	142.61	13.844	
11,500.00	7,364.00	6,476.00	6,475.22	75.85	129.41	-6.99	-612.00	6,059.04	1,890.96	1,749.76	141.19	13.393	
11,600.00	7,364.00	6,476.00	6,475.22	77.35	129.41	-6.99	-612.00	6,059.04	1,809.27	1,669.70	139.56	12.964	
11,700.00	7,364.00	6,476.00	6,475.22	78.84	129.41	-6.99	-612.00	6,059.04	1,729.50	1,591.81	137.69	12.561	
11,800.00	7,364.00	6,476.00	6,475.22	80.34	129.41	-6.99	-612.00	6,059.04	1,651.94	1,516.41	135.53	12.189	
11,900.00	7,364.00	6,476.00	6,475.22	81.85	129.41	-6.99	-612.00	6,059.04	1,576.90	1,443.88	133.02	11.854	
12,000.00	7,364.00	6,476.00	6,475.22	83.36	129.41	-6.99	-612.00	6,059.04	1,504.78	1,374.66	130.12	11.565	
12,100.00	7,364.00	6,476.00	6,475.22	84.87	129.41	-6.99	-612.00	6,059.04	1,435.99	1,309.26	126.73	11.331	
12,200.00	7,364.00	6,476.00	6,475.22	86.38	129.41	-6.99	-612.00	6,059.04	1,371.06	1,248.25	122.81	11.164	
12,300.00	7,364.00	6,476.00	6,475.22	87.90	129.41	-6.99	-612.00	6,059.04	1,310.55	1,192.28	118.26	11.082	
12,400.00	7,364.00	6,476.00	6,475.22	89.42	129.41	-6.99	-612.00	6,059.04	1,255.10	1,142.06	113.03	11.104	
12,500.00	7,364.00	6,476.00	6,475.22	90.95	129.41	-6.99	-612.00	6,059.04	1,205.40	1,098.32	107.09	11.256	
12,600.00	7,364.00	6,476.00	6,475.22	92.47	129.41	-6.99	-612.00	6,059.04	1,162.21	1,061.77	100.44	11.571	
12,700.00	7,364.00	6,476.00	6,475.22	94.00	129.41	-6.99	-612.00	6,059.04	1,126.25	1,033.02	93.24	12.080	
12,800.00	7,364.00	6,476.00	6,475.22	95.53	129.41	-6.99	-612.00	6,059.04	1,098.26	1,012.42	85.84	12.794	
12,900.00	7,364.00	6,476.00	6,475.22	97.06	129.41	-6.99	-612.00	6,059.04	1,078.84	999.76	79.08	13.642	
13,000.00	7,364.00	6,476.00	6,475.22	98.60	129.41	-6.99	-612.00	6,059.04	1,068.47	993.89	74.58	14.326	
13,061.36	7,364.00	6,476.00	6,475.22	99.54	129.41	-6.99	-612.00	6,059.04	1,066.71	992.82	73.89	14.436	CC, ES
13,100.00	7,364.00	6,476.00	6,475.22	100.14	129.41	-6.99	-612.00	6,059.04	1,067.41	992.96	74.45	14.337	
13,200.00	7,364.00	6,476.00	6,475.22	101.68	129.41	-6.99	-612.00	6,059.04	1,075.68	996.68	79.00	13.616	
13,300.00	7,364.00	6,476.00	6,475.22	103.22	129.41	-6.99	-612.00	6,059.04	1,093.08	1,006.82	86.26	12.672	
13,400.00	7,364.00	6,476.00	6,475.22	104.76	129.41	-6.99	-612.00	6,059.04	1,119.17	1,024.79	94.38	11.858	
13,500.00	7,364.00	6,476.00	6,475.22	106.31	129.41	-6.99	-612.00	6,059.04	1,153.37	1,051.01	102.37	11.267	
13,600.00	7,364.00	6,476.00	6,475.22	107.85	129.41	-6.99	-612.00	6,059.04	1,194.99	1,085.21	109.78	10.886	
13,700.00	7,364.00	6,476.00	6,475.22	109.40	129.41	-6.99	-612.00	6,059.04	1,243.27	1,126.85	116.42	10.679	
13,800.00	7,364.00	6,476.00	6,475.22	110.95	129.41	-6.99	-612.00	6,059.04	1,297.48	1,175.22	122.26	10.613	SF
13,900.00	7,364.00	6,476.00	6,475.22	112.50	129.41	-6.99	-612.00	6,059.04	1,356.90	1,229.58	127.32	10.657	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #188 - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 280-A027Ua_INC-ONLY

Rule Assigned:

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,000.00	7,364.00	6,476.00	6,475.22	114.05	129.41	-6.99	-612.00	6,059.04	1,420.88	1,289.20	131.69	10.790	
14,100.00	7,364.00	6,476.00	6,475.22	115.61	129.41	-6.99	-612.00	6,059.04	1,488.84	1,353.41	135.43	10.993	
14,200.00	7,364.00	6,476.00	6,475.22	117.16	129.41	-6.99	-612.00	6,059.04	1,560.25	1,421.61	138.64	11.254	
14,300.00	7,364.00	6,476.00	6,475.22	118.72	129.41	-6.99	-612.00	6,059.04	1,634.66	1,493.28	141.38	11.562	
14,400.00	7,364.00	6,476.00	6,475.22	120.28	129.41	-6.99	-612.00	6,059.04	1,711.67	1,567.94	143.74	11.909	
14,500.00	7,364.00	6,476.00	6,475.22	121.84	129.41	-6.99	-612.00	6,059.04	1,790.96	1,645.20	145.76	12.287	
14,600.00	7,364.00	6,476.00	6,475.22	123.40	129.41	-6.99	-612.00	6,059.04	1,872.24	1,724.73	147.51	12.692	
14,700.00	7,364.00	6,476.00	6,475.22	124.96	129.41	-6.99	-612.00	6,059.04	1,955.25	1,806.23	149.02	13.120	
14,800.00	7,364.00	6,476.00	6,475.22	126.52	129.41	-6.99	-612.00	6,059.04	2,039.79	1,889.45	150.34	13.568	
14,900.00	7,364.00	6,476.00	6,475.22	128.08	129.41	-6.99	-612.00	6,059.04	2,125.67	1,974.18	151.49	14.032	
15,000.00	7,364.00	6,476.00	6,475.22	129.64	129.41	-6.99	-612.00	6,059.04	2,212.73	2,060.23	152.50	14.509	
15,100.00	7,364.00	6,476.00	6,475.22	131.21	129.41	-6.99	-612.00	6,059.04	2,300.85	2,147.46	153.40	15.000	
15,200.00	7,364.00	6,476.00	6,475.22	132.77	129.41	-6.99	-612.00	6,059.04	2,389.91	2,235.72	154.19	15.500	
15,300.00	7,364.00	6,476.00	6,475.22	134.34	129.41	-6.99	-612.00	6,059.04	2,479.79	2,324.91	154.89	16.010	
15,400.00	7,364.00	6,476.00	6,475.22	135.91	129.41	-6.99	-612.00	6,059.04	2,570.43	2,414.91	155.52	16.528	
15,500.00	7,364.00	6,476.00	6,475.22	137.48	129.41	-6.99	-612.00	6,059.04	2,661.74	2,505.65	156.08	17.053	
15,600.00	7,364.00	6,476.00	6,475.22	139.04	129.41	-6.99	-612.00	6,059.04	2,753.65	2,597.05	156.59	17.585	
15,700.00	7,364.00	6,476.00	6,475.22	140.61	129.41	-6.99	-612.00	6,059.04	2,846.10	2,689.04	157.06	18.122	
15,800.00	7,364.00	6,476.00	6,475.22	142.18	129.41	-6.99	-612.00	6,059.04	2,939.05	2,781.57	157.48	18.663	
15,900.00	7,364.00	6,476.00	6,475.22	143.75	129.41	-6.99	-612.00	6,059.04	3,032.45	2,874.59	157.86	19.209	
16,000.00	7,364.00	6,476.00	6,475.22	145.33	129.41	-6.99	-612.00	6,059.04	3,126.26	2,968.04	158.22	19.759	
16,100.00	7,364.00	6,476.00	6,475.22	146.90	129.41	-6.99	-612.00	6,059.04	3,220.44	3,061.89	158.54	20.313	
16,200.00	7,364.00	6,476.00	6,475.22	148.47	129.41	-6.99	-612.00	6,059.04	3,314.96	3,156.11	158.85	20.869	
16,300.00	7,364.00	6,476.00	6,475.22	150.04	129.41	-6.99	-612.00	6,059.04	3,409.79	3,250.66	159.13	21.428	
16,400.00	7,364.00	6,476.00	6,475.22	151.62	129.41	-6.99	-612.00	6,059.04	3,504.91	3,345.52	159.39	21.990	
16,500.00	7,364.00	6,476.00	6,475.22	153.19	129.41	-6.99	-612.00	6,059.04	3,600.29	3,440.66	159.64	22.553	
16,600.00	7,364.00	6,476.00	6,475.22	154.77	129.41	-6.99	-612.00	6,059.04	3,695.92	3,536.06	159.87	23.119	
16,700.00	7,364.00	6,476.00	6,475.22	156.34	129.41	-6.99	-612.00	6,059.04	3,791.78	3,631.69	160.08	23.686	
16,800.00	7,364.00	6,476.00	6,475.22	157.92	129.41	-6.99	-612.00	6,059.04	3,887.84	3,727.55	160.29	24.255	
16,900.00	7,364.00	6,476.00	6,475.22	159.49	129.41	-6.99	-612.00	6,059.04	3,984.10	3,823.61	160.49	24.825	
17,000.00	7,364.00	6,476.00	6,475.22	161.07	129.41	-6.99	-612.00	6,059.04	4,080.53	3,919.86	160.67	25.396	
17,100.00	7,364.00	6,476.00	6,475.22	162.65	129.41	-6.99	-612.00	6,059.04	4,177.14	4,016.29	160.85	25.969	
17,200.00	7,364.00	6,476.00	6,475.22	164.23	129.41	-6.99	-612.00	6,059.04	4,273.90	4,112.88	161.02	26.542	
17,300.00	7,364.00	6,476.00	6,475.22	165.81	129.41	-6.99	-612.00	6,059.04	4,370.81	4,209.62	161.19	27.116	
17,400.00	7,364.00	6,476.00	6,475.22	167.38	129.41	-6.99	-612.00	6,059.04	4,467.85	4,306.50	161.35	27.691	
17,500.00	7,364.00	6,476.00	6,475.22	168.96	129.41	-6.99	-612.00	6,059.04	4,565.02	4,403.52	161.50	28.267	
17,600.00	7,364.00	6,476.00	6,475.22	170.54	129.41	-6.99	-612.00	6,059.04	4,662.31	4,500.66	161.65	28.843	
17,700.00	7,364.00	6,476.00	6,475.22	172.12	129.41	-6.99	-612.00	6,059.04	4,759.71	4,597.92	161.79	29.419	
17,800.00	7,364.00	6,476.00	6,475.22	173.70	129.41	-6.99	-612.00	6,059.04	4,857.22	4,695.29	161.93	29.996	
17,900.00	7,364.00	6,476.00	6,475.22	175.28	129.41	-6.99	-612.00	6,059.04	4,954.83	4,792.76	162.07	30.573	
18,000.00	7,364.00	6,476.00	6,475.22	176.87	129.41	-6.99	-612.00	6,059.04	5,052.53	4,890.33	162.20	31.150	
18,100.00	7,364.00	6,476.00	6,475.22	178.45	129.41	-6.99	-612.00	6,059.04	5,150.32	4,987.99	162.33	31.728	
18,200.00	7,364.00	6,476.00	6,475.22	180.03	129.41	-6.99	-612.00	6,059.04	5,248.19	5,085.73	162.46	32.305	
18,300.00	7,364.00	6,476.00	6,475.22	181.61	129.41	-6.99	-612.00	6,059.04	5,346.14	5,183.56	162.58	32.883	
18,400.00	7,364.00	6,476.00	6,475.22	183.19	129.41	-6.99	-612.00	6,059.04	5,444.17	5,281.46	162.70	33.460	
18,500.00	7,364.00	6,476.00	6,475.22	184.78	129.41	-6.99	-612.00	6,059.04	5,542.26	5,379.44	162.83	34.038	
18,600.00	7,364.00	6,476.00	6,475.22	186.36	129.41	-6.99	-612.00	6,059.04	5,640.43	5,477.48	162.94	34.616	
18,700.00	7,364.00	6,476.00	6,475.22	187.94	129.41	-6.99	-612.00	6,059.04	5,738.65	5,575.59	163.06	35.193	
18,800.00	7,364.00	6,476.00	6,475.22	189.53	129.41	-6.99	-612.00	6,059.04	5,836.94	5,673.76	163.18	35.770	
18,900.00	7,364.00	6,476.00	6,475.22	191.11	129.41	-6.99	-612.00	6,059.04	5,935.28	5,771.99	163.29	36.347	
19,000.00	7,364.00	6,476.00	6,475.22	192.70	129.41	-6.99	-612.00	6,059.04	6,033.68	5,870.28	163.41	36.924	
19,100.00	7,364.00	6,476.00	6,475.22	194.28	129.41	-6.99	-612.00	6,059.04	6,132.13	5,968.61	163.52	37.501	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #188 - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 280-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
19,200.00	7,364.00	6,476.00	6,475.22	195.87	129.41	-6.99	-612.00	6,059.04	6,230.63	6,067.00	163.63	38.077	
19,300.00	7,364.00	6,476.00	6,475.22	197.45	129.41	-6.99	-612.00	6,059.04	6,329.18	6,165.44	163.74	38.653	
19,400.00	7,364.00	6,476.00	6,475.22	199.04	129.41	-6.99	-612.00	6,059.04	6,427.77	6,263.92	163.85	39.229	
19,500.00	7,364.00	6,476.00	6,475.22	200.62	129.41	-6.99	-612.00	6,059.04	6,526.40	6,362.44	163.96	39.805	
19,600.00	7,364.00	6,476.00	6,475.22	202.21	129.41	-6.99	-612.00	6,059.04	6,625.08	6,461.01	164.07	40.380	
19,700.00	7,364.00	6,476.00	6,475.22	203.79	129.41	-6.99	-612.00	6,059.04	6,723.79	6,559.62	164.18	40.954	
19,800.00	7,364.00	6,476.00	6,475.22	205.38	129.41	-6.99	-612.00	6,059.04	6,822.55	6,658.26	164.29	41.528	
19,900.00	7,364.00	6,476.00	6,475.22	206.97	129.41	-6.99	-612.00	6,059.04	6,921.33	6,756.94	164.39	42.102	
20,000.00	7,364.00	6,476.00	6,475.22	208.55	129.41	-6.99	-612.00	6,059.04	7,020.16	6,855.66	164.50	42.676	
20,100.00	7,364.00	6,476.00	6,475.22	210.14	129.41	-6.99	-612.00	6,059.04	7,119.01	6,954.40	164.61	43.248	
20,200.00	7,364.00	6,476.00	6,475.22	211.73	129.41	-6.99	-612.00	6,059.04	7,217.90	7,053.18	164.71	43.821	
20,300.00	7,364.00	6,476.00	6,475.22	213.32	129.41	-6.99	-612.00	6,059.04	7,316.82	7,152.00	164.82	44.393	
20,400.00	7,364.00	6,476.00	6,475.22	214.90	129.41	-6.99	-612.00	6,059.04	7,415.76	7,250.84	164.93	44.964	
20,500.00	7,364.00	6,476.00	6,475.22	216.49	129.41	-6.99	-612.00	6,059.04	7,514.73	7,349.70	165.03	45.535	
20,600.00	7,364.00	6,476.00	6,475.22	218.08	129.41	-6.99	-612.00	6,059.04	7,613.74	7,448.60	165.14	46.105	
20,700.00	7,364.00	6,476.00	6,475.22	219.67	129.41	-6.99	-612.00	6,059.04	7,712.76	7,547.52	165.24	46.675	
20,800.00	7,364.00	6,476.00	6,475.22	221.26	129.41	-6.99	-612.00	6,059.04	7,811.81	7,646.46	165.35	47.244	
20,900.00	7,364.00	6,476.00	6,475.22	222.84	129.41	-6.99	-612.00	6,059.04	7,910.89	7,745.43	165.45	47.813	
21,000.00	7,364.00	6,476.00	6,475.22	224.43	129.41	-6.99	-612.00	6,059.04	8,009.99	7,844.43	165.56	48.381	
21,100.00	7,364.00	6,476.00	6,475.22	226.02	129.41	-6.99	-612.00	6,059.04	8,109.11	7,943.44	165.67	48.949	
21,200.00	7,364.00	6,476.00	6,475.22	227.61	129.41	-6.99	-612.00	6,059.04	8,208.25	8,042.48	165.77	49.516	
21,300.00	7,364.00	6,476.00	6,475.22	229.20	129.41	-6.99	-612.00	6,059.04	8,307.41	8,141.53	165.88	50.082	
21,400.00	7,364.00	6,476.00	6,475.22	230.79	129.41	-6.99	-612.00	6,059.04	8,406.59	8,240.61	165.98	50.647	
21,500.00	7,364.00	6,476.00	6,475.22	232.38	129.41	-6.99	-612.00	6,059.04	8,505.79	8,339.71	166.09	51.212	
21,600.00	7,364.00	6,476.00	6,475.22	233.97	129.41	-6.99	-612.00	6,059.04	8,605.01	8,438.82	166.19	51.777	
21,700.00	7,364.00	6,476.00	6,475.22	235.56	129.41	-6.99	-612.00	6,059.04	8,704.25	8,537.95	166.30	52.341	
21,800.00	7,364.00	6,476.00	6,475.22	237.15	129.41	-6.99	-612.00	6,059.04	8,803.51	8,637.10	166.41	52.904	
21,864.93	7,364.00	6,476.00	6,475.22	238.18	129.41	-6.99	-612.00	6,059.04	8,867.96	8,701.48	166.48	53.269	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #188C - OH - OH-SVY — **Offset Site Error:** 0.00 usft

Survey Program: 100-Standard Keeper 104 — **Rule Assigned:** — **Offset Well Error:** 3.28 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	161.87	161.87	3.28	3.28	104.44	-1,743.74	6,771.06	6,991.99				
100.00	100.00	242.72	242.72	3.29	3.29	104.44	-1,743.19	6,771.29	6,992.10	6,985.53	6.57	1,063.900	
200.00	200.00	343.57	343.57	3.34	3.30	104.43	-1,742.41	6,771.76	6,992.37	6,985.74	6.62	1,055.843	
300.00	300.00	439.90	439.89	3.42	3.32	104.42	-1,741.58	6,772.30	6,992.69	6,985.98	6.71	1,041.869	
400.00	400.00	538.10	538.08	3.54	3.34	104.41	-1,740.82	6,772.87	6,993.07	6,986.23	6.84	1,022.756	
500.00	500.00	635.43	635.40	3.69	3.37	104.41	-1,740.09	6,773.45	6,993.45	6,986.45	7.00	999.577	
600.00	599.98	732.21	732.18	3.86	3.40	-45.62	-1,739.31	6,774.10	6,992.68	6,985.50	7.18	974.379	
700.00	699.84	820.25	820.22	4.04	3.43	-45.70	-1,738.50	6,774.80	6,989.56	6,982.18	7.38	947.708	
808.00	807.41	912.68	912.64	4.27	3.46	-45.84	-1,737.58	6,775.71	6,983.65	6,976.03	7.62	916.619	
900.00	898.89	999.88	999.83	4.49	3.50	-63.13	-1,736.74	6,776.76	6,978.82	6,970.97	7.85	889.091	
912.12	910.94	1,010.44	1,010.39	4.52	3.51	-65.37	-1,736.64	6,776.88	6,978.36	6,970.48	7.88	885.543	
1,000.00	998.31	1,100.97	1,100.90	4.74	3.55	-65.45	-1,735.86	6,777.90	6,975.20	6,967.08	8.12	858.787	
1,100.00	1,097.73	1,200.82	1,200.74	5.01	3.60	-65.54	-1,734.84	6,779.09	6,971.63	6,963.22	8.41	828.526	
1,200.00	1,197.15	1,322.47	1,322.38	5.29	3.67	-65.65	-1,733.17	6,780.26	6,967.76	6,959.03	8.73	798.579	
1,300.00	1,296.58	1,421.23	1,421.12	5.59	3.73	-65.75	-1,731.73	6,781.17	6,963.86	6,954.82	9.04	770.015	
1,400.00	1,396.00	1,500.00	1,499.88	5.90	3.78	-65.82	-1,730.54	6,782.04	6,960.16	6,950.79	9.37	742.794	
1,500.00	1,495.42	1,600.00	1,599.86	6.22	3.84	-65.92	-1,729.30	6,783.27	6,956.66	6,946.94	9.72	716.005	
1,600.00	1,594.84	1,661.21	1,661.06	6.54	3.88	-65.97	-1,728.43	6,784.20	6,953.40	6,943.34	10.06	691.299	
1,700.00	1,694.27	1,759.47	1,759.29	6.87	3.95	-66.07	-1,727.10	6,785.94	6,950.43	6,940.00	10.42	666.778	
1,800.00	1,793.69	1,834.22	1,834.02	7.21	4.01	-66.14	-1,726.01	6,787.49	6,947.73	6,936.94	10.79	644.004	
1,900.00	1,893.11	1,936.37	1,936.14	7.55	4.08	-66.24	-1,724.64	6,789.54	6,945.02	6,933.85	11.17	621.664	
2,000.00	1,992.53	2,017.70	2,017.44	7.89	4.14	-66.32	-1,723.34	6,791.39	6,942.55	6,931.00	11.55	600.991	
2,100.00	2,091.96	2,085.79	2,085.50	8.24	4.20	-66.38	-1,722.38	6,793.20	6,940.49	6,928.56	11.93	581.635	
2,200.00	2,191.38	2,200.00	2,199.66	8.60	4.28	-66.49	-1,721.15	6,796.16	6,938.46	6,926.11	12.34	562.051	
2,300.00	2,290.80	2,278.54	2,278.17	8.95	4.35	-66.57	-1,720.17	6,798.31	6,936.56	6,923.81	12.74	544.371	
2,400.00	2,390.22	2,387.87	2,387.45	9.31	4.44	-66.67	-1,718.94	6,801.41	6,934.81	6,921.65	13.16	526.822	
2,500.00	2,489.65	2,462.72	2,462.25	9.67	4.50	-66.74	-1,718.03	6,803.68	6,933.22	6,919.65	13.57	510.988	
2,600.00	2,589.07	2,550.00	2,549.49	10.03	4.57	-66.83	-1,716.96	6,806.34	6,931.70	6,917.72	13.98	495.670	
2,700.00	2,688.49	2,631.33	2,630.77	10.40	4.64	-66.91	-1,715.95	6,809.12	6,930.55	6,916.15	14.40	481.249	
2,800.00	2,787.91	2,705.91	2,705.28	10.76	4.71	-66.98	-1,715.04	6,811.98	6,929.80	6,914.98	14.82	467.698	
2,900.00	2,887.33	2,781.41	2,780.71	11.13	4.78	-67.06	-1,713.96	6,815.07	6,929.30	6,914.07	15.24	454.811	
3,000.00	2,986.76	2,868.22	2,867.43	11.50	4.85	-67.14	-1,712.67	6,818.98	6,929.20	6,913.53	15.67	442.317	
3,100.00	3,086.18	2,995.46	2,994.53	11.87	4.97	-67.27	-1,710.71	6,824.38	6,928.84	6,912.71	16.13	429.586	
3,200.00	3,185.60	3,070.64	3,069.64	12.24	5.04	-67.35	-1,709.44	6,827.60	6,928.55	6,912.00	16.56	418.507	
3,300.00	3,285.02	3,165.49	3,164.38	12.61	5.13	-67.45	-1,707.70	6,831.88	6,928.46	6,911.46	17.00	407.578	
3,304.45	3,289.45	3,167.90	3,166.79	12.63	5.13	-67.45	-1,707.65	6,831.99	6,928.46	6,911.45	17.02	407.138	
3,400.00	3,384.45	3,230.39	3,229.18	12.98	5.19	-67.52	-1,706.49	6,835.06	6,928.74	6,911.32	17.42	397.713	
3,500.00	3,483.87	3,316.21	3,314.87	13.36	5.28	-67.61	-1,704.89	6,839.57	6,929.41	6,911.55	17.86	387.913	
3,600.00	3,583.29	3,400.00	3,398.52	13.73	5.36	-67.70	-1,703.30	6,844.09	6,930.24	6,911.94	18.31	378.587	
3,700.00	3,682.71	3,504.37	3,502.72	14.11	5.46	-67.81	-1,701.36	6,849.86	6,931.23	6,912.46	18.77	369.306	
3,800.00	3,782.14	3,680.91	3,679.07	14.48	5.64	-67.98	-1,699.37	6,857.79	6,931.19	6,911.89	19.30	359.100	
3,900.00	3,881.56	3,800.00	3,798.06	14.86	5.76	-68.10	-1,698.39	6,862.45	6,930.85	6,911.07	19.79	350.274	
4,000.00	3,980.98	3,906.34	3,904.32	15.24	5.86	-68.20	-1,697.55	6,866.47	6,930.41	6,910.14	20.26	342.024	
4,100.00	4,080.40	4,039.08	4,036.98	15.61	6.00	-68.32	-1,696.74	6,871.05	6,929.70	6,908.94	20.77	333.685	
4,200.00	4,179.83	4,263.86	4,261.71	15.99	6.21	-68.51	-1,697.06	6,875.43	6,927.50	6,906.14	21.37	324.187	
4,300.00	4,279.25	4,417.07	4,414.91	16.37	6.28	-68.63	-1,698.30	6,876.66	6,924.58	6,902.70	21.88	316.450	
4,400.00	4,378.67	4,562.91	4,560.75	16.75	6.27	-68.75	-1,698.64	6,876.54	6,920.58	6,898.30	22.28	310.590	
4,500.00	4,478.09	4,656.11	4,653.94	17.13	6.26	-68.82	-1,698.83	6,876.28	6,916.44	6,893.78	22.66	305.188	
4,600.00	4,577.51	4,740.38	4,738.21	17.51	6.25	-68.89	-1,699.58	6,876.10	6,912.50	6,889.42	23.07	299.578	
4,700.00	4,676.94	4,836.64	4,834.47	17.89	6.24	-68.96	-1,700.51	6,875.94	6,908.64	6,885.15	23.49	294.064	
4,800.00	4,776.36	4,933.07	4,930.89	18.27	6.24	-69.03	-1,701.52	6,875.82	6,904.84	6,880.92	23.92	288.694	
4,900.00	4,875.78	5,050.34	5,048.16	18.65	6.23	-69.12	-1,702.59	6,875.59	6,900.96	6,876.62	24.34	283.477	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #188C - OH - OH-SVY

Offset Site Error: 0.00 usft

Survey Program: 100-Standard Keeper 104 **Offset Well Error:** 3.28 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Rule Assigned: Minimum Separation (usft)	Separation Factor	Warning
5,000.00	4,975.20	5,133.77	5,131.58	19.03	6.24	-69.18	-1,703.46	6,875.49	6,897.18	6,872.41	24.76	278.507	
5,100.00	5,074.63	5,230.65	5,228.46	19.41	6.24	-69.25	-1,704.49	6,875.33	6,893.39	6,868.20	25.19	273.662	
5,200.00	5,174.05	5,332.23	5,330.03	19.79	6.25	-69.33	-1,705.64	6,875.20	6,889.65	6,864.03	25.62	268.936	
5,300.00	5,273.47	5,442.61	5,440.41	20.17	6.26	-69.41	-1,706.89	6,875.04	6,885.91	6,859.86	26.05	264.335	
5,400.00	5,372.89	5,535.27	5,533.06	20.56	6.27	-69.48	-1,708.03	6,874.87	6,882.16	6,855.68	26.47	259.950	
5,500.00	5,472.32	5,614.78	5,612.56	20.94	6.29	-69.54	-1,708.91	6,874.86	6,878.56	6,851.66	26.90	255.696	
5,600.00	5,571.74	5,717.07	5,714.85	21.32	6.32	-69.62	-1,709.89	6,874.87	6,874.97	6,847.63	27.34	251.459	
5,700.00	5,671.16	5,804.76	5,802.53	21.70	6.36	-69.68	-1,710.66	6,875.05	6,871.58	6,843.80	27.78	247.322	
5,800.00	5,770.58	5,896.83	5,894.59	22.08	6.40	-69.75	-1,712.10	6,875.34	6,868.42	6,840.19	28.23	243.302	
5,900.00	5,870.01	6,022.55	6,020.28	22.47	6.44	-69.83	-1,715.11	6,875.33	6,865.09	6,836.41	28.68	239.367	
6,000.00	5,969.43	6,137.24	6,134.93	22.85	6.48	-69.91	-1,717.58	6,875.12	6,861.59	6,832.47	29.12	235.632	
6,100.00	6,068.85	6,241.17	6,238.86	23.23	6.50	-69.98	-1,719.31	6,874.75	6,857.81	6,828.26	29.55	232.094	
6,200.00	6,168.27	6,340.10	6,337.77	23.62	6.53	-70.05	-1,720.87	6,874.38	6,854.02	6,824.05	29.97	228.675	
6,300.00	6,267.70	6,447.32	6,444.98	24.00	6.57	-70.13	-1,722.43	6,874.05	6,850.29	6,819.89	30.40	225.319	
6,400.00	6,367.12	6,536.07	6,533.72	24.38	6.59	-70.19	-1,723.85	6,873.70	6,846.50	6,815.67	30.82	222.109	
6,500.00	6,466.54	6,639.78	6,637.41	24.77	6.63	-70.26	-1,725.49	6,873.36	6,842.78	6,811.53	31.25	218.937	
6,600.00	6,565.96	6,734.95	6,732.58	25.15	6.67	-70.33	-1,726.79	6,873.12	6,839.11	6,807.43	31.68	215.858	
6,700.00	6,665.38	6,831.25	6,828.86	25.53	6.72	-70.41	-1,727.93	6,873.00	6,835.55	6,803.43	32.12	212.836	
6,778.75	6,743.68	6,900.42	6,898.03	25.84	6.75	-70.46	-1,728.72	6,872.98	6,832.83	6,800.37	32.46	210.511	
6,800.00	6,764.80	6,926.08	6,923.68	25.92	6.77	-54.44	-1,729.04	6,872.96	6,831.73	6,799.18	32.55	209.864	
6,850.00	6,814.29	6,982.30	6,979.91	26.11	6.79	-30.02	-1,729.60	6,872.86	6,826.35	6,793.58	32.77	208.318	
6,900.00	6,863.27	7,032.93	7,030.53	26.30	6.82	-17.97	-1,730.02	6,872.78	6,817.12	6,784.14	32.98	206.720	
6,950.00	6,911.44	7,076.13	7,073.74	26.50	6.84	-11.31	-1,730.40	6,872.71	6,804.11	6,770.93	33.18	205.083	
7,000.00	6,958.49	7,131.59	7,129.19	26.68	6.86	-7.11	-1,730.82	6,872.61	6,787.39	6,754.02	33.37	203.377	
7,050.00	7,004.14	7,172.42	7,170.02	26.87	6.88	-4.16	-1,731.17	6,872.53	6,767.08	6,733.52	33.56	201.668	
7,100.00	7,048.10	7,202.10	7,199.70	27.05	6.90	-1.90	-1,731.46	6,872.51	6,743.35	6,709.62	33.73	199.945	
7,150.00	7,090.11	7,256.86	7,254.46	27.23	6.93	-0.01	-1,731.88	6,872.52	6,716.32	6,682.42	33.90	198.127	
7,200.00	7,129.90	7,290.98	7,288.57	27.41	6.95	1.67	-1,732.14	6,872.48	6,686.07	6,652.02	34.05	196.379	
7,250.00	7,167.24	7,334.88	7,332.48	27.59	6.98	3.30	-1,732.47	6,872.44	6,652.86	6,618.68	34.19	194.610	
7,300.00	7,201.88	7,369.17	7,366.76	27.76	7.00	4.98	-1,732.74	6,872.41	6,616.88	6,582.58	34.31	192.880	
7,350.00	7,233.63	7,393.65	7,391.24	27.94	7.01	6.81	-1,732.91	6,872.38	6,578.36	6,543.95	34.41	191.185	
7,400.00	7,262.27	7,430.10	7,427.69	28.13	7.03	8.96	-1,733.20	6,872.36	6,537.53	6,503.03	34.50	189.493	
7,450.00	7,287.63	7,451.45	7,449.04	28.32	7.05	11.58	-1,733.35	6,872.33	6,494.64	6,460.07	34.57	187.867	
7,500.00	7,309.57	7,478.32	7,475.91	28.53	7.06	15.03	-1,733.57	6,872.30	6,449.96	6,415.33	34.63	186.268	
7,550.00	7,327.93	7,494.16	7,491.75	28.74	7.07	19.75	-1,733.68	6,872.28	6,403.76	6,369.09	34.67	184.730	
7,600.00	7,342.62	7,506.16	7,503.75	28.97	7.08	26.67	-1,733.76	6,872.27	6,356.34	6,321.66	34.69	183.240	
7,650.00	7,353.53	7,514.66	7,512.24	29.22	7.08	37.51	-1,733.81	6,872.26	6,308.00	6,273.30	34.70	181.800	
7,700.00	7,360.61	7,520.17	7,517.76	29.48	7.09	55.04	-1,733.86	6,872.26	6,259.03	6,224.33	34.69	180.410	
7,750.00	7,363.80	7,525.00	7,522.59	29.75	7.09	80.77	-1,733.90	6,872.26	6,209.72	6,175.05	34.68	179.066	
7,765.93	7,364.00	7,525.00	7,522.59	29.84	7.09	89.69	-1,733.90	6,872.26	6,194.00	6,159.33	34.67	178.649	
7,800.00	7,364.00	7,525.00	7,522.59	30.04	7.09	89.69	-1,733.90	6,872.26	6,160.36	6,125.71	34.65	177.764	
7,900.00	7,364.00	7,525.00	7,522.59	30.67	7.09	89.69	-1,733.90	6,872.26	6,061.68	6,027.07	34.61	175.154	
8,000.00	7,364.00	7,525.00	7,522.59	31.37	7.09	89.69	-1,733.90	6,872.26	5,963.04	5,928.48	34.56	172.527	
8,100.00	7,364.00	7,525.00	7,522.59	32.14	7.09	89.69	-1,733.90	6,872.26	5,864.44	5,829.92	34.52	169.883	
8,200.00	7,364.00	7,525.00	7,522.59	32.96	7.09	89.69	-1,733.90	6,872.26	5,765.90	5,731.41	34.48	167.220	
8,300.00	7,364.00	7,525.00	7,522.59	33.85	7.09	89.69	-1,733.90	6,872.26	5,667.40	5,632.95	34.44	164.538	
8,400.00	7,364.00	7,525.00	7,522.59	34.79	7.09	89.69	-1,733.90	6,872.26	5,568.96	5,534.55	34.41	161.835	
8,500.00	7,364.00	7,525.00	7,522.59	35.77	7.09	89.69	-1,733.90	6,872.26	5,470.57	5,436.19	34.38	159.112	
8,600.00	7,364.00	7,525.00	7,522.59	36.80	7.09	89.69	-1,733.90	6,872.26	5,372.24	5,337.89	34.36	156.367	
8,700.00	7,364.00	7,525.00	7,522.59	37.87	7.09	89.69	-1,733.90	6,872.26	5,273.98	5,239.64	34.34	153.598	
8,800.00	7,364.00	7,525.00	7,522.59	38.98	7.09	89.69	-1,733.90	6,872.26	5,175.78	5,141.46	34.32	150.805	
8,900.00	7,364.00	7,525.00	7,522.59	40.12	7.09	89.69	-1,733.90	6,872.26	5,077.66	5,043.35	34.31	147.987	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #188C - OH - OH-SVY

Offset Site Error: 0.00 usft

Survey Program: 100-Standard Keeper 104 **Offset Well Error:** 3.28 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,000.00	7,364.00	7,525.00	7,522.59	41.29	7.09	89.69	-1,733.90	6,872.26	4,979.60	4,945.30	34.31	145.141	
9,100.00	7,364.00	7,525.00	7,522.59	42.49	7.09	89.69	-1,733.90	6,872.26	4,881.63	4,847.32	34.31	142.268	
9,200.00	7,364.00	7,525.00	7,522.59	43.71	7.09	89.69	-1,733.90	6,872.26	4,783.74	4,749.42	34.33	139.364	
9,300.00	7,364.00	7,525.00	7,522.59	44.96	7.09	89.69	-1,733.90	6,872.26	4,685.94	4,651.60	34.35	136.429	
9,400.00	7,364.00	7,525.00	7,522.59	46.23	7.09	89.69	-1,733.90	6,872.26	4,588.24	4,553.86	34.38	133.462	
9,500.00	7,364.00	7,522.60	7,520.19	47.52	7.09	89.55	-1,733.88	6,872.26	4,490.63	4,456.21	34.42	130.459	
9,600.00	7,364.00	7,522.59	7,520.18	48.83	7.09	89.55	-1,733.88	6,872.26	4,393.14	4,358.66	34.48	127.421	
9,700.00	7,364.00	7,522.57	7,520.16	50.15	7.09	89.55	-1,733.88	6,872.26	4,295.75	4,261.21	34.55	124.345	
9,800.00	7,364.00	7,522.56	7,520.15	51.49	7.09	89.54	-1,733.88	6,872.26	4,198.50	4,163.86	34.63	121.231	
9,900.00	7,364.00	7,522.55	7,520.14	52.85	7.09	89.54	-1,733.88	6,872.26	4,101.37	4,066.63	34.74	118.075	
10,000.00	7,364.00	7,522.54	7,520.12	54.22	7.09	89.54	-1,733.88	6,872.26	4,004.39	3,969.53	34.86	114.878	
10,100.00	7,364.00	7,522.52	7,520.11	55.60	7.09	89.54	-1,733.88	6,872.26	3,907.55	3,872.55	35.00	111.637	
10,200.00	7,364.00	7,522.51	7,520.10	56.99	7.09	89.54	-1,733.88	6,872.26	3,810.88	3,775.71	35.17	108.352	
10,300.00	7,364.00	7,522.50	7,520.09	58.40	7.09	89.54	-1,733.88	6,872.26	3,714.39	3,679.02	35.37	105.022	
10,400.00	7,364.00	7,522.49	7,520.07	59.81	7.09	89.54	-1,733.88	6,872.26	3,618.09	3,582.49	35.59	101.647	
10,500.00	7,364.00	7,522.47	7,520.06	61.23	7.09	89.54	-1,733.88	6,872.26	3,521.99	3,486.14	35.86	98.226	
10,600.00	7,364.00	7,522.46	7,520.05	62.66	7.09	89.54	-1,733.88	6,872.26	3,426.12	3,389.96	36.16	94.761	
10,700.00	7,364.00	7,522.45	7,520.03	64.10	7.09	89.54	-1,733.88	6,872.26	3,330.49	3,293.99	36.50	91.252	
10,800.00	7,364.00	7,522.43	7,520.02	65.55	7.09	89.54	-1,733.88	6,872.26	3,235.12	3,198.23	36.89	87.702	
10,900.00	7,364.00	7,522.42	7,520.01	67.01	7.09	89.54	-1,733.88	6,872.26	3,140.04	3,102.71	37.33	84.114	
11,000.00	7,364.00	7,522.41	7,519.99	68.47	7.09	89.54	-1,733.88	6,872.26	3,045.28	3,007.45	37.83	80.492	
11,100.00	7,364.00	7,522.39	7,519.98	69.93	7.09	89.53	-1,733.88	6,872.26	2,950.87	2,912.46	38.40	76.841	
11,200.00	7,364.00	7,522.38	7,519.97	71.41	7.09	89.53	-1,733.88	6,872.26	2,856.83	2,817.78	39.04	73.168	
11,300.00	7,364.00	7,522.37	7,519.95	72.88	7.09	89.53	-1,733.88	6,872.26	2,763.21	2,723.44	39.77	69.480	
11,400.00	7,364.00	7,522.35	7,519.94	74.37	7.09	89.53	-1,733.88	6,872.26	2,670.06	2,629.47	40.59	65.787	
11,500.00	7,364.00	7,522.34	7,519.93	75.85	7.09	89.53	-1,733.88	6,872.26	2,577.41	2,535.91	41.51	62.098	
11,600.00	7,364.00	7,522.33	7,519.91	77.35	7.09	89.53	-1,733.88	6,872.26	2,485.34	2,442.81	42.54	58.427	
11,700.00	7,364.00	7,522.31	7,519.90	78.84	7.09	89.53	-1,733.88	6,872.26	2,393.91	2,350.21	43.70	54.786	
11,800.00	7,364.00	7,522.30	7,519.89	80.34	7.09	89.53	-1,733.88	6,872.26	2,303.18	2,258.19	44.99	51.189	
11,900.00	7,364.00	7,522.28	7,519.87	81.85	7.09	89.53	-1,733.88	6,872.26	2,213.26	2,166.81	46.45	47.651	
12,000.00	7,364.00	7,522.27	7,519.86	83.36	7.09	89.53	-1,733.88	6,872.26	2,124.24	2,076.17	48.07	44.189	
12,100.00	7,364.00	7,522.26	7,519.85	84.87	7.09	89.53	-1,733.88	6,872.26	2,036.23	1,986.35	49.89	40.817	
12,200.00	7,364.00	7,522.24	7,519.83	86.38	7.09	89.53	-1,733.88	6,872.26	1,949.39	1,897.48	51.91	37.552	
12,300.00	7,364.00	7,522.23	7,519.82	87.90	7.09	89.53	-1,733.88	6,872.26	1,863.86	1,809.69	54.17	34.409	
12,400.00	7,364.00	7,522.22	7,519.80	89.42	7.09	89.52	-1,733.88	6,872.26	1,779.84	1,723.17	56.68	31.404	
12,500.00	7,364.00	7,522.20	7,519.79	90.95	7.09	89.52	-1,733.88	6,872.26	1,697.56	1,638.10	59.46	28.550	
12,600.00	7,364.00	7,522.19	7,519.77	92.47	7.09	89.52	-1,733.88	6,872.26	1,617.27	1,554.73	62.54	25.860	
12,700.00	7,364.00	7,522.17	7,519.76	94.00	7.09	89.52	-1,733.88	6,872.26	1,539.30	1,473.36	65.94	23.344	
12,800.00	7,364.00	7,522.16	7,519.75	95.53	7.09	89.52	-1,733.88	6,872.26	1,464.00	1,394.33	69.67	21.012	
12,900.00	7,364.00	7,522.14	7,519.73	97.06	7.09	89.52	-1,733.88	6,872.26	1,391.82	1,318.07	73.75	18.871	
13,000.00	7,364.00	7,522.13	7,519.72	98.60	7.09	89.52	-1,733.88	6,872.26	1,323.26	1,245.09	78.17	16.928	
13,100.00	7,364.00	7,522.12	7,519.70	100.14	7.09	89.52	-1,733.88	6,872.26	1,258.92	1,176.02	82.91	15.185	
13,200.00	7,364.00	7,522.10	7,519.69	101.68	7.09	89.52	-1,733.87	6,872.26	1,199.48	1,111.57	87.92	13.643	
13,300.00	7,364.00	7,522.09	7,519.67	103.22	7.09	89.52	-1,733.87	6,872.26	1,145.70	1,052.59	93.11	12.305	
13,400.00	7,364.00	7,522.07	7,519.66	104.76	7.09	89.52	-1,733.87	6,872.26	1,098.40	1,000.03	98.37	11.166	
13,500.00	7,364.00	7,522.06	7,519.64	106.31	7.09	89.52	-1,733.87	6,872.26	1,058.47	954.95	103.51	10.225	
13,600.00	7,364.00	7,522.04	7,519.63	107.85	7.09	89.51	-1,733.87	6,872.26	1,026.75	918.41	108.34	9.477	
13,700.00	7,364.00	7,522.03	7,519.61	109.40	7.09	89.51	-1,733.87	6,872.26	1,004.03	891.42	112.61	8.916	
13,800.00	7,364.00	7,522.01	7,519.60	110.95	7.09	89.51	-1,733.87	6,872.26	990.93	874.83	116.10	8.535	
13,880.68	7,364.00	7,522.00	7,519.59	112.20	7.09	89.51	-1,733.87	6,872.26	987.64	869.41	118.23	8.354	CC
13,900.00	7,364.00	7,522.00	7,519.58	112.50	7.09	89.51	-1,733.87	6,872.26	987.83	869.19	118.63	8.327	ES
14,000.00	7,364.00	7,521.98	7,519.57	114.05	7.09	89.51	-1,733.87	6,872.26	994.82	874.71	120.12	8.282	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 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #188C - OH - OH-SVY

Offset Site Error: 0.00 usft

Survey Program: 100-Standard Keeper 104 **Offset Well Error:** 3.28 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,100.00	7,364.00	7,521.97	7,519.55	115.61	7.09	89.51	-1,733.87	6,872.26	1,011.70	891.16	120.54	8.393	
14,200.00	7,364.00	7,521.95	7,519.54	117.16	7.09	89.51	-1,733.87	6,872.26	1,037.98	917.98	120.00	8.650	
14,300.00	7,364.00	7,521.94	7,519.52	118.72	7.09	89.51	-1,733.87	6,872.26	1,072.97	954.33	118.64	9.044	
14,400.00	7,364.00	7,521.92	7,519.51	120.28	7.09	89.51	-1,733.87	6,872.26	1,115.85	999.19	116.66	9.565	
14,500.00	7,364.00	7,521.91	7,519.49	121.84	7.09	89.51	-1,733.87	6,872.26	1,165.76	1,051.52	114.23	10.205	
14,600.00	7,364.00	7,521.89	7,519.48	123.40	7.09	89.51	-1,733.87	6,872.26	1,221.82	1,110.30	111.53	10.955	
14,700.00	7,364.00	7,521.87	7,519.46	124.96	7.09	89.50	-1,733.87	6,872.26	1,283.25	1,174.56	108.68	11.807	
14,800.00	7,364.00	7,521.86	7,519.45	126.52	7.09	89.50	-1,733.87	6,872.26	1,349.29	1,243.49	105.80	12.753	
14,900.00	7,364.00	7,521.84	7,519.43	128.08	7.09	89.50	-1,733.87	6,872.26	1,419.31	1,316.36	102.95	13.786	
15,000.00	7,364.00	7,521.83	7,519.41	129.64	7.09	89.50	-1,733.87	6,872.26	1,492.75	1,392.56	100.19	14.898	
15,100.00	7,364.00	7,521.81	7,519.40	131.21	7.09	89.50	-1,733.87	6,872.26	1,569.13	1,471.58	97.56	16.084	
15,200.00	7,364.00	7,521.79	7,519.38	132.77	7.09	89.50	-1,733.87	6,872.26	1,648.04	1,552.99	95.05	17.338	
15,300.00	7,364.00	7,521.78	7,519.37	134.34	7.09	89.50	-1,733.87	6,872.26	1,729.13	1,636.44	92.70	18.653	
15,400.00	7,364.00	7,521.76	7,519.35	135.91	7.09	89.50	-1,733.87	6,872.26	1,812.12	1,721.63	90.49	20.026	
15,500.00	7,364.00	7,521.75	7,519.33	137.48	7.09	89.50	-1,733.87	6,872.26	1,896.74	1,808.32	88.42	21.451	
15,600.00	7,364.00	7,521.73	7,519.32	139.04	7.09	89.50	-1,733.87	6,872.26	1,982.80	1,896.30	86.50	22.923	
15,700.00	7,364.00	7,521.71	7,519.30	140.61	7.09	89.50	-1,733.87	6,872.26	2,070.11	1,985.41	84.70	24.440	
15,800.00	7,364.00	7,521.70	7,519.29	142.18	7.09	89.49	-1,733.87	6,872.26	2,158.52	2,075.50	83.03	25.997	
15,900.00	7,364.00	7,521.68	7,519.27	143.75	7.09	89.49	-1,733.87	6,872.26	2,247.91	2,166.44	81.47	27.591	
16,000.00	7,364.00	7,521.66	7,519.25	145.33	7.09	89.49	-1,733.87	6,872.26	2,338.15	2,258.13	80.02	29.219	
16,100.00	7,364.00	7,521.65	7,519.24	146.90	7.09	89.49	-1,733.87	6,872.26	2,429.16	2,350.49	78.67	30.879	
16,200.00	7,364.00	7,521.63	7,519.22	148.47	7.09	89.49	-1,733.87	6,872.26	2,520.85	2,443.44	77.41	32.566	
16,300.00	7,364.00	7,521.61	7,519.20	150.04	7.09	89.49	-1,733.87	6,872.26	2,613.15	2,536.92	76.23	34.279	
16,400.00	7,364.00	7,521.60	7,519.19	151.62	7.09	89.49	-1,733.87	6,872.26	2,706.00	2,630.86	75.13	36.016	
16,500.00	7,364.00	7,521.58	7,519.17	153.19	7.09	89.49	-1,733.87	6,872.26	2,799.34	2,725.23	74.10	37.775	
16,600.00	7,364.00	7,521.56	7,519.15	154.77	7.09	89.49	-1,733.87	6,872.26	2,893.12	2,819.98	73.14	39.554	
16,700.00	7,364.00	7,521.55	7,519.13	156.34	7.09	89.49	-1,733.87	6,872.26	2,987.31	2,915.06	72.24	41.350	
16,800.00	7,364.00	7,521.53	7,519.12	157.92	7.09	89.48	-1,733.87	6,872.26	3,081.86	3,010.46	71.40	43.163	
16,900.00	7,364.00	7,521.51	7,519.10	159.49	7.09	89.48	-1,733.87	6,872.26	3,176.75	3,106.14	70.61	44.991	
17,000.00	7,364.00	7,521.49	7,519.08	161.07	7.09	89.48	-1,733.87	6,872.26	3,271.94	3,202.08	69.87	46.832	
17,100.00	7,364.00	7,521.48	7,519.07	162.65	7.09	89.48	-1,733.87	6,872.26	3,367.41	3,298.24	69.17	48.685	
17,200.00	7,364.00	7,521.46	7,519.05	164.23	7.09	89.48	-1,733.87	6,872.26	3,463.14	3,394.63	68.51	50.549	
17,300.00	7,364.00	7,521.44	7,519.03	165.81	7.09	89.48	-1,733.87	6,872.26	3,559.10	3,491.21	67.89	52.423	
17,400.00	7,364.00	7,521.42	7,519.01	167.38	7.09	89.48	-1,733.87	6,872.26	3,655.28	3,587.97	67.31	54.306	
17,500.00	7,364.00	7,521.41	7,518.99	168.96	7.09	89.48	-1,733.87	6,872.26	3,751.66	3,684.90	66.76	56.197	
17,600.00	7,364.00	7,521.39	7,518.98	170.54	7.09	89.48	-1,733.87	6,872.26	3,848.22	3,781.98	66.24	58.094	
17,700.00	7,364.00	7,521.37	7,518.96	172.12	7.09	89.48	-1,733.87	6,872.26	3,944.95	3,879.20	65.75	59.998	
17,800.00	7,364.00	7,521.35	7,518.94	173.70	7.09	89.47	-1,733.87	6,872.26	4,041.85	3,976.56	65.29	61.906	
17,900.00	7,364.00	7,521.34	7,518.92	175.28	7.09	89.47	-1,733.87	6,872.26	4,138.89	4,074.03	64.85	63.820	
18,000.00	7,364.00	7,521.32	7,518.90	176.87	7.09	89.47	-1,733.87	6,872.26	4,236.06	4,171.62	64.44	65.737	
18,100.00	7,364.00	7,521.30	7,518.89	178.45	7.09	89.47	-1,733.87	6,872.26	4,333.37	4,269.32	64.05	67.657	
18,200.00	7,364.00	7,521.28	7,518.87	180.03	7.09	89.47	-1,733.87	6,872.26	4,430.80	4,367.12	63.68	69.580	
18,300.00	7,364.00	7,521.26	7,518.85	181.61	7.09	89.47	-1,733.87	6,872.26	4,528.34	4,465.01	63.33	71.505	
18,400.00	7,364.00	7,521.24	7,518.83	183.19	7.09	89.47	-1,733.87	6,872.26	4,625.98	4,562.98	63.00	73.432	
18,500.00	7,364.00	7,521.22	7,518.81	184.78	7.09	89.47	-1,733.87	6,872.26	4,723.72	4,661.04	62.68	75.359	
18,600.00	7,364.00	7,521.21	7,518.79	186.36	7.09	89.47	-1,733.87	6,872.26	4,821.56	4,759.17	62.38	77.288	
18,700.00	7,364.00	7,521.19	7,518.77	187.94	7.09	89.46	-1,733.87	6,872.26	4,919.48	4,857.38	62.10	79.216	
18,800.00	7,364.00	7,521.17	7,518.76	189.53	7.09	89.46	-1,733.87	6,872.26	5,017.48	4,955.65	61.83	81.144	
18,900.00	7,364.00	7,521.15	7,518.74	191.11	7.09	89.46	-1,733.87	6,872.26	5,115.57	5,053.99	61.58	83.071	
19,000.00	7,364.00	7,521.13	7,518.72	192.70	7.09	89.46	-1,733.87	6,872.26	5,213.72	5,152.38	61.34	84.998	
19,100.00	7,364.00	7,521.11	7,518.70	194.28	7.09	89.46	-1,733.87	6,872.26	5,311.94	5,250.83	61.11	86.923	
19,200.00	7,364.00	7,521.09	7,518.68	195.87	7.09	89.46	-1,733.87	6,872.26	5,410.23	5,349.34	60.89	88.846	

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 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #188C - OH - OH-SVY

Offset Site Error: 0.00 usft

Survey Program: 100-Standard Keeper 104 **Offset Well Error:** 3.28 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
19,300.00	7,364.00	7,521.07	7,518.66	197.45	7.09	89.46	-1,733.87	6,872.26	5,508.58	5,447.89	60.69	90.767	
19,400.00	7,364.00	7,521.05	7,518.64	199.04	7.09	89.46	-1,733.87	6,872.26	5,606.99	5,546.50	60.49	92.686	
19,500.00	7,364.00	7,521.03	7,518.62	200.62	7.09	89.46	-1,733.87	6,872.26	5,705.45	5,645.14	60.31	94.603	
19,600.00	7,364.00	7,521.01	7,518.60	202.21	7.09	89.45	-1,733.87	6,872.26	5,803.97	5,743.84	60.13	96.517	
19,700.00	7,364.00	7,520.99	7,518.58	203.79	7.09	89.45	-1,733.87	6,872.26	5,902.54	5,842.57	59.97	98.427	
19,800.00	7,364.00	7,520.97	7,518.56	205.38	7.09	89.45	-1,733.87	6,872.26	6,001.15	5,941.34	59.81	100.335	
19,900.00	7,364.00	7,520.95	7,518.54	206.97	7.09	89.45	-1,733.87	6,872.26	6,099.81	6,040.15	59.66	102.239	
20,000.00	7,364.00	7,520.93	7,518.52	208.55	7.09	89.45	-1,733.87	6,872.26	6,198.51	6,138.99	59.52	104.139	
20,100.00	7,364.00	7,520.91	7,518.50	210.14	7.09	89.45	-1,733.86	6,872.26	6,297.25	6,237.86	59.39	106.035	
20,200.00	7,364.00	7,520.89	7,518.48	211.73	7.09	89.45	-1,733.86	6,872.26	6,396.03	6,336.77	59.26	107.928	
20,300.00	7,364.00	7,520.87	7,518.46	213.32	7.09	89.45	-1,733.86	6,872.26	6,494.85	6,435.71	59.14	109.816	
20,400.00	7,364.00	7,520.85	7,518.44	214.90	7.09	89.45	-1,733.86	6,872.26	6,593.71	6,534.68	59.03	111.700	
20,500.00	7,364.00	7,520.83	7,518.42	216.49	7.09	89.44	-1,733.86	6,872.26	6,692.60	6,633.67	58.92	113.579	
20,600.00	7,364.00	7,520.81	7,518.40	218.08	7.09	89.44	-1,733.86	6,872.26	6,791.52	6,732.69	58.82	115.453	
20,700.00	7,364.00	7,520.79	7,518.38	219.67	7.09	89.44	-1,733.86	6,872.26	6,890.47	6,831.74	58.73	117.323	
20,800.00	7,364.00	7,520.77	7,518.36	221.26	7.09	89.44	-1,733.86	6,872.26	6,989.45	6,930.81	58.64	119.188	
20,900.00	7,364.00	7,520.75	7,518.33	222.84	7.09	89.44	-1,733.86	6,872.26	7,088.46	7,029.90	58.56	121.047	
21,000.00	7,364.00	7,520.73	7,518.31	224.43	7.09	89.44	-1,733.86	6,872.26	7,187.50	7,129.02	58.48	122.902	
21,100.00	7,364.00	7,520.70	7,518.29	226.02	7.09	89.44	-1,733.86	6,872.26	7,286.57	7,228.16	58.41	124.751	
21,200.00	7,364.00	7,520.68	7,518.27	227.61	7.09	89.44	-1,733.86	6,872.26	7,385.65	7,327.31	58.34	126.595	
21,300.00	7,364.00	7,520.66	7,518.25	229.20	7.09	89.43	-1,733.86	6,872.26	7,484.77	7,426.49	58.28	128.433	
21,400.00	7,364.00	7,520.64	7,518.23	230.79	7.09	89.43	-1,733.86	6,872.26	7,583.91	7,525.69	58.22	130.266	
21,500.00	7,364.00	7,520.62	7,518.21	232.38	7.09	89.43	-1,733.86	6,872.26	7,683.07	7,624.90	58.16	132.093	
21,600.00	7,364.00	7,520.60	7,518.18	233.97	7.09	89.43	-1,733.86	6,872.26	7,782.25	7,724.13	58.11	133.914	
21,700.00	7,364.00	7,520.57	7,518.16	235.56	7.09	89.43	-1,733.86	6,872.26	7,881.45	7,823.38	58.07	135.729	
21,800.00	7,364.00	7,520.55	7,518.14	237.15	7.09	89.43	-1,733.86	6,872.26	7,980.67	7,922.64	58.03	137.538	
21,864.93	7,364.00	7,520.54	7,518.12	238.18	7.09	89.43	-1,733.86	6,872.26	8,045.10	7,987.10	58.00	138.710	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #231 - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 230-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	3.28	0.00	-98.33	-1,366.60	-9,336.21	9,435.72				
100.00	100.00	79.00	79.00	3.29	0.70	-98.33	-1,366.60	-9,336.21	9,435.70	9,431.71	3.99	2,365.111	
200.00	200.00	179.00	179.00	3.34	1.59	-98.33	-1,366.60	-9,336.21	9,435.70	9,430.78	4.92	1,917.106	
300.00	300.00	279.00	279.00	3.42	2.92	-98.33	-1,366.60	-9,336.21	9,435.70	9,429.36	6.34	1,488.091	
400.00	400.00	379.00	379.00	3.54	4.72	-98.33	-1,366.60	-9,336.21	9,435.70	9,427.43	8.26	1,142.044	
500.00	500.00	479.00	479.00	3.69	6.53	-98.33	-1,366.60	-9,336.21	9,435.70	9,425.48	10.21	923.745 CC	
600.00	599.98	578.45	578.44	3.86	8.32	111.67	-1,366.29	-9,336.21	9,436.30	9,424.12	12.18	774.978	
700.00	699.84	677.31	677.31	4.04	10.10	111.66	-1,366.36	-9,336.21	9,438.24	9,424.10	14.14	667.250	
808.00	807.41	783.83	783.82	4.27	12.02	111.65	-1,366.52	-9,336.21	9,441.81	9,425.51	16.29	579.448	
900.00	898.89	877.90	877.89	4.49	13.74	94.54	-1,366.60	-9,336.21	9,444.04	9,425.81	18.23	518.083	
912.12	910.94	889.95	889.94	4.52	13.96	92.32	-1,366.60	-9,336.21	9,444.12	9,425.64	18.48	511.032	
1,000.00	998.31	977.32	977.31	4.74	15.58	92.38	-1,366.60	-9,336.21	9,444.51	9,424.19	20.31	464.921	
1,100.00	1,097.73	1,075.09	1,075.07	5.01	17.38	92.44	-1,366.20	-9,336.21	9,444.90	9,422.52	22.39	421.901	
1,200.00	1,197.15	1,171.73	1,171.71	5.29	19.16	92.50	-1,366.43	-9,336.21	9,445.40	9,420.95	24.45	386.273	
1,300.00	1,296.58	1,275.61	1,275.58	5.59	21.10	92.57	-1,366.60	-9,336.21	9,445.90	9,419.21	26.69	353.861	
1,400.00	1,396.00	1,375.03	1,375.00	5.90	22.98	92.64	-1,366.60	-9,336.21	9,446.39	9,417.51	28.88	327.059	
1,500.00	1,495.42	1,474.20	1,474.17	6.22	24.86	92.70	-1,366.06	-9,336.21	9,446.82	9,415.75	31.08	303.991	
1,600.00	1,594.84	1,571.44	1,571.41	6.54	26.70	92.77	-1,366.16	-9,336.21	9,447.35	9,414.11	33.24	284.213	
1,700.00	1,694.27	1,668.72	1,668.69	6.87	28.54	92.83	-1,366.43	-9,336.21	9,447.92	9,412.50	35.41	266.800	
1,800.00	1,793.69	1,772.75	1,772.69	7.21	30.58	92.89	-1,366.60	-9,336.21	9,448.48	9,410.69	37.79	250.039	
1,900.00	1,893.11	1,872.17	1,872.11	7.55	32.58	92.96	-1,366.60	-9,336.21	9,449.03	9,408.90	40.12	235.501	
2,000.00	1,992.53	1,971.23	1,971.17	7.89	34.56	93.03	-1,365.78	-9,336.21	9,449.48	9,407.03	42.46	222.575	
2,100.00	2,091.96	2,067.59	2,067.52	8.24	36.50	93.09	-1,365.93	-9,336.21	9,450.08	9,405.34	44.74	211.236	
2,200.00	2,191.38	2,164.01	2,163.93	8.60	38.43	93.15	-1,366.32	-9,336.21	9,450.72	9,403.70	47.02	200.980	
2,300.00	2,290.80	2,269.92	2,269.80	8.95	40.60	93.22	-1,366.60	-9,336.21	9,451.35	9,401.80	49.55	190.745	
2,400.00	2,390.22	2,369.34	2,369.22	9.31	42.67	93.28	-1,366.60	-9,336.21	9,451.97	9,399.99	51.98	181.841	
2,500.00	2,489.65	2,468.29	2,468.17	9.67	44.73	93.35	-1,365.52	-9,336.21	9,452.46	9,398.05	54.40	173.754	
2,600.00	2,589.07	2,563.80	2,563.67	10.03	46.72	93.41	-1,365.72	-9,336.21	9,453.12	9,396.36	56.75	166.564	
2,700.00	2,688.49	2,659.39	2,659.25	10.40	48.72	93.47	-1,366.24	-9,336.21	9,453.83	9,394.72	59.11	159.938	
2,800.00	2,787.91	2,767.10	2,766.91	10.76	50.97	93.54	-1,366.60	-9,336.21	9,454.53	9,392.80	61.73	153.159	
2,900.00	2,887.33	2,866.53	2,866.33	11.13	53.06	93.60	-1,366.60	-9,336.21	9,455.21	9,391.02	64.19	147.310	
3,000.00	2,986.76	2,965.95	2,965.76	11.50	55.15	93.67	-1,366.60	-9,336.21	9,455.89	9,389.25	66.64	141.890	
3,100.00	3,086.18	3,063.71	3,063.50	11.87	57.20	93.74	-1,365.30	-9,336.21	9,456.44	9,387.37	69.07	136.920	
3,200.00	3,185.60	3,160.14	3,159.93	12.24	59.23	93.80	-1,365.57	-9,336.21	9,457.18	9,385.72	71.46	132.339	
3,300.00	3,285.02	3,256.64	3,256.42	12.61	61.25	93.86	-1,366.12	-9,336.21	9,457.97	9,384.11	73.86	128.052	
3,400.00	3,384.45	3,337.00	3,336.71	12.98	62.94	93.91	-1,366.60	-9,336.21	9,458.79	9,382.87	75.92	124.586 ES	
3,500.00	3,483.87	3,337.00	3,336.71	13.36	62.94	93.91	-1,366.60	-9,336.21	9,460.34	9,384.05	76.29	124.008	
3,600.00	3,583.29	3,337.00	3,336.71	13.73	62.94	93.91	-1,366.60	-9,336.21	9,462.94	9,386.30	76.65	123.461	
3,700.00	3,682.71	3,337.00	3,336.71	14.11	62.94	93.91	-1,366.60	-9,336.21	9,466.60	9,389.61	77.00	122.945	
3,800.00	3,782.14	3,337.00	3,336.71	14.48	62.94	93.91	-1,366.60	-9,336.21	9,471.32	9,393.98	77.34	122.459	
3,900.00	3,881.56	3,337.00	3,336.71	14.86	62.94	93.91	-1,366.60	-9,336.21	9,477.09	9,399.41	77.68	122.004	
4,000.00	3,980.98	3,337.00	3,336.71	15.24	62.94	93.91	-1,366.60	-9,336.21	9,483.91	9,405.90	78.01	121.579	
4,100.00	4,080.40	3,337.00	3,336.71	15.61	62.94	93.91	-1,366.60	-9,336.21	9,491.78	9,413.45	78.33	121.182	
4,200.00	4,179.83	3,337.00	3,336.71	15.99	62.94	93.91	-1,366.60	-9,336.21	9,500.69	9,422.05	78.64	120.815	
4,300.00	4,279.25	3,337.00	3,336.71	16.37	62.94	93.91	-1,366.60	-9,336.21	9,510.65	9,431.71	78.94	120.476	
4,400.00	4,378.67	3,337.00	3,336.71	16.75	62.94	93.91	-1,366.60	-9,336.21	9,521.64	9,442.41	79.24	120.166	
4,500.00	4,478.09	3,337.00	3,336.71	17.13	62.94	93.91	-1,366.60	-9,336.21	9,533.68	9,454.15	79.52	119.883	
4,600.00	4,577.51	3,337.00	3,336.71	17.51	62.94	93.91	-1,366.60	-9,336.21	9,546.74	9,466.94	79.80	119.628	
4,700.00	4,676.94	3,337.00	3,336.71	17.89	62.94	93.91	-1,366.60	-9,336.21	9,560.84	9,480.76	80.07	119.399	
4,800.00	4,776.36	3,337.00	3,336.71	18.27	62.94	93.91	-1,366.60	-9,336.21	9,575.96	9,495.62	80.34	119.198	
4,900.00	4,875.78	3,337.00	3,336.71	18.65	62.94	93.91	-1,366.60	-9,336.21	9,592.09	9,511.50	80.59	119.022	
5,000.00	4,975.20	3,337.00	3,336.71	19.03	62.94	93.91	-1,366.60	-9,336.21	9,609.24	9,528.40	80.84	118.873	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #231 - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 230-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Rule Assigned: Warning
5,100.00	5,074.63	3,337.00	3,336.71	19.41	62.94	93.91	-1,366.60	-9,336.21	9,627.40	9,546.33	81.07	118.748	
5,200.00	5,174.05	3,337.00	3,336.71	19.79	62.94	93.91	-1,366.60	-9,336.21	9,646.56	9,565.26	81.30	118.649	
5,300.00	5,273.47	3,337.00	3,336.71	20.17	62.94	93.91	-1,366.60	-9,336.21	9,666.72	9,585.19	81.52	118.574	
5,400.00	5,372.89	3,337.00	3,336.71	20.56	62.94	93.91	-1,366.60	-9,336.21	9,687.86	9,606.13	81.74	118.524	
5,500.00	5,472.32	3,337.00	3,336.71	20.94	62.94	93.91	-1,366.60	-9,336.21	9,710.00	9,628.05	81.94	118.498	
5,600.00	5,571.74	3,337.00	3,336.71	21.32	62.94	93.91	-1,366.60	-9,336.21	9,733.10	9,650.96	82.14	118.495 SF	
5,700.00	5,671.16	3,337.00	3,336.71	21.70	62.94	93.91	-1,366.60	-9,336.21	9,757.18	9,674.85	82.33	118.515	
5,800.00	5,770.58	3,337.00	3,336.71	22.08	62.94	93.91	-1,366.60	-9,336.21	9,782.23	9,699.71	82.51	118.558	
5,900.00	5,870.01	3,337.00	3,336.71	22.47	62.94	93.91	-1,366.60	-9,336.21	9,808.22	9,725.54	82.68	118.623	
6,000.00	5,969.43	3,337.00	3,336.71	22.85	62.94	93.91	-1,366.60	-9,336.21	9,835.17	9,752.32	82.85	118.710	
6,100.00	6,068.85	3,337.00	3,336.71	23.23	62.94	93.91	-1,366.60	-9,336.21	9,863.05	9,780.04	83.01	118.819	
6,200.00	6,168.27	3,337.00	3,336.71	23.62	62.94	93.91	-1,366.60	-9,336.21	9,891.87	9,808.71	83.16	118.949	
6,300.00	6,267.70	3,337.00	3,336.71	24.00	62.94	93.91	-1,366.60	-9,336.21	9,921.61	9,838.31	83.31	119.100	
6,400.00	6,367.12	3,337.00	3,336.71	24.38	62.94	93.91	-1,366.60	-9,336.21	9,952.27	9,868.83	83.44	119.271	
6,500.00	6,466.54	3,337.00	3,336.71	24.77	62.94	93.91	-1,366.60	-9,336.21	9,983.84	9,900.27	83.57	119.463	
6,600.00	6,565.96	3,337.00	3,336.71	25.15	62.94	93.91	-1,366.60	-9,336.21	10,016.30	9,932.61	83.70	119.674	
6,700.00	6,665.38	3,337.00	3,336.71	25.53	62.94	93.91	-1,366.60	-9,336.21	10,049.66	9,965.84	83.81	119.904	
6,778.75	6,743.68	3,337.00	3,336.71	25.84	62.94	93.91	-1,366.60	-9,336.21	10,076.55	9,992.64	83.90	120.099	
6,800.00	6,764.80	3,337.00	3,336.71	25.92	62.94	109.84	-1,366.60	-9,336.21	10,084.22	10,000.30	83.93	120.156	
6,850.00	6,814.29	3,337.00	3,336.71	26.11	62.94	133.97	-1,366.60	-9,336.21	10,104.99	10,021.01	83.98	120.321	
6,900.00	6,863.27	3,337.00	3,336.71	26.30	62.94	145.60	-1,366.60	-9,336.21	10,129.43	10,045.39	84.04	120.529	
6,950.00	6,911.44	3,337.00	3,336.71	26.50	62.94	151.69	-1,366.60	-9,336.21	10,157.36	10,073.26	84.10	120.782	
7,000.00	6,958.49	3,337.00	3,336.71	26.68	62.94	155.14	-1,366.60	-9,336.21	10,188.58	10,104.43	84.15	121.075	
7,050.00	7,004.14	3,337.00	3,336.71	26.87	62.94	157.12	-1,366.60	-9,336.21	10,222.87	10,138.67	84.20	121.409	
7,100.00	7,048.10	3,337.00	3,336.71	27.05	62.94	158.15	-1,366.60	-9,336.21	10,259.99	10,175.74	84.25	121.778	
7,150.00	7,090.11	3,337.00	3,336.71	27.23	62.94	158.45	-1,366.60	-9,336.21	10,299.68	10,215.39	84.30	122.181	
7,200.00	7,129.90	3,337.00	3,336.71	27.41	62.94	158.08	-1,366.60	-9,336.21	10,341.68	10,257.33	84.34	122.615	
7,250.00	7,167.24	3,337.00	3,336.71	27.59	62.94	156.96	-1,366.60	-9,336.21	10,385.68	10,301.29	84.39	123.074	
7,300.00	7,201.88	3,337.00	3,336.71	27.76	62.94	154.84	-1,366.60	-9,336.21	10,431.40	10,346.98	84.43	123.557	
7,350.00	7,233.63	3,337.00	3,336.71	27.94	62.94	151.16	-1,366.60	-9,336.21	10,478.54	10,394.07	84.47	124.057	
7,400.00	7,262.27	3,337.00	3,336.71	28.13	62.94	144.64	-1,366.60	-9,336.21	10,526.79	10,442.28	84.50	124.571	
7,450.00	7,287.63	3,337.00	3,336.71	28.32	62.94	132.03	-1,366.60	-9,336.21	10,575.83	10,491.29	84.54	125.094	
7,500.00	7,309.57	3,337.00	3,336.71	28.53	62.94	105.92	-1,366.60	-9,336.21	10,625.36	10,540.78	84.58	125.621	
7,550.00	7,327.93	3,337.00	3,336.71	28.74	62.94	65.69	-1,366.60	-9,336.21	10,675.06	10,590.44	84.62	126.146	
7,600.00	7,342.62	3,337.00	3,336.71	28.97	62.94	37.01	-1,366.60	-9,336.21	10,724.64	10,639.97	84.67	126.665	
7,650.00	7,353.53	3,337.00	3,336.71	29.22	62.94	22.92	-1,366.60	-9,336.21	10,773.78	10,689.06	84.72	127.170	
7,700.00	7,360.61	3,337.00	3,336.71	29.48	62.94	15.50	-1,366.60	-9,336.21	10,822.20	10,737.42	84.78	127.657	
7,750.00	7,363.80	3,337.00	3,336.71	29.75	62.94	11.08	-1,366.60	-9,336.21	10,869.60	10,784.76	84.84	128.120	
7,765.93	7,364.00	3,337.00	3,336.71	29.84	62.94	10.03	-1,366.60	-9,336.21	10,884.44	10,799.58	84.86	128.264	
7,800.00	7,364.00	3,337.00	3,336.71	30.04	62.94	10.03	-1,366.60	-9,336.21	10,916.05	10,831.14	84.91	128.559	
7,900.00	7,364.00	3,337.00	3,336.71	30.67	62.94	10.03	-1,366.60	-9,336.21	11,008.91	10,923.85	85.06	129.420	
8,000.00	7,364.00	3,337.00	3,336.71	31.37	62.94	10.03	-1,366.60	-9,336.21	11,101.89	11,016.68	85.22	130.279	
8,100.00	7,364.00	3,337.00	3,336.71	32.14	62.94	10.03	-1,366.60	-9,336.21	11,194.99	11,109.63	85.37	131.136	
8,200.00	7,364.00	3,337.00	3,336.71	32.96	62.94	10.03	-1,366.60	-9,336.21	11,288.22	11,202.69	85.52	131.990	
8,300.00	7,364.00	3,337.00	3,336.71	33.85	62.94	10.03	-1,366.60	-9,336.21	11,381.55	11,295.87	85.68	132.842	
8,400.00	7,364.00	3,337.00	3,336.71	34.79	62.94	10.03	-1,366.60	-9,336.21	11,475.00	11,389.17	85.83	133.693	
8,500.00	7,364.00	3,337.00	3,336.71	35.77	62.94	10.03	-1,366.60	-9,336.21	11,568.56	11,482.57	85.99	134.541	
8,600.00	7,364.00	3,337.00	3,336.71	36.80	62.94	10.03	-1,366.60	-9,336.21	11,662.22	11,576.08	86.14	135.387	
8,700.00	7,364.00	3,337.00	3,336.71	37.87	62.94	10.03	-1,366.60	-9,336.21	11,755.99	11,669.70	86.29	136.232	
8,800.00	7,364.00	3,337.00	3,336.71	38.98	62.94	10.03	-1,366.60	-9,336.21	11,849.86	11,763.42	86.45	137.075	
8,900.00	7,364.00	3,337.00	3,336.71	40.12	62.94	10.03	-1,366.60	-9,336.21	11,943.83	11,857.23	86.60	137.916	
9,000.00	7,364.00	3,337.00	3,336.71	41.29	62.94	10.03	-1,366.60	-9,336.21	12,037.90	11,951.15	86.76	138.755	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #231 - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 230-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,100.00	7,364.00	3,337.00	3,336.71	42.49	62.94	10.03	-1,366.60	-9,336.21	12,132.07	12,045.15	86.91	139.592	
9,200.00	7,364.00	3,337.00	3,336.71	43.71	62.94	10.03	-1,366.60	-9,336.21	12,226.32	12,139.26	87.06	140.428	
9,300.00	7,364.00	3,337.00	3,336.71	44.96	62.94	10.03	-1,366.60	-9,336.21	12,320.67	12,233.45	87.22	141.263	
9,400.00	7,364.00	3,337.00	3,336.71	46.23	62.94	10.03	-1,366.60	-9,336.21	12,415.10	12,327.73	87.37	142.095	
9,500.00	7,364.00	3,337.00	3,336.71	47.52	62.94	10.03	-1,366.60	-9,336.21	12,509.62	12,422.10	87.52	142.926	
9,600.00	7,364.00	3,337.00	3,336.71	48.83	62.94	10.03	-1,366.60	-9,336.21	12,604.23	12,516.55	87.68	143.756	
9,700.00	7,364.00	3,337.00	3,336.71	50.15	62.94	10.03	-1,366.60	-9,336.21	12,698.92	12,611.09	87.83	144.584	
9,800.00	7,364.00	3,337.00	3,336.71	51.49	62.94	10.03	-1,366.60	-9,336.21	12,793.69	12,705.70	87.98	145.411	
9,900.00	7,364.00	3,337.00	3,336.71	52.85	62.94	10.03	-1,366.60	-9,336.21	12,888.53	12,800.40	88.13	146.237	
10,000.00	7,364.00	3,337.00	3,336.71	54.22	62.94	10.03	-1,366.60	-9,336.21	12,983.46	12,895.17	88.29	147.060	
10,100.00	7,364.00	3,337.00	3,336.71	55.60	62.94	10.03	-1,366.60	-9,336.21	13,078.46	12,990.02	88.44	147.883	
10,200.00	7,364.00	3,337.00	3,336.71	56.99	62.94	10.03	-1,366.60	-9,336.21	13,173.53	13,084.95	88.59	148.704	
10,300.00	7,364.00	3,337.00	3,336.71	58.40	62.94	10.03	-1,366.60	-9,336.21	13,268.68	13,179.94	88.74	149.524	
10,400.00	7,364.00	3,337.00	3,336.71	59.81	62.94	10.03	-1,366.60	-9,336.21	13,363.90	13,275.01	88.89	150.343	
10,500.00	7,364.00	3,337.00	3,336.71	61.23	62.94	10.03	-1,366.60	-9,336.21	13,459.19	13,370.15	89.04	151.160	
10,600.00	7,364.00	3,337.00	3,336.71	62.66	62.94	10.03	-1,366.60	-9,336.21	13,554.54	13,465.36	89.19	151.976	
10,700.00	7,364.00	3,337.00	3,336.71	64.10	62.94	10.03	-1,366.60	-9,336.21	13,649.97	13,560.63	89.34	152.791	
10,800.00	7,364.00	3,337.00	3,336.71	65.55	62.94	10.03	-1,366.60	-9,336.21	13,745.45	13,655.97	89.49	153.604	
10,900.00	7,364.00	3,337.00	3,336.71	67.01	62.94	10.03	-1,366.60	-9,336.21	13,841.00	13,751.37	89.63	154.416	
11,000.00	7,364.00	3,337.00	3,336.71	68.47	62.94	10.03	-1,366.60	-9,336.21	13,936.62	13,846.84	89.78	155.227	
11,100.00	7,364.00	3,337.00	3,336.71	69.93	62.94	10.03	-1,366.60	-9,336.21	14,032.29	13,942.36	89.93	156.037	
11,200.00	7,364.00	3,337.00	3,336.71	71.41	62.94	10.03	-1,366.60	-9,336.21	14,128.03	14,037.95	90.08	156.845	
11,300.00	7,364.00	3,337.00	3,336.71	72.88	62.94	10.03	-1,366.60	-9,336.21	14,223.82	14,133.60	90.22	157.653	
11,400.00	7,364.00	3,337.00	3,336.71	74.37	62.94	10.03	-1,366.60	-9,336.21	14,319.67	14,229.30	90.37	158.459	
11,500.00	7,364.00	3,337.00	3,336.71	75.85	62.94	10.03	-1,366.60	-9,336.21	14,415.58	14,325.06	90.51	159.263	
11,600.00	7,364.00	3,337.00	3,336.71	77.35	62.94	10.03	-1,366.60	-9,336.21	14,511.54	14,420.88	90.66	160.067	
11,700.00	7,364.00	3,337.00	3,336.71	78.84	62.94	10.03	-1,366.60	-9,336.21	14,607.56	14,516.75	90.80	160.869	
11,800.00	7,364.00	3,337.00	3,336.71	80.34	62.94	10.03	-1,366.60	-9,336.21	14,703.62	14,612.68	90.95	161.670	
11,900.00	7,364.00	3,337.00	3,336.71	81.85	62.94	10.03	-1,366.60	-9,336.21	14,799.75	14,708.65	91.09	162.470	
12,000.00	7,364.00	3,337.00	3,336.71	83.36	62.94	10.03	-1,366.60	-9,336.21	14,895.92	14,804.68	91.24	163.269	
12,100.00	7,364.00	3,337.00	3,336.71	84.87	62.94	10.03	-1,366.60	-9,336.21	14,992.14	14,900.76	91.38	164.067	
12,200.00	7,364.00	3,337.00	3,336.71	86.38	62.94	10.03	-1,366.60	-9,336.21	15,088.41	14,996.89	91.52	164.863	
12,300.00	7,364.00	3,337.00	3,336.71	87.90	62.94	10.03	-1,366.60	-9,336.21	15,184.73	15,093.07	91.66	165.658	
12,400.00	7,364.00	3,337.00	3,336.71	89.42	62.94	10.03	-1,366.60	-9,336.21	15,281.10	15,189.30	91.80	166.452	
12,500.00	7,364.00	3,337.00	3,336.71	90.95	62.94	10.03	-1,366.60	-9,336.21	15,377.51	15,285.57	91.95	167.245	
12,600.00	7,364.00	3,337.00	3,336.71	92.47	62.94	10.03	-1,366.60	-9,336.21	15,473.97	15,381.89	92.09	168.036	
12,700.00	7,364.00	3,337.00	3,336.71	94.00	62.94	10.03	-1,366.60	-9,336.21	15,570.48	15,478.25	92.23	168.827	
12,800.00	7,364.00	3,337.00	3,336.71	95.53	62.94	10.03	-1,366.60	-9,336.21	15,667.03	15,574.66	92.37	169.616	
12,900.00	7,364.00	3,337.00	3,336.71	97.06	62.94	10.03	-1,366.60	-9,336.21	15,763.62	15,671.11	92.51	170.404	
13,000.00	7,364.00	3,337.00	3,336.71	98.60	62.94	10.03	-1,366.60	-9,336.21	15,860.25	15,767.60	92.65	171.190	
13,100.00	7,364.00	3,337.00	3,336.71	100.14	62.94	10.03	-1,366.60	-9,336.21	15,956.92	15,864.14	92.79	171.976	
13,200.00	7,364.00	3,337.00	3,336.71	101.68	62.94	10.03	-1,366.60	-9,336.21	16,053.64	15,960.71	92.92	172.760	
13,300.00	7,364.00	3,337.00	3,336.71	103.22	62.94	10.03	-1,366.60	-9,336.21	16,150.39	16,057.33	93.06	173.543	
13,400.00	7,364.00	3,337.00	3,336.71	104.76	62.94	10.03	-1,366.60	-9,336.21	16,247.19	16,153.99	93.20	174.325	
13,500.00	7,364.00	3,337.00	3,336.71	106.31	62.94	10.03	-1,366.60	-9,336.21	16,344.02	16,250.68	93.34	175.105	
13,600.00	7,364.00	3,337.00	3,336.71	107.85	62.94	10.03	-1,366.60	-9,336.21	16,440.89	16,347.42	93.48	175.885	
13,700.00	7,364.00	3,337.00	3,336.71	109.40	62.94	10.03	-1,366.60	-9,336.21	16,537.80	16,444.19	93.61	176.663	
13,800.00	7,364.00	3,337.00	3,336.71	110.95	62.94	10.03	-1,366.60	-9,336.21	16,634.75	16,541.00	93.75	177.439	
13,900.00	7,364.00	3,337.00	3,336.71	112.50	62.94	10.03	-1,366.60	-9,336.21	16,731.73	16,637.84	93.89	178.215	
14,000.00	7,364.00	3,337.00	3,336.71	114.05	62.94	10.03	-1,366.60	-9,336.21	16,828.74	16,734.72	94.02	178.989	
14,100.00	7,364.00	3,337.00	3,336.71	115.61	62.94	10.03	-1,366.60	-9,336.21	16,925.79	16,831.64	94.16	179.762	
14,200.00	7,364.00	3,337.00	3,336.71	117.16	62.94	10.03	-1,366.60	-9,336.21	17,022.88	16,928.59	94.29	180.534	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #231 - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 230-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,300.00	7,364.00	3,337.00	3,336.71	118.72	62.94	10.03	-1,366.60	-9,336.21	17,120.00	17,025.57	94.43	181.305	
14,400.00	7,364.00	3,337.00	3,336.71	120.28	62.94	10.03	-1,366.60	-9,336.21	17,217.15	17,122.59	94.56	182.074	
14,500.00	7,364.00	3,337.00	3,336.71	121.84	62.94	10.03	-1,366.60	-9,336.21	17,314.33	17,219.64	94.70	182.842	
14,600.00	7,364.00	3,337.00	3,336.71	123.40	62.94	10.03	-1,366.60	-9,336.21	17,411.55	17,316.72	94.83	183.608	
14,700.00	7,364.00	3,337.00	3,336.71	124.96	62.94	10.03	-1,366.60	-9,336.21	17,508.80	17,413.83	94.96	184.374	
14,800.00	7,364.00	3,337.00	3,336.71	126.52	62.94	10.03	-1,366.60	-9,336.21	17,606.07	17,510.98	95.10	185.138	
14,900.00	7,364.00	3,337.00	3,336.71	128.08	62.94	10.03	-1,366.60	-9,336.21	17,703.38	17,608.15	95.23	185.901	
15,000.00	7,364.00	3,337.00	3,336.71	129.64	62.94	10.03	-1,366.60	-9,336.21	17,800.72	17,705.36	95.36	186.662	
15,100.00	7,364.00	3,337.00	3,336.71	131.21	62.94	10.03	-1,366.60	-9,336.21	17,898.09	17,802.59	95.50	187.422	
15,200.00	7,364.00	3,337.00	3,336.71	132.77	62.94	10.03	-1,366.60	-9,336.21	17,995.49	17,899.86	95.63	188.181	
15,300.00	7,364.00	3,337.00	3,336.71	134.34	62.94	10.03	-1,366.60	-9,336.21	18,092.91	17,997.15	95.76	188.939	
15,400.00	7,364.00	3,337.00	3,336.71	135.91	62.94	10.03	-1,366.60	-9,336.21	18,190.36	18,094.47	95.89	189.695	
15,500.00	7,364.00	3,337.00	3,336.71	137.48	62.94	10.03	-1,366.60	-9,336.21	18,287.84	18,191.82	96.02	190.450	
15,600.00	7,364.00	3,337.00	3,336.71	139.04	62.94	10.03	-1,366.60	-9,336.21	18,385.35	18,289.20	96.16	191.203	
15,700.00	7,364.00	3,337.00	3,336.71	140.61	62.94	10.03	-1,366.60	-9,336.21	18,482.89	18,386.60	96.29	191.956	
15,800.00	7,364.00	3,337.00	3,336.71	142.18	62.94	10.03	-1,366.60	-9,336.21	18,580.45	18,484.03	96.42	192.707	
15,900.00	7,364.00	3,337.00	3,336.71	143.75	62.94	10.03	-1,366.60	-9,336.21	18,678.03	18,581.48	96.55	193.456	
16,000.00	7,364.00	3,337.00	3,336.71	145.33	62.94	10.03	-1,366.60	-9,336.21	18,775.64	18,678.96	96.68	194.204	
16,100.00	7,364.00	3,337.00	3,336.71	146.90	62.94	10.03	-1,366.60	-9,336.21	18,873.28	18,776.47	96.81	194.951	
16,200.00	7,364.00	3,337.00	3,336.71	148.47	62.94	10.03	-1,366.60	-9,336.21	18,970.94	18,874.00	96.94	195.697	
16,300.00	7,364.00	3,337.00	3,336.71	150.04	62.94	10.03	-1,366.60	-9,336.21	19,068.63	18,971.56	97.07	196.441	
16,400.00	7,364.00	3,337.00	3,336.71	151.62	62.94	10.03	-1,366.60	-9,336.21	19,166.34	19,069.14	97.20	197.183	
16,500.00	7,364.00	3,337.00	3,336.71	153.19	62.94	10.03	-1,366.60	-9,336.21	19,264.07	19,166.74	97.33	197.925	
16,600.00	7,364.00	3,337.00	3,336.71	154.77	62.94	10.03	-1,366.60	-9,336.21	19,361.82	19,264.36	97.46	198.665	
16,700.00	7,364.00	3,337.00	3,336.71	156.34	62.94	10.03	-1,366.60	-9,336.21	19,459.60	19,362.01	97.59	199.403	
16,800.00	7,364.00	3,337.00	3,336.71	157.92	62.94	10.03	-1,366.60	-9,336.21	19,557.40	19,459.69	97.72	200.141	
16,900.00	7,364.00	3,337.00	3,336.71	159.49	62.94	10.03	-1,366.60	-9,336.21	19,655.23	19,557.38	97.85	200.876	
17,000.00	7,364.00	3,337.00	3,336.71	161.07	62.94	10.03	-1,366.60	-9,336.21	19,753.07	19,655.10	97.98	201.611	
17,100.00	7,364.00	3,337.00	3,336.71	162.65	62.94	10.03	-1,366.60	-9,336.21	19,850.94	19,752.83	98.11	202.344	
17,200.00	7,364.00	3,337.00	3,336.71	164.23	62.94	10.03	-1,366.60	-9,336.21	19,948.83	19,850.59	98.23	203.075	
17,300.00	7,364.00	3,337.00	3,336.71	165.81	62.94	10.03	-1,366.60	-9,336.21	20,046.74	19,948.37	98.36	203.806	
17,400.00	7,364.00	3,337.00	3,336.71	167.38	62.94	10.03	-1,366.60	-9,336.21	20,144.67	20,046.17	98.49	204.534	
17,500.00	7,364.00	3,337.00	3,336.71	168.96	62.94	10.03	-1,366.60	-9,336.21	20,242.61	20,144.00	98.62	205.262	
17,600.00	7,364.00	3,337.00	3,336.71	170.54	62.94	10.03	-1,366.60	-9,336.21	20,340.58	20,241.84	98.75	205.988	
17,700.00	7,364.00	3,337.00	3,336.71	172.12	62.94	10.03	-1,366.60	-9,336.21	20,438.57	20,339.70	98.87	206.712	
17,800.00	7,364.00	3,337.00	3,336.71	173.70	62.94	10.03	-1,366.60	-9,336.21	20,536.58	20,437.58	99.00	207.435	
17,900.00	7,364.00	3,337.00	3,336.71	175.28	62.94	10.03	-1,366.60	-9,336.21	20,634.61	20,535.48	99.13	208.157	
18,000.00	7,364.00	3,337.00	3,336.71	176.87	62.94	10.03	-1,366.60	-9,336.21	20,732.66	20,633.40	99.26	208.877	
18,100.00	7,364.00	3,337.00	3,336.71	178.45	62.94	10.03	-1,366.60	-9,336.21	20,830.72	20,731.34	99.39	209.596	
18,200.00	7,364.00	3,337.00	3,336.71	180.03	62.94	10.03	-1,366.60	-9,336.21	20,928.80	20,829.29	99.51	210.313	
18,300.00	7,364.00	3,337.00	3,336.71	181.61	62.94	10.03	-1,366.60	-9,336.21	21,026.90	20,927.26	99.64	211.029	
18,400.00	7,364.00	3,337.00	3,336.71	183.19	62.94	10.03	-1,366.60	-9,336.21	21,125.02	21,025.26	99.77	211.744	
18,500.00	7,364.00	3,337.00	3,336.71	184.78	62.94	10.03	-1,366.60	-9,336.21	21,223.16	21,123.27	99.89	212.457	
18,600.00	7,364.00	3,337.00	3,336.71	186.36	62.94	10.03	-1,366.60	-9,336.21	21,321.31	21,221.29	100.02	213.168	
18,700.00	7,364.00	3,337.00	3,336.71	187.94	62.94	10.03	-1,366.60	-9,336.21	21,419.49	21,319.34	100.15	213.878	
18,800.00	7,364.00	3,337.00	3,336.71	189.53	62.94	10.03	-1,366.60	-9,336.21	21,517.67	21,417.40	100.27	214.587	
18,900.00	7,364.00	3,337.00	3,336.71	191.11	62.94	10.03	-1,366.60	-9,336.21	21,615.88	21,515.48	100.40	215.294	
19,000.00	7,364.00	3,337.00	3,336.71	192.70	62.94	10.03	-1,366.60	-9,336.21	21,714.10	21,613.57	100.53	216.000	
19,100.00	7,364.00	3,337.00	3,336.71	194.28	62.94	10.03	-1,366.60	-9,336.21	21,812.34	21,711.68	100.65	216.704	
19,200.00	7,364.00	3,337.00	3,336.71	195.87	62.94	10.03	-1,366.60	-9,336.21	21,910.59	21,809.81	100.78	217.407	
19,300.00	7,364.00	3,337.00	3,336.71	197.45	62.94	10.03	-1,366.60	-9,336.21	22,008.86	21,907.95	100.91	218.109	
19,400.00	7,364.00	3,337.00	3,336.71	199.04	62.94	10.03	-1,366.60	-9,336.21	22,107.14	22,006.11	101.03	218.808	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #231 - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 230-A027Ua_INC-ONLY

Rule Assigned:

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
19,500.00	7,364.00	3,337.00	3,336.71	200.62	62.94	10.03	-1,366.60	-9,336.21	22,205.44	22,104.28	101.16	219.507	
19,600.00	7,364.00	3,337.00	3,336.71	202.21	62.94	10.03	-1,366.60	-9,336.21	22,303.76	22,202.47	101.29	220.204	
19,700.00	7,364.00	3,337.00	3,336.71	203.79	62.94	10.03	-1,366.60	-9,336.21	22,402.09	22,300.67	101.41	220.899	
19,800.00	7,364.00	3,337.00	3,336.71	205.38	62.94	10.03	-1,366.60	-9,336.21	22,500.43	22,398.89	101.54	221.593	
19,900.00	7,364.00	3,337.00	3,336.71	206.97	62.94	10.03	-1,366.60	-9,336.21	22,598.79	22,497.12	101.67	222.286	
20,000.00	7,364.00	3,337.00	3,336.71	208.55	62.94	10.03	-1,366.60	-9,336.21	22,697.16	22,595.37	101.79	222.977	
20,100.00	7,364.00	3,337.00	3,336.71	210.14	62.94	10.03	-1,366.60	-9,336.21	22,795.55	22,693.63	101.92	223.666	
20,200.00	7,364.00	3,337.00	3,336.71	211.73	62.94	10.03	-1,366.60	-9,336.21	22,893.95	22,791.91	102.04	224.354	
20,300.00	7,364.00	3,337.00	3,336.71	213.32	62.94	10.03	-1,366.60	-9,336.21	22,992.37	22,890.20	102.17	225.041	
20,400.00	7,364.00	3,337.00	3,336.71	214.90	62.94	10.03	-1,366.60	-9,336.21	23,090.80	22,988.50	102.30	225.726	
20,500.00	7,364.00	3,337.00	3,336.71	216.49	62.94	10.03	-1,366.60	-9,336.21	23,189.24	23,086.82	102.42	226.409	
20,600.00	7,364.00	3,337.00	3,336.71	218.08	62.94	10.03	-1,366.60	-9,336.21	23,287.69	23,185.15	102.55	227.091	
20,700.00	7,364.00	3,337.00	3,336.71	219.67	62.94	10.03	-1,366.60	-9,336.21	23,386.16	23,283.49	102.67	227.772	
20,800.00	7,364.00	3,337.00	3,336.71	221.26	62.94	10.03	-1,366.60	-9,336.21	23,484.64	23,381.84	102.80	228.451	
20,900.00	7,364.00	3,337.00	3,336.71	222.84	62.94	10.03	-1,366.60	-9,336.21	23,583.14	23,480.21	102.93	229.129	
21,000.00	7,364.00	3,337.00	3,336.71	224.43	62.94	10.03	-1,366.60	-9,336.21	23,681.64	23,578.59	103.05	229.805	
21,100.00	7,364.00	3,337.00	3,336.71	226.02	62.94	10.03	-1,366.60	-9,336.21	23,780.16	23,676.99	103.18	230.479	
21,200.00	7,364.00	3,337.00	3,336.71	227.61	62.94	10.03	-1,366.60	-9,336.21	23,878.70	23,775.39	103.30	231.152	
21,300.00	7,364.00	3,337.00	3,336.71	229.20	62.94	10.03	-1,366.60	-9,336.21	23,977.24	23,873.81	103.43	231.824	
21,400.00	7,364.00	3,337.00	3,336.71	230.79	62.94	10.03	-1,366.60	-9,336.21	24,075.80	23,972.24	103.55	232.494	
21,500.00	7,364.00	3,337.00	3,336.71	232.38	62.94	10.03	-1,366.60	-9,336.21	24,174.36	24,070.68	103.68	233.163	
21,600.00	7,364.00	3,337.00	3,336.71	233.97	62.94	10.03	-1,366.60	-9,336.21	24,272.94	24,169.14	103.81	233.830	
21,700.00	7,364.00	3,337.00	3,336.71	235.56	62.94	10.03	-1,366.60	-9,336.21	24,371.53	24,267.60	103.93	234.495	
21,800.00	7,364.00	3,337.00	3,336.71	237.15	62.94	10.03	-1,366.60	-9,336.21	24,470.14	24,366.08	104.06	235.160	
21,864.93	7,364.00	3,337.00	3,336.71	238.18	62.94	10.03	-1,366.60	-9,336.21	24,534.16	24,430.02	104.14	235.590	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #231A - OH - OH — **Offset Site Error:** 0.00 usft

Survey Program: 322-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	3.28	0.00	-105.29	-1,747.99	-6,392.03	6,627.52				
100.00	100.00	0.00	0.00	3.29	0.00	-105.29	-1,747.99	-6,392.03	6,626.73	6,623.44	3.29	2,014.336	
134.01	134.01	32.01	32.01	3.30	0.34	-105.29	-1,747.99	-6,392.03	6,626.73	6,623.09	3.64	1,819.539	
200.00	200.00	98.00	98.00	3.34	1.04	-105.29	-1,747.99	-6,392.03	6,626.73	6,622.35	4.38	1,513.245	
300.00	300.00	198.00	198.00	3.42	2.11	-105.29	-1,747.99	-6,392.03	6,626.73	6,621.20	5.53	1,198.987	
400.00	400.00	298.00	298.00	3.54	3.17	-105.29	-1,747.99	-6,392.03	6,626.73	6,620.02	6.71	987.702	
500.00	500.00	398.02	398.00	3.69	4.98	-105.29	-1,747.99	-6,392.03	6,626.73	6,618.06	8.67	764.525	
600.00	599.98	498.00	497.98	3.86	7.02	104.71	-1,747.99	-6,392.03	6,627.17	6,616.29	10.88	609.124	
700.00	699.84	594.75	594.73	4.04	9.00	104.74	-1,747.04	-6,392.03	6,628.26	6,615.21	13.04	508.161	
808.00	807.41	695.62	695.59	4.27	11.06	104.76	-1,747.42	-6,392.03	6,630.81	6,615.47	15.33	432.415	
900.00	898.89	796.96	796.89	4.49	13.13	87.68	-1,747.99	-6,392.03	6,632.01	6,614.39	17.62	376.360	
912.12	910.94	809.01	808.94	4.52	13.38	85.47	-1,747.99	-6,392.03	6,631.94	6,614.04	17.90	370.547	
1,000.00	998.31	896.38	896.31	4.74	15.17	85.55	-1,747.99	-6,392.03	6,631.19	6,611.28	19.91	333.098	
1,100.00	1,097.73	995.80	995.73	5.01	17.20	85.64	-1,747.99	-6,392.03	6,630.36	6,608.15	22.21	298.519	
1,200.00	1,197.15	1,093.74	1,093.66	5.29	19.20	85.74	-1,747.08	-6,392.03	6,629.32	6,604.82	24.50	270.604	
1,300.00	1,296.58	1,189.43	1,189.35	5.59	21.16	85.82	-1,747.27	-6,392.03	6,628.58	6,601.83	26.75	247.778	
1,400.00	1,396.00	1,285.17	1,285.08	5.90	23.12	85.91	-1,747.68	-6,392.03	6,627.91	6,598.89	29.02	228.411	
1,500.00	1,495.42	1,393.56	1,393.42	6.22	25.38	86.01	-1,747.99	-6,392.03	6,627.22	6,595.62	31.60	209.746	
1,600.00	1,594.84	1,492.98	1,492.84	6.54	27.49	86.10	-1,747.99	-6,392.03	6,626.48	6,592.44	34.03	194.699	
1,700.00	1,694.27	1,590.13	1,589.99	6.87	29.56	86.20	-1,747.06	-6,392.03	6,625.52	6,589.09	36.43	181.865	
1,800.00	1,793.69	1,683.51	1,683.36	7.21	31.55	86.28	-1,747.36	-6,392.03	6,624.89	6,586.14	38.75	170.953	
1,900.00	1,893.11	1,791.31	1,791.11	7.55	33.84	86.38	-1,747.99	-6,392.03	6,624.35	6,582.96	41.39	160.062	
2,000.00	1,992.53	1,890.74	1,890.53	7.89	35.95	86.47	-1,747.99	-6,392.03	6,623.68	6,579.83	43.85	151.065	
2,100.00	2,091.96	1,990.16	1,989.96	8.24	38.07	86.56	-1,747.99	-6,392.03	6,623.02	6,576.71	46.31	143.012	
2,200.00	2,191.38	2,086.11	2,085.90	8.60	40.11	86.66	-1,746.97	-6,392.03	6,622.14	6,573.43	48.70	135.966	
2,300.00	2,290.80	2,180.37	2,180.16	8.95	42.11	86.74	-1,747.33	-6,392.03	6,621.61	6,570.54	51.06	129.670	
2,400.00	2,390.22	2,288.50	2,288.22	9.31	44.41	86.84	-1,747.99	-6,392.03	6,621.16	6,567.43	53.72	123.246	
2,500.00	2,489.65	2,387.92	2,387.65	9.67	46.53	86.93	-1,747.99	-6,392.03	6,620.57	6,564.37	56.20	117.806	
2,600.00	2,589.07	2,487.35	2,487.07	10.03	48.64	87.02	-1,747.99	-6,392.03	6,620.00	6,561.32	58.68	112.822	
2,700.00	2,688.49	2,583.44	2,583.15	10.40	50.69	87.12	-1,746.97	-6,392.03	6,619.21	6,558.13	61.08	108.361	
2,800.00	2,787.91	2,677.85	2,677.55	10.76	52.70	87.20	-1,747.33	-6,392.03	6,618.77	6,555.31	63.46	104.299	
2,900.00	2,887.33	2,785.69	2,785.33	11.13	54.98	87.30	-1,747.99	-6,392.03	6,618.39	6,552.29	66.11	100.115	
3,000.00	2,986.76	2,885.11	2,884.76	11.50	57.01	87.39	-1,747.99	-6,392.03	6,617.89	6,549.39	68.51	96.600	
3,100.00	3,086.18	2,981.37	2,981.00	11.87	58.98	87.49	-1,747.29	-6,392.03	6,617.26	6,546.41	70.85	93.404	
3,200.00	3,185.60	3,073.80	3,073.43	12.24	60.87	87.57	-1,747.70	-6,392.03	6,616.89	6,543.79	73.11	90.512	
3,300.00	3,285.02	3,183.42	3,183.02	12.61	63.05	87.67	-1,747.99	-6,392.03	6,616.50	6,540.84	75.66	87.454	
3,400.00	3,384.45	3,282.84	3,282.45	12.98	65.00	87.76	-1,747.99	-6,392.03	6,616.07	6,538.09	77.98	84.844	
3,500.00	3,483.87	3,382.26	3,381.87	13.36	66.95	87.85	-1,747.99	-6,392.03	6,615.65	6,535.35	80.30	82.384	
3,528.40	3,512.10	3,384.00	3,383.58	13.46	66.98	87.85	-1,747.99	-6,392.03	6,615.59	6,535.15	80.44	82.240	CC, ES
3,600.00	3,583.29	3,384.00	3,383.58	13.73	66.98	87.85	-1,747.99	-6,392.03	6,615.98	6,535.28	80.70	81.980	
3,700.00	3,682.71	3,384.00	3,383.58	14.11	66.98	87.85	-1,747.99	-6,392.03	6,617.82	6,536.76	81.05	81.649	
3,800.00	3,782.14	3,384.00	3,383.58	14.48	66.98	87.85	-1,747.99	-6,392.03	6,621.16	6,539.78	81.38	81.357	
3,900.00	3,881.56	3,384.00	3,383.58	14.86	66.98	87.85	-1,747.99	-6,392.03	6,626.02	6,544.32	81.70	81.102	
4,000.00	3,980.98	3,384.00	3,383.58	15.24	66.98	87.85	-1,747.99	-6,392.03	6,632.38	6,550.38	82.00	80.886	
4,100.00	4,080.40	3,384.00	3,383.58	15.61	66.98	87.85	-1,747.99	-6,392.03	6,640.23	6,557.96	82.28	80.706	
4,200.00	4,179.83	3,384.00	3,383.58	15.99	66.98	87.85	-1,747.99	-6,392.03	6,649.59	6,567.05	82.54	80.562	
4,300.00	4,279.25	3,384.00	3,383.58	16.37	66.98	87.85	-1,747.99	-6,392.03	6,660.43	6,577.65	82.78	80.455	
4,400.00	4,378.67	3,384.00	3,383.58	16.75	66.98	87.85	-1,747.99	-6,392.03	6,672.75	6,589.74	83.01	80.383	
4,500.00	4,478.09	3,384.00	3,383.58	17.13	66.98	87.85	-1,747.99	-6,392.03	6,686.55	6,603.33	83.22	80.346	
4,600.00	4,577.51	3,384.00	3,383.58	17.51	66.98	87.85	-1,747.99	-6,392.03	6,701.81	6,618.39	83.41	80.344	SF
4,700.00	4,676.94	3,384.00	3,383.58	17.89	66.98	87.85	-1,747.99	-6,392.03	6,718.52	6,634.93	83.59	80.375	
4,800.00	4,776.36	3,384.00	3,383.58	18.27	66.98	87.85	-1,747.99	-6,392.03	6,736.68	6,652.93	83.75	80.440	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #231A - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 322-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
4,900.00	4,875.78	3,384.00	3,383.58	18.65	66.98	87.85	-1,747.99	-6,392.03	6,756.27	6,672.38	83.89	80.538	
5,000.00	4,975.20	3,384.00	3,383.58	19.03	66.98	87.85	-1,747.99	-6,392.03	6,777.28	6,693.26	84.01	80.668	
5,100.00	5,074.63	3,384.00	3,383.58	19.41	66.98	87.85	-1,747.99	-6,392.03	6,799.69	6,715.57	84.12	80.830	
5,200.00	5,174.05	3,384.00	3,383.58	19.79	66.98	87.85	-1,747.99	-6,392.03	6,823.49	6,739.28	84.22	81.024	
5,300.00	5,273.47	3,384.00	3,383.58	20.17	66.98	87.85	-1,747.99	-6,392.03	6,848.68	6,764.38	84.29	81.248	
5,400.00	5,372.89	3,384.00	3,383.58	20.56	66.98	87.85	-1,747.99	-6,392.03	6,875.22	6,790.87	84.36	81.503	
5,500.00	5,472.32	3,384.00	3,383.58	20.94	66.98	87.85	-1,747.99	-6,392.03	6,903.11	6,818.71	84.40	81.788	
5,600.00	5,571.74	3,384.00	3,383.58	21.32	66.98	87.85	-1,747.99	-6,392.03	6,932.34	6,847.90	84.43	82.103	
5,700.00	5,671.16	3,384.00	3,383.58	21.70	66.98	87.85	-1,747.99	-6,392.03	6,962.87	6,878.42	84.45	82.446	
5,800.00	5,770.58	3,384.00	3,383.58	22.08	66.98	87.85	-1,747.99	-6,392.03	6,994.71	6,910.25	84.46	82.818	
5,900.00	5,870.01	3,384.00	3,383.58	22.47	66.98	87.85	-1,747.99	-6,392.03	7,027.82	6,943.37	84.45	83.218	
6,000.00	5,969.43	3,384.00	3,383.58	22.85	66.98	87.85	-1,747.99	-6,392.03	7,062.19	6,977.76	84.43	83.645	
6,100.00	6,068.85	3,384.00	3,383.58	23.23	66.98	87.85	-1,747.99	-6,392.03	7,097.80	7,013.41	84.40	84.099	
6,200.00	6,168.27	3,384.00	3,383.58	23.62	66.98	87.85	-1,747.99	-6,392.03	7,134.64	7,050.29	84.35	84.580	
6,300.00	6,267.70	3,384.00	3,383.58	24.00	66.98	87.85	-1,747.99	-6,392.03	7,172.69	7,088.39	84.30	85.087	
6,400.00	6,367.12	3,384.00	3,383.58	24.38	66.98	87.85	-1,747.99	-6,392.03	7,211.92	7,127.68	84.23	85.619	
6,500.00	6,466.54	3,384.00	3,383.58	24.77	66.98	87.85	-1,747.99	-6,392.03	7,252.31	7,168.16	84.16	86.176	
6,600.00	6,565.96	3,384.00	3,383.58	25.15	66.98	87.85	-1,747.99	-6,392.03	7,293.86	7,209.79	84.07	86.757	
6,700.00	6,665.38	3,384.00	3,383.58	25.53	66.98	87.85	-1,747.99	-6,392.03	7,336.53	7,252.55	83.98	87.363	
6,778.75	6,743.68	3,384.00	3,383.58	25.84	66.98	87.85	-1,747.99	-6,392.03	7,370.91	7,287.02	83.90	87.856	
6,800.00	6,764.80	3,384.00	3,383.58	25.92	66.98	103.65	-1,747.99	-6,392.03	7,380.62	7,296.74	83.88	87.993	
6,850.00	6,814.29	3,384.00	3,383.58	26.11	66.98	127.42	-1,747.99	-6,392.03	7,406.01	7,322.18	83.83	88.342	
6,900.00	6,863.27	3,384.00	3,383.58	26.30	66.98	138.59	-1,747.99	-6,392.03	7,434.85	7,351.05	83.80	88.725	
6,950.00	6,911.44	3,384.00	3,383.58	26.50	66.98	144.11	-1,747.99	-6,392.03	7,466.90	7,383.14	83.77	89.141	
7,000.00	6,958.49	3,384.00	3,383.58	26.68	66.98	146.85	-1,747.99	-6,392.03	7,501.95	7,418.21	83.74	89.586	
7,050.00	7,004.14	3,384.00	3,383.58	26.87	66.98	147.92	-1,747.99	-6,392.03	7,539.72	7,456.00	83.72	90.057	
7,100.00	7,048.10	3,384.00	3,383.58	27.05	66.98	147.76	-1,747.99	-6,392.03	7,579.95	7,496.24	83.71	90.550	
7,150.00	7,090.11	3,384.00	3,383.58	27.23	66.98	146.46	-1,747.99	-6,392.03	7,622.35	7,538.64	83.71	91.061	
7,200.00	7,129.90	3,384.00	3,383.58	27.41	66.98	143.90	-1,747.99	-6,392.03	7,666.63	7,582.92	83.71	91.584	
7,250.00	7,167.24	3,384.00	3,383.58	27.59	66.98	139.67	-1,747.99	-6,392.03	7,712.48	7,628.76	83.73	92.117	
7,300.00	7,201.88	3,384.00	3,383.58	27.76	66.98	132.98	-1,747.99	-6,392.03	7,759.60	7,675.85	83.75	92.654	
7,350.00	7,233.63	3,384.00	3,383.58	27.94	66.98	122.45	-1,747.99	-6,392.03	7,807.68	7,723.89	83.78	93.190	
7,400.00	7,262.27	3,384.00	3,383.58	28.13	66.98	106.31	-1,747.99	-6,392.03	7,856.39	7,772.57	83.83	93.721	
7,450.00	7,287.63	3,384.00	3,383.58	28.32	66.98	84.49	-1,747.99	-6,392.03	7,905.45	7,821.57	83.88	94.243	
7,500.00	7,309.57	3,384.00	3,383.58	28.53	66.98	62.07	-1,747.99	-6,392.03	7,954.53	7,870.58	83.95	94.750	
7,550.00	7,327.93	3,384.00	3,383.58	28.74	66.98	44.77	-1,747.99	-6,392.03	8,003.34	7,919.31	84.04	95.238	
7,600.00	7,342.62	3,384.00	3,383.58	28.97	66.98	33.16	-1,747.99	-6,392.03	8,051.59	7,967.46	84.13	95.703	
7,650.00	7,353.53	3,384.00	3,383.58	29.22	66.98	25.48	-1,747.99	-6,392.03	8,098.99	8,014.75	84.24	96.138	
7,700.00	7,360.61	3,384.00	3,383.58	29.48	66.98	20.22	-1,747.99	-6,392.03	8,145.26	8,060.89	84.37	96.542	
7,750.00	7,363.80	3,384.00	3,383.58	29.75	66.98	16.46	-1,747.99	-6,392.03	8,190.15	8,105.63	84.51	96.908	
7,765.93	7,364.00	3,384.00	3,383.58	29.84	66.98	15.48	-1,747.99	-6,392.03	8,204.11	8,119.55	84.56	97.018	
7,800.00	7,364.00	3,384.00	3,383.58	30.04	66.98	15.48	-1,747.99	-6,392.03	8,233.82	8,149.15	84.67	97.242	
7,900.00	7,364.00	3,384.00	3,383.58	30.67	66.98	15.48	-1,747.99	-6,392.03	8,321.21	8,236.21	85.00	97.896	
8,000.00	7,364.00	3,384.00	3,383.58	31.37	66.98	15.48	-1,747.99	-6,392.03	8,408.87	8,323.55	85.32	98.551	
8,100.00	7,364.00	3,384.00	3,383.58	32.14	66.98	15.48	-1,747.99	-6,392.03	8,496.81	8,411.17	85.65	99.209	
8,200.00	7,364.00	3,384.00	3,383.58	32.96	66.98	15.48	-1,747.99	-6,392.03	8,585.02	8,499.05	85.96	99.868	
8,300.00	7,364.00	3,384.00	3,383.58	33.85	66.98	15.48	-1,747.99	-6,392.03	8,673.47	8,587.20	86.28	100.530	
8,400.00	7,364.00	3,384.00	3,383.58	34.79	66.98	15.48	-1,747.99	-6,392.03	8,762.18	8,675.59	86.59	101.193	
8,500.00	7,364.00	3,384.00	3,383.58	35.77	66.98	15.48	-1,747.99	-6,392.03	8,851.13	8,764.23	86.90	101.858	
8,600.00	7,364.00	3,384.00	3,383.58	36.80	66.98	15.48	-1,747.99	-6,392.03	8,940.31	8,853.11	87.20	102.525	
8,700.00	7,364.00	3,384.00	3,383.58	37.87	66.98	15.48	-1,747.99	-6,392.03	9,029.72	8,942.22	87.50	103.194	
8,800.00	7,364.00	3,384.00	3,383.58	38.98	66.98	15.48	-1,747.99	-6,392.03	9,119.35	9,031.55	87.80	103.865	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #231A - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 322-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
8,900.00	7,364.00	3,384.00	3,383.58	40.12	66.98	15.48	-1,747.99	-6,392.03	9,209.19	9,121.10	88.09	104.539	
9,000.00	7,364.00	3,384.00	3,383.58	41.29	66.98	15.48	-1,747.99	-6,392.03	9,299.24	9,210.85	88.38	105.214	
9,100.00	7,364.00	3,384.00	3,383.58	42.49	66.98	15.48	-1,747.99	-6,392.03	9,389.49	9,300.82	88.67	105.891	
9,200.00	7,364.00	3,384.00	3,383.58	43.71	66.98	15.48	-1,747.99	-6,392.03	9,479.94	9,390.98	88.96	106.570	
9,300.00	7,364.00	3,384.00	3,383.58	44.96	66.98	15.48	-1,747.99	-6,392.03	9,570.57	9,481.34	89.24	107.250	
9,400.00	7,364.00	3,384.00	3,383.58	46.23	66.98	15.48	-1,747.99	-6,392.03	9,661.39	9,571.88	89.51	107.933	
9,500.00	7,364.00	3,384.00	3,383.58	47.52	66.98	15.48	-1,747.99	-6,392.03	9,752.39	9,662.61	89.79	108.618	
9,600.00	7,364.00	3,384.00	3,383.58	48.83	66.98	15.48	-1,747.99	-6,392.03	9,843.57	9,753.51	90.06	109.304	
9,700.00	7,364.00	3,384.00	3,383.58	50.15	66.98	15.48	-1,747.99	-6,392.03	9,934.91	9,844.59	90.32	109.992	
9,800.00	7,364.00	3,384.00	3,383.58	51.49	66.98	15.48	-1,747.99	-6,392.03	10,026.42	9,935.84	90.59	110.682	
9,900.00	7,364.00	3,384.00	3,383.58	52.85	66.98	15.48	-1,747.99	-6,392.03	10,118.10	10,027.25	90.85	111.373	
10,000.00	7,364.00	3,384.00	3,383.58	54.22	66.98	15.48	-1,747.99	-6,392.03	10,209.92	10,118.82	91.11	112.066	
10,100.00	7,364.00	3,384.00	3,383.58	55.60	66.98	15.48	-1,747.99	-6,392.03	10,301.90	10,210.54	91.36	112.761	
10,200.00	7,364.00	3,384.00	3,383.58	56.99	66.98	15.48	-1,747.99	-6,392.03	10,394.03	10,302.42	91.61	113.457	
10,300.00	7,364.00	3,384.00	3,383.58	58.40	66.98	15.48	-1,747.99	-6,392.03	10,486.30	10,394.44	91.86	114.155	
10,400.00	7,364.00	3,384.00	3,383.58	59.81	66.98	15.48	-1,747.99	-6,392.03	10,578.71	10,486.61	92.11	114.854	
10,500.00	7,364.00	3,384.00	3,383.58	61.23	66.98	15.48	-1,747.99	-6,392.03	10,671.26	10,578.92	92.35	115.555	
10,600.00	7,364.00	3,384.00	3,383.58	62.66	66.98	15.48	-1,747.99	-6,392.03	10,763.95	10,671.36	92.59	116.257	
10,700.00	7,364.00	3,384.00	3,383.58	64.10	66.98	15.48	-1,747.99	-6,392.03	10,856.76	10,763.93	92.82	116.960	
10,800.00	7,364.00	3,384.00	3,383.58	65.55	66.98	15.48	-1,747.99	-6,392.03	10,949.70	10,856.64	93.06	117.664	
10,900.00	7,364.00	3,384.00	3,383.58	67.01	66.98	15.48	-1,747.99	-6,392.03	11,042.76	10,949.47	93.29	118.370	
11,000.00	7,364.00	3,384.00	3,383.58	68.47	66.98	15.48	-1,747.99	-6,392.03	11,135.94	11,042.42	93.52	119.077	
11,100.00	7,364.00	3,384.00	3,383.58	69.93	66.98	15.48	-1,747.99	-6,392.03	11,229.24	11,135.50	93.75	119.785	
11,200.00	7,364.00	3,384.00	3,383.58	71.41	66.98	15.48	-1,747.99	-6,392.03	11,322.66	11,228.69	93.97	120.494	
11,300.00	7,364.00	3,384.00	3,383.58	72.88	66.98	15.48	-1,747.99	-6,392.03	11,416.18	11,321.99	94.19	121.204	
11,400.00	7,364.00	3,384.00	3,383.58	74.37	66.98	15.48	-1,747.99	-6,392.03	11,509.82	11,415.41	94.41	121.915	
11,500.00	7,364.00	3,384.00	3,383.58	75.85	66.98	15.48	-1,747.99	-6,392.03	11,603.56	11,508.93	94.62	122.627	
11,600.00	7,364.00	3,384.00	3,383.58	77.35	66.98	15.48	-1,747.99	-6,392.03	11,697.40	11,602.56	94.84	123.340	
11,700.00	7,364.00	3,384.00	3,383.58	78.84	66.98	15.48	-1,747.99	-6,392.03	11,791.35	11,696.30	95.05	124.053	
11,800.00	7,364.00	3,384.00	3,383.58	80.34	66.98	15.48	-1,747.99	-6,392.03	11,885.39	11,790.13	95.26	124.768	
11,900.00	7,364.00	3,384.00	3,383.58	81.85	66.98	15.48	-1,747.99	-6,392.03	11,979.53	11,884.07	95.47	125.483	
12,000.00	7,364.00	3,384.00	3,383.58	83.36	66.98	15.48	-1,747.99	-6,392.03	12,073.77	11,978.10	95.67	126.199	
12,100.00	7,364.00	3,384.00	3,383.58	84.87	66.98	15.48	-1,747.99	-6,392.03	12,168.10	12,072.22	95.88	126.916	
12,200.00	7,364.00	3,384.00	3,383.58	86.38	66.98	15.48	-1,747.99	-6,392.03	12,262.51	12,166.44	96.08	127.633	
12,300.00	7,364.00	3,384.00	3,383.58	87.90	66.98	15.48	-1,747.99	-6,392.03	12,357.02	12,260.74	96.28	128.351	
12,400.00	7,364.00	3,384.00	3,383.58	89.42	66.98	15.48	-1,747.99	-6,392.03	12,451.61	12,355.14	96.47	129.069	
12,500.00	7,364.00	3,384.00	3,383.58	90.95	66.98	15.48	-1,747.99	-6,392.03	12,546.28	12,449.62	96.67	129.788	
12,600.00	7,364.00	3,384.00	3,383.58	92.47	66.98	15.48	-1,747.99	-6,392.03	12,641.04	12,544.18	96.86	130.507	
12,700.00	7,364.00	3,384.00	3,383.58	94.00	66.98	15.48	-1,747.99	-6,392.03	12,735.88	12,638.83	97.05	131.227	
12,800.00	7,364.00	3,384.00	3,383.58	95.53	66.98	15.48	-1,747.99	-6,392.03	12,830.79	12,733.55	97.24	131.947	
12,900.00	7,364.00	3,384.00	3,383.58	97.06	66.98	15.48	-1,747.99	-6,392.03	12,925.78	12,828.35	97.43	132.667	
13,000.00	7,364.00	3,384.00	3,383.58	98.60	66.98	15.48	-1,747.99	-6,392.03	13,020.85	12,923.24	97.62	133.388	
13,100.00	7,364.00	3,384.00	3,383.58	100.14	66.98	15.48	-1,747.99	-6,392.03	13,115.99	13,018.19	97.80	134.109	
13,200.00	7,364.00	3,384.00	3,383.58	101.68	66.98	15.48	-1,747.99	-6,392.03	13,211.20	13,113.22	97.98	134.830	
13,300.00	7,364.00	3,384.00	3,383.58	103.22	66.98	15.48	-1,747.99	-6,392.03	13,306.49	13,208.32	98.17	135.552	
13,400.00	7,364.00	3,384.00	3,383.58	104.76	66.98	15.48	-1,747.99	-6,392.03	13,401.84	13,303.49	98.35	136.273	
13,500.00	7,364.00	3,384.00	3,383.58	106.31	66.98	15.48	-1,747.99	-6,392.03	13,497.26	13,398.73	98.52	136.995	
13,600.00	7,364.00	3,384.00	3,383.58	107.85	66.98	15.48	-1,747.99	-6,392.03	13,592.74	13,494.04	98.70	137.717	
13,700.00	7,364.00	3,384.00	3,383.58	109.40	66.98	15.48	-1,747.99	-6,392.03	13,688.29	13,589.41	98.88	138.439	
13,800.00	7,364.00	3,384.00	3,383.58	110.95	66.98	15.48	-1,747.99	-6,392.03	13,783.90	13,684.85	99.05	139.161	
13,900.00	7,364.00	3,384.00	3,383.58	112.50	66.98	15.48	-1,747.99	-6,392.03	13,879.57	13,780.35	99.22	139.883	
14,000.00	7,364.00	3,384.00	3,383.58	114.05	66.98	15.48	-1,747.99	-6,392.03	13,975.31	13,875.92	99.39	140.605	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #231A - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 322-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,100.00	7,364.00	3,384.00	3,383.58	115.61	66.98	15.48	-1,747.99	-6,392.03	14,071.10	13,971.54	99.56	141.327	
14,200.00	7,364.00	3,384.00	3,383.58	117.16	66.98	15.48	-1,747.99	-6,392.03	14,166.95	14,067.22	99.73	142.049	
14,300.00	7,364.00	3,384.00	3,383.58	118.72	66.98	15.48	-1,747.99	-6,392.03	14,262.86	14,162.96	99.90	142.771	
14,400.00	7,364.00	3,384.00	3,383.58	120.28	66.98	15.48	-1,747.99	-6,392.03	14,358.83	14,258.76	100.07	143.493	
14,500.00	7,364.00	3,384.00	3,383.58	121.84	66.98	15.48	-1,747.99	-6,392.03	14,454.85	14,354.62	100.23	144.214	
14,600.00	7,364.00	3,384.00	3,383.58	123.40	66.98	15.48	-1,747.99	-6,392.03	14,550.92	14,450.52	100.40	144.935	
14,700.00	7,364.00	3,384.00	3,383.58	124.96	66.98	15.48	-1,747.99	-6,392.03	14,647.05	14,546.49	100.56	145.657	
14,800.00	7,364.00	3,384.00	3,383.58	126.52	66.98	15.48	-1,747.99	-6,392.03	14,743.22	14,642.50	100.72	146.378	
14,900.00	7,364.00	3,384.00	3,383.58	128.08	66.98	15.48	-1,747.99	-6,392.03	14,839.45	14,738.57	100.88	147.098	
15,000.00	7,364.00	3,384.00	3,383.58	129.64	66.98	15.48	-1,747.99	-6,392.03	14,935.73	14,834.69	101.04	147.819	
15,100.00	7,364.00	3,384.00	3,383.58	131.21	66.98	15.48	-1,747.99	-6,392.03	15,032.05	14,930.85	101.20	148.539	
15,200.00	7,364.00	3,384.00	3,383.58	132.77	66.98	15.48	-1,747.99	-6,392.03	15,128.43	15,027.07	101.36	149.258	
15,300.00	7,364.00	3,384.00	3,383.58	134.34	66.98	15.48	-1,747.99	-6,392.03	15,224.85	15,123.33	101.51	149.978	
15,400.00	7,364.00	3,384.00	3,383.58	135.91	66.98	15.48	-1,747.99	-6,392.03	15,321.31	15,219.64	101.67	150.697	
15,500.00	7,364.00	3,384.00	3,383.58	137.48	66.98	15.48	-1,747.99	-6,392.03	15,417.82	15,316.00	101.82	151.415	
15,600.00	7,364.00	3,384.00	3,383.58	139.04	66.98	15.48	-1,747.99	-6,392.03	15,514.38	15,412.40	101.98	152.134	
15,700.00	7,364.00	3,384.00	3,383.58	140.61	66.98	15.48	-1,747.99	-6,392.03	15,610.98	15,508.85	102.13	152.851	
15,800.00	7,364.00	3,384.00	3,383.58	142.18	66.98	15.48	-1,747.99	-6,392.03	15,707.62	15,605.34	102.28	153.569	
15,900.00	7,364.00	3,384.00	3,383.58	143.75	66.98	15.48	-1,747.99	-6,392.03	15,804.30	15,701.87	102.44	154.286	
16,000.00	7,364.00	3,384.00	3,383.58	145.33	66.98	15.48	-1,747.99	-6,392.03	15,901.03	15,798.44	102.59	155.002	
16,100.00	7,364.00	3,384.00	3,383.58	146.90	66.98	15.48	-1,747.99	-6,392.03	15,997.79	15,895.05	102.74	155.718	
16,200.00	7,364.00	3,384.00	3,383.58	148.47	66.98	15.48	-1,747.99	-6,392.03	16,094.59	15,991.71	102.88	156.433	
16,300.00	7,364.00	3,384.00	3,383.58	150.04	66.98	15.48	-1,747.99	-6,392.03	16,191.44	16,088.40	103.03	157.148	
16,400.00	7,364.00	3,384.00	3,383.58	151.62	66.98	15.48	-1,747.99	-6,392.03	16,288.32	16,185.14	103.18	157.862	
16,500.00	7,364.00	3,384.00	3,383.58	153.19	66.98	15.48	-1,747.99	-6,392.03	16,385.24	16,281.91	103.33	158.576	
16,600.00	7,364.00	3,384.00	3,383.58	154.77	66.98	15.48	-1,747.99	-6,392.03	16,482.19	16,378.72	103.47	159.289	
16,700.00	7,364.00	3,384.00	3,383.58	156.34	66.98	15.48	-1,747.99	-6,392.03	16,579.18	16,475.56	103.62	160.001	
16,800.00	7,364.00	3,384.00	3,383.58	157.92	66.98	15.48	-1,747.99	-6,392.03	16,676.21	16,572.45	103.76	160.713	
16,900.00	7,364.00	3,384.00	3,383.58	159.49	66.98	15.48	-1,747.99	-6,392.03	16,773.27	16,669.36	103.91	161.424	
17,000.00	7,364.00	3,384.00	3,383.58	161.07	66.98	15.48	-1,747.99	-6,392.03	16,870.37	16,766.32	104.05	162.134	
17,100.00	7,364.00	3,384.00	3,383.58	162.65	66.98	15.48	-1,747.99	-6,392.03	16,967.50	16,863.30	104.19	162.844	
17,200.00	7,364.00	3,384.00	3,383.58	164.23	66.98	15.48	-1,747.99	-6,392.03	17,064.66	16,960.32	104.34	163.553	
17,300.00	7,364.00	3,384.00	3,383.58	165.81	66.98	15.48	-1,747.99	-6,392.03	17,161.86	17,057.38	104.48	164.261	
17,400.00	7,364.00	3,384.00	3,383.58	167.38	66.98	15.48	-1,747.99	-6,392.03	17,259.08	17,154.46	104.62	164.969	
17,500.00	7,364.00	3,384.00	3,383.58	168.96	66.98	15.48	-1,747.99	-6,392.03	17,356.34	17,251.58	104.76	165.676	
17,600.00	7,364.00	3,384.00	3,383.58	170.54	66.98	15.48	-1,747.99	-6,392.03	17,453.63	17,348.73	104.90	166.382	
17,700.00	7,364.00	3,384.00	3,383.58	172.12	66.98	15.48	-1,747.99	-6,392.03	17,550.95	17,445.91	105.04	167.087	
17,800.00	7,364.00	3,384.00	3,383.58	173.70	66.98	15.48	-1,747.99	-6,392.03	17,648.31	17,543.13	105.18	167.791	
17,900.00	7,364.00	3,384.00	3,383.58	175.28	66.98	15.48	-1,747.99	-6,392.03	17,745.69	17,640.37	105.32	168.495	
18,000.00	7,364.00	3,384.00	3,383.58	176.87	66.98	15.48	-1,747.99	-6,392.03	17,843.09	17,737.64	105.46	169.198	
18,100.00	7,364.00	3,384.00	3,383.58	178.45	66.98	15.48	-1,747.99	-6,392.03	17,940.53	17,834.94	105.59	169.900	
18,200.00	7,364.00	3,384.00	3,383.58	180.03	66.98	15.48	-1,747.99	-6,392.03	18,038.00	17,932.27	105.73	170.601	
18,300.00	7,364.00	3,384.00	3,383.58	181.61	66.98	15.48	-1,747.99	-6,392.03	18,135.49	18,029.62	105.87	171.302	
18,400.00	7,364.00	3,384.00	3,383.58	183.19	66.98	15.48	-1,747.99	-6,392.03	18,233.01	18,127.01	106.01	172.001	
18,500.00	7,364.00	3,384.00	3,383.58	184.78	66.98	15.48	-1,747.99	-6,392.03	18,330.56	18,224.42	106.14	172.700	
18,600.00	7,364.00	3,384.00	3,383.58	186.36	66.98	15.48	-1,747.99	-6,392.03	18,428.13	18,321.85	106.28	173.397	
18,700.00	7,364.00	3,384.00	3,383.58	187.94	66.98	15.48	-1,747.99	-6,392.03	18,525.73	18,419.32	106.41	174.094	
18,800.00	7,364.00	3,384.00	3,383.58	189.53	66.98	15.48	-1,747.99	-6,392.03	18,623.36	18,516.81	106.55	174.790	
18,900.00	7,364.00	3,384.00	3,383.58	191.11	66.98	15.48	-1,747.99	-6,392.03	18,721.01	18,614.32	106.68	175.485	
19,000.00	7,364.00	3,384.00	3,383.58	192.70	66.98	15.48	-1,747.99	-6,392.03	18,818.68	18,711.86	106.82	176.179	
19,100.00	7,364.00	3,384.00	3,383.58	194.28	66.98	15.48	-1,747.99	-6,392.03	18,916.38	18,809.43	106.95	176.873	
19,200.00	7,364.00	3,384.00	3,383.58	195.87	66.98	15.48	-1,747.99	-6,392.03	19,014.10	18,907.02	107.08	177.565	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #231A - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 322-A027Ua_INC-ONLY

Rule Assigned:

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
19,300.00	7,364.00	3,384.00	3,383.58	197.45	66.98	15.48	-1,747.99	-6,392.03	19,111.85	19,004.63	107.22	178.256	
19,400.00	7,364.00	3,384.00	3,383.58	199.04	66.98	15.48	-1,747.99	-6,392.03	19,209.62	19,102.27	107.35	178.946	
19,500.00	7,364.00	3,384.00	3,383.58	200.62	66.98	15.48	-1,747.99	-6,392.03	19,307.41	19,199.93	107.48	179.636	
19,600.00	7,364.00	3,384.00	3,383.58	202.21	66.98	15.48	-1,747.99	-6,392.03	19,405.22	19,297.61	107.61	180.324	
19,700.00	7,364.00	3,384.00	3,383.58	203.79	66.98	15.48	-1,747.99	-6,392.03	19,503.06	19,395.32	107.74	181.012	
19,800.00	7,364.00	3,384.00	3,383.58	205.38	66.98	15.48	-1,747.99	-6,392.03	19,600.92	19,493.04	107.88	181.698	
19,900.00	7,364.00	3,384.00	3,383.58	206.97	66.98	15.48	-1,747.99	-6,392.03	19,698.80	19,590.79	108.01	182.383	
20,000.00	7,364.00	3,384.00	3,383.58	208.55	66.98	15.48	-1,747.99	-6,392.03	19,796.70	19,688.56	108.14	183.068	
20,100.00	7,364.00	3,384.00	3,383.58	210.14	66.98	15.48	-1,747.99	-6,392.03	19,894.62	19,786.35	108.27	183.751	
20,200.00	7,364.00	3,384.00	3,383.58	211.73	66.98	15.48	-1,747.99	-6,392.03	19,992.57	19,884.17	108.40	184.433	
20,300.00	7,364.00	3,384.00	3,383.58	213.32	66.98	15.48	-1,747.99	-6,392.03	20,090.53	19,982.00	108.53	185.114	
20,400.00	7,364.00	3,384.00	3,383.58	214.90	66.98	15.48	-1,747.99	-6,392.03	20,188.51	20,079.85	108.66	185.795	
20,500.00	7,364.00	3,384.00	3,383.58	216.49	66.98	15.48	-1,747.99	-6,392.03	20,286.52	20,177.73	108.79	186.474	
20,600.00	7,364.00	3,384.00	3,383.58	218.08	66.98	15.48	-1,747.99	-6,392.03	20,384.54	20,275.62	108.92	187.152	
20,700.00	7,364.00	3,384.00	3,383.58	219.67	66.98	15.48	-1,747.99	-6,392.03	20,482.58	20,373.53	109.05	187.829	
20,800.00	7,364.00	3,384.00	3,383.58	221.26	66.98	15.48	-1,747.99	-6,392.03	20,580.64	20,471.46	109.18	188.505	
20,900.00	7,364.00	3,384.00	3,383.58	222.84	66.98	15.48	-1,747.99	-6,392.03	20,678.72	20,569.41	109.31	189.180	
21,000.00	7,364.00	3,384.00	3,383.58	224.43	66.98	15.48	-1,747.99	-6,392.03	20,776.82	20,667.38	109.44	189.854	
21,100.00	7,364.00	3,384.00	3,383.58	226.02	66.98	15.48	-1,747.99	-6,392.03	20,874.93	20,765.37	109.56	190.526	
21,200.00	7,364.00	3,384.00	3,383.58	227.61	66.98	15.48	-1,747.99	-6,392.03	20,973.06	20,863.37	109.69	191.198	
21,300.00	7,364.00	3,384.00	3,383.58	229.20	66.98	15.48	-1,747.99	-6,392.03	21,071.21	20,961.39	109.82	191.868	
21,400.00	7,364.00	3,384.00	3,383.58	230.79	66.98	15.48	-1,747.99	-6,392.03	21,169.38	21,059.43	109.95	192.538	
21,500.00	7,364.00	3,384.00	3,383.58	232.38	66.98	15.48	-1,747.99	-6,392.03	21,267.57	21,157.49	110.08	193.206	
21,600.00	7,364.00	3,384.00	3,383.58	233.97	66.98	15.48	-1,747.99	-6,392.03	21,365.77	21,255.56	110.20	193.873	
21,700.00	7,364.00	3,384.00	3,383.58	235.56	66.98	15.48	-1,747.99	-6,392.03	21,463.99	21,353.65	110.33	194.539	
21,800.00	7,364.00	3,384.00	3,383.58	237.15	66.98	15.48	-1,747.99	-6,392.03	21,562.22	21,451.76	110.46	195.204	
21,864.93	7,364.00	3,384.00	3,383.58	238.18	66.98	15.48	-1,747.99	-6,392.03	21,626.01	21,515.47	110.54	195.635	

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 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #259 - OH - OH-INC — **Offset Site Error:** 0.00 usft

Survey Program: 235-A027Ua_INC-ONLY — **Rule Assigned:** — **Offset Well Error:** 3.28 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	3.28	3.28	-178.03	-1,333.58	-45.94	1,335.09				
100.00	100.00	56.00	56.00	3.29	3.44	-178.03	-1,333.58	-45.94	1,334.37	1,327.64	6.73	198.298	
200.00	200.00	156.00	156.00	3.34	4.37	-178.03	-1,333.58	-45.94	1,334.37	1,326.66	7.70	173.214	
300.00	300.00	256.00	256.00	3.42	5.76	-178.03	-1,333.58	-45.94	1,334.37	1,325.19	9.18	145.392	
400.00	400.00	356.00	356.00	3.54	7.35	-178.03	-1,333.58	-45.94	1,334.37	1,323.48	10.89	122.520	
500.00	500.00	456.00	456.00	3.69	9.05	-178.03	-1,333.58	-45.94	1,334.37	1,321.64	12.73	104.800	
600.00	599.98	554.86	554.85	3.86	10.77	32.03	-1,333.01	-45.94	1,332.33	1,317.70	14.62	91.100	
700.00	699.84	652.61	652.61	4.04	12.50	32.19	-1,333.17	-45.94	1,328.06	1,311.51	16.55	80.267	
808.00	807.41	757.95	757.94	4.27	14.39	32.49	-1,333.52	-45.94	1,320.32	1,301.66	18.66	70.748	
900.00	898.89	854.91	854.89	4.49	16.18	15.35	-1,333.58	-45.94	1,311.46	1,290.79	20.67	63.451	
912.12	910.94	866.96	866.94	4.52	16.41	13.11	-1,333.58	-45.94	1,310.20	1,289.28	20.92	62.621	
1,000.00	998.31	954.33	954.31	4.74	18.04	13.21	-1,333.58	-45.94	1,301.02	1,278.25	22.77	57.142	
1,100.00	1,097.73	1,053.66	1,053.63	5.01	19.90	13.32	-1,332.97	-45.94	1,289.96	1,265.08	24.89	51.834	
1,200.00	1,197.15	1,151.13	1,151.11	5.29	21.73	13.43	-1,333.05	-45.94	1,279.60	1,252.61	26.99	47.415	
1,300.00	1,296.58	1,248.64	1,248.61	5.59	23.56	13.54	-1,333.28	-45.94	1,269.40	1,240.29	29.10	43.617	
1,400.00	1,396.00	1,352.06	1,352.00	5.90	25.54	13.65	-1,333.58	-45.94	1,259.25	1,227.87	31.37	40.138	
1,500.00	1,495.42	1,451.48	1,451.42	6.22	27.53	13.77	-1,333.58	-45.94	1,248.82	1,215.15	33.67	37.094	
1,600.00	1,594.84	1,550.90	1,550.84	6.54	29.53	13.89	-1,333.58	-45.94	1,238.39	1,202.42	35.97	34.430	
1,700.00	1,694.27	1,647.87	1,647.80	6.87	31.48	14.01	-1,332.85	-45.94	1,227.25	1,189.02	38.23	32.102	
1,800.00	1,793.69	1,744.20	1,744.14	7.21	33.42	14.13	-1,333.17	-45.94	1,217.16	1,176.68	40.49	30.064	
1,900.00	1,893.11	1,849.23	1,849.11	7.55	35.55	14.26	-1,333.58	-45.94	1,207.15	1,164.21	42.94	28.110	
2,000.00	1,992.53	1,948.65	1,948.53	7.89	37.63	14.38	-1,333.58	-45.94	1,196.75	1,151.40	45.35	26.390	
2,100.00	2,091.96	2,048.07	2,047.96	8.24	39.71	14.51	-1,333.58	-45.94	1,186.35	1,138.59	47.76	24.841	
2,200.00	2,191.38	2,144.22	2,144.10	8.60	41.72	14.64	-1,332.61	-45.94	1,175.00	1,124.90	50.10	23.452	
2,300.00	2,290.80	2,239.78	2,239.64	8.95	43.72	14.77	-1,333.04	-45.94	1,165.06	1,112.62	52.44	22.218	
2,400.00	2,390.22	2,346.41	2,346.22	9.31	46.39	14.91	-1,333.58	-45.94	1,155.19	1,099.75	55.44	20.837	
2,500.00	2,489.65	2,445.83	2,445.65	9.67	49.73	15.05	-1,333.58	-45.94	1,144.82	1,085.71	59.12	19.365	
2,600.00	2,589.07	2,540.48	2,540.28	10.03	52.90	15.18	-1,333.06	-45.94	1,133.96	1,071.32	62.64	18.103	
2,700.00	2,688.49	2,637.34	2,636.65	10.40	56.43	15.32	-1,333.26	-45.94	1,123.81	1,057.31	66.50	16.898	
2,800.00	2,787.91	2,745.16	2,743.91	10.76	62.45	15.48	-1,333.58	-45.94	1,113.75	1,040.87	72.88	15.283	
2,900.00	2,887.33	2,845.19	2,843.33	11.13	68.94	15.63	-1,333.58	-45.94	1,103.40	1,023.69	79.71	13.843	
3,000.00	2,986.76	2,945.36	2,942.76	11.50	76.45	15.78	-1,333.58	-45.94	1,093.07	1,005.50	87.57	12.482	
3,100.00	3,086.18	3,042.94	3,039.82	11.87	83.51	15.94	-1,332.16	-45.94	1,081.33	986.35	94.98	11.385	
3,200.00	3,185.60	3,145.24	3,141.60	12.24	90.36	16.09	-1,333.58	-45.94	1,072.42	970.24	102.18	10.496	
3,300.00	3,285.02	3,245.27	3,241.02	12.61	96.64	16.25	-1,333.58	-45.94	1,062.10	953.30	108.80	9.762	
3,400.00	3,384.45	3,344.69	3,340.45	12.98	102.57	16.41	-1,333.58	-45.94	1,051.80	936.71	115.09	9.139	
3,500.00	3,483.87	3,392.00	3,387.10	13.36	105.40	16.49	-1,333.58	-45.94	1,042.84	924.67	118.17	8.825	SF
3,554.72	3,538.28	3,392.00	3,387.10	13.56	105.40	16.49	-1,333.58	-45.94	1,041.40	923.46	117.94	8.830	CC, ES
3,600.00	3,583.29	3,392.00	3,387.10	13.73	105.40	16.49	-1,333.58	-45.94	1,042.39	924.87	117.52	8.870	
3,700.00	3,682.71	3,392.00	3,387.10	14.11	105.40	16.49	-1,333.58	-45.94	1,051.49	935.65	115.83	9.078	
3,800.00	3,782.14	3,392.00	3,387.10	14.48	105.40	16.49	-1,333.58	-45.94	1,069.90	956.68	113.22	9.450	
3,900.00	3,881.56	3,392.00	3,387.10	14.86	105.40	16.49	-1,333.58	-45.94	1,097.15	987.32	109.83	9.990	
4,000.00	3,980.98	3,392.00	3,387.10	15.24	105.40	16.49	-1,333.58	-45.94	1,132.60	1,026.74	105.86	10.699	
4,100.00	4,080.40	3,392.00	3,387.10	15.61	105.40	16.49	-1,333.58	-45.94	1,175.52	1,073.99	101.53	11.579	
4,200.00	4,179.83	3,392.00	3,387.10	15.99	105.40	16.49	-1,333.58	-45.94	1,225.11	1,128.12	96.99	12.631	
4,300.00	4,279.25	3,392.00	3,387.10	16.37	105.40	16.49	-1,333.58	-45.94	1,280.61	1,188.19	92.42	13.856	
4,400.00	4,378.67	3,392.00	3,387.10	16.75	105.40	16.49	-1,333.58	-45.94	1,341.27	1,253.35	87.92	15.255	
4,500.00	4,478.09	3,392.00	3,387.10	17.13	105.40	16.49	-1,333.58	-45.94	1,406.44	1,322.86	83.58	16.828	
4,600.00	4,577.51	3,392.00	3,387.10	17.51	105.40	16.49	-1,333.58	-45.94	1,475.51	1,396.07	79.44	18.575	
4,700.00	4,676.94	3,392.00	3,387.10	17.89	105.40	16.49	-1,333.58	-45.94	1,547.96	1,472.43	75.53	20.494	
4,800.00	4,776.36	3,392.00	3,387.10	18.27	105.40	16.49	-1,333.58	-45.94	1,623.34	1,551.46	71.88	22.583	
4,900.00	4,875.78	3,392.00	3,387.10	18.65	105.40	16.49	-1,333.58	-45.94	1,701.26	1,632.78	68.48	24.842	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #259 - OH - OH-INC

Offset Site Error: 0.00 usft

Survey Program: 235-A027Ua_INC-ONLY

Offset Well Error: 3.28 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Rule Assigned: Warning
5,000.00	4,975.20	3,392.00	3,387.10	19.03	105.40	16.49	-1,333.58	-45.94	1,781.39	1,716.06	65.33	27.267	
5,100.00	5,074.63	3,392.00	3,387.10	19.41	105.40	16.49	-1,333.58	-45.94	1,863.44	1,801.02	62.42	29.854	
5,200.00	5,174.05	3,392.00	3,387.10	19.79	105.40	16.49	-1,333.58	-45.94	1,947.17	1,887.44	59.73	32.600	
5,300.00	5,273.47	3,392.00	3,387.10	20.17	105.40	16.49	-1,333.58	-45.94	2,032.37	1,975.12	57.25	35.501	
5,400.00	5,372.89	3,392.00	3,387.10	20.56	105.40	16.49	-1,333.58	-45.94	2,118.86	2,063.90	54.96	38.551	
5,500.00	5,472.32	3,392.00	3,387.10	20.94	105.40	16.49	-1,333.58	-45.94	2,206.50	2,153.64	52.86	41.744	
5,600.00	5,571.74	3,392.00	3,387.10	21.32	105.40	16.49	-1,333.58	-45.94	2,295.14	2,244.22	50.92	45.074	
5,700.00	5,671.16	3,392.00	3,387.10	21.70	105.40	16.49	-1,333.58	-45.94	2,384.69	2,335.55	49.13	48.534	
5,800.00	5,770.58	3,392.00	3,387.10	22.08	105.40	16.49	-1,333.58	-45.94	2,475.03	2,427.54	47.49	52.117	
5,900.00	5,870.01	3,392.00	3,387.10	22.47	105.40	16.49	-1,333.58	-45.94	2,566.09	2,520.12	45.98	55.815	
6,000.00	5,969.43	3,392.00	3,387.10	22.85	105.40	16.49	-1,333.58	-45.94	2,657.80	2,613.22	44.58	59.619	
6,100.00	6,068.85	3,392.00	3,387.10	23.23	105.40	16.49	-1,333.58	-45.94	2,750.08	2,706.79	43.29	63.520	
6,200.00	6,168.27	3,392.00	3,387.10	23.62	105.40	16.49	-1,333.58	-45.94	2,842.89	2,800.78	42.11	67.511	
6,300.00	6,267.70	3,392.00	3,387.10	24.00	105.40	16.49	-1,333.58	-45.94	2,936.16	2,895.15	41.02	71.580	
6,400.00	6,367.12	3,392.00	3,387.10	24.38	105.40	16.49	-1,333.58	-45.94	3,029.87	2,989.86	40.02	75.718	
6,500.00	6,466.54	3,392.00	3,387.10	24.77	105.40	16.49	-1,333.58	-45.94	3,123.97	3,084.88	39.09	79.916	
6,600.00	6,565.96	3,392.00	3,387.10	25.15	105.40	16.49	-1,333.58	-45.94	3,218.42	3,180.18	38.24	84.163	
6,700.00	6,665.38	3,392.00	3,387.10	25.53	105.40	16.49	-1,333.58	-45.94	3,313.20	3,275.74	37.46	88.450	
6,778.75	6,743.68	3,392.00	3,387.10	25.84	105.40	16.49	-1,333.58	-45.94	3,388.05	3,351.16	36.89	91.847	
6,800.00	6,764.80	3,392.00	3,387.10	25.92	105.40	26.56	-1,333.58	-45.94	3,408.28	3,371.54	36.74	92.760	
6,850.00	6,814.29	3,392.00	3,387.10	26.11	105.40	37.04	-1,333.58	-45.94	3,455.90	3,419.47	36.43	94.858	
6,900.00	6,863.27	3,392.00	3,387.10	26.30	105.40	36.47	-1,333.58	-45.94	3,503.29	3,467.12	36.17	96.868	
6,950.00	6,911.44	3,392.00	3,387.10	26.50	105.40	32.65	-1,333.58	-45.94	3,550.18	3,514.23	35.95	98.762	
7,000.00	6,958.49	3,392.00	3,387.10	26.68	105.40	28.51	-1,333.58	-45.94	3,596.30	3,560.51	35.78	100.510	
7,050.00	7,004.14	3,392.00	3,387.10	26.87	105.40	24.87	-1,333.58	-45.94	3,641.40	3,605.73	35.67	102.080	
7,100.00	7,048.10	3,392.00	3,387.10	27.05	105.40	21.87	-1,333.58	-45.94	3,685.25	3,649.62	35.63	103.437	
7,150.00	7,090.11	3,392.00	3,387.10	27.23	105.40	19.43	-1,333.58	-45.94	3,727.63	3,691.97	35.65	104.550	
7,200.00	7,129.90	3,392.00	3,387.10	27.41	105.40	17.45	-1,333.58	-45.94	3,768.32	3,732.56	35.76	105.388	
7,250.00	7,167.24	3,392.00	3,387.10	27.59	105.40	15.84	-1,333.58	-45.94	3,807.14	3,771.20	35.94	105.928	
7,300.00	7,201.88	3,392.00	3,387.10	27.76	105.40	14.52	-1,333.58	-45.94	3,843.91	3,807.70	36.21	106.151	
7,350.00	7,233.63	3,392.00	3,387.10	27.94	105.40	13.43	-1,333.58	-45.94	3,878.46	3,841.88	36.57	106.048	
7,400.00	7,262.27	3,392.00	3,387.10	28.13	105.40	12.51	-1,333.58	-45.94	3,910.64	3,873.61	37.03	105.618	
7,450.00	7,287.63	3,392.00	3,387.10	28.32	105.40	11.75	-1,333.58	-45.94	3,940.31	3,902.73	37.57	104.870	
7,500.00	7,309.57	3,392.00	3,387.10	28.53	105.40	11.11	-1,333.58	-45.94	3,967.34	3,929.13	38.21	103.822	
7,550.00	7,327.93	3,392.00	3,387.10	28.74	105.40	10.56	-1,333.58	-45.94	3,991.64	3,952.69	38.94	102.497	
7,600.00	7,342.62	3,392.00	3,387.10	28.97	105.40	10.10	-1,333.58	-45.94	4,013.09	3,973.32	39.76	100.925	
7,650.00	7,353.53	3,392.00	3,387.10	29.22	105.40	9.71	-1,333.58	-45.94	4,031.61	3,990.94	40.67	99.139	
7,700.00	7,360.61	3,392.00	3,387.10	29.48	105.40	9.38	-1,333.58	-45.94	4,047.13	4,005.48	41.65	97.176	
7,750.00	7,363.80	3,392.00	3,387.10	29.75	105.40	9.11	-1,333.58	-45.94	4,059.58	4,016.88	42.70	95.070	
7,765.93	7,364.00	3,392.00	3,387.10	29.84	105.40	9.03	-1,333.58	-45.94	4,062.90	4,019.85	43.05	94.379	
7,800.00	7,364.00	3,392.00	3,387.10	30.04	105.40	9.03	-1,333.58	-45.94	4,069.79	4,025.98	43.81	92.889	
7,900.00	7,364.00	3,392.00	3,387.10	30.67	105.40	9.03	-1,333.58	-45.94	4,091.59	4,045.46	46.13	88.697	
8,000.00	7,364.00	3,392.00	3,387.10	31.37	105.40	9.03	-1,333.58	-45.94	4,115.71	4,067.18	48.53	84.810	
8,100.00	7,364.00	3,392.00	3,387.10	32.14	105.40	9.03	-1,333.58	-45.94	4,142.09	4,091.11	50.98	81.244	
8,200.00	7,364.00	3,392.00	3,387.10	32.96	105.40	9.03	-1,333.58	-45.94	4,170.72	4,117.24	53.47	77.995	
8,300.00	7,364.00	3,392.00	3,387.10	33.85	105.40	9.03	-1,333.58	-45.94	4,201.52	4,145.54	55.98	75.051	
8,400.00	7,364.00	3,392.00	3,387.10	34.79	105.40	9.03	-1,333.58	-45.94	4,234.47	4,175.97	58.49	72.392	
8,500.00	7,364.00	3,392.00	3,387.10	35.77	105.40	9.03	-1,333.58	-45.94	4,269.50	4,208.50	61.00	69.997	
8,600.00	7,364.00	3,392.00	3,387.10	36.80	105.40	9.03	-1,333.58	-45.94	4,306.57	4,243.09	63.48	67.844	
8,700.00	7,364.00	3,392.00	3,387.10	37.87	105.40	9.03	-1,333.58	-45.94	4,345.63	4,279.70	65.93	65.912	
8,800.00	7,364.00	3,392.00	3,387.10	38.98	105.40	9.03	-1,333.58	-45.94	4,386.61	4,318.27	68.35	64.180	
8,900.00	7,364.00	3,392.00	3,387.10	40.12	105.40	9.03	-1,333.58	-45.94	4,429.48	4,358.76	70.72	62.630	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #259 - OH - OH-INC

Offset Site Error: 0.00 usft

Survey Program: 235-A027Ua_INC-ONLY

Rule Assigned:

Offset Well Error: 3.28 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,000.00	7,364.00	3,392.00	3,387.10	41.29	105.40	9.03	-1,333.58	-45.94	4,474.17	4,401.12	73.05	61.245	
9,100.00	7,364.00	3,392.00	3,387.10	42.49	105.40	9.03	-1,333.58	-45.94	4,520.64	4,445.30	75.33	60.009	
9,200.00	7,364.00	3,392.00	3,387.10	43.71	105.40	9.03	-1,333.58	-45.94	4,568.81	4,491.26	77.56	58.907	
9,300.00	7,364.00	3,392.00	3,387.10	44.96	105.40	9.03	-1,333.58	-45.94	4,618.66	4,538.93	79.73	57.928	
9,400.00	7,364.00	3,392.00	3,387.10	46.23	105.40	9.03	-1,333.58	-45.94	4,670.11	4,588.26	81.85	57.060	
9,500.00	7,364.00	3,392.00	3,387.10	47.52	105.40	9.03	-1,333.58	-45.94	4,723.12	4,639.21	83.90	56.294	
9,600.00	7,364.00	3,392.00	3,387.10	48.83	105.40	9.03	-1,333.58	-45.94	4,777.63	4,691.73	85.90	55.619	
9,700.00	7,364.00	3,392.00	3,387.10	50.15	105.40	9.03	-1,333.58	-45.94	4,833.60	4,745.76	87.84	55.028	
9,800.00	7,364.00	3,392.00	3,387.10	51.49	105.40	9.03	-1,333.58	-45.94	4,890.97	4,801.25	89.72	54.514	
9,900.00	7,364.00	3,392.00	3,387.10	52.85	105.40	9.03	-1,333.58	-45.94	4,949.70	4,858.15	91.54	54.070	
10,000.00	7,364.00	3,392.00	3,387.10	54.22	105.40	9.03	-1,333.58	-45.94	5,009.73	4,916.43	93.31	53.691	
10,100.00	7,364.00	3,392.00	3,387.10	55.60	105.40	9.03	-1,333.58	-45.94	5,071.03	4,976.01	95.02	53.370	
10,200.00	7,364.00	3,392.00	3,387.10	56.99	105.40	9.03	-1,333.58	-45.94	5,133.54	5,036.87	96.67	53.105	
10,300.00	7,364.00	3,392.00	3,387.10	58.40	105.40	9.03	-1,333.58	-45.94	5,197.23	5,098.96	98.27	52.889	
10,400.00	7,364.00	3,392.00	3,387.10	59.81	105.40	9.03	-1,333.58	-45.94	5,262.04	5,162.23	99.81	52.720	
10,500.00	7,364.00	3,392.00	3,387.10	61.23	105.40	9.03	-1,333.58	-45.94	5,327.95	5,226.64	101.30	52.593	
10,600.00	7,364.00	3,392.00	3,387.10	62.66	105.40	9.03	-1,333.58	-45.94	5,394.90	5,292.15	102.75	52.507	
10,700.00	7,364.00	3,392.00	3,387.10	64.10	105.40	9.03	-1,333.58	-45.94	5,462.86	5,358.72	104.14	52.457	
10,800.00	7,364.00	3,392.00	3,387.10	65.55	105.40	9.03	-1,333.58	-45.94	5,531.80	5,426.31	105.49	52.441	
10,900.00	7,364.00	3,392.00	3,387.10	67.01	105.40	9.03	-1,333.58	-45.94	5,601.67	5,494.88	106.78	52.458	
11,000.00	7,364.00	3,392.00	3,387.10	68.47	105.40	9.03	-1,333.58	-45.94	5,672.44	5,564.40	108.04	52.504	
11,100.00	7,364.00	3,392.00	3,387.10	69.93	105.40	9.03	-1,333.58	-45.94	5,744.09	5,634.84	109.25	52.577	
11,200.00	7,364.00	3,392.00	3,387.10	71.41	105.40	9.03	-1,333.58	-45.94	5,816.57	5,706.15	110.42	52.676	
11,300.00	7,364.00	3,392.00	3,387.10	72.88	105.40	9.03	-1,333.58	-45.94	5,889.85	5,778.30	111.55	52.800	
11,400.00	7,364.00	3,392.00	3,387.10	74.37	105.40	9.03	-1,333.58	-45.94	5,963.92	5,851.28	112.64	52.946	
11,500.00	7,364.00	3,392.00	3,387.10	75.85	105.40	9.03	-1,333.58	-45.94	6,038.73	5,925.03	113.69	53.114	
11,600.00	7,364.00	3,392.00	3,387.10	77.35	105.40	9.03	-1,333.58	-45.94	6,114.26	5,999.55	114.71	53.301	
11,700.00	7,364.00	3,392.00	3,387.10	78.84	105.40	9.03	-1,333.58	-45.94	6,190.48	6,074.79	115.69	53.507	
11,800.00	7,364.00	3,392.00	3,387.10	80.34	105.40	9.03	-1,333.58	-45.94	6,267.37	6,150.73	116.64	53.731	
11,900.00	7,364.00	3,392.00	3,387.10	81.85	105.40	9.03	-1,333.58	-45.94	6,344.91	6,227.35	117.56	53.971	
12,000.00	7,364.00	3,392.00	3,387.10	83.36	105.40	9.03	-1,333.58	-45.94	6,423.07	6,304.62	118.45	54.227	
12,100.00	7,364.00	3,392.00	3,387.10	84.87	105.40	9.03	-1,333.58	-45.94	6,501.83	6,382.52	119.31	54.497	
12,200.00	7,364.00	3,392.00	3,387.10	86.38	105.40	9.03	-1,333.58	-45.94	6,581.16	6,461.02	120.13	54.782	
12,300.00	7,364.00	3,392.00	3,387.10	87.90	105.40	9.03	-1,333.58	-45.94	6,661.05	6,540.11	120.94	55.079	
12,400.00	7,364.00	3,392.00	3,387.10	89.42	105.40	9.03	-1,333.58	-45.94	6,741.48	6,619.76	121.71	55.389	
12,500.00	7,364.00	3,392.00	3,387.10	90.95	105.40	9.03	-1,333.58	-45.94	6,822.42	6,699.96	122.46	55.711	
12,600.00	7,364.00	3,392.00	3,387.10	92.47	105.40	9.03	-1,333.58	-45.94	6,903.86	6,780.68	123.19	56.043	
12,700.00	7,364.00	3,392.00	3,387.10	94.00	105.40	9.03	-1,333.58	-45.94	6,985.79	6,861.90	123.89	56.387	
12,800.00	7,364.00	3,392.00	3,387.10	95.53	105.40	9.03	-1,333.58	-45.94	7,068.18	6,943.61	124.57	56.740	
12,900.00	7,364.00	3,392.00	3,387.10	97.06	105.40	9.03	-1,333.58	-45.94	7,151.02	7,025.79	125.23	57.103	
13,000.00	7,364.00	3,392.00	3,387.10	98.60	105.40	9.03	-1,333.58	-45.94	7,234.29	7,108.42	125.87	57.474	
13,100.00	7,364.00	3,392.00	3,387.10	100.14	105.40	9.03	-1,333.58	-45.94	7,317.99	7,191.50	126.49	57.855	
13,200.00	7,364.00	3,392.00	3,387.10	101.68	105.40	9.03	-1,333.58	-45.94	7,402.08	7,274.99	127.09	58.243	
13,300.00	7,364.00	3,392.00	3,387.10	103.22	105.40	9.03	-1,333.58	-45.94	7,486.57	7,358.90	127.67	58.639	
13,400.00	7,364.00	3,392.00	3,387.10	104.76	105.40	9.03	-1,333.58	-45.94	7,571.44	7,443.20	128.24	59.043	
13,500.00	7,364.00	3,392.00	3,387.10	106.31	105.40	9.03	-1,333.58	-45.94	7,656.67	7,527.89	128.79	59.453	
13,600.00	7,364.00	3,392.00	3,387.10	107.85	105.40	9.03	-1,333.58	-45.94	7,742.26	7,612.94	129.32	59.870	
13,700.00	7,364.00	3,392.00	3,387.10	109.40	105.40	9.03	-1,333.58	-45.94	7,828.18	7,698.35	129.83	60.294	
13,800.00	7,364.00	3,392.00	3,387.10	110.95	105.40	9.03	-1,333.58	-45.94	7,914.44	7,784.10	130.34	60.723	
13,900.00	7,364.00	3,392.00	3,387.10	112.50	105.40	9.03	-1,333.58	-45.94	8,001.02	7,870.19	130.82	61.158	
14,000.00	7,364.00	3,392.00	3,387.10	114.05	105.40	9.03	-1,333.58	-45.94	8,087.91	7,956.61	131.30	61.599	
14,100.00	7,364.00	3,392.00	3,387.10	115.61	105.40	9.03	-1,333.58	-45.94	8,175.09	8,043.33	131.76	62.045	

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 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #259 - OH - OH-INC

Offset Site Error: 0.00 usft

Survey Program: 235-A027Ua_INC-ONLY

Offset Well Error: 3.28 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Rule Assigned: Warning
14,200.00	7,364.00	3,392.00	3,387.10	117.16	105.40	9.03	-1,333.58	-45.94	8,262.57	8,130.36	132.21	62.496	
14,300.00	7,364.00	3,392.00	3,387.10	118.72	105.40	9.03	-1,333.58	-45.94	8,350.33	8,217.68	132.65	62.952	
14,400.00	7,364.00	3,392.00	3,387.10	120.28	105.40	9.03	-1,333.58	-45.94	8,438.36	8,305.29	133.07	63.412	
14,500.00	7,364.00	3,392.00	3,387.10	121.84	105.40	9.03	-1,333.58	-45.94	8,526.65	8,393.17	133.49	63.877	
14,600.00	7,364.00	3,392.00	3,387.10	123.40	105.40	9.03	-1,333.58	-45.94	8,615.20	8,481.31	133.89	64.346	
14,700.00	7,364.00	3,392.00	3,387.10	124.96	105.40	9.03	-1,333.58	-45.94	8,704.00	8,569.72	134.28	64.819	
14,800.00	7,364.00	3,392.00	3,387.10	126.52	105.40	9.03	-1,333.58	-45.94	8,793.04	8,658.38	134.66	65.296	
14,900.00	7,364.00	3,392.00	3,387.10	128.08	105.40	9.03	-1,333.58	-45.94	8,882.31	8,747.27	135.04	65.776	
15,000.00	7,364.00	3,392.00	3,387.10	129.64	105.40	9.03	-1,333.58	-45.94	8,971.81	8,836.41	135.40	66.260	
15,100.00	7,364.00	3,392.00	3,387.10	131.21	105.40	9.03	-1,333.58	-45.94	9,061.53	8,925.77	135.76	66.747	
15,200.00	7,364.00	3,392.00	3,387.10	132.77	105.40	9.03	-1,333.58	-45.94	9,151.46	9,015.36	136.11	67.238	
15,300.00	7,364.00	3,392.00	3,387.10	134.34	105.40	9.03	-1,333.58	-45.94	9,241.60	9,105.15	136.45	67.731	
15,400.00	7,364.00	3,392.00	3,387.10	135.91	105.40	9.03	-1,333.58	-45.94	9,331.94	9,195.16	136.78	68.228	
15,500.00	7,364.00	3,392.00	3,387.10	137.48	105.40	9.03	-1,333.58	-45.94	9,422.47	9,285.37	137.10	68.727	
15,600.00	7,364.00	3,392.00	3,387.10	139.04	105.40	9.03	-1,333.58	-45.94	9,513.20	9,375.78	137.42	69.229	
15,700.00	7,364.00	3,392.00	3,387.10	140.61	105.40	9.03	-1,333.58	-45.94	9,604.11	9,466.38	137.73	69.733	
15,800.00	7,364.00	3,392.00	3,387.10	142.18	105.40	9.03	-1,333.58	-45.94	9,695.19	9,557.16	138.03	70.240	
15,900.00	7,364.00	3,392.00	3,387.10	143.75	105.40	9.03	-1,333.58	-45.94	9,786.45	9,648.13	138.33	70.749	
16,000.00	7,364.00	3,392.00	3,387.10	145.33	105.40	9.03	-1,333.58	-45.94	9,877.88	9,739.27	138.62	71.261	
16,100.00	7,364.00	3,392.00	3,387.10	146.90	105.40	9.03	-1,333.58	-45.94	9,969.48	9,830.58	138.90	71.774	
16,200.00	7,364.00	3,392.00	3,387.10	148.47	105.40	9.03	-1,333.58	-45.94	10,061.23	9,922.06	139.18	72.290	
16,300.00	7,364.00	3,392.00	3,387.10	150.04	105.40	9.03	-1,333.58	-45.94	10,153.15	10,013.69	139.45	72.808	
16,400.00	7,364.00	3,392.00	3,387.10	151.62	105.40	9.03	-1,333.58	-45.94	10,245.21	10,105.49	139.72	73.327	
16,500.00	7,364.00	3,392.00	3,387.10	153.19	105.40	9.03	-1,333.58	-45.94	10,337.42	10,197.44	139.98	73.849	
16,600.00	7,364.00	3,392.00	3,387.10	154.77	105.40	9.03	-1,333.58	-45.94	10,429.77	10,289.53	140.24	74.372	
16,700.00	7,364.00	3,392.00	3,387.10	156.34	105.40	9.03	-1,333.58	-45.94	10,522.26	10,381.77	140.49	74.896	
16,800.00	7,364.00	3,392.00	3,387.10	157.92	105.40	9.03	-1,333.58	-45.94	10,614.89	10,474.15	140.74	75.422	
16,900.00	7,364.00	3,392.00	3,387.10	159.49	105.40	9.03	-1,333.58	-45.94	10,707.66	10,566.67	140.98	75.950	
17,000.00	7,364.00	3,392.00	3,387.10	161.07	105.40	9.03	-1,333.58	-45.94	10,800.55	10,659.32	141.22	76.479	
17,100.00	7,364.00	3,392.00	3,387.10	162.65	105.40	9.03	-1,333.58	-45.94	10,893.56	10,752.11	141.46	77.010	
17,200.00	7,364.00	3,392.00	3,387.10	164.23	105.40	9.03	-1,333.58	-45.94	10,986.70	10,845.02	141.69	77.542	
17,300.00	7,364.00	3,392.00	3,387.10	165.81	105.40	9.03	-1,333.58	-45.94	11,079.96	10,938.05	141.91	78.075	
17,400.00	7,364.00	3,392.00	3,387.10	167.38	105.40	9.03	-1,333.58	-45.94	11,173.34	11,031.20	142.14	78.609	
17,500.00	7,364.00	3,392.00	3,387.10	168.96	105.40	9.03	-1,333.58	-45.94	11,266.83	11,124.47	142.36	79.144	
17,600.00	7,364.00	3,392.00	3,387.10	170.54	105.40	9.03	-1,333.58	-45.94	11,360.43	11,217.85	142.57	79.681	
17,700.00	7,364.00	3,392.00	3,387.10	172.12	105.40	9.03	-1,333.58	-45.94	11,454.14	11,311.35	142.79	80.218	
17,800.00	7,364.00	3,392.00	3,387.10	173.70	105.40	9.03	-1,333.58	-45.94	11,547.95	11,404.95	143.00	80.757	
17,900.00	7,364.00	3,392.00	3,387.10	175.28	105.40	9.03	-1,333.58	-45.94	11,641.87	11,498.66	143.20	81.296	
18,000.00	7,364.00	3,392.00	3,387.10	176.87	105.40	9.03	-1,333.58	-45.94	11,735.88	11,592.48	143.41	81.836	
18,100.00	7,364.00	3,392.00	3,387.10	178.45	105.40	9.03	-1,333.58	-45.94	11,830.00	11,686.39	143.61	82.377	
18,200.00	7,364.00	3,392.00	3,387.10	180.03	105.40	9.03	-1,333.58	-45.94	11,924.21	11,780.41	143.81	82.919	
18,300.00	7,364.00	3,392.00	3,387.10	181.61	105.40	9.03	-1,333.58	-45.94	12,018.52	11,874.52	144.00	83.461	
18,400.00	7,364.00	3,392.00	3,387.10	183.19	105.40	9.03	-1,333.58	-45.94	12,112.91	11,968.72	144.19	84.005	
18,500.00	7,364.00	3,392.00	3,387.10	184.78	105.40	9.03	-1,333.58	-45.94	12,207.40	12,063.02	144.38	84.549	
18,600.00	7,364.00	3,392.00	3,387.10	186.36	105.40	9.03	-1,333.58	-45.94	12,301.97	12,157.40	144.57	85.093	
18,700.00	7,364.00	3,392.00	3,387.10	187.94	105.40	9.03	-1,333.58	-45.94	12,396.63	12,251.87	144.76	85.638	
18,800.00	7,364.00	3,392.00	3,387.10	189.53	105.40	9.03	-1,333.58	-45.94	12,491.37	12,346.43	144.94	86.184	
18,900.00	7,364.00	3,392.00	3,387.10	191.11	105.40	9.03	-1,333.58	-45.94	12,586.19	12,441.07	145.12	86.730	
19,000.00	7,364.00	3,392.00	3,387.10	192.70	105.40	9.03	-1,333.58	-45.94	12,681.10	12,535.80	145.30	87.276	
19,100.00	7,364.00	3,392.00	3,387.10	194.28	105.40	9.03	-1,333.58	-45.94	12,776.08	12,630.60	145.47	87.823	
19,200.00	7,364.00	3,392.00	3,387.10	195.87	105.40	9.03	-1,333.58	-45.94	12,871.13	12,725.48	145.65	88.371	
19,300.00	7,364.00	3,392.00	3,387.10	197.45	105.40	9.03	-1,333.58	-45.94	12,966.26	12,820.44	145.82	88.919	

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 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #259 - OH - OH-INC

Offset Site Error: 0.00 usft

Survey Program: 235-A027Ua_INC-ONLY

Offset Well Error: 3.28 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
19,400.00	7,364.00	3,392.00	3,387.10	199.04	105.40	9.03	-1,333.58	-45.94	13,061.47	12,915.47	145.99	89.467	
19,500.00	7,364.00	3,392.00	3,387.10	200.62	105.40	9.03	-1,333.58	-45.94	13,156.74	13,010.58	146.16	90.015	
19,600.00	7,364.00	3,392.00	3,387.10	202.21	105.40	9.03	-1,333.58	-45.94	13,252.08	13,105.75	146.33	90.564	
19,700.00	7,364.00	3,392.00	3,387.10	203.79	105.40	9.03	-1,333.58	-45.94	13,347.50	13,201.00	146.49	91.113	
19,800.00	7,364.00	3,392.00	3,387.10	205.38	105.40	9.03	-1,333.58	-45.94	13,442.97	13,296.32	146.66	91.662	
19,900.00	7,364.00	3,392.00	3,387.10	206.97	105.40	9.03	-1,333.58	-45.94	13,538.52	13,391.70	146.82	92.212	
20,000.00	7,364.00	3,392.00	3,387.10	208.55	105.40	9.03	-1,333.58	-45.94	13,634.13	13,487.15	146.98	92.761	
20,100.00	7,364.00	3,392.00	3,387.10	210.14	105.40	9.03	-1,333.58	-45.94	13,729.80	13,582.66	147.14	93.311	
20,200.00	7,364.00	3,392.00	3,387.10	211.73	105.40	9.03	-1,333.58	-45.94	13,825.53	13,678.23	147.30	93.861	
20,300.00	7,364.00	3,392.00	3,387.10	213.32	105.40	9.03	-1,333.58	-45.94	13,921.32	13,773.87	147.45	94.411	
20,400.00	7,364.00	3,392.00	3,387.10	214.90	105.40	9.03	-1,333.58	-45.94	14,017.17	13,869.56	147.61	94.961	
20,500.00	7,364.00	3,392.00	3,387.10	216.49	105.40	9.03	-1,333.58	-45.94	14,113.08	13,965.32	147.76	95.511	
20,600.00	7,364.00	3,392.00	3,387.10	218.08	105.40	9.03	-1,333.58	-45.94	14,209.04	14,061.13	147.92	96.062	
20,700.00	7,364.00	3,392.00	3,387.10	219.67	105.40	9.03	-1,333.58	-45.94	14,305.06	14,157.00	148.07	96.612	
20,800.00	7,364.00	3,392.00	3,387.10	221.26	105.40	9.03	-1,333.58	-45.94	14,401.14	14,252.92	148.22	97.162	
20,900.00	7,364.00	3,392.00	3,387.10	222.84	105.40	9.03	-1,333.58	-45.94	14,497.26	14,348.90	148.37	97.712	
21,000.00	7,364.00	3,392.00	3,387.10	224.43	105.40	9.03	-1,333.58	-45.94	14,593.44	14,444.93	148.51	98.262	
21,100.00	7,364.00	3,392.00	3,387.10	226.02	105.40	9.03	-1,333.58	-45.94	14,689.67	14,541.01	148.66	98.813	
21,200.00	7,364.00	3,392.00	3,387.10	227.61	105.40	9.03	-1,333.58	-45.94	14,785.95	14,637.15	148.81	99.363	
21,300.00	7,364.00	3,392.00	3,387.10	229.20	105.40	9.03	-1,333.58	-45.94	14,882.28	14,733.33	148.95	99.913	
21,400.00	7,364.00	3,392.00	3,387.10	230.79	105.40	9.03	-1,333.58	-45.94	14,978.66	14,829.56	149.10	100.463	
21,500.00	7,364.00	3,392.00	3,387.10	232.38	105.40	9.03	-1,333.58	-45.94	15,075.08	14,925.84	149.24	101.012	
21,600.00	7,364.00	3,392.00	3,387.10	233.97	105.40	9.03	-1,333.58	-45.94	15,171.56	15,022.17	149.38	101.562	
21,700.00	7,364.00	3,392.00	3,387.10	235.56	105.40	9.03	-1,333.58	-45.94	15,268.07	15,118.55	149.52	102.111	
21,800.00	7,364.00	3,392.00	3,387.10	237.15	105.40	9.03	-1,333.58	-45.94	15,364.63	15,214.97	149.66	102.661	
21,864.93	7,364.00	3,392.00	3,387.10	238.18	105.40	9.03	-1,333.58	-45.94	15,427.35	15,277.60	149.76	103.017	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #259A - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 101-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	3.28	0.00	107.80	-1,031.91	3,213.11	3,375.16				
100.00	100.00	47.00	47.00	3.29	0.43	107.80	-1,031.91	3,213.11	3,374.74	3,371.02	3.72	906.190	
200.00	200.00	147.00	147.00	3.34	1.81	107.80	-1,031.91	3,213.11	3,374.74	3,369.60	5.14	655.931	
230.59	230.59	177.59	177.58	3.36	2.39	107.80	-1,031.74	3,213.11	3,374.69	3,368.94	5.75	587.034	
300.00	300.00	243.14	243.14	3.42	3.64	107.80	-1,031.87	3,213.11	3,374.73	3,367.67	7.06	478.142	
400.00	400.00	347.01	347.00	3.54	5.56	107.80	-1,031.91	3,213.11	3,374.74	3,365.64	9.10	370.819	
423.02	423.02	369.49	369.48	3.57	5.98	107.80	-1,031.56	3,213.11	3,374.64	3,365.09	9.55	353.447	
500.00	500.00	441.91	441.90	3.69	7.32	107.80	-1,031.76	3,213.11	3,374.70	3,363.70	11.00	306.707	
600.00	599.98	547.00	546.98	3.86	9.26	-42.23	-1,031.91	3,213.11	3,373.45	3,360.34	13.11	257.249	
700.00	699.84	646.86	646.84	4.04	11.10	-42.34	-1,031.91	3,213.11	3,369.58	3,354.43	15.15	222.477	
808.00	807.41	754.22	754.20	4.27	13.09	-42.55	-1,031.63	3,213.11	3,362.42	3,345.06	17.36	193.704	
900.00	898.89	844.94	844.92	4.49	14.76	-59.92	-1,031.68	3,213.11	3,356.32	3,337.07	19.25	174.374	
912.12	910.94	856.90	856.88	4.52	14.99	-62.17	-1,031.69	3,213.11	3,355.69	3,336.19	19.50	172.112	
1,000.00	998.31	943.56	943.54	4.74	16.59	-62.31	-1,031.81	3,213.11	3,351.32	3,330.00	21.32	157.197	
1,100.00	1,097.73	1,044.77	1,044.73	5.01	18.55	-62.47	-1,031.91	3,213.11	3,346.35	3,322.80	23.55	142.114	
1,200.00	1,197.15	1,144.20	1,144.15	5.29	20.56	-62.63	-1,031.91	3,213.11	3,341.38	3,315.54	25.84	129.332	
1,300.00	1,296.58	1,243.54	1,243.49	5.59	22.56	-62.81	-1,031.10	3,213.11	3,336.20	3,308.07	28.14	118.578	
1,400.00	1,396.00	1,340.53	1,340.48	5.90	24.52	-62.97	-1,031.23	3,213.11	3,331.33	3,300.93	30.40	109.592	
1,500.00	1,495.42	1,437.58	1,437.53	6.22	26.48	-63.12	-1,031.61	3,213.11	3,326.55	3,293.88	32.67	101.823	
1,600.00	1,594.84	1,541.94	1,541.84	6.54	28.59	-63.29	-1,031.91	3,213.11	3,321.77	3,286.67	35.10	94.624	
1,700.00	1,694.27	1,641.37	1,641.27	6.87	30.62	-63.45	-1,031.91	3,213.11	3,316.94	3,279.49	37.45	88.562	
1,800.00	1,793.69	1,740.72	1,740.61	7.21	32.63	-63.64	-1,030.82	3,213.11	3,311.83	3,272.03	39.81	83.199	
1,900.00	1,893.11	1,837.11	1,837.00	7.55	34.59	-63.80	-1,030.99	3,213.11	3,307.11	3,265.00	42.10	78.546	
2,000.00	1,992.53	1,933.59	1,933.47	7.89	36.56	-63.95	-1,031.49	3,213.11	3,302.50	3,258.09	44.41	74.368	
2,100.00	2,091.96	2,039.11	2,038.96	8.24	38.74	-64.12	-1,031.91	3,213.11	3,297.89	3,250.95	46.94	70.262	
2,200.00	2,191.38	2,138.54	2,138.38	8.60	40.84	-64.29	-1,031.91	3,213.11	3,293.19	3,243.81	49.38	66.687	
2,300.00	2,290.80	2,237.94	2,237.77	8.95	42.93	-64.47	-1,031.10	3,213.11	3,288.32	3,236.48	51.83	63.442	
2,400.00	2,390.22	2,335.20	2,335.03	9.31	44.98	-64.63	-1,031.22	3,213.11	3,283.72	3,229.48	54.24	60.543	
2,500.00	2,489.65	2,432.51	2,432.34	9.67	47.04	-64.79	-1,031.60	3,213.11	3,279.21	3,222.56	56.65	57.888	
2,600.00	2,589.07	2,536.30	2,536.07	10.03	49.19	-64.96	-1,031.91	3,213.11	3,274.71	3,215.55	59.16	55.352	
2,700.00	2,688.49	2,635.73	2,635.49	10.40	51.22	-65.13	-1,031.91	3,213.11	3,270.16	3,208.60	61.55	53.127	
2,800.00	2,787.91	2,735.15	2,734.91	10.76	53.25	-65.30	-1,031.91	3,213.11	3,265.64	3,201.69	63.95	51.068	
2,900.00	2,887.33	2,834.46	2,834.20	11.13	55.28	-65.50	-1,030.03	3,213.11	3,260.69	3,194.35	66.34	49.151	
3,000.00	2,986.76	2,931.49	2,931.22	11.50	57.26	-65.66	-1,030.20	3,213.11	3,256.27	3,187.58	68.69	47.407	
3,100.00	3,086.18	3,028.59	3,028.32	11.87	59.25	-65.82	-1,030.66	3,213.11	3,251.95	3,180.91	71.04	45.777	
3,200.00	3,185.60	3,125.76	3,125.48	12.24	61.23	-65.98	-1,031.42	3,213.11	3,247.74	3,174.34	73.39	44.252	
3,300.00	3,285.02	3,232.34	3,232.02	12.61	63.28	-66.16	-1,031.91	3,213.11	3,243.47	3,167.66	75.81	42.784	
3,400.00	3,384.45	3,331.77	3,331.45	12.98	65.09	-66.33	-1,031.91	3,213.11	3,239.12	3,161.13	77.99	41.530	
3,500.00	3,483.87	3,414.00	3,413.67	13.36	66.59	-66.47	-1,031.91	3,213.11	3,234.85	3,154.99	79.87	40.503	
3,600.00	3,583.29	3,414.00	3,413.67	13.73	66.59	-66.47	-1,031.91	3,213.11	3,232.63	3,152.42	80.20	40.305	
3,622.01	3,605.17	3,414.00	3,413.67	13.81	66.59	-66.47	-1,031.91	3,213.11	3,232.55	3,152.28	80.27	40.272	CC, ES
3,700.00	3,682.71	3,414.00	3,413.67	14.11	66.59	-66.47	-1,031.91	3,213.11	3,233.49	3,153.03	80.47	40.184	
3,800.00	3,782.14	3,414.00	3,413.67	14.48	66.59	-66.47	-1,031.91	3,213.11	3,237.45	3,156.79	80.66	40.137	SF
3,900.00	3,881.56	3,414.00	3,413.67	14.86	66.59	-66.47	-1,031.91	3,213.11	3,244.48	3,163.70	80.78	40.165	
4,000.00	3,980.98	3,414.00	3,413.67	15.24	66.59	-66.47	-1,031.91	3,213.11	3,254.58	3,173.75	80.83	40.266	
4,100.00	4,080.40	3,414.00	3,413.67	15.61	66.59	-66.47	-1,031.91	3,213.11	3,267.70	3,186.90	80.80	40.440	
4,200.00	4,179.83	3,414.00	3,413.67	15.99	66.59	-66.47	-1,031.91	3,213.11	3,283.82	3,203.11	80.71	40.685	
4,300.00	4,279.25	3,414.00	3,413.67	16.37	66.59	-66.47	-1,031.91	3,213.11	3,302.89	3,222.33	80.56	41.001	
4,400.00	4,378.67	3,414.00	3,413.67	16.75	66.59	-66.47	-1,031.91	3,213.11	3,324.86	3,244.52	80.34	41.386	
4,500.00	4,478.09	3,414.00	3,413.67	17.13	66.59	-66.47	-1,031.91	3,213.11	3,349.67	3,269.61	80.06	41.840	
4,600.00	4,577.51	3,414.00	3,413.67	17.51	66.59	-66.47	-1,031.91	3,213.11	3,377.26	3,297.53	79.73	42.361	
4,700.00	4,676.94	3,414.00	3,413.67	17.89	66.59	-66.47	-1,031.91	3,213.11	3,407.56	3,328.22	79.34	42.949	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #259A - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 101-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
4,800.00	4,776.36	3,414.00	3,413.67	18.27	66.59	-66.47	-1,031.91	3,213.11	3,440.50	3,361.60	78.91	43.603	
4,900.00	4,875.78	3,414.00	3,413.67	18.65	66.59	-66.47	-1,031.91	3,213.11	3,476.01	3,397.58	78.43	44.321	
5,000.00	4,975.20	3,414.00	3,413.67	19.03	66.59	-66.47	-1,031.91	3,213.11	3,514.01	3,436.10	77.91	45.103	
5,100.00	5,074.63	3,414.00	3,413.67	19.41	66.59	-66.47	-1,031.91	3,213.11	3,554.41	3,477.05	77.36	45.946	
5,200.00	5,174.05	3,414.00	3,413.67	19.79	66.59	-66.47	-1,031.91	3,213.11	3,597.14	3,520.37	76.78	46.851	
5,300.00	5,273.47	3,414.00	3,413.67	20.17	66.59	-66.47	-1,031.91	3,213.11	3,642.12	3,565.95	76.17	47.816	
5,400.00	5,372.89	3,414.00	3,413.67	20.56	66.59	-66.47	-1,031.91	3,213.11	3,689.26	3,613.72	75.54	48.839	
5,500.00	5,472.32	3,414.00	3,413.67	20.94	66.59	-66.47	-1,031.91	3,213.11	3,738.48	3,663.59	74.89	49.920	
5,600.00	5,571.74	3,414.00	3,413.67	21.32	66.59	-66.47	-1,031.91	3,213.11	3,789.70	3,715.48	74.23	51.057	
5,700.00	5,671.16	3,414.00	3,413.67	21.70	66.59	-66.47	-1,031.91	3,213.11	3,842.84	3,769.29	73.55	52.248	
5,800.00	5,770.58	3,414.00	3,413.67	22.08	66.59	-66.47	-1,031.91	3,213.11	3,897.83	3,824.96	72.87	53.494	
5,900.00	5,870.01	3,414.00	3,413.67	22.47	66.59	-66.47	-1,031.91	3,213.11	3,954.57	3,882.40	72.18	54.791	
6,000.00	5,969.43	3,414.00	3,413.67	22.85	66.59	-66.47	-1,031.91	3,213.11	4,013.01	3,941.53	71.48	56.139	
6,100.00	6,068.85	3,414.00	3,413.67	23.23	66.59	-66.47	-1,031.91	3,213.11	4,073.06	4,002.27	70.79	57.537	
6,200.00	6,168.27	3,414.00	3,413.67	23.62	66.59	-66.47	-1,031.91	3,213.11	4,134.66	4,064.56	70.10	58.982	
6,300.00	6,267.70	3,414.00	3,413.67	24.00	66.59	-66.47	-1,031.91	3,213.11	4,197.74	4,128.33	69.41	60.474	
6,400.00	6,367.12	3,414.00	3,413.67	24.38	66.59	-66.47	-1,031.91	3,213.11	4,262.23	4,193.50	68.73	62.010	
6,500.00	6,466.54	3,414.00	3,413.67	24.77	66.59	-66.47	-1,031.91	3,213.11	4,328.07	4,260.01	68.06	63.590	
6,600.00	6,565.96	3,414.00	3,413.67	25.15	66.59	-66.47	-1,031.91	3,213.11	4,395.21	4,327.81	67.40	65.211	
6,700.00	6,665.38	3,414.00	3,413.67	25.53	66.59	-66.47	-1,031.91	3,213.11	4,463.57	4,396.82	66.75	66.873	
6,778.75	6,743.68	3,414.00	3,413.67	25.84	66.59	-66.47	-1,031.91	3,213.11	4,518.23	4,451.99	66.24	68.208	
6,800.00	6,764.80	3,414.00	3,413.67	25.92	66.59	-50.85	-1,031.91	3,213.11	4,532.85	4,466.75	66.10	68.574	
6,850.00	6,814.29	3,414.00	3,413.67	26.11	66.59	-27.27	-1,031.91	3,213.11	4,565.44	4,499.69	65.75	69.437	
6,900.00	6,863.27	3,414.00	3,413.67	26.30	66.59	-15.97	-1,031.91	3,213.11	4,595.36	4,530.00	65.37	70.300	
6,950.00	6,911.44	3,414.00	3,413.67	26.50	66.59	-10.02	-1,031.91	3,213.11	4,622.49	4,557.53	64.96	71.159	
7,000.00	6,958.49	3,414.00	3,413.67	26.68	66.59	-6.49	-1,031.91	3,213.11	4,646.70	4,582.17	64.53	72.011	
7,050.00	7,004.14	3,414.00	3,413.67	26.87	66.59	-4.22	-1,031.91	3,213.11	4,667.89	4,603.82	64.07	72.853	
7,100.00	7,048.10	3,414.00	3,413.67	27.05	66.59	-2.65	-1,031.91	3,213.11	4,685.97	4,622.38	63.60	73.683	
7,150.00	7,090.11	3,414.00	3,413.67	27.23	66.59	-1.51	-1,031.91	3,213.11	4,700.88	4,637.78	63.10	74.499	
7,200.00	7,129.90	3,414.00	3,413.67	27.41	66.59	-0.64	-1,031.91	3,213.11	4,712.54	4,649.95	62.59	75.297	
7,250.00	7,167.24	3,414.00	3,413.67	27.59	66.59	0.04	-1,031.91	3,213.11	4,720.91	4,658.85	62.06	76.074	
7,300.00	7,201.88	3,414.00	3,413.67	27.76	66.59	0.61	-1,031.91	3,213.11	4,725.95	4,664.44	61.51	76.828	
7,350.00	7,233.63	3,414.00	3,413.67	27.94	66.59	1.09	-1,031.91	3,213.11	4,727.65	4,666.69	60.96	77.554	
7,400.00	7,262.27	3,414.00	3,413.67	28.13	66.59	1.52	-1,031.91	3,213.11	4,726.00	4,665.61	60.40	78.249	
7,450.00	7,287.63	3,414.00	3,413.67	28.32	66.59	1.91	-1,031.91	3,213.11	4,721.01	4,661.18	59.83	78.910	
7,500.00	7,309.57	3,414.00	3,413.67	28.53	66.59	2.29	-1,031.91	3,213.11	4,712.68	4,653.43	59.26	79.531	
7,550.00	7,327.93	3,414.00	3,413.67	28.74	66.59	2.66	-1,031.91	3,213.11	4,701.07	4,642.39	58.68	80.108	
7,600.00	7,342.62	3,414.00	3,413.67	28.97	66.59	3.03	-1,031.91	3,213.11	4,686.21	4,628.10	58.11	80.638	
7,650.00	7,353.53	3,414.00	3,413.67	29.22	66.59	3.43	-1,031.91	3,213.11	4,668.17	4,610.62	57.55	81.115	
7,700.00	7,360.61	3,414.00	3,413.67	29.48	66.59	3.85	-1,031.91	3,213.11	4,647.03	4,590.03	56.99	81.535	
7,750.00	7,363.80	3,414.00	3,413.67	29.75	66.59	4.32	-1,031.91	3,213.11	4,622.86	4,566.41	56.45	81.894	
7,765.93	7,364.00	3,414.00	3,413.67	29.84	66.59	4.48	-1,031.91	3,213.11	4,614.54	4,558.26	56.28	81.990	
7,800.00	7,364.00	3,414.00	3,413.67	30.04	66.59	4.48	-1,031.91	3,213.11	4,596.53	4,540.62	55.91	82.209	
7,900.00	7,364.00	3,414.00	3,413.67	30.67	66.59	4.48	-1,031.91	3,213.11	4,544.73	4,489.90	54.82	82.898	
8,000.00	7,364.00	3,414.00	3,413.67	31.37	66.59	4.48	-1,031.91	3,213.11	4,494.55	4,440.82	53.73	83.646	
8,100.00	7,364.00	3,414.00	3,413.67	32.14	66.59	4.48	-1,031.91	3,213.11	4,446.06	4,393.41	52.65	84.453	
8,200.00	7,364.00	3,414.00	3,413.67	32.96	66.59	4.48	-1,031.91	3,213.11	4,399.31	4,347.74	51.56	85.319	
8,300.00	7,364.00	3,414.00	3,413.67	33.85	66.59	4.48	-1,031.91	3,213.11	4,354.35	4,303.86	50.49	86.243	
8,400.00	7,364.00	3,414.00	3,413.67	34.79	66.59	4.48	-1,031.91	3,213.11	4,311.24	4,261.81	49.43	87.223	
8,500.00	7,364.00	3,414.00	3,413.67	35.77	66.59	4.48	-1,031.91	3,213.11	4,270.04	4,221.66	48.38	88.259	
8,600.00	7,364.00	3,414.00	3,413.67	36.80	66.59	4.48	-1,031.91	3,213.11	4,230.80	4,183.45	47.35	89.347	
8,700.00	7,364.00	3,414.00	3,413.67	37.87	66.59	4.48	-1,031.91	3,213.11	4,193.58	4,147.24	46.35	90.484	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #259A - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 101-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
8,800.00	7,364.00	3,414.00	3,413.67	38.98	66.59	4.48	-1,031.91	3,213.11	4,158.44	4,113.07	45.37	91.664	
8,900.00	7,364.00	3,414.00	3,413.67	40.12	66.59	4.48	-1,031.91	3,213.11	4,125.41	4,081.00	44.42	92.883	
9,000.00	7,364.00	3,414.00	3,413.67	41.29	66.59	4.48	-1,031.91	3,213.11	4,094.57	4,051.07	43.50	94.130	
9,100.00	7,364.00	3,414.00	3,413.67	42.49	66.59	4.48	-1,031.91	3,213.11	4,065.95	4,023.33	42.62	95.394	
9,200.00	7,364.00	3,414.00	3,413.67	43.71	66.59	4.48	-1,031.91	3,213.11	4,039.60	3,997.81	41.79	96.659	
9,300.00	7,364.00	3,414.00	3,413.67	44.96	66.59	4.48	-1,031.91	3,213.11	4,015.57	3,974.56	41.02	97.903	
9,400.00	7,364.00	3,414.00	3,413.67	46.23	66.59	4.48	-1,031.91	3,213.11	3,993.91	3,953.60	40.30	99.096	
9,500.00	7,364.00	3,414.00	3,413.67	47.52	66.59	4.48	-1,031.91	3,213.11	3,974.64	3,934.97	39.67	100.200	
9,600.00	7,364.00	3,414.00	3,413.67	48.83	66.59	4.48	-1,031.91	3,213.11	3,957.80	3,918.68	39.12	101.165	
9,700.00	7,364.00	3,414.00	3,413.67	50.15	66.59	4.48	-1,031.91	3,213.11	3,943.43	3,904.74	38.69	101.927	
9,800.00	7,364.00	3,414.00	3,413.67	51.49	66.59	4.48	-1,031.91	3,213.11	3,931.55	3,893.16	38.39	102.412	
9,900.00	7,364.00	3,414.00	3,413.67	52.85	66.59	4.48	-1,031.91	3,213.11	3,922.18	3,883.93	38.25	102.535	
10,000.00	7,364.00	3,414.00	3,413.67	54.22	66.59	4.48	-1,031.91	3,213.11	3,915.35	3,877.05	38.31	102.214	
10,100.00	7,364.00	3,414.00	3,413.67	55.60	66.59	4.48	-1,031.91	3,213.11	3,911.06	3,872.49	38.58	101.386	
10,200.00	7,364.00	3,414.00	3,413.67	56.99	66.59	4.48	-1,031.91	3,213.11	3,909.33	3,870.25	39.08	100.025	
10,217.76	7,364.00	3,414.00	3,413.67	57.24	66.59	4.48	-1,031.91	3,213.11	3,909.29	3,870.09	39.20	99.728	
10,300.00	7,364.00	3,414.00	3,413.67	58.40	66.59	4.48	-1,031.91	3,213.11	3,910.16	3,870.32	39.84	98.157	
10,400.00	7,364.00	3,414.00	3,413.67	59.81	66.59	4.48	-1,031.91	3,213.11	3,913.54	3,872.71	40.82	95.863	
10,500.00	7,364.00	3,414.00	3,413.67	61.23	66.59	4.48	-1,031.91	3,213.11	3,919.47	3,877.44	42.03	93.261	
10,600.00	7,364.00	3,414.00	3,413.67	62.66	66.59	4.48	-1,031.91	3,213.11	3,927.93	3,884.52	43.41	90.478	
10,700.00	7,364.00	3,414.00	3,413.67	64.10	66.59	4.48	-1,031.91	3,213.11	3,938.92	3,893.97	44.95	87.633	
10,800.00	7,364.00	3,414.00	3,413.67	65.55	66.59	4.48	-1,031.91	3,213.11	3,952.41	3,905.81	46.60	84.820	
10,900.00	7,364.00	3,414.00	3,413.67	67.01	66.59	4.48	-1,031.91	3,213.11	3,968.38	3,920.04	48.33	82.106	
11,000.00	7,364.00	3,414.00	3,413.67	68.47	66.59	4.48	-1,031.91	3,213.11	3,986.78	3,936.66	50.13	79.536	
11,100.00	7,364.00	3,414.00	3,413.67	69.93	66.59	4.48	-1,031.91	3,213.11	4,007.61	3,955.65	51.96	77.134	
11,200.00	7,364.00	3,414.00	3,413.67	71.41	66.59	4.48	-1,031.91	3,213.11	4,030.80	3,976.99	53.81	74.913	
11,300.00	7,364.00	3,414.00	3,413.67	72.88	66.59	4.48	-1,031.91	3,213.11	4,056.33	4,000.67	55.66	72.874	
11,400.00	7,364.00	3,414.00	3,413.67	74.37	66.59	4.48	-1,031.91	3,213.11	4,084.15	4,026.63	57.51	71.014	
11,500.00	7,364.00	3,414.00	3,413.67	75.85	66.59	4.48	-1,031.91	3,213.11	4,114.21	4,054.86	59.34	69.327	
11,600.00	7,364.00	3,414.00	3,413.67	77.35	66.59	4.48	-1,031.91	3,213.11	4,146.46	4,085.31	61.15	67.803	
11,700.00	7,364.00	3,414.00	3,413.67	78.84	66.59	4.48	-1,031.91	3,213.11	4,180.86	4,117.92	62.94	66.431	
11,800.00	7,364.00	3,414.00	3,413.67	80.34	66.59	4.48	-1,031.91	3,213.11	4,217.35	4,152.67	64.68	65.202	
11,900.00	7,364.00	3,414.00	3,413.67	81.85	66.59	4.48	-1,031.91	3,213.11	4,255.88	4,189.49	66.39	64.105	
12,000.00	7,364.00	3,414.00	3,413.67	83.36	66.59	4.48	-1,031.91	3,213.11	4,296.39	4,228.33	68.05	63.131	
12,100.00	7,364.00	3,414.00	3,413.67	84.87	66.59	4.48	-1,031.91	3,213.11	4,338.82	4,269.15	69.68	62.270	
12,200.00	7,364.00	3,414.00	3,413.67	86.38	66.59	4.48	-1,031.91	3,213.11	4,383.13	4,311.88	71.25	61.514	
12,300.00	7,364.00	3,414.00	3,413.67	87.90	66.59	4.48	-1,031.91	3,213.11	4,429.25	4,356.47	72.78	60.855	
12,400.00	7,364.00	3,414.00	3,413.67	89.42	66.59	4.48	-1,031.91	3,213.11	4,477.13	4,402.87	74.27	60.285	
12,500.00	7,364.00	3,414.00	3,413.67	90.95	66.59	4.48	-1,031.91	3,213.11	4,526.72	4,451.02	75.70	59.797	
12,600.00	7,364.00	3,414.00	3,413.67	92.47	66.59	4.48	-1,031.91	3,213.11	4,577.95	4,500.86	77.09	59.385	
12,700.00	7,364.00	3,414.00	3,413.67	94.00	66.59	4.48	-1,031.91	3,213.11	4,630.78	4,552.35	78.43	59.045	
12,800.00	7,364.00	3,414.00	3,413.67	95.53	66.59	4.48	-1,031.91	3,213.11	4,685.14	4,605.42	79.72	58.769	
12,900.00	7,364.00	3,414.00	3,413.67	97.06	66.59	4.48	-1,031.91	3,213.11	4,740.99	4,660.02	80.97	58.555	
13,000.00	7,364.00	3,414.00	3,413.67	98.60	66.59	4.48	-1,031.91	3,213.11	4,798.27	4,716.11	82.17	58.396	
13,100.00	7,364.00	3,414.00	3,413.67	100.14	66.59	4.48	-1,031.91	3,213.11	4,856.94	4,773.62	83.32	58.290	
13,200.00	7,364.00	3,414.00	3,413.67	101.68	66.59	4.48	-1,031.91	3,213.11	4,916.94	4,832.51	84.44	58.233	
13,300.00	7,364.00	3,414.00	3,413.67	103.22	66.59	4.48	-1,031.91	3,213.11	4,978.23	4,892.72	85.51	58.221	
13,400.00	7,364.00	3,414.00	3,413.67	104.76	66.59	4.48	-1,031.91	3,213.11	5,040.76	4,954.22	86.53	58.251	
13,500.00	7,364.00	3,414.00	3,413.67	106.31	66.59	4.48	-1,031.91	3,213.11	5,104.48	5,016.95	87.52	58.321	
13,600.00	7,364.00	3,414.00	3,413.67	107.85	66.59	4.48	-1,031.91	3,213.11	5,169.34	5,080.87	88.47	58.427	
13,700.00	7,364.00	3,414.00	3,413.67	109.40	66.59	4.48	-1,031.91	3,213.11	5,235.32	5,145.93	89.39	58.569	
13,800.00	7,364.00	3,414.00	3,413.67	110.95	66.59	4.48	-1,031.91	3,213.11	5,302.36	5,212.09	90.27	58.742	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #259A - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 101-A027Ua_INC-ONLY

Rule Assigned:

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
13,900.00	7,364.00	3,414.00	3,413.67	112.50	66.59	4.48	-1,031.91	3,213.11	5,370.42	5,279.32	91.11	58.946	
14,000.00	7,364.00	3,414.00	3,413.67	114.05	66.59	4.48	-1,031.91	3,213.11	5,439.48	5,347.56	91.92	59.177	
14,100.00	7,364.00	3,414.00	3,413.67	115.61	66.59	4.48	-1,031.91	3,213.11	5,509.48	5,416.78	92.70	59.436	
14,200.00	7,364.00	3,414.00	3,413.67	117.16	66.59	4.48	-1,031.91	3,213.11	5,580.39	5,486.95	93.44	59.720	
14,300.00	7,364.00	3,414.00	3,413.67	118.72	66.59	4.48	-1,031.91	3,213.11	5,652.19	5,558.03	94.16	60.027	
14,400.00	7,364.00	3,414.00	3,413.67	120.28	66.59	4.48	-1,031.91	3,213.11	5,724.83	5,629.98	94.85	60.357	
14,500.00	7,364.00	3,414.00	3,413.67	121.84	66.59	4.48	-1,031.91	3,213.11	5,798.29	5,702.78	95.51	60.707	
14,600.00	7,364.00	3,414.00	3,413.67	123.40	66.59	4.48	-1,031.91	3,213.11	5,872.53	5,776.38	96.15	61.077	
14,700.00	7,364.00	3,414.00	3,413.67	124.96	66.59	4.48	-1,031.91	3,213.11	5,947.52	5,850.76	96.76	61.466	
14,800.00	7,364.00	3,414.00	3,413.67	126.52	66.59	4.48	-1,031.91	3,213.11	6,023.25	5,925.90	97.35	61.872	
14,900.00	7,364.00	3,414.00	3,413.67	128.08	66.59	4.48	-1,031.91	3,213.11	6,099.67	6,001.75	97.92	62.295	
15,000.00	7,364.00	3,414.00	3,413.67	129.64	66.59	4.48	-1,031.91	3,213.11	6,176.76	6,078.30	98.46	62.733	
15,100.00	7,364.00	3,414.00	3,413.67	131.21	66.59	4.48	-1,031.91	3,213.11	6,254.51	6,155.52	98.99	63.186	
15,200.00	7,364.00	3,414.00	3,413.67	132.77	66.59	4.48	-1,031.91	3,213.11	6,332.87	6,233.38	99.49	63.654	
15,300.00	7,364.00	3,414.00	3,413.67	134.34	66.59	4.48	-1,031.91	3,213.11	6,411.84	6,311.87	99.97	64.134	
15,400.00	7,364.00	3,414.00	3,413.67	135.91	66.59	4.48	-1,031.91	3,213.11	6,491.39	6,390.95	100.44	64.628	
15,500.00	7,364.00	3,414.00	3,413.67	137.48	66.59	4.48	-1,031.91	3,213.11	6,571.50	6,470.61	100.89	65.133	
15,600.00	7,364.00	3,414.00	3,413.67	139.04	66.59	4.48	-1,031.91	3,213.11	6,652.15	6,550.82	101.33	65.650	
15,700.00	7,364.00	3,414.00	3,413.67	140.61	66.59	4.48	-1,031.91	3,213.11	6,733.32	6,631.57	101.75	66.177	
15,800.00	7,364.00	3,414.00	3,413.67	142.18	66.59	4.48	-1,031.91	3,213.11	6,814.98	6,712.83	102.15	66.715	
15,900.00	7,364.00	3,414.00	3,413.67	143.75	66.59	4.48	-1,031.91	3,213.11	6,897.13	6,794.59	102.54	67.262	
16,000.00	7,364.00	3,414.00	3,413.67	145.33	66.59	4.48	-1,031.91	3,213.11	6,979.75	6,876.83	102.92	67.819	
16,100.00	7,364.00	3,414.00	3,413.67	146.90	66.59	4.48	-1,031.91	3,213.11	7,062.81	6,959.53	103.28	68.384	
16,200.00	7,364.00	3,414.00	3,413.67	148.47	66.59	4.48	-1,031.91	3,213.11	7,146.31	7,042.68	103.63	68.958	
16,300.00	7,364.00	3,414.00	3,413.67	150.04	66.59	4.48	-1,031.91	3,213.11	7,230.23	7,126.26	103.97	69.540	
16,400.00	7,364.00	3,414.00	3,413.67	151.62	66.59	4.48	-1,031.91	3,213.11	7,314.55	7,210.25	104.30	70.129	
16,500.00	7,364.00	3,414.00	3,413.67	153.19	66.59	4.48	-1,031.91	3,213.11	7,399.26	7,294.65	104.62	70.725	
16,600.00	7,364.00	3,414.00	3,413.67	154.77	66.59	4.48	-1,031.91	3,213.11	7,484.36	7,379.43	104.93	71.329	
16,700.00	7,364.00	3,414.00	3,413.67	156.34	66.59	4.48	-1,031.91	3,213.11	7,569.81	7,464.58	105.23	71.939	
16,800.00	7,364.00	3,414.00	3,413.67	157.92	66.59	4.48	-1,031.91	3,213.11	7,655.62	7,550.10	105.52	72.555	
16,900.00	7,364.00	3,414.00	3,413.67	159.49	66.59	4.48	-1,031.91	3,213.11	7,741.76	7,635.97	105.80	73.177	
17,000.00	7,364.00	3,414.00	3,413.67	161.07	66.59	4.48	-1,031.91	3,213.11	7,828.24	7,722.17	106.07	73.804	
17,100.00	7,364.00	3,414.00	3,413.67	162.65	66.59	4.48	-1,031.91	3,213.11	7,915.04	7,808.71	106.33	74.437	
17,200.00	7,364.00	3,414.00	3,413.67	164.23	66.59	4.48	-1,031.91	3,213.11	8,002.14	7,895.55	106.59	75.075	
17,300.00	7,364.00	3,414.00	3,413.67	165.81	66.59	4.48	-1,031.91	3,213.11	8,089.54	7,982.71	106.84	75.718	
17,400.00	7,364.00	3,414.00	3,413.67	167.38	66.59	4.48	-1,031.91	3,213.11	8,177.23	8,070.15	107.08	76.366	
17,500.00	7,364.00	3,414.00	3,413.67	168.96	66.59	4.48	-1,031.91	3,213.11	8,265.20	8,157.89	107.32	77.018	
17,600.00	7,364.00	3,414.00	3,413.67	170.54	66.59	4.48	-1,031.91	3,213.11	8,353.45	8,245.90	107.54	77.674	
17,700.00	7,364.00	3,414.00	3,413.67	172.12	66.59	4.48	-1,031.91	3,213.11	8,441.95	8,334.18	107.77	78.334	
17,800.00	7,364.00	3,414.00	3,413.67	173.70	66.59	4.48	-1,031.91	3,213.11	8,530.71	8,422.72	107.99	78.998	
17,900.00	7,364.00	3,414.00	3,413.67	175.28	66.59	4.48	-1,031.91	3,213.11	8,619.71	8,511.51	108.20	79.666	
18,000.00	7,364.00	3,414.00	3,413.67	176.87	66.59	4.48	-1,031.91	3,213.11	8,708.95	8,600.55	108.41	80.337	
18,100.00	7,364.00	3,414.00	3,413.67	178.45	66.59	4.48	-1,031.91	3,213.11	8,798.43	8,689.82	108.61	81.012	
18,200.00	7,364.00	3,414.00	3,413.67	180.03	66.59	4.48	-1,031.91	3,213.11	8,888.12	8,779.32	108.80	81.689	
18,300.00	7,364.00	3,414.00	3,413.67	181.61	66.59	4.48	-1,031.91	3,213.11	8,978.04	8,869.04	109.00	82.370	
18,400.00	7,364.00	3,414.00	3,413.67	183.19	66.59	4.48	-1,031.91	3,213.11	9,068.17	8,958.98	109.19	83.053	
18,500.00	7,364.00	3,414.00	3,413.67	184.78	66.59	4.48	-1,031.91	3,213.11	9,158.50	9,049.13	109.37	83.739	
18,600.00	7,364.00	3,414.00	3,413.67	186.36	66.59	4.48	-1,031.91	3,213.11	9,249.03	9,139.48	109.55	84.428	
18,700.00	7,364.00	3,414.00	3,413.67	187.94	66.59	4.48	-1,031.91	3,213.11	9,339.75	9,230.03	109.73	85.119	
18,800.00	7,364.00	3,414.00	3,413.67	189.53	66.59	4.48	-1,031.91	3,213.11	9,430.66	9,320.77	109.90	85.812	
18,900.00	7,364.00	3,414.00	3,413.67	191.11	66.59	4.48	-1,031.91	3,213.11	9,521.76	9,411.69	110.07	86.508	
19,000.00	7,364.00	3,414.00	3,413.67	192.70	66.59	4.48	-1,031.91	3,213.11	9,613.03	9,502.80	110.23	87.206	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #259A - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 101-A027Ua_INC-ONLY

Rule Assigned:

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
19,100.00	7,364.00	3,414.00	3,413.67	194.28	66.59	4.48	-1,031.91	3,213.11	9,704.47	9,594.08	110.40	87.905	
19,200.00	7,364.00	3,414.00	3,413.67	195.87	66.59	4.48	-1,031.91	3,213.11	9,796.08	9,685.53	110.56	88.607	
19,300.00	7,364.00	3,414.00	3,413.67	197.45	66.59	4.48	-1,031.91	3,213.11	9,887.86	9,777.14	110.71	89.310	
19,400.00	7,364.00	3,414.00	3,413.67	199.04	66.59	4.48	-1,031.91	3,213.11	9,979.79	9,868.92	110.87	90.015	
19,500.00	7,364.00	3,414.00	3,413.67	200.62	66.59	4.48	-1,031.91	3,213.11	10,071.87	9,960.85	111.02	90.721	
19,600.00	7,364.00	3,414.00	3,413.67	202.21	66.59	4.48	-1,031.91	3,213.11	10,164.10	10,052.94	111.17	91.429	
19,700.00	7,364.00	3,414.00	3,413.67	203.79	66.59	4.48	-1,031.91	3,213.11	10,256.48	10,145.17	111.32	92.139	
19,800.00	7,364.00	3,414.00	3,413.67	205.38	66.59	4.48	-1,031.91	3,213.11	10,349.01	10,237.55	111.46	92.849	
19,900.00	7,364.00	3,414.00	3,413.67	206.97	66.59	4.48	-1,031.91	3,213.11	10,441.67	10,330.06	111.60	93.561	
20,000.00	7,364.00	3,414.00	3,413.67	208.55	66.59	4.48	-1,031.91	3,213.11	10,534.46	10,422.72	111.74	94.274	
20,100.00	7,364.00	3,414.00	3,413.67	210.14	66.59	4.48	-1,031.91	3,213.11	10,627.38	10,515.50	111.88	94.988	
20,200.00	7,364.00	3,414.00	3,413.67	211.73	66.59	4.48	-1,031.91	3,213.11	10,720.43	10,608.42	112.02	95.704	
20,300.00	7,364.00	3,414.00	3,413.67	213.32	66.59	4.48	-1,031.91	3,213.11	10,813.61	10,701.46	112.15	96.420	
20,400.00	7,364.00	3,414.00	3,413.67	214.90	66.59	4.48	-1,031.91	3,213.11	10,906.91	10,794.62	112.28	97.136	
20,500.00	7,364.00	3,414.00	3,413.67	216.49	66.59	4.48	-1,031.91	3,213.11	11,000.32	10,887.91	112.42	97.854	
20,600.00	7,364.00	3,414.00	3,413.67	218.08	66.59	4.48	-1,031.91	3,213.11	11,093.85	10,981.31	112.54	98.573	
20,700.00	7,364.00	3,414.00	3,413.67	219.67	66.59	4.48	-1,031.91	3,213.11	11,187.49	11,074.82	112.67	99.292	
20,800.00	7,364.00	3,414.00	3,413.67	221.26	66.59	4.48	-1,031.91	3,213.11	11,281.24	11,168.44	112.80	100.011	
20,900.00	7,364.00	3,414.00	3,413.67	222.84	66.59	4.48	-1,031.91	3,213.11	11,375.10	11,262.17	112.92	100.732	
21,000.00	7,364.00	3,414.00	3,413.67	224.43	66.59	4.48	-1,031.91	3,213.11	11,469.06	11,356.01	113.05	101.452	
21,100.00	7,364.00	3,414.00	3,413.67	226.02	66.59	4.48	-1,031.91	3,213.11	11,563.12	11,449.95	113.17	102.174	
21,200.00	7,364.00	3,414.00	3,413.67	227.61	66.59	4.48	-1,031.91	3,213.11	11,657.28	11,543.99	113.29	102.895	
21,300.00	7,364.00	3,414.00	3,413.67	229.20	66.59	4.48	-1,031.91	3,213.11	11,751.54	11,638.13	113.41	103.617	
21,400.00	7,364.00	3,414.00	3,413.67	230.79	66.59	4.48	-1,031.91	3,213.11	11,845.89	11,732.36	113.53	104.339	
21,500.00	7,364.00	3,414.00	3,413.67	232.38	66.59	4.48	-1,031.91	3,213.11	11,940.33	11,826.68	113.65	105.062	
21,600.00	7,364.00	3,414.00	3,413.67	233.97	66.59	4.48	-1,031.91	3,213.11	12,034.87	11,921.10	113.77	105.784	
21,700.00	7,364.00	3,414.00	3,413.67	235.56	66.59	4.48	-1,031.91	3,213.11	12,129.49	12,015.60	113.88	106.507	
21,800.00	7,364.00	3,414.00	3,413.67	237.15	66.59	4.48	-1,031.91	3,213.11	12,224.19	12,110.19	114.00	107.230	
21,864.93	7,364.00	3,414.00	3,413.67	238.18	66.59	4.48	-1,031.91	3,213.11	12,285.73	12,171.65	114.07	107.700	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #269A - OH - OH — **Offset Site Error:** 0.00 usft

Survey Program: 71-MWD-SDI — **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	47.06	47.06	3.28	0.14	98.00	-1,170.85	8,335.85	8,417.74				
100.00	100.00	210.58	210.57	3.29	0.63	97.99	-1,169.41	8,334.65	8,416.82	8,412.90	3.92	2,146.480	
200.00	200.00	300.10	300.08	3.34	0.90	97.98	-1,168.97	8,333.66	8,415.67	8,411.43	4.24	1,986.544	
300.00	300.00	373.47	373.44	3.42	1.12	97.99	-1,169.00	8,333.04	8,414.84	8,410.30	4.54	1,853.414	
400.00	400.00	428.87	428.84	3.54	1.29	97.99	-1,169.61	8,332.68	8,414.38	8,409.55	4.82	1,744.047	
424.97	424.97	441.00	440.97	3.57	1.32	97.99	-1,169.85	8,332.64	8,414.36	8,409.47	4.90	1,718.777	
500.00	500.00	472.00	471.96	3.69	1.42	98.00	-1,170.68	8,332.58	8,414.53	8,409.43	5.10	1,648.808	
600.00	599.98	502.00	501.94	3.86	1.51	-52.00	-1,171.71	8,332.63	8,414.31	8,408.95	5.36	1,569.365	
700.00	699.84	546.99	546.89	4.04	1.64	-52.02	-1,173.69	8,333.05	8,412.70	8,407.02	5.68	1,480.556	
808.00	807.41	592.00	591.81	4.27	1.78	-52.08	-1,176.28	8,333.82	8,409.43	8,403.39	6.04	1,391.226	
900.00	898.89	620.00	619.74	4.49	1.86	-69.27	-1,178.15	8,334.47	8,407.56	8,401.21	6.34	1,325.763	
906.30	905.15	620.00	619.74	4.50	1.86	-70.43	-1,178.15	8,334.47	8,407.55	8,401.19	6.36	1,322.550	
912.12	910.94	620.00	619.74	4.52	1.86	-71.49	-1,178.15	8,334.47	8,407.55	8,401.18	6.37	1,319.675	
1,000.00	998.31	651.00	650.65	4.74	1.95	-71.50	-1,180.39	8,335.36	8,408.03	8,401.34	6.69	1,257.734	
1,100.00	1,097.73	681.00	680.53	5.01	2.04	-71.51	-1,182.83	8,336.39	8,409.31	8,402.26	7.04	1,194.085	
1,200.00	1,197.15	713.00	712.38	5.29	2.14	-71.51	-1,185.69	8,337.71	8,411.39	8,403.97	7.42	1,133.586	
1,300.00	1,296.58	744.00	743.18	5.59	2.23	-71.51	-1,188.75	8,339.29	8,414.37	8,406.57	7.81	1,077.826	
1,400.00	1,396.00	775.00	773.96	5.90	2.33	-71.51	-1,192.06	8,341.07	8,418.16	8,409.96	8.20	1,026.165	
1,500.00	1,495.42	806.00	804.70	6.22	2.42	-71.51	-1,195.55	8,343.01	8,422.70	8,414.09	8.61	978.400	
1,600.00	1,594.84	836.00	834.39	6.54	2.51	-71.51	-1,199.24	8,345.17	8,428.14	8,419.12	9.02	934.613	
1,700.00	1,694.27	867.00	865.01	6.87	2.60	-71.51	-1,203.34	8,347.70	8,434.48	8,425.05	9.44	893.872	
1,800.00	1,793.69	898.00	895.60	7.21	2.69	-71.50	-1,207.62	8,350.41	8,441.59	8,431.73	9.86	856.234	
1,900.00	1,893.11	930.00	927.12	7.55	2.79	-71.49	-1,212.29	8,353.36	8,449.43	8,439.14	10.29	821.191	
2,000.00	1,992.53	973.46	969.82	7.89	2.92	-71.48	-1,219.12	8,357.60	8,457.98	8,447.22	10.76	786.188	
2,100.00	2,091.96	1,024.00	1,019.32	8.24	3.07	-71.46	-1,227.88	8,362.87	8,467.29	8,456.04	11.25	752.507	
2,200.00	2,191.38	1,056.00	1,050.57	8.60	3.17	-71.45	-1,233.83	8,366.30	8,477.19	8,465.50	11.69	725.086	
2,300.00	2,290.80	1,095.26	1,088.82	8.95	3.29	-71.43	-1,241.50	8,370.75	8,487.84	8,475.68	12.15	698.307	
2,400.00	2,390.22	1,118.00	1,110.92	9.31	3.35	-71.41	-1,246.15	8,373.44	8,499.25	8,486.68	12.57	676.225	
2,500.00	2,489.65	1,178.00	1,169.11	9.67	3.54	-71.38	-1,258.64	8,381.04	8,511.41	8,498.31	13.10	649.733	
2,600.00	2,589.07	1,225.96	1,215.56	10.03	3.68	-71.35	-1,268.71	8,387.47	8,524.20	8,510.61	13.59	627.014	
2,700.00	2,688.49	1,276.52	1,264.46	10.40	3.83	-71.32	-1,279.55	8,394.34	8,537.42	8,523.32	14.10	605.530	
2,800.00	2,787.91	1,341.02	1,326.72	10.76	4.02	-71.27	-1,293.71	8,403.48	8,551.24	8,536.59	14.65	583.777	
2,900.00	2,887.33	1,402.87	1,386.36	11.13	4.21	-71.23	-1,307.46	8,412.34	8,565.34	8,550.16	15.19	563.892	
3,000.00	2,986.76	1,469.77	1,450.67	11.50	4.41	-71.18	-1,323.04	8,422.19	8,579.96	8,564.21	15.75	544.828	
3,100.00	3,086.18	1,634.56	1,608.83	11.87	4.91	-71.05	-1,362.82	8,445.87	8,594.47	8,577.85	16.62	517.179	
3,200.00	3,185.60	2,020.00	1,980.86	12.24	6.06	-70.78	-1,450.48	8,495.23	8,608.10	8,589.92	18.18	473.380	
3,300.00	3,285.02	2,050.00	2,009.88	12.61	6.15	-70.75	-1,457.30	8,498.55	8,619.19	8,600.55	18.63	462.597	
3,400.00	3,384.45	2,114.00	2,071.94	12.98	6.34	-70.71	-1,470.95	8,506.17	8,630.83	8,611.64	19.19	449.824	
3,500.00	3,483.87	2,204.54	2,159.84	13.36	6.62	-70.66	-1,489.53	8,517.44	8,642.83	8,623.00	19.83	435.923	
3,600.00	3,583.29	2,412.54	2,361.43	13.73	7.24	-70.53	-1,534.67	8,541.63	8,654.20	8,633.36	20.84	415.315	
3,700.00	3,682.71	3,512.00	3,448.77	14.11	10.54	-70.59	-1,648.29	8,613.89	8,653.65	8,629.06	24.59	351.977	
3,759.00	3,741.38	3,512.00	3,448.77	14.33	10.54	-70.59	-1,648.29	8,613.89	8,653.45	8,628.64	24.81	348.841	
3,800.00	3,782.14	3,512.00	3,448.77	14.48	10.54	-70.59	-1,648.29	8,613.89	8,653.55	8,628.59	24.96	346.707	
3,900.00	3,881.56	3,512.00	3,448.77	14.86	10.54	-70.59	-1,648.29	8,613.89	8,654.60	8,629.27	25.33	341.654	
4,000.00	3,980.98	3,512.00	3,448.77	15.24	10.54	-70.59	-1,648.29	8,613.89	8,656.80	8,631.10	25.70	336.808	
4,100.00	4,080.40	3,512.00	3,448.77	15.61	10.54	-70.59	-1,648.29	8,613.89	8,660.17	8,634.09	26.07	332.162	
4,200.00	4,179.83	3,512.00	3,448.77	15.99	10.54	-70.59	-1,648.29	8,613.89	8,664.68	8,638.24	26.44	327.709	
4,300.00	4,279.25	3,512.00	3,448.77	16.37	10.54	-70.59	-1,648.29	8,613.89	8,670.34	8,643.54	26.81	323.442	
4,400.00	4,378.67	3,512.00	3,448.77	16.75	10.54	-70.59	-1,648.29	8,613.89	8,677.16	8,649.99	27.17	319.355	
4,500.00	4,478.09	3,512.00	3,448.77	17.13	10.54	-70.59	-1,648.29	8,613.89	8,685.12	8,657.58	27.53	315.440	
4,600.00	4,577.51	3,512.00	3,448.77	17.51	10.54	-70.59	-1,648.29	8,613.89	8,694.22	8,666.33	27.89	311.692	
4,700.00	4,676.94	3,512.00	3,448.77	17.89	10.54	-70.59	-1,648.29	8,613.89	8,704.46	8,676.21	28.25	308.104	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #269A - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 71-MWD-SDI

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
4,800.00	4,776.36	3,512.00	3,448.77	18.27	10.54	-70.59	-1,648.29	8,613.89	8,715.84	8,687.23	28.61	304.670	
4,900.00	4,875.78	3,512.00	3,448.77	18.65	10.54	-70.59	-1,648.29	8,613.89	8,728.35	8,699.39	28.96	301.386	
5,000.00	4,975.20	3,512.00	3,448.77	19.03	10.54	-70.59	-1,648.29	8,613.89	8,741.98	8,712.67	29.31	298.246	
5,100.00	5,074.63	3,512.00	3,448.77	19.41	10.54	-70.59	-1,648.29	8,613.89	8,756.74	8,727.08	29.66	295.243	
5,200.00	5,174.05	3,512.00	3,448.77	19.79	10.54	-70.59	-1,648.29	8,613.89	8,772.61	8,742.60	30.00	292.375	
5,300.00	5,273.47	3,512.00	3,448.77	20.17	10.54	-70.59	-1,648.29	8,613.89	8,789.59	8,759.24	30.35	289.635	
5,400.00	5,372.89	3,512.00	3,448.77	20.56	10.54	-70.59	-1,648.29	8,613.89	8,807.67	8,776.98	30.69	287.019	
5,500.00	5,472.32	3,512.00	3,448.77	20.94	10.54	-70.59	-1,648.29	8,613.89	8,826.85	8,795.82	31.02	284.523	
5,600.00	5,571.74	3,512.00	3,448.77	21.32	10.54	-70.59	-1,648.29	8,613.89	8,847.12	8,815.76	31.36	282.142	
5,700.00	5,671.16	3,512.00	3,448.77	21.70	10.54	-70.59	-1,648.29	8,613.89	8,868.46	8,836.78	31.69	279.872	
5,800.00	5,770.58	3,512.00	3,448.77	22.08	10.54	-70.59	-1,648.29	8,613.89	8,890.89	8,858.87	32.02	277.709	
5,900.00	5,870.01	3,512.00	3,448.77	22.47	10.54	-70.59	-1,648.29	8,613.89	8,914.37	8,882.03	32.34	275.650	
6,000.00	5,969.43	3,512.00	3,448.77	22.85	10.54	-70.59	-1,648.29	8,613.89	8,938.92	8,906.26	32.66	273.690	
6,100.00	6,068.85	3,512.00	3,448.77	23.23	10.54	-70.59	-1,648.29	8,613.89	8,964.51	8,931.53	32.98	271.827	
6,200.00	6,168.27	3,512.00	3,448.77	23.62	10.54	-70.59	-1,648.29	8,613.89	8,991.14	8,957.85	33.29	270.056	
6,300.00	6,267.70	3,512.00	3,448.77	24.00	10.54	-70.59	-1,648.29	8,613.89	9,018.81	8,985.20	33.61	268.374	
6,400.00	6,367.12	3,512.00	3,448.77	24.38	10.54	-70.59	-1,648.29	8,613.89	9,047.49	9,013.57	33.91	266.779	
6,500.00	6,466.54	3,512.00	3,448.77	24.77	10.54	-70.59	-1,648.29	8,613.89	9,077.18	9,042.96	34.22	265.266	
6,600.00	6,565.96	3,512.00	3,448.77	25.15	10.54	-70.59	-1,648.29	8,613.89	9,107.88	9,073.36	34.52	263.833	
6,700.00	6,665.38	3,512.00	3,448.77	25.53	10.54	-70.59	-1,648.29	8,613.89	9,139.56	9,104.74	34.82	262.478	
6,778.75	6,743.68	3,512.00	3,448.77	25.84	10.54	-70.59	-1,648.29	8,613.89	9,165.21	9,130.15	35.05	261.463	
6,800.00	6,764.80	3,512.00	3,448.77	25.92	10.54	-54.67	-1,648.29	8,613.89	9,171.90	9,136.78	35.12	261.194	
6,850.00	6,814.29	3,512.00	3,448.77	26.11	10.54	-30.47	-1,648.29	8,613.89	9,185.17	9,149.91	35.26	260.510	
6,900.00	6,863.27	3,512.00	3,448.77	26.30	10.54	-18.65	-1,648.29	8,613.89	9,194.92	9,159.52	35.40	259.754	
6,950.00	6,911.44	3,512.00	3,448.77	26.50	10.54	-12.23	-1,648.29	8,613.89	9,201.10	9,165.57	35.54	258.924	
7,000.00	6,958.49	3,512.00	3,448.77	26.68	10.54	-8.30	-1,648.29	8,613.89	9,203.68	9,168.01	35.67	258.026	
7,050.00	7,004.14	3,512.00	3,448.77	26.87	10.54	-5.66	-1,648.29	8,613.89	9,202.65	9,166.85	35.80	257.067	
7,100.00	7,048.10	3,512.00	3,448.77	27.05	10.54	-3.74	-1,648.29	8,613.89	9,198.01	9,162.08	35.92	256.054	
7,150.00	7,090.11	3,512.00	3,448.77	27.23	10.54	-2.27	-1,648.29	8,613.89	9,189.78	9,153.74	36.04	254.994	
7,200.00	7,129.90	3,512.00	3,448.77	27.41	10.54	-1.08	-1,648.29	8,613.89	9,178.00	9,141.85	36.15	253.894	
7,250.00	7,167.24	3,512.00	3,448.77	27.59	10.54	-0.06	-1,648.29	8,613.89	9,162.74	9,126.49	36.25	252.760	
7,300.00	7,201.88	3,512.00	3,448.77	27.76	10.54	0.86	-1,648.29	8,613.89	9,144.08	9,107.73	36.34	251.599	
7,350.00	7,233.63	3,512.00	3,448.77	27.94	10.54	1.71	-1,648.29	8,613.89	9,122.10	9,085.67	36.43	250.415	
7,400.00	7,262.27	3,512.00	3,448.77	28.13	10.54	2.55	-1,648.29	8,613.89	9,096.91	9,060.41	36.50	249.215	
7,450.00	7,287.63	3,512.00	3,448.77	28.32	10.54	3.41	-1,648.29	8,613.89	9,068.66	9,032.09	36.57	248.004	
7,500.00	7,309.57	3,512.00	3,448.77	28.53	10.54	4.33	-1,648.29	8,613.89	9,037.48	9,000.86	36.62	246.786	
7,550.00	7,327.93	3,512.00	3,448.77	28.74	10.54	5.36	-1,648.29	8,613.89	9,003.53	8,966.87	36.66	245.565	
7,600.00	7,342.62	3,512.00	3,448.77	28.97	10.54	6.53	-1,648.29	8,613.89	8,967.00	8,930.31	36.70	244.347	
7,650.00	7,353.53	3,512.00	3,448.77	29.22	10.54	7.94	-1,648.29	8,613.89	8,928.08	8,891.36	36.72	243.135	
7,700.00	7,360.61	3,512.00	3,448.77	29.48	10.54	9.69	-1,648.29	8,613.89	8,886.99	8,850.25	36.73	241.930	
7,750.00	7,363.80	3,512.00	3,448.77	29.75	10.54	11.93	-1,648.29	8,613.89	8,843.93	8,807.20	36.74	240.736	
7,765.93	7,364.00	3,512.00	3,448.77	29.84	10.54	12.79	-1,648.29	8,613.89	8,829.85	8,793.11	36.74	240.343	
7,800.00	7,364.00	3,512.00	3,448.77	30.04	10.54	12.79	-1,648.29	8,613.89	8,799.55	8,762.82	36.73	239.557	
7,900.00	7,364.00	3,512.00	3,448.77	30.67	10.54	12.79	-1,648.29	8,613.89	8,710.78	8,674.06	36.72	237.241	
8,000.00	7,364.00	3,512.00	3,448.77	31.37	10.54	12.79	-1,648.29	8,613.89	8,622.26	8,585.55	36.71	234.887	
8,100.00	7,364.00	3,512.00	3,448.77	32.14	10.54	12.79	-1,648.29	8,613.89	8,533.99	8,497.28	36.71	232.493	
8,200.00	7,364.00	3,512.00	3,448.77	32.96	10.54	12.79	-1,648.29	8,613.89	8,445.98	8,409.27	36.71	230.059	
8,300.00	7,364.00	3,512.00	3,448.77	33.85	10.54	12.79	-1,648.29	8,613.89	8,358.24	8,321.52	36.73	227.582	
8,400.00	7,364.00	3,512.00	3,448.77	34.79	10.54	12.79	-1,648.29	8,613.89	8,270.78	8,234.04	36.75	225.063	
8,500.00	7,364.00	3,512.00	3,448.77	35.77	10.54	12.79	-1,648.29	8,613.89	8,183.61	8,146.83	36.78	222.501	
8,600.00	7,364.00	3,512.00	3,448.77	36.80	10.54	12.79	-1,648.29	8,613.89	8,096.74	8,059.92	36.82	219.895	
8,700.00	7,364.00	3,512.00	3,448.77	37.87	10.54	12.79	-1,648.29	8,613.89	8,010.17	7,973.30	36.87	217.244	

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 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #269A - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 71-MWD-SDI

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
8,800.00	7,364.00	3,512.00	3,448.77	38.98	10.54	12.79	-1,648.29	8,613.89	7,923.91	7,886.98	36.93	214.549	
8,900.00	7,364.00	3,512.00	3,448.77	40.12	10.54	12.79	-1,648.29	8,613.89	7,837.99	7,800.98	37.01	211.808	
9,000.00	7,364.00	3,512.00	3,448.77	41.29	10.54	12.79	-1,648.29	8,613.89	7,752.40	7,715.31	37.09	209.023	
9,100.00	7,364.00	3,512.00	3,448.77	42.49	10.54	12.79	-1,648.29	8,613.89	7,667.16	7,629.97	37.18	206.193	
9,200.00	7,364.00	3,512.00	3,448.77	43.71	10.54	12.79	-1,648.29	8,613.89	7,582.28	7,544.99	37.29	203.318	
9,300.00	7,364.00	3,512.00	3,448.77	44.96	10.54	12.79	-1,648.29	8,613.89	7,497.77	7,460.36	37.41	200.399	
9,400.00	7,364.00	3,512.00	3,448.77	46.23	10.54	12.79	-1,648.29	8,613.89	7,413.65	7,376.10	37.55	197.436	
9,500.00	7,364.00	3,512.00	3,448.77	47.52	10.54	12.79	-1,648.29	8,613.89	7,329.93	7,292.23	37.70	194.431	
9,600.00	7,364.00	3,512.00	3,448.77	48.83	10.54	12.79	-1,648.29	8,613.89	7,246.62	7,208.76	37.86	191.385	
9,700.00	7,364.00	3,512.00	3,448.77	50.15	10.54	12.79	-1,648.29	8,613.89	7,163.74	7,125.69	38.04	188.299	
9,800.00	7,364.00	3,512.00	3,448.77	51.49	10.54	12.79	-1,648.29	8,613.89	7,081.30	7,043.06	38.24	185.174	
9,900.00	7,364.00	3,512.00	3,448.77	52.85	10.54	12.79	-1,648.29	8,613.89	6,999.32	6,960.86	38.45	182.014	
10,000.00	7,364.00	3,512.00	3,448.77	54.22	10.54	12.79	-1,648.29	8,613.89	6,917.81	6,879.12	38.69	178.820	
10,100.00	7,364.00	3,512.00	3,448.77	55.60	10.54	12.79	-1,648.29	8,613.89	6,836.79	6,797.85	38.94	175.595	
10,200.00	7,364.00	3,512.00	3,448.77	56.99	10.54	12.79	-1,648.29	8,613.89	6,756.28	6,717.08	39.20	172.340	
10,300.00	7,364.00	3,512.00	3,448.77	58.40	10.54	12.79	-1,648.29	8,613.89	6,676.30	6,636.81	39.49	169.061	
10,400.00	7,364.00	3,512.00	3,448.77	59.81	10.54	12.79	-1,648.29	8,613.89	6,596.86	6,557.06	39.80	165.759	
10,500.00	7,364.00	3,512.00	3,448.77	61.23	10.54	12.79	-1,648.29	8,613.89	6,517.99	6,477.87	40.13	162.438	
10,600.00	7,364.00	3,512.00	3,448.77	62.66	10.54	12.79	-1,648.29	8,613.89	6,439.71	6,399.23	40.48	159.102	
10,700.00	7,364.00	3,512.00	3,448.77	64.10	10.54	12.79	-1,648.29	8,613.89	6,362.04	6,321.19	40.85	155.754	
10,800.00	7,364.00	3,512.00	3,448.77	65.55	10.54	12.79	-1,648.29	8,613.89	6,284.99	6,243.75	41.24	152.400	
10,900.00	7,364.00	3,512.00	3,448.77	67.01	10.54	12.79	-1,648.29	8,613.89	6,208.60	6,166.95	41.66	149.043	
11,000.00	7,364.00	3,512.00	3,448.77	68.47	10.54	12.79	-1,648.29	8,613.89	6,132.90	6,090.80	42.10	145.686	
11,100.00	7,364.00	3,512.00	3,448.77	69.93	10.54	12.79	-1,648.29	8,613.89	6,057.89	6,015.33	42.56	142.336	
11,200.00	7,364.00	3,512.00	3,448.77	71.41	10.54	12.79	-1,648.29	8,613.89	5,983.62	5,940.57	43.05	138.996	
11,300.00	7,364.00	3,512.00	3,448.77	72.88	10.54	12.79	-1,648.29	8,613.89	5,910.10	5,866.54	43.56	135.671	
11,400.00	7,364.00	3,512.00	3,448.77	74.37	10.54	12.79	-1,648.29	8,613.89	5,837.38	5,793.28	44.10	132.365	
11,500.00	7,364.00	3,512.00	3,448.77	75.85	10.54	12.79	-1,648.29	8,613.89	5,765.47	5,720.80	44.66	129.084	
11,600.00	7,364.00	3,512.00	3,448.77	77.35	10.54	12.79	-1,648.29	8,613.89	5,694.40	5,649.15	45.25	125.830	
11,700.00	7,364.00	3,512.00	3,448.77	78.84	10.54	12.79	-1,648.29	8,613.89	5,624.22	5,578.35	45.87	122.609	
11,800.00	7,364.00	3,512.00	3,448.77	80.34	10.54	12.79	-1,648.29	8,613.89	5,554.95	5,508.44	46.51	119.425	
11,900.00	7,364.00	3,512.00	3,448.77	81.85	10.54	12.79	-1,648.29	8,613.89	5,486.63	5,439.45	47.18	116.283	
12,000.00	7,364.00	3,512.00	3,448.77	83.36	10.54	12.79	-1,648.29	8,613.89	5,419.30	5,371.42	47.88	113.185	
12,100.00	7,364.00	3,512.00	3,448.77	84.87	10.54	12.79	-1,648.29	8,613.89	5,352.98	5,304.38	48.60	110.137	
12,200.00	7,364.00	3,512.00	3,448.77	86.38	10.54	12.79	-1,648.29	8,613.89	5,287.73	5,238.37	49.35	107.141	
12,300.00	7,364.00	3,512.00	3,448.77	87.90	10.54	12.79	-1,648.29	8,613.89	5,223.57	5,173.44	50.13	104.200	
12,400.00	7,364.00	3,512.00	3,448.77	89.42	10.54	12.79	-1,648.29	8,613.89	5,160.55	5,109.62	50.93	101.320	
12,500.00	7,364.00	3,512.00	3,448.77	90.95	10.54	12.79	-1,648.29	8,613.89	5,098.72	5,046.96	51.76	98.501	
12,600.00	7,364.00	3,512.00	3,448.77	92.47	10.54	12.79	-1,648.29	8,613.89	5,038.11	4,985.49	52.62	95.747	
12,700.00	7,364.00	3,512.00	3,448.77	94.00	10.54	12.79	-1,648.29	8,613.89	4,978.78	4,925.28	53.50	93.061	
12,800.00	7,364.00	3,512.00	3,448.77	95.53	10.54	12.79	-1,648.29	8,613.89	4,920.76	4,866.35	54.41	90.444	
12,900.00	7,364.00	3,512.00	3,448.77	97.06	10.54	12.79	-1,648.29	8,613.89	4,864.10	4,808.77	55.34	87.899	
13,000.00	7,364.00	3,512.00	3,448.77	98.60	10.54	12.79	-1,648.29	8,613.89	4,808.86	4,752.57	56.29	85.428	
13,100.00	7,364.00	3,512.00	3,448.77	100.14	10.54	12.79	-1,648.29	8,613.89	4,755.08	4,697.81	57.27	83.031	
13,200.00	7,364.00	3,512.00	3,448.77	101.68	10.54	12.79	-1,648.29	8,613.89	4,702.81	4,644.54	58.27	80.711	
13,300.00	7,364.00	3,512.00	3,448.77	103.22	10.54	12.79	-1,648.29	8,613.89	4,652.10	4,592.81	59.29	78.468	
13,400.00	7,364.00	3,512.00	3,448.77	104.76	10.54	12.79	-1,648.29	8,613.89	4,603.01	4,542.68	60.32	76.304	
13,500.00	7,364.00	3,512.00	3,448.77	106.31	10.54	12.79	-1,648.29	8,613.89	4,555.58	4,494.20	61.38	74.218	
13,600.00	7,364.00	3,512.00	3,448.77	107.85	10.54	12.79	-1,648.29	8,613.89	4,509.87	4,447.42	62.45	72.212	
13,700.00	7,364.00	3,512.00	3,448.77	109.40	10.54	12.79	-1,648.29	8,613.89	4,465.94	4,402.40	63.54	70.286	
13,800.00	7,364.00	3,512.00	3,448.77	110.95	10.54	12.79	-1,648.29	8,613.89	4,423.82	4,359.19	64.64	68.439	
13,900.00	7,364.00	3,512.00	3,448.77	112.50	10.54	12.79	-1,648.29	8,613.89	4,383.59	4,317.84	65.75	66.672	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #269A - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 71-MWD-SDI

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,000.00	7,364.00	3,512.00	3,448.77	114.05	10.54	12.79	-1,648.29	8,613.89	4,345.28	4,278.42	66.87	64.985	
14,100.00	7,364.00	3,512.00	3,448.77	115.61	10.54	12.79	-1,648.29	8,613.89	4,308.96	4,240.97	67.99	63.376	
14,200.00	7,364.00	3,512.00	3,448.77	117.16	10.54	12.79	-1,648.29	8,613.89	4,274.67	4,205.55	69.12	61.846	
14,300.00	7,364.00	3,512.00	3,448.77	118.72	10.54	12.79	-1,648.29	8,613.89	4,242.45	4,172.21	70.25	60.394	
14,400.00	7,364.00	3,512.00	3,448.77	120.28	10.54	12.79	-1,648.29	8,613.89	4,212.37	4,141.00	71.37	59.019	
14,500.00	7,364.00	3,512.00	3,448.77	121.84	10.54	12.79	-1,648.29	8,613.89	4,184.46	4,111.96	72.50	57.721	
14,600.00	7,364.00	3,512.00	3,448.77	123.40	10.54	12.79	-1,648.29	8,613.89	4,158.76	4,085.15	73.61	56.497	
14,700.00	7,364.00	3,512.00	3,448.77	124.96	10.54	12.79	-1,648.29	8,613.89	4,135.33	4,060.61	74.71	55.348	
14,800.00	7,364.00	3,512.00	3,448.77	126.52	10.54	12.79	-1,648.29	8,613.89	4,114.19	4,038.39	75.81	54.272	
14,900.00	7,364.00	3,512.00	3,448.77	128.08	10.54	12.79	-1,648.29	8,613.89	4,095.39	4,018.51	76.88	53.268	
15,000.00	7,364.00	3,512.00	3,448.77	129.64	10.54	12.79	-1,648.29	8,613.89	4,078.95	4,001.01	77.94	52.335	
15,100.00	7,364.00	3,512.00	3,448.77	131.21	10.54	12.79	-1,648.29	8,613.89	4,064.91	3,985.94	78.98	51.471	
15,200.00	7,364.00	3,512.00	3,448.77	132.77	10.54	12.79	-1,648.29	8,613.89	4,053.29	3,973.30	79.99	50.675	
15,300.00	7,364.00	3,512.00	3,448.77	134.34	10.54	12.79	-1,648.29	8,613.89	4,044.10	3,963.13	80.97	49.946	
15,400.00	7,364.00	3,512.00	3,448.77	135.91	10.54	12.79	-1,648.29	8,613.89	4,037.38	3,955.45	81.92	49.282	
15,500.00	7,364.00	3,512.00	3,448.77	137.48	10.54	12.79	-1,648.29	8,613.89	4,033.12	3,950.27	82.85	48.681	
15,600.00	7,364.00	3,512.00	3,448.77	139.04	10.54	12.79	-1,648.29	8,613.89	4,031.34	3,947.60	83.74	48.143	
15,621.82	7,364.00	3,512.00	3,448.77	139.39	10.54	12.79	-1,648.29	8,613.89	4,031.28	3,947.35	83.93	48.034 CC, ES	
15,700.00	7,364.00	3,512.00	3,448.77	140.61	10.54	12.79	-1,648.29	8,613.89	4,032.04	3,947.45	84.59	47.666	
15,800.00	7,364.00	3,512.00	3,448.77	142.18	10.54	12.79	-1,648.29	8,613.89	4,035.21	3,949.81	85.40	47.249	
15,900.00	7,364.00	3,512.00	3,448.77	143.75	10.54	12.79	-1,648.29	8,613.89	4,040.86	3,954.68	86.18	46.889	
16,000.00	7,364.00	3,512.00	3,448.77	145.33	10.54	12.79	-1,648.29	8,613.89	4,048.98	3,962.06	86.92	46.585	
16,100.00	7,364.00	3,512.00	3,448.77	146.90	10.54	12.79	-1,648.29	8,613.89	4,059.54	3,971.93	87.61	46.337	
16,200.00	7,364.00	3,512.00	3,448.77	148.47	10.54	12.79	-1,648.29	8,613.89	4,072.53	3,984.27	88.26	46.141	
16,300.00	7,364.00	3,512.00	3,448.77	150.04	10.54	12.79	-1,648.29	8,613.89	4,087.93	3,999.05	88.87	45.998	
16,400.00	7,364.00	3,512.00	3,448.77	151.62	10.54	12.79	-1,648.29	8,613.89	4,105.70	4,016.26	89.44	45.905	
16,500.00	7,364.00	3,512.00	3,448.77	153.19	10.54	12.79	-1,648.29	8,613.89	4,125.82	4,035.86	89.96	45.862 SF	
16,600.00	7,364.00	3,512.00	3,448.77	154.77	10.54	12.79	-1,648.29	8,613.89	4,148.26	4,057.81	90.44	45.866	
16,700.00	7,364.00	3,512.00	3,448.77	156.34	10.54	12.79	-1,648.29	8,613.89	4,172.97	4,082.09	90.88	45.916	
16,800.00	7,364.00	3,512.00	3,448.77	157.92	10.54	12.79	-1,648.29	8,613.89	4,199.92	4,108.64	91.28	46.011	
16,900.00	7,364.00	3,512.00	3,448.77	159.49	10.54	12.79	-1,648.29	8,613.89	4,229.06	4,137.42	91.64	46.149	
17,000.00	7,364.00	3,512.00	3,448.77	161.07	10.54	12.79	-1,648.29	8,613.89	4,260.35	4,168.39	91.96	46.330	
17,100.00	7,364.00	3,512.00	3,448.77	162.65	10.54	12.79	-1,648.29	8,613.89	4,293.74	4,201.51	92.24	46.552	
17,200.00	7,364.00	3,512.00	3,448.77	164.23	10.54	12.79	-1,648.29	8,613.89	4,329.19	4,236.71	92.48	46.813	
17,300.00	7,364.00	3,512.00	3,448.77	165.81	10.54	12.79	-1,648.29	8,613.89	4,366.63	4,273.95	92.69	47.112	
17,400.00	7,364.00	3,512.00	3,448.77	167.38	10.54	12.79	-1,648.29	8,613.89	4,406.03	4,313.17	92.86	47.449	
17,500.00	7,364.00	3,512.00	3,448.77	168.96	10.54	12.79	-1,648.29	8,613.89	4,447.33	4,354.33	93.00	47.821	
17,600.00	7,364.00	3,512.00	3,448.77	170.54	10.54	12.79	-1,648.29	8,613.89	4,490.48	4,397.37	93.11	48.228	
17,700.00	7,364.00	3,512.00	3,448.77	172.12	10.54	12.79	-1,648.29	8,613.89	4,535.42	4,442.23	93.19	48.669	
17,800.00	7,364.00	3,512.00	3,448.77	173.70	10.54	12.79	-1,648.29	8,613.89	4,582.10	4,488.86	93.24	49.142	
17,900.00	7,364.00	3,512.00	3,448.77	175.28	10.54	12.79	-1,648.29	8,613.89	4,630.48	4,537.21	93.27	49.646	
18,000.00	7,364.00	3,512.00	3,448.77	176.87	10.54	12.79	-1,648.29	8,613.89	4,680.49	4,587.21	93.27	50.181	
18,100.00	7,364.00	3,512.00	3,448.77	178.45	10.54	12.79	-1,648.29	8,613.89	4,732.08	4,638.83	93.25	50.745	
18,200.00	7,364.00	3,512.00	3,448.77	180.03	10.54	12.79	-1,648.29	8,613.89	4,785.21	4,692.00	93.21	51.338	
18,300.00	7,364.00	3,512.00	3,448.77	181.61	10.54	12.79	-1,648.29	8,613.89	4,839.82	4,746.67	93.15	51.957	
18,400.00	7,364.00	3,512.00	3,448.77	183.19	10.54	12.79	-1,648.29	8,613.89	4,895.87	4,802.79	93.07	52.604	
18,500.00	7,364.00	3,512.00	3,448.77	184.78	10.54	12.79	-1,648.29	8,613.89	4,953.30	4,860.32	92.98	53.275	
18,600.00	7,364.00	3,512.00	3,448.77	186.36	10.54	12.79	-1,648.29	8,613.89	5,012.06	4,919.20	92.86	53.972	
18,700.00	7,364.00	3,512.00	3,448.77	187.94	10.54	12.79	-1,648.29	8,613.89	5,072.12	4,979.38	92.74	54.692	
18,800.00	7,364.00	3,512.00	3,448.77	189.53	10.54	12.79	-1,648.29	8,613.89	5,133.42	5,040.82	92.60	55.435	
18,900.00	7,364.00	3,512.00	3,448.77	191.11	10.54	12.79	-1,648.29	8,613.89	5,195.93	5,103.47	92.45	56.200	
19,000.00	7,364.00	3,512.00	3,448.77	192.70	10.54	12.79	-1,648.29	8,613.89	5,259.59	5,167.30	92.30	56.986	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #269A - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 71-MWD-SDI

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
19,100.00	7,364.00	3,512.00	3,448.77	194.28	10.54	12.79	-1,648.29	8,613.89	5,324.37	5,232.25	92.13	57.793	
19,200.00	7,364.00	3,512.00	3,448.77	195.87	10.54	12.79	-1,648.29	8,613.89	5,390.23	5,298.28	91.95	58.620	
19,300.00	7,364.00	3,512.00	3,448.77	197.45	10.54	12.79	-1,648.29	8,613.89	5,457.13	5,365.36	91.77	59.466	
19,400.00	7,364.00	3,512.00	3,448.77	199.04	10.54	12.79	-1,648.29	8,613.89	5,525.02	5,433.44	91.58	60.331	
19,500.00	7,364.00	3,512.00	3,448.77	200.62	10.54	12.79	-1,648.29	8,613.89	5,593.88	5,502.50	91.38	61.213	
19,600.00	7,364.00	3,512.00	3,448.77	202.21	10.54	12.79	-1,648.29	8,613.89	5,663.67	5,572.48	91.18	62.112	
19,700.00	7,364.00	3,512.00	3,448.77	203.79	10.54	12.79	-1,648.29	8,613.89	5,734.35	5,643.37	90.98	63.028	
19,800.00	7,364.00	3,512.00	3,448.77	205.38	10.54	12.79	-1,648.29	8,613.89	5,805.89	5,715.12	90.77	63.960	
19,900.00	7,364.00	3,512.00	3,448.77	206.97	10.54	12.79	-1,648.29	8,613.89	5,878.27	5,787.70	90.56	64.907	
20,000.00	7,364.00	3,512.00	3,448.77	208.55	10.54	12.79	-1,648.29	8,613.89	5,951.44	5,861.09	90.35	65.869	
20,100.00	7,364.00	3,512.00	3,448.77	210.14	10.54	12.79	-1,648.29	8,613.89	6,025.39	5,935.25	90.14	66.845	
20,200.00	7,364.00	3,512.00	3,448.77	211.73	10.54	12.79	-1,648.29	8,613.89	6,100.08	6,010.15	89.93	67.835	
20,300.00	7,364.00	3,512.00	3,448.77	213.32	10.54	12.79	-1,648.29	8,613.89	6,175.48	6,085.77	89.71	68.838	
20,400.00	7,364.00	3,512.00	3,448.77	214.90	10.54	12.79	-1,648.29	8,613.89	6,251.58	6,162.08	89.50	69.853	
20,500.00	7,364.00	3,512.00	3,448.77	216.49	10.54	12.79	-1,648.29	8,613.89	6,328.34	6,239.06	89.28	70.881	
20,600.00	7,364.00	3,512.00	3,448.77	218.08	10.54	12.79	-1,648.29	8,613.89	6,405.74	6,316.67	89.07	71.921	
20,700.00	7,364.00	3,512.00	3,448.77	219.67	10.54	12.79	-1,648.29	8,613.89	6,483.76	6,394.91	88.85	72.971	
20,800.00	7,364.00	3,512.00	3,448.77	221.26	10.54	12.79	-1,648.29	8,613.89	6,562.38	6,473.73	88.64	74.033	
20,900.00	7,364.00	3,512.00	3,448.77	222.84	10.54	12.79	-1,648.29	8,613.89	6,641.57	6,553.14	88.43	75.105	
21,000.00	7,364.00	3,512.00	3,448.77	224.43	10.54	12.79	-1,648.29	8,613.89	6,721.31	6,633.09	88.22	76.187	
21,100.00	7,364.00	3,512.00	3,448.77	226.02	10.54	12.79	-1,648.29	8,613.89	6,801.59	6,713.58	88.01	77.278	
21,200.00	7,364.00	3,512.00	3,448.77	227.61	10.54	12.79	-1,648.29	8,613.89	6,882.39	6,794.58	87.81	78.379	
21,300.00	7,364.00	3,512.00	3,448.77	229.20	10.54	12.79	-1,648.29	8,613.89	6,963.69	6,876.08	87.61	79.488	
21,400.00	7,364.00	3,512.00	3,448.77	230.79	10.54	12.79	-1,648.29	8,613.89	7,045.47	6,958.06	87.41	80.606	
21,500.00	7,364.00	3,512.00	3,448.77	232.38	10.54	12.79	-1,648.29	8,613.89	7,127.71	7,040.50	87.21	81.732	
21,600.00	7,364.00	3,512.00	3,448.77	233.97	10.54	12.79	-1,648.29	8,613.89	7,210.40	7,123.39	87.01	82.866	
21,700.00	7,364.00	3,512.00	3,448.77	235.56	10.54	12.79	-1,648.29	8,613.89	7,293.52	7,206.70	86.82	84.007	
21,800.00	7,364.00	3,512.00	3,448.77	237.15	10.54	12.79	-1,648.29	8,613.89	7,377.07	7,290.44	86.63	85.155	
21,864.93	7,364.00	3,512.00	3,448.77	238.18	10.54	12.79	-1,648.29	8,613.89	7,431.53	7,345.02	86.51	85.905	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #270 - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 235-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	163.00	163.00	3.28	1.73	95.59	-581.48	5,942.97	5,971.35				
100.00	100.00	263.01	263.00	3.29	3.05	95.59	-581.48	5,942.97	5,971.35	5,965.00	6.34	941.663	
200.00	200.00	363.01	363.00	3.34	5.02	95.59	-581.48	5,942.97	5,971.35	5,962.99	8.35	714.744	
300.00	300.00	463.01	463.00	3.42	6.99	95.59	-581.48	5,942.97	5,971.35	5,960.94	10.40	573.897	
340.31	340.31	502.91	502.89	3.46	7.77	95.58	-580.40	5,942.97	5,971.24	5,960.01	11.23	531.567	
400.00	400.00	561.42	561.39	3.54	8.92	95.58	-580.50	5,942.97	5,971.25	5,958.79	12.46	479.293	
500.00	500.00	659.43	659.40	3.69	10.85	95.58	-580.94	5,942.97	5,971.29	5,956.76	14.54	410.807	
600.00	599.98	763.04	762.98	3.86	12.86	-54.44	-581.48	5,942.97	5,970.33	5,953.61	16.72	357.078	
700.00	699.84	862.89	862.84	4.04	14.76	-54.53	-581.48	5,942.97	5,967.29	5,948.48	18.80	317.364	
808.00	807.41	970.46	970.41	4.27	16.80	-54.70	-581.48	5,942.97	5,961.73	5,940.66	21.07	282.893	
900.00	898.89	1,061.14	1,061.09	4.49	18.53	-71.98	-580.99	5,942.97	5,957.30	5,934.29	23.01	258.899	
912.12	910.94	1,073.08	1,073.02	4.52	18.75	-74.22	-581.01	5,942.97	5,956.92	5,933.66	23.27	256.038	
1,000.00	998.31	1,159.64	1,159.58	4.74	20.40	-74.31	-581.22	5,942.97	5,954.37	5,929.24	25.13	236.928	
1,100.00	1,097.73	1,260.82	1,260.73	5.01	22.34	-74.41	-581.48	5,942.97	5,951.48	5,924.14	27.35	217.644	
1,200.00	1,197.15	1,360.24	1,360.15	5.29	24.30	-74.51	-581.48	5,942.97	5,948.59	5,919.01	29.59	201.055	
1,300.00	1,296.58	1,459.66	1,459.58	5.59	26.26	-74.61	-581.48	5,942.97	5,945.72	5,913.88	31.84	186.731	
1,400.00	1,396.00	1,558.26	1,558.17	5.90	28.20	-74.71	-580.67	5,942.97	5,942.79	5,908.71	34.09	174.329	
1,500.00	1,495.42	1,656.50	1,656.41	6.22	30.13	-74.81	-580.95	5,942.97	5,939.98	5,903.64	36.34	163.455	
1,600.00	1,594.84	1,757.97	1,757.84	6.54	32.13	-74.90	-581.48	5,942.97	5,937.21	5,898.54	38.66	153.568	
1,700.00	1,694.27	1,857.40	1,857.27	6.87	34.09	-75.00	-581.48	5,942.97	5,934.41	5,893.46	40.95	144.919	
1,800.00	1,793.69	1,956.82	1,956.69	7.21	36.05	-75.10	-581.48	5,942.97	5,931.62	5,888.38	43.24	137.167	
1,900.00	1,893.11	2,055.64	2,055.50	7.55	38.00	-75.21	-580.70	5,942.97	5,928.80	5,883.27	45.53	130.216	
2,000.00	1,992.53	2,153.94	2,153.80	7.89	39.93	-75.31	-580.96	5,942.97	5,926.07	5,878.26	47.81	123.947	
2,100.00	2,091.96	2,255.13	2,254.96	8.24	41.93	-75.40	-581.48	5,942.97	5,923.38	5,873.23	50.15	118.106	
2,200.00	2,191.38	2,354.55	2,354.38	8.60	43.89	-75.50	-581.48	5,942.97	5,920.67	5,868.21	52.46	112.854	
2,300.00	2,290.80	2,453.97	2,453.80	8.95	45.84	-75.60	-581.48	5,942.97	5,917.98	5,863.20	54.78	108.039	
2,400.00	2,390.22	2,552.15	2,551.96	9.31	47.78	-75.71	-580.97	5,942.97	5,915.27	5,858.20	57.07	103.654	
2,500.00	2,489.65	2,650.37	2,650.19	9.67	49.71	-75.80	-581.43	5,942.97	5,912.64	5,853.28	59.36	99.603	
2,600.00	2,589.07	2,752.28	2,752.07	10.03	51.79	-75.90	-581.48	5,942.97	5,910.01	5,848.21	61.80	95.635	
2,700.00	2,688.49	2,851.70	2,851.49	10.40	53.82	-76.00	-581.48	5,942.97	5,907.39	5,843.20	64.19	92.030	
2,800.00	2,787.91	2,950.07	2,949.86	10.76	55.82	-76.11	-580.95	5,942.97	5,904.76	5,838.20	66.56	88.711	
2,900.00	2,887.33	3,048.43	3,048.21	11.13	57.83	-76.20	-581.40	5,942.97	5,902.20	5,833.27	68.94	85.619	
3,000.00	2,986.76	3,150.01	3,149.76	11.50	59.97	-76.30	-581.48	5,942.97	5,899.64	5,828.20	71.44	82.580	
3,100.00	3,086.18	3,249.25	3,248.98	11.87	62.07	-76.41	-580.71	5,942.97	5,897.05	5,823.15	73.91	79.789	
3,200.00	3,185.60	3,347.16	3,346.90	12.24	64.14	-76.51	-581.00	5,942.97	5,894.54	5,818.20	76.35	77.206	
3,300.00	3,285.02	3,448.33	3,448.02	12.61	66.27	-76.61	-581.48	5,942.97	5,892.06	5,813.20	78.86	74.716	
3,400.00	3,384.45	3,547.76	3,547.45	12.98	68.38	-76.71	-581.48	5,942.97	5,889.57	5,808.23	81.34	72.411	
3,500.00	3,483.87	3,597.00	3,596.66	13.36	69.42	-76.76	-581.48	5,942.97	5,887.31	5,804.56	82.75	71.146	
3,595.06	3,578.38	3,597.00	3,596.66	13.71	69.42	-76.76	-581.48	5,942.97	5,886.54	5,803.46	83.09	70.847	
3,600.00	3,583.29	3,597.00	3,596.66	13.73	69.42	-76.76	-581.48	5,942.97	5,886.55	5,803.44	83.10	70.833	
3,700.00	3,682.71	3,597.00	3,596.66	14.11	69.42	-76.76	-581.48	5,942.97	5,887.48	5,804.04	83.44	70.561	
3,800.00	3,782.14	3,597.00	3,596.66	14.48	69.42	-76.76	-581.48	5,942.97	5,890.11	5,806.36	83.75	70.331	
3,900.00	3,881.56	3,597.00	3,596.66	14.86	69.42	-76.76	-581.48	5,942.97	5,894.44	5,810.40	84.04	70.141	
4,000.00	3,980.98	3,597.00	3,596.66	15.24	69.42	-76.76	-581.48	5,942.97	5,900.46	5,816.15	84.30	69.991	
4,100.00	4,080.40	3,597.00	3,596.66	15.61	69.42	-76.76	-581.48	5,942.97	5,908.16	5,823.62	84.55	69.881	
4,200.00	4,179.83	3,597.00	3,596.66	15.99	69.42	-76.76	-581.48	5,942.97	5,917.55	5,832.78	84.77	69.810	
4,300.00	4,279.25	3,597.00	3,596.66	16.37	69.42	-76.76	-581.48	5,942.97	5,928.60	5,843.64	84.96	69.778	
4,400.00	4,378.67	3,597.00	3,596.66	16.75	69.42	-76.76	-581.48	5,942.97	5,941.32	5,856.18	85.14	69.783	
4,500.00	4,478.09	3,597.00	3,596.66	17.13	69.42	-76.76	-581.48	5,942.97	5,955.70	5,870.40	85.29	69.827	
4,600.00	4,577.51	3,597.00	3,596.66	17.51	69.42	-76.76	-581.48	5,942.97	5,971.71	5,886.29	85.42	69.907	
4,700.00	4,676.94	3,597.00	3,596.66	17.89	69.42	-76.76	-581.48	5,942.97	5,989.35	5,903.82	85.53	70.024	
4,800.00	4,776.36	3,597.00	3,596.66	18.27	69.42	-76.76	-581.48	5,942.97	6,008.60	5,922.98	85.62	70.178	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #270 - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 235-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
4,900.00	4,875.78	3,597.00	3,596.66	18.65	69.42	-76.76	-581.48	5,942.97	6,029.45	5,943.76	85.69	70.366	
5,000.00	4,975.20	3,597.00	3,596.66	19.03	69.42	-76.76	-581.48	5,942.97	6,051.88	5,966.15	85.73	70.590	
5,100.00	5,074.63	3,597.00	3,596.66	19.41	69.42	-76.76	-581.48	5,942.97	6,075.87	5,990.12	85.76	70.849	
5,200.00	5,174.05	3,597.00	3,596.66	19.79	69.42	-76.76	-581.48	5,942.97	6,101.41	6,015.65	85.76	71.141	
5,300.00	5,273.47	3,597.00	3,596.66	20.17	69.42	-76.76	-581.48	5,942.97	6,128.48	6,042.72	85.75	71.467	
5,400.00	5,372.89	3,597.00	3,596.66	20.56	69.42	-76.76	-581.48	5,942.97	6,157.05	6,071.32	85.72	71.826	
5,500.00	5,472.32	3,597.00	3,596.66	20.94	69.42	-76.76	-581.48	5,942.97	6,187.10	6,101.43	85.67	72.217	
5,600.00	5,571.74	3,597.00	3,596.66	21.32	69.42	-76.76	-581.48	5,942.97	6,218.62	6,133.01	85.61	72.641	
5,700.00	5,671.16	3,597.00	3,596.66	21.70	69.42	-76.76	-581.48	5,942.97	6,251.57	6,166.05	85.53	73.096	
5,800.00	5,770.58	3,597.00	3,596.66	22.08	69.42	-76.76	-581.48	5,942.97	6,285.95	6,200.52	85.43	73.581	
5,900.00	5,870.01	3,597.00	3,596.66	22.47	69.42	-76.76	-581.48	5,942.97	6,321.72	6,236.40	85.32	74.097	
6,000.00	5,969.43	3,597.00	3,596.66	22.85	69.42	-76.76	-581.48	5,942.97	6,358.86	6,273.67	85.19	74.643	
6,100.00	6,068.85	3,597.00	3,596.66	23.23	69.42	-76.76	-581.48	5,942.97	6,397.35	6,312.30	85.05	75.218	
6,200.00	6,168.27	3,597.00	3,596.66	23.62	69.42	-76.76	-581.48	5,942.97	6,437.17	6,352.27	84.90	75.822	
6,300.00	6,267.70	3,597.00	3,596.66	24.00	69.42	-76.76	-581.48	5,942.97	6,478.28	6,393.55	84.73	76.454	
6,400.00	6,367.12	3,597.00	3,596.66	24.38	69.42	-76.76	-581.48	5,942.97	6,520.67	6,436.11	84.56	77.114	
6,500.00	6,466.54	3,597.00	3,596.66	24.77	69.42	-76.76	-581.48	5,942.97	6,564.30	6,479.93	84.37	77.801	
6,600.00	6,565.96	3,597.00	3,596.66	25.15	69.42	-76.76	-581.48	5,942.97	6,609.17	6,524.99	84.18	78.514	
6,700.00	6,665.38	3,597.00	3,596.66	25.53	69.42	-76.76	-581.48	5,942.97	6,655.23	6,571.25	83.97	79.253	
6,778.75	6,743.68	3,597.00	3,596.66	25.84	69.42	-76.76	-581.48	5,942.97	6,692.33	6,608.52	83.81	79.853	
6,800.00	6,764.80	3,597.00	3,596.66	25.92	69.42	-60.78	-581.48	5,942.97	6,702.15	6,618.39	83.76	80.016	
6,850.00	6,814.29	3,597.00	3,596.66	26.11	69.42	-36.48	-581.48	5,942.97	6,722.96	6,639.32	83.64	80.381	
6,900.00	6,863.27	3,597.00	3,596.66	26.30	69.42	-24.60	-581.48	5,942.97	6,740.47	6,656.96	83.51	80.719	
6,950.00	6,911.44	3,597.00	3,596.66	26.50	69.42	-18.16	-581.48	5,942.97	6,754.59	6,671.23	83.36	81.027	
7,000.00	6,958.49	3,597.00	3,596.66	26.68	69.42	-14.23	-581.48	5,942.97	6,765.25	6,682.04	83.21	81.304	
7,050.00	7,004.14	3,597.00	3,596.66	26.87	69.42	-11.63	-581.48	5,942.97	6,772.42	6,689.37	83.05	81.549	
7,100.00	7,048.10	3,597.00	3,596.66	27.05	69.42	-9.79	-581.48	5,942.97	6,776.05	6,693.17	82.88	81.762	
7,150.00	7,090.11	3,597.00	3,596.66	27.23	69.42	-8.42	-581.48	5,942.97	6,776.12	6,693.43	82.70	81.940	
7,200.00	7,129.90	3,597.00	3,596.66	27.41	69.42	-7.38	-581.48	5,942.97	6,772.65	6,690.14	82.51	82.085	
7,250.00	7,167.24	3,597.00	3,596.66	27.59	69.42	-6.55	-581.48	5,942.97	6,765.64	6,683.33	82.31	82.194	
7,300.00	7,201.88	3,597.00	3,596.66	27.76	69.42	-5.88	-581.48	5,942.97	6,755.12	6,673.01	82.11	82.267	
7,350.00	7,233.63	3,597.00	3,596.66	27.94	69.42	-5.32	-581.48	5,942.97	6,741.15	6,659.25	81.91	82.304	
7,400.00	7,262.27	3,597.00	3,596.66	28.13	69.42	-4.84	-581.48	5,942.97	6,723.79	6,642.10	81.69	82.304	
7,450.00	7,287.63	3,597.00	3,596.66	28.32	69.42	-4.43	-581.48	5,942.97	6,703.13	6,621.64	81.48	82.266	
7,500.00	7,309.57	3,597.00	3,596.66	28.53	69.42	-4.07	-581.48	5,942.97	6,679.24	6,597.98	81.27	82.190	
7,550.00	7,327.93	3,597.00	3,596.66	28.74	69.42	-3.74	-581.48	5,942.97	6,652.27	6,571.21	81.05	82.075	
7,600.00	7,342.62	3,597.00	3,596.66	28.97	69.42	-3.42	-581.48	5,942.97	6,622.32	6,541.48	80.84	81.922	
7,650.00	7,353.53	3,597.00	3,596.66	29.22	69.42	-3.11	-581.48	5,942.97	6,589.55	6,508.92	80.63	81.730	
7,700.00	7,360.61	3,597.00	3,596.66	29.48	69.42	-2.79	-581.48	5,942.97	6,554.11	6,473.69	80.42	81.499	
7,750.00	7,363.80	3,597.00	3,596.66	29.75	69.42	-2.45	-581.48	5,942.97	6,516.20	6,435.98	80.22	81.229	
7,765.93	7,364.00	3,597.00	3,596.66	29.84	69.42	-2.33	-581.48	5,942.97	6,503.63	6,423.47	80.16	81.132	
7,800.00	7,364.00	3,597.00	3,596.66	30.04	69.42	-2.33	-581.48	5,942.97	6,476.53	6,396.50	80.03	80.931	
7,900.00	7,364.00	3,597.00	3,596.66	30.67	69.42	-2.33	-581.48	5,942.97	6,397.37	6,317.75	79.62	80.350	
8,000.00	7,364.00	3,597.00	3,596.66	31.37	69.42	-2.33	-581.48	5,942.97	6,318.81	6,239.60	79.21	79.776	
8,100.00	7,364.00	3,597.00	3,596.66	32.14	69.42	-2.33	-581.48	5,942.97	6,240.86	6,162.07	78.79	79.208	
8,200.00	7,364.00	3,597.00	3,596.66	32.96	69.42	-2.33	-581.48	5,942.97	6,163.54	6,085.17	78.37	78.646	
8,300.00	7,364.00	3,597.00	3,596.66	33.85	69.42	-2.33	-581.48	5,942.97	6,086.89	6,008.95	77.95	78.092	
8,400.00	7,364.00	3,597.00	3,596.66	34.79	69.42	-2.33	-581.48	5,942.97	6,010.93	5,933.41	77.52	77.544	
8,500.00	7,364.00	3,597.00	3,596.66	35.77	69.42	-2.33	-581.48	5,942.97	5,935.67	5,858.59	77.08	77.003	
8,600.00	7,364.00	3,597.00	3,596.66	36.80	69.42	-2.33	-581.48	5,942.97	5,861.16	5,784.51	76.65	76.470	
8,700.00	7,364.00	3,597.00	3,596.66	37.87	69.42	-2.33	-581.48	5,942.97	5,787.41	5,711.21	76.21	75.944	
8,800.00	7,364.00	3,597.00	3,596.66	38.98	69.42	-2.33	-581.48	5,942.97	5,714.47	5,638.70	75.76	75.427	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #270 - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 235-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
8,900.00	7,364.00	3,597.00	3,596.66	40.12	69.42	-2.33	-581.48	5,942.97	5,642.35	5,567.04	75.31	74.917	
9,000.00	7,364.00	3,597.00	3,596.66	41.29	69.42	-2.33	-581.48	5,942.97	5,571.09	5,496.23	74.86	74.417	
9,100.00	7,364.00	3,597.00	3,596.66	42.49	69.42	-2.33	-581.48	5,942.97	5,500.73	5,426.32	74.41	73.926	
9,200.00	7,364.00	3,597.00	3,596.66	43.71	69.42	-2.33	-581.48	5,942.97	5,431.30	5,357.35	73.95	73.445	
9,300.00	7,364.00	3,597.00	3,596.66	44.96	69.42	-2.33	-581.48	5,942.97	5,362.84	5,289.35	73.49	72.974	
9,400.00	7,364.00	3,597.00	3,596.66	46.23	69.42	-2.33	-581.48	5,942.97	5,295.37	5,222.35	73.02	72.515	
9,500.00	7,364.00	3,597.00	3,596.66	47.52	69.42	-2.33	-581.48	5,942.97	5,228.95	5,156.40	72.56	72.067	
9,600.00	7,364.00	3,597.00	3,596.66	48.83	69.42	-2.33	-581.48	5,942.97	5,163.62	5,091.53	72.09	71.631	
9,700.00	7,364.00	3,597.00	3,596.66	50.15	69.42	-2.33	-581.48	5,942.97	5,099.40	5,027.79	71.61	71.210	
9,800.00	7,364.00	3,597.00	3,596.66	51.49	69.42	-2.33	-581.48	5,942.97	5,036.36	4,965.22	71.13	70.802	
9,900.00	7,364.00	3,597.00	3,596.66	52.85	69.42	-2.33	-581.48	5,942.97	4,974.52	4,903.87	70.65	70.411	
10,000.00	7,364.00	3,597.00	3,596.66	54.22	69.42	-2.33	-581.48	5,942.97	4,913.94	4,843.78	70.16	70.036	
10,100.00	7,364.00	3,597.00	3,596.66	55.60	69.42	-2.33	-581.48	5,942.97	4,854.67	4,785.00	69.67	69.679	
10,200.00	7,364.00	3,597.00	3,596.66	56.99	69.42	-2.33	-581.48	5,942.97	4,796.75	4,727.57	69.18	69.341	
10,300.00	7,364.00	3,597.00	3,596.66	58.40	69.42	-2.33	-581.48	5,942.97	4,740.23	4,671.55	68.67	69.025	
10,400.00	7,364.00	3,597.00	3,596.66	59.81	69.42	-2.33	-581.48	5,942.97	4,685.16	4,616.99	68.17	68.730	
10,500.00	7,364.00	3,597.00	3,596.66	61.23	69.42	-2.33	-581.48	5,942.97	4,631.60	4,563.94	67.65	68.460	
10,600.00	7,364.00	3,597.00	3,596.66	62.66	69.42	-2.33	-581.48	5,942.97	4,579.59	4,512.46	67.13	68.215	
10,700.00	7,364.00	3,597.00	3,596.66	64.10	69.42	-2.33	-581.48	5,942.97	4,529.20	4,462.59	66.61	67.998	
10,800.00	7,364.00	3,597.00	3,596.66	65.55	69.42	-2.33	-581.48	5,942.97	4,480.47	4,414.40	66.07	67.809	
10,900.00	7,364.00	3,597.00	3,596.66	67.01	69.42	-2.33	-581.48	5,942.97	4,433.46	4,367.93	65.53	67.652	
11,000.00	7,364.00	3,597.00	3,596.66	68.47	69.42	-2.33	-581.48	5,942.97	4,388.23	4,323.25	64.99	67.527	
11,100.00	7,364.00	3,597.00	3,596.66	69.93	69.42	-2.33	-581.48	5,942.97	4,344.83	4,280.40	64.43	67.436	
11,200.00	7,364.00	3,597.00	3,596.66	71.41	69.42	-2.33	-581.48	5,942.97	4,303.32	4,239.45	63.87	67.380	
11,300.00	7,364.00	3,597.00	3,596.66	72.88	69.42	-2.33	-581.48	5,942.97	4,263.74	4,200.45	63.30	67.361	
11,400.00	7,364.00	3,597.00	3,596.66	74.37	69.42	-2.33	-581.48	5,942.97	4,226.17	4,163.44	62.72	67.380	
11,500.00	7,364.00	3,597.00	3,596.66	75.85	69.42	-2.33	-581.48	5,942.97	4,190.64	4,128.50	62.14	67.436	
11,600.00	7,364.00	3,597.00	3,596.66	77.35	69.42	-2.33	-581.48	5,942.97	4,157.21	4,095.65	61.56	67.529	
11,700.00	7,364.00	3,597.00	3,596.66	78.84	69.42	-2.33	-581.48	5,942.97	4,125.94	4,064.96	60.98	67.659	
11,800.00	7,364.00	3,597.00	3,596.66	80.34	69.42	-2.33	-581.48	5,942.97	4,096.87	4,036.47	60.41	67.822	
11,900.00	7,364.00	3,597.00	3,596.66	81.85	69.42	-2.33	-581.48	5,942.97	4,070.06	4,010.21	59.84	68.014	
12,000.00	7,364.00	3,597.00	3,596.66	83.36	69.42	-2.33	-581.48	5,942.97	4,045.53	3,986.24	59.29	68.229	
12,100.00	7,364.00	3,597.00	3,596.66	84.87	69.42	-2.33	-581.48	5,942.97	4,023.34	3,964.57	58.77	68.457	
12,200.00	7,364.00	3,597.00	3,596.66	86.38	69.42	-2.33	-581.48	5,942.97	4,003.53	3,945.24	58.29	68.684	
12,300.00	7,364.00	3,597.00	3,596.66	87.90	69.42	-2.33	-581.48	5,942.97	3,986.13	3,928.27	57.86	68.891	
12,400.00	7,364.00	3,597.00	3,596.66	89.42	69.42	-2.33	-581.48	5,942.97	3,971.17	3,913.67	57.51	69.055	
12,500.00	7,364.00	3,597.00	3,596.66	90.95	69.42	-2.33	-581.48	5,942.97	3,958.69	3,901.43	57.25	69.143	
12,600.00	7,364.00	3,597.00	3,596.66	92.47	69.42	-2.33	-581.48	5,942.97	3,948.69	3,891.56	57.13	69.118	
12,700.00	7,364.00	3,597.00	3,596.66	94.00	69.42	-2.33	-581.48	5,942.97	3,941.21	3,884.04	57.17	68.937	
12,800.00	7,364.00	3,597.00	3,596.66	95.53	69.42	-2.33	-581.48	5,942.97	3,936.26	3,878.85	57.41	68.563	
12,900.00	7,364.00	3,597.00	3,596.66	97.06	69.42	-2.33	-581.48	5,942.97	3,933.84	3,875.96	57.88	67.967	
12,945.13	7,364.00	3,597.00	3,596.66	97.76	69.42	-2.33	-581.48	5,942.97	3,933.58	3,875.41	58.17	67.623 CC	
13,000.00	7,364.00	3,597.00	3,596.66	98.60	69.42	-2.33	-581.48	5,942.97	3,933.96	3,875.37	58.59	67.144 ES	
13,100.00	7,364.00	3,597.00	3,596.66	100.14	69.42	-2.33	-581.48	5,942.97	3,936.63	3,877.09	59.54	66.116	
13,200.00	7,364.00	3,597.00	3,596.66	101.68	69.42	-2.33	-581.48	5,942.97	3,941.83	3,881.12	60.71	64.927	
13,300.00	7,364.00	3,597.00	3,596.66	103.22	69.42	-2.33	-581.48	5,942.97	3,949.56	3,887.49	62.07	63.632	
13,400.00	7,364.00	3,597.00	3,596.66	104.76	69.42	-2.33	-581.48	5,942.97	3,959.79	3,896.22	63.57	62.286	
13,500.00	7,364.00	3,597.00	3,596.66	106.31	69.42	-2.33	-581.48	5,942.97	3,972.52	3,907.33	65.19	60.936	
13,600.00	7,364.00	3,597.00	3,596.66	107.85	69.42	-2.33	-581.48	5,942.97	3,987.72	3,920.84	66.89	59.620	
13,700.00	7,364.00	3,597.00	3,596.66	109.40	69.42	-2.33	-581.48	5,942.97	4,005.36	3,936.73	68.63	58.362	
13,800.00	7,364.00	3,597.00	3,596.66	110.95	69.42	-2.33	-581.48	5,942.97	4,025.40	3,955.00	70.40	57.178	
13,900.00	7,364.00	3,597.00	3,596.66	112.50	69.42	-2.33	-581.48	5,942.97	4,047.82	3,975.64	72.18	56.078	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #270 - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 235-A027Ua_INC-ONLY

Rule Assigned:

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,000.00	7,364.00	3,597.00	3,596.66	114.05	69.42	-2.33	-581.48	5,942.97	4,072.57	3,998.61	73.96	55.066	
14,100.00	7,364.00	3,597.00	3,596.66	115.61	69.42	-2.33	-581.48	5,942.97	4,099.61	4,023.89	75.72	54.144	
14,200.00	7,364.00	3,597.00	3,596.66	117.16	69.42	-2.33	-581.48	5,942.97	4,128.89	4,051.45	77.45	53.311	
14,300.00	7,364.00	3,597.00	3,596.66	118.72	69.42	-2.33	-581.48	5,942.97	4,160.38	4,081.23	79.15	52.563	
14,400.00	7,364.00	3,597.00	3,596.66	120.28	69.42	-2.33	-581.48	5,942.97	4,194.01	4,113.20	80.81	51.898	
14,500.00	7,364.00	3,597.00	3,596.66	121.84	69.42	-2.33	-581.48	5,942.97	4,229.74	4,147.31	82.43	51.311	
14,600.00	7,364.00	3,597.00	3,596.66	123.40	69.42	-2.33	-581.48	5,942.97	4,267.51	4,183.50	84.01	50.798	
14,700.00	7,364.00	3,597.00	3,596.66	124.96	69.42	-2.33	-581.48	5,942.97	4,307.28	4,221.74	85.54	50.355	
14,800.00	7,364.00	3,597.00	3,596.66	126.52	69.42	-2.33	-581.48	5,942.97	4,348.98	4,261.96	87.02	49.979	
14,900.00	7,364.00	3,597.00	3,596.66	128.08	69.42	-2.33	-581.48	5,942.97	4,392.56	4,304.12	88.45	49.664	
15,000.00	7,364.00	3,597.00	3,596.66	129.64	69.42	-2.33	-581.48	5,942.97	4,437.97	4,348.15	89.82	49.408	
15,100.00	7,364.00	3,597.00	3,596.66	131.21	69.42	-2.33	-581.48	5,942.97	4,485.15	4,394.00	91.15	49.206	
15,200.00	7,364.00	3,597.00	3,596.66	132.77	69.42	-2.33	-581.48	5,942.97	4,534.04	4,441.61	92.43	49.056	
15,300.00	7,364.00	3,597.00	3,596.66	134.34	69.42	-2.33	-581.48	5,942.97	4,584.59	4,490.94	93.65	48.953	
15,400.00	7,364.00	3,597.00	3,596.66	135.91	69.42	-2.33	-581.48	5,942.97	4,636.75	4,541.92	94.83	48.895	
15,500.00	7,364.00	3,597.00	3,596.66	137.48	69.42	-2.33	-581.48	5,942.97	4,690.46	4,594.50	95.96	48.880 SF	
15,600.00	7,364.00	3,597.00	3,596.66	139.04	69.42	-2.33	-581.48	5,942.97	4,745.67	4,648.63	97.04	48.904	
15,700.00	7,364.00	3,597.00	3,596.66	140.61	69.42	-2.33	-581.48	5,942.97	4,802.33	4,704.26	98.08	48.965	
15,800.00	7,364.00	3,597.00	3,596.66	142.18	69.42	-2.33	-581.48	5,942.97	4,860.39	4,761.32	99.07	49.062	
15,900.00	7,364.00	3,597.00	3,596.66	143.75	69.42	-2.33	-581.48	5,942.97	4,919.79	4,819.78	100.01	49.191	
16,000.00	7,364.00	3,597.00	3,596.66	145.33	69.42	-2.33	-581.48	5,942.97	4,980.49	4,879.57	100.92	49.351	
16,100.00	7,364.00	3,597.00	3,596.66	146.90	69.42	-2.33	-581.48	5,942.97	5,042.45	4,940.66	101.79	49.540	
16,200.00	7,364.00	3,597.00	3,596.66	148.47	69.42	-2.33	-581.48	5,942.97	5,105.61	5,003.00	102.61	49.757	
16,300.00	7,364.00	3,597.00	3,596.66	150.04	69.42	-2.33	-581.48	5,942.97	5,169.94	5,066.54	103.40	49.999	
16,400.00	7,364.00	3,597.00	3,596.66	151.62	69.42	-2.33	-581.48	5,942.97	5,235.38	5,131.23	104.15	50.266	
16,500.00	7,364.00	3,597.00	3,596.66	153.19	69.42	-2.33	-581.48	5,942.97	5,301.90	5,197.03	104.87	50.555	
16,600.00	7,364.00	3,597.00	3,596.66	154.77	69.42	-2.33	-581.48	5,942.97	5,369.47	5,263.91	105.56	50.867	
16,700.00	7,364.00	3,597.00	3,596.66	156.34	69.42	-2.33	-581.48	5,942.97	5,438.03	5,331.81	106.21	51.199	
16,800.00	7,364.00	3,597.00	3,596.66	157.92	69.42	-2.33	-581.48	5,942.97	5,507.55	5,400.71	106.84	51.550	
16,900.00	7,364.00	3,597.00	3,596.66	159.49	69.42	-2.33	-581.48	5,942.97	5,578.00	5,470.56	107.44	51.919	
17,000.00	7,364.00	3,597.00	3,596.66	161.07	69.42	-2.33	-581.48	5,942.97	5,649.34	5,541.34	108.01	52.306	
17,100.00	7,364.00	3,597.00	3,596.66	162.65	69.42	-2.33	-581.48	5,942.97	5,721.54	5,612.99	108.55	52.709	
17,200.00	7,364.00	3,597.00	3,596.66	164.23	69.42	-2.33	-581.48	5,942.97	5,794.57	5,685.50	109.07	53.128	
17,300.00	7,364.00	3,597.00	3,596.66	165.81	69.42	-2.33	-581.48	5,942.97	5,868.39	5,758.83	109.56	53.562	
17,400.00	7,364.00	3,597.00	3,596.66	167.38	69.42	-2.33	-581.48	5,942.97	5,942.98	5,832.94	110.04	54.009	
17,500.00	7,364.00	3,597.00	3,596.66	168.96	69.42	-2.33	-581.48	5,942.97	6,018.30	5,907.81	110.49	54.470	
17,600.00	7,364.00	3,597.00	3,596.66	170.54	69.42	-2.33	-581.48	5,942.97	6,094.33	5,983.41	110.92	54.944	
17,700.00	7,364.00	3,597.00	3,596.66	172.12	69.42	-2.33	-581.48	5,942.97	6,171.05	6,059.72	111.33	55.429	
17,800.00	7,364.00	3,597.00	3,596.66	173.70	69.42	-2.33	-581.48	5,942.97	6,248.43	6,136.70	111.73	55.926	
17,900.00	7,364.00	3,597.00	3,596.66	175.28	69.42	-2.33	-581.48	5,942.97	6,326.44	6,214.33	112.10	56.433	
18,000.00	7,364.00	3,597.00	3,596.66	176.87	69.42	-2.33	-581.48	5,942.97	6,405.06	6,292.60	112.47	56.951	
18,100.00	7,364.00	3,597.00	3,596.66	178.45	69.42	-2.33	-581.48	5,942.97	6,484.27	6,371.46	112.81	57.479	
18,200.00	7,364.00	3,597.00	3,596.66	180.03	69.42	-2.33	-581.48	5,942.97	6,564.05	6,450.91	113.14	58.016	
18,300.00	7,364.00	3,597.00	3,596.66	181.61	69.42	-2.33	-581.48	5,942.97	6,644.38	6,530.92	113.46	58.561	
18,400.00	7,364.00	3,597.00	3,596.66	183.19	69.42	-2.33	-581.48	5,942.97	6,725.23	6,611.47	113.76	59.115	
18,500.00	7,364.00	3,597.00	3,596.66	184.78	69.42	-2.33	-581.48	5,942.97	6,806.59	6,692.54	114.06	59.678	
18,600.00	7,364.00	3,597.00	3,596.66	186.36	69.42	-2.33	-581.48	5,942.97	6,888.44	6,774.11	114.34	60.247	
18,700.00	7,364.00	3,597.00	3,596.66	187.94	69.42	-2.33	-581.48	5,942.97	6,970.77	6,856.17	114.60	60.824	
18,800.00	7,364.00	3,597.00	3,596.66	189.53	69.42	-2.33	-581.48	5,942.97	7,053.55	6,938.69	114.86	61.408	
18,900.00	7,364.00	3,597.00	3,596.66	191.11	69.42	-2.33	-581.48	5,942.97	7,136.78	7,021.67	115.11	61.999	
19,000.00	7,364.00	3,597.00	3,596.66	192.70	69.42	-2.33	-581.48	5,942.97	7,220.43	7,105.08	115.35	62.596	
19,100.00	7,364.00	3,597.00	3,596.66	194.28	69.42	-2.33	-581.48	5,942.97	7,304.49	7,188.91	115.58	63.199	

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 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #270 - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 235-A027Ua_INC-ONLY

Rule Assigned:

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
19,200.00	7,364.00	3,597.00	3,596.66	195.87	69.42	-2.33	-581.48	5,942.97	7,388.95	7,273.14	115.80	63.807	
19,300.00	7,364.00	3,597.00	3,596.66	197.45	69.42	-2.33	-581.48	5,942.97	7,473.79	7,357.77	116.01	64.422	
19,400.00	7,364.00	3,597.00	3,596.66	199.04	69.42	-2.33	-581.48	5,942.97	7,559.00	7,442.78	116.22	65.041	
19,500.00	7,364.00	3,597.00	3,596.66	200.62	69.42	-2.33	-581.48	5,942.97	7,644.57	7,528.15	116.42	65.665	
19,600.00	7,364.00	3,597.00	3,596.66	202.21	69.42	-2.33	-581.48	5,942.97	7,730.49	7,613.88	116.61	66.294	
19,700.00	7,364.00	3,597.00	3,596.66	203.79	69.42	-2.33	-581.48	5,942.97	7,816.74	7,699.94	116.79	66.927	
19,800.00	7,364.00	3,597.00	3,596.66	205.38	69.42	-2.33	-581.48	5,942.97	7,903.31	7,786.34	116.97	67.565	
19,900.00	7,364.00	3,597.00	3,596.66	206.97	69.42	-2.33	-581.48	5,942.97	7,990.20	7,873.06	117.15	68.207	
20,000.00	7,364.00	3,597.00	3,596.66	208.55	69.42	-2.33	-581.48	5,942.97	8,077.40	7,960.08	117.31	68.852	
20,100.00	7,364.00	3,597.00	3,596.66	210.14	69.42	-2.33	-581.48	5,942.97	8,164.88	8,047.40	117.48	69.502	
20,200.00	7,364.00	3,597.00	3,596.66	211.73	69.42	-2.33	-581.48	5,942.97	8,252.65	8,135.02	117.64	70.155	
20,300.00	7,364.00	3,597.00	3,596.66	213.32	69.42	-2.33	-581.48	5,942.97	8,340.70	8,222.91	117.79	70.811	
20,400.00	7,364.00	3,597.00	3,596.66	214.90	69.42	-2.33	-581.48	5,942.97	8,429.01	8,311.07	117.94	71.470	
20,500.00	7,364.00	3,597.00	3,596.66	216.49	69.42	-2.33	-581.48	5,942.97	8,517.58	8,399.50	118.08	72.133	
20,600.00	7,364.00	3,597.00	3,596.66	218.08	69.42	-2.33	-581.48	5,942.97	8,606.40	8,488.18	118.22	72.798	
20,700.00	7,364.00	3,597.00	3,596.66	219.67	69.42	-2.33	-581.48	5,942.97	8,695.47	8,577.11	118.36	73.467	
20,800.00	7,364.00	3,597.00	3,596.66	221.26	69.42	-2.33	-581.48	5,942.97	8,784.77	8,666.27	118.49	74.137	
20,900.00	7,364.00	3,597.00	3,596.66	222.84	69.42	-2.33	-581.48	5,942.97	8,874.29	8,755.67	118.62	74.811	
21,000.00	7,364.00	3,597.00	3,596.66	224.43	69.42	-2.33	-581.48	5,942.97	8,964.04	8,845.29	118.75	75.486	
21,100.00	7,364.00	3,597.00	3,596.66	226.02	69.42	-2.33	-581.48	5,942.97	9,054.01	8,935.13	118.87	76.164	
21,200.00	7,364.00	3,597.00	3,596.66	227.61	69.42	-2.33	-581.48	5,942.97	9,144.18	9,025.18	119.00	76.844	
21,300.00	7,364.00	3,597.00	3,596.66	229.20	69.42	-2.33	-581.48	5,942.97	9,234.55	9,115.44	119.11	77.527	
21,400.00	7,364.00	3,597.00	3,596.66	230.79	69.42	-2.33	-581.48	5,942.97	9,325.13	9,205.89	119.23	78.211	
21,500.00	7,364.00	3,597.00	3,596.66	232.38	69.42	-2.33	-581.48	5,942.97	9,415.89	9,296.54	119.35	78.896	
21,600.00	7,364.00	3,597.00	3,596.66	233.97	69.42	-2.33	-581.48	5,942.97	9,506.83	9,387.38	119.46	79.584	
21,700.00	7,364.00	3,597.00	3,596.66	235.56	69.42	-2.33	-581.48	5,942.97	9,597.96	9,478.40	119.57	80.273	
21,800.00	7,364.00	3,597.00	3,596.66	237.15	69.42	-2.33	-581.48	5,942.97	9,689.27	9,569.59	119.67	80.964	
21,864.93	7,364.00	3,597.00	3,596.66	238.18	69.42	-2.33	-581.48	5,942.97	9,748.64	9,628.89	119.74	81.413	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #271A - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 330-MWD-SDI

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore 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	613.28	612.62	3.28	1.80	90.87	-211.35	13,896.63	13,906.37				
100.00	100.00	667.37	666.31	3.29	1.96	90.90	-217.57	13,894.75	13,903.08	13,897.83	5.25	2,648.785	
200.00	200.00	706.00	704.59	3.34	2.08	90.92	-222.71	13,893.58	13,900.22	13,894.81	5.41	2,568.641	
300.00	300.00	732.98	731.27	3.42	2.16	90.93	-226.65	13,892.88	13,897.85	13,892.27	5.58	2,492.288	
400.00	400.00	767.00	764.85	3.54	2.26	90.96	-232.04	13,892.19	13,895.99	13,890.20	5.80	2,397.202	
500.00	500.00	793.50	790.96	3.69	2.34	90.98	-236.56	13,891.77	13,894.64	13,888.61	6.03	2,305.864	
600.00	599.98	828.00	824.88	3.86	2.44	-59.03	-242.86	13,891.37	13,892.87	13,886.58	6.30	2,205.933	
700.00	699.84	889.00	884.52	4.04	2.63	-59.04	-255.60	13,890.78	13,889.62	13,882.95	6.67	2,083.259	
808.00	807.41	970.42	963.30	4.27	2.87	-59.07	-276.15	13,890.10	13,884.32	13,877.18	7.14	1,944.520	
900.00	898.89	1,009.00	1,000.24	4.49	2.99	-76.23	-287.27	13,889.89	13,880.62	13,873.15	7.47	1,858.153	
912.12	910.94	1,009.00	1,000.24	4.52	2.99	-78.46	-287.27	13,889.89	13,880.37	13,872.87	7.50	1,850.914	
1,000.00	998.31	1,068.00	1,056.35	4.74	3.17	-78.41	-305.50	13,889.76	13,878.84	13,870.94	7.90	1,757.115	
1,100.00	1,097.73	1,102.15	1,088.69	5.01	3.27	-78.38	-316.45	13,889.83	13,877.50	13,869.23	8.27	1,677.974	
1,200.00	1,197.15	1,153.69	1,137.41	5.29	3.42	-78.33	-333.26	13,890.12	13,876.59	13,867.88	8.71	1,593.379	
1,300.00	1,296.58	1,343.82	1,316.82	5.59	4.00	-78.15	-396.22	13,890.79	13,875.55	13,865.97	9.58	1,449.039	
1,400.00	1,396.00	1,376.00	1,347.16	5.90	4.09	-78.12	-406.94	13,890.88	13,874.44	13,864.46	9.98	1,390.360	
1,500.00	1,495.42	1,438.00	1,405.64	6.22	4.28	-78.06	-427.51	13,891.29	13,873.75	13,863.27	10.48	1,323.736	
1,600.00	1,594.84	1,479.31	1,444.59	6.54	4.40	-78.02	-441.26	13,891.68	13,873.38	13,862.45	10.93	1,269.530	
1,644.02	1,638.61	1,502.00	1,465.95	6.69	4.47	-78.00	-448.93	13,891.95	13,873.35	13,862.21	11.14	1,245.296	
1,700.00	1,694.27	1,533.01	1,495.09	6.87	4.56	-77.97	-459.54	13,892.37	13,873.41	13,861.99	11.42	1,214.952	
1,800.00	1,793.69	1,629.00	1,585.14	7.21	4.85	-77.87	-492.73	13,893.71	13,873.62	13,861.58	12.04	1,152.060	
1,900.00	1,893.11	1,693.00	1,645.31	7.55	5.04	-77.81	-514.53	13,894.67	13,873.96	13,861.39	12.57	1,103.317	
2,000.00	1,992.53	1,849.84	1,792.36	7.89	5.52	-77.65	-569.03	13,896.73	13,874.12	13,860.73	13.39	1,036.139	
2,100.00	2,091.96	1,979.79	1,914.67	8.24	5.91	-77.52	-612.90	13,898.18	13,874.15	13,860.02	14.13	981.992	
2,147.95	2,139.63	2,019.97	1,952.60	8.41	6.03	-77.48	-626.16	13,898.60	13,874.13	13,859.71	14.42	962.318	
2,200.00	2,191.38	2,052.99	1,983.77	8.60	6.13	-77.45	-637.06	13,898.98	13,874.17	13,859.47	14.70	943.834	
2,300.00	2,290.80	2,422.08	2,332.17	8.95	7.23	-77.10	-758.83	13,900.40	13,873.95	13,857.78	16.16	858.489	
2,400.00	2,390.22	2,573.50	2,475.39	9.31	7.69	-76.96	-807.95	13,898.84	13,871.89	13,854.92	16.97	817.353	
2,500.00	2,489.65	2,643.00	2,541.47	9.67	7.90	-76.90	-829.48	13,898.01	13,869.77	13,852.23	17.54	790.761	
2,600.00	2,589.07	2,706.00	2,601.32	10.03	8.09	-76.85	-849.14	13,897.56	13,868.09	13,850.00	18.09	766.600	
2,700.00	2,688.49	2,895.00	2,781.99	10.40	8.65	-76.70	-904.53	13,895.68	13,865.93	13,846.91	19.02	729.035	
2,800.00	2,787.91	2,895.00	2,781.99	10.76	8.65	-76.70	-904.53	13,895.68	13,864.12	13,844.73	19.39	715.186	
2,900.00	2,887.33	2,958.00	2,843.12	11.13	8.84	-76.66	-919.73	13,895.70	13,862.86	13,842.92	19.94	695.199	
3,000.00	2,986.76	2,958.00	2,843.12	11.50	8.84	-76.66	-919.73	13,895.70	13,862.04	13,841.74	20.31	682.561	
3,100.00	3,086.18	3,260.00	3,140.97	11.87	9.74	-76.59	-967.90	13,897.81	13,861.49	13,839.91	21.58	642.257	
3,200.00	3,185.60	3,527.00	3,407.78	12.24	10.54	-76.67	-976.30	13,897.18	13,858.81	13,836.06	22.75	609.151	
3,300.00	3,285.02	3,527.00	3,407.78	12.61	10.54	-76.67	-976.30	13,897.18	13,856.06	13,832.94	23.12	599.212	
3,400.00	3,384.45	3,527.00	3,407.78	12.98	10.54	-76.67	-976.30	13,897.18	13,854.04	13,830.54	23.50	589.607	
3,500.00	3,483.87	3,527.00	3,407.78	13.36	10.54	-76.67	-976.30	13,897.18	13,852.74	13,828.87	23.87	580.325	
3,600.00	3,583.29	3,527.00	3,407.78	13.73	10.54	-76.67	-976.30	13,897.18	13,852.16	13,827.91	24.24	571.352	
3,630.40	3,613.52	3,527.00	3,407.78	13.85	10.54	-76.67	-976.30	13,897.18	13,852.12	13,827.77	24.36	568.685	
3,700.00	3,682.71	3,527.00	3,407.78	14.11	10.54	-76.67	-976.30	13,897.18	13,852.30	13,827.68	24.62	562.680	
3,800.00	3,782.14	3,527.00	3,407.78	14.48	10.54	-76.67	-976.30	13,897.18	13,853.16	13,828.17	24.99	554.295	
3,900.00	3,881.56	3,527.00	3,407.78	14.86	10.54	-76.67	-976.30	13,897.18	13,854.75	13,829.38	25.37	546.188	
4,000.00	3,980.98	3,527.00	3,407.78	15.24	10.54	-76.67	-976.30	13,897.18	13,857.05	13,831.31	25.74	538.349	
4,100.00	4,080.40	3,527.00	3,407.78	15.61	10.54	-76.67	-976.30	13,897.18	13,860.08	13,833.97	26.11	530.767	
4,200.00	4,179.83	3,527.00	3,407.78	15.99	10.54	-76.67	-976.30	13,897.18	13,863.83	13,837.34	26.49	523.434	
4,300.00	4,279.25	3,527.00	3,407.78	16.37	10.54	-76.67	-976.30	13,897.18	13,868.30	13,841.44	26.86	516.340	
4,400.00	4,378.67	3,527.00	3,407.78	16.75	10.54	-76.67	-976.30	13,897.18	13,873.49	13,846.26	27.23	509.476	
4,500.00	4,478.09	3,527.00	3,407.78	17.13	10.54	-76.67	-976.30	13,897.18	13,879.39	13,851.79	27.60	502.834	
4,600.00	4,577.51	3,527.00	3,407.78	17.51	10.54	-76.67	-976.30	13,897.18	13,886.02	13,858.04	27.97	496.405	
4,700.00	4,676.94	3,527.00	3,407.78	17.89	10.54	-76.67	-976.30	13,897.18	13,893.36	13,865.02	28.34	490.183	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #271A - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 330-MWD-SDI

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
4,800.00	4,776.36	3,527.00	3,407.78	18.27	10.54	-76.67	-976.30	13,897.18	13,901.41	13,872.70	28.71	484.160	
4,900.00	4,875.78	3,527.00	3,407.78	18.65	10.54	-76.67	-976.30	13,897.18	13,910.19	13,881.10	29.08	478.328	
5,000.00	4,975.20	3,527.00	3,407.78	19.03	10.54	-76.67	-976.30	13,897.18	13,919.67	13,890.22	29.45	472.681	
5,100.00	5,074.63	3,527.00	3,407.78	19.41	10.54	-76.67	-976.30	13,897.18	13,929.86	13,900.05	29.81	467.212	
5,200.00	5,174.05	3,527.00	3,407.78	19.79	10.54	-76.67	-976.30	13,897.18	13,940.77	13,910.59	30.18	461.915	
5,300.00	5,273.47	3,527.00	3,407.78	20.17	10.54	-76.67	-976.30	13,897.18	13,952.38	13,921.84	30.54	456.784	
5,400.00	5,372.89	3,527.00	3,407.78	20.56	10.54	-76.67	-976.30	13,897.18	13,964.70	13,933.79	30.91	451.813	
5,500.00	5,472.32	3,527.00	3,407.78	20.94	10.54	-76.67	-976.30	13,897.18	13,977.72	13,946.45	31.27	446.996	
5,600.00	5,571.74	3,527.00	3,407.78	21.32	10.54	-76.67	-976.30	13,897.18	13,991.45	13,959.82	31.63	442.329	
5,700.00	5,671.16	3,527.00	3,407.78	21.70	10.54	-76.67	-976.30	13,897.18	14,005.88	13,973.89	31.99	437.805	
5,800.00	5,770.58	3,527.00	3,407.78	22.08	10.54	-76.67	-976.30	13,897.18	14,021.00	13,988.65	32.35	433.422	
5,900.00	5,870.01	3,527.00	3,407.78	22.47	10.54	-76.67	-976.30	13,897.18	14,036.83	14,004.12	32.71	429.172	
6,000.00	5,969.43	3,527.00	3,407.78	22.85	10.54	-76.67	-976.30	13,897.18	14,053.34	14,020.28	33.06	425.053	
6,100.00	6,068.85	3,527.00	3,407.78	23.23	10.54	-76.67	-976.30	13,897.18	14,070.55	14,037.13	33.42	421.059	
6,200.00	6,168.27	3,527.00	3,407.78	23.62	10.54	-76.67	-976.30	13,897.18	14,088.44	14,054.67	33.77	417.186	
6,300.00	6,267.70	3,527.00	3,407.78	24.00	10.54	-76.67	-976.30	13,897.18	14,107.03	14,072.90	34.12	413.431	
6,400.00	6,367.12	3,527.00	3,407.78	24.38	10.54	-76.67	-976.30	13,897.18	14,126.29	14,091.82	34.47	409.790	
6,500.00	6,466.54	3,527.00	3,407.78	24.77	10.54	-76.67	-976.30	13,897.18	14,146.24	14,111.42	34.82	406.258	
6,600.00	6,565.96	3,527.00	3,407.78	25.15	10.54	-76.67	-976.30	13,897.18	14,166.86	14,131.69	35.17	402.833	
6,700.00	6,665.38	3,527.00	3,407.78	25.53	10.54	-76.67	-976.30	13,897.18	14,188.16	14,152.65	35.51	399.510	
6,778.75	6,743.68	3,527.00	3,407.78	25.84	10.54	-76.67	-976.30	13,897.18	14,205.40	14,169.62	35.79	396.964	
6,800.00	6,764.80	3,527.00	3,407.78	25.92	10.54	-60.67	-976.30	13,897.18	14,209.78	14,173.93	35.86	396.284	
6,850.00	6,814.29	3,527.00	3,407.78	26.11	10.54	-36.32	-976.30	13,897.18	14,217.46	14,181.43	36.03	394.630	
6,900.00	6,863.27	3,527.00	3,407.78	26.30	10.54	-24.38	-976.30	13,897.18	14,221.41	14,185.21	36.20	392.909	
6,950.00	6,911.44	3,527.00	3,407.78	26.50	10.54	-17.89	-976.30	13,897.18	14,221.62	14,185.26	36.36	391.125	
7,000.00	6,958.49	3,527.00	3,407.78	26.68	10.54	-13.91	-976.30	13,897.18	14,218.08	14,181.56	36.52	389.290	
7,050.00	7,004.14	3,527.00	3,407.78	26.87	10.54	-11.25	-976.30	13,897.18	14,210.82	14,174.14	36.68	387.417	
7,100.00	7,048.10	3,527.00	3,407.78	27.05	10.54	-9.35	-976.30	13,897.18	14,199.88	14,163.04	36.83	385.518	
7,150.00	7,090.11	3,527.00	3,407.78	27.23	10.54	-7.92	-976.30	13,897.18	14,185.30	14,148.33	36.98	383.607	
7,200.00	7,129.90	3,527.00	3,407.78	27.41	10.54	-6.81	-976.30	13,897.18	14,167.18	14,130.07	37.12	381.694	
7,250.00	7,167.24	3,527.00	3,407.78	27.59	10.54	-5.90	-976.30	13,897.18	14,145.62	14,108.37	37.25	379.792	
7,300.00	7,201.88	3,527.00	3,407.78	27.76	10.54	-5.13	-976.30	13,897.18	14,120.71	14,083.35	37.37	377.908	
7,350.00	7,233.63	3,527.00	3,407.78	27.94	10.54	-4.46	-976.30	13,897.18	14,092.62	14,055.14	37.47	376.054	
7,400.00	7,262.27	3,527.00	3,407.78	28.13	10.54	-3.85	-976.30	13,897.18	14,061.48	14,023.91	37.57	374.237	
7,450.00	7,287.63	3,527.00	3,407.78	28.32	10.54	-3.28	-976.30	13,897.18	14,027.47	13,989.81	37.66	372.465	
7,500.00	7,309.57	3,527.00	3,407.78	28.53	10.54	-2.70	-976.30	13,897.18	13,990.79	13,953.05	37.74	370.744	
7,550.00	7,327.93	3,527.00	3,407.78	28.74	10.54	-2.09	-976.30	13,897.18	13,951.63	13,913.83	37.80	369.080	
7,600.00	7,342.62	3,527.00	3,407.78	28.97	10.54	-1.40	-976.30	13,897.18	13,910.22	13,872.36	37.85	367.477	
7,650.00	7,353.53	3,527.00	3,407.78	29.22	10.54	-0.58	-976.30	13,897.18	13,866.79	13,828.90	37.89	365.938	
7,700.00	7,360.61	3,527.00	3,407.78	29.48	10.54	0.50	-976.30	13,897.18	13,821.60	13,783.68	37.92	364.462	
7,750.00	7,363.80	3,527.00	3,407.78	29.75	10.54	2.04	-976.30	13,897.18	13,774.91	13,736.97	37.94	363.050	
7,765.93	7,364.00	3,527.00	3,407.78	29.84	10.54	2.68	-976.30	13,897.18	13,759.76	13,721.82	37.95	362.597	
7,800.00	7,364.00	3,527.00	3,407.78	30.04	10.54	2.68	-976.30	13,897.18	13,727.24	13,689.29	37.95	361.692	
7,900.00	7,364.00	3,527.00	3,407.78	30.67	10.54	2.68	-976.30	13,897.18	13,631.83	13,593.86	37.97	359.039	
8,000.00	7,364.00	3,527.00	3,407.78	31.37	10.54	2.68	-976.30	13,897.18	13,536.49	13,498.51	37.99	356.362	
8,100.00	7,364.00	3,527.00	3,407.78	32.14	10.54	2.68	-976.30	13,897.18	13,441.22	13,403.21	38.01	353.659	
8,200.00	7,364.00	3,527.00	3,407.78	32.96	10.54	2.68	-976.30	13,897.18	13,346.01	13,307.98	38.03	350.931	
8,300.00	7,364.00	3,527.00	3,407.78	33.85	10.54	2.68	-976.30	13,897.18	13,250.88	13,212.82	38.06	348.179	
8,400.00	7,364.00	3,527.00	3,407.78	34.79	10.54	2.68	-976.30	13,897.18	13,155.82	13,117.73	38.09	345.401	
8,500.00	7,364.00	3,527.00	3,407.78	35.77	10.54	2.68	-976.30	13,897.18	13,060.83	13,022.70	38.12	342.598	
8,600.00	7,364.00	3,527.00	3,407.78	36.80	10.54	2.68	-976.30	13,897.18	12,965.91	12,927.75	38.16	339.771	
8,700.00	7,364.00	3,527.00	3,407.78	37.87	10.54	2.68	-976.30	13,897.18	12,871.08	12,832.88	38.20	336.918	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #271A - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 330-MWD-SDI

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
8,800.00	7,364.00	3,527.00	3,407.78	38.98	10.54	2.68	-976.30	13,897.18	12,776.32	12,738.07	38.25	334.041	
8,900.00	7,364.00	3,527.00	3,407.78	40.12	10.54	2.68	-976.30	13,897.18	12,681.65	12,643.35	38.30	331.138	
9,000.00	7,364.00	3,527.00	3,407.78	41.29	10.54	2.68	-976.30	13,897.18	12,587.05	12,548.70	38.35	328.211	
9,100.00	7,364.00	3,527.00	3,407.78	42.49	10.54	2.68	-976.30	13,897.18	12,492.54	12,454.13	38.41	325.260	
9,200.00	7,364.00	3,527.00	3,407.78	43.71	10.54	2.68	-976.30	13,897.18	12,398.12	12,359.65	38.47	322.284	
9,300.00	7,364.00	3,527.00	3,407.78	44.96	10.54	2.68	-976.30	13,897.18	12,303.78	12,265.25	38.54	319.284	
9,400.00	7,364.00	3,527.00	3,407.78	46.23	10.54	2.68	-976.30	13,897.18	12,209.54	12,170.93	38.61	316.260	
9,500.00	7,364.00	3,527.00	3,407.78	47.52	10.54	2.68	-976.30	13,897.18	12,115.38	12,076.70	38.68	313.212	
9,600.00	7,364.00	3,527.00	3,407.78	48.83	10.54	2.68	-976.30	13,897.18	12,021.32	11,982.56	38.76	310.141	
9,700.00	7,364.00	3,527.00	3,407.78	50.15	10.54	2.68	-976.30	13,897.18	11,927.36	11,888.52	38.85	307.046	
9,800.00	7,364.00	3,527.00	3,407.78	51.49	10.54	2.68	-976.30	13,897.18	11,833.50	11,794.56	38.94	303.929	
9,900.00	7,364.00	3,527.00	3,407.78	52.85	10.54	2.68	-976.30	13,897.18	11,739.74	11,700.71	39.03	300.789	
10,000.00	7,364.00	3,527.00	3,407.78	54.22	10.54	2.68	-976.30	13,897.18	11,646.08	11,606.95	39.13	297.627	
10,100.00	7,364.00	3,527.00	3,407.78	55.60	10.54	2.68	-976.30	13,897.18	11,552.53	11,513.29	39.24	294.444	
10,200.00	7,364.00	3,527.00	3,407.78	56.99	10.54	2.68	-976.30	13,897.18	11,459.08	11,419.74	39.35	291.239	
10,300.00	7,364.00	3,527.00	3,407.78	58.40	10.54	2.68	-976.30	13,897.18	11,365.75	11,326.29	39.46	288.014	
10,400.00	7,364.00	3,527.00	3,407.78	59.81	10.54	2.68	-976.30	13,897.18	11,272.53	11,232.95	39.58	284.769	
10,500.00	7,364.00	3,527.00	3,407.78	61.23	10.54	2.68	-976.30	13,897.18	11,179.43	11,139.72	39.71	281.504	
10,600.00	7,364.00	3,527.00	3,407.78	62.66	10.54	2.68	-976.30	13,897.18	11,086.45	11,046.61	39.85	278.220	
10,700.00	7,364.00	3,527.00	3,407.78	64.10	10.54	2.68	-976.30	13,897.18	10,993.60	10,953.61	39.99	274.918	
10,800.00	7,364.00	3,527.00	3,407.78	65.55	10.54	2.68	-976.30	13,897.18	10,900.87	10,860.73	40.14	271.598	
10,900.00	7,364.00	3,527.00	3,407.78	67.01	10.54	2.68	-976.30	13,897.18	10,808.27	10,767.98	40.29	268.261	
11,000.00	7,364.00	3,527.00	3,407.78	68.47	10.54	2.68	-976.30	13,897.18	10,715.80	10,675.35	40.45	264.908	
11,100.00	7,364.00	3,527.00	3,407.78	69.93	10.54	2.68	-976.30	13,897.18	10,623.47	10,582.85	40.62	261.540	
11,200.00	7,364.00	3,527.00	3,407.78	71.41	10.54	2.68	-976.30	13,897.18	10,531.28	10,490.48	40.79	258.158	
11,300.00	7,364.00	3,527.00	3,407.78	72.88	10.54	2.68	-976.30	13,897.18	10,439.23	10,398.25	40.98	254.762	
11,400.00	7,364.00	3,527.00	3,407.78	74.37	10.54	2.68	-976.30	13,897.18	10,347.33	10,306.17	41.17	251.353	
11,500.00	7,364.00	3,527.00	3,407.78	75.85	10.54	2.68	-976.30	13,897.18	10,255.58	10,214.22	41.36	247.933	
11,600.00	7,364.00	3,527.00	3,407.78	77.35	10.54	2.68	-976.30	13,897.18	10,163.99	10,122.42	41.57	244.502	
11,700.00	7,364.00	3,527.00	3,407.78	78.84	10.54	2.68	-976.30	13,897.18	10,072.56	10,030.78	41.78	241.061	
11,800.00	7,364.00	3,527.00	3,407.78	80.34	10.54	2.68	-976.30	13,897.18	9,981.29	9,939.28	42.01	237.612	
11,900.00	7,364.00	3,527.00	3,407.78	81.85	10.54	2.68	-976.30	13,897.18	9,890.19	9,847.95	42.24	234.155	
12,000.00	7,364.00	3,527.00	3,407.78	83.36	10.54	2.68	-976.30	13,897.18	9,799.27	9,756.79	42.48	230.692	
12,100.00	7,364.00	3,527.00	3,407.78	84.87	10.54	2.68	-976.30	13,897.18	9,708.52	9,665.79	42.73	227.223	
12,200.00	7,364.00	3,527.00	3,407.78	86.38	10.54	2.68	-976.30	13,897.18	9,617.96	9,574.97	42.99	223.751	
12,300.00	7,364.00	3,527.00	3,407.78	87.90	10.54	2.68	-976.30	13,897.18	9,527.58	9,484.33	43.25	220.276	
12,400.00	7,364.00	3,527.00	3,407.78	89.42	10.54	2.68	-976.30	13,897.18	9,437.40	9,393.87	43.53	216.799	
12,500.00	7,364.00	3,527.00	3,407.78	90.95	10.54	2.68	-976.30	13,897.18	9,347.42	9,303.60	43.82	213.322	
12,600.00	7,364.00	3,527.00	3,407.78	92.47	10.54	2.68	-976.30	13,897.18	9,257.65	9,213.53	44.12	209.847	
12,700.00	7,364.00	3,527.00	3,407.78	94.00	10.54	2.68	-976.30	13,897.18	9,168.08	9,123.66	44.42	206.373	
12,800.00	7,364.00	3,527.00	3,407.78	95.53	10.54	2.68	-976.30	13,897.18	9,078.74	9,033.99	44.74	202.904	
12,900.00	7,364.00	3,527.00	3,407.78	97.06	10.54	2.68	-976.30	13,897.18	8,989.61	8,944.54	45.07	199.439	
13,000.00	7,364.00	3,527.00	3,407.78	98.60	10.54	2.68	-976.30	13,897.18	8,900.72	8,855.31	45.42	195.981	
13,100.00	7,364.00	3,527.00	3,407.78	100.14	10.54	2.68	-976.30	13,897.18	8,812.07	8,766.30	45.77	192.531	
13,200.00	7,364.00	3,527.00	3,407.78	101.68	10.54	2.68	-976.30	13,897.18	8,723.67	8,677.53	46.13	189.091	
13,300.00	7,364.00	3,527.00	3,407.78	103.22	10.54	2.68	-976.30	13,897.18	8,635.51	8,589.00	46.51	185.661	
13,400.00	7,364.00	3,527.00	3,407.78	104.76	10.54	2.68	-976.30	13,897.18	8,547.62	8,500.72	46.90	182.243	
13,500.00	7,364.00	3,527.00	3,407.78	106.31	10.54	2.68	-976.30	13,897.18	8,460.00	8,412.69	47.31	178.839	
13,600.00	7,364.00	3,527.00	3,407.78	107.85	10.54	2.68	-976.30	13,897.18	8,372.65	8,324.93	47.72	175.450	
13,700.00	7,364.00	3,527.00	3,407.78	109.40	10.54	2.68	-976.30	13,897.18	8,285.59	8,237.44	48.15	172.077	
13,800.00	7,364.00	3,527.00	3,407.78	110.95	10.54	2.68	-976.30	13,897.18	8,198.82	8,150.23	48.59	168.722	
13,900.00	7,364.00	3,527.00	3,407.78	112.50	10.54	2.68	-976.30	13,897.18	8,112.36	8,063.31	49.05	165.387	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #271A - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 330-MWD-SDI

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,000.00	7,364.00	3,527.00	3,407.78	114.05	10.54	2.68	-976.30	13,897.18	8,026.22	7,976.69	49.52	162.073	
14,100.00	7,364.00	3,527.00	3,407.78	115.61	10.54	2.68	-976.30	13,897.18	7,940.40	7,890.39	50.01	158.781	
14,200.00	7,364.00	3,527.00	3,407.78	117.16	10.54	2.68	-976.30	13,897.18	7,854.91	7,804.40	50.51	155.512	
14,300.00	7,364.00	3,527.00	3,407.78	118.72	10.54	2.68	-976.30	13,897.18	7,769.77	7,718.74	51.03	152.268	
14,400.00	7,364.00	3,527.00	3,407.78	120.28	10.54	2.68	-976.30	13,897.18	7,684.99	7,633.43	51.56	149.051	
14,500.00	7,364.00	3,527.00	3,407.78	121.84	10.54	2.68	-976.30	13,897.18	7,600.58	7,548.47	52.11	145.862	
14,600.00	7,364.00	3,527.00	3,407.78	123.40	10.54	2.68	-976.30	13,897.18	7,516.55	7,463.88	52.67	142.701	
14,700.00	7,364.00	3,527.00	3,407.78	124.96	10.54	2.68	-976.30	13,897.18	7,432.92	7,379.66	53.26	139.571	
14,800.00	7,364.00	3,527.00	3,407.78	126.52	10.54	2.68	-976.30	13,897.18	7,349.69	7,295.84	53.85	136.473	
14,900.00	7,364.00	3,527.00	3,407.78	128.08	10.54	2.68	-976.30	13,897.18	7,266.89	7,212.42	54.47	133.407	
15,000.00	7,364.00	3,527.00	3,407.78	129.64	10.54	2.68	-976.30	13,897.18	7,184.53	7,129.42	55.11	130.376	
15,100.00	7,364.00	3,527.00	3,407.78	131.21	10.54	2.68	-976.30	13,897.18	7,102.62	7,046.86	55.76	127.380	
15,200.00	7,364.00	3,527.00	3,407.78	132.77	10.54	2.68	-976.30	13,897.18	7,021.17	6,964.74	56.43	124.421	
15,300.00	7,364.00	3,527.00	3,407.78	134.34	10.54	2.68	-976.30	13,897.18	6,940.22	6,883.09	57.12	121.499	
15,400.00	7,364.00	3,527.00	3,407.78	135.91	10.54	2.68	-976.30	13,897.18	6,859.76	6,801.93	57.83	118.616	
15,500.00	7,364.00	3,527.00	3,407.78	137.48	10.54	2.68	-976.30	13,897.18	6,779.83	6,721.27	58.56	115.772	
15,600.00	7,364.00	3,527.00	3,407.78	139.04	10.54	2.68	-976.30	13,897.18	6,700.43	6,641.12	59.31	112.970	
15,700.00	7,364.00	3,527.00	3,407.78	140.61	10.54	2.68	-976.30	13,897.18	6,621.59	6,561.51	60.08	110.209	
15,800.00	7,364.00	3,527.00	3,407.78	142.18	10.54	2.68	-976.30	13,897.18	6,543.34	6,482.46	60.87	107.491	
15,900.00	7,364.00	3,527.00	3,407.78	143.75	10.54	2.68	-976.30	13,897.18	6,465.68	6,403.99	61.69	104.816	
16,000.00	7,364.00	3,527.00	3,407.78	145.33	10.54	2.68	-976.30	13,897.18	6,388.64	6,326.12	62.52	102.186	
16,100.00	7,364.00	3,527.00	3,407.78	146.90	10.54	2.68	-976.30	13,897.18	6,312.24	6,248.87	63.38	99.601	
16,200.00	7,364.00	3,527.00	3,407.78	148.47	10.54	2.68	-976.30	13,897.18	6,236.52	6,172.26	64.25	97.063	
16,300.00	7,364.00	3,527.00	3,407.78	150.04	10.54	2.68	-976.30	13,897.18	6,161.48	6,096.33	65.15	94.571	
16,400.00	7,364.00	3,527.00	3,407.78	151.62	10.54	2.68	-976.30	13,897.18	6,087.17	6,021.09	66.07	92.126	
16,500.00	7,364.00	3,527.00	3,407.78	153.19	10.54	2.68	-976.30	13,897.18	6,013.59	5,946.58	67.02	89.729	
16,600.00	7,364.00	3,527.00	3,407.78	154.77	10.54	2.68	-976.30	13,897.18	5,940.80	5,872.81	67.99	87.382	
16,700.00	7,364.00	3,527.00	3,407.78	156.34	10.54	2.68	-976.30	13,897.18	5,868.80	5,799.82	68.98	85.083	
16,800.00	7,364.00	3,527.00	3,407.78	157.92	10.54	2.68	-976.30	13,897.18	5,797.63	5,727.64	69.99	82.834	
16,900.00	7,364.00	3,527.00	3,407.78	159.49	10.54	2.68	-976.30	13,897.18	5,727.32	5,656.30	71.03	80.635	
17,000.00	7,364.00	3,527.00	3,407.78	161.07	10.54	2.68	-976.30	13,897.18	5,657.91	5,585.82	72.09	78.487	
17,100.00	7,364.00	3,527.00	3,407.78	162.65	10.54	2.68	-976.30	13,897.18	5,589.43	5,516.26	73.17	76.390	
17,200.00	7,364.00	3,527.00	3,407.78	164.23	10.54	2.68	-976.30	13,897.18	5,521.90	5,447.63	74.27	74.344	
17,300.00	7,364.00	3,527.00	3,407.78	165.81	10.54	2.68	-976.30	13,897.18	5,455.38	5,379.97	75.40	72.350	
17,400.00	7,364.00	3,527.00	3,407.78	167.38	10.54	2.68	-976.30	13,897.18	5,389.88	5,313.33	76.55	70.407	
17,500.00	7,364.00	3,527.00	3,407.78	168.96	10.54	2.68	-976.30	13,897.18	5,325.47	5,247.74	77.72	68.517	
17,600.00	7,364.00	3,527.00	3,407.78	170.54	10.54	2.68	-976.30	13,897.18	5,262.16	5,183.24	78.92	66.679	
17,700.00	7,364.00	3,527.00	3,407.78	172.12	10.54	2.68	-976.30	13,897.18	5,200.00	5,119.87	80.13	64.893	
17,800.00	7,364.00	3,527.00	3,407.78	173.70	10.54	2.68	-976.30	13,897.18	5,139.04	5,057.68	81.37	63.159	
17,900.00	7,364.00	3,527.00	3,407.78	175.28	10.54	2.68	-976.30	13,897.18	5,079.32	4,996.70	82.62	61.478	
18,000.00	7,364.00	3,527.00	3,407.78	176.87	10.54	2.68	-976.30	13,897.18	5,020.88	4,936.99	83.89	59.850	
18,100.00	7,364.00	3,527.00	3,407.78	178.45	10.54	2.68	-976.30	13,897.18	4,963.76	4,878.58	85.18	58.273	
18,200.00	7,364.00	3,527.00	3,407.78	180.03	10.54	2.68	-976.30	13,897.18	4,908.02	4,821.54	86.49	56.750	
18,300.00	7,364.00	3,527.00	3,407.78	181.61	10.54	2.68	-976.30	13,897.18	4,853.70	4,765.89	87.81	55.278	
18,400.00	7,364.00	3,527.00	3,407.78	183.19	10.54	2.68	-976.30	13,897.18	4,800.85	4,711.71	89.14	53.859	
18,500.00	7,364.00	3,527.00	3,407.78	184.78	10.54	2.68	-976.30	13,897.18	4,749.51	4,659.03	90.48	52.491	
18,600.00	7,364.00	3,527.00	3,407.78	186.36	10.54	2.68	-976.30	13,897.18	4,699.74	4,607.91	91.84	51.176	
18,700.00	7,364.00	3,527.00	3,407.78	187.94	10.54	2.68	-976.30	13,897.18	4,651.59	4,558.39	93.20	49.911	
18,800.00	7,364.00	3,527.00	3,407.78	189.53	10.54	2.68	-976.30	13,897.18	4,605.11	4,510.55	94.56	48.699	
18,900.00	7,364.00	3,527.00	3,407.78	191.11	10.54	2.68	-976.30	13,897.18	4,560.35	4,464.41	95.93	47.537	
19,000.00	7,364.00	3,527.00	3,407.78	192.70	10.54	2.68	-976.30	13,897.18	4,517.35	4,420.05	97.30	46.425	
19,100.00	7,364.00	3,527.00	3,407.78	194.28	10.54	2.68	-976.30	13,897.18	4,476.18	4,377.51	98.67	45.365	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #271A - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 330-MWD-SDI

Rule Assigned:

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
19,200.00	7,364.00	3,527.00	3,407.78	195.87	10.54	2.68	-976.30	13,897.18	4,436.88	4,336.85	100.03	44.354	
19,300.00	7,364.00	3,527.00	3,407.78	197.45	10.54	2.68	-976.30	13,897.18	4,399.51	4,298.12	101.39	43.392	
19,400.00	7,364.00	3,527.00	3,407.78	199.04	10.54	2.68	-976.30	13,897.18	4,364.10	4,261.37	102.73	42.480	
19,500.00	7,364.00	3,527.00	3,407.78	200.62	10.54	2.68	-976.30	13,897.18	4,330.72	4,226.65	104.06	41.616	
19,600.00	7,364.00	3,527.00	3,407.78	202.21	10.54	2.68	-976.30	13,897.18	4,299.40	4,194.02	105.38	40.801	
19,700.00	7,364.00	3,527.00	3,407.78	203.79	10.54	2.68	-976.30	13,897.18	4,270.20	4,163.53	106.67	40.033	
19,800.00	7,364.00	3,527.00	3,407.78	205.38	10.54	2.68	-976.30	13,897.18	4,243.15	4,135.21	107.93	39.312	
19,900.00	7,364.00	3,527.00	3,407.78	206.97	10.54	2.68	-976.30	13,897.18	4,218.30	4,109.12	109.17	38.638	
20,000.00	7,364.00	3,527.00	3,407.78	208.55	10.54	2.68	-976.30	13,897.18	4,195.68	4,085.30	110.38	38.010	
20,100.00	7,364.00	3,527.00	3,407.78	210.14	10.54	2.68	-976.30	13,897.18	4,175.34	4,063.78	111.56	37.428	
20,200.00	7,364.00	3,527.00	3,407.78	211.73	10.54	2.68	-976.30	13,897.18	4,157.31	4,044.61	112.69	36.891	
20,300.00	7,364.00	3,527.00	3,407.78	213.32	10.54	2.68	-976.30	13,897.18	4,141.61	4,027.82	113.79	36.398	
20,400.00	7,364.00	3,527.00	3,407.78	214.90	10.54	2.68	-976.30	13,897.18	4,128.27	4,013.44	114.84	35.949	
20,500.00	7,364.00	3,527.00	3,407.78	216.49	10.54	2.68	-976.30	13,897.18	4,117.33	4,001.48	115.84	35.543	
20,600.00	7,364.00	3,527.00	3,407.78	218.08	10.54	2.68	-976.30	13,897.18	4,108.78	3,991.99	116.80	35.179	
20,700.00	7,364.00	3,527.00	3,407.78	219.67	10.54	2.68	-976.30	13,897.18	4,102.66	3,984.96	117.70	34.857	
20,800.00	7,364.00	3,527.00	3,407.78	221.26	10.54	2.68	-976.30	13,897.18	4,098.97	3,980.42	118.55	34.577	
20,900.00	7,364.00	3,527.00	3,407.78	222.84	10.54	2.68	-976.30	13,897.18	4,097.72	3,978.38	119.34	34.337 CC	
20,904.45	7,364.00	3,527.00	3,407.78	222.92	10.54	2.68	-976.30	13,897.18	4,097.72	3,978.34	119.37	34.327 ES	
21,000.00	7,364.00	3,527.00	3,407.78	224.43	10.54	2.68	-976.30	13,897.18	4,098.90	3,978.83	120.07	34.136	
21,100.00	7,364.00	3,527.00	3,407.78	226.02	10.54	2.68	-976.30	13,897.18	4,102.53	3,981.78	120.75	33.975	
21,200.00	7,364.00	3,527.00	3,407.78	227.61	10.54	2.68	-976.30	13,897.18	4,108.58	3,987.22	121.37	33.853	
21,300.00	7,364.00	3,527.00	3,407.78	229.20	10.54	2.68	-976.30	13,897.18	4,117.06	3,995.14	121.92	33.768	
21,400.00	7,364.00	3,527.00	3,407.78	230.79	10.54	2.68	-976.30	13,897.18	4,127.94	4,005.53	122.42	33.720	
21,500.00	7,364.00	3,527.00	3,407.78	232.38	10.54	2.68	-976.30	13,897.18	4,141.21	4,018.36	122.85	33.709 SF	
21,600.00	7,364.00	3,527.00	3,407.78	233.97	10.54	2.68	-976.30	13,897.18	4,156.85	4,033.62	123.23	33.733	
21,700.00	7,364.00	3,527.00	3,407.78	235.56	10.54	2.68	-976.30	13,897.18	4,174.82	4,051.27	123.54	33.792	
21,800.00	7,364.00	3,527.00	3,407.78	237.15	10.54	2.68	-976.30	13,897.18	4,195.09	4,071.29	123.80	33.886	
21,864.93	7,364.00	3,527.00	3,407.78	238.18	10.54	2.68	-976.30	13,897.18	4,209.48	4,085.54	123.94	33.965	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #272 - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 235-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	154.00	154.00	3.28	1.42	90.75	-135.76	10,400.37	10,401.26				
100.00	100.00	254.00	254.00	3.29	2.52	90.75	-135.76	10,400.37	10,401.26	10,395.45	5.81	1,789.342	
200.00	200.00	354.00	354.00	3.34	4.37	90.75	-135.76	10,400.37	10,401.26	10,393.55	7.71	1,349.414	
300.00	300.00	454.00	454.00	3.42	6.22	90.75	-135.76	10,400.37	10,401.26	10,391.62	9.64	1,078.945	
340.97	340.97	494.96	494.95	3.46	6.98	90.74	-135.21	10,400.37	10,401.25	10,390.81	10.44	996.128	
400.00	400.00	553.84	553.84	3.54	8.07	90.75	-135.25	10,400.37	10,401.25	10,389.65	11.60	896.353	
500.00	500.00	653.61	653.60	3.69	9.91	90.75	-135.45	10,400.37	10,401.26	10,387.66	13.60	764.937	
600.00	599.98	754.00	753.98	3.86	11.77	-59.28	-135.76	10,400.37	10,400.37	10,384.74	15.63	665.376	
700.00	699.84	853.86	853.84	4.04	13.67	-59.35	-135.76	10,400.37	10,397.69	10,379.98	17.72	586.940	
808.00	807.41	961.32	961.29	4.27	15.72	-59.48	-135.37	10,400.37	10,392.81	10,372.82	19.99	519.995	
900.00	898.89	1,052.56	1,052.53	4.49	17.45	-76.71	-135.55	10,400.37	10,389.16	10,367.22	21.94	473.633	
912.12	910.94	1,064.59	1,064.56	4.52	17.68	-78.95	-135.59	10,400.37	10,388.88	10,366.69	22.19	468.122	
1,000.00	998.31	1,152.35	1,152.31	4.74	19.35	-79.00	-135.76	10,400.37	10,387.07	10,362.99	24.08	431.279	
1,100.00	1,097.73	1,251.78	1,251.73	5.01	21.24	-79.06	-135.76	10,400.37	10,385.02	10,358.77	26.25	395.688	
1,200.00	1,197.15	1,351.20	1,351.15	5.29	23.13	-79.11	-135.76	10,400.37	10,382.97	10,354.55	28.42	365.324	
1,300.00	1,296.58	1,450.44	1,450.39	5.59	25.02	-79.18	-135.08	10,400.37	10,380.94	10,350.33	30.61	339.180	
1,400.00	1,396.00	1,549.74	1,549.68	5.90	26.91	-79.23	-135.47	10,400.37	10,378.92	10,346.11	32.80	316.408	
1,500.00	1,495.42	1,649.50	1,649.42	6.22	28.81	-79.29	-135.76	10,400.37	10,376.91	10,341.89	35.02	296.341	
1,600.00	1,594.84	1,748.92	1,748.84	6.54	30.70	-79.35	-135.76	10,400.37	10,374.91	10,337.67	37.23	278.650	
1,700.00	1,694.27	1,848.33	1,848.25	6.87	32.59	-79.41	-135.26	10,400.37	10,372.91	10,333.46	39.46	262.903	
1,800.00	1,793.69	1,947.72	1,947.64	7.21	34.48	-79.46	-135.38	10,400.37	10,370.94	10,329.25	41.68	248.805	
1,900.00	1,893.11	2,047.15	2,047.07	7.55	36.38	-79.52	-135.70	10,400.37	10,368.97	10,325.05	43.92	236.107	
2,000.00	1,992.53	2,146.64	2,146.53	7.89	38.32	-79.58	-135.76	10,400.37	10,367.01	10,320.80	46.21	224.365	
2,100.00	2,091.96	2,246.06	2,245.96	8.24	40.27	-79.64	-135.76	10,400.37	10,365.06	10,316.56	48.51	213.685	
2,200.00	2,191.38	2,345.52	2,345.41	8.60	42.22	-79.70	-135.04	10,400.37	10,363.13	10,312.32	50.81	203.955	
2,300.00	2,290.80	2,445.06	2,444.95	8.95	44.18	-79.75	-135.32	10,400.37	10,361.20	10,308.08	53.12	195.054	
2,400.00	2,390.22	2,544.36	2,544.22	9.31	46.14	-79.81	-135.76	10,400.37	10,359.29	10,303.85	55.44	186.859	
2,500.00	2,489.65	2,643.79	2,643.65	9.67	48.16	-79.87	-135.76	10,400.37	10,357.38	10,299.57	57.82	179.147	
2,600.00	2,589.07	2,743.25	2,743.10	10.03	50.17	-79.93	-135.11	10,400.37	10,355.49	10,295.30	60.19	172.036	
2,700.00	2,688.49	2,842.93	2,842.78	10.40	52.19	-79.99	-135.33	10,400.37	10,353.61	10,291.03	62.58	165.450	
2,800.00	2,787.91	2,942.10	2,941.91	10.76	54.21	-80.04	-135.76	10,400.37	10,351.73	10,286.78	64.96	159.366	
2,900.00	2,887.33	3,041.52	3,041.33	11.13	56.23	-80.10	-135.76	10,400.37	10,349.87	10,282.53	67.34	153.688	
3,000.00	2,986.76	3,140.95	3,140.76	11.50	58.25	-80.16	-135.76	10,400.37	10,348.02	10,278.29	69.73	148.395	
3,100.00	3,086.18	3,240.59	3,240.39	11.87	60.27	-80.22	-134.68	10,400.37	10,346.20	10,274.07	72.13	143.443	
3,200.00	3,185.60	3,340.48	3,340.28	12.24	62.30	-80.28	-135.03	10,400.37	10,344.36	10,269.83	74.53	138.797	
3,300.00	3,285.02	3,440.45	3,440.24	12.61	64.34	-80.33	-135.72	10,400.37	10,342.54	10,265.61	76.93	134.437	
3,400.00	3,384.45	3,538.70	3,538.45	12.98	66.27	-80.39	-135.76	10,400.37	10,340.73	10,261.49	79.24	130.495	
3,500.00	3,483.87	3,569.00	3,568.74	13.36	66.87	-80.41	-135.76	10,400.37	10,339.16	10,258.95	80.21	128.899	
3,600.00	3,583.29	3,569.00	3,568.74	13.73	66.87	-80.41	-135.76	10,400.37	10,338.52	10,257.94	80.58	128.303	
3,616.40	3,599.60	3,569.00	3,568.74	13.79	66.87	-80.41	-135.76	10,400.37	10,338.51	10,257.87	80.64	128.208	
3,700.00	3,682.71	3,569.00	3,568.74	14.11	66.87	-80.41	-135.76	10,400.37	10,338.85	10,257.91	80.94	127.735	
3,800.00	3,782.14	3,569.00	3,568.74	14.48	66.87	-80.41	-135.76	10,400.37	10,340.14	10,258.84	81.29	127.194	
3,900.00	3,881.56	3,569.00	3,568.74	14.86	66.87	-80.41	-135.76	10,400.37	10,342.40	10,260.76	81.64	126.679	
4,000.00	3,980.98	3,569.00	3,568.74	15.24	66.87	-80.41	-135.76	10,400.37	10,345.62	10,263.64	81.98	126.192	
4,100.00	4,080.40	3,569.00	3,568.74	15.61	66.87	-80.41	-135.76	10,400.37	10,349.81	10,267.50	82.32	125.730	
4,200.00	4,179.83	3,569.00	3,568.74	15.99	66.87	-80.41	-135.76	10,400.37	10,354.97	10,272.32	82.64	125.295	
4,300.00	4,279.25	3,569.00	3,568.74	16.37	66.87	-80.41	-135.76	10,400.37	10,361.08	10,278.12	82.96	124.885	
4,400.00	4,378.67	3,569.00	3,568.74	16.75	66.87	-80.41	-135.76	10,400.37	10,368.16	10,284.88	83.28	124.501	
4,500.00	4,478.09	3,569.00	3,568.74	17.13	66.87	-80.41	-135.76	10,400.37	10,376.20	10,292.62	83.58	124.142	
4,600.00	4,577.51	3,569.00	3,568.74	17.51	66.87	-80.41	-135.76	10,400.37	10,385.19	10,301.31	83.88	123.807	
4,700.00	4,676.94	3,569.00	3,568.74	17.89	66.87	-80.41	-135.76	10,400.37	10,395.14	10,310.97	84.17	123.497	
4,800.00	4,776.36	3,569.00	3,568.74	18.27	66.87	-80.41	-135.76	10,400.37	10,406.04	10,321.58	84.46	123.211	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #272 - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 235-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
4,900.00	4,875.78	3,569.00	3,568.74	18.65	66.87	-80.41	-135.76	10,400.37	10,417.89	10,333.15	84.73	122.949	
5,000.00	4,975.20	3,569.00	3,568.74	19.03	66.87	-80.41	-135.76	10,400.37	10,430.68	10,345.68	85.00	122.711	
5,100.00	5,074.63	3,569.00	3,568.74	19.41	66.87	-80.41	-135.76	10,400.37	10,444.42	10,359.15	85.26	122.495	
5,200.00	5,174.05	3,569.00	3,568.74	19.79	66.87	-80.41	-135.76	10,400.37	10,459.09	10,373.57	85.52	122.302	
5,300.00	5,273.47	3,569.00	3,568.74	20.17	66.87	-80.41	-135.76	10,400.37	10,474.70	10,388.93	85.77	122.132	
5,400.00	5,372.89	3,569.00	3,568.74	20.56	66.87	-80.41	-135.76	10,400.37	10,491.23	10,405.23	86.00	121.984	
5,500.00	5,472.32	3,569.00	3,568.74	20.94	66.87	-80.41	-135.76	10,400.37	10,508.70	10,422.46	86.24	121.858	
5,600.00	5,571.74	3,569.00	3,568.74	21.32	66.87	-80.41	-135.76	10,400.37	10,527.08	10,440.62	86.46	121.754	
5,700.00	5,671.16	3,569.00	3,568.74	21.70	66.87	-80.41	-135.76	10,400.37	10,546.38	10,459.70	86.68	121.671	
5,800.00	5,770.58	3,569.00	3,568.74	22.08	66.87	-80.41	-135.76	10,400.37	10,566.59	10,479.70	86.89	121.609	
5,900.00	5,870.01	3,569.00	3,568.74	22.47	66.87	-80.41	-135.76	10,400.37	10,587.71	10,500.61	87.09	121.568	
6,000.00	5,969.43	3,569.00	3,568.74	22.85	66.87	-80.41	-135.76	10,400.37	10,609.73	10,522.44	87.29	121.547	
6,100.00	6,068.85	3,569.00	3,568.74	23.23	66.87	-80.41	-135.76	10,400.37	10,632.64	10,545.16	87.48	121.546	
6,200.00	6,168.27	3,569.00	3,568.74	23.62	66.87	-80.41	-135.76	10,400.37	10,656.44	10,568.78	87.66	121.564	
6,300.00	6,267.70	3,569.00	3,568.74	24.00	66.87	-80.41	-135.76	10,400.37	10,681.12	10,593.29	87.84	121.603	
6,400.00	6,367.12	3,569.00	3,568.74	24.38	66.87	-80.41	-135.76	10,400.37	10,706.69	10,618.68	88.01	121.660	
6,500.00	6,466.54	3,569.00	3,568.74	24.77	66.87	-80.41	-135.76	10,400.37	10,733.12	10,644.95	88.17	121.736	
6,600.00	6,565.96	3,569.00	3,568.74	25.15	66.87	-80.41	-135.76	10,400.37	10,760.42	10,672.09	88.32	121.831	
6,700.00	6,665.38	3,569.00	3,568.74	25.53	66.87	-80.41	-135.76	10,400.37	10,788.57	10,700.10	88.47	121.944	
6,778.75	6,743.68	3,569.00	3,568.74	25.84	66.87	-80.41	-135.76	10,400.37	10,811.34	10,722.76	88.58	122.046	
6,800.00	6,764.80	3,569.00	3,568.74	25.92	66.87	-64.38	-135.76	10,400.37	10,817.24	10,728.63	88.61	122.072	
6,850.00	6,814.29	3,569.00	3,568.74	26.11	66.87	-39.97	-135.76	10,400.37	10,828.55	10,739.88	88.68	122.109	
6,900.00	6,863.27	3,569.00	3,568.74	26.30	66.87	-28.01	-135.76	10,400.37	10,836.24	10,747.50	88.74	122.111	
6,950.00	6,911.44	3,569.00	3,568.74	26.50	66.87	-21.51	-135.76	10,400.37	10,840.25	10,751.45	88.80	122.075	
7,000.00	6,958.49	3,569.00	3,568.74	26.68	66.87	-17.54	-135.76	10,400.37	10,840.58	10,751.72	88.85	122.003	
7,050.00	7,004.14	3,569.00	3,568.74	26.87	66.87	-14.92	-135.76	10,400.37	10,837.21	10,748.30	88.91	121.896	
7,100.00	7,048.10	3,569.00	3,568.74	27.05	66.87	-13.08	-135.76	10,400.37	10,830.17	10,741.21	88.95	121.754	
7,150.00	7,090.11	3,569.00	3,568.74	27.23	66.87	-11.73	-135.76	10,400.37	10,819.48	10,730.49	88.99	121.578	
7,200.00	7,129.90	3,569.00	3,568.74	27.41	66.87	-10.72	-135.76	10,400.37	10,805.22	10,716.19	89.03	121.370	
7,250.00	7,167.24	3,569.00	3,568.74	27.59	66.87	-9.96	-135.76	10,400.37	10,787.44	10,698.38	89.06	121.131	
7,300.00	7,201.88	3,569.00	3,568.74	27.76	66.87	-9.37	-135.76	10,400.37	10,766.25	10,677.17	89.08	120.862	
7,350.00	7,233.63	3,569.00	3,568.74	27.94	66.87	-8.92	-135.76	10,400.37	10,741.75	10,652.65	89.10	120.564	
7,400.00	7,262.27	3,569.00	3,568.74	28.13	66.87	-8.58	-135.76	10,400.37	10,714.07	10,624.96	89.11	120.239	
7,450.00	7,287.63	3,569.00	3,568.74	28.32	66.87	-8.35	-135.76	10,400.37	10,683.36	10,594.25	89.11	119.887	
7,500.00	7,309.57	3,569.00	3,568.74	28.53	66.87	-8.20	-135.76	10,400.37	10,649.79	10,560.68	89.11	119.511	
7,550.00	7,327.93	3,569.00	3,568.74	28.74	66.87	-8.13	-135.76	10,400.37	10,613.53	10,524.42	89.11	119.111	
7,600.00	7,342.62	3,569.00	3,568.74	28.97	66.87	-8.15	-135.76	10,400.37	10,574.78	10,485.69	89.10	118.690	
7,650.00	7,353.53	3,569.00	3,568.74	29.22	66.87	-8.27	-135.76	10,400.37	10,533.76	10,444.68	89.08	118.248	
7,700.00	7,360.61	3,569.00	3,568.74	29.48	66.87	-8.50	-135.76	10,400.37	10,490.68	10,401.62	89.06	117.788	
7,750.00	7,363.80	3,569.00	3,568.74	29.75	66.87	-8.89	-135.76	10,400.37	10,445.80	10,356.76	89.04	117.310	
7,765.93	7,364.00	3,569.00	3,568.74	29.84	66.87	-9.06	-135.76	10,400.37	10,431.17	10,342.13	89.04	117.151	
7,800.00	7,364.00	3,569.00	3,568.74	30.04	66.87	-9.06	-135.76	10,400.37	10,399.71	10,310.69	89.02	116.820	
7,900.00	7,364.00	3,569.00	3,568.74	30.67	66.87	-9.06	-135.76	10,400.37	10,307.47	10,218.50	88.97	115.850	
8,000.00	7,364.00	3,569.00	3,568.74	31.37	66.87	-9.06	-135.76	10,400.37	10,215.38	10,126.45	88.92	114.878	
8,100.00	7,364.00	3,569.00	3,568.74	32.14	66.87	-9.06	-135.76	10,400.37	10,123.43	10,034.56	88.88	113.903	
8,200.00	7,364.00	3,569.00	3,568.74	32.96	66.87	-9.06	-135.76	10,400.37	10,031.65	9,942.81	88.83	112.925	
8,300.00	7,364.00	3,569.00	3,568.74	33.85	66.87	-9.06	-135.76	10,400.37	9,940.02	9,851.22	88.79	111.944	
8,400.00	7,364.00	3,569.00	3,568.74	34.79	66.87	-9.06	-135.76	10,400.37	9,848.55	9,759.79	88.76	110.960	
8,500.00	7,364.00	3,569.00	3,568.74	35.77	66.87	-9.06	-135.76	10,400.37	9,757.25	9,668.53	88.72	109.974	
8,600.00	7,364.00	3,569.00	3,568.74	36.80	66.87	-9.06	-135.76	10,400.37	9,666.12	9,577.43	88.69	108.985	
8,700.00	7,364.00	3,569.00	3,568.74	37.87	66.87	-9.06	-135.76	10,400.37	9,575.17	9,486.51	88.66	107.993	
8,800.00	7,364.00	3,569.00	3,568.74	38.98	66.87	-9.06	-135.76	10,400.37	9,484.40	9,395.76	88.64	106.999	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #272 - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 235-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
8,900.00	7,364.00	3,569.00	3,568.74	40.12	66.87	-9.06	-135.76	10,400.37	9,393.82	9,305.20	88.62	106.002	
9,000.00	7,364.00	3,569.00	3,568.74	41.29	66.87	-9.06	-135.76	10,400.37	9,303.43	9,214.83	88.60	105.002	
9,100.00	7,364.00	3,569.00	3,568.74	42.49	66.87	-9.06	-135.76	10,400.37	9,213.24	9,124.65	88.59	104.000	
9,200.00	7,364.00	3,569.00	3,568.74	43.71	66.87	-9.06	-135.76	10,400.37	9,123.26	9,034.68	88.58	102.995	
9,300.00	7,364.00	3,569.00	3,568.74	44.96	66.87	-9.06	-135.76	10,400.37	9,033.48	8,944.91	88.57	101.987	
9,400.00	7,364.00	3,569.00	3,568.74	46.23	66.87	-9.06	-135.76	10,400.37	8,943.93	8,855.35	88.57	100.978	
9,500.00	7,364.00	3,569.00	3,568.74	47.52	66.87	-9.06	-135.76	10,400.37	8,854.59	8,766.02	88.58	99.966	
9,600.00	7,364.00	3,569.00	3,568.74	48.83	66.87	-9.06	-135.76	10,400.37	8,765.49	8,676.91	88.58	98.951	
9,700.00	7,364.00	3,569.00	3,568.74	50.15	66.87	-9.06	-135.76	10,400.37	8,676.62	8,588.03	88.60	97.935	
9,800.00	7,364.00	3,569.00	3,568.74	51.49	66.87	-9.06	-135.76	10,400.37	8,588.00	8,499.39	88.61	96.916	
9,900.00	7,364.00	3,569.00	3,568.74	52.85	66.87	-9.06	-135.76	10,400.37	8,499.63	8,411.00	88.63	95.896	
10,000.00	7,364.00	3,569.00	3,568.74	54.22	66.87	-9.06	-135.76	10,400.37	8,411.53	8,322.87	88.66	94.874	
10,100.00	7,364.00	3,569.00	3,568.74	55.60	66.87	-9.06	-135.76	10,400.37	8,323.69	8,235.00	88.69	93.850	
10,200.00	7,364.00	3,569.00	3,568.74	56.99	66.87	-9.06	-135.76	10,400.37	8,236.13	8,147.40	88.73	92.824	
10,300.00	7,364.00	3,569.00	3,568.74	58.40	66.87	-9.06	-135.76	10,400.37	8,148.85	8,060.08	88.77	91.797	
10,400.00	7,364.00	3,569.00	3,568.74	59.81	66.87	-9.06	-135.76	10,400.37	8,061.87	7,973.05	88.82	90.769	
10,500.00	7,364.00	3,569.00	3,568.74	61.23	66.87	-9.06	-135.76	10,400.37	7,975.20	7,886.33	88.87	89.740	
10,600.00	7,364.00	3,569.00	3,568.74	62.66	66.87	-9.06	-135.76	10,400.37	7,888.84	7,799.91	88.93	88.710	
10,700.00	7,364.00	3,569.00	3,568.74	64.10	66.87	-9.06	-135.76	10,400.37	7,802.80	7,713.81	88.99	87.680	
10,800.00	7,364.00	3,569.00	3,568.74	65.55	66.87	-9.06	-135.76	10,400.37	7,717.11	7,628.04	89.06	86.649	
10,900.00	7,364.00	3,569.00	3,568.74	67.01	66.87	-9.06	-135.76	10,400.37	7,631.76	7,542.62	89.14	85.618	
11,000.00	7,364.00	3,569.00	3,568.74	68.47	66.87	-9.06	-135.76	10,400.37	7,546.77	7,457.55	89.22	84.587	
11,100.00	7,364.00	3,569.00	3,568.74	69.93	66.87	-9.06	-135.76	10,400.37	7,462.15	7,372.84	89.31	83.557	
11,200.00	7,364.00	3,569.00	3,568.74	71.41	66.87	-9.06	-135.76	10,400.37	7,377.92	7,288.52	89.40	82.527	
11,300.00	7,364.00	3,569.00	3,568.74	72.88	66.87	-9.06	-135.76	10,400.37	7,294.08	7,204.59	89.50	81.499	
11,400.00	7,364.00	3,569.00	3,568.74	74.37	66.87	-9.06	-135.76	10,400.37	7,210.66	7,121.06	89.61	80.471	
11,500.00	7,364.00	3,569.00	3,568.74	75.85	66.87	-9.06	-135.76	10,400.37	7,127.67	7,037.95	89.72	79.446	
11,600.00	7,364.00	3,569.00	3,568.74	77.35	66.87	-9.06	-135.76	10,400.37	7,045.12	6,955.28	89.84	78.422	
11,700.00	7,364.00	3,569.00	3,568.74	78.84	66.87	-9.06	-135.76	10,400.37	6,963.02	6,873.06	89.96	77.401	
11,800.00	7,364.00	3,569.00	3,568.74	80.34	66.87	-9.06	-135.76	10,400.37	6,881.40	6,791.31	90.09	76.383	
11,900.00	7,364.00	3,569.00	3,568.74	81.85	66.87	-9.06	-135.76	10,400.37	6,800.27	6,710.04	90.23	75.368	
12,000.00	7,364.00	3,569.00	3,568.74	83.36	66.87	-9.06	-135.76	10,400.37	6,719.64	6,629.27	90.37	74.356	
12,100.00	7,364.00	3,569.00	3,568.74	84.87	66.87	-9.06	-135.76	10,400.37	6,639.55	6,549.03	90.52	73.349	
12,200.00	7,364.00	3,569.00	3,568.74	86.38	66.87	-9.06	-135.76	10,400.37	6,560.00	6,469.32	90.68	72.346	
12,300.00	7,364.00	3,569.00	3,568.74	87.90	66.87	-9.06	-135.76	10,400.37	6,481.02	6,390.18	90.84	71.349	
12,400.00	7,364.00	3,569.00	3,568.74	89.42	66.87	-9.06	-135.76	10,400.37	6,402.62	6,311.62	91.00	70.356	
12,500.00	7,364.00	3,569.00	3,568.74	90.95	66.87	-9.06	-135.76	10,400.37	6,324.84	6,233.66	91.17	69.371	
12,600.00	7,364.00	3,569.00	3,568.74	92.47	66.87	-9.06	-135.76	10,400.37	6,247.68	6,156.33	91.35	68.391	
12,700.00	7,364.00	3,569.00	3,568.74	94.00	66.87	-9.06	-135.76	10,400.37	6,171.19	6,079.65	91.53	67.419	
12,800.00	7,364.00	3,569.00	3,568.74	95.53	66.87	-9.06	-135.76	10,400.37	6,095.37	6,003.65	91.72	66.455	
12,900.00	7,364.00	3,569.00	3,568.74	97.06	66.87	-9.06	-135.76	10,400.37	6,020.26	5,928.35	91.91	65.499	
13,000.00	7,364.00	3,569.00	3,568.74	98.60	66.87	-9.06	-135.76	10,400.37	5,945.88	5,853.77	92.11	64.552	
13,100.00	7,364.00	3,569.00	3,568.74	100.14	66.87	-9.06	-135.76	10,400.37	5,872.27	5,779.96	92.31	63.615	
13,200.00	7,364.00	3,569.00	3,568.74	101.68	66.87	-9.06	-135.76	10,400.37	5,799.44	5,706.93	92.51	62.688	
13,300.00	7,364.00	3,569.00	3,568.74	103.22	66.87	-9.06	-135.76	10,400.37	5,727.43	5,634.72	92.72	61.772	
13,400.00	7,364.00	3,569.00	3,568.74	104.76	66.87	-9.06	-135.76	10,400.37	5,656.28	5,563.35	92.93	60.867	
13,500.00	7,364.00	3,569.00	3,568.74	106.31	66.87	-9.06	-135.76	10,400.37	5,586.01	5,492.87	93.14	59.975	
13,600.00	7,364.00	3,569.00	3,568.74	107.85	66.87	-9.06	-135.76	10,400.37	5,516.66	5,423.30	93.35	59.096	
13,700.00	7,364.00	3,569.00	3,568.74	109.40	66.87	-9.06	-135.76	10,400.37	5,448.25	5,354.69	93.56	58.231	
13,800.00	7,364.00	3,569.00	3,568.74	110.95	66.87	-9.06	-135.76	10,400.37	5,380.84	5,287.07	93.78	57.380	
13,900.00	7,364.00	3,569.00	3,568.74	112.50	66.87	-9.06	-135.76	10,400.37	5,314.46	5,220.47	93.99	56.544	
14,000.00	7,364.00	3,569.00	3,568.74	114.05	66.87	-9.06	-135.76	10,400.37	5,249.14	5,154.94	94.20	55.725	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #272 - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 235-A027Ua_INC-ONLY

Rule Assigned:

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,100.00	7,364.00	3,569.00	3,568.74	115.61	66.87	-9.06	-135.76	10,400.37	5,184.92	5,090.52	94.41	54.922	
14,200.00	7,364.00	3,569.00	3,568.74	117.16	66.87	-9.06	-135.76	10,400.37	5,121.86	5,027.25	94.61	54.137	
14,300.00	7,364.00	3,569.00	3,568.74	118.72	66.87	-9.06	-135.76	10,400.37	5,059.98	4,965.17	94.81	53.370	
14,400.00	7,364.00	3,569.00	3,568.74	120.28	66.87	-9.06	-135.76	10,400.37	4,999.34	4,904.34	95.00	52.623	
14,500.00	7,364.00	3,569.00	3,568.74	121.84	66.87	-9.06	-135.76	10,400.37	4,939.98	4,844.79	95.19	51.895	
14,600.00	7,364.00	3,569.00	3,568.74	123.40	66.87	-9.06	-135.76	10,400.37	4,881.95	4,786.57	95.37	51.188	
14,700.00	7,364.00	3,569.00	3,568.74	124.96	66.87	-9.06	-135.76	10,400.37	4,825.29	4,729.74	95.54	50.503	
14,800.00	7,364.00	3,569.00	3,568.74	126.52	66.87	-9.06	-135.76	10,400.37	4,770.05	4,674.34	95.71	49.840	
14,900.00	7,364.00	3,569.00	3,568.74	128.08	66.87	-9.06	-135.76	10,400.37	4,716.29	4,620.43	95.86	49.200	
15,000.00	7,364.00	3,569.00	3,568.74	129.64	66.87	-9.06	-135.76	10,400.37	4,664.05	4,568.05	96.00	48.585	
15,100.00	7,364.00	3,569.00	3,568.74	131.21	66.87	-9.06	-135.76	10,400.37	4,613.39	4,517.26	96.13	47.993	
15,200.00	7,364.00	3,569.00	3,568.74	132.77	66.87	-9.06	-135.76	10,400.37	4,564.36	4,468.12	96.24	47.427	
15,300.00	7,364.00	3,569.00	3,568.74	134.34	66.87	-9.06	-135.76	10,400.37	4,517.01	4,420.67	96.34	46.887	
15,400.00	7,364.00	3,569.00	3,568.74	135.91	66.87	-9.06	-135.76	10,400.37	4,471.39	4,374.97	96.42	46.374	
15,500.00	7,364.00	3,569.00	3,568.74	137.48	66.87	-9.06	-135.76	10,400.37	4,427.56	4,331.08	96.49	45.887	
15,600.00	7,364.00	3,569.00	3,568.74	139.04	66.87	-9.06	-135.76	10,400.37	4,385.58	4,289.04	96.54	45.428	
15,700.00	7,364.00	3,569.00	3,568.74	140.61	66.87	-9.06	-135.76	10,400.37	4,345.49	4,248.92	96.57	44.996	
15,800.00	7,364.00	3,569.00	3,568.74	142.18	66.87	-9.06	-135.76	10,400.37	4,307.35	4,210.76	96.59	44.592	
15,900.00	7,364.00	3,569.00	3,568.74	143.75	66.87	-9.06	-135.76	10,400.37	4,271.22	4,174.62	96.60	44.216	
16,000.00	7,364.00	3,569.00	3,568.74	145.33	66.87	-9.06	-135.76	10,400.37	4,237.13	4,140.54	96.59	43.867	
16,100.00	7,364.00	3,569.00	3,568.74	146.90	66.87	-9.06	-135.76	10,400.37	4,205.15	4,108.58	96.57	43.545	
16,200.00	7,364.00	3,569.00	3,568.74	148.47	66.87	-9.06	-135.76	10,400.37	4,175.32	4,078.77	96.54	43.248	
16,300.00	7,364.00	3,569.00	3,568.74	150.04	66.87	-9.06	-135.76	10,400.37	4,147.68	4,051.17	96.51	42.975	
16,400.00	7,364.00	3,569.00	3,568.74	151.62	66.87	-9.06	-135.76	10,400.37	4,122.29	4,025.80	96.49	42.724	
16,500.00	7,364.00	3,569.00	3,568.74	153.19	66.87	-9.06	-135.76	10,400.37	4,099.18	4,002.71	96.47	42.493	
16,600.00	7,364.00	3,569.00	3,568.74	154.77	66.87	-9.06	-135.76	10,400.37	4,078.39	3,981.92	96.47	42.277	
16,700.00	7,364.00	3,569.00	3,568.74	156.34	66.87	-9.06	-135.76	10,400.37	4,059.95	3,963.46	96.50	42.072	
16,800.00	7,364.00	3,569.00	3,568.74	157.92	66.87	-9.06	-135.76	10,400.37	4,043.91	3,947.34	96.57	41.874	
16,900.00	7,364.00	3,569.00	3,568.74	159.49	66.87	-9.06	-135.76	10,400.37	4,030.29	3,933.58	96.70	41.677	
17,000.00	7,364.00	3,569.00	3,568.74	161.07	66.87	-9.06	-135.76	10,400.37	4,019.10	3,922.20	96.91	41.474	
17,100.00	7,364.00	3,569.00	3,568.74	162.65	66.87	-9.06	-135.76	10,400.37	4,010.39	3,913.18	97.20	41.258	
17,200.00	7,364.00	3,569.00	3,568.74	164.23	66.87	-9.06	-135.76	10,400.37	4,004.15	3,906.54	97.60	41.024	
17,300.00	7,364.00	3,569.00	3,568.74	165.81	66.87	-9.06	-135.76	10,400.37	4,000.40	3,902.27	98.13	40.768	
17,400.00	7,364.00	3,569.00	3,568.74	167.38	66.87	-9.06	-135.76	10,400.37	3,999.15	3,900.37	98.77	40.488 CC	
17,404.45	7,364.00	3,569.00	3,568.74	167.45	66.87	-9.06	-135.76	10,400.37	3,999.15	3,900.34	98.81	40.475 ES	
17,500.00	7,364.00	3,569.00	3,568.74	168.96	66.87	-9.06	-135.76	10,400.37	4,000.40	3,900.84	99.55	40.184	
17,600.00	7,364.00	3,569.00	3,568.74	170.54	66.87	-9.06	-135.76	10,400.37	4,004.14	3,903.69	100.46	39.859	
17,700.00	7,364.00	3,569.00	3,568.74	172.12	66.87	-9.06	-135.76	10,400.37	4,010.38	3,908.91	101.47	39.521	
17,800.00	7,364.00	3,569.00	3,568.74	173.70	66.87	-9.06	-135.76	10,400.37	4,019.10	3,916.51	102.59	39.176	
17,900.00	7,364.00	3,569.00	3,568.74	175.28	66.87	-9.06	-135.76	10,400.37	4,030.28	3,926.49	103.79	38.833	
18,000.00	7,364.00	3,569.00	3,568.74	176.87	66.87	-9.06	-135.76	10,400.37	4,043.90	3,938.86	105.04	38.499	
18,100.00	7,364.00	3,569.00	3,568.74	178.45	66.87	-9.06	-135.76	10,400.37	4,059.94	3,953.60	106.34	38.180	
18,200.00	7,364.00	3,569.00	3,568.74	180.03	66.87	-9.06	-135.76	10,400.37	4,078.37	3,970.71	107.66	37.883	
18,300.00	7,364.00	3,569.00	3,568.74	181.61	66.87	-9.06	-135.76	10,400.37	4,099.16	3,990.17	108.99	37.611	
18,400.00	7,364.00	3,569.00	3,568.74	183.19	66.87	-9.06	-135.76	10,400.37	4,122.27	4,011.96	110.31	37.369	
18,500.00	7,364.00	3,569.00	3,568.74	184.78	66.87	-9.06	-135.76	10,400.37	4,147.66	4,036.04	111.62	37.158	
18,600.00	7,364.00	3,569.00	3,568.74	186.36	66.87	-9.06	-135.76	10,400.37	4,175.29	4,062.38	112.91	36.979	
18,700.00	7,364.00	3,569.00	3,568.74	187.94	66.87	-9.06	-135.76	10,400.37	4,205.12	4,090.96	114.16	36.834	
18,800.00	7,364.00	3,569.00	3,568.74	189.53	66.87	-9.06	-135.76	10,400.37	4,237.10	4,121.72	115.38	36.722	
18,900.00	7,364.00	3,569.00	3,568.74	191.11	66.87	-9.06	-135.76	10,400.37	4,271.19	4,154.63	116.56	36.643	
19,000.00	7,364.00	3,569.00	3,568.74	192.70	66.87	-9.06	-135.76	10,400.37	4,307.32	4,189.63	117.70	36.597	
19,100.00	7,364.00	3,569.00	3,568.74	194.28	66.87	-9.06	-135.76	10,400.37	4,345.46	4,226.68	118.78	36.583 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 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #272 - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 235-A027Ua_INC-ONLY

Rule Assigned:

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
19,200.00	7,364.00	3,569.00	3,568.74	195.87	66.87	-9.06	-135.76	10,400.37	4,385.55	4,265.73	119.82	36.601	
19,300.00	7,364.00	3,569.00	3,568.74	197.45	66.87	-9.06	-135.76	10,400.37	4,427.53	4,306.72	120.81	36.648	
19,400.00	7,364.00	3,569.00	3,568.74	199.04	66.87	-9.06	-135.76	10,400.37	4,471.35	4,349.60	121.75	36.725	
19,500.00	7,364.00	3,569.00	3,568.74	200.62	66.87	-9.06	-135.76	10,400.37	4,516.97	4,394.33	122.64	36.830	
19,600.00	7,364.00	3,569.00	3,568.74	202.21	66.87	-9.06	-135.76	10,400.37	4,564.32	4,440.83	123.49	36.962	
19,700.00	7,364.00	3,569.00	3,568.74	203.79	66.87	-9.06	-135.76	10,400.37	4,613.35	4,489.07	124.28	37.121	
19,800.00	7,364.00	3,569.00	3,568.74	205.38	66.87	-9.06	-135.76	10,400.37	4,664.01	4,538.98	125.03	37.304	
19,900.00	7,364.00	3,569.00	3,568.74	206.97	66.87	-9.06	-135.76	10,400.37	4,716.25	4,590.51	125.73	37.511	
20,000.00	7,364.00	3,569.00	3,568.74	208.55	66.87	-9.06	-135.76	10,400.37	4,770.01	4,643.62	126.39	37.741	
20,100.00	7,364.00	3,569.00	3,568.74	210.14	66.87	-9.06	-135.76	10,400.37	4,825.24	4,698.24	127.01	37.992	
20,200.00	7,364.00	3,569.00	3,568.74	211.73	66.87	-9.06	-135.76	10,400.37	4,881.90	4,754.32	127.58	38.265	
20,300.00	7,364.00	3,569.00	3,568.74	213.32	66.87	-9.06	-135.76	10,400.37	4,939.93	4,811.82	128.12	38.558	
20,400.00	7,364.00	3,569.00	3,568.74	214.90	66.87	-9.06	-135.76	10,400.37	4,999.29	4,870.68	128.62	38.870	
20,500.00	7,364.00	3,569.00	3,568.74	216.49	66.87	-9.06	-135.76	10,400.37	5,059.93	4,930.85	129.08	39.200	
20,600.00	7,364.00	3,569.00	3,568.74	218.08	66.87	-9.06	-135.76	10,400.37	5,121.81	4,992.30	129.51	39.548	
20,700.00	7,364.00	3,569.00	3,568.74	219.67	66.87	-9.06	-135.76	10,400.37	5,184.87	5,054.97	129.91	39.912	
20,800.00	7,364.00	3,569.00	3,568.74	221.26	66.87	-9.06	-135.76	10,400.37	5,249.09	5,118.81	130.27	40.293	
20,900.00	7,364.00	3,569.00	3,568.74	222.84	66.87	-9.06	-135.76	10,400.37	5,314.40	5,183.79	130.61	40.689	
21,000.00	7,364.00	3,569.00	3,568.74	224.43	66.87	-9.06	-135.76	10,400.37	5,380.79	5,249.87	130.92	41.099	
21,100.00	7,364.00	3,569.00	3,568.74	226.02	66.87	-9.06	-135.76	10,400.37	5,448.20	5,316.99	131.21	41.524	
21,200.00	7,364.00	3,569.00	3,568.74	227.61	66.87	-9.06	-135.76	10,400.37	5,516.60	5,385.13	131.47	41.962	
21,300.00	7,364.00	3,569.00	3,568.74	229.20	66.87	-9.06	-135.76	10,400.37	5,585.95	5,454.24	131.71	42.412	
21,400.00	7,364.00	3,569.00	3,568.74	230.79	66.87	-9.06	-135.76	10,400.37	5,656.22	5,524.30	131.92	42.875	
21,500.00	7,364.00	3,569.00	3,568.74	232.38	66.87	-9.06	-135.76	10,400.37	5,727.38	5,595.25	132.12	43.349	
21,600.00	7,364.00	3,569.00	3,568.74	233.97	66.87	-9.06	-135.76	10,400.37	5,799.38	5,667.08	132.30	43.835	
21,700.00	7,364.00	3,569.00	3,568.74	235.56	66.87	-9.06	-135.76	10,400.37	5,872.21	5,739.75	132.46	44.331	
21,800.00	7,364.00	3,569.00	3,568.74	237.15	66.87	-9.06	-135.76	10,400.37	5,945.82	5,813.22	132.61	44.838	
21,864.93	7,364.00	3,569.00	3,568.74	238.18	66.87	-9.06	-135.76	10,400.37	5,994.03	5,861.34	132.69	45.172	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #334A - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 334-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	3.28	0.00	-92.69	-134.77	-2,869.45	2,872.75				
100.00	100.00	72.00	72.00	3.29	0.71	-92.69	-134.77	-2,869.45	2,872.61	2,868.61	4.00	718.346	
200.00	200.00	172.00	172.00	3.34	1.69	-92.69	-134.77	-2,869.45	2,872.61	2,867.58	5.03	571.052	
300.00	300.00	272.00	272.00	3.42	2.68	-92.69	-134.77	-2,869.45	2,872.61	2,866.51	6.10	470.997	
400.00	400.00	372.01	372.00	3.54	4.07	-92.69	-134.77	-2,869.45	2,872.61	2,865.01	7.60	377.741	
500.00	500.00	472.01	472.00	3.69	6.11	-92.69	-134.77	-2,869.45	2,872.61	2,862.82	9.80	293.185	CC
600.00	599.98	571.96	571.95	3.86	8.15	117.34	-134.02	-2,869.45	2,873.38	2,861.37	12.01	239.261	
700.00	699.84	671.47	671.45	4.04	10.19	117.39	-134.18	-2,869.45	2,875.80	2,861.57	14.23	202.103	
808.00	807.41	778.72	778.69	4.27	12.38	117.47	-134.66	-2,869.45	2,880.24	2,863.59	16.65	172.986	
900.00	898.89	870.95	870.89	4.49	14.33	100.47	-134.77	-2,869.45	2,883.42	2,864.61	18.81	153.288	
912.12	910.94	883.00	882.94	4.52	14.58	98.27	-134.77	-2,869.45	2,883.64	2,864.54	19.10	151.009	
1,000.00	998.31	970.37	970.31	4.74	16.44	98.45	-134.77	-2,869.45	2,885.02	2,863.84	21.17	136.247	
1,100.00	1,097.73	1,069.72	1,069.65	5.01	18.55	98.68	-133.70	-2,869.45	2,886.59	2,863.03	23.56	122.544	
1,200.00	1,197.15	1,168.90	1,168.82	5.29	20.66	98.89	-133.95	-2,869.45	2,888.24	2,862.30	25.95	111.314	
1,300.00	1,296.58	1,268.15	1,268.07	5.59	22.76	99.08	-134.55	-2,869.45	2,889.94	2,861.59	28.35	101.930	
1,400.00	1,396.00	1,368.14	1,368.00	5.90	24.95	99.29	-134.77	-2,869.45	2,891.67	2,860.82	30.85	93.742	
1,500.00	1,495.42	1,467.56	1,467.42	6.22	27.15	99.50	-134.77	-2,869.45	2,893.43	2,860.07	33.36	86.729	
1,600.00	1,594.84	1,566.96	1,566.81	6.54	29.35	99.73	-133.70	-2,869.45	2,895.22	2,859.34	35.88	80.684	
1,700.00	1,694.27	1,666.31	1,666.16	6.87	31.55	99.93	-133.95	-2,869.45	2,897.06	2,858.65	38.41	75.423	
1,800.00	1,793.69	1,765.75	1,765.59	7.21	33.75	100.12	-134.56	-2,869.45	2,898.95	2,858.00	40.95	70.800	
1,900.00	1,893.11	1,865.35	1,865.11	7.55	36.02	100.33	-134.77	-2,869.45	2,900.87	2,857.31	43.56	66.600	
2,000.00	1,992.53	1,964.77	1,964.53	7.89	38.31	100.53	-134.77	-2,869.45	2,902.82	2,856.63	46.19	62.843	
2,100.00	2,091.96	2,064.21	2,063.96	8.24	40.60	100.77	-133.40	-2,869.45	2,904.82	2,855.99	48.83	59.487	
2,200.00	2,191.38	2,163.78	2,163.52	8.60	42.89	100.97	-133.69	-2,869.45	2,906.85	2,855.38	51.48	56.469	
2,300.00	2,290.80	2,263.46	2,263.18	8.95	45.19	101.16	-134.40	-2,869.45	2,908.92	2,854.79	54.13	53.742	
2,400.00	2,390.22	2,362.58	2,362.22	9.31	47.36	101.36	-134.77	-2,869.45	2,911.02	2,854.36	56.66	51.378	
2,500.00	2,489.65	2,462.00	2,461.65	9.67	49.48	101.57	-134.77	-2,869.45	2,913.16	2,854.03	59.13	49.264	
2,600.00	2,589.07	2,561.48	2,561.11	10.03	51.59	101.80	-133.45	-2,869.45	2,915.38	2,853.77	61.61	47.319	
2,700.00	2,688.49	2,661.30	2,660.92	10.40	53.72	102.00	-133.76	-2,869.45	2,917.59	2,853.50	64.10	45.518	
2,800.00	2,787.91	2,761.22	2,760.83	10.76	55.85	102.19	-134.51	-2,869.45	2,919.83	2,853.25	66.59	43.849	
2,900.00	2,887.33	2,859.77	2,859.33	11.13	58.01	102.39	-134.77	-2,869.45	2,922.12	2,853.01	69.12	42.278	
3,000.00	2,986.76	2,959.19	2,958.76	11.50	60.21	102.59	-134.77	-2,869.45	2,924.46	2,852.77	71.69	40.794	
3,100.00	3,086.18	3,058.78	3,058.34	11.87	62.42	102.81	-134.07	-2,869.45	2,926.86	2,852.59	74.27	39.411	
3,200.00	3,185.60	3,158.62	3,158.17	12.24	64.63	103.01	-134.35	-2,869.45	2,929.26	2,852.41	76.85	38.117	
3,300.00	3,285.02	3,257.55	3,257.02	12.61	66.89	103.20	-134.77	-2,869.45	2,931.68	2,852.21	79.47	36.890	
3,400.00	3,384.45	3,356.97	3,356.45	12.98	69.36	103.41	-134.77	-2,869.45	2,934.17	2,851.85	82.32	35.644	
3,500.00	3,483.87	3,456.39	3,455.87	13.36	71.84	103.61	-134.77	-2,869.45	2,936.69	2,851.52	85.17	34.482	ES
3,600.00	3,583.29	3,468.00	3,467.40	13.73	72.13	103.63	-134.77	-2,869.45	2,940.56	2,854.77	85.78	34.279	
3,700.00	3,682.71	3,468.00	3,467.40	14.11	72.13	103.63	-134.77	-2,869.45	2,947.80	2,861.78	86.02	34.270	SF
3,800.00	3,782.14	3,468.00	3,467.40	14.48	72.13	103.63	-134.77	-2,869.45	2,958.40	2,872.24	86.16	34.337	
3,900.00	3,881.56	3,468.00	3,467.40	14.86	72.13	103.63	-134.77	-2,869.45	2,972.33	2,886.12	86.21	34.479	
4,000.00	3,980.98	3,468.00	3,467.40	15.24	72.13	103.63	-134.77	-2,869.45	2,989.54	2,903.37	86.17	34.695	
4,100.00	4,080.40	3,468.00	3,467.40	15.61	72.13	103.63	-134.77	-2,869.45	3,009.98	2,923.94	86.04	34.983	
4,200.00	4,179.83	3,468.00	3,467.40	15.99	72.13	103.63	-134.77	-2,869.45	3,033.58	2,947.74	85.83	35.342	
4,300.00	4,279.25	3,468.00	3,467.40	16.37	72.13	103.63	-134.77	-2,869.45	3,060.26	2,974.71	85.55	35.772	
4,400.00	4,378.67	3,468.00	3,467.40	16.75	72.13	103.63	-134.77	-2,869.45	3,089.96	3,004.76	85.19	36.270	
4,500.00	4,478.09	3,468.00	3,467.40	17.13	72.13	103.63	-134.77	-2,869.45	3,122.57	3,037.80	84.77	36.835	
4,600.00	4,577.51	3,468.00	3,467.40	17.51	72.13	103.63	-134.77	-2,869.45	3,158.02	3,073.73	84.29	37.466	
4,700.00	4,676.94	3,468.00	3,467.40	17.89	72.13	103.63	-134.77	-2,869.45	3,196.20	3,112.45	83.76	38.161	
4,800.00	4,776.36	3,468.00	3,467.40	18.27	72.13	103.63	-134.77	-2,869.45	3,237.02	3,153.85	83.17	38.920	
4,900.00	4,875.78	3,468.00	3,467.40	18.65	72.13	103.63	-134.77	-2,869.45	3,280.39	3,197.84	82.55	39.740	
5,000.00	4,975.20	3,468.00	3,467.40	19.03	72.13	103.63	-134.77	-2,869.45	3,326.19	3,244.31	81.88	40.621	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #334A - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 334-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,100.00	5,074.63	3,468.00	3,467.40	19.41	72.13	103.63	-134.77	-2,869.45	3,374.34	3,293.15	81.19	41.561	
5,200.00	5,174.05	3,468.00	3,467.40	19.79	72.13	103.63	-134.77	-2,869.45	3,424.73	3,344.26	80.47	42.559	
5,300.00	5,273.47	3,468.00	3,467.40	20.17	72.13	103.63	-134.77	-2,869.45	3,477.27	3,397.54	79.73	43.613	
5,400.00	5,372.89	3,468.00	3,467.40	20.56	72.13	103.63	-134.77	-2,869.45	3,531.86	3,452.88	78.98	44.721	
5,500.00	5,472.32	3,468.00	3,467.40	20.94	72.13	103.63	-134.77	-2,869.45	3,588.41	3,510.20	78.21	45.883	
5,600.00	5,571.74	3,468.00	3,467.40	21.32	72.13	103.63	-134.77	-2,869.45	3,646.82	3,569.38	77.43	47.096	
5,700.00	5,671.16	3,468.00	3,467.40	21.70	72.13	103.63	-134.77	-2,869.45	3,707.01	3,630.35	76.66	48.359	
5,800.00	5,770.58	3,468.00	3,467.40	22.08	72.13	103.63	-134.77	-2,869.45	3,768.89	3,693.01	75.88	49.672	
5,900.00	5,870.01	3,468.00	3,467.40	22.47	72.13	103.63	-134.77	-2,869.45	3,832.38	3,757.28	75.10	51.031	
6,000.00	5,969.43	3,468.00	3,467.40	22.85	72.13	103.63	-134.77	-2,869.45	3,897.40	3,823.08	74.33	52.436	
6,100.00	6,068.85	3,468.00	3,467.40	23.23	72.13	103.63	-134.77	-2,869.45	3,963.88	3,890.32	73.56	53.884	
6,200.00	6,168.27	3,468.00	3,467.40	23.62	72.13	103.63	-134.77	-2,869.45	4,031.75	3,958.94	72.81	55.376	
6,300.00	6,267.70	3,468.00	3,467.40	24.00	72.13	103.63	-134.77	-2,869.45	4,100.93	4,028.87	72.06	56.907	
6,400.00	6,367.12	3,468.00	3,467.40	24.38	72.13	103.63	-134.77	-2,869.45	4,171.36	4,100.03	71.33	58.478	
6,500.00	6,466.54	3,468.00	3,467.40	24.77	72.13	103.63	-134.77	-2,869.45	4,242.98	4,172.36	70.61	60.087	
6,600.00	6,565.96	3,468.00	3,467.40	25.15	72.13	103.63	-134.77	-2,869.45	4,315.72	4,245.81	69.91	61.731	
6,700.00	6,665.38	3,468.00	3,467.40	25.53	72.13	103.63	-134.77	-2,869.45	4,389.54	4,320.32	69.23	63.410	
6,778.75	6,743.68	3,468.00	3,467.40	25.84	72.13	103.63	-134.77	-2,869.45	4,448.39	4,379.70	68.70	64.754	
6,800.00	6,764.80	3,468.00	3,467.40	25.92	72.13	119.77	-134.77	-2,869.45	4,464.61	4,396.05	68.56	65.119	
6,850.00	6,814.29	3,468.00	3,467.40	26.11	72.13	144.48	-134.77	-2,869.45	4,504.65	4,436.38	68.27	65.980	
6,900.00	6,863.27	3,468.00	3,467.40	26.30	72.13	156.88	-134.77	-2,869.45	4,547.08	4,479.05	68.03	66.841	
6,950.00	6,911.44	3,468.00	3,467.40	26.50	72.13	164.00	-134.77	-2,869.45	4,591.57	4,523.74	67.82	67.698	
7,000.00	6,958.49	3,468.00	3,467.40	26.68	72.13	168.89	-134.77	-2,869.45	4,637.79	4,570.13	67.66	68.542	
7,050.00	7,004.14	3,468.00	3,467.40	26.87	72.13	173.02	-134.77	-2,869.45	4,685.41	4,617.87	67.55	69.367	
7,100.00	7,048.10	3,468.00	3,467.40	27.05	72.13	177.65	-134.77	-2,869.45	4,734.11	4,666.64	67.47	70.165	
7,150.00	7,090.11	3,468.00	3,467.40	27.23	72.13	-174.23	-134.77	-2,869.45	4,783.55	4,716.11	67.44	70.933	
7,200.00	7,129.90	3,468.00	3,467.40	27.41	72.13	-140.00	-134.77	-2,869.45	4,833.40	4,765.95	67.45	71.662	
7,250.00	7,167.24	3,468.00	3,467.40	27.59	72.13	-38.72	-134.77	-2,869.45	4,883.36	4,815.86	67.50	72.349	
7,300.00	7,201.88	3,468.00	3,467.40	27.76	72.13	-21.10	-134.77	-2,869.45	4,933.12	4,865.53	67.59	72.987	
7,350.00	7,233.63	3,468.00	3,467.40	27.94	72.13	-15.81	-134.77	-2,869.45	4,982.38	4,914.66	67.72	73.574	
7,400.00	7,262.27	3,468.00	3,467.40	28.13	72.13	-13.19	-134.77	-2,869.45	5,030.85	4,962.96	67.89	74.105	
7,450.00	7,287.63	3,468.00	3,467.40	28.32	72.13	-11.61	-134.77	-2,869.45	5,078.27	5,010.17	68.10	74.575	
7,500.00	7,309.57	3,468.00	3,467.40	28.53	72.13	-10.54	-134.77	-2,869.45	5,124.37	5,056.03	68.34	74.983	
7,550.00	7,327.93	3,468.00	3,467.40	28.74	72.13	-9.78	-134.77	-2,869.45	5,168.92	5,100.30	68.62	75.324	
7,600.00	7,342.62	3,468.00	3,467.40	28.97	72.13	-9.21	-134.77	-2,869.45	5,211.67	5,142.73	68.94	75.597	
7,650.00	7,353.53	3,468.00	3,467.40	29.22	72.13	-8.80	-134.77	-2,869.45	5,252.41	5,183.12	69.29	75.800	
7,700.00	7,360.61	3,468.00	3,467.40	29.48	72.13	-8.49	-134.77	-2,869.45	5,290.95	5,221.27	69.68	75.930	
7,750.00	7,363.80	3,468.00	3,467.40	29.75	72.13	-8.27	-134.77	-2,869.45	5,327.09	5,256.98	70.10	75.988	
7,765.93	7,364.00	3,468.00	3,467.40	29.84	72.13	-8.21	-134.77	-2,869.45	5,338.07	5,267.82	70.24	75.995	
7,800.00	7,364.00	3,468.00	3,467.40	30.04	72.13	-8.21	-134.77	-2,869.45	5,361.33	5,290.78	70.55	75.991	
7,900.00	7,364.00	3,468.00	3,467.40	30.67	72.13	-8.21	-134.77	-2,869.45	5,430.26	5,358.81	71.46	75.995	
8,000.00	7,364.00	3,468.00	3,467.40	31.37	72.13	-8.21	-134.77	-2,869.45	5,500.15	5,427.81	72.34	76.032	
8,100.00	7,364.00	3,468.00	3,467.40	32.14	72.13	-8.21	-134.77	-2,869.45	5,570.96	5,497.76	73.21	76.101	
8,200.00	7,364.00	3,468.00	3,467.40	32.96	72.13	-8.21	-134.77	-2,869.45	5,642.65	5,568.60	74.05	76.199	
8,300.00	7,364.00	3,468.00	3,467.40	33.85	72.13	-8.21	-134.77	-2,869.45	5,715.19	5,640.32	74.88	76.327	
8,400.00	7,364.00	3,468.00	3,467.40	34.79	72.13	-8.21	-134.77	-2,869.45	5,788.55	5,712.87	75.69	76.482	
8,500.00	7,364.00	3,468.00	3,467.40	35.77	72.13	-8.21	-134.77	-2,869.45	5,862.70	5,786.23	76.47	76.664	
8,600.00	7,364.00	3,468.00	3,467.40	36.80	72.13	-8.21	-134.77	-2,869.45	5,937.61	5,860.37	77.24	76.871	
8,700.00	7,364.00	3,468.00	3,467.40	37.87	72.13	-8.21	-134.77	-2,869.45	6,013.25	5,935.25	77.99	77.102	
8,800.00	7,364.00	3,468.00	3,467.40	38.98	72.13	-8.21	-134.77	-2,869.45	6,089.58	6,010.86	78.72	77.356	
8,900.00	7,364.00	3,468.00	3,467.40	40.12	72.13	-8.21	-134.77	-2,869.45	6,166.60	6,087.17	79.43	77.632	
9,000.00	7,364.00	3,468.00	3,467.40	41.29	72.13	-8.21	-134.77	-2,869.45	6,244.27	6,164.14	80.13	77.930	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #334A - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 334-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Rule Assigned: Warning
9,100.00	7,364.00	3,468.00	3,467.40	42.49	72.13	-8.21	-134.77	-2,869.45	6,322.56	6,241.76	80.80	78.247	
9,200.00	7,364.00	3,468.00	3,467.40	43.71	72.13	-8.21	-134.77	-2,869.45	6,401.46	6,320.00	81.46	78.583	
9,300.00	7,364.00	3,468.00	3,467.40	44.96	72.13	-8.21	-134.77	-2,869.45	6,480.94	6,398.84	82.10	78.937	
9,400.00	7,364.00	3,468.00	3,467.40	46.23	72.13	-8.21	-134.77	-2,869.45	6,560.99	6,478.26	82.73	79.308	
9,500.00	7,364.00	3,468.00	3,467.40	47.52	72.13	-8.21	-134.77	-2,869.45	6,641.57	6,558.23	83.34	79.696	
9,600.00	7,364.00	3,468.00	3,467.40	48.83	72.13	-8.21	-134.77	-2,869.45	6,722.68	6,638.75	83.93	80.099	
9,700.00	7,364.00	3,468.00	3,467.40	50.15	72.13	-8.21	-134.77	-2,869.45	6,804.29	6,719.78	84.51	80.518	
9,800.00	7,364.00	3,468.00	3,467.40	51.49	72.13	-8.21	-134.77	-2,869.45	6,886.38	6,801.31	85.07	80.951	
9,900.00	7,364.00	3,468.00	3,467.40	52.85	72.13	-8.21	-134.77	-2,869.45	6,968.94	6,883.32	85.62	81.397	
10,000.00	7,364.00	3,468.00	3,467.40	54.22	72.13	-8.21	-134.77	-2,869.45	7,051.95	6,965.80	86.15	81.856	
10,100.00	7,364.00	3,468.00	3,467.40	55.60	72.13	-8.21	-134.77	-2,869.45	7,135.40	7,048.73	86.67	82.327	
10,200.00	7,364.00	3,468.00	3,467.40	56.99	72.13	-8.21	-134.77	-2,869.45	7,219.27	7,132.09	87.18	82.810	
10,300.00	7,364.00	3,468.00	3,467.40	58.40	72.13	-8.21	-134.77	-2,869.45	7,303.55	7,215.88	87.67	83.305	
10,400.00	7,364.00	3,468.00	3,467.40	59.81	72.13	-8.21	-134.77	-2,869.45	7,388.22	7,300.06	88.15	83.810	
10,500.00	7,364.00	3,468.00	3,467.40	61.23	72.13	-8.21	-134.77	-2,869.45	7,473.26	7,384.64	88.62	84.325	
10,600.00	7,364.00	3,468.00	3,467.40	62.66	72.13	-8.21	-134.77	-2,869.45	7,558.67	7,469.59	89.08	84.850	
10,700.00	7,364.00	3,468.00	3,467.40	64.10	72.13	-8.21	-134.77	-2,869.45	7,644.44	7,554.91	89.53	85.384	
10,800.00	7,364.00	3,468.00	3,467.40	65.55	72.13	-8.21	-134.77	-2,869.45	7,730.55	7,640.58	89.97	85.927	
10,900.00	7,364.00	3,468.00	3,467.40	67.01	72.13	-8.21	-134.77	-2,869.45	7,816.99	7,726.60	90.39	86.479	
11,000.00	7,364.00	3,468.00	3,467.40	68.47	72.13	-8.21	-134.77	-2,869.45	7,903.75	7,812.94	90.81	87.038	
11,100.00	7,364.00	3,468.00	3,467.40	69.93	72.13	-8.21	-134.77	-2,869.45	7,990.82	7,899.60	91.21	87.605	
11,200.00	7,364.00	3,468.00	3,467.40	71.41	72.13	-8.21	-134.77	-2,869.45	8,078.19	7,986.57	91.61	88.180	
11,300.00	7,364.00	3,468.00	3,467.40	72.88	72.13	-8.21	-134.77	-2,869.45	8,165.84	8,073.85	92.00	88.761	
11,400.00	7,364.00	3,468.00	3,467.40	74.37	72.13	-8.21	-134.77	-2,869.45	8,253.78	8,161.41	92.38	89.349	
11,500.00	7,364.00	3,468.00	3,467.40	75.85	72.13	-8.21	-134.77	-2,869.45	8,341.99	8,249.25	92.75	89.944	
11,600.00	7,364.00	3,468.00	3,467.40	77.35	72.13	-8.21	-134.77	-2,869.45	8,430.47	8,337.36	93.11	90.545	
11,700.00	7,364.00	3,468.00	3,467.40	78.84	72.13	-8.21	-134.77	-2,869.45	8,519.19	8,425.73	93.46	91.151	
11,800.00	7,364.00	3,468.00	3,467.40	80.34	72.13	-8.21	-134.77	-2,869.45	8,608.17	8,514.36	93.81	91.763	
11,900.00	7,364.00	3,468.00	3,467.40	81.85	72.13	-8.21	-134.77	-2,869.45	8,697.39	8,603.24	94.15	92.381	
12,000.00	7,364.00	3,468.00	3,467.40	83.36	72.13	-8.21	-134.77	-2,869.45	8,786.83	8,692.35	94.48	93.003	
12,100.00	7,364.00	3,468.00	3,467.40	84.87	72.13	-8.21	-134.77	-2,869.45	8,876.51	8,781.70	94.80	93.630	
12,200.00	7,364.00	3,468.00	3,467.40	86.38	72.13	-8.21	-134.77	-2,869.45	8,966.40	8,871.27	95.12	94.262	
12,300.00	7,364.00	3,468.00	3,467.40	87.90	72.13	-8.21	-134.77	-2,869.45	9,056.50	8,961.07	95.43	94.899	
12,400.00	7,364.00	3,468.00	3,467.40	89.42	72.13	-8.21	-134.77	-2,869.45	9,146.81	9,051.07	95.74	95.539	
12,500.00	7,364.00	3,468.00	3,467.40	90.95	72.13	-8.21	-134.77	-2,869.45	9,237.32	9,141.28	96.04	96.184	
12,600.00	7,364.00	3,468.00	3,467.40	92.47	72.13	-8.21	-134.77	-2,869.45	9,328.02	9,231.69	96.33	96.832	
12,700.00	7,364.00	3,468.00	3,467.40	94.00	72.13	-8.21	-134.77	-2,869.45	9,418.91	9,322.29	96.62	97.484	
12,800.00	7,364.00	3,468.00	3,467.40	95.53	72.13	-8.21	-134.77	-2,869.45	9,509.98	9,413.08	96.90	98.140	
12,900.00	7,364.00	3,468.00	3,467.40	97.06	72.13	-8.21	-134.77	-2,869.45	9,601.23	9,504.05	97.18	98.798	
13,000.00	7,364.00	3,468.00	3,467.40	98.60	72.13	-8.21	-134.77	-2,869.45	9,692.66	9,595.21	97.45	99.460	
13,100.00	7,364.00	3,468.00	3,467.40	100.14	72.13	-8.21	-134.77	-2,869.45	9,784.25	9,686.53	97.72	100.126	
13,200.00	7,364.00	3,468.00	3,467.40	101.68	72.13	-8.21	-134.77	-2,869.45	9,876.00	9,778.02	97.98	100.794	
13,300.00	7,364.00	3,468.00	3,467.40	103.22	72.13	-8.21	-134.77	-2,869.45	9,967.92	9,869.68	98.24	101.464	
13,400.00	7,364.00	3,468.00	3,467.40	104.76	72.13	-8.21	-134.77	-2,869.45	10,059.98	9,961.49	98.49	102.138	
13,500.00	7,364.00	3,468.00	3,467.40	106.31	72.13	-8.21	-134.77	-2,869.45	10,152.20	10,053.46	98.74	102.813	
13,600.00	7,364.00	3,468.00	3,467.40	107.85	72.13	-8.21	-134.77	-2,869.45	10,244.57	10,145.58	98.99	103.492	
13,700.00	7,364.00	3,468.00	3,467.40	109.40	72.13	-8.21	-134.77	-2,869.45	10,337.07	10,237.84	99.23	104.172	
13,800.00	7,364.00	3,468.00	3,467.40	110.95	72.13	-8.21	-134.77	-2,869.45	10,429.72	10,330.25	99.47	104.855	
13,900.00	7,364.00	3,468.00	3,467.40	112.50	72.13	-8.21	-134.77	-2,869.45	10,522.49	10,422.79	99.70	105.539	
14,000.00	7,364.00	3,468.00	3,467.40	114.05	72.13	-8.21	-134.77	-2,869.45	10,615.40	10,515.47	99.93	106.226	
14,100.00	7,364.00	3,468.00	3,467.40	115.61	72.13	-8.21	-134.77	-2,869.45	10,708.44	10,608.28	100.16	106.914	
14,200.00	7,364.00	3,468.00	3,467.40	117.16	72.13	-8.21	-134.77	-2,869.45	10,801.60	10,701.22	100.38	107.604	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #334A - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 334-A027Ua_INC-ONLY

Rule Assigned:

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,300.00	7,364.00	3,468.00	3,467.40	118.72	72.13	-8.21	-134.77	-2,869.45	10,894.89	10,794.28	100.60	108.296	
14,400.00	7,364.00	3,468.00	3,467.40	120.28	72.13	-8.21	-134.77	-2,869.45	10,988.29	10,887.47	100.82	108.989	
14,500.00	7,364.00	3,468.00	3,467.40	121.84	72.13	-8.21	-134.77	-2,869.45	11,081.80	10,980.77	101.03	109.684	
14,600.00	7,364.00	3,468.00	3,467.40	123.40	72.13	-8.21	-134.77	-2,869.45	11,175.43	11,074.19	101.24	110.380	
14,700.00	7,364.00	3,468.00	3,467.40	124.96	72.13	-8.21	-134.77	-2,869.45	11,269.17	11,167.72	101.45	111.078	
14,800.00	7,364.00	3,468.00	3,467.40	126.52	72.13	-8.21	-134.77	-2,869.45	11,363.02	11,261.36	101.66	111.776	
14,900.00	7,364.00	3,468.00	3,467.40	128.08	72.13	-8.21	-134.77	-2,869.45	11,456.97	11,355.10	101.86	112.476	
15,000.00	7,364.00	3,468.00	3,467.40	129.64	72.13	-8.21	-134.77	-2,869.45	11,551.02	11,448.95	102.06	113.177	
15,100.00	7,364.00	3,468.00	3,467.40	131.21	72.13	-8.21	-134.77	-2,869.45	11,645.17	11,542.91	102.26	113.879	
15,200.00	7,364.00	3,468.00	3,467.40	132.77	72.13	-8.21	-134.77	-2,869.45	11,739.41	11,636.96	102.45	114.581	
15,300.00	7,364.00	3,468.00	3,467.40	134.34	72.13	-8.21	-134.77	-2,869.45	11,833.75	11,731.11	102.65	115.285	
15,400.00	7,364.00	3,468.00	3,467.40	135.91	72.13	-8.21	-134.77	-2,869.45	11,928.19	11,825.35	102.84	115.989	
15,500.00	7,364.00	3,468.00	3,467.40	137.48	72.13	-8.21	-134.77	-2,869.45	12,022.71	11,919.68	103.03	116.695	
15,600.00	7,364.00	3,468.00	3,467.40	139.04	72.13	-8.21	-134.77	-2,869.45	12,117.32	12,014.11	103.21	117.400	
15,700.00	7,364.00	3,468.00	3,467.40	140.61	72.13	-8.21	-134.77	-2,869.45	12,212.02	12,108.62	103.40	118.107	
15,800.00	7,364.00	3,468.00	3,467.40	142.18	72.13	-8.21	-134.77	-2,869.45	12,306.80	12,203.22	103.58	118.814	
15,900.00	7,364.00	3,468.00	3,467.40	143.75	72.13	-8.21	-134.77	-2,869.45	12,401.66	12,297.90	103.76	119.522	
16,000.00	7,364.00	3,468.00	3,467.40	145.33	72.13	-8.21	-134.77	-2,869.45	12,496.61	12,392.67	103.94	120.230	
16,100.00	7,364.00	3,468.00	3,467.40	146.90	72.13	-8.21	-134.77	-2,869.45	12,591.63	12,487.51	104.12	120.938	
16,200.00	7,364.00	3,468.00	3,467.40	148.47	72.13	-8.21	-134.77	-2,869.45	12,686.73	12,582.43	104.29	121.647	
16,300.00	7,364.00	3,468.00	3,467.40	150.04	72.13	-8.21	-134.77	-2,869.45	12,781.90	12,677.43	104.46	122.356	
16,400.00	7,364.00	3,468.00	3,467.40	151.62	72.13	-8.21	-134.77	-2,869.45	12,877.14	12,772.51	104.64	123.065	
16,500.00	7,364.00	3,468.00	3,467.40	153.19	72.13	-8.21	-134.77	-2,869.45	12,972.46	12,867.65	104.81	123.775	
16,600.00	7,364.00	3,468.00	3,467.40	154.77	72.13	-8.21	-134.77	-2,869.45	13,067.85	12,962.87	104.98	124.484	
16,700.00	7,364.00	3,468.00	3,467.40	156.34	72.13	-8.21	-134.77	-2,869.45	13,163.30	13,058.16	105.14	125.194	
16,800.00	7,364.00	3,468.00	3,467.40	157.92	72.13	-8.21	-134.77	-2,869.45	13,258.83	13,153.52	105.31	125.904	
16,900.00	7,364.00	3,468.00	3,467.40	159.49	72.13	-8.21	-134.77	-2,869.45	13,354.42	13,248.94	105.47	126.614	
17,000.00	7,364.00	3,468.00	3,467.40	161.07	72.13	-8.21	-134.77	-2,869.45	13,450.07	13,344.43	105.64	127.324	
17,100.00	7,364.00	3,468.00	3,467.40	162.65	72.13	-8.21	-134.77	-2,869.45	13,545.78	13,439.99	105.80	128.034	
17,200.00	7,364.00	3,468.00	3,467.40	164.23	72.13	-8.21	-134.77	-2,869.45	13,641.56	13,535.60	105.96	128.744	
17,300.00	7,364.00	3,468.00	3,467.40	165.81	72.13	-8.21	-134.77	-2,869.45	13,737.40	13,631.28	106.12	129.454	
17,400.00	7,364.00	3,468.00	3,467.40	167.38	72.13	-8.21	-134.77	-2,869.45	13,833.29	13,727.02	106.28	130.164	
17,500.00	7,364.00	3,468.00	3,467.40	168.96	72.13	-8.21	-134.77	-2,869.45	13,929.25	13,822.81	106.43	130.873	
17,600.00	7,364.00	3,468.00	3,467.40	170.54	72.13	-8.21	-134.77	-2,869.45	14,025.26	13,918.67	106.59	131.583	
17,700.00	7,364.00	3,468.00	3,467.40	172.12	72.13	-8.21	-134.77	-2,869.45	14,121.32	14,014.58	106.74	132.292	
17,800.00	7,364.00	3,468.00	3,467.40	173.70	72.13	-8.21	-134.77	-2,869.45	14,217.44	14,110.55	106.90	133.001	
17,900.00	7,364.00	3,468.00	3,467.40	175.28	72.13	-8.21	-134.77	-2,869.45	14,313.62	14,206.57	107.05	133.710	
18,000.00	7,364.00	3,468.00	3,467.40	176.87	72.13	-8.21	-134.77	-2,869.45	14,409.84	14,302.64	107.20	134.418	
18,100.00	7,364.00	3,468.00	3,467.40	178.45	72.13	-8.21	-134.77	-2,869.45	14,506.12	14,398.77	107.35	135.126	
18,200.00	7,364.00	3,468.00	3,467.40	180.03	72.13	-8.21	-134.77	-2,869.45	14,602.44	14,494.94	107.50	135.833	
18,300.00	7,364.00	3,468.00	3,467.40	181.61	72.13	-8.21	-134.77	-2,869.45	14,698.82	14,591.17	107.65	136.541	
18,400.00	7,364.00	3,468.00	3,467.40	183.19	72.13	-8.21	-134.77	-2,869.45	14,795.24	14,687.44	107.80	137.247	
18,500.00	7,364.00	3,468.00	3,467.40	184.78	72.13	-8.21	-134.77	-2,869.45	14,891.71	14,783.77	107.95	137.954	
18,600.00	7,364.00	3,468.00	3,467.40	186.36	72.13	-8.21	-134.77	-2,869.45	14,988.23	14,880.14	108.09	138.660	
18,700.00	7,364.00	3,468.00	3,467.40	187.94	72.13	-8.21	-134.77	-2,869.45	15,084.79	14,976.55	108.24	139.365	
18,800.00	7,364.00	3,468.00	3,467.40	189.53	72.13	-8.21	-134.77	-2,869.45	15,181.40	15,073.01	108.38	140.070	
18,900.00	7,364.00	3,468.00	3,467.40	191.11	72.13	-8.21	-134.77	-2,869.45	15,278.05	15,169.52	108.53	140.774	
19,000.00	7,364.00	3,468.00	3,467.40	192.70	72.13	-8.21	-134.77	-2,869.45	15,374.74	15,266.07	108.67	141.478	
19,100.00	7,364.00	3,468.00	3,467.40	194.28	72.13	-8.21	-134.77	-2,869.45	15,471.48	15,362.66	108.82	142.181	
19,200.00	7,364.00	3,468.00	3,467.40	195.87	72.13	-8.21	-134.77	-2,869.45	15,568.25	15,459.30	108.96	142.884	
19,300.00	7,364.00	3,468.00	3,467.40	197.45	72.13	-8.21	-134.77	-2,869.45	15,665.07	15,555.97	109.10	143.585	
19,400.00	7,364.00	3,468.00	3,467.40	199.04	72.13	-8.21	-134.77	-2,869.45	15,761.93	15,652.69	109.24	144.287	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #334A - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 334-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
19,500.00	7,364.00	3,468.00	3,467.40	200.62	72.13	-8.21	-134.77	-2,869.45	15,858.82	15,749.44	109.38	144.987	
19,600.00	7,364.00	3,468.00	3,467.40	202.21	72.13	-8.21	-134.77	-2,869.45	15,955.76	15,846.24	109.52	145.687	
19,700.00	7,364.00	3,468.00	3,467.40	203.79	72.13	-8.21	-134.77	-2,869.45	16,052.73	15,943.07	109.66	146.387	
19,800.00	7,364.00	3,468.00	3,467.40	205.38	72.13	-8.21	-134.77	-2,869.45	16,149.74	16,039.94	109.80	147.085	
19,900.00	7,364.00	3,468.00	3,467.40	206.97	72.13	-8.21	-134.77	-2,869.45	16,246.78	16,136.85	109.94	147.783	
20,000.00	7,364.00	3,468.00	3,467.40	208.55	72.13	-8.21	-134.77	-2,869.45	16,343.86	16,233.79	110.07	148.480	
20,100.00	7,364.00	3,468.00	3,467.40	210.14	72.13	-8.21	-134.77	-2,869.45	16,440.98	16,330.77	110.21	149.176	
20,200.00	7,364.00	3,468.00	3,467.40	211.73	72.13	-8.21	-134.77	-2,869.45	16,538.13	16,427.78	110.35	149.872	
20,300.00	7,364.00	3,468.00	3,467.40	213.32	72.13	-8.21	-134.77	-2,869.45	16,635.31	16,524.83	110.48	150.566	
20,400.00	7,364.00	3,468.00	3,467.40	214.90	72.13	-8.21	-134.77	-2,869.45	16,732.53	16,621.91	110.62	151.260	
20,500.00	7,364.00	3,468.00	3,467.40	216.49	72.13	-8.21	-134.77	-2,869.45	16,829.78	16,719.02	110.76	151.953	
20,600.00	7,364.00	3,468.00	3,467.40	218.08	72.13	-8.21	-134.77	-2,869.45	16,927.06	16,816.17	110.89	152.645	
20,700.00	7,364.00	3,468.00	3,467.40	219.67	72.13	-8.21	-134.77	-2,869.45	17,024.37	16,913.35	111.03	153.337	
20,800.00	7,364.00	3,468.00	3,467.40	221.26	72.13	-8.21	-134.77	-2,869.45	17,121.72	17,010.56	111.16	154.027	
20,900.00	7,364.00	3,468.00	3,467.40	222.84	72.13	-8.21	-134.77	-2,869.45	17,219.09	17,107.80	111.29	154.717	
21,000.00	7,364.00	3,468.00	3,467.40	224.43	72.13	-8.21	-134.77	-2,869.45	17,316.50	17,205.07	111.43	155.406	
21,100.00	7,364.00	3,468.00	3,467.40	226.02	72.13	-8.21	-134.77	-2,869.45	17,413.93	17,302.37	111.56	156.093	
21,200.00	7,364.00	3,468.00	3,467.40	227.61	72.13	-8.21	-134.77	-2,869.45	17,511.39	17,399.70	111.69	156.780	
21,300.00	7,364.00	3,468.00	3,467.40	229.20	72.13	-8.21	-134.77	-2,869.45	17,608.89	17,497.06	111.83	157.466	
21,400.00	7,364.00	3,468.00	3,467.40	230.79	72.13	-8.21	-134.77	-2,869.45	17,706.40	17,594.45	111.96	158.151	
21,500.00	7,364.00	3,468.00	3,467.40	232.38	72.13	-8.21	-134.77	-2,869.45	17,803.95	17,691.86	112.09	158.835	
21,600.00	7,364.00	3,468.00	3,467.40	233.97	72.13	-8.21	-134.77	-2,869.45	17,901.53	17,789.30	112.22	159.518	
21,700.00	7,364.00	3,468.00	3,467.40	235.56	72.13	-8.21	-134.77	-2,869.45	17,999.13	17,886.77	112.35	160.201	
21,800.00	7,364.00	3,468.00	3,467.40	237.15	72.13	-8.21	-134.77	-2,869.45	18,096.75	17,984.27	112.48	160.882	
21,864.93	7,364.00	3,468.00	3,467.40	238.18	72.13	-8.21	-134.77	-2,869.45	18,160.15	18,047.58	112.57	161.323	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #337 - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 158-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	3.28	0.00	-97.16	-599.75	-4,773.48	4,811.17				
100.00	100.00	61.00	61.00	3.29	0.60	-97.16	-599.75	-4,773.48	4,811.01	4,807.12	3.89	1,236.591	
200.00	200.00	161.00	161.00	3.34	1.62	-97.16	-599.75	-4,773.48	4,811.01	4,806.06	4.95	971.173	
300.00	300.00	261.00	261.00	3.42	3.66	-97.16	-599.75	-4,773.48	4,811.01	4,803.93	7.08	679.370	
341.16	341.16	302.16	302.15	3.46	4.50	-97.16	-599.28	-4,773.48	4,810.95	4,802.99	7.97	603.825	CC
400.00	400.00	359.44	359.43	3.54	5.67	-97.16	-599.36	-4,773.48	4,810.96	4,801.75	9.21	522.254	
500.00	500.00	461.04	461.00	3.69	7.75	-97.16	-599.75	-4,773.48	4,811.01	4,799.57	11.44	420.611	
600.00	599.98	561.02	560.98	3.86	9.80	112.85	-599.75	-4,773.48	4,811.69	4,798.04	13.65	352.474	
700.00	699.84	660.88	660.84	4.04	11.84	112.87	-599.75	-4,773.48	4,813.72	4,797.85	15.88	303.143	
808.00	807.41	768.45	768.41	4.27	14.04	112.90	-599.75	-4,773.48	4,817.46	4,799.15	18.31	263.134	
900.00	898.89	859.93	859.89	4.49	15.91	95.84	-599.75	-4,773.48	4,819.89	4,799.49	20.39	236.342	
912.12	910.94	871.98	871.94	4.52	16.15	93.63	-599.75	-4,773.48	4,820.00	4,799.33	20.67	233.192	
1,000.00	998.31	958.89	958.83	4.74	17.93	93.76	-597.73	-4,773.48	4,820.37	4,797.70	22.67	212.633	
1,100.00	1,097.73	1,057.32	1,057.25	5.01	19.94	93.89	-597.90	-4,773.48	4,821.11	4,796.16	24.95	193.210	
1,200.00	1,197.15	1,155.79	1,155.72	5.29	21.96	94.01	-598.25	-4,773.48	4,821.89	4,794.64	27.25	176.944	
1,300.00	1,296.58	1,254.31	1,254.23	5.59	23.97	94.13	-598.79	-4,773.48	4,822.72	4,793.16	29.56	163.136	
1,400.00	1,396.00	1,352.86	1,352.78	5.90	25.99	94.24	-599.50	-4,773.48	4,823.59	4,791.70	31.89	151.279	
1,500.00	1,495.42	1,456.57	1,456.42	6.22	28.11	94.37	-599.75	-4,773.48	4,824.42	4,790.10	34.32	140.561	
1,600.00	1,594.84	1,555.99	1,555.84	6.54	30.14	94.50	-599.75	-4,773.48	4,825.26	4,788.58	36.68	131.550	
1,700.00	1,694.27	1,654.85	1,654.69	6.87	32.16	94.63	-599.02	-4,773.48	4,826.04	4,787.01	39.03	123.643	
1,800.00	1,793.69	1,752.96	1,752.80	7.21	34.17	94.75	-599.27	-4,773.48	4,826.95	4,785.58	41.37	116.665	
1,900.00	1,893.11	1,854.31	1,854.11	7.55	36.24	94.88	-599.75	-4,773.48	4,827.91	4,784.12	43.79	110.255	
2,000.00	1,992.53	1,953.74	1,953.53	7.89	38.28	95.00	-599.75	-4,773.48	4,828.83	4,782.67	46.17	104.595	
2,100.00	2,091.96	2,053.16	2,052.96	8.24	40.31	95.13	-599.75	-4,773.48	4,829.79	4,781.24	48.55	99.482	
2,200.00	2,191.38	2,151.70	2,151.49	8.60	42.32	95.27	-598.73	-4,773.48	4,830.67	4,779.75	50.92	94.873	
2,300.00	2,290.80	2,249.69	2,249.47	8.95	44.33	95.39	-599.09	-4,773.48	4,831.71	4,778.43	53.28	90.692	
2,400.00	2,390.22	2,351.48	2,351.22	9.31	46.41	95.51	-599.75	-4,773.48	4,832.79	4,777.07	55.72	86.740	
2,500.00	2,489.65	2,450.91	2,450.65	9.67	48.44	95.63	-599.75	-4,773.48	4,833.84	4,775.73	58.11	83.186	
2,600.00	2,589.07	2,550.33	2,550.07	10.03	50.48	95.76	-599.75	-4,773.48	4,834.91	4,774.40	60.50	79.910	
2,700.00	2,688.49	2,649.37	2,649.10	10.40	52.50	95.89	-598.90	-4,773.48	4,835.94	4,773.04	62.89	76.891	
2,800.00	2,787.91	2,747.90	2,747.63	10.76	54.52	96.02	-599.12	-4,773.48	4,837.07	4,771.80	65.27	74.104	
2,900.00	2,887.33	2,846.49	2,846.21	11.13	56.53	96.14	-599.58	-4,773.48	4,838.25	4,770.60	67.66	71.511	
3,000.00	2,986.76	2,948.08	2,947.76	11.50	58.67	96.26	-599.75	-4,773.48	4,839.43	4,769.27	70.16	68.976	
3,100.00	3,086.18	3,047.49	3,047.16	11.87	60.78	96.40	-599.00	-4,773.48	4,840.57	4,767.92	72.64	66.635	
3,200.00	3,185.60	3,145.28	3,144.94	12.24	62.86	96.52	-599.25	-4,773.48	4,841.80	4,766.71	75.09	64.479	
3,300.00	3,285.02	3,246.40	3,246.02	12.61	65.01	96.64	-599.75	-4,773.48	4,843.07	4,765.46	77.61	62.402	
3,400.00	3,384.45	3,345.82	3,345.45	12.98	67.12	96.76	-599.75	-4,773.48	4,844.33	4,764.23	80.10	60.482	ES
3,500.00	3,483.87	3,351.00	3,350.60	13.36	67.23	96.77	-599.75	-4,773.48	4,846.53	4,765.97	80.56	60.159	
3,600.00	3,583.29	3,351.00	3,350.60	13.73	67.23	96.77	-599.75	-4,773.48	4,850.79	4,769.90	80.89	59.971	
3,700.00	3,682.71	3,351.00	3,350.60	14.11	67.23	96.77	-599.75	-4,773.48	4,857.10	4,775.92	81.18	59.833	
3,800.00	3,782.14	3,351.00	3,350.60	14.48	67.23	96.77	-599.75	-4,773.48	4,865.46	4,784.02	81.44	59.745	
3,900.00	3,881.56	3,351.00	3,350.60	14.86	67.23	96.77	-599.75	-4,773.48	4,875.86	4,794.20	81.66	59.707	SF
4,000.00	3,980.98	3,351.00	3,350.60	15.24	67.23	96.77	-599.75	-4,773.48	4,888.28	4,806.42	81.86	59.717	
4,100.00	4,080.40	3,351.00	3,350.60	15.61	67.23	96.77	-599.75	-4,773.48	4,902.71	4,820.69	82.02	59.774	
4,200.00	4,179.83	3,351.00	3,350.60	15.99	67.23	96.77	-599.75	-4,773.48	4,919.13	4,836.98	82.15	59.879	
4,300.00	4,279.25	3,351.00	3,350.60	16.37	67.23	96.77	-599.75	-4,773.48	4,937.53	4,855.28	82.25	60.030	
4,400.00	4,378.67	3,351.00	3,350.60	16.75	67.23	96.77	-599.75	-4,773.48	4,957.87	4,875.55	82.32	60.226	
4,500.00	4,478.09	3,351.00	3,350.60	17.13	67.23	96.77	-599.75	-4,773.48	4,980.14	4,897.77	82.36	60.467	
4,600.00	4,577.51	3,351.00	3,350.60	17.51	67.23	96.77	-599.75	-4,773.48	5,004.30	4,921.93	82.37	60.752	
4,700.00	4,676.94	3,351.00	3,350.60	17.89	67.23	96.77	-599.75	-4,773.48	5,030.34	4,947.99	82.36	61.080	
4,800.00	4,776.36	3,351.00	3,350.60	18.27	67.23	96.77	-599.75	-4,773.48	5,058.22	4,975.91	82.31	61.451	
4,900.00	4,875.78	3,351.00	3,350.60	18.65	67.23	96.77	-599.75	-4,773.48	5,087.92	5,005.67	82.24	61.863	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #337 - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 158-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,000.00	4,975.20	3,351.00	3,350.60	19.03	67.23	96.77	-599.75	-4,773.48	5,119.40	5,037.24	82.15	62.317	
5,100.00	5,074.63	3,351.00	3,350.60	19.41	67.23	96.77	-599.75	-4,773.48	5,152.62	5,070.59	82.03	62.810	
5,200.00	5,174.05	3,351.00	3,350.60	19.79	67.23	96.77	-599.75	-4,773.48	5,187.56	5,105.67	81.90	63.344	
5,300.00	5,273.47	3,351.00	3,350.60	20.17	67.23	96.77	-599.75	-4,773.48	5,224.18	5,142.45	81.74	63.916	
5,400.00	5,372.89	3,351.00	3,350.60	20.56	67.23	96.77	-599.75	-4,773.48	5,262.45	5,180.89	81.56	64.526	
5,500.00	5,472.32	3,351.00	3,350.60	20.94	67.23	96.77	-599.75	-4,773.48	5,302.33	5,220.97	81.36	65.173	
5,600.00	5,571.74	3,351.00	3,350.60	21.32	67.23	96.77	-599.75	-4,773.48	5,343.78	5,262.64	81.14	65.857	
5,700.00	5,671.16	3,351.00	3,350.60	21.70	67.23	96.77	-599.75	-4,773.48	5,386.77	5,305.86	80.91	66.576	
5,800.00	5,770.58	3,351.00	3,350.60	22.08	67.23	96.77	-599.75	-4,773.48	5,431.26	5,350.59	80.66	67.331	
5,900.00	5,870.01	3,351.00	3,350.60	22.47	67.23	96.77	-599.75	-4,773.48	5,477.21	5,396.81	80.41	68.120	
6,000.00	5,969.43	3,351.00	3,350.60	22.85	67.23	96.77	-599.75	-4,773.48	5,524.59	5,444.46	80.13	68.942	
6,100.00	6,068.85	3,351.00	3,350.60	23.23	67.23	96.77	-599.75	-4,773.48	5,573.37	5,493.52	79.85	69.797	
6,200.00	6,168.27	3,351.00	3,350.60	23.62	67.23	96.77	-599.75	-4,773.48	5,623.50	5,543.94	79.56	70.684	
6,300.00	6,267.70	3,351.00	3,350.60	24.00	67.23	96.77	-599.75	-4,773.48	5,674.95	5,595.69	79.26	71.602	
6,400.00	6,367.12	3,351.00	3,350.60	24.38	67.23	96.77	-599.75	-4,773.48	5,727.68	5,648.73	78.95	72.550	
6,500.00	6,466.54	3,351.00	3,350.60	24.77	67.23	96.77	-599.75	-4,773.48	5,781.66	5,703.03	78.63	73.528	
6,600.00	6,565.96	3,351.00	3,350.60	25.15	67.23	96.77	-599.75	-4,773.48	5,836.86	5,758.55	78.31	74.534	
6,700.00	6,665.38	3,351.00	3,350.60	25.53	67.23	96.77	-599.75	-4,773.48	5,893.23	5,815.25	77.99	75.569	
6,778.75	6,743.68	3,351.00	3,350.60	25.84	67.23	96.77	-599.75	-4,773.48	5,938.44	5,860.71	77.73	76.402	
6,800.00	6,764.80	3,351.00	3,350.60	25.92	67.23	112.69	-599.75	-4,773.48	5,951.04	5,873.38	77.66	76.631	
6,850.00	6,814.29	3,351.00	3,350.60	26.11	67.23	136.80	-599.75	-4,773.48	5,983.07	5,905.56	77.51	77.190	
6,900.00	6,863.27	3,351.00	3,350.60	26.30	67.23	148.39	-599.75	-4,773.48	6,018.22	5,940.84	77.38	77.775	
6,950.00	6,911.44	3,351.00	3,350.60	26.50	67.23	154.44	-599.75	-4,773.48	6,056.23	5,978.96	77.26	78.384	
7,000.00	6,958.49	3,351.00	3,350.60	26.68	67.23	157.80	-599.75	-4,773.48	6,096.80	6,019.64	77.16	79.013	
7,050.00	7,004.14	3,351.00	3,350.60	26.87	67.23	159.63	-599.75	-4,773.48	6,139.65	6,062.57	77.08	79.654	
7,100.00	7,048.10	3,351.00	3,350.60	27.05	67.23	160.35	-599.75	-4,773.48	6,184.46	6,107.45	77.01	80.305	
7,150.00	7,090.11	3,351.00	3,350.60	27.23	67.23	160.03	-599.75	-4,773.48	6,230.92	6,153.96	76.96	80.958	
7,200.00	7,129.90	3,351.00	3,350.60	27.41	67.23	158.33	-599.75	-4,773.48	6,278.71	6,201.77	76.94	81.610	
7,250.00	7,167.24	3,351.00	3,350.60	27.59	67.23	154.01	-599.75	-4,773.48	6,327.50	6,250.58	76.93	82.255	
7,300.00	7,201.88	3,351.00	3,350.60	27.76	67.23	142.22	-599.75	-4,773.48	6,376.98	6,300.04	76.94	82.887	
7,350.00	7,233.63	3,351.00	3,350.60	27.94	67.23	97.25	-599.75	-4,773.48	6,426.83	6,349.86	76.97	83.503	
7,400.00	7,262.27	3,351.00	3,350.60	28.13	67.23	31.73	-599.75	-4,773.48	6,476.73	6,399.71	77.02	84.096	
7,450.00	7,287.63	3,351.00	3,350.60	28.32	67.23	13.14	-599.75	-4,773.48	6,526.38	6,449.30	77.09	84.662	
7,500.00	7,309.57	3,351.00	3,350.60	28.53	67.23	6.63	-599.75	-4,773.48	6,575.49	6,498.31	77.18	85.197	
7,550.00	7,327.93	3,351.00	3,350.60	28.74	67.23	3.48	-599.75	-4,773.48	6,623.77	6,546.47	77.30	85.695	
7,600.00	7,342.62	3,351.00	3,350.60	28.97	67.23	1.65	-599.75	-4,773.48	6,670.93	6,593.50	77.43	86.152	
7,650.00	7,353.53	3,351.00	3,350.60	29.22	67.23	0.46	-599.75	-4,773.48	6,716.72	6,639.13	77.59	86.563	
7,700.00	7,360.61	3,351.00	3,350.60	29.48	67.23	-0.39	-599.75	-4,773.48	6,760.88	6,683.11	77.78	86.926	
7,750.00	7,363.80	3,351.00	3,350.60	29.75	67.23	-1.02	-599.75	-4,773.48	6,803.18	6,725.20	77.99	87.236	
7,765.93	7,364.00	3,351.00	3,350.60	29.84	67.23	-1.20	-599.75	-4,773.48	6,816.23	6,738.18	78.06	87.326	
7,800.00	7,364.00	3,351.00	3,350.60	30.04	67.23	-1.20	-599.75	-4,773.48	6,843.94	6,765.72	78.21	87.502	
7,900.00	7,364.00	3,351.00	3,350.60	30.67	67.23	-1.20	-599.75	-4,773.48	6,925.58	6,846.90	78.68	88.021	
8,000.00	7,364.00	3,351.00	3,350.60	31.37	67.23	-1.20	-599.75	-4,773.48	7,007.70	6,928.56	79.14	88.548	
8,100.00	7,364.00	3,351.00	3,350.60	32.14	67.23	-1.20	-599.75	-4,773.48	7,090.28	7,010.69	79.59	89.083	
8,200.00	7,364.00	3,351.00	3,350.60	32.96	67.23	-1.20	-599.75	-4,773.48	7,173.31	7,093.27	80.04	89.627	
8,300.00	7,364.00	3,351.00	3,350.60	33.85	67.23	-1.20	-599.75	-4,773.48	7,256.76	7,176.29	80.47	90.179	
8,400.00	7,364.00	3,351.00	3,350.60	34.79	67.23	-1.20	-599.75	-4,773.48	7,340.62	7,259.73	80.90	90.739	
8,500.00	7,364.00	3,351.00	3,350.60	35.77	67.23	-1.20	-599.75	-4,773.48	7,424.89	7,343.57	81.32	91.306	
8,600.00	7,364.00	3,351.00	3,350.60	36.80	67.23	-1.20	-599.75	-4,773.48	7,509.54	7,427.81	81.73	91.880	
8,700.00	7,364.00	3,351.00	3,350.60	37.87	67.23	-1.20	-599.75	-4,773.48	7,594.56	7,512.43	82.14	92.462	
8,800.00	7,364.00	3,351.00	3,350.60	38.98	67.23	-1.20	-599.75	-4,773.48	7,679.95	7,597.41	82.54	93.051	
8,900.00	7,364.00	3,351.00	3,350.60	40.12	67.23	-1.20	-599.75	-4,773.48	7,765.68	7,682.76	82.93	93.646	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #337 - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 158-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,000.00	7,364.00	3,351.00	3,350.60	41.29	67.23	-1.20	-599.75	-4,773.48	7,851.75	7,768.44	83.31	94.248	
9,100.00	7,364.00	3,351.00	3,350.60	42.49	67.23	-1.20	-599.75	-4,773.48	7,938.15	7,854.47	83.69	94.856	
9,200.00	7,364.00	3,351.00	3,350.60	43.71	67.23	-1.20	-599.75	-4,773.48	8,024.87	7,940.81	84.06	95.470	
9,300.00	7,364.00	3,351.00	3,350.60	44.96	67.23	-1.20	-599.75	-4,773.48	8,111.89	8,027.47	84.42	96.090	
9,400.00	7,364.00	3,351.00	3,350.60	46.23	67.23	-1.20	-599.75	-4,773.48	8,199.20	8,114.43	84.78	96.716	
9,500.00	7,364.00	3,351.00	3,350.60	47.52	67.23	-1.20	-599.75	-4,773.48	8,286.80	8,201.68	85.13	97.348	
9,600.00	7,364.00	3,351.00	3,350.60	48.83	67.23	-1.20	-599.75	-4,773.48	8,374.68	8,289.21	85.47	97.984	
9,700.00	7,364.00	3,351.00	3,350.60	50.15	67.23	-1.20	-599.75	-4,773.48	8,462.83	8,377.03	85.81	98.626	
9,800.00	7,364.00	3,351.00	3,350.60	51.49	67.23	-1.20	-599.75	-4,773.48	8,551.24	8,465.10	86.14	99.272	
9,900.00	7,364.00	3,351.00	3,350.60	52.85	67.23	-1.20	-599.75	-4,773.48	8,639.91	8,553.44	86.47	99.924	
10,000.00	7,364.00	3,351.00	3,350.60	54.22	67.23	-1.20	-599.75	-4,773.48	8,728.81	8,642.03	86.79	100.580	
10,100.00	7,364.00	3,351.00	3,350.60	55.60	67.23	-1.20	-599.75	-4,773.48	8,817.96	8,730.86	87.10	101.240	
10,200.00	7,364.00	3,351.00	3,350.60	56.99	67.23	-1.20	-599.75	-4,773.48	8,907.33	8,819.93	87.41	101.904	
10,300.00	7,364.00	3,351.00	3,350.60	58.40	67.23	-1.20	-599.75	-4,773.48	8,996.93	8,909.22	87.71	102.573	
10,400.00	7,364.00	3,351.00	3,350.60	59.81	67.23	-1.20	-599.75	-4,773.48	9,086.75	8,998.74	88.01	103.246	
10,500.00	7,364.00	3,351.00	3,350.60	61.23	67.23	-1.20	-599.75	-4,773.48	9,176.78	9,088.47	88.30	103.922	
10,600.00	7,364.00	3,351.00	3,350.60	62.66	67.23	-1.20	-599.75	-4,773.48	9,267.01	9,178.42	88.59	104.602	
10,700.00	7,364.00	3,351.00	3,350.60	64.10	67.23	-1.20	-599.75	-4,773.48	9,357.44	9,268.56	88.88	105.285	
10,800.00	7,364.00	3,351.00	3,350.60	65.55	67.23	-1.20	-599.75	-4,773.48	9,448.06	9,358.91	89.16	105.972	
10,900.00	7,364.00	3,351.00	3,350.60	67.01	67.23	-1.20	-599.75	-4,773.48	9,538.87	9,449.44	89.43	106.662	
11,000.00	7,364.00	3,351.00	3,350.60	68.47	67.23	-1.20	-599.75	-4,773.48	9,629.87	9,540.16	89.70	107.355	
11,100.00	7,364.00	3,351.00	3,350.60	69.93	67.23	-1.20	-599.75	-4,773.48	9,721.03	9,631.07	89.97	108.051	
11,200.00	7,364.00	3,351.00	3,350.60	71.41	67.23	-1.20	-599.75	-4,773.48	9,812.38	9,722.15	90.23	108.749	
11,300.00	7,364.00	3,351.00	3,350.60	72.88	67.23	-1.20	-599.75	-4,773.48	9,903.89	9,813.40	90.49	109.451	
11,400.00	7,364.00	3,351.00	3,350.60	74.37	67.23	-1.20	-599.75	-4,773.48	9,995.56	9,904.82	90.74	110.155	
11,500.00	7,364.00	3,351.00	3,350.60	75.85	67.23	-1.20	-599.75	-4,773.48	10,087.39	9,996.40	90.99	110.861	
11,600.00	7,364.00	3,351.00	3,350.60	77.35	67.23	-1.20	-599.75	-4,773.48	10,179.37	10,088.13	91.24	111.570	
11,700.00	7,364.00	3,351.00	3,350.60	78.84	67.23	-1.20	-599.75	-4,773.48	10,271.50	10,180.02	91.48	112.281	
11,800.00	7,364.00	3,351.00	3,350.60	80.34	67.23	-1.20	-599.75	-4,773.48	10,363.78	10,272.06	91.72	112.994	
11,900.00	7,364.00	3,351.00	3,350.60	81.85	67.23	-1.20	-599.75	-4,773.48	10,456.20	10,364.25	91.96	113.710	
12,000.00	7,364.00	3,351.00	3,350.60	83.36	67.23	-1.20	-599.75	-4,773.48	10,548.76	10,456.58	92.19	114.427	
12,100.00	7,364.00	3,351.00	3,350.60	84.87	67.23	-1.20	-599.75	-4,773.48	10,641.46	10,549.04	92.42	115.146	
12,200.00	7,364.00	3,351.00	3,350.60	86.38	67.23	-1.20	-599.75	-4,773.48	10,734.28	10,641.64	92.64	115.867	
12,300.00	7,364.00	3,351.00	3,350.60	87.90	67.23	-1.20	-599.75	-4,773.48	10,827.24	10,734.37	92.87	116.589	
12,400.00	7,364.00	3,351.00	3,350.60	89.42	67.23	-1.20	-599.75	-4,773.48	10,920.32	10,827.23	93.09	117.314	
12,500.00	7,364.00	3,351.00	3,350.60	90.95	67.23	-1.20	-599.75	-4,773.48	11,013.51	10,920.21	93.30	118.039	
12,600.00	7,364.00	3,351.00	3,350.60	92.47	67.23	-1.20	-599.75	-4,773.48	11,106.83	11,013.31	93.52	118.766	
12,700.00	7,364.00	3,351.00	3,350.60	94.00	67.23	-1.20	-599.75	-4,773.48	11,200.26	11,106.53	93.73	119.495	
12,800.00	7,364.00	3,351.00	3,350.60	95.53	67.23	-1.20	-599.75	-4,773.48	11,293.81	11,199.87	93.94	120.224	
12,900.00	7,364.00	3,351.00	3,350.60	97.06	67.23	-1.20	-599.75	-4,773.48	11,387.46	11,293.32	94.15	120.955	
13,000.00	7,364.00	3,351.00	3,350.60	98.60	67.23	-1.20	-599.75	-4,773.48	11,481.23	11,386.88	94.35	121.687	
13,100.00	7,364.00	3,351.00	3,350.60	100.14	67.23	-1.20	-599.75	-4,773.48	11,575.09	11,480.54	94.55	122.420	
13,200.00	7,364.00	3,351.00	3,350.60	101.68	67.23	-1.20	-599.75	-4,773.48	11,669.06	11,574.31	94.75	123.154	
13,300.00	7,364.00	3,351.00	3,350.60	103.22	67.23	-1.20	-599.75	-4,773.48	11,763.13	11,668.18	94.95	123.889	
13,400.00	7,364.00	3,351.00	3,350.60	104.76	67.23	-1.20	-599.75	-4,773.48	11,857.29	11,762.15	95.14	124.625	
13,500.00	7,364.00	3,351.00	3,350.60	106.31	67.23	-1.20	-599.75	-4,773.48	11,951.55	11,856.22	95.34	125.361	
13,600.00	7,364.00	3,351.00	3,350.60	107.85	67.23	-1.20	-599.75	-4,773.48	12,045.91	11,950.38	95.53	126.099	
13,700.00	7,364.00	3,351.00	3,350.60	109.40	67.23	-1.20	-599.75	-4,773.48	12,140.35	12,044.63	95.72	126.837	
13,800.00	7,364.00	3,351.00	3,350.60	110.95	67.23	-1.20	-599.75	-4,773.48	12,234.88	12,138.98	95.90	127.575	
13,900.00	7,364.00	3,351.00	3,350.60	112.50	67.23	-1.20	-599.75	-4,773.48	12,329.50	12,233.41	96.09	128.315	
14,000.00	7,364.00	3,351.00	3,350.60	114.05	67.23	-1.20	-599.75	-4,773.48	12,424.20	12,327.93	96.27	129.054	
14,100.00	7,364.00	3,351.00	3,350.60	115.61	67.23	-1.20	-599.75	-4,773.48	12,518.98	12,422.53	96.45	129.795	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #337 - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 158-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Rule Assigned: Warning
14,200.00	7,364.00	3,351.00	3,350.60	117.16	67.23	-1.20	-599.75	-4,773.48	12,613.85	12,517.21	96.63	130.535	
14,300.00	7,364.00	3,351.00	3,350.60	118.72	67.23	-1.20	-599.75	-4,773.48	12,708.79	12,611.98	96.81	131.276	
14,400.00	7,364.00	3,351.00	3,350.60	120.28	67.23	-1.20	-599.75	-4,773.48	12,803.81	12,706.82	96.99	132.017	
14,500.00	7,364.00	3,351.00	3,350.60	121.84	67.23	-1.20	-599.75	-4,773.48	12,898.91	12,801.74	97.16	132.759	
14,600.00	7,364.00	3,351.00	3,350.60	123.40	67.23	-1.20	-599.75	-4,773.48	12,994.07	12,896.74	97.33	133.501	
14,700.00	7,364.00	3,351.00	3,350.60	124.96	67.23	-1.20	-599.75	-4,773.48	13,089.32	12,991.81	97.51	134.242	
14,800.00	7,364.00	3,351.00	3,350.60	126.52	67.23	-1.20	-599.75	-4,773.48	13,184.63	13,086.95	97.68	134.985	
14,900.00	7,364.00	3,351.00	3,350.60	128.08	67.23	-1.20	-599.75	-4,773.48	13,280.01	13,182.16	97.84	135.727	
15,000.00	7,364.00	3,351.00	3,350.60	129.64	67.23	-1.20	-599.75	-4,773.48	13,375.46	13,277.44	98.01	136.469	
15,100.00	7,364.00	3,351.00	3,350.60	131.21	67.23	-1.20	-599.75	-4,773.48	13,470.97	13,372.79	98.18	137.211	
15,200.00	7,364.00	3,351.00	3,350.60	132.77	67.23	-1.20	-599.75	-4,773.48	13,566.55	13,468.21	98.34	137.953	
15,300.00	7,364.00	3,351.00	3,350.60	134.34	67.23	-1.20	-599.75	-4,773.48	13,662.19	13,563.69	98.51	138.695	
15,400.00	7,364.00	3,351.00	3,350.60	135.91	67.23	-1.20	-599.75	-4,773.48	13,757.89	13,659.23	98.67	139.437	
15,500.00	7,364.00	3,351.00	3,350.60	137.48	67.23	-1.20	-599.75	-4,773.48	13,853.66	13,754.83	98.83	140.179	
15,600.00	7,364.00	3,351.00	3,350.60	139.04	67.23	-1.20	-599.75	-4,773.48	13,949.48	13,850.50	98.99	140.921	
15,700.00	7,364.00	3,351.00	3,350.60	140.61	67.23	-1.20	-599.75	-4,773.48	14,045.37	13,946.22	99.15	141.662	
15,800.00	7,364.00	3,351.00	3,350.60	142.18	67.23	-1.20	-599.75	-4,773.48	14,141.31	14,042.00	99.30	142.404	
15,900.00	7,364.00	3,351.00	3,350.60	143.75	67.23	-1.20	-599.75	-4,773.48	14,237.30	14,137.84	99.46	143.145	
16,000.00	7,364.00	3,351.00	3,350.60	145.33	67.23	-1.20	-599.75	-4,773.48	14,333.35	14,233.73	99.62	143.885	
16,100.00	7,364.00	3,351.00	3,350.60	146.90	67.23	-1.20	-599.75	-4,773.48	14,429.45	14,329.68	99.77	144.626	
16,200.00	7,364.00	3,351.00	3,350.60	148.47	67.23	-1.20	-599.75	-4,773.48	14,525.61	14,425.69	99.92	145.366	
16,300.00	7,364.00	3,351.00	3,350.60	150.04	67.23	-1.20	-599.75	-4,773.48	14,621.82	14,521.74	100.08	146.105	
16,400.00	7,364.00	3,351.00	3,350.60	151.62	67.23	-1.20	-599.75	-4,773.48	14,718.08	14,617.85	100.23	146.844	
16,500.00	7,364.00	3,351.00	3,350.60	153.19	67.23	-1.20	-599.75	-4,773.48	14,814.39	14,714.01	100.38	147.583	
16,600.00	7,364.00	3,351.00	3,350.60	154.77	67.23	-1.20	-599.75	-4,773.48	14,910.74	14,810.21	100.53	148.321	
16,700.00	7,364.00	3,351.00	3,350.60	156.34	67.23	-1.20	-599.75	-4,773.48	15,007.15	14,906.47	100.68	149.059	
16,800.00	7,364.00	3,351.00	3,350.60	157.92	67.23	-1.20	-599.75	-4,773.48	15,103.60	15,002.77	100.83	149.796	
16,900.00	7,364.00	3,351.00	3,350.60	159.49	67.23	-1.20	-599.75	-4,773.48	15,200.09	15,099.12	100.98	150.533	
17,000.00	7,364.00	3,351.00	3,350.60	161.07	67.23	-1.20	-599.75	-4,773.48	15,296.64	15,195.51	101.12	151.269	
17,100.00	7,364.00	3,351.00	3,350.60	162.65	67.23	-1.20	-599.75	-4,773.48	15,393.22	15,291.95	101.27	152.005	
17,200.00	7,364.00	3,351.00	3,350.60	164.23	67.23	-1.20	-599.75	-4,773.48	15,489.85	15,388.44	101.41	152.740	
17,300.00	7,364.00	3,351.00	3,350.60	165.81	67.23	-1.20	-599.75	-4,773.48	15,586.52	15,484.97	101.56	153.474	
17,400.00	7,364.00	3,351.00	3,350.60	167.38	67.23	-1.20	-599.75	-4,773.48	15,683.24	15,581.54	101.70	154.208	
17,500.00	7,364.00	3,351.00	3,350.60	168.96	67.23	-1.20	-599.75	-4,773.48	15,779.99	15,678.15	101.85	154.940	
17,600.00	7,364.00	3,351.00	3,350.60	170.54	67.23	-1.20	-599.75	-4,773.48	15,876.79	15,774.80	101.99	155.673	
17,700.00	7,364.00	3,351.00	3,350.60	172.12	67.23	-1.20	-599.75	-4,773.48	15,973.62	15,871.49	102.13	156.404	
17,800.00	7,364.00	3,351.00	3,350.60	173.70	67.23	-1.20	-599.75	-4,773.48	16,070.49	15,968.22	102.27	157.135	
17,900.00	7,364.00	3,351.00	3,350.60	175.28	67.23	-1.20	-599.75	-4,773.48	16,167.41	16,064.99	102.41	157.865	
18,000.00	7,364.00	3,351.00	3,350.60	176.87	67.23	-1.20	-599.75	-4,773.48	16,264.35	16,161.80	102.55	158.594	
18,100.00	7,364.00	3,351.00	3,350.60	178.45	67.23	-1.20	-599.75	-4,773.48	16,361.34	16,258.65	102.69	159.323	
18,200.00	7,364.00	3,351.00	3,350.60	180.03	67.23	-1.20	-599.75	-4,773.48	16,458.36	16,355.53	102.83	160.050	
18,300.00	7,364.00	3,351.00	3,350.60	181.61	67.23	-1.20	-599.75	-4,773.48	16,555.42	16,452.45	102.97	160.777	
18,400.00	7,364.00	3,351.00	3,350.60	183.19	67.23	-1.20	-599.75	-4,773.48	16,652.51	16,549.40	103.11	161.503	
18,500.00	7,364.00	3,351.00	3,350.60	184.78	67.23	-1.20	-599.75	-4,773.48	16,749.64	16,646.39	103.25	162.228	
18,600.00	7,364.00	3,351.00	3,350.60	186.36	67.23	-1.20	-599.75	-4,773.48	16,846.79	16,743.41	103.38	162.952	
18,700.00	7,364.00	3,351.00	3,350.60	187.94	67.23	-1.20	-599.75	-4,773.48	16,943.99	16,840.47	103.52	163.675	
18,800.00	7,364.00	3,351.00	3,350.60	189.53	67.23	-1.20	-599.75	-4,773.48	17,041.21	16,937.55	103.66	164.398	
18,900.00	7,364.00	3,351.00	3,350.60	191.11	67.23	-1.20	-599.75	-4,773.48	17,138.47	17,034.67	103.79	165.119	
19,000.00	7,364.00	3,351.00	3,350.60	192.70	67.23	-1.20	-599.75	-4,773.48	17,235.76	17,131.83	103.93	165.840	
19,100.00	7,364.00	3,351.00	3,350.60	194.28	67.23	-1.20	-599.75	-4,773.48	17,333.08	17,229.01	104.07	166.559	
19,200.00	7,364.00	3,351.00	3,350.60	195.87	67.23	-1.20	-599.75	-4,773.48	17,430.43	17,326.23	104.20	167.278	
19,300.00	7,364.00	3,351.00	3,350.60	197.45	67.23	-1.20	-599.75	-4,773.48	17,527.81	17,423.47	104.34	167.995	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #337 - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 158-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
19,400.00	7,364.00	3,351.00	3,350.60	199.04	67.23	-1.20	-599.75	-4,773.48	17,625.21	17,520.75	104.47	168.712	
19,500.00	7,364.00	3,351.00	3,350.60	200.62	67.23	-1.20	-599.75	-4,773.48	17,722.65	17,618.05	104.60	169.427	
19,600.00	7,364.00	3,351.00	3,350.60	202.21	67.23	-1.20	-599.75	-4,773.48	17,820.12	17,715.38	104.74	170.142	
19,700.00	7,364.00	3,351.00	3,350.60	203.79	67.23	-1.20	-599.75	-4,773.48	17,917.61	17,812.74	104.87	170.856	
19,800.00	7,364.00	3,351.00	3,350.60	205.38	67.23	-1.20	-599.75	-4,773.48	18,015.13	17,910.13	105.00	171.568	
19,900.00	7,364.00	3,351.00	3,350.60	206.97	67.23	-1.20	-599.75	-4,773.48	18,112.68	18,007.55	105.14	172.280	
20,000.00	7,364.00	3,351.00	3,350.60	208.55	67.23	-1.20	-599.75	-4,773.48	18,210.26	18,104.99	105.27	172.990	
20,100.00	7,364.00	3,351.00	3,350.60	210.14	67.23	-1.20	-599.75	-4,773.48	18,307.86	18,202.46	105.40	173.699	
20,200.00	7,364.00	3,351.00	3,350.60	211.73	67.23	-1.20	-599.75	-4,773.48	18,405.49	18,299.95	105.53	174.407	
20,300.00	7,364.00	3,351.00	3,350.60	213.32	67.23	-1.20	-599.75	-4,773.48	18,503.14	18,397.47	105.66	175.114	
20,400.00	7,364.00	3,351.00	3,350.60	214.90	67.23	-1.20	-599.75	-4,773.48	18,600.82	18,495.02	105.79	175.820	
20,500.00	7,364.00	3,351.00	3,350.60	216.49	67.23	-1.20	-599.75	-4,773.48	18,698.52	18,592.59	105.93	176.525	
20,600.00	7,364.00	3,351.00	3,350.60	218.08	67.23	-1.20	-599.75	-4,773.48	18,796.24	18,690.19	106.06	177.229	
20,700.00	7,364.00	3,351.00	3,350.60	219.67	67.23	-1.20	-599.75	-4,773.48	18,893.99	18,787.81	106.19	177.932	
20,800.00	7,364.00	3,351.00	3,350.60	221.26	67.23	-1.20	-599.75	-4,773.48	18,991.77	18,885.45	106.32	178.633	
20,900.00	7,364.00	3,351.00	3,350.60	222.84	67.23	-1.20	-599.75	-4,773.48	19,089.56	18,983.12	106.45	179.334	
21,000.00	7,364.00	3,351.00	3,350.60	224.43	67.23	-1.20	-599.75	-4,773.48	19,187.38	19,080.80	106.58	180.033	
21,100.00	7,364.00	3,351.00	3,350.60	226.02	67.23	-1.20	-599.75	-4,773.48	19,285.22	19,178.52	106.71	180.731	
21,200.00	7,364.00	3,351.00	3,350.60	227.61	67.23	-1.20	-599.75	-4,773.48	19,383.09	19,276.25	106.84	181.428	
21,300.00	7,364.00	3,351.00	3,350.60	229.20	67.23	-1.20	-599.75	-4,773.48	19,480.97	19,374.01	106.97	182.123	
21,400.00	7,364.00	3,351.00	3,350.60	230.79	67.23	-1.20	-599.75	-4,773.48	19,578.88	19,471.78	107.10	182.818	
21,500.00	7,364.00	3,351.00	3,350.60	232.38	67.23	-1.20	-599.75	-4,773.48	19,676.81	19,569.58	107.22	183.511	
21,600.00	7,364.00	3,351.00	3,350.60	233.97	67.23	-1.20	-599.75	-4,773.48	19,774.75	19,667.40	107.35	184.203	
21,700.00	7,364.00	3,351.00	3,350.60	235.56	67.23	-1.20	-599.75	-4,773.48	19,872.72	19,765.24	107.48	184.894	
21,800.00	7,364.00	3,351.00	3,350.60	237.15	67.23	-1.20	-599.75	-4,773.48	19,970.71	19,863.10	107.61	185.583	
21,864.93	7,364.00	3,351.00	3,350.60	238.18	67.23	-1.20	-599.75	-4,773.48	20,034.34	19,926.65	107.69	186.030	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - Rosa Unit #746H - OH - OH — **Offset Site Error:** 0.00 usft

Survey Program: 100-A020Ga_GYRO-NS, 450-B001Mb_MWD+HRGM, 6613-MWD+HRGM+MS, 20953-A026Ua_BLIND — **Rule Assigned:** — **Offset Well Error:** 3.28 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	3.28	3.28	17.82	2,273.62	730.76	2,388.54				
100.00	100.00	77.17	77.17	3.29	3.28	17.81	2,273.45	730.28	2,387.93	2,381.36	6.57	363.411	
200.00	200.00	340.83	340.33	3.34	3.48	17.56	2,266.71	717.36	2,384.49	2,377.72	6.77	352.101	
300.00	300.00	480.22	478.98	3.42	3.59	17.37	2,257.72	706.18	2,375.89	2,368.95	6.94	342.306	
400.00	400.00	828.65	823.17	3.54	3.98	17.06	2,212.64	679.18	2,360.82	2,353.51	7.31	322.909	
500.00	500.00	930.32	922.84	3.69	4.20	17.05	2,193.65	672.67	2,341.08	2,333.45	7.63	306.773	
600.00	599.98	1,039.72	1,030.00	3.86	4.47	-133.25	2,172.37	667.15	2,322.17	2,314.16	8.01	289.981	
700.00	699.84	1,129.37	1,117.76	4.04	4.73	-133.53	2,154.35	663.80	2,305.39	2,297.00	8.39	274.651	
808.00	807.41	1,215.75	1,202.42	4.27	4.99	-133.80	2,137.34	661.91	2,290.83	2,282.00	8.83	259.436	
900.00	898.89	1,297.26	1,282.30	4.49	5.25	-150.80	2,121.14	662.73	2,281.15	2,271.90	9.25	246.545	
912.12	910.94	1,309.59	1,294.37	4.52	5.29	-153.00	2,118.65	663.01	2,280.02	2,270.71	9.31	244.836	
1,000.00	998.31	1,428.03	1,410.15	4.74	5.69	-152.87	2,093.98	666.88	2,271.68	2,261.84	9.84	230.886	
1,100.00	1,097.73	1,573.83	1,551.82	5.01	6.23	-152.65	2,060.13	673.09	2,260.00	2,249.49	10.51	215.005	
1,200.00	1,197.15	1,698.16	1,671.94	5.29	6.73	-152.41	2,028.78	679.88	2,246.74	2,235.57	11.17	201.080	
1,300.00	1,296.58	1,833.35	1,802.15	5.59	7.32	-152.12	1,993.18	687.26	2,232.50	2,220.60	11.90	187.627	
1,400.00	1,396.00	1,920.56	1,886.04	5.90	7.71	-151.95	1,969.72	691.51	2,217.52	2,205.01	12.51	177.211	
1,500.00	1,495.42	2,008.08	1,970.41	6.22	8.11	-151.78	1,946.77	695.34	2,203.07	2,189.93	13.14	167.630	
1,600.00	1,594.84	2,086.26	2,045.94	6.54	8.47	-151.64	1,926.87	698.53	2,189.32	2,175.57	13.75	159.178	
1,700.00	1,694.27	2,171.96	2,128.96	6.87	8.86	-151.50	1,905.87	702.01	2,176.48	2,162.09	14.40	151.183	
1,800.00	1,793.69	2,272.42	2,226.39	7.21	9.32	-151.34	1,881.65	705.59	2,163.92	2,148.82	15.09	143.375	
1,900.00	1,893.11	2,382.20	2,332.70	7.55	9.83	-151.15	1,854.65	710.01	2,151.03	2,135.20	15.83	135.879	
2,000.00	1,992.53	2,513.67	2,459.57	7.89	10.46	-150.89	1,820.72	716.14	2,137.21	2,120.55	16.65	128.355	
2,100.00	2,091.96	2,633.23	2,574.44	8.24	11.06	-150.62	1,788.08	722.04	2,122.00	2,104.55	17.45	121.607	
2,200.00	2,191.38	2,730.85	2,668.08	8.60	11.55	-150.39	1,760.93	726.86	2,106.35	2,088.16	18.19	115.811	
2,300.00	2,290.80	2,832.17	2,765.39	8.95	12.07	-150.16	1,733.09	731.53	2,090.97	2,072.03	18.94	110.382	
2,400.00	2,390.22	2,956.55	2,884.59	9.31	12.72	-149.87	1,697.98	736.97	2,074.83	2,055.05	19.78	104.899	
2,500.00	2,489.65	3,061.53	2,984.81	9.67	13.27	-149.59	1,667.19	742.22	2,057.84	2,037.27	20.57	100.060	
2,600.00	2,589.07	3,168.56	3,086.65	10.03	13.85	-149.26	1,634.96	748.91	2,040.54	2,019.17	21.37	95.469	
2,700.00	2,688.49	3,251.99	3,165.92	10.40	14.31	-148.98	1,609.55	754.58	2,023.19	2,001.07	22.11	91.487	
2,800.00	2,787.91	3,330.22	3,240.51	10.76	14.73	-148.74	1,586.51	759.54	2,006.75	1,983.91	22.84	87.876	
2,900.00	2,887.33	3,397.65	3,305.20	11.13	15.08	-148.54	1,567.89	763.40	1,991.84	1,968.33	23.52	84.702	
3,000.00	2,986.76	3,464.77	3,369.99	11.50	15.42	-148.38	1,550.66	766.67	1,978.54	1,954.35	24.19	81.806	
3,100.00	3,086.18	3,534.99	3,438.22	11.87	15.76	-148.26	1,534.24	768.97	1,966.85	1,942.00	24.85	79.135	
3,200.00	3,185.60	3,607.34	3,508.87	12.24	16.10	-148.18	1,518.74	770.41	1,956.59	1,931.08	25.52	76.684	
3,300.00	3,285.02	3,689.65	3,589.54	12.61	16.47	-148.10	1,502.42	771.61	1,947.63	1,921.43	26.20	74.332	
3,400.00	3,384.45	3,856.59	3,752.71	12.98	17.24	-147.95	1,467.29	773.43	1,937.65	1,910.48	27.17	71.316	
3,500.00	3,483.87	3,991.11	3,882.85	13.36	17.91	-147.69	1,433.52	777.42	1,924.21	1,896.15	28.06	68.572	
3,600.00	3,583.29	4,098.00	3,985.71	13.73	18.47	-147.40	1,404.94	782.90	1,910.14	1,881.25	28.89	66.128	
3,700.00	3,682.71	4,199.29	4,082.94	14.11	19.00	-147.10	1,377.09	788.29	1,895.42	1,865.72	29.70	63.820	
3,800.00	3,782.14	4,293.37	4,173.32	14.48	19.50	-146.81	1,351.53	793.71	1,881.24	1,850.74	30.50	61.688	
3,900.00	3,881.56	4,406.29	4,281.51	14.86	20.10	-146.42	1,320.03	801.04	1,866.69	1,835.33	31.36	59.516	
4,000.00	3,980.98	4,511.32	4,381.89	15.24	20.67	-146.04	1,289.91	808.08	1,851.56	1,819.34	32.22	57.475	
4,100.00	4,080.40	4,608.84	4,475.13	15.61	21.20	-145.69	1,262.01	814.15	1,836.38	1,803.34	33.04	55.576	
4,200.00	4,179.83	4,698.43	4,560.86	15.99	21.68	-145.37	1,236.60	819.72	1,821.51	1,787.66	33.85	53.814	
4,300.00	4,279.25	4,796.49	4,654.68	16.37	22.21	-145.00	1,208.88	826.50	1,807.05	1,772.36	34.69	52.095	
4,400.00	4,378.67	4,932.80	4,784.33	16.75	22.97	-144.42	1,167.99	836.25	1,791.01	1,755.35	35.66	50.219	
4,500.00	4,478.09	5,004.99	4,853.22	17.13	23.38	-144.13	1,147.01	841.23	1,775.79	1,739.35	36.44	48.734	
4,600.00	4,577.51	5,070.98	4,916.57	17.51	23.73	-143.88	1,129.03	845.62	1,762.21	1,725.03	37.18	47.399	
4,700.00	4,676.94	5,211.78	5,051.19	17.89	24.49	-143.29	1,089.09	855.63	1,748.13	1,709.95	38.18	45.791	
4,800.00	4,776.36	5,288.99	5,124.81	18.27	24.92	-142.96	1,066.42	861.01	1,733.17	1,694.19	38.98	44.466	
4,900.00	4,875.78	5,383.99	5,215.87	18.65	25.44	-142.59	1,039.99	866.76	1,719.27	1,679.44	39.82	43.174	
5,000.00	4,975.20	5,533.01	5,358.77	19.03	26.25	-142.06	998.31	873.65	1,705.04	1,664.22	40.82	41.774	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - Rosa Unit #746H - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 100-A020Ga_GYRO-NS, 450-B001Mb_MWD+HRGM, 6613-MWD+HRGM+MS, 20953-A026Ua_BLIND

Rule Assigned:

Offset Well Error: 3.28 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,100.00	5,074.63	5,642.62	5,462.51	19.41	26.87	-141.56	963.44	879.67	1,687.34	1,645.61	41.73	40.438	
5,200.00	5,174.05	5,724.75	5,540.46	19.79	27.34	-141.19	937.99	884.18	1,670.55	1,627.98	42.57	39.247	
5,300.00	5,273.47	5,800.29	5,612.60	20.17	27.76	-140.90	915.82	887.49	1,654.86	1,611.49	43.37	38.156	
5,400.00	5,372.89	5,872.47	5,681.99	20.56	28.15	-140.65	896.15	890.29	1,640.85	1,596.70	44.15	37.166	
5,500.00	5,472.32	5,950.99	5,757.85	20.94	28.55	-140.41	876.04	892.87	1,628.15	1,583.22	44.93	36.238	
5,600.00	5,571.74	6,036.84	5,841.11	21.32	28.98	-140.17	855.29	895.49	1,616.61	1,570.89	45.72	35.360	
5,700.00	5,671.16	6,129.29	5,930.96	21.70	29.43	-139.94	833.63	897.83	1,605.54	1,559.02	46.52	34.513	
5,800.00	5,770.58	6,201.94	6,001.86	22.08	29.78	-139.80	817.86	899.15	1,595.66	1,548.42	47.24	33.778	
5,900.00	5,870.01	6,280.03	6,078.44	22.47	30.13	-139.69	802.62	900.12	1,587.42	1,539.47	47.95	33.103	
6,000.00	5,969.43	6,360.99	6,158.12	22.85	30.48	-139.62	788.31	900.56	1,580.46	1,531.81	48.66	32.482	
6,100.00	6,068.85	6,423.99	6,220.35	23.23	30.73	-139.60	778.52	900.57	1,575.15	1,525.88	49.27	31.972	
6,200.00	6,168.27	6,486.99	6,282.79	23.62	30.98	-139.61	770.09	900.54	1,571.86	1,522.02	49.84	31.535	
6,300.00	6,267.70	6,571.91	6,367.18	24.00	31.24	-139.65	760.64	900.56	1,570.42	1,519.98	50.44	31.136	
6,400.00	6,367.12	6,744.53	6,537.96	24.38	31.48	-139.54	737.71	904.52	1,568.85	1,517.83	51.01	30.755	
6,500.00	6,466.54	6,838.57	6,628.51	24.77	31.66	-139.03	715.96	915.57	1,562.71	1,511.12	51.58	30.296	
6,600.00	6,565.96	6,885.99	6,672.29	25.15	31.77	-138.50	702.81	928.11	1,559.63	1,507.54	52.09	29.941	
6,623.12	6,588.95	6,885.99	6,672.29	25.24	31.77	-138.50	702.81	928.11	1,559.46	1,507.31	52.15	29.904	
6,700.00	6,665.38	6,885.99	6,672.29	25.53	31.77	-138.50	702.81	928.11	1,561.36	1,509.08	52.28	29.867	
6,778.75	6,743.68	6,939.22	6,719.85	25.84	31.91	-137.76	688.40	947.14	1,564.57	1,511.82	52.74	29.665	
6,800.00	6,764.80	6,945.84	6,725.66	25.92	31.93	-121.54	686.70	949.83	1,565.93	1,513.13	52.80	29.657	
6,850.00	6,814.29	6,980.99	6,755.97	26.11	32.02	-96.48	677.98	965.31	1,568.83	1,515.73	53.10	29.547	
6,900.00	6,863.27	6,980.99	6,755.97	26.30	32.02	-84.44	677.98	965.31	1,570.06	1,517.02	53.04	29.601	
6,950.00	6,911.44	6,980.99	6,755.97	26.50	32.02	-77.89	677.98	965.31	1,570.78	1,517.85	52.93	29.676	
7,000.00	6,958.49	6,980.99	6,755.97	26.68	32.02	-73.91	677.98	965.31	1,570.98	1,518.22	52.77	29.772	
7,050.00	7,004.14	7,028.30	6,795.48	26.87	32.14	-71.06	667.20	988.98	1,568.62	1,515.49	53.14	29.519	
7,100.00	7,048.10	7,074.99	6,832.92	27.05	32.27	-69.16	657.71	1,015.19	1,566.81	1,513.31	53.51	29.283	
7,150.00	7,090.11	7,074.99	6,832.92	27.23	32.27	-68.13	657.71	1,015.19	1,562.48	1,509.21	53.27	29.333	
7,200.00	7,129.90	7,074.99	6,832.92	27.41	32.27	-67.46	657.71	1,015.19	1,557.64	1,504.65	52.99	29.396	
7,250.00	7,167.24	7,074.99	6,832.92	27.59	32.27	-67.07	657.71	1,015.19	1,552.31	1,499.63	52.68	29.467	
7,300.00	7,201.88	7,113.80	6,862.68	27.76	32.36	-67.02	650.74	1,039.09	1,545.09	1,492.15	52.95	29.182	
7,350.00	7,233.63	7,130.62	6,875.16	27.94	32.41	-67.18	647.99	1,050.03	1,537.37	1,484.49	52.88	29.071	
7,400.00	7,262.27	7,169.99	6,903.30	28.13	32.51	-67.70	642.23	1,076.95	1,529.23	1,476.04	53.19	28.752	
7,450.00	7,287.63	7,169.99	6,903.30	28.32	32.51	-68.17	642.23	1,076.95	1,519.29	1,466.42	52.87	28.734	
7,500.00	7,309.57	7,169.99	6,903.30	28.53	32.51	-68.74	642.23	1,076.95	1,509.08	1,456.52	52.57	28.708	
7,550.00	7,327.93	7,200.89	6,924.22	28.74	32.59	-69.80	638.21	1,099.34	1,497.88	1,445.06	52.82	28.359	
7,600.00	7,342.62	7,219.57	6,936.30	28.97	32.64	-70.88	635.93	1,113.39	1,486.09	1,433.20	52.89	28.098	
7,650.00	7,353.53	7,264.99	6,963.87	29.22	32.76	-72.53	630.83	1,149.11	1,474.27	1,420.81	53.47	27.574	
7,700.00	7,360.61	7,264.99	6,963.87	29.48	32.76	-73.62	630.83	1,149.11	1,460.83	1,407.55	53.28	27.416	
7,750.00	7,363.80	7,264.99	6,963.87	29.75	32.76	-74.74	630.83	1,149.11	1,447.53	1,394.38	53.15	27.237	
7,765.93	7,364.00	7,289.12	6,977.27	29.84	32.84	-75.61	628.15	1,169.00	1,443.04	1,389.49	53.55	26.945	
7,800.00	7,364.00	7,309.16	6,987.56	30.04	32.90	-76.00	625.71	1,186.02	1,433.80	1,379.95	53.85	26.625	
7,900.00	7,364.00	7,358.99	7,009.72	30.67	33.06	-76.83	618.84	1,230.08	1,408.61	1,354.03	54.57	25.811	
8,000.00	7,364.00	7,435.96	7,035.09	31.37	33.36	-77.76	606.85	1,301.69	1,385.82	1,329.99	55.83	24.821	
8,100.00	7,364.00	7,513.49	7,052.99	32.14	33.68	-78.40	594.24	1,376.06	1,365.23	1,308.10	57.13	23.898	
8,200.00	7,364.00	7,582.38	7,067.18	32.96	34.00	-78.91	583.51	1,442.61	1,346.22	1,287.88	58.33	23.078	
8,300.00	7,364.00	7,641.98	7,076.87	33.85	34.28	-79.26	575.26	1,500.84	1,329.94	1,270.54	59.40	22.391	
8,400.00	7,364.00	7,676.18	7,080.84	34.79	34.44	-79.40	571.53	1,534.59	1,317.56	1,257.56	60.01	21.956	
8,500.00	7,364.00	7,736.98	7,083.73	35.77	34.73	-79.50	568.34	1,595.21	1,310.91	1,249.81	61.10	21.456	
8,600.00	7,364.00	7,759.34	7,083.86	36.80	34.83	-79.51	568.00	1,617.56	1,307.56	1,246.09	61.48	21.268	
8,700.00	7,364.00	7,865.64	7,086.00	37.87	35.36	-79.59	566.76	1,723.83	1,306.62	1,243.11	63.50	20.576	
8,800.00	7,364.00	7,983.33	7,087.86	38.98	36.03	-79.65	563.43	1,841.45	1,304.02	1,238.14	65.88	19.795	
8,900.00	7,364.00	8,084.88	7,087.17	40.12	36.68	-79.60	559.76	1,942.93	1,301.12	1,233.13	67.99	19.138	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - Rosa Unit #746H - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 100-A020Ga_GYRO-NS, 450-B001Mb_MWD+HRGM, 6613-MWD+HRGM+MS, 20953-A026Ua_BLIND

Rule Assigned:

Offset Well Error: 3.28 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,000.00	7,364.00	8,182.72	7,085.44	41.29	37.37	-79.50	555.95	2,040.68	1,298.15	1,228.07	70.08	18.523	
9,100.00	7,364.00	8,276.42	7,082.15	42.49	38.08	-79.33	552.35	2,134.26	1,295.55	1,223.42	72.13	17.962	
9,200.00	7,364.00	8,381.66	7,078.38	43.71	38.94	-79.14	548.49	2,239.35	1,293.15	1,218.64	74.51	17.356	
9,300.00	7,364.00	8,478.98	7,075.40	44.96	39.80	-78.98	544.69	2,336.56	1,290.44	1,213.67	76.76	16.810	
9,400.00	7,364.00	8,586.42	7,073.34	46.23	40.79	-78.86	540.70	2,443.90	1,287.70	1,208.35	79.35	16.228	
9,500.00	7,364.00	8,697.08	7,073.68	47.52	41.88	-78.84	536.11	2,554.46	1,284.10	1,201.98	82.12	15.637	
9,600.00	7,364.00	8,793.74	7,074.26	48.83	42.87	-78.84	531.95	2,651.03	1,280.29	1,195.72	84.57	15.140	
9,700.00	7,364.00	8,890.90	7,074.84	50.15	43.91	-78.83	527.99	2,748.10	1,276.71	1,189.64	87.06	14.664	
9,800.00	7,364.00	8,988.04	7,075.54	51.49	44.98	-78.83	524.28	2,845.17	1,273.36	1,183.76	89.60	14.212	
9,900.00	7,364.00	9,078.45	7,076.33	52.85	46.00	-78.85	521.07	2,935.53	1,270.26	1,178.28	91.98	13.810	
10,000.00	7,364.00	9,155.98	7,076.82	54.22	46.89	-78.86	519.92	3,013.04	1,269.09	1,175.10	93.99	13.502	
10,009.20	7,364.00	9,155.98	7,076.82	54.35	46.89	-78.86	519.92	3,013.04	1,269.06	1,175.09	93.96	13.506	
10,100.00	7,364.00	9,248.70	7,077.34	55.60	47.96	-78.89	519.64	3,105.76	1,269.18	1,172.70	96.48	13.155	
10,114.00	7,364.00	9,260.88	7,077.41	55.79	48.11	-78.89	519.58	3,117.94	1,269.17	1,172.36	96.81	13.110	
10,200.00	7,364.00	9,334.00	7,077.17	56.99	48.97	-78.88	519.50	3,191.06	1,269.59	1,170.85	98.75	12.857	
10,300.00	7,364.00	9,430.84	7,076.29	58.40	50.14	-78.85	519.98	3,287.89	1,270.78	1,169.40	101.38	12.535	
10,400.00	7,364.00	9,524.86	7,076.26	59.81	51.29	-78.86	520.87	3,381.90	1,272.25	1,168.30	103.96	12.238	
10,500.00	7,364.00	9,613.38	7,075.74	61.23	52.39	-78.85	522.22	3,470.42	1,274.40	1,168.04	106.37	11.981	
10,600.00	7,364.00	9,710.14	7,074.12	62.66	53.61	-78.80	524.14	3,567.14	1,277.21	1,168.17	109.04	11.713	
10,700.00	7,364.00	9,801.28	7,073.45	64.10	54.76	-78.80	526.46	3,658.25	1,280.39	1,168.82	111.56	11.477	
10,800.00	7,364.00	9,897.70	7,073.30	65.55	56.00	-78.83	529.59	3,754.61	1,284.13	1,169.84	114.29	11.236	
10,900.00	7,364.00	10,034.02	7,072.10	67.01	57.80	-78.80	532.32	3,890.90	1,286.89	1,168.54	118.35	10.873	
11,000.00	7,364.00	10,152.59	7,071.32	68.47	59.39	-78.76	531.13	4,009.45	1,286.45	1,164.64	121.81	10.561	
11,040.50	7,364.00	10,188.05	7,071.23	69.06	59.88	-78.76	530.83	4,044.92	1,286.35	1,163.53	122.82	10.473	
11,100.00	7,364.00	10,240.42	7,071.15	69.93	60.59	-78.76	530.65	4,097.29	1,286.49	1,162.18	124.31	10.349	
11,200.00	7,364.00	10,348.31	7,070.98	71.41	62.07	-78.75	530.69	4,205.17	1,287.12	1,159.65	127.47	10.097	
11,264.70	7,364.00	10,411.71	7,070.79	72.36	62.95	-78.74	530.05	4,268.57	1,286.86	1,157.56	129.31	9.952	
11,300.00	7,364.00	10,438.06	7,070.67	72.88	63.31	-78.74	529.97	4,294.92	1,286.99	1,156.94	130.04	9.897	
11,400.00	7,364.00	10,550.87	7,070.78	74.37	64.88	-78.75	530.42	4,407.73	1,287.98	1,154.58	133.40	9.655	
11,500.00	7,364.00	10,694.09	7,073.27	75.85	66.91	-78.84	526.67	4,550.86	1,285.44	1,147.72	137.72	9.334	
11,600.00	7,364.00	10,786.06	7,074.81	77.35	68.23	-78.88	523.35	4,642.76	1,282.10	1,141.65	140.45	9.128	
11,700.00	7,364.00	10,879.22	7,076.73	78.84	69.57	-78.94	520.59	4,735.86	1,279.34	1,136.10	143.24	8.932	
11,800.00	7,364.00	10,972.23	7,078.79	80.34	70.91	-79.02	518.35	4,828.82	1,277.08	1,131.06	146.02	8.746	
11,900.00	7,364.00	11,061.72	7,078.89	81.85	72.20	-79.01	516.45	4,918.28	1,275.51	1,126.85	148.66	8.580	
12,000.00	7,364.00	11,150.13	7,078.53	83.36	73.49	-78.99	515.35	5,006.69	1,274.89	1,123.64	151.25	8.429	
12,100.00	7,364.00	11,252.21	7,078.98	84.87	74.97	-79.01	514.50	5,108.76	1,274.53	1,120.20	154.32	8.259	
12,180.74	7,364.00	11,327.98	7,078.75	86.09	76.08	-79.00	513.88	5,184.53	1,274.36	1,117.79	156.57	8.139	
12,200.00	7,364.00	11,345.56	7,078.56	86.38	76.33	-78.99	513.76	5,202.10	1,274.37	1,117.28	157.09	8.113	
12,300.00	7,364.00	11,438.16	7,077.48	87.90	77.69	-78.94	513.55	5,294.69	1,274.90	1,115.09	159.81	7.977	
12,400.00	7,364.00	11,541.08	7,076.96	89.42	79.20	-78.92	513.28	5,397.62	1,275.27	1,112.36	162.91	7.828	
12,500.00	7,364.00	11,626.25	7,076.70	90.95	80.45	-78.92	513.75	5,482.79	1,276.39	1,110.99	165.40	7.717	
12,600.00	7,364.00	11,722.24	7,075.98	92.47	81.86	-78.90	514.89	5,578.76	1,278.23	1,109.97	168.27	7.597	
12,700.00	7,364.00	11,828.78	7,074.81	94.00	83.43	-78.87	516.07	5,685.29	1,280.07	1,108.57	171.50	7.464	
12,800.00	7,364.00	11,932.84	7,073.48	95.53	84.98	-78.81	516.24	5,789.34	1,281.00	1,106.36	174.64	7.335	
12,900.00	7,364.00	12,023.66	7,071.86	97.06	86.33	-78.75	516.98	5,880.15	1,282.66	1,105.35	177.31	7.234	
13,000.00	7,364.00	12,126.07	7,069.78	98.60	87.85	-78.67	517.80	5,982.53	1,284.38	1,103.99	180.39	7.120	
13,100.00	7,364.00	12,225.22	7,067.67	100.14	89.34	-78.59	518.52	6,081.66	1,286.05	1,102.69	183.35	7.014	
13,200.00	7,364.00	12,319.72	7,065.48	101.68	90.75	-78.51	519.37	6,176.12	1,287.93	1,101.78	186.14	6.919	
13,300.00	7,364.00	12,448.00	7,062.79	103.22	92.68	-78.41	520.26	6,304.37	1,289.72	1,099.59	190.12	6.784	
13,387.75	7,364.00	12,535.22	7,062.31	104.57	93.99	-78.38	519.48	6,391.58	1,289.52	1,096.75	192.77	6.690	
13,400.00	7,364.00	12,546.59	7,062.24	104.76	94.17	-78.38	519.41	6,402.96	1,289.52	1,096.42	193.11	6.678	
13,500.00	7,364.00	12,651.62	7,061.65	106.31	95.76	-78.35	518.62	6,507.98	1,289.44	1,093.13	196.31	6.568	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - Rosa Unit #746H - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 100-A020Ga_GYRO-NS, 450-B001Mb_MWD+HRGM, 6613-MWD+HRGM+MS, 20953-A026Ua_BLIND

Rule Assigned:

Offset Well Error: 3.28 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
13,600.00	7,364.00	12,755.72	7,061.05	107.85	97.34	-78.32	517.35	6,612.07	1,288.89	1,089.41	199.48	6.461	
13,681.90	7,364.00	12,829.81	7,060.41	109.12	98.46	-78.29	516.56	6,686.15	1,288.61	1,086.91	201.71	6.389	
13,700.00	7,364.00	12,846.44	7,060.24	109.40	98.72	-78.28	516.44	6,702.78	1,288.62	1,086.41	202.21	6.373	
13,800.00	7,364.00	12,939.65	7,059.38	110.95	100.14	-78.24	516.08	6,795.99	1,288.96	1,083.95	205.01	6.287	
13,900.00	7,364.00	13,032.52	7,058.46	112.50	101.55	-78.21	516.24	6,888.85	1,289.86	1,082.06	207.80	6.207	
14,000.00	7,364.00	13,132.48	7,057.66	114.05	103.07	-78.19	516.75	6,988.80	1,291.06	1,080.22	210.84	6.123	
14,100.00	7,364.00	13,234.29	7,058.72	115.61	104.62	-78.24	517.31	7,090.61	1,291.91	1,077.90	214.01	6.037	
14,200.00	7,364.00	13,310.97	7,060.24	117.16	105.79	-78.32	518.79	7,167.26	1,293.91	1,077.64	216.27	5.983	
14,300.00	7,364.00	13,459.45	7,062.45	118.72	108.06	-78.44	519.87	7,315.70	1,294.85	1,073.72	221.13	5.855	
14,400.00	7,364.00	13,580.44	7,062.77	120.28	109.92	-78.43	516.92	7,436.66	1,292.90	1,068.04	224.86	5.750	
14,500.00	7,364.00	13,729.42	7,062.95	121.84	112.23	-78.37	508.98	7,585.41	1,288.06	1,058.84	229.22	5.619	
14,600.00	7,364.00	13,830.25	7,063.39	123.40	113.80	-78.33	501.84	7,685.98	1,281.56	1,049.27	232.30	5.517	
14,700.00	7,364.00	13,917.41	7,063.87	124.96	115.16	-78.31	496.04	7,772.95	1,275.49	1,040.45	235.05	5.427	
14,800.00	7,364.00	13,997.04	7,063.69	126.52	116.39	-78.26	491.81	7,852.46	1,270.86	1,033.30	237.56	5.350	
14,900.00	7,364.00	14,077.87	7,063.22	128.08	117.65	-78.22	488.76	7,933.24	1,267.81	1,027.76	240.05	5.281	
15,000.00	7,364.00	14,165.52	7,062.97	129.64	119.01	-78.19	486.59	8,020.86	1,265.98	1,023.24	242.73	5.216	
15,100.00	7,364.00	14,256.97	7,062.97	131.21	120.42	-78.18	485.08	8,112.30	1,264.90	1,019.36	245.53	5.152	
15,180.28	7,364.00	14,328.63	7,062.88	132.47	121.53	-78.18	484.37	8,183.95	1,264.57	1,016.86	247.71	5.105	
15,200.00	7,364.00	14,345.87	7,062.83	132.77	121.80	-78.17	484.28	8,201.20	1,264.59	1,016.36	248.23	5.094	
15,300.00	7,364.00	14,459.39	7,062.40	134.34	123.56	-78.15	483.09	8,314.70	1,264.16	1,012.40	251.77	5.021	
15,382.94	7,364.00	14,531.30	7,062.30	135.64	124.67	-78.14	482.35	8,386.61	1,263.80	1,009.85	253.95	4.977	
15,400.00	7,364.00	14,540.97	7,062.31	135.91	124.82	-78.14	482.31	8,396.28	1,263.83	1,009.61	254.22	4.971	
15,500.00	7,364.00	14,623.38	7,062.26	137.48	126.10	-78.15	482.73	8,478.69	1,264.92	1,008.26	256.66	4.928	
15,600.00	7,364.00	14,720.11	7,061.88	139.04	127.59	-78.15	484.32	8,575.40	1,267.13	1,007.51	259.62	4.881	
15,700.00	7,364.00	14,818.19	7,061.88	140.61	129.11	-78.17	486.09	8,673.47	1,269.43	1,006.77	262.66	4.833	
15,800.00	7,364.00	14,914.72	7,062.63	142.18	130.60	-78.23	488.20	8,769.98	1,271.94	1,006.28	265.66	4.788	
15,900.00	7,364.00	15,023.72	7,063.69	143.75	132.29	-78.30	490.36	8,878.95	1,274.22	1,005.05	269.17	4.734	
16,000.00	7,364.00	15,121.90	7,064.76	145.33	133.81	-78.37	492.01	8,977.11	1,276.18	1,003.93	272.25	4.687	
16,100.00	7,364.00	15,213.66	7,065.55	146.90	135.23	-78.43	494.03	9,068.84	1,278.69	1,003.61	275.07	4.649	
16,200.00	7,364.00	15,324.51	7,066.63	148.47	136.95	-78.50	496.10	9,179.67	1,280.84	1,002.18	278.66	4.596	
16,300.00	7,364.00	15,425.17	7,067.67	150.04	138.51	-78.56	497.76	9,280.30	1,282.79	1,000.95	281.84	4.551	
16,400.00	7,364.00	15,526.24	7,068.81	151.62	140.08	-78.63	499.12	9,381.36	1,284.42	999.37	285.04	4.506	
16,500.00	7,364.00	15,633.49	7,070.11	153.19	141.75	-78.71	500.76	9,488.59	1,286.23	997.75	288.48	4.459	
16,600.00	7,364.00	15,757.36	7,072.25	154.77	143.69	-78.81	500.77	9,612.44	1,286.42	993.91	292.51	4.398	
16,696.84	7,364.00	15,845.56	7,073.22	156.29	145.07	-78.85	500.06	9,700.63	1,285.99	990.72	295.27	4.355	
16,700.00	7,364.00	15,848.33	7,073.22	156.34	145.11	-78.85	500.05	9,703.40	1,285.99	990.64	295.35	4.354	
16,800.00	7,364.00	15,966.48	7,073.02	157.92	146.96	-78.83	498.77	9,821.54	1,285.52	986.47	299.05	4.299	
16,900.00	7,364.00	16,053.47	7,073.01	159.49	148.32	-78.83	497.62	9,908.52	1,284.75	983.01	301.74	4.258	
17,000.00	7,364.00	16,165.65	7,073.12	161.07	150.08	-78.82	495.97	10,020.69	1,283.81	978.56	305.25	4.206	
17,100.00	7,364.00	16,263.17	7,073.85	162.65	151.61	-78.84	494.33	10,118.20	1,282.55	974.25	308.31	4.160	
17,200.00	7,364.00	16,366.88	7,074.85	164.23	153.24	-78.88	492.93	10,221.89	1,281.58	970.01	311.57	4.113	
17,300.00	7,364.00	16,523.51	7,075.00	165.81	155.70	-78.84	486.63	10,378.36	1,278.27	962.13	316.14	4.043	
17,400.00	7,364.00	16,628.43	7,072.61	167.38	157.36	-78.67	479.02	10,482.98	1,272.12	952.91	319.21	3.985	
17,500.00	7,364.00	16,713.97	7,070.66	168.96	158.71	-78.54	473.26	10,568.30	1,266.49	944.59	321.90	3.934	
17,600.00	7,364.00	16,791.78	7,068.83	170.54	159.94	-78.42	469.14	10,645.99	1,262.29	937.92	324.36	3.892	
17,700.00	7,364.00	16,863.54	7,067.25	172.12	161.07	-78.34	466.72	10,717.68	1,259.99	933.43	326.56	3.858	
17,754.00	7,364.00	16,903.97	7,066.45	172.98	161.70	-78.30	466.16	10,758.10	1,259.74	931.99	327.75	3.844	CC
17,800.00	7,364.00	16,947.66	7,065.68	173.70	162.39	-78.26	465.86	10,801.78	1,259.83	930.77	329.07	3.828	
17,900.00	7,364.00	17,038.87	7,064.33	175.28	163.82	-78.20	465.30	10,892.97	1,260.09	928.28	331.81	3.798	
18,000.00	7,364.00	17,121.13	7,063.20	176.87	165.11	-78.16	465.99	10,975.23	1,261.71	927.52	334.19	3.775	
18,100.00	7,364.00	17,212.02	7,061.78	178.45	166.53	-78.12	467.70	11,066.09	1,264.40	927.51	336.88	3.753	
18,200.00	7,364.00	17,314.67	7,060.16	180.03	168.14	-78.07	469.92	11,168.71	1,267.38	927.31	340.07	3.727	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - Rosa Unit #746H - OH - OH — **Offset Site Error:** 0.00 usft

Survey Program: 100-A020Ga_GYRO-NS, 450-B001Mb_MWD+HRGM, 6613-MWD+HRGM+MS, 20953-A026Ua_BLIND — **Rule Assigned:** — **Offset Well Error:** 3.28 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
18,300.00	7,364.00	17,422.03	7,059.94	181.61	169.82	-78.09	471.87	11,276.04	1,269.72	926.22	343.50	3.696	
18,400.00	7,364.00	17,529.87	7,060.32	183.19	171.51	-78.12	473.56	11,383.87	1,271.73	924.76	346.97	3.665	
18,500.00	7,364.00	17,631.15	7,061.00	184.78	173.10	-78.17	474.54	11,485.14	1,273.07	922.88	350.18	3.635	
18,600.00	7,364.00	17,726.97	7,061.69	186.36	174.60	-78.22	475.76	11,580.95	1,274.69	921.51	353.19	3.609	
18,700.00	7,364.00	17,821.07	7,062.50	187.94	176.08	-78.27	477.33	11,675.04	1,276.68	920.56	356.13	3.585	
18,800.00	7,364.00	17,929.93	7,063.68	189.53	177.79	-78.34	479.27	11,783.87	1,278.76	919.09	359.68	3.555	
18,900.00	7,364.00	18,030.28	7,064.95	191.11	179.37	-78.42	480.49	11,884.21	1,280.23	917.34	362.89	3.528	
19,000.00	7,364.00	18,144.39	7,066.39	192.70	181.16	-78.49	481.26	11,998.30	1,281.16	914.55	366.62	3.495	
19,100.00	7,364.00	18,240.97	7,067.35	194.28	182.68	-78.54	481.57	12,094.88	1,281.81	912.15	369.67	3.467	
19,200.00	7,364.00	18,354.13	7,067.71	195.87	184.47	-78.56	481.07	12,208.03	1,281.83	908.56	373.28	3.434	
19,293.23	7,364.00	18,443.04	7,066.98	197.34	185.87	-78.52	480.18	12,296.94	1,281.57	905.56	376.01	3.408	
19,300.00	7,364.00	18,448.85	7,066.91	197.45	185.96	-78.52	480.13	12,302.75	1,281.57	905.39	376.18	3.407	
19,400.00	7,364.00	18,543.72	7,065.71	199.04	187.46	-78.47	479.90	12,397.61	1,282.11	903.03	379.07	3.382	
19,500.00	7,364.00	18,653.73	7,064.60	200.62	189.19	-78.42	478.97	12,507.61	1,281.99	899.49	382.50	3.352	
19,596.01	7,364.00	18,745.84	7,063.80	202.14	190.65	-78.38	478.10	12,599.71	1,281.78	896.46	385.32	3.327	
19,600.00	7,364.00	18,749.55	7,063.76	202.21	190.71	-78.38	478.07	12,603.42	1,281.79	896.35	385.44	3.326	
19,700.00	7,364.00	18,844.11	7,062.73	203.79	192.20	-78.33	477.61	12,697.97	1,282.05	893.73	388.32	3.302	
19,800.00	7,364.00	18,946.80	7,061.55	205.38	193.82	-78.28	477.28	12,800.66	1,282.52	891.02	391.49	3.276	
19,900.00	7,364.00	19,054.77	7,060.45	206.97	195.52	-78.23	476.38	12,908.62	1,282.44	887.60	394.84	3.248	
20,000.00	7,364.00	19,157.22	7,059.72	208.55	197.14	-78.19	475.12	13,011.06	1,281.91	883.91	398.00	3.221	
20,100.00	7,364.00	19,261.02	7,059.00	210.14	198.79	-78.15	473.66	13,114.84	1,281.21	880.00	401.21	3.193	
20,200.00	7,364.00	19,362.61	7,058.64	211.73	200.39	-78.13	472.05	13,216.42	1,280.27	875.91	404.36	3.166	
20,300.00	7,364.00	19,456.96	7,058.64	213.32	201.89	-78.12	470.95	13,310.77	1,279.65	872.35	407.30	3.142	
20,400.00	7,364.00	19,551.96	7,058.48	214.90	203.39	-78.11	470.06	13,405.76	1,279.30	869.05	410.25	3.118	
20,455.84	7,364.00	19,605.73	7,058.35	215.79	204.24	-78.11	469.61	13,459.52	1,279.16	867.25	411.91	3.105	
20,500.00	7,364.00	19,645.96	7,058.31	216.49	204.87	-78.10	469.45	13,499.76	1,279.24	866.09	413.16	3.096	
20,600.00	7,364.00	19,728.70	7,058.77	218.08	206.18	-78.13	469.95	13,582.49	1,280.24	864.58	415.67	3.080	
20,700.00	7,364.00	19,828.67	7,060.17	219.67	207.76	-78.21	471.49	13,682.44	1,282.00	863.11	418.89	3.060	
20,800.00	7,364.00	19,954.14	7,062.92	221.26	209.74	-78.35	472.05	13,807.88	1,282.49	859.38	423.11	3.031	
20,894.92	7,364.00	20,044.93	7,066.03	222.76	211.17	-78.48	471.90	13,898.62	1,282.19	856.09	426.11	3.009	
20,900.00	7,364.00	20,049.01	7,066.16	222.84	211.24	-78.49	471.91	13,902.69	1,282.20	855.96	426.24	3.008	
21,000.00	7,364.00	20,135.09	7,068.16	224.43	212.60	-78.59	472.59	13,988.75	1,283.01	854.04	428.97	2.991	
21,100.00	7,364.00	20,244.21	7,069.27	226.02	214.32	-78.64	472.73	14,097.86	1,283.44	850.93	432.51	2.967	
21,200.00	7,364.00	20,335.86	7,069.66	227.61	215.77	-78.67	473.30	14,189.50	1,284.48	849.11	435.37	2.950	
21,300.00	7,364.00	20,446.62	7,070.34	229.20	217.52	-78.71	473.40	14,300.26	1,284.96	846.02	438.94	2.927	
21,400.00	7,364.00	20,541.43	7,071.00	230.79	219.02	-78.74	473.39	14,395.07	1,285.35	843.42	441.93	2.909	
21,500.00	7,364.00	20,636.66	7,071.65	232.38	220.53	-78.78	473.94	14,490.30	1,286.31	841.38	444.93	2.891	
21,600.00	7,364.00	20,732.97	7,072.51	233.97	222.05	-78.83	474.66	14,586.60	1,287.41	839.42	447.98	2.874	
21,700.00	7,364.00	20,843.13	7,073.52	235.56	223.79	-78.88	475.69	14,696.75	1,288.71	837.14	451.57	2.854	
21,800.00	7,364.00	20,951.69	7,074.89	237.15	233.47	-78.95	475.35	14,805.30	1,288.68	825.72	462.97	2.784	
21,802.92	7,364.00	20,952.96	7,074.90	237.20	233.63	-78.95	475.35	14,806.57	1,288.68	825.54	463.15	2.782	ES, SF
21,864.93	7,364.00	20,952.96	7,074.90	238.18	233.63	-78.95	475.35	14,806.57	1,290.18	827.73	462.45	2.790	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - Rosa Unit 750H - OH - Plan #6

Offset Site Error: 0.00 usft

Survey Program: 0-MWD+HRGM+MS

Offset Well Error: 3.28 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	3.28	3.28	-2.35	49.88	-2.05	49.92				
100.00	100.00	100.00	100.00	3.29	3.29	-2.35	49.88	-2.05	49.92	43.34	6.58	7.588	
200.00	200.00	200.00	200.00	3.34	3.34	-2.35	49.88	-2.05	49.92	43.25	6.67	7.482	
300.00	300.00	300.00	300.00	3.42	3.42	-2.35	49.88	-2.05	49.92	43.08	6.84	7.299	
400.00	400.00	400.00	400.00	3.54	3.54	-2.35	49.88	-2.05	49.92	42.85	7.08	7.055	
500.00	500.00	500.00	500.00	3.69	3.69	-2.35	49.88	-2.05	49.92	42.55	7.37	6.769	CC
600.00	599.98	601.46	601.44	3.86	3.86	-154.40	48.32	-2.95	50.00	42.29	7.71	6.484	ES
700.00	699.84	702.66	702.49	4.04	4.05	-160.42	43.68	-5.63	50.62	42.54	8.08	6.265	SF
808.00	807.41	810.30	809.88	4.27	4.28	-168.82	37.27	-9.33	54.57	46.04	8.54	6.392	
900.00	898.89	902.06	901.42	4.49	4.49	168.97	31.81	-12.48	60.36	51.40	8.96	6.736	
912.12	910.94	914.34	913.68	4.52	4.52	166.38	31.06	-12.85	61.11	52.09	9.02	6.776	
1,000.00	998.31	1,002.60	1,001.73	4.74	4.74	164.86	25.29	-14.63	65.78	56.33	9.45	6.961	
1,100.00	1,097.73	1,102.46	1,101.34	5.01	5.00	163.49	18.66	-16.44	70.98	61.01	9.97	7.119	
1,200.00	1,197.15	1,202.31	1,200.96	5.29	5.28	162.30	12.04	-18.25	76.21	65.69	10.52	7.246	
1,300.00	1,296.58	1,302.16	1,300.57	5.59	5.56	161.27	5.42	-20.06	81.47	70.39	11.09	7.349	
1,400.00	1,396.00	1,402.01	1,400.19	5.90	5.86	160.37	-1.20	-21.87	86.76	75.08	11.67	7.432	
1,500.00	1,495.42	1,501.86	1,499.80	6.22	6.17	159.57	-7.82	-23.68	92.06	79.78	12.28	7.499	
1,600.00	1,594.84	1,601.71	1,599.42	6.54	6.48	158.85	-14.44	-25.49	97.38	84.49	12.90	7.552	
1,700.00	1,694.27	1,701.56	1,699.04	6.87	6.79	158.21	-21.06	-27.30	102.72	89.19	13.53	7.594	
1,800.00	1,793.69	1,801.42	1,798.65	7.21	7.12	157.64	-27.68	-29.11	108.06	93.89	14.17	7.628	
1,900.00	1,893.11	1,901.27	1,898.27	7.55	7.44	157.12	-34.30	-30.92	113.42	98.60	14.82	7.655	
2,000.00	1,992.53	2,001.12	1,997.88	7.89	7.78	156.64	-40.92	-32.73	118.78	103.30	15.48	7.676	
2,100.00	2,091.96	2,100.97	2,097.50	8.24	8.11	156.21	-47.54	-34.54	124.15	108.01	16.14	7.692	
2,200.00	2,191.38	2,200.82	2,197.11	8.60	8.45	155.81	-54.16	-36.35	129.53	112.72	16.81	7.704	
2,300.00	2,290.80	2,300.67	2,296.73	8.95	8.79	155.44	-60.78	-38.16	134.91	117.42	17.49	7.714	
2,400.00	2,390.22	2,400.52	2,396.34	9.31	9.13	155.11	-67.40	-39.97	140.30	122.13	18.17	7.721	
2,500.00	2,489.65	2,500.38	2,495.96	9.67	9.48	154.79	-74.02	-41.78	145.69	126.83	18.86	7.726	
2,600.00	2,589.07	2,600.23	2,595.57	10.03	9.82	154.50	-80.64	-43.59	151.09	131.54	19.55	7.729	
2,700.00	2,688.49	2,700.08	2,695.19	10.40	10.17	154.23	-87.26	-45.40	156.49	136.25	20.24	7.730	
2,800.00	2,787.91	2,799.93	2,794.80	10.76	10.52	153.98	-93.88	-47.21	161.89	140.95	20.94	7.731	
2,900.00	2,887.33	2,899.78	2,894.42	11.13	10.87	153.74	-100.50	-49.02	167.30	145.66	21.64	7.731	
3,000.00	2,986.76	2,999.63	2,994.03	11.50	11.23	153.52	-107.12	-50.84	172.71	150.37	22.34	7.730	
3,100.00	3,086.18	3,099.48	3,093.65	11.87	11.58	153.31	-113.74	-52.65	178.12	155.07	23.05	7.728	
3,200.00	3,185.60	3,199.34	3,193.26	12.24	11.93	153.12	-120.36	-54.46	183.54	159.78	23.76	7.726	
3,300.00	3,285.02	3,299.19	3,292.88	12.61	12.29	152.93	-126.98	-56.27	188.95	164.49	24.47	7.723	
3,400.00	3,384.45	3,399.04	3,392.50	12.98	12.65	152.76	-133.60	-58.08	194.37	169.19	25.18	7.720	
3,500.00	3,483.87	3,498.89	3,492.11	13.36	13.00	152.59	-140.22	-59.89	199.79	173.90	25.89	7.717	
3,600.00	3,583.29	3,598.74	3,591.73	13.73	13.36	152.44	-146.84	-61.70	205.21	178.61	26.61	7.713	
3,700.00	3,682.71	3,698.59	3,691.34	14.11	13.72	152.29	-153.46	-63.51	210.63	183.31	27.32	7.710	
3,800.00	3,782.14	3,798.44	3,790.96	14.48	14.08	152.15	-160.08	-65.32	216.06	188.02	28.04	7.706	
3,900.00	3,881.56	3,898.30	3,890.57	14.86	14.44	152.02	-166.70	-67.13	221.48	192.72	28.76	7.702	
4,000.00	3,980.98	3,998.15	3,990.19	15.24	14.80	151.89	-173.32	-68.94	226.91	197.43	29.48	7.698	
4,100.00	4,080.40	4,098.00	4,089.80	15.61	15.16	151.77	-179.94	-70.75	232.34	202.14	30.20	7.694	
4,200.00	4,179.83	4,197.85	4,189.42	15.99	15.52	151.65	-186.56	-72.56	237.76	206.84	30.92	7.690	
4,300.00	4,279.25	4,297.70	4,289.03	16.37	15.89	151.54	-193.18	-74.37	243.19	211.55	31.64	7.686	
4,400.00	4,378.67	4,397.55	4,388.65	16.75	16.25	151.43	-199.80	-76.18	248.62	216.26	32.37	7.682	
4,500.00	4,478.09	4,497.40	4,488.26	17.13	16.61	151.33	-206.42	-77.99	254.05	220.96	33.09	7.678	
4,600.00	4,577.51	4,597.26	4,587.88	17.51	16.98	151.24	-213.04	-79.80	259.49	225.67	33.81	7.674	
4,700.00	4,676.94	4,697.11	4,687.49	17.89	17.34	151.14	-219.66	-81.61	264.92	230.38	34.54	7.670	
4,800.00	4,776.36	4,796.96	4,787.11	18.27	17.70	151.05	-226.28	-83.42	270.35	235.08	35.27	7.666	
4,900.00	4,875.78	4,896.81	4,886.72	18.65	18.07	150.97	-232.90	-85.23	275.78	239.79	35.99	7.662	
5,000.00	4,975.20	4,996.66	4,986.34	19.03	18.43	150.89	-239.52	-87.04	281.22	244.50	36.72	7.658	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - Rosa Unit 750H - OH - Plan #6

Offset Site Error: 0.00 usft

Survey Program: 0-MWD+HRGM+MS

Offset Well Error: 3.28 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,100.00	5,074.63	5,096.51	5,085.96	19.41	18.80	150.81	-246.14	-88.85	286.65	249.20	37.45	7.655	
5,200.00	5,174.05	5,196.36	5,185.57	19.79	19.16	150.73	-252.76	-90.66	292.09	253.91	38.18	7.651	
5,300.00	5,273.47	5,296.22	5,285.19	20.17	19.53	150.66	-259.38	-92.47	297.53	258.62	38.91	7.647	
5,400.00	5,372.89	5,396.07	5,384.80	20.56	19.89	150.59	-266.00	-94.28	302.96	263.33	39.64	7.644	
5,500.00	5,472.32	5,495.92	5,484.42	20.94	20.26	150.52	-272.62	-96.09	308.40	268.03	40.37	7.640	
5,600.00	5,571.74	5,595.77	5,584.03	21.32	20.62	150.45	-279.24	-97.90	313.84	272.74	41.10	7.637	
5,700.00	5,671.16	5,695.62	5,683.65	21.70	20.99	150.39	-285.86	-99.71	319.27	277.45	41.83	7.633	
5,800.00	5,770.58	5,795.47	5,783.26	22.08	21.36	150.33	-292.48	-101.52	324.71	282.15	42.56	7.630	
5,900.00	5,870.01	5,895.32	5,882.88	22.47	21.72	150.27	-299.10	-103.33	330.15	286.86	43.29	7.626	
6,000.00	5,969.43	5,995.18	5,982.49	22.85	22.09	150.21	-305.72	-105.14	335.59	291.57	44.02	7.623	
6,100.00	6,068.85	6,095.03	6,082.11	23.23	22.45	150.15	-312.34	-106.95	341.03	296.27	44.75	7.620	
6,200.00	6,168.27	6,194.88	6,181.72	23.62	22.82	150.10	-318.96	-108.76	346.47	300.98	45.49	7.617	
6,300.00	6,267.70	6,294.73	6,281.34	24.00	23.19	150.05	-325.58	-110.57	351.91	305.69	46.22	7.614	
6,400.00	6,367.12	6,394.58	6,380.95	24.38	23.56	149.99	-332.20	-112.38	357.35	310.39	46.95	7.611	
6,500.00	6,466.54	6,494.00	6,480.13	24.77	23.92	149.95	-338.79	-114.19	362.79	315.10	47.68	7.608	
6,600.00	6,565.96	6,566.47	6,552.20	25.15	24.19	149.43	-343.57	-119.62	371.98	323.82	48.16	7.724	
6,700.00	6,665.38	6,636.22	6,620.56	25.53	24.45	148.07	-348.06	-132.56	388.72	340.31	48.41	8.030	
6,778.75	6,743.68	6,688.49	6,670.63	25.84	24.64	146.60	-351.33	-147.13	407.33	358.92	48.41	8.414	
6,800.00	6,764.80	6,700.00	6,681.49	25.92	24.68	162.64	-352.04	-150.89	413.43	365.11	48.32	8.556	
6,850.00	6,814.29	6,732.15	6,711.43	26.11	24.79	-173.12	-353.98	-162.42	431.02	382.78	48.24	8.934	
6,900.00	6,863.27	6,759.47	6,736.40	26.30	24.89	-161.04	-355.60	-173.41	453.13	405.09	48.03	9.434	
6,950.00	6,911.44	6,783.70	6,758.13	26.50	24.98	-154.07	-357.00	-184.04	479.55	431.80	47.75	10.042	
7,000.00	6,958.49	6,800.00	6,772.51	26.68	25.04	-148.77	-357.93	-191.65	510.04	462.79	47.26	10.793	
7,050.00	7,004.14	6,822.50	6,792.03	26.87	25.12	-144.90	-359.18	-202.76	544.12	497.04	47.08	11.558	
7,100.00	7,048.10	6,837.16	6,804.54	27.05	25.17	-140.59	-359.98	-210.37	581.45	534.71	46.73	12.442	
7,150.00	7,090.11	6,850.00	6,815.34	27.23	25.21	-135.84	-360.67	-217.27	621.50	575.06	46.45	13.381	
7,200.00	7,129.90	6,850.00	6,815.34	27.41	25.21	-128.71	-360.67	-217.27	663.89	618.04	45.85	14.480	
7,250.00	7,167.24	6,864.22	6,827.15	27.59	25.26	-122.47	-361.43	-225.16	707.87	662.00	45.88	15.430	
7,300.00	7,201.88	6,868.32	6,830.52	27.76	25.28	-113.34	-361.64	-227.48	753.27	707.58	45.69	16.488	
7,350.00	7,233.63	6,870.32	6,832.15	27.94	25.28	-102.34	-361.75	-228.62	799.57	754.02	45.55	17.554	
7,400.00	7,262.27	6,870.42	6,832.24	28.13	25.29	-89.96	-361.75	-228.69	846.39	800.93	45.46	18.616	
7,450.00	7,287.63	6,868.83	6,830.94	28.32	25.28	-77.29	-361.67	-227.78	893.40	847.96	45.43	19.664	
7,500.00	7,309.57	6,865.72	6,828.38	28.53	25.27	-65.60	-361.51	-226.01	940.27	894.82	45.45	20.689	
7,550.00	7,327.93	6,850.00	6,815.34	28.74	25.21	-54.42	-360.67	-217.27	986.88	941.67	45.21	21.830	
7,600.00	7,342.62	6,850.00	6,815.34	28.97	25.21	-47.22	-360.67	-217.27	1,032.53	987.06	45.47	22.710	
7,650.00	7,353.53	6,850.00	6,815.34	29.22	25.21	-41.48	-360.67	-217.27	1,077.37	1,031.59	45.77	23.536	
7,700.00	7,360.61	6,850.00	6,815.34	29.48	25.21	-36.93	-360.67	-217.27	1,121.22	1,075.10	46.12	24.309	
7,750.00	7,363.80	6,832.30	6,800.41	29.75	25.15	-32.64	-359.72	-207.81	1,163.57	1,117.46	46.11	25.232	
7,765.93	7,364.00	6,829.37	6,797.91	29.84	25.14	-31.59	-359.56	-206.29	1,176.80	1,130.61	46.18	25.482	
7,800.00	7,364.00	6,823.13	6,792.57	30.04	25.12	-31.38	-359.22	-203.08	1,205.02	1,158.69	46.33	26.007	
7,900.00	7,364.00	6,800.00	6,772.51	30.67	25.04	-30.60	-357.93	-191.65	1,289.08	1,242.43	46.64	27.637	
8,000.00	7,364.00	6,800.00	6,772.51	31.37	25.04	-30.60	-357.93	-191.65	1,374.71	1,327.39	47.32	29.052	
8,100.00	7,364.00	6,775.94	6,751.21	32.14	24.95	-29.82	-356.56	-180.54	1,461.54	1,414.04	47.50	30.771	
8,200.00	7,364.00	6,750.00	6,727.80	32.96	24.86	-29.02	-355.04	-169.48	1,549.83	1,502.21	47.62	32.546	
8,300.00	7,364.00	6,750.00	6,727.80	33.85	24.86	-29.02	-355.04	-169.48	1,638.80	1,590.70	48.10	34.074	
8,400.00	7,364.00	6,750.00	6,727.80	34.79	24.86	-29.02	-355.04	-169.48	1,728.97	1,680.47	48.51	35.644	
8,500.00	7,364.00	6,729.30	6,708.81	35.77	24.78	-28.39	-353.81	-161.34	1,819.73	1,771.12	48.61	37.436	
8,600.00	7,364.00	6,719.77	6,699.97	36.80	24.75	-28.11	-353.24	-157.80	1,911.31	1,862.48	48.83	39.143	
8,700.00	7,364.00	6,700.00	6,681.49	37.87	24.68	-27.55	-352.04	-150.89	2,003.66	1,954.74	48.91	40.965	
8,800.00	7,364.00	6,700.00	6,681.49	38.98	24.68	-27.55	-352.04	-150.89	2,096.33	2,047.14	49.19	42.618	
8,900.00	7,364.00	6,700.00	6,681.49	40.12	24.68	-27.55	-352.04	-150.89	2,189.66	2,140.22	49.44	44.292	
9,000.00	7,364.00	6,700.00	6,681.49	41.29	24.68	-27.55	-352.04	-150.89	2,283.54	2,233.88	49.66	45.984	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - Rosa Unit 750H - OH - Plan #6

Offset Site Error: 0.00 usft

Survey Program: 0-MWD+HRGM+MS

Offset Well Error: 3.28 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,100.00	7,364.00	6,700.00	6,681.49	42.49	24.68	-27.55	-352.04	-150.89	2,377.93	2,328.07	49.86	47.692	
9,200.00	7,364.00	6,674.73	6,657.58	43.71	24.59	-26.85	-350.48	-142.90	2,472.13	2,422.30	49.83	49.610	
9,300.00	7,364.00	6,650.00	6,633.88	44.96	24.50	-26.19	-348.93	-136.00	2,567.37	2,517.56	49.81	51.546	
9,400.00	7,364.00	6,650.00	6,633.88	46.23	24.50	-26.19	-348.93	-136.00	2,662.41	2,612.43	49.98	53.271	
9,500.00	7,364.00	6,650.00	6,633.88	47.52	24.50	-26.19	-348.93	-136.00	2,757.79	2,707.65	50.14	55.006	
9,600.00	7,364.00	6,650.00	6,633.88	48.83	24.50	-26.19	-348.93	-136.00	2,853.49	2,803.21	50.28	56.749	
9,700.00	7,364.00	6,650.00	6,633.88	50.15	24.50	-26.19	-348.93	-136.00	2,949.48	2,899.06	50.42	58.500	
9,800.00	7,364.00	6,650.00	6,633.88	51.49	24.50	-26.19	-348.93	-136.00	3,045.72	2,995.18	50.55	60.257	
9,900.00	7,364.00	6,650.00	6,633.88	52.85	24.50	-26.19	-348.93	-136.00	3,142.20	3,091.54	50.66	62.020	
10,000.00	7,364.00	6,650.00	6,633.88	54.22	24.50	-26.19	-348.93	-136.00	3,238.89	3,188.12	50.78	63.787	
10,100.00	7,364.00	6,650.00	6,633.88	55.60	24.50	-26.19	-348.93	-136.00	3,335.78	3,284.90	50.88	65.557	
10,200.00	7,364.00	6,628.04	6,612.63	56.99	24.41	-25.64	-347.54	-130.66	3,432.40	3,381.54	50.86	67.492	
10,300.00	7,364.00	6,624.57	6,609.25	58.40	24.40	-25.55	-347.32	-129.88	3,529.48	3,478.54	50.94	69.291	
10,400.00	7,364.00	6,621.26	6,606.03	59.81	24.39	-25.47	-347.11	-129.15	3,626.70	3,575.68	51.02	71.090	
10,500.00	7,364.00	6,600.00	6,585.24	61.23	24.31	-24.96	-345.74	-124.90	3,724.34	3,673.35	50.99	73.035	
10,600.00	7,364.00	6,600.00	6,585.24	62.66	24.31	-24.96	-345.74	-124.90	3,821.72	3,770.63	51.09	74.809	
10,700.00	7,364.00	6,600.00	6,585.24	64.10	24.31	-24.96	-345.74	-124.90	3,919.22	3,868.05	51.18	76.584	
10,800.00	7,364.00	6,600.00	6,585.24	65.55	24.31	-24.96	-345.74	-124.90	4,016.85	3,965.59	51.26	78.359	
10,900.00	7,364.00	6,600.00	6,585.24	67.01	24.31	-24.96	-345.74	-124.90	4,114.59	4,063.25	51.35	80.135	
11,000.00	7,364.00	6,600.00	6,585.24	68.47	24.31	-24.96	-345.74	-124.90	4,212.44	4,161.01	51.43	81.910	
11,100.00	7,364.00	6,600.00	6,585.24	69.93	24.31	-24.96	-345.74	-124.90	4,310.39	4,258.88	51.51	83.685	
11,200.00	7,364.00	6,600.00	6,585.24	71.41	24.31	-24.96	-345.74	-124.90	4,408.43	4,356.84	51.58	85.460	
11,300.00	7,364.00	6,600.00	6,585.24	72.88	24.31	-24.96	-345.74	-124.90	4,506.55	4,454.89	51.66	87.233	
11,400.00	7,364.00	6,600.00	6,585.24	74.37	24.31	-24.96	-345.74	-124.90	4,604.76	4,553.02	51.74	89.005	
11,500.00	7,364.00	6,600.00	6,585.24	75.85	24.31	-24.96	-345.74	-124.90	4,703.04	4,651.23	51.81	90.775	
11,600.00	7,364.00	6,600.00	6,585.24	77.35	24.31	-24.96	-345.74	-124.90	4,801.40	4,749.51	51.88	92.543	
11,700.00	7,364.00	6,600.00	6,585.24	78.84	24.31	-24.96	-345.74	-124.90	4,899.81	4,847.86	51.95	94.310	
11,800.00	7,364.00	6,600.00	6,585.24	80.34	24.31	-24.96	-345.74	-124.90	4,998.30	4,946.27	52.03	96.074	
11,900.00	7,364.00	6,600.00	6,585.24	81.85	24.31	-24.96	-345.74	-124.90	5,096.84	5,044.74	52.10	97.836	
12,000.00	7,364.00	6,600.00	6,585.24	83.36	24.31	-24.96	-345.74	-124.90	5,195.44	5,143.27	52.17	99.595	
12,100.00	7,364.00	6,600.00	6,585.24	84.87	24.31	-24.96	-345.74	-124.90	5,294.08	5,241.85	52.23	101.351	
12,200.00	7,364.00	6,600.00	6,585.24	86.38	24.31	-24.96	-345.74	-124.90	5,392.78	5,340.48	52.30	103.105	
12,300.00	7,364.00	6,600.00	6,585.24	87.90	24.31	-24.96	-345.74	-124.90	5,491.53	5,439.16	52.37	104.855	
12,400.00	7,364.00	6,577.00	6,562.61	89.42	24.23	-24.42	-344.25	-121.09	5,589.86	5,537.51	52.35	106.775	
12,500.00	7,364.00	6,575.51	6,561.14	90.95	24.22	-24.39	-344.16	-120.87	5,688.63	5,636.22	52.42	108.530	
12,600.00	7,364.00	6,574.07	6,559.72	92.47	24.22	-24.36	-344.06	-120.66	5,787.44	5,734.96	52.48	110.281	
12,700.00	7,364.00	6,572.67	6,558.34	94.00	24.21	-24.33	-343.97	-120.46	5,886.29	5,833.75	52.54	112.028	
12,800.00	7,364.00	6,550.00	6,535.89	95.53	24.13	-23.83	-342.49	-117.66	5,985.57	5,933.04	52.53	113.949	
12,900.00	7,364.00	6,550.00	6,535.89	97.06	24.13	-23.83	-342.49	-117.66	6,084.44	6,031.84	52.60	115.678	
13,000.00	7,364.00	6,550.00	6,535.89	98.60	24.13	-23.83	-342.49	-117.66	6,183.34	6,130.67	52.67	117.402	
13,100.00	7,364.00	6,550.00	6,535.89	100.14	24.13	-23.83	-342.49	-117.66	6,282.28	6,229.54	52.74	119.123	
13,200.00	7,364.00	6,550.00	6,535.89	101.68	24.13	-23.83	-342.49	-117.66	6,381.25	6,328.45	52.81	120.839	
13,300.00	7,364.00	6,550.00	6,535.89	103.22	24.13	-23.83	-342.49	-117.66	6,480.26	6,427.38	52.88	122.552	
13,400.00	7,364.00	6,550.00	6,535.89	104.76	24.13	-23.83	-342.49	-117.66	6,579.29	6,526.34	52.95	124.260	
13,500.00	7,364.00	6,550.00	6,535.89	106.31	24.13	-23.83	-342.49	-117.66	6,678.35	6,625.34	53.02	125.963	
13,600.00	7,364.00	6,550.00	6,535.89	107.85	24.13	-23.83	-342.49	-117.66	6,777.45	6,724.36	53.09	127.663	
13,700.00	7,364.00	6,550.00	6,535.89	109.40	24.13	-23.83	-342.49	-117.66	6,876.56	6,823.40	53.16	129.357	
13,800.00	7,364.00	6,550.00	6,535.89	110.95	24.13	-23.83	-342.49	-117.66	6,975.70	6,922.47	53.23	131.047	
13,900.00	7,364.00	6,550.00	6,535.89	112.50	24.13	-23.83	-342.49	-117.66	7,074.87	7,021.57	53.30	132.733	
14,000.00	7,364.00	6,550.00	6,535.89	114.05	24.13	-23.83	-342.49	-117.66	7,174.06	7,120.69	53.37	134.413	
14,100.00	7,364.00	6,550.00	6,535.89	115.61	24.13	-23.83	-342.49	-117.66	7,273.27	7,219.83	53.44	136.089	
14,200.00	7,364.00	6,550.00	6,535.89	117.16	24.13	-23.83	-342.49	-117.66	7,372.50	7,318.99	53.52	137.760	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - Rosa Unit 750H - OH - Plan #6

Offset Site Error: 0.00 usft

Survey Program: 0-MWD+HRGM+MS

Offset Well Error: 3.28 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,300.00	7,364.00	6,550.00	6,535.89	118.72	24.13	-23.83	-342.49	-117.66	7,471.76	7,418.17	53.59	139.426	
14,400.00	7,364.00	6,550.00	6,535.89	120.28	24.13	-23.83	-342.49	-117.66	7,571.03	7,517.37	53.66	141.087	
14,500.00	7,364.00	6,550.00	6,535.89	121.84	24.13	-23.83	-342.49	-117.66	7,670.32	7,616.59	53.74	142.742	
14,600.00	7,364.00	6,550.00	6,535.89	123.40	24.13	-23.83	-342.49	-117.66	7,769.63	7,715.82	53.81	144.393	
14,700.00	7,364.00	6,550.00	6,535.89	124.96	24.13	-23.83	-342.49	-117.66	7,868.96	7,815.08	53.88	146.038	
14,800.00	7,364.00	6,550.00	6,535.89	126.52	24.13	-23.83	-342.49	-117.66	7,968.30	7,914.35	53.96	147.678	
14,900.00	7,364.00	6,550.00	6,535.89	128.08	24.13	-23.83	-342.49	-117.66	8,067.66	8,013.63	54.03	149.313	
15,000.00	7,364.00	6,550.00	6,535.89	129.64	24.13	-23.83	-342.49	-117.66	8,167.04	8,112.93	54.11	150.942	
15,100.00	7,364.00	6,550.00	6,535.89	131.21	24.13	-23.83	-342.49	-117.66	8,266.43	8,212.25	54.18	152.566	
15,200.00	7,364.00	6,550.00	6,535.89	132.77	24.13	-23.83	-342.49	-117.66	8,365.84	8,311.58	54.26	154.185	
15,300.00	7,364.00	6,550.00	6,535.89	134.34	24.13	-23.83	-342.49	-117.66	8,465.26	8,410.92	54.33	155.798	
15,400.00	7,364.00	6,550.00	6,535.89	135.91	24.13	-23.83	-342.49	-117.66	8,564.69	8,510.28	54.41	157.405	
15,500.00	7,364.00	6,550.00	6,535.89	137.48	24.13	-23.83	-342.49	-117.66	8,664.14	8,609.65	54.49	159.007	
15,600.00	7,364.00	6,550.00	6,535.89	139.04	24.13	-23.83	-342.49	-117.66	8,763.60	8,709.03	54.57	160.603	
15,700.00	7,364.00	6,550.00	6,535.89	140.61	24.13	-23.83	-342.49	-117.66	8,863.07	8,808.42	54.64	162.194	
15,800.00	7,364.00	6,550.00	6,535.89	142.18	24.13	-23.83	-342.49	-117.66	8,962.55	8,907.83	54.72	163.779	
15,900.00	7,364.00	6,550.00	6,535.89	143.75	24.13	-23.83	-342.49	-117.66	9,062.04	9,007.24	54.80	165.358	
16,000.00	7,364.00	6,550.00	6,535.89	145.33	24.13	-23.83	-342.49	-117.66	9,161.55	9,106.67	54.88	166.931	
16,100.00	7,364.00	6,550.00	6,535.89	146.90	24.13	-23.83	-342.49	-117.66	9,261.07	9,206.10	54.96	168.499	
16,200.00	7,364.00	6,550.00	6,535.89	148.47	24.13	-23.83	-342.49	-117.66	9,360.59	9,305.55	55.04	170.061	
16,300.00	7,364.00	6,550.00	6,535.89	150.04	24.13	-23.83	-342.49	-117.66	9,460.13	9,405.00	55.12	171.617	
16,400.00	7,364.00	6,550.00	6,535.89	151.62	24.13	-23.83	-342.49	-117.66	9,559.67	9,504.47	55.21	173.167	
16,500.00	7,364.00	6,550.00	6,535.89	153.19	24.13	-23.83	-342.49	-117.66	9,659.23	9,603.94	55.29	174.711	
16,600.00	7,364.00	6,550.00	6,535.89	154.77	24.13	-23.83	-342.49	-117.66	9,758.79	9,703.42	55.37	176.249	
16,700.00	7,364.00	6,550.00	6,535.89	156.34	24.13	-23.83	-342.49	-117.66	9,858.37	9,802.91	55.45	177.782	
16,800.00	7,364.00	6,550.00	6,535.89	157.92	24.13	-23.83	-342.49	-117.66	9,957.95	9,902.41	55.54	179.308	
16,900.00	7,364.00	6,550.00	6,535.89	159.49	24.13	-23.83	-342.49	-117.66	10,057.54	10,001.92	55.62	180.829	
17,000.00	7,364.00	6,550.00	6,535.89	161.07	24.13	-23.83	-342.49	-117.66	10,157.14	10,101.43	55.70	182.343	
17,100.00	7,364.00	6,550.00	6,535.89	162.65	24.13	-23.83	-342.49	-117.66	10,256.74	10,200.95	55.79	183.852	
17,200.00	7,364.00	6,550.00	6,535.89	164.23	24.13	-23.83	-342.49	-117.66	10,356.36	10,300.48	55.87	185.354	
17,300.00	7,364.00	6,550.00	6,535.89	165.81	24.13	-23.83	-342.49	-117.66	10,455.98	10,400.02	55.96	186.851	
17,400.00	7,364.00	6,550.00	6,535.89	167.38	24.13	-23.83	-342.49	-117.66	10,555.60	10,499.56	56.05	188.341	
17,500.00	7,364.00	6,550.00	6,535.89	168.96	24.13	-23.83	-342.49	-117.66	10,655.24	10,599.11	56.13	189.826	
17,600.00	7,364.00	6,550.00	6,535.89	170.54	24.13	-23.83	-342.49	-117.66	10,754.88	10,698.66	56.22	191.304	
17,700.00	7,364.00	6,550.00	6,535.89	172.12	24.13	-23.83	-342.49	-117.66	10,854.53	10,798.22	56.31	192.777	
17,800.00	7,364.00	6,550.00	6,535.89	173.70	24.13	-23.83	-342.49	-117.66	10,954.18	10,897.79	56.39	194.243	
17,900.00	7,364.00	6,550.00	6,535.89	175.28	24.13	-23.83	-342.49	-117.66	11,053.85	10,997.36	56.48	195.703	
18,000.00	7,364.00	6,550.00	6,535.89	176.87	24.13	-23.83	-342.49	-117.66	11,153.51	11,096.94	56.57	197.157	
18,100.00	7,364.00	6,550.00	6,535.89	178.45	24.13	-23.83	-342.49	-117.66	11,253.19	11,196.52	56.66	198.605	
18,200.00	7,364.00	6,550.00	6,535.89	180.03	24.13	-23.83	-342.49	-117.66	11,352.86	11,296.11	56.75	200.047	
18,300.00	7,364.00	6,550.00	6,535.89	181.61	24.13	-23.83	-342.49	-117.66	11,452.55	11,395.71	56.84	201.483	
18,400.00	7,364.00	6,550.00	6,535.89	183.19	24.13	-23.83	-342.49	-117.66	11,552.24	11,495.31	56.93	202.913	
18,500.00	7,364.00	6,550.00	6,535.89	184.78	24.13	-23.83	-342.49	-117.66	11,651.93	11,594.91	57.02	204.337	
18,600.00	7,364.00	6,550.00	6,535.89	186.36	24.13	-23.83	-342.49	-117.66	11,751.63	11,694.52	57.11	205.754	
18,700.00	7,364.00	6,550.00	6,535.89	187.94	24.13	-23.83	-342.49	-117.66	11,851.34	11,794.13	57.21	207.166	
18,800.00	7,364.00	6,550.00	6,535.89	189.53	24.13	-23.83	-342.49	-117.66	11,951.05	11,893.75	57.30	208.571	
18,900.00	7,364.00	6,550.00	6,535.89	191.11	24.13	-23.83	-342.49	-117.66	12,050.76	11,993.37	57.39	209.970	
19,000.00	7,364.00	6,550.00	6,535.89	192.70	24.13	-23.83	-342.49	-117.66	12,150.48	12,093.00	57.49	211.364	
19,100.00	7,364.00	6,550.00	6,535.89	194.28	24.13	-23.83	-342.49	-117.66	12,250.21	12,192.63	57.58	212.751	
19,200.00	7,364.00	6,550.00	6,535.89	195.87	24.13	-23.83	-342.49	-117.66	12,349.94	12,292.26	57.67	214.132	
19,300.00	7,364.00	6,550.00	6,535.89	197.45	24.13	-23.83	-342.49	-117.66	12,449.67	12,391.90	57.77	215.507	
19,400.00	7,364.00	6,550.00	6,535.89	199.04	24.13	-23.83	-342.49	-117.66	12,549.41	12,491.54	57.86	216.876	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - Rosa Unit 750H - OH - Plan #6

Offset Site Error: 0.00 usft

Survey Program: 0-MWD+HRGM+MS

Offset Well Error: 3.28 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
19,500.00	7,364.00	6,550.00	6,535.89	200.62	24.13	-23.83	-342.49	-117.66	12,649.15	12,591.19	57.96	218.239	
19,600.00	7,364.00	6,550.00	6,535.89	202.21	24.13	-23.83	-342.49	-117.66	12,748.90	12,690.84	58.06	219.596	
19,700.00	7,364.00	6,526.06	6,512.09	203.79	24.04	-23.32	-340.91	-115.57	12,848.17	12,790.09	58.08	221.199	
19,800.00	7,364.00	6,525.74	6,511.77	205.38	24.04	-23.32	-340.89	-115.55	12,947.91	12,889.73	58.18	222.548	
19,900.00	7,364.00	6,525.42	6,511.46	206.97	24.04	-23.31	-340.87	-115.53	13,047.66	12,989.38	58.28	223.891	
20,000.00	7,364.00	6,525.11	6,511.15	208.55	24.04	-23.30	-340.85	-115.51	13,147.41	13,089.03	58.37	225.228	
20,100.00	7,364.00	6,524.81	6,510.85	210.14	24.03	-23.30	-340.83	-115.49	13,247.16	13,188.69	58.47	226.559	
20,200.00	7,364.00	6,524.51	6,510.55	211.73	24.03	-23.29	-340.81	-115.47	13,346.91	13,288.35	58.57	227.884	
20,300.00	7,364.00	6,524.21	6,510.25	213.32	24.03	-23.29	-340.79	-115.45	13,446.67	13,388.01	58.67	229.203	
20,400.00	7,364.00	6,523.92	6,509.96	214.90	24.03	-23.28	-340.77	-115.43	13,546.44	13,487.67	58.77	230.516	
20,500.00	7,364.00	6,500.00	6,486.12	216.49	23.94	-22.80	-339.19	-114.32	13,646.66	13,587.86	58.80	232.093	
20,600.00	7,364.00	6,500.00	6,486.12	218.08	23.94	-22.80	-339.19	-114.32	13,746.42	13,687.52	58.90	233.391	
20,700.00	7,364.00	6,500.00	6,486.12	219.67	23.94	-22.80	-339.19	-114.32	13,846.18	13,787.18	59.00	234.684	
20,800.00	7,364.00	6,500.00	6,486.12	221.26	23.94	-22.80	-339.19	-114.32	13,945.95	13,886.84	59.10	235.970	
20,900.00	7,364.00	6,500.00	6,486.12	222.84	23.94	-22.80	-339.19	-114.32	14,045.71	13,986.51	59.20	237.251	
21,000.00	7,364.00	6,500.00	6,486.12	224.43	23.94	-22.80	-339.19	-114.32	14,145.48	14,086.18	59.30	238.526	
21,100.00	7,364.00	6,500.00	6,486.12	226.02	23.94	-22.80	-339.19	-114.32	14,245.26	14,185.85	59.41	239.795	
21,200.00	7,364.00	6,500.00	6,486.12	227.61	23.94	-22.80	-339.19	-114.32	14,345.04	14,285.53	59.51	241.058	
21,300.00	7,364.00	6,500.00	6,486.12	229.20	23.94	-22.80	-339.19	-114.32	14,444.82	14,385.21	59.61	242.315	
21,400.00	7,364.00	6,500.00	6,486.12	230.79	23.94	-22.80	-339.19	-114.32	14,544.60	14,484.89	59.72	243.566	
21,500.00	7,364.00	6,500.00	6,486.12	232.38	23.94	-22.80	-339.19	-114.32	14,644.39	14,584.57	59.82	244.812	
21,600.00	7,364.00	6,500.00	6,486.12	233.97	23.94	-22.80	-339.19	-114.32	14,744.18	14,684.26	59.92	246.052	
21,700.00	7,364.00	6,500.00	6,486.12	235.56	23.94	-22.80	-339.19	-114.32	14,843.97	14,783.94	60.03	247.285	
21,800.00	7,364.00	6,500.00	6,486.12	237.15	23.94	-22.80	-339.19	-114.32	14,943.77	14,883.63	60.13	248.514	
21,864.93	7,364.00	6,500.00	6,486.12	238.18	23.94	-22.80	-339.19	-114.32	15,008.56	14,948.36	60.20	249.308	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - Rosa Unit 752H - OH - Plan #5 — **Offset Site Error:** 0.00 usft

Survey Program: 0-MWD+HRGM+MS — **Offset Well Error:** 3.28 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	3.28	3.28	-2.71	24.76	-1.17	24.78				
100.00	100.00	100.00	100.00	3.29	3.29	-2.71	24.76	-1.17	24.78	18.20	6.58	3.767	
200.00	200.00	200.00	200.00	3.34	3.34	-2.71	24.76	-1.17	24.78	18.11	6.67	3.714	
300.00	300.00	300.00	300.00	3.42	3.42	-2.71	24.76	-1.17	24.78	17.94	6.84	3.624	
400.00	400.00	400.00	400.00	3.54	3.54	-2.71	24.76	-1.17	24.78	17.71	7.08	3.502	
500.00	500.00	500.00	500.00	3.69	3.69	-2.71	24.76	-1.17	24.78	17.41	7.37	3.361	
600.00	599.98	600.86	600.84	3.86	3.86	-154.92	22.98	-1.23	24.60	16.89	7.71	3.191	
700.00	699.84	701.66	701.50	4.04	4.05	-161.72	17.66	-1.41	24.27	16.20	8.07	3.007	
732.18	731.93	734.08	733.82	4.11	4.11	-164.91	15.20	-1.49	24.23	16.03	8.20	2.956	
808.00	807.41	810.40	809.79	4.27	4.28	-174.20	7.97	-1.73	24.55	16.04	8.51	2.886	
900.00	898.89	902.96	901.63	4.49	4.49	157.83	-3.52	-2.12	24.43	15.51	8.92	2.738	
912.12	910.94	915.15	913.70	4.52	4.52	154.36	-5.26	-2.18	24.24	15.26	8.98	2.700	
1,000.00	998.31	1,003.39	1,000.80	4.74	4.75	142.35	-19.33	-2.65	22.14	12.71	9.43	2.349	
1,100.00	1,097.73	1,103.32	1,098.87	5.01	5.04	118.10	-38.50	-3.30	20.00	9.98	10.03	1.995	
1,112.51	1,110.17	1,115.78	1,111.05	5.05	5.08	114.18	-41.13	-3.38	19.96	9.85	10.11	1.975	CC, ES, SF
1,200.00	1,197.15	1,202.52	1,195.50	5.29	5.36	84.99	-60.90	-4.05	22.60	11.98	10.62	2.128	
1,300.00	1,296.58	1,301.02	1,290.67	5.59	5.70	59.60	-86.26	-4.90	32.65	21.56	11.09	2.943	
1,400.00	1,396.00	1,399.66	1,385.79	5.90	6.06	46.75	-112.39	-5.78	46.57	34.95	11.62	4.009	
1,500.00	1,495.42	1,498.31	1,480.91	6.22	6.45	39.98	-138.51	-6.66	61.73	49.53	12.20	5.061	
1,600.00	1,594.84	1,596.96	1,576.03	6.54	6.84	35.90	-164.64	-7.53	77.39	64.58	12.81	6.042	
1,700.00	1,694.27	1,695.60	1,671.15	6.87	7.25	33.20	-190.77	-8.41	93.31	79.87	13.44	6.941	
1,800.00	1,793.69	1,794.25	1,766.26	7.21	7.67	31.28	-216.89	-9.29	109.37	95.28	14.10	7.760	
1,900.00	1,893.11	1,892.89	1,861.38	7.55	8.10	29.86	-243.02	-10.17	125.53	110.77	14.76	8.505	
2,000.00	1,992.53	1,991.54	1,956.50	7.89	8.54	28.77	-269.15	-11.05	141.74	126.30	15.43	9.184	
2,100.00	2,091.96	2,090.18	2,051.62	8.24	8.98	27.90	-295.27	-11.92	157.98	141.87	16.12	9.802	
2,200.00	2,191.38	2,188.83	2,146.74	8.60	9.42	27.19	-321.40	-12.80	174.26	157.46	16.81	10.368	
2,300.00	2,290.80	2,287.47	2,241.86	8.95	9.87	26.60	-347.53	-13.68	190.56	173.06	17.51	10.886	
2,400.00	2,390.22	2,386.12	2,336.98	9.31	10.33	26.10	-373.65	-14.56	206.88	188.67	18.21	11.361	
2,500.00	2,489.65	2,484.76	2,432.09	9.67	10.79	25.68	-399.78	-15.44	223.21	204.29	18.92	11.799	
2,600.00	2,589.07	2,583.41	2,527.21	10.03	11.25	25.32	-425.91	-16.31	239.55	219.92	19.63	12.203	
2,700.00	2,688.49	2,682.05	2,622.33	10.40	11.71	25.00	-452.03	-17.19	255.90	235.55	20.35	12.577	
2,800.00	2,787.91	2,780.70	2,717.45	10.76	12.18	24.72	-478.16	-18.07	272.25	251.18	21.07	12.923	
2,900.00	2,887.33	2,879.34	2,812.57	11.13	12.65	24.47	-504.29	-18.95	288.61	266.82	21.79	13.245	
3,000.00	2,986.76	2,977.99	2,907.69	11.50	13.12	24.25	-530.41	-19.83	304.98	282.46	22.52	13.544	
3,100.00	3,086.18	3,076.64	3,002.81	11.87	13.59	24.05	-556.54	-20.70	321.35	298.10	23.25	13.824	
3,200.00	3,185.60	3,175.28	3,097.92	12.24	14.07	23.87	-582.67	-21.58	337.72	313.74	23.98	14.085	
3,300.00	3,285.02	3,273.93	3,193.04	12.61	14.54	23.71	-608.79	-22.46	354.09	329.38	24.71	14.329	
3,400.00	3,384.45	3,372.57	3,288.16	12.98	15.02	23.56	-634.92	-23.34	370.47	345.03	25.45	14.559	
3,500.00	3,483.87	3,471.22	3,383.28	13.36	15.50	23.42	-661.05	-24.22	386.85	360.67	26.18	14.775	
3,600.00	3,583.29	3,569.86	3,478.40	13.73	15.98	23.30	-687.17	-25.09	403.23	376.31	26.92	14.978	
3,700.00	3,682.71	3,668.51	3,573.52	14.11	16.46	23.18	-713.30	-25.97	419.62	391.95	27.66	15.169	
3,800.00	3,782.14	3,767.15	3,668.64	14.48	16.94	23.07	-739.43	-26.85	436.00	407.60	28.40	15.350	
3,900.00	3,881.56	3,865.80	3,763.75	14.86	17.42	22.97	-765.55	-27.73	452.39	423.24	29.15	15.521	
4,000.00	3,980.98	3,964.44	3,858.87	15.24	17.90	22.88	-791.68	-28.60	468.78	438.89	29.89	15.683	
4,100.00	4,080.40	4,063.09	3,953.99	15.61	18.38	22.80	-817.81	-29.48	485.17	454.53	30.64	15.836	
4,200.00	4,179.83	4,161.73	4,049.11	15.99	18.87	22.72	-843.93	-30.36	501.56	470.17	31.38	15.982	
4,300.00	4,279.25	4,260.38	4,144.23	16.37	19.35	22.64	-870.06	-31.24	517.95	485.82	32.13	16.120	
4,400.00	4,378.67	4,359.02	4,239.35	16.75	19.84	22.57	-896.19	-32.12	534.34	501.46	32.88	16.252	
4,500.00	4,478.09	4,457.67	4,334.47	17.13	20.32	22.50	-922.31	-32.99	550.73	517.10	33.63	16.378	
4,600.00	4,577.51	4,556.32	4,429.58	17.51	20.81	22.44	-948.44	-33.87	567.12	532.75	34.38	16.497	
4,700.00	4,676.94	4,654.96	4,524.70	17.89	21.29	22.38	-974.57	-34.75	583.52	548.39	35.13	16.612	
4,800.00	4,776.36	4,753.61	4,619.82	18.27	21.78	22.33	-1,000.69	-35.63	599.91	564.03	35.88	16.721	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - Rosa Unit 752H - OH - Plan #5 — **Offset Site Error:** 0.00 usft

Survey Program: 0-MWD+HRGM+MS — **Offset Well Error:** 3.28 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
4,900.00	4,875.78	4,852.25	4,714.94	18.65	22.27	22.27	-1,026.82	-36.51	616.31	579.68	36.63	16.825	
5,000.00	4,975.20	4,950.90	4,810.06	19.03	22.75	22.22	-1,052.95	-37.38	632.70	595.32	37.38	16.925	
5,100.00	5,074.63	5,049.54	4,905.18	19.41	23.24	22.18	-1,079.07	-38.26	649.10	610.96	38.14	17.021	
5,200.00	5,174.05	5,148.19	5,000.29	19.79	23.73	22.13	-1,105.20	-39.14	665.49	626.61	38.89	17.113	
5,300.00	5,273.47	5,246.83	5,095.41	20.17	24.22	22.09	-1,131.33	-40.02	681.89	642.25	39.64	17.201	
5,400.00	5,372.89	5,345.48	5,190.53	20.56	24.70	22.05	-1,157.45	-40.90	698.29	657.89	40.40	17.286	
5,500.00	5,472.32	5,444.12	5,285.65	20.94	25.19	22.01	-1,183.58	-41.77	714.68	673.53	41.15	17.367	
5,600.00	5,571.74	5,542.77	5,380.77	21.32	25.68	21.97	-1,209.71	-42.65	731.08	689.17	41.91	17.445	
5,700.00	5,671.16	5,641.41	5,475.89	21.70	26.17	21.94	-1,235.83	-43.53	747.48	704.82	42.66	17.520	
5,800.00	5,770.58	5,740.06	5,571.01	22.08	26.66	21.90	-1,261.96	-44.41	763.88	720.46	43.42	17.593	
5,900.00	5,870.01	5,838.71	5,666.12	22.47	27.15	21.87	-1,288.09	-45.29	780.28	736.10	44.18	17.663	
6,000.00	5,969.43	5,937.35	5,761.24	22.85	27.64	21.84	-1,314.21	-46.16	796.68	751.74	44.93	17.730	
6,100.00	6,068.85	6,036.00	5,856.36	23.23	28.13	21.81	-1,340.34	-47.04	813.07	767.38	45.69	17.795	
6,200.00	6,168.27	6,134.64	5,951.48	23.62	28.62	21.78	-1,366.47	-47.92	829.47	783.03	46.45	17.858	
6,300.00	6,267.70	6,233.29	6,046.60	24.00	29.11	21.75	-1,392.59	-48.80	845.87	798.67	47.21	17.919	
6,400.00	6,367.12	6,331.93	6,141.72	24.38	29.60	21.72	-1,418.72	-49.67	862.27	814.31	47.96	17.978	
6,500.00	6,466.54	6,430.58	6,236.84	24.77	30.09	21.70	-1,444.85	-50.55	878.67	829.95	48.72	18.034	
6,600.00	6,565.96	6,529.22	6,331.95	25.15	30.58	21.67	-1,470.97	-51.43	895.07	845.59	49.48	18.089	
6,700.00	6,665.38	6,627.87	6,427.07	25.53	31.07	21.65	-1,497.10	-52.31	911.47	861.23	50.24	18.142	
6,778.75	6,743.68	6,700.00	6,496.62	25.84	31.43	21.66	-1,516.20	-53.34	924.48	873.69	50.79	18.202	
6,800.00	6,764.80	6,715.82	6,511.85	25.92	31.51	37.40	-1,520.38	-54.23	928.22	877.31	50.91	18.234	
6,850.00	6,814.29	6,750.00	6,544.66	26.11	31.68	61.22	-1,529.38	-57.49	937.96	886.79	51.16	18.333	
6,900.00	6,863.27	6,789.12	6,581.94	26.30	31.87	72.84	-1,539.60	-63.45	949.04	897.56	51.48	18.436	
6,950.00	6,911.44	6,822.15	6,613.10	26.50	32.03	79.02	-1,548.14	-70.33	961.61	909.86	51.75	18.583	
7,000.00	6,958.49	6,850.00	6,639.07	26.68	32.16	82.54	-1,555.24	-77.42	975.82	923.84	51.97	18.776	
7,050.00	7,004.14	6,878.20	6,665.03	26.87	32.29	84.73	-1,562.35	-85.80	991.80	939.58	52.22	18.992	
7,100.00	7,048.10	6,900.00	6,684.86	27.05	32.40	85.81	-1,567.77	-93.09	1,009.70	957.28	52.42	19.262	
7,150.00	7,090.11	6,919.67	6,702.52	27.23	32.49	86.17	-1,572.59	-100.26	1,029.57	976.95	52.62	19.567	
7,200.00	7,129.90	6,935.08	6,716.21	27.41	32.56	85.82	-1,576.33	-106.28	1,051.41	998.62	52.79	19.916	
7,250.00	7,167.24	6,950.00	6,729.32	27.59	32.62	85.01	-1,579.91	-112.43	1,075.16	1,022.16	53.00	20.285	
7,300.00	7,201.88	6,950.00	6,729.32	27.76	32.62	82.97	-1,579.91	-112.43	1,100.73	1,047.71	53.03	20.757	
7,350.00	7,233.63	6,962.73	6,740.40	27.94	32.68	81.31	-1,582.93	-117.93	1,127.87	1,074.56	53.30	21.159	
7,400.00	7,262.27	6,966.64	6,743.78	28.13	32.70	78.82	-1,583.86	-119.66	1,156.45	1,102.96	53.49	21.618	
7,450.00	7,287.63	6,968.34	6,745.24	28.32	32.70	75.92	-1,584.26	-120.42	1,186.23	1,132.52	53.70	22.089	
7,500.00	7,309.57	6,968.05	6,744.99	28.53	32.70	72.70	-1,584.19	-120.29	1,216.94	1,163.01	53.93	22.564	
7,550.00	7,327.93	6,965.99	6,743.22	28.74	32.69	69.24	-1,583.70	-119.37	1,248.34	1,194.15	54.19	23.036	
7,600.00	7,342.62	6,950.00	6,729.32	28.97	32.62	64.92	-1,579.91	-112.43	1,280.31	1,226.05	54.26	23.596	
7,650.00	7,353.53	6,950.00	6,729.32	29.22	32.62	61.53	-1,579.91	-112.43	1,312.24	1,257.59	54.66	24.009	
7,700.00	7,360.61	6,950.00	6,729.32	29.48	32.62	58.20	-1,579.91	-112.43	1,344.15	1,289.06	55.10	24.397	
7,750.00	7,363.80	6,950.00	6,729.32	29.75	32.62	54.95	-1,579.91	-112.43	1,375.86	1,320.29	55.57	24.759	
7,765.93	7,364.00	6,950.00	6,729.32	29.84	32.62	53.94	-1,579.91	-112.43	1,385.89	1,330.16	55.73	24.869	
7,800.00	7,364.00	6,950.00	6,729.32	30.04	32.62	53.94	-1,579.91	-112.43	1,407.54	1,351.48	56.07	25.105	
7,900.00	7,364.00	6,920.74	6,703.48	30.67	32.49	52.62	-1,572.85	-100.67	1,473.03	1,416.47	56.56	26.043	
8,000.00	7,364.00	6,900.00	6,684.86	31.37	32.40	51.68	-1,567.77	-93.09	1,542.10	1,484.95	57.15	26.985	
8,100.00	7,364.00	6,900.00	6,684.86	32.14	32.40	51.68	-1,567.77	-93.09	1,614.05	1,556.07	57.98	27.838	
8,200.00	7,364.00	6,900.00	6,684.86	32.96	32.40	51.68	-1,567.77	-93.09	1,688.86	1,630.13	58.74	28.753	
8,300.00	7,364.00	6,874.42	6,661.58	33.85	32.28	50.53	-1,561.40	-84.61	1,765.56	1,706.49	59.08	29.885	
8,400.00	7,364.00	6,850.00	6,639.07	34.79	32.16	49.43	-1,555.24	-77.42	1,844.76	1,785.37	59.39	31.061	
8,500.00	7,364.00	6,850.00	6,639.07	35.77	32.16	49.43	-1,555.24	-77.42	1,925.39	1,865.41	59.97	32.104	
8,600.00	7,364.00	6,850.00	6,639.07	36.80	32.16	49.43	-1,555.24	-77.42	2,007.76	1,947.26	60.50	33.186	
8,700.00	7,364.00	6,850.00	6,639.07	37.87	32.16	49.43	-1,555.24	-77.42	2,091.67	2,030.69	60.97	34.305	
8,800.00	7,364.00	6,850.00	6,639.07	38.98	32.16	49.43	-1,555.24	-77.42	2,176.93	2,115.53	61.40	35.455	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - Rosa Unit 752H - OH - Plan #5 — **Offset Site Error:** 0.00 usft

Survey Program: 0-MWD+HRGM+MS — **Offset Well Error:** 3.28 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
8,900.00	7,364.00	6,829.78	6,620.24	40.12	32.07	48.53	-1,550.09	-72.16	2,263.03	2,201.46	61.57	36.757	
9,000.00	7,364.00	6,824.16	6,614.97	41.29	32.04	48.28	-1,548.65	-70.80	2,350.34	2,288.47	61.87	37.991	
9,100.00	7,364.00	6,800.00	6,592.24	42.49	31.92	47.22	-1,542.42	-65.53	2,438.90	2,376.96	61.94	39.375	
9,200.00	7,364.00	6,800.00	6,592.24	43.71	31.92	47.22	-1,542.42	-65.53	2,527.82	2,465.57	62.25	40.608	
9,300.00	7,364.00	6,800.00	6,592.24	44.96	31.92	47.22	-1,542.42	-65.53	2,617.53	2,555.00	62.53	41.860	
9,400.00	7,364.00	6,800.00	6,592.24	46.23	31.92	47.22	-1,542.42	-65.53	2,707.96	2,645.18	62.79	43.128	
9,500.00	7,364.00	6,800.00	6,592.24	47.52	31.92	47.22	-1,542.42	-65.53	2,799.05	2,736.02	63.03	44.411	
9,600.00	7,364.00	6,800.00	6,592.24	48.83	31.92	47.22	-1,542.42	-65.53	2,890.73	2,827.48	63.25	45.706	
9,700.00	7,364.00	6,800.00	6,592.24	50.15	31.92	47.22	-1,542.42	-65.53	2,982.94	2,919.49	63.45	47.013	
9,800.00	7,364.00	6,800.00	6,592.24	51.49	31.92	47.22	-1,542.42	-65.53	3,075.63	3,012.00	63.64	48.330	
9,900.00	7,364.00	6,800.00	6,592.24	52.85	31.92	47.22	-1,542.42	-65.53	3,168.77	3,104.96	63.81	49.657	
10,000.00	7,364.00	6,800.00	6,592.24	54.22	31.92	47.22	-1,542.42	-65.53	3,262.32	3,198.34	63.98	50.991	
10,100.00	7,364.00	6,800.00	6,592.24	55.60	31.92	47.22	-1,542.42	-65.53	3,356.24	3,292.11	64.13	52.333	
10,200.00	7,364.00	6,778.49	6,571.84	56.99	31.82	46.28	-1,536.83	-61.60	3,450.09	3,385.99	64.10	53.827	
10,300.00	7,364.00	6,775.89	6,569.37	58.40	31.80	46.17	-1,536.16	-61.17	3,544.56	3,480.34	64.21	55.200	
10,400.00	7,364.00	6,773.41	6,567.01	59.81	31.79	46.06	-1,535.51	-60.77	3,639.31	3,574.99	64.33	56.577	
10,500.00	7,364.00	6,750.00	6,544.66	61.23	31.68	45.05	-1,529.38	-57.49	3,734.72	3,670.47	64.26	58.121	
10,600.00	7,364.00	6,750.00	6,544.66	62.66	31.68	45.05	-1,529.38	-57.49	3,829.91	3,765.53	64.38	59.489	
10,700.00	7,364.00	6,750.00	6,544.66	64.10	31.68	45.05	-1,529.38	-57.49	3,925.33	3,860.83	64.50	60.861	
10,800.00	7,364.00	6,750.00	6,544.66	65.55	31.68	45.05	-1,529.38	-57.49	4,020.97	3,956.36	64.61	62.237	
10,900.00	7,364.00	6,750.00	6,544.66	67.01	31.68	45.05	-1,529.38	-57.49	4,116.82	4,052.11	64.71	63.616	
11,000.00	7,364.00	6,750.00	6,544.66	68.47	31.68	45.05	-1,529.38	-57.49	4,212.87	4,148.05	64.82	64.998	
11,100.00	7,364.00	6,750.00	6,544.66	69.93	31.68	45.05	-1,529.38	-57.49	4,309.09	4,244.18	64.91	66.381	
11,200.00	7,364.00	6,750.00	6,544.66	71.41	31.68	45.05	-1,529.38	-57.49	4,405.48	4,340.47	65.01	67.767	
11,300.00	7,364.00	6,750.00	6,544.66	72.88	31.68	45.05	-1,529.38	-57.49	4,502.03	4,436.93	65.10	69.155	
11,400.00	7,364.00	6,750.00	6,544.66	74.37	31.68	45.05	-1,529.38	-57.49	4,598.73	4,533.54	65.19	70.544	
11,500.00	7,364.00	6,750.00	6,544.66	75.85	31.68	45.05	-1,529.38	-57.49	4,695.56	4,630.29	65.28	71.934	
11,600.00	7,364.00	6,750.00	6,544.66	77.35	31.68	45.05	-1,529.38	-57.49	4,792.53	4,727.17	65.36	73.325	
11,700.00	7,364.00	6,750.00	6,544.66	78.84	31.68	45.05	-1,529.38	-57.49	4,889.62	4,824.18	65.44	74.717	
11,800.00	7,364.00	6,750.00	6,544.66	80.34	31.68	45.05	-1,529.38	-57.49	4,986.82	4,921.30	65.52	76.109	
11,900.00	7,364.00	6,750.00	6,544.66	81.85	31.68	45.05	-1,529.38	-57.49	5,084.13	5,018.53	65.60	77.502	
12,000.00	7,364.00	6,750.00	6,544.66	83.36	31.68	45.05	-1,529.38	-57.49	5,181.55	5,115.87	65.68	78.895	
12,100.00	7,364.00	6,750.00	6,544.66	84.87	31.68	45.05	-1,529.38	-57.49	5,279.06	5,213.30	65.75	80.287	
12,200.00	7,364.00	6,750.00	6,544.66	86.38	31.68	45.05	-1,529.38	-57.49	5,376.66	5,310.83	65.83	81.680	
12,300.00	7,364.00	6,750.00	6,544.66	87.90	31.68	45.05	-1,529.38	-57.49	5,474.35	5,408.45	65.90	83.072	
12,400.00	7,364.00	6,750.00	6,544.66	89.42	31.68	45.05	-1,529.38	-57.49	5,572.12	5,506.14	65.97	84.463	
12,500.00	7,364.00	6,750.00	6,544.66	90.95	31.68	45.05	-1,529.38	-57.49	5,669.96	5,603.92	66.04	85.854	
12,600.00	7,364.00	6,750.00	6,544.66	92.47	31.68	45.05	-1,529.38	-57.49	5,767.89	5,701.77	66.11	87.244	
12,700.00	7,364.00	6,750.00	6,544.66	94.00	31.68	45.05	-1,529.38	-57.49	5,865.88	5,799.70	66.18	88.633	
12,800.00	7,364.00	6,750.00	6,544.66	95.53	31.68	45.05	-1,529.38	-57.49	5,963.94	5,897.69	66.25	90.021	
12,900.00	7,364.00	6,750.00	6,544.66	97.06	31.68	45.05	-1,529.38	-57.49	6,062.06	5,995.74	66.32	91.408	
13,000.00	7,364.00	6,750.00	6,544.66	98.60	31.68	45.05	-1,529.38	-57.49	6,160.24	6,093.85	66.39	92.794	
13,100.00	7,364.00	6,750.00	6,544.66	100.14	31.68	45.05	-1,529.38	-57.49	6,258.48	6,192.03	66.45	94.178	
13,200.00	7,364.00	6,750.00	6,544.66	101.68	31.68	45.05	-1,529.38	-57.49	6,356.78	6,290.26	66.52	95.561	
13,300.00	7,364.00	6,750.00	6,544.66	103.22	31.68	45.05	-1,529.38	-57.49	6,455.12	6,388.54	66.59	96.942	
13,400.00	7,364.00	6,750.00	6,544.66	104.76	31.68	45.05	-1,529.38	-57.49	6,553.52	6,486.87	66.65	98.321	
13,500.00	7,364.00	6,750.00	6,544.66	106.31	31.68	45.05	-1,529.38	-57.49	6,651.97	6,585.25	66.72	99.699	
13,600.00	7,364.00	6,750.00	6,544.66	107.85	31.68	45.05	-1,529.38	-57.49	6,750.46	6,683.67	66.79	101.075	
13,700.00	7,364.00	6,750.00	6,544.66	109.40	31.68	45.05	-1,529.38	-57.49	6,848.99	6,782.14	66.85	102.449	
13,800.00	7,364.00	6,750.00	6,544.66	110.95	31.68	45.05	-1,529.38	-57.49	6,947.57	6,880.65	66.92	103.822	
13,900.00	7,364.00	6,750.00	6,544.66	112.50	31.68	45.05	-1,529.38	-57.49	7,046.18	6,979.20	66.98	105.192	
14,000.00	7,364.00	6,726.69	6,522.30	114.05	31.56	44.07	-1,523.25	-55.07	7,144.38	7,077.49	66.89	106.805	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - Rosa Unit 752H - OH - Plan #5

Offset Site Error: 0.00 usft

Survey Program: 0-MWD+HRGM+MS

Offset Well Error: 3.28 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,100.00	7,364.00	6,726.00	6,521.64	115.61	31.56	44.04	-1,523.07	-55.01	7,243.04	7,176.09	66.95	108.181	
14,200.00	7,364.00	6,725.34	6,521.00	117.16	31.56	44.01	-1,522.89	-54.95	7,341.74	7,274.73	67.01	109.554	
14,300.00	7,364.00	6,724.68	6,520.37	118.72	31.55	43.98	-1,522.72	-54.90	7,440.48	7,373.40	67.08	110.925	
14,400.00	7,364.00	6,724.05	6,519.76	120.28	31.55	43.95	-1,522.55	-54.85	7,539.25	7,472.11	67.14	112.293	
14,500.00	7,364.00	6,723.43	6,519.16	121.84	31.55	43.93	-1,522.39	-54.80	7,638.04	7,570.84	67.20	113.659	
14,600.00	7,364.00	6,700.00	6,496.62	123.40	31.43	42.96	-1,516.20	-53.34	7,737.31	7,670.20	67.11	115.292	
14,700.00	7,364.00	6,700.00	6,496.62	124.96	31.43	42.96	-1,516.20	-53.34	7,836.15	7,768.97	67.18	116.648	
14,800.00	7,364.00	6,700.00	6,496.62	126.52	31.43	42.96	-1,516.20	-53.34	7,935.01	7,867.76	67.25	118.001	
14,900.00	7,364.00	6,700.00	6,496.62	128.08	31.43	42.96	-1,516.20	-53.34	8,033.90	7,966.59	67.31	119.352	
15,000.00	7,364.00	6,700.00	6,496.62	129.64	31.43	42.96	-1,516.20	-53.34	8,132.82	8,065.44	67.38	120.700	
15,100.00	7,364.00	6,700.00	6,496.62	131.21	31.43	42.96	-1,516.20	-53.34	8,231.77	8,164.32	67.45	122.045	
15,200.00	7,364.00	6,700.00	6,496.62	132.77	31.43	42.96	-1,516.20	-53.34	8,330.74	8,263.22	67.52	123.388	
15,300.00	7,364.00	6,700.00	6,496.62	134.34	31.43	42.96	-1,516.20	-53.34	8,429.73	8,362.15	67.59	124.728	
15,400.00	7,364.00	6,700.00	6,496.62	135.91	31.43	42.96	-1,516.20	-53.34	8,528.75	8,461.10	67.65	126.065	
15,500.00	7,364.00	6,700.00	6,496.62	137.48	31.43	42.96	-1,516.20	-53.34	8,627.79	8,560.07	67.72	127.399	
15,600.00	7,364.00	6,700.00	6,496.62	139.04	31.43	42.96	-1,516.20	-53.34	8,726.85	8,659.06	67.79	128.730	
15,700.00	7,364.00	6,700.00	6,496.62	140.61	31.43	42.96	-1,516.20	-53.34	8,825.94	8,758.08	67.86	130.058	
15,800.00	7,364.00	6,700.00	6,496.62	142.18	31.43	42.96	-1,516.20	-53.34	8,925.04	8,857.11	67.93	131.384	
15,900.00	7,364.00	6,700.00	6,496.62	143.75	31.43	42.96	-1,516.20	-53.34	9,024.17	8,956.17	68.00	132.706	
16,000.00	7,364.00	6,700.00	6,496.62	145.33	31.43	42.96	-1,516.20	-53.34	9,123.31	9,055.24	68.07	134.025	
16,100.00	7,364.00	6,700.00	6,496.62	146.90	31.43	42.96	-1,516.20	-53.34	9,222.47	9,154.33	68.14	135.341	
16,200.00	7,364.00	6,700.00	6,496.62	148.47	31.43	42.96	-1,516.20	-53.34	9,321.65	9,253.44	68.21	136.655	
16,300.00	7,364.00	6,700.00	6,496.62	150.04	31.43	42.96	-1,516.20	-53.34	9,420.85	9,352.56	68.28	137.964	
16,400.00	7,364.00	6,700.00	6,496.62	151.62	31.43	42.96	-1,516.20	-53.34	9,520.06	9,451.71	68.36	139.271	
16,500.00	7,364.00	6,700.00	6,496.62	153.19	31.43	42.96	-1,516.20	-53.34	9,619.29	9,550.86	68.43	140.575	
16,600.00	7,364.00	6,700.00	6,496.62	154.77	31.43	42.96	-1,516.20	-53.34	9,718.54	9,650.04	68.50	141.875	
16,700.00	7,364.00	6,700.00	6,496.62	156.34	31.43	42.96	-1,516.20	-53.34	9,817.80	9,749.23	68.57	143.172	
16,800.00	7,364.00	6,700.00	6,496.62	157.92	31.43	42.96	-1,516.20	-53.34	9,917.08	9,848.43	68.65	144.466	
16,900.00	7,364.00	6,700.00	6,496.62	159.49	31.43	42.96	-1,516.20	-53.34	10,016.37	9,947.65	68.72	145.756	
17,000.00	7,364.00	6,700.00	6,496.62	161.07	31.43	42.96	-1,516.20	-53.34	10,115.67	10,046.88	68.79	147.043	
17,100.00	7,364.00	6,700.00	6,496.62	162.65	31.43	42.96	-1,516.20	-53.34	10,214.99	10,146.12	68.87	148.327	
17,200.00	7,364.00	6,700.00	6,496.62	164.23	31.43	42.96	-1,516.20	-53.34	10,314.32	10,245.38	68.94	149.607	
17,300.00	7,364.00	6,700.00	6,496.62	165.81	31.43	42.96	-1,516.20	-53.34	10,413.66	10,344.65	69.02	150.884	
17,400.00	7,364.00	6,700.00	6,496.62	167.38	31.43	42.96	-1,516.20	-53.34	10,513.02	10,443.93	69.09	152.158	
17,500.00	7,364.00	6,700.00	6,496.62	168.96	31.43	42.96	-1,516.20	-53.34	10,612.39	10,543.22	69.17	153.428	
17,600.00	7,364.00	6,700.00	6,496.62	170.54	31.43	42.96	-1,516.20	-53.34	10,711.77	10,642.52	69.24	154.694	
17,700.00	7,364.00	6,700.00	6,496.62	172.12	31.43	42.96	-1,516.20	-53.34	10,811.16	10,741.84	69.32	155.958	
17,800.00	7,364.00	6,700.00	6,496.62	173.70	31.43	42.96	-1,516.20	-53.34	10,910.56	10,841.17	69.40	157.217	
17,900.00	7,364.00	6,700.00	6,496.62	175.28	31.43	42.96	-1,516.20	-53.34	11,009.98	10,940.50	69.48	158.473	
18,000.00	7,364.00	6,700.00	6,496.62	176.87	31.43	42.96	-1,516.20	-53.34	11,109.40	11,039.85	69.55	159.726	
18,100.00	7,364.00	6,700.00	6,496.62	178.45	31.43	42.96	-1,516.20	-53.34	11,208.84	11,139.21	69.63	160.975	
18,200.00	7,364.00	6,700.00	6,496.62	180.03	31.43	42.96	-1,516.20	-53.34	11,308.28	11,238.57	69.71	162.220	
18,300.00	7,364.00	6,700.00	6,496.62	181.61	31.43	42.96	-1,516.20	-53.34	11,407.73	11,337.95	69.79	163.462	
18,400.00	7,364.00	6,700.00	6,496.62	183.19	31.43	42.96	-1,516.20	-53.34	11,507.20	11,437.33	69.87	164.700	
18,500.00	7,364.00	6,700.00	6,496.62	184.78	31.43	42.96	-1,516.20	-53.34	11,606.67	11,536.72	69.95	165.935	
18,600.00	7,364.00	6,700.00	6,496.62	186.36	31.43	42.96	-1,516.20	-53.34	11,706.15	11,636.13	70.03	167.166	
18,700.00	7,364.00	6,700.00	6,496.62	187.94	31.43	42.96	-1,516.20	-53.34	11,805.64	11,735.54	70.11	168.393	
18,800.00	7,364.00	6,700.00	6,496.62	189.53	31.43	42.96	-1,516.20	-53.34	11,905.14	11,834.95	70.19	169.617	
18,900.00	7,364.00	6,700.00	6,496.62	191.11	31.43	42.96	-1,516.20	-53.34	12,004.65	11,934.38	70.27	170.837	
19,000.00	7,364.00	6,700.00	6,496.62	192.70	31.43	42.96	-1,516.20	-53.34	12,104.17	12,033.81	70.35	172.053	
19,100.00	7,364.00	6,700.00	6,496.62	194.28	31.43	42.96	-1,516.20	-53.34	12,203.69	12,133.26	70.43	173.266	
19,200.00	7,364.00	6,700.00	6,496.62	195.87	31.43	42.96	-1,516.20	-53.34	12,303.22	12,232.70	70.52	174.474	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - Rosa Unit 752H - OH - Plan #5

Offset Site Error: 0.00 usft

Survey Program: 0-MWD+HRGM+MS

Offset Well Error: 3.28 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
19,300.00	7,364.00	6,700.00	6,496.62	197.45	31.43	42.96	-1,516.20	-53.34	12,402.76	12,332.16	70.60	175.680	
19,400.00	7,364.00	6,700.00	6,496.62	199.04	31.43	42.96	-1,516.20	-53.34	12,502.30	12,431.62	70.68	176.881	
19,500.00	7,364.00	6,700.00	6,496.62	200.62	31.43	42.96	-1,516.20	-53.34	12,601.86	12,531.09	70.77	178.079	
19,600.00	7,364.00	6,700.00	6,496.62	202.21	31.43	42.96	-1,516.20	-53.34	12,701.42	12,630.57	70.85	179.273	
19,700.00	7,364.00	6,700.00	6,496.62	203.79	31.43	42.96	-1,516.20	-53.34	12,800.99	12,730.05	70.93	180.463	
19,800.00	7,364.00	6,700.00	6,496.62	205.38	31.43	42.96	-1,516.20	-53.34	12,900.56	12,829.54	71.02	181.650	
19,900.00	7,364.00	6,700.00	6,496.62	206.97	31.43	42.96	-1,516.20	-53.34	13,000.14	12,929.04	71.10	182.833	
20,000.00	7,364.00	6,700.00	6,496.62	208.55	31.43	42.96	-1,516.20	-53.34	13,099.73	13,028.54	71.19	184.012	
20,100.00	7,364.00	6,700.00	6,496.62	210.14	31.43	42.96	-1,516.20	-53.34	13,199.32	13,128.04	71.28	185.187	
20,200.00	7,364.00	6,700.00	6,496.62	211.73	31.43	42.96	-1,516.20	-53.34	13,298.92	13,227.56	71.36	186.359	
20,300.00	7,364.00	6,700.00	6,496.62	213.32	31.43	42.96	-1,516.20	-53.34	13,398.52	13,327.07	71.45	187.526	
20,400.00	7,364.00	6,700.00	6,496.62	214.90	31.43	42.96	-1,516.20	-53.34	13,498.13	13,426.60	71.54	188.690	
20,500.00	7,364.00	6,700.00	6,496.62	216.49	31.43	42.96	-1,516.20	-53.34	13,597.75	13,526.13	71.62	189.851	
20,600.00	7,364.00	6,700.00	6,496.62	218.08	31.43	42.96	-1,516.20	-53.34	13,697.37	13,625.66	71.71	191.007	
20,700.00	7,364.00	6,700.00	6,496.62	219.67	31.43	42.96	-1,516.20	-53.34	13,797.00	13,725.20	71.80	192.160	
20,800.00	7,364.00	6,700.00	6,496.62	221.26	31.43	42.96	-1,516.20	-53.34	13,896.63	13,824.75	71.89	193.308	
20,900.00	7,364.00	6,700.00	6,496.62	222.84	31.43	42.96	-1,516.20	-53.34	13,996.27	13,924.29	71.98	194.453	
21,000.00	7,364.00	6,700.00	6,496.62	224.43	31.43	42.96	-1,516.20	-53.34	14,095.92	14,023.85	72.07	195.595	
21,100.00	7,364.00	6,700.00	6,496.62	226.02	31.43	42.96	-1,516.20	-53.34	14,195.56	14,123.41	72.16	196.732	
21,200.00	7,364.00	6,700.00	6,496.62	227.61	31.43	42.96	-1,516.20	-53.34	14,295.22	14,222.97	72.25	197.866	
21,300.00	7,364.00	6,700.00	6,496.62	229.20	31.43	42.96	-1,516.20	-53.34	14,394.88	14,322.54	72.34	198.996	
21,400.00	7,364.00	6,700.00	6,496.62	230.79	31.43	42.96	-1,516.20	-53.34	14,494.54	14,422.11	72.43	200.122	
21,500.00	7,364.00	6,700.00	6,496.62	232.38	31.43	42.96	-1,516.20	-53.34	14,594.21	14,521.69	72.52	201.244	
21,600.00	7,364.00	6,700.00	6,496.62	233.97	31.43	42.96	-1,516.20	-53.34	14,693.88	14,621.27	72.61	202.362	
21,700.00	7,364.00	6,700.00	6,496.62	235.56	31.43	42.96	-1,516.20	-53.34	14,793.55	14,720.85	72.70	203.477	
21,800.00	7,364.00	6,700.00	6,496.62	237.15	31.43	42.96	-1,516.20	-53.34	14,893.23	14,820.44	72.80	204.588	
21,864.93	7,364.00	6,700.00	6,496.62	238.18	31.43	42.96	-1,516.20	-53.34	14,957.96	14,885.10	72.86	205.307	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - Rosa Unit 756H - OH - Plan #7

Offset Site Error: 0.00 usft

Survey Program: 0-MWD+HRGM+MS

Offset Well Error: 3.28 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	3.28	3.28	177.33	-25.12	1.17	25.14				
100.00	100.00	100.00	100.00	3.29	3.29	177.33	-25.12	1.17	25.14	18.56	6.58	3.822	
200.00	200.00	200.00	200.00	3.34	3.34	177.33	-25.12	1.17	25.14	18.47	6.67	3.768	
300.00	300.00	300.00	300.00	3.42	3.42	177.33	-25.12	1.17	25.14	18.30	6.84	3.676	
400.00	400.00	400.00	400.00	3.54	3.54	177.33	-25.12	1.17	25.14	18.07	7.08	3.553	
500.00	500.00	500.00	500.00	3.69	3.69	177.33	-25.12	1.17	25.14	17.77	7.37	3.409	CC
600.00	599.98	599.12	599.10	3.86	3.85	29.03	-26.83	1.29	25.33	17.63	7.71	3.287	ES
700.00	699.84	698.21	698.06	4.04	4.04	33.94	-31.95	1.66	26.03	17.97	8.06	3.229	
808.00	807.41	805.15	804.57	4.27	4.26	42.14	-41.31	2.34	27.77	19.28	8.49	3.270	
900.00	898.89	896.21	894.95	4.49	4.48	29.16	-52.40	3.14	30.54	21.65	8.89	3.434	
912.12	910.94	908.20	906.82	4.52	4.51	26.96	-54.07	3.26	30.99	22.04	8.95	3.464	
1,000.00	998.31	995.02	992.56	4.74	4.73	26.02	-67.67	4.24	35.53	26.19	9.35	3.802	
1,100.00	1,097.73	1,093.38	1,089.14	5.01	5.01	23.85	-86.19	5.58	43.78	33.96	9.82	4.457	
1,200.00	1,197.15	1,191.07	1,184.38	5.29	5.32	21.41	-107.85	7.14	55.35	45.04	10.31	5.368	
1,300.00	1,296.58	1,288.12	1,278.22	5.59	5.65	19.18	-132.54	8.92	70.25	59.43	10.82	6.494	
1,400.00	1,396.00	1,386.76	1,373.25	5.90	6.02	17.53	-158.91	10.82	86.51	75.10	11.41	7.582	
1,500.00	1,495.42	1,485.40	1,468.29	6.22	6.40	16.40	-185.27	12.73	102.82	90.79	12.02	8.552	
1,600.00	1,594.84	1,584.05	1,563.33	6.54	6.80	15.58	-211.64	14.63	119.15	106.50	12.65	9.417	
1,700.00	1,694.27	1,682.69	1,658.36	6.87	7.21	14.96	-238.00	16.53	135.51	122.21	13.30	10.191	
1,800.00	1,793.69	1,781.34	1,753.40	7.21	7.63	14.47	-264.37	18.43	151.87	137.92	13.95	10.885	
1,900.00	1,893.11	1,879.98	1,848.44	7.55	8.05	14.08	-290.74	20.34	168.25	153.63	14.62	11.509	
2,000.00	1,992.53	1,978.63	1,943.47	7.89	8.49	13.76	-317.10	22.24	184.63	169.33	15.29	12.071	
2,100.00	2,091.96	2,077.27	2,038.51	8.24	8.93	13.49	-343.47	24.14	201.01	185.03	15.98	12.580	
2,200.00	2,191.38	2,175.92	2,133.55	8.60	9.38	13.26	-369.83	26.05	217.40	200.73	16.67	13.042	
2,300.00	2,290.80	2,274.56	2,228.58	8.95	9.83	13.06	-396.20	27.95	233.79	216.43	17.37	13.463	
2,400.00	2,390.22	2,373.20	2,323.62	9.31	10.29	12.89	-422.57	29.85	250.19	232.12	18.07	13.847	
2,500.00	2,489.65	2,471.85	2,418.66	9.67	10.75	12.74	-448.93	31.75	266.58	247.81	18.78	14.199	
2,600.00	2,589.07	2,570.49	2,513.69	10.03	11.22	12.61	-475.30	33.66	282.98	263.50	19.49	14.522	
2,700.00	2,688.49	2,669.14	2,608.73	10.40	11.68	12.49	-501.66	35.56	299.38	279.18	20.20	14.819	
2,800.00	2,787.91	2,767.78	2,703.77	10.76	12.15	12.38	-528.03	37.46	315.78	294.86	20.92	15.094	
2,900.00	2,887.33	2,866.43	2,798.80	11.13	12.62	12.29	-554.40	39.36	332.18	310.54	21.64	15.349	
3,000.00	2,986.76	2,965.07	2,893.84	11.50	13.10	12.20	-580.76	41.27	348.59	326.22	22.37	15.585	
3,100.00	3,086.18	3,063.71	2,988.87	11.87	13.57	12.12	-607.13	43.17	364.99	341.89	23.09	15.805	
3,200.00	3,185.60	3,162.36	3,083.91	12.24	14.05	12.05	-633.49	45.07	381.39	357.57	23.82	16.009	
3,300.00	3,285.02	3,261.00	3,178.95	12.61	14.52	11.98	-659.86	46.97	397.80	373.24	24.55	16.201	
3,400.00	3,384.45	3,359.65	3,273.98	12.98	15.00	11.92	-686.22	48.88	414.20	388.91	25.29	16.379	
3,500.00	3,483.87	3,458.29	3,369.02	13.36	15.48	11.87	-712.59	50.78	430.60	404.58	26.02	16.547	
3,600.00	3,583.29	3,556.94	3,464.06	13.73	15.97	11.81	-738.96	52.68	447.01	420.25	26.76	16.705	
3,700.00	3,682.71	3,655.58	3,559.09	14.11	16.45	11.77	-765.32	54.59	463.42	435.92	27.50	16.853	
3,800.00	3,782.14	3,754.23	3,654.13	14.48	16.93	11.72	-791.69	56.49	479.82	451.58	28.24	16.992	
3,900.00	3,881.56	3,852.87	3,749.17	14.86	17.42	11.68	-818.05	58.39	496.23	467.25	28.98	17.124	
4,000.00	3,980.98	3,951.51	3,844.20	15.24	17.90	11.64	-844.42	60.29	512.63	482.91	29.72	17.249	
4,100.00	4,080.40	4,050.16	3,939.24	15.61	18.39	11.60	-870.79	62.20	529.04	498.58	30.46	17.367	
4,200.00	4,179.83	4,148.80	4,034.28	15.99	18.87	11.57	-897.15	64.10	545.45	514.24	31.21	17.478	
4,300.00	4,279.25	4,247.45	4,129.31	16.37	19.36	11.53	-923.52	66.00	561.85	529.90	31.95	17.584	
4,400.00	4,378.67	4,346.09	4,224.35	16.75	19.85	11.50	-949.88	67.90	578.26	545.56	32.70	17.685	
4,500.00	4,478.09	4,444.74	4,319.39	17.13	20.33	11.47	-976.25	69.81	594.67	561.22	33.44	17.781	
4,600.00	4,577.51	4,543.38	4,414.42	17.51	20.82	11.45	-1,002.62	71.71	611.08	576.88	34.19	17.872	
4,700.00	4,676.94	4,642.02	4,509.46	17.89	21.31	11.42	-1,028.98	73.61	627.48	592.54	34.94	17.959	
4,800.00	4,776.36	4,740.67	4,604.49	18.27	21.80	11.40	-1,055.35	75.51	643.89	608.20	35.69	18.041	
4,900.00	4,875.78	4,839.31	4,699.53	18.65	22.29	11.37	-1,081.71	77.42	660.30	623.86	36.44	18.121	
5,000.00	4,975.20	4,937.96	4,794.57	19.03	22.78	11.35	-1,108.08	79.32	676.71	639.52	37.19	18.196	

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 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - Rosa Unit 756H - OH - Plan #7

Offset Site Error: 0.00 usft

Survey Program: 0-MWD+HRGM+MS

Offset Well Error: 3.28 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,100.00	5,074.63	5,036.60	4,889.60	19.41	23.27	11.33	-1,134.44	81.22	693.12	655.18	37.94	18.269	
5,200.00	5,174.05	5,135.25	4,984.64	19.79	23.76	11.31	-1,160.81	83.13	709.52	670.83	38.69	18.338	
5,300.00	5,273.47	5,233.89	5,079.68	20.17	24.25	11.29	-1,187.18	85.03	725.93	686.49	39.44	18.405	
5,400.00	5,372.89	5,332.54	5,174.71	20.56	24.74	11.27	-1,213.54	86.93	742.34	702.14	40.20	18.468	
5,500.00	5,472.32	5,431.18	5,269.75	20.94	25.23	11.25	-1,239.91	88.83	758.75	717.80	40.95	18.529	
5,600.00	5,571.74	5,529.82	5,364.79	21.32	25.72	11.23	-1,266.27	90.74	775.16	733.46	41.70	18.588	
5,700.00	5,671.16	5,628.47	5,459.82	21.70	26.21	11.22	-1,292.64	92.64	791.56	749.11	42.45	18.645	
5,800.00	5,770.58	5,727.11	5,554.86	22.08	26.71	11.20	-1,319.01	94.54	807.97	764.76	43.21	18.699	
5,900.00	5,870.01	5,825.76	5,649.90	22.47	27.20	11.19	-1,345.37	96.44	824.38	780.42	43.96	18.752	
6,000.00	5,969.43	5,924.40	5,744.93	22.85	27.69	11.17	-1,371.74	98.35	840.79	796.07	44.72	18.802	
6,100.00	6,068.85	6,023.05	5,839.97	23.23	28.18	11.16	-1,398.10	100.25	857.20	811.73	45.47	18.851	
6,200.00	6,168.27	6,121.69	5,935.01	23.62	28.68	11.15	-1,424.47	102.15	873.61	827.38	46.23	18.898	
6,300.00	6,267.70	6,220.33	6,030.04	24.00	29.17	11.13	-1,450.83	104.05	890.02	843.03	46.98	18.943	
6,400.00	6,367.12	6,318.98	6,125.08	24.38	29.66	11.12	-1,477.20	105.96	906.43	858.69	47.74	18.987	
6,500.00	6,466.54	6,417.62	6,220.12	24.77	30.15	11.11	-1,503.57	107.86	922.83	874.34	48.50	19.029	
6,600.00	6,565.96	6,516.27	6,315.15	25.15	30.65	11.10	-1,529.93	109.76	939.24	889.99	49.25	19.070	
6,700.00	6,665.38	6,614.91	6,410.19	25.53	31.14	11.09	-1,556.30	111.67	955.65	905.64	50.01	19.109	
6,778.75	6,743.68	6,692.59	6,485.03	25.84	31.53	11.08	-1,577.06	113.16	968.57	917.97	50.61	19.140	
6,800.00	6,764.80	6,713.25	6,504.92	25.92	31.63	26.78	-1,582.59	113.83	972.07	921.30	50.76	19.148	
6,850.00	6,814.29	6,761.78	6,551.47	26.11	31.88	50.43	-1,595.59	118.00	980.30	929.16	51.14	19.169	
6,900.00	6,863.27	6,810.32	6,597.58	26.30	32.12	61.65	-1,608.56	125.85	988.53	937.01	51.52	19.189	
6,950.00	6,911.44	6,858.90	6,642.98	26.50	32.36	67.43	-1,621.42	137.33	996.70	944.80	51.89	19.207	
7,000.00	6,958.49	6,907.53	6,687.43	26.68	32.60	70.70	-1,634.13	152.39	1,004.75	952.48	52.27	19.221	
7,050.00	7,004.14	6,956.25	6,730.70	26.87	32.84	72.67	-1,646.59	170.97	1,012.65	960.00	52.65	19.232	
7,100.00	7,048.10	7,005.06	6,772.52	27.05	33.06	73.88	-1,658.74	192.98	1,020.34	967.30	53.04	19.238	
7,150.00	7,090.11	7,053.98	6,812.66	27.23	33.29	74.63	-1,670.51	218.32	1,027.78	974.35	53.43	19.236	
7,200.00	7,129.90	7,103.03	6,850.88	27.41	33.51	75.08	-1,681.83	246.88	1,034.91	981.08	53.83	19.226	
7,250.00	7,167.24	7,152.22	6,886.95	27.59	33.72	75.35	-1,692.64	278.51	1,041.70	987.46	54.24	19.205	
7,300.00	7,201.88	7,201.56	6,920.64	27.76	33.93	75.48	-1,702.86	313.06	1,048.11	993.44	54.66	19.173	
7,350.00	7,233.63	7,251.06	6,951.72	27.94	34.13	75.52	-1,712.44	350.36	1,054.09	998.98	55.11	19.129	
7,400.00	7,262.27	7,300.71	6,979.99	28.13	34.34	75.51	-1,721.30	390.20	1,059.61	1,004.05	55.56	19.070	
7,450.00	7,287.63	7,350.54	7,005.24	28.32	34.54	75.46	-1,729.38	432.36	1,064.63	1,008.59	56.05	18.996	
7,500.00	7,309.57	7,400.52	7,027.28	28.53	34.73	75.39	-1,736.63	476.62	1,069.13	1,012.59	56.55	18.907	
7,550.00	7,327.93	7,450.67	7,045.96	28.74	34.93	75.32	-1,743.00	522.71	1,073.08	1,016.00	57.07	18.802	
7,600.00	7,342.62	7,500.97	7,061.11	28.97	35.13	75.24	-1,748.43	570.35	1,076.44	1,018.82	57.62	18.681	
7,650.00	7,353.53	7,551.41	7,072.61	29.22	35.34	75.17	-1,752.88	619.25	1,079.21	1,021.02	58.19	18.545	
7,700.00	7,360.61	7,601.99	7,080.35	29.48	35.55	75.11	-1,756.31	669.09	1,081.36	1,022.58	58.78	18.396	
7,750.00	7,363.80	7,652.68	7,084.25	29.75	35.76	75.07	-1,758.70	719.57	1,082.88	1,023.49	59.39	18.233	
7,765.93	7,364.00	7,668.85	7,084.68	29.84	35.83	75.05	-1,759.24	735.72	1,083.23	1,023.64	59.59	18.179	
7,800.00	7,364.00	7,703.06	7,084.76	30.04	35.98	75.07	-1,760.15	769.92	1,083.90	1,023.89	60.01	18.061	
7,900.00	7,364.00	7,803.03	7,084.83	30.67	36.46	75.10	-1,762.76	869.86	1,085.88	1,024.52	61.36	17.697	
8,000.00	7,364.00	7,903.01	7,084.90	31.37	37.00	75.13	-1,765.37	969.81	1,087.86	1,025.03	62.83	17.314	
8,100.00	7,364.00	8,002.99	7,084.97	32.14	37.61	75.16	-1,767.97	1,069.75	1,089.83	1,025.41	64.42	16.918	
8,200.00	7,364.00	8,102.97	7,085.04	32.96	38.28	75.19	-1,770.58	1,169.69	1,091.81	1,025.69	66.12	16.513	
8,300.00	7,364.00	8,202.95	7,085.11	33.85	39.01	75.23	-1,773.19	1,269.64	1,093.79	1,025.87	67.92	16.104	
8,400.00	7,364.00	8,302.93	7,085.18	34.79	39.79	75.26	-1,775.80	1,369.58	1,095.77	1,025.96	69.81	15.696	
8,500.00	7,364.00	8,402.91	7,085.25	35.77	40.62	75.29	-1,778.41	1,469.53	1,097.75	1,025.96	71.79	15.291	
8,600.00	7,364.00	8,502.88	7,085.32	36.80	41.50	75.32	-1,781.02	1,569.47	1,099.73	1,025.88	73.85	14.891	
8,700.00	7,364.00	8,602.86	7,085.39	37.87	42.43	75.35	-1,783.63	1,669.42	1,101.71	1,025.73	75.98	14.500	
8,800.00	7,364.00	8,702.84	7,085.46	38.98	43.40	75.38	-1,786.24	1,769.36	1,103.69	1,025.51	78.18	14.117	
8,900.00	7,364.00	8,802.82	7,085.53	40.12	44.40	75.41	-1,788.84	1,869.31	1,105.67	1,025.23	80.44	13.745	
9,000.00	7,364.00	8,902.80	7,085.60	41.29	45.45	75.44	-1,791.45	1,969.25	1,107.65	1,024.90	82.76	13.384	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - Rosa Unit 756H - OH - Plan #7

Offset Site Error: 0.00 usft

Survey Program: 0-MWD+HRGM+MS

Offset Well Error: 3.28 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,100.00	7,364.00	9,002.78	7,085.67	42.49	46.53	75.47	-1,794.06	2,069.20	1,109.63	1,024.51	85.13	13.035	
9,200.00	7,364.00	9,102.76	7,085.74	43.71	47.63	75.50	-1,796.67	2,169.14	1,111.62	1,024.07	87.54	12.698	
9,300.00	7,364.00	9,202.74	7,085.81	44.96	48.77	75.53	-1,799.28	2,269.08	1,113.60	1,023.60	90.00	12.373	
9,400.00	7,364.00	9,302.71	7,085.88	46.23	49.94	75.56	-1,801.89	2,369.03	1,115.58	1,023.08	92.50	12.060	
9,500.00	7,364.00	9,402.69	7,085.95	47.52	51.13	75.59	-1,804.50	2,468.97	1,117.56	1,022.52	95.04	11.759	
9,600.00	7,364.00	9,502.67	7,086.02	48.83	52.34	75.62	-1,807.10	2,568.92	1,119.54	1,021.93	97.61	11.469	
9,700.00	7,364.00	9,602.65	7,086.09	50.15	53.57	75.65	-1,809.71	2,668.86	1,121.53	1,021.31	100.22	11.191	
9,800.00	7,364.00	9,702.63	7,086.16	51.49	54.83	75.68	-1,812.32	2,768.81	1,123.51	1,020.66	102.85	10.923	
9,900.00	7,364.00	9,802.61	7,086.23	52.85	56.10	75.71	-1,814.93	2,868.75	1,125.50	1,019.98	105.52	10.667	
10,000.00	7,364.00	9,902.59	7,086.30	54.22	57.39	75.74	-1,817.54	2,968.70	1,127.48	1,019.28	108.20	10.420	
10,100.00	7,364.00	10,002.56	7,086.37	55.60	58.69	75.77	-1,820.15	3,068.64	1,129.46	1,018.55	110.91	10.183	
10,200.00	7,364.00	10,102.54	7,086.44	56.99	60.01	75.80	-1,822.76	3,168.59	1,131.45	1,017.80	113.65	9.956	
10,300.00	7,364.00	10,202.52	7,086.51	58.40	61.35	75.83	-1,825.36	3,268.53	1,133.43	1,017.03	116.40	9.737	
10,400.00	7,364.00	10,302.50	7,086.58	59.81	62.69	75.85	-1,827.97	3,368.48	1,135.42	1,016.25	119.17	9.528	
10,500.00	7,364.00	10,402.48	7,086.65	61.23	64.05	75.88	-1,830.58	3,468.42	1,137.40	1,015.44	121.96	9.326	
10,600.00	7,364.00	10,502.46	7,086.72	62.66	65.42	75.91	-1,833.19	3,568.36	1,139.39	1,014.62	124.77	9.132	
10,700.00	7,364.00	10,602.44	7,086.79	64.10	66.80	75.94	-1,835.80	3,668.31	1,141.38	1,013.78	127.59	8.946	
10,800.00	7,364.00	10,702.42	7,086.86	65.55	68.19	75.97	-1,838.41	3,768.25	1,143.36	1,012.93	130.43	8.766	
10,900.00	7,364.00	10,802.39	7,086.93	67.01	69.59	76.00	-1,841.02	3,868.20	1,145.35	1,012.07	133.28	8.594	
11,000.00	7,364.00	10,902.37	7,087.00	68.47	71.00	76.03	-1,843.63	3,968.14	1,147.34	1,011.19	136.14	8.427	
11,100.00	7,364.00	11,002.35	7,087.07	69.93	72.42	76.05	-1,846.23	4,068.09	1,149.32	1,010.30	139.02	8.267	
11,200.00	7,364.00	11,102.33	7,087.14	71.41	73.84	76.08	-1,848.84	4,168.03	1,151.31	1,009.40	141.91	8.113	
11,300.00	7,364.00	11,202.31	7,087.21	72.88	75.27	76.11	-1,851.45	4,267.98	1,153.30	1,008.49	144.81	7.964	
11,400.00	7,364.00	11,302.29	7,087.28	74.37	76.71	76.14	-1,854.06	4,367.92	1,155.29	1,007.57	147.71	7.821	
11,500.00	7,364.00	11,402.27	7,087.35	75.85	78.15	76.17	-1,856.67	4,467.87	1,157.27	1,006.64	150.63	7.683	
11,600.00	7,364.00	11,502.24	7,087.42	77.35	79.61	76.19	-1,859.28	4,567.81	1,159.26	1,005.70	153.56	7.549	
11,700.00	7,364.00	11,602.22	7,087.49	78.84	81.06	76.22	-1,861.89	4,667.76	1,161.25	1,004.76	156.50	7.420	
11,800.00	7,364.00	11,702.20	7,087.56	80.34	82.52	76.25	-1,864.49	4,767.70	1,163.24	1,003.80	159.44	7.296	
11,900.00	7,364.00	11,802.18	7,087.63	81.85	83.99	76.28	-1,867.10	4,867.64	1,165.23	1,002.84	162.39	7.175	
12,000.00	7,364.00	11,902.16	7,087.70	83.36	85.46	76.30	-1,869.71	4,967.59	1,167.22	1,001.87	165.35	7.059	
12,100.00	7,364.00	12,002.14	7,087.77	84.87	86.94	76.33	-1,872.32	5,067.53	1,169.21	1,000.89	168.32	6.946	
12,200.00	7,364.00	12,102.12	7,087.84	86.38	88.42	76.36	-1,874.93	5,167.48	1,171.20	999.91	171.29	6.838	
12,300.00	7,364.00	12,202.10	7,087.91	87.90	89.91	76.39	-1,877.54	5,267.42	1,173.19	998.92	174.27	6.732	
12,400.00	7,364.00	12,302.07	7,087.98	89.42	91.40	76.41	-1,880.15	5,367.37	1,175.18	997.93	177.25	6.630	
12,500.00	7,364.00	12,402.05	7,088.05	90.95	92.89	76.44	-1,882.76	5,467.31	1,177.17	996.93	180.25	6.531	
12,600.00	7,364.00	12,502.03	7,088.12	92.47	94.39	76.47	-1,885.36	5,567.26	1,179.16	995.92	183.24	6.435	
12,700.00	7,364.00	12,602.01	7,088.19	94.00	95.89	76.49	-1,887.97	5,667.20	1,181.16	994.91	186.24	6.342	
12,800.00	7,364.00	12,701.99	7,088.26	95.53	97.39	76.52	-1,890.58	5,767.15	1,183.15	993.90	189.25	6.252	
12,900.00	7,364.00	12,801.97	7,088.33	97.06	98.90	76.55	-1,893.19	5,867.09	1,185.14	992.88	192.26	6.164	
13,000.00	7,364.00	12,901.95	7,088.39	98.60	100.41	76.57	-1,895.80	5,967.03	1,187.13	991.85	195.28	6.079	
13,100.00	7,364.00	13,001.92	7,088.46	100.14	101.92	76.60	-1,898.41	6,066.98	1,189.12	990.82	198.30	5.997	
13,200.00	7,364.00	13,101.90	7,088.53	101.68	103.43	76.63	-1,901.02	6,166.92	1,191.12	989.79	201.32	5.916	
13,300.00	7,364.00	13,201.88	7,088.60	103.22	104.95	76.65	-1,903.62	6,266.87	1,193.11	988.76	204.35	5.838	
13,400.00	7,364.00	13,301.86	7,088.67	104.76	106.47	76.68	-1,906.23	6,366.81	1,195.10	987.72	207.39	5.763	
13,500.00	7,364.00	13,401.84	7,088.74	106.31	108.00	76.70	-1,908.84	6,466.76	1,197.10	986.67	210.42	5.689	
13,600.00	7,364.00	13,501.82	7,088.81	107.85	109.52	76.73	-1,911.45	6,566.70	1,199.09	985.63	213.46	5.617	
13,700.00	7,364.00	13,601.80	7,088.88	109.40	111.05	76.76	-1,914.06	6,666.65	1,201.08	984.58	216.51	5.548	
13,800.00	7,364.00	13,701.77	7,088.95	110.95	112.58	76.78	-1,916.67	6,766.59	1,203.08	983.53	219.55	5.480	
13,900.00	7,364.00	13,801.75	7,089.02	112.50	114.11	76.81	-1,919.28	6,866.54	1,205.07	982.47	222.60	5.414	
14,000.00	7,364.00	13,901.73	7,089.09	114.05	115.64	76.83	-1,921.88	6,966.48	1,207.07	981.41	225.66	5.349	
14,100.00	7,364.00	14,001.71	7,089.16	115.61	117.18	76.86	-1,924.49	7,066.43	1,209.06	980.35	228.71	5.286	
14,200.00	7,364.00	14,101.69	7,089.23	117.16	118.71	76.88	-1,927.10	7,166.37	1,211.06	979.29	231.77	5.225	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - Rosa Unit 756H - OH - Plan #7

Offset Site Error: 0.00 usft

Survey Program: 0-MWD+HRGM+MS

Offset Well Error: 3.28 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,300.00	7,364.00	14,201.67	7,089.30	118.72	120.25	76.91	-1,929.71	7,266.31	1,213.05	978.22	234.83	5.166	
14,400.00	7,364.00	14,301.65	7,089.37	120.28	121.79	76.93	-1,932.32	7,366.26	1,215.05	977.15	237.90	5.107	
14,500.00	7,364.00	14,401.63	7,089.44	121.84	123.33	76.96	-1,934.93	7,466.20	1,217.04	976.08	240.97	5.051	
14,600.00	7,364.00	14,501.60	7,089.51	123.40	124.88	76.98	-1,937.54	7,566.15	1,219.04	975.00	244.04	4.995	
14,700.00	7,364.00	14,601.58	7,089.58	124.96	126.42	77.01	-1,940.15	7,666.09	1,221.04	973.93	247.11	4.941	
14,800.00	7,364.00	14,701.56	7,089.65	126.52	127.97	77.03	-1,942.75	7,766.04	1,223.03	972.85	250.18	4.889	
14,900.00	7,364.00	14,801.54	7,089.72	128.08	129.51	77.06	-1,945.36	7,865.98	1,225.03	971.77	253.26	4.837	
15,000.00	7,364.00	14,901.52	7,089.79	129.64	131.06	77.08	-1,947.97	7,965.93	1,227.03	970.69	256.34	4.787	
15,100.00	7,364.00	15,001.50	7,089.86	131.21	132.61	77.11	-1,950.58	8,065.87	1,229.03	969.60	259.42	4.738	
15,200.00	7,364.00	15,101.48	7,089.93	132.77	134.16	77.13	-1,953.19	8,165.82	1,231.02	968.52	262.50	4.690	
15,300.00	7,364.00	15,201.45	7,090.00	134.34	135.72	77.16	-1,955.80	8,265.76	1,233.02	967.43	265.59	4.643	
15,400.00	7,364.00	15,301.43	7,090.07	135.91	137.27	77.18	-1,958.41	8,365.70	1,235.02	966.34	268.68	4.597	
15,500.00	7,364.00	15,401.41	7,090.14	137.48	138.83	77.21	-1,961.01	8,465.65	1,237.02	965.25	271.77	4.552	
15,600.00	7,364.00	15,501.39	7,090.21	139.04	140.38	77.23	-1,963.62	8,565.59	1,239.01	964.16	274.86	4.508	
15,700.00	7,364.00	15,601.37	7,090.28	140.61	141.94	77.26	-1,966.23	8,665.54	1,241.01	963.06	277.95	4.465	
15,800.00	7,364.00	15,701.35	7,090.35	142.18	143.50	77.28	-1,968.84	8,765.48	1,243.01	961.97	281.05	4.423	
15,900.00	7,364.00	15,809.64	7,090.43	143.75	145.18	77.30	-1,971.60	8,873.74	1,244.97	960.85	284.12	4.382	
16,000.00	7,364.00	15,934.19	7,090.51	145.33	147.12	77.31	-1,972.06	8,998.29	1,244.66	957.60	287.07	4.336	
16,100.00	7,364.00	16,034.19	7,090.58	146.90	148.67	77.30	-1,971.97	9,098.28	1,244.02	953.88	290.14	4.288	
16,200.00	7,364.00	16,134.19	7,090.65	148.47	150.23	77.30	-1,971.87	9,198.28	1,243.38	950.16	293.23	4.240	
16,300.00	7,364.00	16,234.18	7,090.72	150.04	151.78	77.30	-1,971.78	9,298.28	1,242.74	946.44	296.31	4.194	
16,400.00	7,364.00	16,334.18	7,090.79	151.62	153.34	77.29	-1,971.68	9,398.28	1,242.10	942.71	299.39	4.149	
16,500.00	7,364.00	16,434.18	7,090.86	153.19	154.90	77.29	-1,971.58	9,498.28	1,241.46	938.99	302.47	4.104	
16,600.00	7,364.00	16,534.18	7,090.93	154.77	156.46	77.29	-1,971.49	9,598.27	1,240.82	935.26	305.56	4.061	
16,700.00	7,364.00	16,634.17	7,091.00	156.34	158.01	77.28	-1,971.39	9,698.27	1,240.18	931.54	308.64	4.018	
16,800.00	7,364.00	16,734.17	7,091.07	157.92	159.57	77.28	-1,971.29	9,798.27	1,239.54	927.81	311.73	3.976	
16,900.00	7,364.00	16,834.17	7,091.14	159.49	161.14	77.28	-1,971.20	9,898.27	1,238.90	924.08	314.82	3.935	
17,000.00	7,364.00	16,934.17	7,091.21	161.07	162.70	77.27	-1,971.10	9,998.26	1,238.26	920.36	317.90	3.895	
17,100.00	7,364.00	17,034.17	7,091.28	162.65	164.26	77.27	-1,971.01	10,098.26	1,237.62	916.63	320.99	3.856	
17,200.00	7,364.00	17,134.16	7,091.35	164.23	165.82	77.27	-1,970.91	10,198.26	1,236.98	912.90	324.08	3.817	
17,300.00	7,364.00	17,234.16	7,091.42	165.81	167.39	77.26	-1,970.81	10,298.26	1,236.34	909.16	327.17	3.779	
17,400.00	7,364.00	17,334.16	7,091.49	167.38	168.95	77.26	-1,970.72	10,398.26	1,235.70	905.43	330.27	3.742	
17,500.00	7,364.00	17,434.16	7,091.56	168.96	170.52	77.26	-1,970.62	10,498.25	1,235.06	901.70	333.36	3.705	
17,600.00	7,364.00	17,534.16	7,091.63	170.54	172.08	77.25	-1,970.52	10,598.25	1,234.42	897.97	336.45	3.669	
17,700.00	7,364.00	17,634.15	7,091.70	172.12	173.65	77.25	-1,970.43	10,698.25	1,233.78	894.23	339.55	3.634	
17,800.00	7,364.00	17,734.15	7,091.77	173.70	175.22	77.25	-1,970.33	10,798.25	1,233.14	890.50	342.64	3.599	
17,900.00	7,364.00	17,834.15	7,091.84	175.28	176.78	77.24	-1,970.24	10,898.25	1,232.50	886.76	345.73	3.565	
18,000.00	7,364.00	17,934.15	7,091.91	176.87	178.35	77.24	-1,970.14	10,998.24	1,231.86	883.03	348.83	3.531	
18,100.00	7,364.00	18,034.15	7,091.98	178.45	179.92	77.24	-1,970.04	11,098.24	1,231.22	879.29	351.93	3.499	
18,200.00	7,364.00	18,134.14	7,092.05	180.03	181.49	77.23	-1,969.95	11,198.24	1,230.58	875.55	355.02	3.466	
18,300.00	7,364.00	18,234.14	7,092.12	181.61	183.06	77.23	-1,969.85	11,298.24	1,229.94	871.82	358.12	3.434	
18,400.00	7,364.00	18,334.14	7,092.19	183.19	184.63	77.23	-1,969.75	11,398.23	1,229.30	868.08	361.22	3.403	
18,500.00	7,364.00	18,434.14	7,092.26	184.78	186.20	77.22	-1,969.66	11,498.23	1,228.66	864.34	364.32	3.372	
18,600.00	7,364.00	18,534.14	7,092.33	186.36	187.77	77.22	-1,969.56	11,598.23	1,228.02	860.60	367.42	3.342	
18,700.00	7,364.00	18,634.13	7,092.40	187.94	189.34	77.22	-1,969.47	11,698.23	1,227.38	856.86	370.52	3.313	
18,800.00	7,364.00	18,734.13	7,092.47	189.53	190.92	77.21	-1,969.37	11,798.23	1,226.74	853.12	373.62	3.283	
18,900.00	7,364.00	18,834.13	7,092.54	191.11	192.49	77.21	-1,969.27	11,898.22	1,226.10	849.38	376.72	3.255	
19,000.00	7,364.00	18,934.13	7,092.61	192.70	194.06	77.20	-1,969.18	11,998.22	1,225.46	845.64	379.82	3.226	
19,100.00	7,364.00	19,034.13	7,092.68	194.28	195.64	77.20	-1,969.08	12,098.22	1,224.82	841.89	382.92	3.199	
19,200.00	7,364.00	19,134.12	7,092.75	195.87	197.21	77.20	-1,968.98	12,198.22	1,224.18	838.15	386.02	3.171	
19,300.00	7,364.00	19,234.12	7,092.82	197.45	198.79	77.19	-1,968.89	12,298.22	1,223.54	834.41	389.13	3.144	
19,400.00	7,364.00	19,334.12	7,092.89	199.04	200.36	77.19	-1,968.79	12,398.21	1,222.90	830.67	392.23	3.118	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 32 - Rosa Unit 756H - OH - Plan #7

Offset Site Error: 0.00 usft

Survey Program: 0-MWD+HRGM+MS

Offset Well Error: 3.28 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
19,500.00	7,364.00	19,434.12	7,092.96	200.62	201.94	77.19	-1,968.70	12,498.21	1,222.26	826.92	395.33	3.092	
19,600.00	7,364.00	19,534.11	7,093.03	202.21	203.51	77.18	-1,968.60	12,598.21	1,221.62	823.18	398.44	3.066	
19,700.00	7,364.00	19,634.11	7,093.10	203.79	205.09	77.18	-1,968.50	12,698.21	1,220.98	819.43	401.54	3.041	
19,800.00	7,364.00	19,734.11	7,093.17	205.38	206.67	77.18	-1,968.41	12,798.20	1,220.33	815.69	404.65	3.016	
19,900.00	7,364.00	19,834.11	7,093.24	206.97	208.24	77.17	-1,968.31	12,898.20	1,219.69	811.94	407.75	2.991	
20,000.00	7,364.00	19,934.11	7,093.31	208.55	209.82	77.17	-1,968.21	12,998.20	1,219.05	808.20	410.86	2.967	
20,100.00	7,364.00	20,034.10	7,093.38	210.14	211.40	77.17	-1,968.12	13,098.20	1,218.41	804.45	413.96	2.943	
20,200.00	7,364.00	20,134.10	7,093.45	211.73	212.98	77.16	-1,968.02	13,198.20	1,217.77	800.71	417.07	2.920	
20,300.00	7,364.00	20,234.10	7,093.52	213.32	214.55	77.16	-1,967.93	13,298.19	1,217.13	796.96	420.18	2.897	
20,400.00	7,364.00	20,334.10	7,093.59	214.90	216.13	77.16	-1,967.83	13,398.19	1,216.49	793.21	423.28	2.874	
20,500.00	7,364.00	20,434.10	7,093.66	216.49	217.71	77.15	-1,967.73	13,498.19	1,215.85	789.46	426.39	2.852	
20,600.00	7,364.00	20,534.09	7,093.73	218.08	219.29	77.15	-1,967.64	13,598.19	1,215.21	785.72	429.50	2.829	
20,700.00	7,364.00	20,634.09	7,093.80	219.67	220.87	77.15	-1,967.54	13,698.19	1,214.57	781.97	432.60	2.808	
20,800.00	7,364.00	20,734.09	7,093.87	221.26	222.45	77.14	-1,967.44	13,798.18	1,213.93	778.22	435.71	2.786	
20,900.00	7,364.00	20,834.09	7,093.94	222.84	224.03	77.14	-1,967.35	13,898.18	1,213.29	774.47	438.82	2.765	
21,000.00	7,364.00	20,934.09	7,094.01	224.43	225.61	77.14	-1,967.25	13,998.18	1,212.65	770.72	441.93	2.744	
21,100.00	7,364.00	21,034.08	7,094.08	226.02	227.19	77.13	-1,967.16	14,098.18	1,212.01	766.97	445.04	2.723	
21,200.00	7,364.00	21,134.08	7,094.15	227.61	228.77	77.13	-1,967.06	14,198.17	1,211.37	763.23	448.15	2.703	
21,300.00	7,364.00	21,234.08	7,094.22	229.20	230.36	77.12	-1,966.96	14,298.17	1,210.73	759.48	451.26	2.683	
21,400.00	7,364.00	21,334.08	7,094.29	230.79	231.94	77.12	-1,966.87	14,398.17	1,210.09	755.73	454.37	2.663	
21,500.00	7,364.00	21,434.08	7,094.36	232.38	233.52	77.12	-1,966.77	14,498.17	1,209.45	751.98	457.48	2.644	
21,600.00	7,364.00	21,534.07	7,094.43	233.97	235.10	77.11	-1,966.67	14,598.17	1,208.81	748.23	460.59	2.625	
21,700.00	7,364.00	21,634.07	7,094.50	235.56	236.68	77.11	-1,966.58	14,698.16	1,208.17	744.48	463.70	2.606	
21,800.00	7,364.00	21,734.07	7,094.57	237.15	238.27	77.11	-1,966.48	14,798.16	1,207.53	740.72	466.81	2.587	
21,864.93	7,364.00	21,798.31	7,094.61	238.18	239.28	77.10	-1,966.42	14,862.41	1,207.12	738.28	468.83	2.575 SF	

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

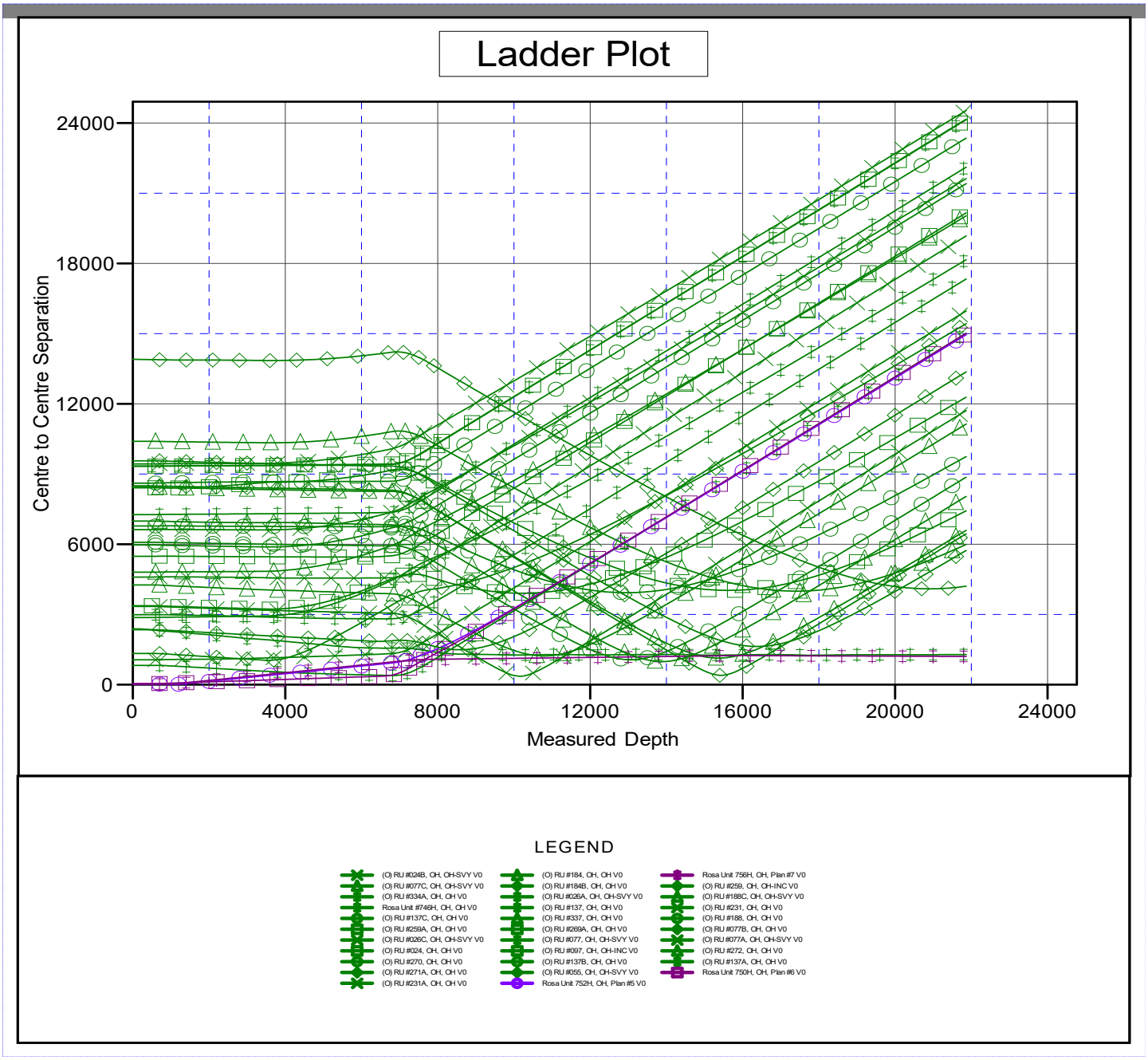
SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 754H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Plan #7	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to 6534+30 @ 6564.00usft (H&P 530)
Offset Depths are relative to Offset Datum
Central Meridian is -107.833334

Coordinates are relative to: Rosa Unit 754H
Coordinate System is US State Plane 1983, New Mexico Western Zone
Grid Convergence at Surface is: 0.28°



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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 754H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6534+30 @ 6564.00usft (H&P 530)
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Reference Depths are relative to 6534+30 @ 6564.00usft (H&P 530)
Offset Depths are relative to Offset Datum
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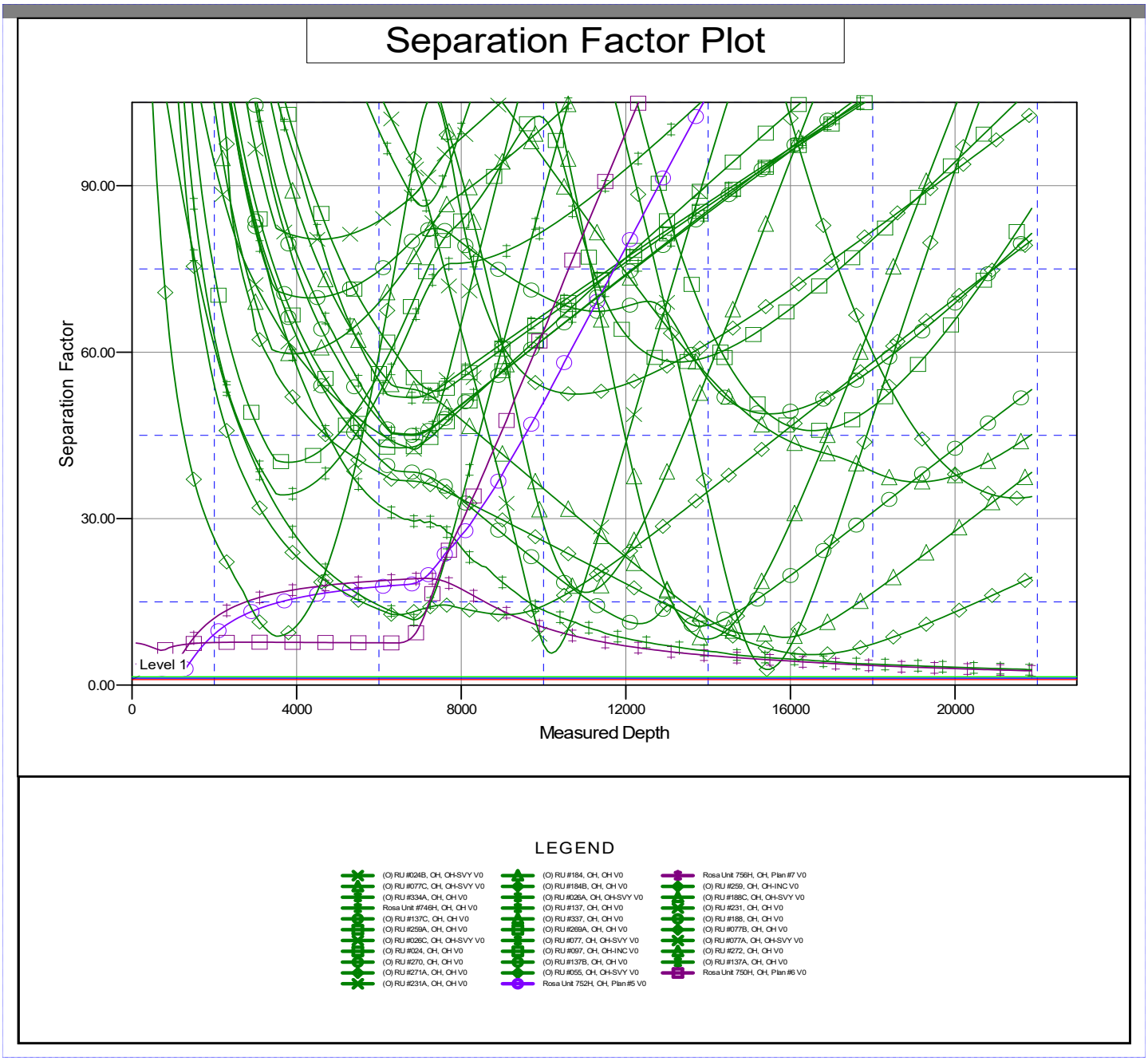

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District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Action 359422

CONDITIONS

Operator: LOGOS OPERATING, LLC 2010 Afton Place Farmington, NM 87401	OGRID: 289408
	Action Number: 359422
	Action Type: [C-103] NOI Change of Plans (C-103A)

CONDITIONS

Created By	Condition	Condition Date
ward.rikala	All original COA's still apply. Additionally, if cement is not circulated to surface during cementing operations, then a CBL is required.	7/8/2024