Received by OCD: 3/18/2024 1:45:54 PM

Well Name: ROSA UNIT

Well Location: T31N / R5W / SEC 7 / NESE /

County or Parish/State:

Well Number: 706H

Type of Well: CONVENTIONAL GAS WELL

Allottee or Tribe Name:

Lease Number: NMSF0078767

Unit or CA Name:

Unit or CA Number: NMNM078407E

US Well Number: 3003931437

Well Status: Approved Application for Permit to Drill

Operator: LOGOS OPERATING LLC

Notice of Intent

Sundry ID: 2779755

Type of Submission: Notice of Intent

Type of Action: Other

Date Sundry Submitted: 03/15/2024

Time Sundry Submitted: 09:42

Date proposed operation will begin: 04/01/2024

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

Surface Disturbance

Is any additional surface disturbance proposed?: No

NOI Attachments

Procedure Description

3160_005_Rosa_Unit_706H_Change_in_Plan_5__20240315_20240315094204.pdf

CONFIDENTIAL

Released to Imaging: 3/21/2024 8:36:16 AM

Well Name: ROSA UNIT

Well Location: T31N / R5W / SEC 7 / NESE /

County or Parish/State:

Well Number: 706H

Type of Well: CONVENTIONAL GAS WELL

Allottee or Tribe Name:

Lease Number: NMSF0078767

Unit or CA Name:

Unit or CA Number: NMNM078407E

US Well Number: 3003931437

Well Status: Approved Application for Permit to Drill

Operator: LOGOS OPERATING LLC

Operator

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

Operator Electronic Signature: ETTA TRUJILLO

Signed on: MAR 15, 2024 09:43 AM

Name: LOGOS OPERATING LLC

Title: Regulatory Specialist

Street Address: 2010 AFTON PLACE

City: Farmington **State:** NM

Phone: (505) 324-4154

Email address: ETRUJILLO@LOGOSRESOURCESLLC.COM

Field

Representative Name:

Street Address:

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

Phone:

Email address:

BLM Point of Contact

BLM POC Name: KENNETH G RENNICK

BLM POC Title: Petroleum Engineer

BLM POC Phone: 5055647742

BLM POC Email Address: krennick@blm.gov

Disposition: Approved

Disposition Date: 03/18/2024

Signature: Kenneth Rennick

CONFIDENTIAL

Form 3160-5
(June 2019)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

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

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals.

SUBMIT IN TRIPLICATE *- Other instructions on page 2*

5. Lease Serial No.: NMSF078767

6. If Indian, Allottee or Tribe Name:

7. If Unit of CA/Agreement, Name and/or No.:

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

8. Well Name and No.: ROSA UNIT 706H

2. Name of Operator: LOGOS OPERATING, LLC

9. API Well No.: 30-039-31437

3a. Address: 2010 AFTON PLACE, FARMINGTON, NM 87401

3b. Phone No. *(include area code)*: (505) 278-8720

10. Field and Pool or Exploratory Area: BASIN MANCOS

4. Location of Well *(Footage, Sec., T.,R.,M., or Survey Description)*: UNIT I SEC 7 T31N 5W 2571' FSL 1293' FEL

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

12. CHECK THE APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
☒ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off
☐ Subsequent Report	☐ Alter Casing	☐ Hydraulic Fracturing	☐ Reclamation	☐ Well Integrity
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☐ Other
	☒ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	
	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal	

13. Describe Proposed or Completed Operation: Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recomplete horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be perfonned or provide the Bond No. on file with BLM/BIA. Required subsequent reports must be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompletion in a new interval, a Form 3160-4 must be filed once testing has been completed. Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed and the operator has detennined that the site is ready for final inspection.)

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

Original surface-hole location from 2592' FSL & 1308' FEL to **new surface-hole location 2571' FSL & 1293' FEL**
Original bottom-hole location from 759' FSL & 1281' FEL to **new bottom-hole location 652' FSL & 2520' FWL**
Original TD @ 17,230' (MD) 6,939' (TVD) to **new TD @ 21,032' (MD) 6,947' (TVD)**.

Geology tops have been updated per changes.
Original KOP @ 6,566' (MD) 6,345' (TVD) to **new KOP @ 6,531' (MD) 6,408' (TVD)**
Original Landing point @ 7,538' (MD) 6930' (TVD) to **new Landing point @ 7,440' (MD) 6,947' (TVD)**

Original 13.375" Surface casing @ 320' MD to **new 20" Surface casing @ 350' (MD)**
Original 9,625" casing Intermediate @ 6,420' MD to **new 9.625" Intermediate casing @ 6,365' (MD)**
Original 5.5" casing Production casing @ 17,230' MD to **new 5.5" Production casing @ 21,032' (MD)**

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

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

Title: Regulatory Specialist

Signature: Etta Trujillo

Date: 3/15/2024

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)

Page 1 of 2

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

State of New Mexico
Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION

1220 South St. Francis Drive Santa Fe, NM 87505

Form C-102 (Revised August 1, 2011)

Submit one copy to Appropriate District Office

[X] AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

[1] API Number	[2] Pool Code	[3] Pool Name
30-039-31437	97232	BASIN MANCOS

[4] Property Code	[5] Property Name	[6] Well Number
320608	ROSA UNIT	706H

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

[10] Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
I	7	31N	5W		2571	SOUTH	1293	EAST	RIO ARRIBA

[11] Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
N	10	31N	5W		652	SOUTH	2520	WEST	RIO ARRIBA

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

[17] OPERATOR CERTIFICATION

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

Etta Trujillo — Signature — 3/15/2024 — Date

Etta Trujillo — Printed Name

etrujillo@logosresourcesllc.com — E-mail Address

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

[18] SURVEYOR CERTIFICATION

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

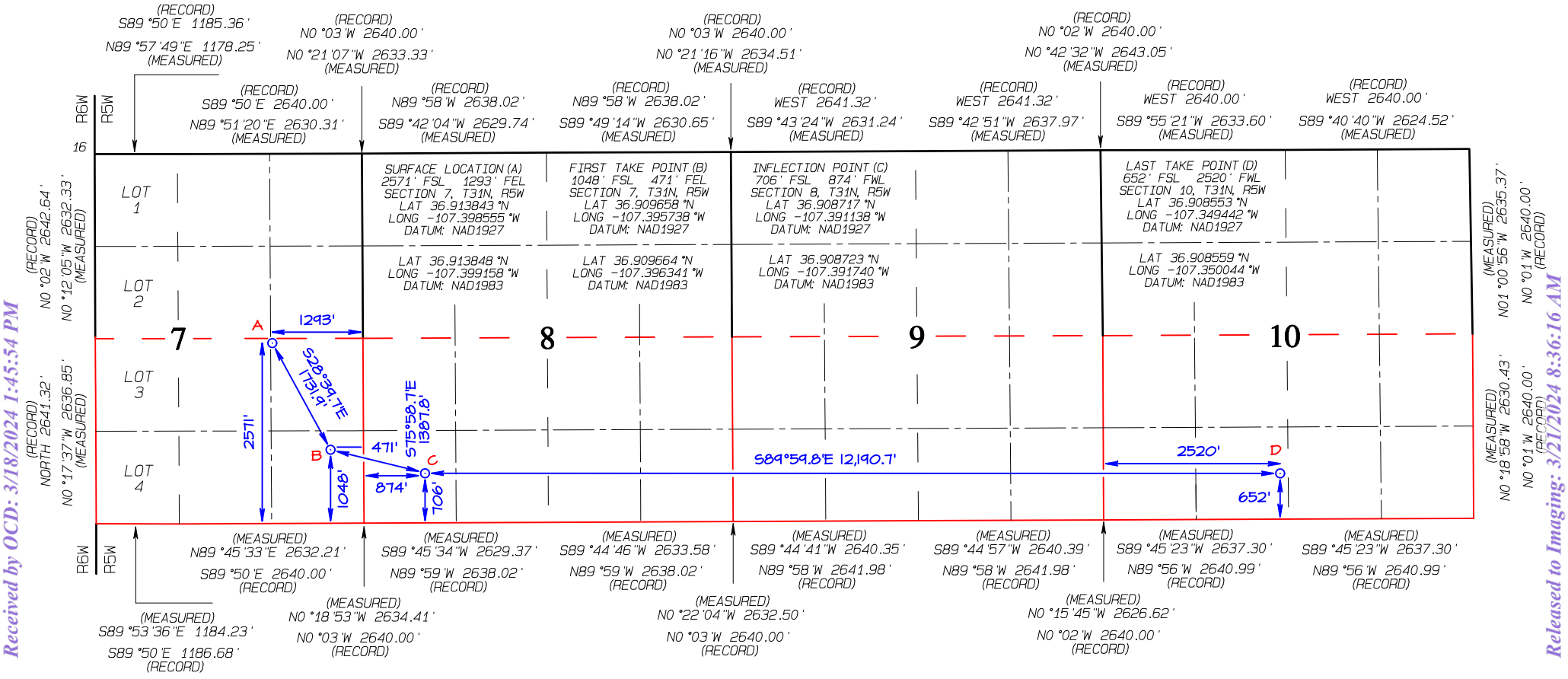
Date Revised: MARCH 13, 2024
Survey Date: NOVEMBER 15, 2021

Signature and Seal of Professional Surveyor

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

JASON C. EDWARDS

Certificate Number 15269



Received by OCD: 3/18/2024 1:45:54 PM

Released to Imaging: 3/21/2024 8:36:16 AM

LOGOS Operating, LLC
Operations Plan

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

Date:	February 29, 2024	Pool:	Basin Mancos
Well Name:	**Rosa Unit 706H**	GL Elevation:	6,295’
Surface Location:	Sec 7, T31N, R5W 2571’ FSL, 1293’ FEL (36.913848º N, 107.399158º W – NAD83)	KB:	30’
Bottom Hole Location:	Sec 10, T31N, R5W 652’ FSL, 2520’ FWL (36.908559º N, 107.350044º W – NAD83)	Measured Depth:	21,032’ (KB)
Lease Serial CA Serial	**# NMSF078767 # NMNM078707E**	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	2447’	2413’	*POINT LOOKOUT	5734’	5628’
KIRTLAND	2562’	2526’	*MANCOS	6290’	6172’
*FRUITLAND	2940’	2895’	KICKOFF POINT	6531’	6408’
*PICTURED CLIFFS	3387’	3333’	LANDING POINT	7440’	6947’
LEWIS	3516’	3459’	TD	21032’	6947’
CHACRA	4678’	4595’			
*CLIFF HOUSE	5462’	5362’			
MENEFEE	5513’	5412’			

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

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

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

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

II. DRILLING

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

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

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

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

D. **Maximum Anticipated Pressure:** 6,947' TVD x 0.43 = 2987 psi

E. **H2S Concerns**: There is no record of any naturally occurring H2S in any formation in the Rosa Unit. No H2S is anticipated in this formation or this well.

III. MATERIALS

A. CASING EQUIPMENT:

CASING TYPE	OH SIZE (IN)	DEPTH (MD)	CSG SIZE	WEIGHT	GRADE	CONN
SURFACE	26" or 24"	350' or greater	20"	94 LBS	J-55 or equiv	LTC/BTC
INTERMEDIATE	12.25"	6,365'	9.625"	43.5 LBS	N-80 or equiv	LTC/BTC
PRODUCTION	8.5"	21,032'	5.5"	20 LBS	P-110 or equiv	LTC/BTC

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

B. FLOAT EQUIPMENT:

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

C. CEMENTING:

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

1. SURFACE: Casing shall be set at ~ 350' and cemented to surface. TOC at Surface.

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

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

Intermediate - 9-5/8" csg	Top	Footage	Cement (ft3/ft) Annular Capacity	Excess (30%)	Total (ft3)	Total (bbl)	Slurry Yield (ft3/sk)	Sacks Cement	Density (PPG)
Stage 1 Tail	5,865	500	0.3132	1.3	221	39	1.10	201	15.8
Stage 1 Lead	4,728	1,137	0.3132	1.3	463	82	1.90	244	12.4
					684	**122**		**445**	
Stage 2 Tail	4,128	600	0.3132	1.3	244	44	1.58	155	13.2
Stage 2 Lead	2,990	1,138	0.3132	1.3	463	83	1.90	244	12.4
					708	**126**		**398**	
Stage 3 Tail	2,340	650	0.3132	1.3	265	47	1.58	168	13.2
Stage 3 Lead	350	1,990	0.3132	1.3	810	144	1.58	513	12.4
Stage 3 Lead	-	350	1.4895	1	521	93	1.90	274	12.4
					1,596	**284**		**955**	
					2,988	**532**		**1,798**	
Set Depth, ft RKB	6365								

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	6,265	100	0.2531	1	25	5	1.59	16	13.2
Open Hole Tail	6,365	14,667	0.2291	1.15	3,875	690	1.59	2,437	13.2
					3,900	695		2,453	
Set Depth, ft RKB	21032								

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

Cement calculations are used for volume estimation. Well conditions will dictate final cement job design. Actual volumes will be calculated and determined by conditions onsite. All cement slurries will meet or exceed minimum BLM and New Mexico Oil Conservation Division requirements. Slurries used will be the slurries listed above or

equivalent slurries depending on service provider selected. Cement yields may change depending on slurries selected. All waiting on cement times shall be a minimum of 8 hours or adequate to achieve a minimum of 500 psi compressive strength at the casing shoe prior to drilling out.

IV. COMPLETION

A. CBL

CBLs and/or Temperature Surveys will be performed as needed or required to determine cement top if cement is not circulated.

B. PRESSURE TEST

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

D. STIMULATION

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

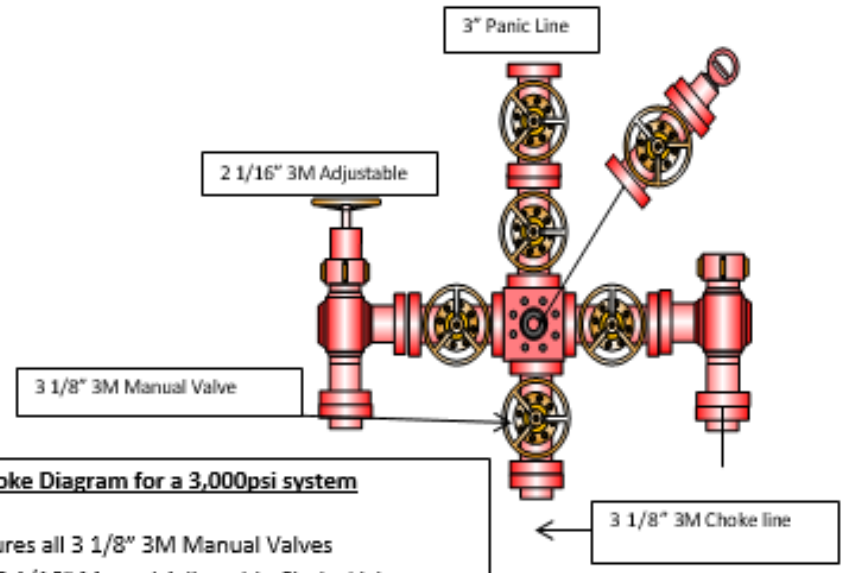
E. PRODUCTION TUBING

2-7/8", 6.5#, J-55 or L-80, EUE tubing will be run once volumes and pressures dictate. Due to the extremely high initial flow rates and pressures seen in offset wells, tubing will be installed once it is safe to do so, typically 12-36 months after completion.

*NOTE: Although this horizontal well may be drilled past the applicable setbacks, an unorthodox location application is not required because the completed interval in this well, as defined by 19.15.16.7 8(1) NMAC, will be entirely within the applicable setbacks. This approach complies with all applicable rules, including 19.15.16.14 A(3) NMAC, 19.15.16.14 8(2) NMAC, 19.15.16.15 8(2)NMAC, and 19.15.16.15. 8(4) NMAC.

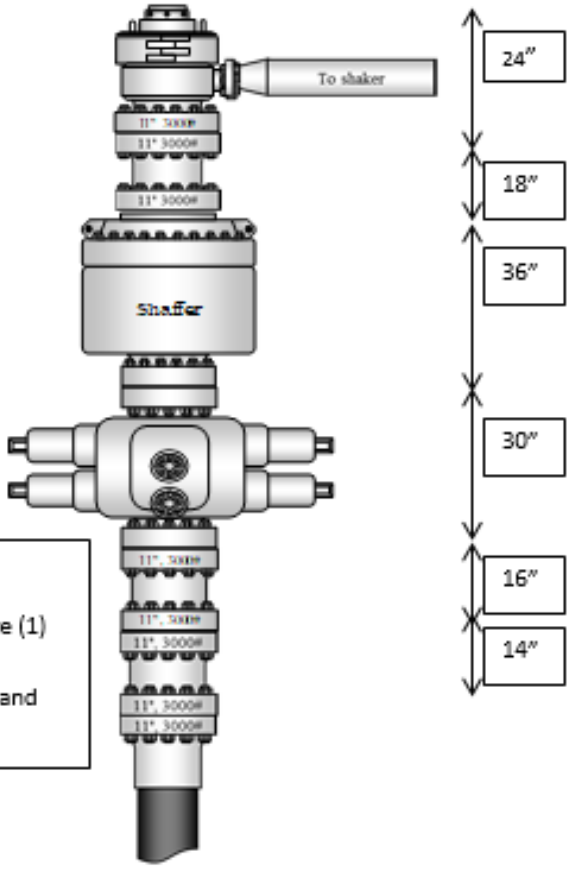
LOGOS RESOURCES II, LLC

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



Choke Diagram for a 3,000psi system

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



11" 3,000psi BOP

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

Logos Operating LLC

Rio Arriba, NM (NAD83)
Rosa Unit 24
Rosa Unit 706H

OH

Plan: Prelim #5

Standard Planning Report

01 March, 2024

SDT

Planning Report

Database:	EDM 5000 Multi User Db	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Company:	Logos Operating LLC	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Project:	Rio Arriba, NM (NAD83)	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site:	Rosa Unit 24	**North Reference:**	True
Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Prelim #5		

Project Rio Arriba, NM (NAD83)

Map System:	US State Plane 1983	**System Datum:**	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Western Zone		

Site Rosa Unit 24

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

Well Rosa Unit 706H

Well Position	**+N/-S**	0.00 usft	**Northing:**	2,152,256.68 usft	**Latitude:**	36.913848
	+E/-W	0.00 usft	**Easting:**	2,850,017.63 usft	**Longitude:**	-107.399158
Position Uncertainty		0.00 usft	**Wellhead Elevation:**	usft	**Ground Level:**	6,295.00 usft
Grid Convergence:		0.26 °				

Wellbore OH

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	1/29/2024	8.45	63.46	49,468.35254607

Design Prelim #5

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	90.26

Plan Survey Tool Program **Date** 2/26/2024

	Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	21,032.01	Prelim #5 (OH)	MWD+HRGM+MS	
				MWD + HRGM + Multi-Station	

Plan Sections

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,100.00	12.00	165.00	1,095.62	-60.47	16.20	2.00	2.00	0.00	165.00	
6,530.62	12.00	165.00	6,407.57	-1,151.09	308.43	0.00	0.00	0.00	0.00	
7,439.53	90.00	118.30	6,947.00	-1,523.29	823.67	9.00	8.58	-5.14	-47.33	
8,841.31	90.00	90.26	6,947.00	-1,865.66	2,168.61	2.00	0.00	-2.00	-90.00	
21,032.01	90.00	90.26	6,947.00	-1,921.93	14,359.18	0.00	0.00	0.00	0.00	RU 706H PBHL

SDT

Planning Report

Database:	EDM 5000 Multi User Db	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Company:	Logos Operating LLC	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Project:	Rio Arriba, NM (NAD83)	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site:	Rosa Unit 24	**North Reference:**	True
Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Prelim #5		

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	165.00	599.98	-1.69	0.45	0.46	2.00	2.00	0.00
700.00	4.00	165.00	699.84	-6.74	1.81	1.84	2.00	2.00	0.00
800.00	6.00	165.00	799.45	-15.16	4.06	4.13	2.00	2.00	0.00
900.00	8.00	165.00	898.70	-26.93	7.22	7.34	2.00	2.00	0.00
1,000.00	10.00	165.00	997.47	-42.04	11.26	11.46	2.00	2.00	0.00
1,100.00	12.00	165.00	1,095.62	-60.47	16.20	16.48	2.00	2.00	0.00
Start 5430.62 hold at 1100.00 MD									
1,200.00	12.00	165.00	1,193.44	-80.55	21.58	21.95	0.00	0.00	0.00
1,300.00	12.00	165.00	1,291.25	-100.63	26.97	27.42	0.00	0.00	0.00
1,400.00	12.00	165.00	1,389.07	-120.72	32.35	32.89	0.00	0.00	0.00
1,500.00	12.00	165.00	1,486.88	-140.80	37.73	38.37	0.00	0.00	0.00
1,600.00	12.00	165.00	1,584.70	-160.88	43.11	43.84	0.00	0.00	0.00
1,700.00	12.00	165.00	1,682.51	-180.97	48.49	49.31	0.00	0.00	0.00
1,800.00	12.00	165.00	1,780.33	-201.05	53.87	54.78	0.00	0.00	0.00
1,900.00	12.00	165.00	1,878.14	-221.13	59.25	60.25	0.00	0.00	0.00
2,000.00	12.00	165.00	1,975.96	-241.21	64.63	65.73	0.00	0.00	0.00
2,100.00	12.00	165.00	2,073.77	-261.30	70.01	71.20	0.00	0.00	0.00
2,200.00	12.00	165.00	2,171.59	-281.38	75.40	76.67	0.00	0.00	0.00
2,300.00	12.00	165.00	2,269.40	-301.46	80.78	82.14	0.00	0.00	0.00
2,400.00	12.00	165.00	2,367.22	-321.54	86.16	87.62	0.00	0.00	0.00
2,446.81	12.00	165.00	2,413.00	-330.95	88.68	90.18	0.00	0.00	0.00
Ojo Alamo									
2,500.00	12.00	165.00	2,465.03	-341.63	91.54	93.09	0.00	0.00	0.00
2,562.33	12.00	165.00	2,526.00	-354.15	94.89	96.50	0.00	0.00	0.00
Kirtland									
2,600.00	12.00	165.00	2,562.84	-361.71	96.92	98.56	0.00	0.00	0.00
2,700.00	12.00	165.00	2,660.66	-381.79	102.30	104.03	0.00	0.00	0.00
2,800.00	12.00	165.00	2,758.47	-401.88	107.68	109.50	0.00	0.00	0.00
2,900.00	12.00	165.00	2,856.29	-421.96	113.06	114.98	0.00	0.00	0.00
2,939.58	12.00	165.00	2,895.00	-429.91	115.19	117.14	0.00	0.00	0.00
Fruitland									
3,000.00	12.00	165.00	2,954.10	-442.04	118.44	120.45	0.00	0.00	0.00
3,037.72	12.00	165.00	2,991.00	-449.62	120.47	122.51	0.00	0.00	0.00
Top of Coals									
3,100.00	12.00	165.00	3,051.92	-462.12	123.83	125.92	0.00	0.00	0.00
3,200.00	12.00	165.00	3,149.73	-482.21	129.21	131.39	0.00	0.00	0.00
3,214.59	12.00	165.00	3,164.00	-485.14	129.99	132.19	0.00	0.00	0.00
Base of Coals									
3,300.00	12.00	165.00	3,247.55	-502.29	134.59	136.87	0.00	0.00	0.00
3,387.36	12.00	165.00	3,333.00	-519.83	139.29	141.65	0.00	0.00	0.00
Pictured Cliffs									
3,400.00	12.00	165.00	3,345.36	-522.37	139.97	142.34	0.00	0.00	0.00
3,500.00	12.00	165.00	3,443.18	-542.45	145.35	147.81	0.00	0.00	0.00
3,516.18	12.00	165.00	3,459.00	-545.70	146.22	148.70	0.00	0.00	0.00
Lewis									
3,600.00	12.00	165.00	3,540.99	-562.54	150.73	153.28	0.00	0.00	0.00

SDT

Planning Report

Database:	EDM 5000 Multi User Db	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Company:	Logos Operating LLC	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Project:	Rio Arriba, NM (NAD83)	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site:	Rosa Unit 24	**North Reference:**	True
Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Prelim #5		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
3,700.00	12.00	165.00	3,638.81	-582.62	156.11	158.75	0.00	0.00	0.00
3,800.00	12.00	165.00	3,736.62	-602.70	161.49	164.23	0.00	0.00	0.00
3,900.00	12.00	165.00	3,834.44	-622.79	166.87	169.70	0.00	0.00	0.00
4,000.00	12.00	165.00	3,932.25	-642.87	172.26	175.17	0.00	0.00	0.00
4,100.00	12.00	165.00	4,030.07	-662.95	177.64	180.64	0.00	0.00	0.00
4,200.00	12.00	165.00	4,127.88	-683.03	183.02	186.12	0.00	0.00	0.00
4,300.00	12.00	165.00	4,225.70	-703.12	188.40	191.59	0.00	0.00	0.00
4,400.00	12.00	165.00	4,323.51	-723.20	193.78	197.06	0.00	0.00	0.00
4,500.00	12.00	165.00	4,421.33	-743.28	199.16	202.53	0.00	0.00	0.00
4,600.00	12.00	165.00	4,519.14	-763.36	204.54	208.00	0.00	0.00	0.00
4,677.56	12.00	165.00	4,595.00	-778.94	208.72	212.25	0.00	0.00	0.00
Chacra									
4,700.00	12.00	165.00	4,616.95	-783.45	209.92	213.48	0.00	0.00	0.00
4,800.00	12.00	165.00	4,714.77	-803.53	215.31	218.95	0.00	0.00	0.00
4,900.00	12.00	165.00	4,812.58	-823.61	220.69	224.42	0.00	0.00	0.00
5,000.00	12.00	165.00	4,910.40	-843.70	226.07	229.89	0.00	0.00	0.00
5,100.00	12.00	165.00	5,008.21	-863.78	231.45	235.37	0.00	0.00	0.00
5,173.39	12.00	165.00	5,080.00	-878.52	235.40	239.38	0.00	0.00	0.00
Upper Cliff House									
5,200.00	12.00	165.00	5,106.03	-883.86	236.83	240.84	0.00	0.00	0.00
5,300.00	12.00	165.00	5,203.84	-903.94	242.21	246.31	0.00	0.00	0.00
5,400.00	12.00	165.00	5,301.66	-924.03	247.59	251.78	0.00	0.00	0.00
5,461.69	12.00	165.00	5,362.00	-936.42	250.91	255.16	0.00	0.00	0.00
Cliff House									
5,500.00	12.00	165.00	5,399.47	-944.11	252.97	257.25	0.00	0.00	0.00
5,512.81	12.00	165.00	5,412.00	-946.68	253.66	257.96	0.00	0.00	0.00
Menefee									
5,600.00	12.00	165.00	5,497.29	-964.19	258.35	262.73	0.00	0.00	0.00
5,700.00	12.00	165.00	5,595.10	-984.27	263.74	268.20	0.00	0.00	0.00
5,733.63	12.00	165.00	5,628.00	-991.03	265.55	270.04	0.00	0.00	0.00
Point Lookout									
5,800.00	12.00	165.00	5,692.92	-1,004.36	269.12	273.67	0.00	0.00	0.00
5,900.00	12.00	165.00	5,790.73	-1,024.44	274.50	279.14	0.00	0.00	0.00
6,000.00	12.00	165.00	5,888.55	-1,044.52	279.88	284.62	0.00	0.00	0.00
6,100.00	12.00	165.00	5,986.36	-1,064.61	285.26	290.09	0.00	0.00	0.00
6,200.00	12.00	165.00	6,084.18	-1,084.69	290.64	295.56	0.00	0.00	0.00
6,289.79	12.00	165.00	6,172.00	-1,102.72	295.47	300.47	0.00	0.00	0.00
Mancos									
6,300.00	12.00	165.00	6,181.99	-1,104.77	296.02	301.03	0.00	0.00	0.00
6,400.00	12.00	165.00	6,279.81	-1,124.85	301.40	306.51	0.00	0.00	0.00
6,500.00	12.00	165.00	6,377.62	-1,144.94	306.78	311.98	0.00	0.00	0.00
6,530.62	12.00	165.00	6,407.57	-1,151.09	308.43	313.65	0.00	0.00	0.00
Start DLS 9.00 TFO -47.33									
6,550.00	13.24	159.39	6,426.48	-1,155.11	309.74	314.97	9.00	6.42	-28.93
6,600.00	16.86	148.99	6,474.77	-1,166.69	315.49	320.78	9.00	7.23	-20.80
6,650.00	20.82	142.31	6,522.09	-1,179.94	324.66	330.01	9.00	7.91	-13.37
6,700.00	24.95	137.72	6,568.15	-1,194.78	337.19	342.61	9.00	8.27	-9.18
6,750.00	29.19	134.38	6,612.66	-1,211.12	353.01	358.50	9.00	8.47	-6.69
6,800.00	33.49	131.82	6,655.36	-1,228.85	372.01	377.58	9.00	8.60	-5.11
6,850.00	37.83	129.79	6,695.98	-1,247.87	394.08	399.74	9.00	8.68	-4.06
6,900.00	42.20	128.12	6,734.26	-1,268.07	419.09	424.84	9.00	8.74	-3.34
6,947.12	46.34	126.79	6,768.00	-1,288.05	445.20	451.04	9.00	8.78	-2.83
Black Top									

SDT

Planning Report

Database:	EDM 5000 Multi User Db	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Company:	Logos Operating LLC	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Project:	Rio Arriba, NM (NAD83)	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site:	Rosa Unit 24	**North Reference:**	True
Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Prelim #5		

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)
6,950.00	46.59	126.71	6,769.98	-1,289.30	446.87	452.72	9.00	8.80	-2.62
7,000.00	51.00	125.50	6,802.91	-1,311.45	477.26	483.21	9.00	8.81	-2.43
7,050.00	55.41	124.42	6,832.85	-1,334.38	510.07	516.12	9.00	8.83	-2.15
7,100.00	59.84	123.46	6,859.62	-1,357.94	545.10	551.26	9.00	8.85	-1.93
7,150.00	64.27	122.58	6,883.05	-1,382.00	582.13	588.40	9.00	8.86	-1.76
7,200.00	68.71	121.76	6,902.99	-1,406.39	620.94	627.31	9.00	8.87	-1.64
7,250.00	73.15	120.99	6,919.32	-1,430.98	661.28	667.76	9.00	8.88	-1.54
7,300.00	77.59	120.25	6,931.95	-1,455.62	702.90	709.50	9.00	8.89	-1.47
7,350.00	82.04	119.54	6,940.79	-1,480.13	745.56	752.27	9.00	8.89	-1.42
7,400.00	86.48	118.84	6,945.79	-1,504.39	788.98	795.80	9.00	8.89	-1.39
7,439.53	90.00	118.30	6,947.00	-1,523.29	823.67	830.58	9.00	8.89	-1.38
Start DLS 2.00 TFO -90.00									
7,500.00	90.00	117.09	6,947.00	-1,551.39	877.21	884.24	2.00	0.00	-2.00
7,600.00	90.00	115.09	6,947.00	-1,595.37	967.02	974.25	2.00	0.00	-2.00
7,700.00	90.00	113.09	6,947.00	-1,636.18	1,058.30	1,065.72	2.00	0.00	-2.00
7,800.00	90.00	111.09	6,947.00	-1,673.79	1,150.96	1,158.54	2.00	0.00	-2.00
7,900.00	90.00	109.09	6,947.00	-1,708.14	1,244.87	1,252.61	2.00	0.00	-2.00
8,000.00	90.00	107.09	6,947.00	-1,739.19	1,339.92	1,347.80	2.00	0.00	-2.00
8,100.00	90.00	105.09	6,947.00	-1,766.90	1,436.00	1,444.00	2.00	0.00	-2.00
8,200.00	90.00	103.09	6,947.00	-1,791.25	1,532.98	1,541.10	2.00	0.00	-2.00
8,300.00	90.00	101.09	6,947.00	-1,812.19	1,630.76	1,638.97	2.00	0.00	-2.00
8,400.00	90.00	99.09	6,947.00	-1,829.71	1,729.21	1,737.49	2.00	0.00	-2.00
8,500.00	90.00	97.09	6,947.00	-1,843.79	1,828.21	1,836.56	2.00	0.00	-2.00
8,600.00	90.00	95.09	6,947.00	-1,854.39	1,927.64	1,936.03	2.00	0.00	-2.00
8,700.00	90.00	93.09	6,947.00	-1,861.53	2,027.38	2,035.80	2.00	0.00	-2.00
8,800.00	90.00	91.09	6,947.00	-1,865.18	2,127.31	2,135.75	2.00	0.00	-2.00
8,841.31	90.00	90.26	6,947.00	-1,865.66	2,168.61	2,177.06	2.00	0.00	-2.00
Start 12190.70 hold at 8841.31 MD									
8,900.00	90.00	90.26	6,947.00	-1,865.94	2,227.30	2,235.75	0.00	0.00	0.00
9,000.00	90.00	90.26	6,947.00	-1,866.40	2,327.30	2,335.75	0.00	0.00	0.00
9,100.00	90.00	90.26	6,947.00	-1,866.86	2,427.30	2,435.75	0.00	0.00	0.00
9,200.00	90.00	90.26	6,947.00	-1,867.32	2,527.30	2,535.75	0.00	0.00	0.00
9,300.00	90.00	90.26	6,947.00	-1,867.78	2,627.30	2,635.75	0.00	0.00	0.00
9,400.00	90.00	90.26	6,947.00	-1,868.24	2,727.30	2,735.75	0.00	0.00	0.00
9,500.00	90.00	90.26	6,947.00	-1,868.70	2,827.30	2,835.75	0.00	0.00	0.00
9,600.00	90.00	90.26	6,947.00	-1,869.17	2,927.30	2,935.75	0.00	0.00	0.00
9,700.00	90.00	90.26	6,947.00	-1,869.63	3,027.29	3,035.75	0.00	0.00	0.00
9,800.00	90.00	90.26	6,947.00	-1,870.09	3,127.29	3,135.75	0.00	0.00	0.00
9,900.00	90.00	90.26	6,947.00	-1,870.55	3,227.29	3,235.75	0.00	0.00	0.00
10,000.00	90.00	90.26	6,947.00	-1,871.01	3,327.29	3,335.75	0.00	0.00	0.00
10,100.00	90.00	90.26	6,947.00	-1,871.47	3,427.29	3,435.75	0.00	0.00	0.00
10,200.00	90.00	90.26	6,947.00	-1,871.94	3,527.29	3,535.75	0.00	0.00	0.00
10,300.00	90.00	90.26	6,947.00	-1,872.40	3,627.29	3,635.75	0.00	0.00	0.00
10,400.00	90.00	90.26	6,947.00	-1,872.86	3,727.29	3,735.75	0.00	0.00	0.00
10,500.00	90.00	90.26	6,947.00	-1,873.32	3,827.29	3,835.75	0.00	0.00	0.00
10,600.00	90.00	90.26	6,947.00	-1,873.78	3,927.28	3,935.75	0.00	0.00	0.00
10,700.00	90.00	90.26	6,947.00	-1,874.24	4,027.28	4,035.75	0.00	0.00	0.00
10,800.00	90.00	90.26	6,947.00	-1,874.70	4,127.28	4,135.75	0.00	0.00	0.00
10,900.00	90.00	90.26	6,947.00	-1,875.17	4,227.28	4,235.75	0.00	0.00	0.00
11,000.00	90.00	90.26	6,947.00	-1,875.63	4,327.28	4,335.75	0.00	0.00	0.00
11,100.00	90.00	90.26	6,947.00	-1,876.09	4,427.28	4,435.75	0.00	0.00	0.00
11,200.00	90.00	90.26	6,947.00	-1,876.55	4,527.28	4,535.75	0.00	0.00	0.00
11,300.00	90.00	90.26	6,947.00	-1,877.01	4,627.28	4,635.75	0.00	0.00	0.00

SDT

Planning Report

Database:	EDM 5000 Multi User Db	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Company:	Logos Operating LLC	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Project:	Rio Arriba, NM (NAD83)	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site:	Rosa Unit 24	**North Reference:**	True
Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Prelim #5		

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)
11,400.00	90.00	90.26	6,947.00	-1,877.47	4,727.28	4,735.75	0.00	0.00	0.00
11,500.00	90.00	90.26	6,947.00	-1,877.94	4,827.28	4,835.75	0.00	0.00	0.00
11,600.00	90.00	90.26	6,947.00	-1,878.40	4,927.27	4,935.75	0.00	0.00	0.00
11,700.00	90.00	90.26	6,947.00	-1,878.86	5,027.27	5,035.75	0.00	0.00	0.00
11,800.00	90.00	90.26	6,947.00	-1,879.32	5,127.27	5,135.75	0.00	0.00	0.00
11,900.00	90.00	90.26	6,947.00	-1,879.78	5,227.27	5,235.75	0.00	0.00	0.00
12,000.00	90.00	90.26	6,947.00	-1,880.24	5,327.27	5,335.75	0.00	0.00	0.00
12,100.00	90.00	90.26	6,947.00	-1,880.70	5,427.27	5,435.75	0.00	0.00	0.00
12,200.00	90.00	90.26	6,947.00	-1,881.17	5,527.27	5,535.75	0.00	0.00	0.00
12,300.00	90.00	90.26	6,947.00	-1,881.63	5,627.27	5,635.75	0.00	0.00	0.00
12,400.00	90.00	90.26	6,947.00	-1,882.09	5,727.27	5,735.75	0.00	0.00	0.00
12,500.00	90.00	90.26	6,947.00	-1,882.55	5,827.26	5,835.75	0.00	0.00	0.00
12,600.00	90.00	90.26	6,947.00	-1,883.01	5,927.26	5,935.75	0.00	0.00	0.00
12,700.00	90.00	90.26	6,947.00	-1,883.47	6,027.26	6,035.75	0.00	0.00	0.00
12,800.00	90.00	90.26	6,947.00	-1,883.93	6,127.26	6,135.75	0.00	0.00	0.00
12,900.00	90.00	90.26	6,947.00	-1,884.40	6,227.26	6,235.75	0.00	0.00	0.00
13,000.00	90.00	90.26	6,947.00	-1,884.86	6,327.26	6,335.75	0.00	0.00	0.00
13,100.00	90.00	90.26	6,947.00	-1,885.32	6,427.26	6,435.75	0.00	0.00	0.00
13,200.00	90.00	90.26	6,947.00	-1,885.78	6,527.26	6,535.75	0.00	0.00	0.00
13,300.00	90.00	90.26	6,947.00	-1,886.24	6,627.26	6,635.75	0.00	0.00	0.00
13,400.00	90.00	90.26	6,947.00	-1,886.70	6,727.25	6,735.75	0.00	0.00	0.00
13,500.00	90.00	90.26	6,947.00	-1,887.17	6,827.25	6,835.75	0.00	0.00	0.00
13,600.00	90.00	90.26	6,947.00	-1,887.63	6,927.25	6,935.75	0.00	0.00	0.00
13,700.00	90.00	90.26	6,947.00	-1,888.09	7,027.25	7,035.75	0.00	0.00	0.00
13,800.00	90.00	90.26	6,947.00	-1,888.55	7,127.25	7,135.75	0.00	0.00	0.00
13,900.00	90.00	90.26	6,947.00	-1,889.01	7,227.25	7,235.75	0.00	0.00	0.00
14,000.00	90.00	90.26	6,947.00	-1,889.47	7,327.25	7,335.75	0.00	0.00	0.00
14,100.00	90.00	90.26	6,947.00	-1,889.93	7,427.25	7,435.75	0.00	0.00	0.00
14,200.00	90.00	90.26	6,947.00	-1,890.40	7,527.25	7,535.75	0.00	0.00	0.00
14,300.00	90.00	90.26	6,947.00	-1,890.86	7,627.25	7,635.75	0.00	0.00	0.00
14,400.00	90.00	90.26	6,947.00	-1,891.32	7,727.24	7,735.75	0.00	0.00	0.00
14,500.00	90.00	90.26	6,947.00	-1,891.78	7,827.24	7,835.75	0.00	0.00	0.00
14,600.00	90.00	90.26	6,947.00	-1,892.24	7,927.24	7,935.75	0.00	0.00	0.00
14,700.00	90.00	90.26	6,947.00	-1,892.70	8,027.24	8,035.75	0.00	0.00	0.00
14,800.00	90.00	90.26	6,947.00	-1,893.17	8,127.24	8,135.75	0.00	0.00	0.00
14,900.00	90.00	90.26	6,947.00	-1,893.63	8,227.24	8,235.75	0.00	0.00	0.00
15,000.00	90.00	90.26	6,947.00	-1,894.09	8,327.24	8,335.75	0.00	0.00	0.00
15,100.00	90.00	90.26	6,947.00	-1,894.55	8,427.24	8,435.75	0.00	0.00	0.00
15,200.00	90.00	90.26	6,947.00	-1,895.01	8,527.24	8,535.75	0.00	0.00	0.00
15,300.00	90.00	90.26	6,947.00	-1,895.47	8,627.23	8,635.75	0.00	0.00	0.00
15,400.00	90.00	90.26	6,947.00	-1,895.93	8,727.23	8,735.75	0.00	0.00	0.00
15,500.00	90.00	90.26	6,947.00	-1,896.40	8,827.23	8,835.75	0.00	0.00	0.00
15,600.00	90.00	90.26	6,947.00	-1,896.86	8,927.23	8,935.75	0.00	0.00	0.00
15,700.00	90.00	90.26	6,947.00	-1,897.32	9,027.23	9,035.75	0.00	0.00	0.00
15,800.00	90.00	90.26	6,947.00	-1,897.78	9,127.23	9,135.75	0.00	0.00	0.00
15,900.00	90.00	90.26	6,947.00	-1,898.24	9,227.23	9,235.75	0.00	0.00	0.00
16,000.00	90.00	90.26	6,947.00	-1,898.70	9,327.23	9,335.75	0.00	0.00	0.00
16,100.00	90.00	90.26	6,947.00	-1,899.17	9,427.23	9,435.75	0.00	0.00	0.00
16,200.00	90.00	90.26	6,947.00	-1,899.63	9,527.23	9,535.75	0.00	0.00	0.00
16,300.00	90.00	90.26	6,947.00	-1,900.09	9,627.22	9,635.75	0.00	0.00	0.00
16,400.00	90.00	90.26	6,947.00	-1,900.55	9,727.22	9,735.75	0.00	0.00	0.00
16,500.00	90.00	90.26	6,947.00	-1,901.01	9,827.22	9,835.75	0.00	0.00	0.00
16,600.00	90.00	90.26	6,947.00	-1,901.47	9,927.22	9,935.75	0.00	0.00	0.00
16,700.00	90.00	90.26	6,947.00	-1,901.93	10,027.22	10,035.75	0.00	0.00	0.00

SDT

Planning Report

Database:	EDM 5000 Multi User Db	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Company:	Logos Operating LLC	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Project:	Rio Arriba, NM (NAD83)	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site:	Rosa Unit 24	**North Reference:**	True
Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Prelim #5		

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)
16,800.00	90.00	90.26	6,947.00	-1,902.40	10,127.22	10,135.75	0.00	0.00	0.00
16,900.00	90.00	90.26	6,947.00	-1,902.86	10,227.22	10,235.75	0.00	0.00	0.00
17,000.00	90.00	90.26	6,947.00	-1,903.32	10,327.22	10,335.75	0.00	0.00	0.00
17,100.00	90.00	90.26	6,947.00	-1,903.78	10,427.22	10,435.75	0.00	0.00	0.00
17,200.00	90.00	90.26	6,947.00	-1,904.24	10,527.21	10,535.75	0.00	0.00	0.00
17,300.00	90.00	90.26	6,947.00	-1,904.70	10,627.21	10,635.75	0.00	0.00	0.00
17,400.00	90.00	90.26	6,947.00	-1,905.17	10,727.21	10,735.75	0.00	0.00	0.00
17,500.00	90.00	90.26	6,947.00	-1,905.63	10,827.21	10,835.75	0.00	0.00	0.00
17,600.00	90.00	90.26	6,947.00	-1,906.09	10,927.21	10,935.75	0.00	0.00	0.00
17,700.00	90.00	90.26	6,947.00	-1,906.55	11,027.21	11,035.75	0.00	0.00	0.00
17,800.00	90.00	90.26	6,947.00	-1,907.01	11,127.21	11,135.75	0.00	0.00	0.00
17,900.00	90.00	90.26	6,947.00	-1,907.47	11,227.21	11,235.75	0.00	0.00	0.00
18,000.00	90.00	90.26	6,947.00	-1,907.93	11,327.21	11,335.75	0.00	0.00	0.00
18,100.00	90.00	90.26	6,947.00	-1,908.40	11,427.20	11,435.75	0.00	0.00	0.00
18,200.00	90.00	90.26	6,947.00	-1,908.86	11,527.20	11,535.75	0.00	0.00	0.00
18,300.00	90.00	90.26	6,947.00	-1,909.32	11,627.20	11,635.75	0.00	0.00	0.00
18,400.00	90.00	90.26	6,947.00	-1,909.78	11,727.20	11,735.75	0.00	0.00	0.00
18,500.00	90.00	90.26	6,947.00	-1,910.24	11,827.20	11,835.75	0.00	0.00	0.00
18,600.00	90.00	90.26	6,947.00	-1,910.70	11,927.20	11,935.75	0.00	0.00	0.00
18,700.00	90.00	90.26	6,947.00	-1,911.17	12,027.20	12,035.75	0.00	0.00	0.00
18,800.00	90.00	90.26	6,947.00	-1,911.63	12,127.20	12,135.75	0.00	0.00	0.00
18,900.00	90.00	90.26	6,947.00	-1,912.09	12,227.20	12,235.75	0.00	0.00	0.00
19,000.00	90.00	90.26	6,947.00	-1,912.55	12,327.20	12,335.75	0.00	0.00	0.00
19,100.00	90.00	90.26	6,947.00	-1,913.01	12,427.19	12,435.75	0.00	0.00	0.00
19,200.00	90.00	90.26	6,947.00	-1,913.47	12,527.19	12,535.75	0.00	0.00	0.00
19,300.00	90.00	90.26	6,947.00	-1,913.93	12,627.19	12,635.75	0.00	0.00	0.00
19,400.00	90.00	90.26	6,947.00	-1,914.40	12,727.19	12,735.75	0.00	0.00	0.00
19,500.00	90.00	90.26	6,947.00	-1,914.86	12,827.19	12,835.75	0.00	0.00	0.00
19,600.00	90.00	90.26	6,947.00	-1,915.32	12,927.19	12,935.75	0.00	0.00	0.00
19,700.00	90.00	90.26	6,947.00	-1,915.78	13,027.19	13,035.75	0.00	0.00	0.00
19,800.00	90.00	90.26	6,947.00	-1,916.24	13,127.19	13,135.75	0.00	0.00	0.00
19,900.00	90.00	90.26	6,947.00	-1,916.70	13,227.19	13,235.75	0.00	0.00	0.00
20,000.00	90.00	90.26	6,947.00	-1,917.16	13,327.18	13,335.75	0.00	0.00	0.00
20,100.00	90.00	90.26	6,947.00	-1,917.63	13,427.18	13,435.75	0.00	0.00	0.00
20,200.00	90.00	90.26	6,947.00	-1,918.09	13,527.18	13,535.75	0.00	0.00	0.00
20,300.00	90.00	90.26	6,947.00	-1,918.55	13,627.18	13,635.75	0.00	0.00	0.00
20,400.00	90.00	90.26	6,947.00	-1,919.01	13,727.18	13,735.75	0.00	0.00	0.00
20,500.00	90.00	90.26	6,947.00	-1,919.47	13,827.18	13,835.75	0.00	0.00	0.00
20,600.00	90.00	90.26	6,947.00	-1,919.93	13,927.18	13,935.75	0.00	0.00	0.00
20,700.00	90.00	90.26	6,947.00	-1,920.40	14,027.18	14,035.75	0.00	0.00	0.00
20,800.00	90.00	90.26	6,947.00	-1,920.86	14,127.18	14,135.75	0.00	0.00	0.00
20,900.00	90.00	90.26	6,947.00	-1,921.32	14,227.18	14,235.75	0.00	0.00	0.00
21,000.00	90.00	90.26	6,947.00	-1,921.78	14,327.17	14,335.75	0.00	0.00	0.00
21,032.01	90.00	90.26	6,947.00	-1,921.93	14,359.18	14,367.76	0.00	0.00	0.00
TD at 21032.01									

SDT
Planning Report

Database:	EDM 5000 Multi User Db	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Company:	Logos Operating LLC	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Project:	Rio Arriba, NM (NAD83)	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site:	Rosa Unit 24	**North Reference:**	True
Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Prelim #5		

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 706H SHL - plan hits target center - Point	0.00	0.00	0.00	0.00	0.00	2,152,256.68	2,850,017.63	36.913848	-107.399158
RU 706H IP - plan hits target center - Point	0.00	0.00	6,947.00	-1,865.66	2,168.61	2,150,400.91	2,852,194.72	36.908723	-107.391741
RU 706H PBHL - plan hits target center - Point	0.00	0.00	6,947.00	-1,921.93	14,359.18	2,150,400.14	2,864,385.41	36.908559	-107.350044
RU 706H POE - plan hits target center - Point	0.00	0.00	6,947.00	-1,523.29	823.67	2,150,737.16	2,850,848.23	36.909664	-107.396341

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,446.81	2,413.00	Ojo Alamo		0.00	
2,562.33	2,526.00	Kirtland		0.00	
2,939.58	2,895.00	Fruitland		0.00	
3,037.72	2,991.00	Top of Coals		0.00	
3,214.59	3,164.00	Base of Coals		0.00	
3,387.36	3,333.00	Pictured Cliffs		0.00	
3,516.18	3,459.00	Lewis		0.00	
4,677.56	4,595.00	Chacra		0.00	
5,173.39	5,080.00	Upper Cliff House		0.00	
5,461.69	5,362.00	Cliff House		0.00	
5,512.81	5,412.00	Menefee		0.00	
5,733.63	5,628.00	Point Lookout		0.00	
6,289.79	6,172.00	Mancos		0.00	
6,947.12	6,768.00	Black Top		0.00	

Plan Annotations

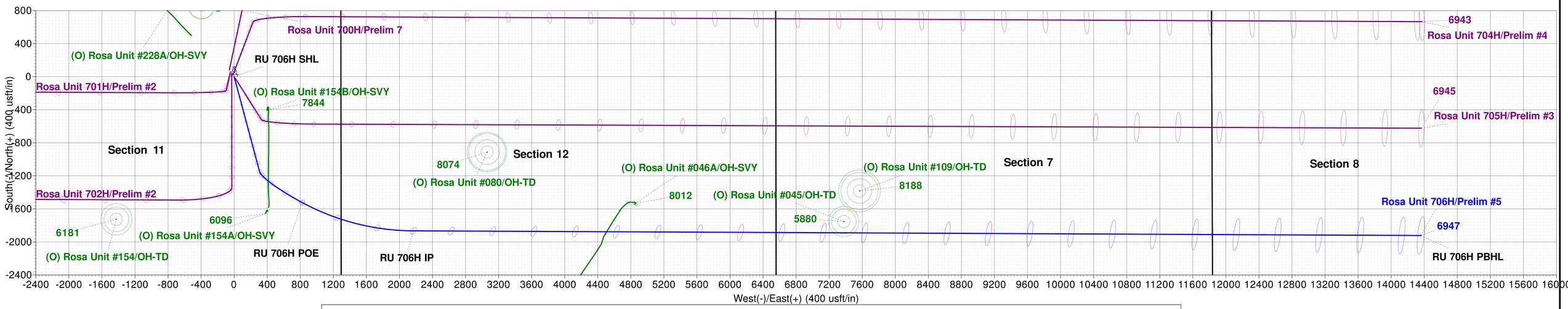
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
500.00	500.00	0.00	0.00	Start Build 2.00
1,100.00	1,095.62	-60.47	16.20	Start 5430.62 hold at 1100.00 MD
6,530.62	6,407.57	-1,151.09	308.43	Start DLS 9.00 TFO -47.33
7,439.53	6,947.00	-1,523.29	823.67	Start DLS 2.00 TFO -90.00
8,841.31	6,947.00	-1,865.66	2,168.61	Start 12190.70 hold at 8841.31 MD
21,032.01	6,947.00	-1,921.93	14,359.18	TD at 21032.01

Received by OCD: 3/18/2024 1:45:54 PM

LOGOS ENERGY

County: Rio Arriba, NM (NAD83)
Site: Rosa Unit 24
Well: Rosa Unit 706H
Depth Reference: 6295+30 @ 6325.00usft (H&P 530)
Rig: H&P 530
Plan: Prelim #5
Job #: Permit

SCOUT DRILLING TECHNOLOGIES

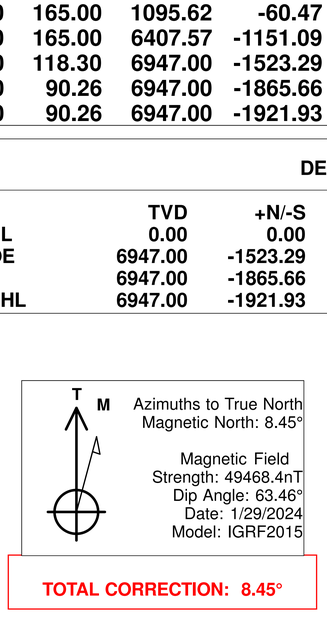


SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	Start Build 2.00
3	1100.00	12.00	165.00	1095.62	-60.47	16.20	2.00	165.00	16.48	Start 5430.62 hold at 1100.00 MD
4	6530.62	12.00	165.00	6407.57	-1151.09	308.43	0.00	0.00	313.65	Start DLS 9.00 TFO -47.33
5	7439.53	90.00	118.30	6947.00	-1523.29	823.67	9.00	-47.33	830.58	Start DLS 2.00 TFO -90.00
6	8841.31	90.00	90.26	6947.00	-1865.66	2168.61	2.00	-90.00	2177.06	Start 12190.70 hold at 8841.31 MD
7	21032.01	90.00	90.26	6947.00	-1921.93	14359.18	0.00	0.00	14367.76	TD at 21032.01

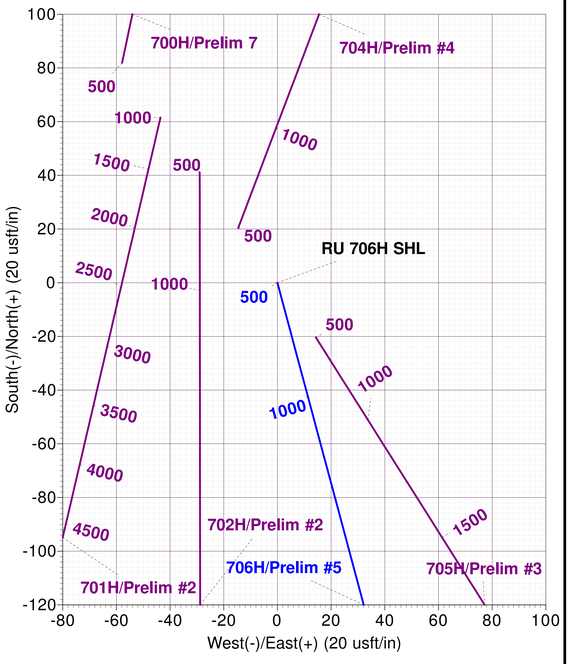
DESIGN TARGET DETAILS

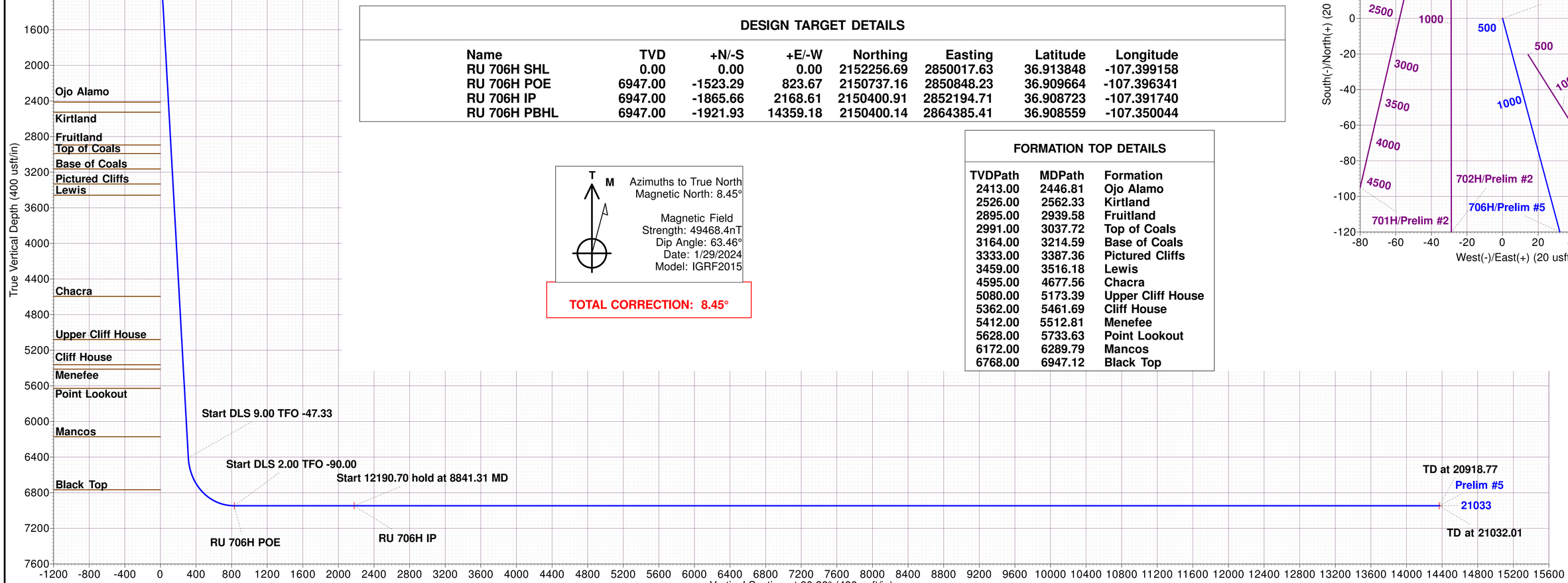
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
RU 706H SHL	0.00	0.00	0.00	2152256.69	2850017.63	36.913848	-107.399158
RU 706H POE	6947.00	-1523.29	823.67	2150737.16	2850848.23	36.909664	-107.396341
RU 706H IP	6947.00	-1865.66	2168.61	2150400.91	2852194.71	36.908723	-107.391740
RU 706H PBHL	6947.00	-1921.93	14359.18	2150400.14	2864385.41	36.908559	-107.350044



FORMATION TOP DETAILS

TVDPath	MDPath	Formation
2413.00	2446.81	Ojo Alamo
2526.00	2562.33	Kirtland
2895.00	2939.58	Fruitland
2991.00	3037.72	Top of Coals
3164.00	3214.59	Base of Coals
3333.00	3387.36	Pictured Cliffs
3459.00	3516.18	Lewis
4595.00	4677.56	Chacra
5080.00	5173.39	Upper Cliff House
5362.00	5461.69	Cliff House
5412.00	5512.81	Menefee
5628.00	5733.63	Point Lookout
6172.00	6289.79	Mancos
6768.00	6947.12	Black Top





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Logos Operating LLC

Rio Arriba, NM (NAD83)
Rosa Unit 24
Rosa Unit 706H

OH
Prelim #5

Anticollision Report

02 March, 2024

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

Reference	Prelim #5		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	**Error Model:**	ISCWSA
Depth Range:	Unlimited	**Scan Method:**	Closest Approach 3D
Results Limited by:	Max. Cent. Dist. of 100,000.00usft or Max. SF of 100,000	**Error Surface:**	Pedal Curve
Warning Levels Evaluated at:	2.00 **Sigma**	**Casing Method:**	Not applied

Survey Tool Program **Date** 2/26/2024

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	21,032.01	Prelim #5 (OH)	MWD+HRGM+MS	MWD + HRGM + Multi-Station Correction

Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Rosa Unit 24						
(O) Rosa Unit #001E - OH - OH-SVY	0.00	17.14	8,024.84			
(O) Rosa Unit #001E - OH - OH-SVY	1,800.00	1,875.00	8,031.92	8,018.68	606.628	ES
(O) Rosa Unit #001E - OH - OH-SVY	7,300.00	6,733.49	8,625.85	8,570.39	155.537	SF
(O) Rosa Unit #009A - OH - OH-TD	500.00	422.00	10,156.67	10,142.34	708.775	CC
(O) Rosa Unit #009A - OH - OH-TD	700.00	621.94	10,159.49	10,138.49	483.886	ES
(O) Rosa Unit #009A - OH - OH-TD	7,150.00	6,824.07	11,018.42	10,784.07	47.017	SF
(O) Rosa Unit #009C - OH - OH-TD	500.00	561.10	12,112.44	12,093.94	654.799	CC
(O) Rosa Unit #009C - OH - OH-TD	5,300.00	5,266.27	12,226.11	12,045.90	67.842	ES
(O) Rosa Unit #009C - OH - OH-TD	7,250.00	6,973.08	12,602.46	12,361.65	52.333	SF
(O) Rosa Unit #009D - OH - OH-SVY	0.00	0.00	10,195.79			
(O) Rosa Unit #009D - OH - OH-SVY	7,250.00	7,308.57	11,737.73	11,678.16	197.037	SF
(O) Rosa Unit #030 - OH - OH-SVY	3,852.32	3,940.42	3,760.27	3,730.66	126.990	CC
(O) Rosa Unit #030 - OH - OH-SVY	4,100.00	4,174.81	3,761.10	3,729.55	119.226	ES
(O) Rosa Unit #030 - OH - OH-SVY	7,050.00	6,912.87	4,071.99	4,017.08	74.170	SF
(O) Rosa Unit #030B - OH - OH-TD	6,532.31	6,573.98	5,149.25	4,924.23	22.883	CC
(O) Rosa Unit #030B - OH - OH-TD	6,550.00	6,591.24	5,149.43	4,923.81	22.823	ES
(O) Rosa Unit #030B - OH - OH-TD	7,100.00	7,024.68	5,328.35	5,086.46	22.028	SF
(O) Rosa Unit #030C - OH - OH-TD	6,350.55	6,317.00	3,597.92	3,381.56	16.629	CC, ES
(O) Rosa Unit #030C - OH - OH-TD	6,400.00	6,317.00	3,598.26	3,381.76	16.620	SF
(O) Rosa Unit #036 - OH - OH-TD	500.00	600.10	7,851.05	7,831.38	399.208	CC
(O) Rosa Unit #036 - OH - OH-TD	800.00	910.24	7,857.05	7,827.07	262.093	ES
(O) Rosa Unit #036 - OH - OH-TD	7,100.00	7,004.19	8,648.87	8,409.29	36.099	SF
(O) Rosa Unit #036C - OH - OH-SVY	0.00	79.39	9,025.18			
(O) Rosa Unit #036C - OH - OH-SVY	200.00	244.77	9,025.94	9,024.89	8,608.991	ES
(O) Rosa Unit #036C - OH - OH-SVY	7,200.00	6,783.42	10,224.68	10,168.04	180.494	SF
(O) Rosa Unit #040 - OH - OH-TD	21,032.99	7,486.89	4,701.91	4,315.35	12.164	CC, ES, SF
(O) Rosa Unit #041C - OH - OH-TD	11,226.36	7,052.77	3,721.40	3,434.54	12.973	CC, ES
(O) Rosa Unit #041C - OH - OH-TD	11,600.00	7,052.82	3,740.11	3,450.11	12.897	SF
(O) Rosa Unit #045 - OH - OH-TD	13,300.00	6,117.00	1,310.54	1,150.00	8.163	SF
(O) Rosa Unit #045 - OH - OH-TD	14,049.23	6,117.00	1,075.25	985.94	12.039	CC, ES
(O) Rosa Unit #046A - OH - OH-SVY	11,530.43	7,068.18	347.12	246.46	3.448	CC, ES, SF
(O) Rosa Unit #070 - OH - OH	19,775.00	6,518.00	4,084.01	3,684.18	10.214	CC
(O) Rosa Unit #070 - OH - OH	19,800.00	6,518.00	4,084.09	3,684.01	10.208	ES
(O) Rosa Unit #070 - OH - OH	20,100.00	6,518.00	4,096.92	3,694.39	10.178	SF
(O) Rosa Unit #080 - OH - OH-TD	9,700.00	6,896.70	959.50	698.90	3.682	SF
(O) Rosa Unit #080 - OH - OH-TD	9,729.21	6,896.70	959.06	698.64	3.683	CC, ES
(O) Rosa Unit #080A - OH - OH-TD	500.00	458.00	3,030.76	3,015.35	196.693	CC

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Rosa Unit 24						
(O) Rosa Unit #080A - OH - OH-TD	9,504.45	6,011.00	3,058.88	2,839.44	13.939	ES
(O) Rosa Unit #080A - OH - OH-TD	9,800.00	6,011.00	3,073.53	2,852.25	13.890	SF
(O) Rosa Unit #080B - OH - OH-TD	500.00	473.00	2,407.95	2,392.09	151.844	CC
(O) Rosa Unit #080B - OH - OH-TD	1,000.00	990.51	2,418.28	2,385.17	73.039	ES
(O) Rosa Unit #080B - OH - OH-TD	9,000.00	6,970.04	3,004.79	2,753.27	11.946	SF
(O) Rosa Unit #095 - OH - OH-TD	17,359.66	6,300.00	3,659.96	3,317.06	10.674	CC
(O) Rosa Unit #095 - OH - OH-TD	17,400.00	6,300.00	3,660.19	3,316.93	10.663	ES
(O) Rosa Unit #095 - OH - OH-TD	17,600.00	6,300.00	3,667.85	3,323.06	10.638	SF
(O) Rosa Unit #108 - OH - OH-INC	500.00	450.02	943.65	933.48	92.802	CC
(O) Rosa Unit #108 - OH - OH-INC	600.00	550.00	945.37	932.89	75.778	ES
(O) Rosa Unit #108 - OH - OH-INC	6,650.00	6,472.54	2,160.34	2,010.21	14.390	SF
(O) Rosa Unit #109 - OH - OH-TD	14,236.88	7,246.06	507.56	168.63	1.498	Level 3, CC, ES, SF
(O) Rosa Unit #149 - OH - OH-INC	300.00	261.00	3,558.85	3,551.98	517.725	CC
(O) Rosa Unit #149 - OH - OH-INC	700.00	670.25	3,563.18	3,543.73	183.170	ES
(O) Rosa Unit #149 - OH - OH-INC	6,100.00	5,949.00	4,283.61	4,075.36	20.570	SF
(O) Rosa Unit #149A - OH - OH-INC	400.00	359.00	4,886.41	4,878.73	635.693	CC
(O) Rosa Unit #149A - OH - OH-INC	600.00	558.98	4,887.14	4,875.16	408.037	ES
(O) Rosa Unit #149A - OH - OH-INC	6,200.00	6,000.00	5,451.64	5,306.77	37.632	SF
(O) Rosa Unit #149B - OH - OH-INC	500.00	596.03	6,797.54	6,783.17	473.031	CC
(O) Rosa Unit #149B - OH - OH-INC	600.00	696.01	6,798.31	6,781.47	403.711	ES
(O) Rosa Unit #149B - OH - OH-INC	7,050.00	6,930.43	7,652.19	7,451.47	38.123	SF
(O) Rosa Unit #149C - OH - OH-SVY	2,068.75	2,769.00	4,577.95	4,555.08	200.254	CC
(O) Rosa Unit #149C - OH - OH-SVY	2,300.00	2,988.00	4,579.31	4,554.18	182.206	ES
(O) Rosa Unit #149C - OH - OH-SVY	6,750.00	6,736.28	5,186.25	5,136.43	104.089	SF
(O) Rosa Unit #154 - OH - OH-TD	6,331.39	6,341.00	1,829.89	1,612.81	8.430	CC, ES, SF
(O) Rosa Unit #154A - OH - OH-SVY	6,331.53	6,125.00	563.61	535.05	19.730	CC, ES
(O) Rosa Unit #154A - OH - OH-SVY	6,400.00	6,125.00	567.76	538.76	19.580	SF
(O) Rosa Unit #154B - OH - OH-SVY	3,152.79	3,381.83	289.65	270.35	15.007	CC, ES
(O) Rosa Unit #154B - OH - OH-SVY	3,300.00	3,518.45	296.15	276.12	14.788	SF
(O) Rosa Unit #171 - OH - OH-INC	100.00	38.20	862.16	861.21	910.145	CC
(O) Rosa Unit #171 - OH - OH-INC	600.00	543.68	864.03	853.77	84.181	ES
(O) Rosa Unit #171 - OH - OH-INC	2,200.00	2,111.60	1,144.00	1,100.77	26.465	SF
(O) Rosa Unit #171A - OH - OH-SVY	100.00	38.00	878.67	878.34	2,664.379	CC, ES
(O) Rosa Unit #171A - OH - OH-SVY	3,800.00	3,337.00	2,340.07	2,310.41	78.899	SF
(O) Rosa Unit #181 - OH - OH-SVY	605.66	643.00	10,873.02	10,870.16	3,807.786	CC, ES
(O) Rosa Unit #181 - OH - OH-SVY	7,600.00	1,314.32	13,328.74	13,297.63	428.395	SF
(O) Rosa Unit #228A - OH - OH-SVY	457.19	395.20	718.60	716.59	357.356	CC, ES
(O) Rosa Unit #228A - OH - OH-SVY	3,600.00	3,253.00	2,496.75	2,473.74	108.541	SF
Rosa Unit 700H - OH - Prelim 7	500.00	500.00	100.30	96.93	29.767	CC, ES
Rosa Unit 700H - OH - Prelim 7	800.00	790.12	126.42	120.98	23.258	SF
Rosa Unit 701H - OH - Prelim #2	500.00	500.00	75.39	72.02	22.372	CC, ES
Rosa Unit 701H - OH - Prelim #2	800.00	799.45	90.27	84.81	16.519	SF
Rosa Unit 702H - OH - Prelim #2	500.00	500.00	50.30	46.93	14.928	CC
Rosa Unit 702H - OH - Prelim #2	700.00	702.90	51.09	46.36	10.815	ES
Rosa Unit 702H - OH - Prelim #2	2,100.00	2,107.14	98.83	82.43	6.027	SF
Rosa Unit 704H - OH - Prelim #4	500.00	500.00	25.09	21.72	7.445	CC, ES
Rosa Unit 704H - OH - Prelim #4	21,032.99	20,855.77	2,588.03	2,128.60	5.633	SF
Rosa Unit 705H - OH - Prelim #3	1,088.68	1,085.33	22.81	15.31	3.044	CC
Rosa Unit 705H - OH - Prelim #3	1,100.00	1,096.58	22.84	15.25	3.012	ES
Rosa Unit 705H - OH - Prelim #3	21,032.99	20,741.48	1,298.40	840.00	2.832	SF

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

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

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	17.14	17.14	0.00	0.03	-102.27	-1,706.02	-7,841.40	8,024.84				
100.00	100.00	106.01	106.01	0.25	0.28	-102.27	-1,706.11	-7,841.51	8,024.98	8,024.44	0.53	N/A	
200.00	200.00	206.72	206.72	0.61	0.64	-102.28	-1,706.40	-7,841.59	8,025.12	8,023.88	1.25	6,445.752	
300.00	300.00	297.31	297.31	0.97	0.95	-102.28	-1,706.78	-7,841.69	8,025.32	8,023.40	1.92	4,179.753	
400.00	400.00	377.10	377.10	1.33	1.23	-102.28	-1,707.19	-7,841.93	8,025.72	8,023.16	2.56	3,137.942	
500.00	500.00	479.32	479.32	1.68	1.59	-102.28	-1,707.54	-7,842.36	8,026.21	8,022.93	3.27	2,451.435	
600.00	599.98	631.76	631.75	2.03	2.13	92.73	-1,707.78	-7,842.60	8,026.48	8,022.34	4.15	1,935.111	
682.79	682.67	727.32	727.31	2.31	2.46	92.76	-1,708.10	-7,842.29	8,026.47	8,021.71	4.76	1,687.710	
700.00	699.84	742.25	742.25	2.36	2.51	92.77	-1,708.14	-7,842.24	8,026.47	8,021.61	4.87	1,649.816	
800.00	799.45	842.25	842.25	2.71	2.86	92.82	-1,708.19	-7,841.98	8,026.66	8,021.11	5.56	1,444.418	
900.00	898.70	947.35	947.35	3.06	3.22	92.91	-1,707.94	-7,841.70	8,026.96	8,020.68	6.28	1,278.245	
1,000.00	997.47	1,070.71	1,070.70	3.43	3.65	93.04	-1,707.55	-7,841.02	8,027.15	8,020.07	7.08	1,133.601	
1,100.00	1,095.62	1,166.89	1,166.87	3.82	3.99	93.17	-1,707.30	-7,840.36	8,027.47	8,019.67	7.81	1,028.407	
1,200.00	1,193.44	1,264.77	1,264.76	4.22	4.33	93.31	-1,707.10	-7,839.74	8,027.99	8,019.44	8.55	938.747	
1,300.00	1,291.25	1,366.59	1,366.58	4.64	4.69	93.47	-1,706.59	-7,839.10	8,028.52	8,019.19	9.32	861.354	
1,400.00	1,389.07	1,454.50	1,454.48	5.06	4.99	93.60	-1,706.00	-7,838.68	8,029.21	8,019.16	10.05	799.082	
1,500.00	1,486.88	1,544.01	1,543.99	5.48	5.30	93.74	-1,705.24	-7,838.31	8,029.99	8,019.20	10.79	744.477	
1,600.00	1,584.70	1,658.37	1,658.34	5.91	5.70	93.91	-1,704.45	-7,837.87	8,030.89	8,019.28	11.62	691.421	
1,700.00	1,682.51	1,789.29	1,789.26	6.35	6.16	94.11	-1,703.32	-7,836.88	8,031.45	8,018.94	12.51	642.244	
1,800.00	1,780.33	1,875.00	1,874.95	6.78	6.46	94.25	-1,702.10	-7,836.19	8,031.92	8,018.68	13.24	606.628 ES	
1,900.00	1,878.14	1,943.74	1,943.68	7.22	6.70	94.36	-1,700.85	-7,835.93	8,032.78	8,018.86	13.92	577.153	
2,000.00	1,975.96	2,009.80	2,009.72	7.66	6.93	94.46	-1,699.45	-7,835.95	8,034.04	8,019.45	14.59	550.742	
2,100.00	2,073.77	2,100.00	2,099.91	8.10	7.25	94.61	-1,697.69	-7,836.17	8,035.61	8,020.27	15.34	523.729	
2,200.00	2,171.59	2,225.00	2,224.89	8.54	7.68	94.81	-1,695.46	-7,836.20	8,037.04	8,020.82	16.22	495.455	
2,300.00	2,269.40	2,300.00	2,299.87	8.98	7.95	94.93	-1,693.85	-7,836.25	8,038.54	8,021.61	16.93	474.920	
2,400.00	2,367.22	2,377.64	2,377.49	9.43	8.22	95.06	-1,692.32	-7,836.53	8,040.40	8,022.76	17.64	455.794	
2,500.00	2,465.03	2,495.06	2,494.90	9.87	8.63	95.24	-1,690.68	-7,836.92	8,042.42	8,023.92	18.49	434.847	
2,600.00	2,562.84	2,600.00	2,599.83	10.32	9.00	95.41	-1,689.01	-7,836.95	8,044.15	8,024.84	19.31	416.659	
2,700.00	2,660.66	2,663.10	2,662.92	10.77	9.22	95.51	-1,687.84	-7,837.15	8,046.18	8,026.21	19.97	402.883	
2,800.00	2,758.47	2,725.00	2,724.81	11.21	9.43	95.61	-1,686.90	-7,837.62	8,048.73	8,028.10	20.63	390.102	
2,900.00	2,856.29	2,772.00	2,771.80	11.66	9.60	95.68	-1,686.41	-7,838.23	8,051.88	8,030.64	21.24	379.085	
3,000.00	2,954.10	2,870.69	2,870.47	12.11	9.94	95.84	-1,685.28	-7,839.62	8,055.26	8,033.23	22.03	365.635	
3,100.00	3,051.92	2,925.00	2,924.77	12.56	10.13	95.92	-1,684.60	-7,840.51	8,058.95	8,036.29	22.66	355.576	
3,200.00	3,149.73	3,067.35	3,067.10	13.01	10.63	96.14	-1,684.01	-7,842.91	8,062.84	8,039.23	23.61	341.496	
3,300.00	3,247.55	3,125.00	3,124.74	13.45	10.83	96.22	-1,683.82	-7,843.78	8,066.65	8,042.39	24.26	332.561	
3,400.00	3,345.36	3,262.39	3,262.11	13.90	11.31	96.43	-1,683.85	-7,845.95	8,070.60	8,045.41	25.19	320.449	
3,500.00	3,443.18	3,325.00	3,324.72	14.35	11.53	96.52	-1,683.79	-7,846.92	8,074.54	8,048.69	25.85	312.372	
3,600.00	3,540.99	3,439.71	3,439.42	14.80	11.93	96.69	-1,683.85	-7,848.55	8,078.40	8,051.70	26.70	302.580	
3,700.00	3,638.81	3,541.78	3,541.48	15.25	12.28	96.84	-1,683.94	-7,850.00	8,082.35	8,054.85	27.50	293.872	
3,800.00	3,736.62	3,640.05	3,639.73	15.70	12.63	96.99	-1,683.91	-7,851.48	8,086.43	8,058.14	28.29	285.798	
3,900.00	3,834.44	3,725.00	3,724.67	16.15	12.92	97.11	-1,683.82	-7,852.78	8,090.58	8,061.55	29.04	278.620	
4,000.00	3,932.25	3,825.00	3,824.66	16.60	13.27	97.26	-1,683.93	-7,854.28	8,094.77	8,064.93	29.84	271.311	
4,100.00	4,030.07	3,900.00	3,899.65	17.05	13.53	97.37	-1,684.40	-7,855.51	8,099.22	8,068.68	30.54	265.165	
4,200.00	4,127.88	3,992.45	3,992.08	17.50	13.86	97.50	-1,685.51	-7,857.04	8,103.81	8,072.49	31.31	258.785	
4,300.00	4,225.70	4,086.87	4,086.46	17.96	14.19	97.62	-1,687.45	-7,858.52	8,108.46	8,076.37	32.09	252.657	
4,400.00	4,323.51	4,169.36	4,168.91	18.41	14.47	97.73	-1,689.88	-7,860.00	8,113.47	8,080.64	32.83	247.152	
4,500.00	4,421.33	4,250.00	4,249.49	18.86	14.75	97.83	-1,692.53	-7,861.45	8,118.58	8,085.02	33.56	241.940	
4,600.00	4,519.14	4,328.07	4,327.50	19.31	15.03	97.92	-1,695.44	-7,863.03	8,123.99	8,089.72	34.27	237.024	
4,700.00	4,616.95	4,400.00	4,399.35	19.76	15.28	98.01	-1,698.20	-7,864.68	8,129.72	8,094.75	34.97	232.469	
4,800.00	4,714.77	4,492.99	4,492.23	20.21	15.60	98.12	-1,702.05	-7,866.95	8,135.66	8,099.92	35.74	227.609	
4,900.00	4,812.58	4,608.32	4,607.43	20.66	16.01	98.25	-1,706.89	-7,869.75	8,141.63	8,105.03	36.60	222.459	
5,000.00	4,910.40	4,686.82	4,685.83	21.11	16.28	98.35	-1,710.33	-7,871.74	8,147.72	8,110.40	37.32	218.330	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 50-A020Ga_GYRO-NS

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,100.00	5,008.21	4,783.19	4,782.07	21.57	16.62	98.46	-1,714.53	-7,874.28	8,153.97	8,115.87	38.10	213.995	
5,200.00	5,106.03	4,875.00	4,873.77	22.02	16.94	98.57	-1,718.48	-7,876.58	8,160.13	8,121.25	38.87	209.923	
5,300.00	5,203.84	4,985.74	4,984.37	22.47	17.33	98.70	-1,723.25	-7,879.41	8,166.36	8,126.65	39.71	205.650	
5,400.00	5,301.66	5,059.46	5,057.99	22.92	17.58	98.78	-1,726.55	-7,881.34	8,172.70	8,132.29	40.41	202.236	
5,500.00	5,399.47	5,186.96	5,185.31	23.37	18.03	98.93	-1,732.21	-7,884.73	8,179.13	8,137.81	41.31	197.987	
5,600.00	5,497.29	5,336.38	5,334.53	23.82	18.55	99.10	-1,739.31	-7,887.93	8,185.12	8,142.83	42.29	193.544	
5,700.00	5,595.10	5,467.09	5,465.07	24.28	19.01	99.24	-1,745.62	-7,890.11	8,190.68	8,147.48	43.20	189.595	
5,800.00	5,692.92	5,591.86	5,589.67	24.73	19.44	99.38	-1,752.02	-7,891.57	8,195.79	8,151.70	44.09	185.891	
5,900.00	5,790.73	5,759.72	5,757.28	25.18	20.03	99.56	-1,761.15	-7,892.59	8,200.43	8,155.29	45.13	181.700	
6,000.00	5,888.55	5,825.00	5,822.46	25.63	20.26	99.63	-1,764.72	-7,892.77	8,204.77	8,158.97	45.81	179.122	
6,100.00	5,986.36	5,906.49	5,903.84	26.08	20.54	99.71	-1,769.02	-7,893.33	8,209.51	8,162.97	46.54	176.408	
6,200.00	6,084.18	5,975.00	5,972.24	26.54	20.78	99.79	-1,772.67	-7,893.97	8,214.53	8,167.31	47.22	173.959	
6,300.00	6,181.99	6,050.00	6,047.13	26.99	21.05	99.87	-1,776.71	-7,894.88	8,219.88	8,171.95	47.93	171.504	
6,400.00	6,279.81	6,125.00	6,122.01	27.44	21.31	99.95	-1,780.70	-7,896.00	8,225.52	8,176.89	48.63	169.128	
6,500.00	6,377.62	6,200.00	6,196.89	27.89	21.57	100.03	-1,784.71	-7,897.38	8,231.52	8,182.17	49.34	166.828	
6,530.62	6,407.57	6,220.81	6,217.66	28.03	21.64	100.05	-1,785.85	-7,897.82	8,233.44	8,183.89	49.55	166.166	
6,550.00	6,426.48	6,236.12	6,232.95	28.12	21.70	105.47	-1,786.67	-7,898.14	8,234.90	8,185.21	49.69	165.725	
6,600.00	6,474.77	6,273.33	6,270.09	28.36	21.83	115.27	-1,788.70	-7,899.00	8,241.07	8,191.01	50.06	164.640	
6,650.00	6,522.09	6,300.00	6,296.72	28.62	21.92	121.16	-1,790.18	-7,899.64	8,250.56	8,200.17	50.39	163.721	
6,700.00	6,568.15	6,335.07	6,331.72	28.89	22.04	124.80	-1,792.13	-7,900.52	8,263.33	8,212.55	50.77	162.746	
6,750.00	6,612.66	6,350.00	6,346.62	29.18	22.10	126.95	-1,793.06	-7,900.96	8,279.40	8,228.31	51.09	162.061	
6,800.00	6,655.36	6,350.00	6,346.62	29.48	22.10	128.05	-1,793.06	-7,900.96	8,298.70	8,247.35	51.35	161.606	
6,850.00	6,695.98	6,375.00	6,371.54	29.79	22.18	128.44	-1,794.80	-7,901.84	8,321.07	8,269.35	51.71	160.906	
6,900.00	6,734.26	6,456.72	6,453.09	30.11	22.47	128.41	-1,799.20	-7,904.72	8,346.17	8,293.88	52.30	159.597	
6,950.00	6,769.98	6,513.61	6,509.88	30.45	22.67	127.77	-1,802.00	-7,906.53	8,373.80	8,321.02	52.78	158.643	
7,000.00	6,802.91	6,541.00	6,537.22	30.79	22.76	126.47	-1,803.33	-7,907.35	8,403.89	8,350.72	53.16	158.082	
7,050.00	6,832.85	6,590.56	6,586.70	31.15	22.94	124.75	-1,805.68	-7,908.81	8,436.26	8,382.64	53.62	157.328	
7,100.00	6,859.62	6,632.74	6,628.83	31.51	23.08	122.45	-1,807.65	-7,910.00	8,470.76	8,416.71	54.05	156.716	
7,150.00	6,883.05	6,642.25	6,638.32	31.89	23.12	119.31	-1,808.10	-7,910.26	8,507.20	8,452.85	54.35	156.517	
7,200.00	6,902.99	6,683.94	6,679.95	32.28	23.26	115.74	-1,810.08	-7,911.40	8,545.34	8,490.57	54.77	156.018	
7,250.00	6,919.32	6,690.59	6,686.59	32.67	23.29	111.14	-1,810.40	-7,911.58	8,584.97	8,529.92	55.05	155.949	
7,300.00	6,931.95	6,733.49	6,729.43	33.08	23.44	106.12	-1,812.37	-7,912.69	8,625.85	8,570.39	55.46	155.537 SF	
7,350.00	6,940.79	6,737.91	6,733.84	33.49	23.45	99.91	-1,812.57	-7,912.80	8,667.71	8,612.00	55.71	155.582	
7,400.00	6,945.79	6,740.40	6,736.33	33.90	23.46	92.94	-1,812.69	-7,912.86	8,710.32	8,654.37	55.95	155.687	
7,439.53	6,947.00	6,741.01	6,736.94	34.24	23.46	87.00	-1,812.71	-7,912.88	8,744.37	8,688.25	56.12	155.809	
7,500.00	6,947.00	6,741.00	6,736.93	34.75	23.46	86.89	-1,812.71	-7,912.88	8,796.98	8,740.60	56.38	156.039	
7,600.00	6,947.00	6,740.91	6,736.83	35.63	23.46	86.68	-1,812.71	-7,912.87	8,885.53	8,828.75	56.78	156.496	
7,700.00	6,947.00	6,740.72	6,736.65	36.54	23.46	86.42	-1,812.70	-7,912.87	8,975.86	8,918.71	57.15	157.051	
7,800.00	6,947.00	6,740.45	6,736.38	37.47	23.46	86.11	-1,812.69	-7,912.86	9,067.82	9,010.32	57.50	157.705	
7,900.00	6,947.00	6,740.09	6,736.02	38.43	23.46	85.73	-1,812.67	-7,912.85	9,161.23	9,103.41	57.81	158.459	
8,000.00	6,947.00	6,739.64	6,735.57	39.41	23.46	85.26	-1,812.65	-7,912.84	9,255.95	9,197.85	58.10	159.312	
8,100.00	6,947.00	6,739.11	6,735.04	40.40	23.46	84.65	-1,812.63	-7,912.83	9,351.81	9,293.46	58.35	160.263	
8,200.00	6,947.00	6,738.49	6,734.42	41.42	23.45	83.85	-1,812.60	-7,912.81	9,448.68	9,390.11	58.57	161.310	
8,300.00	6,947.00	6,737.79	6,733.72	42.44	23.45	82.76	-1,812.57	-7,912.80	9,546.41	9,487.64	58.76	162.453	
8,400.00	6,947.00	6,737.01	6,732.95	43.48	23.45	81.17	-1,812.53	-7,912.78	9,644.84	9,585.92	58.92	163.688	
8,500.00	6,947.00	6,736.16	6,732.09	44.53	23.45	78.66	-1,812.49	-7,912.76	9,743.85	9,684.80	59.05	165.015	
8,600.00	6,947.00	6,735.23	6,731.17	45.58	23.44	74.16	-1,812.45	-7,912.73	9,843.29	9,784.14	59.14	166.429	
8,700.00	6,947.00	6,734.23	6,730.17	46.63	23.44	64.06	-1,812.41	-7,912.71	9,943.03	9,883.82	59.21	167.930	
8,800.00	6,947.00	6,712.68	6,708.65	47.69	23.36	28.00	-1,811.43	-7,912.17	10,042.95	9,983.78	59.17	169.745	
8,841.31	6,947.00	6,711.63	6,707.60	48.13	23.36	-1.71	-1,811.38	-7,912.15	10,084.24	10,025.07	59.17	170.430	
8,900.00	6,947.00	6,710.12	6,706.09	48.76	23.36	-1.72	-1,811.31	-7,912.11	10,142.91	10,083.74	59.17	171.414	
9,000.00	6,947.00	6,691.65	6,687.64	49.85	23.29	-1.78	-1,810.45	-7,911.61	10,242.87	10,183.76	59.11	173.272	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 50-A020Ga_GYRO-NS

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,100.00	6,947.00	6,690.64	6,686.64	50.97	23.29	-1.79	-1,810.40	-7,911.58	10,342.84	10,283.71	59.13	174.929	
9,200.00	6,947.00	6,689.64	6,685.64	52.12	23.28	-1.79	-1,810.35	-7,911.55	10,442.80	10,383.66	59.14	176.582	
9,300.00	6,947.00	6,688.66	6,684.66	53.28	23.28	-1.79	-1,810.30	-7,911.53	10,542.76	10,483.61	59.15	178.233	
9,400.00	6,947.00	6,687.69	6,683.69	54.48	23.28	-1.80	-1,810.26	-7,911.50	10,642.73	10,583.56	59.17	179.880	
9,500.00	6,947.00	6,686.73	6,682.73	55.69	23.27	-1.80	-1,810.21	-7,911.48	10,742.69	10,683.51	59.18	181.525	
9,600.00	6,947.00	6,685.78	6,681.79	56.92	23.27	-1.80	-1,810.17	-7,911.45	10,842.66	10,783.46	59.20	183.167	
9,700.00	6,947.00	6,684.84	6,680.85	58.17	23.27	-1.81	-1,810.12	-7,911.43	10,942.62	10,883.41	59.21	184.805	
9,800.00	6,947.00	6,683.92	6,679.93	59.44	23.26	-1.81	-1,810.08	-7,911.40	11,042.59	10,983.36	59.23	186.441	
9,900.00	6,947.00	6,668.66	6,664.69	60.73	23.21	-1.85	-1,809.36	-7,911.00	11,142.56	11,083.37	59.19	188.254	
10,000.00	6,947.00	6,665.95	6,661.98	62.03	23.20	-1.86	-1,809.24	-7,910.93	11,242.53	11,183.33	59.20	189.908	
10,100.00	6,947.00	6,663.23	6,659.27	63.34	23.19	-1.87	-1,809.11	-7,910.85	11,342.49	11,283.28	59.21	191.559	
10,200.00	6,947.00	6,660.52	6,656.56	64.67	23.18	-1.88	-1,808.98	-7,910.78	11,442.45	11,383.23	59.22	193.207	
10,300.00	6,947.00	6,657.80	6,653.85	66.01	23.17	-1.88	-1,808.85	-7,910.70	11,542.42	11,483.18	59.24	194.852	
10,400.00	6,947.00	6,641.23	6,637.30	67.36	23.11	-1.93	-1,808.05	-7,910.23	11,642.37	11,583.17	59.20	196.677	
10,500.00	6,947.00	6,640.25	6,636.33	68.73	23.11	-1.93	-1,808.00	-7,910.21	11,742.33	11,683.11	59.22	198.295	
10,600.00	6,947.00	6,639.29	6,635.36	70.10	23.11	-1.93	-1,807.96	-7,910.18	11,842.29	11,783.05	59.24	199.910	
10,700.00	6,947.00	6,638.33	6,634.41	71.48	23.10	-1.94	-1,807.91	-7,910.15	11,942.25	11,882.99	59.26	201.521	
10,800.00	6,947.00	6,637.39	6,633.46	72.88	23.10	-1.94	-1,807.87	-7,910.12	12,042.21	11,982.93	59.28	203.128	
10,900.00	6,947.00	6,636.45	6,632.53	74.28	23.10	-1.94	-1,807.82	-7,910.10	12,142.17	12,082.87	59.31	204.732	
11,000.00	6,947.00	6,635.53	6,631.61	75.69	23.09	-1.94	-1,807.78	-7,910.07	12,242.14	12,182.80	59.33	206.332	
11,100.00	6,947.00	6,634.61	6,630.69	77.10	23.09	-1.94	-1,807.74	-7,910.05	12,342.10	12,282.74	59.36	207.928	
11,200.00	6,947.00	6,633.71	6,629.79	78.53	23.09	-1.95	-1,807.69	-7,910.02	12,442.06	12,382.68	59.38	209.521	
11,300.00	6,947.00	6,620.65	6,616.76	79.96	23.04	-1.97	-1,807.10	-7,909.67	12,542.03	12,482.67	59.36	211.281	
11,400.00	6,947.00	6,617.86	6,613.97	81.40	23.03	-1.98	-1,806.97	-7,909.59	12,641.99	12,582.61	59.38	212.894	
11,500.00	6,947.00	6,615.07	6,611.18	82.84	23.02	-1.98	-1,806.84	-7,909.51	12,741.95	12,682.55	59.40	214.504	
11,600.00	6,947.00	6,612.27	6,608.39	84.29	23.01	-1.99	-1,806.71	-7,909.43	12,841.92	12,782.49	59.42	216.111	
11,700.00	6,947.00	6,609.48	6,605.60	85.75	23.00	-1.99	-1,806.57	-7,909.35	12,941.88	12,882.43	59.44	217.714	
11,800.00	6,947.00	6,606.68	6,602.81	87.21	22.99	-2.00	-1,806.44	-7,909.28	13,041.84	12,982.37	59.47	219.313	
11,900.00	6,947.00	6,603.89	6,600.02	88.68	22.98	-2.00	-1,806.31	-7,909.20	13,141.80	13,082.31	59.49	220.909	
12,000.00	6,947.00	6,590.76	6,586.91	90.15	22.94	-2.03	-1,805.69	-7,908.81	13,241.75	13,182.28	59.47	222.655	
12,100.00	6,947.00	6,589.83	6,585.98	91.62	22.93	-2.03	-1,805.64	-7,908.79	13,341.71	13,282.20	59.50	224.217	
12,200.00	6,947.00	6,588.92	6,585.07	93.10	22.93	-2.03	-1,805.60	-7,908.76	13,441.67	13,382.13	59.54	225.775	
12,300.00	6,947.00	6,588.01	6,584.16	94.59	22.93	-2.03	-1,805.56	-7,908.73	13,541.63	13,482.06	59.57	227.328	
12,400.00	6,947.00	6,587.11	6,583.26	96.07	22.92	-2.04	-1,805.51	-7,908.71	13,641.59	13,581.99	59.60	228.877	
12,500.00	6,947.00	6,586.22	6,582.37	97.56	22.92	-2.04	-1,805.47	-7,908.68	13,741.55	13,681.91	59.64	230.422	
12,600.00	6,947.00	6,585.34	6,581.49	99.06	22.92	-2.04	-1,805.43	-7,908.66	13,841.51	13,781.84	59.67	231.963	
12,700.00	6,947.00	6,540.73	6,536.95	100.56	22.76	-2.11	-1,803.31	-7,907.34	13,941.47	13,881.94	59.53	234.181	
12,800.00	6,947.00	6,539.83	6,536.06	102.06	22.76	-2.11	-1,803.27	-7,907.31	14,041.42	13,981.85	59.57	235.717	
12,900.00	6,947.00	6,538.94	6,535.17	103.56	22.76	-2.11	-1,803.22	-7,907.29	14,141.37	14,081.77	59.61	237.249	
13,000.00	6,947.00	6,538.06	6,534.29	105.07	22.75	-2.11	-1,803.18	-7,907.26	14,241.33	14,181.68	59.64	238.776	
13,100.00	6,947.00	6,537.19	6,533.42	106.58	22.75	-2.12	-1,803.14	-7,907.23	14,341.28	14,281.60	59.68	240.299	
13,200.00	6,947.00	6,536.33	6,532.56	108.10	22.75	-2.12	-1,803.10	-7,907.21	14,441.24	14,381.52	59.72	241.817	
13,300.00	6,947.00	6,535.47	6,531.71	109.61	22.74	-2.12	-1,803.06	-7,907.18	14,541.19	14,481.43	59.76	243.331	
13,400.00	6,947.00	6,534.63	6,530.86	111.13	22.74	-2.12	-1,803.02	-7,907.16	14,641.15	14,581.35	59.80	244.840	
13,500.00	6,947.00	6,524.83	6,521.08	112.65	22.71	-2.13	-1,802.55	-7,906.87	14,741.11	14,681.31	59.80	246.491	
13,600.00	6,947.00	6,521.80	6,518.06	114.17	22.70	-2.14	-1,802.40	-7,906.78	14,841.07	14,781.23	59.84	248.028	
13,700.00	6,947.00	6,518.78	6,515.04	115.70	22.69	-2.14	-1,802.25	-7,906.68	14,941.02	14,881.15	59.87	249.560	
13,800.00	6,947.00	6,515.75	6,512.02	117.23	22.68	-2.15	-1,802.11	-7,906.59	15,040.97	14,981.07	59.90	251.089	
13,900.00	6,947.00	6,512.72	6,509.00	118.76	22.66	-2.15	-1,801.96	-7,906.50	15,140.93	15,080.99	59.94	252.613	
14,000.00	6,947.00	6,490.18	6,486.50	120.29	22.59	-2.18	-1,800.85	-7,905.80	15,240.88	15,180.98	59.89	254.460	
14,100.00	6,947.00	6,488.83	6,485.15	121.82	22.58	-2.18	-1,800.79	-7,905.75	15,340.83	15,280.89	59.94	255.949	
14,200.00	6,947.00	6,487.49	6,483.81	123.36	22.58	-2.19	-1,800.72	-7,905.71	15,440.78	15,380.80	59.98	257.433	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 50-A020Ga_GYRO-NS

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,300.00	6,947.00	6,486.16	6,482.48	124.89	22.57	-2.19	-1,800.66	-7,905.67	15,540.73	15,480.71	60.02	258.913	
14,400.00	6,947.00	6,459.36	6,455.73	126.43	22.48	-2.22	-1,799.33	-7,904.81	15,640.68	15,580.72	59.97	260.824	
14,500.00	6,947.00	6,456.09	6,452.46	127.97	22.47	-2.23	-1,799.17	-7,904.70	15,740.63	15,680.62	60.00	262.329	
14,600.00	6,947.00	6,452.82	6,449.20	129.51	22.46	-2.23	-1,799.01	-7,904.59	15,840.57	15,780.53	60.04	263.830	
14,700.00	6,947.00	6,375.00	6,371.54	131.06	22.18	-2.35	-1,794.80	-7,901.84	15,940.51	15,880.73	59.78	266.636	
14,800.00	6,947.00	6,375.00	6,371.54	132.60	22.18	-2.35	-1,794.80	-7,901.84	16,040.44	15,980.61	59.84	268.076	
14,900.00	6,947.00	6,375.00	6,371.54	134.15	22.18	-2.35	-1,794.80	-7,901.84	16,140.37	16,080.49	59.89	269.511	
15,000.00	6,947.00	6,375.00	6,371.54	135.70	22.18	-2.35	-1,794.80	-7,901.84	16,240.31	16,180.37	59.94	270.941	
15,100.00	6,947.00	6,375.00	6,371.54	137.24	22.18	-2.35	-1,794.80	-7,901.84	16,340.24	16,280.24	59.99	272.365	
15,200.00	6,947.00	6,375.00	6,371.54	138.79	22.18	-2.35	-1,794.80	-7,901.84	16,440.17	16,380.12	60.05	273.785	
15,300.00	6,947.00	6,375.00	6,371.54	140.35	22.18	-2.35	-1,794.80	-7,901.84	16,540.11	16,480.00	60.10	275.200	
15,400.00	6,947.00	6,375.00	6,371.54	141.90	22.18	-2.35	-1,794.80	-7,901.84	16,640.04	16,579.89	60.16	276.609	
15,500.00	6,947.00	6,375.00	6,371.54	143.45	22.18	-2.35	-1,794.80	-7,901.84	16,739.98	16,679.77	60.21	278.014	
15,600.00	6,947.00	6,375.00	6,371.54	145.01	22.18	-2.35	-1,794.80	-7,901.84	16,839.92	16,779.65	60.27	279.413	
15,700.00	6,947.00	6,375.00	6,371.54	146.56	22.18	-2.35	-1,794.80	-7,901.84	16,939.85	16,879.53	60.33	280.807	
15,800.00	6,947.00	6,364.75	6,361.32	148.12	22.15	-2.38	-1,794.06	-7,901.46	17,039.77	16,979.43	60.34	282.389	
15,900.00	6,947.00	6,364.11	6,360.69	149.68	22.14	-2.38	-1,794.02	-7,901.44	17,139.71	17,079.32	60.40	283.785	
16,000.00	6,947.00	6,363.48	6,360.06	151.23	22.14	-2.38	-1,793.97	-7,901.42	17,239.65	17,179.20	60.45	285.177	
16,100.00	6,947.00	6,362.86	6,359.43	152.79	22.14	-2.38	-1,793.93	-7,901.39	17,339.59	17,279.08	60.51	286.563	
16,200.00	6,947.00	6,362.24	6,358.82	154.36	22.14	-2.38	-1,793.89	-7,901.37	17,439.53	17,378.96	60.57	287.944	
16,300.00	6,947.00	6,361.62	6,358.21	155.92	22.14	-2.38	-1,793.84	-7,901.35	17,539.47	17,478.84	60.62	289.319	
16,400.00	6,947.00	6,361.02	6,357.60	157.48	22.13	-2.39	-1,793.80	-7,901.33	17,639.41	17,578.72	60.68	290.690	
16,500.00	6,947.00	6,360.42	6,357.00	159.04	22.13	-2.39	-1,793.76	-7,901.31	17,739.35	17,678.61	60.74	292.055	
16,600.00	6,947.00	6,350.00	6,346.62	160.61	22.10	-2.41	-1,793.06	-7,900.96	17,839.30	17,778.54	60.76	293.604	
16,700.00	6,947.00	6,350.00	6,346.62	162.17	22.10	-2.41	-1,793.06	-7,900.96	17,939.24	17,878.42	60.82	294.947	
16,800.00	6,947.00	6,350.00	6,346.62	163.74	22.10	-2.41	-1,793.06	-7,900.96	18,039.18	17,978.30	60.88	296.286	
16,900.00	6,947.00	6,350.00	6,346.62	165.30	22.10	-2.41	-1,793.06	-7,900.96	18,139.12	18,078.18	60.95	297.620	
17,000.00	6,947.00	6,350.00	6,346.62	166.87	22.10	-2.41	-1,793.06	-7,900.96	18,239.07	18,178.05	61.01	298.948	
17,100.00	6,947.00	6,350.00	6,346.62	168.44	22.10	-2.41	-1,793.06	-7,900.96	18,339.01	18,277.93	61.07	300.271	
17,200.00	6,947.00	6,350.00	6,346.62	170.01	22.10	-2.41	-1,793.06	-7,900.96	18,438.95	18,377.81	61.14	301.588	
17,300.00	6,947.00	6,350.00	6,346.62	171.57	22.10	-2.41	-1,793.06	-7,900.96	18,538.89	18,477.69	61.20	302.901	
17,400.00	6,947.00	6,350.00	6,346.62	173.14	22.10	-2.41	-1,793.06	-7,900.96	18,638.84	18,577.57	61.27	304.208	
17,500.00	6,947.00	6,350.00	6,346.62	174.71	22.10	-2.41	-1,793.06	-7,900.96	18,738.78	18,677.45	61.34	305.510	
17,600.00	6,947.00	6,350.00	6,346.62	176.28	22.10	-2.41	-1,793.06	-7,900.96	18,838.73	18,777.33	61.40	306.806	
17,700.00	6,947.00	6,350.00	6,346.62	177.86	22.10	-2.41	-1,793.06	-7,900.96	18,938.67	18,877.21	61.47	308.098	
17,800.00	6,947.00	6,350.00	6,346.62	179.43	22.10	-2.41	-1,793.06	-7,900.96	19,038.62	18,977.08	61.54	309.384	
17,900.00	6,947.00	6,350.00	6,346.62	181.00	22.10	-2.41	-1,793.06	-7,900.96	19,138.57	19,076.96	61.61	310.664	
18,000.00	6,947.00	6,350.00	6,346.62	182.57	22.10	-2.41	-1,793.06	-7,900.96	19,238.52	19,176.84	61.67	311.940	
18,100.00	6,947.00	6,350.00	6,346.62	184.15	22.10	-2.41	-1,793.06	-7,900.96	19,338.46	19,276.72	61.74	313.210	
18,200.00	6,947.00	6,350.00	6,346.62	185.72	22.10	-2.41	-1,793.06	-7,900.96	19,438.41	19,376.60	61.81	314.475	
18,300.00	6,947.00	6,350.00	6,346.62	187.30	22.10	-2.41	-1,793.06	-7,900.96	19,538.36	19,476.48	61.88	315.735	
18,400.00	6,947.00	6,350.00	6,346.62	188.87	22.10	-2.41	-1,793.06	-7,900.96	19,638.31	19,576.36	61.95	316.990	
18,500.00	6,947.00	6,350.00	6,346.62	190.45	22.10	-2.41	-1,793.06	-7,900.96	19,738.26	19,676.24	62.02	318.239	
18,600.00	6,947.00	6,350.00	6,346.62	192.02	22.10	-2.41	-1,793.06	-7,900.96	19,838.21	19,776.12	62.09	319.483	
18,700.00	6,947.00	6,350.00	6,346.62	193.60	22.10	-2.41	-1,793.06	-7,900.96	19,938.16	19,876.00	62.17	320.721	
18,800.00	6,947.00	6,350.00	6,346.62	195.18	22.10	-2.41	-1,793.06	-7,900.96	20,038.12	19,975.88	62.24	321.955	
18,900.00	6,947.00	6,350.00	6,346.62	196.75	22.10	-2.41	-1,793.06	-7,900.96	20,138.07	20,075.76	62.31	323.183	
19,000.00	6,947.00	6,350.00	6,346.62	198.33	22.10	-2.41	-1,793.06	-7,900.96	20,238.02	20,175.64	62.38	324.406	
19,100.00	6,947.00	6,350.00	6,346.62	199.91	22.10	-2.41	-1,793.06	-7,900.96	20,337.97	20,275.52	62.46	325.624	
19,200.00	6,947.00	6,350.00	6,346.62	201.49	22.10	-2.41	-1,793.06	-7,900.96	20,437.93	20,375.40	62.53	326.836	
19,300.00	6,947.00	6,350.00	6,346.62	203.07	22.10	-2.41	-1,793.06	-7,900.96	20,537.88	20,475.27	62.61	328.044	
19,400.00	6,947.00	6,350.00	6,346.62	204.65	22.10	-2.41	-1,793.06	-7,900.96	20,637.84	20,575.15	62.68	329.246	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 50-A020Ga_GYRO-NS

Rule Assigned:

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
19,500.00	6,947.00	6,350.00	6,346.62	206.23	22.10	-2.41	-1,793.06	-7,900.96	20,737.79	20,675.03	62.76	330.442	
19,600.00	6,947.00	6,350.00	6,346.62	207.81	22.10	-2.41	-1,793.06	-7,900.96	20,837.75	20,774.91	62.83	331.634	
19,700.00	6,947.00	6,350.00	6,346.62	209.39	22.10	-2.41	-1,793.06	-7,900.96	20,937.70	20,874.79	62.91	332.820	
19,800.00	6,947.00	6,350.00	6,346.62	210.97	22.10	-2.41	-1,793.06	-7,900.96	21,037.66	20,974.67	62.99	334.002	
19,900.00	6,947.00	6,350.00	6,346.62	212.55	22.10	-2.41	-1,793.06	-7,900.96	21,137.62	21,074.55	63.06	335.178	
20,000.00	6,947.00	6,350.00	6,346.62	214.13	22.10	-2.41	-1,793.06	-7,900.96	21,237.57	21,174.43	63.14	336.348	
20,100.00	6,947.00	6,350.00	6,346.62	215.71	22.10	-2.41	-1,793.06	-7,900.96	21,337.53	21,274.31	63.22	337.514	
20,200.00	6,947.00	6,350.00	6,346.62	217.30	22.10	-2.41	-1,793.06	-7,900.96	21,437.49	21,374.19	63.30	338.675	
20,300.00	6,947.00	6,350.00	6,346.62	218.88	22.10	-2.41	-1,793.06	-7,900.96	21,537.45	21,474.07	63.38	339.830	
20,400.00	6,947.00	6,350.00	6,346.62	220.46	22.10	-2.41	-1,793.06	-7,900.96	21,637.40	21,573.95	63.46	340.980	
20,500.00	6,947.00	6,350.00	6,346.62	222.04	22.10	-2.41	-1,793.06	-7,900.96	21,737.36	21,673.83	63.54	342.125	
20,600.00	6,947.00	6,350.00	6,346.62	223.63	22.10	-2.41	-1,793.06	-7,900.96	21,837.32	21,773.71	63.62	343.265	
20,700.00	6,947.00	6,350.00	6,346.62	225.21	22.10	-2.41	-1,793.06	-7,900.96	21,937.28	21,873.59	63.70	344.400	
20,800.00	6,947.00	6,350.00	6,346.62	226.80	22.10	-2.41	-1,793.06	-7,900.96	22,037.24	21,973.46	63.78	345.529	
20,900.00	6,947.00	6,350.00	6,346.62	228.38	22.10	-2.41	-1,793.06	-7,900.96	22,137.20	22,073.34	63.86	346.654	
21,000.00	6,947.00	6,350.00	6,346.62	229.97	22.10	-2.41	-1,793.06	-7,900.96	22,237.16	22,173.22	63.94	347.774	
21,032.01	6,947.00	6,350.00	6,346.62	230.47	22.10	-2.41	-1,793.06	-7,900.96	22,269.16	22,205.19	63.97	348.131	
21,032.99	6,947.00	6,350.00	6,346.62	230.51	22.10	-2.41	-1,793.06	-7,900.96	22,270.14	22,202.28	67.86	328.177	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

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

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	-81.19	1,556.32	-10,036.72	10,156.96				
100.00	100.00	22.00	22.00	0.25	0.66	-81.19	1,556.32	-10,036.72	10,156.67	10,155.76	0.91	N/A	
200.00	200.00	122.00	122.00	0.61	3.66	-81.19	1,556.32	-10,036.72	10,156.67	10,152.40	4.27	2,381.273	
300.00	300.00	222.00	222.00	0.97	6.65	-81.19	1,556.32	-10,036.72	10,156.67	10,149.05	7.62	1,332.877	
400.00	400.00	322.00	322.00	1.33	9.65	-81.19	1,556.32	-10,036.72	10,156.67	10,145.69	10.97	925.437	
500.00	500.00	422.00	422.00	1.68	12.65	-81.19	1,556.32	-10,036.72	10,156.67	10,142.34	14.33	708.775 CC	
600.00	599.98	522.08	521.98	2.03	15.64	113.81	1,556.32	-10,036.72	10,157.37	10,139.70	17.67	574.832	
700.00	699.84	621.94	621.84	2.36	18.64	113.80	1,556.32	-10,036.72	10,159.49	10,138.49	21.00	483.886 ES	
800.00	799.45	721.55	721.45	2.71	21.62	113.78	1,556.32	-10,036.72	10,163.01	10,138.69	24.32	417.813	
900.00	898.70	829.67	829.51	3.06	24.86	113.77	1,558.28	-10,036.72	10,168.26	10,140.34	27.92	364.205	
1,000.00	997.47	941.03	940.85	3.43	28.20	113.74	1,557.23	-10,036.72	10,174.48	10,142.86	31.62	321.730	
1,100.00	1,095.62	1,018.03	1,017.62	3.82	30.50	113.67	1,556.32	-10,036.72	10,182.10	10,147.79	34.32	296.720	
1,200.00	1,193.44	1,115.84	1,115.44	4.22	33.44	113.77	1,556.32	-10,036.72	10,190.62	10,152.98	37.64	270.716	
1,300.00	1,291.25	1,213.66	1,213.25	4.64	36.37	113.88	1,556.32	-10,036.72	10,199.18	10,158.20	40.98	248.892	
1,400.00	1,389.07	1,319.69	1,319.23	5.06	39.54	114.00	1,558.33	-10,036.72	10,208.10	10,163.53	44.57	229.056	
1,500.00	1,486.88	1,430.85	1,430.37	5.48	42.87	114.12	1,557.36	-10,036.72	10,216.59	10,168.27	48.31	211.469	
1,600.00	1,584.70	1,507.41	1,506.70	5.91	45.17	114.19	1,556.32	-10,036.72	10,225.05	10,174.03	51.03	200.392	
1,700.00	1,682.51	1,605.22	1,604.51	6.35	48.10	114.30	1,556.32	-10,036.72	10,233.75	10,179.37	54.38	188.195	
1,800.00	1,780.33	1,703.04	1,702.33	6.78	51.03	114.40	1,556.32	-10,036.72	10,242.48	10,184.74	57.73	177.409	
1,900.00	1,878.14	1,808.11	1,807.35	7.22	54.18	114.52	1,558.39	-10,036.72	10,251.60	10,190.29	61.31	167.213	
2,000.00	1,975.96	1,920.15	1,919.36	7.66	57.54	114.64	1,557.49	-10,036.72	10,260.27	10,195.17	65.09	157.622	
2,100.00	2,073.77	2,032.58	2,031.75	8.10	60.91	114.75	1,555.71	-10,036.72	10,268.83	10,199.94	68.89	149.056	
2,200.00	2,171.59	2,094.60	2,093.59	8.54	62.76	114.81	1,556.32	-10,036.72	10,277.74	10,206.56	71.18	144.390	
2,300.00	2,269.40	2,192.42	2,191.40	8.98	65.69	114.92	1,556.32	-10,036.72	10,286.64	10,212.10	74.54	137.997	
2,400.00	2,367.22	2,296.35	2,295.29	9.43	68.81	115.04	1,558.43	-10,036.72	10,295.97	10,217.88	78.09	131.850	
2,500.00	2,465.03	2,409.27	2,408.18	9.87	72.19	115.15	1,557.62	-10,036.72	10,304.81	10,222.91	81.91	125.814	
2,600.00	2,562.84	2,522.59	2,521.46	10.32	75.59	115.26	1,555.91	-10,036.72	10,313.55	10,227.81	85.73	120.297	
2,700.00	2,660.66	2,583.98	2,582.66	10.77	77.43	115.33	1,556.32	-10,036.72	10,322.60	10,234.59	88.01	117.294	
2,800.00	2,758.47	2,681.79	2,680.47	11.21	80.36	115.43	1,556.32	-10,036.72	10,331.67	10,240.30	91.37	113.074	
2,900.00	2,856.29	2,784.40	2,783.03	11.66	83.43	115.55	1,558.46	-10,036.72	10,341.19	10,246.31	94.88	108.993	
3,000.00	2,954.10	2,898.21	2,896.83	12.11	86.84	115.66	1,557.74	-10,036.72	10,350.21	10,251.49	98.72	104.839	
3,100.00	3,051.92	3,012.44	3,011.01	12.56	90.27	115.77	1,556.10	-10,036.72	10,359.11	10,256.53	102.58	100.984	
3,200.00	3,149.73	3,073.36	3,071.73	13.01	92.09	115.84	1,556.32	-10,036.72	10,368.30	10,263.46	104.84	98.896	
3,300.00	3,247.55	3,171.17	3,169.55	13.45	95.02	115.94	1,556.32	-10,036.72	10,377.54	10,269.33	108.21	95.905	
3,400.00	3,345.36	3,272.25	3,270.58	13.90	98.05	116.06	1,558.49	-10,036.72	10,387.25	10,275.58	111.67	93.018	
3,500.00	3,443.18	3,386.98	3,385.29	14.35	101.49	116.17	1,557.85	-10,036.72	10,396.45	10,280.91	115.54	89.979	
3,600.00	3,540.99	3,502.12	3,500.39	14.80	104.94	116.28	1,556.28	-10,036.72	10,405.52	10,286.09	119.43	87.127	
3,700.00	3,638.81	3,562.74	3,560.81	15.25	106.76	116.34	1,556.32	-10,036.72	10,414.84	10,293.16	121.68	85.593	
3,800.00	3,736.62	3,660.55	3,658.62	15.70	109.69	116.45	1,556.32	-10,036.72	10,424.25	10,299.20	125.04	83.365	
3,900.00	3,834.44	3,759.90	3,757.93	16.15	112.66	116.56	1,558.50	-10,036.72	10,434.14	10,305.69	128.46	81.228	
4,000.00	3,932.25	3,875.55	3,873.56	16.60	116.13	116.67	1,557.95	-10,036.72	10,443.52	10,311.16	132.36	78.904	
4,100.00	4,030.07	3,991.63	3,989.60	17.05	119.61	116.79	1,556.46	-10,036.72	10,452.76	10,316.49	136.27	76.705	
4,200.00	4,127.88	4,052.11	4,049.88	17.50	121.42	116.85	1,556.32	-10,036.72	10,462.21	10,323.69	138.52	75.531	
4,300.00	4,225.70	4,149.93	4,147.70	17.96	124.35	116.95	1,556.32	-10,036.72	10,471.78	10,329.89	141.88	73.807	
4,400.00	4,323.51	4,247.74	4,245.51	18.41	127.28	117.05	1,556.32	-10,036.72	10,481.38	10,336.13	145.25	72.162	
4,500.00	4,421.33	4,363.94	4,361.65	18.86	130.76	117.17	1,558.05	-10,036.72	10,491.41	10,342.25	149.16	70.334	
4,600.00	4,519.14	4,480.97	4,478.64	19.31	134.27	117.28	1,556.64	-10,036.72	10,500.82	10,347.71	153.11	68.585	
4,700.00	4,616.95	4,541.49	4,538.95	19.76	136.08	117.34	1,556.32	-10,036.72	10,510.39	10,355.03	155.35	67.655	
4,800.00	4,714.77	4,639.31	4,636.77	20.21	139.01	117.44	1,556.32	-10,036.72	10,520.12	10,361.40	158.72	66.282	
4,900.00	4,812.58	4,737.12	4,734.58	20.66	141.95	117.54	1,556.32	-10,036.72	10,529.88	10,367.80	162.08	64.966	
5,000.00	4,910.40	4,852.13	4,849.54	21.11	145.39	117.67	1,558.14	-10,036.72	10,540.11	10,374.14	165.96	63.508	
5,100.00	5,008.21	4,970.12	4,967.49	21.57	148.93	117.78	1,556.81	-10,036.72	10,549.69	10,379.75	169.93	62.081	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

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

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,200.00	5,106.03	5,030.87	5,028.03	22.02	150.75	117.84	1,556.32	-10,036.72	10,559.37	10,387.18	172.19	61.325	
5,300.00	5,203.84	5,128.69	5,125.84	22.47	153.68	117.93	1,556.32	-10,036.72	10,569.26	10,393.71	175.55	60.206	
5,400.00	5,301.66	5,226.50	5,223.66	22.92	156.61	118.03	1,556.32	-10,036.72	10,579.19	10,400.27	178.91	59.130	
5,500.00	5,399.47	5,340.12	5,337.23	23.37	160.01	118.15	1,558.22	-10,036.72	10,589.60	10,406.85	182.75	57.945	
5,600.00	5,497.29	5,459.09	5,456.16	23.82	163.58	118.27	1,556.98	-10,036.72	10,599.35	10,412.59	186.75	56.756	
5,700.00	5,595.10	5,520.25	5,517.10	24.28	165.41	118.32	1,556.32	-10,036.72	10,609.15	10,420.13	189.02	56.128	
5,800.00	5,692.92	5,618.06	5,614.92	24.73	168.34	118.42	1,556.32	-10,036.72	10,619.20	10,426.82	192.38	55.199	
5,900.00	5,790.73	5,715.88	5,712.73	25.18	171.27	118.52	1,556.32	-10,036.72	10,629.28	10,433.53	195.74	54.302	
6,000.00	5,888.55	5,827.91	5,824.71	25.63	174.63	118.64	1,558.29	-10,036.72	10,639.88	10,440.34	199.53	53.323	
6,100.00	5,986.36	5,947.88	5,944.65	26.08	178.23	118.75	1,557.14	-10,036.72	10,649.79	10,446.23	203.56	52.317	
6,200.00	6,084.18	6,009.63	6,006.18	26.54	180.08	118.81	1,556.32	-10,036.72	10,659.70	10,453.86	205.84	51.786	
6,300.00	6,181.99	6,107.44	6,103.99	26.99	183.01	118.90	1,556.32	-10,036.72	10,669.91	10,460.70	209.21	51.002	
6,400.00	6,279.81	6,205.26	6,201.81	27.44	185.94	119.00	1,556.32	-10,036.72	10,680.14	10,467.57	212.57	50.243	
6,500.00	6,377.62	6,315.48	6,311.98	27.89	189.24	119.12	1,558.35	-10,036.72	10,690.93	10,474.62	216.31	49.425	
6,530.62	6,407.57	6,352.48	6,348.97	28.03	190.35	119.15	1,558.14	-10,036.72	10,694.04	10,476.49	217.55	49.157	
6,550.00	6,426.48	6,375.86	6,372.35	28.12	191.05	124.60	1,557.95	-10,036.72	10,696.28	10,477.94	218.33	48.991	
6,600.00	6,474.77	6,435.67	6,432.14	28.36	192.84	134.53	1,557.30	-10,036.72	10,704.65	10,484.30	220.35	48.580	
6,650.00	6,522.09	6,494.44	6,490.89	28.62	194.60	140.66	1,556.42	-10,036.72	10,716.72	10,494.38	222.34	48.199	
6,700.00	6,568.15	6,551.83	6,548.25	28.89	196.32	144.60	1,555.32	-10,036.72	10,732.40	10,508.11	224.30	47.849	
6,750.00	6,612.66	6,538.42	6,534.66	29.18	195.92	147.09	1,556.32	-10,036.72	10,751.98	10,527.86	224.12	47.974	
6,800.00	6,655.36	6,581.12	6,577.36	29.48	197.20	148.75	1,556.32	-10,036.72	10,774.92	10,549.29	225.63	47.754	
6,850.00	6,695.98	6,621.73	6,617.98	29.79	198.42	149.74	1,556.32	-10,036.72	10,801.16	10,574.08	227.08	47.566	
6,900.00	6,734.26	6,660.02	6,656.26	30.11	199.56	150.18	1,556.32	-10,036.72	10,830.56	10,602.11	228.45	47.409	
6,950.00	6,769.98	6,695.74	6,691.98	30.45	200.63	150.14	1,556.32	-10,036.72	10,862.93	10,633.19	229.74	47.284	
7,000.00	6,802.91	6,728.67	6,724.91	30.79	201.62	149.64	1,556.32	-10,036.72	10,898.07	10,667.14	230.93	47.192	
7,050.00	6,832.85	6,760.83	6,757.04	31.15	202.59	148.65	1,558.50	-10,036.72	10,936.34	10,704.25	232.09	47.120	
7,100.00	6,859.62	6,794.48	6,790.68	31.51	203.59	147.07	1,558.43	-10,036.72	10,976.35	10,743.06	233.29	47.051	
7,150.00	6,883.05	6,824.07	6,820.26	31.89	204.48	144.76	1,558.31	-10,036.72	11,018.42	10,784.07	234.35	47.017 SF	
7,200.00	6,902.99	6,849.39	6,845.57	32.28	205.24	141.45	1,558.16	-10,036.72	11,062.31	10,827.04	235.27	47.020	
7,250.00	6,919.32	6,870.26	6,866.44	32.67	205.86	136.73	1,558.00	-10,036.72	11,107.73	10,871.70	236.04	47.059	
7,300.00	6,931.95	6,886.52	6,882.70	33.08	206.35	129.91	1,557.85	-10,036.72	11,154.43	10,917.77	236.65	47.134	
7,350.00	6,940.79	6,898.05	6,894.22	33.49	206.70	119.92	1,557.74	-10,036.72	11,202.10	10,964.99	237.11	47.244	
7,400.00	6,945.79	6,904.73	6,900.91	33.90	206.90	105.51	1,557.67	-10,036.72	11,250.46	11,013.05	237.41	47.388	
7,439.53	6,947.00	6,906.54	6,902.71	34.24	206.95	90.79	1,557.65	-10,036.72	11,288.99	11,051.46	237.53	47.526	
7,500.00	6,947.00	6,906.93	6,903.10	34.75	206.96	90.89	1,557.64	-10,036.72	11,348.18	11,110.54	237.64	47.754	
7,600.00	6,947.00	6,907.55	6,903.72	35.63	206.98	91.10	1,557.64	-10,036.72	11,446.61	11,208.81	237.79	48.137	
7,700.00	6,947.00	6,908.13	6,904.30	36.54	207.00	91.43	1,557.63	-10,036.72	11,545.61	11,307.69	237.92	48.527	
7,800.00	6,947.00	6,908.66	6,904.84	37.47	207.01	92.03	1,557.62	-10,036.72	11,645.06	11,407.03	238.02	48.924	
7,900.00	6,947.00	6,909.16	6,905.33	38.43	207.03	93.44	1,557.62	-10,036.72	11,744.81	11,506.71	238.10	49.327	
8,000.00	6,947.00	6,909.61	6,905.78	39.41	207.04	100.83	1,557.61	-10,036.72	11,844.75	11,606.60	238.15	49.736	
8,100.00	6,947.00	6,910.01	6,906.18	40.40	207.06	-99.47	1,557.61	-10,036.72	11,944.74	11,706.57	238.18	50.150	
8,200.00	6,947.00	6,910.36	6,906.54	41.42	207.07	-93.35	1,557.60	-10,036.72	12,044.67	11,806.49	238.18	50.569	
8,300.00	6,947.00	6,910.67	6,906.84	42.44	207.07	-92.04	1,557.60	-10,036.72	12,144.42	11,906.26	238.16	50.993	
8,400.00	6,947.00	6,910.93	6,907.10	43.48	207.08	-91.47	1,557.60	-10,036.72	12,243.87	12,005.75	238.12	51.419	
8,500.00	6,947.00	6,911.14	6,907.31	44.53	207.09	-91.15	1,557.60	-10,036.72	12,342.91	12,104.85	238.05	51.849	
8,600.00	6,947.00	6,911.29	6,907.46	45.58	207.09	-90.94	1,557.59	-10,036.72	12,441.42	12,203.45	237.97	52.281	
8,700.00	6,947.00	6,911.40	6,907.57	46.63	207.10	-90.80	1,557.59	-10,036.72	12,539.31	12,301.44	237.87	52.715	
8,800.00	6,947.00	6,911.45	6,907.62	47.69	207.10	-90.69	1,557.59	-10,036.72	12,636.47	12,398.71	237.76	53.149	
8,841.31	6,947.00	6,911.46	6,907.63	48.13	207.10	-90.66	1,557.59	-10,036.72	12,676.37	12,438.67	237.70	53.329	
8,900.00	6,947.00	6,911.46	6,907.63	48.76	207.10	-90.66	1,557.59	-10,036.72	12,732.96	12,495.33	237.63	53.584	
9,000.00	6,947.00	6,911.47	6,907.64	49.85	207.10	-90.66	1,557.59	-10,036.72	12,829.43	12,591.92	237.51	54.017	
9,100.00	6,947.00	6,911.47	6,907.65	50.97	207.10	-90.66	1,557.59	-10,036.72	12,925.95	12,688.56	237.39	54.450	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Rule Assigned: Warning
9,200.00	6,947.00	6,911.48	6,907.65	52.12	207.10	-90.66	1,557.59	-10,036.72	13,022.52	12,785.24	237.28	54.882	
9,300.00	6,947.00	6,911.49	6,907.66	53.28	207.10	-90.66	1,557.59	-10,036.72	13,119.15	12,881.97	237.18	55.314	
9,400.00	6,947.00	6,911.49	6,907.66	54.48	207.10	-90.66	1,557.59	-10,036.72	13,215.82	12,978.74	237.08	55.745	
9,500.00	6,947.00	6,911.50	6,907.67	55.69	207.10	-90.66	1,557.59	-10,036.72	13,312.54	13,075.56	236.99	56.174	
9,600.00	6,947.00	6,911.51	6,907.68	56.92	207.10	-90.66	1,557.59	-10,036.72	13,409.32	13,172.42	236.90	56.604	
9,700.00	6,947.00	6,911.51	6,907.68	58.17	207.10	-90.66	1,557.59	-10,036.72	13,506.14	13,269.32	236.82	57.032	
9,800.00	6,947.00	6,911.52	6,907.69	59.44	207.10	-90.66	1,557.59	-10,036.72	13,603.00	13,366.26	236.74	57.459	
9,900.00	6,947.00	6,911.52	6,907.70	60.73	207.10	-90.66	1,557.59	-10,036.72	13,699.91	13,463.24	236.67	57.886	
10,000.00	6,947.00	6,911.53	6,907.70	62.03	207.10	-90.66	1,557.59	-10,036.72	13,796.87	13,560.26	236.60	58.312	
10,100.00	6,947.00	6,911.54	6,907.71	63.34	207.10	-90.66	1,557.59	-10,036.72	13,893.86	13,657.32	236.54	58.737	
10,200.00	6,947.00	6,911.54	6,907.72	64.67	207.10	-90.66	1,557.59	-10,036.72	13,990.90	13,754.42	236.48	59.162	
10,300.00	6,947.00	6,911.55	6,907.72	66.01	207.10	-90.66	1,557.59	-10,036.72	14,087.99	13,851.55	236.43	59.586	
10,400.00	6,947.00	6,911.56	6,907.73	67.36	207.10	-90.66	1,557.59	-10,036.72	14,185.11	13,948.72	236.39	60.008	
10,500.00	6,947.00	6,911.56	6,907.73	68.73	207.10	-90.66	1,557.59	-10,036.72	14,282.27	14,045.93	236.34	60.431	
10,600.00	6,947.00	6,911.57	6,907.74	70.10	207.10	-90.66	1,557.59	-10,036.72	14,379.47	14,143.17	236.30	60.852	
10,700.00	6,947.00	6,911.58	6,907.75	71.48	207.10	-90.66	1,557.59	-10,036.72	14,476.71	14,240.44	236.27	61.272	
10,800.00	6,947.00	6,911.58	6,907.75	72.88	207.10	-90.66	1,557.59	-10,036.72	14,573.99	14,337.75	236.24	61.692	
10,900.00	6,947.00	6,911.59	6,907.76	74.28	207.10	-90.66	1,557.59	-10,036.72	14,671.30	14,435.09	236.21	62.111	
11,000.00	6,947.00	6,911.59	6,907.77	75.69	207.10	-90.66	1,557.59	-10,036.72	14,768.65	14,532.46	236.19	62.529	
11,100.00	6,947.00	6,911.60	6,907.77	77.10	207.10	-90.66	1,557.59	-10,036.72	14,866.03	14,629.86	236.17	62.946	
11,200.00	6,947.00	6,911.61	6,907.78	78.53	207.10	-90.66	1,557.59	-10,036.72	14,963.45	14,727.29	236.15	63.363	
11,300.00	6,947.00	6,911.61	6,907.79	79.96	207.10	-90.66	1,557.59	-10,036.72	15,060.90	14,824.76	236.14	63.779	
11,400.00	6,947.00	6,911.62	6,907.79	81.40	207.10	-90.66	1,557.59	-10,036.72	15,158.39	14,922.25	236.13	64.194	
11,500.00	6,947.00	6,911.63	6,907.80	82.84	207.10	-90.66	1,557.59	-10,036.72	15,255.90	15,019.77	236.13	64.608	
11,600.00	6,947.00	6,911.63	6,907.80	84.29	207.10	-90.66	1,557.59	-10,036.72	15,353.45	15,117.33	236.13	65.022	
11,700.00	6,947.00	6,911.64	6,907.81	85.75	207.10	-90.66	1,557.59	-10,036.72	15,451.04	15,214.90	236.13	65.434	
11,800.00	6,947.00	6,911.65	6,907.82	87.21	207.10	-90.66	1,557.59	-10,036.72	15,548.65	15,312.51	236.14	65.846	
11,900.00	6,947.00	6,911.65	6,907.82	88.68	207.10	-90.66	1,557.59	-10,036.72	15,646.29	15,410.15	236.14	66.257	
12,000.00	6,947.00	6,911.66	6,907.83	90.15	207.10	-90.66	1,557.59	-10,036.72	15,743.96	15,507.81	236.16	66.668	
12,100.00	6,947.00	6,911.66	6,907.84	91.62	207.10	-90.66	1,557.59	-10,036.72	15,841.66	15,605.49	236.17	67.077	
12,200.00	6,947.00	6,911.67	6,907.84	93.10	207.10	-90.66	1,557.59	-10,036.72	15,939.39	15,703.20	236.19	67.486	
12,300.00	6,947.00	6,911.68	6,907.85	94.59	207.11	-90.66	1,557.59	-10,036.72	16,037.15	15,800.94	236.21	67.895	
12,400.00	6,947.00	6,911.68	6,907.86	96.07	207.11	-90.66	1,557.59	-10,036.72	16,134.93	15,898.70	236.23	68.302	
12,500.00	6,947.00	6,911.69	6,907.86	97.56	207.11	-90.66	1,557.59	-10,036.72	16,232.74	15,996.49	236.25	68.709	
12,600.00	6,947.00	6,911.70	6,907.87	99.06	207.11	-90.66	1,557.59	-10,036.72	16,330.58	16,094.30	236.28	69.115	
12,700.00	6,947.00	6,911.70	6,907.87	100.56	207.11	-90.66	1,557.59	-10,036.72	16,428.45	16,192.13	236.31	69.520	
12,800.00	6,947.00	6,911.71	6,907.88	102.06	207.11	-90.66	1,557.59	-10,036.72	16,526.34	16,289.99	236.35	69.924	
12,900.00	6,947.00	6,911.71	6,907.89	103.56	207.11	-90.66	1,557.59	-10,036.72	16,624.25	16,387.87	236.38	70.328	
13,000.00	6,947.00	6,911.72	6,907.89	105.07	207.11	-90.66	1,557.59	-10,036.72	16,722.19	16,485.77	236.42	70.731	
13,100.00	6,947.00	6,911.73	6,907.90	106.58	207.11	-90.66	1,557.59	-10,036.72	16,820.16	16,583.70	236.46	71.133	
13,200.00	6,947.00	6,911.73	6,907.91	108.10	207.11	-90.66	1,557.59	-10,036.72	16,918.14	16,681.64	236.50	71.535	
13,300.00	6,947.00	6,911.74	6,907.91	109.61	207.11	-90.66	1,557.59	-10,036.72	17,016.15	16,779.61	236.55	71.936	
13,400.00	6,947.00	6,911.75	6,907.92	111.13	207.11	-90.66	1,557.59	-10,036.72	17,114.19	16,877.60	236.59	72.336	
13,500.00	6,947.00	6,911.75	6,907.92	112.65	207.11	-90.66	1,557.59	-10,036.72	17,212.24	16,975.60	236.64	72.736	
13,600.00	6,947.00	6,911.76	6,907.93	114.17	207.11	-90.66	1,557.59	-10,036.72	17,310.32	17,073.63	236.69	73.135	
13,700.00	6,947.00	6,911.77	6,907.94	115.70	207.11	-90.66	1,557.59	-10,036.72	17,408.42	17,171.68	236.74	73.533	
13,800.00	6,947.00	6,911.77	6,907.94	117.23	207.11	-90.66	1,557.59	-10,036.72	17,506.55	17,269.75	236.80	73.930	
13,900.00	6,947.00	6,911.78	6,907.95	118.76	207.11	-90.66	1,557.59	-10,036.72	17,604.69	17,367.84	236.85	74.327	
14,000.00	6,947.00	6,911.78	6,907.96	120.29	207.11	-90.66	1,557.59	-10,036.72	17,702.85	17,465.94	236.91	74.723	
14,100.00	6,947.00	6,911.79	6,907.96	121.82	207.11	-90.66	1,557.59	-10,036.72	17,801.04	17,564.07	236.97	75.119	
14,200.00	6,947.00	6,911.80	6,907.97	123.36	207.11	-90.66	1,557.59	-10,036.72	17,899.24	17,662.21	237.03	75.514	
14,300.00	6,947.00	6,911.80	6,907.98	124.89	207.11	-90.66	1,557.59	-10,036.72	17,997.47	17,760.37	237.10	75.908	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

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

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Rule Assigned: Warning
14,400.00	6,947.00	6,911.81	6,907.98	126.43	207.11	-90.66	1,557.59	-10,036.72	18,095.71	17,858.55	237.16	76.301	
14,500.00	6,947.00	6,911.82	6,907.99	127.97	207.11	-90.66	1,557.59	-10,036.72	18,193.98	17,956.75	237.23	76.694	
14,600.00	6,947.00	6,911.82	6,907.99	129.51	207.11	-90.66	1,557.59	-10,036.72	18,292.26	18,054.96	237.30	77.086	
14,700.00	6,947.00	6,911.83	6,908.00	131.06	207.11	-90.66	1,557.59	-10,036.72	18,390.56	18,153.19	237.36	77.478	
14,800.00	6,947.00	6,911.84	6,908.01	132.60	207.11	-90.66	1,557.59	-10,036.72	18,488.88	18,251.44	237.44	77.869	
14,900.00	6,947.00	6,911.84	6,908.01	134.15	207.11	-90.66	1,557.59	-10,036.72	18,587.21	18,349.71	237.51	78.259	
15,000.00	6,947.00	6,911.85	6,908.02	135.70	207.11	-90.66	1,557.59	-10,036.72	18,685.57	18,447.99	237.58	78.649	
15,100.00	6,947.00	6,911.85	6,908.03	137.24	207.11	-90.66	1,557.59	-10,036.72	18,783.94	18,546.28	237.66	79.038	
15,200.00	6,947.00	6,911.86	6,908.03	138.79	207.11	-90.66	1,557.59	-10,036.72	18,882.33	18,644.60	237.73	79.427	
15,300.00	6,947.00	6,911.87	6,908.04	140.35	207.11	-90.66	1,557.59	-10,036.72	18,980.73	18,742.92	237.81	79.814	
15,400.00	6,947.00	6,911.87	6,908.05	141.90	207.11	-90.66	1,557.59	-10,036.72	19,079.16	18,841.27	237.89	80.202	
15,500.00	6,947.00	6,911.88	6,908.05	143.45	207.11	-90.66	1,557.59	-10,036.72	19,177.59	18,939.63	237.97	80.588	
15,600.00	6,947.00	6,911.89	6,908.06	145.01	207.11	-90.66	1,557.59	-10,036.72	19,276.05	19,038.00	238.05	80.975	
15,700.00	6,947.00	6,911.89	6,908.06	146.56	207.11	-90.66	1,557.59	-10,036.72	19,374.52	19,136.39	238.13	81.360	
15,800.00	6,947.00	6,911.90	6,908.07	148.12	207.11	-90.66	1,557.59	-10,036.72	19,473.01	19,234.79	238.22	81.745	
15,900.00	6,947.00	6,911.91	6,908.08	149.68	207.11	-90.67	1,557.59	-10,036.72	19,571.51	19,333.21	238.30	82.129	
16,000.00	6,947.00	6,911.91	6,908.08	151.23	207.11	-90.67	1,557.59	-10,036.72	19,670.02	19,431.64	238.39	82.513	
16,100.00	6,947.00	6,911.92	6,908.09	152.79	207.11	-90.67	1,557.59	-10,036.72	19,768.56	19,530.08	238.47	82.896	
16,200.00	6,947.00	6,911.92	6,908.10	154.36	207.11	-90.67	1,557.59	-10,036.72	19,867.10	19,628.54	238.56	83.279	
16,300.00	6,947.00	6,911.93	6,908.10	155.92	207.11	-90.67	1,557.59	-10,036.72	19,965.66	19,727.01	238.65	83.661	
16,400.00	6,947.00	6,911.94	6,908.11	157.48	207.11	-90.67	1,557.59	-10,036.72	20,064.24	19,825.50	238.74	84.042	
16,500.00	6,947.00	6,911.94	6,908.12	159.04	207.11	-90.67	1,557.59	-10,036.72	20,162.83	19,923.99	238.83	84.423	
16,600.00	6,947.00	6,911.95	6,908.12	160.61	207.11	-90.67	1,557.59	-10,036.72	20,261.43	20,022.51	238.92	84.803	
16,700.00	6,947.00	6,911.96	6,908.13	162.17	207.11	-90.67	1,557.59	-10,036.72	20,360.04	20,121.03	239.01	85.183	
16,800.00	6,947.00	6,911.96	6,908.13	163.74	207.11	-90.67	1,557.59	-10,036.72	20,458.67	20,219.57	239.11	85.562	
16,900.00	6,947.00	6,911.97	6,908.14	165.30	207.11	-90.67	1,557.59	-10,036.72	20,557.32	20,318.11	239.20	85.941	
17,000.00	6,947.00	6,911.98	6,908.15	166.87	207.11	-90.67	1,557.59	-10,036.72	20,655.97	20,416.68	239.30	86.319	
17,100.00	6,947.00	6,911.98	6,908.15	168.44	207.11	-90.67	1,557.59	-10,036.72	20,754.64	20,515.25	239.39	86.697	
17,200.00	6,947.00	6,911.99	6,908.16	170.01	207.11	-90.67	1,557.59	-10,036.72	20,853.32	20,613.83	239.49	87.074	
17,300.00	6,947.00	6,911.99	6,908.17	171.57	207.11	-90.67	1,557.59	-10,036.72	20,952.02	20,712.43	239.59	87.450	
17,400.00	6,947.00	6,912.00	6,908.17	173.14	207.11	-90.67	1,557.59	-10,036.72	21,050.72	20,811.04	239.69	87.826	
17,500.00	6,947.00	6,912.01	6,908.18	174.71	207.12	-90.67	1,557.59	-10,036.72	21,149.44	20,909.66	239.78	88.202	
17,600.00	6,947.00	6,912.01	6,908.19	176.28	207.12	-90.67	1,557.59	-10,036.72	21,248.17	21,008.29	239.88	88.577	
17,700.00	6,947.00	6,912.02	6,908.19	177.86	207.12	-90.67	1,557.59	-10,036.72	21,346.91	21,106.93	239.98	88.951	
17,800.00	6,947.00	6,912.03	6,908.20	179.43	207.12	-90.67	1,557.59	-10,036.72	21,445.67	21,205.58	240.09	89.325	
17,900.00	6,947.00	6,912.03	6,908.21	181.00	207.12	-90.67	1,557.59	-10,036.72	21,544.43	21,304.25	240.19	89.698	
18,000.00	6,947.00	6,912.04	6,908.21	182.57	207.12	-90.67	1,557.59	-10,036.72	21,643.21	21,402.92	240.29	90.071	
18,100.00	6,947.00	6,912.05	6,908.22	184.15	207.12	-90.67	1,557.59	-10,036.72	21,742.00	21,501.61	240.39	90.444	
18,200.00	6,947.00	6,912.05	6,908.22	185.72	207.12	-90.67	1,557.59	-10,036.72	21,840.80	21,600.30	240.50	90.815	
18,300.00	6,947.00	6,912.06	6,908.23	187.30	207.12	-90.67	1,557.59	-10,036.72	21,939.61	21,699.01	240.60	91.187	
18,400.00	6,947.00	6,912.07	6,908.24	188.87	207.12	-90.67	1,557.59	-10,036.72	22,038.43	21,797.72	240.71	91.558	
18,500.00	6,947.00	6,912.07	6,908.24	190.45	207.12	-90.67	1,557.59	-10,036.72	22,137.26	21,896.45	240.81	91.928	
18,600.00	6,947.00	6,912.08	6,908.25	192.02	207.12	-90.67	1,557.59	-10,036.72	22,236.10	21,995.18	240.92	92.298	
18,700.00	6,947.00	6,912.08	6,908.26	193.60	207.12	-90.67	1,557.59	-10,036.72	22,334.95	22,093.93	241.02	92.667	
18,800.00	6,947.00	6,912.09	6,908.26	195.18	207.12	-90.67	1,557.58	-10,036.72	22,433.82	22,192.69	241.13	93.036	
18,900.00	6,947.00	6,912.10	6,908.27	196.75	207.12	-90.67	1,557.58	-10,036.72	22,532.69	22,291.45	241.24	93.404	
19,000.00	6,947.00	6,912.10	6,908.28	198.33	207.12	-90.67	1,557.58	-10,036.72	22,631.57	22,390.22	241.35	93.772	
19,100.00	6,947.00	6,912.11	6,908.28	199.91	207.12	-90.67	1,557.58	-10,036.72	22,730.46	22,489.01	241.46	94.139	
19,200.00	6,947.00	6,912.12	6,908.29	201.49	207.12	-90.67	1,557.58	-10,036.72	22,829.36	22,587.80	241.56	94.506	
19,300.00	6,947.00	6,912.12	6,908.29	203.07	207.12	-90.67	1,557.58	-10,036.72	22,928.27	22,686.60	241.67	94.873	
19,400.00	6,947.00	6,912.13	6,908.30	204.65	207.12	-90.67	1,557.58	-10,036.72	23,027.20	22,785.41	241.78	95.239	
19,500.00	6,947.00	6,912.14	6,908.31	206.23	207.12	-90.67	1,557.58	-10,036.72	23,126.13	22,884.23	241.89	95.604	

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 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Rule Assigned:

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
19,600.00	6,947.00	6,912.14	6,908.31	207.81	207.12	-90.67	1,557.58	-10,036.72	23,225.06	22,983.06	242.01	95.969	
19,700.00	6,947.00	6,912.15	6,908.32	209.39	207.12	-90.67	1,557.58	-10,036.72	23,324.01	23,081.89	242.12	96.334	
19,800.00	6,947.00	6,912.15	6,908.33	210.97	207.12	-90.67	1,557.58	-10,036.72	23,422.97	23,180.74	242.23	96.698	
19,900.00	6,947.00	6,912.16	6,908.33	212.55	207.12	-90.67	1,557.58	-10,036.72	23,521.93	23,279.59	242.34	97.061	
20,000.00	6,947.00	6,912.17	6,908.34	214.13	207.12	-90.67	1,557.58	-10,036.72	23,620.91	23,378.46	242.45	97.424	
20,100.00	6,947.00	6,912.17	6,908.35	215.71	207.12	-90.67	1,557.58	-10,036.72	23,719.89	23,477.33	242.57	97.787	
20,200.00	6,947.00	6,912.18	6,908.35	217.30	207.12	-90.67	1,557.58	-10,036.72	23,818.88	23,576.20	242.68	98.149	
20,300.00	6,947.00	6,912.19	6,908.36	218.88	207.12	-90.67	1,557.58	-10,036.72	23,917.88	23,675.09	242.79	98.511	
20,400.00	6,947.00	6,912.19	6,908.36	220.46	207.12	-90.67	1,557.58	-10,036.72	24,016.89	23,773.98	242.91	98.872	
20,500.00	6,947.00	6,912.20	6,908.37	222.04	207.12	-90.67	1,557.58	-10,036.72	24,115.91	23,872.88	243.02	99.233	
20,600.00	6,947.00	6,912.21	6,908.38	223.63	207.12	-90.67	1,557.58	-10,036.72	24,214.93	23,971.79	243.14	99.593	
20,700.00	6,947.00	6,912.21	6,908.38	225.21	207.12	-90.67	1,557.58	-10,036.72	24,313.97	24,070.71	243.25	99.953	
20,800.00	6,947.00	6,912.22	6,908.39	226.80	207.12	-90.67	1,557.58	-10,036.72	24,413.01	24,169.64	243.37	100.312	
20,900.00	6,947.00	6,912.22	6,908.40	228.38	207.12	-90.67	1,557.58	-10,036.72	24,512.05	24,268.57	243.49	100.671	
21,000.00	6,947.00	6,912.23	6,908.40	229.97	207.12	-90.67	1,557.58	-10,036.72	24,611.11	24,367.51	243.60	101.030	
21,032.01	6,947.00	6,912.23	6,908.40	230.47	207.12	-90.67	1,557.58	-10,036.72	24,642.82	24,399.18	243.64	101.144	
21,032.99	6,947.00	6,912.23	6,908.40	230.51	207.12	-90.67	1,557.58	-10,036.72	24,643.79	24,395.85	247.94	99.394	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	61.00	61.00	0.00	1.83	-100.20	-2,145.27	-11,920.94	12,112.44				
100.00	100.00	161.00	161.00	0.25	4.82	-100.20	-2,145.27	-11,920.94	12,112.44	12,107.36	5.08	2,386.520	
200.00	200.00	261.00	261.00	0.61	7.82	-100.20	-2,145.27	-11,920.94	12,112.44	12,104.00	8.43	1,436.784	
300.00	300.00	361.00	361.00	0.97	10.82	-100.20	-2,145.27	-11,920.94	12,112.44	12,100.65	11.79	1,027.773	
400.00	400.00	461.00	461.00	1.33	13.81	-100.20	-2,145.27	-11,920.94	12,112.44	12,097.30	15.14	800.028	
500.00	500.00	561.10	561.00	1.68	16.81	-100.20	-2,145.27	-11,920.94	12,112.44	12,093.94	18.50	654.799	CC
600.00	599.98	661.08	660.98	2.03	19.81	94.80	-2,145.27	-11,920.94	12,112.58	12,090.75	21.84	554.728	
698.27	698.11	757.99	757.85	2.36	22.71	94.83	-2,143.10	-11,920.94	12,112.63	12,087.56	25.07	483.222	
700.00	699.84	759.50	759.36	2.36	22.76	94.83	-2,143.10	-11,920.94	12,112.64	12,087.52	25.12	482.243	
800.00	799.45	846.26	846.10	2.71	25.36	94.85	-2,143.42	-11,920.94	12,113.44	12,085.38	28.06	431.684	
900.00	898.70	932.85	932.67	3.06	27.95	94.87	-2,144.26	-11,920.94	12,114.65	12,083.64	31.01	390.645	
1,000.00	997.47	1,058.87	1,058.47	3.43	31.73	94.93	-2,145.27	-11,920.94	12,116.15	12,080.99	35.16	344.606	
1,100.00	1,095.62	1,157.03	1,156.62	3.82	34.67	94.98	-2,145.27	-11,920.94	12,117.83	12,079.34	38.49	314.836	
1,200.00	1,193.44	1,254.22	1,253.77	4.22	37.58	95.09	-2,143.09	-11,920.94	12,119.32	12,077.52	41.81	289.899	
1,300.00	1,291.25	1,339.85	1,339.39	4.64	40.15	95.17	-2,143.38	-11,920.94	12,121.28	12,076.50	44.78	270.661	
1,400.00	1,389.07	1,425.72	1,425.23	5.06	42.72	95.25	-2,144.17	-11,920.94	12,123.37	12,075.59	47.78	253.751	
1,500.00	1,486.88	1,548.59	1,547.88	5.48	46.40	95.37	-2,145.27	-11,920.94	12,125.50	12,073.61	51.88	233.706	
1,600.00	1,584.70	1,646.41	1,645.70	5.91	49.33	95.46	-2,145.27	-11,920.94	12,127.50	12,072.26	55.24	219.528	
1,700.00	1,682.51	1,744.22	1,743.51	6.35	52.26	95.56	-2,145.27	-11,920.94	12,129.54	12,070.94	58.61	206.965	
1,800.00	1,780.33	1,831.05	1,830.28	6.78	54.87	95.65	-2,143.32	-11,920.94	12,131.31	12,069.67	61.64	196.798	
1,900.00	1,878.14	1,917.43	1,916.65	7.22	57.45	95.73	-2,144.07	-11,920.94	12,133.56	12,068.89	64.67	187.626	
2,000.00	1,975.96	2,037.97	2,036.96	7.66	61.07	95.84	-2,145.27	-11,920.94	12,135.88	12,067.16	68.72	176.600	
2,100.00	2,073.77	2,135.79	2,134.77	8.10	64.00	95.94	-2,145.27	-11,920.94	12,138.06	12,065.97	72.09	168.372	
2,200.00	2,171.59	2,233.60	2,232.59	8.54	66.93	96.03	-2,145.27	-11,920.94	12,140.27	12,064.81	75.46	160.876	
2,300.00	2,269.40	2,322.14	2,321.07	8.98	69.58	96.13	-2,143.28	-11,920.94	12,142.22	12,063.67	78.56	154.562	
2,400.00	2,367.22	2,409.05	2,407.96	9.43	72.19	96.21	-2,143.98	-11,920.94	12,144.63	12,063.03	81.61	148.820	
2,500.00	2,465.03	2,527.35	2,526.03	9.87	75.73	96.32	-2,145.27	-11,920.94	12,147.13	12,061.54	85.60	141.913	
2,600.00	2,562.84	2,625.16	2,623.84	10.32	78.66	96.42	-2,145.27	-11,920.94	12,149.49	12,060.52	88.97	136.555	
2,700.00	2,660.66	2,722.98	2,721.66	10.77	81.59	96.51	-2,145.27	-11,920.94	12,151.88	12,059.54	92.35	131.588	
2,800.00	2,758.47	2,813.12	2,811.75	11.21	84.29	96.61	-2,143.23	-11,920.94	12,154.02	12,058.52	95.49	127.274	
2,900.00	2,856.29	2,900.56	2,899.17	11.66	86.91	96.69	-2,143.89	-11,920.94	12,156.59	12,058.03	98.56	123.341	
3,000.00	2,954.10	3,016.73	3,015.10	12.11	90.39	96.80	-2,145.27	-11,920.94	12,159.27	12,056.78	102.49	118.640	
3,100.00	3,051.92	3,114.54	3,112.92	12.56	93.33	96.89	-2,145.27	-11,920.94	12,161.80	12,055.94	105.87	114.878	
3,200.00	3,149.73	3,212.36	3,210.73	13.01	96.26	96.99	-2,145.27	-11,920.94	12,164.37	12,055.12	109.25	111.349	
3,300.00	3,247.55	3,303.98	3,302.31	13.45	99.00	97.09	-2,143.20	-11,920.94	12,166.69	12,054.25	112.44	108.208	
3,400.00	3,345.36	3,391.96	3,390.27	13.90	101.64	97.17	-2,143.80	-11,920.94	12,169.42	12,053.90	115.52	105.343	
3,500.00	3,443.18	3,506.11	3,504.18	14.35	105.06	97.27	-2,145.27	-11,920.94	12,172.28	12,052.89	119.39	101.953	
3,600.00	3,540.99	3,603.92	3,601.99	14.80	107.99	97.37	-2,145.27	-11,920.94	12,174.99	12,052.22	122.77	99.169	
3,700.00	3,638.81	3,701.74	3,699.81	15.25	110.92	97.46	-2,145.27	-11,920.94	12,177.73	12,051.58	126.15	96.534	
3,800.00	3,736.62	3,794.73	3,792.76	15.70	113.71	97.56	-2,143.16	-11,920.94	12,180.24	12,050.86	129.38	94.140	
3,900.00	3,834.44	3,883.25	3,881.26	16.15	116.36	97.65	-2,143.71	-11,920.94	12,183.13	12,050.65	132.49	91.958	
4,000.00	3,932.25	3,972.02	3,970.00	16.60	119.02	97.73	-2,144.82	-11,920.94	12,186.13	12,050.54	135.59	89.873	
4,100.00	4,030.07	4,093.30	4,091.07	17.05	122.65	97.84	-2,145.27	-11,920.94	12,189.05	12,049.37	139.68	87.266	
4,200.00	4,127.88	4,191.11	4,188.88	17.50	125.58	97.94	-2,145.27	-11,920.94	12,191.97	12,048.91	143.06	85.224	
4,300.00	4,225.70	4,285.36	4,283.09	17.96	128.41	98.04	-2,143.14	-11,920.94	12,194.66	12,048.33	146.33	83.337	
4,400.00	4,323.51	4,374.43	4,372.14	18.41	131.08	98.12	-2,143.63	-11,920.94	12,197.72	12,048.27	149.45	81.619	
4,500.00	4,421.33	4,463.75	4,461.43	18.86	133.75	98.20	-2,144.69	-11,920.94	12,200.87	12,048.30	152.57	79.968	
4,600.00	4,519.14	4,582.68	4,580.14	19.31	137.32	98.32	-2,145.27	-11,920.94	12,203.98	12,047.39	156.59	77.938	
4,700.00	4,616.95	4,680.49	4,677.95	19.76	140.25	98.41	-2,145.27	-11,920.94	12,207.07	12,047.10	159.97	76.310	
4,800.00	4,714.77	4,775.88	4,773.30	20.21	143.11	98.51	-2,143.12	-11,920.94	12,209.96	12,046.68	163.27	74.782	
4,900.00	4,812.58	4,865.50	4,862.91	20.66	145.79	98.60	-2,143.56	-11,920.94	12,213.17	12,046.76	166.41	73.393	
5,000.00	4,910.40	4,955.38	4,952.76	21.11	148.49	98.68	-2,144.57	-11,920.94	12,216.48	12,046.93	169.55	72.052	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

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

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,100.00	5,008.21	5,072.06	5,069.21	21.57	151.98	98.79	-2,145.27	-11,920.94	12,219.77	12,046.28	173.50	70.433	
5,200.00	5,106.03	5,169.87	5,167.03	22.02	154.91	98.88	-2,145.27	-11,920.94	12,223.04	12,046.16	176.88	69.105	
5,300.00	5,203.84	5,266.27	5,263.38	22.47	157.80	98.98	-2,143.10	-11,920.94	12,226.11	12,045.90	180.21	67.842 ES	
5,400.00	5,301.66	5,356.46	5,353.56	22.92	160.50	99.07	-2,143.49	-11,920.94	12,229.49	12,046.12	183.36	66.695	
5,500.00	5,399.47	5,446.91	5,443.98	23.37	163.21	99.15	-2,144.45	-11,920.94	12,232.96	12,046.44	186.52	65.584	
5,600.00	5,497.29	5,561.43	5,558.29	23.82	166.65	99.26	-2,145.27	-11,920.94	12,236.43	12,046.03	190.41	64.265	
5,700.00	5,595.10	5,659.25	5,656.10	24.28	169.58	99.35	-2,145.27	-11,920.94	12,239.87	12,046.08	193.79	63.162	
5,800.00	5,692.92	5,756.53	5,753.35	24.73	172.49	99.46	-2,143.09	-11,920.94	12,243.13	12,045.98	197.15	62.101	
5,900.00	5,790.73	5,847.30	5,844.09	25.18	175.21	99.54	-2,143.42	-11,920.94	12,246.67	12,046.35	200.32	61.136	
6,000.00	5,888.55	5,938.32	5,935.09	25.63	177.94	99.62	-2,144.33	-11,920.94	12,250.30	12,046.81	203.49	60.200	
6,100.00	5,986.36	6,050.81	6,047.36	26.08	181.31	99.73	-2,145.27	-11,920.94	12,253.95	12,046.63	207.31	59.108	
6,200.00	6,084.18	6,148.63	6,145.18	26.54	184.24	99.82	-2,145.27	-11,920.94	12,257.55	12,046.86	210.69	58.177	
6,300.00	6,181.99	6,246.44	6,242.99	26.99	187.17	99.91	-2,145.27	-11,920.94	12,261.19	12,047.12	214.07	57.276	
6,400.00	6,279.81	6,338.01	6,334.51	27.44	189.92	100.01	-2,143.36	-11,920.94	12,264.71	12,047.45	217.27	56.450	
6,500.00	6,377.62	6,429.62	6,426.09	27.89	192.66	100.10	-2,144.22	-11,920.94	12,268.50	12,048.04	220.46	55.650	
6,530.62	6,407.57	6,457.72	6,454.18	28.03	193.50	100.12	-2,144.60	-11,920.94	12,269.67	12,048.24	221.44	55.409	
6,550.00	6,426.48	6,475.48	6,471.94	28.12	194.03	105.56	-2,144.87	-11,920.94	12,270.67	12,048.61	222.06	55.259	
6,600.00	6,474.77	6,539.53	6,535.77	28.36	195.95	115.44	-2,145.27	-11,920.94	12,275.50	12,051.28	224.22	54.749	
6,650.00	6,522.09	6,586.84	6,583.09	28.62	197.37	121.44	-2,145.27	-11,920.94	12,283.59	12,057.71	225.88	54.380	
6,700.00	6,568.15	6,632.90	6,629.15	28.89	198.75	125.16	-2,145.27	-11,920.94	12,294.93	12,067.40	227.53	54.037	
6,750.00	6,612.66	6,677.42	6,673.66	29.18	200.09	127.46	-2,145.27	-11,920.94	12,309.45	12,080.32	229.13	53.722	
6,800.00	6,655.36	6,720.12	6,716.36	29.48	201.37	128.76	-2,145.27	-11,920.94	12,327.07	12,096.38	230.69	53.436	
6,850.00	6,695.98	6,760.09	6,756.30	29.79	202.56	129.33	-2,143.10	-11,920.94	12,347.52	12,115.35	232.17	53.183	
6,900.00	6,734.26	6,796.20	6,792.39	30.11	203.64	129.26	-2,143.17	-11,920.94	12,371.02	12,137.48	233.54	52.972	
6,950.00	6,769.98	6,829.98	6,826.17	30.45	204.66	128.64	-2,143.32	-11,920.94	12,397.27	12,162.43	234.84	52.790	
7,000.00	6,802.91	6,861.24	6,857.42	30.79	205.59	127.50	-2,143.53	-11,920.94	12,426.10	12,190.03	236.06	52.639	
7,050.00	6,832.85	6,889.76	6,885.94	31.15	206.45	125.82	-2,143.78	-11,920.94	12,457.34	12,220.13	237.21	52.517	
7,100.00	6,859.62	6,915.37	6,911.54	31.51	207.22	123.59	-2,144.05	-11,920.94	12,490.81	12,252.55	238.26	52.425	
7,150.00	6,883.05	6,937.89	6,934.05	31.89	207.89	120.75	-2,144.33	-11,920.94	12,526.30	12,287.08	239.21	52.364	
7,200.00	6,902.99	6,957.17	6,953.33	32.28	208.47	117.24	-2,144.59	-11,920.94	12,563.59	12,323.53	240.07	52.334	
7,250.00	6,919.32	6,973.08	6,969.23	32.67	208.95	113.00	-2,144.83	-11,920.94	12,602.46	12,361.65	240.81	52.333 SF	
7,300.00	6,931.95	6,985.51	6,981.65	33.08	209.32	107.98	-2,145.03	-11,920.94	12,642.66	12,401.22	241.44	52.363	
7,350.00	6,940.79	7,005.85	7,001.79	33.49	209.93	102.25	-2,145.27	-11,920.94	12,683.95	12,441.65	242.31	52.347	
7,400.00	6,945.79	7,010.85	7,006.79	33.90	210.08	95.66	-2,145.27	-11,920.94	12,726.07	12,483.37	242.70	52.436	
7,439.53	6,947.00	7,012.06	7,008.00	34.24	210.11	90.00	-2,145.27	-11,920.94	12,759.79	12,516.87	242.92	52.528	
7,500.00	6,947.00	7,012.06	7,008.00	34.75	210.11	90.00	-2,145.27	-11,920.94	12,811.93	12,568.74	243.19	52.683	
7,600.00	6,947.00	7,012.06	7,008.00	35.63	210.11	90.00	-2,145.27	-11,920.94	12,899.69	12,656.07	243.62	52.951	
7,700.00	6,947.00	7,012.06	7,008.00	36.54	210.11	90.00	-2,145.27	-11,920.94	12,989.23	12,745.20	244.02	53.229	
7,800.00	6,947.00	7,012.06	7,008.00	37.47	210.11	90.00	-2,145.27	-11,920.94	13,080.40	12,836.00	244.40	53.519	
7,900.00	6,947.00	7,012.06	7,008.00	38.43	210.11	90.00	-2,145.27	-11,920.94	13,173.07	12,928.31	244.76	53.821	
8,000.00	6,947.00	7,012.06	7,008.00	39.41	210.11	90.00	-2,145.27	-11,920.94	13,267.08	13,022.00	245.08	54.134	
8,100.00	6,947.00	7,012.06	7,008.00	40.40	210.11	90.00	-2,145.27	-11,920.94	13,362.30	13,116.93	245.37	54.458	
8,200.00	6,947.00	7,012.06	7,008.00	41.42	210.11	90.00	-2,145.27	-11,920.94	13,458.58	13,212.95	245.63	54.792	
8,300.00	6,947.00	7,012.06	7,008.00	42.44	210.11	90.00	-2,145.27	-11,920.94	13,555.80	13,309.94	245.86	55.137	
8,400.00	6,947.00	7,012.06	7,008.00	43.48	210.11	90.00	-2,145.27	-11,920.94	13,653.80	13,407.75	246.05	55.492	
8,500.00	6,947.00	7,012.06	7,008.00	44.53	210.11	90.00	-2,145.27	-11,920.94	13,752.46	13,506.24	246.21	55.856	
8,600.00	6,947.00	7,012.06	7,008.00	45.58	210.11	90.00	-2,145.27	-11,920.94	13,851.64	13,605.29	246.34	56.229	
8,700.00	6,947.00	7,012.06	7,008.00	46.63	210.11	90.00	-2,145.27	-11,920.94	13,951.21	13,704.77	246.44	56.611	
8,800.00	6,947.00	7,012.06	7,008.00	47.69	210.11	90.00	-2,145.27	-11,920.94	14,051.04	13,804.54	246.50	57.001	
8,841.31	6,947.00	7,012.06	7,008.00	48.13	210.11	90.00	-2,145.27	-11,920.94	14,092.33	13,845.81	246.52	57.164	
8,900.00	6,947.00	7,012.06	7,008.00	48.76	210.11	90.00	-2,145.27	-11,920.94	14,151.00	13,904.46	246.54	57.397	
9,000.00	6,947.00	7,012.06	7,008.00	49.85	210.11	90.00	-2,145.27	-11,920.94	14,250.97	14,004.39	246.58	57.794	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,100.00	6,947.00	7,012.06	7,008.00	50.97	210.11	90.00	-2,145.27	-11,920.94	14,350.94	14,104.33	246.62	58.191	
9,200.00	6,947.00	7,012.06	7,008.00	52.12	210.11	90.00	-2,145.27	-11,920.94	14,450.92	14,204.26	246.66	58.588	
9,300.00	6,947.00	7,012.06	7,008.00	53.28	210.11	90.00	-2,145.27	-11,920.94	14,550.89	14,304.19	246.69	58.984	
9,400.00	6,947.00	7,012.06	7,008.00	54.48	210.11	90.00	-2,145.27	-11,920.94	14,650.86	14,404.13	246.73	59.380	
9,500.00	6,947.00	7,012.06	7,008.00	55.69	210.11	90.00	-2,145.27	-11,920.94	14,750.83	14,504.06	246.77	59.776	
9,600.00	6,947.00	7,012.06	7,008.00	56.92	210.11	90.00	-2,145.27	-11,920.94	14,850.81	14,604.00	246.81	60.171	
9,700.00	6,947.00	7,012.06	7,008.00	58.17	210.11	90.00	-2,145.27	-11,920.94	14,950.78	14,703.93	246.85	60.567	
9,800.00	6,947.00	7,012.06	7,008.00	59.44	210.11	90.00	-2,145.27	-11,920.94	15,050.75	14,803.87	246.89	60.962	
9,900.00	6,947.00	7,012.06	7,008.00	60.73	210.11	90.00	-2,145.27	-11,920.94	15,150.73	14,903.80	246.93	61.357	
10,000.00	6,947.00	7,012.06	7,008.00	62.03	210.11	90.00	-2,145.27	-11,920.94	15,250.70	15,003.73	246.97	61.752	
10,100.00	6,947.00	7,012.06	7,008.00	63.34	210.11	90.00	-2,145.27	-11,920.94	15,350.68	15,103.67	247.01	62.146	
10,200.00	6,947.00	7,012.06	7,008.00	64.67	210.11	90.00	-2,145.27	-11,920.94	15,450.65	15,203.60	247.05	62.541	
10,300.00	6,947.00	7,012.06	7,008.00	66.01	210.11	90.00	-2,145.27	-11,920.94	15,550.63	15,303.53	247.09	62.935	
10,400.00	6,947.00	7,012.06	7,008.00	67.36	210.11	90.00	-2,145.27	-11,920.94	15,650.60	15,403.47	247.13	63.329	
10,500.00	6,947.00	7,012.06	7,008.00	68.73	210.11	90.00	-2,145.27	-11,920.94	15,750.58	15,503.40	247.17	63.722	
10,600.00	6,947.00	7,012.06	7,008.00	70.10	210.11	90.00	-2,145.27	-11,920.94	15,850.55	15,603.34	247.22	64.116	
10,700.00	6,947.00	7,012.06	7,008.00	71.48	210.11	90.00	-2,145.27	-11,920.94	15,950.53	15,703.27	247.26	64.509	
10,800.00	6,947.00	7,012.06	7,008.00	72.88	210.11	90.00	-2,145.27	-11,920.94	16,050.51	15,803.20	247.30	64.902	
10,900.00	6,947.00	7,012.06	7,008.00	74.28	210.11	90.00	-2,145.27	-11,920.94	16,150.48	15,903.14	247.35	65.295	
11,000.00	6,947.00	7,012.06	7,008.00	75.69	210.11	90.00	-2,145.27	-11,920.94	16,250.46	16,003.07	247.39	65.687	
11,100.00	6,947.00	7,012.06	7,008.00	77.10	210.11	90.00	-2,145.27	-11,920.94	16,350.44	16,103.00	247.44	66.079	
11,200.00	6,947.00	7,012.06	7,008.00	78.53	210.11	90.00	-2,145.27	-11,920.94	16,450.42	16,202.93	247.48	66.471	
11,300.00	6,947.00	7,012.06	7,008.00	79.96	210.11	90.00	-2,145.27	-11,920.94	16,550.39	16,302.87	247.53	66.863	
11,400.00	6,947.00	7,012.06	7,008.00	81.40	210.11	90.00	-2,145.27	-11,920.94	16,650.37	16,402.80	247.57	67.254	
11,500.00	6,947.00	7,012.06	7,008.00	82.84	210.11	90.00	-2,145.27	-11,920.94	16,750.35	16,502.73	247.62	67.646	
11,600.00	6,947.00	7,012.06	7,008.00	84.29	210.11	90.00	-2,145.27	-11,920.94	16,850.33	16,602.66	247.67	68.036	
11,700.00	6,947.00	7,012.06	7,008.00	85.75	210.11	90.00	-2,145.27	-11,920.94	16,950.31	16,702.60	247.71	68.427	
11,800.00	6,947.00	7,012.06	7,008.00	87.21	210.11	90.00	-2,145.27	-11,920.94	17,050.29	16,802.53	247.76	68.818	
11,900.00	6,947.00	7,012.06	7,008.00	88.68	210.11	90.00	-2,145.27	-11,920.94	17,150.27	16,902.46	247.81	69.208	
12,000.00	6,947.00	7,012.06	7,008.00	90.15	210.11	90.00	-2,145.27	-11,920.94	17,250.25	17,002.39	247.86	69.598	
12,100.00	6,947.00	7,012.06	7,008.00	91.62	210.11	90.00	-2,145.27	-11,920.94	17,350.23	17,102.32	247.91	69.987	
12,200.00	6,947.00	7,012.06	7,008.00	93.10	210.11	90.00	-2,145.27	-11,920.94	17,450.21	17,202.25	247.95	70.377	
12,300.00	6,947.00	7,012.06	7,008.00	94.59	210.11	90.00	-2,145.27	-11,920.94	17,550.19	17,302.19	248.00	70.766	
12,400.00	6,947.00	7,012.06	7,008.00	96.07	210.11	90.00	-2,145.27	-11,920.94	17,650.17	17,402.12	248.05	71.154	
12,500.00	6,947.00	7,012.06	7,008.00	97.56	210.11	90.00	-2,145.27	-11,920.94	17,750.15	17,502.05	248.10	71.543	
12,600.00	6,947.00	7,012.06	7,008.00	99.06	210.11	90.00	-2,145.27	-11,920.94	17,850.13	17,601.98	248.16	71.931	
12,700.00	6,947.00	7,012.06	7,008.00	100.56	210.11	90.00	-2,145.27	-11,920.94	17,950.11	17,701.91	248.21	72.319	
12,800.00	6,947.00	7,012.06	7,008.00	102.06	210.11	90.00	-2,145.27	-11,920.94	18,050.10	17,801.84	248.26	72.707	
12,900.00	6,947.00	7,012.06	7,008.00	103.56	210.11	90.00	-2,145.27	-11,920.94	18,150.08	17,901.77	248.31	73.094	
13,000.00	6,947.00	7,012.06	7,008.00	105.07	210.11	90.00	-2,145.27	-11,920.94	18,250.06	18,001.70	248.36	73.481	
13,100.00	6,947.00	7,012.06	7,008.00	106.58	210.11	90.00	-2,145.27	-11,920.94	18,350.04	18,101.63	248.42	73.868	
13,200.00	6,947.00	7,012.06	7,008.00	108.10	210.11	90.00	-2,145.27	-11,920.94	18,450.03	18,201.56	248.47	74.255	
13,300.00	6,947.00	7,012.06	7,008.00	109.61	210.11	90.00	-2,145.27	-11,920.94	18,550.01	18,301.48	248.52	74.641	
13,400.00	6,947.00	7,012.06	7,008.00	111.13	210.11	90.00	-2,145.27	-11,920.94	18,649.99	18,401.41	248.58	75.027	
13,500.00	6,947.00	7,012.06	7,008.00	112.65	210.11	90.00	-2,145.27	-11,920.94	18,749.97	18,501.34	248.63	75.412	
13,600.00	6,947.00	7,012.06	7,008.00	114.17	210.11	90.00	-2,145.27	-11,920.94	18,849.96	18,601.27	248.69	75.798	
13,700.00	6,947.00	7,012.06	7,008.00	115.70	210.11	90.00	-2,145.27	-11,920.94	18,949.94	18,701.20	248.74	76.183	
13,800.00	6,947.00	7,012.06	7,008.00	117.23	210.11	90.00	-2,145.27	-11,920.94	19,049.92	18,801.13	248.80	76.568	
13,900.00	6,947.00	7,012.06	7,008.00	118.76	210.11	90.00	-2,145.27	-11,920.94	19,149.91	18,901.05	248.85	76.952	
14,000.00	6,947.00	7,012.06	7,008.00	120.29	210.11	90.00	-2,145.27	-11,920.94	19,249.89	19,000.98	248.91	77.336	
14,100.00	6,947.00	7,012.06	7,008.00	121.82	210.11	90.00	-2,145.27	-11,920.94	19,349.88	19,100.91	248.97	77.720	
14,200.00	6,947.00	7,012.06	7,008.00	123.36	210.11	90.00	-2,145.27	-11,920.94	19,449.86	19,200.83	249.03	78.104	

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 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

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

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Rule Assigned: Minimum Separation (usft)	Separation Factor	Warning
14,300.00	6,947.00	7,012.06	7,008.00	124.89	210.11	90.00	-2,145.27	-11,920.94	19,549.84	19,300.76	249.08	78.487	
14,400.00	6,947.00	7,012.06	7,008.00	126.43	210.11	90.00	-2,145.27	-11,920.94	19,649.83	19,400.69	249.14	78.870	
14,500.00	6,947.00	7,012.06	7,008.00	127.97	210.11	90.00	-2,145.27	-11,920.94	19,749.81	19,500.61	249.20	79.252	
14,600.00	6,947.00	7,012.06	7,008.00	129.51	210.11	90.00	-2,145.27	-11,920.94	19,849.80	19,600.54	249.26	79.635	
14,700.00	6,947.00	7,012.06	7,008.00	131.06	210.11	90.00	-2,145.27	-11,920.94	19,949.78	19,700.46	249.32	80.017	
14,800.00	6,947.00	7,012.06	7,008.00	132.60	210.11	90.00	-2,145.27	-11,920.94	20,049.77	19,800.39	249.38	80.398	
14,900.00	6,947.00	7,012.06	7,008.00	134.15	210.11	90.00	-2,145.27	-11,920.94	20,149.75	19,900.31	249.44	80.780	
15,000.00	6,947.00	7,012.06	7,008.00	135.70	210.11	90.00	-2,145.27	-11,920.94	20,249.74	20,000.24	249.50	81.161	
15,100.00	6,947.00	7,012.06	7,008.00	137.24	210.11	90.00	-2,145.27	-11,920.94	20,349.72	20,100.16	249.56	81.541	
15,200.00	6,947.00	7,012.06	7,008.00	138.79	210.11	90.00	-2,145.27	-11,920.94	20,449.71	20,200.09	249.62	81.922	
15,300.00	6,947.00	7,012.06	7,008.00	140.35	210.11	90.00	-2,145.27	-11,920.94	20,549.70	20,300.01	249.69	82.302	
15,400.00	6,947.00	7,012.06	7,008.00	141.90	210.11	90.00	-2,145.27	-11,920.94	20,649.68	20,399.93	249.75	82.682	
15,500.00	6,947.00	7,012.06	7,008.00	143.45	210.11	90.00	-2,145.27	-11,920.94	20,749.67	20,499.86	249.81	83.061	
15,600.00	6,947.00	7,012.06	7,008.00	145.01	210.11	90.00	-2,145.27	-11,920.94	20,849.65	20,599.78	249.88	83.440	
15,700.00	6,947.00	7,012.06	7,008.00	146.56	210.11	90.00	-2,145.27	-11,920.94	20,949.64	20,699.70	249.94	83.819	
15,800.00	6,947.00	7,012.06	7,008.00	148.12	210.11	90.00	-2,145.27	-11,920.94	21,049.63	20,799.62	250.00	84.197	
15,900.00	6,947.00	7,012.06	7,008.00	149.68	210.11	90.00	-2,145.27	-11,920.94	21,149.61	20,899.55	250.07	84.575	
16,000.00	6,947.00	7,012.06	7,008.00	151.23	210.11	90.00	-2,145.27	-11,920.94	21,249.60	20,999.47	250.13	84.953	
16,100.00	6,947.00	7,012.06	7,008.00	152.79	210.11	90.00	-2,145.27	-11,920.94	21,349.59	21,099.39	250.20	85.330	
16,200.00	6,947.00	7,012.06	7,008.00	154.36	210.11	90.00	-2,145.27	-11,920.94	21,449.57	21,199.31	250.26	85.708	
16,300.00	6,947.00	7,012.06	7,008.00	155.92	210.11	90.00	-2,145.27	-11,920.94	21,549.56	21,299.23	250.33	86.084	
16,400.00	6,947.00	7,012.06	7,008.00	157.48	210.11	90.00	-2,145.27	-11,920.94	21,649.55	21,399.15	250.40	86.461	
16,500.00	6,947.00	7,012.06	7,008.00	159.04	210.11	90.00	-2,145.27	-11,920.94	21,749.54	21,499.07	250.46	86.837	
16,600.00	6,947.00	7,012.06	7,008.00	160.61	210.11	90.00	-2,145.27	-11,920.94	21,849.52	21,598.99	250.53	87.212	
16,700.00	6,947.00	7,012.06	7,008.00	162.17	210.11	90.00	-2,145.27	-11,920.94	21,949.51	21,698.91	250.60	87.588	
16,800.00	6,947.00	7,012.06	7,008.00	163.74	210.11	90.00	-2,145.27	-11,920.94	22,049.50	21,798.83	250.67	87.963	
16,900.00	6,947.00	7,012.06	7,008.00	165.30	210.11	90.00	-2,145.27	-11,920.94	22,149.49	21,898.75	250.74	88.338	
17,000.00	6,947.00	7,012.06	7,008.00	166.87	210.11	90.00	-2,145.27	-11,920.94	22,249.48	21,998.67	250.81	88.712	
17,100.00	6,947.00	7,012.06	7,008.00	168.44	210.11	90.00	-2,145.27	-11,920.94	22,349.46	22,098.59	250.88	89.086	
17,200.00	6,947.00	7,012.06	7,008.00	170.01	210.11	90.00	-2,145.27	-11,920.94	22,449.45	22,198.51	250.95	89.460	
17,300.00	6,947.00	7,012.06	7,008.00	171.57	210.11	90.00	-2,145.27	-11,920.94	22,549.44	22,298.42	251.02	89.833	
17,400.00	6,947.00	7,012.06	7,008.00	173.14	210.11	90.00	-2,145.27	-11,920.94	22,649.43	22,398.34	251.09	90.206	
17,500.00	6,947.00	7,012.06	7,008.00	174.71	210.11	90.00	-2,145.27	-11,920.94	22,749.42	22,498.26	251.16	90.578	
17,600.00	6,947.00	7,012.06	7,008.00	176.28	210.11	90.00	-2,145.27	-11,920.94	22,849.41	22,598.18	251.23	90.951	
17,700.00	6,947.00	7,012.06	7,008.00	177.86	210.11	90.00	-2,145.27	-11,920.94	22,949.39	22,698.09	251.30	91.323	
17,800.00	6,947.00	7,012.06	7,008.00	179.43	210.11	90.00	-2,145.27	-11,920.94	23,049.38	22,798.01	251.37	91.694	
17,900.00	6,947.00	7,012.06	7,008.00	181.00	210.11	90.00	-2,145.27	-11,920.94	23,149.37	22,897.93	251.44	92.065	
18,000.00	6,947.00	7,012.06	7,008.00	182.57	210.11	90.00	-2,145.27	-11,920.94	23,249.36	22,997.84	251.52	92.436	
18,100.00	6,947.00	7,012.06	7,008.00	184.15	210.11	90.00	-2,145.27	-11,920.94	23,349.35	23,097.76	251.59	92.807	
18,200.00	6,947.00	7,012.06	7,008.00	185.72	210.11	90.00	-2,145.27	-11,920.94	23,449.34	23,197.67	251.66	93.177	
18,300.00	6,947.00	7,012.06	7,008.00	187.30	210.11	90.00	-2,145.27	-11,920.94	23,549.33	23,297.59	251.74	93.547	
18,400.00	6,947.00	7,012.06	7,008.00	188.87	210.11	90.00	-2,145.27	-11,920.94	23,649.32	23,397.50	251.81	93.916	
18,500.00	6,947.00	7,012.06	7,008.00	190.45	210.11	90.00	-2,145.27	-11,920.94	23,749.31	23,497.42	251.89	94.285	
18,600.00	6,947.00	7,012.06	7,008.00	192.02	210.11	90.00	-2,145.27	-11,920.94	23,849.30	23,597.33	251.96	94.654	
18,700.00	6,947.00	7,012.06	7,008.00	193.60	210.11	90.00	-2,145.27	-11,920.94	23,949.29	23,697.25	252.04	95.022	
18,800.00	6,947.00	7,012.06	7,008.00	195.18	210.11	90.00	-2,145.27	-11,920.94	24,049.28	23,797.16	252.12	95.390	
18,900.00	6,947.00	7,012.06	7,008.00	196.75	210.11	90.00	-2,145.27	-11,920.94	24,149.27	23,897.07	252.19	95.758	
19,000.00	6,947.00	7,012.06	7,008.00	198.33	210.11	90.00	-2,145.27	-11,920.94	24,249.26	23,996.99	252.27	96.125	
19,100.00	6,947.00	7,012.06	7,008.00	199.91	210.11	90.00	-2,145.27	-11,920.94	24,349.25	24,096.90	252.35	96.492	
19,200.00	6,947.00	7,012.06	7,008.00	201.49	210.11	90.00	-2,145.27	-11,920.94	24,449.24	24,196.81	252.42	96.858	
19,300.00	6,947.00	7,012.06	7,008.00	203.07	210.11	90.00	-2,145.27	-11,920.94	24,549.23	24,296.72	252.50	97.224	
19,400.00	6,947.00	7,012.06	7,008.00	204.65	210.11	90.00	-2,145.27	-11,920.94	24,649.22	24,396.64	252.58	97.590	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Rule Assigned:

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
19,500.00	6,947.00	7,012.06	7,008.00	206.23	210.11	90.00	-2,145.27	-11,920.94	24,749.21	24,496.55	252.66	97.956	
19,600.00	6,947.00	7,012.06	7,008.00	207.81	210.11	90.00	-2,145.27	-11,920.94	24,849.20	24,596.46	252.74	98.321	
19,700.00	6,947.00	7,012.06	7,008.00	209.39	210.11	90.00	-2,145.27	-11,920.94	24,949.19	24,696.37	252.82	98.685	
19,800.00	6,947.00	7,012.06	7,008.00	210.97	210.11	90.00	-2,145.27	-11,920.94	25,049.18	24,796.28	252.90	99.050	
19,900.00	6,947.00	7,012.06	7,008.00	212.55	210.11	90.00	-2,145.27	-11,920.94	25,149.17	24,896.19	252.98	99.414	
20,000.00	6,947.00	7,012.06	7,008.00	214.13	210.11	90.00	-2,145.27	-11,920.94	25,249.16	24,996.10	253.06	99.777	
20,100.00	6,947.00	7,012.06	7,008.00	215.71	210.11	90.00	-2,145.27	-11,920.94	25,349.15	25,096.01	253.14	100.140	
20,200.00	6,947.00	7,012.06	7,008.00	217.30	210.11	90.00	-2,145.27	-11,920.94	25,449.14	25,195.92	253.22	100.503	
20,300.00	6,947.00	7,012.06	7,008.00	218.88	210.11	90.00	-2,145.27	-11,920.94	25,549.13	25,295.83	253.30	100.866	
20,400.00	6,947.00	7,012.06	7,008.00	220.46	210.11	90.00	-2,145.27	-11,920.94	25,649.12	25,395.74	253.38	101.228	
20,500.00	6,947.00	7,012.06	7,008.00	222.04	210.11	90.00	-2,145.27	-11,920.94	25,749.11	25,495.65	253.46	101.589	
20,600.00	6,947.00	7,012.06	7,008.00	223.63	210.11	90.00	-2,145.27	-11,920.94	25,849.10	25,595.56	253.55	101.951	
20,700.00	6,947.00	7,012.06	7,008.00	225.21	210.11	90.00	-2,145.27	-11,920.94	25,949.09	25,695.47	253.63	102.312	
20,800.00	6,947.00	7,012.06	7,008.00	226.80	210.11	90.00	-2,145.27	-11,920.94	26,049.09	25,795.38	253.71	102.672	
20,900.00	6,947.00	7,012.06	7,008.00	228.38	210.11	90.00	-2,145.27	-11,920.94	26,149.08	25,895.28	253.79	103.032	
21,000.00	6,947.00	7,012.06	7,008.00	229.97	210.11	90.00	-2,145.27	-11,920.94	26,249.07	25,995.19	253.88	103.392	
21,032.01	6,947.00	7,012.06	7,008.00	230.47	210.11	90.00	-2,145.27	-11,920.94	26,281.07	26,027.17	253.91	103.507	
21,032.99	6,947.00	7,012.06	7,008.00	230.51	210.11	90.00	-2,145.27	-11,920.94	26,282.05	26,024.29	257.77	101.961	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

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

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	-81.71	1,469.76	-10,088.78	10,195.79				
100.00	100.00	0.00	0.00	0.25	0.00	-81.71	1,469.76	-10,088.78	10,197.28	10,197.03	0.26	N/A	
200.00	200.00	0.00	0.00	0.61	0.00	-81.71	1,469.76	-10,088.78	10,199.75	10,199.14	0.61	N/A	
300.00	300.00	0.00	0.00	0.97	0.00	-81.71	1,469.76	-10,088.78	10,203.20	10,202.23	0.97	N/A	
400.00	400.00	0.00	0.00	1.33	0.00	-81.71	1,469.76	-10,088.78	10,207.63	10,206.30	1.33	7,675.321	
500.00	500.00	0.00	0.00	1.68	0.00	-81.71	1,469.76	-10,088.78	10,213.04	10,211.35	1.69	6,050.915	
600.00	599.98	0.00	0.00	2.03	0.00	113.16	1,469.76	-10,088.78	10,220.11	10,218.08	2.03	5,035.980	
700.00	699.84	0.00	0.00	2.36	0.00	112.98	1,469.76	-10,088.78	10,229.52	10,227.15	2.36	4,328.967	
800.00	799.45	0.00	0.00	2.71	0.00	112.77	1,469.76	-10,088.78	10,241.25	10,238.54	2.71	3,784.841	
900.00	898.70	0.00	0.00	3.06	0.00	112.51	1,469.76	-10,088.78	10,255.28	10,252.22	3.06	3,353.028	
1,000.00	997.47	550.00	533.60	3.43	2.16	112.57	1,454.77	-10,133.06	10,269.76	10,264.16	5.60	1,833.592	
1,100.00	1,095.62	550.00	533.60	3.82	2.16	112.32	1,454.77	-10,133.06	10,283.21	10,277.23	5.99	1,717.688	
1,200.00	1,193.44	575.00	558.44	4.22	2.24	112.33	1,452.77	-10,135.02	10,298.10	10,291.63	6.46	1,593.290	
1,300.00	1,291.25	600.00	583.25	4.64	2.32	112.34	1,450.56	-10,137.22	10,313.72	10,306.78	6.95	1,484.450	
1,400.00	1,389.07	650.00	632.73	5.06	2.49	112.37	1,445.29	-10,142.10	10,329.98	10,322.45	7.53	1,372.631	
1,500.00	1,486.88	700.00	682.04	5.48	2.67	112.38	1,438.95	-10,147.38	10,346.71	10,338.60	8.12	1,275.002	
1,600.00	1,584.70	713.44	695.26	5.91	2.72	112.38	1,437.08	-10,148.91	10,364.06	10,355.48	8.58	1,208.259	
1,700.00	1,682.51	725.00	706.61	6.35	2.77	112.38	1,435.41	-10,150.31	10,382.20	10,373.17	9.03	1,149.134	
1,800.00	1,780.33	750.00	731.10	6.78	2.87	112.39	1,431.63	-10,153.63	10,401.16	10,391.62	9.55	1,089.674	
1,900.00	1,878.14	760.31	741.18	7.22	2.91	112.39	1,430.02	-10,155.10	10,420.86	10,410.86	10.00	1,042.044	
2,000.00	1,975.96	784.52	764.81	7.66	3.01	112.39	1,426.19	-10,158.68	10,441.30	10,430.79	10.51	993.401	
2,100.00	2,073.77	800.00	779.91	8.10	3.08	112.39	1,423.72	-10,161.05	10,462.43	10,451.44	10.99	952.291	
2,200.00	2,171.59	825.00	804.25	8.54	3.19	112.39	1,419.68	-10,165.08	10,484.27	10,472.76	11.50	911.543	
2,300.00	2,269.40	837.23	816.13	8.98	3.24	112.39	1,417.68	-10,167.17	10,506.89	10,494.92	11.96	878.165	
2,400.00	2,367.22	850.00	828.51	9.43	3.30	112.39	1,415.54	-10,169.46	10,530.29	10,517.86	12.43	847.269	
2,500.00	2,465.03	875.00	852.70	9.87	3.41	112.39	1,411.28	-10,174.15	10,554.43	10,541.49	12.94	815.357	
2,600.00	2,562.84	900.00	876.81	10.32	3.53	112.39	1,406.91	-10,179.10	10,579.30	10,565.84	13.46	785.903	
2,700.00	2,660.66	900.00	876.81	10.77	3.53	112.39	1,406.91	-10,179.10	10,604.86	10,590.99	13.87	764.777	
2,800.00	2,758.47	925.00	900.76	11.21	3.66	112.39	1,402.17	-10,184.46	10,631.24	10,616.86	14.38	739.123	
2,900.00	2,856.29	925.00	900.76	11.66	3.66	112.39	1,402.17	-10,184.46	10,658.33	10,643.54	14.78	720.904	
3,000.00	2,954.10	975.00	948.29	12.11	3.92	112.37	1,391.70	-10,195.90	10,686.03	10,670.61	15.42	692.898	
3,100.00	3,051.92	1,009.63	980.98	12.56	4.11	112.36	1,383.74	-10,204.09	10,714.23	10,698.24	15.99	669.961	
3,200.00	3,149.73	1,025.00	995.44	13.01	4.19	112.35	1,380.08	-10,207.81	10,743.04	10,726.57	16.47	652.451	
3,300.00	3,247.55	1,057.48	1,025.87	13.45	4.38	112.33	1,372.11	-10,215.93	10,772.47	10,755.44	17.03	632.611	
3,400.00	3,345.36	1,100.00	1,065.53	13.90	4.63	112.31	1,361.42	-10,226.90	10,802.49	10,784.84	17.65	612.119	
3,500.00	3,443.18	1,139.17	1,101.97	14.35	4.86	112.29	1,351.44	-10,237.23	10,833.01	10,814.76	18.25	593.523	
3,600.00	3,540.99	1,175.00	1,135.30	14.80	5.08	112.27	1,342.42	-10,246.79	10,863.97	10,845.13	18.84	576.692	
3,700.00	3,638.81	1,213.77	1,171.41	15.25	5.32	112.25	1,332.94	-10,257.28	10,895.41	10,875.97	19.44	560.445	
3,800.00	3,736.62	1,238.63	1,194.56	15.70	5.47	112.24	1,327.06	-10,264.17	10,927.46	10,907.50	19.96	547.383	
3,900.00	3,834.44	1,304.52	1,256.01	16.15	5.87	112.21	1,312.18	-10,282.69	10,960.03	10,939.31	20.72	529.073	
4,000.00	3,932.25	1,662.19	1,590.41	16.60	8.10	112.06	1,230.48	-10,379.74	10,992.10	10,968.94	23.16	474.538	
4,100.00	4,030.07	1,749.55	1,672.11	17.05	8.64	112.02	1,209.56	-10,402.50	11,022.56	10,998.50	24.06	458.043	
4,200.00	4,127.88	1,892.05	1,805.36	17.50	9.54	111.95	1,174.83	-10,439.15	11,052.62	11,027.32	25.30	436.870	
4,300.00	4,225.70	1,925.00	1,836.17	17.96	9.75	111.93	1,166.81	-10,447.67	11,082.88	11,057.00	25.88	428.234	
4,400.00	4,323.51	1,950.00	1,859.53	18.41	9.91	111.92	1,160.84	-10,454.29	11,113.74	11,087.33	26.41	420.793	
4,500.00	4,421.33	2,000.00	1,906.21	18.86	10.23	111.90	1,149.05	-10,467.76	11,145.11	11,118.02	27.09	411.384	
4,600.00	4,519.14	2,100.00	1,999.53	19.31	10.87	111.85	1,125.46	-10,494.86	11,176.66	11,148.59	28.08	398.084	
4,700.00	4,616.95	4,906.51	4,726.21	19.76	23.35	112.59	781.18	-10,878.69	11,198.46	11,157.68	40.78	274.605	
4,800.00	4,714.77	5,014.38	4,834.07	20.21	23.64	112.68	779.60	-10,878.97	11,206.68	11,165.14	41.54	269.772	
4,900.00	4,812.58	5,475.00	5,284.23	20.66	24.99	112.94	741.62	-10,875.06	11,211.70	11,168.29	43.41	258.299	
5,000.00	4,910.40	5,900.00	5,692.98	21.11	26.14	113.20	711.53	-10,859.49	11,214.79	11,169.76	45.04	249.024	
5,100.00	5,008.21	5,900.00	5,692.98	21.57	26.14	113.20	711.53	-10,859.49	11,217.41	11,171.89	45.51	246.469	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

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

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,200.00	5,106.03	5,900.00	5,692.98	22.02	26.14	113.20	711.53	-10,859.49	11,220.91	11,174.92	45.99	244.004	
5,300.00	5,203.84	5,900.00	5,692.98	22.47	26.14	113.20	711.53	-10,859.49	11,225.30	11,178.85	46.46	241.626	
5,400.00	5,301.66	5,900.00	5,692.98	22.92	26.14	113.20	711.53	-10,859.49	11,230.59	11,183.66	46.92	239.333	
5,500.00	5,399.47	5,900.00	5,692.98	23.37	26.14	113.20	711.53	-10,859.49	11,236.76	11,189.37	47.39	237.122	
5,600.00	5,497.29	5,900.00	5,692.98	23.82	26.14	113.20	711.53	-10,859.49	11,243.81	11,195.97	47.85	234.990	
5,700.00	5,595.10	5,968.49	5,761.47	24.28	26.32	113.27	710.86	-10,859.10	11,251.45	11,202.95	48.50	232.008	
5,800.00	5,692.92	6,000.00	5,792.98	24.73	26.41	113.30	710.82	-10,859.02	11,259.54	11,210.50	49.04	229.621	
5,900.00	5,790.73	6,087.22	5,880.20	25.18	26.65	113.38	710.43	-10,859.06	11,267.92	11,218.18	49.74	226.540	
6,000.00	5,888.55	6,150.00	5,942.97	25.63	26.83	113.44	709.99	-10,859.31	11,276.62	11,226.24	50.38	223.839	
6,100.00	5,986.36	6,225.00	6,017.97	26.08	27.05	113.51	709.33	-10,859.79	11,285.56	11,234.51	51.06	221.044	
6,200.00	6,084.18	6,225.00	6,017.97	26.54	27.05	113.51	709.33	-10,859.79	11,295.08	11,243.58	51.50	219.309	
6,300.00	6,181.99	6,225.00	6,017.97	26.99	27.05	113.51	709.33	-10,859.79	11,305.48	11,253.53	51.95	217.637	
6,400.00	6,279.81	6,225.00	6,017.97	27.44	27.05	113.51	709.33	-10,859.79	11,316.75	11,264.36	52.39	216.028	
6,500.00	6,377.62	6,225.00	6,017.97	27.89	27.05	113.51	709.33	-10,859.79	11,328.89	11,276.07	52.82	214.479	
6,530.62	6,407.57	6,225.00	6,017.97	28.03	27.05	113.51	709.33	-10,859.79	11,332.78	11,279.83	52.95	214.017	
6,550.00	6,426.48	6,225.00	6,017.97	28.12	27.05	118.90	709.33	-10,859.79	11,335.57	11,282.53	53.04	213.728	
6,600.00	6,474.77	6,225.00	6,017.97	28.36	27.05	128.65	709.33	-10,859.79	11,345.42	11,292.16	53.26	213.012	
6,650.00	6,522.09	6,225.00	6,017.97	28.62	27.05	134.54	709.33	-10,859.79	11,359.08	11,305.58	53.49	212.345	
6,700.00	6,568.15	6,225.00	6,017.97	28.89	27.05	138.20	709.33	-10,859.79	11,376.44	11,322.71	53.73	211.736	
6,750.00	6,612.66	6,986.20	6,735.65	29.18	29.38	141.49	680.76	-10,885.63	11,396.78	11,340.42	56.37	202.187	
6,800.00	6,655.36	7,043.83	6,793.28	29.48	29.53	143.02	680.70	-10,885.52	11,418.39	11,361.61	56.78	201.085	
6,850.00	6,695.98	7,075.00	6,824.45	29.79	29.62	143.79	680.67	-10,885.44	11,443.24	11,386.11	57.13	200.319	
6,900.00	6,734.26	7,115.95	6,865.40	30.11	29.73	144.01	680.61	-10,885.37	11,471.22	11,413.73	57.49	199.526	
6,950.00	6,769.98	7,141.42	6,890.87	30.45	29.80	143.67	680.60	-10,885.31	11,502.14	11,444.33	57.81	198.967	
7,000.00	6,802.91	7,170.31	6,919.76	30.79	29.88	142.83	680.56	-10,885.28	11,535.84	11,477.71	58.13	198.443	
7,050.00	6,832.85	7,217.34	6,966.79	31.15	30.01	141.50	680.48	-10,885.17	11,572.05	11,513.55	58.50	197.820	
7,100.00	6,859.62	7,246.51	6,995.96	31.51	30.09	139.49	680.44	-10,885.10	11,610.58	11,551.78	58.80	197.453	
7,150.00	6,883.05	7,263.30	7,012.75	31.89	30.14	136.67	680.41	-10,885.06	11,651.21	11,592.15	59.06	197.281	
7,200.00	6,902.99	7,280.66	7,030.11	32.28	30.19	132.87	680.38	-10,885.03	11,693.69	11,634.39	59.31	197.176	
7,250.00	6,919.32	7,308.57	7,058.02	32.67	30.27	127.91	680.32	-10,884.95	11,737.73	11,678.16	59.57	197.037 SF	
7,300.00	6,931.95	7,317.91	7,067.36	33.08	30.29	121.16	680.30	-10,884.93	11,783.09	11,723.32	59.77	197.148	
7,350.00	6,940.79	7,338.25	7,087.70	33.49	30.35	112.46	680.26	-10,884.87	11,829.46	11,769.47	59.98	197.213	
7,400.00	6,945.79	7,343.46	7,092.91	33.90	30.37	101.21	680.25	-10,884.85	11,876.57	11,816.43	60.14	197.481	
7,439.53	6,947.00	7,356.30	7,105.75	34.24	30.40	90.90	680.22	-10,884.80	11,914.15	11,853.87	60.28	197.642	
7,500.00	6,947.00	7,356.53	7,105.98	34.75	30.40	90.97	680.22	-10,884.80	11,971.97	11,911.55	60.43	198.121	
7,600.00	6,947.00	7,356.91	7,106.36	35.63	30.40	91.11	680.21	-10,884.79	12,068.43	12,007.78	60.65	198.989	
7,700.00	6,947.00	7,357.28	7,106.73	36.54	30.40	91.30	680.21	-10,884.79	12,165.79	12,104.95	60.84	199.954	
7,800.00	6,947.00	7,357.65	7,107.10	37.47	30.41	91.56	680.21	-10,884.79	12,263.93	12,202.92	61.01	201.016	
7,900.00	6,947.00	7,358.01	7,107.46	38.43	30.41	91.96	680.21	-10,884.79	12,362.69	12,301.55	61.15	202.175	
8,000.00	6,947.00	7,358.37	7,107.82	39.41	30.41	92.63	680.21	-10,884.79	12,461.96	12,400.70	61.26	203.431	
8,100.00	6,947.00	7,358.72	7,108.17	40.40	30.41	94.01	680.21	-10,884.79	12,561.59	12,500.25	61.34	204.781	
8,200.00	6,947.00	7,359.06	7,108.51	41.42	30.41	98.35	680.21	-10,884.79	12,661.46	12,600.07	61.40	206.225	
8,300.00	6,947.00	7,359.39	7,108.84	42.44	30.41	-147.36	680.20	-10,884.78	12,761.44	12,700.02	61.42	207.759	
8,400.00	6,947.00	7,359.71	7,109.16	43.48	30.41	-97.07	680.20	-10,884.78	12,861.42	12,799.99	61.43	209.381	
8,500.00	6,947.00	7,360.02	7,109.47	44.53	30.41	-93.70	680.20	-10,884.78	12,961.26	12,899.86	61.40	211.089	
8,600.00	6,947.00	7,360.32	7,109.78	45.58	30.41	-92.51	680.20	-10,884.78	13,060.86	12,999.50	61.35	212.878	
8,700.00	6,947.00	7,360.61	7,110.07	46.63	30.41	-91.90	680.20	-10,884.78	13,160.09	13,098.81	61.28	214.745	
8,800.00	6,947.00	7,360.89	7,110.34	47.69	30.41	-91.53	680.20	-10,884.78	13,258.85	13,197.66	61.19	216.686	
8,841.31	6,947.00	7,361.00	7,110.46	48.13	30.41	-91.42	680.20	-10,884.78	13,299.48	13,238.34	61.14	217.509	
8,900.00	6,947.00	7,361.16	7,110.61	48.76	30.42	-91.42	680.20	-10,884.78	13,357.14	13,296.06	61.08	218.682	
9,000.00	6,947.00	7,361.43	7,110.88	49.85	30.42	-91.43	680.20	-10,884.78	13,455.41	13,394.43	60.97	220.675	
9,100.00	6,947.00	7,361.69	7,111.14	50.97	30.42	-91.43	680.19	-10,884.78	13,553.70	13,492.83	60.87	222.660	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 25-B001Mb_MWD+HRGM

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,200.00	6,947.00	7,361.95	7,111.40	52.12	30.42	-91.44	680.19	-10,884.77	13,652.01	13,591.24	60.77	224.638	
9,300.00	6,947.00	7,362.21	7,111.66	53.28	30.42	-91.44	680.19	-10,884.77	13,750.35	13,689.67	60.68	226.607	
9,400.00	6,947.00	7,362.47	7,111.92	54.48	30.42	-91.45	680.19	-10,884.77	13,848.72	13,788.13	60.59	228.569	
9,500.00	6,947.00	7,362.72	7,112.17	55.69	30.42	-91.46	680.19	-10,884.77	13,947.10	13,886.60	60.50	230.523	
9,600.00	6,947.00	7,362.98	7,112.43	56.92	30.42	-91.46	680.19	-10,884.77	14,045.51	13,985.09	60.42	232.469	
9,700.00	6,947.00	7,363.23	7,112.68	58.17	30.42	-91.47	680.19	-10,884.77	14,143.94	14,083.60	60.34	234.407	
9,800.00	6,947.00	7,363.48	7,112.93	59.44	30.42	-91.47	680.19	-10,884.77	14,242.40	14,182.13	60.26	236.336	
9,900.00	6,947.00	7,363.72	7,113.18	60.73	30.42	-91.48	680.19	-10,884.77	14,340.87	14,280.68	60.19	238.257	
10,000.00	6,947.00	7,363.97	7,113.42	62.03	30.42	-91.48	680.18	-10,884.77	14,439.37	14,379.25	60.12	240.169	
10,100.00	6,947.00	7,364.21	7,113.67	63.34	30.42	-91.49	680.18	-10,884.77	14,537.88	14,477.83	60.06	242.072	
10,200.00	6,947.00	7,364.46	7,113.91	64.67	30.42	-91.50	680.18	-10,884.77	14,636.42	14,576.43	59.99	243.967	
10,300.00	6,947.00	7,364.70	7,114.15	66.01	30.43	-91.50	680.18	-10,884.76	14,734.98	14,675.04	59.93	245.852	
10,400.00	6,947.00	7,364.94	7,114.39	67.36	30.43	-91.51	680.18	-10,884.76	14,833.55	14,773.67	59.88	247.729	
10,500.00	6,947.00	7,365.17	7,114.62	68.73	30.43	-91.51	680.18	-10,884.76	14,932.15	14,872.32	59.83	249.597	
10,600.00	6,947.00	7,365.41	7,114.86	70.10	30.43	-91.52	680.18	-10,884.76	15,030.76	14,970.99	59.78	251.455	
10,700.00	6,947.00	7,365.64	7,115.09	71.48	30.43	-91.52	680.18	-10,884.76	15,129.39	15,069.66	59.73	253.305	
10,800.00	6,947.00	7,365.87	7,115.32	72.88	30.43	-91.53	680.17	-10,884.76	15,228.04	15,168.36	59.68	255.145	
10,900.00	6,947.00	7,366.10	7,115.55	74.28	30.43	-91.53	680.17	-10,884.76	15,326.71	15,267.06	59.64	256.976	
11,000.00	6,947.00	7,366.33	7,115.78	75.69	30.43	-91.54	680.17	-10,884.76	15,425.39	15,365.79	59.60	258.797	
11,100.00	6,947.00	7,366.56	7,116.01	77.10	30.43	-91.54	680.17	-10,884.76	15,524.09	15,464.52	59.57	260.609	
11,200.00	6,947.00	7,366.78	7,116.23	78.53	30.43	-91.55	680.17	-10,884.76	15,622.81	15,563.27	59.54	262.411	
11,300.00	6,947.00	7,367.01	7,116.46	79.96	30.43	-91.55	680.17	-10,884.76	15,721.54	15,662.04	59.51	264.204	
11,400.00	6,947.00	7,367.23	7,116.68	81.40	30.43	-91.56	680.17	-10,884.76	15,820.29	15,760.81	59.48	265.987	
11,500.00	6,947.00	7,367.45	7,116.90	82.84	30.43	-91.56	680.17	-10,884.75	15,919.06	15,859.60	59.45	267.761	
11,600.00	6,947.00	7,367.67	7,117.12	84.29	30.43	-91.57	680.17	-10,884.75	16,017.84	15,958.41	59.43	269.524	
11,700.00	6,947.00	7,367.88	7,117.34	85.75	30.43	-91.57	680.17	-10,884.75	16,116.63	16,057.22	59.41	271.278	
11,800.00	6,947.00	7,368.10	7,117.55	87.21	30.44	-91.58	680.16	-10,884.75	16,215.44	16,156.05	59.39	273.023	
11,900.00	6,947.00	7,368.31	7,117.77	88.68	30.44	-91.58	680.16	-10,884.75	16,314.27	16,254.89	59.38	274.757	
12,000.00	6,947.00	7,368.53	7,117.98	90.15	30.44	-91.59	680.16	-10,884.75	16,413.11	16,353.74	59.36	276.482	
12,100.00	6,947.00	7,368.74	7,118.19	91.62	30.44	-91.59	680.16	-10,884.75	16,511.96	16,452.61	59.35	278.197	
12,200.00	6,947.00	7,368.95	7,118.40	93.10	30.44	-91.60	680.16	-10,884.75	16,610.82	16,551.48	59.35	279.902	
12,300.00	6,947.00	7,369.16	7,118.61	94.59	30.44	-91.60	680.16	-10,884.75	16,709.70	16,650.37	59.34	281.597	
12,400.00	6,947.00	7,369.36	7,118.82	96.07	30.44	-91.61	680.16	-10,884.75	16,808.60	16,749.26	59.34	283.283	
12,500.00	6,947.00	7,369.57	7,119.02	97.56	30.44	-91.61	680.16	-10,884.75	16,907.50	16,848.17	59.33	284.958	
12,600.00	6,947.00	7,369.77	7,119.23	99.06	30.44	-91.62	680.16	-10,884.75	17,006.42	16,947.09	59.33	286.624	
12,700.00	6,947.00	7,375.00	7,124.45	100.56	30.45	-91.74	680.13	-10,884.73	17,105.36	17,046.00	59.35	288.198	
12,800.00	6,947.00	7,375.00	7,124.45	102.06	30.45	-91.74	680.13	-10,884.73	17,204.30	17,144.94	59.36	289.847	
12,900.00	6,947.00	7,375.00	7,124.45	103.56	30.45	-91.74	680.13	-10,884.73	17,303.26	17,243.89	59.36	291.485	
13,000.00	6,947.00	7,375.00	7,124.45	105.07	30.45	-91.74	680.13	-10,884.73	17,402.22	17,342.85	59.37	293.114	
13,100.00	6,947.00	7,375.00	7,124.45	106.58	30.45	-91.74	680.13	-10,884.73	17,501.20	17,441.82	59.38	294.733	
13,200.00	6,947.00	7,375.00	7,124.45	108.10	30.45	-91.74	680.13	-10,884.73	17,600.19	17,540.80	59.39	296.342	
13,300.00	6,947.00	7,375.00	7,124.45	109.61	30.45	-91.74	680.13	-10,884.73	17,699.20	17,639.79	59.40	297.942	
13,400.00	6,947.00	7,375.00	7,124.45	111.13	30.45	-91.74	680.13	-10,884.73	17,798.21	17,738.79	59.42	299.531	
13,500.00	6,947.00	7,375.00	7,124.45	112.65	30.45	-91.74	680.13	-10,884.73	17,897.24	17,837.80	59.44	301.111	
13,600.00	6,947.00	7,375.00	7,124.45	114.17	30.45	-91.74	680.13	-10,884.73	17,996.27	17,936.81	59.46	302.681	
13,700.00	6,947.00	7,375.00	7,124.45	115.70	30.45	-91.74	680.13	-10,884.73	18,095.32	18,035.84	59.48	304.241	
13,800.00	6,947.00	7,375.00	7,124.45	117.23	30.45	-91.74	680.13	-10,884.73	18,194.37	18,134.87	59.50	305.792	
13,900.00	6,947.00	7,375.00	7,124.45	118.76	30.45	-91.74	680.13	-10,884.73	18,293.44	18,233.92	59.52	307.333	
14,000.00	6,947.00	7,375.00	7,124.45	120.29	30.45	-91.74	680.13	-10,884.73	18,392.52	18,332.97	59.55	308.864	
14,100.00	6,947.00	7,375.00	7,124.45	121.82	30.45	-91.74	680.13	-10,884.73	18,491.60	18,432.03	59.58	310.386	
14,200.00	6,947.00	7,375.00	7,124.45	123.36	30.45	-91.74	680.13	-10,884.73	18,590.70	18,531.10	59.61	311.897	
14,300.00	6,947.00	7,375.00	7,124.45	124.89	30.45	-91.74	680.13	-10,884.73	18,689.81	18,630.17	59.64	313.400	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 25-B001Mb_MWD+HRGM

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,400.00	6,947.00	7,375.00	7,124.45	126.43	30.45	-91.74	680.13	-10,884.73	18,788.92	18,729.25	59.67	314.892	
14,500.00	6,947.00	7,375.00	7,124.45	127.97	30.45	-91.74	680.13	-10,884.73	18,888.05	18,828.35	59.70	316.376	
14,600.00	6,947.00	7,375.00	7,124.45	129.51	30.45	-91.74	680.13	-10,884.73	18,987.18	18,927.44	59.74	317.849	
14,700.00	6,947.00	7,375.00	7,124.45	131.06	30.45	-91.74	680.13	-10,884.73	19,086.32	19,026.55	59.77	319.314	
14,800.00	6,947.00	7,375.00	7,124.45	132.60	30.45	-91.74	680.13	-10,884.73	19,185.48	19,125.67	59.81	320.768	
14,900.00	6,947.00	7,375.00	7,124.45	134.15	30.45	-91.74	680.13	-10,884.73	19,284.64	19,224.79	59.85	322.214	
15,000.00	6,947.00	7,375.00	7,124.45	135.70	30.45	-91.74	680.13	-10,884.73	19,383.81	19,323.92	59.89	323.650	
15,100.00	6,947.00	7,375.00	7,124.45	137.24	30.45	-91.74	680.13	-10,884.73	19,482.98	19,423.05	59.93	325.077	
15,200.00	6,947.00	7,375.00	7,124.45	138.79	30.45	-91.74	680.13	-10,884.73	19,582.17	19,522.19	59.98	326.494	
15,300.00	6,947.00	7,375.00	7,124.45	140.35	30.45	-91.74	680.13	-10,884.73	19,681.37	19,621.34	60.02	327.903	
15,400.00	6,947.00	7,375.00	7,124.45	141.90	30.45	-91.74	680.13	-10,884.73	19,780.57	19,720.50	60.07	329.302	
15,500.00	6,947.00	7,375.26	7,124.71	143.45	30.46	-91.74	680.12	-10,884.73	19,879.78	19,819.66	60.12	330.687	
15,600.00	6,947.00	7,375.56	7,125.01	145.01	30.46	-91.75	680.12	-10,884.73	19,979.00	19,918.83	60.17	332.063	
15,700.00	6,947.00	7,375.87	7,125.32	146.56	30.46	-91.76	680.12	-10,884.73	20,078.22	20,018.01	60.22	333.429	
15,800.00	6,947.00	7,376.18	7,125.63	148.12	30.46	-91.77	680.12	-10,884.73	20,177.46	20,117.19	60.27	334.786	
15,900.00	6,947.00	7,376.49	7,125.94	149.68	30.46	-91.77	680.12	-10,884.73	20,276.70	20,216.38	60.32	336.134	
16,000.00	6,947.00	7,376.80	7,126.25	151.23	30.46	-91.78	680.12	-10,884.72	20,375.95	20,315.57	60.38	337.473	
16,100.00	6,947.00	7,377.11	7,126.56	152.79	30.46	-91.79	680.11	-10,884.72	20,475.20	20,414.77	60.43	338.803	
16,200.00	6,947.00	7,377.43	7,126.88	154.36	30.46	-91.79	680.11	-10,884.72	20,574.47	20,513.98	60.49	340.125	
16,300.00	6,947.00	7,377.74	7,127.19	155.92	30.46	-91.80	680.11	-10,884.72	20,673.74	20,613.19	60.55	341.437	
16,400.00	6,947.00	7,378.06	7,127.51	157.48	30.46	-91.81	680.11	-10,884.72	20,773.02	20,712.41	60.61	342.741	
16,500.00	6,947.00	7,378.37	7,127.82	159.04	30.46	-91.82	680.11	-10,884.72	20,872.30	20,811.63	60.67	344.037	
16,600.00	6,947.00	7,378.69	7,128.14	160.61	30.47	-91.82	680.11	-10,884.72	20,971.59	20,910.86	60.73	345.323	
16,700.00	6,947.00	7,379.01	7,128.46	162.17	30.47	-91.83	680.10	-10,884.72	21,070.89	21,010.10	60.79	346.601	
16,800.00	6,947.00	7,379.33	7,128.78	163.74	30.47	-91.84	680.10	-10,884.72	21,170.19	21,109.34	60.86	347.871	
16,900.00	6,947.00	7,379.65	7,129.10	165.30	30.47	-91.85	680.10	-10,884.72	21,269.50	21,208.58	60.92	349.132	
17,000.00	6,947.00	7,379.97	7,129.42	166.87	30.47	-91.85	680.10	-10,884.71	21,368.82	21,307.83	60.99	350.384	
17,100.00	6,947.00	7,380.29	7,129.75	168.44	30.47	-91.86	680.10	-10,884.71	21,468.15	21,407.09	61.05	351.629	
17,200.00	6,947.00	7,380.62	7,130.07	170.01	30.47	-91.87	680.10	-10,884.71	21,567.47	21,506.35	61.12	352.865	
17,300.00	6,947.00	7,380.94	7,130.40	171.57	30.47	-91.88	680.09	-10,884.71	21,666.81	21,605.62	61.19	354.092	
17,400.00	6,947.00	7,381.27	7,130.72	173.14	30.47	-91.88	680.09	-10,884.71	21,766.15	21,704.89	61.26	355.312	
17,500.00	6,947.00	7,381.60	7,131.05	174.71	30.47	-91.89	680.09	-10,884.71	21,865.50	21,804.17	61.33	356.523	
17,600.00	6,947.00	7,381.93	7,131.38	176.28	30.47	-91.90	680.09	-10,884.71	21,964.86	21,903.45	61.40	357.726	
17,700.00	6,947.00	7,382.26	7,131.71	177.86	30.48	-91.91	680.09	-10,884.71	22,064.22	22,002.74	61.47	358.922	
17,800.00	6,947.00	7,382.59	7,132.04	179.43	30.48	-91.91	680.09	-10,884.71	22,163.58	22,102.03	61.55	360.109	
17,900.00	6,947.00	7,382.92	7,132.37	181.00	30.48	-91.92	680.08	-10,884.70	22,262.95	22,201.33	61.62	361.288	
18,000.00	6,947.00	7,383.26	7,132.71	182.57	30.48	-91.93	680.08	-10,884.70	22,362.33	22,300.63	61.70	362.460	
18,100.00	6,947.00	7,383.59	7,133.04	184.15	30.48	-91.94	680.08	-10,884.70	22,461.71	22,399.94	61.77	363.623	
18,200.00	6,947.00	7,383.93	7,133.38	185.72	30.48	-91.94	680.08	-10,884.70	22,561.10	22,499.25	61.85	364.779	
18,300.00	6,947.00	7,384.27	7,133.72	187.30	30.48	-91.95	680.08	-10,884.70	22,660.49	22,598.57	61.93	365.928	
18,400.00	6,947.00	7,384.60	7,134.06	188.87	30.48	-91.96	680.08	-10,884.70	22,759.89	22,697.89	62.00	367.068	
18,500.00	6,947.00	7,384.94	7,134.40	190.45	30.48	-91.97	680.07	-10,884.70	22,859.30	22,797.21	62.08	368.201	
18,600.00	6,947.00	7,385.29	7,134.74	192.02	30.48	-91.98	680.07	-10,884.70	22,958.70	22,896.54	62.16	369.327	
18,700.00	6,947.00	7,385.63	7,135.08	193.60	30.48	-91.98	680.07	-10,884.70	23,058.12	22,995.87	62.24	370.445	
18,800.00	6,947.00	7,385.97	7,135.42	195.18	30.49	-91.99	680.07	-10,884.69	23,157.54	23,095.21	62.33	371.555	
18,900.00	6,947.00	7,386.32	7,135.77	196.75	30.49	-92.00	680.07	-10,884.69	23,256.96	23,194.55	62.41	372.658	
19,000.00	6,947.00	7,386.66	7,136.11	198.33	30.49	-92.01	680.07	-10,884.69	23,356.39	23,293.90	62.49	373.754	
19,100.00	6,947.00	7,387.01	7,136.46	199.91	30.49	-92.02	680.07	-10,884.69	23,455.82	23,393.25	62.58	374.843	
19,200.00	6,947.00	7,387.36	7,136.81	201.49	30.49	-92.02	680.06	-10,884.69	23,555.26	23,492.60	62.66	375.924	
19,300.00	6,947.00	7,387.71	7,137.16	203.07	30.49	-92.03	680.06	-10,884.69	23,654.71	23,591.96	62.74	376.998	
19,400.00	6,947.00	7,388.06	7,137.51	204.65	30.49	-92.04	680.06	-10,884.69	23,754.16	23,691.32	62.83	378.066	
19,500.00	6,947.00	7,388.41	7,137.86	206.23	30.49	-92.05	680.06	-10,884.69	23,853.61	23,790.69	62.92	379.126	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

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

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
19,600.00	6,947.00	7,388.77	7,138.22	207.81	30.49	-92.06	680.06	-10,884.69	23,953.06	23,890.06	63.00	380.179	
19,700.00	6,947.00	7,389.12	7,138.57	209.39	30.49	-92.06	680.06	-10,884.68	24,052.53	23,989.43	63.09	381.225	
19,800.00	6,947.00	7,389.48	7,138.93	210.97	30.50	-92.07	680.06	-10,884.68	24,151.99	24,088.81	63.18	382.264	
19,900.00	6,947.00	7,389.84	7,139.29	212.55	30.50	-92.08	680.05	-10,884.68	24,251.46	24,188.19	63.27	383.297	
20,000.00	6,947.00	7,390.20	7,139.65	214.13	30.50	-92.09	680.05	-10,884.68	24,350.94	24,287.58	63.36	384.323	
20,100.00	6,947.00	6,225.00	6,017.97	215.71	27.05	-67.71	709.33	-10,859.79	24,450.38	24,390.65	59.72	409.384	
20,200.00	6,947.00	6,225.00	6,017.97	217.30	27.05	-67.71	709.33	-10,859.79	24,549.76	24,489.94	59.82	410.412	
20,300.00	6,947.00	6,225.00	6,017.97	218.88	27.05	-67.71	709.33	-10,859.79	24,649.15	24,589.24	59.91	411.433	
20,400.00	6,947.00	6,225.00	6,017.97	220.46	27.05	-67.71	709.33	-10,859.79	24,748.54	24,688.54	60.00	412.447	
20,500.00	6,947.00	6,225.00	6,017.97	222.04	27.05	-67.71	709.33	-10,859.79	24,847.94	24,787.84	60.10	413.454	
20,600.00	6,947.00	6,225.00	6,017.97	223.63	27.05	-67.71	709.33	-10,859.79	24,947.34	24,887.15	60.19	414.454	
20,700.00	6,947.00	6,225.00	6,017.97	225.21	27.05	-67.71	709.33	-10,859.79	25,046.75	24,986.46	60.29	415.447	
20,800.00	6,947.00	6,225.00	6,017.97	226.80	27.05	-67.71	709.33	-10,859.79	25,146.16	25,085.78	60.38	416.433	
20,900.00	6,947.00	6,225.00	6,017.97	228.38	27.05	-67.71	709.33	-10,859.79	25,245.58	25,185.09	60.48	417.412	
21,000.00	6,947.00	6,225.00	6,017.97	229.97	27.05	-67.71	709.33	-10,859.79	25,345.00	25,284.42	60.58	418.385	
21,032.01	6,947.00	6,225.00	6,017.97	230.47	27.05	-67.71	709.33	-10,859.79	25,376.82	25,316.21	60.61	418.694	
21,032.99	6,947.00	6,225.00	6,017.97	230.51	27.05	-67.71	709.33	-10,859.79	25,377.79	25,312.87	64.92	390.884	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 50-A020Ga_GYRO-NS

Rule Assigned:

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	161.46	161.46	0.00	0.48	-115.58	-1,647.80	-3,441.65	3,815.78				
100.00	100.00	257.10	257.10	0.25	0.81	-115.58	-1,647.77	-3,441.66	3,815.79	3,814.73	1.06	3,592.437	
200.00	200.00	362.72	362.72	0.61	1.18	-115.58	-1,647.87	-3,441.93	3,816.07	3,814.28	1.79	2,131.564	
300.00	300.00	440.33	440.33	0.97	1.45	-115.58	-1,647.86	-3,442.14	3,816.33	3,813.91	2.42	1,576.865	
400.00	400.00	550.00	550.00	1.33	1.84	-115.59	-1,648.23	-3,442.38	3,816.66	3,813.50	3.16	1,206.901	
500.00	500.00	650.00	649.99	1.68	2.19	-115.59	-1,648.80	-3,442.59	3,817.09	3,813.22	3.87	986.147	
600.00	599.98	756.24	756.23	2.03	2.56	79.43	-1,649.52	-3,442.79	3,817.25	3,812.66	4.58	832.768	
700.00	699.84	845.78	845.77	2.36	2.87	79.51	-1,649.84	-3,443.09	3,816.73	3,811.50	5.23	729.697	
800.00	799.45	950.50	950.49	2.71	3.24	79.67	-1,649.73	-3,443.45	3,815.41	3,809.47	5.94	642.226	
900.00	898.70	1,069.47	1,069.45	3.06	3.65	79.93	-1,649.22	-3,443.82	3,813.33	3,806.62	6.71	568.096	
1,000.00	997.47	1,173.81	1,173.79	3.43	4.02	80.25	-1,648.11	-3,444.25	3,810.53	3,803.09	7.45	511.686	
1,100.00	1,095.62	1,259.44	1,259.41	3.82	4.31	80.58	-1,646.89	-3,444.63	3,807.11	3,798.98	8.13	468.073	
1,200.00	1,193.44	1,365.05	1,365.01	4.22	4.68	80.92	-1,645.66	-3,445.19	3,803.70	3,794.79	8.90	427.143	
1,300.00	1,291.25	1,446.72	1,446.67	4.64	4.97	81.19	-1,644.49	-3,445.76	3,800.45	3,790.85	9.60	395.796	
1,400.00	1,389.07	1,553.86	1,553.80	5.06	5.34	81.55	-1,643.07	-3,446.43	3,797.29	3,786.89	10.39	365.307	
1,500.00	1,486.88	1,662.20	1,662.13	5.48	5.72	81.91	-1,641.62	-3,447.09	3,794.28	3,783.08	11.20	338.866	
1,600.00	1,584.70	1,763.05	1,762.97	5.91	6.07	82.24	-1,640.35	-3,447.41	3,791.14	3,779.16	11.98	316.531	
1,700.00	1,682.51	1,861.35	1,861.26	6.35	6.42	82.57	-1,639.06	-3,447.46	3,787.86	3,775.11	12.75	297.047	
1,800.00	1,780.33	1,950.93	1,950.84	6.78	6.73	82.86	-1,637.98	-3,447.49	3,784.75	3,771.25	13.50	280.372	
1,900.00	1,878.14	2,046.31	2,046.21	7.22	7.06	83.17	-1,637.14	-3,447.51	3,781.86	3,767.59	14.27	265.045	
2,000.00	1,975.96	2,153.47	2,153.36	7.66	7.44	83.52	-1,636.49	-3,447.55	3,779.20	3,764.12	15.08	250.589	
2,100.00	2,073.77	2,249.98	2,249.87	8.10	7.78	83.83	-1,635.82	-3,447.56	3,776.61	3,760.75	15.86	238.143	
2,200.00	2,171.59	2,336.46	2,336.35	8.54	8.08	84.11	-1,635.43	-3,447.68	3,774.32	3,757.72	16.60	227.330	
2,300.00	2,269.40	2,417.88	2,417.78	8.98	8.36	84.37	-1,635.19	-3,447.96	3,772.41	3,755.08	17.33	217.671	
2,400.00	2,367.22	2,500.00	2,499.89	9.43	8.65	84.63	-1,635.17	-3,448.52	3,771.02	3,752.96	18.06	208.779	
2,500.00	2,465.03	2,616.92	2,616.81	9.87	9.06	85.00	-1,635.06	-3,449.29	3,769.70	3,750.78	18.92	199.282	
2,600.00	2,562.84	2,715.30	2,715.18	10.32	9.41	85.32	-1,634.42	-3,449.86	3,768.23	3,748.53	19.71	191.220	
2,700.00	2,660.66	2,827.86	2,827.74	10.77	9.80	85.69	-1,633.84	-3,450.31	3,766.79	3,746.24	20.55	183.335	
2,800.00	2,758.47	2,925.00	2,924.88	11.21	10.14	86.00	-1,633.35	-3,450.45	3,765.22	3,743.89	21.33	176.503	
2,900.00	2,856.29	3,015.81	3,015.69	11.66	10.46	86.29	-1,633.11	-3,450.54	3,763.80	3,741.70	22.10	170.328	
3,000.00	2,954.10	3,100.00	3,099.88	12.11	10.75	86.56	-1,633.16	-3,450.75	3,762.75	3,739.91	22.84	164.743	
3,100.00	3,051.92	3,184.47	3,184.35	12.56	11.05	86.82	-1,633.55	-3,451.21	3,762.20	3,738.62	23.58	159.522	
3,200.00	3,149.73	3,281.25	3,281.12	13.01	11.38	87.12	-1,634.62	-3,451.90	3,762.12	3,737.75	24.37	154.363	
3,300.00	3,247.55	3,396.77	3,396.61	13.45	11.78	87.45	-1,636.88	-3,452.23	3,762.02	3,736.80	25.23	149.137	
3,400.00	3,345.36	3,484.73	3,484.56	13.90	12.09	87.71	-1,638.38	-3,452.22	3,761.64	3,735.66	25.98	144.778	
3,500.00	3,443.18	3,601.98	3,601.80	14.35	12.50	88.05	-1,640.16	-3,452.21	3,761.31	3,734.47	26.84	140.128	
3,600.00	3,540.99	3,686.22	3,686.04	14.80	12.79	88.31	-1,641.04	-3,452.24	3,760.98	3,733.40	27.59	136.335	
3,700.00	3,638.81	3,804.00	3,803.81	15.25	13.20	88.66	-1,642.37	-3,452.22	3,760.74	3,732.29	28.45	132.196	
3,800.00	3,736.62	3,893.86	3,893.67	15.70	13.52	88.94	-1,643.06	-3,452.03	3,760.32	3,731.10	29.21	128.723	
3,852.32	3,787.80	3,940.42	3,940.22	15.94	13.68	89.08	-1,643.46	-3,452.05	3,760.27	3,730.66	29.61	126.990 CC	
3,900.00	3,834.44	3,978.10	3,977.90	16.15	13.81	89.19	-1,643.87	-3,452.11	3,760.34	3,730.38	29.96	125.524	
4,000.00	3,932.25	4,076.43	4,076.22	16.60	14.15	89.48	-1,645.54	-3,452.25	3,760.70	3,729.94	30.75	122.293	
4,100.00	4,030.07	4,174.81	4,174.58	17.05	14.49	89.77	-1,647.27	-3,452.32	3,761.10	3,729.55	31.55	119.226 ES	
4,200.00	4,127.88	4,250.00	4,249.76	17.50	14.76	89.99	-1,648.67	-3,452.62	3,761.94	3,729.68	32.26	116.619	
4,300.00	4,225.70	4,325.00	4,324.73	17.96	15.02	90.20	-1,650.55	-3,453.29	3,763.49	3,730.52	32.97	114.153	
4,400.00	4,323.51	4,414.41	4,414.08	18.41	15.33	90.44	-1,653.49	-3,454.23	3,765.50	3,731.77	33.73	111.633	
4,500.00	4,421.33	4,499.48	4,499.09	18.86	15.63	90.67	-1,656.49	-3,455.39	3,767.93	3,733.45	34.48	109.288	
4,600.00	4,519.14	4,575.00	4,574.55	19.31	15.89	90.88	-1,659.18	-3,456.75	3,770.89	3,735.70	35.19	107.166	
4,700.00	4,616.95	4,659.61	4,659.07	19.76	16.19	91.10	-1,662.51	-3,458.73	3,774.50	3,738.57	35.93	105.050	
4,800.00	4,714.77	4,750.00	4,749.37	20.21	16.51	91.35	-1,666.05	-3,460.92	3,778.30	3,741.61	36.70	102.965	
4,900.00	4,812.58	4,825.00	4,824.28	20.66	16.77	91.55	-1,668.84	-3,463.22	3,782.73	3,745.33	37.40	101.142	
5,000.00	4,910.40	4,925.00	4,924.16	21.11	17.12	91.82	-1,672.68	-3,466.42	3,787.42	3,749.22	38.20	99.144	

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 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 50-A020Ga_GYRO-NS

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,100.00	5,008.21	5,020.00	5,019.04	21.57	17.45	92.08	-1,676.09	-3,469.64	3,792.31	3,753.33	38.98	97.282	
5,200.00	5,106.03	5,116.58	5,115.50	22.02	17.79	92.34	-1,679.48	-3,473.02	3,797.39	3,757.62	39.77	95.483	
5,300.00	5,203.84	5,208.37	5,207.17	22.47	18.11	92.60	-1,682.78	-3,476.34	3,802.67	3,762.14	40.54	93.803	
5,400.00	5,301.66	5,300.00	5,298.67	22.92	18.43	92.84	-1,686.23	-3,479.73	3,808.16	3,766.85	41.31	92.192	
5,500.00	5,399.47	5,393.25	5,391.80	23.37	18.76	93.10	-1,689.52	-3,483.32	3,813.83	3,771.75	42.08	90.631	
5,600.00	5,497.29	5,492.13	5,490.54	23.82	19.10	93.37	-1,693.04	-3,486.99	3,819.46	3,776.59	42.88	89.079	
5,700.00	5,595.10	5,599.16	5,597.44	24.28	19.48	93.66	-1,696.65	-3,490.95	3,825.13	3,781.42	43.71	87.521	
5,800.00	5,692.92	5,703.46	5,701.61	24.73	19.84	93.94	-1,700.12	-3,494.77	3,830.85	3,786.32	44.52	86.043	
5,900.00	5,790.73	5,792.92	5,790.96	25.18	20.15	94.19	-1,703.22	-3,498.11	3,836.72	3,791.44	45.28	84.731	
6,000.00	5,888.55	5,892.00	5,889.91	25.63	20.50	94.45	-1,706.78	-3,501.77	3,842.68	3,796.61	46.08	83.396	
6,100.00	5,986.36	5,994.33	5,992.11	26.08	20.86	94.72	-1,710.47	-3,505.42	3,848.61	3,801.72	46.89	82.083	
6,200.00	6,084.18	6,100.14	6,097.77	26.54	21.23	95.00	-1,714.50	-3,509.23	3,854.69	3,806.98	47.71	80.795	
6,300.00	6,181.99	6,175.00	6,172.52	26.99	21.49	95.20	-1,717.36	-3,512.06	3,860.99	3,812.58	48.41	79.758	
6,400.00	6,279.81	6,265.69	6,263.07	27.44	21.81	95.43	-1,720.84	-3,515.69	3,867.62	3,818.45	49.17	78.656	
6,500.00	6,377.62	6,367.91	6,365.13	27.89	22.17	95.70	-1,724.60	-3,519.93	3,874.43	3,824.45	49.98	77.521	
6,530.62	6,407.57	6,385.02	6,382.22	28.03	22.23	95.75	-1,725.28	-3,520.64	3,876.56	3,826.39	50.17	77.270	
6,550.00	6,426.48	6,400.00	6,397.17	28.12	22.28	101.17	-1,725.81	-3,521.33	3,878.21	3,827.91	50.31	77.091	
6,600.00	6,474.77	6,444.96	6,442.05	28.36	22.44	111.02	-1,727.40	-3,523.39	3,884.65	3,833.95	50.70	76.619	
6,650.00	6,522.09	6,497.96	6,494.96	28.62	22.63	117.03	-1,729.28	-3,525.81	3,894.21	3,843.07	51.14	76.146	
6,700.00	6,568.15	6,537.69	6,534.63	28.89	22.76	120.73	-1,730.74	-3,527.59	3,906.82	3,855.28	51.54	75.803	
6,750.00	6,612.66	6,594.60	6,591.44	29.18	22.96	123.10	-1,732.78	-3,530.07	3,922.39	3,870.37	52.02	75.404	
6,800.00	6,655.36	6,658.41	6,655.16	29.48	23.19	124.57	-1,735.12	-3,532.68	3,940.84	3,888.31	52.53	75.016	
6,850.00	6,695.98	6,691.44	6,688.15	29.79	23.30	125.11	-1,736.34	-3,533.92	3,962.03	3,909.10	52.93	74.855	
6,900.00	6,734.26	6,754.23	6,750.86	30.11	23.52	125.29	-1,738.46	-3,536.19	3,985.91	3,932.46	53.45	74.571	
6,950.00	6,769.98	6,817.77	6,814.33	30.45	23.75	125.01	-1,740.42	-3,538.17	4,012.31	3,958.33	53.98	74.333	
7,000.00	6,802.91	6,858.66	6,855.19	30.79	23.89	124.06	-1,741.65	-3,539.20	4,041.01	3,986.60	54.41	74.265	
7,050.00	6,832.85	6,912.87	6,909.37	31.15	24.08	122.80	-1,743.10	-3,540.38	4,071.99	4,017.08	54.90	74.170	SF
7,100.00	6,859.62	6,936.96	6,933.45	31.51	24.16	120.67	-1,743.79	-3,540.84	4,105.14	4,049.87	55.27	74.279	
7,150.00	6,883.05	6,966.06	6,962.53	31.89	24.27	118.07	-1,744.54	-3,541.42	4,140.34	4,084.69	55.65	74.403	
7,200.00	6,902.99	6,998.76	6,995.22	32.28	24.38	114.94	-1,745.29	-3,541.97	4,177.32	4,121.28	56.04	74.548	
7,250.00	6,919.32	7,015.12	7,011.57	32.67	24.44	110.87	-1,745.67	-3,542.23	4,215.90	4,159.55	56.35	74.815	
7,300.00	6,931.95	7,025.00	7,021.45	33.08	24.47	105.95	-1,745.89	-3,542.38	4,255.87	4,199.24	56.63	75.149	
7,350.00	6,940.79	7,033.47	7,029.91	33.49	24.50	100.23	-1,746.07	-3,542.52	4,296.98	4,240.09	56.90	75.522	
7,400.00	6,945.79	7,037.14	7,033.58	33.90	24.52	93.69	-1,746.16	-3,542.58	4,338.99	4,281.85	57.13	75.947	
7,439.53	6,947.00	7,037.95	7,034.39	34.24	24.52	88.04	-1,746.18	-3,542.59	4,372.64	4,315.34	57.30	76.309	
7,500.00	6,947.00	7,037.75	7,034.19	34.75	24.52	87.96	-1,746.17	-3,542.59	4,424.78	4,367.23	57.54	76.895	
7,600.00	6,947.00	7,037.37	7,033.81	35.63	24.52	87.81	-1,746.16	-3,542.58	4,512.80	4,454.88	57.92	77.916	
7,700.00	6,947.00	7,036.92	7,033.36	36.54	24.51	87.64	-1,746.15	-3,542.58	4,602.86	4,544.60	58.26	79.004	
7,800.00	6,947.00	7,036.40	7,032.85	37.47	24.51	87.42	-1,746.14	-3,542.57	4,694.75	4,636.18	58.57	80.155	
7,900.00	6,947.00	7,035.82	7,032.27	38.43	24.51	87.15	-1,746.13	-3,542.56	4,788.24	4,729.39	58.85	81.367	
8,000.00	6,947.00	7,035.18	7,031.62	39.41	24.51	86.81	-1,746.11	-3,542.55	4,883.13	4,824.04	59.09	82.636	
8,100.00	6,947.00	7,034.47	7,030.91	40.40	24.51	86.36	-1,746.10	-3,542.54	4,979.24	4,919.93	59.30	83.961	
8,200.00	6,947.00	7,033.70	7,030.15	41.42	24.50	85.77	-1,746.08	-3,542.52	5,076.37	5,016.88	59.49	85.338	
8,300.00	6,947.00	7,032.88	7,029.32	42.44	24.50	84.92	-1,746.06	-3,542.51	5,174.35	5,114.72	59.64	86.765	
8,400.00	6,947.00	7,032.00	7,028.44	43.48	24.50	83.65	-1,746.04	-3,542.50	5,273.03	5,213.27	59.76	88.238	
8,500.00	6,947.00	7,031.06	7,027.51	44.53	24.49	81.51	-1,746.02	-3,542.48	5,372.24	5,312.39	59.85	89.756	
8,600.00	6,947.00	7,030.08	7,026.52	45.58	24.49	77.24	-1,746.00	-3,542.46	5,471.84	5,411.92	59.92	91.315	
8,700.00	6,947.00	7,029.04	7,025.49	46.63	24.49	64.93	-1,745.98	-3,542.45	5,571.70	5,511.73	59.97	92.912	
8,800.00	6,947.00	7,025.00	7,021.45	47.69	24.47	-7.14	-1,745.89	-3,542.38	5,671.67	5,611.69	59.98	94.566	
8,841.31	6,947.00	7,025.00	7,021.45	48.13	24.47	-45.89	-1,745.89	-3,542.38	5,712.97	5,652.99	59.98	95.248	
8,900.00	6,947.00	7,025.00	7,021.45	48.76	24.47	-45.89	-1,745.89	-3,542.38	5,771.65	5,711.66	59.98	96.221	
9,000.00	6,947.00	7,025.00	7,021.45	49.85	24.47	-45.89	-1,745.89	-3,542.38	5,871.62	5,811.63	59.99	97.878	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 50-A020Ga_GYRO-NS

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,100.00	6,947.00	7,025.00	7,021.45	50.97	24.47	-45.89	-1,745.89	-3,542.38	5,971.60	5,911.60	60.00	99.532	
9,200.00	6,947.00	7,023.02	7,019.47	52.12	24.47	-45.29	-1,745.84	-3,542.35	6,071.57	6,011.58	60.00	101.198	
9,300.00	6,947.00	7,021.55	7,018.00	53.28	24.46	-44.85	-1,745.81	-3,542.33	6,171.55	6,111.55	60.00	102.859	
9,400.00	6,947.00	7,020.07	7,016.52	54.48	24.46	-44.41	-1,745.78	-3,542.31	6,271.53	6,211.52	60.00	104.518	
9,500.00	6,947.00	7,018.60	7,015.05	55.69	24.45	-43.98	-1,745.74	-3,542.28	6,371.50	6,311.49	60.01	106.175	
9,600.00	6,947.00	7,017.13	7,013.58	56.92	24.44	-43.56	-1,745.71	-3,542.26	6,471.48	6,411.47	60.02	107.830	
9,700.00	6,947.00	7,015.67	7,012.12	58.17	24.44	-43.15	-1,745.68	-3,542.24	6,571.46	6,511.44	60.02	109.483	
9,800.00	6,947.00	7,014.20	7,010.66	59.44	24.43	-42.74	-1,745.65	-3,542.21	6,671.44	6,611.41	60.03	111.134	
9,900.00	6,947.00	7,012.74	7,009.19	60.73	24.43	-42.35	-1,745.61	-3,542.19	6,771.42	6,711.38	60.04	112.783	
10,000.00	6,947.00	7,011.28	7,007.74	62.03	24.42	-41.95	-1,745.58	-3,542.17	6,871.40	6,811.35	60.05	114.429	
10,100.00	6,947.00	7,009.83	7,006.28	63.34	24.42	-41.57	-1,745.55	-3,542.15	6,971.38	6,911.32	60.06	116.074	
10,200.00	6,947.00	7,008.37	7,004.83	64.67	24.41	-41.19	-1,745.51	-3,542.12	7,071.36	7,011.28	60.07	117.716	
10,300.00	6,947.00	7,006.92	7,003.37	66.01	24.41	-40.82	-1,745.48	-3,542.10	7,171.34	7,111.25	60.08	119.356	
10,400.00	6,947.00	7,005.47	7,001.92	67.36	24.40	-40.45	-1,745.45	-3,542.08	7,271.32	7,211.22	60.10	120.994	
10,500.00	6,947.00	7,004.02	7,000.48	68.73	24.40	-40.10	-1,745.41	-3,542.06	7,371.30	7,311.18	60.11	122.629	
10,600.00	6,947.00	6,994.42	6,990.87	70.10	24.37	-37.85	-1,745.19	-3,541.90	7,471.27	7,411.18	60.09	124.330	
10,700.00	6,947.00	7,003.74	7,000.19	71.48	24.40	-40.02	-1,745.41	-3,542.05	7,571.26	7,511.11	60.15	125.869	
10,800.00	6,947.00	6,998.96	6,995.42	72.88	24.38	-38.88	-1,745.30	-3,541.98	7,671.24	7,611.08	60.15	127.525	
10,900.00	6,947.00	6,993.91	6,990.37	74.28	24.36	-37.74	-1,745.18	-3,541.90	7,771.22	7,711.06	60.16	129.182	
11,000.00	6,947.00	6,988.56	6,985.02	75.69	24.34	-36.59	-1,745.06	-3,541.81	7,871.20	7,811.04	60.16	130.840	
11,100.00	6,947.00	6,967.38	6,963.85	77.10	24.27	-32.60	-1,744.57	-3,541.43	7,971.18	7,911.08	60.10	132.638	
11,200.00	6,947.00	6,977.59	6,974.06	78.53	24.31	-34.41	-1,744.81	-3,541.62	8,071.16	8,010.99	60.16	134.151	
11,300.00	6,947.00	6,968.38	6,964.85	79.96	24.27	-32.77	-1,744.60	-3,541.46	8,171.13	8,110.98	60.15	135.839	
11,400.00	6,947.00	6,958.13	6,954.61	81.40	24.24	-31.10	-1,744.35	-3,541.27	8,271.11	8,210.97	60.14	137.535	
11,500.00	6,947.00	6,950.00	6,946.48	82.84	24.21	-29.90	-1,744.14	-3,541.10	8,371.09	8,310.95	60.13	139.210	
11,600.00	6,947.00	6,950.00	6,946.48	84.29	24.21	-29.90	-1,744.14	-3,541.10	8,471.06	8,410.90	60.16	140.806	
11,700.00	6,947.00	6,950.00	6,946.48	85.75	24.21	-29.90	-1,744.14	-3,541.10	8,571.03	8,510.84	60.19	142.398	
11,800.00	6,947.00	6,945.33	6,941.81	87.21	24.19	-29.25	-1,744.02	-3,541.01	8,671.01	8,610.81	60.20	144.033	
11,900.00	6,947.00	6,943.93	6,940.41	88.68	24.19	-29.06	-1,743.98	-3,540.98	8,770.98	8,710.76	60.23	145.633	
12,000.00	6,947.00	6,942.53	6,939.02	90.15	24.18	-28.87	-1,743.94	-3,540.95	8,870.96	8,810.71	60.25	147.229	
12,100.00	6,947.00	6,941.15	6,937.63	91.62	24.18	-28.69	-1,743.90	-3,540.93	8,970.93	8,910.65	60.28	148.823	
12,200.00	6,947.00	6,939.77	6,936.25	93.10	24.17	-28.51	-1,743.86	-3,540.90	9,070.91	9,010.60	60.31	150.413	
12,300.00	6,947.00	6,938.40	6,934.89	94.59	24.17	-28.33	-1,743.83	-3,540.87	9,170.88	9,110.55	60.33	152.000	
12,400.00	6,947.00	6,937.04	6,933.53	96.07	24.16	-28.16	-1,743.79	-3,540.85	9,270.86	9,210.50	60.36	153.584	
12,500.00	6,947.00	6,935.69	6,932.18	97.56	24.16	-27.99	-1,743.75	-3,540.82	9,370.84	9,310.44	60.39	155.164	
12,600.00	6,947.00	6,934.35	6,930.84	99.06	24.15	-27.82	-1,743.71	-3,540.79	9,470.81	9,410.39	60.42	156.741	
12,700.00	6,947.00	6,933.02	6,929.51	100.56	24.15	-27.66	-1,743.67	-3,540.77	9,570.79	9,510.34	60.45	158.314	
12,800.00	6,947.00	6,931.70	6,928.18	102.06	24.15	-27.50	-1,743.64	-3,540.74	9,670.77	9,610.28	60.49	159.883	
12,900.00	6,947.00	6,930.38	6,926.87	103.56	24.14	-27.34	-1,743.60	-3,540.72	9,770.74	9,710.23	60.52	161.450	
13,000.00	6,947.00	6,929.07	6,925.56	105.07	24.14	-27.18	-1,743.56	-3,540.69	9,870.72	9,810.17	60.55	163.012	
13,100.00	6,947.00	6,925.00	6,921.49	106.58	24.12	-26.71	-1,743.44	-3,540.61	9,970.70	9,910.13	60.57	164.602	
13,200.00	6,947.00	6,925.00	6,921.49	108.10	24.12	-26.71	-1,743.44	-3,540.61	10,070.68	10,010.06	60.61	166.143	
13,300.00	6,947.00	6,925.00	6,921.49	109.61	24.12	-26.71	-1,743.44	-3,540.61	10,170.66	10,110.00	60.66	167.680	
13,400.00	6,947.00	6,923.43	6,919.93	111.13	24.12	-26.54	-1,743.40	-3,540.58	10,270.63	10,209.94	60.69	169.231	
13,500.00	6,947.00	6,921.59	6,918.08	112.65	24.11	-26.33	-1,743.34	-3,540.55	10,370.61	10,309.89	60.72	170.781	
13,600.00	6,947.00	6,919.74	6,916.23	114.17	24.10	-26.13	-1,743.29	-3,540.51	10,470.59	10,409.83	60.76	172.328	
13,700.00	6,947.00	6,917.89	6,914.39	115.70	24.10	-25.93	-1,743.24	-3,540.48	10,570.57	10,509.77	60.80	173.871	
13,800.00	6,947.00	6,916.04	6,912.54	117.23	24.09	-25.73	-1,743.18	-3,540.44	10,670.55	10,609.71	60.83	175.411	
13,900.00	6,947.00	6,850.00	6,846.54	118.76	23.86	-20.25	-1,741.39	-3,538.99	10,770.52	10,709.91	60.61	177.704	
14,000.00	6,947.00	6,845.14	6,841.68	120.29	23.84	-19.94	-1,741.24	-3,538.86	10,870.48	10,809.85	60.64	179.277	
14,100.00	6,947.00	6,747.95	6,744.59	121.82	23.50	-15.38	-1,738.25	-3,535.98	10,970.43	10,910.14	60.29	181.964	
14,200.00	6,947.00	6,750.74	6,747.37	123.36	23.51	-15.48	-1,738.34	-3,536.07	11,070.37	11,010.02	60.35	183.445	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 50-A020Ga_GYRO-NS

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,300.00	6,947.00	6,688.18	6,684.88	124.89	23.29	-13.57	-1,736.22	-3,533.80	11,170.28	11,110.14	60.14	185.729	
14,400.00	6,947.00	6,686.69	6,683.40	126.43	23.29	-13.54	-1,736.16	-3,533.74	11,270.20	11,210.02	60.19	187.258	
14,500.00	6,947.00	6,685.22	6,681.93	127.97	23.28	-13.50	-1,736.11	-3,533.68	11,370.13	11,309.90	60.23	188.783	
14,600.00	6,947.00	6,683.77	6,680.48	129.51	23.28	-13.46	-1,736.05	-3,533.63	11,470.05	11,409.78	60.27	190.303	
14,700.00	6,947.00	6,675.00	6,671.73	131.06	23.25	-13.24	-1,735.72	-3,533.30	11,569.98	11,509.70	60.29	191.913	
14,800.00	6,947.00	6,675.00	6,671.73	132.60	23.25	-13.24	-1,735.72	-3,533.30	11,669.91	11,609.57	60.34	193.407	
14,900.00	6,947.00	6,675.00	6,671.73	134.15	23.25	-13.24	-1,735.72	-3,533.30	11,769.83	11,709.44	60.39	194.896	
15,000.00	6,947.00	6,675.00	6,671.73	135.70	23.25	-13.24	-1,735.72	-3,533.30	11,869.76	11,809.32	60.44	196.382	
15,100.00	6,947.00	6,673.68	6,670.40	137.24	23.24	-13.21	-1,735.68	-3,533.25	11,969.69	11,909.20	60.49	197.879	
15,200.00	6,947.00	6,676.99	6,673.71	138.79	23.25	-13.29	-1,735.80	-3,533.37	12,069.62	12,009.06	60.56	199.312	
15,300.00	6,947.00	6,600.00	6,596.84	140.35	22.98	-11.67	-1,732.98	-3,530.31	12,169.54	12,109.23	60.31	201.799	
15,400.00	6,947.00	6,600.00	6,596.84	141.90	22.98	-11.67	-1,732.98	-3,530.31	12,269.44	12,209.08	60.36	203.271	
15,500.00	6,947.00	6,600.00	6,596.84	143.45	22.98	-11.67	-1,732.98	-3,530.31	12,369.35	12,308.94	60.42	204.739	
15,600.00	6,947.00	6,591.92	6,588.77	145.01	22.95	-11.52	-1,732.68	-3,529.96	12,469.26	12,408.82	60.44	206.310	
15,700.00	6,947.00	6,590.34	6,587.19	146.56	22.95	-11.50	-1,732.62	-3,529.89	12,569.16	12,508.67	60.49	207.790	
15,800.00	6,947.00	6,588.77	6,585.62	148.12	22.94	-11.47	-1,732.56	-3,529.83	12,669.07	12,608.53	60.54	209.265	
15,900.00	6,947.00	6,534.63	6,531.57	149.68	22.75	-10.61	-1,730.63	-3,527.45	12,768.98	12,708.59	60.39	211.450	
16,000.00	6,947.00	6,532.52	6,529.47	151.23	22.75	-10.58	-1,730.55	-3,527.35	12,868.87	12,808.44	60.44	212.926	
16,100.00	6,947.00	6,525.00	6,521.96	152.79	22.72	-10.48	-1,730.26	-3,527.01	12,968.77	12,908.30	60.47	214.473	
16,200.00	6,947.00	6,525.00	6,521.96	154.36	22.72	-10.48	-1,730.26	-3,527.01	13,068.66	13,008.14	60.53	215.912	
16,300.00	6,947.00	6,525.00	6,521.96	155.92	22.72	-10.48	-1,730.26	-3,527.01	13,168.56	13,107.97	60.59	217.347	
16,400.00	6,947.00	6,525.00	6,521.96	157.48	22.72	-10.48	-1,730.26	-3,527.01	13,268.46	13,207.81	60.65	218.776	
16,500.00	6,947.00	6,525.00	6,521.96	159.04	22.72	-10.48	-1,730.26	-3,527.01	13,368.35	13,307.64	60.71	220.201	
16,600.00	6,947.00	6,519.19	6,516.16	160.61	22.70	-10.40	-1,730.04	-3,526.75	13,468.25	13,407.50	60.75	221.703	
16,700.00	6,947.00	6,516.76	6,513.74	162.17	22.69	-10.37	-1,729.95	-3,526.64	13,568.15	13,507.35	60.80	223.152	
16,800.00	6,947.00	6,514.36	6,511.33	163.74	22.68	-10.33	-1,729.86	-3,526.54	13,668.05	13,607.20	60.86	224.597	
16,900.00	6,947.00	6,511.96	6,508.94	165.30	22.67	-10.30	-1,729.77	-3,526.43	13,767.95	13,707.04	60.91	226.037	
17,000.00	6,947.00	6,509.59	6,506.57	166.87	22.67	-10.27	-1,729.68	-3,526.33	13,867.85	13,806.89	60.97	227.472	
17,100.00	6,947.00	6,507.22	6,504.21	168.44	22.66	-10.24	-1,729.60	-3,526.22	13,967.75	13,906.73	61.02	228.903	
17,200.00	6,947.00	6,488.11	6,485.13	170.01	22.59	-9.99	-1,728.94	-3,525.37	14,067.65	14,006.64	61.01	230.568	
17,300.00	6,947.00	6,463.52	6,460.58	171.57	22.50	-9.70	-1,728.09	-3,524.25	14,167.55	14,106.56	60.99	232.308	
17,400.00	6,947.00	6,459.29	6,456.35	173.14	22.49	-9.65	-1,727.94	-3,524.05	14,267.44	14,206.40	61.04	233.753	
17,500.00	6,947.00	6,455.06	6,452.13	174.71	22.47	-9.60	-1,727.78	-3,523.86	14,367.33	14,306.24	61.09	235.194	
17,600.00	6,947.00	6,450.00	6,447.08	176.28	22.46	-9.54	-1,727.59	-3,523.62	14,467.22	14,406.09	61.14	236.643	
17,700.00	6,947.00	6,450.00	6,447.08	177.86	22.46	-9.54	-1,727.59	-3,523.62	14,567.12	14,505.91	61.20	238.013	
17,800.00	6,947.00	6,450.00	6,447.08	179.43	22.46	-9.54	-1,727.59	-3,523.62	14,667.01	14,605.74	61.27	239.378	
17,900.00	6,947.00	6,450.00	6,447.08	181.00	22.46	-9.54	-1,727.59	-3,523.62	14,766.90	14,705.56	61.34	240.738	
18,000.00	6,947.00	6,442.40	6,439.50	182.57	22.43	-9.46	-1,727.30	-3,523.27	14,866.80	14,805.41	61.38	242.205	
18,100.00	6,947.00	6,440.44	6,437.54	184.15	22.42	-9.44	-1,727.23	-3,523.18	14,966.69	14,905.25	61.44	243.585	
18,200.00	6,947.00	6,438.49	6,435.60	185.72	22.42	-9.42	-1,727.16	-3,523.10	15,066.59	15,005.08	61.51	244.960	
18,300.00	6,947.00	6,436.56	6,433.67	187.30	22.41	-9.40	-1,727.09	-3,523.01	15,166.48	15,104.91	61.57	246.329	
18,400.00	6,947.00	6,434.65	6,431.76	188.87	22.40	-9.38	-1,727.02	-3,522.92	15,266.38	15,204.75	61.63	247.694	
18,500.00	6,947.00	6,408.30	6,405.45	190.45	22.31	-9.11	-1,726.10	-3,521.72	15,366.28	15,304.67	61.61	249.417	
18,600.00	6,947.00	6,403.68	6,400.84	192.02	22.29	-9.06	-1,725.94	-3,521.50	15,466.17	15,404.50	61.66	250.813	
18,700.00	6,947.00	6,400.00	6,397.17	193.60	22.28	-9.03	-1,725.81	-3,521.33	15,566.06	15,504.33	61.72	252.191	
18,800.00	6,947.00	6,400.00	6,397.17	195.18	22.28	-9.03	-1,725.81	-3,521.33	15,665.95	15,604.15	61.80	253.508	
18,900.00	6,947.00	6,400.00	6,397.17	196.75	22.28	-9.03	-1,725.81	-3,521.33	15,765.84	15,703.97	61.87	254.820	
19,000.00	6,947.00	6,400.00	6,397.17	198.33	22.28	-9.03	-1,725.81	-3,521.33	15,865.74	15,803.80	61.94	256.128	
19,100.00	6,947.00	6,400.00	6,397.17	199.91	22.28	-9.03	-1,725.81	-3,521.33	15,965.64	15,903.62	62.02	257.430	
19,200.00	6,947.00	6,400.00	6,397.17	201.49	22.28	-9.03	-1,725.81	-3,521.33	16,065.53	16,003.44	62.09	258.728	
19,300.00	6,947.00	6,389.28	6,386.47	203.07	22.24	-8.93	-1,725.44	-3,520.83	16,165.41	16,103.28	62.13	260.183	
19,400.00	6,947.00	6,388.55	6,385.73	204.65	22.24	-8.92	-1,725.41	-3,520.80	16,265.31	16,203.10	62.20	261.482	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 50-A020Ga_GYRO-NS

Rule Assigned:

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
19,500.00	6,947.00	6,387.82	6,385.01	206.23	22.24	-8.91	-1,725.38	-3,520.76	16,365.21	16,302.93	62.28	262.776	
19,600.00	6,947.00	6,387.10	6,384.29	207.81	22.24	-8.91	-1,725.35	-3,520.73	16,465.11	16,402.75	62.35	264.065	
19,700.00	6,947.00	6,386.38	6,383.57	209.39	22.23	-8.90	-1,725.33	-3,520.70	16,565.01	16,502.58	62.43	265.349	
19,800.00	6,947.00	6,385.68	6,382.87	210.97	22.23	-8.89	-1,725.30	-3,520.67	16,664.91	16,602.41	62.50	266.627	
19,900.00	6,947.00	6,375.00	6,372.21	212.55	22.19	-8.80	-1,724.88	-3,520.21	16,764.83	16,702.29	62.54	268.057	
20,000.00	6,947.00	6,375.00	6,372.21	214.13	22.19	-8.80	-1,724.88	-3,520.21	16,864.73	16,802.11	62.62	269.315	
20,100.00	6,947.00	6,375.00	6,372.21	215.71	22.19	-8.80	-1,724.88	-3,520.21	16,964.63	16,901.93	62.70	270.568	
20,200.00	6,947.00	6,375.00	6,372.21	217.30	22.19	-8.80	-1,724.88	-3,520.21	17,064.54	17,001.76	62.78	271.816	
20,300.00	6,947.00	6,375.00	6,372.21	218.88	22.19	-8.80	-1,724.88	-3,520.21	17,164.44	17,101.58	62.86	273.059	
20,400.00	6,947.00	6,375.00	6,372.21	220.46	22.19	-8.80	-1,724.88	-3,520.21	17,264.35	17,201.41	62.94	274.298	
20,500.00	6,947.00	6,375.00	6,372.21	222.04	22.19	-8.80	-1,724.88	-3,520.21	17,364.25	17,301.23	63.02	275.531	
20,600.00	6,947.00	6,375.00	6,372.21	223.63	22.19	-8.80	-1,724.88	-3,520.21	17,464.16	17,401.06	63.10	276.759	
20,700.00	6,947.00	6,375.00	6,372.21	225.21	22.19	-8.80	-1,724.88	-3,520.21	17,564.07	17,500.88	63.18	277.982	
20,800.00	6,947.00	6,375.00	6,372.21	226.80	22.19	-8.80	-1,724.88	-3,520.21	17,663.98	17,600.71	63.27	279.200	
20,900.00	6,947.00	6,375.00	6,372.21	228.38	22.19	-8.80	-1,724.88	-3,520.21	17,763.89	17,700.54	63.35	280.414	
21,000.00	6,947.00	6,375.00	6,372.21	229.97	22.19	-8.80	-1,724.88	-3,520.21	17,863.80	17,800.37	63.43	281.622	
21,032.01	6,947.00	6,375.00	6,372.21	230.47	22.19	-8.80	-1,724.88	-3,520.21	17,895.78	17,832.32	63.46	282.008	
21,032.99	6,947.00	6,375.00	6,372.21	230.51	22.19	-8.80	-1,724.88	-3,520.21	17,896.76	17,829.42	67.34	265.772	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	161.00	161.00	0.00	4.82	-118.54	-2,530.31	-4,652.67	5,296.20				
100.00	100.00	261.00	261.00	0.25	7.82	-118.54	-2,530.31	-4,652.67	5,296.20	5,288.13	8.07	656.139	
200.00	200.00	361.00	361.00	0.61	10.82	-118.54	-2,530.31	-4,652.67	5,296.20	5,284.78	11.43	463.496	
300.00	300.00	461.00	461.00	0.97	13.81	-118.54	-2,530.31	-4,652.67	5,296.20	5,281.42	14.78	358.299	
400.00	400.00	561.10	561.00	1.33	16.81	-118.54	-2,530.31	-4,652.67	5,296.20	5,278.06	18.14	291.971	
500.00	500.00	661.10	661.00	1.68	19.81	-118.54	-2,530.31	-4,652.67	5,296.20	5,274.71	21.49	246.399	
600.00	599.98	759.40	759.26	2.03	22.76	76.51	-2,528.13	-4,652.67	5,294.76	5,269.97	24.78	213.658	
700.00	699.84	844.36	844.20	2.36	25.30	76.57	-2,528.44	-4,652.67	5,293.71	5,266.05	27.66	191.383	
800.00	799.45	929.22	929.04	2.71	27.84	76.67	-2,529.25	-4,652.67	5,292.14	5,261.60	30.55	173.247	
900.00	898.70	1,060.11	1,059.70	3.06	31.77	76.88	-2,530.31	-4,652.67	5,289.75	5,254.92	34.83	151.892	
1,000.00	997.47	1,158.87	1,158.47	3.43	34.73	77.11	-2,530.31	-4,652.67	5,286.18	5,248.03	38.16	138.542	
1,100.00	1,095.62	1,255.98	1,255.53	3.82	37.63	77.41	-2,528.13	-4,652.67	5,280.88	5,239.43	41.45	127.395	
1,200.00	1,193.44	1,339.56	1,339.10	4.22	40.14	77.59	-2,528.41	-4,652.67	5,276.44	5,232.08	44.36	118.948	
1,300.00	1,291.25	1,423.37	1,422.89	4.64	42.65	77.77	-2,529.18	-4,652.67	5,272.35	5,225.07	47.28	111.511	
1,400.00	1,389.07	1,550.78	1,550.07	5.06	46.47	78.04	-2,530.31	-4,652.67	5,268.35	5,216.83	51.52	102.265	
1,500.00	1,486.88	1,648.59	1,647.88	5.48	49.40	78.26	-2,530.31	-4,652.67	5,263.99	5,209.12	54.87	95.935	
1,600.00	1,584.70	1,746.41	1,745.70	5.91	52.33	78.48	-2,530.31	-4,652.67	5,259.70	5,201.48	58.23	90.329	
1,700.00	1,682.51	1,830.97	1,830.21	6.35	54.86	78.68	-2,528.36	-4,652.67	5,254.65	5,193.45	61.19	85.871	
1,800.00	1,780.33	1,915.28	1,914.49	6.78	57.39	78.86	-2,529.08	-4,652.67	5,250.90	5,186.75	64.15	81.851	
1,900.00	1,878.14	2,040.16	2,039.14	7.22	61.13	79.13	-2,530.31	-4,652.67	5,247.33	5,179.00	68.33	76.795	
2,000.00	1,975.96	2,137.97	2,136.96	7.66	64.06	79.35	-2,530.31	-4,652.67	5,243.36	5,171.67	71.70	73.131	
2,100.00	2,073.77	2,235.79	2,234.77	8.10	66.99	79.57	-2,530.31	-4,652.67	5,239.48	5,164.41	75.07	69.796	
2,200.00	2,171.59	2,322.28	2,321.21	8.54	69.59	79.78	-2,528.31	-4,652.67	5,234.83	5,156.73	78.10	67.027	
2,300.00	2,269.40	2,407.08	2,406.00	8.98	72.13	79.96	-2,528.99	-4,652.67	5,231.44	5,150.36	81.08	64.519	
2,400.00	2,367.22	2,529.53	2,528.22	9.43	75.80	80.22	-2,530.31	-4,652.67	5,228.30	5,143.10	85.20	61.368	
2,500.00	2,465.03	2,627.35	2,626.03	9.87	78.73	80.44	-2,530.31	-4,652.67	5,224.73	5,136.16	88.57	58.989	
2,600.00	2,562.84	2,725.16	2,723.84	10.32	81.66	80.66	-2,530.31	-4,652.67	5,221.24	5,129.30	91.95	56.786	
2,700.00	2,660.66	2,813.48	2,812.11	10.77	84.30	80.88	-2,528.27	-4,652.67	5,217.01	5,121.97	95.04	54.893	
2,800.00	2,758.47	2,898.79	2,897.40	11.21	86.86	81.07	-2,528.90	-4,652.67	5,213.99	5,115.95	98.04	53.182	
2,900.00	2,856.29	3,018.91	3,017.29	11.66	90.46	81.33	-2,530.31	-4,652.67	5,211.27	5,109.18	102.09	51.047	
3,000.00	2,954.10	3,116.73	3,115.10	12.11	93.39	81.55	-2,530.31	-4,652.67	5,208.11	5,102.64	105.47	49.382	
3,100.00	3,051.92	3,214.54	3,212.92	12.56	96.32	81.77	-2,530.31	-4,652.67	5,205.02	5,096.18	108.84	47.821	
3,200.00	3,149.73	3,304.57	3,302.90	13.01	99.02	81.99	-2,528.23	-4,652.67	5,201.21	5,089.22	111.99	46.443	
3,300.00	3,247.55	3,390.39	3,388.70	13.45	101.59	82.18	-2,528.81	-4,652.67	5,198.56	5,083.55	115.01	45.200	
3,400.00	3,345.36	3,508.29	3,506.36	13.90	105.12	82.44	-2,530.31	-4,652.67	5,196.27	5,077.27	118.99	43.668	
3,500.00	3,443.18	3,606.11	3,604.18	14.35	108.06	82.66	-2,530.31	-4,652.67	5,193.51	5,071.13	122.37	42.439	
3,600.00	3,540.99	3,703.92	3,701.99	14.80	110.99	82.88	-2,530.31	-4,652.67	5,190.83	5,065.08	125.76	41.277	
3,700.00	3,638.81	3,795.55	3,793.58	15.25	113.73	83.11	-2,528.20	-4,652.67	5,187.45	5,058.50	128.95	40.228	
3,800.00	3,736.62	3,881.89	3,879.89	15.70	116.32	83.30	-2,528.73	-4,652.67	5,185.18	5,053.19	131.99	39.285	
3,900.00	3,834.44	3,968.46	3,966.44	16.15	118.91	83.49	-2,529.79	-4,652.67	5,183.20	5,048.16	135.03	38.385	
4,000.00	3,932.25	4,095.48	4,093.25	16.60	122.72	83.77	-2,530.31	-4,652.67	5,180.96	5,041.67	139.29	37.195	
4,100.00	4,030.07	4,193.30	4,191.07	17.05	125.65	84.00	-2,530.31	-4,652.67	5,178.69	5,036.02	142.67	36.297	
4,200.00	4,127.88	4,286.42	4,284.14	17.50	128.44	84.23	-2,528.17	-4,652.67	5,175.75	5,029.84	145.92	35.471	
4,300.00	4,225.70	4,373.28	4,370.98	17.96	131.04	84.43	-2,528.66	-4,652.67	5,173.86	5,024.89	148.97	34.731	
4,400.00	4,323.51	4,460.38	4,458.06	18.41	133.65	84.62	-2,529.67	-4,652.67	5,172.24	5,020.21	152.03	34.021	
4,500.00	4,421.33	4,584.86	4,582.33	18.86	137.38	84.89	-2,530.31	-4,652.67	5,170.47	5,014.25	156.21	33.099	
4,600.00	4,519.14	4,682.68	4,680.14	19.31	140.31	85.12	-2,530.31	-4,652.67	5,168.62	5,009.02	159.60	32.385	
4,700.00	4,616.95	4,777.18	4,774.60	19.76	143.15	85.36	-2,528.15	-4,652.67	5,166.12	5,003.24	162.88	31.717	
4,800.00	4,714.77	4,864.57	4,861.97	20.21	145.76	85.55	-2,528.58	-4,652.67	5,164.61	4,998.65	165.95	31.121	
4,900.00	4,812.58	4,952.20	4,949.57	20.66	148.39	85.75	-2,529.55	-4,652.67	5,163.37	4,994.34	169.03	30.547	
5,000.00	4,910.40	5,074.24	5,071.40	21.11	152.05	86.02	-2,530.31	-4,652.67	5,162.05	4,988.90	173.14	29.814	
5,100.00	5,008.21	5,172.06	5,169.21	21.57	154.98	86.24	-2,530.31	-4,652.67	5,160.61	4,984.09	176.52	29.234	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,200.00	5,106.03	5,267.82	5,264.93	22.02	157.85	86.49	-2,528.14	-4,652.67	5,158.57	4,978.72	179.85	28.683	
5,300.00	5,203.84	5,355.74	5,352.84	22.47	160.48	86.68	-2,528.52	-4,652.67	5,157.44	4,974.51	182.93	28.193	
5,400.00	5,301.66	5,443.91	5,440.99	22.92	163.12	86.88	-2,529.44	-4,652.67	5,156.59	4,970.56	186.03	27.719	
5,500.00	5,399.47	5,563.62	5,560.47	23.37	166.71	87.15	-2,530.31	-4,652.67	5,155.71	4,965.64	190.07	27.125	
5,600.00	5,497.29	5,661.43	5,658.29	23.82	169.64	87.37	-2,530.31	-4,652.67	5,154.69	4,961.24	193.45	26.646	
5,700.00	5,595.10	5,758.34	5,755.15	24.28	172.55	87.62	-2,528.13	-4,652.67	5,153.11	4,956.30	196.81	26.183	
5,800.00	5,692.92	5,846.81	5,843.60	24.73	175.20	87.82	-2,528.45	-4,652.67	5,152.37	4,952.46	199.91	25.773	
5,900.00	5,790.73	5,935.52	5,932.30	25.18	177.86	88.01	-2,529.33	-4,652.67	5,151.90	4,948.87	203.03	25.376	
6,000.00	5,888.55	6,053.00	6,049.55	25.63	181.38	88.28	-2,530.31	-4,652.67	5,151.46	4,944.46	207.00	24.886	
6,100.00	5,986.36	6,150.81	6,147.36	26.08	184.31	88.50	-2,530.31	-4,652.67	5,150.87	4,940.48	210.38	24.483	
6,200.00	6,084.18	6,248.63	6,245.18	26.54	187.24	88.73	-2,530.31	-4,652.67	5,150.35	4,936.58	213.77	24.093	
6,300.00	6,181.99	6,337.76	6,334.25	26.99	189.91	88.95	-2,528.40	-4,652.67	5,149.40	4,932.51	216.89	23.742	
6,387.60	6,267.67	6,415.94	6,412.42	27.38	192.25	89.13	-2,529.09	-4,652.67	5,149.31	4,929.68	219.63	23.445	
6,400.00	6,279.81	6,427.03	6,423.50	27.44	192.58	89.15	-2,529.22	-4,652.67	5,149.31	4,929.29	220.02	23.404	
6,500.00	6,377.62	6,542.38	6,538.62	27.89	196.04	89.41	-2,530.31	-4,652.67	5,149.31	4,925.38	223.93	22.995	
6,530.62	6,407.57	6,572.33	6,568.57	28.03	196.94	89.48	-2,530.31	-4,652.67	5,149.25	4,924.28	224.96	22.889	
6,532.31	6,409.22	6,573.98	6,570.22	28.04	196.99	90.00	-2,530.31	-4,652.67	5,149.25	4,924.23	225.02	22.883 CC	
6,550.00	6,426.48	6,591.24	6,587.48	28.12	197.50	94.98	-2,530.31	-4,652.67	5,149.43	4,923.81	225.62	22.823 ES	
6,600.00	6,474.77	6,639.53	6,635.77	28.36	198.95	105.02	-2,530.31	-4,652.67	5,151.90	4,924.59	227.31	22.665	
6,650.00	6,522.09	6,686.84	6,683.09	28.62	200.37	111.18	-2,530.31	-4,652.67	5,157.26	4,928.27	228.99	22.522	
6,700.00	6,568.15	6,732.90	6,729.15	28.89	201.75	115.07	-2,530.31	-4,652.67	5,165.49	4,934.85	230.64	22.396	
6,750.00	6,612.66	6,775.11	6,771.31	29.18	203.01	117.56	-2,528.15	-4,652.67	5,176.04	4,943.84	232.19	22.292	
6,800.00	6,655.36	6,814.30	6,810.50	29.48	204.19	119.03	-2,528.27	-4,652.67	5,189.98	4,956.32	233.67	22.211	
6,850.00	6,695.98	6,851.69	6,847.88	29.79	205.31	119.77	-2,528.49	-4,652.67	5,206.70	4,971.61	235.09	22.147	
6,900.00	6,734.26	6,887.04	6,883.22	30.11	206.37	119.90	-2,528.78	-4,652.67	5,226.11	4,989.65	236.47	22.101	
6,950.00	6,769.98	6,920.13	6,916.30	30.45	207.36	119.52	-2,529.14	-4,652.67	5,248.12	5,010.34	237.78	22.072	
7,000.00	6,802.91	6,950.76	6,946.92	30.79	208.28	118.66	-2,529.53	-4,652.67	5,272.59	5,033.57	239.02	22.059	
7,050.00	6,832.85	6,978.72	6,974.87	31.15	209.11	117.33	-2,529.95	-4,652.67	5,299.40	5,059.22	240.18	22.064	
7,100.00	6,859.62	7,024.68	7,020.62	31.51	210.49	115.75	-2,530.31	-4,652.67	5,328.35	5,086.46	241.89	22.028 SF	
7,150.00	6,883.05	7,048.11	7,044.05	31.89	211.19	113.50	-2,530.31	-4,652.67	5,359.27	5,116.35	242.91	22.062	
7,200.00	6,902.99	7,068.05	7,063.99	32.28	211.79	110.75	-2,530.31	-4,652.67	5,392.04	5,148.21	243.83	22.114	
7,250.00	6,919.32	7,084.38	7,080.32	32.67	212.28	107.46	-2,530.31	-4,652.67	5,426.47	5,181.83	244.64	22.182	
7,300.00	6,931.95	7,097.01	7,092.95	33.08	212.66	103.61	-2,530.31	-4,652.67	5,462.34	5,217.01	245.32	22.266	
7,350.00	6,940.79	7,105.85	7,101.79	33.49	212.92	99.20	-2,530.31	-4,652.67	5,499.43	5,253.54	245.89	22.366	
7,400.00	6,945.79	7,110.85	7,106.79	33.90	213.07	94.25	-2,530.31	-4,652.67	5,537.51	5,291.18	246.33	22.480	
7,439.53	6,947.00	7,112.06	7,108.00	34.24	213.11	90.00	-2,530.31	-4,652.67	5,568.16	5,321.58	246.58	22.581	
7,500.00	6,947.00	7,112.06	7,108.00	34.75	213.11	90.00	-2,530.31	-4,652.67	5,615.86	5,368.94	246.91	22.744	
7,600.00	6,947.00	7,112.06	7,108.00	35.63	213.11	90.00	-2,530.31	-4,652.67	5,696.93	5,449.49	247.43	23.024	
7,700.00	6,947.00	7,112.06	7,108.00	36.54	213.11	90.00	-2,530.31	-4,652.67	5,780.54	5,532.62	247.92	23.316	
7,800.00	6,947.00	7,112.06	7,108.00	37.47	213.11	90.00	-2,530.31	-4,652.67	5,866.49	5,618.11	248.38	23.619	
7,900.00	6,947.00	7,112.06	7,108.00	38.43	213.11	90.00	-2,530.31	-4,652.67	5,954.57	5,705.76	248.81	23.932	
8,000.00	6,947.00	7,112.06	7,108.00	39.41	213.11	90.00	-2,530.31	-4,652.67	6,044.58	5,795.38	249.20	24.256	
8,100.00	6,947.00	7,112.06	7,108.00	40.40	213.11	90.00	-2,530.31	-4,652.67	6,136.34	5,886.78	249.56	24.589	
8,200.00	6,947.00	7,112.06	7,108.00	41.42	213.11	90.00	-2,530.31	-4,652.67	6,229.65	5,979.77	249.88	24.931	
8,300.00	6,947.00	7,112.06	7,108.00	42.44	213.11	90.00	-2,530.31	-4,652.67	6,324.33	6,074.17	250.16	25.281	
8,400.00	6,947.00	7,112.06	7,108.00	43.48	213.11	90.00	-2,530.31	-4,652.67	6,420.22	6,169.80	250.42	25.638	
8,500.00	6,947.00	7,112.06	7,108.00	44.53	213.11	90.00	-2,530.31	-4,652.67	6,517.14	6,266.50	250.63	26.003	
8,600.00	6,947.00	7,112.06	7,108.00	45.58	213.11	90.00	-2,530.31	-4,652.67	6,614.93	6,364.11	250.82	26.373	
8,700.00	6,947.00	7,112.06	7,108.00	46.63	213.11	90.00	-2,530.31	-4,652.67	6,713.44	6,462.47	250.97	26.750	
8,800.00	6,947.00	7,112.06	7,108.00	47.69	213.11	90.00	-2,530.31	-4,652.67	6,812.52	6,561.43	251.09	27.132	
8,841.31	6,947.00	7,112.06	7,108.00	48.13	213.11	90.00	-2,530.31	-4,652.67	6,853.59	6,602.45	251.13	27.291	
8,900.00	6,947.00	7,112.06	7,108.00	48.76	213.11	90.00	-2,530.31	-4,652.67	6,911.97	6,660.79	251.19	27.517	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Rule Assigned: Minimum Separation (usft)	Separation Factor	Warning
9,000.00	6,947.00	7,112.06	7,108.00	49.85	213.11	90.00	-2,530.31	-4,652.67	7,011.47	6,760.19	251.28	27.903	
9,100.00	6,947.00	7,112.06	7,108.00	50.97	213.11	90.00	-2,530.31	-4,652.67	7,110.99	6,859.62	251.37	28.289	
9,200.00	6,947.00	7,112.06	7,108.00	52.12	213.11	90.00	-2,530.31	-4,652.67	7,210.51	6,959.05	251.46	28.675	
9,300.00	6,947.00	7,112.06	7,108.00	53.28	213.11	90.00	-2,530.31	-4,652.67	7,310.05	7,058.51	251.55	29.061	
9,400.00	6,947.00	7,112.06	7,108.00	54.48	213.11	90.00	-2,530.31	-4,652.67	7,409.60	7,157.97	251.63	29.446	
9,500.00	6,947.00	7,112.06	7,108.00	55.69	213.11	90.00	-2,530.31	-4,652.67	7,509.17	7,257.45	251.72	29.832	
9,600.00	6,947.00	7,112.06	7,108.00	56.92	213.11	90.00	-2,530.31	-4,652.67	7,608.74	7,356.94	251.80	30.217	
9,700.00	6,947.00	7,112.06	7,108.00	58.17	213.11	90.00	-2,530.31	-4,652.67	7,708.33	7,456.44	251.88	30.603	
9,800.00	6,947.00	7,112.06	7,108.00	59.44	213.11	90.00	-2,530.31	-4,652.67	7,807.92	7,555.96	251.97	30.988	
9,900.00	6,947.00	7,112.06	7,108.00	60.73	213.11	90.00	-2,530.31	-4,652.67	7,907.53	7,655.49	252.05	31.373	
10,000.00	6,947.00	7,112.06	7,108.00	62.03	213.11	90.00	-2,530.31	-4,652.67	8,007.15	7,755.02	252.13	31.759	
10,100.00	6,947.00	7,112.06	7,108.00	63.34	213.11	90.00	-2,530.31	-4,652.67	8,106.77	7,854.57	252.21	32.144	
10,200.00	6,947.00	7,112.06	7,108.00	64.67	213.11	90.00	-2,530.31	-4,652.67	8,206.41	7,954.13	252.28	32.529	
10,300.00	6,947.00	7,112.06	7,108.00	66.01	213.11	90.00	-2,530.31	-4,652.67	8,306.05	8,053.69	252.36	32.913	
10,400.00	6,947.00	7,112.06	7,108.00	67.36	213.11	90.00	-2,530.31	-4,652.67	8,405.71	8,153.27	252.44	33.298	
10,500.00	6,947.00	7,112.06	7,108.00	68.73	213.11	90.00	-2,530.31	-4,652.67	8,505.37	8,252.85	252.51	33.683	
10,600.00	6,947.00	7,112.06	7,108.00	70.10	213.11	90.00	-2,530.31	-4,652.67	8,605.03	8,352.44	252.59	34.067	
10,700.00	6,947.00	7,112.06	7,108.00	71.48	213.11	90.00	-2,530.31	-4,652.67	8,704.71	8,452.05	252.66	34.452	
10,800.00	6,947.00	7,112.06	7,108.00	72.88	213.11	90.00	-2,530.31	-4,652.67	8,804.39	8,551.65	252.74	34.836	
10,900.00	6,947.00	7,112.06	7,108.00	74.28	213.11	90.00	-2,530.31	-4,652.67	8,904.08	8,651.27	252.81	35.220	
11,000.00	6,947.00	7,112.06	7,108.00	75.69	213.11	90.00	-2,530.31	-4,652.67	9,003.78	8,750.90	252.89	35.604	
11,100.00	6,947.00	7,112.06	7,108.00	77.10	213.11	90.00	-2,530.31	-4,652.67	9,103.49	8,850.53	252.96	35.988	
11,200.00	6,947.00	7,112.06	7,108.00	78.53	213.11	90.00	-2,530.31	-4,652.67	9,203.20	8,950.16	253.03	36.372	
11,300.00	6,947.00	7,112.06	7,108.00	79.96	213.11	90.00	-2,530.31	-4,652.67	9,302.91	9,049.81	253.10	36.755	
11,400.00	6,947.00	7,112.06	7,108.00	81.40	213.11	90.00	-2,530.31	-4,652.67	9,402.64	9,149.46	253.18	37.139	
11,500.00	6,947.00	7,112.06	7,108.00	82.84	213.11	90.00	-2,530.31	-4,652.67	9,502.36	9,249.12	253.25	37.522	
11,600.00	6,947.00	7,112.06	7,108.00	84.29	213.11	90.00	-2,530.31	-4,652.67	9,602.10	9,348.78	253.32	37.905	
11,700.00	6,947.00	7,112.06	7,108.00	85.75	213.11	90.00	-2,530.31	-4,652.67	9,701.84	9,448.45	253.39	38.288	
11,800.00	6,947.00	7,112.06	7,108.00	87.21	213.11	90.00	-2,530.31	-4,652.67	9,801.58	9,548.12	253.46	38.671	
11,900.00	6,947.00	7,112.06	7,108.00	88.68	213.11	90.00	-2,530.31	-4,652.67	9,901.33	9,647.80	253.53	39.054	
12,000.00	6,947.00	7,112.06	7,108.00	90.15	213.11	90.00	-2,530.31	-4,652.67	10,001.09	9,747.49	253.60	39.437	
12,100.00	6,947.00	7,112.06	7,108.00	91.62	213.11	90.00	-2,530.31	-4,652.67	10,100.85	9,847.18	253.67	39.819	
12,200.00	6,947.00	7,112.06	7,108.00	93.10	213.11	90.00	-2,530.31	-4,652.67	10,200.61	9,946.87	253.74	40.201	
12,300.00	6,947.00	7,112.06	7,108.00	94.59	213.11	90.00	-2,530.31	-4,652.67	10,300.38	10,046.57	253.81	40.583	
12,400.00	6,947.00	7,112.06	7,108.00	96.07	213.11	90.00	-2,530.31	-4,652.67	10,400.15	10,146.28	253.88	40.965	
12,500.00	6,947.00	7,112.06	7,108.00	97.56	213.11	90.00	-2,530.31	-4,652.67	10,499.93	10,245.99	253.95	41.347	
12,600.00	6,947.00	7,112.06	7,108.00	99.06	213.11	90.00	-2,530.31	-4,652.67	10,599.71	10,345.70	254.01	41.729	
12,700.00	6,947.00	7,112.06	7,108.00	100.56	213.11	90.00	-2,530.31	-4,652.67	10,699.50	10,445.42	254.08	42.110	
12,800.00	6,947.00	7,112.06	7,108.00	102.06	213.11	90.00	-2,530.31	-4,652.67	10,799.29	10,545.14	254.15	42.492	
12,900.00	6,947.00	7,112.06	7,108.00	103.56	213.11	90.00	-2,530.31	-4,652.67	10,899.08	10,644.86	254.22	42.873	
13,000.00	6,947.00	7,112.06	7,108.00	105.07	213.11	90.00	-2,530.31	-4,652.67	10,998.88	10,744.59	254.29	43.254	
13,100.00	6,947.00	7,112.06	7,108.00	106.58	213.11	90.00	-2,530.31	-4,652.67	11,098.68	10,844.33	254.36	43.634	
13,200.00	6,947.00	7,112.06	7,108.00	108.10	213.11	90.00	-2,530.31	-4,652.67	11,198.49	10,944.06	254.43	44.015	
13,300.00	6,947.00	7,112.06	7,108.00	109.61	213.11	90.00	-2,530.31	-4,652.67	11,298.30	11,043.80	254.49	44.395	
13,400.00	6,947.00	7,112.06	7,108.00	111.13	213.11	90.00	-2,530.31	-4,652.67	11,398.11	11,143.55	254.56	44.775	
13,500.00	6,947.00	7,112.06	7,108.00	112.65	213.11	90.00	-2,530.31	-4,652.67	11,497.92	11,243.29	254.63	45.155	
13,600.00	6,947.00	7,112.06	7,108.00	114.17	213.11	90.00	-2,530.31	-4,652.67	11,597.74	11,343.04	254.70	45.535	
13,700.00	6,947.00	7,112.06	7,108.00	115.70	213.11	90.00	-2,530.31	-4,652.67	11,697.56	11,442.80	254.77	45.915	
13,800.00	6,947.00	7,112.06	7,108.00	117.23	213.11	90.00	-2,530.31	-4,652.67	11,797.39	11,542.55	254.83	46.294	
13,900.00	6,947.00	7,112.06	7,108.00	118.76	213.11	90.00	-2,530.31	-4,652.67	11,897.21	11,642.31	254.90	46.673	
14,000.00	6,947.00	7,112.06	7,108.00	120.29	213.11	90.00	-2,530.31	-4,652.67	11,997.04	11,742.07	254.97	47.052	
14,100.00	6,947.00	7,112.06	7,108.00	121.82	213.11	90.00	-2,530.31	-4,652.67	12,096.88	11,841.84	255.04	47.431	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,200.00	6,947.00	7,112.06	7,108.00	123.36	213.11	90.00	-2,530.31	-4,652.67	12,196.71	11,941.60	255.11	47.810	
14,300.00	6,947.00	7,112.06	7,108.00	124.89	213.11	90.00	-2,530.31	-4,652.67	12,296.55	12,041.37	255.18	48.188	
14,400.00	6,947.00	7,112.06	7,108.00	126.43	213.11	90.00	-2,530.31	-4,652.67	12,396.39	12,141.15	255.25	48.567	
14,500.00	6,947.00	7,112.06	7,108.00	127.97	213.11	90.00	-2,530.31	-4,652.67	12,496.24	12,240.92	255.31	48.945	
14,600.00	6,947.00	7,112.06	7,108.00	129.51	213.11	90.00	-2,530.31	-4,652.67	12,596.08	12,340.70	255.38	49.322	
14,700.00	6,947.00	7,112.06	7,108.00	131.06	213.11	90.00	-2,530.31	-4,652.67	12,695.93	12,440.48	255.45	49.700	
14,800.00	6,947.00	7,112.06	7,108.00	132.60	213.11	90.00	-2,530.31	-4,652.67	12,795.78	12,540.26	255.52	50.077	
14,900.00	6,947.00	7,112.06	7,108.00	134.15	213.11	90.00	-2,530.31	-4,652.67	12,895.63	12,640.04	255.59	50.454	
15,000.00	6,947.00	7,112.06	7,108.00	135.70	213.11	90.00	-2,530.31	-4,652.67	12,995.49	12,739.83	255.66	50.831	
15,100.00	6,947.00	7,112.06	7,108.00	137.24	213.11	90.00	-2,530.31	-4,652.67	13,095.35	12,839.62	255.73	51.208	
15,200.00	6,947.00	7,112.06	7,108.00	138.79	213.11	90.00	-2,530.31	-4,652.67	13,195.21	12,939.41	255.80	51.584	
15,300.00	6,947.00	7,112.06	7,108.00	140.35	213.11	90.00	-2,530.31	-4,652.67	13,295.07	13,039.20	255.87	51.961	
15,400.00	6,947.00	7,112.06	7,108.00	141.90	213.11	90.00	-2,530.31	-4,652.67	13,394.93	13,138.99	255.94	52.337	
15,500.00	6,947.00	7,112.06	7,108.00	143.45	213.11	90.00	-2,530.31	-4,652.67	13,494.80	13,238.79	256.01	52.712	
15,600.00	6,947.00	7,112.06	7,108.00	145.01	213.11	90.00	-2,530.31	-4,652.67	13,594.67	13,338.59	256.08	53.088	
15,700.00	6,947.00	7,112.06	7,108.00	146.56	213.11	90.00	-2,530.31	-4,652.67	13,694.54	13,438.39	256.15	53.463	
15,800.00	6,947.00	7,112.06	7,108.00	148.12	213.11	90.00	-2,530.31	-4,652.67	13,794.41	13,538.19	256.22	53.838	
15,900.00	6,947.00	7,112.06	7,108.00	149.68	213.11	90.00	-2,530.31	-4,652.67	13,894.28	13,637.99	256.29	54.213	
16,000.00	6,947.00	7,112.06	7,108.00	151.23	213.11	90.00	-2,530.31	-4,652.67	13,994.16	13,737.80	256.36	54.588	
16,100.00	6,947.00	7,112.06	7,108.00	152.79	213.11	90.00	-2,530.31	-4,652.67	14,094.03	13,837.60	256.43	54.962	
16,200.00	6,947.00	7,112.06	7,108.00	154.36	213.11	90.00	-2,530.31	-4,652.67	14,193.91	13,937.41	256.50	55.337	
16,300.00	6,947.00	7,112.06	7,108.00	155.92	213.11	90.00	-2,530.31	-4,652.67	14,293.79	14,037.22	256.57	55.710	
16,400.00	6,947.00	7,112.06	7,108.00	157.48	213.11	90.00	-2,530.31	-4,652.67	14,393.67	14,137.03	256.64	56.084	
16,500.00	6,947.00	7,112.06	7,108.00	159.04	213.11	90.00	-2,530.31	-4,652.67	14,493.56	14,236.84	256.72	56.457	
16,600.00	6,947.00	7,112.06	7,108.00	160.61	213.11	90.00	-2,530.31	-4,652.67	14,593.44	14,336.66	256.79	56.831	
16,700.00	6,947.00	7,112.06	7,108.00	162.17	213.11	90.00	-2,530.31	-4,652.67	14,693.33	14,436.47	256.86	57.204	
16,800.00	6,947.00	7,112.06	7,108.00	163.74	213.11	90.00	-2,530.31	-4,652.67	14,793.22	14,536.29	256.93	57.576	
16,900.00	6,947.00	7,112.06	7,108.00	165.30	213.11	90.00	-2,530.31	-4,652.67	14,893.11	14,636.10	257.00	57.949	
17,000.00	6,947.00	7,112.06	7,108.00	166.87	213.11	90.00	-2,530.31	-4,652.67	14,993.00	14,735.92	257.08	58.321	
17,100.00	6,947.00	7,112.06	7,108.00	168.44	213.11	90.00	-2,530.31	-4,652.67	15,092.89	14,835.74	257.15	58.693	
17,200.00	6,947.00	7,112.06	7,108.00	170.01	213.11	90.00	-2,530.31	-4,652.67	15,192.79	14,935.56	257.22	59.064	
17,300.00	6,947.00	7,112.06	7,108.00	171.57	213.11	90.00	-2,530.31	-4,652.67	15,292.68	15,035.39	257.30	59.436	
17,400.00	6,947.00	7,112.06	7,108.00	173.14	213.11	90.00	-2,530.31	-4,652.67	15,392.58	15,135.21	257.37	59.807	
17,500.00	6,947.00	7,112.06	7,108.00	174.71	213.11	90.00	-2,530.31	-4,652.67	15,492.48	15,235.03	257.44	60.178	
17,600.00	6,947.00	7,112.06	7,108.00	176.28	213.11	90.00	-2,530.31	-4,652.67	15,592.38	15,334.86	257.52	60.549	
17,700.00	6,947.00	7,112.06	7,108.00	177.86	213.11	90.00	-2,530.31	-4,652.67	15,692.28	15,434.69	257.59	60.919	
17,800.00	6,947.00	7,112.06	7,108.00	179.43	213.11	90.00	-2,530.31	-4,652.67	15,792.18	15,534.51	257.67	61.289	
17,900.00	6,947.00	7,112.06	7,108.00	181.00	213.11	90.00	-2,530.31	-4,652.67	15,892.08	15,634.34	257.74	61.659	
18,000.00	6,947.00	7,112.06	7,108.00	182.57	213.11	90.00	-2,530.31	-4,652.67	15,991.99	15,734.17	257.82	62.028	
18,100.00	6,947.00	7,112.06	7,108.00	184.15	213.11	90.00	-2,530.31	-4,652.67	16,091.90	15,834.00	257.89	62.398	
18,200.00	6,947.00	7,112.06	7,108.00	185.72	213.11	90.00	-2,530.31	-4,652.67	16,191.80	15,933.83	257.97	62.767	
18,300.00	6,947.00	7,112.06	7,108.00	187.30	213.11	90.00	-2,530.31	-4,652.67	16,291.71	16,033.67	258.04	63.136	
18,400.00	6,947.00	7,112.06	7,108.00	188.87	213.11	90.00	-2,530.31	-4,652.67	16,391.62	16,133.50	258.12	63.504	
18,500.00	6,947.00	7,112.06	7,108.00	190.45	213.11	90.00	-2,530.31	-4,652.67	16,491.53	16,233.33	258.20	63.872	
18,600.00	6,947.00	7,112.06	7,108.00	192.02	213.11	90.00	-2,530.31	-4,652.67	16,591.44	16,333.17	258.27	64.240	
18,700.00	6,947.00	7,112.06	7,108.00	193.60	213.11	90.00	-2,530.31	-4,652.67	16,691.35	16,433.01	258.35	64.608	
18,800.00	6,947.00	7,112.06	7,108.00	195.18	213.11	90.00	-2,530.31	-4,652.67	16,791.27	16,532.84	258.43	64.975	
18,900.00	6,947.00	7,112.06	7,108.00	196.75	213.11	90.00	-2,530.31	-4,652.67	16,891.18	16,632.68	258.50	65.343	
19,000.00	6,947.00	7,112.06	7,108.00	198.33	213.11	90.00	-2,530.31	-4,652.67	16,991.10	16,732.52	258.58	65.709	
19,100.00	6,947.00	7,112.06	7,108.00	199.91	213.11	90.00	-2,530.31	-4,652.67	17,091.01	16,832.36	258.66	66.076	
19,200.00	6,947.00	7,112.06	7,108.00	201.49	213.11	90.00	-2,530.31	-4,652.67	17,190.93	16,932.20	258.74	66.442	
19,300.00	6,947.00	7,112.06	7,108.00	203.07	213.11	90.00	-2,530.31	-4,652.67	17,290.85	17,032.04	258.81	66.808	

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 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Rule Assigned:

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
19,400.00	6,947.00	7,112.06	7,108.00	204.65	213.11	90.00	-2,530.31	-4,652.67	17,390.77	17,131.88	258.89	67.174	
19,500.00	6,947.00	7,112.06	7,108.00	206.23	213.11	90.00	-2,530.31	-4,652.67	17,490.69	17,231.72	258.97	67.539	
19,600.00	6,947.00	7,112.06	7,108.00	207.81	213.11	90.00	-2,530.31	-4,652.67	17,590.61	17,331.56	259.05	67.905	
19,700.00	6,947.00	7,112.06	7,108.00	209.39	213.11	90.00	-2,530.31	-4,652.67	17,690.53	17,431.40	259.13	68.269	
19,800.00	6,947.00	7,112.06	7,108.00	210.97	213.11	90.00	-2,530.31	-4,652.67	17,790.46	17,531.25	259.21	68.634	
19,900.00	6,947.00	7,112.06	7,108.00	212.55	213.11	90.00	-2,530.31	-4,652.67	17,890.38	17,631.09	259.29	68.998	
20,000.00	6,947.00	7,112.06	7,108.00	214.13	213.11	90.00	-2,530.31	-4,652.67	17,990.30	17,730.94	259.37	69.362	
20,100.00	6,947.00	7,112.06	7,108.00	215.71	213.11	90.00	-2,530.31	-4,652.67	18,090.23	17,830.78	259.45	69.726	
20,200.00	6,947.00	7,112.06	7,108.00	217.30	213.11	90.00	-2,530.31	-4,652.67	18,190.16	17,930.63	259.53	70.089	
20,300.00	6,947.00	7,112.06	7,108.00	218.88	213.11	90.00	-2,530.31	-4,652.67	18,290.08	18,030.47	259.61	70.453	
20,400.00	6,947.00	7,112.06	7,108.00	220.46	213.11	90.00	-2,530.31	-4,652.67	18,390.01	18,130.32	259.69	70.815	
20,500.00	6,947.00	7,112.06	7,108.00	222.04	213.11	90.00	-2,530.31	-4,652.67	18,489.94	18,230.17	259.77	71.178	
20,600.00	6,947.00	7,112.06	7,108.00	223.63	213.11	90.00	-2,530.31	-4,652.67	18,589.87	18,330.02	259.85	71.540	
20,700.00	6,947.00	7,112.06	7,108.00	225.21	213.11	90.00	-2,530.31	-4,652.67	18,689.80	18,429.87	259.93	71.902	
20,800.00	6,947.00	7,112.06	7,108.00	226.80	213.11	90.00	-2,530.31	-4,652.67	18,789.73	18,529.71	260.02	72.264	
20,900.00	6,947.00	7,112.06	7,108.00	228.38	213.11	90.00	-2,530.31	-4,652.67	18,889.66	18,629.56	260.10	72.625	
21,000.00	6,947.00	7,112.06	7,108.00	229.97	213.11	90.00	-2,530.31	-4,652.67	18,989.60	18,729.41	260.18	72.986	
21,032.01	6,947.00	7,112.06	7,108.00	230.47	213.11	90.00	-2,530.31	-4,652.67	19,021.58	18,761.38	260.21	73.102	
21,032.99	6,947.00	7,112.06	7,108.00	230.51	213.11	90.00	-2,530.31	-4,652.67	19,022.56	18,758.72	263.83	72.100	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Rule Assigned: Warning
0.00	0.00	178.00	178.00	0.00	5.33	-129.24	-2,475.05	-3,030.81	3,913.01				
100.00	100.00	278.00	278.00	0.25	8.33	-129.24	-2,475.05	-3,030.81	3,913.01	3,904.43	8.58	456.000	
200.00	200.00	378.00	378.00	0.61	11.33	-129.24	-2,475.05	-3,030.81	3,913.01	3,901.07	11.94	327.831	
300.00	300.00	478.00	478.00	0.97	14.32	-129.24	-2,475.05	-3,030.81	3,913.01	3,897.72	15.29	255.904	
400.00	400.00	578.10	578.00	1.33	17.32	-129.24	-2,475.05	-3,030.81	3,913.01	3,894.36	18.65	209.825	
500.00	500.00	678.10	678.00	1.68	20.32	-129.24	-2,475.05	-3,030.81	3,913.01	3,891.01	22.00	177.833	
600.00	599.98	773.94	773.79	2.03	23.19	65.82	-2,472.89	-3,030.81	3,910.93	3,885.71	25.22	155.090	
700.00	699.84	859.18	859.02	2.36	25.75	65.91	-2,473.28	-3,030.81	3,909.08	3,880.98	28.10	139.089	
800.00	799.45	944.34	944.15	2.71	28.30	66.05	-2,474.19	-3,030.81	3,906.19	3,875.19	31.00	126.007	
900.00	898.70	1,077.11	1,076.70	3.06	32.28	66.34	-2,475.05	-3,030.81	3,901.65	3,866.31	35.34	110.418	
1,000.00	997.47	1,175.87	1,175.47	3.43	35.23	66.67	-2,475.05	-3,030.81	3,895.35	3,856.68	38.66	100.751	
1,100.00	1,095.62	1,270.55	1,270.10	3.82	38.07	67.08	-2,472.88	-3,030.81	3,886.39	3,844.50	41.88	92.789	
1,200.00	1,193.44	1,354.44	1,353.98	4.22	40.59	67.31	-2,473.25	-3,030.81	3,878.45	3,833.66	44.79	86.583	
1,300.00	1,291.25	1,438.55	1,438.07	4.64	43.11	67.54	-2,474.11	-3,030.81	3,870.96	3,823.24	47.72	81.119	
1,400.00	1,389.07	1,567.78	1,567.07	5.06	46.98	67.90	-2,475.05	-3,030.81	3,863.39	3,811.38	52.00	74.290	
1,500.00	1,486.88	1,665.59	1,664.88	5.48	49.91	68.18	-2,475.05	-3,030.81	3,855.46	3,800.11	55.35	69.653	
1,600.00	1,584.70	1,761.53	1,760.78	5.91	52.78	68.48	-2,472.87	-3,030.81	3,846.33	3,787.68	58.65	65.583	
1,700.00	1,682.51	1,845.91	1,845.14	6.35	55.31	68.72	-2,473.19	-3,030.81	3,838.83	3,777.22	61.60	62.317	
1,800.00	1,780.33	1,930.52	1,929.73	6.78	57.85	68.96	-2,474.01	-3,030.81	3,831.76	3,767.20	64.56	59.348	
1,900.00	1,878.14	2,057.16	2,056.14	7.22	61.64	69.31	-2,475.05	-3,030.81	3,824.73	3,755.95	68.79	55.601	
2,000.00	1,975.96	2,154.97	2,153.96	7.66	64.57	69.60	-2,475.05	-3,030.81	3,817.30	3,745.14	72.15	52.906	
2,100.00	2,073.77	2,252.39	2,251.34	8.10	67.49	69.91	-2,472.87	-3,030.81	3,808.69	3,733.19	75.51	50.442	
2,200.00	2,171.59	2,337.28	2,336.21	8.54	70.04	70.16	-2,473.13	-3,030.81	3,801.64	3,723.15	78.49	48.437	
2,300.00	2,269.40	2,422.39	2,421.30	8.98	72.59	70.40	-2,473.91	-3,030.81	3,795.02	3,713.54	81.47	46.580	
2,400.00	2,367.22	2,546.53	2,545.22	9.43	76.31	70.76	-2,475.05	-3,030.81	3,788.54	3,702.91	85.63	44.242	
2,500.00	2,465.03	2,644.35	2,643.03	9.87	79.24	71.05	-2,475.05	-3,030.81	3,781.60	3,692.60	89.00	42.489	
2,600.00	2,562.84	2,742.16	2,740.84	10.32	82.17	71.34	-2,475.05	-3,030.81	3,774.77	3,682.39	92.37	40.864	
2,700.00	2,660.66	2,828.54	2,827.16	10.77	84.76	71.62	-2,473.08	-3,030.81	3,766.96	3,671.55	95.41	39.484	
2,800.00	2,758.47	2,914.16	2,912.77	11.21	87.32	71.87	-2,473.81	-3,030.81	3,760.79	3,662.38	98.41	38.214	
2,900.00	2,856.29	3,035.91	3,034.29	11.66	90.97	72.22	-2,475.05	-3,030.81	3,754.88	3,652.37	102.51	36.631	
3,000.00	2,954.10	3,133.73	3,132.10	12.11	93.90	72.52	-2,475.05	-3,030.81	3,748.45	3,642.57	105.88	35.402	
3,100.00	3,051.92	3,231.54	3,229.92	12.56	96.83	72.82	-2,475.05	-3,030.81	3,742.13	3,632.88	109.26	34.251	
3,200.00	3,149.73	3,319.69	3,318.02	13.01	99.47	73.11	-2,473.04	-3,030.81	3,734.86	3,622.51	112.35	33.244	
3,300.00	3,247.55	3,405.83	3,404.13	13.45	102.05	73.37	-2,473.72	-3,030.81	3,729.17	3,613.80	115.37	32.323	
3,400.00	3,345.36	3,525.29	3,523.36	13.90	105.63	73.72	-2,475.05	-3,030.81	3,723.81	3,604.41	119.40	31.188	
3,500.00	3,443.18	3,623.11	3,621.18	14.35	108.56	74.02	-2,475.05	-3,030.81	3,717.91	3,595.13	122.78	30.281	
3,600.00	3,540.99	3,720.92	3,718.99	14.80	111.50	74.32	-2,475.05	-3,030.81	3,712.13	3,585.97	126.16	29.424	
3,700.00	3,638.81	3,810.73	3,808.76	15.25	114.19	74.63	-2,473.00	-3,030.81	3,705.41	3,576.11	129.30	28.657	
3,800.00	3,736.62	3,897.39	3,895.39	15.70	116.78	74.89	-2,473.63	-3,030.81	3,700.20	3,567.86	132.35	27.958	
3,900.00	3,834.44	4,014.67	4,012.44	16.15	120.30	75.23	-2,475.05	-3,030.81	3,695.41	3,559.10	136.31	27.110	
4,000.00	3,932.25	4,112.48	4,110.25	16.60	123.23	75.54	-2,475.05	-3,030.81	3,690.05	3,550.36	139.69	26.416	
4,100.00	4,030.07	4,210.30	4,208.07	17.05	126.16	75.85	-2,475.05	-3,030.81	3,684.81	3,541.73	143.07	25.755	
4,200.00	4,127.88	4,301.67	4,299.39	17.50	128.90	76.16	-2,472.96	-3,030.81	3,678.66	3,532.40	146.26	25.151	
4,300.00	4,225.70	4,388.85	4,386.55	17.96	131.51	76.43	-2,473.54	-3,030.81	3,673.96	3,524.63	149.33	24.603	
4,400.00	4,323.51	4,504.05	4,501.51	18.41	134.96	76.77	-2,475.05	-3,030.81	3,669.73	3,516.50	153.23	23.949	
4,500.00	4,421.33	4,601.86	4,599.33	18.86	137.89	77.08	-2,475.05	-3,030.81	3,664.93	3,508.31	156.62	23.401	
4,600.00	4,519.14	4,699.68	4,697.14	19.31	140.82	77.39	-2,475.05	-3,030.81	3,660.24	3,500.24	160.00	22.877	
4,700.00	4,616.95	4,792.49	4,789.90	19.76	143.60	77.72	-2,472.93	-3,030.81	3,654.68	3,491.45	163.24	22.389	
4,800.00	4,714.77	4,880.20	4,877.60	20.21	146.23	77.99	-2,473.46	-3,030.81	3,650.50	3,484.18	166.32	21.949	
4,900.00	4,812.58	4,968.16	4,965.53	20.66	148.87	78.25	-2,474.53	-3,030.81	3,646.69	3,477.29	169.41	21.526	
5,000.00	4,910.40	5,091.24	5,088.40	21.11	152.56	78.64	-2,475.05	-3,030.81	3,642.60	3,469.05	173.55	20.989	
5,100.00	5,008.21	5,189.06	5,186.21	21.57	155.49	78.96	-2,475.05	-3,030.81	3,638.47	3,461.54	176.93	20.564	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,200.00	5,106.03	5,283.19	5,280.30	22.02	158.31	79.29	-2,472.91	-3,030.81	3,633.53	3,453.32	180.21	20.163	
5,300.00	5,203.84	5,371.45	5,368.54	22.47	160.95	79.57	-2,473.38	-3,030.81	3,629.87	3,446.56	183.31	19.802	
5,400.00	5,301.66	5,459.95	5,457.02	22.92	163.60	79.84	-2,474.41	-3,030.81	3,626.58	3,440.17	186.42	19.454	
5,500.00	5,399.47	5,580.62	5,577.47	23.37	167.22	80.22	-2,475.05	-3,030.81	3,623.12	3,432.63	190.49	19.020	
5,600.00	5,497.29	5,667.92	5,664.75	23.82	169.84	80.51	-2,474.17	-3,030.81	3,619.21	3,425.66	193.56	18.698	
5,700.00	5,595.10	5,776.40	5,773.10	24.28	173.09	80.85	-2,475.05	-3,030.81	3,616.13	3,418.87	197.26	18.331	
5,800.00	5,692.92	5,873.50	5,870.19	24.73	176.00	81.19	-2,473.91	-3,030.81	3,612.35	3,411.72	200.63	18.005	
5,900.00	5,790.73	5,955.44	5,952.11	25.18	178.45	81.45	-2,474.40	-3,030.81	3,609.39	3,405.85	203.54	17.733	
6,000.00	5,888.55	6,070.00	6,066.55	25.63	181.88	81.81	-2,475.05	-3,030.81	3,606.53	3,399.10	207.43	17.387	
6,100.00	5,986.36	6,167.81	6,164.36	26.08	184.82	82.13	-2,475.05	-3,030.81	3,603.56	3,392.74	210.82	17.093	
6,200.00	6,084.18	6,265.63	6,262.18	26.54	187.75	82.45	-2,475.05	-3,030.81	3,600.71	3,386.50	214.21	16.810	
6,300.00	6,181.99	6,317.00	6,313.36	26.99	189.29	82.62	-2,475.05	-3,030.81	3,598.28	3,382.09	216.19	16.644	
6,350.55	6,231.44	6,317.00	6,313.36	27.22	189.29	82.62	-2,475.05	-3,030.81	3,597.92	3,381.56	216.37	16.629	CC, ES
6,400.00	6,279.81	6,317.00	6,313.36	27.44	189.29	82.62	-2,475.05	-3,030.81	3,598.26	3,381.76	216.50	16.620	SF
6,500.00	6,377.62	6,317.00	6,313.36	27.89	189.29	82.62	-2,475.05	-3,030.81	3,601.03	3,384.37	216.66	16.621	
6,530.62	6,407.57	6,317.00	6,313.36	28.03	189.29	82.62	-2,475.05	-3,030.81	3,602.43	3,385.75	216.68	16.626	
6,550.00	6,426.48	6,317.00	6,313.36	28.12	189.29	88.01	-2,475.05	-3,030.81	3,603.64	3,386.96	216.68	16.631	
6,600.00	6,474.77	6,317.00	6,313.36	28.36	189.29	97.69	-2,475.05	-3,030.81	3,608.97	3,392.29	216.69	16.655	
6,650.00	6,522.09	6,317.00	6,313.36	28.62	189.29	103.42	-2,475.05	-3,030.81	3,617.46	3,400.78	216.68	16.695	
6,700.00	6,568.15	6,317.00	6,313.36	28.89	189.29	106.81	-2,475.05	-3,030.81	3,629.02	3,412.36	216.66	16.750	
6,750.00	6,612.66	6,317.00	6,313.36	29.18	189.29	108.70	-2,475.05	-3,030.81	3,643.56	3,426.92	216.64	16.818	
6,800.00	6,655.36	6,317.00	6,313.36	29.48	189.29	109.54	-2,475.05	-3,030.81	3,660.95	3,444.33	216.62	16.900	
6,850.00	6,695.98	6,317.00	6,313.36	29.79	189.29	109.57	-2,475.05	-3,030.81	3,681.05	3,464.44	216.61	16.994	
6,900.00	6,734.26	6,317.00	6,313.36	30.11	189.29	108.93	-2,475.05	-3,030.81	3,703.68	3,487.07	216.61	17.098	
6,950.00	6,769.98	6,317.00	6,313.36	30.45	189.29	107.71	-2,475.05	-3,030.81	3,728.67	3,512.04	216.64	17.212	
7,000.00	6,802.91	6,317.00	6,313.36	30.79	189.29	105.96	-2,475.05	-3,030.81	3,755.81	3,539.13	216.68	17.334	
7,050.00	6,832.85	6,317.00	6,313.36	31.15	189.29	103.71	-2,475.05	-3,030.81	3,784.90	3,568.15	216.75	17.462	
7,100.00	6,859.62	6,317.00	6,313.36	31.51	189.29	100.98	-2,475.05	-3,030.81	3,815.71	3,598.85	216.86	17.596	
7,150.00	6,883.05	6,317.00	6,313.36	31.89	189.29	97.80	-2,475.05	-3,030.81	3,848.00	3,631.01	216.99	17.733	
7,200.00	6,902.99	6,317.00	6,313.36	32.28	189.29	94.20	-2,475.05	-3,030.81	3,881.56	3,664.39	217.17	17.873	
7,250.00	6,919.32	6,317.00	6,313.36	32.67	189.29	90.23	-2,475.05	-3,030.81	3,916.14	3,698.76	217.38	18.015	
7,300.00	6,931.95	6,317.00	6,313.36	33.08	189.29	85.95	-2,475.05	-3,030.81	3,951.50	3,733.87	217.63	18.157	
7,350.00	6,940.79	6,317.00	6,313.36	33.49	189.29	81.44	-2,475.05	-3,030.81	3,987.42	3,769.50	217.92	18.298	
7,400.00	6,945.79	6,317.00	6,313.36	33.90	189.29	76.78	-2,475.05	-3,030.81	4,023.64	3,805.41	218.24	18.437	
7,439.53	6,947.00	6,317.00	6,313.36	34.24	189.29	73.06	-2,475.05	-3,030.81	4,052.36	3,833.85	218.51	18.545	
7,500.00	6,947.00	6,317.00	6,313.36	34.75	189.29	72.68	-2,475.05	-3,030.81	4,096.89	3,877.95	218.94	18.712	
7,600.00	6,947.00	6,317.00	6,313.36	35.63	189.29	71.96	-2,475.05	-3,030.81	4,173.15	3,953.52	219.63	19.000	
7,700.00	6,947.00	6,317.00	6,313.36	36.54	189.29	71.14	-2,475.05	-3,030.81	4,252.44	4,032.15	220.29	19.304	
7,800.00	6,947.00	6,317.00	6,313.36	37.47	189.29	70.18	-2,475.05	-3,030.81	4,334.50	4,113.60	220.91	19.621	
7,900.00	6,947.00	6,317.00	6,313.36	38.43	189.29	69.08	-2,475.05	-3,030.81	4,419.08	4,197.60	221.48	19.952	
8,000.00	6,947.00	6,317.00	6,313.36	39.41	189.29	67.79	-2,475.05	-3,030.81	4,505.94	4,283.92	222.02	20.295	
8,100.00	6,947.00	6,317.00	6,313.36	40.40	189.29	66.27	-2,475.05	-3,030.81	4,594.84	4,372.33	222.51	20.650	
8,200.00	6,947.00	6,317.00	6,313.36	41.42	189.29	64.47	-2,475.05	-3,030.81	4,685.56	4,462.60	222.97	21.014	
8,300.00	6,947.00	6,317.00	6,313.36	42.44	189.29	62.32	-2,475.05	-3,030.81	4,777.90	4,554.52	223.38	21.389	
8,400.00	6,947.00	6,317.00	6,313.36	43.48	189.29	59.71	-2,475.05	-3,030.81	4,871.65	4,647.89	223.76	21.772	
8,500.00	6,947.00	6,317.00	6,313.36	44.53	189.29	56.50	-2,475.05	-3,030.81	4,966.62	4,742.52	224.09	22.163	
8,600.00	6,947.00	6,317.00	6,313.36	45.58	189.29	52.51	-2,475.05	-3,030.81	5,062.62	4,838.23	224.39	22.562	
8,700.00	6,947.00	6,317.00	6,313.36	46.63	189.29	47.49	-2,475.05	-3,030.81	5,159.50	4,934.84	224.65	22.967	
8,800.00	6,947.00	6,317.00	6,313.36	47.69	189.29	41.10	-2,475.05	-3,030.81	5,257.07	5,032.19	224.88	23.377	
8,841.31	6,947.00	6,317.00	6,313.36	48.13	189.29	37.97	-2,475.05	-3,030.81	5,297.55	5,072.59	224.96	23.548	
8,900.00	6,947.00	6,317.00	6,313.36	48.76	189.29	37.97	-2,475.05	-3,030.81	5,355.14	5,130.06	225.08	23.792	
9,000.00	6,947.00	6,317.00	6,313.36	49.85	189.29	37.97	-2,475.05	-3,030.81	5,453.31	5,228.04	225.27	24.208	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,100.00	6,947.00	6,317.00	6,313.36	50.97	189.29	37.97	-2,475.05	-3,030.81	5,551.54	5,326.09	225.45	24.624	
9,200.00	6,947.00	6,317.00	6,313.36	52.12	189.29	37.97	-2,475.05	-3,030.81	5,649.83	5,424.21	225.63	25.040	
9,300.00	6,947.00	6,317.00	6,313.36	53.28	189.29	37.97	-2,475.05	-3,030.81	5,748.19	5,522.39	225.80	25.457	
9,400.00	6,947.00	6,317.00	6,313.36	54.48	189.29	37.97	-2,475.05	-3,030.81	5,846.60	5,620.64	225.96	25.874	
9,500.00	6,947.00	6,317.00	6,313.36	55.69	189.29	37.97	-2,475.05	-3,030.81	5,945.06	5,718.94	226.12	26.291	
9,600.00	6,947.00	6,317.00	6,313.36	56.92	189.29	37.97	-2,475.05	-3,030.81	6,043.58	5,817.30	226.28	26.709	
9,700.00	6,947.00	6,317.00	6,313.36	58.17	189.29	37.97	-2,475.05	-3,030.81	6,142.14	5,915.71	226.43	27.127	
9,800.00	6,947.00	6,317.00	6,313.36	59.44	189.29	37.97	-2,475.05	-3,030.81	6,240.75	6,014.18	226.57	27.544	
9,900.00	6,947.00	6,317.00	6,313.36	60.73	189.29	37.97	-2,475.05	-3,030.81	6,339.40	6,112.69	226.71	27.963	
10,000.00	6,947.00	6,317.00	6,313.36	62.03	189.29	37.97	-2,475.05	-3,030.81	6,438.09	6,211.24	226.85	28.381	
10,100.00	6,947.00	6,317.00	6,313.36	63.34	189.29	37.97	-2,475.05	-3,030.81	6,536.82	6,309.84	226.98	28.799	
10,200.00	6,947.00	6,317.00	6,313.36	64.67	189.29	37.97	-2,475.05	-3,030.81	6,635.59	6,408.49	227.11	29.218	
10,300.00	6,947.00	6,317.00	6,313.36	66.01	189.29	37.97	-2,475.05	-3,030.81	6,734.40	6,507.17	227.23	29.636	
10,400.00	6,947.00	6,317.00	6,313.36	67.36	189.29	37.97	-2,475.05	-3,030.81	6,833.24	6,605.89	227.36	30.055	
10,500.00	6,947.00	6,317.00	6,313.36	68.73	189.29	37.97	-2,475.05	-3,030.81	6,932.12	6,704.64	227.48	30.474	
10,600.00	6,947.00	6,317.00	6,313.36	70.10	189.29	37.97	-2,475.05	-3,030.81	7,031.02	6,803.43	227.59	30.893	
10,700.00	6,947.00	6,317.00	6,313.36	71.48	189.29	37.97	-2,475.05	-3,030.81	7,129.96	6,902.25	227.71	31.312	
10,800.00	6,947.00	6,317.00	6,313.36	72.88	189.29	37.97	-2,475.05	-3,030.81	7,228.93	7,001.11	227.82	31.731	
10,900.00	6,947.00	6,317.00	6,313.36	74.28	189.29	37.97	-2,475.05	-3,030.81	7,327.92	7,099.99	227.93	32.150	
11,000.00	6,947.00	6,317.00	6,313.36	75.69	189.29	37.97	-2,475.05	-3,030.81	7,426.94	7,198.91	228.04	32.569	
11,100.00	6,947.00	6,317.00	6,313.36	77.10	189.29	37.97	-2,475.05	-3,030.81	7,525.99	7,297.85	228.14	32.988	
11,200.00	6,947.00	6,317.00	6,313.36	78.53	189.29	37.97	-2,475.05	-3,030.81	7,625.06	7,396.82	228.25	33.407	
11,300.00	6,947.00	6,317.00	6,313.36	79.96	189.29	37.97	-2,475.05	-3,030.81	7,724.16	7,495.81	228.35	33.826	
11,400.00	6,947.00	6,317.00	6,313.36	81.40	189.29	37.97	-2,475.05	-3,030.81	7,823.28	7,594.83	228.45	34.245	
11,500.00	6,947.00	6,317.00	6,313.36	82.84	189.29	37.97	-2,475.05	-3,030.81	7,922.42	7,693.87	228.55	34.664	
11,600.00	6,947.00	6,317.00	6,313.36	84.29	189.29	37.97	-2,475.05	-3,030.81	8,021.58	7,792.94	228.65	35.083	
11,700.00	6,947.00	6,317.00	6,313.36	85.75	189.29	37.97	-2,475.05	-3,030.81	8,120.77	7,892.03	228.74	35.502	
11,800.00	6,947.00	6,317.00	6,313.36	87.21	189.29	37.97	-2,475.05	-3,030.81	8,219.97	7,991.13	228.83	35.921	
11,900.00	6,947.00	6,317.00	6,313.36	88.68	189.29	37.97	-2,475.05	-3,030.81	8,319.19	8,090.26	228.93	36.340	
12,000.00	6,947.00	6,317.00	6,313.36	90.15	189.29	37.97	-2,475.05	-3,030.81	8,418.43	8,189.41	229.02	36.759	
12,100.00	6,947.00	6,317.00	6,313.36	91.62	189.29	37.97	-2,475.05	-3,030.81	8,517.69	8,288.58	229.11	37.177	
12,200.00	6,947.00	6,317.00	6,313.36	93.10	189.29	37.97	-2,475.05	-3,030.81	8,616.96	8,387.77	229.20	37.596	
12,300.00	6,947.00	6,317.00	6,313.36	94.59	189.29	37.97	-2,475.05	-3,030.81	8,716.26	8,486.97	229.29	38.015	
12,400.00	6,947.00	6,317.00	6,313.36	96.07	189.29	37.97	-2,475.05	-3,030.81	8,815.56	8,586.19	229.37	38.433	
12,500.00	6,947.00	6,317.00	6,313.36	97.56	189.29	37.97	-2,475.05	-3,030.81	8,914.89	8,685.43	229.46	38.852	
12,600.00	6,947.00	6,317.00	6,313.36	99.06	189.29	37.97	-2,475.05	-3,030.81	9,014.23	8,784.68	229.55	39.270	
12,700.00	6,947.00	6,317.00	6,313.36	100.56	189.29	37.97	-2,475.05	-3,030.81	9,113.58	8,883.95	229.63	39.688	
12,800.00	6,947.00	6,317.00	6,313.36	102.06	189.29	37.97	-2,475.05	-3,030.81	9,212.95	8,983.23	229.71	40.106	
12,900.00	6,947.00	6,317.00	6,313.36	103.56	189.29	37.97	-2,475.05	-3,030.81	9,312.33	9,082.53	229.80	40.524	
13,000.00	6,947.00	6,317.00	6,313.36	105.07	189.29	37.97	-2,475.05	-3,030.81	9,411.72	9,181.84	229.88	40.942	
13,100.00	6,947.00	6,317.00	6,313.36	106.58	189.29	37.97	-2,475.05	-3,030.81	9,511.13	9,281.16	229.96	41.360	
13,200.00	6,947.00	6,317.00	6,313.36	108.10	189.29	37.97	-2,475.05	-3,030.81	9,610.54	9,380.50	230.04	41.777	
13,300.00	6,947.00	6,317.00	6,313.36	109.61	189.29	37.97	-2,475.05	-3,030.81	9,709.98	9,479.85	230.12	42.195	
13,400.00	6,947.00	6,317.00	6,313.36	111.13	189.29	37.97	-2,475.05	-3,030.81	9,809.42	9,579.21	230.20	42.612	
13,500.00	6,947.00	6,317.00	6,313.36	112.65	189.29	37.97	-2,475.05	-3,030.81	9,908.87	9,678.59	230.28	43.029	
13,600.00	6,947.00	6,317.00	6,313.36	114.17	189.29	37.97	-2,475.05	-3,030.81	10,008.33	9,777.97	230.36	43.446	
13,700.00	6,947.00	6,317.00	6,313.36	115.70	189.29	37.97	-2,475.05	-3,030.81	10,107.81	9,877.37	230.44	43.863	
13,800.00	6,947.00	6,317.00	6,313.36	117.23	189.29	37.97	-2,475.05	-3,030.81	10,207.29	9,976.77	230.52	44.280	
13,900.00	6,947.00	6,317.00	6,313.36	118.76	189.29	37.97	-2,475.05	-3,030.81	10,306.79	10,076.19	230.60	44.696	
14,000.00	6,947.00	6,317.00	6,313.36	120.29	189.29	37.97	-2,475.05	-3,030.81	10,406.29	10,175.62	230.68	45.112	
14,100.00	6,947.00	6,317.00	6,313.36	121.82	189.29	37.97	-2,475.05	-3,030.81	10,505.81	10,275.06	230.75	45.528	
14,200.00	6,947.00	6,317.00	6,313.36	123.36	189.29	37.97	-2,475.05	-3,030.81	10,605.33	10,374.50	230.83	45.944	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,300.00	6,947.00	6,317.00	6,313.36	124.89	189.29	37.97	-2,475.05	-3,030.81	10,704.86	10,473.96	230.91	46.360	
14,400.00	6,947.00	6,317.00	6,313.36	126.43	189.29	37.97	-2,475.05	-3,030.81	10,804.40	10,573.42	230.98	46.776	
14,500.00	6,947.00	6,317.00	6,313.36	127.97	189.29	37.97	-2,475.05	-3,030.81	10,903.95	10,672.89	231.06	47.191	
14,600.00	6,947.00	6,317.00	6,313.36	129.51	189.29	37.97	-2,475.05	-3,030.81	11,003.51	10,772.38	231.14	47.606	
14,700.00	6,947.00	6,317.00	6,313.36	131.06	189.29	37.97	-2,475.05	-3,030.81	11,103.08	10,871.86	231.21	48.021	
14,800.00	6,947.00	6,317.00	6,313.36	132.60	189.29	37.97	-2,475.05	-3,030.81	11,202.65	10,971.36	231.29	48.436	
14,900.00	6,947.00	6,317.00	6,313.36	134.15	189.29	37.97	-2,475.05	-3,030.81	11,302.23	11,070.87	231.36	48.851	
15,000.00	6,947.00	6,317.00	6,313.36	135.70	189.29	37.97	-2,475.05	-3,030.81	11,401.82	11,170.38	231.44	49.265	
15,100.00	6,947.00	6,317.00	6,313.36	137.24	189.29	37.97	-2,475.05	-3,030.81	11,501.41	11,269.90	231.51	49.679	
15,200.00	6,947.00	6,317.00	6,313.36	138.79	189.29	37.97	-2,475.05	-3,030.81	11,601.01	11,369.43	231.59	50.093	
15,300.00	6,947.00	6,317.00	6,313.36	140.35	189.29	37.97	-2,475.05	-3,030.81	11,700.62	11,468.96	231.66	50.507	
15,400.00	6,947.00	6,317.00	6,313.36	141.90	189.29	37.97	-2,475.05	-3,030.81	11,800.24	11,568.50	231.74	50.920	
15,500.00	6,947.00	6,317.00	6,313.36	143.45	189.29	37.97	-2,475.05	-3,030.81	11,899.86	11,668.05	231.81	51.334	
15,600.00	6,947.00	6,317.00	6,313.36	145.01	189.29	37.97	-2,475.05	-3,030.81	11,999.49	11,767.60	231.89	51.747	
15,700.00	6,947.00	6,317.00	6,313.36	146.56	189.29	37.97	-2,475.05	-3,030.81	12,099.12	11,867.16	231.96	52.159	
15,800.00	6,947.00	6,317.00	6,313.36	148.12	189.29	37.97	-2,475.05	-3,030.81	12,198.76	11,966.72	232.04	52.572	
15,900.00	6,947.00	6,317.00	6,313.36	149.68	189.29	37.97	-2,475.05	-3,030.81	12,298.41	12,066.30	232.11	52.984	
16,000.00	6,947.00	6,317.00	6,313.36	151.23	189.29	37.97	-2,475.05	-3,030.81	12,398.06	12,165.87	232.19	53.396	
16,100.00	6,947.00	6,317.00	6,313.36	152.79	189.29	37.97	-2,475.05	-3,030.81	12,497.72	12,265.45	232.26	53.808	
16,200.00	6,947.00	6,317.00	6,313.36	154.36	189.29	37.97	-2,475.05	-3,030.81	12,597.38	12,365.04	232.34	54.220	
16,300.00	6,947.00	6,317.00	6,313.36	155.92	189.29	37.97	-2,475.05	-3,030.81	12,697.05	12,464.64	232.41	54.631	
16,400.00	6,947.00	6,317.00	6,313.36	157.48	189.29	37.97	-2,475.05	-3,030.81	12,796.72	12,564.23	232.49	55.042	
16,500.00	6,947.00	6,317.00	6,313.36	159.04	189.29	37.97	-2,475.05	-3,030.81	12,896.40	12,663.84	232.56	55.453	
16,600.00	6,947.00	6,317.00	6,313.36	160.61	189.29	37.97	-2,475.05	-3,030.81	12,996.08	12,763.45	232.64	55.864	
16,700.00	6,947.00	6,317.00	6,313.36	162.17	189.29	37.97	-2,475.05	-3,030.81	13,095.77	12,863.06	232.71	56.274	
16,800.00	6,947.00	6,317.00	6,313.36	163.74	189.29	37.97	-2,475.05	-3,030.81	13,195.47	12,962.68	232.79	56.684	
16,900.00	6,947.00	6,317.00	6,313.36	165.30	189.29	37.97	-2,475.05	-3,030.81	13,295.16	13,062.30	232.87	57.094	
17,000.00	6,947.00	6,317.00	6,313.36	166.87	189.29	37.97	-2,475.05	-3,030.81	13,394.86	13,161.92	232.94	57.503	
17,100.00	6,947.00	6,317.00	6,313.36	168.44	189.29	37.97	-2,475.05	-3,030.81	13,494.57	13,261.55	233.02	57.912	
17,200.00	6,947.00	6,317.00	6,313.36	170.01	189.29	37.97	-2,475.05	-3,030.81	13,594.28	13,361.19	233.09	58.321	
17,300.00	6,947.00	6,317.00	6,313.36	171.57	189.29	37.97	-2,475.05	-3,030.81	13,694.00	13,460.83	233.17	58.730	
17,400.00	6,947.00	6,317.00	6,313.36	173.14	189.29	37.97	-2,475.05	-3,030.81	13,793.72	13,560.47	233.24	59.138	
17,500.00	6,947.00	6,317.00	6,313.36	174.71	189.29	37.97	-2,475.05	-3,030.81	13,893.44	13,660.12	233.32	59.547	
17,600.00	6,947.00	6,317.00	6,313.36	176.28	189.29	37.97	-2,475.05	-3,030.81	13,993.17	13,759.77	233.40	59.954	
17,700.00	6,947.00	6,317.00	6,313.36	177.86	189.29	37.97	-2,475.05	-3,030.81	14,092.90	13,859.42	233.47	60.362	
17,800.00	6,947.00	6,317.00	6,313.36	179.43	189.29	37.97	-2,475.05	-3,030.81	14,192.63	13,959.08	233.55	60.769	
17,900.00	6,947.00	6,317.00	6,313.36	181.00	189.29	37.97	-2,475.05	-3,030.81	14,292.37	14,058.74	233.63	61.176	
18,000.00	6,947.00	6,317.00	6,313.36	182.57	189.29	37.97	-2,475.05	-3,030.81	14,392.11	14,158.41	233.70	61.583	
18,100.00	6,947.00	6,317.00	6,313.36	184.15	189.29	37.97	-2,475.05	-3,030.81	14,491.86	14,258.08	233.78	61.989	
18,200.00	6,947.00	6,317.00	6,313.36	185.72	189.29	37.97	-2,475.05	-3,030.81	14,591.61	14,357.75	233.86	62.395	
18,300.00	6,947.00	6,317.00	6,313.36	187.30	189.29	37.97	-2,475.05	-3,030.81	14,691.36	14,457.42	233.93	62.801	
18,400.00	6,947.00	6,317.00	6,313.36	188.87	189.29	37.97	-2,475.05	-3,030.81	14,791.12	14,557.10	234.01	63.207	
18,500.00	6,947.00	6,317.00	6,313.36	190.45	189.29	37.97	-2,475.05	-3,030.81	14,890.87	14,656.78	234.09	63.612	
18,600.00	6,947.00	6,317.00	6,313.36	192.02	189.29	37.97	-2,475.05	-3,030.81	14,990.64	14,756.47	234.17	64.017	
18,700.00	6,947.00	6,317.00	6,313.36	193.60	189.29	37.97	-2,475.05	-3,030.81	15,090.40	14,856.16	234.25	64.421	
18,800.00	6,947.00	6,317.00	6,313.36	195.18	189.29	37.97	-2,475.05	-3,030.81	15,190.17	14,955.85	234.32	64.825	
18,900.00	6,947.00	6,317.00	6,313.36	196.75	189.29	37.97	-2,475.05	-3,030.81	15,289.94	15,055.54	234.40	65.229	
19,000.00	6,947.00	6,317.00	6,313.36	198.33	189.29	37.97	-2,475.05	-3,030.81	15,389.72	15,155.24	234.48	65.633	
19,100.00	6,947.00	6,317.00	6,313.36	199.91	189.29	37.97	-2,475.05	-3,030.81	15,489.49	15,254.93	234.56	66.036	
19,200.00	6,947.00	6,317.00	6,313.36	201.49	189.29	37.97	-2,475.05	-3,030.81	15,589.27	15,354.64	234.64	66.439	
19,300.00	6,947.00	6,317.00	6,313.36	203.07	189.29	37.97	-2,475.05	-3,030.81	15,689.06	15,454.34	234.72	66.842	
19,400.00	6,947.00	6,317.00	6,313.36	204.65	189.29	37.97	-2,475.05	-3,030.81	15,788.84	15,554.05	234.80	67.244	

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 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Rule Assigned:

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
19,500.00	6,947.00	6,317.00	6,313.36	206.23	189.29	37.97	-2,475.05	-3,030.81	15,888.63	15,653.75	234.88	67.646	
19,600.00	6,947.00	6,317.00	6,313.36	207.81	189.29	37.97	-2,475.05	-3,030.81	15,988.42	15,753.47	234.96	68.048	
19,700.00	6,947.00	6,317.00	6,313.36	209.39	189.29	37.97	-2,475.05	-3,030.81	16,088.22	15,853.18	235.04	68.450	
19,800.00	6,947.00	6,317.00	6,313.36	210.97	189.29	37.97	-2,475.05	-3,030.81	16,188.01	15,952.90	235.12	68.851	
19,900.00	6,947.00	6,317.00	6,313.36	212.55	189.29	37.97	-2,475.05	-3,030.81	16,287.81	16,052.61	235.20	69.251	
20,000.00	6,947.00	6,317.00	6,313.36	214.13	189.29	37.97	-2,475.05	-3,030.81	16,387.61	16,152.33	235.28	69.652	
20,100.00	6,947.00	6,317.00	6,313.36	215.71	189.29	37.97	-2,475.05	-3,030.81	16,487.42	16,252.06	235.36	70.052	
20,200.00	6,947.00	6,317.00	6,313.36	217.30	189.29	37.97	-2,475.05	-3,030.81	16,587.22	16,351.78	235.44	70.452	
20,300.00	6,947.00	6,317.00	6,313.36	218.88	189.29	37.97	-2,475.05	-3,030.81	16,687.03	16,451.51	235.52	70.851	
20,400.00	6,947.00	6,317.00	6,313.36	220.46	189.29	37.97	-2,475.05	-3,030.81	16,786.84	16,551.24	235.60	71.250	
20,500.00	6,947.00	6,317.00	6,313.36	222.04	189.29	37.97	-2,475.05	-3,030.81	16,886.65	16,650.97	235.69	71.649	
20,600.00	6,947.00	6,317.00	6,313.36	223.63	189.29	37.97	-2,475.05	-3,030.81	16,986.47	16,750.70	235.77	72.047	
20,700.00	6,947.00	6,317.00	6,313.36	225.21	189.29	37.97	-2,475.05	-3,030.81	17,086.29	16,850.44	235.85	72.445	
20,800.00	6,947.00	6,317.00	6,313.36	226.80	189.29	37.97	-2,475.05	-3,030.81	17,186.11	16,950.17	235.93	72.843	
20,900.00	6,947.00	6,317.00	6,313.36	228.38	189.29	37.97	-2,475.05	-3,030.81	17,285.93	17,049.91	236.02	73.240	
21,000.00	6,947.00	6,317.00	6,313.36	229.97	189.29	37.97	-2,475.05	-3,030.81	17,385.75	17,149.65	236.10	73.638	
21,032.01	6,947.00	6,317.00	6,313.36	230.47	189.29	37.97	-2,475.05	-3,030.81	17,417.70	17,181.58	236.13	73.765	
21,032.99	6,947.00	6,317.00	6,313.36	230.51	189.29	37.97	-2,475.05	-3,030.81	17,418.68	17,179.10	239.58	72.705	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Rule Assigned:

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	100.00	100.00	0.00	3.00	-83.21	928.74	-7,795.93	7,851.05				
100.00	100.00	200.00	200.00	0.25	5.99	-83.21	928.74	-7,795.93	7,851.05	7,844.81	6.24	1,257.384	
200.00	200.00	300.00	300.00	0.61	8.99	-83.21	928.74	-7,795.93	7,851.05	7,841.45	9.60	817.917	
300.00	300.00	400.00	400.00	0.97	11.99	-83.21	928.74	-7,795.93	7,851.05	7,838.10	12.95	606.085	
400.00	400.00	500.10	500.00	1.33	14.99	-83.21	928.74	-7,795.93	7,851.05	7,834.74	16.31	481.316	
500.00	500.00	600.10	600.00	1.68	17.98	-83.21	928.74	-7,795.93	7,851.05	7,831.38	19.67	399.208	CC
600.00	599.98	700.08	699.98	2.03	20.98	111.79	928.74	-7,795.93	7,851.70	7,828.70	23.00	341.321	
700.00	699.84	803.47	803.32	2.36	24.08	111.81	930.82	-7,795.92	7,853.89	7,827.46	26.44	297.101	
800.00	799.45	910.24	910.07	2.71	27.27	111.81	930.02	-7,795.92	7,857.05	7,827.07	29.98	262.093	ES
900.00	898.70	1,016.85	1,016.64	3.06	30.47	111.80	928.43	-7,795.93	7,861.43	7,827.90	33.53	234.474	
1,000.00	997.47	1,097.87	1,097.47	3.43	32.90	111.78	928.74	-7,795.93	7,867.31	7,830.99	36.32	216.583	
1,100.00	1,095.62	1,196.03	1,195.62	3.82	35.84	111.78	928.74	-7,795.93	7,874.51	7,834.86	39.65	198.598	
1,200.00	1,193.44	1,297.21	1,296.76	4.22	38.87	111.93	930.84	-7,795.92	7,882.66	7,839.58	43.08	182.977	
1,300.00	1,291.25	1,402.76	1,402.28	4.64	42.03	112.08	930.11	-7,795.92	7,890.51	7,843.86	46.65	169.149	
1,400.00	1,389.07	1,508.66	1,508.15	5.06	45.21	112.21	928.58	-7,795.93	7,898.31	7,848.07	50.23	157.233	
1,500.00	1,486.88	1,587.59	1,586.88	5.48	47.57	112.33	928.74	-7,795.93	7,906.33	7,853.31	53.02	149.134	
1,600.00	1,584.70	1,685.41	1,684.70	5.91	50.50	112.46	928.74	-7,795.93	7,914.40	7,858.03	56.37	140.410	
1,700.00	1,682.51	1,786.05	1,785.29	6.35	53.52	112.62	930.88	-7,795.92	7,922.82	7,863.01	59.81	132.477	
1,800.00	1,780.33	1,892.38	1,891.60	6.78	56.70	112.76	930.21	-7,795.92	7,930.90	7,867.48	63.42	125.059	
1,900.00	1,878.14	1,999.07	1,998.26	7.22	59.90	112.90	928.75	-7,795.93	7,938.92	7,871.88	67.04	118.417	
2,000.00	1,975.96	2,076.97	2,075.96	7.66	62.24	113.01	928.74	-7,795.93	7,947.15	7,877.34	69.80	113.848	
2,100.00	2,073.77	2,174.79	2,173.77	8.10	65.17	113.14	928.74	-7,795.93	7,955.45	7,882.28	73.17	108.731	
2,200.00	2,171.59	2,274.71	2,273.66	8.54	68.16	113.30	930.90	-7,795.92	7,964.13	7,887.53	76.59	103.981	
2,300.00	2,269.40	2,381.84	2,380.77	8.98	71.37	113.44	930.31	-7,795.92	7,972.44	7,892.21	80.23	99.364	
2,400.00	2,367.22	2,489.33	2,488.22	9.43	74.59	113.58	928.92	-7,795.93	7,980.69	7,896.80	83.89	95.134	
2,500.00	2,465.03	2,566.35	2,565.03	9.87	76.90	113.68	928.74	-7,795.93	7,989.11	7,902.48	86.63	92.222	
2,600.00	2,562.84	2,664.16	2,662.84	10.32	79.83	113.81	928.74	-7,795.93	7,997.64	7,907.65	89.99	88.869	
2,700.00	2,660.66	2,763.21	2,761.85	10.77	82.80	113.96	930.92	-7,795.92	8,006.57	7,913.17	93.40	85.727	
2,800.00	2,758.47	2,871.14	2,869.76	11.21	86.03	114.11	930.41	-7,795.92	8,015.12	7,918.05	97.07	82.575	
2,900.00	2,856.29	2,979.45	2,978.03	11.66	89.28	114.25	929.08	-7,795.93	8,023.58	7,922.84	100.75	79.642	
3,000.00	2,954.10	3,055.73	3,054.10	12.11	91.56	114.35	928.74	-7,795.93	8,032.20	7,928.74	103.47	77.632	
3,100.00	3,051.92	3,153.54	3,151.92	12.56	94.49	114.48	928.74	-7,795.93	8,040.96	7,934.12	106.83	75.268	
3,200.00	3,149.73	3,251.52	3,249.86	13.01	97.43	114.63	930.92	-7,795.92	8,050.13	7,939.93	110.20	73.049	
3,300.00	3,247.55	3,360.28	3,358.60	13.45	100.69	114.77	930.50	-7,795.92	8,058.91	7,945.01	113.90	70.756	
3,400.00	3,345.36	3,469.41	3,467.69	13.90	103.96	114.91	929.24	-7,795.93	8,067.60	7,949.99	117.60	68.600	
3,500.00	3,443.18	3,545.11	3,543.18	14.35	106.23	115.01	928.74	-7,795.93	8,076.40	7,956.10	120.31	67.133	
3,600.00	3,540.99	3,642.92	3,640.99	14.80	109.16	115.14	928.74	-7,795.93	8,085.37	7,961.70	123.67	65.378	
3,700.00	3,638.81	3,740.74	3,738.81	15.25	112.09	115.27	928.74	-7,795.93	8,094.39	7,967.35	127.04	63.717	
3,800.00	3,736.62	3,849.24	3,847.26	15.70	115.34	115.43	930.58	-7,795.92	8,103.80	7,973.07	130.72	61.991	
3,900.00	3,834.44	3,959.21	3,957.19	16.15	118.64	115.56	929.39	-7,795.93	8,112.70	7,978.25	134.46	60.337	
4,000.00	3,932.25	4,034.48	4,032.25	16.60	120.89	115.66	928.74	-7,795.93	8,121.69	7,984.55	137.14	59.220	
4,100.00	4,030.07	4,132.30	4,130.07	17.05	123.82	115.79	928.74	-7,795.93	8,130.88	7,990.37	140.51	57.867	
4,200.00	4,127.88	4,230.11	4,227.88	17.50	126.75	115.92	928.74	-7,795.93	8,140.11	7,996.23	143.88	56.577	
4,300.00	4,225.70	4,338.03	4,335.74	17.96	129.99	116.07	930.65	-7,795.92	8,149.77	8,002.22	147.55	55.236	
4,400.00	4,323.51	4,448.85	4,446.53	18.41	133.31	116.21	929.54	-7,795.92	8,158.89	8,007.59	151.30	53.924	
4,500.00	4,421.33	4,523.86	4,521.33	18.86	135.56	116.31	928.74	-7,795.93	8,168.05	8,014.07	153.98	53.045	
4,600.00	4,519.14	4,621.68	4,619.14	19.31	138.49	116.43	928.74	-7,795.93	8,177.45	8,020.10	157.35	51.971	
4,700.00	4,616.95	4,719.49	4,716.95	19.76	141.42	116.56	928.74	-7,795.93	8,186.89	8,026.18	160.71	50.941	
4,800.00	4,714.77	4,826.64	4,824.05	20.21	144.63	116.72	930.72	-7,795.92	8,196.80	8,032.44	164.36	49.872	
4,900.00	4,812.58	4,938.33	4,935.71	20.66	147.97	116.85	929.68	-7,795.92	8,206.13	8,037.99	168.14	48.805	
5,000.00	4,910.40	5,013.24	5,010.40	21.11	150.22	116.94	928.74	-7,795.93	8,215.47	8,044.65	170.82	48.095	
5,100.00	5,008.21	5,111.06	5,108.21	21.57	153.15	117.07	928.74	-7,795.93	8,225.08	8,050.89	174.18	47.222	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Rule Assigned:

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,200.00	5,106.03	5,208.87	5,206.03	22.02	156.08	117.20	928.74	-7,795.93	8,234.72	8,057.18	177.54	46.381	
5,300.00	5,203.84	5,315.07	5,312.18	22.47	159.26	117.35	930.77	-7,795.92	8,244.87	8,063.71	181.16	45.511	
5,400.00	5,301.66	5,427.63	5,424.71	22.92	162.64	117.49	929.82	-7,795.92	8,254.42	8,069.45	184.97	44.626	
5,500.00	5,399.47	5,502.62	5,499.47	23.37	164.88	117.58	928.74	-7,795.93	8,263.92	8,076.27	187.65	44.040	
5,600.00	5,497.29	5,600.43	5,597.29	23.82	167.81	117.70	928.74	-7,795.93	8,273.73	8,082.72	191.01	43.316	
5,700.00	5,595.10	5,698.25	5,695.10	24.28	170.75	117.83	928.74	-7,795.93	8,283.58	8,089.21	194.37	42.617	
5,800.00	5,692.92	5,803.31	5,800.12	24.73	173.89	117.97	930.82	-7,795.92	8,293.97	8,096.01	197.95	41.899	
5,900.00	5,790.73	5,916.76	5,913.54	25.18	177.29	118.11	929.95	-7,795.92	8,303.73	8,101.94	201.79	41.151	
6,000.00	5,888.55	6,030.62	6,027.35	25.63	180.70	118.25	928.17	-7,795.93	8,313.34	8,107.71	205.63	40.428	
6,100.00	5,986.36	6,089.81	6,086.36	26.08	182.48	118.32	928.74	-7,795.93	8,323.40	8,115.57	207.83	40.049	
6,200.00	6,084.18	6,187.63	6,184.18	26.54	185.41	118.45	928.74	-7,795.93	8,333.45	8,122.26	211.20	39.459	
6,300.00	6,181.99	6,291.36	6,287.86	26.99	188.52	118.59	930.86	-7,795.92	8,344.07	8,129.33	214.73	38.858	
6,400.00	6,279.81	6,405.72	6,402.20	27.44	191.94	118.73	930.07	-7,795.92	8,354.04	8,135.44	218.60	38.217	
6,500.00	6,377.62	6,520.48	6,516.92	27.89	195.38	118.86	928.37	-7,795.93	8,363.85	8,141.39	222.47	37.596	
6,530.62	6,407.57	6,511.33	6,507.57	28.03	195.11	118.86	928.74	-7,795.93	8,366.98	8,144.66	222.32	37.635	
6,550.00	6,426.48	6,530.24	6,526.48	28.12	195.68	124.30	928.74	-7,795.93	8,369.24	8,146.27	222.97	37.535	
6,600.00	6,474.77	6,578.53	6,574.77	28.36	197.12	134.23	928.74	-7,795.93	8,377.70	8,153.06	224.64	37.294	
6,650.00	6,522.09	6,625.84	6,622.09	28.62	198.54	140.36	928.74	-7,795.93	8,389.90	8,163.62	226.29	37.076	
6,700.00	6,568.15	6,671.90	6,668.15	28.89	199.92	144.30	928.74	-7,795.93	8,405.77	8,177.87	227.90	36.884	
6,750.00	6,612.66	6,716.42	6,712.66	29.18	201.25	146.88	928.74	-7,795.93	8,425.21	8,195.74	229.47	36.717	
6,800.00	6,655.36	6,760.77	6,756.97	29.48	202.58	148.57	930.92	-7,795.92	8,448.66	8,217.63	231.03	36.570	
6,850.00	6,695.98	6,808.71	6,804.91	29.79	204.02	149.59	930.80	-7,795.92	8,474.84	8,242.15	232.69	36.421	
6,900.00	6,734.26	6,854.07	6,850.26	30.11	205.38	150.07	930.54	-7,795.92	8,504.15	8,269.87	234.28	36.299	
6,950.00	6,769.98	6,896.56	6,892.74	30.45	206.65	150.07	930.17	-7,795.92	8,536.41	8,300.64	235.77	36.207	
7,000.00	6,802.91	6,935.91	6,932.08	30.79	207.83	149.61	929.71	-7,795.92	8,571.42	8,334.27	237.16	36.143	
7,050.00	6,832.85	6,971.87	6,968.02	31.15	208.91	148.66	929.20	-7,795.93	8,608.99	8,370.55	238.43	36.107	
7,100.00	6,859.62	7,004.19	7,000.33	31.51	209.88	147.13	928.66	-7,795.93	8,648.87	8,409.29	239.59	36.099	SF
7,150.00	6,883.05	7,032.67	7,028.80	31.89	210.73	144.88	928.13	-7,795.93	8,690.84	8,450.23	240.61	36.120	
7,200.00	6,902.99	7,007.05	7,002.99	32.28	209.96	141.25	928.74	-7,795.93	8,734.78	8,494.79	239.99	36.396	
7,250.00	6,919.32	7,023.38	7,019.32	32.67	210.45	136.47	928.74	-7,795.93	8,780.24	8,539.62	240.62	36.490	
7,300.00	6,931.95	7,036.01	7,031.95	33.08	210.83	129.56	928.74	-7,795.93	8,826.96	8,585.84	241.13	36.607	
7,350.00	6,940.79	7,044.85	7,040.79	33.49	211.10	119.44	928.74	-7,795.93	8,874.66	8,633.16	241.50	36.748	
7,400.00	6,945.79	7,049.85	7,045.79	33.90	211.25	104.85	928.74	-7,795.93	8,923.04	8,681.29	241.75	36.910	
7,439.53	6,947.00	7,051.06	7,047.00	34.24	211.28	90.00	928.74	-7,795.93	8,961.58	8,719.73	241.85	37.054	
7,500.00	6,947.00	7,051.06	7,047.00	34.75	211.28	90.00	928.74	-7,795.93	9,020.77	8,778.83	241.94	37.285	
7,600.00	6,947.00	7,051.06	7,047.00	35.63	211.28	90.00	928.74	-7,795.93	9,119.23	8,877.15	242.07	37.672	
7,700.00	6,947.00	7,051.06	7,047.00	36.54	211.28	90.00	928.74	-7,795.93	9,218.25	8,976.08	242.18	38.064	
7,800.00	6,947.00	7,051.06	7,047.00	37.47	211.28	90.00	928.74	-7,795.93	9,317.72	9,075.46	242.26	38.462	
7,900.00	6,947.00	7,051.06	7,047.00	38.43	211.28	90.00	928.74	-7,795.93	9,417.49	9,175.17	242.32	38.864	
8,000.00	6,947.00	7,051.06	7,047.00	39.41	211.28	90.00	928.74	-7,795.93	9,517.43	9,275.08	242.35	39.271	
8,100.00	6,947.00	7,051.06	7,047.00	40.40	211.28	-90.00	928.74	-7,795.93	9,617.43	9,375.06	242.37	39.681	
8,200.00	6,947.00	7,051.06	7,047.00	41.42	211.28	-90.00	928.74	-7,795.93	9,717.35	9,474.99	242.36	40.095	
8,300.00	6,947.00	7,051.06	7,047.00	42.44	211.28	-90.00	928.74	-7,795.93	9,817.08	9,574.75	242.33	40.511	
8,400.00	6,947.00	7,051.06	7,047.00	43.48	211.28	-90.00	928.74	-7,795.93	9,916.51	9,674.23	242.28	40.930	
8,500.00	6,947.00	7,051.06	7,047.00	44.53	211.28	-90.00	928.74	-7,795.93	10,015.53	9,773.32	242.21	41.350	
8,600.00	6,947.00	7,051.06	7,047.00	45.58	211.28	-90.00	928.74	-7,795.93	10,114.03	9,871.89	242.13	41.771	
8,700.00	6,947.00	7,051.06	7,047.00	46.63	211.28	-90.00	928.74	-7,795.93	10,211.90	9,969.87	242.03	42.192	
8,800.00	6,947.00	7,051.06	7,047.00	47.69	211.28	-90.00	928.74	-7,795.93	10,309.05	10,067.13	241.92	42.613	
8,841.31	6,947.00	7,051.06	7,047.00	48.13	211.28	-90.00	928.74	-7,795.93	10,348.95	10,107.08	241.87	42.787	
8,900.00	6,947.00	7,051.06	7,047.00	48.76	211.28	-90.00	928.74	-7,795.93	10,405.54	10,163.74	241.80	43.033	
9,000.00	6,947.00	7,051.06	7,047.00	49.85	211.28	-90.00	928.74	-7,795.93	10,502.02	10,260.34	241.69	43.453	
9,100.00	6,947.00	7,051.06	7,047.00	50.97	211.28	-90.00	928.74	-7,795.93	10,598.57	10,356.99	241.58	43.872	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,200.00	6,947.00	7,051.06	7,047.00	52.12	211.28	-90.00	928.74	-7,795.93	10,695.18	10,453.71	241.48	44.291	
9,300.00	6,947.00	7,051.06	7,047.00	53.28	211.28	-90.00	928.74	-7,795.93	10,791.85	10,550.47	241.38	44.709	
9,400.00	6,947.00	7,051.06	7,047.00	54.48	211.28	-90.00	928.74	-7,795.93	10,888.59	10,647.30	241.29	45.127	
9,500.00	6,947.00	7,051.06	7,047.00	55.69	211.28	-90.00	928.74	-7,795.93	10,985.38	10,744.17	241.20	45.544	
9,600.00	6,947.00	7,051.06	7,047.00	56.92	211.28	-90.00	928.74	-7,795.93	11,082.23	10,841.10	241.12	45.961	
9,700.00	6,947.00	7,051.06	7,047.00	58.17	211.28	-90.00	928.74	-7,795.93	11,179.13	10,938.08	241.05	46.377	
9,800.00	6,947.00	7,051.06	7,047.00	59.44	211.28	-90.00	928.74	-7,795.93	11,276.09	11,035.11	240.98	46.793	
9,900.00	6,947.00	7,051.06	7,047.00	60.73	211.28	-90.00	928.74	-7,795.93	11,373.10	11,132.18	240.91	47.208	
10,000.00	6,947.00	7,051.06	7,047.00	62.03	211.28	-90.00	928.74	-7,795.93	11,470.16	11,229.31	240.85	47.623	
10,100.00	6,947.00	7,051.06	7,047.00	63.34	211.28	-90.00	928.74	-7,795.93	11,567.27	11,326.47	240.80	48.037	
10,200.00	6,947.00	7,051.06	7,047.00	64.67	211.28	-90.00	928.74	-7,795.93	11,664.43	11,423.68	240.75	48.451	
10,300.00	6,947.00	7,051.06	7,047.00	66.01	211.28	-90.00	928.74	-7,795.93	11,761.64	11,520.94	240.70	48.864	
10,400.00	6,947.00	7,051.06	7,047.00	67.36	211.28	-90.00	928.74	-7,795.93	11,858.89	11,618.24	240.66	49.277	
10,500.00	6,947.00	7,051.06	7,047.00	68.73	211.28	-90.00	928.74	-7,795.93	11,956.19	11,715.58	240.62	49.690	
10,600.00	6,947.00	7,051.06	7,047.00	70.10	211.28	-90.00	928.74	-7,795.93	12,053.54	11,812.95	240.58	50.101	
10,700.00	6,947.00	7,051.06	7,047.00	71.48	211.28	-90.00	928.74	-7,795.93	12,150.93	11,910.37	240.55	50.513	
10,800.00	6,947.00	7,051.06	7,047.00	72.88	211.28	-90.00	928.74	-7,795.93	12,248.35	12,007.83	240.52	50.923	
10,900.00	6,947.00	7,051.06	7,047.00	74.28	211.28	-90.00	928.74	-7,795.93	12,345.82	12,105.32	240.50	51.334	
11,000.00	6,947.00	7,051.06	7,047.00	75.69	211.28	-90.00	928.74	-7,795.93	12,443.34	12,202.85	240.48	51.744	
11,100.00	6,947.00	7,051.06	7,047.00	77.10	211.28	-90.00	928.74	-7,795.93	12,540.89	12,300.42	240.46	52.153	
11,200.00	6,947.00	7,051.06	7,047.00	78.53	211.28	-90.00	928.74	-7,795.93	12,638.47	12,398.02	240.45	52.562	
11,300.00	6,947.00	7,051.06	7,047.00	79.96	211.28	-90.00	928.74	-7,795.93	12,736.10	12,495.66	240.44	52.970	
11,400.00	6,947.00	7,051.06	7,047.00	81.40	211.28	-90.00	928.74	-7,795.93	12,833.76	12,593.33	240.43	53.377	
11,500.00	6,947.00	7,051.06	7,047.00	82.84	211.28	-90.00	928.74	-7,795.93	12,931.46	12,691.03	240.43	53.785	
11,600.00	6,947.00	7,051.06	7,047.00	84.29	211.28	-90.00	928.74	-7,795.93	13,029.19	12,788.76	240.43	54.191	
11,700.00	6,947.00	7,051.06	7,047.00	85.75	211.28	-90.00	928.74	-7,795.93	13,126.96	12,886.53	240.43	54.598	
11,800.00	6,947.00	7,051.06	7,047.00	87.21	211.28	-90.00	928.74	-7,795.93	13,224.76	12,984.32	240.44	55.003	
11,900.00	6,947.00	7,051.06	7,047.00	88.68	211.28	-90.00	928.74	-7,795.93	13,322.59	13,082.15	240.44	55.408	
12,000.00	6,947.00	7,051.06	7,047.00	90.15	211.28	-90.00	928.74	-7,795.93	13,420.46	13,180.00	240.45	55.813	
12,100.00	6,947.00	7,051.06	7,047.00	91.62	211.28	-90.00	928.74	-7,795.93	13,518.35	13,277.88	240.47	56.217	
12,200.00	6,947.00	7,051.06	7,047.00	93.10	211.28	-90.00	928.74	-7,795.93	13,616.28	13,375.80	240.48	56.621	
12,300.00	6,947.00	7,051.06	7,047.00	94.59	211.28	-90.00	928.74	-7,795.93	13,714.24	13,473.73	240.50	57.024	
12,400.00	6,947.00	7,051.06	7,047.00	96.07	211.28	-90.00	928.74	-7,795.93	13,812.22	13,571.70	240.52	57.426	
12,500.00	6,947.00	7,051.06	7,047.00	97.56	211.28	-90.00	928.74	-7,795.93	13,910.24	13,669.69	240.54	57.828	
12,600.00	6,947.00	7,051.06	7,047.00	99.06	211.28	-90.00	928.74	-7,795.93	14,008.28	13,767.71	240.57	58.230	
12,700.00	6,947.00	7,051.06	7,047.00	100.56	211.28	-90.00	928.74	-7,795.93	14,106.35	13,865.75	240.60	58.631	
12,800.00	6,947.00	7,051.06	7,047.00	102.06	211.28	-90.00	928.74	-7,795.93	14,204.45	13,963.82	240.62	59.031	
12,900.00	6,947.00	7,051.06	7,047.00	103.56	211.28	-90.00	928.74	-7,795.93	14,302.57	14,061.91	240.66	59.431	
13,000.00	6,947.00	7,051.06	7,047.00	105.07	211.28	-90.00	928.74	-7,795.93	14,400.72	14,160.03	240.69	59.831	
13,100.00	6,947.00	7,051.06	7,047.00	106.58	211.28	-90.00	928.74	-7,795.93	14,498.89	14,258.17	240.73	60.230	
13,200.00	6,947.00	7,051.06	7,047.00	108.10	211.28	-90.00	928.74	-7,795.93	14,597.09	14,356.33	240.76	60.629	
13,300.00	6,947.00	7,051.06	7,047.00	109.61	211.28	-90.00	928.74	-7,795.93	14,695.32	14,454.51	240.80	61.027	
13,400.00	6,947.00	7,051.06	7,047.00	111.13	211.28	-90.00	928.74	-7,795.93	14,793.56	14,552.72	240.84	61.424	
13,500.00	6,947.00	7,051.06	7,047.00	112.65	211.28	-90.00	928.74	-7,795.93	14,891.83	14,650.95	240.89	61.821	
13,600.00	6,947.00	7,051.06	7,047.00	114.17	211.28	-90.00	928.74	-7,795.93	14,990.13	14,749.20	240.93	62.217	
13,700.00	6,947.00	7,051.06	7,047.00	115.70	211.28	-90.00	928.74	-7,795.93	15,088.44	14,847.47	240.98	62.613	
13,800.00	6,947.00	7,051.06	7,047.00	117.23	211.28	-90.00	928.74	-7,795.93	15,186.78	14,945.75	241.03	63.009	
13,900.00	6,947.00	7,051.06	7,047.00	118.76	211.28	-90.00	928.74	-7,795.93	15,285.14	15,044.06	241.08	63.404	
14,000.00	6,947.00	7,051.06	7,047.00	120.29	211.28	-90.00	928.74	-7,795.93	15,383.52	15,142.39	241.13	63.798	
14,100.00	6,947.00	7,051.06	7,047.00	121.82	211.28	-90.00	928.74	-7,795.93	15,481.92	15,240.74	241.18	64.192	
14,200.00	6,947.00	7,051.06	7,047.00	123.36	211.28	-90.00	928.74	-7,795.93	15,580.34	15,339.11	241.23	64.586	
14,300.00	6,947.00	7,051.06	7,047.00	124.89	211.28	-90.00	928.74	-7,795.93	15,678.79	15,437.50	241.29	64.979	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Rule Assigned: Warning
14,400.00	6,947.00	7,051.06	7,047.00	126.43	211.28	-90.00	928.74	-7,795.93	15,777.25	15,535.90	241.35	65.372	
14,500.00	6,947.00	7,051.06	7,047.00	127.97	211.28	-90.00	928.74	-7,795.93	15,875.73	15,634.32	241.41	65.764	
14,600.00	6,947.00	7,051.06	7,047.00	129.51	211.28	-90.00	928.74	-7,795.93	15,974.23	15,732.76	241.47	66.155	
14,700.00	6,947.00	7,051.06	7,047.00	131.06	211.28	-90.00	928.74	-7,795.93	16,072.75	15,831.22	241.53	66.546	
14,800.00	6,947.00	7,051.06	7,047.00	132.60	211.28	-90.00	928.74	-7,795.93	16,171.28	15,929.69	241.59	66.937	
14,900.00	6,947.00	7,051.06	7,047.00	134.15	211.28	-90.00	928.74	-7,795.93	16,269.84	16,028.18	241.65	67.327	
15,000.00	6,947.00	7,051.06	7,047.00	135.70	211.28	-90.00	928.74	-7,795.93	16,368.41	16,126.69	241.72	67.717	
15,100.00	6,947.00	7,051.06	7,047.00	137.24	211.28	-90.00	928.74	-7,795.93	16,467.00	16,225.21	241.79	68.106	
15,200.00	6,947.00	7,051.06	7,047.00	138.79	211.28	-90.00	928.74	-7,795.93	16,565.60	16,323.75	241.85	68.494	
15,300.00	6,947.00	7,051.06	7,047.00	140.35	211.28	-90.00	928.74	-7,795.93	16,664.22	16,422.30	241.92	68.883	
15,400.00	6,947.00	7,051.06	7,047.00	141.90	211.28	-90.00	928.74	-7,795.93	16,762.86	16,520.87	241.99	69.270	
15,500.00	6,947.00	7,051.06	7,047.00	143.45	211.28	-90.00	928.74	-7,795.93	16,861.52	16,619.45	242.06	69.657	
15,600.00	6,947.00	7,051.06	7,047.00	145.01	211.28	-90.00	928.74	-7,795.93	16,960.19	16,718.05	242.14	70.044	
15,700.00	6,947.00	7,051.06	7,047.00	146.56	211.28	-90.00	928.74	-7,795.93	17,058.87	16,816.67	242.21	70.431	
15,800.00	6,947.00	7,051.06	7,047.00	148.12	211.28	-90.00	928.74	-7,795.93	17,157.58	16,915.29	242.28	70.816	
15,900.00	6,947.00	7,051.06	7,047.00	149.68	211.28	-90.00	928.74	-7,795.93	17,256.29	17,013.93	242.36	71.202	
16,000.00	6,947.00	7,051.06	7,047.00	151.23	211.28	-90.00	928.74	-7,795.93	17,355.02	17,112.59	242.43	71.587	
16,100.00	6,947.00	7,051.06	7,047.00	152.79	211.28	-90.00	928.74	-7,795.93	17,453.77	17,211.26	242.51	71.971	
16,200.00	6,947.00	7,051.06	7,047.00	154.36	211.28	-90.00	928.74	-7,795.93	17,552.53	17,309.94	242.59	72.355	
16,300.00	6,947.00	7,051.06	7,047.00	155.92	211.28	-90.00	928.74	-7,795.93	17,651.30	17,408.63	242.67	72.738	
16,400.00	6,947.00	7,051.06	7,047.00	157.48	211.28	-90.00	928.74	-7,795.93	17,750.09	17,507.34	242.75	73.121	
16,500.00	6,947.00	7,051.06	7,047.00	159.04	211.28	-90.00	928.74	-7,795.93	17,848.89	17,606.06	242.83	73.504	
16,600.00	6,947.00	7,051.06	7,047.00	160.61	211.28	-90.00	928.74	-7,795.93	17,947.70	17,704.79	242.91	73.886	
16,700.00	6,947.00	7,051.06	7,047.00	162.17	211.28	-90.00	928.74	-7,795.93	18,046.53	17,803.54	242.99	74.268	
16,800.00	6,947.00	7,051.06	7,047.00	163.74	211.28	-90.00	928.74	-7,795.93	18,145.37	17,902.29	243.08	74.649	
16,900.00	6,947.00	7,051.06	7,047.00	165.30	211.28	-90.00	928.74	-7,795.93	18,244.22	18,001.06	243.16	75.029	
17,000.00	6,947.00	7,051.06	7,047.00	166.87	211.28	-90.00	928.74	-7,795.93	18,343.09	18,099.84	243.25	75.410	
17,100.00	6,947.00	7,051.06	7,047.00	168.44	211.28	-90.00	928.74	-7,795.93	18,441.96	18,198.63	243.33	75.789	
17,200.00	6,947.00	7,051.06	7,047.00	170.01	211.28	-90.00	928.74	-7,795.93	18,540.85	18,297.44	243.42	76.169	
17,300.00	6,947.00	7,051.06	7,047.00	171.57	211.28	-90.00	928.74	-7,795.93	18,639.75	18,396.25	243.51	76.548	
17,400.00	6,947.00	7,051.06	7,047.00	173.14	211.28	-90.00	928.74	-7,795.93	18,738.67	18,495.07	243.59	76.926	
17,500.00	6,947.00	7,051.06	7,047.00	174.71	211.28	-90.00	928.74	-7,795.93	18,837.59	18,593.91	243.68	77.304	
17,600.00	6,947.00	7,051.06	7,047.00	176.28	211.28	-90.00	928.74	-7,795.93	18,936.53	18,692.76	243.77	77.682	
17,700.00	6,947.00	7,051.06	7,047.00	177.86	211.28	-90.00	928.74	-7,795.93	19,035.47	18,791.61	243.86	78.059	
17,800.00	6,947.00	7,051.06	7,047.00	179.43	211.28	-90.00	928.74	-7,795.93	19,134.43	18,890.48	243.95	78.435	
17,900.00	6,947.00	7,051.06	7,047.00	181.00	211.28	-90.00	928.74	-7,795.93	19,233.40	18,989.36	244.04	78.811	
18,000.00	6,947.00	7,051.06	7,047.00	182.57	211.28	-90.00	928.74	-7,795.93	19,332.38	19,088.24	244.14	79.187	
18,100.00	6,947.00	7,051.06	7,047.00	184.15	211.28	-90.00	928.74	-7,795.93	19,431.37	19,187.14	244.23	79.562	
18,200.00	6,947.00	7,051.06	7,047.00	185.72	211.28	-90.00	928.74	-7,795.93	19,530.37	19,286.05	244.32	79.937	
18,300.00	6,947.00	7,051.06	7,047.00	187.30	211.28	-90.00	928.74	-7,795.93	19,629.38	19,384.96	244.42	80.311	
18,400.00	6,947.00	7,051.06	7,047.00	188.87	211.28	-90.00	928.74	-7,795.93	19,728.40	19,483.89	244.51	80.685	
18,500.00	6,947.00	7,051.06	7,047.00	190.45	211.28	-90.00	928.74	-7,795.93	19,827.43	19,582.82	244.61	81.059	
18,600.00	6,947.00	7,051.06	7,047.00	192.02	211.28	-90.00	928.74	-7,795.93	19,926.47	19,681.77	244.70	81.432	
18,700.00	6,947.00	7,051.06	7,047.00	193.60	211.28	-90.00	928.74	-7,795.93	20,025.52	19,780.72	244.80	81.804	
18,800.00	6,947.00	7,051.06	7,047.00	195.18	211.28	-90.00	928.74	-7,795.93	20,124.57	19,879.68	244.89	82.177	
18,900.00	6,947.00	7,051.06	7,047.00	196.75	211.28	-90.00	928.74	-7,795.93	20,223.64	19,978.65	244.99	82.548	
19,000.00	6,947.00	7,051.06	7,047.00	198.33	211.28	-90.00	928.74	-7,795.93	20,322.72	20,077.63	245.09	82.920	
19,100.00	6,947.00	7,051.06	7,047.00	199.91	211.28	-90.00	928.74	-7,795.93	20,421.80	20,176.62	245.19	83.290	
19,200.00	6,947.00	7,051.06	7,047.00	201.49	211.28	-90.00	928.74	-7,795.93	20,520.90	20,275.61	245.29	83.661	
19,300.00	6,947.00	7,051.06	7,047.00	203.07	211.28	-90.00	928.74	-7,795.93	20,620.00	20,374.62	245.39	84.031	
19,400.00	6,947.00	7,051.06	7,047.00	204.65	211.28	-90.00	928.74	-7,795.93	20,719.12	20,473.63	245.49	84.400	
19,500.00	6,947.00	7,051.06	7,047.00	206.23	211.28	-90.00	928.74	-7,795.93	20,818.24	20,572.65	245.59	84.769	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Rule Assigned:

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
19,600.00	6,947.00	7,051.06	7,047.00	207.81	211.28	-90.00	928.74	-7,795.93	20,917.36	20,671.68	245.69	85.138	
19,700.00	6,947.00	7,051.06	7,047.00	209.39	211.28	-90.00	928.74	-7,795.93	21,016.50	20,770.71	245.79	85.506	
19,800.00	6,947.00	7,051.06	7,047.00	210.97	211.28	-90.00	928.74	-7,795.93	21,115.65	20,869.76	245.89	85.874	
19,900.00	6,947.00	7,051.06	7,047.00	212.55	211.28	-90.00	928.74	-7,795.93	21,214.80	20,968.81	245.99	86.241	
20,000.00	6,947.00	7,051.06	7,047.00	214.13	211.28	-90.00	928.74	-7,795.93	21,313.96	21,067.86	246.10	86.608	
20,100.00	6,947.00	7,051.06	7,047.00	215.71	211.28	-90.00	928.74	-7,795.93	21,413.13	21,166.93	246.20	86.975	
20,200.00	6,947.00	7,051.06	7,047.00	217.30	211.28	-90.00	928.74	-7,795.93	21,512.31	21,266.00	246.30	87.341	
20,300.00	6,947.00	7,051.06	7,047.00	218.88	211.28	-90.00	928.74	-7,795.93	21,611.49	21,365.08	246.41	87.706	
20,400.00	6,947.00	7,051.06	7,047.00	220.46	211.28	-90.00	928.74	-7,795.93	21,710.68	21,464.17	246.51	88.071	
20,500.00	6,947.00	7,051.06	7,047.00	222.04	211.28	-90.00	928.74	-7,795.93	21,809.88	21,563.27	246.62	88.436	
20,600.00	6,947.00	7,051.06	7,047.00	223.63	211.28	-90.00	928.74	-7,795.93	21,909.09	21,662.37	246.72	88.800	
20,700.00	6,947.00	7,051.06	7,047.00	225.21	211.28	-90.00	928.74	-7,795.93	22,008.30	21,761.47	246.83	89.164	
20,800.00	6,947.00	7,051.06	7,047.00	226.80	211.28	-90.00	928.74	-7,795.93	22,107.52	21,860.59	246.93	89.528	
20,900.00	6,947.00	7,051.06	7,047.00	228.38	211.28	-90.00	928.74	-7,795.93	22,206.75	21,959.71	247.04	89.891	
21,000.00	6,947.00	7,051.06	7,047.00	229.97	211.28	-90.00	928.74	-7,795.93	22,305.99	22,058.84	247.15	90.253	
21,032.01	6,947.00	7,051.06	7,047.00	230.47	211.28	-90.00	928.74	-7,795.93	22,337.75	22,090.57	247.18	90.369	
21,032.99	6,947.00	7,051.06	7,047.00	230.51	211.28	-90.00	928.74	-7,795.93	22,338.72	22,087.15	251.57	88.796	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

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

Rule Assigned:

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	79.39	79.39	0.00	0.14	-84.15	919.62	-8,978.19	9,025.18				
100.00	100.00	162.08	162.08	0.25	0.29	-84.15	919.59	-8,978.43	9,025.46	9,024.92	0.54	N/A	
200.00	200.00	244.77	244.77	0.61	0.44	-84.15	919.54	-8,978.83	9,025.94	9,024.89	1.05	8,608.991 ES	
300.00	300.00	327.38	327.38	0.97	0.64	-84.15	919.46	-8,979.39	9,026.60	9,025.00	1.60	5,627.115	
400.00	400.00	372.00	372.00	1.33	0.80	-84.15	919.41	-8,979.76	9,027.55	9,025.43	2.12	4,252.597	
500.00	500.00	372.00	372.00	1.68	0.80	-84.15	919.41	-8,979.76	9,029.48	9,027.00	2.48	3,637.526	
600.00	599.98	372.00	372.00	2.03	0.80	110.78	919.41	-8,979.76	9,033.13	9,030.31	2.83	3,196.714	
700.00	699.84	372.00	372.00	2.36	0.80	110.67	919.41	-8,979.76	9,039.13	9,035.97	3.16	2,858.786	
800.00	799.45	372.00	372.00	2.71	0.80	110.51	919.41	-8,979.76	9,047.45	9,043.94	3.51	2,578.646	
900.00	898.70	552.00	550.99	3.06	1.49	110.38	908.12	-8,991.37	9,057.91	9,053.38	4.53	2,000.078	
1,000.00	997.47	584.00	582.83	3.43	1.60	110.19	905.60	-8,993.36	9,068.74	9,063.72	5.01	1,808.533	
1,100.00	1,095.62	616.00	614.60	3.82	1.72	109.96	902.57	-8,995.67	9,081.53	9,076.01	5.52	1,646.150	
1,200.00	1,193.44	637.49	635.88	4.22	1.80	109.97	900.22	-8,997.42	9,095.68	9,089.69	5.99	1,517.738	
1,300.00	1,291.25	676.46	674.40	4.64	1.95	109.99	895.43	-9,000.87	9,110.54	9,104.00	6.55	1,391.946	
1,400.00	1,389.07	725.29	722.53	5.06	2.15	110.00	888.63	-9,005.59	9,126.03	9,118.89	7.15	1,277.097	
1,500.00	1,486.88	809.84	805.67	5.48	2.50	110.02	875.87	-9,014.11	9,141.85	9,133.94	7.90	1,156.591	
1,600.00	1,584.70	834.00	829.43	5.91	2.61	110.03	872.19	-9,016.56	9,158.03	9,149.61	8.42	1,088.104	
1,700.00	1,682.51	898.00	892.34	6.35	2.88	110.04	862.74	-9,023.55	9,174.78	9,165.68	9.10	1,008.199	
1,800.00	1,780.33	1,048.31	1,040.08	6.78	3.54	110.08	840.44	-9,039.92	9,191.36	9,181.20	10.16	904.667	
1,900.00	1,878.14	1,135.49	1,125.72	7.22	3.92	110.10	827.19	-9,049.44	9,207.99	9,197.04	10.96	840.473	
2,000.00	1,975.96	1,314.87	1,301.62	7.66	4.73	110.12	797.62	-9,068.36	9,224.11	9,211.94	12.17	757.881	
2,100.00	2,073.77	1,421.36	1,406.31	8.10	5.20	110.14	781.12	-9,078.82	9,239.63	9,226.57	13.06	707.453	
2,200.00	2,171.59	1,462.00	1,446.26	8.54	5.38	110.15	774.94	-9,083.01	9,255.64	9,241.98	13.66	677.594	
2,300.00	2,269.40	1,578.45	1,560.67	8.98	5.90	110.17	757.13	-9,095.35	9,271.97	9,257.38	14.60	635.207	
2,400.00	2,367.22	1,671.42	1,652.04	9.43	6.31	110.19	742.84	-9,104.92	9,288.00	9,272.57	15.43	601.926	
2,500.00	2,465.03	1,714.00	1,693.93	9.87	6.50	110.20	736.69	-9,109.44	9,304.44	9,288.40	16.04	580.130	
2,600.00	2,562.84	1,776.00	1,754.91	10.32	6.77	110.22	727.92	-9,116.35	9,321.41	9,304.68	16.73	557.122	
2,700.00	2,660.66	1,880.30	1,857.50	10.77	7.24	110.25	713.08	-9,128.00	9,338.40	9,320.79	17.61	530.197	
2,800.00	2,758.47	2,106.52	2,079.88	11.21	8.25	110.30	679.60	-9,152.47	9,355.22	9,336.17	19.04	491.245	
2,900.00	2,856.29	2,289.42	2,259.90	11.66	9.05	110.34	652.64	-9,170.18	9,370.85	9,350.57	20.28	462.138	
3,000.00	2,954.10	2,345.72	2,315.39	12.11	9.30	110.36	644.73	-9,175.43	9,386.00	9,365.05	20.95	448.089	
3,100.00	3,051.92	2,453.16	2,421.30	12.56	9.76	110.39	629.61	-9,185.44	9,401.19	9,379.35	21.84	430.436	
3,200.00	3,149.73	2,508.13	2,475.47	13.01	10.01	110.40	621.86	-9,190.68	9,416.62	9,394.11	22.51	418.414	
3,300.00	3,247.55	2,588.12	2,554.16	13.45	10.36	110.42	610.05	-9,198.73	9,432.46	9,409.18	23.28	405.113	
3,400.00	3,345.36	2,674.24	2,638.89	13.90	10.74	110.44	597.33	-9,207.51	9,448.44	9,424.35	24.09	392.209	
3,500.00	3,443.18	2,782.00	2,744.79	14.35	11.22	110.46	580.70	-9,218.48	9,464.35	9,439.35	25.00	378.590	
3,600.00	3,540.99	2,844.00	2,805.67	14.80	11.50	110.47	570.89	-9,224.91	9,480.42	9,454.72	25.70	368.868	
3,700.00	3,638.81	2,918.45	2,878.75	15.25	11.84	110.48	559.07	-9,232.91	9,496.85	9,470.38	26.46	358.893	
3,800.00	3,736.62	2,993.37	2,952.33	15.70	12.18	110.50	547.54	-9,241.01	9,513.41	9,486.19	27.22	349.484	
3,900.00	3,834.44	3,034.00	2,992.24	16.15	12.36	110.51	541.52	-9,245.61	9,530.52	9,502.69	27.82	342.561	
4,000.00	3,932.25	3,259.01	3,213.80	16.60	13.35	110.57	510.34	-9,269.39	9,546.61	9,517.36	29.25	326.387	
4,100.00	4,030.07	3,306.80	3,260.88	17.05	13.56	110.58	503.79	-9,274.37	9,562.96	9,533.08	29.88	320.053	
4,200.00	4,127.88	3,762.45	3,710.61	17.50	15.50	110.74	444.97	-9,315.37	9,578.90	9,546.61	32.29	296.677	
4,300.00	4,225.70	3,868.95	3,816.60	17.96	15.89	110.81	436.87	-9,322.02	9,591.81	9,558.69	33.11	289.653	
4,400.00	4,323.51	3,975.75	3,922.89	18.41	16.28	110.89	428.87	-9,328.58	9,604.65	9,570.70	33.94	282.963	
4,500.00	4,421.33	4,082.53	4,029.19	18.86	16.66	110.96	421.01	-9,335.03	9,617.41	9,582.64	34.77	276.588	
4,600.00	4,519.14	4,189.31	4,135.50	19.31	17.05	111.03	413.28	-9,341.37	9,630.11	9,594.51	35.60	270.508	
4,700.00	4,616.95	4,296.08	4,241.81	19.76	17.44	111.11	405.68	-9,347.60	9,642.73	9,606.30	36.43	264.701	
4,800.00	4,714.77	4,402.83	4,348.13	20.21	17.83	111.18	398.21	-9,353.72	9,655.29	9,618.03	37.26	259.151	
4,900.00	4,812.58	4,509.57	4,454.45	20.66	18.21	111.26	390.88	-9,359.74	9,667.77	9,629.68	38.09	253.840	
5,000.00	4,910.40	4,616.31	4,560.77	21.11	18.60	111.34	383.68	-9,365.65	9,680.19	9,641.27	38.91	248.753	
5,100.00	5,008.21	4,723.03	4,667.10	21.57	18.99	111.42	376.61	-9,371.45	9,692.53	9,652.79	39.74	243.876	

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 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

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

Rule Assigned:

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,200.00	5,106.03	4,829.73	4,773.43	22.02	19.38	111.49	369.67	-9,377.14	9,704.81	9,664.24	40.57	239.197	
5,300.00	5,203.84	4,936.42	4,879.76	22.47	19.76	111.57	362.86	-9,382.72	9,717.02	9,675.62	41.40	234.704	
5,400.00	5,301.66	5,043.10	4,986.08	22.92	20.15	111.65	356.19	-9,388.19	9,729.17	9,686.94	42.23	230.385	
5,500.00	5,399.47	5,149.77	5,092.41	23.37	20.54	111.73	349.65	-9,393.56	9,741.24	9,698.18	43.06	226.231	
5,600.00	5,497.29	5,256.41	5,198.74	23.82	20.93	111.81	343.24	-9,398.81	9,753.25	9,709.37	43.89	222.233	
5,700.00	5,595.10	5,363.05	5,305.06	24.28	21.32	111.89	336.96	-9,403.96	9,765.20	9,720.48	44.72	218.382	
5,800.00	5,692.92	5,469.66	5,411.38	24.73	21.71	111.98	330.82	-9,409.00	9,777.08	9,731.53	45.54	214.670	
5,900.00	5,790.73	5,576.26	5,517.70	25.18	22.09	112.06	324.80	-9,413.93	9,788.89	9,742.52	46.37	211.089	
6,000.00	5,888.55	5,682.85	5,624.01	25.63	22.48	112.14	318.92	-9,418.76	9,800.64	9,753.44	47.20	207.633	
6,100.00	5,986.36	5,789.41	5,730.31	26.08	22.87	112.23	313.17	-9,423.47	9,812.32	9,764.29	48.03	204.295	
6,200.00	6,084.18	5,895.96	5,836.61	26.54	23.26	112.31	307.56	-9,428.08	9,823.95	9,775.09	48.86	201.069	
6,300.00	6,181.99	6,002.48	5,942.90	26.99	23.65	112.40	302.07	-9,432.58	9,835.51	9,785.82	49.69	197.950	
6,400.00	6,279.81	6,108.99	6,049.18	27.44	24.04	112.48	296.72	-9,436.97	9,847.00	9,796.49	50.51	194.933	
6,500.00	6,377.62	6,215.48	6,155.46	27.89	24.42	112.57	291.50	-9,441.25	9,858.44	9,807.09	51.34	192.012	
6,530.62	6,407.57	6,248.08	6,187.99	28.03	24.54	112.60	289.93	-9,442.54	9,861.93	9,810.33	51.60	191.136	
6,550.00	6,426.48	6,268.66	6,208.54	28.12	24.62	118.01	288.94	-9,443.35	9,864.41	9,812.65	51.76	190.588	
6,600.00	6,474.77	6,321.17	6,260.95	28.36	24.81	127.83	286.45	-9,445.40	9,873.32	9,821.14	52.18	189.222	
6,650.00	6,522.09	6,372.57	6,312.25	28.62	25.00	133.81	284.04	-9,447.37	9,885.82	9,833.21	52.60	187.930	
6,700.00	6,568.15	6,422.56	6,362.15	28.89	25.18	137.56	281.72	-9,449.27	9,901.83	9,848.80	53.03	186.723	
6,750.00	6,612.66	6,470.81	6,410.32	29.18	25.36	139.92	279.51	-9,451.08	9,921.25	9,867.80	53.45	185.610	
6,800.00	6,655.36	6,517.04	6,456.47	29.48	25.52	141.32	277.42	-9,452.80	9,943.98	9,890.11	53.87	184.597	
6,850.00	6,695.98	6,560.97	6,500.32	29.79	25.68	142.00	275.46	-9,454.41	9,969.87	9,915.60	54.28	183.688	
6,900.00	6,734.26	6,602.32	6,541.61	30.11	25.83	142.07	273.63	-9,455.90	9,998.78	9,944.11	54.67	182.888	
6,950.00	6,769.98	6,640.84	6,580.07	30.45	25.98	141.59	271.95	-9,457.29	10,030.53	9,975.48	55.05	182.200	
7,000.00	6,802.91	6,676.30	6,615.47	30.79	26.10	140.56	270.41	-9,458.54	10,064.93	10,009.52	55.42	181.627	
7,050.00	6,832.85	6,708.47	6,647.59	31.15	26.22	138.94	269.03	-9,459.68	10,101.78	10,046.02	55.76	181.170	
7,100.00	6,859.62	6,737.17	6,676.24	31.51	26.33	136.63	267.81	-9,460.68	10,140.85	10,084.77	56.08	180.829	
7,150.00	6,883.05	6,762.20	6,701.24	31.89	26.42	133.47	266.76	-9,461.55	10,181.90	10,125.52	56.38	180.604	
7,200.00	6,902.99	6,783.42	6,722.43	32.28	26.50	129.26	265.86	-9,462.28	10,224.68	10,168.04	56.65	180.494	SF
7,250.00	6,919.32	6,800.70	6,739.68	32.67	26.56	123.69	265.14	-9,462.87	10,268.94	10,212.05	56.89	180.496	
7,300.00	6,931.95	6,813.92	6,752.89	33.08	26.61	116.40	264.59	-9,463.32	10,314.40	10,257.29	57.11	180.607	
7,350.00	6,940.79	6,823.01	6,761.97	33.49	26.64	107.04	264.22	-9,463.63	10,360.78	10,303.48	57.30	180.824	
7,400.00	6,945.79	6,827.91	6,766.86	33.90	26.66	95.53	264.01	-9,463.79	10,407.79	10,350.34	57.46	181.140	
7,439.53	6,947.00	6,828.80	6,767.74	34.24	26.66	85.24	263.98	-9,463.82	10,445.22	10,387.66	57.56	181.456	
7,500.00	6,947.00	6,828.09	6,767.03	34.75	26.66	84.90	264.01	-9,463.80	10,502.78	10,445.07	57.71	182.001	
7,600.00	6,947.00	6,826.76	6,765.70	35.63	26.65	84.22	264.06	-9,463.75	10,598.84	10,540.91	57.92	182.978	
7,700.00	6,947.00	6,825.23	6,764.18	36.54	26.65	83.31	264.12	-9,463.70	10,695.86	10,637.75	58.11	184.050	
7,800.00	6,947.00	6,823.51	6,762.46	37.47	26.64	82.06	264.20	-9,463.64	10,793.71	10,735.44	58.28	185.217	
7,900.00	6,947.00	6,821.59	6,760.54	38.43	26.64	80.22	264.28	-9,463.58	10,892.25	10,833.84	58.41	186.479	
8,000.00	6,947.00	6,819.48	6,758.44	39.41	26.63	77.27	264.36	-9,463.51	10,991.33	10,932.81	58.52	187.836	
8,100.00	6,947.00	6,817.18	6,756.14	40.40	26.62	71.87	264.46	-9,463.43	11,090.82	11,032.22	58.59	189.286	
8,200.00	6,947.00	6,814.69	6,753.65	41.42	26.61	59.35	264.56	-9,463.34	11,190.59	11,131.95	58.64	190.828	
8,300.00	6,947.00	6,812.01	6,750.98	42.44	26.60	18.20	264.67	-9,463.25	11,290.52	11,231.85	58.66	192.458	
8,400.00	6,947.00	6,809.15	6,748.12	43.48	26.59	-45.48	264.79	-9,463.16	11,390.47	11,331.81	58.66	194.175	
8,500.00	6,947.00	6,806.11	6,745.09	44.53	26.58	-66.91	264.92	-9,463.05	11,490.34	11,431.71	58.63	195.976	
8,600.00	6,947.00	6,802.89	6,741.87	45.58	26.57	-74.70	265.05	-9,462.94	11,590.00	11,531.42	58.58	197.858	
8,700.00	6,947.00	6,799.50	6,738.48	46.63	26.55	-78.55	265.19	-9,462.83	11,689.33	11,630.83	58.50	199.817	
8,800.00	6,947.00	6,795.93	6,734.92	47.69	26.54	-80.83	265.34	-9,462.70	11,788.23	11,729.83	58.40	201.849	
8,841.31	6,947.00	6,794.40	6,733.40	48.13	26.54	-81.52	265.41	-9,462.65	11,828.93	11,770.58	58.35	202.710	
8,900.00	6,947.00	6,792.22	6,731.21	48.76	26.53	-81.46	265.50	-9,462.58	11,886.70	11,828.41	58.29	203.938	
9,000.00	6,947.00	6,788.49	6,727.49	49.85	26.51	-81.36	265.65	-9,462.45	11,985.13	11,926.96	58.17	206.025	
9,100.00	6,947.00	6,784.75	6,723.75	50.97	26.50	-81.26	265.81	-9,462.32	12,083.60	12,025.53	58.06	208.107	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

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

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,200.00	6,947.00	6,781.00	6,720.01	52.12	26.49	-81.16	265.97	-9,462.19	12,182.08	12,124.12	57.96	210.184	
9,300.00	6,947.00	6,777.25	6,716.26	53.28	26.47	-81.06	266.12	-9,462.06	12,280.59	12,222.74	57.86	212.255	
9,400.00	6,947.00	6,773.48	6,712.51	54.48	26.46	-80.96	266.28	-9,461.93	12,379.13	12,321.37	57.76	214.321	
9,500.00	6,947.00	6,769.71	6,708.74	55.69	26.45	-80.86	266.44	-9,461.80	12,477.68	12,420.02	57.67	216.380	
9,600.00	6,947.00	6,765.94	6,704.97	56.92	26.43	-80.76	266.60	-9,461.67	12,576.26	12,518.69	57.57	218.435	
9,700.00	6,947.00	6,762.15	6,701.19	58.17	26.42	-80.66	266.76	-9,461.54	12,674.86	12,617.37	57.49	220.483	
9,800.00	6,947.00	6,758.36	6,697.40	59.44	26.40	-80.56	266.92	-9,461.41	12,773.48	12,716.08	57.40	222.525	
9,900.00	6,947.00	6,754.56	6,693.61	60.73	26.39	-80.46	267.08	-9,461.28	12,872.12	12,814.80	57.32	224.561	
10,000.00	6,947.00	6,750.75	6,689.80	62.03	26.38	-80.36	267.24	-9,461.15	12,970.78	12,913.53	57.24	226.590	
10,100.00	6,947.00	6,746.93	6,685.99	63.34	26.36	-80.26	267.40	-9,461.02	13,069.46	13,012.29	57.17	228.613	
10,200.00	6,947.00	6,743.10	6,682.17	64.67	26.35	-80.16	267.56	-9,460.88	13,168.15	13,111.06	57.10	230.630	
10,300.00	6,947.00	6,739.27	6,678.35	66.01	26.33	-80.05	267.72	-9,460.75	13,266.87	13,209.84	57.03	232.639	
10,400.00	6,947.00	6,735.43	6,674.51	67.36	26.32	-79.95	267.89	-9,460.62	13,365.61	13,308.64	56.96	234.642	
10,500.00	6,947.00	6,731.58	6,670.67	68.73	26.31	-79.85	268.05	-9,460.48	13,464.36	13,407.46	56.90	236.639	
10,600.00	6,947.00	6,727.72	6,666.81	70.10	26.29	-79.75	268.21	-9,460.35	13,563.13	13,506.29	56.84	238.628	
10,700.00	6,947.00	6,723.86	6,662.95	71.48	26.28	-79.65	268.38	-9,460.21	13,661.91	13,605.13	56.78	240.610	
10,800.00	6,947.00	6,719.98	6,659.09	72.88	26.26	-79.55	268.54	-9,460.08	13,760.72	13,703.99	56.73	242.585	
10,900.00	6,947.00	6,716.10	6,655.21	74.28	26.25	-79.44	268.71	-9,459.94	13,859.53	13,802.86	56.67	244.553	
11,000.00	6,947.00	6,712.21	6,651.33	75.69	26.24	-79.34	268.87	-9,459.81	13,958.37	13,901.75	56.62	246.513	
11,100.00	6,947.00	6,708.31	6,647.43	77.10	26.22	-79.24	269.04	-9,459.67	14,057.22	14,000.64	56.58	248.466	
11,200.00	6,947.00	6,704.41	6,643.53	78.53	26.21	-79.13	269.21	-9,459.53	14,156.09	14,099.55	56.53	250.411	
11,300.00	6,947.00	6,700.49	6,639.63	79.96	26.19	-79.03	269.38	-9,459.40	14,254.97	14,198.48	56.49	252.349	
11,400.00	6,947.00	6,696.57	6,635.71	81.40	26.18	-78.93	269.54	-9,459.26	14,353.86	14,297.41	56.45	254.280	
11,500.00	6,947.00	6,692.64	6,631.78	82.84	26.16	-78.83	269.71	-9,459.12	14,452.77	14,396.36	56.41	256.202	
11,600.00	6,947.00	6,688.70	6,627.85	84.29	26.15	-78.72	269.88	-9,458.98	14,551.69	14,495.32	56.38	258.117	
11,700.00	6,947.00	6,684.75	6,623.91	85.75	26.14	-78.62	270.05	-9,458.84	14,650.63	14,594.29	56.34	260.024	
11,800.00	6,947.00	6,680.80	6,619.96	87.21	26.12	-78.52	270.22	-9,458.70	14,749.58	14,693.27	56.31	261.923	
11,900.00	6,947.00	6,676.83	6,616.00	88.68	26.11	-78.41	270.39	-9,458.56	14,848.55	14,792.26	56.28	263.814	
12,000.00	6,947.00	6,672.86	6,612.03	90.15	26.09	-78.31	270.56	-9,458.42	14,947.52	14,891.26	56.26	265.697	
12,100.00	6,947.00	6,668.88	6,608.06	91.62	26.08	-78.20	270.73	-9,458.28	15,046.51	14,990.28	56.23	267.572	
12,200.00	6,947.00	6,664.89	6,604.07	93.10	26.06	-78.10	270.91	-9,458.14	15,145.51	15,089.30	56.21	269.439	
12,300.00	6,947.00	6,660.89	6,600.08	94.59	26.05	-78.00	271.08	-9,458.00	15,244.53	15,188.33	56.19	271.298	
12,400.00	6,947.00	6,656.88	6,596.08	96.07	26.03	-77.89	271.25	-9,457.86	15,343.55	15,287.38	56.17	273.149	
12,500.00	6,947.00	6,652.86	6,592.07	97.56	26.02	-77.79	271.43	-9,457.71	15,442.59	15,386.43	56.16	274.991	
12,600.00	6,947.00	6,648.84	6,588.05	99.06	26.00	-77.68	271.60	-9,457.57	15,541.64	15,485.49	56.14	276.825	
12,700.00	6,947.00	6,644.81	6,584.02	100.56	25.99	-77.58	271.78	-9,457.43	15,640.70	15,584.57	56.13	278.651	
12,800.00	6,947.00	6,640.76	6,579.99	102.06	25.98	-77.47	271.95	-9,457.28	15,739.77	15,683.65	56.12	280.468	
12,900.00	6,947.00	6,636.71	6,575.95	103.56	25.96	-77.37	272.13	-9,457.14	15,838.85	15,782.74	56.11	282.277	
13,000.00	6,947.00	6,632.65	6,571.89	105.07	25.95	-77.26	272.31	-9,456.99	15,937.94	15,881.84	56.10	284.078	
13,100.00	6,947.00	6,628.59	6,567.83	106.58	25.93	-77.16	272.48	-9,456.85	16,037.04	15,980.94	56.10	285.870	
13,200.00	6,947.00	6,624.51	6,563.76	108.10	25.92	-77.05	272.66	-9,456.70	16,136.15	16,080.06	56.10	287.653	
13,300.00	6,947.00	6,620.42	6,559.68	109.61	25.90	-76.95	272.84	-9,456.55	16,235.28	16,179.18	56.09	289.429	
13,400.00	6,947.00	6,616.33	6,555.59	111.13	25.89	-76.84	273.02	-9,456.41	16,334.41	16,278.31	56.09	291.195	
13,500.00	6,947.00	6,612.23	6,551.50	112.65	25.87	-76.74	273.20	-9,456.26	16,433.55	16,377.45	56.10	292.953	
13,600.00	6,947.00	6,608.11	6,547.39	114.17	25.86	-76.63	273.38	-9,456.11	16,532.70	16,476.60	56.10	294.703	
13,700.00	6,947.00	6,603.99	6,543.28	115.70	25.84	-76.53	273.56	-9,455.96	16,631.86	16,575.76	56.10	296.444	
13,800.00	6,947.00	6,599.86	6,539.15	117.23	25.83	-76.42	273.74	-9,455.82	16,731.03	16,674.92	56.11	298.176	
13,900.00	6,947.00	6,595.72	6,535.02	118.76	25.81	-76.31	273.92	-9,455.67	16,830.21	16,774.09	56.12	299.900	
14,000.00	6,947.00	6,591.58	6,530.88	120.29	25.80	-76.21	274.11	-9,455.52	16,929.40	16,873.27	56.13	301.616	
14,100.00	6,947.00	6,587.42	6,526.73	121.82	25.78	-76.10	274.29	-9,455.37	17,028.59	16,972.45	56.14	303.322	
14,200.00	6,947.00	6,583.25	6,522.57	123.36	25.77	-75.99	274.47	-9,455.21	17,127.80	17,071.65	56.15	305.020	
14,300.00	6,947.00	6,579.08	6,518.40	124.89	25.75	-75.89	274.66	-9,455.06	17,227.01	17,170.84	56.17	306.710	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

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

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Rule Assigned: Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,400.00	6,947.00	6,574.89	6,514.22	126.43	25.73	-75.78	274.84	-9,454.91	17,326.23	17,270.05	56.18	308.391	
14,500.00	6,947.00	6,570.70	6,510.04	127.97	25.72	-75.67	275.03	-9,454.76	17,425.46	17,369.26	56.20	310.063	
14,600.00	6,947.00	6,566.50	6,505.84	129.51	25.70	-75.57	275.22	-9,454.61	17,524.70	17,468.48	56.22	311.727	
14,700.00	6,947.00	6,562.28	6,501.64	131.06	25.69	-75.46	275.40	-9,454.45	17,623.94	17,567.71	56.24	313.382	
14,800.00	6,947.00	6,558.06	6,497.42	132.60	25.67	-75.35	275.59	-9,454.30	17,723.20	17,666.94	56.26	315.028	
14,900.00	6,947.00	6,553.83	6,493.20	134.15	25.66	-75.25	275.78	-9,454.14	17,822.46	17,766.17	56.28	316.666	
15,000.00	6,947.00	6,549.59	6,488.97	135.70	25.64	-75.14	275.97	-9,453.99	17,921.72	17,865.42	56.31	318.295	
15,100.00	6,947.00	6,545.34	6,484.72	137.24	25.63	-75.03	276.16	-9,453.83	18,021.00	17,964.67	56.33	319.916	
15,200.00	6,947.00	6,541.09	6,480.47	138.79	25.61	-74.92	276.35	-9,453.68	18,120.28	18,063.92	56.36	321.528	
15,300.00	6,947.00	6,536.82	6,476.21	140.35	25.60	-74.82	276.54	-9,453.52	18,219.57	18,163.18	56.38	323.132	
15,400.00	6,947.00	6,532.54	6,471.94	141.90	25.58	-74.71	276.73	-9,453.37	18,318.86	18,262.45	56.41	324.727	
15,500.00	6,947.00	6,528.25	6,467.66	143.45	25.56	-74.60	276.92	-9,453.21	18,418.17	18,361.72	56.44	326.313	
15,600.00	6,947.00	6,523.96	6,463.37	145.01	25.55	-74.49	277.11	-9,453.05	18,517.47	18,461.00	56.47	327.891	
15,700.00	6,947.00	6,519.65	6,459.08	146.56	25.53	-74.39	277.31	-9,452.89	18,616.79	18,560.28	56.51	329.461	
15,800.00	6,947.00	6,515.34	6,454.77	148.12	25.52	-74.28	277.50	-9,452.73	18,716.11	18,659.57	56.54	331.022	
15,900.00	6,947.00	6,511.01	6,450.45	149.68	25.50	-74.17	277.69	-9,452.57	18,815.44	18,758.87	56.58	332.574	
16,000.00	6,947.00	6,506.68	6,446.12	151.23	25.49	-74.06	277.89	-9,452.41	18,914.77	18,858.16	56.61	334.119	
16,100.00	6,947.00	6,502.33	6,441.79	152.79	25.47	-73.95	278.09	-9,452.25	19,014.12	18,957.47	56.65	335.654	
16,200.00	6,947.00	6,497.98	6,437.44	154.36	25.45	-73.84	278.28	-9,452.09	19,113.46	19,056.78	56.69	337.182	
16,300.00	6,947.00	6,493.62	6,433.08	155.92	25.44	-73.74	278.48	-9,451.93	19,212.81	19,156.09	56.73	338.701	
16,400.00	6,947.00	6,489.24	6,428.72	157.48	25.42	-73.63	278.68	-9,451.77	19,312.17	19,255.41	56.77	340.211	
16,500.00	6,947.00	6,484.86	6,424.34	159.04	25.41	-73.52	278.88	-9,451.60	19,411.54	19,354.73	56.81	341.714	
16,600.00	6,947.00	6,480.47	6,419.96	160.61	25.39	-73.41	279.07	-9,451.44	19,510.91	19,454.06	56.85	343.208	
16,700.00	6,947.00	6,476.06	6,415.56	162.17	25.37	-73.30	279.27	-9,451.28	19,610.28	19,553.39	56.89	344.694	
16,800.00	6,947.00	6,471.65	6,411.16	163.74	25.36	-73.19	279.48	-9,451.11	19,709.66	19,652.73	56.94	346.171	
16,900.00	6,947.00	6,467.23	6,406.74	165.30	25.34	-73.08	279.68	-9,450.95	19,809.05	19,752.07	56.98	347.640	
17,000.00	6,947.00	6,462.80	6,402.32	166.87	25.33	-72.97	279.88	-9,450.78	19,908.44	19,851.41	57.03	349.102	
17,100.00	6,947.00	6,458.35	6,397.88	168.44	25.31	-72.86	280.08	-9,450.62	20,007.84	19,950.76	57.07	350.555	
17,200.00	6,947.00	6,453.90	6,393.44	170.01	25.29	-72.75	280.28	-9,450.45	20,107.24	20,050.12	57.12	351.999	
17,300.00	6,947.00	6,449.44	6,388.98	171.57	25.28	-72.64	280.49	-9,450.28	20,206.65	20,149.48	57.17	353.436	
17,400.00	6,947.00	6,444.96	6,384.52	173.14	25.26	-72.53	280.69	-9,450.11	20,306.06	20,248.84	57.22	354.865	
17,500.00	6,947.00	6,440.48	6,380.04	174.71	25.24	-72.42	280.90	-9,449.95	20,405.48	20,348.20	57.27	356.286	
17,600.00	6,947.00	6,435.99	6,375.56	176.28	25.23	-72.31	281.10	-9,449.78	20,504.90	20,447.58	57.32	357.698	
17,700.00	6,947.00	6,431.49	6,371.06	177.86	25.21	-72.20	281.31	-9,449.61	20,604.33	20,546.95	57.38	359.103	
17,800.00	6,947.00	6,426.97	6,366.56	179.43	25.20	-72.09	281.52	-9,449.44	20,703.76	20,646.33	57.43	360.500	
17,900.00	6,947.00	6,422.45	6,362.04	181.00	25.18	-71.98	281.73	-9,449.27	20,803.19	20,745.71	57.49	361.889	
18,000.00	6,947.00	6,417.91	6,357.51	182.57	25.16	-71.87	281.93	-9,449.10	20,902.63	20,845.09	57.54	363.270	
18,100.00	6,947.00	6,413.37	6,352.98	184.15	25.15	-71.76	282.14	-9,448.92	21,002.08	20,944.48	57.60	364.643	
18,200.00	6,947.00	6,408.82	6,348.43	185.72	25.13	-71.65	282.35	-9,448.75	21,101.53	21,043.88	57.65	366.009	
18,300.00	6,947.00	6,404.25	6,343.87	187.30	25.11	-71.54	282.57	-9,448.58	21,200.98	21,143.27	57.71	367.367	
18,400.00	6,947.00	6,399.67	6,339.31	188.87	25.10	-71.43	282.78	-9,448.40	21,300.44	21,242.67	57.77	368.717	
18,500.00	6,947.00	6,395.09	6,334.73	190.45	25.08	-71.32	282.99	-9,448.23	21,399.90	21,342.08	57.83	370.059	
18,600.00	6,947.00	6,390.49	6,330.14	192.02	25.06	-71.21	283.20	-9,448.06	21,499.37	21,441.48	57.89	371.394	
18,700.00	6,947.00	6,385.89	6,325.54	193.60	25.05	-71.10	283.42	-9,447.88	21,598.84	21,540.89	57.95	372.721	
18,800.00	6,947.00	6,381.27	6,320.93	195.18	25.03	-70.99	283.63	-9,447.70	21,698.32	21,640.31	58.01	374.041	
18,900.00	6,947.00	6,376.64	6,316.31	196.75	25.01	-70.88	283.85	-9,447.53	21,797.80	21,739.72	58.07	375.353	
19,000.00	6,947.00	6,372.00	6,311.68	198.33	24.99	-70.77	284.06	-9,447.35	21,897.28	21,839.14	58.14	376.658	
19,100.00	6,947.00	6,367.35	6,307.04	199.91	24.98	-70.66	284.28	-9,447.17	21,996.76	21,938.57	58.20	377.955	
19,200.00	6,947.00	6,362.69	6,302.39	201.49	24.96	-70.54	284.50	-9,446.99	22,096.26	22,037.99	58.26	379.245	
19,300.00	6,947.00	6,358.02	6,297.73	203.07	24.94	-70.43	284.71	-9,446.82	22,195.75	22,137.42	58.33	380.527	
19,400.00	6,947.00	6,353.34	6,293.05	204.65	24.93	-70.32	284.93	-9,446.64	22,295.25	22,236.85	58.39	381.802	
19,500.00	6,947.00	6,348.65	6,288.37	206.23	24.91	-70.21	285.15	-9,446.46	22,394.75	22,336.29	58.46	383.070	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

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

Rule Assigned:

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
19,600.00	6,947.00	6,343.94	6,283.68	207.81	24.89	-70.10	285.37	-9,446.27	22,494.25	22,435.73	58.53	384.331	
19,700.00	6,947.00	6,339.23	6,278.97	209.39	24.88	-69.99	285.60	-9,446.09	22,593.76	22,535.17	58.60	385.584	
19,800.00	6,947.00	6,334.50	6,274.25	210.97	24.86	-69.88	285.82	-9,445.91	22,693.28	22,634.61	58.66	386.830	
19,900.00	6,947.00	6,329.77	6,269.53	212.55	24.84	-69.76	286.04	-9,445.73	22,792.79	22,734.06	58.73	388.069	
20,000.00	6,947.00	6,325.02	6,264.79	214.13	24.82	-69.65	286.26	-9,445.54	22,892.31	22,833.51	58.80	389.302	
20,100.00	6,947.00	6,320.26	6,260.04	215.71	24.81	-69.54	286.49	-9,445.36	22,991.83	22,932.96	58.87	390.527	
20,200.00	6,947.00	6,315.49	6,255.28	217.30	24.79	-69.43	286.71	-9,445.18	23,091.36	23,032.41	58.94	391.745	
20,300.00	6,947.00	6,310.71	6,250.50	218.88	24.77	-69.32	286.94	-9,444.99	23,190.89	23,131.87	59.02	392.956	
20,400.00	6,947.00	6,305.92	6,245.72	220.46	24.75	-69.20	287.17	-9,444.80	23,290.42	23,231.33	59.09	394.160	
20,500.00	6,947.00	6,301.11	6,240.93	222.04	24.74	-69.09	287.39	-9,444.62	23,389.96	23,330.80	59.16	395.357	
20,600.00	6,947.00	6,296.30	6,236.12	223.63	24.72	-68.98	287.62	-9,444.43	23,489.50	23,430.26	59.23	396.548	
20,700.00	6,947.00	6,291.47	6,231.31	225.21	24.70	-68.87	287.85	-9,444.24	23,589.04	23,529.73	59.31	397.732	
20,800.00	6,947.00	6,286.64	6,226.48	226.80	24.68	-68.75	288.08	-9,444.05	23,688.58	23,629.20	59.38	398.909	
20,900.00	6,947.00	6,281.79	6,221.64	228.38	24.67	-68.64	288.31	-9,443.86	23,788.13	23,728.67	59.46	400.079	
21,000.00	6,947.00	6,276.93	6,216.79	229.97	24.65	-68.53	288.55	-9,443.67	23,887.68	23,828.15	59.53	401.243	
21,032.01	6,947.00	6,275.37	6,215.23	230.47	24.64	-68.49	288.62	-9,443.61	23,919.55	23,859.99	59.56	401.614	
21,032.99	6,947.00	6,275.32	6,215.19	230.51	24.64	-68.49	288.62	-9,443.61	23,920.52	23,856.61	63.91	374.261	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #040 - OH - OH-TD — **Offset Site Error:** 0.00 usft

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

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	488.00	488.00	0.00	14.62	86.97	956.81	18,077.32	18,102.62				
100.00	100.00	588.10	588.00	0.25	17.62	86.97	956.81	18,077.32	18,102.62	18,084.75	17.87	1,012.841	
200.00	200.00	688.10	688.00	0.61	20.62	86.97	956.81	18,077.32	18,102.62	18,081.39	21.23	852.769	
300.00	300.00	790.83	790.69	0.97	23.70	86.96	958.93	18,077.31	18,102.73	18,078.07	24.66	733.948	
400.00	400.00	898.01	897.84	1.33	26.91	86.97	958.22	18,077.32	18,102.70	18,074.46	28.23	641.151	
500.00	500.00	1,005.21	1,005.00	1.68	30.12	86.97	956.72	18,077.32	18,102.62	18,070.82	31.81	569.168	
600.00	599.98	1,088.39	1,087.98	2.03	32.61	-78.04	956.81	18,077.32	18,102.26	18,067.62	34.64	522.595	
700.00	699.84	1,188.24	1,187.84	2.36	35.61	-78.08	956.81	18,077.32	18,101.17	18,063.21	37.96	476.794	
800.00	799.45	1,290.62	1,290.17	2.71	38.67	-78.15	958.93	18,077.31	18,099.48	18,058.11	41.38	437.439	
900.00	898.70	1,397.24	1,396.76	3.06	41.87	-78.24	958.23	18,077.32	18,096.94	18,052.01	44.93	402.809	
1,000.00	997.47	1,503.62	1,503.11	3.43	45.06	-78.35	956.74	18,077.32	18,093.65	18,045.16	48.48	373.181	
1,100.00	1,095.62	1,584.33	1,583.62	3.82	47.47	-78.47	956.81	18,077.32	18,089.74	18,038.45	51.29	352.686	
1,200.00	1,193.44	1,682.15	1,681.44	4.22	50.40	-78.54	956.81	18,077.32	18,085.51	18,030.88	54.62	331.086	
1,300.00	1,291.25	1,782.36	1,781.61	4.64	53.41	-78.61	958.95	18,077.31	18,081.42	18,023.38	58.04	311.540	
1,400.00	1,389.07	1,888.19	1,887.42	5.06	56.58	-78.68	958.32	18,077.32	18,077.21	18,015.58	61.63	293.327	
1,500.00	1,486.88	1,994.37	1,993.56	5.48	59.76	-78.74	956.90	18,077.32	18,072.97	18,007.73	65.23	277.052	
1,600.00	1,584.70	2,073.71	2,072.70	5.91	62.14	-78.79	956.81	18,077.32	18,068.81	18,000.77	68.04	265.569	
1,700.00	1,682.51	2,171.53	2,170.51	6.35	65.07	-78.85	956.81	18,077.32	18,064.69	17,993.29	71.40	253.007	
1,800.00	1,780.33	2,271.05	2,270.00	6.78	68.05	-78.92	958.98	18,077.31	18,060.74	17,985.92	74.82	241.403	
1,900.00	1,878.14	2,377.67	2,376.59	7.22	71.25	-78.99	958.42	18,077.32	18,056.63	17,978.19	78.45	230.178	
2,000.00	1,975.96	2,484.65	2,483.54	7.66	74.45	-79.06	957.07	18,077.32	18,052.51	17,970.42	82.09	219.913	
2,100.00	2,073.77	2,563.09	2,561.77	8.10	76.80	-79.11	956.81	18,077.32	18,048.45	17,963.58	84.88	212.637	
2,200.00	2,171.59	2,660.91	2,659.59	8.54	79.73	-79.17	956.81	18,077.32	18,044.45	17,956.20	88.25	204.468	
2,300.00	2,269.40	2,759.57	2,758.21	8.98	82.69	-79.24	958.99	18,077.31	18,040.62	17,948.98	91.65	196.845	
2,400.00	2,367.22	2,866.99	2,865.61	9.43	85.91	-79.31	958.51	18,077.32	18,036.64	17,941.33	95.31	189.241	
2,500.00	2,465.03	2,974.77	2,973.36	9.87	89.14	-79.38	957.23	18,077.32	18,032.63	17,933.64	98.98	182.179	
2,600.00	2,562.84	3,052.47	3,050.84	10.32	91.47	-79.42	956.81	18,077.32	18,028.68	17,926.92	101.76	177.176	
2,700.00	2,660.66	3,150.28	3,148.66	10.77	94.40	-79.49	956.81	18,077.32	18,024.79	17,919.66	105.13	171.450	
2,800.00	2,758.47	3,248.10	3,246.47	11.21	97.33	-79.55	956.81	18,077.32	18,020.93	17,912.42	108.51	166.079	
2,900.00	2,856.29	3,356.14	3,354.46	11.66	100.57	-79.63	958.60	18,077.31	18,017.22	17,905.03	112.19	160.593	
3,000.00	2,954.10	3,464.75	3,463.03	12.11	103.82	-79.69	957.38	18,077.32	18,013.32	17,897.43	115.89	155.432	
3,100.00	3,051.92	3,541.85	3,539.92	12.56	106.13	-79.74	956.81	18,077.32	18,009.48	17,890.83	118.65	151.787	
3,200.00	3,149.73	3,639.66	3,637.73	13.01	109.06	-79.81	956.81	18,077.32	18,005.70	17,883.68	122.03	147.554	
3,300.00	3,247.55	3,737.48	3,735.55	13.45	111.99	-79.87	956.81	18,077.32	18,001.96	17,876.55	125.41	143.549	
3,400.00	3,345.36	3,845.13	3,843.15	13.90	115.22	-79.95	958.67	18,077.31	17,998.39	17,869.31	129.08	139.435	
3,500.00	3,443.18	3,954.56	3,952.55	14.35	118.50	-80.01	957.53	18,077.32	17,994.60	17,861.80	132.81	135.494	
3,600.00	3,540.99	4,031.23	4,028.99	14.80	120.79	-80.06	956.81	18,077.32	17,990.85	17,855.30	135.55	132.721	
3,700.00	3,638.81	4,129.04	4,126.81	15.25	123.72	-80.13	956.81	18,077.32	17,987.20	17,848.27	138.93	129.466	
3,800.00	3,736.62	4,226.86	4,224.62	15.70	126.66	-80.19	956.81	18,077.32	17,983.57	17,841.26	142.31	126.366	
3,900.00	3,834.44	4,333.94	4,331.65	16.15	129.86	-80.27	958.74	18,077.31	17,980.13	17,834.16	145.97	123.176	
4,000.00	3,932.25	4,444.22	4,441.90	16.60	133.17	-80.33	957.67	18,077.32	17,976.47	17,826.74	149.72	120.063	
4,100.00	4,030.07	4,520.60	4,518.07	17.05	135.46	-80.38	956.81	18,077.32	17,972.82	17,820.35	152.46	117.882	
4,200.00	4,127.88	4,618.42	4,615.88	17.50	138.39	-80.45	956.81	18,077.32	17,969.28	17,813.43	155.84	115.302	
4,300.00	4,225.70	4,716.23	4,713.70	17.96	141.32	-80.51	956.81	18,077.32	17,965.76	17,806.54	159.23	112.832	
4,400.00	4,323.51	4,822.57	4,819.99	18.41	144.51	-80.59	958.81	18,077.31	17,962.46	17,799.60	162.86	110.292	
4,500.00	4,421.33	4,933.71	4,931.09	18.86	147.84	-80.65	957.81	18,077.32	17,958.91	17,792.27	166.64	107.769	
4,600.00	4,519.14	5,009.98	5,007.14	19.31	150.12	-80.70	956.81	18,077.32	17,955.36	17,785.98	169.38	106.007	
4,700.00	4,616.95	5,107.80	5,104.95	19.76	153.05	-80.77	956.81	18,077.32	17,951.94	17,779.18	172.76	103.912	
4,800.00	4,714.77	5,205.61	5,202.77	20.21	155.98	-80.83	956.81	18,077.32	17,948.54	17,772.40	176.14	101.898	
4,900.00	4,812.58	5,311.03	5,308.14	20.66	159.14	-80.91	958.86	18,077.31	17,945.37	17,765.62	179.75	99.834	
5,000.00	4,910.40	5,423.03	5,420.11	21.11	162.50	-80.98	957.94	18,077.32	17,941.95	17,758.39	183.56	97.745	
5,100.00	5,008.21	5,535.42	5,532.46	21.57	165.87	-81.04	956.15	18,077.32	17,938.46	17,751.09	187.38	95.735	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,200.00	5,106.03	5,597.18	5,594.03	22.02	167.72	-81.09	956.81	18,077.32	17,935.19	17,745.51	189.68	94.555	
5,300.00	5,203.84	5,694.99	5,691.84	22.47	170.65	-81.15	956.81	18,077.32	17,931.91	17,738.85	193.06	92.882	
5,400.00	5,301.66	5,799.29	5,796.10	22.92	173.77	-81.23	958.91	18,077.31	17,928.87	17,732.23	196.64	91.177	
5,500.00	5,399.47	5,912.18	5,908.96	23.37	177.16	-81.30	958.07	18,077.32	17,925.57	17,725.09	200.47	89.417	
5,600.00	5,497.29	6,025.46	6,022.20	23.82	180.55	-81.37	956.34	18,077.32	17,922.20	17,717.88	204.32	87.718	
5,700.00	5,595.10	6,086.55	6,083.10	24.28	182.38	-81.41	956.81	18,077.32	17,919.03	17,712.42	206.60	86.733	
5,800.00	5,692.92	6,184.37	6,180.92	24.73	185.31	-81.47	956.81	18,077.32	17,915.86	17,705.88	209.98	85.320	
5,900.00	5,790.73	6,287.37	6,283.87	25.18	188.40	-81.55	958.94	18,077.31	17,912.96	17,699.44	213.52	83.893	
6,000.00	5,888.55	6,401.15	6,397.63	25.63	191.81	-81.62	958.19	18,077.32	17,909.78	17,692.39	217.38	82.388	
6,100.00	5,986.36	6,515.33	6,511.77	26.08	195.23	-81.69	956.53	18,077.32	17,906.53	17,685.27	221.25	80.932	
6,200.00	6,084.18	6,575.93	6,572.18	26.54	197.04	-81.73	956.81	18,077.32	17,903.45	17,679.93	223.52	80.096	
6,300.00	6,181.99	6,673.75	6,669.99	26.99	199.98	-81.79	956.81	18,077.32	17,900.41	17,673.50	226.91	78.889	
6,400.00	6,279.81	6,775.25	6,771.45	27.44	203.02	-81.87	958.97	18,077.31	17,897.64	17,667.23	230.40	77.680	
6,500.00	6,377.62	6,889.94	6,886.12	27.89	206.45	-81.94	958.31	18,077.32	17,894.57	17,660.29	234.29	76.378	
6,530.62	6,407.57	6,925.14	6,921.31	28.03	207.51	-81.96	957.92	18,077.32	17,893.62	17,658.14	235.48	75.987	
6,550.00	6,426.48	6,947.39	6,943.55	28.12	208.18	-76.55	957.63	18,077.32	17,892.78	17,656.54	236.24	75.741	
6,600.00	6,474.77	7,004.30	7,000.44	28.36	209.88	-66.77	956.73	18,077.32	17,888.34	17,650.16	238.18	75.104	
6,650.00	6,522.09	7,014.15	7,010.09	28.62	210.18	-60.85	956.81	18,077.32	17,880.79	17,642.05	238.73	74.898	
6,700.00	6,568.15	7,060.21	7,056.15	28.89	211.56	-57.24	956.81	18,077.32	17,870.12	17,629.74	240.38	74.341	
6,750.00	6,612.66	7,104.72	7,100.66	29.18	212.89	-55.08	956.81	18,077.32	17,856.40	17,614.41	241.99	73.789	
6,800.00	6,655.36	7,147.42	7,143.36	29.48	214.17	-53.92	956.81	18,077.32	17,839.70	17,596.14	243.56	73.246	
6,850.00	6,695.98	7,188.04	7,183.98	29.79	215.39	-53.53	956.81	18,077.32	17,820.14	17,575.07	245.07	72.714	
6,900.00	6,734.26	7,226.32	7,222.26	30.11	216.53	-53.76	956.81	18,077.32	17,797.84	17,551.32	246.52	72.197	
6,950.00	6,769.98	7,264.31	7,260.21	30.45	217.67	-54.55	958.98	18,077.31	17,773.22	17,525.26	247.96	71.677	
7,000.00	6,802.91	7,303.46	7,299.35	30.79	218.84	-55.86	958.89	18,077.31	17,745.88	17,496.44	249.44	71.142	
7,050.00	6,832.85	7,339.21	7,335.09	31.15	219.92	-57.68	958.71	18,077.31	17,716.28	17,465.45	250.83	70.632	
7,100.00	6,859.62	7,371.32	7,367.19	31.51	220.88	-60.02	958.48	18,077.32	17,684.59	17,432.49	252.10	70.149	
7,150.00	6,883.05	7,399.57	7,395.44	31.89	221.72	-62.89	958.21	18,077.32	17,651.02	17,397.76	253.26	69.695	
7,200.00	6,902.99	7,423.76	7,419.63	32.28	222.45	-66.32	957.94	18,077.32	17,615.79	17,361.49	254.30	69.273	
7,250.00	6,919.32	7,443.73	7,439.59	32.67	223.05	-70.31	957.68	18,077.32	17,579.11	17,323.91	255.20	68.883	
7,300.00	6,931.95	7,459.32	7,455.17	33.08	223.51	-74.87	957.46	18,077.32	17,541.22	17,285.24	255.98	68.526	
7,350.00	6,940.79	7,470.41	7,466.26	33.49	223.85	-79.98	957.29	18,077.32	17,502.35	17,245.74	256.61	68.205	
7,400.00	6,945.79	7,476.90	7,472.75	33.90	224.04	-85.55	957.19	18,077.32	17,462.75	17,205.64	257.10	67.921	
7,439.53	6,947.00	7,478.73	7,474.58	34.24	224.10	-90.22	957.16	18,077.32	17,431.07	17,173.68	257.39	67.722	
7,500.00	6,947.00	7,479.28	7,475.12	34.75	224.11	-90.23	957.15	18,077.32	17,382.12	17,124.36	257.76	67.436	
7,600.00	6,947.00	7,480.14	7,475.98	35.63	224.14	-90.25	957.14	18,077.32	17,299.69	17,041.33	258.36	66.961	
7,700.00	6,947.00	7,480.94	7,476.78	36.54	224.16	-90.26	957.13	18,077.32	17,215.51	16,956.57	258.94	66.483	
7,800.00	6,947.00	7,481.68	7,477.53	37.47	224.19	-90.29	957.12	18,077.32	17,129.66	16,870.14	259.52	66.006	
7,900.00	6,947.00	7,482.37	7,478.21	38.43	224.21	-90.31	957.10	18,077.32	17,042.20	16,782.13	260.07	65.528	
8,000.00	6,947.00	7,482.99	7,478.83	39.41	224.22	-90.34	957.09	18,077.32	16,953.24	16,692.63	260.61	65.053	
8,100.00	6,947.00	7,483.55	7,479.39	40.40	224.24	-90.37	957.09	18,077.32	16,862.85	16,601.73	261.12	64.579	
8,200.00	6,947.00	7,484.04	7,479.89	41.42	224.26	-90.40	957.08	18,077.32	16,771.11	16,509.51	261.60	64.109	
8,300.00	6,947.00	7,484.47	7,480.31	42.44	224.27	-90.44	957.07	18,077.32	16,678.13	16,416.07	262.06	63.643	
8,400.00	6,947.00	7,484.83	7,480.67	43.48	224.28	-90.49	957.06	18,077.32	16,583.99	16,321.51	262.48	63.182	
8,500.00	6,947.00	7,485.11	7,480.96	44.53	224.29	-90.55	957.06	18,077.32	16,488.80	16,225.93	262.87	62.726	
8,600.00	6,947.00	7,485.33	7,481.18	45.58	224.29	-90.62	957.06	18,077.32	16,392.64	16,129.41	263.22	62.276	
8,700.00	6,947.00	7,485.48	7,481.32	46.63	224.30	-90.72	957.05	18,077.32	16,295.61	16,032.08	263.54	61.834	
8,800.00	6,947.00	7,485.56	7,481.40	47.69	224.30	-90.85	957.05	18,077.32	16,197.84	15,934.02	263.82	61.398	
8,841.31	6,947.00	7,485.57	7,481.41	48.13	224.30	-90.92	957.05	18,077.32	16,157.25	15,893.33	263.92	61.221	
8,900.00	6,947.00	7,485.57	7,481.42	48.76	224.30	-90.92	957.05	18,077.32	16,099.51	15,835.46	264.06	60.970	
9,000.00	6,947.00	7,485.58	7,481.43	49.85	224.30	-90.92	957.05	18,077.32	16,001.16	15,736.85	264.30	60.541	
9,100.00	6,947.00	7,485.59	7,481.44	50.97	224.30	-90.92	957.05	18,077.32	15,902.82	15,638.27	264.55	60.113	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #040 - OH - OH-TD — **Offset Site Error:** 0.00 usft

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

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,200.00	6,947.00	7,485.60	7,481.45	52.12	224.30	-90.92	957.05	18,077.32	15,804.50	15,539.70	264.80	59.685	
9,300.00	6,947.00	7,485.62	7,481.46	53.28	224.30	-90.92	957.05	18,077.32	15,706.21	15,441.15	265.06	59.256	
9,400.00	6,947.00	7,485.63	7,481.47	54.48	224.30	-90.92	957.05	18,077.32	15,607.93	15,342.61	265.32	58.827	
9,500.00	6,947.00	7,485.64	7,481.48	55.69	224.30	-90.92	957.05	18,077.32	15,509.68	15,244.10	265.58	58.399	
9,600.00	6,947.00	7,485.65	7,481.49	56.92	224.30	-90.92	957.05	18,077.32	15,411.45	15,145.60	265.85	57.970	
9,700.00	6,947.00	7,485.66	7,481.50	58.17	224.30	-90.92	957.05	18,077.32	15,313.24	15,047.11	266.13	57.541	
9,800.00	6,947.00	7,485.67	7,481.51	59.44	224.30	-90.92	957.05	18,077.32	15,215.06	14,948.65	266.41	57.112	
9,900.00	6,947.00	7,485.68	7,481.52	60.73	224.30	-90.92	957.05	18,077.32	15,116.90	14,850.21	266.69	56.682	
10,000.00	6,947.00	7,485.69	7,481.53	62.03	224.31	-90.92	957.05	18,077.32	15,018.77	14,751.78	266.99	56.253	
10,100.00	6,947.00	7,485.70	7,481.55	63.34	224.31	-90.92	957.05	18,077.32	14,920.66	14,653.37	267.28	55.824	
10,200.00	6,947.00	7,485.71	7,481.56	64.67	224.31	-90.92	957.05	18,077.32	14,822.57	14,554.99	267.58	55.394	
10,300.00	6,947.00	7,485.72	7,481.57	66.01	224.31	-90.92	957.05	18,077.32	14,724.51	14,456.62	267.89	54.965	
10,400.00	6,947.00	7,485.73	7,481.58	67.36	224.31	-90.92	957.05	18,077.32	14,626.48	14,358.28	268.20	54.535	
10,500.00	6,947.00	7,485.75	7,481.59	68.73	224.31	-90.92	957.05	18,077.32	14,528.47	14,259.95	268.52	54.106	
10,600.00	6,947.00	7,485.76	7,481.60	70.10	224.31	-90.92	957.05	18,077.32	14,430.49	14,161.65	268.84	53.676	
10,700.00	6,947.00	7,485.77	7,481.61	71.48	224.31	-90.92	957.05	18,077.32	14,332.54	14,063.37	269.17	53.247	
10,800.00	6,947.00	7,485.78	7,481.62	72.88	224.31	-90.92	957.05	18,077.32	14,234.62	13,965.11	269.51	52.817	
10,900.00	6,947.00	7,485.79	7,481.63	74.28	224.31	-90.92	957.05	18,077.32	14,136.73	13,866.88	269.85	52.388	
11,000.00	6,947.00	7,485.80	7,481.64	75.69	224.31	-90.92	957.05	18,077.32	14,038.86	13,768.67	270.19	51.958	
11,100.00	6,947.00	7,485.81	7,481.65	77.10	224.31	-90.92	957.05	18,077.32	13,941.03	13,670.48	270.55	51.529	
11,200.00	6,947.00	7,485.82	7,481.66	78.53	224.31	-90.92	957.05	18,077.32	13,843.23	13,572.32	270.91	51.100	
11,300.00	6,947.00	7,485.83	7,481.68	79.96	224.31	-90.92	957.05	18,077.32	13,745.46	13,474.19	271.27	50.670	
11,400.00	6,947.00	7,485.84	7,481.69	81.40	224.31	-90.92	957.05	18,077.32	13,647.72	13,376.08	271.64	50.241	
11,500.00	6,947.00	7,485.85	7,481.70	82.84	224.31	-90.92	957.05	18,077.32	13,550.01	13,277.99	272.02	49.812	
11,600.00	6,947.00	7,485.86	7,481.71	84.29	224.31	-90.92	957.05	18,077.32	13,452.34	13,179.93	272.41	49.383	
11,700.00	6,947.00	7,485.88	7,481.72	85.75	224.31	-90.92	957.05	18,077.32	13,354.71	13,081.90	272.80	48.954	
11,800.00	6,947.00	7,485.89	7,481.73	87.21	224.31	-90.92	957.05	18,077.32	13,257.10	12,983.90	273.20	48.525	
11,900.00	6,947.00	7,485.90	7,481.74	88.68	224.31	-90.92	957.05	18,077.32	13,159.54	12,885.93	273.61	48.097	
12,000.00	6,947.00	7,485.91	7,481.75	90.15	224.31	-90.92	957.05	18,077.32	13,062.01	12,787.99	274.02	47.668	
12,100.00	6,947.00	7,485.92	7,481.76	91.62	224.31	-90.93	957.05	18,077.32	12,964.52	12,690.08	274.44	47.240	
12,200.00	6,947.00	7,485.93	7,481.77	93.10	224.31	-90.93	957.05	18,077.32	12,867.06	12,592.19	274.87	46.811	
12,300.00	6,947.00	7,485.94	7,481.78	94.59	224.31	-90.93	957.05	18,077.32	12,769.65	12,494.34	275.31	46.383	
12,400.00	6,947.00	7,485.95	7,481.79	96.07	224.31	-90.93	957.05	18,077.32	12,672.28	12,396.53	275.75	45.956	
12,500.00	6,947.00	7,485.96	7,481.81	97.56	224.31	-90.93	957.05	18,077.32	12,574.95	12,298.74	276.20	45.528	
12,600.00	6,947.00	7,485.97	7,481.82	99.06	224.31	-90.93	957.05	18,077.32	12,477.66	12,200.99	276.66	45.101	
12,700.00	6,947.00	7,485.98	7,481.83	100.56	224.31	-90.93	957.05	18,077.32	12,380.41	12,103.28	277.13	44.673	
12,800.00	6,947.00	7,485.99	7,481.84	102.06	224.31	-90.93	957.04	18,077.32	12,283.21	12,005.60	277.61	44.246	
12,900.00	6,947.00	7,486.01	7,481.85	103.56	224.31	-90.93	957.04	18,077.32	12,186.05	11,907.95	278.10	43.820	
13,000.00	6,947.00	7,486.02	7,481.86	105.07	224.31	-90.93	957.04	18,077.32	12,088.94	11,810.35	278.59	43.393	
13,100.00	6,947.00	7,486.03	7,481.87	106.58	224.32	-90.93	957.04	18,077.32	11,991.88	11,712.78	279.09	42.967	
13,200.00	6,947.00	7,486.04	7,481.88	108.10	224.32	-90.93	957.04	18,077.32	11,894.86	11,615.25	279.61	42.541	
13,300.00	6,947.00	7,486.05	7,481.89	109.61	224.32	-90.93	957.04	18,077.32	11,797.90	11,517.77	280.13	42.116	
13,400.00	6,947.00	7,486.06	7,481.90	111.13	224.32	-90.93	957.04	18,077.32	11,700.98	11,420.32	280.66	41.691	
13,500.00	6,947.00	7,486.07	7,481.91	112.65	224.32	-90.93	957.04	18,077.32	11,604.12	11,322.92	281.20	41.266	
13,600.00	6,947.00	7,486.08	7,481.92	114.17	224.32	-90.93	957.04	18,077.32	11,507.31	11,225.56	281.76	40.841	
13,700.00	6,947.00	7,486.09	7,481.94	115.70	224.32	-90.93	957.04	18,077.32	11,410.56	11,128.24	282.32	40.417	
13,800.00	6,947.00	7,486.10	7,481.95	117.23	224.32	-90.93	957.04	18,077.32	11,313.86	11,030.97	282.89	39.994	
13,900.00	6,947.00	7,486.11	7,481.96	118.76	224.32	-90.93	957.04	18,077.32	11,217.23	10,933.75	283.48	39.570	
14,000.00	6,947.00	7,486.13	7,481.97	120.29	224.32	-90.93	957.04	18,077.32	11,120.65	10,836.58	284.07	39.148	
14,100.00	6,947.00	7,486.14	7,481.98	121.82	224.32	-90.93	957.04	18,077.32	11,024.13	10,739.45	284.68	38.725	
14,200.00	6,947.00	7,486.15	7,481.99	123.36	224.32	-90.93	957.04	18,077.32	10,927.68	10,642.38	285.29	38.303	
14,300.00	6,947.00	7,486.16	7,482.00	124.89	224.32	-90.93	957.04	18,077.32	10,831.28	10,545.36	285.92	37.882	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,400.00	6,947.00	7,486.17	7,482.01	126.43	224.32	-90.93	957.04	18,077.32	10,734.96	10,448.39	286.57	37.461	
14,500.00	6,947.00	7,486.18	7,482.02	127.97	224.32	-90.93	957.04	18,077.32	10,638.70	10,351.48	287.22	37.040	
14,600.00	6,947.00	7,486.19	7,482.03	129.51	224.32	-90.93	957.04	18,077.32	10,542.52	10,254.63	287.89	36.620	
14,700.00	6,947.00	7,486.20	7,482.04	131.06	224.32	-90.93	957.04	18,077.32	10,446.40	10,157.83	288.57	36.201	
14,800.00	6,947.00	7,486.21	7,482.05	132.60	224.32	-90.93	957.04	18,077.32	10,350.36	10,061.10	289.26	35.782	
14,900.00	6,947.00	7,486.22	7,482.07	134.15	224.32	-90.93	957.04	18,077.32	10,254.39	9,964.42	289.97	35.364	
15,000.00	6,947.00	7,486.23	7,482.08	135.70	224.32	-90.93	957.04	18,077.32	10,158.50	9,867.81	290.69	34.946	
15,100.00	6,947.00	7,486.24	7,482.09	137.24	224.32	-90.93	957.04	18,077.32	10,062.69	9,771.27	291.43	34.529	
15,200.00	6,947.00	7,486.26	7,482.10	138.79	224.32	-90.93	957.04	18,077.32	9,966.97	9,674.79	292.18	34.113	
15,300.00	6,947.00	7,486.27	7,482.11	140.35	224.32	-90.93	957.04	18,077.32	9,871.33	9,578.38	292.94	33.697	
15,400.00	6,947.00	7,486.28	7,482.12	141.90	224.32	-90.93	957.04	18,077.32	9,775.77	9,482.05	293.73	33.282	
15,500.00	6,947.00	7,486.29	7,482.13	143.45	224.32	-90.93	957.04	18,077.32	9,680.31	9,385.78	294.52	32.868	
15,600.00	6,947.00	7,486.30	7,482.14	145.01	224.32	-90.93	957.04	18,077.32	9,584.94	9,289.60	295.34	32.454	
15,700.00	6,947.00	7,486.31	7,482.15	146.56	224.32	-90.93	957.04	18,077.32	9,489.66	9,193.49	296.17	32.041	
15,800.00	6,947.00	7,486.32	7,482.16	148.12	224.32	-90.93	957.04	18,077.32	9,394.48	9,097.46	297.02	31.629	
15,900.00	6,947.00	7,486.33	7,482.17	149.68	224.32	-90.93	957.04	18,077.32	9,299.40	9,001.52	297.89	31.218	
16,000.00	6,947.00	7,486.34	7,482.19	151.23	224.32	-90.93	957.04	18,077.32	9,204.43	8,905.66	298.77	30.808	
16,100.00	6,947.00	7,486.35	7,482.20	152.79	224.33	-90.93	957.04	18,077.32	9,109.57	8,809.89	299.67	30.398	
16,200.00	6,947.00	7,486.36	7,482.21	154.36	224.33	-90.93	957.04	18,077.32	9,014.81	8,714.21	300.60	29.990	
16,300.00	6,947.00	7,486.38	7,482.22	155.92	224.33	-90.93	957.04	18,077.32	8,920.17	8,618.63	301.54	29.582	
16,400.00	6,947.00	7,486.39	7,482.23	157.48	224.33	-90.93	957.04	18,077.32	8,825.65	8,523.15	302.50	29.175	
16,500.00	6,947.00	7,486.40	7,482.24	159.04	224.33	-90.93	957.04	18,077.32	8,731.25	8,427.76	303.49	28.770	
16,600.00	6,947.00	7,486.41	7,482.25	160.61	224.33	-90.93	957.04	18,077.32	8,636.98	8,332.48	304.50	28.365	
16,700.00	6,947.00	7,486.42	7,482.26	162.17	224.33	-90.93	957.04	18,077.32	8,542.83	8,237.31	305.52	27.961	
16,800.00	6,947.00	7,486.43	7,482.27	163.74	224.33	-90.94	957.04	18,077.32	8,448.82	8,142.25	306.58	27.559	
16,900.00	6,947.00	7,486.44	7,482.28	165.30	224.33	-90.94	957.04	18,077.32	8,354.96	8,047.30	307.65	27.157	
17,000.00	6,947.00	7,486.45	7,482.29	166.87	224.33	-90.94	957.04	18,077.32	8,261.23	7,952.48	308.75	26.757	
17,100.00	6,947.00	7,486.46	7,482.30	168.44	224.33	-90.94	957.04	18,077.32	8,167.65	7,857.78	309.88	26.358	
17,200.00	6,947.00	7,486.47	7,482.32	170.01	224.33	-90.94	957.04	18,077.32	8,074.23	7,763.20	311.03	25.960	
17,300.00	6,947.00	7,486.48	7,482.33	171.57	224.33	-90.94	957.04	18,077.32	7,980.97	7,668.76	312.21	25.563	
17,400.00	6,947.00	7,486.49	7,482.34	173.14	224.33	-90.94	957.04	18,077.32	7,887.87	7,574.46	313.41	25.168	
17,500.00	6,947.00	7,486.51	7,482.35	174.71	224.33	-90.94	957.04	18,077.32	7,794.94	7,480.30	314.64	24.774	
17,600.00	6,947.00	7,486.52	7,482.36	176.28	224.33	-90.94	957.04	18,077.32	7,702.19	7,386.28	315.91	24.381	
17,700.00	6,947.00	7,486.53	7,482.37	177.86	224.33	-90.94	957.04	18,077.32	7,609.62	7,292.42	317.20	23.990	
17,800.00	6,947.00	7,486.54	7,482.38	179.43	224.33	-90.94	957.04	18,077.32	7,517.25	7,198.72	318.52	23.600	
17,900.00	6,947.00	7,486.55	7,482.39	181.00	224.33	-90.94	957.04	18,077.32	7,425.07	7,105.19	319.88	23.212	
18,000.00	6,947.00	7,486.56	7,482.40	182.57	224.33	-90.94	957.04	18,077.32	7,333.10	7,011.83	321.27	22.826	
18,100.00	6,947.00	7,486.57	7,482.41	184.15	224.33	-90.94	957.04	18,077.32	7,241.33	6,918.64	322.69	22.441	
18,200.00	6,947.00	7,486.58	7,482.42	185.72	224.33	-90.94	957.04	18,077.32	7,149.79	6,825.65	324.15	22.057	
18,300.00	6,947.00	7,486.59	7,482.44	187.30	224.33	-90.94	957.04	18,077.32	7,058.48	6,732.84	325.64	21.676	
18,400.00	6,947.00	7,486.60	7,482.45	188.87	224.33	-90.94	957.03	18,077.32	6,967.41	6,640.24	327.17	21.296	
18,500.00	6,947.00	7,486.61	7,482.46	190.45	224.33	-90.94	957.03	18,077.32	6,876.59	6,547.85	328.74	20.918	
18,600.00	6,947.00	7,486.63	7,482.47	192.02	224.33	-90.94	957.03	18,077.32	6,786.02	6,455.67	330.35	20.542	
18,700.00	6,947.00	7,486.64	7,482.48	193.60	224.33	-90.94	957.03	18,077.32	6,695.73	6,363.72	332.00	20.168	
18,800.00	6,947.00	7,486.65	7,482.49	195.18	224.33	-90.94	957.03	18,077.32	6,605.71	6,272.01	333.70	19.796	
18,900.00	6,947.00	7,486.66	7,482.50	196.75	224.33	-90.94	957.03	18,077.32	6,515.98	6,180.55	335.43	19.426	
19,000.00	6,947.00	7,486.67	7,482.51	198.33	224.33	-90.94	957.03	18,077.32	6,426.56	6,089.35	337.21	19.058	
19,100.00	6,947.00	7,486.68	7,482.52	199.91	224.33	-90.94	957.03	18,077.32	6,337.45	5,998.41	339.04	18.692	
19,200.00	6,947.00	7,486.69	7,482.53	201.49	224.34	-90.94	957.03	18,077.32	6,248.67	5,907.76	340.92	18.329	
19,300.00	6,947.00	7,486.70	7,482.54	203.07	224.34	-90.94	957.03	18,077.32	6,160.24	5,817.40	342.84	17.968	
19,400.00	6,947.00	7,486.71	7,482.56	204.65	224.34	-90.94	957.03	18,077.32	6,072.17	5,727.35	344.82	17.610	
19,500.00	6,947.00	7,486.72	7,482.57	206.23	224.34	-90.94	957.03	18,077.32	5,984.47	5,637.62	346.85	17.254	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Rule Assigned:

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
19,600.00	6,947.00	7,486.73	7,482.58	207.81	224.34	-90.94	957.03	18,077.32	5,897.16	5,548.23	348.93	16.901	
19,700.00	6,947.00	7,486.75	7,482.59	209.39	224.34	-90.94	957.03	18,077.32	5,810.26	5,459.19	351.07	16.550	
19,800.00	6,947.00	7,486.76	7,482.60	210.97	224.34	-90.94	957.03	18,077.32	5,723.79	5,370.52	353.27	16.202	
19,900.00	6,947.00	7,486.77	7,482.61	212.55	224.34	-90.94	957.03	18,077.32	5,637.76	5,282.24	355.52	15.858	
20,000.00	6,947.00	7,486.78	7,482.62	214.13	224.34	-90.94	957.03	18,077.32	5,552.21	5,194.37	357.84	15.516	
20,100.00	6,947.00	7,486.79	7,482.63	215.71	224.34	-90.94	957.03	18,077.32	5,467.14	5,106.92	360.22	15.177	
20,200.00	6,947.00	7,486.80	7,482.64	217.30	224.34	-90.94	957.03	18,077.32	5,382.59	5,019.93	362.66	14.842	
20,300.00	6,947.00	7,486.81	7,482.65	218.88	224.34	-90.94	957.03	18,077.32	5,298.58	4,933.41	365.17	14.510	
20,400.00	6,947.00	7,486.82	7,482.66	220.46	224.34	-90.94	957.03	18,077.32	5,215.13	4,847.38	367.75	14.181	
20,500.00	6,947.00	7,486.83	7,482.68	222.04	224.34	-90.94	957.03	18,077.32	5,132.27	4,761.87	370.40	13.856	
20,600.00	6,947.00	7,486.84	7,482.69	223.63	224.34	-90.94	957.03	18,077.32	5,050.03	4,676.92	373.12	13.535	
20,700.00	6,947.00	7,486.85	7,482.70	225.21	224.34	-90.94	957.03	18,077.32	4,968.45	4,592.54	375.91	13.217	
20,800.00	6,947.00	7,486.87	7,482.71	226.80	224.34	-90.94	957.03	18,077.32	4,887.55	4,508.77	378.77	12.904	
20,900.00	6,947.00	7,486.88	7,482.72	228.38	224.34	-90.94	957.03	18,077.32	4,807.36	4,425.65	381.72	12.594	
21,000.00	6,947.00	7,486.89	7,482.73	229.97	224.34	-90.94	957.03	18,077.32	4,727.94	4,343.20	384.73	12.289	
21,032.01	6,947.00	7,486.89	7,482.73	230.47	224.34	-90.94	957.03	18,077.32	4,702.68	4,316.96	385.72	12.192	
21,032.99	6,947.00	7,486.89	7,482.73	230.51	224.34	-90.94	957.03	18,077.32	4,701.91	4,315.35	386.56	12.164	CC, ES, SF

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Rule Assigned: Warning
0.00	0.00	23.00	23.00	0.00	0.69	68.02	1,844.87	4,570.81	4,929.08				
100.00	100.00	123.00	123.00	0.25	3.69	68.02	1,844.87	4,570.81	4,929.08	4,925.14	3.94	1,252.078	
200.00	200.00	223.00	223.00	0.61	6.68	68.02	1,844.87	4,570.81	4,929.08	4,921.79	7.29	675.994	
300.00	300.00	323.00	323.00	0.97	9.68	68.02	1,844.87	4,570.81	4,929.08	4,918.43	10.65	462.977	
400.00	400.00	423.00	423.00	1.33	12.68	68.02	1,844.87	4,570.81	4,929.08	4,915.08	14.00	352.043	
500.00	500.00	523.10	523.00	1.68	15.67	68.02	1,844.87	4,570.81	4,929.08	4,911.72	17.36	283.945	
600.00	599.98	623.08	622.98	2.03	18.67	-97.00	1,844.87	4,570.81	4,929.29	4,908.60	20.70	238.169	
700.00	699.84	722.94	722.84	2.36	21.66	-97.04	1,844.87	4,570.81	4,929.93	4,905.91	24.02	205.226	
800.00	799.45	833.47	833.32	2.71	24.97	-97.16	1,846.81	4,570.81	4,931.75	4,904.08	27.68	178.182	
900.00	898.70	947.85	947.67	3.06	28.40	-97.28	1,845.68	4,570.81	4,932.92	4,901.46	31.46	156.792	
1,000.00	997.47	1,020.87	1,020.47	3.43	30.59	-97.37	1,844.87	4,570.81	4,934.56	4,900.54	34.02	145.044	
1,100.00	1,095.62	1,119.03	1,118.62	3.82	33.53	-97.53	1,844.87	4,570.81	4,937.08	4,899.73	37.35	132.182	
1,200.00	1,193.44	1,216.84	1,216.44	4.22	36.46	-97.77	1,844.87	4,570.81	4,939.91	4,899.22	40.68	121.419	
1,300.00	1,291.25	1,324.91	1,324.45	4.64	39.70	-98.05	1,846.85	4,570.81	4,943.61	4,899.28	44.33	111.507	
1,400.00	1,389.07	1,438.53	1,438.04	5.06	43.10	-98.31	1,845.81	4,570.81	4,946.26	4,898.11	48.16	102.710	
1,500.00	1,486.88	1,510.59	1,509.88	5.48	45.26	-98.47	1,844.87	4,570.81	4,948.91	4,898.17	50.74	97.533	
1,600.00	1,584.70	1,608.41	1,607.70	5.91	48.20	-98.70	1,844.87	4,570.81	4,952.08	4,897.98	54.10	91.537	
1,700.00	1,682.51	1,706.22	1,705.51	6.35	51.13	-98.93	1,844.87	4,570.81	4,955.34	4,897.88	57.46	86.239	
1,800.00	1,780.33	1,813.12	1,812.36	6.78	54.33	-99.21	1,846.91	4,570.81	4,959.53	4,898.43	61.10	81.175	
1,900.00	1,878.14	1,927.65	1,926.86	7.22	57.76	-99.47	1,845.95	4,570.81	4,962.62	4,897.66	64.96	76.392	
2,000.00	1,975.96	2,042.59	2,041.76	7.66	61.21	-99.72	1,844.06	4,570.81	4,965.46	4,896.62	68.84	72.128	
2,100.00	2,073.77	2,097.79	2,096.77	8.10	62.86	-99.86	1,844.87	4,570.81	4,969.21	4,898.28	70.94	70.052	
2,200.00	2,171.59	2,195.60	2,194.59	8.54	65.79	-100.09	1,844.87	4,570.81	4,972.89	4,898.59	74.31	66.925	
2,300.00	2,269.40	2,301.14	2,300.07	8.98	68.95	-100.36	1,846.96	4,570.81	4,977.56	4,899.66	77.91	63.891	
2,400.00	2,367.22	2,416.59	2,415.50	9.43	72.41	-100.63	1,846.08	4,570.81	4,981.10	4,899.29	81.81	60.889	
2,500.00	2,465.03	2,532.46	2,531.33	9.87	75.88	-100.88	1,844.26	4,570.81	4,984.36	4,898.64	85.72	58.148	
2,600.00	2,562.84	2,587.16	2,585.84	10.32	77.52	-101.01	1,844.87	4,570.81	4,988.45	4,900.65	87.80	56.816	
2,700.00	2,660.66	2,684.98	2,683.66	10.77	80.45	-101.24	1,844.87	4,570.81	4,992.55	4,901.38	91.17	54.759	
2,800.00	2,758.47	2,788.95	2,787.59	11.21	83.57	-101.51	1,847.00	4,570.81	4,997.69	4,902.96	94.73	52.757	
2,900.00	2,856.29	2,905.35	2,903.96	11.66	87.06	-101.77	1,846.21	4,570.81	5,001.67	4,903.01	98.66	50.696	
3,000.00	2,954.10	3,022.16	3,020.73	12.11	90.56	-102.03	1,844.46	4,570.81	5,005.35	4,902.75	102.60	48.784	
3,100.00	3,051.92	3,076.54	3,074.92	12.56	92.19	-102.16	1,844.87	4,570.81	5,009.78	4,905.10	104.67	47.860	
3,200.00	3,149.73	3,174.36	3,172.73	13.01	95.12	-102.38	1,844.87	4,570.81	5,014.29	4,906.24	108.05	46.408	
3,300.00	3,247.55	3,276.57	3,274.90	13.45	98.18	-102.64	1,847.03	4,570.81	5,019.89	4,908.34	111.55	45.000	
3,400.00	3,345.36	3,393.91	3,392.22	13.90	101.70	-102.91	1,846.33	4,570.81	5,024.30	4,908.79	115.51	43.496	
3,500.00	3,443.18	3,511.69	3,509.96	14.35	105.23	-103.16	1,844.66	4,570.81	5,028.41	4,908.93	119.48	42.085	
3,600.00	3,540.99	3,565.92	3,563.99	14.80	106.85	-103.29	1,844.87	4,570.81	5,033.16	4,911.61	121.55	41.408	
3,700.00	3,638.81	3,663.74	3,661.81	15.25	109.78	-103.51	1,844.87	4,570.81	5,038.08	4,913.15	124.92	40.329	
3,800.00	3,736.62	3,763.97	3,762.00	15.70	112.79	-103.77	1,847.04	4,570.81	5,044.14	4,915.77	128.37	39.294	
3,900.00	3,834.44	3,882.29	3,880.30	16.15	116.33	-104.03	1,846.44	4,570.81	5,048.98	4,916.62	132.36	38.147	
4,000.00	3,932.25	4,001.04	3,999.01	16.60	119.89	-104.29	1,844.85	4,570.81	5,053.50	4,917.15	136.36	37.061	
4,100.00	4,030.07	4,055.30	4,053.07	17.05	121.52	-104.41	1,844.87	4,570.81	5,058.57	4,920.14	138.42	36.544	
4,200.00	4,127.88	4,153.11	4,150.88	17.50	124.45	-104.63	1,844.87	4,570.81	5,063.89	4,922.09	141.80	35.712	
4,300.00	4,225.70	4,251.16	4,248.89	17.96	127.38	-104.88	1,847.05	4,570.81	5,070.39	4,925.21	145.18	34.926	
4,400.00	4,323.51	4,370.46	4,368.17	18.41	130.96	-105.14	1,846.54	4,570.81	5,075.67	4,926.47	149.19	34.021	
4,500.00	4,421.33	4,490.21	4,487.88	18.86	134.55	-105.40	1,845.03	4,570.81	5,080.61	4,927.39	153.22	33.159	
4,600.00	4,519.14	4,544.68	4,542.14	19.31	136.18	-105.52	1,844.87	4,570.81	5,085.98	4,930.68	155.29	32.751	
4,700.00	4,616.95	4,642.49	4,639.95	19.76	139.11	-105.74	1,844.87	4,570.81	5,091.69	4,933.03	158.67	32.091	
4,800.00	4,714.77	4,740.31	4,737.77	20.21	142.04	-105.96	1,844.87	4,570.81	5,097.49	4,935.46	162.04	31.459	
4,900.00	4,812.58	4,858.44	4,855.84	20.66	145.58	-106.25	1,846.64	4,570.81	5,104.33	4,938.32	166.02	30.746	
5,000.00	4,910.40	4,979.19	4,976.56	21.11	149.20	-106.50	1,845.22	4,570.81	5,109.68	4,939.61	170.07	30.044	
5,100.00	5,008.21	5,034.06	5,031.21	21.57	150.84	-106.62	1,844.87	4,570.81	5,115.35	4,943.19	172.16	29.713	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Rule Assigned: Warning
5,200.00	5,106.03	5,131.87	5,129.03	22.02	153.77	-106.84	1,844.87	4,570.81	5,121.46	4,945.93	175.53	29.178	
5,300.00	5,203.84	5,229.69	5,226.84	22.47	156.71	-107.06	1,844.87	4,570.81	5,127.64	4,948.75	178.90	28.663	
5,400.00	5,301.66	5,346.20	5,343.30	22.92	160.20	-107.33	1,846.73	4,570.81	5,134.94	4,952.11	182.83	28.086	
5,500.00	5,399.47	5,467.99	5,465.05	23.37	163.85	-107.59	1,845.39	4,570.81	5,140.70	4,953.79	186.91	27.503	
5,600.00	5,497.29	5,523.43	5,520.29	23.82	165.51	-107.71	1,844.87	4,570.81	5,146.66	4,957.64	189.01	27.229	
5,700.00	5,595.10	5,621.25	5,618.10	24.28	168.44	-107.93	1,844.87	4,570.81	5,153.15	4,960.77	192.38	26.786	
5,800.00	5,692.92	5,719.06	5,715.92	24.73	171.37	-108.14	1,844.87	4,570.81	5,159.71	4,963.96	195.75	26.359	
5,900.00	5,790.73	5,833.75	5,830.55	25.18	174.81	-108.41	1,846.81	4,570.81	5,167.46	4,967.83	199.62	25.886	
6,000.00	5,888.55	5,956.58	5,953.35	25.63	178.49	-108.67	1,845.56	4,570.81	5,173.62	4,969.88	203.74	25.393	
6,100.00	5,986.36	6,012.81	6,009.36	26.08	180.17	-108.78	1,844.87	4,570.81	5,179.86	4,974.00	205.86	25.162	
6,200.00	6,084.18	6,110.63	6,107.18	26.54	183.10	-109.00	1,844.87	4,570.81	5,186.73	4,977.50	209.23	24.790	
6,300.00	6,181.99	6,208.44	6,204.99	26.99	186.03	-109.21	1,844.87	4,570.81	5,193.67	4,981.07	212.59	24.430	
6,400.00	6,279.81	6,321.08	6,317.57	27.44	189.41	-109.47	1,846.87	4,570.81	5,201.84	4,985.44	216.40	24.038	
6,500.00	6,377.62	6,444.97	6,441.44	27.89	193.12	-109.73	1,845.72	4,570.81	5,208.42	4,987.86	220.55	23.615	
6,530.62	6,407.57	6,483.00	6,479.46	28.03	194.26	-109.81	1,845.15	4,570.81	5,210.34	4,988.52	221.82	23.489	
6,550.00	6,426.48	6,507.04	6,503.49	28.12	194.98	-104.30	1,844.74	4,570.81	5,211.41	4,988.78	222.63	23.409	
6,600.00	6,474.77	6,501.53	6,497.77	28.36	194.82	-94.10	1,844.87	4,570.81	5,213.18	4,990.48	222.70	23.409	
6,650.00	6,522.09	6,548.84	6,545.09	28.62	196.23	-87.92	1,844.87	4,570.81	5,213.37	4,989.00	224.37	23.236	
6,700.00	6,568.15	6,594.90	6,591.15	28.89	197.61	-84.01	1,844.87	4,570.81	5,211.81	4,985.79	226.02	23.059	
6,750.00	6,612.66	6,639.42	6,635.66	29.18	198.95	-81.51	1,844.87	4,570.81	5,208.54	4,980.90	227.64	22.881	
6,800.00	6,655.36	6,682.12	6,678.36	29.48	200.23	-79.97	1,844.87	4,570.81	5,203.62	4,974.40	229.22	22.701	
6,850.00	6,695.98	6,722.73	6,718.98	29.79	201.44	-79.11	1,844.87	4,570.81	5,197.12	4,966.37	230.76	22.522	
6,900.00	6,734.26	6,764.13	6,760.34	30.11	202.68	-78.80	1,847.04	4,570.81	5,190.44	4,958.11	232.33	22.341	
6,950.00	6,769.98	6,809.93	6,806.12	30.45	204.06	-78.93	1,846.92	4,570.81	5,181.02	4,946.97	234.05	22.137	
7,000.00	6,802.91	6,852.33	6,848.52	30.79	205.33	-79.40	1,846.68	4,570.81	5,170.24	4,934.57	235.68	21.938	
7,050.00	6,832.85	6,891.07	6,887.25	31.15	206.49	-80.14	1,846.35	4,570.81	5,158.25	4,921.05	237.21	21.746	
7,100.00	6,859.62	6,925.89	6,922.06	31.51	207.53	-81.10	1,845.97	4,570.81	5,145.18	4,906.55	238.63	21.561	
7,150.00	6,883.05	6,956.55	6,952.71	31.89	208.45	-82.25	1,845.56	4,570.81	5,131.16	4,891.21	239.95	21.385	
7,200.00	6,902.99	6,982.84	6,978.99	32.28	209.24	-83.54	1,845.16	4,570.81	5,116.33	4,875.19	241.14	21.217	
7,250.00	6,919.32	7,004.57	7,000.71	32.67	209.89	-84.94	1,844.79	4,570.81	5,100.83	4,858.63	242.20	21.060	
7,300.00	6,931.95	7,021.57	7,017.71	33.08	210.40	-86.43	1,844.47	4,570.81	5,084.80	4,841.67	243.13	20.914	
7,350.00	6,940.79	7,033.71	7,029.84	33.49	210.76	-87.98	1,844.24	4,570.81	5,068.37	4,824.44	243.93	20.778	
7,400.00	6,945.79	7,040.87	7,037.00	33.90	210.98	-89.57	1,844.10	4,570.81	5,051.66	4,807.09	244.57	20.655	
7,439.53	6,947.00	7,042.96	7,039.09	34.24	211.04	-90.83	1,844.05	4,570.81	5,038.33	4,793.35	244.98	20.566	
7,500.00	6,947.00	7,043.72	7,039.84	34.75	211.06	-90.85	1,844.04	4,570.81	5,017.61	4,772.08	245.53	20.435	
7,600.00	6,947.00	7,044.91	7,041.03	35.63	211.10	-90.88	1,844.01	4,570.81	4,982.14	4,735.66	246.48	20.213	
7,700.00	6,947.00	7,046.02	7,042.14	36.54	211.13	-90.90	1,843.99	4,570.81	4,945.15	4,697.71	247.44	19.985	
7,800.00	6,947.00	7,047.05	7,043.18	37.47	211.16	-90.93	1,843.97	4,570.81	4,906.66	4,658.23	248.43	19.751	
7,900.00	6,947.00	7,048.00	7,044.12	38.43	211.19	-90.96	1,843.95	4,570.81	4,866.69	4,617.25	249.44	19.510	
8,000.00	6,947.00	7,048.87	7,044.99	39.41	211.22	-90.98	1,843.93	4,570.81	4,825.25	4,574.78	250.46	19.265	
8,100.00	6,947.00	7,049.64	7,045.76	40.40	211.24	-91.01	1,843.91	4,570.81	4,782.34	4,530.84	251.50	19.015	
8,200.00	6,947.00	7,050.33	7,046.45	41.42	211.26	-91.04	1,843.90	4,570.81	4,737.99	4,485.43	252.55	18.760	
8,300.00	6,947.00	7,050.92	7,047.04	42.44	211.28	-91.06	1,843.89	4,570.81	4,692.20	4,438.59	253.61	18.501	
8,400.00	6,947.00	7,051.41	7,047.53	43.48	211.29	-91.09	1,843.88	4,570.81	4,644.99	4,390.31	254.68	18.239	
8,500.00	6,947.00	7,051.82	7,047.93	44.53	211.30	-91.12	1,843.87	4,570.81	4,596.38	4,340.63	255.75	17.972	
8,600.00	6,947.00	7,052.12	7,048.24	45.58	211.31	-91.14	1,843.86	4,570.81	4,546.38	4,289.56	256.82	17.702	
8,700.00	6,947.00	7,052.32	7,048.44	46.63	211.32	-91.17	1,843.86	4,570.81	4,495.01	4,237.11	257.90	17.429	
8,800.00	6,947.00	7,052.43	7,048.54	47.69	211.32	-91.20	1,843.86	4,570.81	4,442.27	4,183.30	258.97	17.154	
8,841.31	6,947.00	7,052.44	7,048.56	48.13	211.32	-91.21	1,843.86	4,570.81	4,420.10	4,160.68	259.41	17.039	
8,900.00	6,947.00	7,052.45	7,048.57	48.76	211.32	-91.21	1,843.86	4,570.81	4,388.71	4,128.66	260.05	16.877	
9,000.00	6,947.00	7,052.46	7,048.58	49.85	211.32	-91.21	1,843.86	4,570.81	4,336.53	4,075.38	261.14	16.606	
9,100.00	6,947.00	7,052.48	7,048.59	50.97	211.32	-91.21	1,843.86	4,570.81	4,286.05	4,023.78	262.26	16.342	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #041C - OH - OH-TD — **Offset Site Error:** 0.00 usft

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

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,200.00	6,947.00	7,052.49	7,048.61	52.12	211.32	-91.21	1,843.85	4,570.81	4,237.32	3,973.92	263.41	16.087	
9,300.00	6,947.00	7,052.50	7,048.62	53.28	211.32	-91.21	1,843.85	4,570.81	4,190.42	3,925.85	264.57	15.838	
9,400.00	6,947.00	7,052.52	7,048.63	54.48	211.33	-91.21	1,843.85	4,570.81	4,145.40	3,879.65	265.75	15.599	
9,500.00	6,947.00	7,052.53	7,048.65	55.69	211.33	-91.21	1,843.85	4,570.81	4,102.33	3,835.38	266.95	15.367	
9,600.00	6,947.00	7,052.54	7,048.66	56.92	211.33	-91.21	1,843.85	4,570.81	4,061.26	3,793.10	268.16	15.145	
9,700.00	6,947.00	7,052.56	7,048.68	58.17	211.33	-91.21	1,843.85	4,570.81	4,022.26	3,752.87	269.38	14.931	
9,800.00	6,947.00	7,052.57	7,048.69	59.44	211.33	-91.21	1,843.85	4,570.81	3,985.38	3,714.77	270.61	14.727	
9,900.00	6,947.00	7,052.58	7,048.70	60.73	211.33	-91.21	1,843.85	4,570.81	3,950.70	3,678.85	271.85	14.533	
10,000.00	6,947.00	7,052.60	7,048.72	62.03	211.33	-91.21	1,843.85	4,570.81	3,918.26	3,645.18	273.08	14.348	
10,100.00	6,947.00	7,052.61	7,048.73	63.34	211.33	-91.21	1,843.85	4,570.81	3,888.12	3,613.81	274.31	14.174	
10,200.00	6,947.00	7,052.63	7,048.74	64.67	211.33	-91.21	1,843.85	4,570.81	3,860.34	3,584.80	275.54	14.010	
10,300.00	6,947.00	7,052.64	7,048.76	66.01	211.33	-91.21	1,843.85	4,570.81	3,834.96	3,558.21	276.75	13.857	
10,400.00	6,947.00	7,052.65	7,048.77	67.36	211.33	-91.21	1,843.85	4,570.81	3,812.04	3,534.09	277.95	13.715	
10,500.00	6,947.00	7,052.67	7,048.78	68.73	211.33	-91.21	1,843.85	4,570.81	3,791.62	3,512.49	279.13	13.584	
10,600.00	6,947.00	7,052.68	7,048.80	70.10	211.33	-91.21	1,843.85	4,570.81	3,773.74	3,493.45	280.30	13.463	
10,700.00	6,947.00	7,052.69	7,048.81	71.48	211.33	-91.21	1,843.85	4,570.81	3,758.44	3,477.00	281.43	13.355	
10,800.00	6,947.00	7,052.71	7,048.83	72.88	211.33	-91.21	1,843.85	4,570.81	3,745.74	3,463.20	282.54	13.257	
10,900.00	6,947.00	7,052.72	7,048.84	74.28	211.33	-91.21	1,843.85	4,570.81	3,735.68	3,452.06	283.62	13.172	
11,000.00	6,947.00	7,052.74	7,048.85	75.69	211.33	-91.21	1,843.85	4,570.81	3,728.27	3,443.62	284.65	13.098	
11,100.00	6,947.00	7,052.75	7,048.87	77.10	211.33	-91.21	1,843.85	4,570.81	3,723.54	3,437.89	285.66	13.035	
11,200.00	6,947.00	7,052.76	7,048.88	78.53	211.33	-91.21	1,843.85	4,570.81	3,721.49	3,434.87	286.62	12.984	
11,226.36	6,947.00	7,052.77	7,048.88	78.91	211.33	-91.21	1,843.85	4,570.81	3,721.40	3,434.54	286.86	12.973	CC, ES
11,300.00	6,947.00	7,052.78	7,048.89	79.96	211.33	-91.21	1,843.85	4,570.81	3,722.13	3,434.59	287.53	12.945	
11,400.00	6,947.00	7,052.79	7,048.91	81.40	211.33	-91.22	1,843.85	4,570.81	3,725.45	3,437.05	288.40	12.918	
11,500.00	6,947.00	7,052.80	7,048.92	82.84	211.33	-91.22	1,843.85	4,570.81	3,731.44	3,442.22	289.22	12.902	
11,600.00	6,947.00	7,052.82	7,048.94	84.29	211.33	-91.22	1,843.85	4,570.81	3,740.11	3,450.11	289.99	12.897	SF
11,700.00	6,947.00	7,052.83	7,048.95	85.75	211.33	-91.22	1,843.85	4,570.81	3,751.42	3,460.70	290.71	12.904	
11,800.00	6,947.00	7,052.84	7,048.96	87.21	211.34	-91.22	1,843.85	4,570.81	3,765.35	3,473.97	291.38	12.922	
11,900.00	6,947.00	7,052.86	7,048.98	88.68	211.34	-91.22	1,843.85	4,570.81	3,781.88	3,489.88	292.00	12.952	
12,000.00	6,947.00	7,052.87	7,048.99	90.15	211.34	-91.22	1,843.85	4,570.81	3,800.96	3,508.40	292.56	12.992	
12,100.00	6,947.00	7,052.89	7,049.00	91.62	211.34	-91.22	1,843.85	4,570.81	3,822.57	3,529.49	293.08	13.043	
12,200.00	6,947.00	7,052.90	7,049.02	93.10	211.34	-91.22	1,843.85	4,570.81	3,846.66	3,553.12	293.54	13.104	
12,300.00	6,947.00	7,052.91	7,049.03	94.59	211.34	-91.22	1,843.85	4,570.81	3,873.18	3,579.23	293.95	13.176	
12,400.00	6,947.00	7,052.93	7,049.05	96.07	211.34	-91.22	1,843.85	4,570.81	3,902.08	3,607.77	294.31	13.258	
12,500.00	6,947.00	7,052.94	7,049.06	97.56	211.34	-91.22	1,843.85	4,570.81	3,933.31	3,638.69	294.63	13.350	
12,600.00	6,947.00	7,052.95	7,049.07	99.06	211.34	-91.22	1,843.85	4,570.81	3,966.82	3,671.93	294.89	13.452	
12,700.00	6,947.00	7,052.97	7,049.09	100.56	211.34	-91.22	1,843.84	4,570.81	4,002.55	3,707.43	295.12	13.563	
12,800.00	6,947.00	7,052.98	7,049.10	102.06	211.34	-91.22	1,843.84	4,570.81	4,040.44	3,745.14	295.30	13.683	
12,900.00	6,947.00	7,053.00	7,049.11	103.56	211.34	-91.22	1,843.84	4,570.81	4,080.43	3,784.99	295.44	13.811	
13,000.00	6,947.00	7,053.01	7,049.13	105.07	211.34	-91.22	1,843.84	4,570.81	4,122.45	3,826.91	295.54	13.949	
13,100.00	6,947.00	7,053.02	7,049.14	106.58	211.34	-91.22	1,843.84	4,570.81	4,166.45	3,870.85	295.60	14.095	
13,200.00	6,947.00	7,053.04	7,049.15	108.10	211.34	-91.22	1,843.84	4,570.81	4,212.37	3,916.74	295.63	14.249	
13,300.00	6,947.00	7,053.05	7,049.17	109.61	211.34	-91.22	1,843.84	4,570.81	4,260.14	3,964.51	295.63	14.410	
13,400.00	6,947.00	7,053.06	7,049.18	111.13	211.34	-91.22	1,843.84	4,570.81	4,309.70	4,014.10	295.60	14.579	
13,500.00	6,947.00	7,053.08	7,049.20	112.65	211.34	-91.22	1,843.84	4,570.81	4,360.99	4,065.45	295.54	14.756	
13,600.00	6,947.00	7,053.09	7,049.21	114.17	211.34	-91.22	1,843.84	4,570.81	4,413.95	4,118.50	295.46	14.939	
13,700.00	6,947.00	7,053.11	7,049.22	115.70	211.34	-91.22	1,843.84	4,570.81	4,468.52	4,173.18	295.35	15.130	
13,800.00	6,947.00	7,053.12	7,049.24	117.23	211.34	-91.22	1,843.84	4,570.81	4,524.65	4,229.43	295.22	15.326	
13,900.00	6,947.00	7,053.13	7,049.25	118.76	211.34	-91.22	1,843.84	4,570.81	4,582.27	4,287.20	295.07	15.530	
14,000.00	6,947.00	7,053.15	7,049.26	120.29	211.34	-91.22	1,843.84	4,570.81	4,641.32	4,346.42	294.90	15.739	
14,100.00	6,947.00	7,053.16	7,049.28	121.82	211.34	-91.22	1,843.84	4,570.81	4,701.77	4,407.05	294.72	15.953	
14,200.00	6,947.00	7,053.17	7,049.29	123.36	211.34	-91.22	1,843.84	4,570.81	4,763.54	4,469.02	294.52	16.174	

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 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Rule Assigned: Warning
14,300.00	6,947.00	7,053.19	7,049.31	124.89	211.35	-91.22	1,843.84	4,570.81	4,826.60	4,532.29	294.31	16.400	
14,400.00	6,947.00	7,053.20	7,049.32	126.43	211.35	-91.22	1,843.84	4,570.81	4,890.89	4,596.80	294.09	16.631	
14,500.00	6,947.00	7,053.22	7,049.33	127.97	211.35	-91.22	1,843.84	4,570.81	4,956.36	4,662.51	293.85	16.867	
14,600.00	6,947.00	7,053.23	7,049.35	129.51	211.35	-91.22	1,843.84	4,570.81	5,022.97	4,729.36	293.61	17.108	
14,700.00	6,947.00	7,053.24	7,049.36	131.06	211.35	-91.22	1,843.84	4,570.81	5,090.68	4,797.31	293.36	17.353	
14,800.00	6,947.00	7,053.26	7,049.37	132.60	211.35	-91.22	1,843.84	4,570.81	5,159.43	4,866.32	293.11	17.603	
14,900.00	6,947.00	7,053.27	7,049.39	134.15	211.35	-91.22	1,843.84	4,570.81	5,229.19	4,936.35	292.84	17.857	
15,000.00	6,947.00	7,053.28	7,049.40	135.70	211.35	-91.22	1,843.84	4,570.81	5,299.92	5,007.34	292.58	18.115	
15,100.00	6,947.00	7,053.30	7,049.42	137.24	211.35	-91.22	1,843.84	4,570.81	5,371.58	5,079.27	292.31	18.376	
15,200.00	6,947.00	7,053.31	7,049.43	138.79	211.35	-91.22	1,843.84	4,570.81	5,444.14	5,152.10	292.04	18.642	
15,300.00	6,947.00	7,053.33	7,049.44	140.35	211.35	-91.22	1,843.84	4,570.81	5,517.55	5,225.79	291.76	18.911	
15,400.00	6,947.00	7,053.34	7,049.46	141.90	211.35	-91.22	1,843.84	4,570.81	5,591.79	5,300.30	291.49	19.184	
15,500.00	6,947.00	7,053.35	7,049.47	143.45	211.35	-91.22	1,843.84	4,570.81	5,666.82	5,375.61	291.21	19.460	
15,600.00	6,947.00	7,053.37	7,049.48	145.01	211.35	-91.22	1,843.84	4,570.81	5,742.61	5,451.68	290.93	19.739	
15,700.00	6,947.00	7,053.38	7,049.50	146.56	211.35	-91.22	1,843.84	4,570.81	5,819.13	5,528.48	290.65	20.021	
15,800.00	6,947.00	7,053.39	7,049.51	148.12	211.35	-91.22	1,843.84	4,570.81	5,896.35	5,605.98	290.38	20.306	
15,900.00	6,947.00	7,053.41	7,049.53	149.68	211.35	-91.22	1,843.84	4,570.81	5,974.26	5,684.15	290.10	20.594	
16,000.00	6,947.00	7,053.42	7,049.54	151.23	211.35	-91.22	1,843.84	4,570.81	6,052.81	5,762.98	289.83	20.884	
16,100.00	6,947.00	7,053.44	7,049.55	152.79	211.35	-91.22	1,843.83	4,570.81	6,131.98	5,842.42	289.56	21.177	
16,200.00	6,947.00	7,053.45	7,049.57	154.36	211.35	-91.23	1,843.83	4,570.81	6,211.76	5,922.47	289.29	21.473	
16,300.00	6,947.00	7,053.46	7,049.58	155.92	211.35	-91.23	1,843.83	4,570.81	6,292.11	6,003.09	289.02	21.770	
16,400.00	6,947.00	7,053.48	7,049.59	157.48	211.35	-91.23	1,843.83	4,570.81	6,373.02	6,084.26	288.76	22.071	
16,500.00	6,947.00	7,053.49	7,049.61	159.04	211.35	-91.23	1,843.83	4,570.81	6,454.46	6,165.97	288.49	22.373	
16,600.00	6,947.00	7,053.50	7,049.62	160.61	211.35	-91.23	1,843.83	4,570.81	6,536.42	6,248.19	288.23	22.677	
16,700.00	6,947.00	7,053.52	7,049.64	162.17	211.36	-91.23	1,843.83	4,570.81	6,618.88	6,330.90	287.98	22.984	
16,800.00	6,947.00	7,053.53	7,049.65	163.74	211.36	-91.23	1,843.83	4,570.81	6,701.81	6,414.09	287.73	23.292	
16,900.00	6,947.00	7,053.55	7,049.66	165.30	211.36	-91.23	1,843.83	4,570.81	6,785.21	6,497.73	287.48	23.603	
17,000.00	6,947.00	7,053.56	7,049.68	166.87	211.36	-91.23	1,843.83	4,570.81	6,869.04	6,581.81	287.23	23.915	
17,100.00	6,947.00	7,053.57	7,049.69	168.44	211.36	-91.23	1,843.83	4,570.81	6,953.31	6,666.32	286.99	24.228	
17,200.00	6,947.00	7,053.59	7,049.70	170.01	211.36	-91.23	1,843.83	4,570.81	7,037.98	6,751.23	286.75	24.544	
17,300.00	6,947.00	7,053.60	7,049.72	171.57	211.36	-91.23	1,843.83	4,570.81	7,123.06	6,836.54	286.52	24.861	
17,400.00	6,947.00	7,053.61	7,049.73	173.14	211.36	-91.23	1,843.83	4,570.81	7,208.51	6,922.23	286.29	25.179	
17,500.00	6,947.00	7,053.63	7,049.75	174.71	211.36	-91.23	1,843.83	4,570.81	7,294.34	7,008.28	286.06	25.499	
17,600.00	6,947.00	7,053.64	7,049.76	176.28	211.36	-91.23	1,843.83	4,570.81	7,380.52	7,094.68	285.84	25.821	
17,700.00	6,947.00	7,053.66	7,049.77	177.86	211.36	-91.23	1,843.83	4,570.81	7,467.05	7,181.43	285.62	26.143	
17,800.00	6,947.00	7,053.67	7,049.79	179.43	211.36	-91.23	1,843.83	4,570.81	7,553.91	7,268.51	285.41	26.467	
17,900.00	6,947.00	7,053.68	7,049.80	181.00	211.36	-91.23	1,843.83	4,570.81	7,641.09	7,355.90	285.19	26.793	
18,000.00	6,947.00	7,053.70	7,049.81	182.57	211.36	-91.23	1,843.83	4,570.81	7,728.59	7,443.60	284.99	27.119	
18,100.00	6,947.00	7,053.71	7,049.83	184.15	211.36	-91.23	1,843.83	4,570.81	7,816.38	7,531.59	284.78	27.447	
18,200.00	6,947.00	7,053.72	7,049.84	185.72	211.36	-91.23	1,843.83	4,570.81	7,904.46	7,619.87	284.59	27.775	
18,300.00	6,947.00	7,053.74	7,049.86	187.30	211.36	-91.23	1,843.83	4,570.81	7,992.82	7,708.43	284.39	28.105	
18,400.00	6,947.00	7,053.75	7,049.87	188.87	211.36	-91.23	1,843.83	4,570.81	8,081.46	7,797.26	284.20	28.436	
18,500.00	6,947.00	7,053.77	7,049.88	190.45	211.36	-91.23	1,843.83	4,570.81	8,170.35	7,886.34	284.01	28.768	
18,600.00	6,947.00	7,053.78	7,049.90	192.02	211.36	-91.23	1,843.83	4,570.81	8,259.50	7,975.67	283.83	29.100	
18,700.00	6,947.00	7,053.79	7,049.91	193.60	211.36	-91.23	1,843.83	4,570.81	8,348.90	8,065.25	283.65	29.434	
18,800.00	6,947.00	7,053.81	7,049.92	195.18	211.36	-91.23	1,843.83	4,570.81	8,438.53	8,155.06	283.47	29.768	
18,900.00	6,947.00	7,053.82	7,049.94	196.75	211.36	-91.23	1,843.83	4,570.81	8,528.40	8,245.10	283.30	30.103	
19,000.00	6,947.00	7,053.83	7,049.95	198.33	211.36	-91.23	1,843.83	4,570.81	8,618.49	8,335.35	283.13	30.440	
19,100.00	6,947.00	7,053.85	7,049.97	199.91	211.37	-91.23	1,843.83	4,570.81	8,708.79	8,425.82	282.97	30.776	
19,200.00	6,947.00	7,053.86	7,049.98	201.49	211.37	-91.23	1,843.83	4,570.81	8,799.31	8,516.50	282.81	31.114	
19,300.00	6,947.00	7,053.88	7,049.99	203.07	211.37	-91.23	1,843.83	4,570.81	8,890.02	8,607.37	282.65	31.452	
19,400.00	6,947.00	7,053.89	7,050.01	204.65	211.37	-91.23	1,843.83	4,570.81	8,980.94	8,698.44	282.50	31.791	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Rule Assigned:

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
19,500.00	6,947.00	7,053.90	7,050.02	206.23	211.37	-91.23	1,843.83	4,570.81	9,072.04	8,789.69	282.35	32.131	
19,600.00	6,947.00	7,053.92	7,050.03	207.81	211.37	-91.23	1,843.82	4,570.81	9,163.33	8,881.13	282.20	32.471	
19,700.00	6,947.00	7,053.93	7,050.05	209.39	211.37	-91.23	1,843.82	4,570.81	9,254.80	8,972.75	282.06	32.812	
19,800.00	6,947.00	7,053.94	7,050.06	210.97	211.37	-91.23	1,843.82	4,570.81	9,346.45	9,064.53	281.92	33.153	
19,900.00	6,947.00	7,053.96	7,050.08	212.55	211.37	-91.23	1,843.82	4,570.81	9,438.27	9,156.48	281.78	33.495	
20,000.00	6,947.00	7,053.97	7,050.09	214.13	211.37	-91.23	1,843.82	4,570.81	9,530.25	9,248.60	281.65	33.837	
20,100.00	6,947.00	7,053.99	7,050.10	215.71	211.37	-91.23	1,843.82	4,570.81	9,622.39	9,340.87	281.52	34.180	
20,200.00	6,947.00	7,054.00	7,050.12	217.30	211.37	-91.23	1,843.82	4,570.81	9,714.68	9,433.29	281.39	34.524	
20,300.00	6,947.00	7,054.01	7,050.13	218.88	211.37	-91.23	1,843.82	4,570.81	9,807.13	9,525.86	281.27	34.868	
20,400.00	6,947.00	7,054.03	7,050.15	220.46	211.37	-91.23	1,843.82	4,570.81	9,899.72	9,618.58	281.15	35.212	
20,500.00	6,947.00	7,054.04	7,050.16	222.04	211.37	-91.23	1,843.82	4,570.81	9,992.46	9,711.43	281.03	35.557	
20,600.00	6,947.00	7,054.06	7,050.17	223.63	211.37	-91.23	1,843.82	4,570.81	10,085.33	9,804.42	280.91	35.902	
20,700.00	6,947.00	7,054.07	7,050.19	225.21	211.37	-91.23	1,843.82	4,570.81	10,178.34	9,897.54	280.80	36.247	
20,800.00	6,947.00	7,054.08	7,050.20	226.80	211.37	-91.23	1,843.82	4,570.81	10,271.49	9,990.79	280.69	36.593	
20,900.00	6,947.00	7,054.10	7,050.21	228.38	211.37	-91.24	1,843.82	4,570.81	10,364.76	10,084.17	280.59	36.940	
21,000.00	6,947.00	7,054.11	7,050.23	229.97	211.37	-91.24	1,843.82	4,570.81	10,458.15	10,177.67	280.48	37.286	
21,032.01	6,947.00	7,054.12	7,050.23	230.47	211.37	-91.24	1,843.82	4,570.81	10,488.07	10,207.62	280.45	37.397	
21,032.99	6,947.00	7,054.12	7,050.23	230.51	211.37	-91.24	1,843.82	4,570.81	10,488.98	10,206.55	282.43	37.138	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Rule Assigned: Warning
0.00	0.00	233.00	233.00	0.00	6.98	103.37	-1,752.98	7,377.11	7,582.53				
100.00	100.00	333.00	333.00	0.25	9.98	103.37	-1,752.98	7,377.11	7,582.53	7,572.30	10.23	741.264	
200.00	200.00	433.00	433.00	0.61	12.97	103.37	-1,752.98	7,377.11	7,582.53	7,568.94	13.58	558.193	
300.00	300.00	533.10	533.00	0.97	15.97	103.37	-1,752.98	7,377.11	7,582.53	7,565.59	16.94	447.558	
400.00	400.00	633.10	633.00	1.33	18.97	103.37	-1,752.98	7,377.11	7,582.53	7,562.23	20.30	373.580	
500.00	500.00	733.10	733.00	1.68	21.97	103.37	-1,752.98	7,377.11	7,582.53	7,558.88	23.65	320.589	
600.00	599.98	824.05	823.90	2.03	24.69	-61.67	-1,751.00	7,377.11	7,581.24	7,554.53	26.72	283.744	
700.00	699.84	913.16	912.98	2.36	27.36	-61.74	-1,751.73	7,377.11	7,578.95	7,549.23	29.72	254.997	
800.00	799.45	1,032.86	1,032.45	2.71	30.95	-61.87	-1,752.98	7,377.11	7,575.08	7,541.43	33.65	225.097	
900.00	898.70	1,132.11	1,131.70	3.06	33.92	-62.05	-1,752.98	7,377.11	7,569.32	7,532.34	36.98	204.680	
1,000.00	997.47	1,230.87	1,230.47	3.43	36.88	-62.29	-1,752.98	7,377.11	7,561.95	7,521.64	40.31	187.603	
1,100.00	1,095.62	1,320.70	1,320.24	3.82	39.57	-62.57	-1,750.98	7,377.11	7,552.54	7,509.16	43.38	174.093	
1,200.00	1,193.44	1,408.45	1,407.97	4.22	42.20	-62.69	-1,751.68	7,377.11	7,543.00	7,496.59	46.41	162.544	
1,300.00	1,291.25	1,524.96	1,524.25	4.64	45.69	-62.85	-1,752.98	7,377.11	7,533.59	7,483.29	50.30	149.775	
1,400.00	1,389.07	1,622.78	1,622.07	5.06	48.63	-62.99	-1,752.98	7,377.11	7,523.95	7,470.31	53.64	140.270	
1,500.00	1,486.88	1,720.59	1,719.88	5.48	51.56	-63.12	-1,752.98	7,377.11	7,514.37	7,457.38	56.98	131.869	
1,600.00	1,584.70	1,811.58	1,810.82	5.91	54.28	-63.27	-1,750.94	7,377.11	7,504.39	7,444.26	60.13	124.806	
1,700.00	1,682.51	1,899.87	1,899.09	6.35	56.93	-63.39	-1,751.59	7,377.11	7,495.05	7,431.86	63.20	118.602	
1,800.00	1,780.33	2,014.34	2,013.33	6.78	60.36	-63.54	-1,752.98	7,377.11	7,485.88	7,418.83	67.05	111.648	
1,900.00	1,878.14	2,112.16	2,111.14	7.22	63.29	-63.68	-1,752.98	7,377.11	7,476.47	7,406.07	70.41	106.191	
2,000.00	1,975.96	2,209.97	2,208.96	7.66	66.22	-63.82	-1,752.98	7,377.11	7,467.11	7,393.35	73.77	101.228	
2,100.00	2,073.77	2,302.35	2,301.29	8.10	68.99	-63.97	-1,750.90	7,377.11	7,457.39	7,380.42	76.96	96.895	
2,200.00	2,171.59	2,391.18	2,390.10	8.54	71.65	-64.10	-1,751.50	7,377.11	7,448.26	7,368.20	80.06	93.037	
2,300.00	2,269.40	2,503.72	2,502.40	8.98	75.02	-64.25	-1,752.98	7,377.11	7,439.32	7,355.45	83.86	88.710	
2,400.00	2,367.22	2,601.53	2,600.22	9.43	77.95	-64.39	-1,752.98	7,377.11	7,430.14	7,342.92	87.23	85.182	
2,500.00	2,465.03	2,699.35	2,698.03	9.87	80.88	-64.53	-1,752.98	7,377.11	7,421.02	7,330.43	90.59	81.917	
2,600.00	2,562.84	2,793.00	2,791.63	10.32	83.69	-64.68	-1,750.87	7,377.11	7,411.54	7,317.71	93.83	78.985	
2,700.00	2,660.66	2,882.39	2,881.00	10.77	86.37	-64.81	-1,751.42	7,377.11	7,402.63	7,305.68	96.95	76.355	
2,800.00	2,758.47	2,972.03	2,970.62	11.21	89.06	-64.93	-1,752.53	7,377.11	7,393.87	7,293.79	100.07	73.884	
2,900.00	2,856.29	3,090.91	3,089.29	11.66	92.62	-65.10	-1,752.98	7,377.11	7,384.99	7,280.91	104.07	70.959	
3,000.00	2,954.10	3,188.73	3,187.10	12.11	95.55	-65.25	-1,752.98	7,377.11	7,376.10	7,268.65	107.44	68.651	
3,100.00	3,051.92	3,283.53	3,281.86	12.56	98.39	-65.40	-1,750.84	7,377.11	7,366.88	7,256.16	110.72	66.534	
3,200.00	3,149.73	3,373.48	3,371.79	13.01	101.08	-65.53	-1,751.34	7,377.11	7,358.19	7,244.33	113.86	64.625	
3,300.00	3,247.55	3,463.68	3,461.97	13.45	103.79	-65.66	-1,752.40	7,377.11	7,349.64	7,232.64	117.00	62.815	
3,400.00	3,345.36	3,580.29	3,578.36	13.90	107.28	-65.83	-1,752.98	7,377.11	7,341.02	7,220.09	120.94	60.701	
3,500.00	3,443.18	3,678.11	3,676.18	14.35	110.21	-65.97	-1,752.98	7,377.11	7,332.38	7,208.07	124.31	58.984	
3,600.00	3,540.99	3,773.93	3,771.96	14.80	113.08	-66.13	-1,750.82	7,377.11	7,323.43	7,195.80	127.63	57.382	
3,700.00	3,638.81	3,864.45	3,862.46	15.25	115.80	-66.26	-1,751.26	7,377.11	7,314.96	7,184.18	130.78	55.933	
3,800.00	3,736.62	3,955.23	3,953.21	15.70	118.52	-66.39	-1,752.28	7,377.11	7,306.64	7,172.69	133.94	54.550	
3,900.00	3,834.44	4,069.67	4,067.44	16.15	121.95	-66.56	-1,752.98	7,377.11	7,298.28	7,160.46	137.82	52.957	
4,000.00	3,932.25	4,167.48	4,165.25	16.60	124.88	-66.70	-1,752.98	7,377.11	7,289.88	7,148.69	141.19	51.631	
4,100.00	4,030.07	4,264.21	4,261.94	17.05	127.78	-66.87	-1,750.81	7,377.11	7,281.20	7,136.67	144.53	50.377	
4,200.00	4,127.88	4,355.31	4,353.02	17.50	130.50	-67.00	-1,751.19	7,377.11	7,272.96	7,125.25	147.71	49.239	
4,300.00	4,225.70	4,446.66	4,444.35	17.96	133.24	-67.13	-1,752.16	7,377.11	7,264.87	7,113.97	150.89	48.146	
4,400.00	4,323.51	4,559.05	4,556.51	18.41	136.61	-67.30	-1,752.98	7,377.11	7,256.77	7,102.07	154.70	46.908	
4,500.00	4,421.33	4,656.86	4,654.33	18.86	139.54	-67.44	-1,752.98	7,377.11	7,248.62	7,090.54	158.08	45.854	
4,600.00	4,519.14	4,754.37	4,751.79	19.31	142.46	-67.61	-1,750.80	7,377.11	7,240.22	7,078.77	161.45	44.845	
4,700.00	4,616.95	4,846.04	4,843.45	19.76	145.21	-67.75	-1,751.13	7,377.11	7,232.22	7,067.58	164.64	43.927	
4,800.00	4,714.77	4,937.99	4,935.37	20.21	147.96	-67.88	-1,752.04	7,377.11	7,224.35	7,056.51	167.84	43.042	
4,900.00	4,812.58	5,048.43	5,045.58	20.66	151.27	-68.04	-1,752.98	7,377.11	7,216.52	7,044.92	171.60	42.055	
5,000.00	4,910.40	5,146.24	5,143.40	21.11	154.20	-68.19	-1,752.98	7,377.11	7,208.62	7,033.64	174.98	41.197	
5,100.00	5,008.21	5,244.06	5,241.21	21.57	157.14	-68.34	-1,752.98	7,377.11	7,200.78	7,022.42	178.36	40.373	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Rule Assigned: Warning
5,200.00	5,106.03	5,336.66	5,333.76	22.02	159.91	-68.50	-1,751.07	7,377.11	7,192.75	7,011.17	181.58	39.612	
5,300.00	5,203.84	5,429.20	5,426.28	22.47	162.68	-68.64	-1,751.93	7,377.11	7,185.12	7,000.32	184.80	38.880	
5,400.00	5,301.66	5,537.81	5,534.66	22.92	165.94	-68.80	-1,752.98	7,377.11	7,177.55	6,989.05	188.50	38.077	
5,500.00	5,399.47	5,635.62	5,632.47	23.37	168.87	-68.95	-1,752.98	7,377.11	7,169.91	6,978.03	191.88	37.366	
5,600.00	5,497.29	5,733.43	5,730.29	23.82	171.80	-69.10	-1,752.98	7,377.11	7,162.32	6,967.06	195.26	36.680	
5,700.00	5,595.10	5,827.15	5,823.95	24.28	174.61	-69.26	-1,751.01	7,377.11	7,154.58	6,956.06	198.52	36.039	
5,800.00	5,692.92	5,920.29	5,917.07	24.73	177.40	-69.40	-1,751.82	7,377.11	7,147.19	6,945.43	201.76	35.424	
5,900.00	5,790.73	6,027.18	6,023.73	25.18	180.60	-69.56	-1,752.98	7,377.11	7,139.88	6,934.47	205.41	34.759	
6,000.00	5,888.55	6,117.00	6,113.48	25.63	183.29	-69.70	-1,752.98	7,377.11	7,132.51	6,923.95	208.56	34.199	
6,100.00	5,986.36	6,117.00	6,113.48	26.08	183.29	-69.70	-1,752.98	7,377.11	7,125.97	6,916.97	209.00	34.096	
6,200.00	6,084.18	6,117.00	6,113.48	26.54	183.29	-69.70	-1,752.98	7,377.11	7,120.83	6,911.42	209.41	34.005	
6,300.00	6,181.99	6,117.00	6,113.48	26.99	183.29	-69.70	-1,752.98	7,377.11	7,117.09	6,907.31	209.77	33.928	
6,400.00	6,279.81	6,117.00	6,113.48	27.44	183.29	-69.70	-1,752.98	7,377.11	7,114.75	6,904.65	210.10	33.863	
6,500.00	6,377.62	6,117.00	6,113.48	27.89	183.29	-69.70	-1,752.98	7,377.11	7,113.82	6,903.43	210.39	33.812	
6,516.30	6,393.56	6,117.00	6,113.48	27.97	183.29	-69.70	-1,752.98	7,377.11	7,113.80	6,903.36	210.43	33.805	
6,530.62	6,407.57	6,117.00	6,113.48	28.03	183.29	-69.70	-1,752.98	7,377.11	7,113.81	6,903.34	210.47	33.799	
6,550.00	6,426.48	6,117.00	6,113.48	28.12	183.29	-64.24	-1,752.98	7,377.11	7,113.61	6,903.08	210.52	33.790	
6,600.00	6,474.77	6,117.00	6,113.48	28.36	183.29	-54.28	-1,752.98	7,377.11	7,110.80	6,900.14	210.65	33.756	
6,650.00	6,522.09	6,117.00	6,113.48	28.62	183.29	-48.17	-1,752.98	7,377.11	7,104.72	6,893.94	210.79	33.705	
6,700.00	6,568.15	6,117.00	6,113.48	28.89	183.29	-44.27	-1,752.98	7,377.11	7,095.42	6,884.49	210.93	33.639	
6,750.00	6,612.66	6,117.00	6,113.48	29.18	183.29	-41.75	-1,752.98	7,377.11	7,082.92	6,871.85	211.06	33.558	
6,800.00	6,655.36	6,117.00	6,113.48	29.48	183.29	-40.16	-1,752.98	7,377.11	7,067.29	6,856.09	211.20	33.462	
6,850.00	6,695.98	6,117.00	6,113.48	29.79	183.29	-39.26	-1,752.98	7,377.11	7,048.61	6,837.26	211.34	33.351	
6,900.00	6,734.26	6,117.00	6,113.48	30.11	183.29	-38.90	-1,752.98	7,377.11	7,026.96	6,815.48	211.49	33.227	
6,950.00	6,769.98	6,117.00	6,113.48	30.45	183.29	-39.02	-1,752.98	7,377.11	7,002.46	6,790.83	211.63	33.088	
7,000.00	6,802.91	6,117.00	6,113.48	30.79	183.29	-39.57	-1,752.98	7,377.11	6,975.22	6,763.45	211.77	32.937	
7,050.00	6,832.85	6,117.00	6,113.48	31.15	183.29	-40.55	-1,752.98	7,377.11	6,945.39	6,733.47	211.92	32.774	
7,100.00	6,859.62	6,117.00	6,113.48	31.51	183.29	-41.98	-1,752.98	7,377.11	6,913.11	6,701.04	212.07	32.599	
7,150.00	6,883.05	6,117.00	6,113.48	31.89	183.29	-43.91	-1,752.98	7,377.11	6,878.55	6,666.33	212.22	32.413	
7,200.00	6,902.99	6,117.00	6,113.48	32.28	183.29	-46.40	-1,752.98	7,377.11	6,841.89	6,629.52	212.37	32.216	
7,250.00	6,919.32	6,117.00	6,113.48	32.67	183.29	-49.56	-1,752.98	7,377.11	6,803.33	6,590.80	212.53	32.010	
7,300.00	6,931.95	6,117.00	6,113.48	33.08	183.29	-53.50	-1,752.98	7,377.11	6,763.07	6,550.37	212.70	31.796	
7,350.00	6,940.79	6,117.00	6,113.48	33.49	183.29	-58.36	-1,752.98	7,377.11	6,721.33	6,508.45	212.87	31.575	
7,400.00	6,945.79	6,117.00	6,113.48	33.90	183.29	-64.30	-1,752.98	7,377.11	6,678.34	6,465.29	213.05	31.346	
7,439.53	6,947.00	6,117.00	6,113.48	34.24	183.29	-69.84	-1,752.98	7,377.11	6,643.63	6,430.43	213.20	31.162	
7,500.00	6,947.00	6,117.00	6,113.48	34.75	183.29	-69.02	-1,752.98	7,377.11	6,589.90	6,376.48	213.42	30.878	
7,600.00	6,947.00	6,117.00	6,113.48	35.63	183.29	-67.51	-1,752.98	7,377.11	6,500.12	6,286.35	213.78	30.406	
7,700.00	6,947.00	6,117.00	6,113.48	36.54	183.29	-65.78	-1,752.98	7,377.11	6,409.25	6,195.12	214.12	29.932	
7,800.00	6,947.00	6,117.00	6,113.48	37.47	183.29	-63.79	-1,752.98	7,377.11	6,317.34	6,102.89	214.45	29.458	
7,900.00	6,947.00	6,117.00	6,113.48	38.43	183.29	-61.49	-1,752.98	7,377.11	6,224.46	6,009.71	214.75	28.984	
8,000.00	6,947.00	6,117.00	6,113.48	39.41	183.29	-58.80	-1,752.98	7,377.11	6,130.69	5,915.66	215.03	28.510	
8,100.00	6,947.00	6,117.00	6,113.48	40.40	183.29	-55.64	-1,752.98	7,377.11	6,036.10	5,820.82	215.28	28.038	
8,200.00	6,947.00	6,117.00	6,113.48	41.42	183.29	-51.92	-1,752.98	7,377.11	5,940.77	5,725.27	215.51	27.567	
8,300.00	6,947.00	6,117.00	6,113.48	42.44	183.29	-47.49	-1,752.98	7,377.11	5,844.79	5,629.10	215.69	27.098	
8,400.00	6,947.00	6,117.00	6,113.48	43.48	183.29	-42.23	-1,752.98	7,377.11	5,748.23	5,532.39	215.84	26.632	
8,500.00	6,947.00	6,117.00	6,113.48	44.53	183.29	-36.01	-1,752.98	7,377.11	5,651.20	5,435.25	215.95	26.169	
8,600.00	6,947.00	6,117.00	6,113.48	45.58	183.29	-28.73	-1,752.98	7,377.11	5,553.78	5,337.77	216.02	25.710	
8,700.00	6,947.00	6,117.00	6,113.48	46.63	183.29	-20.41	-1,752.98	7,377.11	5,456.09	5,240.05	216.04	25.255	
8,800.00	6,947.00	6,117.00	6,113.48	47.69	183.29	-11.25	-1,752.98	7,377.11	5,358.22	5,142.21	216.01	24.805	
8,841.31	6,947.00	6,117.00	6,113.48	48.13	183.29	-7.30	-1,752.98	7,377.11	5,317.76	5,101.78	215.98	24.621	
8,900.00	6,947.00	6,117.00	6,113.48	48.76	183.29	-7.30	-1,752.98	7,377.11	5,260.30	5,044.36	215.94	24.360	
9,000.00	6,947.00	6,117.00	6,113.48	49.85	183.29	-7.30	-1,752.98	7,377.11	5,162.45	4,946.59	215.86	23.916	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,100.00	6,947.00	6,117.00	6,113.48	50.97	183.29	-7.30	-1,752.98	7,377.11	5,064.69	4,848.91	215.77	23.472	
9,200.00	6,947.00	6,117.00	6,113.48	52.12	183.29	-7.30	-1,752.98	7,377.11	4,967.01	4,751.33	215.68	23.029	
9,300.00	6,947.00	6,117.00	6,113.48	53.28	183.29	-7.30	-1,752.98	7,377.11	4,869.43	4,653.85	215.59	22.587	
9,400.00	6,947.00	6,117.00	6,113.48	54.48	183.29	-7.30	-1,752.98	7,377.11	4,771.95	4,556.47	215.48	22.145	
9,500.00	6,947.00	6,117.00	6,113.48	55.69	183.29	-7.30	-1,752.98	7,377.11	4,674.58	4,459.21	215.37	21.705	
9,600.00	6,947.00	6,117.00	6,113.48	56.92	183.29	-7.30	-1,752.98	7,377.11	4,577.32	4,362.06	215.25	21.265	
9,700.00	6,947.00	6,117.00	6,113.48	58.17	183.29	-7.30	-1,752.98	7,377.11	4,480.18	4,265.05	215.13	20.826	
9,800.00	6,947.00	6,117.00	6,113.48	59.44	183.29	-7.30	-1,752.98	7,377.11	4,383.17	4,168.18	214.99	20.388	
9,900.00	6,947.00	6,117.00	6,113.48	60.73	183.29	-7.30	-1,752.98	7,377.11	4,286.29	4,071.45	214.84	19.951	
10,000.00	6,947.00	6,117.00	6,113.48	62.03	183.29	-7.30	-1,752.98	7,377.11	4,189.56	3,974.89	214.68	19.515	
10,100.00	6,947.00	6,117.00	6,113.48	63.34	183.29	-7.30	-1,752.98	7,377.11	4,092.99	3,878.49	214.51	19.081	
10,200.00	6,947.00	6,117.00	6,113.48	64.67	183.29	-7.30	-1,752.98	7,377.11	3,996.59	3,782.27	214.32	18.648	
10,300.00	6,947.00	6,117.00	6,113.48	66.01	183.29	-7.30	-1,752.98	7,377.11	3,900.37	3,686.26	214.11	18.216	
10,400.00	6,947.00	6,117.00	6,113.48	67.36	183.29	-7.30	-1,752.98	7,377.11	3,804.35	3,590.45	213.89	17.786	
10,500.00	6,947.00	6,117.00	6,113.48	68.73	183.29	-7.30	-1,752.98	7,377.11	3,708.53	3,494.88	213.65	17.358	
10,600.00	6,947.00	6,117.00	6,113.48	70.10	183.29	-7.30	-1,752.98	7,377.11	3,612.94	3,399.55	213.39	16.931	
10,700.00	6,947.00	6,117.00	6,113.48	71.48	183.29	-7.30	-1,752.98	7,377.11	3,517.60	3,304.50	213.10	16.507	
10,800.00	6,947.00	6,117.00	6,113.48	72.88	183.29	-7.30	-1,752.98	7,377.11	3,422.52	3,209.74	212.79	16.084	
10,900.00	6,947.00	6,117.00	6,113.48	74.28	183.29	-7.30	-1,752.98	7,377.11	3,327.74	3,115.29	212.44	15.664	
11,000.00	6,947.00	6,117.00	6,113.48	75.69	183.29	-7.30	-1,752.98	7,377.11	3,233.26	3,021.20	212.07	15.247	
11,100.00	6,947.00	6,117.00	6,113.48	77.10	183.29	-7.30	-1,752.98	7,377.11	3,139.13	2,927.48	211.65	14.832	
11,200.00	6,947.00	6,117.00	6,113.48	78.53	183.29	-7.30	-1,752.98	7,377.11	3,045.37	2,834.18	211.19	14.420	
11,300.00	6,947.00	6,117.00	6,113.48	79.96	183.29	-7.30	-1,752.98	7,377.11	2,952.02	2,741.35	210.68	14.012	
11,400.00	6,947.00	6,117.00	6,113.48	81.40	183.29	-7.30	-1,752.98	7,377.11	2,859.12	2,649.02	210.11	13.608	
11,500.00	6,947.00	6,117.00	6,113.48	82.84	183.29	-7.30	-1,752.98	7,377.11	2,766.72	2,557.24	209.48	13.208	
11,600.00	6,947.00	6,117.00	6,113.48	84.29	183.29	-7.30	-1,752.98	7,377.11	2,674.86	2,466.09	208.78	12.812	
11,700.00	6,947.00	6,117.00	6,113.48	85.75	183.29	-7.30	-1,752.98	7,377.11	2,583.61	2,375.63	207.99	12.422	
11,800.00	6,947.00	6,117.00	6,113.48	87.21	183.29	-7.30	-1,752.98	7,377.11	2,493.03	2,285.93	207.10	12.038	
11,900.00	6,947.00	6,117.00	6,113.48	88.68	183.29	-7.30	-1,752.98	7,377.11	2,403.20	2,197.09	206.11	11.660	
12,000.00	6,947.00	6,117.00	6,113.48	90.15	183.29	-7.30	-1,752.98	7,377.11	2,314.20	2,109.22	204.98	11.290	
12,100.00	6,947.00	6,117.00	6,113.48	91.62	183.29	-7.30	-1,752.98	7,377.11	2,226.13	2,022.43	203.71	10.928	
12,200.00	6,947.00	6,117.00	6,113.48	93.10	183.29	-7.30	-1,752.98	7,377.11	2,139.12	1,936.86	202.26	10.576	
12,300.00	6,947.00	6,117.00	6,113.48	94.59	183.29	-7.30	-1,752.98	7,377.11	2,053.28	1,852.68	200.60	10.236	
12,400.00	6,947.00	6,117.00	6,113.48	96.07	183.29	-7.30	-1,752.98	7,377.11	1,968.79	1,770.08	198.70	9.908	
12,500.00	6,947.00	6,117.00	6,113.48	97.56	183.29	-7.30	-1,752.98	7,377.11	1,885.81	1,689.29	196.52	9.596	
12,600.00	6,947.00	6,117.00	6,113.48	99.06	183.29	-7.30	-1,752.98	7,377.11	1,804.56	1,610.55	194.01	9.301	
12,700.00	6,947.00	6,117.00	6,113.48	100.56	183.29	-7.30	-1,752.98	7,377.11	1,725.28	1,534.18	191.10	9.028	
12,800.00	6,947.00	6,117.00	6,113.48	102.06	183.29	-7.30	-1,752.98	7,377.11	1,648.25	1,460.53	187.72	8.780	
12,900.00	6,947.00	6,117.00	6,113.48	103.56	183.29	-7.30	-1,752.98	7,377.11	1,573.82	1,390.02	183.80	8.563	
13,000.00	6,947.00	6,117.00	6,113.48	105.07	183.29	-7.30	-1,752.98	7,377.11	1,502.35	1,323.12	179.23	8.382	
13,100.00	6,947.00	6,117.00	6,113.48	106.58	183.29	-7.30	-1,752.98	7,377.11	1,434.30	1,260.39	173.90	8.248	
13,200.00	6,947.00	6,117.00	6,113.48	108.10	183.29	-7.30	-1,752.98	7,377.11	1,370.17	1,202.46	167.71	8.170	
13,300.00	6,947.00	6,117.00	6,113.48	109.61	183.29	-7.30	-1,752.98	7,377.11	1,310.54	1,150.00	160.54	8.163	SF
13,400.00	6,947.00	6,117.00	6,113.48	111.13	183.29	-7.30	-1,752.98	7,377.11	1,256.05	1,103.77	152.28	8.248	
13,500.00	6,947.00	6,117.00	6,113.48	112.65	183.29	-7.30	-1,752.98	7,377.11	1,207.40	1,064.52	142.88	8.451	
13,600.00	6,947.00	6,117.00	6,113.48	114.17	183.29	-7.30	-1,752.98	7,377.11	1,165.32	1,032.97	132.35	8.805	
13,700.00	6,947.00	6,117.00	6,113.48	115.70	183.29	-7.30	-1,752.98	7,377.11	1,130.54	1,009.65	120.89	9.352	
13,800.00	6,947.00	6,117.00	6,113.48	117.23	183.29	-7.30	-1,752.98	7,377.11	1,103.76	994.76	108.99	10.127	
13,900.00	6,947.00	6,117.00	6,113.48	118.76	183.29	-7.30	-1,752.98	7,377.11	1,085.56	987.65	97.90	11.088	
14,000.00	6,947.00	6,117.00	6,113.48	120.29	183.29	-7.30	-1,752.98	7,377.11	1,076.38	985.98	90.39	11.908	
14,049.23	6,947.00	6,117.00	6,113.48	121.04	183.29	-7.30	-1,752.98	7,377.11	1,075.25	985.94	89.31	12.039	CC, ES
14,100.00	6,947.00	6,117.00	6,113.48	121.82	183.29	-7.30	-1,752.98	7,377.11	1,076.45	986.00	90.44	11.902	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,200.00	6,947.00	6,117.00	6,113.48	123.36	183.29	-7.30	-1,752.98	7,377.11	1,085.77	987.76	98.01	11.078	
14,300.00	6,947.00	6,117.00	6,113.48	124.89	183.29	-7.30	-1,752.98	7,377.11	1,104.10	995.00	109.11	10.120	
14,400.00	6,947.00	6,117.00	6,113.48	126.43	183.29	-7.30	-1,752.98	7,377.11	1,131.02	1,010.03	120.98	9.348	
14,500.00	6,947.00	6,117.00	6,113.48	127.97	183.29	-7.30	-1,752.98	7,377.11	1,165.91	1,033.48	132.43	8.804	
14,600.00	6,947.00	6,117.00	6,113.48	129.51	183.29	-7.30	-1,752.98	7,377.11	1,208.10	1,065.15	142.95	8.451	
14,700.00	6,947.00	6,117.00	6,113.48	131.06	183.29	-7.30	-1,752.98	7,377.11	1,256.85	1,104.48	152.36	8.249	
14,800.00	6,947.00	6,117.00	6,113.48	132.60	183.29	-7.30	-1,752.98	7,377.11	1,311.42	1,150.78	160.64	8.164	
14,900.00	6,947.00	6,117.00	6,113.48	134.15	183.29	-7.30	-1,752.98	7,377.11	1,371.12	1,203.27	167.85	8.169	
15,000.00	6,947.00	6,117.00	6,113.48	135.70	183.29	-7.30	-1,752.98	7,377.11	1,435.31	1,261.23	174.08	8.245	
15,100.00	6,947.00	6,117.00	6,113.48	137.24	183.29	-7.30	-1,752.98	7,377.11	1,503.42	1,323.96	179.46	8.377	
15,200.00	6,947.00	6,117.00	6,113.48	138.79	183.29	-7.30	-1,752.98	7,377.11	1,574.94	1,390.84	184.10	8.555	
15,300.00	6,947.00	6,117.00	6,113.48	140.35	183.29	-7.30	-1,752.98	7,377.11	1,649.42	1,461.31	188.10	8.769	
15,400.00	6,947.00	6,117.00	6,113.48	141.90	183.29	-7.30	-1,752.98	7,377.11	1,726.48	1,534.92	191.56	9.013	
15,500.00	6,947.00	6,117.00	6,113.48	143.45	183.29	-7.30	-1,752.98	7,377.11	1,805.79	1,611.23	194.56	9.281	
15,600.00	6,947.00	6,117.00	6,113.48	145.01	183.29	-7.30	-1,752.98	7,377.11	1,887.07	1,689.90	197.17	9.571	
15,700.00	6,947.00	6,117.00	6,113.48	146.56	183.29	-7.30	-1,752.98	7,377.11	1,970.07	1,770.62	199.45	9.878	
15,800.00	6,947.00	6,117.00	6,113.48	148.12	183.29	-7.30	-1,752.98	7,377.11	2,054.59	1,853.14	201.45	10.199	
15,900.00	6,947.00	6,117.00	6,113.48	149.68	183.29	-7.30	-1,752.98	7,377.11	2,140.44	1,937.24	203.21	10.533	
16,000.00	6,947.00	6,117.00	6,113.48	151.23	183.29	-7.30	-1,752.98	7,377.11	2,227.48	2,022.71	204.76	10.878	
16,100.00	6,947.00	6,117.00	6,113.48	152.79	183.29	-7.30	-1,752.98	7,377.11	2,315.56	2,109.41	206.15	11.233	
16,200.00	6,947.00	6,117.00	6,113.48	154.36	183.29	-7.30	-1,752.98	7,377.11	2,404.57	2,197.19	207.38	11.595	
16,300.00	6,947.00	6,117.00	6,113.48	155.92	183.29	-7.30	-1,752.98	7,377.11	2,494.42	2,285.93	208.49	11.964	
16,400.00	6,947.00	6,117.00	6,113.48	157.48	183.29	-7.30	-1,752.98	7,377.11	2,585.01	2,375.53	209.48	12.340	
16,500.00	6,947.00	6,117.00	6,113.48	159.04	183.29	-7.30	-1,752.98	7,377.11	2,676.27	2,465.89	210.38	12.721	
16,600.00	6,947.00	6,117.00	6,113.48	160.61	183.29	-7.30	-1,752.98	7,377.11	2,768.14	2,556.94	211.19	13.107	
16,700.00	6,947.00	6,117.00	6,113.48	162.17	183.29	-7.30	-1,752.98	7,377.11	2,860.55	2,648.62	211.93	13.497	
16,800.00	6,947.00	6,117.00	6,113.48	163.74	183.29	-7.30	-1,752.98	7,377.11	2,953.45	2,740.84	212.61	13.892	
16,900.00	6,947.00	6,117.00	6,113.48	165.30	183.29	-7.30	-1,752.98	7,377.11	3,046.81	2,833.58	213.23	14.289	
17,000.00	6,947.00	6,117.00	6,113.48	166.87	183.29	-7.30	-1,752.98	7,377.11	3,140.57	2,926.77	213.80	14.689	
17,100.00	6,947.00	6,117.00	6,113.48	168.44	183.29	-7.30	-1,752.98	7,377.11	3,234.71	3,020.38	214.33	15.092	
17,200.00	6,947.00	6,117.00	6,113.48	170.01	183.29	-7.30	-1,752.98	7,377.11	3,329.19	3,114.38	214.81	15.498	
17,300.00	6,947.00	6,117.00	6,113.48	171.57	183.29	-7.30	-1,752.98	7,377.11	3,423.98	3,208.72	215.27	15.906	
17,400.00	6,947.00	6,117.00	6,113.48	173.14	183.29	-7.30	-1,752.98	7,377.11	3,519.06	3,303.37	215.69	16.315	
17,500.00	6,947.00	6,117.00	6,113.48	174.71	183.29	-7.30	-1,752.98	7,377.11	3,614.41	3,398.33	216.08	16.727	
17,600.00	6,947.00	6,117.00	6,113.48	176.28	183.29	-7.30	-1,752.98	7,377.11	3,710.00	3,493.55	216.45	17.140	
17,700.00	6,947.00	6,117.00	6,113.48	177.86	183.29	-7.30	-1,752.98	7,377.11	3,805.82	3,589.02	216.80	17.555	
17,800.00	6,947.00	6,117.00	6,113.48	179.43	183.29	-7.30	-1,752.98	7,377.11	3,901.85	3,684.72	217.13	17.970	
17,900.00	6,947.00	6,117.00	6,113.48	181.00	183.29	-7.30	-1,752.98	7,377.11	3,998.07	3,780.63	217.44	18.387	
18,000.00	6,947.00	6,117.00	6,113.48	182.57	183.29	-7.30	-1,752.98	7,377.11	4,094.47	3,876.75	217.73	18.805	
18,100.00	6,947.00	6,117.00	6,113.48	184.15	183.29	-7.30	-1,752.98	7,377.11	4,191.05	3,973.04	218.01	19.224	
18,200.00	6,947.00	6,117.00	6,113.48	185.72	183.29	-7.30	-1,752.98	7,377.11	4,287.78	4,069.51	218.27	19.644	
18,300.00	6,947.00	6,117.00	6,113.48	187.30	183.29	-7.30	-1,752.98	7,377.11	4,384.65	4,166.13	218.52	20.065	
18,400.00	6,947.00	6,117.00	6,113.48	188.87	183.29	-7.30	-1,752.98	7,377.11	4,481.67	4,262.90	218.76	20.486	
18,500.00	6,947.00	6,117.00	6,113.48	190.45	183.29	-7.30	-1,752.98	7,377.11	4,578.81	4,359.81	218.99	20.908	
18,600.00	6,947.00	6,117.00	6,113.48	192.02	183.29	-7.30	-1,752.98	7,377.11	4,676.07	4,456.86	219.22	21.331	
18,700.00	6,947.00	6,117.00	6,113.48	193.60	183.29	-7.30	-1,752.98	7,377.11	4,773.45	4,554.02	219.43	21.754	
18,800.00	6,947.00	6,117.00	6,113.48	195.18	183.29	-7.30	-1,752.98	7,377.11	4,870.93	4,651.30	219.63	22.178	
18,900.00	6,947.00	6,117.00	6,113.48	196.75	183.29	-7.30	-1,752.98	7,377.11	4,968.51	4,748.68	219.83	22.601	
19,000.00	6,947.00	6,117.00	6,113.48	198.33	183.29	-7.30	-1,752.98	7,377.11	5,066.19	4,846.17	220.02	23.026	
19,100.00	6,947.00	6,117.00	6,113.48	199.91	183.29	-7.30	-1,752.98	7,377.11	5,163.95	4,943.75	220.21	23.450	
19,200.00	6,947.00	6,117.00	6,113.48	201.49	183.29	-7.30	-1,752.98	7,377.11	5,261.80	5,041.42	220.39	23.875	
19,300.00	6,947.00	6,117.00	6,113.48	203.07	183.29	-7.30	-1,752.98	7,377.11	5,359.73	5,139.17	220.56	24.300	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Rule Assigned:

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
19,400.00	6,947.00	6,117.00	6,113.48	204.65	183.29	-7.30	-1,752.98	7,377.11	5,457.74	5,237.01	220.73	24.726	
19,500.00	6,947.00	6,117.00	6,113.48	206.23	183.29	-7.30	-1,752.98	7,377.11	5,555.81	5,334.92	220.89	25.151	
19,600.00	6,947.00	6,117.00	6,113.48	207.81	183.29	-7.30	-1,752.98	7,377.11	5,653.95	5,432.90	221.06	25.577	
19,700.00	6,947.00	6,117.00	6,113.48	209.39	183.29	-7.30	-1,752.98	7,377.11	5,752.16	5,530.95	221.21	26.003	
19,800.00	6,947.00	6,117.00	6,113.48	210.97	183.29	-7.30	-1,752.98	7,377.11	5,850.43	5,629.06	221.37	26.429	
19,900.00	6,947.00	6,117.00	6,113.48	212.55	183.29	-7.30	-1,752.98	7,377.11	5,948.75	5,727.23	221.52	26.855	
20,000.00	6,947.00	6,117.00	6,113.48	214.13	183.29	-7.30	-1,752.98	7,377.11	6,047.13	5,825.47	221.66	27.281	
20,100.00	6,947.00	6,117.00	6,113.48	215.71	183.29	-7.30	-1,752.98	7,377.11	6,145.56	5,923.76	221.81	27.707	
20,200.00	6,947.00	6,117.00	6,113.48	217.30	183.29	-7.30	-1,752.98	7,377.11	6,244.05	6,022.10	221.95	28.133	
20,300.00	6,947.00	6,117.00	6,113.48	218.88	183.29	-7.30	-1,752.98	7,377.11	6,342.57	6,120.49	222.09	28.559	
20,400.00	6,947.00	6,117.00	6,113.48	220.46	183.29	-7.30	-1,752.98	7,377.11	6,441.15	6,218.92	222.23	28.985	
20,500.00	6,947.00	6,117.00	6,113.48	222.04	183.29	-7.30	-1,752.98	7,377.11	6,539.77	6,317.41	222.36	29.410	
20,600.00	6,947.00	6,117.00	6,113.48	223.63	183.29	-7.30	-1,752.98	7,377.11	6,638.43	6,415.93	222.50	29.836	
20,700.00	6,947.00	6,117.00	6,113.48	225.21	183.29	-7.30	-1,752.98	7,377.11	6,737.13	6,514.50	222.63	30.262	
20,800.00	6,947.00	6,117.00	6,113.48	226.80	183.29	-7.30	-1,752.98	7,377.11	6,835.86	6,613.11	222.76	30.688	
20,900.00	6,947.00	6,117.00	6,113.48	228.38	183.29	-7.30	-1,752.98	7,377.11	6,934.64	6,711.75	222.88	31.113	
21,000.00	6,947.00	6,117.00	6,113.48	229.97	183.29	-7.30	-1,752.98	7,377.11	7,033.44	6,810.43	223.01	31.539	
21,032.01	6,947.00	6,117.00	6,113.48	230.47	183.29	-7.30	-1,752.98	7,377.11	7,065.08	6,842.03	223.05	31.675	
21,032.99	6,947.00	6,117.00	6,113.48	230.51	183.29	-7.30	-1,752.98	7,377.11	7,066.04	6,839.69	226.35	31.217	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 321-APC_ISCWSA REV 2 MWD

Offset Well Error: 0.00 usft

Rule Assigned:

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	122.06	-2,560.94	4,088.79	4,826.44				
100.00	100.00	0.00	0.00	0.25	0.00	122.06	-2,560.94	4,088.79	4,824.70	4,824.45	0.25	N/A	
134.00	134.00	0.00	0.00	0.37	0.00	122.06	-2,560.94	4,088.79	4,824.58	4,824.21	0.37	N/A	
200.00	200.00	61.68	61.68	0.61	0.07	122.06	-2,560.94	4,088.82	4,824.61	4,823.93	0.68	7,106.871	
300.00	300.00	155.13	155.13	0.97	0.17	122.06	-2,560.95	4,088.98	4,824.77	4,823.63	1.14	4,223.811	
400.00	400.00	248.58	248.58	1.33	0.28	122.06	-2,560.98	4,089.29	4,825.06	4,823.46	1.61	3,004.956	
500.00	500.00	353.92	353.91	1.68	0.43	122.05	-2,560.86	4,089.86	4,825.46	4,823.35	2.12	2,279.758	
600.00	599.98	499.25	499.09	2.03	0.76	-43.06	-2,555.34	4,092.63	4,823.71	4,820.94	2.78	1,736.598	
700.00	699.84	567.95	567.45	2.36	0.93	-43.23	-2,549.40	4,095.81	4,819.34	4,816.05	3.29	1,466.445	
800.00	799.45	624.79	623.79	2.71	1.08	-43.44	-2,543.17	4,099.96	4,813.42	4,809.63	3.79	1,271.408	
900.00	898.70	682.00	680.38	3.06	1.26	-43.70	-2,536.44	4,104.95	4,805.84	4,801.53	4.31	1,114.771	
1,000.00	997.47	772.00	769.12	3.43	1.56	-44.12	-2,524.56	4,114.12	4,796.38	4,791.41	4.97	964.203	
1,100.00	1,095.62	942.85	935.84	3.82	2.25	-45.01	-2,493.36	4,134.28	4,783.12	4,777.07	6.05	791.167	
1,200.00	1,193.44	1,027.32	1,017.10	4.22	2.68	-45.43	-2,473.78	4,146.42	4,769.02	4,762.17	6.85	696.069	
1,300.00	1,291.25	1,107.15	1,092.98	4.64	3.13	-45.87	-2,452.71	4,159.49	4,755.43	4,747.74	7.69	618.196	
1,400.00	1,389.07	1,170.30	1,152.24	5.06	3.53	-46.24	-2,434.22	4,171.06	4,742.55	4,734.07	8.48	559.227	
1,500.00	1,486.88	1,234.00	1,211.40	5.48	3.95	-46.63	-2,414.42	4,183.91	4,730.77	4,721.46	9.30	508.557	
1,600.00	1,584.70	1,306.82	1,278.33	5.91	4.48	-47.10	-2,390.42	4,199.61	4,719.86	4,709.63	10.23	461.199	
1,700.00	1,682.51	1,368.49	1,334.48	6.35	4.95	-47.51	-2,369.03	4,213.51	4,709.65	4,698.54	11.11	423.972	
1,800.00	1,780.33	1,420.00	1,381.04	6.78	5.35	-47.86	-2,350.70	4,225.71	4,700.60	4,688.68	11.92	394.451	
1,900.00	1,878.14	1,479.89	1,434.88	7.22	5.85	-48.28	-2,329.00	4,240.47	4,692.69	4,679.88	12.81	366.206	
2,000.00	1,975.96	1,545.00	1,493.09	7.66	6.39	-48.74	-2,304.99	4,257.04	4,685.85	4,672.08	13.77	340.375	
2,100.00	2,073.77	1,623.93	1,563.06	8.10	7.07	-49.31	-2,274.90	4,277.74	4,679.90	4,665.05	14.85	315.108	
2,200.00	2,171.59	1,700.00	1,630.17	8.54	7.73	-49.87	-2,245.20	4,297.74	4,674.48	4,658.57	15.92	293.691	
2,300.00	2,269.40	1,765.71	1,687.92	8.98	8.31	-50.36	-2,219.20	4,315.29	4,670.02	4,653.12	16.90	276.329	
2,400.00	2,367.22	1,829.08	1,743.35	9.43	8.86	-50.84	-2,193.97	4,332.77	4,666.87	4,649.03	17.84	261.548	
2,500.00	2,465.03	2,448.00	2,289.37	9.87	13.81	-55.44	-1,940.90	4,469.34	4,660.96	4,637.79	23.17	201.172	
2,600.00	2,562.84	2,448.00	2,289.37	10.32	13.81	-55.44	-1,940.90	4,469.34	4,650.95	4,627.35	23.60	197.084	
2,700.00	2,660.66	2,448.00	2,289.37	10.77	13.81	-55.44	-1,940.90	4,469.34	4,643.07	4,619.05	24.02	193.289	
2,800.00	2,758.47	2,448.00	2,289.37	11.21	13.81	-55.44	-1,940.90	4,469.34	4,637.34	4,612.90	24.44	189.774	
2,900.00	2,856.29	2,448.00	2,289.37	11.66	13.81	-55.44	-1,940.90	4,469.34	4,633.76	4,608.92	24.84	186.527	
3,000.00	2,954.10	2,448.00	2,289.37	12.11	13.81	-55.44	-1,940.90	4,469.34	4,632.34	4,607.10	25.24	183.537	
3,016.00	2,969.75	2,448.00	2,289.37	12.18	13.81	-55.44	-1,940.90	4,469.34	4,632.31	4,607.01	25.30	183.082	
3,100.00	3,051.92	2,516.61	2,349.55	12.56	14.40	-55.96	-1,912.79	4,486.53	4,632.56	4,606.34	26.22	176.689	
3,200.00	3,149.73	2,650.62	2,467.57	13.01	15.52	-56.97	-1,858.22	4,518.93	4,632.87	4,605.16	27.72	167.139	
3,300.00	3,247.55	2,748.65	2,555.04	13.45	16.29	-57.68	-1,820.19	4,541.58	4,633.61	4,604.74	28.87	160.479	
3,400.00	3,345.36	2,842.99	2,640.53	13.90	17.00	-58.34	-1,786.20	4,562.44	4,634.80	4,604.84	29.96	154.695	
3,500.00	3,443.18	2,951.53	2,740.02	14.35	17.77	-59.07	-1,749.53	4,585.61	4,636.47	4,605.36	31.11	149.024	
3,600.00	3,540.99	3,150.41	2,926.18	14.80	19.05	-60.29	-1,690.58	4,622.99	4,637.32	4,604.57	32.76	141.575	
3,700.00	3,638.81	3,303.72	3,073.11	15.25	19.87	-61.13	-1,654.03	4,646.93	4,637.00	4,603.05	33.95	136.574	
3,800.00	3,736.62	3,566.69	3,330.14	15.70	20.95	-62.34	-1,607.51	4,676.41	4,633.40	4,597.99	35.41	130.862	
3,900.00	3,834.44	3,715.75	3,477.92	16.15	21.37	-62.89	-1,592.30	4,687.87	4,629.13	4,592.90	36.22	127.795	
4,000.00	3,932.25	3,792.34	3,554.14	16.60	21.53	-63.15	-1,586.80	4,693.08	4,624.76	4,587.98	36.78	125.731	
4,100.00	4,030.07	3,878.63	3,640.03	17.05	21.72	-63.43	-1,580.97	4,699.03	4,620.75	4,583.37	37.38	123.629	
4,200.00	4,127.88	3,965.04	3,726.03	17.50	21.91	-63.71	-1,575.34	4,705.14	4,617.09	4,579.12	37.97	121.602	
4,300.00	4,225.70	4,068.96	3,829.49	17.96	22.13	-64.05	-1,568.82	4,712.53	4,613.67	4,575.08	38.59	119.558	
4,400.00	4,323.51	4,180.89	3,940.96	18.41	22.37	-64.41	-1,562.01	4,720.10	4,610.09	4,570.87	39.22	117.537	
4,500.00	4,421.33	4,292.96	4,052.60	18.86	22.61	-64.76	-1,555.43	4,727.26	4,606.34	4,566.48	39.85	115.578	
4,600.00	4,519.14	4,405.15	4,164.41	19.31	22.84	-65.12	-1,549.06	4,734.01	4,602.40	4,561.91	40.49	113.676	
4,700.00	4,616.95	4,509.67	4,268.60	19.76	23.05	-65.44	-1,543.36	4,739.94	4,598.31	4,557.22	41.09	111.898	
4,800.00	4,714.77	4,605.50	4,364.17	20.21	23.23	-65.74	-1,538.58	4,745.27	4,594.33	4,552.65	41.67	110.248	
4,900.00	4,812.58	4,701.59	4,460.01	20.66	23.41	-66.03	-1,534.27	4,750.57	4,590.49	4,548.24	42.25	108.646	

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 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

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

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,000.00	4,910.40	4,797.91	4,556.11	21.11	23.59	-66.31	-1,530.44	4,755.81	4,586.80	4,543.97	42.83	107.088	
5,100.00	5,008.21	4,894.47	4,652.48	21.57	23.77	-66.59	-1,527.08	4,761.02	4,583.24	4,539.83	43.41	105.574	
5,200.00	5,106.03	4,990.06	4,747.88	22.02	23.93	-66.87	-1,524.25	4,766.11	4,579.82	4,535.85	43.97	104.146	
5,300.00	5,203.84	5,084.76	4,842.43	22.47	24.08	-67.13	-1,521.99	4,771.14	4,576.56	4,532.04	44.52	102.796	
5,400.00	5,301.66	5,179.72	4,937.24	22.92	24.22	-67.39	-1,520.27	4,776.16	4,573.46	4,528.40	45.07	101.481	
5,500.00	5,399.47	5,274.92	5,032.30	23.37	24.37	-67.64	-1,519.11	4,781.18	4,570.52	4,524.91	45.61	100.199	
5,600.00	5,497.29	5,370.36	5,127.60	23.82	24.52	-67.88	-1,518.50	4,786.19	4,567.73	4,521.56	46.16	98.949	
5,700.00	5,595.10	5,467.08	5,224.19	24.28	24.66	-68.13	-1,518.37	4,791.25	4,565.06	4,518.36	46.70	97.750	
5,800.00	5,692.92	5,564.59	5,321.57	24.73	24.79	-68.37	-1,518.40	4,796.35	4,562.50	4,515.27	47.23	96.593	
5,900.00	5,790.73	5,662.16	5,419.00	25.18	24.93	-68.61	-1,518.57	4,801.45	4,560.04	4,512.27	47.77	95.464	
6,000.00	5,888.55	5,759.78	5,516.49	25.63	25.07	-68.85	-1,518.86	4,806.54	4,557.66	4,509.36	48.30	94.361	
6,100.00	5,986.36	5,857.45	5,614.03	26.08	25.20	-69.09	-1,519.28	4,811.63	4,555.38	4,506.55	48.83	93.284	
6,200.00	6,084.18	5,955.97	5,712.42	26.54	25.34	-69.34	-1,519.75	4,816.76	4,553.19	4,503.82	49.37	92.225	
6,300.00	6,181.99	6,054.65	5,810.96	26.99	25.48	-69.58	-1,520.04	4,821.90	4,551.06	4,501.16	49.91	91.188	
6,400.00	6,279.81	6,153.25	5,909.43	27.44	25.62	-69.83	-1,520.15	4,827.04	4,549.01	4,498.57	50.45	90.176	
6,500.00	6,377.62	6,251.78	6,007.82	27.89	25.76	-70.08	-1,520.08	4,832.18	4,547.03	4,496.05	50.98	89.188	
6,530.62	6,407.57	6,281.94	6,037.94	28.03	25.81	-70.15	-1,520.03	4,833.75	4,546.44	4,495.30	51.15	88.890	
6,550.00	6,426.48	6,300.99	6,056.96	28.12	25.83	-64.75	-1,519.98	4,834.74	4,545.80	4,494.55	51.25	88.696	
6,600.00	6,474.77	6,349.74	6,105.65	28.36	25.90	-54.99	-1,519.84	4,837.29	4,541.66	4,490.13	51.53	88.139	
6,650.00	6,522.09	6,404.87	6,160.70	28.62	25.98	-49.13	-1,519.66	4,840.14	4,533.95	4,482.13	51.82	87.498	
6,700.00	6,568.15	6,467.29	6,223.05	28.89	26.05	-45.56	-1,519.66	4,843.17	4,522.60	4,470.49	52.12	86.777	
6,750.00	6,612.66	6,527.89	6,283.58	29.18	26.12	-43.42	-1,519.88	4,845.89	4,507.70	4,455.28	52.42	85.991	
6,800.00	6,655.36	6,586.27	6,341.91	29.48	26.19	-42.29	-1,520.31	4,848.29	4,489.35	4,436.63	52.72	85.149	
6,850.00	6,695.98	6,642.03	6,397.64	29.79	26.26	-41.91	-1,520.93	4,850.40	4,467.70	4,414.67	53.03	84.255	
6,900.00	6,734.26	6,694.82	6,450.38	30.11	26.33	-42.18	-1,521.68	4,852.22	4,442.91	4,389.58	53.32	83.318	
6,950.00	6,769.98	6,744.28	6,499.81	30.45	26.39	-43.02	-1,522.55	4,853.77	4,415.17	4,361.55	53.62	82.344	
7,000.00	6,802.91	6,790.08	6,545.59	30.79	26.44	-44.44	-1,523.49	4,855.08	4,384.68	4,330.77	53.91	81.339	
7,050.00	6,832.85	6,831.94	6,587.42	31.15	26.49	-46.43	-1,524.46	4,856.16	4,351.66	4,297.48	54.19	80.308	
7,100.00	6,859.62	6,869.59	6,625.05	31.51	26.54	-49.06	-1,525.42	4,857.04	4,316.36	4,261.90	54.46	79.258	
7,150.00	6,883.05	6,915.35	6,670.78	31.89	26.58	-52.57	-1,526.67	4,857.95	4,278.98	4,224.26	54.72	78.196	
7,200.00	6,902.99	6,955.43	6,710.84	32.28	26.60	-56.92	-1,527.80	4,858.55	4,239.75	4,184.78	54.97	77.126	
7,250.00	6,919.32	6,988.22	6,743.61	32.67	26.63	-62.15	-1,528.74	4,858.92	4,198.99	4,143.77	55.21	76.052	
7,300.00	6,931.95	7,013.66	6,769.04	33.08	26.65	-68.30	-1,529.49	4,859.12	4,156.97	4,101.53	55.44	74.979	
7,350.00	6,940.79	7,031.74	6,787.12	33.49	26.66	-75.35	-1,530.02	4,859.22	4,114.01	4,058.35	55.66	73.912	
7,400.00	6,945.79	7,042.53	6,797.90	33.90	26.67	-83.15	-1,530.34	4,859.26	4,070.39	4,014.52	55.87	72.853	
7,439.53	6,947.00	7,045.95	6,801.32	34.24	26.67	-89.65	-1,530.45	4,859.27	4,035.62	3,979.59	56.03	72.025	
7,500.00	6,947.00	7,047.74	6,803.11	34.75	26.67	-89.69	-1,530.50	4,859.27	3,982.13	3,925.86	56.27	70.767	
7,600.00	6,947.00	7,050.49	6,805.85	35.63	26.68	-89.76	-1,530.58	4,859.28	3,892.81	3,836.14	56.67	68.691	
7,700.00	6,947.00	7,052.99	6,808.35	36.54	26.68	-89.83	-1,530.66	4,859.28	3,802.45	3,745.38	57.07	66.625	
7,800.00	6,947.00	7,055.25	6,810.61	37.47	26.68	-89.91	-1,530.72	4,859.29	3,711.09	3,653.62	57.47	64.572	
7,900.00	6,947.00	7,057.27	6,812.63	38.43	26.68	-89.98	-1,530.79	4,859.29	3,618.77	3,560.91	57.87	62.536	
8,000.00	6,947.00	7,059.07	6,814.43	39.41	26.68	-90.07	-1,530.84	4,859.30	3,525.54	3,467.28	58.26	60.518	
8,100.00	6,947.00	7,060.64	6,816.00	40.40	26.68	-90.15	-1,530.89	4,859.30	3,431.43	3,372.79	58.64	58.520	
8,200.00	6,947.00	7,062.00	6,817.37	41.42	26.68	-90.25	-1,530.93	4,859.30	3,336.49	3,277.48	59.01	56.546	
8,300.00	6,947.00	7,063.16	6,818.52	42.44	26.68	-90.35	-1,530.96	4,859.30	3,240.77	3,181.41	59.36	54.596	
8,400.00	6,947.00	7,064.12	6,819.48	43.48	26.69	-90.47	-1,530.99	4,859.30	3,144.32	3,084.62	59.70	52.672	
8,500.00	6,947.00	7,064.89	6,820.25	44.53	26.69	-90.61	-1,531.02	4,859.30	3,047.20	2,987.18	60.01	50.775	
8,600.00	6,947.00	7,065.48	6,820.84	45.58	26.69	-90.77	-1,531.03	4,859.30	2,949.45	2,889.15	60.31	48.907	
8,700.00	6,947.00	7,065.90	6,821.26	46.63	26.69	-90.98	-1,531.05	4,859.30	2,851.15	2,790.58	60.57	47.069	
8,800.00	6,947.00	7,066.15	6,821.51	47.69	26.69	-91.26	-1,531.05	4,859.30	2,752.36	2,691.55	60.81	45.262	
8,841.31	6,947.00	7,066.21	6,821.57	48.13	26.69	-91.41	-1,531.06	4,859.30	2,711.43	2,650.53	60.90	44.524	
8,900.00	6,947.00	7,066.27	6,821.63	48.76	26.69	-91.42	-1,531.06	4,859.30	2,653.23	2,592.21	61.02	43.482	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

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

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,000.00	6,947.00	7,066.37	6,821.73	49.85	26.69	-91.44	-1,531.06	4,859.30	2,554.12	2,492.88	61.24	41.706	
9,100.00	6,947.00	7,066.47	6,821.83	50.97	26.69	-91.46	-1,531.06	4,859.30	2,455.09	2,393.61	61.48	39.933	
9,200.00	6,947.00	7,066.56	6,821.92	52.12	26.69	-91.47	-1,531.07	4,859.30	2,356.14	2,294.40	61.74	38.162	
9,300.00	6,947.00	7,066.65	6,822.01	53.28	26.69	-91.49	-1,531.07	4,859.30	2,257.28	2,195.25	62.02	36.394	
9,400.00	6,947.00	7,066.74	6,822.10	54.48	26.69	-91.50	-1,531.07	4,859.30	2,158.52	2,096.19	62.33	34.629	
9,500.00	6,947.00	7,066.83	6,822.19	55.69	26.69	-91.52	-1,531.08	4,859.30	2,059.89	1,997.21	62.67	32.867	
9,600.00	6,947.00	7,066.92	6,822.27	56.92	26.69	-91.53	-1,531.08	4,859.30	1,961.39	1,898.34	63.05	31.109	
9,700.00	6,947.00	7,067.00	6,822.36	58.17	26.69	-91.54	-1,531.08	4,859.30	1,863.05	1,799.59	63.46	29.356	
9,800.00	6,947.00	7,067.08	6,822.44	59.44	26.69	-91.56	-1,531.08	4,859.30	1,764.90	1,700.97	63.93	27.608	
9,900.00	6,947.00	7,067.15	6,822.51	60.73	26.69	-91.57	-1,531.08	4,859.30	1,666.97	1,602.52	64.44	25.867	
10,000.00	6,947.00	7,067.23	6,822.59	62.03	26.69	-91.58	-1,531.09	4,859.30	1,569.30	1,504.27	65.03	24.133	
10,100.00	6,947.00	7,067.30	6,822.66	63.34	26.69	-91.60	-1,531.09	4,859.30	1,471.94	1,406.25	65.69	22.407	
10,200.00	6,947.00	7,067.38	6,822.73	64.67	26.69	-91.61	-1,531.09	4,859.30	1,374.97	1,308.52	66.45	20.693	
10,300.00	6,947.00	7,067.45	6,822.80	66.01	26.69	-91.62	-1,531.09	4,859.30	1,278.45	1,211.14	67.32	18.991	
10,400.00	6,947.00	7,067.51	6,822.87	67.36	26.69	-91.63	-1,531.10	4,859.30	1,182.52	1,114.19	68.33	17.306	
10,500.00	6,947.00	7,067.58	6,822.94	68.73	26.69	-91.64	-1,531.10	4,859.30	1,087.32	1,017.81	69.52	15.641	
10,600.00	6,947.00	7,067.64	6,823.00	70.10	26.69	-91.65	-1,531.10	4,859.30	993.07	922.14	70.93	14.001	
10,700.00	6,947.00	7,067.71	6,823.07	71.48	26.69	-91.66	-1,531.10	4,859.30	900.06	827.45	72.61	12.395	
10,800.00	6,947.00	7,067.77	6,823.13	72.88	26.69	-91.67	-1,531.10	4,859.30	808.71	734.06	74.65	10.833	
10,900.00	6,947.00	7,067.83	6,823.19	74.28	26.69	-91.68	-1,531.11	4,859.30	719.68	642.53	77.14	9.329	
11,000.00	6,947.00	7,067.89	6,823.25	75.69	26.69	-91.69	-1,531.11	4,859.30	633.91	553.71	80.21	7.904	
11,100.00	6,947.00	7,067.94	6,823.30	77.10	26.69	-91.70	-1,531.11	4,859.30	552.96	468.99	83.97	6.585	
11,200.00	6,947.00	7,068.00	6,823.36	78.53	26.69	-91.71	-1,531.11	4,859.30	479.25	390.73	88.51	5.414	
11,300.00	6,947.00	7,068.05	6,823.41	79.96	26.69	-91.72	-1,531.11	4,859.30	416.64	322.96	93.68	4.448	
11,400.00	6,947.00	7,068.11	6,823.47	81.40	26.69	-91.73	-1,531.11	4,859.30	370.82	272.24	98.58	3.762	
11,500.00	6,947.00	7,068.16	6,823.52	82.84	26.69	-91.74	-1,531.12	4,859.30	348.45	247.55	100.91	3.453	
11,530.43	6,947.00	7,068.18	6,823.53	83.28	26.69	-91.74	-1,531.12	4,859.30	347.12	246.46	100.67	3.448	CC, ES, SF
11,600.00	6,947.00	7,068.21	6,823.57	84.29	26.69	-91.75	-1,531.12	4,859.30	354.03	255.84	98.19	3.606	
11,700.00	6,947.00	7,068.26	6,823.62	85.75	26.69	-91.75	-1,531.12	4,859.30	386.33	295.32	91.01	4.245	
11,800.00	6,947.00	7,068.31	6,823.67	87.21	26.69	-91.76	-1,531.12	4,859.30	439.50	357.09	82.41	5.333	
11,900.00	6,947.00	7,068.36	6,823.72	88.68	26.69	-91.77	-1,531.12	4,859.30	507.03	432.32	74.71	6.787	
12,000.00	6,947.00	7,068.40	6,823.76	90.15	26.69	-91.78	-1,531.12	4,859.30	583.95	515.28	68.67	8.504	
12,100.00	6,947.00	7,068.45	6,823.81	91.62	26.69	-91.78	-1,531.12	4,859.30	667.01	602.78	64.23	10.385	
12,200.00	6,947.00	7,068.50	6,823.85	93.10	26.69	-91.79	-1,531.13	4,859.30	754.20	693.13	61.08	12.348	
12,300.00	6,947.00	7,068.54	6,823.90	94.59	26.69	-91.80	-1,531.13	4,859.30	844.24	785.36	58.88	14.339	
12,400.00	6,947.00	7,068.58	6,823.94	96.07	26.69	-91.81	-1,531.13	4,859.30	936.30	878.93	57.36	16.322	
12,500.00	6,947.00	7,068.62	6,823.98	97.56	26.69	-91.81	-1,531.13	4,859.30	1,029.84	973.51	56.33	18.282	
12,600.00	6,947.00	7,068.67	6,824.02	99.06	26.69	-91.82	-1,531.13	4,859.30	1,124.49	1,068.85	55.64	20.211	
12,700.00	6,947.00	7,068.71	6,824.06	100.56	26.69	-91.83	-1,531.13	4,859.30	1,220.00	1,164.82	55.18	22.109	
12,800.00	6,947.00	7,068.75	6,824.10	102.06	26.69	-91.83	-1,531.13	4,859.30	1,316.17	1,261.28	54.89	23.978	
12,900.00	6,947.00	7,068.78	6,824.14	103.56	26.69	-91.84	-1,531.13	4,859.30	1,412.88	1,358.16	54.72	25.822	
13,000.00	6,947.00	7,068.82	6,824.18	105.07	26.69	-91.85	-1,531.14	4,859.30	1,510.01	1,455.39	54.63	27.642	
13,100.00	6,947.00	7,068.86	6,824.22	106.58	26.69	-91.85	-1,531.14	4,859.30	1,607.50	1,552.90	54.60	29.444	
13,200.00	6,947.00	7,068.90	6,824.26	108.10	26.69	-91.86	-1,531.14	4,859.30	1,705.28	1,650.67	54.61	31.229	
13,300.00	6,947.00	7,068.93	6,824.29	109.61	26.69	-91.86	-1,531.14	4,859.30	1,803.30	1,748.65	54.65	32.999	
13,400.00	6,947.00	7,068.97	6,824.33	111.13	26.69	-91.87	-1,531.14	4,859.30	1,901.52	1,846.81	54.71	34.756	
13,500.00	6,947.00	7,069.00	6,824.36	112.65	26.69	-91.88	-1,531.14	4,859.30	1,999.93	1,945.14	54.79	36.502	
13,600.00	6,947.00	7,069.04	6,824.40	114.17	26.69	-91.88	-1,531.14	4,859.30	2,098.48	2,043.60	54.88	38.238	
13,700.00	6,947.00	7,069.07	6,824.43	115.70	26.69	-91.89	-1,531.14	4,859.30	2,197.17	2,142.19	54.98	39.965	
13,800.00	6,947.00	7,069.10	6,824.46	117.23	26.69	-91.89	-1,531.14	4,859.30	2,295.96	2,240.88	55.08	41.684	
13,900.00	6,947.00	7,069.14	6,824.49	118.76	26.69	-91.90	-1,531.14	4,859.30	2,394.86	2,339.68	55.19	43.395	
14,000.00	6,947.00	7,069.17	6,824.53	120.29	26.69	-91.90	-1,531.15	4,859.30	2,493.85	2,438.55	55.30	45.099	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

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

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,100.00	6,947.00	7,069.20	6,824.56	121.82	26.69	-91.91	-1,531.15	4,859.30	2,592.91	2,537.51	55.41	46.797	
14,200.00	6,947.00	7,069.23	6,824.59	123.36	26.69	-91.91	-1,531.15	4,859.30	2,692.05	2,636.53	55.52	48.489	
14,300.00	6,947.00	7,069.26	6,824.62	124.89	26.69	-91.92	-1,531.15	4,859.30	2,791.24	2,735.61	55.63	50.174	
14,400.00	6,947.00	7,069.29	6,824.65	126.43	26.69	-91.92	-1,531.15	4,859.30	2,890.49	2,834.75	55.74	51.854	
14,500.00	6,947.00	7,069.32	6,824.68	127.97	26.69	-91.93	-1,531.15	4,859.30	2,989.79	2,933.94	55.85	53.529	
14,600.00	6,947.00	7,069.35	6,824.70	129.51	26.69	-91.93	-1,531.15	4,859.30	3,089.14	3,033.17	55.96	55.199	
14,700.00	6,947.00	7,069.37	6,824.73	131.06	26.69	-91.94	-1,531.15	4,859.30	3,188.52	3,132.45	56.07	56.863	
14,800.00	6,947.00	7,069.40	6,824.76	132.60	26.69	-91.94	-1,531.15	4,859.30	3,287.95	3,231.77	56.18	58.522	
14,900.00	6,947.00	7,069.43	6,824.79	134.15	26.69	-91.95	-1,531.15	4,859.30	3,387.41	3,331.11	56.29	60.177	
15,000.00	6,947.00	7,069.46	6,824.81	135.70	26.69	-91.95	-1,531.15	4,859.30	3,486.89	3,430.50	56.40	61.827	
15,100.00	6,947.00	7,069.48	6,824.84	137.24	26.69	-91.96	-1,531.16	4,859.30	3,586.41	3,529.91	56.50	63.472	
15,200.00	6,947.00	7,069.51	6,824.87	138.79	26.69	-91.96	-1,531.16	4,859.30	3,685.95	3,629.34	56.61	65.112	
15,300.00	6,947.00	7,069.53	6,824.89	140.35	26.69	-91.96	-1,531.16	4,859.30	3,785.52	3,728.81	56.71	66.748	
15,400.00	6,947.00	7,069.56	6,824.92	141.90	26.69	-91.97	-1,531.16	4,859.30	3,885.11	3,828.29	56.82	68.379	
15,500.00	6,947.00	7,069.58	6,824.94	143.45	26.69	-91.97	-1,531.16	4,859.30	3,984.72	3,927.80	56.92	70.006	
15,600.00	6,947.00	7,069.61	6,824.97	145.01	26.69	-91.98	-1,531.16	4,859.30	4,084.35	4,027.33	57.02	71.628	
15,700.00	6,947.00	7,069.63	6,824.99	146.56	26.69	-91.98	-1,531.16	4,859.30	4,184.00	4,126.87	57.12	73.245	
15,800.00	6,947.00	7,069.66	6,825.01	148.12	26.69	-91.98	-1,531.16	4,859.30	4,283.66	4,226.44	57.22	74.859	
15,900.00	6,947.00	7,069.68	6,825.04	149.68	26.69	-91.99	-1,531.16	4,859.30	4,383.34	4,326.02	57.32	76.467	
16,000.00	6,947.00	7,069.70	6,825.06	151.23	26.69	-91.99	-1,531.16	4,859.30	4,483.03	4,425.61	57.42	78.071	
16,100.00	6,947.00	7,069.73	6,825.08	152.79	26.69	-92.00	-1,531.16	4,859.30	4,582.74	4,525.22	57.52	79.671	
16,200.00	6,947.00	7,069.75	6,825.11	154.36	26.69	-92.00	-1,531.16	4,859.30	4,682.46	4,624.84	57.62	81.266	
16,300.00	6,947.00	7,069.77	6,825.13	155.92	26.69	-92.00	-1,531.16	4,859.30	4,782.19	4,724.47	57.72	82.856	
16,400.00	6,947.00	7,069.79	6,825.15	157.48	26.69	-92.01	-1,531.16	4,859.30	4,881.93	4,824.12	57.81	84.443	
16,500.00	6,947.00	7,069.81	6,825.17	159.04	26.69	-92.01	-1,531.17	4,859.30	4,981.68	4,923.77	57.91	86.024	
16,600.00	6,947.00	7,069.83	6,825.19	160.61	26.69	-92.01	-1,531.17	4,859.30	5,081.44	5,023.44	58.01	87.601	
16,700.00	6,947.00	7,069.85	6,825.21	162.17	26.69	-92.02	-1,531.17	4,859.30	5,181.21	5,123.11	58.10	89.174	
16,800.00	6,947.00	7,069.87	6,825.23	163.74	26.69	-92.02	-1,531.17	4,859.30	5,280.99	5,222.80	58.20	90.742	
16,900.00	6,947.00	7,069.90	6,825.25	165.30	26.69	-92.02	-1,531.17	4,859.30	5,380.78	5,322.49	58.29	92.305	
17,000.00	6,947.00	7,069.91	6,825.27	166.87	26.69	-92.03	-1,531.17	4,859.30	5,480.58	5,422.19	58.39	93.864	
17,100.00	6,947.00	7,069.93	6,825.29	168.44	26.69	-92.03	-1,531.17	4,859.30	5,580.38	5,521.90	58.48	95.419	
17,200.00	6,947.00	7,069.95	6,825.31	170.01	26.69	-92.03	-1,531.17	4,859.30	5,680.19	5,621.61	58.58	96.969	
17,300.00	6,947.00	7,069.97	6,825.33	171.57	26.69	-92.04	-1,531.17	4,859.30	5,780.01	5,721.33	58.67	98.514	
17,400.00	6,947.00	7,069.99	6,825.35	173.14	26.69	-92.04	-1,531.17	4,859.30	5,879.83	5,821.06	58.77	100.055	
17,500.00	6,947.00	7,070.01	6,825.37	174.71	26.69	-92.04	-1,531.17	4,859.30	5,979.66	5,920.80	58.86	101.591	
17,600.00	6,947.00	7,070.03	6,825.39	176.28	26.69	-92.05	-1,531.17	4,859.30	6,079.49	6,020.54	58.95	103.122	
17,700.00	6,947.00	7,070.05	6,825.40	177.86	26.69	-92.05	-1,531.17	4,859.30	6,179.33	6,120.28	59.05	104.649	
17,800.00	6,947.00	7,070.06	6,825.42	179.43	26.69	-92.05	-1,531.17	4,859.30	6,279.17	6,220.03	59.14	106.172	
17,900.00	6,947.00	7,070.08	6,825.44	181.00	26.69	-92.05	-1,531.17	4,859.30	6,379.02	6,319.79	59.24	107.689	
18,000.00	6,947.00	7,070.10	6,825.46	182.57	26.69	-92.06	-1,531.17	4,859.30	6,478.88	6,419.55	59.33	109.202	
18,100.00	6,947.00	7,070.12	6,825.47	184.15	26.69	-92.06	-1,531.17	4,859.30	6,578.74	6,519.31	59.42	110.711	
18,200.00	6,947.00	7,070.13	6,825.49	185.72	26.69	-92.06	-1,531.18	4,859.30	6,678.60	6,619.08	59.52	112.214	
18,300.00	6,947.00	7,070.15	6,825.51	187.30	26.69	-92.07	-1,531.18	4,859.30	6,778.47	6,718.86	59.61	113.713	
18,400.00	6,947.00	7,070.17	6,825.52	188.87	26.69	-92.07	-1,531.18	4,859.30	6,878.34	6,818.63	59.70	115.208	
18,500.00	6,947.00	7,070.18	6,825.54	190.45	26.69	-92.07	-1,531.18	4,859.30	6,978.21	6,918.41	59.80	116.698	
18,600.00	6,947.00	7,070.20	6,825.56	192.02	26.69	-92.07	-1,531.18	4,859.30	7,078.09	7,018.20	59.89	118.183	
18,700.00	6,947.00	7,070.21	6,825.57	193.60	26.69	-92.08	-1,531.18	4,859.30	7,177.97	7,117.99	59.98	119.663	
18,800.00	6,947.00	7,070.23	6,825.59	195.18	26.69	-92.08	-1,531.18	4,859.30	7,277.86	7,217.78	60.08	121.138	
18,900.00	6,947.00	7,070.25	6,825.60	196.75	26.69	-92.08	-1,531.18	4,859.30	7,377.74	7,317.57	60.17	122.609	
19,000.00	6,947.00	7,070.26	6,825.62	198.33	26.69	-92.08	-1,531.18	4,859.30	7,477.63	7,417.37	60.27	124.075	
19,100.00	6,947.00	7,070.28	6,825.63	199.91	26.69	-92.09	-1,531.18	4,859.30	7,577.53	7,517.17	60.36	125.537	
19,200.00	6,947.00	7,070.29	6,825.65	201.49	26.69	-92.09	-1,531.18	4,859.30	7,677.42	7,616.97	60.46	126.994	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 321-APC_ISCWSA REV 2 MWD

Rule Assigned:

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
19,300.00	6,947.00	7,070.31	6,825.66	203.07	26.69	-92.09	-1,531.18	4,859.30	7,777.32	7,716.77	60.55	128.445	
19,400.00	6,947.00	7,070.32	6,825.68	204.65	26.69	-92.09	-1,531.18	4,859.30	7,877.22	7,816.58	60.64	129.893	
19,500.00	6,947.00	7,070.34	6,825.69	206.23	26.69	-92.10	-1,531.18	4,859.30	7,977.13	7,916.39	60.74	131.335	
19,600.00	6,947.00	7,070.35	6,825.71	207.81	26.69	-92.10	-1,531.18	4,859.30	8,077.04	8,016.20	60.83	132.773	
19,700.00	6,947.00	7,070.36	6,825.72	209.39	26.69	-92.10	-1,531.18	4,859.30	8,176.94	8,116.02	60.93	134.206	
19,800.00	6,947.00	7,070.38	6,825.74	210.97	26.69	-92.10	-1,531.18	4,859.30	8,276.85	8,215.83	61.02	135.634	
19,900.00	6,947.00	7,070.39	6,825.75	212.55	26.69	-92.10	-1,531.18	4,859.30	8,376.77	8,315.65	61.12	137.057	
20,000.00	6,947.00	7,070.40	6,825.76	214.13	26.69	-92.11	-1,531.18	4,859.30	8,476.68	8,415.47	61.21	138.476	
20,100.00	6,947.00	7,070.42	6,825.78	215.71	26.69	-92.11	-1,531.18	4,859.30	8,576.60	8,515.29	61.31	139.890	
20,200.00	6,947.00	7,070.43	6,825.79	217.30	26.69	-92.11	-1,531.18	4,859.30	8,676.52	8,615.11	61.41	141.299	
20,300.00	6,947.00	7,070.44	6,825.80	218.88	26.69	-92.11	-1,531.18	4,859.30	8,776.44	8,714.94	61.50	142.703	
20,400.00	6,947.00	7,070.46	6,825.82	220.46	26.69	-92.12	-1,531.19	4,859.30	8,876.36	8,814.77	61.60	144.103	
20,500.00	6,947.00	7,070.47	6,825.83	222.04	26.69	-92.12	-1,531.19	4,859.30	8,976.29	8,914.59	61.69	145.497	
20,600.00	6,947.00	7,070.48	6,825.84	223.63	26.69	-92.12	-1,531.19	4,859.30	9,076.21	9,014.42	61.79	146.887	
20,700.00	6,947.00	7,070.50	6,825.85	225.21	26.69	-92.12	-1,531.19	4,859.30	9,176.14	9,114.25	61.89	148.272	
20,800.00	6,947.00	7,070.51	6,825.87	226.80	26.69	-92.12	-1,531.19	4,859.30	9,276.07	9,214.09	61.98	149.653	
20,900.00	6,947.00	7,070.52	6,825.88	228.38	26.69	-92.13	-1,531.19	4,859.30	9,376.00	9,313.92	62.08	151.028	
21,000.00	6,947.00	7,070.53	6,825.89	229.97	26.69	-92.13	-1,531.19	4,859.30	9,475.93	9,413.75	62.18	152.399	
21,032.01	6,947.00	7,070.54	6,825.89	230.47	26.69	-92.13	-1,531.19	4,859.30	9,507.92	9,445.71	62.21	152.837	
21,032.99	6,947.00	7,070.54	6,825.89	230.51	26.69	-92.13	-1,531.19	4,859.30	9,508.90	9,442.38	66.51	142.966	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Rule Assigned: Warning
0.00	0.00	193.00	193.00	0.00	5.78	80.82	2,119.62	13,120.82	13,290.92				
100.00	100.00	293.00	293.00	0.25	8.78	80.82	2,119.62	13,120.82	13,290.92	13,281.89	9.03	1,471.762	
200.00	200.00	393.00	393.00	0.61	11.78	80.82	2,119.62	13,120.82	13,290.92	13,278.54	12.39	1,073.103	
300.00	300.00	493.00	493.00	0.97	14.77	80.82	2,119.62	13,120.82	13,290.92	13,275.18	15.74	844.383	
400.00	400.00	593.10	593.00	1.33	17.77	80.82	2,119.62	13,120.82	13,290.92	13,271.82	19.10	695.920	
500.00	500.00	693.10	693.00	1.68	20.77	80.82	2,119.62	13,120.82	13,290.92	13,268.47	22.45	591.937	
600.00	599.98	800.61	800.47	2.03	23.99	-84.20	2,121.71	13,120.82	13,291.08	13,265.06	26.02	510.876	
700.00	699.84	917.98	917.80	2.36	27.51	-84.23	2,120.81	13,120.82	13,290.43	13,260.56	29.87	445.004	
800.00	799.45	1,035.26	1,035.04	2.71	31.02	-84.29	2,118.96	13,120.82	13,289.30	13,255.58	33.72	394.059	
900.00	898.70	1,092.11	1,091.70	3.06	32.72	-84.35	2,119.62	13,120.82	13,288.12	13,252.34	35.78	371.342	
1,000.00	997.47	1,190.87	1,190.47	3.43	35.68	-84.45	2,119.62	13,120.82	13,286.58	13,247.46	39.11	339.683	
1,100.00	1,095.62	1,296.08	1,295.63	3.82	38.84	-84.58	2,121.72	13,120.82	13,285.06	13,242.41	42.66	311.448	
1,200.00	1,193.44	1,411.79	1,411.32	4.22	42.30	-84.68	2,120.88	13,120.82	13,282.95	13,236.43	46.53	285.490	
1,300.00	1,291.25	1,527.93	1,527.41	4.64	45.78	-84.78	2,119.10	13,120.82	13,280.74	13,230.32	50.42	263.405	
1,400.00	1,389.07	1,582.78	1,582.07	5.06	47.43	-84.83	2,119.62	13,120.82	13,278.82	13,226.34	52.48	253.011	
1,500.00	1,486.88	1,680.59	1,679.88	5.48	50.36	-84.92	2,119.62	13,120.82	13,276.92	13,221.08	55.84	237.771	
1,600.00	1,584.70	1,783.83	1,783.07	5.91	53.45	-85.02	2,121.76	13,120.82	13,275.42	13,216.06	59.36	223.636	
1,700.00	1,682.51	1,900.48	1,899.70	6.35	56.95	-85.12	2,121.01	13,120.82	13,273.48	13,210.19	63.29	209.726	
1,800.00	1,780.33	2,017.57	2,016.75	6.78	60.46	-85.22	2,119.30	13,120.82	13,271.43	13,204.20	67.23	197.395	
1,900.00	1,878.14	2,072.16	2,071.14	7.22	62.09	-85.27	2,119.62	13,120.82	13,269.65	13,200.34	69.31	191.463	
2,000.00	1,975.96	2,169.97	2,168.96	7.66	65.02	-85.35	2,119.62	13,120.82	13,267.91	13,195.23	72.68	182.560	
2,100.00	2,073.77	2,271.37	2,270.31	8.10	68.06	-85.45	2,121.78	13,120.82	13,266.59	13,190.44	76.16	174.202	
2,200.00	2,171.59	2,388.98	2,387.90	8.54	71.58	-85.56	2,121.12	13,120.82	13,264.82	13,184.70	80.12	165.557	
2,300.00	2,269.40	2,507.03	2,505.91	8.98	75.12	-85.65	2,119.49	13,120.82	13,262.94	13,178.84	84.10	157.700	
2,400.00	2,367.22	2,561.53	2,560.22	9.43	76.76	-85.70	2,119.62	13,120.82	13,261.28	13,175.10	86.18	153.878	
2,500.00	2,465.03	2,659.35	2,658.03	9.87	79.69	-85.79	2,119.62	13,120.82	13,259.71	13,170.15	89.56	148.060	
2,600.00	2,562.84	2,758.70	2,757.34	10.32	82.66	-85.89	2,121.80	13,120.82	13,258.57	13,165.59	92.98	142.597	
2,700.00	2,660.66	2,877.29	2,875.90	10.77	86.22	-85.99	2,121.23	13,120.82	13,256.97	13,159.99	96.98	136.700	
2,800.00	2,758.47	2,996.32	2,994.90	11.21	89.78	-86.09	2,119.68	13,120.82	13,255.25	13,154.26	100.99	131.251	
2,900.00	2,856.29	3,050.91	3,049.29	11.66	91.42	-86.14	2,119.62	13,120.82	13,253.73	13,150.65	103.08	128.582	
3,000.00	2,954.10	3,148.73	3,147.10	12.11	94.35	-86.23	2,119.62	13,120.82	13,252.31	13,145.86	106.46	124.487	
3,100.00	3,051.92	3,246.54	3,244.92	12.56	97.28	-86.32	2,119.62	13,120.82	13,250.93	13,141.10	109.83	120.645	
3,200.00	3,149.73	3,365.39	3,363.71	13.01	100.84	-86.43	2,121.33	13,120.82	13,249.93	13,136.09	113.84	116.387	
3,300.00	3,247.55	3,485.42	3,483.70	13.45	104.44	-86.53	2,119.86	13,120.82	13,248.38	13,130.49	117.89	112.380	
3,400.00	3,345.36	3,540.29	3,538.36	13.90	106.08	-86.58	2,119.62	13,120.82	13,246.98	13,127.00	119.98	110.407	
3,500.00	3,443.18	3,638.11	3,636.18	14.35	109.01	-86.67	2,119.62	13,120.82	13,245.73	13,122.37	123.36	107.371	
3,600.00	3,540.99	3,735.92	3,733.99	14.80	111.95	-86.76	2,119.62	13,120.82	13,244.51	13,117.77	126.74	104.498	
3,700.00	3,638.81	3,853.29	3,851.30	15.25	115.46	-86.87	2,121.42	13,120.82	13,243.71	13,113.00	130.71	101.320	
3,800.00	3,736.62	3,974.34	3,972.31	15.70	119.09	-86.97	2,120.04	13,120.82	13,242.33	13,107.54	134.79	98.246	
3,900.00	3,834.44	4,029.67	4,027.44	16.15	120.75	-87.02	2,119.62	13,120.82	13,241.05	13,104.15	136.90	96.723	
4,000.00	3,932.25	4,127.48	4,125.25	16.60	123.68	-87.11	2,119.62	13,120.82	13,239.96	13,099.68	140.28	94.383	
4,100.00	4,030.07	4,225.30	4,223.07	17.05	126.61	-87.20	2,119.62	13,120.82	13,238.90	13,095.24	143.66	92.154	
4,200.00	4,127.88	4,340.98	4,338.69	17.50	130.08	-87.31	2,121.51	13,120.82	13,238.29	13,090.71	147.58	89.704	
4,300.00	4,225.70	4,463.06	4,460.73	17.96	133.73	-87.41	2,120.21	13,120.82	13,237.08	13,085.40	151.69	87.267	
4,400.00	4,323.51	4,519.05	4,516.51	18.41	135.41	-87.46	2,119.62	13,120.82	13,235.93	13,082.12	153.82	86.051	
4,500.00	4,421.33	4,616.86	4,614.33	18.86	138.34	-87.55	2,119.62	13,120.82	13,235.00	13,077.81	157.20	84.193	
4,600.00	4,519.14	4,714.68	4,712.14	19.31	141.27	-87.64	2,119.62	13,120.82	13,234.11	13,073.53	160.58	82.415	
4,700.00	4,616.95	4,828.45	4,825.86	19.76	144.68	-87.75	2,121.58	13,120.82	13,233.69	13,069.25	164.44	80.477	
4,800.00	4,714.77	4,951.58	4,948.96	20.21	148.37	-87.85	2,120.38	13,120.82	13,232.65	13,064.07	168.58	78.495	
4,900.00	4,812.58	5,008.43	5,005.58	20.66	150.08	-87.90	2,119.62	13,120.82	13,231.63	13,060.89	170.74	77.497	
5,000.00	4,910.40	5,106.24	5,103.40	21.11	153.01	-87.99	2,119.62	13,120.82	13,230.86	13,056.75	174.12	75.988	
5,100.00	5,008.21	5,204.06	5,201.21	21.57	155.94	-88.08	2,119.62	13,120.82	13,230.13	13,052.63	177.50	74.535	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,200.00	5,106.03	5,315.70	5,312.81	22.02	159.28	-88.18	2,121.65	13,120.82	13,229.90	13,048.61	181.30	72.973	
5,300.00	5,203.84	5,439.90	5,436.97	22.47	163.00	-88.29	2,120.54	13,120.82	13,229.04	13,043.57	185.47	71.327	
5,400.00	5,301.66	5,564.57	5,561.59	22.92	166.74	-88.39	2,118.34	13,120.82	13,228.02	13,038.36	189.66	69.747	
5,500.00	5,399.47	5,595.62	5,592.47	23.37	167.67	-88.43	2,119.62	13,120.82	13,227.54	13,036.50	191.04	69.239	
5,600.00	5,497.29	5,693.43	5,690.29	23.82	170.60	-88.52	2,119.62	13,120.82	13,226.97	13,032.55	194.42	68.031	
5,655.00	5,551.09	5,747.23	5,744.09	24.07	172.21	-88.56	2,119.62	13,120.82	13,226.68	13,030.39	196.29	67.385	
5,700.00	5,595.10	5,802.72	5,799.53	24.28	173.88	-88.62	2,121.70	13,120.82	13,226.93	13,028.78	198.15	66.752	
5,800.00	5,692.92	5,928.01	5,924.78	24.73	177.63	-88.73	2,120.69	13,120.82	13,226.25	13,023.89	202.36	65.361	
5,900.00	5,790.73	6,053.77	6,050.50	25.18	181.40	-88.84	2,118.58	13,120.82	13,225.39	13,018.81	206.58	64.022	
6,000.00	5,888.55	6,085.00	6,081.55	25.63	182.33	-88.87	2,119.62	13,120.82	13,225.03	13,017.07	207.97	63.592	
6,100.00	5,986.36	6,182.81	6,179.36	26.08	185.27	-88.96	2,119.62	13,120.82	13,224.63	13,013.28	211.35	62.572	
6,160.50	6,045.54	6,241.99	6,238.54	26.36	187.04	-89.01	2,119.62	13,120.82	13,224.40	13,011.00	213.40	61.971	
6,200.00	6,084.18	6,289.51	6,286.02	26.54	188.46	-89.06	2,121.74	13,120.82	13,224.77	13,009.78	215.00	61.511	
6,300.00	6,181.99	6,415.90	6,412.38	26.99	192.25	-89.17	2,120.84	13,120.82	13,224.27	13,005.03	219.24	60.320	
6,400.00	6,279.81	6,542.78	6,539.21	27.44	196.05	-89.28	2,118.80	13,120.82	13,223.58	13,000.09	223.49	59.169	
6,423.96	6,303.24	6,573.25	6,569.67	27.55	196.96	-89.30	2,118.15	13,120.82	13,223.39	12,998.88	224.51	58.899	
6,500.00	6,377.62	6,518.00	6,514.23	27.89	195.31	-89.26	2,119.62	13,120.82	13,223.46	13,000.26	223.20	59.245	
6,530.62	6,407.57	6,518.00	6,514.23	28.03	195.31	-89.26	2,119.62	13,120.82	13,223.54	13,000.21	223.34	59.209	
6,550.00	6,426.48	6,518.00	6,514.23	28.12	195.31	-83.79	2,119.62	13,120.82	13,223.42	12,999.99	223.42	59.186	
6,600.00	6,474.77	6,518.00	6,514.23	28.36	195.31	-73.88	2,119.62	13,120.82	13,221.19	12,997.53	223.66	59.114	
6,650.00	6,522.09	6,518.00	6,514.23	28.62	195.31	-67.85	2,119.62	13,120.82	13,216.24	12,992.34	223.91	59.026	
6,700.00	6,568.15	6,518.00	6,514.23	28.89	195.31	-64.09	2,119.62	13,120.82	13,208.61	12,984.44	224.17	58.923	
6,750.00	6,612.66	6,518.00	6,514.23	29.18	195.31	-61.76	2,119.62	13,120.82	13,198.32	12,973.88	224.44	58.806	
6,800.00	6,655.36	6,518.00	6,514.23	29.48	195.31	-60.40	2,119.62	13,120.82	13,185.44	12,960.72	224.72	58.675	
6,850.00	6,695.98	6,518.00	6,514.23	29.79	195.31	-59.78	2,119.62	13,120.82	13,170.05	12,945.04	225.01	58.530	
6,900.00	6,734.26	6,518.00	6,514.23	30.11	195.31	-59.74	2,119.62	13,120.82	13,152.22	12,926.91	225.31	58.373	
6,950.00	6,769.98	6,518.00	6,514.23	30.45	195.31	-60.19	2,119.62	13,120.82	13,132.06	12,906.44	225.62	58.204	
7,000.00	6,802.91	6,518.00	6,514.23	30.79	195.31	-61.08	2,119.62	13,120.82	13,109.68	12,883.74	225.94	58.023	
7,050.00	6,832.85	6,518.00	6,514.23	31.15	195.31	-62.39	2,119.62	13,120.82	13,085.21	12,858.95	226.26	57.832	
7,100.00	6,859.62	6,518.00	6,514.23	31.51	195.31	-64.11	2,119.62	13,120.82	13,058.78	12,832.19	226.59	57.631	
7,150.00	6,883.05	6,518.00	6,514.23	31.89	195.31	-66.22	2,119.62	13,120.82	13,030.56	12,803.63	226.93	57.422	
7,200.00	6,902.99	6,518.00	6,514.23	32.28	195.31	-68.73	2,119.62	13,120.82	13,000.70	12,773.43	227.27	57.205	
7,250.00	6,919.32	6,518.00	6,514.23	32.67	195.31	-71.64	2,119.62	13,120.82	12,969.37	12,741.76	227.61	56.980	
7,300.00	6,931.95	6,518.00	6,514.23	33.08	195.31	-74.94	2,119.62	13,120.82	12,936.76	12,708.80	227.96	56.751	
7,350.00	6,940.79	6,518.00	6,514.23	33.49	195.31	-78.62	2,119.62	13,120.82	12,903.07	12,674.76	228.31	56.516	
7,400.00	6,945.79	6,518.00	6,514.23	33.90	195.31	-82.64	2,119.62	13,120.82	12,868.48	12,639.82	228.66	56.278	
7,439.53	6,947.00	6,518.00	6,514.23	34.24	195.31	-86.04	2,119.62	13,120.82	12,840.64	12,611.71	228.93	56.089	
7,500.00	6,947.00	6,518.00	6,514.23	34.75	195.31	-85.95	2,119.62	13,120.82	12,797.41	12,568.05	229.36	55.797	
7,600.00	6,947.00	6,518.00	6,514.23	35.63	195.31	-85.80	2,119.62	13,120.82	12,724.29	12,494.23	230.06	55.308	
7,700.00	6,947.00	6,518.00	6,514.23	36.54	195.31	-85.63	2,119.62	13,120.82	12,649.18	12,418.42	230.76	54.814	
7,800.00	6,947.00	6,518.00	6,514.23	37.47	195.31	-85.44	2,119.62	13,120.82	12,572.15	12,340.69	231.47	54.315	
7,900.00	6,947.00	6,518.00	6,514.23	38.43	195.31	-85.23	2,119.62	13,120.82	12,493.26	12,261.10	232.16	53.813	
8,000.00	6,947.00	6,518.00	6,514.23	39.41	195.31	-85.00	2,119.62	13,120.82	12,412.55	12,179.71	232.84	53.308	
8,100.00	6,947.00	6,518.00	6,514.23	40.40	195.31	-84.74	2,119.62	13,120.82	12,330.11	12,096.60	233.52	52.802	
8,200.00	6,947.00	6,518.00	6,514.23	41.42	195.31	-84.44	2,119.62	13,120.82	12,245.99	12,011.82	234.17	52.295	
8,300.00	6,947.00	6,518.00	6,514.23	42.44	195.31	-84.11	2,119.62	13,120.82	12,160.27	11,925.46	234.81	51.788	
8,400.00	6,947.00	6,518.00	6,514.23	43.48	195.31	-83.73	2,119.62	13,120.82	12,073.01	11,837.59	235.42	51.282	
8,500.00	6,947.00	6,518.00	6,514.23	44.53	195.31	-83.30	2,119.62	13,120.82	11,984.29	11,748.27	236.01	50.778	
8,600.00	6,947.00	6,518.00	6,514.23	45.58	195.31	-82.80	2,119.62	13,120.82	11,894.18	11,657.60	236.58	50.276	
8,700.00	6,947.00	6,518.00	6,514.23	46.63	195.31	-82.21	2,119.62	13,120.82	11,802.77	11,565.66	237.11	49.777	
8,800.00	6,947.00	6,518.00	6,514.23	47.69	195.31	-81.51	2,119.62	13,120.82	11,710.14	11,472.52	237.62	49.281	
8,841.31	6,947.00	6,518.00	6,514.23	48.13	195.31	-81.19	2,119.62	13,120.82	11,671.54	11,433.72	237.82	49.078	

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 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
8,900.00	6,947.00	6,518.00	6,514.23	48.76	195.31	-81.19	2,119.62	13,120.82	11,616.58	11,378.48	238.10	48.789	
9,000.00	6,947.00	6,518.00	6,514.23	49.85	195.31	-81.19	2,119.62	13,120.82	11,523.01	11,284.43	238.58	48.298	
9,100.00	6,947.00	6,518.00	6,514.23	50.97	195.31	-81.19	2,119.62	13,120.82	11,429.56	11,190.48	239.08	47.807	
9,200.00	6,947.00	6,518.00	6,514.23	52.12	195.31	-81.19	2,119.62	13,120.82	11,336.22	11,096.63	239.58	47.316	
9,300.00	6,947.00	6,518.00	6,514.23	53.28	195.31	-81.19	2,119.62	13,120.82	11,242.99	11,002.89	240.10	46.826	
9,400.00	6,947.00	6,518.00	6,514.23	54.48	195.31	-81.19	2,119.62	13,120.82	11,149.88	10,909.25	240.64	46.335	
9,500.00	6,947.00	6,518.00	6,514.23	55.69	195.31	-81.19	2,119.62	13,120.82	11,056.89	10,815.71	241.18	45.845	
9,600.00	6,947.00	6,518.00	6,514.23	56.92	195.31	-81.19	2,119.62	13,120.82	10,964.03	10,722.29	241.74	45.355	
9,700.00	6,947.00	6,518.00	6,514.23	58.17	195.31	-81.19	2,119.62	13,120.82	10,871.29	10,628.98	242.31	44.866	
9,800.00	6,947.00	6,518.00	6,514.23	59.44	195.31	-81.19	2,119.62	13,120.82	10,778.68	10,535.79	242.89	44.377	
9,900.00	6,947.00	6,518.00	6,514.23	60.73	195.31	-81.19	2,119.62	13,120.82	10,686.20	10,442.71	243.48	43.889	
10,000.00	6,947.00	6,518.00	6,514.23	62.03	195.31	-81.19	2,119.62	13,120.82	10,593.86	10,349.77	244.09	43.401	
10,100.00	6,947.00	6,518.00	6,514.23	63.34	195.31	-81.19	2,119.62	13,120.82	10,501.66	10,256.94	244.72	42.913	
10,200.00	6,947.00	6,518.00	6,514.23	64.67	195.31	-81.19	2,119.62	13,120.82	10,409.60	10,164.25	245.35	42.427	
10,300.00	6,947.00	6,518.00	6,514.23	66.01	195.31	-81.19	2,119.62	13,120.82	10,317.70	10,071.69	246.01	41.941	
10,400.00	6,947.00	6,518.00	6,514.23	67.36	195.31	-81.19	2,119.62	13,120.82	10,225.94	9,979.27	246.67	41.455	
10,500.00	6,947.00	6,518.00	6,514.23	68.73	195.31	-81.19	2,119.62	13,120.82	10,134.34	9,886.99	247.35	40.971	
10,600.00	6,947.00	6,518.00	6,514.23	70.10	195.31	-81.19	2,119.62	13,120.82	10,042.90	9,794.85	248.05	40.487	
10,700.00	6,947.00	6,518.00	6,514.23	71.48	195.31	-81.19	2,119.62	13,120.82	9,951.63	9,702.86	248.76	40.004	
10,800.00	6,947.00	6,518.00	6,514.23	72.88	195.31	-81.19	2,119.62	13,120.82	9,860.52	9,611.03	249.49	39.523	
10,900.00	6,947.00	6,518.00	6,514.23	74.28	195.31	-81.19	2,119.62	13,120.82	9,769.59	9,519.35	250.23	39.042	
11,000.00	6,947.00	6,518.00	6,514.23	75.69	195.31	-81.19	2,119.62	13,120.82	9,678.83	9,427.84	251.00	38.562	
11,100.00	6,947.00	6,518.00	6,514.23	77.10	195.31	-81.19	2,119.62	13,120.82	9,588.27	9,336.49	251.77	38.083	
11,200.00	6,947.00	6,518.00	6,514.23	78.53	195.31	-81.19	2,119.62	13,120.82	9,497.89	9,245.32	252.57	37.605	
11,300.00	6,947.00	6,518.00	6,514.23	79.96	195.31	-81.19	2,119.62	13,120.82	9,407.70	9,154.32	253.38	37.129	
11,400.00	6,947.00	6,518.00	6,514.23	81.40	195.31	-81.19	2,119.62	13,120.82	9,317.72	9,063.51	254.21	36.654	
11,500.00	6,947.00	6,518.00	6,514.23	82.84	195.31	-81.19	2,119.62	13,120.82	9,227.94	8,972.88	255.06	36.180	
11,600.00	6,947.00	6,518.00	6,514.23	84.29	195.31	-81.19	2,119.62	13,120.82	9,138.37	8,882.45	255.92	35.708	
11,700.00	6,947.00	6,518.00	6,514.23	85.75	195.31	-81.19	2,119.62	13,120.82	9,049.02	8,792.22	256.81	35.237	
11,800.00	6,947.00	6,518.00	6,514.23	87.21	195.31	-81.19	2,119.62	13,120.82	8,959.90	8,702.19	257.71	34.767	
11,900.00	6,947.00	6,518.00	6,514.23	88.68	195.31	-81.19	2,119.62	13,120.82	8,871.01	8,612.37	258.64	34.299	
12,000.00	6,947.00	6,518.00	6,514.23	90.15	195.31	-81.19	2,119.62	13,120.82	8,782.36	8,522.78	259.58	33.833	
12,100.00	6,947.00	6,518.00	6,514.23	91.62	195.31	-81.19	2,119.62	13,120.82	8,693.95	8,433.41	260.55	33.368	
12,200.00	6,947.00	6,518.00	6,514.23	93.10	195.31	-81.19	2,119.62	13,120.82	8,605.80	8,344.27	261.53	32.905	
12,300.00	6,947.00	6,518.00	6,514.23	94.59	195.31	-81.19	2,119.62	13,120.82	8,517.91	8,255.37	262.54	32.444	
12,400.00	6,947.00	6,518.00	6,514.23	96.07	195.31	-81.19	2,119.62	13,120.82	8,430.29	8,166.72	263.57	31.985	
12,500.00	6,947.00	6,518.00	6,514.23	97.56	195.31	-81.19	2,119.62	13,120.82	8,342.95	8,078.33	264.62	31.528	
12,600.00	6,947.00	6,518.00	6,514.23	99.06	195.31	-81.19	2,119.62	13,120.82	8,255.90	7,990.20	265.70	31.072	
12,700.00	6,947.00	6,518.00	6,514.23	100.56	195.31	-81.19	2,119.62	13,120.82	8,169.14	7,902.34	266.80	30.619	
12,800.00	6,947.00	6,518.00	6,514.23	102.06	195.31	-81.19	2,119.62	13,120.82	8,082.69	7,814.77	267.92	30.168	
12,900.00	6,947.00	6,518.00	6,514.23	103.56	195.31	-81.19	2,119.62	13,120.82	7,996.55	7,727.48	269.07	29.720	
13,000.00	6,947.00	6,518.00	6,514.23	105.07	195.31	-81.19	2,119.62	13,120.82	7,910.74	7,640.50	270.24	29.273	
13,100.00	6,947.00	6,518.00	6,514.23	106.58	195.31	-81.19	2,119.62	13,120.82	7,825.27	7,553.83	271.44	28.829	
13,200.00	6,947.00	6,518.00	6,514.23	108.10	195.31	-81.19	2,119.62	13,120.82	7,740.14	7,467.48	272.66	28.388	
13,300.00	6,947.00	6,518.00	6,514.23	109.61	195.31	-81.19	2,119.62	13,120.82	7,655.38	7,381.47	273.91	27.949	
13,400.00	6,947.00	6,518.00	6,514.23	111.13	195.31	-81.19	2,119.62	13,120.82	7,570.99	7,295.80	275.19	27.512	
13,500.00	6,947.00	6,518.00	6,514.23	112.65	195.31	-81.19	2,119.62	13,120.82	7,486.98	7,210.49	276.49	27.079	
13,600.00	6,947.00	6,518.00	6,514.23	114.17	195.31	-81.19	2,119.62	13,120.82	7,403.37	7,125.54	277.82	26.648	
13,700.00	6,947.00	6,518.00	6,514.23	115.70	195.31	-81.19	2,119.62	13,120.82	7,320.17	7,040.98	279.18	26.220	
13,800.00	6,947.00	6,518.00	6,514.23	117.23	195.31	-81.19	2,119.62	13,120.82	7,237.39	6,956.82	280.57	25.795	
13,900.00	6,947.00	6,518.00	6,514.23	118.76	195.31	-81.19	2,119.62	13,120.82	7,155.06	6,873.06	281.99	25.373	
14,000.00	6,947.00	6,518.00	6,514.23	120.29	195.31	-81.19	2,119.62	13,120.82	7,073.18	6,789.73	283.44	24.954	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,100.00	6,947.00	6,518.00	6,514.23	121.82	195.31	-81.19	2,119.62	13,120.82	6,991.77	6,706.84	284.92	24.539	
14,200.00	6,947.00	6,518.00	6,514.23	123.36	195.31	-81.19	2,119.62	13,120.82	6,910.85	6,624.41	286.44	24.127	
14,300.00	6,947.00	6,518.00	6,514.23	124.89	195.31	-81.19	2,119.62	13,120.82	6,830.43	6,542.45	287.98	23.718	
14,400.00	6,947.00	6,518.00	6,514.23	126.43	195.31	-81.19	2,119.62	13,120.82	6,750.54	6,460.98	289.56	23.313	
14,500.00	6,947.00	6,518.00	6,514.23	127.97	195.31	-81.19	2,119.62	13,120.82	6,671.19	6,380.03	291.17	22.912	
14,600.00	6,947.00	6,518.00	6,514.23	129.51	195.31	-81.19	2,119.62	13,120.82	6,592.41	6,299.60	292.81	22.514	
14,700.00	6,947.00	6,518.00	6,514.23	131.06	195.31	-81.19	2,119.62	13,120.82	6,514.20	6,219.72	294.49	22.121	
14,800.00	6,947.00	6,518.00	6,514.23	132.60	195.31	-81.19	2,119.62	13,120.82	6,436.60	6,140.40	296.20	21.731	
14,900.00	6,947.00	6,518.00	6,514.23	134.15	195.31	-81.19	2,119.62	13,120.82	6,359.62	6,061.68	297.94	21.345	
15,000.00	6,947.00	6,518.00	6,514.23	135.70	195.31	-81.19	2,119.62	13,120.82	6,283.30	5,983.58	299.72	20.964	
15,100.00	6,947.00	6,518.00	6,514.23	137.24	195.31	-81.19	2,119.62	13,120.82	6,207.64	5,906.11	301.54	20.587	
15,200.00	6,947.00	6,518.00	6,514.23	138.79	195.31	-81.19	2,119.62	13,120.82	6,132.68	5,829.30	303.39	20.214	
15,300.00	6,947.00	6,518.00	6,514.23	140.35	195.31	-81.19	2,119.62	13,120.82	6,058.45	5,753.18	305.27	19.846	
15,400.00	6,947.00	6,518.00	6,514.23	141.90	195.31	-81.19	2,119.62	13,120.82	5,984.97	5,677.77	307.19	19.483	
15,500.00	6,947.00	6,518.00	6,514.23	143.45	195.31	-81.19	2,119.62	13,120.82	5,912.26	5,603.11	309.15	19.124	
15,600.00	6,947.00	6,518.00	6,514.23	145.01	195.31	-81.19	2,119.62	13,120.82	5,840.36	5,529.22	311.14	18.771	
15,700.00	6,947.00	6,518.00	6,514.23	146.56	195.31	-81.19	2,119.62	13,120.82	5,769.30	5,456.13	313.17	18.422	
15,800.00	6,947.00	6,518.00	6,514.23	148.12	195.31	-81.19	2,119.62	13,120.82	5,699.11	5,383.88	315.23	18.079	
15,900.00	6,947.00	6,518.00	6,514.23	149.68	195.31	-81.19	2,119.62	13,120.82	5,629.81	5,312.49	317.33	17.741	
16,000.00	6,947.00	6,518.00	6,514.23	151.23	195.31	-81.19	2,119.62	13,120.82	5,561.46	5,242.00	319.46	17.409	
16,100.00	6,947.00	6,518.00	6,514.23	152.79	195.31	-81.19	2,119.62	13,120.82	5,494.07	5,172.45	321.63	17.082	
16,200.00	6,947.00	6,518.00	6,514.23	154.36	195.31	-81.19	2,119.62	13,120.82	5,427.69	5,103.87	323.82	16.761	
16,300.00	6,947.00	6,518.00	6,514.23	155.92	195.31	-81.19	2,119.62	13,120.82	5,362.35	5,036.30	326.05	16.446	
16,400.00	6,947.00	6,518.00	6,514.23	157.48	195.31	-81.19	2,119.62	13,120.82	5,298.10	4,969.78	328.32	16.137	
16,500.00	6,947.00	6,518.00	6,514.23	159.04	195.31	-81.19	2,119.62	13,120.82	5,234.96	4,904.35	330.61	15.834	
16,600.00	6,947.00	6,518.00	6,514.23	160.61	195.31	-81.19	2,119.62	13,120.82	5,172.99	4,840.06	332.92	15.538	
16,700.00	6,947.00	6,518.00	6,514.23	162.17	195.31	-81.19	2,119.62	13,120.82	5,112.22	4,776.95	335.27	15.248	
16,800.00	6,947.00	6,518.00	6,514.23	163.74	195.31	-81.19	2,119.62	13,120.82	5,052.70	4,715.06	337.64	14.965	
16,900.00	6,947.00	6,518.00	6,514.23	165.30	195.31	-81.19	2,119.62	13,120.82	4,994.48	4,654.45	340.03	14.688	
17,000.00	6,947.00	6,518.00	6,514.23	166.87	195.31	-81.19	2,119.62	13,120.82	4,937.59	4,595.15	342.44	14.419	
17,100.00	6,947.00	6,518.00	6,514.23	168.44	195.31	-81.19	2,119.62	13,120.82	4,882.09	4,537.22	344.87	14.156	
17,200.00	6,947.00	6,518.00	6,514.23	170.01	195.31	-81.19	2,119.62	13,120.82	4,828.02	4,480.71	347.31	13.901	
17,300.00	6,947.00	6,518.00	6,514.23	171.57	195.31	-81.19	2,119.62	13,120.82	4,775.44	4,425.67	349.77	13.653	
17,400.00	6,947.00	6,518.00	6,514.23	173.14	195.31	-81.19	2,119.62	13,120.82	4,724.38	4,372.16	352.23	13.413	
17,500.00	6,947.00	6,518.00	6,514.23	174.71	195.31	-81.19	2,119.62	13,120.82	4,674.91	4,320.22	354.69	13.180	
17,600.00	6,947.00	6,518.00	6,514.23	176.28	195.31	-81.19	2,119.62	13,120.82	4,627.07	4,269.92	357.15	12.955	
17,700.00	6,947.00	6,518.00	6,514.23	177.86	195.31	-81.19	2,119.62	13,120.82	4,580.92	4,221.31	359.61	12.739	
17,800.00	6,947.00	6,518.00	6,514.23	179.43	195.31	-81.19	2,119.62	13,120.82	4,536.50	4,174.44	362.06	12.530	
17,900.00	6,947.00	6,518.00	6,514.23	181.00	195.31	-81.19	2,119.62	13,120.82	4,493.86	4,129.38	364.49	12.329	
18,000.00	6,947.00	6,518.00	6,514.23	182.57	195.31	-81.19	2,119.62	13,120.82	4,453.07	4,086.17	366.90	12.137	
18,100.00	6,947.00	6,518.00	6,514.23	184.15	195.31	-81.19	2,119.62	13,120.82	4,414.16	4,044.87	369.28	11.953	
18,200.00	6,947.00	6,518.00	6,514.23	185.72	195.31	-81.19	2,119.62	13,120.82	4,377.19	4,005.55	371.64	11.778	
18,300.00	6,947.00	6,518.00	6,514.23	187.30	195.31	-81.19	2,119.62	13,120.82	4,342.21	3,968.26	373.95	11.612	
18,400.00	6,947.00	6,518.00	6,514.23	188.87	195.31	-81.19	2,119.62	13,120.82	4,309.27	3,933.04	376.23	11.454	
18,500.00	6,947.00	6,518.00	6,514.23	190.45	195.31	-81.19	2,119.62	13,120.82	4,278.41	3,899.96	378.45	11.305	
18,600.00	6,947.00	6,518.00	6,514.23	192.02	195.31	-81.19	2,119.62	13,120.82	4,249.68	3,869.07	380.61	11.165	
18,700.00	6,947.00	6,518.00	6,514.23	193.60	195.31	-81.19	2,119.62	13,120.82	4,223.13	3,840.41	382.72	11.035	
18,800.00	6,947.00	6,518.00	6,514.23	195.18	195.31	-81.19	2,119.62	13,120.82	4,198.79	3,814.03	384.75	10.913	
18,900.00	6,947.00	6,518.00	6,514.23	196.75	195.31	-81.19	2,119.62	13,120.82	4,176.70	3,789.99	386.71	10.801	
19,000.00	6,947.00	6,518.00	6,514.23	198.33	195.31	-81.19	2,119.62	13,120.82	4,156.90	3,768.31	388.59	10.697	
19,100.00	6,947.00	6,518.00	6,514.23	199.91	195.31	-81.19	2,119.62	13,120.82	4,139.42	3,749.04	390.38	10.604	
19,200.00	6,947.00	6,518.00	6,514.23	201.49	195.31	-81.19	2,119.62	13,120.82	4,124.29	3,732.21	392.08	10.519	

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 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Rule Assigned:

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
19,300.00	6,947.00	6,518.00	6,514.23	203.07	195.31	-81.19	2,119.62	13,120.82	4,111.54	3,717.86	393.68	10.444	
19,400.00	6,947.00	6,518.00	6,514.23	204.65	195.31	-81.19	2,119.62	13,120.82	4,101.19	3,706.01	395.18	10.378	
19,500.00	6,947.00	6,518.00	6,514.23	206.23	195.31	-81.19	2,119.62	13,120.82	4,093.26	3,696.69	396.58	10.322	
19,600.00	6,947.00	6,518.00	6,514.23	207.81	195.31	-81.19	2,119.62	13,120.82	4,087.76	3,689.90	397.86	10.274	
19,700.00	6,947.00	6,518.00	6,514.23	209.39	195.31	-81.19	2,119.62	13,120.82	4,084.70	3,685.67	399.03	10.237	
19,775.00	6,947.00	6,518.00	6,514.23	210.57	195.31	-81.19	2,119.62	13,120.82	4,084.01	3,684.18	399.83	10.214 CC	
19,800.00	6,947.00	6,518.00	6,514.23	210.97	195.31	-81.19	2,119.62	13,120.82	4,084.09	3,684.01	400.08	10.208 ES	
19,900.00	6,947.00	6,518.00	6,514.23	212.55	195.31	-81.19	2,119.62	13,120.82	4,085.93	3,684.91	401.02	10.189	
20,000.00	6,947.00	6,518.00	6,514.23	214.13	195.31	-81.19	2,119.62	13,120.82	4,090.21	3,688.37	401.83	10.179	
20,100.00	6,947.00	6,518.00	6,514.23	215.71	195.31	-81.19	2,119.62	13,120.82	4,096.92	3,694.39	402.53	10.178 SF	
20,200.00	6,947.00	6,518.00	6,514.23	217.30	195.31	-81.19	2,119.62	13,120.82	4,106.07	3,702.96	403.11	10.186	
20,300.00	6,947.00	6,518.00	6,514.23	218.88	195.31	-81.19	2,119.62	13,120.82	4,117.62	3,714.06	403.56	10.203	
20,400.00	6,947.00	6,518.00	6,514.23	220.46	195.31	-81.19	2,119.62	13,120.82	4,131.56	3,727.66	403.90	10.229	
20,500.00	6,947.00	6,518.00	6,514.23	222.04	195.31	-81.19	2,119.62	13,120.82	4,147.87	3,743.74	404.12	10.264	
20,600.00	6,947.00	6,518.00	6,514.23	223.63	195.31	-81.19	2,119.62	13,120.82	4,166.51	3,762.28	404.23	10.307	
20,700.00	6,947.00	6,518.00	6,514.23	225.21	195.31	-81.19	2,119.62	13,120.82	4,187.46	3,783.23	404.22	10.359	
20,800.00	6,947.00	6,518.00	6,514.23	226.80	195.31	-81.19	2,119.62	13,120.82	4,210.67	3,806.56	404.11	10.420	
20,900.00	6,947.00	6,518.00	6,514.23	228.38	195.31	-81.19	2,119.62	13,120.82	4,236.13	3,832.23	403.89	10.488	
21,000.00	6,947.00	6,518.00	6,514.23	229.97	195.31	-81.19	2,119.62	13,120.82	4,263.78	3,860.20	403.58	10.565	
21,032.01	6,947.00	6,518.00	6,514.23	230.47	195.31	-81.19	2,119.62	13,120.82	4,273.08	3,869.63	403.46	10.591	
21,032.99	6,947.00	6,518.00	6,514.23	230.51	195.31	-81.19	2,119.62	13,120.82	4,273.37	3,869.95	403.42	10.593	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Rule Assigned: Warning
0.00	0.00	0.00	0.00	0.00	0.00	106.59	-912.19	3,060.93	3,194.60				
100.00	100.00	36.00	36.00	0.25	1.08	106.59	-912.19	3,060.93	3,193.96	3,192.63	1.33	2,401.765	
200.00	200.00	136.00	136.00	0.61	4.08	106.59	-912.19	3,060.93	3,193.96	3,189.28	4.68	681.782	
300.00	300.00	236.00	236.00	0.97	7.07	106.59	-912.19	3,060.93	3,193.96	3,185.92	8.04	397.278	
400.00	400.00	336.00	336.00	1.33	10.07	106.59	-912.19	3,060.93	3,193.96	3,182.57	11.39	280.307	
500.00	500.00	436.00	436.00	1.68	13.06	106.59	-912.19	3,060.93	3,193.96	3,179.21	14.75	216.549	
600.00	599.98	536.08	535.98	2.03	16.06	-58.45	-912.19	3,060.93	3,193.05	3,174.96	18.09	176.511	
700.00	699.84	635.94	635.84	2.36	19.06	-58.57	-912.19	3,060.93	3,190.31	3,168.89	21.42	148.972	
800.00	799.45	735.55	735.45	2.71	22.04	-58.79	-912.19	3,060.93	3,185.77	3,161.02	24.74	128.749	
900.00	898.70	829.91	829.76	3.06	24.87	-59.10	-910.24	3,060.93	3,178.90	3,150.98	27.93	113.834	
1,000.00	997.47	923.19	923.01	3.43	27.66	-59.45	-911.06	3,060.93	3,171.08	3,139.99	31.09	102.005	
1,100.00	1,095.62	1,032.03	1,031.62	3.82	30.92	-59.92	-912.19	3,060.93	3,161.61	3,126.88	34.73	91.033	
1,200.00	1,193.44	1,129.84	1,129.44	4.22	33.86	-60.25	-912.19	3,060.93	3,151.07	3,113.02	38.05	82.805	
1,300.00	1,291.25	1,227.66	1,227.25	4.64	36.79	-60.57	-912.19	3,060.93	3,140.63	3,099.25	41.39	75.887	
1,400.00	1,389.07	1,321.56	1,321.11	5.06	39.60	-60.92	-910.19	3,060.93	3,129.79	3,085.18	44.61	70.164	
1,500.00	1,486.88	1,414.56	1,414.08	5.48	42.39	-61.22	-910.96	3,060.93	3,119.77	3,071.96	47.81	65.258	
1,600.00	1,584.70	1,521.41	1,520.70	5.91	45.59	-61.55	-912.19	3,060.93	3,109.94	3,058.51	51.42	60.475	
1,700.00	1,682.51	1,619.22	1,618.51	6.35	48.52	-61.89	-912.19	3,060.93	3,099.92	3,045.14	54.78	56.592	
1,800.00	1,780.33	1,717.04	1,716.33	6.78	51.45	-62.22	-912.19	3,060.93	3,090.00	3,031.87	58.13	53.155	
1,900.00	1,878.14	1,811.90	1,811.14	7.22	54.29	-62.58	-910.15	3,060.93	3,079.74	3,018.34	61.40	50.158	
2,000.00	1,975.96	1,905.51	1,904.73	7.66	57.10	-62.89	-910.86	3,060.93	3,070.22	3,005.59	64.64	47.501	
2,100.00	2,073.77	2,010.79	2,009.77	8.10	60.25	-63.23	-912.19	3,060.93	3,060.92	2,992.70	68.22	44.868	
2,200.00	2,171.59	2,108.60	2,107.59	8.54	63.18	-63.58	-912.19	3,060.93	3,051.45	2,979.86	71.58	42.628	
2,300.00	2,269.40	2,206.42	2,205.40	8.98	66.11	-63.92	-912.19	3,060.93	3,042.09	2,967.14	74.95	40.589	
2,400.00	2,367.22	2,302.11	2,301.05	9.43	68.98	-64.30	-910.11	3,060.93	3,032.44	2,954.18	78.25	38.751	
2,500.00	2,465.03	2,396.33	2,395.25	9.87	71.81	-64.62	-910.76	3,060.93	3,023.45	2,941.93	81.51	37.091	
2,600.00	2,562.84	2,500.16	2,498.84	10.32	74.92	-64.97	-912.19	3,060.93	3,014.69	2,929.63	85.06	35.440	
2,700.00	2,660.66	2,597.98	2,596.66	10.77	77.85	-65.32	-912.19	3,060.93	3,005.79	2,917.36	88.43	33.989	
2,800.00	2,758.47	2,695.79	2,694.47	11.21	80.78	-65.67	-912.19	3,060.93	2,997.01	2,905.21	91.81	32.645	
2,900.00	2,856.29	2,792.19	2,790.82	11.66	83.67	-66.07	-910.08	3,060.93	2,988.00	2,892.87	95.14	31.407	
3,000.00	2,954.10	2,887.04	2,885.65	12.11	86.51	-66.40	-910.67	3,060.93	2,979.57	2,881.15	98.42	30.273	
3,100.00	3,051.92	2,982.17	2,980.75	12.56	89.36	-66.73	-911.90	3,060.93	2,971.35	2,869.63	101.72	29.212	
3,200.00	3,149.73	3,087.36	3,085.73	13.01	92.51	-67.11	-912.19	3,060.93	2,963.09	2,857.77	105.31	28.136	
3,300.00	3,247.55	3,185.17	3,183.55	13.45	95.44	-67.48	-912.19	3,060.93	2,954.91	2,846.22	108.69	27.186	
3,400.00	3,345.36	3,282.13	3,280.46	13.90	98.35	-67.88	-910.05	3,060.93	2,946.57	2,834.53	112.04	26.298	
3,500.00	3,443.18	3,377.61	3,375.92	14.35	101.21	-68.23	-910.58	3,060.93	2,938.73	2,823.38	115.35	25.476	
3,600.00	3,540.99	3,473.38	3,471.66	14.80	104.08	-68.57	-911.76	3,060.93	2,931.08	2,812.41	118.67	24.699	
3,700.00	3,638.81	3,576.74	3,574.81	15.25	107.18	-68.95	-912.19	3,060.93	2,923.45	2,801.24	122.22	23.920	
3,800.00	3,736.62	3,674.55	3,672.62	15.70	110.11	-69.33	-912.19	3,060.93	2,915.91	2,790.31	125.60	23.216	
3,900.00	3,834.44	3,771.93	3,769.96	16.15	113.02	-69.74	-910.03	3,060.93	2,908.27	2,779.31	128.97	22.551	
4,000.00	3,932.25	3,868.05	3,866.06	16.60	115.90	-70.11	-910.50	3,060.93	2,901.04	2,768.75	132.30	21.928	
4,100.00	4,030.07	3,964.46	3,962.45	17.05	118.79	-70.46	-911.62	3,060.93	2,894.00	2,758.36	135.64	21.336	
4,200.00	4,127.88	4,066.11	4,063.88	17.50	121.84	-70.84	-912.19	3,060.93	2,887.02	2,747.88	139.13	20.750	
4,300.00	4,225.70	4,163.93	4,161.70	17.96	124.77	-71.23	-912.19	3,060.93	2,880.13	2,737.61	142.52	20.209	
4,400.00	4,323.51	4,261.60	4,259.32	18.41	127.70	-71.65	-910.02	3,060.93	2,873.23	2,727.33	145.90	19.693	
4,500.00	4,421.33	4,358.36	4,356.07	18.86	130.60	-72.03	-910.42	3,060.93	2,866.64	2,717.39	149.25	19.207	
4,600.00	4,519.14	4,455.43	4,453.11	19.31	133.50	-72.39	-911.49	3,060.93	2,860.22	2,707.61	152.62	18.741	
4,700.00	4,616.95	4,555.49	4,552.95	19.76	136.50	-72.78	-912.19	3,060.93	2,853.91	2,697.84	156.07	18.286	
4,800.00	4,714.77	4,653.31	4,650.77	20.21	139.43	-73.17	-912.19	3,060.93	2,847.70	2,688.24	159.45	17.859	
4,900.00	4,812.58	4,751.12	4,748.54	20.66	142.36	-73.60	-910.01	3,060.93	2,841.56	2,678.71	162.84	17.450	
5,000.00	4,910.40	4,848.54	4,845.95	21.11	145.28	-73.99	-910.35	3,060.93	2,835.64	2,669.43	166.22	17.060	
5,100.00	5,008.21	4,946.27	4,943.65	21.57	148.21	-74.37	-911.36	3,060.93	2,829.88	2,660.28	169.60	16.686	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Rule Assigned: Warning
5,200.00	5,106.03	5,044.87	5,042.03	22.02	151.17	-74.75	-912.19	3,060.93	2,824.24	2,651.23	173.01	16.324	
5,300.00	5,203.84	5,142.69	5,139.84	22.47	154.10	-75.15	-912.19	3,060.93	2,818.73	2,642.33	176.40	15.979	
5,400.00	5,301.66	5,240.50	5,237.66	22.92	157.03	-75.55	-912.19	3,060.93	2,813.36	2,633.57	179.79	15.648	
5,500.00	5,399.47	5,338.58	5,335.68	23.37	159.97	-75.99	-910.29	3,060.93	2,808.16	2,624.97	183.19	15.330	
5,600.00	5,497.29	5,436.98	5,434.06	23.82	162.92	-76.38	-911.24	3,060.93	2,803.07	2,616.48	186.59	15.023	
5,700.00	5,595.10	5,534.25	5,531.10	24.28	165.83	-76.76	-912.19	3,060.93	2,798.12	2,608.16	189.96	14.730	
5,800.00	5,692.92	5,632.06	5,628.92	24.73	168.76	-77.17	-912.19	3,060.93	2,793.33	2,599.98	193.35	14.447	
5,900.00	5,790.73	5,729.88	5,726.73	25.18	171.69	-77.58	-912.19	3,060.93	2,788.69	2,591.95	196.74	14.174	
6,000.00	5,888.55	5,828.48	5,825.28	25.63	174.65	-78.03	-910.23	3,060.93	2,784.29	2,584.13	200.16	13.911	
6,100.00	5,986.36	5,927.56	5,924.34	26.08	177.62	-78.42	-911.12	3,060.93	2,779.91	2,576.33	203.58	13.655	
6,200.00	6,084.18	6,023.63	6,020.18	26.54	180.50	-78.81	-912.19	3,060.93	2,775.65	2,568.73	206.92	13.414	
6,300.00	6,181.99	6,121.44	6,117.99	26.99	183.43	-79.22	-912.19	3,060.93	2,771.60	2,561.29	210.31	13.179	
6,400.00	6,279.81	6,219.26	6,215.81	27.44	186.36	-79.63	-912.19	3,060.93	2,767.71	2,554.01	213.70	12.951	
6,500.00	6,377.62	6,318.23	6,314.73	27.89	189.32	-80.09	-910.18	3,060.93	2,764.13	2,547.01	217.13	12.731	
6,530.62	6,407.57	6,348.75	6,345.24	28.03	190.24	-80.22	-910.35	3,060.93	2,763.00	2,544.82	218.18	12.664	
6,550.00	6,426.48	6,368.03	6,364.52	28.12	190.82	-74.88	-910.50	3,060.93	2,762.05	2,543.20	218.85	12.621	
6,600.00	6,474.77	6,417.34	6,413.82	28.36	192.29	-65.30	-910.99	3,060.93	2,757.32	2,536.75	220.57	12.501	
6,650.00	6,522.09	6,465.78	6,462.24	28.62	193.74	-59.65	-911.64	3,060.93	2,749.39	2,527.12	222.28	12.369	
6,700.00	6,568.15	6,507.90	6,504.15	28.89	195.01	-56.28	-912.19	3,060.93	2,738.36	2,514.54	223.81	12.235	
6,750.00	6,612.66	6,552.42	6,548.66	29.18	196.34	-54.43	-912.19	3,060.93	2,724.37	2,498.94	225.43	12.085	
6,800.00	6,655.36	6,595.12	6,591.36	29.48	197.62	-53.62	-912.19	3,060.93	2,707.50	2,480.50	227.00	11.927	
6,850.00	6,695.98	6,635.73	6,631.98	29.79	198.84	-53.59	-912.19	3,060.93	2,687.89	2,459.37	228.52	11.762	
6,900.00	6,734.26	6,674.02	6,670.26	30.11	199.98	-54.23	-912.19	3,060.93	2,665.70	2,435.72	229.98	11.591	
6,950.00	6,769.98	6,709.74	6,705.98	30.45	201.05	-55.43	-912.19	3,060.93	2,641.12	2,409.75	231.37	11.415	
7,000.00	6,802.91	6,742.67	6,738.91	30.79	202.04	-57.16	-912.19	3,060.93	2,614.33	2,381.65	232.68	11.236	
7,050.00	6,832.85	6,773.32	6,769.52	31.15	202.96	-59.45	-910.03	3,060.93	2,585.91	2,351.97	233.94	11.054	
7,100.00	6,859.62	6,801.00	6,797.20	31.51	203.79	-62.18	-910.10	3,060.93	2,555.37	2,320.27	235.11	10.869	
7,150.00	6,883.05	6,825.33	6,821.53	31.89	204.52	-65.37	-910.21	3,060.93	2,523.29	2,287.11	236.18	10.684	
7,200.00	6,902.99	6,846.14	6,842.33	32.28	205.14	-68.98	-910.34	3,060.93	2,489.91	2,252.74	237.16	10.499	
7,250.00	6,919.32	6,863.28	6,859.46	32.67	205.65	-72.98	-910.46	3,060.93	2,455.46	2,217.42	238.04	10.316	
7,300.00	6,931.95	6,876.62	6,872.80	33.08	206.05	-77.30	-910.57	3,060.93	2,420.20	2,181.40	238.80	10.135	
7,350.00	6,940.79	6,886.06	6,882.24	33.49	206.34	-81.84	-910.66	3,060.93	2,384.38	2,144.92	239.46	9.957	
7,400.00	6,945.79	6,891.52	6,887.70	33.90	206.50	-86.51	-910.71	3,060.93	2,348.24	2,108.24	240.00	9.784	
7,439.53	6,947.00	6,892.98	6,889.16	34.24	206.54	-90.22	-910.73	3,060.93	2,319.61	2,079.26	240.35	9.651	
7,500.00	6,947.00	6,893.28	6,889.45	34.75	206.55	-90.24	-910.73	3,060.93	2,275.76	2,034.94	240.83	9.450	
7,600.00	6,947.00	6,893.74	6,889.92	35.63	206.57	-90.26	-910.74	3,060.93	2,203.01	1,961.35	241.65	9.116	
7,700.00	6,947.00	6,894.17	6,890.35	36.54	206.58	-90.29	-910.74	3,060.93	2,129.98	1,887.47	242.51	8.783	
7,800.00	6,947.00	6,894.57	6,890.75	37.47	206.59	-90.32	-910.74	3,060.93	2,056.77	1,813.36	243.41	8.450	
7,900.00	6,947.00	6,894.94	6,891.12	38.43	206.60	-90.35	-910.75	3,060.93	1,983.42	1,739.09	244.34	8.118	
8,000.00	6,947.00	6,895.28	6,891.45	39.41	206.61	-90.37	-910.75	3,060.93	1,910.04	1,664.74	245.30	7.786	
8,100.00	6,947.00	6,895.58	6,891.75	40.40	206.62	-90.40	-910.75	3,060.93	1,836.70	1,590.40	246.30	7.457	
8,200.00	6,947.00	6,895.84	6,892.02	41.42	206.63	-90.43	-910.76	3,060.93	1,763.51	1,516.17	247.33	7.130	
8,300.00	6,947.00	6,896.07	6,892.24	42.44	206.64	-90.46	-910.76	3,060.93	1,690.58	1,442.18	248.40	6.806	
8,400.00	6,947.00	6,896.26	6,892.44	43.48	206.64	-90.48	-910.76	3,060.93	1,618.04	1,368.54	249.49	6.485	
8,500.00	6,947.00	6,896.41	6,892.59	44.53	206.65	-90.51	-910.76	3,060.93	1,546.03	1,295.42	250.62	6.169	
8,600.00	6,947.00	6,896.53	6,892.71	45.58	206.65	-90.53	-910.76	3,060.93	1,474.75	1,222.99	251.76	5.858	
8,700.00	6,947.00	6,896.61	6,892.78	46.63	206.65	-90.56	-910.77	3,060.93	1,404.38	1,151.45	252.93	5.553	
8,800.00	6,947.00	6,896.65	6,892.82	47.69	206.65	-90.58	-910.77	3,060.93	1,335.16	1,081.06	254.10	5.254	
8,841.31	6,947.00	6,896.65	6,892.83	48.13	206.65	-90.59	-910.77	3,060.93	1,306.96	1,052.38	254.59	5.134	
8,900.00	6,947.00	6,896.66	6,892.83	48.76	206.66	-90.59	-910.77	3,060.93	1,267.82	1,012.54	255.28	4.966	
9,000.00	6,947.00	6,896.66	6,892.84	49.85	206.66	-90.59	-910.77	3,060.93	1,204.80	948.32	256.47	4.698	
9,100.00	6,947.00	6,896.67	6,892.84	50.97	206.66	-90.59	-910.77	3,060.93	1,147.04	889.39	257.65	4.452	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

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

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,200.00	6,947.00	6,896.67	6,892.85	52.12	206.66	-90.59	-910.77	3,060.93	1,095.38	836.63	258.75	4.233	
9,300.00	6,947.00	6,896.68	6,892.85	53.28	206.66	-90.59	-910.77	3,060.93	1,050.72	791.01	259.71	4.046	
9,400.00	6,947.00	6,896.68	6,892.86	54.48	206.66	-90.59	-910.77	3,060.93	1,013.99	753.54	260.45	3.893	
9,500.00	6,947.00	6,896.69	6,892.86	55.69	206.66	-90.59	-910.77	3,060.93	986.07	725.18	260.89	3.780	
9,600.00	6,947.00	6,896.69	6,892.87	56.92	206.66	-90.59	-910.77	3,060.93	967.72	706.77	260.96	3.708	
9,700.00	6,947.00	6,896.70	6,892.87	58.17	206.66	-90.59	-910.77	3,060.93	959.50	698.90	260.60	3.682	SF
9,729.21	6,947.00	6,896.70	6,892.88	58.54	206.66	-90.59	-910.77	3,060.93	959.06	698.64	260.42	3.683	CC, ES
9,800.00	6,947.00	6,896.70	6,892.88	59.44	206.66	-90.59	-910.77	3,060.93	961.67	701.84	259.83	3.701	
9,900.00	6,947.00	6,896.71	6,892.89	60.73	206.66	-90.59	-910.77	3,060.93	974.15	715.48	258.66	3.766	
10,000.00	6,947.00	6,896.71	6,892.89	62.03	206.66	-90.59	-910.77	3,060.93	996.55	739.36	257.19	3.875	
10,100.00	6,947.00	6,896.72	6,892.90	63.34	206.66	-90.59	-910.77	3,060.93	1,028.24	772.74	255.50	4.024	
10,200.00	6,947.00	6,896.72	6,892.90	64.67	206.66	-90.59	-910.77	3,060.93	1,068.38	814.68	253.70	4.211	
10,300.00	6,947.00	6,896.73	6,892.91	66.01	206.66	-90.59	-910.77	3,060.93	1,116.06	864.18	251.88	4.431	
10,400.00	6,947.00	6,896.74	6,892.91	67.36	206.66	-90.59	-910.77	3,060.93	1,170.36	920.25	250.11	4.679	
10,500.00	6,947.00	6,896.74	6,892.92	68.73	206.66	-90.59	-910.77	3,060.93	1,230.41	981.97	248.44	4.953	
10,600.00	6,947.00	6,896.75	6,892.92	70.10	206.66	-90.59	-910.77	3,060.93	1,295.40	1,048.50	246.90	5.247	
10,700.00	6,947.00	6,896.75	6,892.93	71.48	206.66	-90.59	-910.77	3,060.93	1,364.63	1,119.13	245.50	5.559	
10,800.00	6,947.00	6,896.76	6,892.93	72.88	206.66	-90.59	-910.77	3,060.93	1,437.49	1,193.24	244.25	5.885	
10,900.00	6,947.00	6,896.76	6,892.94	74.28	206.66	-90.59	-910.77	3,060.93	1,513.45	1,270.31	243.14	6.225	
11,000.00	6,947.00	6,896.77	6,892.94	75.69	206.66	-90.59	-910.77	3,060.93	1,592.07	1,349.91	242.17	6.574	
11,100.00	6,947.00	6,896.77	6,892.95	77.10	206.66	-90.59	-910.77	3,060.93	1,672.98	1,431.67	241.31	6.933	
11,200.00	6,947.00	6,896.78	6,892.95	78.53	206.66	-90.59	-910.77	3,060.93	1,755.85	1,515.28	240.57	7.299	
11,300.00	6,947.00	6,896.78	6,892.96	79.96	206.66	-90.60	-910.77	3,060.93	1,840.43	1,600.50	239.93	7.671	
11,400.00	6,947.00	6,896.79	6,892.96	81.40	206.66	-90.60	-910.77	3,060.93	1,926.48	1,687.11	239.37	8.048	
11,500.00	6,947.00	6,896.79	6,892.97	82.84	206.66	-90.60	-910.77	3,060.93	2,013.83	1,774.94	238.89	8.430	
11,600.00	6,947.00	6,896.80	6,892.97	84.29	206.66	-90.60	-910.77	3,060.93	2,102.30	1,863.82	238.47	8.816	
11,700.00	6,947.00	6,896.80	6,892.98	85.75	206.66	-90.60	-910.77	3,060.93	2,191.76	1,953.64	238.12	9.205	
11,800.00	6,947.00	6,896.81	6,892.98	87.21	206.66	-90.60	-910.77	3,060.93	2,282.10	2,044.29	237.81	9.596	
11,900.00	6,947.00	6,896.81	6,892.99	88.68	206.66	-90.60	-910.77	3,060.93	2,373.21	2,135.66	237.55	9.990	
12,000.00	6,947.00	6,896.82	6,892.99	90.15	206.66	-90.60	-910.77	3,060.93	2,465.01	2,227.68	237.33	10.386	
12,100.00	6,947.00	6,896.82	6,893.00	91.62	206.66	-90.60	-910.77	3,060.93	2,557.43	2,320.29	237.14	10.784	
12,200.00	6,947.00	6,896.83	6,893.01	93.10	206.66	-90.60	-910.77	3,060.93	2,650.40	2,413.42	236.98	11.184	
12,300.00	6,947.00	6,896.83	6,893.01	94.59	206.66	-90.60	-910.77	3,060.93	2,743.86	2,507.01	236.85	11.585	
12,400.00	6,947.00	6,896.84	6,893.02	96.07	206.66	-90.60	-910.77	3,060.93	2,837.77	2,601.03	236.74	11.987	
12,500.00	6,947.00	6,896.84	6,893.02	97.56	206.66	-90.60	-910.77	3,060.93	2,932.08	2,695.43	236.65	12.390	
12,600.00	6,947.00	6,896.85	6,893.03	99.06	206.66	-90.60	-910.77	3,060.93	3,026.75	2,790.18	236.57	12.794	
12,700.00	6,947.00	6,896.86	6,893.03	100.56	206.66	-90.60	-910.77	3,060.93	3,121.76	2,885.25	236.52	13.199	
12,800.00	6,947.00	6,896.86	6,893.04	102.06	206.66	-90.60	-910.77	3,060.93	3,217.07	2,980.60	236.47	13.604	
12,900.00	6,947.00	6,896.87	6,893.04	103.56	206.66	-90.60	-910.77	3,060.93	3,312.66	3,076.22	236.44	14.011	
13,000.00	6,947.00	6,896.87	6,893.05	105.07	206.66	-90.60	-910.77	3,060.93	3,408.50	3,172.08	236.42	14.417	
13,100.00	6,947.00	6,896.88	6,893.05	106.58	206.66	-90.60	-910.77	3,060.93	3,504.57	3,268.17	236.41	14.824	
13,200.00	6,947.00	6,896.88	6,893.06	108.10	206.66	-90.60	-910.77	3,060.93	3,600.86	3,364.46	236.40	15.232	
13,300.00	6,947.00	6,896.89	6,893.06	109.61	206.66	-90.60	-910.77	3,060.93	3,697.34	3,460.94	236.41	15.640	
13,400.00	6,947.00	6,896.89	6,893.07	111.13	206.66	-90.60	-910.77	3,060.93	3,794.01	3,557.59	236.42	16.048	
13,500.00	6,947.00	6,896.90	6,893.07	112.65	206.66	-90.60	-910.77	3,060.93	3,890.84	3,654.41	236.43	16.456	
13,600.00	6,947.00	6,896.90	6,893.08	114.17	206.66	-90.60	-910.77	3,060.93	3,987.83	3,751.38	236.46	16.865	
13,700.00	6,947.00	6,896.91	6,893.08	115.70	206.66	-90.60	-910.77	3,060.93	4,084.97	3,848.49	236.48	17.274	
13,800.00	6,947.00	6,896.91	6,893.09	117.23	206.66	-90.60	-910.77	3,060.93	4,182.24	3,945.73	236.51	17.683	
13,900.00	6,947.00	6,896.92	6,893.09	118.76	206.66	-90.60	-910.77	3,060.93	4,279.64	4,043.09	236.55	18.092	
14,000.00	6,947.00	6,896.92	6,893.10	120.29	206.66	-90.60	-910.77	3,060.93	4,377.15	4,140.56	236.59	18.501	
14,100.00	6,947.00	6,896.93	6,893.10	121.82	206.66	-90.60	-910.77	3,060.93	4,474.77	4,238.14	236.63	18.910	
14,200.00	6,947.00	6,896.93	6,893.11	123.36	206.66	-90.60	-910.77	3,060.93	4,572.50	4,335.82	236.68	19.320	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,300.00	6,947.00	6,896.94	6,893.12	124.89	206.66	-90.60	-910.77	3,060.93	4,670.32	4,433.60	236.73	19.729	
14,400.00	6,947.00	6,896.94	6,893.12	126.43	206.66	-90.60	-910.77	3,060.93	4,768.24	4,531.46	236.78	20.138	
14,500.00	6,947.00	6,896.95	6,893.13	127.97	206.66	-90.61	-910.77	3,060.93	4,866.24	4,629.40	236.83	20.547	
14,600.00	6,947.00	6,896.95	6,893.13	129.51	206.66	-90.61	-910.77	3,060.93	4,964.31	4,727.43	236.89	20.956	
14,700.00	6,947.00	6,896.96	6,893.14	131.06	206.66	-90.61	-910.77	3,060.93	5,062.47	4,825.52	236.94	21.366	
14,800.00	6,947.00	6,896.97	6,893.14	132.60	206.66	-90.61	-910.77	3,060.93	5,160.69	4,923.69	237.00	21.775	
14,900.00	6,947.00	6,896.97	6,893.15	134.15	206.66	-90.61	-910.77	3,060.93	5,258.98	5,021.91	237.07	22.184	
15,000.00	6,947.00	6,896.98	6,893.15	135.70	206.66	-90.61	-910.77	3,060.93	5,357.33	5,120.21	237.13	22.592	
15,100.00	6,947.00	6,896.98	6,893.16	137.24	206.66	-90.61	-910.77	3,060.93	5,455.75	5,218.56	237.19	23.001	
15,200.00	6,947.00	6,896.99	6,893.16	138.79	206.66	-90.61	-910.77	3,060.93	5,554.22	5,316.96	237.26	23.410	
15,300.00	6,947.00	6,896.99	6,893.17	140.35	206.67	-90.61	-910.77	3,060.93	5,652.74	5,415.42	237.33	23.818	
15,400.00	6,947.00	6,897.00	6,893.17	141.90	206.67	-90.61	-910.77	3,060.93	5,751.32	5,513.92	237.40	24.227	
15,500.00	6,947.00	6,897.00	6,893.18	143.45	206.67	-90.61	-910.77	3,060.93	5,849.94	5,612.48	237.47	24.635	
15,600.00	6,947.00	6,897.01	6,893.18	145.01	206.67	-90.61	-910.77	3,060.93	5,948.61	5,711.08	237.54	25.043	
15,700.00	6,947.00	6,897.01	6,893.19	146.56	206.67	-90.61	-910.77	3,060.93	6,047.33	5,809.72	237.61	25.451	
15,800.00	6,947.00	6,897.02	6,893.19	148.12	206.67	-90.61	-910.77	3,060.93	6,146.08	5,908.40	237.68	25.858	
15,900.00	6,947.00	6,897.02	6,893.20	149.68	206.67	-90.61	-910.77	3,060.93	6,244.87	6,007.12	237.76	26.266	
16,000.00	6,947.00	6,897.03	6,893.20	151.23	206.67	-90.61	-910.77	3,060.93	6,343.71	6,105.88	237.83	26.673	
16,100.00	6,947.00	6,897.03	6,893.21	152.79	206.67	-90.61	-910.77	3,060.93	6,442.58	6,204.67	237.91	27.080	
16,200.00	6,947.00	6,897.04	6,893.21	154.36	206.67	-90.61	-910.77	3,060.93	6,541.48	6,303.50	237.98	27.487	
16,300.00	6,947.00	6,897.04	6,893.22	155.92	206.67	-90.61	-910.77	3,060.93	6,640.41	6,402.35	238.06	27.894	
16,400.00	6,947.00	6,897.05	6,893.22	157.48	206.67	-90.61	-910.77	3,060.93	6,739.38	6,501.24	238.14	28.300	
16,500.00	6,947.00	6,897.05	6,893.23	159.04	206.67	-90.61	-910.77	3,060.93	6,838.38	6,600.16	238.22	28.706	
16,600.00	6,947.00	6,897.06	6,893.24	160.61	206.67	-90.61	-910.77	3,060.93	6,937.40	6,699.11	238.30	29.112	
16,700.00	6,947.00	6,897.06	6,893.24	162.17	206.67	-90.61	-910.77	3,060.93	7,036.46	6,798.08	238.38	29.518	
16,800.00	6,947.00	6,897.07	6,893.25	163.74	206.67	-90.61	-910.77	3,060.93	7,135.54	6,897.08	238.46	29.924	
16,900.00	6,947.00	6,897.08	6,893.25	165.30	206.67	-90.61	-910.77	3,060.93	7,234.64	6,996.10	238.54	30.329	
17,000.00	6,947.00	6,897.08	6,893.26	166.87	206.67	-90.61	-910.77	3,060.93	7,333.77	7,095.15	238.62	30.734	
17,100.00	6,947.00	6,897.09	6,893.26	168.44	206.67	-90.61	-910.77	3,060.93	7,432.92	7,194.22	238.71	31.138	
17,200.00	6,947.00	6,897.09	6,893.27	170.01	206.67	-90.61	-910.77	3,060.93	7,532.10	7,293.31	238.79	31.543	
17,300.00	6,947.00	6,897.10	6,893.27	171.57	206.67	-90.61	-910.77	3,060.93	7,631.30	7,392.42	238.87	31.947	
17,400.00	6,947.00	6,897.10	6,893.28	173.14	206.67	-90.61	-910.77	3,060.93	7,730.51	7,491.56	238.96	32.351	
17,500.00	6,947.00	6,897.11	6,893.28	174.71	206.67	-90.61	-910.77	3,060.93	7,829.75	7,590.71	239.04	32.755	
17,600.00	6,947.00	6,897.11	6,893.29	176.28	206.67	-90.61	-910.77	3,060.93	7,929.01	7,689.88	239.13	33.158	
17,700.00	6,947.00	6,897.12	6,893.29	177.86	206.67	-90.62	-910.77	3,060.93	8,028.28	7,789.07	239.22	33.561	
17,800.00	6,947.00	6,897.12	6,893.30	179.43	206.67	-90.62	-910.77	3,060.93	8,127.57	7,888.27	239.30	33.964	
17,900.00	6,947.00	6,897.13	6,893.30	181.00	206.67	-90.62	-910.77	3,060.93	8,226.88	7,987.50	239.39	34.366	
18,000.00	6,947.00	6,897.13	6,893.31	182.57	206.67	-90.62	-910.77	3,060.93	8,326.21	8,086.73	239.48	34.768	
18,100.00	6,947.00	6,897.14	6,893.31	184.15	206.67	-90.62	-910.77	3,060.93	8,425.55	8,185.99	239.57	35.170	
18,200.00	6,947.00	6,897.14	6,893.32	185.72	206.67	-90.62	-910.77	3,060.93	8,524.91	8,285.26	239.65	35.572	
18,300.00	6,947.00	6,897.15	6,893.32	187.30	206.67	-90.62	-910.77	3,060.93	8,624.28	8,384.54	239.74	35.973	
18,400.00	6,947.00	6,897.15	6,893.33	188.87	206.67	-90.62	-910.77	3,060.93	8,723.67	8,483.84	239.83	36.374	
18,500.00	6,947.00	6,897.16	6,893.33	190.45	206.67	-90.62	-910.77	3,060.93	8,823.07	8,583.15	239.92	36.774	
18,600.00	6,947.00	6,897.16	6,893.34	192.02	206.67	-90.62	-910.77	3,060.93	8,922.48	8,682.47	240.01	37.175	
18,700.00	6,947.00	6,897.17	6,893.35	193.60	206.67	-90.62	-910.77	3,060.93	9,021.91	8,781.81	240.11	37.575	
18,800.00	6,947.00	6,897.17	6,893.35	195.18	206.67	-90.62	-910.77	3,060.93	9,121.35	8,881.15	240.20	37.974	
18,900.00	6,947.00	6,897.18	6,893.36	196.75	206.67	-90.62	-910.77	3,060.93	9,220.80	8,980.51	240.29	38.374	
19,000.00	6,947.00	6,897.19	6,893.36	198.33	206.67	-90.62	-910.77	3,060.93	9,320.27	9,079.88	240.38	38.773	
19,100.00	6,947.00	6,897.19	6,893.37	199.91	206.67	-90.62	-910.77	3,060.93	9,419.74	9,179.27	240.47	39.171	
19,200.00	6,947.00	6,897.20	6,893.37	201.49	206.67	-90.62	-910.77	3,060.93	9,519.23	9,278.66	240.57	39.570	
19,300.00	6,947.00	6,897.20	6,893.38	203.07	206.67	-90.62	-910.77	3,060.93	9,618.72	9,378.06	240.66	39.968	
19,400.00	6,947.00	6,897.21	6,893.38	204.65	206.67	-90.62	-910.77	3,060.93	9,718.23	9,477.47	240.76	40.365	

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 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Rule Assigned:

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
19,500.00	6,947.00	6,897.21	6,893.39	206.23	206.67	-90.62	-910.77	3,060.93	9,817.75	9,576.90	240.85	40.763	
19,600.00	6,947.00	6,897.22	6,893.39	207.81	206.67	-90.62	-910.77	3,060.93	9,917.27	9,676.33	240.95	41.160	
19,700.00	6,947.00	6,897.22	6,893.40	209.39	206.67	-90.62	-910.77	3,060.93	10,016.81	9,775.77	241.04	41.556	
19,800.00	6,947.00	6,897.23	6,893.40	210.97	206.67	-90.62	-910.77	3,060.93	10,116.35	9,875.22	241.14	41.953	
19,900.00	6,947.00	6,897.23	6,893.41	212.55	206.67	-90.62	-910.77	3,060.93	10,215.91	9,974.68	241.23	42.349	
20,000.00	6,947.00	6,897.24	6,893.41	214.13	206.67	-90.62	-910.77	3,060.93	10,315.47	10,074.14	241.33	42.744	
20,100.00	6,947.00	6,897.24	6,893.42	215.71	206.67	-90.62	-910.77	3,060.93	10,415.04	10,173.62	241.43	43.140	
20,200.00	6,947.00	6,897.25	6,893.42	217.30	206.67	-90.62	-910.77	3,060.93	10,514.62	10,273.10	241.52	43.535	
20,300.00	6,947.00	6,897.25	6,893.43	218.88	206.67	-90.62	-910.77	3,060.93	10,614.21	10,372.59	241.62	43.929	
20,400.00	6,947.00	6,897.26	6,893.43	220.46	206.67	-90.62	-910.77	3,060.93	10,713.80	10,472.08	241.72	44.323	
20,500.00	6,947.00	6,897.26	6,893.44	222.04	206.67	-90.62	-910.77	3,060.93	10,813.41	10,571.59	241.82	44.717	
20,600.00	6,947.00	6,897.27	6,893.45	223.63	206.67	-90.62	-910.77	3,060.93	10,913.02	10,671.10	241.92	45.111	
20,700.00	6,947.00	6,897.27	6,893.45	225.21	206.67	-90.62	-910.77	3,060.93	11,012.63	10,770.62	242.02	45.504	
20,800.00	6,947.00	6,897.28	6,893.46	226.80	206.67	-90.62	-910.77	3,060.93	11,112.26	10,870.14	242.11	45.897	
20,900.00	6,947.00	6,897.28	6,893.46	228.38	206.67	-90.63	-910.77	3,060.93	11,211.89	10,969.67	242.21	46.289	
21,000.00	6,947.00	6,897.29	6,893.47	229.97	206.67	-90.63	-910.77	3,060.93	11,311.52	11,069.21	242.32	46.681	
21,032.01	6,947.00	6,897.29	6,893.47	230.47	206.67	-90.63	-910.77	3,060.93	11,343.42	11,101.07	242.35	46.806	
21,032.99	6,947.00	6,897.29	6,893.47	230.51	206.67	-90.63	-910.77	3,060.93	11,344.39	11,097.54	246.85	45.957	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Rule Assigned: Warning
0.00	0.00	0.00	0.00	0.00	0.00	69.62	1,055.52	2,841.01	3,031.05				
100.00	100.00	58.00	58.00	0.25	1.74	69.62	1,055.52	2,841.01	3,030.76	3,028.77	1.99	1,523.721	
200.00	200.00	158.00	158.00	0.61	4.73	69.62	1,055.52	2,841.01	3,030.76	3,025.41	5.34	567.140	
300.00	300.00	258.00	258.00	0.97	7.73	69.62	1,055.52	2,841.01	3,030.76	3,022.06	8.70	348.410	
400.00	400.00	358.00	358.00	1.33	10.73	69.62	1,055.52	2,841.01	3,030.76	3,018.70	12.05	251.438	
500.00	500.00	458.00	458.00	1.68	13.72	69.62	1,055.52	2,841.01	3,030.76	3,015.35	15.41	196.693	CC
600.00	599.98	558.08	557.98	2.03	16.72	-95.41	1,055.52	2,841.01	3,030.92	3,012.17	18.75	161.659	
700.00	699.84	657.94	657.84	2.36	19.71	-95.50	1,055.52	2,841.01	3,031.42	3,009.35	22.07	137.328	
800.00	799.45	758.18	758.04	2.71	22.72	-95.69	1,057.70	2,841.01	3,033.04	3,007.62	25.42	119.307	
900.00	898.70	865.65	865.49	3.06	25.94	-95.90	1,057.24	2,841.01	3,034.12	3,005.12	29.00	104.630	
1,000.00	997.47	972.87	972.68	3.43	29.15	-96.17	1,055.97	2,841.01	3,035.36	3,002.78	32.58	93.160	
1,100.00	1,095.62	1,054.03	1,053.62	3.82	31.58	-96.42	1,055.52	2,841.01	3,037.27	3,001.87	35.40	85.791	
1,200.00	1,193.44	1,151.84	1,151.44	4.22	34.51	-96.80	1,055.52	2,841.01	3,039.71	3,000.98	38.74	78.470	
1,300.00	1,291.25	1,249.66	1,249.25	4.64	37.45	-97.18	1,055.52	2,841.01	3,042.30	3,000.22	42.08	72.297	
1,400.00	1,389.07	1,356.30	1,355.84	5.06	40.64	-97.62	1,057.31	2,841.01	3,045.72	3,000.03	45.69	66.654	
1,500.00	1,486.88	1,463.32	1,462.82	5.48	43.85	-98.02	1,056.11	2,841.01	3,048.17	2,998.85	49.32	61.799	
1,600.00	1,584.70	1,543.41	1,542.70	5.91	46.25	-98.31	1,055.52	2,841.01	3,050.89	2,998.74	52.15	58.500	
1,700.00	1,682.51	1,641.22	1,640.51	6.35	49.18	-98.69	1,055.52	2,841.01	3,054.03	2,998.52	55.51	55.014	
1,800.00	1,780.33	1,739.04	1,738.33	6.78	52.11	-99.07	1,055.52	2,841.01	3,057.31	2,998.43	58.88	51.927	
1,900.00	1,878.14	1,845.45	1,844.68	7.22	55.30	-99.51	1,057.38	2,841.01	3,061.52	2,999.02	62.50	48.984	
2,000.00	1,975.96	1,953.27	1,952.48	7.66	58.53	-99.90	1,056.26	2,841.01	3,064.65	2,998.48	66.17	46.317	
2,100.00	2,073.77	2,032.79	2,031.77	8.10	60.91	-100.19	1,055.52	2,841.01	3,067.97	2,998.99	68.99	44.472	
2,200.00	2,171.59	2,130.60	2,129.59	8.54	63.84	-100.57	1,055.52	2,841.01	3,071.80	2,999.44	72.36	42.454	
2,300.00	2,269.40	2,228.42	2,227.40	8.98	66.77	-100.94	1,055.52	2,841.01	3,075.76	3,000.04	75.72	40.618	
2,400.00	2,367.22	2,334.43	2,333.36	9.43	69.95	-101.38	1,057.45	2,841.01	3,080.74	3,001.40	79.34	38.829	
2,500.00	2,465.03	2,443.07	2,441.97	9.87	73.21	-101.77	1,056.40	2,841.01	3,084.55	3,001.52	83.03	37.148	
2,600.00	2,562.84	2,522.16	2,520.84	10.32	75.58	-102.05	1,055.52	2,841.01	3,088.46	3,002.62	85.84	35.977	
2,700.00	2,660.66	2,619.98	2,618.66	10.77	78.51	-102.42	1,055.52	2,841.01	3,092.96	3,003.75	89.22	34.668	
2,800.00	2,758.47	2,717.79	2,716.47	11.21	81.44	-102.79	1,055.52	2,841.01	3,097.60	3,005.01	92.59	33.456	
2,900.00	2,856.29	2,823.23	2,821.86	11.66	84.60	-103.22	1,057.52	2,841.01	3,103.32	3,007.14	96.19	32.264	
3,000.00	2,954.10	2,932.71	2,931.31	12.11	87.88	-103.61	1,056.54	2,841.01	3,107.81	3,007.91	99.91	31.107	
3,100.00	3,051.92	3,011.54	3,009.92	12.56	90.24	-103.89	1,055.52	2,841.01	3,112.29	3,009.58	102.71	30.302	
3,200.00	3,149.73	3,109.36	3,107.73	13.01	93.17	-104.25	1,055.52	2,841.01	3,117.45	3,011.37	106.08	29.388	
3,300.00	3,247.55	3,207.17	3,205.55	13.45	96.10	-104.61	1,055.52	2,841.01	3,122.74	3,013.29	109.45	28.532	
3,400.00	3,345.36	3,311.86	3,310.19	13.90	99.24	-105.03	1,057.57	2,841.01	3,129.20	3,016.18	113.02	27.686	
3,500.00	3,443.18	3,422.18	3,420.48	14.35	102.54	-105.42	1,056.67	2,841.01	3,134.35	3,017.58	116.77	26.842	
3,600.00	3,540.99	3,500.92	3,498.99	14.80	104.90	-105.69	1,055.52	2,841.01	3,139.39	3,019.82	119.57	26.256	
3,700.00	3,638.81	3,598.74	3,596.81	15.25	107.83	-106.05	1,055.52	2,841.01	3,145.19	3,022.25	122.94	25.584	
3,800.00	3,736.62	3,696.55	3,694.62	15.70	110.77	-106.41	1,055.52	2,841.01	3,151.12	3,024.81	126.30	24.949	
3,900.00	3,834.44	3,800.31	3,798.34	16.15	113.87	-106.81	1,057.62	2,841.01	3,158.29	3,028.44	129.85	24.323	
4,000.00	3,932.25	3,911.49	3,909.49	16.60	117.21	-107.20	1,056.79	2,841.01	3,164.09	3,030.47	133.62	23.680	
4,100.00	4,030.07	4,023.04	4,021.00	17.05	120.55	-107.58	1,055.10	2,841.01	3,169.60	3,032.20	137.40	23.069	
4,200.00	4,127.88	4,088.11	4,085.88	17.50	122.50	-107.82	1,055.52	2,841.01	3,176.09	3,036.30	139.78	22.722	
4,300.00	4,225.70	4,185.93	4,183.70	17.96	125.43	-108.17	1,055.52	2,841.01	3,182.64	3,039.49	143.15	22.233	
4,400.00	4,323.51	4,288.58	4,286.30	18.41	128.51	-108.56	1,057.65	2,841.01	3,190.50	3,043.84	146.66	21.754	
4,500.00	4,421.33	4,400.62	4,398.32	18.86	131.86	-108.95	1,056.91	2,841.01	3,196.94	3,046.49	150.45	21.249	
4,600.00	4,519.14	4,513.06	4,510.72	19.31	135.23	-109.32	1,055.29	2,841.01	3,203.06	3,048.81	154.25	20.765	
4,700.00	4,616.95	4,577.49	4,574.95	19.76	137.16	-109.55	1,055.52	2,841.01	3,210.05	3,053.44	156.62	20.496	
4,800.00	4,714.77	4,675.31	4,672.77	20.21	140.09	-109.89	1,055.52	2,841.01	3,217.21	3,057.23	159.98	20.110	
4,900.00	4,812.58	4,776.66	4,774.08	20.66	143.13	-110.27	1,057.68	2,841.01	3,225.74	3,062.29	163.45	19.735	
5,000.00	4,910.40	4,889.58	4,886.98	21.11	146.51	-110.66	1,057.02	2,841.01	3,232.80	3,065.54	167.27	19.327	
5,100.00	5,008.21	5,002.91	5,000.27	21.57	149.91	-111.02	1,055.47	2,841.01	3,239.52	3,068.43	171.09	18.934	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Rule Assigned: Warning
5,200.00	5,106.03	5,066.87	5,064.03	22.02	151.83	-111.24	1,055.52	2,841.01	3,247.00	3,073.56	173.44	18.721	
5,300.00	5,203.84	5,164.69	5,161.84	22.47	154.76	-111.58	1,055.52	2,841.01	3,254.73	3,077.93	176.80	18.409	
5,400.00	5,301.66	5,264.54	5,261.66	22.92	157.75	-111.95	1,057.70	2,841.01	3,263.90	3,083.68	180.22	18.111	
5,500.00	5,399.47	5,378.36	5,375.46	23.37	161.16	-112.33	1,057.13	2,841.01	3,271.58	3,087.52	184.06	17.774	
5,600.00	5,497.29	5,492.59	5,489.65	23.82	164.58	-112.69	1,055.65	2,841.01	3,278.88	3,090.97	187.91	17.449	
5,700.00	5,595.10	5,556.25	5,553.10	24.28	166.49	-112.90	1,055.52	2,841.01	3,286.81	3,096.57	190.24	17.277	
5,800.00	5,692.92	5,654.06	5,650.92	24.73	169.42	-113.23	1,055.52	2,841.01	3,295.11	3,101.51	193.60	17.020	
5,900.00	5,790.73	5,752.23	5,749.04	25.18	172.36	-113.58	1,057.70	2,841.01	3,304.89	3,107.93	196.97	16.779	
6,000.00	5,888.55	5,866.96	5,863.75	25.63	175.80	-113.96	1,057.23	2,841.01	3,313.16	3,112.33	200.84	16.497	
6,100.00	5,986.36	5,982.11	5,978.87	26.08	179.25	-114.32	1,055.82	2,841.01	3,321.04	3,116.33	204.71	16.223	
6,200.00	6,084.18	6,011.00	6,007.54	26.54	180.12	-114.41	1,055.52	2,841.01	3,329.58	3,123.61	205.97	16.165	
6,300.00	6,181.99	6,011.00	6,007.54	26.99	180.12	-114.41	1,055.52	2,841.01	3,340.87	3,134.66	206.21	16.201	
6,400.00	6,279.81	6,011.00	6,007.54	27.44	180.12	-114.41	1,055.52	2,841.01	3,355.10	3,148.82	206.27	16.265	
6,500.00	6,377.62	6,011.00	6,007.54	27.89	180.12	-114.41	1,055.52	2,841.01	3,372.24	3,166.06	206.17	16.356	
6,530.62	6,407.57	6,011.00	6,007.54	28.03	180.12	-114.41	1,055.52	2,841.01	3,378.06	3,171.95	206.11	16.390	
6,550.00	6,426.48	6,011.00	6,007.54	28.12	180.12	-108.62	1,055.52	2,841.01	3,381.77	3,175.71	206.06	16.411	
6,600.00	6,474.77	6,011.00	6,007.54	28.36	180.12	-97.82	1,055.52	2,841.01	3,390.77	3,184.84	205.93	16.466	
6,650.00	6,522.09	6,011.00	6,007.54	28.62	180.12	-90.81	1,055.52	2,841.01	3,398.92	3,193.14	205.78	16.517	
6,700.00	6,568.15	6,011.00	6,007.54	28.89	180.12	-85.98	1,055.52	2,841.01	3,406.16	3,200.54	205.62	16.565	
6,750.00	6,612.66	6,011.00	6,007.54	29.18	180.12	-82.49	1,055.52	2,841.01	3,412.47	3,207.01	205.46	16.609	
6,800.00	6,655.36	6,011.00	6,007.54	29.48	180.12	-79.87	1,055.52	2,841.01	3,417.80	3,212.52	205.29	16.649	
6,850.00	6,695.98	6,011.00	6,007.54	29.79	180.12	-77.87	1,055.52	2,841.01	3,422.13	3,217.01	205.12	16.684	
6,900.00	6,734.26	6,011.00	6,007.54	30.11	180.12	-76.32	1,055.52	2,841.01	3,425.44	3,220.48	204.96	16.713	
6,950.00	6,769.98	6,011.00	6,007.54	30.45	180.12	-75.13	1,055.52	2,841.01	3,427.70	3,222.89	204.82	16.735	
7,000.00	6,802.91	6,011.00	6,007.54	30.79	180.12	-74.23	1,055.52	2,841.01	3,428.91	3,224.22	204.70	16.751	
7,050.00	6,832.85	6,011.00	6,007.54	31.15	180.12	-73.58	1,055.52	2,841.01	3,429.07	3,224.46	204.60	16.760	
7,100.00	6,859.62	6,011.00	6,007.54	31.51	180.12	-73.13	1,055.52	2,841.01	3,428.16	3,223.61	204.54	16.760	
7,150.00	6,883.05	6,011.00	6,007.54	31.89	180.12	-72.88	1,055.52	2,841.01	3,426.19	3,221.67	204.52	16.752	
7,200.00	6,902.99	6,011.00	6,007.54	32.28	180.12	-72.79	1,055.52	2,841.01	3,423.18	3,218.63	204.54	16.736	
7,250.00	6,919.32	6,011.00	6,007.54	32.67	180.12	-72.87	1,055.52	2,841.01	3,419.14	3,214.52	204.62	16.710	
7,300.00	6,931.95	6,011.00	6,007.54	33.08	180.12	-73.09	1,055.52	2,841.01	3,414.09	3,209.34	204.75	16.675	
7,350.00	6,940.79	6,011.00	6,007.54	33.49	180.12	-73.46	1,055.52	2,841.01	3,408.05	3,203.12	204.93	16.630	
7,400.00	6,945.79	6,011.00	6,007.54	33.90	180.12	-73.96	1,055.52	2,841.01	3,401.07	3,195.90	205.17	16.577	
7,439.53	6,947.00	6,011.00	6,007.54	34.24	180.12	-74.46	1,055.52	2,841.01	3,394.90	3,189.50	205.41	16.528	
7,500.00	6,947.00	6,011.00	6,007.54	34.75	180.12	-74.40	1,055.52	2,841.01	3,384.96	3,179.16	205.80	16.448	
7,600.00	6,947.00	6,011.00	6,007.54	35.63	180.12	-74.31	1,055.52	2,841.01	3,368.16	3,161.70	206.46	16.314	
7,700.00	6,947.00	6,011.00	6,007.54	36.54	180.12	-74.22	1,055.52	2,841.01	3,350.94	3,143.80	207.14	16.177	
7,800.00	6,947.00	6,011.00	6,007.54	37.47	180.12	-74.12	1,055.52	2,841.01	3,333.30	3,125.46	207.84	16.038	
7,900.00	6,947.00	6,011.00	6,007.54	38.43	180.12	-74.02	1,055.52	2,841.01	3,315.26	3,106.72	208.54	15.897	
8,000.00	6,947.00	6,011.00	6,007.54	39.41	180.12	-73.92	1,055.52	2,841.01	3,296.84	3,087.58	209.25	15.755	
8,100.00	6,947.00	6,011.00	6,007.54	40.40	180.12	-73.81	1,055.52	2,841.01	3,278.05	3,068.08	209.97	15.612	
8,200.00	6,947.00	6,011.00	6,007.54	41.42	180.12	-73.70	1,055.52	2,841.01	3,258.91	3,048.22	210.69	15.468	
8,300.00	6,947.00	6,011.00	6,007.54	42.44	180.12	-73.59	1,055.52	2,841.01	3,239.44	3,028.03	211.40	15.323	
8,400.00	6,947.00	6,011.00	6,007.54	43.48	180.12	-73.47	1,055.52	2,841.01	3,219.65	3,007.53	212.11	15.179	
8,500.00	6,947.00	6,011.00	6,007.54	44.53	180.12	-73.36	1,055.52	2,841.01	3,199.56	2,986.75	212.82	15.034	
8,600.00	6,947.00	6,011.00	6,007.54	45.58	180.12	-73.24	1,055.52	2,841.01	3,179.20	2,965.69	213.51	14.890	
8,700.00	6,947.00	6,011.00	6,007.54	46.63	180.12	-73.12	1,055.52	2,841.01	3,158.58	2,944.39	214.19	14.747	
8,800.00	6,947.00	6,011.00	6,007.54	47.69	180.12	-72.99	1,055.52	2,841.01	3,137.72	2,922.88	214.85	14.605	
8,841.31	6,947.00	6,011.00	6,007.54	48.13	180.12	-72.94	1,055.52	2,841.01	3,129.04	2,913.93	215.11	14.546	
8,900.00	6,947.00	6,011.00	6,007.54	48.76	180.12	-72.94	1,055.52	2,841.01	3,117.21	2,901.72	215.49	14.466	
9,000.00	6,947.00	6,011.00	6,007.54	49.85	180.12	-72.94	1,055.52	2,841.01	3,099.51	2,883.37	216.14	14.340	
9,100.00	6,947.00	6,011.00	6,007.54	50.97	180.12	-72.94	1,055.52	2,841.01	3,084.95	2,868.15	216.80	14.230	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,200.00	6,947.00	6,011.00	6,007.54	52.12	180.12	-72.94	1,055.52	2,841.01	3,073.57	2,856.12	217.45	14.134	
9,300.00	6,947.00	6,011.00	6,007.54	53.28	180.12	-72.94	1,055.52	2,841.01	3,065.42	2,847.31	218.11	14.054	
9,400.00	6,947.00	6,011.00	6,007.54	54.48	180.12	-72.94	1,055.52	2,841.01	3,060.52	2,841.75	218.77	13.990	
9,500.00	6,947.00	6,011.00	6,007.54	55.69	180.12	-72.94	1,055.52	2,841.01	3,058.88	2,839.46	219.41	13.941	
9,504.45	6,947.00	6,011.00	6,007.54	55.74	180.12	-72.94	1,055.52	2,841.01	3,058.88	2,839.44	219.44	13.939 ES	
9,600.00	6,947.00	6,011.00	6,007.54	56.92	180.12	-72.94	1,055.52	2,841.01	3,060.50	2,840.45	220.05	13.908	
9,700.00	6,947.00	6,011.00	6,007.54	58.17	180.12	-72.94	1,055.52	2,841.01	3,065.39	2,844.72	220.67	13.891	
9,800.00	6,947.00	6,011.00	6,007.54	59.44	180.12	-72.94	1,055.52	2,841.01	3,073.53	2,852.25	221.28	13.890 SF	
9,900.00	6,947.00	6,011.00	6,007.54	60.73	180.12	-72.94	1,055.52	2,841.01	3,084.89	2,863.02	221.87	13.904	
10,000.00	6,947.00	6,011.00	6,007.54	62.03	180.12	-72.94	1,055.52	2,841.01	3,099.44	2,876.99	222.44	13.934	
10,100.00	6,947.00	6,011.00	6,007.54	63.34	180.12	-72.94	1,055.52	2,841.01	3,117.12	2,894.13	222.99	13.979	
10,200.00	6,947.00	6,011.00	6,007.54	64.67	180.12	-72.94	1,055.52	2,841.01	3,137.90	2,914.38	223.52	14.039	
10,300.00	6,947.00	6,011.00	6,007.54	66.01	180.12	-72.94	1,055.52	2,841.01	3,161.70	2,937.69	224.02	14.114	
10,400.00	6,947.00	6,011.00	6,007.54	67.36	180.12	-72.94	1,055.52	2,841.01	3,188.47	2,963.98	224.49	14.203	
10,500.00	6,947.00	6,011.00	6,007.54	68.73	180.12	-72.94	1,055.52	2,841.01	3,218.12	2,993.18	224.94	14.307	
10,600.00	6,947.00	6,011.00	6,007.54	70.10	180.12	-72.94	1,055.52	2,841.01	3,250.58	3,025.22	225.36	14.424	
10,700.00	6,947.00	6,011.00	6,007.54	71.48	180.12	-72.94	1,055.52	2,841.01	3,285.76	3,060.00	225.75	14.555	
10,800.00	6,947.00	6,011.00	6,007.54	72.88	180.12	-72.94	1,055.52	2,841.01	3,323.58	3,097.46	226.12	14.698	
10,900.00	6,947.00	6,011.00	6,007.54	74.28	180.12	-72.94	1,055.52	2,841.01	3,363.94	3,137.49	226.46	14.855	
11,000.00	6,947.00	6,011.00	6,007.54	75.69	180.12	-72.94	1,055.52	2,841.01	3,406.77	3,180.00	226.77	15.023	
11,100.00	6,947.00	6,011.00	6,007.54	77.10	180.12	-72.94	1,055.52	2,841.01	3,451.96	3,224.91	227.05	15.203	
11,200.00	6,947.00	6,011.00	6,007.54	78.53	180.12	-72.94	1,055.52	2,841.01	3,499.43	3,272.11	227.31	15.395	
11,300.00	6,947.00	6,011.00	6,007.54	79.96	180.12	-72.94	1,055.52	2,841.01	3,549.07	3,321.53	227.55	15.597	
11,400.00	6,947.00	6,011.00	6,007.54	81.40	180.12	-72.94	1,055.52	2,841.01	3,600.82	3,373.05	227.76	15.809	
11,500.00	6,947.00	6,011.00	6,007.54	82.84	180.12	-72.94	1,055.52	2,841.01	3,654.56	3,426.61	227.95	16.032	
11,600.00	6,947.00	6,011.00	6,007.54	84.29	180.12	-72.94	1,055.52	2,841.01	3,710.23	3,482.10	228.13	16.264	
11,700.00	6,947.00	6,011.00	6,007.54	85.75	180.12	-72.94	1,055.52	2,841.01	3,767.73	3,539.45	228.28	16.505	
11,800.00	6,947.00	6,011.00	6,007.54	87.21	180.12	-72.94	1,055.52	2,841.01	3,826.97	3,598.56	228.41	16.755	
11,900.00	6,947.00	6,011.00	6,007.54	88.68	180.12	-72.94	1,055.52	2,841.01	3,887.89	3,659.36	228.53	17.013	
12,000.00	6,947.00	6,011.00	6,007.54	90.15	180.12	-72.94	1,055.52	2,841.01	3,950.40	3,721.77	228.63	17.279	
12,100.00	6,947.00	6,011.00	6,007.54	91.62	180.12	-72.94	1,055.52	2,841.01	4,014.42	3,785.71	228.71	17.552	
12,200.00	6,947.00	6,011.00	6,007.54	93.10	180.12	-72.94	1,055.52	2,841.01	4,079.89	3,851.11	228.78	17.833	
12,300.00	6,947.00	6,011.00	6,007.54	94.59	180.12	-72.94	1,055.52	2,841.01	4,146.74	3,917.90	228.84	18.121	
12,400.00	6,947.00	6,011.00	6,007.54	96.07	180.12	-72.94	1,055.52	2,841.01	4,214.91	3,986.02	228.89	18.415	
12,500.00	6,947.00	6,011.00	6,007.54	97.56	180.12	-72.94	1,055.52	2,841.01	4,284.32	4,055.39	228.93	18.715	
12,600.00	6,947.00	6,011.00	6,007.54	99.06	180.12	-72.94	1,055.52	2,841.01	4,354.92	4,125.97	228.95	19.021	
12,700.00	6,947.00	6,011.00	6,007.54	100.56	180.12	-72.94	1,055.52	2,841.01	4,426.66	4,197.69	228.97	19.333	
12,800.00	6,947.00	6,011.00	6,007.54	102.06	180.12	-72.94	1,055.52	2,841.01	4,499.47	4,270.49	228.98	19.650	
12,900.00	6,947.00	6,011.00	6,007.54	103.56	180.12	-72.94	1,055.52	2,841.01	4,573.32	4,344.33	228.99	19.972	
13,000.00	6,947.00	6,011.00	6,007.54	105.07	180.12	-72.94	1,055.52	2,841.01	4,648.14	4,419.15	228.99	20.299	
13,100.00	6,947.00	6,011.00	6,007.54	106.58	180.12	-72.94	1,055.52	2,841.01	4,723.89	4,494.91	228.98	20.630	
13,200.00	6,947.00	6,011.00	6,007.54	108.10	180.12	-72.94	1,055.52	2,841.01	4,800.53	4,571.56	228.97	20.966	
13,300.00	6,947.00	6,011.00	6,007.54	109.61	180.12	-72.94	1,055.52	2,841.01	4,878.02	4,649.07	228.95	21.306	
13,400.00	6,947.00	6,011.00	6,007.54	111.13	180.12	-72.94	1,055.52	2,841.01	4,956.31	4,727.38	228.93	21.650	
13,500.00	6,947.00	6,011.00	6,007.54	112.65	180.12	-72.94	1,055.52	2,841.01	5,035.37	4,806.47	228.90	21.998	
13,600.00	6,947.00	6,011.00	6,007.54	114.17	180.12	-72.94	1,055.52	2,841.01	5,115.17	4,886.29	228.88	22.349	
13,700.00	6,947.00	6,011.00	6,007.54	115.70	180.12	-72.94	1,055.52	2,841.01	5,195.66	4,966.81	228.85	22.704	
13,800.00	6,947.00	6,011.00	6,007.54	117.23	180.12	-72.94	1,055.52	2,841.01	5,276.82	5,048.01	228.81	23.062	
13,900.00	6,947.00	6,011.00	6,007.54	118.76	180.12	-72.94	1,055.52	2,841.01	5,358.62	5,129.84	228.78	23.423	
14,000.00	6,947.00	6,011.00	6,007.54	120.29	180.12	-72.94	1,055.52	2,841.01	5,441.02	5,212.28	228.74	23.786	
14,100.00	6,947.00	6,011.00	6,007.54	121.82	180.12	-72.94	1,055.52	2,841.01	5,524.01	5,295.30	228.71	24.153	
14,200.00	6,947.00	6,011.00	6,007.54	123.36	180.12	-72.94	1,055.52	2,841.01	5,607.55	5,378.88	228.67	24.522	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Rule Assigned: Warning
14,300.00	6,947.00	6,011.00	6,007.54	124.89	180.12	-72.94	1,055.52	2,841.01	5,691.63	5,462.99	228.63	24.894	
14,400.00	6,947.00	6,011.00	6,007.54	126.43	180.12	-72.94	1,055.52	2,841.01	5,776.21	5,547.61	228.59	25.268	
14,500.00	6,947.00	6,011.00	6,007.54	127.97	180.12	-72.94	1,055.52	2,841.01	5,861.27	5,632.72	228.56	25.645	
14,600.00	6,947.00	6,011.00	6,007.54	129.51	180.12	-72.94	1,055.52	2,841.01	5,946.80	5,718.29	228.52	26.023	
14,700.00	6,947.00	6,011.00	6,007.54	131.06	180.12	-72.94	1,055.52	2,841.01	6,032.78	5,804.30	228.48	26.404	
14,800.00	6,947.00	6,011.00	6,007.54	132.60	180.12	-72.94	1,055.52	2,841.01	6,119.18	5,890.74	228.44	26.787	
14,900.00	6,947.00	6,011.00	6,007.54	134.15	180.12	-72.94	1,055.52	2,841.01	6,205.99	5,977.59	228.40	27.171	
15,000.00	6,947.00	6,011.00	6,007.54	135.70	180.12	-72.94	1,055.52	2,841.01	6,293.19	6,064.83	228.37	27.558	
15,100.00	6,947.00	6,011.00	6,007.54	137.24	180.12	-72.94	1,055.52	2,841.01	6,380.77	6,152.44	228.33	27.946	
15,200.00	6,947.00	6,011.00	6,007.54	138.79	180.12	-72.94	1,055.52	2,841.01	6,468.71	6,240.42	228.29	28.335	
15,300.00	6,947.00	6,011.00	6,007.54	140.35	180.12	-72.94	1,055.52	2,841.01	6,556.99	6,328.74	228.26	28.726	
15,400.00	6,947.00	6,011.00	6,007.54	141.90	180.12	-72.94	1,055.52	2,841.01	6,645.61	6,417.39	228.22	29.119	
15,500.00	6,947.00	6,011.00	6,007.54	143.45	180.12	-72.94	1,055.52	2,841.01	6,734.54	6,506.35	228.19	29.513	
15,600.00	6,947.00	6,011.00	6,007.54	145.01	180.12	-72.94	1,055.52	2,841.01	6,823.78	6,595.63	228.16	29.908	
15,700.00	6,947.00	6,011.00	6,007.54	146.56	180.12	-72.94	1,055.52	2,841.01	6,913.32	6,685.19	228.13	30.305	
15,800.00	6,947.00	6,011.00	6,007.54	148.12	180.12	-72.94	1,055.52	2,841.01	7,003.14	6,775.04	228.10	30.702	
15,900.00	6,947.00	6,011.00	6,007.54	149.68	180.12	-72.94	1,055.52	2,841.01	7,093.23	6,865.16	228.07	31.101	
16,000.00	6,947.00	6,011.00	6,007.54	151.23	180.12	-72.94	1,055.52	2,841.01	7,183.58	6,955.54	228.04	31.501	
16,100.00	6,947.00	6,011.00	6,007.54	152.79	180.12	-72.94	1,055.52	2,841.01	7,274.19	7,046.17	228.02	31.902	
16,200.00	6,947.00	6,011.00	6,007.54	154.36	180.12	-72.94	1,055.52	2,841.01	7,365.04	7,137.05	227.99	32.304	
16,300.00	6,947.00	6,011.00	6,007.54	155.92	180.12	-72.94	1,055.52	2,841.01	7,456.12	7,228.15	227.97	32.707	
16,400.00	6,947.00	6,011.00	6,007.54	157.48	180.12	-72.94	1,055.52	2,841.01	7,547.43	7,319.48	227.94	33.111	
16,500.00	6,947.00	6,011.00	6,007.54	159.04	180.12	-72.94	1,055.52	2,841.01	7,638.95	7,411.03	227.92	33.515	
16,600.00	6,947.00	6,011.00	6,007.54	160.61	180.12	-72.94	1,055.52	2,841.01	7,730.69	7,502.79	227.90	33.921	
16,700.00	6,947.00	6,011.00	6,007.54	162.17	180.12	-72.94	1,055.52	2,841.01	7,822.63	7,594.74	227.89	34.327	
16,800.00	6,947.00	6,011.00	6,007.54	163.74	180.12	-72.94	1,055.52	2,841.01	7,914.76	7,686.90	227.87	34.734	
16,900.00	6,947.00	6,011.00	6,007.54	165.30	180.12	-72.94	1,055.52	2,841.01	8,007.09	7,779.23	227.85	35.141	
17,000.00	6,947.00	6,011.00	6,007.54	166.87	180.12	-72.94	1,055.52	2,841.01	8,099.59	7,871.75	227.84	35.550	
17,100.00	6,947.00	6,011.00	6,007.54	168.44	180.12	-72.94	1,055.52	2,841.01	8,192.27	7,964.45	227.83	35.958	
17,200.00	6,947.00	6,011.00	6,007.54	170.01	180.12	-72.94	1,055.52	2,841.01	8,285.13	8,057.31	227.82	36.368	
17,300.00	6,947.00	6,011.00	6,007.54	171.57	180.12	-72.94	1,055.52	2,841.01	8,378.14	8,150.34	227.81	36.778	
17,400.00	6,947.00	6,011.00	6,007.54	173.14	180.12	-72.94	1,055.52	2,841.01	8,471.32	8,243.52	227.80	37.188	
17,500.00	6,947.00	6,011.00	6,007.54	174.71	180.12	-72.94	1,055.52	2,841.01	8,564.65	8,336.86	227.79	37.599	
17,600.00	6,947.00	6,011.00	6,007.54	176.28	180.12	-72.94	1,055.52	2,841.01	8,658.13	8,430.34	227.78	38.010	
17,700.00	6,947.00	6,011.00	6,007.54	177.86	180.12	-72.94	1,055.52	2,841.01	8,751.75	8,523.97	227.78	38.422	
17,800.00	6,947.00	6,011.00	6,007.54	179.43	180.12	-72.94	1,055.52	2,841.01	8,845.51	8,617.73	227.78	38.834	
17,900.00	6,947.00	6,011.00	6,007.54	181.00	180.12	-72.94	1,055.52	2,841.01	8,939.41	8,711.63	227.77	39.247	
18,000.00	6,947.00	6,011.00	6,007.54	182.57	180.12	-72.94	1,055.52	2,841.01	9,033.44	8,805.66	227.77	39.660	
18,100.00	6,947.00	6,011.00	6,007.54	184.15	180.12	-72.94	1,055.52	2,841.01	9,127.59	8,899.82	227.78	40.073	
18,200.00	6,947.00	6,011.00	6,007.54	185.72	180.12	-72.94	1,055.52	2,841.01	9,221.87	8,994.09	227.78	40.486	
18,300.00	6,947.00	6,011.00	6,007.54	187.30	180.12	-72.94	1,055.52	2,841.01	9,316.27	9,088.49	227.78	40.900	
18,400.00	6,947.00	6,011.00	6,007.54	188.87	180.12	-72.94	1,055.52	2,841.01	9,410.78	9,182.99	227.79	41.314	
18,500.00	6,947.00	6,011.00	6,007.54	190.45	180.12	-72.94	1,055.52	2,841.01	9,505.41	9,277.61	227.79	41.728	
18,600.00	6,947.00	6,011.00	6,007.54	192.02	180.12	-72.94	1,055.52	2,841.01	9,600.14	9,372.34	227.80	42.143	
18,700.00	6,947.00	6,011.00	6,007.54	193.60	180.12	-72.94	1,055.52	2,841.01	9,694.98	9,467.17	227.81	42.558	
18,800.00	6,947.00	6,011.00	6,007.54	195.18	180.12	-72.94	1,055.52	2,841.01	9,789.92	9,562.11	227.82	42.973	
18,900.00	6,947.00	6,011.00	6,007.54	196.75	180.12	-72.94	1,055.52	2,841.01	9,884.97	9,657.14	227.83	43.388	
19,000.00	6,947.00	6,011.00	6,007.54	198.33	180.12	-72.94	1,055.52	2,841.01	9,980.11	9,752.27	227.84	43.803	
19,100.00	6,947.00	6,011.00	6,007.54	199.91	180.12	-72.94	1,055.52	2,841.01	10,075.34	9,847.49	227.85	44.218	
19,200.00	6,947.00	6,011.00	6,007.54	201.49	180.12	-72.94	1,055.52	2,841.01	10,170.67	9,942.80	227.87	44.634	
19,300.00	6,947.00	6,011.00	6,007.54	203.07	180.12	-72.94	1,055.52	2,841.01	10,266.08	10,038.19	227.89	45.049	
19,400.00	6,947.00	6,011.00	6,007.54	204.65	180.12	-72.94	1,055.52	2,841.01	10,361.58	10,133.68	227.90	45.465	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Rule Assigned:

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
19,500.00	6,947.00	6,011.00	6,007.54	206.23	180.12	-72.94	1,055.52	2,841.01	10,457.17	10,229.24	227.92	45.881	
19,600.00	6,947.00	6,011.00	6,007.54	207.81	180.12	-72.94	1,055.52	2,841.01	10,552.83	10,324.89	227.94	46.296	
19,700.00	6,947.00	6,011.00	6,007.54	209.39	180.12	-72.94	1,055.52	2,841.01	10,648.58	10,420.62	227.96	46.712	
19,800.00	6,947.00	6,011.00	6,007.54	210.97	180.12	-72.94	1,055.52	2,841.01	10,744.40	10,516.42	227.98	47.128	
19,900.00	6,947.00	6,011.00	6,007.54	212.55	180.12	-72.94	1,055.52	2,841.01	10,840.30	10,612.30	228.01	47.544	
20,000.00	6,947.00	6,011.00	6,007.54	214.13	180.12	-72.94	1,055.52	2,841.01	10,936.27	10,708.24	228.03	47.960	
20,100.00	6,947.00	6,011.00	6,007.54	215.71	180.12	-72.94	1,055.52	2,841.01	11,032.32	10,804.26	228.05	48.376	
20,200.00	6,947.00	6,011.00	6,007.54	217.30	180.12	-72.94	1,055.52	2,841.01	11,128.43	10,900.35	228.08	48.792	
20,300.00	6,947.00	6,011.00	6,007.54	218.88	180.12	-72.94	1,055.52	2,841.01	11,224.61	10,996.51	228.11	49.208	
20,400.00	6,947.00	6,011.00	6,007.54	220.46	180.12	-72.94	1,055.52	2,841.01	11,320.86	11,092.73	228.14	49.623	
20,500.00	6,947.00	6,011.00	6,007.54	222.04	180.12	-72.94	1,055.52	2,841.01	11,417.17	11,189.01	228.17	50.039	
20,600.00	6,947.00	6,011.00	6,007.54	223.63	180.12	-72.94	1,055.52	2,841.01	11,513.55	11,285.35	228.20	50.455	
20,700.00	6,947.00	6,011.00	6,007.54	225.21	180.12	-72.94	1,055.52	2,841.01	11,609.99	11,381.76	228.23	50.870	
20,800.00	6,947.00	6,011.00	6,007.54	226.80	180.12	-72.94	1,055.52	2,841.01	11,706.48	11,478.22	228.26	51.286	
20,900.00	6,947.00	6,011.00	6,007.54	228.38	180.12	-72.94	1,055.52	2,841.01	11,803.04	11,574.74	228.29	51.701	
21,000.00	6,947.00	6,011.00	6,007.54	229.97	180.12	-72.94	1,055.52	2,841.01	11,899.65	11,671.32	228.33	52.117	
21,032.01	6,947.00	6,011.00	6,007.54	230.47	180.12	-72.94	1,055.52	2,841.01	11,930.59	11,702.25	228.34	52.250	
21,032.99	6,947.00	6,011.00	6,007.54	230.51	180.12	-72.94	1,055.52	2,841.01	11,931.53	11,700.41	231.12	51.625	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

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

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	61.99	1,130.79	2,125.92	2,408.10				
100.00	100.00	73.00	73.00	0.25	2.19	61.99	1,130.79	2,125.92	2,407.95	2,405.51	2.44	987.467	
200.00	200.00	173.00	173.00	0.61	5.18	61.99	1,130.79	2,125.92	2,407.95	2,402.16	5.79	415.637	
300.00	300.00	273.00	273.00	0.97	8.18	61.99	1,130.79	2,125.92	2,407.95	2,398.80	9.15	263.213	
400.00	400.00	373.00	373.00	1.33	11.18	61.99	1,130.79	2,125.92	2,407.95	2,395.45	12.50	192.587	
500.00	500.00	473.00	473.00	1.68	14.17	61.99	1,130.79	2,125.92	2,407.95	2,392.09	15.86	151.844 CC	
600.00	599.98	573.08	572.98	2.03	17.17	-103.04	1,130.79	2,125.92	2,408.34	2,389.15	19.20	125.445	
700.00	699.84	672.94	672.84	2.36	20.16	-103.14	1,130.79	2,125.92	2,409.53	2,387.01	22.52	106.976	
800.00	799.45	774.55	774.40	2.71	23.21	-103.35	1,132.95	2,125.92	2,412.56	2,386.65	25.91	93.103	
900.00	898.70	882.65	882.48	3.06	26.45	-103.59	1,132.36	2,125.92	2,415.15	2,385.65	29.51	81.848	
1,000.00	997.47	990.51	990.31	3.43	29.68	-103.89	1,130.95	2,125.92	2,418.28	2,385.17	33.11	73.039 ES	
1,100.00	1,095.62	1,069.03	1,068.62	3.82	32.03	-104.15	1,130.79	2,125.92	2,422.81	2,386.96	35.85	67.581	
1,200.00	1,193.44	1,166.84	1,166.44	4.22	34.96	-104.61	1,130.79	2,125.92	2,428.08	2,388.90	39.18	61.969	
1,300.00	1,291.25	1,266.06	1,265.62	4.64	37.94	-105.13	1,132.97	2,125.92	2,434.62	2,392.06	42.56	57.199	
1,400.00	1,389.07	1,373.37	1,372.90	5.06	41.15	-105.62	1,132.44	2,125.92	2,439.99	2,393.80	46.19	52.821	
1,500.00	1,486.88	1,481.04	1,480.54	5.48	44.38	-106.10	1,131.11	2,125.92	2,445.14	2,395.30	49.84	49.061	
1,600.00	1,584.70	1,558.41	1,557.70	5.91	46.70	-106.46	1,130.79	2,125.92	2,450.82	2,398.24	52.58	46.611	
1,700.00	1,682.51	1,656.22	1,655.51	6.35	49.63	-106.91	1,130.79	2,125.92	2,456.91	2,400.98	55.94	43.923	
1,800.00	1,780.33	1,754.47	1,753.72	6.78	52.57	-107.41	1,132.97	2,125.92	2,464.34	2,405.04	59.31	41.552	
1,900.00	1,878.14	1,862.58	1,861.81	7.22	55.81	-107.90	1,132.53	2,125.92	2,470.55	2,407.58	62.98	39.230	
2,000.00	1,975.96	1,971.07	1,970.27	7.66	59.06	-108.37	1,131.27	2,125.92	2,476.50	2,409.84	66.66	37.154	
2,100.00	2,073.77	2,047.79	2,046.77	8.10	61.36	-108.71	1,130.79	2,125.92	2,482.87	2,413.49	69.39	35.784	
2,200.00	2,171.59	2,145.60	2,144.59	8.54	64.29	-109.16	1,130.79	2,125.92	2,489.75	2,417.01	72.75	34.225	
2,300.00	2,269.40	2,243.42	2,242.40	8.98	67.22	-109.60	1,130.79	2,125.92	2,496.79	2,420.68	76.11	32.805	
2,400.00	2,367.22	2,351.63	2,350.56	9.43	70.47	-110.12	1,132.61	2,125.92	2,505.06	2,425.27	79.78	31.398	
2,500.00	2,465.03	2,460.94	2,459.84	9.87	73.74	-110.59	1,131.42	2,125.92	2,511.78	2,428.29	83.49	30.085	
2,600.00	2,562.84	2,537.16	2,535.84	10.32	76.02	-110.91	1,130.79	2,125.92	2,518.81	2,432.60	86.21	29.219	
2,700.00	2,660.66	2,634.98	2,633.66	10.77	78.96	-111.34	1,130.79	2,125.92	2,526.45	2,436.88	89.57	28.207	
2,800.00	2,758.47	2,732.79	2,731.47	11.21	81.89	-111.77	1,130.79	2,125.92	2,534.24	2,441.31	92.93	27.271	
2,900.00	2,856.29	2,840.51	2,839.13	11.66	85.11	-112.28	1,132.69	2,125.92	2,543.35	2,446.76	96.59	26.332	
3,000.00	2,954.10	2,950.66	2,949.26	12.11	88.42	-112.73	1,131.57	2,125.92	2,550.82	2,450.50	100.32	25.427	
3,100.00	3,051.92	3,026.54	3,024.92	12.56	90.69	-113.05	1,130.79	2,125.92	2,558.47	2,455.45	103.02	24.834	
3,200.00	3,149.73	3,124.36	3,122.73	13.01	93.62	-113.47	1,130.79	2,125.92	2,566.83	2,460.45	106.38	24.129	
3,300.00	3,247.55	3,222.17	3,220.55	13.45	96.55	-113.88	1,130.79	2,125.92	2,575.34	2,465.60	109.74	23.467	
3,400.00	3,345.36	3,329.21	3,327.53	13.90	99.76	-114.37	1,132.75	2,125.92	2,585.25	2,471.87	113.38	22.802	
3,500.00	3,443.18	3,440.21	3,438.51	14.35	103.08	-114.82	1,131.71	2,125.92	2,593.45	2,476.32	117.13	22.141	
3,600.00	3,540.99	3,515.92	3,513.99	14.80	105.35	-115.12	1,130.79	2,125.92	2,601.68	2,481.85	119.83	21.712	
3,700.00	3,638.81	3,613.74	3,611.81	15.25	108.28	-115.52	1,130.79	2,125.92	2,610.73	2,487.55	123.18	21.194	
3,800.00	3,736.62	3,711.55	3,709.62	15.70	111.21	-115.93	1,130.79	2,125.92	2,619.92	2,493.38	126.54	20.704	
3,900.00	3,834.44	3,817.73	3,815.75	16.15	114.40	-116.39	1,132.81	2,125.92	2,630.60	2,500.45	130.15	20.213	
4,000.00	3,932.25	3,929.60	3,927.59	16.60	117.75	-116.83	1,131.85	2,125.92	2,639.49	2,505.57	133.92	19.709	
4,100.00	4,030.07	4,005.30	4,003.07	17.05	120.02	-117.12	1,130.79	2,125.92	2,648.27	2,511.65	136.61	19.385	
4,200.00	4,127.88	4,103.11	4,100.88	17.50	122.95	-117.51	1,130.79	2,125.92	2,657.98	2,518.01	139.97	18.990	
4,300.00	4,225.70	4,200.93	4,198.70	17.96	125.88	-117.90	1,130.79	2,125.92	2,667.81	2,524.49	143.32	18.614	
4,400.00	4,323.51	4,306.06	4,303.78	18.41	129.03	-118.35	1,132.86	2,125.92	2,679.21	2,532.32	146.89	18.239	
4,500.00	4,421.33	4,418.82	4,416.51	18.86	132.41	-118.77	1,131.98	2,125.92	2,688.77	2,538.07	150.70	17.842	
4,600.00	4,519.14	4,531.97	4,529.62	19.31	135.80	-119.19	1,130.20	2,125.92	2,697.90	2,543.40	154.50	17.462	
4,700.00	4,616.95	4,592.49	4,589.95	19.76	137.61	-119.43	1,130.79	2,125.92	2,708.39	2,551.65	156.74	17.280	
4,800.00	4,714.77	4,690.31	4,687.77	20.21	140.54	-119.80	1,130.79	2,125.92	2,718.83	2,558.75	160.08	16.984	
4,900.00	4,812.58	4,794.21	4,791.62	20.66	143.66	-120.23	1,132.91	2,125.92	2,730.92	2,567.30	163.62	16.691	
5,000.00	4,910.40	4,907.86	4,905.25	21.11	147.06	-120.65	1,132.10	2,125.92	2,741.11	2,573.67	167.44	16.370	
5,100.00	5,008.21	5,021.91	5,019.26	21.57	150.48	-121.05	1,130.39	2,125.92	2,750.85	2,579.58	171.28	16.061	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Rule Assigned: Warning
5,200.00	5,106.03	5,081.87	5,079.03	22.02	152.28	-121.28	1,130.79	2,125.92	2,761.79	2,588.31	173.48	15.920	
5,300.00	5,203.84	5,179.69	5,176.84	22.47	155.21	-121.64	1,130.79	2,125.92	2,772.82	2,595.99	176.83	15.681	
5,400.00	5,301.66	5,282.16	5,279.27	22.92	158.28	-122.04	1,132.94	2,125.92	2,785.54	2,605.22	180.32	15.448	
5,500.00	5,399.47	5,396.72	5,393.81	23.37	161.71	-122.45	1,132.22	2,125.92	2,796.34	2,612.18	184.17	15.184	
5,600.00	5,497.29	5,511.69	5,508.74	23.82	165.16	-122.84	1,130.58	2,125.92	2,806.66	2,618.64	188.02	14.927	
5,700.00	5,595.10	5,571.25	5,568.10	24.28	166.94	-123.06	1,130.79	2,125.92	2,818.02	2,627.81	190.22	14.815	
5,800.00	5,692.92	5,669.06	5,665.92	24.73	169.87	-123.40	1,130.79	2,125.92	2,829.59	2,636.03	193.56	14.619	
5,900.00	5,790.73	5,769.91	5,766.72	25.18	172.89	-123.79	1,132.96	2,125.92	2,842.91	2,645.92	196.99	14.432	
6,000.00	5,888.55	5,885.39	5,882.18	25.63	176.35	-124.18	1,132.33	2,125.92	2,854.29	2,653.43	200.87	14.210	
6,100.00	5,986.36	6,001.29	5,998.05	26.08	179.83	-124.56	1,130.77	2,125.92	2,865.17	2,660.42	204.75	13.994	
6,200.00	6,084.18	6,060.63	6,057.18	26.54	181.60	-124.77	1,130.79	2,125.92	2,876.91	2,669.98	206.93	13.903	
6,300.00	6,181.99	6,158.44	6,154.99	26.99	184.53	-125.10	1,130.79	2,125.92	2,888.99	2,678.72	210.27	13.740	
6,400.00	6,279.81	6,257.46	6,253.97	27.44	187.50	-125.46	1,132.97	2,125.92	2,902.87	2,689.22	213.64	13.588	
6,500.00	6,377.62	6,373.88	6,370.37	27.89	190.99	-125.85	1,132.44	2,125.92	2,914.80	2,697.26	217.55	13.399	
6,530.62	6,407.57	6,409.61	6,406.09	28.03	192.06	-125.96	1,132.08	2,125.92	2,918.35	2,699.61	218.74	13.342	
6,550.00	6,426.48	6,432.20	6,428.67	28.12	192.74	-120.38	1,131.81	2,125.92	2,920.51	2,701.01	219.50	13.305	
6,600.00	6,474.77	6,489.97	6,486.42	28.36	194.47	-110.14	1,130.96	2,125.92	2,925.47	2,704.02	221.45	13.211	
6,650.00	6,522.09	6,546.74	6,543.16	28.62	196.17	-103.79	1,129.90	2,125.92	2,929.54	2,706.16	223.38	13.115	
6,700.00	6,568.15	6,544.90	6,541.15	28.89	196.11	-99.22	1,130.79	2,125.92	2,933.91	2,710.35	223.56	13.124	
6,750.00	6,612.66	6,589.42	6,585.66	29.18	197.45	-96.34	1,130.79	2,125.92	2,937.31	2,712.15	225.15	13.046	
6,800.00	6,655.36	6,632.12	6,628.36	29.48	198.73	-94.34	1,130.79	2,125.92	2,940.09	2,713.39	226.70	12.969	
6,850.00	6,695.98	6,672.73	6,668.98	29.79	199.95	-92.95	1,130.79	2,125.92	2,942.33	2,714.13	228.20	12.894	
6,900.00	6,734.26	6,711.02	6,707.26	30.11	201.09	-91.99	1,130.79	2,125.92	2,944.11	2,714.48	229.63	12.821	
6,950.00	6,769.98	6,746.74	6,742.98	30.45	202.16	-91.35	1,130.79	2,125.92	2,945.51	2,714.51	231.00	12.751	
7,000.00	6,802.91	6,785.83	6,782.03	30.79	203.33	-91.04	1,132.93	2,125.92	2,948.41	2,715.92	232.48	12.682	
7,050.00	6,832.85	6,822.10	6,818.29	31.15	204.42	-90.88	1,132.79	2,125.92	2,949.24	2,715.35	233.89	12.609	
7,100.00	6,859.62	6,854.68	6,850.86	31.51	205.40	-90.84	1,132.59	2,125.92	2,949.93	2,714.73	235.19	12.543	
7,150.00	6,883.05	6,883.33	6,879.51	31.89	206.26	-90.86	1,132.35	2,125.92	2,950.55	2,714.17	236.38	12.482	
7,200.00	6,902.99	6,907.87	6,904.05	32.28	206.99	-90.90	1,132.10	2,125.92	2,951.22	2,713.77	237.45	12.429	
7,250.00	6,919.32	6,928.12	6,924.29	32.67	207.60	-90.95	1,131.87	2,125.92	2,952.01	2,713.62	238.40	12.383	
7,300.00	6,931.95	6,943.93	6,940.09	33.08	208.07	-90.98	1,131.66	2,125.92	2,953.00	2,713.79	239.21	12.345	
7,350.00	6,940.79	6,955.16	6,951.32	33.49	208.41	-90.95	1,131.50	2,125.92	2,954.23	2,714.34	239.89	12.315	
7,400.00	6,945.79	6,961.72	6,957.88	33.90	208.60	-90.88	1,131.41	2,125.92	2,955.74	2,715.32	240.42	12.294	
7,439.53	6,947.00	6,963.55	6,959.71	34.24	208.66	-90.77	1,131.38	2,125.92	2,957.14	2,716.40	240.74	12.284	
7,500.00	6,947.00	6,964.07	6,960.23	34.75	208.68	-90.78	1,131.37	2,125.92	2,959.41	2,718.25	241.16	12.272	
7,600.00	6,947.00	6,964.88	6,961.04	35.63	208.70	-90.79	1,131.36	2,125.92	2,963.07	2,721.20	241.87	12.251	
7,700.00	6,947.00	6,965.64	6,961.80	36.54	208.72	-90.81	1,131.35	2,125.92	2,966.61	2,724.03	242.58	12.229	
7,800.00	6,947.00	6,966.35	6,962.50	37.47	208.74	-90.82	1,131.34	2,125.92	2,970.03	2,726.72	243.31	12.207	
7,900.00	6,947.00	6,967.00	6,963.15	38.43	208.76	-90.83	1,131.33	2,125.92	2,973.33	2,729.29	244.04	12.184	
8,000.00	6,947.00	6,967.59	6,963.74	39.41	208.78	-90.84	1,131.32	2,125.92	2,976.50	2,731.72	244.77	12.160	
8,100.00	6,947.00	6,968.12	6,964.27	40.40	208.80	-90.85	1,131.31	2,125.92	2,979.53	2,734.03	245.50	12.137	
8,200.00	6,947.00	6,968.58	6,964.74	41.42	208.81	-90.86	1,131.30	2,125.92	2,982.43	2,736.20	246.23	12.113	
8,300.00	6,947.00	6,968.99	6,965.14	42.44	208.82	-90.87	1,131.30	2,125.92	2,985.19	2,738.25	246.94	12.089	
8,400.00	6,947.00	6,969.33	6,965.48	43.48	208.83	-90.87	1,131.29	2,125.92	2,987.81	2,740.16	247.65	12.065	
8,500.00	6,947.00	6,969.60	6,965.75	44.53	208.84	-90.88	1,131.29	2,125.92	2,990.28	2,741.94	248.34	12.041	
8,600.00	6,947.00	6,969.80	6,965.96	45.58	208.85	-90.88	1,131.29	2,125.92	2,992.61	2,743.59	249.02	12.018	
8,700.00	6,947.00	6,969.94	6,966.10	46.63	208.85	-90.88	1,131.28	2,125.92	2,994.79	2,745.11	249.68	11.995	
8,800.00	6,947.00	6,970.01	6,966.17	47.69	208.85	-90.88	1,131.28	2,125.92	2,996.82	2,746.50	250.32	11.972	
8,841.31	6,947.00	6,970.02	6,966.18	48.13	208.85	-90.88	1,131.28	2,125.92	2,997.61	2,747.04	250.57	11.963	
8,900.00	6,947.00	6,970.03	6,966.18	48.76	208.85	-90.88	1,131.28	2,125.92	2,999.29	2,748.36	250.93	11.953	
9,000.00	6,947.00	6,970.04	6,966.19	49.85	208.85	-90.88	1,131.28	2,125.92	3,004.79	2,753.27	251.53	11.946	SF
9,100.00	6,947.00	6,970.05	6,966.20	50.97	208.85	-90.88	1,131.28	2,125.92	3,013.61	2,761.51	252.10	11.954	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Rule Assigned: Warning
9,200.00	6,947.00	6,970.06	6,966.21	52.12	208.85	-90.88	1,131.28	2,125.92	3,025.70	2,773.05	252.65	11.976	
9,300.00	6,947.00	6,970.07	6,966.22	53.28	208.85	-90.88	1,131.28	2,125.92	3,041.04	2,787.87	253.16	12.012	
9,400.00	6,947.00	6,970.08	6,966.23	54.48	208.85	-90.88	1,131.28	2,125.92	3,059.57	2,805.91	253.66	12.062	
9,500.00	6,947.00	6,970.08	6,966.24	55.69	208.86	-90.88	1,131.28	2,125.92	3,081.23	2,827.12	254.12	12.125	
9,600.00	6,947.00	6,970.09	6,966.25	56.92	208.86	-90.88	1,131.28	2,125.92	3,105.97	2,851.42	254.54	12.202	
9,700.00	6,947.00	6,970.10	6,966.26	58.17	208.86	-90.88	1,131.28	2,125.92	3,133.70	2,878.76	254.94	12.292	
9,800.00	6,947.00	6,970.11	6,966.27	59.44	208.86	-90.88	1,131.28	2,125.92	3,164.35	2,909.04	255.31	12.394	
9,900.00	6,947.00	6,970.12	6,966.27	60.73	208.86	-90.88	1,131.28	2,125.92	3,197.84	2,942.19	255.64	12.509	
10,000.00	6,947.00	6,970.13	6,966.28	62.03	208.86	-90.88	1,131.28	2,125.92	3,234.07	2,978.12	255.95	12.636	
10,100.00	6,947.00	6,970.14	6,966.29	63.34	208.86	-90.89	1,131.28	2,125.92	3,272.96	3,016.74	256.22	12.774	
10,200.00	6,947.00	6,970.15	6,966.30	64.67	208.86	-90.89	1,131.28	2,125.92	3,314.41	3,057.94	256.47	12.923	
10,300.00	6,947.00	6,970.16	6,966.31	66.01	208.86	-90.89	1,131.28	2,125.92	3,358.32	3,101.64	256.69	13.083	
10,400.00	6,947.00	6,970.17	6,966.32	67.36	208.86	-90.89	1,131.28	2,125.92	3,404.61	3,147.73	256.88	13.254	
10,500.00	6,947.00	6,970.18	6,966.33	68.73	208.86	-90.89	1,131.28	2,125.92	3,453.18	3,196.13	257.05	13.434	
10,600.00	6,947.00	6,970.19	6,966.34	70.10	208.86	-90.89	1,131.28	2,125.92	3,503.92	3,246.73	257.19	13.624	
10,700.00	6,947.00	6,970.19	6,966.35	71.48	208.86	-90.89	1,131.28	2,125.92	3,556.76	3,299.44	257.32	13.823	
10,800.00	6,947.00	6,970.20	6,966.36	72.88	208.86	-90.89	1,131.28	2,125.92	3,611.59	3,354.17	257.42	14.030	
10,900.00	6,947.00	6,970.21	6,966.37	74.28	208.86	-90.89	1,131.28	2,125.92	3,668.32	3,410.82	257.50	14.246	
11,000.00	6,947.00	6,970.22	6,966.38	75.69	208.86	-90.89	1,131.28	2,125.92	3,726.88	3,469.31	257.57	14.469	
11,100.00	6,947.00	6,970.23	6,966.38	77.10	208.86	-90.89	1,131.28	2,125.92	3,787.17	3,529.55	257.62	14.700	
11,200.00	6,947.00	6,970.24	6,966.39	78.53	208.86	-90.89	1,131.28	2,125.92	3,849.12	3,591.46	257.66	14.939	
11,300.00	6,947.00	6,970.25	6,966.40	79.96	208.86	-90.89	1,131.28	2,125.92	3,912.64	3,654.95	257.69	15.184	
11,400.00	6,947.00	6,970.26	6,966.41	81.40	208.86	-90.89	1,131.28	2,125.92	3,977.66	3,719.96	257.70	15.435	
11,500.00	6,947.00	6,970.27	6,966.42	82.84	208.86	-90.89	1,131.28	2,125.92	4,044.11	3,786.41	257.71	15.693	
11,600.00	6,947.00	6,970.28	6,966.43	84.29	208.86	-90.89	1,131.28	2,125.92	4,111.92	3,854.22	257.70	15.956	
11,700.00	6,947.00	6,970.29	6,966.44	85.75	208.86	-90.89	1,131.28	2,125.92	4,181.02	3,923.34	257.69	16.225	
11,800.00	6,947.00	6,970.30	6,966.45	87.21	208.86	-90.89	1,131.28	2,125.92	4,251.35	3,993.69	257.66	16.500	
11,900.00	6,947.00	6,970.30	6,966.46	88.68	208.86	-90.89	1,131.28	2,125.92	4,322.85	4,065.21	257.64	16.779	
12,000.00	6,947.00	6,970.31	6,966.47	90.15	208.86	-90.89	1,131.28	2,125.92	4,395.46	4,137.86	257.60	17.063	
12,100.00	6,947.00	6,970.32	6,966.48	91.62	208.86	-90.89	1,131.28	2,125.92	4,469.13	4,211.56	257.57	17.351	
12,200.00	6,947.00	6,970.33	6,966.49	93.10	208.86	-90.89	1,131.28	2,125.92	4,543.80	4,286.28	257.52	17.644	
12,300.00	6,947.00	6,970.34	6,966.49	94.59	208.86	-90.89	1,131.28	2,125.92	4,619.44	4,361.96	257.48	17.941	
12,400.00	6,947.00	6,970.35	6,966.50	96.07	208.86	-90.89	1,131.28	2,125.92	4,695.98	4,438.55	257.43	18.242	
12,500.00	6,947.00	6,970.36	6,966.51	97.56	208.86	-90.89	1,131.28	2,125.92	4,773.39	4,516.02	257.38	18.546	
12,600.00	6,947.00	6,970.37	6,966.52	99.06	208.86	-90.89	1,131.28	2,125.92	4,851.63	4,594.31	257.32	18.854	
12,700.00	6,947.00	6,970.38	6,966.53	100.56	208.86	-90.89	1,131.28	2,125.92	4,930.66	4,673.39	257.27	19.165	
12,800.00	6,947.00	6,970.39	6,966.54	102.06	208.86	-90.89	1,131.28	2,125.92	5,010.43	4,753.22	257.21	19.480	
12,900.00	6,947.00	6,970.40	6,966.55	103.56	208.86	-90.89	1,131.28	2,125.92	5,090.92	4,833.77	257.15	19.797	
13,000.00	6,947.00	6,970.41	6,966.56	105.07	208.86	-90.89	1,131.28	2,125.92	5,172.09	4,914.99	257.10	20.117	
13,100.00	6,947.00	6,970.41	6,966.57	106.58	208.87	-90.89	1,131.28	2,125.92	5,253.91	4,996.87	257.04	20.440	
13,200.00	6,947.00	6,970.42	6,966.58	108.10	208.87	-90.89	1,131.28	2,125.92	5,336.35	5,079.37	256.98	20.766	
13,300.00	6,947.00	6,970.43	6,966.59	109.61	208.87	-90.89	1,131.28	2,125.92	5,419.38	5,162.45	256.92	21.093	
13,400.00	6,947.00	6,970.44	6,966.60	111.13	208.87	-90.89	1,131.28	2,125.92	5,502.97	5,246.10	256.87	21.423	
13,500.00	6,947.00	6,970.45	6,966.60	112.65	208.87	-90.89	1,131.28	2,125.92	5,587.10	5,330.29	256.81	21.756	
13,600.00	6,947.00	6,970.46	6,966.61	114.17	208.87	-90.89	1,131.28	2,125.92	5,671.75	5,415.00	256.75	22.090	
13,700.00	6,947.00	6,970.47	6,966.62	115.70	208.87	-90.89	1,131.28	2,125.92	5,756.89	5,500.19	256.70	22.427	
13,800.00	6,947.00	6,970.48	6,966.63	117.23	208.87	-90.89	1,131.28	2,125.92	5,842.50	5,585.86	256.64	22.765	
13,900.00	6,947.00	6,970.49	6,966.64	118.76	208.87	-90.89	1,131.28	2,125.92	5,928.57	5,671.97	256.59	23.105	
14,000.00	6,947.00	6,970.50	6,966.65	120.29	208.87	-90.89	1,131.28	2,125.92	6,015.06	5,758.52	256.54	23.447	
14,100.00	6,947.00	6,970.51	6,966.66	121.82	208.87	-90.89	1,131.28	2,125.92	6,101.97	5,845.48	256.49	23.790	
14,200.00	6,947.00	6,970.52	6,966.67	123.36	208.87	-90.89	1,131.28	2,125.92	6,189.27	5,932.83	256.44	24.135	
14,300.00	6,947.00	6,970.52	6,966.68	124.89	208.87	-90.89	1,131.28	2,125.92	6,276.95	6,020.55	256.39	24.482	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Rule Assigned: Warning
14,400.00	6,947.00	6,970.53	6,966.69	126.43	208.87	-90.89	1,131.28	2,125.92	6,364.99	6,108.64	256.35	24.830	
14,500.00	6,947.00	6,970.54	6,966.70	127.97	208.87	-90.89	1,131.27	2,125.92	6,453.38	6,197.08	256.30	25.179	
14,600.00	6,947.00	6,970.55	6,966.71	129.51	208.87	-90.89	1,131.27	2,125.92	6,542.11	6,285.85	256.26	25.529	
14,700.00	6,947.00	6,970.56	6,966.71	131.06	208.87	-90.89	1,131.27	2,125.92	6,631.16	6,374.94	256.22	25.881	
14,800.00	6,947.00	6,970.57	6,966.72	132.60	208.87	-90.89	1,131.27	2,125.92	6,720.51	6,464.33	256.18	26.234	
14,900.00	6,947.00	6,970.58	6,966.73	134.15	208.87	-90.89	1,131.27	2,125.92	6,810.16	6,554.02	256.14	26.588	
15,000.00	6,947.00	6,970.59	6,966.74	135.70	208.87	-90.89	1,131.27	2,125.92	6,900.10	6,643.99	256.10	26.942	
15,100.00	6,947.00	6,970.60	6,966.75	137.24	208.87	-90.89	1,131.27	2,125.92	6,990.31	6,734.24	256.07	27.298	
15,200.00	6,947.00	6,970.61	6,966.76	138.79	208.87	-90.89	1,131.27	2,125.92	7,080.78	6,824.74	256.04	27.655	
15,300.00	6,947.00	6,970.62	6,966.77	140.35	208.87	-90.89	1,131.27	2,125.92	7,171.51	6,915.50	256.01	28.013	
15,400.00	6,947.00	6,970.63	6,966.78	141.90	208.87	-90.89	1,131.27	2,125.92	7,262.48	7,006.50	255.98	28.372	
15,500.00	6,947.00	6,970.64	6,966.79	143.45	208.87	-90.89	1,131.27	2,125.92	7,353.68	7,097.73	255.95	28.731	
15,600.00	6,947.00	6,970.64	6,966.80	145.01	208.87	-90.89	1,131.27	2,125.92	7,445.11	7,189.19	255.92	29.091	
15,700.00	6,947.00	6,970.65	6,966.81	146.56	208.87	-90.89	1,131.27	2,125.92	7,536.75	7,280.86	255.90	29.452	
15,800.00	6,947.00	6,970.66	6,966.82	148.12	208.87	-90.90	1,131.27	2,125.92	7,628.61	7,372.74	255.87	29.814	
15,900.00	6,947.00	6,970.67	6,966.83	149.68	208.87	-90.90	1,131.27	2,125.92	7,720.67	7,464.82	255.85	30.176	
16,000.00	6,947.00	6,970.68	6,966.83	151.23	208.87	-90.90	1,131.27	2,125.92	7,812.93	7,557.09	255.83	30.539	
16,100.00	6,947.00	6,970.69	6,966.84	152.79	208.87	-90.90	1,131.27	2,125.92	7,905.37	7,649.55	255.81	30.903	
16,200.00	6,947.00	6,970.70	6,966.85	154.36	208.87	-90.90	1,131.27	2,125.92	7,997.99	7,742.19	255.80	31.267	
16,300.00	6,947.00	6,970.71	6,966.86	155.92	208.87	-90.90	1,131.27	2,125.92	8,090.79	7,835.01	255.78	31.631	
16,400.00	6,947.00	6,970.72	6,966.87	157.48	208.87	-90.90	1,131.27	2,125.92	8,183.76	7,927.99	255.77	31.997	
16,500.00	6,947.00	6,970.73	6,966.88	159.04	208.87	-90.90	1,131.27	2,125.92	8,276.90	8,021.14	255.76	32.362	
16,600.00	6,947.00	6,970.74	6,966.89	160.61	208.87	-90.90	1,131.27	2,125.92	8,370.19	8,114.44	255.75	32.728	
16,700.00	6,947.00	6,970.75	6,966.90	162.17	208.88	-90.90	1,131.27	2,125.92	8,463.63	8,207.89	255.74	33.095	
16,800.00	6,947.00	6,970.75	6,966.91	163.74	208.88	-90.90	1,131.27	2,125.92	8,557.23	8,301.50	255.73	33.462	
16,900.00	6,947.00	6,970.76	6,966.92	165.30	208.88	-90.90	1,131.27	2,125.92	8,650.96	8,395.24	255.73	33.829	
17,000.00	6,947.00	6,970.77	6,966.93	166.87	208.88	-90.90	1,131.27	2,125.92	8,744.84	8,489.12	255.72	34.196	
17,100.00	6,947.00	6,970.78	6,966.94	168.44	208.88	-90.90	1,131.27	2,125.92	8,838.85	8,583.13	255.72	34.564	
17,200.00	6,947.00	6,970.79	6,966.94	170.01	208.88	-90.90	1,131.27	2,125.92	8,932.99	8,677.27	255.72	34.933	
17,300.00	6,947.00	6,970.80	6,966.95	171.57	208.88	-90.90	1,131.27	2,125.92	9,027.26	8,771.54	255.72	35.301	
17,400.00	6,947.00	6,970.81	6,966.96	173.14	208.88	-90.90	1,131.27	2,125.92	9,121.65	8,865.92	255.72	35.670	
17,500.00	6,947.00	6,970.82	6,966.97	174.71	208.88	-90.90	1,131.27	2,125.92	9,216.15	8,960.43	255.72	36.039	
17,600.00	6,947.00	6,970.83	6,966.98	176.28	208.88	-90.90	1,131.27	2,125.92	9,310.77	9,055.04	255.73	36.409	
17,700.00	6,947.00	6,970.84	6,966.99	177.86	208.88	-90.90	1,131.27	2,125.92	9,405.51	9,149.77	255.74	36.778	
17,800.00	6,947.00	6,970.85	6,967.00	179.43	208.88	-90.90	1,131.27	2,125.92	9,500.35	9,244.60	255.74	37.148	
17,900.00	6,947.00	6,970.86	6,967.01	181.00	208.88	-90.90	1,131.27	2,125.92	9,595.29	9,339.54	255.75	37.518	
18,000.00	6,947.00	6,970.87	6,967.02	182.57	208.88	-90.90	1,131.27	2,125.92	9,690.34	9,434.58	255.76	37.888	
18,100.00	6,947.00	6,970.87	6,967.03	184.15	208.88	-90.90	1,131.27	2,125.92	9,785.48	9,529.71	255.77	38.259	
18,200.00	6,947.00	6,970.88	6,967.04	185.72	208.88	-90.90	1,131.27	2,125.92	9,880.73	9,624.94	255.78	38.629	
18,300.00	6,947.00	6,970.89	6,967.05	187.30	208.88	-90.90	1,131.27	2,125.92	9,976.06	9,720.26	255.80	39.000	
18,400.00	6,947.00	6,970.90	6,967.06	188.87	208.88	-90.90	1,131.27	2,125.92	10,071.49	9,815.67	255.81	39.370	
18,500.00	6,947.00	6,970.91	6,967.06	190.45	208.88	-90.90	1,131.27	2,125.92	10,167.00	9,911.17	255.83	39.741	
18,600.00	6,947.00	6,970.92	6,967.07	192.02	208.88	-90.90	1,131.27	2,125.92	10,262.60	10,006.75	255.85	40.112	
18,700.00	6,947.00	6,970.93	6,967.08	193.60	208.88	-90.90	1,131.27	2,125.92	10,358.28	10,102.41	255.87	40.483	
18,800.00	6,947.00	6,970.94	6,967.09	195.18	208.88	-90.90	1,131.27	2,125.92	10,454.04	10,198.16	255.89	40.854	
18,900.00	6,947.00	6,970.95	6,967.10	196.75	208.88	-90.90	1,131.27	2,125.92	10,549.88	10,293.98	255.91	41.226	
19,000.00	6,947.00	6,970.96	6,967.11	198.33	208.88	-90.90	1,131.27	2,125.92	10,645.80	10,389.87	255.93	41.597	
19,100.00	6,947.00	6,970.97	6,967.12	199.91	208.88	-90.90	1,131.27	2,125.92	10,741.79	10,485.84	255.95	41.968	
19,200.00	6,947.00	6,970.98	6,967.13	201.49	208.88	-90.90	1,131.27	2,125.92	10,837.86	10,581.88	255.98	42.339	
19,300.00	6,947.00	6,970.99	6,967.14	203.07	208.88	-90.90	1,131.27	2,125.92	10,933.99	10,677.99	256.00	42.711	
19,400.00	6,947.00	6,970.99	6,967.15	204.65	208.88	-90.90	1,131.27	2,125.92	11,030.20	10,774.17	256.03	43.082	
19,500.00	6,947.00	6,971.00	6,967.16	206.23	208.88	-90.90	1,131.27	2,125.92	11,126.47	10,870.41	256.06	43.453	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Rule Assigned:

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
19,600.00	6,947.00	6,971.01	6,967.17	207.81	208.88	-90.90	1,131.27	2,125.92	11,222.81	10,966.72	256.08	43.825	
19,700.00	6,947.00	6,971.02	6,967.18	209.39	208.88	-90.90	1,131.27	2,125.92	11,319.21	11,063.09	256.11	44.196	
19,800.00	6,947.00	6,971.03	6,967.18	210.97	208.88	-90.90	1,131.27	2,125.92	11,415.67	11,159.52	256.15	44.567	
19,900.00	6,947.00	6,971.04	6,967.19	212.55	208.88	-90.90	1,131.27	2,125.92	11,512.19	11,256.01	256.18	44.938	
20,000.00	6,947.00	6,971.05	6,967.20	214.13	208.88	-90.90	1,131.27	2,125.92	11,608.77	11,352.56	256.21	45.310	
20,100.00	6,947.00	6,971.06	6,967.21	215.71	208.88	-90.90	1,131.27	2,125.92	11,705.41	11,449.16	256.24	45.681	
20,200.00	6,947.00	6,971.07	6,967.22	217.30	208.88	-90.90	1,131.27	2,125.92	11,802.10	11,545.82	256.28	46.052	
20,300.00	6,947.00	6,971.08	6,967.23	218.88	208.89	-90.90	1,131.27	2,125.92	11,898.85	11,642.54	256.31	46.423	
20,400.00	6,947.00	6,971.09	6,967.24	220.46	208.89	-90.90	1,131.27	2,125.92	11,995.65	11,739.30	256.35	46.794	
20,500.00	6,947.00	6,971.10	6,967.25	222.04	208.89	-90.90	1,131.27	2,125.92	12,092.51	11,836.12	256.39	47.165	
20,600.00	6,947.00	6,971.11	6,967.26	223.63	208.89	-90.90	1,131.27	2,125.92	12,189.41	11,932.99	256.43	47.536	
20,700.00	6,947.00	6,971.11	6,967.27	225.21	208.89	-90.90	1,131.27	2,125.92	12,286.37	12,029.90	256.47	47.906	
20,800.00	6,947.00	6,971.12	6,967.28	226.80	208.89	-90.90	1,131.27	2,125.92	12,383.37	12,126.86	256.51	48.277	
20,900.00	6,947.00	6,971.13	6,967.29	228.38	208.89	-90.90	1,131.27	2,125.92	12,480.42	12,223.87	256.55	48.647	
21,000.00	6,947.00	6,971.14	6,967.30	229.97	208.89	-90.90	1,131.27	2,125.92	12,577.52	12,320.93	256.59	49.018	
21,032.01	6,947.00	6,971.15	6,967.30	230.47	208.89	-90.90	1,131.27	2,125.92	12,608.61	12,352.00	256.60	49.136	
21,032.99	6,947.00	6,971.15	6,967.30	230.51	208.89	-90.90	1,131.27	2,125.92	12,609.56	12,349.80	259.75	48.544	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	481.00	481.00	0.00	14.41	81.63	1,575.61	10,702.94	10,818.29				
100.00	100.00	581.10	581.00	0.25	17.41	81.63	1,575.61	10,702.94	10,818.29	10,800.63	17.66	612.471	
200.00	200.00	681.10	681.00	0.61	20.41	81.63	1,575.61	10,702.94	10,818.29	10,797.27	21.02	514.709	
300.00	300.00	784.98	784.84	0.97	23.52	81.61	1,577.74	10,702.94	10,818.60	10,794.11	24.49	441.766	
400.00	400.00	897.42	897.25	1.33	26.89	81.62	1,577.03	10,702.94	10,818.51	10,790.29	28.22	383.403	
500.00	500.00	1,009.89	1,009.69	1.68	30.26	81.63	1,575.43	10,702.94	10,818.30	10,786.36	31.95	338.647	
600.00	599.98	1,081.39	1,080.98	2.03	32.40	-83.39	1,575.61	10,702.94	10,818.09	10,783.66	34.43	314.211	
700.00	699.84	1,181.24	1,180.84	2.36	35.40	-83.43	1,575.61	10,702.94	10,817.49	10,779.74	37.75	286.521	
800.00	799.45	1,284.75	1,284.30	2.71	38.50	-83.51	1,577.74	10,702.94	10,816.81	10,775.61	41.20	262.543	
900.00	898.70	1,396.61	1,396.14	3.06	41.85	-83.60	1,577.04	10,702.94	10,815.34	10,770.43	44.91	240.831	
1,000.00	997.47	1,508.24	1,507.73	3.43	45.19	-83.73	1,575.46	10,702.94	10,813.37	10,764.75	48.62	222.387	
1,100.00	1,095.62	1,577.33	1,576.62	3.82	47.26	-83.84	1,575.61	10,702.94	10,811.25	10,760.17	51.08	211.640	
1,200.00	1,193.44	1,675.15	1,674.44	4.22	50.20	-83.95	1,575.61	10,702.94	10,808.99	10,754.57	54.42	198.629	
1,300.00	1,291.25	1,776.04	1,775.29	4.64	53.22	-84.07	1,577.76	10,702.94	10,807.10	10,749.25	57.85	186.800	
1,400.00	1,389.07	1,887.11	1,886.34	5.06	56.55	-84.19	1,577.13	10,702.94	10,804.84	10,743.24	61.60	175.398	
1,500.00	1,486.88	1,998.57	1,997.76	5.48	59.89	-84.30	1,575.63	10,702.94	10,802.49	10,737.12	65.37	165.261	
1,600.00	1,584.70	2,066.71	2,065.70	5.91	61.93	-84.38	1,575.61	10,702.94	10,800.34	10,732.51	67.84	159.209	
1,700.00	1,682.51	2,164.53	2,163.51	6.35	64.86	-84.48	1,575.61	10,702.94	10,798.28	10,727.08	71.20	151.659	
1,800.00	1,780.33	2,264.12	2,263.06	6.78	67.84	-84.60	1,577.78	10,702.94	10,796.61	10,721.99	74.62	144.687	
1,900.00	1,878.14	2,376.06	2,374.98	7.22	71.20	-84.73	1,577.23	10,702.94	10,794.56	10,716.14	78.41	137.665	
2,000.00	1,975.96	2,488.39	2,487.28	7.66	74.56	-84.84	1,575.80	10,702.94	10,792.41	10,710.19	82.22	131.267	
2,100.00	2,073.77	2,556.09	2,554.77	8.10	76.59	-84.91	1,575.61	10,702.94	10,790.43	10,705.74	84.69	127.416	
2,200.00	2,171.59	2,653.91	2,652.59	8.54	79.52	-85.02	1,575.61	10,702.94	10,788.56	10,700.50	88.06	122.514	
2,300.00	2,269.40	2,752.00	2,750.65	8.98	82.46	-85.14	1,577.79	10,702.94	10,787.12	10,695.68	91.44	117.966	
2,400.00	2,367.22	2,864.83	2,863.45	9.43	85.84	-85.26	1,577.33	10,702.94	10,785.27	10,690.00	95.27	113.211	
2,500.00	2,465.03	2,978.05	2,976.64	9.87	89.24	-85.38	1,575.97	10,702.94	10,783.32	10,684.21	99.10	108.807	
2,600.00	2,562.84	3,045.47	3,043.84	10.32	91.26	-85.45	1,575.61	10,702.94	10,781.51	10,679.93	101.57	106.147	
2,700.00	2,660.66	3,143.28	3,141.66	10.77	94.19	-85.56	1,575.61	10,702.94	10,779.84	10,674.89	104.95	102.715	
2,800.00	2,758.47	3,241.10	3,239.47	11.21	97.12	-85.67	1,575.61	10,702.94	10,778.22	10,669.89	108.33	99.497	
2,900.00	2,856.29	3,353.41	3,351.73	11.66	100.48	-85.80	1,577.41	10,702.94	10,776.97	10,664.83	112.14	96.104	
3,000.00	2,954.10	3,467.54	3,465.82	12.11	103.90	-85.92	1,576.13	10,702.94	10,775.23	10,659.22	116.01	92.885	
3,100.00	3,051.92	3,534.85	3,532.92	12.56	105.92	-85.99	1,575.61	10,702.94	10,773.58	10,655.11	118.47	90.937	
3,200.00	3,149.73	3,632.66	3,630.73	13.01	108.85	-86.10	1,575.61	10,702.94	10,772.11	10,650.26	121.85	88.403	
3,300.00	3,247.55	3,730.48	3,728.55	13.45	111.78	-86.21	1,575.61	10,702.94	10,770.69	10,645.46	125.23	86.006	
3,400.00	3,345.36	3,841.81	3,839.82	13.90	115.12	-86.34	1,577.49	10,702.94	10,769.68	10,640.66	129.02	83.475	
3,500.00	3,443.18	3,956.85	3,954.84	14.35	118.57	-86.46	1,576.29	10,702.94	10,768.13	10,635.22	132.91	81.016	
3,600.00	3,540.99	4,024.23	4,021.99	14.80	120.58	-86.53	1,575.61	10,702.94	10,766.65	10,631.27	135.38	79.527	
3,700.00	3,638.81	4,122.04	4,119.81	15.25	123.51	-86.64	1,575.61	10,702.94	10,765.38	10,626.62	138.76	77.581	
3,800.00	3,736.62	4,219.86	4,217.62	15.70	126.45	-86.75	1,575.61	10,702.94	10,764.16	10,622.01	142.15	75.727	
3,900.00	3,834.44	4,330.01	4,327.73	16.15	129.75	-86.88	1,577.56	10,702.94	10,763.38	10,617.48	145.90	73.774	
4,000.00	3,932.25	4,445.99	4,443.68	16.60	133.22	-87.00	1,576.44	10,702.94	10,762.04	10,612.22	149.82	71.833	
4,100.00	4,030.07	4,513.60	4,511.07	17.05	135.25	-87.07	1,575.61	10,702.94	10,760.72	10,608.42	152.30	70.655	
4,200.00	4,127.88	4,611.42	4,608.88	17.50	138.18	-87.18	1,575.61	10,702.94	10,759.66	10,603.98	155.68	69.114	
4,300.00	4,225.70	4,709.23	4,706.70	17.96	141.11	-87.29	1,575.61	10,702.94	10,758.63	10,599.57	159.06	67.638	
4,400.00	4,323.51	4,818.02	4,815.43	18.41	144.37	-87.42	1,577.63	10,702.94	10,758.08	10,595.31	162.77	66.092	
4,500.00	4,421.33	4,934.95	4,932.33	18.86	147.87	-87.54	1,576.59	10,702.94	10,756.95	10,590.23	166.73	64.518	
4,600.00	4,519.14	5,002.98	5,000.14	19.31	149.91	-87.61	1,575.61	10,702.94	10,755.80	10,586.58	169.22	63.562	
4,700.00	4,616.95	5,100.80	5,097.95	19.76	152.84	-87.72	1,575.61	10,702.94	10,754.93	10,582.33	172.60	62.311	
4,800.00	4,714.77	5,198.61	5,195.77	20.21	155.77	-87.83	1,575.61	10,702.94	10,754.11	10,578.12	175.98	61.109	
4,900.00	4,812.58	5,305.83	5,302.94	20.66	158.99	-87.96	1,577.68	10,702.94	10,753.79	10,574.14	179.65	59.860	
5,000.00	4,910.40	5,423.72	5,420.80	21.11	162.52	-88.08	1,576.73	10,702.94	10,752.87	10,569.24	183.63	58.557	
5,100.00	5,008.21	5,542.03	5,539.07	21.57	166.06	-88.21	1,574.81	10,702.94	10,751.81	10,564.18	187.63	57.304	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,200.00	5,106.03	5,590.18	5,587.03	22.02	167.51	-88.26	1,575.61	10,702.94	10,751.21	10,561.68	189.52	56.728	
5,300.00	5,203.84	5,687.99	5,684.84	22.47	170.44	-88.37	1,575.61	10,702.94	10,750.58	10,557.68	192.91	55.730	
5,400.00	5,301.66	5,793.43	5,790.24	22.92	173.60	-88.50	1,577.72	10,702.94	10,750.49	10,553.97	196.52	54.705	
5,500.00	5,399.47	5,912.30	5,909.08	23.37	177.16	-88.63	1,576.87	10,702.94	10,749.79	10,549.26	200.53	53.607	
5,600.00	5,497.29	6,031.60	6,028.34	23.82	180.73	-88.75	1,575.02	10,702.94	10,748.93	10,544.37	204.56	52.548	
5,700.00	5,595.10	6,079.55	6,076.10	24.28	182.17	-88.80	1,575.61	10,702.94	10,748.49	10,542.04	206.45	52.064	
5,800.00	5,692.92	6,177.37	6,173.92	24.73	185.10	-88.91	1,575.61	10,702.94	10,748.06	10,538.23	209.83	51.223	
5,900.00	5,790.73	6,275.18	6,271.73	25.18	188.03	-89.02	1,575.61	10,702.94	10,747.68	10,534.47	213.21	50.408	
5,963.11	5,852.46	6,300.00	6,296.37	25.47	188.78	-89.05	1,575.61	10,702.94	10,747.52	10,533.28	214.24	50.166	
6,000.00	5,888.55	6,300.00	6,296.37	25.63	188.78	-89.05	1,575.61	10,702.94	10,747.59	10,533.18	214.40	50.128	
6,100.00	5,986.36	6,300.00	6,296.37	26.08	188.78	-89.05	1,575.61	10,702.94	10,748.40	10,533.56	214.84	50.031	
6,200.00	6,084.18	6,300.00	6,296.37	26.54	188.78	-89.05	1,575.61	10,702.94	10,750.13	10,534.89	215.25	49.943	
6,300.00	6,181.99	6,300.00	6,296.37	26.99	188.78	-89.05	1,575.61	10,702.94	10,752.80	10,537.16	215.64	49.864	
6,400.00	6,279.81	6,300.00	6,296.37	27.44	188.78	-89.05	1,575.61	10,702.94	10,756.40	10,540.38	216.02	49.793	
6,500.00	6,377.62	6,300.00	6,296.37	27.89	188.78	-89.05	1,575.61	10,702.94	10,760.93	10,544.54	216.38	49.731	
6,530.62	6,407.57	6,300.00	6,296.37	28.03	188.78	-89.05	1,575.61	10,702.94	10,762.50	10,546.01	216.49	49.713	
6,550.00	6,426.48	6,300.00	6,296.37	28.12	188.78	-83.53	1,575.61	10,702.94	10,763.32	10,546.76	216.56	49.702	
6,600.00	6,474.77	6,300.00	6,296.37	28.36	188.78	-73.46	1,575.61	10,702.94	10,763.56	10,546.81	216.74	49.660	
6,650.00	6,522.09	6,300.00	6,296.37	28.62	188.78	-67.28	1,575.61	10,702.94	10,761.10	10,544.15	216.94	49.603	
6,700.00	6,568.15	6,300.00	6,296.37	28.89	188.78	-63.36	1,575.61	10,702.94	10,755.95	10,538.79	217.16	49.531	
6,750.00	6,612.66	6,300.00	6,296.37	29.18	188.78	-60.86	1,575.61	10,702.94	10,748.14	10,530.76	217.38	49.444	
6,800.00	6,655.36	6,300.00	6,296.37	29.48	188.78	-59.33	1,575.61	10,702.94	10,737.72	10,520.11	217.61	49.343	
6,850.00	6,695.98	6,300.00	6,296.37	29.79	188.78	-58.52	1,575.61	10,702.94	10,724.74	10,506.88	217.86	49.228	
6,900.00	6,734.26	6,300.00	6,296.37	30.11	188.78	-58.26	1,575.61	10,702.94	10,709.27	10,491.16	218.11	49.099	
6,950.00	6,769.98	6,300.00	6,296.37	30.45	188.78	-58.49	1,575.61	10,702.94	10,691.40	10,473.02	218.38	48.958	
7,000.00	6,802.91	6,300.00	6,296.37	30.79	188.78	-59.14	1,575.61	10,702.94	10,671.22	10,452.56	218.66	48.804	
7,050.00	6,832.85	6,300.00	6,296.37	31.15	188.78	-60.19	1,575.61	10,702.94	10,648.84	10,429.90	218.94	48.638	
7,100.00	6,859.62	6,300.00	6,296.37	31.51	188.78	-61.62	1,575.61	10,702.94	10,624.40	10,405.16	219.24	48.461	
7,150.00	6,883.05	6,300.00	6,296.37	31.89	188.78	-63.42	1,575.61	10,702.94	10,598.02	10,378.48	219.54	48.274	
7,200.00	6,902.99	6,300.00	6,296.37	32.28	188.78	-65.60	1,575.61	10,702.94	10,569.86	10,350.01	219.85	48.077	
7,250.00	6,919.32	6,300.00	6,296.37	32.67	188.78	-68.17	1,575.61	10,702.94	10,540.08	10,319.91	220.17	47.872	
7,300.00	6,931.95	6,300.00	6,296.37	33.08	188.78	-71.12	1,575.61	10,702.94	10,508.84	10,288.34	220.50	47.659	
7,350.00	6,940.79	6,300.00	6,296.37	33.49	188.78	-74.45	1,575.61	10,702.94	10,476.34	10,255.50	220.84	47.439	
7,400.00	6,945.79	6,300.00	6,296.37	33.90	188.78	-78.15	1,575.61	10,702.94	10,442.74	10,221.57	221.18	47.214	
7,439.53	6,947.00	6,300.00	6,296.37	34.24	188.78	-81.32	1,575.61	10,702.94	10,415.55	10,194.10	221.45	47.033	
7,500.00	6,947.00	6,300.00	6,296.37	34.75	188.78	-81.14	1,575.61	10,702.94	10,373.22	10,151.34	221.87	46.753	
7,600.00	6,947.00	6,300.00	6,296.37	35.63	188.78	-80.82	1,575.61	10,702.94	10,301.64	10,079.07	222.57	46.284	
7,700.00	6,947.00	6,300.00	6,296.37	36.54	188.78	-80.46	1,575.61	10,702.94	10,228.16	10,004.88	223.28	45.809	
7,800.00	6,947.00	6,300.00	6,296.37	37.47	188.78	-80.08	1,575.61	10,702.94	10,152.81	9,928.83	223.98	45.329	
7,900.00	6,947.00	6,300.00	6,296.37	38.43	188.78	-79.65	1,575.61	10,702.94	10,075.65	9,850.97	224.68	44.844	
8,000.00	6,947.00	6,300.00	6,296.37	39.41	188.78	-79.18	1,575.61	10,702.94	9,996.73	9,771.36	225.37	44.357	
8,100.00	6,947.00	6,300.00	6,296.37	40.40	188.78	-78.65	1,575.61	10,702.94	9,916.11	9,690.06	226.05	43.866	
8,200.00	6,947.00	6,300.00	6,296.37	41.42	188.78	-78.07	1,575.61	10,702.94	9,833.84	9,607.12	226.72	43.374	
8,300.00	6,947.00	6,300.00	6,296.37	42.44	188.78	-77.42	1,575.61	10,702.94	9,749.99	9,522.62	227.37	42.881	
8,400.00	6,947.00	6,300.00	6,296.37	43.48	188.78	-76.68	1,575.61	10,702.94	9,664.61	9,436.61	228.00	42.388	
8,500.00	6,947.00	6,300.00	6,296.37	44.53	188.78	-75.85	1,575.61	10,702.94	9,577.77	9,349.16	228.61	41.895	
8,600.00	6,947.00	6,300.00	6,296.37	45.58	188.78	-74.90	1,575.61	10,702.94	9,489.54	9,260.34	229.20	41.403	
8,700.00	6,947.00	6,300.00	6,296.37	46.63	188.78	-73.82	1,575.61	10,702.94	9,399.99	9,170.24	229.76	40.913	
8,800.00	6,947.00	6,300.00	6,296.37	47.69	188.78	-72.57	1,575.61	10,702.94	9,309.19	9,078.91	230.29	40.424	
8,841.31	6,947.00	6,300.00	6,296.37	48.13	188.78	-71.99	1,575.61	10,702.94	9,271.34	9,040.84	230.50	40.223	
8,900.00	6,947.00	6,300.00	6,296.37	48.76	188.78	-71.99	1,575.61	10,702.94	9,217.44	8,986.65	230.79	39.938	
9,000.00	6,947.00	6,300.00	6,296.37	49.85	188.78	-71.99	1,575.61	10,702.94	9,125.75	8,894.44	231.31	39.453	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Rule Assigned: Warning
9,100.00	6,947.00	6,300.00	6,296.37	50.97	188.78	-71.99	1,575.61	10,702.94	9,034.23	8,802.40	231.83	38.969	
9,200.00	6,947.00	6,300.00	6,296.37	52.12	188.78	-71.99	1,575.61	10,702.94	8,942.90	8,710.52	232.38	38.484	
9,300.00	6,947.00	6,300.00	6,296.37	53.28	188.78	-71.99	1,575.61	10,702.94	8,851.75	8,618.82	232.93	38.001	
9,400.00	6,947.00	6,300.00	6,296.37	54.48	188.78	-71.99	1,575.61	10,702.94	8,760.80	8,527.29	233.51	37.518	
9,500.00	6,947.00	6,300.00	6,296.37	55.69	188.78	-71.99	1,575.61	10,702.94	8,670.04	8,435.95	234.10	37.036	
9,600.00	6,947.00	6,300.00	6,296.37	56.92	188.78	-71.99	1,575.61	10,702.94	8,579.49	8,344.79	234.70	36.555	
9,700.00	6,947.00	6,300.00	6,296.37	58.17	188.78	-71.99	1,575.61	10,702.94	8,489.16	8,253.83	235.32	36.074	
9,800.00	6,947.00	6,300.00	6,296.37	59.44	188.78	-71.99	1,575.61	10,702.94	8,399.04	8,163.08	235.96	35.595	
9,900.00	6,947.00	6,300.00	6,296.37	60.73	188.78	-71.99	1,575.61	10,702.94	8,309.15	8,072.53	236.62	35.116	
10,000.00	6,947.00	6,300.00	6,296.37	62.03	188.78	-71.99	1,575.61	10,702.94	8,219.49	7,982.20	237.29	34.639	
10,100.00	6,947.00	6,300.00	6,296.37	63.34	188.78	-71.99	1,575.61	10,702.94	8,130.07	7,892.09	237.98	34.163	
10,200.00	6,947.00	6,300.00	6,296.37	64.67	188.78	-71.99	1,575.61	10,702.94	8,040.90	7,802.21	238.69	33.688	
10,300.00	6,947.00	6,300.00	6,296.37	66.01	188.78	-71.99	1,575.61	10,702.94	7,951.99	7,712.58	239.42	33.214	
10,400.00	6,947.00	6,300.00	6,296.37	67.36	188.78	-71.99	1,575.61	10,702.94	7,863.35	7,623.18	240.16	32.742	
10,500.00	6,947.00	6,300.00	6,296.37	68.73	188.78	-71.99	1,575.61	10,702.94	7,774.98	7,534.05	240.93	32.271	
10,600.00	6,947.00	6,300.00	6,296.37	70.10	188.78	-71.99	1,575.61	10,702.94	7,686.90	7,445.18	241.72	31.801	
10,700.00	6,947.00	6,300.00	6,296.37	71.48	188.78	-71.99	1,575.61	10,702.94	7,599.11	7,356.58	242.52	31.333	
10,800.00	6,947.00	6,300.00	6,296.37	72.88	188.78	-71.99	1,575.61	10,702.94	7,511.63	7,268.27	243.35	30.867	
10,900.00	6,947.00	6,300.00	6,296.37	74.28	188.78	-71.99	1,575.61	10,702.94	7,424.46	7,180.26	244.20	30.403	
11,000.00	6,947.00	6,300.00	6,296.37	75.69	188.78	-71.99	1,575.61	10,702.94	7,337.62	7,092.55	245.07	29.941	
11,100.00	6,947.00	6,300.00	6,296.37	77.10	188.78	-71.99	1,575.61	10,702.94	7,251.12	7,005.15	245.97	29.480	
11,200.00	6,947.00	6,300.00	6,296.37	78.53	188.78	-71.99	1,575.61	10,702.94	7,164.97	6,918.09	246.88	29.022	
11,300.00	6,947.00	6,300.00	6,296.37	79.96	188.78	-71.99	1,575.61	10,702.94	7,079.18	6,831.36	247.82	28.565	
11,400.00	6,947.00	6,300.00	6,296.37	81.40	188.78	-71.99	1,575.61	10,702.94	6,993.78	6,744.99	248.79	28.112	
11,500.00	6,947.00	6,300.00	6,296.37	82.84	188.78	-71.99	1,575.61	10,702.94	6,908.76	6,658.99	249.78	27.660	
11,600.00	6,947.00	6,300.00	6,296.37	84.29	188.78	-71.99	1,575.61	10,702.94	6,824.15	6,573.36	250.79	27.211	
11,700.00	6,947.00	6,300.00	6,296.37	85.75	188.78	-71.99	1,575.61	10,702.94	6,739.96	6,488.14	251.83	26.764	
11,800.00	6,947.00	6,300.00	6,296.37	87.21	188.78	-71.99	1,575.61	10,702.94	6,656.21	6,403.32	252.89	26.320	
11,900.00	6,947.00	6,300.00	6,296.37	88.68	188.78	-71.99	1,575.61	10,702.94	6,572.92	6,318.93	253.99	25.879	
12,000.00	6,947.00	6,300.00	6,296.37	90.15	188.78	-71.99	1,575.61	10,702.94	6,490.09	6,234.99	255.10	25.441	
12,100.00	6,947.00	6,300.00	6,296.37	91.62	188.78	-71.99	1,575.61	10,702.94	6,407.76	6,151.51	256.25	25.006	
12,200.00	6,947.00	6,300.00	6,296.37	93.10	188.78	-71.99	1,575.61	10,702.94	6,325.94	6,068.51	257.43	24.574	
12,300.00	6,947.00	6,300.00	6,296.37	94.59	188.78	-71.99	1,575.61	10,702.94	6,244.64	5,986.01	258.63	24.145	
12,400.00	6,947.00	6,300.00	6,296.37	96.07	188.78	-71.99	1,575.61	10,702.94	6,163.89	5,904.03	259.86	23.720	
12,500.00	6,947.00	6,300.00	6,296.37	97.56	188.78	-71.99	1,575.61	10,702.94	6,083.72	5,822.59	261.13	23.298	
12,600.00	6,947.00	6,300.00	6,296.37	99.06	188.78	-71.99	1,575.61	10,702.94	6,004.14	5,741.72	262.42	22.880	
12,700.00	6,947.00	6,300.00	6,296.37	100.56	188.78	-71.99	1,575.61	10,702.94	5,925.18	5,661.44	263.74	22.466	
12,800.00	6,947.00	6,300.00	6,296.37	102.06	188.78	-71.99	1,575.61	10,702.94	5,846.87	5,581.77	265.10	22.055	
12,900.00	6,947.00	6,300.00	6,296.37	103.56	188.78	-71.99	1,575.61	10,702.94	5,769.22	5,502.74	266.49	21.649	
13,000.00	6,947.00	6,300.00	6,296.37	105.07	188.78	-71.99	1,575.61	10,702.94	5,692.28	5,424.37	267.90	21.247	
13,100.00	6,947.00	6,300.00	6,296.37	106.58	188.78	-71.99	1,575.61	10,702.94	5,616.05	5,346.70	269.35	20.850	
13,200.00	6,947.00	6,300.00	6,296.37	108.10	188.78	-71.99	1,575.61	10,702.94	5,540.59	5,269.75	270.84	20.457	
13,300.00	6,947.00	6,300.00	6,296.37	109.61	188.78	-71.99	1,575.61	10,702.94	5,465.91	5,193.56	272.35	20.069	
13,400.00	6,947.00	6,300.00	6,296.37	111.13	188.78	-71.99	1,575.61	10,702.94	5,392.06	5,118.16	273.90	19.686	
13,500.00	6,947.00	6,300.00	6,296.37	112.65	188.78	-71.99	1,575.61	10,702.94	5,319.05	5,043.57	275.48	19.308	
13,600.00	6,947.00	6,300.00	6,296.37	114.17	188.78	-71.99	1,575.61	10,702.94	5,246.94	4,969.85	277.10	18.935	
13,700.00	6,947.00	6,300.00	6,296.37	115.70	188.78	-71.99	1,575.61	10,702.94	5,175.76	4,897.02	278.74	18.568	
13,800.00	6,947.00	6,300.00	6,296.37	117.23	188.78	-71.99	1,575.61	10,702.94	5,105.54	4,825.12	280.42	18.207	
13,900.00	6,947.00	6,300.00	6,296.37	118.76	188.78	-71.99	1,575.61	10,702.94	5,036.33	4,754.20	282.13	17.851	
14,000.00	6,947.00	6,300.00	6,296.37	120.29	188.78	-71.99	1,575.61	10,702.94	4,968.17	4,684.29	283.87	17.501	
14,100.00	6,947.00	6,300.00	6,296.37	121.82	188.78	-71.99	1,575.61	10,702.94	4,901.10	4,615.45	285.65	17.158	
14,200.00	6,947.00	6,300.00	6,296.37	123.36	188.78	-71.99	1,575.61	10,702.94	4,835.16	4,547.71	287.45	16.821	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,300.00	6,947.00	6,300.00	6,296.37	124.89	188.78	-71.99	1,575.61	10,702.94	4,770.42	4,481.13	289.28	16.491	
14,400.00	6,947.00	6,300.00	6,296.37	126.43	188.78	-71.99	1,575.61	10,702.94	4,706.90	4,415.76	291.14	16.167	
14,500.00	6,947.00	6,300.00	6,296.37	127.97	188.78	-71.99	1,575.61	10,702.94	4,644.68	4,351.65	293.03	15.851	
14,600.00	6,947.00	6,300.00	6,296.37	129.51	188.78	-71.99	1,575.61	10,702.94	4,583.78	4,288.85	294.94	15.541	
14,700.00	6,947.00	6,300.00	6,296.37	131.06	188.78	-71.99	1,575.61	10,702.94	4,524.28	4,227.41	296.87	15.240	
14,800.00	6,947.00	6,300.00	6,296.37	132.60	188.78	-71.99	1,575.61	10,702.94	4,466.23	4,167.40	298.83	14.946	
14,900.00	6,947.00	6,300.00	6,296.37	134.15	188.78	-71.99	1,575.61	10,702.94	4,409.68	4,108.88	300.80	14.660	
15,000.00	6,947.00	6,300.00	6,296.37	135.70	188.78	-71.99	1,575.61	10,702.94	4,354.69	4,051.91	302.78	14.382	
15,100.00	6,947.00	6,300.00	6,296.37	137.24	188.78	-71.99	1,575.61	10,702.94	4,301.33	3,996.54	304.78	14.113	
15,200.00	6,947.00	6,300.00	6,296.37	138.79	188.78	-71.99	1,575.61	10,702.94	4,249.64	3,942.85	306.79	13.852	
15,300.00	6,947.00	6,300.00	6,296.37	140.35	188.78	-71.99	1,575.61	10,702.94	4,199.71	3,890.90	308.81	13.600	
15,400.00	6,947.00	6,300.00	6,296.37	141.90	188.78	-71.99	1,575.61	10,702.94	4,151.58	3,840.76	310.82	13.357	
15,500.00	6,947.00	6,300.00	6,296.37	143.45	188.78	-71.99	1,575.61	10,702.94	4,105.32	3,792.49	312.83	13.123	
15,600.00	6,947.00	6,300.00	6,296.37	145.01	188.78	-71.99	1,575.61	10,702.94	4,061.00	3,746.17	314.84	12.899	
15,700.00	6,947.00	6,300.00	6,296.37	146.56	188.78	-71.99	1,575.61	10,702.94	4,018.68	3,701.85	316.83	12.684	
15,800.00	6,947.00	6,300.00	6,296.37	148.12	188.78	-71.99	1,575.61	10,702.94	3,978.43	3,659.62	318.80	12.479	
15,900.00	6,947.00	6,300.00	6,296.37	149.68	188.78	-71.99	1,575.61	10,702.94	3,940.30	3,619.54	320.75	12.284	
16,000.00	6,947.00	6,300.00	6,296.37	151.23	188.78	-71.99	1,575.61	10,702.94	3,904.36	3,581.68	322.68	12.100	
16,100.00	6,947.00	6,300.00	6,296.37	152.79	188.78	-71.99	1,575.61	10,702.94	3,870.67	3,546.11	324.56	11.926	
16,200.00	6,947.00	6,300.00	6,296.37	154.36	188.78	-71.99	1,575.61	10,702.94	3,839.29	3,512.88	326.41	11.762	
16,300.00	6,947.00	6,300.00	6,296.37	155.92	188.78	-71.99	1,575.61	10,702.94	3,810.28	3,482.07	328.21	11.609	
16,400.00	6,947.00	6,300.00	6,296.37	157.48	188.78	-71.99	1,575.61	10,702.94	3,783.69	3,453.73	329.96	11.467	
16,500.00	6,947.00	6,300.00	6,296.37	159.04	188.78	-71.99	1,575.61	10,702.94	3,759.57	3,427.93	331.64	11.336	
16,600.00	6,947.00	6,300.00	6,296.37	160.61	188.78	-71.99	1,575.61	10,702.94	3,737.97	3,404.71	333.26	11.216	
16,700.00	6,947.00	6,300.00	6,296.37	162.17	188.78	-71.99	1,575.61	10,702.94	3,718.94	3,384.12	334.82	11.107	
16,800.00	6,947.00	6,300.00	6,296.37	163.74	188.78	-71.99	1,575.61	10,702.94	3,702.51	3,366.22	336.29	11.010	
16,900.00	6,947.00	6,300.00	6,296.37	165.30	188.78	-71.99	1,575.61	10,702.94	3,688.72	3,351.03	337.68	10.924	
17,000.00	6,947.00	6,300.00	6,296.37	166.87	188.78	-71.99	1,575.61	10,702.94	3,677.59	3,338.61	338.99	10.849	
17,100.00	6,947.00	6,300.00	6,296.37	168.44	188.78	-71.99	1,575.61	10,702.94	3,669.16	3,328.96	340.20	10.785	
17,200.00	6,947.00	6,300.00	6,296.37	170.01	188.78	-71.99	1,575.61	10,702.94	3,663.44	3,322.12	341.32	10.733	
17,300.00	6,947.00	6,300.00	6,296.37	171.57	188.78	-71.99	1,575.61	10,702.94	3,660.45	3,318.11	342.34	10.692	
17,359.66	6,947.00	6,300.00	6,296.37	172.51	188.78	-71.99	1,575.61	10,702.94	3,659.96	3,317.06	342.90	10.674 CC	
17,400.00	6,947.00	6,300.00	6,296.37	173.14	188.78	-71.99	1,575.61	10,702.94	3,660.19	3,316.93	343.26	10.663 ES	
17,500.00	6,947.00	6,300.00	6,296.37	174.71	188.78	-71.99	1,575.61	10,702.94	3,662.65	3,318.58	344.07	10.645	
17,600.00	6,947.00	6,300.00	6,296.37	176.28	188.78	-71.99	1,575.61	10,702.94	3,667.85	3,323.06	344.78	10.638 SF	
17,700.00	6,947.00	6,300.00	6,296.37	177.86	188.78	-71.99	1,575.61	10,702.94	3,675.75	3,330.36	345.39	10.642	
17,800.00	6,947.00	6,300.00	6,296.37	179.43	188.78	-71.99	1,575.61	10,702.94	3,686.36	3,340.47	345.89	10.658	
17,900.00	6,947.00	6,300.00	6,296.37	181.00	188.78	-71.99	1,575.61	10,702.94	3,699.64	3,353.35	346.28	10.684	
18,000.00	6,947.00	6,300.00	6,296.37	182.57	188.78	-71.99	1,575.61	10,702.94	3,715.56	3,368.99	346.57	10.721	
18,100.00	6,947.00	6,300.00	6,296.37	184.15	188.78	-71.99	1,575.61	10,702.94	3,734.09	3,387.33	346.76	10.769	
18,200.00	6,947.00	6,300.00	6,296.37	185.72	188.78	-71.99	1,575.61	10,702.94	3,755.20	3,408.35	346.85	10.827	
18,300.00	6,947.00	6,300.00	6,296.37	187.30	188.78	-71.99	1,575.61	10,702.94	3,778.83	3,431.99	346.84	10.895	
18,400.00	6,947.00	6,300.00	6,296.37	188.87	188.78	-71.99	1,575.61	10,702.94	3,804.95	3,458.21	346.74	10.974	
18,500.00	6,947.00	6,300.00	6,296.37	190.45	188.78	-71.99	1,575.61	10,702.94	3,833.50	3,486.95	346.54	11.062	
18,600.00	6,947.00	6,300.00	6,296.37	192.02	188.78	-71.99	1,575.61	10,702.94	3,864.42	3,518.16	346.27	11.160	
18,700.00	6,947.00	6,300.00	6,296.37	193.60	188.78	-71.99	1,575.61	10,702.94	3,897.67	3,551.76	345.91	11.268	
18,800.00	6,947.00	6,300.00	6,296.37	195.18	188.78	-71.99	1,575.61	10,702.94	3,933.18	3,587.70	345.48	11.385	
18,900.00	6,947.00	6,300.00	6,296.37	196.75	188.78	-71.99	1,575.61	10,702.94	3,970.89	3,625.92	344.97	11.511	
19,000.00	6,947.00	6,300.00	6,296.37	198.33	188.78	-71.99	1,575.61	10,702.94	4,010.74	3,666.34	344.40	11.645	
19,100.00	6,947.00	6,300.00	6,296.37	199.91	188.78	-71.99	1,575.61	10,702.94	4,052.67	3,708.90	343.77	11.789	
19,200.00	6,947.00	6,300.00	6,296.37	201.49	188.78	-71.99	1,575.61	10,702.94	4,096.61	3,753.52	343.08	11.941	
19,300.00	6,947.00	6,300.00	6,296.37	203.07	188.78	-71.99	1,575.61	10,702.94	4,142.49	3,800.15	342.34	12.100	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Rule Assigned:

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
19,400.00	6,947.00	6,300.00	6,296.37	204.65	188.78	-71.99	1,575.61	10,702.94	4,190.26	3,848.71	341.55	12.268	
19,500.00	6,947.00	6,300.00	6,296.37	206.23	188.78	-71.99	1,575.61	10,702.94	4,239.86	3,899.13	340.73	12.444	
19,600.00	6,947.00	6,300.00	6,296.37	207.81	188.78	-71.99	1,575.61	10,702.94	4,291.21	3,951.35	339.86	12.626	
19,700.00	6,947.00	6,300.00	6,296.37	209.39	188.78	-71.99	1,575.61	10,702.94	4,344.25	4,005.29	338.96	12.816	
19,800.00	6,947.00	6,300.00	6,296.37	210.97	188.78	-71.99	1,575.61	10,702.94	4,398.93	4,060.90	338.03	13.013	
19,900.00	6,947.00	6,300.00	6,296.37	212.55	188.78	-71.99	1,575.61	10,702.94	4,455.18	4,118.11	337.07	13.217	
20,000.00	6,947.00	6,300.00	6,296.37	214.13	188.78	-71.99	1,575.61	10,702.94	4,512.95	4,176.85	336.10	13.428	
20,100.00	6,947.00	6,300.00	6,296.37	215.71	188.78	-71.99	1,575.61	10,702.94	4,572.17	4,237.07	335.10	13.644	
20,200.00	6,947.00	6,300.00	6,296.37	217.30	188.78	-71.99	1,575.61	10,702.94	4,632.80	4,298.71	334.09	13.867	
20,300.00	6,947.00	6,300.00	6,296.37	218.88	188.78	-71.99	1,575.61	10,702.94	4,694.78	4,361.70	333.07	14.095	
20,400.00	6,947.00	6,300.00	6,296.37	220.46	188.78	-71.99	1,575.61	10,702.94	4,758.04	4,426.00	332.04	14.330	
20,500.00	6,947.00	6,300.00	6,296.37	222.04	188.78	-71.99	1,575.61	10,702.94	4,822.56	4,491.55	331.00	14.569	
20,600.00	6,947.00	6,300.00	6,296.37	223.63	188.78	-71.99	1,575.61	10,702.94	4,888.26	4,558.30	329.96	14.815	
20,700.00	6,947.00	6,300.00	6,296.37	225.21	188.78	-71.99	1,575.61	10,702.94	4,955.12	4,626.20	328.92	15.065	
20,800.00	6,947.00	6,300.00	6,296.37	226.80	188.78	-71.99	1,575.61	10,702.94	5,023.07	4,695.19	327.88	15.320	
20,900.00	6,947.00	6,300.00	6,296.37	228.38	188.78	-71.99	1,575.61	10,702.94	5,092.08	4,765.25	326.84	15.580	
21,000.00	6,947.00	6,300.00	6,296.37	229.97	188.78	-71.99	1,575.61	10,702.94	5,162.11	4,836.31	325.80	15.844	
21,032.01	6,947.00	6,300.00	6,296.37	230.47	188.78	-71.99	1,575.61	10,702.94	5,184.73	4,859.26	325.47	15.930	
21,032.99	6,947.00	6,300.00	6,296.37	230.51	188.78	-71.99	1,575.61	10,702.94	5,185.42	4,859.71	325.72	15.920	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 107-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	-24.74	857.02	-394.94	944.97				
100.00	100.00	50.00	50.00	0.25	0.99	-24.74	857.02	-394.94	943.65	942.41	1.24	763.459	
200.00	200.00	150.00	150.00	0.61	2.90	-24.74	857.02	-394.94	943.65	940.14	3.51	269.000	
300.00	300.00	250.01	250.00	0.97	4.74	-24.74	857.02	-394.94	943.65	937.94	5.71	165.347	
400.00	400.00	350.74	350.73	1.33	6.60	-24.74	857.11	-394.94	943.72	935.80	7.92	119.084	
500.00	500.00	450.02	450.00	1.68	8.48	-24.74	857.02	-394.94	943.65	933.48	10.17	92.802	CC
600.00	599.98	550.00	549.98	2.03	10.45	170.27	857.02	-394.94	945.37	932.89	12.48	75.778	ES
700.00	699.84	649.85	649.84	2.36	12.41	170.31	857.02	-394.94	950.53	935.75	14.77	64.340	
800.00	799.45	751.60	751.58	2.71	14.41	170.39	857.74	-394.94	959.77	942.65	17.12	56.073	
900.00	898.70	853.23	853.20	3.06	16.41	170.46	857.35	-394.94	971.45	951.98	19.46	49.913	
1,000.00	997.47	947.52	947.47	3.43	18.24	170.54	857.02	-394.94	986.57	964.92	21.65	45.573	
1,100.00	1,095.62	1,045.68	1,045.62	3.82	20.11	170.66	857.02	-394.94	1,005.40	981.53	23.88	42.109	
1,200.00	1,193.44	1,144.40	1,144.33	4.22	21.99	170.87	857.68	-394.94	1,026.53	1,000.42	26.11	39.309	
1,300.00	1,291.25	1,245.34	1,245.27	4.64	23.91	171.05	857.42	-394.94	1,046.85	1,018.45	28.39	36.868	
1,400.00	1,389.07	1,339.15	1,339.07	5.06	25.67	171.20	857.02	-394.94	1,067.03	1,036.51	30.52	34.964	
1,500.00	1,486.88	1,436.97	1,436.88	5.48	27.41	171.37	857.02	-394.94	1,087.59	1,054.97	32.63	33.335	
1,600.00	1,584.70	1,536.54	1,536.45	5.91	29.19	171.54	857.31	-394.94	1,108.43	1,073.66	34.77	31.881	
1,700.00	1,682.51	1,632.60	1,632.51	6.35	30.90	171.69	857.02	-394.94	1,128.74	1,091.89	36.85	30.631	
1,800.00	1,780.33	1,730.42	1,730.33	6.78	32.70	171.84	857.02	-394.94	1,149.33	1,110.30	39.03	29.451	
1,900.00	1,878.14	1,828.23	1,828.14	7.22	34.51	171.98	857.02	-394.94	1,169.92	1,128.72	41.20	28.395	
2,000.00	1,975.96	1,926.88	1,926.79	7.66	36.33	172.13	857.23	-394.94	1,190.71	1,147.32	43.40	27.438	
2,100.00	2,073.77	2,025.81	2,025.72	8.10	38.16	172.26	857.11	-394.94	1,211.21	1,165.61	45.60	26.564	
2,200.00	2,171.59	2,121.69	2,121.59	8.54	40.02	172.39	857.02	-394.94	1,231.74	1,183.91	47.83	25.753	
2,300.00	2,269.40	2,221.06	2,220.94	8.98	42.02	172.52	857.42	-394.94	1,252.72	1,202.51	50.21	24.948	
2,400.00	2,367.22	2,325.32	2,325.21	9.43	44.13	172.64	857.00	-394.94	1,272.98	1,220.28	52.70	24.156	
2,500.00	2,465.03	2,415.17	2,415.03	9.87	46.01	172.75	857.02	-394.94	1,293.61	1,238.66	54.95	23.542	
2,600.00	2,562.84	2,514.23	2,514.09	10.32	48.08	172.88	857.77	-394.94	1,314.94	1,257.54	57.40	22.909	
2,700.00	2,660.66	2,618.61	2,618.46	10.77	50.26	172.99	857.39	-394.94	1,335.25	1,275.29	59.96	22.269	
2,800.00	2,758.47	2,708.66	2,708.47	11.21	52.09	173.09	857.02	-394.94	1,355.53	1,293.37	62.16	21.806	
2,900.00	2,856.29	2,806.48	2,806.29	11.66	54.02	173.19	857.02	-394.94	1,376.18	1,311.71	64.46	21.348	
3,000.00	2,954.10	2,904.29	2,904.10	12.11	55.94	173.29	857.02	-394.94	1,396.83	1,330.06	66.77	20.921	
3,100.00	3,051.92	3,002.30	3,002.09	12.56	57.87	173.41	858.46	-394.94	1,418.83	1,349.76	69.07	20.541	
3,200.00	3,149.73	3,103.72	3,103.52	13.01	59.87	173.51	858.31	-394.94	1,439.35	1,367.90	71.45	20.145	
3,300.00	3,247.55	3,205.27	3,205.06	13.45	61.87	173.60	857.89	-394.94	1,459.64	1,385.81	73.83	19.770	
3,400.00	3,345.36	3,306.94	3,306.71	13.90	63.87	173.68	857.19	-394.94	1,479.68	1,403.47	76.21	19.415	
3,500.00	3,443.18	3,393.43	3,393.18	14.35	65.57	173.75	857.02	-394.94	1,500.15	1,421.87	78.28	19.163	
3,600.00	3,540.99	3,491.24	3,490.99	14.80	67.50	173.84	857.02	-394.94	1,520.83	1,440.24	80.59	18.872	
3,700.00	3,638.81	3,589.06	3,588.81	15.25	69.42	173.92	857.02	-394.94	1,541.51	1,458.61	82.89	18.597	
3,800.00	3,736.62	3,686.87	3,686.62	15.70	71.35	174.00	857.02	-394.94	1,562.19	1,476.99	85.20	18.336	
3,900.00	3,834.44	3,784.69	3,784.44	16.15	73.27	174.08	857.02	-394.94	1,582.87	1,495.37	87.50	18.090	
4,000.00	3,932.25	3,882.57	3,882.31	16.60	75.20	174.17	858.22	-394.94	1,604.68	1,514.87	89.81	17.868	
4,100.00	4,030.07	3,981.58	3,981.33	17.05	77.15	174.25	858.18	-394.94	1,625.33	1,533.19	92.14	17.640	
4,200.00	4,127.88	4,080.63	4,080.37	17.50	79.10	174.32	858.06	-394.94	1,645.91	1,551.44	94.47	17.423	
4,300.00	4,225.70	4,179.71	4,179.45	17.96	81.05	174.39	857.86	-394.94	1,666.42	1,569.62	96.80	17.215	
4,400.00	4,323.51	4,278.82	4,278.56	18.41	83.00	174.46	857.58	-394.94	1,686.86	1,587.73	99.13	17.016	
4,500.00	4,421.33	4,377.97	4,377.70	18.86	84.96	174.52	857.23	-394.94	1,707.23	1,605.76	101.47	16.826	
4,600.00	4,519.14	4,469.49	4,469.14	19.31	86.76	174.58	857.02	-394.94	1,727.73	1,624.09	103.64	16.671	
4,700.00	4,616.95	4,567.30	4,566.95	19.76	88.68	174.64	857.02	-394.94	1,748.43	1,642.49	105.94	16.503	
4,800.00	4,714.77	4,668.39	4,668.03	20.21	90.67	174.72	857.84	-394.94	1,769.91	1,661.59	108.32	16.340	
4,900.00	4,812.58	4,774.14	4,773.78	20.66	92.76	174.78	857.38	-394.94	1,790.22	1,679.43	110.79	16.158	
5,000.00	4,910.40	4,860.78	4,860.40	21.11	94.44	174.83	857.02	-394.94	1,810.55	1,697.72	112.84	16.046	
5,100.00	5,008.21	4,958.60	4,958.21	21.57	96.30	174.89	857.02	-394.94	1,831.26	1,716.19	115.08	15.913	

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 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 107-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Rule Assigned:

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,200.00	5,106.03	5,056.41	5,056.03	22.02	98.16	174.94	857.02	-394.94	1,851.98	1,734.66	117.32	15.786	
5,300.00	5,203.84	5,154.22	5,153.84	22.47	100.02	175.00	857.02	-394.94	1,872.69	1,753.13	119.56	15.663	
5,400.00	5,301.66	5,252.04	5,251.66	22.92	101.88	175.05	857.02	-394.94	1,893.41	1,771.61	121.80	15.545	
5,500.00	5,399.47	5,349.85	5,349.47	23.37	103.74	175.11	857.02	-394.94	1,914.13	1,790.08	124.04	15.431	
5,600.00	5,497.29	5,448.44	5,448.05	23.82	105.62	175.17	858.26	-394.94	1,936.01	1,809.71	126.30	15.329	
5,700.00	5,595.10	5,547.66	5,547.28	24.28	107.50	175.23	858.18	-394.94	1,956.66	1,828.09	128.57	15.219	
5,800.00	5,692.92	5,646.92	5,646.53	24.73	109.39	175.27	858.03	-394.94	1,977.24	1,846.40	130.84	15.112	
5,900.00	5,790.73	5,746.20	5,745.81	25.18	111.28	175.32	857.80	-394.94	1,997.75	1,864.63	133.11	15.008	
6,000.00	5,888.55	5,845.52	5,845.13	25.63	113.17	175.37	857.49	-394.94	2,018.19	1,882.80	135.39	14.907	
6,100.00	5,986.36	5,944.87	5,944.47	26.08	115.06	175.41	857.11	-394.94	2,038.56	1,900.90	137.66	14.809	
6,200.00	6,084.18	6,034.63	6,034.18	26.54	116.82	175.45	857.02	-394.94	2,059.19	1,919.41	139.78	14.732	
6,300.00	6,181.99	6,132.44	6,131.99	26.99	118.74	175.50	857.02	-394.94	2,079.92	1,937.83	142.09	14.638	
6,400.00	6,279.81	6,230.26	6,229.81	27.44	120.67	175.54	857.02	-394.94	2,100.65	1,956.26	144.39	14.548	
6,500.00	6,377.62	6,328.07	6,327.62	27.89	122.59	175.59	857.02	-394.94	2,121.38	1,974.68	146.70	14.461	
6,530.62	6,407.57	6,358.02	6,357.57	28.03	123.18	175.60	857.02	-394.94	2,127.73	1,980.32	147.41	14.434	
6,550.00	6,426.48	6,376.93	6,376.48	28.12	123.56	-178.66	857.02	-394.94	2,131.96	1,984.11	147.85	14.419	
6,600.00	6,474.77	6,425.22	6,424.77	28.36	124.51	-167.83	857.02	-394.94	2,144.79	1,995.79	149.00	14.395	
6,650.00	6,522.09	6,472.54	6,472.09	28.62	125.44	-160.59	857.02	-394.94	2,160.34	2,010.21	150.13	14.390 SF	
6,700.00	6,568.15	6,518.60	6,518.15	28.89	126.35	-155.30	857.02	-394.94	2,178.52	2,027.29	151.23	14.405	
6,750.00	6,612.66	6,563.11	6,562.66	29.18	127.22	-151.09	857.02	-394.94	2,199.24	2,046.94	152.30	14.440	
6,800.00	6,655.36	6,605.81	6,605.36	29.48	128.06	-147.49	857.02	-394.94	2,222.41	2,069.09	153.32	14.495	
6,850.00	6,695.98	6,646.43	6,645.98	29.79	128.86	-144.21	857.02	-394.94	2,247.92	2,093.62	154.30	14.568	
6,900.00	6,734.26	6,684.71	6,684.26	30.11	129.62	-141.05	857.02	-394.94	2,275.66	2,120.44	155.23	14.660	
6,950.00	6,769.98	6,720.43	6,719.98	30.45	130.32	-137.86	857.02	-394.94	2,305.51	2,149.41	156.09	14.770	
7,000.00	6,802.91	6,753.36	6,752.91	30.79	130.97	-134.55	857.02	-394.94	2,337.31	2,180.42	156.89	14.897	
7,050.00	6,832.85	6,783.31	6,782.85	31.15	131.56	-131.01	857.02	-394.94	2,370.93	2,213.31	157.62	15.042	
7,100.00	6,859.62	6,810.07	6,809.62	31.51	132.08	-127.15	857.02	-394.94	2,406.19	2,247.92	158.27	15.203	
7,150.00	6,883.05	6,833.50	6,833.05	31.89	132.55	-122.91	857.02	-394.94	2,442.93	2,284.08	158.85	15.379	
7,200.00	6,902.99	6,853.44	6,852.99	32.28	132.94	-118.23	857.02	-394.94	2,480.94	2,321.61	159.34	15.570	
7,250.00	6,919.32	6,869.77	6,869.32	32.67	133.26	-113.07	857.02	-394.94	2,520.04	2,360.30	159.74	15.776	
7,300.00	6,931.95	6,882.40	6,881.95	33.08	133.51	-107.45	857.02	-394.94	2,559.99	2,399.94	160.06	15.994	
7,350.00	6,940.79	6,891.24	6,890.79	33.49	133.68	-101.42	857.02	-394.94	2,600.59	2,440.31	160.28	16.225	
7,400.00	6,945.79	6,896.32	6,895.85	33.90	133.78	-95.09	860.06	-394.94	2,644.29	2,483.87	160.42	16.483	
7,439.53	6,947.00	6,897.55	6,897.08	34.24	133.81	-90.00	860.06	-394.94	2,676.82	2,516.35	160.47	16.682	
7,500.00	6,947.00	6,897.55	6,897.08	34.75	133.81	-90.00	860.06	-394.94	2,726.44	2,565.94	160.49	16.988	
7,600.00	6,947.00	6,897.56	6,897.09	35.63	133.81	-90.00	860.06	-394.94	2,807.85	2,647.31	160.54	17.490	
7,700.00	6,947.00	6,897.56	6,897.09	36.54	133.81	-90.00	860.06	-394.94	2,888.45	2,727.85	160.60	17.985	
7,800.00	6,947.00	6,897.56	6,897.09	37.47	133.81	-90.00	860.06	-394.94	2,968.19	2,807.52	160.67	18.474	
7,900.00	6,947.00	6,897.56	6,897.09	38.43	133.81	-90.00	860.06	-394.94	3,047.06	2,886.32	160.75	18.956	
8,000.00	6,947.00	6,897.56	6,897.09	39.41	133.81	-90.00	860.06	-394.94	3,125.03	2,964.20	160.83	19.431	
8,100.00	6,947.00	6,897.56	6,897.09	40.40	133.81	-90.00	860.06	-394.94	3,202.07	3,041.15	160.92	19.898	
8,200.00	6,947.00	6,897.56	6,897.09	41.42	133.81	-90.00	860.06	-394.94	3,278.16	3,117.13	161.02	20.358	
8,300.00	6,947.00	6,897.57	6,897.09	42.44	133.81	-90.00	860.06	-394.94	3,353.26	3,192.13	161.13	20.811	
8,400.00	6,947.00	6,897.57	6,897.10	43.48	133.81	-90.00	860.06	-394.94	3,427.37	3,266.13	161.24	21.256	
8,500.00	6,947.00	6,897.57	6,897.10	44.53	133.81	-90.00	860.06	-394.94	3,500.45	3,339.08	161.37	21.693	
8,600.00	6,947.00	6,897.57	6,897.10	45.58	133.81	-90.00	860.06	-394.94	3,572.48	3,410.99	161.49	22.121	
8,700.00	6,947.00	6,897.57	6,897.10	46.63	133.81	-90.00	860.06	-394.94	3,643.44	3,481.81	161.63	22.542	
8,800.00	6,947.00	6,897.57	6,897.10	47.69	133.81	-90.00	860.06	-394.94	3,713.30	3,551.53	161.77	22.954	
8,841.31	6,947.00	6,897.57	6,897.10	48.13	133.81	-90.00	860.06	-394.94	3,741.84	3,580.01	161.83	23.122	
8,900.00	6,947.00	6,897.57	6,897.10	48.76	133.81	-90.00	860.06	-394.94	3,782.49	3,620.57	161.91	23.361	
9,000.00	6,947.00	6,897.57	6,897.10	49.85	133.81	-90.00	860.06	-394.94	3,852.81	3,690.75	162.06	23.773	
9,100.00	6,947.00	6,897.57	6,897.10	50.97	133.81	-90.00	860.06	-394.94	3,924.43	3,762.21	162.21	24.193	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 107-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Rule Assigned:

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,200.00	6,947.00	6,897.57	6,897.10	52.12	133.81	-90.00	860.06	-394.94	3,997.26	3,834.89	162.37	24.619	
9,300.00	6,947.00	6,897.57	6,897.10	53.28	133.81	-90.00	860.06	-394.94	4,071.25	3,908.73	162.52	25.051	
9,400.00	6,947.00	6,897.57	6,897.10	54.48	133.81	-90.00	860.06	-394.94	4,146.32	3,983.66	162.66	25.490	
9,500.00	6,947.00	6,897.57	6,897.10	55.69	133.81	-90.00	860.06	-394.94	4,222.43	4,059.62	162.81	25.935	
9,600.00	6,947.00	6,897.57	6,897.10	56.92	133.81	-90.00	860.06	-394.94	4,299.53	4,136.57	162.96	26.384	
9,700.00	6,947.00	6,897.57	6,897.10	58.17	133.81	-90.00	860.06	-394.94	4,377.54	4,214.44	163.10	26.839	
9,800.00	6,947.00	6,897.57	6,897.10	59.44	133.81	-90.00	860.06	-394.94	4,456.44	4,293.19	163.24	27.299	
9,900.00	6,947.00	6,897.57	6,897.10	60.73	133.81	-90.00	860.06	-394.94	4,536.17	4,372.78	163.39	27.764	
10,000.00	6,947.00	6,897.57	6,897.10	62.03	133.81	-90.00	860.06	-394.94	4,616.68	4,453.16	163.52	28.232	
10,100.00	6,947.00	6,897.57	6,897.10	63.34	133.81	-90.00	860.06	-394.94	4,697.95	4,534.29	163.66	28.705	
10,200.00	6,947.00	6,897.57	6,897.10	64.67	133.81	-90.00	860.06	-394.94	4,779.92	4,616.13	163.80	29.182	
10,300.00	6,947.00	6,897.57	6,897.10	66.01	133.81	-90.00	860.06	-394.94	4,862.57	4,698.65	163.93	29.663	
10,400.00	6,947.00	6,897.57	6,897.10	67.36	133.81	-90.00	860.06	-394.94	4,945.87	4,781.81	164.06	30.147	
10,500.00	6,947.00	6,897.57	6,897.10	68.73	133.81	-90.00	860.06	-394.94	5,029.77	4,865.58	164.19	30.635	
10,600.00	6,947.00	6,897.57	6,897.10	70.10	133.81	-90.00	860.06	-394.94	5,114.25	4,949.93	164.31	31.125	
10,700.00	6,947.00	6,897.57	6,897.10	71.48	133.81	-90.00	860.06	-394.94	5,199.28	5,034.84	164.44	31.619	
10,800.00	6,947.00	6,897.57	6,897.10	72.88	133.81	-90.00	860.06	-394.94	5,284.83	5,120.27	164.56	32.115	
10,900.00	6,947.00	6,897.57	6,897.10	74.28	133.81	-90.00	860.06	-394.94	5,370.88	5,206.21	164.68	32.615	
11,000.00	6,947.00	6,897.57	6,897.10	75.69	133.81	-90.00	860.06	-394.94	5,457.41	5,292.62	164.80	33.116	
11,100.00	6,947.00	6,897.57	6,897.10	77.10	133.81	-90.00	860.06	-394.94	5,544.39	5,379.48	164.91	33.620	
11,200.00	6,947.00	6,897.57	6,897.10	78.53	133.81	-90.00	860.06	-394.94	5,631.81	5,466.78	165.03	34.127	
11,300.00	6,947.00	6,897.57	6,897.10	79.96	133.81	-90.00	860.06	-394.94	5,719.64	5,554.50	165.14	34.635	
11,400.00	6,947.00	6,897.57	6,897.10	81.40	133.81	-90.00	860.06	-394.94	5,807.86	5,642.61	165.25	35.146	
11,500.00	6,947.00	6,897.57	6,897.10	82.84	133.81	-90.00	860.06	-394.94	5,896.45	5,731.09	165.36	35.658	
11,600.00	6,947.00	6,897.57	6,897.10	84.29	133.81	-90.00	860.06	-394.94	5,985.41	5,819.94	165.47	36.173	
11,700.00	6,947.00	6,897.57	6,897.10	85.75	133.81	-90.00	860.06	-394.94	6,074.71	5,909.13	165.57	36.689	
11,800.00	6,947.00	6,897.57	6,897.10	87.21	133.81	-90.00	860.06	-394.94	6,164.34	5,998.66	165.68	37.206	
11,900.00	6,947.00	6,897.57	6,897.10	88.68	133.81	-90.00	860.06	-394.94	6,254.28	6,088.49	165.78	37.726	
12,000.00	6,947.00	6,897.57	6,897.10	90.15	133.81	-90.00	860.06	-394.94	6,344.52	6,178.64	165.89	38.246	
12,100.00	6,947.00	6,897.57	6,897.10	91.62	133.81	-90.00	860.06	-394.94	6,435.05	6,269.07	165.99	38.768	
12,200.00	6,947.00	6,897.57	6,897.10	93.10	133.81	-90.00	860.06	-394.94	6,525.86	6,359.77	166.09	39.292	
12,300.00	6,947.00	6,897.57	6,897.10	94.59	133.81	-90.00	860.06	-394.94	6,616.93	6,450.75	166.19	39.816	
12,400.00	6,947.00	6,897.57	6,897.10	96.07	133.81	-90.00	860.06	-394.94	6,708.26	6,541.98	166.28	40.342	
12,500.00	6,947.00	6,897.57	6,897.10	97.56	133.81	-90.00	860.06	-394.94	6,799.83	6,633.45	166.38	40.869	
12,600.00	6,947.00	6,897.57	6,897.10	99.06	133.81	-90.00	860.06	-394.94	6,891.64	6,725.16	166.48	41.397	
12,700.00	6,947.00	6,897.57	6,897.10	100.56	133.81	-90.00	860.06	-394.94	6,983.67	6,817.10	166.57	41.926	
12,800.00	6,947.00	6,897.57	6,897.10	102.06	133.81	-90.00	860.06	-394.94	7,075.92	6,909.25	166.67	42.456	
12,900.00	6,947.00	6,897.57	6,897.10	103.56	133.81	-90.00	860.06	-394.94	7,168.37	7,001.61	166.76	42.986	
13,000.00	6,947.00	6,897.57	6,897.10	105.07	133.81	-90.00	860.06	-394.94	7,261.03	7,094.18	166.85	43.518	
13,100.00	6,947.00	6,897.57	6,897.10	106.58	133.81	-90.00	860.06	-394.94	7,353.88	7,186.93	166.94	44.050	
13,200.00	6,947.00	6,897.57	6,897.10	108.10	133.81	-90.00	860.06	-394.94	7,446.91	7,279.87	167.04	44.583	
13,300.00	6,947.00	6,897.57	6,897.10	109.61	133.81	-90.00	860.06	-394.94	7,540.12	7,372.99	167.13	45.116	
13,400.00	6,947.00	6,897.57	6,897.10	111.13	133.81	-90.00	860.06	-394.94	7,633.50	7,466.29	167.22	45.650	
13,500.00	6,947.00	6,897.57	6,897.10	112.65	133.81	-90.00	860.06	-394.94	7,727.05	7,559.75	167.31	46.185	
13,600.00	6,947.00	6,897.57	6,897.10	114.17	133.81	-90.00	860.06	-394.94	7,820.76	7,653.36	167.40	46.720	
13,700.00	6,947.00	6,897.57	6,897.10	115.70	133.81	-90.00	860.06	-394.94	7,914.62	7,747.14	167.49	47.256	
13,800.00	6,947.00	6,897.57	6,897.10	117.23	133.81	-90.00	860.06	-394.94	8,008.63	7,841.06	167.57	47.792	
13,900.00	6,947.00	6,897.57	6,897.10	118.76	133.81	-90.00	860.06	-394.94	8,102.79	7,935.13	167.66	48.328	
14,000.00	6,947.00	6,897.57	6,897.10	120.29	133.81	-90.00	860.06	-394.94	8,197.08	8,029.33	167.75	48.865	
14,100.00	6,947.00	6,897.57	6,897.10	121.82	133.81	-90.00	860.06	-394.94	8,291.51	8,123.67	167.84	49.403	
14,200.00	6,947.00	6,897.57	6,897.10	123.36	133.81	-90.00	860.06	-394.94	8,386.06	8,218.14	167.92	49.940	
14,300.00	6,947.00	6,897.57	6,897.10	124.89	133.81	-90.00	860.06	-394.94	8,480.74	8,312.74	168.01	50.478	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #108 - OH - OH-INC — **Offset Site Error:** 0.00 usft

Survey Program: 107-A027Ua_INC-ONLY — **Rule Assigned:** — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,400.00	6,947.00	6,897.57	6,897.10	126.43	133.81	-90.00	860.06	-394.94	8,575.55	8,407.45	168.10	51.016	
14,500.00	6,947.00	6,897.57	6,897.10	127.97	133.81	-90.00	860.06	-394.94	8,670.46	8,502.28	168.18	51.554	
14,600.00	6,947.00	6,897.57	6,897.10	129.51	133.81	-90.00	860.06	-394.94	8,765.50	8,597.23	168.27	52.093	
14,700.00	6,947.00	6,897.57	6,897.10	131.06	133.81	-90.00	860.06	-394.94	8,860.64	8,692.28	168.35	52.631	
14,800.00	6,947.00	6,897.57	6,897.10	132.60	133.81	-90.00	860.06	-394.94	8,955.88	8,787.44	168.44	53.170	
14,900.00	6,947.00	6,897.57	6,897.10	134.15	133.81	-90.00	860.06	-394.94	9,051.23	8,882.71	168.52	53.709	
15,000.00	6,947.00	6,897.57	6,897.10	135.70	133.81	-90.00	860.06	-394.94	9,146.68	8,978.07	168.61	54.248	
15,100.00	6,947.00	6,897.57	6,897.10	137.24	133.81	-90.00	860.06	-394.94	9,242.22	9,073.53	168.69	54.787	
15,200.00	6,947.00	6,897.57	6,897.10	138.79	133.81	-90.00	860.06	-394.94	9,337.86	9,169.08	168.78	55.326	
15,300.00	6,947.00	6,897.57	6,897.10	140.35	133.81	-90.00	860.06	-394.94	9,433.59	9,264.73	168.86	55.865	
15,400.00	6,947.00	6,897.57	6,897.10	141.90	133.81	-90.00	860.06	-394.94	9,529.41	9,360.46	168.95	56.404	
15,500.00	6,947.00	6,897.57	6,897.10	143.45	133.81	-90.00	860.06	-394.94	9,625.31	9,456.28	169.03	56.944	
15,600.00	6,947.00	6,897.57	6,897.10	145.01	133.81	-90.00	860.06	-394.94	9,721.29	9,552.17	169.12	57.483	
15,700.00	6,947.00	6,897.57	6,897.10	146.56	133.81	-90.00	860.06	-394.94	9,817.36	9,648.15	169.20	58.022	
15,800.00	6,947.00	6,897.57	6,897.10	148.12	133.81	-90.00	860.06	-394.94	9,913.50	9,744.21	169.29	58.561	
15,900.00	6,947.00	6,897.57	6,897.10	149.68	133.81	-90.00	860.06	-394.94	10,009.71	9,840.34	169.37	59.099	
16,000.00	6,947.00	6,897.57	6,897.10	151.23	133.81	-90.00	860.06	-394.94	10,106.01	9,936.55	169.46	59.638	
16,100.00	6,947.00	6,897.57	6,897.10	152.79	133.81	-90.00	860.06	-394.94	10,202.37	10,032.83	169.54	60.177	
16,200.00	6,947.00	6,897.57	6,897.10	154.36	133.81	-90.00	860.06	-394.94	10,298.80	10,129.17	169.62	60.715	
16,300.00	6,947.00	6,897.57	6,897.10	155.92	133.81	-90.00	860.06	-394.94	10,395.30	10,225.59	169.71	61.254	
16,400.00	6,947.00	6,897.57	6,897.10	157.48	133.81	-90.00	860.06	-394.94	10,491.86	10,322.07	169.79	61.792	
16,500.00	6,947.00	6,897.57	6,897.10	159.04	133.81	-90.00	860.06	-394.94	10,588.49	10,418.61	169.88	62.330	
16,600.00	6,947.00	6,897.57	6,897.10	160.61	133.81	-90.00	860.06	-394.94	10,685.18	10,515.22	169.96	62.867	
16,700.00	6,947.00	6,897.57	6,897.10	162.17	133.81	-90.00	860.06	-394.94	10,781.93	10,611.88	170.05	63.405	
16,800.00	6,947.00	6,897.57	6,897.10	163.74	133.81	-90.00	860.06	-394.94	10,878.74	10,708.61	170.13	63.942	
16,900.00	6,947.00	6,897.57	6,897.10	165.30	133.81	-90.00	860.06	-394.94	10,975.61	10,805.39	170.22	64.479	
17,000.00	6,947.00	6,897.57	6,897.10	166.87	133.81	-90.00	860.06	-394.94	11,072.53	10,902.23	170.30	65.016	
17,100.00	6,947.00	6,897.57	6,897.10	168.44	133.81	-90.00	860.06	-394.94	11,169.51	10,999.12	170.39	65.552	
17,200.00	6,947.00	6,897.57	6,897.10	170.01	133.81	-90.00	860.06	-394.94	11,266.54	11,096.06	170.48	66.089	
17,300.00	6,947.00	6,897.57	6,897.10	171.57	133.81	-90.00	860.06	-394.94	11,363.62	11,193.06	170.56	66.625	
17,400.00	6,947.00	6,897.57	6,897.10	173.14	133.81	-90.00	860.06	-394.94	11,460.75	11,290.10	170.65	67.160	
17,500.00	6,947.00	6,897.57	6,897.10	174.71	133.81	-90.00	860.06	-394.94	11,557.93	11,387.20	170.73	67.696	
17,600.00	6,947.00	6,897.57	6,897.10	176.28	133.81	-90.00	860.06	-394.94	11,655.16	11,484.34	170.82	68.231	
17,700.00	6,947.00	6,897.57	6,897.10	177.86	133.81	-90.00	860.06	-394.94	11,752.43	11,581.53	170.91	68.765	
17,800.00	6,947.00	6,897.57	6,897.10	179.43	133.81	-90.00	860.06	-394.94	11,849.75	11,678.76	170.99	69.300	
17,900.00	6,947.00	6,897.57	6,897.10	181.00	133.81	-90.00	860.06	-394.94	11,947.12	11,776.04	171.08	69.834	
18,000.00	6,947.00	6,897.57	6,897.10	182.57	133.81	-90.00	860.06	-394.94	12,044.52	11,873.36	171.17	70.367	
18,100.00	6,947.00	6,897.57	6,897.10	184.15	133.81	-90.00	860.06	-394.94	12,141.97	11,970.72	171.25	70.900	
18,200.00	6,947.00	6,897.57	6,897.10	185.72	133.81	-90.00	860.06	-394.94	12,239.46	12,068.12	171.34	71.433	
18,300.00	6,947.00	6,897.57	6,897.10	187.30	133.81	-90.00	860.06	-394.94	12,336.99	12,165.56	171.43	71.966	
18,400.00	6,947.00	6,897.57	6,897.10	188.87	133.81	-90.00	860.06	-394.94	12,434.56	12,263.05	171.52	72.498	
18,500.00	6,947.00	6,897.57	6,897.10	190.45	133.81	-90.00	860.06	-394.94	12,532.17	12,360.57	171.60	73.029	
18,600.00	6,947.00	6,897.57	6,897.10	192.02	133.81	-90.00	860.06	-394.94	12,629.82	12,458.13	171.69	73.561	
18,700.00	6,947.00	6,897.57	6,897.10	193.60	133.81	-90.00	860.06	-394.94	12,727.50	12,555.72	171.78	74.091	
18,800.00	6,947.00	6,897.57	6,897.10	195.18	133.81	-90.00	860.06	-394.94	12,825.22	12,653.35	171.87	74.622	
18,900.00	6,947.00	6,897.57	6,897.10	196.75	133.81	-90.00	860.06	-394.94	12,922.97	12,751.01	171.96	75.152	
19,000.00	6,947.00	6,897.57	6,897.10	198.33	133.81	-90.00	860.06	-394.94	13,020.76	12,848.71	172.05	75.681	
19,100.00	6,947.00	6,897.57	6,897.10	199.91	133.81	-90.00	860.06	-394.94	13,118.58	12,946.44	172.14	76.210	
19,200.00	6,947.00	6,897.57	6,897.10	201.49	133.81	-90.00	860.06	-394.94	13,216.43	13,044.21	172.23	76.739	
19,300.00	6,947.00	6,897.57	6,897.10	203.07	133.81	-90.00	860.06	-394.94	13,314.32	13,142.00	172.32	77.267	
19,400.00	6,947.00	6,897.57	6,897.10	204.65	133.81	-90.00	860.06	-394.94	13,412.23	13,239.83	172.41	77.795	
19,500.00	6,947.00	6,897.57	6,897.10	206.23	133.81	-90.00	860.06	-394.94	13,510.18	13,337.68	172.50	78.322	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 107-A027Ua_INC-ONLY

Rule Assigned:

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
19,600.00	6,947.00	6,897.57	6,897.10	207.81	133.81	-90.00	860.06	-394.94	13,608.16	13,435.57	172.59	78.848	
19,700.00	6,947.00	6,897.57	6,897.10	209.39	133.81	-90.00	860.06	-394.94	13,706.16	13,533.48	172.68	79.375	
19,800.00	6,947.00	6,897.57	6,897.10	210.97	133.81	-90.00	860.06	-394.94	13,804.20	13,631.43	172.77	79.900	
19,900.00	6,947.00	6,897.57	6,897.10	212.55	133.81	-90.00	860.06	-394.94	13,902.26	13,729.40	172.86	80.426	
20,000.00	6,947.00	6,897.57	6,897.10	214.13	133.81	-90.00	860.06	-394.94	14,000.35	13,827.40	172.95	80.950	
20,100.00	6,947.00	6,897.57	6,897.10	215.71	133.81	-90.00	860.06	-394.94	14,098.46	13,925.42	173.04	81.474	
20,200.00	6,947.00	6,897.57	6,897.10	217.30	133.81	-90.00	860.06	-394.94	14,196.61	14,023.47	173.13	81.998	
20,300.00	6,947.00	6,897.57	6,897.10	218.88	133.81	-90.00	860.06	-394.94	14,294.78	14,121.55	173.23	82.521	
20,400.00	6,947.00	6,897.57	6,897.10	220.46	133.81	-90.00	860.06	-394.94	14,392.97	14,219.65	173.32	83.044	
20,500.00	6,947.00	6,897.57	6,897.10	222.04	133.81	-90.00	860.06	-394.94	14,491.19	14,317.78	173.41	83.566	
20,600.00	6,947.00	6,897.57	6,897.10	223.63	133.81	-90.00	860.06	-394.94	14,589.43	14,415.93	173.50	84.087	
20,700.00	6,947.00	6,897.57	6,897.10	225.21	133.81	-90.00	860.06	-394.94	14,687.70	14,514.10	173.60	84.608	
20,800.00	6,947.00	6,897.57	6,897.10	226.80	133.81	-90.00	860.06	-394.94	14,785.99	14,612.30	173.69	85.129	
20,900.00	6,947.00	6,897.57	6,897.10	228.38	133.81	-90.00	860.06	-394.94	14,884.30	14,710.52	173.78	85.649	
21,000.00	6,947.00	6,897.57	6,897.10	229.97	133.81	-90.00	860.06	-394.94	14,982.63	14,808.76	173.88	86.168	
21,032.01	6,947.00	6,897.57	6,897.10	230.47	133.81	-90.00	860.06	-394.94	15,014.11	14,840.21	173.91	86.334	
21,032.99	6,947.00	6,897.57	6,897.10	230.51	133.81	-90.00	860.06	-394.94	15,015.07	14,837.33	177.75	84.474	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Rule Assigned: Warning
0.00	0.00	295.00	295.00	0.00	8.84	100.36	-1,383.01	7,566.46	7,691.82				
100.00	100.00	395.00	395.00	0.25	11.84	100.36	-1,383.01	7,566.46	7,691.82	7,679.73	12.09	636.373	
200.00	200.00	495.00	495.00	0.61	14.83	100.36	-1,383.01	7,566.46	7,691.82	7,676.38	15.44	498.115	
300.00	300.00	595.10	595.00	0.97	17.83	100.36	-1,383.01	7,566.46	7,691.82	7,673.02	18.80	409.144	
400.00	400.00	695.10	695.00	1.33	20.83	100.36	-1,383.01	7,566.46	7,691.82	7,669.67	22.15	347.186	
454.75	454.75	749.85	749.71	1.52	22.47	100.34	-1,380.83	7,566.46	7,691.43	7,667.44	23.99	320.588	
500.00	500.00	791.14	790.99	1.68	23.71	100.34	-1,380.89	7,566.46	7,691.44	7,666.05	25.39	302.922	
600.00	599.98	882.39	882.23	2.03	26.44	-64.68	-1,381.44	7,566.46	7,690.80	7,662.34	28.47	270.169	
700.00	699.84	973.63	973.44	2.36	29.17	-64.74	-1,382.58	7,566.46	7,688.79	7,657.25	31.53	243.828	
800.00	799.45	1,094.86	1,094.45	2.71	32.81	-64.87	-1,383.01	7,566.46	7,685.11	7,649.60	35.51	216.420	
900.00	898.70	1,194.11	1,193.70	3.06	35.78	-65.04	-1,383.01	7,566.46	7,679.92	7,641.08	38.84	197.736	
1,000.00	997.47	1,289.21	1,288.76	3.43	38.63	-65.28	-1,380.88	7,566.46	7,672.91	7,630.85	42.06	182.440	
1,100.00	1,095.62	1,379.18	1,378.71	3.82	41.33	-65.54	-1,381.41	7,566.46	7,664.95	7,619.81	45.14	169.817	
1,200.00	1,193.44	1,469.09	1,468.60	4.22	44.02	-65.66	-1,382.51	7,566.46	7,656.42	7,608.19	48.23	158.757	
1,300.00	1,291.25	1,586.96	1,586.25	4.64	47.55	-65.82	-1,383.01	7,566.46	7,647.78	7,595.62	52.16	146.611	
1,400.00	1,389.07	1,684.78	1,684.07	5.06	50.48	-65.96	-1,383.01	7,566.46	7,639.13	7,583.63	55.51	137.628	
1,500.00	1,486.88	1,779.99	1,779.24	5.48	53.34	-66.12	-1,380.86	7,566.46	7,630.18	7,571.40	58.77	129.820	
1,600.00	1,584.70	1,870.22	1,869.45	5.91	56.04	-66.24	-1,381.33	7,566.46	7,621.71	7,559.81	61.90	123.132	
1,700.00	1,682.51	1,960.70	1,959.91	6.35	58.75	-66.36	-1,382.38	7,566.46	7,613.39	7,548.35	65.03	117.068	
1,800.00	1,780.33	2,076.34	2,075.33	6.78	62.22	-66.52	-1,383.01	7,566.46	7,605.00	7,536.08	68.93	110.337	
1,900.00	1,878.14	2,174.16	2,173.14	7.22	65.15	-66.67	-1,383.01	7,566.46	7,596.59	7,524.31	72.28	105.092	
2,000.00	1,975.96	2,270.35	2,269.29	7.66	68.03	-66.82	-1,380.84	7,566.46	7,587.90	7,512.30	75.60	100.371	
2,100.00	2,073.77	2,361.14	2,360.07	8.10	70.75	-66.95	-1,381.26	7,566.46	7,579.65	7,500.90	78.75	96.248	
2,200.00	2,171.59	2,452.20	2,451.10	8.54	73.48	-67.07	-1,382.26	7,566.46	7,571.54	7,489.63	81.91	92.433	
2,300.00	2,269.40	2,565.72	2,564.40	8.98	76.88	-67.23	-1,383.01	7,566.46	7,563.42	7,477.67	85.75	88.203	
2,400.00	2,367.22	2,663.53	2,662.22	9.43	79.81	-67.38	-1,383.01	7,566.46	7,555.24	7,466.13	89.12	84.778	
2,500.00	2,465.03	2,760.57	2,759.22	9.87	82.72	-67.53	-1,380.83	7,566.46	7,546.82	7,454.35	92.46	81.620	
2,600.00	2,562.84	2,851.95	2,850.57	10.32	85.46	-67.67	-1,381.19	7,566.46	7,538.80	7,443.16	95.64	78.825	
2,700.00	2,660.66	2,943.59	2,942.19	10.77	88.20	-67.79	-1,382.14	7,566.46	7,530.91	7,432.09	98.83	76.204	
2,800.00	2,758.47	3,055.10	3,053.47	11.21	91.54	-67.95	-1,383.01	7,566.46	7,523.04	7,420.43	102.61	73.320	
2,900.00	2,856.29	3,152.91	3,151.29	11.66	94.48	-68.09	-1,383.01	7,566.46	7,515.11	7,409.13	105.98	70.913	
3,000.00	2,954.10	3,250.67	3,249.01	12.11	97.40	-68.26	-1,380.83	7,566.46	7,506.95	7,397.60	109.35	68.652	
3,100.00	3,051.92	3,342.64	3,340.96	12.56	100.16	-68.39	-1,381.13	7,566.46	7,499.16	7,386.62	112.55	66.632	
3,200.00	3,149.73	3,434.87	3,433.17	13.01	102.92	-68.52	-1,382.02	7,566.46	7,491.50	7,375.75	115.75	64.720	
3,300.00	3,247.55	3,544.48	3,542.55	13.45	106.21	-68.67	-1,383.01	7,566.46	7,483.88	7,364.40	119.48	62.638	
3,400.00	3,345.36	3,642.29	3,640.36	13.90	109.14	-68.82	-1,383.01	7,566.46	7,476.20	7,353.34	122.85	60.855	
3,500.00	3,443.18	3,740.11	3,738.18	14.35	112.07	-68.97	-1,383.01	7,566.46	7,468.57	7,342.34	126.23	59.167	
3,600.00	3,540.99	3,833.20	3,831.22	14.80	114.86	-69.12	-1,381.07	7,566.46	7,460.77	7,331.31	129.46	57.629	
3,700.00	3,638.81	3,926.03	3,924.02	15.25	117.64	-69.25	-1,381.91	7,566.46	7,453.34	7,320.65	132.69	56.171	
3,800.00	3,736.62	4,033.86	4,031.62	15.70	120.87	-69.40	-1,383.01	7,566.46	7,445.97	7,309.61	136.36	54.604	
3,900.00	3,834.44	4,131.67	4,129.44	16.15	123.80	-69.55	-1,383.01	7,566.46	7,438.54	7,298.80	139.74	53.231	
4,000.00	3,932.25	4,229.48	4,227.25	16.60	126.73	-69.70	-1,383.01	7,566.46	7,431.16	7,288.04	143.12	51.923	
4,100.00	4,030.07	4,323.64	4,321.35	17.05	129.56	-69.86	-1,381.02	7,566.46	7,423.64	7,277.25	146.39	50.713	
4,200.00	4,127.88	4,417.07	4,414.76	17.50	132.36	-69.99	-1,381.80	7,566.46	7,416.44	7,266.81	149.63	49.564	
4,300.00	4,225.70	4,523.23	4,520.70	17.96	135.54	-70.14	-1,383.01	7,566.46	7,409.33	7,256.07	153.26	48.345	
4,400.00	4,323.51	4,621.05	4,618.51	18.41	138.47	-70.29	-1,383.01	7,566.46	7,402.15	7,245.51	156.64	47.256	
4,500.00	4,421.33	4,718.86	4,716.33	18.86	141.40	-70.44	-1,383.01	7,566.46	7,395.03	7,235.01	160.02	46.214	
4,600.00	4,519.14	4,813.94	4,811.36	19.31	144.25	-70.60	-1,380.97	7,566.46	7,387.78	7,224.47	163.31	45.237	
4,700.00	4,616.95	4,907.99	4,905.38	19.76	147.07	-70.74	-1,381.70	7,566.46	7,380.83	7,214.25	166.58	44.308	
4,800.00	4,714.77	5,012.61	5,009.77	20.21	150.20	-70.89	-1,383.01	7,566.46	7,373.96	7,203.80	170.16	43.335	
4,900.00	4,812.58	5,110.43	5,107.58	20.66	153.13	-71.04	-1,383.01	7,566.46	7,367.05	7,193.50	173.54	42.451	
5,000.00	4,910.40	5,208.24	5,205.40	21.11	156.06	-71.19	-1,383.01	7,566.46	7,360.18	7,183.26	176.92	41.601	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Rule Assigned:

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,100.00	5,008.21	5,304.12	5,301.23	21.57	158.94	-71.35	-1,380.93	7,566.46	7,353.22	7,172.98	180.25	40.795	
5,200.00	5,106.03	5,398.79	5,395.88	22.02	161.77	-71.49	-1,381.60	7,566.46	7,346.52	7,162.98	183.53	40.028	
5,300.00	5,203.84	5,501.99	5,498.84	22.47	164.86	-71.64	-1,383.01	7,566.46	7,339.90	7,152.83	187.07	39.235	
5,400.00	5,301.66	5,599.81	5,596.66	22.92	167.80	-71.79	-1,383.01	7,566.46	7,333.25	7,142.80	190.46	38.504	
5,500.00	5,399.47	5,697.62	5,694.47	23.37	170.73	-71.94	-1,383.01	7,566.46	7,326.65	7,132.81	193.84	37.798	
5,600.00	5,497.29	5,794.16	5,790.97	23.82	173.62	-72.11	-1,380.90	7,566.46	7,319.98	7,122.80	197.18	37.123	
5,700.00	5,595.10	5,889.46	5,886.25	24.28	176.47	-72.25	-1,381.51	7,566.46	7,313.53	7,113.04	200.49	36.479	
5,800.00	5,692.92	5,985.05	5,981.81	24.73	179.34	-72.39	-1,382.76	7,566.46	7,307.15	7,103.35	203.80	35.854	
5,900.00	5,790.73	6,089.18	6,085.73	25.18	182.46	-72.55	-1,383.01	7,566.46	7,300.78	7,093.40	207.37	35.206	
6,000.00	5,888.55	6,187.00	6,183.55	25.63	185.39	-72.70	-1,383.01	7,566.46	7,294.44	7,083.69	210.76	34.611	
6,100.00	5,986.36	6,284.07	6,280.58	26.08	188.30	-72.87	-1,380.87	7,566.46	7,288.07	7,073.95	214.12	34.038	
6,200.00	6,084.18	6,380.01	6,376.49	26.54	191.17	-73.02	-1,381.42	7,566.46	7,281.87	7,064.43	217.44	33.489	
6,300.00	6,181.99	6,476.24	6,472.69	26.99	194.06	-73.16	-1,382.62	7,566.46	7,275.75	7,054.97	220.78	32.955	
6,400.00	6,279.81	6,578.56	6,574.81	27.44	197.12	-73.32	-1,383.01	7,566.46	7,269.65	7,045.35	224.30	32.411	
6,500.00	6,377.62	6,676.38	6,672.62	27.89	200.05	-73.47	-1,383.01	7,566.46	7,263.58	7,035.90	227.68	31.903	
6,530.62	6,407.57	6,706.33	6,702.57	28.03	200.95	-73.52	-1,383.01	7,566.46	7,261.74	7,033.02	228.72	31.750	
6,550.00	6,426.48	6,725.24	6,721.48	28.12	201.52	-68.13	-1,383.01	7,566.46	7,260.31	7,030.94	229.37	31.653	
6,600.00	6,474.77	6,773.18	6,769.39	28.36	202.96	-58.43	-1,380.85	7,566.46	7,254.14	7,023.09	231.05	31.397	
6,650.00	6,522.09	6,819.89	6,816.09	28.62	204.35	-52.60	-1,381.00	7,566.46	7,244.59	7,011.90	232.70	31.133	
6,700.00	6,568.15	6,865.46	6,861.65	28.89	205.72	-49.03	-1,381.30	7,566.46	7,231.68	6,997.35	234.32	30.862	
6,750.00	6,612.66	6,909.62	6,905.79	29.18	207.04	-46.90	-1,381.72	7,566.46	7,215.47	6,979.56	235.91	30.585	
6,800.00	6,655.36	6,952.10	6,948.26	29.48	208.32	-45.78	-1,382.26	7,566.46	7,196.09	6,958.63	237.46	30.305	
6,850.00	6,695.98	6,992.65	6,988.80	29.79	209.53	-45.41	-1,382.89	7,566.46	7,173.65	6,934.70	238.95	30.021	
6,900.00	6,734.26	7,033.32	7,029.26	30.11	210.75	-45.70	-1,383.01	7,566.46	7,148.30	6,907.85	240.45	29.729	
6,950.00	6,769.98	7,069.04	7,064.98	30.45	211.82	-46.55	-1,383.01	7,566.46	7,120.21	6,878.40	241.81	29.446	
7,000.00	6,802.91	7,101.98	7,097.91	30.79	212.81	-47.96	-1,383.01	7,566.46	7,089.56	6,846.49	243.08	29.166	
7,050.00	6,832.85	7,131.92	7,127.85	31.15	213.70	-49.95	-1,383.01	7,566.46	7,056.56	6,812.30	244.26	28.890	
7,100.00	6,859.62	7,158.68	7,154.62	31.51	214.51	-52.54	-1,383.01	7,566.46	7,021.41	6,776.07	245.34	28.619	
7,150.00	6,883.05	7,182.11	7,178.05	31.89	215.21	-55.80	-1,383.01	7,566.46	6,984.33	6,738.01	246.32	28.355	
7,200.00	6,902.99	7,202.05	7,197.99	32.28	215.81	-59.79	-1,383.01	7,566.46	6,945.57	6,698.37	247.19	28.098	
7,250.00	6,919.32	7,218.38	7,214.32	32.67	216.30	-64.58	-1,383.01	7,566.46	6,905.35	6,657.40	247.95	27.849	
7,300.00	6,931.95	7,231.01	7,226.95	33.08	216.67	-70.22	-1,383.01	7,566.46	6,863.95	6,615.35	248.60	27.611	
7,350.00	6,940.79	7,239.85	7,235.79	33.49	216.94	-76.69	-1,383.01	7,566.46	6,821.60	6,572.47	249.12	27.382	
7,400.00	6,945.79	7,244.85	7,240.79	33.90	217.09	-83.90	-1,383.01	7,566.46	6,778.57	6,529.04	249.53	27.165	
7,439.53	6,947.00	7,246.06	7,242.00	34.24	217.12	-90.00	-1,383.01	7,566.46	6,744.25	6,494.49	249.76	27.002	
7,500.00	6,947.00	7,246.06	7,242.00	34.75	217.12	-90.00	-1,383.01	7,566.46	6,691.37	6,441.31	250.06	26.759	
7,600.00	6,947.00	7,246.06	7,242.00	35.63	217.12	-90.00	-1,383.01	7,566.46	6,602.86	6,352.31	250.55	26.353	
7,700.00	6,947.00	7,246.06	7,242.00	36.54	217.12	-90.00	-1,383.01	7,566.46	6,513.08	6,262.05	251.03	25.945	
7,800.00	6,947.00	7,246.06	7,242.00	37.47	217.12	-90.00	-1,383.01	7,566.46	6,422.09	6,170.59	251.50	25.535	
7,900.00	6,947.00	7,246.06	7,242.00	38.43	217.12	-90.00	-1,383.01	7,566.46	6,329.95	6,077.99	251.96	25.123	
8,000.00	6,947.00	7,246.06	7,242.00	39.41	217.12	-90.00	-1,383.01	7,566.46	6,236.72	5,984.33	252.40	24.710	
8,100.00	6,947.00	7,246.06	7,242.00	40.40	217.12	-90.00	-1,383.01	7,566.46	6,142.48	5,889.66	252.82	24.296	
8,200.00	6,947.00	7,246.06	7,242.00	41.42	217.12	-90.00	-1,383.01	7,566.46	6,047.28	5,794.07	253.21	23.882	
8,300.00	6,947.00	7,246.06	7,242.00	42.44	217.12	-90.00	-1,383.01	7,566.46	5,951.20	5,697.62	253.58	23.469	
8,400.00	6,947.00	7,246.06	7,242.00	43.48	217.12	-90.00	-1,383.01	7,566.46	5,854.32	5,600.41	253.92	23.056	
8,500.00	6,947.00	7,246.06	7,242.00	44.53	217.12	-90.00	-1,383.01	7,566.46	5,756.73	5,502.50	254.22	22.644	
8,600.00	6,947.00	7,246.06	7,242.00	45.58	217.12	-90.00	-1,383.01	7,566.46	5,658.50	5,404.00	254.49	22.234	
8,700.00	6,947.00	7,246.06	7,242.00	46.63	217.12	-90.00	-1,383.01	7,566.46	5,559.72	5,304.99	254.73	21.826	
8,800.00	6,947.00	7,246.06	7,242.00	47.69	217.12	-90.00	-1,383.01	7,566.46	5,460.49	5,205.57	254.92	21.421	
8,841.31	6,947.00	7,246.06	7,242.00	48.13	217.12	-90.00	-1,383.01	7,566.46	5,419.39	5,164.40	254.98	21.254	
8,900.00	6,947.00	7,246.06	7,242.00	48.76	217.12	-90.00	-1,383.01	7,566.46	5,360.96	5,105.88	255.07	21.017	
9,000.00	6,947.00	7,246.06	7,242.00	49.85	217.12	-90.00	-1,383.01	7,566.46	5,261.42	5,006.18	255.23	20.614	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,100.00	6,947.00	7,246.06	7,242.00	50.97	217.12	-90.00	-1,383.01	7,566.46	5,161.89	4,906.50	255.40	20.211	
9,200.00	6,947.00	7,246.06	7,242.00	52.12	217.12	-90.00	-1,383.01	7,566.46	5,062.39	4,806.82	255.57	19.809	
9,300.00	6,947.00	7,246.06	7,242.00	53.28	217.12	-90.00	-1,383.01	7,566.46	4,962.90	4,707.15	255.74	19.406	
9,400.00	6,947.00	7,246.06	7,242.00	54.48	217.12	-90.00	-1,383.01	7,566.46	4,863.43	4,607.50	255.93	19.003	
9,500.00	6,947.00	7,246.06	7,242.00	55.69	217.12	-90.00	-1,383.01	7,566.46	4,763.99	4,507.87	256.12	18.600	
9,600.00	6,947.00	7,246.06	7,242.00	56.92	217.12	-90.00	-1,383.01	7,566.46	4,664.57	4,408.25	256.33	18.198	
9,700.00	6,947.00	7,246.06	7,242.00	58.17	217.12	-90.00	-1,383.01	7,566.46	4,565.18	4,308.64	256.54	17.795	
9,800.00	6,947.00	7,246.06	7,242.00	59.44	217.12	-90.00	-1,383.01	7,566.46	4,465.81	4,209.05	256.76	17.393	
9,900.00	6,947.00	7,246.06	7,242.00	60.73	217.12	-90.00	-1,383.01	7,566.46	4,366.48	4,109.48	257.00	16.990	
10,000.00	6,947.00	7,246.06	7,242.00	62.03	217.12	-90.00	-1,383.01	7,566.46	4,267.17	4,009.93	257.24	16.588	
10,100.00	6,947.00	7,246.06	7,242.00	63.34	217.12	-90.00	-1,383.01	7,566.46	4,167.90	3,910.40	257.50	16.186	
10,200.00	6,947.00	7,246.06	7,242.00	64.67	217.12	-90.00	-1,383.01	7,566.46	4,068.66	3,810.89	257.77	15.784	
10,300.00	6,947.00	7,246.06	7,242.00	66.01	217.12	-90.00	-1,383.01	7,566.46	3,969.46	3,711.41	258.05	15.383	
10,400.00	6,947.00	7,246.06	7,242.00	67.36	217.12	-90.00	-1,383.01	7,566.46	3,870.30	3,611.95	258.35	14.981	
10,500.00	6,947.00	7,246.06	7,242.00	68.73	217.12	-90.00	-1,383.01	7,566.46	3,771.19	3,512.53	258.66	14.580	
10,600.00	6,947.00	7,246.06	7,242.00	70.10	217.12	-90.00	-1,383.01	7,566.46	3,672.12	3,413.13	259.00	14.178	
10,700.00	6,947.00	7,246.06	7,242.00	71.48	217.12	-90.00	-1,383.01	7,566.46	3,573.11	3,313.76	259.35	13.777	
10,800.00	6,947.00	7,246.06	7,242.00	72.88	217.12	-90.00	-1,383.01	7,566.46	3,474.15	3,214.43	259.72	13.376	
10,900.00	6,947.00	7,246.06	7,242.00	74.28	217.12	-90.00	-1,383.01	7,566.46	3,375.26	3,115.14	260.12	12.976	
11,000.00	6,947.00	7,246.06	7,242.00	75.69	217.12	-90.00	-1,383.01	7,566.46	3,276.43	3,015.89	260.54	12.576	
11,100.00	6,947.00	7,246.06	7,242.00	77.10	217.12	-90.00	-1,383.01	7,566.46	3,177.67	2,916.69	260.98	12.176	
11,200.00	6,947.00	7,246.06	7,242.00	78.53	217.12	-90.00	-1,383.01	7,566.46	3,079.00	2,817.54	261.46	11.776	
11,300.00	6,947.00	7,246.06	7,242.00	79.96	217.12	-90.00	-1,383.01	7,566.46	2,980.41	2,718.44	261.97	11.377	
11,400.00	6,947.00	7,246.06	7,242.00	81.40	217.12	-90.00	-1,383.01	7,566.46	2,881.92	2,619.41	262.52	10.978	
11,500.00	6,947.00	7,246.06	7,242.00	82.84	217.12	-90.00	-1,383.01	7,566.46	2,783.54	2,520.44	263.10	10.580	
11,600.00	6,947.00	7,246.06	7,242.00	84.29	217.12	-90.00	-1,383.01	7,566.46	2,685.28	2,421.55	263.73	10.182	
11,700.00	6,947.00	7,246.06	7,242.00	85.75	217.12	-90.00	-1,383.01	7,566.46	2,587.15	2,322.74	264.41	9.785	
11,800.00	6,947.00	7,246.06	7,242.00	87.21	217.12	-90.00	-1,383.01	7,566.46	2,489.17	2,224.03	265.15	9.388	
11,900.00	6,947.00	7,246.06	7,242.00	88.68	217.12	-90.00	-1,383.01	7,566.46	2,391.36	2,125.42	265.94	8.992	
12,000.00	6,947.00	7,246.06	7,242.00	90.15	217.12	-90.00	-1,383.01	7,566.46	2,293.74	2,026.93	266.81	8.597	
12,100.00	6,947.00	7,246.06	7,242.00	91.62	217.12	-90.00	-1,383.01	7,566.46	2,196.33	1,928.57	267.76	8.203	
12,200.00	6,947.00	7,246.06	7,242.00	93.10	217.12	-90.00	-1,383.01	7,566.46	2,099.16	1,830.37	268.79	7.810	
12,300.00	6,947.00	7,246.06	7,242.00	94.59	217.12	-90.00	-1,383.01	7,566.46	2,002.28	1,732.34	269.93	7.418	
12,400.00	6,947.00	7,246.06	7,242.00	96.07	217.12	-90.00	-1,383.01	7,566.46	1,905.71	1,634.52	271.19	7.027	
12,500.00	6,947.00	7,246.06	7,242.00	97.56	217.12	-90.00	-1,383.01	7,566.46	1,809.52	1,536.94	272.58	6.638	
12,600.00	6,947.00	7,246.06	7,242.00	99.06	217.12	-90.00	-1,383.01	7,566.46	1,713.76	1,439.63	274.13	6.252	
12,700.00	6,947.00	7,246.06	7,242.00	100.56	217.12	-90.00	-1,383.01	7,566.46	1,618.52	1,342.66	275.86	5.867	
12,800.00	6,947.00	7,246.06	7,242.00	102.06	217.12	-90.00	-1,383.01	7,566.46	1,523.89	1,246.08	277.81	5.485	
12,900.00	6,947.00	7,246.06	7,242.00	103.56	217.12	-90.00	-1,383.01	7,566.46	1,429.99	1,149.98	280.00	5.107	
13,000.00	6,947.00	7,246.06	7,242.00	105.07	217.12	-90.00	-1,383.01	7,566.46	1,336.97	1,054.48	282.49	4.733	
13,100.00	6,947.00	7,246.06	7,242.00	106.58	217.12	-90.00	-1,383.01	7,566.46	1,245.03	959.70	285.33	4.364	
13,200.00	6,947.00	7,246.06	7,242.00	108.10	217.12	-90.00	-1,383.01	7,566.46	1,154.44	865.86	288.58	4.000	
13,300.00	6,947.00	7,246.06	7,242.00	109.61	217.12	-90.00	-1,383.01	7,566.46	1,065.53	773.22	292.31	3.645	
13,400.00	6,947.00	7,246.06	7,242.00	111.13	217.12	-90.00	-1,383.01	7,566.46	978.77	682.16	296.61	3.300	
13,500.00	6,947.00	7,246.06	7,242.00	112.65	217.12	-90.00	-1,383.01	7,566.46	894.77	593.21	301.56	2.967	
13,600.00	6,947.00	7,246.06	7,242.00	114.17	217.12	-90.00	-1,383.01	7,566.46	814.39	507.17	307.22	2.651	
13,700.00	6,947.00	7,246.06	7,242.00	115.70	217.12	-90.00	-1,383.01	7,566.46	738.82	425.22	313.60	2.356	
13,800.00	6,947.00	7,246.06	7,242.00	117.23	217.12	-90.00	-1,383.01	7,566.46	669.69	349.12	320.56	2.089	
13,900.00	6,947.00	7,246.06	7,242.00	118.76	217.12	-90.00	-1,383.01	7,566.46	609.18	281.47	327.71	1.859	
14,000.00	6,947.00	7,246.06	7,242.00	120.29	217.12	-90.00	-1,383.01	7,566.46	560.12	225.92	334.19	1.676	
14,100.00	6,947.00	7,246.06	7,242.00	121.82	217.12	-90.00	-1,383.01	7,566.46	525.69	187.02	338.67	1.552	
14,200.00	6,947.00	7,246.06	7,242.00	123.36	217.12	-90.00	-1,383.01	7,566.46	508.90	169.25	339.66	1.498	Level 3

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - (O) Rosa Unit #109 - OH - OH-TD — **Offset Site Error:** 0.00 usft

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

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,236.88	6,947.00	7,246.06	7,242.00	123.92	217.12	-90.00	-1,383.01	7,566.46	507.56	168.63	338.93	1.498	Level 3, CC, ES, SF
14,300.00	6,947.00	7,246.06	7,242.00	124.89	217.12	-90.00	-1,383.01	7,566.46	511.47	175.17	336.31	1.521	
14,400.00	6,947.00	7,246.06	7,242.00	126.43	217.12	-90.00	-1,383.01	7,566.46	533.13	204.00	329.13	1.620	
14,500.00	6,947.00	7,246.06	7,242.00	127.97	217.12	-90.00	-1,383.01	7,566.46	571.71	252.02	319.69	1.788	
14,600.00	6,947.00	7,246.06	7,242.00	129.51	217.12	-90.00	-1,383.01	7,566.46	624.08	314.43	309.65	2.015	
14,700.00	6,947.00	7,246.06	7,242.00	131.06	217.12	-90.00	-1,383.01	7,566.46	687.10	386.96	300.14	2.289	
14,800.00	6,947.00	7,246.06	7,242.00	132.60	217.12	-90.00	-1,383.01	7,566.46	758.11	466.42	291.69	2.599	
14,900.00	6,947.00	7,246.06	7,242.00	134.15	217.12	-90.00	-1,383.01	7,566.46	835.08	550.62	284.46	2.936	
15,000.00	6,947.00	7,246.06	7,242.00	135.70	217.12	-90.00	-1,383.01	7,566.46	916.50	638.13	278.38	3.292	
15,100.00	6,947.00	7,246.06	7,242.00	137.24	217.12	-90.00	-1,383.01	7,566.46	1,001.30	727.98	273.32	3.664	
15,200.00	6,947.00	7,246.06	7,242.00	138.79	217.12	-90.00	-1,383.01	7,566.46	1,088.68	819.56	269.12	4.045	
15,300.00	6,947.00	7,246.06	7,242.00	140.35	217.12	-90.00	-1,383.01	7,566.46	1,178.07	912.42	265.65	4.435	
15,400.00	6,947.00	7,246.06	7,242.00	141.90	217.12	-90.00	-1,383.01	7,566.46	1,269.05	1,006.27	262.77	4.829	
15,500.00	6,947.00	7,246.06	7,242.00	143.45	217.12	-90.00	-1,383.01	7,566.46	1,361.29	1,100.89	260.39	5.228	
15,600.00	6,947.00	7,246.06	7,242.00	145.01	217.12	-90.00	-1,383.01	7,566.46	1,454.55	1,196.13	258.42	5.629	
15,700.00	6,947.00	7,246.06	7,242.00	146.56	217.12	-90.00	-1,383.01	7,566.46	1,548.66	1,291.87	256.79	6.031	
15,800.00	6,947.00	7,246.06	7,242.00	148.12	217.12	-90.00	-1,383.01	7,566.46	1,643.46	1,388.03	255.44	6.434	
15,900.00	6,947.00	7,246.06	7,242.00	149.68	217.12	-90.00	-1,383.01	7,566.46	1,738.85	1,484.53	254.32	6.837	
16,000.00	6,947.00	7,246.06	7,242.00	151.23	217.12	-90.00	-1,383.01	7,566.46	1,834.73	1,581.34	253.39	7.241	
16,100.00	6,947.00	7,246.06	7,242.00	152.79	217.12	-90.00	-1,383.01	7,566.46	1,931.02	1,678.40	252.62	7.644	
16,200.00	6,947.00	7,246.06	7,242.00	154.36	217.12	-90.00	-1,383.01	7,566.46	2,027.68	1,775.69	251.99	8.047	
16,300.00	6,947.00	7,246.06	7,242.00	155.92	217.12	-90.00	-1,383.01	7,566.46	2,124.64	1,873.17	251.47	8.449	
16,400.00	6,947.00	7,246.06	7,242.00	157.48	217.12	-90.00	-1,383.01	7,566.46	2,221.87	1,970.83	251.04	8.851	
16,500.00	6,947.00	7,246.06	7,242.00	159.04	217.12	-90.00	-1,383.01	7,566.46	2,319.34	2,068.65	250.70	9.252	
16,600.00	6,947.00	7,246.06	7,242.00	160.61	217.12	-90.00	-1,383.01	7,566.46	2,417.02	2,166.60	250.42	9.652	
16,700.00	6,947.00	7,246.06	7,242.00	162.17	217.12	-90.00	-1,383.01	7,566.46	2,514.88	2,264.68	250.19	10.052	
16,800.00	6,947.00	7,246.06	7,242.00	163.74	217.12	-90.00	-1,383.01	7,566.46	2,612.90	2,362.88	250.02	10.451	
16,900.00	6,947.00	7,246.06	7,242.00	165.30	217.12	-90.00	-1,383.01	7,566.46	2,711.06	2,461.18	249.88	10.849	
17,000.00	6,947.00	7,246.06	7,242.00	166.87	217.12	-90.00	-1,383.01	7,566.46	2,809.35	2,559.57	249.78	11.247	
17,100.00	6,947.00	7,246.06	7,242.00	168.44	217.12	-90.00	-1,383.01	7,566.46	2,907.77	2,658.05	249.71	11.644	
17,200.00	6,947.00	7,246.06	7,242.00	170.01	217.12	-90.00	-1,383.01	7,566.46	3,006.28	2,756.61	249.67	12.041	
17,300.00	6,947.00	7,246.06	7,242.00	171.57	217.12	-90.00	-1,383.01	7,566.46	3,104.89	2,855.25	249.64	12.437	
17,400.00	6,947.00	7,246.06	7,242.00	173.14	217.12	-90.00	-1,383.01	7,566.46	3,203.59	2,953.95	249.64	12.833	
17,500.00	6,947.00	7,246.06	7,242.00	174.71	217.12	-90.00	-1,383.01	7,566.46	3,302.36	3,052.71	249.65	13.228	
17,600.00	6,947.00	7,246.06	7,242.00	176.28	217.12	-90.00	-1,383.01	7,566.46	3,401.21	3,151.53	249.68	13.622	
17,700.00	6,947.00	7,246.06	7,242.00	177.86	217.12	-90.00	-1,383.01	7,566.46	3,500.12	3,250.41	249.71	14.017	
17,800.00	6,947.00	7,246.06	7,242.00	179.43	217.12	-90.00	-1,383.01	7,566.46	3,599.09	3,349.33	249.76	14.410	
17,900.00	6,947.00	7,246.06	7,242.00	181.00	217.12	-90.00	-1,383.01	7,566.46	3,698.12	3,448.30	249.82	14.803	
18,000.00	6,947.00	7,246.06	7,242.00	182.57	217.12	-90.00	-1,383.01	7,566.46	3,797.20	3,547.32	249.88	15.196	
18,100.00	6,947.00	7,246.06	7,242.00	184.15	217.12	-90.00	-1,383.01	7,566.46	3,896.32	3,646.37	249.95	15.588	
18,200.00	6,947.00	7,246.06	7,242.00	185.72	217.12	-90.00	-1,383.01	7,566.46	3,995.49	3,745.46	250.03	15.980	
18,300.00	6,947.00	7,246.06	7,242.00	187.30	217.12	-90.00	-1,383.01	7,566.46	4,094.70	3,844.59	250.11	16.372	
18,400.00	6,947.00	7,246.06	7,242.00	188.87	217.12	-90.00	-1,383.01	7,566.46	4,193.95	3,943.75	250.20	16.763	
18,500.00	6,947.00	7,246.06	7,242.00	190.45	217.12	-90.00	-1,383.01	7,566.46	4,293.23	4,042.94	250.29	17.153	
18,600.00	6,947.00	7,246.06	7,242.00	192.02	217.12	-90.00	-1,383.01	7,566.46	4,392.55	4,142.17	250.38	17.543	
18,700.00	6,947.00	7,246.06	7,242.00	193.60	217.12	-90.00	-1,383.01	7,566.46	4,491.89	4,241.41	250.48	17.933	
18,800.00	6,947.00	7,246.06	7,242.00	195.18	217.12	-90.00	-1,383.01	7,566.46	4,591.27	4,340.69	250.58	18.323	
18,900.00	6,947.00	7,246.06	7,242.00	196.75	217.12	-90.00	-1,383.01	7,566.46	4,690.67	4,439.99	250.68	18.712	
19,000.00	6,947.00	7,246.06	7,242.00	198.33	217.12	-90.00	-1,383.01	7,566.46	4,790.09	4,539.31	250.78	19.101	
19,100.00	6,947.00	7,246.06	7,242.00	199.91	217.12	-90.00	-1,383.01	7,566.46	4,889.54	4,638.65	250.89	19.489	
19,200.00	6,947.00	7,246.06	7,242.00	201.49	217.12	-90.00	-1,383.01	7,566.46	4,989.01	4,738.02	250.99	19.877	
19,300.00	6,947.00	7,246.06	7,242.00	203.07	217.12	-90.00	-1,383.01	7,566.46	5,088.50	4,837.40	251.10	20.265	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Rule Assigned:

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
19,400.00	6,947.00	7,246.06	7,242.00	204.65	217.12	-90.00	-1,383.01	7,566.46	5,188.01	4,936.80	251.21	20.652	
19,500.00	6,947.00	7,246.06	7,242.00	206.23	217.12	-90.00	-1,383.01	7,566.46	5,287.54	5,036.22	251.32	21.039	
19,600.00	6,947.00	7,246.06	7,242.00	207.81	217.12	-90.00	-1,383.01	7,566.46	5,387.09	5,135.65	251.43	21.425	
19,700.00	6,947.00	7,246.06	7,242.00	209.39	217.12	-90.00	-1,383.01	7,566.46	5,486.65	5,235.11	251.55	21.812	
19,800.00	6,947.00	7,246.06	7,242.00	210.97	217.12	-90.00	-1,383.01	7,566.46	5,586.23	5,334.57	251.66	22.198	
19,900.00	6,947.00	7,246.06	7,242.00	212.55	217.12	-90.00	-1,383.01	7,566.46	5,685.82	5,434.05	251.77	22.583	
20,000.00	6,947.00	7,246.06	7,242.00	214.13	217.12	-90.00	-1,383.01	7,566.46	5,785.43	5,533.55	251.89	22.968	
20,100.00	6,947.00	7,246.06	7,242.00	215.71	217.12	-90.00	-1,383.01	7,566.46	5,885.05	5,633.05	252.00	23.353	
20,200.00	6,947.00	7,246.06	7,242.00	217.30	217.12	-90.00	-1,383.01	7,566.46	5,984.69	5,732.57	252.12	23.738	
20,300.00	6,947.00	7,246.06	7,242.00	218.88	217.12	-90.00	-1,383.01	7,566.46	6,084.33	5,832.10	252.23	24.122	
20,400.00	6,947.00	7,246.06	7,242.00	220.46	217.12	-90.00	-1,383.01	7,566.46	6,183.99	5,931.64	252.35	24.506	
20,500.00	6,947.00	7,246.06	7,242.00	222.04	217.12	-90.00	-1,383.01	7,566.46	6,283.66	6,031.19	252.46	24.889	
20,600.00	6,947.00	7,246.06	7,242.00	223.63	217.12	-90.00	-1,383.01	7,566.46	6,383.34	6,130.76	252.58	25.273	
20,700.00	6,947.00	7,246.06	7,242.00	225.21	217.12	-90.00	-1,383.01	7,566.46	6,483.02	6,230.33	252.69	25.656	
20,800.00	6,947.00	7,246.06	7,242.00	226.80	217.12	-90.00	-1,383.01	7,566.46	6,582.72	6,329.91	252.81	26.038	
20,900.00	6,947.00	7,246.06	7,242.00	228.38	217.12	-90.00	-1,383.01	7,566.46	6,682.43	6,429.50	252.93	26.420	
21,000.00	6,947.00	7,246.06	7,242.00	229.97	217.12	-90.00	-1,383.01	7,566.46	6,782.14	6,529.10	253.04	26.802	
21,032.01	6,947.00	7,246.06	7,242.00	230.47	217.12	-90.00	-1,383.01	7,566.46	6,814.06	6,560.98	253.08	26.924	
21,032.99	6,947.00	7,246.06	7,242.00	230.51	217.12	-90.00	-1,383.01	7,566.46	6,815.04	6,557.47	257.57	26.459	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 117-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Rule Assigned:

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	-70.27	1,201.34	-3,349.96	3,559.06				
100.00	100.00	61.00	61.00	0.25	1.20	-70.27	1,201.34	-3,349.96	3,558.85	3,557.40	1.45	2,449.818	
200.00	200.00	161.00	161.00	0.61	3.41	-70.27	1,201.34	-3,349.96	3,558.85	3,554.84	4.01	886.454	
300.00	300.00	261.00	261.00	0.97	5.91	-70.27	1,201.34	-3,349.96	3,558.85	3,551.98	6.87	517.725	CC
400.00	400.00	363.18	363.17	1.33	8.46	-70.26	1,201.92	-3,349.96	3,559.05	3,549.26	9.79	363.624	
500.00	500.00	467.44	467.43	1.68	11.07	-70.27	1,201.55	-3,349.96	3,558.93	3,546.17	12.75	279.053	
509.60	509.60	477.45	477.44	1.72	11.32	124.73	1,201.49	-3,349.96	3,558.92	3,545.88	13.04	272.992	
600.00	599.98	561.13	560.98	2.03	13.74	124.74	1,201.34	-3,349.96	3,559.84	3,544.08	15.77	225.748	
700.00	699.84	670.25	670.07	2.36	17.09	124.78	1,202.34	-3,349.96	3,563.18	3,543.73	19.45	183.170	ES
800.00	799.45	760.76	760.45	2.71	19.80	124.79	1,201.34	-3,349.96	3,567.81	3,545.31	22.50	158.545	
900.00	898.70	860.01	859.70	3.06	22.42	124.83	1,201.34	-3,349.96	3,574.81	3,549.33	25.48	140.319	
1,000.00	997.47	977.76	977.41	3.43	25.53	124.94	1,201.60	-3,349.96	3,583.96	3,555.02	28.95	123.807	
1,100.00	1,095.62	1,057.04	1,056.62	3.82	27.41	124.95	1,201.34	-3,349.96	3,594.88	3,563.67	31.21	115.190	
1,200.00	1,193.44	1,154.85	1,154.44	4.22	29.66	125.22	1,201.34	-3,349.96	3,607.01	3,573.16	33.85	106.556	
1,300.00	1,291.25	1,253.32	1,252.89	4.64	31.93	125.51	1,202.69	-3,349.96	3,619.70	3,583.19	36.51	99.132	
1,400.00	1,389.07	1,357.22	1,356.78	5.06	34.32	125.78	1,202.40	-3,349.96	3,631.89	3,592.58	39.31	92.397	
1,500.00	1,486.88	1,461.33	1,460.88	5.48	36.72	126.05	1,201.63	-3,349.96	3,643.99	3,601.88	42.11	86.534	
1,600.00	1,584.70	1,546.23	1,545.70	5.91	38.62	126.27	1,201.34	-3,349.96	3,656.30	3,611.88	44.42	82.319	
1,700.00	1,682.51	1,644.04	1,643.51	6.35	40.78	126.53	1,201.34	-3,349.96	3,668.81	3,621.83	46.98	78.092	
1,800.00	1,780.33	1,742.05	1,741.50	6.78	42.94	126.80	1,202.69	-3,349.96	3,681.92	3,632.37	49.55	74.306	
1,900.00	1,878.14	1,846.40	1,845.85	7.22	45.23	127.07	1,202.44	-3,349.96	3,694.50	3,642.23	52.26	70.691	
2,000.00	1,975.96	1,950.96	1,950.40	7.66	47.54	127.33	1,201.71	-3,349.96	3,706.97	3,651.99	54.98	67.423	
2,100.00	2,073.77	2,035.40	2,034.77	8.10	49.30	127.54	1,201.34	-3,349.96	3,719.61	3,662.45	57.16	65.075	
2,200.00	2,171.59	2,133.21	2,132.59	8.54	51.26	127.79	1,201.34	-3,349.96	3,732.49	3,672.96	59.53	62.696	
2,300.00	2,269.40	2,231.73	2,231.09	8.98	53.24	128.06	1,202.34	-3,349.96	3,745.85	3,683.92	61.92	60.494	
2,400.00	2,367.22	2,335.53	2,334.89	9.43	55.31	128.31	1,202.09	-3,349.96	3,758.78	3,694.36	64.42	58.351	
2,500.00	2,465.03	2,439.51	2,438.86	9.87	57.40	128.56	1,201.43	-3,349.96	3,771.62	3,704.70	66.92	56.364	
2,600.00	2,562.84	2,524.53	2,523.84	10.32	59.11	128.77	1,201.34	-3,349.96	3,784.71	3,715.67	69.04	54.818	
2,700.00	2,660.66	2,622.34	2,621.66	10.77	61.08	129.01	1,201.34	-3,349.96	3,797.94	3,726.52	71.43	53.171	
2,800.00	2,758.47	2,720.81	2,720.12	11.21	63.06	129.27	1,202.16	-3,349.96	3,811.59	3,737.76	73.83	51.628	
2,900.00	2,856.29	2,822.92	2,822.23	11.66	65.12	129.51	1,201.99	-3,349.96	3,824.88	3,748.58	76.30	50.128	
3,000.00	2,954.10	2,925.14	2,924.44	12.11	67.18	129.75	1,201.54	-3,349.96	3,838.13	3,759.35	78.78	48.720	
3,100.00	3,051.92	3,013.66	3,012.92	12.56	68.92	129.96	1,201.34	-3,349.96	3,851.53	3,770.60	80.93	47.592	
3,200.00	3,149.73	3,111.48	3,110.73	13.01	70.80	130.20	1,201.34	-3,349.96	3,865.09	3,781.86	83.23	46.439	
3,300.00	3,247.55	3,209.29	3,208.55	13.45	72.69	130.43	1,201.34	-3,349.96	3,878.71	3,793.18	85.53	45.349	
3,400.00	3,345.36	3,310.95	3,310.19	13.90	74.65	130.68	1,202.48	-3,349.96	3,892.90	3,805.00	87.90	44.286	
3,500.00	3,443.18	3,414.45	3,413.69	14.35	76.64	130.92	1,202.08	-3,349.96	3,906.49	3,816.18	90.32	43.254	
3,600.00	3,540.99	3,518.09	3,517.32	14.80	78.64	131.15	1,201.35	-3,349.96	3,919.99	3,827.27	92.73	42.274	
3,700.00	3,638.81	3,600.60	3,599.81	15.25	80.39	131.34	1,201.34	-3,349.96	3,933.83	3,838.94	94.89	41.458	
3,800.00	3,736.62	3,702.74	3,701.94	15.70	82.56	131.58	1,201.52	-3,349.96	3,947.85	3,850.38	97.47	40.502	
3,900.00	3,834.44	3,796.27	3,795.44	16.15	85.10	131.79	1,201.34	-3,349.96	3,961.76	3,861.33	100.43	39.449	
4,000.00	3,932.25	3,894.08	3,893.25	16.60	88.53	132.01	1,201.34	-3,349.96	3,975.81	3,871.54	104.27	38.130	
4,100.00	4,030.07	3,991.90	3,991.07	17.05	91.96	132.23	1,201.34	-3,349.96	3,989.92	3,881.81	108.11	36.906	
4,200.00	4,127.88	4,099.04	4,098.18	17.50	95.72	132.48	1,202.74	-3,349.96	4,004.76	3,892.48	112.28	35.667	
4,300.00	4,225.70	4,207.90	4,207.02	17.96	99.53	132.71	1,201.89	-3,349.96	4,018.63	3,902.12	116.51	34.491	
4,400.00	4,323.51	4,285.96	4,284.51	18.41	102.68	132.87	1,201.34	-3,349.96	4,032.61	3,912.54	120.07	33.587	
4,500.00	4,421.33	4,384.12	4,382.33	18.86	107.43	133.09	1,201.34	-3,349.96	4,046.95	3,921.72	125.22	32.318	
4,600.00	4,519.14	4,482.19	4,480.14	19.31	112.22	133.30	1,201.34	-3,349.96	4,061.34	3,930.92	130.42	31.140	
4,700.00	4,616.95	4,580.24	4,577.95	19.76	116.87	133.51	1,201.34	-3,349.96	4,075.80	3,940.31	135.49	30.082	
4,800.00	4,714.77	4,705.00	4,702.35	20.21	123.10	133.77	1,201.34	-3,349.96	4,090.39	3,948.26	142.13	28.779	
4,900.00	4,812.58	4,776.31	4,773.58	20.66	126.69	133.93	1,201.34	-3,349.96	4,104.86	3,958.74	146.12	28.092	
5,000.00	4,910.40	4,874.52	4,871.56	21.11	131.57	134.15	1,202.63	-3,349.96	4,120.12	3,968.70	151.42	27.210	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 117-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,100.00	5,008.21	4,972.52	4,969.21	21.57	136.47	134.34	1,201.34	-3,349.96	4,134.15	3,977.42	156.72	26.379	
5,200.00	5,106.03	5,070.44	5,067.03	22.02	141.47	134.54	1,201.34	-3,349.96	4,148.86	3,986.73	162.14	25.589	
5,300.00	5,203.84	5,168.48	5,164.84	22.47	146.31	134.74	1,201.34	-3,349.96	4,163.64	3,996.26	167.38	24.876	
5,400.00	5,301.66	5,266.30	5,262.66	22.92	151.13	134.94	1,201.34	-3,349.96	4,178.46	4,005.85	172.61	24.208	
5,500.00	5,399.47	5,406.81	5,402.92	23.37	158.05	135.26	1,204.24	-3,349.96	4,195.03	4,015.08	179.95	23.312	
5,600.00	5,497.29	5,563.09	5,558.94	23.82	165.75	135.51	1,199.11	-3,349.96	4,208.31	4,020.27	188.05	22.379	
5,700.00	5,595.10	5,560.81	5,556.10	24.28	165.54	135.53	1,201.34	-3,349.96	4,223.23	4,034.99	188.24	22.435	
5,800.00	5,692.92	5,658.63	5,653.92	24.73	170.17	135.73	1,201.34	-3,349.96	4,238.25	4,044.97	193.28	21.928	
5,900.00	5,790.73	5,756.44	5,751.73	25.18	174.81	135.92	1,201.34	-3,349.96	4,253.32	4,055.00	198.32	21.447	
6,000.00	5,888.55	5,854.26	5,849.55	25.63	179.44	136.11	1,201.34	-3,349.96	4,268.44	4,065.08	203.36	20.990	
6,100.00	5,986.36	5,949.00	5,943.35	26.08	183.92	136.30	1,201.34	-3,349.96	4,283.61	4,075.36	208.25	20.570	SF
6,200.00	6,084.18	5,949.00	5,943.35	26.54	183.92	136.30	1,201.34	-3,349.96	4,300.03	4,091.49	208.54	20.620	
6,300.00	6,181.99	5,949.00	5,943.35	26.99	183.92	136.30	1,201.34	-3,349.96	4,318.70	4,109.97	208.72	20.691	
6,400.00	6,279.81	5,949.00	5,943.35	27.44	183.92	136.30	1,201.34	-3,349.96	4,339.59	4,130.79	208.81	20.783	
6,500.00	6,377.62	5,949.00	5,943.35	27.89	183.92	136.30	1,201.34	-3,349.96	4,362.68	4,153.89	208.79	20.895	
6,530.62	6,407.57	5,949.00	5,943.35	28.03	183.92	136.30	1,201.34	-3,349.96	4,370.18	4,161.42	208.76	20.934	
6,550.00	6,426.48	5,949.00	5,943.35	28.12	183.92	141.80	1,201.34	-3,349.96	4,375.32	4,166.58	208.75	20.960	
6,600.00	6,474.77	5,949.00	5,943.35	28.36	183.92	151.95	1,201.34	-3,349.96	4,391.53	4,182.84	208.69	21.044	
6,650.00	6,522.09	5,949.00	5,943.35	28.62	183.92	158.41	1,201.34	-3,349.96	4,411.87	4,203.26	208.61	21.148	
6,700.00	6,568.15	5,949.00	5,943.35	28.89	183.92	162.82	1,201.34	-3,349.96	4,436.17	4,227.64	208.53	21.273	
6,750.00	6,612.66	5,949.00	5,943.35	29.18	183.92	166.02	1,201.34	-3,349.96	4,464.21	4,255.78	208.44	21.418	
6,800.00	6,655.36	5,949.00	5,943.35	29.48	183.92	168.49	1,201.34	-3,349.96	4,495.75	4,287.42	208.34	21.579	
6,850.00	6,695.98	5,949.00	5,943.35	29.79	183.92	170.50	1,201.34	-3,349.96	4,530.53	4,322.30	208.23	21.757	
6,900.00	6,734.26	5,949.00	5,943.35	30.11	183.92	172.24	1,201.34	-3,349.96	4,568.26	4,360.13	208.13	21.949	
6,950.00	6,769.98	5,949.00	5,943.35	30.45	183.92	173.86	1,201.34	-3,349.96	4,608.64	4,400.61	208.03	22.154	
7,000.00	6,802.91	5,949.00	5,943.35	30.79	183.92	175.50	1,201.34	-3,349.96	4,651.35	4,443.41	207.94	22.369	
7,050.00	6,832.85	5,949.00	5,943.35	31.15	183.92	177.31	1,201.34	-3,349.96	4,696.07	4,488.22	207.85	22.593	
7,100.00	6,859.62	5,949.00	5,943.35	31.51	183.92	179.56	1,201.34	-3,349.96	4,742.47	4,534.69	207.78	22.825	
7,150.00	6,883.05	5,949.00	5,943.35	31.89	183.92	-177.21	1,201.34	-3,349.96	4,790.22	4,582.50	207.71	23.062	
7,200.00	6,902.99	5,949.00	5,943.35	32.28	183.92	-171.64	1,201.34	-3,349.96	4,838.99	4,631.32	207.67	23.302	
7,250.00	6,919.32	5,949.00	5,943.35	32.67	183.92	-158.76	1,201.34	-3,349.96	4,888.46	4,680.82	207.64	23.543	
7,300.00	6,931.95	5,949.00	5,943.35	33.08	183.92	-113.93	1,201.34	-3,349.96	4,938.30	4,730.67	207.63	23.785	
7,350.00	6,940.79	5,949.00	5,943.35	33.49	183.92	-49.03	1,201.34	-3,349.96	4,988.20	4,780.56	207.63	24.024	
7,400.00	6,945.79	5,949.00	5,943.35	33.90	183.92	-29.52	1,201.34	-3,349.96	5,037.85	4,830.19	207.66	24.260	
7,439.53	6,947.00	5,949.00	5,943.35	34.24	183.92	-23.54	1,201.34	-3,349.96	5,076.74	4,869.05	207.69	24.443	
7,500.00	6,947.00	5,949.00	5,943.35	34.75	183.92	-28.59	1,201.34	-3,349.96	5,135.85	4,928.10	207.76	24.720	
7,600.00	6,947.00	5,949.00	5,943.35	35.63	183.92	-36.05	1,201.34	-3,349.96	5,233.39	5,025.54	207.85	25.179	
7,700.00	6,947.00	5,949.00	5,943.35	36.54	183.92	-42.42	1,201.34	-3,349.96	5,330.55	5,122.63	207.92	25.637	
7,800.00	6,947.00	5,949.00	5,943.35	37.47	183.92	-47.77	1,201.34	-3,349.96	5,427.26	5,219.27	207.99	26.094	
7,900.00	6,947.00	5,949.00	5,943.35	38.43	183.92	-52.27	1,201.34	-3,349.96	5,523.40	5,315.37	208.03	26.550	
8,000.00	6,947.00	5,949.00	5,943.35	39.41	183.92	-56.04	1,201.34	-3,349.96	5,618.91	5,410.84	208.07	27.005	
8,100.00	6,947.00	5,949.00	5,943.35	40.40	183.92	-59.23	1,201.34	-3,349.96	5,713.70	5,505.59	208.10	27.456	
8,200.00	6,947.00	5,949.00	5,943.35	41.42	183.92	-61.93	1,201.34	-3,349.96	5,807.68	5,599.56	208.13	27.905	
8,300.00	6,947.00	5,949.00	5,943.35	42.44	183.92	-64.24	1,201.34	-3,349.96	5,900.80	5,692.66	208.14	28.350	
8,400.00	6,947.00	5,949.00	5,943.35	43.48	183.92	-66.23	1,201.34	-3,349.96	5,992.97	5,784.81	208.16	28.791	
8,500.00	6,947.00	5,949.00	5,943.35	44.53	183.92	-67.96	1,201.34	-3,349.96	6,084.13	5,875.97	208.17	29.227	
8,600.00	6,947.00	5,949.00	5,943.35	45.58	183.92	-69.47	1,201.34	-3,349.96	6,174.22	5,966.04	208.18	29.658	
8,700.00	6,947.00	5,949.00	5,943.35	46.63	183.92	-70.79	1,201.34	-3,349.96	6,263.18	6,054.99	208.19	30.084	
8,800.00	6,947.00	5,949.00	5,943.35	47.69	183.92	-71.96	1,201.34	-3,349.96	6,350.94	6,142.74	208.21	30.503	
8,841.31	6,947.00	5,949.00	5,943.35	48.13	183.92	-72.40	1,201.34	-3,349.96	6,386.83	6,178.62	208.21	30.675	
8,900.00	6,947.00	5,949.00	5,943.35	48.76	183.92	-72.40	1,201.34	-3,349.96	6,437.74	6,229.52	208.22	30.917	
9,000.00	6,947.00	5,949.00	5,943.35	49.85	183.92	-72.40	1,201.34	-3,349.96	6,524.78	6,316.53	208.25	31.331	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 117-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,100.00	6,947.00	5,949.00	5,943.35	50.97	183.92	-72.40	1,201.34	-3,349.96	6,612.19	6,403.90	208.29	31.745	
9,200.00	6,947.00	5,949.00	5,943.35	52.12	183.92	-72.40	1,201.34	-3,349.96	6,699.95	6,491.61	208.34	32.159	
9,300.00	6,947.00	5,949.00	5,943.35	53.28	183.92	-72.40	1,201.34	-3,349.96	6,788.05	6,579.66	208.39	32.574	
9,400.00	6,947.00	5,949.00	5,943.35	54.48	183.92	-72.40	1,201.34	-3,349.96	6,876.47	6,668.02	208.45	32.988	
9,500.00	6,947.00	5,949.00	5,943.35	55.69	183.92	-72.40	1,201.34	-3,349.96	6,965.21	6,756.69	208.52	33.403	
9,600.00	6,947.00	5,949.00	5,943.35	56.92	183.92	-72.40	1,201.34	-3,349.96	7,054.25	6,845.66	208.59	33.819	
9,700.00	6,947.00	5,949.00	5,943.35	58.17	183.92	-72.40	1,201.34	-3,349.96	7,143.58	6,934.91	208.67	34.234	
9,800.00	6,947.00	5,949.00	5,943.35	59.44	183.92	-72.40	1,201.34	-3,349.96	7,233.18	7,024.44	208.75	34.650	
9,900.00	6,947.00	5,949.00	5,943.35	60.73	183.92	-72.40	1,201.34	-3,349.96	7,323.06	7,114.23	208.83	35.066	
10,000.00	6,947.00	5,949.00	5,943.35	62.03	183.92	-72.40	1,201.34	-3,349.96	7,413.20	7,204.27	208.92	35.483	
10,100.00	6,947.00	5,949.00	5,943.35	63.34	183.92	-72.40	1,201.34	-3,349.96	7,503.58	7,294.56	209.02	35.899	
10,200.00	6,947.00	5,949.00	5,943.35	64.67	183.92	-72.40	1,201.34	-3,349.96	7,594.21	7,385.09	209.12	36.316	
10,300.00	6,947.00	5,949.00	5,943.35	66.01	183.92	-72.40	1,201.34	-3,349.96	7,685.07	7,475.85	209.22	36.732	
10,400.00	6,947.00	5,949.00	5,943.35	67.36	183.92	-72.40	1,201.34	-3,349.96	7,776.15	7,566.83	209.32	37.149	
10,500.00	6,947.00	5,949.00	5,943.35	68.73	183.92	-72.40	1,201.34	-3,349.96	7,867.46	7,658.03	209.43	37.566	
10,600.00	6,947.00	5,949.00	5,943.35	70.10	183.92	-72.40	1,201.34	-3,349.96	7,958.96	7,749.43	209.54	37.984	
10,700.00	6,947.00	5,949.00	5,943.35	71.48	183.92	-72.40	1,201.34	-3,349.96	8,050.68	7,841.03	209.65	38.401	
10,800.00	6,947.00	5,949.00	5,943.35	72.88	183.92	-72.40	1,201.34	-3,349.96	8,142.58	7,932.82	209.76	38.818	
10,900.00	6,947.00	5,949.00	5,943.35	74.28	183.92	-72.40	1,201.34	-3,349.96	8,234.68	8,024.80	209.88	39.236	
11,000.00	6,947.00	5,949.00	5,943.35	75.69	183.92	-72.40	1,201.34	-3,349.96	8,326.96	8,116.96	209.99	39.653	
11,100.00	6,947.00	5,949.00	5,943.35	77.10	183.92	-72.40	1,201.34	-3,349.96	8,419.41	8,209.30	210.11	40.071	
11,200.00	6,947.00	5,949.00	5,943.35	78.53	183.92	-72.40	1,201.34	-3,349.96	8,512.04	8,301.80	210.23	40.489	
11,300.00	6,947.00	5,949.00	5,943.35	79.96	183.92	-72.40	1,201.34	-3,349.96	8,604.83	8,394.47	210.35	40.907	
11,400.00	6,947.00	5,949.00	5,943.35	81.40	183.92	-72.40	1,201.34	-3,349.96	8,697.77	8,487.30	210.47	41.325	
11,500.00	6,947.00	5,949.00	5,943.35	82.84	183.92	-72.40	1,201.34	-3,349.96	8,790.88	8,580.28	210.60	41.742	
11,600.00	6,947.00	5,949.00	5,943.35	84.29	183.92	-72.40	1,201.34	-3,349.96	8,884.13	8,673.41	210.72	42.160	
11,700.00	6,947.00	5,949.00	5,943.35	85.75	183.92	-72.40	1,201.34	-3,349.96	8,977.53	8,766.69	210.85	42.579	
11,800.00	6,947.00	5,949.00	5,943.35	87.21	183.92	-72.40	1,201.34	-3,349.96	9,071.07	8,860.10	210.97	42.997	
11,900.00	6,947.00	5,949.00	5,943.35	88.68	183.92	-72.40	1,201.34	-3,349.96	9,164.75	8,953.65	211.10	43.415	
12,000.00	6,947.00	5,949.00	5,943.35	90.15	183.92	-72.40	1,201.34	-3,349.96	9,258.56	9,047.33	211.22	43.833	
12,100.00	6,947.00	5,949.00	5,943.35	91.62	183.92	-72.40	1,201.34	-3,349.96	9,352.50	9,141.14	211.35	44.251	
12,200.00	6,947.00	5,949.00	5,943.35	93.10	183.92	-72.40	1,201.34	-3,349.96	9,446.56	9,235.08	211.48	44.669	
12,300.00	6,947.00	5,949.00	5,943.35	94.59	183.92	-72.40	1,201.34	-3,349.96	9,540.74	9,329.13	211.61	45.087	
12,400.00	6,947.00	5,949.00	5,943.35	96.07	183.92	-72.40	1,201.34	-3,349.96	9,635.04	9,423.31	211.73	45.505	
12,500.00	6,947.00	5,949.00	5,943.35	97.56	183.92	-72.40	1,201.34	-3,349.96	9,729.45	9,517.59	211.86	45.923	
12,600.00	6,947.00	5,949.00	5,943.35	99.06	183.92	-72.40	1,201.34	-3,349.96	9,823.98	9,611.99	211.99	46.342	
12,700.00	6,947.00	5,949.00	5,943.35	100.56	183.92	-72.40	1,201.34	-3,349.96	9,918.61	9,706.49	212.12	46.760	
12,800.00	6,947.00	5,949.00	5,943.35	102.06	183.92	-72.40	1,201.34	-3,349.96	10,013.35	9,801.10	212.25	47.178	
12,900.00	6,947.00	5,949.00	5,943.35	103.56	183.92	-72.40	1,201.34	-3,349.96	10,108.18	9,895.81	212.38	47.596	
13,000.00	6,947.00	5,949.00	5,943.35	105.07	183.92	-72.40	1,201.34	-3,349.96	10,203.12	9,990.61	212.50	48.014	
13,100.00	6,947.00	5,949.00	5,943.35	106.58	183.92	-72.40	1,201.34	-3,349.96	10,298.15	10,085.52	212.63	48.431	
13,200.00	6,947.00	5,949.00	5,943.35	108.10	183.92	-72.40	1,201.34	-3,349.96	10,393.28	10,180.51	212.76	48.849	
13,300.00	6,947.00	5,949.00	5,943.35	109.61	183.92	-72.40	1,201.34	-3,349.96	10,488.49	10,275.60	212.89	49.267	
13,400.00	6,947.00	5,949.00	5,943.35	111.13	183.92	-72.40	1,201.34	-3,349.96	10,583.79	10,370.78	213.02	49.685	
13,500.00	6,947.00	5,949.00	5,943.35	112.65	183.92	-72.40	1,201.34	-3,349.96	10,679.18	10,466.04	213.15	50.102	
13,600.00	6,947.00	5,949.00	5,943.35	114.17	183.92	-72.40	1,201.34	-3,349.96	10,774.66	10,561.38	213.28	50.520	
13,700.00	6,947.00	5,949.00	5,943.35	115.70	183.92	-72.40	1,201.34	-3,349.96	10,870.21	10,656.81	213.40	50.937	
13,800.00	6,947.00	5,949.00	5,943.35	117.23	183.92	-72.40	1,201.34	-3,349.96	10,965.85	10,752.32	213.53	51.355	
13,900.00	6,947.00	5,949.00	5,943.35	118.76	183.92	-72.40	1,201.34	-3,349.96	11,061.56	10,847.90	213.66	51.772	
14,000.00	6,947.00	5,949.00	5,943.35	120.29	183.92	-72.40	1,201.34	-3,349.96	11,157.34	10,943.56	213.79	52.189	
14,100.00	6,947.00	5,949.00	5,943.35	121.82	183.92	-72.40	1,201.34	-3,349.96	11,253.20	11,039.29	213.91	52.606	
14,200.00	6,947.00	5,949.00	5,943.35	123.36	183.92	-72.40	1,201.34	-3,349.96	11,349.14	11,135.09	214.04	53.023	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 117-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,300.00	6,947.00	5,949.00	5,943.35	124.89	183.92	-72.40	1,201.34	-3,349.96	11,445.14	11,230.97	214.17	53.440	
14,400.00	6,947.00	5,949.00	5,943.35	126.43	183.92	-72.40	1,201.34	-3,349.96	11,541.21	11,326.91	214.30	53.857	
14,500.00	6,947.00	5,949.00	5,943.35	127.97	183.92	-72.40	1,201.34	-3,349.96	11,637.34	11,422.92	214.42	54.273	
14,600.00	6,947.00	5,949.00	5,943.35	129.51	183.92	-72.40	1,201.34	-3,349.96	11,733.54	11,518.99	214.55	54.689	
14,700.00	6,947.00	5,949.00	5,943.35	131.06	183.92	-72.40	1,201.34	-3,349.96	11,829.80	11,615.13	214.67	55.106	
14,800.00	6,947.00	5,949.00	5,943.35	132.60	183.92	-72.40	1,201.34	-3,349.96	11,926.13	11,711.33	214.80	55.522	
14,900.00	6,947.00	5,949.00	5,943.35	134.15	183.92	-72.40	1,201.34	-3,349.96	12,022.51	11,807.58	214.93	55.938	
15,000.00	6,947.00	5,949.00	5,943.35	135.70	183.92	-72.40	1,201.34	-3,349.96	12,118.95	11,903.90	215.05	56.354	
15,100.00	6,947.00	5,949.00	5,943.35	137.24	183.92	-72.40	1,201.34	-3,349.96	12,215.45	12,000.28	215.18	56.769	
15,200.00	6,947.00	5,949.00	5,943.35	138.79	183.92	-72.40	1,201.34	-3,349.96	12,312.01	12,096.71	215.30	57.185	
15,300.00	6,947.00	5,949.00	5,943.35	140.35	183.92	-72.40	1,201.34	-3,349.96	12,408.62	12,193.19	215.43	57.600	
15,400.00	6,947.00	5,949.00	5,943.35	141.90	183.92	-72.40	1,201.34	-3,349.96	12,505.28	12,289.73	215.55	58.015	
15,500.00	6,947.00	5,949.00	5,943.35	143.45	183.92	-72.40	1,201.34	-3,349.96	12,602.00	12,386.32	215.68	58.430	
15,600.00	6,947.00	5,949.00	5,943.35	145.01	183.92	-72.40	1,201.34	-3,349.96	12,698.77	12,482.97	215.80	58.845	
15,700.00	6,947.00	5,949.00	5,943.35	146.56	183.92	-72.40	1,201.34	-3,349.96	12,795.58	12,579.66	215.93	59.259	
15,800.00	6,947.00	5,949.00	5,943.35	148.12	183.92	-72.40	1,201.34	-3,349.96	12,892.45	12,676.40	216.05	59.674	
15,900.00	6,947.00	5,949.00	5,943.35	149.68	183.92	-72.40	1,201.34	-3,349.96	12,989.36	12,773.19	216.17	60.088	
16,000.00	6,947.00	5,949.00	5,943.35	151.23	183.92	-72.40	1,201.34	-3,349.96	13,086.32	12,870.02	216.30	60.502	
16,100.00	6,947.00	5,949.00	5,943.35	152.79	183.92	-72.40	1,201.34	-3,349.96	13,183.32	12,966.90	216.42	60.915	
16,200.00	6,947.00	5,949.00	5,943.35	154.36	183.92	-72.40	1,201.34	-3,349.96	13,280.37	13,063.83	216.54	61.329	
16,300.00	6,947.00	5,949.00	5,943.35	155.92	183.92	-72.40	1,201.34	-3,349.96	13,377.47	13,160.80	216.67	61.742	
16,400.00	6,947.00	5,949.00	5,943.35	157.48	183.92	-72.40	1,201.34	-3,349.96	13,474.60	13,257.81	216.79	62.155	
16,500.00	6,947.00	5,949.00	5,943.35	159.04	183.92	-72.40	1,201.34	-3,349.96	13,571.78	13,354.86	216.91	62.568	
16,600.00	6,947.00	5,949.00	5,943.35	160.61	183.92	-72.40	1,201.34	-3,349.96	13,668.99	13,451.96	217.03	62.981	
16,700.00	6,947.00	5,949.00	5,943.35	162.17	183.92	-72.40	1,201.34	-3,349.96	13,766.25	13,549.09	217.16	63.393	
16,800.00	6,947.00	5,949.00	5,943.35	163.74	183.92	-72.40	1,201.34	-3,349.96	13,863.55	13,646.27	217.28	63.805	
16,900.00	6,947.00	5,949.00	5,943.35	165.30	183.92	-72.40	1,201.34	-3,349.96	13,960.88	13,743.48	217.40	64.217	
17,000.00	6,947.00	5,949.00	5,943.35	166.87	183.92	-72.40	1,201.34	-3,349.96	14,058.25	13,840.73	217.52	64.629	
17,100.00	6,947.00	5,949.00	5,943.35	168.44	183.92	-72.40	1,201.34	-3,349.96	14,155.66	13,938.02	217.64	65.040	
17,200.00	6,947.00	5,949.00	5,943.35	170.01	183.92	-72.40	1,201.34	-3,349.96	14,253.11	14,035.34	217.77	65.451	
17,300.00	6,947.00	5,949.00	5,943.35	171.57	183.92	-72.40	1,201.34	-3,349.96	14,350.58	14,132.70	217.89	65.862	
17,400.00	6,947.00	5,949.00	5,943.35	173.14	183.92	-72.40	1,201.34	-3,349.96	14,448.10	14,230.09	218.01	66.273	
17,500.00	6,947.00	5,949.00	5,943.35	174.71	183.92	-72.40	1,201.34	-3,349.96	14,545.65	14,327.52	218.13	66.683	
17,600.00	6,947.00	5,949.00	5,943.35	176.28	183.92	-72.40	1,201.34	-3,349.96	14,643.23	14,424.98	218.25	67.094	
17,700.00	6,947.00	5,949.00	5,943.35	177.86	183.92	-72.40	1,201.34	-3,349.96	14,740.84	14,522.47	218.37	67.503	
17,800.00	6,947.00	5,949.00	5,943.35	179.43	183.92	-72.40	1,201.34	-3,349.96	14,838.49	14,619.99	218.49	67.913	
17,900.00	6,947.00	5,949.00	5,943.35	181.00	183.92	-72.40	1,201.34	-3,349.96	14,936.16	14,717.55	218.61	68.322	
18,000.00	6,947.00	5,949.00	5,943.35	182.57	183.92	-72.40	1,201.34	-3,349.96	15,033.87	14,815.13	218.73	68.731	
18,100.00	6,947.00	5,949.00	5,943.35	184.15	183.92	-72.40	1,201.34	-3,349.96	15,131.60	14,912.75	218.85	69.140	
18,200.00	6,947.00	5,949.00	5,943.35	185.72	183.92	-72.40	1,201.34	-3,349.96	15,229.37	15,010.40	218.97	69.549	
18,300.00	6,947.00	5,949.00	5,943.35	187.30	183.92	-72.40	1,201.34	-3,349.96	15,327.17	15,108.07	219.09	69.957	
18,400.00	6,947.00	5,949.00	5,943.35	188.87	183.92	-72.40	1,201.34	-3,349.96	15,424.99	15,205.77	219.21	70.365	
18,500.00	6,947.00	5,949.00	5,943.35	190.45	183.92	-72.40	1,201.34	-3,349.96	15,522.84	15,303.50	219.33	70.772	
18,600.00	6,947.00	5,949.00	5,943.35	192.02	183.92	-72.40	1,201.34	-3,349.96	15,620.72	15,401.26	219.45	71.180	
18,700.00	6,947.00	5,949.00	5,943.35	193.60	183.92	-72.40	1,201.34	-3,349.96	15,718.62	15,499.05	219.57	71.587	
18,800.00	6,947.00	5,949.00	5,943.35	195.18	183.92	-72.40	1,201.34	-3,349.96	15,816.55	15,596.86	219.69	71.993	
18,900.00	6,947.00	5,949.00	5,943.35	196.75	183.92	-72.40	1,201.34	-3,349.96	15,914.51	15,694.70	219.81	72.400	
19,000.00	6,947.00	5,949.00	5,943.35	198.33	183.92	-72.40	1,201.34	-3,349.96	16,012.49	15,792.56	219.93	72.806	
19,100.00	6,947.00	5,949.00	5,943.35	199.91	183.92	-72.40	1,201.34	-3,349.96	16,110.50	15,890.45	220.05	73.212	
19,200.00	6,947.00	5,949.00	5,943.35	201.49	183.92	-72.40	1,201.34	-3,349.96	16,208.53	15,988.36	220.17	73.617	
19,300.00	6,947.00	5,949.00	5,943.35	203.07	183.92	-72.40	1,201.34	-3,349.96	16,306.58	16,086.29	220.29	74.023	
19,400.00	6,947.00	5,949.00	5,943.35	204.65	183.92	-72.40	1,201.34	-3,349.96	16,404.66	16,184.25	220.41	74.427	

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 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 117-A027Ua_INC-ONLY

Rule Assigned:

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
19,500.00	6,947.00	5,949.00	5,943.35	206.23	183.92	-72.40	1,201.34	-3,349.96	16,502.76	16,282.23	220.53	74.832	
19,600.00	6,947.00	5,949.00	5,943.35	207.81	183.92	-72.40	1,201.34	-3,349.96	16,600.89	16,380.24	220.65	75.236	
19,700.00	6,947.00	5,949.00	5,943.35	209.39	183.92	-72.40	1,201.34	-3,349.96	16,699.04	16,478.27	220.77	75.640	
19,800.00	6,947.00	5,949.00	5,943.35	210.97	183.92	-72.40	1,201.34	-3,349.96	16,797.20	16,576.32	220.89	76.044	
19,900.00	6,947.00	5,949.00	5,943.35	212.55	183.92	-72.40	1,201.34	-3,349.96	16,895.39	16,674.39	221.01	76.447	
20,000.00	6,947.00	5,949.00	5,943.35	214.13	183.92	-72.40	1,201.34	-3,349.96	16,993.60	16,772.48	221.13	76.850	
20,100.00	6,947.00	5,949.00	5,943.35	215.71	183.92	-72.40	1,201.34	-3,349.96	17,091.84	16,870.59	221.25	77.253	
20,200.00	6,947.00	5,949.00	5,943.35	217.30	183.92	-72.40	1,201.34	-3,349.96	17,190.09	16,968.72	221.37	77.655	
20,300.00	6,947.00	5,949.00	5,943.35	218.88	183.92	-72.40	1,201.34	-3,349.96	17,288.36	17,066.88	221.48	78.057	
20,400.00	6,947.00	5,949.00	5,943.35	220.46	183.92	-72.40	1,201.34	-3,349.96	17,386.65	17,165.05	221.60	78.458	
20,500.00	6,947.00	5,949.00	5,943.35	222.04	183.92	-72.40	1,201.34	-3,349.96	17,484.96	17,263.24	221.72	78.860	
20,600.00	6,947.00	5,949.00	5,943.35	223.63	183.92	-72.40	1,201.34	-3,349.96	17,583.29	17,361.45	221.84	79.261	
20,700.00	6,947.00	5,949.00	5,943.35	225.21	183.92	-72.40	1,201.34	-3,349.96	17,681.64	17,459.68	221.96	79.661	
20,800.00	6,947.00	5,949.00	5,943.35	226.80	183.92	-72.40	1,201.34	-3,349.96	17,780.01	17,557.93	222.08	80.061	
20,900.00	6,947.00	5,949.00	5,943.35	228.38	183.92	-72.40	1,201.34	-3,349.96	17,878.40	17,656.20	222.20	80.461	
21,000.00	6,947.00	5,949.00	5,943.35	229.97	183.92	-72.40	1,201.34	-3,349.96	17,976.80	17,754.48	222.32	80.861	
21,032.01	6,947.00	5,949.00	5,943.35	230.47	183.92	-72.40	1,201.34	-3,349.96	18,008.30	17,785.95	222.36	80.989	
21,032.99	6,947.00	5,949.00	5,943.35	230.51	183.92	-72.40	1,201.34	-3,349.96	18,009.26	17,783.15	226.12	79.646	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 245-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	-80.33	820.70	-4,817.00	4,886.58				
100.00	100.00	59.00	59.00	0.25	1.05	-80.33	820.70	-4,817.00	4,886.41	4,885.12	1.30	3,769.266	
200.00	200.00	159.00	159.00	0.61	2.82	-80.33	820.70	-4,817.00	4,886.41	4,882.99	3.43	1,426.078	
300.00	300.00	259.00	259.00	0.97	4.59	-80.33	820.70	-4,817.00	4,886.41	4,880.86	5.56	879.392	
400.00	400.00	359.00	359.00	1.33	6.36	-80.33	820.70	-4,817.00	4,886.41	4,878.73	7.69	635.693 CC	
500.00	500.00	460.47	460.46	1.68	8.16	-80.33	820.74	-4,817.00	4,886.42	4,876.58	9.84	496.442	
504.45	504.45	464.98	464.98	1.70	8.24	114.67	820.73	-4,817.00	4,886.42	4,876.48	9.94	491.685	
600.00	599.98	558.98	558.98	2.03	9.95	114.67	820.70	-4,817.00	4,887.14	4,875.16	11.98	408.037 ES	
700.00	699.84	659.27	659.27	2.36	11.79	114.69	820.84	-4,817.00	4,889.35	4,875.20	14.15	345.558	
800.00	799.45	760.18	760.18	2.71	13.64	114.72	820.71	-4,817.00	4,892.99	4,876.64	16.34	299.395	
900.00	898.70	857.72	857.70	3.06	15.48	114.75	820.70	-4,817.00	4,898.11	4,879.58	18.53	264.278	
1,000.00	997.47	956.48	956.47	3.43	17.34	114.80	820.70	-4,817.00	4,904.74	4,883.97	20.77	236.198	
1,100.00	1,095.62	1,055.56	1,055.54	3.82	19.21	114.86	821.49	-4,817.00	4,913.01	4,889.99	23.02	213.442	
1,200.00	1,193.44	1,155.79	1,155.77	4.22	21.10	115.08	821.25	-4,817.00	4,921.90	4,896.60	25.30	194.506	
1,300.00	1,291.25	1,256.14	1,256.11	4.64	22.99	115.29	820.75	-4,817.00	4,930.82	4,903.22	27.60	178.648	
1,400.00	1,389.07	1,348.11	1,348.07	5.06	24.74	115.49	820.70	-4,817.00	4,939.88	4,910.13	29.75	166.026	
1,500.00	1,486.88	1,445.93	1,445.88	5.48	26.59	115.70	820.70	-4,817.00	4,949.02	4,917.00	32.02	154.548	
1,600.00	1,584.70	1,544.30	1,544.25	5.91	28.46	115.92	821.23	-4,817.00	4,958.35	4,924.04	34.31	144.535	
1,700.00	1,682.51	1,643.89	1,643.84	6.35	30.35	116.14	821.08	-4,817.00	4,967.60	4,930.99	36.61	135.673	
1,800.00	1,780.33	1,743.54	1,743.49	6.78	32.24	116.35	820.76	-4,817.00	4,976.90	4,937.97	38.93	127.852	
1,900.00	1,878.14	1,837.22	1,837.14	7.22	34.19	116.55	820.70	-4,817.00	4,986.30	4,945.00	41.31	120.712	
2,000.00	1,975.96	1,935.03	1,934.96	7.66	36.28	116.76	820.70	-4,817.00	4,995.80	4,951.98	43.82	114.018	
2,100.00	2,073.77	2,033.51	2,033.43	8.10	38.37	116.98	821.51	-4,817.00	5,005.53	4,959.19	46.34	108.019	
2,200.00	2,171.59	2,134.26	2,134.18	8.54	40.52	117.19	821.31	-4,817.00	5,015.12	4,966.21	48.91	102.533	
2,300.00	2,269.40	2,235.12	2,235.03	8.98	42.67	117.40	820.85	-4,817.00	5,024.72	4,973.23	51.49	97.589	
2,400.00	2,367.22	2,326.39	2,326.22	9.43	44.64	117.59	820.70	-4,817.00	5,034.45	4,980.56	53.88	93.432	
2,500.00	2,465.03	2,424.20	2,424.03	9.87	46.75	117.80	820.70	-4,817.00	5,044.28	4,987.85	56.43	89.389	
2,600.00	2,562.84	2,523.14	2,522.94	10.32	48.90	118.02	822.29	-4,817.00	5,054.55	4,995.55	59.00	85.668	
2,700.00	2,660.66	2,627.72	2,627.52	10.77	51.16	118.24	821.90	-4,817.00	5,064.43	5,002.73	61.70	82.086	
2,800.00	2,758.47	2,732.57	2,732.34	11.21	53.43	118.44	820.93	-4,817.00	5,074.24	5,009.85	64.40	78.797	
2,900.00	2,856.29	2,815.56	2,815.29	11.66	55.15	118.61	820.70	-4,817.00	5,084.26	5,017.72	66.54	76.409	
3,000.00	2,954.10	2,913.38	2,913.10	12.11	57.14	118.81	820.70	-4,817.00	5,094.42	5,025.45	68.96	73.870	
3,100.00	3,051.92	3,011.66	3,011.38	12.56	59.15	119.02	821.50	-4,817.00	5,104.85	5,033.45	71.40	71.498	
3,200.00	3,149.73	3,112.99	3,112.71	13.01	61.21	119.23	821.33	-4,817.00	5,115.09	5,041.20	73.89	69.221	
3,300.00	3,247.55	3,214.43	3,214.15	13.45	63.28	119.43	820.88	-4,817.00	5,125.34	5,048.94	76.39	67.091	
3,400.00	3,345.36	3,304.69	3,304.36	13.90	65.08	119.61	820.70	-4,817.00	5,135.70	5,057.07	78.62	65.323	
3,500.00	3,443.18	3,402.51	3,402.18	14.35	67.01	119.81	820.70	-4,817.00	5,146.17	5,065.20	80.98	63.552	
3,600.00	3,540.99	3,500.32	3,499.99	14.80	68.94	120.01	820.70	-4,817.00	5,156.71	5,073.38	83.33	61.882	
3,700.00	3,638.81	3,600.85	3,600.51	15.25	70.92	120.22	821.90	-4,817.00	5,167.64	5,081.90	85.74	60.271	
3,800.00	3,736.62	3,703.08	3,702.73	15.70	72.93	120.42	821.55	-4,817.00	5,178.22	5,090.04	88.18	58.721	
3,900.00	3,834.44	3,805.45	3,805.09	16.15	74.95	120.62	820.88	-4,817.00	5,188.77	5,098.14	90.63	57.253	
4,000.00	3,932.25	3,891.63	3,891.25	16.60	76.64	120.79	820.70	-4,817.00	5,199.49	5,106.74	92.75	56.058	
4,100.00	4,030.07	3,989.45	3,989.07	17.05	78.57	120.98	820.70	-4,817.00	5,210.34	5,115.23	95.11	54.785	
4,200.00	4,127.88	4,087.95	4,087.56	17.50	80.51	121.18	821.20	-4,817.00	5,221.39	5,123.92	97.47	53.567	
4,300.00	4,225.70	4,188.62	4,188.23	17.96	82.49	121.38	821.06	-4,817.00	5,232.32	5,132.43	99.88	52.384	
4,400.00	4,323.51	4,289.37	4,288.98	18.41	84.48	121.57	820.74	-4,817.00	5,243.25	5,140.96	102.30	51.256	
4,500.00	4,421.33	4,380.75	4,380.33	18.86	86.34	121.75	820.70	-4,817.00	5,254.32	5,149.74	104.58	50.243	
4,600.00	4,519.14	4,478.56	4,478.14	19.31	88.33	121.94	820.70	-4,817.00	5,265.47	5,158.47	107.00	49.209	
4,700.00	4,616.95	4,578.14	4,577.71	19.76	90.37	122.14	821.76	-4,817.00	5,276.99	5,167.53	109.46	48.210	
4,800.00	4,714.77	4,681.93	4,681.49	20.21	92.48	122.34	821.46	-4,817.00	5,288.17	5,176.16	112.00	47.214	
4,900.00	4,812.58	4,785.88	4,785.44	20.66	94.61	122.53	820.77	-4,817.00	5,299.29	5,184.74	114.55	46.261	
5,000.00	4,910.40	4,869.88	4,869.40	21.11	96.21	122.69	820.70	-4,817.00	5,310.62	5,194.04	116.58	45.553	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

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

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,100.00	5,008.21	4,967.70	4,967.21	21.57	98.07	122.87	820.70	-4,817.00	5,322.06	5,203.19	118.86	44.774	
5,200.00	5,106.03	5,066.52	5,066.03	22.02	99.95	123.07	821.50	-4,817.00	5,333.80	5,212.64	121.16	44.021	
5,300.00	5,203.84	5,169.00	5,168.51	22.47	101.89	123.26	821.30	-4,817.00	5,345.29	5,221.75	123.54	43.269	
5,400.00	5,301.66	5,271.61	5,271.11	22.92	103.84	123.44	820.83	-4,817.00	5,356.75	5,230.84	125.91	42.545	
5,500.00	5,399.47	5,358.99	5,358.47	23.37	105.60	123.61	820.70	-4,817.00	5,368.35	5,240.27	128.08	41.914	
5,600.00	5,497.29	5,456.80	5,456.29	23.82	107.59	123.79	820.70	-4,817.00	5,380.06	5,249.56	130.50	41.226	
5,700.00	5,595.10	5,555.10	5,554.58	24.28	109.60	123.98	821.23	-4,817.00	5,392.01	5,259.08	132.93	40.563	
5,800.00	5,692.92	5,656.18	5,655.66	24.73	111.66	124.16	821.11	-4,817.00	5,403.79	5,268.37	135.41	39.905	
5,900.00	5,790.73	5,757.34	5,756.82	25.18	113.73	124.34	820.82	-4,817.00	5,415.57	5,277.67	137.90	39.271	
6,000.00	5,888.55	5,848.12	5,847.55	25.63	115.80	124.51	820.70	-4,817.00	5,427.45	5,287.05	140.40	38.658	
6,100.00	5,986.36	5,945.94	5,945.36	26.08	118.15	124.68	820.70	-4,817.00	5,439.43	5,296.26	143.17	37.993	
6,200.00	6,084.18	6,000.00	5,999.35	26.54	119.45	124.78	820.70	-4,817.00	5,451.64	5,306.77	144.87	37.632 SF	
6,300.00	6,181.99	6,000.00	5,999.35	26.99	119.45	124.78	820.70	-4,817.00	5,465.39	5,320.18	145.21	37.638	
6,400.00	6,279.81	6,000.00	5,999.35	27.44	119.45	124.78	820.70	-4,817.00	5,480.93	5,335.42	145.51	37.667	
6,500.00	6,377.62	6,000.00	5,999.35	27.89	119.45	124.78	820.70	-4,817.00	5,498.24	5,352.48	145.76	37.721	
6,530.62	6,407.57	6,000.00	5,999.35	28.03	119.45	124.78	820.70	-4,817.00	5,503.89	5,358.06	145.83	37.742	
6,550.00	6,426.48	6,000.00	5,999.35	28.12	119.45	130.20	820.70	-4,817.00	5,507.84	5,361.97	145.87	37.758	
6,600.00	6,474.77	6,000.00	5,999.35	28.36	119.45	140.08	820.70	-4,817.00	5,520.95	5,374.97	145.98	37.820	
6,650.00	6,522.09	6,000.00	5,999.35	28.62	119.45	146.18	820.70	-4,817.00	5,538.17	5,392.09	146.08	37.912	
6,700.00	6,568.15	6,000.00	5,999.35	28.89	119.45	150.10	820.70	-4,817.00	5,559.35	5,413.18	146.18	38.031	
6,750.00	6,612.66	6,000.00	5,999.35	29.18	119.45	152.68	820.70	-4,817.00	5,584.34	5,438.07	146.27	38.178	
6,800.00	6,655.36	6,000.00	5,999.35	29.48	119.45	154.35	820.70	-4,817.00	5,612.91	5,466.55	146.35	38.351	
6,850.00	6,695.98	6,000.00	5,999.35	29.79	119.45	155.36	820.70	-4,817.00	5,644.84	5,498.41	146.43	38.549	
6,900.00	6,734.26	6,000.00	5,999.35	30.11	119.45	155.83	820.70	-4,817.00	5,679.88	5,533.37	146.51	38.769	
6,950.00	6,769.98	6,000.00	5,999.35	30.45	119.45	155.79	820.70	-4,817.00	5,717.76	5,571.19	146.57	39.010	
7,000.00	6,802.91	6,000.00	5,999.35	30.79	119.45	155.22	820.70	-4,817.00	5,758.19	5,611.55	146.64	39.269	
7,050.00	6,832.85	6,000.00	5,999.35	31.15	119.45	154.04	820.70	-4,817.00	5,800.87	5,654.18	146.69	39.544	
7,100.00	6,859.62	6,000.00	5,999.35	31.51	119.45	152.02	820.70	-4,817.00	5,845.49	5,698.75	146.75	39.834	
7,150.00	6,883.05	6,000.00	5,999.35	31.89	119.45	148.74	820.70	-4,817.00	5,891.74	5,744.95	146.80	40.136	
7,200.00	6,902.99	6,000.00	5,999.35	32.28	119.45	143.34	820.70	-4,817.00	5,939.30	5,792.45	146.84	40.446	
7,250.00	6,919.32	6,000.00	5,999.35	32.67	119.45	133.89	820.70	-4,817.00	5,987.84	5,840.95	146.89	40.764	
7,300.00	6,931.95	6,000.00	5,999.35	33.08	119.45	116.17	820.70	-4,817.00	6,037.04	5,890.10	146.94	41.086	
7,350.00	6,940.79	6,000.00	5,999.35	33.49	119.45	85.05	820.70	-4,817.00	6,086.59	5,939.61	146.98	41.411	
7,400.00	6,945.79	6,000.00	5,999.35	33.90	119.45	51.37	820.70	-4,817.00	6,136.19	5,989.16	147.03	41.735	
7,439.53	6,947.00	6,000.00	5,999.35	34.24	119.45	33.95	820.70	-4,817.00	6,175.23	6,028.16	147.07	41.989	
7,500.00	6,947.00	6,000.00	5,999.35	34.75	119.45	27.96	820.70	-4,817.00	6,234.81	6,087.68	147.13	42.377	
7,600.00	6,947.00	6,000.00	5,999.35	35.63	119.45	16.27	820.70	-4,817.00	6,333.58	6,186.37	147.21	43.025	
7,700.00	6,947.00	6,000.00	5,999.35	36.54	119.45	2.79	820.70	-4,817.00	6,432.53	6,285.26	147.27	43.678	
7,800.00	6,947.00	6,000.00	5,999.35	37.47	119.45	-11.22	820.70	-4,817.00	6,531.54	6,384.22	147.31	44.338	
7,900.00	6,947.00	6,000.00	5,999.35	38.43	119.45	-24.18	820.70	-4,817.00	6,630.48	6,483.14	147.34	45.002	
8,000.00	6,947.00	6,000.00	5,999.35	39.41	119.45	-35.11	820.70	-4,817.00	6,729.24	6,581.89	147.34	45.670	
8,100.00	6,947.00	6,000.00	5,999.35	40.40	119.45	-43.83	820.70	-4,817.00	6,827.71	6,680.38	147.34	46.341	
8,200.00	6,947.00	6,000.00	5,999.35	41.42	119.45	-50.65	820.70	-4,817.00	6,925.79	6,778.48	147.31	47.014	
8,300.00	6,947.00	6,000.00	5,999.35	42.44	119.45	-55.99	820.70	-4,817.00	7,023.37	6,876.09	147.28	47.689	
8,400.00	6,947.00	6,000.00	5,999.35	43.48	119.45	-60.20	820.70	-4,817.00	7,120.36	6,973.13	147.23	48.363	
8,500.00	6,947.00	6,000.00	5,999.35	44.53	119.45	-63.57	820.70	-4,817.00	7,216.66	7,069.49	147.17	49.036	
8,600.00	6,947.00	6,000.00	5,999.35	45.58	119.45	-66.31	820.70	-4,817.00	7,312.20	7,165.10	147.10	49.708	
8,700.00	6,947.00	6,000.00	5,999.35	46.63	119.45	-68.56	820.70	-4,817.00	7,406.88	7,259.85	147.03	50.377	
8,800.00	6,947.00	6,000.00	5,999.35	47.69	119.45	-70.45	820.70	-4,817.00	7,500.62	7,353.67	146.95	51.042	
8,841.31	6,947.00	6,000.00	5,999.35	48.13	119.45	-71.14	820.70	-4,817.00	7,539.05	7,392.14	146.92	51.315	
8,900.00	6,947.00	6,000.00	5,999.35	48.76	119.45	-71.14	820.70	-4,817.00	7,593.56	7,446.69	146.87	51.703	
9,000.00	6,947.00	6,000.00	5,999.35	49.85	119.45	-71.14	820.70	-4,817.00	7,686.58	7,539.78	146.80	52.362	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 245-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,100.00	6,947.00	6,000.00	5,999.35	50.97	119.45	-71.14	820.70	-4,817.00	7,779.77	7,633.04	146.73	53.020	
9,200.00	6,947.00	6,000.00	5,999.35	52.12	119.45	-71.14	820.70	-4,817.00	7,873.13	7,726.45	146.68	53.677	
9,300.00	6,947.00	6,000.00	5,999.35	53.28	119.45	-71.14	820.70	-4,817.00	7,966.65	7,820.02	146.63	54.333	
9,400.00	6,947.00	6,000.00	5,999.35	54.48	119.45	-71.14	820.70	-4,817.00	8,060.32	7,913.74	146.58	54.988	
9,500.00	6,947.00	6,000.00	5,999.35	55.69	119.45	-71.14	820.70	-4,817.00	8,154.15	8,007.60	146.55	55.642	
9,600.00	6,947.00	6,000.00	5,999.35	56.92	119.45	-71.14	820.70	-4,817.00	8,248.12	8,101.60	146.52	56.295	
9,700.00	6,947.00	6,000.00	5,999.35	58.17	119.45	-71.14	820.70	-4,817.00	8,342.23	8,195.74	146.49	56.947	
9,800.00	6,947.00	6,000.00	5,999.35	59.44	119.45	-71.14	820.70	-4,817.00	8,436.47	8,290.00	146.47	57.599	
9,900.00	6,947.00	6,000.00	5,999.35	60.73	119.45	-71.14	820.70	-4,817.00	8,530.85	8,384.40	146.46	58.249	
10,000.00	6,947.00	6,000.00	5,999.35	62.03	119.45	-71.14	820.70	-4,817.00	8,625.36	8,478.91	146.45	58.898	
10,100.00	6,947.00	6,000.00	5,999.35	63.34	119.45	-71.14	820.70	-4,817.00	8,719.98	8,573.54	146.44	59.546	
10,200.00	6,947.00	6,000.00	5,999.35	64.67	119.45	-71.14	820.70	-4,817.00	8,814.73	8,668.29	146.44	60.193	
10,300.00	6,947.00	6,000.00	5,999.35	66.01	119.45	-71.14	820.70	-4,817.00	8,909.59	8,763.14	146.45	60.839	
10,400.00	6,947.00	6,000.00	5,999.35	67.36	119.45	-71.14	820.70	-4,817.00	9,004.56	8,858.10	146.45	61.484	
10,500.00	6,947.00	6,000.00	5,999.35	68.73	119.45	-71.14	820.70	-4,817.00	9,099.64	8,953.17	146.47	62.128	
10,600.00	6,947.00	6,000.00	5,999.35	70.10	119.45	-71.14	820.70	-4,817.00	9,194.82	9,048.34	146.48	62.771	
10,700.00	6,947.00	6,000.00	5,999.35	71.48	119.45	-71.14	820.70	-4,817.00	9,290.10	9,143.60	146.50	63.413	
10,800.00	6,947.00	6,000.00	5,999.35	72.88	119.45	-71.14	820.70	-4,817.00	9,385.49	9,238.96	146.53	64.053	
10,900.00	6,947.00	6,000.00	5,999.35	74.28	119.45	-71.14	820.70	-4,817.00	9,480.96	9,334.41	146.55	64.693	
11,000.00	6,947.00	6,000.00	5,999.35	75.69	119.45	-71.14	820.70	-4,817.00	9,576.53	9,429.95	146.58	65.332	
11,100.00	6,947.00	6,000.00	5,999.35	77.10	119.45	-71.14	820.70	-4,817.00	9,672.19	9,525.58	146.62	65.970	
11,200.00	6,947.00	6,000.00	5,999.35	78.53	119.45	-71.14	820.70	-4,817.00	9,767.94	9,621.29	146.65	66.606	
11,300.00	6,947.00	6,000.00	5,999.35	79.96	119.45	-71.14	820.70	-4,817.00	9,863.77	9,717.08	146.69	67.242	
11,400.00	6,947.00	6,000.00	5,999.35	81.40	119.45	-71.14	820.70	-4,817.00	9,959.68	9,812.95	146.73	67.877	
11,500.00	6,947.00	6,000.00	5,999.35	82.84	119.45	-71.14	820.70	-4,817.00	10,055.68	9,908.90	146.78	68.510	
11,600.00	6,947.00	6,000.00	5,999.35	84.29	119.45	-71.14	820.70	-4,817.00	10,151.75	10,004.92	146.82	69.143	
11,700.00	6,947.00	6,000.00	5,999.35	85.75	119.45	-71.14	820.70	-4,817.00	10,247.89	10,101.02	146.87	69.775	
11,800.00	6,947.00	6,000.00	5,999.35	87.21	119.45	-71.14	820.70	-4,817.00	10,344.11	10,197.19	146.92	70.405	
11,900.00	6,947.00	6,000.00	5,999.35	88.68	119.45	-71.14	820.70	-4,817.00	10,440.40	10,293.42	146.98	71.035	
12,000.00	6,947.00	6,000.00	5,999.35	90.15	119.45	-71.14	820.70	-4,817.00	10,536.76	10,389.73	147.03	71.663	
12,100.00	6,947.00	6,000.00	5,999.35	91.62	119.45	-71.14	820.70	-4,817.00	10,633.18	10,486.10	147.09	72.291	
12,200.00	6,947.00	6,000.00	5,999.35	93.10	119.45	-71.14	820.70	-4,817.00	10,729.67	10,582.53	147.15	72.918	
12,300.00	6,947.00	6,000.00	5,999.35	94.59	119.45	-71.14	820.70	-4,817.00	10,826.23	10,679.02	147.21	73.543	
12,400.00	6,947.00	6,000.00	5,999.35	96.07	119.45	-71.14	820.70	-4,817.00	10,922.85	10,775.57	147.27	74.168	
12,500.00	6,947.00	6,000.00	5,999.35	97.56	119.45	-71.14	820.70	-4,817.00	11,019.52	10,872.19	147.34	74.792	
12,600.00	6,947.00	6,000.00	5,999.35	99.06	119.45	-71.14	820.70	-4,817.00	11,116.26	10,968.86	147.40	75.415	
12,700.00	6,947.00	6,000.00	5,999.35	100.56	119.45	-71.14	820.70	-4,817.00	11,213.05	11,065.58	147.47	76.036	
12,800.00	6,947.00	6,000.00	5,999.35	102.06	119.45	-71.14	820.70	-4,817.00	11,309.90	11,162.36	147.54	76.657	
12,900.00	6,947.00	6,000.00	5,999.35	103.56	119.45	-71.14	820.70	-4,817.00	11,406.80	11,259.20	147.61	77.277	
13,000.00	6,947.00	6,000.00	5,999.35	105.07	119.45	-71.14	820.70	-4,817.00	11,503.76	11,356.08	147.68	77.896	
13,100.00	6,947.00	6,000.00	5,999.35	106.58	119.45	-71.14	820.70	-4,817.00	11,600.77	11,453.02	147.75	78.514	
13,200.00	6,947.00	6,000.00	5,999.35	108.10	119.45	-71.14	820.70	-4,817.00	11,697.83	11,550.00	147.83	79.131	
13,300.00	6,947.00	6,000.00	5,999.35	109.61	119.45	-71.14	820.70	-4,817.00	11,794.94	11,647.03	147.90	79.747	
13,400.00	6,947.00	6,000.00	5,999.35	111.13	119.45	-71.14	820.70	-4,817.00	11,892.09	11,744.11	147.98	80.362	
13,500.00	6,947.00	6,000.00	5,999.35	112.65	119.45	-71.14	820.70	-4,817.00	11,989.29	11,841.23	148.06	80.976	
13,600.00	6,947.00	6,000.00	5,999.35	114.17	119.45	-71.14	820.70	-4,817.00	12,086.54	11,938.40	148.14	81.590	
13,700.00	6,947.00	6,000.00	5,999.35	115.70	119.45	-71.14	820.70	-4,817.00	12,183.83	12,035.61	148.22	82.202	
13,800.00	6,947.00	6,000.00	5,999.35	117.23	119.45	-71.14	820.70	-4,817.00	12,281.17	12,132.87	148.30	82.813	
13,900.00	6,947.00	6,000.00	5,999.35	118.76	119.45	-71.14	820.70	-4,817.00	12,378.55	12,230.17	148.38	83.424	
14,000.00	6,947.00	6,000.00	5,999.35	120.29	119.45	-71.14	820.70	-4,817.00	12,475.97	12,327.50	148.46	84.033	
14,100.00	6,947.00	6,000.00	5,999.35	121.82	119.45	-71.14	820.70	-4,817.00	12,573.43	12,424.88	148.55	84.642	
14,200.00	6,947.00	6,000.00	5,999.35	123.36	119.45	-71.14	820.70	-4,817.00	12,670.93	12,522.29	148.63	85.249	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

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

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,300.00	6,947.00	6,000.00	5,999.35	124.89	119.45	-71.14	820.70	-4,817.00	12,768.47	12,619.75	148.72	85.856	
14,400.00	6,947.00	6,000.00	5,999.35	126.43	119.45	-71.14	820.70	-4,817.00	12,866.04	12,717.24	148.81	86.462	
14,500.00	6,947.00	6,000.00	5,999.35	127.97	119.45	-71.14	820.70	-4,817.00	12,963.66	12,814.76	148.89	87.067	
14,600.00	6,947.00	6,000.00	5,999.35	129.51	119.45	-71.14	820.70	-4,817.00	13,061.31	12,912.32	148.98	87.671	
14,700.00	6,947.00	6,000.00	5,999.35	131.06	119.45	-71.14	820.70	-4,817.00	13,158.99	13,009.92	149.07	88.274	
14,800.00	6,947.00	6,000.00	5,999.35	132.60	119.45	-71.14	820.70	-4,817.00	13,256.71	13,107.55	149.16	88.876	
14,900.00	6,947.00	6,000.00	5,999.35	134.15	119.45	-71.14	820.70	-4,817.00	13,354.46	13,205.21	149.25	89.477	
15,000.00	6,947.00	6,000.00	5,999.35	135.70	119.45	-71.14	820.70	-4,817.00	13,452.25	13,302.91	149.34	90.077	
15,100.00	6,947.00	6,000.00	5,999.35	137.24	119.45	-71.14	820.70	-4,817.00	13,550.07	13,400.64	149.43	90.677	
15,200.00	6,947.00	6,000.00	5,999.35	138.79	119.45	-71.14	820.70	-4,817.00	13,647.92	13,498.39	149.53	91.275	
15,300.00	6,947.00	6,000.00	5,999.35	140.35	119.45	-71.14	820.70	-4,817.00	13,745.80	13,596.18	149.62	91.873	
15,400.00	6,947.00	6,000.00	5,999.35	141.90	119.45	-71.14	820.70	-4,817.00	13,843.71	13,694.00	149.71	92.469	
15,500.00	6,947.00	6,000.00	5,999.35	143.45	119.45	-71.14	820.70	-4,817.00	13,941.65	13,791.85	149.81	93.065	
15,600.00	6,947.00	6,000.00	5,999.35	145.01	119.45	-71.14	820.70	-4,817.00	14,039.62	13,889.72	149.90	93.660	
15,700.00	6,947.00	6,000.00	5,999.35	146.56	119.45	-71.14	820.70	-4,817.00	14,137.62	13,987.62	150.00	94.254	
15,800.00	6,947.00	6,000.00	5,999.35	148.12	119.45	-71.14	820.70	-4,817.00	14,235.65	14,085.56	150.09	94.847	
15,900.00	6,947.00	6,000.00	5,999.35	149.68	119.45	-71.14	820.70	-4,817.00	14,333.70	14,183.51	150.19	95.439	
16,000.00	6,947.00	6,000.00	5,999.35	151.23	119.45	-71.14	820.70	-4,817.00	14,431.78	14,281.50	150.28	96.030	
16,100.00	6,947.00	6,000.00	5,999.35	152.79	119.45	-71.14	820.70	-4,817.00	14,529.89	14,379.51	150.38	96.620	
16,200.00	6,947.00	6,000.00	5,999.35	154.36	119.45	-71.14	820.70	-4,817.00	14,628.02	14,477.54	150.48	97.210	
16,300.00	6,947.00	6,000.00	5,999.35	155.92	119.45	-71.14	820.70	-4,817.00	14,726.18	14,575.60	150.58	97.798	
16,400.00	6,947.00	6,000.00	5,999.35	157.48	119.45	-71.14	820.70	-4,817.00	14,824.36	14,673.68	150.68	98.386	
16,500.00	6,947.00	6,000.00	5,999.35	159.04	119.45	-71.14	820.70	-4,817.00	14,922.56	14,771.79	150.78	98.972	
16,600.00	6,947.00	6,000.00	5,999.35	160.61	119.45	-71.14	820.70	-4,817.00	15,020.79	14,869.92	150.87	99.558	
16,700.00	6,947.00	6,000.00	5,999.35	162.17	119.45	-71.14	820.70	-4,817.00	15,119.05	14,968.07	150.97	100.143	
16,800.00	6,947.00	6,000.00	5,999.35	163.74	119.45	-71.14	820.70	-4,817.00	15,217.32	15,066.25	151.08	100.727	
16,900.00	6,947.00	6,000.00	5,999.35	165.30	119.45	-71.14	820.70	-4,817.00	15,315.62	15,164.44	151.18	101.310	
17,000.00	6,947.00	6,000.00	5,999.35	166.87	119.45	-71.14	820.70	-4,817.00	15,413.94	15,262.66	151.28	101.892	
17,100.00	6,947.00	6,000.00	5,999.35	168.44	119.45	-71.14	820.70	-4,817.00	15,512.28	15,360.90	151.38	102.473	
17,200.00	6,947.00	6,000.00	5,999.35	170.01	119.45	-71.14	820.70	-4,817.00	15,610.64	15,459.16	151.48	103.054	
17,300.00	6,947.00	6,000.00	5,999.35	171.57	119.45	-71.14	820.70	-4,817.00	15,709.03	15,557.44	151.58	103.633	
17,400.00	6,947.00	6,000.00	5,999.35	173.14	119.45	-71.14	820.70	-4,817.00	15,807.43	15,655.74	151.69	104.212	
17,500.00	6,947.00	6,000.00	5,999.35	174.71	119.45	-71.14	820.70	-4,817.00	15,905.85	15,754.06	151.79	104.789	
17,600.00	6,947.00	6,000.00	5,999.35	176.28	119.45	-71.14	820.70	-4,817.00	16,004.30	15,852.40	151.89	105.366	
17,700.00	6,947.00	6,000.00	5,999.35	177.86	119.45	-71.14	820.70	-4,817.00	16,102.76	15,950.76	152.00	105.942	
17,800.00	6,947.00	6,000.00	5,999.35	179.43	119.45	-71.14	820.70	-4,817.00	16,201.24	16,049.14	152.10	106.517	
17,900.00	6,947.00	6,000.00	5,999.35	181.00	119.45	-71.14	820.70	-4,817.00	16,299.74	16,147.53	152.20	107.091	
18,000.00	6,947.00	6,000.00	5,999.35	182.57	119.45	-71.14	820.70	-4,817.00	16,398.26	16,245.95	152.31	107.664	
18,100.00	6,947.00	6,000.00	5,999.35	184.15	119.45	-71.14	820.70	-4,817.00	16,496.79	16,344.38	152.41	108.236	
18,200.00	6,947.00	6,000.00	5,999.35	185.72	119.45	-71.14	820.70	-4,817.00	16,595.34	16,442.82	152.52	108.808	
18,300.00	6,947.00	6,000.00	5,999.35	187.30	119.45	-71.14	820.70	-4,817.00	16,693.91	16,541.29	152.63	109.378	
18,400.00	6,947.00	6,000.00	5,999.35	188.87	119.45	-71.14	820.70	-4,817.00	16,792.50	16,639.77	152.73	109.947	
18,500.00	6,947.00	6,000.00	5,999.35	190.45	119.45	-71.14	820.70	-4,817.00	16,891.10	16,738.27	152.84	110.516	
18,600.00	6,947.00	6,000.00	5,999.35	192.02	119.45	-71.14	820.70	-4,817.00	16,989.72	16,836.78	152.95	111.084	
18,700.00	6,947.00	6,000.00	5,999.35	193.60	119.45	-71.14	820.70	-4,817.00	17,088.36	16,935.31	153.05	111.651	
18,800.00	6,947.00	6,000.00	5,999.35	195.18	119.45	-71.14	820.70	-4,817.00	17,187.01	17,033.85	153.16	112.217	
18,900.00	6,947.00	6,000.00	5,999.35	196.75	119.45	-71.14	820.70	-4,817.00	17,285.68	17,132.41	153.27	112.782	
19,000.00	6,947.00	6,000.00	5,999.35	198.33	119.45	-71.14	820.70	-4,817.00	17,384.36	17,230.99	153.37	113.346	
19,100.00	6,947.00	6,000.00	5,999.35	199.91	119.45	-71.14	820.70	-4,817.00	17,483.06	17,329.58	153.48	113.909	
19,200.00	6,947.00	6,000.00	5,999.35	201.49	119.45	-71.14	820.70	-4,817.00	17,581.77	17,428.18	153.59	114.471	
19,300.00	6,947.00	6,000.00	5,999.35	203.07	119.45	-71.14	820.70	-4,817.00	17,680.50	17,526.80	153.70	115.033	
19,400.00	6,947.00	6,000.00	5,999.35	204.65	119.45	-71.14	820.70	-4,817.00	17,779.24	17,625.43	153.81	115.593	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 245-A027Ua_INC-ONLY

Rule Assigned:

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
19,500.00	6,947.00	6,000.00	5,999.35	206.23	119.45	-71.14	820.70	-4,817.00	17,877.99	17,724.08	153.92	116.153	
19,600.00	6,947.00	6,000.00	5,999.35	207.81	119.45	-71.14	820.70	-4,817.00	17,976.76	17,822.74	154.03	116.712	
19,700.00	6,947.00	6,000.00	5,999.35	209.39	119.45	-71.14	820.70	-4,817.00	18,075.54	17,921.41	154.14	117.270	
19,800.00	6,947.00	6,000.00	5,999.35	210.97	119.45	-71.14	820.70	-4,817.00	18,174.34	18,020.09	154.25	117.827	
19,900.00	6,947.00	6,000.00	5,999.35	212.55	119.45	-71.14	820.70	-4,817.00	18,273.15	18,118.79	154.36	118.383	
20,000.00	6,947.00	6,000.00	5,999.35	214.13	119.45	-71.14	820.70	-4,817.00	18,371.97	18,217.50	154.47	118.938	
20,100.00	6,947.00	6,000.00	5,999.35	215.71	119.45	-71.14	820.70	-4,817.00	18,470.80	18,316.23	154.58	119.492	
20,200.00	6,947.00	6,000.00	5,999.35	217.30	119.45	-71.14	820.70	-4,817.00	18,569.65	18,414.96	154.69	120.045	
20,300.00	6,947.00	6,000.00	5,999.35	218.88	119.45	-71.14	820.70	-4,817.00	18,668.51	18,513.71	154.80	120.598	
20,400.00	6,947.00	6,000.00	5,999.35	220.46	119.45	-71.14	820.70	-4,817.00	18,767.38	18,612.47	154.91	121.149	
20,500.00	6,947.00	6,000.00	5,999.35	222.04	119.45	-71.14	820.70	-4,817.00	18,866.26	18,711.24	155.02	121.700	
20,600.00	6,947.00	6,000.00	5,999.35	223.63	119.45	-71.14	820.70	-4,817.00	18,965.16	18,810.02	155.13	122.250	
20,700.00	6,947.00	6,000.00	5,999.35	225.21	119.45	-71.14	820.70	-4,817.00	19,064.07	18,908.82	155.25	122.799	
20,800.00	6,947.00	6,000.00	5,999.35	226.80	119.45	-71.14	820.70	-4,817.00	19,162.98	19,007.62	155.36	123.347	
20,900.00	6,947.00	6,000.00	5,999.35	228.38	119.45	-71.14	820.70	-4,817.00	19,261.91	19,106.44	155.47	123.894	
21,000.00	6,947.00	6,000.00	5,999.35	229.97	119.45	-71.14	820.70	-4,817.00	19,360.85	19,205.27	155.58	124.440	
21,032.01	6,947.00	6,000.00	5,999.35	230.47	119.45	-71.14	820.70	-4,817.00	19,392.52	19,236.90	155.62	124.615	
21,032.99	6,947.00	6,000.00	5,999.35	230.51	119.45	-71.14	820.70	-4,817.00	19,393.49	19,233.77	159.72	121.425	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

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

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	96.00	96.00	0.00	2.04	-78.86	1,313.27	-6,669.48	6,797.54				
100.00	100.00	196.00	196.00	0.25	4.17	-78.86	1,313.27	-6,669.48	6,797.54	6,793.12	4.42	1,537.012	
200.00	200.00	296.00	296.00	0.61	6.30	-78.86	1,313.27	-6,669.48	6,797.54	6,790.63	6.91	983.821	
300.00	300.00	396.00	396.00	0.97	8.43	-78.86	1,313.27	-6,669.48	6,797.54	6,788.15	9.40	723.444	
400.00	400.00	496.00	496.00	1.33	10.56	-78.86	1,313.27	-6,669.48	6,797.54	6,785.66	11.88	572.047	
500.00	500.00	596.03	596.00	1.68	12.69	-78.86	1,313.27	-6,669.48	6,797.54	6,783.17	14.37	473.031	CC
600.00	599.98	696.01	695.98	2.03	14.81	116.14	1,313.27	-6,669.48	6,798.31	6,781.47	16.84	403.711	ES
700.00	699.84	797.77	797.73	2.36	16.98	116.15	1,314.28	-6,669.48	6,800.82	6,781.48	19.34	351.670	
800.00	799.45	902.50	902.46	2.71	19.21	116.14	1,313.93	-6,669.48	6,804.60	6,782.69	21.91	310.549	
900.00	898.70	1,006.96	1,006.91	3.06	21.43	116.14	1,313.18	-6,669.48	6,809.87	6,785.38	24.49	278.071	
1,000.00	997.47	1,093.56	1,093.47	3.43	23.45	116.12	1,313.27	-6,669.48	6,816.83	6,789.96	26.87	253.663	
1,100.00	1,095.62	1,191.72	1,191.62	3.82	25.71	116.11	1,313.27	-6,669.48	6,825.36	6,795.83	29.52	231.201	
1,200.00	1,193.44	1,291.75	1,291.64	4.22	28.02	116.27	1,314.32	-6,669.48	6,834.91	6,802.68	32.22	212.105	
1,300.00	1,291.25	1,394.71	1,394.59	4.64	30.40	116.43	1,313.97	-6,669.48	6,844.23	6,809.23	35.00	195.538	
1,400.00	1,389.07	1,497.83	1,497.70	5.06	32.77	116.59	1,313.25	-6,669.48	6,853.53	6,815.74	37.79	181.360	
1,500.00	1,486.88	1,583.10	1,582.88	5.48	34.91	116.72	1,313.27	-6,669.48	6,863.01	6,822.67	40.34	170.127	
1,600.00	1,584.70	1,680.92	1,680.70	5.91	37.36	116.87	1,313.27	-6,669.48	6,872.55	6,829.34	43.21	159.067	
1,700.00	1,682.51	1,781.53	1,781.28	6.35	39.88	117.04	1,314.87	-6,669.48	6,882.49	6,836.34	46.14	149.155	
1,800.00	1,780.33	1,887.86	1,887.60	6.78	42.54	117.20	1,314.38	-6,669.48	6,892.03	6,842.80	49.23	140.006	
1,900.00	1,878.14	1,994.45	1,994.17	7.22	45.21	117.36	1,313.29	-6,669.48	6,901.50	6,849.18	52.32	131.913	
2,000.00	1,975.96	2,072.35	2,071.96	7.66	47.24	117.48	1,313.27	-6,669.48	6,911.20	6,856.42	54.78	126.169	
2,100.00	2,073.77	2,170.16	2,169.77	8.10	49.80	117.63	1,313.27	-6,669.48	6,920.98	6,863.22	57.76	119.824	
2,200.00	2,171.59	2,270.56	2,270.15	8.54	52.42	117.79	1,314.85	-6,669.48	6,931.18	6,870.37	60.81	113.979	
2,300.00	2,269.40	2,377.72	2,377.29	8.98	55.23	117.95	1,314.37	-6,669.48	6,940.96	6,876.92	64.04	108.385	
2,400.00	2,367.22	2,485.14	2,484.70	9.43	58.03	118.11	1,313.27	-6,669.48	6,950.66	6,883.38	67.28	103.314	
2,500.00	2,465.03	2,561.62	2,561.03	9.87	59.88	118.22	1,313.27	-6,669.48	6,960.60	6,891.05	69.55	100.076	
2,600.00	2,562.84	2,659.43	2,658.84	10.32	62.25	118.37	1,313.27	-6,669.48	6,970.63	6,898.28	72.35	96.350	
2,700.00	2,660.66	2,758.91	2,758.29	10.77	64.65	118.54	1,315.23	-6,669.48	6,981.18	6,906.00	75.18	92.859	
2,800.00	2,758.47	2,867.89	2,867.25	11.21	67.29	118.70	1,314.77	-6,669.48	6,991.20	6,912.96	78.25	89.349	
2,900.00	2,856.29	2,977.18	2,976.52	11.66	69.93	118.85	1,313.60	-6,669.48	7,001.11	6,919.80	81.32	86.095	
3,000.00	2,954.10	3,050.84	3,050.10	12.11	71.55	118.96	1,313.27	-6,669.48	7,011.21	6,927.83	83.37	84.094	
3,100.00	3,051.92	3,148.66	3,147.92	12.56	73.62	119.11	1,313.27	-6,669.48	7,021.47	6,935.59	85.87	81.766	
3,200.00	3,149.73	3,246.47	3,245.73	13.01	75.69	119.25	1,313.27	-6,669.48	7,031.77	6,943.40	88.37	79.571	
3,300.00	3,247.55	3,344.29	3,343.55	13.45	77.76	119.40	1,313.27	-6,669.48	7,042.13	6,951.26	90.87	77.497	
3,400.00	3,345.36	3,445.57	3,444.82	13.90	79.90	119.56	1,314.80	-6,669.48	7,052.92	6,959.48	93.44	75.479	
3,500.00	3,443.18	3,547.97	3,547.21	14.35	82.07	119.71	1,314.48	-6,669.48	7,063.29	6,967.26	96.04	73.546	
3,600.00	3,540.99	3,650.47	3,649.70	14.80	84.24	119.85	1,313.91	-6,669.48	7,073.64	6,975.01	98.64	71.714	
3,700.00	3,638.81	3,735.66	3,734.81	15.25	86.05	119.97	1,313.27	-6,669.48	7,084.00	6,983.12	100.88	70.223	
3,800.00	3,736.62	3,833.47	3,832.62	15.70	88.51	120.12	1,313.27	-6,669.48	7,094.58	6,990.81	103.77	68.367	
3,900.00	3,834.44	3,931.29	3,930.44	16.15	90.98	120.26	1,313.27	-6,669.48	7,105.21	6,998.55	106.67	66.612	
4,000.00	3,932.25	4,029.10	4,028.25	16.60	93.44	120.40	1,313.27	-6,669.48	7,115.88	7,006.32	109.56	64.950	
4,100.00	4,030.07	4,126.92	4,126.07	17.05	95.90	120.54	1,313.27	-6,669.48	7,126.60	7,014.15	112.45	63.374	
4,200.00	4,127.88	4,224.73	4,223.88	17.50	98.37	120.68	1,313.27	-6,669.48	7,137.36	7,022.02	115.35	61.878	
4,300.00	4,225.70	4,322.55	4,321.70	17.96	100.83	120.82	1,313.27	-6,669.48	7,148.17	7,029.93	118.24	60.455	
4,400.00	4,323.51	4,420.36	4,419.51	18.41	103.30	120.97	1,313.27	-6,669.48	7,159.02	7,037.88	121.13	59.101	
4,500.00	4,421.33	4,518.18	4,517.33	18.86	105.76	121.11	1,313.27	-6,669.48	7,169.91	7,045.89	124.02	57.811	
4,600.00	4,519.14	4,615.99	4,615.14	19.31	108.22	121.25	1,313.27	-6,669.48	7,180.85	7,053.93	126.92	56.579	
4,700.00	4,616.95	4,713.81	4,712.95	19.76	110.69	121.38	1,313.27	-6,669.48	7,191.83	7,062.02	129.81	55.403	
4,800.00	4,714.77	4,812.88	4,811.98	20.21	113.18	121.56	1,317.66	-6,669.48	7,204.14	7,071.41	132.73	54.276	
4,900.00	4,812.58	4,912.56	4,911.66	20.66	115.69	121.70	1,317.56	-6,669.48	7,215.19	7,079.52	135.67	53.182	
5,000.00	4,910.40	5,012.27	5,011.37	21.11	118.21	121.84	1,317.38	-6,669.48	7,226.26	7,087.65	138.61	52.134	
5,100.00	5,008.21	5,112.03	5,111.12	21.57	120.72	121.98	1,317.10	-6,669.48	7,237.34	7,095.79	141.55	51.129	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 520-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Rule Assigned:

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,200.00	5,106.03	5,211.82	5,210.91	22.02	123.23	122.11	1,316.74	-6,669.48	7,248.43	7,103.94	144.49	50.165	
5,300.00	5,203.84	5,311.65	5,310.73	22.47	125.75	122.25	1,316.30	-6,669.48	7,259.55	7,112.11	147.44	49.239	
5,400.00	5,301.66	5,411.52	5,410.59	22.92	128.26	122.39	1,315.77	-6,669.48	7,270.67	7,120.29	150.38	48.349	
5,500.00	5,399.47	5,511.42	5,510.49	23.37	130.78	122.52	1,315.15	-6,669.48	7,281.81	7,128.49	153.32	47.494	
5,600.00	5,497.29	5,611.36	5,610.42	23.82	133.30	122.65	1,314.45	-6,669.48	7,292.96	7,136.70	156.27	46.670	
5,700.00	5,595.10	5,711.34	5,710.39	24.28	135.82	122.79	1,313.65	-6,669.48	7,304.13	7,144.92	159.21	45.877	
5,800.00	5,692.92	5,790.49	5,788.92	24.73	137.96	122.89	1,313.27	-6,669.48	7,315.43	7,153.65	161.77	45.220	
5,900.00	5,790.73	5,888.30	5,886.73	25.18	140.84	123.02	1,313.27	-6,669.48	7,326.91	7,161.83	165.09	44.382	
6,000.00	5,888.55	5,986.12	5,984.55	25.63	143.73	123.16	1,313.27	-6,669.48	7,338.44	7,170.04	168.40	43.577	
6,100.00	5,986.36	6,083.93	6,082.36	26.08	146.62	123.29	1,313.27	-6,669.48	7,350.01	7,178.29	171.72	42.803	
6,200.00	6,084.18	6,181.75	6,180.18	26.54	149.51	123.43	1,313.27	-6,669.48	7,361.62	7,186.59	175.03	42.059	
6,300.00	6,181.99	6,279.56	6,277.99	26.99	152.40	123.56	1,313.27	-6,669.48	7,373.27	7,194.92	178.35	41.342	
6,400.00	6,279.81	6,377.38	6,375.81	27.44	155.29	123.69	1,313.27	-6,669.48	7,384.96	7,203.30	181.66	40.653	
6,500.00	6,377.62	6,475.19	6,473.62	27.89	158.18	123.82	1,313.27	-6,669.48	7,396.69	7,211.72	184.97	39.988	
6,530.62	6,407.57	6,505.14	6,503.57	28.03	159.07	123.86	1,313.27	-6,669.48	7,400.29	7,214.30	185.99	39.789	
6,550.00	6,426.48	6,524.05	6,522.48	28.12	159.62	129.32	1,313.27	-6,669.48	7,402.86	7,216.23	186.63	39.666	
6,600.00	6,474.77	6,572.34	6,570.77	28.36	161.05	139.31	1,313.27	-6,669.48	7,412.15	7,223.88	188.27	39.369	
6,650.00	6,522.09	6,619.66	6,618.09	28.62	162.45	145.53	1,313.27	-6,669.48	7,425.23	7,235.34	189.89	39.102	
6,700.00	6,568.15	6,665.72	6,664.15	28.89	163.81	149.58	1,313.27	-6,669.48	7,442.03	7,250.55	191.48	38.866	
6,750.00	6,612.66	6,710.23	6,708.66	29.18	165.12	152.32	1,313.27	-6,669.48	7,462.43	7,269.41	193.02	38.662	
6,800.00	6,655.36	6,752.93	6,751.36	29.48	166.39	154.18	1,313.27	-6,669.48	7,486.32	7,291.82	194.50	38.490	
6,850.00	6,695.98	6,793.55	6,791.98	29.79	167.59	155.42	1,313.27	-6,669.48	7,513.54	7,317.63	195.91	38.351	
6,900.00	6,734.26	6,831.83	6,830.26	30.11	168.72	156.18	1,313.27	-6,669.48	7,543.94	7,346.69	197.25	38.245	
6,950.00	6,769.98	6,867.55	6,865.98	30.45	169.77	156.51	1,313.27	-6,669.48	7,577.32	7,378.82	198.50	38.172	
7,000.00	6,802.91	6,900.48	6,898.91	30.79	170.74	156.46	1,313.27	-6,669.48	7,613.48	7,413.81	199.66	38.131	
7,050.00	6,832.85	6,930.43	6,928.85	31.15	171.63	156.01	1,313.27	-6,669.48	7,652.19	7,451.47	200.72	38.123 SF	
7,100.00	6,859.62	6,957.19	6,955.62	31.51	172.42	155.08	1,313.27	-6,669.48	7,693.21	7,491.54	201.67	38.147	
7,150.00	6,883.05	6,980.62	6,979.05	31.89	173.11	153.55	1,313.27	-6,669.48	7,736.30	7,533.79	202.51	38.202	
7,200.00	6,902.99	7,000.56	6,998.99	32.28	173.70	151.18	1,313.27	-6,669.48	7,781.18	7,577.95	203.23	38.287	
7,250.00	6,919.32	7,016.89	7,015.32	32.67	174.18	147.50	1,313.27	-6,669.48	7,827.57	7,623.75	203.83	38.403	
7,300.00	6,931.95	7,029.52	7,027.95	33.08	174.56	141.60	1,313.27	-6,669.48	7,875.20	7,670.90	204.30	38.548	
7,350.00	6,940.79	7,038.36	7,036.79	33.49	174.82	131.51	1,313.27	-6,669.48	7,923.75	7,719.11	204.64	38.721	
7,400.00	6,945.79	7,043.36	7,041.79	33.90	174.96	113.19	1,313.27	-6,669.48	7,972.94	7,768.09	204.85	38.921	
7,439.53	6,947.00	7,044.57	7,043.00	34.24	175.00	90.00	1,313.27	-6,669.48	8,012.08	7,807.15	204.93	39.097	
7,500.00	6,947.00	7,044.57	7,043.00	34.75	175.00	90.00	1,313.27	-6,669.48	8,072.10	7,867.12	204.98	39.380	
7,600.00	6,947.00	7,044.57	7,043.00	35.63	175.00	90.00	1,313.27	-6,669.48	8,171.67	7,966.62	205.05	39.853	
7,700.00	6,947.00	7,044.57	7,043.00	36.54	175.00	90.00	1,313.27	-6,669.48	8,271.51	8,066.41	205.09	40.330	
7,800.00	6,947.00	7,044.57	7,043.00	37.47	175.00	90.00	1,313.27	-6,669.48	8,371.48	8,166.36	205.12	40.812	
7,900.00	6,947.00	7,044.57	7,043.00	38.43	175.00	-90.00	1,313.27	-6,669.48	8,471.47	8,266.34	205.13	41.299	
8,000.00	6,947.00	7,044.57	7,043.00	39.41	175.00	-90.00	1,313.27	-6,669.48	8,571.34	8,366.23	205.12	41.788	
8,100.00	6,947.00	7,044.57	7,043.00	40.40	175.00	-90.00	1,313.27	-6,669.48	8,671.00	8,465.91	205.08	42.280	
8,200.00	6,947.00	7,044.57	7,043.00	41.42	175.00	-90.00	1,313.27	-6,669.48	8,770.31	8,565.27	205.04	42.774	
8,300.00	6,947.00	7,044.57	7,043.00	42.44	175.00	-90.00	1,313.27	-6,669.48	8,869.19	8,664.21	204.98	43.269	
8,400.00	6,947.00	7,044.57	7,043.00	43.48	175.00	-90.00	1,313.27	-6,669.48	8,967.51	8,762.61	204.90	43.765	
8,500.00	6,947.00	7,044.57	7,043.00	44.53	175.00	-90.00	1,313.27	-6,669.48	9,065.19	8,860.38	204.81	44.261	
8,600.00	6,947.00	7,044.57	7,043.00	45.58	175.00	-90.00	1,313.27	-6,669.48	9,162.12	8,957.41	204.71	44.756	
8,700.00	6,947.00	7,044.57	7,043.00	46.63	175.00	-90.00	1,313.27	-6,669.48	9,258.22	9,053.62	204.60	45.250	
8,800.00	6,947.00	7,044.57	7,043.00	47.69	175.00	-90.00	1,313.27	-6,669.48	9,353.39	9,148.90	204.49	45.741	
8,841.31	6,947.00	7,044.57	7,043.00	48.13	175.00	-90.00	1,313.27	-6,669.48	9,392.42	9,187.98	204.44	45.943	
8,900.00	6,947.00	7,044.57	7,043.00	48.76	175.00	-90.00	1,313.27	-6,669.48	9,447.75	9,243.39	204.37	46.229	
9,000.00	6,947.00	7,044.57	7,043.00	49.85	175.00	-90.00	1,313.27	-6,669.48	9,542.13	9,337.88	204.26	46.716	
9,100.00	6,947.00	7,044.57	7,043.00	50.97	175.00	-90.00	1,313.27	-6,669.48	9,636.63	9,432.47	204.16	47.202	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

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

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,200.00	6,947.00	7,044.57	7,043.00	52.12	175.00	-90.00	1,313.27	-6,669.48	9,731.23	9,527.17	204.06	47.688	
9,300.00	6,947.00	7,044.57	7,043.00	53.28	175.00	-90.00	1,313.27	-6,669.48	9,825.94	9,621.97	203.97	48.173	
9,400.00	6,947.00	7,044.57	7,043.00	54.48	175.00	-90.00	1,313.27	-6,669.48	9,920.76	9,716.86	203.89	48.657	
9,500.00	6,947.00	7,044.57	7,043.00	55.69	175.00	-90.00	1,313.27	-6,669.48	10,015.67	9,811.85	203.82	49.140	
9,600.00	6,947.00	7,044.57	7,043.00	56.92	175.00	-90.00	1,313.27	-6,669.48	10,110.68	9,906.93	203.75	49.622	
9,700.00	6,947.00	7,044.57	7,043.00	58.17	175.00	-90.00	1,313.27	-6,669.48	10,205.79	10,002.10	203.69	50.103	
9,800.00	6,947.00	7,044.57	7,043.00	59.44	175.00	-90.00	1,313.27	-6,669.48	10,300.99	10,097.35	203.64	50.584	
9,900.00	6,947.00	7,044.57	7,043.00	60.73	175.00	-90.00	1,313.27	-6,669.48	10,396.29	10,192.69	203.59	51.064	
10,000.00	6,947.00	7,044.57	7,043.00	62.03	175.00	-90.00	1,313.27	-6,669.48	10,491.66	10,288.11	203.55	51.543	
10,100.00	6,947.00	7,044.57	7,043.00	63.34	175.00	-90.00	1,313.27	-6,669.48	10,587.13	10,383.61	203.52	52.021	
10,200.00	6,947.00	7,044.57	7,043.00	64.67	175.00	-90.00	1,313.27	-6,669.48	10,682.68	10,479.19	203.48	52.499	
10,300.00	6,947.00	7,044.57	7,043.00	66.01	175.00	-90.00	1,313.27	-6,669.48	10,778.30	10,574.84	203.46	52.975	
10,400.00	6,947.00	7,044.57	7,043.00	67.36	175.00	-90.00	1,313.27	-6,669.48	10,874.01	10,670.57	203.44	53.451	
10,500.00	6,947.00	7,044.57	7,043.00	68.73	175.00	-90.00	1,313.27	-6,669.48	10,969.79	10,766.37	203.42	53.926	
10,600.00	6,947.00	7,044.57	7,043.00	70.10	175.00	-90.00	1,313.27	-6,669.48	11,065.65	10,862.24	203.41	54.400	
10,700.00	6,947.00	7,044.57	7,043.00	71.48	175.00	-90.00	1,313.27	-6,669.48	11,161.58	10,958.18	203.41	54.874	
10,800.00	6,947.00	7,044.57	7,043.00	72.88	175.00	-90.00	1,313.27	-6,669.48	11,257.58	11,054.18	203.40	55.346	
10,900.00	6,947.00	7,044.57	7,043.00	74.28	175.00	-90.00	1,313.27	-6,669.48	11,353.65	11,150.25	203.41	55.818	
11,000.00	6,947.00	7,044.57	7,043.00	75.69	175.00	-90.00	1,313.27	-6,669.48	11,449.79	11,246.38	203.41	56.289	
11,100.00	6,947.00	7,044.57	7,043.00	77.10	175.00	-90.00	1,313.27	-6,669.48	11,546.00	11,342.57	203.42	56.759	
11,200.00	6,947.00	7,044.57	7,043.00	78.53	175.00	-90.00	1,313.27	-6,669.48	11,642.26	11,438.83	203.43	57.228	
11,300.00	6,947.00	7,044.57	7,043.00	79.96	175.00	-90.00	1,313.27	-6,669.48	11,738.59	11,535.14	203.45	57.697	
11,400.00	6,947.00	7,044.57	7,043.00	81.40	175.00	-90.00	1,313.27	-6,669.48	11,834.98	11,631.51	203.47	58.165	
11,500.00	6,947.00	7,044.57	7,043.00	82.84	175.00	-90.00	1,313.27	-6,669.48	11,931.43	11,727.94	203.50	58.632	
11,600.00	6,947.00	7,044.57	7,043.00	84.29	175.00	-90.00	1,313.27	-6,669.48	12,027.94	11,824.42	203.52	59.098	
11,700.00	6,947.00	7,044.57	7,043.00	85.75	175.00	-90.00	1,313.27	-6,669.48	12,124.51	11,920.95	203.55	59.564	
11,800.00	6,947.00	7,044.57	7,043.00	87.21	175.00	-90.00	1,313.27	-6,669.48	12,221.13	12,017.54	203.59	60.029	
11,900.00	6,947.00	7,044.57	7,043.00	88.68	175.00	-90.00	1,313.27	-6,669.48	12,317.80	12,114.18	203.62	60.493	
12,000.00	6,947.00	7,044.57	7,043.00	90.15	175.00	-90.00	1,313.27	-6,669.48	12,414.53	12,210.86	203.66	60.956	
12,100.00	6,947.00	7,044.57	7,043.00	91.62	175.00	-90.00	1,313.27	-6,669.48	12,511.30	12,307.60	203.70	61.419	
12,200.00	6,947.00	7,044.57	7,043.00	93.10	175.00	-90.00	1,313.27	-6,669.48	12,608.13	12,404.38	203.75	61.881	
12,300.00	6,947.00	7,044.57	7,043.00	94.59	175.00	-90.00	1,313.27	-6,669.48	12,705.01	12,501.21	203.80	62.342	
12,400.00	6,947.00	7,044.57	7,043.00	96.07	175.00	-90.00	1,313.27	-6,669.48	12,801.94	12,598.09	203.85	62.802	
12,500.00	6,947.00	7,044.57	7,043.00	97.56	175.00	-90.00	1,313.27	-6,669.48	12,898.91	12,695.01	203.90	63.262	
12,600.00	6,947.00	7,044.57	7,043.00	99.06	175.00	-90.00	1,313.27	-6,669.48	12,995.93	12,791.98	203.95	63.721	
12,700.00	6,947.00	7,044.57	7,043.00	100.56	175.00	-90.00	1,313.27	-6,669.48	13,092.99	12,888.98	204.01	64.179	
12,800.00	6,947.00	7,044.57	7,043.00	102.06	175.00	-90.00	1,313.27	-6,669.48	13,190.10	12,986.03	204.06	64.637	
12,900.00	6,947.00	7,044.57	7,043.00	103.56	175.00	-90.00	1,313.27	-6,669.48	13,287.25	13,083.12	204.12	65.094	
13,000.00	6,947.00	7,044.57	7,043.00	105.07	175.00	-90.00	1,313.27	-6,669.48	13,384.44	13,180.25	204.19	65.550	
13,100.00	6,947.00	7,044.57	7,043.00	106.58	175.00	-90.00	1,313.27	-6,669.48	13,481.67	13,277.42	204.25	66.006	
13,200.00	6,947.00	7,044.57	7,043.00	108.10	175.00	-90.00	1,313.27	-6,669.48	13,578.94	13,374.63	204.32	66.461	
13,300.00	6,947.00	7,044.57	7,043.00	109.61	175.00	-90.00	1,313.27	-6,669.48	13,676.26	13,471.87	204.38	66.915	
13,400.00	6,947.00	7,044.57	7,043.00	111.13	175.00	-90.00	1,313.27	-6,669.48	13,773.61	13,569.16	204.45	67.368	
13,500.00	6,947.00	7,044.57	7,043.00	112.65	175.00	-90.00	1,313.27	-6,669.48	13,871.00	13,666.47	204.52	67.821	
13,600.00	6,947.00	7,044.57	7,043.00	114.17	175.00	-90.00	1,313.27	-6,669.48	13,968.42	13,763.83	204.59	68.274	
13,700.00	6,947.00	7,044.57	7,043.00	115.70	175.00	-90.00	1,313.27	-6,669.48	14,065.88	13,861.22	204.67	68.725	
13,800.00	6,947.00	7,044.57	7,043.00	117.23	175.00	-90.00	1,313.27	-6,669.48	14,163.38	13,958.64	204.74	69.176	
13,900.00	6,947.00	7,044.57	7,043.00	118.76	175.00	-90.00	1,313.27	-6,669.48	14,260.91	14,056.09	204.82	69.627	
14,000.00	6,947.00	7,044.57	7,043.00	120.29	175.00	-90.00	1,313.27	-6,669.48	14,358.48	14,153.58	204.90	70.076	
14,100.00	6,947.00	7,044.57	7,043.00	121.82	175.00	-90.00	1,313.27	-6,669.48	14,456.08	14,251.10	204.98	70.525	
14,200.00	6,947.00	7,044.57	7,043.00	123.36	175.00	-90.00	1,313.27	-6,669.48	14,553.71	14,348.65	205.06	70.974	
14,300.00	6,947.00	7,044.57	7,043.00	124.89	175.00	-90.00	1,313.27	-6,669.48	14,651.37	14,446.23	205.14	71.422	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 520-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Rule Assigned: Warning
14,400.00	6,947.00	7,044.57	7,043.00	126.43	175.00	-90.00	1,313.27	-6,669.48	14,749.07	14,543.85	205.22	71.869	
14,500.00	6,947.00	7,044.57	7,043.00	127.97	175.00	-90.00	1,313.27	-6,669.48	14,846.79	14,641.49	205.31	72.316	
14,600.00	6,947.00	7,044.57	7,043.00	129.51	175.00	-90.00	1,313.27	-6,669.48	14,944.55	14,739.16	205.39	72.762	
14,700.00	6,947.00	7,044.57	7,043.00	131.06	175.00	-90.00	1,313.27	-6,669.48	15,042.33	14,836.86	205.48	73.207	
14,800.00	6,947.00	7,044.57	7,043.00	132.60	175.00	-90.00	1,313.27	-6,669.48	15,140.15	14,934.58	205.56	73.652	
14,900.00	6,947.00	7,044.57	7,043.00	134.15	175.00	-90.00	1,313.27	-6,669.48	15,237.99	15,032.34	205.65	74.096	
15,000.00	6,947.00	7,044.57	7,043.00	135.70	175.00	-90.00	1,313.27	-6,669.48	15,335.86	15,130.12	205.74	74.540	
15,100.00	6,947.00	7,044.57	7,043.00	137.24	175.00	-90.00	1,313.27	-6,669.48	15,433.76	15,227.93	205.83	74.983	
15,200.00	6,947.00	7,044.57	7,043.00	138.79	175.00	-90.00	1,313.27	-6,669.48	15,531.68	15,325.76	205.92	75.425	
15,300.00	6,947.00	7,044.57	7,043.00	140.35	175.00	-90.00	1,313.27	-6,669.48	15,629.63	15,423.62	206.01	75.867	
15,400.00	6,947.00	7,044.57	7,043.00	141.90	175.00	-90.00	1,313.27	-6,669.48	15,727.61	15,521.50	206.11	76.308	
15,500.00	6,947.00	7,044.57	7,043.00	143.45	175.00	-90.00	1,313.27	-6,669.48	15,825.61	15,619.41	206.20	76.749	
15,600.00	6,947.00	7,044.57	7,043.00	145.01	175.00	-90.00	1,313.27	-6,669.48	15,923.64	15,717.34	206.29	77.189	
15,700.00	6,947.00	7,044.57	7,043.00	146.56	175.00	-90.00	1,313.27	-6,669.48	16,021.69	15,815.30	206.39	77.629	
15,800.00	6,947.00	7,044.57	7,043.00	148.12	175.00	-90.00	1,313.27	-6,669.48	16,119.76	15,913.28	206.49	78.067	
15,900.00	6,947.00	7,044.57	7,043.00	149.68	175.00	-90.00	1,313.27	-6,669.48	16,217.86	16,011.28	206.58	78.506	
16,000.00	6,947.00	7,044.57	7,043.00	151.23	175.00	-90.00	1,313.27	-6,669.48	16,315.98	16,109.30	206.68	78.944	
16,100.00	6,947.00	7,044.57	7,043.00	152.79	175.00	-90.00	1,313.27	-6,669.48	16,414.13	16,207.35	206.78	79.381	
16,200.00	6,947.00	7,044.57	7,043.00	154.36	175.00	-90.00	1,313.27	-6,669.48	16,512.29	16,305.42	206.88	79.818	
16,300.00	6,947.00	7,044.57	7,043.00	155.92	175.00	-90.00	1,313.27	-6,669.48	16,610.48	16,403.51	206.97	80.254	
16,400.00	6,947.00	7,044.57	7,043.00	157.48	175.00	-90.00	1,313.27	-6,669.48	16,708.69	16,501.62	207.07	80.689	
16,500.00	6,947.00	7,044.57	7,043.00	159.04	175.00	-90.00	1,313.27	-6,669.48	16,806.92	16,599.75	207.17	81.124	
16,600.00	6,947.00	7,044.57	7,043.00	160.61	175.00	-90.00	1,313.27	-6,669.48	16,905.18	16,697.90	207.28	81.559	
16,700.00	6,947.00	7,044.57	7,043.00	162.17	175.00	-90.00	1,313.27	-6,669.48	17,003.45	16,796.07	207.38	81.993	
16,800.00	6,947.00	7,044.57	7,043.00	163.74	175.00	-90.00	1,313.27	-6,669.48	17,101.74	16,894.26	207.48	82.426	
16,900.00	6,947.00	7,044.57	7,043.00	165.30	175.00	-90.00	1,313.27	-6,669.48	17,200.05	16,992.47	207.58	82.859	
17,000.00	6,947.00	7,044.57	7,043.00	166.87	175.00	-90.00	1,313.27	-6,669.48	17,298.38	17,090.70	207.69	83.291	
17,100.00	6,947.00	7,044.57	7,043.00	168.44	175.00	-90.00	1,313.27	-6,669.48	17,396.73	17,188.94	207.79	83.723	
17,200.00	6,947.00	7,044.57	7,043.00	170.01	175.00	-90.00	1,313.27	-6,669.48	17,495.10	17,287.21	207.89	84.154	
17,300.00	6,947.00	7,044.57	7,043.00	171.57	175.00	-90.00	1,313.27	-6,669.48	17,593.49	17,385.49	208.00	84.585	
17,400.00	6,947.00	7,044.57	7,043.00	173.14	175.00	-90.00	1,313.27	-6,669.48	17,691.89	17,483.79	208.10	85.015	
17,500.00	6,947.00	7,044.57	7,043.00	174.71	175.00	-90.00	1,313.27	-6,669.48	17,790.32	17,582.11	208.21	85.445	
17,600.00	6,947.00	7,044.57	7,043.00	176.28	175.00	-90.00	1,313.27	-6,669.48	17,888.76	17,680.44	208.31	85.874	
17,700.00	6,947.00	7,044.57	7,043.00	177.86	175.00	-90.00	1,313.27	-6,669.48	17,987.22	17,778.79	208.42	86.302	
17,800.00	6,947.00	7,044.57	7,043.00	179.43	175.00	-90.00	1,313.27	-6,669.48	18,085.69	17,877.16	208.53	86.730	
17,900.00	6,947.00	7,044.57	7,043.00	181.00	175.00	-90.00	1,313.27	-6,669.48	18,184.18	17,975.55	208.64	87.158	
18,000.00	6,947.00	7,044.57	7,043.00	182.57	175.00	-90.00	1,313.27	-6,669.48	18,282.69	18,073.95	208.74	87.585	
18,100.00	6,947.00	7,044.57	7,043.00	184.15	175.00	-90.00	1,313.27	-6,669.48	18,381.21	18,172.36	208.85	88.011	
18,200.00	6,947.00	7,044.57	7,043.00	185.72	175.00	-90.00	1,313.27	-6,669.48	18,479.75	18,270.79	208.96	88.437	
18,300.00	6,947.00	7,044.57	7,043.00	187.30	175.00	-90.00	1,313.27	-6,669.48	18,578.31	18,369.24	209.07	88.862	
18,400.00	6,947.00	7,044.57	7,043.00	188.87	175.00	-90.00	1,313.27	-6,669.48	18,676.88	18,467.70	209.18	89.287	
18,500.00	6,947.00	7,044.57	7,043.00	190.45	175.00	-90.00	1,313.27	-6,669.48	18,775.47	18,566.18	209.29	89.711	
18,600.00	6,947.00	7,044.57	7,043.00	192.02	175.00	-90.00	1,313.27	-6,669.48	18,874.07	18,664.67	209.40	90.135	
18,700.00	6,947.00	7,044.57	7,043.00	193.60	175.00	-90.00	1,313.27	-6,669.48	18,972.68	18,763.17	209.51	90.558	
18,800.00	6,947.00	7,044.57	7,043.00	195.18	175.00	-90.00	1,313.27	-6,669.48	19,071.31	18,861.69	209.62	90.981	
18,900.00	6,947.00	7,044.57	7,043.00	196.75	175.00	-90.00	1,313.27	-6,669.48	19,169.96	18,960.23	209.73	91.403	
19,000.00	6,947.00	7,044.57	7,043.00	198.33	175.00	-90.00	1,313.27	-6,669.48	19,268.61	19,058.77	209.84	91.825	
19,100.00	6,947.00	7,044.57	7,043.00	199.91	175.00	-90.00	1,313.27	-6,669.48	19,367.29	19,157.33	209.95	92.246	
19,200.00	6,947.00	7,044.57	7,043.00	201.49	175.00	-90.00	1,313.27	-6,669.48	19,465.97	19,255.91	210.06	92.667	
19,300.00	6,947.00	7,044.57	7,043.00	203.07	175.00	-90.00	1,313.27	-6,669.48	19,564.67	19,354.49	210.18	93.087	
19,400.00	6,947.00	7,044.57	7,043.00	204.65	175.00	-90.00	1,313.27	-6,669.48	19,663.38	19,453.09	210.29	93.507	
19,500.00	6,947.00	7,044.57	7,043.00	206.23	175.00	-90.00	1,313.27	-6,669.48	19,762.11	19,551.70	210.40	93.926	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 520-A027Ua_INC-ONLY

Rule Assigned:

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
19,600.00	6,947.00	7,044.57	7,043.00	207.81	175.00	-90.00	1,313.27	-6,669.48	19,860.84	19,650.33	210.51	94.344	
19,700.00	6,947.00	7,044.57	7,043.00	209.39	175.00	-90.00	1,313.27	-6,669.48	19,959.59	19,748.97	210.63	94.762	
19,800.00	6,947.00	7,044.57	7,043.00	210.97	175.00	-90.00	1,313.27	-6,669.48	20,058.36	19,847.61	210.74	95.180	
19,900.00	6,947.00	7,044.57	7,043.00	212.55	175.00	-90.00	1,313.27	-6,669.48	20,157.13	19,946.28	210.86	95.597	
20,000.00	6,947.00	7,044.57	7,043.00	214.13	175.00	-90.00	1,313.27	-6,669.48	20,255.92	20,044.95	210.97	96.014	
20,100.00	6,947.00	7,044.57	7,043.00	215.71	175.00	-90.00	1,313.27	-6,669.48	20,354.72	20,143.63	211.08	96.430	
20,200.00	6,947.00	7,044.57	7,043.00	217.30	175.00	-90.00	1,313.27	-6,669.48	20,453.53	20,242.33	211.20	96.845	
20,300.00	6,947.00	7,044.57	7,043.00	218.88	175.00	-90.00	1,313.27	-6,669.48	20,552.35	20,341.03	211.31	97.260	
20,400.00	6,947.00	7,044.57	7,043.00	220.46	175.00	-90.00	1,313.27	-6,669.48	20,651.18	20,439.75	211.43	97.675	
20,500.00	6,947.00	7,044.57	7,043.00	222.04	175.00	-90.00	1,313.27	-6,669.48	20,750.03	20,538.48	211.54	98.089	
20,600.00	6,947.00	7,044.57	7,043.00	223.63	175.00	-90.00	1,313.27	-6,669.48	20,848.88	20,637.22	211.66	98.502	
20,700.00	6,947.00	7,044.57	7,043.00	225.21	175.00	-90.00	1,313.27	-6,669.48	20,947.75	20,735.97	211.77	98.915	
20,800.00	6,947.00	7,044.57	7,043.00	226.80	175.00	-90.00	1,313.27	-6,669.48	21,046.62	20,834.73	211.89	99.328	
20,900.00	6,947.00	7,044.57	7,043.00	228.38	175.00	-90.00	1,313.27	-6,669.48	21,145.51	20,933.50	212.01	99.740	
21,000.00	6,947.00	7,044.57	7,043.00	229.97	175.00	-90.00	1,313.27	-6,669.48	21,244.41	21,032.29	212.12	100.151	
21,032.01	6,947.00	7,044.57	7,043.00	230.47	175.00	-90.00	1,313.27	-6,669.48	21,276.07	21,063.91	212.16	100.283	
21,032.99	6,947.00	7,044.57	7,043.00	230.51	175.00	-90.00	1,313.27	-6,669.48	21,277.03	21,060.67	216.36	98.341	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 327-APC_ISCWSA REV 2 MWD

Rule Assigned:

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	-80.12	832.31	-4,780.24	4,852.22				
100.00	100.00	85.04	85.04	0.25	0.10	-80.12	832.54	-4,780.12	4,852.09	4,851.74	0.35	N/A	
200.00	200.00	1,446.00	1,387.85	0.61	6.24	-77.07	1,045.54	-4,555.28	4,828.28	4,822.03	6.25	772.954	
300.00	300.00	1,494.15	1,431.70	0.97	6.60	-76.87	1,059.00	-4,540.66	4,803.62	4,796.78	6.84	702.739	
400.00	400.00	1,606.04	1,533.92	1.33	7.46	-76.40	1,090.05	-4,507.39	4,779.70	4,771.81	7.89	605.428	
500.00	500.00	1,727.73	1,644.58	1.68	8.40	-75.88	1,124.24	-4,470.05	4,755.08	4,746.05	9.04	526.231	
600.00	599.98	1,776.10	1,688.68	2.03	8.77	119.75	1,137.68	-4,455.41	4,731.90	4,722.21	9.69	488.451	
700.00	699.84	1,888.85	1,791.63	2.36	9.62	120.66	1,169.01	-4,421.78	4,711.21	4,700.45	10.76	437.859	
800.00	799.45	2,000.19	1,892.75	2.71	10.51	121.59	1,200.28	-4,387.21	4,691.36	4,679.49	11.87	395.102	
900.00	898.70	2,076.00	1,961.44	3.06	11.12	122.32	1,222.16	-4,363.78	4,674.06	4,661.28	12.78	365.640	
1,000.00	997.47	2,138.00	2,017.79	3.43	11.60	122.94	1,239.85	-4,344.92	4,659.42	4,645.81	13.61	342.354	
1,100.00	1,095.62	2,237.64	2,108.70	3.82	12.36	123.76	1,267.40	-4,314.85	4,647.24	4,632.54	14.69	316.262	
1,200.00	1,193.44	2,309.51	2,174.02	4.22	12.92	124.23	1,287.91	-4,292.99	4,636.53	4,620.90	15.63	296.563	
1,300.00	1,291.25	2,480.54	2,329.88	4.64	14.24	125.31	1,333.99	-4,239.78	4,625.20	4,607.98	17.22	268.551	
1,400.00	1,389.07	2,530.25	2,375.28	5.06	14.63	125.63	1,347.07	-4,224.32	4,614.56	4,596.53	18.03	255.951	
1,500.00	1,486.88	2,595.23	2,434.48	5.48	15.14	126.05	1,364.85	-4,204.27	4,604.94	4,585.99	18.95	242.976	
1,600.00	1,584.70	2,644.00	2,478.77	5.91	15.53	126.37	1,378.79	-4,189.34	4,596.42	4,576.64	19.78	232.346	
1,700.00	1,682.51	2,675.00	2,507.02	6.35	15.77	126.57	1,387.66	-4,180.18	4,589.36	4,568.88	20.48	224.037	
1,800.00	1,780.33	2,707.00	2,536.45	6.78	16.00	126.78	1,396.57	-4,171.30	4,584.00	4,562.82	21.18	216.405	
1,900.00	1,878.14	2,723.56	2,551.76	7.22	16.12	126.88	1,401.11	-4,166.94	4,580.29	4,558.52	21.77	210.372	
2,000.00	1,975.96	2,738.00	2,565.17	7.66	16.22	126.97	1,405.04	-4,163.29	4,578.37	4,556.03	22.34	204.899	
2,068.75	2,043.20	2,769.00	2,594.12	7.96	16.42	127.16	1,413.28	-4,155.86	4,577.95	4,555.08	22.86	200.254 CC	
2,100.00	2,073.77	2,778.10	2,602.66	8.10	16.48	127.21	1,415.65	-4,153.79	4,578.02	4,554.96	23.06	198.492	
2,200.00	2,171.59	2,939.47	2,756.23	8.54	17.41	128.10	1,451.27	-4,119.57	4,579.33	4,554.92	24.41	187.630	
2,252.82	2,223.25	2,973.90	2,789.09	8.78	17.60	128.28	1,458.15	-4,111.96	4,579.15	4,554.32	24.84	184.378	
2,300.00	2,269.40	2,988.00	2,802.59	8.98	17.68	128.36	1,460.93	-4,108.93	4,579.31	4,554.18	25.13	182.206 ES	
2,400.00	2,367.22	3,040.73	2,853.36	9.43	17.95	128.62	1,470.55	-4,098.42	4,580.66	4,554.81	25.85	177.183	
2,500.00	2,465.03	3,117.58	2,927.69	9.87	18.32	128.99	1,483.46	-4,083.80	4,582.71	4,556.05	26.67	171.854	
2,600.00	2,562.84	3,183.29	2,991.39	10.32	18.64	129.30	1,494.34	-4,071.89	4,585.70	4,558.28	27.42	167.230	
2,700.00	2,660.66	3,252.01	3,058.39	10.77	18.93	129.61	1,504.31	-4,060.35	4,589.44	4,561.28	28.16	162.986	
2,800.00	2,758.47	3,301.00	3,106.36	11.21	19.13	129.82	1,510.76	-4,052.79	4,594.13	4,565.33	28.80	159.519	
2,900.00	2,856.29	3,346.22	3,150.75	11.66	19.30	130.00	1,516.55	-4,046.38	4,600.02	4,570.61	29.42	156.378	
3,000.00	2,954.10	3,415.81	3,219.20	12.11	19.55	130.29	1,525.22	-4,037.31	4,606.95	4,576.84	30.11	153.015	
3,100.00	3,051.92	3,476.50	3,279.18	12.56	19.74	130.51	1,531.35	-4,030.40	4,614.61	4,583.88	30.74	150.137	
3,200.00	3,149.73	3,519.00	3,321.36	13.01	19.85	130.65	1,534.77	-4,026.50	4,623.46	4,592.17	31.28	147.788	
3,300.00	3,247.55	3,550.00	3,352.18	13.45	19.93	130.75	1,537.11	-4,024.14	4,633.65	4,601.86	31.79	145.766	
3,400.00	3,345.36	3,595.26	3,397.24	13.90	20.03	130.89	1,540.35	-4,021.44	4,645.20	4,612.89	32.31	143.755	
3,500.00	3,443.18	3,676.00	3,477.84	14.35	20.15	131.10	1,543.69	-4,018.58	4,657.65	4,624.78	32.87	141.682	
3,600.00	3,540.99	3,748.41	3,550.25	14.80	20.21	131.24	1,543.37	-4,017.86	4,670.45	4,637.09	33.36	140.018	
3,700.00	3,638.81	3,794.25	3,596.09	15.25	20.24	131.32	1,543.17	-4,017.93	4,684.22	4,650.42	33.80	138.579	
3,800.00	3,736.62	3,891.51	3,693.35	15.70	20.32	131.51	1,543.07	-4,018.41	4,698.55	4,664.23	34.32	136.904	
3,900.00	3,834.44	3,988.29	3,790.13	16.15	20.42	131.69	1,542.98	-4,018.92	4,712.94	4,678.09	34.85	135.229	
4,000.00	3,932.25	4,085.07	3,886.91	16.60	20.51	131.87	1,542.87	-4,019.46	4,727.41	4,692.02	35.38	133.608	
4,100.00	4,030.07	4,181.85	3,983.69	17.05	20.61	132.05	1,542.76	-4,020.02	4,741.94	4,706.02	35.91	132.038	
4,200.00	4,127.88	4,278.63	4,080.46	17.50	20.71	132.23	1,542.65	-4,020.60	4,756.54	4,720.09	36.44	130.518	
4,300.00	4,225.70	4,375.41	4,177.24	17.96	20.80	132.40	1,542.53	-4,021.22	4,771.21	4,734.23	36.97	129.044	
4,400.00	4,323.51	4,472.19	4,274.01	18.41	20.90	132.58	1,542.41	-4,021.86	4,785.94	4,748.44	37.50	127.616	
4,500.00	4,421.33	4,568.96	4,370.79	18.86	21.00	132.75	1,542.28	-4,022.52	4,800.74	4,762.71	38.03	126.230	
4,600.00	4,519.14	4,665.74	4,467.56	19.31	21.09	132.92	1,542.15	-4,023.21	4,815.61	4,777.05	38.56	124.885	
4,700.00	4,616.95	4,762.51	4,564.33	19.76	21.19	133.09	1,542.01	-4,023.93	4,830.54	4,791.45	39.09	123.580	
4,800.00	4,714.77	4,859.28	4,661.10	20.21	21.29	133.26	1,541.87	-4,024.68	4,845.54	4,805.92	39.62	122.312	
4,900.00	4,812.58	4,956.05	4,757.86	20.66	21.39	133.43	1,541.72	-4,025.45	4,860.60	4,820.45	40.14	121.081	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 327-APC_ISCWSA REV 2 MWD

Rule Assigned:

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,000.00	4,910.40	5,052.82	4,854.63	21.11	21.48	133.60	1,541.57	-4,026.24	4,875.72	4,835.05	40.67	119.884	
5,100.00	5,008.21	5,149.59	4,951.39	21.57	21.58	133.77	1,541.41	-4,027.07	4,890.91	4,849.71	41.20	118.721	
5,200.00	5,106.03	5,246.35	5,048.16	22.02	21.68	133.93	1,541.25	-4,027.92	4,906.16	4,864.43	41.72	117.590	
5,300.00	5,203.84	5,343.12	5,144.92	22.47	21.78	134.10	1,541.08	-4,028.79	4,921.47	4,879.22	42.25	116.489	
5,400.00	5,301.66	5,439.88	5,241.68	22.92	21.88	134.26	1,540.91	-4,029.70	4,936.84	4,894.07	42.77	115.418	
5,500.00	5,399.47	5,536.65	5,338.43	23.37	21.98	134.42	1,540.73	-4,030.62	4,952.27	4,908.97	43.30	114.376	
5,600.00	5,497.29	5,633.41	5,435.19	23.82	22.08	134.58	1,540.54	-4,031.58	4,967.76	4,923.94	43.82	113.360	
5,700.00	5,595.10	5,730.17	5,531.94	24.28	22.18	134.74	1,540.36	-4,032.56	4,983.32	4,938.97	44.35	112.371	
5,800.00	5,692.92	5,826.92	5,628.70	24.73	22.28	134.90	1,540.16	-4,033.57	4,998.93	4,954.06	44.87	111.408	
5,900.00	5,790.73	5,923.68	5,725.45	25.18	22.38	135.05	1,539.96	-4,034.60	5,014.60	4,969.20	45.39	110.469	
6,000.00	5,888.55	6,020.44	5,822.20	25.63	22.48	135.21	1,539.76	-4,035.66	5,030.33	4,984.41	45.92	109.553	
6,100.00	5,986.36	6,117.19	5,918.95	26.08	22.58	135.36	1,539.55	-4,036.75	5,046.11	4,999.67	46.44	108.660	
6,200.00	6,084.18	6,213.94	6,015.69	26.54	22.68	135.52	1,539.34	-4,037.86	5,061.96	5,014.99	46.96	107.789	
6,300.00	6,181.99	6,310.70	6,112.44	26.99	22.78	135.67	1,539.12	-4,039.00	5,077.86	5,030.37	47.48	106.939	
6,400.00	6,279.81	6,407.45	6,209.18	27.44	22.88	135.82	1,538.90	-4,040.16	5,093.81	5,045.81	48.01	106.110	
6,500.00	6,377.62	6,504.19	6,305.92	27.89	22.99	135.97	1,538.67	-4,041.35	5,109.82	5,061.30	48.53	105.300	
6,530.62	6,407.57	6,533.82	6,335.54	28.03	23.02	136.02	1,538.60	-4,041.72	5,114.74	5,066.05	48.69	105.056	
6,550.00	6,426.48	6,552.52	6,354.24	28.12	23.04	141.54	1,538.55	-4,041.96	5,118.14	5,069.35	48.79	104.907	
6,600.00	6,474.77	6,600.24	6,401.96	28.36	23.09	151.72	1,538.44	-4,042.56	5,129.59	5,080.54	49.05	104.577	
6,650.00	6,522.09	6,646.97	6,448.68	28.62	23.14	158.21	1,538.32	-4,043.16	5,144.83	5,095.51	49.31	104.329	
6,700.00	6,568.15	6,692.41	6,494.12	28.89	23.19	162.63	1,538.21	-4,043.74	5,163.75	5,114.18	49.57	104.165	
6,750.00	6,612.66	6,736.28	6,537.99	29.18	23.23	165.83	1,538.10	-4,044.31	5,186.25	5,136.43	49.83	104.089 SF	
6,800.00	6,655.36	6,778.31	6,580.01	29.48	23.28	168.27	1,537.99	-4,044.87	5,212.19	5,162.12	50.07	104.101	
6,850.00	6,695.98	6,818.24	6,619.94	29.79	23.32	170.23	1,537.89	-4,045.40	5,241.39	5,191.09	50.30	104.202	
6,900.00	6,734.26	6,855.83	6,657.53	30.11	23.36	171.88	1,537.79	-4,045.90	5,273.68	5,223.17	50.52	104.392	
6,950.00	6,769.98	6,890.84	6,692.53	30.45	23.40	173.34	1,537.70	-4,046.37	5,308.86	5,258.14	50.72	104.670	
7,000.00	6,802.91	6,923.06	6,724.75	30.79	23.43	174.71	1,537.62	-4,046.81	5,346.71	5,295.81	50.90	105.035	
7,050.00	6,832.85	6,952.28	6,753.97	31.15	23.46	176.06	1,537.54	-4,047.21	5,387.00	5,335.93	51.07	105.484	
7,100.00	6,859.62	6,978.33	6,780.01	31.51	23.49	177.51	1,537.47	-4,047.57	5,429.47	5,378.26	51.21	106.016	
7,150.00	6,883.05	7,001.05	6,802.73	31.89	23.51	179.19	1,537.41	-4,047.88	5,473.86	5,422.53	51.34	106.628	
7,200.00	6,902.99	7,020.29	6,821.97	32.28	23.53	-178.66	1,537.36	-4,048.15	5,519.90	5,468.47	51.44	107.314	
7,250.00	6,919.32	7,035.95	6,837.63	32.67	23.55	-175.59	1,537.32	-4,048.36	5,567.31	5,515.79	51.51	108.072	
7,300.00	6,931.95	7,047.92	6,849.60	33.08	23.56	-170.53	1,537.29	-4,048.53	5,615.78	5,564.21	51.57	108.895	
7,350.00	6,940.79	7,056.13	6,857.81	33.49	23.57	-160.18	1,537.27	-4,048.65	5,665.03	5,613.43	51.61	109.777	
7,400.00	6,945.79	7,060.53	6,862.21	33.90	23.58	-131.31	1,537.25	-4,048.71	5,714.75	5,663.13	51.62	110.710	
7,439.53	6,947.00	7,061.30	6,862.98	34.24	23.58	-81.13	1,537.25	-4,048.72	5,754.19	5,702.58	51.62	111.480	
7,500.00	6,947.00	7,060.63	6,862.31	34.75	23.58	-83.17	1,537.25	-4,048.71	5,814.47	5,762.87	51.60	112.681	
7,600.00	6,947.00	7,059.51	6,861.19	35.63	23.58	-85.03	1,537.26	-4,048.69	5,913.93	5,862.36	51.56	114.691	
7,700.00	6,947.00	7,058.36	6,860.03	36.54	23.57	-86.07	1,537.26	-4,048.68	6,012.98	5,961.47	51.51	116.724	
7,800.00	6,947.00	7,057.17	6,858.85	37.47	23.57	-86.74	1,537.26	-4,048.66	6,111.55	6,060.09	51.45	118.777	
7,900.00	6,947.00	7,055.97	6,857.65	38.43	23.57	-87.20	1,537.27	-4,048.64	6,209.52	6,158.14	51.38	120.846	
8,000.00	6,947.00	7,054.74	6,856.42	39.41	23.57	-87.54	1,537.27	-4,048.63	6,306.83	6,255.52	51.31	122.927	
8,100.00	6,947.00	7,053.49	6,855.16	40.40	23.57	-87.80	1,537.27	-4,048.61	6,403.37	6,352.15	51.22	125.016	
8,200.00	6,947.00	7,052.21	6,853.89	41.42	23.57	-88.00	1,537.28	-4,048.59	6,499.06	6,447.93	51.13	127.109	
8,300.00	6,947.00	7,050.92	6,852.60	42.44	23.57	-88.16	1,537.28	-4,048.57	6,593.84	6,542.81	51.04	129.200	
8,400.00	6,947.00	7,049.61	6,851.29	43.48	23.56	-88.30	1,537.28	-4,048.56	6,687.63	6,636.69	50.94	131.284	
8,500.00	6,947.00	7,048.28	6,849.96	44.53	23.56	-88.41	1,537.29	-4,048.54	6,780.35	6,729.50	50.84	133.358	
8,600.00	6,947.00	7,046.94	6,848.62	45.58	23.56	-88.50	1,537.29	-4,048.52	6,871.94	6,821.19	50.75	135.414	
8,700.00	6,947.00	7,045.59	6,847.27	46.63	23.56	-88.59	1,537.29	-4,048.50	6,962.33	6,911.67	50.65	137.448	
8,800.00	6,947.00	7,044.23	6,845.90	47.69	23.56	-88.66	1,537.30	-4,048.48	7,051.46	7,000.90	50.56	139.455	
8,841.31	6,947.00	7,043.66	6,845.34	48.13	23.56	-88.68	1,537.30	-4,048.47	7,087.90	7,037.38	50.53	140.277	
8,900.00	6,947.00	7,042.85	6,844.53	48.76	23.56	-88.67	1,537.30	-4,048.46	7,139.57	7,089.09	50.48	141.432	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

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

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,000.00	6,947.00	7,041.48	6,843.16	49.85	23.56	-88.64	1,537.31	-4,048.44	7,227.84	7,177.43	50.41	143.380	
9,100.00	6,947.00	7,040.11	6,841.79	50.97	23.55	-88.62	1,537.31	-4,048.42	7,316.42	7,266.07	50.35	145.308	
9,200.00	6,947.00	7,038.74	6,840.42	52.12	23.55	-88.60	1,537.31	-4,048.40	7,405.28	7,354.98	50.30	147.216	
9,300.00	6,947.00	7,037.37	6,839.05	53.28	23.55	-88.57	1,537.32	-4,048.38	7,494.43	7,444.17	50.26	149.105	
9,400.00	6,947.00	7,036.00	6,837.68	54.48	23.55	-88.55	1,537.32	-4,048.37	7,583.85	7,533.62	50.23	150.976	
9,500.00	6,947.00	7,034.63	6,836.31	55.69	23.55	-88.53	1,537.32	-4,048.35	7,673.53	7,623.32	50.21	152.827	
9,600.00	6,947.00	7,033.26	6,834.94	56.92	23.55	-88.51	1,537.33	-4,048.33	7,763.46	7,713.26	50.20	154.660	
9,700.00	6,947.00	7,031.90	6,833.58	58.17	23.55	-88.48	1,537.33	-4,048.31	7,853.63	7,803.44	50.19	156.476	
9,800.00	6,947.00	7,030.53	6,832.21	59.44	23.54	-88.46	1,537.34	-4,048.29	7,944.04	7,893.85	50.19	158.273	
9,900.00	6,947.00	7,029.17	6,830.84	60.73	23.54	-88.44	1,537.34	-4,048.27	8,034.68	7,984.48	50.20	160.054	
10,000.00	6,947.00	7,027.80	6,829.48	62.03	23.54	-88.41	1,537.34	-4,048.25	8,125.53	8,075.32	50.21	161.818	
10,100.00	6,947.00	7,026.44	6,828.12	63.34	23.54	-88.39	1,537.35	-4,048.23	8,216.60	8,166.36	50.23	163.565	
10,200.00	6,947.00	7,025.07	6,826.75	64.67	23.54	-88.37	1,537.35	-4,048.21	8,307.87	8,257.61	50.26	165.297	
10,300.00	6,947.00	7,023.71	6,825.39	66.01	23.54	-88.34	1,537.35	-4,048.19	8,399.34	8,349.05	50.29	167.013	
10,400.00	6,947.00	7,022.35	6,824.03	67.36	23.54	-88.32	1,537.36	-4,048.18	8,491.01	8,440.68	50.33	168.714	
10,500.00	6,947.00	7,020.99	6,822.67	68.73	23.53	-88.30	1,537.36	-4,048.16	8,582.86	8,532.49	50.37	170.400	
10,600.00	6,947.00	7,019.63	6,821.31	70.10	23.53	-88.27	1,537.36	-4,048.14	8,674.88	8,624.47	50.41	172.073	
10,700.00	6,947.00	7,018.27	6,819.95	71.48	23.53	-88.25	1,537.37	-4,048.12	8,767.09	8,716.62	50.46	173.731	
10,800.00	6,947.00	7,016.91	6,818.59	72.88	23.53	-88.23	1,537.37	-4,048.10	8,859.46	8,808.94	50.52	175.376	
10,900.00	6,947.00	7,015.55	6,817.23	74.28	23.53	-88.20	1,537.38	-4,048.08	8,952.00	8,901.42	50.57	177.008	
11,000.00	6,947.00	7,014.19	6,815.88	75.69	23.53	-88.18	1,537.38	-4,048.06	9,044.69	8,994.06	50.63	178.628	
11,100.00	6,947.00	7,012.84	6,814.52	77.10	23.53	-88.16	1,537.38	-4,048.04	9,137.54	9,086.84	50.70	180.236	
11,200.00	6,947.00	7,011.48	6,813.16	78.53	23.52	-88.14	1,537.39	-4,048.02	9,230.54	9,179.77	50.76	181.831	
11,300.00	6,947.00	7,010.13	6,811.81	79.96	23.52	-88.11	1,537.39	-4,048.01	9,323.68	9,272.85	50.83	183.416	
11,400.00	6,947.00	7,008.77	6,810.45	81.40	23.52	-88.09	1,537.39	-4,047.99	9,416.96	9,366.06	50.91	184.989	
11,500.00	6,947.00	7,007.42	6,809.10	82.84	23.52	-88.07	1,537.40	-4,047.97	9,510.38	9,459.40	50.98	186.551	
11,600.00	6,947.00	7,006.07	6,807.75	84.29	23.52	-88.04	1,537.40	-4,047.95	9,603.94	9,552.88	51.06	188.103	
11,700.00	6,947.00	7,004.72	6,806.40	85.75	23.52	-88.02	1,537.40	-4,047.93	9,697.62	9,646.48	51.14	189.645	
11,800.00	6,947.00	7,003.36	6,805.05	87.21	23.52	-88.00	1,537.41	-4,047.91	9,791.42	9,740.21	51.22	191.176	
11,900.00	6,947.00	7,002.01	6,803.70	88.68	23.51	-87.98	1,537.41	-4,047.89	9,885.35	9,834.05	51.30	192.699	
12,000.00	6,947.00	7,000.66	6,802.35	90.15	23.51	-87.95	1,537.41	-4,047.87	9,979.39	9,928.01	51.38	194.212	
12,100.00	6,947.00	6,999.31	6,801.00	91.62	23.51	-87.93	1,537.42	-4,047.86	10,073.55	10,022.08	51.47	195.716	
12,200.00	6,947.00	6,997.97	6,799.65	93.10	23.51	-87.91	1,537.42	-4,047.84	10,167.82	10,116.26	51.56	197.211	
12,300.00	6,947.00	6,996.62	6,798.30	94.59	23.51	-87.88	1,537.43	-4,047.82	10,262.20	10,210.55	51.65	198.697	
12,400.00	6,947.00	6,995.27	6,796.95	96.07	23.51	-87.86	1,537.43	-4,047.80	10,356.68	10,304.95	51.74	200.176	
12,500.00	6,947.00	6,993.93	6,795.61	97.56	23.51	-87.84	1,537.43	-4,047.78	10,451.27	10,399.44	51.83	201.646	
12,600.00	6,947.00	6,992.58	6,794.26	99.06	23.50	-87.82	1,537.44	-4,047.76	10,545.96	10,494.03	51.92	203.108	
12,700.00	6,947.00	6,991.24	6,792.92	100.56	23.50	-87.79	1,537.44	-4,047.74	10,640.74	10,588.72	52.02	204.563	
12,800.00	6,947.00	6,989.89	6,791.57	102.06	23.50	-87.77	1,537.44	-4,047.73	10,735.62	10,683.50	52.11	206.010	
12,900.00	6,947.00	6,988.55	6,790.23	103.56	23.50	-87.75	1,537.45	-4,047.71	10,830.59	10,778.38	52.21	207.449	
13,000.00	6,947.00	6,987.21	6,788.89	105.07	23.50	-87.72	1,537.45	-4,047.69	10,925.65	10,873.34	52.31	208.882	
13,100.00	6,947.00	6,985.86	6,787.55	106.58	23.50	-87.70	1,537.45	-4,047.67	11,020.79	10,968.39	52.40	210.307	
13,200.00	6,947.00	6,984.52	6,786.21	108.10	23.50	-87.68	1,537.46	-4,047.65	11,116.02	11,063.52	52.50	211.726	
13,300.00	6,947.00	6,983.18	6,784.87	109.61	23.49	-87.66	1,537.46	-4,047.63	11,211.34	11,158.74	52.60	213.138	
13,400.00	6,947.00	6,981.84	6,783.53	111.13	23.49	-87.63	1,537.46	-4,047.61	11,306.73	11,254.03	52.70	214.543	
13,500.00	6,947.00	6,980.50	6,782.19	112.65	23.49	-87.61	1,537.47	-4,047.60	11,402.21	11,349.40	52.80	215.942	
13,600.00	6,947.00	6,979.17	6,780.85	114.17	23.49	-87.59	1,537.47	-4,047.58	11,497.76	11,444.85	52.90	217.335	
13,700.00	6,947.00	6,977.83	6,779.51	115.70	23.49	-87.57	1,537.48	-4,047.56	11,593.38	11,540.38	53.01	218.721	
13,800.00	6,947.00	6,976.49	6,778.18	117.23	23.49	-87.54	1,537.48	-4,047.54	11,689.08	11,635.97	53.11	220.101	
13,900.00	6,947.00	6,975.16	6,776.84	118.76	23.49	-87.52	1,537.48	-4,047.52	11,784.85	11,731.64	53.21	221.476	
14,000.00	6,947.00	6,973.82	6,775.51	120.29	23.48	-87.50	1,537.49	-4,047.50	11,880.69	11,827.38	53.31	222.844	
14,100.00	6,947.00	6,972.49	6,774.17	121.82	23.48	-87.47	1,537.49	-4,047.49	11,976.60	11,923.18	53.42	224.207	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 327-APC_ISCWSA REV 2 MWD

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,200.00	6,947.00	6,971.15	6,772.84	123.36	23.48	-87.45	1,537.49	-4,047.47	12,072.57	12,019.05	53.52	225.563	
14,300.00	6,947.00	6,969.82	6,771.51	124.89	23.48	-87.43	1,537.50	-4,047.45	12,168.61	12,114.98	53.63	226.915	
14,400.00	6,947.00	6,968.49	6,770.17	126.43	23.48	-87.41	1,537.50	-4,047.43	12,264.71	12,210.98	53.73	228.260	
14,500.00	6,947.00	6,967.16	6,768.84	127.97	23.48	-87.38	1,537.50	-4,047.41	12,360.87	12,307.04	53.84	229.601	
14,600.00	6,947.00	6,965.83	6,767.51	129.51	23.48	-87.36	1,537.51	-4,047.39	12,457.10	12,403.16	53.94	230.936	
14,700.00	6,947.00	6,964.50	6,766.18	131.06	23.47	-87.34	1,537.51	-4,047.38	12,553.38	12,499.33	54.05	232.265	
14,800.00	6,947.00	6,963.17	6,764.85	132.60	23.47	-87.32	1,537.51	-4,047.36	12,649.72	12,595.57	54.15	233.590	
14,900.00	6,947.00	6,961.84	6,763.52	134.15	23.47	-87.29	1,537.52	-4,047.34	12,746.12	12,691.86	54.26	234.909	
15,000.00	6,947.00	6,960.51	6,762.20	135.70	23.47	-87.27	1,537.52	-4,047.32	12,842.57	12,788.20	54.37	236.223	
15,100.00	6,947.00	6,959.18	6,760.87	137.24	23.47	-87.25	1,537.52	-4,047.30	12,939.07	12,884.60	54.47	237.532	
15,200.00	6,947.00	6,957.86	6,759.54	138.79	23.47	-87.23	1,537.53	-4,047.29	13,035.63	12,981.05	54.58	238.836	
15,300.00	6,947.00	6,956.53	6,758.22	140.35	23.47	-87.20	1,537.53	-4,047.27	13,132.24	13,077.55	54.69	240.135	
15,400.00	6,947.00	6,955.21	6,756.89	141.90	23.46	-87.18	1,537.54	-4,047.25	13,228.90	13,174.10	54.79	241.429	
15,500.00	6,947.00	6,953.88	6,755.57	143.45	23.46	-87.16	1,537.54	-4,047.23	13,325.60	13,270.70	54.90	242.718	
15,600.00	6,947.00	6,952.56	6,754.24	145.01	23.46	-87.14	1,537.54	-4,047.21	13,422.36	13,367.35	55.01	244.003	
15,700.00	6,947.00	6,951.24	6,752.92	146.56	23.46	-87.11	1,537.55	-4,047.19	13,519.16	13,464.05	55.12	245.282	
15,800.00	6,947.00	6,949.91	6,751.60	148.12	23.46	-87.09	1,537.55	-4,047.18	13,616.01	13,560.79	55.22	246.557	
15,900.00	6,947.00	6,948.59	6,750.28	149.68	23.46	-87.07	1,537.55	-4,047.16	13,712.91	13,657.58	55.33	247.827	
16,000.00	6,947.00	6,947.27	6,748.96	151.23	23.46	-87.05	1,537.56	-4,047.14	13,809.85	13,754.41	55.44	249.093	
16,100.00	6,947.00	6,945.95	6,747.64	152.79	23.45	-87.03	1,537.56	-4,047.12	13,906.83	13,851.28	55.55	250.354	
16,200.00	6,947.00	6,944.63	6,746.32	154.36	23.45	-87.00	1,537.56	-4,047.10	14,003.85	13,948.20	55.66	251.610	
16,300.00	6,947.00	6,943.31	6,745.00	155.92	23.45	-86.98	1,537.57	-4,047.09	14,100.92	14,045.15	55.77	252.862	
16,400.00	6,947.00	6,941.99	6,743.68	157.48	23.45	-86.96	1,537.57	-4,047.07	14,198.02	14,142.15	55.87	254.109	
16,500.00	6,947.00	6,940.68	6,742.37	159.04	23.45	-86.94	1,537.57	-4,047.05	14,295.17	14,239.19	55.98	255.351	
16,600.00	6,947.00	6,939.36	6,741.05	160.61	23.45	-86.91	1,537.58	-4,047.03	14,392.36	14,336.26	56.09	256.590	
16,700.00	6,947.00	6,938.05	6,739.73	162.17	23.45	-86.89	1,537.58	-4,047.01	14,489.58	14,433.38	56.20	257.823	
16,800.00	6,947.00	6,936.73	6,738.42	163.74	23.44	-86.87	1,537.58	-4,047.00	14,586.84	14,530.53	56.31	259.052	
16,900.00	6,947.00	6,935.42	6,737.10	165.30	23.44	-86.85	1,537.59	-4,046.98	14,684.14	14,627.72	56.42	260.277	
17,000.00	6,947.00	6,934.10	6,735.79	166.87	23.44	-86.82	1,537.59	-4,046.96	14,781.47	14,724.94	56.53	261.498	
17,100.00	6,947.00	6,932.79	6,734.48	168.44	23.44	-86.80	1,537.59	-4,046.94	14,878.84	14,822.20	56.64	262.714	
17,200.00	6,947.00	6,931.48	6,733.17	170.01	23.44	-86.78	1,537.60	-4,046.92	14,976.24	14,919.50	56.74	263.926	
17,300.00	6,947.00	6,930.17	6,731.86	171.57	23.44	-86.76	1,537.60	-4,046.91	15,073.68	15,016.83	56.85	265.133	
17,400.00	6,947.00	6,928.86	6,730.54	173.14	23.44	-86.74	1,537.60	-4,046.89	15,171.15	15,114.19	56.96	266.336	
17,500.00	6,947.00	6,927.55	6,729.23	174.71	23.43	-86.71	1,537.61	-4,046.87	15,268.65	15,211.58	57.07	267.535	
17,600.00	6,947.00	6,926.24	6,727.93	176.28	23.43	-86.69	1,537.61	-4,046.85	15,366.19	15,309.01	57.18	268.729	
17,700.00	6,947.00	6,924.93	6,726.62	177.86	23.43	-86.67	1,537.61	-4,046.83	15,463.75	15,406.46	57.29	269.919	
17,800.00	6,947.00	6,923.62	6,725.31	179.43	23.43	-86.65	1,537.62	-4,046.82	15,561.35	15,503.95	57.40	271.105	
17,900.00	6,947.00	6,922.31	6,724.00	181.00	23.43	-86.63	1,537.62	-4,046.80	15,658.98	15,601.47	57.51	272.287	
18,000.00	6,947.00	6,921.01	6,722.70	182.57	23.43	-86.60	1,537.62	-4,046.78	15,756.63	15,699.01	57.62	273.465	
18,100.00	6,947.00	6,919.70	6,721.39	184.15	23.43	-86.58	1,537.63	-4,046.76	15,854.32	15,796.59	57.73	274.638	
18,200.00	6,947.00	6,918.39	6,720.08	185.72	23.43	-86.56	1,537.63	-4,046.75	15,952.03	15,894.20	57.84	275.807	
18,300.00	6,947.00	6,917.09	6,718.78	187.30	23.42	-86.54	1,537.64	-4,046.73	16,049.78	15,991.83	57.95	276.972	
18,400.00	6,947.00	6,915.79	6,717.48	188.87	23.42	-86.51	1,537.64	-4,046.71	16,147.55	16,089.49	58.06	278.133	
18,500.00	6,947.00	6,914.48	6,716.17	190.45	23.42	-86.49	1,537.64	-4,046.69	16,245.34	16,187.18	58.17	279.289	
18,600.00	6,947.00	6,913.18	6,714.87	192.02	23.42	-86.47	1,537.65	-4,046.68	16,343.17	16,284.89	58.28	280.442	
18,700.00	6,947.00	6,911.88	6,713.57	193.60	23.42	-86.45	1,537.65	-4,046.66	16,441.02	16,382.63	58.39	281.590	
18,800.00	6,947.00	6,910.58	6,712.27	195.18	23.42	-86.43	1,537.65	-4,046.64	16,538.89	16,480.40	58.50	282.735	
18,900.00	6,947.00	6,909.28	6,710.97	196.75	23.42	-86.40	1,537.66	-4,046.62	16,636.79	16,578.19	58.61	283.875	
19,000.00	6,947.00	6,907.98	6,709.67	198.33	23.41	-86.38	1,537.66	-4,046.60	16,734.72	16,676.00	58.72	285.011	
19,100.00	6,947.00	6,906.68	6,708.37	199.91	23.41	-86.36	1,537.66	-4,046.59	16,832.67	16,773.84	58.83	286.143	
19,200.00	6,947.00	6,905.38	6,707.07	201.49	23.41	-86.34	1,537.67	-4,046.57	16,930.64	16,871.70	58.94	287.271	
19,300.00	6,947.00	6,904.08	6,705.78	203.07	23.41	-86.32	1,537.67	-4,046.55	17,028.64	16,969.59	59.05	288.394	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 327-APC_ISCWSA REV 2 MWD

Offset Well Error: 0.00 usft

Rule Assigned:

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
19,400.00	6,947.00	6,902.79	6,704.48	204.65	23.41	-86.30	1,537.67	-4,046.53	17,126.66	17,067.50	59.16	289.514	
19,500.00	6,947.00	6,901.49	6,703.18	206.23	23.41	-86.27	1,537.68	-4,046.52	17,224.70	17,165.43	59.27	290.630	
19,600.00	6,947.00	6,900.20	6,701.89	207.81	23.41	-86.25	1,537.68	-4,046.50	17,322.76	17,263.39	59.38	291.742	
19,700.00	6,947.00	6,898.90	6,700.59	209.39	23.40	-86.23	1,537.68	-4,046.48	17,420.85	17,361.36	59.49	292.849	
19,800.00	6,947.00	6,897.61	6,699.30	210.97	23.40	-86.21	1,537.69	-4,046.46	17,518.96	17,459.36	59.60	293.953	
19,900.00	6,947.00	6,896.31	6,698.01	212.55	23.40	-86.19	1,537.69	-4,046.45	17,617.09	17,557.38	59.71	295.053	
20,000.00	6,947.00	6,895.02	6,696.71	214.13	23.40	-86.16	1,537.69	-4,046.43	17,715.24	17,655.42	59.82	296.148	
20,100.00	6,947.00	6,893.73	6,695.42	215.71	23.40	-86.14	1,537.70	-4,046.41	17,813.41	17,753.48	59.93	297.240	
20,200.00	6,947.00	6,892.44	6,694.13	217.30	23.40	-86.12	1,537.70	-4,046.39	17,911.60	17,851.56	60.04	298.328	
20,300.00	6,947.00	6,891.15	6,692.84	218.88	23.40	-86.10	1,537.70	-4,046.38	18,009.81	17,949.66	60.15	299.411	
20,400.00	6,947.00	6,889.86	6,691.55	220.46	23.39	-86.08	1,537.71	-4,046.36	18,108.04	18,047.78	60.26	300.491	
20,500.00	6,947.00	6,888.57	6,690.26	222.04	23.39	-86.05	1,537.71	-4,046.34	18,206.29	18,145.92	60.37	301.567	
20,600.00	6,947.00	6,887.28	6,688.97	223.63	23.39	-86.03	1,537.71	-4,046.32	18,304.56	18,244.08	60.48	302.639	
20,700.00	6,947.00	6,885.99	6,687.69	225.21	23.39	-86.01	1,537.72	-4,046.31	18,402.85	18,342.25	60.59	303.707	
20,800.00	6,947.00	6,884.71	6,686.40	226.80	23.39	-85.99	1,537.72	-4,046.29	18,501.15	18,440.45	60.71	304.771	
20,900.00	6,947.00	6,883.42	6,685.11	228.38	23.39	-85.97	1,537.72	-4,046.27	18,599.47	18,538.66	60.82	305.831	
21,000.00	6,947.00	6,882.13	6,683.83	229.97	23.39	-85.95	1,537.73	-4,046.25	18,697.81	18,636.89	60.93	306.887	
21,032.01	6,947.00	6,881.72	6,683.42	230.47	23.39	-85.94	1,537.73	-4,046.25	18,729.30	18,668.33	60.96	307.225	
21,032.99	6,947.00	6,881.71	6,683.40	230.51	23.39	-85.94	1,537.73	-4,046.25	18,730.26	18,665.49	64.77	289.185	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Rule Assigned: Warning
0.00	0.00	156.00	156.00	0.00	4.67	-140.44	-1,725.55	-1,425.63	2,238.29				
100.00	100.00	256.00	256.00	0.25	7.67	-140.44	-1,725.55	-1,425.63	2,238.29	2,230.37	7.92	282.543	
200.00	200.00	356.00	356.00	0.61	10.67	-140.44	-1,725.55	-1,425.63	2,238.29	2,227.02	11.28	198.486	
300.00	300.00	456.00	456.00	0.97	13.66	-140.44	-1,725.55	-1,425.63	2,238.29	2,223.66	14.63	152.976	
400.00	400.00	556.10	556.00	1.33	16.66	-140.44	-1,725.55	-1,425.63	2,238.29	2,220.30	17.99	124.421	
500.00	500.00	656.10	656.00	1.68	19.66	-140.44	-1,725.55	-1,425.63	2,238.29	2,216.95	21.34	104.865	
600.00	599.98	755.41	755.27	2.03	22.64	54.65	-1,723.37	-1,425.63	2,235.60	2,210.94	24.66	90.648	
700.00	699.84	844.64	844.48	2.36	25.31	54.79	-1,723.69	-1,425.63	2,232.85	2,205.18	27.67	80.697	
800.00	799.45	933.76	933.58	2.71	27.98	55.01	-1,724.55	-1,425.63	2,228.57	2,197.89	30.68	72.632	
900.00	898.70	1,055.11	1,054.70	3.06	31.62	55.41	-1,725.55	-1,425.63	2,222.25	2,187.57	34.68	64.087	
1,000.00	997.47	1,153.87	1,153.47	3.43	34.58	55.89	-1,725.55	-1,425.63	2,213.34	2,175.34	38.00	58.244	
1,100.00	1,095.62	1,251.80	1,251.36	3.82	37.51	56.51	-1,723.37	-1,425.63	2,200.94	2,159.63	41.31	53.272	
1,200.00	1,193.44	1,339.60	1,339.14	4.22	40.14	56.91	-1,723.65	-1,425.63	2,189.59	2,145.26	44.34	49.387	
1,300.00	1,291.25	1,427.65	1,427.17	4.64	42.78	57.30	-1,724.48	-1,425.63	2,178.83	2,131.46	47.37	45.996	
1,400.00	1,389.07	1,545.78	1,545.07	5.06	46.32	57.83	-1,725.55	-1,425.63	2,168.22	2,116.91	51.31	42.254	
1,500.00	1,486.88	1,643.59	1,642.88	5.48	49.25	58.29	-1,725.55	-1,425.63	2,157.05	2,102.40	54.65	39.467	
1,600.00	1,584.70	1,741.41	1,740.70	5.91	52.18	58.75	-1,725.55	-1,425.63	2,146.02	2,088.02	58.00	37.001	
1,700.00	1,682.51	1,830.58	1,829.81	6.35	54.85	59.22	-1,723.60	-1,425.63	2,133.74	2,072.65	61.09	34.928	
1,800.00	1,780.33	1,919.17	1,918.39	6.78	57.51	59.63	-1,724.37	-1,425.63	2,123.62	2,059.46	64.16	33.097	
1,900.00	1,878.14	2,035.16	2,034.14	7.22	60.98	60.17	-1,725.55	-1,425.63	2,113.80	2,045.74	68.06	31.057	
2,000.00	1,975.96	2,132.97	2,131.96	7.66	63.91	60.66	-1,725.55	-1,425.63	2,103.37	2,031.95	71.42	29.451	
2,100.00	2,073.77	2,230.79	2,229.77	8.10	66.84	61.15	-1,725.55	-1,425.63	2,093.09	2,018.31	74.78	27.990	
2,200.00	2,171.59	2,321.44	2,320.37	8.54	69.56	61.64	-1,723.55	-1,425.63	2,081.59	2,003.66	77.93	26.712	
2,300.00	2,269.40	2,410.58	2,409.49	8.98	72.23	62.08	-1,724.27	-1,425.63	2,072.18	1,991.15	81.03	25.572	
2,400.00	2,367.22	2,524.53	2,523.22	9.43	75.65	62.64	-1,725.55	-1,425.63	2,063.19	1,978.31	84.88	24.307	
2,500.00	2,465.03	2,622.35	2,621.03	9.87	78.58	63.14	-1,725.55	-1,425.63	2,053.55	1,965.30	88.25	23.270	
2,600.00	2,562.84	2,720.16	2,718.84	10.32	81.51	63.65	-1,725.55	-1,425.63	2,044.07	1,952.46	91.62	22.311	
2,700.00	2,660.66	2,812.18	2,810.81	10.77	84.27	64.18	-1,723.51	-1,425.63	2,033.42	1,938.61	94.81	21.446	
2,800.00	2,758.47	2,901.88	2,900.49	11.21	86.95	64.64	-1,724.18	-1,425.63	2,024.78	1,926.84	97.94	20.673	
2,900.00	2,856.29	3,013.91	3,012.29	11.66	90.31	65.21	-1,725.55	-1,425.63	2,016.67	1,914.92	101.74	19.821	
3,000.00	2,954.10	3,111.73	3,110.10	12.11	93.24	65.74	-1,725.55	-1,425.63	2,007.88	1,902.76	105.12	19.101	
3,100.00	3,051.92	3,209.54	3,207.92	12.56	96.17	66.28	-1,725.55	-1,425.63	1,999.27	1,890.78	108.49	18.428	
3,200.00	3,149.73	3,302.80	3,301.13	13.01	98.97	66.83	-1,723.47	-1,425.63	1,989.54	1,877.81	111.74	17.806	
3,300.00	3,247.55	3,393.06	3,391.37	13.45	101.67	67.32	-1,724.09	-1,425.63	1,981.72	1,866.84	114.89	17.249	
3,400.00	3,345.36	3,503.29	3,501.36	13.90	104.97	67.90	-1,725.55	-1,425.63	1,974.53	1,855.89	118.64	16.643	
3,500.00	3,443.18	3,601.11	3,599.18	14.35	107.91	68.45	-1,725.55	-1,425.63	1,966.65	1,844.63	122.02	16.118	
3,600.00	3,540.99	3,698.92	3,696.99	14.80	110.84	69.01	-1,725.55	-1,425.63	1,958.96	1,833.56	125.40	15.622	
3,700.00	3,638.81	3,793.30	3,791.32	15.25	113.66	69.60	-1,723.44	-1,425.63	1,950.23	1,821.55	128.68	15.155	
3,800.00	3,736.62	3,884.14	3,882.14	15.70	116.39	70.11	-1,724.00	-1,425.63	1,943.29	1,811.44	131.86	14.738	
3,900.00	3,834.44	3,975.24	3,973.21	16.15	119.12	70.61	-1,725.15	-1,425.63	1,936.90	1,801.86	135.04	14.343	
4,000.00	3,932.25	4,090.48	4,088.25	16.60	122.57	71.27	-1,725.55	-1,425.63	1,930.14	1,791.20	138.95	13.891	
4,100.00	4,030.07	4,188.30	4,186.07	17.05	125.50	71.84	-1,725.55	-1,425.63	1,923.43	1,781.10	142.33	13.514	
4,200.00	4,127.88	4,283.67	4,281.40	17.50	128.36	72.46	-1,723.41	-1,425.63	1,915.76	1,770.11	145.65	13.153	
4,300.00	4,225.70	4,375.09	4,372.80	17.96	131.10	72.99	-1,723.92	-1,425.63	1,909.77	1,760.92	148.85	12.830	
4,400.00	4,323.51	4,466.78	4,464.45	18.41	133.84	73.51	-1,725.01	-1,425.63	1,904.30	1,752.25	152.05	12.524	
4,500.00	4,421.33	4,579.86	4,577.33	18.86	137.23	74.18	-1,725.55	-1,425.63	1,898.63	1,742.74	155.90	12.179	
4,600.00	4,519.14	4,677.68	4,675.14	19.31	140.16	74.77	-1,725.55	-1,425.63	1,892.95	1,733.67	159.29	11.884	
4,700.00	4,616.95	4,773.92	4,771.34	19.76	143.05	75.42	-1,723.39	-1,425.63	1,886.41	1,723.78	162.63	11.599	
4,800.00	4,714.77	4,865.93	4,863.33	20.21	145.81	75.97	-1,723.84	-1,425.63	1,881.41	1,715.56	165.85	11.344	
4,900.00	4,812.58	4,958.20	4,955.58	20.66	148.57	76.51	-1,724.89	-1,425.63	1,876.92	1,707.85	169.07	11.101	
5,000.00	4,910.40	5,069.24	5,066.40	21.11	151.90	77.18	-1,725.55	-1,425.63	1,872.37	1,699.52	172.86	10.832	
5,100.00	5,008.21	5,167.06	5,164.21	21.57	154.83	77.79	-1,725.55	-1,425.63	1,867.77	1,691.52	176.25	10.597	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

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

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,200.00	5,106.03	5,264.05	5,261.16	22.02	157.73	78.45	-1,723.38	-1,425.63	1,862.41	1,682.79	179.62	10.369	
5,300.00	5,203.84	5,356.65	5,353.74	22.47	160.51	79.02	-1,723.77	-1,425.63	1,858.46	1,675.60	182.86	10.164	
5,400.00	5,301.66	5,449.52	5,446.59	22.92	163.29	79.58	-1,724.76	-1,425.63	1,854.99	1,668.89	186.10	9.968	
5,500.00	5,399.47	5,558.62	5,555.47	23.37	166.56	80.25	-1,725.55	-1,425.63	1,851.59	1,661.76	189.83	9.754	
5,600.00	5,497.29	5,656.43	5,653.29	23.82	169.49	80.87	-1,725.55	-1,425.63	1,848.10	1,654.88	193.22	9.565	
5,700.00	5,595.10	5,754.04	5,750.85	24.28	172.42	81.55	-1,723.37	-1,425.63	1,843.97	1,647.36	196.61	9.379	
5,800.00	5,692.92	5,847.24	5,844.03	24.73	175.21	82.14	-1,723.70	-1,425.63	1,841.10	1,641.24	199.86	9.212	
5,900.00	5,790.73	5,940.72	5,937.49	25.18	178.01	82.72	-1,724.64	-1,425.63	1,838.70	1,635.58	203.12	9.052	
6,000.00	5,888.55	6,048.00	6,044.55	25.63	181.23	83.38	-1,725.55	-1,425.63	1,836.46	1,629.66	206.80	8.880	
6,100.00	5,986.36	6,145.81	6,142.36	26.08	184.16	84.01	-1,725.55	-1,425.63	1,834.12	1,623.93	210.19	8.726	
6,200.00	6,084.18	6,243.63	6,240.18	26.54	187.09	84.64	-1,725.55	-1,425.63	1,832.02	1,618.44	213.58	8.578	
6,300.00	6,181.99	6,341.00	6,337.34	26.99	190.01	85.27	-1,725.55	-1,425.63	1,830.15	1,613.20	216.96	8.436	
6,331.39	6,212.69	6,341.00	6,337.34	27.13	190.01	85.27	-1,725.55	-1,425.63	1,829.89	1,612.81	217.07	8.430	CC, ES, SF
6,400.00	6,279.81	6,341.00	6,337.34	27.44	190.01	85.27	-1,725.55	-1,425.63	1,831.17	1,614.05	217.12	8.434	
6,500.00	6,377.62	6,341.00	6,337.34	27.89	190.01	85.27	-1,725.55	-1,425.63	1,837.64	1,620.95	216.68	8.481	
6,530.62	6,407.57	6,341.00	6,337.34	28.03	190.01	85.27	-1,725.55	-1,425.63	1,840.70	1,624.27	216.43	8.505	
6,550.00	6,426.48	6,341.00	6,337.34	28.12	190.01	90.58	-1,725.55	-1,425.63	1,843.10	1,626.85	216.24	8.523	
6,600.00	6,474.77	6,341.00	6,337.34	28.36	190.01	100.03	-1,725.55	-1,425.63	1,852.01	1,636.31	215.70	8.586	
6,650.00	6,522.09	6,341.00	6,337.34	28.62	190.01	105.47	-1,725.55	-1,425.63	1,864.76	1,649.70	215.06	8.671	
6,700.00	6,568.15	6,341.00	6,337.34	28.89	190.01	108.51	-1,725.55	-1,425.63	1,881.19	1,666.83	214.37	8.776	
6,750.00	6,612.66	6,341.00	6,337.34	29.18	190.01	109.96	-1,725.55	-1,425.63	1,901.12	1,687.48	213.64	8.899	
6,800.00	6,655.36	6,341.00	6,337.34	29.48	190.01	110.27	-1,725.55	-1,425.63	1,924.30	1,711.39	212.91	9.038	
6,850.00	6,695.98	6,341.00	6,337.34	29.79	190.01	109.66	-1,725.55	-1,425.63	1,950.49	1,738.28	212.20	9.192	
6,900.00	6,734.26	6,341.00	6,337.34	30.11	190.01	108.26	-1,725.55	-1,425.63	1,979.40	1,767.85	211.55	9.357	
6,950.00	6,769.98	6,341.00	6,337.34	30.45	190.01	106.12	-1,725.55	-1,425.63	2,010.74	1,799.78	210.97	9.531	
7,000.00	6,802.91	6,341.00	6,337.34	30.79	190.01	103.29	-1,725.55	-1,425.63	2,044.22	1,833.74	210.48	9.712	
7,050.00	6,832.85	6,341.00	6,337.34	31.15	190.01	99.79	-1,725.55	-1,425.63	2,079.53	1,869.43	210.10	9.898	
7,100.00	6,859.62	6,341.00	6,337.34	31.51	190.01	95.65	-1,725.55	-1,425.63	2,116.37	1,906.53	209.83	10.086	
7,150.00	6,883.05	6,341.00	6,337.34	31.89	190.01	90.92	-1,725.55	-1,425.63	2,154.43	1,944.73	209.69	10.274	
7,200.00	6,902.99	6,341.00	6,337.34	32.28	190.01	85.70	-1,725.55	-1,425.63	2,193.42	1,983.75	209.68	10.461	
7,250.00	6,919.32	6,341.00	6,337.34	32.67	190.01	80.10	-1,725.55	-1,425.63	2,233.07	2,023.28	209.78	10.645	
7,300.00	6,931.95	6,341.00	6,337.34	33.08	190.01	74.29	-1,725.55	-1,425.63	2,273.09	2,063.08	210.01	10.824	
7,350.00	6,940.79	6,341.00	6,337.34	33.49	190.01	68.44	-1,725.55	-1,425.63	2,313.23	2,102.89	210.35	10.997	
7,400.00	6,945.79	6,341.00	6,337.34	33.90	190.01	62.73	-1,725.55	-1,425.63	2,353.25	2,142.46	210.79	11.164	
7,439.53	6,947.00	6,341.00	6,337.34	34.24	190.01	58.40	-1,725.55	-1,425.63	2,384.64	2,173.44	211.20	11.291	
7,500.00	6,947.00	6,341.00	6,337.34	34.75	190.01	57.54	-1,725.55	-1,425.63	2,433.03	2,221.17	211.86	11.484	
7,600.00	6,947.00	6,341.00	6,337.34	35.63	190.01	55.94	-1,725.55	-1,425.63	2,515.54	2,302.65	212.89	11.816	
7,700.00	6,947.00	6,341.00	6,337.34	36.54	190.01	54.07	-1,725.55	-1,425.63	2,600.80	2,386.96	213.84	12.162	
7,800.00	6,947.00	6,341.00	6,337.34	37.47	190.01	51.87	-1,725.55	-1,425.63	2,688.44	2,473.73	214.71	12.521	
7,900.00	6,947.00	6,341.00	6,337.34	38.43	190.01	49.29	-1,725.55	-1,425.63	2,778.15	2,562.65	215.50	12.892	
8,000.00	6,947.00	6,341.00	6,337.34	39.41	190.01	46.25	-1,725.55	-1,425.63	2,869.62	2,653.40	216.21	13.272	
8,100.00	6,947.00	6,341.00	6,337.34	40.40	190.01	42.64	-1,725.55	-1,425.63	2,962.58	2,745.72	216.86	13.661	
8,200.00	6,947.00	6,341.00	6,337.34	41.42	190.01	38.37	-1,725.55	-1,425.63	3,056.79	2,839.34	217.45	14.058	
8,300.00	6,947.00	6,341.00	6,337.34	42.44	190.01	33.30	-1,725.55	-1,425.63	3,152.03	2,934.05	217.97	14.461	
8,400.00	6,947.00	6,341.00	6,337.34	43.48	190.01	27.32	-1,725.55	-1,425.63	3,248.09	3,029.65	218.45	14.869	
8,500.00	6,947.00	6,341.00	6,337.34	44.53	190.01	20.37	-1,725.55	-1,425.63	3,344.80	3,125.93	218.87	15.282	
8,600.00	6,947.00	6,341.00	6,337.34	45.58	190.01	12.46	-1,725.55	-1,425.63	3,441.98	3,222.74	219.25	15.699	
8,700.00	6,947.00	6,341.00	6,337.34	46.63	190.01	3.77	-1,725.55	-1,425.63	3,539.49	3,319.91	219.59	16.119	
8,800.00	6,947.00	6,341.00	6,337.34	47.69	190.01	-5.37	-1,725.55	-1,425.63	3,637.18	3,417.29	219.89	16.541	
8,841.31	6,947.00	6,341.00	6,337.34	48.13	190.01	-9.16	-1,725.55	-1,425.63	3,677.56	3,457.56	220.00	16.716	
8,900.00	6,947.00	6,341.00	6,337.34	48.76	190.01	-9.16	-1,725.55	-1,425.63	3,734.95	3,514.79	220.16	16.965	
9,000.00	6,947.00	6,341.00	6,337.34	49.85	190.01	-9.16	-1,725.55	-1,425.63	3,832.83	3,612.42	220.41	17.390	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,100.00	6,947.00	6,341.00	6,337.34	50.97	190.01	-9.16	-1,725.55	-1,425.63	3,930.81	3,710.17	220.64	17.815	
9,200.00	6,947.00	6,341.00	6,337.34	52.12	190.01	-9.16	-1,725.55	-1,425.63	4,028.90	3,808.03	220.86	18.242	
9,300.00	6,947.00	6,341.00	6,337.34	53.28	190.01	-9.16	-1,725.55	-1,425.63	4,127.07	3,906.00	221.07	18.669	
9,400.00	6,947.00	6,341.00	6,337.34	54.48	190.01	-9.16	-1,725.55	-1,425.63	4,225.33	4,004.07	221.26	19.096	
9,500.00	6,947.00	6,341.00	6,337.34	55.69	190.01	-9.16	-1,725.55	-1,425.63	4,323.67	4,102.23	221.45	19.525	
9,600.00	6,947.00	6,341.00	6,337.34	56.92	190.01	-9.16	-1,725.55	-1,425.63	4,422.09	4,200.47	221.62	19.954	
9,700.00	6,947.00	6,341.00	6,337.34	58.17	190.01	-9.16	-1,725.55	-1,425.63	4,520.57	4,298.79	221.78	20.383	
9,800.00	6,947.00	6,341.00	6,337.34	59.44	190.01	-9.16	-1,725.55	-1,425.63	4,619.12	4,397.18	221.94	20.813	
9,900.00	6,947.00	6,341.00	6,337.34	60.73	190.01	-9.16	-1,725.55	-1,425.63	4,717.73	4,495.64	222.08	21.243	
10,000.00	6,947.00	6,341.00	6,337.34	62.03	190.01	-9.16	-1,725.55	-1,425.63	4,816.40	4,594.17	222.22	21.674	
10,100.00	6,947.00	6,341.00	6,337.34	63.34	190.01	-9.16	-1,725.55	-1,425.63	4,915.12	4,692.76	222.36	22.104	
10,200.00	6,947.00	6,341.00	6,337.34	64.67	190.01	-9.16	-1,725.55	-1,425.63	5,013.89	4,791.40	222.49	22.536	
10,300.00	6,947.00	6,341.00	6,337.34	66.01	190.01	-9.16	-1,725.55	-1,425.63	5,112.71	4,890.10	222.61	22.967	
10,400.00	6,947.00	6,341.00	6,337.34	67.36	190.01	-9.16	-1,725.55	-1,425.63	5,211.57	4,988.85	222.73	23.399	
10,500.00	6,947.00	6,341.00	6,337.34	68.73	190.01	-9.16	-1,725.55	-1,425.63	5,310.48	5,087.64	222.84	23.831	
10,600.00	6,947.00	6,341.00	6,337.34	70.10	190.01	-9.16	-1,725.55	-1,425.63	5,409.43	5,186.48	222.95	24.263	
10,700.00	6,947.00	6,341.00	6,337.34	71.48	190.01	-9.16	-1,725.55	-1,425.63	5,508.42	5,285.36	223.06	24.695	
10,800.00	6,947.00	6,341.00	6,337.34	72.88	190.01	-9.16	-1,725.55	-1,425.63	5,607.44	5,384.27	223.16	25.127	
10,900.00	6,947.00	6,341.00	6,337.34	74.28	190.01	-9.16	-1,725.55	-1,425.63	5,706.49	5,483.23	223.26	25.560	
11,000.00	6,947.00	6,341.00	6,337.34	75.69	190.01	-9.16	-1,725.55	-1,425.63	5,805.58	5,582.22	223.36	25.992	
11,100.00	6,947.00	6,341.00	6,337.34	77.10	190.01	-9.16	-1,725.55	-1,425.63	5,904.70	5,681.25	223.45	26.425	
11,200.00	6,947.00	6,341.00	6,337.34	78.53	190.01	-9.16	-1,725.55	-1,425.63	6,003.85	5,780.30	223.54	26.858	
11,300.00	6,947.00	6,341.00	6,337.34	79.96	190.01	-9.16	-1,725.55	-1,425.63	6,103.02	5,879.39	223.63	27.290	
11,400.00	6,947.00	6,341.00	6,337.34	81.40	190.01	-9.16	-1,725.55	-1,425.63	6,202.23	5,978.50	223.72	27.723	
11,500.00	6,947.00	6,341.00	6,337.34	82.84	190.01	-9.16	-1,725.55	-1,425.63	6,301.45	6,077.65	223.81	28.156	
11,600.00	6,947.00	6,341.00	6,337.34	84.29	190.01	-9.16	-1,725.55	-1,425.63	6,400.70	6,176.82	223.89	28.589	
11,700.00	6,947.00	6,341.00	6,337.34	85.75	190.01	-9.16	-1,725.55	-1,425.63	6,499.98	6,276.01	223.97	29.021	
11,800.00	6,947.00	6,341.00	6,337.34	87.21	190.01	-9.16	-1,725.55	-1,425.63	6,599.28	6,375.22	224.05	29.454	
11,900.00	6,947.00	6,341.00	6,337.34	88.68	190.01	-9.16	-1,725.55	-1,425.63	6,698.59	6,474.46	224.13	29.887	
12,000.00	6,947.00	6,341.00	6,337.34	90.15	190.01	-9.16	-1,725.55	-1,425.63	6,797.93	6,573.72	224.21	30.320	
12,100.00	6,947.00	6,341.00	6,337.34	91.62	190.01	-9.16	-1,725.55	-1,425.63	6,897.29	6,673.00	224.29	30.752	
12,200.00	6,947.00	6,341.00	6,337.34	93.10	190.01	-9.16	-1,725.55	-1,425.63	6,996.66	6,772.30	224.36	31.185	
12,300.00	6,947.00	6,341.00	6,337.34	94.59	190.01	-9.16	-1,725.55	-1,425.63	7,096.05	6,871.62	224.44	31.617	
12,400.00	6,947.00	6,341.00	6,337.34	96.07	190.01	-9.16	-1,725.55	-1,425.63	7,195.46	6,970.95	224.51	32.050	
12,500.00	6,947.00	6,341.00	6,337.34	97.56	190.01	-9.16	-1,725.55	-1,425.63	7,294.89	7,070.31	224.58	32.482	
12,600.00	6,947.00	6,341.00	6,337.34	99.06	190.01	-9.16	-1,725.55	-1,425.63	7,394.33	7,169.68	224.65	32.914	
12,700.00	6,947.00	6,341.00	6,337.34	100.56	190.01	-9.16	-1,725.55	-1,425.63	7,493.79	7,269.06	224.73	33.346	
12,800.00	6,947.00	6,341.00	6,337.34	102.06	190.01	-9.16	-1,725.55	-1,425.63	7,593.26	7,368.46	224.80	33.778	
12,900.00	6,947.00	6,341.00	6,337.34	103.56	190.01	-9.16	-1,725.55	-1,425.63	7,692.74	7,467.87	224.87	34.210	
13,000.00	6,947.00	6,341.00	6,337.34	105.07	190.01	-9.16	-1,725.55	-1,425.63	7,792.24	7,567.30	224.94	34.642	
13,100.00	6,947.00	6,341.00	6,337.34	106.58	190.01	-9.16	-1,725.55	-1,425.63	7,891.75	7,666.74	225.01	35.073	
13,200.00	6,947.00	6,341.00	6,337.34	108.10	190.01	-9.16	-1,725.55	-1,425.63	7,991.27	7,766.19	225.08	35.505	
13,300.00	6,947.00	6,341.00	6,337.34	109.61	190.01	-9.16	-1,725.55	-1,425.63	8,090.80	7,865.66	225.14	35.936	
13,400.00	6,947.00	6,341.00	6,337.34	111.13	190.01	-9.16	-1,725.55	-1,425.63	8,190.35	7,965.13	225.21	36.367	
13,500.00	6,947.00	6,341.00	6,337.34	112.65	190.01	-9.16	-1,725.55	-1,425.63	8,289.90	8,064.62	225.28	36.798	
13,600.00	6,947.00	6,341.00	6,337.34	114.17	190.01	-9.16	-1,725.55	-1,425.63	8,389.47	8,164.12	225.35	37.229	
13,700.00	6,947.00	6,341.00	6,337.34	115.70	190.01	-9.16	-1,725.55	-1,425.63	8,489.05	8,263.63	225.42	37.659	
13,800.00	6,947.00	6,341.00	6,337.34	117.23	190.01	-9.16	-1,725.55	-1,425.63	8,588.63	8,363.15	225.49	38.089	
13,900.00	6,947.00	6,341.00	6,337.34	118.76	190.01	-9.16	-1,725.55	-1,425.63	8,688.23	8,462.68	225.55	38.520	
14,000.00	6,947.00	6,341.00	6,337.34	120.29	190.01	-9.16	-1,725.55	-1,425.63	8,787.83	8,562.21	225.62	38.950	
14,100.00	6,947.00	6,341.00	6,337.34	121.82	190.01	-9.16	-1,725.55	-1,425.63	8,887.45	8,661.76	225.69	39.379	
14,200.00	6,947.00	6,341.00	6,337.34	123.36	190.01	-9.16	-1,725.55	-1,425.63	8,987.07	8,761.32	225.76	39.809	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Rule Assigned: Warning
14,300.00	6,947.00	6,341.00	6,337.34	124.89	190.01	-9.16	-1,725.55	-1,425.63	9,086.70	8,860.88	225.82	40.238	
14,400.00	6,947.00	6,341.00	6,337.34	126.43	190.01	-9.16	-1,725.55	-1,425.63	9,186.34	8,960.45	225.89	40.667	
14,500.00	6,947.00	6,341.00	6,337.34	127.97	190.01	-9.16	-1,725.55	-1,425.63	9,285.99	9,060.03	225.96	41.096	
14,600.00	6,947.00	6,341.00	6,337.34	129.51	190.01	-9.16	-1,725.55	-1,425.63	9,385.64	9,159.62	226.03	41.525	
14,700.00	6,947.00	6,341.00	6,337.34	131.06	190.01	-9.16	-1,725.55	-1,425.63	9,485.30	9,259.21	226.09	41.953	
14,800.00	6,947.00	6,341.00	6,337.34	132.60	190.01	-9.16	-1,725.55	-1,425.63	9,584.97	9,358.81	226.16	42.381	
14,900.00	6,947.00	6,341.00	6,337.34	134.15	190.01	-9.16	-1,725.55	-1,425.63	9,684.65	9,458.42	226.23	42.809	
15,000.00	6,947.00	6,341.00	6,337.34	135.70	190.01	-9.16	-1,725.55	-1,425.63	9,784.33	9,558.03	226.30	43.237	
15,100.00	6,947.00	6,341.00	6,337.34	137.24	190.01	-9.16	-1,725.55	-1,425.63	9,884.02	9,657.65	226.37	43.664	
15,200.00	6,947.00	6,341.00	6,337.34	138.79	190.01	-9.16	-1,725.55	-1,425.63	9,983.71	9,757.28	226.43	44.091	
15,300.00	6,947.00	6,341.00	6,337.34	140.35	190.01	-9.16	-1,725.55	-1,425.63	10,083.41	9,856.91	226.50	44.518	
15,400.00	6,947.00	6,341.00	6,337.34	141.90	190.01	-9.16	-1,725.55	-1,425.63	10,183.12	9,956.55	226.57	44.944	
15,500.00	6,947.00	6,341.00	6,337.34	143.45	190.01	-9.16	-1,725.55	-1,425.63	10,282.83	10,056.19	226.64	45.371	
15,600.00	6,947.00	6,341.00	6,337.34	145.01	190.01	-9.16	-1,725.55	-1,425.63	10,382.55	10,155.84	226.71	45.797	
15,700.00	6,947.00	6,341.00	6,337.34	146.56	190.01	-9.16	-1,725.55	-1,425.63	10,482.27	10,255.50	226.78	46.222	
15,800.00	6,947.00	6,341.00	6,337.34	148.12	190.01	-9.16	-1,725.55	-1,425.63	10,582.00	10,355.16	226.85	46.648	
15,900.00	6,947.00	6,341.00	6,337.34	149.68	190.01	-9.16	-1,725.55	-1,425.63	10,681.74	10,454.82	226.92	47.073	
16,000.00	6,947.00	6,341.00	6,337.34	151.23	190.01	-9.16	-1,725.55	-1,425.63	10,781.48	10,554.49	226.99	47.498	
16,100.00	6,947.00	6,341.00	6,337.34	152.79	190.01	-9.16	-1,725.55	-1,425.63	10,881.22	10,654.16	227.06	47.923	
16,200.00	6,947.00	6,341.00	6,337.34	154.36	190.01	-9.16	-1,725.55	-1,425.63	10,980.97	10,753.84	227.13	48.347	
16,300.00	6,947.00	6,341.00	6,337.34	155.92	190.01	-9.16	-1,725.55	-1,425.63	11,080.72	10,853.52	227.20	48.771	
16,400.00	6,947.00	6,341.00	6,337.34	157.48	190.01	-9.16	-1,725.55	-1,425.63	11,180.48	10,953.21	227.27	49.195	
16,500.00	6,947.00	6,341.00	6,337.34	159.04	190.01	-9.16	-1,725.55	-1,425.63	11,280.24	11,052.90	227.34	49.618	
16,600.00	6,947.00	6,341.00	6,337.34	160.61	190.01	-9.16	-1,725.55	-1,425.63	11,380.00	11,152.59	227.41	50.041	
16,700.00	6,947.00	6,341.00	6,337.34	162.17	190.01	-9.16	-1,725.55	-1,425.63	11,479.77	11,252.29	227.49	50.464	
16,800.00	6,947.00	6,341.00	6,337.34	163.74	190.01	-9.16	-1,725.55	-1,425.63	11,579.55	11,351.99	227.56	50.886	
16,900.00	6,947.00	6,341.00	6,337.34	165.30	190.01	-9.16	-1,725.55	-1,425.63	11,679.32	11,451.69	227.63	51.308	
17,000.00	6,947.00	6,341.00	6,337.34	166.87	190.01	-9.16	-1,725.55	-1,425.63	11,779.10	11,551.40	227.70	51.730	
17,100.00	6,947.00	6,341.00	6,337.34	168.44	190.01	-9.16	-1,725.55	-1,425.63	11,878.89	11,651.11	227.78	52.151	
17,200.00	6,947.00	6,341.00	6,337.34	170.01	190.01	-9.16	-1,725.55	-1,425.63	11,978.68	11,750.83	227.85	52.573	
17,300.00	6,947.00	6,341.00	6,337.34	171.57	190.01	-9.16	-1,725.55	-1,425.63	12,078.47	11,850.55	227.92	52.993	
17,400.00	6,947.00	6,341.00	6,337.34	173.14	190.01	-9.16	-1,725.55	-1,425.63	12,178.27	11,950.27	228.00	53.414	
17,500.00	6,947.00	6,341.00	6,337.34	174.71	190.01	-9.16	-1,725.55	-1,425.63	12,278.06	12,049.99	228.07	53.834	
17,600.00	6,947.00	6,341.00	6,337.34	176.28	190.01	-9.16	-1,725.55	-1,425.63	12,377.87	12,149.72	228.15	54.254	
17,700.00	6,947.00	6,341.00	6,337.34	177.86	190.01	-9.16	-1,725.55	-1,425.63	12,477.67	12,249.45	228.22	54.673	
17,800.00	6,947.00	6,341.00	6,337.34	179.43	190.01	-9.16	-1,725.55	-1,425.63	12,577.48	12,349.18	228.30	55.092	
17,900.00	6,947.00	6,341.00	6,337.34	181.00	190.01	-9.16	-1,725.55	-1,425.63	12,677.29	12,448.92	228.37	55.511	
18,000.00	6,947.00	6,341.00	6,337.34	182.57	190.01	-9.16	-1,725.55	-1,425.63	12,777.10	12,548.65	228.45	55.930	
18,100.00	6,947.00	6,341.00	6,337.34	184.15	190.01	-9.16	-1,725.55	-1,425.63	12,876.92	12,648.40	228.53	56.348	
18,200.00	6,947.00	6,341.00	6,337.34	185.72	190.01	-9.16	-1,725.55	-1,425.63	12,976.74	12,748.14	228.60	56.765	
18,300.00	6,947.00	6,341.00	6,337.34	187.30	190.01	-9.16	-1,725.55	-1,425.63	13,076.56	12,847.88	228.68	57.183	
18,400.00	6,947.00	6,341.00	6,337.34	188.87	190.01	-9.16	-1,725.55	-1,425.63	13,176.39	12,947.63	228.76	57.600	
18,500.00	6,947.00	6,341.00	6,337.34	190.45	190.01	-9.16	-1,725.55	-1,425.63	13,276.22	13,047.38	228.84	58.016	
18,600.00	6,947.00	6,341.00	6,337.34	192.02	190.01	-9.16	-1,725.55	-1,425.63	13,376.05	13,147.13	228.91	58.433	
18,700.00	6,947.00	6,341.00	6,337.34	193.60	190.01	-9.16	-1,725.55	-1,425.63	13,475.88	13,246.89	228.99	58.849	
18,800.00	6,947.00	6,341.00	6,337.34	195.18	190.01	-9.16	-1,725.55	-1,425.63	13,575.72	13,346.65	229.07	59.264	
18,900.00	6,947.00	6,341.00	6,337.34	196.75	190.01	-9.16	-1,725.55	-1,425.63	13,675.55	13,446.40	229.15	59.679	
19,000.00	6,947.00	6,341.00	6,337.34	198.33	190.01	-9.16	-1,725.55	-1,425.63	13,775.39	13,546.16	229.23	60.094	
19,100.00	6,947.00	6,341.00	6,337.34	199.91	190.01	-9.16	-1,725.55	-1,425.63	13,875.24	13,645.93	229.31	60.509	
19,200.00	6,947.00	6,341.00	6,337.34	201.49	190.01	-9.16	-1,725.55	-1,425.63	13,975.08	13,745.69	229.39	60.923	
19,300.00	6,947.00	6,341.00	6,337.34	203.07	190.01	-9.16	-1,725.55	-1,425.63	14,074.93	13,845.46	229.47	61.337	
19,400.00	6,947.00	6,341.00	6,337.34	204.65	190.01	-9.16	-1,725.55	-1,425.63	14,174.78	13,945.23	229.55	61.750	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Rule Assigned:

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
19,500.00	6,947.00	6,341.00	6,337.34	206.23	190.01	-9.16	-1,725.55	-1,425.63	14,274.63	14,045.00	229.63	62.163	
19,600.00	6,947.00	6,341.00	6,337.34	207.81	190.01	-9.16	-1,725.55	-1,425.63	14,374.48	14,144.77	229.71	62.575	
19,700.00	6,947.00	6,341.00	6,337.34	209.39	190.01	-9.16	-1,725.55	-1,425.63	14,474.34	14,244.54	229.80	62.988	
19,800.00	6,947.00	6,341.00	6,337.34	210.97	190.01	-9.16	-1,725.55	-1,425.63	14,574.19	14,344.32	229.88	63.399	
19,900.00	6,947.00	6,341.00	6,337.34	212.55	190.01	-9.16	-1,725.55	-1,425.63	14,674.05	14,444.09	229.96	63.811	
20,000.00	6,947.00	6,341.00	6,337.34	214.13	190.01	-9.16	-1,725.55	-1,425.63	14,773.92	14,543.87	230.04	64.222	
20,100.00	6,947.00	6,341.00	6,337.34	215.71	190.01	-9.16	-1,725.55	-1,425.63	14,873.78	14,643.65	230.13	64.633	
20,200.00	6,947.00	6,341.00	6,337.34	217.30	190.01	-9.16	-1,725.55	-1,425.63	14,973.64	14,743.43	230.21	65.043	
20,300.00	6,947.00	6,341.00	6,337.34	218.88	190.01	-9.16	-1,725.55	-1,425.63	15,073.51	14,843.21	230.30	65.453	
20,400.00	6,947.00	6,341.00	6,337.34	220.46	190.01	-9.16	-1,725.55	-1,425.63	15,173.38	14,943.00	230.38	65.862	
20,500.00	6,947.00	6,341.00	6,337.34	222.04	190.01	-9.16	-1,725.55	-1,425.63	15,273.25	15,042.78	230.47	66.271	
20,600.00	6,947.00	6,341.00	6,337.34	223.63	190.01	-9.16	-1,725.55	-1,425.63	15,373.12	15,142.57	230.55	66.680	
20,700.00	6,947.00	6,341.00	6,337.34	225.21	190.01	-9.16	-1,725.55	-1,425.63	15,472.99	15,242.36	230.64	67.088	
20,800.00	6,947.00	6,341.00	6,337.34	226.80	190.01	-9.16	-1,725.55	-1,425.63	15,572.87	15,342.15	230.72	67.496	
20,900.00	6,947.00	6,341.00	6,337.34	228.38	190.01	-9.16	-1,725.55	-1,425.63	15,672.75	15,441.94	230.81	67.904	
21,000.00	6,947.00	6,341.00	6,337.34	229.97	190.01	-9.16	-1,725.55	-1,425.63	15,772.62	15,541.73	230.89	68.311	
21,032.01	6,947.00	6,341.00	6,337.34	230.47	190.01	-9.16	-1,725.55	-1,425.63	15,804.59	15,573.67	230.92	68.441	
21,032.99	6,947.00	6,341.00	6,337.34	230.51	190.01	-9.16	-1,725.55	-1,425.63	15,805.57	15,570.79	234.78	67.320	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

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

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	28.76	28.76	0.00	0.02	166.54	-1,626.29	389.14	1,672.20				
100.00	100.00	128.76	128.75	0.25	0.11	166.54	-1,626.14	389.34	1,672.10	1,671.78	0.32	5,265.779	
127.50	127.50	155.50	155.50	0.35	0.14	166.53	-1,626.11	389.45	1,672.09	1,671.66	0.43	3,858.462	
200.00	200.00	225.95	225.95	0.61	0.23	166.52	-1,626.04	389.90	1,672.14	1,671.40	0.74	2,263.151	
300.00	300.00	325.62	325.61	0.97	0.36	166.48	-1,625.93	390.91	1,672.27	1,671.10	1.16	1,437.446	
400.00	400.00	423.40	423.38	1.33	0.48	166.44	-1,625.84	392.20	1,672.48	1,670.89	1.59	1,052.365	
500.00	500.00	524.60	524.57	1.68	0.62	166.39	-1,625.75	393.60	1,672.72	1,670.70	2.02	828.513	
600.00	599.98	624.08	624.04	2.03	0.75	1.35	-1,625.64	394.96	1,671.19	1,668.76	2.43	687.194	
700.00	699.84	723.06	723.02	2.36	0.87	1.30	-1,625.56	396.41	1,666.22	1,663.38	2.84	587.002	
800.00	799.45	821.67	821.61	2.71	1.00	1.26	-1,625.49	397.98	1,657.83	1,654.57	3.25	509.529	
900.00	898.70	917.58	917.51	3.06	1.13	1.22	-1,625.63	399.50	1,646.15	1,642.48	3.67	447.954	
1,000.00	997.47	1,015.39	1,015.31	3.43	1.25	1.19	-1,625.91	401.05	1,631.16	1,627.05	4.11	397.336	
1,100.00	1,095.62	1,113.48	1,113.39	3.82	1.38	1.16	-1,626.18	402.54	1,612.70	1,608.16	4.54	355.114	
1,200.00	1,193.44	1,210.88	1,210.78	4.22	1.50	1.13	-1,626.51	403.84	1,592.55	1,587.57	4.98	319.823	
1,300.00	1,291.25	1,310.85	1,310.74	4.64	1.63	1.11	-1,626.85	405.01	1,572.36	1,566.94	5.42	290.058	
1,400.00	1,389.07	1,415.20	1,415.08	5.06	1.76	1.09	-1,626.93	406.09	1,551.89	1,546.03	5.86	264.747	
1,500.00	1,486.88	1,513.95	1,513.83	5.48	1.89	1.07	-1,626.79	406.98	1,531.18	1,524.89	6.29	243.302	
1,600.00	1,584.70	1,614.22	1,614.10	5.91	2.02	1.05	-1,626.56	407.76	1,510.36	1,503.64	6.72	224.639	
1,700.00	1,682.51	1,716.85	1,716.72	6.35	2.12	1.05	-1,626.31	408.04	1,489.41	1,482.26	7.14	208.458	
1,800.00	1,780.33	1,813.87	1,813.74	6.78	2.09	1.08	-1,626.00	407.56	1,468.20	1,460.64	7.56	194.137	
1,900.00	1,878.14	1,915.78	1,915.65	7.22	2.08	1.11	-1,625.54	407.13	1,446.88	1,438.90	7.99	181.133	
2,000.00	1,975.96	2,019.44	2,019.30	7.66	2.12	1.13	-1,624.67	406.87	1,425.24	1,416.82	8.42	169.235	
2,100.00	2,073.77	2,117.92	2,117.78	8.10	2.16	1.15	-1,623.62	406.59	1,403.37	1,394.51	8.86	158.320	
2,200.00	2,171.59	2,215.83	2,215.68	8.54	2.21	1.17	-1,622.50	406.27	1,381.43	1,372.11	9.31	148.303	
2,300.00	2,269.40	2,309.90	2,309.75	8.98	2.25	1.20	-1,621.61	405.82	1,359.63	1,349.86	9.77	139.144	
2,400.00	2,367.22	2,407.33	2,407.17	9.43	2.29	1.23	-1,620.85	405.23	1,337.97	1,327.73	10.23	130.752	
2,500.00	2,465.03	2,507.56	2,507.40	9.87	2.33	1.27	-1,620.02	404.58	1,316.24	1,305.54	10.70	123.026	
2,600.00	2,562.84	2,605.26	2,605.09	10.32	2.36	1.33	-1,619.13	403.47	1,294.33	1,283.17	11.16	115.935	
2,700.00	2,660.66	2,703.38	2,703.20	10.77	2.38	1.41	-1,618.34	401.93	1,272.41	1,260.79	11.63	109.435	
2,800.00	2,758.47	2,798.51	2,798.31	11.21	2.41	1.50	-1,617.72	400.42	1,250.64	1,238.55	12.09	103.449	
2,900.00	2,856.29	2,894.36	2,894.15	11.66	2.44	1.58	-1,617.06	399.05	1,228.88	1,216.33	12.55	97.885	
3,000.00	2,954.10	2,984.99	2,984.77	12.11	2.47	1.65	-1,616.75	397.96	1,207.51	1,194.50	13.02	92.774	
3,100.00	3,051.92	3,075.00	3,074.77	12.56	2.48	1.72	-1,616.92	397.24	1,186.73	1,173.27	13.46	88.168	
3,200.00	3,149.73	3,167.62	3,167.39	13.01	2.49	1.77	-1,617.71	396.92	1,166.68	1,152.81	13.88	84.075	
3,300.00	3,247.55	3,265.34	3,265.10	13.45	2.50	1.83	-1,618.62	396.62	1,146.72	1,132.42	14.29	80.238	
3,400.00	3,345.36	3,367.29	3,367.05	13.90	2.52	1.90	-1,619.50	396.13	1,126.65	1,111.94	14.71	76.590	
3,500.00	3,443.18	3,465.52	3,465.28	14.35	2.54	1.97	-1,620.21	395.51	1,106.42	1,091.28	15.14	73.078	
3,600.00	3,540.99	3,572.21	3,571.97	14.80	2.58	2.05	-1,620.57	394.95	1,085.86	1,070.29	15.57	69.730	
3,700.00	3,638.81	3,669.37	3,669.12	15.25	2.65	2.10	-1,620.38	394.67	1,064.83	1,048.79	16.04	66.403	
3,800.00	3,736.62	3,764.39	3,764.14	15.70	2.73	2.15	-1,620.22	394.56	1,043.87	1,027.37	16.50	63.255	
3,900.00	3,834.44	3,854.15	3,853.90	16.15	2.76	2.20	-1,620.60	394.39	1,023.46	1,006.52	16.94	60.408	
4,000.00	3,932.25	3,943.79	3,943.53	16.60	2.80	2.28	-1,621.93	394.09	1,004.02	986.63	17.38	57.761	
4,100.00	4,030.07	4,041.20	4,040.92	17.05	2.84	2.37	-1,623.79	393.66	984.97	967.16	17.81	55.291	
4,200.00	4,127.88	4,138.07	4,137.78	17.50	2.89	2.48	-1,625.62	393.11	965.88	947.63	18.25	52.919	
4,300.00	4,225.70	4,233.16	4,232.84	17.96	2.94	2.61	-1,627.67	392.31	947.00	928.31	18.70	50.649	
4,400.00	4,323.51	4,329.93	4,329.57	18.41	3.00	2.78	-1,630.21	391.04	928.47	909.33	19.14	48.500	
4,500.00	4,421.33	4,431.32	4,430.91	18.86	3.06	2.96	-1,632.85	389.70	909.93	890.35	19.58	46.463	
4,600.00	4,519.14	4,534.79	4,534.36	19.31	3.13	3.13	-1,634.85	388.62	890.80	870.78	20.02	44.491	
4,700.00	4,616.95	4,636.25	4,635.80	19.76	3.21	3.29	-1,636.34	387.69	871.27	850.80	20.47	42.573	
4,800.00	4,714.77	4,733.59	4,733.13	20.21	3.28	3.44	-1,637.55	386.88	851.54	830.62	20.92	40.707	
4,900.00	4,812.58	4,833.10	4,832.63	20.66	3.36	3.59	-1,638.82	386.22	831.89	810.52	21.37	38.928	
5,000.00	4,910.40	4,930.51	4,930.03	21.11	3.44	3.73	-1,639.93	385.85	812.15	790.32	21.83	37.205	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

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

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,100.00	5,008.21	5,028.60	5,028.12	21.57	3.52	3.87	-1,641.05	385.42	792.42	770.13	22.29	35.553	
5,200.00	5,106.03	5,126.86	5,126.37	22.02	3.61	4.01	-1,642.21	385.19	772.76	750.01	22.75	33.966	
5,300.00	5,203.84	5,225.27	5,224.78	22.47	3.69	4.15	-1,643.19	385.03	752.95	729.73	23.22	32.433	
5,400.00	5,301.66	5,322.78	5,322.28	22.92	3.78	4.27	-1,644.16	385.09	733.18	709.49	23.69	30.954	
5,500.00	5,399.47	5,420.71	5,420.20	23.37	3.87	4.40	-1,645.15	385.23	713.45	689.29	24.16	29.533	
5,600.00	5,497.29	5,516.78	5,516.27	23.82	3.96	4.54	-1,646.11	385.30	693.70	669.06	24.64	28.155	
5,700.00	5,595.10	5,612.92	5,612.40	24.28	4.06	4.71	-1,647.49	385.12	674.32	649.19	25.12	26.842	
5,800.00	5,692.92	5,710.99	5,710.45	24.73	4.15	4.96	-1,649.21	384.39	655.16	629.57	25.60	25.596	
5,900.00	5,790.73	5,809.58	5,809.02	25.18	4.25	5.24	-1,650.92	383.41	635.95	609.88	26.07	24.395	
6,000.00	5,888.55	5,907.71	5,907.13	25.63	4.35	5.55	-1,652.64	382.20	616.74	590.19	26.54	23.235	
6,100.00	5,986.36	6,005.79	6,005.19	26.08	4.45	5.89	-1,654.36	380.99	597.54	570.52	27.02	22.115	
6,200.00	6,084.18	6,103.87	6,103.24	26.54	4.55	6.25	-1,656.08	379.78	578.37	550.88	27.50	21.034	
6,300.00	6,181.99	6,125.00	6,124.37	26.99	4.57	6.33	-1,656.45	379.52	564.50	536.18	28.32	19.935	
6,331.53	6,212.83	6,125.00	6,124.37	27.13	4.57	6.33	-1,656.45	379.52	563.61	535.05	28.57	19.730	CC, ES
6,400.00	6,279.81	6,125.00	6,124.37	27.44	4.57	6.33	-1,656.45	379.52	567.76	538.76	29.00	19.580	SF
6,500.00	6,377.62	6,125.00	6,124.37	27.89	4.57	6.33	-1,656.45	379.52	588.25	558.98	29.27	20.094	
6,530.62	6,407.57	6,125.00	6,124.37	28.03	4.57	6.33	-1,656.45	379.52	597.74	568.47	29.27	20.420	
6,550.00	6,426.48	6,125.00	6,124.37	28.12	4.57	11.30	-1,656.45	379.52	604.31	575.06	29.25	20.659	
6,600.00	6,474.77	6,125.00	6,124.37	28.36	4.57	19.98	-1,656.45	379.52	622.22	593.08	29.14	21.356	
6,650.00	6,522.09	6,125.00	6,124.37	28.62	4.57	24.86	-1,656.45	379.52	641.33	612.39	28.94	22.161	
6,700.00	6,568.15	6,125.00	6,124.37	28.89	4.57	27.59	-1,656.45	379.52	661.44	632.76	28.68	23.062	
6,750.00	6,612.66	6,125.00	6,124.37	29.18	4.57	29.02	-1,656.45	379.52	682.34	653.96	28.38	24.044	
6,800.00	6,655.36	6,125.00	6,124.37	29.48	4.57	29.65	-1,656.45	379.52	703.82	675.78	28.05	25.093	
6,850.00	6,695.98	6,125.00	6,124.37	29.79	4.57	29.76	-1,656.45	379.52	725.73	698.02	27.71	26.189	
6,900.00	6,734.26	6,125.00	6,124.37	30.11	4.57	29.51	-1,656.45	379.52	747.88	720.49	27.39	27.309	
6,950.00	6,769.98	6,125.00	6,124.37	30.45	4.57	29.02	-1,656.45	379.52	770.13	743.04	27.09	28.429	
7,000.00	6,802.91	6,125.00	6,124.37	30.79	4.57	28.38	-1,656.45	379.52	792.33	765.49	26.84	29.523	
7,050.00	6,832.85	6,125.00	6,124.37	31.15	4.57	27.63	-1,656.45	379.52	814.37	787.72	26.64	30.564	
7,100.00	6,859.62	6,125.00	6,124.37	31.51	4.57	26.82	-1,656.45	379.52	836.11	809.59	26.52	31.526	
7,150.00	6,883.05	6,125.00	6,124.37	31.89	4.57	25.97	-1,656.45	379.52	857.46	830.99	26.48	32.387	
7,200.00	6,902.99	6,125.00	6,124.37	32.28	4.57	25.11	-1,656.45	379.52	878.32	851.81	26.51	33.130	
7,250.00	6,919.32	6,125.00	6,124.37	32.67	4.57	24.25	-1,656.45	379.52	898.60	871.97	26.63	33.743	
7,300.00	6,931.95	6,125.00	6,124.37	33.08	4.57	23.39	-1,656.45	379.52	918.21	891.38	26.83	34.222	
7,350.00	6,940.79	6,125.00	6,124.37	33.49	4.57	22.55	-1,656.45	379.52	937.08	909.97	27.11	34.568	
7,400.00	6,945.79	6,125.00	6,124.37	33.90	4.57	21.72	-1,656.45	379.52	955.14	927.68	27.45	34.790	
7,439.53	6,947.00	6,125.00	6,124.37	34.24	4.57	21.08	-1,656.45	379.52	968.80	941.03	27.77	34.884	
7,500.00	6,947.00	6,125.00	6,124.37	34.75	4.57	20.63	-1,656.45	379.52	991.12	962.81	28.31	35.014	
7,600.00	6,947.00	6,125.00	6,124.37	35.63	4.57	19.69	-1,656.45	379.52	1,035.60	1,006.37	29.22	35.439	
7,700.00	6,947.00	6,125.00	6,124.37	36.54	4.57	18.51	-1,656.45	379.52	1,088.46	1,058.34	30.11	36.145	
7,800.00	6,947.00	6,125.00	6,124.37	37.47	4.57	17.08	-1,656.45	379.52	1,148.47	1,117.54	30.94	37.123	
7,900.00	6,947.00	6,125.00	6,124.37	38.43	4.57	15.39	-1,656.45	379.52	1,214.53	1,182.85	31.68	38.340	
8,000.00	6,947.00	6,125.00	6,124.37	39.41	4.57	13.43	-1,656.45	379.52	1,285.61	1,253.28	32.33	39.761	
8,100.00	6,947.00	6,125.00	6,124.37	40.40	4.57	11.20	-1,656.45	379.52	1,360.85	1,327.94	32.91	41.352	
8,200.00	6,947.00	6,125.00	6,124.37	41.42	4.57	8.69	-1,656.45	379.52	1,439.52	1,406.11	33.42	43.079	
8,300.00	6,947.00	6,125.00	6,124.37	42.44	4.57	5.90	-1,656.45	379.52	1,521.00	1,487.14	33.86	44.916	
8,400.00	6,947.00	6,125.00	6,124.37	43.48	4.57	2.84	-1,656.45	379.52	1,604.76	1,570.50	34.26	46.839	
8,500.00	6,947.00	6,125.00	6,124.37	44.53	4.57	-0.48	-1,656.45	379.52	1,690.38	1,655.76	34.62	48.830	
8,600.00	6,947.00	6,125.00	6,124.37	45.58	4.57	-4.02	-1,656.45	379.52	1,777.48	1,742.54	34.94	50.873	
8,700.00	6,947.00	6,125.00	6,124.37	46.63	4.57	-7.76	-1,656.45	379.52	1,865.76	1,830.53	35.23	52.954	
8,800.00	6,947.00	6,125.00	6,124.37	47.69	4.57	-11.65	-1,656.45	379.52	1,954.97	1,919.47	35.50	55.064	
8,841.31	6,947.00	6,125.00	6,124.37	48.13	4.57	-13.29	-1,656.45	379.52	1,992.04	1,956.43	35.61	55.942	
8,900.00	6,947.00	6,125.00	6,124.37	48.76	4.57	-13.29	-1,656.45	379.52	2,044.94	2,009.19	35.75	57.198	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

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

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Rule Assigned: Warning
9,000.00	6,947.00	6,125.00	6,124.37	49.85	4.57	-13.29	-1,656.45	379.52	2,135.77	2,099.80	35.97	59.370	
9,100.00	6,947.00	6,125.00	6,124.37	50.97	4.57	-13.29	-1,656.45	379.52	2,227.39	2,191.22	36.17	61.577	
9,200.00	6,947.00	6,125.00	6,124.37	52.12	4.57	-13.29	-1,656.45	379.52	2,319.70	2,283.35	36.35	63.814	
9,300.00	6,947.00	6,125.00	6,124.37	53.28	4.57	-13.29	-1,656.45	379.52	2,412.62	2,376.11	36.51	66.077	
9,400.00	6,947.00	6,125.00	6,124.37	54.48	4.57	-13.29	-1,656.45	379.52	2,506.09	2,469.43	36.66	68.361	
9,500.00	6,947.00	6,125.00	6,124.37	55.69	4.57	-13.29	-1,656.45	379.52	2,600.05	2,563.25	36.79	70.664	
9,600.00	6,947.00	6,125.00	6,124.37	56.92	4.57	-13.29	-1,656.45	379.52	2,694.44	2,657.52	36.92	72.984	
9,700.00	6,947.00	6,125.00	6,124.37	58.17	4.57	-13.29	-1,656.45	379.52	2,789.22	2,752.19	37.03	75.316	
9,800.00	6,947.00	6,125.00	6,124.37	59.44	4.57	-13.29	-1,656.45	379.52	2,884.35	2,847.21	37.14	77.661	
9,900.00	6,947.00	6,125.00	6,124.37	60.73	4.57	-13.29	-1,656.45	379.52	2,979.81	2,942.56	37.24	80.015	
10,000.00	6,947.00	6,125.00	6,124.37	62.03	4.57	-13.29	-1,656.45	379.52	3,075.55	3,038.21	37.33	82.378	
10,100.00	6,947.00	6,125.00	6,124.37	63.34	4.57	-13.29	-1,656.45	379.52	3,171.55	3,134.13	37.42	84.747	
10,200.00	6,947.00	6,125.00	6,124.37	64.67	4.57	-13.29	-1,656.45	379.52	3,267.79	3,230.29	37.51	87.122	
10,300.00	6,947.00	6,125.00	6,124.37	66.01	4.57	-13.29	-1,656.45	379.52	3,364.26	3,326.67	37.59	89.502	
10,400.00	6,947.00	6,125.00	6,124.37	67.36	4.57	-13.29	-1,656.45	379.52	3,460.92	3,423.26	37.67	91.886	
10,500.00	6,947.00	6,125.00	6,124.37	68.73	4.57	-13.29	-1,656.45	379.52	3,557.77	3,520.03	37.74	94.273	
10,600.00	6,947.00	6,125.00	6,124.37	70.10	4.57	-13.29	-1,656.45	379.52	3,654.79	3,616.98	37.81	96.661	
10,700.00	6,947.00	6,125.00	6,124.37	71.48	4.57	-13.29	-1,656.45	379.52	3,751.96	3,714.08	37.88	99.051	
10,800.00	6,947.00	6,125.00	6,124.37	72.88	4.57	-13.29	-1,656.45	379.52	3,849.28	3,811.34	37.95	101.442	
10,900.00	6,947.00	6,125.00	6,124.37	74.28	4.57	-13.29	-1,656.45	379.52	3,946.73	3,908.72	38.01	103.833	
11,000.00	6,947.00	6,125.00	6,124.37	75.69	4.57	-13.29	-1,656.45	379.52	4,044.31	4,006.24	38.07	106.223	
11,100.00	6,947.00	6,125.00	6,124.37	77.10	4.57	-13.29	-1,656.45	379.52	4,142.00	4,103.87	38.14	108.613	
11,200.00	6,947.00	6,125.00	6,124.37	78.53	4.57	-13.29	-1,656.45	379.52	4,239.81	4,201.61	38.20	111.001	
11,300.00	6,947.00	6,125.00	6,124.37	79.96	4.57	-13.29	-1,656.45	379.52	4,337.71	4,299.45	38.26	113.388	
11,400.00	6,947.00	6,125.00	6,124.37	81.40	4.57	-13.29	-1,656.45	379.52	4,435.70	4,397.39	38.31	115.772	
11,500.00	6,947.00	6,125.00	6,124.37	82.84	4.57	-13.29	-1,656.45	379.52	4,533.78	4,495.41	38.37	118.154	
11,600.00	6,947.00	6,125.00	6,124.37	84.29	4.57	-13.29	-1,656.45	379.52	4,631.95	4,593.52	38.43	120.533	
11,700.00	6,947.00	6,125.00	6,124.37	85.75	4.57	-13.29	-1,656.45	379.52	4,730.19	4,691.70	38.49	122.909	
11,800.00	6,947.00	6,125.00	6,124.37	87.21	4.57	-13.29	-1,656.45	379.52	4,828.50	4,789.96	38.54	125.282	
11,900.00	6,947.00	6,125.00	6,124.37	88.68	4.57	-13.29	-1,656.45	379.52	4,926.88	4,888.29	38.60	127.650	
12,000.00	6,947.00	6,125.00	6,124.37	90.15	4.57	-13.29	-1,656.45	379.52	5,025.33	4,986.68	38.65	130.015	
12,100.00	6,947.00	6,125.00	6,124.37	91.62	4.57	-13.29	-1,656.45	379.52	5,123.83	5,085.13	38.71	132.376	
12,200.00	6,947.00	6,125.00	6,124.37	93.10	4.57	-13.29	-1,656.45	379.52	5,222.40	5,183.63	38.76	134.732	
12,300.00	6,947.00	6,125.00	6,124.37	94.59	4.57	-13.29	-1,656.45	379.52	5,321.01	5,282.20	38.82	137.083	
12,400.00	6,947.00	6,125.00	6,124.37	96.07	4.57	-13.29	-1,656.45	379.52	5,419.68	5,380.81	38.87	139.430	
12,500.00	6,947.00	6,125.00	6,124.37	97.56	4.57	-13.29	-1,656.45	379.52	5,518.39	5,479.47	38.92	141.771	
12,600.00	6,947.00	6,125.00	6,124.37	99.06	4.57	-13.29	-1,656.45	379.52	5,617.15	5,578.17	38.98	144.107	
12,700.00	6,947.00	6,125.00	6,124.37	100.56	4.57	-13.29	-1,656.45	379.52	5,715.96	5,676.92	39.03	146.437	
12,800.00	6,947.00	6,125.00	6,124.37	102.06	4.57	-13.29	-1,656.45	379.52	5,814.80	5,775.71	39.09	148.762	
12,900.00	6,947.00	6,125.00	6,124.37	103.56	4.57	-13.29	-1,656.45	379.52	5,913.68	5,874.54	39.14	151.082	
13,000.00	6,947.00	6,125.00	6,124.37	105.07	4.57	-13.29	-1,656.45	379.52	6,012.60	5,973.41	39.20	153.395	
13,100.00	6,947.00	6,125.00	6,124.37	106.58	4.57	-13.29	-1,656.45	379.52	6,111.56	6,072.31	39.25	155.702	
13,200.00	6,947.00	6,125.00	6,124.37	108.10	4.57	-13.29	-1,656.45	379.52	6,210.55	6,171.24	39.31	158.003	
13,300.00	6,947.00	6,125.00	6,124.37	109.61	4.57	-13.29	-1,656.45	379.52	6,309.57	6,270.21	39.36	160.297	
13,400.00	6,947.00	6,125.00	6,124.37	111.13	4.57	-13.29	-1,656.45	379.52	6,408.62	6,369.20	39.42	162.585	
13,500.00	6,947.00	6,125.00	6,124.37	112.65	4.57	-13.29	-1,656.45	379.52	6,507.70	6,468.23	39.47	164.866	
13,600.00	6,947.00	6,125.00	6,124.37	114.17	4.57	-13.29	-1,656.45	379.52	6,606.81	6,567.28	39.53	167.141	
13,700.00	6,947.00	6,125.00	6,124.37	115.70	4.57	-13.29	-1,656.45	379.52	6,705.94	6,666.35	39.58	169.408	
13,800.00	6,947.00	6,125.00	6,124.37	117.23	4.57	-13.29	-1,656.45	379.52	6,805.10	6,765.46	39.64	171.669	
13,900.00	6,947.00	6,125.00	6,124.37	118.76	4.57	-13.29	-1,656.45	379.52	6,904.28	6,864.58	39.70	173.922	
14,000.00	6,947.00	6,125.00	6,124.37	120.29	4.57	-13.29	-1,656.45	379.52	7,003.49	6,963.73	39.75	176.168	
14,100.00	6,947.00	6,125.00	6,124.37	121.82	4.57	-13.29	-1,656.45	379.52	7,102.72	7,062.91	39.81	178.407	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

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

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,200.00	6,947.00	6,125.00	6,124.37	123.36	4.57	-13.29	-1,656.45	379.52	7,201.97	7,162.10	39.87	180.639	
14,300.00	6,947.00	6,125.00	6,124.37	124.89	4.57	-13.29	-1,656.45	379.52	7,301.24	7,261.31	39.93	182.863	
14,400.00	6,947.00	6,125.00	6,124.37	126.43	4.57	-13.29	-1,656.45	379.52	7,400.53	7,360.54	39.99	185.079	
14,500.00	6,947.00	6,125.00	6,124.37	127.97	4.57	-13.29	-1,656.45	379.52	7,499.84	7,459.80	40.04	187.288	
14,600.00	6,947.00	6,125.00	6,124.37	129.51	4.57	-13.29	-1,656.45	379.52	7,599.17	7,559.06	40.10	189.489	
14,700.00	6,947.00	6,125.00	6,124.37	131.06	4.57	-13.29	-1,656.45	379.52	7,698.51	7,658.35	40.16	191.682	
14,800.00	6,947.00	6,125.00	6,124.37	132.60	4.57	-13.29	-1,656.45	379.52	7,797.87	7,757.65	40.22	193.867	
14,900.00	6,947.00	6,125.00	6,124.37	134.15	4.57	-13.29	-1,656.45	379.52	7,897.25	7,856.97	40.28	196.045	
15,000.00	6,947.00	6,125.00	6,124.37	135.70	4.57	-13.29	-1,656.45	379.52	7,996.65	7,956.30	40.34	198.214	
15,100.00	6,947.00	6,125.00	6,124.37	137.24	4.57	-13.29	-1,656.45	379.52	8,096.05	8,055.65	40.40	200.375	
15,200.00	6,947.00	6,125.00	6,124.37	138.79	4.57	-13.29	-1,656.45	379.52	8,195.48	8,155.01	40.47	202.528	
15,300.00	6,947.00	6,125.00	6,124.37	140.35	4.57	-13.29	-1,656.45	379.52	8,294.91	8,254.38	40.53	204.673	
15,400.00	6,947.00	6,125.00	6,124.37	141.90	4.57	-13.29	-1,656.45	379.52	8,394.36	8,353.77	40.59	206.809	
15,500.00	6,947.00	6,125.00	6,124.37	143.45	4.57	-13.29	-1,656.45	379.52	8,493.83	8,453.17	40.65	208.937	
15,600.00	6,947.00	6,125.00	6,124.37	145.01	4.57	-13.29	-1,656.45	379.52	8,593.30	8,552.58	40.72	211.057	
15,700.00	6,947.00	6,125.00	6,124.37	146.56	4.57	-13.29	-1,656.45	379.52	8,692.79	8,652.01	40.78	213.168	
15,800.00	6,947.00	6,125.00	6,124.37	148.12	4.57	-13.29	-1,656.45	379.52	8,792.29	8,751.44	40.84	215.270	
15,900.00	6,947.00	6,125.00	6,124.37	149.68	4.57	-13.29	-1,656.45	379.52	8,891.80	8,850.89	40.91	217.364	
16,000.00	6,947.00	6,125.00	6,124.37	151.23	4.57	-13.29	-1,656.45	379.52	8,991.32	8,950.35	40.97	219.450	
16,100.00	6,947.00	6,125.00	6,124.37	152.79	4.57	-13.29	-1,656.45	379.52	9,090.85	9,049.81	41.04	221.527	
16,200.00	6,947.00	6,125.00	6,124.37	154.36	4.57	-13.29	-1,656.45	379.52	9,190.39	9,149.29	41.10	223.595	
16,300.00	6,947.00	6,125.00	6,124.37	155.92	4.57	-13.29	-1,656.45	379.52	9,289.94	9,248.77	41.17	225.654	
16,400.00	6,947.00	6,125.00	6,124.37	157.48	4.57	-13.29	-1,656.45	379.52	9,389.50	9,348.27	41.24	227.705	
16,500.00	6,947.00	6,125.00	6,124.37	159.04	4.57	-13.29	-1,656.45	379.52	9,489.07	9,447.77	41.30	229.747	
16,600.00	6,947.00	6,125.00	6,124.37	160.61	4.57	-13.29	-1,656.45	379.52	9,588.65	9,547.28	41.37	231.780	
16,700.00	6,947.00	6,125.00	6,124.37	162.17	4.57	-13.29	-1,656.45	379.52	9,688.24	9,646.80	41.44	233.804	
16,800.00	6,947.00	6,125.00	6,124.37	163.74	4.57	-13.29	-1,656.45	379.52	9,787.84	9,746.33	41.51	235.819	
16,900.00	6,947.00	6,125.00	6,124.37	165.30	4.57	-13.29	-1,656.45	379.52	9,887.44	9,845.87	41.57	237.825	
17,000.00	6,947.00	6,125.00	6,124.37	166.87	4.57	-13.29	-1,656.45	379.52	9,987.06	9,945.41	41.64	239.823	
17,100.00	6,947.00	6,125.00	6,124.37	168.44	4.57	-13.29	-1,656.45	379.52	10,086.68	10,044.96	41.71	241.811	
17,200.00	6,947.00	6,125.00	6,124.37	170.01	4.57	-13.29	-1,656.45	379.52	10,186.30	10,144.52	41.78	243.790	
17,300.00	6,947.00	6,125.00	6,124.37	171.57	4.57	-13.29	-1,656.45	379.52	10,285.94	10,244.08	41.85	245.761	
17,400.00	6,947.00	6,125.00	6,124.37	173.14	4.57	-13.29	-1,656.45	379.52	10,385.58	10,343.66	41.92	247.722	
17,500.00	6,947.00	6,125.00	6,124.37	174.71	4.57	-13.29	-1,656.45	379.52	10,485.23	10,443.23	42.00	249.675	
17,600.00	6,947.00	6,125.00	6,124.37	176.28	4.57	-13.29	-1,656.45	379.52	10,584.88	10,542.82	42.07	251.618	
17,700.00	6,947.00	6,125.00	6,124.37	177.86	4.57	-13.29	-1,656.45	379.52	10,684.54	10,642.41	42.14	253.552	
17,800.00	6,947.00	6,125.00	6,124.37	179.43	4.57	-13.29	-1,656.45	379.52	10,784.21	10,742.00	42.21	255.477	
17,900.00	6,947.00	6,125.00	6,124.37	181.00	4.57	-13.29	-1,656.45	379.52	10,883.89	10,841.60	42.29	257.393	
18,000.00	6,947.00	6,125.00	6,124.37	182.57	4.57	-13.29	-1,656.45	379.52	10,983.57	10,941.21	42.36	259.300	
18,100.00	6,947.00	6,125.00	6,124.37	184.15	4.57	-13.29	-1,656.45	379.52	11,083.25	11,040.82	42.43	261.197	
18,200.00	6,947.00	6,125.00	6,124.37	185.72	4.57	-13.29	-1,656.45	379.52	11,182.94	11,140.44	42.51	263.086	
18,300.00	6,947.00	6,125.00	6,124.37	187.30	4.57	-13.29	-1,656.45	379.52	11,282.64	11,240.06	42.58	264.965	
18,400.00	6,947.00	6,125.00	6,124.37	188.87	4.57	-13.29	-1,656.45	379.52	11,382.34	11,339.69	42.66	266.836	
18,500.00	6,947.00	6,125.00	6,124.37	190.45	4.57	-13.29	-1,656.45	379.52	11,482.05	11,439.32	42.73	268.697	
18,600.00	6,947.00	6,125.00	6,124.37	192.02	4.57	-13.29	-1,656.45	379.52	11,581.76	11,538.95	42.81	270.549	
18,700.00	6,947.00	6,125.00	6,124.37	193.60	4.57	-13.29	-1,656.45	379.52	11,681.48	11,638.59	42.88	272.391	
18,800.00	6,947.00	6,125.00	6,124.37	195.18	4.57	-13.29	-1,656.45	379.52	11,781.20	11,738.24	42.96	274.225	
18,900.00	6,947.00	6,125.00	6,124.37	196.75	4.57	-13.29	-1,656.45	379.52	11,880.93	11,837.89	43.04	276.049	
19,000.00	6,947.00	6,125.00	6,124.37	198.33	4.57	-13.29	-1,656.45	379.52	11,980.66	11,937.54	43.12	277.865	
19,100.00	6,947.00	6,125.00	6,124.37	199.91	4.57	-13.29	-1,656.45	379.52	12,080.40	12,037.20	43.20	279.671	
19,200.00	6,947.00	6,125.00	6,124.37	201.49	4.57	-13.29	-1,656.45	379.52	12,180.14	12,136.86	43.27	281.468	
19,300.00	6,947.00	6,125.00	6,124.37	203.07	4.57	-13.29	-1,656.45	379.52	12,279.88	12,236.53	43.35	283.256	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 95-Standard Keeper 104

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Rule Assigned: Minimum Separation (usft)	Separation Factor	Warning
19,400.00	6,947.00	6,125.00	6,124.37	204.65	4.57	-13.29	-1,656.45	379.52	12,379.63	12,336.20	43.43	285.035	
19,500.00	6,947.00	6,125.00	6,124.37	206.23	4.57	-13.29	-1,656.45	379.52	12,479.38	12,435.87	43.51	286.804	
19,600.00	6,947.00	6,125.00	6,124.37	207.81	4.57	-13.29	-1,656.45	379.52	12,579.14	12,535.55	43.59	288.565	
19,700.00	6,947.00	6,125.00	6,124.37	209.39	4.57	-13.29	-1,656.45	379.52	12,678.90	12,635.22	43.67	290.316	
19,800.00	6,947.00	6,125.00	6,124.37	210.97	4.57	-13.29	-1,656.45	379.52	12,778.66	12,734.91	43.75	292.059	
19,900.00	6,947.00	6,125.00	6,124.37	212.55	4.57	-13.29	-1,656.45	379.52	12,878.43	12,834.59	43.84	293.792	
20,000.00	6,947.00	6,125.00	6,124.37	214.13	4.57	-13.29	-1,656.45	379.52	12,978.20	12,934.28	43.92	295.516	
20,100.00	6,947.00	6,125.00	6,124.37	215.71	4.57	-13.29	-1,656.45	379.52	13,077.97	13,033.98	44.00	297.231	
20,200.00	6,947.00	6,125.00	6,124.37	217.30	4.57	-13.29	-1,656.45	379.52	13,177.75	13,133.67	44.08	298.937	
20,300.00	6,947.00	6,125.00	6,124.37	218.88	4.57	-13.29	-1,656.45	379.52	13,277.53	13,233.37	44.17	300.634	
20,400.00	6,947.00	6,125.00	6,124.37	220.46	4.57	-13.29	-1,656.45	379.52	13,377.32	13,333.07	44.25	302.322	
20,500.00	6,947.00	6,125.00	6,124.37	222.04	4.57	-13.29	-1,656.45	379.52	13,477.11	13,432.77	44.33	304.001	
20,600.00	6,947.00	6,125.00	6,124.37	223.63	4.57	-13.29	-1,656.45	379.52	13,576.90	13,532.48	44.42	305.671	
20,700.00	6,947.00	6,125.00	6,124.37	225.21	4.57	-13.29	-1,656.45	379.52	13,676.69	13,632.19	44.50	307.332	
20,800.00	6,947.00	6,125.00	6,124.37	226.80	4.57	-13.29	-1,656.45	379.52	13,776.49	13,731.90	44.59	308.985	
20,900.00	6,947.00	6,125.00	6,124.37	228.38	4.57	-13.29	-1,656.45	379.52	13,876.29	13,831.62	44.67	310.628	
21,000.00	6,947.00	6,125.00	6,124.37	229.97	4.57	-13.29	-1,656.45	379.52	13,976.09	13,931.33	44.76	312.262	
21,032.01	6,947.00	6,125.00	6,124.37	230.47	4.57	-13.29	-1,656.45	379.52	14,008.04	13,963.25	44.79	312.783	
21,032.99	6,947.00	6,125.00	6,124.37	230.51	4.57	-13.29	-1,656.45	379.52	14,009.01	13,960.38	48.64	288.030	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

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

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	46.66	46.66	0.00	0.02	165.28	-1,580.42	415.12	1,634.03				
100.00	100.00	143.44	143.44	0.25	0.11	165.29	-1,580.45	414.96	1,634.02	1,633.70	0.31	5,209.207	
200.00	200.00	237.84	237.84	0.61	0.13	165.26	-1,580.48	415.70	1,634.26	1,633.52	0.74	2,213.337	
300.00	300.00	1,018.52	996.52	0.97	1.02	163.80	-1,435.76	417.23	1,630.54	1,628.32	2.22	734.824	
400.00	400.00	1,147.68	1,113.57	1.33	1.25	163.29	-1,381.23	414.70	1,589.16	1,586.49	2.67	595.767	
500.00	500.00	1,248.39	1,204.18	1.68	1.46	162.81	-1,337.27	413.82	1,546.85	1,543.76	3.08	501.791	
600.00	599.98	1,326.69	1,274.60	2.03	1.63	-2.65	-1,303.05	413.50	1,503.10	1,499.63	3.48	432.101	
700.00	699.84	1,415.31	1,354.27	2.36	1.83	-3.27	-1,264.23	414.13	1,456.53	1,452.62	3.91	372.563	
800.00	799.45	1,508.89	1,438.18	2.71	2.04	-4.03	-1,222.82	415.49	1,406.79	1,402.43	4.35	323.065	
900.00	898.70	1,585.43	1,506.96	3.06	2.22	-4.72	-1,189.25	415.89	1,354.30	1,349.53	4.78	283.581	
1,000.00	997.47	1,676.58	1,588.86	3.43	2.43	-5.61	-1,149.27	415.87	1,298.89	1,293.67	5.22	248.888	
1,100.00	1,095.62	1,765.19	1,668.18	3.82	2.64	-6.65	-1,109.75	415.98	1,240.19	1,234.54	5.66	219.191	
1,200.00	1,193.44	1,837.87	1,733.12	4.22	2.82	-7.49	-1,077.12	416.38	1,180.14	1,174.06	6.07	194.309	
1,300.00	1,291.25	1,895.06	1,784.52	4.64	2.96	-8.20	-1,052.04	416.80	1,121.25	1,114.77	6.48	173.063	
1,400.00	1,389.07	1,975.39	1,857.29	5.06	3.15	-9.22	-1,018.04	416.89	1,063.64	1,056.73	6.91	153.878	
1,500.00	1,486.88	2,059.03	1,932.88	5.48	3.35	-10.42	-982.24	416.98	1,005.91	998.55	7.36	136.729	
1,600.00	1,584.70	2,129.55	1,996.60	5.91	3.52	-11.56	-952.03	417.36	948.61	940.80	7.81	121.408	
1,700.00	1,682.51	2,208.77	2,068.38	6.35	3.71	-13.01	-918.52	418.26	892.32	884.03	8.29	107.697	
1,800.00	1,780.33	2,295.45	2,146.84	6.78	3.92	-14.79	-881.71	419.05	836.29	827.52	8.77	95.377	
1,900.00	1,878.14	2,385.15	2,227.67	7.22	4.14	-16.88	-842.79	419.19	779.84	770.57	9.26	84.201	
2,000.00	1,975.96	2,469.79	2,303.58	7.66	4.36	-19.19	-805.34	419.13	723.34	713.56	9.78	73.958	
2,100.00	2,073.77	2,537.98	2,364.82	8.10	4.53	-21.32	-775.36	419.16	667.99	657.64	10.36	64.494	
2,200.00	2,171.59	2,615.82	2,435.16	8.54	4.73	-24.06	-742.03	419.39	614.71	603.75	10.96	56.102	
2,300.00	2,269.40	2,699.21	2,510.34	8.98	4.94	-27.51	-705.94	419.65	562.53	550.94	11.60	48.511	
2,400.00	2,367.22	2,781.38	2,584.18	9.43	5.16	-31.54	-669.90	419.74	511.72	499.42	12.30	41.588	
2,500.00	2,465.03	2,860.90	2,655.42	9.87	5.37	-36.18	-634.59	419.86	463.11	450.00	13.11	35.321	
2,600.00	2,562.84	2,943.16	2,729.36	10.32	5.58	-41.74	-598.54	419.28	417.76	403.76	14.00	29.830	
2,700.00	2,660.66	3,021.71	2,800.32	10.77	5.79	-47.76	-564.89	417.39	376.26	361.25	15.01	25.070	
2,800.00	2,758.47	3,095.88	2,868.27	11.21	5.97	-54.03	-535.24	415.32	341.32	325.22	16.10	21.205	
2,900.00	2,856.29	3,172.33	2,939.22	11.66	6.15	-61.03	-506.83	413.80	314.66	297.47	17.19	18.310	
3,000.00	2,954.10	3,249.22	3,011.55	12.11	6.31	-68.39	-480.78	413.53	297.84	279.67	18.17	16.388	
3,100.00	3,051.92	3,334.26	3,093.13	12.56	6.47	-76.15	-456.83	414.30	290.56	271.60	18.96	15.324	
3,152.79	3,103.56	3,381.83	3,139.31	12.79	6.55	-80.20	-445.44	414.84	289.65	270.35	19.30	15.007	CC, ES
3,200.00	3,149.73	3,424.13	3,180.47	13.01	6.61	-83.73	-435.70	415.42	290.36	270.80	19.56	14.842	
3,300.00	3,247.55	3,518.45	3,272.51	13.45	6.76	-91.26	-415.15	416.85	296.15	276.12	20.03	14.788	SF
3,400.00	3,345.36	3,617.00	3,369.41	13.90	6.89	-98.25	-397.23	417.07	304.84	284.45	20.39	14.949	
3,500.00	3,443.18	3,715.48	3,466.69	14.35	7.00	-104.37	-382.00	417.63	316.84	296.14	20.69	15.311	
3,600.00	3,540.99	3,836.93	3,587.71	14.80	7.09	-110.23	-372.63	415.78	326.06	305.03	21.03	15.503	
3,700.00	3,638.81	3,935.24	3,685.93	15.25	7.11	-114.24	-369.54	412.96	333.72	312.46	21.27	15.691	
3,800.00	3,736.62	4,033.32	3,783.97	15.70	7.14	-117.83	-367.60	410.86	342.72	321.22	21.51	15.936	
3,900.00	3,834.44	4,133.43	3,884.07	16.15	7.17	-121.05	-367.22	409.38	352.33	330.59	21.74	16.204	
4,000.00	3,932.25	4,233.18	3,983.81	16.60	7.19	-123.91	-367.99	408.35	362.39	340.42	21.97	16.492	
4,100.00	4,030.07	4,332.52	4,083.14	17.05	7.22	-126.52	-369.45	407.43	372.82	350.62	22.21	16.788	
4,200.00	4,127.88	4,431.71	4,182.30	17.50	7.25	-128.94	-371.29	406.61	383.73	361.28	22.45	17.094	
4,300.00	4,225.70	4,530.73	4,281.29	17.96	7.28	-131.18	-373.56	405.81	394.92	372.23	22.69	17.402	
4,400.00	4,323.51	4,628.48	4,379.01	18.41	7.31	-133.27	-375.80	405.03	406.70	383.76	22.94	17.727	
4,500.00	4,421.33	4,723.92	4,474.44	18.86	7.33	-135.19	-377.72	404.47	419.33	396.15	23.19	18.084	
4,600.00	4,519.14	4,821.27	4,571.76	19.31	7.36	-137.03	-379.30	404.20	432.91	409.46	23.45	18.462	
4,700.00	4,616.95	4,918.87	4,669.35	19.76	7.39	-138.76	-380.79	403.97	447.02	423.30	23.72	18.846	
4,800.00	4,714.77	5,016.86	4,767.34	20.21	7.42	-140.39	-382.18	403.78	461.63	437.63	24.00	19.234	
4,900.00	4,812.58	5,114.18	4,864.65	20.66	7.45	-141.93	-383.41	403.49	476.69	452.41	24.28	19.630	
5,000.00	4,910.40	5,212.39	4,962.85	21.11	7.48	-143.39	-384.60	403.19	492.12	467.54	24.58	20.021	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

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

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,100.00	5,008.21	5,310.68	5,061.14	21.57	7.52	-144.77	-385.84	402.84	507.79	482.91	24.89	20.405	
5,200.00	5,106.03	5,408.59	5,159.04	22.02	7.55	-146.06	-387.15	402.50	523.66	498.46	25.20	20.782	
5,300.00	5,203.84	5,507.76	5,258.19	22.47	7.59	-147.31	-388.47	401.94	539.72	514.19	25.52	21.145	
5,400.00	5,301.66	5,606.20	5,356.62	22.92	7.62	-148.49	-389.87	401.25	555.89	530.03	25.85	21.501	
5,500.00	5,399.47	5,707.04	5,457.44	23.37	7.66	-149.63	-391.69	400.49	571.90	545.69	26.21	21.823	
5,600.00	5,497.29	5,806.62	5,556.99	23.82	7.69	-150.66	-393.90	399.94	587.77	561.21	26.56	22.129	
5,700.00	5,595.10	5,905.18	5,655.53	24.28	7.73	-151.59	-396.29	399.68	603.66	576.74	26.92	22.426	
5,800.00	5,692.92	6,003.32	5,753.64	24.73	7.76	-152.48	-398.69	399.34	619.68	592.40	27.28	22.717	
5,900.00	5,790.73	6,096.38	5,846.68	25.18	7.80	-153.29	-400.51	399.03	636.31	608.70	27.61	23.043	
6,000.00	5,888.55	6,193.29	5,943.58	25.63	7.83	-154.09	-401.85	398.89	653.66	625.68	27.98	23.361	
6,100.00	5,986.36	6,291.06	6,041.34	26.08	7.87	-154.85	-403.16	398.77	671.17	642.81	28.36	23.668	
6,200.00	6,084.18	6,389.65	6,139.92	26.54	7.91	-155.58	-404.51	398.63	688.76	660.02	28.75	23.960	
6,300.00	6,181.99	6,485.62	6,235.88	26.99	7.94	-156.24	-405.83	398.59	706.48	677.35	29.12	24.258	
6,400.00	6,279.81	6,581.23	6,331.49	27.44	7.97	-156.86	-406.69	398.80	724.76	695.25	29.50	24.564	
6,500.00	6,377.62	6,674.28	6,424.54	27.89	8.00	-157.43	-407.08	399.11	743.61	713.73	29.88	24.890	
6,530.62	6,407.57	6,706.03	6,456.29	28.03	8.01	-157.62	-407.18	399.20	749.43	719.42	30.01	24.970	
6,550.00	6,426.48	6,724.11	6,474.36	28.12	8.02	-151.95	-407.25	399.26	753.20	723.12	30.09	25.035	
6,600.00	6,474.77	6,769.87	6,520.12	28.36	8.03	-141.45	-407.29	399.47	764.03	733.76	30.27	25.240	
6,650.00	6,522.09	6,816.87	6,567.12	28.62	8.05	-134.82	-407.24	399.66	776.33	745.87	30.47	25.481	
6,700.00	6,568.15	6,864.21	6,614.46	28.89	8.07	-130.39	-407.22	399.93	790.06	759.39	30.67	25.760	
6,750.00	6,612.66	6,906.01	6,656.26	29.18	8.08	-127.15	-407.20	400.15	805.31	774.47	30.84	26.113	
6,800.00	6,655.36	6,947.07	6,697.33	29.48	8.09	-124.70	-407.04	400.36	822.31	791.30	31.01	26.514	
6,850.00	6,695.98	6,987.06	6,737.31	29.79	8.11	-122.75	-406.82	400.55	841.09	809.90	31.19	26.964	
6,900.00	6,734.26	7,027.68	6,777.93	30.11	8.12	-121.17	-406.66	400.71	861.60	830.21	31.39	27.449	
6,950.00	6,769.98	7,059.60	6,809.85	30.45	8.14	-119.42	-406.53	400.85	883.99	852.45	31.54	28.030	
7,000.00	6,802.91	7,093.33	6,843.58	30.79	8.15	-117.84	-406.29	400.98	908.39	876.67	31.72	28.642	
7,050.00	6,832.85	7,124.53	6,874.77	31.15	8.16	-116.14	-406.10	401.18	934.65	902.76	31.89	29.308	
7,100.00	6,859.62	7,151.22	6,901.46	31.51	8.17	-114.14	-405.97	401.36	962.77	930.72	32.05	30.041	
7,150.00	6,883.05	7,173.50	6,923.75	31.89	8.18	-111.76	-405.85	401.43	992.75	960.55	32.19	30.840	
7,200.00	6,902.99	7,192.96	6,943.21	32.28	8.19	-109.03	-405.74	401.46	1,024.46	992.13	32.33	31.690	
7,250.00	6,919.32	7,208.82	6,959.06	32.67	8.19	-105.85	-405.64	401.48	1,057.77	1,025.32	32.45	32.596	
7,300.00	6,931.95	7,221.59	6,971.83	33.08	8.20	-102.23	-405.55	401.51	1,092.48	1,059.91	32.57	33.547	
7,350.00	6,940.79	7,230.79	6,981.03	33.49	8.20	-98.12	-405.49	401.53	1,128.38	1,095.71	32.67	34.544	
7,400.00	6,945.79	7,235.96	6,986.20	33.90	8.21	-93.52	-405.46	401.54	1,165.24	1,132.49	32.75	35.582	
7,439.53	6,947.00	7,237.18	6,987.42	34.24	8.21	-89.59	-405.46	401.55	1,194.89	1,162.09	32.80	36.430	
7,500.00	6,947.00	7,237.11	6,987.35	34.75	8.21	-89.60	-405.46	401.55	1,240.75	1,207.88	32.87	37.745	
7,600.00	6,947.00	7,237.01	6,987.25	35.63	8.21	-89.61	-405.46	401.55	1,317.45	1,284.46	32.99	39.930	
7,700.00	6,947.00	7,236.93	6,987.17	36.54	8.21	-89.62	-405.46	401.55	1,395.01	1,361.89	33.12	42.124	
7,800.00	6,947.00	7,236.87	6,987.11	37.47	8.21	-89.63	-405.46	401.55	1,473.20	1,439.96	33.24	44.321	
7,900.00	6,947.00	7,236.84	6,987.08	38.43	8.21	-89.64	-405.46	401.55	1,551.84	1,518.48	33.36	46.516	
8,000.00	6,947.00	7,236.82	6,987.06	39.41	8.21	-89.66	-405.46	401.55	1,630.77	1,597.29	33.48	48.706	
8,100.00	6,947.00	7,236.83	6,987.07	40.40	8.21	-89.68	-405.46	401.55	1,709.87	1,676.27	33.60	50.887	
8,200.00	6,947.00	7,236.85	6,987.10	41.42	8.21	-89.69	-405.46	401.55	1,789.02	1,755.30	33.72	53.057	
8,300.00	6,947.00	7,236.90	6,987.15	42.44	8.21	-89.71	-405.46	401.55	1,868.13	1,834.29	33.84	55.212	
8,400.00	6,947.00	7,236.97	6,987.22	43.48	8.21	-89.72	-405.46	401.55	1,947.11	1,913.16	33.95	57.352	
8,500.00	6,947.00	7,237.06	6,987.31	44.53	8.21	-89.74	-405.46	401.55	2,025.88	1,991.82	34.06	59.473	
8,600.00	6,947.00	7,237.17	6,987.42	45.58	8.21	-89.76	-405.46	401.55	2,104.38	2,070.20	34.18	61.575	
8,700.00	6,947.00	7,237.30	6,987.55	46.63	8.21	-89.77	-405.45	401.55	2,182.55	2,148.26	34.29	63.656	
8,800.00	6,947.00	7,237.45	6,987.70	47.69	8.21	-89.79	-405.45	401.55	2,260.32	2,225.93	34.40	65.715	
8,841.31	6,947.00	7,237.52	6,987.76	48.13	8.21	-89.79	-405.45	401.55	2,292.33	2,257.89	34.44	66.562	
8,900.00	6,947.00	7,237.62	6,987.86	48.76	8.21	-89.80	-405.45	401.55	2,338.04	2,303.54	34.50	67.765	
9,000.00	6,947.00	7,237.78	6,988.02	49.85	8.21	-89.80	-405.45	401.55	2,417.21	2,382.60	34.61	69.846	

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 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

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

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,100.00	6,947.00	7,237.95	6,988.19	50.97	8.21	-89.81	-405.45	401.55	2,497.88	2,463.17	34.71	71.967	
9,200.00	6,947.00	7,238.11	6,988.35	52.12	8.21	-89.82	-405.45	401.55	2,579.90	2,545.10	34.80	74.125	
9,300.00	6,947.00	7,238.27	6,988.51	53.28	8.21	-89.82	-405.45	401.55	2,663.16	2,628.26	34.90	76.314	
9,400.00	6,947.00	7,238.43	6,988.67	54.48	8.21	-89.83	-405.45	401.55	2,747.53	2,712.54	34.99	78.533	
9,500.00	6,947.00	7,238.59	6,988.83	55.69	8.21	-89.84	-405.45	401.55	2,832.91	2,797.84	35.07	80.778	
9,600.00	6,947.00	7,238.87	6,989.11	56.92	8.21	-89.85	-405.45	401.55	2,919.23	2,884.08	35.15	83.045	
9,700.00	6,947.00	7,238.87	6,989.11	58.17	8.21	-89.85	-405.45	401.55	3,006.39	2,971.16	35.23	85.335	
9,800.00	6,947.00	7,238.87	6,989.11	59.44	8.21	-89.85	-405.45	401.55	3,094.33	3,059.02	35.31	87.643	
9,900.00	6,947.00	7,238.87	6,989.11	60.73	8.21	-89.85	-405.45	401.55	3,182.98	3,147.60	35.38	89.967	
10,000.00	6,947.00	7,238.87	6,989.11	62.03	8.21	-89.85	-405.45	401.55	3,272.29	3,236.84	35.45	92.306	
10,100.00	6,947.00	7,238.87	6,989.11	63.34	8.21	-89.85	-405.45	401.55	3,362.20	3,326.68	35.52	94.657	
10,200.00	6,947.00	7,238.87	6,989.11	64.67	8.21	-89.85	-405.45	401.55	3,452.66	3,417.07	35.59	97.019	
10,300.00	6,947.00	7,238.87	6,989.11	66.01	8.21	-89.85	-405.45	401.55	3,543.64	3,507.98	35.65	99.391	
10,400.00	6,947.00	7,238.87	6,989.11	67.36	8.21	-89.85	-405.45	401.55	3,635.09	3,599.37	35.72	101.771	
10,500.00	6,947.00	7,238.87	6,989.11	68.73	8.21	-89.85	-405.45	401.55	3,726.98	3,691.19	35.78	104.158	
10,600.00	6,947.00	7,238.87	6,989.11	70.10	8.21	-89.85	-405.45	401.55	3,819.27	3,783.43	35.84	106.551	
10,700.00	6,947.00	7,238.87	6,989.11	71.48	8.21	-89.85	-405.45	401.55	3,911.95	3,876.04	35.91	108.948	
10,800.00	6,947.00	7,238.87	6,989.11	72.88	8.21	-89.85	-405.45	401.55	4,004.98	3,969.01	35.97	111.350	
10,900.00	6,947.00	7,238.87	6,989.11	74.28	8.21	-89.85	-405.45	401.55	4,098.33	4,062.30	36.03	113.754	
11,000.00	6,947.00	7,238.87	6,989.11	75.69	8.21	-89.85	-405.45	401.55	4,191.99	4,155.91	36.09	116.161	
11,100.00	6,947.00	7,238.87	6,989.11	77.10	8.21	-89.85	-405.45	401.55	4,285.94	4,249.80	36.15	118.569	
11,200.00	6,947.00	7,238.87	6,989.11	78.53	8.21	-89.85	-405.45	401.55	4,380.16	4,343.95	36.21	120.977	
11,300.00	6,947.00	7,238.87	6,989.11	79.96	8.21	-89.85	-405.45	401.55	4,474.63	4,438.36	36.27	123.386	
11,400.00	6,947.00	7,238.87	6,989.11	81.40	8.21	-89.85	-405.45	401.55	4,569.33	4,533.01	36.32	125.795	
11,500.00	6,947.00	7,238.87	6,989.11	82.84	8.21	-89.85	-405.45	401.55	4,664.26	4,627.88	36.38	128.202	
11,600.00	6,947.00	7,238.87	6,989.11	84.29	8.21	-89.85	-405.45	401.55	4,759.39	4,722.95	36.44	130.607	
11,700.00	6,947.00	7,238.87	6,989.11	85.75	8.21	-89.85	-405.45	401.55	4,854.72	4,818.22	36.50	133.011	
11,800.00	6,947.00	7,238.87	6,989.11	87.21	8.21	-89.85	-405.45	401.55	4,950.23	4,913.67	36.56	135.411	
11,900.00	6,947.00	7,238.87	6,989.11	88.68	8.21	-89.85	-405.45	401.55	5,045.92	5,009.30	36.62	137.809	
12,000.00	6,947.00	7,238.87	6,989.11	90.15	8.21	-89.85	-405.45	401.55	5,141.77	5,105.09	36.67	140.203	
12,100.00	6,947.00	7,238.87	6,989.11	91.62	8.21	-89.85	-405.45	401.55	5,237.77	5,201.04	36.73	142.593	
12,200.00	6,947.00	7,238.87	6,989.11	93.10	8.21	-89.85	-405.45	401.55	5,333.93	5,297.13	36.79	144.980	
12,300.00	6,947.00	7,238.87	6,989.11	94.59	8.21	-89.85	-405.45	401.55	5,430.22	5,393.37	36.85	147.361	
12,400.00	6,947.00	7,238.87	6,989.11	96.07	8.21	-89.85	-405.45	401.55	5,526.64	5,489.73	36.91	149.738	
12,500.00	6,947.00	7,238.87	6,989.11	97.56	8.21	-89.85	-405.45	401.55	5,623.19	5,586.22	36.97	152.109	
12,600.00	6,947.00	7,238.87	6,989.11	99.06	8.21	-89.85	-405.45	401.55	5,719.86	5,682.83	37.03	154.475	
12,700.00	6,947.00	7,238.87	6,989.11	100.56	8.21	-89.85	-405.45	401.55	5,816.63	5,779.55	37.09	156.835	
12,800.00	6,947.00	7,238.87	6,989.11	102.06	8.21	-89.85	-405.45	401.55	5,913.52	5,876.37	37.15	159.189	
12,900.00	6,947.00	7,238.87	6,989.11	103.56	8.21	-89.85	-405.45	401.55	6,010.51	5,973.30	37.21	161.536	
13,000.00	6,947.00	7,238.87	6,989.11	105.07	8.21	-89.85	-405.45	401.55	6,107.60	6,070.33	37.27	163.877	
13,100.00	6,947.00	7,238.87	6,989.11	106.58	8.21	-89.85	-405.45	401.55	6,204.77	6,167.44	37.33	166.211	
13,200.00	6,947.00	7,238.87	6,989.11	108.10	8.21	-89.85	-405.45	401.55	6,302.04	6,264.65	37.39	168.539	
13,300.00	6,947.00	7,238.87	6,989.11	109.61	8.21	-89.85	-405.45	401.55	6,399.39	6,361.94	37.45	170.859	
13,400.00	6,947.00	7,238.87	6,989.11	111.13	8.21	-89.85	-405.45	401.55	6,496.82	6,459.31	37.52	173.171	
13,500.00	6,947.00	7,238.87	6,989.11	112.65	8.21	-89.85	-405.45	401.55	6,594.33	6,556.75	37.58	175.477	
13,600.00	6,947.00	7,238.87	6,989.11	114.17	8.21	-89.85	-405.45	401.55	6,691.91	6,654.27	37.64	177.774	
13,700.00	6,947.00	7,238.87	6,989.11	115.70	8.21	-89.85	-405.45	401.55	6,789.56	6,751.86	37.71	180.063	
13,800.00	6,947.00	7,238.87	6,989.11	117.23	8.21	-89.85	-405.45	401.55	6,887.28	6,849.51	37.77	182.344	
13,900.00	6,947.00	7,238.87	6,989.11	118.76	8.21	-89.85	-405.45	401.55	6,985.07	6,947.23	37.84	184.618	
14,000.00	6,947.00	7,238.87	6,989.11	120.29	8.21	-89.85	-405.45	401.55	7,082.91	7,045.01	37.90	186.882	
14,100.00	6,947.00	7,238.87	6,989.11	121.82	8.21	-89.85	-405.45	401.55	7,180.82	7,142.85	37.97	189.138	
14,200.00	6,947.00	7,238.87	6,989.11	123.36	8.21	-89.85	-405.45	401.55	7,278.78	7,240.75	38.03	191.386	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 95-Standard Keeper 104

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,300.00	6,947.00	7,238.87	6,989.11	124.89	8.21	-89.85	-405.45	401.55	7,376.80	7,338.70	38.10	193.625	
14,400.00	6,947.00	7,238.87	6,989.11	126.43	8.21	-89.85	-405.45	401.55	7,474.87	7,436.70	38.17	195.854	
14,500.00	6,947.00	7,243.64	6,993.88	127.97	8.21	-90.03	-405.42	401.56	7,572.99	7,534.74	38.24	198.031	
14,600.00	6,947.00	7,243.72	6,993.96	129.51	8.21	-90.04	-405.42	401.56	7,671.15	7,632.84	38.31	200.242	
14,700.00	6,947.00	7,243.79	6,994.04	131.06	8.21	-90.04	-405.42	401.56	7,769.37	7,730.99	38.38	202.443	
14,800.00	6,947.00	7,243.87	6,994.11	132.60	8.21	-90.04	-405.42	401.56	7,867.63	7,829.18	38.45	204.636	
14,900.00	6,947.00	7,243.95	6,994.19	134.15	8.21	-90.05	-405.42	401.56	7,965.93	7,927.42	38.52	206.819	
15,000.00	6,947.00	7,244.02	6,994.27	135.70	8.21	-90.05	-405.42	401.56	8,064.28	8,025.69	38.59	208.992	
15,100.00	6,947.00	7,244.10	6,994.34	137.24	8.21	-90.05	-405.42	401.56	8,162.66	8,124.01	38.66	211.156	
15,200.00	6,947.00	7,244.18	6,994.42	138.79	8.21	-90.06	-405.42	401.56	8,261.09	8,222.36	38.73	213.311	
15,300.00	6,947.00	7,244.25	6,994.49	140.35	8.21	-90.06	-405.41	401.56	8,359.55	8,320.75	38.80	215.455	
15,400.00	6,947.00	7,244.32	6,994.57	141.90	8.21	-90.06	-405.41	401.56	8,458.05	8,419.18	38.87	217.590	
15,500.00	6,947.00	7,244.40	6,994.64	143.45	8.21	-90.06	-405.41	401.56	8,556.58	8,517.64	38.94	219.715	
15,600.00	6,947.00	7,244.47	6,994.71	145.01	8.21	-90.07	-405.41	401.56	8,655.15	8,616.13	39.02	221.831	
15,700.00	6,947.00	7,244.54	6,994.79	146.56	8.21	-90.07	-405.41	401.56	8,753.74	8,714.65	39.09	223.936	
15,800.00	6,947.00	7,244.61	6,994.86	148.12	8.21	-90.07	-405.41	401.56	8,852.37	8,813.21	39.16	226.031	
15,900.00	6,947.00	7,244.68	6,994.93	149.68	8.21	-90.08	-405.41	401.56	8,951.03	8,911.80	39.24	228.116	
16,000.00	6,947.00	7,244.76	6,995.00	151.23	8.21	-90.08	-405.41	401.56	9,049.72	9,010.41	39.31	230.191	
16,100.00	6,947.00	7,244.83	6,995.07	152.79	8.21	-90.08	-405.41	401.56	9,148.44	9,109.05	39.39	232.256	
16,200.00	6,947.00	7,244.89	6,995.14	154.36	8.21	-90.08	-405.41	401.56	9,247.19	9,207.72	39.47	234.311	
16,300.00	6,947.00	7,244.96	6,995.21	155.92	8.21	-90.09	-405.41	401.56	9,345.96	9,306.42	39.54	236.355	
16,400.00	6,947.00	7,245.03	6,995.27	157.48	8.21	-90.09	-405.41	401.56	9,444.76	9,405.14	39.62	238.390	
16,500.00	6,947.00	7,245.10	6,995.34	159.04	8.21	-90.09	-405.41	401.56	9,543.58	9,503.89	39.70	240.414	
16,600.00	6,947.00	7,245.17	6,995.41	160.61	8.21	-90.10	-405.41	401.56	9,642.43	9,602.66	39.77	242.427	
16,700.00	6,947.00	7,245.23	6,995.48	162.17	8.21	-90.10	-405.41	401.56	9,741.30	9,701.45	39.85	244.431	
16,800.00	6,947.00	7,245.30	6,995.54	163.74	8.21	-90.10	-405.41	401.56	9,840.20	9,800.26	39.93	246.424	
16,900.00	6,947.00	7,245.37	6,995.61	165.30	8.21	-90.10	-405.41	401.56	9,939.11	9,899.10	40.01	248.406	
17,000.00	6,947.00	7,245.43	6,995.67	166.87	8.21	-90.11	-405.41	401.56	10,038.05	9,997.96	40.09	250.379	
17,100.00	6,947.00	7,245.50	6,995.74	168.44	8.21	-90.11	-405.41	401.56	10,137.01	10,096.84	40.17	252.340	
17,200.00	6,947.00	7,245.56	6,995.80	170.01	8.21	-90.11	-405.41	401.56	10,235.99	10,195.73	40.25	254.292	
17,300.00	6,947.00	7,245.62	6,995.87	171.57	8.21	-90.11	-405.41	401.56	10,334.99	10,294.65	40.33	256.233	
17,400.00	6,947.00	7,245.69	6,995.93	173.14	8.21	-90.12	-405.41	401.56	10,434.00	10,393.59	40.42	258.163	
17,500.00	6,947.00	7,245.75	6,995.99	174.71	8.21	-90.12	-405.41	401.56	10,533.04	10,492.54	40.50	260.084	
17,600.00	6,947.00	7,245.81	6,996.06	176.28	8.21	-90.12	-405.41	401.56	10,632.09	10,591.51	40.58	261.993	
17,700.00	6,947.00	7,245.87	6,996.12	177.86	8.21	-90.12	-405.41	401.56	10,731.17	10,690.50	40.66	263.892	
17,800.00	6,947.00	7,245.94	6,996.18	179.43	8.21	-90.13	-405.40	401.56	10,830.25	10,789.50	40.75	265.781	
17,900.00	6,947.00	7,246.00	6,996.24	181.00	8.21	-90.13	-405.40	401.56	10,929.36	10,888.53	40.83	267.660	
18,000.00	6,947.00	7,246.06	6,996.30	182.57	8.21	-90.13	-405.40	401.56	11,028.48	10,987.56	40.92	269.528	
18,100.00	6,947.00	7,246.12	6,996.36	184.15	8.21	-90.13	-405.40	401.56	11,127.62	11,086.61	41.00	271.385	
18,200.00	6,947.00	7,246.18	6,996.42	185.72	8.21	-90.14	-405.40	401.56	11,226.77	11,185.68	41.09	273.232	
18,300.00	6,947.00	7,246.24	6,996.48	187.30	8.21	-90.14	-405.40	401.56	11,325.94	11,284.76	41.17	275.069	
18,400.00	6,947.00	7,246.30	6,996.54	188.87	8.21	-90.14	-405.40	401.56	11,425.12	11,383.86	41.26	276.895	
18,500.00	6,947.00	7,246.35	6,996.60	190.45	8.21	-90.14	-405.40	401.56	11,524.32	11,482.97	41.35	278.711	
18,600.00	6,947.00	7,246.41	6,996.66	192.02	8.21	-90.14	-405.40	401.56	11,623.53	11,582.09	41.44	280.516	
18,700.00	6,947.00	7,246.47	6,996.71	193.60	8.21	-90.15	-405.40	401.56	11,722.75	11,681.22	41.52	282.311	
18,800.00	6,947.00	7,246.53	6,996.77	195.18	8.21	-90.15	-405.40	401.56	11,821.98	11,780.37	41.61	284.096	
18,900.00	6,947.00	7,246.58	6,996.83	196.75	8.21	-90.15	-405.40	401.56	11,921.23	11,879.53	41.70	285.871	
19,000.00	6,947.00	7,246.64	6,996.88	198.33	8.21	-90.15	-405.40	401.56	12,020.50	11,978.70	41.79	287.635	
19,100.00	6,947.00	7,246.70	6,996.94	199.91	8.21	-90.16	-405.40	401.56	12,119.77	12,077.89	41.88	289.389	
19,200.00	6,947.00	7,246.75	6,997.00	201.49	8.21	-90.16	-405.40	401.56	12,219.05	12,177.08	41.97	291.132	
19,300.00	6,947.00	7,246.81	6,997.05	203.07	8.21	-90.16	-405.40	401.56	12,318.35	12,276.29	42.06	292.866	
19,400.00	6,947.00	7,246.86	6,997.11	204.65	8.21	-90.16	-405.40	401.56	12,417.66	12,375.51	42.15	294.589	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

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

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
19,500.00	6,947.00	7,246.92	6,997.16	206.23	8.21	-90.16	-405.40	401.56	12,516.98	12,474.74	42.24	296.302	
19,600.00	6,947.00	7,246.97	6,997.21	207.81	8.21	-90.17	-405.40	401.56	12,616.31	12,573.97	42.34	298.005	
19,700.00	6,947.00	7,247.02	6,997.27	209.39	8.21	-90.17	-405.40	401.56	12,715.65	12,673.22	42.43	299.697	
19,800.00	6,947.00	7,247.08	6,997.32	210.97	8.21	-90.17	-405.40	401.56	12,815.00	12,772.48	42.52	301.380	
19,900.00	6,947.00	7,247.13	6,997.37	212.55	8.21	-90.17	-405.40	401.56	12,914.36	12,871.75	42.61	303.053	
20,000.00	6,947.00	7,247.18	6,997.43	214.13	8.21	-90.17	-405.40	401.56	13,013.73	12,971.03	42.71	304.715	
20,100.00	6,947.00	7,247.24	6,997.48	215.71	8.21	-90.18	-405.40	401.56	13,113.11	13,070.31	42.80	306.368	
20,200.00	6,947.00	7,247.29	6,997.53	217.30	8.21	-90.18	-405.40	401.56	13,212.50	13,169.61	42.90	308.010	
20,300.00	6,947.00	7,247.34	6,997.58	218.88	8.21	-90.18	-405.40	401.56	13,311.90	13,268.91	42.99	309.643	
20,400.00	6,947.00	7,247.39	6,997.63	220.46	8.21	-90.18	-405.40	401.56	13,411.31	13,368.22	43.09	311.265	
20,500.00	6,947.00	7,247.44	6,997.69	222.04	8.21	-90.18	-405.40	401.56	13,510.73	13,467.54	43.18	312.878	
20,600.00	6,947.00	7,247.49	6,997.74	223.63	8.21	-90.19	-405.40	401.56	13,610.15	13,566.87	43.28	314.481	
20,700.00	6,947.00	7,247.54	6,997.79	225.21	8.21	-90.19	-405.39	401.56	13,709.58	13,666.21	43.37	316.074	
20,800.00	6,947.00	7,247.59	6,997.84	226.80	8.21	-90.19	-405.39	401.56	13,809.03	13,765.55	43.47	317.658	
20,900.00	6,947.00	7,247.64	6,997.89	228.38	8.21	-90.19	-405.39	401.56	13,908.48	13,864.91	43.57	319.232	
21,000.00	6,947.00	7,247.69	6,997.94	229.97	8.21	-90.19	-405.39	401.56	14,007.93	13,964.27	43.67	320.796	
21,032.01	6,947.00	7,247.71	6,997.95	230.47	8.21	-90.20	-405.39	401.56	14,039.77	13,996.07	43.70	321.294	
21,032.99	6,947.00	7,247.71	6,997.95	230.51	8.21	-90.20	-405.39	401.56	14,040.74	13,992.57	48.17	291.455	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 95-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	-13.25	839.18	-197.53	864.20				
100.00	100.00	38.20	38.20	0.25	0.70	-13.24	839.23	-197.50	862.16	861.21	0.95	910.145	CC
200.00	200.00	135.53	135.53	0.61	2.47	-13.21	839.74	-197.16	862.58	859.50	3.08	280.016	
300.00	300.00	237.20	237.19	0.97	4.32	-13.17	840.35	-196.66	863.06	857.78	5.28	163.345	
400.00	400.00	343.53	343.52	1.33	5.77	-13.13	840.48	-196.01	863.04	855.95	7.09	121.662	
500.00	500.00	443.10	443.09	1.68	6.86	-13.09	840.24	-195.36	862.66	854.11	8.55	100.928	
510.02	510.02	453.05	453.04	1.72	6.99	-178.09	840.22	-195.30	862.64	853.93	8.71	99.041	
600.00	599.98	543.68	543.67	2.03	8.24	-178.05	840.01	-194.72	864.03	853.77	10.26	84.181	ES
700.00	699.84	643.15	643.14	2.36	9.74	-178.02	839.74	-194.02	868.85	856.74	12.11	71.772	
800.00	799.45	743.11	743.09	2.71	11.38	-177.99	839.51	-193.31	877.18	863.09	14.08	62.278	
900.00	898.70	843.40	843.38	3.06	12.96	-177.98	839.22	-192.69	888.93	872.91	16.02	55.493	
1,000.00	997.47	943.77	943.75	3.43	14.36	-177.97	838.70	-192.12	903.94	886.17	17.77	50.862	
1,100.00	1,095.62	1,042.62	1,042.59	3.82	15.93	-177.97	838.15	-191.42	922.32	902.63	19.69	46.830	
1,200.00	1,193.44	1,141.96	1,141.93	4.22	17.62	-177.97	837.54	-190.57	942.32	920.58	21.75	43.333	
1,300.00	1,291.25	1,238.98	1,238.94	4.64	19.39	-177.96	836.92	-189.56	962.27	938.39	23.87	40.308	
1,400.00	1,389.07	1,339.03	1,338.98	5.06	21.24	-177.96	836.28	-188.52	982.20	956.12	26.08	37.660	
1,500.00	1,486.88	1,438.00	1,437.94	5.48	23.16	-177.94	835.59	-187.26	1,002.04	973.67	28.37	35.323	
1,600.00	1,584.70	1,538.00	1,537.93	5.91	25.24	-177.90	834.68	-185.59	1,021.58	990.77	30.81	33.154	
1,700.00	1,682.51	1,630.94	1,630.84	6.35	27.20	-177.86	834.06	-183.98	1,041.34	1,008.20	33.14	31.419	
1,800.00	1,780.33	1,726.53	1,726.43	6.78	29.12	-177.83	833.68	-182.64	1,061.44	1,026.00	35.43	29.955	
1,900.00	1,878.14	1,820.45	1,820.34	7.22	30.82	-177.84	833.45	-181.95	1,081.82	1,044.32	37.50	28.848	
2,000.00	1,975.96	1,916.10	1,915.99	7.66	32.39	-177.85	833.46	-181.51	1,102.50	1,063.06	39.44	27.952	
2,100.00	2,073.77	2,014.28	2,014.17	8.10	33.92	-177.88	833.49	-181.24	1,123.25	1,081.90	41.35	27.167	
2,200.00	2,171.59	2,111.60	2,111.49	8.54	35.43	-177.91	833.50	-181.08	1,144.00	1,100.77	43.23	26.465	SF
2,300.00	2,269.40	2,205.10	2,204.99	8.98	34.62	-177.95	833.59	-181.24	1,164.91	1,122.13	42.78	27.229	
2,400.00	2,367.22	2,301.57	2,301.46	9.43	33.32	-178.02	833.89	-181.91	1,186.13	1,144.27	41.86	28.334	
2,500.00	2,465.03	2,399.60	2,399.48	9.87	32.06	-178.08	834.20	-182.57	1,207.36	1,166.39	40.97	29.466	
2,600.00	2,562.84	2,496.37	2,496.25	10.32	30.92	-178.14	834.57	-183.22	1,228.66	1,188.46	40.21	30.559	
2,700.00	2,660.66	2,594.47	2,594.36	10.77	29.99	-178.18	834.99	-183.68	1,249.95	1,210.30	39.65	31.525	
2,800.00	2,758.47	2,691.41	2,691.29	11.21	29.78	-178.21	835.51	-183.78	1,271.27	1,231.45	39.82	31.925	
2,900.00	2,856.29	2,790.19	2,790.07	11.66	30.38	-178.23	836.10	-183.60	1,292.58	1,251.78	40.80	31.682	
3,000.00	2,954.10	2,884.03	2,883.90	12.11	30.76	-178.25	836.72	-183.58	1,313.99	1,272.44	41.55	31.625	
3,100.00	3,051.92	2,981.14	2,981.02	12.56	30.64	-178.28	837.45	-183.92	1,335.56	1,293.76	41.80	31.951	
3,200.00	3,149.73	3,080.89	3,080.76	13.01	30.99	-178.31	838.28	-184.06	1,357.17	1,314.64	42.53	31.909	
3,300.00	3,247.55	3,182.22	3,182.09	13.45	32.30	-178.31	838.97	-183.63	1,378.51	1,334.28	44.23	31.168	
3,400.00	3,345.36	3,279.14	3,279.00	13.90	33.85	-178.30	839.55	-183.03	1,399.71	1,353.56	46.15	30.327	
3,500.00	3,443.18	3,377.11	3,376.96	14.35	35.44	-178.30	840.16	-182.41	1,420.94	1,372.83	48.12	29.531	
3,600.00	3,540.99	3,474.91	3,474.77	14.80	37.02	-178.29	840.78	-181.82	1,442.19	1,392.12	50.07	28.801	
3,700.00	3,638.81	3,577.24	3,577.09	15.25	38.71	-178.29	841.37	-181.16	1,463.39	1,411.23	52.15	28.060	
3,800.00	3,736.62	3,670.69	3,670.54	15.70	40.29	-178.29	841.72	-180.60	1,484.39	1,430.29	54.10	27.440	
3,900.00	3,834.44	3,775.22	3,775.06	16.15	41.72	-178.30	841.93	-180.28	1,505.29	1,449.37	55.92	26.919	
4,000.00	3,932.25	3,873.53	3,873.37	16.60	40.82	-178.33	841.82	-180.41	1,526.00	1,470.60	55.40	27.544	
4,100.00	4,030.07	3,972.35	3,972.20	17.05	39.70	-178.38	841.47	-181.08	1,546.60	1,491.94	54.66	28.296	
4,200.00	4,127.88	4,070.84	4,070.68	17.50	38.66	-178.43	841.08	-181.80	1,567.17	1,513.17	54.00	29.021	
4,300.00	4,225.70	4,167.78	4,167.62	17.96	37.71	-178.48	840.72	-182.58	1,587.79	1,534.37	53.42	29.722	
4,400.00	4,323.51	4,267.15	4,266.98	18.41	36.86	-178.53	840.33	-183.41	1,608.39	1,555.44	52.95	30.374	
4,500.00	4,421.33	4,363.63	4,363.46	18.86	36.05	-178.58	839.96	-184.18	1,628.99	1,576.47	52.52	31.017	
4,600.00	4,519.14	4,463.80	4,463.63	19.31	35.22	-178.63	839.63	-184.88	1,649.63	1,597.55	52.08	31.676	
4,700.00	4,616.95	4,565.91	4,565.73	19.76	34.62	-178.67	839.06	-185.63	1,670.05	1,618.19	51.86	32.203	
4,800.00	4,714.77	4,662.89	4,662.71	20.21	34.21	-178.71	838.43	-186.11	1,690.33	1,638.50	51.83	32.610	
4,900.00	4,812.58	4,766.49	4,766.30	20.66	34.03	-178.75	837.55	-186.68	1,710.44	1,658.40	52.03	32.871	
5,000.00	4,910.40	4,860.94	4,860.75	21.11	34.02	-178.78	836.85	-186.97	1,730.59	1,678.18	52.40	33.024	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 95-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,100.00	5,008.21	4,960.56	4,960.36	21.57	33.93	-178.83	836.09	-187.63	1,750.81	1,698.11	52.70	33.225	
5,200.00	5,106.03	5,057.03	5,056.82	22.02	34.04	-178.87	835.23	-188.24	1,770.90	1,717.72	53.18	33.300	
5,300.00	5,203.84	5,151.98	5,151.78	22.47	34.12	-178.90	834.58	-188.75	1,791.16	1,737.52	53.64	33.393	
5,400.00	5,301.66	5,252.59	5,252.37	22.92	34.36	-178.95	833.76	-189.62	1,811.37	1,757.11	54.27	33.380	
5,500.00	5,399.47	5,355.21	5,354.99	23.37	34.71	-178.99	832.95	-190.37	1,831.59	1,776.59	55.01	33.298	
5,600.00	5,497.29	5,446.90	5,446.67	23.82	35.28	-179.04	832.08	-191.47	1,851.76	1,795.82	55.95	33.099	
5,700.00	5,595.10	5,550.46	5,550.22	24.28	36.14	-179.10	830.96	-192.70	1,871.80	1,814.61	57.19	32.727	
5,800.00	5,692.92	5,648.40	5,648.15	24.73	37.06	-179.14	829.80	-193.51	1,891.66	1,833.18	58.49	32.342	
5,900.00	5,790.73	5,744.98	5,744.72	25.18	37.97	-179.18	828.74	-194.19	1,911.58	1,851.80	59.78	31.976	
6,000.00	5,888.55	5,850.83	5,850.56	25.63	39.21	-179.21	827.44	-194.58	1,931.28	1,869.86	61.42	31.444	
6,100.00	5,986.36	5,948.87	5,948.59	26.08	40.45	-179.24	826.20	-194.95	1,950.96	1,887.93	63.03	30.953	
6,200.00	6,084.18	6,028.00	6,027.71	26.54	41.44	-179.26	825.19	-195.25	1,970.72	1,906.35	64.37	30.614	
6,300.00	6,181.99	6,028.00	6,027.71	26.99	41.44	-179.26	825.19	-195.25	1,993.74	1,929.22	64.52	30.903	
6,400.00	6,279.81	6,028.00	6,027.71	27.44	41.44	-179.26	825.19	-195.25	2,021.44	1,956.91	64.54	31.322	
6,500.00	6,377.62	6,028.00	6,027.71	27.89	41.44	-179.26	825.19	-195.25	2,053.65	1,989.20	64.45	31.865	
6,530.62	6,407.57	6,028.00	6,027.71	28.03	41.44	-179.26	825.19	-195.25	2,064.38	1,999.98	64.40	32.055	
6,550.00	6,426.48	6,028.00	6,027.71	28.12	41.44	-173.27	825.19	-195.25	2,071.56	2,007.19	64.37	32.183	
6,600.00	6,474.77	6,028.00	6,027.71	28.36	41.44	-161.65	825.19	-195.25	2,092.43	2,028.15	64.27	32.555	
6,650.00	6,522.09	6,028.00	6,027.71	28.62	41.44	-153.39	825.19	-195.25	2,116.49	2,052.32	64.17	32.982	
6,700.00	6,568.15	6,028.00	6,027.71	28.89	41.44	-146.84	825.19	-195.25	2,143.50	2,079.44	64.06	33.461	
6,750.00	6,612.66	6,028.00	6,027.71	29.18	41.44	-141.12	825.19	-195.25	2,173.18	2,109.24	63.95	33.985	
6,800.00	6,655.36	6,028.00	6,027.71	29.48	41.44	-135.72	825.19	-195.25	2,205.25	2,141.41	63.83	34.548	
6,850.00	6,695.98	6,028.00	6,027.71	29.79	41.44	-130.34	825.19	-195.25	2,239.40	2,175.67	63.72	35.143	
6,900.00	6,734.26	6,028.00	6,027.71	30.11	41.44	-124.80	825.19	-195.25	2,275.34	2,211.72	63.62	35.765	
6,950.00	6,769.98	6,028.00	6,027.71	30.45	41.44	-119.00	825.19	-195.25	2,312.76	2,249.24	63.52	36.407	
7,000.00	6,802.91	6,028.00	6,027.71	30.79	41.44	-112.89	825.19	-195.25	2,351.39	2,287.94	63.44	37.062	
7,050.00	6,832.85	6,028.00	6,027.71	31.15	41.44	-106.51	825.19	-195.25	2,390.91	2,327.53	63.38	37.724	
7,100.00	6,859.62	6,028.00	6,027.71	31.51	41.44	-99.94	825.19	-195.25	2,431.05	2,367.73	63.33	38.388	
7,150.00	6,883.05	6,028.00	6,027.71	31.89	41.44	-93.33	825.19	-195.25	2,471.55	2,408.25	63.30	39.046	
7,200.00	6,902.99	6,028.00	6,027.71	32.28	41.44	-86.84	825.19	-195.25	2,512.13	2,448.85	63.29	39.695	
7,250.00	6,919.32	6,028.00	6,027.71	32.67	41.44	-80.63	825.19	-195.25	2,552.55	2,489.26	63.29	40.328	
7,300.00	6,931.95	6,028.00	6,027.71	33.08	41.44	-74.85	825.19	-195.25	2,592.58	2,529.26	63.32	40.942	
7,350.00	6,940.79	6,028.00	6,027.71	33.49	41.44	-69.58	825.19	-195.25	2,631.99	2,568.62	63.37	41.532	
7,400.00	6,945.79	6,028.00	6,027.71	33.90	41.44	-64.86	825.19	-195.25	2,670.57	2,607.13	63.44	42.094	
7,439.53	6,947.00	6,028.00	6,027.71	34.24	41.44	-61.53	825.19	-195.25	2,700.36	2,636.84	63.51	42.517	
7,500.00	6,947.00	6,028.00	6,027.71	34.75	41.44	-62.17	825.19	-195.25	2,745.30	2,681.67	63.63	43.143	
7,600.00	6,947.00	6,028.00	6,027.71	35.63	41.44	-63.18	825.19	-195.25	2,819.28	2,755.45	63.83	44.166	
7,700.00	6,947.00	6,028.00	6,027.71	36.54	41.44	-64.14	825.19	-195.25	2,892.77	2,828.74	64.03	45.175	
7,800.00	6,947.00	6,028.00	6,027.71	37.47	41.44	-65.05	825.19	-195.25	2,965.73	2,901.49	64.24	46.168	
7,900.00	6,947.00	6,028.00	6,027.71	38.43	41.44	-65.92	825.19	-195.25	3,038.10	2,973.66	64.44	47.145	
8,000.00	6,947.00	6,028.00	6,027.71	39.41	41.44	-66.75	825.19	-195.25	3,109.85	3,045.20	64.65	48.104	
8,100.00	6,947.00	6,028.00	6,027.71	40.40	41.44	-67.53	825.19	-195.25	3,180.93	3,116.07	64.86	49.045	
8,200.00	6,947.00	6,028.00	6,027.71	41.42	41.44	-68.28	825.19	-195.25	3,251.29	3,186.22	65.07	49.967	
8,300.00	6,947.00	6,028.00	6,027.71	42.44	41.44	-68.99	825.19	-195.25	3,320.91	3,255.63	65.28	50.869	
8,400.00	6,947.00	6,028.00	6,027.71	43.48	41.44	-69.66	825.19	-195.25	3,389.75	3,324.25	65.50	51.751	
8,500.00	6,947.00	6,028.00	6,027.71	44.53	41.44	-70.29	825.19	-195.25	3,457.77	3,392.05	65.72	52.612	
8,600.00	6,947.00	6,028.00	6,027.71	45.58	41.44	-70.89	825.19	-195.25	3,524.94	3,459.00	65.94	53.453	
8,700.00	6,947.00	6,028.00	6,027.71	46.63	41.44	-71.47	825.19	-195.25	3,591.23	3,525.06	66.17	54.272	
8,800.00	6,947.00	6,028.00	6,027.71	47.69	41.44	-72.01	825.19	-195.25	3,656.60	3,590.20	66.40	55.070	
8,841.31	6,947.00	6,028.00	6,027.71	48.13	41.44	-72.22	825.19	-195.25	3,683.33	3,616.84	66.49	55.395	
8,900.00	6,947.00	6,028.00	6,027.71	48.76	41.44	-72.22	825.19	-195.25	3,721.46	3,654.84	66.63	55.855	
9,000.00	6,947.00	6,028.00	6,027.71	49.85	41.44	-72.22	825.19	-195.25	3,787.65	3,720.79	66.86	56.650	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 95-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,100.00	6,947.00	6,028.00	6,027.71	50.97	41.44	-72.22	825.19	-195.25	3,855.29	3,788.20	67.09	57.461	
9,200.00	6,947.00	6,028.00	6,027.71	52.12	41.44	-72.22	825.19	-195.25	3,924.32	3,856.99	67.33	58.289	
9,300.00	6,947.00	6,028.00	6,027.71	53.28	41.44	-72.22	825.19	-195.25	3,994.65	3,927.10	67.56	59.132	
9,400.00	6,947.00	6,028.00	6,027.71	54.48	41.44	-72.22	825.19	-195.25	4,066.23	3,998.45	67.78	59.990	
9,500.00	6,947.00	6,028.00	6,027.71	55.69	41.44	-72.22	825.19	-195.25	4,138.99	4,070.98	68.01	60.862	
9,600.00	6,947.00	6,028.00	6,027.71	56.92	41.44	-72.22	825.19	-195.25	4,212.86	4,144.64	68.23	61.749	
9,700.00	6,947.00	6,028.00	6,027.71	58.17	41.44	-72.22	825.19	-195.25	4,287.80	4,219.36	68.44	62.648	
9,800.00	6,947.00	6,028.00	6,027.71	59.44	41.44	-72.22	825.19	-195.25	4,363.74	4,295.08	68.65	63.561	
9,900.00	6,947.00	6,028.00	6,027.71	60.73	41.44	-72.22	825.19	-195.25	4,440.63	4,371.77	68.86	64.485	
10,000.00	6,947.00	6,028.00	6,027.71	62.03	41.44	-72.22	825.19	-195.25	4,518.43	4,449.36	69.07	65.421	
10,100.00	6,947.00	6,028.00	6,027.71	63.34	41.44	-72.22	825.19	-195.25	4,597.08	4,527.82	69.27	66.368	
10,200.00	6,947.00	6,028.00	6,027.71	64.67	41.44	-72.22	825.19	-195.25	4,676.55	4,607.09	69.46	67.325	
10,300.00	6,947.00	6,028.00	6,027.71	66.01	41.44	-72.22	825.19	-195.25	4,756.80	4,687.15	69.65	68.292	
10,400.00	6,947.00	6,028.00	6,027.71	67.36	41.44	-72.22	825.19	-195.25	4,837.78	4,767.94	69.84	69.269	
10,500.00	6,947.00	6,028.00	6,027.71	68.73	41.44	-72.22	825.19	-195.25	4,919.46	4,849.44	70.02	70.255	
10,600.00	6,947.00	6,028.00	6,027.71	70.10	41.44	-72.22	825.19	-195.25	5,001.81	4,931.61	70.20	71.249	
10,700.00	6,947.00	6,028.00	6,027.71	71.48	41.44	-72.22	825.19	-195.25	5,084.79	5,014.42	70.38	72.251	
10,800.00	6,947.00	6,028.00	6,027.71	72.88	41.44	-72.22	825.19	-195.25	5,168.38	5,097.83	70.55	73.261	
10,900.00	6,947.00	6,028.00	6,027.71	74.28	41.44	-72.22	825.19	-195.25	5,252.53	5,181.82	70.71	74.278	
11,000.00	6,947.00	6,028.00	6,027.71	75.69	41.44	-72.22	825.19	-195.25	5,337.24	5,266.36	70.88	75.302	
11,100.00	6,947.00	6,028.00	6,027.71	77.10	41.44	-72.22	825.19	-195.25	5,422.46	5,351.42	71.04	76.332	
11,200.00	6,947.00	6,028.00	6,027.71	78.53	41.44	-72.22	825.19	-195.25	5,508.18	5,436.99	71.19	77.368	
11,300.00	6,947.00	6,028.00	6,027.71	79.96	41.44	-72.22	825.19	-195.25	5,594.38	5,523.03	71.35	78.410	
11,400.00	6,947.00	6,028.00	6,027.71	81.40	41.44	-72.22	825.19	-195.25	5,681.02	5,609.53	71.50	79.458	
11,500.00	6,947.00	6,028.00	6,027.71	82.84	41.44	-72.22	825.19	-195.25	5,768.10	5,696.46	71.64	80.510	
11,600.00	6,947.00	6,028.00	6,027.71	84.29	41.44	-72.22	825.19	-195.25	5,855.60	5,783.81	71.79	81.568	
11,700.00	6,947.00	6,028.00	6,027.71	85.75	41.44	-72.22	825.19	-195.25	5,943.48	5,871.56	71.93	82.629	
11,800.00	6,947.00	6,028.00	6,027.71	87.21	41.44	-72.22	825.19	-195.25	6,031.75	5,959.68	72.07	83.695	
11,900.00	6,947.00	6,028.00	6,027.71	88.68	41.44	-72.22	825.19	-195.25	6,120.37	6,048.17	72.20	84.765	
12,000.00	6,947.00	6,028.00	6,027.71	90.15	41.44	-72.22	825.19	-195.25	6,209.35	6,137.01	72.34	85.839	
12,100.00	6,947.00	6,028.00	6,027.71	91.62	41.44	-72.22	825.19	-195.25	6,298.65	6,226.18	72.47	86.916	
12,200.00	6,947.00	6,028.00	6,027.71	93.10	41.44	-72.22	825.19	-195.25	6,388.27	6,315.67	72.60	87.996	
12,300.00	6,947.00	6,028.00	6,027.71	94.59	41.44	-72.22	825.19	-195.25	6,478.19	6,405.47	72.72	89.079	
12,400.00	6,947.00	6,028.00	6,027.71	96.07	41.44	-72.22	825.19	-195.25	6,568.40	6,495.56	72.85	90.165	
12,500.00	6,947.00	6,028.00	6,027.71	97.56	41.44	-72.22	825.19	-195.25	6,658.90	6,585.93	72.97	91.253	
12,600.00	6,947.00	6,028.00	6,027.71	99.06	41.44	-72.22	825.19	-195.25	6,749.66	6,676.57	73.09	92.344	
12,700.00	6,947.00	6,028.00	6,027.71	100.56	41.44	-72.22	825.19	-195.25	6,840.68	6,767.47	73.21	93.437	
12,800.00	6,947.00	6,028.00	6,027.71	102.06	41.44	-72.22	825.19	-195.25	6,931.95	6,858.62	73.33	94.532	
12,900.00	6,947.00	6,028.00	6,027.71	103.56	41.44	-72.22	825.19	-195.25	7,023.45	6,950.01	73.45	95.629	
13,000.00	6,947.00	6,028.00	6,027.71	105.07	41.44	-72.22	825.19	-195.25	7,115.19	7,041.63	73.56	96.727	
13,100.00	6,947.00	6,028.00	6,027.71	106.58	41.44	-72.22	825.19	-195.25	7,207.14	7,133.47	73.67	97.827	
13,200.00	6,947.00	6,028.00	6,027.71	108.10	41.44	-72.22	825.19	-195.25	7,299.31	7,225.52	73.78	98.928	
13,300.00	6,947.00	6,028.00	6,027.71	109.61	41.44	-72.22	825.19	-195.25	7,391.67	7,317.78	73.89	100.030	
13,400.00	6,947.00	6,028.00	6,027.71	111.13	41.44	-72.22	825.19	-195.25	7,484.24	7,410.24	74.00	101.134	
13,500.00	6,947.00	6,028.00	6,027.71	112.65	41.44	-72.22	825.19	-195.25	7,576.99	7,502.88	74.11	102.238	
13,600.00	6,947.00	6,028.00	6,027.71	114.17	41.44	-72.22	825.19	-195.25	7,669.93	7,595.71	74.22	103.343	
13,700.00	6,947.00	6,028.00	6,027.71	115.70	41.44	-72.22	825.19	-195.25	7,763.04	7,688.72	74.32	104.449	
13,800.00	6,947.00	6,028.00	6,027.71	117.23	41.44	-72.22	825.19	-195.25	7,856.32	7,781.89	74.43	105.555	
13,900.00	6,947.00	6,028.00	6,027.71	118.76	41.44	-72.22	825.19	-195.25	7,949.77	7,875.23	74.53	106.662	
14,000.00	6,947.00	6,028.00	6,027.71	120.29	41.44	-72.22	825.19	-195.25	8,043.37	7,968.73	74.64	107.769	
14,100.00	6,947.00	6,028.00	6,027.71	121.82	41.44	-72.22	825.19	-195.25	8,137.12	8,062.39	74.74	108.876	
14,200.00	6,947.00	6,028.00	6,027.71	123.36	41.44	-72.22	825.19	-195.25	8,231.02	8,156.19	74.84	109.983	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

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

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,300.00	6,947.00	6,028.00	6,027.71	124.89	41.44	-72.22	825.19	-195.25	8,325.07	8,250.13	74.94	111.091	
14,400.00	6,947.00	6,028.00	6,027.71	126.43	41.44	-72.22	825.19	-195.25	8,419.25	8,344.21	75.04	112.198	
14,500.00	6,947.00	6,028.00	6,027.71	127.97	41.44	-72.22	825.19	-195.25	8,513.56	8,438.42	75.14	113.305	
14,600.00	6,947.00	6,028.00	6,027.71	129.51	41.44	-72.22	825.19	-195.25	8,608.00	8,532.77	75.24	114.412	
14,700.00	6,947.00	6,028.00	6,027.71	131.06	41.44	-72.22	825.19	-195.25	8,702.57	8,627.23	75.34	115.518	
14,800.00	6,947.00	6,028.00	6,027.71	132.60	41.44	-72.22	825.19	-195.25	8,797.25	8,721.82	75.43	116.624	
14,900.00	6,947.00	6,028.00	6,027.71	134.15	41.44	-72.22	825.19	-195.25	8,892.06	8,816.53	75.53	117.730	
15,000.00	6,947.00	6,028.00	6,027.71	135.70	41.44	-72.22	825.19	-195.25	8,986.97	8,911.35	75.63	118.835	
15,100.00	6,947.00	6,028.00	6,027.71	137.24	41.44	-72.22	825.19	-195.25	9,082.00	9,006.27	75.72	119.939	
15,200.00	6,947.00	6,028.00	6,027.71	138.79	41.44	-72.22	825.19	-195.25	9,177.13	9,101.31	75.82	121.042	
15,300.00	6,947.00	6,028.00	6,027.71	140.35	41.44	-72.22	825.19	-195.25	9,272.36	9,196.45	75.91	122.145	
15,400.00	6,947.00	6,028.00	6,027.71	141.90	41.44	-72.22	825.19	-195.25	9,367.69	9,291.68	76.01	123.247	
15,500.00	6,947.00	6,028.00	6,027.71	143.45	41.44	-72.22	825.19	-195.25	9,463.12	9,387.02	76.10	124.347	
15,600.00	6,947.00	6,028.00	6,027.71	145.01	41.44	-72.22	825.19	-195.25	9,558.64	9,482.44	76.20	125.447	
15,700.00	6,947.00	6,028.00	6,027.71	146.56	41.44	-72.22	825.19	-195.25	9,654.25	9,577.96	76.29	126.546	
15,800.00	6,947.00	6,028.00	6,027.71	148.12	41.44	-72.22	825.19	-195.25	9,749.95	9,673.57	76.38	127.644	
15,900.00	6,947.00	6,028.00	6,027.71	149.68	41.44	-72.22	825.19	-195.25	9,845.74	9,769.26	76.48	128.740	
16,000.00	6,947.00	6,028.00	6,027.71	151.23	41.44	-72.22	825.19	-195.25	9,941.61	9,865.04	76.57	129.836	
16,100.00	6,947.00	6,028.00	6,027.71	152.79	41.44	-72.22	825.19	-195.25	10,037.56	9,960.89	76.66	130.930	
16,200.00	6,947.00	6,028.00	6,027.71	154.36	41.44	-72.22	825.19	-195.25	10,133.59	10,056.83	76.76	132.022	
16,300.00	6,947.00	6,028.00	6,027.71	155.92	41.44	-72.22	825.19	-195.25	10,229.69	10,152.84	76.85	133.113	
16,400.00	6,947.00	6,028.00	6,027.71	157.48	41.44	-72.22	825.19	-195.25	10,325.87	10,248.93	76.94	134.203	
16,500.00	6,947.00	6,028.00	6,027.71	159.04	41.44	-72.22	825.19	-195.25	10,422.12	10,345.08	77.03	135.292	
16,600.00	6,947.00	6,028.00	6,027.71	160.61	41.44	-72.22	825.19	-195.25	10,518.44	10,441.31	77.13	136.379	
16,700.00	6,947.00	6,028.00	6,027.71	162.17	41.44	-72.22	825.19	-195.25	10,614.82	10,537.61	77.22	137.464	
16,800.00	6,947.00	6,028.00	6,027.71	163.74	41.44	-72.22	825.19	-195.25	10,711.28	10,633.97	77.31	138.548	
16,900.00	6,947.00	6,028.00	6,027.71	165.30	41.44	-72.22	825.19	-195.25	10,807.80	10,730.39	77.40	139.630	
17,000.00	6,947.00	6,028.00	6,027.71	166.87	41.44	-72.22	825.19	-195.25	10,904.38	10,826.88	77.50	140.710	
17,100.00	6,947.00	6,028.00	6,027.71	168.44	41.44	-72.22	825.19	-195.25	11,001.02	10,923.43	77.59	141.789	
17,200.00	6,947.00	6,028.00	6,027.71	170.01	41.44	-72.22	825.19	-195.25	11,097.72	11,020.04	77.68	142.866	
17,300.00	6,947.00	6,028.00	6,027.71	171.57	41.44	-72.22	825.19	-195.25	11,194.48	11,116.71	77.77	143.941	
17,400.00	6,947.00	6,028.00	6,027.71	173.14	41.44	-72.22	825.19	-195.25	11,291.30	11,213.44	77.86	145.014	
17,500.00	6,947.00	6,028.00	6,027.71	174.71	41.44	-72.22	825.19	-195.25	11,388.17	11,310.21	77.96	146.086	
17,600.00	6,947.00	6,028.00	6,027.71	176.28	41.44	-72.22	825.19	-195.25	11,485.10	11,407.05	78.05	147.155	
17,700.00	6,947.00	6,028.00	6,027.71	177.86	41.44	-72.22	825.19	-195.25	11,582.07	11,503.93	78.14	148.223	
17,800.00	6,947.00	6,028.00	6,027.71	179.43	41.44	-72.22	825.19	-195.25	11,679.10	11,600.87	78.23	149.289	
17,900.00	6,947.00	6,028.00	6,027.71	181.00	41.44	-72.22	825.19	-195.25	11,776.18	11,697.85	78.32	150.353	
18,000.00	6,947.00	6,028.00	6,027.71	182.57	41.44	-72.22	825.19	-195.25	11,873.30	11,794.89	78.42	151.414	
18,100.00	6,947.00	6,028.00	6,027.71	184.15	41.44	-72.22	825.19	-195.25	11,970.48	11,891.97	78.51	152.474	
18,200.00	6,947.00	6,028.00	6,027.71	185.72	41.44	-72.22	825.19	-195.25	12,067.70	11,989.10	78.60	153.532	
18,300.00	6,947.00	6,028.00	6,027.71	187.30	41.44	-72.22	825.19	-195.25	12,164.96	12,086.27	78.69	154.588	
18,400.00	6,947.00	6,028.00	6,027.71	188.87	41.44	-72.22	825.19	-195.25	12,262.27	12,183.49	78.79	155.641	
18,500.00	6,947.00	6,028.00	6,027.71	190.45	41.44	-72.22	825.19	-195.25	12,359.62	12,280.75	78.88	156.692	
18,600.00	6,947.00	6,028.00	6,027.71	192.02	41.44	-72.22	825.19	-195.25	12,457.02	12,378.05	78.97	157.742	
18,700.00	6,947.00	6,028.00	6,027.71	193.60	41.44	-72.22	825.19	-195.25	12,554.45	12,475.39	79.06	158.789	
18,800.00	6,947.00	6,028.00	6,027.71	195.18	41.44	-72.22	825.19	-195.25	12,651.93	12,572.77	79.16	159.834	
18,900.00	6,947.00	6,028.00	6,027.71	196.75	41.44	-72.22	825.19	-195.25	12,749.44	12,670.19	79.25	160.876	
19,000.00	6,947.00	6,028.00	6,027.71	198.33	41.44	-72.22	825.19	-195.25	12,846.99	12,767.65	79.34	161.917	
19,100.00	6,947.00	6,028.00	6,027.71	199.91	41.44	-72.22	825.19	-195.25	12,944.58	12,865.15	79.44	162.955	
19,200.00	6,947.00	6,028.00	6,027.71	201.49	41.44	-72.22	825.19	-195.25	13,042.21	12,962.68	79.53	163.991	
19,300.00	6,947.00	6,028.00	6,027.71	203.07	41.44	-72.22	825.19	-195.25	13,139.87	13,060.25	79.62	165.024	
19,400.00	6,947.00	6,028.00	6,027.71	204.65	41.44	-72.22	825.19	-195.25	13,237.57	13,157.85	79.72	166.056	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

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

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
19,500.00	6,947.00	6,028.00	6,027.71	206.23	41.44	-72.22	825.19	-195.25	13,335.30	13,255.49	79.81	167.085	
19,600.00	6,947.00	6,028.00	6,027.71	207.81	41.44	-72.22	825.19	-195.25	13,433.06	13,353.16	79.91	168.111	
19,700.00	6,947.00	6,028.00	6,027.71	209.39	41.44	-72.22	825.19	-195.25	13,530.86	13,450.86	80.00	169.136	
19,800.00	6,947.00	6,028.00	6,027.71	210.97	41.44	-72.22	825.19	-195.25	13,628.69	13,548.60	80.09	170.158	
19,900.00	6,947.00	6,028.00	6,027.71	212.55	41.44	-72.22	825.19	-195.25	13,726.55	13,646.36	80.19	171.177	
20,000.00	6,947.00	6,028.00	6,027.71	214.13	41.44	-72.22	825.19	-195.25	13,824.44	13,744.16	80.28	172.194	
20,100.00	6,947.00	6,028.00	6,027.71	215.71	41.44	-72.22	825.19	-195.25	13,922.36	13,841.98	80.38	173.209	
20,200.00	6,947.00	6,028.00	6,027.71	217.30	41.44	-72.22	825.19	-195.25	14,020.31	13,939.84	80.47	174.221	
20,300.00	6,947.00	6,028.00	6,027.71	218.88	41.44	-72.22	825.19	-195.25	14,118.29	14,037.72	80.57	175.231	
20,400.00	6,947.00	6,028.00	6,027.71	220.46	41.44	-72.22	825.19	-195.25	14,216.30	14,135.63	80.67	176.239	
20,500.00	6,947.00	6,028.00	6,027.71	222.04	41.44	-72.22	825.19	-195.25	14,314.33	14,233.57	80.76	177.244	
20,600.00	6,947.00	6,028.00	6,027.71	223.63	41.44	-72.22	825.19	-195.25	14,412.39	14,331.54	80.86	178.246	
20,700.00	6,947.00	6,028.00	6,027.71	225.21	41.44	-72.22	825.19	-195.25	14,510.48	14,429.53	80.95	179.246	
20,800.00	6,947.00	6,028.00	6,027.71	226.80	41.44	-72.22	825.19	-195.25	14,608.60	14,527.55	81.05	180.244	
20,900.00	6,947.00	6,028.00	6,027.71	228.38	41.44	-72.22	825.19	-195.25	14,706.74	14,625.59	81.15	181.239	
21,000.00	6,947.00	6,028.00	6,027.71	229.97	41.44	-72.22	825.19	-195.25	14,804.90	14,723.66	81.24	182.231	
21,032.01	6,947.00	6,028.00	6,027.71	230.47	41.44	-72.22	825.19	-195.25	14,836.33	14,755.05	81.27	182.548	
21,032.99	6,947.00	6,028.00	6,027.71	230.51	41.44	-72.22	825.19	-195.25	14,837.28	14,752.40	84.88	174.800	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

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

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	-18.13	835.00	-273.36	880.58				
100.00	100.00	38.00	37.99	0.25	0.07	-18.14	834.99	-273.60	878.67	878.34	0.33	2,664.379	CC, ES
200.00	200.00	130.59	130.55	0.61	0.28	-18.31	834.87	-276.22	879.44	878.56	0.88	999.524	
300.00	300.00	222.93	222.72	0.97	0.47	-18.65	834.62	-281.70	881.06	879.64	1.43	616.611	
400.00	400.00	314.84	314.26	1.33	0.66	-19.17	834.24	-289.98	883.61	881.63	1.98	447.113	
500.00	500.00	406.16	404.90	1.68	0.86	-19.85	833.74	-301.00	887.15	884.63	2.52	351.853	
600.00	599.98	496.64	494.34	2.03	1.05	174.31	833.12	-314.66	893.52	890.47	3.05	293.003	
700.00	699.84	585.41	581.64	2.36	1.29	173.34	832.40	-330.70	904.55	900.94	3.62	249.902	
800.00	799.45	677.18	671.80	2.71	1.63	172.33	831.58	-347.80	919.51	915.21	4.29	214.128	
900.00	898.70	732.18	725.54	3.06	1.89	171.68	832.52	-359.41	941.33	936.46	4.87	193.267	
1,000.00	997.47	813.22	803.86	3.43	2.30	170.60	835.37	-380.04	970.10	964.52	5.58	173.831	
1,100.00	1,095.62	872.66	860.90	3.82	2.63	169.72	837.63	-396.58	1,003.92	997.72	6.20	161.823	
1,200.00	1,193.44	943.46	928.16	4.22	3.08	168.80	841.87	-418.29	1,042.55	1,035.65	6.90	151.114	
1,300.00	1,291.25	1,017.00	997.34	4.64	3.58	167.79	846.25	-442.81	1,082.80	1,075.17	7.63	142.003	
1,400.00	1,389.07	1,088.63	1,063.95	5.06	4.13	166.76	850.54	-468.80	1,124.86	1,116.49	8.37	134.336	
1,500.00	1,486.88	1,160.71	1,130.39	5.48	4.69	165.72	855.04	-496.41	1,168.55	1,159.43	9.12	128.144	
1,600.00	1,584.70	1,225.82	1,190.16	5.91	5.22	164.82	859.81	-521.77	1,213.88	1,204.06	9.81	123.701	
1,700.00	1,682.51	1,297.00	1,254.58	6.35	5.83	163.84	865.94	-551.40	1,261.74	1,251.19	10.55	119.578	
1,800.00	1,780.33	1,463.31	1,405.45	6.78	7.19	161.50	871.58	-620.99	1,306.04	1,293.99	12.05	108.370	
1,900.00	1,878.14	1,543.71	1,478.65	7.22	7.85	160.44	872.36	-654.24	1,349.34	1,336.46	12.88	104.795	
2,000.00	1,975.96	1,612.84	1,541.37	7.66	8.44	159.56	873.32	-683.30	1,393.80	1,380.18	13.62	102.325	
2,100.00	2,073.77	1,670.00	1,592.93	8.10	8.95	158.85	874.70	-707.93	1,440.01	1,425.75	14.26	100.969	
2,200.00	2,171.59	1,740.47	1,656.18	8.54	9.60	158.02	877.17	-738.90	1,487.83	1,472.81	15.02	99.085	
2,300.00	2,269.40	1,802.40	1,711.52	8.98	10.19	157.33	880.10	-766.55	1,537.18	1,521.50	15.68	98.016	
2,400.00	2,367.22	1,856.00	1,759.21	9.43	10.70	156.76	883.30	-790.81	1,588.13	1,571.86	16.26	97.654	
2,500.00	2,465.03	1,905.37	1,802.81	9.87	11.19	156.25	887.04	-813.64	1,640.99	1,624.19	16.80	97.690	
2,600.00	2,562.84	1,949.00	1,840.98	10.32	11.63	155.83	891.16	-834.39	1,696.00	1,678.73	17.27	98.233	
2,700.00	2,660.66	2,030.24	1,911.68	10.77	12.46	155.07	899.48	-873.52	1,752.13	1,734.04	18.09	96.844	
2,800.00	2,758.47	2,108.30	1,979.62	11.21	13.25	154.38	907.49	-911.11	1,808.47	1,789.60	18.87	95.817	
2,900.00	2,856.29	2,187.47	2,048.68	11.66	14.03	153.75	916.15	-948.86	1,865.11	1,845.46	19.65	94.930	
3,000.00	2,954.10	2,302.08	2,149.80	12.11	15.10	152.97	929.28	-1,001.16	1,920.81	1,900.09	20.72	92.692	
3,100.00	3,051.92	2,401.94	2,238.51	12.56	16.03	152.34	939.47	-1,045.86	1,975.29	1,953.63	21.66	91.194	
3,200.00	3,149.73	2,539.17	2,361.36	13.01	17.29	151.52	951.01	-1,105.89	2,027.70	2,004.77	22.93	88.423	
3,300.00	3,247.55	2,598.00	2,413.60	13.45	17.84	151.16	955.99	-1,132.47	2,081.48	2,057.97	23.51	88.547	
3,400.00	3,345.36	2,668.61	2,475.96	13.90	18.52	150.75	962.12	-1,165.01	2,136.22	2,112.02	24.20	88.278	
3,500.00	3,443.18	2,761.24	2,558.04	14.35	19.40	150.21	969.20	-1,207.35	2,190.30	2,165.21	25.08	87.317	
3,600.00	3,540.99	2,832.83	2,621.48	14.80	20.08	149.82	974.79	-1,240.04	2,244.57	2,218.80	25.77	87.084	
3,700.00	3,638.81	3,120.04	2,882.76	15.25	22.43	148.80	1,001.06	-1,355.70	2,297.72	2,269.57	28.14	81.647	
3,800.00	3,736.62	3,337.00	3,088.56	15.70	23.75	148.42	1,015.83	-1,422.57	2,340.07	2,310.41	29.66	78.899	SF
3,900.00	3,834.44	3,337.00	3,088.56	16.15	23.75	148.42	1,015.83	-1,422.57	2,383.95	2,354.14	29.80	79.991	
4,000.00	3,932.25	3,337.00	3,088.56	16.60	23.75	148.42	1,015.83	-1,422.57	2,431.15	2,401.24	29.91	81.287	
4,100.00	4,030.07	3,337.00	3,088.56	17.05	23.75	148.42	1,015.83	-1,422.57	2,481.49	2,451.51	29.98	82.772	
4,200.00	4,127.88	3,337.00	3,088.56	17.50	23.75	148.42	1,015.83	-1,422.57	2,534.78	2,504.75	30.02	84.432	
4,300.00	4,225.70	3,337.00	3,088.56	17.96	23.75	148.42	1,015.83	-1,422.57	2,590.83	2,560.79	30.04	86.253	
4,400.00	4,323.51	3,337.00	3,088.56	18.41	23.75	148.42	1,015.83	-1,422.57	2,649.47	2,619.44	30.03	88.223	
4,500.00	4,421.33	3,337.00	3,088.56	18.86	23.75	148.42	1,015.83	-1,422.57	2,710.53	2,680.52	30.01	90.329	
4,600.00	4,519.14	3,337.00	3,088.56	19.31	23.75	148.42	1,015.83	-1,422.57	2,773.86	2,743.89	29.97	92.561	
4,700.00	4,616.95	3,337.00	3,088.56	19.76	23.75	148.42	1,015.83	-1,422.57	2,839.29	2,809.37	29.92	94.907	
4,800.00	4,714.77	3,337.00	3,088.56	20.21	23.75	148.42	1,015.83	-1,422.57	2,906.69	2,876.84	29.86	97.358	
4,900.00	4,812.58	3,337.00	3,088.56	20.66	23.75	148.42	1,015.83	-1,422.57	2,975.93	2,946.14	29.79	99.903	
5,000.00	4,910.40	3,337.00	3,088.56	21.11	23.75	148.42	1,015.83	-1,422.57	3,046.88	3,017.16	29.72	102.535	
5,100.00	5,008.21	3,337.00	3,088.56	21.57	23.75	148.42	1,015.83	-1,422.57	3,119.42	3,089.78	29.64	105.244	

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 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

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

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,200.00	5,106.03	3,337.00	3,088.56	22.02	23.75	148.42	1,015.83	-1,422.57	3,193.44	3,163.88	29.56	108.023	
5,300.00	5,203.84	3,337.00	3,088.56	22.47	23.75	148.42	1,015.83	-1,422.57	3,268.84	3,239.36	29.49	110.862	
5,400.00	5,301.66	3,337.00	3,088.56	22.92	23.75	148.42	1,015.83	-1,422.57	3,345.54	3,316.13	29.41	113.756	
5,500.00	5,399.47	3,337.00	3,088.56	23.37	23.75	148.42	1,015.83	-1,422.57	3,423.44	3,394.10	29.34	116.696	
5,600.00	5,497.29	3,337.00	3,088.56	23.82	23.75	148.42	1,015.83	-1,422.57	3,502.46	3,473.20	29.27	119.677	
5,700.00	5,595.10	3,337.00	3,088.56	24.28	23.75	148.42	1,015.83	-1,422.57	3,582.53	3,553.33	29.20	122.691	
5,800.00	5,692.92	3,337.00	3,088.56	24.73	23.75	148.42	1,015.83	-1,422.57	3,663.58	3,634.44	29.14	125.733	
5,900.00	5,790.73	3,337.00	3,088.56	25.18	23.75	148.42	1,015.83	-1,422.57	3,745.55	3,716.47	29.08	128.797	
6,000.00	5,888.55	3,337.00	3,088.56	25.63	23.75	148.42	1,015.83	-1,422.57	3,828.37	3,799.34	29.03	131.877	
6,100.00	5,986.36	3,337.00	3,088.56	26.08	23.75	148.42	1,015.83	-1,422.57	3,912.00	3,883.01	28.98	134.968	
6,200.00	6,084.18	3,337.00	3,088.56	26.54	23.75	148.42	1,015.83	-1,422.57	3,996.37	3,967.43	28.95	138.065	
6,300.00	6,181.99	3,337.00	3,088.56	26.99	23.75	148.42	1,015.83	-1,422.57	4,081.46	4,052.55	28.91	141.162	
6,400.00	6,279.81	3,337.00	3,088.56	27.44	23.75	148.42	1,015.83	-1,422.57	4,167.21	4,138.32	28.89	144.256	
6,500.00	6,377.62	3,337.00	3,088.56	27.89	23.75	148.42	1,015.83	-1,422.57	4,253.57	4,224.71	28.87	147.343	
6,530.62	6,407.57	3,337.00	3,088.56	28.03	23.75	148.42	1,015.83	-1,422.57	4,280.14	4,251.27	28.86	148.286	
6,550.00	6,426.48	3,337.00	3,088.56	28.12	23.75	154.78	1,015.83	-1,422.57	4,297.12	4,268.25	28.86	148.873	
6,600.00	6,474.77	3,337.00	3,088.56	28.36	23.75	167.74	1,015.83	-1,422.57	4,342.19	4,313.32	28.87	150.393	
6,650.00	6,522.09	3,337.00	3,088.56	28.62	23.75	178.38	1,015.83	-1,422.57	4,388.81	4,359.92	28.89	151.915	
6,700.00	6,568.15	3,337.00	3,088.56	28.89	23.75	-170.56	1,015.83	-1,422.57	4,436.67	4,407.75	28.91	153.451	
6,750.00	6,612.66	3,337.00	3,088.56	29.18	23.75	-155.78	1,015.83	-1,422.57	4,485.42	4,456.48	28.94	154.997	
6,800.00	6,655.36	3,337.00	3,088.56	29.48	23.75	-131.98	1,015.83	-1,422.57	4,534.73	4,505.77	28.97	156.544	
6,850.00	6,695.98	3,337.00	3,088.56	29.79	23.75	-96.98	1,015.83	-1,422.57	4,584.31	4,555.31	29.00	158.086	
6,900.00	6,734.26	3,337.00	3,088.56	30.11	23.75	-66.17	1,015.83	-1,422.57	4,633.83	4,604.80	29.03	159.614	
6,950.00	6,769.98	3,337.00	3,088.56	30.45	23.75	-48.12	1,015.83	-1,422.57	4,682.99	4,653.93	29.07	161.120	
7,000.00	6,802.91	3,337.00	3,088.56	30.79	23.75	-37.91	1,015.83	-1,422.57	4,731.52	4,702.42	29.10	162.592	
7,050.00	6,832.85	3,337.00	3,088.56	31.15	23.75	-31.61	1,015.83	-1,422.57	4,779.12	4,749.99	29.14	164.019	
7,100.00	6,859.62	3,337.00	3,088.56	31.51	23.75	-27.41	1,015.83	-1,422.57	4,825.55	4,796.38	29.18	165.389	
7,150.00	6,883.05	3,337.00	3,088.56	31.89	23.75	-24.44	1,015.83	-1,422.57	4,870.55	4,841.33	29.22	166.686	
7,200.00	6,902.99	3,337.00	3,088.56	32.28	23.75	-22.25	1,015.83	-1,422.57	4,913.90	4,884.63	29.27	167.895	
7,250.00	6,919.32	3,337.00	3,088.56	32.67	23.75	-20.60	1,015.83	-1,422.57	4,955.35	4,926.03	29.32	169.001	
7,300.00	6,931.95	3,337.00	3,088.56	33.08	23.75	-19.33	1,015.83	-1,422.57	4,994.73	4,965.34	29.38	169.985	
7,350.00	6,940.79	3,337.00	3,088.56	33.49	23.75	-18.35	1,015.83	-1,422.57	5,031.82	5,002.37	29.45	170.831	
7,400.00	6,945.79	3,337.00	3,088.56	33.90	23.75	-17.59	1,015.83	-1,422.57	5,066.46	5,036.92	29.54	171.523	
7,439.53	6,947.00	3,337.00	3,088.56	34.24	23.75	-17.13	1,015.83	-1,422.57	5,092.00	5,062.39	29.61	171.958	
7,500.00	6,947.00	3,337.00	3,088.56	34.75	23.75	-18.05	1,015.83	-1,422.57	5,129.85	5,100.11	29.74	172.478	
7,600.00	6,947.00	3,337.00	3,088.56	35.63	23.75	-19.58	1,015.83	-1,422.57	5,192.71	5,162.75	29.96	173.298	
7,700.00	6,947.00	3,337.00	3,088.56	36.54	23.75	-21.11	1,015.83	-1,422.57	5,255.82	5,225.64	30.18	174.123	
7,800.00	6,947.00	3,337.00	3,088.56	37.47	23.75	-22.62	1,015.83	-1,422.57	5,319.10	5,288.70	30.40	174.946	
7,900.00	6,947.00	3,337.00	3,088.56	38.43	23.75	-24.13	1,015.83	-1,422.57	5,382.47	5,351.85	30.62	175.762	
8,000.00	6,947.00	3,337.00	3,088.56	39.41	23.75	-25.61	1,015.83	-1,422.57	5,445.85	5,415.00	30.84	176.565	
8,100.00	6,947.00	3,337.00	3,088.56	40.40	23.75	-27.08	1,015.83	-1,422.57	5,509.15	5,478.09	31.06	177.351	
8,200.00	6,947.00	3,337.00	3,088.56	41.42	23.75	-28.52	1,015.83	-1,422.57	5,572.32	5,541.03	31.28	178.116	
8,300.00	6,947.00	3,337.00	3,088.56	42.44	23.75	-29.93	1,015.83	-1,422.57	5,635.27	5,603.76	31.51	178.854	
8,400.00	6,947.00	3,337.00	3,088.56	43.48	23.75	-31.32	1,015.83	-1,422.57	5,697.94	5,666.21	31.73	179.561	
8,500.00	6,947.00	3,337.00	3,088.56	44.53	23.75	-32.67	1,015.83	-1,422.57	5,760.27	5,728.31	31.96	180.233	
8,600.00	6,947.00	3,337.00	3,088.56	45.58	23.75	-33.99	1,015.83	-1,422.57	5,822.19	5,790.00	32.19	180.866	
8,700.00	6,947.00	3,337.00	3,088.56	46.63	23.75	-35.27	1,015.83	-1,422.57	5,883.63	5,851.21	32.42	181.457	
8,800.00	6,947.00	3,337.00	3,088.56	47.69	23.75	-36.51	1,015.83	-1,422.57	5,944.54	5,911.88	32.66	182.003	
8,841.31	6,947.00	3,337.00	3,088.56	48.13	23.75	-37.02	1,015.83	-1,422.57	5,969.54	5,936.78	32.76	182.222	
8,900.00	6,947.00	3,337.00	3,088.56	48.76	23.75	-37.02	1,015.83	-1,422.57	6,005.16	5,972.25	32.90	182.510	
9,000.00	6,947.00	3,337.00	3,088.56	49.85	23.75	-37.02	1,015.83	-1,422.57	6,066.67	6,033.52	33.16	182.972	
9,100.00	6,947.00	3,337.00	3,088.56	50.97	23.75	-37.02	1,015.83	-1,422.57	6,129.21	6,095.79	33.42	183.418	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 561-APC_ISCWSA REV 2 MWD

Rule Assigned:

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,200.00	6,947.00	3,337.00	3,088.56	52.12	23.75	-37.02	1,015.83	-1,422.57	6,192.72	6,159.04	33.68	183.854	
9,300.00	6,947.00	3,337.00	3,088.56	53.28	23.75	-37.02	1,015.83	-1,422.57	6,257.19	6,223.23	33.95	184.285	
9,400.00	6,947.00	3,337.00	3,088.56	54.48	23.75	-37.02	1,015.83	-1,422.57	6,322.58	6,288.35	34.23	184.715	
9,500.00	6,947.00	3,337.00	3,088.56	55.69	23.75	-37.02	1,015.83	-1,422.57	6,388.87	6,354.36	34.51	185.150	
9,600.00	6,947.00	3,337.00	3,088.56	56.92	23.75	-37.02	1,015.83	-1,422.57	6,456.03	6,421.24	34.79	185.592	
9,700.00	6,947.00	3,337.00	3,088.56	58.17	23.75	-37.02	1,015.83	-1,422.57	6,524.03	6,488.96	35.07	186.045	
9,800.00	6,947.00	3,337.00	3,088.56	59.44	23.75	-37.02	1,015.83	-1,422.57	6,592.84	6,557.49	35.35	186.510	
9,900.00	6,947.00	3,337.00	3,088.56	60.73	23.75	-37.02	1,015.83	-1,422.57	6,662.44	6,626.81	35.63	186.990	
10,000.00	6,947.00	3,337.00	3,088.56	62.03	23.75	-37.02	1,015.83	-1,422.57	6,732.82	6,696.90	35.91	187.486	
10,100.00	6,947.00	3,337.00	3,088.56	63.34	23.75	-37.02	1,015.83	-1,422.57	6,803.93	6,767.74	36.19	188.000	
10,200.00	6,947.00	3,337.00	3,088.56	64.67	23.75	-37.02	1,015.83	-1,422.57	6,875.76	6,839.29	36.47	188.533	
10,300.00	6,947.00	3,337.00	3,088.56	66.01	23.75	-37.02	1,015.83	-1,422.57	6,948.29	6,911.54	36.75	189.085	
10,400.00	6,947.00	3,337.00	3,088.56	67.36	23.75	-37.02	1,015.83	-1,422.57	7,021.49	6,984.47	37.02	189.657	
10,500.00	6,947.00	3,337.00	3,088.56	68.73	23.75	-37.02	1,015.83	-1,422.57	7,095.35	7,058.05	37.30	190.249	
10,600.00	6,947.00	3,337.00	3,088.56	70.10	23.75	-37.02	1,015.83	-1,422.57	7,169.84	7,132.27	37.57	190.861	
10,700.00	6,947.00	3,337.00	3,088.56	71.48	23.75	-37.02	1,015.83	-1,422.57	7,244.94	7,207.11	37.83	191.494	
10,800.00	6,947.00	3,337.00	3,088.56	72.88	23.75	-37.02	1,015.83	-1,422.57	7,320.64	7,282.54	38.10	192.147	
10,900.00	6,947.00	3,337.00	3,088.56	74.28	23.75	-37.02	1,015.83	-1,422.57	7,396.92	7,358.56	38.36	192.820	
11,000.00	6,947.00	3,337.00	3,088.56	75.69	23.75	-37.02	1,015.83	-1,422.57	7,473.76	7,435.14	38.62	193.514	
11,100.00	6,947.00	3,337.00	3,088.56	77.10	23.75	-37.02	1,015.83	-1,422.57	7,551.14	7,512.26	38.88	194.226	
11,200.00	6,947.00	3,337.00	3,088.56	78.53	23.75	-37.02	1,015.83	-1,422.57	7,629.04	7,589.91	39.13	194.959	
11,300.00	6,947.00	3,337.00	3,088.56	79.96	23.75	-37.02	1,015.83	-1,422.57	7,707.46	7,668.08	39.38	195.710	
11,400.00	6,947.00	3,337.00	3,088.56	81.40	23.75	-37.02	1,015.83	-1,422.57	7,786.37	7,746.74	39.63	196.479	
11,500.00	6,947.00	3,337.00	3,088.56	82.84	23.75	-37.02	1,015.83	-1,422.57	7,865.76	7,825.89	39.87	197.266	
11,600.00	6,947.00	3,337.00	3,088.56	84.29	23.75	-37.02	1,015.83	-1,422.57	7,945.62	7,905.50	40.11	198.071	
11,700.00	6,947.00	3,337.00	3,088.56	85.75	23.75	-37.02	1,015.83	-1,422.57	8,025.92	7,985.57	40.35	198.893	
11,800.00	6,947.00	3,337.00	3,088.56	87.21	23.75	-37.02	1,015.83	-1,422.57	8,106.67	8,066.08	40.59	199.732	
11,900.00	6,947.00	3,337.00	3,088.56	88.68	23.75	-37.02	1,015.83	-1,422.57	8,187.84	8,147.02	40.82	200.586	
12,000.00	6,947.00	3,337.00	3,088.56	90.15	23.75	-37.02	1,015.83	-1,422.57	8,269.42	8,228.37	41.05	201.455	
12,100.00	6,947.00	3,337.00	3,088.56	91.62	23.75	-37.02	1,015.83	-1,422.57	8,351.40	8,310.13	41.27	202.340	
12,200.00	6,947.00	3,337.00	3,088.56	93.10	23.75	-37.02	1,015.83	-1,422.57	8,433.78	8,392.28	41.50	203.239	
12,300.00	6,947.00	3,337.00	3,088.56	94.59	23.75	-37.02	1,015.83	-1,422.57	8,516.53	8,474.81	41.72	204.152	
12,400.00	6,947.00	3,337.00	3,088.56	96.07	23.75	-37.02	1,015.83	-1,422.57	8,599.64	8,557.71	41.93	205.078	
12,500.00	6,947.00	3,337.00	3,088.56	97.56	23.75	-37.02	1,015.83	-1,422.57	8,683.11	8,640.97	42.15	206.017	
12,600.00	6,947.00	3,337.00	3,088.56	99.06	23.75	-37.02	1,015.83	-1,422.57	8,766.93	8,724.57	42.36	206.969	
12,700.00	6,947.00	3,337.00	3,088.56	100.56	23.75	-37.02	1,015.83	-1,422.57	8,851.09	8,808.52	42.57	207.932	
12,800.00	6,947.00	3,337.00	3,088.56	102.06	23.75	-37.02	1,015.83	-1,422.57	8,935.57	8,892.79	42.77	208.907	
12,900.00	6,947.00	3,337.00	3,088.56	103.56	23.75	-37.02	1,015.83	-1,422.57	9,020.36	8,977.39	42.98	209.893	
13,000.00	6,947.00	3,337.00	3,088.56	105.07	23.75	-37.02	1,015.83	-1,422.57	9,105.47	9,062.29	43.18	210.890	
13,100.00	6,947.00	3,337.00	3,088.56	106.58	23.75	-37.02	1,015.83	-1,422.57	9,190.88	9,147.50	43.37	211.897	
13,200.00	6,947.00	3,337.00	3,088.56	108.10	23.75	-37.02	1,015.83	-1,422.57	9,276.58	9,233.01	43.57	212.913	
13,300.00	6,947.00	3,337.00	3,088.56	109.61	23.75	-37.02	1,015.83	-1,422.57	9,362.56	9,318.79	43.76	213.939	
13,400.00	6,947.00	3,337.00	3,088.56	111.13	23.75	-37.02	1,015.83	-1,422.57	9,448.82	9,404.86	43.95	214.973	
13,500.00	6,947.00	3,337.00	3,088.56	112.65	23.75	-37.02	1,015.83	-1,422.57	9,535.34	9,491.20	44.14	216.016	
13,600.00	6,947.00	3,337.00	3,088.56	114.17	23.75	-37.02	1,015.83	-1,422.57	9,622.13	9,577.80	44.33	217.067	
13,700.00	6,947.00	3,337.00	3,088.56	115.70	23.75	-37.02	1,015.83	-1,422.57	9,709.17	9,664.66	44.51	218.126	
13,800.00	6,947.00	3,337.00	3,088.56	117.23	23.75	-37.02	1,015.83	-1,422.57	9,796.46	9,751.77	44.69	219.193	
13,900.00	6,947.00	3,337.00	3,088.56	118.76	23.75	-37.02	1,015.83	-1,422.57	9,883.99	9,839.12	44.87	220.266	
14,000.00	6,947.00	3,337.00	3,088.56	120.29	23.75	-37.02	1,015.83	-1,422.57	9,971.75	9,926.70	45.05	221.346	
14,100.00	6,947.00	3,337.00	3,088.56	121.82	23.75	-37.02	1,015.83	-1,422.57	10,059.75	10,014.52	45.23	222.432	
14,200.00	6,947.00	3,337.00	3,088.56	123.36	23.75	-37.02	1,015.83	-1,422.57	10,147.96	10,102.56	45.40	223.525	
14,300.00	6,947.00	3,337.00	3,088.56	124.89	23.75	-37.02	1,015.83	-1,422.57	10,236.39	10,190.82	45.57	224.623	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 561-APC_ISCWSA REV 2 MWD

Offset Well Error: 0.00 usft

Rule Assigned:

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,400.00	6,947.00	1,949.00	1,840.98	126.43	11.63	-28.52	891.16	-834.39	10,320.67	10,276.92	43.74	235.930	
14,500.00	6,947.00	1,949.00	1,840.98	127.97	11.63	-28.52	891.16	-834.39	10,403.90	10,359.93	43.97	236.637	
14,600.00	6,947.00	1,949.00	1,840.98	129.51	11.63	-28.52	891.16	-834.39	10,487.42	10,443.24	44.18	237.361	
14,700.00	6,947.00	1,949.00	1,840.98	131.06	11.63	-28.52	891.16	-834.39	10,571.23	10,526.83	44.40	238.100	
14,800.00	6,947.00	1,949.00	1,840.98	132.60	11.63	-28.52	891.16	-834.39	10,655.31	10,610.70	44.61	238.855	
14,900.00	6,947.00	1,903.01	1,800.74	134.15	11.17	-28.30	886.84	-812.54	10,739.12	10,694.36	44.76	239.942	
15,000.00	6,947.00	1,894.68	1,793.41	135.70	11.09	-28.26	886.15	-808.64	10,823.53	10,778.58	44.95	240.768	
15,100.00	6,947.00	1,856.00	1,759.21	137.24	10.70	-28.07	883.30	-790.81	10,908.41	10,863.30	45.11	241.802	
15,200.00	6,947.00	1,856.00	1,759.21	138.79	10.70	-28.07	883.30	-790.81	10,993.16	10,947.84	45.32	242.586	
15,300.00	6,947.00	1,856.00	1,759.21	140.35	10.70	-28.07	883.30	-790.81	11,078.16	11,032.65	45.52	243.383	
15,400.00	6,947.00	1,856.00	1,759.21	141.90	10.70	-28.07	883.30	-790.81	11,163.42	11,117.70	45.72	244.193	
15,500.00	6,947.00	1,856.00	1,759.21	143.45	10.70	-28.07	883.30	-790.81	11,248.91	11,203.00	45.91	245.015	
15,600.00	6,947.00	1,856.00	1,759.21	145.01	10.70	-28.07	883.30	-790.81	11,334.65	11,288.54	46.10	245.848	
15,700.00	6,947.00	1,822.48	1,729.40	146.56	10.38	-27.92	881.23	-775.60	11,420.46	11,374.20	46.26	246.859	
15,800.00	6,947.00	1,807.55	1,716.11	148.12	10.24	-27.85	880.38	-768.87	11,506.49	11,460.05	46.44	247.775	
15,900.00	6,947.00	1,763.00	1,676.34	149.68	9.81	-27.65	878.15	-748.92	11,592.81	11,546.22	46.59	248.825	
16,000.00	6,947.00	1,763.00	1,676.34	151.23	9.81	-27.65	878.15	-748.92	11,679.08	11,632.30	46.78	249.677	
16,100.00	6,947.00	1,763.00	1,676.34	152.79	9.81	-27.65	878.15	-748.92	11,765.57	11,718.61	46.96	250.540	
16,200.00	6,947.00	1,763.00	1,676.34	154.36	9.81	-27.65	878.15	-748.92	11,852.28	11,805.13	47.14	251.412	
16,300.00	6,947.00	1,732.30	1,648.86	155.92	9.53	-27.52	876.84	-735.29	11,939.08	11,891.78	47.30	252.405	
16,400.00	6,947.00	1,716.90	1,635.06	157.48	9.39	-27.45	876.25	-728.49	12,026.05	11,978.58	47.47	253.340	
16,500.00	6,947.00	1,701.62	1,621.34	159.04	9.25	-27.38	875.70	-721.77	12,113.17	12,065.53	47.64	254.276	
16,600.00	6,947.00	1,670.00	1,592.93	160.61	8.95	-27.25	874.70	-707.93	12,200.47	12,152.67	47.80	255.260	
16,700.00	6,947.00	1,670.00	1,592.93	162.17	8.95	-27.25	874.70	-707.93	12,287.84	12,239.87	47.97	256.154	
16,800.00	6,947.00	1,670.00	1,592.93	163.74	8.95	-27.25	874.70	-707.93	12,375.40	12,327.26	48.14	257.056	
16,900.00	6,947.00	1,670.00	1,592.93	165.30	8.95	-27.25	874.70	-707.93	12,463.15	12,414.84	48.31	257.965	
17,000.00	6,947.00	1,670.00	1,592.93	166.87	8.95	-27.25	874.70	-707.93	12,551.08	12,502.60	48.48	258.881	
17,100.00	6,947.00	1,626.13	1,553.38	168.44	8.56	-27.07	873.59	-688.98	12,638.90	12,590.27	48.63	259.891	
17,200.00	6,947.00	1,615.15	1,543.45	170.01	8.46	-27.02	873.37	-684.29	12,727.02	12,678.23	48.79	260.832	
17,300.00	6,947.00	1,575.00	1,507.08	171.57	8.11	-26.86	872.73	-667.31	12,815.41	12,766.47	48.95	261.820	
17,400.00	6,947.00	1,575.00	1,507.08	173.14	8.11	-26.86	872.73	-667.31	12,903.73	12,854.62	49.11	262.744	
17,500.00	6,947.00	1,575.00	1,507.08	174.71	8.11	-26.86	872.73	-667.31	12,992.22	12,942.94	49.27	263.674	
17,600.00	6,947.00	1,575.00	1,507.08	176.28	8.11	-26.86	872.73	-667.31	13,080.87	13,031.43	49.43	264.610	
17,700.00	6,947.00	1,575.00	1,507.08	177.86	8.11	-26.86	872.73	-667.31	13,169.68	13,120.09	49.59	265.551	
17,800.00	6,947.00	1,533.79	1,469.64	179.43	7.76	-26.70	872.25	-650.11	13,258.51	13,208.76	49.75	266.499	
17,900.00	6,947.00	1,515.81	1,453.28	181.00	7.61	-26.63	872.06	-642.64	13,347.49	13,297.58	49.91	267.440	
18,000.00	6,947.00	1,255.48	1,217.15	182.57	5.48	-25.59	862.25	-533.82	13,435.64	13,385.52	50.12	268.059	
18,100.00	6,947.00	1,250.64	1,212.76	184.15	5.44	-25.57	861.84	-531.83	13,524.09	13,473.81	50.28	268.962	
18,200.00	6,947.00	1,245.86	1,208.42	185.72	5.39	-25.55	861.44	-529.87	13,612.68	13,562.24	50.44	269.872	
18,300.00	6,947.00	1,203.00	1,169.26	187.30	5.03	-25.37	858.06	-512.78	13,701.88	13,651.30	50.59	270.867	
18,400.00	6,947.00	1,203.00	1,169.26	188.87	5.03	-25.37	858.06	-512.78	13,790.65	13,739.91	50.74	271.784	
18,500.00	6,947.00	1,203.00	1,169.26	190.45	5.03	-25.37	858.06	-512.78	13,879.57	13,828.68	50.90	272.706	
18,600.00	6,947.00	1,203.00	1,169.26	192.02	5.03	-25.37	858.06	-512.78	13,968.65	13,917.60	51.05	273.633	
18,700.00	6,947.00	1,203.00	1,169.26	193.60	5.03	-25.37	858.06	-512.78	14,057.87	14,006.67	51.20	274.564	
18,800.00	6,947.00	1,203.00	1,169.26	195.18	5.03	-25.37	858.06	-512.78	14,147.23	14,095.88	51.35	275.500	
18,900.00	6,947.00	1,203.00	1,169.26	196.75	5.03	-25.37	858.06	-512.78	14,236.74	14,185.24	51.50	276.440	
19,000.00	6,947.00	1,203.00	1,169.26	198.33	5.03	-25.37	858.06	-512.78	14,326.38	14,274.73	51.65	277.383	
19,100.00	6,947.00	1,203.00	1,169.26	199.91	5.03	-25.37	858.06	-512.78	14,416.16	14,364.37	51.80	278.331	
19,200.00	6,947.00	1,203.00	1,169.26	201.49	5.03	-25.37	858.06	-512.78	14,506.08	14,454.14	51.94	279.282	
19,300.00	6,947.00	1,203.00	1,169.26	203.07	5.03	-25.37	858.06	-512.78	14,596.12	14,544.04	52.09	280.236	
19,400.00	6,947.00	1,162.92	1,132.42	204.65	4.71	-25.20	855.19	-497.26	14,686.16	14,633.91	52.25	281.073	
19,500.00	6,947.00	1,147.08	1,117.84	206.23	4.59	-25.14	854.13	-491.15	14,776.34	14,723.94	52.40	281.986	

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 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 561-APC_ISCWSA REV 2 MWD

Rule Assigned:

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
19,600.00	6,947.00	1,109.00	1,082.76	207.81	4.28	-24.99	851.75	-476.52	14,866.64	14,814.08	52.56	282.851	
19,700.00	6,947.00	1,109.00	1,082.76	209.39	4.28	-24.99	851.75	-476.52	14,956.95	14,904.25	52.70	283.807	
19,800.00	6,947.00	1,109.00	1,082.76	210.97	4.28	-24.99	851.75	-476.52	15,047.38	14,994.54	52.84	284.765	
19,900.00	6,947.00	1,109.00	1,082.76	212.55	4.28	-24.99	851.75	-476.52	15,137.93	15,084.95	52.98	285.726	
20,000.00	6,947.00	1,109.00	1,082.76	214.13	4.28	-24.99	851.75	-476.52	15,228.59	15,175.48	53.12	286.689	
20,100.00	6,947.00	1,109.00	1,082.76	215.71	4.28	-24.99	851.75	-476.52	15,319.38	15,266.12	53.26	287.655	
20,200.00	6,947.00	1,109.00	1,082.76	217.30	4.28	-24.99	851.75	-476.52	15,410.28	15,356.88	53.39	288.623	
20,300.00	6,947.00	1,109.00	1,082.76	218.88	4.28	-24.99	851.75	-476.52	15,501.29	15,447.76	53.53	289.592	
20,400.00	6,947.00	1,109.00	1,082.76	220.46	4.28	-24.99	851.75	-476.52	15,592.41	15,538.74	53.66	290.564	
20,500.00	6,947.00	1,067.04	1,043.95	222.04	3.96	-24.82	849.25	-460.77	15,683.25	15,629.42	53.83	291.355	
20,600.00	6,947.00	1,061.74	1,039.03	223.63	3.92	-24.80	848.94	-458.82	15,774.48	15,720.51	53.97	292.306	
20,700.00	6,947.00	1,056.50	1,034.16	225.21	3.88	-24.78	848.62	-456.91	15,865.80	15,811.70	54.10	293.257	
20,800.00	6,947.00	1,017.00	997.34	226.80	3.58	-24.62	846.25	-442.81	15,957.48	15,903.22	54.26	294.086	
20,900.00	6,947.00	1,017.00	997.34	228.38	3.58	-24.62	846.25	-442.81	16,048.91	15,994.52	54.39	295.058	
21,000.00	6,947.00	1,017.00	997.34	229.97	3.58	-24.62	846.25	-442.81	16,140.45	16,085.93	54.52	296.031	
21,032.01	6,947.00	1,017.00	997.34	230.47	3.58	-24.62	846.25	-442.81	16,169.77	16,115.21	54.56	296.342	
21,032.99	6,947.00	1,017.00	997.34	230.51	3.58	-24.62	846.25	-442.81	16,170.67	16,114.62	56.05	288.520	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

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

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	-90.43	-82.56	-10,883.90	10,884.41				
100.00	100.00	111.54	111.54	0.25	0.13	-90.43	-82.37	-10,883.52	10,884.09	10,883.71	0.38	N/A	
200.00	200.00	421.27	421.21	0.61	0.49	-90.42	-79.79	-10,878.40	10,882.44	10,881.34	1.09	9,972.198	
300.00	300.00	583.00	582.84	0.97	0.71	-90.41	-77.51	-10,873.36	10,879.17	10,877.51	1.66	6,543.893	
400.00	400.00	613.00	612.83	1.33	0.77	-90.41	-77.23	-10,872.43	10,876.22	10,874.15	2.08	5,234.015	
500.00	500.00	643.00	642.81	1.68	0.83	-90.40	-76.60	-10,871.79	10,874.02	10,871.53	2.50	4,357.882	
600.00	599.98	643.00	642.81	2.03	0.83	104.62	-76.60	-10,871.79	10,873.02	10,870.18	2.84	3,833.130	
605.66	605.64	643.00	642.81	2.05	0.83	104.62	-76.60	-10,871.79	10,873.02	10,870.16	2.86	3,807.786	CC, ES
700.00	699.84	673.00	672.81	2.36	0.89	104.61	-76.14	-10,871.66	10,873.75	10,870.52	3.23	3,369.821	
800.00	799.45	673.00	672.81	2.71	0.89	104.57	-76.14	-10,871.66	10,876.07	10,872.50	3.57	3,045.551	
900.00	898.70	673.00	672.81	3.06	0.89	104.49	-76.14	-10,871.66	10,880.19	10,876.26	3.93	2,769.960	
1,000.00	997.47	688.13	687.93	3.43	0.92	104.39	-75.97	-10,871.89	10,885.98	10,881.65	4.33	2,514.799	
1,100.00	1,095.62	704.00	703.79	3.82	0.95	104.26	-75.64	-10,872.37	10,893.52	10,888.77	4.74	2,296.135	
1,200.00	1,193.44	704.00	703.79	4.22	0.95	104.26	-75.64	-10,872.37	10,902.27	10,897.12	5.14	2,119.289	
1,300.00	1,291.25	718.69	718.47	4.64	0.98	104.28	-75.30	-10,872.99	10,911.85	10,906.27	5.58	1,955.245	
1,400.00	1,389.07	733.00	732.76	5.06	1.00	104.29	-75.05	-10,873.72	10,922.23	10,916.21	6.02	1,813.914	
1,500.00	1,486.88	733.00	732.76	5.48	1.00	104.29	-75.05	-10,873.72	10,933.45	10,927.01	6.44	1,698.140	
1,600.00	1,584.70	747.73	747.45	5.91	1.04	104.31	-74.69	-10,874.65	10,945.44	10,938.55	6.89	1,588.868	
1,700.00	1,682.51	764.00	763.66	6.35	1.07	104.33	-74.00	-10,875.92	10,958.33	10,950.99	7.34	1,492.240	
1,800.00	1,780.33	764.00	763.66	6.78	1.07	104.33	-74.00	-10,875.92	10,971.97	10,964.20	7.77	1,412.708	
1,900.00	1,878.14	764.00	763.66	7.22	1.07	104.33	-74.00	-10,875.92	10,986.50	10,978.31	8.19	1,341.341	
2,000.00	1,975.96	794.00	793.47	7.66	1.15	104.37	-72.48	-10,878.92	11,001.86	10,993.18	8.68	1,267.597	
2,100.00	2,073.77	794.00	793.47	8.10	1.15	104.37	-72.48	-10,878.92	11,017.91	11,008.80	9.10	1,210.366	
2,200.00	2,171.59	794.00	793.47	8.54	1.15	104.37	-72.48	-10,878.92	11,034.84	11,025.31	9.53	1,158.339	
2,300.00	2,269.40	794.00	793.47	8.98	1.15	104.37	-72.48	-10,878.92	11,052.65	11,042.70	9.95	1,110.877	
2,400.00	2,367.22	825.00	824.18	9.43	1.22	104.41	-70.92	-10,882.85	11,071.12	11,060.68	10.44	1,060.596	
2,500.00	2,465.03	825.00	824.18	9.87	1.22	104.41	-70.92	-10,882.85	11,090.40	11,079.54	10.86	1,021.289	
2,600.00	2,562.84	825.00	824.18	10.32	1.22	104.41	-70.92	-10,882.85	11,110.56	11,099.28	11.28	985.082	
2,700.00	2,660.66	855.00	853.80	10.77	1.29	104.45	-69.91	-10,887.45	11,131.47	11,119.70	11.76	946.352	
2,800.00	2,758.47	855.00	853.80	11.21	1.29	104.45	-69.91	-10,887.45	11,153.08	11,140.90	12.18	915.777	
2,900.00	2,856.29	855.00	853.80	11.66	1.29	104.45	-69.91	-10,887.45	11,175.56	11,162.96	12.59	887.394	
3,000.00	2,954.10	886.00	884.33	12.11	1.37	104.48	-69.42	-10,892.84	11,198.68	11,185.60	13.08	856.471	
3,100.00	3,051.92	886.00	884.33	12.56	1.37	104.48	-69.42	-10,892.84	11,222.58	11,209.09	13.49	832.130	
3,200.00	3,149.73	886.00	884.33	13.01	1.37	104.48	-69.42	-10,892.84	11,247.32	11,233.42	13.90	809.395	
3,300.00	3,247.55	886.00	884.33	13.45	1.37	104.48	-69.42	-10,892.84	11,272.89	11,258.58	14.30	788.124	
3,400.00	3,345.36	886.00	884.33	13.90	1.37	104.48	-69.42	-10,892.84	11,299.28	11,284.58	14.71	768.190	
3,500.00	3,443.18	948.00	944.86	14.35	1.53	104.56	-67.76	-10,906.09	11,326.33	11,311.06	15.26	742.083	
3,600.00	3,540.99	948.00	944.86	14.80	1.53	104.56	-67.76	-10,906.09	11,353.85	11,338.19	15.66	724.851	
3,700.00	3,638.81	948.00	944.86	15.25	1.53	104.56	-67.76	-10,906.09	11,382.19	11,366.12	16.06	708.625	
3,800.00	3,736.62	948.00	944.86	15.70	1.53	104.56	-67.76	-10,906.09	11,411.33	11,394.87	16.46	693.328	
3,900.00	3,834.44	948.00	944.86	16.15	1.53	104.56	-67.76	-10,906.09	11,441.27	11,424.41	16.85	678.891	
4,000.00	3,932.25	964.99	961.30	16.60	1.59	104.58	-67.05	-10,910.32	11,471.94	11,454.65	17.29	663.506	
4,100.00	4,030.07	978.00	973.87	17.05	1.64	104.59	-66.42	-10,913.61	11,503.26	11,485.54	17.71	649.406	
4,200.00	4,127.88	994.99	990.25	17.50	1.70	104.62	-65.51	-10,918.02	11,535.23	11,517.09	18.15	635.636	
4,300.00	4,225.70	1,010.00	1,004.69	17.96	1.76	104.64	-64.63	-10,922.03	11,567.89	11,549.31	18.57	622.810	
4,400.00	4,323.51	1,010.00	1,004.69	18.41	1.76	104.64	-64.63	-10,922.03	11,601.24	11,582.29	18.96	612.037	
4,500.00	4,421.33	1,010.00	1,004.69	18.86	1.76	104.64	-64.63	-10,922.03	11,635.36	11,616.03	19.33	601.807	
4,600.00	4,519.14	1,041.00	1,034.33	19.31	1.90	104.68	-62.57	-10,930.88	11,670.08	11,650.28	19.80	589.330	
4,700.00	4,616.95	1,041.00	1,034.33	19.76	1.90	104.68	-62.57	-10,930.88	11,705.47	11,685.29	20.18	580.169	
4,800.00	4,714.77	1,053.34	1,046.06	20.21	1.96	104.70	-61.64	-10,934.60	11,741.58	11,720.99	20.59	570.378	
4,900.00	4,812.58	1,071.00	1,062.83	20.66	2.05	104.72	-60.23	-10,939.95	11,778.26	11,757.25	21.01	560.619	
5,000.00	4,910.40	1,071.00	1,062.83	21.11	2.05	104.72	-60.23	-10,939.95	11,815.64	11,794.26	21.38	552.771	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 553-APC_ISCWSA REV 2 MWD

Rule Assigned:

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,100.00	5,008.21	1,101.00	1,091.15	21.57	2.21	104.76	-57.50	-10,949.46	11,853.64	11,831.81	21.84	542.816	
5,200.00	5,106.03	1,101.00	1,091.15	22.02	2.21	104.76	-57.50	-10,949.46	11,892.24	11,870.04	22.20	535.732	
5,300.00	5,203.84	1,101.00	1,091.15	22.47	2.21	104.76	-57.50	-10,949.46	11,931.55	11,908.99	22.56	528.968	
5,400.00	5,301.66	1,132.00	1,120.15	22.92	2.40	104.81	-53.96	-10,959.82	11,971.51	11,948.49	23.02	520.041	
5,500.00	5,399.47	1,132.00	1,120.15	23.37	2.40	104.81	-53.96	-10,959.82	12,012.00	11,988.63	23.37	513.920	
5,600.00	5,497.29	1,148.67	1,135.66	23.82	2.51	104.84	-51.77	-10,965.53	12,053.12	12,029.34	23.79	506.744	
5,700.00	5,595.10	1,163.00	1,148.95	24.28	2.60	104.86	-49.79	-10,970.50	12,094.82	12,070.63	24.19	500.071	
5,800.00	5,692.92	1,178.58	1,163.36	24.73	2.71	104.89	-47.60	-10,975.98	12,137.08	12,112.49	24.59	493.551	
5,900.00	5,790.73	1,194.00	1,177.60	25.18	2.82	104.92	-45.43	-10,981.50	12,179.93	12,154.93	24.99	487.330	
6,000.00	5,888.55	1,194.00	1,177.60	25.63	2.82	104.92	-45.43	-10,981.50	12,223.38	12,198.05	25.33	482.497	
6,100.00	5,986.36	1,210.51	1,192.78	26.08	2.94	104.94	-43.06	-10,987.55	12,267.39	12,241.65	25.74	476.633	
6,200.00	6,084.18	1,225.00	1,206.03	26.54	3.04	104.97	-40.87	-10,992.99	12,312.03	12,285.90	26.13	471.168	
6,300.00	6,181.99	1,225.00	1,206.03	26.99	3.04	104.97	-40.87	-10,992.99	12,357.23	12,330.77	26.46	466.948	
6,400.00	6,279.81	1,241.03	1,220.62	27.44	3.17	105.00	-38.36	-10,999.14	12,403.01	12,376.14	26.86	461.728	
6,500.00	6,377.62	1,257.00	1,235.10	27.89	3.29	105.03	-35.77	-11,005.35	12,449.34	12,422.08	27.26	456.731	
6,530.62	6,407.57	1,257.00	1,235.10	28.03	3.29	105.03	-35.77	-11,005.35	12,463.63	12,436.28	27.36	455.584	
6,550.00	6,426.48	1,279.79	1,255.72	28.12	3.48	110.09	-31.94	-11,014.28	12,472.93	12,445.40	27.52	453.191	
6,600.00	6,474.77	1,297.00	1,271.28	28.36	3.61	118.86	-28.96	-11,021.00	12,498.99	12,471.22	27.77	450.086	
6,650.00	6,522.09	1,297.00	1,271.28	28.62	3.61	123.57	-28.96	-11,021.00	12,528.04	12,500.09	27.95	448.222	
6,700.00	6,568.15	1,311.78	1,284.62	28.89	3.73	125.88	-26.30	-11,026.79	12,559.82	12,531.62	28.20	445.356	
6,750.00	6,612.66	1,328.00	1,299.18	29.18	3.87	126.53	-23.22	-11,033.23	12,594.23	12,565.77	28.46	442.517	
6,800.00	6,655.36	1,328.00	1,299.18	29.48	3.87	125.81	-23.22	-11,033.23	12,630.93	12,602.28	28.65	440.929	
6,850.00	6,695.98	1,328.00	1,299.18	29.79	3.87	123.91	-23.22	-11,033.23	12,669.73	12,640.90	28.83	439.448	
6,900.00	6,734.26	1,328.00	1,299.18	30.11	3.87	120.83	-23.22	-11,033.23	12,710.38	12,681.37	29.01	438.079	
6,950.00	6,769.98	1,328.00	1,299.18	30.45	3.87	116.51	-23.22	-11,033.23	12,752.62	12,723.43	29.19	436.825	
7,000.00	6,802.91	1,328.00	1,299.18	30.79	3.87	110.81	-23.22	-11,033.23	12,796.16	12,766.79	29.37	435.685	
7,050.00	6,832.85	1,328.00	1,299.18	31.15	3.87	103.66	-23.22	-11,033.23	12,840.73	12,811.19	29.54	434.655	
7,100.00	6,859.62	1,328.00	1,299.18	31.51	3.87	95.11	-23.22	-11,033.23	12,886.05	12,856.34	29.71	433.730	
7,150.00	6,883.05	1,328.00	1,299.18	31.89	3.87	85.46	-23.22	-11,033.23	12,931.82	12,901.95	29.87	432.900	
7,200.00	6,902.99	1,328.00	1,299.18	32.28	3.87	75.32	-23.22	-11,033.23	12,977.77	12,947.73	30.03	432.153	
7,250.00	6,919.32	1,328.00	1,299.18	32.67	3.87	65.43	-23.22	-11,033.23	13,023.60	12,993.41	30.18	431.475	
7,300.00	6,931.95	1,328.00	1,299.18	33.08	3.87	56.41	-23.22	-11,033.23	13,069.04	13,038.71	30.33	430.850	
7,350.00	6,940.79	1,328.00	1,299.18	33.49	3.87	48.58	-23.22	-11,033.23	13,113.82	13,083.34	30.48	430.259	
7,400.00	6,945.79	1,328.00	1,299.18	33.90	3.87	42.00	-23.22	-11,033.23	13,157.66	13,127.04	30.62	429.684	
7,439.53	6,947.00	1,328.00	1,299.18	34.24	3.87	37.60	-23.22	-11,033.23	13,191.49	13,160.76	30.73	429.232	
7,500.00	6,947.00	1,328.00	1,299.18	34.75	3.87	36.04	-23.22	-11,033.23	13,242.85	13,211.95	30.90	428.526	
7,600.00	6,947.00	1,314.32	1,286.90	35.63	3.75	33.22	-25.83	-11,027.80	13,328.74	13,297.63	31.11	428.395	SF
7,700.00	6,947.00	1,297.00	1,271.28	36.54	3.61	30.14	-28.96	-11,021.00	13,415.81	13,384.53	31.29	428.796	
7,800.00	6,947.00	1,297.00	1,271.28	37.47	3.61	26.89	-28.96	-11,021.00	13,503.83	13,472.31	31.52	428.439	
7,900.00	6,947.00	1,295.03	1,269.50	38.43	3.60	23.36	-29.31	-11,020.23	13,592.74	13,561.02	31.72	428.523	
8,000.00	6,947.00	1,257.00	1,235.10	39.41	3.29	19.50	-35.77	-11,005.35	13,682.33	13,650.58	31.75	431.007	
8,100.00	6,947.00	1,257.00	1,235.10	40.40	3.29	15.51	-35.77	-11,005.35	13,772.54	13,740.63	31.91	431.607	
8,200.00	6,947.00	1,257.00	1,235.10	41.42	3.29	11.31	-35.77	-11,005.35	13,863.27	13,831.22	32.05	432.530	
8,300.00	6,947.00	1,225.00	1,206.03	42.44	3.04	6.93	-40.87	-10,992.99	13,954.38	13,922.34	32.04	435.533	
8,400.00	6,947.00	1,225.00	1,206.03	43.48	3.04	2.46	-40.87	-10,992.99	14,045.72	14,013.59	32.14	437.072	
8,500.00	6,947.00	1,225.00	1,206.03	44.53	3.04	-2.08	-40.87	-10,992.99	14,137.25	14,105.04	32.21	438.915	
8,600.00	6,947.00	1,225.00	1,206.03	45.58	3.04	-6.63	-40.87	-10,992.99	14,228.83	14,196.57	32.26	441.051	
8,700.00	6,947.00	1,225.00	1,206.03	46.63	3.04	-11.12	-40.87	-10,992.99	14,320.37	14,288.07	32.29	443.469	
8,800.00	6,947.00	1,225.00	1,206.03	47.69	3.04	-15.50	-40.87	-10,992.99	14,411.74	14,379.44	32.30	446.156	
8,841.31	6,947.00	1,225.00	1,206.03	48.13	3.04	-17.26	-40.87	-10,992.99	14,449.42	14,417.12	32.30	447.344	
8,900.00	6,947.00	1,225.00	1,206.03	48.76	3.04	-17.26	-40.87	-10,992.99	14,502.93	14,470.64	32.30	449.047	
9,000.00	6,947.00	1,225.00	1,206.03	49.85	3.04	-17.26	-40.87	-10,992.99	14,594.20	14,561.91	32.29	451.906	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 553-APC_ISCWSA REV 2 MWD

Rule Assigned:

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,100.00	6,947.00	1,194.00	1,177.60	50.97	2.82	-17.14	-45.43	-10,981.50	14,685.54	14,653.36	32.18	456.323	
9,200.00	6,947.00	1,194.00	1,177.60	52.12	2.82	-17.14	-45.43	-10,981.50	14,776.96	14,744.77	32.19	459.076	
9,300.00	6,947.00	1,194.00	1,177.60	53.28	2.82	-17.14	-45.43	-10,981.50	14,868.49	14,836.29	32.20	461.780	
9,400.00	6,947.00	1,194.00	1,177.60	54.48	2.82	-17.14	-45.43	-10,981.50	14,960.13	14,927.92	32.21	464.434	
9,500.00	6,947.00	1,194.00	1,177.60	55.69	2.82	-17.14	-45.43	-10,981.50	15,051.87	15,019.64	32.23	467.040	
9,600.00	6,947.00	1,194.00	1,177.60	56.92	2.82	-17.14	-45.43	-10,981.50	15,143.72	15,111.47	32.25	469.598	
9,700.00	6,947.00	1,194.00	1,177.60	58.17	2.82	-17.14	-45.43	-10,981.50	15,235.67	15,203.40	32.27	472.108	
9,800.00	6,947.00	1,194.00	1,177.60	59.44	2.82	-17.14	-45.43	-10,981.50	15,327.72	15,295.43	32.30	474.572	
9,900.00	6,947.00	1,176.83	1,161.75	60.73	2.70	-17.07	-47.84	-10,975.36	15,419.80	15,387.53	32.27	477.824	
10,000.00	6,947.00	1,163.00	1,148.95	62.03	2.60	-17.02	-49.79	-10,970.50	15,512.03	15,479.77	32.26	480.870	
10,100.00	6,947.00	1,163.00	1,148.95	63.34	2.60	-17.02	-49.79	-10,970.50	15,604.30	15,572.01	32.29	483.188	
10,200.00	6,947.00	1,163.00	1,148.95	64.67	2.60	-17.02	-49.79	-10,970.50	15,696.67	15,664.33	32.33	485.462	
10,300.00	6,947.00	1,163.00	1,148.95	66.01	2.60	-17.02	-49.79	-10,970.50	15,789.13	15,756.75	32.38	487.692	
10,400.00	6,947.00	1,163.00	1,148.95	67.36	2.60	-17.02	-49.79	-10,970.50	15,881.68	15,849.26	32.42	489.880	
10,500.00	6,947.00	1,147.76	1,134.81	68.73	2.50	-16.96	-51.89	-10,965.22	15,974.27	15,941.85	32.42	492.721	
10,600.00	6,947.00	1,132.00	1,120.15	70.10	2.40	-16.90	-53.96	-10,959.82	16,066.99	16,034.57	32.42	495.547	
10,700.00	6,947.00	1,132.00	1,120.15	71.48	2.40	-16.90	-53.96	-10,959.82	16,159.74	16,127.27	32.48	497.601	
10,800.00	6,947.00	1,132.00	1,120.15	72.88	2.40	-16.90	-53.96	-10,959.82	16,252.58	16,220.05	32.53	499.614	
10,900.00	6,947.00	1,132.00	1,120.15	74.28	2.40	-16.90	-53.96	-10,959.82	16,345.50	16,312.91	32.59	501.589	
11,000.00	6,947.00	1,132.00	1,120.15	75.69	2.40	-16.90	-53.96	-10,959.82	16,438.51	16,405.86	32.65	503.527	
11,100.00	6,947.00	1,132.00	1,120.15	77.10	2.40	-16.90	-53.96	-10,959.82	16,531.59	16,498.88	32.71	505.427	
11,200.00	6,947.00	1,132.00	1,120.15	78.53	2.40	-16.90	-53.96	-10,959.82	16,624.76	16,591.99	32.77	507.291	
11,300.00	6,947.00	1,115.08	1,104.34	79.96	2.30	-16.84	-56.00	-10,954.12	16,717.92	16,685.13	32.79	509.813	
11,400.00	6,947.00	1,101.00	1,091.15	81.40	2.21	-16.79	-57.50	-10,949.46	16,811.24	16,778.42	32.82	512.184	
11,500.00	6,947.00	1,101.00	1,091.15	82.84	2.21	-16.79	-57.50	-10,949.46	16,904.58	16,871.69	32.89	513.931	
11,600.00	6,947.00	1,101.00	1,091.15	84.29	2.21	-16.79	-57.50	-10,949.46	16,997.99	16,965.03	32.96	515.645	
11,700.00	6,947.00	1,101.00	1,091.15	85.75	2.21	-16.79	-57.50	-10,949.46	17,091.48	17,058.45	33.04	517.328	
11,800.00	6,947.00	1,101.00	1,091.15	87.21	2.21	-16.79	-57.50	-10,949.46	17,185.05	17,151.93	33.11	518.978	
11,900.00	6,947.00	1,101.00	1,091.15	88.68	2.21	-16.79	-57.50	-10,949.46	17,278.68	17,245.49	33.19	520.598	
12,000.00	6,947.00	1,101.00	1,091.15	90.15	2.21	-16.79	-57.50	-10,949.46	17,372.39	17,339.12	33.27	522.188	
12,100.00	6,947.00	1,101.00	1,091.15	91.62	2.21	-16.79	-57.50	-10,949.46	17,466.16	17,432.81	33.35	523.749	
12,200.00	6,947.00	1,101.00	1,091.15	93.10	2.21	-16.79	-57.50	-10,949.46	17,560.00	17,526.58	33.43	525.282	
12,300.00	6,947.00	1,101.00	1,091.15	94.59	2.21	-16.79	-57.50	-10,949.46	17,653.92	17,620.40	33.51	526.786	
12,400.00	6,947.00	1,101.00	1,091.15	96.07	2.21	-16.79	-57.50	-10,949.46	17,747.89	17,714.30	33.60	528.264	
12,500.00	6,947.00	1,086.11	1,077.13	97.56	2.13	-16.74	-58.92	-10,944.65	17,841.83	17,808.18	33.65	530.224	
12,600.00	6,947.00	1,071.00	1,062.83	99.06	2.05	-16.69	-60.23	-10,939.95	17,936.00	17,902.29	33.70	532.166	
12,700.00	6,947.00	1,071.00	1,062.83	100.56	2.05	-16.69	-60.23	-10,939.95	18,030.12	17,996.32	33.79	533.553	
12,800.00	6,947.00	1,071.00	1,062.83	102.06	2.05	-16.69	-60.23	-10,939.95	18,124.30	18,090.41	33.88	534.916	
12,900.00	6,947.00	1,071.00	1,062.83	103.56	2.05	-16.69	-60.23	-10,939.95	18,218.54	18,184.57	33.97	536.256	
13,000.00	6,947.00	1,071.00	1,062.83	105.07	2.05	-16.69	-60.23	-10,939.95	18,312.85	18,278.78	34.07	537.572	
13,100.00	6,947.00	1,071.00	1,062.83	106.58	2.05	-16.69	-60.23	-10,939.95	18,407.21	18,373.05	34.16	538.866	
13,200.00	6,947.00	1,071.00	1,062.83	108.10	2.05	-16.69	-60.23	-10,939.95	18,501.64	18,467.38	34.25	540.138	
13,300.00	6,947.00	1,071.00	1,062.83	109.61	2.05	-16.69	-60.23	-10,939.95	18,596.12	18,561.77	34.35	541.389	
13,400.00	6,947.00	1,071.00	1,062.83	111.13	2.05	-16.69	-60.23	-10,939.95	18,690.66	18,656.21	34.45	542.619	
13,500.00	6,947.00	1,071.00	1,062.83	112.65	2.05	-16.69	-60.23	-10,939.95	18,785.25	18,750.71	34.54	543.829	
13,600.00	6,947.00	1,055.50	1,048.11	114.17	1.97	-16.64	-61.47	-10,935.25	18,879.88	18,845.26	34.61	545.458	
13,700.00	6,947.00	1,041.00	1,034.33	115.70	1.90	-16.59	-62.57	-10,930.88	18,974.56	18,939.88	34.69	547.030	
13,800.00	6,947.00	1,041.00	1,034.33	117.23	1.90	-16.59	-62.57	-10,930.88	19,069.28	19,034.49	34.79	548.171	
13,900.00	6,947.00	1,041.00	1,034.33	118.76	1.90	-16.59	-62.57	-10,930.88	19,164.04	19,129.15	34.89	549.293	
14,000.00	6,947.00	1,041.00	1,034.33	120.29	1.90	-16.59	-62.57	-10,930.88	19,258.86	19,223.87	34.99	550.398	
14,100.00	6,947.00	1,041.00	1,034.33	121.82	1.90	-16.59	-62.57	-10,930.88	19,353.74	19,318.64	35.09	551.486	
14,200.00	6,947.00	1,041.00	1,034.33	123.36	1.90	-16.59	-62.57	-10,930.88	19,448.66	19,413.46	35.20	552.557	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 553-APC_ISCWSA REV 2 MWD

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,300.00	6,947.00	1,041.00	1,034.33	124.89	1.90	-16.59	-62.57	-10,930.88	19,543.63	19,508.33	35.30	553.612	
14,400.00	6,947.00	1,041.00	1,034.33	126.43	1.90	-16.59	-62.57	-10,930.88	19,638.66	19,603.25	35.41	554.651	
14,500.00	6,947.00	1,041.00	1,034.33	127.97	1.90	-16.59	-62.57	-10,930.88	19,733.73	19,698.22	35.51	555.676	
14,600.00	6,947.00	1,041.00	1,034.33	129.51	1.90	-16.59	-62.57	-10,930.88	19,828.85	19,793.23	35.62	556.685	
14,700.00	6,947.00	1,041.00	1,034.33	131.06	1.90	-16.59	-62.57	-10,930.88	19,924.02	19,888.30	35.73	557.680	
14,800.00	6,947.00	1,041.00	1,034.33	132.60	1.90	-16.59	-62.57	-10,930.88	20,019.24	19,983.41	35.83	558.661	
14,900.00	6,947.00	1,026.20	1,020.22	134.15	1.83	-16.54	-63.60	-10,926.54	20,114.39	20,078.46	35.92	559.944	
15,000.00	6,947.00	1,024.90	1,018.97	135.70	1.82	-16.54	-63.69	-10,926.17	20,209.67	20,173.64	36.03	560.921	
15,100.00	6,947.00	1,010.00	1,004.69	137.24	1.76	-16.49	-64.63	-10,922.03	20,305.10	20,268.98	36.12	562.171	
15,200.00	6,947.00	1,010.00	1,004.69	138.79	1.76	-16.49	-64.63	-10,922.03	20,400.46	20,364.23	36.23	563.088	
15,300.00	6,947.00	1,010.00	1,004.69	140.35	1.76	-16.49	-64.63	-10,922.03	20,495.86	20,459.52	36.34	563.993	
15,400.00	6,947.00	1,010.00	1,004.69	141.90	1.76	-16.49	-64.63	-10,922.03	20,591.30	20,554.85	36.45	564.886	
15,500.00	6,947.00	1,010.00	1,004.69	143.45	1.76	-16.49	-64.63	-10,922.03	20,686.79	20,650.22	36.56	565.768	
15,600.00	6,947.00	1,010.00	1,004.69	145.01	1.76	-16.49	-64.63	-10,922.03	20,782.32	20,745.64	36.68	566.638	
15,700.00	6,947.00	1,010.00	1,004.69	146.56	1.76	-16.49	-64.63	-10,922.03	20,877.89	20,841.10	36.79	567.497	
15,800.00	6,947.00	1,010.00	1,004.69	148.12	1.76	-16.49	-64.63	-10,922.03	20,973.50	20,936.60	36.90	568.346	
15,900.00	6,947.00	1,010.00	1,004.69	149.68	1.76	-16.49	-64.63	-10,922.03	21,069.15	21,032.14	37.02	569.184	
16,000.00	6,947.00	1,010.00	1,004.69	151.23	1.76	-16.49	-64.63	-10,922.03	21,164.85	21,127.72	37.13	570.012	
16,100.00	6,947.00	1,010.00	1,004.69	152.79	1.76	-16.49	-64.63	-10,922.03	21,260.58	21,223.33	37.25	570.830	
16,200.00	6,947.00	1,010.00	1,004.69	154.36	1.76	-16.49	-64.63	-10,922.03	21,356.35	21,318.99	37.36	571.638	
16,300.00	6,947.00	1,010.00	1,004.69	155.92	1.76	-16.49	-64.63	-10,922.03	21,452.16	21,414.69	37.48	572.437	
16,400.00	6,947.00	1,010.00	1,004.69	157.48	1.76	-16.49	-64.63	-10,922.03	21,548.01	21,510.42	37.59	573.226	
16,500.00	6,947.00	1,010.00	1,004.69	159.04	1.76	-16.49	-64.63	-10,922.03	21,643.90	21,606.19	37.71	574.007	
16,600.00	6,947.00	1,010.00	1,004.69	160.61	1.76	-16.49	-64.63	-10,922.03	21,739.82	21,702.00	37.82	574.778	
16,700.00	6,947.00	1,010.00	1,004.69	162.17	1.76	-16.49	-64.63	-10,922.03	21,835.78	21,797.84	37.94	575.542	
16,800.00	6,947.00	1,010.00	1,004.69	163.74	1.76	-16.49	-64.63	-10,922.03	21,931.78	21,893.72	38.06	576.296	
16,900.00	6,947.00	994.96	990.22	165.30	1.70	-16.45	-65.51	-10,918.01	22,027.74	21,989.58	38.16	577.245	
17,000.00	6,947.00	992.86	988.20	166.87	1.69	-16.44	-65.63	-10,917.46	22,123.79	22,085.51	38.28	578.007	
17,100.00	6,947.00	978.00	973.87	168.44	1.64	-16.40	-66.42	-10,913.61	22,219.92	22,181.53	38.38	578.928	
17,200.00	6,947.00	978.00	973.87	170.01	1.64	-16.40	-66.42	-10,913.61	22,316.01	22,277.51	38.50	579.642	
17,300.00	6,947.00	978.00	973.87	171.57	1.64	-16.40	-66.42	-10,913.61	22,412.15	22,373.53	38.62	580.348	
17,400.00	6,947.00	978.00	973.87	173.14	1.64	-16.40	-66.42	-10,913.61	22,508.31	22,469.57	38.74	581.047	
17,500.00	6,947.00	978.00	973.87	174.71	1.64	-16.40	-66.42	-10,913.61	22,604.51	22,565.65	38.86	581.740	
17,600.00	6,947.00	978.00	973.87	176.28	1.64	-16.40	-66.42	-10,913.61	22,700.74	22,661.77	38.98	582.425	
17,700.00	6,947.00	978.00	973.87	177.86	1.64	-16.40	-66.42	-10,913.61	22,797.01	22,757.91	39.10	583.104	
17,800.00	6,947.00	978.00	973.87	179.43	1.64	-16.40	-66.42	-10,913.61	22,893.30	22,854.09	39.22	583.776	
17,900.00	6,947.00	978.00	973.87	181.00	1.64	-16.40	-66.42	-10,913.61	22,989.63	22,950.30	39.34	584.442	
18,000.00	6,947.00	978.00	973.87	182.57	1.64	-16.40	-66.42	-10,913.61	23,085.99	23,046.54	39.46	585.102	
18,100.00	6,947.00	978.00	973.87	184.15	1.64	-16.40	-66.42	-10,913.61	23,182.38	23,142.80	39.58	585.755	
18,200.00	6,947.00	978.00	973.87	185.72	1.64	-16.40	-66.42	-10,913.61	23,278.80	23,239.10	39.70	586.402	
18,300.00	6,947.00	962.83	959.21	187.30	1.58	-16.35	-67.15	-10,909.78	23,375.21	23,335.40	39.81	587.172	
18,400.00	6,947.00	948.00	944.86	188.87	1.53	-16.31	-67.76	-10,906.09	23,471.70	23,431.78	39.92	587.928	
18,500.00	6,947.00	948.00	944.86	190.45	1.53	-16.31	-67.76	-10,906.09	23,568.18	23,528.13	40.04	588.552	
18,600.00	6,947.00	948.00	944.86	192.02	1.53	-16.31	-67.76	-10,906.09	23,664.68	23,624.52	40.17	589.171	
18,700.00	6,947.00	948.00	944.86	193.60	1.53	-16.31	-67.76	-10,906.09	23,761.22	23,720.93	40.29	589.784	
18,800.00	6,947.00	948.00	944.86	195.18	1.53	-16.31	-67.76	-10,906.09	23,857.79	23,817.38	40.41	590.393	
18,900.00	6,947.00	948.00	944.86	196.75	1.53	-16.31	-67.76	-10,906.09	23,954.38	23,913.85	40.53	590.996	
19,000.00	6,947.00	948.00	944.86	198.33	1.53	-16.31	-67.76	-10,906.09	24,051.00	24,010.34	40.65	591.594	
19,100.00	6,947.00	948.00	944.86	199.91	1.53	-16.31	-67.76	-10,906.09	24,147.65	24,106.87	40.78	592.187	
19,200.00	6,947.00	948.00	944.86	201.49	1.53	-16.31	-67.76	-10,906.09	24,244.32	24,203.42	40.90	592.775	
19,300.00	6,947.00	948.00	944.86	203.07	1.53	-16.31	-67.76	-10,906.09	24,341.02	24,300.00	41.02	593.358	
19,400.00	6,947.00	948.00	944.86	204.65	1.53	-16.31	-67.76	-10,906.09	24,437.75	24,396.61	41.15	593.937	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 553-APC_ISCWSA REV 2 MWD

Rule Assigned:

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
19,500.00	6,947.00	948.00	944.86	206.23	1.53	-16.31	-67.76	-10,906.09	24,534.51	24,493.24	41.27	594.511	
19,600.00	6,947.00	948.00	944.86	207.81	1.53	-16.31	-67.76	-10,906.09	24,631.29	24,589.90	41.39	595.080	
19,700.00	6,947.00	948.00	944.86	209.39	1.53	-16.31	-67.76	-10,906.09	24,728.10	24,686.58	41.51	595.645	
19,800.00	6,947.00	948.00	944.86	210.97	1.53	-16.31	-67.76	-10,906.09	24,824.93	24,783.29	41.64	596.206	
19,900.00	6,947.00	948.00	944.86	212.55	1.53	-16.31	-67.76	-10,906.09	24,921.78	24,880.02	41.76	596.762	
20,000.00	6,947.00	948.00	944.86	214.13	1.53	-16.31	-67.76	-10,906.09	25,018.67	24,976.78	41.89	597.314	
20,100.00	6,947.00	948.00	944.86	215.71	1.53	-16.31	-67.76	-10,906.09	25,115.57	25,073.56	42.01	597.862	
20,200.00	6,947.00	948.00	944.86	217.30	1.53	-16.31	-67.76	-10,906.09	25,212.50	25,170.37	42.13	598.405	
20,300.00	6,947.00	948.00	944.86	218.88	1.53	-16.31	-67.76	-10,906.09	25,309.46	25,267.20	42.26	598.945	
20,400.00	6,947.00	948.00	944.86	220.46	1.53	-16.31	-67.76	-10,906.09	25,406.43	25,364.05	42.38	599.481	
20,500.00	6,947.00	948.00	944.86	222.04	1.53	-16.31	-67.76	-10,906.09	25,503.44	25,460.93	42.50	600.012	
20,600.00	6,947.00	948.00	944.86	223.63	1.53	-16.31	-67.76	-10,906.09	25,600.46	25,557.83	42.63	600.540	
20,700.00	6,947.00	948.00	944.86	225.21	1.53	-16.31	-67.76	-10,906.09	25,697.51	25,654.75	42.75	601.064	
20,800.00	6,947.00	948.00	944.86	226.80	1.53	-16.31	-67.76	-10,906.09	25,794.58	25,751.70	42.88	601.584	
20,900.00	6,947.00	948.00	944.86	228.38	1.53	-16.31	-67.76	-10,906.09	25,891.67	25,848.67	43.00	602.101	
21,000.00	6,947.00	948.00	944.86	229.97	1.53	-16.31	-67.76	-10,906.09	25,988.78	25,945.65	43.13	602.614	
21,032.01	6,947.00	948.00	944.86	230.47	1.53	-16.31	-67.76	-10,906.09	26,019.87	25,976.70	43.17	602.777	
21,032.99	6,947.00	948.00	944.86	230.51	1.53	-16.31	-67.76	-10,906.09	26,020.82	25,974.82	46.00	565.710	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 352-APC_ISCWSA REV 2 MWD

Rule Assigned:

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	-46.03	500.31	-518.69	723.32				
100.00	100.00	38.82	38.82	0.25	0.04	-46.03	500.29	-518.68	720.64	720.35	0.29	2,444.624	
200.00	200.00	140.96	140.96	0.61	0.16	-46.04	500.09	-518.50	720.38	719.61	0.77	937.845	
300.00	300.00	243.11	243.11	0.97	0.27	-46.04	499.67	-518.11	719.82	718.58	1.24	579.810	
400.00	400.00	345.25	345.24	1.33	0.39	-46.04	499.02	-517.52	718.96	717.24	1.71	419.236	
457.19	457.19	395.20	395.19	1.53	0.48	-46.05	498.73	-517.35	718.60	716.59	2.01	357.356	CC, ES
500.00	500.00	428.49	428.48	1.68	0.54	-46.06	498.83	-517.55	718.87	716.65	2.23	322.840	
600.00	599.98	497.52	497.47	2.03	0.69	148.94	500.38	-519.19	723.69	720.98	2.71	267.144	
700.00	699.84	567.00	566.74	2.36	0.85	148.96	504.00	-523.06	735.80	732.60	3.19	230.379	
800.00	799.45	627.00	626.29	2.71	1.00	148.95	509.04	-528.38	755.40	751.73	3.67	205.867	
900.00	898.70	694.87	693.25	3.06	1.18	149.00	516.80	-536.22	782.01	777.85	4.17	187.744	
1,000.00	997.47	756.31	753.38	3.43	1.40	149.02	525.70	-545.11	815.49	810.85	4.65	175.552	
1,100.00	1,095.62	811.00	806.44	3.82	1.63	148.97	535.14	-554.41	855.54	850.44	5.10	167.632	
1,200.00	1,193.44	874.00	866.86	4.22	1.95	149.46	547.94	-566.83	900.68	895.10	5.58	161.387	
1,300.00	1,291.25	922.36	912.68	4.64	2.22	149.81	558.99	-577.61	949.12	943.13	6.00	158.292	
1,400.00	1,389.07	980.84	967.55	5.06	2.59	150.20	573.37	-591.84	1,000.31	993.86	6.45	155.120	
1,500.00	1,486.88	1,031.00	1,014.04	5.48	2.94	150.52	586.92	-604.93	1,054.22	1,047.35	6.86	153.603	
1,600.00	1,584.70	1,079.88	1,058.83	5.91	3.31	150.81	601.01	-618.50	1,110.58	1,103.31	7.27	152.732	
1,700.00	1,682.51	1,124.00	1,098.63	6.35	3.67	151.06	614.79	-631.65	1,169.69	1,162.04	7.65	152.892	
1,800.00	1,780.33	1,170.47	1,139.98	6.78	4.08	151.30	630.10	-646.31	1,231.07	1,223.02	8.05	153.009	
1,900.00	1,878.14	1,217.00	1,180.74	7.22	4.51	151.54	646.57	-661.56	1,294.68	1,286.25	8.44	153.462	
2,000.00	1,975.96	1,263.82	1,221.25	7.66	4.97	151.79	663.98	-677.28	1,360.02	1,351.18	8.83	153.947	
2,100.00	2,073.77	1,311.00	1,261.52	8.10	5.46	152.02	682.31	-693.66	1,427.05	1,417.81	9.23	154.527	
2,200.00	2,171.59	1,349.32	1,293.78	8.54	5.88	152.20	697.65	-707.53	1,495.66	1,486.07	9.59	155.890	
2,300.00	2,269.40	1,396.19	1,332.80	8.98	6.40	152.38	716.68	-725.18	1,565.60	1,555.61	9.98	156.828	
2,400.00	2,367.22	1,436.00	1,365.60	9.43	6.86	152.52	733.20	-740.56	1,636.71	1,626.37	10.34	158.247	
2,500.00	2,465.03	1,491.19	1,410.56	9.87	7.51	152.67	756.09	-762.93	1,708.83	1,698.01	10.82	157.946	
2,600.00	2,562.84	1,542.73	1,452.21	10.32	8.13	152.75	777.15	-784.79	1,781.59	1,770.31	11.28	158.001	
2,700.00	2,660.66	1,592.00	1,491.75	10.77	8.74	152.81	797.41	-806.10	1,854.99	1,843.26	11.72	158.254	
2,800.00	2,758.47	1,634.71	1,525.70	11.21	9.29	152.86	815.37	-824.78	1,929.22	1,917.10	12.12	159.190	
2,900.00	2,856.29	1,677.55	1,559.46	11.66	9.84	152.92	833.79	-843.64	2,004.24	1,991.72	12.52	160.097	
3,000.00	2,954.10	1,737.39	1,606.33	12.11	10.60	153.01	859.92	-870.13	2,079.81	2,066.75	13.06	159.280	
3,100.00	3,051.92	1,779.00	1,638.78	12.56	11.14	153.06	878.24	-888.65	2,155.75	2,142.30	13.45	160.281	
3,200.00	3,149.73	1,833.35	1,680.80	13.01	11.86	153.13	902.50	-913.13	2,232.34	2,218.38	13.96	159.966	
3,300.00	3,247.55	1,905.00	1,736.37	13.45	12.76	153.24	934.78	-944.80	2,308.76	2,294.16	14.60	158.163	
3,400.00	3,345.36	2,074.87	1,870.60	13.90	14.84	153.51	1,009.82	-1,016.94	2,383.69	2,367.65	16.04	148.648	
3,500.00	3,443.18	2,199.93	1,971.90	14.35	16.30	153.71	1,062.71	-1,067.70	2,456.44	2,439.35	17.09	143.744	
3,600.00	3,540.99	3,253.00	2,925.31	14.80	24.19	155.46	1,357.57	-1,346.06	2,496.75	2,473.74	23.00	108.541	SF
3,700.00	3,638.81	3,253.00	2,925.31	15.25	24.19	155.46	1,357.57	-1,346.06	2,538.76	2,515.46	23.30	108.959	
3,800.00	3,736.62	3,253.00	2,925.31	15.70	24.19	155.46	1,357.57	-1,346.06	2,583.96	2,560.39	23.57	109.647	
3,900.00	3,834.44	3,253.00	2,925.31	16.15	24.19	155.46	1,357.57	-1,346.06	2,632.18	2,608.38	23.80	110.582	
4,000.00	3,932.25	3,253.00	2,925.31	16.60	24.19	155.46	1,357.57	-1,346.06	2,683.27	2,659.25	24.01	111.742	
4,100.00	4,030.07	3,253.00	2,925.31	17.05	24.19	155.46	1,357.57	-1,346.06	2,737.06	2,712.86	24.20	113.108	
4,200.00	4,127.88	3,253.00	2,925.31	17.50	24.19	155.46	1,357.57	-1,346.06	2,793.39	2,769.03	24.36	114.661	
4,300.00	4,225.70	3,253.00	2,925.31	17.96	24.19	155.46	1,357.57	-1,346.06	2,852.12	2,827.61	24.51	116.384	
4,400.00	4,323.51	3,253.00	2,925.31	18.41	24.19	155.46	1,357.57	-1,346.06	2,913.09	2,888.46	24.63	118.262	
4,500.00	4,421.33	3,253.00	2,925.31	18.86	24.19	155.46	1,357.57	-1,346.06	2,976.18	2,951.44	24.74	120.281	
4,600.00	4,519.14	3,253.00	2,925.31	19.31	24.19	155.46	1,357.57	-1,346.06	3,041.25	3,016.41	24.84	122.426	
4,700.00	4,616.95	3,253.00	2,925.31	19.76	24.19	155.46	1,357.57	-1,346.06	3,108.18	3,083.25	24.93	124.685	
4,800.00	4,714.77	3,253.00	2,925.31	20.21	24.19	155.46	1,357.57	-1,346.06	3,176.84	3,151.83	25.01	127.047	
4,900.00	4,812.58	3,253.00	2,925.31	20.66	24.19	155.46	1,357.57	-1,346.06	3,247.13	3,222.05	25.07	129.502	
5,000.00	4,910.40	3,253.00	2,925.31	21.11	24.19	155.46	1,357.57	-1,346.06	3,318.94	3,293.81	25.14	132.038	

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 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

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

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,100.00	5,008.21	3,253.00	2,925.31	21.57	24.19	155.46	1,357.57	-1,346.06	3,392.19	3,366.99	25.19	134.647	
5,200.00	5,106.03	3,253.00	2,925.31	22.02	24.19	155.46	1,357.57	-1,346.06	3,466.77	3,441.52	25.25	137.319	
5,300.00	5,203.84	3,253.00	2,925.31	22.47	24.19	155.46	1,357.57	-1,346.06	3,542.60	3,517.31	25.30	140.046	
5,400.00	5,301.66	3,253.00	2,925.31	22.92	24.19	155.46	1,357.57	-1,346.06	3,619.61	3,594.27	25.34	142.820	
5,500.00	5,399.47	3,253.00	2,925.31	23.37	24.19	155.46	1,357.57	-1,346.06	3,697.72	3,672.33	25.39	145.634	
5,600.00	5,497.29	3,253.00	2,925.31	23.82	24.19	155.46	1,357.57	-1,346.06	3,776.86	3,751.42	25.44	148.481	
5,700.00	5,595.10	3,253.00	2,925.31	24.28	24.19	155.46	1,357.57	-1,346.06	3,856.97	3,831.49	25.48	151.354	
5,800.00	5,692.92	3,253.00	2,925.31	24.73	24.19	155.46	1,357.57	-1,346.06	3,937.99	3,912.46	25.53	154.247	
5,900.00	5,790.73	3,253.00	2,925.31	25.18	24.19	155.46	1,357.57	-1,346.06	4,019.86	3,994.29	25.58	157.155	
6,000.00	5,888.55	3,253.00	2,925.31	25.63	24.19	155.46	1,357.57	-1,346.06	4,102.54	4,076.91	25.63	160.071	
6,100.00	5,986.36	3,253.00	2,925.31	26.08	24.19	155.46	1,357.57	-1,346.06	4,185.98	4,160.29	25.68	162.990	
6,200.00	6,084.18	3,253.00	2,925.31	26.54	24.19	155.46	1,357.57	-1,346.06	4,270.12	4,244.39	25.74	165.908	
6,300.00	6,181.99	3,253.00	2,925.31	26.99	24.19	155.46	1,357.57	-1,346.06	4,354.94	4,329.14	25.80	168.820	
6,400.00	6,279.81	3,253.00	2,925.31	27.44	24.19	155.46	1,357.57	-1,346.06	4,440.39	4,414.53	25.86	171.722	
6,500.00	6,377.62	3,253.00	2,925.31	27.89	24.19	155.46	1,357.57	-1,346.06	4,526.43	4,500.51	25.92	174.608	
6,530.62	6,407.57	3,253.00	2,925.31	28.03	24.19	155.46	1,357.57	-1,346.06	4,552.89	4,526.95	25.94	175.489	
6,550.00	6,426.48	3,253.00	2,925.31	28.12	24.19	162.17	1,357.57	-1,346.06	4,569.80	4,543.84	25.96	176.036	
6,600.00	6,474.77	3,253.00	2,925.31	28.36	24.19	176.23	1,357.57	-1,346.06	4,614.65	4,588.64	26.00	177.466	
6,650.00	6,522.09	3,253.00	2,925.31	28.62	24.19	-171.72	1,357.57	-1,346.06	4,661.00	4,634.95	26.05	178.924	
6,700.00	6,568.15	3,253.00	2,925.31	28.89	24.19	-158.99	1,357.57	-1,346.06	4,708.52	4,682.43	26.10	180.430	
6,750.00	6,612.66	3,253.00	2,925.31	29.18	24.19	-143.04	1,357.57	-1,346.06	4,756.90	4,730.76	26.14	181.978	
6,800.00	6,655.36	3,253.00	2,925.31	29.48	24.19	-121.68	1,357.57	-1,346.06	4,805.82	4,779.64	26.18	183.564	
6,850.00	6,695.98	3,253.00	2,925.31	29.79	24.19	-96.34	1,357.57	-1,346.06	4,854.96	4,828.74	26.22	185.180	
6,900.00	6,734.26	3,253.00	2,925.31	30.11	24.19	-73.59	1,357.57	-1,346.06	4,904.01	4,877.76	26.25	186.816	
6,950.00	6,769.98	3,253.00	2,925.31	30.45	24.19	-57.35	1,357.57	-1,346.06	4,952.68	4,926.41	26.28	188.462	
7,000.00	6,802.91	3,253.00	2,925.31	30.79	24.19	-46.55	1,357.57	-1,346.06	5,000.70	4,974.39	26.30	190.106	
7,050.00	6,832.85	3,253.00	2,925.31	31.15	24.19	-39.26	1,357.57	-1,346.06	5,047.77	5,021.44	26.33	191.731	
7,100.00	6,859.62	3,253.00	2,925.31	31.51	24.19	-34.15	1,357.57	-1,346.06	5,093.65	5,067.30	26.35	193.322	
7,150.00	6,883.05	3,253.00	2,925.31	31.89	24.19	-30.42	1,357.57	-1,346.06	5,138.08	5,111.71	26.37	194.858	
7,200.00	6,902.99	3,253.00	2,925.31	32.28	24.19	-27.62	1,357.57	-1,346.06	5,180.84	5,154.45	26.39	196.319	
7,250.00	6,919.32	3,253.00	2,925.31	32.67	24.19	-25.48	1,357.57	-1,346.06	5,221.70	5,195.28	26.41	197.683	
7,300.00	6,931.95	3,253.00	2,925.31	33.08	24.19	-23.81	1,357.57	-1,346.06	5,260.45	5,234.01	26.44	198.926	
7,350.00	6,940.79	3,253.00	2,925.31	33.49	24.19	-22.51	1,357.57	-1,346.06	5,296.92	5,270.44	26.48	200.023	
7,400.00	6,945.79	3,253.00	2,925.31	33.90	24.19	-21.49	1,357.57	-1,346.06	5,330.92	5,304.39	26.53	200.953	
7,439.53	6,947.00	3,253.00	2,925.31	34.24	24.19	-20.85	1,357.57	-1,346.06	5,355.95	5,329.37	26.57	201.565	
7,500.00	6,947.00	3,253.00	2,925.31	34.75	24.19	-21.72	1,357.57	-1,346.06	5,392.96	5,366.31	26.66	202.304	
7,600.00	6,947.00	3,253.00	2,925.31	35.63	24.19	-23.15	1,357.57	-1,346.06	5,454.29	5,427.47	26.82	203.383	
7,700.00	6,947.00	3,253.00	2,925.31	36.54	24.19	-24.58	1,357.57	-1,346.06	5,515.67	5,488.68	26.99	204.349	
7,800.00	6,947.00	3,253.00	2,925.31	37.47	24.19	-25.98	1,357.57	-1,346.06	5,577.03	5,549.85	27.18	205.194	
7,900.00	6,947.00	3,253.00	2,925.31	38.43	24.19	-27.37	1,357.57	-1,346.06	5,638.31	5,610.93	27.38	205.911	
8,000.00	6,947.00	3,253.00	2,925.31	39.41	24.19	-28.73	1,357.57	-1,346.06	5,699.43	5,671.83	27.60	206.496	
8,100.00	6,947.00	3,253.00	2,925.31	40.40	24.19	-30.07	1,357.57	-1,346.06	5,760.32	5,732.48	27.84	206.945	
8,200.00	6,947.00	3,253.00	2,925.31	41.42	24.19	-31.38	1,357.57	-1,346.06	5,820.91	5,792.83	28.09	207.254	
8,300.00	6,947.00	3,253.00	2,925.31	42.44	24.19	-32.66	1,357.57	-1,346.06	5,881.15	5,852.80	28.35	207.423	
8,400.00	6,947.00	3,253.00	2,925.31	43.48	24.19	-33.91	1,357.57	-1,346.06	5,940.97	5,912.33	28.64	207.450	
8,500.00	6,947.00	3,253.00	2,925.31	44.53	24.19	-35.12	1,357.57	-1,346.06	6,000.31	5,971.37	28.94	207.336	
8,600.00	6,947.00	3,253.00	2,925.31	45.58	24.19	-36.30	1,357.57	-1,346.06	6,059.12	6,029.86	29.26	207.083	
8,700.00	6,947.00	3,253.00	2,925.31	46.63	24.19	-37.45	1,357.57	-1,346.06	6,117.33	6,087.74	29.60	206.693	
8,800.00	6,947.00	3,253.00	2,925.31	47.69	24.19	-38.56	1,357.57	-1,346.06	6,174.90	6,144.95	29.95	206.171	
8,841.31	6,947.00	3,253.00	2,925.31	48.13	24.19	-39.00	1,357.57	-1,346.06	6,198.49	6,168.39	30.10	205.927	
8,900.00	6,947.00	3,253.00	2,925.31	48.76	24.19	-39.00	1,357.57	-1,346.06	6,232.09	6,201.77	30.32	205.540	
9,000.00	6,947.00	3,253.00	2,925.31	49.85	24.19	-39.00	1,357.57	-1,346.06	6,290.20	6,259.49	30.71	204.836	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 352-APC_ISCWSA REV 2 MWD

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Rule Assigned: Warning
9,100.00	6,947.00	3,253.00	2,925.31	50.97	24.19	-39.00	1,357.57	-1,346.06	6,349.35	6,318.24	31.11	204.106	
9,200.00	6,947.00	3,253.00	2,925.31	52.12	24.19	-39.00	1,357.57	-1,346.06	6,409.52	6,378.00	31.52	203.362	
9,300.00	6,947.00	3,253.00	2,925.31	53.28	24.19	-39.00	1,357.57	-1,346.06	6,470.67	6,438.73	31.94	202.616	
9,400.00	6,947.00	3,253.00	2,925.31	54.48	24.19	-39.00	1,357.57	-1,346.06	6,532.78	6,500.42	32.36	201.878	
9,500.00	6,947.00	3,253.00	2,925.31	55.69	24.19	-39.00	1,357.57	-1,346.06	6,595.82	6,563.03	32.79	201.154	
9,600.00	6,947.00	3,253.00	2,925.31	56.92	24.19	-39.00	1,357.57	-1,346.06	6,659.76	6,626.54	33.22	200.453	
9,700.00	6,947.00	3,253.00	2,925.31	58.17	24.19	-39.00	1,357.57	-1,346.06	6,724.59	6,690.93	33.66	199.780	
9,800.00	6,947.00	3,253.00	2,925.31	59.44	24.19	-39.00	1,357.57	-1,346.06	6,790.27	6,756.17	34.10	199.138	
9,900.00	6,947.00	3,253.00	2,925.31	60.73	24.19	-39.00	1,357.57	-1,346.06	6,856.78	6,822.24	34.54	198.532	
10,000.00	6,947.00	3,253.00	2,925.31	62.03	24.19	-39.00	1,357.57	-1,346.06	6,924.09	6,889.11	34.98	197.964	
10,100.00	6,947.00	3,253.00	2,925.31	63.34	24.19	-39.00	1,357.57	-1,346.06	6,992.19	6,956.77	35.41	197.436	
10,200.00	6,947.00	3,253.00	2,925.31	64.67	24.19	-39.00	1,357.57	-1,346.06	7,061.04	7,025.19	35.85	196.951	
10,300.00	6,947.00	3,253.00	2,925.31	66.01	24.19	-39.00	1,357.57	-1,346.06	7,130.63	7,094.35	36.29	196.507	
10,400.00	6,947.00	3,253.00	2,925.31	67.36	24.19	-39.00	1,357.57	-1,346.06	7,200.94	7,164.22	36.72	196.108	
10,500.00	6,947.00	3,253.00	2,925.31	68.73	24.19	-39.00	1,357.57	-1,346.06	7,271.95	7,234.80	37.15	195.751	
10,600.00	6,947.00	3,253.00	2,925.31	70.10	24.19	-39.00	1,357.57	-1,346.06	7,343.63	7,306.05	37.58	195.438	
10,700.00	6,947.00	3,253.00	2,925.31	71.48	24.19	-39.00	1,357.57	-1,346.06	7,415.96	7,377.97	38.00	195.169	
10,800.00	6,947.00	3,253.00	2,925.31	72.88	24.19	-39.00	1,357.57	-1,346.06	7,488.94	7,450.52	38.42	194.941	
10,900.00	6,947.00	3,253.00	2,925.31	74.28	24.19	-39.00	1,357.57	-1,346.06	7,562.53	7,523.69	38.83	194.756	
11,000.00	6,947.00	3,253.00	2,925.31	75.69	24.19	-39.00	1,357.57	-1,346.06	7,636.72	7,597.48	39.24	194.612	
11,100.00	6,947.00	3,253.00	2,925.31	77.10	24.19	-39.00	1,357.57	-1,346.06	7,711.49	7,671.84	39.65	194.508	
11,200.00	6,947.00	3,253.00	2,925.31	78.53	24.19	-39.00	1,357.57	-1,346.06	7,786.83	7,746.78	40.05	194.443	
11,300.00	6,947.00	3,253.00	2,925.31	79.96	24.19	-39.00	1,357.57	-1,346.06	7,862.72	7,822.28	40.44	194.416	
11,400.00	6,947.00	3,253.00	2,925.31	81.40	24.19	-39.00	1,357.57	-1,346.06	7,939.14	7,898.31	40.83	194.427	
11,500.00	6,947.00	3,253.00	2,925.31	82.84	24.19	-39.00	1,357.57	-1,346.06	8,016.09	7,974.87	41.22	194.474	
11,600.00	6,947.00	3,253.00	2,925.31	84.29	24.19	-39.00	1,357.57	-1,346.06	8,093.53	8,051.93	41.60	194.555	
11,700.00	6,947.00	3,253.00	2,925.31	85.75	24.19	-39.00	1,357.57	-1,346.06	8,171.47	8,129.49	41.98	194.671	
11,800.00	6,947.00	3,253.00	2,925.31	87.21	24.19	-39.00	1,357.57	-1,346.06	8,249.88	8,207.54	42.35	194.819	
11,900.00	6,947.00	3,253.00	2,925.31	88.68	24.19	-39.00	1,357.57	-1,346.06	8,328.76	8,286.05	42.71	194.999	
12,000.00	6,947.00	3,253.00	2,925.31	90.15	24.19	-39.00	1,357.57	-1,346.06	8,408.08	8,365.01	43.07	195.210	
12,100.00	6,947.00	3,253.00	2,925.31	91.62	24.19	-39.00	1,357.57	-1,346.06	8,487.84	8,444.42	43.43	195.450	
12,200.00	6,947.00	3,253.00	2,925.31	93.10	24.19	-39.00	1,357.57	-1,346.06	8,568.03	8,524.25	43.78	195.718	
12,300.00	6,947.00	3,253.00	2,925.31	94.59	24.19	-39.00	1,357.57	-1,346.06	8,648.63	8,604.51	44.12	196.014	
12,400.00	6,947.00	3,253.00	2,925.31	96.07	24.19	-39.00	1,357.57	-1,346.06	8,729.63	8,685.17	44.46	196.336	
12,500.00	6,947.00	3,253.00	2,925.31	97.56	24.19	-39.00	1,357.57	-1,346.06	8,811.02	8,766.22	44.80	196.684	
12,600.00	6,947.00	3,253.00	2,925.31	99.06	24.19	-39.00	1,357.57	-1,346.06	8,892.79	8,847.66	45.13	197.057	
12,700.00	6,947.00	3,253.00	2,925.31	100.56	24.19	-39.00	1,357.57	-1,346.06	8,974.93	8,929.47	45.45	197.453	
12,800.00	6,947.00	3,253.00	2,925.31	102.06	24.19	-39.00	1,357.57	-1,346.06	9,057.43	9,011.65	45.77	197.871	
12,900.00	6,947.00	3,253.00	2,925.31	103.56	24.19	-39.00	1,357.57	-1,346.06	9,140.27	9,094.18	46.09	198.312	
13,000.00	6,947.00	3,253.00	2,925.31	105.07	24.19	-39.00	1,357.57	-1,346.06	9,223.46	9,177.06	46.40	198.773	
13,100.00	6,947.00	3,253.00	2,925.31	106.58	24.19	-39.00	1,357.57	-1,346.06	9,306.98	9,260.27	46.71	199.255	
13,200.00	6,947.00	3,253.00	2,925.31	108.10	24.19	-39.00	1,357.57	-1,346.06	9,390.82	9,343.81	47.01	199.756	
13,300.00	6,947.00	3,253.00	2,925.31	109.61	24.19	-39.00	1,357.57	-1,346.06	9,474.98	9,427.67	47.31	200.276	
13,400.00	6,947.00	3,253.00	2,925.31	111.13	24.19	-39.00	1,357.57	-1,346.06	9,559.44	9,511.83	47.60	200.814	
13,500.00	6,947.00	3,253.00	2,925.31	112.65	24.19	-39.00	1,357.57	-1,346.06	9,644.19	9,596.30	47.89	201.370	
13,600.00	6,947.00	3,253.00	2,925.31	114.17	24.19	-39.00	1,357.57	-1,346.06	9,729.24	9,681.06	48.18	201.942	
13,700.00	6,947.00	3,253.00	2,925.31	115.70	24.19	-39.00	1,357.57	-1,346.06	9,814.57	9,766.11	48.46	202.530	
13,800.00	6,947.00	3,253.00	2,925.31	117.23	24.19	-39.00	1,357.57	-1,346.06	9,900.17	9,851.43	48.74	203.133	
13,900.00	6,947.00	3,253.00	2,925.31	118.76	24.19	-39.00	1,357.57	-1,346.06	9,986.04	9,937.03	49.01	203.751	
14,000.00	6,947.00	3,253.00	2,925.31	120.29	24.19	-39.00	1,357.57	-1,346.06	10,072.17	10,022.89	49.28	204.383	
14,100.00	6,947.00	3,253.00	2,925.31	121.82	24.19	-39.00	1,357.57	-1,346.06	10,158.56	10,109.01	49.55	205.029	
14,200.00	6,947.00	3,253.00	2,925.31	123.36	24.19	-39.00	1,357.57	-1,346.06	10,245.19	10,195.38	49.81	205.688	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 352-APC_ISCWSA REV 2 MWD

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,300.00	6,947.00	3,253.00	2,925.31	124.89	24.19	-39.00	1,357.57	-1,346.06	10,332.07	10,282.00	50.07	206.359	
14,400.00	6,947.00	3,253.00	2,925.31	126.43	24.19	-39.00	1,357.57	-1,346.06	10,419.18	10,368.85	50.32	207.043	
14,500.00	6,947.00	3,253.00	2,925.31	127.97	24.19	-39.00	1,357.57	-1,346.06	10,506.51	10,455.94	50.58	207.738	
14,600.00	6,947.00	3,253.00	2,925.31	129.51	24.19	-39.00	1,357.57	-1,346.06	10,594.08	10,543.25	50.82	208.444	
14,700.00	6,947.00	3,253.00	2,925.31	131.06	24.19	-39.00	1,357.57	-1,346.06	10,681.86	10,630.79	51.07	209.161	
14,800.00	6,947.00	3,253.00	2,925.31	132.60	24.19	-39.00	1,357.57	-1,346.06	10,769.85	10,718.54	51.31	209.889	
14,900.00	6,947.00	1,405.00	1,340.10	134.15	6.50	-24.89	720.31	-728.54	10,852.86	10,808.70	44.16	245.763	
15,000.00	6,947.00	1,405.00	1,340.10	135.70	6.50	-24.89	720.31	-728.54	10,935.63	10,891.23	44.40	246.318	
15,100.00	6,947.00	1,405.00	1,340.10	137.24	6.50	-24.89	720.31	-728.54	11,018.69	10,974.06	44.63	246.891	
15,200.00	6,947.00	1,405.00	1,340.10	138.79	6.50	-24.89	720.31	-728.54	11,102.03	11,057.17	44.86	247.483	
15,300.00	6,947.00	1,386.34	1,324.64	140.35	6.29	-24.76	712.65	-721.43	11,185.59	11,140.59	45.01	248.534	
15,400.00	6,947.00	1,374.00	1,314.38	141.90	6.15	-24.68	707.63	-716.75	11,269.39	11,224.21	45.18	249.434	
15,500.00	6,947.00	1,374.00	1,314.38	143.45	6.15	-24.68	707.63	-716.75	11,353.43	11,308.03	45.40	250.074	
15,600.00	6,947.00	1,374.00	1,314.38	145.01	6.15	-24.68	707.63	-716.75	11,437.73	11,392.11	45.62	250.730	
15,700.00	6,947.00	1,374.00	1,314.38	146.56	6.15	-24.68	707.63	-716.75	11,522.27	11,476.44	45.83	251.401	
15,800.00	6,947.00	1,374.00	1,314.38	148.12	6.15	-24.68	707.63	-716.75	11,607.06	11,561.02	46.04	252.087	
15,900.00	6,947.00	1,344.67	1,289.88	149.68	5.83	-24.49	695.78	-705.81	11,691.86	11,645.71	46.15	253.360	
16,000.00	6,947.00	1,338.90	1,285.04	151.23	5.76	-24.45	693.46	-703.70	11,777.03	11,730.70	46.33	254.192	
16,100.00	6,947.00	1,311.00	1,261.52	152.79	5.46	-24.26	682.31	-693.66	11,862.54	11,816.13	46.41	255.604	
16,200.00	6,947.00	1,311.00	1,261.52	154.36	5.46	-24.26	682.31	-693.66	11,948.07	11,901.46	46.61	256.338	
16,300.00	6,947.00	1,311.00	1,261.52	155.92	5.46	-24.26	682.31	-693.66	12,033.83	11,987.02	46.81	257.084	
16,400.00	6,947.00	1,311.00	1,261.52	157.48	5.46	-24.26	682.31	-693.66	12,119.80	12,072.79	47.00	257.842	
16,500.00	6,947.00	1,311.00	1,261.52	159.04	5.46	-24.26	682.31	-693.66	12,205.99	12,158.79	47.20	258.611	
16,600.00	6,947.00	1,311.00	1,261.52	160.61	5.46	-24.26	682.31	-693.66	12,292.38	12,244.99	47.39	259.391	
16,700.00	6,947.00	1,311.00	1,261.52	162.17	5.46	-24.26	682.31	-693.66	12,378.98	12,331.40	47.58	260.181	
16,800.00	6,947.00	1,296.28	1,249.03	163.74	5.31	-24.17	676.49	-688.48	12,465.72	12,418.01	47.71	261.281	
16,900.00	6,947.00	1,279.00	1,234.28	165.30	5.13	-24.05	669.78	-682.48	12,552.71	12,504.88	47.83	262.451	
17,000.00	6,947.00	1,279.00	1,234.28	166.87	5.13	-24.05	669.78	-682.48	12,639.81	12,591.80	48.01	263.268	
17,100.00	6,947.00	1,279.00	1,234.28	168.44	5.13	-24.05	669.78	-682.48	12,727.10	12,678.91	48.19	264.094	
17,200.00	6,947.00	1,279.00	1,234.28	170.01	5.13	-24.05	669.78	-682.48	12,814.58	12,766.21	48.37	264.928	
17,300.00	6,947.00	1,279.00	1,234.28	171.57	5.13	-24.05	669.78	-682.48	12,902.24	12,853.69	48.55	265.770	
17,400.00	6,947.00	1,279.00	1,234.28	173.14	5.13	-24.05	669.78	-682.48	12,990.07	12,941.35	48.72	266.620	
17,500.00	6,947.00	1,261.18	1,218.98	174.71	4.95	-23.94	662.98	-676.38	13,078.01	13,029.17	48.83	267.817	
17,600.00	6,947.00	1,248.00	1,207.61	176.28	4.81	-23.86	658.02	-671.93	13,166.15	13,117.20	48.96	268.937	
17,700.00	6,947.00	1,248.00	1,207.61	177.86	4.81	-23.86	658.02	-671.93	13,254.42	13,205.30	49.13	269.808	
17,800.00	6,947.00	1,248.00	1,207.61	179.43	4.81	-23.86	658.02	-671.93	13,342.86	13,293.57	49.29	270.685	
17,900.00	6,947.00	1,234.27	1,195.73	181.00	4.68	-23.77	652.92	-667.33	13,431.43	13,382.02	49.41	271.814	
18,000.00	6,947.00	1,217.00	1,180.74	182.57	4.51	-23.66	646.57	-661.56	13,520.15	13,470.63	49.52	273.014	
18,100.00	6,947.00	1,217.00	1,180.74	184.15	4.51	-23.66	646.57	-661.56	13,608.99	13,559.31	49.68	273.909	
18,200.00	6,947.00	1,217.00	1,180.74	185.72	4.51	-23.66	646.57	-661.56	13,697.98	13,648.14	49.85	274.809	
18,300.00	6,947.00	1,217.00	1,180.74	187.30	4.51	-23.66	646.57	-661.56	13,787.12	13,737.12	50.00	275.715	
18,400.00	6,947.00	1,217.00	1,180.74	188.87	4.51	-23.66	646.57	-661.56	13,876.41	13,826.25	50.16	276.626	
18,500.00	6,947.00	1,217.00	1,180.74	190.45	4.51	-23.66	646.57	-661.56	13,965.85	13,915.53	50.32	277.541	
18,600.00	6,947.00	1,217.00	1,180.74	192.02	4.51	-23.66	646.57	-661.56	14,055.43	14,004.95	50.48	278.462	
18,700.00	6,947.00	1,187.22	1,154.72	193.60	4.23	-23.47	635.90	-651.73	14,144.93	14,094.38	50.54	279.849	
18,800.00	6,947.00	1,182.53	1,150.60	195.18	4.19	-23.45	634.26	-650.21	14,234.71	14,184.02	50.68	280.851	
18,900.00	6,947.00	1,155.00	1,126.30	196.75	3.94	-23.28	624.85	-641.35	14,324.74	14,273.98	50.76	282.220	
19,000.00	6,947.00	1,155.00	1,126.30	198.33	3.94	-23.28	624.85	-641.35	14,414.72	14,363.82	50.91	283.156	
19,100.00	6,947.00	1,155.00	1,126.30	199.91	3.94	-23.28	624.85	-641.35	14,504.84	14,453.78	51.06	284.095	
19,200.00	6,947.00	1,155.00	1,126.30	201.49	3.94	-23.28	624.85	-641.35	14,595.08	14,543.87	51.20	285.038	
19,300.00	6,947.00	1,155.00	1,126.30	203.07	3.94	-23.28	624.85	-641.35	14,685.45	14,634.10	51.35	285.984	
19,400.00	6,947.00	1,155.00	1,126.30	204.65	3.94	-23.28	624.85	-641.35	14,775.94	14,724.44	51.50	286.934	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 352-APC_ISCWSA REV 2 MWD

Rule Assigned:

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
19,500.00	6,947.00	1,155.00	1,126.30	206.23	3.94	-23.28	624.85	-641.35	14,866.55	14,814.91	51.64	287.886	
19,600.00	6,947.00	1,155.00	1,126.30	207.81	3.94	-23.28	624.85	-641.35	14,957.29	14,905.50	51.78	288.842	
19,700.00	6,947.00	1,155.00	1,126.30	209.39	3.94	-23.28	624.85	-641.35	15,048.14	14,996.21	51.93	289.799	
19,800.00	6,947.00	1,155.00	1,126.30	210.97	3.94	-23.28	624.85	-641.35	15,139.10	15,087.04	52.07	290.760	
19,900.00	6,947.00	1,138.53	1,111.64	212.55	3.79	-23.18	619.42	-636.16	15,230.10	15,177.93	52.17	291.932	
20,000.00	6,947.00	1,124.00	1,098.63	214.13	3.67	-23.10	614.79	-631.65	15,321.29	15,269.01	52.28	293.081	
20,100.00	6,947.00	1,124.00	1,098.63	215.71	3.67	-23.10	614.79	-631.65	15,412.53	15,360.11	52.41	294.048	
20,200.00	6,947.00	1,124.00	1,098.63	217.30	3.67	-23.10	614.79	-631.65	15,503.87	15,451.32	52.55	295.017	
20,300.00	6,947.00	1,124.00	1,098.63	218.88	3.67	-23.10	614.79	-631.65	15,595.33	15,542.64	52.69	295.987	
20,400.00	6,947.00	1,124.00	1,098.63	220.46	3.67	-23.10	614.79	-631.65	15,686.88	15,634.06	52.82	296.960	
20,500.00	6,947.00	1,124.00	1,098.63	222.04	3.67	-23.10	614.79	-631.65	15,778.54	15,725.58	52.96	297.933	
20,600.00	6,947.00	1,124.00	1,098.63	223.63	3.67	-23.10	614.79	-631.65	15,870.30	15,817.21	53.09	298.909	
20,700.00	6,947.00	1,124.00	1,098.63	225.21	3.67	-23.10	614.79	-631.65	15,962.16	15,908.93	53.23	299.885	
20,800.00	6,947.00	1,107.24	1,083.55	226.80	3.53	-23.00	609.52	-626.56	16,054.04	16,000.72	53.33	301.052	
20,900.00	6,947.00	1,093.00	1,070.71	228.38	3.41	-22.91	605.05	-622.32	16,146.09	16,092.66	53.43	302.195	
21,000.00	6,947.00	1,093.00	1,070.71	229.97	3.41	-22.91	605.05	-622.32	16,238.17	16,184.61	53.56	303.174	
21,032.01	6,947.00	1,093.00	1,070.71	230.47	3.41	-22.91	605.05	-622.32	16,267.67	16,214.07	53.60	303.488	
21,032.99	6,947.00	1,093.00	1,070.71	230.51	3.41	-22.91	605.05	-622.32	16,268.57	16,213.38	55.19	294.782	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

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

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	-35.25	81.92	-57.88	100.30				
100.00	100.00	100.00	100.00	0.25	0.25	-35.25	81.92	-57.88	100.30	99.80	0.50	199.863	
200.00	200.00	200.00	200.00	0.61	0.61	-35.25	81.92	-57.88	100.30	99.08	1.22	82.296	
300.00	300.00	300.00	300.00	0.97	0.97	-35.25	81.92	-57.88	100.30	98.37	1.94	51.816	
400.00	400.00	400.00	400.00	1.33	1.33	-35.25	81.92	-57.88	100.30	97.65	2.65	37.812	
500.00	500.00	500.00	500.00	1.68	1.68	-35.25	81.92	-57.88	100.30	96.93	3.37	29.767	CC, ES
600.00	599.98	597.57	597.55	2.03	2.03	160.74	83.54	-57.54	103.11	99.05	4.06	25.384	
700.00	699.84	694.49	694.34	2.36	2.39	163.39	88.37	-56.51	111.70	106.95	4.75	23.529	
800.00	799.45	790.12	789.62	2.71	2.73	166.97	96.27	-54.83	126.42	120.98	5.44	23.258	SF
900.00	898.70	883.86	882.71	3.06	3.07	170.73	107.03	-52.54	147.56	141.44	6.12	24.113	
1,000.00	997.47	975.17	972.99	3.43	3.41	174.19	120.37	-49.71	175.20	168.41	6.79	25.795	
1,100.00	1,095.62	1,063.55	1,059.93	3.82	3.75	177.16	135.96	-46.40	209.23	201.78	7.45	28.088	
1,200.00	1,193.44	1,153.06	1,147.52	4.22	4.10	179.68	153.94	-42.57	247.41	239.30	8.11	30.504	
1,300.00	1,291.25	1,244.88	1,237.34	4.64	4.47	-178.39	172.61	-38.60	286.13	277.35	8.78	32.576	
1,400.00	1,389.07	1,336.71	1,327.16	5.06	4.85	-176.93	191.29	-34.64	325.07	315.60	9.47	34.338	
1,500.00	1,486.88	1,428.53	1,416.98	5.48	5.23	-175.77	209.96	-30.67	364.14	353.99	10.15	35.861	
1,600.00	1,584.70	1,520.36	1,506.80	5.91	5.61	-174.84	228.64	-26.70	403.32	392.48	10.85	37.186	
1,700.00	1,682.51	1,612.18	1,596.62	6.35	6.00	-174.07	247.31	-22.73	442.57	431.03	11.54	38.347	
1,800.00	1,780.33	1,704.01	1,686.43	6.78	6.39	-173.43	265.99	-18.76	481.88	469.65	12.24	39.372	
1,900.00	1,878.14	1,795.84	1,776.25	7.22	6.78	-172.88	284.66	-14.79	521.24	508.30	12.94	40.281	
2,000.00	1,975.96	1,887.66	1,866.07	7.66	7.17	-172.41	303.34	-10.82	560.63	546.98	13.64	41.092	
2,100.00	2,073.77	1,979.49	1,955.89	8.10	7.57	-172.00	322.01	-6.85	600.04	585.69	14.35	41.821	
2,200.00	2,171.59	2,071.31	2,045.71	8.54	7.96	-171.64	340.68	-2.88	639.48	624.43	15.05	42.478	
2,300.00	2,269.40	2,163.14	2,135.53	8.98	8.36	-171.33	359.36	1.09	678.94	663.18	15.76	43.074	
2,400.00	2,367.22	2,254.96	2,225.35	9.43	8.75	-171.05	378.03	5.06	718.41	701.94	16.47	43.616	
2,500.00	2,465.03	2,346.79	2,315.17	9.87	9.15	-170.79	396.71	9.03	757.90	740.71	17.18	44.112	
2,600.00	2,562.84	2,438.62	2,404.99	10.32	9.55	-170.57	415.38	13.00	797.39	779.50	17.89	44.566	
2,700.00	2,660.66	2,530.44	2,494.81	10.77	9.94	-170.36	434.06	16.97	836.90	818.29	18.60	44.984	
2,800.00	2,758.47	2,622.27	2,584.63	11.21	10.34	-170.17	452.73	20.94	876.41	857.10	19.32	45.369	
2,900.00	2,856.29	2,714.09	2,674.44	11.66	10.74	-170.00	471.41	24.91	915.94	895.91	20.03	45.726	
3,000.00	2,954.10	2,805.92	2,764.26	12.11	11.14	-169.85	490.08	28.88	955.46	934.72	20.75	46.057	
3,100.00	3,051.92	2,897.74	2,854.08	12.56	11.54	-169.70	508.75	32.84	995.00	973.54	21.46	46.365	
3,200.00	3,149.73	2,989.57	2,943.90	13.01	11.94	-169.57	527.43	36.81	1,034.54	1,012.36	22.18	46.653	
3,300.00	3,247.55	3,081.40	3,033.72	13.45	12.34	-169.44	546.10	40.78	1,074.08	1,051.19	22.89	46.921	
3,400.00	3,345.36	3,173.22	3,123.54	13.90	12.74	-169.33	564.78	44.75	1,113.63	1,090.02	23.61	47.172	
3,500.00	3,443.18	3,265.05	3,213.36	14.35	13.14	-169.22	583.45	48.72	1,153.18	1,128.85	24.32	47.408	
3,600.00	3,540.99	3,356.87	3,303.18	14.80	13.55	-169.12	602.13	52.69	1,192.73	1,167.69	25.04	47.630	
3,700.00	3,638.81	3,448.70	3,393.00	15.25	13.95	-169.03	620.80	56.66	1,232.29	1,206.53	25.76	47.838	
3,800.00	3,736.62	3,540.52	3,482.82	15.70	14.35	-168.94	639.48	60.63	1,271.85	1,245.37	26.48	48.035	
3,900.00	3,834.44	3,632.35	3,572.64	16.15	14.75	-168.86	658.15	64.60	1,311.41	1,284.21	27.20	48.221	
4,000.00	3,932.25	3,724.18	3,662.45	16.60	15.15	-168.78	676.82	68.57	1,350.97	1,323.06	27.91	48.396	
4,100.00	4,030.07	3,816.00	3,752.27	17.05	15.55	-168.71	695.50	72.54	1,390.54	1,361.91	28.63	48.563	
4,200.00	4,127.88	3,907.83	3,842.09	17.50	15.96	-168.64	714.17	76.51	1,430.11	1,400.75	29.35	48.720	
4,300.00	4,225.70	3,999.65	3,931.91	17.96	16.36	-168.57	732.85	80.48	1,469.68	1,439.60	30.07	48.870	
4,400.00	4,323.51	4,091.48	4,021.73	18.41	16.76	-168.51	751.52	84.45	1,509.25	1,478.45	30.79	49.012	
4,500.00	4,421.33	4,183.30	4,111.55	18.86	17.16	-168.45	770.20	88.42	1,548.82	1,517.31	31.51	49.148	
4,600.00	4,519.14	4,275.13	4,201.37	19.31	17.57	-168.40	788.87	92.39	1,588.39	1,556.16	32.23	49.277	
4,700.00	4,616.95	4,366.96	4,291.19	19.76	17.97	-168.34	807.55	96.36	1,627.97	1,595.01	32.95	49.400	
4,800.00	4,714.77	4,458.78	4,381.01	20.21	18.37	-168.29	826.22	100.32	1,667.54	1,633.87	33.68	49.517	
4,900.00	4,812.58	4,550.61	4,470.83	20.66	18.77	-168.24	844.89	104.29	1,707.12	1,672.72	34.40	49.629	
5,000.00	4,910.40	4,642.43	4,560.64	21.11	19.18	-168.20	863.57	108.26	1,746.70	1,711.58	35.12	49.736	
5,100.00	5,008.21	4,734.26	4,650.46	21.57	19.58	-168.15	882.24	112.23	1,786.28	1,750.44	35.84	49.839	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 0-MWD+HRGM+MS

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Rule Assigned: Minimum Separation (usft)	Separation Factor	Warning
5,200.00	5,106.03	4,826.08	4,740.28	22.02	19.98	-168.11	900.92	116.20	1,825.86	1,789.29	36.56	49.937	
5,300.00	5,203.84	4,917.91	4,830.10	22.47	20.39	-168.07	919.59	120.17	1,865.44	1,828.15	37.29	50.031	
5,400.00	5,301.66	5,009.74	4,919.92	22.92	20.79	-168.03	938.27	124.14	1,905.02	1,867.01	38.01	50.121	
5,500.00	5,399.47	5,101.56	5,009.74	23.37	21.19	-168.00	956.94	128.11	1,944.60	1,905.87	38.73	50.207	
5,600.00	5,497.29	5,193.39	5,099.56	23.82	21.60	-167.96	975.62	132.08	1,984.18	1,944.73	39.45	50.290	
5,700.00	5,595.10	5,285.21	5,189.38	24.28	22.00	-167.93	994.29	136.05	2,023.77	1,983.59	40.18	50.370	
5,800.00	5,692.92	5,377.04	5,279.20	24.73	22.40	-167.89	1,012.96	140.02	2,063.35	2,022.45	40.90	50.447	
5,900.00	5,790.73	5,468.86	5,369.02	25.18	22.81	-167.86	1,031.64	143.99	2,102.94	2,061.31	41.63	50.521	
6,000.00	5,888.55	5,560.69	5,458.84	25.63	23.21	-167.83	1,050.31	147.96	2,142.52	2,100.17	42.35	50.591	
6,100.00	5,986.36	5,652.52	5,548.65	26.08	23.61	-167.80	1,068.99	151.93	2,182.11	2,139.03	43.07	50.660	
6,200.00	6,084.18	5,744.34	5,638.47	26.54	24.02	-167.77	1,087.66	155.90	2,221.69	2,177.89	43.80	50.725	
6,300.00	6,181.99	5,836.17	5,728.29	26.99	24.42	-167.75	1,106.34	159.87	2,261.28	2,216.75	44.52	50.789	
6,400.00	6,279.81	5,927.99	5,818.11	27.44	24.82	-167.72	1,125.01	163.84	2,300.86	2,255.62	45.25	50.850	
6,500.00	6,377.62	6,019.82	5,907.93	27.89	25.23	-167.69	1,143.69	167.80	2,340.45	2,294.48	45.97	50.909	
6,530.62	6,407.57	6,047.93	5,935.43	28.03	25.35	-167.69	1,149.40	169.02	2,352.57	2,306.38	46.20	50.926	
6,550.00	6,426.48	6,065.67	5,952.78	28.12	25.43	-161.55	1,153.01	169.79	2,360.38	2,314.04	46.34	50.939	
6,600.00	6,474.77	6,110.80	5,996.92	28.36	25.63	-149.71	1,162.19	171.74	2,381.74	2,335.03	46.70	50.997	
6,650.00	6,522.09	6,154.78	6,039.94	28.62	25.82	-141.45	1,171.13	173.64	2,404.75	2,357.68	47.07	51.088	
6,700.00	6,568.15	6,197.36	6,081.59	28.89	26.01	-135.16	1,179.79	175.48	2,429.30	2,381.86	47.43	51.214	
6,750.00	6,612.66	6,238.26	6,121.60	29.18	26.19	-129.99	1,188.11	177.25	2,455.27	2,407.48	47.79	51.375	
6,800.00	6,655.36	6,277.24	6,159.73	29.48	26.36	-125.46	1,196.04	178.93	2,482.54	2,434.40	48.14	51.570	
6,850.00	6,695.98	6,314.06	6,195.74	29.79	26.52	-121.30	1,203.52	180.52	2,511.02	2,462.54	48.48	51.799	
6,900.00	6,734.26	6,348.48	6,229.41	30.11	26.67	-117.34	1,210.52	182.01	2,540.57	2,491.77	48.80	52.061	
6,950.00	6,769.98	6,380.30	6,260.54	30.45	26.81	-113.49	1,217.00	183.39	2,571.09	2,521.98	49.11	52.356	
7,000.00	6,802.91	6,407.35	6,287.00	30.79	26.93	-109.63	1,222.50	184.53	2,602.45	2,553.07	49.38	52.698	
7,050.00	6,832.85	6,426.13	6,305.38	31.15	27.01	-105.64	1,226.30	184.88	2,634.59	2,584.99	49.60	53.116	
7,100.00	6,859.62	6,441.29	6,320.23	31.51	27.08	-101.57	1,229.36	184.76	2,667.38	2,617.59	49.79	53.568	
7,150.00	6,883.05	6,450.00	6,328.76	31.89	27.12	-97.36	1,231.11	184.53	2,700.68	2,650.74	49.94	54.076	
7,200.00	6,902.99	6,461.53	6,340.04	32.28	27.16	-93.26	1,233.43	184.04	2,734.31	2,684.20	50.11	54.564	
7,250.00	6,919.32	6,467.13	6,345.52	32.67	27.19	-89.08	1,234.55	183.73	2,768.10	2,717.85	50.24	55.095	
7,300.00	6,931.95	6,470.08	6,348.40	33.08	27.20	-84.95	1,235.13	183.55	2,801.85	2,751.50	50.36	55.640	
7,350.00	6,940.79	6,470.64	6,348.96	33.49	27.20	-80.93	1,235.25	183.51	2,835.39	2,784.94	50.46	56.194	
7,400.00	6,945.79	6,469.09	6,347.44	33.90	27.20	-77.07	1,234.94	183.61	2,868.52	2,817.97	50.55	56.749	
7,439.53	6,947.00	6,466.51	6,344.92	34.24	27.18	-74.18	1,234.42	183.77	2,894.30	2,843.68	50.61	57.186	
7,500.00	6,947.00	6,450.00	6,328.76	34.75	27.12	-74.04	1,231.11	184.53	2,933.32	2,882.70	50.62	57.943	
7,600.00	6,947.00	6,450.00	6,328.76	35.63	27.12	-74.49	1,231.11	184.53	2,997.25	2,946.39	50.86	58.928	
7,700.00	6,947.00	6,450.00	6,328.76	36.54	27.12	-74.92	1,231.11	184.53	3,060.57	3,009.46	51.12	59.876	
7,800.00	6,947.00	6,450.00	6,328.76	37.47	27.12	-75.34	1,231.11	184.53	3,123.25	3,071.87	51.38	60.787	
7,900.00	6,947.00	6,450.00	6,328.76	38.43	27.12	-75.73	1,231.11	184.53	3,185.24	3,133.58	51.66	61.661	
8,000.00	6,947.00	6,450.00	6,328.76	39.41	27.12	-76.11	1,231.11	184.53	3,246.51	3,194.57	51.95	62.499	
8,100.00	6,947.00	6,450.00	6,328.76	40.40	27.12	-76.47	1,231.11	184.53	3,307.04	3,254.79	52.24	63.301	
8,200.00	6,947.00	6,450.00	6,328.76	41.42	27.12	-76.81	1,231.11	184.53	3,366.78	3,314.23	52.55	64.069	
8,300.00	6,947.00	6,432.50	6,311.62	42.44	27.04	-76.78	1,227.59	184.88	3,425.57	3,372.84	52.73	64.965	
8,400.00	6,947.00	6,431.24	6,310.39	43.48	27.03	-77.08	1,227.34	184.88	3,483.64	3,430.60	53.04	65.677	
8,500.00	6,947.00	6,430.29	6,309.46	44.53	27.03	-77.37	1,227.14	184.89	3,540.84	3,487.48	53.36	66.355	
8,600.00	6,947.00	6,429.63	6,308.81	45.58	27.03	-77.65	1,227.01	184.89	3,597.16	3,543.46	53.69	66.998	
8,700.00	6,947.00	6,429.20	6,308.39	46.63	27.03	-77.92	1,226.92	184.89	3,652.55	3,598.53	54.02	67.610	
8,800.00	6,947.00	6,429.00	6,308.19	47.69	27.02	-78.19	1,226.88	184.89	3,707.01	3,652.64	54.36	68.191	
8,841.31	6,947.00	6,428.97	6,308.16	48.13	27.02	-78.29	1,226.88	184.89	3,729.22	3,674.72	54.50	68.424	
8,900.00	6,947.00	6,428.95	6,308.14	48.76	27.02	-78.29	1,226.87	184.89	3,760.99	3,706.29	54.70	68.755	
9,000.00	6,947.00	6,428.92	6,308.11	49.85	27.02	-78.29	1,226.87	184.89	3,816.59	3,761.55	55.04	69.339	
9,100.00	6,947.00	6,428.89	6,308.09	50.97	27.02	-78.29	1,226.86	184.89	3,873.98	3,818.60	55.38	69.953	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

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

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,200.00	6,947.00	6,428.87	6,308.06	52.12	27.02	-78.29	1,226.86	184.89	3,933.07	3,877.36	55.71	70.597	
9,300.00	6,947.00	6,428.84	6,308.04	53.28	27.02	-78.29	1,226.85	184.89	3,993.79	3,937.76	56.04	71.271	
9,400.00	6,947.00	6,428.82	6,308.02	54.48	27.02	-78.29	1,226.85	184.89	4,056.07	3,999.72	56.36	71.972	
9,500.00	6,947.00	6,428.80	6,308.00	55.69	27.02	-78.29	1,226.84	184.89	4,119.84	4,063.17	56.67	72.701	
9,600.00	6,947.00	6,428.78	6,307.98	56.92	27.02	-78.29	1,226.84	184.89	4,185.02	4,128.05	56.97	73.456	
9,700.00	6,947.00	6,428.76	6,307.96	58.17	27.02	-78.29	1,226.84	184.89	4,251.56	4,194.29	57.27	74.237	
9,800.00	6,947.00	6,428.75	6,307.95	59.44	27.02	-78.29	1,226.83	184.89	4,319.38	4,261.82	57.56	75.043	
9,900.00	6,947.00	6,428.73	6,307.93	60.73	27.02	-78.29	1,226.83	184.89	4,388.44	4,330.60	57.84	75.872	
10,000.00	6,947.00	6,428.72	6,307.91	62.03	27.02	-78.29	1,226.83	184.89	4,458.67	4,400.56	58.11	76.724	
10,100.00	6,947.00	6,428.70	6,307.90	63.34	27.02	-78.29	1,226.82	184.89	4,530.02	4,471.64	58.38	77.597	
10,200.00	6,947.00	6,428.69	6,307.89	64.67	27.02	-78.29	1,226.82	184.89	4,602.43	4,543.80	58.64	78.491	
10,300.00	6,947.00	6,428.67	6,307.87	66.01	27.02	-78.29	1,226.82	184.89	4,675.87	4,616.98	58.89	79.405	
10,400.00	6,947.00	6,428.66	6,307.86	67.36	27.02	-78.29	1,226.81	184.89	4,750.27	4,691.14	59.13	80.338	
10,500.00	6,947.00	6,428.65	6,307.85	68.73	27.02	-78.29	1,226.81	184.89	4,825.60	4,766.23	59.36	81.289	
10,600.00	6,947.00	6,428.64	6,307.84	70.10	27.02	-78.29	1,226.81	184.89	4,901.81	4,842.22	59.59	82.258	
10,700.00	6,947.00	6,428.63	6,307.83	71.48	27.02	-78.29	1,226.81	184.89	4,978.86	4,919.05	59.81	83.242	
10,800.00	6,947.00	6,428.62	6,307.82	72.88	27.02	-78.29	1,226.81	184.89	5,056.72	4,996.69	60.03	84.242	
10,900.00	6,947.00	6,428.61	6,307.81	74.28	27.02	-78.29	1,226.80	184.89	5,135.34	5,075.11	60.23	85.257	
11,000.00	6,947.00	6,428.60	6,307.80	75.69	27.02	-78.29	1,226.80	184.89	5,214.70	5,154.26	60.43	86.286	
11,100.00	6,947.00	6,428.59	6,307.79	77.10	27.02	-78.29	1,226.80	184.89	5,294.75	5,234.12	60.63	87.329	
11,200.00	6,947.00	6,428.58	6,307.78	78.53	27.02	-78.29	1,226.80	184.89	5,375.47	5,314.66	60.82	88.384	
11,300.00	6,947.00	6,428.57	6,307.78	79.96	27.02	-78.29	1,226.80	184.89	5,456.84	5,395.83	61.00	89.451	
11,400.00	6,947.00	6,428.57	6,307.77	81.40	27.02	-78.29	1,226.80	184.89	5,538.81	5,477.63	61.18	90.529	
11,500.00	6,947.00	6,428.56	6,307.76	82.84	27.02	-78.29	1,226.79	184.89	5,621.36	5,560.01	61.36	91.619	
11,600.00	6,947.00	6,428.55	6,307.75	84.29	27.02	-78.29	1,226.79	184.89	5,704.48	5,642.95	61.53	92.718	
11,700.00	6,947.00	6,450.00	6,328.76	85.75	27.12	-78.68	1,231.11	184.53	5,788.46	5,726.62	61.84	93.597	
11,800.00	6,947.00	6,450.00	6,328.76	87.21	27.12	-78.68	1,231.11	184.53	5,872.62	5,810.62	62.00	94.714	
11,900.00	6,947.00	6,450.00	6,328.76	88.68	27.12	-78.68	1,231.11	184.53	5,957.27	5,895.11	62.16	95.839	
12,000.00	6,947.00	6,450.00	6,328.76	90.15	27.12	-78.68	1,231.11	184.53	6,042.39	5,980.08	62.31	96.973	
12,100.00	6,947.00	6,450.00	6,328.76	91.62	27.12	-78.68	1,231.11	184.53	6,127.96	6,065.50	62.46	98.114	
12,200.00	6,947.00	6,450.00	6,328.76	93.10	27.12	-78.68	1,231.11	184.53	6,213.96	6,151.36	62.60	99.262	
12,300.00	6,947.00	6,450.00	6,328.76	94.59	27.12	-78.68	1,231.11	184.53	6,300.38	6,237.63	62.74	100.418	
12,400.00	6,947.00	6,450.00	6,328.76	96.07	27.12	-78.68	1,231.11	184.53	6,387.19	6,324.31	62.88	101.579	
12,500.00	6,947.00	6,450.00	6,328.76	97.56	27.12	-78.68	1,231.11	184.53	6,474.38	6,411.36	63.01	102.747	
12,600.00	6,947.00	6,450.00	6,328.76	99.06	27.12	-78.68	1,231.11	184.53	6,561.93	6,498.79	63.14	103.921	
12,700.00	6,947.00	6,450.00	6,328.76	100.56	27.12	-78.68	1,231.11	184.53	6,649.84	6,586.57	63.27	105.100	
12,800.00	6,947.00	6,450.00	6,328.76	102.06	27.12	-78.68	1,231.11	184.53	6,738.08	6,674.69	63.40	106.284	
12,900.00	6,947.00	6,450.00	6,328.76	103.56	27.12	-78.68	1,231.11	184.53	6,826.65	6,763.13	63.52	107.472	
13,000.00	6,947.00	6,450.00	6,328.76	105.07	27.12	-78.68	1,231.11	184.53	6,915.53	6,851.89	63.64	108.665	
13,100.00	6,947.00	6,450.00	6,328.76	106.58	27.12	-78.68	1,231.11	184.53	7,004.71	6,940.95	63.76	109.863	
13,200.00	6,947.00	6,450.00	6,328.76	108.10	27.12	-78.68	1,231.11	184.53	7,094.18	7,030.31	63.87	111.064	
13,300.00	6,947.00	6,450.00	6,328.76	109.61	27.12	-78.68	1,231.11	184.53	7,183.93	7,119.94	63.99	112.269	
13,400.00	6,947.00	6,450.00	6,328.76	111.13	27.12	-78.68	1,231.11	184.53	7,273.94	7,209.84	64.10	113.477	
13,500.00	6,947.00	6,450.00	6,328.76	112.65	27.12	-78.68	1,231.11	184.53	7,364.21	7,300.00	64.21	114.688	
13,600.00	6,947.00	6,450.00	6,328.76	114.17	27.12	-78.68	1,231.11	184.53	7,454.73	7,390.41	64.32	115.902	
13,700.00	6,947.00	6,450.00	6,328.76	115.70	27.12	-78.68	1,231.11	184.53	7,545.49	7,481.07	64.43	117.119	
13,800.00	6,947.00	6,450.00	6,328.76	117.23	27.12	-78.68	1,231.11	184.53	7,636.48	7,571.95	64.53	118.338	
13,900.00	6,947.00	6,450.00	6,328.76	118.76	27.12	-78.68	1,231.11	184.53	7,727.69	7,663.06	64.63	119.559	
14,000.00	6,947.00	6,450.00	6,328.76	120.29	27.12	-78.68	1,231.11	184.53	7,819.12	7,754.39	64.74	120.783	
14,100.00	6,947.00	6,450.00	6,328.76	121.82	27.12	-78.68	1,231.11	184.53	7,910.76	7,845.92	64.84	122.008	
14,200.00	6,947.00	6,450.00	6,328.76	123.36	27.12	-78.68	1,231.11	184.53	8,002.59	7,937.65	64.94	123.235	
14,300.00	6,947.00	6,450.00	6,328.76	124.89	27.12	-78.68	1,231.11	184.53	8,094.62	8,029.59	65.04	124.463	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

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

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,400.00	6,947.00	6,450.00	6,328.76	126.43	27.12	-78.68	1,231.11	184.53	8,186.84	8,121.70	65.13	125.693	
14,500.00	6,947.00	6,450.00	6,328.76	127.97	27.12	-78.68	1,231.11	184.53	8,279.23	8,214.00	65.23	126.924	
14,600.00	6,947.00	6,450.00	6,328.76	129.51	27.12	-78.68	1,231.11	184.53	8,371.81	8,306.48	65.33	128.156	
14,700.00	6,947.00	6,450.00	6,328.76	131.06	27.12	-78.68	1,231.11	184.53	8,464.55	8,399.13	65.42	129.388	
14,800.00	6,947.00	6,450.00	6,328.76	132.60	27.12	-78.68	1,231.11	184.53	8,557.45	8,491.94	65.51	130.622	
14,900.00	6,947.00	6,450.00	6,328.76	134.15	27.12	-78.68	1,231.11	184.53	8,650.51	8,584.91	65.61	131.856	
15,000.00	6,947.00	6,450.00	6,328.76	135.70	27.12	-78.68	1,231.11	184.53	8,743.73	8,678.03	65.70	133.090	
15,100.00	6,947.00	6,450.00	6,328.76	137.24	27.12	-78.68	1,231.11	184.53	8,837.09	8,771.30	65.79	134.325	
15,200.00	6,947.00	6,450.00	6,328.76	138.79	27.12	-78.68	1,231.11	184.53	8,930.60	8,864.72	65.88	135.560	
15,300.00	6,947.00	6,450.00	6,328.76	140.35	27.12	-78.68	1,231.11	184.53	9,024.24	8,958.27	65.97	136.795	
15,400.00	6,947.00	6,450.00	6,328.76	141.90	27.12	-78.68	1,231.11	184.53	9,118.03	9,051.97	66.06	138.030	
15,500.00	6,947.00	6,450.00	6,328.76	143.45	27.12	-78.68	1,231.11	184.53	9,211.94	9,145.79	66.15	139.264	
15,600.00	6,947.00	6,450.00	6,328.76	145.01	27.12	-78.68	1,231.11	184.53	9,305.98	9,239.74	66.24	140.499	
15,700.00	6,947.00	6,450.00	6,328.76	146.56	27.12	-78.68	1,231.11	184.53	9,400.14	9,333.82	66.32	141.733	
15,800.00	6,947.00	6,450.00	6,328.76	148.12	27.12	-78.68	1,231.11	184.53	9,494.42	9,428.01	66.41	142.967	
15,900.00	6,947.00	6,450.00	6,328.76	149.68	27.12	-78.68	1,231.11	184.53	9,588.82	9,522.32	66.50	144.200	
16,000.00	6,947.00	6,450.00	6,328.76	151.23	27.12	-78.68	1,231.11	184.53	9,683.33	9,616.74	66.58	145.432	
16,100.00	6,947.00	6,450.00	6,328.76	152.79	27.12	-78.68	1,231.11	184.53	9,777.95	9,711.28	66.67	146.664	
16,200.00	6,947.00	6,450.00	6,328.76	154.36	27.12	-78.68	1,231.11	184.53	9,872.67	9,805.92	66.75	147.895	
16,300.00	6,947.00	6,450.00	6,328.76	155.92	27.12	-78.68	1,231.11	184.53	9,967.50	9,900.66	66.84	149.124	
16,400.00	6,947.00	6,450.00	6,328.76	157.48	27.12	-78.68	1,231.11	184.53	10,062.43	9,995.50	66.93	150.353	
16,500.00	6,947.00	6,450.00	6,328.76	159.04	27.12	-78.68	1,231.11	184.53	10,157.45	10,090.44	67.01	151.581	
16,600.00	6,947.00	6,450.00	6,328.76	160.61	27.12	-78.68	1,231.11	184.53	10,252.57	10,185.48	67.09	152.808	
16,700.00	6,947.00	6,450.00	6,328.76	162.17	27.12	-78.68	1,231.11	184.53	10,347.79	10,280.61	67.18	154.033	
16,800.00	6,947.00	6,450.00	6,328.76	163.74	27.12	-78.68	1,231.11	184.53	10,443.09	10,375.83	67.26	155.257	
16,900.00	6,947.00	6,450.00	6,328.76	165.30	27.12	-78.68	1,231.11	184.53	10,538.48	10,471.13	67.35	156.480	
17,000.00	6,947.00	6,450.00	6,328.76	166.87	27.12	-78.68	1,231.11	184.53	10,633.95	10,566.52	67.43	157.701	
17,100.00	6,947.00	6,450.00	6,328.76	168.44	27.12	-78.68	1,231.11	184.53	10,729.51	10,661.99	67.51	158.921	
17,200.00	6,947.00	6,450.00	6,328.76	170.01	27.12	-78.68	1,231.11	184.53	10,825.14	10,757.55	67.60	160.139	
17,300.00	6,947.00	6,450.00	6,328.76	171.57	27.12	-78.68	1,231.11	184.53	10,920.86	10,853.18	67.68	161.356	
17,400.00	6,947.00	6,450.00	6,328.76	173.14	27.12	-78.68	1,231.11	184.53	11,016.65	10,948.88	67.77	162.571	
17,500.00	6,947.00	6,450.00	6,328.76	174.71	27.12	-78.68	1,231.11	184.53	11,112.51	11,044.67	67.85	163.784	
17,600.00	6,947.00	6,450.00	6,328.76	176.28	27.12	-78.68	1,231.11	184.53	11,208.45	11,140.52	67.93	164.995	
17,700.00	6,947.00	6,450.00	6,328.76	177.86	27.12	-78.68	1,231.11	184.53	11,304.46	11,236.44	68.02	166.205	
17,800.00	6,947.00	6,450.00	6,328.76	179.43	27.12	-78.68	1,231.11	184.53	11,400.53	11,332.44	68.10	167.412	
17,900.00	6,947.00	6,450.00	6,328.76	181.00	27.12	-78.68	1,231.11	184.53	11,496.68	11,428.50	68.18	168.618	
18,000.00	6,947.00	6,450.00	6,328.76	182.57	27.12	-78.68	1,231.11	184.53	11,592.89	11,524.62	68.26	169.822	
18,100.00	6,947.00	6,450.00	6,328.76	184.15	27.12	-78.68	1,231.11	184.53	11,689.16	11,620.81	68.35	171.024	
18,200.00	6,947.00	6,450.00	6,328.76	185.72	27.12	-78.68	1,231.11	184.53	11,785.49	11,717.06	68.43	172.223	
18,300.00	6,947.00	6,450.00	6,328.76	187.30	27.12	-78.68	1,231.11	184.53	11,881.89	11,813.37	68.51	173.421	
18,400.00	6,947.00	6,450.00	6,328.76	188.87	27.12	-78.68	1,231.11	184.53	11,978.34	11,909.74	68.60	174.616	
18,500.00	6,947.00	6,450.00	6,328.76	190.45	27.12	-78.68	1,231.11	184.53	12,074.85	12,006.17	68.68	175.809	
18,600.00	6,947.00	6,450.00	6,328.76	192.02	27.12	-78.68	1,231.11	184.53	12,171.42	12,102.65	68.77	177.000	
18,700.00	6,947.00	6,450.00	6,328.76	193.60	27.12	-78.68	1,231.11	184.53	12,268.04	12,199.19	68.85	178.188	
18,800.00	6,947.00	6,450.00	6,328.76	195.18	27.12	-78.68	1,231.11	184.53	12,364.72	12,295.79	68.93	179.374	
18,900.00	6,947.00	6,450.00	6,328.76	196.75	27.12	-78.68	1,231.11	184.53	12,461.45	12,392.43	69.02	180.558	
19,000.00	6,947.00	6,450.00	6,328.76	198.33	27.12	-78.68	1,231.11	184.53	12,558.23	12,489.13	69.10	181.740	
19,100.00	6,947.00	6,450.00	6,328.76	199.91	27.12	-78.68	1,231.11	184.53	12,655.06	12,585.87	69.18	182.919	
19,200.00	6,947.00	6,450.00	6,328.76	201.49	27.12	-78.68	1,231.11	184.53	12,751.94	12,682.67	69.27	184.095	
19,300.00	6,947.00	6,450.00	6,328.76	203.07	27.12	-78.68	1,231.11	184.53	12,848.86	12,779.51	69.35	185.269	
19,400.00	6,947.00	6,450.00	6,328.76	204.65	27.12	-78.68	1,231.11	184.53	12,945.84	12,876.40	69.44	186.441	
19,500.00	6,947.00	6,450.00	6,328.76	206.23	27.12	-78.68	1,231.11	184.53	13,042.86	12,973.34	69.52	187.610	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 0-MWD+HRGM+MS

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
19,600.00	6,947.00	6,450.00	6,328.76	207.81	27.12	-78.68	1,231.11	184.53	13,139.92	13,070.32	69.61	188.776	
19,700.00	6,947.00	6,450.00	6,328.76	209.39	27.12	-78.68	1,231.11	184.53	13,237.03	13,167.34	69.69	189.940	
19,800.00	6,947.00	6,450.00	6,328.76	210.97	27.12	-78.68	1,231.11	184.53	13,334.18	13,264.40	69.78	191.101	
19,900.00	6,947.00	6,450.00	6,328.76	212.55	27.12	-78.68	1,231.11	184.53	13,431.37	13,361.51	69.86	192.259	
20,000.00	6,947.00	6,450.00	6,328.76	214.13	27.12	-78.68	1,231.11	184.53	13,528.61	13,458.66	69.95	193.415	
20,100.00	6,947.00	6,450.00	6,328.76	215.71	27.12	-78.68	1,231.11	184.53	13,625.88	13,555.85	70.03	194.568	
20,200.00	6,947.00	6,450.00	6,328.76	217.30	27.12	-78.68	1,231.11	184.53	13,723.19	13,653.07	70.12	195.719	
20,300.00	6,947.00	6,450.00	6,328.76	218.88	27.12	-78.68	1,231.11	184.53	13,820.54	13,750.34	70.20	196.866	
20,400.00	6,947.00	6,450.00	6,328.76	220.46	27.12	-78.68	1,231.11	184.53	13,917.93	13,847.64	70.29	198.011	
20,500.00	6,947.00	6,450.00	6,328.76	222.04	27.12	-78.68	1,231.11	184.53	14,015.36	13,944.98	70.37	199.153	
20,600.00	6,947.00	6,450.00	6,328.76	223.63	27.12	-78.68	1,231.11	184.53	14,112.82	14,042.36	70.46	200.292	
20,700.00	6,947.00	6,450.00	6,328.76	225.21	27.12	-78.68	1,231.11	184.53	14,210.31	14,139.77	70.55	201.428	
20,800.00	6,947.00	6,450.00	6,328.76	226.80	27.12	-78.68	1,231.11	184.53	14,307.85	14,237.21	70.63	202.562	
20,900.00	6,947.00	6,450.00	6,328.76	228.38	27.12	-78.68	1,231.11	184.53	14,405.41	14,334.69	70.72	203.692	
21,000.00	6,947.00	6,450.00	6,328.76	229.97	27.12	-78.68	1,231.11	184.53	14,503.01	14,432.20	70.81	204.820	
21,032.01	6,947.00	6,450.00	6,328.76	230.47	27.12	-78.68	1,231.11	184.53	14,534.26	14,463.42	70.84	205.180	
21,032.99	6,947.00	6,450.00	6,328.76	230.51	27.12	-78.68	1,231.11	184.53	14,535.21	14,461.07	74.14	196.058	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 0-MWD+HRGM+MS

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	-35.30	61.53	-43.56	75.39				
100.00	100.00	100.00	100.00	0.25	0.25	-35.30	61.53	-43.56	75.39	74.88	0.50	150.213	
200.00	200.00	200.00	200.00	0.61	0.61	-35.30	61.53	-43.56	75.39	74.17	1.22	61.853	
300.00	300.00	300.00	300.00	0.97	0.97	-35.30	61.53	-43.56	75.39	73.45	1.94	38.944	
400.00	400.00	400.00	400.00	1.33	1.33	-35.30	61.53	-43.56	75.39	72.73	2.65	28.419	
500.00	500.00	500.00	500.00	1.68	1.68	-35.30	61.53	-43.56	75.39	72.02	3.37	22.372	CC, ES
600.00	599.98	599.98	599.98	2.03	2.04	160.14	61.53	-43.56	77.03	72.96	4.07	18.924	
700.00	699.84	699.84	699.84	2.36	2.40	161.35	61.53	-43.56	81.97	77.20	4.76	17.207	
800.00	799.45	799.45	799.45	2.71	2.76	163.07	61.53	-43.56	90.27	84.81	5.46	16.519	SF
900.00	898.70	898.70	898.70	3.06	3.11	165.00	61.53	-43.56	101.99	95.82	6.17	16.530	
1,000.00	997.47	997.47	997.47	3.43	3.47	166.91	61.53	-43.56	117.18	110.30	6.88	17.034	
1,100.00	1,095.62	1,099.23	1,099.21	3.82	3.82	168.25	59.85	-43.95	134.57	126.99	7.58	17.746	
1,200.00	1,193.44	1,198.87	1,198.76	4.22	4.14	168.81	55.62	-44.93	151.65	143.38	8.27	18.339	
1,300.00	1,291.25	1,297.41	1,297.20	4.64	4.47	169.21	51.29	-45.94	168.62	159.66	8.96	18.820	
1,400.00	1,389.07	1,395.96	1,395.64	5.06	4.80	169.54	46.95	-46.96	185.59	175.93	9.66	19.219	
1,500.00	1,486.88	1,494.50	1,494.08	5.48	5.14	169.81	42.61	-47.97	202.57	192.21	10.36	19.553	
1,600.00	1,584.70	1,593.05	1,592.53	5.91	5.48	170.05	38.27	-48.98	219.55	208.48	11.07	19.836	
1,700.00	1,682.51	1,691.59	1,690.97	6.35	5.82	170.24	33.93	-49.99	236.54	224.76	11.78	20.079	
1,800.00	1,780.33	1,790.13	1,789.41	6.78	6.16	170.42	29.60	-51.00	253.53	241.03	12.50	20.289	
1,900.00	1,878.14	1,888.68	1,887.86	7.22	6.51	170.57	25.26	-52.01	270.52	257.30	13.21	20.472	
2,000.00	1,975.96	1,987.22	1,986.30	7.66	6.85	170.70	20.92	-53.02	287.51	273.58	13.93	20.633	
2,100.00	2,073.77	2,085.76	2,084.74	8.10	7.20	170.82	16.58	-54.03	304.50	289.85	14.66	20.775	
2,200.00	2,171.59	2,184.31	2,183.19	8.54	7.55	170.92	12.24	-55.04	321.50	306.12	15.38	20.902	
2,300.00	2,269.40	2,282.85	2,281.63	8.98	7.90	171.02	7.90	-56.05	338.49	322.39	16.11	21.016	
2,400.00	2,367.22	2,381.40	2,380.07	9.43	8.25	171.10	3.57	-57.06	355.49	338.66	16.83	21.118	
2,500.00	2,465.03	2,479.94	2,478.51	9.87	8.60	171.18	-0.77	-58.07	372.49	354.93	17.56	21.210	
2,600.00	2,562.84	2,578.48	2,576.96	10.32	8.96	171.25	-5.11	-59.08	389.49	371.19	18.29	21.294	
2,700.00	2,660.66	2,677.03	2,675.40	10.77	9.31	171.31	-9.45	-60.09	406.48	387.46	19.02	21.370	
2,800.00	2,758.47	2,775.57	2,773.84	11.21	9.66	171.37	-13.79	-61.10	423.48	403.73	19.75	21.440	
2,900.00	2,856.29	2,874.11	2,872.29	11.66	10.02	171.43	-18.12	-62.11	440.48	420.00	20.48	21.505	
3,000.00	2,954.10	2,972.66	2,970.73	12.11	10.37	171.48	-22.46	-63.12	457.48	436.27	21.22	21.564	
3,100.00	3,051.92	3,071.20	3,069.17	12.56	10.72	171.53	-26.80	-64.13	474.48	452.53	21.95	21.619	
3,200.00	3,149.73	3,169.75	3,167.62	13.01	11.08	171.57	-31.14	-65.14	491.48	468.80	22.68	21.669	
3,300.00	3,247.55	3,268.29	3,266.06	13.45	11.43	171.61	-35.48	-66.15	508.48	485.07	23.41	21.716	
3,400.00	3,345.36	3,366.83	3,364.50	13.90	11.79	171.65	-39.82	-67.17	525.48	501.33	24.15	21.760	
3,500.00	3,443.18	3,465.38	3,462.94	14.35	12.14	171.69	-44.15	-68.18	542.48	517.60	24.88	21.801	
3,600.00	3,540.99	3,563.92	3,561.39	14.80	12.50	171.72	-48.49	-69.19	559.48	533.87	25.62	21.839	
3,700.00	3,638.81	3,662.46	3,659.83	15.25	12.86	171.75	-52.83	-70.20	576.49	550.13	26.35	21.875	
3,800.00	3,736.62	3,761.01	3,758.27	15.70	13.21	171.78	-57.17	-71.21	593.49	566.40	27.09	21.909	
3,900.00	3,834.44	3,859.55	3,856.72	16.15	13.57	171.81	-61.51	-72.22	610.49	582.66	27.82	21.941	
4,000.00	3,932.25	3,958.09	3,955.16	16.60	13.93	171.84	-65.84	-73.23	627.49	598.93	28.56	21.970	
4,100.00	4,030.07	4,056.64	4,053.60	17.05	14.28	171.86	-70.18	-74.24	644.49	615.20	29.30	21.999	
4,200.00	4,127.88	4,155.18	4,152.05	17.50	14.64	171.89	-74.52	-75.25	661.49	631.46	30.03	22.025	
4,300.00	4,225.70	4,253.73	4,250.49	17.96	15.00	171.91	-78.86	-76.26	678.50	647.73	30.77	22.050	
4,400.00	4,323.51	4,352.27	4,348.93	18.41	15.35	171.93	-83.20	-77.27	695.50	663.99	31.51	22.074	
4,500.00	4,421.33	4,450.81	4,447.37	18.86	15.71	171.95	-87.53	-78.28	712.50	680.26	32.24	22.097	
4,600.00	4,519.14	4,549.36	4,545.82	19.31	16.07	171.97	-91.87	-79.29	729.50	696.52	32.98	22.118	
4,700.00	4,616.95	4,647.90	4,644.26	19.76	16.43	171.99	-96.21	-80.30	746.51	712.79	33.72	22.139	
4,800.00	4,714.77	4,746.44	4,742.70	20.21	16.78	172.01	-100.55	-81.31	763.51	729.05	34.46	22.158	
4,900.00	4,812.58	4,844.99	4,841.15	20.66	17.14	172.03	-104.89	-82.32	780.51	745.32	35.19	22.177	
5,000.00	4,910.40	4,943.53	4,939.59	21.11	17.50	172.05	-109.23	-83.33	797.51	761.58	35.93	22.195	
5,100.00	5,008.21	5,042.08	5,038.03	21.57	17.86	172.06	-113.56	-84.34	814.52	777.85	36.67	22.212	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

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

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,200.00	5,106.03	5,140.62	5,136.48	22.02	18.21	172.08	-117.90	-85.35	831.52	794.11	37.41	22.228	
5,300.00	5,203.84	5,239.16	5,234.92	22.47	18.57	172.09	-122.24	-86.36	848.52	810.37	38.15	22.243	
5,400.00	5,301.66	5,337.71	5,333.36	22.92	18.93	172.10	-126.58	-87.38	865.52	826.64	38.89	22.258	
5,500.00	5,399.47	5,436.25	5,431.80	23.37	19.29	172.12	-130.92	-88.39	882.53	842.90	39.62	22.272	
5,600.00	5,497.29	5,534.79	5,530.25	23.82	19.64	172.13	-135.25	-89.40	899.53	859.17	40.36	22.286	
5,700.00	5,595.10	5,633.34	5,628.69	24.28	20.00	172.14	-139.59	-90.41	916.53	875.43	41.10	22.299	
5,800.00	5,692.92	5,731.88	5,727.13	24.73	20.36	172.16	-143.93	-91.42	933.54	891.70	41.84	22.312	
5,900.00	5,790.73	5,830.42	5,825.58	25.18	20.72	172.17	-148.27	-92.43	950.54	907.96	42.58	22.324	
6,000.00	5,888.55	5,928.97	5,924.02	25.63	21.08	172.18	-152.61	-93.44	967.54	924.22	43.32	22.335	
6,100.00	5,986.36	6,027.51	6,022.46	26.08	21.44	172.19	-156.94	-94.45	984.55	940.49	44.06	22.346	
6,200.00	6,084.18	6,126.06	6,120.90	26.54	21.79	172.20	-161.28	-95.46	1,001.55	956.75	44.80	22.357	
6,300.00	6,181.99	6,224.60	6,219.35	26.99	22.15	172.21	-165.62	-96.47	1,018.55	973.02	45.54	22.368	
6,400.00	6,279.81	6,314.74	6,309.40	27.44	22.48	172.22	-169.59	-97.39	1,035.59	989.37	46.22	22.405	
6,500.00	6,377.62	6,379.59	6,374.03	27.89	22.71	172.06	-172.42	-101.36	1,054.69	1,007.97	46.72	22.575	
6,530.62	6,407.57	6,400.00	6,394.26	28.03	22.79	171.94	-173.30	-103.97	1,061.28	1,014.41	46.87	22.643	
6,550.00	6,426.48	6,400.00	6,394.26	28.12	22.79	177.68	-173.30	-103.97	1,065.89	1,019.04	46.85	22.749	
6,600.00	6,474.77	6,436.72	6,430.40	28.36	22.92	-171.78	-174.87	-110.29	1,080.26	1,033.14	47.13	22.922	
6,650.00	6,522.09	6,462.91	6,455.91	28.62	23.01	-164.73	-175.97	-116.06	1,098.45	1,051.14	47.30	23.221	
6,700.00	6,568.15	6,486.95	6,479.11	28.89	23.10	-159.57	-176.96	-122.29	1,120.27	1,072.81	47.46	23.606	
6,750.00	6,612.66	6,500.00	6,491.60	29.18	23.15	-155.13	-177.50	-126.03	1,145.65	1,098.16	47.49	24.125	
6,800.00	6,655.36	6,527.69	6,517.83	29.48	23.24	-151.62	-178.62	-134.82	1,174.22	1,126.54	47.68	24.626	
6,850.00	6,695.98	6,550.00	6,538.67	29.79	23.32	-148.18	-179.50	-142.73	1,205.96	1,158.14	47.82	25.217	
6,900.00	6,734.26	6,550.00	6,538.67	30.11	23.32	-143.71	-179.50	-142.73	1,240.51	1,192.81	47.70	26.007	
6,950.00	6,769.98	6,569.52	6,556.67	30.45	23.39	-139.80	-180.26	-150.24	1,277.50	1,229.68	47.82	26.713	
7,000.00	6,802.91	6,578.53	6,564.90	30.79	23.42	-134.87	-180.61	-153.89	1,316.74	1,268.91	47.83	27.530	
7,050.00	6,832.85	6,585.29	6,571.04	31.15	23.44	-129.09	-180.87	-156.71	1,357.84	1,310.02	47.82	28.394	
7,100.00	6,859.62	6,600.00	6,584.29	31.51	23.49	-123.05	-181.42	-163.07	1,400.54	1,352.60	47.93	29.218	
7,150.00	6,883.05	6,600.00	6,584.29	31.89	23.49	-114.95	-181.42	-163.07	1,444.28	1,396.41	47.88	30.168	
7,200.00	6,902.99	6,600.00	6,584.29	32.28	23.49	-105.91	-181.42	-163.07	1,488.89	1,441.05	47.84	31.125	
7,250.00	6,919.32	6,600.00	6,584.29	32.67	23.49	-96.24	-181.42	-163.07	1,534.01	1,486.19	47.82	32.080	
7,300.00	6,931.95	6,600.00	6,584.29	33.08	23.49	-86.48	-181.42	-163.07	1,579.35	1,531.53	47.82	33.026	
7,350.00	6,940.79	6,600.00	6,584.29	33.49	23.49	-77.21	-181.42	-163.07	1,624.60	1,576.76	47.84	33.956	
7,400.00	6,945.79	6,581.96	6,568.01	33.90	23.43	-67.81	-180.74	-155.31	1,669.27	1,621.60	47.66	35.021	
7,439.53	6,947.00	6,577.26	6,563.74	34.24	23.41	-61.94	-180.56	-153.37	1,704.24	1,656.58	47.66	35.759	
7,500.00	6,947.00	6,569.73	6,556.86	34.75	23.39	-62.60	-180.27	-150.32	1,757.27	1,709.61	47.66	36.872	
7,600.00	6,947.00	6,550.00	6,538.67	35.63	23.32	-63.29	-179.50	-142.73	1,844.71	1,797.13	47.57	38.777	
7,700.00	6,947.00	6,550.00	6,538.67	36.54	23.32	-64.83	-179.50	-142.73	1,931.61	1,883.90	47.71	40.484	
7,800.00	6,947.00	6,550.00	6,538.67	37.47	23.32	-66.27	-179.50	-142.73	2,018.23	1,970.38	47.84	42.183	
7,900.00	6,947.00	6,527.21	6,517.38	38.43	23.24	-66.63	-178.60	-134.66	2,104.08	2,056.36	47.73	44.087	
8,000.00	6,947.00	6,518.29	6,508.97	39.41	23.21	-67.54	-178.24	-131.71	2,189.55	2,141.79	47.76	45.846	
8,100.00	6,947.00	6,500.00	6,491.60	40.40	23.15	-68.01	-177.50	-126.03	2,274.54	2,226.84	47.70	47.688	
8,200.00	6,947.00	6,500.00	6,491.60	41.42	23.15	-69.16	-177.50	-126.03	2,358.79	2,310.97	47.82	49.328	
8,300.00	6,947.00	6,500.00	6,491.60	42.44	23.15	-70.22	-177.50	-126.03	2,442.53	2,394.59	47.94	50.954	
8,400.00	6,947.00	6,500.00	6,491.60	43.48	23.15	-71.21	-177.50	-126.03	2,525.69	2,477.64	48.05	52.564	
8,500.00	6,947.00	6,500.00	6,491.60	44.53	23.15	-72.13	-177.50	-126.03	2,608.25	2,560.09	48.16	54.156	
8,600.00	6,947.00	6,475.46	6,468.05	45.58	23.06	-72.18	-176.49	-119.20	2,689.67	2,641.61	48.06	55.970	
8,700.00	6,947.00	6,469.76	6,462.54	46.63	23.04	-72.82	-176.25	-117.75	2,770.63	2,722.51	48.12	57.578	
8,800.00	6,947.00	6,450.00	6,443.36	47.69	22.97	-72.99	-175.43	-113.09	2,851.01	2,802.94	48.07	59.314	
8,841.31	6,947.00	6,450.00	6,443.36	48.13	22.97	-73.31	-175.43	-113.09	2,883.87	2,835.76	48.11	59.940	
8,900.00	6,947.00	6,450.00	6,443.36	48.76	22.97	-73.31	-175.43	-113.09	2,930.68	2,882.50	48.18	60.827	
9,000.00	6,947.00	6,450.00	6,443.36	49.85	22.97	-73.31	-175.43	-113.09	3,011.40	2,963.10	48.30	62.352	
9,100.00	6,947.00	6,450.00	6,443.36	50.97	22.97	-73.31	-175.43	-113.09	3,093.24	3,044.83	48.41	63.896	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 0-MWD+HRGM+MS

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Rule Assigned: Minimum Separation (usft)	Separation Factor	Warning
9,200.00	6,947.00	6,450.00	6,443.36	52.12	22.97	-73.31	-175.43	-113.09	3,176.13	3,127.61	48.52	65.458	
9,300.00	6,947.00	6,450.00	6,443.36	53.28	22.97	-73.31	-175.43	-113.09	3,259.97	3,211.34	48.63	67.037	
9,400.00	6,947.00	6,450.00	6,443.36	54.48	22.97	-73.31	-175.43	-113.09	3,344.70	3,295.97	48.74	68.630	
9,500.00	6,947.00	6,450.00	6,443.36	55.69	22.97	-73.31	-175.43	-113.09	3,430.26	3,381.42	48.84	70.237	
9,600.00	6,947.00	6,450.00	6,443.36	56.92	22.97	-73.31	-175.43	-113.09	3,516.58	3,467.64	48.94	71.857	
9,700.00	6,947.00	6,428.13	6,421.97	58.17	22.89	-72.65	-174.51	-108.62	3,603.20	3,554.31	48.89	73.705	
9,800.00	6,947.00	6,425.11	6,419.00	59.44	22.88	-72.56	-174.38	-108.06	3,690.77	3,641.80	48.97	75.375	
9,900.00	6,947.00	6,422.23	6,416.17	60.73	22.87	-72.47	-174.25	-107.54	3,778.93	3,729.89	49.04	77.052	
10,000.00	6,947.00	6,400.00	6,394.26	62.03	22.79	-71.81	-173.30	-103.97	3,867.98	3,818.99	48.99	78.947	
10,100.00	6,947.00	6,400.00	6,394.26	63.34	22.79	-71.81	-173.30	-103.97	3,957.16	3,908.06	49.09	80.610	
10,200.00	6,947.00	6,400.00	6,394.26	64.67	22.79	-71.81	-173.30	-103.97	4,046.84	3,997.65	49.18	82.279	
10,300.00	6,947.00	6,400.00	6,394.26	66.01	22.79	-71.81	-173.30	-103.97	4,136.99	4,087.72	49.28	83.956	
10,400.00	6,947.00	6,400.00	6,394.26	67.36	22.79	-71.81	-173.30	-103.97	4,227.59	4,178.22	49.37	85.638	
10,500.00	6,947.00	6,400.00	6,394.26	68.73	22.79	-71.81	-173.30	-103.97	4,318.60	4,269.15	49.45	87.325	
10,600.00	6,947.00	6,400.00	6,394.26	70.10	22.79	-71.81	-173.30	-103.97	4,410.00	4,360.46	49.54	89.017	
10,700.00	6,947.00	6,400.00	6,394.26	71.48	22.79	-71.81	-173.30	-103.97	4,501.77	4,452.14	49.63	90.712	
10,800.00	6,947.00	6,400.00	6,394.26	72.88	22.79	-71.81	-173.30	-103.97	4,593.88	4,544.17	49.71	92.412	
10,900.00	6,947.00	6,400.00	6,394.26	74.28	22.79	-71.81	-173.30	-103.97	4,686.32	4,636.52	49.79	94.114	
11,000.00	6,947.00	6,400.00	6,394.26	75.69	22.79	-71.81	-173.30	-103.97	4,779.06	4,729.18	49.88	95.820	
11,100.00	6,947.00	6,400.00	6,394.26	77.10	22.79	-71.81	-173.30	-103.97	4,872.08	4,822.13	49.96	97.527	
11,200.00	6,947.00	6,400.00	6,394.26	78.53	22.79	-71.81	-173.30	-103.97	4,965.38	4,915.34	50.04	99.236	
11,300.00	6,947.00	6,400.00	6,394.26	79.96	22.79	-71.81	-173.30	-103.97	5,058.93	5,008.82	50.12	100.946	
11,400.00	6,947.00	6,400.00	6,394.26	81.40	22.79	-71.81	-173.30	-103.97	5,152.73	5,102.54	50.19	102.658	
11,500.00	6,947.00	6,400.00	6,394.26	82.84	22.79	-71.81	-173.30	-103.97	5,246.75	5,196.48	50.27	104.370	
11,600.00	6,947.00	6,400.00	6,394.26	84.29	22.79	-71.81	-173.30	-103.97	5,341.00	5,290.65	50.35	106.082	
11,700.00	6,947.00	6,400.00	6,394.26	85.75	22.79	-71.81	-173.30	-103.97	5,435.44	5,385.02	50.42	107.795	
11,800.00	6,947.00	6,400.00	6,394.26	87.21	22.79	-71.81	-173.30	-103.97	5,530.09	5,479.59	50.50	109.507	
11,900.00	6,947.00	6,400.00	6,394.26	88.68	22.79	-71.81	-173.30	-103.97	5,624.92	5,574.34	50.58	111.219	
12,000.00	6,947.00	6,400.00	6,394.26	90.15	22.79	-71.81	-173.30	-103.97	5,719.92	5,669.27	50.65	112.930	
12,100.00	6,947.00	6,400.00	6,394.26	91.62	22.79	-71.81	-173.30	-103.97	5,815.09	5,764.37	50.72	114.641	
12,200.00	6,947.00	6,400.00	6,394.26	93.10	22.79	-71.81	-173.30	-103.97	5,910.42	5,859.63	50.80	116.349	
12,300.00	6,947.00	6,400.00	6,394.26	94.59	22.79	-71.81	-173.30	-103.97	6,005.91	5,955.03	50.87	118.057	
12,400.00	6,947.00	6,400.00	6,394.26	96.07	22.79	-71.81	-173.30	-103.97	6,101.54	6,050.59	50.95	119.763	
12,500.00	6,947.00	6,400.00	6,394.26	97.56	22.79	-71.81	-173.30	-103.97	6,197.30	6,146.28	51.02	121.467	
12,600.00	6,947.00	6,376.59	6,371.05	99.06	22.70	-71.11	-172.29	-101.03	6,292.74	6,241.76	50.99	123.423	
12,700.00	6,947.00	6,375.59	6,370.06	100.56	22.70	-71.08	-172.25	-100.92	6,388.72	6,337.67	51.06	125.134	
12,800.00	6,947.00	6,374.62	6,369.09	102.06	22.70	-71.05	-172.21	-100.82	6,484.83	6,433.70	51.12	126.843	
12,900.00	6,947.00	6,373.67	6,368.16	103.56	22.69	-71.02	-172.17	-100.72	6,581.05	6,529.85	51.19	128.549	
13,000.00	6,947.00	6,350.00	6,344.59	105.07	22.61	-70.32	-171.14	-98.73	6,677.81	6,626.64	51.16	130.520	
13,100.00	6,947.00	6,350.00	6,344.59	106.58	22.61	-70.32	-171.14	-98.73	6,774.21	6,722.97	51.24	132.211	
13,200.00	6,947.00	6,350.00	6,344.59	108.10	22.61	-70.32	-171.14	-98.73	6,870.71	6,819.40	51.31	133.898	
13,300.00	6,947.00	6,350.00	6,344.59	109.61	22.61	-70.32	-171.14	-98.73	6,967.31	6,915.92	51.39	135.582	
13,400.00	6,947.00	6,350.00	6,344.59	111.13	22.61	-70.32	-171.14	-98.73	7,064.00	7,012.54	51.46	137.263	
13,500.00	6,947.00	6,350.00	6,344.59	112.65	22.61	-70.32	-171.14	-98.73	7,160.79	7,109.25	51.54	138.941	
13,600.00	6,947.00	6,350.00	6,344.59	114.17	22.61	-70.32	-171.14	-98.73	7,257.66	7,206.05	51.61	140.615	
13,700.00	6,947.00	6,350.00	6,344.59	115.70	22.61	-70.32	-171.14	-98.73	7,354.62	7,302.93	51.69	142.285	
13,800.00	6,947.00	6,350.00	6,344.59	117.23	22.61	-70.32	-171.14	-98.73	7,451.66	7,399.89	51.76	143.952	
13,900.00	6,947.00	6,350.00	6,344.59	118.76	22.61	-70.32	-171.14	-98.73	7,548.77	7,496.93	51.84	145.615	
14,000.00	6,947.00	6,350.00	6,344.59	120.29	22.61	-70.32	-171.14	-98.73	7,645.96	7,594.05	51.92	147.275	
14,100.00	6,947.00	6,350.00	6,344.59	121.82	22.61	-70.32	-171.14	-98.73	7,743.22	7,691.23	51.99	148.930	
14,200.00	6,947.00	6,350.00	6,344.59	123.36	22.61	-70.32	-171.14	-98.73	7,840.55	7,788.49	52.07	150.581	
14,300.00	6,947.00	6,350.00	6,344.59	124.89	22.61	-70.32	-171.14	-98.73	7,937.95	7,885.81	52.15	152.228	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

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

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,400.00	6,947.00	6,350.00	6,344.59	126.43	22.61	-70.32	-171.14	-98.73	8,035.41	7,983.19	52.22	153.871	
14,500.00	6,947.00	6,350.00	6,344.59	127.97	22.61	-70.32	-171.14	-98.73	8,132.93	8,080.63	52.30	155.509	
14,600.00	6,947.00	6,350.00	6,344.59	129.51	22.61	-70.32	-171.14	-98.73	8,230.51	8,178.14	52.38	157.143	
14,700.00	6,947.00	6,350.00	6,344.59	131.06	22.61	-70.32	-171.14	-98.73	8,328.15	8,275.70	52.45	158.773	
14,800.00	6,947.00	6,350.00	6,344.59	132.60	22.61	-70.32	-171.14	-98.73	8,425.85	8,373.32	52.53	160.398	
14,900.00	6,947.00	6,350.00	6,344.59	134.15	22.61	-70.32	-171.14	-98.73	8,523.59	8,470.99	52.61	162.018	
15,000.00	6,947.00	6,350.00	6,344.59	135.70	22.61	-70.32	-171.14	-98.73	8,621.39	8,568.71	52.69	163.634	
15,100.00	6,947.00	6,350.00	6,344.59	137.24	22.61	-70.32	-171.14	-98.73	8,719.24	8,666.48	52.77	165.245	
15,200.00	6,947.00	6,350.00	6,344.59	138.79	22.61	-70.32	-171.14	-98.73	8,817.14	8,764.30	52.84	166.851	
15,300.00	6,947.00	6,350.00	6,344.59	140.35	22.61	-70.32	-171.14	-98.73	8,915.08	8,862.16	52.92	168.452	
15,400.00	6,947.00	6,350.00	6,344.59	141.90	22.61	-70.32	-171.14	-98.73	9,013.07	8,960.07	53.00	170.048	
15,500.00	6,947.00	6,350.00	6,344.59	143.45	22.61	-70.32	-171.14	-98.73	9,111.11	9,058.02	53.08	171.639	
15,600.00	6,947.00	6,350.00	6,344.59	145.01	22.61	-70.32	-171.14	-98.73	9,209.18	9,156.02	53.16	173.225	
15,700.00	6,947.00	6,350.00	6,344.59	146.56	22.61	-70.32	-171.14	-98.73	9,307.30	9,254.05	53.24	174.806	
15,800.00	6,947.00	6,350.00	6,344.59	148.12	22.61	-70.32	-171.14	-98.73	9,405.45	9,352.13	53.32	176.382	
15,900.00	6,947.00	6,350.00	6,344.59	149.68	22.61	-70.32	-171.14	-98.73	9,503.65	9,450.24	53.41	177.952	
16,000.00	6,947.00	6,350.00	6,344.59	151.23	22.61	-70.32	-171.14	-98.73	9,601.88	9,548.39	53.49	179.518	
16,100.00	6,947.00	6,350.00	6,344.59	152.79	22.61	-70.32	-171.14	-98.73	9,700.15	9,646.58	53.57	181.078	
16,200.00	6,947.00	6,350.00	6,344.59	154.36	22.61	-70.32	-171.14	-98.73	9,798.45	9,744.80	53.65	182.633	
16,300.00	6,947.00	6,350.00	6,344.59	155.92	22.61	-70.32	-171.14	-98.73	9,896.79	9,843.05	53.73	184.182	
16,400.00	6,947.00	6,350.00	6,344.59	157.48	22.61	-70.32	-171.14	-98.73	9,995.16	9,941.34	53.82	185.726	
16,500.00	6,947.00	6,350.00	6,344.59	159.04	22.61	-70.32	-171.14	-98.73	10,093.56	10,039.66	53.90	187.265	
16,600.00	6,947.00	6,350.00	6,344.59	160.61	22.61	-70.32	-171.14	-98.73	10,191.99	10,138.01	53.98	188.798	
16,700.00	6,947.00	6,350.00	6,344.59	162.17	22.61	-70.32	-171.14	-98.73	10,290.45	10,236.39	54.07	190.326	
16,800.00	6,947.00	6,350.00	6,344.59	163.74	22.61	-70.32	-171.14	-98.73	10,388.95	10,334.80	54.15	191.848	
16,900.00	6,947.00	6,350.00	6,344.59	165.30	22.61	-70.32	-171.14	-98.73	10,487.47	10,433.23	54.24	193.365	
17,000.00	6,947.00	6,350.00	6,344.59	166.87	22.61	-70.32	-171.14	-98.73	10,586.02	10,531.70	54.32	194.876	
17,100.00	6,947.00	6,350.00	6,344.59	168.44	22.61	-70.32	-171.14	-98.73	10,684.59	10,630.19	54.41	196.381	
17,200.00	6,947.00	6,350.00	6,344.59	170.01	22.61	-70.32	-171.14	-98.73	10,783.19	10,728.70	54.49	197.881	
17,300.00	6,947.00	6,350.00	6,344.59	171.57	22.61	-70.32	-171.14	-98.73	10,881.82	10,827.24	54.58	199.375	
17,400.00	6,947.00	6,350.00	6,344.59	173.14	22.61	-70.32	-171.14	-98.73	10,980.47	10,925.81	54.67	200.864	
17,500.00	6,947.00	6,350.00	6,344.59	174.71	22.61	-70.32	-171.14	-98.73	11,079.15	11,024.40	54.75	202.347	
17,600.00	6,947.00	6,350.00	6,344.59	176.28	22.61	-70.32	-171.14	-98.73	11,177.85	11,123.01	54.84	203.824	
17,700.00	6,947.00	6,350.00	6,344.59	177.86	22.61	-70.32	-171.14	-98.73	11,276.57	11,221.65	54.93	205.296	
17,800.00	6,947.00	6,350.00	6,344.59	179.43	22.61	-70.32	-171.14	-98.73	11,375.32	11,320.30	55.02	206.761	
17,900.00	6,947.00	6,350.00	6,344.59	181.00	22.61	-70.32	-171.14	-98.73	11,474.09	11,418.98	55.11	208.221	
18,000.00	6,947.00	6,350.00	6,344.59	182.57	22.61	-70.32	-171.14	-98.73	11,572.87	11,517.68	55.19	209.676	
18,100.00	6,947.00	6,350.00	6,344.59	184.15	22.61	-70.32	-171.14	-98.73	11,671.68	11,616.40	55.28	211.124	
18,200.00	6,947.00	6,350.00	6,344.59	185.72	22.61	-70.32	-171.14	-98.73	11,770.51	11,715.14	55.37	212.567	
18,300.00	6,947.00	6,350.00	6,344.59	187.30	22.61	-70.32	-171.14	-98.73	11,869.36	11,813.90	55.46	214.004	
18,400.00	6,947.00	6,350.00	6,344.59	188.87	22.61	-70.32	-171.14	-98.73	11,968.23	11,912.67	55.55	215.435	
18,500.00	6,947.00	6,350.00	6,344.59	190.45	22.61	-70.32	-171.14	-98.73	12,067.11	12,011.47	55.64	216.861	
18,600.00	6,947.00	6,350.00	6,344.59	192.02	22.61	-70.32	-171.14	-98.73	12,166.02	12,110.28	55.74	218.281	
18,700.00	6,947.00	6,350.00	6,344.59	193.60	22.61	-70.32	-171.14	-98.73	12,264.94	12,209.11	55.83	219.694	
18,800.00	6,947.00	6,350.00	6,344.59	195.18	22.61	-70.32	-171.14	-98.73	12,363.88	12,307.96	55.92	221.102	
18,900.00	6,947.00	6,350.00	6,344.59	196.75	22.61	-70.32	-171.14	-98.73	12,462.84	12,406.83	56.01	222.505	
19,000.00	6,947.00	6,350.00	6,344.59	198.33	22.61	-70.32	-171.14	-98.73	12,561.81	12,505.71	56.10	223.901	
19,100.00	6,947.00	6,350.00	6,344.59	199.91	22.61	-70.32	-171.14	-98.73	12,660.80	12,604.60	56.20	225.292	
19,200.00	6,947.00	6,350.00	6,344.59	201.49	22.61	-70.32	-171.14	-98.73	12,759.80	12,703.51	56.29	226.677	
19,300.00	6,947.00	6,350.00	6,344.59	203.07	22.61	-70.32	-171.14	-98.73	12,858.83	12,802.44	56.38	228.056	
19,400.00	6,947.00	6,350.00	6,344.59	204.65	22.61	-70.32	-171.14	-98.73	12,957.86	12,901.38	56.48	229.429	
19,500.00	6,947.00	6,350.00	6,344.59	206.23	22.61	-70.32	-171.14	-98.73	13,056.91	13,000.34	56.57	230.796	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 0-MWD+HRGM+MS

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
19,600.00	6,947.00	6,350.00	6,344.59	207.81	22.61	-70.32	-171.14	-98.73	13,155.98	13,099.31	56.67	232.158	
19,700.00	6,947.00	6,350.00	6,344.59	209.39	22.61	-70.32	-171.14	-98.73	13,255.05	13,198.29	56.76	233.514	
19,800.00	6,947.00	6,350.00	6,344.59	210.97	22.61	-70.32	-171.14	-98.73	13,354.15	13,297.29	56.86	234.863	
19,900.00	6,947.00	6,350.00	6,344.59	212.55	22.61	-70.32	-171.14	-98.73	13,453.25	13,396.30	56.96	236.208	
20,000.00	6,947.00	6,350.00	6,344.59	214.13	22.61	-70.32	-171.14	-98.73	13,552.37	13,495.32	57.05	237.546	
20,100.00	6,947.00	6,350.00	6,344.59	215.71	22.61	-70.32	-171.14	-98.73	13,651.50	13,594.35	57.15	238.879	
20,200.00	6,947.00	6,350.00	6,344.59	217.30	22.61	-70.32	-171.14	-98.73	13,750.65	13,693.40	57.25	240.205	
20,300.00	6,947.00	6,350.00	6,344.59	218.88	22.61	-70.32	-171.14	-98.73	13,849.80	13,792.46	57.34	241.526	
20,400.00	6,947.00	6,350.00	6,344.59	220.46	22.61	-70.32	-171.14	-98.73	13,948.97	13,891.53	57.44	242.842	
20,500.00	6,947.00	6,350.00	6,344.59	222.04	22.61	-70.32	-171.14	-98.73	14,048.15	13,990.61	57.54	244.151	
20,600.00	6,947.00	6,350.00	6,344.59	223.63	22.61	-70.32	-171.14	-98.73	14,147.34	14,089.71	57.64	245.455	
20,700.00	6,947.00	6,350.00	6,344.59	225.21	22.61	-70.32	-171.14	-98.73	14,246.55	14,188.81	57.74	246.753	
20,800.00	6,947.00	6,350.00	6,344.59	226.80	22.61	-70.32	-171.14	-98.73	14,345.76	14,287.93	57.84	248.045	
20,900.00	6,947.00	6,350.00	6,344.59	228.38	22.61	-70.32	-171.14	-98.73	14,444.99	14,387.05	57.93	249.332	
21,000.00	6,947.00	6,350.00	6,344.59	229.97	22.61	-70.32	-171.14	-98.73	14,544.22	14,486.19	58.03	250.613	
21,032.01	6,947.00	6,350.00	6,344.59	230.47	22.61	-70.32	-171.14	-98.73	14,575.99	14,517.92	58.07	251.021	
21,032.99	6,947.00	6,350.00	6,344.59	230.51	22.61	-70.32	-171.14	-98.73	14,576.96	14,514.63	62.32	233.890	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - Rosa Unit 702H - OH - Prelim #2

Offset Site Error: 0.00 usft

Survey Program: 0-MWD+HRGM+MS

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Rule Assigned: Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	-35.13	41.14	-28.94	50.30				
100.00	100.00	100.00	100.00	0.25	0.25	-35.13	41.14	-28.94	50.30	49.80	0.50	100.228	
200.00	200.00	200.00	200.00	0.61	0.61	-35.13	41.14	-28.94	50.30	49.08	1.22	41.270	
300.00	300.00	300.00	300.00	0.97	0.97	-35.13	41.14	-28.94	50.30	48.36	1.94	25.985	
400.00	400.00	400.00	400.00	1.33	1.33	-35.13	41.14	-28.94	50.30	47.65	2.65	18.962	
500.00	500.00	500.00	500.00	1.68	1.68	-35.13	41.14	-28.94	50.30	46.93	3.37	14.928	CC
600.00	599.98	601.46	601.43	2.03	2.03	159.39	39.34	-28.94	50.49	46.43	4.06	12.446	
700.00	699.84	702.90	702.73	2.36	2.37	157.97	33.96	-28.94	51.09	46.36	4.72	10.815	ES
800.00	799.45	804.31	803.74	2.71	2.72	155.68	24.99	-28.93	52.14	46.74	5.40	9.647	
900.00	898.70	905.68	904.32	3.06	3.08	152.63	12.46	-28.92	53.75	47.65	6.10	8.810	
1,000.00	997.47	1,006.99	1,004.34	3.43	3.46	148.99	-3.60	-28.91	56.02	49.20	6.82	8.216	
1,100.00	1,095.62	1,108.23	1,103.67	3.82	3.85	144.94	-23.18	-28.89	59.06	51.50	7.57	7.807	
1,200.00	1,193.44	1,209.33	1,202.11	4.22	4.27	139.71	-46.23	-28.87	61.64	53.29	8.35	7.380	
1,300.00	1,291.25	1,309.09	1,298.83	4.64	4.69	133.67	-70.63	-28.86	63.83	54.63	9.19	6.944	
1,400.00	1,389.07	1,408.84	1,395.56	5.06	5.13	128.09	-95.02	-28.84	66.68	56.62	10.06	6.629	
1,500.00	1,486.88	1,508.60	1,492.29	5.48	5.57	123.01	-119.42	-28.82	70.10	59.16	10.94	6.406	
1,600.00	1,584.70	1,608.36	1,589.01	5.91	6.02	118.44	-143.82	-28.80	74.03	62.19	11.84	6.251	
1,700.00	1,682.51	1,708.12	1,685.74	6.35	6.48	114.35	-168.22	-28.78	78.38	65.63	12.75	6.148	
1,800.00	1,780.33	1,807.87	1,782.47	6.78	6.94	110.70	-192.62	-28.76	83.09	69.43	13.66	6.082	
1,900.00	1,878.14	1,907.63	1,879.20	7.22	7.40	107.45	-217.01	-28.74	88.10	73.52	14.57	6.045	
2,000.00	1,975.96	2,007.39	1,975.92	7.66	7.86	104.56	-241.41	-28.72	93.36	77.87	15.49	6.028	
2,100.00	2,073.77	2,107.14	2,072.65	8.10	8.33	101.99	-265.81	-28.70	98.83	82.43	16.40	6.027	SF
2,200.00	2,171.59	2,206.90	2,169.38	8.54	8.80	99.69	-290.21	-28.69	104.48	87.17	17.31	6.036	
2,300.00	2,269.40	2,306.66	2,266.11	8.98	9.27	97.62	-314.61	-28.67	110.28	92.06	18.22	6.054	
2,400.00	2,367.22	2,406.41	2,362.83	9.43	9.74	95.77	-339.00	-28.65	116.21	97.08	19.12	6.077	
2,500.00	2,465.03	2,506.17	2,459.56	9.87	10.21	94.09	-363.40	-28.63	122.25	102.22	20.03	6.103	
2,600.00	2,562.84	2,605.93	2,556.29	10.32	10.68	92.58	-387.80	-28.61	128.38	107.45	20.93	6.133	
2,700.00	2,660.66	2,705.68	2,653.02	10.77	11.16	91.20	-412.20	-28.59	134.59	112.76	21.84	6.164	
2,800.00	2,758.47	2,805.44	2,749.74	11.21	11.63	89.95	-436.60	-28.57	140.88	118.14	22.74	6.196	
2,900.00	2,856.29	2,905.20	2,846.47	11.66	12.11	88.80	-460.99	-28.55	147.23	123.59	23.64	6.229	
3,000.00	2,954.10	3,004.96	2,943.20	12.11	12.58	87.75	-485.39	-28.53	153.63	129.09	24.54	6.261	
3,100.00	3,051.92	3,104.71	3,039.93	12.56	13.06	86.78	-509.79	-28.52	160.07	134.64	25.43	6.294	
3,200.00	3,149.73	3,204.47	3,136.65	13.01	13.54	85.89	-534.19	-28.50	166.56	140.23	26.33	6.326	
3,300.00	3,247.55	3,304.23	3,233.38	13.45	14.01	85.07	-558.59	-28.48	173.09	145.86	27.23	6.357	
3,400.00	3,345.36	3,403.98	3,330.11	13.90	14.49	84.30	-582.98	-28.46	179.65	151.53	28.12	6.388	
3,500.00	3,443.18	3,503.74	3,426.83	14.35	14.97	83.59	-607.38	-28.44	186.24	157.22	29.02	6.418	
3,600.00	3,540.99	3,603.50	3,523.56	14.80	15.45	82.93	-631.78	-28.42	192.86	162.94	29.91	6.447	
3,700.00	3,638.81	3,703.25	3,620.29	15.25	15.92	82.31	-656.18	-28.40	199.50	168.69	30.81	6.475	
3,800.00	3,736.62	3,803.01	3,717.02	15.70	16.40	81.73	-680.58	-28.38	206.16	174.46	31.70	6.503	
3,900.00	3,834.44	3,902.77	3,813.74	16.15	16.88	81.19	-704.97	-28.36	212.84	180.25	32.60	6.530	
4,000.00	3,932.25	4,002.52	3,910.47	16.60	17.36	80.68	-729.37	-28.35	219.54	186.05	33.49	6.556	
4,100.00	4,030.07	4,102.28	4,007.20	17.05	17.84	80.20	-753.77	-28.33	226.26	191.87	34.38	6.581	
4,200.00	4,127.88	4,202.04	4,103.93	17.50	18.32	79.75	-778.17	-28.31	232.99	197.71	35.27	6.605	
4,300.00	4,225.70	4,301.80	4,200.65	17.96	18.80	79.32	-802.57	-28.29	239.73	203.56	36.17	6.628	
4,400.00	4,323.51	4,401.55	4,297.38	18.41	19.28	78.92	-826.96	-28.27	246.49	209.43	37.06	6.651	
4,500.00	4,421.33	4,501.31	4,394.11	18.86	19.76	78.54	-851.36	-28.25	253.26	215.30	37.95	6.673	
4,600.00	4,519.14	4,601.07	4,490.84	19.31	20.24	78.18	-875.76	-28.23	260.03	221.19	38.84	6.695	
4,700.00	4,616.95	4,700.82	4,587.56	19.76	20.72	77.84	-900.16	-28.21	266.82	227.09	39.73	6.715	
4,800.00	4,714.77	4,800.58	4,684.29	20.21	21.20	77.51	-924.56	-28.19	273.62	232.99	40.63	6.735	
4,900.00	4,812.58	4,900.34	4,781.02	20.66	21.68	77.20	-948.95	-28.18	280.43	238.91	41.52	6.754	
5,000.00	4,910.40	5,000.09	4,877.74	21.11	22.16	76.90	-973.35	-28.16	287.24	244.83	42.41	6.773	
5,100.00	5,008.21	5,099.85	4,974.47	21.57	22.64	76.62	-997.75	-28.14	294.06	250.76	43.30	6.791	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - Rosa Unit 702H - OH - Prelim #2 — **Offset Site Error:** 0.00 usft

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

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,200.00	5,106.03	5,199.61	5,071.20	22.02	23.12	76.35	-1,022.15	-28.12	300.89	256.70	44.19	6.809	
5,300.00	5,203.84	5,299.36	5,167.93	22.47	23.60	76.10	-1,046.55	-28.10	307.72	262.64	45.08	6.826	
5,400.00	5,301.66	5,399.12	5,264.65	22.92	24.08	75.85	-1,070.94	-28.08	314.56	268.59	45.97	6.842	
5,500.00	5,399.47	5,498.88	5,361.38	23.37	24.56	75.62	-1,095.34	-28.06	321.41	274.54	46.86	6.858	
5,600.00	5,497.29	5,598.64	5,458.11	23.82	25.04	75.39	-1,119.74	-28.04	328.26	280.50	47.75	6.874	
5,700.00	5,595.10	5,698.39	5,554.84	24.28	25.52	75.17	-1,144.14	-28.02	335.11	286.47	48.64	6.889	
5,800.00	5,692.92	5,798.15	5,651.56	24.73	26.01	74.97	-1,168.54	-28.01	341.97	292.44	49.54	6.904	
5,900.00	5,790.73	5,897.91	5,748.29	25.18	26.49	74.77	-1,192.93	-27.99	348.84	298.41	50.43	6.918	
6,000.00	5,888.55	5,997.66	5,845.02	25.63	26.97	74.57	-1,217.33	-27.97	355.71	304.39	51.32	6.932	
6,100.00	5,986.36	6,097.42	5,941.75	26.08	27.45	74.39	-1,241.73	-27.95	362.58	310.37	52.21	6.945	
6,200.00	6,084.18	6,197.18	6,038.47	26.54	27.93	74.21	-1,266.13	-27.93	369.45	316.36	53.10	6.958	
6,300.00	6,181.99	6,296.93	6,135.20	26.99	28.41	74.04	-1,290.53	-27.91	376.33	322.35	53.99	6.971	
6,400.00	6,279.81	6,396.69	6,231.93	27.44	28.89	73.88	-1,314.92	-27.89	383.22	328.34	54.88	6.983	
6,500.00	6,377.62	6,496.45	6,328.66	27.89	29.37	73.72	-1,339.32	-27.87	390.10	334.33	55.77	6.995	
6,530.62	6,407.57	6,516.58	6,348.17	28.03	29.47	73.71	-1,344.24	-28.18	392.61	336.69	55.92	7.021	
6,550.00	6,426.48	6,529.17	6,360.37	28.12	29.53	79.06	-1,347.32	-28.69	394.77	338.77	56.01	7.049	
6,600.00	6,474.77	6,561.07	6,391.21	28.36	29.68	88.85	-1,355.09	-31.10	403.23	347.02	56.21	7.173	
6,650.00	6,522.09	6,600.00	6,428.63	28.62	29.87	95.23	-1,364.51	-36.19	415.95	359.35	56.60	7.349	
6,700.00	6,568.15	6,620.28	6,447.99	28.89	29.96	98.91	-1,369.38	-39.78	432.47	375.94	56.53	7.650	
6,750.00	6,612.66	6,650.00	6,476.14	29.18	30.10	101.60	-1,376.45	-46.18	453.13	396.40	56.73	7.987	
6,800.00	6,655.36	6,670.32	6,495.20	29.48	30.19	102.81	-1,381.24	-51.33	477.59	420.93	56.66	8.429	
6,850.00	6,695.98	6,700.00	6,522.73	29.79	30.33	103.88	-1,388.15	-59.98	505.83	448.84	56.98	8.877	
6,900.00	6,734.26	6,700.00	6,522.73	30.11	30.33	101.89	-1,388.15	-59.98	537.28	481.00	56.28	9.547	
6,950.00	6,769.98	6,724.67	6,545.31	30.45	30.43	101.20	-1,393.82	-68.17	571.55	514.95	56.60	10.099	
7,000.00	6,802.91	6,737.29	6,556.73	30.79	30.49	98.68	-1,396.68	-72.70	608.55	551.99	56.56	10.760	
7,050.00	6,832.85	6,750.00	6,568.14	31.15	30.54	95.37	-1,399.54	-77.50	647.74	591.11	56.63	11.439	
7,100.00	6,859.62	6,750.00	6,568.14	31.51	30.54	89.61	-1,399.54	-77.50	688.71	632.38	56.33	12.226	
7,150.00	6,883.05	6,750.00	6,568.14	31.89	30.54	82.84	-1,399.54	-77.50	731.16	675.01	56.15	13.021	
7,200.00	6,902.99	6,763.87	6,580.49	32.28	30.60	77.35	-1,402.64	-83.01	774.32	717.73	56.58	13.685	
7,250.00	6,919.32	6,765.41	6,581.85	32.67	30.61	69.60	-1,402.98	-83.64	818.27	761.61	56.66	14.442	
7,300.00	6,931.95	6,765.24	6,581.70	33.08	30.61	61.50	-1,402.94	-83.57	862.55	805.78	56.77	15.195	
7,350.00	6,940.79	6,750.00	6,568.14	33.49	30.54	51.78	-1,399.54	-77.50	907.08	850.61	56.47	16.063	
7,400.00	6,945.79	6,750.00	6,568.14	33.90	30.54	44.90	-1,399.54	-77.50	951.00	894.26	56.74	16.761	
7,439.53	6,947.00	6,750.00	6,568.14	34.24	30.54	40.03	-1,399.54	-77.50	985.37	928.38	56.99	17.290	
7,500.00	6,947.00	6,750.00	6,568.14	34.75	30.54	38.34	-1,399.54	-77.50	1,038.30	980.93	57.37	18.097	
7,600.00	6,947.00	6,750.00	6,568.14	35.63	30.54	35.03	-1,399.54	-77.50	1,128.23	1,070.32	57.91	19.482	
7,700.00	6,947.00	6,733.56	6,553.36	36.54	30.47	29.41	-1,395.84	-71.33	1,220.16	1,162.19	57.97	21.049	
7,800.00	6,947.00	6,725.31	6,545.88	37.47	30.44	23.89	-1,393.96	-68.39	1,313.77	1,255.58	58.19	22.577	
7,900.00	6,947.00	6,717.43	6,538.71	38.43	30.40	17.67	-1,392.16	-65.67	1,408.56	1,350.17	58.39	24.125	
8,000.00	6,947.00	6,700.00	6,522.73	39.41	30.33	10.14	-1,388.15	-59.98	1,504.31	1,445.94	58.37	25.773	
8,100.00	6,947.00	6,700.00	6,522.73	40.40	30.33	3.21	-1,388.15	-59.98	1,600.43	1,541.76	58.67	27.278	
8,200.00	6,947.00	6,700.00	6,522.73	41.42	30.33	-4.29	-1,388.15	-59.98	1,697.06	1,638.12	58.94	28.792	
8,300.00	6,947.00	6,700.00	6,522.73	42.44	30.33	-12.09	-1,388.15	-59.98	1,793.99	1,734.80	59.19	30.311	
8,400.00	6,947.00	6,700.00	6,522.73	43.48	30.33	-19.87	-1,388.15	-59.98	1,891.07	1,831.67	59.41	31.832	
8,500.00	6,947.00	6,676.46	6,500.93	44.53	30.22	-26.80	-1,382.68	-53.01	1,987.61	1,928.35	59.25	33.544	
8,600.00	6,947.00	6,670.51	6,495.37	45.58	30.19	-33.21	-1,381.29	-51.38	2,084.30	2,024.93	59.37	35.107	
8,700.00	6,947.00	6,650.00	6,476.14	46.63	30.10	-38.35	-1,376.45	-46.18	2,180.98	2,121.70	59.28	36.793	
8,800.00	6,947.00	6,650.00	6,476.14	47.69	30.10	-43.53	-1,376.45	-46.18	2,276.97	2,217.50	59.47	38.289	
8,841.31	6,947.00	6,650.00	6,476.14	48.13	30.10	-45.49	-1,376.45	-46.18	2,316.54	2,257.00	59.54	38.906	
8,900.00	6,947.00	6,650.00	6,476.14	48.76	30.10	-45.49	-1,376.45	-46.18	2,372.77	2,313.12	59.65	39.781	
9,000.00	6,947.00	6,650.00	6,476.14	49.85	30.10	-45.49	-1,376.45	-46.18	2,468.84	2,409.03	59.81	41.279	
9,100.00	6,947.00	6,650.00	6,476.14	50.97	30.10	-45.49	-1,376.45	-46.18	2,565.21	2,505.26	59.96	42.784	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - Rosa Unit 702H - OH - Prelim #2 — **Offset Site Error:** 0.00 usft

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

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Rule Assigned: Minimum Separation (usft)	Separation Factor	Warning
9,200.00	6,947.00	6,650.00	6,476.14	52.12	30.10	-45.49	-1,376.45	-46.18	2,661.85	2,601.76	60.09	44.296	
9,300.00	6,947.00	6,650.00	6,476.14	53.28	30.10	-45.49	-1,376.45	-46.18	2,758.73	2,698.51	60.22	45.813	
9,400.00	6,947.00	6,650.00	6,476.14	54.48	30.10	-45.49	-1,376.45	-46.18	2,855.83	2,795.49	60.33	47.334	
9,500.00	6,947.00	6,627.86	6,455.20	55.69	30.00	-44.56	-1,371.19	-41.28	2,952.65	2,892.45	60.20	49.048	
9,600.00	6,947.00	6,624.33	6,451.85	56.92	29.98	-44.41	-1,370.35	-40.57	3,049.96	2,989.69	60.27	50.606	
9,700.00	6,947.00	6,620.99	6,448.67	58.17	29.97	-44.28	-1,369.55	-39.92	3,147.41	3,087.08	60.33	52.166	
9,800.00	6,947.00	6,600.00	6,428.63	59.44	29.87	-43.45	-1,364.51	-36.19	3,245.30	3,185.08	60.21	53.895	
9,900.00	6,947.00	6,600.00	6,428.63	60.73	29.87	-43.45	-1,364.51	-36.19	3,342.92	3,282.61	60.31	55.429	
10,000.00	6,947.00	6,600.00	6,428.63	62.03	29.87	-43.45	-1,364.51	-36.19	3,440.68	3,380.28	60.40	56.965	
10,100.00	6,947.00	6,600.00	6,428.63	63.34	29.87	-43.45	-1,364.51	-36.19	3,538.56	3,478.08	60.49	58.502	
10,200.00	6,947.00	6,600.00	6,428.63	64.67	29.87	-43.45	-1,364.51	-36.19	3,636.56	3,575.99	60.57	60.040	
10,300.00	6,947.00	6,600.00	6,428.63	66.01	29.87	-43.45	-1,364.51	-36.19	3,734.67	3,674.02	60.65	61.580	
10,400.00	6,947.00	6,600.00	6,428.63	67.36	29.87	-43.45	-1,364.51	-36.19	3,832.87	3,772.15	60.72	63.120	
10,500.00	6,947.00	6,600.00	6,428.63	68.73	29.87	-43.45	-1,364.51	-36.19	3,931.17	3,870.37	60.80	64.660	
10,600.00	6,947.00	6,600.00	6,428.63	70.10	29.87	-43.45	-1,364.51	-36.19	4,029.54	3,968.68	60.87	66.201	
10,700.00	6,947.00	6,600.00	6,428.63	71.48	29.87	-43.45	-1,364.51	-36.19	4,128.00	4,067.06	60.94	67.742	
10,800.00	6,947.00	6,600.00	6,428.63	72.88	29.87	-43.45	-1,364.51	-36.19	4,226.53	4,165.52	61.00	69.282	
10,900.00	6,947.00	6,600.00	6,428.63	74.28	29.87	-43.45	-1,364.51	-36.19	4,325.12	4,264.05	61.07	70.822	
11,000.00	6,947.00	6,600.00	6,428.63	75.69	29.87	-43.45	-1,364.51	-36.19	4,423.78	4,362.65	61.14	72.361	
11,100.00	6,947.00	6,600.00	6,428.63	77.10	29.87	-43.45	-1,364.51	-36.19	4,522.50	4,461.30	61.20	73.899	
11,200.00	6,947.00	6,600.00	6,428.63	78.53	29.87	-43.45	-1,364.51	-36.19	4,621.27	4,560.01	61.26	75.436	
11,300.00	6,947.00	6,600.00	6,428.63	79.96	29.87	-43.45	-1,364.51	-36.19	4,720.10	4,658.78	61.32	76.973	
11,400.00	6,947.00	6,600.00	6,428.63	81.40	29.87	-43.45	-1,364.51	-36.19	4,818.97	4,757.59	61.38	78.508	
11,500.00	6,947.00	6,600.00	6,428.63	82.84	29.87	-43.45	-1,364.51	-36.19	4,917.89	4,856.45	61.44	80.041	
11,600.00	6,947.00	6,600.00	6,428.63	84.29	29.87	-43.45	-1,364.51	-36.19	5,016.85	4,955.35	61.50	81.573	
11,700.00	6,947.00	6,600.00	6,428.63	85.75	29.87	-43.45	-1,364.51	-36.19	5,115.85	5,054.29	61.56	83.104	
11,800.00	6,947.00	6,576.88	6,406.45	87.21	29.76	-42.57	-1,358.93	-32.88	5,214.42	5,152.99	61.43	84.879	
11,900.00	6,947.00	6,575.55	6,405.17	88.68	29.75	-42.52	-1,358.60	-32.72	5,313.44	5,251.96	61.48	86.423	
12,000.00	6,947.00	6,574.27	6,403.93	90.15	29.75	-42.48	-1,358.29	-32.56	5,412.50	5,350.97	61.53	87.964	
12,100.00	6,947.00	6,573.02	6,402.73	91.62	29.74	-42.43	-1,357.99	-32.41	5,511.58	5,450.00	61.58	89.502	
12,200.00	6,947.00	6,550.00	6,380.52	93.10	29.63	-41.61	-1,352.40	-30.08	5,611.12	5,549.66	61.46	91.296	
12,300.00	6,947.00	6,550.00	6,380.52	94.59	29.63	-41.61	-1,352.40	-30.08	5,710.22	5,648.70	61.52	92.818	
12,400.00	6,947.00	6,550.00	6,380.52	96.07	29.63	-41.61	-1,352.40	-30.08	5,809.35	5,747.77	61.58	94.338	
12,500.00	6,947.00	6,550.00	6,380.52	97.56	29.63	-41.61	-1,352.40	-30.08	5,908.51	5,846.87	61.64	95.856	
12,600.00	6,947.00	6,550.00	6,380.52	99.06	29.63	-41.61	-1,352.40	-30.08	6,007.70	5,946.00	61.70	97.371	
12,700.00	6,947.00	6,550.00	6,380.52	100.56	29.63	-41.61	-1,352.40	-30.08	6,106.91	6,045.15	61.76	98.884	
12,800.00	6,947.00	6,550.00	6,380.52	102.06	29.63	-41.61	-1,352.40	-30.08	6,206.15	6,144.33	61.82	100.394	
12,900.00	6,947.00	6,550.00	6,380.52	103.56	29.63	-41.61	-1,352.40	-30.08	6,305.41	6,243.54	61.88	101.902	
13,000.00	6,947.00	6,550.00	6,380.52	105.07	29.63	-41.61	-1,352.40	-30.08	6,404.70	6,342.76	61.94	103.407	
13,100.00	6,947.00	6,550.00	6,380.52	106.58	29.63	-41.61	-1,352.40	-30.08	6,504.01	6,442.01	62.00	104.910	
13,200.00	6,947.00	6,550.00	6,380.52	108.10	29.63	-41.61	-1,352.40	-30.08	6,603.34	6,541.28	62.06	106.409	
13,300.00	6,947.00	6,550.00	6,380.52	109.61	29.63	-41.61	-1,352.40	-30.08	6,702.69	6,640.57	62.12	107.906	
13,400.00	6,947.00	6,550.00	6,380.52	111.13	29.63	-41.61	-1,352.40	-30.08	6,802.06	6,739.88	62.18	109.400	
13,500.00	6,947.00	6,550.00	6,380.52	112.65	29.63	-41.61	-1,352.40	-30.08	6,901.44	6,839.21	62.24	110.890	
13,600.00	6,947.00	6,550.00	6,380.52	114.17	29.63	-41.61	-1,352.40	-30.08	7,000.85	6,938.55	62.30	112.378	
13,700.00	6,947.00	6,550.00	6,380.52	115.70	29.63	-41.61	-1,352.40	-30.08	7,100.27	7,037.91	62.36	113.863	
13,800.00	6,947.00	6,550.00	6,380.52	117.23	29.63	-41.61	-1,352.40	-30.08	7,199.71	7,137.29	62.42	115.344	
13,900.00	6,947.00	6,550.00	6,380.52	118.76	29.63	-41.61	-1,352.40	-30.08	7,299.16	7,236.68	62.48	116.823	
14,000.00	6,947.00	6,550.00	6,380.52	120.29	29.63	-41.61	-1,352.40	-30.08	7,398.62	7,336.08	62.54	118.298	
14,100.00	6,947.00	6,550.00	6,380.52	121.82	29.63	-41.61	-1,352.40	-30.08	7,498.11	7,435.50	62.60	119.770	
14,200.00	6,947.00	6,550.00	6,380.52	123.36	29.63	-41.61	-1,352.40	-30.08	7,597.60	7,534.93	62.67	121.238	
14,300.00	6,947.00	6,550.00	6,380.52	124.89	29.63	-41.61	-1,352.40	-30.08	7,697.11	7,634.38	62.73	122.703	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - Rosa Unit 702H - OH - Prelim #2 — **Offset Site Error:** 0.00 usft

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

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,400.00	6,947.00	6,550.00	6,380.52	126.43	29.63	-41.61	-1,352.40	-30.08	7,796.63	7,733.84	62.79	124.165	
14,500.00	6,947.00	6,550.00	6,380.52	127.97	29.63	-41.61	-1,352.40	-30.08	7,896.16	7,833.31	62.86	125.623	
14,600.00	6,947.00	6,550.00	6,380.52	129.51	29.63	-41.61	-1,352.40	-30.08	7,995.71	7,932.79	62.92	127.078	
14,700.00	6,947.00	6,550.00	6,380.52	131.06	29.63	-41.61	-1,352.40	-30.08	8,095.26	8,032.28	62.98	128.529	
14,800.00	6,947.00	6,550.00	6,380.52	132.60	29.63	-41.61	-1,352.40	-30.08	8,194.83	8,131.78	63.05	129.977	
14,900.00	6,947.00	6,550.00	6,380.52	134.15	29.63	-41.61	-1,352.40	-30.08	8,294.41	8,231.29	63.11	131.421	
15,000.00	6,947.00	6,550.00	6,380.52	135.70	29.63	-41.61	-1,352.40	-30.08	8,393.99	8,330.81	63.18	132.861	
15,100.00	6,947.00	6,550.00	6,380.52	137.24	29.63	-41.61	-1,352.40	-30.08	8,493.59	8,430.34	63.24	134.298	
15,200.00	6,947.00	6,550.00	6,380.52	138.79	29.63	-41.61	-1,352.40	-30.08	8,593.20	8,529.88	63.31	135.731	
15,300.00	6,947.00	6,550.00	6,380.52	140.35	29.63	-41.61	-1,352.40	-30.08	8,692.81	8,629.43	63.38	137.160	
15,400.00	6,947.00	6,550.00	6,380.52	141.90	29.63	-41.61	-1,352.40	-30.08	8,792.43	8,728.99	63.44	138.586	
15,500.00	6,947.00	6,550.00	6,380.52	143.45	29.63	-41.61	-1,352.40	-30.08	8,892.07	8,828.55	63.51	140.008	
15,600.00	6,947.00	6,550.00	6,380.52	145.01	29.63	-41.61	-1,352.40	-30.08	8,991.71	8,928.13	63.58	141.425	
15,700.00	6,947.00	6,550.00	6,380.52	146.56	29.63	-41.61	-1,352.40	-30.08	9,091.36	9,027.71	63.65	142.839	
15,800.00	6,947.00	6,550.00	6,380.52	148.12	29.63	-41.61	-1,352.40	-30.08	9,191.01	9,127.29	63.72	144.250	
15,900.00	6,947.00	6,550.00	6,380.52	149.68	29.63	-41.61	-1,352.40	-30.08	9,290.67	9,226.89	63.79	145.656	
16,000.00	6,947.00	6,550.00	6,380.52	151.23	29.63	-41.61	-1,352.40	-30.08	9,390.34	9,326.49	63.85	147.058	
16,100.00	6,947.00	6,550.00	6,380.52	152.79	29.63	-41.61	-1,352.40	-30.08	9,490.02	9,426.10	63.92	148.457	
16,200.00	6,947.00	6,550.00	6,380.52	154.36	29.63	-41.61	-1,352.40	-30.08	9,589.71	9,525.71	63.99	149.851	
16,300.00	6,947.00	6,550.00	6,380.52	155.92	29.63	-41.61	-1,352.40	-30.08	9,689.40	9,625.33	64.07	151.241	
16,400.00	6,947.00	6,550.00	6,380.52	157.48	29.63	-41.61	-1,352.40	-30.08	9,789.09	9,724.96	64.14	152.628	
16,500.00	6,947.00	6,550.00	6,380.52	159.04	29.63	-41.61	-1,352.40	-30.08	9,888.80	9,824.59	64.21	154.010	
16,600.00	6,947.00	6,550.00	6,380.52	160.61	29.63	-41.61	-1,352.40	-30.08	9,988.51	9,924.23	64.28	155.388	
16,700.00	6,947.00	6,550.00	6,380.52	162.17	29.63	-41.61	-1,352.40	-30.08	10,088.22	10,023.87	64.35	156.763	
16,800.00	6,947.00	6,550.00	6,380.52	163.74	29.63	-41.61	-1,352.40	-30.08	10,187.94	10,123.51	64.43	158.133	
16,900.00	6,947.00	6,550.00	6,380.52	165.30	29.63	-41.61	-1,352.40	-30.08	10,287.67	10,223.17	64.50	159.499	
17,000.00	6,947.00	6,550.00	6,380.52	166.87	29.63	-41.61	-1,352.40	-30.08	10,387.40	10,322.82	64.57	160.860	
17,100.00	6,947.00	6,550.00	6,380.52	168.44	29.63	-41.61	-1,352.40	-30.08	10,487.13	10,422.49	64.65	162.218	
17,200.00	6,947.00	6,550.00	6,380.52	170.01	29.63	-41.61	-1,352.40	-30.08	10,586.88	10,522.15	64.72	163.572	
17,300.00	6,947.00	6,550.00	6,380.52	171.57	29.63	-41.61	-1,352.40	-30.08	10,686.62	10,621.82	64.80	164.921	
17,400.00	6,947.00	6,550.00	6,380.52	173.14	29.63	-41.61	-1,352.40	-30.08	10,786.37	10,721.50	64.87	166.266	
17,500.00	6,947.00	6,550.00	6,380.52	174.71	29.63	-41.61	-1,352.40	-30.08	10,886.13	10,821.18	64.95	167.607	
17,600.00	6,947.00	6,550.00	6,380.52	176.28	29.63	-41.61	-1,352.40	-30.08	10,985.89	10,920.86	65.03	168.944	
17,700.00	6,947.00	6,550.00	6,380.52	177.86	29.63	-41.61	-1,352.40	-30.08	11,085.65	11,020.55	65.10	170.276	
17,800.00	6,947.00	6,550.00	6,380.52	179.43	29.63	-41.61	-1,352.40	-30.08	11,185.42	11,120.24	65.18	171.604	
17,900.00	6,947.00	6,550.00	6,380.52	181.00	29.63	-41.61	-1,352.40	-30.08	11,285.19	11,219.93	65.26	172.928	
18,000.00	6,947.00	6,550.00	6,380.52	182.57	29.63	-41.61	-1,352.40	-30.08	11,384.97	11,319.63	65.34	174.248	
18,100.00	6,947.00	6,550.00	6,380.52	184.15	29.63	-41.61	-1,352.40	-30.08	11,484.75	11,419.33	65.42	175.563	
18,200.00	6,947.00	6,550.00	6,380.52	185.72	29.63	-41.61	-1,352.40	-30.08	11,584.53	11,519.04	65.50	176.875	
18,300.00	6,947.00	6,550.00	6,380.52	187.30	29.63	-41.61	-1,352.40	-30.08	11,684.32	11,618.74	65.58	178.181	
18,400.00	6,947.00	6,550.00	6,380.52	188.87	29.63	-41.61	-1,352.40	-30.08	11,784.11	11,718.46	65.66	179.484	
18,500.00	6,947.00	6,550.00	6,380.52	190.45	29.63	-41.61	-1,352.40	-30.08	11,883.91	11,818.17	65.74	180.782	
18,600.00	6,947.00	6,550.00	6,380.52	192.02	29.63	-41.61	-1,352.40	-30.08	11,983.70	11,917.89	65.82	182.076	
18,700.00	6,947.00	6,550.00	6,380.52	193.60	29.63	-41.61	-1,352.40	-30.08	12,083.51	12,017.61	65.90	183.366	
18,800.00	6,947.00	6,550.00	6,380.52	195.18	29.63	-41.61	-1,352.40	-30.08	12,183.31	12,117.33	65.98	184.651	
18,900.00	6,947.00	6,550.00	6,380.52	196.75	29.63	-41.61	-1,352.40	-30.08	12,283.12	12,217.06	66.06	185.932	
19,000.00	6,947.00	6,550.00	6,380.52	198.33	29.63	-41.61	-1,352.40	-30.08	12,382.93	12,316.78	66.15	187.208	
19,100.00	6,947.00	6,550.00	6,380.52	199.91	29.63	-41.61	-1,352.40	-30.08	12,482.74	12,416.52	66.23	188.481	
19,200.00	6,947.00	6,550.00	6,380.52	201.49	29.63	-41.61	-1,352.40	-30.08	12,582.56	12,516.25	66.31	189.749	
19,300.00	6,947.00	6,550.00	6,380.52	203.07	29.63	-41.61	-1,352.40	-30.08	12,682.38	12,615.99	66.40	191.012	
19,400.00	6,947.00	6,550.00	6,380.52	204.65	29.63	-41.61	-1,352.40	-30.08	12,782.20	12,715.72	66.48	192.271	
19,500.00	6,947.00	6,550.00	6,380.52	206.23	29.63	-41.61	-1,352.40	-30.08	12,882.03	12,815.46	66.56	193.526	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - Rosa Unit 702H - OH - Prelim #2

Offset Site Error: 0.00 usft

Survey Program: 0-MWD+HRGM+MS

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
19,600.00	6,947.00	6,550.00	6,380.52	207.81	29.63	-41.61	-1,352.40	-30.08	12,981.86	12,915.21	66.65	194.776	
19,700.00	6,947.00	6,550.00	6,380.52	209.39	29.63	-41.61	-1,352.40	-30.08	13,081.69	13,014.95	66.74	196.023	
19,800.00	6,947.00	6,550.00	6,380.52	210.97	29.63	-41.61	-1,352.40	-30.08	13,181.52	13,114.70	66.82	197.264	
19,900.00	6,947.00	6,550.00	6,380.52	212.55	29.63	-41.61	-1,352.40	-30.08	13,281.36	13,214.45	66.91	198.502	
20,000.00	6,947.00	6,550.00	6,380.52	214.13	29.63	-41.61	-1,352.40	-30.08	13,381.20	13,314.20	66.99	199.735	
20,100.00	6,947.00	6,550.00	6,380.52	215.71	29.63	-41.61	-1,352.40	-30.08	13,481.04	13,413.96	67.08	200.963	
20,200.00	6,947.00	6,550.00	6,380.52	217.30	29.63	-41.61	-1,352.40	-30.08	13,580.88	13,513.71	67.17	202.187	
20,300.00	6,947.00	6,550.00	6,380.52	218.88	29.63	-41.61	-1,352.40	-30.08	13,680.73	13,613.47	67.26	203.407	
20,400.00	6,947.00	6,550.00	6,380.52	220.46	29.63	-41.61	-1,352.40	-30.08	13,780.57	13,713.23	67.35	204.623	
20,500.00	6,947.00	6,550.00	6,380.52	222.04	29.63	-41.61	-1,352.40	-30.08	13,880.42	13,812.99	67.44	205.834	
20,600.00	6,947.00	6,550.00	6,380.52	223.63	29.63	-41.61	-1,352.40	-30.08	13,980.28	13,912.75	67.52	207.041	
20,700.00	6,947.00	6,550.00	6,380.52	225.21	29.63	-41.61	-1,352.40	-30.08	14,080.13	14,012.52	67.61	208.243	
20,800.00	6,947.00	6,550.00	6,380.52	226.80	29.63	-41.61	-1,352.40	-30.08	14,179.99	14,112.28	67.70	209.441	
20,900.00	6,947.00	6,550.00	6,380.52	228.38	29.63	-41.61	-1,352.40	-30.08	14,279.84	14,212.05	67.79	210.635	
21,000.00	6,947.00	6,550.00	6,380.52	229.97	29.63	-41.61	-1,352.40	-30.08	14,379.70	14,311.82	67.89	211.824	
21,032.01	6,947.00	6,550.00	6,380.52	230.47	29.63	-41.61	-1,352.40	-30.08	14,411.67	14,343.75	67.91	212.204	
21,032.99	6,947.00	6,550.00	6,380.52	230.51	29.63	-41.61	-1,352.40	-30.08	14,412.64	14,340.61	72.04	200.071	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

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

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	-35.64	20.39	-14.62	25.09				
100.00	100.00	100.00	100.00	0.25	0.25	-35.64	20.39	-14.62	25.09	24.58	0.50	49.987	
200.00	200.00	200.00	200.00	0.61	0.61	-35.64	20.39	-14.62	25.09	23.87	1.22	20.583	
300.00	300.00	300.00	300.00	0.97	0.97	-35.64	20.39	-14.62	25.09	23.15	1.94	12.960	
400.00	400.00	400.00	400.00	1.33	1.33	-35.64	20.39	-14.62	25.09	22.43	2.65	9.457	
500.00	500.00	500.00	500.00	1.68	1.68	-35.64	20.39	-14.62	25.09	21.72	3.37	7.445	CC, ES
600.00	599.98	599.41	599.39	2.03	2.04	163.58	22.00	-14.01	27.76	23.69	4.07	6.822	
700.00	699.84	698.17	698.01	2.36	2.40	172.30	26.80	-12.19	36.39	31.63	4.76	7.643	
800.00	799.45	795.64	795.12	2.71	2.75	-179.93	34.64	-9.22	51.72	46.27	5.46	9.481	
900.00	898.70	892.25	891.08	3.06	3.10	-174.70	45.11	-5.26	73.50	67.35	6.15	11.951	
1,000.00	997.47	988.77	986.90	3.43	3.45	-171.95	55.96	-1.15	99.34	92.49	6.85	14.502	
1,100.00	1,095.62	1,084.36	1,081.79	3.82	3.81	-170.55	66.71	2.92	128.61	121.06	7.55	17.030	
1,200.00	1,193.44	1,179.43	1,176.17	4.22	4.17	-169.84	77.40	6.97	159.56	151.31	8.25	19.345	
1,300.00	1,291.25	1,274.51	1,270.56	4.64	4.53	-169.36	88.09	11.02	190.52	181.58	8.94	21.302	
1,400.00	1,389.07	1,369.59	1,364.95	5.06	4.89	-169.02	98.78	15.06	221.49	211.85	9.64	22.966	
1,500.00	1,486.88	1,464.66	1,459.33	5.48	5.25	-168.76	109.47	19.11	252.47	242.12	10.35	24.397	
1,600.00	1,584.70	1,559.74	1,553.72	5.91	5.61	-168.56	120.16	23.16	283.45	272.39	11.06	25.639	
1,700.00	1,682.51	1,654.82	1,648.11	6.35	5.97	-168.39	130.85	27.21	314.43	302.66	11.76	26.727	
1,800.00	1,780.33	1,749.89	1,742.49	6.78	6.33	-168.26	141.54	31.25	345.41	332.94	12.48	27.686	
1,900.00	1,878.14	1,844.97	1,836.88	7.22	6.70	-168.15	152.23	35.30	376.40	363.21	13.19	28.538	
2,000.00	1,975.96	1,940.04	1,931.27	7.66	7.06	-168.05	162.92	39.35	407.38	393.48	13.90	29.300	
2,100.00	2,073.77	2,035.12	2,025.65	8.10	7.42	-167.97	173.61	43.40	438.37	423.75	14.62	29.985	
2,200.00	2,171.59	2,130.20	2,120.04	8.54	7.79	-167.90	184.30	47.44	469.36	454.02	15.34	30.604	
2,300.00	2,269.40	2,225.27	2,214.43	8.98	8.15	-167.84	194.99	51.49	500.35	484.29	16.05	31.166	
2,400.00	2,367.22	2,320.35	2,308.81	9.43	8.52	-167.79	205.68	55.54	531.34	514.56	16.77	31.678	
2,500.00	2,465.03	2,415.42	2,403.20	9.87	8.88	-167.74	216.37	59.59	562.32	544.83	17.49	32.147	
2,600.00	2,562.84	2,510.50	2,497.59	10.32	9.25	-167.69	227.06	63.64	593.31	575.10	18.21	32.577	
2,700.00	2,660.66	2,605.58	2,591.97	10.77	9.61	-167.65	237.75	67.68	624.30	605.37	18.93	32.974	
2,800.00	2,758.47	2,700.65	2,686.36	11.21	9.98	-167.62	248.44	71.73	655.29	635.64	19.65	33.341	
2,900.00	2,856.29	2,795.73	2,780.75	11.66	10.35	-167.59	259.14	75.78	686.28	665.91	20.38	33.681	
3,000.00	2,954.10	2,890.81	2,875.13	12.11	10.71	-167.56	269.83	79.83	717.27	696.18	21.10	33.998	
3,100.00	3,051.92	2,985.88	2,969.52	12.56	11.08	-167.53	280.52	83.87	748.26	726.44	21.82	34.292	
3,200.00	3,149.73	3,080.96	3,063.90	13.01	11.44	-167.50	291.21	87.92	779.26	756.71	22.54	34.568	
3,300.00	3,247.55	3,176.03	3,158.29	13.45	11.81	-167.48	301.90	91.97	810.25	786.98	23.27	34.825	
3,400.00	3,345.36	3,271.11	3,252.68	13.90	12.17	-167.46	312.59	96.02	841.24	817.25	23.99	35.067	
3,500.00	3,443.18	3,366.19	3,347.06	14.35	12.54	-167.44	323.28	100.06	872.23	847.52	24.71	35.294	
3,600.00	3,540.99	3,461.26	3,441.45	14.80	12.91	-167.42	333.97	104.11	903.22	877.78	25.44	35.508	
3,700.00	3,638.81	3,556.34	3,535.84	15.25	13.27	-167.41	344.66	108.16	934.21	908.05	26.16	35.710	
3,800.00	3,736.62	3,651.41	3,630.22	15.70	13.64	-167.39	355.35	112.21	965.20	938.32	26.89	35.900	
3,900.00	3,834.44	3,746.49	3,724.61	16.15	14.01	-167.37	366.04	116.26	996.19	968.58	27.61	36.080	
4,000.00	3,932.25	3,841.57	3,819.00	16.60	14.37	-167.36	376.73	120.30	1,027.18	998.85	28.34	36.251	
4,100.00	4,030.07	3,936.64	3,913.38	17.05	14.74	-167.35	387.42	124.35	1,058.18	1,029.12	29.06	36.413	
4,200.00	4,127.88	4,031.72	4,007.77	17.50	15.11	-167.33	398.11	128.40	1,089.17	1,059.38	29.79	36.566	
4,300.00	4,225.70	4,126.80	4,102.16	17.96	15.47	-167.32	408.80	132.45	1,120.16	1,089.65	30.51	36.713	
4,400.00	4,323.51	4,221.87	4,196.54	18.41	15.84	-167.31	419.49	136.49	1,151.15	1,119.91	31.24	36.852	
4,500.00	4,421.33	4,316.95	4,290.93	18.86	16.21	-167.30	430.18	140.54	1,182.14	1,150.18	31.96	36.985	
4,600.00	4,519.14	4,412.02	4,385.32	19.31	16.57	-167.29	440.87	144.59	1,213.13	1,180.44	32.69	37.111	
4,700.00	4,616.95	4,507.10	4,479.70	19.76	16.94	-167.28	451.56	148.64	1,244.13	1,210.71	33.42	37.232	
4,800.00	4,714.77	4,602.18	4,574.09	20.21	17.31	-167.27	462.25	152.68	1,275.12	1,240.98	34.14	37.348	
4,900.00	4,812.58	4,697.25	4,668.47	20.66	17.67	-167.26	472.95	156.73	1,306.11	1,271.24	34.87	37.458	
5,000.00	4,910.40	4,792.33	4,762.86	21.11	18.04	-167.25	483.64	160.78	1,337.10	1,301.51	35.60	37.564	
5,100.00	5,008.21	4,887.40	4,857.25	21.57	18.41	-167.25	494.33	164.83	1,368.09	1,331.77	36.32	37.666	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

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

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Rule Assigned: Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,200.00	5,106.03	4,982.48	4,951.63	22.02	18.77	-167.24	505.02	168.87	1,399.08	1,362.04	37.05	37.763	
5,300.00	5,203.84	5,077.56	5,046.02	22.47	19.14	-167.23	515.71	172.92	1,430.08	1,392.30	37.78	37.856	
5,400.00	5,301.66	5,172.63	5,140.41	22.92	19.51	-167.22	526.40	176.97	1,461.07	1,422.56	38.50	37.946	
5,500.00	5,399.47	5,267.71	5,234.79	23.37	19.87	-167.22	537.09	181.02	1,492.06	1,452.83	39.23	38.033	
5,600.00	5,497.29	5,362.79	5,329.18	23.82	20.24	-167.21	547.78	185.07	1,523.05	1,483.09	39.96	38.116	
5,700.00	5,595.10	5,457.86	5,423.57	24.28	20.61	-167.21	558.47	189.11	1,554.04	1,513.36	40.69	38.195	
5,800.00	5,692.92	5,552.94	5,517.95	24.73	20.97	-167.20	569.16	193.16	1,585.04	1,543.62	41.41	38.272	
5,900.00	5,790.73	5,648.01	5,612.34	25.18	21.34	-167.19	579.85	197.21	1,616.03	1,573.88	42.14	38.347	
6,000.00	5,888.55	5,743.09	5,706.73	25.63	21.71	-167.19	590.54	201.26	1,647.02	1,604.15	42.87	38.418	
6,100.00	5,986.36	5,838.17	5,801.11	26.08	22.07	-167.18	601.23	205.30	1,678.01	1,634.41	43.60	38.487	
6,200.00	6,084.18	5,933.24	5,895.50	26.54	22.44	-167.18	611.92	209.35	1,709.00	1,664.68	44.33	38.554	
6,300.00	6,181.99	6,028.32	5,989.89	26.99	22.81	-167.17	622.61	213.40	1,740.00	1,694.94	45.06	38.618	
6,400.00	6,279.81	6,123.40	6,084.27	27.44	23.17	-167.17	633.30	217.45	1,770.99	1,725.20	45.79	38.680	
6,500.00	6,377.62	6,218.47	6,178.66	27.89	23.54	-167.16	643.99	221.49	1,801.98	1,755.47	46.51	38.741	
6,530.62	6,407.57	6,247.58	6,207.56	28.03	23.65	-167.16	647.27	222.73	1,811.47	1,764.73	46.74	38.759	
6,550.00	6,426.48	6,265.96	6,225.80	28.12	23.72	-161.19	649.33	223.52	1,817.61	1,770.73	46.88	38.772	
6,600.00	6,474.77	6,312.84	6,272.34	28.36	23.91	-149.80	654.60	225.51	1,834.72	1,787.47	47.25	38.832	
6,650.00	6,522.09	6,358.71	6,317.88	28.62	24.08	-142.05	659.76	227.47	1,853.55	1,805.94	47.62	38.927	
6,700.00	6,568.15	6,409.38	6,368.14	28.89	24.28	-136.34	665.45	230.50	1,873.99	1,825.97	48.03	39.019	
6,750.00	6,612.66	6,463.91	6,421.79	29.18	24.50	-131.73	671.50	237.99	1,895.77	1,847.29	48.48	39.106	
6,800.00	6,655.36	6,518.84	6,475.00	29.48	24.72	-127.73	677.48	250.17	1,918.72	1,869.78	48.94	39.206	
6,850.00	6,695.98	6,574.19	6,527.36	29.79	24.95	-124.11	683.35	267.08	1,942.73	1,893.31	49.41	39.315	
6,900.00	6,734.26	6,630.01	6,578.48	30.11	25.18	-120.70	689.05	288.69	1,967.63	1,917.73	49.90	39.431	
6,950.00	6,769.98	6,686.37	6,628.00	30.45	25.42	-117.43	694.55	315.00	1,993.29	1,942.89	50.40	39.550	
7,000.00	6,802.91	6,743.37	6,675.53	30.79	25.66	-114.25	699.80	345.98	2,019.55	1,968.64	50.91	39.668	
7,050.00	6,832.85	6,801.15	6,720.71	31.15	25.91	-111.14	704.76	381.62	2,046.26	1,994.82	51.44	39.779	
7,100.00	6,859.62	6,859.88	6,763.16	31.51	26.18	-108.08	709.39	421.92	2,073.25	2,021.26	51.99	39.878	
7,150.00	6,883.05	6,919.74	6,802.43	31.89	26.46	-105.09	713.65	466.87	2,100.36	2,047.79	52.56	39.959	
7,200.00	6,902.99	6,980.95	6,838.08	32.28	26.77	-102.17	717.46	516.44	2,127.42	2,074.25	53.16	40.016	
7,250.00	6,919.32	7,043.71	6,869.55	32.67	27.10	-99.35	720.79	570.62	2,154.25	2,100.46	53.80	40.043	
7,300.00	6,931.95	7,108.25	6,896.23	33.08	27.46	-96.64	723.54	629.29	2,180.70	2,126.23	54.47	40.035	
7,350.00	6,940.79	7,174.76	6,917.40	33.49	27.86	-94.05	725.66	692.27	2,206.56	2,151.38	55.18	39.985	
7,400.00	6,945.79	7,243.38	6,932.28	33.90	28.30	-91.60	727.04	759.22	2,231.67	2,175.73	55.94	39.895	
7,439.53	6,947.00	7,299.20	6,939.05	34.24	28.66	-89.77	727.56	814.60	2,250.88	2,194.31	56.56	39.793	
7,500.00	6,947.00	7,372.24	6,941.00	34.75	29.16	-89.83	727.44	887.59	2,278.87	2,221.42	57.44	39.672	
7,600.00	6,947.00	7,462.24	6,941.02	35.63	29.83	-89.84	727.04	977.59	2,322.43	2,263.71	58.73	39.546	
7,700.00	6,947.00	7,553.71	6,941.03	36.54	30.55	-89.84	726.62	1,069.06	2,362.83	2,302.69	60.14	39.289	
7,800.00	6,947.00	7,646.54	6,941.04	37.47	31.33	-89.85	726.20	1,161.88	2,400.02	2,338.34	61.68	38.910	
7,900.00	6,947.00	7,740.60	6,941.06	38.43	32.18	-89.85	725.77	1,255.95	2,433.94	2,370.59	63.35	38.421	
8,000.00	6,947.00	7,835.79	6,941.07	39.41	33.08	-89.86	725.33	1,351.14	2,464.56	2,399.42	65.13	37.838	
8,100.00	6,947.00	7,932.00	6,941.09	40.40	34.03	-89.86	724.90	1,447.34	2,491.83	2,424.80	67.03	37.175	
8,200.00	6,947.00	8,029.09	6,941.10	41.42	35.04	-89.86	724.45	1,544.43	2,515.74	2,446.70	69.03	36.443	
8,300.00	6,947.00	8,126.96	6,941.12	42.44	36.09	-89.86	724.01	1,642.30	2,536.23	2,465.11	71.13	35.657	
8,400.00	6,947.00	8,225.49	6,941.13	43.48	37.19	-89.87	723.56	1,740.83	2,553.31	2,479.99	73.32	34.826	
8,500.00	6,947.00	8,324.55	6,941.14	44.53	38.32	-89.87	723.11	1,839.89	2,566.93	2,491.35	75.58	33.962	
8,600.00	6,947.00	8,424.03	6,941.16	45.58	39.49	-89.87	722.66	1,939.37	2,577.09	2,499.16	77.92	33.073	
8,700.00	6,947.00	8,523.80	6,941.17	46.63	40.70	-89.87	722.20	2,039.14	2,583.76	2,503.44	80.32	32.166	
8,800.00	6,947.00	8,623.75	6,941.19	47.69	41.93	-89.87	721.75	2,139.08	2,586.96	2,504.17	82.78	31.250	
8,841.31	6,947.00	8,665.06	6,941.20	48.13	42.44	-89.87	721.56	2,180.39	2,587.26	2,503.44	83.81	30.869	
8,900.00	6,947.00	8,723.74	6,941.20	48.76	43.18	-89.87	721.29	2,239.08	2,587.26	2,501.97	85.29	30.335	
9,000.00	6,947.00	8,823.74	6,941.22	49.85	44.46	-89.87	720.84	2,339.08	2,587.27	2,499.43	87.84	29.453	
9,100.00	6,947.00	8,923.74	6,941.23	50.97	45.76	-89.87	720.38	2,439.08	2,587.27	2,496.84	90.44	28.608	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 0-MWD+HRGM+MS

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,200.00	6,947.00	9,023.74	6,941.25	52.12	47.08	-89.87	719.93	2,539.08	2,587.28	2,494.21	93.07	27.799	
9,300.00	6,947.00	9,123.74	6,941.26	53.28	48.41	-89.87	719.47	2,639.08	2,587.29	2,491.55	95.74	27.024	
9,400.00	6,947.00	9,223.74	6,941.28	54.48	49.77	-89.87	719.02	2,739.07	2,587.29	2,488.85	98.44	26.283	
9,500.00	6,947.00	9,323.74	6,941.29	55.69	51.13	-89.87	718.56	2,839.07	2,587.30	2,486.13	101.17	25.574	
9,600.00	6,947.00	9,423.74	6,941.31	56.92	52.51	-89.87	718.11	2,939.07	2,587.31	2,483.38	103.93	24.896	
9,700.00	6,947.00	9,523.74	6,941.32	58.17	53.90	-89.87	717.65	3,039.07	2,587.31	2,480.60	106.71	24.247	
9,800.00	6,947.00	9,623.74	6,941.34	59.44	55.30	-89.87	717.20	3,139.07	2,587.32	2,477.80	109.51	23.625	
9,900.00	6,947.00	9,723.74	6,941.35	60.73	56.72	-89.87	716.74	3,239.07	2,587.32	2,474.98	112.34	23.031	
10,000.00	6,947.00	9,823.74	6,941.37	62.03	58.14	-89.88	716.29	3,339.07	2,587.33	2,472.14	115.19	22.462	
10,100.00	6,947.00	9,923.74	6,941.38	63.34	59.57	-89.88	715.83	3,439.07	2,587.34	2,469.28	118.05	21.917	
10,200.00	6,947.00	10,023.74	6,941.40	64.67	61.01	-89.88	715.38	3,539.07	2,587.34	2,466.41	120.94	21.394	
10,300.00	6,947.00	10,123.74	6,941.41	66.01	62.46	-89.88	714.92	3,639.07	2,587.35	2,463.52	123.83	20.894	
10,400.00	6,947.00	10,223.74	6,941.43	67.36	63.92	-89.88	714.47	3,739.06	2,587.36	2,460.61	126.75	20.413	
10,500.00	6,947.00	10,323.74	6,941.44	68.73	65.38	-89.88	714.01	3,839.06	2,587.36	2,457.69	129.68	19.953	
10,600.00	6,947.00	10,423.74	6,941.46	70.10	66.85	-89.88	713.56	3,939.06	2,587.37	2,454.75	132.62	19.510	
10,700.00	6,947.00	10,523.74	6,941.47	71.48	68.32	-89.88	713.10	4,039.06	2,587.38	2,451.81	135.57	19.085	
10,800.00	6,947.00	10,623.74	6,941.49	72.88	69.80	-89.88	712.64	4,139.06	2,587.38	2,448.85	138.53	18.677	
10,900.00	6,947.00	10,723.74	6,941.50	74.28	71.29	-89.88	712.19	4,239.06	2,587.39	2,445.88	141.51	18.285	
11,000.00	6,947.00	10,823.74	6,941.51	75.69	72.78	-89.88	711.73	4,339.06	2,587.39	2,442.90	144.49	17.907	
11,100.00	6,947.00	10,923.74	6,941.53	77.10	74.28	-89.88	711.28	4,439.06	2,587.40	2,439.92	147.48	17.543	
11,200.00	6,947.00	11,023.74	6,941.54	78.53	75.78	-89.88	710.82	4,539.06	2,587.41	2,436.92	150.49	17.194	
11,300.00	6,947.00	11,123.74	6,941.56	79.96	77.28	-89.88	710.37	4,639.06	2,587.41	2,433.92	153.50	16.856	
11,400.00	6,947.00	11,223.74	6,941.57	81.40	78.79	-89.88	709.91	4,739.05	2,587.42	2,430.90	156.52	16.531	
11,500.00	6,947.00	11,323.74	6,941.59	82.84	80.30	-89.88	709.46	4,839.05	2,587.43	2,427.88	159.54	16.218	
11,600.00	6,947.00	11,423.74	6,941.60	84.29	81.82	-89.88	709.00	4,939.05	2,587.43	2,424.86	162.58	15.915	
11,700.00	6,947.00	11,523.74	6,941.62	85.75	83.34	-89.88	708.55	5,039.05	2,587.44	2,421.82	165.62	15.623	
11,800.00	6,947.00	11,623.74	6,941.63	87.21	84.86	-89.88	708.09	5,139.05	2,587.45	2,418.78	168.66	15.341	
11,900.00	6,947.00	11,723.74	6,941.65	88.68	86.38	-89.88	707.64	5,239.05	2,587.45	2,415.74	171.71	15.068	
12,000.00	6,947.00	11,823.74	6,941.66	90.15	87.91	-89.88	707.18	5,339.05	2,587.46	2,412.69	174.77	14.805	
12,100.00	6,947.00	11,923.74	6,941.68	91.62	89.44	-89.88	706.73	5,439.05	2,587.46	2,409.63	177.83	14.550	
12,200.00	6,947.00	12,023.74	6,941.69	93.10	90.97	-89.88	706.27	5,539.05	2,587.47	2,406.57	180.90	14.303	
12,300.00	6,947.00	12,123.74	6,941.71	94.59	92.51	-89.88	705.82	5,639.04	2,587.48	2,403.50	183.97	14.064	
12,400.00	6,947.00	12,223.74	6,941.72	96.07	94.05	-89.88	705.36	5,739.04	2,587.48	2,400.43	187.05	13.833	
12,500.00	6,947.00	12,323.74	6,941.74	97.56	95.59	-89.88	704.91	5,839.04	2,587.49	2,397.36	190.13	13.609	
12,600.00	6,947.00	12,423.74	6,941.75	99.06	97.13	-89.88	704.45	5,939.04	2,587.50	2,394.28	193.22	13.392	
12,700.00	6,947.00	12,523.74	6,941.77	100.56	98.67	-89.88	704.00	6,039.04	2,587.50	2,391.20	196.30	13.181	
12,800.00	6,947.00	12,623.74	6,941.78	102.06	100.22	-89.88	703.54	6,139.04	2,587.51	2,388.11	199.40	12.977	
12,900.00	6,947.00	12,723.74	6,941.80	103.56	101.76	-89.88	703.09	6,239.04	2,587.51	2,385.02	202.49	12.778	
13,000.00	6,947.00	12,823.74	6,941.81	105.07	103.31	-89.89	702.63	6,339.04	2,587.52	2,381.93	205.59	12.586	
13,100.00	6,947.00	12,923.74	6,941.83	106.58	104.86	-89.89	702.18	6,439.04	2,587.53	2,378.83	208.70	12.398	
13,200.00	6,947.00	13,023.74	6,941.84	108.10	106.42	-89.89	701.72	6,539.04	2,587.53	2,375.73	211.80	12.217	
13,300.00	6,947.00	13,123.74	6,941.86	109.61	107.97	-89.89	701.27	6,639.03	2,587.54	2,372.63	214.91	12.040	
13,400.00	6,947.00	13,223.74	6,941.87	111.13	109.53	-89.89	700.81	6,739.03	2,587.55	2,369.52	218.02	11.868	
13,500.00	6,947.00	13,323.74	6,941.88	112.65	111.08	-89.89	700.36	6,839.03	2,587.55	2,366.41	221.14	11.701	
13,600.00	6,947.00	13,423.74	6,941.90	114.17	112.64	-89.89	699.90	6,939.03	2,587.56	2,363.30	224.26	11.538	
13,700.00	6,947.00	13,523.74	6,941.91	115.70	114.20	-89.89	699.44	7,039.03	2,587.57	2,360.19	227.38	11.380	
13,800.00	6,947.00	13,623.74	6,941.93	117.23	115.76	-89.89	698.99	7,139.03	2,587.57	2,357.07	230.50	11.226	
13,900.00	6,947.00	13,723.74	6,941.94	118.76	117.32	-89.89	698.53	7,239.03	2,587.58	2,353.95	233.62	11.076	
14,000.00	6,947.00	13,823.74	6,941.96	120.29	118.88	-89.89	698.08	7,339.03	2,587.58	2,350.83	236.75	10.930	
14,100.00	6,947.00	13,923.74	6,941.97	121.82	120.45	-89.89	697.62	7,439.03	2,587.59	2,347.71	239.88	10.787	
14,200.00	6,947.00	14,023.74	6,941.99	123.36	122.01	-89.89	697.17	7,539.03	2,587.60	2,344.59	243.01	10.648	
14,300.00	6,947.00	14,123.74	6,942.00	124.89	123.58	-89.89	696.71	7,639.02	2,587.60	2,341.46	246.14	10.513	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 0-MWD+HRGM+MS

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,400.00	6,947.00	14,223.74	6,942.02	126.43	125.15	-89.89	696.26	7,739.02	2,587.61	2,338.33	249.28	10.380	
14,500.00	6,947.00	14,323.74	6,942.03	127.97	126.71	-89.89	695.80	7,839.02	2,587.62	2,335.20	252.41	10.251	
14,600.00	6,947.00	14,423.74	6,942.05	129.51	128.28	-89.89	695.35	7,939.02	2,587.62	2,332.07	255.55	10.126	
14,700.00	6,947.00	14,523.74	6,942.06	131.06	129.85	-89.89	694.89	8,039.02	2,587.63	2,328.94	258.69	10.003	
14,800.00	6,947.00	14,623.74	6,942.08	132.60	131.42	-89.89	694.44	8,139.02	2,587.63	2,325.80	261.83	9.883	
14,900.00	6,947.00	14,723.74	6,942.09	134.15	132.99	-89.89	693.98	8,239.02	2,587.64	2,322.66	264.98	9.765	
15,000.00	6,947.00	14,823.74	6,942.11	135.70	134.56	-89.89	693.53	8,339.02	2,587.65	2,319.52	268.12	9.651	
15,100.00	6,947.00	14,923.74	6,942.12	137.24	136.14	-89.89	693.07	8,439.02	2,587.65	2,316.38	271.27	9.539	
15,200.00	6,947.00	15,023.74	6,942.14	138.79	137.71	-89.89	692.62	8,539.01	2,587.66	2,313.24	274.42	9.430	
15,300.00	6,947.00	15,123.74	6,942.15	140.35	139.28	-89.89	692.16	8,639.01	2,587.67	2,310.10	277.57	9.323	
15,400.00	6,947.00	15,223.74	6,942.17	141.90	140.86	-89.89	691.71	8,739.01	2,587.67	2,306.96	280.72	9.218	
15,500.00	6,947.00	15,323.74	6,942.18	143.45	142.43	-89.89	691.25	8,839.01	2,587.68	2,303.81	283.87	9.116	
15,600.00	6,947.00	15,423.74	6,942.20	145.01	144.01	-89.89	690.80	8,939.01	2,587.69	2,300.66	287.02	9.016	
15,700.00	6,947.00	15,523.74	6,942.21	146.56	145.59	-89.89	690.34	9,039.01	2,587.69	2,297.52	290.17	8.918	
15,800.00	6,947.00	15,623.74	6,942.23	148.12	147.16	-89.89	689.89	9,139.01	2,587.70	2,294.37	293.33	8.822	
15,900.00	6,947.00	15,723.74	6,942.24	149.68	148.74	-89.89	689.43	9,239.01	2,587.70	2,291.22	296.49	8.728	
16,000.00	6,947.00	15,823.74	6,942.26	151.23	150.32	-89.89	688.98	9,339.01	2,587.71	2,288.07	299.64	8.636	
16,100.00	6,947.00	15,923.74	6,942.27	152.79	151.90	-89.90	688.52	9,439.01	2,587.72	2,284.91	302.80	8.546	
16,200.00	6,947.00	16,023.74	6,942.28	154.36	153.48	-89.90	688.07	9,539.00	2,587.72	2,281.76	305.96	8.458	
16,300.00	6,947.00	16,123.74	6,942.30	155.92	155.06	-89.90	687.61	9,639.00	2,587.73	2,278.61	309.12	8.371	
16,400.00	6,947.00	16,223.74	6,942.31	157.48	156.64	-89.90	687.16	9,739.00	2,587.74	2,275.45	312.28	8.286	
16,500.00	6,947.00	16,323.74	6,942.33	159.04	158.22	-89.90	686.70	9,839.00	2,587.74	2,272.30	315.45	8.203	
16,600.00	6,947.00	16,423.74	6,942.34	160.61	159.80	-89.90	686.24	9,939.00	2,587.75	2,269.14	318.61	8.122	
16,700.00	6,947.00	16,523.74	6,942.36	162.17	161.38	-89.90	685.79	10,039.00	2,587.76	2,265.98	321.77	8.042	
16,800.00	6,947.00	16,623.74	6,942.37	163.74	162.96	-89.90	685.33	10,139.00	2,587.76	2,262.82	324.94	7.964	
16,900.00	6,947.00	16,723.74	6,942.39	165.30	164.54	-89.90	684.88	10,239.00	2,587.77	2,259.66	328.10	7.887	
17,000.00	6,947.00	16,823.74	6,942.40	166.87	166.13	-89.90	684.42	10,339.00	2,587.77	2,256.50	331.27	7.812	
17,100.00	6,947.00	16,923.74	6,942.42	168.44	167.71	-89.90	683.97	10,439.00	2,587.78	2,253.34	334.44	7.738	
17,200.00	6,947.00	17,023.74	6,942.43	170.01	169.29	-89.90	683.51	10,538.99	2,587.79	2,250.18	337.61	7.665	
17,300.00	6,947.00	17,123.74	6,942.45	171.57	170.88	-89.90	683.06	10,638.99	2,587.79	2,247.02	340.78	7.594	
17,400.00	6,947.00	17,223.74	6,942.46	173.14	172.46	-89.90	682.60	10,738.99	2,587.80	2,243.85	343.95	7.524	
17,500.00	6,947.00	17,323.74	6,942.48	174.71	174.05	-89.90	682.15	10,838.99	2,587.81	2,240.69	347.12	7.455	
17,600.00	6,947.00	17,423.74	6,942.49	176.28	175.63	-89.90	681.69	10,938.99	2,587.81	2,237.53	350.29	7.388	
17,700.00	6,947.00	17,523.74	6,942.51	177.86	177.22	-89.90	681.24	11,038.99	2,587.82	2,234.36	353.46	7.321	
17,800.00	6,947.00	17,623.74	6,942.52	179.43	178.80	-89.90	680.78	11,138.99	2,587.82	2,231.19	356.63	7.256	
17,900.00	6,947.00	17,723.74	6,942.54	181.00	180.39	-89.90	680.33	11,238.99	2,587.83	2,228.03	359.80	7.192	
18,000.00	6,947.00	17,823.74	6,942.55	182.57	181.98	-89.90	679.87	11,338.99	2,587.84	2,224.86	362.98	7.129	
18,100.00	6,947.00	17,923.74	6,942.57	184.15	183.56	-89.90	679.42	11,438.98	2,587.84	2,221.69	366.15	7.068	
18,200.00	6,947.00	18,023.74	6,942.58	185.72	185.15	-89.90	678.96	11,538.98	2,587.85	2,218.52	369.33	7.007	
18,300.00	6,947.00	18,123.74	6,942.60	187.30	186.74	-89.90	678.51	11,638.98	2,587.86	2,215.36	372.50	6.947	
18,400.00	6,947.00	18,223.74	6,942.61	188.87	188.32	-89.90	678.05	11,738.98	2,587.86	2,212.19	375.68	6.889	
18,500.00	6,947.00	18,323.74	6,942.63	190.45	189.91	-89.90	677.60	11,838.98	2,587.87	2,209.02	378.85	6.831	
18,600.00	6,947.00	18,423.74	6,942.64	192.02	191.50	-89.90	677.14	11,938.98	2,587.88	2,205.85	382.03	6.774	
18,700.00	6,947.00	18,523.74	6,942.65	193.60	193.09	-89.90	676.69	12,038.98	2,587.88	2,202.67	385.21	6.718	
18,800.00	6,947.00	18,623.74	6,942.67	195.18	194.68	-89.90	676.23	12,138.98	2,587.89	2,199.50	388.38	6.663	
18,900.00	6,947.00	18,723.74	6,942.68	196.75	196.27	-89.90	675.78	12,238.98	2,587.89	2,196.33	391.56	6.609	
19,000.00	6,947.00	18,823.74	6,942.70	198.33	197.86	-89.90	675.32	12,338.98	2,587.90	2,193.16	394.74	6.556	
19,100.00	6,947.00	18,923.74	6,942.71	199.91	199.44	-89.91	674.87	12,438.97	2,587.91	2,189.99	397.92	6.504	
19,200.00	6,947.00	19,023.74	6,942.73	201.49	201.03	-89.91	674.41	12,538.97	2,587.91	2,186.81	401.10	6.452	
19,300.00	6,947.00	19,123.74	6,942.74	203.07	202.62	-89.91	673.96	12,638.97	2,587.92	2,183.64	404.28	6.401	
19,400.00	6,947.00	19,223.74	6,942.76	204.65	204.21	-89.91	673.50	12,738.97	2,587.93	2,180.46	407.46	6.351	
19,500.00	6,947.00	19,323.74	6,942.77	206.23	205.80	-89.91	673.04	12,838.97	2,587.93	2,177.29	410.64	6.302	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 0-MWD+HRGM+MS

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Rule Assigned: Minimum Separation (usft)	Separation Factor	Warning
19,600.00	6,947.00	19,423.74	6,942.79	207.81	207.39	-89.91	672.59	12,938.97	2,587.94	2,174.12	413.82	6.254	
19,700.00	6,947.00	19,523.74	6,942.80	209.39	208.98	-89.91	672.13	13,038.97	2,587.94	2,170.94	417.01	6.206	
19,800.00	6,947.00	19,623.74	6,942.82	210.97	210.58	-89.91	671.68	13,138.97	2,587.95	2,167.76	420.19	6.159	
19,900.00	6,947.00	19,723.74	6,942.83	212.55	212.17	-89.91	671.22	13,238.97	2,587.96	2,164.59	423.37	6.113	
20,000.00	6,947.00	19,823.74	6,942.85	214.13	213.76	-89.91	670.77	13,338.96	2,587.96	2,161.41	426.55	6.067	
20,100.00	6,947.00	19,923.74	6,942.86	215.71	215.35	-89.91	670.31	13,438.96	2,587.97	2,158.23	429.74	6.022	
20,200.00	6,947.00	20,023.74	6,942.88	217.30	216.94	-89.91	669.86	13,538.96	2,587.98	2,155.06	432.92	5.978	
20,300.00	6,947.00	20,123.74	6,942.89	218.88	218.53	-89.91	669.40	13,638.96	2,587.98	2,151.88	436.10	5.934	
20,400.00	6,947.00	20,223.74	6,942.91	220.46	220.12	-89.91	668.95	13,738.96	2,587.99	2,148.70	439.29	5.891	
20,500.00	6,947.00	20,323.74	6,942.92	222.04	221.72	-89.91	668.49	13,838.96	2,588.00	2,145.52	442.47	5.849	
20,600.00	6,947.00	20,423.74	6,942.94	223.63	223.31	-89.91	668.04	13,938.96	2,588.00	2,142.34	445.66	5.807	
20,700.00	6,947.00	20,523.74	6,942.95	225.21	224.90	-89.91	667.58	14,038.96	2,588.01	2,139.17	448.84	5.766	
20,800.00	6,947.00	20,623.74	6,942.97	226.80	226.49	-89.91	667.13	14,138.96	2,588.01	2,135.99	452.03	5.725	
20,900.00	6,947.00	20,723.74	6,942.98	228.38	228.09	-89.91	666.67	14,238.96	2,588.02	2,132.81	455.21	5.685	
21,000.00	6,947.00	20,823.74	6,943.00	229.97	229.68	-89.91	666.22	14,338.95	2,588.03	2,129.63	458.40	5.646	
21,032.01	6,947.00	20,855.75	6,943.00	230.47	230.19	-89.91	666.07	14,370.96	2,588.03	2,128.61	459.42	5.633	
21,032.99	6,947.00	20,855.77	6,943.00	230.51	230.19	-89.91	666.07	14,370.98	2,588.03	2,128.60	459.43	5.633	SF

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 0-MWD+HRGM+MS

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	144.91	-20.39	14.32	24.92				
100.00	100.00	100.00	100.00	0.25	0.25	144.91	-20.39	14.32	24.92	24.42	0.50	49.650	
200.00	200.00	200.00	200.00	0.61	0.61	144.91	-20.39	14.32	24.92	23.70	1.22	20.444	
300.00	300.00	300.00	300.00	0.97	0.97	144.91	-20.39	14.32	24.92	22.98	1.94	12.872	
400.00	400.00	400.00	400.00	1.33	1.33	144.91	-20.39	14.32	24.92	22.26	2.65	9.393	
500.00	500.00	500.00	500.00	1.68	1.68	144.91	-20.39	14.32	24.92	21.55	3.37	7.395	
600.00	599.98	599.14	599.12	2.03	2.03	-21.26	-21.84	15.24	25.01	20.96	4.05	6.175	
700.00	699.84	698.26	698.10	2.36	2.36	-24.70	-26.19	17.99	25.36	20.65	4.71	5.384	
800.00	799.45	797.37	796.83	2.71	2.70	-30.19	-33.43	22.56	26.13	20.75	5.38	4.857	
900.00	898.70	897.29	896.22	3.06	3.05	-38.70	-42.12	28.04	25.89	19.82	6.08	4.260	
1,000.00	997.47	997.06	995.47	3.43	3.42	-53.28	-50.79	33.52	24.00	17.19	6.81	3.527	
1,088.68	1,084.55	1,085.33	1,083.27	3.78	3.74	-74.05	-58.47	38.37	22.81	15.31	7.49	3.044	CC
1,100.00	1,095.62	1,096.58	1,094.45	3.82	3.78	-77.24	-59.45	38.99	22.84	15.25	7.58	3.012	ES
1,200.00	1,193.44	1,195.91	1,193.27	4.22	4.15	-103.24	-68.09	44.44	26.04	17.67	8.37	3.112	
1,300.00	1,291.25	1,295.25	1,292.08	4.64	4.52	-120.90	-76.73	49.90	33.14	24.03	9.11	3.638	
1,400.00	1,389.07	1,394.59	1,390.89	5.06	4.89	-131.71	-85.36	55.35	42.22	32.38	9.84	4.292	
1,500.00	1,486.88	1,493.93	1,489.70	5.48	5.26	-138.55	-94.00	60.80	52.25	41.69	10.56	4.946	
1,600.00	1,584.70	1,593.27	1,588.51	5.91	5.64	-143.15	-102.64	66.26	62.79	51.49	11.30	5.559	
1,700.00	1,682.51	1,692.60	1,687.32	6.35	6.01	-146.42	-111.28	71.71	73.61	61.58	12.03	6.119	
1,800.00	1,780.33	1,791.94	1,786.13	6.78	6.39	-148.85	-119.92	77.17	84.61	71.84	12.77	6.627	
1,900.00	1,878.14	1,891.28	1,884.94	7.22	6.77	-150.71	-128.56	82.62	95.72	82.21	13.51	7.086	
2,000.00	1,975.96	1,990.62	1,983.76	7.66	7.14	-152.19	-137.20	88.08	106.91	92.66	14.25	7.502	
2,100.00	2,073.77	2,089.96	2,082.57	8.10	7.52	-153.38	-145.84	93.53	118.16	103.16	14.99	7.880	
2,200.00	2,171.59	2,189.29	2,181.38	8.54	7.90	-154.37	-154.48	98.99	129.45	113.71	15.74	8.224	
2,300.00	2,269.40	2,288.63	2,280.19	8.98	8.28	-155.20	-163.12	104.44	140.77	124.28	16.49	8.539	
2,400.00	2,367.22	2,387.97	2,379.00	9.43	8.66	-155.91	-171.76	109.90	152.12	134.88	17.23	8.826	
2,500.00	2,465.03	2,487.31	2,477.81	9.87	9.04	-156.51	-180.40	115.35	163.48	145.50	17.98	9.091	
2,600.00	2,562.84	2,586.65	2,576.62	10.32	9.42	-157.04	-189.03	120.81	174.86	156.13	18.73	9.335	
2,700.00	2,660.66	2,685.98	2,675.43	10.77	9.80	-157.51	-197.67	126.26	186.26	166.78	19.48	9.560	
2,800.00	2,758.47	2,785.32	2,774.25	11.21	10.18	-157.92	-206.31	131.72	197.66	177.43	20.23	9.769	
2,900.00	2,856.29	2,884.66	2,873.06	11.66	10.56	-158.28	-214.95	137.17	209.08	188.09	20.98	9.963	
3,000.00	2,954.10	2,984.00	2,971.87	12.11	10.94	-158.61	-223.59	142.63	220.50	198.76	21.74	10.144	
3,100.00	3,051.92	3,083.34	3,070.68	12.56	11.32	-158.90	-232.23	148.08	231.93	209.44	22.49	10.313	
3,200.00	3,149.73	3,182.67	3,169.49	13.01	11.70	-159.17	-240.87	153.53	243.36	220.12	23.24	10.471	
3,300.00	3,247.55	3,282.01	3,268.30	13.45	12.08	-159.42	-249.51	158.99	254.80	230.81	23.99	10.619	
3,400.00	3,345.36	3,381.35	3,367.11	13.90	12.46	-159.64	-258.15	164.44	266.25	241.50	24.75	10.759	
3,500.00	3,443.18	3,480.69	3,465.92	14.35	12.84	-159.84	-266.79	169.90	277.69	252.19	25.50	10.890	
3,600.00	3,540.99	3,580.03	3,564.74	14.80	13.22	-160.03	-275.43	175.35	289.14	262.89	26.25	11.013	
3,700.00	3,638.81	3,679.36	3,663.55	15.25	13.60	-160.21	-284.06	180.81	300.59	273.59	27.01	11.130	
3,800.00	3,736.62	3,778.70	3,762.36	15.70	13.98	-160.37	-292.70	186.26	312.05	284.29	27.76	11.240	
3,900.00	3,834.44	3,878.04	3,861.17	16.15	14.36	-160.52	-301.34	191.72	323.51	294.99	28.52	11.344	
4,000.00	3,932.25	3,977.38	3,959.98	16.60	14.75	-160.66	-309.98	197.17	334.97	305.70	29.27	11.444	
4,100.00	4,030.07	4,076.72	4,058.79	17.05	15.13	-160.79	-318.62	202.63	346.43	316.40	30.03	11.538	
4,200.00	4,127.88	4,176.05	4,157.60	17.50	15.51	-160.91	-327.26	208.08	357.89	327.11	30.78	11.627	
4,300.00	4,225.70	4,275.39	4,256.41	17.96	15.89	-161.02	-335.90	213.54	369.36	337.82	31.54	11.712	
4,400.00	4,323.51	4,374.73	4,355.23	18.41	16.27	-161.13	-344.54	218.99	380.82	348.53	32.29	11.793	
4,500.00	4,421.33	4,474.07	4,454.04	18.86	16.65	-161.23	-353.18	224.45	392.29	359.24	33.05	11.871	
4,600.00	4,519.14	4,573.41	4,552.85	19.31	17.03	-161.33	-361.82	229.90	403.76	369.96	33.80	11.945	
4,700.00	4,616.95	4,672.74	4,651.66	19.76	17.42	-161.42	-370.46	235.35	415.23	380.67	34.56	12.016	
4,800.00	4,714.77	4,772.08	4,750.47	20.21	17.80	-161.50	-379.10	240.81	426.70	391.38	35.31	12.083	
4,900.00	4,812.58	4,871.42	4,849.28	20.66	18.18	-161.58	-387.73	246.26	438.17	402.10	36.07	12.148	
5,000.00	4,910.40	4,970.76	4,948.09	21.11	18.56	-161.66	-396.37	251.72	449.64	412.82	36.82	12.210	

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

SDT

Anticollision Report

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Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 0-MWD+HRGM+MS

Offset Well Error: 0.00 usft

Rule Assigned:

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,100.00	5,008.21	5,070.10	5,046.90	21.57	18.94	-161.73	-405.01	257.17	461.11	423.53	37.58	12.270	
5,200.00	5,106.03	5,169.44	5,145.72	22.02	19.32	-161.80	-413.65	262.63	472.59	434.25	38.34	12.328	
5,300.00	5,203.84	5,268.77	5,244.53	22.47	19.71	-161.87	-422.29	268.08	484.06	444.97	39.09	12.383	
5,400.00	5,301.66	5,368.11	5,343.34	22.92	20.09	-161.93	-430.93	273.54	495.53	455.69	39.85	12.436	
5,500.00	5,399.47	5,467.45	5,442.15	23.37	20.47	-161.99	-439.57	278.99	507.01	466.41	40.60	12.487	
5,600.00	5,497.29	5,566.79	5,540.96	23.82	20.85	-162.05	-448.21	284.45	518.48	477.12	41.36	12.536	
5,700.00	5,595.10	5,666.13	5,639.77	24.28	21.23	-162.10	-456.85	289.90	529.96	487.84	42.12	12.583	
5,800.00	5,692.92	5,765.46	5,738.58	24.73	21.61	-162.16	-465.49	295.36	541.44	498.56	42.87	12.629	
5,900.00	5,790.73	5,864.80	5,837.39	25.18	22.00	-162.21	-474.13	300.81	552.91	509.29	43.63	12.673	
6,000.00	5,888.55	5,964.14	5,936.20	25.63	22.38	-162.25	-482.77	306.27	564.39	520.01	44.39	12.716	
6,100.00	5,986.36	6,063.48	6,035.02	26.08	22.76	-162.30	-491.40	311.72	575.87	530.73	45.14	12.757	
6,200.00	6,084.18	6,162.82	6,133.83	26.54	23.14	-162.35	-500.04	317.18	587.35	541.45	45.90	12.797	
6,300.00	6,181.99	6,262.15	6,232.64	26.99	23.52	-162.39	-508.68	322.63	598.83	552.17	46.66	12.835	
6,400.00	6,279.81	6,361.49	6,331.45	27.44	23.91	-162.43	-517.32	328.08	610.31	562.89	47.41	12.872	
6,500.00	6,377.62	6,457.24	6,426.19	27.89	24.28	-161.99	-525.62	338.51	622.02	573.84	48.18	12.911	
6,530.62	6,407.57	6,485.87	6,454.11	28.03	24.40	-161.61	-528.08	344.34	625.77	577.35	48.42	12.923	
6,550.00	6,426.48	6,503.80	6,471.45	28.12	24.47	-155.65	-529.61	348.63	628.32	579.74	48.58	12.933	
6,600.00	6,474.77	6,550.00	6,515.51	28.36	24.67	-144.25	-533.50	361.93	636.19	587.20	49.00	12.984	
6,650.00	6,522.09	6,594.35	6,556.79	28.62	24.86	-136.45	-537.16	377.68	645.90	596.49	49.40	13.074	
6,700.00	6,568.15	6,638.37	6,596.59	28.89	25.05	-130.62	-540.70	396.13	657.34	607.53	49.82	13.195	
6,750.00	6,612.66	6,681.57	6,634.33	29.18	25.23	-125.94	-544.07	416.88	670.45	620.22	50.23	13.349	
6,800.00	6,655.36	6,723.98	6,669.92	29.48	25.42	-121.96	-547.26	439.70	685.10	634.47	50.63	13.532	
6,850.00	6,695.98	6,765.62	6,703.32	29.79	25.61	-118.43	-550.27	464.38	701.18	650.15	51.03	13.741	
6,900.00	6,734.26	6,806.55	6,734.51	30.11	25.80	-115.19	-553.09	490.71	718.55	667.13	51.43	13.973	
6,950.00	6,769.98	6,850.00	6,765.71	30.45	26.00	-112.16	-555.92	520.81	737.11	685.24	51.87	14.211	
7,000.00	6,802.91	6,886.48	6,790.27	30.79	26.18	-109.32	-558.17	547.69	756.67	704.46	52.22	14.491	
7,050.00	6,832.85	6,925.61	6,814.86	31.15	26.37	-106.60	-560.43	578.03	777.14	724.52	52.62	14.769	
7,100.00	6,859.62	6,964.28	6,837.30	31.51	26.57	-103.98	-562.50	609.45	798.35	745.33	53.03	15.056	
7,150.00	6,883.05	7,000.00	6,856.30	31.89	26.76	-101.46	-564.27	639.64	820.18	766.78	53.40	15.360	
7,200.00	6,902.99	7,040.56	6,875.79	32.28	26.98	-99.06	-566.10	675.15	842.48	788.60	53.87	15.638	
7,250.00	6,919.32	7,078.33	6,891.87	32.67	27.19	-96.76	-567.64	709.29	865.12	810.80	54.32	15.926	
7,300.00	6,931.95	7,115.98	6,905.88	33.08	27.41	-94.57	-568.99	744.20	887.97	833.19	54.78	16.209	
7,350.00	6,940.79	7,153.59	6,917.79	33.49	27.64	-92.50	-570.16	779.85	910.91	855.65	55.26	16.483	
7,400.00	6,945.79	7,191.27	6,927.60	33.90	27.88	-90.55	-571.15	816.22	933.81	878.05	55.76	16.746	
7,439.53	6,947.00	7,221.18	6,933.85	34.24	28.07	-89.11	-571.81	845.45	951.82	895.65	56.17	16.945	
7,500.00	6,947.00	7,267.67	6,940.83	34.75	28.38	-89.60	-572.59	891.40	978.92	922.11	56.82	17.229	
7,600.00	6,947.00	7,347.29	6,945.00	35.63	28.93	-89.88	-573.25	970.86	1,022.12	964.20	57.93	17.646	
7,700.00	6,947.00	7,438.72	6,945.00	36.54	29.61	-89.88	-573.60	1,062.29	1,062.60	1,003.28	59.31	17.915	
7,800.00	6,947.00	7,531.52	6,945.00	37.47	30.35	-89.89	-573.94	1,155.09	1,099.85	1,039.03	60.83	18.082	
7,900.00	6,947.00	7,625.56	6,945.00	38.43	31.16	-89.89	-574.30	1,249.12	1,133.85	1,071.38	62.47	18.151	
8,000.00	6,947.00	7,720.73	6,945.00	39.41	32.03	-89.90	-574.65	1,344.29	1,164.54	1,100.32	64.23	18.131	
8,100.00	6,947.00	7,816.91	6,945.00	40.40	32.95	-89.90	-575.02	1,440.47	1,191.90	1,125.79	66.10	18.031	
8,200.00	6,947.00	7,913.98	6,945.00	41.42	33.94	-89.90	-575.38	1,537.55	1,215.88	1,147.79	68.09	17.858	
8,300.00	6,947.00	8,011.84	6,945.00	42.44	34.97	-89.91	-575.75	1,635.40	1,236.46	1,166.29	70.17	17.621	
8,400.00	6,947.00	8,110.35	6,945.00	43.48	36.05	-89.91	-576.12	1,733.91	1,253.61	1,181.27	72.34	17.329	
8,500.00	6,947.00	8,209.40	6,945.00	44.53	37.17	-89.91	-576.49	1,832.97	1,267.31	1,192.71	74.59	16.989	
8,600.00	6,947.00	8,308.87	6,945.00	45.58	38.33	-89.91	-576.86	1,932.43	1,277.54	1,200.62	76.92	16.608	
8,700.00	6,947.00	8,408.64	6,945.00	46.63	39.53	-89.91	-577.24	2,032.20	1,284.30	1,204.99	79.31	16.192	
8,800.00	6,947.00	8,508.58	6,945.00	47.69	40.75	-89.91	-577.61	2,132.14	1,287.57	1,205.81	81.77	15.747	
8,841.31	6,947.00	8,549.89	6,945.00	48.13	41.27	-89.91	-577.77	2,173.45	1,287.91	1,205.11	82.79	15.556	
8,900.00	6,947.00	8,608.58	6,945.00	48.76	42.00	-89.91	-577.99	2,232.14	1,287.96	1,203.69	84.26	15.285	
9,000.00	6,947.00	8,708.58	6,945.00	49.85	43.28	-89.91	-578.36	2,332.14	1,288.04	1,201.23	86.81	14.837	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 0-MWD+HRGM+MS

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,100.00	6,947.00	8,808.58	6,945.00	50.97	44.57	-89.91	-578.74	2,432.14	1,288.13	1,198.73	89.40	14.409	
9,200.00	6,947.00	8,908.58	6,945.00	52.12	45.89	-89.91	-579.11	2,532.14	1,288.22	1,196.19	92.03	13.998	
9,300.00	6,947.00	9,008.58	6,945.00	53.28	47.22	-89.91	-579.49	2,632.14	1,288.30	1,193.61	94.69	13.605	
9,400.00	6,947.00	9,108.58	6,945.00	54.48	48.57	-89.91	-579.87	2,732.13	1,288.39	1,191.00	97.39	13.229	
9,500.00	6,947.00	9,208.58	6,945.00	55.69	49.94	-89.91	-580.24	2,832.13	1,288.47	1,188.36	100.11	12.870	
9,600.00	6,947.00	9,308.58	6,945.00	56.92	51.32	-89.91	-580.62	2,932.13	1,288.56	1,185.69	102.87	12.526	
9,700.00	6,947.00	9,408.58	6,945.00	58.17	52.71	-89.91	-580.99	3,032.13	1,288.65	1,183.00	105.65	12.197	
9,800.00	6,947.00	9,508.58	6,945.00	59.44	54.11	-89.91	-581.37	3,132.13	1,288.73	1,180.28	108.45	11.883	
9,900.00	6,947.00	9,608.58	6,945.00	60.73	55.52	-89.91	-581.74	3,232.13	1,288.82	1,177.54	111.28	11.582	
10,000.00	6,947.00	9,708.58	6,945.00	62.03	56.95	-89.91	-582.12	3,332.13	1,288.90	1,174.78	114.12	11.294	
10,100.00	6,947.00	9,808.58	6,945.00	63.34	58.38	-89.91	-582.49	3,432.13	1,288.99	1,172.00	116.99	11.018	
10,200.00	6,947.00	9,908.58	6,945.00	64.67	59.82	-89.91	-582.87	3,532.13	1,289.08	1,169.21	119.87	10.754	
10,300.00	6,947.00	10,008.58	6,945.00	66.01	61.27	-89.91	-583.24	3,632.13	1,289.16	1,166.40	122.77	10.501	
10,400.00	6,947.00	10,108.58	6,945.00	67.36	62.73	-89.91	-583.62	3,732.13	1,289.25	1,163.57	125.68	10.258	
10,500.00	6,947.00	10,208.58	6,945.00	68.73	64.20	-89.91	-584.00	3,832.13	1,289.33	1,160.73	128.61	10.025	
10,600.00	6,947.00	10,308.58	6,945.00	70.10	65.67	-89.91	-584.37	3,932.13	1,289.42	1,157.88	131.55	9.802	
10,700.00	6,947.00	10,408.58	6,945.00	71.48	67.14	-89.91	-584.75	4,032.13	1,289.51	1,155.01	134.50	9.588	
10,800.00	6,947.00	10,508.58	6,945.00	72.88	68.63	-89.91	-585.12	4,132.12	1,289.59	1,152.13	137.46	9.382	
10,900.00	6,947.00	10,608.58	6,945.00	74.28	70.12	-89.91	-585.50	4,232.12	1,289.68	1,149.24	140.44	9.183	
11,000.00	6,947.00	10,708.58	6,945.00	75.69	71.61	-89.91	-585.87	4,332.12	1,289.77	1,146.35	143.42	8.993	
11,100.00	6,947.00	10,808.58	6,945.00	77.10	73.11	-89.91	-586.25	4,432.12	1,289.85	1,143.44	146.41	8.810	
11,200.00	6,947.00	10,908.58	6,945.00	78.53	74.61	-89.91	-586.62	4,532.12	1,289.94	1,140.52	149.42	8.633	
11,300.00	6,947.00	11,008.58	6,945.00	79.96	76.12	-89.91	-587.00	4,632.12	1,290.02	1,137.60	152.43	8.463	
11,400.00	6,947.00	11,108.58	6,945.00	81.40	77.63	-89.91	-587.37	4,732.12	1,290.11	1,134.66	155.45	8.299	
11,500.00	6,947.00	11,208.58	6,945.00	82.84	79.14	-89.91	-587.75	4,832.12	1,290.20	1,131.72	158.47	8.141	
11,600.00	6,947.00	11,308.58	6,945.00	84.29	80.66	-89.91	-588.13	4,932.12	1,290.28	1,128.78	161.50	7.989	
11,700.00	6,947.00	11,408.58	6,945.00	85.75	82.18	-89.91	-588.50	5,032.12	1,290.37	1,125.82	164.54	7.842	
11,800.00	6,947.00	11,508.58	6,945.00	87.21	83.70	-89.91	-588.88	5,132.12	1,290.45	1,122.86	167.59	7.700	
11,900.00	6,947.00	11,608.58	6,945.00	88.68	85.23	-89.91	-589.25	5,232.12	1,290.54	1,119.90	170.64	7.563	
12,000.00	6,947.00	11,708.58	6,945.00	90.15	86.76	-89.91	-589.63	5,332.12	1,290.63	1,116.93	173.70	7.430	
12,100.00	6,947.00	11,808.58	6,945.00	91.62	88.29	-89.91	-590.00	5,432.12	1,290.71	1,113.95	176.76	7.302	
12,200.00	6,947.00	11,908.58	6,945.00	93.10	89.83	-89.91	-590.38	5,532.11	1,290.80	1,110.97	179.83	7.178	
12,300.00	6,947.00	12,008.58	6,945.00	94.59	91.36	-89.91	-590.75	5,632.11	1,290.88	1,107.98	182.90	7.058	
12,400.00	6,947.00	12,108.58	6,945.00	96.07	92.90	-89.91	-591.13	5,732.11	1,290.97	1,104.99	185.98	6.941	
12,500.00	6,947.00	12,208.58	6,945.00	97.56	94.44	-89.91	-591.51	5,832.11	1,291.06	1,101.99	189.06	6.829	
12,600.00	6,947.00	12,308.58	6,945.00	99.06	95.99	-89.91	-591.88	5,932.11	1,291.14	1,098.99	192.15	6.720	
12,700.00	6,947.00	12,408.58	6,945.00	100.56	97.53	-89.91	-592.26	6,032.11	1,291.23	1,095.99	195.24	6.614	
12,800.00	6,947.00	12,508.58	6,945.00	102.06	99.08	-89.91	-592.63	6,132.11	1,291.31	1,092.98	198.33	6.511	
12,900.00	6,947.00	12,608.58	6,945.00	103.56	100.63	-89.91	-593.01	6,232.11	1,291.40	1,089.97	201.43	6.411	
13,000.00	6,947.00	12,708.58	6,945.00	105.07	102.18	-89.91	-593.38	6,332.11	1,291.49	1,086.96	204.53	6.315	
13,100.00	6,947.00	12,808.58	6,945.00	106.58	103.73	-89.91	-593.76	6,432.11	1,291.57	1,083.94	207.63	6.221	
13,200.00	6,947.00	12,908.58	6,945.00	108.10	105.29	-89.91	-594.13	6,532.11	1,291.66	1,080.92	210.74	6.129	
13,300.00	6,947.00	13,008.58	6,945.00	109.61	106.84	-89.91	-594.51	6,632.11	1,291.74	1,077.90	213.85	6.041	
13,400.00	6,947.00	13,108.58	6,945.00	111.13	108.40	-89.91	-594.88	6,732.11	1,291.83	1,074.87	216.96	5.954	
13,500.00	6,947.00	13,208.58	6,945.00	112.65	109.96	-89.91	-595.26	6,832.10	1,291.92	1,071.84	220.07	5.870	
13,600.00	6,947.00	13,308.58	6,945.00	114.17	111.51	-89.91	-595.64	6,932.10	1,292.00	1,068.81	223.19	5.789	
13,700.00	6,947.00	13,408.58	6,945.00	115.70	113.08	-89.91	-596.01	7,032.10	1,292.09	1,065.78	226.31	5.709	
13,800.00	6,947.00	13,508.58	6,945.00	117.23	114.64	-89.91	-596.39	7,132.10	1,292.17	1,062.74	229.43	5.632	
13,900.00	6,947.00	13,608.58	6,945.00	118.76	116.20	-89.91	-596.76	7,232.10	1,292.26	1,059.70	232.56	5.557	
14,000.00	6,947.00	13,708.58	6,945.00	120.29	117.76	-89.91	-597.14	7,332.10	1,292.35	1,056.66	235.69	5.483	
14,100.00	6,947.00	13,808.58	6,945.00	121.82	119.33	-89.91	-597.51	7,432.10	1,292.43	1,053.62	238.82	5.412	
14,200.00	6,947.00	13,908.58	6,945.00	123.36	120.90	-89.91	-597.89	7,532.10	1,292.52	1,050.57	241.95	5.342	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 0-MWD+HRGM+MS

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,300.00	6,947.00	14,008.58	6,945.00	124.89	122.46	-89.91	-598.26	7,632.10	1,292.60	1,047.52	245.08	5.274	
14,400.00	6,947.00	14,108.58	6,945.00	126.43	124.03	-89.91	-598.64	7,732.10	1,292.69	1,044.47	248.22	5.208	
14,500.00	6,947.00	14,208.58	6,945.00	127.97	125.60	-89.91	-599.01	7,832.10	1,292.78	1,041.42	251.35	5.143	
14,600.00	6,947.00	14,308.58	6,945.00	129.51	127.17	-89.91	-599.39	7,932.10	1,292.86	1,038.37	254.49	5.080	
14,700.00	6,947.00	14,408.58	6,945.00	131.06	128.74	-89.91	-599.77	8,032.10	1,292.95	1,035.32	257.63	5.019	
14,800.00	6,947.00	14,508.58	6,945.00	132.60	130.31	-89.91	-600.14	8,132.10	1,293.03	1,032.26	260.77	4.958	
14,900.00	6,947.00	14,608.58	6,945.00	134.15	131.88	-89.91	-600.52	8,232.09	1,293.12	1,029.20	263.92	4.900	
15,000.00	6,947.00	14,708.58	6,945.00	135.70	133.46	-89.91	-600.89	8,332.09	1,293.21	1,026.14	267.06	4.842	
15,100.00	6,947.00	14,808.58	6,945.00	137.24	135.03	-89.91	-601.27	8,432.09	1,293.29	1,023.08	270.21	4.786	
15,200.00	6,947.00	14,908.58	6,945.00	138.79	136.60	-89.91	-601.64	8,532.09	1,293.38	1,020.02	273.36	4.731	
15,300.00	6,947.00	15,008.58	6,945.00	140.35	138.18	-89.91	-602.02	8,632.09	1,293.47	1,016.96	276.51	4.678	
15,400.00	6,947.00	15,108.58	6,945.00	141.90	139.75	-89.91	-602.39	8,732.09	1,293.55	1,013.89	279.66	4.625	
15,500.00	6,947.00	15,208.58	6,945.00	143.45	141.33	-89.91	-602.77	8,832.09	1,293.64	1,010.83	282.81	4.574	
15,600.00	6,947.00	15,308.58	6,945.00	145.01	142.91	-89.91	-603.14	8,932.09	1,293.72	1,007.76	285.96	4.524	
15,700.00	6,947.00	15,408.58	6,945.00	146.56	144.49	-89.91	-603.52	9,032.09	1,293.81	1,004.69	289.12	4.475	
15,800.00	6,947.00	15,508.58	6,945.00	148.12	146.06	-89.91	-603.90	9,132.09	1,293.90	1,001.62	292.27	4.427	
15,900.00	6,947.00	15,608.58	6,945.00	149.68	147.64	-89.91	-604.27	9,232.09	1,293.98	998.55	295.43	4.380	
16,000.00	6,947.00	15,708.58	6,945.00	151.23	149.22	-89.91	-604.65	9,332.09	1,294.07	995.48	298.59	4.334	
16,100.00	6,947.00	15,808.58	6,945.00	152.79	150.80	-89.91	-605.02	9,432.09	1,294.15	992.41	301.75	4.289	
16,200.00	6,947.00	15,908.58	6,945.00	154.36	152.38	-89.91	-605.40	9,532.08	1,294.24	989.33	304.91	4.245	
16,300.00	6,947.00	16,008.58	6,945.00	155.92	153.96	-89.91	-605.77	9,632.08	1,294.33	986.26	308.07	4.201	
16,400.00	6,947.00	16,108.58	6,945.00	157.48	155.54	-89.91	-606.15	9,732.08	1,294.41	983.18	311.23	4.159	
16,500.00	6,947.00	16,208.58	6,945.00	159.04	157.12	-89.91	-606.52	9,832.08	1,294.50	980.11	314.39	4.117	
16,600.00	6,947.00	16,308.58	6,945.00	160.61	158.71	-89.91	-606.90	9,932.08	1,294.58	977.03	317.55	4.077	
16,700.00	6,947.00	16,408.58	6,945.00	162.17	160.29	-89.91	-607.28	10,032.08	1,294.67	973.95	320.72	4.037	
16,800.00	6,947.00	16,508.58	6,945.00	163.74	161.87	-89.91	-607.65	10,132.08	1,294.76	970.87	323.88	3.998	
16,900.00	6,947.00	16,608.58	6,945.00	165.30	163.46	-89.91	-608.03	10,232.08	1,294.84	967.79	327.05	3.959	
17,000.00	6,947.00	16,708.58	6,945.00	166.87	165.04	-89.91	-608.40	10,332.08	1,294.93	964.71	330.22	3.921	
17,100.00	6,947.00	16,808.58	6,945.00	168.44	166.62	-89.91	-608.78	10,432.08	1,295.01	961.63	333.38	3.884	
17,200.00	6,947.00	16,908.58	6,945.00	170.01	168.21	-89.91	-609.15	10,532.08	1,295.10	958.55	336.55	3.848	
17,300.00	6,947.00	17,008.58	6,945.00	171.57	169.79	-89.91	-609.53	10,632.08	1,295.19	955.46	339.72	3.812	
17,400.00	6,947.00	17,108.58	6,945.00	173.14	171.38	-89.91	-609.90	10,732.08	1,295.27	952.38	342.89	3.777	
17,500.00	6,947.00	17,208.58	6,945.00	174.71	172.96	-89.91	-610.28	10,832.08	1,295.36	949.30	346.06	3.743	
17,600.00	6,947.00	17,308.58	6,945.00	176.28	174.55	-89.91	-610.65	10,932.07	1,295.44	946.21	349.23	3.709	
17,700.00	6,947.00	17,408.58	6,945.00	177.86	176.13	-89.91	-611.03	11,032.07	1,295.53	943.12	352.41	3.676	
17,800.00	6,947.00	17,508.58	6,945.00	179.43	177.72	-89.91	-611.41	11,132.07	1,295.62	940.04	355.58	3.644	
17,900.00	6,947.00	17,608.58	6,945.00	181.00	179.31	-89.91	-611.78	11,232.07	1,295.70	936.95	358.75	3.612	
18,000.00	6,947.00	17,708.58	6,945.00	182.57	180.89	-89.91	-612.16	11,332.07	1,295.79	933.86	361.92	3.580	
18,100.00	6,947.00	17,808.58	6,945.00	184.15	182.48	-89.91	-612.53	11,432.07	1,295.87	930.78	365.10	3.549	
18,200.00	6,947.00	17,908.58	6,945.00	185.72	184.07	-89.91	-612.91	11,532.07	1,295.96	927.69	368.27	3.519	
18,300.00	6,947.00	18,008.57	6,945.00	187.30	185.66	-89.91	-613.28	11,632.07	1,296.05	924.60	371.45	3.489	
18,400.00	6,947.00	18,108.57	6,945.00	188.87	187.25	-89.91	-613.66	11,732.07	1,296.13	921.51	374.63	3.460	
18,500.00	6,947.00	18,208.57	6,945.00	190.45	188.83	-89.91	-614.03	11,832.07	1,296.22	918.42	377.80	3.431	
18,600.00	6,947.00	18,308.57	6,945.00	192.02	190.42	-89.91	-614.41	11,932.07	1,296.30	915.33	380.98	3.403	
18,700.00	6,947.00	18,408.57	6,945.00	193.60	192.01	-89.91	-614.78	12,032.07	1,296.39	912.23	384.16	3.375	
18,800.00	6,947.00	18,508.57	6,945.00	195.18	193.60	-89.91	-615.16	12,132.07	1,296.48	909.14	387.33	3.347	
18,900.00	6,947.00	18,608.57	6,945.00	196.75	195.19	-89.91	-615.54	12,232.06	1,296.56	906.05	390.51	3.320	
19,000.00	6,947.00	18,708.57	6,945.00	198.33	196.78	-89.91	-615.91	12,332.06	1,296.65	902.96	393.69	3.294	
19,100.00	6,947.00	18,808.57	6,945.00	199.91	198.37	-89.91	-616.29	12,432.06	1,296.74	899.86	396.87	3.267	
19,200.00	6,947.00	18,908.57	6,945.00	201.49	199.96	-89.91	-616.66	12,532.06	1,296.82	896.77	400.05	3.242	
19,300.00	6,947.00	19,008.57	6,945.00	203.07	201.55	-89.91	-617.04	12,632.06	1,296.91	893.68	403.23	3.216	
19,400.00	6,947.00	19,108.57	6,945.00	204.65	203.14	-89.91	-617.41	12,732.06	1,296.99	890.58	406.41	3.191	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 0-MWD+HRGM+MS

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
19,500.00	6,947.00	19,208.57	6,945.00	206.23	204.73	-89.91	-617.79	12,832.06	1,297.08	887.49	409.59	3.167	
19,600.00	6,947.00	19,308.57	6,945.00	207.81	206.32	-89.91	-618.16	12,932.06	1,297.17	884.39	412.77	3.143	
19,700.00	6,947.00	19,408.57	6,945.00	209.39	207.91	-89.91	-618.54	13,032.06	1,297.25	881.29	415.96	3.119	
19,800.00	6,947.00	19,508.57	6,945.00	210.97	209.50	-89.91	-618.92	13,132.06	1,297.34	878.20	419.14	3.095	
19,900.00	6,947.00	19,608.57	6,945.00	212.55	211.10	-89.91	-619.29	13,232.06	1,297.42	875.10	422.32	3.072	
20,000.00	6,947.00	19,708.57	6,945.00	214.13	212.69	-89.91	-619.67	13,332.06	1,297.51	872.00	425.50	3.049	
20,100.00	6,947.00	19,808.57	6,945.00	215.71	214.28	-89.91	-620.04	13,432.06	1,297.60	868.91	428.69	3.027	
20,200.00	6,947.00	19,908.57	6,945.00	217.30	215.87	-89.91	-620.42	13,532.06	1,297.68	865.81	431.87	3.005	
20,300.00	6,947.00	20,008.57	6,945.00	218.88	217.46	-89.91	-620.79	13,632.05	1,297.77	862.71	435.06	2.983	
20,400.00	6,947.00	20,108.57	6,945.00	220.46	219.06	-89.91	-621.17	13,732.05	1,297.85	859.61	438.24	2.962	
20,500.00	6,947.00	20,208.57	6,945.00	222.04	220.65	-89.91	-621.54	13,832.05	1,297.94	856.51	441.43	2.940	
20,600.00	6,947.00	20,308.57	6,945.00	223.63	222.24	-89.91	-621.92	13,932.05	1,298.03	853.42	444.61	2.919	
20,700.00	6,947.00	20,408.57	6,945.00	225.21	223.83	-89.91	-622.29	14,032.05	1,298.11	850.32	447.80	2.899	
20,800.00	6,947.00	20,508.57	6,945.00	226.80	225.43	-89.91	-622.67	14,132.05	1,298.20	847.22	450.98	2.879	
20,900.00	6,947.00	20,608.57	6,945.00	228.38	227.02	-89.91	-623.05	14,232.05	1,298.28	844.12	454.17	2.859	
21,000.00	6,947.00	20,708.57	6,945.00	229.97	228.61	-89.91	-623.42	14,332.05	1,298.37	841.02	457.35	2.839	
21,032.01	6,947.00	20,740.58	6,945.00	230.47	229.12	-89.91	-623.54	14,364.06	1,298.40	840.02	458.37	2.833	
21,032.99	6,947.00	20,741.48	6,945.00	230.51	229.14	-89.91	-623.54	14,364.95	1,298.40	840.00	458.40	2.832	SF

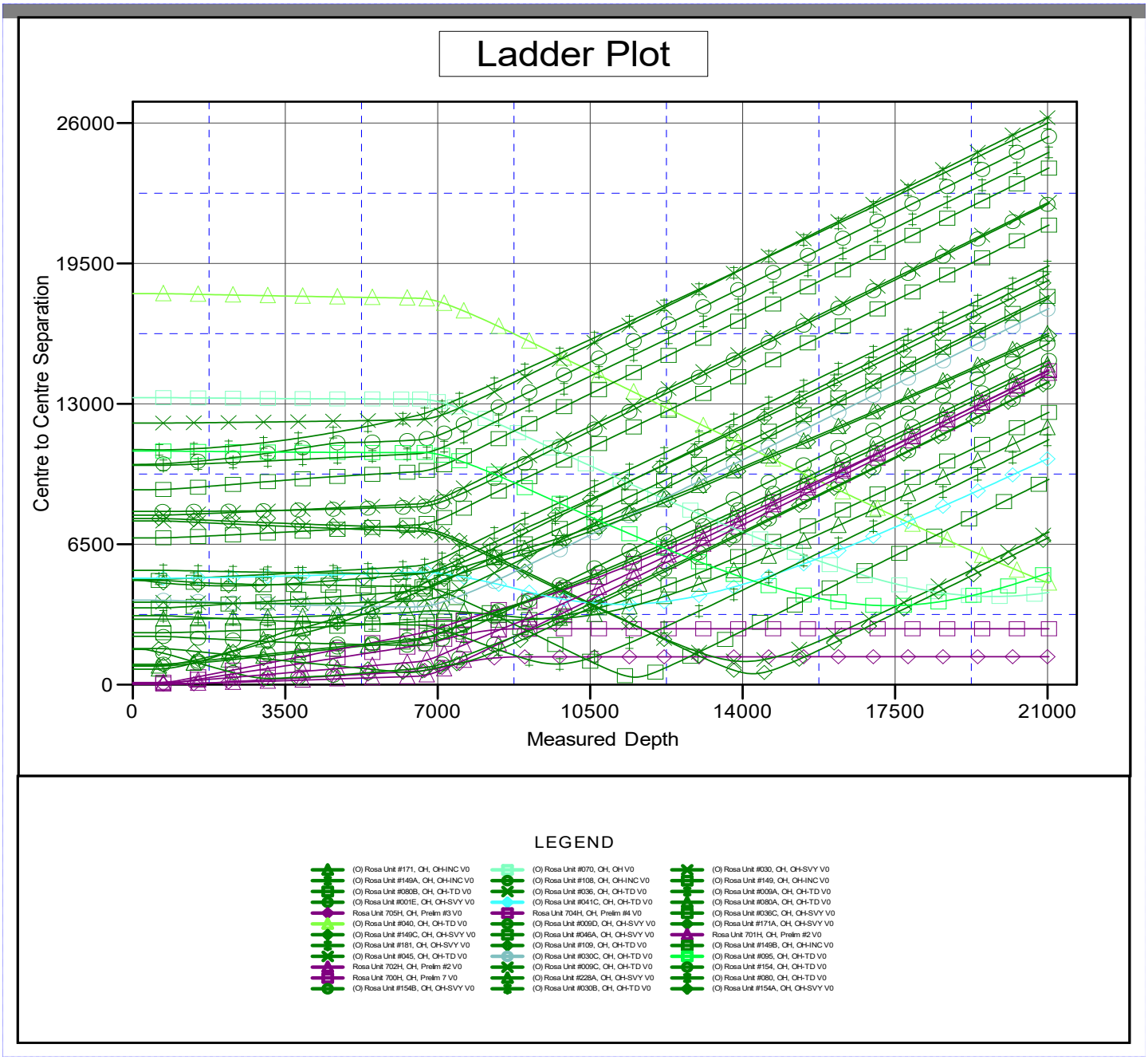
SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Coordinates are relative to: Rosa Unit 706H
Coordinate System is US State Plane 1983, New Mexico Western Zone
Grid Convergence at Surface is: 0.26°



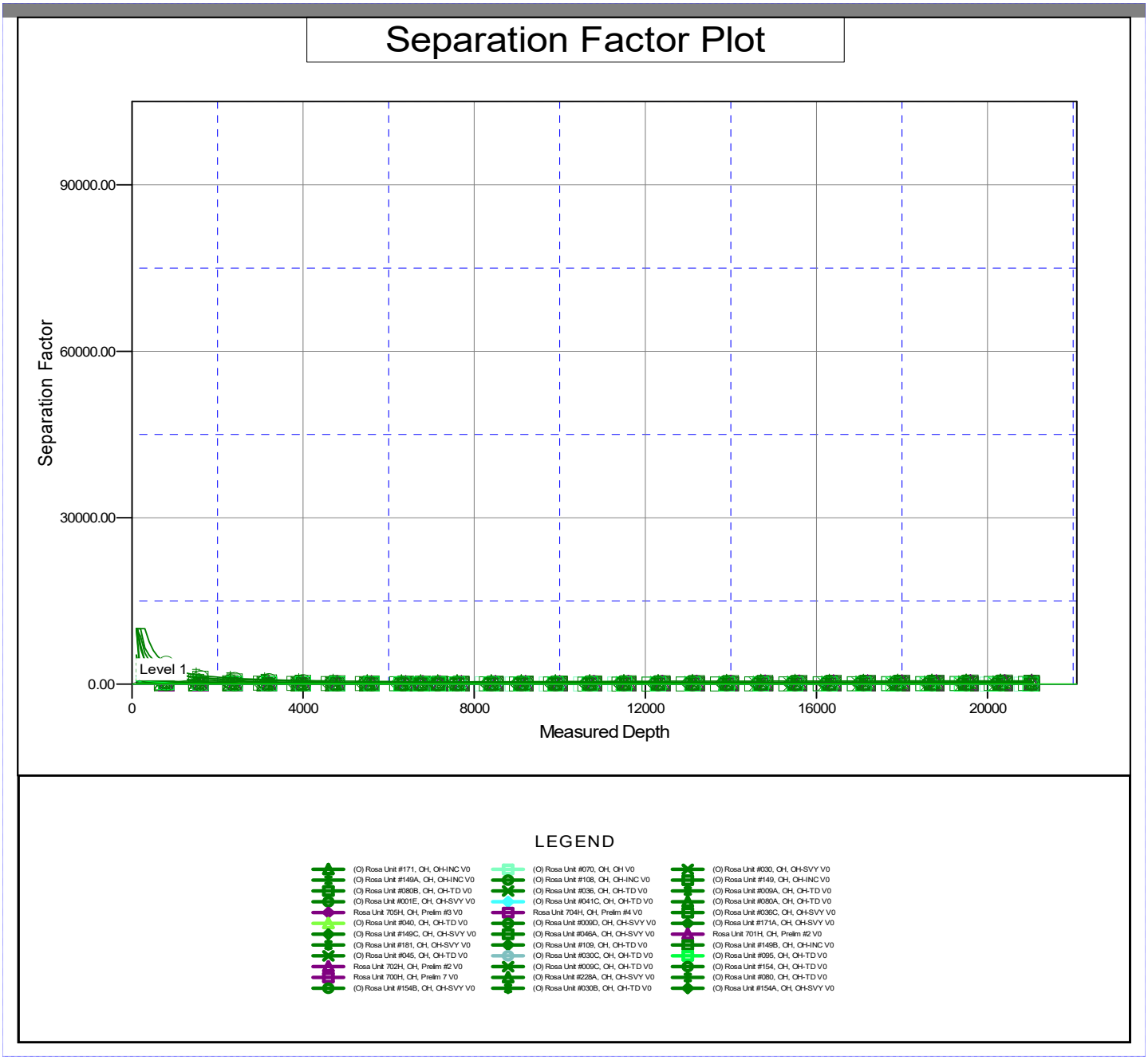
SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 706H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 706H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim #5	**Offset TVD Reference:**	Offset Datum

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

Coordinates are relative to: Rosa Unit 706H
Coordinate System is US State Plane 1983, New Mexico Western Zone
Grid Convergence at Surface is: 0.26°



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

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 324358

CONDITIONS

Operator: LOGOS OPERATING, LLC 2010 Afton Place Farmington, NM 87401	OGRID: 289408
	Action Number: 324358
	Action Type: [C-103] NOI Change of Plans (C-103A)

CONDITIONS

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