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

Sundry Print Report
03/13/2024

Well Name: ROSA UNIT	**Well Location:** T31N / R5W / SEC 7 / NWSE /	**County or Parish/State:**
Well Number: 700H	**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: 3003931441	**Well Status:** Approved Application for Permit to Drill	**Operator:** LOGOS OPERATING LLC

Notice of Intent

Sundry ID: 2778670

Type of Submission: Notice of Intent

Type of Action: Other

Date Sundry Submitted: 03/08/2024

Time Sundry Submitted: 01:26

Date proposed operation will begin: 04/01/2024

Procedure Description: LOGOS Operating request a change in plans for subject well. See attached operations plan.

Surface Disturbance

Is any additional surface disturbance proposed?: No

NOI Attachments

Procedure Description

3160_005_Rosa_Unit_700H_Change_in_Plan_7__20240308_20240308132617.pdf

CONFIDENTIAL

Well Name: ROSA UNIT	**Well Location:** T31N / R5W / SEC 7 / NWSE /	**County or Parish/State:**
Well Number: 700H	**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: 3003931441	**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 08, 2024 01:27 PM

Name: LOGOS OPERATING LLC

Title: Regulatory Specialist

Street Address: 2010 AFTON PLACE

City: Farmington **State:** NM

Phone: (505) 324-4154

Email address: ETRUJILLO@LOGOSRESOURCESLLC.COM

Field

Representative Name:

Street Address:

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

Phone:

Email address:

BLM Point of Contact

BLM POC Name: KENNETH G RENNICK

BLM POC Title: Petroleum Engineer

BLM POC Phone: 5055647742

BLM POC Email Address: krennick@blm.gov

Disposition: Approved

Disposition Date: 03/12/2024

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 700H

2. Name of Operator: LOGOS OPERATING, LLC

9. API Well No.: 30-039-31441

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 G SEC 7 T31N 5W 2617' FNL 1351' 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 2612' FSL & 1322' FEL to **new surface-hole location 2617' FNL & 1351' FEL**
Original bottom-hole location from 2428' FSL & 1156' FWL to **new bottom-hole location 1564' FNL & 1119' FWL**
Original TD @ 17,750' (MD) 6,902' (TVD) to **new TD @ 18,160' (MD) 6,925' (TVD)**.

Geology tops have been updated per changes.
Original KOP @ 6,293' MD 6,289' TVD to **new KOP @ 6,401' MD 6281' TVD**
Original Landing point @ 7,292' MD 6,923' TVD to **new Landing point @ 7,434' MD 6,936' TVD**

Original 13.375" Surface casing @ 320' MD to **new 20" Surface casing @ 320' MD**
Original 9,625" casing Intermediate @ 6,205' MD to **new 9.625" Intermediate casing @ 6,353' MD & additional 13.375" casing @ 3,425' MD**
Original 5.5" casing Production casing @ 17,750' MD to **new 5.5" Production casing @ 18,160' 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: 3/8/2024

THE SPACE FOR FEDERAL OR STATE OFICE USE

Approved by

Title

Date

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

Office

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

(Instructions on page 2)

Received by OCD: 3/13/2024 7:08:06 AM

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

State of New Mexico
Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION
1220 South St. Francis Drive
Santa Fe, NM 87505

Form C-102
Revised August 1, 2011

Submit one copy to
Appropriate District Office

[X] AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

[1] API Number	[2] Pool Code	[3] Pool Name
30-039-31441	97232	BASIN MANCOS

[4] Property Code	[5] Property Name	[6] Well Number
320608	ROSA UNIT	700H

[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
G	7	31N	5W		2617	NORTH	1351	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
E	11	31N	6W		1564	NORTH	1119	WEST	RIO ARRIBA

[12] Dedicated Acres		[13] Joint or Infill	[14] Consolidation Code	[15] Order No.
823.03	N/2 – Sections 11, 12, T31N, R6W N/2 – Section 7, T31N, R5W			R-13457

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

[17] OPERATOR CERTIFICATION

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

Etta Trujillo — 3/8/2024
Signature — Date

Etta Trujillo
Printed Name

etrujillo@logosresourcesllc.com
E-mail Address

[18] SURVEYOR CERTIFICATION

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

Date Revised: MARCH 7, 2024
Survey Date: NOVEMBER 15, 2021

Signature and Seal of Professional Surveyor

JASON C. EDWARDS
NEW MEXICO
15269
REGISTERED PROFESSIONAL SURVEYOR

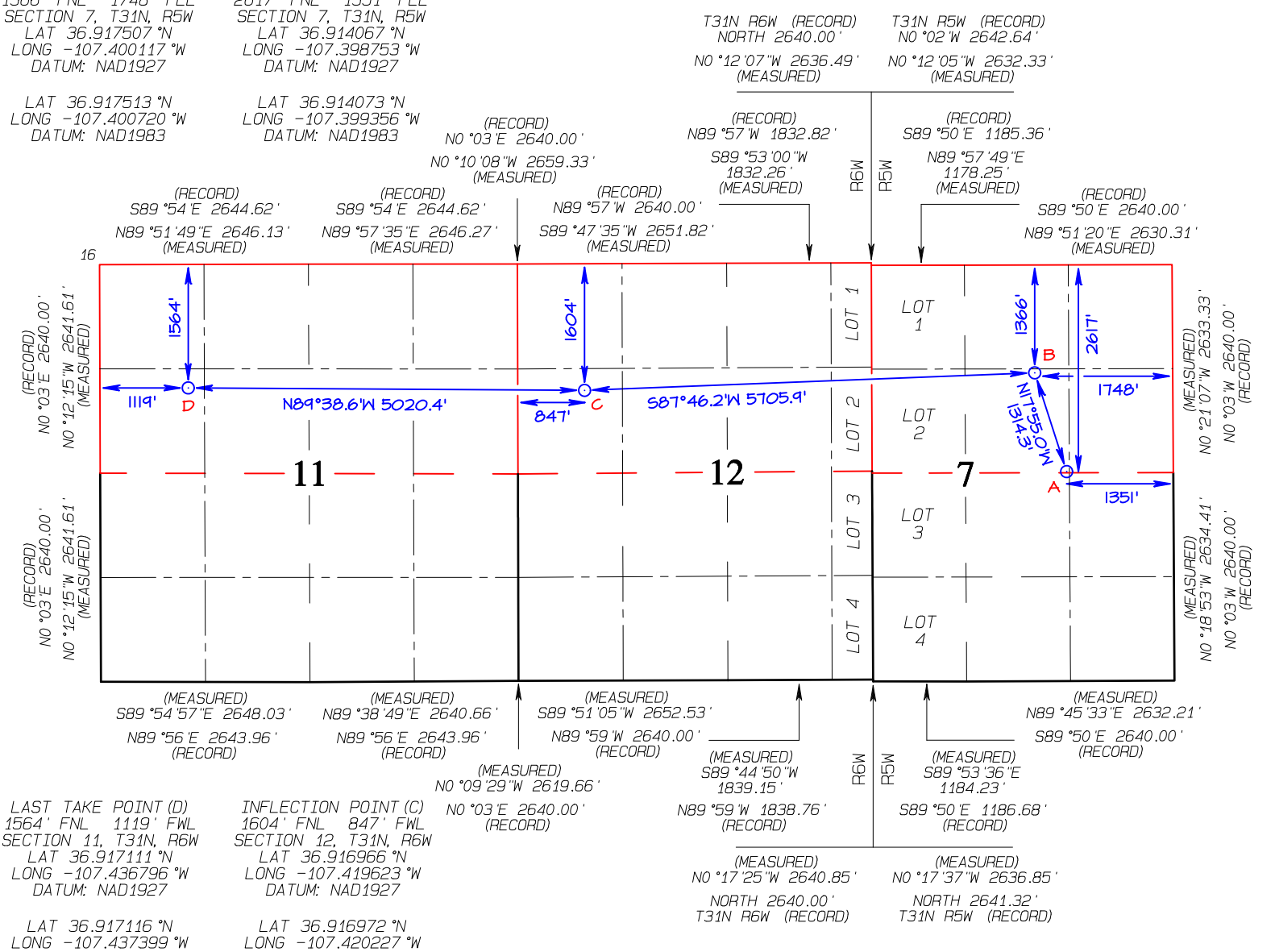
JASON C. EDWARDS
Certificate Number 15269

FIRST TAKE POINT (B)
1366' FNL 1748' FEL
SECTION 7, T31N, R5W
LAT 36.917507 °N
LONG -107.400117 °W
DATUM: NAD1927

LAT 36.917513 °N
LONG -107.400720 °W
DATUM: NAD1983

SURFACE LOCATION (A)
2617' FNL 1351' FEL
SECTION 7, T31N, R5W
LAT 36.914067 °N
LONG -107.398753 °W
DATUM: NAD1927

LAT 36.914073 °N
LONG -107.399356 °W
DATUM: NAD1983



LAST TAKE POINT (D)
1564' FNL 1119' FWL
SECTION 11, T31N, R6W
LAT 36.917111 °N
LONG -107.436796 °W
DATUM: NAD1927

LAT 36.917116 °N
LONG -107.437399 °W
DATUM: NAD1983

INFLECTION POINT (C)
1604' FNL 847' FWL
SECTION 12, T31N, R6W
LAT 36.916966 °N
LONG -107.419623 °W
DATUM: NAD1927

LAT 36.916972 °N
LONG -107.420227 °W
DATUM: NAD1983

Released to Imaging: 3/21/2024 11:18:37 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 700H**	GL Elevation:	6,295’
Surface Location:	Sec 7, T31N, R5W 2617’ FNL, 1351’ FEL (36.914073º N, -107.399356º W – NAD83)	KB:	30’
Bottom Hole Location:	Sec 11, T31N, R6W 1564’ FNL, 1119’ FWL (36.917116 N, -107.437399º W – NAD83)	Measured Depth:	18,160’ (KB)
Lease Serial CA Serial	**#NMSF078767 #NMNM78407E**	County:	Rio Arriba

I. GEOLOGY

A. Formation Tops (Based on KB Elevation): Estimated top of important geological markers:
SURFACE FORMATION – NACIMIENTO

NAME	MD	TVD	NAME	MD	TVD
OJO ALAMO	2435'	2401'	*POINT LOOKOUT	5721'	5616'
KIRTLAND	2550'	2514'	*MANCOS	6278'	6160'
*FRUITLAND	2927'	2883'	KICKOFF POINT	6401'	6,281'
*PICTURED CLIFFS	3375'	3321'	LANDING POINT	7434'	6936'
LEWIS	3504'	3447'	TD	18,160'	6,925'
CHACRA	4665'	4583'			
*CLIFF HOUSE	5161'	5068'			
MENEFEE	5501'	5400'			

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

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

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

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

II. DRILLING

A. **MUD PROGRAM:** LSND mud (WBM) will be used to drill the 26”/24” surface hole, 17-1/2" intermediate 1 and 12-1/4” intermediate hole 2 hole. A LSND (WBM) or (OBM) will be used to drill the 8-1/2” curve and lateral portion of the wellbore. Treat for lost circulation as necessary. Obtain 100% returns prior to cementing. Notify Engineering of any mud losses.

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

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

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

D. **Maximum Anticipated Pressure:** 6,936' TVD x 0.43 = 2982 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"	320' or greater	20"	94 LBS	J-55 or equiv	LTC/BTC
INTERMEDIATE 1	17.5"	3,425'	13.375"	54.5 LBS	J-55 or equiv	LTC/BTC
INTERMEDIATE 2	12.25"	6,353'	9.625"	43.5 LBS	N-80 or equiv	LTC/BTC
PRODUCTION	8.5"	18,160'	5.5"	20 LBS	P-110 or equiv	LTC/BTC

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

B. FLOAT EQUIPMENT:

1. SURFACE CASING: 20" cement nose guide shoe. Place float shoe 1 joint above shoe. Run (1) standard centralizer on each of the bottom (3) joints of Surface Casing.
2. INTERMEDIATE CASING 1: 13-3/8" cement guide shoe. Place float collar one joint above the shoe. Install (1) centralizer on each of the bottom (3) joints and one standard centralizer every (3) joints to 2,500 ft. Run (1) centralizer at 2,500 ft., 2,000ft., 1,500 ft., 1,000 ft, and 500ft.
    - Casing will be kept fluid filled during drilling
3. INTERMEDIATE CASING 2: 9-5/8" cement float shoe. Place float collar one joint above the shoe. Install (1) centralizer on each of the bottom (3) joints and one standard centralizer every (3) joints to 2,500 ft. Run (1) centralizer at 2,500 ft., 2,300ft., 2,000ft., 1,500 ft., and 1,000 ft. Optional use of DV Tools (2) will be strategically placed above loss circulation zones anticipated in the Mesaverde and Fruitland Coal. Optional use of cancelation plugs for DV tools may be used if losses while cementing are not encountered. Optional use of an ICP may be used in conjunction with DV Tools.
4. PRODUCTION CASING: Run 5-1/2" casing with cement nose guide Float Shoe, 5-1/2"

full or pup joints as necessary, Landing Collar, 5-1/2" full or pup joints as necessary, at least (1) one Toe Sleeve (Sliding Sleeve) positioned inside the applicable production area. Centralizer program will be determined by wellbore conditions. Production casing to be pressure tested during completion operations with frac stack installed.

C. CEMENTING:

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

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

Surface - 20"	Top	Footage	Cement (ft3/ft) Annular Capacity	Excess (30%)	Total (ft3)	Total (bbl)	Slurry Yield (ft3/sk)	Sacks Cement	Density (PPG)
Type G	-	350	0.9599	1.3	487	87	1.15	423	15.8
Type III		350	0.9599	1.3	487	87	1.39	350	14.6
			24" hole						
Set Depth	350								

2. INTERMEDIATE 1: Intermediate casing shall be kept fluid-filled while running into the hole to meet BLM minimum collapse requirements. The intermediate casing will be cemented in 1 stage. If cement does not circulate to the surface, a CBL will be run to determine TOC.

Intermediate 1 -13-3/8"	Top	Footage	Cement (ft3/ft) Annular Capacity	Excess (30%)	Total (ft3)	Total (bbl)	Slurry Yield (ft3/sk)	Sacks Cement	Density (PPG)
Stage 1 Tail	2,825	600	0.6947	1.3	575	102	1.10	523	15.8
Stage 1 Lead - OH	350	2,475	0.6947	1.3	2,235	398	1.90	1176	12.4
Stage 2 Lead - Cased	-	350	1.019	1	357	64	1.90	188	12.4
					3,167	**564**		**1887**	
Set Depth	3425								

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

3. INTERMEDIATE 2: 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 2 -9-5/8"	Top	Footage	Cement (ft3/ft) Annular Capacity	Excess (30%)	Total (ft3)	Total (bbl)	Slurry Yield (ft3/sk)	Sacks Cement	Density (PPG)
Stage 1 Tail	5,853	500	0.3132	1.3	220	39	1.10	200	15.8
Stage 1 Lead	4,740	1,113	0.3132	1.3	453	81	1.90	239	12.4
					673	**120**		**439**	
Stage 2 Tail	4,140	600	0.3132	1.3	244	44	1.58	155	13.2
Stage 2 Lead	3,325	815	0.3132	1.3	332	59	1.90	175	12.4
Stage 2 Lead - Cased	3,225	100	0.3627	1	36	6	1.90	19	12.4
Stage 2 Totals					**612**	**109**		**348**	
Int 2 Totals					**1,286**	**229**		**787**	
Contingency									
Stage 3 Tail	3,425	75	0.3132	1.3	31	5	1.58	19	13.2
Stage 3 Tail - Cased	2,925	500	0.3490	1	175	31	1.58	110	13.2
Stage 3 Lead - Cased	-	2,925	0.3490	1	1,021	182	1.90	537	12.4
Contingency Stage 3 Totals					**1,226**	**218**		**667**	
Set Depth	6353								

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

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

	Top	ft	Cement (ft3/ft) Annular Capacity	Excess (15%)	Total (ft3)	Total (bbl)	Slurry Yield (ft3/sk)	Sacks Cement	Density (PPG)
Cased Tail	6,253	100	0.2531	1	25	5	1.59	16	13.2
Open Hole Tail	6,353	11,807	0.2291	1.15	3,116	555	1.59	1,960	13.2
					3,141	559		1,976	

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 * 6,936' TVD = 1526 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.

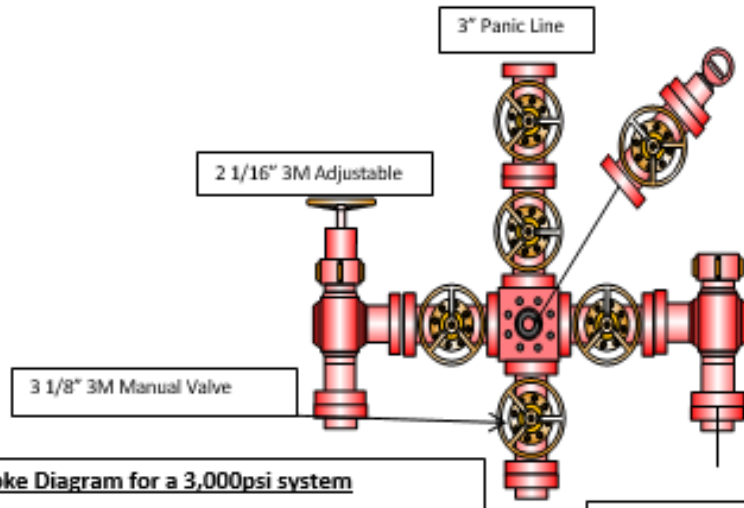
E. PRODUCTION TUBING

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.

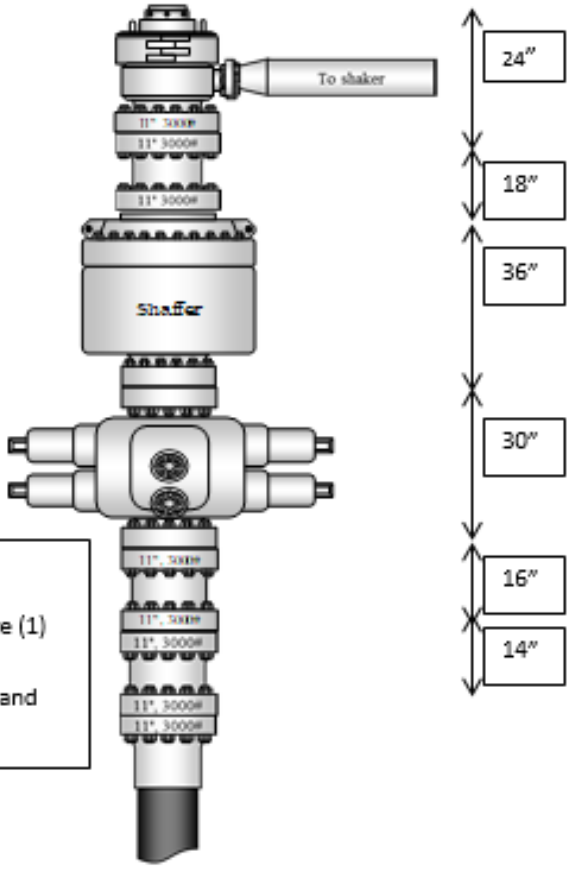
LOGOS RESOURCES II, LLC

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 700H

OH

Plan: Prelim 7

Standard Planning Report

01 March, 2024

SDT
Planning Report

Database:	EDM 5000 Multi User Db	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
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 700H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Prelim 7		

Project Rio Arriba, NM (NAD83)

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

Site Rosa Unit 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 700H

Well Position	**+N/-S**	0.00 usft	**Northing:**	2,152,338.34 usft	**Latitude:**	36.914073
	+E/-W	0.00 usft	**Easting:**	2,849,959.38 usft	**Longitude:**	-107.399356
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	49,468.45211062

Design Prelim 7

Audit Notes:

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

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	270.62

Plan Survey Tool Program **Date** 3/1/2024

	Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	18,160.21	Prelim 7 (OH)	MWD+HRGM+MS	
				MWD + HRGM + Multi-Station	

Plan Sections

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,100.00	12.00	12.00	1,095.62	61.23	13.02	2.00	2.00	0.00	12.00	
6,401.22	12.00	12.00	6,281.00	1,139.33	242.17	0.00	0.00	0.00	0.00	
7,433.91	90.06	268.00	6,935.83	1,252.24	-398.62	9.00	7.56	-10.07	-103.69	
13,008.91	90.06	268.00	6,929.99	1,057.67	-5,970.23	0.00	0.00	0.00	0.00	
13,139.82	90.06	270.62	6,929.86	1,056.10	-6,101.11	2.00	0.00	2.00	90.10	
18,160.21	90.06	270.62	6,925.00	1,110.26	-11,121.22	0.00	0.00	0.00	0.00	RU 700H PBHL

SDT

Planning Report

Database:	EDM 5000 Multi User Db	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
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 700H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Prelim 7		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 2.00									
600.00	2.00	12.00	599.98	1.71	0.36	-0.34	2.00	2.00	0.00
700.00	4.00	12.00	699.84	6.83	1.45	-1.38	2.00	2.00	0.00
800.00	6.00	12.00	799.45	15.35	3.26	-3.10	2.00	2.00	0.00
900.00	8.00	12.00	898.70	27.27	5.80	-5.50	2.00	2.00	0.00
1,000.00	10.00	12.00	997.47	42.57	9.05	-8.59	2.00	2.00	0.00
1,100.00	12.00	12.00	1,095.62	61.23	13.02	-12.35	2.00	2.00	0.00
Start 5301.22 hold at 1100.00 MD									
1,200.00	12.00	12.00	1,193.44	81.57	17.34	-16.45	0.00	0.00	0.00
1,300.00	12.00	12.00	1,291.25	101.91	21.66	-20.56	0.00	0.00	0.00
1,400.00	12.00	12.00	1,389.07	122.24	25.98	-24.66	0.00	0.00	0.00
1,500.00	12.00	12.00	1,486.88	142.58	30.31	-28.76	0.00	0.00	0.00
1,600.00	12.00	12.00	1,584.70	162.92	34.63	-32.86	0.00	0.00	0.00
1,700.00	12.00	12.00	1,682.51	183.26	38.95	-36.97	0.00	0.00	0.00
1,800.00	12.00	12.00	1,780.33	203.59	43.27	-41.07	0.00	0.00	0.00
1,900.00	12.00	12.00	1,878.14	223.93	47.60	-45.17	0.00	0.00	0.00
2,000.00	12.00	12.00	1,975.96	244.27	51.92	-49.27	0.00	0.00	0.00
2,100.00	12.00	12.00	2,073.77	264.60	56.24	-53.38	0.00	0.00	0.00
2,200.00	12.00	12.00	2,171.59	284.94	60.57	-57.48	0.00	0.00	0.00
2,300.00	12.00	12.00	2,269.40	305.28	64.89	-61.58	0.00	0.00	0.00
2,400.00	12.00	12.00	2,367.22	325.61	69.21	-65.68	0.00	0.00	0.00
2,434.54	12.00	12.00	2,401.00	332.64	70.70	-67.10	0.00	0.00	0.00
Ojo Alamo									
2,500.00	12.00	12.00	2,465.03	345.95	73.53	-69.79	0.00	0.00	0.00
2,550.06	12.00	12.00	2,514.00	356.13	75.70	-71.84	0.00	0.00	0.00
Kirtland									
2,600.00	12.00	12.00	2,562.84	366.29	77.86	-73.89	0.00	0.00	0.00
2,700.00	12.00	12.00	2,660.66	386.62	82.18	-77.99	0.00	0.00	0.00
2,800.00	12.00	12.00	2,758.47	406.96	86.50	-82.09	0.00	0.00	0.00
2,900.00	12.00	12.00	2,856.29	427.30	90.82	-86.20	0.00	0.00	0.00
2,927.31	12.00	12.00	2,883.00	432.85	92.01	-87.32	0.00	0.00	0.00
Fruitland									
3,000.00	12.00	12.00	2,954.10	447.63	95.15	-90.30	0.00	0.00	0.00
3,025.45	12.00	12.00	2,979.00	452.81	96.25	-91.34	0.00	0.00	0.00
Top of Coals									
3,100.00	12.00	12.00	3,051.92	467.97	99.47	-94.40	0.00	0.00	0.00
3,200.00	12.00	12.00	3,149.73	488.31	103.79	-98.50	0.00	0.00	0.00
3,202.32	12.00	12.00	3,152.00	488.78	103.89	-98.60	0.00	0.00	0.00
Base of Coals									
3,300.00	12.00	12.00	3,247.55	508.64	108.12	-102.61	0.00	0.00	0.00
3,375.09	12.00	12.00	3,321.00	523.92	111.36	-105.69	0.00	0.00	0.00
Pictured Cliffs									
3,400.00	12.00	12.00	3,345.36	528.98	112.44	-106.71	0.00	0.00	0.00
3,500.00	12.00	12.00	3,443.18	549.32	116.76	-110.81	0.00	0.00	0.00
3,503.91	12.00	12.00	3,447.00	550.11	116.93	-110.97	0.00	0.00	0.00
Lewis									
3,600.00	12.00	12.00	3,540.99	569.66	121.08	-114.91	0.00	0.00	0.00

SDT

Planning Report

Database:	EDM 5000 Multi User Db	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
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 700H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Prelim 7		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
3,700.00	12.00	12.00	3,638.81	589.99	125.41	-119.02	0.00	0.00	0.00
3,800.00	12.00	12.00	3,736.62	610.33	129.73	-123.12	0.00	0.00	0.00
3,900.00	12.00	12.00	3,834.44	630.67	134.05	-127.22	0.00	0.00	0.00
4,000.00	12.00	12.00	3,932.25	651.00	138.37	-131.32	0.00	0.00	0.00
4,100.00	12.00	12.00	4,030.07	671.34	142.70	-135.42	0.00	0.00	0.00
4,200.00	12.00	12.00	4,127.88	691.68	147.02	-139.53	0.00	0.00	0.00
4,300.00	12.00	12.00	4,225.70	712.01	151.34	-143.63	0.00	0.00	0.00
4,400.00	12.00	12.00	4,323.51	732.35	155.67	-147.73	0.00	0.00	0.00
4,500.00	12.00	12.00	4,421.33	752.69	159.99	-151.83	0.00	0.00	0.00
4,600.00	12.00	12.00	4,519.14	773.02	164.31	-155.94	0.00	0.00	0.00
4,665.29	12.00	12.00	4,583.00	786.30	167.13	-158.62	0.00	0.00	0.00
Chacra									
4,700.00	12.00	12.00	4,616.95	793.36	168.63	-160.04	0.00	0.00	0.00
4,800.00	12.00	12.00	4,714.77	813.70	172.96	-164.14	0.00	0.00	0.00
4,900.00	12.00	12.00	4,812.58	834.03	177.28	-168.24	0.00	0.00	0.00
5,000.00	12.00	12.00	4,910.40	854.37	181.60	-172.35	0.00	0.00	0.00
5,100.00	12.00	12.00	5,008.21	874.71	185.92	-176.45	0.00	0.00	0.00
5,161.12	12.00	12.00	5,068.00	887.14	188.57	-178.96	0.00	0.00	0.00
Upper Cliff House									
5,200.00	12.00	12.00	5,106.03	895.04	190.25	-180.55	0.00	0.00	0.00
5,300.00	12.00	12.00	5,203.84	915.38	194.57	-184.65	0.00	0.00	0.00
5,400.00	12.00	12.00	5,301.66	935.72	198.89	-188.76	0.00	0.00	0.00
5,449.42	12.00	12.00	5,350.00	945.77	201.03	-190.78	0.00	0.00	0.00
Cliff House									
5,500.00	12.00	12.00	5,399.47	956.06	203.22	-192.86	0.00	0.00	0.00
5,500.54	12.00	12.00	5,400.00	956.16	203.24	-192.88	0.00	0.00	0.00
Menefee									
5,600.00	12.00	12.00	5,497.29	976.39	207.54	-196.96	0.00	0.00	0.00
5,700.00	12.00	12.00	5,595.10	996.73	211.86	-201.06	0.00	0.00	0.00
5,721.36	12.00	12.00	5,616.00	1,001.07	212.78	-201.94	0.00	0.00	0.00
Point Lookout									
5,800.00	12.00	12.00	5,692.92	1,017.07	216.18	-205.17	0.00	0.00	0.00
5,900.00	12.00	12.00	5,790.73	1,037.40	220.51	-209.27	0.00	0.00	0.00
6,000.00	12.00	12.00	5,888.55	1,057.74	224.83	-213.37	0.00	0.00	0.00
6,100.00	12.00	12.00	5,986.36	1,078.08	229.15	-217.47	0.00	0.00	0.00
6,200.00	12.00	12.00	6,084.18	1,098.41	233.47	-221.58	0.00	0.00	0.00
6,277.52	12.00	12.00	6,160.00	1,114.18	236.83	-224.76	0.00	0.00	0.00
Mancos									
6,300.00	12.00	12.00	6,181.99	1,118.75	237.80	-225.68	0.00	0.00	0.00
6,401.22	12.00	12.00	6,281.00	1,139.33	242.17	-229.83	0.00	0.00	0.00
Start DLS 9.00 TFO -103.69									
6,450.00	11.75	350.58	6,328.76	1,149.20	242.41	-229.97	9.00	-0.51	-43.91
6,500.00	13.09	330.49	6,377.61	1,159.16	238.79	-226.23	9.00	2.69	-40.19
6,550.00	15.64	315.45	6,426.06	1,168.89	231.27	-218.60	9.00	5.10	-30.07
6,600.00	18.92	305.01	6,473.81	1,178.35	219.89	-207.13	9.00	6.55	-20.89
6,650.00	22.61	297.70	6,520.56	1,187.48	204.73	-191.87	9.00	7.38	-14.61
6,700.00	26.54	292.41	6,566.03	1,196.20	185.89	-172.93	9.00	7.86	-10.59
6,750.00	30.61	288.41	6,609.93	1,204.49	163.47	-150.43	9.00	8.15	-7.99
6,800.00	34.79	285.29	6,652.00	1,212.27	137.62	-124.50	9.00	8.34	-6.25
6,850.00	39.02	282.76	6,691.98	1,219.51	108.50	-95.29	9.00	8.47	-5.06
6,900.00	43.30	280.65	6,729.61	1,226.16	76.28	-63.00	9.00	8.56	-4.21
6,937.27	46.52	279.29	6,756.00	1,230.71	50.37	-37.05	9.00	8.62	-3.65
Black Top									

SDT

Planning Report

Database:	EDM 5000 Multi User Db	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
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 700H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Prelim 7		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
6,950.00	47.62	278.86	6,764.67	1,232.18	41.16	-27.82	9.00	8.65	-3.39
7,000.00	51.96	277.30	6,796.95	1,237.53	3.36	10.03	9.00	8.68	-3.12
7,050.00	56.32	275.91	6,826.23	1,242.17	-36.88	50.32	9.00	8.72	-2.77
7,100.00	60.69	274.66	6,852.35	1,246.09	-79.32	92.80	9.00	8.74	-2.50
7,150.00	65.07	273.51	6,875.14	1,249.25	-123.70	137.21	9.00	8.76	-2.30
7,200.00	69.46	272.44	6,894.45	1,251.64	-169.74	183.27	9.00	8.78	-2.14
7,250.00	73.86	271.43	6,910.18	1,253.24	-217.16	230.71	9.00	8.79	-2.02
7,300.00	78.26	270.47	6,922.23	1,254.05	-265.67	279.22	9.00	8.80	-1.93
7,350.00	82.66	269.53	6,930.51	1,254.04	-314.96	328.52	9.00	8.81	-1.87
7,400.00	87.07	268.62	6,934.98	1,253.24	-364.75	378.28	9.00	8.81	-1.83
7,433.91	90.06	268.00	6,935.83	1,252.24	-398.62	412.15	9.00	8.81	-1.82
Start 5575.00 hold at 7433.91 MD									
7,500.00	90.06	268.00	6,935.76	1,249.93	-464.68	478.17	0.00	0.00	0.00
7,600.00	90.06	268.00	6,935.66	1,246.44	-564.61	578.07	0.00	0.00	0.00
7,700.00	90.06	268.00	6,935.55	1,242.95	-664.55	677.96	0.00	0.00	0.00
7,800.00	90.06	268.00	6,935.45	1,239.46	-764.49	777.86	0.00	0.00	0.00
7,900.00	90.06	268.00	6,935.34	1,235.97	-864.43	877.76	0.00	0.00	0.00
8,000.00	90.06	268.00	6,935.24	1,232.48	-964.37	977.65	0.00	0.00	0.00
8,100.00	90.06	268.00	6,935.13	1,228.99	-1,064.31	1,077.55	0.00	0.00	0.00
8,200.00	90.06	268.00	6,935.03	1,225.50	-1,164.25	1,177.44	0.00	0.00	0.00
8,300.00	90.06	268.00	6,934.92	1,222.01	-1,264.19	1,277.34	0.00	0.00	0.00
8,400.00	90.06	268.00	6,934.82	1,218.52	-1,364.13	1,377.23	0.00	0.00	0.00
8,500.00	90.06	268.00	6,934.71	1,215.03	-1,464.07	1,477.13	0.00	0.00	0.00
8,600.00	90.06	268.00	6,934.61	1,211.54	-1,564.00	1,577.02	0.00	0.00	0.00
8,700.00	90.06	268.00	6,934.50	1,208.05	-1,663.94	1,676.92	0.00	0.00	0.00
8,800.00	90.06	268.00	6,934.40	1,204.56	-1,763.88	1,776.81	0.00	0.00	0.00
8,900.00	90.06	268.00	6,934.29	1,201.07	-1,863.82	1,876.71	0.00	0.00	0.00
9,000.00	90.06	268.00	6,934.19	1,197.58	-1,963.76	1,976.60	0.00	0.00	0.00
9,100.00	90.06	268.00	6,934.08	1,194.09	-2,063.70	2,076.50	0.00	0.00	0.00
9,200.00	90.06	268.00	6,933.98	1,190.60	-2,163.64	2,176.40	0.00	0.00	0.00
9,300.00	90.06	268.00	6,933.88	1,187.11	-2,263.58	2,276.29	0.00	0.00	0.00
9,400.00	90.06	268.00	6,933.77	1,183.62	-2,363.52	2,376.19	0.00	0.00	0.00
9,500.00	90.06	268.00	6,933.67	1,180.13	-2,463.46	2,476.08	0.00	0.00	0.00
9,600.00	90.06	268.00	6,933.56	1,176.64	-2,563.40	2,575.98	0.00	0.00	0.00
9,700.00	90.06	268.00	6,933.46	1,173.15	-2,663.33	2,675.87	0.00	0.00	0.00
9,800.00	90.06	268.00	6,933.35	1,169.66	-2,763.27	2,775.77	0.00	0.00	0.00
9,900.00	90.06	268.00	6,933.25	1,166.17	-2,863.21	2,875.66	0.00	0.00	0.00
10,000.00	90.06	268.00	6,933.14	1,162.68	-2,963.15	2,975.56	0.00	0.00	0.00
10,100.00	90.06	268.00	6,933.04	1,159.19	-3,063.09	3,075.45	0.00	0.00	0.00
10,200.00	90.06	268.00	6,932.93	1,155.70	-3,163.03	3,175.35	0.00	0.00	0.00
10,300.00	90.06	268.00	6,932.83	1,152.21	-3,262.97	3,275.25	0.00	0.00	0.00
10,400.00	90.06	268.00	6,932.72	1,148.72	-3,362.91	3,375.14	0.00	0.00	0.00
10,500.00	90.06	268.00	6,932.62	1,145.23	-3,462.85	3,475.04	0.00	0.00	0.00
10,600.00	90.06	268.00	6,932.51	1,141.74	-3,562.79	3,574.93	0.00	0.00	0.00
10,700.00	90.06	268.00	6,932.41	1,138.25	-3,662.72	3,674.83	0.00	0.00	0.00
10,800.00	90.06	268.00	6,932.30	1,134.76	-3,762.66	3,774.72	0.00	0.00	0.00
10,900.00	90.06	268.00	6,932.20	1,131.27	-3,862.60	3,874.62	0.00	0.00	0.00
11,000.00	90.06	268.00	6,932.10	1,127.78	-3,962.54	3,974.51	0.00	0.00	0.00
11,100.00	90.06	268.00	6,931.99	1,124.29	-4,062.48	4,074.41	0.00	0.00	0.00
11,200.00	90.06	268.00	6,931.89	1,120.80	-4,162.42	4,174.30	0.00	0.00	0.00
11,300.00	90.06	268.00	6,931.78	1,117.31	-4,262.36	4,274.20	0.00	0.00	0.00
11,400.00	90.06	268.00	6,931.68	1,113.82	-4,362.30	4,374.09	0.00	0.00	0.00
11,500.00	90.06	268.00	6,931.57	1,110.33	-4,462.24	4,473.99	0.00	0.00	0.00

SDT

Planning Report

Database:	EDM 5000 Multi User Db	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
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 700H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Prelim 7		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
11,600.00	90.06	268.00	6,931.47	1,106.84	-4,562.18	4,573.89	0.00	0.00	0.00
11,700.00	90.06	268.00	6,931.36	1,103.35	-4,662.11	4,673.78	0.00	0.00	0.00
11,800.00	90.06	268.00	6,931.26	1,099.86	-4,762.05	4,773.68	0.00	0.00	0.00
11,900.00	90.06	268.00	6,931.15	1,096.37	-4,861.99	4,873.57	0.00	0.00	0.00
12,000.00	90.06	268.00	6,931.05	1,092.88	-4,961.93	4,973.47	0.00	0.00	0.00
12,100.00	90.06	268.00	6,930.94	1,089.39	-5,061.87	5,073.36	0.00	0.00	0.00
12,200.00	90.06	268.00	6,930.84	1,085.90	-5,161.81	5,173.26	0.00	0.00	0.00
12,300.00	90.06	268.00	6,930.73	1,082.41	-5,261.75	5,273.15	0.00	0.00	0.00
12,400.00	90.06	268.00	6,930.63	1,078.92	-5,361.69	5,373.05	0.00	0.00	0.00
12,500.00	90.06	268.00	6,930.52	1,075.43	-5,461.63	5,472.94	0.00	0.00	0.00
12,600.00	90.06	268.00	6,930.42	1,071.94	-5,561.57	5,572.84	0.00	0.00	0.00
12,700.00	90.06	268.00	6,930.31	1,068.45	-5,661.50	5,672.74	0.00	0.00	0.00
12,800.00	90.06	268.00	6,930.21	1,064.96	-5,761.44	5,772.63	0.00	0.00	0.00
12,900.00	90.06	268.00	6,930.11	1,061.48	-5,861.38	5,872.53	0.00	0.00	0.00
13,008.91	90.06	268.00	6,929.99	1,057.67	-5,970.23	5,981.32	0.00	0.00	0.00
Start DLS 2.00 TFO 90.10									
13,100.00	90.06	269.82	6,929.90	1,055.94	-6,061.30	6,072.37	2.00	0.00	2.00
13,139.82	90.06	270.62	6,929.86	1,056.10	-6,101.11	6,112.18	2.00	0.00	2.00
Start 5020.40 hold at 13139.82 MD									
13,200.00	90.06	270.62	6,929.80	1,056.75	-6,161.29	6,172.37	0.00	0.00	0.00
13,300.00	90.06	270.62	6,929.70	1,057.82	-6,261.29	6,272.37	0.00	0.00	0.00
13,400.00	90.06	270.62	6,929.61	1,058.90	-6,361.28	6,372.37	0.00	0.00	0.00
13,500.00	90.06	270.62	6,929.51	1,059.98	-6,461.27	6,472.37	0.00	0.00	0.00
13,600.00	90.06	270.62	6,929.41	1,061.06	-6,561.27	6,572.37	0.00	0.00	0.00
13,700.00	90.06	270.62	6,929.32	1,062.14	-6,661.26	6,672.37	0.00	0.00	0.00
13,800.00	90.06	270.62	6,929.22	1,063.22	-6,761.26	6,772.37	0.00	0.00	0.00
13,900.00	90.06	270.62	6,929.12	1,064.30	-6,861.25	6,872.37	0.00	0.00	0.00
14,000.00	90.06	270.62	6,929.03	1,065.38	-6,961.25	6,972.37	0.00	0.00	0.00
14,100.00	90.06	270.62	6,928.93	1,066.46	-7,061.24	7,072.37	0.00	0.00	0.00
14,200.00	90.06	270.62	6,928.83	1,067.53	-7,161.23	7,172.37	0.00	0.00	0.00
14,300.00	90.06	270.62	6,928.74	1,068.61	-7,261.23	7,272.37	0.00	0.00	0.00
14,400.00	90.06	270.62	6,928.64	1,069.69	-7,361.22	7,372.37	0.00	0.00	0.00
14,500.00	90.06	270.62	6,928.54	1,070.77	-7,461.22	7,472.37	0.00	0.00	0.00
14,600.00	90.06	270.62	6,928.45	1,071.85	-7,561.21	7,572.37	0.00	0.00	0.00
14,700.00	90.06	270.62	6,928.35	1,072.93	-7,661.20	7,672.37	0.00	0.00	0.00
14,800.00	90.06	270.62	6,928.25	1,074.01	-7,761.20	7,772.37	0.00	0.00	0.00
14,900.00	90.06	270.62	6,928.16	1,075.09	-7,861.19	7,872.37	0.00	0.00	0.00
15,000.00	90.06	270.62	6,928.06	1,076.17	-7,961.19	7,972.37	0.00	0.00	0.00
15,100.00	90.06	270.62	6,927.96	1,077.24	-8,061.18	8,072.37	0.00	0.00	0.00
15,200.00	90.06	270.62	6,927.87	1,078.32	-8,161.17	8,172.37	0.00	0.00	0.00
15,300.00	90.06	270.62	6,927.77	1,079.40	-8,261.17	8,272.37	0.00	0.00	0.00
15,400.00	90.06	270.62	6,927.67	1,080.48	-8,361.16	8,372.37	0.00	0.00	0.00
15,500.00	90.06	270.62	6,927.57	1,081.56	-8,461.16	8,472.37	0.00	0.00	0.00
15,600.00	90.06	270.62	6,927.48	1,082.64	-8,561.15	8,572.37	0.00	0.00	0.00
15,700.00	90.06	270.62	6,927.38	1,083.72	-8,661.15	8,672.37	0.00	0.00	0.00
15,800.00	90.06	270.62	6,927.28	1,084.80	-8,761.14	8,772.37	0.00	0.00	0.00
15,900.00	90.06	270.62	6,927.19	1,085.88	-8,861.13	8,872.37	0.00	0.00	0.00
16,000.00	90.06	270.62	6,927.09	1,086.95	-8,961.13	8,972.37	0.00	0.00	0.00
16,100.00	90.06	270.62	6,926.99	1,088.03	-9,061.12	9,072.36	0.00	0.00	0.00
16,200.00	90.06	270.62	6,926.90	1,089.11	-9,161.12	9,172.36	0.00	0.00	0.00
16,300.00	90.06	270.62	6,926.80	1,090.19	-9,261.11	9,272.36	0.00	0.00	0.00
16,400.00	90.06	270.62	6,926.70	1,091.27	-9,361.10	9,372.36	0.00	0.00	0.00
16,500.00	90.06	270.62	6,926.61	1,092.35	-9,461.10	9,472.36	0.00	0.00	0.00
16,600.00	90.06	270.62	6,926.51	1,093.43	-9,561.09	9,572.36	0.00	0.00	0.00

SDT

Planning Report

Database:	EDM 5000 Multi User Db	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
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 700H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Prelim 7		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
16,700.00	90.06	270.62	6,926.41	1,094.51	-9,661.09	9,672.36	0.00	0.00	0.00
16,800.00	90.06	270.62	6,926.32	1,095.59	-9,761.08	9,772.36	0.00	0.00	0.00
16,900.00	90.06	270.62	6,926.22	1,096.67	-9,861.08	9,872.36	0.00	0.00	0.00
17,000.00	90.06	270.62	6,926.12	1,097.74	-9,961.07	9,972.36	0.00	0.00	0.00
17,100.00	90.06	270.62	6,926.03	1,098.82	-10,061.06	10,072.36	0.00	0.00	0.00
17,200.00	90.06	270.62	6,925.93	1,099.90	-10,161.06	10,172.36	0.00	0.00	0.00
17,300.00	90.06	270.62	6,925.83	1,100.98	-10,261.05	10,272.36	0.00	0.00	0.00
17,400.00	90.06	270.62	6,925.74	1,102.06	-10,361.05	10,372.36	0.00	0.00	0.00
17,500.00	90.06	270.62	6,925.64	1,103.14	-10,461.04	10,472.36	0.00	0.00	0.00
17,600.00	90.06	270.62	6,925.54	1,104.22	-10,561.03	10,572.36	0.00	0.00	0.00
17,700.00	90.06	270.62	6,925.45	1,105.30	-10,661.03	10,672.36	0.00	0.00	0.00
17,800.00	90.06	270.62	6,925.35	1,106.38	-10,761.02	10,772.36	0.00	0.00	0.00
17,900.00	90.06	270.62	6,925.25	1,107.45	-10,861.02	10,872.36	0.00	0.00	0.00
18,000.00	90.06	270.62	6,925.16	1,108.53	-10,961.01	10,972.36	0.00	0.00	0.00
18,100.00	90.06	270.62	6,925.06	1,109.61	-11,061.00	11,072.36	0.00	0.00	0.00
18,160.21	90.06	270.62	6,925.00	1,110.26	-11,121.22	11,132.58	0.00	0.00	0.00
TD at 18160.21									

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 700H SHL - plan hits target center - Point	0.00	0.00	0.00	0.00	0.00	2,152,338.34	2,849,959.38	36.914073	-107.399356
RU 700H PBHL - plan hits target center - Point	0.00	0.00	6,925.00	1,110.26	-11,121.22	2,153,397.99	2,838,833.22	36.917117	-107.437400
RU 700H IP - plan hits target center - Point	0.00	0.00	6,929.86	1,056.10	-6,101.11	2,153,366.66	2,843,853.52	36.916972	-107.420227
RU 700H POE - plan hits target center - Point	0.00	0.00	6,935.83	1,252.24	-398.62	2,153,588.75	2,849,555.06	36.917513	-107.400720

SDT

Planning Report

Database:	EDM 5000 Multi User Db	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
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 700H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Prelim 7		

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,434.54	2,401.00	Ojo Alamo		0.00	
2,550.06	2,514.00	Kirtland		0.00	
2,927.31	2,883.00	Fruitland		0.00	
3,025.45	2,979.00	Top of Coals		0.00	
3,202.32	3,152.00	Base of Coals		0.00	
3,375.09	3,321.00	Pictured Cliffs		0.00	
3,503.91	3,447.00	Lewis		0.00	
4,665.29	4,583.00	Chacra		0.00	
5,161.12	5,068.00	Upper Cliff House		0.00	
5,449.42	5,350.00	Cliff House		0.00	
5,500.54	5,400.00	Menefee		0.00	
5,721.36	5,616.00	Point Lookout		0.00	
6,277.52	6,160.00	Mancos		0.00	
6,937.27	6,756.00	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	61.23	13.02	Start 5301.22 hold at 1100.00 MD
6,401.22	6,281.00	1,139.33	242.17	Start DLS 9.00 TFO -103.69
7,433.91	6,935.83	1,252.24	-398.62	Start 5575.00 hold at 7433.91 MD
13,008.91	6,929.99	1,057.67	-5,970.23	Start DLS 2.00 TFO 90.10
13,139.82	6,929.86	1,056.10	-6,101.11	Start 5020.40 hold at 13139.82 MD
18,160.21	6,925.00	1,110.26	-11,121.22	TD at 18160.21

Logos Operating LLC

Rio Arriba, NM (NAD83)
Rosa Unit 24
Rosa Unit 700H

OH
Prelim 7

Anticollision Report

06 March, 2024

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**Offset TVD Reference:**	Offset Datum

Reference	Prelim 7		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	**Error Model:**	ISCWSA
Depth Range:	Unlimited	**Scan Method:**	Closest Approach 3D
Results Limited by:	Max. Cent. Dist. of 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** 3/6/2024

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	18,160.21	Prelim 7 (OH)	MWD+HRGM+MS	MWD + HRGM + Multi-Station Correction

Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Rosa Unit 24						
(O) Rosa Unit #001E - OH - OH-SVY	14,863.88	6,829.47	2,976.06	2,823.64	19.525	CC
(O) Rosa Unit #001E - OH - OH-SVY	14,900.00	6,829.99	2,976.28	2,823.39	19.467	ES
(O) Rosa Unit #001E - OH - OH-SVY	15,300.00	6,836.21	3,007.84	2,851.08	19.188	SF
(O) Rosa Unit #009A - OH - OH-TD	17,021.80	6,854.70	378.24	9.84	1.027	Level 3, CC, ES, SF
(O) Rosa Unit #009C - OH - OH-TD	18,160.21	6,944.57	3,418.39	3,031.36	8.832	CC, ES, SF
(O) Rosa Unit #009D - OH - OH-SVY	17,860.64	7,277.09	508.61	304.34	2.490	CC, ES, SF
(O) Rosa Unit #030 - OH - OH-SVY	10,625.65	7,036.20	2,971.43	2,883.47	33.783	CC, ES
(O) Rosa Unit #030 - OH - OH-SVY	11,300.00	7,046.95	3,046.97	2,953.18	32.490	SF
(O) Rosa Unit #030B - OH - OH-TD	11,762.38	7,096.36	3,715.67	3,422.50	12.674	CC
(O) Rosa Unit #030B - OH - OH-TD	11,800.00	7,096.32	3,715.86	3,422.25	12.656	ES
(O) Rosa Unit #030B - OH - OH-TD	12,200.00	7,095.90	3,741.35	3,443.52	12.562	SF
(O) Rosa Unit #030C - OH - OH-TD	10,140.41	6,317.00	3,801.67	3,562.16	15.873	CC
(O) Rosa Unit #030C - OH - OH-TD	10,200.00	6,317.00	3,802.13	3,561.98	15.832	ES
(O) Rosa Unit #030C - OH - OH-TD	10,700.00	6,317.00	3,842.63	3,597.32	15.664	SF
(O) Rosa Unit #036 - OH - OH-TD	14,774.40	7,032.34	226.94	-111.39	0.671	Level 3, CC, ES, SF
(O) Rosa Unit #036C - OH - OH-SVY	16,442.17	7,048.02	919.22	739.72	5.121	CC, ES, SF
(O) Rosa Unit #040 - OH - OH-TD	6,426.81	6,796.91	17,894.43	17,663.86	77.610	CC
(O) Rosa Unit #040 - OH - OH-TD	6,450.00	6,819.18	17,894.85	17,663.52	77.354	ES
(O) Rosa Unit #040 - OH - OH-TD	7,150.00	7,364.21	18,262.70	18,013.03	73.149	SF
(O) Rosa Unit #041C - OH - OH-TD	6,447.41	6,357.37	4,429.25	4,212.00	20.388	CC
(O) Rosa Unit #041C - OH - OH-TD	6,450.00	6,360.01	4,429.25	4,211.91	20.379	ES
(O) Rosa Unit #041C - OH - OH-TD	6,800.00	6,678.76	4,524.70	4,296.40	19.819	SF
(O) Rosa Unit #045 - OH - OH-TD	537.04	767.85	7,657.56	7,632.73	308.456	CC
(O) Rosa Unit #045 - OH - OH-TD	5,700.00	5,817.85	7,757.61	7,559.52	39.162	ES
(O) Rosa Unit #045 - OH - OH-TD	6,401.22	6,117.00	7,793.79	7,583.98	37.147	SF
(O) Rosa Unit #046A - OH - OH-SVY	134.00	0.00	4,917.27	4,916.90	10,000.000	CC
(O) Rosa Unit #046A - OH - OH-SVY	600.00	501.00	4,918.23	4,915.43	1,758.137	ES
(O) Rosa Unit #046A - OH - OH-SVY	6,650.00	6,398.70	5,464.13	5,410.80	102.449	SF
(O) Rosa Unit #070 - OH - OH	6,437.64	6,513.41	12,966.64	12,744.63	58.406	CC
(O) Rosa Unit #070 - OH - OH	6,450.00	6,518.00	12,966.76	12,744.56	58.356	ES
(O) Rosa Unit #070 - OH - OH	6,600.00	6,518.00	12,988.16	12,765.34	58.289	SF
(O) Rosa Unit #080 - OH - OH-TD	500.00	436.00	3,273.41	3,258.67	221.936	CC
(O) Rosa Unit #080 - OH - OH-TD	1,900.00	1,809.80	3,303.18	3,241.74	53.759	ES
(O) Rosa Unit #080 - OH - OH-TD	6,750.00	6,549.69	3,683.46	3,459.68	16.460	SF
(O) Rosa Unit #080A - OH - OH-TD	6,255.96	6,011.00	2,667.98	2,461.77	12.938	CC, ES
(O) Rosa Unit #080A - OH - OH-TD	6,300.00	6,011.00	2,668.34	2,462.06	12.935	SF
(O) Rosa Unit #080B - OH - OH-TD	6,422.54	6,278.15	1,943.27	1,728.23	9.037	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 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**Offset TVD Reference:**	Offset Datum

Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Rosa Unit 24						
(O) Rosa Unit #080B - OH - OH-TD	6,450.00	6,304.86	1,943.87	1,727.91	9.001	ES
(O) Rosa Unit #080B - OH - OH-TD	6,600.00	6,448.65	1,968.12	1,747.22	8.910	SF
(O) Rosa Unit #095 - OH - OH-TD	6,405.27	6,300.00	10,534.90	10,319.54	48.919	CC, ES
(O) Rosa Unit #095 - OH - OH-TD	6,500.00	6,300.00	10,542.35	10,326.67	48.880	SF
(O) Rosa Unit #108 - OH - OH-INC	7,380.92	6,884.18	478.61	318.00	2.980	CC, ES, SF
(O) Rosa Unit #109 - OH - OH-TD	1,489.74	1,770.27	7,761.87	7,703.34	132.613	CC
(O) Rosa Unit #109 - OH - OH-TD	6,401.22	6,579.76	7,828.07	7,604.05	34.944	ES
(O) Rosa Unit #109 - OH - OH-TD	6,950.00	7,063.73	8,048.54	7,808.46	33.524	SF
(O) Rosa Unit #149 - OH - OH-INC	10,331.23	5,949.00	950.98	900.67	18.903	CC
(O) Rosa Unit #149 - OH - OH-INC	10,500.00	5,949.00	965.84	896.25	13.879	ES
(O) Rosa Unit #149 - OH - OH-INC	11,200.00	5,949.00	1,288.07	1,128.63	8.079	SF
(O) Rosa Unit #149A - OH - OH-INC	11,810.60	6,000.00	961.25	867.36	10.238	CC, ES
(O) Rosa Unit #149A - OH - OH-INC	12,300.00	6,000.00	1,078.66	965.70	9.549	SF
(O) Rosa Unit #149B - OH - OH-INC	13,652.17	7,026.93	169.73	-114.81	0.597	Level 3, CC, ES, SF
(O) Rosa Unit #149C - OH - OH-SVY	11,017.50	7,107.13	328.23	238.24	3.647	CC, ES, SF
(O) Rosa Unit #154 - OH - OH-TD	599.11	754.59	2,266.46	2,241.81	91.941	CC, ES
(O) Rosa Unit #154 - OH - OH-TD	8,900.00	6,341.00	3,140.76	2,919.85	14.217	SF
(O) Rosa Unit #154A - OH - OH-SVY	121.90	149.90	1,765.63	1,765.22	4,319.672	CC
(O) Rosa Unit #154A - OH - OH-SVY	500.00	523.91	1,766.34	1,764.32	874.790	ES
(O) Rosa Unit #154A - OH - OH-SVY	6,401.22	6,125.00	2,890.22	2,861.84	101.824	SF
(O) Rosa Unit #154B - OH - OH-SVY	3,123.40	3,551.16	1,049.82	1,033.16	63.012	CC, ES
(O) Rosa Unit #154B - OH - OH-SVY	6,600.00	6,768.90	1,684.38	1,654.10	55.625	SF
(O) Rosa Unit #171 - OH - OH-INC	4,000.00	3,871.60	282.72	225.56	4.946	SF
(O) Rosa Unit #171 - OH - OH-INC	4,200.00	4,066.28	279.19	223.24	4.990	ES
(O) Rosa Unit #171 - OH - OH-INC	4,205.54	4,071.65	279.19	223.27	4.993	CC
(O) Rosa Unit #171A - OH - OH-SVY	100.00	38.65	783.36	783.03	2,362.983	CC, ES
(O) Rosa Unit #171A - OH - OH-SVY	3,700.00	3,337.00	1,606.23	1,581.33	64.483	SF
(O) Rosa Unit #181 - OH - OH-SVY	18,160.21	6,896.00	2,055.71	1,972.37	24.667	CC, ES, SF
(O) Rosa Unit #228 - OH - OH-INC	3,284.27	3,121.00	332.93	255.70	4.311	CC, ES, SF
(O) Rosa Unit #228A - OH - OH-SVY	456.99	395.00	620.36	618.35	308.662	CC, ES
(O) Rosa Unit #228A - OH - OH-SVY	3,500.00	3,253.00	1,645.97	1,620.07	63.537	SF
Rosa Unit 701H - OH - Prelim #2	500.00	500.00	24.92	21.55	7.395	CC, ES
Rosa Unit 701H - OH - Prelim #2	18,160.21	17,759.55	1,339.13	978.79	3.716	SF
Rosa Unit 702H - OH - Prelim #2	500.00	500.00	50.00	46.63	14.839	CC, ES
Rosa Unit 702H - OH - Prelim #2	18,160.21	18,023.70	2,637.24	2,276.13	7.303	SF
Rosa Unit 704H - OH - Prelim #4	500.00	500.00	75.22	71.85	22.322	CC
Rosa Unit 704H - OH - Prelim #4	700.00	702.98	75.99	71.18	15.797	ES
Rosa Unit 704H - OH - Prelim #4	1,600.00	1,602.53	129.72	118.21	11.269	SF
Rosa Unit 705H - OH - Prelim #3	500.00	500.00	125.22	121.85	37.161	CC, ES
Rosa Unit 705H - OH - Prelim #3	900.00	882.19	170.56	164.45	27.891	SF
Rosa Unit 706H - OH - Prelim #5	500.00	500.00	100.30	96.93	29.767	CC, ES
Rosa Unit 706H - OH - Prelim #5	800.00	787.59	126.18	120.76	23.273	SF

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

Offset Site Error: 0.00 usft

Survey Program: 50-A020Ga_GYRO-NS

Offset Well Error: 0.00 usft

Rule Assigned:

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	17.15	17.15	0.00	0.03	-102.94	-1,787.95	-7,783.51	7,986.23				
100.00	100.00	105.91	105.91	0.25	0.28	-102.94	-1,788.04	-7,783.62	7,986.37	7,985.83	0.53	N/A	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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
200.00	200.00	206.45	206.45	0.61	0.64	-102.94	-1,788.33	-7,783.71	7,986.51	7,985.27	1.24	6,419.473	
300.00	300.00	297.11	297.11	0.97	0.95	-102.94	-1,788.72	-7,783.80	7,986.71	7,984.80	1.92	4,161.077	
400.00	400.00	376.87	376.87	1.33	1.23	-102.94	-1,789.12	-7,784.04	7,987.12	7,984.56	2.56	3,123.765	
500.00	500.00	479.38	479.37	1.68	1.59	-102.95	-1,789.47	-7,784.48	7,987.61	7,984.34	3.27	2,439.447	
600.00	599.98	631.41	631.40	2.04	2.12	-114.95	-1,789.71	-7,784.72	7,988.54	7,984.38	4.16	1,918.878	
700.00	699.84	741.86	741.85	2.41	2.51	-114.95	-1,790.08	-7,784.35	7,990.50	7,985.59	4.91	1,628.955	
800.00	799.45	842.21	842.20	2.77	2.86	-114.95	-1,790.13	-7,784.10	7,993.95	7,988.33	5.61	1,423.713	
900.00	898.70	947.62	947.62	3.13	3.22	-114.94	-1,789.87	-7,783.81	7,998.80	7,992.45	6.35	1,260.150	
1,000.00	997.47	1,070.78	1,070.77	3.50	3.65	-114.95	-1,789.48	-7,783.14	8,004.84	7,997.69	7.15	1,119.536	
1,100.00	1,095.62	1,166.92	1,166.90	3.89	3.99	-114.94	-1,789.23	-7,782.48	8,012.28	8,004.41	7.87	1,018.098	
1,200.00	1,193.44	1,265.11	1,265.10	4.29	4.33	-115.07	-1,789.03	-7,781.85	8,020.55	8,011.94	8.61	931.936	
1,300.00	1,291.25	1,367.79	1,367.77	4.70	4.69	-115.20	-1,788.51	-7,781.20	8,028.80	8,019.43	9.36	857.390	
1,400.00	1,389.07	1,457.11	1,457.09	5.11	5.00	-115.32	-1,787.91	-7,780.78	8,037.20	8,027.12	10.08	797.318	
1,500.00	1,486.88	1,550.00	1,549.97	5.53	5.33	-115.44	-1,787.12	-7,780.40	8,045.67	8,034.85	10.81	744.107	
1,600.00	1,584.70	1,661.83	1,661.80	5.95	5.72	-115.59	-1,786.36	-7,779.96	8,054.24	8,042.63	11.61	693.486	
1,700.00	1,682.51	1,794.75	1,794.71	6.37	6.18	-115.76	-1,785.19	-7,778.95	8,062.43	8,049.94	12.49	645.386	
1,800.00	1,780.33	1,875.00	1,874.95	6.80	6.46	-115.86	-1,784.03	-7,778.31	8,070.52	8,057.33	13.19	611.974	
1,900.00	1,878.14	1,950.00	1,949.94	7.22	6.72	-115.95	-1,782.65	-7,778.03	8,078.95	8,065.09	13.87	582.660	
2,000.00	1,975.96	2,019.78	2,019.71	7.65	6.97	-116.03	-1,781.18	-7,778.08	8,087.76	8,073.24	14.53	556.777	
2,100.00	2,073.77	2,115.98	2,115.89	8.08	7.30	-116.15	-1,779.35	-7,778.32	8,096.82	8,081.54	15.28	529.886	
2,200.00	2,171.59	2,236.52	2,236.41	8.51	7.72	-116.29	-1,777.15	-7,778.31	8,105.69	8,089.57	16.12	502.787	
2,300.00	2,269.40	2,311.31	2,311.17	8.95	7.99	-116.38	-1,775.53	-7,778.39	8,114.63	8,097.83	16.80	482.965	
2,400.00	2,367.22	2,388.07	2,387.92	9.38	8.25	-116.47	-1,774.07	-7,778.69	8,123.93	8,106.44	17.49	464.517	
2,500.00	2,465.03	2,511.28	2,511.12	9.81	8.69	-116.62	-1,772.38	-7,779.04	8,133.32	8,114.98	18.34	443.445	
2,600.00	2,562.84	2,607.69	2,607.52	10.25	9.02	-116.74	-1,770.80	-7,779.08	8,142.43	8,123.33	19.10	426.325	
2,700.00	2,660.66	2,675.00	2,674.81	10.68	9.26	-116.82	-1,769.57	-7,779.33	8,151.84	8,132.09	19.75	412.677	
2,800.00	2,758.47	2,725.00	2,724.81	11.12	9.43	-116.88	-1,768.83	-7,779.73	8,161.78	8,141.43	20.35	401.154	
2,900.00	2,856.29	2,784.29	2,784.09	11.55	9.64	-116.95	-1,768.23	-7,780.52	8,172.33	8,151.36	20.97	389.712	
3,000.00	2,954.10	2,882.11	2,881.89	11.99	9.98	-117.07	-1,767.05	-7,781.91	8,182.99	8,161.26	21.73	376.529	
3,100.00	3,051.92	2,936.68	2,936.45	12.42	10.17	-117.13	-1,766.41	-7,782.84	8,194.00	8,171.67	22.34	366.794	
3,200.00	3,149.73	3,072.43	3,072.18	12.86	10.65	-117.30	-1,765.93	-7,785.09	8,205.21	8,181.97	23.24	353.085	
3,300.00	3,247.55	3,125.00	3,124.74	13.30	10.83	-117.37	-1,765.75	-7,785.89	8,216.36	8,192.53	23.84	344.679	
3,400.00	3,345.36	3,264.09	3,263.81	13.73	11.31	-117.54	-1,765.78	-7,788.08	8,227.67	8,202.92	24.75	332.437	
3,500.00	3,443.18	3,325.00	3,324.72	14.17	11.53	-117.62	-1,765.72	-7,789.03	8,238.94	8,213.56	25.38	324.641	
3,600.00	3,540.99	3,441.00	3,440.71	14.61	11.93	-117.76	-1,765.78	-7,790.68	8,250.14	8,223.93	26.21	314.803	
3,700.00	3,638.81	3,550.00	3,549.69	15.05	12.31	-117.90	-1,765.85	-7,792.24	8,261.42	8,234.41	27.01	305.856	
3,800.00	3,736.62	3,642.15	3,641.83	15.48	12.63	-118.02	-1,765.83	-7,793.62	8,272.77	8,245.02	27.75	298.084	
3,900.00	3,834.44	3,728.11	3,727.79	15.92	12.93	-118.12	-1,765.74	-7,794.95	8,284.19	8,255.72	28.47	290.950	
4,000.00	3,932.25	3,824.85	3,824.51	16.36	13.27	-118.24	-1,765.86	-7,796.39	8,295.66	8,266.43	29.23	283.789	
4,100.00	4,030.07	3,890.09	3,889.74	16.80	13.50	-118.33	-1,766.25	-7,797.44	8,307.42	8,277.55	29.88	278.071	
4,200.00	4,127.88	3,982.73	3,982.37	17.24	13.82	-118.45	-1,767.28	-7,798.99	8,319.43	8,288.81	30.62	271.711	
4,300.00	4,225.70	4,069.40	4,069.01	17.68	14.12	-118.57	-1,768.98	-7,800.36	8,331.64	8,300.30	31.34	265.848	
4,400.00	4,323.51	4,134.23	4,133.80	18.11	14.35	-118.66	-1,770.72	-7,801.47	8,344.18	8,312.20	31.98	260.919	
4,500.00	4,421.33	4,210.70	4,210.22	18.55	14.62	-118.77	-1,773.16	-7,802.84	8,357.03	8,324.36	32.66	255.861	
4,600.00	4,519.14	4,279.95	4,279.42	18.99	14.86	-118.87	-1,775.58	-7,804.16	8,370.15	8,336.83	33.32	251.224	
4,700.00	4,616.95	4,361.04	4,360.43	19.43	15.14	-118.99	-1,778.60	-7,805.85	8,383.55	8,349.53	34.02	246.459	
4,800.00	4,714.77	4,435.23	4,434.54	19.87	15.40	-119.09	-1,781.55	-7,807.61	8,397.32	8,362.63	34.69	242.079	
4,900.00	4,812.58	4,551.78	4,550.95	20.31	15.81	-119.27	-1,786.45	-7,810.48	8,411.34	8,375.82	35.52	236.810	
5,000.00	4,910.40	4,625.00	4,624.09	20.75	16.06	-119.37	-1,789.55	-7,812.28	8,425.33	8,389.15	36.19	232.826	
5,100.00	5,008.21	4,700.00	4,698.99	21.19	16.33	-119.48	-1,792.83	-7,814.20	8,439.56	8,402.70	36.86	228.954	
5,200.00	5,106.03	4,804.92	4,803.77	21.63	16.69	-119.64	-1,797.43	-7,816.94	8,453.89	8,416.24	37.65	224.549	
5,300.00	5,203.84	4,907.94	4,906.67	22.06	17.05	-119.79	-1,801.81	-7,819.55	8,468.17	8,429.74	38.43	220.364	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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
5,400.00	5,301.66	4,990.91	4,989.53	22.50	17.34	-119.91	-1,805.42	-7,821.66	8,482.53	8,443.40	39.13	216.769	
5,500.00	5,399.47	5,065.46	5,063.98	22.94	17.60	-120.02	-1,808.75	-7,823.62	8,497.10	8,457.29	39.80	213.481	
5,600.00	5,497.29	5,191.75	5,190.10	23.38	18.05	-120.20	-1,814.36	-7,826.96	8,511.67	8,471.00	40.67	209.283	
5,700.00	5,595.10	5,337.42	5,335.57	23.82	18.56	-120.41	-1,821.29	-7,830.07	8,525.96	8,484.35	41.61	204.892	
5,800.00	5,692.92	5,463.35	5,461.34	24.26	19.00	-120.60	-1,827.37	-7,832.17	8,539.91	8,497.43	42.48	201.045	
5,900.00	5,790.73	5,582.90	5,580.72	24.70	19.41	-120.78	-1,833.46	-7,833.60	8,553.56	8,510.24	43.32	197.456	
6,000.00	5,888.55	5,714.07	5,711.69	25.14	19.87	-120.98	-1,840.60	-7,834.56	8,566.97	8,522.77	44.20	193.809	
6,100.00	5,986.36	5,814.25	5,811.73	25.58	20.22	-121.13	-1,846.04	-7,834.82	8,579.98	8,535.00	44.97	190.791	
6,200.00	6,084.18	5,891.97	5,889.33	26.02	20.49	-121.25	-1,850.22	-7,835.32	8,593.37	8,547.72	45.65	188.232	
6,300.00	6,181.99	5,961.30	5,958.57	26.46	20.74	-121.35	-1,853.85	-7,835.95	8,607.03	8,560.73	46.30	185.883	
6,401.22	6,281.00	6,039.08	6,036.22	26.90	21.01	-121.47	-1,858.06	-7,836.84	8,621.20	8,574.21	46.99	183.470	
6,450.00	6,328.76	6,075.00	6,072.09	27.12	21.13	-100.41	-1,859.99	-7,837.34	8,626.37	8,579.05	47.31	182.318	
6,500.00	6,377.61	6,112.34	6,109.37	27.32	21.26	-80.80	-1,861.98	-7,837.91	8,628.06	8,580.41	47.65	181.065	
6,550.00	6,426.06	6,139.53	6,136.52	27.52	21.36	-66.33	-1,863.41	-7,838.35	8,626.09	8,578.14	47.95	179.899	
6,600.00	6,473.81	6,185.08	6,182.00	27.71	21.52	-56.59	-1,865.83	-7,839.18	8,620.49	8,572.17	48.32	178.415	
6,650.00	6,520.56	6,204.84	6,201.72	27.89	21.59	-50.07	-1,866.91	-7,839.59	8,611.34	8,562.76	48.58	177.250	
6,700.00	6,566.03	6,239.89	6,236.71	28.05	21.71	-45.71	-1,868.81	-7,840.33	8,598.64	8,549.73	48.91	175.822	
6,750.00	6,609.93	6,275.00	6,271.76	28.20	21.83	-42.79	-1,870.73	-7,841.15	8,582.50	8,533.27	49.22	174.355	
6,800.00	6,652.00	6,300.00	6,296.72	28.34	21.92	-40.88	-1,872.11	-7,841.76	8,562.99	8,513.49	49.50	172.987	
6,850.00	6,691.98	6,325.00	6,321.67	28.47	22.01	-39.74	-1,873.50	-7,842.38	8,540.23	8,490.46	49.77	171.584	
6,900.00	6,729.61	6,339.53	6,336.17	28.59	22.06	-39.21	-1,874.33	-7,842.76	8,514.41	8,464.41	50.00	170.287	
6,950.00	6,764.67	6,350.00	6,346.62	28.69	22.10	-39.21	-1,874.99	-7,843.07	8,485.73	8,435.52	50.21	169.013	
7,000.00	6,796.95	6,350.00	6,346.62	28.79	22.10	-39.68	-1,874.99	-7,843.07	8,454.32	8,403.95	50.37	167.846	
7,050.00	6,826.23	6,360.96	6,357.54	28.89	22.13	-40.74	-1,875.73	-7,843.44	8,420.37	8,369.79	50.57	166.506	
7,100.00	6,852.35	6,463.68	6,460.03	28.98	22.49	-42.96	-1,881.48	-7,847.06	8,383.89	8,332.76	51.13	163.969	
7,150.00	6,875.14	6,510.38	6,506.66	29.08	22.66	-45.64	-1,883.78	-7,848.54	8,345.06	8,293.59	51.47	162.145	
7,200.00	6,894.45	6,534.90	6,531.14	29.18	22.74	-49.05	-1,884.96	-7,849.28	8,304.25	8,252.53	51.71	160.584	
7,250.00	6,910.18	6,541.27	6,537.49	29.28	22.76	-53.35	-1,885.27	-7,849.47	8,261.76	8,209.87	51.89	159.232	
7,300.00	6,922.23	6,585.63	6,581.79	29.40	22.92	-59.45	-1,887.38	-7,850.78	8,217.81	8,165.60	52.20	157.417	
7,350.00	6,930.51	6,589.18	6,585.33	29.54	22.93	-66.68	-1,887.54	-7,850.88	8,172.69	8,120.33	52.36	156.082	
7,400.00	6,934.98	6,591.36	6,587.51	29.70	22.94	-75.72	-1,887.65	-7,850.94	8,126.71	8,074.19	52.51	154.760	
7,433.91	6,935.83	6,592.05	6,588.20	29.81	22.94	-82.88	-1,887.68	-7,850.96	8,095.16	8,042.55	52.61	153.871	
7,500.00	6,935.76	6,604.40	6,600.52	30.07	22.99	-83.12	-1,888.27	-7,851.32	8,033.50	7,980.65	52.85	152.018	
7,600.00	6,935.66	6,607.27	6,603.39	30.52	23.00	-83.18	-1,888.40	-7,851.40	7,940.32	7,887.17	53.15	149.387	
7,700.00	6,935.55	6,610.14	6,606.26	31.06	23.01	-83.23	-1,888.54	-7,851.49	7,847.31	7,793.83	53.48	146.744	
7,800.00	6,935.45	6,613.01	6,609.13	31.68	23.02	-83.29	-1,888.67	-7,851.57	7,754.47	7,700.65	53.82	144.091	
7,900.00	6,935.34	6,615.89	6,612.00	32.37	23.03	-83.34	-1,888.81	-7,851.65	7,661.81	7,607.63	54.17	141.429	
8,000.00	6,935.24	6,618.76	6,614.86	33.12	23.04	-83.40	-1,888.94	-7,851.73	7,569.33	7,514.78	54.55	138.760	
8,100.00	6,935.13	6,621.63	6,617.73	33.93	23.05	-83.46	-1,889.07	-7,851.81	7,477.05	7,422.11	54.94	136.084	
8,200.00	6,935.03	6,632.99	6,629.07	34.80	23.09	-83.68	-1,889.59	-7,852.12	7,384.96	7,329.57	55.39	133.318	
8,300.00	6,934.92	6,634.02	6,630.10	35.71	23.09	-83.70	-1,889.64	-7,852.14	7,293.08	7,237.26	55.82	130.654	
8,400.00	6,934.82	6,635.05	6,631.14	36.67	23.09	-83.72	-1,889.69	-7,852.17	7,201.42	7,145.16	56.27	127.988	
8,500.00	6,934.71	6,636.11	6,632.19	37.68	23.10	-83.74	-1,889.74	-7,852.20	7,109.99	7,053.25	56.73	125.322	
8,600.00	6,934.61	6,637.17	6,633.25	38.72	23.10	-83.76	-1,889.79	-7,852.23	7,018.78	6,961.56	57.22	122.656	
8,700.00	6,934.50	6,638.25	6,634.33	39.80	23.10	-83.79	-1,889.84	-7,852.26	6,927.82	6,870.09	57.74	119.993	
8,800.00	6,934.40	6,639.34	6,635.42	40.92	23.11	-83.81	-1,889.89	-7,852.29	6,837.11	6,778.84	58.27	117.335	
8,900.00	6,934.29	6,640.45	6,636.52	42.06	23.11	-83.83	-1,889.94	-7,852.32	6,746.67	6,687.84	58.83	114.684	
9,000.00	6,934.19	6,641.57	6,637.64	43.23	23.12	-83.85	-1,890.00	-7,852.36	6,656.49	6,597.08	59.41	112.040	
9,100.00	6,934.08	6,650.00	6,646.06	44.43	23.15	-84.02	-1,890.41	-7,852.60	6,566.61	6,506.56	60.05	109.348	
9,200.00	6,933.98	6,654.88	6,650.93	45.66	23.16	-84.11	-1,890.64	-7,852.74	6,477.01	6,416.31	60.70	106.698	
9,300.00	6,933.88	6,657.67	6,653.72	46.90	23.17	-84.17	-1,890.77	-7,852.81	6,387.72	6,326.35	61.37	104.080	
9,400.00	6,933.77	6,660.47	6,656.51	48.17	23.18	-84.22	-1,890.91	-7,852.89	6,298.75	6,236.68	62.07	101.478	

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 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 50-A020Ga_GYRO-NS

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Rule Assigned: Warning
9,500.00	6,933.67	6,663.27	6,659.31	49.46	23.19	-84.28	-1,891.04	-7,852.97	6,210.12	6,147.32	62.80	98.894	
9,600.00	6,933.56	6,666.06	6,662.10	50.76	23.20	-84.34	-1,891.17	-7,853.04	6,121.83	6,058.28	63.55	96.330	
9,700.00	6,933.46	6,668.86	6,664.89	52.08	23.21	-84.39	-1,891.31	-7,853.12	6,033.91	5,969.57	64.34	93.787	
9,800.00	6,933.35	6,682.13	6,678.14	53.41	23.26	-84.65	-1,891.93	-7,853.47	5,946.36	5,881.16	65.20	91.199	
9,900.00	6,933.25	6,683.35	6,679.36	54.76	23.26	-84.68	-1,891.99	-7,853.50	5,859.21	5,793.16	66.04	88.718	
10,000.00	6,933.14	6,684.59	6,680.60	56.12	23.27	-84.70	-1,892.04	-7,853.53	5,772.47	5,705.56	66.92	86.262	
10,100.00	6,933.04	6,685.85	6,681.85	57.50	23.27	-84.73	-1,892.10	-7,853.56	5,686.18	5,618.35	67.83	83.834	
10,200.00	6,932.93	6,687.13	6,683.13	58.88	23.27	-84.75	-1,892.16	-7,853.60	5,600.33	5,531.56	68.77	81.435	
10,300.00	6,932.83	6,688.42	6,684.43	60.28	23.28	-84.78	-1,892.22	-7,853.63	5,514.97	5,445.22	69.75	79.067	
10,400.00	6,932.72	6,689.75	6,685.75	61.69	23.28	-84.80	-1,892.29	-7,853.67	5,430.10	5,359.33	70.77	76.731	
10,500.00	6,932.62	6,691.09	6,687.09	63.10	23.29	-84.83	-1,892.35	-7,853.71	5,345.75	5,273.93	71.82	74.429	
10,600.00	6,932.51	6,692.45	6,688.45	64.52	23.29	-84.86	-1,892.42	-7,853.74	5,261.96	5,189.04	72.92	72.162	
10,700.00	6,932.41	6,707.97	6,703.95	65.96	23.35	-85.16	-1,893.15	-7,854.16	5,178.73	5,104.61	74.13	69.865	
10,800.00	6,932.30	6,710.62	6,706.59	67.39	23.36	-85.22	-1,893.27	-7,854.23	5,096.11	5,020.80	75.31	67.670	
10,900.00	6,932.20	6,713.27	6,709.24	68.84	23.37	-85.27	-1,893.39	-7,854.30	5,014.11	4,937.57	76.53	65.514	
11,000.00	6,932.10	6,715.92	6,711.88	70.29	23.38	-85.32	-1,893.51	-7,854.37	4,932.77	4,854.97	77.80	63.399	
11,100.00	6,931.99	6,731.49	6,727.44	71.75	23.43	-85.63	-1,894.21	-7,854.76	4,852.13	4,772.94	79.19	61.274	
11,200.00	6,931.89	6,732.72	6,728.66	73.22	23.43	-85.65	-1,894.27	-7,854.79	4,772.22	4,691.68	80.54	59.252	
11,300.00	6,931.78	6,733.97	6,729.90	74.69	23.44	-85.68	-1,894.33	-7,854.82	4,693.08	4,611.13	81.94	57.274	
11,400.00	6,931.68	6,735.22	6,731.16	76.16	23.44	-85.70	-1,894.38	-7,854.85	4,614.74	4,531.35	83.39	55.340	
11,500.00	6,931.57	6,736.50	6,732.43	77.64	23.45	-85.73	-1,894.44	-7,854.88	4,537.26	4,452.37	84.89	53.451	
11,600.00	6,931.47	6,737.79	6,733.72	79.13	23.45	-85.75	-1,894.50	-7,854.91	4,460.67	4,374.24	86.43	51.609	
11,700.00	6,931.36	6,739.09	6,735.02	80.62	23.46	-85.78	-1,894.56	-7,854.94	4,385.02	4,296.99	88.03	49.814	
11,800.00	6,931.26	6,740.41	6,736.34	82.11	23.46	-85.81	-1,894.62	-7,854.97	4,310.37	4,220.69	89.68	48.066	
11,900.00	6,931.15	6,741.75	6,737.67	83.61	23.47	-85.83	-1,894.68	-7,855.01	4,236.76	4,145.38	91.37	46.367	
12,000.00	6,931.05	6,743.10	6,739.03	85.11	23.47	-85.86	-1,894.74	-7,855.04	4,164.25	4,071.12	93.12	44.717	
12,100.00	6,930.94	6,750.00	6,745.92	86.62	23.49	-86.00	-1,895.07	-7,855.22	4,092.90	3,997.94	94.96	43.102	
12,200.00	6,930.84	6,750.00	6,745.92	88.13	23.49	-86.00	-1,895.07	-7,855.22	4,022.76	3,925.96	96.80	41.556	
12,300.00	6,930.73	6,750.00	6,745.92	89.64	23.49	-86.00	-1,895.07	-7,855.22	3,953.91	3,855.21	98.70	40.060	
12,400.00	6,930.63	6,750.00	6,745.92	91.15	23.49	-86.00	-1,895.07	-7,855.22	3,886.42	3,785.77	100.65	38.614	
12,500.00	6,930.52	6,751.56	6,747.47	92.67	23.50	-86.03	-1,895.14	-7,855.25	3,820.34	3,717.69	102.65	37.217	
12,600.00	6,930.42	6,767.21	6,763.10	94.19	23.56	-86.34	-1,895.88	-7,855.63	3,755.77	3,650.98	104.79	35.841	
12,700.00	6,930.31	6,779.61	6,775.48	95.71	23.60	-86.58	-1,896.43	-7,855.89	3,692.76	3,585.80	106.96	34.526	
12,800.00	6,930.21	6,768.07	6,763.97	97.24	23.56	-86.35	-1,895.91	-7,855.64	3,631.40	3,522.39	109.02	33.310	
12,900.00	6,930.11	6,770.47	6,766.36	98.77	23.57	-86.40	-1,896.02	-7,855.69	3,571.81	3,460.60	111.21	32.119	
13,008.91	6,929.99	6,773.08	6,768.96	100.43	23.58	-86.45	-1,896.14	-7,855.75	3,508.99	3,395.36	113.63	30.881	
13,100.00	6,929.90	6,780.64	6,776.51	101.83	23.60	-86.67	-1,896.48	-7,855.92	3,459.41	3,343.67	115.74	29.889	
13,139.82	6,929.86	6,781.14	6,777.02	102.44	23.60	-86.70	-1,896.50	-7,855.93	3,439.06	3,322.39	116.67	29.477	
13,200.00	6,929.80	6,781.90	6,777.77	103.37	23.61	-86.72	-1,896.54	-7,855.95	3,409.30	3,291.22	118.08	28.873	
13,300.00	6,929.70	6,783.19	6,779.06	104.92	23.61	-86.74	-1,896.60	-7,855.98	3,361.66	3,241.22	120.44	27.912	
13,400.00	6,929.61	6,784.51	6,780.38	106.47	23.62	-86.77	-1,896.66	-7,856.01	3,316.35	3,193.55	122.80	27.006	
13,500.00	6,929.51	6,785.87	6,781.74	108.02	23.62	-86.79	-1,896.72	-7,856.04	3,273.47	3,148.30	125.17	26.153	
13,600.00	6,929.41	6,787.26	6,783.13	109.57	23.63	-86.82	-1,896.78	-7,856.07	3,233.11	3,105.59	127.52	25.353	
13,700.00	6,929.32	6,788.69	6,784.55	111.12	23.63	-86.85	-1,896.85	-7,856.11	3,195.37	3,065.51	129.86	24.606	
13,800.00	6,929.22	6,790.15	6,786.02	112.68	23.64	-86.88	-1,896.91	-7,856.14	3,160.35	3,028.17	132.17	23.911	
13,900.00	6,929.12	6,791.66	6,787.52	114.23	23.64	-86.91	-1,896.98	-7,856.18	3,128.13	2,993.68	134.44	23.267	
14,000.00	6,929.03	6,793.20	6,789.06	115.79	23.65	-86.94	-1,897.06	-7,856.22	3,098.80	2,962.13	136.67	22.674	
14,100.00	6,928.93	6,794.79	6,790.65	117.35	23.65	-86.97	-1,897.13	-7,856.26	3,072.45	2,933.62	138.83	22.131	
14,200.00	6,928.83	6,800.00	6,795.85	118.91	23.67	-87.07	-1,897.37	-7,856.39	3,049.15	2,908.20	140.95	21.633	
14,300.00	6,928.74	6,800.00	6,795.85	120.47	23.67	-87.07	-1,897.37	-7,856.39	3,028.97	2,886.02	142.95	21.189	
14,400.00	6,928.64	6,800.00	6,795.85	122.03	23.67	-87.07	-1,897.37	-7,856.39	3,011.98	2,867.12	144.85	20.793	
14,500.00	6,928.54	6,819.82	6,815.65	123.60	23.74	-87.45	-1,898.26	-7,856.85	2,998.22	2,851.42	146.80	20.424	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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
14,600.00	6,928.45	6,815.44	6,811.27	125.16	23.72	-87.36	-1,898.05	-7,856.74	2,987.72	2,839.26	148.46	20.125	
14,700.00	6,928.35	6,817.55	6,813.38	126.72	23.73	-87.40	-1,898.14	-7,856.79	2,980.56	2,830.51	150.05	19.864	
14,800.00	6,928.25	6,819.66	6,815.49	128.29	23.74	-87.44	-1,898.24	-7,856.83	2,976.74	2,825.24	151.50	19.648	
14,863.88	6,928.19	6,829.47	6,825.29	129.29	23.77	-87.63	-1,898.65	-7,857.04	2,976.06	2,823.64	152.43	19.525	CC
14,900.00	6,928.16	6,829.99	6,825.81	129.86	23.77	-87.64	-1,898.67	-7,857.05	2,976.28	2,823.39	152.89	19.467	ES
15,000.00	6,928.06	6,831.47	6,827.28	131.42	23.78	-87.67	-1,898.74	-7,857.08	2,979.17	2,825.10	154.07	19.337	
15,100.00	6,927.96	6,832.99	6,828.80	132.99	23.79	-87.70	-1,898.80	-7,857.11	2,985.41	2,830.30	155.11	19.247	
15,200.00	6,927.87	6,834.57	6,830.38	134.56	23.79	-87.73	-1,898.86	-7,857.15	2,994.98	2,838.97	156.00	19.198	
15,300.00	6,927.77	6,836.21	6,832.02	136.13	23.80	-87.76	-1,898.93	-7,857.18	3,007.84	2,851.08	156.75	19.188	SF
15,400.00	6,927.67	6,837.92	6,833.72	137.70	23.80	-87.80	-1,899.00	-7,857.22	3,023.95	2,866.59	157.36	19.216	
15,500.00	6,927.57	6,839.68	6,835.48	139.28	23.81	-87.83	-1,899.08	-7,857.26	3,043.27	2,885.43	157.83	19.281	
15,600.00	6,927.48	6,841.52	6,837.32	140.85	23.82	-87.86	-1,899.16	-7,857.30	3,065.72	2,907.55	158.17	19.383	
15,700.00	6,927.38	6,843.42	6,839.22	142.42	23.82	-87.90	-1,899.24	-7,857.34	3,091.25	2,932.88	158.37	19.519	
15,800.00	6,927.28	6,845.41	6,841.21	144.00	23.83	-87.94	-1,899.32	-7,857.39	3,119.77	2,961.33	158.45	19.690	
15,900.00	6,927.19	6,847.48	6,843.27	145.57	23.84	-87.98	-1,899.41	-7,857.44	3,151.21	2,992.81	158.40	19.893	
16,000.00	6,927.09	6,850.00	6,845.79	147.15	23.84	-88.03	-1,899.52	-7,857.50	3,185.48	3,027.23	158.25	20.129	
16,100.00	6,926.99	6,852.13	6,847.91	148.72	23.85	-88.07	-1,899.61	-7,857.55	3,222.49	3,064.49	158.00	20.396	
16,200.00	6,926.90	6,854.56	6,850.35	150.30	23.86	-88.12	-1,899.71	-7,857.61	3,262.14	3,104.49	157.64	20.693	
16,300.00	6,926.80	6,856.88	6,852.66	151.87	23.87	-88.16	-1,899.81	-7,857.66	3,304.34	3,147.14	157.20	21.020	
16,400.00	6,926.70	6,859.10	6,854.87	153.45	23.88	-88.20	-1,899.90	-7,857.71	3,348.99	3,192.31	156.68	21.375	
16,500.00	6,926.61	6,861.21	6,856.99	155.03	23.88	-88.24	-1,899.99	-7,857.76	3,396.00	3,239.92	156.08	21.758	
16,600.00	6,926.51	6,863.23	6,859.00	156.61	23.89	-88.28	-1,900.08	-7,857.80	3,445.28	3,289.85	155.42	22.167	
16,700.00	6,926.41	6,865.16	6,860.93	158.19	23.90	-88.32	-1,900.16	-7,857.84	3,496.71	3,342.01	154.70	22.603	
16,800.00	6,926.32	6,867.01	6,862.78	159.77	23.90	-88.36	-1,900.23	-7,857.88	3,550.22	3,396.29	153.93	23.063	
16,900.00	6,926.22	6,868.79	6,864.56	161.35	23.91	-88.39	-1,900.30	-7,857.92	3,605.71	3,452.59	153.12	23.548	
17,000.00	6,926.12	6,870.49	6,866.26	162.93	23.92	-88.42	-1,900.37	-7,857.95	3,663.09	3,510.81	152.27	24.056	
17,100.00	6,926.03	6,872.13	6,867.89	164.51	23.92	-88.45	-1,900.44	-7,857.98	3,722.26	3,570.87	151.39	24.587	
17,200.00	6,925.93	6,875.00	6,870.76	166.09	23.93	-88.51	-1,900.56	-7,858.04	3,783.16	3,632.66	150.50	25.138	
17,300.00	6,925.83	6,875.43	6,871.19	167.67	23.93	-88.52	-1,900.57	-7,858.05	3,845.69	3,696.12	149.56	25.713	
17,400.00	6,925.74	6,878.58	6,874.34	169.26	23.94	-88.58	-1,900.70	-7,858.11	3,909.78	3,761.14	148.63	26.305	
17,500.00	6,925.64	6,881.88	6,877.63	170.84	23.96	-88.64	-1,900.83	-7,858.17	3,975.35	3,827.65	147.69	26.916	
17,600.00	6,925.54	6,885.34	6,881.09	172.42	23.97	-88.71	-1,900.97	-7,858.24	4,042.32	3,895.58	146.75	27.546	
17,700.00	6,925.45	6,888.97	6,884.72	174.00	23.98	-88.78	-1,901.11	-7,858.31	4,110.64	3,964.84	145.80	28.194	
17,800.00	6,925.35	6,892.79	6,888.53	175.59	23.99	-88.85	-1,901.26	-7,858.39	4,180.23	4,035.39	144.85	28.860	
17,900.00	6,925.25	6,896.81	6,892.55	177.17	24.01	-88.93	-1,901.42	-7,858.48	4,251.04	4,107.14	143.90	29.542	
18,000.00	6,925.16	6,901.05	6,896.78	178.76	24.02	-89.01	-1,901.58	-7,858.57	4,322.99	4,180.04	142.96	30.240	
18,100.00	6,925.06	6,895.89	6,891.63	180.34	24.01	-88.91	-1,901.38	-7,858.47	4,396.04	4,254.08	141.96	30.966	
18,160.21	6,925.00	6,902.92	6,898.66	181.30	24.03	-89.05	-1,901.66	-7,858.61	4,440.54	4,299.11	141.43	31.397	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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	-81.60	1,474.39	-9,978.84	10,087.47				
100.00	100.00	22.00	22.00	0.25	0.66	-81.60	1,474.39	-9,978.84	10,087.17	10,086.26	0.91	N/A	
200.00	200.00	122.00	122.00	0.61	3.66	-81.60	1,474.39	-9,978.84	10,087.17	10,082.91	4.27	2,364.980	
300.00	300.00	222.00	222.00	0.97	6.65	-81.60	1,474.39	-9,978.84	10,087.17	10,079.55	7.62	1,323.757	
400.00	400.00	322.00	322.00	1.33	9.65	-81.60	1,474.39	-9,978.84	10,087.17	10,076.20	10.97	919.105	
500.00	500.00	422.00	422.00	1.68	12.65	-81.60	1,474.39	-9,978.84	10,087.17	10,072.84	14.33	703.926	
600.00	599.98	522.08	521.98	2.04	15.64	-93.60	1,474.39	-9,978.84	10,087.28	10,069.59	17.69	570.340	
700.00	699.84	621.94	621.84	2.41	18.64	-93.63	1,474.39	-9,978.84	10,087.61	10,066.57	21.04	479.535	
800.00	799.45	721.55	721.45	2.77	21.62	-93.66	1,474.39	-9,978.84	10,088.17	10,063.79	24.38	413.766	
900.00	898.70	828.82	828.67	3.13	24.84	-93.71	1,476.35	-9,978.84	10,089.24	10,061.28	27.96	360.825	
1,000.00	997.47	938.56	938.38	3.50	28.12	-93.80	1,475.32	-9,978.84	10,090.14	10,058.52	31.63	319.056	
1,100.00	1,095.62	1,018.03	1,017.62	3.89	30.50	-93.86	1,474.39	-9,978.84	10,091.29	10,056.90	34.39	293.399	
1,200.00	1,193.44	1,115.84	1,115.44	4.29	33.44	-93.98	1,474.39	-9,978.84	10,092.74	10,055.02	37.73	267.533	
1,300.00	1,291.25	1,213.66	1,213.25	4.70	36.37	-94.09	1,474.39	-9,978.84	10,094.24	10,053.18	41.06	245.821	
1,400.00	1,389.07	1,317.93	1,317.48	5.11	39.49	-94.21	1,476.41	-9,978.84	10,096.05	10,051.45	44.60	226.367	
1,500.00	1,486.88	1,425.76	1,425.28	5.53	42.72	-94.34	1,475.49	-9,978.84	10,097.52	10,049.27	48.25	209.283	
1,600.00	1,584.70	1,507.41	1,506.70	5.95	45.17	-94.44	1,474.39	-9,978.84	10,098.98	10,047.87	51.11	197.575	
1,700.00	1,682.51	1,605.22	1,604.51	6.37	48.10	-94.55	1,474.39	-9,978.84	10,100.65	10,046.18	54.47	185.440	
1,800.00	1,780.33	1,703.04	1,702.33	6.80	51.03	-94.67	1,474.39	-9,978.84	10,102.36	10,044.53	57.82	174.707	
1,900.00	1,878.14	1,805.76	1,805.00	7.22	54.11	-94.78	1,476.46	-9,978.84	10,104.37	10,043.04	61.33	164.756	
2,000.00	1,975.96	1,912.76	1,911.98	7.65	57.32	-94.91	1,475.64	-9,978.84	10,106.07	10,041.10	64.96	155.565	
2,100.00	2,073.77	2,019.46	2,018.64	8.08	60.51	-95.04	1,474.03	-9,978.84	10,107.72	10,039.13	68.59	147.364	
2,200.00	2,171.59	2,094.60	2,093.59	8.51	62.76	-95.13	1,474.39	-9,978.84	10,109.62	10,038.35	71.27	141.845	
2,300.00	2,269.40	2,192.42	2,191.40	8.95	65.69	-95.24	1,474.39	-9,978.84	10,111.54	10,036.91	74.63	135.481	
2,400.00	2,367.22	2,293.77	2,292.71	9.38	68.73	-95.35	1,476.50	-9,978.84	10,113.74	10,035.64	78.10	129.491	
2,500.00	2,465.03	2,399.97	2,398.88	9.81	71.91	-95.48	1,475.78	-9,978.84	10,115.67	10,033.95	81.72	123.787	
2,600.00	2,562.84	2,505.86	2,504.74	10.25	75.09	-95.61	1,474.28	-9,978.84	10,117.57	10,032.24	85.32	118.577	
2,700.00	2,660.66	2,583.98	2,582.66	10.68	77.43	-95.70	1,474.39	-9,978.84	10,119.65	10,031.55	88.10	114.867	
2,800.00	2,758.47	2,681.79	2,680.47	11.12	80.36	-95.82	1,474.39	-9,978.84	10,121.78	10,030.32	91.46	110.664	
2,900.00	2,856.29	2,781.97	2,780.61	11.55	83.36	-95.92	1,476.53	-9,978.84	10,124.18	10,029.28	94.90	106.682	
3,000.00	2,954.10	2,887.36	2,885.98	11.99	86.52	-96.05	1,475.91	-9,978.84	10,126.33	10,027.84	98.49	102.812	
3,100.00	3,051.92	2,992.47	2,991.05	12.42	89.67	-96.18	1,474.51	-9,978.84	10,128.46	10,026.38	102.08	99.223	
3,200.00	3,149.73	3,073.36	3,071.73	12.86	92.09	-96.28	1,474.39	-9,978.84	10,130.73	10,025.80	104.94	96.541	
3,300.00	3,247.55	3,171.17	3,169.55	13.30	95.02	-96.39	1,474.39	-9,978.84	10,133.08	10,024.78	108.30	93.562	
3,400.00	3,345.36	3,270.35	3,268.68	13.73	97.99	-96.49	1,476.55	-9,978.84	10,135.67	10,023.96	111.71	90.731	
3,500.00	3,443.18	3,374.96	3,373.27	14.17	101.13	-96.62	1,476.02	-9,978.84	10,138.04	10,022.76	115.28	87.942	
3,600.00	3,540.99	3,479.28	3,477.56	14.61	104.25	-96.75	1,474.73	-9,978.84	10,140.40	10,021.56	118.84	85.326	
3,700.00	3,638.81	3,562.74	3,560.81	15.05	106.76	-96.85	1,474.39	-9,978.84	10,142.87	10,021.09	121.78	83.289	
3,800.00	3,736.62	3,660.55	3,658.62	15.48	109.69	-96.96	1,474.39	-9,978.84	10,145.43	10,020.28	125.15	81.068	
3,900.00	3,834.44	3,758.90	3,756.93	15.92	112.63	-97.06	1,476.56	-9,978.84	10,148.20	10,019.67	128.53	78.956	
4,000.00	3,932.25	3,862.73	3,860.75	16.36	115.74	-97.19	1,476.12	-9,978.84	10,150.80	10,018.73	132.08	76.855	
4,100.00	4,030.07	3,966.28	3,964.27	16.80	118.85	-97.31	1,474.93	-9,978.84	10,153.39	10,017.78	135.62	74.868	
4,200.00	4,127.88	4,052.11	4,049.88	17.24	121.42	-97.42	1,474.39	-9,978.84	10,156.06	10,017.44	138.63	73.263	
4,300.00	4,225.70	4,149.93	4,147.70	17.68	124.35	-97.53	1,474.39	-9,978.84	10,158.83	10,016.83	141.99	71.545	
4,400.00	4,323.51	4,247.74	4,245.51	18.11	127.28	-97.64	1,474.39	-9,978.84	10,161.63	10,016.27	145.36	69.907	
4,500.00	4,421.33	4,350.70	4,348.41	18.55	130.37	-97.75	1,476.21	-9,978.84	10,164.61	10,015.73	148.88	68.273	
4,600.00	4,519.14	4,453.49	4,451.17	18.99	133.45	-97.88	1,475.12	-9,978.84	10,167.42	10,015.02	152.40	66.716	
4,700.00	4,616.95	4,541.49	4,538.95	19.43	136.08	-97.98	1,474.39	-9,978.84	10,170.30	10,014.83	155.47	65.416	
4,800.00	4,714.77	4,639.31	4,636.77	19.87	139.01	-98.10	1,474.39	-9,978.84	10,173.27	10,014.43	158.84	64.048	
4,900.00	4,812.58	4,737.12	4,734.58	20.31	141.95	-98.21	1,474.39	-9,978.84	10,176.28	10,014.08	162.21	62.736	
5,000.00	4,910.40	4,838.84	4,836.24	20.75	144.99	-98.32	1,476.29	-9,978.84	10,179.46	10,013.76	165.69	61.436	
5,100.00	5,008.21	4,940.88	4,938.26	21.19	148.05	-98.44	1,475.29	-9,978.84	10,182.49	10,013.31	169.19	60.185	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,200.00	5,106.03	5,030.87	5,028.03	21.63	150.75	-98.55	1,474.39	-9,978.84	10,185.57	10,013.26	172.32	59.109	
5,300.00	5,203.84	5,128.69	5,125.84	22.06	153.68	-98.66	1,474.39	-9,978.84	10,188.75	10,013.07	175.69	57.994	
5,400.00	5,301.66	5,226.50	5,223.66	22.50	156.61	-98.78	1,474.39	-9,978.84	10,191.98	10,012.92	179.05	56.922	
5,500.00	5,399.47	5,327.15	5,324.26	22.94	159.63	-98.88	1,476.36	-9,978.84	10,195.34	10,012.83	182.51	55.863	
5,600.00	5,497.29	5,428.46	5,425.54	23.38	162.66	-99.00	1,475.45	-9,978.84	10,198.60	10,012.62	185.98	54.838	
5,700.00	5,595.10	5,520.25	5,517.10	23.82	165.41	-99.12	1,474.39	-9,978.84	10,201.89	10,012.72	189.16	53.931	
5,800.00	5,692.92	5,618.06	5,614.92	24.26	168.34	-99.23	1,474.39	-9,978.84	10,205.27	10,012.74	192.53	53.006	
5,900.00	5,790.73	5,715.88	5,712.73	24.70	171.27	-99.34	1,474.39	-9,978.84	10,208.70	10,012.80	195.90	52.112	
6,000.00	5,888.55	5,815.64	5,812.44	25.14	174.26	-99.45	1,476.42	-9,978.84	10,212.25	10,012.93	199.32	51.234	
6,100.00	5,986.36	5,916.22	5,913.00	25.58	177.28	-99.57	1,475.60	-9,978.84	10,215.73	10,012.95	202.77	50.380	
6,200.00	6,084.18	6,009.63	6,006.18	26.02	180.08	-99.68	1,474.39	-9,978.84	10,219.23	10,013.22	206.01	49.606	
6,300.00	6,181.99	6,107.44	6,103.99	26.46	183.01	-99.79	1,474.39	-9,978.84	10,222.82	10,013.45	209.38	48.825	
6,401.22	6,281.00	6,206.45	6,203.00	26.90	185.97	-99.91	1,474.39	-9,978.84	10,226.50	10,013.72	212.78	48.061	
6,450.00	6,328.76	6,254.31	6,250.82	27.12	187.41	-78.98	1,476.57	-9,978.84	10,226.49	10,012.06	214.43	47.692	
6,500.00	6,377.61	6,304.28	6,300.79	27.32	188.90	-59.37	1,476.46	-9,978.84	10,222.55	10,006.41	216.14	47.296	
6,550.00	6,426.06	6,353.78	6,350.28	27.52	190.39	-44.81	1,476.19	-9,978.84	10,214.73	9,996.90	217.83	46.894	
6,600.00	6,473.81	6,402.51	6,398.99	27.71	191.85	-34.82	1,475.75	-9,978.84	10,203.06	9,983.58	219.48	46.487	
6,650.00	6,520.56	6,450.16	6,446.63	27.89	193.28	-27.94	1,475.17	-9,978.84	10,187.64	9,966.54	221.10	46.078	
6,700.00	6,566.03	6,496.45	6,492.90	28.05	194.66	-23.05	1,474.45	-9,978.84	10,168.54	9,945.87	222.66	45.668	
6,750.00	6,609.93	6,535.69	6,531.93	28.20	195.84	-19.43	1,474.39	-9,978.84	10,145.90	9,921.90	224.00	45.294	
6,800.00	6,652.00	6,577.76	6,574.00	28.34	197.10	-16.65	1,474.39	-9,978.84	10,119.85	9,894.44	225.41	44.894	
6,850.00	6,691.98	6,617.73	6,613.98	28.47	198.30	-14.44	1,474.39	-9,978.84	10,090.55	9,863.80	226.75	44.500	
6,900.00	6,729.61	6,655.37	6,651.61	28.59	199.42	-12.60	1,474.39	-9,978.84	10,058.18	9,830.17	228.01	44.114	
6,950.00	6,764.67	6,690.43	6,686.67	28.69	200.48	-11.02	1,474.39	-9,978.84	10,022.92	9,793.76	229.17	43.736	
7,000.00	6,796.95	6,722.70	6,718.95	28.79	201.44	-9.58	1,474.39	-9,978.84	9,985.01	9,754.78	230.23	43.369	
7,050.00	6,826.23	6,752.02	6,748.23	28.89	202.32	-8.19	1,476.57	-9,978.84	9,944.72	9,713.53	231.19	43.015	
7,100.00	6,852.35	6,778.58	6,774.78	28.98	203.12	-6.78	1,476.54	-9,978.84	9,902.20	9,670.14	232.06	42.671	
7,150.00	6,875.14	6,801.73	6,797.93	29.08	203.81	-5.19	1,476.47	-9,978.84	9,857.76	9,624.95	232.81	42.343	
7,200.00	6,894.45	6,821.36	6,817.55	29.18	204.40	-3.22	1,476.39	-9,978.84	9,811.67	9,578.24	233.43	42.032	
7,250.00	6,910.18	6,837.34	6,833.53	29.28	204.88	-0.45	1,476.30	-9,978.84	9,764.22	9,530.29	233.94	41.738	
7,300.00	6,922.23	6,849.57	6,845.76	29.40	205.24	4.13	1,476.22	-9,978.84	9,715.71	9,481.39	234.32	41.463	
7,350.00	6,930.51	6,857.99	6,854.18	29.54	205.50	13.72	1,476.16	-9,978.84	9,666.42	9,431.85	234.57	41.208	
7,400.00	6,934.98	6,862.54	6,858.73	29.70	205.63	42.92	1,476.12	-9,978.84	9,616.68	9,381.97	234.70	40.974	
7,433.91	6,935.83	6,863.41	6,859.60	29.81	205.66	91.21	1,476.12	-9,978.84	9,582.83	9,348.11	234.72	40.827	
7,500.00	6,935.76	6,863.36	6,859.55	30.07	205.66	91.20	1,476.12	-9,978.84	9,516.85	9,282.16	234.69	40.551	
7,600.00	6,935.66	6,863.28	6,859.47	30.52	205.66	91.20	1,476.12	-9,978.84	9,417.02	9,182.37	234.65	40.132	
7,700.00	6,935.55	6,863.21	6,859.39	31.06	205.65	91.19	1,476.12	-9,978.84	9,317.20	9,082.59	234.61	39.713	
7,800.00	6,935.45	6,863.13	6,859.31	31.68	205.65	91.18	1,476.12	-9,978.84	9,217.38	8,982.81	234.57	39.295	
7,900.00	6,935.34	6,863.05	6,859.23	32.37	205.65	91.17	1,476.12	-9,978.84	9,117.57	8,883.04	234.53	38.876	
8,000.00	6,935.24	6,862.97	6,859.16	33.12	205.65	91.16	1,476.12	-9,978.84	9,017.76	8,783.27	234.49	38.457	
8,100.00	6,935.13	6,862.89	6,859.08	33.93	205.64	91.16	1,476.12	-9,978.84	8,917.95	8,683.50	234.45	38.037	
8,200.00	6,935.03	6,862.81	6,859.00	34.80	205.64	91.15	1,476.12	-9,978.84	8,818.15	8,583.74	234.41	37.618	
8,300.00	6,934.92	6,862.74	6,858.92	35.71	205.64	91.14	1,476.12	-9,978.84	8,718.35	8,483.98	234.38	37.198	
8,400.00	6,934.82	6,862.66	6,858.84	36.67	205.64	91.13	1,476.12	-9,978.84	8,618.56	8,384.22	234.34	36.779	
8,500.00	6,934.71	6,862.58	6,858.76	37.68	205.63	91.12	1,476.12	-9,978.84	8,518.77	8,284.48	234.30	36.359	
8,600.00	6,934.61	6,862.50	6,858.69	38.72	205.63	91.12	1,476.12	-9,978.84	8,418.99	8,184.73	234.26	35.939	
8,700.00	6,934.50	6,862.42	6,858.61	39.80	205.63	91.11	1,476.12	-9,978.84	8,319.21	8,084.99	234.22	35.519	
8,800.00	6,934.40	6,862.34	6,858.53	40.92	205.63	91.10	1,476.13	-9,978.84	8,219.44	7,985.26	234.18	35.098	
8,900.00	6,934.29	6,862.26	6,858.45	42.06	205.62	91.09	1,476.13	-9,978.84	8,119.68	7,885.53	234.15	34.678	
9,000.00	6,934.19	6,862.19	6,858.37	43.23	205.62	91.08	1,476.13	-9,978.84	8,019.91	7,785.81	234.11	34.257	
9,100.00	6,934.08	6,862.11	6,858.29	44.43	205.62	91.08	1,476.13	-9,978.84	7,920.16	7,686.09	234.07	33.837	
9,200.00	6,933.98	6,862.03	6,858.21	45.66	205.62	91.07	1,476.13	-9,978.84	7,820.41	7,586.38	234.03	33.416	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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)	Rule Assigned: Minimum Separation (usft)	Separation Factor	Warning
9,300.00	6,933.88	6,861.95	6,858.13	46.90	205.62	91.06	1,476.13	-9,978.84	7,720.67	7,486.68	233.99	32.995	
9,400.00	6,933.77	6,861.87	6,858.06	48.17	205.61	91.05	1,476.13	-9,978.84	7,620.94	7,386.98	233.96	32.574	
9,500.00	6,933.67	6,861.79	6,857.98	49.46	205.61	91.04	1,476.13	-9,978.84	7,521.21	7,287.29	233.92	32.153	
9,600.00	6,933.56	6,861.71	6,857.90	50.76	205.61	91.04	1,476.13	-9,978.84	7,421.49	7,187.60	233.88	31.731	
9,700.00	6,933.46	6,861.63	6,857.82	52.08	205.61	91.03	1,476.13	-9,978.84	7,321.77	7,087.93	233.85	31.310	
9,800.00	6,933.35	6,861.56	6,857.74	53.41	205.60	91.02	1,476.13	-9,978.84	7,222.07	6,988.26	233.81	30.888	
9,900.00	6,933.25	6,861.48	6,857.66	54.76	205.60	91.01	1,476.13	-9,978.84	7,122.37	6,888.60	233.78	30.467	
10,000.00	6,933.14	6,861.40	6,857.58	56.12	205.60	91.00	1,476.13	-9,978.84	7,022.68	6,788.95	233.74	30.045	
10,100.00	6,933.04	6,861.32	6,857.50	57.50	205.60	90.99	1,476.13	-9,978.84	6,923.01	6,689.30	233.70	29.623	
10,200.00	6,932.93	6,861.24	6,857.42	58.88	205.59	90.99	1,476.13	-9,978.84	6,823.34	6,589.67	233.67	29.201	
10,300.00	6,932.83	6,861.16	6,857.35	60.28	205.59	90.98	1,476.13	-9,978.84	6,723.68	6,490.04	233.63	28.779	
10,400.00	6,932.72	6,861.08	6,857.27	61.69	205.59	90.97	1,476.14	-9,978.84	6,624.03	6,390.43	233.60	28.356	
10,500.00	6,932.62	6,861.00	6,857.19	63.10	205.59	90.96	1,476.14	-9,978.84	6,524.39	6,290.82	233.57	27.934	
10,600.00	6,932.51	6,860.92	6,857.11	64.52	205.58	90.95	1,476.14	-9,978.84	6,424.76	6,191.23	233.53	27.511	
10,700.00	6,932.41	6,860.84	6,857.03	65.96	205.58	90.95	1,476.14	-9,978.84	6,325.14	6,091.65	233.50	27.089	
10,800.00	6,932.30	6,860.76	6,856.95	67.39	205.58	90.94	1,476.14	-9,978.84	6,225.54	5,992.07	233.47	26.666	
10,900.00	6,932.20	6,860.68	6,856.87	68.84	205.58	90.93	1,476.14	-9,978.84	6,125.95	5,892.51	233.44	26.243	
11,000.00	6,932.10	6,860.61	6,856.79	70.29	205.57	90.92	1,476.14	-9,978.84	6,026.37	5,792.97	233.40	25.819	
11,100.00	6,931.99	6,860.53	6,856.71	71.75	205.57	90.91	1,476.14	-9,978.84	5,926.81	5,693.43	233.37	25.396	
11,200.00	6,931.89	6,860.45	6,856.63	73.22	205.57	90.91	1,476.14	-9,978.84	5,827.26	5,593.92	233.35	24.973	
11,300.00	6,931.78	6,860.37	6,856.55	74.69	205.57	90.90	1,476.14	-9,978.84	5,727.73	5,494.41	233.32	24.549	
11,400.00	6,931.68	6,860.29	6,856.47	76.16	205.57	90.89	1,476.14	-9,978.84	5,628.21	5,394.92	233.29	24.125	
11,500.00	6,931.57	6,860.21	6,856.39	77.64	205.56	90.88	1,476.14	-9,978.84	5,528.72	5,295.45	233.27	23.701	
11,600.00	6,931.47	6,860.13	6,856.31	79.13	205.56	90.87	1,476.14	-9,978.84	5,429.24	5,195.99	233.25	23.277	
11,700.00	6,931.36	6,860.05	6,856.23	80.62	205.56	90.86	1,476.14	-9,978.84	5,329.78	5,096.55	233.22	22.853	
11,800.00	6,931.26	6,859.97	6,856.15	82.11	205.56	90.86	1,476.14	-9,978.84	5,230.34	4,997.13	233.21	22.428	
11,900.00	6,931.15	6,859.89	6,856.07	83.61	205.55	90.85	1,476.14	-9,978.84	5,130.92	4,897.73	233.19	22.003	
12,000.00	6,931.05	6,859.81	6,855.99	85.11	205.55	90.84	1,476.15	-9,978.84	5,031.52	4,798.35	233.18	21.578	
12,100.00	6,930.94	6,859.73	6,855.91	86.62	205.55	90.83	1,476.15	-9,978.84	4,932.15	4,698.99	233.17	21.153	
12,200.00	6,930.84	6,859.65	6,855.83	88.13	205.55	90.82	1,476.15	-9,978.84	4,832.81	4,599.65	233.16	20.727	
12,300.00	6,930.73	6,859.57	6,855.75	89.64	205.54	90.82	1,476.15	-9,978.84	4,733.49	4,500.33	233.16	20.301	
12,400.00	6,930.63	6,859.49	6,855.67	91.15	205.54	90.81	1,476.15	-9,978.84	4,634.21	4,401.04	233.16	19.875	
12,500.00	6,930.52	6,859.41	6,855.59	92.67	205.54	90.80	1,476.15	-9,978.84	4,534.95	4,301.78	233.17	19.449	
12,600.00	6,930.42	6,859.33	6,855.51	94.19	205.54	90.79	1,476.15	-9,978.84	4,435.73	4,202.54	233.19	19.022	
12,700.00	6,930.31	6,859.25	6,855.43	95.71	205.53	90.78	1,476.15	-9,978.84	4,336.54	4,103.33	233.21	18.595	
12,800.00	6,930.21	6,859.17	6,855.35	97.24	205.53	90.77	1,476.15	-9,978.84	4,237.39	4,004.15	233.24	18.168	
12,900.00	6,930.11	6,859.09	6,855.27	98.77	205.53	90.77	1,476.15	-9,978.84	4,138.28	3,905.00	233.28	17.740	
13,008.91	6,929.99	6,859.00	6,855.19	100.43	205.53	90.76	1,476.15	-9,978.84	4,030.40	3,797.06	233.33	17.273	
13,100.00	6,929.90	6,858.92	6,855.10	101.83	205.52	90.94	1,476.15	-9,978.84	3,940.01	3,706.62	233.39	16.882	
13,139.82	6,929.86	6,858.88	6,855.06	102.44	205.52	91.05	1,476.15	-9,978.84	3,900.41	3,666.99	233.42	16.710	
13,200.00	6,929.80	6,858.81	6,855.00	103.37	205.52	91.04	1,476.15	-9,978.84	3,840.52	3,607.06	233.46	16.451	
13,300.00	6,929.70	6,858.70	6,854.89	104.92	205.52	91.03	1,476.15	-9,978.84	3,741.01	3,507.49	233.53	16.019	
13,400.00	6,929.61	6,858.60	6,854.78	106.47	205.51	91.01	1,476.15	-9,978.84	3,641.54	3,407.93	233.61	15.588	
13,500.00	6,929.51	6,858.49	6,854.67	108.02	205.51	91.00	1,476.16	-9,978.84	3,542.10	3,308.40	233.70	15.156	
13,600.00	6,929.41	6,858.38	6,854.57	109.57	205.51	90.98	1,476.16	-9,978.84	3,442.69	3,208.88	233.80	14.725	
13,700.00	6,929.32	6,858.27	6,854.46	111.12	205.50	90.96	1,476.16	-9,978.84	3,343.31	3,109.39	233.92	14.293	
13,800.00	6,929.22	6,858.17	6,854.35	112.68	205.50	90.95	1,476.16	-9,978.84	3,243.97	3,009.92	234.05	13.860	
13,900.00	6,929.12	6,858.06	6,854.24	114.23	205.50	90.93	1,476.16	-9,978.84	3,144.67	2,910.48	234.20	13.427	
14,000.00	6,929.03	6,857.95	6,854.14	115.79	205.50	90.91	1,476.16	-9,978.84	3,045.42	2,811.06	234.37	12.994	
14,100.00	6,928.93	6,857.84	6,854.03	117.35	205.49	90.90	1,476.16	-9,978.84	2,946.23	2,711.67	234.56	12.561	
14,200.00	6,928.83	6,857.73	6,853.92	118.91	205.49	90.88	1,476.16	-9,978.84	2,847.08	2,612.31	234.77	12.127	
14,300.00	6,928.74	6,857.63	6,853.81	120.47	205.49	90.86	1,476.16	-9,978.84	2,748.00	2,512.98	235.02	11.693	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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
14,400.00	6,928.64	6,857.52	6,853.70	122.03	205.48	90.85	1,476.16	-9,978.84	2,648.99	2,413.69	235.30	11.258	
14,500.00	6,928.54	6,857.41	6,853.60	123.60	205.48	90.83	1,476.16	-9,978.84	2,550.05	2,314.43	235.62	10.823	
14,600.00	6,928.45	6,857.30	6,853.49	125.16	205.48	90.82	1,476.16	-9,978.84	2,451.20	2,215.21	235.99	10.387	
14,700.00	6,928.35	6,857.20	6,853.38	126.72	205.47	90.80	1,476.17	-9,978.84	2,352.45	2,116.03	236.42	9.950	
14,800.00	6,928.25	6,857.09	6,853.27	128.29	205.47	90.78	1,476.17	-9,978.84	2,253.81	2,016.90	236.91	9.513	
14,900.00	6,928.16	6,856.98	6,853.17	129.86	205.47	90.77	1,476.17	-9,978.84	2,155.29	1,917.81	237.48	9.076	
15,000.00	6,928.06	6,856.87	6,853.06	131.42	205.46	90.75	1,476.17	-9,978.84	2,056.92	1,818.77	238.15	8.637	
15,100.00	6,927.96	6,856.76	6,852.95	132.99	205.46	90.73	1,476.17	-9,978.84	1,958.71	1,719.79	238.92	8.198	
15,200.00	6,927.87	6,856.66	6,852.84	134.56	205.46	90.72	1,476.17	-9,978.84	1,860.69	1,620.86	239.83	7.758	
15,300.00	6,927.77	6,856.55	6,852.73	136.13	205.45	90.70	1,476.17	-9,978.84	1,762.90	1,522.00	240.90	7.318	
15,400.00	6,927.67	6,856.44	6,852.63	137.70	205.45	90.69	1,476.17	-9,978.84	1,665.37	1,423.21	242.15	6.877	
15,500.00	6,927.57	6,856.33	6,852.52	139.28	205.45	90.67	1,476.17	-9,978.84	1,568.14	1,324.51	243.64	6.436	
15,600.00	6,927.48	6,856.23	6,852.41	140.85	205.44	90.65	1,476.17	-9,978.84	1,471.29	1,225.89	245.40	5.995	
15,700.00	6,927.38	6,856.12	6,852.30	142.42	205.44	90.64	1,476.17	-9,978.84	1,374.90	1,127.39	247.51	5.555	
15,800.00	6,927.28	6,856.01	6,852.20	144.00	205.44	90.62	1,476.17	-9,978.84	1,279.05	1,029.01	250.04	5.115	
15,900.00	6,927.19	6,855.90	6,852.09	145.57	205.43	90.60	1,476.17	-9,978.84	1,183.89	930.81	253.08	4.678	
16,000.00	6,927.09	6,855.80	6,851.98	147.15	205.43	90.59	1,476.18	-9,978.84	1,089.60	832.82	256.78	4.243	
16,100.00	6,926.99	6,855.69	6,851.87	148.72	205.43	90.57	1,476.18	-9,978.84	996.43	735.13	261.30	3.813	
16,200.00	6,926.90	6,855.58	6,851.77	150.30	205.42	90.56	1,476.18	-9,978.84	904.71	637.86	266.85	3.390	
16,300.00	6,926.80	6,855.47	6,851.66	151.87	205.42	90.54	1,476.18	-9,978.84	814.94	541.22	273.71	2.977	
16,400.00	6,926.70	6,855.37	6,851.55	153.45	205.42	90.52	1,476.18	-9,978.84	727.84	445.59	282.26	2.579	
16,500.00	6,926.61	6,855.26	6,851.44	155.03	205.41	90.51	1,476.18	-9,978.84	644.50	351.61	292.90	2.200	
16,600.00	6,926.51	6,855.15	6,851.34	156.61	205.41	90.49	1,476.18	-9,978.84	566.58	260.52	306.06	1.851	
16,700.00	6,926.41	6,855.04	6,851.23	158.19	205.41	90.47	1,476.18	-9,978.84	496.64	174.75	321.89	1.543	
16,800.00	6,926.32	6,854.94	6,851.12	159.77	205.40	90.46	1,476.18	-9,978.84	438.50	98.89	339.61	1.291	Level 3
16,900.00	6,926.22	6,854.83	6,851.02	161.35	205.40	90.44	1,476.18	-9,978.84	397.38	40.95	356.42	1.115	Level 3
17,000.00	6,926.12	6,854.72	6,850.91	162.93	205.40	90.43	1,476.18	-9,978.84	378.87	11.56	367.30	1.031	Level 3
17,021.80	6,926.10	6,854.70	6,850.88	163.27	205.40	90.42	1,476.18	-9,978.84	378.24	9.84	368.39	1.027	Level 3, CC, ES, SF
17,100.00	6,926.03	6,854.61	6,850.80	164.51	205.40	90.41	1,476.18	-9,978.84	386.23	18.18	368.05	1.049	Level 3
17,200.00	6,925.93	6,854.51	6,850.69	166.09	205.39	90.39	1,476.18	-9,978.84	418.09	58.56	359.54	1.163	Level 3
17,300.00	6,925.83	6,854.40	6,850.59	167.67	205.39	90.38	1,476.19	-9,978.84	469.50	123.09	346.41	1.355	Level 3
17,400.00	6,925.74	6,854.29	6,850.48	169.26	205.39	90.36	1,476.19	-9,978.84	534.85	202.14	332.71	1.608	
17,500.00	6,925.64	6,854.19	6,850.37	170.84	205.38	90.34	1,476.19	-9,978.84	609.67	289.29	320.38	1.903	
17,600.00	6,925.54	6,854.08	6,850.26	172.42	205.38	90.33	1,476.19	-9,978.84	690.89	380.96	309.93	2.229	
17,700.00	6,925.45	6,853.97	6,850.16	174.00	205.38	90.31	1,476.19	-9,978.84	776.50	475.24	301.27	2.577	
17,800.00	6,925.35	6,853.86	6,850.05	175.59	205.37	90.30	1,476.19	-9,978.84	865.21	571.09	294.12	2.942	
17,900.00	6,925.25	6,853.76	6,849.94	177.17	205.37	90.28	1,476.19	-9,978.84	956.15	667.95	288.20	3.318	
18,000.00	6,925.16	6,853.65	6,849.84	178.76	205.37	90.26	1,476.19	-9,978.84	1,048.73	765.47	283.27	3.702	
18,100.00	6,925.06	6,853.54	6,849.73	180.34	205.36	90.25	1,476.19	-9,978.84	1,142.57	863.45	279.12	4.093	
18,160.21	6,925.00	6,853.48	6,849.66	181.30	205.36	90.24	1,476.19	-9,978.84	1,199.56	922.61	276.94	4.331	

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 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	61.00	61.00	0.00	1.83	-100.63	-2,227.21	-11,863.06	12,070.32				
100.00	100.00	161.00	161.00	0.25	4.82	-100.63	-2,227.21	-11,863.06	12,070.32	12,065.24	5.08	2,378.222	
200.00	200.00	261.00	261.00	0.61	7.82	-100.63	-2,227.21	-11,863.06	12,070.32	12,061.89	8.43	1,431.788	
300.00	300.00	361.00	361.00	0.97	10.82	-100.63	-2,227.21	-11,863.06	12,070.32	12,058.53	11.79	1,024.200	
400.00	400.00	461.00	461.00	1.33	13.81	-100.63	-2,227.21	-11,863.06	12,070.32	12,055.18	15.14	797.247	
500.00	500.00	561.10	561.00	1.68	16.81	-100.63	-2,227.21	-11,863.06	12,070.32	12,051.82	18.50	652.522	
600.00	599.98	661.08	660.98	2.04	19.81	-112.63	-2,227.21	-11,863.06	12,070.99	12,049.14	21.85	552.407	
700.00	699.84	759.44	759.30	2.41	22.76	-112.60	-2,225.04	-11,863.05	12,072.60	12,047.44	25.16	479.888	
800.00	799.45	845.60	845.45	2.77	25.34	-112.57	-2,225.35	-11,863.05	12,076.03	12,047.93	28.10	429.764	
900.00	898.70	931.34	931.16	3.13	27.91	-112.53	-2,226.18	-11,863.05	12,080.91	12,049.88	31.03	389.281	
1,000.00	997.47	1,058.87	1,058.47	3.50	31.73	-112.51	-2,227.21	-11,863.06	12,087.13	12,051.90	35.23	343.104	
1,100.00	1,095.62	1,157.03	1,156.62	3.89	34.67	-112.46	-2,227.21	-11,863.06	12,094.55	12,055.99	38.55	313.698	
1,200.00	1,193.44	1,254.15	1,253.71	4.29	37.58	-112.54	-2,225.03	-11,863.05	12,102.24	12,060.38	41.86	289.117	
1,300.00	1,291.25	1,338.31	1,337.85	4.70	40.10	-112.61	-2,225.31	-11,863.05	12,110.43	12,065.65	44.78	270.435	
1,400.00	1,389.07	1,422.29	1,421.81	5.11	42.62	-112.69	-2,226.07	-11,863.05	12,118.77	12,071.07	47.70	254.047	
1,500.00	1,486.88	1,548.59	1,547.88	5.53	46.40	-112.81	-2,227.21	-11,863.06	12,127.16	12,075.26	51.90	233.677	
1,600.00	1,584.70	1,646.41	1,645.70	5.95	49.33	-112.90	-2,227.21	-11,863.06	12,135.39	12,080.15	55.24	219.684	
1,700.00	1,682.51	1,744.22	1,743.51	6.37	52.26	-112.99	-2,227.21	-11,863.06	12,143.65	12,085.06	58.59	207.280	
1,800.00	1,780.33	1,828.69	1,827.93	6.80	54.80	-113.06	-2,225.25	-11,863.05	12,151.55	12,090.02	61.53	197.480	
1,900.00	1,878.14	1,912.16	1,911.38	7.22	57.30	-113.14	-2,225.95	-11,863.05	12,160.03	12,095.58	64.45	188.667	
2,000.00	1,975.96	2,037.97	2,036.96	7.65	61.07	-113.26	-2,227.21	-11,863.06	12,168.60	12,099.96	68.64	177.276	
2,100.00	2,073.77	2,135.79	2,134.77	8.08	64.00	-113.34	-2,227.21	-11,863.06	12,176.98	12,104.99	71.99	169.140	
2,200.00	2,171.59	2,233.60	2,232.59	8.51	66.93	-113.43	-2,227.21	-11,863.06	12,185.39	12,110.04	75.35	161.725	
2,300.00	2,269.40	2,319.18	2,318.12	8.95	69.49	-113.50	-2,225.20	-11,863.05	12,193.41	12,115.08	78.33	155.662	
2,400.00	2,367.22	2,402.16	2,401.08	9.38	71.98	-113.58	-2,225.84	-11,863.05	12,202.03	12,120.79	81.24	150.195	
2,500.00	2,465.03	2,527.35	2,526.03	9.81	75.73	-113.70	-2,227.21	-11,863.06	12,210.79	12,125.37	85.42	142.956	
2,600.00	2,562.84	2,625.16	2,623.84	10.25	78.66	-113.78	-2,227.21	-11,863.06	12,219.31	12,130.54	88.77	137.649	
2,700.00	2,660.66	2,722.98	2,721.66	10.68	81.59	-113.87	-2,227.21	-11,863.06	12,227.87	12,135.74	92.13	132.729	
2,800.00	2,758.47	2,809.79	2,808.42	11.12	84.19	-113.94	-2,225.16	-11,863.05	12,236.02	12,140.86	95.15	128.595	
2,900.00	2,856.29	2,892.28	2,890.90	11.55	86.67	-114.02	-2,225.74	-11,863.05	12,244.78	12,146.73	98.05	124.886	
3,000.00	2,954.10	3,016.73	3,015.10	11.99	90.39	-114.13	-2,227.21	-11,863.06	12,253.71	12,151.51	102.20	119.896	
3,100.00	3,051.92	3,114.54	3,112.92	12.42	93.33	-114.22	-2,227.21	-11,863.06	12,262.38	12,156.82	105.56	116.166	
3,200.00	3,149.73	3,212.36	3,210.73	12.86	96.26	-114.31	-2,227.21	-11,863.06	12,271.08	12,162.17	108.91	112.667	
3,300.00	3,247.55	3,300.51	3,298.84	13.30	98.90	-114.38	-2,225.12	-11,863.05	12,279.35	12,167.37	111.98	109.655	
3,400.00	3,345.36	3,382.52	3,380.83	13.73	101.36	-114.45	-2,225.65	-11,863.05	12,288.25	12,173.39	114.86	106.982	
3,500.00	3,443.18	3,506.11	3,504.18	14.17	105.06	-114.57	-2,227.21	-11,863.06	12,297.36	12,178.37	118.99	103.345	
3,600.00	3,540.99	3,603.92	3,601.99	14.61	107.99	-114.65	-2,227.21	-11,863.06	12,306.18	12,183.83	122.35	100.582	
3,700.00	3,638.81	3,701.74	3,699.81	15.05	110.92	-114.74	-2,227.21	-11,863.06	12,315.03	12,189.32	125.71	97.966	
3,800.00	3,736.62	3,791.34	3,789.37	15.48	113.61	-114.81	-2,225.09	-11,863.05	12,323.41	12,194.60	128.82	95.666	
3,900.00	3,834.44	3,872.88	3,870.89	15.92	116.05	-114.88	-2,225.56	-11,863.05	12,332.44	12,200.76	131.68	93.651	
4,000.00	3,932.25	3,954.24	3,952.22	16.36	118.49	-114.96	-2,226.49	-11,863.05	12,341.64	12,207.09	134.55	91.728	
4,100.00	4,030.07	4,093.30	4,091.07	16.80	122.65	-115.08	-2,227.21	-11,863.06	12,350.70	12,211.55	139.14	88.763	
4,200.00	4,127.88	4,191.11	4,188.88	17.24	125.58	-115.17	-2,227.21	-11,863.06	12,359.69	12,217.19	142.50	86.735	
4,300.00	4,225.70	4,282.28	4,280.01	17.68	128.32	-115.24	-2,225.07	-11,863.05	12,368.19	12,222.54	145.66	84.913	
4,400.00	4,323.51	4,363.34	4,361.05	18.11	130.75	-115.31	-2,225.48	-11,863.05	12,377.36	12,228.85	148.51	83.344	
4,500.00	4,421.33	4,444.24	4,441.92	18.55	133.17	-115.39	-2,226.35	-11,863.05	12,386.68	12,235.32	151.36	81.838	
4,600.00	4,519.14	4,582.68	4,580.14	18.99	137.32	-115.51	-2,227.21	-11,863.06	12,395.93	12,239.99	155.93	79.494	
4,700.00	4,616.95	4,680.49	4,677.95	19.43	140.25	-115.60	-2,227.21	-11,863.06	12,405.06	12,245.76	159.29	77.877	
4,800.00	4,714.77	4,773.33	4,770.75	19.87	143.03	-115.67	-2,225.05	-11,863.05	12,413.69	12,251.19	162.50	76.393	
4,900.00	4,812.58	4,853.92	4,851.33	20.31	145.45	-115.74	-2,225.41	-11,863.05	12,422.98	12,257.64	165.34	75.137	
5,000.00	4,910.40	4,934.35	4,931.74	20.75	147.86	-115.81	-2,226.22	-11,863.05	12,432.43	12,264.26	168.17	73.928	
5,100.00	5,008.21	5,072.06	5,069.21	21.19	151.98	-115.94	-2,227.21	-11,863.06	12,441.86	12,269.13	172.73	72.032	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,200.00	5,106.03	5,169.87	5,167.03	21.63	154.91	-116.02	-2,227.21	-11,863.06	12,451.13	12,275.05	176.08	70.712	
5,300.00	5,203.84	5,264.48	5,261.60	22.06	157.75	-116.09	-2,225.04	-11,863.05	12,459.88	12,280.54	179.34	69.476	
5,400.00	5,301.66	5,344.61	5,341.72	22.50	160.15	-116.16	-2,225.35	-11,863.05	12,469.30	12,287.13	182.17	68.450	
5,500.00	5,399.47	5,424.58	5,421.66	22.94	162.55	-116.23	-2,226.10	-11,863.05	12,478.88	12,293.90	184.98	67.459	
5,600.00	5,497.29	5,561.43	5,558.29	23.38	166.65	-116.36	-2,227.21	-11,863.06	12,488.49	12,298.97	189.51	65.897	
5,700.00	5,595.10	5,659.25	5,656.10	23.82	169.58	-116.44	-2,227.21	-11,863.06	12,497.90	12,305.03	192.87	64.799	
5,800.00	5,692.92	5,755.73	5,752.55	24.26	172.47	-116.51	-2,225.03	-11,863.05	12,506.77	12,310.58	196.19	63.749	
5,900.00	5,790.73	5,835.41	5,832.21	24.70	174.86	-116.58	-2,225.29	-11,863.05	12,516.31	12,317.31	199.00	62.897	
6,000.00	5,888.55	5,914.93	5,911.71	25.14	177.24	-116.65	-2,225.98	-11,863.05	12,526.02	12,324.22	201.80	62.071	
6,100.00	5,986.36	6,050.81	6,047.36	25.58	181.31	-116.78	-2,227.21	-11,863.06	12,535.81	12,329.50	206.30	60.764	
6,200.00	6,084.18	6,148.63	6,145.18	26.02	184.24	-116.86	-2,227.21	-11,863.06	12,545.35	12,335.69	209.66	59.838	
6,300.00	6,181.99	6,246.44	6,242.99	26.46	187.17	-116.94	-2,227.21	-11,863.06	12,554.92	12,341.91	213.01	58.940	
6,401.22	6,281.00	6,327.28	6,323.78	26.90	189.59	-117.00	-2,225.24	-11,863.05	12,564.13	12,348.26	215.86	58.205	
6,450.00	6,328.76	6,365.91	6,362.39	27.12	190.75	-96.00	-2,225.50	-11,863.05	12,567.09	12,349.87	217.22	57.853	
6,500.00	6,377.61	6,405.38	6,401.85	27.32	191.93	-76.42	-2,225.88	-11,863.05	12,566.40	12,347.78	218.62	57.481	
6,550.00	6,426.06	6,444.48	6,440.95	27.52	193.11	-61.99	-2,226.36	-11,863.05	12,561.94	12,341.94	220.00	57.100	
6,600.00	6,473.81	6,538.56	6,534.81	27.71	195.92	-52.30	-2,227.21	-11,863.06	12,553.70	12,330.67	223.04	56.286	
6,650.00	6,520.56	6,585.31	6,581.56	27.89	197.33	-45.79	-2,227.21	-11,863.06	12,541.60	12,316.96	224.64	55.829	
6,700.00	6,566.03	6,630.78	6,627.03	28.05	198.69	-41.40	-2,227.21	-11,863.06	12,525.85	12,299.64	226.20	55.374	
6,750.00	6,609.93	6,674.69	6,670.93	28.20	200.00	-38.44	-2,227.21	-11,863.06	12,506.56	12,278.84	227.71	54.922	
6,800.00	6,652.00	6,716.76	6,713.00	28.34	201.26	-36.49	-2,227.21	-11,863.06	12,483.84	12,254.68	229.16	54.476	
6,850.00	6,691.98	6,755.40	6,751.60	28.47	202.42	-35.29	-2,225.03	-11,863.05	12,457.24	12,226.74	230.50	54.044	
6,900.00	6,729.61	6,785.73	6,781.93	28.59	203.33	-34.72	-2,225.08	-11,863.05	12,428.14	12,196.56	231.59	53.665	
6,950.00	6,764.67	6,813.97	6,810.16	28.69	204.18	-34.70	-2,225.18	-11,863.05	12,396.12	12,163.52	232.60	53.294	
7,000.00	6,796.95	6,839.95	6,836.14	28.79	204.96	-35.23	-2,225.32	-11,863.05	12,361.38	12,127.84	233.54	52.931	
7,050.00	6,826.23	6,863.51	6,859.69	28.89	205.66	-36.32	-2,225.48	-11,863.05	12,324.12	12,089.72	234.40	52.578	
7,100.00	6,852.35	6,884.52	6,880.70	28.98	206.29	-38.07	-2,225.67	-11,863.05	12,284.57	12,049.39	235.17	52.237	
7,150.00	6,875.14	6,902.84	6,899.02	29.08	206.84	-40.62	-2,225.85	-11,863.05	12,242.97	12,007.11	235.86	51.908	
7,200.00	6,894.45	6,918.38	6,914.55	29.18	207.31	-44.21	-2,226.02	-11,863.05	12,199.57	11,963.11	236.46	51.593	
7,250.00	6,910.18	6,931.02	6,927.19	29.28	207.68	-49.20	-2,226.18	-11,863.05	12,154.64	11,917.67	236.96	51.294	
7,300.00	6,922.23	6,940.71	6,936.88	29.40	207.98	-56.14	-2,226.30	-11,863.05	12,108.44	11,871.07	237.37	51.011	
7,350.00	6,930.51	6,947.38	6,943.54	29.54	208.17	-65.75	-2,226.39	-11,863.05	12,061.27	11,823.58	237.68	50.745	
7,400.00	6,934.98	7,000.04	6,995.98	29.70	209.75	-79.53	-2,227.21	-11,863.06	12,013.52	11,774.14	239.38	50.187	
7,433.91	6,935.83	7,000.89	6,996.83	29.81	209.78	-90.23	-2,227.21	-11,863.06	11,980.81	11,741.33	239.47	50.030	
7,500.00	6,935.76	7,000.82	6,996.76	30.07	209.78	-90.22	-2,227.21	-11,863.06	11,916.95	11,677.34	239.61	49.735	
7,600.00	6,935.66	7,000.72	6,996.66	30.52	209.77	-90.22	-2,227.21	-11,863.06	11,820.37	11,580.55	239.82	49.288	
7,700.00	6,935.55	7,000.61	6,996.55	31.06	209.77	-90.22	-2,227.21	-11,863.06	11,723.84	11,483.80	240.04	48.841	
7,800.00	6,935.45	7,000.51	6,996.45	31.68	209.77	-90.22	-2,227.21	-11,863.06	11,627.38	11,387.11	240.27	48.393	
7,900.00	6,935.34	7,000.40	6,996.34	32.37	209.76	-90.22	-2,227.21	-11,863.06	11,530.97	11,290.47	240.51	47.944	
8,000.00	6,935.24	7,000.30	6,996.24	33.12	209.76	-90.21	-2,227.21	-11,863.06	11,434.63	11,193.88	240.76	47.495	
8,100.00	6,935.13	7,000.19	6,996.13	33.93	209.76	-90.21	-2,227.21	-11,863.06	11,338.35	11,097.34	241.01	47.045	
8,200.00	6,935.03	7,000.09	6,996.03	34.80	209.75	-90.21	-2,227.21	-11,863.06	11,242.14	11,000.86	241.28	46.594	
8,300.00	6,934.92	6,951.30	6,947.46	35.71	208.29	-89.31	-2,226.45	-11,863.05	11,145.86	10,905.78	240.08	46.425	
8,400.00	6,934.82	6,951.26	6,947.42	36.67	208.29	-89.31	-2,226.45	-11,863.05	11,049.78	10,809.41	240.37	45.970	
8,500.00	6,934.71	6,951.21	6,947.37	37.68	208.29	-89.30	-2,226.45	-11,863.05	10,953.77	10,713.10	240.67	45.514	
8,600.00	6,934.61	6,951.17	6,947.33	38.72	208.29	-89.30	-2,226.45	-11,863.05	10,857.83	10,616.85	240.98	45.057	
8,700.00	6,934.50	6,951.12	6,947.28	39.80	208.29	-89.30	-2,226.45	-11,863.05	10,761.97	10,520.67	241.30	44.600	
8,800.00	6,934.40	6,951.08	6,947.24	40.92	208.29	-89.30	-2,226.45	-11,863.05	10,666.18	10,424.55	241.63	44.143	
8,900.00	6,934.29	6,951.03	6,947.19	42.06	208.28	-89.30	-2,226.45	-11,863.05	10,570.47	10,328.50	241.97	43.685	
9,000.00	6,934.19	6,950.99	6,947.15	43.23	208.28	-89.30	-2,226.44	-11,863.05	10,474.84	10,232.52	242.32	43.227	
9,100.00	6,934.08	6,950.95	6,947.11	44.43	208.28	-89.30	-2,226.44	-11,863.05	10,379.29	10,136.60	242.69	42.768	
9,200.00	6,933.98	6,950.90	6,947.06	45.66	208.28	-89.30	-2,226.44	-11,863.05	10,283.83	10,040.76	243.07	42.309	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Rule Assigned: Warning
9,300.00	6,933.88	6,950.86	6,947.02	46.90	208.28	-89.30	-2,226.44	-11,863.05	10,188.45	9,945.00	243.45	41.849	
9,400.00	6,933.77	6,950.81	6,946.97	48.17	208.28	-89.30	-2,226.44	-11,863.05	10,093.17	9,849.31	243.86	41.390	
9,500.00	6,933.67	6,950.77	6,946.93	49.46	208.28	-89.30	-2,226.44	-11,863.05	9,997.97	9,753.70	244.27	40.930	
9,600.00	6,933.56	6,950.72	6,946.88	50.76	208.28	-89.30	-2,226.44	-11,863.05	9,902.87	9,658.18	244.70	40.470	
9,700.00	6,933.46	6,950.68	6,946.84	52.08	208.27	-89.29	-2,226.44	-11,863.05	9,807.87	9,562.73	245.14	40.009	
9,800.00	6,933.35	6,950.63	6,946.79	53.41	208.27	-89.29	-2,226.44	-11,863.05	9,712.97	9,467.38	245.59	39.549	
9,900.00	6,933.25	6,950.59	6,946.75	54.76	208.27	-89.29	-2,226.44	-11,863.05	9,618.17	9,372.11	246.06	39.088	
10,000.00	6,933.14	6,950.54	6,946.70	56.12	208.27	-89.29	-2,226.44	-11,863.05	9,523.48	9,276.94	246.55	38.628	
10,100.00	6,933.04	6,950.50	6,946.66	57.50	208.27	-89.29	-2,226.44	-11,863.05	9,428.90	9,181.86	247.04	38.167	
10,200.00	6,932.93	6,950.45	6,946.61	58.88	208.27	-89.29	-2,226.44	-11,863.05	9,334.43	9,086.87	247.55	37.706	
10,300.00	6,932.83	6,950.41	6,946.57	60.28	208.27	-89.29	-2,226.44	-11,863.05	9,240.08	8,991.99	248.08	37.246	
10,400.00	6,932.72	6,950.37	6,946.53	61.69	208.26	-89.29	-2,226.44	-11,863.05	9,145.84	8,897.22	248.63	36.786	
10,500.00	6,932.62	6,950.32	6,946.48	63.10	208.26	-89.29	-2,226.44	-11,863.05	9,051.73	8,802.55	249.19	36.325	
10,600.00	6,932.51	6,950.28	6,946.44	64.52	208.26	-89.29	-2,226.43	-11,863.05	8,957.75	8,707.99	249.76	35.865	
10,700.00	6,932.41	6,950.23	6,946.39	65.96	208.26	-89.29	-2,226.43	-11,863.05	8,863.90	8,613.55	250.35	35.405	
10,800.00	6,932.30	6,950.19	6,946.35	67.39	208.26	-89.29	-2,226.43	-11,863.05	8,770.19	8,519.22	250.96	34.946	
10,900.00	6,932.20	6,950.14	6,946.30	68.84	208.26	-89.28	-2,226.43	-11,863.05	8,676.61	8,425.02	251.59	34.487	
11,000.00	6,932.10	6,950.10	6,946.26	70.29	208.26	-89.28	-2,226.43	-11,863.05	8,583.19	8,330.95	252.24	34.028	
11,100.00	6,931.99	6,950.05	6,946.21	71.75	208.25	-89.28	-2,226.43	-11,863.05	8,489.91	8,237.00	252.90	33.570	
11,200.00	6,931.89	6,950.01	6,946.17	73.22	208.25	-89.28	-2,226.43	-11,863.05	8,396.78	8,143.20	253.58	33.112	
11,300.00	6,931.78	6,949.96	6,946.12	74.69	208.25	-89.28	-2,226.43	-11,863.05	8,303.82	8,049.53	254.29	32.655	
11,400.00	6,931.68	6,949.92	6,946.08	76.16	208.25	-89.28	-2,226.43	-11,863.05	8,211.02	7,956.01	255.01	32.199	
11,500.00	6,931.57	6,949.87	6,946.03	77.64	208.25	-89.28	-2,226.43	-11,863.05	8,118.39	7,862.64	255.75	31.743	
11,600.00	6,931.47	6,949.83	6,945.99	79.13	208.25	-89.28	-2,226.43	-11,863.05	8,025.94	7,769.42	256.52	31.288	
11,700.00	6,931.36	6,949.78	6,945.94	80.62	208.25	-89.28	-2,226.43	-11,863.05	7,933.67	7,676.37	257.31	30.834	
11,800.00	6,931.26	6,949.74	6,945.90	82.11	208.25	-89.28	-2,226.43	-11,863.05	7,841.59	7,583.48	258.11	30.380	
11,900.00	6,931.15	6,949.69	6,945.85	83.61	208.24	-89.28	-2,226.43	-11,863.05	7,749.71	7,490.76	258.95	29.928	
12,000.00	6,931.05	6,949.65	6,945.81	85.11	208.24	-89.28	-2,226.43	-11,863.05	7,658.03	7,398.23	259.80	29.476	
12,100.00	6,930.94	6,949.60	6,945.76	86.62	208.24	-89.27	-2,226.43	-11,863.05	7,566.56	7,305.88	260.68	29.026	
12,200.00	6,930.84	6,949.56	6,945.72	88.13	208.24	-89.27	-2,226.42	-11,863.05	7,475.32	7,213.73	261.59	28.577	
12,300.00	6,930.73	6,949.51	6,945.67	89.64	208.24	-89.27	-2,226.42	-11,863.05	7,384.29	7,121.78	262.52	28.129	
12,400.00	6,930.63	6,949.47	6,945.63	91.15	208.24	-89.27	-2,226.42	-11,863.05	7,293.50	7,030.03	263.47	27.682	
12,500.00	6,930.52	6,949.42	6,945.58	92.67	208.24	-89.27	-2,226.42	-11,863.05	7,202.96	6,938.51	264.45	27.237	
12,600.00	6,930.42	6,949.38	6,945.54	94.19	208.23	-89.27	-2,226.42	-11,863.05	7,112.67	6,847.21	265.47	26.793	
12,700.00	6,930.31	6,949.33	6,945.49	95.71	208.23	-89.27	-2,226.42	-11,863.05	7,022.64	6,756.14	266.51	26.351	
12,800.00	6,930.21	6,949.29	6,945.45	97.24	208.23	-89.27	-2,226.42	-11,863.05	6,932.89	6,665.32	267.57	25.910	
12,900.00	6,930.11	6,949.24	6,945.40	98.77	208.23	-89.27	-2,226.42	-11,863.05	6,843.42	6,574.75	268.67	25.471	
13,008.91	6,929.99	6,949.19	6,945.35	100.43	208.23	-89.27	-2,226.42	-11,863.05	6,746.32	6,476.41	269.91	24.995	
13,100.00	6,929.90	6,949.14	6,945.30	101.83	208.23	-89.30	-2,226.42	-11,863.05	6,666.06	6,395.06	271.00	24.598	
13,139.82	6,929.86	6,949.10	6,945.26	102.44	208.23	-89.31	-2,226.42	-11,863.05	6,631.51	6,360.01	271.51	24.425	
13,200.00	6,929.80	6,949.05	6,945.21	103.37	208.22	-89.31	-2,226.42	-11,863.05	6,579.61	6,307.32	272.29	24.164	
13,300.00	6,929.70	6,948.96	6,945.12	104.92	208.22	-89.31	-2,226.42	-11,863.05	6,493.70	6,220.07	273.62	23.732	
13,400.00	6,929.61	6,948.87	6,945.03	106.47	208.22	-89.31	-2,226.42	-11,863.05	6,408.19	6,133.20	275.00	23.303	
13,500.00	6,929.51	6,948.78	6,944.94	108.02	208.22	-89.31	-2,226.41	-11,863.05	6,323.11	6,046.70	276.41	22.876	
13,600.00	6,929.41	6,948.69	6,944.85	109.57	208.21	-89.31	-2,226.41	-11,863.05	6,238.47	5,960.61	277.85	22.452	
13,700.00	6,929.32	6,948.60	6,944.76	111.12	208.21	-89.31	-2,226.41	-11,863.05	6,154.29	5,874.95	279.34	22.031	
13,800.00	6,929.22	6,948.50	6,944.67	112.68	208.21	-89.30	-2,226.41	-11,863.05	6,070.59	5,789.72	280.87	21.613	
13,900.00	6,929.12	6,948.41	6,944.57	114.23	208.21	-89.30	-2,226.41	-11,863.05	5,987.39	5,704.95	282.44	21.198	
14,000.00	6,929.03	6,948.32	6,944.48	115.79	208.20	-89.30	-2,226.41	-11,863.05	5,904.71	5,620.66	284.06	20.787	
14,100.00	6,928.93	6,948.23	6,944.39	117.35	208.20	-89.30	-2,226.41	-11,863.05	5,822.58	5,536.86	285.72	20.379	
14,200.00	6,928.83	6,948.14	6,944.30	118.91	208.20	-89.30	-2,226.41	-11,863.05	5,741.01	5,453.59	287.42	19.974	
14,300.00	6,928.74	6,948.05	6,944.21	120.47	208.20	-89.30	-2,226.40	-11,863.05	5,660.04	5,370.87	289.17	19.573	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,400.00	6,928.64	6,947.96	6,944.12	122.03	208.19	-89.29	-2,226.40	-11,863.05	5,579.68	5,288.71	290.97	19.176	
14,500.00	6,928.54	6,947.87	6,944.03	123.60	208.19	-89.29	-2,226.40	-11,863.05	5,499.96	5,207.15	292.81	18.783	
14,600.00	6,928.45	6,947.78	6,943.94	125.16	208.19	-89.29	-2,226.40	-11,863.05	5,420.92	5,126.22	294.71	18.394	
14,700.00	6,928.35	6,947.69	6,943.85	126.72	208.18	-89.29	-2,226.40	-11,863.05	5,342.58	5,045.93	296.65	18.010	
14,800.00	6,928.25	6,947.60	6,943.76	128.29	208.18	-89.29	-2,226.40	-11,863.05	5,264.98	4,966.33	298.64	17.630	
14,900.00	6,928.16	6,947.51	6,943.67	129.86	208.18	-89.29	-2,226.40	-11,863.05	5,188.14	4,887.45	300.69	17.254	
15,000.00	6,928.06	6,947.42	6,943.58	131.42	208.18	-89.29	-2,226.40	-11,863.05	5,112.10	4,809.32	302.78	16.884	
15,100.00	6,927.96	6,947.33	6,943.49	132.99	208.17	-89.28	-2,226.39	-11,863.05	5,036.90	4,731.97	304.93	16.518	
15,200.00	6,927.87	6,947.24	6,943.40	134.56	208.17	-89.28	-2,226.39	-11,863.05	4,962.57	4,655.44	307.13	16.158	
15,300.00	6,927.77	6,947.15	6,943.31	136.13	208.17	-89.28	-2,226.39	-11,863.05	4,889.16	4,579.78	309.39	15.803	
15,400.00	6,927.67	6,947.06	6,943.22	137.70	208.17	-89.28	-2,226.39	-11,863.05	4,816.71	4,505.02	311.70	15.453	
15,500.00	6,927.57	6,946.97	6,943.13	139.28	208.16	-89.28	-2,226.39	-11,863.05	4,745.26	4,431.20	314.06	15.110	
15,600.00	6,927.48	6,946.88	6,943.04	140.85	208.16	-89.28	-2,226.39	-11,863.05	4,674.86	4,358.39	316.47	14.772	
15,700.00	6,927.38	6,946.79	6,942.95	142.42	208.16	-89.27	-2,226.39	-11,863.05	4,605.55	4,286.61	318.94	14.440	
15,800.00	6,927.28	6,946.70	6,942.86	144.00	208.15	-89.27	-2,226.39	-11,863.05	4,537.39	4,215.93	321.45	14.115	
15,900.00	6,927.19	6,946.61	6,942.77	145.57	208.15	-89.27	-2,226.38	-11,863.05	4,470.42	4,146.40	324.02	13.797	
16,000.00	6,927.09	6,946.52	6,942.68	147.15	208.15	-89.27	-2,226.38	-11,863.05	4,404.71	4,078.07	326.64	13.485	
16,100.00	6,926.99	6,946.43	6,942.59	148.72	208.15	-89.27	-2,226.38	-11,863.05	4,340.30	4,011.00	329.31	13.180	
16,200.00	6,926.90	6,946.34	6,942.50	150.30	208.14	-89.27	-2,226.38	-11,863.05	4,277.27	3,945.25	332.02	12.883	
16,300.00	6,926.80	6,946.25	6,942.41	151.87	208.14	-89.26	-2,226.38	-11,863.05	4,215.66	3,880.89	334.78	12.592	
16,400.00	6,926.70	6,946.16	6,942.32	153.45	208.14	-89.26	-2,226.38	-11,863.05	4,155.55	3,817.98	337.57	12.310	
16,500.00	6,926.61	6,946.07	6,942.23	155.03	208.14	-89.26	-2,226.38	-11,863.05	4,097.00	3,756.59	340.40	12.036	
16,600.00	6,926.51	6,945.98	6,942.14	156.61	208.13	-89.26	-2,226.38	-11,863.05	4,040.07	3,696.80	343.27	11.769	
16,700.00	6,926.41	6,945.89	6,942.05	158.19	208.13	-89.26	-2,226.37	-11,863.05	3,984.84	3,638.68	346.16	11.512	
16,800.00	6,926.32	6,945.79	6,941.96	159.77	208.13	-89.26	-2,226.37	-11,863.05	3,931.38	3,582.30	349.08	11.262	
16,900.00	6,926.22	6,945.70	6,941.87	161.35	208.12	-89.26	-2,226.37	-11,863.05	3,879.76	3,527.75	352.01	11.022	
17,000.00	6,926.12	6,945.61	6,941.78	162.93	208.12	-89.25	-2,226.37	-11,863.05	3,830.06	3,475.10	354.95	10.790	
17,100.00	6,926.03	6,945.52	6,941.69	164.51	208.12	-89.25	-2,226.37	-11,863.05	3,782.34	3,424.44	357.90	10.568	
17,200.00	6,925.93	6,945.43	6,941.60	166.09	208.12	-89.25	-2,226.37	-11,863.05	3,736.70	3,375.85	360.85	10.355	
17,300.00	6,925.83	6,945.34	6,941.51	167.67	208.11	-89.25	-2,226.37	-11,863.05	3,693.20	3,329.42	363.78	10.152	
17,400.00	6,925.74	6,945.25	6,941.42	169.26	208.11	-89.25	-2,226.37	-11,863.05	3,651.92	3,285.23	366.69	9.959	
17,500.00	6,925.64	6,945.16	6,941.33	170.84	208.11	-89.25	-2,226.36	-11,863.05	3,612.93	3,243.37	369.56	9.776	
17,600.00	6,925.54	6,945.07	6,941.24	172.42	208.11	-89.24	-2,226.36	-11,863.05	3,576.32	3,203.92	372.40	9.603	
17,700.00	6,925.45	6,944.98	6,941.15	174.00	208.10	-89.24	-2,226.36	-11,863.05	3,542.16	3,166.97	375.19	9.441	
17,800.00	6,925.35	6,944.89	6,941.06	175.59	208.10	-89.24	-2,226.36	-11,863.05	3,510.51	3,132.60	377.91	9.289	
17,900.00	6,925.25	6,944.80	6,940.97	177.17	208.10	-89.24	-2,226.36	-11,863.05	3,481.44	3,100.88	380.56	9.148	
18,000.00	6,925.16	6,944.71	6,940.88	178.76	208.10	-89.24	-2,226.36	-11,863.05	3,455.03	3,071.91	383.12	9.018	
18,100.00	6,925.06	6,944.62	6,940.79	180.34	208.09	-89.24	-2,226.36	-11,863.05	3,431.33	3,045.74	385.59	8.899	
18,160.21	6,925.00	6,944.57	6,940.73	181.30	208.09	-89.24	-2,226.36	-11,863.05	3,418.39	3,031.36	387.03	8.832	CC, ES, SF

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

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

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Rule Assigned: Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	-82.12	1,387.82	-10,030.90	10,126.97				
100.00	100.00	0.00	0.00	0.25	0.00	-82.12	1,387.82	-10,030.90	10,128.47	10,128.21	0.26	N/A	
200.00	200.00	0.00	0.00	0.61	0.00	-82.12	1,387.82	-10,030.90	10,130.96	10,130.34	0.61	N/A	
300.00	300.00	0.00	0.00	0.97	0.00	-82.12	1,387.82	-10,030.90	10,134.43	10,133.46	0.97	N/A	
400.00	400.00	0.00	0.00	1.33	0.00	-82.12	1,387.82	-10,030.90	10,138.89	10,137.56	1.33	7,623.368	
500.00	500.00	0.00	0.00	1.68	0.00	-82.12	1,387.82	-10,030.90	10,144.33	10,142.64	1.69	6,010.071	
600.00	599.98	0.00	0.00	2.04	0.00	-93.99	1,387.82	-10,030.90	10,150.88	10,148.84	2.04	4,964.392	
700.00	699.84	0.00	0.00	2.41	0.00	-93.84	1,387.82	-10,030.90	10,158.65	10,156.25	2.40	4,230.981	
800.00	799.45	0.00	0.00	2.77	0.00	-93.66	1,387.82	-10,030.90	10,167.63	10,164.87	2.76	3,685.156	
900.00	898.70	0.00	0.00	3.13	0.00	-93.45	1,387.82	-10,030.90	10,177.81	10,174.69	3.12	3,260.066	
1,000.00	997.47	538.47	522.13	3.50	2.12	-93.85	1,373.70	-10,074.38	10,187.28	10,181.64	5.64	1,806.641	
1,100.00	1,095.62	550.00	533.60	3.89	2.16	-93.72	1,372.83	-10,075.18	10,194.75	10,188.69	6.07	1,680.860	
1,200.00	1,193.44	575.00	558.44	4.29	2.24	-93.76	1,370.83	-10,077.14	10,203.13	10,196.58	6.55	1,558.622	
1,300.00	1,291.25	600.00	583.25	4.70	2.32	-93.80	1,368.62	-10,079.34	10,212.29	10,205.25	7.04	1,451.621	
1,400.00	1,389.07	625.00	608.01	5.11	2.41	-93.85	1,366.14	-10,081.71	10,222.16	10,214.63	7.53	1,357.508	
1,500.00	1,486.88	675.00	657.40	5.53	2.58	-93.94	1,360.30	-10,086.82	10,232.63	10,224.51	8.12	1,260.531	
1,600.00	1,584.70	700.00	682.04	5.95	2.67	-93.99	1,357.02	-10,089.50	10,243.69	10,235.07	8.62	1,187.892	
1,700.00	1,682.51	725.00	706.61	6.37	2.77	-94.04	1,353.48	-10,092.43	10,255.55	10,246.42	9.13	1,122.966	
1,800.00	1,780.33	725.00	706.61	6.80	2.77	-94.04	1,353.48	-10,092.43	10,268.26	10,258.71	9.55	1,075.145	
1,900.00	1,878.14	750.00	731.10	7.22	2.87	-94.09	1,349.69	-10,095.75	10,281.78	10,271.72	10.06	1,021.746	
2,000.00	1,975.96	764.66	745.43	7.65	2.93	-94.12	1,347.40	-10,097.85	10,296.13	10,285.60	10.54	977.110	
2,100.00	2,073.77	787.80	768.02	8.08	3.02	-94.17	1,343.73	-10,101.30	10,311.25	10,300.21	11.04	933.585	
2,200.00	2,171.59	800.00	779.91	8.51	3.08	-94.19	1,341.78	-10,103.17	10,327.13	10,315.62	11.51	897.292	
2,300.00	2,269.40	825.00	804.25	8.95	3.19	-94.25	1,337.75	-10,107.20	10,343.75	10,331.73	12.02	860.217	
2,400.00	2,367.22	835.92	814.86	9.38	3.23	-94.27	1,335.96	-10,109.06	10,361.22	10,348.73	12.48	830.004	
2,500.00	2,465.03	850.00	828.51	9.81	3.30	-94.30	1,333.60	-10,111.58	10,379.52	10,366.56	12.95	801.283	
2,600.00	2,562.84	875.00	852.70	10.25	3.41	-94.36	1,329.35	-10,116.27	10,398.63	10,385.16	13.47	772.038	
2,700.00	2,660.66	875.00	852.70	10.68	3.41	-94.36	1,329.35	-10,116.27	10,418.50	10,404.62	13.88	750.700	
2,800.00	2,758.47	900.00	876.81	11.12	3.53	-94.41	1,324.97	-10,121.21	10,439.12	10,424.72	14.39	725.323	
2,900.00	2,856.29	900.00	876.81	11.55	3.53	-94.41	1,324.97	-10,121.21	10,460.60	10,445.80	14.80	706.901	
3,000.00	2,954.10	925.00	900.76	11.99	3.66	-94.47	1,320.24	-10,126.58	10,482.88	10,467.57	15.31	684.658	
3,100.00	3,051.92	925.00	900.76	12.42	3.66	-94.47	1,320.24	-10,126.58	10,505.96	10,490.25	15.71	668.649	
3,200.00	3,149.73	975.00	948.29	12.86	3.92	-94.59	1,309.76	-10,138.02	10,529.74	10,513.40	16.34	644.394	
3,300.00	3,247.55	1,000.00	971.91	13.30	4.05	-94.65	1,304.07	-10,143.91	10,554.14	10,537.28	16.86	626.128	
3,400.00	3,345.36	1,025.00	995.44	13.73	4.19	-94.72	1,298.15	-10,149.93	10,579.21	10,561.84	17.37	608.973	
3,500.00	3,443.18	1,038.76	1,008.36	14.17	4.27	-94.75	1,294.81	-10,153.32	10,604.99	10,587.16	17.83	594.696	
3,600.00	3,540.99	1,059.28	1,027.55	14.61	4.39	-94.81	1,289.72	-10,158.51	10,631.51	10,613.19	18.33	580.163	
3,700.00	3,638.81	1,091.50	1,057.61	15.05	4.58	-94.89	1,281.63	-10,166.80	10,658.68	10,639.80	18.88	564.650	
3,800.00	3,736.62	1,125.00	1,088.80	15.48	4.78	-94.98	1,273.12	-10,175.60	10,686.47	10,667.03	19.44	549.850	
3,900.00	3,834.44	1,175.00	1,135.30	15.92	5.08	-95.11	1,260.48	-10,188.91	10,714.78	10,694.70	20.08	533.565	
4,000.00	3,932.25	1,200.00	1,158.58	16.36	5.23	-95.17	1,254.34	-10,195.65	10,743.63	10,723.04	20.59	521.688	
4,100.00	4,030.07	1,225.00	1,181.86	16.80	5.38	-95.24	1,248.33	-10,202.49	10,773.10	10,751.99	21.10	510.469	
4,200.00	4,127.88	1,277.68	1,230.95	17.24	5.71	-95.37	1,236.23	-10,217.27	10,803.17	10,781.41	21.76	496.467	
4,300.00	4,225.70	1,379.78	1,326.31	17.68	6.34	-95.62	1,213.58	-10,245.90	10,833.40	10,810.72	22.68	477.647	
4,400.00	4,323.51	1,682.94	1,609.83	18.11	8.23	-96.36	1,143.61	-10,327.25	10,862.26	10,837.54	24.72	439.365	
4,500.00	4,421.33	1,784.17	1,704.48	18.55	8.86	-96.61	1,119.22	-10,353.60	10,891.09	10,865.43	25.66	424.374	
4,600.00	4,519.14	1,900.00	1,812.80	18.99	9.59	-96.90	1,090.95	-10,383.30	10,919.71	10,893.02	26.69	409.121	
4,700.00	4,616.95	1,925.00	1,836.17	19.43	9.75	-96.96	1,084.88	-10,389.79	10,948.78	10,921.57	27.20	402.508	
4,800.00	4,714.77	1,950.00	1,859.53	19.87	9.91	-97.03	1,078.91	-10,396.41	10,978.48	10,950.77	27.71	396.201	
4,900.00	4,812.58	5,080.36	4,900.04	20.31	23.81	-102.43	697.01	-10,821.15	10,999.29	10,958.00	41.29	266.361	
5,000.00	4,910.40	5,183.28	5,002.96	20.75	24.08	-102.54	696.30	-10,821.10	11,003.84	10,961.82	42.02	261.863	
5,100.00	5,008.21	5,900.00	5,692.98	21.19	26.14	-103.61	629.59	-10,801.61	11,005.71	10,961.15	44.55	247.015	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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
5,145.22	5,052.45	5,900.00	5,692.98	21.39	26.14	-103.61	629.59	-10,801.61	11,005.62	10,960.85	44.76	245.862	
5,200.00	5,106.03	5,900.00	5,692.98	21.63	26.14	-103.61	629.59	-10,801.61	11,005.75	10,960.74	45.02	244.490	
5,300.00	5,203.84	5,900.00	5,692.98	22.06	26.14	-103.61	629.59	-10,801.61	11,006.70	10,961.23	45.47	242.052	
5,400.00	5,301.66	5,900.00	5,692.98	22.50	26.14	-103.61	629.59	-10,801.61	11,008.56	10,962.64	45.93	239.699	
5,500.00	5,399.47	5,900.00	5,692.98	22.94	26.14	-103.61	629.59	-10,801.61	11,011.33	10,964.96	46.38	237.428	
5,600.00	5,497.29	5,900.00	5,692.98	23.38	26.14	-103.61	629.59	-10,801.61	11,015.01	10,968.18	46.83	235.237	
5,700.00	5,595.10	5,959.21	5,752.19	23.82	26.30	-103.68	628.99	-10,801.27	11,019.40	10,971.97	47.44	232.303	
5,800.00	5,692.92	6,003.81	5,796.78	24.26	26.42	-103.73	628.90	-10,801.13	11,024.15	10,976.15	48.00	229.673	
5,900.00	5,790.73	6,075.00	5,867.98	24.70	26.61	-103.80	628.57	-10,801.16	11,029.27	10,980.63	48.64	226.731	
6,000.00	5,888.55	6,139.79	5,932.77	25.14	26.80	-103.87	628.13	-10,801.38	11,034.72	10,985.45	49.28	223.930	
6,100.00	5,986.36	6,212.22	6,005.19	25.58	27.01	-103.95	627.52	-10,801.82	11,040.48	10,990.54	49.93	221.099	
6,200.00	6,084.18	6,225.00	6,017.97	26.02	27.05	-103.96	627.39	-10,801.91	11,046.71	10,996.30	50.41	219.135	
6,300.00	6,181.99	6,225.00	6,017.97	26.46	27.05	-103.96	627.39	-10,801.91	11,053.84	11,002.99	50.84	217.406	
6,401.22	6,281.00	6,225.00	6,017.97	26.90	27.05	-103.96	627.39	-10,801.91	11,061.96	11,010.68	51.28	215.720	
6,450.00	6,328.76	6,225.00	6,017.97	27.12	27.05	-82.99	627.39	-10,801.91	11,064.34	11,012.86	51.49	214.900	
6,500.00	6,377.61	6,225.00	6,017.97	27.32	27.05	-63.36	627.39	-10,801.91	11,063.13	11,011.44	51.69	214.011	
6,550.00	6,426.06	6,225.00	6,017.97	27.52	27.05	-48.79	627.39	-10,801.91	11,058.22	11,006.33	51.90	213.081	
6,600.00	6,473.81	6,225.00	6,017.97	27.71	27.05	-38.81	627.39	-10,801.91	11,049.65	10,997.56	52.09	212.117	
6,650.00	6,520.56	6,225.00	6,017.97	27.89	27.05	-31.98	627.39	-10,801.91	11,037.45	10,985.17	52.28	211.124	
6,700.00	6,566.03	6,225.00	6,017.97	28.05	27.05	-27.17	627.39	-10,801.91	11,021.70	10,969.24	52.46	210.107	
6,750.00	6,609.93	6,225.00	6,017.97	28.20	27.05	-23.67	627.39	-10,801.91	11,002.46	10,949.84	52.63	209.070	
6,800.00	6,652.00	6,225.00	6,017.97	28.34	27.05	-21.05	627.39	-10,801.91	10,979.85	10,927.07	52.78	208.018	
6,850.00	6,691.98	7,065.04	6,814.49	28.47	29.59	-20.29	598.75	-10,827.57	10,953.69	10,898.22	55.47	197.457	
6,900.00	6,729.61	7,103.99	6,853.45	28.59	29.70	-18.88	598.68	-10,827.51	10,921.85	10,866.12	55.73	195.985	
6,950.00	6,764.67	7,136.86	6,886.32	28.69	29.79	-17.81	598.67	-10,827.43	10,887.06	10,831.11	55.95	194.584	
7,000.00	6,796.95	7,158.22	6,907.67	28.79	29.85	-17.03	598.64	-10,827.41	10,849.61	10,793.48	56.13	193.296	
7,050.00	6,826.23	7,209.43	6,958.89	28.89	29.99	-16.56	598.55	-10,827.31	10,809.65	10,753.27	56.38	191.727	
7,100.00	6,852.35	7,229.04	6,978.49	28.98	30.05	-16.29	598.53	-10,827.26	10,767.46	10,710.93	56.53	190.482	
7,150.00	6,875.14	7,250.00	6,999.45	29.08	30.10	-16.29	598.49	-10,827.21	10,723.30	10,666.63	56.67	189.239	
7,200.00	6,894.45	7,266.63	7,016.08	29.18	30.15	-16.63	598.46	-10,827.17	10,677.44	10,620.67	56.78	188.053	
7,250.00	6,910.18	7,283.27	7,032.73	29.28	30.20	-17.47	598.44	-10,827.14	10,630.18	10,573.30	56.88	186.887	
7,300.00	6,922.23	7,304.10	7,053.55	29.40	30.26	-19.30	598.39	-10,827.08	10,581.79	10,524.81	56.98	185.705	
7,350.00	6,930.51	7,310.67	7,060.12	29.54	30.27	-23.43	598.38	-10,827.07	10,532.56	10,475.53	57.03	184.678	
7,400.00	6,934.98	7,314.18	7,063.63	29.70	30.28	-38.33	598.37	-10,827.06	10,482.82	10,425.76	57.06	183.703	
7,433.91	6,935.83	7,314.79	7,064.24	29.81	30.29	-97.35	598.37	-10,827.05	10,448.94	10,391.87	57.08	183.070	
7,500.00	6,935.76	7,314.60	7,064.05	30.07	30.29	-97.31	598.37	-10,827.05	10,382.88	10,325.79	57.09	181.864	
7,600.00	6,935.66	7,314.30	7,063.75	30.52	30.28	-97.26	598.37	-10,827.06	10,282.92	10,225.80	57.12	180.037	
7,700.00	6,935.55	7,314.01	7,063.46	31.06	30.28	-97.20	598.37	-10,827.06	10,182.96	10,125.82	57.14	178.208	
7,800.00	6,935.45	7,313.71	7,063.16	31.68	30.28	-97.14	598.37	-10,827.06	10,083.00	10,025.83	57.17	176.376	
7,900.00	6,935.34	7,313.41	7,062.86	32.37	30.28	-97.08	598.37	-10,827.06	9,983.04	9,925.85	57.20	174.543	
8,000.00	6,935.24	7,313.11	7,062.56	33.12	30.28	-97.02	598.37	-10,827.06	9,883.08	9,825.86	57.22	172.707	
8,100.00	6,935.13	7,312.81	7,062.26	33.93	30.28	-96.97	598.37	-10,827.06	9,783.13	9,725.87	57.25	170.870	
8,200.00	6,935.03	7,312.51	7,061.96	34.80	30.28	-96.91	598.38	-10,827.06	9,683.17	9,625.89	57.29	169.030	
8,300.00	6,934.92	7,312.21	7,061.66	35.71	30.28	-96.85	598.38	-10,827.06	9,583.22	9,525.90	57.32	167.189	
8,400.00	6,934.82	7,311.90	7,061.35	36.67	30.28	-96.79	598.38	-10,827.06	9,483.27	9,425.91	57.35	165.346	
8,500.00	6,934.71	7,311.60	7,061.05	37.68	30.28	-96.73	598.38	-10,827.06	9,383.31	9,325.92	57.39	163.501	
8,600.00	6,934.61	7,311.29	7,060.74	38.72	30.28	-96.67	598.38	-10,827.06	9,283.36	9,225.93	57.43	161.654	
8,700.00	6,934.50	7,310.98	7,060.43	39.80	30.27	-96.61	598.38	-10,827.06	9,183.41	9,125.95	57.47	159.806	
8,800.00	6,934.40	7,310.67	7,060.13	40.92	30.27	-96.55	598.38	-10,827.07	9,083.46	9,025.96	57.51	157.957	
8,900.00	6,934.29	7,310.36	7,059.82	42.06	30.27	-96.49	598.38	-10,827.07	8,983.51	8,925.97	57.55	156.107	
9,000.00	6,934.19	7,310.05	7,059.50	43.23	30.27	-96.43	598.38	-10,827.07	8,883.57	8,825.98	57.59	154.255	
9,100.00	6,934.08	7,309.74	7,059.19	44.43	30.27	-96.37	598.38	-10,827.07	8,783.62	8,725.99	57.63	152.402	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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
9,200.00	6,933.98	7,309.43	7,058.88	45.66	30.27	-96.30	598.38	-10,827.07	8,683.68	8,626.00	57.68	150.548	
9,300.00	6,933.88	7,309.11	7,058.56	46.90	30.27	-96.24	598.38	-10,827.07	8,583.74	8,526.01	57.73	148.693	
9,400.00	6,933.77	7,308.79	7,058.25	48.17	30.27	-96.18	598.38	-10,827.07	8,483.79	8,426.02	57.78	146.837	
9,500.00	6,933.67	7,308.48	7,057.93	49.46	30.27	-96.12	598.38	-10,827.07	8,383.85	8,326.03	57.83	144.980	
9,600.00	6,933.56	7,308.16	7,057.61	50.76	30.27	-96.06	598.38	-10,827.07	8,283.91	8,226.03	57.88	143.122	
9,700.00	6,933.46	7,307.84	7,057.29	52.08	30.27	-95.99	598.38	-10,827.07	8,183.98	8,126.04	57.93	141.264	
9,800.00	6,933.35	7,307.52	7,056.97	53.41	30.27	-95.93	598.39	-10,827.07	8,084.04	8,026.05	57.99	139.406	
9,900.00	6,933.25	7,307.19	7,056.65	54.76	30.26	-95.87	598.39	-10,827.07	7,984.11	7,926.06	58.05	137.546	
10,000.00	6,933.14	7,306.87	7,056.32	56.12	30.26	-95.80	598.39	-10,827.08	7,884.17	7,826.07	58.11	135.687	
10,100.00	6,933.04	7,306.55	7,056.00	57.50	30.26	-95.74	598.39	-10,827.08	7,784.24	7,726.08	58.17	133.827	
10,200.00	6,932.93	7,306.22	7,055.67	58.88	30.26	-95.68	598.39	-10,827.08	7,684.31	7,626.08	58.23	131.967	
10,300.00	6,932.83	7,305.89	7,055.34	60.28	30.26	-95.61	598.39	-10,827.08	7,584.39	7,526.09	58.29	130.106	
10,400.00	6,932.72	7,305.56	7,055.01	61.69	30.26	-95.55	598.39	-10,827.08	7,484.46	7,426.10	58.36	128.246	
10,500.00	6,932.62	7,305.23	7,054.68	63.10	30.26	-95.48	598.39	-10,827.08	7,384.54	7,326.11	58.43	126.386	
10,600.00	6,932.51	7,304.90	7,054.35	64.52	30.26	-95.42	598.39	-10,827.08	7,284.62	7,226.12	58.50	124.525	
10,700.00	6,932.41	7,304.57	7,054.02	65.96	30.26	-95.35	598.39	-10,827.08	7,184.70	7,126.12	58.57	122.665	
10,800.00	6,932.30	7,304.23	7,053.68	67.39	30.26	-95.29	598.39	-10,827.08	7,084.78	7,026.13	58.65	120.805	
10,900.00	6,932.20	7,303.89	7,053.35	68.84	30.26	-95.22	598.39	-10,827.08	6,984.86	6,926.14	58.72	118.946	
11,000.00	6,932.10	7,303.56	7,053.01	70.29	30.25	-95.16	598.39	-10,827.09	6,884.95	6,826.15	58.80	117.086	
11,100.00	6,931.99	7,303.22	7,052.67	71.75	30.25	-95.09	598.39	-10,827.09	6,785.04	6,726.16	58.88	115.227	
11,200.00	6,931.89	7,302.88	7,052.33	73.22	30.25	-95.02	598.40	-10,827.09	6,685.14	6,626.17	58.97	113.369	
11,300.00	6,931.78	7,304.56	7,054.01	74.69	30.26	-95.35	598.39	-10,827.08	6,585.23	6,526.17	59.06	111.500	
11,400.00	6,931.68	7,303.90	7,053.35	76.16	30.26	-95.22	598.39	-10,827.08	6,485.33	6,426.18	59.15	109.645	
11,500.00	6,931.57	7,303.25	7,052.70	77.64	30.25	-95.09	598.39	-10,827.09	6,385.43	6,326.19	59.24	107.790	
11,600.00	6,931.47	7,302.61	7,052.07	79.13	30.25	-94.97	598.40	-10,827.09	6,285.54	6,226.21	59.33	105.937	
11,700.00	6,931.36	7,301.99	7,051.44	80.62	30.25	-94.85	598.40	-10,827.09	6,185.65	6,126.22	59.43	104.084	
11,800.00	6,931.26	7,301.37	7,050.83	82.11	30.25	-94.73	598.40	-10,827.09	6,085.76	6,026.23	59.53	102.231	
11,900.00	6,931.15	7,300.77	7,050.22	83.61	30.25	-94.61	598.40	-10,827.09	5,985.87	5,926.24	59.63	100.380	
12,000.00	6,931.05	7,300.18	7,049.63	85.11	30.24	-94.49	598.40	-10,827.10	5,885.99	5,826.26	59.74	98.530	
12,100.00	6,930.94	7,299.59	7,049.04	86.62	30.24	-94.38	598.40	-10,827.10	5,786.12	5,726.27	59.85	96.681	
12,200.00	6,930.84	7,299.02	7,048.47	88.13	30.24	-94.26	598.40	-10,827.10	5,686.25	5,626.29	59.96	94.833	
12,300.00	6,930.73	7,298.45	7,047.90	89.64	30.24	-94.15	598.41	-10,827.10	5,586.38	5,526.30	60.08	92.986	
12,400.00	6,930.63	7,297.90	7,047.35	91.15	30.24	-94.04	598.41	-10,827.10	5,486.52	5,426.32	60.20	91.140	
12,500.00	6,930.52	7,297.35	7,046.80	92.67	30.24	-93.93	598.41	-10,827.10	5,386.66	5,326.34	60.32	89.296	
12,600.00	6,930.42	7,296.81	7,046.26	94.19	30.24	-93.83	598.41	-10,827.11	5,286.81	5,226.35	60.45	87.453	
12,700.00	6,930.31	7,296.28	7,045.73	95.71	30.23	-93.72	598.41	-10,827.11	5,186.96	5,126.37	60.59	85.611	
12,800.00	6,930.21	7,295.76	7,045.21	97.24	30.23	-93.62	598.41	-10,827.11	5,087.12	5,026.39	60.73	83.771	
12,900.00	6,930.11	7,295.25	7,044.70	98.77	30.23	-93.52	598.41	-10,827.11	4,987.29	4,926.42	60.87	81.933	
13,008.91	6,929.99	7,294.70	7,044.15	100.43	30.23	-93.41	598.41	-10,827.11	4,878.57	4,817.53	61.03	79.932	
13,100.00	6,929.90	7,294.24	7,043.70	101.83	30.23	-92.14	598.42	-10,827.11	4,787.74	4,726.54	61.20	78.227	
13,139.82	6,929.86	7,294.05	7,043.50	102.44	30.23	-91.83	598.42	-10,827.11	4,748.12	4,686.83	61.30	77.461	
13,200.00	6,929.80	7,293.75	7,043.20	103.37	30.23	-91.79	598.42	-10,827.11	4,688.29	4,626.84	61.45	76.294	
13,300.00	6,929.70	7,293.27	7,042.72	104.92	30.23	-91.74	598.42	-10,827.11	4,588.90	4,527.18	61.72	74.355	
13,400.00	6,929.61	7,292.79	7,042.24	106.47	30.22	-91.68	598.42	-10,827.12	4,489.53	4,427.53	62.00	72.417	
13,500.00	6,929.51	7,292.32	7,041.77	108.02	30.22	-91.63	598.42	-10,827.12	4,390.19	4,327.90	62.29	70.482	
13,600.00	6,929.41	7,291.86	7,041.31	109.57	30.22	-91.58	598.42	-10,827.12	4,290.88	4,228.28	62.60	68.548	
13,700.00	6,929.32	7,291.40	7,040.85	111.12	30.22	-91.53	598.42	-10,827.12	4,191.60	4,128.68	62.92	66.616	
13,800.00	6,929.22	7,290.95	7,040.41	112.68	30.22	-91.48	598.42	-10,827.12	4,092.36	4,029.09	63.27	64.686	
13,900.00	6,929.12	7,290.51	7,039.96	114.23	30.22	-91.43	598.42	-10,827.12	3,993.15	3,929.52	63.63	62.758	
14,000.00	6,929.03	7,290.07	7,039.53	115.79	30.22	-91.38	598.42	-10,827.12	3,893.99	3,829.98	64.01	60.833	
14,100.00	6,928.93	7,289.65	7,039.10	117.35	30.22	-91.33	598.42	-10,827.12	3,794.87	3,730.45	64.42	58.911	
14,200.00	6,928.83	7,289.22	7,038.68	118.91	30.21	-91.28	598.43	-10,827.13	3,695.79	3,630.94	64.85	56.991	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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
14,300.00	6,928.74	7,288.81	7,038.26	120.47	30.21	-91.24	598.43	-10,827.13	3,596.77	3,531.46	65.31	55.075	
14,400.00	6,928.64	7,288.40	7,037.85	122.03	30.21	-91.19	598.43	-10,827.13	3,497.81	3,432.01	65.79	53.162	
14,500.00	6,928.54	7,287.99	7,037.44	123.60	30.21	-91.14	598.43	-10,827.13	3,398.90	3,332.58	66.32	51.254	
14,600.00	6,928.45	7,287.59	7,037.04	125.16	30.21	-91.10	598.43	-10,827.13	3,300.06	3,233.19	66.87	49.350	
14,700.00	6,928.35	7,287.20	7,036.65	126.72	30.21	-91.05	598.43	-10,827.13	3,201.29	3,133.83	67.47	47.450	
14,800.00	6,928.25	7,286.81	7,036.26	128.29	30.21	-91.01	598.43	-10,827.13	3,102.60	3,034.50	68.10	45.556	
14,900.00	6,928.16	7,286.43	7,035.88	129.86	30.21	-90.97	598.43	-10,827.13	3,004.00	2,935.21	68.79	43.669	
15,000.00	6,928.06	7,286.05	7,035.50	131.42	30.21	-90.92	598.43	-10,827.13	2,905.50	2,835.97	69.53	41.787	
15,100.00	6,927.96	7,285.68	7,035.13	132.99	30.20	-90.88	598.43	-10,827.13	2,807.09	2,736.77	70.33	39.914	
15,200.00	6,927.87	7,285.31	7,034.76	134.56	30.20	-90.84	598.43	-10,827.13	2,708.81	2,637.62	71.19	38.049	
15,300.00	6,927.77	7,284.95	7,034.40	136.13	30.20	-90.80	598.43	-10,827.13	2,610.66	2,538.53	72.13	36.193	
15,400.00	6,927.67	7,284.59	7,034.04	137.70	30.20	-90.76	598.43	-10,827.14	2,512.65	2,439.50	73.15	34.349	
15,500.00	6,927.57	7,284.24	7,033.69	139.28	30.20	-90.72	598.43	-10,827.14	2,414.81	2,340.54	74.27	32.516	
15,600.00	6,927.48	7,283.89	7,033.34	140.85	30.20	-90.68	598.44	-10,827.14	2,317.14	2,241.66	75.48	30.697	
15,700.00	6,927.38	7,283.55	7,033.00	142.42	30.20	-90.64	598.44	-10,827.14	2,219.69	2,142.87	76.82	28.894	
15,800.00	6,927.28	7,283.21	7,032.66	144.00	30.20	-90.60	598.44	-10,827.14	2,122.48	2,044.18	78.30	27.108	
15,900.00	6,927.19	7,282.87	7,032.33	145.57	30.20	-90.57	598.44	-10,827.14	2,025.53	1,945.61	79.93	25.342	
16,000.00	6,927.09	7,282.54	7,032.00	147.15	30.20	-90.53	598.44	-10,827.14	1,928.90	1,847.17	81.73	23.599	
16,100.00	6,926.99	7,282.22	7,031.67	148.72	30.19	-90.49	598.44	-10,827.14	1,832.63	1,748.88	83.75	21.882	
16,200.00	6,926.90	7,281.90	7,031.35	150.30	30.19	-90.46	598.44	-10,827.14	1,736.78	1,650.78	86.00	20.194	
16,300.00	6,926.80	7,281.58	7,031.03	151.87	30.19	-90.42	598.44	-10,827.14	1,641.43	1,552.89	88.54	18.540	
16,400.00	6,926.70	7,281.26	7,030.72	153.45	30.19	-90.39	598.44	-10,827.14	1,546.66	1,455.26	91.40	16.923	
16,500.00	6,926.61	7,280.95	7,030.41	155.03	30.19	-90.35	598.44	-10,827.14	1,452.59	1,357.95	94.64	15.349	
16,600.00	6,926.51	7,280.65	7,030.10	156.61	30.19	-90.32	598.44	-10,827.14	1,359.37	1,261.04	98.34	13.823	
16,700.00	6,926.41	7,280.35	7,029.80	158.19	30.19	-90.28	598.44	-10,827.14	1,267.19	1,164.61	102.58	12.353	
16,800.00	6,926.32	7,280.05	7,029.50	159.77	30.19	-90.25	598.44	-10,827.14	1,176.28	1,068.82	107.46	10.946	
16,900.00	6,926.22	7,279.75	7,029.21	161.35	30.19	-90.22	598.44	-10,827.15	1,086.98	973.86	113.12	9.609	
17,000.00	6,926.12	7,279.46	7,028.91	162.93	30.19	-90.18	598.44	-10,827.15	999.70	880.01	119.69	8.353	
17,100.00	6,926.03	7,279.17	7,028.63	164.51	30.19	-90.15	598.44	-10,827.15	915.02	787.68	127.34	7.186	
17,200.00	6,925.93	7,278.89	7,028.34	166.09	30.19	-90.12	598.44	-10,827.15	833.75	697.51	136.24	6.120	
17,300.00	6,925.83	7,278.61	7,028.06	167.67	30.18	-90.09	598.44	-10,827.15	756.97	610.46	146.51	5.167	
17,400.00	6,925.74	7,278.33	7,027.78	169.26	30.18	-90.06	598.44	-10,827.15	686.21	528.05	158.16	4.339	
17,500.00	6,925.64	7,278.06	7,027.51	170.84	30.18	-90.02	598.44	-10,827.15	623.50	452.63	170.87	3.649	
17,600.00	6,925.54	7,277.79	7,027.24	172.42	30.18	-89.99	598.45	-10,827.15	571.51	387.75	183.76	3.110	
17,700.00	6,925.45	7,277.52	7,026.97	174.00	30.18	-89.96	598.45	-10,827.15	533.38	338.27	195.11	2.734	
17,800.00	6,925.35	7,277.25	7,026.71	175.59	30.18	-89.93	598.45	-10,827.15	512.22	309.65	202.57	2.529	
17,860.64	6,925.29	7,277.09	7,026.55	176.55	30.18	-89.92	598.45	-10,827.15	508.61	304.34	204.27	2.490	CC, ES, SF
17,900.00	6,925.25	7,276.99	7,026.44	177.17	30.18	-89.90	598.45	-10,827.15	510.13	306.05	204.08	2.500	
18,000.00	6,925.16	7,276.73	7,026.19	178.76	30.18	-89.88	598.45	-10,827.15	527.36	328.11	199.25	2.647	
18,100.00	6,925.06	7,276.48	7,025.93	180.34	30.18	-89.85	598.45	-10,827.15	562.12	372.51	189.61	2.965	
18,160.21	6,925.00	7,276.32	7,025.78	181.30	30.18	-89.83	598.45	-10,827.15	590.28	407.81	182.47	3.235	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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	Rule Assigned: Warning
0.00	0.00	161.09	161.09	0.00	0.48	-117.08	-1,729.72	-3,383.76	3,800.24				
100.00	100.00	257.28	257.27	0.25	0.81	-117.07	-1,729.70	-3,383.77	3,800.24	3,799.18	1.06	3,575.721	
200.00	200.00	362.74	362.74	0.61	1.18	-117.07	-1,729.79	-3,384.04	3,800.52	3,798.73	1.79	2,122.793	
300.00	300.00	440.42	440.41	0.97	1.45	-117.07	-1,729.78	-3,384.25	3,800.78	3,798.36	2.42	1,570.258	
400.00	400.00	550.00	550.00	1.33	1.84	-117.08	-1,730.16	-3,384.49	3,801.11	3,797.95	3.16	1,201.981	
500.00	500.00	650.00	649.99	1.68	2.19	-117.08	-1,730.72	-3,384.70	3,801.56	3,797.69	3.87	982.123	
600.00	599.98	755.84	755.84	2.04	2.56	-129.09	-1,731.44	-3,384.91	3,803.15	3,798.55	4.60	826.916	
700.00	699.84	845.45	845.44	2.41	2.87	-129.09	-1,731.76	-3,385.20	3,806.90	3,801.62	5.27	722.063	
800.00	799.45	951.24	951.23	2.77	3.24	-129.10	-1,731.65	-3,385.56	3,812.65	3,806.65	6.00	635.118	
900.00	898.70	1,071.09	1,071.07	3.13	3.66	-129.14	-1,731.12	-3,385.94	3,820.45	3,813.67	6.79	563.022	
1,000.00	997.47	1,176.96	1,176.94	3.50	4.03	-129.17	-1,730.00	-3,386.37	3,830.28	3,822.76	7.53	508.982	
1,100.00	1,095.62	1,262.16	1,262.13	3.89	4.32	-129.15	-1,728.78	-3,386.76	3,842.21	3,834.01	8.20	468.463	
1,200.00	1,193.44	1,368.35	1,368.32	4.29	4.70	-129.39	-1,727.54	-3,387.32	3,855.47	3,846.51	8.96	430.432	
1,300.00	1,291.25	1,450.36	1,450.31	4.70	4.98	-129.56	-1,726.36	-3,387.91	3,868.82	3,859.19	9.63	401.673	
1,400.00	1,389.07	1,559.28	1,559.22	5.11	5.36	-129.80	-1,724.90	-3,388.58	3,882.16	3,871.76	10.40	373.121	
1,500.00	1,486.88	1,668.17	1,668.09	5.53	5.74	-130.04	-1,723.47	-3,389.22	3,895.59	3,884.40	11.18	348.425	
1,600.00	1,584.70	1,771.19	1,771.10	5.95	6.10	-130.26	-1,722.19	-3,389.53	3,908.83	3,896.89	11.94	327.422	
1,700.00	1,682.51	1,867.31	1,867.22	6.37	6.44	-130.47	-1,720.91	-3,389.58	3,921.87	3,909.19	12.67	309.462	
1,800.00	1,780.33	1,958.87	1,958.77	6.80	6.76	-130.67	-1,719.83	-3,389.62	3,935.04	3,921.64	13.39	293.806	
1,900.00	1,878.14	2,050.00	2,049.90	7.22	7.08	-130.87	-1,719.05	-3,389.63	3,948.38	3,934.27	14.11	279.772	
2,000.00	1,975.96	2,156.54	2,156.44	7.65	7.45	-131.10	-1,718.39	-3,389.66	3,961.91	3,947.02	14.89	266.106	
2,100.00	2,073.77	2,250.00	2,249.90	8.08	7.78	-131.31	-1,717.75	-3,389.68	3,975.45	3,959.83	15.62	254.546	
2,200.00	2,171.59	2,338.59	2,338.48	8.51	8.09	-131.50	-1,717.34	-3,389.80	3,989.26	3,972.93	16.33	244.290	
2,300.00	2,269.40	2,419.17	2,419.06	8.95	8.37	-131.68	-1,717.11	-3,390.08	4,003.39	3,986.37	17.01	235.311	
2,400.00	2,367.22	2,500.00	2,499.89	9.38	8.65	-131.86	-1,717.09	-3,390.64	4,017.99	4,000.29	17.70	227.043	
2,500.00	2,465.03	2,623.13	2,623.02	9.81	9.08	-132.12	-1,716.95	-3,391.44	4,032.57	4,014.04	18.54	217.545	
2,600.00	2,562.84	2,719.42	2,719.31	10.25	9.42	-132.32	-1,716.31	-3,392.00	4,046.87	4,027.59	19.28	209.926	
2,700.00	2,660.66	2,830.69	2,830.57	10.68	9.81	-132.56	-1,715.75	-3,392.43	4,061.15	4,041.07	20.07	202.311	
2,800.00	2,758.47	2,932.22	2,932.10	11.12	10.17	-132.77	-1,715.23	-3,392.57	4,075.26	4,054.42	20.83	195.606	
2,900.00	2,856.29	3,016.41	3,016.29	11.55	10.46	-132.95	-1,715.03	-3,392.65	4,089.52	4,067.99	21.53	189.947	
3,000.00	2,954.10	3,100.00	3,099.88	11.99	10.75	-133.13	-1,715.08	-3,392.87	4,104.14	4,081.91	22.22	184.679	
3,100.00	3,051.92	3,181.18	3,181.05	12.42	11.03	-133.30	-1,715.45	-3,393.30	4,119.23	4,096.32	22.91	179.826	
3,200.00	3,149.73	3,266.08	3,265.95	12.86	11.33	-133.49	-1,716.32	-3,393.95	4,134.84	4,111.24	23.60	175.178	
3,300.00	3,247.55	3,360.76	3,360.61	13.30	11.66	-133.70	-1,718.02	-3,394.35	4,150.67	4,126.33	24.34	170.550	
3,400.00	3,345.36	3,468.14	3,467.97	13.73	12.03	-133.95	-1,720.03	-3,394.30	4,166.18	4,141.06	25.12	165.861	
3,500.00	3,443.18	3,585.54	3,585.36	14.17	12.44	-134.22	-1,721.89	-3,394.35	4,181.72	4,155.79	25.94	161.219	
3,600.00	3,540.99	3,675.00	3,674.81	14.61	12.75	-134.41	-1,722.84	-3,394.33	4,196.98	4,170.33	26.65	157.478	
3,700.00	3,638.81	3,782.01	3,781.82	15.05	13.13	-134.64	-1,724.03	-3,394.39	4,212.39	4,184.95	27.43	153.561	
3,800.00	3,736.62	3,885.49	3,885.29	15.48	13.49	-134.87	-1,724.91	-3,394.15	4,227.45	4,199.25	28.20	149.923	
3,900.00	3,834.44	3,965.87	3,965.67	15.92	13.77	-135.04	-1,725.63	-3,394.20	4,242.86	4,213.98	28.87	146.941	
4,000.00	3,932.25	4,050.33	4,050.12	16.36	14.06	-135.22	-1,727.00	-3,394.33	4,258.77	4,229.21	29.57	144.040	
4,100.00	4,030.07	4,151.17	4,150.94	16.80	14.41	-135.44	-1,728.79	-3,394.40	4,274.77	4,244.45	30.32	140.980	
4,200.00	4,127.88	4,225.00	4,224.76	17.24	14.67	-135.60	-1,730.09	-3,394.58	4,290.98	4,260.01	30.97	138.549	
4,300.00	4,225.70	4,294.44	4,294.19	17.68	14.91	-135.75	-1,731.62	-3,395.10	4,307.89	4,276.29	31.60	136.323	
4,400.00	4,323.51	4,369.47	4,369.18	18.11	15.17	-135.91	-1,733.88	-3,395.86	4,325.48	4,293.23	32.25	134.121	
4,500.00	4,421.33	4,450.00	4,449.65	18.55	15.46	-136.09	-1,736.63	-3,396.79	4,343.51	4,310.59	32.92	131.934	
4,600.00	4,519.14	4,529.89	4,529.48	18.99	15.74	-136.27	-1,739.49	-3,398.01	4,361.97	4,328.38	33.59	129.863	
4,700.00	4,616.95	4,600.00	4,599.53	19.43	15.98	-136.42	-1,742.01	-3,399.42	4,380.91	4,346.69	34.21	128.042	
4,800.00	4,714.77	4,698.80	4,698.22	19.87	16.33	-136.63	-1,746.03	-3,401.75	4,400.42	4,365.46	34.96	125.874	
4,900.00	4,812.58	4,775.00	4,774.34	20.31	16.59	-136.79	-1,748.88	-3,403.76	4,420.02	4,384.41	35.61	124.130	
5,000.00	4,910.40	4,844.06	4,843.31	20.75	16.83	-136.93	-1,751.56	-3,405.97	4,440.21	4,403.98	36.23	122.572	
5,100.00	5,008.21	4,950.00	4,949.12	21.19	17.20	-137.15	-1,755.51	-3,409.40	4,460.34	4,423.34	37.00	120.551	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 50-A020Ga_GYRO-NS

Offset Well Error: 0.00 usft

Rule Assigned:

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,200.00	5,106.03	5,044.00	5,043.01	21.63	17.53	-137.33	-1,758.83	-3,412.61	4,480.58	4,442.86	37.72	118.777	
5,300.00	5,203.84	5,138.04	5,136.94	22.06	17.86	-137.51	-1,762.12	-3,415.90	4,500.92	4,462.48	38.45	117.072	
5,400.00	5,301.66	5,225.00	5,223.78	22.50	18.17	-137.68	-1,765.31	-3,419.06	4,521.52	4,482.38	39.14	115.528	
5,500.00	5,399.47	5,334.05	5,332.68	22.94	18.55	-137.89	-1,769.39	-3,423.14	4,542.27	4,502.35	39.93	113.768	
5,600.00	5,497.29	5,431.13	5,429.62	23.38	18.89	-138.07	-1,772.76	-3,426.86	4,562.98	4,522.32	40.66	112.219	
5,700.00	5,595.10	5,539.21	5,537.56	23.82	19.27	-138.27	-1,776.58	-3,430.85	4,583.68	4,542.24	41.45	110.596	
5,800.00	5,692.92	5,629.71	5,627.95	24.26	19.58	-138.43	-1,779.60	-3,434.19	4,604.29	4,562.14	42.15	109.230	
5,900.00	5,790.73	5,725.00	5,723.12	24.70	19.92	-138.60	-1,782.78	-3,437.68	4,624.92	4,582.04	42.88	107.858	
6,000.00	5,888.55	5,818.24	5,816.24	25.14	20.24	-138.77	-1,786.02	-3,441.16	4,645.73	4,602.13	43.60	106.558	
6,100.00	5,986.36	5,926.80	5,924.66	25.58	20.62	-138.96	-1,789.94	-3,445.13	4,666.61	4,622.22	44.38	105.142	
6,200.00	6,084.18	6,010.53	6,008.28	26.02	20.92	-139.12	-1,793.04	-3,448.11	4,687.49	4,642.43	45.06	104.028	
6,300.00	6,181.99	6,110.32	6,107.94	26.46	21.27	-139.29	-1,796.80	-3,451.70	4,708.49	4,662.69	45.81	102.791	
6,401.22	6,281.00	6,184.98	6,182.48	26.90	21.53	-139.43	-1,799.69	-3,454.56	4,730.03	4,683.58	46.44	101.842	
6,450.00	6,328.76	6,237.05	6,234.47	27.12	21.71	-118.08	-1,801.65	-3,456.62	4,738.95	4,692.12	46.83	101.205	
6,500.00	6,377.61	6,286.35	6,283.70	27.32	21.88	-98.25	-1,803.53	-3,458.66	4,745.06	4,697.86	47.20	100.532	
6,550.00	6,426.06	6,318.07	6,315.37	27.52	21.99	-83.62	-1,804.72	-3,459.94	4,747.99	4,700.50	47.50	99.963	
6,600.00	6,473.81	6,375.00	6,372.21	27.71	22.19	-73.85	-1,806.81	-3,462.33	4,747.73	4,699.82	47.91	99.096	
6,650.00	6,520.56	6,418.25	6,415.39	27.89	22.35	-67.37	-1,808.36	-3,464.30	4,744.46	4,696.19	48.26	98.305	
6,700.00	6,566.03	6,450.00	6,447.08	28.05	22.46	-63.03	-1,809.51	-3,465.74	4,738.07	4,689.51	48.56	97.564	
6,750.00	6,609.93	6,509.16	6,506.14	28.20	22.66	-60.34	-1,811.59	-3,468.42	4,728.60	4,679.61	48.99	96.520	
6,800.00	6,652.00	6,543.39	6,540.32	28.34	22.78	-58.61	-1,812.87	-3,469.97	4,716.22	4,666.92	49.31	95.653	
6,850.00	6,691.98	6,592.90	6,589.75	28.47	22.96	-57.81	-1,814.64	-3,472.11	4,700.88	4,651.18	49.69	94.600	
6,900.00	6,729.61	6,654.71	6,651.46	28.59	23.17	-57.80	-1,816.90	-3,474.65	4,682.78	4,632.65	50.14	93.400	
6,950.00	6,764.67	6,684.05	6,680.77	28.69	23.28	-58.14	-1,817.98	-3,475.75	4,661.98	4,611.55	50.44	92.429	
7,000.00	6,796.95	6,750.00	6,746.63	28.79	23.51	-59.36	-1,820.24	-3,478.16	4,638.67	4,587.76	50.91	91.116	
7,050.00	6,826.23	6,808.50	6,805.07	28.89	23.71	-61.09	-1,822.06	-3,480.05	4,612.98	4,561.63	51.35	89.831	
7,100.00	6,852.35	6,841.65	6,838.19	28.98	23.83	-63.08	-1,823.06	-3,480.89	4,585.02	4,533.34	51.69	88.707	
7,150.00	6,875.14	6,905.09	6,901.59	29.08	24.05	-65.98	-1,824.81	-3,482.34	4,555.17	4,503.00	52.16	87.326	
7,200.00	6,894.45	6,914.29	6,910.79	29.18	24.08	-68.69	-1,825.06	-3,482.52	4,523.57	4,471.17	52.41	86.315	
7,250.00	6,910.18	6,925.68	6,922.17	29.28	24.12	-71.89	-1,825.39	-3,482.74	4,490.59	4,437.92	52.67	85.259	
7,300.00	6,922.23	6,942.57	6,939.05	29.40	24.18	-75.65	-1,825.86	-3,483.07	4,456.39	4,403.43	52.96	84.139	
7,350.00	6,930.51	6,966.86	6,963.33	29.54	24.27	-80.00	-1,826.49	-3,483.54	4,421.20	4,367.90	53.30	82.947	
7,400.00	6,934.98	6,968.86	6,965.33	29.70	24.28	-84.34	-1,826.52	-3,483.58	4,385.22	4,331.68	53.55	81.895	
7,433.91	6,935.83	6,981.56	6,978.03	29.81	24.32	-87.70	-1,826.82	-3,483.81	4,360.51	4,306.74	53.77	81.096	
7,500.00	6,935.76	6,982.98	6,979.45	30.07	24.33	-87.72	-1,826.86	-3,483.83	4,312.38	4,258.27	54.11	79.698	
7,600.00	6,935.66	6,985.09	6,981.56	30.52	24.33	-87.76	-1,826.90	-3,483.87	4,240.48	4,185.82	54.66	77.579	
7,700.00	6,935.55	6,987.16	6,983.62	31.06	24.34	-87.80	-1,826.95	-3,483.90	4,169.74	4,114.48	55.26	75.463	
7,800.00	6,935.45	6,989.18	6,985.64	31.68	24.35	-87.84	-1,827.00	-3,483.93	4,100.21	4,044.31	55.90	73.352	
7,900.00	6,935.34	6,991.15	6,987.61	32.37	24.35	-87.88	-1,827.04	-3,483.97	4,031.96	3,975.38	56.59	71.253	
8,000.00	6,935.24	6,993.09	6,989.54	33.12	24.36	-87.92	-1,827.09	-3,484.00	3,965.06	3,907.74	57.32	69.170	
8,100.00	6,935.13	6,994.98	6,991.44	33.93	24.37	-87.95	-1,827.13	-3,484.03	3,899.58	3,841.47	58.11	67.109	
8,200.00	6,935.03	6,996.83	6,993.29	34.80	24.37	-87.99	-1,827.17	-3,484.06	3,835.59	3,776.65	58.94	65.074	
8,300.00	6,934.92	6,998.65	6,995.10	35.71	24.38	-88.03	-1,827.21	-3,484.09	3,773.16	3,713.33	59.82	63.072	
8,400.00	6,934.82	7,000.42	6,996.88	36.67	24.39	-88.06	-1,827.25	-3,484.11	3,712.37	3,651.62	60.75	61.106	
8,500.00	6,934.71	7,002.08	6,998.54	37.68	24.39	-88.09	-1,827.29	-3,484.14	3,653.31	3,591.58	61.73	59.183	
8,600.00	6,934.61	7,003.76	7,000.21	38.72	24.40	-88.12	-1,827.33	-3,484.16	3,596.06	3,533.31	62.75	57.306	
8,700.00	6,934.50	7,005.44	7,001.90	39.80	24.40	-88.16	-1,827.37	-3,484.19	3,540.71	3,476.89	63.82	55.479	
8,800.00	6,934.40	7,007.13	7,003.58	40.92	24.41	-88.19	-1,827.41	-3,484.22	3,487.35	3,422.41	64.93	53.708	
8,900.00	6,934.29	7,008.81	7,005.27	42.06	24.42	-88.22	-1,827.45	-3,484.24	3,436.06	3,369.98	66.08	51.996	
9,000.00	6,934.19	7,010.50	7,006.96	43.23	24.42	-88.25	-1,827.48	-3,484.27	3,386.96	3,319.69	67.27	50.346	
9,100.00	6,934.08	7,012.20	7,008.65	44.43	24.43	-88.29	-1,827.52	-3,484.30	3,340.13	3,271.63	68.50	48.762	
9,200.00	6,933.98	7,013.89	7,010.34	45.66	24.43	-88.32	-1,827.56	-3,484.32	3,295.66	3,225.91	69.76	47.246	

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 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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
9,300.00	6,933.88	7,015.59	7,012.04	46.90	24.44	-88.35	-1,827.60	-3,484.35	3,253.66	3,182.62	71.04	45.801	
9,400.00	6,933.77	7,017.29	7,013.74	48.17	24.45	-88.38	-1,827.64	-3,484.38	3,214.23	3,141.88	72.35	44.428	
9,500.00	6,933.67	7,018.99	7,015.44	49.46	24.45	-88.42	-1,827.68	-3,484.40	3,177.45	3,103.78	73.67	43.130	
9,600.00	6,933.56	7,020.70	7,017.15	50.76	24.46	-88.45	-1,827.71	-3,484.43	3,143.42	3,068.41	75.01	41.908	
9,700.00	6,933.46	7,022.41	7,018.86	52.08	24.46	-88.48	-1,827.75	-3,484.46	3,112.24	3,035.88	76.35	40.762	
9,800.00	6,933.35	7,024.12	7,020.57	53.41	24.47	-88.52	-1,827.79	-3,484.48	3,083.98	3,006.28	77.70	39.693	
9,900.00	6,933.25	7,025.83	7,022.28	54.76	24.48	-88.55	-1,827.83	-3,484.51	3,058.73	2,979.69	79.03	38.701	
10,000.00	6,933.14	7,027.06	7,023.51	56.12	24.48	-88.57	-1,827.86	-3,484.53	3,036.56	2,956.21	80.36	37.788	
10,100.00	6,933.04	7,028.47	7,024.92	57.50	24.48	-88.60	-1,827.89	-3,484.55	3,017.55	2,935.89	81.66	36.951	
10,200.00	6,932.93	7,029.90	7,026.35	58.88	24.49	-88.63	-1,827.92	-3,484.57	3,001.75	2,918.81	82.94	36.191	
10,300.00	6,932.83	7,031.35	7,027.79	60.28	24.49	-88.66	-1,827.95	-3,484.60	2,989.21	2,905.03	84.19	35.506	
10,400.00	6,932.72	7,032.82	7,029.26	61.69	24.50	-88.68	-1,827.98	-3,484.62	2,979.98	2,894.58	85.40	34.895	
10,500.00	6,932.62	7,034.30	7,030.75	63.10	24.51	-88.71	-1,828.02	-3,484.65	2,974.08	2,887.52	86.56	34.357	
10,600.00	6,932.51	7,035.81	7,032.25	64.52	24.51	-88.74	-1,828.05	-3,484.67	2,971.54	2,883.86	87.68	33.891	
10,625.65	6,932.49	7,036.20	7,032.64	64.89	24.51	-88.75	-1,828.06	-3,484.68	2,971.43	2,883.47	87.96	33.783	CC, ES
10,700.00	6,932.41	7,037.34	7,033.78	65.96	24.52	-88.77	-1,828.08	-3,484.70	2,972.36	2,883.62	88.74	33.495	
10,800.00	6,932.30	7,038.88	7,035.33	67.39	24.52	-88.80	-1,828.12	-3,484.72	2,976.54	2,886.79	89.74	33.168	
10,900.00	6,932.20	7,040.45	7,036.89	68.84	24.53	-88.83	-1,828.15	-3,484.75	2,984.06	2,893.38	90.68	32.907	
11,000.00	6,932.10	7,042.04	7,038.49	70.29	24.53	-88.86	-1,828.19	-3,484.77	2,994.91	2,903.35	91.56	32.710	
11,100.00	6,931.99	7,043.66	7,040.10	71.75	24.54	-88.89	-1,828.23	-3,484.80	3,009.04	2,916.67	92.37	32.577	
11,200.00	6,931.89	7,045.29	7,041.73	73.22	24.54	-88.92	-1,828.26	-3,484.83	3,026.41	2,933.30	93.11	32.504	
11,300.00	6,931.78	7,046.95	7,043.39	74.69	24.55	-88.96	-1,828.30	-3,484.86	3,046.97	2,953.18	93.78	32.490	SF
11,400.00	6,931.68	7,048.64	7,045.07	76.16	24.56	-88.99	-1,828.34	-3,484.89	3,070.64	2,976.25	94.39	32.532	
11,500.00	6,931.57	7,050.41	7,046.85	77.64	24.56	-89.02	-1,828.38	-3,484.92	3,097.36	3,002.44	94.93	32.629	
11,600.00	6,931.47	7,052.41	7,048.84	79.13	24.57	-89.06	-1,828.42	-3,484.95	3,127.06	3,031.66	95.40	32.778	
11,700.00	6,931.36	7,054.32	7,050.76	80.62	24.58	-89.10	-1,828.47	-3,484.99	3,159.64	3,063.83	95.81	32.978	
11,800.00	6,931.26	7,056.17	7,052.60	82.11	24.58	-89.13	-1,828.51	-3,485.02	3,195.01	3,098.85	96.16	33.227	
11,900.00	6,931.15	7,057.94	7,054.38	83.61	24.59	-89.17	-1,828.55	-3,485.04	3,233.09	3,136.65	96.45	33.522	
12,000.00	6,931.05	7,059.65	7,056.08	85.11	24.59	-89.20	-1,828.58	-3,485.07	3,273.79	3,177.11	96.68	33.862	
12,100.00	6,930.94	7,061.29	7,057.73	86.62	24.60	-89.23	-1,828.62	-3,485.10	3,317.00	3,220.14	96.86	34.245	
12,200.00	6,930.84	7,062.88	7,059.31	88.13	24.61	-89.26	-1,828.65	-3,485.12	3,362.63	3,265.63	96.99	34.668	
12,300.00	6,930.73	7,064.41	7,060.84	89.64	24.61	-89.29	-1,828.69	-3,485.15	3,410.58	3,313.50	97.08	35.131	
12,400.00	6,930.63	7,065.88	7,062.32	91.15	24.62	-89.32	-1,828.72	-3,485.17	3,460.75	3,363.63	97.13	35.631	
12,500.00	6,930.52	7,067.31	7,063.74	92.67	24.62	-89.35	-1,828.75	-3,485.19	3,513.06	3,415.93	97.13	36.167	
12,600.00	6,930.42	7,068.69	7,065.12	94.19	24.63	-89.38	-1,828.78	-3,485.21	3,567.40	3,470.30	97.11	36.737	
12,700.00	6,930.31	7,070.02	7,066.45	95.71	24.63	-89.40	-1,828.80	-3,485.23	3,623.69	3,526.64	97.05	37.340	
12,800.00	6,930.21	7,071.31	7,067.74	97.24	24.63	-89.43	-1,828.83	-3,485.25	3,681.83	3,584.87	96.96	37.974	
12,900.00	6,930.11	7,072.56	7,068.99	98.77	24.64	-89.45	-1,828.86	-3,485.26	3,741.74	3,644.90	96.84	38.637	
13,008.91	6,929.99	7,075.00	7,071.43	100.43	24.65	-89.50	-1,828.90	-3,485.30	3,808.91	3,712.21	96.70	39.389	
13,100.00	6,929.90	7,075.00	7,071.43	101.83	24.65	-89.48	-1,828.90	-3,485.30	3,867.65	3,771.09	96.55	40.057	
13,139.82	6,929.86	7,075.00	7,071.43	102.44	24.65	-89.48	-1,828.90	-3,485.30	3,894.39	3,797.90	96.49	40.361	
13,200.00	6,929.80	7,075.00	7,071.43	103.37	24.65	-89.48	-1,828.90	-3,485.30	3,935.54	3,839.16	96.38	40.832	
13,300.00	6,929.70	7,075.00	7,071.43	104.92	24.65	-89.48	-1,828.90	-3,485.30	4,004.98	3,908.78	96.20	41.631	
13,400.00	6,929.61	7,075.00	7,071.43	106.47	24.65	-89.48	-1,828.90	-3,485.30	4,075.69	3,979.68	96.01	42.452	
13,500.00	6,929.51	7,075.00	7,071.43	108.02	24.65	-89.48	-1,828.90	-3,485.30	4,147.61	4,051.80	95.80	43.293	
13,600.00	6,929.41	7,079.16	7,075.58	109.57	24.66	-89.56	-1,828.99	-3,485.35	4,220.67	4,125.05	95.61	44.143	
13,700.00	6,929.32	7,079.98	7,076.40	111.12	24.67	-89.58	-1,829.01	-3,485.36	4,294.81	4,199.41	95.40	45.019	
13,800.00	6,929.22	7,080.79	7,077.22	112.68	24.67	-89.59	-1,829.02	-3,485.37	4,369.99	4,274.80	95.18	45.913	
13,900.00	6,929.12	7,081.60	7,078.02	114.23	24.67	-89.61	-1,829.04	-3,485.38	4,446.14	4,351.18	94.96	46.823	
14,000.00	6,929.03	7,082.40	7,078.82	115.79	24.67	-89.63	-1,829.05	-3,485.39	4,523.22	4,428.49	94.73	47.748	
14,100.00	6,928.93	7,083.19	7,079.61	117.35	24.68	-89.64	-1,829.07	-3,485.40	4,601.18	4,506.68	94.50	48.689	
14,200.00	6,928.83	7,083.97	7,080.40	118.91	24.68	-89.66	-1,829.09	-3,485.41	4,679.99	4,585.71	94.27	49.643	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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
14,300.00	6,928.74	7,084.75	7,081.18	120.47	24.68	-89.67	-1,829.10	-3,485.42	4,759.58	4,665.54	94.04	50.611	
14,400.00	6,928.64	7,085.52	7,081.95	122.03	24.68	-89.69	-1,829.12	-3,485.43	4,839.94	4,746.13	93.81	51.592	
14,500.00	6,928.54	7,086.29	7,082.71	123.60	24.69	-89.71	-1,829.14	-3,485.44	4,921.01	4,827.43	93.58	52.585	
14,600.00	6,928.45	7,087.04	7,083.47	125.16	24.69	-89.72	-1,829.15	-3,485.45	5,002.77	4,909.42	93.35	53.589	
14,700.00	6,928.35	7,087.80	7,084.22	126.72	24.69	-89.74	-1,829.17	-3,485.46	5,085.18	4,992.06	93.13	54.604	
14,800.00	6,928.25	7,088.54	7,084.96	128.29	24.70	-89.75	-1,829.18	-3,485.47	5,168.22	5,075.31	92.90	55.630	
14,900.00	6,928.16	7,089.28	7,085.70	129.86	24.70	-89.76	-1,829.20	-3,485.48	5,251.84	5,159.16	92.68	56.665	
15,000.00	6,928.06	7,090.01	7,086.43	131.42	24.70	-89.78	-1,829.21	-3,485.49	5,336.02	5,243.56	92.46	57.710	
15,100.00	6,927.96	7,090.73	7,087.16	132.99	24.70	-89.79	-1,829.23	-3,485.50	5,420.75	5,328.50	92.25	58.764	
15,200.00	6,927.87	7,091.45	7,087.88	134.56	24.71	-89.81	-1,829.24	-3,485.50	5,505.98	5,413.95	92.03	59.826	
15,300.00	6,927.77	7,092.17	7,088.59	136.13	24.71	-89.82	-1,829.26	-3,485.51	5,591.71	5,499.89	91.82	60.896	
15,400.00	6,927.67	7,092.87	7,089.30	137.70	24.71	-89.84	-1,829.27	-3,485.52	5,677.90	5,586.28	91.62	61.974	
15,500.00	6,927.57	7,093.58	7,090.00	139.28	24.71	-89.85	-1,829.29	-3,485.53	5,764.54	5,673.12	91.42	63.059	
15,600.00	6,927.48	7,094.27	7,090.69	140.85	24.72	-89.87	-1,829.30	-3,485.54	5,851.60	5,760.39	91.22	64.151	
15,700.00	6,927.38	7,094.96	7,091.38	142.42	24.72	-89.88	-1,829.32	-3,485.55	5,939.08	5,848.05	91.02	65.249	
15,800.00	6,927.28	7,100.00	7,096.42	144.00	24.74	-89.98	-1,829.43	-3,485.61	6,026.94	5,936.09	90.85	66.338	
15,900.00	6,927.19	7,100.00	7,096.42	145.57	24.74	-89.98	-1,829.43	-3,485.61	6,115.17	6,024.51	90.66	67.451	
16,000.00	6,927.09	7,100.00	7,096.42	147.15	24.74	-89.98	-1,829.43	-3,485.61	6,203.76	6,113.29	90.48	68.569	
16,100.00	6,926.99	7,100.00	7,096.42	148.72	24.74	-89.98	-1,829.43	-3,485.61	6,292.69	6,202.40	90.29	69.692	
16,200.00	6,926.90	7,100.00	7,096.42	150.30	24.74	-89.98	-1,829.43	-3,485.61	6,381.95	6,291.84	90.12	70.820	
16,300.00	6,926.80	7,100.00	7,096.42	151.87	24.74	-89.98	-1,829.43	-3,485.61	6,471.53	6,381.59	89.94	71.953	
16,400.00	6,926.70	7,100.00	7,096.42	153.45	24.74	-89.98	-1,829.43	-3,485.61	6,561.40	6,471.63	89.77	73.090	
16,500.00	6,926.61	7,103.18	7,099.60	155.03	24.75	-90.04	-1,829.50	-3,485.64	6,651.57	6,561.95	89.62	74.220	
16,600.00	6,926.51	7,111.55	7,107.97	156.61	24.78	-90.21	-1,829.68	-3,485.75	6,742.01	6,652.51	89.50	75.332	
16,700.00	6,926.41	7,121.58	7,118.00	158.19	24.81	-90.41	-1,829.89	-3,485.88	6,832.71	6,743.32	89.39	76.440	
16,800.00	6,926.32	7,114.75	7,111.17	159.77	24.79	-90.28	-1,829.74	-3,485.80	6,923.66	6,834.46	89.20	77.620	
16,900.00	6,926.22	7,115.94	7,112.36	161.35	24.79	-90.30	-1,829.77	-3,485.81	7,014.87	6,925.82	89.05	78.770	
17,000.00	6,926.12	7,143.73	7,140.14	162.93	24.89	-90.86	-1,830.33	-3,486.22	7,106.31	7,017.28	89.04	79.813	
17,100.00	6,926.03	7,151.70	7,148.11	164.51	24.92	-91.02	-1,830.47	-3,486.35	7,197.98	7,109.05	88.93	80.939	
17,200.00	6,925.93	7,141.55	7,137.96	166.09	24.88	-90.81	-1,830.28	-3,486.19	7,289.86	7,201.11	88.74	82.144	
17,300.00	6,925.83	7,142.98	7,139.38	167.67	24.89	-90.84	-1,830.30	-3,486.21	7,381.96	7,293.34	88.62	83.303	
17,400.00	6,925.74	7,144.40	7,140.81	169.26	24.89	-90.87	-1,830.33	-3,486.23	7,474.25	7,385.77	88.49	84.465	
17,500.00	6,925.64	7,145.83	7,142.24	170.84	24.90	-90.90	-1,830.36	-3,486.25	7,566.75	7,478.38	88.37	85.628	
17,600.00	6,925.54	7,147.25	7,143.66	172.42	24.90	-90.93	-1,830.39	-3,486.28	7,659.43	7,571.18	88.25	86.793	
17,700.00	6,925.45	7,148.68	7,145.09	174.00	24.91	-90.96	-1,830.41	-3,486.30	7,752.30	7,664.16	88.13	87.960	
17,800.00	6,925.35	7,150.00	7,146.41	175.59	24.91	-90.98	-1,830.44	-3,486.32	7,845.34	7,757.32	88.02	89.129	
17,900.00	6,925.25	7,150.00	7,146.41	177.17	24.91	-90.98	-1,830.44	-3,486.32	7,938.55	7,850.64	87.91	90.306	
18,000.00	6,925.16	7,150.00	7,146.41	178.76	24.91	-90.98	-1,830.44	-3,486.32	8,031.92	7,944.12	87.80	91.484	
18,100.00	6,925.06	7,150.00	7,146.41	180.34	24.91	-90.98	-1,830.44	-3,486.32	8,125.45	8,037.76	87.69	92.663	
18,160.21	6,925.00	7,150.00	7,146.41	181.30	24.91	-90.98	-1,830.44	-3,486.32	8,181.84	8,094.22	87.62	93.374	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Rule Assigned: Warning
0.00	0.00	161.00	161.00	0.00	4.82	-119.62	-2,612.23	-4,594.78	5,285.43				
100.00	100.00	261.00	261.00	0.25	7.82	-119.62	-2,612.23	-4,594.78	5,285.43	5,277.36	8.07	654.804	
200.00	200.00	361.00	361.00	0.61	10.82	-119.62	-2,612.23	-4,594.78	5,285.43	5,274.00	11.43	462.553	
300.00	300.00	461.00	461.00	0.97	13.81	-119.62	-2,612.23	-4,594.78	5,285.43	5,270.65	14.78	357.570	
400.00	400.00	561.10	561.00	1.33	16.81	-119.62	-2,612.23	-4,594.78	5,285.43	5,267.29	18.14	291.377	
500.00	500.00	661.10	661.00	1.68	19.81	-119.62	-2,612.23	-4,594.78	5,285.43	5,263.93	21.49	245.898	
593.58	593.56	753.92	753.78	2.02	22.59	-131.60	-2,610.05	-4,594.78	5,285.37	5,260.75	24.61	214.757	
600.00	599.98	759.35	759.21	2.04	22.75	-131.59	-2,610.05	-4,594.78	5,285.51	5,260.71	24.80	213.155	
700.00	699.84	843.82	843.67	2.41	25.28	-131.58	-2,610.36	-4,594.78	5,289.17	5,261.48	27.69	191.034	
800.00	799.45	928.02	927.85	2.77	27.81	-131.55	-2,611.16	-4,594.78	5,295.43	5,264.86	30.57	173.217	
900.00	898.70	1,060.11	1,059.70	3.13	31.77	-131.57	-2,612.23	-4,594.78	5,303.99	5,269.09	34.89	152.004	
1,000.00	997.47	1,158.87	1,158.47	3.50	34.73	-131.53	-2,612.23	-4,594.78	5,314.43	5,276.21	38.22	139.035	
1,100.00	1,095.62	1,255.90	1,255.46	3.89	37.63	-131.47	-2,610.05	-4,594.78	5,326.12	5,284.61	41.51	128.311	
1,200.00	1,193.44	1,338.28	1,337.82	4.29	40.10	-131.61	-2,610.32	-4,594.78	5,340.24	5,295.88	44.36	120.381	
1,300.00	1,291.25	1,420.48	1,420.00	4.70	42.56	-131.76	-2,611.07	-4,594.78	5,354.70	5,307.49	47.21	113.423	
1,400.00	1,389.07	1,550.78	1,550.07	5.11	46.47	-131.99	-2,612.23	-4,594.78	5,369.25	5,317.74	51.51	104.244	
1,500.00	1,486.88	1,648.59	1,647.88	5.53	49.40	-132.15	-2,612.23	-4,594.78	5,383.35	5,328.51	54.83	98.180	
1,600.00	1,584.70	1,746.41	1,745.70	5.95	52.33	-132.31	-2,612.23	-4,594.78	5,397.49	5,339.33	58.16	92.806	
1,700.00	1,682.51	1,828.86	1,828.09	6.37	54.80	-132.43	-2,610.27	-4,594.78	5,410.68	5,349.66	61.03	88.661	
1,800.00	1,780.33	1,910.58	1,909.79	6.80	57.25	-132.57	-2,610.95	-4,594.78	5,425.33	5,361.46	63.87	84.940	
1,900.00	1,878.14	2,040.16	2,039.14	7.22	61.13	-132.79	-2,612.23	-4,594.78	5,440.17	5,372.01	68.16	79.816	
2,000.00	1,975.96	2,137.97	2,136.96	7.65	64.06	-132.95	-2,612.23	-4,594.78	5,454.48	5,382.99	71.49	76.295	
2,100.00	2,073.77	2,235.79	2,234.77	8.08	66.99	-133.11	-2,612.23	-4,594.78	5,468.84	5,394.01	74.83	73.088	
2,200.00	2,171.59	2,319.55	2,318.48	8.51	69.50	-133.22	-2,610.22	-4,594.78	5,482.19	5,404.45	77.74	70.522	
2,300.00	2,269.40	2,400.80	2,399.71	8.95	71.94	-133.36	-2,610.85	-4,594.78	5,497.02	5,416.45	80.57	68.225	
2,400.00	2,367.22	2,529.53	2,528.22	9.38	75.80	-133.57	-2,612.23	-4,594.78	5,512.14	5,427.31	84.84	64.973	
2,500.00	2,465.03	2,627.35	2,626.03	9.81	78.73	-133.73	-2,612.23	-4,594.78	5,526.66	5,438.49	88.17	62.680	
2,600.00	2,562.84	2,725.16	2,723.84	10.25	81.66	-133.88	-2,612.23	-4,594.78	5,541.22	5,449.71	91.51	60.554	
2,700.00	2,660.66	2,810.35	2,808.98	10.68	84.21	-134.00	-2,610.18	-4,594.78	5,554.72	5,460.26	94.46	58.803	
2,800.00	2,758.47	2,891.13	2,889.74	11.12	86.63	-134.13	-2,610.75	-4,594.78	5,569.73	5,472.44	97.28	57.252	
2,900.00	2,856.29	3,018.91	3,017.29	11.55	90.46	-134.34	-2,612.23	-4,594.78	5,585.12	5,483.60	101.52	55.013	
3,000.00	2,954.10	3,116.73	3,115.10	11.99	93.39	-134.49	-2,612.23	-4,594.78	5,599.84	5,494.98	104.86	53.403	
3,100.00	3,051.92	3,214.54	3,212.92	12.42	96.32	-134.64	-2,612.23	-4,594.78	5,614.59	5,506.40	108.19	51.893	
3,200.00	3,149.73	3,301.26	3,299.59	12.86	98.92	-134.75	-2,610.14	-4,594.78	5,628.24	5,517.05	111.20	50.616	
3,300.00	3,247.55	3,381.58	3,379.89	13.30	101.33	-134.88	-2,610.66	-4,594.78	5,643.41	5,529.41	114.00	49.503	
3,400.00	3,345.36	3,508.29	3,506.36	13.73	105.12	-135.08	-2,612.23	-4,594.78	5,659.07	5,540.86	118.21	47.873	
3,500.00	3,443.18	3,606.11	3,604.18	14.17	108.06	-135.23	-2,612.23	-4,594.78	5,673.98	5,552.43	121.55	46.682	
3,600.00	3,540.99	3,703.92	3,701.99	14.61	110.99	-135.38	-2,612.23	-4,594.78	5,688.92	5,564.04	124.88	45.555	
3,700.00	3,638.81	3,792.28	3,790.30	15.05	113.63	-135.49	-2,610.11	-4,594.78	5,702.71	5,574.78	127.93	44.577	
3,800.00	3,736.62	3,872.13	3,870.14	15.48	116.03	-135.61	-2,610.57	-4,594.78	5,718.04	5,587.31	130.72	43.742	
3,900.00	3,834.44	3,951.82	3,949.81	15.92	118.41	-135.74	-2,611.47	-4,594.78	5,733.71	5,600.20	133.51	42.947	
4,000.00	3,932.25	4,095.48	4,093.25	16.36	122.72	-135.95	-2,612.23	-4,594.78	5,749.04	5,610.81	138.23	41.590	
4,100.00	4,030.07	4,193.30	4,191.07	16.80	125.65	-136.09	-2,612.23	-4,594.78	5,764.16	5,622.59	141.56	40.718	
4,200.00	4,127.88	4,283.40	4,281.12	17.24	128.35	-136.21	-2,610.09	-4,594.78	5,778.10	5,633.43	144.67	39.941	
4,300.00	4,225.70	4,362.80	4,360.51	17.68	130.73	-136.32	-2,610.50	-4,594.78	5,793.57	5,646.13	147.44	39.294	
4,400.00	4,323.51	4,442.04	4,439.73	18.11	133.10	-136.44	-2,611.34	-4,594.78	5,809.39	5,659.18	150.21	38.675	
4,500.00	4,421.33	4,584.86	4,582.33	18.55	137.38	-136.66	-2,612.23	-4,594.78	5,824.99	5,670.08	154.91	37.602	
4,600.00	4,519.14	4,682.68	4,680.14	18.99	140.31	-136.79	-2,612.23	-4,594.78	5,840.28	5,682.04	158.24	36.907	
4,700.00	4,616.95	4,774.62	4,772.04	19.43	143.07	-136.91	-2,610.07	-4,594.78	5,854.36	5,692.96	161.40	36.272	
4,800.00	4,714.77	4,853.57	4,850.98	19.87	145.44	-137.02	-2,610.43	-4,594.78	5,869.97	5,705.81	164.16	35.757	
4,900.00	4,812.58	4,932.37	4,929.75	20.31	147.80	-137.14	-2,611.21	-4,594.78	5,885.93	5,719.02	166.91	35.263	
5,000.00	4,910.40	5,074.24	5,071.40	20.75	152.05	-137.34	-2,612.23	-4,594.78	5,901.79	5,730.21	171.59	34.395	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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
5,100.00	5,008.21	5,172.06	5,169.21	21.19	154.98	-137.48	-2,612.23	-4,594.78	5,917.25	5,742.33	174.92	33.828	
5,200.00	5,106.03	5,265.94	5,263.06	21.63	157.79	-137.59	-2,610.06	-4,594.78	5,931.46	5,753.33	178.13	33.298	
5,300.00	5,203.84	5,344.45	5,341.56	22.06	160.14	-137.70	-2,610.36	-4,594.78	5,947.21	5,766.33	180.88	32.879	
5,400.00	5,301.66	5,422.81	5,419.89	22.50	162.49	-137.81	-2,611.09	-4,594.78	5,963.30	5,779.69	183.62	32.477	
5,500.00	5,399.47	5,563.62	5,560.47	22.94	166.71	-138.01	-2,612.23	-4,594.78	5,979.42	5,791.16	188.26	31.762	
5,600.00	5,497.29	5,661.43	5,658.29	23.38	169.64	-138.14	-2,612.23	-4,594.78	5,995.04	5,803.45	191.59	31.291	
5,700.00	5,595.10	5,757.36	5,754.17	23.82	172.52	-138.25	-2,610.05	-4,594.78	6,009.38	5,814.52	194.87	30.839	
5,800.00	5,692.92	5,835.44	5,832.24	24.26	174.86	-138.36	-2,610.31	-4,594.78	6,025.25	5,827.66	197.60	30.493	
5,900.00	5,790.73	5,913.36	5,910.14	24.70	177.19	-138.47	-2,610.98	-4,594.78	6,041.48	5,841.16	200.32	30.159	
6,000.00	5,888.55	6,053.00	6,049.55	25.14	181.38	-138.66	-2,612.23	-4,594.78	6,057.83	5,852.91	204.93	29.561	
6,100.00	5,986.36	6,150.81	6,147.36	25.58	184.31	-138.79	-2,612.23	-4,594.78	6,073.61	5,865.35	208.26	29.164	
6,200.00	6,084.18	6,248.63	6,245.18	26.02	187.24	-138.92	-2,612.23	-4,594.78	6,089.41	5,877.82	211.59	28.780	
6,300.00	6,181.99	6,326.52	6,323.02	26.46	189.57	-139.00	-2,610.26	-4,594.78	6,104.07	5,889.76	214.31	28.482	
6,401.22	6,281.00	6,404.96	6,401.44	26.90	191.92	-139.11	-2,610.89	-4,594.78	6,120.62	5,903.56	217.05	28.199	
6,450.00	6,328.76	6,442.73	6,439.20	27.12	193.05	-117.85	-2,611.35	-4,594.78	6,127.21	5,908.84	218.37	28.058	
6,500.00	6,377.61	6,542.37	6,538.61	27.32	196.04	-98.23	-2,612.23	-4,594.78	6,130.80	5,909.21	221.59	27.667	
6,550.00	6,426.06	6,590.81	6,587.06	27.52	197.49	-83.77	-2,612.23	-4,594.78	6,130.87	5,907.62	223.25	27.462	
6,600.00	6,473.81	6,638.56	6,634.81	27.71	198.92	-74.08	-2,612.23	-4,594.78	6,127.77	5,902.88	224.89	27.248	
6,650.00	6,520.56	6,685.31	6,681.56	27.89	200.32	-67.72	-2,612.23	-4,594.78	6,121.53	5,895.03	226.50	27.027	
6,700.00	6,566.03	6,730.78	6,727.03	28.05	201.68	-63.57	-2,612.23	-4,594.78	6,112.20	5,884.13	228.07	26.800	
6,750.00	6,609.93	6,769.47	6,765.67	28.20	202.84	-60.90	-2,610.06	-4,594.78	6,098.51	5,869.07	229.44	26.581	
6,800.00	6,652.00	6,802.68	6,798.88	28.34	203.84	-59.30	-2,610.15	-4,594.78	6,083.32	5,852.68	230.63	26.377	
6,850.00	6,691.98	6,834.22	6,830.41	28.47	204.78	-58.54	-2,610.30	-4,594.78	6,065.37	5,833.59	231.78	26.168	
6,900.00	6,729.61	6,863.89	6,860.08	28.59	205.67	-58.45	-2,610.50	-4,594.78	6,044.81	5,811.93	232.87	25.957	
6,950.00	6,764.67	6,891.52	6,887.70	28.69	206.50	-58.94	-2,610.75	-4,594.78	6,021.75	5,787.84	233.91	25.744	
7,000.00	6,796.95	6,916.94	6,913.11	28.79	207.26	-59.97	-2,611.03	-4,594.78	5,996.36	5,761.48	234.87	25.530	
7,050.00	6,826.23	6,939.99	6,936.16	28.89	207.95	-61.49	-2,611.31	-4,594.78	5,968.79	5,733.01	235.77	25.316	
7,100.00	6,852.35	7,017.41	7,013.35	28.98	210.27	-64.05	-2,612.23	-4,594.78	5,939.36	5,701.02	238.34	24.919	
7,150.00	6,875.14	7,040.20	7,036.14	29.08	210.96	-66.66	-2,612.23	-4,594.78	5,907.76	5,668.51	239.25	24.693	
7,200.00	6,894.45	7,059.52	7,055.45	29.18	211.54	-69.76	-2,612.23	-4,594.78	5,874.56	5,634.51	240.05	24.472	
7,250.00	6,910.18	7,075.24	7,071.18	29.28	212.01	-73.33	-2,612.23	-4,594.78	5,839.99	5,599.24	240.75	24.258	
7,300.00	6,922.23	7,087.29	7,083.23	29.40	212.37	-77.37	-2,612.23	-4,594.78	5,804.25	5,562.90	241.34	24.050	
7,350.00	6,930.51	7,095.57	7,091.51	29.54	212.62	-81.82	-2,612.23	-4,594.78	5,767.57	5,525.74	241.83	23.850	
7,400.00	6,934.98	7,100.04	7,095.98	29.70	212.75	-86.64	-2,612.23	-4,594.78	5,730.19	5,487.98	242.20	23.658	
7,433.91	6,935.83	7,100.89	7,096.83	29.81	212.77	-90.07	-2,612.23	-4,594.78	5,704.55	5,462.15	242.40	23.534	
7,500.00	6,935.76	7,100.82	7,096.76	30.07	212.77	-90.07	-2,612.23	-4,594.78	5,654.56	5,411.84	242.73	23.296	
7,600.00	6,935.66	7,100.72	7,096.66	30.52	212.77	-90.07	-2,612.23	-4,594.78	5,579.57	5,336.31	243.26	22.937	
7,700.00	6,935.55	7,100.61	7,096.55	31.06	212.77	-90.07	-2,612.23	-4,594.78	5,505.37	5,261.54	243.83	22.579	
7,800.00	6,935.45	7,100.51	7,096.45	31.68	212.76	-90.06	-2,612.23	-4,594.78	5,432.00	5,187.56	244.44	22.222	
7,900.00	6,935.34	7,100.40	7,096.34	32.37	212.76	-90.06	-2,612.23	-4,594.78	5,359.49	5,114.40	245.09	21.867	
8,000.00	6,935.24	7,100.30	7,096.24	33.12	212.76	-90.06	-2,612.23	-4,594.78	5,287.88	5,042.09	245.79	21.514	
8,100.00	6,935.13	7,100.19	7,096.13	33.93	212.75	-90.06	-2,612.23	-4,594.78	5,217.20	4,970.68	246.52	21.163	
8,200.00	6,935.03	7,100.09	7,096.03	34.80	212.75	-90.06	-2,612.23	-4,594.78	5,147.50	4,900.20	247.30	20.815	
8,300.00	6,934.92	7,099.98	7,095.92	35.71	212.75	-90.06	-2,612.23	-4,594.78	5,078.81	4,830.68	248.12	20.469	
8,400.00	6,934.82	7,099.88	7,095.82	36.67	212.74	-90.05	-2,612.23	-4,594.78	5,011.17	4,762.18	248.99	20.126	
8,500.00	6,934.71	7,099.77	7,095.71	37.68	212.74	-90.05	-2,612.23	-4,594.78	4,944.62	4,694.73	249.89	19.787	
8,600.00	6,934.61	7,099.67	7,095.61	38.72	212.74	-90.05	-2,612.23	-4,594.78	4,879.23	4,628.38	250.84	19.452	
8,700.00	6,934.50	7,099.56	7,095.50	39.80	212.74	-90.05	-2,612.23	-4,594.78	4,815.01	4,563.18	251.83	19.120	
8,800.00	6,934.40	7,099.46	7,095.40	40.92	212.73	-90.05	-2,612.23	-4,594.78	4,752.04	4,499.18	252.86	18.793	
8,900.00	6,934.29	7,099.36	7,095.29	42.06	212.73	-90.05	-2,612.23	-4,594.78	4,690.35	4,436.42	253.93	18.471	
9,000.00	6,934.19	7,099.25	7,095.19	43.23	212.73	-90.04	-2,612.23	-4,594.78	4,630.00	4,374.96	255.05	18.154	
9,100.00	6,934.08	7,099.15	7,095.08	44.43	212.72	-90.04	-2,612.23	-4,594.78	4,571.05	4,314.85	256.20	17.842	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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
9,200.00	6,933.98	7,099.04	7,094.98	45.66	212.72	-90.04	-2,612.23	-4,594.78	4,513.53	4,256.14	257.39	17.536	
9,300.00	6,933.88	7,098.94	7,094.88	46.90	212.72	-90.04	-2,612.23	-4,594.78	4,457.52	4,198.91	258.62	17.236	
9,400.00	6,933.77	7,098.83	7,094.77	48.17	212.71	-90.04	-2,612.23	-4,594.78	4,403.07	4,143.19	259.88	16.943	
9,500.00	6,933.67	7,098.73	7,094.67	49.46	212.71	-90.04	-2,612.23	-4,594.78	4,350.24	4,089.06	261.18	16.656	
9,600.00	6,933.56	7,098.62	7,094.56	50.76	212.71	-90.03	-2,612.23	-4,594.78	4,299.08	4,036.57	262.51	16.377	
9,700.00	6,933.46	7,098.52	7,094.46	52.08	212.70	-90.03	-2,612.23	-4,594.78	4,249.66	3,985.79	263.87	16.105	
9,800.00	6,933.35	7,098.41	7,094.35	53.41	212.70	-90.03	-2,612.23	-4,594.78	4,202.04	3,936.79	265.25	15.842	
9,900.00	6,933.25	7,098.31	7,094.25	54.76	212.70	-90.03	-2,612.23	-4,594.78	4,156.28	3,889.61	266.67	15.586	
10,000.00	6,933.14	7,098.20	7,094.14	56.12	212.69	-90.03	-2,612.23	-4,594.78	4,112.44	3,844.34	268.10	15.339	
10,100.00	6,933.04	7,098.10	7,094.04	57.50	212.69	-90.03	-2,612.23	-4,594.78	4,070.59	3,801.03	269.56	15.101	
10,200.00	6,932.93	7,097.99	7,093.93	58.88	212.69	-90.03	-2,612.23	-4,594.78	4,030.79	3,759.76	271.03	14.872	
10,300.00	6,932.83	7,097.89	7,093.83	60.28	212.68	-90.02	-2,612.23	-4,594.78	3,993.09	3,720.57	272.52	14.653	
10,400.00	6,932.72	7,097.78	7,093.72	61.69	212.68	-90.02	-2,612.23	-4,594.78	3,957.56	3,683.55	274.01	14.443	
10,500.00	6,932.62	7,097.68	7,093.62	63.10	212.68	-90.02	-2,612.23	-4,594.78	3,924.26	3,648.75	275.51	14.244	
10,600.00	6,932.51	7,097.58	7,093.51	64.52	212.68	-90.02	-2,612.23	-4,594.78	3,893.24	3,616.23	277.01	14.054	
10,700.00	6,932.41	7,097.47	7,093.41	65.96	212.67	-90.02	-2,612.23	-4,594.78	3,864.56	3,586.05	278.51	13.876	
10,800.00	6,932.30	7,097.37	7,093.30	67.39	212.67	-90.02	-2,612.23	-4,594.78	3,838.28	3,558.27	280.01	13.708	
10,900.00	6,932.20	7,097.26	7,093.20	68.84	212.67	-90.01	-2,612.23	-4,594.78	3,814.43	3,532.95	281.49	13.551	
11,000.00	6,932.10	7,097.16	7,093.10	70.29	212.66	-90.01	-2,612.23	-4,594.78	3,793.08	3,510.12	282.96	13.405	
11,100.00	6,931.99	7,097.05	7,092.99	71.75	212.66	-90.01	-2,612.23	-4,594.78	3,774.25	3,489.85	284.40	13.271	
11,200.00	6,931.89	7,096.95	7,092.89	73.22	212.66	-90.01	-2,612.23	-4,594.78	3,757.99	3,472.16	285.82	13.148	
11,300.00	6,931.78	7,096.84	7,092.78	74.69	212.65	-90.01	-2,612.23	-4,594.78	3,744.33	3,457.11	287.22	13.037	
11,400.00	6,931.68	7,096.74	7,092.68	76.16	212.65	-90.01	-2,612.23	-4,594.78	3,733.30	3,444.72	288.58	12.937	
11,500.00	6,931.57	7,096.63	7,092.57	77.64	212.65	-90.00	-2,612.23	-4,594.78	3,724.92	3,435.02	289.90	12.849	
11,600.00	6,931.47	7,096.53	7,092.47	79.13	212.64	-90.00	-2,612.23	-4,594.78	3,719.22	3,428.03	291.18	12.773	
11,700.00	6,931.36	7,096.42	7,092.36	80.62	212.64	-90.00	-2,612.23	-4,594.78	3,716.20	3,423.77	292.42	12.708	
11,762.38	6,931.30	7,096.36	7,092.30	81.55	212.64	-90.00	-2,612.23	-4,594.78	3,715.67	3,422.50	293.17	12.674	CC
11,800.00	6,931.26	7,096.32	7,092.26	82.11	212.64	-90.00	-2,612.23	-4,594.78	3,715.86	3,422.25	293.61	12.656	ES
11,900.00	6,931.15	7,096.21	7,092.15	83.61	212.63	-90.00	-2,612.23	-4,594.78	3,718.22	3,423.47	294.75	12.615	
12,000.00	6,931.05	7,096.11	7,092.05	85.11	212.63	-90.00	-2,612.23	-4,594.78	3,723.26	3,427.43	295.83	12.586	
12,100.00	6,930.94	7,096.00	7,091.94	86.62	212.63	-89.99	-2,612.23	-4,594.78	3,730.98	3,434.11	296.86	12.568	
12,200.00	6,930.84	7,095.90	7,091.84	88.13	212.63	-89.99	-2,612.23	-4,594.78	3,741.35	3,443.52	297.84	12.562	SF
12,300.00	6,930.73	7,095.79	7,091.73	89.64	212.62	-89.99	-2,612.23	-4,594.78	3,754.36	3,455.61	298.75	12.567	
12,400.00	6,930.63	7,095.69	7,091.63	91.15	212.62	-89.99	-2,612.23	-4,594.78	3,769.98	3,470.38	299.61	12.583	
12,500.00	6,930.52	7,095.59	7,091.52	92.67	212.62	-89.99	-2,612.23	-4,594.78	3,788.18	3,487.78	300.40	12.610	
12,600.00	6,930.42	7,095.48	7,091.42	94.19	212.61	-89.99	-2,612.23	-4,594.78	3,808.91	3,507.78	301.13	12.649	
12,700.00	6,930.31	7,095.38	7,091.31	95.71	212.61	-89.98	-2,612.23	-4,594.78	3,832.15	3,530.34	301.81	12.697	
12,800.00	6,930.21	7,095.27	7,091.21	97.24	212.61	-89.98	-2,612.23	-4,594.78	3,857.83	3,555.41	302.42	12.756	
12,900.00	6,930.11	7,095.17	7,091.11	98.77	212.60	-89.98	-2,612.23	-4,594.78	3,885.92	3,582.94	302.98	12.826	
13,008.91	6,929.99	7,095.05	7,090.99	100.43	212.60	-89.98	-2,612.23	-4,594.78	3,919.19	3,615.67	303.52	12.912	
13,100.00	6,929.90	7,094.96	7,090.90	101.83	212.60	-89.98	-2,612.23	-4,594.78	3,950.46	3,646.54	303.92	12.998	
13,139.82	6,929.86	7,094.92	7,090.86	102.44	212.60	-89.98	-2,612.23	-4,594.78	3,965.56	3,661.48	304.08	13.041	
13,200.00	6,929.80	7,094.86	7,090.80	103.37	212.59	-89.98	-2,612.23	-4,594.78	3,989.40	3,685.09	304.31	13.110	
13,300.00	6,929.70	7,094.77	7,090.70	104.92	212.59	-89.97	-2,612.23	-4,594.78	4,030.70	3,726.05	304.65	13.231	
13,400.00	6,929.61	7,094.67	7,090.61	106.47	212.59	-89.97	-2,612.23	-4,594.78	4,074.03	3,769.10	304.93	13.360	
13,500.00	6,929.51	7,094.57	7,090.51	108.02	212.59	-89.97	-2,612.23	-4,594.78	4,119.34	3,814.16	305.18	13.498	
13,600.00	6,929.41	7,094.48	7,090.41	109.57	212.58	-89.97	-2,612.23	-4,594.78	4,166.55	3,861.18	305.38	13.644	
13,700.00	6,929.32	7,094.38	7,090.32	111.12	212.58	-89.97	-2,612.23	-4,594.78	4,215.61	3,910.07	305.53	13.798	
13,800.00	6,929.22	7,094.28	7,090.22	112.68	212.58	-89.97	-2,612.23	-4,594.78	4,266.45	3,960.79	305.65	13.958	
13,900.00	6,929.12	7,094.18	7,090.12	114.23	212.57	-89.96	-2,612.23	-4,594.78	4,319.00	4,013.26	305.74	14.127	
14,000.00	6,929.03	7,094.09	7,090.03	115.79	212.57	-89.96	-2,612.23	-4,594.78	4,373.21	4,067.42	305.79	14.301	
14,100.00	6,928.93	7,093.99	7,089.93	117.35	212.57	-89.96	-2,612.23	-4,594.78	4,429.01	4,123.21	305.81	14.483	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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
14,200.00	6,928.83	7,093.89	7,089.83	118.91	212.57	-89.96	-2,612.23	-4,594.78	4,486.35	4,180.56	305.80	14.671	
14,300.00	6,928.74	7,093.80	7,089.74	120.47	212.56	-89.96	-2,612.23	-4,594.78	4,545.17	4,239.41	305.76	14.865	
14,400.00	6,928.64	7,093.70	7,089.64	122.03	212.56	-89.96	-2,612.23	-4,594.78	4,605.41	4,299.71	305.70	15.065	
14,500.00	6,928.54	7,093.60	7,089.54	123.60	212.56	-89.96	-2,612.23	-4,594.78	4,667.01	4,361.39	305.62	15.271	
14,600.00	6,928.45	7,093.51	7,089.45	125.16	212.55	-89.95	-2,612.23	-4,594.78	4,729.92	4,424.41	305.51	15.482	
14,700.00	6,928.35	7,093.41	7,089.35	126.72	212.55	-89.95	-2,612.23	-4,594.78	4,794.10	4,488.71	305.39	15.698	
14,800.00	6,928.25	7,093.31	7,089.25	128.29	212.55	-89.95	-2,612.23	-4,594.78	4,859.48	4,554.23	305.25	15.920	
14,900.00	6,928.16	7,093.22	7,089.16	129.86	212.54	-89.95	-2,612.23	-4,594.78	4,926.03	4,620.93	305.10	16.146	
15,000.00	6,928.06	7,093.12	7,089.06	131.42	212.54	-89.95	-2,612.23	-4,594.78	4,993.69	4,688.77	304.93	16.377	
15,100.00	6,927.96	7,093.02	7,088.96	132.99	212.54	-89.95	-2,612.23	-4,594.78	5,062.43	4,757.68	304.75	16.612	
15,200.00	6,927.87	7,092.93	7,088.87	134.56	212.54	-89.95	-2,612.23	-4,594.78	5,132.19	4,827.63	304.56	16.851	
15,300.00	6,927.77	7,092.83	7,088.77	136.13	212.53	-89.94	-2,612.23	-4,594.78	5,202.94	4,898.58	304.35	17.095	
15,400.00	6,927.67	7,092.73	7,088.67	137.70	212.53	-89.94	-2,612.23	-4,594.78	5,274.63	4,970.49	304.14	17.343	
15,500.00	6,927.57	7,092.64	7,088.57	139.28	212.53	-89.94	-2,612.23	-4,594.78	5,347.24	5,043.31	303.93	17.594	
15,600.00	6,927.48	7,092.54	7,088.48	140.85	212.52	-89.94	-2,612.23	-4,594.78	5,420.72	5,117.01	303.70	17.849	
15,700.00	6,927.38	7,092.44	7,088.38	142.42	212.52	-89.94	-2,612.23	-4,594.78	5,495.03	5,191.56	303.47	18.107	
15,800.00	6,927.28	7,092.35	7,088.28	144.00	212.52	-89.94	-2,612.23	-4,594.78	5,570.15	5,266.91	303.24	18.369	
15,900.00	6,927.19	7,092.25	7,088.19	145.57	212.52	-89.93	-2,612.23	-4,594.78	5,646.04	5,343.04	303.00	18.634	
16,000.00	6,927.09	7,092.15	7,088.09	147.15	212.51	-89.93	-2,612.23	-4,594.78	5,722.67	5,419.91	302.76	18.901	
16,100.00	6,926.99	7,092.06	7,087.99	148.72	212.51	-89.93	-2,612.23	-4,594.78	5,800.02	5,497.49	302.52	19.172	
16,200.00	6,926.90	7,091.96	7,087.90	150.30	212.51	-89.93	-2,612.23	-4,594.78	5,878.04	5,575.77	302.28	19.446	
16,300.00	6,926.80	7,091.86	7,087.80	151.87	212.50	-89.93	-2,612.23	-4,594.78	5,956.73	5,654.70	302.03	19.722	
16,400.00	6,926.70	7,091.77	7,087.70	153.45	212.50	-89.93	-2,612.23	-4,594.78	6,036.04	5,734.26	301.78	20.001	
16,500.00	6,926.61	7,091.67	7,087.61	155.03	212.50	-89.93	-2,612.23	-4,594.78	6,115.96	5,814.43	301.53	20.283	
16,600.00	6,926.51	7,091.57	7,087.51	156.61	212.50	-89.92	-2,612.23	-4,594.78	6,196.47	5,895.18	301.29	20.567	
16,700.00	6,926.41	7,091.47	7,087.41	158.19	212.49	-89.92	-2,612.23	-4,594.78	6,277.53	5,976.49	301.04	20.853	
16,800.00	6,926.32	7,091.38	7,087.32	159.77	212.49	-89.92	-2,612.23	-4,594.78	6,359.13	6,058.34	300.79	21.141	
16,900.00	6,926.22	7,091.28	7,087.22	161.35	212.49	-89.92	-2,612.23	-4,594.78	6,441.26	6,140.71	300.55	21.432	
17,000.00	6,926.12	7,091.18	7,087.12	162.93	212.48	-89.92	-2,612.23	-4,594.78	6,523.88	6,223.57	300.31	21.724	
17,100.00	6,926.03	7,091.09	7,087.03	164.51	212.48	-89.92	-2,612.23	-4,594.78	6,606.98	6,306.92	300.06	22.019	
17,200.00	6,925.93	7,090.99	7,086.93	166.09	212.48	-89.91	-2,612.23	-4,594.78	6,690.54	6,390.72	299.82	22.315	
17,300.00	6,925.83	7,090.89	7,086.83	167.67	212.48	-89.91	-2,612.23	-4,594.78	6,774.55	6,474.97	299.59	22.613	
17,400.00	6,925.74	7,090.80	7,086.74	169.26	212.47	-89.91	-2,612.23	-4,594.78	6,858.99	6,559.64	299.35	22.913	
17,500.00	6,925.64	7,090.70	7,086.64	170.84	212.47	-89.91	-2,612.23	-4,594.78	6,943.85	6,644.73	299.12	23.215	
17,600.00	6,925.54	7,090.60	7,086.54	172.42	212.47	-89.91	-2,612.23	-4,594.78	7,029.10	6,730.21	298.88	23.518	
17,700.00	6,925.45	7,090.51	7,086.45	174.00	212.46	-89.91	-2,612.23	-4,594.78	7,114.73	6,816.07	298.66	23.822	
17,800.00	6,925.35	7,090.41	7,086.35	175.59	212.46	-89.91	-2,612.23	-4,594.78	7,200.74	6,902.30	298.43	24.129	
17,900.00	6,925.25	7,090.31	7,086.25	177.17	212.46	-89.90	-2,612.23	-4,594.78	7,287.10	6,988.89	298.21	24.436	
18,000.00	6,925.16	7,090.22	7,086.16	178.76	212.45	-89.90	-2,612.23	-4,594.78	7,373.80	7,075.82	297.99	24.745	
18,100.00	6,925.06	7,090.12	7,086.06	180.34	212.45	-89.90	-2,612.23	-4,594.78	7,460.84	7,163.07	297.77	25.056	
18,160.21	6,925.00	7,090.06	7,086.00	181.30	212.45	-89.90	-2,612.23	-4,594.78	7,513.41	7,215.77	297.64	25.243	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	178.00	178.00	0.00	5.33	-130.70	-2,556.97	-2,972.92	3,921.27				
100.00	100.00	278.00	278.00	0.25	8.33	-130.70	-2,556.97	-2,972.92	3,921.27	3,912.68	8.58	456.962	
200.00	200.00	378.00	378.00	0.61	11.33	-130.70	-2,556.97	-2,972.92	3,921.27	3,909.33	11.94	328.523	
300.00	300.00	478.00	478.00	0.97	14.32	-130.70	-2,556.97	-2,972.92	3,921.27	3,905.98	15.29	256.444	
400.00	400.00	578.10	578.00	1.33	17.32	-130.70	-2,556.97	-2,972.92	3,921.27	3,902.62	18.65	210.268	
500.00	500.00	678.10	678.00	1.68	20.32	-130.70	-2,556.97	-2,972.92	3,921.27	3,899.26	22.00	178.209	
571.76	571.75	749.85	749.71	1.94	22.47	-142.67	-2,554.79	-2,972.92	3,920.56	3,896.15	24.41	160.607	
600.00	599.98	773.81	773.67	2.04	23.19	-142.67	-2,554.81	-2,972.92	3,921.25	3,896.02	25.23	155.419	
700.00	699.84	858.56	858.41	2.41	25.73	-142.66	-2,555.20	-2,972.92	3,925.71	3,897.58	28.13	139.558	
800.00	799.45	943.04	942.86	2.77	28.26	-142.64	-2,556.09	-2,972.92	3,933.34	3,902.32	31.02	126.791	
900.00	898.70	1,077.11	1,076.70	3.13	32.28	-142.67	-2,556.97	-2,972.92	3,943.48	3,908.08	35.40	111.385	
1,000.00	997.47	1,175.87	1,175.47	3.50	35.23	-142.66	-2,556.97	-2,972.92	3,955.97	3,917.24	38.73	102.137	
1,100.00	1,095.62	1,270.30	1,269.86	3.89	38.06	-142.61	-2,554.80	-2,972.92	3,969.82	3,927.88	41.94	94.664	
1,200.00	1,193.44	1,352.93	1,352.47	4.29	40.54	-142.76	-2,555.16	-2,972.92	3,986.77	3,941.98	44.79	89.013	
1,300.00	1,291.25	1,435.39	1,434.90	4.70	43.01	-142.92	-2,555.99	-2,972.92	4,004.14	3,956.50	47.64	84.058	
1,400.00	1,389.07	1,567.78	1,567.07	5.11	46.98	-143.17	-2,556.97	-2,972.92	4,021.39	3,969.41	51.99	77.354	
1,500.00	1,486.88	1,665.59	1,664.88	5.53	49.91	-143.35	-2,556.97	-2,972.92	4,038.18	3,982.88	55.30	73.021	
1,600.00	1,584.70	1,761.25	1,760.50	5.95	52.77	-143.49	-2,554.79	-2,972.92	4,053.55	3,995.00	58.55	69.227	
1,700.00	1,682.51	1,843.40	1,842.63	6.37	55.24	-143.64	-2,555.09	-2,972.92	4,070.66	4,009.25	61.40	66.295	
1,800.00	1,780.33	1,925.37	1,924.58	6.80	57.69	-143.79	-2,555.86	-2,972.92	4,088.17	4,023.93	64.24	63.635	
1,900.00	1,878.14	2,057.16	2,056.14	7.22	61.64	-144.04	-2,556.97	-2,972.92	4,105.72	4,037.13	68.59	59.860	
2,000.00	1,975.96	2,154.97	2,153.96	7.65	64.57	-144.20	-2,556.97	-2,972.92	4,122.69	4,050.78	71.91	57.330	
2,100.00	2,073.77	2,252.30	2,251.25	8.08	67.49	-144.35	-2,554.79	-2,972.92	4,138.21	4,062.99	75.22	55.015	
2,200.00	2,171.59	2,333.97	2,332.90	8.51	69.94	-144.49	-2,555.04	-2,972.92	4,155.45	4,077.39	78.06	53.237	
2,300.00	2,269.40	2,415.47	2,414.38	8.95	72.38	-144.63	-2,555.75	-2,972.92	4,173.10	4,092.22	80.88	51.593	
2,400.00	2,367.22	2,546.53	2,545.22	9.38	76.31	-144.86	-2,556.97	-2,972.92	4,190.92	4,105.71	85.21	49.182	
2,500.00	2,465.03	2,644.35	2,643.03	9.81	79.24	-145.03	-2,556.97	-2,972.92	4,208.06	4,119.53	88.54	47.529	
2,600.00	2,562.84	2,742.16	2,740.84	10.25	82.17	-145.19	-2,556.97	-2,972.92	4,225.24	4,133.38	91.86	45.996	
2,700.00	2,660.66	2,824.66	2,823.29	10.68	84.64	-145.30	-2,554.98	-2,972.92	4,241.10	4,146.38	94.72	44.774	
2,800.00	2,758.47	2,905.68	2,904.29	11.12	87.07	-145.44	-2,555.64	-2,972.92	4,258.88	4,161.34	97.54	43.664	
2,900.00	2,856.29	3,035.91	3,034.29	11.55	90.97	-145.66	-2,556.97	-2,972.92	4,276.96	4,175.11	101.84	41.995	
3,000.00	2,954.10	3,133.73	3,132.10	11.99	93.90	-145.82	-2,556.97	-2,972.92	4,294.26	4,189.09	105.17	40.832	
3,100.00	3,051.92	3,231.54	3,229.92	12.42	96.83	-145.97	-2,556.97	-2,972.92	4,311.59	4,203.10	108.49	39.741	
3,200.00	3,149.73	3,315.45	3,313.78	12.86	99.35	-146.08	-2,554.94	-2,972.92	4,327.55	4,216.16	111.40	38.849	
3,300.00	3,247.55	3,396.01	3,394.32	13.30	101.76	-146.21	-2,555.53	-2,972.92	4,345.45	4,231.26	114.19	38.053	
3,400.00	3,345.36	3,525.29	3,523.36	13.73	105.63	-146.42	-2,556.97	-2,972.92	4,363.77	4,245.30	118.47	36.833	
3,500.00	3,443.18	3,623.11	3,621.18	14.17	108.56	-146.57	-2,556.97	-2,972.92	4,381.23	4,259.43	121.80	35.971	
3,600.00	3,540.99	3,720.92	3,718.99	14.61	111.50	-146.72	-2,556.97	-2,972.92	4,398.71	4,273.58	125.12	35.155	
3,700.00	3,638.81	3,806.36	3,804.38	15.05	114.06	-146.83	-2,554.90	-2,972.92	4,414.76	4,286.69	128.07	34.471	
3,800.00	3,736.62	3,886.46	3,884.46	15.48	116.46	-146.96	-2,555.44	-2,972.92	4,432.77	4,301.91	130.85	33.875	
3,900.00	3,834.44	4,014.67	4,012.44	15.92	120.30	-147.16	-2,556.97	-2,972.92	4,451.32	4,316.22	135.10	32.948	
4,000.00	3,932.25	4,112.48	4,110.25	16.36	123.23	-147.30	-2,556.97	-2,972.92	4,468.92	4,330.49	138.43	32.284	
4,100.00	4,030.07	4,210.30	4,208.07	16.80	126.16	-147.45	-2,556.97	-2,972.92	4,486.54	4,344.79	141.75	31.651	
4,200.00	4,127.88	4,297.37	4,295.09	17.24	128.77	-147.55	-2,554.87	-2,972.92	4,502.69	4,357.94	144.75	31.107	
4,300.00	4,225.70	4,377.01	4,374.72	17.68	131.16	-147.67	-2,555.35	-2,972.92	4,520.79	4,373.27	147.52	30.646	
4,400.00	4,323.51	4,504.05	4,501.51	18.11	134.96	-147.87	-2,556.97	-2,972.92	4,539.57	4,387.84	151.73	29.919	
4,500.00	4,421.33	4,601.86	4,599.33	18.55	137.89	-148.01	-2,556.97	-2,972.92	4,557.29	4,402.24	155.05	29.392	
4,600.00	4,519.14	4,699.68	4,697.14	18.99	140.82	-148.14	-2,556.97	-2,972.92	4,575.05	4,416.67	158.38	28.887	
4,700.00	4,616.95	4,788.48	4,785.90	19.43	143.48	-148.25	-2,554.84	-2,972.92	4,591.28	4,429.86	161.42	28.442	
4,800.00	4,714.77	4,867.67	4,865.08	19.87	145.86	-148.36	-2,555.27	-2,972.92	4,609.47	4,445.30	164.18	28.076	
4,900.00	4,812.58	4,946.70	4,944.08	20.31	148.23	-148.48	-2,556.14	-2,972.92	4,628.09	4,461.17	166.92	27.726	
5,000.00	4,910.40	5,091.24	5,088.40	20.75	152.56	-148.68	-2,556.97	-2,972.92	4,646.31	4,474.64	171.68	27.064	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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
5,100.00	5,008.21	5,189.06	5,186.21	21.19	155.49	-148.81	-2,556.97	-2,972.92	4,664.19	4,489.19	175.00	26.653	
5,200.00	5,106.03	5,279.70	5,276.81	21.63	158.20	-148.92	-2,554.82	-2,972.92	4,680.52	4,502.41	178.10	26.280	
5,300.00	5,203.84	5,358.44	5,355.54	22.06	160.56	-149.02	-2,555.20	-2,972.92	4,698.79	4,517.95	180.84	25.983	
5,400.00	5,301.66	5,437.03	5,434.11	22.50	162.92	-149.13	-2,556.01	-2,972.92	4,717.48	4,533.91	183.57	25.699	
5,500.00	5,399.47	5,580.62	5,577.47	22.94	167.22	-149.33	-2,556.97	-2,972.92	4,735.94	4,547.65	188.30	25.152	
5,600.00	5,497.29	5,658.59	5,655.42	23.38	169.56	-149.42	-2,556.03	-2,972.92	4,753.28	4,562.27	191.01	24.885	
5,700.00	5,595.10	5,776.40	5,773.10	23.82	173.09	-149.58	-2,556.97	-2,972.92	4,771.96	4,577.01	194.94	24.479	
5,800.00	5,692.92	5,872.82	5,869.51	24.26	175.98	-149.70	-2,555.84	-2,972.92	4,789.15	4,590.93	198.22	24.161	
5,900.00	5,790.73	5,938.83	5,935.50	24.70	177.95	-149.78	-2,556.15	-2,972.92	4,807.57	4,607.00	200.57	23.970	
6,000.00	5,888.55	6,070.00	6,066.55	25.14	181.88	-149.96	-2,556.97	-2,972.92	4,826.15	4,621.24	204.91	23.552	
6,100.00	5,986.36	6,167.81	6,164.36	25.58	184.82	-150.08	-2,556.97	-2,972.92	4,844.25	4,636.02	208.23	23.264	
6,200.00	6,084.18	6,265.63	6,262.18	26.02	187.75	-150.20	-2,556.97	-2,972.92	4,862.38	4,650.83	211.55	22.984	
6,300.00	6,181.99	6,317.00	6,313.36	26.46	189.29	-150.26	-2,556.97	-2,972.92	4,880.76	4,667.31	213.44	22.867	
6,401.22	6,281.00	6,317.00	6,313.36	26.90	189.29	-150.26	-2,556.97	-2,972.92	4,901.09	4,687.40	213.69	22.935	
6,450.00	6,328.76	6,317.00	6,313.36	27.12	189.29	-128.68	-2,556.97	-2,972.92	4,910.34	4,696.56	213.78	22.969	
6,500.00	6,377.61	6,317.00	6,313.36	27.32	189.29	-108.57	-2,556.97	-2,972.92	4,917.65	4,703.80	213.86	22.995	
6,550.00	6,426.06	6,317.00	6,313.36	27.52	189.29	-93.67	-2,556.97	-2,972.92	4,922.74	4,708.82	213.91	23.013	
6,600.00	6,473.81	6,317.00	6,313.36	27.71	189.29	-83.51	-2,556.97	-2,972.92	4,925.57	4,711.61	213.95	23.022	
6,650.00	6,520.56	6,317.00	6,313.36	27.89	189.29	-76.64	-2,556.97	-2,972.92	4,926.13	4,712.15	213.98	23.022	
6,700.00	6,566.03	6,317.00	6,313.36	28.05	189.29	-71.93	-2,556.97	-2,972.92	4,924.41	4,710.43	213.98	23.013	
6,750.00	6,609.93	6,317.00	6,313.36	28.20	189.29	-68.67	-2,556.97	-2,972.92	4,920.44	4,706.46	213.98	22.995	
6,800.00	6,652.00	6,317.00	6,313.36	28.34	189.29	-66.44	-2,556.97	-2,972.92	4,914.22	4,700.25	213.97	22.967	
6,850.00	6,691.98	6,317.00	6,313.36	28.47	189.29	-64.97	-2,556.97	-2,972.92	4,905.79	4,691.84	213.95	22.930	
6,900.00	6,729.61	6,317.00	6,313.36	28.59	189.29	-64.10	-2,556.97	-2,972.92	4,895.18	4,681.25	213.93	22.882	
6,950.00	6,764.67	6,317.00	6,313.36	28.69	189.29	-63.71	-2,556.97	-2,972.92	4,882.45	4,668.54	213.91	22.825	
7,000.00	6,796.95	6,317.00	6,313.36	28.79	189.29	-63.74	-2,556.97	-2,972.92	4,867.66	4,653.77	213.90	22.757	
7,050.00	6,826.23	6,317.00	6,313.36	28.89	189.29	-64.15	-2,556.97	-2,972.92	4,850.89	4,637.00	213.89	22.679	
7,100.00	6,852.35	6,317.00	6,313.36	28.98	189.29	-64.90	-2,556.97	-2,972.92	4,832.21	4,618.31	213.90	22.591	
7,150.00	6,875.14	6,317.00	6,313.36	29.08	189.29	-65.98	-2,556.97	-2,972.92	4,811.72	4,597.79	213.93	22.492	
7,200.00	6,894.45	6,317.00	6,313.36	29.18	189.29	-67.37	-2,556.97	-2,972.92	4,789.53	4,575.54	213.98	22.383	
7,250.00	6,910.18	6,317.00	6,313.36	29.28	189.29	-69.06	-2,556.97	-2,972.92	4,765.74	4,551.68	214.06	22.264	
7,300.00	6,922.23	6,317.00	6,313.36	29.40	189.29	-71.07	-2,556.97	-2,972.92	4,740.48	4,526.32	214.16	22.135	
7,350.00	6,930.51	6,317.00	6,313.36	29.54	189.29	-73.37	-2,556.97	-2,972.92	4,713.89	4,499.60	214.30	21.997	
7,400.00	6,934.98	6,317.00	6,313.36	29.70	189.29	-75.96	-2,556.97	-2,972.92	4,686.11	4,471.65	214.47	21.850	
7,433.91	6,935.83	6,317.00	6,313.36	29.81	189.29	-77.89	-2,556.97	-2,972.92	4,666.67	4,452.07	214.60	21.746	
7,500.00	6,935.76	6,317.00	6,313.36	30.07	189.29	-77.89	-2,556.97	-2,972.92	4,628.65	4,413.77	214.88	21.540	
7,600.00	6,935.66	6,317.00	6,313.36	30.52	189.29	-77.89	-2,556.97	-2,972.92	4,572.35	4,356.99	215.35	21.232	
7,700.00	6,935.55	6,317.00	6,313.36	31.06	189.29	-77.89	-2,556.97	-2,972.92	4,517.55	4,301.68	215.87	20.927	
7,800.00	6,935.45	6,317.00	6,313.36	31.68	189.29	-77.89	-2,556.97	-2,972.92	4,464.32	4,247.88	216.44	20.626	
7,900.00	6,935.34	6,317.00	6,313.36	32.37	189.29	-77.89	-2,556.97	-2,972.92	4,412.72	4,195.66	217.06	20.329	
8,000.00	6,935.24	6,317.00	6,313.36	33.12	189.29	-77.89	-2,556.97	-2,972.92	4,362.80	4,145.07	217.73	20.038	
8,100.00	6,935.13	6,317.00	6,313.36	33.93	189.29	-77.89	-2,556.97	-2,972.92	4,314.62	4,096.18	218.44	19.752	
8,200.00	6,935.03	6,317.00	6,313.36	34.80	189.29	-77.89	-2,556.97	-2,972.92	4,268.24	4,049.03	219.20	19.472	
8,300.00	6,934.92	6,317.00	6,313.36	35.71	189.29	-77.89	-2,556.97	-2,972.92	4,223.71	4,003.71	220.01	19.198	
8,400.00	6,934.82	6,317.00	6,313.36	36.67	189.29	-77.89	-2,556.97	-2,972.92	4,181.11	3,960.25	220.86	18.931	
8,500.00	6,934.71	6,317.00	6,313.36	37.68	189.29	-77.89	-2,556.97	-2,972.92	4,140.48	3,918.74	221.74	18.672	
8,600.00	6,934.61	6,317.00	6,313.36	38.72	189.29	-77.89	-2,556.97	-2,972.92	4,101.89	3,879.22	222.67	18.421	
8,700.00	6,934.50	6,317.00	6,313.36	39.80	189.29	-77.89	-2,556.97	-2,972.92	4,065.40	3,841.76	223.63	18.179	
8,800.00	6,934.40	6,317.00	6,313.36	40.92	189.29	-77.89	-2,556.97	-2,972.92	4,031.05	3,806.42	224.63	17.945	
8,900.00	6,934.29	6,317.00	6,313.36	42.06	189.29	-77.89	-2,556.97	-2,972.92	3,998.91	3,773.25	225.65	17.721	
9,000.00	6,934.19	6,317.00	6,313.36	43.23	189.29	-77.89	-2,556.97	-2,972.92	3,969.03	3,742.32	226.71	17.507	
9,100.00	6,934.08	6,317.00	6,313.36	44.43	189.29	-77.89	-2,556.97	-2,972.92	3,941.46	3,713.68	227.78	17.304	

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 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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
9,200.00	6,933.98	6,317.00	6,313.36	45.66	189.29	-77.89	-2,556.97	-2,972.92	3,916.25	3,687.37	228.88	17.111	
9,300.00	6,933.88	6,317.00	6,313.36	46.90	189.29	-77.89	-2,556.97	-2,972.92	3,893.45	3,663.46	229.99	16.929	
9,400.00	6,933.77	6,317.00	6,313.36	48.17	189.29	-77.89	-2,556.97	-2,972.92	3,873.10	3,641.98	231.12	16.758	
9,500.00	6,933.67	6,317.00	6,313.36	49.46	189.29	-77.89	-2,556.97	-2,972.92	3,855.23	3,622.98	232.25	16.599	
9,600.00	6,933.56	6,317.00	6,313.36	50.76	189.29	-77.89	-2,556.97	-2,972.92	3,839.88	3,606.49	233.39	16.452	
9,700.00	6,933.46	6,317.00	6,313.36	52.08	189.29	-77.89	-2,556.97	-2,972.92	3,827.09	3,592.56	234.54	16.318	
9,800.00	6,933.35	6,317.00	6,313.36	53.41	189.29	-77.89	-2,556.97	-2,972.92	3,816.88	3,581.20	235.68	16.195	
9,900.00	6,933.25	6,317.00	6,313.36	54.76	189.29	-77.89	-2,556.97	-2,972.92	3,809.26	3,572.45	236.81	16.086	
10,000.00	6,933.14	6,317.00	6,313.36	56.12	189.29	-77.89	-2,556.97	-2,972.92	3,804.26	3,566.32	237.94	15.988	
10,100.00	6,933.04	6,317.00	6,313.36	57.50	189.29	-77.89	-2,556.97	-2,972.92	3,801.88	3,562.83	239.05	15.904	
10,140.41	6,933.00	6,317.00	6,313.36	58.06	189.29	-77.89	-2,556.97	-2,972.92	3,801.67	3,562.16	239.50	15.873	CC
10,200.00	6,932.93	6,317.00	6,313.36	58.88	189.29	-77.89	-2,556.97	-2,972.92	3,802.13	3,561.98	240.15	15.832	ES
10,300.00	6,932.83	6,317.00	6,313.36	60.28	189.29	-77.89	-2,556.97	-2,972.92	3,805.01	3,563.78	241.23	15.773	
10,400.00	6,932.72	6,317.00	6,313.36	61.69	189.29	-77.89	-2,556.97	-2,972.92	3,810.52	3,568.23	242.29	15.727	
10,500.00	6,932.62	6,317.00	6,313.36	63.10	189.29	-77.89	-2,556.97	-2,972.92	3,818.63	3,575.31	243.33	15.693	
10,600.00	6,932.51	6,317.00	6,313.36	64.52	189.29	-77.89	-2,556.97	-2,972.92	3,829.35	3,585.01	244.33	15.673	
10,700.00	6,932.41	6,317.00	6,313.36	65.96	189.29	-77.89	-2,556.97	-2,972.92	3,842.63	3,597.32	245.31	15.664	SF
10,800.00	6,932.30	6,317.00	6,313.36	67.39	189.29	-77.89	-2,556.97	-2,972.92	3,858.46	3,612.20	246.26	15.668	
10,900.00	6,932.20	6,317.00	6,313.36	68.84	189.29	-77.89	-2,556.97	-2,972.92	3,876.81	3,629.63	247.18	15.684	
11,000.00	6,932.10	6,317.00	6,313.36	70.29	189.29	-77.89	-2,556.97	-2,972.92	3,897.63	3,649.58	248.06	15.713	
11,100.00	6,931.99	6,317.00	6,313.36	71.75	189.29	-77.89	-2,556.97	-2,972.92	3,920.90	3,672.00	248.90	15.753	
11,200.00	6,931.89	6,317.00	6,313.36	73.22	189.29	-77.89	-2,556.97	-2,972.92	3,946.57	3,696.85	249.71	15.804	
11,300.00	6,931.78	6,317.00	6,313.36	74.69	189.29	-77.89	-2,556.97	-2,972.92	3,974.58	3,724.09	250.49	15.867	
11,400.00	6,931.68	6,317.00	6,313.36	76.16	189.29	-77.89	-2,556.97	-2,972.92	4,004.90	3,753.67	251.23	15.941	
11,500.00	6,931.57	6,317.00	6,313.36	77.64	189.29	-77.89	-2,556.97	-2,972.92	4,037.47	3,785.54	251.93	16.026	
11,600.00	6,931.47	6,317.00	6,313.36	79.13	189.29	-77.89	-2,556.97	-2,972.92	4,072.23	3,819.64	252.59	16.122	
11,700.00	6,931.36	6,317.00	6,313.36	80.62	189.29	-77.89	-2,556.97	-2,972.92	4,109.13	3,855.92	253.22	16.228	
11,800.00	6,931.26	6,317.00	6,313.36	82.11	189.29	-77.89	-2,556.97	-2,972.92	4,148.12	3,894.31	253.81	16.344	
11,900.00	6,931.15	6,317.00	6,313.36	83.61	189.29	-77.89	-2,556.97	-2,972.92	4,189.13	3,934.77	254.36	16.469	
12,000.00	6,931.05	6,317.00	6,313.36	85.11	189.29	-77.89	-2,556.97	-2,972.92	4,232.11	3,977.22	254.88	16.604	
12,100.00	6,930.94	6,317.00	6,313.36	86.62	189.29	-77.89	-2,556.97	-2,972.92	4,276.99	4,021.62	255.37	16.748	
12,200.00	6,930.84	6,317.00	6,313.36	88.13	189.29	-77.89	-2,556.97	-2,972.92	4,323.72	4,067.90	255.83	16.901	
12,300.00	6,930.73	6,317.00	6,313.36	89.64	189.29	-77.89	-2,556.97	-2,972.92	4,372.24	4,115.99	256.25	17.062	
12,400.00	6,930.63	6,317.00	6,313.36	91.15	189.29	-77.89	-2,556.97	-2,972.92	4,422.49	4,165.85	256.64	17.232	
12,500.00	6,930.52	6,317.00	6,313.36	92.67	189.29	-77.89	-2,556.97	-2,972.92	4,474.41	4,217.40	257.01	17.410	
12,600.00	6,930.42	6,317.00	6,313.36	94.19	189.29	-77.89	-2,556.97	-2,972.92	4,527.94	4,270.60	257.34	17.595	
12,700.00	6,930.31	6,317.00	6,313.36	95.71	189.29	-77.89	-2,556.97	-2,972.92	4,583.03	4,325.38	257.65	17.788	
12,800.00	6,930.21	6,317.00	6,313.36	97.24	189.29	-77.89	-2,556.97	-2,972.92	4,639.62	4,381.69	257.93	17.988	
12,900.00	6,930.11	6,317.00	6,313.36	98.77	189.29	-77.89	-2,556.97	-2,972.92	4,697.66	4,439.47	258.19	18.194	
13,008.91	6,929.99	6,317.00	6,313.36	100.43	189.29	-77.89	-2,556.97	-2,972.92	4,762.45	4,504.00	258.45	18.427	
13,100.00	6,929.90	6,317.00	6,313.36	101.83	189.29	-77.58	-2,556.97	-2,972.92	4,818.97	4,560.33	258.65	18.632	
13,139.82	6,929.86	6,317.00	6,313.36	102.44	189.29	-77.44	-2,556.97	-2,972.92	4,844.70	4,585.97	258.73	18.725	
13,200.00	6,929.80	6,317.00	6,313.36	103.37	189.29	-77.44	-2,556.97	-2,972.92	4,884.24	4,625.40	258.85	18.869	
13,300.00	6,929.70	6,317.00	6,313.36	104.92	189.29	-77.44	-2,556.97	-2,972.92	4,950.87	4,691.84	259.03	19.113	
13,400.00	6,929.61	6,317.00	6,313.36	106.47	189.29	-77.44	-2,556.97	-2,972.92	5,018.60	4,759.41	259.19	19.363	
13,500.00	6,929.51	6,317.00	6,313.36	108.02	189.29	-77.44	-2,556.97	-2,972.92	5,087.40	4,828.07	259.33	19.617	
13,600.00	6,929.41	6,317.00	6,313.36	109.57	189.29	-77.44	-2,556.97	-2,972.92	5,157.22	4,897.76	259.47	19.876	
13,700.00	6,929.32	6,317.00	6,313.36	111.12	189.29	-77.44	-2,556.97	-2,972.92	5,228.02	4,968.44	259.58	20.140	
13,800.00	6,929.22	6,317.00	6,313.36	112.68	189.29	-77.44	-2,556.97	-2,972.92	5,299.76	5,040.08	259.69	20.408	
13,900.00	6,929.12	6,317.00	6,313.36	114.23	189.29	-77.44	-2,556.97	-2,972.92	5,372.41	5,112.63	259.78	20.681	
14,000.00	6,929.03	6,317.00	6,313.36	115.79	189.29	-77.44	-2,556.97	-2,972.92	5,445.92	5,186.06	259.86	20.957	
14,100.00	6,928.93	6,317.00	6,313.36	117.35	189.29	-77.44	-2,556.97	-2,972.92	5,520.27	5,260.34	259.93	21.238	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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
14,200.00	6,928.83	6,317.00	6,313.36	118.91	189.29	-77.44	-2,556.97	-2,972.92	5,595.41	5,335.43	259.98	21.522	
14,300.00	6,928.74	6,317.00	6,313.36	120.47	189.29	-77.44	-2,556.97	-2,972.92	5,671.32	5,411.29	260.03	21.810	
14,400.00	6,928.64	6,317.00	6,313.36	122.03	189.29	-77.44	-2,556.97	-2,972.92	5,747.97	5,487.90	260.08	22.101	
14,500.00	6,928.54	6,317.00	6,313.36	123.60	189.29	-77.44	-2,556.97	-2,972.92	5,825.33	5,565.22	260.11	22.396	
14,600.00	6,928.45	6,317.00	6,313.36	125.16	189.29	-77.44	-2,556.97	-2,972.92	5,903.37	5,643.23	260.14	22.693	
14,700.00	6,928.35	6,317.00	6,313.36	126.72	189.29	-77.44	-2,556.97	-2,972.92	5,982.06	5,721.90	260.15	22.994	
14,800.00	6,928.25	6,317.00	6,313.36	128.29	189.29	-77.44	-2,556.97	-2,972.92	6,061.38	5,801.21	260.17	23.298	
14,900.00	6,928.16	6,317.00	6,313.36	129.86	189.29	-77.44	-2,556.97	-2,972.92	6,141.30	5,881.13	260.18	23.604	
15,000.00	6,928.06	6,317.00	6,313.36	131.42	189.29	-77.44	-2,556.97	-2,972.92	6,221.81	5,961.63	260.18	23.914	
15,100.00	6,927.96	6,317.00	6,313.36	132.99	189.29	-77.44	-2,556.97	-2,972.92	6,302.87	6,042.69	260.18	24.225	
15,200.00	6,927.87	6,317.00	6,313.36	134.56	189.29	-77.44	-2,556.97	-2,972.92	6,384.47	6,124.30	260.17	24.540	
15,300.00	6,927.77	6,317.00	6,313.36	136.13	189.29	-77.44	-2,556.97	-2,972.92	6,466.59	6,206.43	260.16	24.856	
15,400.00	6,927.67	6,317.00	6,313.36	137.70	189.29	-77.44	-2,556.97	-2,972.92	6,549.20	6,289.05	260.15	25.175	
15,500.00	6,927.57	6,317.00	6,313.36	139.28	189.29	-77.44	-2,556.97	-2,972.92	6,632.29	6,372.16	260.13	25.496	
15,600.00	6,927.48	6,317.00	6,313.36	140.85	189.29	-77.44	-2,556.97	-2,972.92	6,715.84	6,455.74	260.11	25.819	
15,700.00	6,927.38	6,317.00	6,313.36	142.42	189.29	-77.44	-2,556.97	-2,972.92	6,799.84	6,539.76	260.09	26.145	
15,800.00	6,927.28	6,317.00	6,313.36	144.00	189.29	-77.44	-2,556.97	-2,972.92	6,884.27	6,624.21	260.06	26.472	
15,900.00	6,927.19	6,317.00	6,313.36	145.57	189.29	-77.44	-2,556.97	-2,972.92	6,969.10	6,709.07	260.03	26.801	
16,000.00	6,927.09	6,317.00	6,313.36	147.15	189.29	-77.44	-2,556.97	-2,972.92	7,054.34	6,794.33	260.00	27.132	
16,100.00	6,926.99	6,317.00	6,313.36	148.72	189.29	-77.44	-2,556.97	-2,972.92	7,139.96	6,879.98	259.97	27.464	
16,200.00	6,926.90	6,317.00	6,313.36	150.30	189.29	-77.44	-2,556.97	-2,972.92	7,225.94	6,966.00	259.94	27.798	
16,300.00	6,926.80	6,317.00	6,313.36	151.87	189.29	-77.44	-2,556.97	-2,972.92	7,312.29	7,052.38	259.91	28.134	
16,400.00	6,926.70	6,317.00	6,313.36	153.45	189.29	-77.44	-2,556.97	-2,972.92	7,398.97	7,139.10	259.87	28.471	
16,500.00	6,926.61	6,317.00	6,313.36	155.03	189.29	-77.44	-2,556.97	-2,972.92	7,485.99	7,226.16	259.84	28.810	
16,600.00	6,926.51	6,317.00	6,313.36	156.61	189.29	-77.44	-2,556.97	-2,972.92	7,573.33	7,313.53	259.80	29.150	
16,700.00	6,926.41	6,317.00	6,313.36	158.19	189.29	-77.44	-2,556.97	-2,972.92	7,660.98	7,401.22	259.77	29.492	
16,800.00	6,926.32	6,317.00	6,313.36	159.77	189.29	-77.44	-2,556.97	-2,972.92	7,748.93	7,489.20	259.73	29.835	
16,900.00	6,926.22	6,317.00	6,313.36	161.35	189.29	-77.44	-2,556.97	-2,972.92	7,837.17	7,577.48	259.69	30.179	
17,000.00	6,926.12	6,317.00	6,313.36	162.93	189.29	-77.44	-2,556.97	-2,972.92	7,925.69	7,666.03	259.65	30.524	
17,100.00	6,926.03	6,317.00	6,313.36	164.51	189.29	-77.44	-2,556.97	-2,972.92	8,014.47	7,754.86	259.62	30.871	
17,200.00	6,925.93	6,317.00	6,313.36	166.09	189.29	-77.44	-2,556.97	-2,972.92	8,103.52	7,843.95	259.58	31.218	
17,300.00	6,925.83	6,317.00	6,313.36	167.67	189.29	-77.44	-2,556.97	-2,972.92	8,192.82	7,933.28	259.54	31.567	
17,400.00	6,925.74	6,317.00	6,313.36	169.26	189.29	-77.44	-2,556.97	-2,972.92	8,282.37	8,022.87	259.50	31.916	
17,500.00	6,925.64	6,317.00	6,313.36	170.84	189.29	-77.44	-2,556.97	-2,972.92	8,372.15	8,112.69	259.46	32.267	
17,600.00	6,925.54	6,317.00	6,313.36	172.42	189.29	-77.44	-2,556.97	-2,972.92	8,462.16	8,202.74	259.43	32.619	
17,700.00	6,925.45	6,317.00	6,313.36	174.00	189.29	-77.44	-2,556.97	-2,972.92	8,552.40	8,293.01	259.39	32.971	
17,800.00	6,925.35	6,317.00	6,313.36	175.59	189.29	-77.44	-2,556.97	-2,972.92	8,642.84	8,383.49	259.35	33.325	
17,900.00	6,925.25	6,317.00	6,313.36	177.17	189.29	-77.44	-2,556.97	-2,972.92	8,733.50	8,474.19	259.32	33.679	
18,000.00	6,925.16	6,317.00	6,313.36	178.76	189.29	-77.44	-2,556.97	-2,972.92	8,824.36	8,565.08	259.28	34.034	
18,100.00	6,925.06	6,317.00	6,313.36	180.34	189.29	-77.44	-2,556.97	-2,972.92	8,915.41	8,656.17	259.24	34.390	
18,160.21	6,925.00	6,317.00	6,313.36	181.30	189.29	-77.44	-2,556.97	-2,972.92	8,970.33	8,711.11	259.22	34.605	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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	-83.75	846.81	-7,738.04	7,784.24				
100.00	100.00	200.00	200.00	0.25	5.99	-83.75	846.81	-7,738.04	7,784.24	7,778.00	6.24	1,246.684	
200.00	200.00	300.00	300.00	0.61	8.99	-83.75	846.81	-7,738.04	7,784.24	7,774.64	9.60	810.956	
300.00	300.00	400.00	400.00	0.97	11.99	-83.75	846.81	-7,738.04	7,784.24	7,771.29	12.95	600.927	
400.00	400.00	500.10	500.00	1.33	14.99	-83.75	846.81	-7,738.04	7,784.24	7,767.93	16.31	477.220	
500.00	500.00	600.10	600.00	1.68	17.98	-83.75	846.81	-7,738.04	7,784.24	7,764.57	19.67	395.811	
600.00	599.98	700.08	699.98	2.04	20.98	-95.76	846.81	-7,738.04	7,784.42	7,761.40	23.02	338.157	
700.00	699.84	803.09	802.94	2.41	24.06	-95.78	848.89	-7,738.04	7,785.17	7,758.70	26.46	294.175	
800.00	799.45	908.90	908.73	2.77	27.23	-95.84	848.11	-7,738.04	7,785.97	7,755.98	30.00	259.574	
900.00	898.70	1,014.16	1,013.95	3.13	30.39	-95.92	846.55	-7,738.04	7,787.07	7,753.56	33.51	232.346	
1,000.00	997.47	1,097.87	1,097.47	3.50	32.90	-95.98	846.81	-7,738.04	7,788.72	7,752.33	36.40	213.984	
1,100.00	1,095.62	1,196.03	1,195.62	3.89	35.84	-96.08	846.81	-7,738.04	7,790.77	7,751.04	39.73	196.104	
1,200.00	1,193.44	1,296.35	1,295.90	4.29	38.84	-96.22	848.91	-7,738.04	7,793.25	7,750.12	43.13	180.677	
1,300.00	1,291.25	1,399.55	1,399.08	4.70	41.94	-96.38	848.21	-7,738.04	7,795.51	7,748.88	46.63	167.169	
1,400.00	1,389.07	1,502.47	1,501.96	5.11	45.02	-96.54	846.76	-7,738.04	7,797.77	7,747.64	50.13	155.556	
1,500.00	1,486.88	1,587.59	1,586.88	5.53	47.57	-96.67	846.81	-7,738.04	7,800.21	7,747.11	53.10	146.909	
1,600.00	1,584.70	1,685.41	1,684.70	5.95	50.50	-96.82	846.81	-7,738.04	7,802.70	7,746.26	56.45	138.233	
1,700.00	1,682.51	1,784.86	1,784.11	6.37	53.48	-96.96	848.95	-7,738.04	7,805.43	7,745.59	59.85	130.420	
1,800.00	1,780.33	1,887.31	1,886.53	6.80	56.55	-97.12	848.33	-7,738.04	7,807.99	7,744.64	63.34	123.266	
1,900.00	1,878.14	1,989.47	1,988.67	7.22	59.61	-97.28	846.99	-7,738.04	7,810.54	7,743.71	66.83	116.872	
2,000.00	1,975.96	2,076.97	2,075.96	7.65	62.24	-97.41	846.81	-7,738.04	7,813.23	7,743.35	69.88	111.811	
2,100.00	2,073.77	2,174.79	2,173.77	8.08	65.17	-97.56	846.81	-7,738.04	7,816.00	7,742.76	73.24	106.719	
2,200.00	2,171.59	2,273.54	2,272.49	8.51	68.13	-97.69	848.97	-7,738.04	7,818.98	7,742.35	76.63	102.039	
2,300.00	2,269.40	2,375.24	2,374.17	8.95	71.17	-97.85	848.44	-7,738.04	7,821.81	7,741.71	80.11	97.644	
2,400.00	2,367.22	2,476.67	2,475.56	9.38	74.21	-98.01	847.19	-7,738.04	7,824.66	7,741.09	83.58	93.623	
2,500.00	2,465.03	2,566.35	2,565.03	9.81	76.90	-98.15	846.81	-7,738.04	7,827.62	7,740.92	86.69	90.289	
2,600.00	2,562.84	2,664.16	2,662.84	10.25	79.83	-98.30	846.81	-7,738.04	7,830.66	7,740.60	90.06	86.951	
2,700.00	2,660.66	2,762.39	2,761.03	10.68	82.77	-98.43	848.98	-7,738.04	7,833.88	7,740.44	93.43	83.844	
2,800.00	2,758.47	2,863.36	2,861.98	11.12	85.80	-98.59	848.54	-7,738.04	7,837.00	7,740.10	96.89	80.883	
2,900.00	2,856.29	2,964.06	2,962.65	11.55	88.82	-98.75	847.39	-7,738.04	7,840.13	7,739.79	100.34	78.133	
3,000.00	2,954.10	3,055.73	3,054.10	11.99	91.56	-98.89	846.81	-7,738.04	7,843.36	7,739.83	103.52	75.764	
3,100.00	3,051.92	3,153.54	3,151.92	12.42	94.49	-99.03	846.81	-7,738.04	7,846.66	7,739.78	106.89	73.410	
3,200.00	3,149.73	3,251.40	3,249.73	12.86	97.43	-99.17	848.99	-7,738.04	7,850.13	7,739.87	110.26	71.200	
3,300.00	3,247.55	3,351.64	3,349.96	13.30	100.43	-99.32	848.63	-7,738.04	7,853.52	7,739.83	113.69	69.076	
3,400.00	3,345.36	3,451.63	3,449.92	13.73	103.43	-99.48	847.57	-7,738.04	7,856.94	7,739.82	117.12	67.083	
3,500.00	3,443.18	3,545.11	3,543.18	14.17	106.23	-99.62	846.81	-7,738.04	7,860.44	7,740.08	120.36	65.308	
3,600.00	3,540.99	3,642.92	3,640.99	14.61	109.16	-99.77	846.81	-7,738.04	7,864.01	7,740.29	123.72	63.561	
3,700.00	3,638.81	3,740.74	3,738.81	15.05	112.09	-99.91	846.81	-7,738.04	7,867.64	7,740.55	127.09	61.906	
3,800.00	3,736.62	3,840.10	3,838.11	15.48	115.07	-100.05	848.71	-7,738.04	7,871.38	7,740.88	130.50	60.316	
3,900.00	3,834.44	3,939.37	3,937.36	15.92	118.04	-100.20	847.74	-7,738.04	7,875.09	7,741.18	133.91	58.808	
4,000.00	3,932.25	4,034.48	4,032.25	16.36	120.89	-100.35	846.81	-7,738.04	7,878.85	7,741.66	137.20	57.428	
4,100.00	4,030.07	4,132.30	4,130.07	16.80	123.82	-100.50	846.81	-7,738.04	7,882.69	7,742.13	140.56	56.080	
4,200.00	4,127.88	4,230.11	4,227.88	17.24	126.75	-100.64	846.81	-7,738.04	7,886.59	7,742.66	143.93	54.796	
4,300.00	4,225.70	4,328.72	4,326.43	17.68	129.71	-100.77	848.77	-7,738.04	7,890.57	7,743.25	147.32	53.562	
4,400.00	4,323.51	4,427.30	4,424.99	18.11	132.66	-100.93	847.89	-7,738.04	7,894.55	7,743.85	150.71	52.384	
4,500.00	4,421.33	4,523.86	4,521.33	18.55	135.56	-101.08	846.81	-7,738.04	7,898.59	7,744.56	154.03	51.278	
4,600.00	4,519.14	4,621.68	4,619.14	18.99	138.49	-101.22	846.81	-7,738.04	7,902.70	7,745.30	157.40	50.208	
4,700.00	4,616.95	4,719.49	4,716.95	19.43	141.42	-101.37	846.81	-7,738.04	7,906.86	7,746.09	160.76	49.183	
4,800.00	4,714.77	4,817.50	4,814.92	19.87	144.35	-101.50	848.83	-7,738.04	7,911.08	7,746.94	164.14	48.198	
4,900.00	4,812.58	4,915.39	4,912.78	20.31	147.29	-101.65	848.03	-7,738.04	7,915.33	7,747.83	167.50	47.255	
5,000.00	4,910.40	5,013.24	5,010.40	20.75	150.22	-101.80	846.81	-7,738.04	7,919.65	7,748.78	170.87	46.349	
5,100.00	5,008.21	5,111.06	5,108.21	21.19	153.15	-101.94	846.81	-7,738.04	7,924.02	7,749.78	174.24	45.479	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,200.00	5,106.03	5,208.87	5,206.03	21.63	156.08	-102.09	846.81	-7,738.04	7,928.44	7,750.84	177.60	44.642	
5,300.00	5,203.84	5,306.45	5,303.56	22.06	159.01	-102.22	848.88	-7,738.04	7,932.89	7,751.93	180.96	43.838	
5,400.00	5,301.66	5,403.66	5,400.75	22.50	161.92	-102.36	848.16	-7,738.04	7,937.42	7,753.11	184.31	43.067	
5,500.00	5,399.47	5,502.62	5,499.47	22.94	164.88	-102.52	846.81	-7,738.04	7,942.01	7,754.31	187.70	42.311	
5,600.00	5,497.29	5,600.43	5,597.29	23.38	167.81	-102.66	846.81	-7,738.04	7,946.64	7,755.57	191.07	41.590	
5,700.00	5,595.10	5,698.25	5,695.10	23.82	170.75	-102.80	846.81	-7,738.04	7,951.32	7,756.88	194.43	40.895	
5,800.00	5,692.92	5,795.55	5,792.35	24.26	173.66	-102.93	848.92	-7,738.04	7,956.00	7,758.22	197.78	40.226	
5,900.00	5,790.73	5,892.09	5,888.87	24.70	176.55	-103.08	848.28	-7,738.04	7,960.80	7,759.69	201.11	39.584	
6,000.00	5,888.55	5,988.38	5,985.14	25.14	179.44	-103.23	847.00	-7,738.04	7,965.66	7,761.23	204.43	38.966	
6,100.00	5,986.36	6,089.81	6,086.36	25.58	182.48	-103.37	846.81	-7,738.04	7,970.55	7,762.65	207.90	38.338	
6,200.00	6,084.18	6,187.63	6,184.18	26.02	185.41	-103.52	846.81	-7,738.04	7,975.49	7,764.22	211.26	37.751	
6,300.00	6,181.99	6,284.80	6,281.30	26.46	188.32	-103.64	848.95	-7,738.04	7,980.40	7,765.79	214.61	37.186	
6,401.22	6,281.00	6,381.85	6,378.33	26.90	191.23	-103.79	848.38	-7,738.04	7,985.52	7,767.56	217.96	36.638	
6,450.00	6,328.76	6,428.57	6,425.05	27.12	192.63	-82.89	847.87	-7,738.04	7,986.15	7,766.58	219.56	36.373	
6,500.00	6,377.61	6,476.31	6,472.77	27.32	194.06	-63.33	847.20	-7,738.04	7,982.93	7,761.73	221.21	36.088	
6,550.00	6,426.06	6,529.81	6,526.06	27.52	195.66	-48.84	846.81	-7,738.04	7,975.82	7,752.80	223.02	35.763	
6,600.00	6,473.81	6,577.56	6,573.81	27.71	197.09	-38.94	846.81	-7,738.04	7,964.84	7,740.19	224.65	35.455	
6,650.00	6,520.56	6,624.31	6,620.56	27.89	198.49	-32.19	846.81	-7,738.04	7,950.08	7,723.84	226.24	35.140	
6,700.00	6,566.03	6,669.78	6,666.03	28.05	199.86	-27.46	846.81	-7,738.04	7,931.63	7,703.85	227.78	34.821	
6,750.00	6,609.93	6,713.69	6,709.93	28.20	201.17	-24.04	846.81	-7,738.04	7,909.61	7,680.33	229.27	34.499	
6,800.00	6,652.00	6,755.61	6,751.82	28.34	202.43	-21.50	848.99	-7,738.04	7,884.04	7,653.35	230.69	34.176	
6,850.00	6,691.98	6,794.59	6,790.79	28.47	203.60	-19.59	848.92	-7,738.04	7,855.29	7,623.28	232.01	33.858	
6,900.00	6,729.61	6,831.26	6,827.45	28.59	204.70	-18.15	848.76	-7,738.04	7,823.43	7,590.18	233.25	33.542	
6,950.00	6,764.67	6,865.40	6,861.58	28.69	205.72	-17.05	848.52	-7,738.04	7,788.66	7,554.26	234.39	33.229	
7,000.00	6,796.95	6,896.80	6,892.98	28.79	206.66	-16.23	848.24	-7,738.04	7,751.19	7,515.74	235.45	32.921	
7,050.00	6,826.23	6,925.28	6,921.45	28.89	207.51	-15.66	847.92	-7,738.04	7,711.25	7,474.85	236.40	32.619	
7,100.00	6,852.35	6,950.67	6,946.83	28.98	208.27	-15.31	847.58	-7,738.04	7,669.09	7,431.84	237.25	32.325	
7,150.00	6,875.14	6,972.82	6,968.97	29.08	208.94	-15.18	847.25	-7,738.04	7,624.95	7,386.97	237.99	32.039	
7,200.00	6,894.45	6,991.59	6,987.73	29.18	209.50	-15.33	846.95	-7,738.04	7,579.12	7,340.51	238.61	31.763	
7,250.00	6,910.18	7,014.24	7,010.18	29.28	210.18	-15.90	846.81	-7,738.04	7,531.86	7,292.52	239.34	31.469	
7,300.00	6,922.23	7,026.29	7,022.23	29.40	210.54	-17.13	846.81	-7,738.04	7,483.46	7,243.72	239.74	31.215	
7,350.00	6,930.51	7,034.57	7,030.51	29.54	210.79	-20.09	846.81	-7,738.04	7,434.24	7,194.22	240.02	30.974	
7,400.00	6,934.98	7,039.04	7,034.98	29.70	210.92	-31.19	846.81	-7,738.04	7,384.49	7,144.32	240.17	30.747	
7,433.91	6,935.83	7,039.89	7,035.83	29.81	210.95	-92.96	846.81	-7,738.04	7,350.61	7,110.40	240.21	30.601	
7,500.00	6,935.76	7,039.82	7,035.76	30.07	210.94	-92.93	846.81	-7,738.04	7,284.53	7,044.31	240.22	30.325	
7,600.00	6,935.66	7,039.72	7,035.66	30.52	210.94	-92.89	846.81	-7,738.04	7,184.55	6,944.32	240.23	29.906	
7,700.00	6,935.55	7,039.61	7,035.55	31.06	210.94	-92.85	846.81	-7,738.04	7,084.57	6,844.32	240.25	29.488	
7,800.00	6,935.45	7,039.51	7,035.45	31.68	210.94	-92.81	846.81	-7,738.04	6,984.60	6,744.32	240.27	29.069	
7,900.00	6,935.34	7,039.40	7,035.34	32.37	210.93	-92.77	846.81	-7,738.04	6,884.62	6,644.32	240.30	28.651	
8,000.00	6,935.24	7,039.30	7,035.24	33.12	210.93	-92.73	846.81	-7,738.04	6,784.64	6,544.33	240.32	28.232	
8,100.00	6,935.13	7,039.19	7,035.13	33.93	210.93	-92.69	846.81	-7,738.04	6,684.67	6,444.33	240.34	27.813	
8,200.00	6,935.03	7,039.09	7,035.03	34.80	210.92	-92.65	846.81	-7,738.04	6,584.69	6,344.33	240.37	27.394	
8,300.00	6,934.92	7,038.98	7,034.92	35.71	210.92	-92.61	846.81	-7,738.04	6,484.72	6,244.32	240.40	26.975	
8,400.00	6,934.82	7,038.88	7,034.82	36.67	210.92	-92.57	846.81	-7,738.04	6,384.75	6,144.32	240.42	26.556	
8,500.00	6,934.71	7,038.77	7,034.71	37.68	210.91	-92.53	846.81	-7,738.04	6,284.77	6,044.32	240.45	26.137	
8,600.00	6,934.61	7,038.67	7,034.61	38.72	210.91	-92.49	846.81	-7,738.04	6,184.80	5,944.32	240.48	25.718	
8,700.00	6,934.50	7,038.56	7,034.50	39.80	210.91	-92.45	846.81	-7,738.04	6,084.83	5,844.31	240.52	25.299	
8,800.00	6,934.40	7,038.46	7,034.40	40.92	210.90	-92.41	846.81	-7,738.04	5,984.86	5,744.31	240.55	24.880	
8,900.00	6,934.29	7,038.36	7,034.29	42.06	210.90	-92.37	846.81	-7,738.04	5,884.89	5,644.31	240.59	24.460	
9,000.00	6,934.19	7,038.25	7,034.19	43.23	210.90	-92.33	846.81	-7,738.04	5,784.93	5,544.30	240.63	24.041	
9,100.00	6,934.08	7,038.15	7,034.08	44.43	210.89	-92.29	846.81	-7,738.04	5,684.96	5,444.29	240.67	23.622	
9,200.00	6,933.98	7,038.04	7,033.98	45.66	210.89	-92.25	846.81	-7,738.04	5,585.00	5,344.29	240.71	23.202	

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 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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
9,300.00	6,933.88	7,037.94	7,033.88	46.90	210.89	-92.21	846.81	-7,738.04	5,485.03	5,244.28	240.75	22.783	
9,400.00	6,933.77	7,037.83	7,033.77	48.17	210.89	-92.17	846.81	-7,738.04	5,385.07	5,144.27	240.80	22.364	
9,500.00	6,933.67	7,037.73	7,033.67	49.46	210.88	-92.13	846.81	-7,738.04	5,285.11	5,044.27	240.84	21.944	
9,600.00	6,933.56	7,037.62	7,033.56	50.76	210.88	-92.09	846.81	-7,738.04	5,185.15	4,944.26	240.89	21.525	
9,700.00	6,933.46	7,037.52	7,033.46	52.08	210.88	-92.05	846.81	-7,738.04	5,085.19	4,844.25	240.94	21.105	
9,800.00	6,933.35	7,037.41	7,033.35	53.41	210.87	-92.01	846.81	-7,738.04	4,985.24	4,744.24	241.00	20.686	
9,900.00	6,933.25	7,037.31	7,033.25	54.76	210.87	-91.97	846.81	-7,738.04	4,885.28	4,644.23	241.05	20.266	
10,000.00	6,933.14	7,037.20	7,033.14	56.12	210.87	-91.92	846.81	-7,738.04	4,785.33	4,544.22	241.11	19.847	
10,100.00	6,933.04	7,037.10	7,033.04	57.50	210.86	-91.88	846.81	-7,738.04	4,685.38	4,444.21	241.17	19.428	
10,200.00	6,932.93	7,036.99	7,032.93	58.88	210.86	-91.84	846.81	-7,738.04	4,585.43	4,344.20	241.23	19.008	
10,300.00	6,932.83	7,036.89	7,032.83	60.28	210.86	-91.80	846.81	-7,738.04	4,485.48	4,244.19	241.30	18.589	
10,400.00	6,932.72	7,036.78	7,032.72	61.69	210.85	-91.76	846.81	-7,738.04	4,385.54	4,144.17	241.37	18.170	
10,500.00	6,932.62	7,036.68	7,032.62	63.10	210.85	-91.72	846.81	-7,738.04	4,285.60	4,044.16	241.44	17.750	
10,600.00	6,932.51	7,036.58	7,032.51	64.52	210.85	-91.68	846.81	-7,738.04	4,185.66	3,944.15	241.51	17.331	
10,700.00	6,932.41	7,036.47	7,032.41	65.96	210.84	-91.64	846.81	-7,738.04	4,085.73	3,844.13	241.59	16.912	
10,800.00	6,932.30	7,036.37	7,032.30	67.39	210.84	-91.60	846.81	-7,738.04	3,985.80	3,744.12	241.67	16.492	
10,900.00	6,932.20	7,036.26	7,032.20	68.84	210.84	-91.56	846.81	-7,738.04	3,885.87	3,644.11	241.76	16.073	
11,000.00	6,932.10	7,036.16	7,032.10	70.29	210.84	-91.52	846.81	-7,738.04	3,785.94	3,544.09	241.85	15.654	
11,100.00	6,931.99	7,036.05	7,031.99	71.75	210.83	-91.48	846.81	-7,738.04	3,686.02	3,444.08	241.94	15.235	
11,200.00	6,931.89	7,035.95	7,031.89	73.22	210.83	-91.44	846.81	-7,738.04	3,586.11	3,344.06	242.04	14.816	
11,300.00	6,931.78	7,035.84	7,031.78	74.69	210.83	-91.40	846.81	-7,738.04	3,486.20	3,244.05	242.15	14.397	
11,400.00	6,931.68	7,035.74	7,031.68	76.16	210.82	-91.36	846.81	-7,738.04	3,386.29	3,144.03	242.25	13.978	
11,500.00	6,931.57	7,035.63	7,031.57	77.64	210.82	-91.32	846.81	-7,738.04	3,286.39	3,044.02	242.37	13.559	
11,600.00	6,931.47	7,035.53	7,031.47	79.13	210.82	-91.28	846.81	-7,738.04	3,186.50	2,944.00	242.49	13.141	
11,700.00	6,931.36	7,035.42	7,031.36	80.62	210.81	-91.24	846.81	-7,738.04	3,086.61	2,843.99	242.62	12.722	
11,800.00	6,931.26	7,035.32	7,031.26	82.11	210.81	-91.20	846.81	-7,738.04	2,986.73	2,743.97	242.76	12.303	
11,900.00	6,931.15	7,035.21	7,031.15	83.61	210.81	-91.16	846.81	-7,738.04	2,886.86	2,643.96	242.90	11.885	
12,000.00	6,931.05	7,035.11	7,031.05	85.11	210.80	-91.12	846.81	-7,738.04	2,787.00	2,543.94	243.06	11.466	
12,100.00	6,930.94	7,035.00	7,030.94	86.62	210.80	-91.08	846.81	-7,738.04	2,687.14	2,443.92	243.22	11.048	
12,200.00	6,930.84	7,034.90	7,030.84	88.13	210.80	-91.04	846.81	-7,738.04	2,587.30	2,343.90	243.40	10.630	
12,300.00	6,930.73	7,034.79	7,030.73	89.64	210.79	-91.00	846.81	-7,738.04	2,487.48	2,243.89	243.59	10.212	
12,400.00	6,930.63	7,034.69	7,030.63	91.15	210.79	-90.96	846.81	-7,738.04	2,387.66	2,143.87	243.80	9.794	
12,500.00	6,930.52	7,034.59	7,030.52	92.67	210.79	-90.92	846.81	-7,738.04	2,287.87	2,043.85	244.02	9.376	
12,600.00	6,930.42	7,034.48	7,030.42	94.19	210.78	-90.88	846.81	-7,738.04	2,188.09	1,943.83	244.26	8.958	
12,700.00	6,930.31	7,034.38	7,030.31	95.71	210.78	-90.84	846.81	-7,738.04	2,088.33	1,843.81	244.53	8.540	
12,800.00	6,930.21	7,034.27	7,030.21	97.24	210.78	-90.80	846.81	-7,738.04	1,988.60	1,743.78	244.82	8.123	
12,900.00	6,930.11	7,034.17	7,030.11	98.77	210.78	-90.76	846.81	-7,738.04	1,888.90	1,643.75	245.14	7.705	
13,008.91	6,929.99	7,034.05	7,029.99	100.43	210.77	-90.71	846.81	-7,738.04	1,780.35	1,534.81	245.54	7.251	
13,100.00	6,929.90	7,033.96	7,029.90	101.83	210.77	-90.47	846.81	-7,738.04	1,689.74	1,443.77	245.97	6.870	
13,139.82	6,929.86	7,033.92	7,029.86	102.44	210.77	-90.40	846.81	-7,738.04	1,650.25	1,404.03	246.22	6.702	
13,200.00	6,929.80	7,033.86	7,029.80	103.37	210.77	-90.38	846.81	-7,738.04	1,590.67	1,344.02	246.64	6.449	
13,300.00	6,929.70	7,033.77	7,029.70	104.92	210.76	-90.36	846.81	-7,738.04	1,491.76	1,244.33	247.43	6.029	
13,400.00	6,929.61	7,033.67	7,029.61	106.47	210.76	-90.34	846.81	-7,738.04	1,393.00	1,144.66	248.34	5.609	
13,500.00	6,929.51	7,033.57	7,029.51	108.02	210.76	-90.31	846.81	-7,738.04	1,294.44	1,045.02	249.42	5.190	
13,600.00	6,929.41	7,033.48	7,029.41	109.57	210.75	-90.29	846.81	-7,738.04	1,196.12	945.42	250.70	4.771	
13,700.00	6,929.32	7,033.38	7,029.32	111.12	210.75	-90.26	846.81	-7,738.04	1,098.10	845.85	252.25	4.353	
13,800.00	6,929.22	7,033.28	7,029.22	112.68	210.75	-90.24	846.81	-7,738.04	1,000.47	746.33	254.14	3.937	
13,900.00	6,929.12	7,033.18	7,029.12	114.23	210.75	-90.21	846.81	-7,738.04	903.36	646.87	256.49	3.522	
14,000.00	6,929.03	7,033.09	7,029.03	115.79	210.74	-90.19	846.81	-7,738.04	806.96	547.48	259.48	3.110	
14,100.00	6,928.93	7,032.99	7,028.93	117.35	210.74	-90.16	846.81	-7,738.04	711.55	448.21	263.34	2.702	
14,200.00	6,928.83	7,032.89	7,028.83	118.91	210.74	-90.14	846.81	-7,738.04	617.60	349.13	268.47	2.300	
14,300.00	6,928.74	7,032.80	7,028.74	120.47	210.73	-90.12	846.81	-7,738.04	525.88	250.46	275.42	1.909	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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
14,400.00	6,928.64	7,032.70	7,028.64	122.03	210.73	-90.09	846.81	-7,738.04	437.80	152.74	285.07	1.536	
14,500.00	6,928.54	7,032.60	7,028.54	123.60	210.73	-90.07	846.81	-7,738.04	356.08	57.55	298.53	1.193	Level 3
14,600.00	6,928.45	7,032.51	7,028.45	125.16	210.73	-90.04	846.81	-7,738.04	286.20	-30.05	316.25	0.905	Level 3
14,700.00	6,928.35	7,032.41	7,028.35	126.72	210.72	-90.02	846.81	-7,738.04	238.82	-94.96	333.78	0.715	Level 3
14,774.40	6,928.28	7,032.34	7,028.28	127.89	210.72	-90.00	846.81	-7,738.04	226.94	-111.39	338.33	0.671	Level 3, CC, ES, SF
14,800.00	6,928.25	7,032.31	7,028.25	128.29	210.72	-89.99	846.81	-7,738.04	228.38	-108.66	337.03	0.678	Level 3
14,900.00	6,928.16	7,032.22	7,028.16	129.86	210.72	-89.97	846.81	-7,738.04	259.38	-61.58	320.96	0.808	Level 3
15,000.00	6,928.06	7,032.12	7,028.06	131.42	210.71	-89.94	846.81	-7,738.04	320.00	19.76	300.23	1.066	Level 3
15,100.00	6,927.96	7,032.02	7,027.96	132.99	210.71	-89.92	846.81	-7,738.04	396.89	113.10	283.78	1.399	Level 3
15,200.00	6,927.87	7,031.93	7,027.87	134.56	210.71	-89.90	846.81	-7,738.04	482.33	210.13	272.19	1.772	
15,300.00	6,927.77	7,031.83	7,027.77	136.13	210.71	-89.87	846.81	-7,738.04	572.50	308.36	264.14	2.167	
15,400.00	6,927.67	7,031.73	7,027.67	137.70	210.70	-89.85	846.81	-7,738.04	665.49	407.02	258.47	2.575	
15,500.00	6,927.57	7,031.64	7,027.57	139.28	210.70	-89.82	846.81	-7,738.04	760.26	505.86	254.40	2.988	
15,600.00	6,927.48	7,031.54	7,027.48	140.85	210.70	-89.80	846.81	-7,738.04	856.23	604.80	251.43	3.405	
15,700.00	6,927.38	7,031.44	7,027.38	142.42	210.69	-89.77	846.81	-7,738.04	953.02	703.80	249.21	3.824	
15,800.00	6,927.28	7,031.35	7,027.28	144.00	210.69	-89.75	846.81	-7,738.04	1,050.41	802.87	247.54	4.243	
15,900.00	6,927.19	7,031.25	7,027.19	145.57	210.69	-89.72	846.81	-7,738.04	1,148.25	901.99	246.26	4.663	
16,000.00	6,927.09	7,031.15	7,027.09	147.15	210.69	-89.70	846.81	-7,738.04	1,246.44	1,001.16	245.28	5.082	
16,100.00	6,926.99	7,031.06	7,026.99	148.72	210.68	-89.68	846.81	-7,738.04	1,344.89	1,100.38	244.51	5.500	
16,200.00	6,926.90	7,030.96	7,026.90	150.30	210.68	-89.65	846.81	-7,738.04	1,443.55	1,199.65	243.91	5.918	
16,300.00	6,926.80	7,030.86	7,026.80	151.87	210.68	-89.63	846.81	-7,738.04	1,542.39	1,298.95	243.44	6.336	
16,400.00	6,926.70	7,030.77	7,026.70	153.45	210.67	-89.60	846.81	-7,738.04	1,641.37	1,398.31	243.06	6.753	
16,500.00	6,926.61	7,030.67	7,026.61	155.03	210.67	-89.58	846.81	-7,738.04	1,740.46	1,497.69	242.77	7.169	
16,600.00	6,926.51	7,030.57	7,026.51	156.61	210.67	-89.55	846.81	-7,738.04	1,839.65	1,597.12	242.54	7.585	
16,700.00	6,926.41	7,030.47	7,026.41	158.19	210.66	-89.53	846.81	-7,738.04	1,938.93	1,696.57	242.36	8.000	
16,800.00	6,926.32	7,030.38	7,026.32	159.77	210.66	-89.51	846.81	-7,738.04	2,038.28	1,796.06	242.22	8.415	
16,900.00	6,926.22	7,030.28	7,026.22	161.35	210.66	-89.48	846.81	-7,738.04	2,137.68	1,895.57	242.11	8.829	
17,000.00	6,926.12	7,030.18	7,026.12	162.93	210.66	-89.46	846.81	-7,738.04	2,237.14	1,995.11	242.03	9.243	
17,100.00	6,926.03	7,030.09	7,026.03	164.51	210.65	-89.43	846.81	-7,738.04	2,336.65	2,094.67	241.98	9.656	
17,200.00	6,925.93	7,029.99	7,025.93	166.09	210.65	-89.41	846.81	-7,738.04	2,436.20	2,194.25	241.94	10.069	
17,300.00	6,925.83	7,029.89	7,025.83	167.67	210.65	-89.38	846.81	-7,738.04	2,535.78	2,293.85	241.92	10.482	
17,400.00	6,925.74	7,029.80	7,025.74	169.26	210.64	-89.36	846.81	-7,738.04	2,635.39	2,393.47	241.92	10.894	
17,500.00	6,925.64	7,029.70	7,025.64	170.84	210.64	-89.33	846.81	-7,738.04	2,735.03	2,493.11	241.93	11.305	
17,600.00	6,925.54	7,029.60	7,025.54	172.42	210.64	-89.31	846.81	-7,738.04	2,834.70	2,592.76	241.94	11.716	
17,700.00	6,925.45	7,029.51	7,025.45	174.00	210.64	-89.29	846.81	-7,738.04	2,934.39	2,692.42	241.97	12.127	
17,800.00	6,925.35	7,029.41	7,025.35	175.59	210.63	-89.26	846.81	-7,738.04	3,034.10	2,792.10	242.00	12.538	
17,900.00	6,925.25	7,029.31	7,025.25	177.17	210.63	-89.24	846.81	-7,738.04	3,133.83	2,891.79	242.04	12.948	
18,000.00	6,925.16	7,029.22	7,025.16	178.76	210.63	-89.21	846.81	-7,738.04	3,233.58	2,991.49	242.08	13.357	
18,100.00	6,925.06	7,029.12	7,025.06	180.34	210.62	-89.19	846.81	-7,738.04	3,333.34	3,091.20	242.13	13.766	
18,160.21	6,925.00	7,029.06	7,025.00	181.30	210.62	-89.17	846.81	-7,738.04	3,393.41	3,151.25	242.17	14.013	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

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

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	79.46	79.46	0.00	0.14	-84.64	837.69	-8,920.31	8,959.57				
100.00	100.00	162.23	162.23	0.25	0.29	-84.64	837.65	-8,920.55	8,959.85	8,959.31	0.54	N/A	
200.00	200.00	244.99	244.99	0.61	0.44	-84.64	837.60	-8,920.95	8,960.33	8,959.28	1.05	8,543.159	
300.00	300.00	327.68	327.68	0.97	0.64	-84.64	837.53	-8,921.51	8,960.99	8,959.39	1.61	5,582.492	
400.00	400.00	372.00	372.00	1.33	0.80	-84.64	837.48	-8,921.87	8,961.95	8,959.83	2.12	4,221.692	
500.00	500.00	372.00	372.00	1.68	0.80	-84.64	837.48	-8,921.87	8,963.89	8,961.41	2.48	3,611.077	
600.00	599.98	372.00	372.00	2.04	0.80	-96.57	837.48	-8,921.87	8,967.15	8,964.31	2.84	3,155.531	
700.00	699.84	372.00	372.00	2.41	0.80	-96.48	837.48	-8,921.87	8,971.92	8,968.72	3.20	2,802.397	
800.00	799.45	372.00	372.00	2.77	0.80	-96.35	837.48	-8,921.87	8,978.19	8,974.63	3.56	2,519.143	
900.00	898.70	402.00	401.91	3.13	0.93	-96.23	836.95	-8,923.82	8,985.82	8,981.79	4.04	2,226.198	
1,000.00	997.47	584.00	582.83	3.50	1.60	-96.34	823.67	-8,935.48	8,993.08	8,987.99	5.09	1,767.975	
1,100.00	1,095.62	603.62	602.31	3.89	1.68	-96.21	821.88	-8,936.84	9,001.43	8,995.89	5.55	1,623.204	
1,200.00	1,193.44	629.80	628.27	4.29	1.77	-96.26	819.15	-8,938.90	9,010.84	9,004.80	6.04	1,491.734	
1,300.00	1,291.25	648.00	646.29	4.70	1.84	-96.30	817.05	-8,940.43	9,021.07	9,014.55	6.51	1,385.385	
1,400.00	1,389.07	709.00	706.49	5.11	2.08	-96.43	809.05	-8,946.09	9,031.94	9,024.79	7.16	1,261.778	
1,500.00	1,486.88	771.00	767.49	5.53	2.34	-96.57	799.87	-8,952.29	9,043.44	9,035.62	7.82	1,156.546	
1,600.00	1,584.70	834.00	829.43	5.95	2.61	-96.72	790.25	-8,958.68	9,055.26	9,046.77	8.49	1,066.347	
1,700.00	1,682.51	868.48	863.32	6.37	2.76	-96.80	785.08	-8,962.33	9,067.68	9,058.63	9.05	1,002.109	
1,800.00	1,780.33	991.32	984.06	6.80	3.29	-97.08	767.04	-8,975.99	9,080.79	9,070.81	9.98	909.830	
1,900.00	1,878.14	1,063.50	1,055.01	7.22	3.60	-97.24	756.24	-8,983.68	9,093.52	9,082.82	10.70	849.570	
2,000.00	1,975.96	1,175.02	1,164.51	7.65	4.10	-97.50	738.97	-8,995.83	9,106.59	9,094.99	11.60	784.962	
2,100.00	2,073.77	1,328.72	1,315.23	8.08	4.79	-97.86	713.48	-9,011.88	9,119.35	9,106.66	12.69	718.428	
2,200.00	2,171.59	1,424.08	1,408.98	8.51	5.21	-98.07	698.77	-9,021.21	9,131.66	9,118.13	13.52	675.173	
2,300.00	2,269.40	1,462.00	1,446.26	8.95	5.38	-98.16	693.01	-9,025.13	9,144.59	9,130.49	14.11	648.290	
2,400.00	2,367.22	1,565.75	1,548.20	9.38	5.84	-98.39	677.17	-9,036.14	9,157.96	9,142.99	14.98	611.528	
2,500.00	2,465.03	1,667.70	1,648.38	9.81	6.30	-98.63	661.46	-9,046.65	9,171.17	9,155.33	15.84	579.067	
2,600.00	2,562.84	1,714.00	1,693.93	10.25	6.50	-98.73	654.75	-9,051.56	9,184.80	9,168.34	16.45	558.219	
2,700.00	2,660.66	1,776.00	1,754.91	10.68	6.77	-98.86	645.98	-9,058.47	9,199.03	9,181.89	17.14	536.812	
2,800.00	2,758.47	1,867.91	1,845.32	11.12	7.18	-99.06	632.93	-9,068.73	9,213.45	9,195.50	17.95	513.288	
2,900.00	2,856.29	1,931.56	1,907.86	11.55	7.47	-99.20	623.63	-9,075.99	9,228.21	9,209.57	18.64	495.058	
3,000.00	2,954.10	2,166.06	2,138.40	11.99	8.51	-99.72	588.51	-9,100.57	9,241.87	9,221.79	20.09	460.130	
3,100.00	3,051.92	2,320.30	2,290.34	12.42	9.19	-100.05	566.35	-9,115.16	9,254.98	9,233.81	21.17	437.202	
3,200.00	3,149.73	2,418.03	2,386.67	12.86	9.61	-100.26	552.60	-9,124.29	9,268.21	9,246.20	22.00	421.204	
3,300.00	3,247.55	2,484.05	2,451.74	13.30	9.90	-100.40	543.37	-9,130.46	9,281.59	9,258.89	22.70	408.842	
3,400.00	3,345.36	2,529.00	2,496.00	13.73	10.10	-100.50	536.87	-9,134.88	9,295.52	9,272.21	23.31	398.801	
3,500.00	3,443.18	2,614.43	2,580.05	14.17	10.48	-100.68	524.21	-9,143.51	9,309.85	9,285.75	24.09	386.394	
3,600.00	3,540.99	2,702.50	2,666.67	14.61	10.87	-100.87	511.12	-9,152.51	9,324.40	9,299.51	24.89	374.600	
3,700.00	3,638.81	2,782.00	2,744.79	15.05	11.22	-101.05	498.77	-9,160.60	9,339.08	9,313.42	25.65	364.050	
3,800.00	3,736.62	2,844.00	2,805.67	15.48	11.50	-101.19	488.96	-9,167.03	9,354.09	9,327.76	26.34	355.163	
3,900.00	3,834.44	2,914.58	2,874.95	15.92	11.82	-101.34	477.74	-9,174.61	9,369.56	9,342.50	27.06	346.253	
4,000.00	3,932.25	2,993.48	2,952.43	16.36	12.18	-101.51	465.59	-9,183.13	9,385.22	9,357.40	27.82	337.394	
4,100.00	4,030.07	3,034.00	2,992.24	16.80	12.36	-101.60	459.58	-9,187.73	9,401.45	9,373.05	28.40	331.051	
4,200.00	4,127.88	3,263.19	3,217.92	17.24	13.37	-102.07	427.84	-9,211.93	9,416.55	9,386.75	29.81	315.897	
4,300.00	4,225.70	3,306.16	3,260.25	17.68	13.56	-102.16	421.94	-9,216.41	9,432.16	9,401.76	30.40	310.281	
4,400.00	4,323.51	3,856.19	3,803.89	18.11	15.84	-103.23	355.90	-9,263.35	9,446.61	9,413.51	33.11	285.348	
4,500.00	4,421.33	3,961.71	3,908.91	18.55	16.23	-103.41	347.98	-9,269.84	9,458.10	9,424.19	33.91	278.897	
4,600.00	4,519.14	4,067.33	4,014.05	18.99	16.61	-103.58	340.19	-9,276.23	9,469.56	9,434.84	34.72	272.743	
4,700.00	4,616.95	4,173.04	4,119.30	19.43	16.99	-103.76	332.51	-9,282.53	9,480.99	9,445.47	35.53	266.865	
4,800.00	4,714.77	4,278.86	4,224.66	19.87	17.38	-103.93	324.96	-9,288.72	9,492.40	9,456.07	36.34	261.246	
4,900.00	4,812.58	4,384.77	4,330.13	20.31	17.76	-104.10	317.53	-9,294.81	9,503.78	9,466.64	37.14	255.868	
5,000.00	4,910.40	4,490.77	4,435.72	20.75	18.14	-104.27	310.23	-9,300.80	9,515.14	9,477.18	37.95	250.716	
5,100.00	5,008.21	4,596.87	4,541.41	21.19	18.53	-104.44	303.04	-9,306.70	9,526.46	9,487.70	38.76	245.777	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 300-B001Mb_MWD+HRGM

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,200.00	5,106.03	4,703.06	4,647.21	21.63	18.92	-104.61	295.99	-9,312.49	9,537.75	9,498.18	39.57	241.038	
5,300.00	5,203.84	4,809.35	4,753.12	22.06	19.30	-104.78	289.05	-9,318.17	9,549.01	9,508.63	40.38	236.486	
5,400.00	5,301.66	4,915.73	4,859.13	22.50	19.69	-104.94	282.24	-9,323.76	9,560.23	9,519.04	41.19	232.110	
5,500.00	5,399.47	5,022.20	4,965.25	22.94	20.08	-105.11	275.55	-9,329.24	9,571.42	9,529.42	42.00	227.901	
5,600.00	5,497.29	5,128.77	5,071.48	23.38	20.46	-105.28	268.99	-9,334.63	9,582.57	9,539.76	42.81	223.849	
5,700.00	5,595.10	5,235.43	5,177.82	23.82	20.85	-105.44	262.56	-9,339.90	9,593.68	9,550.06	43.62	219.946	
5,800.00	5,692.92	5,342.18	5,284.26	24.26	21.24	-105.60	256.25	-9,345.08	9,604.75	9,560.33	44.43	216.183	
5,900.00	5,790.73	5,449.03	5,390.80	24.70	21.63	-105.76	250.06	-9,350.15	9,615.79	9,570.55	45.24	212.552	
6,000.00	5,888.55	5,555.96	5,497.45	25.14	22.02	-105.93	244.00	-9,355.12	9,626.78	9,580.73	46.05	209.048	
6,100.00	5,986.36	5,662.99	5,604.20	25.58	22.41	-106.09	238.07	-9,359.98	9,637.73	9,590.87	46.86	205.663	
6,200.00	6,084.18	5,770.10	5,711.05	26.02	22.80	-106.25	232.27	-9,364.74	9,648.63	9,600.96	47.67	202.392	
6,300.00	6,181.99	5,877.31	5,818.01	26.46	23.19	-106.40	226.60	-9,369.40	9,659.49	9,611.01	48.48	199.228	
6,401.22	6,281.00	5,985.92	5,926.37	26.90	23.59	-106.56	220.98	-9,374.00	9,670.43	9,621.13	49.31	196.130	
6,450.00	6,328.76	6,038.43	5,978.77	27.12	23.78	-85.65	218.32	-9,376.19	9,673.83	9,624.13	49.70	194.638	
6,500.00	6,377.61	6,092.34	6,032.57	27.32	23.97	-66.10	215.61	-9,378.41	9,673.43	9,623.32	50.11	193.061	
6,550.00	6,426.06	6,146.01	6,086.13	27.52	24.17	-51.63	212.95	-9,380.59	9,669.10	9,618.60	50.50	191.451	
6,600.00	6,473.81	6,199.10	6,139.11	27.71	24.36	-41.77	210.36	-9,382.72	9,660.88	9,609.98	50.90	189.816	
6,650.00	6,520.56	6,251.27	6,191.18	27.89	24.55	-35.09	207.84	-9,384.78	9,648.81	9,597.53	51.28	188.169	
6,700.00	6,566.03	6,302.19	6,242.00	28.05	24.74	-30.44	205.41	-9,386.78	9,632.97	9,581.32	51.65	186.516	
6,750.00	6,609.93	6,351.55	6,291.27	28.20	24.92	-27.14	203.08	-9,388.68	9,613.45	9,561.45	52.00	184.867	
6,800.00	6,652.00	6,399.02	6,338.66	28.34	25.09	-24.76	200.87	-9,390.50	9,590.39	9,538.05	52.34	183.230	
6,850.00	6,691.98	6,444.33	6,383.88	28.47	25.26	-23.03	198.79	-9,392.21	9,563.92	9,511.26	52.66	181.610	
6,900.00	6,729.61	6,487.17	6,426.65	28.59	25.41	-21.79	196.84	-9,393.81	9,534.21	9,481.25	52.96	180.014	
6,950.00	6,764.67	6,527.28	6,466.69	28.69	25.56	-20.96	195.03	-9,395.29	9,501.45	9,448.20	53.24	178.449	
7,000.00	6,796.95	6,564.42	6,503.77	28.79	25.70	-20.48	193.37	-9,396.65	9,465.83	9,412.33	53.50	176.920	
7,050.00	6,826.23	6,598.34	6,537.64	28.89	25.82	-20.33	191.87	-9,397.88	9,427.58	9,373.84	53.74	175.431	
7,100.00	6,852.35	6,628.85	6,568.10	28.98	25.93	-20.51	190.54	-9,398.97	9,386.94	9,332.99	53.95	173.988	
7,150.00	6,875.14	6,655.76	6,594.96	29.08	26.03	-21.09	189.37	-9,399.93	9,344.16	9,290.02	54.14	172.594	
7,200.00	6,894.45	6,678.89	6,618.06	29.18	26.11	-22.20	188.37	-9,400.75	9,299.51	9,245.20	54.30	171.252	
7,250.00	6,910.18	6,698.12	6,637.26	29.28	26.18	-24.07	187.54	-9,401.43	9,253.25	9,198.81	54.44	169.967	
7,300.00	6,922.23	6,713.32	6,652.43	29.40	26.24	-27.27	186.89	-9,401.96	9,205.68	9,151.12	54.56	168.740	
7,350.00	6,930.51	6,724.41	6,663.51	29.54	26.28	-33.15	186.42	-9,402.35	9,157.08	9,102.44	54.65	167.574	
7,400.00	6,934.98	6,731.33	6,670.41	29.70	26.31	-45.88	186.13	-9,402.59	9,107.77	9,053.06	54.71	166.470	
7,433.91	6,935.83	6,733.62	6,672.70	29.81	26.31	-65.04	186.03	-9,402.67	9,074.06	9,019.32	54.74	165.757	
7,500.00	6,935.76	6,736.20	6,675.28	30.07	26.32	-65.21	185.92	-9,402.76	9,008.25	8,953.46	54.79	164.400	
7,600.00	6,935.66	6,740.09	6,679.17	30.52	26.34	-65.46	185.75	-9,402.90	8,908.68	8,853.80	54.87	162.347	
7,700.00	6,935.55	6,743.98	6,683.05	31.06	26.35	-65.71	185.59	-9,403.03	8,809.11	8,754.16	54.96	160.293	
7,800.00	6,935.45	6,747.86	6,686.92	31.68	26.37	-65.96	185.43	-9,403.17	8,709.56	8,654.51	55.04	158.236	
7,900.00	6,935.34	6,751.72	6,690.78	32.37	26.38	-66.21	185.26	-9,403.30	8,610.01	8,554.88	55.13	156.178	
8,000.00	6,935.24	6,755.58	6,694.63	33.12	26.39	-66.46	185.10	-9,403.43	8,510.47	8,455.25	55.22	154.118	
8,100.00	6,935.13	6,759.44	6,698.48	33.93	26.41	-66.71	184.94	-9,403.57	8,410.94	8,355.63	55.31	152.057	
8,200.00	6,935.03	6,763.28	6,702.32	34.80	26.42	-66.96	184.77	-9,403.70	8,311.42	8,256.01	55.41	149.994	
8,300.00	6,934.92	6,767.11	6,706.15	35.71	26.44	-67.21	184.61	-9,403.83	8,211.91	8,156.40	55.51	147.930	
8,400.00	6,934.82	6,770.94	6,709.97	36.67	26.45	-67.46	184.45	-9,403.96	8,112.41	8,056.80	55.62	145.864	
8,500.00	6,934.71	6,774.76	6,713.78	37.68	26.46	-67.72	184.29	-9,404.10	8,012.92	7,957.20	55.72	143.798	
8,600.00	6,934.61	6,778.57	6,717.58	38.72	26.48	-67.97	184.13	-9,404.23	7,913.45	7,857.61	55.83	141.730	
8,700.00	6,934.50	6,782.37	6,721.38	39.80	26.49	-68.22	183.97	-9,404.36	7,813.98	7,758.03	55.95	139.662	
8,800.00	6,934.40	6,786.16	6,725.17	40.92	26.51	-68.47	183.81	-9,404.49	7,714.53	7,658.46	56.07	137.593	
8,900.00	6,934.29	6,789.95	6,728.95	42.06	26.52	-68.73	183.66	-9,404.62	7,615.09	7,558.90	56.19	135.523	
9,000.00	6,934.19	6,793.73	6,732.72	43.23	26.53	-68.98	183.50	-9,404.75	7,515.66	7,459.34	56.32	133.452	
9,100.00	6,934.08	6,797.50	6,736.48	44.43	26.55	-69.23	183.34	-9,404.88	7,416.24	7,359.80	56.45	131.382	
9,200.00	6,933.98	6,801.26	6,740.24	45.66	26.56	-69.49	183.18	-9,405.00	7,316.84	7,260.26	56.58	129.310	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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
9,300.00	6,933.88	6,805.01	6,743.99	46.90	26.57	-69.74	183.03	-9,405.13	7,217.46	7,160.73	56.72	127.239	
9,400.00	6,933.77	6,808.76	6,747.73	48.17	26.59	-70.00	182.87	-9,405.26	7,118.09	7,061.22	56.87	125.167	
9,500.00	6,933.67	6,812.49	6,751.46	49.46	26.60	-70.25	182.72	-9,405.39	7,018.73	6,961.72	57.02	123.095	
9,600.00	6,933.56	6,816.22	6,755.18	50.76	26.62	-70.50	182.56	-9,405.51	6,919.40	6,862.22	57.17	121.024	
9,700.00	6,933.46	6,819.94	6,758.90	52.08	26.63	-70.76	182.41	-9,405.64	6,820.08	6,762.74	57.33	118.953	
9,800.00	6,933.35	6,823.66	6,762.61	53.41	26.64	-71.01	182.25	-9,405.77	6,720.78	6,663.28	57.50	116.882	
9,900.00	6,933.25	6,827.36	6,766.31	54.76	26.66	-71.27	182.10	-9,405.89	6,621.50	6,563.82	57.67	114.811	
10,000.00	6,933.14	6,831.06	6,770.00	56.12	26.67	-71.52	181.95	-9,406.02	6,522.23	6,464.38	57.85	112.741	
10,100.00	6,933.04	6,834.75	6,773.68	57.50	26.68	-71.78	181.80	-9,406.14	6,422.99	6,364.96	58.04	110.672	
10,200.00	6,932.93	6,838.43	6,777.36	58.88	26.70	-72.03	181.64	-9,406.27	6,323.77	6,265.54	58.23	108.604	
10,300.00	6,932.83	6,842.10	6,781.03	60.28	26.71	-72.29	181.49	-9,406.39	6,224.58	6,166.15	58.43	106.536	
10,400.00	6,932.72	6,845.77	6,784.69	61.69	26.72	-72.54	181.34	-9,406.51	6,125.40	6,066.77	58.63	104.470	
10,500.00	6,932.62	6,849.43	6,788.34	63.10	26.74	-72.80	181.19	-9,406.64	6,026.26	5,967.41	58.85	102.405	
10,600.00	6,932.51	6,853.08	6,791.99	64.52	26.75	-73.06	181.04	-9,406.76	5,927.14	5,868.07	59.07	100.341	
10,700.00	6,932.41	6,856.72	6,795.62	65.96	26.76	-73.31	180.89	-9,406.88	5,828.04	5,768.74	59.30	98.279	
10,800.00	6,932.30	6,860.36	6,799.25	67.39	26.78	-73.57	180.74	-9,407.01	5,728.98	5,669.44	59.54	96.219	
10,900.00	6,932.20	6,863.98	6,802.88	68.84	26.79	-73.82	180.60	-9,407.13	5,629.95	5,570.16	59.79	94.161	
11,000.00	6,932.10	6,867.60	6,806.49	70.29	26.80	-74.08	180.45	-9,407.25	5,530.95	5,470.90	60.05	92.104	
11,100.00	6,931.99	6,871.21	6,810.10	71.75	26.82	-74.33	180.30	-9,407.37	5,431.98	5,371.66	60.32	90.050	
11,200.00	6,931.89	6,874.82	6,813.70	73.22	26.83	-74.59	180.15	-9,407.49	5,333.05	5,272.45	60.60	87.999	
11,300.00	6,931.78	6,878.42	6,817.29	74.69	26.84	-74.85	180.01	-9,407.61	5,234.16	5,173.27	60.90	85.949	
11,400.00	6,931.68	6,882.01	6,820.87	76.16	26.86	-75.10	179.86	-9,407.73	5,135.31	5,074.11	61.21	83.903	
11,500.00	6,931.57	6,885.59	6,824.45	77.64	26.87	-75.36	179.71	-9,407.85	5,036.51	4,974.98	61.53	81.860	
11,600.00	6,931.47	6,889.16	6,828.02	79.13	26.88	-75.61	179.57	-9,407.97	4,937.75	4,875.89	61.86	79.820	
11,700.00	6,931.36	6,892.73	6,831.58	80.62	26.89	-75.87	179.42	-9,408.09	4,839.03	4,776.82	62.21	77.784	
11,800.00	6,931.26	6,896.29	6,835.14	82.11	26.91	-76.12	179.28	-9,408.21	4,740.37	4,677.79	62.58	75.751	
11,900.00	6,931.15	6,899.84	6,838.68	83.61	26.92	-76.38	179.14	-9,408.33	4,641.77	4,578.80	62.96	73.723	
12,000.00	6,931.05	6,903.38	6,842.22	85.11	26.93	-76.63	178.99	-9,408.44	4,543.22	4,479.85	63.37	71.698	
12,100.00	6,930.94	6,906.92	6,845.76	86.62	26.95	-76.89	178.85	-9,408.56	4,444.73	4,380.94	63.79	69.679	
12,200.00	6,930.84	6,910.45	6,849.28	88.13	26.96	-77.14	178.71	-9,408.68	4,346.31	4,282.08	64.23	67.665	
12,300.00	6,930.73	6,913.97	6,852.80	89.64	26.97	-77.40	178.56	-9,408.79	4,247.96	4,183.26	64.70	65.656	
12,400.00	6,930.63	6,917.49	6,856.31	91.15	26.99	-77.65	178.42	-9,408.91	4,149.69	4,084.50	65.19	63.653	
12,500.00	6,930.52	6,921.00	6,859.81	92.67	27.00	-77.91	178.28	-9,409.03	4,051.50	3,985.79	65.71	61.656	
12,600.00	6,930.42	6,924.50	6,863.31	94.19	27.01	-78.16	178.14	-9,409.14	3,953.39	3,887.14	66.26	59.667	
12,700.00	6,930.31	6,927.99	6,866.80	95.71	27.02	-78.42	178.00	-9,409.26	3,855.39	3,788.55	66.84	57.684	
12,800.00	6,930.21	6,931.48	6,870.28	97.24	27.04	-78.67	177.86	-9,409.37	3,757.48	3,690.03	67.45	55.710	
12,900.00	6,930.11	6,934.96	6,873.75	98.77	27.05	-78.93	177.72	-9,409.49	3,659.68	3,591.59	68.09	53.744	
13,008.91	6,929.99	6,938.74	6,877.53	100.43	27.06	-79.20	177.57	-9,409.61	3,553.31	3,484.46	68.84	51.614	
13,100.00	6,929.90	6,941.84	6,880.62	101.83	27.07	-80.71	177.44	-9,409.71	3,464.79	3,395.23	69.56	49.814	
13,139.82	6,929.86	6,943.15	6,881.94	102.44	27.08	-81.25	177.39	-9,409.76	3,426.36	3,356.45	69.91	49.013	
13,200.00	6,929.80	6,945.13	6,883.91	103.37	27.09	-81.37	177.31	-9,409.82	3,368.45	3,297.98	70.47	47.800	
13,300.00	6,929.70	6,948.40	6,887.17	104.92	27.10	-81.57	177.18	-9,409.93	3,272.41	3,200.95	71.46	45.796	
13,400.00	6,929.61	6,951.66	6,890.43	106.47	27.11	-81.77	177.05	-9,410.03	3,176.61	3,104.10	72.51	43.809	
13,500.00	6,929.51	6,954.92	6,893.69	108.02	27.12	-81.97	176.92	-9,410.14	3,081.07	3,007.43	73.64	41.842	
13,600.00	6,929.41	6,958.17	6,896.93	109.57	27.13	-82.18	176.79	-9,410.25	2,985.82	2,910.98	74.84	39.895	
13,700.00	6,929.32	6,961.42	6,900.18	111.12	27.15	-82.38	176.66	-9,410.35	2,890.89	2,814.75	76.14	37.970	
13,800.00	6,929.22	6,964.66	6,903.41	112.68	27.16	-82.58	176.53	-9,410.46	2,796.30	2,718.78	77.52	36.070	
13,900.00	6,929.12	6,967.89	6,906.64	114.23	27.17	-82.78	176.41	-9,410.56	2,702.11	2,623.09	79.02	34.196	
14,000.00	6,929.03	6,971.11	6,909.86	115.79	27.18	-82.98	176.28	-9,410.67	2,608.34	2,527.71	80.63	32.351	
14,100.00	6,928.93	6,974.34	6,913.08	117.35	27.19	-83.17	176.15	-9,410.77	2,515.05	2,432.69	82.36	30.537	
14,200.00	6,928.83	6,977.55	6,916.29	118.91	27.20	-83.37	176.02	-9,410.88	2,422.29	2,338.05	84.24	28.756	
14,300.00	6,928.74	6,980.76	6,919.49	120.47	27.22	-83.57	175.90	-9,410.98	2,330.12	2,243.86	86.26	27.012	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**Offset TVD Reference:**	Offset Datum

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

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

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,400.00	6,928.64	6,983.96	6,922.69	122.03	27.23	-83.77	175.77	-9,411.09	2,238.62	2,150.16	88.46	25.306	
14,500.00	6,928.54	6,987.15	6,925.88	123.60	27.24	-83.97	175.64	-9,411.19	2,147.88	2,057.03	90.85	23.643	
14,600.00	6,928.45	6,990.34	6,929.07	125.16	27.25	-84.17	175.52	-9,411.29	2,057.99	1,964.55	93.44	22.026	
14,700.00	6,928.35	6,993.53	6,932.25	126.72	27.26	-84.36	175.39	-9,411.40	1,969.07	1,872.81	96.25	20.457	
14,800.00	6,928.25	6,996.71	6,935.42	128.29	27.27	-84.56	175.27	-9,411.50	1,881.26	1,781.93	99.33	18.940	
14,900.00	6,928.16	6,999.88	6,938.59	129.86	27.29	-84.76	175.14	-9,411.60	1,794.71	1,692.04	102.67	17.480	
15,000.00	6,928.06	7,003.04	6,941.75	131.42	27.30	-84.96	175.02	-9,411.70	1,709.63	1,603.31	106.32	16.080	
15,100.00	6,927.96	7,006.20	6,944.90	132.99	27.31	-85.15	174.89	-9,411.81	1,626.25	1,515.94	110.30	14.743	
15,200.00	6,927.87	7,009.35	6,948.05	134.56	27.32	-85.35	174.77	-9,411.91	1,544.83	1,430.19	114.64	13.475	
15,300.00	6,927.77	7,012.50	6,951.19	136.13	27.33	-85.54	174.64	-9,412.01	1,465.70	1,346.35	119.36	12.280	
15,400.00	6,927.67	7,015.64	6,954.33	137.70	27.34	-85.74	174.52	-9,412.11	1,389.27	1,264.80	124.46	11.162	
15,500.00	6,927.57	7,018.78	6,957.46	139.28	27.36	-85.93	174.40	-9,412.21	1,315.98	1,186.01	129.97	10.125	
15,600.00	6,927.48	7,021.91	6,960.59	140.85	27.37	-86.13	174.28	-9,412.31	1,246.41	1,110.56	135.86	9.175	
15,700.00	6,927.38	7,025.03	6,963.71	142.42	27.38	-86.32	174.15	-9,412.41	1,181.21	1,039.14	142.07	8.314	
15,800.00	6,927.28	7,028.15	6,966.82	144.00	27.39	-86.52	174.03	-9,412.51	1,121.14	972.63	148.52	7.549	
15,900.00	6,927.19	7,031.26	6,969.93	145.57	27.40	-86.71	173.91	-9,412.61	1,067.07	912.03	155.04	6.882	
16,000.00	6,927.09	7,034.36	6,973.03	147.15	27.41	-86.90	173.79	-9,412.71	1,019.95	858.53	161.42	6.318	
16,100.00	6,926.99	7,037.46	6,976.12	148.72	27.42	-87.10	173.67	-9,412.81	980.79	813.43	167.36	5.860	
16,200.00	6,926.90	7,040.55	6,979.21	150.30	27.43	-87.29	173.55	-9,412.91	950.56	778.06	172.50	5.511	
16,300.00	6,926.80	7,043.64	6,982.30	151.87	27.45	-87.48	173.43	-9,413.01	930.14	753.68	176.47	5.271	
16,400.00	6,926.70	7,046.72	6,985.37	153.45	27.46	-87.68	173.31	-9,413.10	920.19	741.24	178.95	5.142	
16,442.17	6,926.66	7,048.02	6,986.67	154.12	27.46	-87.76	173.26	-9,413.14	919.22	739.72	179.51	5.121	CC, ES, SF
16,500.00	6,926.61	7,049.80	6,988.45	155.03	27.47	-87.87	173.19	-9,413.20	921.04	741.28	179.76	5.124	
16,600.00	6,926.51	7,052.87	6,991.51	156.61	27.48	-88.06	173.07	-9,413.30	932.66	753.80	178.86	5.214	
16,700.00	6,926.41	7,055.93	6,994.57	158.19	27.49	-88.25	172.95	-9,413.40	954.67	778.26	176.41	5.412	
16,800.00	6,926.32	7,058.99	6,997.63	159.77	27.50	-88.44	172.83	-9,413.49	986.36	813.69	172.67	5.712	
16,900.00	6,926.22	7,062.05	7,000.68	161.35	27.51	-88.63	172.72	-9,413.59	1,026.83	858.84	168.00	6.112	
17,000.00	6,926.12	7,065.09	7,003.72	162.93	27.52	-88.82	172.60	-9,413.69	1,075.11	912.38	162.73	6.607	
17,100.00	6,926.03	7,068.13	7,006.76	164.51	27.54	-89.01	172.48	-9,413.78	1,130.18	973.02	157.16	7.191	
17,200.00	6,925.93	7,071.17	7,009.79	166.09	27.55	-89.20	172.36	-9,413.88	1,191.11	1,039.57	151.54	7.860	
17,300.00	6,925.83	7,074.20	7,012.82	167.67	27.56	-89.39	172.25	-9,413.97	1,257.05	1,111.02	146.03	8.608	
17,400.00	6,925.74	7,077.22	7,015.84	169.26	27.57	-89.57	172.13	-9,414.07	1,327.24	1,186.50	140.74	9.430	
17,500.00	6,925.64	7,080.24	7,018.85	170.84	27.58	-89.76	172.02	-9,414.16	1,401.05	1,265.32	135.73	10.322	
17,600.00	6,925.54	7,083.26	7,021.86	172.42	27.59	-89.95	171.90	-9,414.26	1,477.94	1,346.89	131.05	11.278	
17,700.00	6,925.45	7,086.26	7,024.86	174.00	27.60	-90.14	171.78	-9,414.35	1,557.45	1,430.76	126.69	12.293	
17,800.00	6,925.35	7,089.27	7,027.86	175.59	27.61	-90.32	171.67	-9,414.45	1,639.20	1,516.54	122.66	13.364	
17,900.00	6,925.25	7,092.26	7,030.85	177.17	27.62	-90.51	171.55	-9,414.54	1,722.87	1,603.93	118.94	14.485	
18,000.00	6,925.16	7,095.25	7,033.84	178.76	27.63	-90.70	171.44	-9,414.64	1,808.20	1,692.68	115.52	15.653	
18,100.00	6,925.06	7,098.24	7,036.82	180.34	27.65	-90.88	171.33	-9,414.73	1,894.95	1,782.59	112.36	16.864	
18,160.21	6,925.00	7,100.03	7,038.61	181.30	27.65	-90.99	171.26	-9,414.79	1,947.80	1,837.21	110.59	17.613	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Rule Assigned:

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	488.00	488.00	0.00	14.62	87.24	874.93	18,135.20	18,156.29				
100.00	100.00	588.10	588.00	0.25	17.62	87.24	874.93	18,135.20	18,156.29	18,138.42	17.87	1,015.844	
200.00	200.00	688.10	688.00	0.61	20.62	87.24	874.93	18,135.20	18,156.29	18,135.06	21.23	855.298	
300.00	300.00	790.58	790.44	0.97	23.69	87.23	877.05	18,135.20	18,156.39	18,131.74	24.66	736.348	
400.00	400.00	897.10	896.93	1.33	26.88	87.23	876.36	18,135.20	18,156.36	18,128.15	28.21	643.669	
500.00	500.00	1,003.65	1,003.45	1.68	30.07	87.24	874.86	18,135.20	18,156.29	18,124.54	31.76	571.694	
600.00	599.98	1,088.39	1,087.98	2.04	32.61	75.25	874.93	18,135.20	18,155.85	18,121.19	34.66	523.895	
700.00	699.84	1,188.24	1,187.84	2.41	35.61	75.29	874.93	18,135.20	18,154.51	18,116.51	38.01	477.681	
800.00	799.45	1,290.28	1,289.83	2.77	38.66	75.36	877.06	18,135.20	18,152.40	18,110.98	41.42	438.218	
900.00	898.70	1,395.75	1,395.28	3.13	41.82	75.46	876.37	18,135.20	18,149.28	18,104.33	44.95	403.772	
1,000.00	997.47	1,500.48	1,499.97	3.50	44.96	75.59	874.92	18,135.20	18,145.26	18,096.79	48.46	374.421	
1,100.00	1,095.62	1,584.33	1,583.62	3.89	47.47	75.73	874.93	18,135.20	18,140.44	18,089.08	51.36	353.192	
1,200.00	1,193.44	1,682.15	1,681.44	4.29	50.40	75.80	874.93	18,135.20	18,135.22	18,080.53	54.69	331.600	
1,300.00	1,291.25	1,781.68	1,780.92	4.70	53.39	75.85	877.08	18,135.20	18,130.11	18,072.04	58.08	312.174	
1,400.00	1,389.07	1,884.88	1,884.10	5.11	56.48	75.92	876.48	18,135.20	18,124.91	18,063.33	61.58	294.335	
1,500.00	1,486.88	1,987.80	1,986.99	5.53	59.56	75.99	875.14	18,135.20	18,119.71	18,054.63	65.08	278.434	
1,600.00	1,584.70	2,073.71	2,072.70	5.95	62.14	76.05	874.93	18,135.20	18,114.57	18,046.50	68.07	266.120	
1,700.00	1,682.51	2,171.53	2,170.51	6.37	65.07	76.11	874.93	18,135.20	18,109.46	18,038.04	71.42	253.562	
1,800.00	1,780.33	2,270.30	2,269.24	6.80	68.03	76.17	877.10	18,135.20	18,104.45	18,029.65	74.80	242.031	
1,900.00	1,878.14	2,372.74	2,371.67	7.22	71.10	76.23	876.59	18,135.20	18,099.37	18,021.07	78.30	231.165	
2,000.00	1,975.96	2,474.92	2,473.81	7.65	74.16	76.30	875.34	18,135.20	18,094.29	18,012.51	81.78	221.246	
2,100.00	2,073.77	2,563.09	2,561.77	8.08	76.80	76.36	874.93	18,135.20	18,089.25	18,004.40	84.85	213.184	
2,200.00	2,171.59	2,660.91	2,659.59	8.51	79.73	76.42	874.93	18,135.20	18,084.26	17,996.05	88.21	205.009	
2,300.00	2,269.40	2,759.09	2,757.73	8.95	82.67	76.48	877.11	18,135.20	18,079.35	17,987.77	91.58	197.410	
2,400.00	2,367.22	2,860.79	2,859.41	9.38	85.72	76.54	876.68	18,135.20	18,074.39	17,979.33	95.06	190.136	
2,500.00	2,465.03	2,962.22	2,960.82	9.81	88.76	76.61	875.54	18,135.20	18,069.43	17,970.90	98.53	183.389	
2,600.00	2,562.84	3,052.47	3,050.84	10.25	91.47	76.67	874.93	18,135.20	18,064.50	17,962.84	101.67	177.684	
2,700.00	2,660.66	3,150.28	3,148.66	10.68	94.40	76.74	874.93	18,135.20	18,059.62	17,954.59	105.03	171.949	
2,800.00	2,758.47	3,248.10	3,246.47	11.12	97.33	76.80	874.93	18,135.20	18,054.76	17,946.37	108.39	166.568	
2,900.00	2,856.29	3,349.01	3,347.33	11.55	100.35	76.86	876.77	18,135.20	18,049.97	17,938.12	111.85	161.378	
3,000.00	2,954.10	3,449.72	3,448.01	11.99	103.37	76.93	875.72	18,135.20	18,045.13	17,929.83	115.30	156.506	
3,100.00	3,051.92	3,541.85	3,539.92	12.42	106.13	76.99	874.93	18,135.20	18,040.32	17,921.82	118.49	152.246	
3,200.00	3,149.73	3,639.66	3,637.73	12.86	109.06	77.05	874.93	18,135.20	18,035.55	17,913.69	121.86	148.003	
3,300.00	3,247.55	3,737.48	3,735.55	13.30	111.99	77.11	874.93	18,135.20	18,030.80	17,905.58	125.22	143.987	
3,400.00	3,345.36	3,837.40	3,835.42	13.73	114.99	77.17	876.84	18,135.20	18,026.12	17,897.46	128.65	140.113	
3,500.00	3,443.18	3,937.39	3,935.38	14.17	117.98	77.24	875.88	18,135.20	18,021.40	17,889.31	132.08	136.438	
3,600.00	3,540.99	4,031.23	4,028.99	14.61	120.79	77.30	874.93	18,135.20	18,016.70	17,881.37	135.33	133.130	
3,700.00	3,638.81	4,129.04	4,126.81	15.05	123.72	77.37	874.93	18,135.20	18,012.05	17,873.35	138.70	129.865	
3,800.00	3,736.62	4,226.86	4,224.62	15.48	126.66	77.43	874.93	18,135.20	18,007.41	17,865.35	142.06	126.755	
3,900.00	3,834.44	4,325.96	4,323.68	15.92	129.63	77.49	876.91	18,135.20	18,002.83	17,857.36	145.47	123.756	
4,000.00	3,932.25	4,425.24	4,422.93	16.36	132.60	77.55	876.04	18,135.20	17,998.23	17,849.35	148.88	120.890	
4,100.00	4,030.07	4,520.60	4,518.07	16.80	135.46	77.62	874.93	18,135.20	17,993.65	17,841.48	152.18	118.243	
4,200.00	4,127.88	4,618.42	4,615.88	17.24	138.39	77.68	874.93	18,135.20	17,989.11	17,833.57	155.54	115.654	
4,300.00	4,225.70	4,716.23	4,713.70	17.68	141.32	77.75	874.93	18,135.20	17,984.59	17,825.68	158.91	113.175	
4,400.00	4,323.51	4,814.69	4,812.10	18.11	144.27	77.80	876.97	18,135.20	17,980.11	17,817.82	162.30	110.785	
4,500.00	4,421.33	4,913.27	4,910.66	18.55	147.22	77.87	876.18	18,135.20	17,975.63	17,809.95	165.69	108.491	
4,600.00	4,519.14	5,009.98	5,007.14	18.99	150.12	77.94	874.93	18,135.20	17,971.18	17,802.15	169.02	106.324	
4,700.00	4,616.95	5,107.80	5,104.95	19.43	153.05	78.00	874.93	18,135.20	17,966.75	17,794.36	172.39	104.221	
4,800.00	4,714.77	5,205.61	5,202.77	19.87	155.98	78.06	874.93	18,135.20	17,962.35	17,786.59	175.76	102.199	
4,900.00	4,812.58	5,303.57	5,300.69	20.31	158.92	78.12	877.01	18,135.20	17,957.97	17,778.84	179.13	100.250	
5,000.00	4,910.40	5,401.47	5,398.56	20.75	161.85	78.19	876.31	18,135.20	17,953.61	17,771.11	182.50	98.375	
5,100.00	5,008.21	5,499.11	5,496.17	21.19	164.78	78.25	874.94	18,135.20	17,949.27	17,763.41	185.87	96.571	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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	21.63	167.72	78.32	874.93	18,135.20	17,944.96	17,755.72	189.24	94.825	
5,300.00	5,203.84	5,694.99	5,691.84	22.06	170.65	78.38	874.93	18,135.20	17,940.67	17,748.06	192.61	93.145	
5,400.00	5,301.66	5,792.62	5,789.43	22.50	173.57	78.44	877.05	18,135.20	17,936.40	17,740.43	195.97	91.524	
5,500.00	5,399.47	5,889.83	5,886.62	22.94	176.49	78.50	876.43	18,135.20	17,932.16	17,732.83	199.33	89.964	
5,600.00	5,497.29	5,986.80	5,983.56	23.38	179.39	78.57	875.15	18,135.20	17,927.95	17,725.28	202.67	88.459	
5,700.00	5,595.10	6,086.55	6,083.10	23.82	182.38	78.64	874.93	18,135.20	17,923.75	17,717.65	206.10	86.968	
5,800.00	5,692.92	6,184.37	6,180.92	24.26	185.31	78.70	874.93	18,135.20	17,919.58	17,710.11	209.47	85.549	
5,900.00	5,790.73	6,281.82	6,278.32	24.70	188.23	78.76	877.08	18,135.20	17,915.41	17,702.58	212.82	84.179	
6,000.00	5,888.55	6,378.36	6,374.85	25.14	191.12	78.82	876.54	18,135.20	17,911.28	17,695.13	216.16	82.863	
6,100.00	5,986.36	6,474.66	6,471.12	25.58	194.01	78.89	875.35	18,135.20	17,907.19	17,687.71	219.48	81.589	
6,200.00	6,084.18	6,575.93	6,572.18	26.02	197.04	78.96	874.93	18,135.20	17,903.12	17,680.17	222.95	80.300	
6,300.00	6,181.99	6,673.75	6,669.99	26.46	199.98	79.02	874.93	18,135.20	17,899.06	17,672.74	226.32	79.087	
6,401.22	6,281.00	6,772.34	6,768.54	26.90	202.93	79.08	877.09	18,135.20	17,894.95	17,665.22	229.72	77.899	
6,426.81	6,306.05	6,796.91	6,793.11	27.02	203.67	89.99	877.03	18,135.20	17,894.43	17,663.86	230.57	77.610 CC	
6,450.00	6,328.76	6,819.18	6,815.38	27.12	204.33	100.08	876.94	18,135.20	17,894.85	17,663.52	231.34	77.354 ES	
6,500.00	6,377.61	6,867.04	6,863.23	27.32	205.77	119.76	876.63	18,135.20	17,898.64	17,665.65	232.98	76.823	
6,550.00	6,426.06	6,914.45	6,910.62	27.52	207.19	134.40	876.17	18,135.20	17,906.32	17,671.71	234.61	76.323	
6,600.00	6,473.81	6,961.12	6,957.28	27.71	208.59	144.47	875.55	18,135.20	17,917.87	17,681.66	236.21	75.856	
6,650.00	6,520.56	7,012.62	7,008.56	27.89	210.13	151.41	874.93	18,135.20	17,933.19	17,695.25	237.94	75.368	
6,700.00	6,566.03	7,058.09	7,054.03	28.05	211.49	156.36	874.93	18,135.20	17,952.18	17,712.70	239.48	74.962	
6,750.00	6,609.93	7,101.99	7,097.93	28.20	212.81	160.03	874.93	18,135.20	17,974.75	17,733.78	240.96	74.595	
6,800.00	6,652.00	7,144.06	7,140.00	28.34	214.07	162.86	874.93	18,135.20	18,000.74	17,758.36	242.38	74.267	
6,850.00	6,691.98	7,184.04	7,179.98	28.47	215.27	165.12	874.93	18,135.20	18,029.99	17,786.28	243.72	73.979	
6,900.00	6,729.61	7,221.67	7,217.61	28.59	216.39	167.00	874.93	18,135.20	18,062.34	17,817.36	244.97	73.732	
6,950.00	6,764.67	7,256.57	7,252.46	28.69	217.44	168.60	877.11	18,135.20	18,097.52	17,851.39	246.13	73.528	
7,000.00	6,796.95	7,288.04	7,283.93	28.79	218.38	170.06	877.06	18,135.20	18,135.42	17,888.24	247.17	73.371	
7,050.00	6,826.23	7,316.58	7,312.47	28.89	219.24	171.46	876.96	18,135.20	18,175.74	17,927.63	248.11	73.256	
7,100.00	6,852.35	7,342.02	7,337.90	28.98	220.00	172.88	876.82	18,135.20	18,218.26	17,969.32	248.94	73.182	
7,150.00	6,875.14	7,364.21	7,360.09	29.08	220.66	174.45	876.66	18,135.20	18,262.70	18,013.03	249.66	73.149 SF	
7,200.00	6,894.45	7,383.02	7,378.89	29.18	221.23	176.38	876.49	18,135.20	18,308.78	18,058.51	250.27	73.157	
7,250.00	6,910.18	7,398.33	7,394.20	29.28	221.69	179.07	876.34	18,135.20	18,356.23	18,105.48	250.75	73.205	
7,300.00	6,922.23	7,410.06	7,405.92	29.40	222.04	-176.52	876.22	18,135.20	18,404.75	18,153.63	251.12	73.291	
7,350.00	6,930.51	7,418.13	7,413.99	29.54	222.28	-167.34	876.12	18,135.20	18,454.03	18,202.67	251.36	73.416	
7,400.00	6,934.98	7,422.49	7,418.36	29.70	222.41	-138.77	876.07	18,135.20	18,503.79	18,252.30	251.49	73.577	
7,433.91	6,935.83	7,423.33	7,419.20	29.81	222.44	-88.65	876.06	18,135.20	18,537.64	18,286.14	251.50	73.707	
7,500.00	6,935.76	7,423.29	7,419.16	30.07	222.44	-88.65	876.06	18,135.20	18,603.63	18,352.15	251.48	73.976	
7,600.00	6,935.66	7,423.23	7,419.09	30.52	222.43	-88.65	876.06	18,135.20	18,703.48	18,452.03	251.45	74.383	
7,700.00	6,935.55	7,423.17	7,419.03	31.06	222.43	-88.65	876.06	18,135.20	18,803.33	18,551.92	251.41	74.790	
7,800.00	6,935.45	7,423.11	7,418.97	31.68	222.43	-88.64	876.06	18,135.20	18,903.18	18,651.80	251.38	75.197	
7,900.00	6,935.34	7,423.05	7,418.91	32.37	222.43	-88.64	876.07	18,135.20	19,003.04	18,751.68	251.35	75.603	
8,000.00	6,935.24	7,422.98	7,418.85	33.12	222.43	-88.64	876.07	18,135.20	19,102.89	18,851.57	251.33	76.008	
8,100.00	6,935.13	7,422.92	7,418.79	33.93	222.42	-88.63	876.07	18,135.20	19,202.75	18,951.45	251.30	76.414	
8,200.00	6,935.03	7,422.86	7,418.72	34.80	222.42	-88.63	876.07	18,135.20	19,302.61	19,051.34	251.27	76.819	
8,300.00	6,934.92	7,422.80	7,418.66	35.71	222.42	-88.62	876.07	18,135.20	19,402.47	19,151.22	251.25	77.224	
8,400.00	6,934.82	7,422.74	7,418.60	36.67	222.42	-88.62	876.07	18,135.20	19,502.33	19,251.10	251.23	77.628	
8,500.00	6,934.71	7,422.67	7,418.54	37.68	222.42	-88.62	876.07	18,135.20	19,602.19	19,350.99	251.21	78.032	
8,600.00	6,934.61	7,422.61	7,418.48	38.72	222.42	-88.61	876.07	18,135.20	19,702.06	19,450.87	251.19	78.436	
8,700.00	6,934.50	7,422.55	7,418.41	39.80	222.41	-88.61	876.07	18,135.20	19,801.92	19,550.76	251.17	78.840	
8,800.00	6,934.40	7,422.49	7,418.35	40.92	222.41	-88.61	876.07	18,135.20	19,901.79	19,650.64	251.15	79.243	
8,900.00	6,934.29	7,422.43	7,418.29	42.06	222.41	-88.60	876.07	18,135.20	20,001.66	19,750.53	251.13	79.645	
9,000.00	6,934.19	7,422.36	7,418.23	43.23	222.41	-88.60	876.07	18,135.20	20,101.53	19,850.41	251.12	80.048	
9,100.00	6,934.08	7,422.30	7,418.17	44.43	222.41	-88.60	876.07	18,135.20	20,201.40	19,950.30	251.11	80.450	

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 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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	6,933.98	7,422.24	7,418.10	45.66	222.40	-88.59	876.08	18,135.20	20,301.27	20,050.18	251.09	80.852	
9,300.00	6,933.88	7,422.18	7,418.04	46.90	222.40	-88.59	876.08	18,135.20	20,401.15	20,150.06	251.08	81.253	
9,400.00	6,933.77	7,422.12	7,417.98	48.17	222.40	-88.59	876.08	18,135.20	20,501.02	20,249.95	251.07	81.654	
9,500.00	6,933.67	7,422.05	7,417.92	49.46	222.40	-88.58	876.08	18,135.20	20,600.90	20,349.83	251.06	82.054	
9,600.00	6,933.56	7,421.99	7,417.86	50.76	222.40	-88.58	876.08	18,135.20	20,700.77	20,449.72	251.06	82.454	
9,700.00	6,933.46	7,421.93	7,417.79	52.08	222.39	-88.58	876.08	18,135.20	20,800.65	20,549.60	251.05	82.854	
9,800.00	6,933.35	7,421.87	7,417.73	53.41	222.39	-88.57	876.08	18,135.20	20,900.53	20,649.49	251.05	83.254	
9,900.00	6,933.25	7,421.80	7,417.67	54.76	222.39	-88.57	876.08	18,135.20	21,000.41	20,749.37	251.04	83.653	
10,000.00	6,933.14	7,421.74	7,417.61	56.12	222.39	-88.57	876.08	18,135.20	21,100.30	20,849.25	251.04	84.051	
10,100.00	6,933.04	7,421.68	7,417.54	57.50	222.39	-88.56	876.08	18,135.20	21,200.18	20,949.14	251.04	84.449	
10,200.00	6,932.93	7,421.62	7,417.48	58.88	222.39	-88.56	876.08	18,135.20	21,300.06	21,049.02	251.04	84.847	
10,300.00	6,932.83	7,421.55	7,417.42	60.28	222.38	-88.56	876.08	18,135.20	21,399.95	21,148.91	251.04	85.245	
10,400.00	6,932.72	7,421.49	7,417.36	61.69	222.38	-88.55	876.08	18,135.20	21,499.83	21,248.79	251.04	85.641	
10,500.00	6,932.62	7,421.43	7,417.29	63.10	222.38	-88.55	876.08	18,135.20	21,599.72	21,348.67	251.05	86.038	
10,600.00	6,932.51	7,421.37	7,417.23	64.52	222.38	-88.54	876.09	18,135.20	21,699.61	21,448.56	251.05	86.434	
10,700.00	6,932.41	7,421.30	7,417.17	65.96	222.38	-88.54	876.09	18,135.20	21,799.50	21,548.44	251.06	86.830	
10,800.00	6,932.30	7,421.24	7,417.11	67.39	222.37	-88.54	876.09	18,135.20	21,899.39	21,648.32	251.07	87.225	
10,900.00	6,932.20	7,421.18	7,417.04	68.84	222.37	-88.53	876.09	18,135.20	21,999.28	21,748.20	251.08	87.620	
11,000.00	6,932.10	7,421.12	7,416.98	70.29	222.37	-88.53	876.09	18,135.20	22,099.17	21,848.09	251.08	88.015	
11,100.00	6,931.99	7,421.05	7,416.92	71.75	222.37	-88.53	876.09	18,135.20	22,199.07	21,947.97	251.10	88.409	
11,200.00	6,931.89	7,420.99	7,416.86	73.22	222.37	-88.52	876.09	18,135.20	22,298.96	22,047.85	251.11	88.802	
11,300.00	6,931.78	7,420.93	7,416.79	74.69	222.36	-88.52	876.09	18,135.20	22,398.85	22,147.73	251.12	89.196	
11,400.00	6,931.68	7,420.87	7,416.73	76.16	222.36	-88.52	876.09	18,135.20	22,498.75	22,247.62	251.13	89.588	
11,500.00	6,931.57	7,420.80	7,416.67	77.64	222.36	-88.51	876.09	18,135.20	22,598.65	22,347.50	251.15	89.981	
11,600.00	6,931.47	7,420.74	7,416.61	79.13	222.36	-88.51	876.09	18,135.20	22,698.55	22,447.38	251.17	90.373	
11,700.00	6,931.36	7,420.68	7,416.54	80.62	222.36	-88.51	876.09	18,135.20	22,798.44	22,547.26	251.18	90.764	
11,800.00	6,931.26	7,420.61	7,416.48	82.11	222.36	-88.50	876.09	18,135.20	22,898.34	22,647.14	251.20	91.155	
11,900.00	6,931.15	7,420.55	7,416.42	83.61	222.35	-88.50	876.10	18,135.20	22,998.25	22,747.02	251.22	91.546	
12,000.00	6,931.05	7,420.49	7,416.35	85.11	222.35	-88.50	876.10	18,135.20	23,098.15	22,846.90	251.24	91.936	
12,100.00	6,930.94	7,420.43	7,416.29	86.62	222.35	-88.49	876.10	18,135.20	23,198.05	22,946.78	251.26	92.325	
12,200.00	6,930.84	7,420.36	7,416.23	88.13	222.35	-88.49	876.10	18,135.20	23,297.95	23,046.67	251.29	92.715	
12,300.00	6,930.73	7,420.30	7,416.16	89.64	222.35	-88.49	876.10	18,135.20	23,397.86	23,146.55	251.31	93.103	
12,400.00	6,930.63	7,420.24	7,416.10	91.15	222.34	-88.48	876.10	18,135.20	23,497.76	23,246.43	251.34	93.492	
12,500.00	6,930.52	7,420.17	7,416.04	92.67	222.34	-88.48	876.10	18,135.20	23,597.67	23,346.30	251.36	93.879	
12,600.00	6,930.42	7,420.11	7,415.98	94.19	222.34	-88.47	876.10	18,135.20	23,697.57	23,446.18	251.39	94.267	
12,700.00	6,930.31	7,420.05	7,415.91	95.71	222.34	-88.47	876.10	18,135.20	23,797.48	23,546.06	251.42	94.654	
12,800.00	6,930.21	7,419.98	7,415.85	97.24	222.34	-88.47	876.10	18,135.20	23,897.39	23,645.94	251.45	95.040	
12,900.00	6,930.11	7,419.92	7,415.79	98.77	222.33	-88.46	876.10	18,135.20	23,997.30	23,745.82	251.48	95.426	
13,008.91	6,929.99	7,419.85	7,415.72	100.43	222.33	-88.46	876.10	18,135.20	24,106.11	23,854.60	251.51	95.846	
13,100.00	6,929.90	7,419.78	7,415.64	101.83	222.33	-84.12	876.10	18,135.20	24,197.16	23,945.62	251.54	96.195	
13,139.82	6,929.86	7,419.74	7,415.60	102.44	222.33	72.49	876.10	18,135.20	24,236.98	23,985.42	251.56	96.346	
13,200.00	6,929.80	7,419.67	7,415.54	103.37	222.33	72.45	876.11	18,135.20	24,297.16	24,045.57	251.59	96.574	
13,300.00	6,929.70	7,419.56	7,415.43	104.92	222.32	72.38	876.11	18,135.20	24,397.16	24,145.52	251.64	96.952	
13,400.00	6,929.61	7,419.46	7,415.32	106.47	222.32	72.31	876.11	18,135.20	24,497.16	24,245.47	251.69	97.330	
13,500.00	6,929.51	7,419.35	7,415.21	108.02	222.32	72.24	876.11	18,135.20	24,597.16	24,345.42	251.74	97.708	
13,600.00	6,929.41	7,419.24	7,415.10	109.57	222.31	72.17	876.11	18,135.20	24,697.16	24,445.37	251.79	98.085	
13,700.00	6,929.32	7,419.13	7,414.99	111.12	222.31	72.10	876.11	18,135.20	24,797.16	24,545.31	251.84	98.462	
13,800.00	6,929.22	7,419.02	7,414.89	112.68	222.31	72.03	876.11	18,135.20	24,897.16	24,645.26	251.90	98.838	
13,900.00	6,929.12	7,418.91	7,414.78	114.23	222.30	71.97	876.11	18,135.20	24,997.16	24,745.21	251.95	99.214	
14,000.00	6,929.03	7,418.80	7,414.67	115.79	222.30	71.90	876.12	18,135.20	25,097.16	24,845.15	252.01	99.590	
14,100.00	6,928.93	7,418.69	7,414.56	117.35	222.30	71.83	876.12	18,135.20	25,197.16	24,945.10	252.06	99.965	
14,200.00	6,928.83	7,418.58	7,414.45	118.91	222.29	71.76	876.12	18,135.20	25,297.16	25,045.04	252.12	100.339	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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)	Rule Assigned: Minimum Separation (usft)	Separation Factor	Warning
14,300.00	6,928.74	7,418.48	7,414.34	120.47	222.29	71.69	876.12	18,135.20	25,397.15	25,144.98	252.17	100.714	
14,400.00	6,928.64	7,418.37	7,414.23	122.03	222.29	71.62	876.12	18,135.20	25,497.15	25,244.93	252.23	101.087	
14,500.00	6,928.54	7,418.26	7,414.12	123.60	222.28	71.55	876.12	18,135.20	25,597.15	25,344.87	252.29	101.461	
14,600.00	6,928.45	7,418.15	7,414.01	125.16	222.28	71.49	876.12	18,135.20	25,697.15	25,444.81	252.34	101.834	
14,700.00	6,928.35	7,418.04	7,413.91	126.72	222.28	71.42	876.12	18,135.20	25,797.15	25,544.75	252.40	102.206	
14,800.00	6,928.25	7,417.93	7,413.80	128.29	222.27	71.35	876.13	18,135.20	25,897.15	25,644.69	252.46	102.578	
14,900.00	6,928.16	7,417.82	7,413.69	129.86	222.27	71.28	876.13	18,135.20	25,997.15	25,744.63	252.52	102.950	
15,000.00	6,928.06	7,417.71	7,413.58	131.42	222.27	71.21	876.13	18,135.20	26,097.15	25,844.57	252.58	103.321	
15,100.00	6,927.96	7,417.61	7,413.47	132.99	222.27	71.14	876.13	18,135.20	26,197.15	25,944.50	252.65	103.691	
15,200.00	6,927.87	7,417.50	7,413.36	134.56	222.26	71.08	876.13	18,135.20	26,297.15	26,044.44	252.71	104.062	
15,300.00	6,927.77	7,417.39	7,413.25	136.13	222.26	71.01	876.13	18,135.20	26,397.15	26,144.38	252.77	104.432	
15,400.00	6,927.67	7,417.28	7,413.15	137.70	222.26	70.94	876.13	18,135.20	26,497.15	26,244.32	252.83	104.801	
15,500.00	6,927.57	7,417.17	7,413.04	139.28	222.25	70.87	876.14	18,135.20	26,597.15	26,344.25	252.90	105.170	
15,600.00	6,927.48	7,417.06	7,412.93	140.85	222.25	70.80	876.14	18,135.20	26,697.15	26,444.19	252.96	105.538	
15,700.00	6,927.38	7,416.95	7,412.82	142.42	222.25	70.74	876.14	18,135.20	26,797.15	26,544.12	253.03	105.906	
15,800.00	6,927.28	7,416.85	7,412.71	144.00	222.24	70.67	876.14	18,135.20	26,897.15	26,644.05	253.09	106.274	
15,900.00	6,927.19	7,416.74	7,412.60	145.57	222.24	70.60	876.14	18,135.20	26,997.15	26,743.99	253.16	106.641	
16,000.00	6,927.09	7,416.63	7,412.49	147.15	222.24	70.53	876.14	18,135.20	27,097.15	26,843.92	253.23	107.008	
16,100.00	6,926.99	7,416.52	7,412.39	148.72	222.23	70.47	876.14	18,135.20	27,197.14	26,943.85	253.29	107.374	
16,200.00	6,926.90	7,416.41	7,412.28	150.30	222.23	70.40	876.14	18,135.20	27,297.14	27,043.78	253.36	107.740	
16,300.00	6,926.80	7,416.30	7,412.17	151.87	222.23	70.33	876.15	18,135.20	27,397.14	27,143.71	253.43	108.105	
16,400.00	6,926.70	7,416.19	7,412.06	153.45	222.22	70.26	876.15	18,135.20	27,497.14	27,243.64	253.50	108.470	
16,500.00	6,926.61	7,416.09	7,411.95	155.03	222.22	70.20	876.15	18,135.20	27,597.14	27,343.57	253.57	108.835	
16,600.00	6,926.51	7,415.98	7,411.84	156.61	222.22	70.13	876.15	18,135.20	27,697.14	27,443.50	253.64	109.199	
16,700.00	6,926.41	7,415.87	7,411.74	158.19	222.21	70.06	876.15	18,135.20	27,797.14	27,543.43	253.71	109.562	
16,800.00	6,926.32	7,415.76	7,411.63	159.77	222.21	70.00	876.15	18,135.20	27,897.14	27,643.36	253.78	109.925	
16,900.00	6,926.22	7,415.65	7,411.52	161.35	222.21	69.93	876.15	18,135.20	27,997.14	27,743.29	253.85	110.288	
17,000.00	6,926.12	7,415.54	7,411.41	162.93	222.20	69.86	876.15	18,135.20	28,097.14	27,843.21	253.93	110.650	
17,100.00	6,926.03	7,415.44	7,411.30	164.51	222.20	69.80	876.16	18,135.20	28,197.14	27,943.14	254.00	111.012	
17,200.00	6,925.93	7,415.33	7,411.19	166.09	222.20	69.73	876.16	18,135.20	28,297.14	28,043.07	254.07	111.374	
17,300.00	6,925.83	7,415.22	7,411.09	167.67	222.19	69.66	876.16	18,135.20	28,397.14	28,142.99	254.15	111.734	
17,400.00	6,925.74	7,415.11	7,410.98	169.26	222.19	69.60	876.16	18,135.20	28,497.14	28,242.92	254.22	112.095	
17,500.00	6,925.64	7,415.00	7,410.87	170.84	222.19	69.53	876.16	18,135.20	28,597.14	28,342.84	254.30	112.455	
17,600.00	6,925.54	7,414.90	7,410.76	172.42	222.18	69.46	876.16	18,135.20	28,697.14	28,442.76	254.37	112.814	
17,700.00	6,925.45	7,414.79	7,410.65	174.00	222.18	69.40	876.16	18,135.20	28,797.14	28,542.69	254.45	113.173	
17,800.00	6,925.35	7,414.68	7,410.55	175.59	222.18	69.33	876.16	18,135.20	28,897.14	28,642.61	254.53	113.532	
17,900.00	6,925.25	7,414.57	7,410.44	177.17	222.17	69.26	876.17	18,135.20	28,997.14	28,742.53	254.61	113.890	
18,000.00	6,925.16	7,414.46	7,410.33	178.76	222.17	69.20	876.17	18,135.20	29,097.14	28,842.45	254.68	114.248	
18,100.00	6,925.06	7,414.35	7,410.22	180.34	222.17	69.13	876.17	18,135.20	29,197.14	28,942.37	254.76	114.605	
18,160.21	6,925.00	7,414.29	7,410.16	181.30	222.17	69.09	876.17	18,135.20	29,257.35	29,002.54	254.81	114.820	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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	69.15	1,762.96	4,628.69	4,953.06				
100.00	100.00	123.00	123.00	0.25	3.69	69.15	1,762.96	4,628.69	4,953.06	4,949.12	3.94	1,258.169	
200.00	200.00	223.00	223.00	0.61	6.68	69.15	1,762.96	4,628.69	4,953.06	4,945.77	7.29	679.283	
300.00	300.00	323.00	323.00	0.97	9.68	69.15	1,762.96	4,628.69	4,953.06	4,942.41	10.65	465.229	
400.00	400.00	423.00	423.00	1.33	12.68	69.15	1,762.96	4,628.69	4,953.06	4,939.06	14.00	353.755	
500.00	500.00	523.10	523.00	1.68	15.67	69.15	1,762.96	4,628.69	4,953.06	4,935.70	17.36	285.326	
600.00	599.98	623.08	622.98	2.04	18.67	57.18	1,762.96	4,628.69	4,952.11	4,931.40	20.71	239.081	
700.00	699.84	722.94	722.84	2.41	21.66	57.28	1,762.96	4,628.69	4,949.28	4,925.21	24.06	205.672	
800.00	799.45	832.73	832.57	2.77	24.95	57.43	1,764.90	4,628.69	4,945.26	4,917.54	27.71	178.436	
900.00	898.70	945.71	945.53	3.13	28.34	57.70	1,763.81	4,628.69	4,938.34	4,906.88	31.46	156.948	
1,000.00	997.47	1,020.87	1,020.47	3.50	30.59	57.97	1,762.96	4,628.69	4,929.58	4,895.50	34.09	144.608	
1,100.00	1,095.62	1,119.03	1,118.62	3.89	33.53	58.33	1,762.96	4,628.69	4,919.38	4,881.97	37.41	131.491	
1,200.00	1,193.44	1,216.84	1,216.44	4.29	36.46	58.53	1,762.96	4,628.69	4,908.32	4,867.59	40.73	120.499	
1,300.00	1,291.25	1,323.22	1,322.76	4.70	39.65	58.73	1,764.96	4,628.69	4,898.01	4,853.69	44.32	110.526	
1,400.00	1,389.07	1,433.69	1,433.21	5.11	42.96	58.98	1,763.96	4,628.69	4,886.77	4,838.75	48.03	101.754	
1,500.00	1,486.88	1,510.59	1,509.88	5.53	45.26	59.15	1,762.96	4,628.69	4,875.52	4,824.79	50.73	96.098	
1,600.00	1,584.70	1,608.41	1,607.70	5.95	48.20	59.36	1,762.96	4,628.69	4,864.72	4,810.65	54.07	89.966	
1,700.00	1,682.51	1,706.22	1,705.51	6.37	51.13	59.56	1,762.96	4,628.69	4,853.98	4,796.57	57.41	84.543	
1,800.00	1,780.33	1,810.70	1,809.95	6.80	54.26	59.76	1,765.02	4,628.69	4,843.97	4,783.02	60.96	79.465	
1,900.00	1,878.14	1,920.31	1,919.53	7.22	57.54	60.01	1,764.13	4,628.69	4,833.11	4,768.45	64.65	74.752	
2,000.00	1,975.96	2,029.60	2,028.78	7.65	60.82	60.26	1,762.41	4,628.69	4,822.08	4,753.74	68.34	70.556	
2,100.00	2,073.77	2,097.79	2,096.77	8.08	62.86	60.40	1,762.96	4,628.69	4,811.69	4,740.88	70.81	67.954	
2,200.00	2,171.59	2,195.60	2,194.59	8.51	65.79	60.62	1,762.96	4,628.69	4,801.28	4,727.12	74.16	64.744	
2,300.00	2,269.40	2,298.39	2,297.33	8.95	68.87	60.82	1,765.06	4,628.69	4,791.58	4,713.92	77.66	61.701	
2,400.00	2,367.22	2,407.15	2,406.06	9.38	72.13	61.06	1,764.28	4,628.69	4,781.09	4,699.75	81.34	58.781	
2,500.00	2,465.03	2,515.59	2,514.47	9.81	75.38	61.32	1,762.68	4,628.69	4,770.45	4,685.45	85.01	56.119	
2,600.00	2,562.84	2,587.16	2,585.84	10.25	77.52	61.47	1,762.96	4,628.69	4,760.33	4,672.75	87.58	54.355	
2,700.00	2,660.66	2,684.98	2,683.66	10.68	80.45	61.69	1,762.96	4,628.69	4,750.27	4,659.33	90.93	52.239	
2,800.00	2,758.47	2,786.26	2,784.90	11.12	83.49	61.89	1,765.10	4,628.69	4,740.88	4,646.49	94.39	50.225	
2,900.00	2,856.29	2,894.19	2,892.80	11.55	86.72	62.14	1,764.42	4,628.69	4,730.78	4,632.73	98.05	48.248	
3,000.00	2,954.10	3,001.80	3,000.38	11.99	89.95	62.40	1,762.93	4,628.69	4,720.54	4,618.84	101.70	46.416	
3,100.00	3,051.92	3,076.54	3,074.92	12.42	92.19	62.56	1,762.96	4,628.69	4,710.71	4,606.34	104.37	45.134	
3,200.00	3,149.73	3,174.36	3,172.73	12.86	95.12	62.79	1,762.96	4,628.69	4,701.00	4,593.27	107.73	43.637	
3,300.00	3,247.55	3,274.33	3,272.67	13.30	98.11	62.99	1,765.12	4,628.69	4,691.94	4,580.79	111.15	42.212	
3,400.00	3,345.36	3,381.43	3,379.74	13.73	101.32	63.24	1,764.54	4,628.69	4,682.22	4,567.44	114.79	40.790	
3,500.00	3,443.18	3,488.22	3,486.50	14.17	104.52	63.50	1,763.16	4,628.69	4,672.40	4,553.98	118.42	39.457	
3,600.00	3,540.99	3,565.92	3,563.99	14.61	106.85	63.68	1,762.96	4,628.69	4,662.88	4,541.70	121.18	38.479	
3,700.00	3,638.81	3,663.74	3,661.81	15.05	109.78	63.90	1,762.96	4,628.69	4,653.54	4,528.99	124.54	37.365	
3,800.00	3,736.62	3,762.58	3,760.61	15.48	112.74	64.11	1,765.14	4,628.69	4,644.80	4,516.87	127.93	36.306	
3,900.00	3,834.44	3,868.87	3,866.88	15.92	115.93	64.36	1,764.65	4,628.69	4,635.49	4,503.94	131.55	35.238	
4,000.00	3,932.25	3,974.85	3,972.83	16.36	119.10	64.62	1,763.38	4,628.69	4,626.08	4,490.92	135.15	34.228	
4,100.00	4,030.07	4,055.30	4,053.07	16.80	121.52	64.81	1,762.96	4,628.69	4,616.90	4,478.90	138.00	33.455	
4,200.00	4,127.88	4,153.11	4,150.88	17.24	124.45	65.04	1,762.96	4,628.69	4,607.93	4,466.56	141.37	32.596	
4,300.00	4,225.70	4,251.02	4,248.74	17.68	127.38	65.25	1,765.14	4,628.69	4,599.53	4,454.80	144.73	31.780	
4,400.00	4,323.51	4,356.50	4,354.21	18.11	130.54	65.50	1,764.75	4,628.69	4,590.62	4,442.30	148.33	30.950	
4,500.00	4,421.33	4,461.69	4,459.37	18.55	133.69	65.77	1,763.58	4,628.69	4,581.64	4,429.73	151.91	30.160	
4,600.00	4,519.14	4,544.68	4,542.14	18.99	136.18	65.97	1,762.96	4,628.69	4,572.81	4,417.98	154.84	29.533	
4,700.00	4,616.95	4,642.49	4,639.95	19.43	139.11	66.21	1,762.96	4,628.69	4,564.23	4,406.03	158.20	28.851	
4,800.00	4,714.77	4,740.31	4,737.77	19.87	142.04	66.44	1,762.96	4,628.69	4,555.73	4,394.16	161.57	28.197	
4,900.00	4,812.58	4,844.32	4,841.73	20.31	145.16	66.67	1,764.83	4,628.69	4,547.69	4,382.57	165.12	27.542	
5,000.00	4,910.40	4,948.73	4,946.11	20.75	148.29	66.93	1,763.76	4,628.69	4,539.13	4,370.45	168.68	26.909	
5,100.00	5,008.21	5,034.06	5,031.21	21.19	150.84	67.15	1,762.96	4,628.69	4,530.69	4,359.01	171.68	26.390	

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 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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	21.63	153.77	67.39	1,762.96	4,628.69	4,522.50	4,347.45	175.05	25.836	
5,300.00	5,203.84	5,229.69	5,226.84	22.06	156.71	67.63	1,762.96	4,628.69	4,514.40	4,335.98	178.42	25.303	
5,400.00	5,301.66	5,332.32	5,329.43	22.50	159.78	67.86	1,764.91	4,628.69	4,506.73	4,324.81	181.93	24.772	
5,500.00	5,399.47	5,435.96	5,433.04	22.94	162.89	68.12	1,763.94	4,628.69	4,498.62	4,313.15	185.47	24.255	
5,600.00	5,497.29	5,523.43	5,520.29	23.38	165.51	68.35	1,762.96	4,628.69	4,490.57	4,302.04	188.53	23.818	
5,700.00	5,595.10	5,621.25	5,618.10	23.82	168.44	68.59	1,762.96	4,628.69	4,482.80	4,290.89	191.90	23.360	
5,800.00	5,692.92	5,719.06	5,715.92	24.26	171.37	68.84	1,762.96	4,628.69	4,475.10	4,279.83	195.27	22.917	
5,900.00	5,790.73	5,820.51	5,817.31	24.70	174.41	69.06	1,764.97	4,628.69	4,467.82	4,269.07	198.75	22.479	
6,000.00	5,888.55	5,923.39	5,920.16	25.14	177.49	69.33	1,764.09	4,628.69	4,460.15	4,257.88	202.27	22.050	
6,100.00	5,986.36	6,012.81	6,009.36	25.58	180.17	69.57	1,762.96	4,628.69	4,452.52	4,247.13	205.40	21.678	
6,200.00	6,084.18	6,110.63	6,107.18	26.02	183.10	69.82	1,762.96	4,628.69	4,445.17	4,236.40	208.77	21.292	
6,300.00	6,181.99	6,208.44	6,204.99	26.46	186.03	70.06	1,762.96	4,628.69	4,437.90	4,225.76	212.14	20.920	
6,401.22	6,281.00	6,310.12	6,306.62	26.90	189.08	70.29	1,765.02	4,628.69	4,430.91	4,215.28	215.63	20.549	
6,447.41	6,326.22	6,357.37	6,353.86	27.10	190.50	90.29	1,764.74	4,628.69	4,429.25	4,212.00	217.25	20.388 CC	
6,450.00	6,328.76	6,360.01	6,356.50	27.12	190.57	91.41	1,764.72	4,628.69	4,429.25	4,211.91	217.34	20.379 ES	
6,500.00	6,377.61	6,410.99	6,407.47	27.32	192.10	111.17	1,764.24	4,628.69	4,431.41	4,212.32	219.09	20.227	
6,550.00	6,426.06	6,461.48	6,457.94	27.52	193.62	125.84	1,763.58	4,628.69	4,437.46	4,216.64	220.81	20.096	
6,600.00	6,473.81	6,500.56	6,496.81	27.71	194.79	135.85	1,762.96	4,628.69	4,447.39	4,225.19	222.20	20.015	
6,650.00	6,520.56	6,547.31	6,543.56	27.89	196.19	142.70	1,762.96	4,628.69	4,461.23	4,237.42	223.80	19.934	
6,700.00	6,566.03	6,592.78	6,589.03	28.05	197.55	147.50	1,762.96	4,628.69	4,478.80	4,253.44	225.36	19.874	
6,750.00	6,609.93	6,636.69	6,632.93	28.20	198.87	150.96	1,762.96	4,628.69	4,500.00	4,273.14	226.86	19.836	
6,800.00	6,652.00	6,678.76	6,675.00	28.34	200.13	153.49	1,762.96	4,628.69	4,524.70	4,296.40	228.30	19.819 SF	
6,850.00	6,691.98	6,718.73	6,714.98	28.47	201.32	155.36	1,762.96	4,628.69	4,552.74	4,323.08	229.66	19.824	
6,900.00	6,729.61	6,756.63	6,752.83	28.59	202.46	156.70	1,765.14	4,628.69	4,584.21	4,353.25	230.95	19.849	
6,950.00	6,764.67	6,793.06	6,789.26	28.69	203.55	157.66	1,765.08	4,628.69	4,618.37	4,386.19	232.18	19.891	
7,000.00	6,796.95	6,826.57	6,822.76	28.79	204.55	158.28	1,764.94	4,628.69	4,655.30	4,421.98	233.32	19.953	
7,050.00	6,826.23	6,856.96	6,853.15	28.89	205.47	158.56	1,764.74	4,628.69	4,694.74	4,460.40	234.34	20.034	
7,100.00	6,852.35	6,884.06	6,880.23	28.98	206.28	158.48	1,764.52	4,628.69	4,736.47	4,501.21	235.26	20.133	
7,150.00	6,875.14	6,907.69	6,903.86	29.08	206.99	157.98	1,764.27	4,628.69	4,780.21	4,544.16	236.06	20.250	
7,200.00	6,894.45	6,927.71	6,923.88	29.18	207.59	156.90	1,764.04	4,628.69	4,825.71	4,588.98	236.73	20.385	
7,250.00	6,910.18	6,944.02	6,940.18	29.28	208.07	154.92	1,763.83	4,628.69	4,872.68	4,635.39	237.29	20.535	
7,300.00	6,922.23	6,956.51	6,952.67	29.40	208.45	151.26	1,763.65	4,628.69	4,920.82	4,683.10	237.72	20.700	
7,350.00	6,930.51	6,965.11	6,961.26	29.54	208.71	143.73	1,763.53	4,628.69	4,969.84	4,731.82	238.02	20.880	
7,400.00	6,934.98	6,969.76	6,965.92	29.70	208.85	124.09	1,763.46	4,628.69	5,019.44	4,781.25	238.19	21.073	
7,433.91	6,935.83	6,970.66	6,966.81	29.81	208.87	90.46	1,763.44	4,628.69	5,053.24	4,815.00	238.24	21.211	
7,500.00	6,935.76	6,970.63	6,966.78	30.07	208.87	90.46	1,763.44	4,628.69	5,119.19	4,880.92	238.27	21.485	
7,600.00	6,935.66	6,970.57	6,966.73	30.52	208.87	90.45	1,763.44	4,628.69	5,218.98	4,980.66	238.32	21.899	
7,700.00	6,935.55	6,970.52	6,966.67	31.06	208.87	90.44	1,763.45	4,628.69	5,318.78	5,080.41	238.36	22.314	
7,800.00	6,935.45	6,970.47	6,966.62	31.68	208.87	90.43	1,763.45	4,628.69	5,418.58	5,180.17	238.41	22.728	
7,900.00	6,935.34	6,970.41	6,966.57	32.37	208.87	90.42	1,763.45	4,628.69	5,518.39	5,279.94	238.45	23.142	
8,000.00	6,935.24	6,970.36	6,966.51	33.12	208.86	90.41	1,763.45	4,628.69	5,618.21	5,379.71	238.50	23.557	
8,100.00	6,935.13	6,970.31	6,966.46	33.93	208.86	90.40	1,763.45	4,628.69	5,718.03	5,479.49	238.54	23.971	
8,200.00	6,935.03	6,970.25	6,966.41	34.80	208.86	90.39	1,763.45	4,628.69	5,817.87	5,579.28	238.59	24.385	
8,300.00	6,934.92	6,970.20	6,966.35	35.71	208.86	90.38	1,763.45	4,628.69	5,917.70	5,679.07	238.63	24.798	
8,400.00	6,934.82	6,970.15	6,966.30	36.67	208.86	90.37	1,763.45	4,628.69	6,017.54	5,778.87	238.68	25.212	
8,500.00	6,934.71	6,970.09	6,966.25	37.68	208.86	90.37	1,763.45	4,628.69	6,117.39	5,878.67	238.72	25.626	
8,600.00	6,934.61	6,970.04	6,966.19	38.72	208.85	90.36	1,763.45	4,628.69	6,217.24	5,978.48	238.76	26.040	
8,700.00	6,934.50	6,969.99	6,966.14	39.80	208.85	90.35	1,763.45	4,628.69	6,317.10	6,078.29	238.80	26.453	
8,800.00	6,934.40	6,969.93	6,966.09	40.92	208.85	90.34	1,763.45	4,628.69	6,416.96	6,178.11	238.85	26.866	
8,900.00	6,934.29	6,969.88	6,966.03	42.06	208.85	90.33	1,763.45	4,628.69	6,516.83	6,277.94	238.89	27.280	
9,000.00	6,934.19	6,969.83	6,965.98	43.23	208.85	90.32	1,763.46	4,628.69	6,616.70	6,377.76	238.93	27.693	
9,100.00	6,934.08	6,969.77	6,965.93	44.43	208.85	90.31	1,763.46	4,628.69	6,716.57	6,477.59	238.98	28.106	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,200.00	6,933.98	6,969.72	6,965.87	45.66	208.84	90.30	1,763.46	4,628.69	6,816.45	6,577.43	239.02	28.518	
9,300.00	6,933.88	6,969.66	6,965.82	46.90	208.84	90.29	1,763.46	4,628.69	6,916.33	6,677.26	239.06	28.931	
9,400.00	6,933.77	6,969.61	6,965.76	48.17	208.84	90.28	1,763.46	4,628.69	7,016.21	6,777.11	239.10	29.344	
9,500.00	6,933.67	6,969.56	6,965.71	49.46	208.84	90.27	1,763.46	4,628.69	7,116.10	6,876.95	239.15	29.756	
9,600.00	6,933.56	6,969.50	6,965.66	50.76	208.84	90.26	1,763.46	4,628.69	7,215.99	6,976.80	239.19	30.168	
9,700.00	6,933.46	6,969.45	6,965.60	52.08	208.84	90.26	1,763.46	4,628.69	7,315.88	7,076.65	239.23	30.581	
9,800.00	6,933.35	6,969.40	6,965.55	53.41	208.83	90.25	1,763.46	4,628.69	7,415.78	7,176.50	239.28	30.992	
9,900.00	6,933.25	6,969.34	6,965.50	54.76	208.83	90.24	1,763.46	4,628.69	7,515.68	7,276.36	239.32	31.404	
10,000.00	6,933.14	6,969.29	6,965.44	56.12	208.83	90.23	1,763.46	4,628.69	7,615.58	7,376.21	239.36	31.816	
10,100.00	6,933.04	6,969.23	6,965.39	57.50	208.83	90.22	1,763.46	4,628.69	7,715.48	7,476.07	239.41	32.227	
10,200.00	6,932.93	6,969.18	6,965.33	58.88	208.83	90.21	1,763.47	4,628.69	7,815.39	7,575.94	239.45	32.639	
10,300.00	6,932.83	6,969.13	6,965.28	60.28	208.83	90.20	1,763.47	4,628.69	7,915.30	7,675.80	239.50	33.050	
10,400.00	6,932.72	6,969.07	6,965.23	61.69	208.82	90.19	1,763.47	4,628.69	8,015.21	7,775.67	239.54	33.461	
10,500.00	6,932.62	6,969.02	6,965.17	63.10	208.82	90.18	1,763.47	4,628.69	8,115.12	7,875.54	239.59	33.872	
10,600.00	6,932.51	6,968.97	6,965.12	64.52	208.82	90.17	1,763.47	4,628.69	8,215.04	7,975.41	239.63	34.282	
10,700.00	6,932.41	6,968.91	6,965.07	65.96	208.82	90.16	1,763.47	4,628.69	8,314.96	8,075.28	239.68	34.693	
10,800.00	6,932.30	6,968.86	6,965.01	67.39	208.82	90.15	1,763.47	4,628.69	8,414.88	8,175.15	239.72	35.103	
10,900.00	6,932.20	6,968.80	6,964.96	68.84	208.82	90.14	1,763.47	4,628.69	8,514.80	8,275.03	239.77	35.513	
11,000.00	6,932.10	6,968.75	6,964.90	70.29	208.82	90.14	1,763.47	4,628.69	8,614.72	8,374.91	239.81	35.923	
11,100.00	6,931.99	6,968.69	6,964.85	71.75	208.81	90.13	1,763.47	4,628.69	8,714.64	8,474.79	239.86	36.332	
11,200.00	6,931.89	6,968.64	6,964.79	73.22	208.81	90.12	1,763.47	4,628.69	8,814.57	8,574.66	239.91	36.742	
11,300.00	6,931.78	6,968.59	6,964.74	74.69	208.81	90.11	1,763.47	4,628.69	8,914.50	8,674.55	239.95	37.151	
11,400.00	6,931.68	6,968.53	6,964.69	76.16	208.81	90.10	1,763.48	4,628.69	9,014.43	8,774.43	240.00	37.560	
11,500.00	6,931.57	6,968.48	6,964.63	77.64	208.81	90.09	1,763.48	4,628.69	9,114.36	8,874.31	240.05	37.969	
11,600.00	6,931.47	6,968.42	6,964.58	79.13	208.81	90.08	1,763.48	4,628.69	9,214.29	8,974.20	240.10	38.377	
11,700.00	6,931.36	6,968.37	6,964.52	80.62	208.80	90.07	1,763.48	4,628.69	9,314.23	9,074.08	240.15	38.786	
11,800.00	6,931.26	6,968.32	6,964.47	82.11	208.80	90.06	1,763.48	4,628.69	9,414.16	9,173.97	240.20	39.194	
11,900.00	6,931.15	6,968.26	6,964.41	83.61	208.80	90.05	1,763.48	4,628.69	9,514.10	9,273.86	240.25	39.602	
12,000.00	6,931.05	6,968.21	6,964.36	85.11	208.80	90.04	1,763.48	4,628.69	9,614.04	9,373.75	240.29	40.009	
12,100.00	6,930.94	6,968.15	6,964.31	86.62	208.80	90.03	1,763.48	4,628.69	9,713.98	9,473.63	240.35	40.417	
12,200.00	6,930.84	6,968.10	6,964.25	88.13	208.80	90.02	1,763.48	4,628.69	9,813.92	9,573.52	240.40	40.824	
12,300.00	6,930.73	6,968.04	6,964.20	89.64	208.79	90.02	1,763.48	4,628.69	9,913.86	9,673.42	240.45	41.231	
12,400.00	6,930.63	6,967.99	6,964.14	91.15	208.79	90.01	1,763.48	4,628.69	10,013.81	9,773.31	240.50	41.638	
12,500.00	6,930.52	6,967.93	6,964.09	92.67	208.79	90.00	1,763.48	4,628.69	10,113.75	9,873.20	240.55	42.044	
12,600.00	6,930.42	6,967.88	6,964.03	94.19	208.79	89.99	1,763.49	4,628.69	10,213.70	9,973.09	240.60	42.450	
12,700.00	6,930.31	6,967.83	6,963.98	95.71	208.79	89.98	1,763.49	4,628.69	10,313.64	10,072.99	240.66	42.856	
12,800.00	6,930.21	6,967.77	6,963.92	97.24	208.79	89.97	1,763.49	4,628.69	10,413.59	10,172.88	240.71	43.262	
12,900.00	6,930.11	6,967.72	6,963.87	98.77	208.78	89.96	1,763.49	4,628.69	10,513.54	10,272.78	240.76	43.668	
13,008.91	6,929.99	6,967.66	6,963.81	100.43	208.78	89.95	1,763.49	4,628.69	10,622.39	10,381.57	240.82	44.109	
13,100.00	6,929.90	6,967.59	6,963.74	101.83	208.78	90.02	1,763.49	4,628.69	10,713.38	10,472.50	240.88	44.477	
13,139.82	6,929.86	6,967.54	6,963.70	102.44	208.78	90.03	1,763.49	4,628.69	10,753.10	10,512.20	240.90	44.637	
13,200.00	6,929.80	6,967.47	6,963.62	103.37	208.78	90.03	1,763.49	4,628.69	10,813.11	10,572.16	240.94	44.878	
13,300.00	6,929.70	6,967.35	6,963.51	104.92	208.77	90.02	1,763.49	4,628.69	10,912.82	10,671.80	241.01	45.279	
13,400.00	6,929.61	6,967.23	6,963.39	106.47	208.77	90.01	1,763.50	4,628.69	11,012.54	10,771.45	241.08	45.679	
13,500.00	6,929.51	6,967.11	6,963.27	108.02	208.77	90.00	1,763.50	4,628.69	11,112.26	10,871.11	241.15	46.080	
13,600.00	6,929.41	6,966.99	6,963.15	109.57	208.76	89.99	1,763.50	4,628.69	11,211.99	10,970.76	241.22	46.480	
13,700.00	6,929.32	6,966.87	6,963.03	111.12	208.76	89.99	1,763.50	4,628.69	11,311.72	11,070.42	241.29	46.879	
13,800.00	6,929.22	6,966.75	6,962.91	112.68	208.76	89.98	1,763.50	4,628.69	11,411.46	11,170.09	241.36	47.279	
13,900.00	6,929.12	6,966.63	6,962.79	114.23	208.75	89.97	1,763.50	4,628.69	11,511.20	11,269.76	241.44	47.678	
14,000.00	6,929.03	6,966.52	6,962.67	115.79	208.75	89.96	1,763.51	4,628.69	11,610.94	11,369.44	241.51	48.077	
14,100.00	6,928.93	6,966.40	6,962.55	117.35	208.74	89.95	1,763.51	4,628.69	11,710.69	11,469.12	241.58	48.476	
14,200.00	6,928.83	6,966.28	6,962.43	118.91	208.74	89.94	1,763.51	4,628.69	11,810.45	11,568.80	241.65	48.874	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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
14,300.00	6,928.74	6,966.16	6,962.31	120.47	208.74	89.94	1,763.51	4,628.69	11,910.21	11,668.49	241.72	49.273	
14,400.00	6,928.64	6,966.04	6,962.19	122.03	208.73	89.93	1,763.51	4,628.69	12,009.97	11,768.18	241.79	49.671	
14,500.00	6,928.54	6,965.92	6,962.07	123.60	208.73	89.92	1,763.52	4,628.69	12,109.74	11,867.87	241.86	50.068	
14,600.00	6,928.45	6,965.80	6,961.96	125.16	208.73	89.91	1,763.52	4,628.69	12,209.51	11,967.57	241.94	50.466	
14,700.00	6,928.35	6,965.68	6,961.84	126.72	208.72	89.90	1,763.52	4,628.69	12,309.28	12,067.27	242.01	50.863	
14,800.00	6,928.25	6,965.56	6,961.72	128.29	208.72	89.89	1,763.52	4,628.69	12,409.06	12,166.98	242.08	51.260	
14,900.00	6,928.16	6,965.44	6,961.60	129.86	208.72	89.89	1,763.52	4,628.69	12,508.84	12,266.69	242.15	51.656	
15,000.00	6,928.06	6,965.32	6,961.48	131.42	208.71	89.88	1,763.52	4,628.69	12,608.63	12,366.40	242.23	52.053	
15,100.00	6,927.96	6,965.20	6,961.36	132.99	208.71	89.87	1,763.53	4,628.69	12,708.42	12,466.11	242.30	52.449	
15,200.00	6,927.87	6,965.09	6,961.24	134.56	208.71	89.86	1,763.53	4,628.69	12,808.21	12,565.83	242.38	52.844	
15,300.00	6,927.77	6,964.97	6,961.12	136.13	208.70	89.85	1,763.53	4,628.69	12,908.00	12,665.55	242.45	53.240	
15,400.00	6,927.67	6,964.85	6,961.00	137.70	208.70	89.84	1,763.53	4,628.69	13,007.80	12,765.28	242.52	53.635	
15,500.00	6,927.57	6,964.73	6,960.88	139.28	208.69	89.84	1,763.53	4,628.69	13,107.60	12,865.00	242.60	54.030	
15,600.00	6,927.48	6,964.61	6,960.76	140.85	208.69	89.83	1,763.53	4,628.69	13,207.41	12,964.73	242.67	54.425	
15,700.00	6,927.38	6,964.49	6,960.65	142.42	208.69	89.82	1,763.54	4,628.69	13,307.21	13,064.46	242.75	54.819	
15,800.00	6,927.28	6,964.37	6,960.53	144.00	208.68	89.81	1,763.54	4,628.69	13,407.02	13,164.20	242.82	55.213	
15,900.00	6,927.19	6,964.25	6,960.41	145.57	208.68	89.80	1,763.54	4,628.69	13,506.83	13,263.94	242.90	55.607	
16,000.00	6,927.09	6,964.13	6,960.29	147.15	208.68	89.79	1,763.54	4,628.69	13,606.65	13,363.67	242.98	56.000	
16,100.00	6,926.99	6,964.01	6,960.17	148.72	208.67	89.79	1,763.54	4,628.69	13,706.47	13,463.42	243.05	56.393	
16,200.00	6,926.90	6,963.90	6,960.05	150.30	208.67	89.78	1,763.55	4,628.69	13,806.29	13,563.16	243.13	56.786	
16,300.00	6,926.80	6,963.78	6,959.93	151.87	208.67	89.77	1,763.55	4,628.69	13,906.11	13,662.91	243.21	57.178	
16,400.00	6,926.70	6,963.66	6,959.81	153.45	208.66	89.76	1,763.55	4,628.69	14,005.94	13,762.66	243.28	57.571	
16,500.00	6,926.61	6,963.54	6,959.69	155.03	208.66	89.75	1,763.55	4,628.69	14,105.77	13,862.41	243.36	57.963	
16,600.00	6,926.51	6,963.42	6,959.58	156.61	208.66	89.75	1,763.55	4,628.69	14,205.60	13,962.16	243.44	58.354	
16,700.00	6,926.41	6,963.30	6,959.46	158.19	208.65	89.74	1,763.55	4,628.69	14,305.43	14,061.91	243.52	58.745	
16,800.00	6,926.32	6,963.18	6,959.34	159.77	208.65	89.73	1,763.56	4,628.69	14,405.27	14,161.67	243.59	59.136	
16,900.00	6,926.22	6,963.06	6,959.22	161.35	208.64	89.72	1,763.56	4,628.69	14,505.10	14,261.43	243.67	59.527	
17,000.00	6,926.12	6,962.95	6,959.10	162.93	208.64	89.71	1,763.56	4,628.69	14,604.94	14,361.19	243.75	59.917	
17,100.00	6,926.03	6,962.83	6,958.98	164.51	208.64	89.70	1,763.56	4,628.69	14,704.79	14,460.95	243.83	60.307	
17,200.00	6,925.93	6,962.71	6,958.86	166.09	208.63	89.70	1,763.56	4,628.69	14,804.63	14,560.72	243.91	60.697	
17,300.00	6,925.83	6,962.59	6,958.75	167.67	208.63	89.69	1,763.56	4,628.69	14,904.48	14,660.49	243.99	61.086	
17,400.00	6,925.74	6,962.47	6,958.63	169.26	208.63	89.68	1,763.57	4,628.69	15,004.33	14,760.25	244.07	61.475	
17,500.00	6,925.64	6,962.35	6,958.51	170.84	208.62	89.67	1,763.57	4,628.69	15,104.18	14,860.02	244.15	61.864	
17,600.00	6,925.54	6,962.23	6,958.39	172.42	208.62	89.66	1,763.57	4,628.69	15,204.03	14,959.80	244.23	62.252	
17,700.00	6,925.45	6,962.11	6,958.27	174.00	208.62	89.65	1,763.57	4,628.69	15,303.88	15,059.57	244.31	62.640	
17,800.00	6,925.35	6,962.00	6,958.15	175.59	208.61	89.65	1,763.57	4,628.69	15,403.74	15,159.34	244.39	63.028	
17,900.00	6,925.25	6,961.88	6,958.03	177.17	208.61	89.64	1,763.58	4,628.69	15,503.60	15,259.12	244.48	63.416	
18,000.00	6,925.16	6,961.76	6,957.92	178.76	208.61	89.63	1,763.58	4,628.69	15,603.46	15,358.90	244.56	63.803	
18,100.00	6,925.06	6,961.64	6,957.80	180.34	208.60	89.62	1,763.58	4,628.69	15,703.32	15,458.68	244.64	64.189	
18,160.21	6,925.00	6,961.57	6,957.73	181.30	208.60	89.62	1,763.58	4,628.69	15,763.45	15,518.76	244.69	64.422	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Rule Assigned:

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	233.00	233.00	0.00	6.98	103.86	-1,834.88	7,435.00	7,658.07				
100.00	100.00	333.00	333.00	0.25	9.98	103.86	-1,834.88	7,435.00	7,658.07	7,647.84	10.23	748.649	
200.00	200.00	433.00	433.00	0.61	12.97	103.86	-1,834.88	7,435.00	7,658.07	7,644.48	13.58	563.754	
300.00	300.00	533.10	533.00	0.97	15.97	103.86	-1,834.88	7,435.00	7,658.07	7,641.13	16.94	452.017	
400.00	400.00	633.10	633.00	1.33	18.97	103.86	-1,834.88	7,435.00	7,658.07	7,637.77	20.30	377.302	
500.00	500.00	733.10	733.00	1.68	21.97	103.86	-1,834.88	7,435.00	7,658.07	7,634.42	23.65	323.783	
537.04	537.04	767.85	767.70	1.82	23.01	91.85	-1,832.72	7,435.00	7,657.56	7,632.73	24.83	308.456	CC
600.00	599.98	823.66	823.51	2.04	24.68	91.86	-1,832.89	7,435.00	7,657.65	7,630.93	26.72	286.555	
700.00	699.84	912.19	912.02	2.41	27.33	91.89	-1,833.62	7,435.00	7,658.02	7,628.29	29.73	257.556	
800.00	799.45	1,032.86	1,032.45	2.77	30.95	91.97	-1,834.88	7,435.00	7,658.59	7,624.89	33.71	227.194	
900.00	898.70	1,132.11	1,131.70	3.13	33.92	92.05	-1,834.88	7,435.00	7,659.03	7,621.98	37.05	206.724	
1,000.00	997.47	1,230.87	1,230.47	3.50	36.88	92.16	-1,834.88	7,435.00	7,659.61	7,619.22	40.38	189.667	
1,100.00	1,095.62	1,319.81	1,319.35	3.89	39.55	92.25	-1,832.88	7,435.00	7,659.87	7,616.43	43.44	176.342	
1,200.00	1,193.44	1,406.06	1,405.59	4.29	42.13	92.39	-1,833.56	7,435.00	7,660.93	7,614.51	46.42	165.028	
1,300.00	1,291.25	1,524.96	1,524.25	4.70	45.69	92.58	-1,834.88	7,435.00	7,662.16	7,611.77	50.39	152.050	
1,400.00	1,389.07	1,622.78	1,622.07	5.11	48.63	92.74	-1,834.88	7,435.00	7,663.15	7,609.41	53.74	142.607	
1,500.00	1,486.88	1,720.59	1,719.88	5.53	51.56	92.89	-1,834.88	7,435.00	7,664.19	7,607.11	57.08	134.261	
1,600.00	1,584.70	1,810.05	1,809.29	5.95	54.24	93.01	-1,832.83	7,435.00	7,664.76	7,604.58	60.18	127.353	
1,700.00	1,682.51	1,895.77	1,894.99	6.37	56.81	93.15	-1,833.45	7,435.00	7,666.10	7,602.92	63.18	121.344	
1,800.00	1,780.33	2,014.34	2,013.33	6.80	60.36	93.34	-1,834.88	7,435.00	7,667.66	7,600.50	67.15	114.179	
1,900.00	1,878.14	2,112.16	2,111.14	7.22	63.29	93.49	-1,834.88	7,435.00	7,668.93	7,598.41	70.51	108.759	
2,000.00	1,975.96	2,209.97	2,208.96	7.65	66.22	93.65	-1,834.88	7,435.00	7,670.25	7,596.38	73.87	103.831	
2,100.00	2,073.77	2,300.40	2,299.34	8.08	68.93	93.77	-1,832.79	7,435.00	7,671.06	7,594.05	77.01	99.609	
2,200.00	2,171.59	2,385.61	2,384.53	8.51	71.48	93.91	-1,833.35	7,435.00	7,672.67	7,592.67	80.00	95.914	
2,300.00	2,269.40	2,503.72	2,502.40	8.95	75.02	94.10	-1,834.88	7,435.00	7,674.56	7,590.59	83.97	91.400	
2,400.00	2,367.22	2,601.53	2,600.22	9.38	77.95	94.25	-1,834.88	7,435.00	7,676.10	7,588.77	87.33	87.898	
2,500.00	2,465.03	2,699.35	2,698.03	9.81	80.88	94.40	-1,834.88	7,435.00	7,677.71	7,587.01	90.69	84.655	
2,600.00	2,562.84	2,790.88	2,789.52	10.25	83.63	94.53	-1,832.76	7,435.00	7,678.76	7,584.89	93.87	81.802	
2,700.00	2,660.66	2,875.57	2,874.19	10.68	86.17	94.67	-1,833.26	7,435.00	7,680.64	7,583.80	96.84	79.312	
2,800.00	2,758.47	2,960.07	2,958.66	11.12	88.70	94.80	-1,834.25	7,435.00	7,682.74	7,582.93	99.81	76.976	
2,900.00	2,856.29	3,090.91	3,089.29	11.55	92.62	95.01	-1,834.88	7,435.00	7,684.68	7,580.52	104.16	73.775	
3,000.00	2,954.10	3,188.73	3,187.10	11.99	95.55	95.16	-1,834.88	7,435.00	7,686.57	7,579.04	107.53	71.483	
3,100.00	3,051.92	3,281.47	3,279.81	12.42	98.33	95.29	-1,832.74	7,435.00	7,687.87	7,577.12	110.74	69.420	
3,200.00	3,149.73	3,365.65	3,363.97	12.86	100.85	95.42	-1,833.17	7,435.00	7,690.01	7,576.31	113.70	67.633	
3,300.00	3,247.55	3,449.65	3,447.94	13.30	103.37	95.56	-1,834.10	7,435.00	7,692.38	7,575.73	116.65	65.943	
3,400.00	3,345.36	3,580.29	3,578.36	13.73	107.28	95.76	-1,834.88	7,435.00	7,694.66	7,573.65	121.01	63.590	
3,500.00	3,443.18	3,678.11	3,676.18	14.17	110.21	95.91	-1,834.88	7,435.00	7,696.82	7,572.45	124.37	61.885	
3,600.00	3,540.99	3,772.18	3,770.21	14.61	113.03	96.04	-1,832.72	7,435.00	7,698.36	7,570.73	127.63	60.319	
3,700.00	3,638.81	3,855.86	3,853.87	15.05	115.54	96.18	-1,833.10	7,435.00	7,700.77	7,570.20	130.57	58.978	
3,800.00	3,736.62	3,939.35	3,937.35	15.48	118.04	96.31	-1,833.96	7,435.00	7,703.41	7,569.90	133.51	57.700	
3,900.00	3,834.44	4,069.67	4,067.44	15.92	121.95	96.52	-1,834.88	7,435.00	7,706.02	7,568.17	137.85	55.901	
4,000.00	3,932.25	4,167.48	4,165.25	16.36	124.88	96.67	-1,834.88	7,435.00	7,708.46	7,567.24	141.22	54.586	
4,100.00	4,030.07	4,263.00	4,260.73	16.80	127.74	96.80	-1,832.71	7,435.00	7,710.25	7,565.73	144.52	53.352	
4,200.00	4,127.88	4,346.18	4,343.89	17.24	130.23	96.93	-1,833.03	7,435.00	7,712.91	7,565.47	147.44	52.311	
4,300.00	4,225.70	4,429.18	4,426.87	17.68	132.72	97.06	-1,833.83	7,435.00	7,715.83	7,565.46	150.37	51.313	
4,400.00	4,323.51	4,559.05	4,556.51	18.11	136.61	97.27	-1,834.88	7,435.00	7,718.77	7,564.07	154.70	49.896	
4,500.00	4,421.33	4,656.86	4,654.33	18.55	139.54	97.42	-1,834.88	7,435.00	7,721.48	7,563.42	158.06	48.850	
4,600.00	4,519.14	4,753.94	4,751.36	18.99	142.45	97.55	-1,832.71	7,435.00	7,723.52	7,562.11	161.41	47.850	
4,700.00	4,616.95	4,836.62	4,834.03	19.43	144.93	97.68	-1,832.97	7,435.00	7,726.44	7,562.12	164.32	47.020	
4,800.00	4,714.77	4,919.14	4,916.53	19.87	147.40	97.81	-1,833.70	7,435.00	7,729.62	7,562.39	167.23	46.221	
4,900.00	4,812.58	5,048.43	5,045.58	20.31	151.27	98.01	-1,834.88	7,435.00	7,732.89	7,561.35	171.54	45.078	
5,000.00	4,910.40	5,146.24	5,143.40	20.75	154.20	98.16	-1,834.88	7,435.00	7,735.88	7,560.97	174.91	44.227	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,100.00	5,008.21	5,244.06	5,241.21	21.19	157.14	98.31	-1,834.88	7,435.00	7,738.93	7,560.65	178.28	43.409	
5,200.00	5,106.03	5,327.18	5,324.29	21.63	159.63	98.43	-1,832.91	7,435.00	7,741.34	7,560.14	181.20	42.722	
5,300.00	5,203.84	5,409.21	5,406.30	22.06	162.08	98.55	-1,833.59	7,435.00	7,744.78	7,560.68	184.10	42.069	
5,400.00	5,301.66	5,537.81	5,534.66	22.50	165.94	98.76	-1,834.88	7,435.00	7,748.39	7,560.00	188.39	41.130	
5,500.00	5,399.47	5,635.62	5,632.47	22.94	168.87	98.91	-1,834.88	7,435.00	7,751.65	7,559.89	191.76	40.424	
5,600.00	5,497.29	5,733.43	5,730.29	23.38	171.80	99.06	-1,834.88	7,435.00	7,754.96	7,559.84	195.12	39.744	
5,700.00	5,595.10	5,817.85	5,814.65	23.82	174.33	99.17	-1,832.87	7,435.00	7,757.61	7,559.52	198.09	39.162 ES	
5,800.00	5,692.92	5,899.40	5,896.18	24.26	176.77	99.30	-1,833.49	7,435.00	7,761.30	7,560.34	200.97	38.620	
5,900.00	5,790.73	6,027.18	6,023.73	24.70	180.60	99.50	-1,834.88	7,435.00	7,765.24	7,560.01	205.23	37.836	
6,000.00	5,888.55	6,117.00	6,113.48	25.14	183.29	99.64	-1,834.88	7,435.00	7,768.78	7,560.42	208.36	37.285	
6,100.00	5,986.36	6,117.00	6,113.48	25.58	183.29	99.64	-1,834.88	7,435.00	7,773.08	7,564.31	208.77	37.233	
6,200.00	6,084.18	6,117.00	6,113.48	26.02	183.29	99.64	-1,834.88	7,435.00	7,778.67	7,569.52	209.15	37.192	
6,300.00	6,181.99	6,117.00	6,113.48	26.46	183.29	99.64	-1,834.88	7,435.00	7,785.54	7,576.04	209.49	37.164	
6,401.22	6,281.00	6,117.00	6,113.48	26.90	183.29	99.64	-1,834.88	7,435.00	7,793.79	7,583.98	209.81	37.147 SF	
6,450.00	6,328.76	6,117.00	6,113.48	27.12	183.29	120.83	-1,834.88	7,435.00	7,799.94	7,589.99	209.94	37.153	
6,500.00	6,377.61	6,117.00	6,113.48	27.32	183.29	140.84	-1,834.88	7,435.00	7,810.05	7,599.98	210.06	37.179	
6,550.00	6,426.06	6,117.00	6,113.48	27.52	183.29	155.95	-1,834.88	7,435.00	7,823.94	7,613.78	210.16	37.228	
6,600.00	6,473.81	6,117.00	6,113.48	27.71	183.29	166.64	-1,834.88	7,435.00	7,841.52	7,631.28	210.24	37.297	
6,650.00	6,520.56	6,117.00	6,113.48	27.89	183.29	174.38	-1,834.88	7,435.00	7,862.64	7,652.34	210.30	37.387	
6,700.00	6,566.03	6,117.00	6,113.48	28.05	183.29	-179.67	-1,834.88	7,435.00	7,887.15	7,676.80	210.34	37.497	
6,750.00	6,609.93	6,117.00	6,113.48	28.20	183.29	-174.75	-1,834.88	7,435.00	7,914.86	7,704.50	210.36	37.625	
6,800.00	6,652.00	6,117.00	6,113.48	28.34	183.29	-170.39	-1,834.88	7,435.00	7,945.57	7,735.21	210.36	37.771	
6,850.00	6,691.98	6,117.00	6,113.48	28.47	183.29	-166.25	-1,834.88	7,435.00	7,979.07	7,768.72	210.34	37.934	
6,900.00	6,729.61	6,117.00	6,113.48	28.59	183.29	-162.07	-1,834.88	7,435.00	8,015.10	7,804.79	210.31	38.111	
6,950.00	6,764.67	6,117.00	6,113.48	28.69	183.29	-157.60	-1,834.88	7,435.00	8,053.42	7,843.15	210.26	38.302	
7,000.00	6,796.95	6,117.00	6,113.48	28.79	183.29	-152.62	-1,834.88	7,435.00	8,093.75	7,883.55	210.20	38.504	
7,050.00	6,826.23	6,117.00	6,113.48	28.89	183.29	-146.87	-1,834.88	7,435.00	8,135.83	7,925.70	210.13	38.718	
7,100.00	6,852.35	6,117.00	6,113.48	28.98	183.29	-140.09	-1,834.88	7,435.00	8,179.36	7,969.31	210.05	38.940	
7,150.00	6,875.14	6,117.00	6,113.48	29.08	183.29	-132.04	-1,834.88	7,435.00	8,224.06	8,014.09	209.97	39.169	
7,200.00	6,894.45	6,117.00	6,113.48	29.18	183.29	-122.56	-1,834.88	7,435.00	8,269.63	8,059.76	209.88	39.403	
7,250.00	6,910.18	6,117.00	6,113.48	29.28	183.29	-111.82	-1,834.88	7,435.00	8,315.79	8,106.01	209.78	39.640	
7,300.00	6,922.23	6,117.00	6,113.48	29.40	183.29	-100.34	-1,834.88	7,435.00	8,362.24	8,152.55	209.69	39.879	
7,350.00	6,930.51	6,117.00	6,113.48	29.54	183.29	-89.00	-1,834.88	7,435.00	8,408.69	8,199.09	209.60	40.119	
7,400.00	6,934.98	6,117.00	6,113.48	29.70	183.29	-78.63	-1,834.88	7,435.00	8,454.85	8,245.34	209.51	40.356	
7,433.91	6,935.83	6,117.00	6,113.48	29.81	183.29	-72.43	-1,834.88	7,435.00	8,485.86	8,276.41	209.45	40.515	
7,500.00	6,935.76	6,117.00	6,113.48	30.07	183.29	-72.43	-1,834.88	7,435.00	8,546.03	8,336.68	209.35	40.822	
7,600.00	6,935.66	6,117.00	6,113.48	30.52	183.29	-72.43	-1,834.88	7,435.00	8,637.23	8,428.02	209.21	41.285	
7,700.00	6,935.55	6,117.00	6,113.48	31.06	183.29	-72.43	-1,834.88	7,435.00	8,728.63	8,519.55	209.08	41.747	
7,800.00	6,935.45	6,117.00	6,113.48	31.68	183.29	-72.43	-1,834.88	7,435.00	8,820.22	8,611.25	208.97	42.208	
7,900.00	6,935.34	6,117.00	6,113.48	32.37	183.29	-72.43	-1,834.88	7,435.00	8,911.98	8,703.11	208.87	42.667	
8,000.00	6,935.24	6,117.00	6,113.48	33.12	183.29	-72.43	-1,834.88	7,435.00	9,003.93	8,795.14	208.79	43.125	
8,100.00	6,935.13	6,117.00	6,113.48	33.93	183.29	-72.43	-1,834.88	7,435.00	9,096.04	8,887.32	208.71	43.581	
8,200.00	6,935.03	6,117.00	6,113.48	34.80	183.29	-72.43	-1,834.88	7,435.00	9,188.31	8,979.66	208.65	44.037	
8,300.00	6,934.92	6,117.00	6,113.48	35.71	183.29	-72.43	-1,834.88	7,435.00	9,280.75	9,072.15	208.60	44.491	
8,400.00	6,934.82	6,117.00	6,113.48	36.67	183.29	-72.43	-1,834.88	7,435.00	9,373.34	9,164.78	208.56	44.943	
8,500.00	6,934.71	6,117.00	6,113.48	37.68	183.29	-72.43	-1,834.88	7,435.00	9,466.08	9,257.55	208.53	45.394	
8,600.00	6,934.61	6,117.00	6,113.48	38.72	183.29	-72.43	-1,834.88	7,435.00	9,558.97	9,350.46	208.51	45.844	
8,700.00	6,934.50	6,117.00	6,113.48	39.80	183.29	-72.43	-1,834.88	7,435.00	9,652.01	9,443.50	208.50	46.293	
8,800.00	6,934.40	6,117.00	6,113.48	40.92	183.29	-72.43	-1,834.88	7,435.00	9,745.17	9,536.68	208.50	46.740	
8,900.00	6,934.29	6,117.00	6,113.48	42.06	183.29	-72.43	-1,834.88	7,435.00	9,838.48	9,629.97	208.51	47.186	
9,000.00	6,934.19	6,117.00	6,113.48	43.23	183.29	-72.43	-1,834.88	7,435.00	9,931.91	9,723.39	208.52	47.630	
9,100.00	6,934.08	6,117.00	6,113.48	44.43	183.29	-72.43	-1,834.88	7,435.00	10,025.47	9,816.93	208.54	48.074	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,200.00	6,933.98	6,117.00	6,113.48	45.66	183.29	-72.43	-1,834.88	7,435.00	10,119.15	9,910.58	208.57	48.516	
9,300.00	6,933.88	6,117.00	6,113.48	46.90	183.29	-72.43	-1,834.88	7,435.00	10,212.96	10,004.35	208.61	48.957	
9,400.00	6,933.77	6,117.00	6,113.48	48.17	183.29	-72.43	-1,834.88	7,435.00	10,306.88	10,098.22	208.65	49.397	
9,500.00	6,933.67	6,117.00	6,113.48	49.46	183.29	-72.43	-1,834.88	7,435.00	10,400.91	10,192.21	208.71	49.835	
9,600.00	6,933.56	6,117.00	6,113.48	50.76	183.29	-72.43	-1,834.88	7,435.00	10,495.05	10,286.29	208.76	50.273	
9,700.00	6,933.46	6,117.00	6,113.48	52.08	183.29	-72.43	-1,834.88	7,435.00	10,589.31	10,380.48	208.82	50.709	
9,800.00	6,933.35	6,117.00	6,113.48	53.41	183.29	-72.43	-1,834.88	7,435.00	10,683.66	10,474.77	208.89	51.145	
9,900.00	6,933.25	6,117.00	6,113.48	54.76	183.29	-72.43	-1,834.88	7,435.00	10,778.12	10,569.16	208.96	51.579	
10,000.00	6,933.14	6,117.00	6,113.48	56.12	183.29	-72.43	-1,834.88	7,435.00	10,872.67	10,663.63	209.04	52.012	
10,100.00	6,933.04	6,117.00	6,113.48	57.50	183.29	-72.43	-1,834.88	7,435.00	10,967.33	10,758.21	209.12	52.445	
10,200.00	6,932.93	6,117.00	6,113.48	58.88	183.29	-72.43	-1,834.88	7,435.00	11,062.07	10,852.87	209.21	52.876	
10,300.00	6,932.83	6,117.00	6,113.48	60.28	183.29	-72.43	-1,834.88	7,435.00	11,156.91	10,947.62	209.30	53.307	
10,400.00	6,932.72	6,117.00	6,113.48	61.69	183.29	-72.43	-1,834.88	7,435.00	11,251.84	11,042.45	209.39	53.736	
10,500.00	6,932.62	6,117.00	6,113.48	63.10	183.29	-72.43	-1,834.88	7,435.00	11,346.86	11,137.37	209.49	54.165	
10,600.00	6,932.51	6,117.00	6,113.48	64.52	183.29	-72.43	-1,834.88	7,435.00	11,441.96	11,232.37	209.59	54.592	
10,700.00	6,932.41	6,117.00	6,113.48	65.96	183.29	-72.43	-1,834.88	7,435.00	11,537.14	11,327.45	209.69	55.019	
10,800.00	6,932.30	6,117.00	6,113.48	67.39	183.29	-72.43	-1,834.88	7,435.00	11,632.40	11,422.60	209.80	55.445	
10,900.00	6,932.20	6,117.00	6,113.48	68.84	183.29	-72.43	-1,834.88	7,435.00	11,727.75	11,517.84	209.91	55.871	
11,000.00	6,932.10	6,117.00	6,113.48	70.29	183.29	-72.43	-1,834.88	7,435.00	11,823.17	11,613.14	210.02	56.295	
11,100.00	6,931.99	6,117.00	6,113.48	71.75	183.29	-72.43	-1,834.88	7,435.00	11,918.66	11,708.52	210.14	56.719	
11,200.00	6,931.89	6,117.00	6,113.48	73.22	183.29	-72.43	-1,834.88	7,435.00	12,014.23	11,803.98	210.25	57.142	
11,300.00	6,931.78	6,117.00	6,113.48	74.69	183.29	-72.43	-1,834.88	7,435.00	12,109.87	11,899.50	210.37	57.564	
11,400.00	6,931.68	6,117.00	6,113.48	76.16	183.29	-72.43	-1,834.88	7,435.00	12,205.58	11,995.08	210.49	57.986	
11,500.00	6,931.57	6,117.00	6,113.48	77.64	183.29	-72.43	-1,834.88	7,435.00	12,301.35	12,090.74	210.62	58.407	
11,600.00	6,931.47	6,117.00	6,113.48	79.13	183.29	-72.43	-1,834.88	7,435.00	12,397.20	12,186.46	210.74	58.827	
11,700.00	6,931.36	6,117.00	6,113.48	80.62	183.29	-72.43	-1,834.88	7,435.00	12,493.11	12,282.24	210.87	59.246	
11,800.00	6,931.26	6,117.00	6,113.48	82.11	183.29	-72.43	-1,834.88	7,435.00	12,589.08	12,378.09	210.99	59.665	
11,900.00	6,931.15	6,117.00	6,113.48	83.61	183.29	-72.43	-1,834.88	7,435.00	12,685.12	12,473.99	211.12	60.084	
12,000.00	6,931.05	6,117.00	6,113.48	85.11	183.29	-72.43	-1,834.88	7,435.00	12,781.21	12,569.96	211.25	60.501	
12,100.00	6,930.94	6,117.00	6,113.48	86.62	183.29	-72.43	-1,834.88	7,435.00	12,877.37	12,665.98	211.39	60.919	
12,200.00	6,930.84	6,117.00	6,113.48	88.13	183.29	-72.43	-1,834.88	7,435.00	12,973.58	12,762.06	211.52	61.335	
12,300.00	6,930.73	6,117.00	6,113.48	89.64	183.29	-72.43	-1,834.88	7,435.00	13,069.85	12,858.20	211.65	61.751	
12,400.00	6,930.63	6,117.00	6,113.48	91.15	183.29	-72.43	-1,834.88	7,435.00	13,166.18	12,954.39	211.79	62.167	
12,500.00	6,930.52	6,117.00	6,113.48	92.67	183.29	-72.43	-1,834.88	7,435.00	13,262.56	13,050.64	211.92	62.581	
12,600.00	6,930.42	6,117.00	6,113.48	94.19	183.29	-72.43	-1,834.88	7,435.00	13,358.99	13,146.93	212.06	62.996	
12,700.00	6,930.31	6,117.00	6,113.48	95.71	183.29	-72.43	-1,834.88	7,435.00	13,455.48	13,243.28	212.20	63.410	
12,800.00	6,930.21	6,117.00	6,113.48	97.24	183.29	-72.43	-1,834.88	7,435.00	13,552.02	13,339.68	212.34	63.823	
12,900.00	6,930.11	6,117.00	6,113.48	98.77	183.29	-72.43	-1,834.88	7,435.00	13,648.60	13,436.13	212.48	64.236	
13,008.91	6,929.99	6,117.00	6,113.48	100.43	183.29	-72.43	-1,834.88	7,435.00	13,753.85	13,541.22	212.63	64.685	
13,100.00	6,929.90	6,117.00	6,113.48	101.83	183.29	-70.08	-1,834.88	7,435.00	13,842.26	13,629.51	212.75	65.063	
13,139.82	6,929.86	6,117.00	6,113.48	102.44	183.29	-68.84	-1,834.88	7,435.00	13,881.11	13,668.31	212.80	65.230	
13,200.00	6,929.80	6,117.00	6,113.48	103.37	183.29	-68.84	-1,834.88	7,435.00	13,939.93	13,727.05	212.88	65.483	
13,300.00	6,929.70	6,117.00	6,113.48	104.92	183.29	-68.84	-1,834.88	7,435.00	14,037.69	13,824.69	213.01	65.903	
13,400.00	6,929.61	6,117.00	6,113.48	106.47	183.29	-68.84	-1,834.88	7,435.00	14,135.49	13,922.35	213.13	66.322	
13,500.00	6,929.51	6,117.00	6,113.48	108.02	183.29	-68.84	-1,834.88	7,435.00	14,233.31	14,020.05	213.26	66.741	
13,600.00	6,929.41	6,117.00	6,113.48	109.57	183.29	-68.84	-1,834.88	7,435.00	14,331.16	14,117.78	213.39	67.160	
13,700.00	6,929.32	6,117.00	6,113.48	111.12	183.29	-68.84	-1,834.88	7,435.00	14,429.05	14,215.53	213.52	67.579	
13,800.00	6,929.22	6,117.00	6,113.48	112.68	183.29	-68.84	-1,834.88	7,435.00	14,526.96	14,313.32	213.64	67.996	
13,900.00	6,929.12	6,117.00	6,113.48	114.23	183.29	-68.84	-1,834.88	7,435.00	14,624.90	14,411.13	213.77	68.414	
14,000.00	6,929.03	6,117.00	6,113.48	115.79	183.29	-68.84	-1,834.88	7,435.00	14,722.87	14,508.97	213.90	68.831	
14,100.00	6,928.93	6,117.00	6,113.48	117.35	183.29	-68.84	-1,834.88	7,435.00	14,820.86	14,606.84	214.03	69.248	
14,200.00	6,928.83	6,117.00	6,113.48	118.91	183.29	-68.84	-1,834.88	7,435.00	14,918.88	14,704.73	214.15	69.664	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Rule Assigned:

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,300.00	6,928.74	6,117.00	6,113.48	120.47	183.29	-68.84	-1,834.88	7,435.00	15,016.93	14,802.65	214.28	70.080	
14,400.00	6,928.64	6,117.00	6,113.48	122.03	183.29	-68.84	-1,834.88	7,435.00	15,115.00	14,900.59	214.41	70.496	
14,500.00	6,928.54	6,117.00	6,113.48	123.60	183.29	-68.84	-1,834.88	7,435.00	15,213.10	14,998.56	214.54	70.911	
14,600.00	6,928.45	6,117.00	6,113.48	125.16	183.29	-68.84	-1,834.88	7,435.00	15,311.23	15,096.56	214.67	71.326	
14,700.00	6,928.35	6,117.00	6,113.48	126.72	183.29	-68.84	-1,834.88	7,435.00	15,409.37	15,194.58	214.79	71.740	
14,800.00	6,928.25	6,117.00	6,113.48	128.29	183.29	-68.84	-1,834.88	7,435.00	15,507.54	15,292.62	214.92	72.154	
14,900.00	6,928.16	6,117.00	6,113.48	129.86	183.29	-68.84	-1,834.88	7,435.00	15,605.74	15,390.69	215.05	72.568	
15,000.00	6,928.06	6,117.00	6,113.48	131.42	183.29	-68.84	-1,834.88	7,435.00	15,703.95	15,488.78	215.18	72.981	
15,100.00	6,927.96	6,117.00	6,113.48	132.99	183.29	-68.84	-1,834.88	7,435.00	15,802.19	15,586.89	215.31	73.394	
15,200.00	6,927.87	6,117.00	6,113.48	134.56	183.29	-68.84	-1,834.88	7,435.00	15,900.45	15,685.02	215.43	73.807	
15,300.00	6,927.77	6,117.00	6,113.48	136.13	183.29	-68.84	-1,834.88	7,435.00	15,998.74	15,783.17	215.56	74.219	
15,400.00	6,927.67	6,117.00	6,113.48	137.70	183.29	-68.84	-1,834.88	7,435.00	16,097.04	15,881.35	215.69	74.630	
15,500.00	6,927.57	6,117.00	6,113.48	139.28	183.29	-68.84	-1,834.88	7,435.00	16,195.37	15,979.55	215.82	75.042	
15,600.00	6,927.48	6,117.00	6,113.48	140.85	183.29	-68.84	-1,834.88	7,435.00	16,293.71	16,077.76	215.95	75.453	
15,700.00	6,927.38	6,117.00	6,113.48	142.42	183.29	-68.84	-1,834.88	7,435.00	16,392.07	16,176.00	216.07	75.863	
15,800.00	6,927.28	6,117.00	6,113.48	144.00	183.29	-68.84	-1,834.88	7,435.00	16,490.46	16,274.26	216.20	76.274	
15,900.00	6,927.19	6,117.00	6,113.48	145.57	183.29	-68.84	-1,834.88	7,435.00	16,588.86	16,372.53	216.33	76.684	
16,000.00	6,927.09	6,117.00	6,113.48	147.15	183.29	-68.84	-1,834.88	7,435.00	16,687.29	16,470.83	216.46	77.093	
16,100.00	6,926.99	6,117.00	6,113.48	148.72	183.29	-68.84	-1,834.88	7,435.00	16,785.73	16,569.14	216.58	77.502	
16,200.00	6,926.90	6,117.00	6,113.48	150.30	183.29	-68.84	-1,834.88	7,435.00	16,884.19	16,667.48	216.71	77.911	
16,300.00	6,926.80	6,117.00	6,113.48	151.87	183.29	-68.84	-1,834.88	7,435.00	16,982.67	16,765.83	216.84	78.319	
16,400.00	6,926.70	6,117.00	6,113.48	153.45	183.29	-68.84	-1,834.88	7,435.00	17,081.16	16,864.20	216.97	78.727	
16,500.00	6,926.61	6,117.00	6,113.48	155.03	183.29	-68.84	-1,834.88	7,435.00	17,179.67	16,962.58	217.09	79.135	
16,600.00	6,926.51	6,117.00	6,113.48	156.61	183.29	-68.84	-1,834.88	7,435.00	17,278.20	17,060.98	217.22	79.542	
16,700.00	6,926.41	6,117.00	6,113.48	158.19	183.29	-68.84	-1,834.88	7,435.00	17,376.75	17,159.40	217.35	79.949	
16,800.00	6,926.32	6,117.00	6,113.48	159.77	183.29	-68.84	-1,834.88	7,435.00	17,475.31	17,257.84	217.47	80.356	
16,900.00	6,926.22	6,117.00	6,113.48	161.35	183.29	-68.84	-1,834.88	7,435.00	17,573.89	17,356.29	217.60	80.762	
17,000.00	6,926.12	6,117.00	6,113.48	162.93	183.29	-68.84	-1,834.88	7,435.00	17,672.49	17,454.76	217.73	81.168	
17,100.00	6,926.03	6,117.00	6,113.48	164.51	183.29	-68.84	-1,834.88	7,435.00	17,771.10	17,553.25	217.85	81.573	
17,200.00	6,925.93	6,117.00	6,113.48	166.09	183.29	-68.84	-1,834.88	7,435.00	17,869.73	17,651.75	217.98	81.978	
17,300.00	6,925.83	6,117.00	6,113.48	167.67	183.29	-68.84	-1,834.88	7,435.00	17,968.37	17,750.26	218.11	82.383	
17,400.00	6,925.74	6,117.00	6,113.48	169.26	183.29	-68.84	-1,834.88	7,435.00	18,067.03	17,848.79	218.23	82.787	
17,500.00	6,925.64	6,117.00	6,113.48	170.84	183.29	-68.84	-1,834.88	7,435.00	18,165.70	17,947.34	218.36	83.191	
17,600.00	6,925.54	6,117.00	6,113.48	172.42	183.29	-68.84	-1,834.88	7,435.00	18,264.38	18,045.90	218.49	83.595	
17,700.00	6,925.45	6,117.00	6,113.48	174.00	183.29	-68.84	-1,834.88	7,435.00	18,363.08	18,144.47	218.61	83.998	
17,800.00	6,925.35	6,117.00	6,113.48	175.59	183.29	-68.84	-1,834.88	7,435.00	18,461.80	18,243.06	218.74	84.401	
17,900.00	6,925.25	6,117.00	6,113.48	177.17	183.29	-68.84	-1,834.88	7,435.00	18,560.53	18,341.66	218.87	84.803	
18,000.00	6,925.16	6,117.00	6,113.48	178.76	183.29	-68.84	-1,834.88	7,435.00	18,659.27	18,440.27	218.99	85.205	
18,100.00	6,925.06	6,117.00	6,113.48	180.34	183.29	-68.84	-1,834.88	7,435.00	18,758.02	18,538.90	219.12	85.607	
18,160.21	6,925.00	6,117.00	6,113.48	181.30	183.29	-68.84	-1,834.88	7,435.00	18,817.49	18,598.30	219.19	85.849	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**Offset TVD Reference:**	Offset Datum

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

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

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	122.51	-2,642.84	4,146.68	4,919.10				
100.00	100.00	0.00	0.00	0.25	0.00	122.51	-2,642.84	4,146.68	4,917.39	4,917.14	0.25	N/A	
134.00	134.00	0.00	0.00	0.37	0.00	122.51	-2,642.84	4,146.68	4,917.27	4,916.90	0.37	N/A CC	
200.00	200.00	61.62	61.62	0.61	0.07	122.51	-2,642.85	4,146.71	4,917.30	4,916.62	0.68	7,244.139	
300.00	300.00	154.98	154.98	0.97	0.17	122.51	-2,642.86	4,146.87	4,917.46	4,916.32	1.14	4,305.605	
400.00	400.00	248.33	248.33	1.33	0.28	122.51	-2,642.89	4,147.18	4,917.75	4,916.14	1.61	3,063.207	
500.00	500.00	354.33	354.32	1.68	0.43	122.50	-2,642.76	4,147.75	4,918.15	4,916.03	2.12	2,322.577	
600.00	599.98	501.00	500.83	2.04	0.77	110.45	-2,637.16	4,150.56	4,918.23	4,915.43	2.80	1,758.137 ES	
700.00	699.84	591.00	590.32	2.41	0.99	110.37	-2,628.87	4,155.26	4,919.52	4,916.13	3.39	1,453.290	
800.00	799.45	629.78	628.73	2.77	1.10	110.28	-2,624.51	4,158.26	4,922.82	4,918.96	3.86	1,275.825	
900.00	898.70	694.94	693.16	3.13	1.30	110.16	-2,616.76	4,164.06	4,928.20	4,923.78	4.43	1,113.358	
1,000.00	997.47	834.11	829.98	3.50	1.79	109.98	-2,596.20	4,179.00	4,934.85	4,929.55	5.29	932.117	
1,100.00	1,095.62	978.26	970.02	3.89	2.43	109.75	-2,567.39	4,197.05	4,941.25	4,934.93	6.32	782.434	
1,200.00	1,193.44	1,077.82	1,065.22	4.29	2.96	109.64	-2,542.67	4,212.38	4,948.24	4,940.99	7.24	683.040	
1,300.00	1,291.25	1,162.40	1,144.86	4.70	3.48	109.49	-2,518.51	4,227.43	4,955.33	4,947.16	8.16	607.111	
1,400.00	1,389.07	1,234.00	1,211.40	5.11	3.95	109.35	-2,496.32	4,241.80	4,963.05	4,954.01	9.05	548.675	
1,500.00	1,486.88	1,339.70	1,308.32	5.53	4.72	109.09	-2,461.00	4,264.81	4,971.08	4,960.85	10.23	486.066	
1,600.00	1,584.70	1,397.65	1,360.87	5.95	5.18	108.93	-2,440.61	4,278.24	4,979.42	4,968.32	11.10	448.688	
1,700.00	1,682.51	1,466.78	1,423.12	6.37	5.74	108.73	-2,415.69	4,295.09	4,988.48	4,976.41	12.07	413.275	
1,800.00	1,780.33	1,547.29	1,495.13	6.80	6.41	108.49	-2,386.04	4,315.52	4,998.12	4,984.95	13.16	379.788	
1,900.00	1,878.14	1,665.04	1,599.35	7.22	7.43	108.11	-2,340.82	4,346.47	5,007.91	4,993.31	14.60	343.083	
2,000.00	1,975.96	1,746.19	1,670.80	7.65	8.14	107.84	-2,308.86	4,367.89	5,017.50	5,001.78	15.73	319.056	
2,100.00	2,073.77	1,812.64	1,728.96	8.08	8.72	107.61	-2,282.41	4,386.12	5,027.88	5,011.16	16.72	300.707	
2,200.00	2,171.59	2,448.00	2,289.37	8.51	13.81	105.58	-2,022.80	4,527.23	5,033.90	5,011.66	22.24	226.395	
2,300.00	2,269.40	2,448.00	2,289.37	8.95	13.81	105.58	-2,022.80	4,527.23	5,035.49	5,012.81	22.68	222.032	
2,400.00	2,367.22	2,448.00	2,289.37	9.38	13.81	105.58	-2,022.80	4,527.23	5,039.06	5,015.94	23.12	217.994	
2,500.00	2,465.03	2,448.00	2,289.37	9.81	13.81	105.58	-2,022.80	4,527.23	5,044.61	5,021.07	23.54	214.264	
2,600.00	2,562.84	2,448.00	2,289.37	10.25	13.81	105.58	-2,022.80	4,527.23	5,052.14	5,028.17	23.96	210.827	
2,700.00	2,660.66	2,568.61	2,395.21	10.68	14.84	105.18	-1,973.36	4,557.21	5,060.91	5,035.48	25.42	199.069	
2,800.00	2,758.47	2,666.78	2,481.91	11.12	15.65	104.86	-1,933.70	4,580.61	5,069.13	5,042.47	26.65	190.192	
2,900.00	2,856.29	2,752.36	2,558.38	11.55	16.32	104.61	-1,900.71	4,600.30	5,077.58	5,049.83	27.75	182.982	
3,000.00	2,954.10	2,831.84	2,630.37	11.99	16.92	104.40	-1,871.99	4,617.90	5,086.45	5,057.68	28.77	176.790	
3,100.00	3,051.92	2,916.71	2,707.99	12.42	17.53	104.20	-1,842.95	4,636.19	5,095.71	5,065.90	29.81	170.945	
3,200.00	3,149.73	3,044.83	2,826.56	12.86	18.40	103.94	-1,801.94	4,662.07	5,104.80	5,073.69	31.11	164.086	
3,300.00	3,247.55	3,155.68	2,931.19	13.30	19.08	103.78	-1,771.12	4,681.76	5,113.59	5,081.37	32.21	158.740	
3,400.00	3,345.36	3,259.57	3,030.59	13.73	19.64	103.67	-1,745.81	4,698.26	5,122.21	5,089.01	33.21	154.244	
3,500.00	3,443.18	3,440.46	3,206.06	14.17	20.48	103.59	-1,709.23	4,722.26	5,130.53	5,096.05	34.48	148.778	
3,600.00	3,540.99	3,550.05	3,313.75	14.61	20.89	103.62	-1,691.84	4,732.77	5,137.19	5,101.86	35.33	145.410	
3,700.00	3,638.81	3,624.47	3,387.23	15.05	21.11	103.65	-1,682.00	4,739.27	5,144.27	5,108.29	35.98	142.959	
3,800.00	3,736.62	3,694.00	3,456.27	15.48	21.31	103.72	-1,675.63	4,744.36	5,151.88	5,115.27	36.61	140.723	
3,900.00	3,834.44	3,783.26	3,545.10	15.92	21.51	103.83	-1,669.34	4,750.35	5,159.88	5,122.64	37.24	138.561	
4,000.00	3,932.25	3,868.75	3,630.20	16.36	21.70	103.94	-1,663.53	4,756.23	5,168.16	5,130.30	37.86	136.512	
4,100.00	4,030.07	3,954.18	3,715.23	16.80	21.89	104.04	-1,657.94	4,762.25	5,176.73	5,138.25	38.48	134.538	
4,200.00	4,127.88	4,054.21	3,814.80	17.24	22.10	104.17	-1,651.64	4,769.39	5,185.50	5,146.38	39.13	132.534	
4,300.00	4,225.70	4,165.85	3,925.97	17.68	22.34	104.32	-1,644.82	4,776.99	5,194.11	5,154.31	39.80	130.516	
4,400.00	4,323.51	4,277.44	4,037.14	18.11	22.57	104.47	-1,638.23	4,784.18	5,202.50	5,162.03	40.47	128.558	
4,500.00	4,421.33	4,388.98	4,148.29	18.55	22.81	104.62	-1,631.87	4,790.95	5,210.68	5,169.54	41.14	126.660	
4,600.00	4,519.14	4,493.69	4,252.67	18.99	23.02	104.77	-1,626.11	4,796.93	5,218.67	5,176.89	41.79	124.888	
4,700.00	4,616.95	4,583.77	4,342.50	19.43	23.19	104.90	-1,621.53	4,801.96	5,226.77	5,184.38	42.39	123.316	
4,800.00	4,714.77	4,673.72	4,432.21	19.87	23.36	105.03	-1,617.38	4,806.92	5,235.06	5,192.08	42.98	121.795	
4,900.00	4,812.58	4,763.54	4,521.82	20.31	23.52	105.17	-1,613.66	4,811.83	5,243.55	5,199.97	43.58	120.321	
5,000.00	4,910.40	4,853.21	4,611.30	20.75	23.69	105.31	-1,610.36	4,816.69	5,252.25	5,208.08	44.18	118.893	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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
5,100.00	5,008.21	4,941.00	4,698.92	21.19	23.85	105.45	-1,607.55	4,821.39	5,261.16	5,216.39	44.77	117.518	
5,200.00	5,106.03	5,028.78	4,786.54	21.63	23.99	105.60	-1,605.17	4,826.06	5,270.31	5,224.98	45.33	116.260	
5,300.00	5,203.84	5,114.72	4,872.34	22.06	24.12	105.74	-1,603.29	4,830.62	5,279.74	5,233.85	45.89	115.047	
5,400.00	5,301.66	5,200.50	4,957.98	22.50	24.25	105.89	-1,601.88	4,835.15	5,289.44	5,242.99	46.45	113.872	
5,500.00	5,399.47	5,286.10	5,043.46	22.94	24.39	106.05	-1,600.91	4,839.66	5,299.43	5,252.42	47.01	112.732	
5,600.00	5,497.29	5,371.52	5,128.76	23.38	24.52	106.20	-1,600.40	4,844.14	5,309.70	5,262.14	47.57	111.627	
5,700.00	5,595.10	5,462.15	5,219.26	23.82	24.65	106.38	-1,600.28	4,848.88	5,320.23	5,272.11	48.12	110.552	
5,800.00	5,692.92	5,556.92	5,313.91	24.26	24.78	106.55	-1,600.30	4,853.84	5,330.90	5,282.21	48.68	109.503	
5,900.00	5,790.73	5,651.65	5,408.51	24.70	24.92	106.73	-1,600.45	4,858.78	5,341.67	5,292.43	49.24	108.480	
6,000.00	5,888.55	5,746.32	5,503.05	25.14	25.05	106.91	-1,600.72	4,863.72	5,352.57	5,302.77	49.80	107.482	
6,100.00	5,986.36	5,840.95	5,597.55	25.58	25.18	107.09	-1,601.11	4,868.65	5,363.58	5,313.22	50.36	106.510	
6,200.00	6,084.18	5,940.51	5,696.97	26.02	25.32	107.28	-1,601.59	4,873.84	5,374.67	5,323.75	50.93	105.537	
6,300.00	6,181.99	6,043.33	5,799.66	26.46	25.47	107.48	-1,601.92	4,879.20	5,385.75	5,334.24	51.50	104.571	
6,401.22	6,281.00	6,147.50	5,903.68	26.90	25.61	107.67	-1,602.05	4,884.63	5,396.92	5,344.84	52.09	103.613	
6,450.00	6,328.76	6,197.67	5,953.78	27.12	25.69	129.05	-1,602.05	4,887.24	5,403.87	5,351.51	52.36	103.200	
6,500.00	6,377.61	6,248.80	6,004.84	27.32	25.76	149.26	-1,601.99	4,889.91	5,414.23	5,361.60	52.63	102.868	
6,550.00	6,426.06	6,299.30	6,055.28	27.52	25.83	164.55	-1,601.89	4,892.54	5,427.78	5,374.90	52.89	102.632	
6,600.00	6,473.81	6,348.88	6,104.79	27.71	25.90	175.42	-1,601.75	4,895.13	5,444.45	5,391.33	53.12	102.491	
6,650.00	6,520.56	6,398.70	6,154.54	27.89	25.97	-176.67	-1,601.58	4,897.71	5,464.13	5,410.80	53.33	102.449 SF	
6,700.00	6,566.03	6,448.80	6,204.58	28.05	26.03	-170.57	-1,601.54	4,900.18	5,486.68	5,433.16	53.53	102.505	
6,750.00	6,609.93	6,497.04	6,252.77	28.20	26.09	-165.54	-1,601.64	4,902.42	5,511.97	5,458.27	53.70	102.651	
6,800.00	6,652.00	6,543.16	6,298.84	28.34	26.14	-161.11	-1,601.88	4,904.42	5,539.85	5,486.00	53.84	102.887	
6,850.00	6,691.98	6,586.90	6,342.54	28.47	26.20	-156.98	-1,602.23	4,906.21	5,570.16	5,516.19	53.97	103.209	
6,900.00	6,729.61	6,628.00	6,383.61	28.59	26.25	-152.92	-1,602.66	4,907.77	5,602.73	5,548.65	54.07	103.614	
6,950.00	6,764.67	6,666.23	6,421.81	28.69	26.29	-148.76	-1,603.16	4,909.14	5,637.37	5,583.22	54.15	104.101	
7,000.00	6,796.95	6,701.35	6,456.92	28.79	26.33	-144.35	-1,603.69	4,910.32	5,673.91	5,619.70	54.21	104.665	
7,050.00	6,826.23	6,733.17	6,488.71	28.89	26.37	-139.55	-1,604.25	4,911.32	5,712.11	5,657.87	54.24	105.302	
7,100.00	6,852.35	6,761.46	6,516.98	28.98	26.41	-134.26	-1,604.79	4,912.16	5,751.78	5,697.52	54.26	106.009	
7,150.00	6,875.14	6,786.04	6,541.55	29.08	26.44	-128.37	-1,605.30	4,912.85	5,792.68	5,738.44	54.25	106.781	
7,200.00	6,894.45	6,806.75	6,562.25	29.18	26.46	-121.85	-1,605.77	4,913.41	5,834.59	5,780.37	54.22	107.612	
7,250.00	6,910.18	6,823.43	6,578.91	29.28	26.48	-114.71	-1,606.16	4,913.83	5,877.26	5,823.09	54.17	108.497	
7,300.00	6,922.23	6,835.94	6,591.41	29.40	26.50	-107.08	-1,606.46	4,914.14	5,920.44	5,866.34	54.10	109.430	
7,350.00	6,930.51	6,844.16	6,599.64	29.54	26.51	-99.18	-1,606.67	4,914.34	5,963.90	5,909.88	54.02	110.404	
7,400.00	6,934.98	6,848.02	6,603.49	29.70	26.51	-91.32	-1,606.76	4,914.43	6,007.36	5,953.44	53.92	111.412	
7,433.91	6,935.83	6,848.11	6,603.58	29.81	26.51	-86.17	-1,606.77	4,914.43	6,036.70	5,982.86	53.85	112.112	
7,500.00	6,935.76	6,846.26	6,601.74	30.07	26.51	-86.14	-1,606.72	4,914.39	6,093.83	6,040.13	53.70	113.477	
7,600.00	6,935.66	6,843.44	6,598.92	30.52	26.51	-86.08	-1,606.65	4,914.32	6,180.61	6,127.11	53.50	115.523	
7,700.00	6,935.55	6,840.58	6,596.05	31.06	26.50	-86.03	-1,606.58	4,914.25	6,267.79	6,214.46	53.32	117.546	
7,800.00	6,935.45	6,837.67	6,593.15	31.68	26.50	-85.97	-1,606.50	4,914.18	6,355.33	6,302.17	53.16	119.546	
7,900.00	6,935.34	6,834.72	6,590.20	32.37	26.50	-85.92	-1,606.43	4,914.11	6,443.24	6,390.22	53.02	121.523	
8,000.00	6,935.24	6,831.73	6,587.21	33.12	26.49	-85.86	-1,606.36	4,914.04	6,531.50	6,478.60	52.90	123.476	
8,100.00	6,935.13	6,828.68	6,584.17	33.93	26.49	-85.81	-1,606.28	4,913.96	6,620.09	6,567.30	52.79	125.406	
8,200.00	6,935.03	6,825.60	6,581.08	34.80	26.49	-85.75	-1,606.21	4,913.89	6,709.00	6,656.30	52.70	127.312	
8,300.00	6,934.92	6,822.46	6,577.94	35.71	26.48	-85.69	-1,606.13	4,913.81	6,798.22	6,745.60	52.62	129.195	
8,400.00	6,934.82	6,819.27	6,574.76	36.67	26.48	-85.63	-1,606.06	4,913.73	6,887.73	6,835.17	52.56	131.055	
8,500.00	6,934.71	6,816.03	6,571.52	37.68	26.47	-85.57	-1,605.98	4,913.65	6,977.52	6,925.02	52.51	132.892	
8,600.00	6,934.61	6,812.74	6,568.23	38.72	26.47	-85.51	-1,605.90	4,913.56	7,067.59	7,015.13	52.47	134.707	
8,700.00	6,934.50	6,809.40	6,564.89	39.80	26.47	-85.44	-1,605.83	4,913.48	7,157.92	7,105.48	52.44	136.500	
8,800.00	6,934.40	6,806.00	6,561.49	40.92	26.46	-85.38	-1,605.75	4,913.39	7,248.51	7,196.08	52.42	138.272	
8,900.00	6,934.29	6,802.54	6,558.04	42.06	26.46	-85.32	-1,605.67	4,913.30	7,339.33	7,286.92	52.42	140.023	
9,000.00	6,934.19	6,799.03	6,554.53	43.23	26.45	-85.25	-1,605.59	4,913.20	7,430.39	7,377.98	52.42	141.754	
9,100.00	6,934.08	6,795.46	6,550.96	44.43	26.45	-85.18	-1,605.51	4,913.11	7,521.68	7,469.25	52.43	143.466	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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
9,200.00	6,933.98	6,791.83	6,547.34	45.66	26.45	-85.11	-1,605.43	4,913.01	7,613.19	7,560.74	52.45	145.158	
9,300.00	6,933.88	6,788.14	6,543.65	46.90	26.44	-85.05	-1,605.35	4,912.91	7,704.90	7,652.43	52.47	146.833	
9,400.00	6,933.77	6,784.38	6,539.89	48.17	26.44	-84.98	-1,605.27	4,912.81	7,796.82	7,744.31	52.51	148.489	
9,500.00	6,933.67	6,780.56	6,536.07	49.46	26.43	-84.90	-1,605.19	4,912.70	7,888.93	7,836.38	52.55	150.129	
9,600.00	6,933.56	6,776.67	6,532.19	50.76	26.43	-84.83	-1,605.10	4,912.59	7,981.23	7,928.64	52.59	151.753	
9,700.00	6,933.46	6,772.72	6,528.23	52.08	26.42	-84.76	-1,605.02	4,912.48	8,073.71	8,021.07	52.65	153.361	
9,800.00	6,933.35	6,768.69	6,524.21	53.41	26.42	-84.68	-1,604.94	4,912.37	8,166.37	8,113.67	52.70	154.954	
9,900.00	6,933.25	6,764.59	6,520.11	54.76	26.41	-84.60	-1,604.85	4,912.25	8,259.20	8,206.44	52.76	156.533	
10,000.00	6,933.14	6,760.42	6,515.94	56.12	26.41	-84.53	-1,604.77	4,912.13	8,352.19	8,299.36	52.83	158.097	
10,100.00	6,933.04	6,756.17	6,511.70	57.50	26.40	-84.45	-1,604.68	4,912.01	8,445.34	8,392.44	52.90	159.649	
10,200.00	6,932.93	6,751.84	6,507.37	58.88	26.40	-84.37	-1,604.60	4,911.88	8,538.65	8,485.67	52.97	161.187	
10,300.00	6,932.83	6,747.44	6,502.97	60.28	26.39	-84.28	-1,604.51	4,911.75	8,632.10	8,579.05	53.05	162.714	
10,400.00	6,932.72	6,742.94	6,498.48	61.69	26.39	-84.20	-1,604.43	4,911.62	8,725.70	8,672.56	53.13	164.228	
10,500.00	6,932.62	6,738.37	6,493.91	63.10	26.38	-84.11	-1,604.34	4,911.48	8,819.43	8,766.22	53.22	165.732	
10,600.00	6,932.51	6,733.71	6,489.25	64.52	26.37	-84.03	-1,604.26	4,911.34	8,913.30	8,860.00	53.30	167.225	
10,700.00	6,932.41	6,728.95	6,484.50	65.96	26.37	-83.94	-1,604.17	4,911.19	9,007.30	8,953.91	53.39	168.707	
10,800.00	6,932.30	6,724.11	6,479.65	67.39	26.36	-83.85	-1,604.08	4,911.04	9,101.43	9,047.95	53.48	170.180	
10,900.00	6,932.20	6,719.16	6,474.71	68.84	26.36	-83.76	-1,604.00	4,910.89	9,195.68	9,142.10	53.57	171.643	
11,000.00	6,932.10	6,714.12	6,469.68	70.29	26.35	-83.66	-1,603.91	4,910.73	9,290.05	9,236.38	53.67	173.097	
11,100.00	6,931.99	6,708.98	6,464.54	71.75	26.34	-83.57	-1,603.82	4,910.57	9,384.53	9,330.76	53.77	174.542	
11,200.00	6,931.89	6,703.74	6,459.30	73.22	26.34	-83.47	-1,603.73	4,910.40	9,479.12	9,425.26	53.87	175.979	
11,300.00	6,931.78	6,698.38	6,453.95	74.69	26.33	-83.37	-1,603.65	4,910.22	9,573.82	9,519.86	53.97	177.408	
11,400.00	6,931.68	6,692.92	6,448.49	76.16	26.32	-83.27	-1,603.56	4,910.04	9,668.63	9,614.56	54.07	178.829	
11,500.00	6,931.57	6,687.34	6,442.91	77.64	26.32	-83.16	-1,603.47	4,909.86	9,763.54	9,709.37	54.17	180.243	
11,600.00	6,931.47	6,681.64	6,437.22	79.13	26.31	-83.06	-1,603.38	4,909.67	9,858.55	9,804.27	54.27	181.649	
11,700.00	6,931.36	6,675.83	6,431.41	80.62	26.30	-82.95	-1,603.30	4,909.47	9,953.65	9,899.27	54.38	183.049	
11,800.00	6,931.26	6,669.88	6,425.47	82.11	26.30	-82.84	-1,603.21	4,909.27	10,048.85	9,994.36	54.48	184.442	
11,900.00	6,931.15	6,663.81	6,419.40	83.61	26.29	-82.73	-1,603.12	4,909.06	10,144.13	10,089.54	54.59	185.828	
12,000.00	6,931.05	6,657.60	6,413.19	85.11	26.28	-82.61	-1,603.04	4,908.84	10,239.51	10,184.81	54.70	187.209	
12,100.00	6,930.94	6,651.25	6,406.85	86.62	26.27	-82.49	-1,602.95	4,908.62	10,334.97	10,280.16	54.80	188.583	
12,200.00	6,930.84	6,644.76	6,400.36	88.13	26.27	-82.37	-1,602.87	4,908.39	10,430.51	10,375.60	54.91	189.952	
12,300.00	6,930.73	6,638.13	6,393.73	89.64	26.26	-82.25	-1,602.78	4,908.15	10,526.13	10,471.11	55.02	191.315	
12,400.00	6,930.63	6,631.33	6,386.94	91.15	26.25	-82.12	-1,602.70	4,907.90	10,621.83	10,566.70	55.13	192.673	
12,500.00	6,930.52	6,624.38	6,380.00	92.67	26.24	-81.99	-1,602.62	4,907.64	10,717.61	10,662.37	55.24	194.025	
12,600.00	6,930.42	6,617.27	6,372.89	94.19	26.23	-81.86	-1,602.54	4,907.38	10,813.46	10,758.11	55.35	195.372	
12,700.00	6,930.31	6,609.98	6,365.61	95.71	26.22	-81.73	-1,602.46	4,907.10	10,909.39	10,853.93	55.46	196.715	
12,800.00	6,930.21	6,602.52	6,358.15	97.24	26.21	-81.59	-1,602.38	4,906.81	11,005.38	10,949.81	55.57	198.052	
12,900.00	6,930.11	6,594.88	6,350.52	98.77	26.21	-81.45	-1,602.30	4,906.52	11,101.44	11,045.76	55.68	199.385	
13,008.91	6,929.99	6,586.34	6,341.98	100.43	26.20	-81.29	-1,602.22	4,906.18	11,206.13	11,150.34	55.80	200.832	
13,100.00	6,929.90	6,578.99	6,334.64	101.83	26.19	-80.05	-1,602.15	4,905.89	11,294.13	11,238.24	55.90	202.055	
13,139.82	6,929.86	6,575.71	6,331.37	102.44	26.18	-79.40	-1,602.13	4,905.76	11,332.84	11,276.90	55.94	202.598	
13,200.00	6,929.80	6,570.69	6,326.35	103.37	26.18	-79.29	-1,602.08	4,905.56	11,391.44	11,335.44	56.00	203.427	
13,300.00	6,929.70	6,562.19	6,317.86	104.92	26.17	-79.11	-1,602.02	4,905.21	11,488.86	11,432.76	56.10	204.803	
13,400.00	6,929.61	6,553.47	6,309.15	106.47	26.16	-78.92	-1,601.95	4,904.85	11,586.31	11,530.11	56.20	206.174	
13,500.00	6,929.51	6,544.54	6,300.22	108.02	26.14	-78.72	-1,601.89	4,904.48	11,683.80	11,627.51	56.30	207.542	
13,600.00	6,929.41	6,535.38	6,291.07	109.57	26.13	-78.52	-1,601.83	4,904.09	11,781.34	11,724.94	56.40	208.905	
13,700.00	6,929.32	6,525.98	6,281.67	111.12	26.12	-78.32	-1,601.78	4,903.69	11,878.91	11,822.41	56.50	210.265	
13,800.00	6,929.22	6,516.33	6,272.04	112.68	26.11	-78.11	-1,601.73	4,903.27	11,976.52	11,919.92	56.59	211.620	
13,900.00	6,929.12	6,506.43	6,262.14	114.23	26.10	-77.90	-1,601.68	4,902.84	12,074.16	12,017.46	56.69	212.972	
14,000.00	6,929.03	6,496.26	6,251.98	115.79	26.09	-77.68	-1,601.64	4,902.38	12,171.84	12,115.04	56.79	214.320	
14,100.00	6,928.93	6,485.81	6,241.55	117.35	26.07	-77.45	-1,601.61	4,901.91	12,269.55	12,212.65	56.89	215.664	
14,200.00	6,928.83	6,475.08	6,230.83	118.91	26.06	-77.22	-1,601.58	4,901.42	12,367.29	12,310.30	56.99	217.005	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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
14,300.00	6,928.74	6,464.04	6,219.80	120.47	26.05	-76.99	-1,601.56	4,900.91	12,465.07	12,407.98	57.09	218.341	
14,400.00	6,928.64	6,452.69	6,208.47	122.03	26.03	-76.74	-1,601.54	4,900.37	12,562.87	12,505.68	57.19	219.674	
14,500.00	6,928.54	6,441.01	6,196.80	123.60	26.02	-76.50	-1,601.54	4,899.81	12,660.71	12,603.42	57.29	221.003	
14,600.00	6,928.45	6,429.00	6,184.80	125.16	26.00	-76.24	-1,601.54	4,899.23	12,758.57	12,701.19	57.39	222.328	
14,700.00	6,928.35	6,416.62	6,172.44	126.72	25.99	-75.98	-1,601.55	4,898.62	12,856.46	12,798.98	57.48	223.650	
14,800.00	6,928.25	6,403.87	6,159.71	128.29	25.97	-75.71	-1,601.57	4,897.98	12,954.38	12,896.80	57.58	224.967	
14,900.00	6,928.16	6,390.74	6,146.59	129.86	25.96	-75.43	-1,601.60	4,897.31	13,052.33	12,994.65	57.68	226.281	
15,000.00	6,928.06	6,377.19	6,133.06	131.42	25.94	-75.14	-1,601.65	4,896.61	13,150.30	13,092.52	57.78	227.592	
15,100.00	6,927.96	6,370.91	6,126.79	132.99	25.93	-75.01	-1,601.67	4,896.28	13,248.30	13,190.42	57.88	228.877	
15,200.00	6,927.87	6,365.35	6,121.23	134.56	25.92	-74.90	-1,601.69	4,895.99	13,346.33	13,288.34	57.99	230.156	
15,300.00	6,927.77	6,359.78	6,115.67	136.13	25.92	-74.78	-1,601.71	4,895.70	13,444.38	13,386.29	58.09	231.431	
15,400.00	6,927.67	6,354.21	6,110.11	137.70	25.91	-74.66	-1,601.73	4,895.41	13,542.46	13,484.26	58.20	232.701	
15,500.00	6,927.57	6,348.65	6,104.56	139.28	25.90	-74.55	-1,601.75	4,895.12	13,640.56	13,582.26	58.30	233.968	
15,600.00	6,927.48	6,343.08	6,099.00	140.85	25.89	-74.43	-1,601.77	4,894.83	13,738.69	13,680.29	58.41	235.230	
15,700.00	6,927.38	6,337.52	6,093.44	142.42	25.89	-74.31	-1,601.79	4,894.54	13,836.85	13,778.34	58.51	236.488	
15,800.00	6,927.28	6,331.95	6,087.88	144.00	25.88	-74.20	-1,601.81	4,894.25	13,935.03	13,876.41	58.61	237.742	
15,900.00	6,927.19	6,326.38	6,082.32	145.57	25.87	-74.08	-1,601.82	4,893.96	14,033.23	13,974.51	58.72	238.992	
16,000.00	6,927.09	6,320.82	6,076.76	147.15	25.86	-73.97	-1,601.84	4,893.67	14,131.46	14,072.63	58.82	240.238	
16,100.00	6,926.99	6,315.25	6,071.20	148.72	25.85	-73.85	-1,601.85	4,893.38	14,229.70	14,170.78	58.93	241.480	
16,200.00	6,926.90	6,309.69	6,065.65	150.30	25.85	-73.73	-1,601.87	4,893.08	14,327.97	14,268.94	59.03	242.718	
16,300.00	6,926.80	6,304.12	6,060.09	151.87	25.84	-73.62	-1,601.88	4,892.79	14,426.27	14,367.13	59.14	243.951	
16,400.00	6,926.70	6,298.55	6,054.53	153.45	25.83	-73.50	-1,601.90	4,892.50	14,524.58	14,465.34	59.24	245.181	
16,500.00	6,926.61	6,292.99	6,048.97	155.03	25.82	-73.39	-1,601.91	4,892.21	14,622.91	14,563.57	59.34	246.407	
16,600.00	6,926.51	6,287.42	6,043.41	156.61	25.81	-73.27	-1,601.92	4,891.92	14,721.27	14,661.82	59.45	247.628	
16,700.00	6,926.41	6,281.86	6,037.86	158.19	25.81	-73.16	-1,601.93	4,891.63	14,819.64	14,760.09	59.55	248.846	
16,800.00	6,926.32	6,276.29	6,032.30	159.77	25.80	-73.04	-1,601.95	4,891.34	14,918.04	14,858.38	59.66	250.059	
16,900.00	6,926.22	6,270.73	6,026.74	161.35	25.79	-72.93	-1,601.96	4,891.05	15,016.45	14,956.69	59.76	251.269	
17,000.00	6,926.12	6,265.16	6,021.18	162.93	25.78	-72.81	-1,601.97	4,890.76	15,114.88	15,055.02	59.87	252.474	
17,100.00	6,926.03	6,259.59	6,015.62	164.51	25.77	-72.70	-1,601.98	4,890.47	15,213.33	15,153.36	59.97	253.676	
17,200.00	6,925.93	6,254.03	6,010.07	166.09	25.77	-72.59	-1,601.99	4,890.18	15,311.80	15,251.73	60.08	254.873	
17,300.00	6,925.83	6,248.46	6,004.51	167.67	25.76	-72.47	-1,601.99	4,889.89	15,410.29	15,350.11	60.18	256.066	
17,400.00	6,925.74	6,242.90	5,998.95	169.26	25.75	-72.36	-1,602.00	4,889.60	15,508.79	15,448.51	60.29	257.256	
17,500.00	6,925.64	6,237.33	5,993.39	170.84	25.74	-72.24	-1,602.01	4,889.31	15,607.31	15,546.92	60.39	258.441	
17,600.00	6,925.54	6,231.77	5,987.84	172.42	25.73	-72.13	-1,602.02	4,889.02	15,705.85	15,645.36	60.49	259.623	
17,700.00	6,925.45	6,226.20	5,982.28	174.00	25.73	-72.02	-1,602.02	4,888.73	15,804.41	15,743.81	60.60	260.801	
17,800.00	6,925.35	6,220.64	5,976.72	175.59	25.72	-71.90	-1,602.03	4,888.44	15,902.98	15,842.27	60.70	261.974	
17,900.00	6,925.25	6,215.07	5,971.16	177.17	25.71	-71.79	-1,602.03	4,888.15	16,001.57	15,940.76	60.81	263.144	
18,000.00	6,925.16	6,209.51	5,965.61	178.76	25.70	-71.68	-1,602.04	4,887.86	16,100.17	16,039.25	60.91	264.309	
18,100.00	6,925.06	6,203.94	5,960.05	180.34	25.69	-71.57	-1,602.04	4,887.57	16,198.79	16,137.77	61.02	265.471	
18,160.21	6,925.00	6,200.59	5,956.70	181.30	25.69	-71.50	-1,602.05	4,887.39	16,258.17	16,197.09	61.08	266.169	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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	81.21	2,037.73	13,178.70	13,335.31				
100.00	100.00	293.00	293.00	0.25	8.78	81.21	2,037.73	13,178.70	13,335.31	13,326.27	9.03	1,476.677	
200.00	200.00	393.00	393.00	0.61	11.78	81.21	2,037.73	13,178.70	13,335.31	13,322.92	12.39	1,076.687	
300.00	300.00	493.00	493.00	0.97	14.77	81.21	2,037.73	13,178.70	13,335.31	13,319.56	15.74	847.203	
400.00	400.00	593.10	593.00	1.33	17.77	81.21	2,037.73	13,178.70	13,335.31	13,316.21	19.10	698.244	
500.00	500.00	693.10	693.00	1.68	20.77	81.21	2,037.73	13,178.70	13,335.31	13,312.85	22.45	593.914	
600.00	599.98	800.26	800.11	2.04	23.98	69.22	2,039.82	13,178.69	13,335.01	13,308.98	26.02	512.449	
700.00	699.84	916.67	916.49	2.41	27.47	69.29	2,038.94	13,178.70	13,333.03	13,303.17	29.87	446.396	
800.00	799.45	1,032.65	1,032.43	2.77	30.94	69.40	2,037.12	13,178.70	13,329.71	13,296.01	33.70	395.496	
900.00	898.70	1,092.11	1,091.70	3.13	32.72	69.51	2,037.73	13,178.70	13,325.44	13,289.58	35.85	371.689	
1,000.00	997.47	1,190.87	1,190.47	3.50	35.68	69.67	2,037.73	13,178.70	13,319.92	13,280.74	39.18	339.930	
1,100.00	1,095.62	1,295.32	1,294.86	3.89	38.81	69.87	2,039.84	13,178.69	13,313.53	13,270.83	42.70	311.798	
1,200.00	1,193.44	1,408.60	1,408.12	4.29	42.21	69.97	2,039.03	13,178.70	13,306.14	13,259.65	46.49	286.221	
1,300.00	1,291.25	1,521.53	1,521.02	4.70	45.59	70.07	2,037.33	13,178.70	13,298.68	13,248.40	50.27	264.519	
1,400.00	1,389.07	1,582.78	1,582.07	5.11	47.43	70.12	2,037.73	13,178.70	13,291.46	13,238.94	52.52	253.086	
1,500.00	1,486.88	1,680.59	1,679.88	5.53	50.36	70.20	2,037.73	13,178.70	13,284.27	13,228.41	55.86	237.814	
1,600.00	1,584.70	1,782.72	1,781.96	5.95	53.42	70.28	2,039.87	13,178.69	13,277.40	13,218.07	59.33	223.772	
1,700.00	1,682.51	1,895.09	1,894.31	6.37	56.79	70.38	2,039.17	13,178.70	13,270.18	13,207.06	63.12	210.241	
1,800.00	1,780.33	2,007.13	2,006.31	6.80	60.14	70.48	2,037.60	13,178.70	13,262.88	13,195.98	66.90	198.263	
1,900.00	1,878.14	2,072.16	2,071.14	7.22	62.09	70.54	2,037.73	13,178.70	13,255.78	13,186.51	69.27	191.376	
2,000.00	1,975.96	2,169.97	2,168.96	7.65	65.02	70.62	2,037.73	13,178.70	13,248.73	13,176.11	72.62	182.440	
2,100.00	2,073.77	2,270.33	2,269.27	8.08	68.03	70.70	2,039.89	13,178.69	13,241.99	13,165.94	76.05	174.120	
2,200.00	2,171.59	2,381.80	2,380.72	8.51	71.37	70.79	2,039.30	13,178.70	13,234.93	13,155.11	79.82	165.817	
2,300.00	2,269.40	2,492.95	2,491.84	8.95	74.70	70.89	2,037.85	13,178.70	13,227.80	13,144.22	83.57	158.279	
2,400.00	2,367.22	2,561.53	2,560.22	9.38	76.76	70.95	2,037.73	13,178.70	13,220.81	13,134.76	86.06	153.631	
2,500.00	2,465.03	2,659.35	2,658.03	9.81	79.69	71.04	2,037.73	13,178.70	13,213.91	13,124.49	89.41	147.782	
2,600.00	2,562.84	2,758.13	2,756.77	10.25	82.65	71.11	2,039.91	13,178.69	13,207.31	13,114.50	92.80	142.315	
2,700.00	2,660.66	2,868.73	2,867.35	10.68	85.96	71.21	2,039.42	13,178.70	13,200.40	13,103.86	96.55	136.726	
2,800.00	2,758.47	2,979.01	2,977.59	11.12	89.26	71.31	2,038.08	13,178.70	13,193.44	13,093.16	100.28	131.566	
2,900.00	2,856.29	3,050.91	3,049.29	11.55	91.42	71.37	2,037.73	13,178.70	13,186.58	13,083.71	102.87	128.192	
3,000.00	2,954.10	3,148.73	3,147.10	11.99	94.35	71.46	2,037.73	13,178.70	13,179.82	13,073.59	106.23	124.071	
3,100.00	3,051.92	3,246.54	3,244.92	12.42	97.28	71.54	2,037.73	13,178.70	13,173.09	13,063.50	109.59	120.203	
3,200.00	3,149.73	3,355.87	3,354.18	12.86	100.56	71.63	2,039.52	13,178.70	13,166.60	13,053.31	113.30	116.213	
3,300.00	3,247.55	3,465.28	3,463.57	13.30	103.84	71.73	2,038.29	13,178.70	13,159.80	13,042.80	117.01	112.470	
3,400.00	3,345.36	3,540.29	3,538.36	13.73	106.08	71.79	2,037.73	13,178.70	13,153.08	13,033.39	119.69	109.895	
3,500.00	3,443.18	3,638.11	3,636.18	14.17	109.01	71.88	2,037.73	13,178.70	13,146.46	13,023.41	123.05	106.837	
3,600.00	3,540.99	3,735.92	3,733.99	14.61	111.95	71.96	2,037.73	13,178.70	13,139.88	13,013.47	126.42	103.942	
3,700.00	3,638.81	3,843.21	3,841.22	15.05	115.16	72.05	2,039.60	13,178.70	13,133.54	13,003.47	130.06	100.978	
3,800.00	3,736.62	3,951.78	3,949.76	15.48	118.41	72.14	2,038.49	13,178.70	13,126.90	12,993.15	133.75	98.146	
3,900.00	3,834.44	4,029.67	4,027.44	15.92	120.75	72.22	2,037.73	13,178.70	13,120.31	12,983.79	136.52	96.107	
4,000.00	3,932.25	4,127.48	4,125.25	16.36	123.68	72.30	2,037.73	13,178.70	13,113.85	12,973.96	139.88	93.749	
4,100.00	4,030.07	4,225.30	4,223.07	16.80	126.61	72.38	2,037.73	13,178.70	13,107.41	12,964.16	143.25	91.501	
4,200.00	4,127.88	4,330.74	4,328.46	17.24	129.77	72.47	2,039.68	13,178.70	13,101.21	12,954.37	146.84	89.220	
4,300.00	4,225.70	4,438.48	4,436.17	17.68	133.00	72.57	2,038.67	13,178.70	13,094.74	12,944.24	150.50	87.006	
4,400.00	4,323.51	4,519.05	4,516.51	18.11	135.41	72.64	2,037.73	13,178.70	13,088.29	12,934.94	153.35	85.347	
4,500.00	4,421.33	4,616.86	4,614.33	18.55	138.34	72.72	2,037.73	13,178.70	13,081.98	12,925.26	156.72	83.474	
4,600.00	4,519.14	4,714.68	4,712.14	18.99	141.27	72.81	2,037.73	13,178.70	13,075.69	12,915.60	160.09	81.679	
4,700.00	4,616.95	4,818.48	4,815.89	19.43	144.38	72.89	2,039.74	13,178.70	13,069.63	12,906.00	163.63	79.872	
4,800.00	4,714.77	4,925.39	4,922.78	19.87	147.59	72.99	2,038.83	13,178.70	13,063.32	12,896.05	167.27	78.097	
4,900.00	4,812.58	5,008.43	5,005.58	20.31	150.08	73.07	2,037.73	13,178.70	13,057.02	12,886.82	170.19	76.718	
5,000.00	4,910.40	5,106.24	5,103.40	20.75	153.01	73.15	2,037.73	13,178.70	13,050.85	12,877.29	173.56	75.194	
5,100.00	5,008.21	5,204.06	5,201.21	21.19	155.94	73.24	2,037.73	13,178.70	13,044.72	12,867.79	176.93	73.729	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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	5,306.40	5,303.51	21.63	159.00	73.32	2,039.80	13,178.69	13,038.80	12,858.37	180.43	72.265	
5,300.00	5,203.84	5,412.51	5,409.59	22.06	162.18	73.42	2,038.99	13,178.70	13,032.66	12,848.61	184.05	70.812	
5,400.00	5,301.66	5,518.31	5,515.36	22.50	165.35	73.51	2,037.39	13,178.70	13,026.49	12,838.84	187.65	69.418	
5,500.00	5,399.47	5,595.62	5,592.47	22.94	167.67	73.58	2,037.73	13,178.70	13,020.49	12,830.08	190.41	68.382	
5,600.00	5,497.29	5,693.43	5,690.29	23.38	170.60	73.67	2,037.73	13,178.70	13,014.51	12,820.73	193.77	67.163	
5,700.00	5,595.10	5,794.51	5,791.32	23.82	173.63	73.75	2,039.84	13,178.69	13,008.72	12,811.48	197.24	65.954	
5,800.00	5,692.92	5,899.82	5,896.60	24.26	176.79	73.84	2,039.12	13,178.70	13,002.75	12,801.91	200.83	64.744	
5,900.00	5,790.73	6,004.83	6,001.58	24.70	179.93	73.94	2,037.64	13,178.70	12,996.75	12,792.33	204.42	63.580	
6,000.00	5,888.55	6,085.00	6,081.55	25.14	182.33	74.01	2,037.73	13,178.70	12,990.88	12,783.63	207.26	62.680	
6,100.00	5,986.36	6,182.81	6,179.36	25.58	185.27	74.10	2,037.73	13,178.70	12,985.05	12,774.43	210.62	61.650	
6,200.00	6,084.18	6,282.80	6,279.30	26.02	188.26	74.18	2,039.87	13,178.69	12,979.41	12,765.35	214.06	60.635	
6,300.00	6,181.99	6,387.32	6,383.80	26.46	191.39	74.27	2,039.25	13,178.70	12,973.60	12,755.97	217.63	59.614	
6,401.22	6,281.00	6,492.83	6,489.28	26.90	194.55	74.37	2,037.85	13,178.70	12,967.70	12,746.47	221.23	58.616	
6,437.64	6,316.65	6,513.41	6,509.65	27.06	195.17	90.01	2,037.73	13,178.70	12,966.64	12,744.63	222.01	58.406	CC
6,450.00	6,328.76	6,518.00	6,514.23	27.12	195.31	95.37	2,037.73	13,178.70	12,966.76	12,744.56	222.20	58.356	ES
6,500.00	6,377.61	6,518.00	6,514.23	27.32	195.31	114.99	2,037.73	13,178.70	12,969.82	12,747.40	222.42	58.313	
6,550.00	6,426.06	6,518.00	6,514.23	27.52	195.31	129.55	2,037.73	13,178.70	12,976.97	12,754.35	222.62	58.291	
6,600.00	6,473.81	6,518.00	6,514.23	27.71	195.31	139.49	2,037.73	13,178.70	12,988.16	12,765.34	222.82	58.289	SF
6,650.00	6,520.56	6,518.00	6,514.23	27.89	195.31	146.28	2,037.73	13,178.70	13,003.32	12,780.31	223.01	58.308	
6,700.00	6,566.03	6,518.00	6,514.23	28.05	195.31	151.03	2,037.73	13,178.70	13,022.33	12,799.14	223.19	58.347	
6,750.00	6,609.93	6,518.00	6,514.23	28.20	195.31	154.45	2,037.73	13,178.70	13,045.06	12,821.71	223.35	58.406	
6,800.00	6,652.00	6,518.00	6,514.23	28.34	195.31	156.98	2,037.73	13,178.70	13,071.36	12,847.85	223.50	58.484	
6,850.00	6,691.98	6,518.00	6,514.23	28.47	195.31	158.86	2,037.73	13,178.70	13,101.03	12,877.39	223.64	58.581	
6,900.00	6,729.61	6,518.00	6,514.23	28.59	195.31	160.28	2,037.73	13,178.70	13,133.88	12,910.11	223.77	58.695	
6,950.00	6,764.67	6,518.00	6,514.23	28.69	195.31	161.32	2,037.73	13,178.70	13,169.68	12,945.80	223.88	58.826	
7,000.00	6,796.95	6,518.00	6,514.23	28.79	195.31	162.05	2,037.73	13,178.70	13,208.18	12,984.21	223.97	58.972	
7,050.00	6,826.23	6,518.00	6,514.23	28.89	195.31	162.49	2,037.73	13,178.70	13,249.13	13,025.07	224.06	59.132	
7,100.00	6,852.35	6,518.00	6,514.23	28.98	195.31	162.65	2,037.73	13,178.70	13,292.24	13,068.11	224.13	59.306	
7,150.00	6,875.14	6,518.00	6,514.23	29.08	195.31	162.47	2,037.73	13,178.70	13,337.25	13,113.06	224.19	59.490	
7,200.00	6,894.45	6,518.00	6,514.23	29.18	195.31	161.84	2,037.73	13,178.70	13,383.84	13,159.60	224.24	59.685	
7,250.00	6,910.18	6,518.00	6,514.23	29.28	195.31	160.44	2,037.73	13,178.70	13,431.73	13,207.44	224.28	59.888	
7,300.00	6,922.23	6,518.00	6,514.23	29.40	195.31	157.39	2,037.73	13,178.70	13,480.59	13,256.28	224.31	60.097	
7,350.00	6,930.51	6,518.00	6,514.23	29.54	195.31	148.95	2,037.73	13,178.70	13,530.12	13,305.79	224.34	60.311	
7,400.00	6,934.98	6,518.00	6,514.23	29.70	195.31	99.90	2,037.73	13,178.70	13,580.02	13,355.66	224.36	60.529	
7,433.91	6,935.83	6,518.00	6,514.23	29.81	195.31	26.33	2,037.73	13,178.70	13,613.90	13,389.54	224.37	60.677	
7,500.00	6,935.76	6,518.00	6,514.23	30.07	195.31	26.33	2,037.73	13,178.70	13,679.91	13,455.52	224.38	60.967	
7,600.00	6,935.66	6,518.00	6,514.23	30.52	195.31	26.33	2,037.73	13,178.70	13,779.78	13,555.37	224.41	61.405	
7,700.00	6,935.55	6,518.00	6,514.23	31.06	195.31	26.33	2,037.73	13,178.70	13,879.65	13,655.21	224.44	61.842	
7,800.00	6,935.45	6,518.00	6,514.23	31.68	195.31	26.33	2,037.73	13,178.70	13,979.52	13,755.06	224.46	62.279	
7,900.00	6,935.34	6,518.00	6,514.23	32.37	195.31	26.33	2,037.73	13,178.70	14,079.40	13,854.90	224.49	62.717	
8,000.00	6,935.24	6,518.00	6,514.23	33.12	195.31	26.33	2,037.73	13,178.70	14,179.27	13,954.75	224.52	63.153	
8,100.00	6,935.13	6,518.00	6,514.23	33.93	195.31	26.33	2,037.73	13,178.70	14,279.15	14,054.60	224.55	63.590	
8,200.00	6,935.03	6,518.00	6,514.23	34.80	195.31	26.33	2,037.73	13,178.70	14,379.03	14,154.45	224.58	64.026	
8,300.00	6,934.92	6,518.00	6,514.23	35.71	195.31	26.33	2,037.73	13,178.70	14,478.91	14,254.30	224.61	64.462	
8,400.00	6,934.82	6,518.00	6,514.23	36.67	195.31	26.33	2,037.73	13,178.70	14,578.80	14,354.15	224.64	64.898	
8,500.00	6,934.71	6,518.00	6,514.23	37.68	195.31	26.33	2,037.73	13,178.70	14,678.68	14,454.01	224.67	65.334	
8,600.00	6,934.61	6,518.00	6,514.23	38.72	195.31	26.33	2,037.73	13,178.70	14,778.57	14,553.86	224.71	65.769	
8,700.00	6,934.50	6,518.00	6,514.23	39.80	195.31	26.33	2,037.73	13,178.70	14,878.45	14,653.72	224.74	66.204	
8,800.00	6,934.40	6,518.00	6,514.23	40.92	195.31	26.33	2,037.73	13,178.70	14,978.34	14,753.57	224.77	66.638	
8,900.00	6,934.29	6,518.00	6,514.23	42.06	195.31	26.33	2,037.73	13,178.70	15,078.24	14,853.43	224.80	67.073	
9,000.00	6,934.19	6,518.00	6,514.23	43.23	195.31	26.33	2,037.73	13,178.70	15,178.13	14,953.29	224.84	67.507	
9,100.00	6,934.08	6,518.00	6,514.23	44.43	195.31	26.33	2,037.73	13,178.70	15,278.02	15,053.15	224.87	67.941	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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)	Rule Assigned: Minimum Separation (usft)	Separation Factor	Warning
9,200.00	6,933.98	6,518.00	6,514.23	45.66	195.31	26.33	2,037.73	13,178.70	15,377.92	15,153.01	224.91	68.374	
9,300.00	6,933.88	6,518.00	6,514.23	46.90	195.31	26.33	2,037.73	13,178.70	15,477.81	15,252.87	224.94	68.807	
9,400.00	6,933.77	6,518.00	6,514.23	48.17	195.31	26.33	2,037.73	13,178.70	15,577.71	15,352.73	224.98	69.240	
9,500.00	6,933.67	6,518.00	6,514.23	49.46	195.31	26.33	2,037.73	13,178.70	15,677.61	15,452.59	225.02	69.673	
9,600.00	6,933.56	6,518.00	6,514.23	50.76	195.31	26.33	2,037.73	13,178.70	15,777.51	15,552.45	225.06	70.105	
9,700.00	6,933.46	6,518.00	6,514.23	52.08	195.31	26.33	2,037.73	13,178.70	15,877.41	15,652.32	225.09	70.537	
9,800.00	6,933.35	6,518.00	6,514.23	53.41	195.31	26.33	2,037.73	13,178.70	15,977.32	15,752.18	225.13	70.968	
9,900.00	6,933.25	6,518.00	6,514.23	54.76	195.31	26.33	2,037.73	13,178.70	16,077.22	15,852.05	225.17	71.400	
10,000.00	6,933.14	6,518.00	6,514.23	56.12	195.31	26.33	2,037.73	13,178.70	16,177.12	15,951.91	225.21	71.831	
10,100.00	6,933.04	6,518.00	6,514.23	57.50	195.31	26.33	2,037.73	13,178.70	16,277.03	16,051.78	225.25	72.261	
10,200.00	6,932.93	6,518.00	6,514.23	58.88	195.31	26.33	2,037.73	13,178.70	16,376.94	16,151.65	225.29	72.692	
10,300.00	6,932.83	6,518.00	6,514.23	60.28	195.31	26.33	2,037.73	13,178.70	16,476.85	16,251.51	225.33	73.122	
10,400.00	6,932.72	6,518.00	6,514.23	61.69	195.31	26.33	2,037.73	13,178.70	16,576.76	16,351.38	225.38	73.551	
10,500.00	6,932.62	6,518.00	6,514.23	63.10	195.31	26.33	2,037.73	13,178.70	16,676.67	16,451.25	225.42	73.981	
10,600.00	6,932.51	6,518.00	6,514.23	64.52	195.31	26.33	2,037.73	13,178.70	16,776.58	16,551.12	225.46	74.410	
10,700.00	6,932.41	6,518.00	6,514.23	65.96	195.31	26.33	2,037.73	13,178.70	16,876.49	16,650.99	225.51	74.838	
10,800.00	6,932.30	6,518.00	6,514.23	67.39	195.31	26.33	2,037.73	13,178.70	16,976.41	16,750.86	225.55	75.266	
10,900.00	6,932.20	6,518.00	6,514.23	68.84	195.31	26.33	2,037.73	13,178.70	17,076.32	16,850.73	225.60	75.694	
11,000.00	6,932.10	6,518.00	6,514.23	70.29	195.31	26.33	2,037.73	13,178.70	17,176.24	16,950.60	225.64	76.122	
11,100.00	6,931.99	6,518.00	6,514.23	71.75	195.31	26.33	2,037.73	13,178.70	17,276.16	17,050.47	225.69	76.549	
11,200.00	6,931.89	6,518.00	6,514.23	73.22	195.31	26.33	2,037.73	13,178.70	17,376.07	17,150.34	225.73	76.976	
11,300.00	6,931.78	6,518.00	6,514.23	74.69	195.31	26.33	2,037.73	13,178.70	17,475.99	17,250.21	225.78	77.402	
11,400.00	6,931.68	6,518.00	6,514.23	76.16	195.31	26.33	2,037.73	13,178.70	17,575.91	17,350.08	225.83	77.828	
11,500.00	6,931.57	6,518.00	6,514.23	77.64	195.31	26.33	2,037.73	13,178.70	17,675.83	17,449.96	225.88	78.254	
11,600.00	6,931.47	6,518.00	6,514.23	79.13	195.31	26.33	2,037.73	13,178.70	17,775.75	17,549.83	225.93	78.679	
11,700.00	6,931.36	6,518.00	6,514.23	80.62	195.31	26.33	2,037.73	13,178.70	17,875.68	17,649.70	225.98	79.104	
11,800.00	6,931.26	6,518.00	6,514.23	82.11	195.31	26.33	2,037.73	13,178.70	17,975.60	17,749.57	226.03	79.529	
11,900.00	6,931.15	6,518.00	6,514.23	83.61	195.31	26.33	2,037.73	13,178.70	18,075.52	17,849.45	226.08	79.953	
12,000.00	6,931.05	6,518.00	6,514.23	85.11	195.31	26.33	2,037.73	13,178.70	18,175.45	17,949.32	226.13	80.377	
12,100.00	6,930.94	6,518.00	6,514.23	86.62	195.31	26.33	2,037.73	13,178.70	18,275.38	18,049.20	226.18	80.800	
12,200.00	6,930.84	6,518.00	6,514.23	88.13	195.31	26.33	2,037.73	13,178.70	18,375.30	18,149.07	226.23	81.223	
12,300.00	6,930.73	6,518.00	6,514.23	89.64	195.31	26.33	2,037.73	13,178.70	18,475.23	18,248.95	226.28	81.646	
12,400.00	6,930.63	6,518.00	6,514.23	91.15	195.31	26.33	2,037.73	13,178.70	18,575.16	18,348.82	226.34	82.068	
12,500.00	6,930.52	6,518.00	6,514.23	92.67	195.31	26.33	2,037.73	13,178.70	18,675.09	18,448.70	226.39	82.490	
12,600.00	6,930.42	6,518.00	6,514.23	94.19	195.31	26.33	2,037.73	13,178.70	18,775.02	18,548.57	226.45	82.912	
12,700.00	6,930.31	6,518.00	6,514.23	95.71	195.31	26.33	2,037.73	13,178.70	18,874.95	18,648.45	226.50	83.333	
12,800.00	6,930.21	6,518.00	6,514.23	97.24	195.31	26.33	2,037.73	13,178.70	18,974.88	18,748.32	226.56	83.753	
12,900.00	6,930.11	6,518.00	6,514.23	98.77	195.31	26.33	2,037.73	13,178.70	19,074.81	18,848.20	226.61	84.174	
13,008.91	6,929.99	6,518.00	6,514.23	100.43	195.31	26.33	2,037.73	13,178.70	19,183.65	18,956.97	226.67	84.631	
13,100.00	6,929.90	6,518.00	6,514.23	101.83	195.31	55.75	2,037.73	13,178.70	19,274.64	19,047.90	226.73	85.010	
13,139.82	6,929.86	6,518.00	6,514.23	102.44	195.31	62.20	2,037.73	13,178.70	19,314.38	19,087.61	226.76	85.174	
13,200.00	6,929.80	6,518.00	6,514.23	103.37	195.31	62.20	2,037.73	13,178.70	19,374.41	19,147.60	226.81	85.420	
13,300.00	6,929.70	6,518.00	6,514.23	104.92	195.31	62.20	2,037.73	13,178.70	19,474.17	19,247.28	226.90	85.829	
13,400.00	6,929.61	6,518.00	6,514.23	106.47	195.31	62.20	2,037.73	13,178.70	19,573.93	19,346.96	226.98	86.237	
13,500.00	6,929.51	6,518.00	6,514.23	108.02	195.31	62.20	2,037.73	13,178.70	19,673.70	19,446.64	227.06	86.646	
13,600.00	6,929.41	6,518.00	6,514.23	109.57	195.31	62.20	2,037.73	13,178.70	19,773.47	19,546.32	227.14	87.053	
13,700.00	6,929.32	6,518.00	6,514.23	111.12	195.31	62.20	2,037.73	13,178.70	19,873.24	19,646.01	227.22	87.461	
13,800.00	6,929.22	6,518.00	6,514.23	112.68	195.31	62.20	2,037.73	13,178.70	19,973.01	19,745.70	227.31	87.868	
13,900.00	6,929.12	6,518.00	6,514.23	114.23	195.31	62.20	2,037.73	13,178.70	20,072.78	19,845.39	227.39	88.274	
14,000.00	6,929.03	6,518.00	6,514.23	115.79	195.31	62.20	2,037.73	13,178.70	20,172.56	19,945.08	227.48	88.680	
14,100.00	6,928.93	6,518.00	6,514.23	117.35	195.31	62.20	2,037.73	13,178.70	20,272.34	20,044.78	227.56	89.086	
14,200.00	6,928.83	6,518.00	6,514.23	118.91	195.31	62.20	2,037.73	13,178.70	20,372.12	20,144.47	227.64	89.491	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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
14,300.00	6,928.74	6,518.00	6,514.23	120.47	195.31	62.20	2,037.73	13,178.70	20,471.90	20,244.17	227.73	89.896	
14,400.00	6,928.64	6,518.00	6,514.23	122.03	195.31	62.20	2,037.73	13,178.70	20,571.69	20,343.87	227.81	90.300	
14,500.00	6,928.54	6,518.00	6,514.23	123.60	195.31	62.20	2,037.73	13,178.70	20,671.47	20,443.57	227.90	90.704	
14,600.00	6,928.45	6,518.00	6,514.23	125.16	195.31	62.20	2,037.73	13,178.70	20,771.26	20,543.28	227.99	91.108	
14,700.00	6,928.35	6,518.00	6,514.23	126.72	195.31	62.20	2,037.73	13,178.70	20,871.05	20,642.98	228.07	91.511	
14,800.00	6,928.25	6,518.00	6,514.23	128.29	195.31	62.20	2,037.73	13,178.70	20,970.85	20,742.69	228.16	91.914	
14,900.00	6,928.16	6,518.00	6,514.23	129.86	195.31	62.20	2,037.73	13,178.70	21,070.64	20,842.40	228.24	92.316	
15,000.00	6,928.06	6,518.00	6,514.23	131.42	195.31	62.20	2,037.73	13,178.70	21,170.44	20,942.11	228.33	92.718	
15,100.00	6,927.96	6,518.00	6,514.23	132.99	195.31	62.20	2,037.73	13,178.70	21,270.24	21,041.82	228.42	93.119	
15,200.00	6,927.87	6,518.00	6,514.23	134.56	195.31	62.20	2,037.73	13,178.70	21,370.04	21,141.53	228.51	93.521	
15,300.00	6,927.77	6,518.00	6,514.23	136.13	195.31	62.20	2,037.73	13,178.70	21,469.84	21,241.25	228.59	93.921	
15,400.00	6,927.67	6,518.00	6,514.23	137.70	195.31	62.20	2,037.73	13,178.70	21,569.65	21,340.96	228.68	94.321	
15,500.00	6,927.57	6,518.00	6,514.23	139.28	195.31	62.20	2,037.73	13,178.70	21,669.45	21,440.68	228.77	94.721	
15,600.00	6,927.48	6,518.00	6,514.23	140.85	195.31	62.20	2,037.73	13,178.70	21,769.26	21,540.40	228.86	95.120	
15,700.00	6,927.38	6,518.00	6,514.23	142.42	195.31	62.20	2,037.73	13,178.70	21,869.07	21,640.12	228.95	95.519	
15,800.00	6,927.28	6,518.00	6,514.23	144.00	195.31	62.20	2,037.73	13,178.70	21,968.88	21,739.84	229.04	95.918	
15,900.00	6,927.19	6,518.00	6,514.23	145.57	195.31	62.20	2,037.73	13,178.70	22,068.70	21,839.57	229.13	96.316	
16,000.00	6,927.09	6,518.00	6,514.23	147.15	195.31	62.20	2,037.73	13,178.70	22,168.51	21,939.29	229.22	96.714	
16,100.00	6,926.99	6,518.00	6,514.23	148.72	195.31	62.20	2,037.73	13,178.70	22,268.33	22,039.02	229.31	97.111	
16,200.00	6,926.90	6,518.00	6,514.23	150.30	195.31	62.20	2,037.73	13,178.70	22,368.14	22,138.75	229.40	97.508	
16,300.00	6,926.80	6,518.00	6,514.23	151.87	195.31	62.20	2,037.73	13,178.70	22,467.96	22,238.47	229.49	97.904	
16,400.00	6,926.70	6,518.00	6,514.23	153.45	195.31	62.20	2,037.73	13,178.70	22,567.79	22,338.21	229.58	98.300	
16,500.00	6,926.61	6,518.00	6,514.23	155.03	195.31	62.20	2,037.73	13,178.70	22,667.61	22,437.94	229.67	98.695	
16,600.00	6,926.51	6,518.00	6,514.23	156.61	195.31	62.20	2,037.73	13,178.70	22,767.43	22,537.67	229.76	99.090	
16,700.00	6,926.41	6,518.00	6,514.23	158.19	195.31	62.20	2,037.73	13,178.70	22,867.26	22,637.40	229.86	99.485	
16,800.00	6,926.32	6,518.00	6,514.23	159.77	195.31	62.20	2,037.73	13,178.70	22,967.09	22,737.14	229.95	99.879	
16,900.00	6,926.22	6,518.00	6,514.23	161.35	195.31	62.20	2,037.73	13,178.70	23,066.92	22,836.88	230.04	100.273	
17,000.00	6,926.12	6,518.00	6,514.23	162.93	195.31	62.20	2,037.73	13,178.70	23,166.75	22,936.61	230.13	100.666	
17,100.00	6,926.03	6,518.00	6,514.23	164.51	195.31	62.20	2,037.73	13,178.70	23,266.58	23,036.35	230.23	101.059	
17,200.00	6,925.93	6,518.00	6,514.23	166.09	195.31	62.20	2,037.73	13,178.70	23,366.41	23,136.09	230.32	101.451	
17,300.00	6,925.83	6,518.00	6,514.23	167.67	195.31	62.20	2,037.73	13,178.70	23,466.25	23,235.83	230.41	101.843	
17,400.00	6,925.74	6,518.00	6,514.23	169.26	195.31	62.20	2,037.73	13,178.70	23,566.08	23,335.58	230.51	102.235	
17,500.00	6,925.64	6,518.00	6,514.23	170.84	195.31	62.20	2,037.73	13,178.70	23,665.92	23,435.32	230.60	102.626	
17,600.00	6,925.54	6,518.00	6,514.23	172.42	195.31	62.20	2,037.73	13,178.70	23,765.76	23,535.06	230.70	103.017	
17,700.00	6,925.45	6,518.00	6,514.23	174.00	195.31	62.20	2,037.73	13,178.70	23,865.60	23,634.81	230.79	103.407	
17,800.00	6,925.35	6,518.00	6,514.23	175.59	195.31	62.20	2,037.73	13,178.70	23,965.44	23,734.56	230.89	103.797	
17,900.00	6,925.25	6,518.00	6,514.23	177.17	195.31	62.20	2,037.73	13,178.70	24,065.29	23,834.30	230.98	104.186	
18,000.00	6,925.16	6,518.00	6,514.23	178.76	195.31	62.20	2,037.73	13,178.70	24,165.13	23,934.05	231.08	104.575	
18,100.00	6,925.06	6,518.00	6,514.23	180.34	195.31	62.20	2,037.73	13,178.70	24,264.98	24,033.80	231.17	104.964	
18,160.21	6,925.00	6,518.00	6,514.23	181.30	195.31	62.20	2,037.73	13,178.70	24,325.10	24,093.87	231.23	105.197	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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
0.00	0.00	0.00	0.00	0.00	0.00	107.68	-994.10	3,118.81	3,274.04				
100.00	100.00	36.00	36.00	0.25	1.08	107.68	-994.10	3,118.81	3,273.41	3,272.08	1.33	2,461.512	
200.00	200.00	136.00	136.00	0.61	4.08	107.68	-994.10	3,118.81	3,273.41	3,268.73	4.68	698.742	
300.00	300.00	236.00	236.00	0.97	7.07	107.68	-994.10	3,118.81	3,273.41	3,265.37	8.04	407.161	
400.00	400.00	336.00	336.00	1.33	10.07	107.68	-994.10	3,118.81	3,273.41	3,262.02	11.39	287.280	
500.00	500.00	436.00	436.00	1.68	13.06	107.68	-994.10	3,118.81	3,273.41	3,258.67	14.75	221.936 CC	
600.00	599.98	536.08	535.98	2.04	16.06	95.71	-994.10	3,118.81	3,273.59	3,255.48	18.11	180.802	
700.00	699.84	635.94	635.84	2.41	19.06	95.79	-994.10	3,118.81	3,274.11	3,252.66	21.46	152.598	
800.00	799.45	735.55	735.45	2.77	22.04	95.92	-994.10	3,118.81	3,275.00	3,250.20	24.80	132.051	
900.00	898.70	829.20	829.05	3.13	24.85	96.06	-992.14	3,118.81	3,275.69	3,247.71	27.97	117.100	
1,000.00	997.47	921.31	921.13	3.50	27.61	96.28	-992.95	3,118.81	3,277.67	3,246.56	31.11	105.362	
1,100.00	1,095.62	1,032.03	1,031.62	3.89	30.92	96.62	-994.10	3,118.81	3,280.20	3,245.39	34.81	94.220	
1,200.00	1,193.44	1,129.84	1,129.44	4.29	33.86	96.97	-994.10	3,118.81	3,282.72	3,244.57	38.15	86.059	
1,300.00	1,291.25	1,227.66	1,227.25	4.70	36.79	97.33	-994.10	3,118.81	3,285.36	3,243.88	41.48	79.198	
1,400.00	1,389.07	1,320.05	1,319.60	5.11	39.55	97.63	-992.10	3,118.81	3,287.46	3,242.80	44.66	73.606	
1,500.00	1,486.88	1,410.67	1,410.19	5.53	42.27	97.96	-992.83	3,118.81	3,290.62	3,242.83	47.79	68.850	
1,600.00	1,584.70	1,521.41	1,520.70	5.95	45.59	98.38	-994.10	3,118.81	3,294.07	3,242.54	51.53	63.923	
1,700.00	1,682.51	1,619.22	1,618.51	6.37	48.52	98.73	-994.10	3,118.81	3,297.23	3,242.34	54.88	60.076	
1,800.00	1,780.33	1,717.04	1,716.33	6.80	51.45	99.08	-994.10	3,118.81	3,300.52	3,242.28	58.24	56.672	
1,900.00	1,878.14	1,809.80	1,809.04	7.22	54.23	99.38	-992.05	3,118.81	3,303.18	3,241.74	61.44	53.759 ES	
2,000.00	1,975.96	1,899.83	1,899.05	7.65	56.93	99.71	-992.71	3,118.81	3,306.98	3,242.41	64.57	51.217	
2,100.00	2,073.77	2,010.79	2,009.77	8.08	60.25	100.12	-994.10	3,118.81	3,311.15	3,242.82	68.32	48.465	
2,200.00	2,171.59	2,108.60	2,107.59	8.51	63.18	100.47	-994.10	3,118.81	3,314.94	3,243.26	71.68	46.246	
2,300.00	2,269.40	2,206.42	2,205.40	8.95	66.11	100.81	-994.10	3,118.81	3,318.86	3,243.82	75.04	44.228	
2,400.00	2,367.22	2,299.67	2,298.61	9.38	68.91	101.11	-992.01	3,118.81	3,322.08	3,243.82	78.26	42.447	
2,500.00	2,465.03	2,389.13	2,388.05	9.81	71.59	101.43	-992.60	3,118.81	3,326.50	3,245.13	81.37	40.880	
2,600.00	2,562.84	2,500.16	2,498.84	10.25	74.92	101.84	-994.10	3,118.81	3,331.38	3,246.25	85.13	39.132	
2,700.00	2,660.66	2,597.98	2,596.66	10.68	77.85	102.19	-994.10	3,118.81	3,335.80	3,247.31	88.49	37.696	
2,800.00	2,758.47	2,695.79	2,694.47	11.12	80.78	102.53	-994.10	3,118.81	3,340.34	3,248.49	91.85	36.366	
2,900.00	2,856.29	2,789.68	2,788.32	11.55	83.59	102.82	-991.98	3,118.81	3,344.11	3,249.01	95.10	35.165	
3,000.00	2,954.10	2,878.57	2,877.19	11.99	86.26	103.14	-992.50	3,118.81	3,349.14	3,250.95	98.19	34.109	
3,100.00	3,051.92	2,967.26	2,965.85	12.42	88.91	103.46	-993.57	3,118.81	3,354.55	3,253.28	101.28	33.123	
3,200.00	3,149.73	3,087.36	3,085.73	12.86	92.51	103.88	-994.10	3,118.81	3,359.75	3,254.44	105.31	31.904	
3,300.00	3,247.55	3,185.17	3,183.55	13.30	95.44	104.22	-994.10	3,118.81	3,364.90	3,256.23	108.67	30.964	
3,400.00	3,345.36	3,279.82	3,278.15	13.73	98.28	104.51	-991.95	3,118.81	3,369.21	3,257.27	111.94	30.099	
3,500.00	3,443.18	3,368.15	3,366.46	14.17	100.92	104.82	-992.41	3,118.81	3,374.82	3,259.81	115.01	29.343	
3,600.00	3,540.99	3,456.28	3,454.57	14.61	103.57	105.14	-993.41	3,118.81	3,380.84	3,262.76	118.08	28.632	
3,700.00	3,638.81	3,576.74	3,574.81	15.05	107.18	105.56	-994.10	3,118.81	3,386.72	3,264.59	122.12	27.732	
3,800.00	3,736.62	3,674.55	3,672.62	15.48	110.11	105.89	-994.10	3,118.81	3,392.47	3,266.98	125.48	27.035	
3,900.00	3,834.44	3,770.08	3,768.11	15.92	112.97	106.18	-991.94	3,118.81	3,397.30	3,268.53	128.77	26.382	
4,000.00	3,932.25	3,857.86	3,855.87	16.36	115.60	106.48	-992.33	3,118.81	3,403.49	3,271.65	131.83	25.817	
4,100.00	4,030.07	3,945.44	3,943.43	16.80	118.22	106.79	-993.26	3,118.81	3,410.08	3,275.20	134.88	25.282	
4,200.00	4,127.88	4,066.11	4,063.88	17.24	121.84	107.20	-994.10	3,118.81	3,416.64	3,277.71	138.93	24.592	
4,300.00	4,225.70	4,163.93	4,161.70	17.68	124.77	107.53	-994.10	3,118.81	3,422.97	3,280.68	142.29	24.056	
4,400.00	4,323.51	4,260.47	4,258.20	18.11	127.66	107.82	-991.93	3,118.81	3,428.32	3,282.71	145.61	23.545	
4,500.00	4,421.33	4,347.70	4,345.41	18.55	130.28	108.11	-992.26	3,118.81	3,435.06	3,286.41	148.65	23.109	
4,600.00	4,519.14	4,434.73	4,432.42	18.99	132.88	108.41	-993.12	3,118.81	3,442.22	3,290.54	151.68	22.694	
4,700.00	4,616.95	4,555.49	4,552.95	19.43	136.50	108.82	-994.10	3,118.81	3,449.43	3,293.70	155.73	22.150	
4,800.00	4,714.77	4,653.31	4,650.77	19.87	139.43	109.14	-994.10	3,118.81	3,456.33	3,297.24	159.09	21.726	
4,900.00	4,812.58	4,750.98	4,748.40	20.31	142.36	109.43	-991.92	3,118.81	3,462.19	3,299.75	162.44	21.314	
5,000.00	4,910.40	4,837.67	4,835.08	20.75	144.96	109.71	-992.19	3,118.81	3,469.46	3,304.00	165.46	20.969	
5,100.00	5,008.21	4,924.17	4,921.55	21.19	147.55	110.00	-992.98	3,118.81	3,477.16	3,308.69	168.47	20.640	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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

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	5,044.87	5,042.03	21.63	151.17	110.41	-994.10	3,118.81	3,485.02	3,312.50	172.52	20.201	
5,300.00	5,203.84	5,142.69	5,139.84	22.06	154.10	110.72	-994.10	3,118.81	3,492.47	3,316.59	175.87	19.858	
5,400.00	5,301.66	5,240.50	5,237.66	22.50	157.03	111.03	-994.10	3,118.81	3,500.02	3,320.79	179.23	19.528	
5,500.00	5,399.47	5,327.76	5,324.87	22.94	159.64	111.28	-992.13	3,118.81	3,506.60	3,324.34	182.26	19.239	
5,600.00	5,497.29	5,413.73	5,410.81	23.38	162.22	111.57	-992.86	3,118.81	3,514.82	3,329.57	185.25	18.973	
5,700.00	5,595.10	5,534.25	5,531.10	23.82	165.83	111.96	-994.10	3,118.81	3,523.32	3,334.02	189.30	18.613	
5,800.00	5,692.92	5,632.06	5,628.92	24.26	168.76	112.27	-994.10	3,118.81	3,531.30	3,338.65	192.65	18.330	
5,900.00	5,790.73	5,729.88	5,726.73	24.70	171.69	112.58	-994.10	3,118.81	3,539.38	3,343.38	196.00	18.058	
6,000.00	5,888.55	5,817.98	5,814.78	25.14	174.33	112.82	-992.09	3,118.81	3,546.41	3,347.35	199.06	17.816	
6,100.00	5,986.36	5,903.42	5,900.21	25.58	176.89	113.10	-992.75	3,118.81	3,555.13	3,353.10	202.03	17.597	
6,200.00	6,084.18	6,023.63	6,020.18	26.02	180.50	113.48	-994.10	3,118.81	3,564.24	3,358.17	206.07	17.297	
6,300.00	6,181.99	6,121.44	6,117.99	26.46	183.43	113.78	-994.10	3,118.81	3,572.73	3,363.31	209.42	17.060	
6,401.22	6,281.00	6,220.45	6,217.00	26.90	186.39	114.09	-994.10	3,118.81	3,581.43	3,368.62	212.81	16.829	
6,450.00	6,328.76	6,265.83	6,262.34	27.12	187.75	135.47	-991.93	3,118.81	3,585.82	3,371.46	214.37	16.728	
6,500.00	6,377.61	6,308.31	6,304.81	27.32	189.03	155.70	-992.04	3,118.81	3,594.76	3,378.93	215.83	16.656	
6,550.00	6,426.06	6,350.40	6,346.89	27.52	190.29	171.03	-992.28	3,118.81	3,606.77	3,389.51	217.26	16.601	
6,600.00	6,473.81	6,391.84	6,388.32	27.71	191.53	-178.07	-992.63	3,118.81	3,621.79	3,403.13	218.66	16.564	
6,650.00	6,520.56	6,432.38	6,428.85	27.89	192.74	-170.12	-993.09	3,118.81	3,639.71	3,419.70	220.01	16.543	
6,700.00	6,566.03	6,505.78	6,502.03	28.05	194.94	-164.05	-994.10	3,118.81	3,660.53	3,438.18	222.35	16.463	
6,750.00	6,609.93	6,549.69	6,545.93	28.20	196.26	-159.05	-994.10	3,118.81	3,683.46	3,459.68	223.78	16.460	SF
6,800.00	6,652.00	6,591.76	6,588.00	28.34	197.52	-154.70	-994.10	3,118.81	3,708.85	3,483.72	225.13	16.474	
6,850.00	6,691.98	6,631.73	6,627.98	28.47	198.72	-150.68	-994.10	3,118.81	3,736.59	3,510.19	226.40	16.504	
6,900.00	6,729.61	6,669.37	6,665.61	28.59	199.84	-146.80	-994.10	3,118.81	3,766.51	3,538.92	227.59	16.550	
6,950.00	6,764.67	6,704.43	6,700.67	28.69	200.90	-142.89	-994.10	3,118.81	3,798.46	3,569.78	228.68	16.611	
7,000.00	6,796.95	6,736.70	6,732.95	28.79	201.86	-138.84	-994.10	3,118.81	3,832.26	3,602.59	229.66	16.686	
7,050.00	6,826.23	6,763.82	6,760.02	28.89	202.67	-134.54	-991.93	3,118.81	3,866.47	3,635.99	230.48	16.776	
7,100.00	6,852.35	6,786.41	6,782.61	28.98	203.35	-129.84	-991.97	3,118.81	3,903.46	3,672.32	231.14	16.888	
7,150.00	6,875.14	6,806.12	6,802.31	29.08	203.94	-124.75	-992.03	3,118.81	3,941.74	3,710.04	231.71	17.012	
7,200.00	6,894.45	6,822.82	6,819.01	29.18	204.44	-119.22	-992.11	3,118.81	3,981.10	3,748.94	232.16	17.148	
7,250.00	6,910.18	6,836.42	6,832.61	29.28	204.85	-113.28	-992.18	3,118.81	4,021.30	3,788.79	232.51	17.295	
7,300.00	6,922.23	6,846.83	6,843.02	29.40	205.16	-106.98	-992.25	3,118.81	4,062.12	3,829.36	232.76	17.452	
7,350.00	6,930.51	6,854.00	6,850.19	29.54	205.38	-100.46	-992.30	3,118.81	4,103.31	3,870.42	232.89	17.619	
7,400.00	6,934.98	6,857.87	6,854.06	29.70	205.49	-93.89	-992.33	3,118.81	4,144.64	3,911.72	232.92	17.794	
7,433.91	6,935.83	6,858.61	6,854.80	29.81	205.52	-89.50	-992.34	3,118.81	4,172.62	3,939.74	232.88	17.917	
7,500.00	6,935.76	6,858.57	6,854.75	30.07	205.51	-89.50	-992.34	3,118.81	4,227.23	3,994.46	232.76	18.161	
7,600.00	6,935.66	6,858.50	6,854.69	30.52	205.51	-89.50	-992.34	3,118.81	4,310.46	4,077.86	232.60	18.531	
7,700.00	6,935.55	6,858.43	6,854.62	31.06	205.51	-89.50	-992.33	3,118.81	4,394.39	4,161.92	232.47	18.903	
7,800.00	6,935.45	6,858.37	6,854.55	31.68	205.51	-89.49	-992.33	3,118.81	4,478.98	4,246.63	232.35	19.277	
7,900.00	6,935.34	6,858.30	6,854.48	32.37	205.51	-89.49	-992.33	3,118.81	4,564.20	4,331.94	232.26	19.652	
8,000.00	6,935.24	6,858.23	6,854.41	33.12	205.50	-89.49	-992.33	3,118.81	4,650.00	4,417.82	232.18	20.028	
8,100.00	6,935.13	6,858.16	6,854.35	33.93	205.50	-89.49	-992.33	3,118.81	4,736.36	4,504.24	232.12	20.405	
8,200.00	6,935.03	6,858.09	6,854.28	34.80	205.50	-89.49	-992.33	3,118.81	4,823.25	4,591.18	232.07	20.784	
8,300.00	6,934.92	6,858.03	6,854.21	35.71	205.50	-89.49	-992.33	3,118.81	4,910.63	4,678.60	232.04	21.163	
8,400.00	6,934.82	6,857.96	6,854.14	36.67	205.50	-89.48	-992.33	3,118.81	4,998.49	4,766.47	232.02	21.544	
8,500.00	6,934.71	6,857.89	6,854.07	37.68	205.49	-89.48	-992.33	3,118.81	5,086.80	4,854.79	232.01	21.925	
8,600.00	6,934.61	6,857.82	6,854.01	38.72	205.49	-89.48	-992.33	3,118.81	5,175.53	4,943.52	232.01	22.307	
8,700.00	6,934.50	6,857.75	6,853.94	39.80	205.49	-89.48	-992.33	3,118.81	5,264.67	5,032.65	232.02	22.690	
8,800.00	6,934.40	6,857.69	6,853.87	40.92	205.49	-89.48	-992.33	3,118.81	5,354.19	5,122.15	232.04	23.074	
8,900.00	6,934.29	6,857.62	6,853.80	42.06	205.49	-89.48	-992.33	3,118.81	5,444.07	5,212.00	232.07	23.459	
9,000.00	6,934.19	6,857.55	6,853.73	43.23	205.48	-89.47	-992.33	3,118.81	5,534.31	5,302.20	232.11	23.844	
9,100.00	6,934.08	6,857.48	6,853.67	44.43	205.48	-89.47	-992.33	3,118.81	5,624.87	5,392.72	232.15	24.230	
9,200.00	6,933.98	6,857.41	6,853.60	45.66	205.48	-89.47	-992.33	3,118.81	5,715.75	5,483.55	232.20	24.616	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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
9,300.00	6,933.88	6,857.34	6,853.53	46.90	205.48	-89.47	-992.33	3,118.81	5,806.92	5,574.67	232.25	25.003	
9,400.00	6,933.77	6,857.28	6,853.46	48.17	205.47	-89.47	-992.33	3,118.81	5,898.39	5,666.08	232.31	25.390	
9,500.00	6,933.67	6,857.21	6,853.39	49.46	205.47	-89.47	-992.33	3,118.81	5,990.12	5,757.75	232.37	25.778	
9,600.00	6,933.56	6,857.14	6,853.32	50.76	205.47	-89.46	-992.32	3,118.81	6,082.12	5,849.68	232.44	26.167	
9,700.00	6,933.46	6,857.07	6,853.26	52.08	205.47	-89.46	-992.32	3,118.81	6,174.37	5,941.86	232.51	26.555	
9,800.00	6,933.35	6,857.00	6,853.19	53.41	205.47	-89.46	-992.32	3,118.81	6,266.85	6,034.27	232.58	26.945	
9,900.00	6,933.25	6,856.93	6,853.12	54.76	205.46	-89.46	-992.32	3,118.81	6,359.56	6,126.90	232.66	27.334	
10,000.00	6,933.14	6,856.87	6,853.05	56.12	205.46	-89.46	-992.32	3,118.81	6,452.49	6,219.75	232.74	27.724	
10,100.00	6,933.04	6,856.80	6,852.98	57.50	205.46	-89.46	-992.32	3,118.81	6,545.63	6,312.81	232.82	28.115	
10,200.00	6,932.93	6,856.73	6,852.91	58.88	205.46	-89.45	-992.32	3,118.81	6,638.96	6,406.06	232.90	28.505	
10,300.00	6,932.83	6,856.66	6,852.85	60.28	205.46	-89.45	-992.32	3,118.81	6,732.49	6,499.50	232.99	28.896	
10,400.00	6,932.72	6,856.59	6,852.78	61.69	205.45	-89.45	-992.32	3,118.81	6,826.20	6,593.13	233.08	29.287	
10,500.00	6,932.62	6,856.52	6,852.71	63.10	205.45	-89.45	-992.32	3,118.81	6,920.09	6,686.92	233.17	29.679	
10,600.00	6,932.51	6,856.45	6,852.64	64.52	205.45	-89.45	-992.32	3,118.81	7,014.15	6,780.89	233.26	30.071	
10,700.00	6,932.41	6,856.39	6,852.57	65.96	205.45	-89.45	-992.32	3,118.81	7,108.37	6,875.02	233.35	30.463	
10,800.00	6,932.30	6,856.32	6,852.50	67.39	205.45	-89.44	-992.32	3,118.81	7,202.74	6,969.30	233.44	30.855	
10,900.00	6,932.20	6,856.25	6,852.43	68.84	205.44	-89.44	-992.32	3,118.81	7,297.26	7,063.73	233.53	31.247	
11,000.00	6,932.10	6,856.18	6,852.37	70.29	205.44	-89.44	-992.32	3,118.81	7,391.93	7,158.31	233.63	31.640	
11,100.00	6,931.99	6,856.11	6,852.30	71.75	205.44	-89.44	-992.32	3,118.81	7,486.74	7,253.02	233.72	32.033	
11,200.00	6,931.89	6,856.04	6,852.23	73.22	205.44	-89.44	-992.32	3,118.81	7,581.68	7,347.86	233.82	32.426	
11,300.00	6,931.78	6,855.97	6,852.16	74.69	205.44	-89.44	-992.32	3,118.81	7,676.75	7,442.84	233.91	32.819	
11,400.00	6,931.68	6,855.90	6,852.09	76.16	205.43	-89.43	-992.32	3,118.81	7,771.94	7,537.93	234.01	33.212	
11,500.00	6,931.57	6,855.83	6,852.02	77.64	205.43	-89.43	-992.32	3,118.81	7,867.26	7,633.15	234.11	33.605	
11,600.00	6,931.47	6,855.77	6,851.95	79.13	205.43	-89.43	-992.31	3,118.81	7,962.68	7,728.48	234.21	33.999	
11,700.00	6,931.36	6,855.70	6,851.88	80.62	205.43	-89.43	-992.31	3,118.81	8,058.22	7,823.92	234.30	34.392	
11,800.00	6,931.26	6,855.63	6,851.81	82.11	205.43	-89.43	-992.31	3,118.81	8,153.87	7,919.46	234.40	34.786	
11,900.00	6,931.15	6,855.56	6,851.75	83.61	205.42	-89.43	-992.31	3,118.81	8,249.61	8,015.11	234.50	35.179	
12,000.00	6,931.05	6,855.49	6,851.68	85.11	205.42	-89.42	-992.31	3,118.81	8,345.46	8,110.86	234.60	35.573	
12,100.00	6,930.94	6,855.42	6,851.61	86.62	205.42	-89.42	-992.31	3,118.81	8,441.41	8,206.71	234.70	35.967	
12,200.00	6,930.84	6,855.35	6,851.54	88.13	205.42	-89.42	-992.31	3,118.81	8,537.44	8,302.65	234.80	36.361	
12,300.00	6,930.73	6,855.28	6,851.47	89.64	205.42	-89.42	-992.31	3,118.81	8,633.57	8,398.67	234.90	36.755	
12,400.00	6,930.63	6,855.21	6,851.40	91.15	205.41	-89.42	-992.31	3,118.81	8,729.79	8,494.79	235.00	37.149	
12,500.00	6,930.52	6,855.14	6,851.33	92.67	205.41	-89.42	-992.31	3,118.81	8,826.08	8,590.99	235.09	37.543	
12,600.00	6,930.42	6,855.08	6,851.26	94.19	205.41	-89.41	-992.31	3,118.81	8,922.46	8,687.27	235.19	37.937	
12,700.00	6,930.31	6,855.01	6,851.19	95.71	205.41	-89.41	-992.31	3,118.81	9,018.92	8,783.63	235.29	38.331	
12,800.00	6,930.21	6,854.94	6,851.12	97.24	205.40	-89.41	-992.31	3,118.81	9,115.46	8,880.07	235.39	38.725	
12,900.00	6,930.11	6,854.87	6,851.05	98.77	205.40	-89.41	-992.31	3,118.81	9,212.07	8,976.58	235.49	39.118	
13,008.91	6,929.99	6,854.79	6,850.98	100.43	205.40	-89.41	-992.31	3,118.81	9,317.36	9,081.76	235.60	39.547	
13,100.00	6,929.90	6,854.72	6,850.91	101.83	205.40	-89.34	-992.31	3,118.81	9,405.85	9,170.16	235.69	39.908	
13,139.82	6,929.86	6,854.69	6,850.87	102.44	205.40	-89.30	-992.31	3,118.81	9,444.75	9,209.02	235.72	40.067	
13,200.00	6,929.80	6,854.63	6,850.82	103.37	205.40	-89.29	-992.31	3,118.81	9,503.64	9,267.86	235.78	40.307	
13,300.00	6,929.70	6,854.54	6,850.73	104.92	205.39	-89.29	-992.31	3,118.81	9,601.54	9,365.67	235.87	40.707	
13,400.00	6,929.61	6,854.45	6,850.63	106.47	205.39	-89.29	-992.30	3,118.81	9,699.48	9,463.52	235.96	41.107	
13,500.00	6,929.51	6,854.36	6,850.54	108.02	205.39	-89.29	-992.30	3,118.81	9,797.46	9,561.41	236.05	41.506	
13,600.00	6,929.41	6,854.26	6,850.45	109.57	205.38	-89.28	-992.30	3,118.81	9,895.48	9,659.34	236.14	41.905	
13,700.00	6,929.32	6,854.17	6,850.36	111.12	205.38	-89.28	-992.30	3,118.81	9,993.54	9,757.31	236.23	42.305	
13,800.00	6,929.22	6,854.08	6,850.27	112.68	205.38	-89.28	-992.30	3,118.81	10,091.64	9,855.32	236.32	42.704	
13,900.00	6,929.12	6,853.99	6,850.18	114.23	205.38	-89.28	-992.30	3,118.81	10,189.78	9,953.37	236.41	43.102	
14,000.00	6,929.03	6,853.90	6,850.08	115.79	205.37	-89.27	-992.30	3,118.81	10,287.95	10,051.45	236.50	43.501	
14,100.00	6,928.93	6,853.81	6,849.99	117.35	205.37	-89.27	-992.30	3,118.81	10,386.15	10,149.57	236.59	43.900	
14,200.00	6,928.83	6,853.71	6,849.90	118.91	205.37	-89.27	-992.30	3,118.81	10,484.39	10,247.72	236.68	44.298	
14,300.00	6,928.74	6,853.62	6,849.81	120.47	205.37	-89.27	-992.30	3,118.81	10,582.67	10,345.90	236.77	44.696	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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
14,400.00	6,928.64	6,853.53	6,849.72	122.03	205.36	-89.26	-992.30	3,118.81	10,680.97	10,444.11	236.86	45.094	
14,500.00	6,928.54	6,853.44	6,849.63	123.60	205.36	-89.26	-992.30	3,118.81	10,779.31	10,542.36	236.95	45.492	
14,600.00	6,928.45	6,853.35	6,849.53	125.16	205.36	-89.26	-992.30	3,118.81	10,877.68	10,640.64	237.04	45.890	
14,700.00	6,928.35	6,853.26	6,849.44	126.72	205.35	-89.25	-992.30	3,118.81	10,976.07	10,738.94	237.13	46.287	
14,800.00	6,928.25	6,853.17	6,849.35	128.29	205.35	-89.25	-992.30	3,118.81	11,074.50	10,837.28	237.22	46.685	
14,900.00	6,928.16	6,853.07	6,849.26	129.86	205.35	-89.25	-992.29	3,118.81	11,172.95	10,935.64	237.31	47.082	
15,000.00	6,928.06	6,852.98	6,849.17	131.42	205.35	-89.25	-992.29	3,118.81	11,271.43	11,034.03	237.40	47.479	
15,100.00	6,927.96	6,852.89	6,849.08	132.99	205.34	-89.24	-992.29	3,118.81	11,369.94	11,132.45	237.49	47.875	
15,200.00	6,927.87	6,852.80	6,848.99	134.56	205.34	-89.24	-992.29	3,118.81	11,468.47	11,230.89	237.58	48.272	
15,300.00	6,927.77	6,852.71	6,848.89	136.13	205.34	-89.24	-992.29	3,118.81	11,567.03	11,329.36	237.67	48.668	
15,400.00	6,927.67	6,852.62	6,848.80	137.70	205.34	-89.24	-992.29	3,118.81	11,665.61	11,427.85	237.76	49.064	
15,500.00	6,927.57	6,852.52	6,848.71	139.28	205.33	-89.23	-992.29	3,118.81	11,764.22	11,526.36	237.85	49.460	
15,600.00	6,927.48	6,852.43	6,848.62	140.85	205.33	-89.23	-992.29	3,118.81	11,862.85	11,624.90	237.94	49.855	
15,700.00	6,927.38	6,852.34	6,848.53	142.42	205.33	-89.23	-992.29	3,118.81	11,961.50	11,723.46	238.04	50.251	
15,800.00	6,927.28	6,852.25	6,848.44	144.00	205.32	-89.22	-992.29	3,118.81	12,060.17	11,822.05	238.13	50.646	
15,900.00	6,927.19	6,852.16	6,848.35	145.57	205.32	-89.22	-992.29	3,118.81	12,158.87	11,920.65	238.22	51.041	
16,000.00	6,927.09	6,852.07	6,848.25	147.15	205.32	-89.22	-992.29	3,118.81	12,257.59	12,019.28	238.31	51.436	
16,100.00	6,926.99	6,851.98	6,848.16	148.72	205.32	-89.22	-992.29	3,118.81	12,356.33	12,117.93	238.40	51.830	
16,200.00	6,926.90	6,851.88	6,848.07	150.30	205.31	-89.21	-992.29	3,118.81	12,455.08	12,216.59	238.49	52.224	
16,300.00	6,926.80	6,851.79	6,847.98	151.87	205.31	-89.21	-992.29	3,118.81	12,553.86	12,315.28	238.58	52.618	
16,400.00	6,926.70	6,851.70	6,847.89	153.45	205.31	-89.21	-992.29	3,118.81	12,652.66	12,413.98	238.68	53.012	
16,500.00	6,926.61	6,851.61	6,847.80	155.03	205.31	-89.21	-992.28	3,118.81	12,751.48	12,512.71	238.77	53.405	
16,600.00	6,926.51	6,851.52	6,847.71	156.61	205.30	-89.20	-992.28	3,118.81	12,850.31	12,611.45	238.86	53.798	
16,700.00	6,926.41	6,851.43	6,847.62	158.19	205.30	-89.20	-992.28	3,118.81	12,949.16	12,710.21	238.95	54.191	
16,800.00	6,926.32	6,851.34	6,847.52	159.77	205.30	-89.20	-992.28	3,118.81	13,048.03	12,808.99	239.04	54.584	
16,900.00	6,926.22	6,851.25	6,847.43	161.35	205.29	-89.20	-992.28	3,118.81	13,146.92	12,907.78	239.14	54.976	
17,000.00	6,926.12	6,851.15	6,847.34	162.93	205.29	-89.19	-992.28	3,118.81	13,245.82	13,006.59	239.23	55.369	
17,100.00	6,926.03	6,851.06	6,847.25	164.51	205.29	-89.19	-992.28	3,118.81	13,344.74	13,105.42	239.32	55.760	
17,200.00	6,925.93	6,850.97	6,847.16	166.09	205.29	-89.19	-992.28	3,118.81	13,443.68	13,204.26	239.42	56.152	
17,300.00	6,925.83	6,850.88	6,847.07	167.67	205.28	-89.18	-992.28	3,118.81	13,542.63	13,303.12	239.51	56.543	
17,400.00	6,925.74	6,850.79	6,846.98	169.26	205.28	-89.18	-992.28	3,118.81	13,641.59	13,401.99	239.60	56.934	
17,500.00	6,925.64	6,850.70	6,846.89	170.84	205.28	-89.18	-992.28	3,118.81	13,740.58	13,500.88	239.70	57.325	
17,600.00	6,925.54	6,850.61	6,846.79	172.42	205.28	-89.18	-992.28	3,118.81	13,839.57	13,599.78	239.79	57.716	
17,700.00	6,925.45	6,850.52	6,846.70	174.00	205.27	-89.17	-992.28	3,118.81	13,938.58	13,698.70	239.88	58.106	
17,800.00	6,925.35	6,850.42	6,846.61	175.59	205.27	-89.17	-992.28	3,118.81	14,037.61	13,797.63	239.98	58.496	
17,900.00	6,925.25	6,850.33	6,846.52	177.17	205.27	-89.17	-992.28	3,118.81	14,136.65	13,896.58	240.07	58.885	
18,000.00	6,925.16	6,850.24	6,846.43	178.76	205.26	-89.17	-992.27	3,118.81	14,235.70	13,995.53	240.16	59.275	
18,100.00	6,925.06	6,850.15	6,846.34	180.34	205.26	-89.16	-992.27	3,118.81	14,334.76	14,094.50	240.26	59.664	
18,160.21	6,925.00	6,850.10	6,846.28	181.30	205.26	-89.16	-992.27	3,118.81	14,394.42	14,154.10	240.32	59.898	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Rule Assigned:

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	71.44	973.61	2,898.90	3,058.31				
100.00	100.00	58.00	58.00	0.25	1.74	71.44	973.61	2,898.90	3,058.03	3,056.04	1.99	1,537.430	
200.00	200.00	158.00	158.00	0.61	4.73	71.44	973.61	2,898.90	3,058.03	3,052.68	5.34	572.242	
300.00	300.00	258.00	258.00	0.97	7.73	71.44	973.61	2,898.90	3,058.03	3,049.33	8.70	351.545	
400.00	400.00	358.00	358.00	1.33	10.73	71.44	973.61	2,898.90	3,058.03	3,045.97	12.05	253.700	
500.00	500.00	458.00	458.00	1.68	13.72	71.44	973.61	2,898.90	3,058.03	3,042.62	15.41	198.462	
600.00	599.98	558.08	557.98	2.04	16.72	59.48	973.61	2,898.90	3,057.14	3,038.37	18.77	162.914	
700.00	699.84	657.94	657.84	2.41	19.71	59.61	973.61	2,898.90	3,054.48	3,032.37	22.12	138.112	
800.00	799.45	758.11	757.97	2.77	22.72	59.79	975.79	2,898.90	3,050.76	3,025.28	25.48	119.739	
900.00	898.70	864.47	864.31	3.13	25.90	60.12	975.34	2,898.90	3,044.49	3,015.46	29.03	104.872	
1,000.00	997.47	970.09	969.90	3.50	29.07	60.55	974.10	2,898.90	3,036.31	3,003.74	32.57	93.230	
1,100.00	1,095.62	1,054.03	1,053.62	3.89	31.58	61.00	973.61	2,898.90	3,026.67	2,991.21	35.47	85.341	
1,200.00	1,193.44	1,151.84	1,151.44	4.29	34.51	61.34	973.61	2,898.90	3,016.47	2,977.69	38.79	77.768	
1,300.00	1,291.25	1,249.66	1,249.25	4.70	37.45	61.68	973.61	2,898.90	3,006.38	2,964.27	42.12	71.383	
1,400.00	1,389.07	1,353.73	1,353.27	5.11	40.56	62.01	975.42	2,898.90	2,996.93	2,951.29	45.64	65.669	
1,500.00	1,486.88	1,457.53	1,457.04	5.53	43.67	62.40	974.29	2,898.90	2,986.75	2,937.60	49.15	60.763	
1,600.00	1,584.70	1,543.41	1,542.70	5.95	46.25	62.72	973.61	2,898.90	2,976.78	2,924.65	52.14	57.094	
1,700.00	1,682.51	1,641.22	1,640.51	6.37	49.18	63.07	973.61	2,898.90	2,967.14	2,911.66	55.48	53.479	
1,800.00	1,780.33	1,739.04	1,738.33	6.80	52.11	63.42	973.61	2,898.90	2,957.62	2,898.79	58.83	50.274	
1,900.00	1,878.14	1,841.73	1,840.97	7.22	55.19	63.76	975.50	2,898.90	2,948.69	2,886.37	62.32	47.312	
2,000.00	1,975.96	1,944.77	1,943.98	7.65	58.27	64.15	974.47	2,898.90	2,939.14	2,873.31	65.83	44.647	
2,100.00	2,073.77	2,032.79	2,031.77	8.08	60.91	64.49	973.61	2,898.90	2,929.74	2,860.85	68.89	42.527	
2,200.00	2,171.59	2,130.60	2,129.59	8.51	63.84	64.85	973.61	2,898.90	2,920.68	2,848.44	72.25	40.427	
2,300.00	2,269.40	2,228.42	2,227.40	8.95	66.77	65.22	973.61	2,898.90	2,911.75	2,836.14	75.60	38.514	
2,400.00	2,367.22	2,329.91	2,328.84	9.38	69.81	65.56	975.57	2,898.90	2,903.37	2,824.30	79.07	36.720	
2,500.00	2,465.03	2,432.20	2,431.11	9.81	72.88	65.96	974.63	2,898.90	2,894.47	2,811.91	82.56	35.059	
2,600.00	2,562.84	2,522.16	2,520.84	10.25	75.58	66.32	973.61	2,898.90	2,885.67	2,799.99	85.69	33.677	
2,700.00	2,660.66	2,619.98	2,618.66	10.68	78.51	66.69	973.61	2,898.90	2,877.23	2,788.18	89.05	32.312	
2,800.00	2,758.47	2,717.79	2,716.47	11.12	81.44	67.07	973.61	2,898.90	2,868.91	2,776.50	92.41	31.046	
2,900.00	2,856.29	2,818.27	2,816.90	11.55	84.45	67.41	975.63	2,898.90	2,861.11	2,765.26	95.85	29.850	
3,000.00	2,954.10	2,919.82	2,918.42	11.99	87.49	67.82	974.79	2,898.90	2,852.88	2,753.56	99.32	28.723	
3,100.00	3,051.92	3,011.54	3,009.92	12.42	90.24	68.20	973.61	2,898.90	2,844.72	2,742.22	102.51	27.752	
3,200.00	3,149.73	3,109.36	3,107.73	12.86	93.17	68.58	973.61	2,898.90	2,836.92	2,731.05	105.87	26.796	
3,300.00	3,247.55	3,207.17	3,205.55	13.30	96.10	68.97	973.61	2,898.90	2,829.25	2,720.01	109.24	25.900	
3,400.00	3,345.36	3,306.79	3,305.12	13.73	99.09	69.32	975.68	2,898.90	2,822.04	2,709.38	112.66	25.050	
3,500.00	3,443.18	3,407.61	3,405.92	14.17	102.11	69.74	974.93	2,898.90	2,814.50	2,698.39	116.11	24.240	
3,600.00	3,540.99	3,500.92	3,498.99	14.61	104.90	70.13	973.61	2,898.90	2,807.03	2,687.68	119.35	23.520	
3,700.00	3,638.81	3,598.74	3,596.81	15.05	107.83	70.53	973.61	2,898.90	2,799.89	2,677.18	122.71	22.816	
3,800.00	3,736.62	3,696.55	3,694.62	15.48	110.77	70.92	973.61	2,898.90	2,792.89	2,666.81	126.08	22.151	
3,900.00	3,834.44	3,795.49	3,793.51	15.92	113.73	71.28	975.72	2,898.90	2,786.29	2,656.81	129.49	21.518	
4,000.00	3,932.25	3,895.59	3,893.59	16.36	116.73	71.70	975.05	2,898.90	2,779.48	2,646.55	132.92	20.910	
4,100.00	4,030.07	3,995.42	3,993.39	16.80	119.72	72.13	973.69	2,898.90	2,772.74	2,636.38	136.35	20.335	
4,200.00	4,127.88	4,088.11	4,085.88	17.24	122.50	72.52	973.61	2,898.90	2,766.28	2,626.71	139.57	19.820	
4,300.00	4,225.70	4,185.93	4,183.70	17.68	125.43	72.92	973.61	2,898.90	2,759.98	2,617.03	142.94	19.308	
4,400.00	4,323.51	4,284.35	4,282.07	18.11	128.38	73.28	975.75	2,898.90	2,754.01	2,607.67	146.33	18.820	
4,500.00	4,421.33	4,383.74	4,381.44	18.55	131.36	73.71	975.17	2,898.90	2,747.93	2,598.18	149.75	18.350	
4,600.00	4,519.14	4,482.86	4,480.53	18.99	134.33	74.15	973.90	2,898.90	2,741.95	2,588.79	153.16	17.902	
4,700.00	4,616.95	4,577.49	4,574.95	19.43	137.16	74.55	973.61	2,898.90	2,736.21	2,579.76	156.44	17.490	
4,800.00	4,714.77	4,675.31	4,672.77	19.87	140.09	74.96	973.61	2,898.90	2,730.63	2,570.81	159.82	17.086	
4,900.00	4,812.58	4,773.37	4,770.79	20.31	143.03	75.33	975.77	2,898.90	2,725.30	2,562.11	163.20	16.700	
5,000.00	4,910.40	4,872.05	4,869.45	20.75	145.99	75.76	975.27	2,898.90	2,719.98	2,553.39	166.60	16.327	
5,100.00	5,008.21	4,970.49	4,967.86	21.19	148.94	76.21	974.10	2,898.90	2,714.79	2,544.80	169.99	15.970	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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
5,200.00	5,106.03	5,066.87	5,064.03	21.63	151.83	76.63	973.61	2,898.90	2,709.79	2,536.46	173.32	15.634	
5,300.00	5,203.84	5,164.69	5,161.84	22.06	154.76	77.05	973.61	2,898.90	2,704.95	2,528.25	176.70	15.308	
5,400.00	5,301.66	5,262.54	5,259.66	22.50	157.69	77.42	975.79	2,898.90	2,700.30	2,520.23	180.07	14.996	
5,500.00	5,399.47	5,360.54	5,357.64	22.94	160.63	77.85	975.37	2,898.90	2,695.75	2,512.30	183.45	14.694	
5,600.00	5,497.29	5,458.29	5,455.36	23.38	163.55	78.30	974.28	2,898.90	2,691.36	2,504.53	186.83	14.406	
5,700.00	5,595.10	5,556.25	5,553.10	23.82	166.49	78.74	973.61	2,898.90	2,687.13	2,496.93	190.21	14.127	
5,800.00	5,692.92	5,654.06	5,650.92	24.26	169.42	79.16	973.61	2,898.90	2,683.06	2,489.48	193.58	13.860	
5,900.00	5,790.73	5,751.87	5,748.69	24.70	172.35	79.55	975.79	2,898.90	2,679.10	2,482.14	196.96	13.602	
6,000.00	5,888.55	5,849.19	5,845.98	25.14	175.27	79.98	975.45	2,898.90	2,675.33	2,475.01	200.32	13.355	
6,100.00	5,986.36	5,946.26	5,943.03	25.58	178.18	80.43	974.45	2,898.90	2,671.75	2,468.08	203.67	13.118	
6,200.00	6,084.18	6,011.00	6,007.54	26.02	180.12	80.73	973.61	2,898.90	2,668.57	2,462.52	206.05	12.951	
6,255.96	6,138.91	6,011.00	6,007.54	26.27	180.12	80.73	973.61	2,898.90	2,667.98	2,461.77	206.21	12.938	CC, ES
6,300.00	6,181.99	6,011.00	6,007.54	26.46	180.12	80.73	973.61	2,898.90	2,668.34	2,462.06	206.28	12.935	SF
6,401.22	6,281.00	6,011.00	6,007.54	26.90	180.12	80.73	973.61	2,898.90	2,671.93	2,465.69	206.24	12.955	
6,450.00	6,328.76	6,011.00	6,007.54	27.12	180.12	101.73	973.61	2,898.90	2,676.88	2,470.76	206.12	12.987	
6,500.00	6,377.61	6,011.00	6,007.54	27.32	180.12	121.44	973.61	2,898.90	2,686.67	2,480.74	205.94	13.046	
6,550.00	6,426.06	6,011.00	6,007.54	27.52	180.12	136.12	973.61	2,898.90	2,701.14	2,495.45	205.69	13.132	
6,600.00	6,473.81	6,011.00	6,007.54	27.71	180.12	146.25	973.61	2,898.90	2,720.11	2,514.72	205.39	13.244	
6,650.00	6,520.56	6,011.00	6,007.54	27.89	180.12	153.29	973.61	2,898.90	2,743.37	2,538.33	205.05	13.379	
6,700.00	6,566.03	6,011.00	6,007.54	28.05	180.12	158.37	973.61	2,898.90	2,770.69	2,566.01	204.68	13.537	
6,750.00	6,609.93	6,011.00	6,007.54	28.20	180.12	162.22	973.61	2,898.90	2,801.76	2,597.47	204.29	13.715	
6,800.00	6,652.00	6,011.00	6,007.54	28.34	180.12	165.29	973.61	2,898.90	2,836.29	2,632.39	203.90	13.910	
6,850.00	6,691.98	6,011.00	6,007.54	28.47	180.12	167.88	973.61	2,898.90	2,873.94	2,670.42	203.51	14.122	
6,900.00	6,729.61	6,011.00	6,007.54	28.59	180.12	170.21	973.61	2,898.90	2,914.35	2,711.20	203.15	14.346	
6,950.00	6,764.67	6,011.00	6,007.54	28.69	180.12	172.49	973.61	2,898.90	2,957.18	2,754.37	202.81	14.581	
7,000.00	6,796.95	6,011.00	6,007.54	28.79	180.12	174.95	973.61	2,898.90	3,002.06	2,799.55	202.51	14.824	
7,050.00	6,826.23	6,011.00	6,007.54	28.89	180.12	177.95	973.61	2,898.90	3,048.63	2,846.37	202.26	15.073	
7,100.00	6,852.35	6,011.00	6,007.54	28.98	180.12	-177.79	973.61	2,898.90	3,096.53	2,894.48	202.05	15.325	
7,150.00	6,875.14	6,011.00	6,007.54	29.08	180.12	-170.38	973.61	2,898.90	3,145.42	2,943.52	201.90	15.579	
7,200.00	6,894.45	6,011.00	6,007.54	29.18	180.12	-153.02	973.61	2,898.90	3,194.95	2,993.15	201.80	15.832	
7,250.00	6,910.18	6,011.00	6,007.54	29.28	180.12	-101.56	973.61	2,898.90	3,244.80	3,043.04	201.75	16.083	
7,300.00	6,922.23	6,011.00	6,007.54	29.40	180.12	-50.46	973.61	2,898.90	3,294.65	3,092.88	201.76	16.329	
7,350.00	6,930.51	6,011.00	6,007.54	29.54	180.12	-33.47	973.61	2,898.90	3,344.20	3,142.37	201.83	16.570	
7,400.00	6,934.98	6,011.00	6,007.54	29.70	180.12	-26.52	973.61	2,898.90	3,393.16	3,191.22	201.94	16.803	
7,433.91	6,935.83	6,011.00	6,007.54	29.81	180.12	-23.86	973.61	2,898.90	3,425.90	3,223.85	202.05	16.956	
7,500.00	6,935.76	6,011.00	6,007.54	30.07	180.12	-23.86	973.61	2,898.90	3,489.32	3,287.05	202.27	17.251	
7,600.00	6,935.66	6,011.00	6,007.54	30.52	180.12	-23.86	973.61	2,898.90	3,585.46	3,382.87	202.59	17.698	
7,700.00	6,935.55	6,011.00	6,007.54	31.06	180.12	-23.86	973.61	2,898.90	3,681.81	3,478.92	202.89	18.147	
7,800.00	6,935.45	6,011.00	6,007.54	31.68	180.12	-23.86	973.61	2,898.90	3,778.35	3,575.18	203.17	18.597	
7,900.00	6,935.34	6,011.00	6,007.54	32.37	180.12	-23.86	973.61	2,898.90	3,875.06	3,671.63	203.43	19.049	
8,000.00	6,935.24	6,011.00	6,007.54	33.12	180.12	-23.86	973.61	2,898.90	3,971.94	3,768.27	203.67	19.502	
8,100.00	6,935.13	6,011.00	6,007.54	33.93	180.12	-23.86	973.61	2,898.90	4,068.97	3,865.07	203.90	19.956	
8,200.00	6,935.03	6,011.00	6,007.54	34.80	180.12	-23.86	973.61	2,898.90	4,166.13	3,962.02	204.11	20.411	
8,300.00	6,934.92	6,011.00	6,007.54	35.71	180.12	-23.86	973.61	2,898.90	4,263.43	4,059.12	204.31	20.867	
8,400.00	6,934.82	6,011.00	6,007.54	36.67	180.12	-23.86	973.61	2,898.90	4,360.85	4,156.36	204.50	21.325	
8,500.00	6,934.71	6,011.00	6,007.54	37.68	180.12	-23.86	973.61	2,898.90	4,458.39	4,253.71	204.68	21.783	
8,600.00	6,934.61	6,011.00	6,007.54	38.72	180.12	-23.86	973.61	2,898.90	4,556.03	4,351.19	204.85	22.241	
8,700.00	6,934.50	6,011.00	6,007.54	39.80	180.12	-23.86	973.61	2,898.90	4,653.78	4,448.77	205.01	22.701	
8,800.00	6,934.40	6,011.00	6,007.54	40.92	180.12	-23.86	973.61	2,898.90	4,751.61	4,546.45	205.16	23.161	
8,900.00	6,934.29	6,011.00	6,007.54	42.06	180.12	-23.86	973.61	2,898.90	4,849.54	4,644.23	205.30	23.621	
9,000.00	6,934.19	6,011.00	6,007.54	43.23	180.12	-23.86	973.61	2,898.90	4,947.54	4,742.10	205.44	24.083	
9,100.00	6,934.08	6,011.00	6,007.54	44.43	180.12	-23.86	973.61	2,898.90	5,045.63	4,840.06	205.57	24.544	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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	6,933.98	6,011.00	6,007.54	45.66	180.12	-23.86	973.61	2,898.90	5,143.79	4,938.09	205.70	25.006	
9,300.00	6,933.88	6,011.00	6,007.54	46.90	180.12	-23.86	973.61	2,898.90	5,242.02	5,036.20	205.82	25.469	
9,400.00	6,933.77	6,011.00	6,007.54	48.17	180.12	-23.86	973.61	2,898.90	5,340.31	5,134.37	205.94	25.932	
9,500.00	6,933.67	6,011.00	6,007.54	49.46	180.12	-23.86	973.61	2,898.90	5,438.67	5,232.62	206.05	26.395	
9,600.00	6,933.56	6,011.00	6,007.54	50.76	180.12	-23.86	973.61	2,898.90	5,537.09	5,330.93	206.16	26.858	
9,700.00	6,933.46	6,011.00	6,007.54	52.08	180.12	-23.86	973.61	2,898.90	5,635.56	5,429.29	206.27	27.322	
9,800.00	6,933.35	6,011.00	6,007.54	53.41	180.12	-23.86	973.61	2,898.90	5,734.08	5,527.72	206.37	27.786	
9,900.00	6,933.25	6,011.00	6,007.54	54.76	180.12	-23.86	973.61	2,898.90	5,832.66	5,626.19	206.47	28.250	
10,000.00	6,933.14	6,011.00	6,007.54	56.12	180.12	-23.86	973.61	2,898.90	5,931.28	5,724.72	206.56	28.714	
10,100.00	6,933.04	6,011.00	6,007.54	57.50	180.12	-23.86	973.61	2,898.90	6,029.95	5,823.29	206.66	29.179	
10,200.00	6,932.93	6,011.00	6,007.54	58.88	180.12	-23.86	973.61	2,898.90	6,128.66	5,921.91	206.75	29.643	
10,300.00	6,932.83	6,011.00	6,007.54	60.28	180.12	-23.86	973.61	2,898.90	6,227.41	6,020.58	206.84	30.108	
10,400.00	6,932.72	6,011.00	6,007.54	61.69	180.12	-23.86	973.61	2,898.90	6,326.20	6,119.28	206.92	30.573	
10,500.00	6,932.62	6,011.00	6,007.54	63.10	180.12	-23.86	973.61	2,898.90	6,425.03	6,218.02	207.01	31.038	
10,600.00	6,932.51	6,011.00	6,007.54	64.52	180.12	-23.86	973.61	2,898.90	6,523.90	6,316.80	207.09	31.502	
10,700.00	6,932.41	6,011.00	6,007.54	65.96	180.12	-23.86	973.61	2,898.90	6,622.80	6,415.62	207.17	31.967	
10,800.00	6,932.30	6,011.00	6,007.54	67.39	180.12	-23.86	973.61	2,898.90	6,721.73	6,514.47	207.25	32.432	
10,900.00	6,932.20	6,011.00	6,007.54	68.84	180.12	-23.86	973.61	2,898.90	6,820.69	6,613.36	207.33	32.897	
11,000.00	6,932.10	6,011.00	6,007.54	70.29	180.12	-23.86	973.61	2,898.90	6,919.68	6,712.27	207.41	33.362	
11,100.00	6,931.99	6,011.00	6,007.54	71.75	180.12	-23.86	973.61	2,898.90	7,018.70	6,811.21	207.49	33.827	
11,200.00	6,931.89	6,011.00	6,007.54	73.22	180.12	-23.86	973.61	2,898.90	7,117.75	6,910.19	207.56	34.292	
11,300.00	6,931.78	6,011.00	6,007.54	74.69	180.12	-23.86	973.61	2,898.90	7,216.82	7,009.18	207.64	34.756	
11,400.00	6,931.68	6,011.00	6,007.54	76.16	180.12	-23.86	973.61	2,898.90	7,315.92	7,108.21	207.71	35.221	
11,500.00	6,931.57	6,011.00	6,007.54	77.64	180.12	-23.86	973.61	2,898.90	7,415.05	7,207.26	207.79	35.686	
11,600.00	6,931.47	6,011.00	6,007.54	79.13	180.12	-23.86	973.61	2,898.90	7,514.20	7,306.33	207.86	36.150	
11,700.00	6,931.36	6,011.00	6,007.54	80.62	180.12	-23.86	973.61	2,898.90	7,613.36	7,405.43	207.93	36.614	
11,800.00	6,931.26	6,011.00	6,007.54	82.11	180.12	-23.86	973.61	2,898.90	7,712.56	7,504.55	208.01	37.079	
11,900.00	6,931.15	6,011.00	6,007.54	83.61	180.12	-23.86	973.61	2,898.90	7,811.77	7,603.69	208.08	37.543	
12,000.00	6,931.05	6,011.00	6,007.54	85.11	180.12	-23.86	973.61	2,898.90	7,911.00	7,702.85	208.15	38.007	
12,100.00	6,930.94	6,011.00	6,007.54	86.62	180.12	-23.86	973.61	2,898.90	8,010.25	7,802.03	208.22	38.470	
12,200.00	6,930.84	6,011.00	6,007.54	88.13	180.12	-23.86	973.61	2,898.90	8,109.52	7,901.23	208.29	38.934	
12,300.00	6,930.73	6,011.00	6,007.54	89.64	180.12	-23.86	973.61	2,898.90	8,208.80	8,000.44	208.36	39.397	
12,400.00	6,930.63	6,011.00	6,007.54	91.15	180.12	-23.86	973.61	2,898.90	8,308.11	8,099.68	208.43	39.861	
12,500.00	6,930.52	6,011.00	6,007.54	92.67	180.12	-23.86	973.61	2,898.90	8,407.43	8,198.93	208.50	40.324	
12,600.00	6,930.42	6,011.00	6,007.54	94.19	180.12	-23.86	973.61	2,898.90	8,506.76	8,298.19	208.57	40.786	
12,700.00	6,930.31	6,011.00	6,007.54	95.71	180.12	-23.86	973.61	2,898.90	8,606.11	8,397.48	208.64	41.249	
12,800.00	6,930.21	6,011.00	6,007.54	97.24	180.12	-23.86	973.61	2,898.90	8,705.48	8,496.77	208.71	41.711	
12,900.00	6,930.11	6,011.00	6,007.54	98.77	180.12	-23.86	973.61	2,898.90	8,804.86	8,596.08	208.78	42.173	
13,008.91	6,929.99	6,011.00	6,007.54	100.43	180.12	-23.86	973.61	2,898.90	8,913.11	8,704.26	208.85	42.677	
13,100.00	6,929.90	6,011.00	6,007.54	101.83	180.12	-7.06	973.61	2,898.90	9,003.71	8,794.79	208.92	43.097	
13,139.82	6,929.86	6,011.00	6,007.54	102.44	180.12	0.94	973.61	2,898.90	9,043.34	8,834.39	208.95	43.280	
13,200.00	6,929.80	6,011.00	6,007.54	103.37	180.12	0.94	973.61	2,898.90	9,103.23	8,894.23	208.99	43.557	
13,300.00	6,929.70	6,011.00	6,007.54	104.92	180.12	0.94	973.61	2,898.90	9,202.76	8,993.69	209.07	44.018	
13,400.00	6,929.61	6,011.00	6,007.54	106.47	180.12	0.94	973.61	2,898.90	9,302.29	9,093.15	209.15	44.477	
13,500.00	6,929.51	6,011.00	6,007.54	108.02	180.12	0.94	973.61	2,898.90	9,401.84	9,192.62	209.22	44.937	
13,600.00	6,929.41	6,011.00	6,007.54	109.57	180.12	0.94	973.61	2,898.90	9,501.40	9,292.10	209.30	45.397	
13,700.00	6,929.32	6,011.00	6,007.54	111.12	180.12	0.94	973.61	2,898.90	9,600.96	9,391.59	209.37	45.856	
13,800.00	6,929.22	6,011.00	6,007.54	112.68	180.12	0.94	973.61	2,898.90	9,700.54	9,491.09	209.45	46.314	
13,900.00	6,929.12	6,011.00	6,007.54	114.23	180.12	0.94	973.61	2,898.90	9,800.12	9,590.59	209.53	46.773	
14,000.00	6,929.03	6,011.00	6,007.54	115.79	180.12	0.94	973.61	2,898.90	9,899.71	9,690.11	209.60	47.231	
14,100.00	6,928.93	6,011.00	6,007.54	117.35	180.12	0.94	973.61	2,898.90	9,999.31	9,789.63	209.68	47.689	
14,200.00	6,928.83	6,011.00	6,007.54	118.91	180.12	0.94	973.61	2,898.90	10,098.92	9,889.17	209.75	48.147	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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
14,300.00	6,928.74	6,011.00	6,007.54	120.47	180.12	0.94	973.61	2,898.90	10,198.53	9,988.70	209.83	48.604	
14,400.00	6,928.64	6,011.00	6,007.54	122.03	180.12	0.94	973.61	2,898.90	10,298.16	10,088.25	209.91	49.061	
14,500.00	6,928.54	6,011.00	6,007.54	123.60	180.12	0.94	973.61	2,898.90	10,397.79	10,187.80	209.98	49.517	
14,600.00	6,928.45	6,011.00	6,007.54	125.16	180.12	0.94	973.61	2,898.90	10,497.43	10,287.36	210.06	49.973	
14,700.00	6,928.35	6,011.00	6,007.54	126.72	180.12	0.94	973.61	2,898.90	10,597.07	10,386.93	210.14	50.429	
14,800.00	6,928.25	6,011.00	6,007.54	128.29	180.12	0.94	973.61	2,898.90	10,696.72	10,486.51	210.21	50.885	
14,900.00	6,928.16	6,011.00	6,007.54	129.86	180.12	0.94	973.61	2,898.90	10,796.38	10,586.09	210.29	51.340	
15,000.00	6,928.06	6,011.00	6,007.54	131.42	180.12	0.94	973.61	2,898.90	10,896.04	10,685.67	210.37	51.795	
15,100.00	6,927.96	6,011.00	6,007.54	132.99	180.12	0.94	973.61	2,898.90	10,995.71	10,785.26	210.45	52.249	
15,200.00	6,927.87	6,011.00	6,007.54	134.56	180.12	0.94	973.61	2,898.90	11,095.39	10,884.86	210.53	52.703	
15,300.00	6,927.77	6,011.00	6,007.54	136.13	180.12	0.94	973.61	2,898.90	11,195.07	10,984.46	210.60	53.157	
15,400.00	6,927.67	6,011.00	6,007.54	137.70	180.12	0.94	973.61	2,898.90	11,294.75	11,084.07	210.68	53.610	
15,500.00	6,927.57	6,011.00	6,007.54	139.28	180.12	0.94	973.61	2,898.90	11,394.45	11,183.68	210.76	54.063	
15,600.00	6,927.48	6,011.00	6,007.54	140.85	180.12	0.94	973.61	2,898.90	11,494.14	11,283.30	210.84	54.516	
15,700.00	6,927.38	6,011.00	6,007.54	142.42	180.12	0.94	973.61	2,898.90	11,593.85	11,382.93	210.92	54.968	
15,800.00	6,927.28	6,011.00	6,007.54	144.00	180.12	0.94	973.61	2,898.90	11,693.55	11,482.55	211.00	55.420	
15,900.00	6,927.19	6,011.00	6,007.54	145.57	180.12	0.94	973.61	2,898.90	11,793.27	11,582.19	211.08	55.871	
16,000.00	6,927.09	6,011.00	6,007.54	147.15	180.12	0.94	973.61	2,898.90	11,892.99	11,681.82	211.16	56.322	
16,100.00	6,926.99	6,011.00	6,007.54	148.72	180.12	0.94	973.61	2,898.90	11,992.71	11,781.47	211.24	56.773	
16,200.00	6,926.90	6,011.00	6,007.54	150.30	180.12	0.94	973.61	2,898.90	12,092.43	11,881.11	211.32	57.223	
16,300.00	6,926.80	6,011.00	6,007.54	151.87	180.12	0.94	973.61	2,898.90	12,192.17	11,980.76	211.40	57.673	
16,400.00	6,926.70	6,011.00	6,007.54	153.45	180.12	0.94	973.61	2,898.90	12,291.90	12,080.42	211.48	58.122	
16,500.00	6,926.61	6,011.00	6,007.54	155.03	180.12	0.94	973.61	2,898.90	12,391.64	12,180.08	211.57	58.571	
16,600.00	6,926.51	6,011.00	6,007.54	156.61	180.12	0.94	973.61	2,898.90	12,491.39	12,279.74	211.65	59.019	
16,700.00	6,926.41	6,011.00	6,007.54	158.19	180.12	0.94	973.61	2,898.90	12,591.13	12,379.40	211.73	59.467	
16,800.00	6,926.32	6,011.00	6,007.54	159.77	180.12	0.94	973.61	2,898.90	12,690.89	12,479.07	211.81	59.915	
16,900.00	6,926.22	6,011.00	6,007.54	161.35	180.12	0.94	973.61	2,898.90	12,790.64	12,578.75	211.90	60.362	
17,000.00	6,926.12	6,011.00	6,007.54	162.93	180.12	0.94	973.61	2,898.90	12,890.40	12,678.42	211.98	60.809	
17,100.00	6,926.03	6,011.00	6,007.54	164.51	180.12	0.94	973.61	2,898.90	12,990.17	12,778.10	212.07	61.256	
17,200.00	6,925.93	6,011.00	6,007.54	166.09	180.12	0.94	973.61	2,898.90	13,089.93	12,877.78	212.15	61.701	
17,300.00	6,925.83	6,011.00	6,007.54	167.67	180.12	0.94	973.61	2,898.90	13,189.71	12,977.47	212.23	62.147	
17,400.00	6,925.74	6,011.00	6,007.54	169.26	180.12	0.94	973.61	2,898.90	13,289.48	13,077.16	212.32	62.592	
17,500.00	6,925.64	6,011.00	6,007.54	170.84	180.12	0.94	973.61	2,898.90	13,389.26	13,176.85	212.40	63.037	
17,600.00	6,925.54	6,011.00	6,007.54	172.42	180.12	0.94	973.61	2,898.90	13,489.04	13,276.55	212.49	63.481	
17,700.00	6,925.45	6,011.00	6,007.54	174.00	180.12	0.94	973.61	2,898.90	13,588.82	13,376.25	212.58	63.925	
17,800.00	6,925.35	6,011.00	6,007.54	175.59	180.12	0.94	973.61	2,898.90	13,688.61	13,475.95	212.66	64.368	
17,900.00	6,925.25	6,011.00	6,007.54	177.17	180.12	0.94	973.61	2,898.90	13,788.40	13,575.65	212.75	64.811	
18,000.00	6,925.16	6,011.00	6,007.54	178.76	180.12	0.94	973.61	2,898.90	13,888.19	13,675.36	212.84	65.253	
18,100.00	6,925.06	6,011.00	6,007.54	180.34	180.12	0.94	973.61	2,898.90	13,987.99	13,775.07	212.92	65.695	
18,160.21	6,925.00	6,011.00	6,007.54	181.30	180.12	0.94	973.61	2,898.90	14,048.08	13,835.11	212.98	65.961	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	64.34	1,048.88	2,183.80	2,422.78				
100.00	100.00	73.00	73.00	0.25	2.19	64.34	1,048.88	2,183.80	2,422.63	2,420.19	2.44	993.487	
200.00	200.00	173.00	173.00	0.61	5.18	64.34	1,048.88	2,183.80	2,422.63	2,416.84	5.79	418.171	
300.00	300.00	273.00	273.00	0.97	8.18	64.34	1,048.88	2,183.80	2,422.63	2,413.48	9.15	264.818	
400.00	400.00	373.00	373.00	1.33	11.18	64.34	1,048.88	2,183.80	2,422.63	2,410.13	12.50	193.761	
500.00	500.00	473.00	473.00	1.68	14.17	64.34	1,048.88	2,183.80	2,422.63	2,406.77	15.86	152.770	
600.00	599.98	573.08	572.98	2.04	17.17	52.39	1,048.88	2,183.80	2,421.56	2,402.35	19.21	126.025	
700.00	699.84	672.94	672.84	2.41	20.16	52.54	1,048.88	2,183.80	2,418.37	2,395.81	22.57	107.169	
800.00	799.45	774.34	774.19	2.77	23.20	52.75	1,051.04	2,183.80	2,414.00	2,388.04	25.97	92.970	
900.00	898.70	881.29	881.12	3.13	26.41	53.13	1,050.46	2,183.80	2,406.39	2,376.85	29.54	81.476	
1,000.00	997.47	987.50	987.30	3.50	29.59	53.64	1,049.09	2,183.80	2,396.44	2,363.35	33.09	72.425	
1,100.00	1,095.62	1,069.03	1,068.62	3.89	32.03	54.14	1,048.88	2,183.80	2,384.90	2,348.99	35.91	66.409	
1,200.00	1,193.44	1,166.84	1,166.44	4.29	34.96	54.54	1,048.88	2,183.80	2,372.60	2,333.37	39.23	60.478	
1,300.00	1,291.25	1,265.72	1,265.27	4.70	37.93	54.90	1,051.05	2,183.80	2,361.30	2,318.71	42.59	55.448	
1,400.00	1,389.07	1,370.37	1,369.90	5.11	41.06	55.35	1,050.56	2,183.80	2,349.04	2,302.92	46.12	50.934	
1,500.00	1,486.88	1,474.73	1,474.24	5.53	44.19	55.82	1,049.30	2,183.80	2,336.64	2,286.99	49.65	47.065	
1,600.00	1,584.70	1,558.41	1,557.70	5.95	46.70	56.18	1,048.88	2,183.80	2,324.62	2,272.06	52.56	44.226	
1,700.00	1,682.51	1,656.22	1,655.51	6.37	49.63	56.61	1,048.88	2,183.80	2,312.94	2,257.04	55.90	41.375	
1,800.00	1,780.33	1,754.30	1,753.55	6.80	52.57	56.98	1,051.06	2,183.80	2,302.18	2,242.93	59.25	38.854	
1,900.00	1,878.14	1,858.18	1,857.41	7.22	55.68	57.45	1,050.65	2,183.80	2,290.60	2,227.83	62.78	36.488	
2,000.00	1,975.96	1,961.77	1,960.97	7.65	58.78	57.93	1,049.50	2,183.80	2,278.91	2,212.62	66.30	34.375	
2,100.00	2,073.77	2,047.79	2,046.77	8.08	61.36	58.33	1,048.88	2,183.80	2,267.51	2,198.21	69.29	32.723	
2,200.00	2,171.59	2,145.60	2,144.59	8.51	64.29	58.78	1,048.88	2,183.80	2,256.49	2,183.84	72.64	31.062	
2,300.00	2,269.40	2,243.42	2,242.40	8.95	67.22	59.22	1,048.88	2,183.80	2,245.60	2,169.61	76.00	29.549	
2,400.00	2,367.22	2,346.17	2,345.10	9.38	70.30	59.65	1,050.74	2,183.80	2,235.47	2,155.97	79.50	28.121	
2,500.00	2,465.03	2,449.00	2,447.91	9.81	73.38	60.15	1,049.68	2,183.80	2,224.53	2,141.53	83.00	26.802	
2,600.00	2,562.84	2,537.16	2,535.84	10.25	76.02	60.59	1,048.88	2,183.80	2,213.81	2,127.74	86.07	25.721	
2,700.00	2,660.66	2,634.98	2,633.66	10.68	78.96	61.05	1,048.88	2,183.80	2,203.50	2,114.07	89.43	24.640	
2,800.00	2,758.47	2,732.79	2,731.47	11.12	81.89	61.52	1,048.88	2,183.80	2,193.34	2,100.55	92.79	23.639	
2,900.00	2,856.29	2,834.34	2,832.97	11.55	84.93	61.96	1,050.81	2,183.80	2,183.88	2,087.62	96.26	22.688	
3,000.00	2,954.10	2,936.43	2,935.03	11.99	87.99	62.48	1,049.85	2,183.80	2,173.75	2,074.01	99.74	21.793	
3,100.00	3,051.92	3,026.54	3,024.92	12.42	90.69	62.94	1,048.88	2,183.80	2,163.77	2,060.89	102.88	21.032	
3,200.00	3,149.73	3,124.36	3,122.73	12.86	93.62	63.43	1,048.88	2,183.80	2,154.22	2,047.98	106.24	20.277	
3,300.00	3,247.55	3,222.17	3,220.55	13.30	96.55	63.91	1,048.88	2,183.80	2,144.84	2,035.23	109.61	19.569	
3,400.00	3,345.36	3,322.68	3,321.01	13.73	99.56	64.37	1,050.88	2,183.80	2,136.10	2,023.05	113.05	18.895	
3,500.00	3,443.18	3,424.03	3,422.33	14.17	102.60	64.91	1,050.00	2,183.80	2,126.82	2,010.30	116.52	18.253	
3,600.00	3,540.99	3,515.92	3,513.99	14.61	105.35	65.40	1,048.88	2,183.80	2,117.65	1,997.94	119.71	17.689	
3,700.00	3,638.81	3,613.74	3,611.81	15.05	108.28	65.91	1,048.88	2,183.80	2,108.92	1,985.84	123.08	17.134	
3,800.00	3,736.62	3,711.55	3,709.62	15.48	111.21	66.42	1,048.88	2,183.80	2,100.37	1,973.91	126.45	16.610	
3,900.00	3,834.44	3,811.20	3,809.22	15.92	114.20	66.88	1,050.93	2,183.80	2,092.39	1,962.51	129.87	16.111	
4,000.00	3,932.25	3,911.82	3,909.82	16.36	117.22	67.43	1,050.15	2,183.80	2,084.01	1,950.68	133.33	15.631	
4,100.00	4,030.07	4,005.30	4,003.07	16.80	120.02	67.96	1,048.88	2,183.80	2,075.73	1,939.15	136.57	15.199	
4,200.00	4,127.88	4,103.11	4,100.88	17.24	122.95	68.49	1,048.88	2,183.80	2,067.87	1,927.92	139.94	14.776	
4,300.00	4,225.70	4,200.93	4,198.70	17.68	125.88	69.02	1,048.88	2,183.80	2,060.18	1,916.87	143.32	14.375	
4,400.00	4,323.51	4,299.88	4,297.60	18.11	128.84	69.50	1,050.98	2,183.80	2,053.01	1,906.29	146.72	13.992	
4,500.00	4,421.33	4,399.79	4,397.49	18.55	131.84	70.06	1,050.28	2,183.80	2,045.58	1,895.42	150.16	13.623	
4,600.00	4,519.14	4,499.43	4,497.09	18.99	134.82	70.65	1,048.89	2,183.80	2,038.25	1,884.66	153.59	13.271	
4,700.00	4,616.95	4,592.49	4,589.95	19.43	137.61	71.16	1,048.88	2,183.80	2,031.30	1,874.48	156.82	12.953	
4,800.00	4,714.77	4,690.31	4,687.77	19.87	140.54	71.71	1,048.88	2,183.80	2,024.55	1,864.35	160.20	12.638	
4,900.00	4,812.58	4,788.73	4,786.15	20.31	143.49	72.20	1,051.01	2,183.80	2,018.22	1,854.62	163.59	12.337	
5,000.00	4,910.40	4,887.93	4,885.33	20.75	146.46	72.78	1,050.40	2,183.80	2,011.77	1,844.76	167.01	12.046	
5,100.00	5,008.21	4,986.87	4,984.23	21.19	149.43	73.38	1,049.10	2,183.80	2,005.47	1,835.05	170.42	11.768	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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	21.63	152.28	73.93	1,048.88	2,183.80	1,999.48	1,825.76	173.72	11.510	
5,300.00	5,203.84	5,179.69	5,176.84	22.06	155.21	74.49	1,048.88	2,183.80	1,993.70	1,816.61	177.10	11.258	
5,400.00	5,301.66	5,277.74	5,274.85	22.50	158.14	75.00	1,051.04	2,183.80	1,988.25	1,807.77	180.48	11.017	
5,500.00	5,399.47	5,376.24	5,373.33	22.94	161.10	75.58	1,050.51	2,183.80	1,982.83	1,798.96	183.88	10.783	
5,600.00	5,497.29	5,474.49	5,471.55	23.38	164.04	76.19	1,049.30	2,183.80	1,977.61	1,790.33	187.27	10.560	
5,700.00	5,595.10	5,571.25	5,568.10	23.82	166.94	76.77	1,048.88	2,183.80	1,972.63	1,782.01	190.62	10.349	
5,800.00	5,692.92	5,669.06	5,665.92	24.26	169.87	77.35	1,048.88	2,183.80	1,967.87	1,773.87	194.00	10.144	
5,900.00	5,790.73	5,766.90	5,763.72	24.70	172.80	77.86	1,051.05	2,183.80	1,963.34	1,765.96	197.38	9.947	
6,000.00	5,888.55	5,864.72	5,861.51	25.14	175.73	78.46	1,050.60	2,183.80	1,958.98	1,758.23	200.76	9.758	
6,100.00	5,986.36	5,962.28	5,959.04	25.58	178.66	79.07	1,049.49	2,183.80	1,954.86	1,750.73	204.13	9.577	
6,200.00	6,084.18	6,060.63	6,057.18	26.02	181.60	79.68	1,048.88	2,183.80	1,950.95	1,743.43	207.53	9.401	
6,300.00	6,181.99	6,158.44	6,154.99	26.46	184.53	80.27	1,048.88	2,183.80	1,947.26	1,736.35	210.90	9.233	
6,401.22	6,281.00	6,257.41	6,253.92	26.90	187.50	80.80	1,051.06	2,183.80	1,943.63	1,729.31	214.32	9.069	
6,422.54	6,301.86	6,278.15	6,274.65	27.00	188.12	89.97	1,051.04	2,183.80	1,943.27	1,728.23	215.04	9.037 CC	
6,450.00	6,328.76	6,304.86	6,301.36	27.12	188.92	102.06	1,050.96	2,183.80	1,943.87	1,727.91	215.96	9.001 ES	
6,500.00	6,377.61	6,353.35	6,349.84	27.32	190.37	122.02	1,050.69	2,183.80	1,948.03	1,730.40	217.63	8.951	
6,550.00	6,426.06	6,401.37	6,397.85	27.52	191.81	136.94	1,050.26	2,183.80	1,956.13	1,736.85	219.28	8.921	
6,600.00	6,473.81	6,448.65	6,445.11	27.71	193.23	147.30	1,049.68	2,183.80	1,968.12	1,747.22	220.90	8.910 SF	
6,650.00	6,520.56	6,494.88	6,491.33	27.89	194.62	154.56	1,048.97	2,183.80	1,983.91	1,761.44	222.47	8.918	
6,700.00	6,566.03	6,542.78	6,539.03	28.05	196.05	159.83	1,048.88	2,183.80	2,003.33	1,779.26	224.08	8.940	
6,750.00	6,609.93	6,586.69	6,582.93	28.20	197.37	163.83	1,048.88	2,183.80	2,026.31	1,800.75	225.56	8.984	
6,800.00	6,652.00	6,628.76	6,625.00	28.34	198.63	167.02	1,048.88	2,183.80	2,052.69	1,825.73	226.96	9.044	
6,850.00	6,691.98	6,668.73	6,664.98	28.47	199.83	169.67	1,048.88	2,183.80	2,082.31	1,854.01	228.29	9.121	
6,900.00	6,729.61	6,706.37	6,702.61	28.59	200.95	171.99	1,048.88	2,183.80	2,114.97	1,885.43	229.54	9.214	
6,950.00	6,764.67	6,741.43	6,737.67	28.69	202.00	174.12	1,048.88	2,183.80	2,150.47	1,919.78	230.69	9.322	
7,000.00	6,796.95	6,773.41	6,769.61	28.79	202.96	176.09	1,051.04	2,183.80	2,188.40	1,956.66	231.73	9.444	
7,050.00	6,826.23	6,802.32	6,798.51	28.89	203.83	178.21	1,050.97	2,183.80	2,228.89	1,996.23	232.67	9.580	
7,100.00	6,852.35	6,828.09	6,824.28	28.98	204.60	-179.45	1,050.85	2,183.80	2,271.53	2,038.04	233.49	9.729	
7,150.00	6,875.14	6,850.56	6,846.75	29.08	205.27	-176.67	1,050.71	2,183.80	2,316.02	2,081.82	234.20	9.889	
7,200.00	6,894.45	6,869.61	6,865.80	29.18	205.84	-173.06	1,050.56	2,183.80	2,362.11	2,127.32	234.79	10.060	
7,250.00	6,910.18	6,885.12	6,881.30	29.28	206.31	-167.93	1,050.42	2,183.80	2,409.51	2,174.24	235.27	10.241	
7,300.00	6,922.23	6,897.00	6,893.18	29.40	206.67	-159.71	1,050.31	2,183.80	2,457.93	2,222.30	235.62	10.432	
7,350.00	6,930.51	6,905.18	6,901.35	29.54	206.91	-144.71	1,050.22	2,183.80	2,507.06	2,271.21	235.86	10.630	
7,400.00	6,934.98	6,909.60	6,905.77	29.70	207.04	-115.77	1,050.17	2,183.80	2,556.62	2,320.66	235.97	10.835	
7,433.91	6,935.83	6,910.45	6,906.62	29.81	207.07	-89.04	1,050.16	2,183.80	2,590.32	2,354.34	235.97	10.977	
7,500.00	6,935.76	6,910.40	6,906.58	30.07	207.07	-89.03	1,050.16	2,183.80	2,656.00	2,420.06	235.93	11.257	
7,600.00	6,935.66	6,910.34	6,906.51	30.52	207.07	-89.02	1,050.16	2,183.80	2,755.41	2,519.53	235.88	11.681	
7,700.00	6,935.55	6,910.27	6,906.45	31.06	207.06	-89.00	1,050.17	2,183.80	2,854.87	2,619.04	235.83	12.106	
7,800.00	6,935.45	6,910.21	6,906.38	31.68	207.06	-88.99	1,050.17	2,183.80	2,954.36	2,718.58	235.79	12.530	
7,900.00	6,935.34	6,910.14	6,906.32	32.37	207.06	-88.98	1,050.17	2,183.80	3,053.89	2,818.14	235.75	12.954	
8,000.00	6,935.24	6,910.08	6,906.25	33.12	207.06	-88.97	1,050.17	2,183.80	3,153.45	2,917.74	235.71	13.379	
8,100.00	6,935.13	6,910.01	6,906.19	33.93	207.06	-88.95	1,050.17	2,183.80	3,253.03	3,017.35	235.68	13.803	
8,200.00	6,935.03	6,909.95	6,906.12	34.80	207.05	-88.94	1,050.17	2,183.80	3,352.64	3,116.99	235.65	14.227	
8,300.00	6,934.92	6,909.88	6,906.06	35.71	207.05	-88.93	1,050.17	2,183.80	3,452.27	3,216.65	235.62	14.652	
8,400.00	6,934.82	6,909.82	6,905.99	36.67	207.05	-88.91	1,050.17	2,183.80	3,551.92	3,316.32	235.60	15.076	
8,500.00	6,934.71	6,909.75	6,905.93	37.68	207.05	-88.90	1,050.17	2,183.80	3,651.59	3,416.01	235.58	15.501	
8,600.00	6,934.61	6,909.69	6,905.86	38.72	207.05	-88.89	1,050.17	2,183.80	3,751.28	3,515.72	235.56	15.925	
8,700.00	6,934.50	6,909.62	6,905.80	39.80	207.04	-88.88	1,050.17	2,183.80	3,850.98	3,615.44	235.55	16.349	
8,800.00	6,934.40	6,909.56	6,905.73	40.92	207.04	-88.86	1,050.17	2,183.80	3,950.70	3,715.17	235.53	16.773	
8,900.00	6,934.29	6,909.49	6,905.67	42.06	207.04	-88.85	1,050.17	2,183.80	4,050.43	3,814.91	235.52	17.198	
9,000.00	6,934.19	6,909.43	6,905.60	43.23	207.04	-88.84	1,050.17	2,183.80	4,150.18	3,914.67	235.51	17.622	
9,100.00	6,934.08	6,909.36	6,905.54	44.43	207.04	-88.83	1,050.18	2,183.80	4,249.94	4,014.43	235.51	18.046	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,200.00	6,933.98	6,909.30	6,905.47	45.66	207.03	-88.81	1,050.18	2,183.80	4,349.71	4,114.20	235.50	18.470	
9,300.00	6,933.88	6,909.23	6,905.40	46.90	207.03	-88.80	1,050.18	2,183.80	4,449.49	4,213.99	235.50	18.894	
9,400.00	6,933.77	6,909.17	6,905.34	48.17	207.03	-88.79	1,050.18	2,183.80	4,549.27	4,313.78	235.50	19.318	
9,500.00	6,933.67	6,909.10	6,905.27	49.46	207.03	-88.77	1,050.18	2,183.80	4,649.07	4,413.57	235.50	19.741	
9,600.00	6,933.56	6,909.04	6,905.21	50.76	207.03	-88.76	1,050.18	2,183.80	4,748.88	4,513.38	235.50	20.165	
9,700.00	6,933.46	6,908.97	6,905.14	52.08	207.02	-88.75	1,050.18	2,183.80	4,848.69	4,613.19	235.51	20.588	
9,800.00	6,933.35	6,908.90	6,905.08	53.41	207.02	-88.74	1,050.18	2,183.80	4,948.52	4,713.00	235.51	21.012	
9,900.00	6,933.25	6,908.84	6,905.01	54.76	207.02	-88.72	1,050.18	2,183.80	5,048.34	4,812.83	235.52	21.435	
10,000.00	6,933.14	6,908.77	6,904.95	56.12	207.02	-88.71	1,050.18	2,183.80	5,148.18	4,912.65	235.53	21.858	
10,100.00	6,933.04	6,908.71	6,904.88	57.50	207.02	-88.70	1,050.18	2,183.80	5,248.02	5,012.48	235.54	22.281	
10,200.00	6,932.93	6,908.64	6,904.81	58.88	207.01	-88.68	1,050.18	2,183.80	5,347.87	5,112.32	235.55	22.704	
10,300.00	6,932.83	6,908.58	6,904.75	60.28	207.01	-88.67	1,050.18	2,183.80	5,447.72	5,212.16	235.56	23.127	
10,400.00	6,932.72	6,908.51	6,904.68	61.69	207.01	-88.66	1,050.18	2,183.80	5,547.58	5,312.01	235.58	23.549	
10,500.00	6,932.62	6,908.44	6,904.62	63.10	207.01	-88.65	1,050.19	2,183.80	5,647.45	5,411.85	235.59	23.971	
10,600.00	6,932.51	6,908.38	6,904.55	64.52	207.01	-88.63	1,050.19	2,183.80	5,747.31	5,511.71	235.61	24.394	
10,700.00	6,932.41	6,908.31	6,904.49	65.96	207.00	-88.62	1,050.19	2,183.80	5,847.19	5,611.56	235.63	24.816	
10,800.00	6,932.30	6,908.25	6,904.42	67.39	207.00	-88.61	1,050.19	2,183.80	5,947.06	5,711.42	235.64	25.237	
10,900.00	6,932.20	6,908.18	6,904.35	68.84	207.00	-88.59	1,050.19	2,183.80	6,046.95	5,811.28	235.66	25.659	
11,000.00	6,932.10	6,908.12	6,904.29	70.29	207.00	-88.58	1,050.19	2,183.80	6,146.83	5,911.14	235.69	26.081	
11,100.00	6,931.99	6,908.05	6,904.22	71.75	207.00	-88.57	1,050.19	2,183.80	6,246.72	6,011.01	235.71	26.502	
11,200.00	6,931.89	6,907.98	6,904.16	73.22	206.99	-88.55	1,050.19	2,183.80	6,346.61	6,110.88	235.73	26.923	
11,300.00	6,931.78	6,907.92	6,904.09	74.69	206.99	-88.54	1,050.19	2,183.80	6,446.51	6,210.75	235.76	27.344	
11,400.00	6,931.68	6,907.85	6,904.02	76.16	206.99	-88.53	1,050.19	2,183.80	6,546.41	6,310.62	235.78	27.765	
11,500.00	6,931.57	6,907.79	6,903.96	77.64	206.99	-88.52	1,050.19	2,183.80	6,646.31	6,410.50	235.81	28.185	
11,600.00	6,931.47	6,907.72	6,903.89	79.13	206.99	-88.50	1,050.19	2,183.80	6,746.21	6,510.38	235.84	28.605	
11,700.00	6,931.36	6,907.65	6,903.83	80.62	206.98	-88.49	1,050.19	2,183.80	6,846.12	6,610.25	235.87	29.025	
11,800.00	6,931.26	6,907.59	6,903.76	82.11	206.98	-88.48	1,050.19	2,183.80	6,946.03	6,710.13	235.90	29.445	
11,900.00	6,931.15	6,907.52	6,903.69	83.61	206.98	-88.46	1,050.20	2,183.80	7,045.94	6,810.02	235.93	29.865	
12,000.00	6,931.05	6,907.45	6,903.63	85.11	206.98	-88.45	1,050.20	2,183.80	7,145.86	6,909.90	235.96	30.284	
12,100.00	6,930.94	6,907.39	6,903.56	86.62	206.98	-88.44	1,050.20	2,183.80	7,245.78	7,009.78	235.99	30.703	
12,200.00	6,930.84	6,907.32	6,903.49	88.13	206.97	-88.42	1,050.20	2,183.80	7,345.70	7,109.67	236.03	31.122	
12,300.00	6,930.73	6,907.26	6,903.43	89.64	206.97	-88.41	1,050.20	2,183.80	7,445.62	7,209.56	236.06	31.541	
12,400.00	6,930.63	6,907.19	6,903.36	91.15	206.97	-88.40	1,050.20	2,183.80	7,545.54	7,309.45	236.10	31.960	
12,500.00	6,930.52	6,907.12	6,903.30	92.67	206.97	-88.39	1,050.20	2,183.80	7,645.47	7,409.34	236.13	32.378	
12,600.00	6,930.42	6,907.06	6,903.23	94.19	206.97	-88.37	1,050.20	2,183.80	7,745.40	7,509.23	236.17	32.796	
12,700.00	6,930.31	6,906.99	6,903.16	95.71	206.96	-88.36	1,050.20	2,183.80	7,845.33	7,609.12	236.21	33.213	
12,800.00	6,930.21	6,906.92	6,903.10	97.24	206.96	-88.35	1,050.20	2,183.80	7,945.26	7,709.01	236.25	33.631	
12,900.00	6,930.11	6,906.86	6,903.03	98.77	206.96	-88.33	1,050.20	2,183.80	8,045.19	7,808.90	236.29	34.048	
13,008.91	6,929.99	6,906.78	6,902.96	100.43	206.96	-88.32	1,050.20	2,183.80	8,154.03	7,917.69	236.33	34.502	
13,100.00	6,929.90	6,906.71	6,902.88	101.83	206.96	-75.36	1,050.20	2,183.80	8,245.10	8,008.72	236.37	34.882	
13,139.82	6,929.86	6,906.67	6,902.84	102.44	206.96	84.50	1,050.20	2,183.80	8,284.92	8,048.52	236.39	35.047	
13,200.00	6,929.80	6,906.60	6,902.78	103.37	206.95	84.46	1,050.21	2,183.80	8,345.09	8,108.67	236.42	35.297	
13,300.00	6,929.70	6,906.49	6,902.67	104.92	206.95	84.38	1,050.21	2,183.80	8,445.09	8,208.62	236.47	35.713	
13,400.00	6,929.61	6,906.39	6,902.56	106.47	206.95	84.31	1,050.21	2,183.80	8,545.08	8,308.56	236.52	36.128	
13,500.00	6,929.51	6,906.28	6,902.45	108.02	206.94	84.24	1,050.21	2,183.80	8,645.08	8,408.51	236.57	36.543	
13,600.00	6,929.41	6,906.17	6,902.34	109.57	206.94	84.16	1,050.21	2,183.80	8,745.07	8,508.45	236.62	36.958	
13,700.00	6,929.32	6,906.06	6,902.23	111.12	206.94	84.09	1,050.21	2,183.80	8,845.07	8,608.40	236.67	37.372	
13,800.00	6,929.22	6,905.95	6,902.12	112.68	206.93	84.02	1,050.21	2,183.80	8,945.07	8,708.34	236.73	37.786	
13,900.00	6,929.12	6,905.84	6,902.02	114.23	206.93	83.94	1,050.21	2,183.80	9,045.06	8,808.28	236.78	38.200	
14,000.00	6,929.03	6,905.73	6,901.91	115.79	206.93	83.87	1,050.22	2,183.80	9,145.06	8,908.22	236.83	38.614	
14,100.00	6,928.93	6,905.63	6,901.80	117.35	206.92	83.80	1,050.22	2,183.80	9,245.05	9,008.16	236.89	39.027	
14,200.00	6,928.83	6,905.52	6,901.69	118.91	206.92	83.72	1,050.22	2,183.80	9,345.05	9,108.10	236.94	39.440	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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

Rule Assigned:

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,300.00	6,928.74	6,905.41	6,901.58	120.47	206.92	83.65	1,050.22	2,183.80	9,445.05	9,208.05	237.00	39.853	
14,400.00	6,928.64	6,905.30	6,901.47	122.03	206.91	83.58	1,050.22	2,183.80	9,545.04	9,307.98	237.06	40.265	
14,500.00	6,928.54	6,905.19	6,901.37	123.60	206.91	83.50	1,050.22	2,183.80	9,645.04	9,407.92	237.11	40.677	
14,600.00	6,928.45	6,905.08	6,901.26	125.16	206.91	83.43	1,050.22	2,183.80	9,745.03	9,507.86	237.17	41.089	
14,700.00	6,928.35	6,904.97	6,901.15	126.72	206.90	83.35	1,050.22	2,183.80	9,845.03	9,607.80	237.23	41.500	
14,800.00	6,928.25	6,904.87	6,901.04	128.29	206.90	83.28	1,050.22	2,183.80	9,945.03	9,707.74	237.29	41.911	
14,900.00	6,928.16	6,904.76	6,900.93	129.86	206.90	83.21	1,050.23	2,183.80	10,045.02	9,807.67	237.35	42.322	
15,000.00	6,928.06	6,904.65	6,900.82	131.42	206.89	83.14	1,050.23	2,183.80	10,145.02	9,907.61	237.41	42.732	
15,100.00	6,927.96	6,904.54	6,900.71	132.99	206.89	83.06	1,050.23	2,183.80	10,245.02	10,007.55	237.47	43.142	
15,200.00	6,927.87	6,904.43	6,900.61	134.56	206.89	82.99	1,050.23	2,183.80	10,345.01	10,107.48	237.53	43.552	
15,300.00	6,927.77	6,904.32	6,900.50	136.13	206.88	82.92	1,050.23	2,183.80	10,445.01	10,207.42	237.59	43.962	
15,400.00	6,927.67	6,904.22	6,900.39	137.70	206.88	82.84	1,050.23	2,183.80	10,545.01	10,307.35	237.66	44.371	
15,500.00	6,927.57	6,904.11	6,900.28	139.28	206.88	82.77	1,050.23	2,183.80	10,645.00	10,407.28	237.72	44.780	
15,600.00	6,927.48	6,904.00	6,900.17	140.85	206.88	82.70	1,050.23	2,183.80	10,745.00	10,507.22	237.78	45.188	
15,700.00	6,927.38	6,903.89	6,900.06	142.42	206.87	82.62	1,050.24	2,183.80	10,845.00	10,607.15	237.85	45.596	
15,800.00	6,927.28	6,903.78	6,899.96	144.00	206.87	82.55	1,050.24	2,183.80	10,944.99	10,707.08	237.91	46.004	
15,900.00	6,927.19	6,903.67	6,899.85	145.57	206.87	82.48	1,050.24	2,183.80	11,044.99	10,807.01	237.98	46.412	
16,000.00	6,927.09	6,903.57	6,899.74	147.15	206.86	82.40	1,050.24	2,183.80	11,144.99	10,906.94	238.04	46.819	
16,100.00	6,926.99	6,903.46	6,899.63	148.72	206.86	82.33	1,050.24	2,183.80	11,244.99	11,006.87	238.11	47.226	
16,200.00	6,926.90	6,903.35	6,899.52	150.30	206.86	82.26	1,050.24	2,183.80	11,344.98	11,106.80	238.18	47.632	
16,300.00	6,926.80	6,903.24	6,899.41	151.87	206.85	82.19	1,050.24	2,183.80	11,444.98	11,206.73	238.25	48.038	
16,400.00	6,926.70	6,903.13	6,899.31	153.45	206.85	82.11	1,050.24	2,183.80	11,544.98	11,306.66	238.32	48.444	
16,500.00	6,926.61	6,903.02	6,899.20	155.03	206.85	82.04	1,050.24	2,183.80	11,644.97	11,406.59	238.39	48.849	
16,600.00	6,926.51	6,902.92	6,899.09	156.61	206.84	81.97	1,050.25	2,183.80	11,744.97	11,506.52	238.45	49.254	
16,700.00	6,926.41	6,902.81	6,898.98	158.19	206.84	81.90	1,050.25	2,183.80	11,844.97	11,606.44	238.53	49.659	
16,800.00	6,926.32	6,902.70	6,898.87	159.77	206.84	81.82	1,050.25	2,183.80	11,944.97	11,706.37	238.60	50.064	
16,900.00	6,926.22	6,902.59	6,898.77	161.35	206.83	81.75	1,050.25	2,183.80	12,044.96	11,806.30	238.67	50.468	
17,000.00	6,926.12	6,902.48	6,898.66	162.93	206.83	81.68	1,050.25	2,183.80	12,144.96	11,906.22	238.74	50.871	
17,100.00	6,926.03	6,902.38	6,898.55	164.51	206.83	81.61	1,050.25	2,183.80	12,244.96	12,006.15	238.81	51.274	
17,200.00	6,925.93	6,902.27	6,898.44	166.09	206.82	81.53	1,050.25	2,183.80	12,344.96	12,106.07	238.89	51.677	
17,300.00	6,925.83	6,902.16	6,898.33	167.67	206.82	81.46	1,050.25	2,183.80	12,444.95	12,206.00	238.96	52.080	
17,400.00	6,925.74	6,902.05	6,898.23	169.26	206.82	81.39	1,050.25	2,183.80	12,544.95	12,305.92	239.03	52.482	
17,500.00	6,925.64	6,901.94	6,898.12	170.84	206.81	81.32	1,050.26	2,183.80	12,644.95	12,405.84	239.11	52.884	
17,600.00	6,925.54	6,901.83	6,898.01	172.42	206.81	81.24	1,050.26	2,183.80	12,744.95	12,505.76	239.18	53.285	
17,700.00	6,925.45	6,901.73	6,897.90	174.00	206.81	81.17	1,050.26	2,183.80	12,844.95	12,605.69	239.26	53.686	
17,800.00	6,925.35	6,901.62	6,897.79	175.59	206.80	81.10	1,050.26	2,183.80	12,944.94	12,705.61	239.34	54.087	
17,900.00	6,925.25	6,901.51	6,897.69	177.17	206.80	81.03	1,050.26	2,183.80	13,044.94	12,805.53	239.41	54.487	
18,000.00	6,925.16	6,901.40	6,897.58	178.76	206.80	80.96	1,050.26	2,183.80	13,144.94	12,905.45	239.49	54.887	
18,100.00	6,925.06	6,901.30	6,897.47	180.34	206.79	80.88	1,050.26	2,183.80	13,244.94	13,005.37	239.57	55.287	
18,160.21	6,925.00	6,901.23	6,897.40	181.30	206.79	80.84	1,050.26	2,183.80	13,305.15	13,065.54	239.61	55.527	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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	82.10	1,493.71	10,760.82	10,864.00				
100.00	100.00	581.10	581.00	0.25	17.41	82.10	1,493.71	10,760.82	10,864.00	10,846.33	17.66	615.058	
200.00	200.00	681.10	681.00	0.61	20.41	82.10	1,493.71	10,760.82	10,864.00	10,842.98	21.02	516.883	
300.00	300.00	784.76	784.61	0.97	23.51	82.09	1,495.85	10,760.82	10,864.29	10,839.81	24.48	443.754	
400.00	400.00	896.48	896.31	1.33	26.86	82.09	1,495.14	10,760.82	10,864.20	10,836.02	28.19	385.408	
500.00	500.00	1,008.23	1,008.03	1.68	30.21	82.10	1,493.56	10,760.82	10,864.01	10,832.11	31.90	340.608	
600.00	599.98	1,081.39	1,080.98	2.04	32.40	70.12	1,493.71	10,760.82	10,863.40	10,828.96	34.45	315.377	
700.00	699.84	1,181.24	1,180.84	2.41	35.40	70.18	1,493.71	10,760.82	10,861.62	10,823.83	37.80	287.375	
800.00	799.45	1,284.44	1,283.99	2.77	38.49	70.27	1,495.85	10,760.82	10,858.96	10,817.71	41.25	263.256	
900.00	898.70	1,395.06	1,394.58	3.13	41.80	70.42	1,495.16	10,760.82	10,854.74	10,809.81	44.93	241.599	
1,000.00	997.47	1,504.89	1,504.38	3.50	45.09	70.61	1,493.62	10,760.82	10,849.28	10,800.68	48.59	223.265	
1,100.00	1,095.62	1,577.33	1,576.62	3.89	47.26	70.80	1,493.71	10,760.82	10,842.85	10,791.70	51.15	211.981	
1,200.00	1,193.44	1,675.15	1,674.44	4.29	50.20	70.91	1,493.71	10,760.82	10,835.89	10,781.41	54.48	198.907	
1,300.00	1,291.25	1,775.46	1,774.71	4.70	53.20	71.00	1,495.87	10,760.82	10,829.25	10,771.36	57.89	187.081	
1,400.00	1,389.07	1,883.67	1,882.89	5.11	56.44	71.12	1,495.27	10,760.82	10,822.29	10,760.76	61.54	175.872	
1,500.00	1,486.88	1,991.56	1,990.75	5.53	59.68	71.24	1,493.85	10,760.82	10,815.28	10,750.10	65.18	165.930	
1,600.00	1,584.70	2,066.71	2,065.70	5.95	61.93	71.32	1,493.71	10,760.82	10,808.43	10,740.58	67.85	159.305	
1,700.00	1,682.51	2,164.53	2,163.51	6.37	64.86	71.42	1,493.71	10,760.82	10,801.66	10,730.46	71.20	151.716	
1,800.00	1,780.33	2,263.58	2,262.53	6.80	67.83	71.51	1,495.89	10,760.82	10,795.17	10,720.59	74.58	144.737	
1,900.00	1,878.14	2,370.96	2,369.88	7.22	71.04	71.63	1,495.38	10,760.82	10,788.41	10,710.19	78.22	137.917	
2,000.00	1,975.96	2,478.03	2,476.92	7.65	74.25	71.74	1,494.08	10,760.82	10,781.60	10,699.75	81.86	131.715	
2,100.00	2,073.77	2,556.09	2,554.77	8.08	76.59	71.83	1,493.71	10,760.82	10,774.91	10,690.29	84.62	127.333	
2,200.00	2,171.59	2,653.91	2,652.59	8.51	79.52	71.93	1,493.71	10,760.82	10,768.31	10,680.34	87.98	122.399	
2,300.00	2,269.40	2,751.89	2,750.53	8.95	82.46	72.02	1,495.89	10,760.82	10,761.99	10,670.65	91.34	117.823	
2,400.00	2,367.22	2,858.45	2,857.07	9.38	85.65	72.14	1,495.48	10,760.82	10,755.42	10,660.46	94.96	113.261	
2,500.00	2,465.03	2,964.71	2,963.30	9.81	88.84	72.26	1,494.28	10,760.82	10,748.82	10,650.24	98.57	109.043	
2,600.00	2,562.84	3,045.47	3,043.84	10.25	91.26	72.34	1,493.71	10,760.82	10,742.29	10,640.87	101.42	105.915	
2,700.00	2,660.66	3,143.28	3,141.66	10.68	94.19	72.45	1,493.71	10,760.82	10,735.88	10,631.09	104.79	102.456	
2,800.00	2,758.47	3,241.10	3,239.47	11.12	97.12	72.55	1,493.71	10,760.82	10,729.50	10,621.35	108.15	99.212	
2,900.00	2,856.29	3,346.13	3,344.45	11.55	100.27	72.65	1,495.57	10,760.82	10,723.34	10,611.62	111.72	95.980	
3,000.00	2,954.10	3,451.59	3,449.89	11.99	103.43	72.77	1,494.47	10,760.82	10,716.93	10,601.62	115.32	92.935	
3,100.00	3,051.92	3,534.85	3,532.92	12.42	105.92	72.86	1,493.71	10,760.82	10,710.58	10,592.34	118.24	90.580	
3,200.00	3,149.73	3,632.66	3,630.73	12.86	108.85	72.97	1,493.71	10,760.82	10,704.35	10,582.74	121.61	88.024	
3,300.00	3,247.55	3,730.48	3,728.55	13.30	111.78	73.07	1,493.71	10,760.82	10,698.15	10,573.18	124.97	85.605	
3,400.00	3,345.36	3,834.00	3,832.02	13.73	114.88	73.17	1,495.65	10,760.82	10,692.17	10,563.66	128.51	83.203	
3,500.00	3,443.18	3,938.68	3,936.67	14.17	118.02	73.29	1,494.65	10,760.82	10,685.96	10,553.89	132.08	80.907	
3,600.00	3,540.99	4,024.23	4,021.99	14.61	120.58	73.39	1,493.71	10,760.82	10,679.79	10,544.71	135.07	79.066	
3,700.00	3,638.81	4,122.04	4,119.81	15.05	123.51	73.49	1,493.71	10,760.82	10,673.74	10,535.30	138.44	77.100	
3,800.00	3,736.62	4,219.86	4,217.62	15.48	126.45	73.60	1,493.71	10,760.82	10,667.73	10,525.92	141.81	75.228	
3,900.00	3,834.44	4,322.05	4,319.77	15.92	129.51	73.70	1,495.71	10,760.82	10,661.92	10,516.62	145.30	73.378	
4,000.00	3,932.25	4,425.96	4,423.65	16.36	132.62	73.81	1,494.81	10,760.82	10,655.91	10,507.06	148.85	71.588	
4,100.00	4,030.07	4,513.60	4,511.07	16.80	135.25	73.91	1,493.71	10,760.82	10,649.92	10,498.01	151.91	70.106	
4,200.00	4,127.88	4,611.42	4,608.88	17.24	138.18	74.02	1,493.71	10,760.82	10,644.06	10,488.78	155.28	68.548	
4,300.00	4,225.70	4,709.23	4,706.70	17.68	141.11	74.12	1,493.71	10,760.82	10,638.24	10,479.59	158.65	67.057	
4,400.00	4,323.51	4,810.29	4,807.70	18.11	144.14	74.22	1,495.77	10,760.82	10,632.60	10,470.49	162.11	65.589	
4,500.00	4,421.33	4,913.43	4,910.82	18.55	147.23	74.34	1,494.96	10,760.82	10,626.79	10,461.15	165.64	64.158	
4,600.00	4,519.14	5,002.98	5,000.14	18.99	149.91	74.44	1,493.71	10,760.82	10,620.99	10,452.23	168.76	62.937	
4,700.00	4,616.95	5,100.80	5,097.95	19.43	152.84	74.55	1,493.71	10,760.82	10,615.31	10,443.19	172.12	61.673	
4,800.00	4,714.77	5,198.61	5,195.77	19.87	155.77	74.65	1,493.71	10,760.82	10,609.68	10,434.19	175.49	60.457	
4,900.00	4,812.58	5,298.70	5,295.81	20.31	158.77	74.75	1,495.81	10,760.82	10,604.21	10,425.28	178.93	59.266	
5,000.00	4,910.40	5,401.08	5,398.17	20.75	161.84	74.86	1,495.10	10,760.82	10,598.60	10,416.17	182.43	58.096	
5,100.00	5,008.21	5,503.19	5,500.24	21.19	164.90	74.98	1,493.65	10,760.82	10,593.00	10,407.07	185.93	56.974	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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
5,200.00	5,106.03	5,590.18	5,587.03	21.63	167.51	75.08	1,493.71	10,760.82	10,587.51	10,398.54	188.97	56.027	
5,300.00	5,203.84	5,687.99	5,684.84	22.06	170.44	75.18	1,493.71	10,760.82	10,582.07	10,389.72	192.34	55.017	
5,400.00	5,301.66	5,787.28	5,784.09	22.50	173.41	75.28	1,495.84	10,760.82	10,576.77	10,381.02	195.75	54.031	
5,500.00	5,399.47	5,888.92	5,885.71	22.94	176.46	75.39	1,495.22	10,760.82	10,571.36	10,372.13	199.24	53.059	
5,600.00	5,497.29	5,990.29	5,987.05	23.38	179.50	75.51	1,493.88	10,760.82	10,565.97	10,363.25	202.71	52.123	
5,700.00	5,595.10	6,079.55	6,076.10	23.82	182.17	75.61	1,493.71	10,760.82	10,560.66	10,354.83	205.83	51.309	
5,800.00	5,692.92	6,177.37	6,173.92	24.26	185.10	75.72	1,493.71	10,760.82	10,555.40	10,346.21	209.19	50.457	
5,900.00	5,790.73	6,275.18	6,271.73	24.70	188.03	75.82	1,493.71	10,760.82	10,550.19	10,337.62	212.56	49.633	
6,000.00	5,888.55	6,300.00	6,296.37	25.14	188.78	75.85	1,493.71	10,760.82	10,545.26	10,331.51	213.75	49.335	
6,100.00	5,986.36	6,300.00	6,296.37	25.58	188.78	75.85	1,493.71	10,760.82	10,541.25	10,327.08	214.17	49.219	
6,200.00	6,084.18	6,300.00	6,296.37	26.02	188.78	75.85	1,493.71	10,760.82	10,538.19	10,323.62	214.58	49.112	
6,300.00	6,181.99	6,300.00	6,296.37	26.46	188.78	75.85	1,493.71	10,760.82	10,536.08	10,321.12	214.96	49.013	
6,401.22	6,281.00	6,300.00	6,296.37	26.90	188.78	75.85	1,493.71	10,760.82	10,534.91	10,319.57	215.34	48.923	
6,405.27	6,284.96	6,300.00	6,296.37	26.92	188.78	77.53	1,493.71	10,760.82	10,534.90	10,319.54	215.35	48.919	CC, ES
6,450.00	6,328.76	6,300.00	6,296.37	27.12	188.78	96.82	1,493.71	10,760.82	10,536.56	10,321.05	215.51	48.891	
6,500.00	6,377.61	6,300.00	6,296.37	27.32	188.78	116.45	1,493.71	10,760.82	10,542.35	10,326.67	215.68	48.880	SF
6,550.00	6,426.06	6,300.00	6,296.37	27.52	188.78	131.02	1,493.71	10,760.82	10,552.25	10,336.41	215.84	48.890	
6,600.00	6,473.81	6,300.00	6,296.37	27.71	188.78	140.99	1,493.71	10,760.82	10,566.18	10,350.19	215.99	48.921	
6,650.00	6,520.56	6,300.00	6,296.37	27.89	188.78	147.81	1,493.71	10,760.82	10,584.05	10,367.92	216.12	48.972	
6,700.00	6,566.03	6,300.00	6,296.37	28.05	188.78	152.61	1,493.71	10,760.82	10,605.71	10,389.47	216.25	49.045	
6,750.00	6,609.93	6,300.00	6,296.37	28.20	188.78	156.09	1,493.71	10,760.82	10,631.03	10,414.67	216.36	49.136	
6,800.00	6,652.00	6,300.00	6,296.37	28.34	188.78	158.70	1,493.71	10,760.82	10,659.81	10,443.35	216.46	49.247	
6,850.00	6,691.98	6,300.00	6,296.37	28.47	188.78	160.68	1,493.71	10,760.82	10,691.85	10,475.31	216.54	49.375	
6,900.00	6,729.61	6,300.00	6,296.37	28.59	188.78	162.22	1,493.71	10,760.82	10,726.92	10,510.31	216.62	49.520	
6,950.00	6,764.67	6,300.00	6,296.37	28.69	188.78	163.41	1,493.71	10,760.82	10,764.79	10,548.11	216.68	49.680	
7,000.00	6,796.95	6,300.00	6,296.37	28.79	188.78	164.34	1,493.71	10,760.82	10,805.18	10,588.45	216.74	49.854	
7,050.00	6,826.23	6,300.00	6,296.37	28.89	188.78	165.04	1,493.71	10,760.82	10,847.83	10,631.05	216.78	50.041	
7,100.00	6,852.35	6,300.00	6,296.37	28.98	188.78	165.54	1,493.71	10,760.82	10,892.44	10,675.63	216.81	50.239	
7,150.00	6,875.14	6,300.00	6,296.37	29.08	188.78	165.84	1,493.71	10,760.82	10,938.72	10,721.88	216.84	50.446	
7,200.00	6,894.45	6,300.00	6,296.37	29.18	188.78	165.89	1,493.71	10,760.82	10,986.36	10,769.50	216.86	50.661	
7,250.00	6,910.18	6,300.00	6,296.37	29.28	188.78	165.54	1,493.71	10,760.82	11,035.06	10,818.18	216.88	50.882	
7,300.00	6,922.23	6,300.00	6,296.37	29.40	188.78	164.12	1,493.71	10,760.82	11,084.50	10,867.61	216.89	51.107	
7,350.00	6,930.51	6,300.00	6,296.37	29.54	188.78	154.12	1,493.71	10,760.82	11,134.36	10,917.46	216.90	51.335	
7,400.00	6,934.98	6,300.00	6,296.37	29.70	188.78	-2.93	1,493.71	10,760.82	11,184.35	10,967.44	216.91	51.563	
7,433.91	6,935.83	6,300.00	6,296.37	29.81	188.78	-7.45	1,493.71	10,760.82	11,218.15	11,001.24	216.91	51.718	
7,500.00	6,935.76	6,300.00	6,296.37	30.07	188.78	-7.45	1,493.71	10,760.82	11,283.90	11,066.98	216.92	52.018	
7,600.00	6,935.66	6,300.00	6,296.37	30.52	188.78	-7.45	1,493.71	10,760.82	11,383.39	11,166.45	216.95	52.471	
7,700.00	6,935.55	6,300.00	6,296.37	31.06	188.78	-7.45	1,493.71	10,760.82	11,482.89	11,265.93	216.97	52.925	
7,800.00	6,935.45	6,300.00	6,296.37	31.68	188.78	-7.45	1,493.71	10,760.82	11,582.40	11,365.42	216.99	53.378	
7,900.00	6,935.34	6,300.00	6,296.37	32.37	188.78	-7.45	1,493.71	10,760.82	11,681.92	11,464.91	217.01	53.831	
8,000.00	6,935.24	6,300.00	6,296.37	33.12	188.78	-7.45	1,493.71	10,760.82	11,781.45	11,564.41	217.03	54.284	
8,100.00	6,935.13	6,300.00	6,296.37	33.93	188.78	-7.45	1,493.71	10,760.82	11,880.98	11,663.92	217.06	54.737	
8,200.00	6,935.03	6,300.00	6,296.37	34.80	188.78	-7.45	1,493.71	10,760.82	11,980.52	11,763.44	217.08	55.189	
8,300.00	6,934.92	6,300.00	6,296.37	35.71	188.78	-7.45	1,493.71	10,760.82	12,080.07	11,862.96	217.11	55.642	
8,400.00	6,934.82	6,300.00	6,296.37	36.67	188.78	-7.45	1,493.71	10,760.82	12,179.62	11,962.49	217.13	56.094	
8,500.00	6,934.71	6,300.00	6,296.37	37.68	188.78	-7.45	1,493.71	10,760.82	12,279.19	12,062.03	217.16	56.545	
8,600.00	6,934.61	6,300.00	6,296.37	38.72	188.78	-7.45	1,493.71	10,760.82	12,378.76	12,161.58	217.18	56.997	
8,700.00	6,934.50	6,300.00	6,296.37	39.80	188.78	-7.45	1,493.71	10,760.82	12,478.33	12,261.13	217.21	57.448	
8,800.00	6,934.40	6,300.00	6,296.37	40.92	188.78	-7.45	1,493.71	10,760.82	12,577.92	12,360.68	217.24	57.899	
8,900.00	6,934.29	6,300.00	6,296.37	42.06	188.78	-7.45	1,493.71	10,760.82	12,677.51	12,460.24	217.27	58.350	
9,000.00	6,934.19	6,300.00	6,296.37	43.23	188.78	-7.45	1,493.71	10,760.82	12,777.11	12,559.81	217.29	58.801	
9,100.00	6,934.08	6,300.00	6,296.37	44.43	188.78	-7.45	1,493.71	10,760.82	12,876.71	12,659.38	217.32	59.251	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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
9,200.00	6,933.98	6,300.00	6,296.37	45.66	188.78	-7.45	1,493.71	10,760.82	12,976.32	12,758.96	217.35	59.701	
9,300.00	6,933.88	6,300.00	6,296.37	46.90	188.78	-7.45	1,493.71	10,760.82	13,075.93	12,858.55	217.38	60.151	
9,400.00	6,933.77	6,300.00	6,296.37	48.17	188.78	-7.45	1,493.71	10,760.82	13,175.55	12,958.14	217.42	60.601	
9,500.00	6,933.67	6,300.00	6,296.37	49.46	188.78	-7.45	1,493.71	10,760.82	13,275.18	13,057.73	217.45	61.050	
9,600.00	6,933.56	6,300.00	6,296.37	50.76	188.78	-7.45	1,493.71	10,760.82	13,374.81	13,157.33	217.48	61.499	
9,700.00	6,933.46	6,300.00	6,296.37	52.08	188.78	-7.45	1,493.71	10,760.82	13,474.45	13,256.94	217.51	61.948	
9,800.00	6,933.35	6,300.00	6,296.37	53.41	188.78	-7.45	1,493.71	10,760.82	13,574.09	13,356.55	217.55	62.396	
9,900.00	6,933.25	6,300.00	6,296.37	54.76	188.78	-7.45	1,493.71	10,760.82	13,673.74	13,456.16	217.58	62.844	
10,000.00	6,933.14	6,300.00	6,296.37	56.12	188.78	-7.45	1,493.71	10,760.82	13,773.39	13,555.78	217.62	63.292	
10,100.00	6,933.04	6,300.00	6,296.37	57.50	188.78	-7.45	1,493.71	10,760.82	13,873.05	13,655.40	217.65	63.739	
10,200.00	6,932.93	6,300.00	6,296.37	58.88	188.78	-7.45	1,493.71	10,760.82	13,972.72	13,755.03	217.69	64.186	
10,300.00	6,932.83	6,300.00	6,296.37	60.28	188.78	-7.45	1,493.71	10,760.82	14,072.38	13,854.66	217.73	64.633	
10,400.00	6,932.72	6,300.00	6,296.37	61.69	188.78	-7.45	1,493.71	10,760.82	14,172.06	13,954.29	217.76	65.080	
10,500.00	6,932.62	6,300.00	6,296.37	63.10	188.78	-7.45	1,493.71	10,760.82	14,271.73	14,053.93	217.80	65.526	
10,600.00	6,932.51	6,300.00	6,296.37	64.52	188.78	-7.45	1,493.71	10,760.82	14,371.42	14,153.57	217.84	65.972	
10,700.00	6,932.41	6,300.00	6,296.37	65.96	188.78	-7.45	1,493.71	10,760.82	14,471.10	14,253.22	217.88	66.417	
10,800.00	6,932.30	6,300.00	6,296.37	67.39	188.78	-7.45	1,493.71	10,760.82	14,570.79	14,352.87	217.92	66.863	
10,900.00	6,932.20	6,300.00	6,296.37	68.84	188.78	-7.45	1,493.71	10,760.82	14,670.49	14,452.52	217.96	67.308	
11,000.00	6,932.10	6,300.00	6,296.37	70.29	188.78	-7.45	1,493.71	10,760.82	14,770.19	14,552.18	218.00	67.752	
11,100.00	6,931.99	6,300.00	6,296.37	71.75	188.78	-7.45	1,493.71	10,760.82	14,869.89	14,651.84	218.05	68.196	
11,200.00	6,931.89	6,300.00	6,296.37	73.22	188.78	-7.45	1,493.71	10,760.82	14,969.59	14,751.51	218.09	68.640	
11,300.00	6,931.78	6,300.00	6,296.37	74.69	188.78	-7.45	1,493.71	10,760.82	15,069.31	14,851.17	218.13	69.084	
11,400.00	6,931.68	6,300.00	6,296.37	76.16	188.78	-7.45	1,493.71	10,760.82	15,169.02	14,950.84	218.18	69.527	
11,500.00	6,931.57	6,300.00	6,296.37	77.64	188.78	-7.45	1,493.71	10,760.82	15,268.74	15,050.52	218.22	69.969	
11,600.00	6,931.47	6,300.00	6,296.37	79.13	188.78	-7.45	1,493.71	10,760.82	15,368.46	15,150.19	218.27	70.412	
11,700.00	6,931.36	6,300.00	6,296.37	80.62	188.78	-7.45	1,493.71	10,760.82	15,468.19	15,249.87	218.31	70.854	
11,800.00	6,931.26	6,300.00	6,296.37	82.11	188.78	-7.45	1,493.71	10,760.82	15,567.91	15,349.56	218.36	71.295	
11,900.00	6,931.15	6,300.00	6,296.37	83.61	188.78	-7.45	1,493.71	10,760.82	15,667.65	15,449.24	218.41	71.737	
12,000.00	6,931.05	6,300.00	6,296.37	85.11	188.78	-7.45	1,493.71	10,760.82	15,767.38	15,548.93	218.45	72.178	
12,100.00	6,930.94	6,300.00	6,296.37	86.62	188.78	-7.45	1,493.71	10,760.82	15,867.12	15,648.62	218.50	72.618	
12,200.00	6,930.84	6,300.00	6,296.37	88.13	188.78	-7.45	1,493.71	10,760.82	15,966.86	15,748.31	218.55	73.058	
12,300.00	6,930.73	6,300.00	6,296.37	89.64	188.78	-7.45	1,493.71	10,760.82	16,066.61	15,848.01	218.60	73.498	
12,400.00	6,930.63	6,300.00	6,296.37	91.15	188.78	-7.45	1,493.71	10,760.82	16,166.36	15,947.71	218.65	73.937	
12,500.00	6,930.52	6,300.00	6,296.37	92.67	188.78	-7.45	1,493.71	10,760.82	16,266.11	16,047.41	218.70	74.376	
12,600.00	6,930.42	6,300.00	6,296.37	94.19	188.78	-7.45	1,493.71	10,760.82	16,365.86	16,147.11	218.75	74.815	
12,700.00	6,930.31	6,300.00	6,296.37	95.71	188.78	-7.45	1,493.71	10,760.82	16,465.62	16,246.82	218.80	75.253	
12,800.00	6,930.21	6,300.00	6,296.37	97.24	188.78	-7.45	1,493.71	10,760.82	16,565.38	16,346.53	218.86	75.690	
12,900.00	6,930.11	6,300.00	6,296.37	98.77	188.78	-7.45	1,493.71	10,760.82	16,665.15	16,446.24	218.91	76.128	
13,008.91	6,929.99	6,300.00	6,296.37	100.43	188.78	-7.45	1,493.71	10,760.82	16,773.80	16,554.83	218.97	76.603	
13,100.00	6,929.90	6,300.00	6,296.37	101.83	188.78	18.82	1,493.71	10,760.82	16,864.68	16,645.66	219.02	76.999	
13,139.82	6,929.86	6,300.00	6,296.37	102.44	188.78	28.72	1,493.71	10,760.82	16,904.39	16,685.34	219.05	77.170	
13,200.00	6,929.80	6,300.00	6,296.37	103.37	188.78	28.72	1,493.71	10,760.82	16,964.40	16,745.30	219.10	77.429	
13,300.00	6,929.70	6,300.00	6,296.37	104.92	188.78	28.72	1,493.71	10,760.82	17,064.11	16,844.94	219.17	77.857	
13,400.00	6,929.61	6,300.00	6,296.37	106.47	188.78	28.72	1,493.71	10,760.82	17,163.83	16,944.58	219.25	78.286	
13,500.00	6,929.51	6,300.00	6,296.37	108.02	188.78	28.72	1,493.71	10,760.82	17,263.55	17,044.22	219.32	78.714	
13,600.00	6,929.41	6,300.00	6,296.37	109.57	188.78	28.72	1,493.71	10,760.82	17,363.27	17,143.87	219.40	79.141	
13,700.00	6,929.32	6,300.00	6,296.37	111.12	188.78	28.72	1,493.71	10,760.82	17,462.99	17,243.52	219.47	79.568	
13,800.00	6,929.22	6,300.00	6,296.37	112.68	188.78	28.72	1,493.71	10,760.82	17,562.72	17,343.17	219.55	79.995	
13,900.00	6,929.12	6,300.00	6,296.37	114.23	188.78	28.72	1,493.71	10,760.82	17,662.45	17,442.83	219.62	80.421	
14,000.00	6,929.03	6,300.00	6,296.37	115.79	188.78	28.72	1,493.71	10,760.82	17,762.19	17,542.49	219.70	80.847	
14,100.00	6,928.93	6,300.00	6,296.37	117.35	188.78	28.72	1,493.71	10,760.82	17,861.93	17,642.15	219.78	81.273	
14,200.00	6,928.83	6,300.00	6,296.37	118.91	188.78	28.72	1,493.71	10,760.82	17,961.67	17,741.81	219.85	81.698	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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	6,928.74	6,300.00	6,296.37	120.47	188.78	28.72	1,493.71	10,760.82	18,061.41	17,841.48	219.93	82.122	
14,400.00	6,928.64	6,300.00	6,296.37	122.03	188.78	28.72	1,493.71	10,760.82	18,161.16	17,941.15	220.01	82.547	
14,500.00	6,928.54	6,300.00	6,296.37	123.60	188.78	28.72	1,493.71	10,760.82	18,260.91	18,040.82	220.09	82.971	
14,600.00	6,928.45	6,300.00	6,296.37	125.16	188.78	28.72	1,493.71	10,760.82	18,360.66	18,140.49	220.17	83.394	
14,700.00	6,928.35	6,300.00	6,296.37	126.72	188.78	28.72	1,493.71	10,760.82	18,460.41	18,240.16	220.25	83.817	
14,800.00	6,928.25	6,300.00	6,296.37	128.29	188.78	28.72	1,493.71	10,760.82	18,560.17	18,339.84	220.33	84.239	
14,900.00	6,928.16	6,300.00	6,296.37	129.86	188.78	28.72	1,493.71	10,760.82	18,659.93	18,439.52	220.41	84.661	
15,000.00	6,928.06	6,300.00	6,296.37	131.42	188.78	28.72	1,493.71	10,760.82	18,759.69	18,539.20	220.49	85.083	
15,100.00	6,927.96	6,300.00	6,296.37	132.99	188.78	28.72	1,493.71	10,760.82	18,859.46	18,638.89	220.57	85.504	
15,200.00	6,927.87	6,300.00	6,296.37	134.56	188.78	28.72	1,493.71	10,760.82	18,959.22	18,738.57	220.65	85.925	
15,300.00	6,927.77	6,300.00	6,296.37	136.13	188.78	28.72	1,493.71	10,760.82	19,058.99	18,838.26	220.73	86.345	
15,400.00	6,927.67	6,300.00	6,296.37	137.70	188.78	28.72	1,493.71	10,760.82	19,158.76	18,937.95	220.81	86.765	
15,500.00	6,927.57	6,300.00	6,296.37	139.28	188.78	28.72	1,493.71	10,760.82	19,258.54	19,037.65	220.89	87.185	
15,600.00	6,927.48	6,300.00	6,296.37	140.85	188.78	28.72	1,493.71	10,760.82	19,358.32	19,137.34	220.98	87.604	
15,700.00	6,927.38	6,300.00	6,296.37	142.42	188.78	28.72	1,493.71	10,760.82	19,458.09	19,237.04	221.06	88.022	
15,800.00	6,927.28	6,300.00	6,296.37	144.00	188.78	28.72	1,493.71	10,760.82	19,557.88	19,336.73	221.14	88.441	
15,900.00	6,927.19	6,300.00	6,296.37	145.57	188.78	28.72	1,493.71	10,760.82	19,657.66	19,436.43	221.23	88.858	
16,000.00	6,927.09	6,300.00	6,296.37	147.15	188.78	28.72	1,493.71	10,760.82	19,757.44	19,536.14	221.31	89.275	
16,100.00	6,926.99	6,300.00	6,296.37	148.72	188.78	28.72	1,493.71	10,760.82	19,857.23	19,635.84	221.39	89.692	
16,200.00	6,926.90	6,300.00	6,296.37	150.30	188.78	28.72	1,493.71	10,760.82	19,957.02	19,735.55	221.48	90.109	
16,300.00	6,926.80	6,300.00	6,296.37	151.87	188.78	28.72	1,493.71	10,760.82	20,056.82	19,835.25	221.56	90.524	
16,400.00	6,926.70	6,300.00	6,296.37	153.45	188.78	28.72	1,493.71	10,760.82	20,156.61	19,934.96	221.65	90.940	
16,500.00	6,926.61	6,300.00	6,296.37	155.03	188.78	28.72	1,493.71	10,760.82	20,256.41	20,034.67	221.73	91.355	
16,600.00	6,926.51	6,300.00	6,296.37	156.61	188.78	28.72	1,493.71	10,760.82	20,356.20	20,134.38	221.82	91.769	
16,700.00	6,926.41	6,300.00	6,296.37	158.19	188.78	28.72	1,493.71	10,760.82	20,456.00	20,234.10	221.91	92.183	
16,800.00	6,926.32	6,300.00	6,296.37	159.77	188.78	28.72	1,493.71	10,760.82	20,555.81	20,333.81	221.99	92.597	
16,900.00	6,926.22	6,300.00	6,296.37	161.35	188.78	28.72	1,493.71	10,760.82	20,655.61	20,433.53	222.08	93.010	
17,000.00	6,926.12	6,300.00	6,296.37	162.93	188.78	28.72	1,493.71	10,760.82	20,755.42	20,533.25	222.17	93.423	
17,100.00	6,926.03	6,300.00	6,296.37	164.51	188.78	28.72	1,493.71	10,760.82	20,855.22	20,632.97	222.25	93.835	
17,200.00	6,925.93	6,300.00	6,296.37	166.09	188.78	28.72	1,493.71	10,760.82	20,955.03	20,732.69	222.34	94.247	
17,300.00	6,925.83	6,300.00	6,296.37	167.67	188.78	28.72	1,493.71	10,760.82	21,054.84	20,832.41	222.43	94.658	
17,400.00	6,925.74	6,300.00	6,296.37	169.26	188.78	28.72	1,493.71	10,760.82	21,154.66	20,932.14	222.52	95.069	
17,500.00	6,925.64	6,300.00	6,296.37	170.84	188.78	28.72	1,493.71	10,760.82	21,254.47	21,031.86	222.61	95.479	
17,600.00	6,925.54	6,300.00	6,296.37	172.42	188.78	28.72	1,493.71	10,760.82	21,354.29	21,131.59	222.70	95.889	
17,700.00	6,925.45	6,300.00	6,296.37	174.00	188.78	28.72	1,493.71	10,760.82	21,454.11	21,231.32	222.79	96.299	
17,800.00	6,925.35	6,300.00	6,296.37	175.59	188.78	28.72	1,493.71	10,760.82	21,553.93	21,331.05	222.88	96.708	
17,900.00	6,925.25	6,300.00	6,296.37	177.17	188.78	28.72	1,493.71	10,760.82	21,653.75	21,430.78	222.97	97.116	
18,000.00	6,925.16	6,300.00	6,296.37	178.76	188.78	28.72	1,493.71	10,760.82	21,753.57	21,530.51	223.06	97.524	
18,100.00	6,925.06	6,300.00	6,296.37	180.34	188.78	28.72	1,493.71	10,760.82	21,853.40	21,630.25	223.15	97.932	
18,160.21	6,925.00	6,300.00	6,296.37	181.30	188.78	28.72	1,493.71	10,760.82	21,913.51	21,690.30	223.20	98.177	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 107-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Rule Assigned:

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	-23.50	775.11	-337.06	846.70				
100.00	100.00	50.00	50.00	0.25	0.99	-23.50	775.11	-337.06	845.22	843.99	1.24	683.829	
200.00	200.00	150.00	150.00	0.61	2.90	-23.50	775.11	-337.06	845.22	841.71	3.51	240.943	
300.00	300.00	250.01	250.00	0.97	4.74	-23.50	775.11	-337.06	845.22	839.52	5.71	148.101	
400.00	400.00	350.67	350.66	1.33	6.60	-23.50	775.19	-337.06	845.30	837.38	7.92	106.682	
500.00	500.00	450.02	450.00	1.68	8.48	-23.50	775.11	-337.06	845.22	835.05	10.17	83.123	
600.00	599.98	550.00	549.98	2.04	10.45	-35.59	775.11	-337.06	843.80	831.31	12.49	67.549	
700.00	699.84	649.85	649.84	2.41	12.41	-35.85	775.11	-337.06	839.55	824.74	14.81	56.671	
800.00	799.45	751.32	751.30	2.77	14.40	-36.27	775.82	-337.06	833.15	815.98	17.17	48.521	
900.00	898.70	852.52	852.49	3.13	16.39	-36.91	775.44	-337.06	823.00	803.47	19.52	42.152	
1,000.00	997.47	947.52	947.47	3.50	18.24	-37.71	775.11	-337.06	810.19	788.45	21.74	37.271	
1,100.00	1,095.62	1,045.68	1,045.62	3.89	20.11	-38.74	775.11	-337.06	795.09	771.11	23.98	33.154	
1,200.00	1,193.44	1,144.16	1,144.09	4.29	21.98	-39.67	775.76	-337.06	779.42	753.19	26.24	29.708	
1,300.00	1,291.25	1,244.12	1,244.05	4.70	23.88	-40.69	775.51	-337.06	763.17	734.65	28.52	26.757	
1,400.00	1,389.07	1,339.15	1,339.07	5.11	25.67	-41.71	775.11	-337.06	747.01	716.32	30.70	24.336	
1,500.00	1,486.88	1,436.97	1,436.88	5.53	27.41	-42.78	775.11	-337.06	731.47	698.64	32.83	22.279	
1,600.00	1,584.70	1,535.82	1,535.74	5.95	29.17	-43.90	775.40	-337.06	716.44	681.45	34.99	20.474	
1,700.00	1,682.51	1,632.60	1,632.51	6.37	30.90	-45.06	775.11	-337.06	701.20	664.07	37.12	18.890	
1,800.00	1,780.33	1,730.42	1,730.33	6.80	32.70	-46.28	775.11	-337.06	686.50	647.17	39.33	17.454	
1,900.00	1,878.14	1,828.23	1,828.14	7.22	34.51	-47.54	775.11	-337.06	672.13	630.58	41.55	16.177	
2,000.00	1,975.96	1,926.45	1,926.36	7.65	36.32	-48.86	775.32	-337.06	658.27	614.50	43.78	15.037	
2,100.00	2,073.77	2,024.75	2,024.66	8.08	38.14	-50.24	775.20	-337.06	644.51	598.50	46.01	14.009	
2,200.00	2,171.59	2,121.69	2,121.59	8.51	40.02	-51.67	775.11	-337.06	631.17	582.85	48.31	13.064	
2,300.00	2,269.40	2,220.11	2,220.00	8.95	42.01	-53.14	775.50	-337.06	618.61	567.88	50.73	12.195	
2,400.00	2,367.22	2,320.27	2,320.15	9.38	44.03	-54.75	775.11	-337.06	605.90	552.72	53.18	11.394	
2,500.00	2,465.03	2,415.17	2,415.03	9.81	46.01	-56.32	775.11	-337.06	593.94	538.34	55.60	10.683	
2,600.00	2,562.84	2,513.39	2,513.24	10.25	48.06	-57.95	775.85	-337.06	583.01	524.92	58.09	10.037	
2,700.00	2,660.66	2,613.16	2,613.01	10.68	50.15	-59.75	775.50	-337.06	571.84	511.22	60.61	9.434	
2,800.00	2,758.47	2,708.66	2,708.47	11.12	52.09	-61.54	775.11	-337.06	561.19	498.19	63.01	8.907	
2,900.00	2,856.29	2,806.48	2,806.29	11.55	54.02	-63.40	775.11	-337.06	551.41	486.03	65.38	8.434	
3,000.00	2,954.10	2,904.29	2,904.10	11.99	55.94	-65.33	775.11	-337.06	542.26	474.50	67.76	8.003	
3,100.00	3,051.92	3,002.15	3,001.95	12.42	57.87	-67.20	776.55	-337.06	534.58	464.45	70.14	7.622	
3,200.00	3,149.73	3,100.73	3,100.52	12.86	59.81	-69.27	776.41	-337.06	526.64	454.11	72.53	7.261	
3,300.00	3,247.55	3,199.21	3,198.99	13.30	61.75	-71.43	776.01	-337.06	519.29	444.37	74.93	6.931	
3,400.00	3,345.36	3,297.58	3,297.36	13.73	63.68	-73.66	775.35	-337.06	512.59	435.27	77.32	6.629	
3,500.00	3,443.18	3,393.43	3,393.18	14.17	65.57	-75.85	775.11	-337.06	506.89	427.22	79.67	6.362	
3,600.00	3,540.99	3,491.24	3,490.99	14.61	67.50	-78.10	775.11	-337.06	502.10	420.05	82.05	6.119	
3,700.00	3,638.81	3,589.06	3,588.81	15.05	69.42	-80.40	775.11	-337.06	498.14	413.71	84.43	5.900	
3,800.00	3,736.62	3,686.87	3,686.62	15.48	71.35	-82.72	775.11	-337.06	495.02	408.21	86.81	5.702	
3,900.00	3,834.44	3,784.69	3,784.44	15.92	73.27	-85.06	775.11	-337.06	492.76	403.57	89.19	5.525	
4,000.00	3,932.25	3,882.51	3,882.25	16.36	75.20	-87.30	776.31	-337.06	491.67	400.11	91.56	5.370	
4,100.00	4,030.07	3,980.40	3,980.15	16.80	77.13	-89.67	776.27	-337.06	491.10	397.17	93.93	5.229	
4,115.99	4,045.71	3,996.06	3,995.80	16.87	77.44	-90.05	776.25	-337.06	491.09	396.78	94.31	5.207	
4,200.00	4,127.88	4,078.27	4,078.02	17.24	79.05	-92.06	776.15	-337.06	491.40	395.11	96.29	5.103	
4,300.00	4,225.70	4,176.11	4,175.85	17.68	80.98	-94.45	775.95	-337.06	492.57	393.93	98.64	4.993	
4,400.00	4,323.51	4,273.92	4,273.66	18.11	82.91	-96.83	775.68	-337.06	494.63	393.64	100.99	4.898	
4,500.00	4,421.33	4,371.69	4,371.43	18.55	84.83	-99.19	775.34	-337.06	497.56	394.23	103.33	4.815	
4,600.00	4,519.14	4,469.49	4,469.14	18.99	86.76	-101.51	775.11	-337.06	501.38	395.71	105.67	4.745	
4,700.00	4,616.95	4,567.30	4,566.95	19.43	88.68	-103.77	775.11	-337.06	506.02	398.03	107.99	4.686	
4,800.00	4,714.77	4,665.05	4,664.70	19.87	90.61	-105.90	775.93	-337.06	511.41	401.10	110.31	4.636	
4,900.00	4,812.58	4,762.60	4,762.24	20.31	92.53	-108.10	775.54	-337.06	517.66	405.03	112.62	4.596	
5,000.00	4,910.40	4,860.78	4,860.40	20.75	94.44	-110.27	775.11	-337.06	524.68	409.77	114.91	4.566	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 107-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Rule Assigned:

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,100.00	5,008.21	4,958.60	4,958.21	21.19	96.30	-112.33	775.11	-337.06	532.39	415.24	117.15	4.545	
5,200.00	5,106.03	5,056.41	5,056.03	21.63	98.16	-114.34	775.11	-337.06	540.78	421.40	119.38	4.530	
5,300.00	5,203.84	5,154.22	5,153.84	22.06	100.02	-116.28	775.11	-337.06	549.83	428.22	121.61	4.521	
5,400.00	5,301.66	5,252.04	5,251.66	22.50	101.88	-118.15	775.11	-337.06	559.50	435.67	123.83	4.518	
5,500.00	5,399.47	5,349.85	5,349.47	22.94	103.74	-119.97	775.11	-337.06	569.77	443.72	126.05	4.520	
5,600.00	5,497.29	5,447.59	5,447.20	23.38	105.60	-121.60	776.34	-337.06	580.18	451.91	128.27	4.523	
5,700.00	5,595.10	5,545.23	5,544.84	23.82	107.46	-123.29	776.27	-337.06	591.54	461.06	130.48	4.534	
5,800.00	5,692.92	5,642.85	5,642.46	24.26	109.32	-124.93	776.12	-337.06	603.44	470.75	132.69	4.548	
5,900.00	5,790.73	5,740.44	5,740.05	24.70	111.17	-126.51	775.90	-337.06	615.85	480.96	134.89	4.566	
6,000.00	5,888.55	5,838.00	5,837.60	25.14	113.03	-128.03	775.60	-337.06	628.75	491.65	137.09	4.586	
6,100.00	5,986.36	5,935.52	5,935.13	25.58	114.88	-129.50	775.23	-337.06	642.12	502.82	139.29	4.610	
6,200.00	6,084.18	6,034.63	6,034.18	26.02	116.82	-130.91	775.11	-337.06	655.77	514.20	141.57	4.632	
6,300.00	6,181.99	6,132.44	6,131.99	26.46	118.74	-132.24	775.11	-337.06	669.74	525.89	143.85	4.656	
6,401.22	6,281.00	6,231.45	6,231.00	26.90	120.69	-133.53	775.11	-337.06	684.23	538.09	146.15	4.682	
6,450.00	6,328.76	6,279.21	6,278.76	27.12	121.63	-112.99	775.11	-337.06	689.74	542.48	147.25	4.684	
6,500.00	6,377.61	6,328.06	6,327.61	27.32	122.59	-94.08	775.11	-337.06	692.17	543.79	148.38	4.665	
6,550.00	6,426.06	6,376.51	6,376.06	27.52	123.55	-80.52	775.11	-337.06	691.42	541.93	149.49	4.625	
6,600.00	6,473.81	6,424.26	6,423.81	27.71	124.49	-71.87	775.11	-337.06	687.61	537.02	150.58	4.566	
6,650.00	6,520.56	6,471.01	6,470.56	27.89	125.41	-66.69	775.11	-337.06	680.87	529.23	151.65	4.490	
6,700.00	6,566.03	6,516.48	6,516.03	28.05	126.30	-63.86	775.11	-337.06	671.42	518.74	152.67	4.398	
6,750.00	6,609.93	6,560.38	6,559.93	28.20	127.17	-62.69	775.11	-337.06	659.47	505.81	153.66	4.292	
6,800.00	6,652.00	6,602.45	6,602.00	28.34	128.00	-62.77	775.11	-337.06	645.32	490.72	154.60	4.174	
6,850.00	6,691.98	6,642.43	6,641.98	28.47	128.78	-63.83	775.11	-337.06	629.30	473.81	155.49	4.047	
6,900.00	6,729.61	6,680.06	6,679.61	28.59	129.53	-65.67	775.11	-337.06	611.80	455.48	156.32	3.914	
6,950.00	6,764.67	6,715.12	6,714.67	28.69	130.22	-68.15	775.11	-337.06	593.27	436.18	157.08	3.777	
7,000.00	6,796.95	6,747.40	6,746.95	28.79	130.85	-71.10	775.11	-337.06	574.21	416.42	157.79	3.639	
7,050.00	6,826.23	6,776.68	6,776.23	28.89	131.43	-74.34	775.11	-337.06	555.21	396.79	158.42	3.505	
7,100.00	6,852.35	6,802.80	6,802.35	28.98	131.94	-77.69	775.11	-337.06	536.89	377.91	158.99	3.377	
7,150.00	6,875.14	6,825.59	6,825.14	29.08	132.39	-80.94	775.11	-337.06	519.94	360.47	159.47	3.260	
7,200.00	6,894.45	6,844.91	6,844.45	29.18	132.77	-83.91	775.11	-337.06	505.06	345.18	159.88	3.159	
7,250.00	6,910.18	6,860.63	6,860.18	29.28	133.08	-86.43	775.11	-337.06	492.94	332.74	160.20	3.077	
7,300.00	6,922.23	6,872.68	6,872.23	29.40	133.32	-88.36	775.11	-337.06	484.23	323.80	160.43	3.018	
7,350.00	6,930.51	6,880.96	6,880.51	29.54	133.48	-89.60	775.11	-337.06	479.45	318.87	160.57	2.986	
7,380.92	6,933.73	6,884.18	6,883.73	29.63	133.54	-90.00	775.11	-337.06	478.61	318.00	160.61	2.980	CC, ES, SF
7,400.00	6,934.98	6,885.43	6,884.98	29.70	133.57	-90.10	775.11	-337.06	478.93	318.32	160.61	2.982	
7,433.91	6,935.83	6,886.28	6,885.83	29.81	133.59	-89.99	775.11	-337.06	481.09	320.50	160.59	2.996	
7,500.00	6,935.76	6,886.21	6,885.76	30.07	133.58	-89.99	775.11	-337.06	491.67	331.18	160.49	3.064	
7,600.00	6,935.66	6,886.11	6,885.66	30.52	133.58	-89.97	775.11	-337.06	523.39	363.03	160.36	3.264	
7,700.00	6,935.55	6,886.00	6,885.55	31.06	133.58	-89.96	775.11	-337.06	571.08	410.82	160.26	3.564	
7,800.00	6,935.45	6,885.90	6,885.45	31.68	133.58	-89.95	775.11	-337.06	631.13	470.94	160.19	3.940	
7,900.00	6,935.34	6,885.79	6,885.34	32.37	133.58	-89.94	775.11	-337.06	700.37	540.22	160.15	4.373	
8,000.00	6,935.24	6,885.69	6,885.24	33.12	133.57	-89.92	775.11	-337.06	776.34	616.21	160.13	4.848	
8,100.00	6,935.13	6,885.58	6,885.13	33.93	133.57	-89.91	775.11	-337.06	857.26	697.14	160.13	5.354	
8,200.00	6,935.03	6,885.48	6,885.03	34.80	133.57	-89.90	775.11	-337.06	941.86	781.73	160.13	5.882	
8,300.00	6,934.92	6,885.37	6,884.92	35.71	133.57	-89.89	775.11	-337.06	1,029.22	869.08	160.14	6.427	
8,400.00	6,934.82	6,885.27	6,884.82	36.67	133.57	-89.87	775.11	-337.06	1,118.70	958.54	160.15	6.985	
8,500.00	6,934.71	6,885.16	6,884.71	37.68	133.56	-89.86	775.11	-337.06	1,209.82	1,049.66	160.17	7.553	
8,600.00	6,934.61	6,885.06	6,884.61	38.72	133.56	-89.85	775.11	-337.06	1,302.25	1,142.07	160.19	8.130	
8,700.00	6,934.50	6,884.95	6,884.50	39.80	133.56	-89.84	775.11	-337.06	1,395.73	1,235.52	160.21	8.712	
8,800.00	6,934.40	6,884.85	6,884.40	40.92	133.56	-89.82	775.11	-337.06	1,490.05	1,329.83	160.22	9.300	
8,900.00	6,934.29	6,884.74	6,884.29	42.06	133.56	-89.81	775.11	-337.06	1,585.07	1,424.82	160.25	9.892	
9,000.00	6,934.19	6,884.64	6,884.19	43.23	133.55	-89.80	775.11	-337.06	1,680.67	1,520.40	160.27	10.487	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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
9,100.00	6,934.08	6,884.54	6,884.08	44.43	133.55	-89.79	775.11	-337.06	1,776.75	1,616.46	160.29	11.085	
9,200.00	6,933.98	6,884.43	6,883.98	45.66	133.55	-89.77	775.11	-337.06	1,873.24	1,712.93	160.31	11.685	
9,300.00	6,933.88	6,884.33	6,883.88	46.90	133.55	-89.76	775.11	-337.06	1,970.08	1,809.75	160.33	12.287	
9,400.00	6,933.77	6,884.22	6,883.77	48.17	133.54	-89.75	775.11	-337.06	2,067.22	1,906.86	160.36	12.891	
9,500.00	6,933.67	6,884.12	6,883.67	49.46	133.54	-89.74	775.11	-337.06	2,164.63	2,004.24	160.38	13.497	
9,600.00	6,933.56	6,884.01	6,883.56	50.76	133.54	-89.72	775.11	-337.06	2,262.25	2,101.85	160.41	14.103	
9,700.00	6,933.46	6,883.91	6,883.46	52.08	133.54	-89.71	775.11	-337.06	2,360.08	2,199.65	160.43	14.711	
9,800.00	6,933.35	6,883.80	6,883.35	53.41	133.54	-89.70	775.11	-337.06	2,458.08	2,297.63	160.46	15.319	
9,900.00	6,933.25	6,883.70	6,883.25	54.76	133.53	-89.69	775.11	-337.06	2,556.24	2,395.76	160.49	15.928	
10,000.00	6,933.14	6,883.59	6,883.14	56.12	133.53	-89.67	775.11	-337.06	2,654.54	2,494.02	160.51	16.538	
10,100.00	6,933.04	6,883.49	6,883.04	57.50	133.53	-89.66	775.11	-337.06	2,752.95	2,592.41	160.54	17.148	
10,200.00	6,932.93	6,883.38	6,882.93	58.88	133.53	-89.65	775.11	-337.06	2,851.48	2,690.91	160.57	17.758	
10,300.00	6,932.83	6,883.28	6,882.83	60.28	133.53	-89.64	775.11	-337.06	2,950.11	2,789.51	160.60	18.369	
10,400.00	6,932.72	6,883.17	6,882.72	61.69	133.52	-89.62	775.11	-337.06	3,048.83	2,888.20	160.63	18.980	
10,500.00	6,932.62	6,883.07	6,882.62	63.10	133.52	-89.61	775.11	-337.06	3,147.62	2,986.96	160.66	19.592	
10,600.00	6,932.51	6,882.96	6,882.51	64.52	133.52	-89.60	775.11	-337.06	3,246.49	3,085.80	160.69	20.203	
10,700.00	6,932.41	6,882.86	6,882.41	65.96	133.52	-89.59	775.11	-337.06	3,345.43	3,184.71	160.73	20.815	
10,800.00	6,932.30	6,882.76	6,882.30	67.39	133.52	-89.57	775.11	-337.06	3,444.43	3,283.67	160.76	21.426	
10,900.00	6,932.20	6,882.65	6,882.20	68.84	133.51	-89.56	775.11	-337.06	3,543.49	3,382.69	160.79	22.038	
11,000.00	6,932.10	6,882.55	6,882.10	70.29	133.51	-89.55	775.11	-337.06	3,642.59	3,481.77	160.83	22.649	
11,100.00	6,931.99	6,882.44	6,881.99	71.75	133.51	-89.54	775.11	-337.06	3,741.75	3,580.89	160.86	23.261	
11,200.00	6,931.89	6,882.34	6,881.89	73.22	133.51	-89.52	775.11	-337.06	3,840.95	3,680.05	160.90	23.872	
11,300.00	6,931.78	6,882.23	6,881.78	74.69	133.51	-89.51	775.11	-337.06	3,940.19	3,779.25	160.93	24.483	
11,400.00	6,931.68	6,882.13	6,881.68	76.16	133.50	-89.50	775.11	-337.06	4,039.46	3,878.49	160.97	25.094	
11,500.00	6,931.57	6,882.02	6,881.57	77.64	133.50	-89.49	775.11	-337.06	4,138.77	3,977.76	161.01	25.705	
11,600.00	6,931.47	6,881.92	6,881.47	79.13	133.50	-89.47	775.11	-337.06	4,238.12	4,077.07	161.05	26.316	
11,700.00	6,931.36	6,881.81	6,881.36	80.62	133.50	-89.46	775.11	-337.06	4,337.49	4,176.40	161.09	26.926	
11,800.00	6,931.26	6,881.71	6,881.26	82.11	133.50	-89.45	775.11	-337.06	4,436.89	4,275.76	161.13	27.536	
11,900.00	6,931.15	6,881.60	6,881.15	83.61	133.49	-89.43	775.11	-337.06	4,536.32	4,375.15	161.17	28.146	
12,000.00	6,931.05	6,881.50	6,881.05	85.11	133.49	-89.42	775.11	-337.06	4,635.78	4,474.56	161.21	28.756	
12,100.00	6,930.94	6,881.39	6,880.94	86.62	133.49	-89.41	775.11	-337.06	4,735.25	4,574.00	161.26	29.365	
12,200.00	6,930.84	6,881.29	6,880.84	88.13	133.49	-89.40	775.11	-337.06	4,834.75	4,673.45	161.30	29.974	
12,300.00	6,930.73	6,881.18	6,880.73	89.64	133.49	-89.38	775.11	-337.06	4,934.27	4,772.92	161.34	30.582	
12,400.00	6,930.63	6,881.08	6,880.63	91.15	133.48	-89.37	775.11	-337.06	5,033.80	4,872.42	161.39	31.191	
12,500.00	6,930.52	6,880.97	6,880.52	92.67	133.48	-89.36	775.11	-337.06	5,133.36	4,971.93	161.43	31.799	
12,600.00	6,930.42	6,880.87	6,880.42	94.19	133.48	-89.35	775.11	-337.06	5,232.93	5,071.45	161.48	32.406	
12,700.00	6,930.31	6,880.77	6,880.31	95.71	133.48	-89.33	775.11	-337.06	5,332.52	5,170.99	161.53	33.013	
12,800.00	6,930.21	6,880.66	6,880.21	97.24	133.47	-89.32	775.11	-337.06	5,432.12	5,270.55	161.57	33.620	
12,900.00	6,930.11	6,880.56	6,880.11	98.77	133.47	-89.31	775.11	-337.06	5,531.74	5,370.12	161.62	34.226	
13,008.91	6,929.99	6,880.44	6,879.99	100.43	133.47	-89.30	775.11	-337.06	5,640.25	5,478.57	161.68	34.886	
13,100.00	6,929.90	6,880.35	6,879.90	101.83	133.47	-88.91	775.11	-337.06	5,731.12	5,569.40	161.72	35.438	
13,139.82	6,929.86	6,880.31	6,879.86	102.44	133.47	-88.54	775.11	-337.06	5,770.90	5,609.16	161.74	35.679	
13,200.00	6,929.80	6,880.25	6,879.80	103.37	133.47	-88.52	775.11	-337.06	5,831.04	5,669.26	161.77	36.044	
13,300.00	6,929.70	6,880.16	6,879.70	104.92	133.46	-88.50	775.11	-337.06	5,930.97	5,769.14	161.82	36.651	
13,400.00	6,929.61	6,880.06	6,879.61	106.47	133.46	-88.47	775.11	-337.06	6,030.90	5,869.02	161.88	37.256	
13,500.00	6,929.51	6,879.96	6,879.51	108.02	133.46	-88.45	775.11	-337.06	6,130.84	5,968.91	161.93	37.861	
13,600.00	6,929.41	6,879.86	6,879.41	109.57	133.46	-88.42	775.11	-337.06	6,230.77	6,068.79	161.98	38.465	
13,700.00	6,929.32	6,879.77	6,879.32	111.12	133.46	-88.40	775.11	-337.06	6,330.71	6,168.67	162.04	39.069	
13,800.00	6,929.22	6,879.67	6,879.22	112.68	133.46	-88.37	775.11	-337.06	6,430.65	6,268.56	162.09	39.673	
13,900.00	6,929.12	6,879.57	6,879.12	114.23	133.45	-88.35	775.11	-337.06	6,530.60	6,368.45	162.15	40.275	
14,000.00	6,929.03	6,879.48	6,879.03	115.79	133.45	-88.32	775.11	-337.06	6,630.54	6,468.34	162.21	40.877	
14,100.00	6,928.93	6,879.38	6,878.93	117.35	133.45	-88.30	775.11	-337.06	6,730.49	6,568.22	162.26	41.479	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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
14,200.00	6,928.83	6,879.28	6,878.83	118.91	133.45	-88.27	775.11	-337.06	6,830.44	6,668.11	162.32	42.080	
14,300.00	6,928.74	6,879.19	6,878.74	120.47	133.45	-88.24	775.11	-337.06	6,930.38	6,768.01	162.38	42.680	
14,400.00	6,928.64	6,879.09	6,878.64	122.03	133.44	-88.22	775.11	-337.06	7,030.34	6,867.90	162.44	43.280	
14,500.00	6,928.54	6,878.99	6,878.54	123.60	133.44	-88.19	775.11	-337.06	7,130.29	6,967.79	162.50	43.879	
14,600.00	6,928.45	6,878.90	6,878.45	125.16	133.44	-88.17	775.11	-337.06	7,230.24	7,067.68	162.56	44.478	
14,700.00	6,928.35	6,878.80	6,878.35	126.72	133.44	-88.14	775.11	-337.06	7,330.20	7,167.58	162.62	45.075	
14,800.00	6,928.25	6,878.70	6,878.25	128.29	133.44	-88.12	775.11	-337.06	7,430.15	7,267.47	162.68	45.673	
14,900.00	6,928.16	6,878.61	6,878.16	129.86	133.43	-88.09	775.11	-337.06	7,530.11	7,367.36	162.75	46.269	
15,000.00	6,928.06	6,878.51	6,878.06	131.42	133.43	-88.07	775.11	-337.06	7,630.07	7,467.26	162.81	46.865	
15,100.00	6,927.96	6,878.41	6,877.96	132.99	133.43	-88.04	775.11	-337.06	7,730.03	7,567.15	162.87	47.461	
15,200.00	6,927.87	6,878.32	6,877.87	134.56	133.43	-88.02	775.11	-337.06	7,829.99	7,667.05	162.94	48.055	
15,300.00	6,927.77	6,878.22	6,877.77	136.13	133.43	-87.99	775.11	-337.06	7,929.95	7,766.95	163.00	48.649	
15,400.00	6,927.67	6,878.12	6,877.67	137.70	133.42	-87.97	775.11	-337.06	8,029.91	7,866.84	163.07	49.243	
15,500.00	6,927.57	6,878.03	6,877.57	139.28	133.42	-87.94	775.11	-337.06	8,129.87	7,966.74	163.13	49.835	
15,600.00	6,927.48	6,877.93	6,877.48	140.85	133.42	-87.92	775.11	-337.06	8,229.84	8,066.64	163.20	50.427	
15,700.00	6,927.38	6,877.83	6,877.38	142.42	133.42	-87.89	775.11	-337.06	8,329.80	8,166.53	163.27	51.019	
15,800.00	6,927.28	6,877.74	6,877.28	144.00	133.42	-87.86	775.11	-337.06	8,429.77	8,266.43	163.34	51.609	
15,900.00	6,927.19	6,877.64	6,877.19	145.57	133.42	-87.84	775.11	-337.06	8,529.74	8,366.33	163.41	52.199	
16,000.00	6,927.09	6,877.54	6,877.09	147.15	133.41	-87.81	775.11	-337.06	8,629.70	8,466.23	163.48	52.789	
16,100.00	6,926.99	6,877.44	6,876.99	148.72	133.41	-87.79	775.11	-337.06	8,729.67	8,566.13	163.55	53.377	
16,200.00	6,926.90	6,877.35	6,876.90	150.30	133.41	-87.76	775.11	-337.06	8,829.64	8,666.02	163.62	53.965	
16,300.00	6,926.80	6,877.25	6,876.80	151.87	133.41	-87.74	775.11	-337.06	8,929.61	8,765.92	163.69	54.552	
16,400.00	6,926.70	6,877.15	6,876.70	153.45	133.41	-87.71	775.11	-337.06	9,029.58	8,865.82	163.76	55.139	
16,500.00	6,926.61	6,877.06	6,876.61	155.03	133.40	-87.69	775.11	-337.06	9,129.55	8,965.72	163.83	55.725	
16,600.00	6,926.51	6,876.96	6,876.51	156.61	133.40	-87.66	775.11	-337.06	9,229.52	9,065.62	163.91	56.310	
16,700.00	6,926.41	6,876.86	6,876.41	158.19	133.40	-87.64	775.11	-337.06	9,329.50	9,165.52	163.98	56.894	
16,800.00	6,926.32	6,876.77	6,876.32	159.77	133.40	-87.61	775.11	-337.06	9,429.47	9,265.41	164.05	57.478	
16,900.00	6,926.22	6,876.67	6,876.22	161.35	133.40	-87.59	775.11	-337.06	9,529.44	9,365.31	164.13	58.060	
17,000.00	6,926.12	6,876.57	6,876.12	162.93	133.39	-87.56	775.11	-337.06	9,629.42	9,465.21	164.21	58.643	
17,100.00	6,926.03	6,876.48	6,876.03	164.51	133.39	-87.54	775.11	-337.06	9,729.39	9,565.11	164.28	59.224	
17,200.00	6,925.93	6,876.38	6,875.93	166.09	133.39	-87.51	775.11	-337.06	9,829.36	9,665.01	164.36	59.805	
17,300.00	6,925.83	6,876.28	6,875.83	167.67	133.39	-87.49	775.11	-337.06	9,929.34	9,764.90	164.44	60.385	
17,400.00	6,925.74	6,876.19	6,875.74	169.26	133.39	-87.46	775.11	-337.06	10,029.32	9,864.80	164.51	60.964	
17,500.00	6,925.64	6,876.09	6,875.64	170.84	133.38	-87.43	775.11	-337.06	10,129.29	9,964.70	164.59	61.542	
17,600.00	6,925.54	6,875.99	6,875.54	172.42	133.38	-87.41	775.11	-337.06	10,229.27	10,064.60	164.67	62.120	
17,700.00	6,925.45	6,875.90	6,875.45	174.00	133.38	-87.38	775.11	-337.06	10,329.25	10,164.50	164.75	62.697	
17,800.00	6,925.35	6,875.80	6,875.35	175.59	133.38	-87.36	775.11	-337.06	10,429.22	10,264.39	164.83	63.273	
17,900.00	6,925.25	6,875.70	6,875.25	177.17	133.38	-87.33	775.11	-337.06	10,529.20	10,364.29	164.91	63.848	
18,000.00	6,925.16	6,875.61	6,875.16	178.76	133.38	-87.31	775.11	-337.06	10,629.18	10,464.19	164.99	64.423	
18,100.00	6,925.06	6,875.51	6,875.06	180.34	133.37	-87.28	775.11	-337.06	10,729.16	10,564.09	165.07	64.997	
18,160.21	6,925.00	6,875.45	6,875.00	181.30	133.37	-87.27	775.11	-337.06	10,789.36	10,624.24	165.12	65.342	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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
0.00	0.00	295.00	295.00	0.00	8.84	100.88	-1,464.91	7,624.35	7,763.81				
100.00	100.00	395.00	395.00	0.25	11.84	100.88	-1,464.91	7,624.35	7,763.81	7,751.72	12.09	642.329	
200.00	200.00	495.00	495.00	0.61	14.83	100.88	-1,464.91	7,624.35	7,763.81	7,748.36	15.44	502.777	
300.00	300.00	595.10	595.00	0.97	17.83	100.88	-1,464.91	7,624.35	7,763.81	7,745.01	18.80	412.973	
400.00	400.00	695.10	695.00	1.33	20.83	100.88	-1,464.91	7,624.35	7,763.81	7,741.65	22.15	350.436	
454.75	454.75	749.86	749.72	1.52	22.47	100.86	-1,462.73	7,624.35	7,763.39	7,739.40	23.99	323.587	
500.00	500.00	790.92	790.78	1.68	23.70	100.86	-1,462.79	7,624.35	7,763.41	7,738.02	25.38	305.833	
600.00	599.98	881.68	881.51	2.04	26.42	88.87	-1,463.34	7,624.35	7,763.49	7,735.03	28.46	272.772	
700.00	699.84	972.27	972.08	2.41	29.13	88.92	-1,464.46	7,624.35	7,763.62	7,732.09	31.53	246.201	
800.00	799.45	1,094.86	1,094.45	2.77	32.81	89.00	-1,464.91	7,624.35	7,763.51	7,727.95	35.57	218.277	
900.00	898.70	1,194.11	1,193.70	3.13	35.78	89.09	-1,464.91	7,624.35	7,763.31	7,724.40	38.91	199.534	
1,000.00	997.47	1,288.79	1,288.34	3.50	38.62	89.19	-1,462.78	7,624.35	7,762.66	7,720.54	42.12	184.299	
1,100.00	1,095.62	1,377.52	1,377.05	3.89	41.28	89.32	-1,463.30	7,624.35	7,762.53	7,717.36	45.17	171.865	
1,140.68	1,135.41	1,413.42	1,412.94	4.05	42.35	89.38	-1,463.66	7,624.35	7,762.51	7,716.11	46.41	167.277	
1,200.00	1,193.44	1,465.72	1,465.22	4.29	43.92	89.46	-1,464.36	7,624.35	7,762.54	7,714.33	48.21	161.017	
1,300.00	1,291.25	1,586.96	1,586.25	4.70	47.55	89.65	-1,464.91	7,624.35	7,762.46	7,710.21	52.25	148.564	
1,400.00	1,389.07	1,684.78	1,684.07	5.11	50.48	89.80	-1,464.91	7,624.35	7,762.36	7,706.77	55.59	139.626	
1,489.74	1,476.84	1,770.27	1,769.52	5.48	53.05	89.92	-1,462.74	7,624.35	7,761.87	7,703.34	58.53	132.613 CC	
1,500.00	1,486.88	1,779.30	1,778.55	5.53	53.32	89.93	-1,462.76	7,624.35	7,761.87	7,703.03	58.84	131.907	
1,600.00	1,584.70	1,867.16	1,866.38	5.95	55.95	90.07	-1,463.21	7,624.35	7,761.98	7,700.08	61.90	125.403	
1,700.00	1,682.51	1,954.81	1,954.01	6.37	58.57	90.21	-1,464.20	7,624.35	7,762.28	7,697.33	64.95	119.519	
1,800.00	1,780.33	2,076.34	2,075.33	6.80	62.22	90.40	-1,464.91	7,624.35	7,762.51	7,693.50	69.01	112.478	
1,900.00	1,878.14	2,174.16	2,173.14	7.22	65.15	90.55	-1,464.91	7,624.35	7,762.69	7,690.32	72.37	107.261	
1,977.40	1,953.85	2,249.86	2,248.81	7.56	67.42	90.65	-1,462.73	7,624.35	7,762.39	7,687.42	74.97	103.537	
2,000.00	1,975.96	2,269.62	2,268.56	7.65	68.01	90.68	-1,462.74	7,624.35	7,762.45	7,686.79	75.66	102.595	
2,100.00	2,073.77	2,356.93	2,355.85	8.08	70.62	90.82	-1,463.13	7,624.35	7,762.83	7,684.12	78.71	98.629	
2,200.00	2,171.59	2,444.04	2,442.94	8.51	73.23	90.96	-1,464.05	7,624.35	7,763.40	7,681.65	81.75	94.967	
2,300.00	2,269.40	2,565.72	2,564.40	8.95	76.88	91.15	-1,464.91	7,624.35	7,763.96	7,678.13	85.83	90.461	
2,400.00	2,367.22	2,663.53	2,662.22	9.38	79.81	91.30	-1,464.91	7,624.35	7,764.41	7,675.22	89.19	87.054	
2,497.05	2,462.14	2,757.50	2,756.14	9.80	82.63	91.43	-1,462.73	7,624.35	7,764.40	7,671.97	92.43	84.006	
2,500.00	2,465.03	2,760.06	2,758.70	9.81	82.70	91.44	-1,462.73	7,624.35	7,764.42	7,671.90	92.52	83.925	
2,600.00	2,562.84	2,846.83	2,845.45	10.25	85.30	91.57	-1,463.06	7,624.35	7,765.06	7,669.51	95.55	81.267	
2,700.00	2,660.66	2,933.40	2,932.00	10.68	87.90	91.71	-1,463.91	7,624.35	7,765.91	7,667.33	98.58	78.779	
2,800.00	2,758.47	3,055.10	3,053.47	11.12	91.54	91.90	-1,464.91	7,624.35	7,766.79	7,664.13	102.66	75.655	
2,900.00	2,856.29	3,152.91	3,151.29	11.55	94.48	92.05	-1,464.91	7,624.35	7,767.53	7,661.50	106.03	73.260	
3,000.00	2,954.10	3,250.62	3,248.96	11.99	97.40	92.19	-1,462.73	7,624.35	7,767.78	7,658.39	109.39	71.010	
3,100.00	3,051.92	3,336.86	3,335.18	12.42	99.99	92.32	-1,462.99	7,624.35	7,768.69	7,656.28	112.41	69.110	
3,200.00	3,149.73	3,422.89	3,421.20	12.86	102.57	92.46	-1,463.77	7,624.35	7,769.81	7,654.39	115.42	67.316	
3,300.00	3,247.55	3,544.48	3,542.55	13.30	106.21	92.65	-1,464.91	7,624.35	7,771.02	7,651.51	119.50	65.027	
3,400.00	3,345.36	3,642.29	3,640.36	13.73	109.14	92.80	-1,464.91	7,624.35	7,772.03	7,649.16	122.87	63.253	
3,500.00	3,443.18	3,740.11	3,738.18	14.17	112.07	92.95	-1,464.91	7,624.35	7,773.10	7,646.86	126.24	61.574	
3,600.00	3,540.99	3,827.01	3,825.03	14.61	114.67	93.07	-1,462.94	7,624.35	7,773.71	7,644.43	129.28	60.131	
3,700.00	3,638.81	3,912.52	3,910.52	15.05	117.24	93.21	-1,463.65	7,624.35	7,775.10	7,642.82	132.28	58.778	
3,800.00	3,736.62	4,033.86	4,031.62	15.48	120.87	93.40	-1,464.91	7,624.35	7,776.63	7,640.28	136.35	57.033	
3,900.00	3,834.44	4,131.67	4,129.44	15.92	123.80	93.55	-1,464.91	7,624.35	7,777.92	7,638.20	139.72	55.667	
4,000.00	3,932.25	4,229.48	4,227.25	16.36	126.73	93.70	-1,464.91	7,624.35	7,779.26	7,636.17	143.09	54.366	
4,100.00	4,030.07	4,317.28	4,315.00	16.80	129.37	93.82	-1,462.89	7,624.35	7,780.11	7,633.96	146.16	53.231	
4,200.00	4,127.88	4,402.28	4,399.98	17.24	131.91	93.95	-1,463.54	7,624.35	7,781.77	7,632.63	149.14	52.177	
4,300.00	4,225.70	4,523.23	4,520.70	17.68	135.54	94.15	-1,464.91	7,624.35	7,783.63	7,630.42	153.20	50.806	
4,400.00	4,323.51	4,621.05	4,618.51	18.11	138.47	94.30	-1,464.91	7,624.35	7,785.19	7,628.62	156.57	49.722	
4,500.00	4,421.33	4,718.86	4,716.33	18.55	141.40	94.45	-1,464.91	7,624.35	7,786.81	7,626.87	159.94	48.685	
4,600.00	4,519.14	4,807.68	4,805.09	18.99	144.06	94.57	-1,462.85	7,624.35	7,787.90	7,624.86	163.04	47.767	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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
4,700.00	4,616.95	4,892.16	4,889.55	19.43	146.59	94.70	-1,463.44	7,624.35	7,789.82	7,623.81	166.01	46.924	
4,800.00	4,714.77	5,012.61	5,009.77	19.87	150.20	94.89	-1,464.91	7,624.35	7,792.00	7,621.95	170.06	45.820	
4,900.00	4,812.58	5,110.43	5,107.58	20.31	153.13	95.04	-1,464.91	7,624.35	7,793.85	7,620.42	173.43	44.941	
5,000.00	4,910.40	5,208.24	5,205.40	20.75	156.06	95.19	-1,464.91	7,624.35	7,795.74	7,618.95	176.79	44.095	
5,100.00	5,008.21	5,298.19	5,295.30	21.19	158.76	95.31	-1,462.81	7,624.35	7,797.07	7,617.14	179.93	43.335	
5,200.00	5,106.03	5,382.16	5,379.26	21.63	161.27	95.45	-1,463.34	7,624.35	7,799.25	7,616.37	182.88	42.647	
5,300.00	5,203.84	5,501.99	5,498.84	22.06	164.86	95.64	-1,464.91	7,624.35	7,801.76	7,614.85	186.91	41.741	
5,400.00	5,301.66	5,599.81	5,596.66	22.50	167.80	95.79	-1,464.91	7,624.35	7,803.87	7,613.60	190.28	41.013	
5,500.00	5,399.47	5,697.62	5,694.47	22.94	170.73	95.94	-1,464.91	7,624.35	7,806.04	7,612.40	193.65	40.311	
5,600.00	5,497.29	5,788.81	5,785.62	23.38	173.46	96.06	-1,462.78	7,624.35	7,807.61	7,610.79	196.82	39.670	
5,700.00	5,595.10	5,872.29	5,869.08	23.82	175.96	96.19	-1,463.25	7,624.35	7,810.05	7,610.30	199.75	39.098	
5,800.00	5,692.92	5,955.59	5,952.35	24.26	178.46	96.32	-1,464.21	7,624.35	7,812.74	7,610.06	202.68	38.546	
5,900.00	5,790.73	6,089.18	6,085.73	24.70	182.46	96.53	-1,464.91	7,624.35	7,815.27	7,608.14	207.13	37.731	
6,000.00	5,888.55	6,187.00	6,183.55	25.14	185.39	96.68	-1,464.91	7,624.35	7,817.72	7,607.22	210.50	37.139	
6,100.00	5,986.36	6,279.55	6,276.06	25.58	188.16	96.80	-1,462.76	7,624.35	7,819.52	7,605.81	213.71	36.590	
6,200.00	6,084.18	6,362.54	6,359.03	26.02	190.65	96.93	-1,463.17	7,624.35	7,822.22	7,605.59	216.63	36.109	
6,300.00	6,181.99	6,445.34	6,441.81	26.46	193.13	97.06	-1,464.06	7,624.35	7,825.17	7,605.63	219.55	35.643	
6,401.22	6,281.00	6,579.76	6,576.00	26.90	197.16	97.27	-1,464.91	7,624.35	7,828.07	7,604.05	224.02	34.944 ES	
6,450.00	6,328.76	6,627.51	6,623.76	27.12	198.59	118.41	-1,464.91	7,624.35	7,831.13	7,605.47	225.66	34.703	
6,500.00	6,377.61	6,676.37	6,672.61	27.32	200.05	138.33	-1,464.91	7,624.35	7,837.87	7,610.54	227.33	34.478	
6,550.00	6,426.06	6,724.81	6,721.06	27.52	201.51	153.30	-1,464.91	7,624.35	7,848.22	7,619.25	228.97	34.276	
6,600.00	6,473.81	6,769.03	6,765.23	27.71	202.83	163.79	-1,462.74	7,624.35	7,861.39	7,630.91	230.47	34.110	
6,650.00	6,520.56	6,808.49	6,804.68	27.89	204.01	171.29	-1,462.85	7,624.35	7,878.77	7,646.95	231.82	33.987	
6,700.00	6,566.03	6,846.83	6,843.02	28.05	205.16	176.94	-1,463.06	7,624.35	7,899.54	7,666.43	233.11	33.887	
6,750.00	6,609.93	6,883.82	6,880.00	28.20	206.27	-178.53	-1,463.36	7,624.35	7,923.55	7,689.21	234.35	33.811	
6,800.00	6,652.00	6,919.23	6,915.40	28.34	207.33	-174.65	-1,463.73	7,624.35	7,950.67	7,715.15	235.52	33.758	
6,850.00	6,691.98	6,952.86	6,949.01	28.47	208.34	-171.12	-1,464.17	7,624.35	7,980.70	7,744.08	236.62	33.728	
6,900.00	6,729.61	7,028.67	7,024.61	28.59	210.61	-167.76	-1,464.91	7,624.35	8,013.44	7,774.47	238.98	33.532	
6,950.00	6,764.67	7,063.73	7,059.67	28.69	211.66	-164.31	-1,464.91	7,624.35	8,048.54	7,808.46	240.08	33.524 SF	
7,000.00	6,796.95	7,096.01	7,091.95	28.79	212.63	-160.63	-1,464.91	7,624.35	8,085.95	7,844.86	241.09	33.539	
7,050.00	6,826.23	7,125.29	7,121.23	28.89	213.51	-156.52	-1,464.91	7,624.35	8,125.44	7,883.45	241.99	33.578	
7,100.00	6,852.35	7,151.41	7,147.35	28.98	214.29	-151.77	-1,464.91	7,624.35	8,166.77	7,923.99	242.78	33.639	
7,150.00	6,875.14	7,174.20	7,170.14	29.08	214.97	-146.14	-1,464.91	7,624.35	8,209.69	7,966.24	243.45	33.723	
7,200.00	6,894.45	7,193.52	7,189.45	29.18	215.55	-139.34	-1,464.91	7,624.35	8,253.94	8,009.94	243.99	33.828	
7,250.00	6,910.18	7,209.24	7,205.18	29.28	216.02	-131.09	-1,464.91	7,624.35	8,299.26	8,054.84	244.42	33.955	
7,300.00	6,922.23	7,221.29	7,217.23	29.40	216.38	-121.24	-1,464.91	7,624.35	8,345.37	8,100.64	244.72	34.101	
7,350.00	6,930.51	7,229.57	7,225.51	29.54	216.63	-109.96	-1,464.91	7,624.35	8,391.99	8,147.09	244.90	34.267	
7,400.00	6,934.98	7,234.04	7,229.98	29.70	216.76	-97.92	-1,464.91	7,624.35	8,438.84	8,193.88	244.96	34.451	
7,433.91	6,935.83	7,234.89	7,230.83	29.81	216.79	-89.84	-1,464.91	7,624.35	8,470.60	8,225.68	244.92	34.585	
7,500.00	6,935.76	7,234.82	7,230.76	30.07	216.79	-89.84	-1,464.91	7,624.35	8,532.45	8,287.65	244.80	34.854	
7,600.00	6,935.66	7,234.72	7,230.66	30.52	216.78	-89.84	-1,464.91	7,624.35	8,626.16	8,381.52	244.64	35.261	
7,700.00	6,935.55	7,234.61	7,230.55	31.06	216.78	-89.84	-1,464.91	7,624.35	8,720.00	8,475.52	244.48	35.668	
7,800.00	6,935.45	7,234.51	7,230.45	31.68	216.78	-89.83	-1,464.91	7,624.35	8,813.98	8,569.65	244.34	36.073	
7,900.00	6,935.34	7,234.40	7,230.34	32.37	216.78	-89.83	-1,464.91	7,624.35	8,908.10	8,663.89	244.20	36.478	
8,000.00	6,935.24	7,234.30	7,230.24	33.12	216.77	-89.83	-1,464.91	7,624.35	9,002.34	8,758.25	244.08	36.882	
8,100.00	6,935.13	7,234.19	7,230.13	33.93	216.77	-89.83	-1,464.91	7,624.35	9,096.70	8,852.73	243.97	37.286	
8,200.00	6,935.03	7,234.09	7,230.03	34.80	216.77	-89.83	-1,464.91	7,624.35	9,191.18	8,947.31	243.87	37.688	
8,300.00	6,934.92	7,233.98	7,229.92	35.71	216.76	-89.82	-1,464.91	7,624.35	9,285.78	9,041.99	243.78	38.090	
8,400.00	6,934.82	7,233.88	7,229.82	36.67	216.76	-89.82	-1,464.91	7,624.35	9,380.49	9,136.78	243.70	38.491	
8,500.00	6,934.71	7,233.77	7,229.71	37.68	216.76	-89.82	-1,464.91	7,624.35	9,475.31	9,231.67	243.63	38.892	
8,600.00	6,934.61	7,233.67	7,229.61	38.72	216.75	-89.82	-1,464.91	7,624.35	9,570.23	9,326.66	243.57	39.292	
8,700.00	6,934.50	7,233.56	7,229.50	39.80	216.75	-89.82	-1,464.91	7,624.35	9,665.25	9,421.74	243.51	39.691	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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)	Rule Assigned: Minimum Separation (usft)	Separation Factor	Warning
8,800.00	6,934.40	7,233.46	7,229.40	40.92	216.75	-89.81	-1,464.91	7,624.35	9,760.38	9,516.91	243.47	40.089	
8,900.00	6,934.29	7,233.36	7,229.29	42.06	216.74	-89.81	-1,464.91	7,624.35	9,855.60	9,612.17	243.43	40.487	
9,000.00	6,934.19	7,233.25	7,229.19	43.23	216.74	-89.81	-1,464.91	7,624.35	9,950.92	9,707.52	243.40	40.884	
9,100.00	6,934.08	7,233.15	7,229.08	44.43	216.74	-89.81	-1,464.91	7,624.35	10,046.32	9,802.95	243.37	41.280	
9,200.00	6,933.98	7,233.04	7,228.98	45.66	216.73	-89.81	-1,464.91	7,624.35	10,141.82	9,898.47	243.35	41.675	
9,300.00	6,933.88	7,232.94	7,228.88	46.90	216.73	-89.80	-1,464.91	7,624.35	10,237.40	9,994.06	243.34	42.070	
9,400.00	6,933.77	7,232.83	7,228.77	48.17	216.73	-89.80	-1,464.91	7,624.35	10,333.07	10,089.73	243.34	42.464	
9,500.00	6,933.67	7,232.73	7,228.67	49.46	216.73	-89.80	-1,464.91	7,624.35	10,428.81	10,185.47	243.34	42.858	
9,600.00	6,933.56	7,232.62	7,228.56	50.76	216.72	-89.80	-1,464.91	7,624.35	10,524.64	10,281.29	243.34	43.250	
9,700.00	6,933.46	7,232.52	7,228.46	52.08	216.72	-89.80	-1,464.91	7,624.35	10,620.54	10,377.18	243.35	43.642	
9,800.00	6,933.35	7,232.41	7,228.35	53.41	216.72	-89.79	-1,464.91	7,624.35	10,716.52	10,473.15	243.37	44.034	
9,900.00	6,933.25	7,232.31	7,228.25	54.76	216.71	-89.79	-1,464.91	7,624.35	10,812.57	10,569.17	243.39	44.425	
10,000.00	6,933.14	7,232.20	7,228.14	56.12	216.71	-89.79	-1,464.91	7,624.35	10,908.69	10,665.27	243.42	44.815	
10,100.00	6,933.04	7,232.10	7,228.04	57.50	216.71	-89.79	-1,464.91	7,624.35	11,004.88	10,761.43	243.45	45.204	
10,200.00	6,932.93	7,231.99	7,227.93	58.88	216.70	-89.79	-1,464.91	7,624.35	11,101.13	10,857.65	243.48	45.593	
10,300.00	6,932.83	7,231.89	7,227.83	60.28	216.70	-89.78	-1,464.91	7,624.35	11,197.46	10,953.94	243.52	45.981	
10,400.00	6,932.72	7,231.78	7,227.72	61.69	216.70	-89.78	-1,464.91	7,624.35	11,293.84	11,050.28	243.56	46.369	
10,500.00	6,932.62	7,231.68	7,227.62	63.10	216.69	-89.78	-1,464.91	7,624.35	11,390.29	11,146.68	243.61	46.756	
10,600.00	6,932.51	7,231.58	7,227.51	64.52	216.69	-89.78	-1,464.91	7,624.35	11,486.80	11,243.14	243.66	47.143	
10,700.00	6,932.41	7,231.47	7,227.41	65.96	216.69	-89.78	-1,464.91	7,624.35	11,583.37	11,339.66	243.71	47.529	
10,800.00	6,932.30	7,231.37	7,227.30	67.39	216.68	-89.77	-1,464.91	7,624.35	11,680.00	11,436.23	243.77	47.914	
10,900.00	6,932.20	7,231.26	7,227.20	68.84	216.68	-89.77	-1,464.91	7,624.35	11,776.68	11,532.85	243.83	48.299	
11,000.00	6,932.10	7,231.16	7,227.10	70.29	216.68	-89.77	-1,464.91	7,624.35	11,873.42	11,629.53	243.89	48.683	
11,100.00	6,931.99	7,231.05	7,226.99	71.75	216.68	-89.77	-1,464.91	7,624.35	11,970.21	11,726.26	243.96	49.067	
11,200.00	6,931.89	7,230.95	7,226.89	73.22	216.67	-89.77	-1,464.91	7,624.35	12,067.06	11,823.03	244.02	49.450	
11,300.00	6,931.78	7,230.84	7,226.78	74.69	216.67	-89.76	-1,464.91	7,624.35	12,163.95	11,919.86	244.09	49.833	
11,400.00	6,931.68	7,230.74	7,226.68	76.16	216.67	-89.76	-1,464.91	7,624.35	12,260.90	12,016.73	244.17	50.215	
11,500.00	6,931.57	7,230.63	7,226.57	77.64	216.66	-89.76	-1,464.91	7,624.35	12,357.89	12,113.65	244.24	50.597	
11,600.00	6,931.47	7,230.53	7,226.47	79.13	216.66	-89.76	-1,464.91	7,624.35	12,454.93	12,210.62	244.32	50.978	
11,700.00	6,931.36	7,230.42	7,226.36	80.62	216.66	-89.76	-1,464.91	7,624.35	12,552.02	12,307.62	244.40	51.359	
11,800.00	6,931.26	7,230.32	7,226.26	82.11	216.65	-89.75	-1,464.91	7,624.35	12,649.15	12,404.68	244.48	51.740	
11,900.00	6,931.15	7,230.21	7,226.15	83.61	216.65	-89.75	-1,464.91	7,624.35	12,746.33	12,501.77	244.56	52.119	
12,000.00	6,931.05	7,230.11	7,226.05	85.11	216.65	-89.75	-1,464.91	7,624.35	12,843.55	12,598.91	244.64	52.499	
12,100.00	6,930.94	7,230.00	7,225.94	86.62	216.64	-89.75	-1,464.91	7,624.35	12,940.82	12,696.08	244.73	52.878	
12,200.00	6,930.84	7,229.90	7,225.84	88.13	216.64	-89.75	-1,464.91	7,624.35	13,038.12	12,793.30	244.82	53.256	
12,300.00	6,930.73	7,229.79	7,225.73	89.64	216.64	-89.74	-1,464.91	7,624.35	13,135.46	12,890.56	244.91	53.634	
12,400.00	6,930.63	7,229.69	7,225.63	91.15	216.63	-89.74	-1,464.91	7,624.35	13,232.85	12,987.85	245.00	54.012	
12,500.00	6,930.52	7,229.59	7,225.52	92.67	216.63	-89.74	-1,464.91	7,624.35	13,330.27	13,085.18	245.09	54.389	
12,600.00	6,930.42	7,229.48	7,225.42	94.19	216.63	-89.74	-1,464.91	7,624.35	13,427.73	13,182.55	245.18	54.766	
12,700.00	6,930.31	7,229.38	7,225.31	95.71	216.62	-89.74	-1,464.91	7,624.35	13,525.23	13,279.95	245.28	55.142	
12,800.00	6,930.21	7,229.27	7,225.21	97.24	216.62	-89.73	-1,464.91	7,624.35	13,622.77	13,377.39	245.38	55.518	
12,900.00	6,930.11	7,229.17	7,225.11	98.77	216.62	-89.73	-1,464.91	7,624.35	13,720.34	13,474.86	245.47	55.894	
13,008.91	6,929.99	7,229.05	7,224.99	100.43	216.62	-89.73	-1,464.91	7,624.35	13,826.64	13,581.06	245.58	56.302	
13,100.00	6,929.90	7,228.96	7,224.90	101.83	216.61	-89.70	-1,464.91	7,624.35	13,915.88	13,670.21	245.67	56.645	
13,139.82	6,929.86	7,228.92	7,224.86	102.44	216.61	-89.68	-1,464.91	7,624.35	13,955.07	13,709.36	245.70	56.796	
13,200.00	6,929.80	7,228.86	7,224.80	103.37	216.61	-89.68	-1,464.91	7,624.35	14,014.37	13,768.62	245.76	57.025	
13,300.00	6,929.70	7,228.77	7,224.70	104.92	216.61	-89.67	-1,464.91	7,624.35	14,112.94	13,867.09	245.85	57.405	
13,400.00	6,929.61	7,228.67	7,224.61	106.47	216.60	-89.67	-1,464.91	7,624.35	14,211.53	13,965.59	245.94	57.784	
13,500.00	6,929.51	7,228.57	7,224.51	108.02	216.60	-89.67	-1,464.91	7,624.35	14,310.13	14,064.10	246.03	58.164	
13,600.00	6,929.41	7,228.48	7,224.41	109.57	216.60	-89.67	-1,464.91	7,624.35	14,408.76	14,162.63	246.12	58.543	
13,700.00	6,929.32	7,228.38	7,224.32	111.12	216.59	-89.67	-1,464.91	7,624.35	14,507.40	14,261.19	246.22	58.921	
13,800.00	6,929.22	7,228.28	7,224.22	112.68	216.59	-89.66	-1,464.91	7,624.35	14,606.07	14,359.75	246.31	59.299	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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
13,900.00	6,929.12	7,228.18	7,224.12	114.23	216.59	-89.66	-1,464.91	7,624.35	14,704.75	14,458.34	246.41	59.677	
14,000.00	6,929.03	7,228.09	7,224.03	115.79	216.59	-89.66	-1,464.91	7,624.35	14,803.44	14,556.94	246.50	60.054	
14,100.00	6,928.93	7,227.99	7,223.93	117.35	216.58	-89.66	-1,464.91	7,624.35	14,902.16	14,655.56	246.60	60.431	
14,200.00	6,928.83	7,227.89	7,223.83	118.91	216.58	-89.65	-1,464.91	7,624.35	15,000.89	14,754.20	246.69	60.808	
14,300.00	6,928.74	7,227.80	7,223.74	120.47	216.58	-89.65	-1,464.91	7,624.35	15,099.64	14,852.85	246.79	61.185	
14,400.00	6,928.64	7,227.70	7,223.64	122.03	216.57	-89.65	-1,464.91	7,624.35	15,198.41	14,951.52	246.88	61.561	
14,500.00	6,928.54	7,227.60	7,223.54	123.60	216.57	-89.65	-1,464.91	7,624.35	15,297.19	15,050.21	246.98	61.936	
14,600.00	6,928.45	7,227.51	7,223.45	125.16	216.57	-89.64	-1,464.91	7,624.35	15,395.99	15,148.91	247.08	62.312	
14,700.00	6,928.35	7,227.41	7,223.35	126.72	216.57	-89.64	-1,464.91	7,624.35	15,494.80	15,247.62	247.18	62.687	
14,800.00	6,928.25	7,227.31	7,223.25	128.29	216.56	-89.64	-1,464.91	7,624.35	15,593.63	15,346.35	247.28	63.062	
14,900.00	6,928.16	7,227.22	7,223.16	129.86	216.56	-89.64	-1,464.91	7,624.35	15,692.47	15,445.10	247.38	63.436	
15,000.00	6,928.06	7,227.12	7,223.06	131.42	216.56	-89.64	-1,464.91	7,624.35	15,791.33	15,543.85	247.47	63.810	
15,100.00	6,927.96	7,227.02	7,222.96	132.99	216.55	-89.63	-1,464.91	7,624.35	15,890.20	15,642.63	247.57	64.184	
15,200.00	6,927.87	7,226.93	7,222.87	134.56	216.55	-89.63	-1,464.91	7,624.35	15,989.09	15,741.41	247.67	64.557	
15,300.00	6,927.77	7,226.83	7,222.77	136.13	216.55	-89.63	-1,464.91	7,624.35	16,087.99	15,840.21	247.77	64.930	
15,400.00	6,927.67	7,226.73	7,222.67	137.70	216.55	-89.63	-1,464.91	7,624.35	16,186.90	15,939.02	247.87	65.303	
15,500.00	6,927.57	7,226.64	7,222.57	139.28	216.54	-89.62	-1,464.91	7,624.35	16,285.82	16,037.85	247.98	65.675	
15,600.00	6,927.48	7,226.54	7,222.48	140.85	216.54	-89.62	-1,464.91	7,624.35	16,384.76	16,136.69	248.08	66.047	
15,700.00	6,927.38	7,226.44	7,222.38	142.42	216.54	-89.62	-1,464.91	7,624.35	16,483.72	16,235.54	248.18	66.419	
15,800.00	6,927.28	7,226.35	7,222.28	144.00	216.53	-89.62	-1,464.91	7,624.35	16,582.68	16,334.40	248.28	66.790	
15,900.00	6,927.19	7,226.25	7,222.19	145.57	216.53	-89.61	-1,464.91	7,624.35	16,681.66	16,433.28	248.38	67.161	
16,000.00	6,927.09	7,226.15	7,222.09	147.15	216.53	-89.61	-1,464.91	7,624.35	16,780.65	16,532.16	248.49	67.532	
16,100.00	6,926.99	7,226.06	7,221.99	148.72	216.53	-89.61	-1,464.91	7,624.35	16,879.65	16,631.06	248.59	67.902	
16,200.00	6,926.90	7,225.96	7,221.90	150.30	216.52	-89.61	-1,464.91	7,624.35	16,978.66	16,729.97	248.69	68.272	
16,300.00	6,926.80	7,225.86	7,221.80	151.87	216.52	-89.60	-1,464.91	7,624.35	17,077.69	16,828.89	248.79	68.642	
16,400.00	6,926.70	7,225.77	7,221.70	153.45	216.52	-89.60	-1,464.91	7,624.35	17,176.72	16,927.82	248.90	69.011	
16,500.00	6,926.61	7,225.67	7,221.61	155.03	216.51	-89.60	-1,464.91	7,624.35	17,275.77	17,026.77	249.00	69.380	
16,600.00	6,926.51	7,225.57	7,221.51	156.61	216.51	-89.60	-1,464.91	7,624.35	17,374.83	17,125.72	249.11	69.749	
16,700.00	6,926.41	7,225.47	7,221.41	158.19	216.51	-89.60	-1,464.91	7,624.35	17,473.89	17,224.68	249.21	70.117	
16,800.00	6,926.32	7,225.38	7,221.32	159.77	216.50	-89.59	-1,464.91	7,624.35	17,572.97	17,323.66	249.32	70.485	
16,900.00	6,926.22	7,225.28	7,221.22	161.35	216.50	-89.59	-1,464.91	7,624.35	17,672.06	17,422.64	249.42	70.853	
17,000.00	6,926.12	7,225.18	7,221.12	162.93	216.50	-89.59	-1,464.91	7,624.35	17,771.16	17,521.64	249.53	71.220	
17,100.00	6,926.03	7,225.09	7,221.03	164.51	216.50	-89.59	-1,464.91	7,624.35	17,870.27	17,620.64	249.63	71.587	
17,200.00	6,925.93	7,224.99	7,220.93	166.09	216.49	-89.58	-1,464.91	7,624.35	17,969.39	17,719.66	249.74	71.954	
17,300.00	6,925.83	7,224.89	7,220.83	167.67	216.49	-89.58	-1,464.91	7,624.35	18,068.52	17,818.68	249.84	72.320	
17,400.00	6,925.74	7,224.80	7,220.74	169.26	216.49	-89.58	-1,464.91	7,624.35	18,167.66	17,917.71	249.95	72.686	
17,500.00	6,925.64	7,224.70	7,220.64	170.84	216.48	-89.58	-1,464.91	7,624.35	18,266.81	18,016.75	250.05	73.052	
17,600.00	6,925.54	7,224.60	7,220.54	172.42	216.48	-89.57	-1,464.91	7,624.35	18,365.96	18,115.80	250.16	73.417	
17,700.00	6,925.45	7,224.51	7,220.45	174.00	216.48	-89.57	-1,464.91	7,624.35	18,465.13	18,214.86	250.27	73.782	
17,800.00	6,925.35	7,224.41	7,220.35	175.59	216.48	-89.57	-1,464.91	7,624.35	18,564.31	18,313.93	250.37	74.147	
17,900.00	6,925.25	7,224.31	7,220.25	177.17	216.47	-89.57	-1,464.91	7,624.35	18,663.49	18,413.01	250.48	74.511	
18,000.00	6,925.16	7,224.22	7,220.16	178.76	216.47	-89.57	-1,464.91	7,624.35	18,762.68	18,512.10	250.59	74.875	
18,100.00	6,925.06	7,224.12	7,220.06	180.34	216.47	-89.56	-1,464.91	7,624.35	18,861.88	18,611.19	250.69	75.239	
18,160.21	6,925.00	7,224.06	7,220.00	181.30	216.47	-89.56	-1,464.91	7,624.35	18,921.62	18,670.86	250.76	75.457	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 117-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	-71.22	1,119.41	-3,292.07	3,477.41				
100.00	100.00	61.00	61.00	0.25	1.20	-71.22	1,119.41	-3,292.07	3,477.19	3,475.74	1.45	2,393.604	
200.00	200.00	161.00	161.00	0.61	3.41	-71.22	1,119.41	-3,292.07	3,477.19	3,473.17	4.01	866.114	
300.00	300.00	261.00	261.00	0.97	5.91	-71.22	1,119.41	-3,292.07	3,477.19	3,470.31	6.87	505.846	
400.00	400.00	363.02	363.02	1.33	8.46	-71.21	1,120.00	-3,292.07	3,477.38	3,467.59	9.78	355.420	
500.00	500.00	466.99	466.97	1.68	11.06	-71.22	1,119.63	-3,292.07	3,477.26	3,464.52	12.74	272.893	
600.00	599.98	561.13	560.98	2.04	13.74	-83.25	1,119.41	-3,292.07	3,476.98	3,461.20	15.79	220.268	
700.00	699.84	669.36	669.18	2.41	17.07	-83.34	1,120.42	-3,292.07	3,476.70	3,457.24	19.47	178.605	
800.00	799.45	760.76	760.45	2.77	19.80	-83.51	1,119.41	-3,292.07	3,475.37	3,452.81	22.56	154.047	
900.00	898.70	860.01	859.70	3.13	22.42	-83.74	1,119.41	-3,292.07	3,474.01	3,448.46	25.55	135.994	
1,000.00	997.47	974.78	974.43	3.50	25.45	-84.07	1,119.72	-3,292.07	3,472.45	3,443.50	28.95	119.952	
1,100.00	1,095.62	1,057.04	1,056.62	3.89	27.41	-84.37	1,119.41	-3,292.07	3,470.36	3,439.06	31.30	110.886	
1,200.00	1,193.44	1,154.85	1,154.44	4.29	29.66	-84.71	1,119.41	-3,292.07	3,468.33	3,434.38	33.95	102.159	
1,300.00	1,291.25	1,253.17	1,252.74	4.70	31.93	-85.02	1,120.76	-3,292.07	3,466.83	3,430.21	36.62	94.663	
1,400.00	1,389.07	1,355.50	1,355.06	5.11	34.28	-85.38	1,120.48	-3,292.07	3,464.97	3,425.58	39.39	87.958	
1,500.00	1,486.88	1,457.64	1,457.19	5.53	36.64	-85.74	1,119.74	-3,292.07	3,463.11	3,420.95	42.16	82.134	
1,600.00	1,584.70	1,546.23	1,545.70	5.95	38.62	-86.05	1,119.41	-3,292.07	3,461.48	3,416.91	44.57	77.666	
1,700.00	1,682.51	1,644.04	1,643.51	6.37	40.78	-86.38	1,119.41	-3,292.07	3,460.08	3,412.93	47.15	73.389	
1,800.00	1,780.33	1,741.98	1,741.43	6.80	42.93	-86.70	1,120.77	-3,292.07	3,459.16	3,409.43	49.73	69.558	
1,900.00	1,878.14	1,843.82	1,843.26	7.22	45.18	-87.05	1,120.53	-3,292.07	3,457.94	3,405.53	52.40	65.990	
2,000.00	1,975.96	1,945.48	1,944.91	7.65	47.42	-87.41	1,119.84	-3,292.07	3,456.73	3,401.66	55.07	62.770	
2,100.00	2,073.77	2,035.40	2,034.77	8.08	49.30	-87.73	1,119.41	-3,292.07	3,455.71	3,398.32	57.39	60.218	
2,200.00	2,171.59	2,133.21	2,132.59	8.51	51.26	-88.07	1,119.41	-3,292.07	3,454.93	3,395.15	59.78	57.797	
2,300.00	2,269.40	2,231.40	2,230.76	8.95	53.23	-88.39	1,120.42	-3,292.07	3,454.51	3,392.34	62.18	55.561	
2,400.00	2,367.22	2,332.24	2,331.60	9.38	55.25	-88.74	1,120.18	-3,292.07	3,453.92	3,389.30	64.63	53.443	
2,500.00	2,465.03	2,432.93	2,432.28	9.81	57.27	-89.10	1,119.57	-3,292.07	3,453.38	3,386.30	67.08	51.483	
2,600.00	2,562.84	2,524.53	2,523.84	10.25	59.11	-89.42	1,119.41	-3,292.07	3,453.06	3,383.71	69.36	49.788	
2,700.00	2,660.66	2,622.34	2,621.66	10.68	61.08	-89.75	1,119.41	-3,292.07	3,452.91	3,381.15	71.76	48.117	
2,750.40	2,709.96	2,671.64	2,670.96	10.90	62.07	-89.92	1,119.41	-3,292.07	3,452.88	3,379.90	72.97	47.317	
2,800.00	2,758.47	2,720.44	2,719.75	11.12	63.06	-90.08	1,120.24	-3,292.07	3,453.05	3,378.88	74.17	46.554	
2,900.00	2,856.29	2,820.04	2,819.34	11.55	65.06	-90.42	1,120.07	-3,292.07	3,453.11	3,376.49	76.62	45.071	
3,000.00	2,954.10	2,919.53	2,918.83	11.99	67.07	-90.77	1,119.65	-3,292.07	3,453.24	3,374.19	79.06	43.681	
3,100.00	3,051.92	3,013.66	3,012.92	12.42	68.92	-91.10	1,119.41	-3,292.07	3,453.54	3,372.20	81.34	42.458	
3,200.00	3,149.73	3,111.48	3,110.73	12.86	70.80	-91.44	1,119.41	-3,292.07	3,454.01	3,370.35	83.66	41.285	
3,300.00	3,247.55	3,209.29	3,208.55	13.30	72.69	-91.78	1,119.41	-3,292.07	3,454.61	3,368.63	85.98	40.177	
3,400.00	3,345.36	3,308.38	3,307.63	13.73	74.60	-92.10	1,120.56	-3,292.07	3,455.53	3,367.20	88.33	39.120	
3,500.00	3,443.18	3,407.94	3,407.18	14.17	76.52	-92.45	1,120.20	-3,292.07	3,456.31	3,365.62	90.69	38.113	
3,600.00	3,540.99	3,507.38	3,506.61	14.61	78.43	-92.80	1,119.52	-3,292.07	3,457.17	3,364.13	93.04	37.158	
3,700.00	3,638.81	3,600.60	3,599.81	15.05	80.39	-93.12	1,119.41	-3,292.07	3,458.25	3,362.81	95.43	36.238	
3,800.00	3,736.62	3,699.58	3,698.78	15.48	82.49	-93.46	1,119.60	-3,292.07	3,459.49	3,361.52	97.97	35.312	
3,900.00	3,834.44	3,796.27	3,795.44	15.92	85.10	-93.80	1,119.41	-3,292.07	3,460.81	3,359.80	101.02	34.260	
4,000.00	3,932.25	3,894.08	3,893.25	16.36	88.53	-94.13	1,119.41	-3,292.07	3,462.28	3,357.40	104.88	33.011	
4,100.00	4,030.07	3,991.90	3,991.07	16.80	91.96	-94.47	1,119.41	-3,292.07	3,463.87	3,355.13	108.75	31.853	
4,200.00	4,127.88	4,091.69	4,090.83	17.24	95.46	-94.79	1,120.85	-3,292.07	3,465.77	3,353.09	112.68	30.757	
4,300.00	4,225.70	4,191.61	4,190.73	17.68	98.96	-95.14	1,120.13	-3,292.07	3,467.52	3,350.90	116.62	29.733	
4,400.00	4,323.51	4,285.96	4,284.51	18.11	102.68	-95.47	1,119.41	-3,292.07	3,469.40	3,348.62	120.78	28.726	
4,500.00	4,421.33	4,384.12	4,382.33	18.55	107.43	-95.81	1,119.41	-3,292.07	3,471.49	3,345.53	125.96	27.561	
4,600.00	4,519.14	4,482.19	4,480.14	18.99	112.22	-96.14	1,119.41	-3,292.07	3,473.70	3,342.52	131.18	26.480	
4,700.00	4,616.95	4,580.24	4,577.95	19.43	116.87	-96.47	1,119.41	-3,292.07	3,476.03	3,339.76	136.27	25.508	
4,800.00	4,714.77	4,685.88	4,683.51	19.87	122.14	-96.82	1,119.98	-3,292.07	3,478.55	3,336.57	141.98	24.500	
4,900.00	4,812.58	4,783.78	4,781.05	20.31	127.06	-97.16	1,119.94	-3,292.07	3,481.12	3,333.79	147.34	23.627	
5,000.00	4,910.40	4,874.32	4,871.35	20.75	131.56	-97.45	1,120.71	-3,292.07	3,483.87	3,331.60	152.27	22.879	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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	21.19	136.47	-97.80	1,119.41	-3,292.07	3,486.60	3,328.99	157.61	22.122	
5,200.00	5,106.03	5,080.07	5,076.64	21.63	141.96	-98.17	1,119.09	-3,292.07	3,489.53	3,325.99	163.54	21.337	
5,300.00	5,203.84	5,168.48	5,164.84	22.06	146.31	-98.46	1,119.41	-3,292.07	3,492.61	3,324.29	168.32	20.750	
5,400.00	5,301.66	5,266.30	5,262.66	22.50	151.13	-98.79	1,119.41	-3,292.07	3,495.80	3,322.23	173.57	20.141	
5,500.00	5,399.47	5,366.48	5,362.62	22.94	156.06	-99.07	1,122.97	-3,292.07	3,499.27	3,320.33	178.94	19.555	
5,600.00	5,497.29	5,466.95	5,462.97	23.38	161.01	-99.45	1,120.83	-3,292.07	3,502.60	3,318.27	184.33	19.002	
5,700.00	5,595.10	5,560.81	5,556.10	23.82	165.54	-99.78	1,119.41	-3,292.07	3,506.08	3,316.80	189.28	18.523	
5,800.00	5,692.92	5,658.63	5,653.92	24.26	170.17	-100.11	1,119.41	-3,292.07	3,509.75	3,315.40	194.35	18.059	
5,900.00	5,790.73	5,756.44	5,751.73	24.70	174.81	-100.43	1,119.41	-3,292.07	3,513.54	3,314.13	199.41	17.619	
6,000.00	5,888.55	5,854.26	5,849.55	25.14	179.44	-100.76	1,119.41	-3,292.07	3,517.44	3,312.97	204.48	17.202	
6,100.00	5,986.36	5,949.00	5,943.35	25.58	183.92	-101.07	1,119.41	-3,292.07	3,521.47	3,312.08	209.39	16.817	
6,200.00	6,084.18	5,949.00	5,943.35	26.02	183.92	-101.07	1,119.41	-3,292.07	3,527.08	3,317.36	209.72	16.818	
6,300.00	6,181.99	5,949.00	5,943.35	26.46	183.92	-101.07	1,119.41	-3,292.07	3,535.51	3,325.62	209.89	16.844	
6,401.22	6,281.00	5,949.00	5,943.35	26.90	183.92	-101.07	1,119.41	-3,292.07	3,546.90	3,336.99	209.91	16.898	
6,450.00	6,328.76	5,949.00	5,943.35	27.12	183.92	-80.12	1,119.41	-3,292.07	3,551.55	3,341.70	209.85	16.924	
6,500.00	6,377.61	5,949.00	5,943.35	27.32	183.92	-60.49	1,119.41	-3,292.07	3,553.14	3,343.39	209.76	16.939	
6,550.00	6,426.06	5,949.00	5,943.35	27.52	183.92	-45.91	1,119.41	-3,292.07	3,551.51	3,341.90	209.61	16.943	
6,600.00	6,473.81	5,949.00	5,943.35	27.71	183.92	-35.91	1,119.41	-3,292.07	3,546.68	3,337.25	209.43	16.935	
6,650.00	6,520.56	5,949.00	5,943.35	27.89	183.92	-29.04	1,119.41	-3,292.07	3,538.64	3,329.44	209.20	16.915	
6,700.00	6,566.03	5,949.00	5,943.35	28.05	183.92	-24.18	1,119.41	-3,292.07	3,527.44	3,318.51	208.93	16.883	
6,750.00	6,609.93	5,949.00	5,943.35	28.20	183.92	-20.60	1,119.41	-3,292.07	3,513.10	3,304.49	208.62	16.840	
6,800.00	6,652.00	5,949.00	5,943.35	28.34	183.92	-17.89	1,119.41	-3,292.07	3,495.69	3,287.42	208.27	16.784	
6,850.00	6,691.98	5,949.00	5,943.35	28.47	183.92	-15.76	1,119.41	-3,292.07	3,475.27	3,267.37	207.89	16.717	
6,900.00	6,729.61	5,949.00	5,943.35	28.59	183.92	-14.05	1,119.41	-3,292.07	3,451.90	3,244.41	207.48	16.637	
6,950.00	6,764.67	5,949.00	5,943.35	28.69	183.92	-12.64	1,119.41	-3,292.07	3,425.67	3,218.62	207.05	16.545	
7,000.00	6,796.95	5,949.00	5,943.35	28.79	183.92	-11.45	1,119.41	-3,292.07	3,396.68	3,190.08	206.59	16.441	
7,050.00	6,826.23	5,949.00	5,943.35	28.89	183.92	-10.41	1,119.41	-3,292.07	3,365.04	3,158.91	206.13	16.325	
7,100.00	6,852.35	5,949.00	5,943.35	28.98	183.92	-9.47	1,119.41	-3,292.07	3,330.88	3,125.22	205.65	16.197	
7,150.00	6,875.14	5,949.00	5,943.35	29.08	183.92	-8.61	1,119.41	-3,292.07	3,294.32	3,089.14	205.17	16.056	
7,200.00	6,894.45	5,949.00	5,943.35	29.18	183.92	-7.76	1,119.41	-3,292.07	3,255.52	3,050.81	204.70	15.904	
7,250.00	6,910.18	5,949.00	5,943.35	29.28	183.92	-6.89	1,119.41	-3,292.07	3,214.63	3,010.39	204.24	15.739	
7,300.00	6,922.23	5,949.00	5,943.35	29.40	183.92	-5.93	1,119.41	-3,292.07	3,171.85	2,968.04	203.81	15.563	
7,350.00	6,930.51	5,949.00	5,943.35	29.54	183.92	-4.78	1,119.41	-3,292.07	3,127.35	2,923.95	203.40	15.376	
7,400.00	6,934.98	5,949.00	5,943.35	29.70	183.92	-3.28	1,119.41	-3,292.07	3,081.34	2,878.32	203.03	15.177	
7,433.91	6,935.83	5,949.00	5,943.35	29.81	183.92	-1.91	1,119.41	-3,292.07	3,049.40	2,846.60	202.80	15.036	
7,500.00	6,935.76	5,949.00	5,943.35	30.07	183.92	-1.91	1,119.41	-3,292.07	2,986.67	2,784.31	202.36	14.759	
7,600.00	6,935.66	5,949.00	5,943.35	30.52	183.92	-1.91	1,119.41	-3,292.07	2,892.05	2,690.41	201.65	14.342	
7,700.00	6,935.55	5,949.00	5,943.35	31.06	183.92	-1.91	1,119.41	-3,292.07	2,797.81	2,596.95	200.86	13.929	
7,800.00	6,935.45	5,949.00	5,943.35	31.68	183.92	-1.91	1,119.41	-3,292.07	2,703.97	2,503.98	199.99	13.520	
7,900.00	6,935.34	5,949.00	5,943.35	32.37	183.92	-1.91	1,119.41	-3,292.07	2,610.60	2,411.56	199.04	13.116	
8,000.00	6,935.24	5,949.00	5,943.35	33.12	183.92	-1.91	1,119.41	-3,292.07	2,517.73	2,319.75	197.98	12.717	
8,100.00	6,935.13	5,949.00	5,943.35	33.93	183.92	-1.91	1,119.41	-3,292.07	2,425.43	2,228.63	196.80	12.324	
8,200.00	6,935.03	5,949.00	5,943.35	34.80	183.92	-1.91	1,119.41	-3,292.07	2,333.77	2,138.28	195.49	11.938	
8,300.00	6,934.92	5,949.00	5,943.35	35.71	183.92	-1.91	1,119.41	-3,292.07	2,242.82	2,048.79	194.03	11.559	
8,400.00	6,934.82	5,949.00	5,943.35	36.67	183.92	-1.91	1,119.41	-3,292.07	2,152.67	1,960.29	192.38	11.190	
8,500.00	6,934.71	5,949.00	5,943.35	37.68	183.92	-1.91	1,119.41	-3,292.07	2,063.43	1,872.91	190.53	10.830	
8,600.00	6,934.61	5,949.00	5,943.35	38.72	183.92	-1.91	1,119.41	-3,292.07	1,975.22	1,786.80	188.43	10.483	
8,700.00	6,934.50	5,949.00	5,943.35	39.80	183.92	-1.91	1,119.41	-3,292.07	1,888.19	1,702.15	186.04	10.149	
8,800.00	6,934.40	5,949.00	5,943.35	40.92	183.92	-1.91	1,119.41	-3,292.07	1,802.50	1,619.18	183.32	9.832	
8,900.00	6,934.29	5,949.00	5,943.35	42.06	183.92	-1.91	1,119.41	-3,292.07	1,718.36	1,538.15	180.21	9.535	
9,000.00	6,934.19	5,949.00	5,943.35	43.23	183.92	-1.91	1,119.41	-3,292.07	1,636.01	1,459.38	176.63	9.262	
9,100.00	6,934.08	5,949.00	5,943.35	44.43	183.92	-1.91	1,119.41	-3,292.07	1,555.72	1,383.22	172.50	9.019	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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
9,200.00	6,933.98	5,949.00	5,943.35	45.66	183.92	-1.91	1,119.41	-3,292.07	1,477.85	1,310.12	167.73	8.811	
9,300.00	6,933.88	5,949.00	5,943.35	46.90	183.92	-1.91	1,119.41	-3,292.07	1,402.78	1,240.59	162.19	8.649	
9,400.00	6,933.77	5,949.00	5,943.35	48.17	183.92	-1.91	1,119.41	-3,292.07	1,330.99	1,175.23	155.76	8.545	
9,500.00	6,933.67	5,949.00	5,943.35	49.46	183.92	-1.91	1,119.41	-3,292.07	1,263.05	1,114.75	148.30	8.517	
9,600.00	6,933.56	5,949.00	5,943.35	50.76	183.92	-1.91	1,119.41	-3,292.07	1,199.60	1,059.95	139.66	8.590	
9,700.00	6,933.46	5,949.00	5,943.35	52.08	183.92	-1.91	1,119.41	-3,292.07	1,141.40	1,011.72	129.68	8.801	
9,800.00	6,933.35	5,949.00	5,943.35	53.41	183.92	-1.91	1,119.41	-3,292.07	1,089.29	971.01	118.28	9.209	
9,900.00	6,933.25	5,949.00	5,943.35	54.76	183.92	-1.91	1,119.41	-3,292.07	1,044.18	938.76	105.42	9.905	
10,000.00	6,933.14	5,949.00	5,943.35	56.12	183.92	-1.91	1,119.41	-3,292.07	1,007.01	915.80	91.21	11.040	
10,100.00	6,933.04	5,949.00	5,943.35	57.50	183.92	-1.91	1,119.41	-3,292.07	978.68	902.61	76.08	12.864	
10,200.00	6,932.93	5,949.00	5,943.35	58.88	183.92	-1.91	1,119.41	-3,292.07	959.99	898.78	61.21	15.684	
10,300.00	6,932.83	5,949.00	5,943.35	60.28	183.92	-1.91	1,119.41	-3,292.07	951.49	900.60	50.89	18.697	
10,331.23	6,932.80	5,949.00	5,943.35	60.72	183.92	-1.91	1,119.41	-3,292.07	950.98	900.67	50.31	18.903	CC
10,400.00	6,932.72	5,949.00	5,943.35	61.69	183.92	-1.91	1,119.41	-3,292.07	953.46	898.49	54.96	17.347	
10,500.00	6,932.62	5,949.00	5,943.35	63.10	183.92	-1.91	1,119.41	-3,292.07	965.84	896.25	69.59	13.879	ES
10,600.00	6,932.51	5,949.00	5,943.35	64.52	183.92	-1.91	1,119.41	-3,292.07	988.23	902.01	86.22	11.462	
10,700.00	6,932.41	5,949.00	5,943.35	65.96	183.92	-1.91	1,119.41	-3,292.07	1,019.97	917.71	102.27	9.974	
10,800.00	6,932.30	5,949.00	5,943.35	67.39	183.92	-1.91	1,119.41	-3,292.07	1,060.24	943.30	116.94	9.067	
10,900.00	6,932.20	5,949.00	5,943.35	68.84	183.92	-1.91	1,119.41	-3,292.07	1,108.09	978.13	129.96	8.527	
11,000.00	6,932.10	5,949.00	5,943.35	70.29	183.92	-1.91	1,119.41	-3,292.07	1,162.59	1,021.28	141.30	8.228	
11,100.00	6,931.99	5,949.00	5,943.35	71.75	183.92	-1.91	1,119.41	-3,292.07	1,222.85	1,071.77	151.08	8.094	
11,200.00	6,931.89	5,949.00	5,943.35	73.22	183.92	-1.91	1,119.41	-3,292.07	1,288.07	1,128.63	159.43	8.079	SF
11,300.00	6,931.78	5,949.00	5,943.35	74.69	183.92	-1.91	1,119.41	-3,292.07	1,357.52	1,190.97	166.55	8.151	
11,400.00	6,931.68	5,949.00	5,943.35	76.16	183.92	-1.91	1,119.41	-3,292.07	1,430.60	1,257.99	172.62	8.288	
11,500.00	6,931.57	5,949.00	5,943.35	77.64	183.92	-1.91	1,119.41	-3,292.07	1,506.78	1,329.00	177.78	8.476	
11,600.00	6,931.47	5,949.00	5,943.35	79.13	183.92	-1.91	1,119.41	-3,292.07	1,585.60	1,403.41	182.19	8.703	
11,700.00	6,931.36	5,949.00	5,943.35	80.62	183.92	-1.91	1,119.41	-3,292.07	1,666.70	1,480.74	185.96	8.962	
11,800.00	6,931.26	5,949.00	5,943.35	82.11	183.92	-1.91	1,119.41	-3,292.07	1,749.76	1,560.54	189.21	9.248	
11,900.00	6,931.15	5,949.00	5,943.35	83.61	183.92	-1.91	1,119.41	-3,292.07	1,834.50	1,642.49	192.01	9.554	
12,000.00	6,931.05	5,949.00	5,943.35	85.11	183.92	-1.91	1,119.41	-3,292.07	1,920.72	1,726.27	194.44	9.878	
12,100.00	6,930.94	5,949.00	5,943.35	86.62	183.92	-1.91	1,119.41	-3,292.07	2,008.21	1,811.65	196.56	10.217	
12,200.00	6,930.84	5,949.00	5,943.35	88.13	183.92	-1.91	1,119.41	-3,292.07	2,096.82	1,898.41	198.41	10.568	
12,300.00	6,930.73	5,949.00	5,943.35	89.64	183.92	-1.91	1,119.41	-3,292.07	2,186.42	1,986.38	200.03	10.930	
12,400.00	6,930.63	5,949.00	5,943.35	91.15	183.92	-1.91	1,119.41	-3,292.07	2,276.88	2,075.41	201.47	11.301	
12,500.00	6,930.52	5,949.00	5,943.35	92.67	183.92	-1.91	1,119.41	-3,292.07	2,368.11	2,165.37	202.74	11.680	
12,600.00	6,930.42	5,949.00	5,943.35	94.19	183.92	-1.91	1,119.41	-3,292.07	2,460.02	2,256.14	203.87	12.066	
12,700.00	6,930.31	5,949.00	5,943.35	95.71	183.92	-1.91	1,119.41	-3,292.07	2,552.53	2,347.65	204.88	12.459	
12,800.00	6,930.21	5,949.00	5,943.35	97.24	183.92	-1.91	1,119.41	-3,292.07	2,645.60	2,439.81	205.79	12.856	
12,900.00	6,930.11	5,949.00	5,943.35	98.77	183.92	-1.91	1,119.41	-3,292.07	2,739.15	2,532.54	206.61	13.258	
13,008.91	6,929.99	5,949.00	5,943.35	100.43	183.92	-1.91	1,119.41	-3,292.07	2,841.54	2,634.13	207.41	13.700	
13,100.00	6,929.90	5,949.00	5,943.35	101.83	183.92	3.30	1,119.41	-3,292.07	2,927.54	2,719.53	208.00	14.074	
13,139.82	6,929.86	5,949.00	5,943.35	102.44	183.92	5.63	1,119.41	-3,292.07	2,965.21	2,756.97	208.24	14.239	
13,200.00	6,929.80	5,949.00	5,943.35	103.37	183.92	5.63	1,119.41	-3,292.07	3,022.25	2,813.67	208.58	14.490	
13,300.00	6,929.70	5,949.00	5,943.35	104.92	183.92	5.63	1,119.41	-3,292.07	3,117.29	2,908.18	209.11	14.908	
13,400.00	6,929.61	5,949.00	5,943.35	106.47	183.92	5.63	1,119.41	-3,292.07	3,212.63	3,003.04	209.59	15.328	
13,500.00	6,929.51	5,949.00	5,943.35	108.02	183.92	5.63	1,119.41	-3,292.07	3,308.24	3,098.22	210.03	15.752	
13,600.00	6,929.41	5,949.00	5,943.35	109.57	183.92	5.63	1,119.41	-3,292.07	3,404.11	3,193.68	210.43	16.177	
13,700.00	6,929.32	5,949.00	5,943.35	111.12	183.92	5.63	1,119.41	-3,292.07	3,500.21	3,289.40	210.81	16.604	
13,800.00	6,929.22	5,949.00	5,943.35	112.68	183.92	5.63	1,119.41	-3,292.07	3,596.52	3,385.36	211.16	17.032	
13,900.00	6,929.12	5,949.00	5,943.35	114.23	183.92	5.63	1,119.41	-3,292.07	3,693.03	3,481.54	211.48	17.463	
14,000.00	6,929.03	5,949.00	5,943.35	115.79	183.92	5.63	1,119.41	-3,292.07	3,789.71	3,577.93	211.78	17.894	
14,100.00	6,928.93	5,949.00	5,943.35	117.35	183.92	5.63	1,119.41	-3,292.07	3,886.57	3,674.50	212.07	18.327	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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
14,200.00	6,928.83	5,949.00	5,943.35	118.91	183.92	5.63	1,119.41	-3,292.07	3,983.58	3,771.25	212.33	18.761	
14,300.00	6,928.74	5,949.00	5,943.35	120.47	183.92	5.63	1,119.41	-3,292.07	4,080.74	3,868.16	212.58	19.196	
14,400.00	6,928.64	5,949.00	5,943.35	122.03	183.92	5.63	1,119.41	-3,292.07	4,178.03	3,965.21	212.81	19.632	
14,500.00	6,928.54	5,949.00	5,943.35	123.60	183.92	5.63	1,119.41	-3,292.07	4,275.44	4,062.40	213.04	20.069	
14,600.00	6,928.45	5,949.00	5,943.35	125.16	183.92	5.63	1,119.41	-3,292.07	4,372.97	4,159.72	213.25	20.507	
14,700.00	6,928.35	5,949.00	5,943.35	126.72	183.92	5.63	1,119.41	-3,292.07	4,470.61	4,257.16	213.45	20.945	
14,800.00	6,928.25	5,949.00	5,943.35	128.29	183.92	5.63	1,119.41	-3,292.07	4,568.35	4,354.72	213.64	21.384	
14,900.00	6,928.16	5,949.00	5,943.35	129.86	183.92	5.63	1,119.41	-3,292.07	4,666.19	4,452.37	213.82	21.823	
15,000.00	6,928.06	5,949.00	5,943.35	131.42	183.92	5.63	1,119.41	-3,292.07	4,764.12	4,550.13	213.99	22.263	
15,100.00	6,927.96	5,949.00	5,943.35	132.99	183.92	5.63	1,119.41	-3,292.07	4,862.13	4,647.97	214.16	22.703	
15,200.00	6,927.87	5,949.00	5,943.35	134.56	183.92	5.63	1,119.41	-3,292.07	4,960.22	4,745.90	214.32	23.144	
15,300.00	6,927.77	5,949.00	5,943.35	136.13	183.92	5.63	1,119.41	-3,292.07	5,058.39	4,843.92	214.48	23.585	
15,400.00	6,927.67	5,949.00	5,943.35	137.70	183.92	5.63	1,119.41	-3,292.07	5,156.63	4,942.00	214.62	24.026	
15,500.00	6,927.57	5,949.00	5,943.35	139.28	183.92	5.63	1,119.41	-3,292.07	5,254.93	5,040.16	214.77	24.468	
15,600.00	6,927.48	5,949.00	5,943.35	140.85	183.92	5.63	1,119.41	-3,292.07	5,353.30	5,138.39	214.91	24.910	
15,700.00	6,927.38	5,949.00	5,943.35	142.42	183.92	5.63	1,119.41	-3,292.07	5,451.72	5,236.68	215.04	25.352	
15,800.00	6,927.28	5,949.00	5,943.35	144.00	183.92	5.63	1,119.41	-3,292.07	5,550.20	5,335.03	215.18	25.794	
15,900.00	6,927.19	5,949.00	5,943.35	145.57	183.92	5.63	1,119.41	-3,292.07	5,648.74	5,433.44	215.30	26.236	
16,000.00	6,927.09	5,949.00	5,943.35	147.15	183.92	5.63	1,119.41	-3,292.07	5,747.33	5,531.90	215.43	26.679	
16,100.00	6,926.99	5,949.00	5,943.35	148.72	183.92	5.63	1,119.41	-3,292.07	5,845.96	5,630.41	215.55	27.121	
16,200.00	6,926.90	5,949.00	5,943.35	150.30	183.92	5.63	1,119.41	-3,292.07	5,944.64	5,728.97	215.67	27.564	
16,300.00	6,926.80	5,949.00	5,943.35	151.87	183.92	5.63	1,119.41	-3,292.07	6,043.36	5,827.58	215.79	28.006	
16,400.00	6,926.70	5,949.00	5,943.35	153.45	183.92	5.63	1,119.41	-3,292.07	6,142.13	5,926.22	215.90	28.449	
16,500.00	6,926.61	5,949.00	5,943.35	155.03	183.92	5.63	1,119.41	-3,292.07	6,240.93	6,024.92	216.01	28.891	
16,600.00	6,926.51	5,949.00	5,943.35	156.61	183.92	5.63	1,119.41	-3,292.07	6,339.77	6,123.65	216.13	29.334	
16,700.00	6,926.41	5,949.00	5,943.35	158.19	183.92	5.63	1,119.41	-3,292.07	6,438.65	6,222.41	216.23	29.776	
16,800.00	6,926.32	5,949.00	5,943.35	159.77	183.92	5.63	1,119.41	-3,292.07	6,537.56	6,321.22	216.34	30.219	
16,900.00	6,926.22	5,949.00	5,943.35	161.35	183.92	5.63	1,119.41	-3,292.07	6,636.50	6,420.06	216.45	30.661	
17,000.00	6,926.12	5,949.00	5,943.35	162.93	183.92	5.63	1,119.41	-3,292.07	6,735.48	6,518.93	216.55	31.103	
17,100.00	6,926.03	5,949.00	5,943.35	164.51	183.92	5.63	1,119.41	-3,292.07	6,834.48	6,617.83	216.66	31.545	
17,200.00	6,925.93	5,949.00	5,943.35	166.09	183.92	5.63	1,119.41	-3,292.07	6,933.52	6,716.76	216.76	31.987	
17,300.00	6,925.83	5,949.00	5,943.35	167.67	183.92	5.63	1,119.41	-3,292.07	7,032.58	6,815.72	216.86	32.429	
17,400.00	6,925.74	5,949.00	5,943.35	169.26	183.92	5.63	1,119.41	-3,292.07	7,131.66	6,914.70	216.96	32.871	
17,500.00	6,925.64	5,949.00	5,943.35	170.84	183.92	5.63	1,119.41	-3,292.07	7,230.78	7,013.71	217.06	33.312	
17,600.00	6,925.54	5,949.00	5,943.35	172.42	183.92	5.63	1,119.41	-3,292.07	7,329.91	7,112.75	217.16	33.753	
17,700.00	6,925.45	5,949.00	5,943.35	174.00	183.92	5.63	1,119.41	-3,292.07	7,429.07	7,211.81	217.26	34.195	
17,800.00	6,925.35	5,949.00	5,943.35	175.59	183.92	5.63	1,119.41	-3,292.07	7,528.25	7,310.90	217.36	34.636	
17,900.00	6,925.25	5,949.00	5,943.35	177.17	183.92	5.63	1,119.41	-3,292.07	7,627.46	7,410.00	217.45	35.076	
18,000.00	6,925.16	5,949.00	5,943.35	178.76	183.92	5.63	1,119.41	-3,292.07	7,726.68	7,509.13	217.55	35.517	
18,100.00	6,925.06	5,949.00	5,943.35	180.34	183.92	5.63	1,119.41	-3,292.07	7,825.92	7,608.28	217.65	35.957	
18,160.21	6,925.00	5,949.00	5,943.35	181.30	183.92	5.63	1,119.41	-3,292.07	7,885.69	7,667.99	217.70	36.222	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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	Rule Assigned: Warning
0.00	0.00	0.00	0.00	0.00	0.00	-81.18	738.77	-4,759.12	4,816.29				
100.00	100.00	59.00	59.00	0.25	1.05	-81.18	738.77	-4,759.12	4,816.12	4,814.82	1.30	3,715.041	
200.00	200.00	159.00	159.00	0.61	2.82	-81.18	738.77	-4,759.12	4,816.12	4,812.69	3.43	1,405.562	
300.00	300.00	259.00	259.00	0.97	4.59	-81.18	738.77	-4,759.12	4,816.12	4,810.56	5.56	866.741	
400.00	400.00	359.00	359.00	1.33	6.36	-81.18	738.77	-4,759.12	4,816.12	4,808.43	7.69	626.548	
500.00	500.00	460.32	460.32	1.68	8.16	-81.18	738.81	-4,759.12	4,816.12	4,806.28	9.84	489.431	
516.57	516.57	477.12	477.11	1.74	8.45	-93.18	738.78	-4,759.12	4,816.12	4,805.92	10.20	472.301	
600.00	599.98	558.98	558.98	2.04	9.95	-93.20	738.77	-4,759.12	4,816.21	4,804.22	11.99	401.570	
700.00	699.84	659.22	659.22	2.41	11.79	-93.25	738.92	-4,759.12	4,816.53	4,802.34	14.19	339.460	
800.00	799.45	759.94	759.94	2.77	13.64	-93.35	738.79	-4,759.12	4,817.01	4,800.62	16.40	293.799	
900.00	898.70	857.72	857.70	3.13	15.48	-93.47	738.77	-4,759.12	4,817.74	4,799.14	18.60	258.992	
1,000.00	997.47	956.48	956.47	3.50	17.34	-93.64	738.77	-4,759.12	4,818.72	4,797.88	20.84	231.220	
1,100.00	1,095.62	1,055.34	1,055.32	3.89	19.20	-93.83	739.56	-4,759.12	4,820.10	4,797.01	23.09	208.720	
1,200.00	1,193.44	1,154.88	1,154.85	4.29	21.08	-94.07	739.33	-4,759.12	4,821.53	4,796.16	25.37	190.040	
1,300.00	1,291.25	1,254.30	1,254.27	4.70	22.96	-94.33	738.83	-4,759.12	4,823.02	4,795.37	27.65	174.406	
1,400.00	1,389.07	1,348.11	1,348.07	5.11	24.74	-94.56	738.77	-4,759.12	4,824.66	4,794.81	29.84	161.658	
1,500.00	1,486.88	1,445.93	1,445.88	5.53	26.59	-94.80	738.77	-4,759.12	4,826.39	4,794.27	32.12	150.277	
1,600.00	1,584.70	1,544.07	1,544.02	5.95	28.45	-95.03	739.30	-4,759.12	4,828.27	4,793.88	34.40	140.365	
1,700.00	1,682.51	1,642.84	1,642.79	6.37	30.33	-95.28	739.16	-4,759.12	4,830.17	4,793.47	36.69	131.634	
1,800.00	1,780.33	1,741.54	1,741.49	6.80	32.20	-95.52	738.85	-4,759.12	4,832.13	4,793.14	38.99	123.930	
1,900.00	1,878.14	1,837.22	1,837.14	7.22	34.19	-95.76	738.77	-4,759.12	4,834.21	4,792.80	41.41	116.735	
2,000.00	1,975.96	1,935.03	1,934.96	7.65	36.28	-96.00	738.77	-4,759.12	4,836.38	4,792.46	43.92	110.111	
2,100.00	2,073.77	2,033.13	2,033.05	8.08	38.37	-96.23	739.58	-4,759.12	4,838.73	4,792.29	46.44	104.191	
2,200.00	2,171.59	2,132.12	2,132.04	8.51	40.47	-96.47	739.39	-4,759.12	4,841.06	4,792.08	48.98	98.839	
2,300.00	2,269.40	2,231.01	2,230.92	8.95	42.58	-96.72	738.95	-4,759.12	4,843.46	4,791.94	51.52	94.019	
2,400.00	2,367.22	2,326.39	2,326.22	9.38	44.64	-96.96	738.77	-4,759.12	4,845.97	4,791.97	54.00	89.736	
2,500.00	2,465.03	2,424.20	2,424.03	9.81	46.75	-97.19	738.77	-4,759.12	4,848.59	4,792.04	56.55	85.736	
2,600.00	2,562.84	2,522.36	2,522.16	10.25	48.88	-97.41	740.37	-4,759.12	4,851.42	4,792.31	59.11	82.074	
2,700.00	2,660.66	2,622.07	2,621.86	10.68	51.04	-97.66	740.01	-4,759.12	4,854.18	4,792.48	61.70	78.671	
2,800.00	2,758.47	2,721.58	2,721.36	11.12	53.19	-97.91	739.13	-4,759.12	4,856.99	4,792.70	64.29	75.548	
2,900.00	2,856.29	2,815.56	2,815.29	11.55	55.15	-98.15	738.77	-4,759.12	4,859.93	4,793.26	66.68	72.888	
3,000.00	2,954.10	2,913.38	2,913.10	11.99	57.14	-98.38	738.77	-4,759.12	4,862.99	4,793.88	69.11	70.370	
3,100.00	3,051.92	3,011.29	3,011.01	12.42	59.14	-98.61	739.58	-4,759.12	4,866.17	4,794.64	71.54	68.024	
3,200.00	3,149.73	3,109.76	3,109.48	12.86	61.15	-98.85	739.41	-4,759.12	4,869.39	4,795.41	73.98	65.822	
3,300.00	3,247.55	3,208.13	3,207.84	13.30	63.15	-99.09	738.99	-4,759.12	4,872.68	4,796.26	76.42	63.763	
3,400.00	3,345.36	3,304.69	3,304.36	13.73	65.08	-99.33	738.77	-4,759.12	4,876.07	4,797.29	78.78	61.895	
3,500.00	3,443.18	3,402.51	3,402.18	14.17	67.01	-99.57	738.77	-4,759.12	4,879.56	4,798.42	81.14	60.137	
3,600.00	3,540.99	3,500.32	3,499.99	14.61	68.94	-99.80	738.77	-4,759.12	4,883.13	4,799.63	83.50	58.480	
3,700.00	3,638.81	3,598.42	3,598.08	15.05	70.87	-100.02	739.98	-4,759.12	4,886.83	4,800.96	85.87	56.911	
3,800.00	3,736.62	3,696.60	3,696.25	15.48	72.80	-100.26	739.66	-4,759.12	4,890.56	4,802.32	88.24	55.426	
3,900.00	3,834.44	3,794.66	3,794.30	15.92	74.73	-100.50	739.04	-4,759.12	4,894.37	4,803.77	90.60	54.021	
4,000.00	3,932.25	3,891.63	3,891.25	16.36	76.64	-100.74	738.77	-4,759.12	4,898.28	4,805.33	92.94	52.701	
4,100.00	4,030.07	3,989.45	3,989.07	16.80	78.57	-100.97	738.77	-4,759.12	4,902.28	4,806.97	95.31	51.438	
4,200.00	4,127.88	4,087.28	4,086.90	17.24	80.50	-101.20	739.28	-4,759.12	4,906.37	4,808.70	97.67	50.236	
4,300.00	4,225.70	4,185.14	4,184.76	17.68	82.43	-101.44	739.15	-4,759.12	4,910.54	4,810.51	100.03	49.092	
4,400.00	4,323.51	4,282.93	4,282.54	18.11	84.35	-101.67	738.84	-4,759.12	4,914.79	4,812.40	102.39	48.002	
4,500.00	4,421.33	4,380.75	4,380.33	18.55	86.34	-101.90	738.77	-4,759.12	4,919.13	4,814.32	104.80	46.936	
4,600.00	4,519.14	4,478.56	4,478.14	18.99	88.33	-102.14	738.77	-4,759.12	4,923.55	4,816.31	107.23	45.914	
4,700.00	4,616.95	4,576.33	4,575.89	19.43	90.33	-102.35	739.84	-4,759.12	4,928.04	4,818.38	109.66	44.938	
4,800.00	4,714.77	4,673.88	4,673.44	19.87	92.32	-102.59	739.57	-4,759.12	4,932.63	4,820.55	112.09	44.008	
4,900.00	4,812.58	4,771.31	4,770.86	20.31	94.31	-102.82	738.97	-4,759.12	4,937.31	4,822.81	114.51	43.118	
5,000.00	4,910.40	4,869.88	4,869.40	20.75	96.21	-103.06	738.77	-4,759.12	4,942.07	4,825.23	116.84	42.296	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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
5,100.00	5,008.21	4,967.70	4,967.21	21.19	98.07	-103.29	738.77	-4,759.12	4,946.91	4,827.78	119.13	41.524	
5,200.00	5,106.03	5,065.42	5,064.94	21.63	99.93	-103.51	739.58	-4,759.12	4,951.81	4,830.38	121.42	40.782	
5,300.00	5,203.84	5,162.79	5,162.29	22.06	101.78	-103.74	739.40	-4,759.12	4,956.81	4,833.11	123.70	40.071	
5,400.00	5,301.66	5,260.05	5,259.55	22.50	103.62	-103.97	738.97	-4,759.12	4,961.91	4,835.93	125.98	39.387	
5,500.00	5,399.47	5,358.99	5,358.47	22.94	105.60	-104.20	738.77	-4,759.12	4,967.09	4,838.71	128.38	38.690	
5,600.00	5,497.29	5,456.80	5,456.29	23.38	107.59	-104.43	738.77	-4,759.12	4,972.34	4,841.53	130.81	38.012	
5,700.00	5,595.10	5,554.55	5,554.03	23.82	109.59	-104.65	739.31	-4,759.12	4,977.64	4,844.40	133.24	37.360	
5,800.00	5,692.92	5,651.88	5,651.37	24.26	111.57	-104.88	739.20	-4,759.12	4,983.05	4,847.40	135.65	36.734	
5,900.00	5,790.73	5,749.15	5,748.63	24.70	113.56	-105.11	738.92	-4,759.12	4,988.56	4,850.49	138.07	36.131	
6,000.00	5,888.55	5,848.12	5,847.55	25.14	115.80	-105.34	738.77	-4,759.12	4,994.14	4,853.40	140.74	35.485	
6,100.00	5,986.36	5,945.94	5,945.36	25.58	118.15	-105.56	738.77	-4,759.12	4,999.80	4,856.28	143.52	34.837	
6,200.00	6,084.18	6,000.00	5,999.35	26.02	119.45	-105.69	738.77	-4,759.12	5,005.72	4,860.49	145.23	34.466	
6,300.00	6,181.99	6,000.00	5,999.35	26.46	119.45	-105.69	738.77	-4,759.12	5,013.34	4,867.75	145.60	34.433	
6,401.22	6,281.00	6,000.00	5,999.35	26.90	119.45	-105.69	738.77	-4,759.12	5,023.07	4,877.17	145.91	34.427	
6,450.00	6,328.76	6,000.00	5,999.35	27.12	119.45	-84.70	738.77	-4,759.12	5,026.62	4,880.59	146.03	34.421	
6,500.00	6,377.61	6,000.00	5,999.35	27.32	119.45	-65.07	738.77	-4,759.12	5,026.88	4,880.73	146.15	34.395	
6,550.00	6,426.06	6,000.00	5,999.35	27.52	119.45	-50.50	738.77	-4,759.12	5,023.71	4,877.46	146.25	34.350	
6,600.00	6,473.81	6,000.00	5,999.35	27.71	119.45	-40.54	738.77	-4,759.12	5,017.13	4,870.80	146.33	34.286	
6,650.00	6,520.56	6,000.00	5,999.35	27.89	119.45	-33.74	738.77	-4,759.12	5,007.17	4,860.78	146.39	34.204	
6,700.00	6,566.03	6,000.00	5,999.35	28.05	119.45	-28.97	738.77	-4,759.12	4,993.86	4,847.43	146.44	34.102	
6,750.00	6,609.93	6,000.00	5,999.35	28.20	119.45	-25.52	738.77	-4,759.12	4,977.27	4,830.80	146.47	33.982	
6,800.00	6,652.00	6,000.00	5,999.35	28.34	119.45	-22.96	738.77	-4,759.12	4,957.46	4,810.98	146.48	33.844	
6,850.00	6,691.98	6,000.00	5,999.35	28.47	119.45	-21.03	738.77	-4,759.12	4,934.51	4,788.04	146.47	33.689	
6,900.00	6,729.61	6,000.00	5,999.35	28.59	119.45	-19.55	738.77	-4,759.12	4,908.53	4,762.07	146.46	33.515	
6,950.00	6,764.67	6,000.00	5,999.35	28.69	119.45	-18.43	738.77	-4,759.12	4,879.63	4,733.20	146.43	33.325	
7,000.00	6,796.95	6,000.00	5,999.35	28.79	119.45	-17.60	738.77	-4,759.12	4,847.93	4,701.55	146.38	33.118	
7,050.00	6,826.23	6,000.00	5,999.35	28.89	119.45	-16.99	738.77	-4,759.12	4,813.58	4,667.25	146.33	32.894	
7,100.00	6,852.35	6,000.00	5,999.35	28.98	119.45	-16.60	738.77	-4,759.12	4,776.74	4,630.46	146.28	32.655	
7,150.00	6,875.14	6,000.00	5,999.35	29.08	119.45	-16.41	738.77	-4,759.12	4,737.57	4,591.35	146.22	32.401	
7,200.00	6,894.45	6,000.00	5,999.35	29.18	119.45	-16.43	738.77	-4,759.12	4,696.27	4,550.11	146.15	32.132	
7,250.00	6,910.18	6,000.00	5,999.35	29.28	119.45	-16.69	738.77	-4,759.12	4,653.03	4,506.94	146.09	31.850	
7,300.00	6,922.23	6,000.00	5,999.35	29.40	119.45	-17.26	738.77	-4,759.12	4,608.07	4,462.03	146.03	31.555	
7,350.00	6,930.51	6,000.00	5,999.35	29.54	119.45	-18.27	738.77	-4,759.12	4,561.62	4,415.64	145.98	31.248	
7,400.00	6,934.98	6,000.00	5,999.35	29.70	119.45	-20.05	738.77	-4,759.12	4,513.93	4,367.99	145.94	30.931	
7,433.91	6,935.83	6,000.00	5,999.35	29.81	119.45	-22.06	738.77	-4,759.12	4,481.01	4,335.09	145.91	30.710	
7,500.00	6,935.76	6,000.00	5,999.35	30.07	119.45	-22.06	738.77	-4,759.12	4,416.48	4,270.61	145.87	30.277	
7,600.00	6,935.66	6,000.00	5,999.35	30.52	119.45	-22.06	738.77	-4,759.12	4,318.93	4,173.13	145.80	29.623	
7,700.00	6,935.55	6,000.00	5,999.35	31.06	119.45	-22.06	738.77	-4,759.12	4,221.50	4,075.78	145.72	28.970	
7,800.00	6,935.45	6,000.00	5,999.35	31.68	119.45	-22.06	738.77	-4,759.12	4,124.19	3,978.55	145.64	28.318	
7,900.00	6,935.34	6,000.00	5,999.35	32.37	119.45	-22.06	738.77	-4,759.12	4,027.01	3,881.46	145.55	27.668	
8,000.00	6,935.24	6,000.00	5,999.35	33.12	119.45	-22.06	738.77	-4,759.12	3,929.97	3,784.51	145.46	27.018	
8,100.00	6,935.13	6,000.00	5,999.35	33.93	119.45	-22.06	738.77	-4,759.12	3,833.09	3,687.73	145.36	26.370	
8,200.00	6,935.03	6,000.00	5,999.35	34.80	119.45	-22.06	738.77	-4,759.12	3,736.37	3,591.12	145.25	25.724	
8,300.00	6,934.92	6,000.00	5,999.35	35.71	119.45	-22.06	738.77	-4,759.12	3,639.82	3,494.69	145.13	25.079	
8,400.00	6,934.82	6,000.00	5,999.35	36.67	119.45	-22.06	738.77	-4,759.12	3,543.47	3,398.46	145.01	24.436	
8,500.00	6,934.71	6,000.00	5,999.35	37.68	119.45	-22.06	738.77	-4,759.12	3,447.33	3,302.45	144.87	23.795	
8,600.00	6,934.61	6,000.00	5,999.35	38.72	119.45	-22.06	738.77	-4,759.12	3,351.41	3,206.68	144.73	23.157	
8,700.00	6,934.50	6,000.00	5,999.35	39.80	119.45	-22.06	738.77	-4,759.12	3,255.74	3,111.17	144.57	22.520	
8,800.00	6,934.40	6,000.00	5,999.35	40.92	119.45	-22.06	738.77	-4,759.12	3,160.33	3,015.94	144.39	21.887	
8,900.00	6,934.29	6,000.00	5,999.35	42.06	119.45	-22.06	738.77	-4,759.12	3,065.22	2,921.02	144.20	21.256	
9,000.00	6,934.19	6,000.00	5,999.35	43.23	119.45	-22.06	738.77	-4,759.12	2,970.43	2,826.44	143.99	20.629	
9,100.00	6,934.08	6,000.00	5,999.35	44.43	119.45	-22.06	738.77	-4,759.12	2,876.00	2,732.23	143.76	20.005	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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
9,200.00	6,933.98	6,000.00	5,999.35	45.66	119.45	-22.06	738.77	-4,759.12	2,781.95	2,638.44	143.50	19.386	
9,300.00	6,933.88	6,000.00	5,999.35	46.90	119.45	-22.06	738.77	-4,759.12	2,688.33	2,545.11	143.22	18.771	
9,400.00	6,933.77	6,000.00	5,999.35	48.17	119.45	-22.06	738.77	-4,759.12	2,595.19	2,452.28	142.90	18.160	
9,500.00	6,933.67	6,000.00	5,999.35	49.46	119.45	-22.06	738.77	-4,759.12	2,502.57	2,360.02	142.55	17.556	
9,600.00	6,933.56	6,000.00	5,999.35	50.76	119.45	-22.06	738.77	-4,759.12	2,410.55	2,268.40	142.15	16.957	
9,700.00	6,933.46	6,000.00	5,999.35	52.08	119.45	-22.06	738.77	-4,759.12	2,319.19	2,177.48	141.71	16.366	
9,800.00	6,933.35	6,000.00	5,999.35	53.41	119.45	-22.06	738.77	-4,759.12	2,228.57	2,087.37	141.20	15.783	
9,900.00	6,933.25	6,000.00	5,999.35	54.76	119.45	-22.06	738.77	-4,759.12	2,138.78	1,998.15	140.63	15.209	
10,000.00	6,933.14	6,000.00	5,999.35	56.12	119.45	-22.06	738.77	-4,759.12	2,049.94	1,909.97	139.97	14.645	
10,100.00	6,933.04	6,000.00	5,999.35	57.50	119.45	-22.06	738.77	-4,759.12	1,962.18	1,822.96	139.22	14.094	
10,200.00	6,932.93	6,000.00	5,999.35	58.88	119.45	-22.06	738.77	-4,759.12	1,875.64	1,737.28	138.36	13.556	
10,300.00	6,932.83	6,000.00	5,999.35	60.28	119.45	-22.06	738.77	-4,759.12	1,790.51	1,653.14	137.37	13.034	
10,400.00	6,932.72	6,000.00	5,999.35	61.69	119.45	-22.06	738.77	-4,759.12	1,706.98	1,570.77	136.22	12.531	
10,500.00	6,932.62	6,000.00	5,999.35	63.10	119.45	-22.06	738.77	-4,759.12	1,625.32	1,490.45	134.87	12.051	
10,600.00	6,932.51	6,000.00	5,999.35	64.52	119.45	-22.06	738.77	-4,759.12	1,545.82	1,412.51	133.30	11.596	
10,700.00	6,932.41	6,000.00	5,999.35	65.96	119.45	-22.06	738.77	-4,759.12	1,468.82	1,337.36	131.46	11.173	
10,800.00	6,932.30	6,000.00	5,999.35	67.39	119.45	-22.06	738.77	-4,759.12	1,394.74	1,265.44	129.30	10.787	
10,900.00	6,932.20	6,000.00	5,999.35	68.84	119.45	-22.06	738.77	-4,759.12	1,324.08	1,197.31	126.77	10.445	
11,000.00	6,932.10	6,000.00	5,999.35	70.29	119.45	-22.06	738.77	-4,759.12	1,257.41	1,133.60	123.80	10.156	
11,100.00	6,931.99	6,000.00	5,999.35	71.75	119.45	-22.06	738.77	-4,759.12	1,195.39	1,075.02	120.36	9.931	
11,200.00	6,931.89	6,000.00	5,999.35	73.22	119.45	-22.06	738.77	-4,759.12	1,138.78	1,022.36	116.43	9.781	
11,300.00	6,931.78	6,000.00	5,999.35	74.69	119.45	-22.06	738.77	-4,759.12	1,088.44	976.42	112.02	9.716	
11,400.00	6,931.68	6,000.00	5,999.35	76.16	119.45	-22.06	738.77	-4,759.12	1,045.27	937.99	107.28	9.743	
11,500.00	6,931.57	6,000.00	5,999.35	77.64	119.45	-22.06	738.77	-4,759.12	1,010.18	907.69	102.49	9.856	
11,600.00	6,931.47	6,000.00	5,999.35	79.13	119.45	-22.06	738.77	-4,759.12	984.05	885.87	98.17	10.024	
11,700.00	6,931.36	6,000.00	5,999.35	80.62	119.45	-22.06	738.77	-4,759.12	967.59	872.54	95.05	10.180	
11,800.00	6,931.26	6,000.00	5,999.35	82.11	119.45	-22.06	738.77	-4,759.12	961.31	867.43	93.88	10.240	
11,810.60	6,931.25	6,000.00	5,999.35	82.27	119.45	-22.06	738.77	-4,759.12	961.25	867.36	93.89	10.238	CC, ES
11,900.00	6,931.15	6,000.00	5,999.35	83.61	119.45	-22.06	738.77	-4,759.12	965.40	870.36	95.03	10.158	
12,000.00	6,931.05	6,000.00	5,999.35	85.11	119.45	-22.06	738.77	-4,759.12	979.73	881.48	98.25	9.972	
12,100.00	6,930.94	6,000.00	5,999.35	86.62	119.45	-22.06	738.77	-4,759.12	1,003.87	901.09	102.78	9.767	
12,200.00	6,930.84	6,000.00	5,999.35	88.13	119.45	-22.06	738.77	-4,759.12	1,037.13	929.25	107.88	9.614	
12,300.00	6,930.73	6,000.00	5,999.35	89.64	119.45	-22.06	738.77	-4,759.12	1,078.66	965.70	112.96	9.549	SF
12,400.00	6,930.63	6,000.00	5,999.35	91.15	119.45	-22.06	738.77	-4,759.12	1,127.56	1,009.85	117.71	9.579	
12,500.00	6,930.52	6,000.00	5,999.35	92.67	119.45	-22.06	738.77	-4,759.12	1,182.91	1,060.94	121.97	9.699	
12,600.00	6,930.42	6,000.00	5,999.35	94.19	119.45	-22.06	738.77	-4,759.12	1,243.84	1,118.16	125.69	9.896	
12,700.00	6,930.31	6,000.00	5,999.35	95.71	119.45	-22.06	738.77	-4,759.12	1,309.59	1,180.70	128.89	10.161	
12,800.00	6,930.21	6,000.00	5,999.35	97.24	119.45	-22.06	738.77	-4,759.12	1,379.46	1,247.83	131.63	10.480	
12,900.00	6,930.11	6,000.00	5,999.35	98.77	119.45	-22.06	738.77	-4,759.12	1,452.86	1,318.90	133.96	10.846	
13,008.91	6,929.99	6,000.00	5,999.35	100.43	119.45	-22.06	738.77	-4,759.12	1,536.21	1,400.11	136.10	11.287	
13,100.00	6,929.90	6,000.00	5,999.35	101.83	119.45	-19.83	738.77	-4,759.12	1,608.59	1,470.94	137.65	11.686	
13,139.82	6,929.86	6,000.00	5,999.35	102.44	119.45	-18.78	738.77	-4,759.12	1,641.00	1,502.73	138.27	11.868	
13,200.00	6,929.80	6,000.00	5,999.35	103.37	119.45	-18.78	738.77	-4,759.12	1,690.66	1,551.52	139.13	12.151	
13,300.00	6,929.70	6,000.00	5,999.35	104.92	119.45	-18.78	738.77	-4,759.12	1,774.61	1,634.21	140.40	12.639	
13,400.00	6,929.61	6,000.00	5,999.35	106.47	119.45	-18.78	738.77	-4,759.12	1,860.16	1,718.66	141.49	13.147	
13,500.00	6,929.51	6,000.00	5,999.35	108.02	119.45	-18.78	738.77	-4,759.12	1,947.08	1,804.65	142.43	13.670	
13,600.00	6,929.41	6,000.00	5,999.35	109.57	119.45	-18.78	738.77	-4,759.12	2,035.20	1,891.96	143.24	14.208	
13,700.00	6,929.32	6,000.00	5,999.35	111.12	119.45	-18.78	738.77	-4,759.12	2,124.38	1,980.43	143.95	14.758	
13,800.00	6,929.22	6,000.00	5,999.35	112.68	119.45	-18.78	738.77	-4,759.12	2,214.48	2,069.91	144.57	15.317	
13,900.00	6,929.12	6,000.00	5,999.35	114.23	119.45	-18.78	738.77	-4,759.12	2,305.40	2,160.28	145.12	15.886	
14,000.00	6,929.03	6,000.00	5,999.35	115.79	119.45	-18.78	738.77	-4,759.12	2,397.04	2,251.43	145.60	16.463	
14,100.00	6,928.93	6,000.00	5,999.35	117.35	119.45	-18.78	738.77	-4,759.12	2,489.32	2,343.28	146.04	17.046	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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
14,200.00	6,928.83	6,000.00	5,999.35	118.91	119.45	-18.78	738.77	-4,759.12	2,582.18	2,435.76	146.42	17.635	
14,300.00	6,928.74	6,000.00	5,999.35	120.47	119.45	-18.78	738.77	-4,759.12	2,675.55	2,528.78	146.77	18.229	
14,400.00	6,928.64	6,000.00	5,999.35	122.03	119.45	-18.78	738.77	-4,759.12	2,769.39	2,622.30	147.09	18.828	
14,500.00	6,928.54	6,000.00	5,999.35	123.60	119.45	-18.78	738.77	-4,759.12	2,863.64	2,716.27	147.37	19.431	
14,600.00	6,928.45	6,000.00	5,999.35	125.16	119.45	-18.78	738.77	-4,759.12	2,958.27	2,810.64	147.64	20.037	
14,700.00	6,928.35	6,000.00	5,999.35	126.72	119.45	-18.78	738.77	-4,759.12	3,053.25	2,905.37	147.88	20.647	
14,800.00	6,928.25	6,000.00	5,999.35	128.29	119.45	-18.78	738.77	-4,759.12	3,148.53	3,000.43	148.10	21.259	
14,900.00	6,928.16	6,000.00	5,999.35	129.86	119.45	-18.78	738.77	-4,759.12	3,244.10	3,095.79	148.31	21.874	
15,000.00	6,928.06	6,000.00	5,999.35	131.42	119.45	-18.78	738.77	-4,759.12	3,339.93	3,191.42	148.50	22.491	
15,100.00	6,927.96	6,000.00	5,999.35	132.99	119.45	-18.78	738.77	-4,759.12	3,435.99	3,287.31	148.68	23.109	
15,200.00	6,927.87	6,000.00	5,999.35	134.56	119.45	-18.78	738.77	-4,759.12	3,532.28	3,383.42	148.85	23.730	
15,300.00	6,927.77	6,000.00	5,999.35	136.13	119.45	-18.78	738.77	-4,759.12	3,628.76	3,479.74	149.02	24.351	
15,400.00	6,927.67	6,000.00	5,999.35	137.70	119.45	-18.78	738.77	-4,759.12	3,725.43	3,576.26	149.17	24.975	
15,500.00	6,927.57	6,000.00	5,999.35	139.28	119.45	-18.78	738.77	-4,759.12	3,822.27	3,672.96	149.31	25.599	
15,600.00	6,927.48	6,000.00	5,999.35	140.85	119.45	-18.78	738.77	-4,759.12	3,919.27	3,769.82	149.45	26.224	
15,700.00	6,927.38	6,000.00	5,999.35	142.42	119.45	-18.78	738.77	-4,759.12	4,016.42	3,866.83	149.59	26.850	
15,800.00	6,927.28	6,000.00	5,999.35	144.00	119.45	-18.78	738.77	-4,759.12	4,113.70	3,963.99	149.71	27.477	
15,900.00	6,927.19	6,000.00	5,999.35	145.57	119.45	-18.78	738.77	-4,759.12	4,211.12	4,061.28	149.84	28.105	
16,000.00	6,927.09	6,000.00	5,999.35	147.15	119.45	-18.78	738.77	-4,759.12	4,308.65	4,158.69	149.96	28.733	
16,100.00	6,926.99	6,000.00	5,999.35	148.72	119.45	-18.78	738.77	-4,759.12	4,406.29	4,256.21	150.07	29.361	
16,200.00	6,926.90	6,000.00	5,999.35	150.30	119.45	-18.78	738.77	-4,759.12	4,504.03	4,353.85	150.19	29.990	
16,300.00	6,926.80	6,000.00	5,999.35	151.87	119.45	-18.78	738.77	-4,759.12	4,601.87	4,451.58	150.29	30.619	
16,400.00	6,926.70	6,000.00	5,999.35	153.45	119.45	-18.78	738.77	-4,759.12	4,699.80	4,549.40	150.40	31.248	
16,500.00	6,926.61	6,000.00	5,999.35	155.03	119.45	-18.78	738.77	-4,759.12	4,797.82	4,647.31	150.51	31.878	
16,600.00	6,926.51	6,000.00	5,999.35	156.61	119.45	-18.78	738.77	-4,759.12	4,895.92	4,745.31	150.61	32.507	
16,700.00	6,926.41	6,000.00	5,999.35	158.19	119.45	-18.78	738.77	-4,759.12	4,994.09	4,843.38	150.71	33.137	
16,800.00	6,926.32	6,000.00	5,999.35	159.77	119.45	-18.78	738.77	-4,759.12	5,092.34	4,941.53	150.81	33.766	
16,900.00	6,926.22	6,000.00	5,999.35	161.35	119.45	-18.78	738.77	-4,759.12	5,190.65	5,039.74	150.91	34.396	
17,000.00	6,926.12	6,000.00	5,999.35	162.93	119.45	-18.78	738.77	-4,759.12	5,289.02	5,138.02	151.01	35.025	
17,100.00	6,926.03	6,000.00	5,999.35	164.51	119.45	-18.78	738.77	-4,759.12	5,387.46	5,236.35	151.10	35.654	
17,200.00	6,925.93	6,000.00	5,999.35	166.09	119.45	-18.78	738.77	-4,759.12	5,485.95	5,334.75	151.20	36.283	
17,300.00	6,925.83	6,000.00	5,999.35	167.67	119.45	-18.78	738.77	-4,759.12	5,584.49	5,433.20	151.29	36.912	
17,400.00	6,925.74	6,000.00	5,999.35	169.26	119.45	-18.78	738.77	-4,759.12	5,683.09	5,531.70	151.39	37.540	
17,500.00	6,925.64	6,000.00	5,999.35	170.84	119.45	-18.78	738.77	-4,759.12	5,781.73	5,630.25	151.48	38.169	
17,600.00	6,925.54	6,000.00	5,999.35	172.42	119.45	-18.78	738.77	-4,759.12	5,880.42	5,728.85	151.57	38.796	
17,700.00	6,925.45	6,000.00	5,999.35	174.00	119.45	-18.78	738.77	-4,759.12	5,979.15	5,827.49	151.66	39.424	
17,800.00	6,925.35	6,000.00	5,999.35	175.59	119.45	-18.78	738.77	-4,759.12	6,077.93	5,926.17	151.75	40.051	
17,900.00	6,925.25	6,000.00	5,999.35	177.17	119.45	-18.78	738.77	-4,759.12	6,176.74	6,024.90	151.85	40.678	
18,000.00	6,925.16	6,000.00	5,999.35	178.76	119.45	-18.78	738.77	-4,759.12	6,275.59	6,123.66	151.94	41.304	
18,100.00	6,925.06	6,000.00	5,999.35	180.34	119.45	-18.78	738.77	-4,759.12	6,374.48	6,222.45	152.03	41.930	
18,160.21	6,925.00	6,000.00	5,999.35	181.30	119.45	-18.78	738.77	-4,759.12	6,434.04	6,281.96	152.08	42.306	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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
0.00	0.00	96.00	96.00	0.00	2.04	-79.45	1,231.34	-6,611.60	6,725.28				
100.00	100.00	196.00	196.00	0.25	4.17	-79.45	1,231.34	-6,611.60	6,725.28	6,720.86	4.42	1,520.672	
200.00	200.00	296.00	296.00	0.61	6.30	-79.45	1,231.34	-6,611.60	6,725.28	6,718.37	6.91	973.362	
300.00	300.00	396.00	396.00	0.97	8.43	-79.45	1,231.34	-6,611.60	6,725.28	6,715.88	9.40	715.753	
400.00	400.00	496.00	496.00	1.33	10.56	-79.45	1,231.34	-6,611.60	6,725.28	6,713.40	11.88	565.966	
500.00	500.00	596.03	596.00	1.68	12.69	-79.45	1,231.34	-6,611.60	6,725.28	6,710.91	14.37	468.002	
600.00	599.98	696.01	695.98	2.04	14.81	-91.46	1,231.34	-6,611.60	6,725.32	6,708.47	16.86	398.992	
700.00	699.84	797.62	797.59	2.41	16.98	-91.50	1,232.35	-6,611.60	6,725.65	6,706.27	19.38	347.110	
800.00	799.45	901.88	901.84	2.77	19.19	-91.58	1,232.01	-6,611.60	6,725.82	6,703.86	21.96	306.341	
900.00	898.70	1,005.67	1,005.62	3.13	21.40	-91.68	1,231.26	-6,611.60	6,726.04	6,701.51	24.53	274.194	
1,000.00	997.47	1,093.56	1,093.47	3.50	23.45	-91.79	1,231.34	-6,611.60	6,726.52	6,699.57	26.95	249.600	
1,100.00	1,095.62	1,191.72	1,191.62	3.89	25.71	-91.94	1,231.34	-6,611.60	6,727.16	6,697.55	29.60	227.253	
1,200.00	1,193.44	1,291.35	1,291.24	4.29	28.01	-92.11	1,232.39	-6,611.60	6,728.09	6,695.79	32.30	208.295	
1,300.00	1,291.25	1,393.17	1,393.06	4.70	30.36	-92.29	1,232.05	-6,611.60	6,728.85	6,693.79	35.06	191.938	
1,400.00	1,389.07	1,494.85	1,494.73	5.11	32.71	-92.48	1,231.35	-6,611.60	6,729.61	6,691.80	37.82	177.956	
1,500.00	1,486.88	1,583.10	1,582.88	5.53	34.91	-92.63	1,231.34	-6,611.60	6,730.55	6,690.11	40.44	166.434	
1,600.00	1,584.70	1,680.92	1,680.70	5.95	37.36	-92.80	1,231.34	-6,611.60	6,731.56	6,688.25	43.31	155.433	
1,700.00	1,682.51	1,780.65	1,780.40	6.37	39.86	-92.97	1,232.95	-6,611.60	6,732.88	6,686.65	46.23	145.646	
1,800.00	1,780.33	1,884.03	1,883.78	6.80	42.45	-93.15	1,232.48	-6,611.60	6,733.94	6,684.70	49.24	136.756	
1,900.00	1,878.14	1,987.20	1,986.93	7.22	45.03	-93.35	1,231.45	-6,611.60	6,734.99	6,682.74	52.25	128.900	
2,000.00	1,975.96	2,072.35	2,071.96	7.65	47.24	-93.50	1,231.34	-6,611.60	6,736.23	6,681.33	54.89	122.713	
2,100.00	2,073.77	2,170.16	2,169.77	8.08	49.80	-93.67	1,231.34	-6,611.60	6,737.56	6,679.68	57.88	116.405	
2,200.00	2,171.59	2,269.46	2,269.04	8.51	52.40	-93.83	1,232.92	-6,611.60	6,739.17	6,678.26	60.91	110.648	
2,300.00	2,269.40	2,372.39	2,371.96	8.95	55.09	-94.02	1,232.47	-6,611.60	6,740.56	6,676.53	64.03	105.275	
2,400.00	2,367.22	2,475.10	2,474.65	9.38	57.77	-94.21	1,231.47	-6,611.60	6,741.95	6,674.80	67.14	100.409	
2,500.00	2,465.03	2,561.62	2,561.03	9.81	59.88	-94.36	1,231.34	-6,611.60	6,743.51	6,673.82	69.69	96.766	
2,600.00	2,562.84	2,659.43	2,658.84	10.25	62.25	-94.53	1,231.34	-6,611.60	6,745.15	6,672.67	72.49	93.054	
2,700.00	2,660.66	2,758.04	2,757.42	10.68	64.63	-94.69	1,233.30	-6,611.60	6,747.11	6,671.81	75.30	89.598	
2,800.00	2,758.47	2,860.92	2,860.28	11.12	67.12	-94.87	1,232.89	-6,611.60	6,748.83	6,670.60	78.23	86.274	
2,900.00	2,856.29	2,963.56	2,962.91	11.55	69.60	-95.06	1,231.86	-6,611.60	6,750.55	6,669.40	81.14	83.195	
3,000.00	2,954.10	3,050.84	3,050.10	11.99	71.55	-95.22	1,231.34	-6,611.60	6,752.38	6,668.85	83.53	80.836	
3,100.00	3,051.92	3,148.66	3,147.92	12.42	73.62	-95.39	1,231.34	-6,611.60	6,754.34	6,668.31	86.04	78.506	
3,200.00	3,149.73	3,246.47	3,245.73	12.86	75.69	-95.56	1,231.34	-6,611.60	6,756.37	6,667.83	88.54	76.309	
3,300.00	3,247.55	3,344.29	3,343.55	13.30	77.76	-95.73	1,231.34	-6,611.60	6,758.46	6,667.42	91.04	74.233	
3,400.00	3,345.36	3,443.40	3,442.64	13.73	79.86	-95.90	1,232.87	-6,611.60	6,760.78	6,667.20	93.58	72.249	
3,500.00	3,443.18	3,542.81	3,542.05	14.17	81.96	-96.07	1,232.57	-6,611.60	6,762.96	6,666.85	96.11	70.364	
3,600.00	3,540.99	3,642.13	3,641.36	14.61	84.06	-96.25	1,232.04	-6,611.60	6,765.19	6,666.54	98.65	68.578	
3,700.00	3,638.81	3,735.66	3,734.81	15.05	86.05	-96.42	1,231.34	-6,611.60	6,767.46	6,666.39	101.07	66.955	
3,800.00	3,736.62	3,833.47	3,832.62	15.48	88.51	-96.59	1,231.34	-6,611.60	6,769.87	6,665.89	103.97	65.111	
3,900.00	3,834.44	3,931.29	3,930.44	15.92	90.98	-96.76	1,231.34	-6,611.60	6,772.34	6,665.46	106.87	63.367	
4,000.00	3,932.25	4,029.10	4,028.25	16.36	93.44	-96.93	1,231.34	-6,611.60	6,774.87	6,665.10	109.77	61.716	
4,100.00	4,030.07	4,126.92	4,126.07	16.80	95.90	-97.10	1,231.34	-6,611.60	6,777.47	6,664.79	112.67	60.151	
4,200.00	4,127.88	4,224.73	4,223.88	17.24	98.37	-97.27	1,231.34	-6,611.60	6,780.13	6,664.55	115.57	58.665	
4,300.00	4,225.70	4,322.55	4,321.70	17.68	100.83	-97.44	1,231.34	-6,611.60	6,782.85	6,664.37	118.47	57.252	
4,400.00	4,323.51	4,420.36	4,419.51	18.11	103.30	-97.61	1,231.34	-6,611.60	6,785.63	6,664.26	121.37	55.907	
4,500.00	4,421.33	4,518.18	4,517.33	18.55	105.76	-97.79	1,231.34	-6,611.60	6,788.48	6,664.21	124.27	54.625	
4,600.00	4,519.14	4,615.99	4,615.14	18.99	108.22	-97.96	1,231.34	-6,611.60	6,791.39	6,664.21	127.17	53.402	
4,700.00	4,616.95	4,713.81	4,712.95	19.43	110.69	-98.13	1,231.34	-6,611.60	6,794.36	6,664.29	130.07	52.234	
4,800.00	4,714.77	4,811.87	4,810.98	19.87	113.16	-98.26	1,235.74	-6,611.59	6,797.67	6,664.68	132.98	51.118	
4,900.00	4,812.58	4,910.03	4,909.13	20.31	115.63	-98.43	1,235.64	-6,611.59	6,800.74	6,664.85	135.89	50.046	
5,000.00	4,910.40	5,008.15	5,007.25	20.75	118.10	-98.60	1,235.46	-6,611.59	6,803.88	6,665.08	138.80	49.020	
5,100.00	5,008.21	5,106.24	5,105.34	21.19	120.57	-98.77	1,235.19	-6,611.59	6,807.07	6,665.37	141.70	48.037	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 520-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,200.00	5,106.03	5,204.30	5,203.39	21.63	123.04	-98.95	1,234.84	-6,611.59	6,810.32	6,665.72	144.61	47.095	
5,300.00	5,203.84	5,302.33	5,301.41	22.06	125.51	-99.12	1,234.41	-6,611.59	6,813.64	6,666.12	147.51	46.190	
5,400.00	5,301.66	5,400.32	5,399.40	22.50	127.98	-99.29	1,233.90	-6,611.60	6,817.01	6,666.60	150.42	45.321	
5,500.00	5,399.47	5,498.28	5,497.35	22.94	130.45	-99.47	1,233.31	-6,611.60	6,820.45	6,667.13	153.32	44.485	
5,600.00	5,497.29	5,596.20	5,595.27	23.38	132.92	-99.64	1,232.63	-6,611.60	6,823.95	6,667.72	156.22	43.681	
5,700.00	5,595.10	5,694.10	5,693.15	23.82	135.38	-99.82	1,231.87	-6,611.60	6,827.51	6,668.38	159.12	42.907	
5,800.00	5,692.92	5,790.49	5,788.92	24.26	137.96	-99.98	1,231.34	-6,611.60	6,831.14	6,669.01	162.13	42.133	
5,900.00	5,790.73	5,888.30	5,886.73	24.70	140.84	-100.15	1,231.34	-6,611.60	6,834.85	6,669.40	165.46	41.309	
6,000.00	5,888.55	5,986.12	5,984.55	25.14	143.73	-100.32	1,231.34	-6,611.60	6,838.63	6,669.85	168.78	40.518	
6,100.00	5,986.36	6,083.93	6,082.36	25.58	146.62	-100.49	1,231.34	-6,611.60	6,842.46	6,670.36	172.10	39.758	
6,200.00	6,084.18	6,181.75	6,180.18	26.02	149.51	-100.66	1,231.34	-6,611.60	6,846.36	6,670.93	175.43	39.027	
6,300.00	6,181.99	6,279.56	6,277.99	26.46	152.40	-100.82	1,231.34	-6,611.60	6,850.32	6,671.57	178.75	38.323	
6,401.22	6,281.00	6,378.57	6,377.00	26.90	155.33	-100.99	1,231.34	-6,611.60	6,854.39	6,672.27	182.12	37.637	
6,450.00	6,328.76	6,426.33	6,424.76	27.12	156.74	-80.10	1,231.34	-6,611.60	6,854.50	6,670.77	183.74	37.306	
6,500.00	6,377.61	6,475.18	6,473.61	27.32	158.18	-60.53	1,231.34	-6,611.60	6,850.77	6,665.37	185.39	36.953	
6,550.00	6,426.06	6,523.63	6,522.06	27.52	159.61	-46.01	1,231.34	-6,611.60	6,843.15	6,656.12	187.03	36.589	
6,600.00	6,473.81	6,571.38	6,569.81	27.71	161.02	-36.06	1,231.34	-6,611.60	6,831.69	6,643.06	188.64	36.216	
6,650.00	6,520.56	6,618.13	6,616.56	27.89	162.40	-29.24	1,231.34	-6,611.60	6,816.47	6,626.27	190.20	35.838	
6,700.00	6,566.03	6,663.60	6,662.03	28.05	163.75	-24.42	1,231.34	-6,611.60	6,797.58	6,605.85	191.73	35.455	
6,750.00	6,609.93	6,707.50	6,705.93	28.20	165.04	-20.89	1,231.34	-6,611.60	6,775.12	6,581.93	193.19	35.070	
6,800.00	6,652.00	6,749.57	6,748.00	28.34	166.29	-18.21	1,231.34	-6,611.60	6,749.24	6,554.66	194.59	34.685	
6,850.00	6,691.98	6,789.55	6,787.98	28.47	167.47	-16.12	1,231.34	-6,611.60	6,720.10	6,524.19	195.91	34.302	
6,900.00	6,729.61	6,827.18	6,825.61	28.59	168.58	-14.43	1,231.34	-6,611.60	6,687.87	6,490.72	197.15	33.922	
6,950.00	6,764.67	6,862.24	6,860.67	28.69	169.61	-13.03	1,231.34	-6,611.60	6,652.76	6,454.45	198.31	33.548	
7,000.00	6,796.95	6,894.52	6,892.95	28.79	170.57	-11.83	1,231.34	-6,611.60	6,614.96	6,415.60	199.36	33.181	
7,050.00	6,826.23	6,923.80	6,922.23	28.89	171.43	-10.75	1,231.34	-6,611.60	6,574.73	6,374.41	200.32	32.822	
7,100.00	6,852.35	6,949.92	6,948.35	28.98	172.20	-9.72	1,231.34	-6,611.60	6,532.29	6,331.13	201.16	32.473	
7,150.00	6,875.14	6,972.71	6,971.14	29.08	172.88	-8.66	1,231.34	-6,611.60	6,487.92	6,286.03	201.90	32.135	
7,200.00	6,894.45	6,992.03	6,990.45	29.18	173.45	-7.44	1,231.34	-6,611.60	6,441.89	6,239.37	202.51	31.810	
7,250.00	6,910.18	7,007.75	7,006.18	29.28	173.91	-5.85	1,231.34	-6,611.60	6,394.47	6,191.46	203.01	31.498	
7,300.00	6,922.23	7,019.80	7,018.23	29.40	174.27	-3.31	1,231.34	-6,611.60	6,345.97	6,142.58	203.39	31.201	
7,350.00	6,930.51	7,028.08	7,026.51	29.54	174.51	2.03	1,231.34	-6,611.60	6,296.67	6,093.03	203.65	30.920	
7,400.00	6,934.98	7,032.55	7,030.98	29.70	174.65	21.99	1,231.34	-6,611.60	6,246.89	6,043.11	203.78	30.655	
7,433.91	6,935.83	7,033.40	7,031.83	29.81	174.67	91.90	1,231.34	-6,611.60	6,213.01	6,009.21	203.80	30.486	
7,500.00	6,935.76	7,033.33	7,031.76	30.07	174.67	91.88	1,231.34	-6,611.60	6,146.95	5,943.16	203.79	30.164	
7,600.00	6,935.66	7,033.23	7,031.66	30.52	174.67	91.85	1,231.34	-6,611.60	6,047.00	5,843.24	203.76	29.677	
7,700.00	6,935.55	7,033.12	7,031.55	31.06	174.66	91.82	1,231.34	-6,611.60	5,947.05	5,743.31	203.74	29.189	
7,800.00	6,935.45	7,033.02	7,031.45	31.68	174.66	91.79	1,231.34	-6,611.60	5,847.11	5,643.39	203.72	28.702	
7,900.00	6,935.34	7,032.91	7,031.34	32.37	174.66	91.76	1,231.34	-6,611.60	5,747.17	5,543.47	203.70	28.214	
8,000.00	6,935.24	7,032.81	7,031.24	33.12	174.65	91.73	1,231.34	-6,611.60	5,647.23	5,443.55	203.67	27.727	
8,100.00	6,935.13	7,032.70	7,031.13	33.93	174.65	91.70	1,231.34	-6,611.60	5,547.29	5,343.63	203.65	27.239	
8,200.00	6,935.03	7,032.60	7,031.03	34.80	174.65	91.67	1,231.34	-6,611.60	5,447.35	5,243.72	203.63	26.751	
8,300.00	6,934.92	7,032.49	7,030.92	35.71	174.64	91.64	1,231.34	-6,611.60	5,347.42	5,143.81	203.61	26.263	
8,400.00	6,934.82	7,032.39	7,030.82	36.67	174.64	91.61	1,231.34	-6,611.60	5,247.48	5,043.90	203.58	25.775	
8,500.00	6,934.71	7,032.28	7,030.71	37.68	174.64	91.57	1,231.34	-6,611.60	5,147.56	4,943.99	203.56	25.287	
8,600.00	6,934.61	7,032.18	7,030.61	38.72	174.63	91.54	1,231.34	-6,611.60	5,047.63	4,844.09	203.54	24.799	
8,700.00	6,934.50	7,032.07	7,030.50	39.80	174.63	91.51	1,231.34	-6,611.60	4,947.71	4,744.19	203.51	24.311	
8,800.00	6,934.40	7,031.97	7,030.40	40.92	174.63	91.48	1,231.34	-6,611.60	4,847.79	4,644.30	203.49	23.823	
8,900.00	6,934.29	7,031.86	7,030.29	42.06	174.63	91.45	1,231.34	-6,611.60	4,747.87	4,544.40	203.47	23.335	
9,000.00	6,934.19	7,031.76	7,030.19	43.23	174.62	91.42	1,231.34	-6,611.60	4,647.96	4,444.52	203.44	22.847	
9,100.00	6,934.08	7,031.66	7,030.08	44.43	174.62	91.39	1,231.34	-6,611.60	4,548.05	4,344.63	203.42	22.358	
9,200.00	6,933.98	7,031.55	7,029.98	45.66	174.62	91.36	1,231.34	-6,611.60	4,448.14	4,244.75	203.39	21.870	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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
9,300.00	6,933.88	7,031.45	7,029.88	46.90	174.61	91.33	1,231.34	-6,611.60	4,348.24	4,144.88	203.36	21.381	
9,400.00	6,933.77	7,031.34	7,029.77	48.17	174.61	91.30	1,231.34	-6,611.60	4,248.35	4,045.01	203.34	20.893	
9,500.00	6,933.67	7,031.24	7,029.67	49.46	174.61	91.27	1,231.34	-6,611.60	4,148.46	3,945.15	203.31	20.405	
9,600.00	6,933.56	7,031.13	7,029.56	50.76	174.60	91.24	1,231.34	-6,611.60	4,048.57	3,845.29	203.28	19.916	
9,700.00	6,933.46	7,031.03	7,029.46	52.08	174.60	91.21	1,231.34	-6,611.60	3,948.69	3,745.44	203.25	19.428	
9,800.00	6,933.35	7,030.92	7,029.35	53.41	174.60	91.18	1,231.34	-6,611.60	3,848.82	3,645.60	203.22	18.939	
9,900.00	6,933.25	7,030.82	7,029.25	54.76	174.59	91.15	1,231.34	-6,611.60	3,748.95	3,545.76	203.19	18.451	
10,000.00	6,933.14	7,030.71	7,029.14	56.12	174.59	91.12	1,231.34	-6,611.60	3,649.09	3,445.94	203.15	17.962	
10,100.00	6,933.04	7,030.61	7,029.04	57.50	174.59	91.09	1,231.34	-6,611.60	3,549.24	3,346.12	203.12	17.474	
10,200.00	6,932.93	7,030.50	7,028.93	58.88	174.59	91.05	1,231.34	-6,611.60	3,449.40	3,246.32	203.08	16.985	
10,300.00	6,932.83	7,030.40	7,028.83	60.28	174.58	91.02	1,231.34	-6,611.60	3,349.56	3,146.52	203.04	16.497	
10,400.00	6,932.72	7,030.29	7,028.72	61.69	174.58	90.99	1,231.34	-6,611.60	3,249.74	3,046.74	203.00	16.008	
10,500.00	6,932.62	7,030.19	7,028.62	63.10	174.58	90.96	1,231.34	-6,611.60	3,149.93	2,946.97	202.96	15.520	
10,600.00	6,932.51	7,030.08	7,028.51	64.52	174.57	90.93	1,231.34	-6,611.60	3,050.13	2,847.21	202.91	15.032	
10,700.00	6,932.41	7,029.98	7,028.41	65.96	174.57	90.90	1,231.34	-6,611.60	2,950.34	2,747.47	202.87	14.543	
10,800.00	6,932.30	7,029.88	7,028.30	67.39	174.57	90.87	1,231.34	-6,611.60	2,850.57	2,647.75	202.82	14.055	
10,900.00	6,932.20	7,029.77	7,028.20	68.84	174.56	90.84	1,231.34	-6,611.60	2,750.81	2,548.05	202.77	13.566	
11,000.00	6,932.10	7,029.67	7,028.10	70.29	174.56	90.81	1,231.34	-6,611.60	2,651.08	2,448.36	202.71	13.078	
11,100.00	6,931.99	7,029.56	7,027.99	71.75	174.56	90.78	1,231.34	-6,611.60	2,551.36	2,348.71	202.66	12.590	
11,200.00	6,931.89	7,029.46	7,027.89	73.22	174.55	90.75	1,231.34	-6,611.60	2,451.67	2,249.07	202.60	12.101	
11,300.00	6,931.78	7,029.35	7,027.78	74.69	174.55	90.72	1,231.34	-6,611.60	2,352.00	2,149.47	202.54	11.613	
11,400.00	6,931.68	7,029.25	7,027.68	76.16	174.55	90.69	1,231.34	-6,611.60	2,252.37	2,049.90	202.47	11.124	
11,500.00	6,931.57	7,029.14	7,027.57	77.64	174.55	90.66	1,231.34	-6,611.60	2,152.76	1,950.36	202.40	10.636	
11,600.00	6,931.47	7,029.04	7,027.47	79.13	174.54	90.63	1,231.34	-6,611.60	2,053.20	1,850.86	202.34	10.147	
11,700.00	6,931.36	7,028.93	7,027.36	80.62	174.54	90.60	1,231.34	-6,611.60	1,953.68	1,751.41	202.27	9.659	
11,800.00	6,931.26	7,028.83	7,027.26	82.11	174.54	90.56	1,231.34	-6,611.60	1,854.21	1,652.01	202.20	9.170	
11,900.00	6,931.15	7,028.72	7,027.15	83.61	174.53	90.53	1,231.34	-6,611.60	1,754.80	1,552.67	202.13	8.681	
12,000.00	6,931.05	7,028.62	7,027.05	85.11	174.53	90.50	1,231.34	-6,611.60	1,655.46	1,453.39	202.08	8.192	
12,100.00	6,930.94	7,028.51	7,026.94	86.62	174.53	90.47	1,231.34	-6,611.60	1,556.21	1,354.18	202.03	7.703	
12,200.00	6,930.84	7,028.41	7,026.84	88.13	174.52	90.44	1,231.34	-6,611.60	1,457.06	1,255.07	202.00	7.213	
12,300.00	6,930.73	7,028.30	7,026.73	89.64	174.52	90.41	1,231.34	-6,611.60	1,358.04	1,156.04	202.00	6.723	
12,400.00	6,930.63	7,028.20	7,026.63	91.15	174.52	90.38	1,231.34	-6,611.60	1,259.17	1,057.13	202.04	6.232	
12,500.00	6,930.52	7,028.09	7,026.52	92.67	174.51	90.35	1,231.34	-6,611.60	1,160.49	958.34	202.15	5.741	
12,600.00	6,930.42	7,027.99	7,026.42	94.19	174.51	90.32	1,231.34	-6,611.60	1,062.06	859.69	202.37	5.248	
12,700.00	6,930.31	7,027.89	7,026.31	95.71	174.51	90.29	1,231.34	-6,611.60	963.95	761.19	202.76	4.754	
12,800.00	6,930.21	7,027.78	7,026.21	97.24	174.50	90.26	1,231.34	-6,611.60	866.28	662.85	203.43	4.258	
12,900.00	6,930.11	7,027.68	7,026.11	98.77	174.50	90.23	1,231.34	-6,611.60	769.20	564.69	204.52	3.761	
13,008.91	6,929.99	7,027.56	7,025.99	100.43	174.50	90.19	1,231.34	-6,611.60	664.47	457.96	206.51	3.218	
13,100.00	6,929.90	7,027.47	7,025.90	101.83	174.50	90.18	1,231.34	-6,611.60	577.58	368.49	209.09	2.762	
13,139.82	6,929.86	7,027.43	7,025.86	102.44	174.49	90.17	1,231.34	-6,611.60	539.72	329.20	210.52	2.564	
13,200.00	6,929.80	7,027.37	7,025.80	103.37	174.49	90.15	1,231.34	-6,611.60	482.97	269.71	213.26	2.265	
13,300.00	6,929.70	7,027.27	7,025.70	104.92	174.49	90.12	1,231.34	-6,611.60	390.93	170.77	220.15	1.776	
13,400.00	6,929.61	7,027.18	7,025.61	106.47	174.49	90.08	1,231.34	-6,611.60	303.96	72.06	231.90	1.311	Level 3
13,500.00	6,929.51	7,027.08	7,025.51	108.02	174.48	90.05	1,231.34	-6,611.60	227.95	-23.57	251.52	0.906	Level 3
13,600.00	6,929.41	7,026.98	7,025.41	109.57	174.48	90.02	1,231.34	-6,611.60	177.56	-99.26	276.83	0.641	Level 3
13,652.17	6,929.36	7,026.93	7,025.36	110.38	174.48	90.00	1,231.34	-6,611.60	169.73	-114.81	284.53	0.597	Level 3, CC, ES, SF
13,700.00	6,929.32	7,026.89	7,025.32	111.12	174.48	89.98	1,231.34	-6,611.60	176.34	-107.28	283.62	0.622	Level 3
13,800.00	6,929.22	7,026.79	7,025.22	112.68	174.48	89.95	1,231.34	-6,611.60	225.09	-41.42	266.50	0.845	Level 3
13,900.00	6,929.12	7,026.69	7,025.12	114.23	174.47	89.92	1,231.34	-6,611.60	300.39	51.00	249.39	1.205	Level 3
14,000.00	6,929.03	7,026.60	7,025.03	115.79	174.47	89.89	1,231.34	-6,611.60	387.04	149.15	237.89	1.627	
14,100.00	6,928.93	7,026.50	7,024.93	117.35	174.47	89.85	1,231.34	-6,611.60	478.92	248.51	230.41	2.079	
14,200.00	6,928.83	7,026.40	7,024.83	118.91	174.46	89.82	1,231.34	-6,611.60	573.53	348.16	225.37	2.545	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,300.00	6,928.74	7,026.31	7,024.74	120.47	174.46	89.79	1,231.34	-6,611.60	669.70	447.87	221.83	3.019	
14,400.00	6,928.64	7,026.21	7,024.64	122.03	174.46	89.76	1,231.34	-6,611.60	766.86	547.60	219.26	3.497	
14,500.00	6,928.54	7,026.11	7,024.54	123.60	174.46	89.72	1,231.34	-6,611.60	864.66	647.33	217.33	3.979	
14,600.00	6,928.45	7,026.02	7,024.45	125.16	174.45	89.69	1,231.34	-6,611.60	962.91	747.08	215.84	4.461	
14,700.00	6,928.35	7,025.92	7,024.35	126.72	174.45	89.66	1,231.34	-6,611.60	1,061.50	846.83	214.67	4.945	
14,800.00	6,928.25	7,025.82	7,024.25	128.29	174.45	89.62	1,231.34	-6,611.60	1,160.32	946.59	213.73	5.429	
14,900.00	6,928.16	7,025.73	7,024.16	129.86	174.44	89.59	1,231.34	-6,611.60	1,259.33	1,046.36	212.97	5.913	
15,000.00	6,928.06	7,025.63	7,024.06	131.42	174.44	89.56	1,231.34	-6,611.60	1,358.48	1,146.14	212.34	6.398	
15,100.00	6,927.96	7,025.53	7,023.96	132.99	174.44	89.53	1,231.34	-6,611.60	1,457.75	1,245.93	211.82	6.882	
15,200.00	6,927.87	7,025.44	7,023.87	134.56	174.44	89.49	1,231.34	-6,611.60	1,557.12	1,345.73	211.39	7.366	
15,300.00	6,927.77	7,025.34	7,023.77	136.13	174.43	89.46	1,231.34	-6,611.60	1,656.56	1,445.54	211.02	7.850	
15,400.00	6,927.67	7,025.24	7,023.67	137.70	174.43	89.43	1,231.34	-6,611.60	1,756.06	1,545.35	210.71	8.334	
15,500.00	6,927.57	7,025.15	7,023.57	139.28	174.43	89.40	1,231.34	-6,611.60	1,855.62	1,645.18	210.44	8.818	
15,600.00	6,927.48	7,025.05	7,023.48	140.85	174.42	89.36	1,231.34	-6,611.60	1,955.22	1,745.01	210.21	9.301	
15,700.00	6,927.38	7,024.95	7,023.38	142.42	174.42	89.33	1,231.34	-6,611.60	2,054.86	1,844.84	210.02	9.784	
15,800.00	6,927.28	7,024.86	7,023.28	144.00	174.42	89.30	1,231.34	-6,611.60	2,154.53	1,944.69	209.85	10.267	
15,900.00	6,927.19	7,024.76	7,023.19	145.57	174.42	89.27	1,231.34	-6,611.60	2,254.24	2,044.53	209.70	10.750	
16,000.00	6,927.09	7,024.66	7,023.09	147.15	174.41	89.23	1,231.34	-6,611.60	2,353.96	2,144.39	209.58	11.232	
16,100.00	6,926.99	7,024.56	7,022.99	148.72	174.41	89.20	1,231.34	-6,611.60	2,453.71	2,244.24	209.47	11.714	
16,200.00	6,926.90	7,024.47	7,022.90	150.30	174.41	89.17	1,231.34	-6,611.60	2,553.48	2,344.10	209.38	12.195	
16,300.00	6,926.80	7,024.37	7,022.80	151.87	174.40	89.13	1,231.34	-6,611.60	2,653.27	2,443.97	209.31	12.676	
16,400.00	6,926.70	7,024.27	7,022.70	153.45	174.40	89.10	1,231.34	-6,611.60	2,753.07	2,543.83	209.24	13.157	
16,500.00	6,926.61	7,024.18	7,022.61	155.03	174.40	89.07	1,231.34	-6,611.60	2,852.89	2,643.70	209.19	13.638	
16,600.00	6,926.51	7,024.08	7,022.51	156.61	174.40	89.04	1,231.34	-6,611.60	2,952.72	2,743.57	209.15	14.118	
16,700.00	6,926.41	7,023.98	7,022.41	158.19	174.39	89.00	1,231.34	-6,611.60	3,052.56	2,843.45	209.11	14.598	
16,800.00	6,926.32	7,023.89	7,022.32	159.77	174.39	88.97	1,231.34	-6,611.60	3,152.41	2,943.33	209.08	15.077	
16,900.00	6,926.22	7,023.79	7,022.22	161.35	174.39	88.94	1,231.34	-6,611.60	3,252.27	3,043.21	209.06	15.556	
17,000.00	6,926.12	7,023.69	7,022.12	162.93	174.38	88.91	1,231.34	-6,611.60	3,352.14	3,143.09	209.05	16.035	
17,100.00	6,926.03	7,023.60	7,022.03	164.51	174.38	88.87	1,231.34	-6,611.60	3,452.01	3,242.97	209.04	16.513	
17,200.00	6,925.93	7,023.50	7,021.93	166.09	174.38	88.84	1,231.34	-6,611.60	3,551.89	3,342.85	209.04	16.991	
17,300.00	6,925.83	7,023.40	7,021.83	167.67	174.38	88.81	1,231.34	-6,611.60	3,651.78	3,442.74	209.04	17.469	
17,400.00	6,925.74	7,023.31	7,021.74	169.26	174.37	88.78	1,231.34	-6,611.60	3,751.68	3,542.63	209.05	17.946	
17,500.00	6,925.64	7,023.21	7,021.64	170.84	174.37	88.74	1,231.34	-6,611.60	3,851.58	3,642.51	209.06	18.423	
17,600.00	6,925.54	7,023.11	7,021.54	172.42	174.37	88.71	1,231.34	-6,611.60	3,951.48	3,742.40	209.08	18.899	
17,700.00	6,925.45	7,023.02	7,021.45	174.00	174.36	88.68	1,231.34	-6,611.60	4,051.39	3,842.29	209.10	19.375	
17,800.00	6,925.35	7,022.92	7,021.35	175.59	174.36	88.65	1,231.34	-6,611.60	4,151.31	3,942.19	209.12	19.851	
17,900.00	6,925.25	7,022.82	7,021.25	177.17	174.36	88.61	1,231.34	-6,611.60	4,251.23	4,042.08	209.15	20.326	
18,000.00	6,925.16	7,022.73	7,021.16	178.76	174.36	88.58	1,231.34	-6,611.60	4,351.15	4,141.97	209.18	20.801	
18,100.00	6,925.06	7,022.63	7,021.06	180.34	174.35	88.55	1,231.34	-6,611.60	4,451.07	4,241.86	209.21	21.276	
18,160.21	6,925.00	7,022.57	7,021.00	181.30	174.35	88.53	1,231.34	-6,611.60	4,511.24	4,302.01	209.23	21.561	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 327-APC_ISCWSA REV 2 MWD

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Rule Assigned: Warning
0.00	0.00	0.00	0.00	0.00	0.00	-80.97	750.39	-4,722.36	4,781.67				
100.00	100.00	1,257.93	1,216.91	0.25	4.81	-78.71	909.42	-4,554.03	4,782.04	4,777.27	4.77	1,002.216	
200.00	200.00	1,456.81	1,397.64	0.61	6.33	-77.86	966.74	-4,494.04	4,756.41	4,750.12	6.29	756.262	
300.00	300.00	1,496.59	1,433.94	0.97	6.62	-77.69	977.74	-4,482.05	4,731.34	4,724.53	6.82	694.012	
400.00	400.00	1,610.96	1,538.40	1.33	7.50	-77.21	1,009.52	-4,448.02	4,706.93	4,699.05	7.89	596.830	
500.00	500.00	1,730.14	1,646.77	1.68	8.42	-76.70	1,042.98	-4,411.42	4,681.79	4,672.79	9.01	519.891	
600.00	599.98	1,780.58	1,692.76	2.04	8.80	-89.00	1,057.00	-4,396.19	4,657.30	4,647.62	9.68	480.892	
700.00	699.84	1,935.13	1,833.75	2.41	9.99	-88.93	1,099.94	-4,349.66	4,633.34	4,622.29	11.05	419.261	
800.00	799.45	2,013.00	1,904.36	2.77	10.61	-89.18	1,122.01	-4,325.37	4,608.27	4,596.33	11.94	385.814	
900.00	898.70	2,092.00	1,975.94	3.13	11.24	-89.45	1,144.88	-4,300.97	4,583.67	4,570.81	12.86	356.444	
1,000.00	997.47	2,168.80	2,045.90	3.50	11.83	-89.76	1,166.47	-4,277.80	4,559.64	4,545.89	13.75	331.646	
1,100.00	1,095.62	2,274.32	2,142.03	3.89	12.65	-90.04	1,195.93	-4,245.79	4,535.50	4,520.66	14.84	305.673	
1,200.00	1,193.44	2,454.00	2,305.71	4.29	14.04	-89.72	1,245.09	-4,190.34	4,511.04	4,494.63	16.41	274.939	
1,300.00	1,291.25	2,517.00	2,363.18	4.70	14.53	-89.61	1,261.65	-4,170.53	4,485.59	4,468.35	17.24	260.258	
1,400.00	1,389.07	2,581.00	2,421.54	5.11	15.02	-89.50	1,278.95	-4,150.78	4,460.88	4,442.79	18.08	246.676	
1,500.00	1,486.88	2,644.00	2,478.77	5.53	15.53	-89.38	1,296.86	-4,131.46	4,436.75	4,417.79	18.95	234.109	
1,600.00	1,584.70	2,675.00	2,507.02	5.95	15.77	-89.32	1,305.73	-4,122.30	4,413.80	4,394.20	19.60	225.149	
1,700.00	1,682.51	2,707.00	2,536.45	6.37	16.00	-89.26	1,314.64	-4,113.42	4,392.38	4,372.13	20.25	216.861	
1,800.00	1,780.33	2,738.00	2,565.17	6.80	16.22	-89.21	1,323.11	-4,105.41	4,372.54	4,351.65	20.89	209.276	
1,900.00	1,878.14	2,760.71	2,586.35	7.22	16.36	-89.17	1,329.18	-4,099.91	4,354.26	4,332.78	21.47	202.774	
2,000.00	1,975.96	2,800.00	2,623.28	7.65	16.62	-89.12	1,339.30	-4,091.11	4,337.56	4,315.41	22.15	195.843	
2,100.00	2,073.77	2,964.48	2,780.09	8.08	17.55	-89.01	1,374.36	-4,056.13	4,321.64	4,298.23	23.40	184.667	
2,200.00	2,171.59	2,999.15	2,813.28	8.51	17.74	-88.99	1,381.15	-4,048.72	4,304.77	4,280.75	24.02	179.247	
2,300.00	2,269.40	3,051.00	2,863.28	8.95	18.00	-88.98	1,390.36	-4,038.58	4,289.25	4,264.56	24.69	173.746	
2,400.00	2,367.22	3,126.89	2,936.70	9.38	18.37	-88.98	1,403.10	-4,024.19	4,274.25	4,248.80	25.45	167.975	
2,500.00	2,465.03	3,190.56	2,998.45	9.81	18.67	-88.99	1,413.55	-4,012.74	4,260.06	4,233.92	26.15	162.934	
2,600.00	2,562.84	3,253.61	3,059.95	10.25	18.94	-89.01	1,422.60	-4,002.22	4,246.69	4,219.87	26.82	158.359	
2,700.00	2,660.66	3,301.00	3,106.36	10.68	19.13	-89.04	1,428.83	-3,994.91	4,234.32	4,206.90	27.42	154.433	
2,800.00	2,758.47	3,353.60	3,158.00	11.12	19.33	-89.08	1,435.58	-3,987.51	4,223.15	4,195.12	28.03	150.675	
2,900.00	2,856.29	3,416.89	3,220.26	11.55	19.55	-89.13	1,443.42	-3,979.30	4,212.95	4,184.29	28.66	146.988	
3,000.00	2,954.10	3,469.40	3,272.14	11.99	19.72	-89.19	1,448.79	-3,973.26	4,203.71	4,174.48	29.24	143.784	
3,100.00	3,051.92	3,507.08	3,309.52	12.42	19.82	-89.24	1,451.93	-3,969.63	4,195.84	4,166.09	29.75	141.033	
3,200.00	3,149.73	3,550.00	3,352.18	12.86	19.93	-89.31	1,455.19	-3,966.26	4,189.45	4,159.18	30.26	138.428	
3,300.00	3,247.55	3,582.00	3,384.03	13.30	20.00	-89.37	1,457.52	-3,964.27	4,184.54	4,153.80	30.74	136.117	
3,400.00	3,345.36	3,630.03	3,431.92	13.73	20.09	-89.46	1,460.46	-3,962.00	4,181.02	4,149.78	31.24	133.852	
3,500.00	3,443.18	3,681.53	3,483.37	14.17	20.16	-89.58	1,461.80	-3,960.60	4,178.71	4,147.01	31.70	131.813	
3,600.00	3,540.99	3,738.00	3,539.84	14.61	20.21	-89.74	1,461.55	-3,960.03	4,177.50	4,145.36	32.14	129.986	
3,657.37	3,597.10	3,769.00	3,570.84	14.86	20.23	-89.84	1,461.31	-3,959.95	4,177.26	4,144.88	32.38	128.996	
3,700.00	3,638.81	3,793.49	3,595.33	15.05	20.24	-89.91	1,461.24	-3,960.04	4,177.36	4,144.79	32.57	128.270	
3,800.00	3,736.62	3,890.71	3,692.54	15.48	20.32	-90.19	1,461.15	-3,960.53	4,177.86	4,144.80	33.06	126.372	
3,900.00	3,834.44	3,987.41	3,789.25	15.92	20.42	-90.47	1,461.05	-3,961.04	4,178.48	4,144.91	33.57	124.470	
4,000.00	3,932.25	4,084.11	3,885.94	16.36	20.51	-90.74	1,460.95	-3,961.57	4,179.24	4,145.16	34.08	122.627	
4,100.00	4,030.07	4,180.80	3,982.64	16.80	20.61	-91.02	1,460.84	-3,962.13	4,180.13	4,145.54	34.59	120.841	
4,200.00	4,127.88	4,277.49	4,079.32	17.24	20.71	-91.30	1,460.73	-3,962.72	4,181.14	4,146.04	35.10	119.108	
4,300.00	4,225.70	4,374.18	4,176.01	17.68	20.80	-91.58	1,460.61	-3,963.33	4,182.29	4,146.68	35.62	117.426	
4,400.00	4,323.51	4,470.86	4,272.68	18.11	20.90	-91.86	1,460.49	-3,963.97	4,183.57	4,147.44	36.13	115.794	
4,500.00	4,421.33	4,567.53	4,369.36	18.55	20.99	-92.14	1,460.36	-3,964.63	4,184.98	4,148.34	36.64	114.210	
4,600.00	4,519.14	4,664.20	4,466.03	18.99	21.09	-92.41	1,460.23	-3,965.32	4,186.52	4,149.37	37.16	112.672	
4,700.00	4,616.95	4,760.87	4,562.69	19.43	21.19	-92.69	1,460.09	-3,966.04	4,188.19	4,150.52	37.67	111.177	
4,800.00	4,714.77	4,857.53	4,659.35	19.87	21.29	-92.97	1,459.95	-3,966.78	4,190.00	4,151.81	38.19	109.725	
4,900.00	4,812.58	4,954.19	4,756.00	20.31	21.38	-93.25	1,459.80	-3,967.55	4,191.93	4,153.23	38.70	108.313	
5,000.00	4,910.40	5,050.84	4,852.65	20.75	21.48	-93.53	1,459.65	-3,968.35	4,193.99	4,154.78	39.22	106.941	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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
5,100.00	5,008.21	5,147.48	4,949.29	21.19	21.58	-93.80	1,459.49	-3,969.17	4,196.19	4,156.45	39.73	105.606	
5,200.00	5,106.03	5,244.12	5,045.93	21.63	21.68	-94.08	1,459.33	-3,970.02	4,198.51	4,158.26	40.25	104.308	
5,300.00	5,203.84	5,340.76	5,142.56	22.06	21.78	-94.36	1,459.16	-3,970.89	4,200.97	4,160.20	40.77	103.045	
5,400.00	5,301.66	5,437.39	5,239.19	22.50	21.88	-94.63	1,458.99	-3,971.79	4,203.56	4,162.27	41.29	101.816	
5,500.00	5,399.47	5,534.02	5,335.81	22.94	21.98	-94.91	1,458.81	-3,972.72	4,206.28	4,164.47	41.80	100.619	
5,600.00	5,497.29	5,630.64	5,432.42	23.38	22.08	-95.19	1,458.63	-3,973.67	4,209.12	4,166.80	42.32	99.454	
5,700.00	5,595.10	5,727.26	5,529.04	23.82	22.18	-95.46	1,458.44	-3,974.65	4,212.10	4,169.26	42.84	98.319	
5,800.00	5,692.92	5,823.87	5,625.64	24.26	22.28	-95.74	1,458.24	-3,975.65	4,215.21	4,171.85	43.36	97.213	
5,900.00	5,790.73	5,920.48	5,722.24	24.70	22.38	-96.02	1,458.05	-3,976.68	4,218.45	4,174.57	43.88	96.136	
6,000.00	5,888.55	6,017.08	5,818.84	25.14	22.48	-96.29	1,457.84	-3,977.74	4,221.82	4,177.42	44.40	95.086	
6,100.00	5,986.36	6,113.67	5,915.43	25.58	22.58	-96.57	1,457.64	-3,978.82	4,225.32	4,180.40	44.92	94.063	
6,200.00	6,084.18	6,210.27	6,012.02	26.02	22.68	-96.84	1,457.42	-3,979.93	4,228.95	4,183.51	45.44	93.065	
6,300.00	6,181.99	6,306.85	6,108.59	26.46	22.78	-97.12	1,457.20	-3,981.07	4,232.71	4,186.75	45.96	92.093	
6,401.22	6,281.00	6,404.61	6,206.35	26.90	22.88	-97.39	1,456.98	-3,982.25	4,236.65	4,190.16	46.49	91.132	
6,450.00	6,328.76	6,451.79	6,253.52	27.12	22.93	-76.55	1,456.87	-3,982.82	4,236.73	4,189.99	46.74	90.642	
6,500.00	6,377.61	6,500.10	6,301.82	27.32	22.98	-57.01	1,456.75	-3,983.42	4,233.00	4,186.00	47.00	90.072	
6,550.00	6,426.06	6,548.05	6,349.77	27.52	23.03	-42.49	1,456.64	-3,984.02	4,225.42	4,178.17	47.24	89.439	
6,600.00	6,473.81	6,595.36	6,397.08	27.71	23.08	-32.52	1,456.52	-3,984.62	4,214.03	4,166.55	47.48	88.748	
6,650.00	6,520.56	6,641.74	6,443.46	27.89	23.13	-25.65	1,456.41	-3,985.21	4,198.90	4,151.19	47.71	88.005	
6,700.00	6,566.03	6,686.91	6,488.62	28.05	23.18	-20.75	1,456.30	-3,985.79	4,180.12	4,132.19	47.93	87.213	
6,750.00	6,609.93	6,730.57	6,532.28	28.20	23.23	-17.10	1,456.19	-3,986.36	4,157.80	4,109.67	48.14	86.377	
6,800.00	6,652.00	6,772.48	6,574.18	28.34	23.27	-14.27	1,456.08	-3,986.91	4,132.08	4,083.76	48.33	85.503	
6,850.00	6,691.98	6,812.36	6,614.06	28.47	23.31	-11.97	1,455.98	-3,987.44	4,103.11	4,054.61	48.50	84.594	
6,900.00	6,729.61	6,849.98	6,651.68	28.59	23.35	-10.02	1,455.89	-3,987.94	4,071.06	4,022.40	48.67	83.655	
6,950.00	6,764.67	6,885.10	6,686.80	28.69	23.39	-8.28	1,455.79	-3,988.41	4,036.13	3,987.32	48.81	82.691	
7,000.00	6,796.95	6,917.51	6,719.20	28.79	23.42	-6.64	1,455.71	-3,988.85	3,998.54	3,949.60	48.94	81.706	
7,050.00	6,826.23	6,947.01	6,748.69	28.89	23.46	-4.98	1,455.63	-3,989.26	3,958.50	3,909.45	49.05	80.706	
7,100.00	6,852.35	6,973.41	6,775.09	28.98	23.48	-3.18	1,455.56	-3,989.62	3,916.27	3,867.13	49.14	79.694	
7,150.00	6,875.14	6,996.54	6,798.23	29.08	23.51	-1.06	1,455.50	-3,989.94	3,872.10	3,822.88	49.22	78.674	
7,200.00	6,894.45	7,016.28	6,817.96	29.18	23.53	1.68	1,455.45	-3,990.21	3,826.26	3,776.99	49.27	77.651	
7,250.00	6,910.18	7,032.49	6,834.17	29.28	23.55	5.59	1,455.41	-3,990.44	3,779.05	3,729.73	49.32	76.630	
7,300.00	6,922.23	7,045.08	6,846.76	29.40	23.56	11.93	1,455.37	-3,990.61	3,730.73	3,681.39	49.34	75.613	
7,350.00	6,930.51	7,053.96	6,855.63	29.54	23.57	23.99	1,455.35	-3,990.74	3,681.63	3,632.28	49.35	74.605	
7,400.00	6,934.98	7,059.08	6,860.75	29.70	23.58	50.92	1,455.33	-3,990.81	3,632.04	3,582.70	49.34	73.610	
7,433.91	6,935.83	7,060.39	6,862.06	29.81	23.58	82.02	1,455.33	-3,990.83	3,598.28	3,548.95	49.33	72.943	
7,500.00	6,935.76	7,061.24	6,862.92	30.07	23.58	82.17	1,455.33	-3,990.84	3,532.48	3,483.18	49.30	71.653	
7,600.00	6,935.66	7,062.53	6,864.21	30.52	23.58	82.39	1,455.33	-3,990.86	3,432.93	3,383.68	49.25	69.699	
7,700.00	6,935.55	7,063.83	6,865.50	31.06	23.58	82.61	1,455.32	-3,990.87	3,333.41	3,284.21	49.21	67.745	
7,800.00	6,935.45	7,065.12	6,866.80	31.68	23.58	82.83	1,455.32	-3,990.89	3,233.92	3,184.76	49.16	65.789	
7,900.00	6,935.34	7,066.41	6,868.09	32.37	23.58	83.06	1,455.31	-3,990.91	3,134.46	3,085.36	49.10	63.832	
8,000.00	6,935.24	7,067.71	6,869.39	33.12	23.58	83.28	1,455.31	-3,990.93	3,035.04	2,985.99	49.05	61.874	
8,100.00	6,935.13	7,069.01	6,870.68	33.93	23.59	83.50	1,455.31	-3,990.95	2,935.65	2,886.66	49.00	59.914	
8,200.00	6,935.03	7,070.30	6,871.98	34.80	23.59	83.73	1,455.30	-3,990.96	2,836.31	2,787.37	48.94	57.953	
8,300.00	6,934.92	7,071.60	6,873.27	35.71	23.59	83.95	1,455.30	-3,990.98	2,737.02	2,688.13	48.88	55.991	
8,400.00	6,934.82	7,072.90	6,874.57	36.67	23.59	84.17	1,455.30	-3,991.00	2,637.77	2,588.95	48.82	54.027	
8,500.00	6,934.71	7,074.20	6,875.87	37.68	23.59	84.40	1,455.29	-3,991.02	2,538.59	2,489.83	48.76	52.061	
8,600.00	6,934.61	7,075.50	6,877.17	38.72	23.59	84.62	1,455.29	-3,991.04	2,439.47	2,390.77	48.70	50.094	
8,700.00	6,934.50	7,076.80	6,878.47	39.80	23.59	84.85	1,455.29	-3,991.06	2,340.43	2,291.79	48.63	48.125	
8,800.00	6,934.40	7,078.10	6,879.77	40.92	23.60	85.07	1,455.28	-3,991.07	2,241.47	2,192.90	48.57	46.153	
8,900.00	6,934.29	7,079.40	6,881.07	42.06	23.60	85.30	1,455.28	-3,991.09	2,142.60	2,094.11	48.50	44.178	
9,000.00	6,934.19	7,080.70	6,882.38	43.23	23.60	85.52	1,455.28	-3,991.11	2,043.85	1,995.42	48.43	42.200	
9,100.00	6,934.08	7,082.00	6,883.68	44.43	23.60	85.75	1,455.27	-3,991.13	1,945.22	1,896.86	48.37	40.218	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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
9,200.00	6,933.98	7,083.31	6,884.98	45.66	23.60	85.98	1,455.27	-3,991.15	1,846.74	1,798.44	48.30	38.231	
9,300.00	6,933.88	7,084.61	6,886.29	46.90	23.60	86.20	1,455.27	-3,991.17	1,748.43	1,700.19	48.25	36.238	
9,400.00	6,933.77	7,085.92	6,887.59	48.17	23.60	86.43	1,455.26	-3,991.18	1,650.33	1,602.12	48.20	34.237	
9,500.00	6,933.67	7,087.22	6,888.90	49.46	23.61	86.66	1,455.26	-3,991.20	1,552.46	1,504.29	48.17	32.228	
9,600.00	6,933.56	7,088.53	6,890.20	50.76	23.61	86.88	1,455.26	-3,991.22	1,454.88	1,406.72	48.17	30.206	
9,700.00	6,933.46	7,089.84	6,891.51	52.08	23.61	87.11	1,455.25	-3,991.24	1,357.66	1,309.46	48.20	28.170	
9,800.00	6,933.35	7,091.15	6,892.82	53.41	23.61	87.34	1,455.25	-3,991.26	1,260.86	1,212.58	48.28	26.115	
9,900.00	6,933.25	7,092.46	6,894.13	54.76	23.61	87.57	1,455.24	-3,991.28	1,164.61	1,116.16	48.45	24.037	
10,000.00	6,933.14	7,093.77	6,895.44	56.12	23.61	87.80	1,455.24	-3,991.29	1,069.04	1,020.30	48.75	21.931	
10,100.00	6,933.04	7,095.08	6,896.75	57.50	23.61	88.02	1,455.24	-3,991.31	974.37	925.13	49.24	19.790	
10,200.00	6,932.93	7,096.39	6,898.06	58.88	23.61	88.25	1,455.23	-3,991.33	880.86	830.85	50.02	17.611	
10,300.00	6,932.83	7,097.70	6,899.37	60.28	23.62	88.48	1,455.23	-3,991.35	788.95	737.71	51.25	15.395	
10,400.00	6,932.72	7,099.01	6,900.68	61.69	23.62	88.71	1,455.23	-3,991.37	699.27	646.11	53.15	13.155	
10,500.00	6,932.62	7,100.33	6,902.00	63.10	23.62	88.94	1,455.22	-3,991.39	612.77	556.71	56.06	10.930	
10,600.00	6,932.51	7,101.64	6,903.31	64.52	23.62	89.17	1,455.22	-3,991.41	531.05	470.66	60.39	8.794	
10,700.00	6,932.41	7,102.95	6,904.63	65.96	23.62	89.40	1,455.22	-3,991.42	456.64	390.11	66.53	6.863	
10,800.00	6,932.30	7,104.27	6,905.94	67.39	23.62	89.63	1,455.21	-3,991.44	393.74	319.21	74.53	5.283	
10,900.00	6,932.20	7,105.59	6,907.26	68.84	23.62	89.86	1,455.21	-3,991.46	348.63	265.45	83.17	4.192	
11,000.00	6,932.10	7,106.90	6,908.57	70.29	23.63	90.09	1,455.21	-3,991.48	328.70	239.29	89.41	3.676	
11,017.50	6,932.08	7,107.13	6,908.81	70.55	23.63	90.13	1,455.20	-3,991.48	328.23	238.24	89.99	3.647	CC, ES, SF
11,100.00	6,931.99	7,108.22	6,909.89	71.75	23.63	90.32	1,455.20	-3,991.50	338.44	248.02	90.42	3.743	
11,200.00	6,931.89	7,109.54	6,911.21	73.22	23.63	90.55	1,455.20	-3,991.52	375.55	288.50	87.05	4.314	
11,300.00	6,931.78	7,110.86	6,912.53	74.69	23.63	90.78	1,455.19	-3,991.54	433.05	350.87	82.18	5.270	
11,400.00	6,931.68	7,112.18	6,913.85	76.16	23.63	91.01	1,455.19	-3,991.55	504.00	426.41	77.60	6.495	
11,500.00	6,931.57	7,113.50	6,915.17	77.64	23.63	91.24	1,455.19	-3,991.57	583.53	509.72	73.81	7.906	
11,600.00	6,931.47	7,114.82	6,916.49	79.13	23.63	91.47	1,455.18	-3,991.59	668.57	597.78	70.79	9.444	
11,700.00	6,931.36	7,116.14	6,917.81	80.62	23.64	91.70	1,455.18	-3,991.61	757.28	688.87	68.41	11.070	
11,800.00	6,931.26	7,117.47	6,919.14	82.11	23.64	91.93	1,455.18	-3,991.63	848.49	781.99	66.50	12.759	
11,900.00	6,931.15	7,118.79	6,920.46	83.61	23.64	92.16	1,455.17	-3,991.65	941.50	876.53	64.97	14.492	
12,000.00	6,931.05	7,120.12	6,921.79	85.11	23.64	92.39	1,455.17	-3,991.67	1,035.80	972.09	63.71	16.257	
12,100.00	6,930.94	7,121.44	6,923.11	86.62	23.64	92.62	1,455.17	-3,991.69	1,131.08	1,068.40	62.68	18.045	
12,200.00	6,930.84	7,122.77	6,924.44	88.13	23.64	92.85	1,455.16	-3,991.70	1,227.11	1,165.30	61.82	19.851	
12,300.00	6,930.73	7,124.09	6,925.76	89.64	23.64	93.08	1,455.16	-3,991.72	1,323.73	1,262.64	61.09	21.669	
12,400.00	6,930.63	7,125.42	6,927.09	91.15	23.65	93.32	1,455.16	-3,991.74	1,420.82	1,360.34	60.47	23.496	
12,500.00	6,930.52	7,126.75	6,928.42	92.67	23.65	93.55	1,455.15	-3,991.76	1,518.28	1,458.34	59.94	25.329	
12,600.00	6,930.42	7,128.08	6,929.75	94.19	23.65	93.78	1,455.15	-3,991.78	1,616.05	1,556.56	59.49	27.167	
12,700.00	6,930.31	7,129.41	6,931.08	95.71	23.65	94.01	1,455.14	-3,991.80	1,714.08	1,654.99	59.09	29.009	
12,800.00	6,930.21	7,130.74	6,932.41	97.24	23.65	94.24	1,455.14	-3,991.82	1,812.32	1,753.58	58.74	30.852	
12,900.00	6,930.11	7,132.07	6,933.74	98.77	23.65	94.47	1,455.14	-3,991.84	1,910.74	1,852.30	58.44	32.696	
13,008.91	6,929.99	7,133.52	6,935.19	100.43	23.65	94.72	1,455.13	-3,991.86	2,018.11	1,959.96	58.15	34.704	
13,100.00	6,929.90	7,134.74	6,936.40	101.83	23.66	94.14	1,455.13	-3,991.87	2,107.79	2,049.88	57.92	36.394	
13,139.82	6,929.86	7,135.27	6,936.93	102.44	23.66	93.94	1,455.13	-3,991.88	2,146.87	2,089.07	57.81	37.140	
13,200.00	6,929.80	7,136.07	6,937.73	103.37	23.66	94.05	1,455.13	-3,991.89	2,205.91	2,148.26	57.64	38.269	
13,300.00	6,929.70	7,137.40	6,939.06	104.92	23.66	94.23	1,455.12	-3,991.91	2,304.13	2,246.73	57.40	40.144	
13,400.00	6,929.61	7,138.73	6,940.40	106.47	23.66	94.41	1,455.12	-3,991.93	2,402.50	2,345.32	57.18	42.019	
13,500.00	6,929.51	7,140.06	6,941.73	108.02	23.66	94.59	1,455.12	-3,991.95	2,501.00	2,444.02	56.98	43.892	
13,600.00	6,929.41	7,141.39	6,943.06	109.57	23.66	94.77	1,455.11	-3,991.97	2,599.61	2,542.81	56.81	45.763	
13,700.00	6,929.32	7,142.73	6,944.39	111.12	23.66	94.95	1,455.11	-3,991.99	2,698.33	2,641.68	56.65	47.632	
13,800.00	6,929.22	7,144.06	6,945.73	112.68	23.67	95.13	1,455.10	-3,992.01	2,797.13	2,740.62	56.51	49.498	
13,900.00	6,929.12	7,145.40	6,947.06	114.23	23.67	95.31	1,455.10	-3,992.03	2,896.02	2,839.64	56.39	51.361	
14,000.00	6,929.03	7,146.73	6,948.40	115.79	23.67	95.49	1,455.10	-3,992.05	2,994.98	2,938.71	56.27	53.221	
14,100.00	6,928.93	7,148.07	6,949.74	117.35	23.67	95.67	1,455.09	-3,992.06	3,094.01	3,037.83	56.18	55.078	

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 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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
14,200.00	6,928.83	7,149.41	6,951.07	118.91	23.67	95.85	1,455.09	-3,992.08	3,193.09	3,137.01	56.09	56.931	
14,300.00	6,928.74	7,150.74	6,952.41	120.47	23.67	96.03	1,455.09	-3,992.10	3,292.24	3,236.23	56.01	58.781	
14,400.00	6,928.64	7,152.08	6,953.75	122.03	23.67	96.21	1,455.08	-3,992.12	3,391.43	3,335.49	55.94	60.627	
14,500.00	6,928.54	7,153.42	6,955.09	123.60	23.68	96.39	1,455.08	-3,992.14	3,490.66	3,434.78	55.88	62.469	
14,600.00	6,928.45	7,154.76	6,956.43	125.16	23.68	96.56	1,455.07	-3,992.16	3,589.94	3,534.12	55.83	64.306	
14,700.00	6,928.35	7,156.10	6,957.77	126.72	23.68	96.74	1,455.07	-3,992.18	3,689.26	3,633.48	55.78	66.140	
14,800.00	6,928.25	7,157.45	6,959.11	128.29	23.68	96.92	1,455.07	-3,992.20	3,788.61	3,732.87	55.74	67.969	
14,900.00	6,928.16	7,158.79	6,960.45	129.86	23.68	97.10	1,455.06	-3,992.22	3,888.00	3,832.29	55.71	69.794	
15,000.00	6,928.06	7,160.13	6,961.80	131.42	23.68	97.28	1,455.06	-3,992.24	3,987.41	3,931.73	55.68	71.614	
15,100.00	6,927.96	7,161.48	6,963.14	132.99	23.68	97.46	1,455.06	-3,992.26	4,086.86	4,031.20	55.66	73.430	
15,200.00	6,927.87	7,162.82	6,964.49	134.56	23.69	97.64	1,455.05	-3,992.27	4,186.33	4,130.69	55.64	75.241	
15,300.00	6,927.77	7,164.17	6,965.83	136.13	23.69	97.82	1,455.05	-3,992.29	4,285.82	4,230.19	55.63	77.047	
15,400.00	6,927.67	7,165.51	6,967.18	137.70	23.69	98.00	1,455.05	-3,992.31	4,385.34	4,329.72	55.62	78.849	
15,500.00	6,927.57	7,166.86	6,968.53	139.28	23.69	98.18	1,455.04	-3,992.33	4,484.87	4,429.26	55.61	80.645	
15,600.00	6,927.48	7,168.21	6,969.87	140.85	23.69	98.36	1,455.04	-3,992.35	4,584.43	4,528.82	55.61	82.437	
15,700.00	6,927.38	7,169.56	6,971.22	142.42	23.69	98.54	1,455.03	-3,992.37	4,684.01	4,628.39	55.61	84.224	
15,800.00	6,927.28	7,170.91	6,972.57	144.00	23.69	98.72	1,455.03	-3,992.39	4,783.60	4,727.98	55.62	86.006	
15,900.00	6,927.19	7,172.26	6,973.92	145.57	23.70	98.90	1,455.03	-3,992.41	4,883.21	4,827.58	55.63	87.782	
16,000.00	6,927.09	7,173.61	6,975.27	147.15	23.70	99.08	1,455.02	-3,992.43	4,982.84	4,927.19	55.64	89.554	
16,100.00	6,926.99	7,174.96	6,976.62	148.72	23.70	99.26	1,455.02	-3,992.45	5,082.47	5,026.82	55.66	91.320	
16,200.00	6,926.90	7,176.31	6,977.98	150.30	23.70	99.44	1,455.02	-3,992.47	5,182.13	5,126.45	55.67	93.081	
16,300.00	6,926.80	7,177.67	6,979.33	151.87	23.70	99.62	1,455.01	-3,992.49	5,281.79	5,226.10	55.69	94.837	
16,400.00	6,926.70	7,179.02	6,980.68	153.45	23.70	99.79	1,455.01	-3,992.51	5,381.47	5,325.75	55.72	96.587	
16,500.00	6,926.61	7,180.38	6,982.04	155.03	23.70	99.97	1,455.00	-3,992.53	5,481.16	5,425.42	55.74	98.332	
16,600.00	6,926.51	7,181.73	6,983.39	156.61	23.71	100.15	1,455.00	-3,992.55	5,580.86	5,525.09	55.77	100.072	
16,700.00	6,926.41	7,183.09	6,984.75	158.19	23.71	100.33	1,455.00	-3,992.57	5,680.57	5,624.77	55.80	101.806	
16,800.00	6,926.32	7,184.44	6,986.11	159.77	23.71	100.51	1,454.99	-3,992.58	5,780.29	5,724.46	55.83	103.535	
16,900.00	6,926.22	7,185.80	6,987.47	161.35	23.71	100.69	1,454.99	-3,992.60	5,880.02	5,824.16	55.86	105.258	
17,000.00	6,926.12	7,187.16	6,988.82	162.93	23.71	100.87	1,454.99	-3,992.62	5,979.76	5,923.86	55.90	106.976	
17,100.00	6,926.03	7,188.52	6,990.18	164.51	23.71	101.04	1,454.98	-3,992.64	6,079.50	6,023.57	55.94	108.688	
17,200.00	6,925.93	7,189.88	6,991.54	166.09	23.71	101.22	1,454.98	-3,992.66	6,179.26	6,123.28	55.97	110.394	
17,300.00	6,925.83	7,191.24	6,992.90	167.67	23.72	101.40	1,454.97	-3,992.68	6,279.02	6,223.00	56.02	112.095	
17,400.00	6,925.74	7,192.60	6,994.27	169.26	23.72	101.58	1,454.97	-3,992.70	6,378.79	6,322.73	56.06	113.791	
17,500.00	6,925.64	7,193.97	6,995.63	170.84	23.72	101.76	1,454.97	-3,992.72	6,478.56	6,422.46	56.10	115.480	
17,600.00	6,925.54	7,195.33	6,996.99	172.42	23.72	101.93	1,454.96	-3,992.74	6,578.34	6,522.20	56.15	117.164	
17,700.00	6,925.45	7,196.69	6,998.36	174.00	23.72	102.11	1,454.96	-3,992.76	6,678.13	6,621.94	56.19	118.842	
17,800.00	6,925.35	7,198.06	6,999.72	175.59	23.72	102.29	1,454.96	-3,992.78	6,777.93	6,721.68	56.24	120.515	
17,900.00	6,925.25	7,199.43	7,001.09	177.17	23.72	102.46	1,454.95	-3,992.80	6,877.73	6,821.44	56.29	122.181	
18,000.00	6,925.16	7,200.79	7,002.45	178.76	23.73	102.64	1,454.95	-3,992.82	6,977.53	6,921.19	56.34	123.842	
18,100.00	6,925.06	7,202.16	7,003.82	180.34	23.73	102.82	1,454.94	-3,992.84	7,077.34	7,020.95	56.39	125.497	
18,160.21	6,925.00	7,202.98	7,004.64	181.30	23.73	102.93	1,454.94	-3,992.85	7,137.45	7,081.02	56.43	126.491	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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
0.00	0.00	156.00	156.00	0.00	4.67	-142.88	-1,807.47	-1,367.75	2,266.65				
100.00	100.00	256.00	256.00	0.25	7.67	-142.88	-1,807.47	-1,367.75	2,266.65	2,258.72	7.92	286.122	
200.00	200.00	356.00	356.00	0.61	10.67	-142.88	-1,807.47	-1,367.75	2,266.65	2,255.37	11.28	201.000	
300.00	300.00	456.00	456.00	0.97	13.66	-142.88	-1,807.47	-1,367.75	2,266.65	2,252.01	14.63	154.913	
400.00	400.00	556.10	556.00	1.33	16.66	-142.88	-1,807.47	-1,367.75	2,266.65	2,248.66	17.99	125.997	
500.00	500.00	656.10	656.00	1.68	19.66	-142.88	-1,807.47	-1,367.75	2,266.65	2,245.30	21.34	106.193	
599.11	599.09	754.59	754.45	2.04	22.61	-154.86	-1,805.29	-1,367.75	2,266.46	2,241.81	24.65	91.941	CC, ES
600.00	599.98	755.39	755.24	2.04	22.63	-154.86	-1,805.29	-1,367.75	2,266.49	2,241.81	24.68	91.842	
700.00	699.84	844.08	843.92	2.41	25.29	-154.87	-1,805.60	-1,367.75	2,271.50	2,243.81	27.70	82.014	
800.00	799.45	932.48	932.30	2.77	27.94	-154.89	-1,806.46	-1,367.75	2,280.17	2,249.46	30.71	74.255	
900.00	898.70	1,055.11	1,054.70	3.13	31.62	-154.97	-1,807.47	-1,367.75	2,291.92	2,257.17	34.75	65.962	
1,000.00	997.47	1,153.87	1,153.47	3.50	34.58	-155.01	-1,807.47	-1,367.75	2,306.13	2,268.05	38.07	60.572	
1,100.00	1,095.62	1,251.78	1,251.33	3.89	37.51	-155.03	-1,805.29	-1,367.75	2,321.73	2,280.35	41.38	56.112	
1,200.00	1,193.44	1,338.25	1,337.79	4.29	40.10	-155.22	-1,805.56	-1,367.75	2,340.91	2,296.58	44.34	52.798	
1,300.00	1,291.25	1,424.53	1,424.05	4.70	42.69	-155.42	-1,806.36	-1,367.75	2,360.61	2,313.32	47.29	49.917	
1,400.00	1,389.07	1,545.78	1,545.07	5.11	46.32	-155.69	-1,807.47	-1,367.75	2,380.40	2,329.10	51.30	46.402	
1,500.00	1,486.88	1,643.59	1,642.88	5.53	49.25	-155.89	-1,807.47	-1,367.75	2,399.43	2,344.82	54.61	43.941	
1,600.00	1,584.70	1,741.41	1,740.70	5.95	52.18	-156.09	-1,807.47	-1,367.75	2,418.49	2,360.58	57.91	41.760	
1,700.00	1,682.51	1,828.37	1,827.61	6.37	54.79	-156.24	-1,805.51	-1,367.75	2,436.00	2,375.10	60.90	40.003	
1,800.00	1,780.33	1,914.12	1,913.34	6.80	57.36	-156.42	-1,806.23	-1,367.75	2,455.79	2,391.95	63.84	38.468	
1,900.00	1,878.14	2,035.16	2,034.14	7.22	60.98	-156.68	-1,807.47	-1,367.75	2,475.84	2,407.99	67.85	36.488	
2,000.00	1,975.96	2,132.97	2,131.96	7.65	63.91	-156.87	-1,807.47	-1,367.75	2,495.01	2,423.85	71.17	35.059	
2,100.00	2,073.77	2,230.79	2,229.77	8.08	66.84	-157.05	-1,807.47	-1,367.75	2,514.21	2,439.73	74.48	33.758	
2,200.00	2,171.59	2,318.61	2,317.54	8.51	69.48	-157.19	-1,805.46	-1,367.75	2,531.78	2,454.30	77.49	32.673	
2,300.00	2,269.40	2,403.84	2,402.75	8.95	72.03	-157.35	-1,806.12	-1,367.75	2,551.65	2,471.24	80.42	31.730	
2,400.00	2,367.22	2,524.53	2,523.22	9.38	75.65	-157.59	-1,807.47	-1,367.75	2,571.94	2,487.52	84.43	30.464	
2,500.00	2,465.03	2,622.35	2,621.03	9.81	78.58	-157.77	-1,807.47	-1,367.75	2,591.24	2,503.50	87.74	29.533	
2,600.00	2,562.84	2,720.16	2,718.84	10.25	81.51	-157.94	-1,807.47	-1,367.75	2,610.55	2,519.50	91.05	28.670	
2,700.00	2,660.66	2,808.97	2,807.60	10.68	84.17	-158.07	-1,805.41	-1,367.75	2,628.19	2,534.10	94.09	27.932	
2,800.00	2,758.47	2,893.68	2,892.30	11.12	86.71	-158.22	-1,806.01	-1,367.75	2,648.13	2,551.12	97.01	27.299	
2,900.00	2,856.29	3,013.91	3,012.29	11.55	90.31	-158.44	-1,807.47	-1,367.75	2,668.64	2,567.63	101.01	26.421	
3,000.00	2,954.10	3,111.73	3,110.10	11.99	93.24	-158.60	-1,807.47	-1,367.75	2,688.04	2,583.72	104.32	25.767	
3,100.00	3,051.92	3,209.54	3,207.92	12.42	96.17	-158.76	-1,807.47	-1,367.75	2,707.46	2,599.83	107.63	25.154	
3,200.00	3,149.73	3,299.44	3,297.77	12.86	98.87	-158.88	-1,805.38	-1,367.75	2,725.16	2,614.45	110.71	24.616	
3,300.00	3,247.55	3,383.65	3,381.96	13.30	101.39	-159.02	-1,805.92	-1,367.75	2,745.15	2,631.54	113.60	24.164	
3,400.00	3,345.36	3,503.29	3,501.36	13.73	104.97	-159.23	-1,807.47	-1,367.75	2,765.86	2,648.27	117.59	23.522	
3,500.00	3,443.18	3,601.11	3,599.18	14.17	107.91	-159.38	-1,807.47	-1,367.75	2,785.36	2,664.46	120.90	23.038	
3,600.00	3,540.99	3,698.92	3,696.99	14.61	110.84	-159.53	-1,807.47	-1,367.75	2,804.88	2,680.66	124.22	22.581	
3,700.00	3,638.81	3,790.04	3,788.06	15.05	113.57	-159.64	-1,805.35	-1,367.75	2,822.62	2,695.30	127.32	22.169	
3,800.00	3,736.62	3,873.74	3,871.75	15.48	116.07	-159.77	-1,805.83	-1,367.75	2,842.65	2,712.45	130.20	21.832	
3,900.00	3,834.44	3,957.26	3,955.25	15.92	118.58	-159.91	-1,806.79	-1,367.75	2,863.19	2,730.11	133.07	21.516	
4,000.00	3,932.25	4,090.48	4,088.25	16.36	122.57	-160.11	-1,807.47	-1,367.75	2,883.14	2,745.66	137.48	20.971	
4,100.00	4,030.07	4,188.30	4,186.07	16.80	125.50	-160.25	-1,807.47	-1,367.75	2,902.75	2,761.95	140.80	20.617	
4,200.00	4,127.88	4,280.74	4,278.47	17.24	128.27	-160.35	-1,805.32	-1,367.75	2,920.54	2,776.59	143.95	20.289	
4,300.00	4,225.70	4,363.95	4,361.66	17.68	130.76	-160.47	-1,805.75	-1,367.75	2,940.60	2,793.79	146.81	20.030	
4,400.00	4,323.51	4,446.98	4,444.66	18.11	133.25	-160.60	-1,806.65	-1,367.75	2,961.17	2,811.51	149.66	19.786	
4,500.00	4,421.33	4,579.86	4,577.33	18.55	137.23	-160.78	-1,807.47	-1,367.75	2,981.34	2,827.28	154.06	19.352	
4,600.00	4,519.14	4,677.68	4,675.14	18.99	140.16	-160.91	-1,807.47	-1,367.75	3,001.03	2,843.65	157.38	19.069	
4,700.00	4,616.95	4,771.56	4,768.98	19.43	142.98	-161.02	-1,805.31	-1,367.75	3,018.87	2,858.30	160.57	18.801	
4,800.00	4,714.77	4,854.28	4,851.68	19.87	145.46	-161.13	-1,805.67	-1,367.75	3,038.95	2,875.54	163.42	18.596	
4,900.00	4,812.58	4,936.82	4,934.20	20.31	147.93	-161.24	-1,806.51	-1,367.75	3,059.54	2,893.29	166.25	18.403	
5,000.00	4,910.40	5,069.24	5,066.40	20.75	151.90	-161.42	-1,807.47	-1,367.75	3,079.92	2,909.27	170.64	18.049	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,100.00	5,008.21	5,167.06	5,164.21	21.19	154.83	-161.54	-1,807.47	-1,367.75	3,099.67	2,925.72	173.96	17.819	
5,200.00	5,106.03	5,262.49	5,259.61	21.63	157.69	-161.64	-1,805.30	-1,367.75	3,117.56	2,940.36	177.20	17.594	
5,300.00	5,203.84	5,344.72	5,341.83	22.06	160.15	-161.74	-1,805.61	-1,367.75	3,137.66	2,957.64	180.03	17.429	
5,400.00	5,301.66	5,426.78	5,423.86	22.50	162.61	-161.85	-1,806.38	-1,367.75	3,158.26	2,975.42	182.85	17.273	
5,500.00	5,399.47	5,558.62	5,555.47	22.94	166.56	-162.01	-1,807.47	-1,367.75	3,178.84	2,991.61	187.22	16.979	
5,600.00	5,497.29	5,656.43	5,653.29	23.38	169.49	-162.13	-1,807.47	-1,367.75	3,198.66	3,008.12	190.53	16.788	
5,700.00	5,595.10	5,753.53	5,750.34	23.82	172.40	-162.22	-1,805.29	-1,367.75	3,216.59	3,022.77	193.83	16.595	
5,800.00	5,692.92	5,835.28	5,832.08	24.26	174.85	-162.32	-1,805.55	-1,367.75	3,236.70	3,040.06	196.64	16.460	
5,900.00	5,790.73	5,916.86	5,913.64	24.70	177.30	-162.42	-1,806.26	-1,367.75	3,257.31	3,057.87	199.44	16.332	
6,000.00	5,888.55	6,048.00	6,044.55	25.14	181.23	-162.57	-1,807.47	-1,367.75	3,278.07	3,074.27	203.80	16.085	
6,100.00	5,986.36	6,145.81	6,142.36	25.58	184.16	-162.68	-1,807.47	-1,367.75	3,297.95	3,090.84	207.11	15.923	
6,200.00	6,084.18	6,243.63	6,240.18	26.02	187.09	-162.79	-1,807.47	-1,367.75	3,317.84	3,107.41	210.43	15.767	
6,300.00	6,181.99	6,341.00	6,337.34	26.46	190.01	-162.89	-1,807.47	-1,367.75	3,337.74	3,124.02	213.73	15.617	
6,401.22	6,281.00	6,341.00	6,337.34	26.90	190.01	-162.89	-1,807.47	-1,367.75	3,359.38	3,145.46	213.92	15.704	
6,450.00	6,328.76	6,341.00	6,337.34	27.12	190.01	-141.09	-1,807.47	-1,367.75	3,369.90	3,155.96	213.95	15.751	
6,500.00	6,377.61	6,341.00	6,337.34	27.32	190.01	-120.72	-1,807.47	-1,367.75	3,379.40	3,165.47	213.93	15.797	
6,550.00	6,426.06	6,341.00	6,337.34	27.52	190.01	-105.52	-1,807.47	-1,367.75	3,387.55	3,173.67	213.88	15.839	
6,600.00	6,473.81	6,341.00	6,337.34	27.71	190.01	-95.03	-1,807.47	-1,367.75	3,394.30	3,180.51	213.78	15.877	
6,650.00	6,520.56	6,341.00	6,337.34	27.89	190.01	-87.79	-1,807.47	-1,367.75	3,399.63	3,185.97	213.66	15.912	
6,700.00	6,566.03	6,341.00	6,337.34	28.05	190.01	-82.68	-1,807.47	-1,367.75	3,403.50	3,190.01	213.49	15.942	
6,750.00	6,609.93	6,341.00	6,337.34	28.20	190.01	-78.99	-1,807.47	-1,367.75	3,405.91	3,192.60	213.31	15.967	
6,800.00	6,652.00	6,341.00	6,337.34	28.34	190.01	-76.29	-1,807.47	-1,367.75	3,406.83	3,193.73	213.10	15.987	
6,850.00	6,691.98	6,341.00	6,337.34	28.47	190.01	-74.31	-1,807.47	-1,367.75	3,406.27	3,193.40	212.87	16.001	
6,900.00	6,729.61	6,341.00	6,337.34	28.59	190.01	-72.88	-1,807.47	-1,367.75	3,404.22	3,191.58	212.64	16.009	
6,950.00	6,764.67	6,341.00	6,337.34	28.69	190.01	-71.88	-1,807.47	-1,367.75	3,400.70	3,188.29	212.41	16.010	
7,000.00	6,796.95	6,341.00	6,337.34	28.79	190.01	-71.25	-1,807.47	-1,367.75	3,395.72	3,183.54	212.18	16.004	
7,050.00	6,826.23	6,341.00	6,337.34	28.89	190.01	-70.92	-1,807.47	-1,367.75	3,389.31	3,177.34	211.97	15.989	
7,100.00	6,852.35	6,341.00	6,337.34	28.98	190.01	-70.87	-1,807.47	-1,367.75	3,381.50	3,169.71	211.78	15.967	
7,150.00	6,875.14	6,341.00	6,337.34	29.08	190.01	-71.05	-1,807.47	-1,367.75	3,372.33	3,160.70	211.63	15.935	
7,200.00	6,894.45	6,341.00	6,337.34	29.18	190.01	-71.46	-1,807.47	-1,367.75	3,361.83	3,150.33	211.50	15.895	
7,250.00	6,910.18	6,341.00	6,337.34	29.28	190.01	-72.08	-1,807.47	-1,367.75	3,350.08	3,138.65	211.42	15.845	
7,300.00	6,922.23	6,341.00	6,337.34	29.40	190.01	-72.90	-1,807.47	-1,367.75	3,337.12	3,125.73	211.39	15.786	
7,350.00	6,930.51	6,341.00	6,337.34	29.54	190.01	-73.91	-1,807.47	-1,367.75	3,323.02	3,111.61	211.42	15.718	
7,400.00	6,934.98	6,341.00	6,337.34	29.70	190.01	-75.10	-1,807.47	-1,367.75	3,307.86	3,096.36	211.50	15.640	
7,433.91	6,935.83	6,341.00	6,337.34	29.81	190.01	-76.01	-1,807.47	-1,367.75	3,297.01	3,085.43	211.58	15.583	
7,500.00	6,935.76	6,341.00	6,337.34	30.07	190.01	-76.01	-1,807.47	-1,367.75	3,276.03	3,064.24	211.79	15.468	
7,600.00	6,935.66	6,341.00	6,337.34	30.52	190.01	-76.01	-1,807.47	-1,367.75	3,246.60	3,034.44	212.16	15.303	
7,700.00	6,935.55	6,341.00	6,337.34	31.06	190.01	-76.01	-1,807.47	-1,367.75	3,220.00	3,007.42	212.58	15.147	
7,800.00	6,935.45	6,341.00	6,337.34	31.68	190.01	-76.01	-1,807.47	-1,367.75	3,196.31	2,983.25	213.06	15.002	
7,900.00	6,935.34	6,341.00	6,337.34	32.37	190.01	-76.01	-1,807.47	-1,367.75	3,175.59	2,962.00	213.59	14.867	
8,000.00	6,935.24	6,341.00	6,337.34	33.12	190.01	-76.01	-1,807.47	-1,367.75	3,157.91	2,943.73	214.18	14.744	
8,100.00	6,935.13	6,341.00	6,337.34	33.93	190.01	-76.01	-1,807.47	-1,367.75	3,143.31	2,928.50	214.81	14.633	
8,200.00	6,935.03	6,341.00	6,337.34	34.80	190.01	-76.01	-1,807.47	-1,367.75	3,131.83	2,916.36	215.48	14.534	
8,300.00	6,934.92	6,341.00	6,337.34	35.71	190.01	-76.01	-1,807.47	-1,367.75	3,123.52	2,907.34	216.18	14.448	
8,400.00	6,934.82	6,341.00	6,337.34	36.67	190.01	-76.01	-1,807.47	-1,367.75	3,118.39	2,901.47	216.92	14.376	
8,500.00	6,934.71	6,341.00	6,337.34	37.68	190.01	-76.01	-1,807.47	-1,367.75	3,116.47	2,898.78	217.69	14.316	
8,510.01	6,934.70	6,341.00	6,337.34	37.78	190.01	-76.01	-1,807.47	-1,367.75	3,116.45	2,898.68	217.77	14.311	
8,600.00	6,934.61	6,341.00	6,337.34	38.72	190.01	-76.01	-1,807.47	-1,367.75	3,117.75	2,899.27	218.48	14.270	
8,700.00	6,934.50	6,341.00	6,337.34	39.80	190.01	-76.01	-1,807.47	-1,367.75	3,122.24	2,902.96	219.28	14.239	
8,800.00	6,934.40	6,341.00	6,337.34	40.92	190.01	-76.01	-1,807.47	-1,367.75	3,129.92	2,909.82	220.09	14.221	
8,900.00	6,934.29	6,341.00	6,337.34	42.06	190.01	-76.01	-1,807.47	-1,367.75	3,140.76	2,919.85	220.91	14.217	SF
9,000.00	6,934.19	6,341.00	6,337.34	43.23	190.01	-76.01	-1,807.47	-1,367.75	3,154.74	2,933.00	221.73	14.228	

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 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 500-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,100.00	6,934.08	6,341.00	6,337.34	44.43	190.01	-76.01	-1,807.47	-1,367.75	3,171.81	2,949.26	222.55	14.252	
9,200.00	6,933.98	6,341.00	6,337.34	45.66	190.01	-76.01	-1,807.47	-1,367.75	3,191.92	2,968.56	223.36	14.291	
9,300.00	6,933.88	6,341.00	6,337.34	46.90	190.01	-76.01	-1,807.47	-1,367.75	3,215.02	2,990.87	224.15	14.343	
9,400.00	6,933.77	6,341.00	6,337.34	48.17	190.01	-76.01	-1,807.47	-1,367.75	3,241.04	3,016.11	224.94	14.409	
9,500.00	6,933.67	6,341.00	6,337.34	49.46	190.01	-76.01	-1,807.47	-1,367.75	3,269.92	3,044.22	225.70	14.488	
9,600.00	6,933.56	6,341.00	6,337.34	50.76	190.01	-76.01	-1,807.47	-1,367.75	3,301.57	3,075.13	226.44	14.580	
9,700.00	6,933.46	6,341.00	6,337.34	52.08	190.01	-76.01	-1,807.47	-1,367.75	3,335.92	3,108.76	227.16	14.685	
9,800.00	6,933.35	6,341.00	6,337.34	53.41	190.01	-76.01	-1,807.47	-1,367.75	3,372.88	3,145.03	227.86	14.803	
9,900.00	6,933.25	6,341.00	6,337.34	54.76	190.01	-76.01	-1,807.47	-1,367.75	3,412.38	3,183.85	228.53	14.932	
10,000.00	6,933.14	6,341.00	6,337.34	56.12	190.01	-76.01	-1,807.47	-1,367.75	3,454.32	3,225.15	229.17	15.073	
10,100.00	6,933.04	6,341.00	6,337.34	57.50	190.01	-76.01	-1,807.47	-1,367.75	3,498.62	3,268.83	229.79	15.225	
10,200.00	6,932.93	6,341.00	6,337.34	58.88	190.01	-76.01	-1,807.47	-1,367.75	3,545.19	3,314.81	230.38	15.388	
10,300.00	6,932.83	6,341.00	6,337.34	60.28	190.01	-76.01	-1,807.47	-1,367.75	3,593.93	3,362.99	230.94	15.562	
10,400.00	6,932.72	6,341.00	6,337.34	61.69	190.01	-76.01	-1,807.47	-1,367.75	3,644.77	3,413.29	231.48	15.746	
10,500.00	6,932.62	6,341.00	6,337.34	63.10	190.01	-76.01	-1,807.47	-1,367.75	3,697.61	3,465.63	231.98	15.939	
10,600.00	6,932.51	6,341.00	6,337.34	64.52	190.01	-76.01	-1,807.47	-1,367.75	3,752.38	3,519.91	232.46	16.142	
10,700.00	6,932.41	6,341.00	6,337.34	65.96	190.01	-76.01	-1,807.47	-1,367.75	3,808.98	3,576.06	232.92	16.353	
10,800.00	6,932.30	6,341.00	6,337.34	67.39	190.01	-76.01	-1,807.47	-1,367.75	3,867.34	3,633.99	233.35	16.573	
10,900.00	6,932.20	6,341.00	6,337.34	68.84	190.01	-76.01	-1,807.47	-1,367.75	3,927.38	3,693.62	233.76	16.801	
11,000.00	6,932.10	6,341.00	6,337.34	70.29	190.01	-76.01	-1,807.47	-1,367.75	3,989.03	3,754.89	234.14	17.037	
11,100.00	6,931.99	6,341.00	6,337.34	71.75	190.01	-76.01	-1,807.47	-1,367.75	4,052.20	3,817.70	234.50	17.280	
11,200.00	6,931.89	6,341.00	6,337.34	73.22	190.01	-76.01	-1,807.47	-1,367.75	4,116.83	3,881.99	234.84	17.530	
11,300.00	6,931.78	6,341.00	6,337.34	74.69	190.01	-76.01	-1,807.47	-1,367.75	4,182.86	3,947.70	235.16	17.787	
11,400.00	6,931.68	6,341.00	6,337.34	76.16	190.01	-76.01	-1,807.47	-1,367.75	4,250.21	4,014.75	235.46	18.051	
11,500.00	6,931.57	6,341.00	6,337.34	77.64	190.01	-76.01	-1,807.47	-1,367.75	4,318.83	4,083.09	235.74	18.320	
11,600.00	6,931.47	6,341.00	6,337.34	79.13	190.01	-76.01	-1,807.47	-1,367.75	4,388.66	4,152.65	236.01	18.595	
11,700.00	6,931.36	6,341.00	6,337.34	80.62	190.01	-76.01	-1,807.47	-1,367.75	4,459.63	4,223.37	236.26	18.876	
11,800.00	6,931.26	6,341.00	6,337.34	82.11	190.01	-76.01	-1,807.47	-1,367.75	4,531.70	4,295.21	236.49	19.162	
11,900.00	6,931.15	6,341.00	6,337.34	83.61	190.01	-76.01	-1,807.47	-1,367.75	4,604.81	4,368.10	236.71	19.453	
12,000.00	6,931.05	6,341.00	6,337.34	85.11	190.01	-76.01	-1,807.47	-1,367.75	4,678.92	4,442.00	236.92	19.749	
12,100.00	6,930.94	6,341.00	6,337.34	86.62	190.01	-76.01	-1,807.47	-1,367.75	4,753.98	4,516.86	237.11	20.049	
12,200.00	6,930.84	6,341.00	6,337.34	88.13	190.01	-76.01	-1,807.47	-1,367.75	4,829.94	4,592.64	237.29	20.354	
12,300.00	6,930.73	6,341.00	6,337.34	89.64	190.01	-76.01	-1,807.47	-1,367.75	4,906.76	4,669.30	237.46	20.663	
12,400.00	6,930.63	6,341.00	6,337.34	91.15	190.01	-76.01	-1,807.47	-1,367.75	4,984.40	4,746.78	237.62	20.976	
12,500.00	6,930.52	6,341.00	6,337.34	92.67	190.01	-76.01	-1,807.47	-1,367.75	5,062.83	4,825.06	237.78	21.292	
12,600.00	6,930.42	6,341.00	6,337.34	94.19	190.01	-76.01	-1,807.47	-1,367.75	5,142.01	4,904.09	237.92	21.613	
12,700.00	6,930.31	6,341.00	6,337.34	95.71	190.01	-76.01	-1,807.47	-1,367.75	5,221.90	4,983.85	238.05	21.936	
12,800.00	6,930.21	6,341.00	6,337.34	97.24	190.01	-76.01	-1,807.47	-1,367.75	5,302.48	5,064.30	238.18	22.263	
12,900.00	6,930.11	6,341.00	6,337.34	98.77	190.01	-76.01	-1,807.47	-1,367.75	5,383.71	5,145.41	238.29	22.593	
13,008.91	6,929.99	6,341.00	6,337.34	100.43	190.01	-76.01	-1,807.47	-1,367.75	5,472.87	5,234.46	238.41	22.955	
13,100.00	6,929.90	6,341.00	6,337.34	101.83	190.01	-75.33	-1,807.47	-1,367.75	5,548.77	5,310.26	238.51	23.264	
13,139.82	6,929.86	6,341.00	6,337.34	102.44	190.01	-75.01	-1,807.47	-1,367.75	5,582.57	5,344.01	238.55	23.402	
13,200.00	6,929.80	6,341.00	6,337.34	103.37	190.01	-75.01	-1,807.47	-1,367.75	5,634.01	5,395.39	238.62	23.611	
13,300.00	6,929.70	6,341.00	6,337.34	104.92	190.01	-75.01	-1,807.47	-1,367.75	5,719.85	5,481.14	238.71	23.961	
13,400.00	6,929.61	6,341.00	6,337.34	106.47	190.01	-75.01	-1,807.47	-1,367.75	5,806.15	5,567.35	238.80	24.313	
13,500.00	6,929.51	6,341.00	6,337.34	108.02	190.01	-75.01	-1,807.47	-1,367.75	5,892.88	5,653.99	238.89	24.668	
13,600.00	6,929.41	6,341.00	6,337.34	109.57	190.01	-75.01	-1,807.47	-1,367.75	5,980.03	5,741.06	238.98	25.024	
13,700.00	6,929.32	6,341.00	6,337.34	111.12	190.01	-75.01	-1,807.47	-1,367.75	6,067.57	5,828.52	239.06	25.381	
13,800.00	6,929.22	6,341.00	6,337.34	112.68	190.01	-75.01	-1,807.47	-1,367.75	6,155.50	5,916.37	239.13	25.741	
13,900.00	6,929.12	6,341.00	6,337.34	114.23	190.01	-75.01	-1,807.47	-1,367.75	6,243.78	6,004.58	239.20	26.102	
14,000.00	6,929.03	6,341.00	6,337.34	115.79	190.01	-75.01	-1,807.47	-1,367.75	6,332.42	6,093.15	239.27	26.465	
14,100.00	6,928.93	6,341.00	6,337.34	117.35	190.01	-75.01	-1,807.47	-1,367.75	6,421.39	6,182.05	239.34	26.830	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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
14,200.00	6,928.83	6,341.00	6,337.34	118.91	190.01	-75.01	-1,807.47	-1,367.75	6,510.68	6,271.27	239.40	27.195	
14,300.00	6,928.74	6,341.00	6,337.34	120.47	190.01	-75.01	-1,807.47	-1,367.75	6,600.27	6,360.81	239.47	27.562	
14,400.00	6,928.64	6,341.00	6,337.34	122.03	190.01	-75.01	-1,807.47	-1,367.75	6,690.16	6,450.64	239.53	27.931	
14,500.00	6,928.54	6,341.00	6,337.34	123.60	190.01	-75.01	-1,807.47	-1,367.75	6,780.34	6,540.75	239.58	28.301	
14,600.00	6,928.45	6,341.00	6,337.34	125.16	190.01	-75.01	-1,807.47	-1,367.75	6,870.78	6,631.14	239.64	28.671	
14,700.00	6,928.35	6,341.00	6,337.34	126.72	190.01	-75.01	-1,807.47	-1,367.75	6,961.49	6,721.80	239.69	29.043	
14,800.00	6,928.25	6,341.00	6,337.34	128.29	190.01	-75.01	-1,807.47	-1,367.75	7,052.45	6,812.70	239.75	29.416	
14,900.00	6,928.16	6,341.00	6,337.34	129.86	190.01	-75.01	-1,807.47	-1,367.75	7,143.65	6,903.85	239.80	29.790	
15,000.00	6,928.06	6,341.00	6,337.34	131.42	190.01	-75.01	-1,807.47	-1,367.75	7,235.08	6,995.24	239.85	30.166	
15,100.00	6,927.96	6,341.00	6,337.34	132.99	190.01	-75.01	-1,807.47	-1,367.75	7,326.74	7,086.84	239.89	30.542	
15,200.00	6,927.87	6,341.00	6,337.34	134.56	190.01	-75.01	-1,807.47	-1,367.75	7,418.61	7,178.67	239.94	30.918	
15,300.00	6,927.77	6,341.00	6,337.34	136.13	190.01	-75.01	-1,807.47	-1,367.75	7,510.69	7,270.70	239.99	31.296	
15,400.00	6,927.67	6,341.00	6,337.34	137.70	190.01	-75.01	-1,807.47	-1,367.75	7,602.97	7,362.94	240.03	31.675	
15,500.00	6,927.57	6,341.00	6,337.34	139.28	190.01	-75.01	-1,807.47	-1,367.75	7,695.44	7,455.37	240.08	32.054	
15,600.00	6,927.48	6,341.00	6,337.34	140.85	190.01	-75.01	-1,807.47	-1,367.75	7,788.10	7,547.98	240.12	32.434	
15,700.00	6,927.38	6,341.00	6,337.34	142.42	190.01	-75.01	-1,807.47	-1,367.75	7,880.94	7,640.78	240.17	32.815	
15,800.00	6,927.28	6,341.00	6,337.34	144.00	190.01	-75.01	-1,807.47	-1,367.75	7,973.95	7,733.75	240.21	33.196	
15,900.00	6,927.19	6,341.00	6,337.34	145.57	190.01	-75.01	-1,807.47	-1,367.75	8,067.13	7,826.88	240.25	33.578	
16,000.00	6,927.09	6,341.00	6,337.34	147.15	190.01	-75.01	-1,807.47	-1,367.75	8,160.47	7,920.18	240.29	33.961	
16,100.00	6,926.99	6,341.00	6,337.34	148.72	190.01	-75.01	-1,807.47	-1,367.75	8,253.97	8,013.64	240.33	34.344	
16,200.00	6,926.90	6,341.00	6,337.34	150.30	190.01	-75.01	-1,807.47	-1,367.75	8,347.62	8,107.24	240.37	34.728	
16,300.00	6,926.80	6,341.00	6,337.34	151.87	190.01	-75.01	-1,807.47	-1,367.75	8,441.41	8,200.99	240.41	35.112	
16,400.00	6,926.70	6,341.00	6,337.34	153.45	190.01	-75.01	-1,807.47	-1,367.75	8,535.34	8,294.89	240.46	35.497	
16,500.00	6,926.61	6,341.00	6,337.34	155.03	190.01	-75.01	-1,807.47	-1,367.75	8,629.41	8,388.92	240.50	35.882	
16,600.00	6,926.51	6,341.00	6,337.34	156.61	190.01	-75.01	-1,807.47	-1,367.75	8,723.61	8,483.08	240.54	36.267	
16,700.00	6,926.41	6,341.00	6,337.34	158.19	190.01	-75.01	-1,807.47	-1,367.75	8,817.94	8,577.37	240.58	36.653	
16,800.00	6,926.32	6,341.00	6,337.34	159.77	190.01	-75.01	-1,807.47	-1,367.75	8,912.40	8,671.78	240.62	37.040	
16,900.00	6,926.22	6,341.00	6,337.34	161.35	190.01	-75.01	-1,807.47	-1,367.75	9,006.97	8,766.31	240.66	37.427	
17,000.00	6,926.12	6,341.00	6,337.34	162.93	190.01	-75.01	-1,807.47	-1,367.75	9,101.66	8,860.96	240.70	37.814	
17,100.00	6,926.03	6,341.00	6,337.34	164.51	190.01	-75.01	-1,807.47	-1,367.75	9,196.46	8,955.72	240.74	38.201	
17,200.00	6,925.93	6,341.00	6,337.34	166.09	190.01	-75.01	-1,807.47	-1,367.75	9,291.37	9,050.59	240.78	38.589	
17,300.00	6,925.83	6,341.00	6,337.34	167.67	190.01	-75.01	-1,807.47	-1,367.75	9,386.39	9,145.57	240.82	38.977	
17,400.00	6,925.74	6,341.00	6,337.34	169.26	190.01	-75.01	-1,807.47	-1,367.75	9,481.51	9,240.65	240.86	39.366	
17,500.00	6,925.64	6,341.00	6,337.34	170.84	190.01	-75.01	-1,807.47	-1,367.75	9,576.72	9,335.83	240.90	39.754	
17,600.00	6,925.54	6,341.00	6,337.34	172.42	190.01	-75.01	-1,807.47	-1,367.75	9,672.04	9,431.10	240.94	40.143	
17,700.00	6,925.45	6,341.00	6,337.34	174.00	190.01	-75.01	-1,807.47	-1,367.75	9,767.45	9,526.47	240.98	40.532	
17,800.00	6,925.35	6,341.00	6,337.34	175.59	190.01	-75.01	-1,807.47	-1,367.75	9,862.95	9,621.93	241.02	40.922	
17,900.00	6,925.25	6,341.00	6,337.34	177.17	190.01	-75.01	-1,807.47	-1,367.75	9,958.53	9,717.47	241.06	41.311	
18,000.00	6,925.16	6,341.00	6,337.34	178.76	190.01	-75.01	-1,807.47	-1,367.75	10,054.21	9,813.10	241.10	41.701	
18,100.00	6,925.06	6,341.00	6,337.34	180.34	190.01	-75.01	-1,807.47	-1,367.75	10,149.96	9,908.82	241.14	42.091	
18,160.21	6,925.00	6,341.00	6,337.34	181.30	190.01	-75.01	-1,807.47	-1,367.75	10,207.66	9,966.49	241.17	42.326	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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
0.00	0.00	28.77	28.77	0.00	0.02	165.33	-1,708.20	447.03	1,765.73				
100.00	100.00	128.67	128.67	0.25	0.11	165.33	-1,708.06	447.23	1,765.64	1,765.32	0.32	5,576.929	
121.90	121.90	149.90	149.90	0.33	0.13	165.32	-1,708.03	447.31	1,765.63	1,765.22	0.41	4,319.672	CC
200.00	200.00	225.95	225.95	0.61	0.23	165.31	-1,707.96	447.78	1,765.68	1,764.95	0.74	2,393.073	
300.00	300.00	323.97	323.96	0.97	0.36	165.28	-1,707.85	448.78	1,765.84	1,764.67	1.16	1,520.087	
400.00	400.00	422.88	422.86	1.33	0.48	165.24	-1,707.75	450.08	1,766.07	1,764.48	1.59	1,111.491	
500.00	500.00	523.91	523.89	1.68	0.61	165.19	-1,707.66	451.48	1,766.34	1,764.32	2.02	874.790	ES
600.00	599.98	623.36	623.33	2.04	0.74	153.16	-1,707.56	452.83	1,768.15	1,765.70	2.45	721.929	
700.00	699.84	722.24	722.20	2.41	0.87	153.14	-1,707.47	454.29	1,773.11	1,770.22	2.88	615.306	
800.00	799.45	818.70	818.64	2.77	1.00	153.14	-1,707.41	455.82	1,781.23	1,777.92	3.31	537.401	
900.00	898.70	914.37	914.30	3.13	1.12	153.16	-1,707.54	457.34	1,792.65	1,788.90	3.75	477.863	
1,000.00	997.47	1,014.00	1,013.92	3.50	1.25	153.21	-1,707.82	458.91	1,807.31	1,803.12	4.20	430.691	
1,100.00	1,095.62	1,112.00	1,111.90	3.89	1.37	153.27	-1,708.09	460.41	1,825.05	1,820.40	4.64	392.961	
1,200.00	1,193.44	1,209.19	1,209.08	4.29	1.50	153.52	-1,708.42	461.70	1,844.36	1,839.27	5.09	362.049	
1,300.00	1,291.25	1,309.31	1,309.20	4.70	1.62	153.78	-1,708.76	462.88	1,863.67	1,858.13	5.55	335.953	
1,400.00	1,389.07	1,414.92	1,414.80	5.11	1.76	154.05	-1,708.85	463.98	1,882.75	1,876.75	6.00	313.708	
1,500.00	1,486.88	1,513.93	1,513.81	5.53	1.89	154.30	-1,708.70	464.87	1,901.60	1,895.16	6.44	295.080	
1,600.00	1,584.70	1,614.81	1,614.69	5.95	2.02	154.55	-1,708.48	465.65	1,920.39	1,913.51	6.89	278.860	
1,700.00	1,682.51	1,719.03	1,718.90	6.37	2.12	154.82	-1,708.22	465.92	1,939.08	1,931.76	7.32	264.782	
1,800.00	1,780.33	1,815.42	1,815.29	6.80	2.09	155.08	-1,707.91	465.44	1,957.58	1,949.82	7.75	252.444	
1,900.00	1,878.14	1,919.43	1,919.30	7.22	2.08	155.36	-1,707.43	465.01	1,976.00	1,967.80	8.20	240.993	
2,000.00	1,975.96	2,025.38	2,025.25	7.65	2.12	155.63	-1,706.52	464.74	1,994.11	1,985.45	8.66	230.356	
2,100.00	2,073.77	2,125.54	2,125.40	8.08	2.17	155.88	-1,705.45	464.46	2,012.04	2,002.92	9.12	220.649	
2,200.00	2,171.59	2,223.26	2,223.11	8.51	2.22	156.12	-1,704.33	464.13	2,029.93	2,020.34	9.59	211.752	
2,300.00	2,269.40	2,315.52	2,315.37	8.95	2.25	156.35	-1,703.48	463.68	2,048.03	2,037.98	10.05	203.736	
2,400.00	2,367.22	2,413.59	2,413.43	9.38	2.29	156.59	-1,702.72	463.08	2,066.30	2,055.77	10.53	196.248	
2,500.00	2,465.03	2,515.75	2,515.58	9.81	2.33	156.84	-1,701.86	462.39	2,084.53	2,073.51	11.01	189.246	
2,600.00	2,562.84	2,612.20	2,612.02	10.25	2.36	157.09	-1,701.00	461.26	2,102.64	2,091.15	11.49	182.992	
2,700.00	2,660.66	2,711.02	2,710.83	10.68	2.38	157.35	-1,700.20	459.69	2,120.81	2,108.84	11.97	177.250	
2,800.00	2,758.47	2,805.31	2,805.11	11.12	2.41	157.59	-1,699.59	458.21	2,139.18	2,126.75	12.43	172.083	
2,900.00	2,856.29	2,900.44	2,900.23	11.55	2.44	157.83	-1,698.94	456.85	2,157.57	2,144.67	12.90	167.251	
3,000.00	2,954.10	2,985.56	2,985.34	11.99	2.47	158.03	-1,698.67	455.85	2,176.40	2,163.05	13.35	163.060	
3,100.00	3,051.92	3,071.23	3,071.00	12.42	2.48	158.23	-1,698.82	455.15	2,195.80	2,182.03	13.78	159.393	
3,200.00	3,149.73	3,157.94	3,157.72	12.86	2.49	158.42	-1,699.53	454.84	2,215.92	2,201.74	14.18	156.282	
3,300.00	3,247.55	3,255.43	3,255.20	13.30	2.50	158.62	-1,700.43	454.53	2,236.17	2,221.57	14.59	153.227	
3,400.00	3,345.36	3,358.78	3,358.54	13.73	2.52	158.84	-1,701.35	454.07	2,256.40	2,241.37	15.02	150.197	
3,500.00	3,443.18	3,457.66	3,457.42	14.17	2.54	159.05	-1,702.06	453.45	2,276.46	2,261.00	15.46	147.290	
3,600.00	3,540.99	3,574.90	3,574.65	14.61	2.59	159.29	-1,702.48	452.82	2,296.24	2,280.31	15.93	144.178	
3,700.00	3,638.81	3,672.02	3,671.77	15.05	2.65	159.47	-1,702.29	452.56	2,315.51	2,299.12	16.39	141.244	
3,800.00	3,736.62	3,763.67	3,763.42	15.48	2.73	159.64	-1,702.14	452.44	2,334.87	2,318.02	16.85	138.549	
3,900.00	3,834.44	3,844.97	3,844.72	15.92	2.76	159.79	-1,702.44	452.30	2,354.78	2,337.52	17.26	136.423	
4,000.00	3,932.25	3,918.21	3,917.95	16.36	2.78	159.93	-1,703.38	452.08	2,375.57	2,357.91	17.65	134.558	
4,100.00	4,030.07	4,014.26	4,013.99	16.80	2.83	160.12	-1,705.18	451.67	2,396.93	2,378.84	18.08	132.560	
4,200.00	4,127.88	4,111.91	4,111.62	17.24	2.87	160.30	-1,707.01	451.16	2,418.30	2,399.78	18.52	130.608	
4,300.00	4,225.70	4,203.11	4,202.80	17.68	2.92	160.48	-1,708.88	450.52	2,439.84	2,420.90	18.94	128.795	
4,400.00	4,323.51	4,290.98	4,290.63	18.11	2.97	160.65	-1,711.07	449.46	2,461.78	2,442.41	19.37	127.099	
4,500.00	4,421.33	4,386.41	4,386.02	18.55	3.03	160.85	-1,713.66	448.16	2,483.93	2,464.12	19.81	125.394	
4,600.00	4,519.14	4,509.19	4,508.76	18.99	3.11	161.08	-1,716.34	446.75	2,505.63	2,485.33	20.30	123.438	
4,700.00	4,616.95	4,611.84	4,611.39	19.43	3.19	161.27	-1,717.92	445.80	2,526.75	2,506.00	20.76	121.727	
4,800.00	4,714.77	4,719.82	4,719.37	19.87	3.27	161.46	-1,719.30	444.87	2,547.65	2,526.42	21.23	120.011	
4,900.00	4,812.58	4,813.49	4,813.02	20.31	3.34	161.62	-1,720.53	444.18	2,568.62	2,546.94	21.68	118.497	
5,000.00	4,910.40	4,912.27	4,911.80	20.75	3.42	161.78	-1,721.64	443.80	2,589.46	2,567.32	22.14	116.973	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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
5,100.00	5,008.21	5,009.11	5,008.62	21.19	3.50	161.93	-1,722.76	443.39	2,610.34	2,587.74	22.60	115.521	
5,200.00	5,106.03	5,104.65	5,104.16	21.63	3.59	162.08	-1,723.88	443.13	2,631.27	2,608.22	23.06	114.125	
5,300.00	5,203.84	5,207.91	5,207.42	22.06	3.68	162.23	-1,724.94	442.96	2,652.09	2,628.56	23.53	112.693	
5,400.00	5,301.66	5,302.63	5,302.13	22.50	3.76	162.36	-1,725.87	442.96	2,672.90	2,648.90	24.00	111.383	
5,500.00	5,399.47	5,402.61	5,402.10	22.94	3.85	162.50	-1,726.89	443.11	2,693.76	2,669.29	24.47	110.066	
5,600.00	5,497.29	5,498.08	5,497.57	23.38	3.94	162.63	-1,727.82	443.20	2,714.60	2,689.66	24.94	108.831	
5,700.00	5,595.10	5,583.26	5,582.75	23.82	4.03	162.74	-1,728.92	443.09	2,735.74	2,710.35	25.39	107.741	
5,800.00	5,692.92	5,674.61	5,674.08	24.26	4.12	162.88	-1,730.45	442.61	2,757.23	2,731.38	25.85	106.651	
5,900.00	5,790.73	5,774.20	5,773.64	24.70	4.22	163.03	-1,732.22	441.61	2,778.80	2,752.47	26.33	105.540	
6,000.00	5,888.55	5,870.76	5,870.18	25.14	4.31	163.18	-1,733.90	440.54	2,800.35	2,773.55	26.80	104.489	
6,100.00	5,986.36	5,968.14	5,967.54	25.58	4.41	163.33	-1,735.61	439.34	2,821.92	2,794.65	27.27	103.470	
6,200.00	6,084.18	6,065.52	6,064.90	26.02	4.51	163.47	-1,737.32	438.14	2,843.51	2,815.76	27.75	102.487	
6,300.00	6,181.99	6,125.00	6,124.37	26.46	4.57	163.56	-1,738.37	437.40	2,865.36	2,837.23	28.13	101.850	
6,401.22	6,281.00	6,125.00	6,124.37	26.90	4.57	163.56	-1,738.37	437.40	2,890.22	2,861.84	28.38	101.824 SF	
6,450.00	6,328.76	6,125.00	6,124.37	27.12	4.57	-174.23	-1,738.37	437.40	2,903.46	2,874.96	28.50	101.880	
6,500.00	6,377.61	6,125.00	6,124.37	27.32	4.57	-153.24	-1,738.37	437.40	2,917.91	2,889.30	28.61	102.001	
6,550.00	6,426.06	6,125.00	6,124.37	27.52	4.57	-137.22	-1,738.37	437.40	2,933.15	2,904.44	28.71	102.182	
6,600.00	6,473.81	6,125.00	6,124.37	27.71	4.57	-125.73	-1,738.37	437.40	2,949.07	2,920.28	28.79	102.421	
6,650.00	6,520.56	6,125.00	6,124.37	27.89	4.57	-117.33	-1,738.37	437.40	2,965.58	2,936.70	28.87	102.713	
6,700.00	6,566.03	6,125.00	6,124.37	28.05	4.57	-110.89	-1,738.37	437.40	2,982.54	2,953.60	28.94	103.051	
6,750.00	6,609.93	6,125.00	6,124.37	28.20	4.57	-105.73	-1,738.37	437.40	2,999.87	2,970.86	29.00	103.432	
6,800.00	6,652.00	6,125.00	6,124.37	28.34	4.57	-101.43	-1,738.37	437.40	3,017.43	2,988.37	29.06	103.848	
6,850.00	6,691.98	6,125.00	6,124.37	28.47	4.57	-97.73	-1,738.37	437.40	3,035.13	3,006.02	29.10	104.293	
6,900.00	6,729.61	6,125.00	6,124.37	28.59	4.57	-94.47	-1,738.37	437.40	3,052.84	3,023.70	29.14	104.759	
6,950.00	6,764.67	6,125.00	6,124.37	28.69	4.57	-91.57	-1,738.37	437.40	3,070.47	3,041.29	29.18	105.239	
7,000.00	6,796.95	6,125.00	6,124.37	28.79	4.57	-88.94	-1,738.37	437.40	3,087.90	3,058.70	29.21	105.724	
7,050.00	6,826.23	6,125.00	6,124.37	28.89	4.57	-86.56	-1,738.37	437.40	3,105.04	3,075.80	29.24	106.204	
7,100.00	6,852.35	6,125.00	6,124.37	28.98	4.57	-84.38	-1,738.37	437.40	3,121.78	3,092.52	29.27	106.672	
7,150.00	6,875.14	6,125.00	6,124.37	29.08	4.57	-82.41	-1,738.37	437.40	3,138.03	3,108.73	29.30	107.118	
7,200.00	6,894.45	6,125.00	6,124.37	29.18	4.57	-80.61	-1,738.37	437.40	3,153.69	3,124.36	29.33	107.534	
7,250.00	6,910.18	6,125.00	6,124.37	29.28	4.57	-78.98	-1,738.37	437.40	3,168.67	3,139.31	29.36	107.913	
7,300.00	6,922.23	6,125.00	6,124.37	29.40	4.57	-77.53	-1,738.37	437.40	3,182.91	3,153.50	29.40	108.249	
7,350.00	6,930.51	6,125.00	6,124.37	29.54	4.57	-76.24	-1,738.37	437.40	3,196.31	3,166.86	29.45	108.536	
7,400.00	6,934.98	6,125.00	6,124.37	29.70	4.57	-75.11	-1,738.37	437.40	3,208.81	3,179.31	29.50	108.772	
7,433.91	6,935.83	6,125.00	6,124.37	29.81	4.57	-74.44	-1,738.37	437.40	3,216.73	3,187.20	29.54	108.903	
7,500.00	6,935.76	6,125.00	6,124.37	30.07	4.57	-74.44	-1,738.37	437.40	3,232.38	3,202.75	29.63	109.102	
7,600.00	6,935.66	6,125.00	6,124.37	30.52	4.57	-74.44	-1,738.37	437.40	3,258.46	3,228.65	29.80	109.331	
7,700.00	6,935.55	6,125.00	6,124.37	31.06	4.57	-74.44	-1,738.37	437.40	3,287.37	3,257.35	30.02	109.498	
7,800.00	6,935.45	6,125.00	6,124.37	31.68	4.57	-74.44	-1,738.37	437.40	3,319.05	3,288.77	30.28	109.616	
7,900.00	6,935.34	6,125.00	6,124.37	32.37	4.57	-74.44	-1,738.37	437.40	3,353.41	3,322.84	30.57	109.700	
8,000.00	6,935.24	6,125.00	6,124.37	33.12	4.57	-74.44	-1,738.37	437.40	3,390.37	3,359.49	30.89	109.767	
8,100.00	6,935.13	6,125.00	6,124.37	33.93	4.57	-74.44	-1,738.37	437.40	3,429.85	3,398.62	31.23	109.829	
8,200.00	6,935.03	6,125.00	6,124.37	34.80	4.57	-74.44	-1,738.37	437.40	3,471.77	3,440.18	31.59	109.898	
8,300.00	6,934.92	6,125.00	6,124.37	35.71	4.57	-74.44	-1,738.37	437.40	3,516.03	3,484.06	31.97	109.987	
8,400.00	6,934.82	6,125.00	6,124.37	36.67	4.57	-74.44	-1,738.37	437.40	3,562.54	3,530.19	32.36	110.103	
8,500.00	6,934.71	6,125.00	6,124.37	37.68	4.57	-74.44	-1,738.37	437.40	3,611.23	3,578.48	32.75	110.256	
8,600.00	6,934.61	6,125.00	6,124.37	38.72	4.57	-74.44	-1,738.37	437.40	3,662.00	3,628.85	33.16	110.451	
8,700.00	6,934.50	6,125.00	6,124.37	39.80	4.57	-74.44	-1,738.37	437.40	3,714.77	3,681.21	33.56	110.692	
8,800.00	6,934.40	6,125.00	6,124.37	40.92	4.57	-74.44	-1,738.37	437.40	3,769.46	3,735.49	33.96	110.984	
8,900.00	6,934.29	6,125.00	6,124.37	42.06	4.57	-74.44	-1,738.37	437.40	3,825.97	3,791.61	34.37	111.328	
9,000.00	6,934.19	6,125.00	6,124.37	43.23	4.57	-74.44	-1,738.37	437.40	3,884.24	3,849.48	34.77	111.726	
9,100.00	6,934.08	6,125.00	6,124.37	44.43	4.57	-74.44	-1,738.37	437.40	3,944.19	3,909.03	35.16	112.179	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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
9,200.00	6,933.98	6,125.00	6,124.37	45.66	4.57	-74.44	-1,738.37	437.40	4,005.73	3,970.18	35.55	112.686	
9,300.00	6,933.88	6,125.00	6,124.37	46.90	4.57	-74.44	-1,738.37	437.40	4,068.80	4,032.87	35.93	113.247	
9,400.00	6,933.77	6,125.00	6,124.37	48.17	4.57	-74.44	-1,738.37	437.40	4,133.33	4,097.03	36.30	113.860	
9,500.00	6,933.67	6,125.00	6,124.37	49.46	4.57	-74.44	-1,738.37	437.40	4,199.25	4,162.58	36.67	114.525	
9,600.00	6,933.56	6,125.00	6,124.37	50.76	4.57	-74.44	-1,738.37	437.40	4,266.49	4,229.47	37.02	115.241	
9,700.00	6,933.46	6,125.00	6,124.37	52.08	4.57	-74.44	-1,738.37	437.40	4,335.00	4,297.63	37.37	116.004	
9,800.00	6,933.35	6,125.00	6,124.37	53.41	4.57	-74.44	-1,738.37	437.40	4,404.72	4,367.01	37.71	116.814	
9,900.00	6,933.25	6,125.00	6,124.37	54.76	4.57	-74.44	-1,738.37	437.40	4,475.58	4,437.54	38.04	117.669	
10,000.00	6,933.14	6,125.00	6,124.37	56.12	4.57	-74.44	-1,738.37	437.40	4,547.53	4,509.18	38.35	118.567	
10,100.00	6,933.04	6,125.00	6,124.37	57.50	4.57	-74.44	-1,738.37	437.40	4,620.53	4,581.87	38.66	119.505	
10,200.00	6,932.93	6,125.00	6,124.37	58.88	4.57	-74.44	-1,738.37	437.40	4,694.53	4,655.57	38.96	120.483	
10,300.00	6,932.83	6,125.00	6,124.37	60.28	4.57	-74.44	-1,738.37	437.40	4,769.47	4,730.22	39.26	121.497	
10,400.00	6,932.72	6,125.00	6,124.37	61.69	4.57	-74.44	-1,738.37	437.40	4,845.32	4,805.78	39.54	122.547	
10,500.00	6,932.62	6,125.00	6,124.37	63.10	4.57	-74.44	-1,738.37	437.40	4,922.03	4,882.22	39.81	123.630	
10,600.00	6,932.51	6,125.00	6,124.37	64.52	4.57	-74.44	-1,738.37	437.40	4,999.57	4,959.49	40.08	124.746	
10,700.00	6,932.41	6,125.00	6,124.37	65.96	4.57	-74.44	-1,738.37	437.40	5,077.89	5,037.55	40.34	125.891	
10,800.00	6,932.30	6,125.00	6,124.37	67.39	4.57	-74.44	-1,738.37	437.40	5,156.96	5,116.37	40.59	127.065	
10,900.00	6,932.20	6,125.00	6,124.37	68.84	4.57	-74.44	-1,738.37	437.40	5,236.75	5,195.92	40.83	128.266	
11,000.00	6,932.10	6,125.00	6,124.37	70.29	4.57	-74.44	-1,738.37	437.40	5,317.22	5,276.15	41.06	129.492	
11,100.00	6,931.99	6,125.00	6,124.37	71.75	4.57	-74.44	-1,738.37	437.40	5,398.34	5,357.05	41.29	130.743	
11,200.00	6,931.89	6,125.00	6,124.37	73.22	4.57	-74.44	-1,738.37	437.40	5,480.08	5,438.57	41.51	132.017	
11,300.00	6,931.78	6,125.00	6,124.37	74.69	4.57	-74.44	-1,738.37	437.40	5,562.43	5,520.70	41.72	133.312	
11,400.00	6,931.68	6,125.00	6,124.37	76.16	4.57	-74.44	-1,738.37	437.40	5,645.34	5,603.41	41.93	134.628	
11,500.00	6,931.57	6,125.00	6,124.37	77.64	4.57	-74.44	-1,738.37	437.40	5,728.80	5,686.66	42.13	135.963	
11,600.00	6,931.47	6,125.00	6,124.37	79.13	4.57	-74.44	-1,738.37	437.40	5,812.78	5,770.45	42.33	137.317	
11,700.00	6,931.36	6,125.00	6,124.37	80.62	4.57	-74.44	-1,738.37	437.40	5,897.26	5,854.74	42.52	138.687	
11,800.00	6,931.26	6,125.00	6,124.37	82.11	4.57	-74.44	-1,738.37	437.40	5,982.22	5,939.51	42.71	140.074	
11,900.00	6,931.15	6,125.00	6,124.37	83.61	4.57	-74.44	-1,738.37	437.40	6,067.64	6,024.75	42.89	141.477	
12,000.00	6,931.05	6,125.00	6,124.37	85.11	4.57	-74.44	-1,738.37	437.40	6,153.49	6,110.43	43.06	142.893	
12,100.00	6,930.94	6,125.00	6,124.37	86.62	4.57	-74.44	-1,738.37	437.40	6,239.77	6,196.54	43.23	144.324	
12,200.00	6,930.84	6,125.00	6,124.37	88.13	4.57	-74.44	-1,738.37	437.40	6,326.46	6,283.05	43.40	145.767	
12,300.00	6,930.73	6,125.00	6,124.37	89.64	4.57	-74.44	-1,738.37	437.40	6,413.53	6,369.96	43.56	147.222	
12,400.00	6,930.63	6,125.00	6,124.37	91.15	4.57	-74.44	-1,738.37	437.40	6,500.97	6,457.25	43.72	148.689	
12,500.00	6,930.52	6,125.00	6,124.37	92.67	4.57	-74.44	-1,738.37	437.40	6,588.77	6,544.89	43.88	150.166	
12,600.00	6,930.42	6,125.00	6,124.37	94.19	4.57	-74.44	-1,738.37	437.40	6,676.91	6,632.88	44.03	151.653	
12,700.00	6,930.31	6,125.00	6,124.37	95.71	4.57	-74.44	-1,738.37	437.40	6,765.38	6,721.21	44.17	153.150	
12,800.00	6,930.21	6,125.00	6,124.37	97.24	4.57	-74.44	-1,738.37	437.40	6,854.17	6,809.85	44.32	154.655	
12,900.00	6,930.11	6,125.00	6,124.37	98.77	4.57	-74.44	-1,738.37	437.40	6,943.27	6,898.81	44.46	156.169	
13,008.91	6,929.99	6,125.00	6,124.37	100.43	4.57	-74.44	-1,738.37	437.40	7,040.63	6,996.02	44.61	157.826	
13,100.00	6,929.90	6,125.00	6,124.37	101.83	4.57	-73.38	-1,738.37	437.40	7,122.92	7,078.19	44.73	159.238	
13,139.82	6,929.86	6,125.00	6,124.37	102.44	4.57	-72.86	-1,738.37	437.40	7,159.33	7,114.54	44.78	159.868	
13,200.00	6,929.80	6,125.00	6,124.37	103.37	4.57	-72.86	-1,738.37	437.40	7,214.57	7,169.71	44.86	160.832	
13,300.00	6,929.70	6,125.00	6,124.37	104.92	4.57	-72.86	-1,738.37	437.40	7,306.54	7,261.56	44.98	162.439	
13,400.00	6,929.61	6,125.00	6,124.37	106.47	4.57	-72.86	-1,738.37	437.40	7,398.72	7,353.62	45.10	164.049	
13,500.00	6,929.51	6,125.00	6,124.37	108.02	4.57	-72.86	-1,738.37	437.40	7,491.10	7,445.89	45.22	165.664	
13,600.00	6,929.41	6,125.00	6,124.37	109.57	4.57	-72.86	-1,738.37	437.40	7,583.68	7,538.34	45.33	167.281	
13,700.00	6,929.32	6,125.00	6,124.37	111.12	4.57	-72.86	-1,738.37	437.40	7,676.44	7,630.99	45.45	168.902	
13,800.00	6,929.22	6,125.00	6,124.37	112.68	4.57	-72.86	-1,738.37	437.40	7,769.38	7,723.82	45.56	170.526	
13,900.00	6,929.12	6,125.00	6,124.37	114.23	4.57	-72.86	-1,738.37	437.40	7,862.49	7,816.82	45.67	172.151	
14,000.00	6,929.03	6,125.00	6,124.37	115.79	4.57	-72.86	-1,738.37	437.40	7,955.77	7,909.99	45.78	173.779	
14,100.00	6,928.93	6,125.00	6,124.37	117.35	4.57	-72.86	-1,738.37	437.40	8,049.21	8,003.32	45.89	175.409	
14,200.00	6,928.83	6,125.00	6,124.37	118.91	4.57	-72.86	-1,738.37	437.40	8,142.81	8,096.82	45.99	177.040	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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
14,300.00	6,928.74	6,125.00	6,124.37	120.47	4.57	-72.86	-1,738.37	437.40	8,236.56	8,190.46	46.10	178.673	
14,400.00	6,928.64	6,125.00	6,124.37	122.03	4.57	-72.86	-1,738.37	437.40	8,330.45	8,284.25	46.20	180.307	
14,500.00	6,928.54	6,125.00	6,124.37	123.60	4.57	-72.86	-1,738.37	437.40	8,424.49	8,378.18	46.30	181.941	
14,600.00	6,928.45	6,125.00	6,124.37	125.16	4.57	-72.86	-1,738.37	437.40	8,518.66	8,472.25	46.40	183.576	
14,700.00	6,928.35	6,125.00	6,124.37	126.72	4.57	-72.86	-1,738.37	437.40	8,612.96	8,566.45	46.50	185.212	
14,800.00	6,928.25	6,125.00	6,124.37	128.29	4.57	-72.86	-1,738.37	437.40	8,707.39	8,660.78	46.60	186.847	
14,900.00	6,928.16	6,125.00	6,124.37	129.86	4.57	-72.86	-1,738.37	437.40	8,801.94	8,755.24	46.70	188.483	
15,000.00	6,928.06	6,125.00	6,124.37	131.42	4.57	-72.86	-1,738.37	437.40	8,896.61	8,849.81	46.80	190.118	
15,100.00	6,927.96	6,125.00	6,124.37	132.99	4.57	-72.86	-1,738.37	437.40	8,991.39	8,944.50	46.89	191.753	
15,200.00	6,927.87	6,125.00	6,124.37	134.56	4.57	-72.86	-1,738.37	437.40	9,086.29	9,039.31	46.98	193.388	
15,300.00	6,927.77	6,125.00	6,124.37	136.13	4.57	-72.86	-1,738.37	437.40	9,181.30	9,134.22	47.08	195.021	
15,400.00	6,927.67	6,125.00	6,124.37	137.70	4.57	-72.86	-1,738.37	437.40	9,276.41	9,229.24	47.17	196.654	
15,500.00	6,927.57	6,125.00	6,124.37	139.28	4.57	-72.86	-1,738.37	437.40	9,371.62	9,324.36	47.26	198.286	
15,600.00	6,927.48	6,125.00	6,124.37	140.85	4.57	-72.86	-1,738.37	437.40	9,466.93	9,419.58	47.35	199.916	
15,700.00	6,927.38	6,125.00	6,124.37	142.42	4.57	-72.86	-1,738.37	437.40	9,562.34	9,514.89	47.45	201.545	
15,800.00	6,927.28	6,125.00	6,124.37	144.00	4.57	-72.86	-1,738.37	437.40	9,657.84	9,610.30	47.54	203.173	
15,900.00	6,927.19	6,125.00	6,124.37	145.57	4.57	-72.86	-1,738.37	437.40	9,753.43	9,705.81	47.62	204.799	
16,000.00	6,927.09	6,125.00	6,124.37	147.15	4.57	-72.86	-1,738.37	437.40	9,849.11	9,801.40	47.71	206.423	
16,100.00	6,926.99	6,125.00	6,124.37	148.72	4.57	-72.86	-1,738.37	437.40	9,944.87	9,897.07	47.80	208.045	
16,200.00	6,926.90	6,125.00	6,124.37	150.30	4.57	-72.86	-1,738.37	437.40	10,040.72	9,992.83	47.89	209.665	
16,300.00	6,926.80	6,125.00	6,124.37	151.87	4.57	-72.86	-1,738.37	437.40	10,136.64	10,088.67	47.98	211.283	
16,400.00	6,926.70	6,125.00	6,124.37	153.45	4.57	-72.86	-1,738.37	437.40	10,232.65	10,184.58	48.06	212.899	
16,500.00	6,926.61	6,125.00	6,124.37	155.03	4.57	-72.86	-1,738.37	437.40	10,328.73	10,280.58	48.15	214.513	
16,600.00	6,926.51	6,125.00	6,124.37	156.61	4.57	-72.86	-1,738.37	437.40	10,424.88	10,376.64	48.24	216.124	
16,700.00	6,926.41	6,125.00	6,124.37	158.19	4.57	-72.86	-1,738.37	437.40	10,521.11	10,472.78	48.32	217.732	
16,800.00	6,926.32	6,125.00	6,124.37	159.77	4.57	-72.86	-1,738.37	437.40	10,617.40	10,568.99	48.41	219.338	
16,900.00	6,926.22	6,125.00	6,124.37	161.35	4.57	-72.86	-1,738.37	437.40	10,713.76	10,665.27	48.49	220.941	
17,000.00	6,926.12	6,125.00	6,124.37	162.93	4.57	-72.86	-1,738.37	437.40	10,810.19	10,761.62	48.58	222.541	
17,100.00	6,926.03	6,125.00	6,124.37	164.51	4.57	-72.86	-1,738.37	437.40	10,906.69	10,858.02	48.66	224.138	
17,200.00	6,925.93	6,125.00	6,124.37	166.09	4.57	-72.86	-1,738.37	437.40	11,003.24	10,954.50	48.74	225.732	
17,300.00	6,925.83	6,125.00	6,124.37	167.67	4.57	-72.86	-1,738.37	437.40	11,099.86	11,051.03	48.83	227.323	
17,400.00	6,925.74	6,125.00	6,124.37	169.26	4.57	-72.86	-1,738.37	437.40	11,196.53	11,147.62	48.91	228.911	
17,500.00	6,925.64	6,125.00	6,124.37	170.84	4.57	-72.86	-1,738.37	437.40	11,293.27	11,244.27	49.00	230.496	
17,600.00	6,925.54	6,125.00	6,124.37	172.42	4.57	-72.86	-1,738.37	437.40	11,390.06	11,340.98	49.08	232.077	
17,700.00	6,925.45	6,125.00	6,124.37	174.00	4.57	-72.86	-1,738.37	437.40	11,486.90	11,437.74	49.16	233.654	
17,800.00	6,925.35	6,125.00	6,124.37	175.59	4.57	-72.86	-1,738.37	437.40	11,583.80	11,534.56	49.24	235.229	
17,900.00	6,925.25	6,125.00	6,124.37	177.17	4.57	-72.86	-1,738.37	437.40	11,680.75	11,631.43	49.33	236.799	
18,000.00	6,925.16	6,125.00	6,124.37	178.76	4.57	-72.86	-1,738.37	437.40	11,777.76	11,728.35	49.41	238.366	
18,100.00	6,925.06	6,125.00	6,124.37	180.34	4.57	-72.86	-1,738.37	437.40	11,874.81	11,825.32	49.49	239.930	
18,160.21	6,925.00	6,125.00	6,124.37	181.30	4.57	-72.86	-1,738.37	437.40	11,933.27	11,883.73	49.54	240.869	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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	46.74	46.74	0.00	0.02	164.12	-1,662.34	473.01	1,728.32				
100.00	100.00	143.33	143.33	0.25	0.11	164.12	-1,662.36	472.84	1,728.31	1,727.99	0.31	5,504.228	
200.00	200.00	237.84	237.84	0.61	0.13	164.10	-1,662.40	473.59	1,728.56	1,727.82	0.74	2,341.137	
300.00	300.00	1,082.82	1,054.97	0.97	1.13	162.37	-1,490.92	473.67	1,717.51	1,715.19	2.32	738.877	
400.00	400.00	1,190.15	1,151.81	1.33	1.34	161.90	-1,444.68	472.22	1,675.79	1,673.06	2.73	614.459	
500.00	500.00	1,280.36	1,232.91	1.68	1.53	161.45	-1,405.17	471.47	1,633.59	1,630.47	3.12	522.796	
600.00	599.98	1,367.42	1,311.24	2.04	1.72	149.46	-1,367.17	471.51	1,593.23	1,589.71	3.53	451.957	
700.00	699.84	1,461.17	1,395.41	2.41	1.93	149.40	-1,325.92	472.71	1,555.71	1,551.76	3.95	393.933	
800.00	799.45	1,551.48	1,476.41	2.77	2.14	149.38	-1,285.99	473.73	1,520.83	1,516.44	4.39	346.504	
900.00	898.70	1,652.35	1,567.11	3.13	2.37	149.39	-1,241.86	473.78	1,488.99	1,484.13	4.86	306.375	
1,000.00	997.47	1,759.99	1,663.53	3.50	2.63	149.40	-1,194.01	473.85	1,459.33	1,453.98	5.35	272.544	
1,100.00	1,095.62	1,846.66	1,740.99	3.89	2.84	149.48	-1,155.12	474.34	1,432.33	1,426.49	5.84	245.228	
1,200.00	1,193.44	1,915.01	1,802.58	4.29	3.00	149.36	-1,125.50	474.73	1,408.32	1,401.99	6.33	222.602	
1,300.00	1,291.25	2,019.41	1,897.09	4.70	3.25	149.20	-1,081.13	474.81	1,385.04	1,378.18	6.86	201.951	
1,400.00	1,389.07	2,114.10	1,982.61	5.11	3.48	149.03	-1,040.50	475.11	1,361.43	1,354.05	7.39	184.305	
1,500.00	1,486.88	2,202.40	2,062.61	5.53	3.69	148.85	-1,003.14	476.07	1,338.65	1,330.74	7.92	169.115	
1,600.00	1,584.70	2,312.68	2,162.41	5.95	3.96	148.63	-956.23	477.00	1,315.64	1,307.17	8.46	155.439	
1,700.00	1,682.51	2,427.86	2,266.02	6.37	4.25	148.40	-905.91	477.02	1,291.17	1,282.15	9.02	143.208	
1,800.00	1,780.33	2,514.69	2,343.81	6.80	4.47	148.21	-867.33	477.04	1,266.02	1,256.47	9.56	132.479	
1,900.00	1,878.14	2,601.55	2,422.27	7.22	4.69	148.04	-830.07	477.22	1,242.42	1,232.32	10.10	123.025	
2,000.00	1,975.96	2,709.20	2,519.33	7.65	4.97	147.79	-783.50	477.55	1,218.55	1,207.89	10.65	114.387	
2,100.00	2,073.77	2,817.75	2,616.78	8.08	5.25	147.53	-735.70	477.66	1,193.83	1,182.62	11.21	106.513	
2,200.00	2,171.59	2,908.06	2,697.78	8.51	5.49	147.31	-695.77	477.60	1,168.89	1,157.13	11.76	99.369	
2,300.00	2,269.40	2,998.21	2,778.99	8.95	5.73	147.17	-656.67	475.95	1,144.21	1,131.90	12.31	92.916	
2,400.00	2,367.22	3,063.90	2,838.86	9.38	5.89	147.13	-629.71	474.02	1,121.47	1,108.60	12.86	87.174	
2,500.00	2,465.03	3,131.26	2,900.98	9.81	6.05	147.11	-603.71	472.43	1,101.38	1,087.97	13.41	82.113	
2,600.00	2,562.84	3,195.63	2,961.04	10.25	6.20	147.09	-580.57	471.43	1,084.19	1,070.24	13.96	77.676	
2,700.00	2,660.66	3,255.29	3,017.31	10.68	6.32	147.07	-560.77	471.45	1,070.33	1,055.83	14.50	73.833	
2,800.00	2,758.47	3,305.60	3,065.44	11.12	6.42	147.07	-546.12	471.85	1,060.64	1,045.63	15.02	70.630	
2,900.00	2,856.29	3,371.61	3,129.37	11.55	6.53	147.11	-529.74	472.60	1,055.11	1,039.58	15.53	67.953	
3,000.00	2,954.10	3,457.19	3,212.67	11.99	6.66	147.19	-510.19	473.85	1,051.68	1,035.64	16.04	65.550	
3,100.00	3,051.92	3,534.30	3,288.04	12.42	6.78	147.30	-493.91	474.85	1,049.89	1,033.35	16.55	63.451	
3,123.40	3,074.81	3,551.16	3,304.59	12.53	6.80	147.34	-490.67	474.91	1,049.82	1,033.16	16.66	63.012	CC, ES
3,200.00	3,149.73	3,607.57	3,360.11	12.86	6.88	147.49	-480.72	474.93	1,050.61	1,033.58	17.03	61.694	
3,300.00	3,247.55	3,688.65	3,440.13	13.30	6.97	147.72	-467.65	475.33	1,053.32	1,035.80	17.51	60.146	
3,400.00	3,345.36	3,739.01	3,490.06	13.73	7.03	147.89	-461.10	475.55	1,059.18	1,041.24	17.94	59.056	
3,500.00	3,443.18	3,802.12	3,552.95	14.17	7.07	148.22	-456.09	474.65	1,069.11	1,050.76	18.35	58.275	
3,600.00	3,540.99	3,879.54	3,630.28	14.61	7.10	148.73	-453.09	472.41	1,082.27	1,063.51	18.76	57.684	
3,700.00	3,638.81	3,964.87	3,715.54	15.05	7.12	149.29	-450.73	470.11	1,096.75	1,077.56	19.19	57.156	
3,800.00	3,736.62	4,048.92	3,799.57	15.48	7.14	149.82	-449.33	468.47	1,112.61	1,093.00	19.61	56.742	
3,900.00	3,834.44	4,129.87	3,880.51	15.92	7.16	150.31	-449.12	467.31	1,130.05	1,110.05	19.99	56.518	
4,000.00	3,932.25	4,218.99	3,969.62	16.36	7.19	150.83	-449.74	466.35	1,148.60	1,128.24	20.36	56.412	
4,100.00	4,030.07	4,310.88	4,061.50	16.80	7.21	151.35	-451.02	465.51	1,167.95	1,147.24	20.71	56.396	
4,200.00	4,127.88	4,403.71	4,154.30	17.24	7.24	151.87	-452.65	464.70	1,187.77	1,166.71	21.06	56.411	
4,300.00	4,225.70	4,497.13	4,247.70	17.68	7.27	152.37	-454.68	463.97	1,208.09	1,186.69	21.40	56.454	
4,400.00	4,323.51	4,595.08	4,345.62	18.11	7.30	152.89	-456.96	463.17	1,228.65	1,206.90	21.75	56.482	
4,500.00	4,421.33	4,694.66	4,445.18	18.55	7.32	153.38	-459.11	462.50	1,249.19	1,227.07	22.11	56.496	
4,600.00	4,519.14	4,794.90	4,545.41	18.99	7.35	153.85	-460.78	462.12	1,269.39	1,246.91	22.47	56.487	
4,700.00	4,616.95	4,894.59	4,645.08	19.43	7.38	154.29	-462.33	461.89	1,289.61	1,266.77	22.83	56.477	
4,800.00	4,714.77	4,994.08	4,744.56	19.87	7.41	154.71	-463.78	461.72	1,309.80	1,286.60	23.20	56.460	
4,900.00	4,812.58	5,093.25	4,843.72	20.31	7.45	155.13	-465.07	461.44	1,329.90	1,306.33	23.57	56.428	
5,000.00	4,910.40	5,190.75	4,941.21	20.75	7.48	155.52	-466.25	461.14	1,349.96	1,326.03	23.94	56.395	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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	5,289.61	5,040.06	21.19	7.51	155.91	-467.49	460.81	1,370.13	1,345.82	24.31	56.354	
5,200.00	5,106.03	5,383.89	5,134.33	21.63	7.54	156.27	-468.73	460.48	1,390.40	1,365.72	24.68	56.330	
5,300.00	5,203.84	5,483.04	5,233.48	22.06	7.58	156.64	-470.06	459.98	1,410.73	1,385.67	25.07	56.280	
5,400.00	5,301.66	5,578.76	5,329.18	22.50	7.61	157.00	-471.39	459.34	1,431.12	1,405.68	25.45	56.238	
5,500.00	5,399.47	5,669.23	5,419.64	22.94	7.64	157.34	-472.88	458.67	1,451.82	1,425.99	25.82	56.226	
5,600.00	5,497.29	5,760.82	5,511.21	23.38	7.68	157.67	-474.77	458.04	1,472.97	1,446.77	26.20	56.227	
5,700.00	5,595.10	5,855.16	5,605.52	23.82	7.71	157.99	-476.99	457.73	1,494.51	1,467.93	26.58	56.230	
5,800.00	5,692.92	5,950.39	5,700.72	24.26	7.74	158.30	-479.32	457.43	1,516.19	1,489.22	26.96	56.228	
5,900.00	5,790.73	6,060.23	5,810.53	24.70	7.78	158.65	-481.83	457.02	1,537.76	1,510.38	27.38	56.160	
6,000.00	5,888.55	6,164.87	5,915.16	25.14	7.82	158.97	-483.39	456.81	1,558.61	1,530.82	27.79	56.078	
6,100.00	5,986.36	6,261.77	6,012.05	25.58	7.86	159.25	-484.69	456.69	1,579.38	1,551.18	28.20	56.016	
6,200.00	6,084.18	6,358.91	6,109.18	26.02	7.89	159.52	-486.01	456.54	1,600.19	1,571.58	28.60	55.949	
6,300.00	6,181.99	6,456.29	6,206.55	26.46	7.93	159.79	-487.36	456.42	1,621.07	1,592.06	29.01	55.880	
6,401.22	6,281.00	6,561.30	6,311.55	26.90	7.97	160.05	-488.43	456.64	1,641.91	1,612.47	29.44	55.772	
6,450.00	6,328.76	6,613.35	6,363.61	27.12	7.99	-177.99	-488.84	456.78	1,652.04	1,622.39	29.65	55.718	
6,500.00	6,377.61	6,670.53	6,420.78	27.32	8.00	-157.49	-488.99	456.99	1,662.53	1,632.66	29.87	55.654	
6,550.00	6,426.06	6,714.30	6,464.55	27.52	8.02	-142.12	-489.13	457.11	1,673.35	1,643.28	30.07	55.653	
6,600.00	6,473.81	6,768.90	6,519.15	27.71	8.03	-131.52	-489.21	457.35	1,684.38	1,654.10	30.28	55.625 SF	
6,650.00	6,520.56	6,816.24	6,566.49	27.89	8.05	-124.12	-489.16	457.54	1,695.59	1,665.11	30.48	55.629	
6,700.00	6,566.03	6,859.63	6,609.88	28.05	8.06	-118.77	-489.13	457.79	1,707.13	1,676.46	30.67	55.664	
6,750.00	6,609.93	6,909.18	6,659.43	28.20	8.08	-114.90	-489.11	458.05	1,719.03	1,688.16	30.87	55.692	
6,800.00	6,652.00	6,955.42	6,705.67	28.34	8.10	-111.93	-488.91	458.29	1,731.16	1,700.10	31.06	55.738	
6,850.00	6,691.98	6,994.70	6,744.95	28.47	8.11	-109.50	-488.69	458.46	1,743.70	1,712.46	31.24	55.823	
6,900.00	6,729.61	7,028.59	6,778.84	28.59	8.12	-107.41	-488.57	458.60	1,756.84	1,725.44	31.40	55.949	
6,950.00	6,764.67	7,071.71	6,821.95	28.69	8.14	-105.87	-488.35	458.79	1,770.52	1,738.94	31.58	56.057	
7,000.00	6,796.95	7,100.78	6,851.02	28.79	8.15	-104.25	-488.16	458.90	1,784.81	1,753.07	31.74	56.235	
7,050.00	6,826.23	7,127.23	6,877.47	28.89	8.16	-102.72	-488.01	459.08	1,799.87	1,767.98	31.89	56.447	
7,100.00	6,852.35	7,154.95	6,905.20	28.98	8.17	-101.34	-487.87	459.26	1,815.69	1,783.66	32.04	56.676	
7,150.00	6,875.14	7,180.12	6,930.36	29.08	8.18	-99.97	-487.73	459.33	1,832.24	1,800.06	32.18	56.935	
7,200.00	6,894.45	7,200.18	6,950.43	29.18	8.19	-98.51	-487.61	459.35	1,849.55	1,817.24	32.31	57.237	
7,250.00	6,910.18	7,216.06	6,966.30	29.28	8.20	-96.94	-487.50	459.39	1,867.62	1,835.19	32.44	57.578	
7,300.00	6,922.23	7,227.23	6,977.47	29.40	8.20	-95.25	-487.43	459.41	1,886.41	1,853.87	32.54	57.963	
7,350.00	6,930.51	7,234.90	6,985.15	29.54	8.21	-93.46	-487.38	459.43	1,905.87	1,873.22	32.64	58.386	
7,400.00	6,934.98	7,239.07	6,989.31	29.70	8.21	-91.57	-487.36	459.43	1,925.88	1,893.15	32.73	58.845	
7,433.91	6,935.83	7,240.04	6,990.29	29.81	8.21	-90.25	-487.35	459.44	1,939.72	1,906.94	32.78	59.175	
7,500.00	6,935.76	7,239.82	6,990.06	30.07	8.21	-90.24	-487.36	459.43	1,967.79	1,934.92	32.88	59.851	
7,600.00	6,935.66	7,239.46	6,989.71	30.52	8.21	-90.23	-487.36	459.43	2,013.65	1,980.61	33.04	60.940	
7,700.00	6,935.55	7,239.11	6,989.35	31.06	8.21	-90.22	-487.36	459.43	2,063.34	2,030.12	33.22	62.111	
7,800.00	6,935.45	7,238.87	6,989.11	31.68	8.21	-90.21	-487.36	459.43	2,116.59	2,083.19	33.41	63.361	
7,900.00	6,935.34	7,238.87	6,989.11	32.37	8.21	-90.21	-487.36	459.43	2,173.14	2,139.55	33.60	64.686	
8,000.00	6,935.24	7,238.23	6,988.47	33.12	8.21	-90.19	-487.36	459.43	2,232.74	2,198.96	33.78	66.087	
8,100.00	6,935.13	7,237.95	6,988.19	33.93	8.21	-90.18	-487.37	459.43	2,295.15	2,261.18	33.98	67.554	
8,200.00	6,935.03	7,237.67	6,987.91	34.80	8.21	-90.17	-487.37	459.43	2,360.15	2,325.99	34.16	69.086	
8,300.00	6,934.92	7,237.39	6,987.63	35.71	8.21	-90.16	-487.37	459.43	2,427.53	2,393.18	34.35	70.678	
8,400.00	6,934.82	7,237.10	6,987.35	36.67	8.21	-90.15	-487.37	459.43	2,497.09	2,462.57	34.52	72.327	
8,500.00	6,934.71	7,236.82	6,987.06	37.68	8.21	-90.14	-487.37	459.43	2,568.67	2,533.97	34.70	74.029	
8,600.00	6,934.61	7,236.53	6,986.77	38.72	8.21	-90.13	-487.37	459.43	2,642.09	2,607.22	34.87	75.779	
8,700.00	6,934.50	7,236.24	6,986.48	39.80	8.21	-90.12	-487.38	459.43	2,717.21	2,682.18	35.03	77.575	
8,800.00	6,934.40	7,235.94	6,986.19	40.92	8.21	-90.11	-487.38	459.43	2,793.89	2,758.71	35.18	79.412	
8,900.00	6,934.29	7,235.65	6,985.89	42.06	8.21	-90.10	-487.38	459.43	2,872.00	2,836.67	35.33	81.288	
9,000.00	6,934.19	7,235.35	6,985.59	43.23	8.21	-90.09	-487.38	459.43	2,951.44	2,915.96	35.47	83.200	
9,100.00	6,934.08	7,235.05	6,985.29	44.43	8.21	-90.09	-487.38	459.43	3,032.09	2,996.48	35.61	85.144	

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 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

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

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Rule Assigned: Warning
9,200.00	6,933.98	7,234.75	6,984.99	45.66	8.20	-90.08	-487.38	459.43	3,113.86	3,078.12	35.74	87.119	
9,300.00	6,933.88	7,234.44	6,984.69	46.90	8.20	-90.07	-487.39	459.43	3,196.67	3,160.80	35.87	89.121	
9,400.00	6,933.77	7,234.13	6,984.38	48.17	8.20	-90.06	-487.39	459.43	3,280.44	3,244.45	35.99	91.148	
9,500.00	6,933.67	7,233.82	6,984.07	49.46	8.20	-90.05	-487.39	459.42	3,365.10	3,328.99	36.11	93.198	
9,600.00	6,933.56	7,233.51	6,983.76	50.76	8.20	-90.04	-487.39	459.42	3,450.57	3,414.36	36.22	95.269	
9,700.00	6,933.46	7,233.20	6,983.44	52.08	8.20	-90.03	-487.39	459.42	3,536.81	3,500.49	36.33	97.360	
9,800.00	6,933.35	7,232.88	6,983.12	53.41	8.20	-90.01	-487.39	459.42	3,623.76	3,587.33	36.43	99.468	
9,900.00	6,933.25	7,232.56	6,982.80	54.76	8.20	-90.00	-487.40	459.42	3,711.36	3,674.83	36.53	101.591	
10,000.00	6,933.14	7,232.24	6,982.48	56.12	8.20	-89.99	-487.40	459.42	3,799.58	3,762.95	36.63	103.730	
10,100.00	6,933.04	7,231.91	6,982.16	57.50	8.20	-89.98	-487.40	459.42	3,888.36	3,851.64	36.72	105.881	
10,200.00	6,932.93	7,231.58	6,981.83	58.88	8.20	-89.97	-487.40	459.42	3,977.68	3,940.87	36.82	108.044	
10,300.00	6,932.83	7,231.25	6,981.50	60.28	8.20	-89.96	-487.40	459.42	4,067.50	4,030.59	36.90	110.217	
10,400.00	6,932.72	7,230.92	6,981.16	61.69	8.20	-89.95	-487.41	459.42	4,157.78	4,120.79	36.99	112.401	
10,500.00	6,932.62	7,230.58	6,980.83	63.10	8.20	-89.94	-487.41	459.42	4,248.49	4,211.42	37.07	114.592	
10,600.00	6,932.51	7,230.24	6,980.49	64.52	8.20	-89.93	-487.41	459.42	4,339.62	4,302.46	37.16	116.791	
10,700.00	6,932.41	7,229.90	6,980.14	65.96	8.20	-89.92	-487.41	459.42	4,431.12	4,393.88	37.24	118.996	
10,800.00	6,932.30	7,229.56	6,979.80	67.39	8.20	-89.91	-487.41	459.42	4,522.99	4,485.67	37.32	121.208	
10,900.00	6,932.20	7,229.21	6,979.45	68.84	8.20	-89.90	-487.42	459.42	4,615.19	4,577.80	37.39	123.424	
11,000.00	6,932.10	7,228.86	6,979.10	70.29	8.20	-89.88	-487.42	459.42	4,707.72	4,670.25	37.47	125.644	
11,100.00	6,931.99	7,228.50	6,978.75	71.75	8.20	-89.87	-487.42	459.41	4,800.54	4,762.99	37.54	127.868	
11,200.00	6,931.89	7,228.15	6,978.39	73.22	8.20	-89.86	-487.42	459.41	4,893.64	4,856.03	37.62	130.094	
11,300.00	6,931.78	7,227.79	6,978.03	74.69	8.20	-89.85	-487.43	459.41	4,987.01	4,949.33	37.69	132.323	
11,400.00	6,931.68	7,227.42	6,977.67	76.16	8.20	-89.84	-487.43	459.41	5,080.64	5,042.88	37.76	134.554	
11,500.00	6,931.57	7,227.06	6,977.30	77.64	8.20	-89.83	-487.43	459.41	5,174.50	5,136.67	37.83	136.785	
11,600.00	6,931.47	7,226.69	6,976.93	79.13	8.20	-89.81	-487.43	459.41	5,268.59	5,230.69	37.90	139.017	
11,700.00	6,931.36	7,226.31	6,976.56	80.62	8.20	-89.80	-487.43	459.41	5,362.89	5,324.93	37.97	141.250	
11,800.00	6,931.26	7,225.94	6,976.18	82.11	8.20	-89.79	-487.44	459.41	5,457.40	5,419.36	38.04	143.482	
11,900.00	6,931.15	7,225.56	6,975.80	83.61	8.20	-89.78	-487.44	459.41	5,552.10	5,513.99	38.10	145.713	
12,000.00	6,931.05	7,225.18	6,975.42	85.11	8.20	-89.77	-487.44	459.41	5,646.98	5,608.81	38.17	147.943	
12,100.00	6,930.94	7,224.79	6,975.03	86.62	8.20	-89.75	-487.44	459.41	5,742.03	5,703.80	38.24	150.171	
12,200.00	6,930.84	7,224.40	6,974.64	88.13	8.20	-89.74	-487.45	459.41	5,837.25	5,798.95	38.30	152.397	
12,300.00	6,930.73	7,224.01	6,974.25	89.64	8.20	-89.73	-487.45	459.40	5,932.63	5,894.26	38.37	154.622	
12,400.00	6,930.63	7,223.61	6,973.85	91.15	8.20	-89.71	-487.45	459.40	6,028.16	5,989.72	38.43	156.843	
12,500.00	6,930.52	7,223.21	6,973.45	92.67	8.20	-89.70	-487.45	459.40	6,123.82	6,085.32	38.50	159.062	
12,600.00	6,930.42	7,222.80	6,973.05	94.19	8.20	-89.69	-487.46	459.40	6,219.63	6,181.07	38.56	161.277	
12,700.00	6,930.31	7,222.40	6,972.64	95.71	8.20	-89.68	-487.46	459.40	6,315.57	6,276.94	38.63	163.489	
12,800.00	6,930.21	7,221.98	6,972.23	97.24	8.20	-89.66	-487.46	459.40	6,411.63	6,372.93	38.70	165.696	
12,900.00	6,930.11	7,221.57	6,971.81	98.77	8.20	-89.65	-487.46	459.40	6,507.80	6,469.05	38.76	167.900	
13,008.91	6,929.99	7,221.11	6,971.35	100.43	8.20	-89.63	-487.47	459.40	6,612.68	6,573.85	38.83	170.295	
13,100.00	6,929.90	7,220.74	6,970.98	101.83	8.20	-89.58	-487.47	459.40	6,700.87	6,661.98	38.89	172.304	
13,139.82	6,929.86	7,220.58	6,970.83	102.44	8.20	-89.56	-487.47	459.40	6,739.65	6,700.74	38.92	173.186	
13,200.00	6,929.80	7,220.35	6,970.60	103.37	8.20	-89.55	-487.47	459.40	6,798.39	6,759.44	38.95	174.525	
13,300.00	6,929.70	7,219.97	6,970.21	104.92	8.20	-89.53	-487.47	459.40	6,896.05	6,857.04	39.02	176.747	
13,400.00	6,929.61	7,219.58	6,969.82	106.47	8.20	-89.52	-487.48	459.40	6,993.78	6,954.70	39.08	178.962	
13,500.00	6,929.51	7,219.19	6,969.43	108.02	8.20	-89.50	-487.48	459.39	7,091.57	7,052.42	39.14	181.171	
13,600.00	6,929.41	7,218.79	6,969.03	109.57	8.20	-89.49	-487.48	459.39	7,189.42	7,150.21	39.21	183.373	
13,700.00	6,929.32	7,218.39	6,968.63	111.12	8.20	-89.47	-487.49	459.39	7,287.33	7,248.05	39.27	185.568	
13,800.00	6,929.22	7,217.99	6,968.23	112.68	8.20	-89.46	-487.49	459.39	7,385.29	7,345.96	39.33	187.757	
13,900.00	6,929.12	7,217.58	6,967.82	114.23	8.20	-89.44	-487.49	459.39	7,483.31	7,443.91	39.40	189.938	
14,000.00	6,929.03	7,217.17	6,967.41	115.79	8.20	-89.42	-487.49	459.39	7,581.38	7,541.91	39.46	192.112	
14,100.00	6,928.93	7,216.76	6,967.00	117.35	8.20	-89.41	-487.50	459.39	7,679.50	7,639.97	39.53	194.279	
14,200.00	6,928.83	7,216.34	6,966.58	118.91	8.20	-89.39	-487.50	459.39	7,777.66	7,738.07	39.59	196.439	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 95-Standard Keeper 104

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,300.00	6,928.74	7,215.91	6,966.16	120.47	8.20	-89.37	-487.50	459.39	7,875.88	7,836.22	39.66	198.591	
14,400.00	6,928.64	7,215.49	6,965.73	122.03	8.20	-89.36	-487.50	459.39	7,974.14	7,934.41	39.72	200.735	
14,500.00	6,928.54	7,215.06	6,965.30	123.60	8.20	-89.34	-487.51	459.38	8,072.44	8,032.65	39.79	202.872	
14,600.00	6,928.45	7,214.62	6,964.87	125.16	8.20	-89.32	-487.51	459.38	8,170.78	8,130.92	39.86	205.001	
14,700.00	6,928.35	7,214.22	6,964.46	126.72	8.20	-89.31	-487.51	459.38	8,269.16	8,229.24	39.92	207.122	
14,800.00	6,928.25	7,214.22	6,964.46	128.29	8.20	-89.31	-487.51	459.38	8,367.58	8,327.59	39.99	209.233	
14,900.00	6,928.16	7,214.22	6,964.46	129.86	8.20	-89.31	-487.51	459.38	8,466.04	8,425.98	40.06	211.337	
15,000.00	6,928.06	7,214.22	6,964.46	131.42	8.20	-89.31	-487.51	459.38	8,564.53	8,524.40	40.13	213.432	
15,100.00	6,927.96	7,214.22	6,964.46	132.99	8.20	-89.31	-487.51	459.38	8,663.06	8,622.86	40.20	215.519	
15,200.00	6,927.87	7,214.22	6,964.46	134.56	8.20	-89.31	-487.51	459.38	8,761.62	8,721.35	40.27	217.598	
15,300.00	6,927.77	7,214.22	6,964.46	136.13	8.20	-89.31	-487.51	459.38	8,860.21	8,819.88	40.33	219.668	
15,400.00	6,927.67	7,214.22	6,964.46	137.70	8.20	-89.31	-487.51	459.38	8,958.83	8,918.43	40.40	221.730	
15,500.00	6,927.57	7,214.22	6,964.46	139.28	8.20	-89.31	-487.51	459.38	9,057.49	9,017.01	40.47	223.784	
15,600.00	6,927.48	7,214.22	6,964.46	140.85	8.20	-89.31	-487.51	459.38	9,156.17	9,115.63	40.54	225.828	
15,700.00	6,927.38	7,214.22	6,964.46	142.42	8.20	-89.31	-487.51	459.38	9,254.88	9,214.27	40.62	227.864	
15,800.00	6,927.28	7,214.22	6,964.46	144.00	8.20	-89.31	-487.51	459.38	9,353.62	9,312.94	40.69	229.892	
15,900.00	6,927.19	7,214.22	6,964.46	145.57	8.20	-89.31	-487.51	459.38	9,452.39	9,411.63	40.76	231.910	
16,000.00	6,927.09	7,214.22	6,964.46	147.15	8.20	-89.31	-487.51	459.38	9,551.18	9,510.35	40.83	233.920	
16,100.00	6,926.99	7,214.22	6,964.46	148.72	8.20	-89.31	-487.51	459.38	9,650.00	9,609.09	40.90	235.921	
16,200.00	6,926.90	7,214.22	6,964.46	150.30	8.20	-89.31	-487.51	459.38	9,748.84	9,707.86	40.98	237.913	
16,300.00	6,926.80	7,214.22	6,964.46	151.87	8.20	-89.31	-487.51	459.38	9,847.70	9,806.65	41.05	239.896	
16,400.00	6,926.70	7,214.22	6,964.46	153.45	8.20	-89.31	-487.51	459.38	9,946.59	9,905.46	41.12	241.870	
16,500.00	6,926.61	7,214.22	6,964.46	155.03	8.20	-89.31	-487.51	459.38	10,045.49	10,004.30	41.20	243.835	
16,600.00	6,926.51	7,214.22	6,964.46	156.61	8.20	-89.31	-487.51	459.38	10,144.42	10,103.15	41.27	245.791	
16,700.00	6,926.41	7,214.22	6,964.46	158.19	8.20	-89.31	-487.51	459.38	10,243.38	10,202.03	41.35	247.738	
16,800.00	6,926.32	7,214.22	6,964.46	159.77	8.20	-89.31	-487.51	459.38	10,342.35	10,300.92	41.42	249.676	
16,900.00	6,926.22	7,214.22	6,964.46	161.35	8.20	-89.31	-487.51	459.38	10,441.34	10,399.84	41.50	251.604	
17,000.00	6,926.12	7,214.22	6,964.46	162.93	8.20	-89.31	-487.51	459.38	10,540.35	10,498.77	41.58	253.524	
17,100.00	6,926.03	7,209.18	6,959.42	164.51	8.19	-89.11	-487.55	459.37	10,639.37	10,597.72	41.65	255.448	
17,200.00	6,925.93	7,208.99	6,959.23	166.09	8.19	-89.11	-487.55	459.37	10,738.42	10,696.69	41.73	257.349	
17,300.00	6,925.83	7,208.80	6,959.05	167.67	8.19	-89.10	-487.55	459.37	10,837.48	10,795.68	41.80	259.241	
17,400.00	6,925.74	7,208.62	6,958.86	169.26	8.19	-89.09	-487.55	459.37	10,936.56	10,894.68	41.88	261.124	
17,500.00	6,925.64	7,208.43	6,958.68	170.84	8.19	-89.08	-487.55	459.37	11,035.66	10,993.70	41.96	262.998	
17,600.00	6,925.54	7,208.25	6,958.50	172.42	8.19	-89.08	-487.55	459.37	11,134.77	11,092.73	42.04	264.862	
17,700.00	6,925.45	7,208.07	6,958.31	174.00	8.19	-89.07	-487.56	459.37	11,233.90	11,191.78	42.12	266.717	
17,800.00	6,925.35	7,207.89	6,958.13	175.59	8.19	-89.06	-487.56	459.37	11,333.05	11,290.85	42.20	268.563	
17,900.00	6,925.25	7,207.71	6,957.96	177.17	8.19	-89.06	-487.56	459.37	11,432.21	11,389.93	42.28	270.399	
18,000.00	6,925.16	7,207.54	6,957.78	178.76	8.19	-89.05	-487.56	459.37	11,531.38	11,489.02	42.36	272.226	
18,100.00	6,925.06	7,207.36	6,957.61	180.34	8.19	-89.04	-487.56	459.37	11,630.57	11,588.13	42.44	274.044	
18,160.21	6,925.00	7,207.26	6,957.50	181.30	8.19	-89.04	-487.56	459.37	11,690.30	11,647.81	42.49	275.134	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 95-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	-10.45	757.27	-139.65	772.37				
100.00	100.00	38.31	38.31	0.25	0.70	-10.45	757.32	-139.62	770.08	769.13	0.95	811.261	
200.00	200.00	135.79	135.79	0.61	2.48	-10.41	757.82	-139.28	770.53	767.44	3.09	249.739	
300.00	300.00	237.25	237.24	0.97	4.32	-10.37	758.44	-138.78	771.04	765.75	5.28	145.903	
400.00	400.00	342.90	342.89	1.33	5.76	-10.32	758.57	-138.13	771.05	763.96	7.09	108.784	
500.00	500.00	442.57	442.56	1.68	6.86	-10.28	758.32	-137.48	770.69	762.15	8.54	90.237	
600.00	599.98	543.04	543.03	2.04	8.23	-22.30	758.09	-136.84	768.73	758.46	10.27	74.840	
700.00	699.84	642.54	642.52	2.41	9.73	-22.44	757.83	-136.14	763.51	751.37	12.14	62.902	
800.00	799.45	742.38	742.37	2.77	11.37	-22.71	757.60	-135.44	755.10	740.97	14.13	53.424	
900.00	898.70	842.47	842.45	3.13	12.95	-23.12	757.30	-134.81	743.46	727.38	16.08	46.231	
1,000.00	997.47	942.46	942.44	3.50	14.34	-23.69	756.79	-134.25	728.47	710.63	17.84	40.825	
1,100.00	1,095.62	1,040.95	1,040.92	3.89	15.90	-24.42	756.25	-133.55	710.32	690.55	19.77	35.932	
1,200.00	1,193.44	1,139.65	1,139.62	4.29	17.58	-25.08	755.64	-132.71	690.59	668.77	21.82	31.649	
1,300.00	1,291.25	1,236.67	1,236.63	4.70	19.35	-25.75	755.02	-131.70	670.90	646.94	23.96	28.003	
1,400.00	1,389.07	1,335.79	1,335.75	5.11	21.17	-26.48	754.39	-130.67	651.30	625.14	26.16	24.895	
1,500.00	1,486.88	1,433.99	1,433.93	5.53	23.08	-27.22	753.71	-129.43	631.70	603.25	28.44	22.209	
1,600.00	1,584.70	1,533.18	1,533.10	5.95	25.13	-27.99	752.81	-127.79	611.90	581.02	30.88	19.815	
1,700.00	1,682.51	1,627.90	1,627.81	6.37	27.14	-28.77	752.16	-126.15	592.40	559.13	33.27	17.805	
1,800.00	1,780.33	1,724.19	1,724.09	6.80	29.08	-29.62	751.77	-124.79	573.38	537.78	35.60	16.106	
1,900.00	1,878.14	1,819.65	1,819.54	7.22	30.80	-30.59	751.54	-124.07	554.84	517.11	37.72	14.708	
2,000.00	1,975.96	1,916.26	1,916.16	7.65	32.39	-31.65	751.54	-123.62	536.79	497.08	39.71	13.518	
2,100.00	2,073.77	2,014.21	2,014.11	8.08	33.92	-32.82	751.58	-123.36	519.04	477.40	41.64	12.466	
2,200.00	2,171.59	2,111.69	2,111.59	8.51	35.43	-34.08	751.58	-123.19	501.52	457.97	43.55	11.516	
2,300.00	2,269.40	2,207.27	2,207.16	8.95	34.59	-35.43	751.68	-123.37	484.48	441.37	43.12	11.237	
2,400.00	2,367.22	2,304.50	2,304.39	9.38	33.29	-36.95	751.98	-124.04	468.13	425.90	42.23	11.085	
2,500.00	2,465.03	2,402.57	2,402.45	9.81	32.02	-38.58	752.29	-124.71	452.13	410.74	41.39	10.924	
2,600.00	2,562.84	2,500.11	2,499.99	10.25	30.87	-40.31	752.67	-125.36	436.57	395.91	40.66	10.737	
2,700.00	2,660.66	2,598.67	2,598.55	10.68	29.96	-42.16	753.09	-125.80	421.38	381.20	40.18	10.488	
2,800.00	2,758.47	2,696.63	2,696.51	11.12	29.80	-44.09	753.62	-125.90	406.56	366.12	40.45	10.052	
2,900.00	2,856.29	2,795.11	2,794.99	11.55	30.43	-46.12	754.21	-125.71	392.12	350.60	41.52	9.445	
3,000.00	2,954.10	2,891.55	2,891.43	11.99	30.77	-48.28	754.87	-125.71	378.39	336.08	42.31	8.943	
3,100.00	3,051.92	2,989.16	2,989.04	12.42	30.63	-50.65	755.60	-126.06	365.52	322.89	42.63	8.574	
3,200.00	3,149.73	3,088.49	3,088.36	12.86	31.06	-53.19	756.42	-126.16	353.22	309.70	43.52	8.116	
3,300.00	3,247.55	3,187.64	3,187.50	13.30	32.39	-55.85	757.09	-125.72	341.18	295.87	45.31	7.530	
3,400.00	3,345.36	3,285.62	3,285.48	13.73	33.96	-58.66	757.67	-125.10	329.73	282.38	47.36	6.963	
3,500.00	3,443.18	3,383.63	3,383.49	14.17	35.55	-61.64	758.28	-124.48	319.16	269.74	49.43	6.457	
3,600.00	3,540.99	3,481.62	3,481.47	14.61	37.13	-64.82	758.90	-123.89	309.56	258.07	51.50	6.011	
3,700.00	3,638.81	3,580.34	3,580.19	15.05	38.77	-68.22	759.46	-123.25	300.92	247.30	53.62	5.612	
3,800.00	3,736.62	3,677.35	3,677.20	15.48	40.39	-71.76	759.84	-122.68	293.37	237.63	55.73	5.264	
3,900.00	3,834.44	3,774.93	3,774.77	15.92	41.72	-75.56	760.01	-122.40	287.22	229.67	57.55	4.991	
4,000.00	3,932.25	3,871.60	3,871.45	16.36	40.85	-79.54	759.91	-122.53	282.72	225.56	57.16	4.946 SF	
4,100.00	4,030.07	3,968.39	3,968.23	16.80	39.74	-83.70	759.57	-123.17	280.13	223.61	56.52	4.956	
4,200.00	4,127.88	4,066.28	4,066.12	17.24	38.71	-87.98	759.18	-123.88	279.19	223.24	55.95	4.990 ES	
4,205.54	4,133.30	4,071.65	4,071.49	17.26	38.66	-88.21	759.16	-123.92	279.19	223.27	55.92	4.993 CC	
4,300.00	4,225.70	4,164.07	4,163.91	17.68	37.74	-92.25	758.82	-124.68	279.96	224.55	55.41	5.052	
4,400.00	4,323.51	4,261.41	4,261.24	18.11	36.91	-96.46	758.44	-125.48	282.37	227.38	54.99	5.135	
4,500.00	4,421.33	4,359.19	4,359.01	18.55	36.08	-100.60	758.06	-126.26	286.31	231.75	54.56	5.248	
4,600.00	4,519.14	4,457.53	4,457.36	18.99	35.27	-104.62	757.74	-126.97	291.69	237.56	54.13	5.389	
4,700.00	4,616.95	4,554.84	4,554.66	19.43	34.67	-108.48	757.22	-127.68	298.52	244.64	53.88	5.540	
4,800.00	4,714.77	4,653.28	4,653.10	19.87	34.25	-112.23	756.57	-128.18	306.51	252.70	53.81	5.696	
4,900.00	4,812.58	4,750.18	4,749.99	20.31	34.04	-115.76	755.78	-128.70	315.84	261.91	53.92	5.857	
5,000.00	4,910.40	4,848.41	4,848.22	20.75	34.04	-119.12	755.01	-129.03	326.14	271.90	54.24	6.013	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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	4,944.27	4,944.07	21.19	33.92	-122.19	754.32	-129.61	337.74	283.32	54.43	6.206	
5,200.00	5,106.03	5,042.90	5,042.70	21.63	34.02	-125.14	753.44	-130.27	350.42	295.58	54.85	6.389	
5,300.00	5,203.84	5,141.06	5,140.85	22.06	34.10	-127.87	752.73	-130.79	363.77	308.53	55.24	6.585	
5,400.00	5,301.66	5,237.47	5,237.26	22.50	34.32	-130.34	751.97	-131.61	378.17	322.41	55.76	6.782	
5,500.00	5,399.47	5,335.81	5,335.59	22.94	34.59	-132.68	751.24	-132.37	393.17	336.82	56.35	6.978	
5,600.00	5,497.29	5,431.37	5,431.14	23.38	35.19	-134.79	750.30	-133.40	409.14	351.90	57.24	7.147	
5,700.00	5,595.10	5,528.65	5,528.41	23.82	35.97	-136.77	749.26	-134.61	425.83	367.49	58.34	7.299	
5,800.00	5,692.92	5,626.96	5,626.71	24.26	36.84	-138.67	748.14	-135.44	442.72	383.19	59.54	7.436	
5,900.00	5,790.73	5,725.62	5,725.36	24.70	37.80	-140.44	747.00	-136.18	459.99	399.16	60.83	7.562	
6,000.00	5,888.55	5,823.49	5,823.22	25.14	38.87	-142.10	745.87	-136.60	477.41	415.19	62.22	7.673	
6,100.00	5,986.36	5,921.02	5,920.74	25.58	40.10	-143.64	744.63	-136.97	495.23	431.47	63.77	7.766	
6,200.00	6,084.18	6,018.55	6,018.26	26.02	41.32	-145.08	743.39	-137.33	513.39	448.07	65.32	7.859	
6,300.00	6,181.99	6,028.00	6,027.71	26.46	41.44	-145.22	743.27	-137.37	539.09	474.61	64.48	8.360	
6,401.22	6,281.00	6,028.00	6,027.71	26.90	41.44	-145.22	743.27	-137.37	581.62	519.47	62.14	9.359	
6,450.00	6,328.76	6,028.00	6,027.71	27.12	41.44	-122.60	743.27	-137.37	605.90	545.17	60.73	9.976	
6,500.00	6,377.61	6,028.00	6,027.71	27.32	41.44	-101.30	743.27	-137.37	631.26	572.11	59.15	10.672	
6,550.00	6,426.06	6,028.00	6,027.71	27.52	41.44	-85.09	743.27	-137.37	656.90	599.43	57.47	11.430	
6,600.00	6,473.81	6,028.00	6,027.71	27.71	41.44	-73.53	743.27	-137.37	682.64	626.90	55.74	12.247	
6,650.00	6,520.56	6,028.00	6,027.71	27.89	41.44	-65.18	743.27	-137.37	708.31	654.32	53.99	13.120	
6,700.00	6,566.03	6,028.00	6,027.71	28.05	41.44	-58.92	743.27	-137.37	733.78	681.53	52.25	14.044	
6,750.00	6,609.93	6,028.00	6,027.71	28.20	41.44	-54.05	743.27	-137.37	758.90	708.35	50.55	15.013	
6,800.00	6,652.00	6,028.00	6,027.71	28.34	41.44	-50.14	743.27	-137.37	783.58	734.66	48.92	16.017	
6,850.00	6,691.98	6,028.00	6,027.71	28.47	41.44	-46.92	743.27	-137.37	807.70	760.32	47.39	17.044	
6,900.00	6,729.61	6,028.00	6,027.71	28.59	41.44	-44.23	743.27	-137.37	831.18	785.20	45.98	18.078	
6,950.00	6,764.67	6,028.00	6,027.71	28.69	41.44	-41.94	743.27	-137.37	853.92	809.21	44.71	19.100	
7,000.00	6,796.95	6,028.00	6,027.71	28.79	41.44	-39.98	743.27	-137.37	875.84	832.24	43.60	20.087	
7,050.00	6,826.23	6,028.00	6,027.71	28.89	41.44	-38.30	743.27	-137.37	896.89	854.20	42.69	21.012	
7,100.00	6,852.35	6,028.00	6,027.71	28.98	41.44	-36.85	743.27	-137.37	916.99	875.02	41.97	21.849	
7,150.00	6,875.14	6,028.00	6,027.71	29.08	41.44	-35.59	743.27	-137.37	936.08	894.61	41.47	22.573	
7,200.00	6,894.45	6,028.00	6,027.71	29.18	41.44	-34.52	743.27	-137.37	954.11	912.91	41.19	23.162	
7,250.00	6,910.18	6,028.00	6,027.71	29.28	41.44	-33.60	743.27	-137.37	971.03	929.89	41.14	23.603	
7,300.00	6,922.23	6,028.00	6,027.71	29.40	41.44	-32.83	743.27	-137.37	986.79	945.48	41.31	23.887	
7,350.00	6,930.51	6,028.00	6,027.71	29.54	41.44	-32.19	743.27	-137.37	1,001.37	959.67	41.69	24.017	
7,400.00	6,934.98	6,028.00	6,027.71	29.70	41.44	-31.67	743.27	-137.37	1,014.71	972.43	42.28	24.002	
7,433.91	6,935.83	6,028.00	6,027.71	29.81	41.44	-31.40	743.27	-137.37	1,023.04	980.26	42.77	23.918	
7,500.00	6,935.76	6,028.00	6,027.71	30.07	41.44	-31.40	743.27	-137.37	1,040.68	996.76	43.92	23.697	
7,600.00	6,935.66	6,028.00	6,027.71	30.52	41.44	-31.40	743.27	-137.37	1,074.58	1,028.68	45.90	23.413	
7,700.00	6,935.55	6,028.00	6,027.71	31.06	41.44	-31.40	743.27	-137.37	1,116.44	1,068.43	48.00	23.258	
7,800.00	6,935.45	6,028.00	6,027.71	31.68	41.44	-31.40	743.27	-137.37	1,165.39	1,115.30	50.09	23.266	
7,900.00	6,935.34	6,028.00	6,027.71	32.37	41.44	-31.40	743.27	-137.37	1,220.59	1,168.53	52.07	23.443	
8,000.00	6,935.24	6,028.00	6,027.71	33.12	41.44	-31.40	743.27	-137.37	1,281.23	1,227.35	53.88	23.778	
8,100.00	6,935.13	6,028.00	6,027.71	33.93	41.44	-31.40	743.27	-137.37	1,346.57	1,291.05	55.52	24.253	
8,200.00	6,935.03	6,028.00	6,027.71	34.80	41.44	-31.40	743.27	-137.37	1,415.97	1,358.99	56.98	24.851	
8,300.00	6,934.92	6,028.00	6,027.71	35.71	41.44	-31.40	743.27	-137.37	1,488.85	1,430.58	58.27	25.552	
8,400.00	6,934.82	6,028.00	6,027.71	36.67	41.44	-31.40	743.27	-137.37	1,564.73	1,505.33	59.40	26.342	
8,500.00	6,934.71	6,028.00	6,027.71	37.68	41.44	-31.40	743.27	-137.37	1,643.19	1,582.80	60.40	27.207	
8,600.00	6,934.61	6,028.00	6,027.71	38.72	41.44	-31.40	743.27	-137.37	1,723.89	1,662.62	61.27	28.136	
8,700.00	6,934.50	6,028.00	6,027.71	39.80	41.44	-31.40	743.27	-137.37	1,806.52	1,744.48	62.04	29.119	
8,800.00	6,934.40	6,028.00	6,027.71	40.92	41.44	-31.40	743.27	-137.37	1,890.82	1,828.10	62.72	30.148	
8,900.00	6,934.29	6,028.00	6,027.71	42.06	41.44	-31.40	743.27	-137.37	1,976.59	1,913.27	63.32	31.217	
9,000.00	6,934.19	6,028.00	6,027.71	43.23	41.44	-31.40	743.27	-137.37	2,063.64	1,999.79	63.85	32.319	
9,100.00	6,934.08	6,028.00	6,027.71	44.43	41.44	-31.40	743.27	-137.37	2,151.82	2,087.49	64.33	33.452	

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 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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
9,200.00	6,933.98	6,028.00	6,027.71	45.66	41.44	-31.40	743.27	-137.37	2,240.99	2,176.24	64.75	34.610	
9,300.00	6,933.88	6,028.00	6,027.71	46.90	41.44	-31.40	743.27	-137.37	2,331.04	2,265.91	65.13	35.790	
9,400.00	6,933.77	6,028.00	6,027.71	48.17	41.44	-31.40	743.27	-137.37	2,421.87	2,356.40	65.47	36.990	
9,500.00	6,933.67	6,028.00	6,027.71	49.46	41.44	-31.40	743.27	-137.37	2,513.40	2,447.61	65.78	38.207	
9,600.00	6,933.56	6,028.00	6,027.71	50.76	41.44	-31.40	743.27	-137.37	2,605.55	2,539.48	66.07	39.438	
9,700.00	6,933.46	6,028.00	6,027.71	52.08	41.44	-31.40	743.27	-137.37	2,698.25	2,631.93	66.32	40.683	
9,800.00	6,933.35	6,028.00	6,027.71	53.41	41.44	-31.40	743.27	-137.37	2,791.47	2,724.91	66.56	41.940	
9,900.00	6,933.25	6,028.00	6,027.71	54.76	41.44	-31.40	743.27	-137.37	2,885.13	2,818.36	66.78	43.206	
10,000.00	6,933.14	6,028.00	6,027.71	56.12	41.44	-31.40	743.27	-137.37	2,979.21	2,912.24	66.98	44.482	
10,100.00	6,933.04	6,028.00	6,027.71	57.50	41.44	-31.40	743.27	-137.37	3,073.66	3,006.50	67.16	45.766	
10,200.00	6,932.93	6,028.00	6,027.71	58.88	41.44	-31.40	743.27	-137.37	3,168.46	3,101.12	67.33	47.056	
10,300.00	6,932.83	6,028.00	6,027.71	60.28	41.44	-31.40	743.27	-137.37	3,263.56	3,196.07	67.49	48.353	
10,400.00	6,932.72	6,028.00	6,027.71	61.69	41.44	-31.40	743.27	-137.37	3,358.95	3,291.30	67.65	49.655	
10,500.00	6,932.62	6,028.00	6,027.71	63.10	41.44	-31.40	743.27	-137.37	3,454.60	3,386.81	67.79	50.963	
10,600.00	6,932.51	6,028.00	6,027.71	64.52	41.44	-31.40	743.27	-137.37	3,550.48	3,482.56	67.92	52.274	
10,700.00	6,932.41	6,028.00	6,027.71	65.96	41.44	-31.40	743.27	-137.37	3,646.59	3,578.55	68.05	53.589	
10,800.00	6,932.30	6,028.00	6,027.71	67.39	41.44	-31.40	743.27	-137.37	3,742.91	3,674.74	68.17	54.908	
10,900.00	6,932.20	6,028.00	6,027.71	68.84	41.44	-31.40	743.27	-137.37	3,839.41	3,771.13	68.28	56.229	
11,000.00	6,932.10	6,028.00	6,027.71	70.29	41.44	-31.40	743.27	-137.37	3,936.09	3,867.69	68.39	57.553	
11,100.00	6,931.99	6,028.00	6,027.71	71.75	41.44	-31.40	743.27	-137.37	4,032.92	3,964.43	68.50	58.878	
11,200.00	6,931.89	6,028.00	6,027.71	73.22	41.44	-31.40	743.27	-137.37	4,129.91	4,061.32	68.60	60.206	
11,300.00	6,931.78	6,028.00	6,027.71	74.69	41.44	-31.40	743.27	-137.37	4,227.04	4,158.35	68.69	61.534	
11,400.00	6,931.68	6,028.00	6,027.71	76.16	41.44	-31.40	743.27	-137.37	4,324.30	4,255.52	68.79	62.864	
11,500.00	6,931.57	6,028.00	6,027.71	77.64	41.44	-31.40	743.27	-137.37	4,421.69	4,352.81	68.88	64.195	
11,600.00	6,931.47	6,028.00	6,027.71	79.13	41.44	-31.40	743.27	-137.37	4,519.18	4,450.22	68.97	65.526	
11,700.00	6,931.36	6,028.00	6,027.71	80.62	41.44	-31.40	743.27	-137.37	4,616.79	4,547.73	69.05	66.858	
11,800.00	6,931.26	6,028.00	6,027.71	82.11	41.44	-31.40	743.27	-137.37	4,714.49	4,645.35	69.14	68.190	
11,900.00	6,931.15	6,028.00	6,027.71	83.61	41.44	-31.40	743.27	-137.37	4,812.29	4,743.07	69.22	69.522	
12,000.00	6,931.05	6,028.00	6,027.71	85.11	41.44	-31.40	743.27	-137.37	4,910.18	4,840.88	69.30	70.854	
12,100.00	6,930.94	6,028.00	6,027.71	86.62	41.44	-31.40	743.27	-137.37	5,008.15	4,938.77	69.38	72.185	
12,200.00	6,930.84	6,028.00	6,027.71	88.13	41.44	-31.40	743.27	-137.37	5,106.20	5,036.74	69.46	73.516	
12,300.00	6,930.73	6,028.00	6,027.71	89.64	41.44	-31.40	743.27	-137.37	5,204.32	5,134.79	69.53	74.847	
12,400.00	6,930.63	6,028.00	6,027.71	91.15	41.44	-31.40	743.27	-137.37	5,302.52	5,232.91	69.61	76.176	
12,500.00	6,930.52	6,028.00	6,027.71	92.67	41.44	-31.40	743.27	-137.37	5,400.78	5,331.09	69.68	77.505	
12,600.00	6,930.42	6,028.00	6,027.71	94.19	41.44	-31.40	743.27	-137.37	5,499.10	5,429.34	69.76	78.833	
12,700.00	6,930.31	6,028.00	6,027.71	95.71	41.44	-31.40	743.27	-137.37	5,597.48	5,527.65	69.83	80.159	
12,800.00	6,930.21	6,028.00	6,027.71	97.24	41.44	-31.40	743.27	-137.37	5,695.92	5,626.02	69.90	81.485	
12,900.00	6,930.11	6,028.00	6,027.71	98.77	41.44	-31.40	743.27	-137.37	5,794.41	5,724.44	69.97	82.808	
13,008.91	6,929.99	6,028.00	6,027.71	100.43	41.44	-31.40	743.27	-137.37	5,901.74	5,831.68	70.05	84.249	
13,100.00	6,929.90	6,028.00	6,027.71	101.83	41.44	-21.33	743.27	-137.37	5,991.66	5,921.54	70.12	85.454	
13,139.82	6,929.86	6,028.00	6,027.71	102.44	41.44	-16.33	743.27	-137.37	6,031.03	5,960.89	70.14	85.981	
13,200.00	6,929.80	6,028.00	6,027.71	103.37	41.44	-16.33	743.27	-137.37	6,090.57	6,020.38	70.19	86.779	
13,300.00	6,929.70	6,028.00	6,027.71	104.92	41.44	-16.33	743.27	-137.37	6,189.53	6,119.27	70.25	88.102	
13,400.00	6,929.61	6,028.00	6,027.71	106.47	41.44	-16.33	743.27	-137.37	6,288.52	6,218.20	70.32	89.424	
13,500.00	6,929.51	6,028.00	6,027.71	108.02	41.44	-16.33	743.27	-137.37	6,387.54	6,317.15	70.39	90.743	
13,600.00	6,929.41	6,028.00	6,027.71	109.57	41.44	-16.33	743.27	-137.37	6,486.60	6,416.14	70.46	92.060	
13,700.00	6,929.32	6,028.00	6,027.71	111.12	41.44	-16.33	743.27	-137.37	6,585.68	6,515.15	70.53	93.376	
13,800.00	6,929.22	6,028.00	6,027.71	112.68	41.44	-16.33	743.27	-137.37	6,684.79	6,614.19	70.60	94.688	
13,900.00	6,929.12	6,028.00	6,027.71	114.23	41.44	-16.33	743.27	-137.37	6,783.92	6,713.26	70.67	95.999	
14,000.00	6,929.03	6,028.00	6,027.71	115.79	41.44	-16.33	743.27	-137.37	6,883.08	6,812.35	70.74	97.307	
14,100.00	6,928.93	6,028.00	6,027.71	117.35	41.44	-16.33	743.27	-137.37	6,982.27	6,911.46	70.80	98.613	
14,200.00	6,928.83	6,028.00	6,027.71	118.91	41.44	-16.33	743.27	-137.37	7,081.48	7,010.60	70.87	99.917	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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
14,300.00	6,928.74	6,028.00	6,027.71	120.47	41.44	-16.33	743.27	-137.37	7,180.70	7,109.76	70.94	101.217	
14,400.00	6,928.64	6,028.00	6,027.71	122.03	41.44	-16.33	743.27	-137.37	7,279.96	7,208.94	71.01	102.516	
14,500.00	6,928.54	6,028.00	6,027.71	123.60	41.44	-16.33	743.27	-137.37	7,379.23	7,308.14	71.08	103.811	
14,600.00	6,928.45	6,028.00	6,027.71	125.16	41.44	-16.33	743.27	-137.37	7,478.52	7,407.36	71.15	105.104	
14,700.00	6,928.35	6,028.00	6,027.71	126.72	41.44	-16.33	743.27	-137.37	7,577.82	7,506.60	71.22	106.395	
14,800.00	6,928.25	6,028.00	6,027.71	128.29	41.44	-16.33	743.27	-137.37	7,677.15	7,605.86	71.29	107.682	
14,900.00	6,928.16	6,028.00	6,027.71	129.86	41.44	-16.33	743.27	-137.37	7,776.50	7,705.13	71.37	108.967	
15,000.00	6,928.06	6,028.00	6,027.71	131.42	41.44	-16.33	743.27	-137.37	7,875.86	7,804.42	71.44	110.249	
15,100.00	6,927.96	6,028.00	6,027.71	132.99	41.44	-16.33	743.27	-137.37	7,975.23	7,903.72	71.51	111.529	
15,200.00	6,927.87	6,028.00	6,027.71	134.56	41.44	-16.33	743.27	-137.37	8,074.62	8,003.04	71.58	112.805	
15,300.00	6,927.77	6,028.00	6,027.71	136.13	41.44	-16.33	743.27	-137.37	8,174.03	8,102.38	71.65	114.078	
15,400.00	6,927.67	6,028.00	6,027.71	137.70	41.44	-16.33	743.27	-137.37	8,273.45	8,201.73	71.73	115.349	
15,500.00	6,927.57	6,028.00	6,027.71	139.28	41.44	-16.33	743.27	-137.37	8,372.89	8,301.09	71.80	116.616	
15,600.00	6,927.48	6,028.00	6,027.71	140.85	41.44	-16.33	743.27	-137.37	8,472.34	8,400.46	71.87	117.880	
15,700.00	6,927.38	6,028.00	6,027.71	142.42	41.44	-16.33	743.27	-137.37	8,571.80	8,499.85	71.95	119.142	
15,800.00	6,927.28	6,028.00	6,027.71	144.00	41.44	-16.33	743.27	-137.37	8,671.27	8,599.25	72.02	120.400	
15,900.00	6,927.19	6,028.00	6,027.71	145.57	41.44	-16.33	743.27	-137.37	8,770.76	8,698.66	72.10	121.655	
16,000.00	6,927.09	6,028.00	6,027.71	147.15	41.44	-16.33	743.27	-137.37	8,870.25	8,798.08	72.17	122.907	
16,100.00	6,926.99	6,028.00	6,027.71	148.72	41.44	-16.33	743.27	-137.37	8,969.76	8,897.52	72.25	124.156	
16,200.00	6,926.90	6,028.00	6,027.71	150.30	41.44	-16.33	743.27	-137.37	9,069.28	8,996.96	72.32	125.402	
16,300.00	6,926.80	6,028.00	6,027.71	151.87	41.44	-16.33	743.27	-137.37	9,168.81	9,096.41	72.40	126.645	
16,400.00	6,926.70	6,028.00	6,027.71	153.45	41.44	-16.33	743.27	-137.37	9,268.35	9,195.87	72.47	127.884	
16,500.00	6,926.61	6,028.00	6,027.71	155.03	41.44	-16.33	743.27	-137.37	9,367.90	9,295.35	72.55	129.120	
16,600.00	6,926.51	6,028.00	6,027.71	156.61	41.44	-16.33	743.27	-137.37	9,467.46	9,394.83	72.63	130.353	
16,700.00	6,926.41	6,028.00	6,027.71	158.19	41.44	-16.33	743.27	-137.37	9,567.03	9,494.32	72.71	131.582	
16,800.00	6,926.32	6,028.00	6,027.71	159.77	41.44	-16.33	743.27	-137.37	9,666.60	9,593.82	72.79	132.809	
16,900.00	6,926.22	6,028.00	6,027.71	161.35	41.44	-16.33	743.27	-137.37	9,766.19	9,693.32	72.86	134.032	
17,000.00	6,926.12	6,028.00	6,027.71	162.93	41.44	-16.33	743.27	-137.37	9,865.78	9,792.84	72.94	135.251	
17,100.00	6,926.03	6,028.00	6,027.71	164.51	41.44	-16.33	743.27	-137.37	9,965.38	9,892.36	73.02	136.467	
17,200.00	6,925.93	6,028.00	6,027.71	166.09	41.44	-16.33	743.27	-137.37	10,064.99	9,991.89	73.10	137.680	
17,300.00	6,925.83	6,028.00	6,027.71	167.67	41.44	-16.33	743.27	-137.37	10,164.61	10,091.43	73.18	138.890	
17,400.00	6,925.74	6,028.00	6,027.71	169.26	41.44	-16.33	743.27	-137.37	10,264.24	10,190.97	73.27	140.096	
17,500.00	6,925.64	6,028.00	6,027.71	170.84	41.44	-16.33	743.27	-137.37	10,363.87	10,290.52	73.35	141.299	
17,600.00	6,925.54	6,028.00	6,027.71	172.42	41.44	-16.33	743.27	-137.37	10,463.51	10,390.08	73.43	142.498	
17,700.00	6,925.45	6,028.00	6,027.71	174.00	41.44	-16.33	743.27	-137.37	10,563.16	10,489.64	73.51	143.694	
17,800.00	6,925.35	6,028.00	6,027.71	175.59	41.44	-16.33	743.27	-137.37	10,662.81	10,589.21	73.59	144.886	
17,900.00	6,925.25	6,028.00	6,027.71	177.17	41.44	-16.33	743.27	-137.37	10,762.47	10,688.79	73.68	146.075	
18,000.00	6,925.16	6,028.00	6,027.71	178.76	41.44	-16.33	743.27	-137.37	10,862.13	10,788.37	73.76	147.260	
18,100.00	6,925.06	6,028.00	6,027.71	180.34	41.44	-16.33	743.27	-137.37	10,961.80	10,887.96	73.85	148.442	
18,160.21	6,925.00	6,028.00	6,027.71	181.30	41.44	-16.33	743.27	-137.37	11,021.82	10,947.93	73.90	149.152	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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	-15.97	753.08	-215.48	785.52				
100.00	100.00	38.65	38.65	0.25	0.07	-15.99	753.07	-215.73	783.36	783.03	0.33	2,362.983	CC, ES
200.00	200.00	132.82	132.78	0.61	0.28	-16.18	752.95	-218.44	784.03	783.15	0.89	885.127	
300.00	300.00	226.74	226.52	0.97	0.48	-16.58	752.69	-224.10	785.48	784.04	1.44	545.841	
400.00	400.00	320.20	319.58	1.33	0.67	-17.19	752.30	-232.67	787.75	785.76	1.99	395.744	
500.00	500.00	413.03	411.71	1.68	0.87	-17.99	751.78	-244.06	790.95	788.41	2.54	311.432	
600.00	599.98	504.98	502.56	2.04	1.06	-31.00	751.14	-258.17	793.71	790.62	3.08	257.359	
700.00	699.84	597.23	593.23	2.41	1.33	-32.34	750.38	-275.13	794.76	791.06	3.70	214.777	
800.00	799.45	682.00	676.53	2.77	1.65	-33.70	749.68	-290.83	793.61	789.25	4.36	182.068	
831.16	830.42	701.46	695.59	2.88	1.74	-34.04	749.86	-294.72	793.45	788.90	4.55	174.489	
900.00	898.70	744.35	737.36	3.13	1.95	-34.87	750.99	-304.42	794.02	789.05	4.97	159.716	
1,000.00	997.47	830.77	820.76	3.50	2.39	-36.80	753.99	-326.86	795.49	789.78	5.71	139.298	
1,100.00	1,095.62	894.00	881.22	3.89	2.76	-38.37	756.90	-345.09	797.71	791.36	6.36	125.509	
1,200.00	1,193.44	973.02	956.07	4.29	3.28	-40.50	761.70	-369.97	802.75	795.64	7.10	112.991	
1,300.00	1,291.25	1,048.85	1,027.05	4.70	3.83	-42.67	766.25	-396.25	811.24	803.39	7.85	103.343	
1,400.00	1,389.07	1,125.92	1,098.35	5.11	4.42	-44.96	770.86	-425.13	823.35	814.75	8.60	95.793	
1,500.00	1,486.88	1,203.00	1,169.26	5.53	5.03	-47.21	776.14	-454.90	838.87	829.56	9.31	90.081	
1,600.00	1,584.70	1,266.71	1,227.31	5.95	5.57	-49.05	781.30	-480.62	858.43	848.51	9.92	86.525	
1,700.00	1,682.51	1,406.47	1,353.67	6.37	6.75	-53.18	789.07	-539.68	880.14	869.08	11.05	79.622	
1,800.00	1,780.33	1,495.42	1,434.71	6.80	7.44	-55.81	789.95	-576.33	899.93	888.15	11.78	76.411	
1,900.00	1,878.14	1,575.00	1,507.08	7.22	8.11	-58.09	790.81	-609.43	922.19	909.76	12.43	74.193	
2,000.00	1,975.96	1,645.64	1,570.99	7.65	8.74	-60.04	792.12	-639.48	947.57	934.56	13.01	72.856	
2,100.00	2,073.77	1,717.35	1,635.46	8.08	9.39	-61.94	794.35	-670.80	976.27	962.71	13.56	71.975	
2,200.00	2,171.59	1,789.27	1,699.81	8.51	10.06	-63.74	797.49	-702.77	1,007.86	993.76	14.10	71.473	
2,300.00	2,269.40	1,856.00	1,759.21	8.95	10.70	-65.31	801.39	-732.93	1,042.22	1,027.64	14.58	71.489	
2,400.00	2,367.22	1,915.79	1,811.96	9.38	11.30	-66.62	806.03	-760.67	1,079.71	1,064.72	14.99	72.050	
2,500.00	2,465.03	1,983.87	1,871.33	9.81	11.99	-68.01	812.83	-793.30	1,120.39	1,104.94	15.45	72.503	
2,600.00	2,562.84	2,069.03	1,945.44	10.25	12.85	-69.64	821.52	-834.32	1,162.38	1,146.32	16.06	72.392	
2,700.00	2,660.66	2,157.87	2,022.80	10.68	13.74	-71.23	830.84	-877.01	1,205.18	1,188.49	16.68	72.236	
2,800.00	2,758.47	2,274.06	2,124.87	11.12	14.85	-73.03	844.63	-930.77	1,247.62	1,230.10	17.52	71.198	
2,900.00	2,856.29	2,373.01	2,212.80	11.55	15.76	-74.51	854.57	-975.04	1,288.51	1,270.29	18.22	70.727	
3,000.00	2,954.10	2,502.93	2,328.79	11.99	16.95	-76.34	866.53	-1,032.31	1,329.42	1,310.27	19.15	69.425	
3,100.00	3,051.92	2,556.39	2,376.72	12.42	17.45	-77.09	870.44	-1,055.65	1,369.66	1,350.14	19.52	70.164	
3,200.00	3,149.73	2,616.35	2,429.78	12.86	18.01	-77.87	875.76	-1,083.08	1,412.67	1,392.72	19.95	70.824	
3,300.00	3,247.55	2,716.48	2,518.37	13.30	18.98	-79.15	883.90	-1,129.01	1,456.17	1,435.48	20.69	70.370	
3,400.00	3,345.36	2,802.45	2,594.56	13.73	19.79	-80.21	890.41	-1,168.31	1,499.84	1,478.51	21.33	70.303	
3,500.00	3,443.18	2,916.31	2,695.65	14.17	20.85	-81.46	900.42	-1,219.73	1,543.88	1,521.69	22.19	69.566	
3,600.00	3,540.99	3,240.78	2,996.70	14.61	23.20	-84.36	928.96	-1,336.48	1,577.69	1,553.43	24.26	65.039	
3,700.00	3,638.81	3,337.00	3,088.56	15.05	23.75	-85.21	933.91	-1,364.69	1,606.23	1,581.33	24.91	64.483	SF
3,800.00	3,736.62	3,337.00	3,088.56	15.48	23.75	-85.21	933.91	-1,364.69	1,638.59	1,613.52	25.07	65.351	
3,900.00	3,834.44	3,337.00	3,088.56	15.92	23.75	-85.21	933.91	-1,364.69	1,676.30	1,651.12	25.18	66.583	
4,000.00	3,932.25	3,337.00	3,088.56	16.36	23.75	-85.21	933.91	-1,364.69	1,719.01	1,693.78	25.23	68.147	
4,100.00	4,030.07	3,337.00	3,088.56	16.80	23.75	-85.21	933.91	-1,364.69	1,766.35	1,741.12	25.23	70.014	
4,200.00	4,127.88	3,337.00	3,088.56	17.24	23.75	-85.21	933.91	-1,364.69	1,817.96	1,792.76	25.19	72.158	
4,300.00	4,225.70	3,337.00	3,088.56	17.68	23.75	-85.21	933.91	-1,364.69	1,873.49	1,848.36	25.13	74.550	
4,400.00	4,323.51	3,337.00	3,088.56	18.11	23.75	-85.21	933.91	-1,364.69	1,932.61	1,907.56	25.04	77.167	
4,500.00	4,421.33	3,337.00	3,088.56	18.55	23.75	-85.21	933.91	-1,364.69	1,994.99	1,970.04	24.94	79.984	
4,600.00	4,519.14	3,337.00	3,088.56	18.99	23.75	-85.21	933.91	-1,364.69	2,060.33	2,035.50	24.83	82.980	
4,700.00	4,616.95	3,337.00	3,088.56	19.43	23.75	-85.21	933.91	-1,364.69	2,128.37	2,103.66	24.71	86.134	
4,800.00	4,714.77	3,337.00	3,088.56	19.87	23.75	-85.21	933.91	-1,364.69	2,198.85	2,174.27	24.59	89.426	
4,900.00	4,812.58	3,337.00	3,088.56	20.31	23.75	-85.21	933.91	-1,364.69	2,271.55	2,247.09	24.47	92.839	
5,000.00	4,910.40	3,337.00	3,088.56	20.75	23.75	-85.21	933.91	-1,364.69	2,346.26	2,321.91	24.35	96.356	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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
5,100.00	5,008.21	3,337.00	3,088.56	21.19	23.75	-85.21	933.91	-1,364.69	2,422.80	2,398.56	24.24	99.960	
5,200.00	5,106.03	3,337.00	3,088.56	21.63	23.75	-85.21	933.91	-1,364.69	2,500.99	2,476.86	24.13	103.637	
5,300.00	5,203.84	3,337.00	3,088.56	22.06	23.75	-85.21	933.91	-1,364.69	2,580.69	2,556.65	24.03	107.374	
5,400.00	5,301.66	3,337.00	3,088.56	22.50	23.75	-85.21	933.91	-1,364.69	2,661.76	2,637.81	23.95	111.158	
5,500.00	5,399.47	3,337.00	3,088.56	22.94	23.75	-85.21	933.91	-1,364.69	2,744.07	2,720.21	23.87	114.977	
5,600.00	5,497.29	3,337.00	3,088.56	23.38	23.75	-85.21	933.91	-1,364.69	2,827.53	2,803.74	23.80	118.820	
5,700.00	5,595.10	3,337.00	3,088.56	23.82	23.75	-85.21	933.91	-1,364.69	2,912.03	2,888.30	23.74	122.677	
5,800.00	5,692.92	3,337.00	3,088.56	24.26	23.75	-85.21	933.91	-1,364.69	2,997.49	2,973.80	23.69	126.540	
5,900.00	5,790.73	3,337.00	3,088.56	24.70	23.75	-85.21	933.91	-1,364.69	3,083.82	3,060.17	23.65	130.398	
6,000.00	5,888.55	3,337.00	3,088.56	25.14	23.75	-85.21	933.91	-1,364.69	3,170.95	3,147.33	23.62	134.245	
6,100.00	5,986.36	3,337.00	3,088.56	25.58	23.75	-85.21	933.91	-1,364.69	3,258.82	3,235.22	23.60	138.073	
6,200.00	6,084.18	3,337.00	3,088.56	26.02	23.75	-85.21	933.91	-1,364.69	3,347.38	3,323.78	23.59	141.875	
6,300.00	6,181.99	3,337.00	3,088.56	26.46	23.75	-85.21	933.91	-1,364.69	3,436.56	3,412.96	23.60	145.645	
6,401.22	6,281.00	3,337.00	3,088.56	26.90	23.75	-85.21	933.91	-1,364.69	3,527.42	3,503.81	23.61	149.423	
6,450.00	6,328.76	3,337.00	3,088.56	27.12	23.75	-66.72	933.91	-1,364.69	3,570.60	3,547.00	23.60	151.275	
6,500.00	6,377.61	3,337.00	3,088.56	27.32	23.75	-48.98	933.91	-1,364.69	3,613.19	3,589.61	23.58	153.220	
6,550.00	6,426.06	3,337.00	3,088.56	27.52	23.75	-35.87	933.91	-1,364.69	3,653.88	3,630.34	23.55	155.179	
6,600.00	6,473.81	3,337.00	3,088.56	27.71	23.75	-27.04	933.91	-1,364.69	3,692.50	3,669.01	23.50	157.145	
6,650.00	6,520.56	3,337.00	3,088.56	27.89	23.75	-21.11	933.91	-1,364.69	3,728.88	3,705.44	23.44	159.111	
6,700.00	6,566.03	3,337.00	3,088.56	28.05	23.75	-17.04	933.91	-1,364.69	3,762.85	3,739.49	23.36	161.070	
6,750.00	6,609.93	3,337.00	3,088.56	28.20	23.75	-14.13	933.91	-1,364.69	3,794.28	3,771.00	23.28	163.013	
6,800.00	6,652.00	3,337.00	3,088.56	28.34	23.75	-11.99	933.91	-1,364.69	3,823.03	3,799.85	23.18	164.931	
6,850.00	6,691.98	3,337.00	3,088.56	28.47	23.75	-10.37	933.91	-1,364.69	3,848.99	3,825.92	23.07	166.812	
6,900.00	6,729.61	3,337.00	3,088.56	28.59	23.75	-9.12	933.91	-1,364.69	3,872.07	3,849.11	22.96	168.645	
6,950.00	6,764.67	3,337.00	3,088.56	28.69	23.75	-8.13	933.91	-1,364.69	3,892.16	3,869.32	22.84	170.413	
7,000.00	6,796.95	3,337.00	3,088.56	28.79	23.75	-7.34	933.91	-1,364.69	3,909.19	3,886.48	22.71	172.102	
7,050.00	6,826.23	3,337.00	3,088.56	28.89	23.75	-6.70	933.91	-1,364.69	3,923.11	3,900.52	22.59	173.692	
7,100.00	6,852.35	3,337.00	3,088.56	28.98	23.75	-6.17	933.91	-1,364.69	3,933.84	3,911.38	22.46	175.165	
7,150.00	6,875.14	3,337.00	3,088.56	29.08	23.75	-5.73	933.91	-1,364.69	3,941.36	3,919.03	22.33	176.500	
7,200.00	6,894.45	3,337.00	3,088.56	29.18	23.75	-5.37	933.91	-1,364.69	3,945.64	3,923.44	22.21	177.680	
7,250.00	6,910.18	3,337.00	3,088.56	29.28	23.75	-5.06	933.91	-1,364.69	3,946.66	3,924.58	22.09	178.684	
7,300.00	6,922.23	3,337.00	3,088.56	29.40	23.75	-4.80	933.91	-1,364.69	3,944.42	3,922.45	21.97	179.496	
7,350.00	6,930.51	3,337.00	3,088.56	29.54	23.75	-4.58	933.91	-1,364.69	3,938.93	3,917.06	21.87	180.101	
7,400.00	6,934.98	3,337.00	3,088.56	29.70	23.75	-4.40	933.91	-1,364.69	3,930.20	3,908.42	21.78	180.488	
7,433.91	6,935.83	3,337.00	3,088.56	29.81	23.75	-4.29	933.91	-1,364.69	3,922.45	3,900.73	21.72	180.613	
7,500.00	6,935.76	3,337.00	3,088.56	30.07	23.75	-4.29	933.91	-1,364.69	3,906.45	3,884.84	21.61	180.730	
7,600.00	6,935.66	3,337.00	3,088.56	30.52	23.75	-4.29	933.91	-1,364.69	3,884.26	3,862.75	21.51	180.539	
7,700.00	6,935.55	3,337.00	3,088.56	31.06	23.75	-4.29	933.91	-1,364.69	3,864.53	3,843.04	21.49	179.858	
7,800.00	6,935.45	3,337.00	3,088.56	31.68	23.75	-4.29	933.91	-1,364.69	3,847.30	3,825.77	21.53	178.690	
7,900.00	6,935.34	3,337.00	3,088.56	32.37	23.75	-4.29	933.91	-1,364.69	3,832.60	3,810.95	21.65	177.065	
8,000.00	6,935.24	3,337.00	3,088.56	33.12	23.75	-4.29	933.91	-1,364.69	3,820.46	3,798.63	21.83	175.029	
8,100.00	6,935.13	3,337.00	3,088.56	33.93	23.75	-4.29	933.91	-1,364.69	3,810.91	3,788.84	22.07	172.644	
8,200.00	6,935.03	3,337.00	3,088.56	34.80	23.75	-4.29	933.91	-1,364.69	3,803.96	3,781.58	22.38	169.978	
8,300.00	6,934.92	3,337.00	3,088.56	35.71	23.75	-4.29	933.91	-1,364.69	3,799.64	3,776.90	22.74	167.104	
8,400.00	6,934.82	3,337.00	3,088.56	36.67	23.75	-4.29	933.91	-1,364.69	3,797.94	3,774.80	23.15	164.091	
8,414.00	6,934.80	3,337.00	3,088.56	36.81	23.75	-4.29	933.91	-1,364.69	3,797.91	3,774.71	23.21	163.655	
8,500.00	6,934.71	3,337.00	3,088.56	37.68	23.75	-4.29	933.91	-1,364.69	3,798.88	3,775.28	23.60	161.001	
8,600.00	6,934.61	3,337.00	3,088.56	38.72	23.75	-4.29	933.91	-1,364.69	3,802.44	3,778.36	24.08	157.892	
8,700.00	6,934.50	3,337.00	3,088.56	39.80	23.75	-4.29	933.91	-1,364.69	3,808.63	3,784.03	24.60	154.809	
8,800.00	6,934.40	3,337.00	3,088.56	40.92	23.75	-4.29	933.91	-1,364.69	3,817.43	3,792.28	25.15	151.792	
8,900.00	6,934.29	3,337.00	3,088.56	42.06	23.75	-4.29	933.91	-1,364.69	3,828.82	3,803.11	25.72	148.869	
9,000.00	6,934.19	3,337.00	3,088.56	43.23	23.75	-4.29	933.91	-1,364.69	3,842.79	3,816.48	26.31	146.063	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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
9,100.00	6,934.08	3,337.00	3,088.56	44.43	23.75	-4.29	933.91	-1,364.69	3,859.29	3,832.37	26.91	143.390	
9,200.00	6,933.98	3,337.00	3,088.56	45.66	23.75	-4.29	933.91	-1,364.69	3,878.30	3,850.77	27.53	140.861	
9,300.00	6,933.88	3,337.00	3,088.56	46.90	23.75	-4.29	933.91	-1,364.69	3,899.79	3,871.63	28.16	138.482	
9,400.00	6,933.77	3,337.00	3,088.56	48.17	23.75	-4.29	933.91	-1,364.69	3,923.70	3,894.91	28.80	136.256	
9,500.00	6,933.67	3,337.00	3,088.56	49.46	23.75	-4.29	933.91	-1,364.69	3,950.01	3,920.57	29.44	134.185	
9,600.00	6,933.56	3,337.00	3,088.56	50.76	23.75	-4.29	933.91	-1,364.69	3,978.65	3,948.57	30.08	132.267	
9,700.00	6,933.46	3,337.00	3,088.56	52.08	23.75	-4.29	933.91	-1,364.69	4,009.58	3,978.86	30.73	130.499	
9,800.00	6,933.35	3,337.00	3,088.56	53.41	23.75	-4.29	933.91	-1,364.69	4,042.76	4,011.39	31.37	128.878	
9,900.00	6,933.25	3,337.00	3,088.56	54.76	23.75	-4.29	933.91	-1,364.69	4,078.11	4,046.10	32.01	127.400	
10,000.00	6,933.14	3,337.00	3,088.56	56.12	23.75	-4.29	933.91	-1,364.69	4,115.59	4,082.94	32.65	126.060	
10,100.00	6,933.04	3,337.00	3,088.56	57.50	23.75	-4.29	933.91	-1,364.69	4,155.14	4,121.86	33.28	124.854	
10,200.00	6,932.93	3,337.00	3,088.56	58.88	23.75	-4.29	933.91	-1,364.69	4,196.70	4,162.80	33.91	123.777	
10,300.00	6,932.83	3,337.00	3,088.56	60.28	23.75	-4.29	933.91	-1,364.69	4,240.21	4,205.69	34.52	122.824	
10,400.00	6,932.72	3,337.00	3,088.56	61.69	23.75	-4.29	933.91	-1,364.69	4,285.62	4,250.49	35.13	121.990	
10,500.00	6,932.62	3,337.00	3,088.56	63.10	23.75	-4.29	933.91	-1,364.69	4,332.85	4,297.13	35.73	121.271	
10,600.00	6,932.51	3,337.00	3,088.56	64.52	23.75	-4.29	933.91	-1,364.69	4,381.86	4,345.55	36.32	120.661	
10,700.00	6,932.41	3,337.00	3,088.56	65.96	23.75	-4.29	933.91	-1,364.69	4,432.59	4,395.70	36.89	120.157	
10,800.00	6,932.30	3,337.00	3,088.56	67.39	23.75	-4.29	933.91	-1,364.69	4,484.97	4,447.52	37.45	119.753	
10,900.00	6,932.20	3,337.00	3,088.56	68.84	23.75	-4.29	933.91	-1,364.69	4,538.95	4,500.95	38.00	119.444	
11,000.00	6,932.10	3,337.00	3,088.56	70.29	23.75	-4.29	933.91	-1,364.69	4,594.47	4,555.94	38.54	119.228	
11,100.00	6,931.99	3,337.00	3,088.56	71.75	23.75	-4.29	933.91	-1,364.69	4,651.48	4,612.43	39.06	119.098	
11,200.00	6,931.89	3,337.00	3,088.56	73.22	23.75	-4.29	933.91	-1,364.69	4,709.92	4,670.36	39.56	119.051	
11,300.00	6,931.78	3,337.00	3,088.56	74.69	23.75	-4.29	933.91	-1,364.69	4,769.75	4,729.69	40.05	119.082	
11,400.00	6,931.68	3,337.00	3,088.56	76.16	23.75	-4.29	933.91	-1,364.69	4,830.90	4,790.37	40.53	119.189	
11,500.00	6,931.57	3,337.00	3,088.56	77.64	23.75	-4.29	933.91	-1,364.69	4,893.33	4,852.34	40.99	119.366	
11,600.00	6,931.47	3,337.00	3,088.56	79.13	23.75	-4.29	933.91	-1,364.69	4,957.00	4,915.55	41.44	119.611	
11,700.00	6,931.36	3,337.00	3,088.56	80.62	23.75	-4.29	933.91	-1,364.69	5,021.85	4,979.97	41.88	119.919	
11,800.00	6,931.26	3,337.00	3,088.56	82.11	23.75	-4.29	933.91	-1,364.69	5,087.83	5,045.54	42.30	120.287	
11,900.00	6,931.15	3,337.00	3,088.56	83.61	23.75	-4.29	933.91	-1,364.69	5,154.91	5,112.21	42.70	120.713	
12,000.00	6,931.05	3,337.00	3,088.56	85.11	23.75	-4.29	933.91	-1,364.69	5,223.05	5,179.95	43.10	121.193	
12,100.00	6,930.94	3,337.00	3,088.56	86.62	23.75	-4.29	933.91	-1,364.69	5,292.20	5,248.72	43.48	121.724	
12,200.00	6,930.84	3,337.00	3,088.56	88.13	23.75	-4.29	933.91	-1,364.69	5,362.32	5,318.48	43.84	122.304	
12,300.00	6,930.73	3,337.00	3,088.56	89.64	23.75	-4.29	933.91	-1,364.69	5,433.38	5,389.18	44.20	122.929	
12,400.00	6,930.63	3,337.00	3,088.56	91.15	23.75	-4.29	933.91	-1,364.69	5,505.33	5,460.79	44.54	123.598	
12,500.00	6,930.52	3,337.00	3,088.56	92.67	23.75	-4.29	933.91	-1,364.69	5,578.15	5,533.28	44.87	124.308	
12,600.00	6,930.42	3,337.00	3,088.56	94.19	23.75	-4.29	933.91	-1,364.69	5,651.81	5,606.61	45.19	125.057	
12,700.00	6,930.31	3,337.00	3,088.56	95.71	23.75	-4.29	933.91	-1,364.69	5,726.26	5,680.75	45.50	125.843	
12,800.00	6,930.21	3,337.00	3,088.56	97.24	23.75	-4.29	933.91	-1,364.69	5,801.48	5,755.67	45.80	126.663	
12,900.00	6,930.11	3,337.00	3,088.56	98.77	23.75	-4.29	933.91	-1,364.69	5,877.43	5,831.34	46.09	127.517	
13,008.91	6,929.99	3,337.00	3,088.56	100.43	23.75	-4.29	933.91	-1,364.69	5,960.97	5,914.57	46.40	128.482	
13,100.00	6,929.90	3,337.00	3,088.56	101.83	23.75	-2.07	933.91	-1,364.69	6,031.51	5,984.88	46.64	129.330	
13,139.82	6,929.86	3,337.00	3,088.56	102.44	23.75	-1.08	933.91	-1,364.69	6,062.55	6,015.81	46.74	129.716	
13,200.00	6,929.80	3,337.00	3,088.56	103.37	23.75	-1.08	933.91	-1,364.69	6,109.66	6,062.77	46.88	130.312	
13,300.00	6,929.70	3,337.00	3,088.56	104.92	23.75	-1.08	933.91	-1,364.69	6,188.43	6,141.31	47.12	131.323	
13,400.00	6,929.61	3,337.00	3,088.56	106.47	23.75	-1.08	933.91	-1,364.69	6,267.81	6,220.46	47.35	132.359	
13,500.00	6,929.51	3,337.00	3,088.56	108.02	23.75	-1.08	933.91	-1,364.69	6,347.78	6,300.20	47.58	133.417	
13,600.00	6,929.41	3,337.00	3,088.56	109.57	23.75	-1.08	933.91	-1,364.69	6,428.30	6,380.51	47.80	134.496	
13,700.00	6,929.32	3,337.00	3,088.56	111.12	23.75	-1.08	933.91	-1,364.69	6,509.37	6,461.36	48.01	135.597	
13,800.00	6,929.22	3,337.00	3,088.56	112.68	23.75	-1.08	933.91	-1,364.69	6,590.95	6,542.74	48.21	136.716	
13,900.00	6,929.12	3,337.00	3,088.56	114.23	23.75	-1.08	933.91	-1,364.69	6,673.04	6,624.63	48.41	137.854	
14,000.00	6,929.03	3,337.00	3,088.56	115.79	23.75	-1.08	933.91	-1,364.69	6,755.61	6,707.01	48.60	139.009	
14,100.00	6,928.93	3,337.00	3,088.56	117.35	23.75	-1.08	933.91	-1,364.69	6,838.65	6,789.86	48.78	140.181	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**Offset TVD Reference:**	Offset Datum

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

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

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,200.00	6,928.83	3,337.00	3,088.56	118.91	23.75	-1.08	933.91	-1,364.69	6,922.13	6,873.16	48.97	141.369	
14,300.00	6,928.74	3,337.00	3,088.56	120.47	23.75	-1.08	933.91	-1,364.69	7,006.04	6,956.90	49.14	142.571	
14,400.00	6,928.64	3,337.00	3,088.56	122.03	23.75	-1.08	933.91	-1,364.69	7,090.38	7,041.07	49.31	143.787	
14,500.00	6,928.54	3,337.00	3,088.56	123.60	23.75	-1.08	933.91	-1,364.69	7,175.11	7,125.64	49.48	145.016	
14,600.00	6,928.45	3,337.00	3,088.56	125.16	23.75	-1.08	933.91	-1,364.69	7,260.24	7,210.60	49.64	146.258	
14,700.00	6,928.35	3,337.00	3,088.56	126.72	23.75	-1.08	933.91	-1,364.69	7,345.74	7,295.94	49.80	147.511	
14,800.00	6,928.25	3,337.00	3,088.56	128.29	23.75	-1.08	933.91	-1,364.69	7,431.60	7,381.65	49.95	148.776	
14,900.00	6,928.16	3,337.00	3,088.56	129.86	23.75	-1.08	933.91	-1,364.69	7,517.81	7,467.71	50.10	150.051	
15,000.00	6,928.06	3,337.00	3,088.56	131.42	23.75	-1.08	933.91	-1,364.69	7,604.36	7,554.11	50.25	151.336	
15,100.00	6,927.96	3,337.00	3,088.56	132.99	23.75	-1.08	933.91	-1,364.69	7,691.23	7,640.84	50.39	152.631	
15,200.00	6,927.87	3,337.00	3,088.56	134.56	23.75	-1.08	933.91	-1,364.69	7,778.42	7,727.89	50.53	153.934	
15,300.00	6,927.77	3,337.00	3,088.56	136.13	23.75	-1.08	933.91	-1,364.69	7,865.92	7,815.25	50.67	155.246	
15,400.00	6,927.67	3,337.00	3,088.56	137.70	23.75	-1.08	933.91	-1,364.69	7,953.71	7,902.90	50.80	156.565	
15,500.00	6,927.57	3,337.00	3,088.56	139.28	23.75	-1.08	933.91	-1,364.69	8,041.78	7,990.85	50.93	157.892	
15,600.00	6,927.48	3,337.00	3,088.56	140.85	23.75	-1.08	933.91	-1,364.69	8,130.13	8,079.07	51.06	159.226	
15,700.00	6,927.38	3,337.00	3,088.56	142.42	23.75	-1.08	933.91	-1,364.69	8,218.75	8,167.56	51.19	160.566	
15,800.00	6,927.28	3,337.00	3,088.56	144.00	23.75	-1.08	933.91	-1,364.69	8,307.62	8,256.32	51.31	161.912	
15,900.00	6,927.19	3,337.00	3,088.56	145.57	23.75	-1.08	933.91	-1,364.69	8,396.75	8,345.32	51.43	163.264	
16,000.00	6,927.09	3,337.00	3,088.56	147.15	23.75	-1.08	933.91	-1,364.69	8,486.12	8,434.57	51.55	164.621	
16,100.00	6,926.99	3,337.00	3,088.56	148.72	23.75	-1.08	933.91	-1,364.69	8,575.72	8,524.06	51.67	165.983	
16,200.00	6,926.90	3,337.00	3,088.56	150.30	23.75	-1.08	933.91	-1,364.69	8,665.55	8,613.77	51.78	167.350	
16,300.00	6,926.80	3,337.00	3,088.56	151.87	23.75	-1.08	933.91	-1,364.69	8,755.60	8,703.71	51.89	168.721	
16,400.00	6,926.70	3,337.00	3,088.56	153.45	23.75	-1.08	933.91	-1,364.69	8,845.87	8,793.86	52.01	170.096	
16,500.00	6,926.61	3,337.00	3,088.56	155.03	23.75	-1.08	933.91	-1,364.69	8,936.34	8,884.23	52.11	171.474	
16,600.00	6,926.51	3,337.00	3,088.56	156.61	23.75	-1.08	933.91	-1,364.69	9,027.02	8,974.79	52.22	172.856	
16,700.00	6,926.41	3,337.00	3,088.56	158.19	23.75	-1.08	933.91	-1,364.69	9,117.88	9,065.55	52.33	174.241	
16,800.00	6,926.32	3,337.00	3,088.56	159.77	23.75	-1.08	933.91	-1,364.69	9,208.94	9,156.51	52.43	175.629	
16,900.00	6,926.22	3,337.00	3,088.56	161.35	23.75	-1.08	933.91	-1,364.69	9,300.18	9,247.65	52.54	177.019	
17,000.00	6,926.12	3,337.00	3,088.56	162.93	23.75	-1.08	933.91	-1,364.69	9,391.60	9,338.96	52.64	178.412	
17,100.00	6,926.03	3,337.00	3,088.56	164.51	23.75	-1.08	933.91	-1,364.69	9,483.20	9,430.45	52.74	179.806	
17,200.00	6,925.93	3,337.00	3,088.56	166.09	23.75	-1.08	933.91	-1,364.69	9,574.96	9,522.12	52.84	181.203	
17,300.00	6,925.83	3,337.00	3,088.56	167.67	23.75	-1.08	933.91	-1,364.69	9,666.88	9,613.94	52.94	182.601	
17,400.00	6,925.74	3,337.00	3,088.56	169.26	23.75	-1.08	933.91	-1,364.69	9,758.96	9,705.93	53.04	184.000	
17,500.00	6,925.64	3,337.00	3,088.56	170.84	23.75	-1.08	933.91	-1,364.69	9,851.20	9,798.07	53.13	185.401	
17,600.00	6,925.54	3,337.00	3,088.56	172.42	23.75	-1.08	933.91	-1,364.69	9,943.59	9,890.36	53.23	186.802	
17,700.00	6,925.45	3,337.00	3,088.56	174.00	23.75	-1.08	933.91	-1,364.69	10,036.12	9,982.80	53.33	188.205	
17,800.00	6,925.35	3,337.00	3,088.56	175.59	23.75	-1.08	933.91	-1,364.69	10,128.80	10,075.38	53.42	189.607	
17,900.00	6,925.25	3,337.00	3,088.56	177.17	23.75	-1.08	933.91	-1,364.69	10,221.61	10,168.10	53.51	191.011	
18,000.00	6,925.16	3,337.00	3,088.56	178.76	23.75	-1.08	933.91	-1,364.69	10,314.56	10,260.96	53.61	192.414	
18,100.00	6,925.06	3,337.00	3,088.56	180.34	23.75	-1.08	933.91	-1,364.69	10,407.64	10,353.94	53.70	193.818	
18,160.21	6,925.00	3,337.00	3,088.56	181.30	23.75	-1.08	933.91	-1,364.69	10,463.75	10,410.00	53.75	194.663	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 553-APC_ISCWSA REV 2 MWD

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Rule Assigned: Warning
0.00	0.00	0.00	0.00	0.00	0.00	-90.87	-164.50	-10,826.02	10,827.46				
100.00	100.00	111.19	111.19	0.25	0.13	-90.87	-164.31	-10,825.64	10,827.15	10,826.77	0.38	N/A	
200.00	200.00	419.94	419.88	0.61	0.49	-90.86	-161.74	-10,820.56	10,825.49	10,824.40	1.09	9,934.595	
300.00	300.00	583.00	582.84	0.97	0.71	-90.84	-159.45	-10,815.48	10,822.21	10,820.55	1.66	6,510.017	
400.00	400.00	613.00	612.83	1.33	0.77	-90.84	-159.17	-10,814.54	10,819.26	10,817.18	2.08	5,206.908	
500.00	500.00	643.00	642.81	1.68	0.83	-90.84	-158.53	-10,813.90	10,817.04	10,814.55	2.50	4,335.304	
600.00	599.98	643.00	642.81	2.04	0.83	-102.86	-158.53	-10,813.90	10,815.98	10,813.13	2.85	3,791.350	
612.41	612.38	643.00	642.81	2.09	0.83	-102.86	-158.53	-10,813.90	10,815.97	10,813.07	2.90	3,733.171	
700.00	699.84	673.00	672.81	2.41	0.89	-102.86	-158.07	-10,813.78	10,816.55	10,813.28	3.27	3,310.200	
800.00	799.45	673.00	672.81	2.77	0.89	-102.82	-158.07	-10,813.78	10,818.61	10,814.98	3.63	2,981.762	
900.00	898.70	673.00	672.81	3.13	0.89	-102.74	-158.07	-10,813.78	10,822.37	10,818.38	3.99	2,709.080	
1,000.00	997.47	688.49	688.29	3.50	0.92	-102.65	-157.90	-10,814.02	10,827.70	10,823.30	4.40	2,460.371	
1,100.00	1,095.62	704.00	703.79	3.89	0.95	-102.53	-157.58	-10,814.49	10,834.67	10,829.86	4.82	2,249.934	
1,200.00	1,193.44	704.00	703.79	4.29	0.95	-102.53	-157.58	-10,814.49	10,842.82	10,837.61	5.21	2,080.186	
1,300.00	1,291.25	719.81	719.59	4.70	0.98	-102.54	-157.22	-10,815.16	10,851.80	10,846.15	5.65	1,921.932	
1,400.00	1,389.07	733.00	732.76	5.11	1.00	-102.56	-156.99	-10,815.83	10,861.58	10,855.50	6.08	1,786.865	
1,500.00	1,486.88	733.00	732.76	5.53	1.00	-102.56	-156.99	-10,815.83	10,872.20	10,865.71	6.49	1,675.563	
1,600.00	1,584.70	749.27	748.99	5.95	1.04	-102.57	-156.58	-10,816.87	10,883.60	10,876.66	6.93	1,569.505	
1,700.00	1,682.51	764.00	763.66	6.37	1.07	-102.58	-155.94	-10,818.04	10,895.88	10,888.50	7.38	1,476.858	
1,800.00	1,780.33	764.00	763.66	6.80	1.07	-102.58	-155.94	-10,818.04	10,908.94	10,901.15	7.79	1,399.980	
1,900.00	1,878.14	764.00	763.66	7.22	1.07	-102.58	-155.94	-10,818.04	10,922.91	10,914.70	8.21	1,330.865	
2,000.00	1,975.96	794.00	793.47	7.65	1.15	-102.61	-154.42	-10,821.04	10,937.61	10,928.92	8.69	1,259.120	
2,100.00	2,073.77	794.00	793.47	8.08	1.15	-102.61	-154.42	-10,821.04	10,953.09	10,943.99	9.10	1,203.496	
2,200.00	2,171.59	794.00	793.47	8.51	1.15	-102.61	-154.42	-10,821.04	10,969.47	10,959.95	9.52	1,152.845	
2,300.00	2,269.40	825.00	824.18	8.95	1.22	-102.63	-152.86	-10,824.97	10,986.66	10,976.66	10.00	1,099.065	
2,400.00	2,367.22	825.00	824.18	9.38	1.22	-102.63	-152.86	-10,824.97	11,004.53	10,994.12	10.41	1,057.284	
2,500.00	2,465.03	825.00	824.18	9.81	1.22	-102.63	-152.86	-10,824.97	11,023.28	11,012.46	10.82	1,018.851	
2,600.00	2,562.84	825.00	824.18	10.25	1.22	-102.63	-152.86	-10,824.97	11,042.90	11,031.67	11.23	983.404	
2,700.00	2,660.66	855.00	853.80	10.68	1.29	-102.66	-151.85	-10,829.57	11,063.17	11,051.47	11.70	945.270	
2,800.00	2,758.47	855.00	853.80	11.12	1.29	-102.66	-151.85	-10,829.57	11,084.27	11,072.16	12.11	915.273	
2,900.00	2,856.29	871.24	869.80	11.55	1.33	-102.67	-151.59	-10,832.33	11,106.14	11,093.59	12.55	884.835	
3,000.00	2,954.10	886.00	884.33	11.99	1.37	-102.69	-151.35	-10,834.96	11,128.75	11,115.76	12.99	856.829	
3,100.00	3,051.92	886.00	884.33	12.42	1.37	-102.69	-151.35	-10,834.96	11,152.15	11,138.76	13.39	832.884	
3,200.00	3,149.73	886.00	884.33	12.86	1.37	-102.69	-151.35	-10,834.96	11,176.39	11,162.60	13.79	810.500	
3,300.00	3,247.55	886.00	884.33	13.30	1.37	-102.69	-151.35	-10,834.96	11,201.47	11,187.28	14.19	789.539	
3,400.00	3,345.36	915.99	913.72	13.73	1.45	-102.72	-150.71	-10,840.87	11,226.87	11,212.22	14.66	765.965	
3,500.00	3,443.18	948.00	944.86	14.17	1.53	-102.74	-149.69	-10,848.21	11,253.67	11,238.54	15.13	743.769	
3,600.00	3,540.99	948.00	944.86	14.61	1.53	-102.74	-149.69	-10,848.21	11,280.72	11,265.20	15.52	726.757	
3,700.00	3,638.81	948.00	944.86	15.05	1.53	-102.74	-149.69	-10,848.21	11,308.58	11,292.67	15.91	710.728	
3,800.00	3,736.62	948.00	944.86	15.48	1.53	-102.74	-149.69	-10,848.21	11,337.26	11,320.96	16.30	695.608	
3,900.00	3,834.44	962.95	959.33	15.92	1.59	-102.75	-149.08	-10,851.92	11,366.70	11,349.98	16.72	679.655	
4,000.00	3,932.25	978.00	973.87	16.36	1.64	-102.77	-148.36	-10,855.73	11,396.79	11,379.64	17.15	664.618	
4,100.00	4,030.07	1,010.00	1,004.69	16.80	1.76	-102.79	-146.57	-10,864.15	11,427.57	11,409.95	17.62	648.519	
4,200.00	4,127.88	1,010.00	1,004.69	17.24	1.76	-102.79	-146.57	-10,864.15	11,458.93	11,440.93	18.00	636.660	
4,300.00	4,225.70	1,010.00	1,004.69	17.68	1.76	-102.79	-146.57	-10,864.15	11,491.08	11,472.70	18.37	625.413	
4,400.00	4,323.51	1,026.23	1,020.24	18.11	1.83	-102.80	-145.54	-10,868.66	11,523.86	11,505.07	18.80	613.080	
4,500.00	4,421.33	1,041.00	1,034.33	18.55	1.90	-102.81	-144.50	-10,873.00	11,557.42	11,538.21	19.21	601.541	
4,600.00	4,519.14	1,041.00	1,034.33	18.99	1.90	-102.81	-144.50	-10,873.00	11,591.63	11,572.05	19.58	591.992	
4,700.00	4,616.95	1,071.00	1,062.83	19.43	2.05	-102.83	-142.17	-10,882.07	11,626.45	11,606.40	20.05	580.000	
4,800.00	4,714.77	1,071.00	1,062.83	19.87	2.05	-102.83	-142.17	-10,882.07	11,661.93	11,641.52	20.41	571.427	
4,900.00	4,812.58	1,101.00	1,091.15	20.31	2.21	-102.84	-139.43	-10,891.57	11,698.03	11,677.16	20.87	560.386	
5,000.00	4,910.40	1,101.00	1,091.15	20.75	2.21	-102.84	-139.43	-10,891.57	11,734.77	11,713.53	21.23	552.667	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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

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	1,116.53	1,105.71	21.19	2.31	-102.85	-137.77	-10,896.72	11,772.19	11,750.54	21.65	543.803	
5,200.00	5,106.03	1,132.00	1,120.15	21.63	2.40	-102.85	-135.90	-10,901.94	11,810.19	11,788.13	22.06	535.357	
5,300.00	5,203.84	1,163.00	1,148.95	22.06	2.60	-102.86	-131.73	-10,912.62	11,848.77	11,826.23	22.54	525.705	
5,400.00	5,301.66	1,163.00	1,148.95	22.50	2.60	-102.86	-131.73	-10,912.62	11,887.92	11,865.03	22.89	519.411	
5,500.00	5,399.47	1,194.00	1,177.60	22.94	2.82	-102.87	-127.37	-10,923.62	11,927.62	11,904.26	23.37	510.444	
5,600.00	5,497.29	1,194.00	1,177.60	23.38	2.82	-102.87	-127.37	-10,923.62	11,967.95	11,944.24	23.71	504.743	
5,700.00	5,595.10	1,211.21	1,193.42	23.82	2.94	-102.87	-124.89	-10,929.93	12,008.87	11,984.74	24.13	497.659	
5,800.00	5,692.92	1,225.00	1,206.03	24.26	3.04	-102.87	-122.81	-10,935.11	12,050.42	12,025.89	24.53	491.198	
5,900.00	5,790.73	1,225.00	1,206.03	24.70	3.04	-102.87	-122.81	-10,935.11	12,092.59	12,067.72	24.87	486.245	
6,000.00	5,888.55	1,257.00	1,235.10	25.14	3.29	-102.88	-117.71	-10,947.47	12,135.28	12,109.92	25.36	478.523	
6,100.00	5,986.36	1,297.00	1,271.28	25.58	3.61	-102.88	-110.90	-10,963.11	12,178.38	12,152.49	25.90	470.288	
6,200.00	6,084.18	1,328.00	1,299.18	26.02	3.87	-102.88	-105.16	-10,975.35	12,221.87	12,195.48	26.39	463.085	
6,300.00	6,181.99	1,342.10	1,311.80	26.46	3.99	-102.88	-102.45	-10,981.01	12,265.91	12,239.11	26.80	457.715	
6,401.22	6,281.00	1,359.00	1,326.92	26.90	4.13	-102.88	-99.32	-10,987.89	12,311.03	12,283.81	27.22	452.259	
6,450.00	6,328.76	1,359.00	1,326.92	27.12	4.13	-81.93	-99.32	-10,987.89	12,331.29	12,303.91	27.38	450.425	
6,500.00	6,377.61	1,372.81	1,339.25	27.32	4.25	-62.32	-96.79	-10,993.58	12,348.60	12,320.98	27.61	447.215	
6,550.00	6,426.06	1,391.00	1,355.41	27.52	4.41	-47.76	-93.39	-11,001.20	12,362.37	12,334.50	27.87	443.566	
6,600.00	6,473.81	1,391.00	1,355.41	27.71	4.41	-37.80	-93.39	-11,001.20	12,372.44	12,344.41	28.02	441.508	
6,650.00	6,520.56	1,391.00	1,355.41	27.89	4.41	-30.97	-93.39	-11,001.20	12,378.83	12,350.65	28.17	439.405	
6,700.00	6,566.03	1,409.30	1,371.60	28.05	4.58	-26.15	-89.90	-11,008.98	12,381.45	12,353.03	28.42	435.595	
6,750.00	6,609.93	1,422.00	1,382.82	28.20	4.70	-22.64	-87.47	-11,014.42	12,380.31	12,351.68	28.64	432.315	
6,800.00	6,652.00	1,422.00	1,382.82	28.34	4.70	-20.00	-87.47	-11,014.42	12,375.43	12,346.66	28.77	430.173	
6,850.00	6,691.98	1,439.34	1,398.08	28.47	4.87	-17.96	-84.07	-11,021.92	12,366.79	12,337.79	29.00	426.451	
6,900.00	6,729.61	1,452.00	1,409.17	28.59	4.99	-16.36	-81.53	-11,027.47	12,354.49	12,325.29	29.19	423.197	
6,950.00	6,764.67	1,452.00	1,409.17	28.69	4.99	-15.08	-81.53	-11,027.47	12,338.57	12,309.27	29.30	421.089	
7,000.00	6,796.95	1,452.00	1,409.17	28.79	4.99	-14.05	-81.53	-11,027.47	12,319.16	12,289.76	29.40	418.996	
7,050.00	6,826.23	1,466.57	1,421.89	28.89	5.14	-13.20	-78.56	-11,033.93	12,296.29	12,266.71	29.59	415.620	
7,100.00	6,852.35	1,481.00	1,434.42	28.98	5.28	-12.50	-75.61	-11,040.44	12,270.19	12,240.43	29.76	412.321	
7,150.00	6,875.14	1,481.00	1,434.42	29.08	5.28	-11.92	-75.61	-11,040.44	12,240.90	12,211.07	29.83	410.325	
7,200.00	6,894.45	1,481.00	1,434.42	29.18	5.28	-11.44	-75.61	-11,040.44	12,208.64	12,178.74	29.90	408.364	
7,250.00	6,910.18	1,481.00	1,434.42	29.28	5.28	-11.04	-75.61	-11,040.44	12,173.59	12,143.64	29.95	406.442	
7,300.00	6,922.23	1,494.34	1,445.96	29.40	5.42	-10.70	-72.86	-11,046.53	12,135.91	12,105.83	30.08	403.395	
7,350.00	6,930.51	1,511.00	1,460.32	29.54	5.59	-10.40	-69.38	-11,054.23	12,095.87	12,065.64	30.23	400.145	
7,400.00	6,934.98	1,511.00	1,460.32	29.70	5.59	-10.14	-69.38	-11,054.23	12,053.62	12,023.36	30.26	398.380	
7,433.91	6,935.83	1,511.00	1,460.32	29.81	5.59	-9.97	-69.38	-11,054.23	12,023.85	11,993.58	30.27	397.196	
7,500.00	6,935.76	1,511.00	1,460.32	30.07	5.59	-9.97	-69.38	-11,054.23	11,965.07	11,934.78	30.29	395.013	
7,600.00	6,935.66	1,511.00	1,460.32	30.52	5.59	-9.97	-69.38	-11,054.23	11,876.28	11,845.96	30.32	391.695	
7,700.00	6,935.55	1,526.93	1,473.99	31.06	5.76	-9.95	-65.99	-11,061.69	11,787.60	11,757.13	30.46	386.945	
7,800.00	6,935.45	1,542.00	1,486.85	31.68	5.93	-9.94	-62.75	-11,068.83	11,699.10	11,668.50	30.61	382.257	
7,900.00	6,935.34	1,542.00	1,486.85	32.37	5.93	-9.94	-62.75	-11,068.83	11,610.74	11,580.08	30.65	378.755	
8,000.00	6,935.24	1,542.00	1,486.85	33.12	5.93	-9.94	-62.75	-11,068.83	11,522.56	11,491.85	30.71	375.184	
8,100.00	6,935.13	1,573.00	1,513.17	33.93	6.27	-9.91	-56.00	-11,083.76	11,434.52	11,403.54	30.98	369.042	
8,200.00	6,935.03	1,573.00	1,513.17	34.80	6.27	-9.91	-56.00	-11,083.76	11,346.61	11,315.56	31.06	365.368	
8,300.00	6,934.92	1,573.00	1,513.17	35.71	6.27	-9.91	-56.00	-11,083.76	11,258.90	11,227.77	31.13	361.626	
8,400.00	6,934.82	1,573.00	1,513.17	36.67	6.27	-9.91	-56.00	-11,083.76	11,171.39	11,140.17	31.22	357.818	
8,500.00	6,934.71	1,588.69	1,526.39	37.68	6.45	-9.90	-52.50	-11,091.46	11,084.00	11,052.58	31.42	352.755	
8,600.00	6,934.61	1,605.00	1,539.99	38.72	6.64	-9.88	-48.71	-11,099.62	10,996.89	10,965.25	31.64	347.591	
8,700.00	6,934.50	1,605.00	1,539.99	39.80	6.64	-9.88	-48.71	-11,099.62	10,909.89	10,878.14	31.75	343.636	
8,800.00	6,934.40	1,605.00	1,539.99	40.92	6.64	-9.88	-48.71	-11,099.62	10,823.12	10,791.25	31.87	339.622	
8,900.00	6,934.29	1,605.00	1,539.99	42.06	6.64	-9.88	-48.71	-11,099.62	10,736.57	10,704.58	32.00	335.549	
9,000.00	6,934.19	1,636.00	1,565.59	43.23	7.01	-9.84	-41.27	-11,115.45	10,650.21	10,617.86	32.35	329.217	
9,100.00	6,934.08	1,636.00	1,565.59	44.43	7.01	-9.84	-41.27	-11,115.45	10,563.99	10,531.50	32.50	325.083	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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
9,200.00	6,933.98	1,636.00	1,565.59	45.66	7.01	-9.84	-41.27	-11,115.45	10,478.02	10,445.37	32.65	320.897	
9,300.00	6,933.88	1,636.00	1,565.59	46.90	7.01	-9.84	-41.27	-11,115.45	10,392.30	10,359.49	32.82	316.663	
9,400.00	6,933.77	1,666.00	1,590.05	48.17	7.38	-9.80	-33.89	-11,131.16	10,306.76	10,273.55	33.20	310.428	
9,500.00	6,933.67	1,666.00	1,590.05	49.46	7.38	-9.80	-33.89	-11,131.16	10,221.41	10,188.02	33.39	306.154	
9,600.00	6,933.56	1,666.00	1,590.05	50.76	7.38	-9.80	-33.89	-11,131.16	10,136.33	10,102.74	33.58	301.839	
9,700.00	6,933.46	1,682.59	1,603.46	52.08	7.59	-9.78	-29.77	-11,140.01	10,051.45	10,017.55	33.90	296.490	
9,800.00	6,933.35	1,696.00	1,614.26	53.41	7.77	-9.76	-26.44	-11,147.23	9,966.81	9,932.60	34.21	291.351	
9,900.00	6,933.25	1,696.00	1,614.26	54.76	7.77	-9.76	-26.44	-11,147.23	9,882.42	9,847.98	34.44	286.984	
10,000.00	6,933.14	1,711.51	1,626.69	56.12	7.97	-9.74	-22.59	-11,155.67	9,798.24	9,763.46	34.78	281.737	
10,100.00	6,933.04	1,727.00	1,639.04	57.50	8.17	-9.72	-18.73	-11,164.20	9,714.34	9,679.21	35.13	276.524	
10,200.00	6,932.93	1,727.00	1,639.04	58.88	8.17	-9.72	-18.73	-11,164.20	9,630.67	9,595.28	35.39	272.135	
10,300.00	6,932.83	1,727.00	1,639.04	60.28	8.17	-9.72	-18.73	-11,164.20	9,547.32	9,511.66	35.66	267.728	
10,400.00	6,932.72	1,757.00	1,662.69	61.69	8.58	-9.68	-11.18	-11,181.03	9,464.20	9,428.06	36.14	261.857	
10,500.00	6,932.62	1,757.00	1,662.69	63.10	8.58	-9.68	-11.18	-11,181.03	9,381.33	9,344.89	36.44	257.474	
10,600.00	6,932.51	1,757.00	1,662.69	64.52	8.58	-9.68	-11.18	-11,181.03	9,298.79	9,262.04	36.74	253.082	
10,700.00	6,932.41	1,770.79	1,673.45	65.96	8.77	-9.66	-7.67	-11,188.91	9,216.52	9,179.37	37.15	248.083	
10,800.00	6,932.30	1,787.00	1,685.99	67.39	9.00	-9.63	-3.52	-11,198.31	9,134.60	9,097.01	37.59	243.031	
10,900.00	6,932.20	1,787.00	1,685.99	68.84	9.00	-9.63	-3.52	-11,198.31	9,052.93	9,015.00	37.93	238.684	
11,000.00	6,932.10	1,806.22	1,700.76	70.29	9.27	-9.60	1.46	-11,209.55	8,971.58	8,933.17	38.41	233.592	
11,100.00	6,931.99	1,818.00	1,709.77	71.75	9.44	-9.58	4.55	-11,216.48	8,890.49	8,851.64	38.85	228.849	
11,200.00	6,931.89	1,832.04	1,720.45	73.22	9.65	-9.56	8.30	-11,224.79	8,809.70	8,770.38	39.32	224.060	
11,300.00	6,931.78	1,850.00	1,733.98	74.69	9.91	-9.52	13.22	-11,235.53	8,729.27	8,689.44	39.82	219.198	
11,400.00	6,931.68	1,850.00	1,733.98	76.16	9.91	-9.52	13.22	-11,235.53	8,649.13	8,608.91	40.23	214.999	
11,500.00	6,931.57	1,864.80	1,745.02	77.64	10.13	-9.50	17.34	-11,244.47	8,569.35	8,528.61	40.74	210.340	
11,600.00	6,931.47	6,896.00	6,053.19	79.13	54.34	6.78	907.94	-13,000.69	8,480.05	8,420.90	59.15	143.364	
11,700.00	6,931.36	6,896.00	6,053.19	80.62	54.34	6.78	907.94	-13,000.69	8,380.51	8,321.33	59.18	141.610	
11,800.00	6,931.26	6,896.00	6,053.19	82.11	54.34	6.78	907.94	-13,000.69	8,280.98	8,221.77	59.21	139.855	
11,900.00	6,931.15	6,896.00	6,053.19	83.61	54.34	6.78	907.94	-13,000.69	8,181.47	8,122.23	59.24	138.099	
12,000.00	6,931.05	6,896.00	6,053.19	85.11	54.34	6.78	907.94	-13,000.69	8,081.97	8,022.69	59.28	136.344	
12,100.00	6,930.94	6,896.00	6,053.19	86.62	54.34	6.78	907.94	-13,000.69	7,982.48	7,923.17	59.31	134.587	
12,200.00	6,930.84	6,896.00	6,053.19	88.13	54.34	6.78	907.94	-13,000.69	7,883.01	7,823.66	59.35	132.831	
12,300.00	6,930.73	6,896.00	6,053.19	89.64	54.34	6.78	907.94	-13,000.69	7,783.54	7,724.16	59.38	131.074	
12,400.00	6,930.63	6,896.00	6,053.19	91.15	54.34	6.78	907.94	-13,000.69	7,684.09	7,624.67	59.42	129.317	
12,500.00	6,930.52	6,896.00	6,053.19	92.67	54.34	6.78	907.94	-13,000.69	7,584.66	7,525.20	59.46	127.559	
12,600.00	6,930.42	6,896.00	6,053.19	94.19	54.34	6.78	907.94	-13,000.69	7,485.24	7,425.74	59.50	125.802	
12,700.00	6,930.31	6,896.00	6,053.19	95.71	54.34	6.78	907.94	-13,000.69	7,385.84	7,326.30	59.54	124.044	
12,800.00	6,930.21	6,896.00	6,053.19	97.24	54.34	6.78	907.94	-13,000.69	7,286.45	7,226.87	59.59	122.287	
12,900.00	6,930.11	6,896.00	6,053.19	98.77	54.34	6.78	907.94	-13,000.69	7,187.08	7,127.45	59.63	120.529	
13,008.91	6,929.99	6,896.00	6,053.19	100.43	54.34	6.78	907.94	-13,000.69	7,078.88	7,019.20	59.68	118.614	
13,100.00	6,929.90	6,896.00	6,053.19	101.83	54.34	-8.92	907.94	-13,000.69	6,988.39	6,928.65	59.75	116.967	
13,139.82	6,929.86	6,896.00	6,053.19	102.44	54.34	-15.44	907.94	-13,000.69	6,948.85	6,889.06	59.79	116.218	
13,200.00	6,929.80	6,896.00	6,053.19	103.37	54.34	-15.44	907.94	-13,000.69	6,889.11	6,829.25	59.87	115.075	
13,300.00	6,929.70	6,896.00	6,053.19	104.92	54.34	-15.44	907.94	-13,000.69	6,789.86	6,729.87	59.99	113.175	
13,400.00	6,929.61	6,896.00	6,053.19	106.47	54.34	-15.44	907.94	-13,000.69	6,690.64	6,630.51	60.13	111.276	
13,500.00	6,929.51	6,896.00	6,053.19	108.02	54.34	-15.44	907.94	-13,000.69	6,591.43	6,531.17	60.26	109.379	
13,600.00	6,929.41	6,896.00	6,053.19	109.57	54.34	-15.44	907.94	-13,000.69	6,492.25	6,431.85	60.40	107.483	
13,700.00	6,929.32	6,896.00	6,053.19	111.12	54.34	-15.44	907.94	-13,000.69	6,393.10	6,332.55	60.55	105.588	
13,800.00	6,929.22	6,896.00	6,053.19	112.68	54.34	-15.44	907.94	-13,000.69	6,293.97	6,233.27	60.70	103.695	
13,900.00	6,929.12	6,896.00	6,053.19	114.23	54.34	-15.44	907.94	-13,000.69	6,194.87	6,134.02	60.85	101.804	
14,000.00	6,929.03	6,896.00	6,053.19	115.79	54.34	-15.44	907.94	-13,000.69	6,095.80	6,034.79	61.01	99.914	
14,100.00	6,928.93	6,896.00	6,053.19	117.35	54.34	-15.44	907.94	-13,000.69	5,996.76	5,935.59	61.17	98.026	
14,200.00	6,928.83	6,896.00	6,053.19	118.91	54.34	-15.44	907.94	-13,000.69	5,897.76	5,836.41	61.35	96.140	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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
14,300.00	6,928.74	6,896.00	6,053.19	120.47	54.34	-15.44	907.94	-13,000.69	5,798.78	5,737.26	61.52	94.256	
14,400.00	6,928.64	6,896.00	6,053.19	122.03	54.34	-15.44	907.94	-13,000.69	5,699.85	5,638.14	61.70	92.373	
14,500.00	6,928.54	6,896.00	6,053.19	123.60	54.34	-15.44	907.94	-13,000.69	5,600.95	5,539.05	61.89	90.493	
14,600.00	6,928.45	6,896.00	6,053.19	125.16	54.34	-15.44	907.94	-13,000.69	5,502.09	5,440.00	62.09	88.614	
14,700.00	6,928.35	6,896.00	6,053.19	126.72	54.34	-15.44	907.94	-13,000.69	5,403.27	5,340.98	62.29	86.738	
14,800.00	6,928.25	6,896.00	6,053.19	128.29	54.34	-15.44	907.94	-13,000.69	5,304.50	5,241.99	62.51	84.863	
14,900.00	6,928.16	6,896.00	6,053.19	129.86	54.34	-15.44	907.94	-13,000.69	5,205.77	5,143.05	62.73	82.991	
15,000.00	6,928.06	6,896.00	6,053.19	131.42	54.34	-15.44	907.94	-13,000.69	5,107.10	5,044.14	62.96	81.122	
15,100.00	6,927.96	6,896.00	6,053.19	132.99	54.34	-15.44	907.94	-13,000.69	5,008.47	4,945.28	63.19	79.255	
15,200.00	6,927.87	6,896.00	6,053.19	134.56	54.34	-15.44	907.94	-13,000.69	4,909.90	4,846.46	63.44	77.390	
15,300.00	6,927.77	6,896.00	6,053.19	136.13	54.34	-15.44	907.94	-13,000.69	4,811.39	4,747.69	63.70	75.528	
15,400.00	6,927.67	6,896.00	6,053.19	137.70	54.34	-15.44	907.94	-13,000.69	4,712.95	4,648.97	63.98	73.669	
15,500.00	6,927.57	6,896.00	6,053.19	139.28	54.34	-15.44	907.94	-13,000.69	4,614.57	4,550.31	64.26	71.812	
15,600.00	6,927.48	6,896.00	6,053.19	140.85	54.34	-15.44	907.94	-13,000.69	4,516.26	4,451.70	64.56	69.959	
15,700.00	6,927.38	6,896.00	6,053.19	142.42	54.34	-15.44	907.94	-13,000.69	4,418.03	4,353.16	64.87	68.108	
15,800.00	6,927.28	6,896.00	6,053.19	144.00	54.34	-15.44	907.94	-13,000.69	4,319.88	4,254.68	65.19	66.261	
15,900.00	6,927.19	6,896.00	6,053.19	145.57	54.34	-15.44	907.94	-13,000.69	4,221.81	4,156.27	65.54	64.417	
16,000.00	6,927.09	6,896.00	6,053.19	147.15	54.34	-15.44	907.94	-13,000.69	4,123.84	4,057.94	65.90	62.578	
16,100.00	6,926.99	6,896.00	6,053.19	148.72	54.34	-15.44	907.94	-13,000.69	4,025.97	3,959.69	66.28	60.741	
16,200.00	6,926.90	6,896.00	6,053.19	150.30	54.34	-15.44	907.94	-13,000.69	3,928.21	3,861.52	66.68	58.910	
16,300.00	6,926.80	6,896.00	6,053.19	151.87	54.34	-15.44	907.94	-13,000.69	3,830.56	3,763.45	67.11	57.082	
16,400.00	6,926.70	6,896.00	6,053.19	153.45	54.34	-15.44	907.94	-13,000.69	3,733.03	3,665.48	67.55	55.259	
16,500.00	6,926.61	6,896.00	6,053.19	155.03	54.34	-15.44	907.94	-13,000.69	3,635.64	3,567.61	68.03	53.442	
16,600.00	6,926.51	6,896.00	6,053.19	156.61	54.34	-15.44	907.94	-13,000.69	3,538.40	3,469.86	68.53	51.629	
16,700.00	6,926.41	6,896.00	6,053.19	158.19	54.34	-15.44	907.94	-13,000.69	3,441.31	3,372.24	69.07	49.823	
16,800.00	6,926.32	6,896.00	6,053.19	159.77	54.34	-15.44	907.94	-13,000.69	3,344.40	3,274.75	69.64	48.023	
16,900.00	6,926.22	6,896.00	6,053.19	161.35	54.34	-15.44	907.94	-13,000.69	3,247.67	3,177.42	70.25	46.230	
17,000.00	6,926.12	6,896.00	6,053.19	162.93	54.34	-15.44	907.94	-13,000.69	3,151.14	3,080.24	70.90	44.445	
17,100.00	6,926.03	6,896.00	6,053.19	164.51	54.34	-15.44	907.94	-13,000.69	3,054.84	2,983.25	71.59	42.669	
17,200.00	6,925.93	6,896.00	6,053.19	166.09	54.34	-15.44	907.94	-13,000.69	2,958.79	2,886.45	72.34	40.901	
17,300.00	6,925.83	6,896.00	6,053.19	167.67	54.34	-15.44	907.94	-13,000.69	2,863.01	2,789.87	73.14	39.144	
17,400.00	6,925.74	6,896.00	6,053.19	169.26	54.34	-15.44	907.94	-13,000.69	2,767.52	2,693.52	74.00	37.399	
17,500.00	6,925.64	6,896.00	6,053.19	170.84	54.34	-15.44	907.94	-13,000.69	2,672.36	2,597.44	74.93	35.666	
17,600.00	6,925.54	6,896.00	6,053.19	172.42	54.34	-15.44	907.94	-13,000.69	2,577.58	2,501.65	75.93	33.947	
17,700.00	6,925.45	6,896.00	6,053.19	174.00	54.34	-15.44	907.94	-13,000.69	2,483.19	2,406.18	77.01	32.244	
17,800.00	6,925.35	6,896.00	6,053.19	175.59	54.34	-15.44	907.94	-13,000.69	2,389.27	2,311.08	78.19	30.558	
17,900.00	6,925.25	6,896.00	6,053.19	177.17	54.34	-15.44	907.94	-13,000.69	2,295.86	2,216.40	79.46	28.892	
18,000.00	6,925.16	6,896.00	6,053.19	178.76	54.34	-15.44	907.94	-13,000.69	2,203.03	2,122.18	80.85	27.248	
18,100.00	6,925.06	6,896.00	6,053.19	180.34	54.34	-15.44	907.94	-13,000.69	2,110.86	2,028.49	82.36	25.629	
18,160.21	6,925.00	6,896.00	6,053.19	181.30	54.34	-15.44	907.94	-13,000.69	2,055.71	1,972.37	83.34	24.667	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 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 527-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	-1.77	805.69	-24.85	807.94				
100.00	100.00	45.00	45.00	0.25	0.89	-1.77	805.69	-24.85	806.07	804.93	1.14	708.575	
200.00	200.00	145.00	145.00	0.61	2.86	-1.77	805.69	-24.85	806.07	802.60	3.47	232.566	
300.00	300.00	245.00	245.00	0.97	4.83	-1.77	805.69	-24.85	806.07	800.28	5.79	139.113	
400.00	400.00	345.00	345.00	1.33	6.80	-1.77	805.69	-24.85	806.07	797.95	8.12	99.236	
500.00	500.00	445.00	445.00	1.68	8.77	-1.77	805.69	-24.85	806.07	795.62	10.45	77.127	
600.00	599.98	544.99	544.98	2.04	10.75	-13.80	805.69	-24.85	804.38	791.58	12.79	62.876	
700.00	699.84	644.85	644.84	2.41	12.79	-13.92	805.69	-24.85	799.29	784.10	15.19	52.605	
800.00	799.45	744.47	744.45	2.77	14.82	-14.11	805.69	-24.85	790.84	773.24	17.59	44.954	
900.00	898.70	844.55	844.53	3.13	16.87	-14.39	806.56	-24.85	779.89	759.89	20.00	38.992	
1,000.00	997.47	945.15	945.13	3.50	18.92	-14.76	806.33	-24.85	764.51	742.09	22.42	34.096	
1,100.00	1,095.62	1,045.05	1,045.02	3.89	20.96	-15.25	805.86	-24.85	745.60	720.77	24.83	30.026	
1,200.00	1,193.44	1,138.52	1,138.44	4.29	22.93	-15.66	805.69	-24.85	725.34	698.18	27.16	26.705	
1,300.00	1,291.25	1,236.33	1,236.25	4.70	25.00	-16.12	805.69	-24.85	705.31	675.71	29.60	23.825	
1,400.00	1,389.07	1,334.59	1,334.50	5.11	27.09	-16.59	806.74	-24.85	686.38	654.32	32.06	21.410	
1,500.00	1,486.88	1,434.80	1,434.70	5.53	29.21	-17.12	806.50	-24.85	666.21	631.65	34.56	19.279	
1,600.00	1,584.70	1,534.86	1,534.76	5.95	31.34	-17.68	805.90	-24.85	645.74	608.69	37.05	17.427	
1,700.00	1,682.51	1,627.67	1,627.51	6.37	33.36	-18.23	805.69	-24.85	625.69	586.23	39.46	15.856	
1,800.00	1,780.33	1,725.48	1,725.33	6.80	35.52	-18.84	805.69	-24.85	605.94	563.94	42.00	14.427	
1,900.00	1,878.14	1,823.29	1,823.14	7.22	37.68	-19.49	805.69	-24.85	586.25	541.71	44.54	13.162	
2,000.00	1,975.96	1,922.49	1,922.32	7.65	39.87	-20.19	806.83	-24.85	567.78	520.66	47.11	12.051	
2,100.00	2,073.77	2,021.94	2,021.76	8.08	42.07	-20.95	806.43	-24.85	547.87	498.18	49.69	11.025	
2,200.00	2,171.59	2,121.26	2,121.08	8.51	44.26	-21.78	805.74	-24.85	527.77	475.50	52.27	10.097	
2,300.00	2,269.40	2,217.22	2,216.95	8.95	46.38	-22.63	805.95	-24.85	508.66	453.87	54.78	9.285	
2,400.00	2,367.22	2,312.50	2,312.22	9.38	48.44	-23.55	805.69	-24.85	489.20	431.97	57.24	8.547	
2,500.00	2,465.03	2,410.32	2,410.03	9.81	50.52	-24.55	805.69	-24.85	470.15	410.43	59.71	7.873	
2,600.00	2,562.84	2,508.13	2,507.84	10.25	52.60	-25.65	805.69	-24.85	451.24	389.05	62.19	7.255	
2,700.00	2,660.66	2,607.03	2,606.73	10.68	54.70	-26.81	806.79	-24.85	433.59	368.89	64.70	6.702	
2,800.00	2,758.47	2,706.06	2,705.75	11.12	56.81	-28.13	806.38	-24.85	414.66	347.45	67.21	6.170	
2,900.00	2,856.29	2,804.97	2,804.66	11.55	58.92	-29.59	805.67	-24.85	395.67	325.96	69.72	5.675	
3,000.00	2,954.10	2,901.63	2,901.25	11.99	60.97	-31.11	805.82	-24.85	377.76	305.56	72.20	5.232	
3,100.00	3,051.92	2,997.31	2,996.92	12.42	63.01	-32.78	805.69	-24.85	359.87	285.21	74.66	4.820	
3,200.00	3,149.73	3,095.12	3,094.73	12.86	65.09	-34.65	805.69	-24.85	342.46	265.28	77.18	4.437	
3,284.27	3,232.16	3,121.00	3,120.58	13.23	65.64	-35.18	805.69	-24.85	332.93	255.70	77.23	4.311	CC, ES, SF
3,300.00	3,247.55	3,121.00	3,120.58	13.30	65.64	-35.18	805.69	-24.85	333.31	256.62	76.68	4.347	
3,400.00	3,345.36	3,121.00	3,120.58	13.73	65.64	-35.18	805.69	-24.85	352.48	282.52	69.96	5.038	
3,500.00	3,443.18	3,121.00	3,120.58	14.17	65.64	-35.18	805.69	-24.85	396.72	336.47	60.25	6.584	
3,600.00	3,540.99	3,121.00	3,120.58	14.61	65.64	-35.18	805.69	-24.85	458.84	408.04	50.79	9.033	
3,700.00	3,638.81	3,121.00	3,120.58	15.05	65.64	-35.18	805.69	-24.85	532.62	489.65	42.97	12.396	
3,800.00	3,736.62	3,121.00	3,120.58	15.48	65.64	-35.18	805.69	-24.85	613.86	576.97	36.90	16.637	
3,900.00	3,834.44	3,121.00	3,120.58	15.92	65.64	-35.18	805.69	-24.85	699.98	667.67	32.31	21.666	
4,000.00	3,932.25	3,121.00	3,120.58	16.36	65.64	-35.18	805.69	-24.85	789.38	760.51	28.87	27.342	
4,100.00	4,030.07	3,121.00	3,120.58	16.80	65.64	-35.18	805.69	-24.85	881.06	854.75	26.31	33.487	
4,200.00	4,127.88	3,121.00	3,120.58	17.24	65.64	-35.18	805.69	-24.85	974.38	949.96	24.42	39.908	
4,300.00	4,225.70	3,121.00	3,120.58	17.68	65.64	-35.18	805.69	-24.85	1,068.91	1,045.88	23.03	46.420	
4,400.00	4,323.51	3,121.00	3,120.58	18.11	65.64	-35.18	805.69	-24.85	1,164.35	1,142.32	22.02	52.866	
4,500.00	4,421.33	3,121.00	3,120.58	18.55	65.64	-35.18	805.69	-24.85	1,260.50	1,239.18	21.32	59.129	
4,600.00	4,519.14	3,121.00	3,120.58	18.99	65.64	-35.18	805.69	-24.85	1,357.20	1,336.37	20.84	65.135	
4,700.00	4,616.95	3,121.00	3,120.58	19.43	65.64	-35.18	805.69	-24.85	1,454.35	1,433.83	20.53	70.846	
4,800.00	4,714.77	3,121.00	3,120.58	19.87	65.64	-35.18	805.69	-24.85	1,551.87	1,531.52	20.35	76.253	
4,900.00	4,812.58	3,121.00	3,120.58	20.31	65.64	-35.18	805.69	-24.85	1,649.68	1,629.40	20.28	81.363	
5,000.00	4,910.40	3,121.00	3,120.58	20.75	65.64	-35.18	805.69	-24.85	1,747.74	1,727.46	20.28	86.194	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 527-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore 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	3,121.00	3,120.58	21.19	65.64	-35.18	805.69	-24.85	1,846.00	1,825.67	20.34	90.772	
5,200.00	5,106.03	3,121.00	3,120.58	21.63	65.64	-35.18	805.69	-24.85	1,944.45	1,924.01	20.44	95.119	
5,300.00	5,203.84	3,121.00	3,120.58	22.06	65.64	-35.18	805.69	-24.85	2,043.04	2,022.46	20.58	99.260	
5,400.00	5,301.66	3,121.00	3,120.58	22.50	65.64	-35.18	805.69	-24.85	2,141.77	2,121.02	20.75	103.216	
5,500.00	5,399.47	3,121.00	3,120.58	22.94	65.64	-35.18	805.69	-24.85	2,240.61	2,219.67	20.94	107.007	
5,600.00	5,497.29	3,121.00	3,120.58	23.38	65.64	-35.18	805.69	-24.85	2,339.54	2,318.40	21.14	110.649	
5,700.00	5,595.10	3,121.00	3,120.58	23.82	65.64	-35.18	805.69	-24.85	2,438.57	2,417.21	21.36	114.156	
5,800.00	5,692.92	3,121.00	3,120.58	24.26	65.64	-35.18	805.69	-24.85	2,537.67	2,516.08	21.59	117.540	
5,900.00	5,790.73	3,121.00	3,120.58	24.70	65.64	-35.18	805.69	-24.85	2,636.84	2,615.01	21.83	120.812	
6,000.00	5,888.55	3,121.00	3,120.58	25.14	65.64	-35.18	805.69	-24.85	2,736.07	2,714.00	22.07	123.980	
6,100.00	5,986.36	3,121.00	3,120.58	25.58	65.64	-35.18	805.69	-24.85	2,835.35	2,813.03	22.32	127.051	
6,200.00	6,084.18	3,121.00	3,120.58	26.02	65.64	-35.18	805.69	-24.85	2,934.68	2,912.11	22.57	130.032	
6,300.00	6,181.99	3,121.00	3,120.58	26.46	65.64	-35.18	805.69	-24.85	3,034.06	3,011.23	22.82	132.928	
6,401.22	6,281.00	3,121.00	3,120.58	26.90	65.64	-35.18	805.69	-24.85	3,134.69	3,111.60	23.09	135.778	
6,450.00	6,328.76	3,121.00	3,120.58	27.12	65.64	-42.17	805.69	-24.85	3,183.07	3,159.88	23.20	137.229	
6,500.00	6,377.61	3,121.00	3,120.58	27.32	65.64	-36.16	805.69	-24.85	3,232.25	3,208.98	23.27	138.898	
6,550.00	6,426.06	3,121.00	3,120.58	27.52	65.64	-28.65	805.69	-24.85	3,280.72	3,257.41	23.31	140.721	
6,600.00	6,473.81	3,121.00	3,120.58	27.71	65.64	-22.86	805.69	-24.85	3,328.22	3,304.89	23.33	142.664	
6,650.00	6,520.56	3,121.00	3,120.58	27.89	65.64	-18.76	805.69	-24.85	3,374.51	3,351.19	23.32	144.687	
6,700.00	6,566.03	3,121.00	3,120.58	28.05	65.64	-15.84	805.69	-24.85	3,419.36	3,396.06	23.30	146.743	
6,750.00	6,609.93	3,121.00	3,120.58	28.20	65.64	-13.71	805.69	-24.85	3,462.55	3,439.28	23.27	148.783	
6,800.00	6,652.00	3,121.00	3,120.58	28.34	65.64	-12.13	805.69	-24.85	3,503.88	3,480.64	23.24	150.749	
6,850.00	6,691.98	3,121.00	3,120.58	28.47	65.64	-10.92	805.69	-24.85	3,543.17	3,519.95	23.22	152.579	
6,900.00	6,729.61	3,121.00	3,120.58	28.59	65.64	-9.98	805.69	-24.85	3,580.25	3,557.03	23.22	154.208	
6,950.00	6,764.67	3,121.00	3,120.58	28.69	65.64	-9.25	805.69	-24.85	3,614.95	3,591.71	23.24	155.568	
7,000.00	6,796.95	3,121.00	3,120.58	28.79	65.64	-8.66	805.69	-24.85	3,647.13	3,623.84	23.29	156.591	
7,050.00	6,826.23	3,121.00	3,120.58	28.89	65.64	-8.19	805.69	-24.85	3,676.67	3,653.29	23.39	157.218	
7,100.00	6,852.35	3,121.00	3,120.58	28.98	65.64	-7.82	805.69	-24.85	3,703.45	3,679.92	23.53	157.395	
7,150.00	6,875.14	3,121.00	3,120.58	29.08	65.64	-7.53	805.69	-24.85	3,727.36	3,703.64	23.73	157.086	
7,200.00	6,894.45	3,121.00	3,120.58	29.18	65.64	-7.31	805.69	-24.85	3,748.32	3,724.33	23.99	156.268	
7,250.00	6,910.18	3,121.00	3,120.58	29.28	65.64	-7.14	805.69	-24.85	3,766.24	3,741.93	24.31	154.940	
7,300.00	6,922.23	3,121.00	3,120.58	29.40	65.64	-7.03	805.69	-24.85	3,781.05	3,756.36	24.69	153.120	
7,350.00	6,930.51	3,121.00	3,120.58	29.54	65.64	-6.97	805.69	-24.85	3,792.71	3,767.57	25.14	150.841	
7,400.00	6,934.98	3,121.00	3,120.58	29.70	65.64	-6.95	805.69	-24.85	3,801.17	3,775.52	25.66	148.153	
7,433.91	6,935.83	3,121.00	3,120.58	29.81	65.64	-6.96	805.69	-24.85	3,805.07	3,779.04	26.04	146.132	
7,500.00	6,935.76	3,121.00	3,120.58	30.07	65.64	-6.96	805.69	-24.85	3,811.79	3,784.93	26.86	141.915	
7,600.00	6,935.66	3,121.00	3,120.58	30.52	65.64	-6.96	805.69	-24.85	3,824.10	3,795.84	28.27	135.292	
7,700.00	6,935.55	3,121.00	3,120.58	31.06	65.64	-6.96	805.69	-24.85	3,838.98	3,809.15	29.83	128.691	
7,800.00	6,935.45	3,121.00	3,120.58	31.68	65.64	-6.96	805.69	-24.85	3,856.40	3,824.88	31.52	122.345	
7,900.00	6,935.34	3,121.00	3,120.58	32.37	65.64	-6.96	805.69	-24.85	3,876.32	3,843.01	33.30	116.393	
8,000.00	6,935.24	3,121.00	3,120.58	33.12	65.64	-6.96	805.69	-24.85	3,898.70	3,863.55	35.15	110.904	
8,100.00	6,935.13	3,121.00	3,120.58	33.93	65.64	-6.96	805.69	-24.85	3,923.51	3,886.46	37.05	105.900	
8,200.00	6,935.03	3,121.00	3,120.58	34.80	65.64	-6.96	805.69	-24.85	3,950.69	3,911.71	38.97	101.374	
8,300.00	6,934.92	3,121.00	3,120.58	35.71	65.64	-6.96	805.69	-24.85	3,980.19	3,939.29	40.91	97.302	
8,400.00	6,934.82	3,121.00	3,120.58	36.67	65.64	-6.96	805.69	-24.85	4,011.98	3,969.14	42.84	93.653	
8,500.00	6,934.71	3,121.00	3,120.58	37.68	65.64	-6.96	805.69	-24.85	4,045.98	4,001.22	44.76	90.390	
8,600.00	6,934.61	3,121.00	3,120.58	38.72	65.64	-6.96	805.69	-24.85	4,082.16	4,035.49	46.66	87.479	
8,700.00	6,934.50	3,121.00	3,120.58	39.80	65.64	-6.96	805.69	-24.85	4,120.44	4,071.90	48.54	84.885	
8,800.00	6,934.40	3,121.00	3,120.58	40.92	65.64	-6.96	805.69	-24.85	4,160.78	4,110.39	50.39	82.578	
8,900.00	6,934.29	3,121.00	3,120.58	42.06	65.64	-6.96	805.69	-24.85	4,203.10	4,150.91	52.19	80.527	
9,000.00	6,934.19	3,121.00	3,120.58	43.23	65.64	-6.96	805.69	-24.85	4,247.36	4,193.40	53.96	78.708	
9,100.00	6,934.08	3,121.00	3,120.58	44.43	65.64	-6.96	805.69	-24.85	4,293.50	4,237.81	55.69	77.097	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 527-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	6,933.98	3,121.00	3,120.58	45.66	65.64	-6.96	805.69	-24.85	4,341.45	4,284.07	57.37	75.673	
9,300.00	6,933.88	3,121.00	3,120.58	46.90	65.64	-6.96	805.69	-24.85	4,391.15	4,332.14	59.01	74.418	
9,400.00	6,933.77	3,121.00	3,120.58	48.17	65.64	-6.96	805.69	-24.85	4,442.54	4,381.95	60.59	73.316	
9,500.00	6,933.67	3,121.00	3,120.58	49.46	65.64	-6.96	805.69	-24.85	4,495.58	4,433.44	62.13	72.352	
9,600.00	6,933.56	3,121.00	3,120.58	50.76	65.64	-6.96	805.69	-24.85	4,550.19	4,486.56	63.63	71.514	
9,700.00	6,933.46	3,121.00	3,120.58	52.08	65.64	-6.96	805.69	-24.85	4,606.33	4,541.26	65.07	70.789	
9,800.00	6,933.35	3,121.00	3,120.58	53.41	65.64	-6.96	805.69	-24.85	4,663.94	4,597.47	66.47	70.168	
9,900.00	6,933.25	3,121.00	3,120.58	54.76	65.64	-6.96	805.69	-24.85	4,722.96	4,655.14	67.82	69.641	
10,000.00	6,933.14	3,121.00	3,120.58	56.12	65.64	-6.96	805.69	-24.85	4,783.34	4,714.22	69.12	69.202	
10,100.00	6,933.04	3,121.00	3,120.58	57.50	65.64	-6.96	805.69	-24.85	4,845.03	4,774.65	70.38	68.841	
10,200.00	6,932.93	3,121.00	3,120.58	58.88	65.64	-6.96	805.69	-24.85	4,907.99	4,836.40	71.59	68.553	
10,300.00	6,932.83	3,121.00	3,120.58	60.28	65.64	-6.96	805.69	-24.85	4,972.16	4,899.40	72.77	68.332	
10,400.00	6,932.72	3,121.00	3,120.58	61.69	65.64	-6.96	805.69	-24.85	5,037.50	4,963.61	73.89	68.172	
10,500.00	6,932.62	3,121.00	3,120.58	63.10	65.64	-6.96	805.69	-24.85	5,103.96	5,028.98	74.98	68.069	
10,600.00	6,932.51	3,121.00	3,120.58	64.52	65.64	-6.96	805.69	-24.85	5,171.51	5,095.48	76.03	68.019	
10,700.00	6,932.41	3,121.00	3,120.58	65.96	65.64	-6.96	805.69	-24.85	5,240.09	5,163.05	77.04	68.017	
10,800.00	6,932.30	3,121.00	3,120.58	67.39	65.64	-6.96	805.69	-24.85	5,309.66	5,231.65	78.01	68.060	
10,900.00	6,932.20	3,121.00	3,120.58	68.84	65.64	-6.96	805.69	-24.85	5,380.20	5,301.25	78.95	68.145	
11,000.00	6,932.10	3,121.00	3,120.58	70.29	65.64	-6.96	805.69	-24.85	5,451.66	5,371.80	79.85	68.270	
11,100.00	6,931.99	3,121.00	3,120.58	71.75	65.64	-6.96	805.69	-24.85	5,524.00	5,443.28	80.73	68.430	
11,200.00	6,931.89	3,121.00	3,120.58	73.22	65.64	-6.96	805.69	-24.85	5,597.20	5,515.63	81.56	68.624	
11,300.00	6,931.78	3,121.00	3,120.58	74.69	65.64	-6.96	805.69	-24.85	5,671.21	5,588.84	82.37	68.850	
11,400.00	6,931.68	3,121.00	3,120.58	76.16	65.64	-6.96	805.69	-24.85	5,746.01	5,662.86	83.15	69.105	
11,500.00	6,931.57	3,121.00	3,120.58	77.64	65.64	-6.96	805.69	-24.85	5,821.57	5,737.67	83.90	69.387	
11,600.00	6,931.47	3,121.00	3,120.58	79.13	65.64	-6.96	805.69	-24.85	5,897.86	5,813.23	84.62	69.696	
11,700.00	6,931.36	3,121.00	3,120.58	80.62	65.64	-6.96	805.69	-24.85	5,974.84	5,889.52	85.32	70.029	
11,800.00	6,931.26	3,121.00	3,120.58	82.11	65.64	-6.96	805.69	-24.85	6,052.50	5,966.51	85.99	70.384	
11,900.00	6,931.15	3,121.00	3,120.58	83.61	65.64	-6.96	805.69	-24.85	6,130.81	6,044.17	86.64	70.761	
12,000.00	6,931.05	3,121.00	3,120.58	85.11	65.64	-6.96	805.69	-24.85	6,209.74	6,122.47	87.27	71.158	
12,100.00	6,930.94	3,121.00	3,120.58	86.62	65.64	-6.96	805.69	-24.85	6,289.26	6,201.39	87.87	71.574	
12,200.00	6,930.84	3,121.00	3,120.58	88.13	65.64	-6.96	805.69	-24.85	6,369.37	6,280.92	88.45	72.008	
12,300.00	6,930.73	3,121.00	3,120.58	89.64	65.64	-6.96	805.69	-24.85	6,450.03	6,361.01	89.02	72.459	
12,400.00	6,930.63	3,121.00	3,120.58	91.15	65.64	-6.96	805.69	-24.85	6,531.23	6,441.66	89.56	72.925	
12,500.00	6,930.52	3,121.00	3,120.58	92.67	65.64	-6.96	805.69	-24.85	6,612.94	6,522.85	90.09	73.407	
12,600.00	6,930.42	3,121.00	3,120.58	94.19	65.64	-6.96	805.69	-24.85	6,695.14	6,604.55	90.59	73.902	
12,700.00	6,930.31	3,121.00	3,120.58	95.71	65.64	-6.96	805.69	-24.85	6,777.83	6,686.74	91.09	74.412	
12,800.00	6,930.21	3,121.00	3,120.58	97.24	65.64	-6.96	805.69	-24.85	6,860.98	6,769.42	91.56	74.933	
12,900.00	6,930.11	3,121.00	3,120.58	98.77	65.64	-6.96	805.69	-24.85	6,944.57	6,852.55	92.02	75.467	
13,008.91	6,929.99	3,121.00	3,120.58	100.43	65.64	-6.96	805.69	-24.85	7,036.09	6,943.59	92.51	76.062	
13,100.00	6,929.90	3,121.00	3,120.58	101.83	65.64	-4.09	805.69	-24.85	7,113.10	7,020.21	92.90	76.571	
13,139.82	6,929.86	3,121.00	3,120.58	102.44	65.64	-2.81	805.69	-24.85	7,146.91	7,053.85	93.06	76.797	
13,200.00	6,929.80	3,121.00	3,120.58	103.37	65.64	-2.81	805.69	-24.85	7,198.13	7,104.83	93.31	77.143	
13,300.00	6,929.70	3,121.00	3,120.58	104.92	65.64	-2.81	805.69	-24.85	7,283.56	7,189.85	93.71	77.725	
13,400.00	6,929.61	3,121.00	3,120.58	106.47	65.64	-2.81	805.69	-24.85	7,369.34	7,275.24	94.10	78.316	
13,500.00	6,929.51	3,121.00	3,120.58	108.02	65.64	-2.81	805.69	-24.85	7,455.48	7,361.01	94.47	78.915	
13,600.00	6,929.41	3,121.00	3,120.58	109.57	65.64	-2.81	805.69	-24.85	7,541.97	7,447.13	94.84	79.523	
13,700.00	6,929.32	3,121.00	3,120.58	111.12	65.64	-2.81	805.69	-24.85	7,628.78	7,533.59	95.19	80.139	
13,800.00	6,929.22	3,121.00	3,120.58	112.68	65.64	-2.81	805.69	-24.85	7,715.91	7,620.38	95.54	80.762	
13,900.00	6,929.12	3,121.00	3,120.58	114.23	65.64	-2.81	805.69	-24.85	7,803.36	7,707.48	95.87	81.392	
14,000.00	6,929.03	3,121.00	3,120.58	115.79	65.64	-2.81	805.69	-24.85	7,891.10	7,794.90	96.20	82.029	
14,100.00	6,928.93	3,121.00	3,120.58	117.35	65.64	-2.81	805.69	-24.85	7,979.12	7,882.61	96.52	82.672	
14,200.00	6,928.83	3,121.00	3,120.58	118.91	65.64	-2.81	805.69	-24.85	8,067.43	7,970.61	96.82	83.321	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 527-A027Ua_INC-ONLY

Rule Assigned:

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,300.00	6,928.74	3,121.00	3,120.58	120.47	65.64	-2.81	805.69	-24.85	8,156.01	8,058.89	97.12	83.976	
14,400.00	6,928.64	3,121.00	3,120.58	122.03	65.64	-2.81	805.69	-24.85	8,244.85	8,147.43	97.41	84.637	
14,500.00	6,928.54	3,121.00	3,120.58	123.60	65.64	-2.81	805.69	-24.85	8,333.94	8,236.24	97.70	85.303	
14,600.00	6,928.45	3,121.00	3,120.58	125.16	65.64	-2.81	805.69	-24.85	8,423.28	8,325.30	97.98	85.973	
14,700.00	6,928.35	3,121.00	3,120.58	126.72	65.64	-2.81	805.69	-24.85	8,512.85	8,414.61	98.25	86.649	
14,800.00	6,928.25	3,121.00	3,120.58	128.29	65.64	-2.81	805.69	-24.85	8,602.65	8,504.15	98.51	87.329	
14,900.00	6,928.16	3,121.00	3,120.58	129.86	65.64	-2.81	805.69	-24.85	8,692.68	8,593.91	98.77	88.013	
15,000.00	6,928.06	3,121.00	3,120.58	131.42	65.64	-2.81	805.69	-24.85	8,782.92	8,683.91	99.02	88.701	
15,100.00	6,927.96	3,121.00	3,120.58	132.99	65.64	-2.81	805.69	-24.85	8,873.37	8,774.11	99.26	89.394	
15,200.00	6,927.87	3,121.00	3,120.58	134.56	65.64	-2.81	805.69	-24.85	8,964.03	8,864.53	99.50	90.090	
15,300.00	6,927.77	3,121.00	3,120.58	136.13	65.64	-2.81	805.69	-24.85	9,054.88	8,955.14	99.74	90.789	
15,400.00	6,927.67	3,121.00	3,120.58	137.70	65.64	-2.81	805.69	-24.85	9,145.92	9,045.96	99.96	91.492	
15,500.00	6,927.57	3,121.00	3,120.58	139.28	65.64	-2.81	805.69	-24.85	9,237.15	9,136.96	100.19	92.198	
15,600.00	6,927.48	3,121.00	3,120.58	140.85	65.64	-2.81	805.69	-24.85	9,328.55	9,228.15	100.41	92.907	
15,700.00	6,927.38	3,121.00	3,120.58	142.42	65.64	-2.81	805.69	-24.85	9,420.13	9,319.51	100.62	93.619	
15,800.00	6,927.28	3,121.00	3,120.58	144.00	65.64	-2.81	805.69	-24.85	9,511.89	9,411.05	100.83	94.333	
15,900.00	6,927.19	3,121.00	3,120.58	145.57	65.64	-2.81	805.69	-24.85	9,603.80	9,502.76	101.04	95.051	
16,000.00	6,927.09	3,121.00	3,120.58	147.15	65.64	-2.81	805.69	-24.85	9,695.88	9,594.64	101.24	95.770	
16,100.00	6,926.99	3,121.00	3,120.58	148.72	65.64	-2.81	805.69	-24.85	9,788.11	9,686.67	101.44	96.492	
16,200.00	6,926.90	3,121.00	3,120.58	150.30	65.64	-2.81	805.69	-24.85	9,880.49	9,778.86	101.63	97.217	
16,300.00	6,926.80	3,121.00	3,120.58	151.87	65.64	-2.81	805.69	-24.85	9,973.02	9,871.20	101.82	97.943	
16,400.00	6,926.70	3,121.00	3,120.58	153.45	65.64	-2.81	805.69	-24.85	10,065.69	9,963.68	102.01	98.671	
16,500.00	6,926.61	3,121.00	3,120.58	155.03	65.64	-2.81	805.69	-24.85	10,158.50	10,056.31	102.20	99.401	
16,600.00	6,926.51	3,121.00	3,120.58	156.61	65.64	-2.81	805.69	-24.85	10,251.45	10,149.07	102.38	100.133	
16,700.00	6,926.41	3,121.00	3,120.58	158.19	65.64	-2.81	805.69	-24.85	10,344.53	10,241.97	102.56	100.867	
16,800.00	6,926.32	3,121.00	3,120.58	159.77	65.64	-2.81	805.69	-24.85	10,437.73	10,335.00	102.73	101.602	
16,900.00	6,926.22	3,121.00	3,120.58	161.35	65.64	-2.81	805.69	-24.85	10,531.06	10,428.16	102.90	102.339	
17,000.00	6,926.12	3,121.00	3,120.58	162.93	65.64	-2.81	805.69	-24.85	10,624.52	10,521.44	103.07	103.077	
17,100.00	6,926.03	3,121.00	3,120.58	164.51	65.64	-2.81	805.69	-24.85	10,718.09	10,614.85	103.24	103.816	
17,200.00	6,925.93	3,121.00	3,120.58	166.09	65.64	-2.81	805.69	-24.85	10,811.77	10,708.37	103.41	104.557	
17,300.00	6,925.83	3,121.00	3,120.58	167.67	65.64	-2.81	805.69	-24.85	10,905.57	10,802.00	103.57	105.299	
17,400.00	6,925.74	3,121.00	3,120.58	169.26	65.64	-2.81	805.69	-24.85	10,999.48	10,895.75	103.73	106.042	
17,500.00	6,925.64	3,121.00	3,120.58	170.84	65.64	-2.81	805.69	-24.85	11,093.49	10,989.60	103.89	106.786	
17,600.00	6,925.54	3,121.00	3,120.58	172.42	65.64	-2.81	805.69	-24.85	11,187.61	11,083.57	104.04	107.530	
17,700.00	6,925.45	3,121.00	3,120.58	174.00	65.64	-2.81	805.69	-24.85	11,281.83	11,177.63	104.19	108.276	
17,800.00	6,925.35	3,121.00	3,120.58	175.59	65.64	-2.81	805.69	-24.85	11,376.14	11,271.80	104.35	109.023	
17,900.00	6,925.25	3,121.00	3,120.58	177.17	65.64	-2.81	805.69	-24.85	11,470.56	11,366.06	104.50	109.770	
18,000.00	6,925.16	3,121.00	3,120.58	178.76	65.64	-2.81	805.69	-24.85	11,565.06	11,460.42	104.64	110.518	
18,100.00	6,925.06	3,121.00	3,120.58	180.34	65.64	-2.81	805.69	-24.85	11,659.66	11,554.87	104.79	111.266	
18,160.21	6,925.00	3,121.00	3,120.58	181.30	65.64	-2.81	805.69	-24.85	11,716.67	11,611.79	104.88	111.717	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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	-47.76	418.39	-460.81	625.50				
100.00	100.00	38.70	38.70	0.25	0.04	-47.76	418.38	-460.80	622.39	622.10	0.29	2,112.242	
200.00	200.00	140.55	140.55	0.61	0.16	-47.76	418.18	-460.62	622.13	621.36	0.77	810.423	
300.00	300.00	242.39	242.39	0.97	0.27	-47.77	417.76	-460.24	621.58	620.33	1.24	500.994	
400.00	400.00	344.23	344.22	1.33	0.39	-47.78	417.11	-459.65	620.72	619.01	1.71	362.189	
456.99	456.99	395.00	394.99	1.53	0.48	-47.79	416.82	-459.47	620.36	618.35	2.01	308.662	CC, ES
500.00	500.00	429.49	429.48	1.68	0.54	-47.79	416.92	-459.68	620.64	618.41	2.23	278.486	
600.00	599.98	505.00	504.94	2.04	0.70	-59.85	418.75	-461.63	623.26	620.53	2.74	227.748	
700.00	699.84	571.49	571.20	2.41	0.86	-60.02	422.41	-465.52	628.66	625.43	3.23	194.571	
800.00	799.45	642.03	641.16	2.77	1.04	-60.33	428.65	-472.08	637.22	633.48	3.73	170.609	
900.00	898.70	711.67	709.75	3.13	1.24	-60.72	437.14	-480.60	648.60	644.36	4.24	152.857	
1,000.00	997.47	780.00	776.43	3.50	1.50	-61.19	447.67	-491.08	662.97	658.22	4.75	139.567	
1,100.00	1,095.62	842.00	836.27	3.89	1.78	-61.62	459.27	-502.41	680.48	675.23	5.25	129.634	
1,200.00	1,193.44	912.83	903.69	4.29	2.17	-62.51	474.82	-517.53	701.85	696.05	5.80	121.091	
1,300.00	1,291.25	983.46	970.00	4.70	2.61	-63.33	492.13	-534.63	727.28	720.92	6.36	114.404	
1,400.00	1,389.07	1,051.17	1,032.59	5.11	3.09	-64.01	510.72	-552.53	756.51	749.59	6.92	109.364	
1,500.00	1,486.88	1,112.33	1,088.13	5.53	3.57	-64.55	529.20	-570.21	789.62	782.16	7.45	105.953	
1,600.00	1,584.70	1,173.93	1,143.04	5.95	4.11	-65.03	549.37	-589.54	826.48	818.48	8.00	103.297	
1,700.00	1,682.51	1,240.44	1,201.07	6.37	4.74	-65.42	573.28	-611.51	866.70	858.11	8.59	100.894	
1,800.00	1,780.33	1,303.01	1,254.75	6.80	5.38	-65.71	597.22	-632.96	909.47	900.30	9.17	99.203	
1,900.00	1,878.14	1,374.00	1,314.38	7.22	6.15	-65.99	625.71	-658.87	955.14	945.32	9.82	97.241	
2,000.00	1,975.96	1,428.35	1,359.34	7.65	6.77	-66.19	648.08	-679.68	1,002.95	992.60	10.35	96.900	
2,100.00	2,073.77	1,498.00	1,416.09	8.08	7.59	-66.46	676.96	-707.89	1,052.99	1,041.97	11.01	95.621	
2,200.00	2,171.59	1,561.00	1,466.91	8.51	8.35	-66.75	702.71	-734.77	1,104.59	1,092.97	11.62	95.061	
2,300.00	2,269.40	1,628.74	1,520.97	8.95	9.21	-67.03	730.91	-764.28	1,157.53	1,145.25	12.28	94.242	
2,400.00	2,367.22	1,697.25	1,574.90	9.38	10.10	-67.24	760.50	-794.45	1,211.77	1,198.81	12.96	93.491	
2,500.00	2,465.03	1,769.37	1,631.30	9.81	11.01	-67.44	792.05	-826.45	1,266.71	1,253.03	13.68	92.613	
2,600.00	2,562.84	1,847.75	1,691.94	10.25	12.05	-67.62	827.03	-861.71	1,322.64	1,308.17	14.47	91.419	
2,700.00	2,660.66	1,961.01	1,780.15	10.68	13.45	-67.78	878.19	-910.99	1,377.67	1,362.08	15.59	88.361	
2,800.00	2,758.47	2,077.28	1,872.53	11.12	14.87	-67.98	928.92	-960.07	1,430.61	1,413.87	16.74	85.481	
2,900.00	2,856.29	2,210.06	1,980.18	11.55	16.41	-68.21	985.12	-1,013.73	1,481.21	1,463.20	18.01	82.228	
3,000.00	2,954.10	2,324.10	2,073.32	11.99	17.73	-68.30	1,034.25	-1,057.49	1,530.71	1,511.59	19.12	80.061	
3,100.00	3,051.92	2,406.00	2,141.36	12.42	18.65	-68.45	1,067.32	-1,088.87	1,578.43	1,558.49	19.93	79.180	
3,200.00	3,149.73	3,253.00	2,925.31	12.86	24.19	-71.71	1,275.65	-1,288.18	1,607.44	1,583.21	24.23	66.341	
3,300.00	3,247.55	3,253.00	2,925.31	13.30	24.19	-71.71	1,275.65	-1,288.18	1,614.20	1,589.33	24.88	64.889	
3,400.00	3,345.36	3,253.00	2,925.31	13.73	24.19	-71.71	1,275.65	-1,288.18	1,627.09	1,601.66	25.44	63.968	
3,500.00	3,443.18	3,253.00	2,925.31	14.17	24.19	-71.71	1,275.65	-1,288.18	1,645.97	1,620.07	25.91	63.537	SF
3,600.00	3,540.99	3,253.00	2,925.31	14.61	24.19	-71.71	1,275.65	-1,288.18	1,670.63	1,644.34	26.29	63.552	
3,700.00	3,638.81	3,253.00	2,925.31	15.05	24.19	-71.71	1,275.65	-1,288.18	1,700.82	1,674.24	26.58	63.977	
3,800.00	3,736.62	3,253.00	2,925.31	15.48	24.19	-71.71	1,275.65	-1,288.18	1,736.25	1,709.45	26.80	64.777	
3,900.00	3,834.44	3,253.00	2,925.31	15.92	24.19	-71.71	1,275.65	-1,288.18	1,776.61	1,749.66	26.95	65.919	
4,000.00	3,932.25	3,253.00	2,925.31	16.36	24.19	-71.71	1,275.65	-1,288.18	1,821.58	1,794.54	27.04	67.372	
4,100.00	4,030.07	3,253.00	2,925.31	16.80	24.19	-71.71	1,275.65	-1,288.18	1,870.81	1,843.74	27.07	69.110	
4,200.00	4,127.88	3,253.00	2,925.31	17.24	24.19	-71.71	1,275.65	-1,288.18	1,923.98	1,896.93	27.06	71.106	
4,300.00	4,225.70	3,253.00	2,925.31	17.68	24.19	-71.71	1,275.65	-1,288.18	1,980.78	1,953.77	27.01	73.337	
4,400.00	4,323.51	3,253.00	2,925.31	18.11	24.19	-71.71	1,275.65	-1,288.18	2,040.90	2,013.97	26.93	75.780	
4,500.00	4,421.33	3,253.00	2,925.31	18.55	24.19	-71.71	1,275.65	-1,288.18	2,104.06	2,077.23	26.83	78.414	
4,600.00	4,519.14	3,253.00	2,925.31	18.99	24.19	-71.71	1,275.65	-1,288.18	2,169.99	2,143.27	26.72	81.220	
4,700.00	4,616.95	3,253.00	2,925.31	19.43	24.19	-71.71	1,275.65	-1,288.18	2,238.44	2,211.85	26.59	84.180	
4,800.00	4,714.77	3,253.00	2,925.31	19.87	24.19	-71.71	1,275.65	-1,288.18	2,309.20	2,282.74	26.46	87.278	
4,900.00	4,812.58	3,253.00	2,925.31	20.31	24.19	-71.71	1,275.65	-1,288.18	2,382.06	2,355.74	26.32	90.496	
5,000.00	4,910.40	3,253.00	2,925.31	20.75	24.19	-71.71	1,275.65	-1,288.18	2,456.82	2,430.64	26.19	93.821	

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 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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	21.19	24.19	-71.71	1,275.65	-1,288.18	2,533.33	2,507.28	26.05	97.238	
5,200.00	5,106.03	3,253.00	2,925.31	21.63	24.19	-71.71	1,275.65	-1,288.18	2,611.43	2,585.50	25.92	100.735	
5,300.00	5,203.84	3,253.00	2,925.31	22.06	24.19	-71.71	1,275.65	-1,288.18	2,690.97	2,665.17	25.80	104.299	
5,400.00	5,301.66	3,253.00	2,925.31	22.50	24.19	-71.71	1,275.65	-1,288.18	2,771.85	2,746.16	25.68	107.919	
5,500.00	5,399.47	3,253.00	2,925.31	22.94	24.19	-71.71	1,275.65	-1,288.18	2,853.93	2,828.35	25.58	111.584	
5,600.00	5,497.29	3,253.00	2,925.31	23.38	24.19	-71.71	1,275.65	-1,288.18	2,937.12	2,911.65	25.48	115.285	
5,700.00	5,595.10	3,253.00	2,925.31	23.82	24.19	-71.71	1,275.65	-1,288.18	3,021.34	2,995.95	25.39	119.011	
5,800.00	5,692.92	3,253.00	2,925.31	24.26	24.19	-71.71	1,275.65	-1,288.18	3,106.49	3,081.18	25.31	122.753	
5,900.00	5,790.73	3,253.00	2,925.31	24.70	24.19	-71.71	1,275.65	-1,288.18	3,192.50	3,167.26	25.24	126.504	
6,000.00	5,888.55	3,253.00	2,925.31	25.14	24.19	-71.71	1,275.65	-1,288.18	3,279.30	3,254.13	25.18	130.256	
6,100.00	5,986.36	3,253.00	2,925.31	25.58	24.19	-71.71	1,275.65	-1,288.18	3,366.84	3,341.72	25.13	134.001	
6,200.00	6,084.18	3,253.00	2,925.31	26.02	24.19	-71.71	1,275.65	-1,288.18	3,455.05	3,429.97	25.09	137.733	
6,300.00	6,181.99	3,253.00	2,925.31	26.46	24.19	-71.71	1,275.65	-1,288.18	3,543.89	3,518.84	25.05	141.445	
6,401.22	6,281.00	3,253.00	2,925.31	26.90	24.19	-71.71	1,275.65	-1,288.18	3,634.41	3,609.38	25.03	145.177	
6,450.00	6,328.76	3,253.00	2,925.31	27.12	24.19	-54.87	1,275.65	-1,288.18	3,677.49	3,652.48	25.01	147.024	
6,500.00	6,377.61	3,253.00	2,925.31	27.32	24.19	-38.48	1,275.65	-1,288.18	3,720.12	3,695.16	24.97	149.000	
6,550.00	6,426.06	3,253.00	2,925.31	27.52	24.19	-26.44	1,275.65	-1,288.18	3,760.99	3,736.09	24.90	151.029	
6,600.00	6,473.81	3,253.00	2,925.31	27.71	24.19	-18.47	1,275.65	-1,288.18	3,799.92	3,775.10	24.82	153.100	
6,650.00	6,520.56	3,253.00	2,925.31	27.89	24.19	-13.25	1,275.65	-1,288.18	3,836.72	3,812.00	24.72	155.204	
6,700.00	6,566.03	3,253.00	2,925.31	28.05	24.19	-9.74	1,275.65	-1,288.18	3,871.22	3,846.62	24.61	157.330	
6,750.00	6,609.93	3,253.00	2,925.31	28.20	24.19	-7.31	1,275.65	-1,288.18	3,903.30	3,878.82	24.48	159.468	
6,800.00	6,652.00	3,253.00	2,925.31	28.34	24.19	-5.56	1,275.65	-1,288.18	3,932.79	3,908.46	24.34	161.605	
6,850.00	6,691.98	3,253.00	2,925.31	28.47	24.19	-4.27	1,275.65	-1,288.18	3,959.59	3,935.41	24.18	163.726	
6,900.00	6,729.61	3,253.00	2,925.31	28.59	24.19	-3.28	1,275.65	-1,288.18	3,983.59	3,959.56	24.02	165.815	
6,950.00	6,764.67	3,253.00	2,925.31	28.69	24.19	-2.52	1,275.65	-1,288.18	4,004.68	3,980.82	23.86	167.854	
7,000.00	6,796.95	3,253.00	2,925.31	28.79	24.19	-1.91	1,275.65	-1,288.18	4,022.79	3,999.10	23.69	169.822	
7,050.00	6,826.23	3,253.00	2,925.31	28.89	24.19	-1.41	1,275.65	-1,288.18	4,037.84	4,014.32	23.52	171.697	
7,100.00	6,852.35	3,253.00	2,925.31	28.98	24.19	-0.99	1,275.65	-1,288.18	4,049.78	4,026.43	23.35	173.456	
7,150.00	6,875.14	3,253.00	2,925.31	29.08	24.19	-0.64	1,275.65	-1,288.18	4,058.56	4,035.37	23.18	175.073	
7,200.00	6,894.45	3,253.00	2,925.31	29.18	24.19	-0.34	1,275.65	-1,288.18	4,064.14	4,041.12	23.02	176.524	
7,250.00	6,910.18	3,253.00	2,925.31	29.28	24.19	-0.06	1,275.65	-1,288.18	4,066.51	4,043.64	22.87	177.786	
7,300.00	6,922.23	3,253.00	2,925.31	29.40	24.19	0.19	1,275.65	-1,288.18	4,065.65	4,042.92	22.73	178.837	
7,350.00	6,930.51	3,253.00	2,925.31	29.54	24.19	0.42	1,275.65	-1,288.18	4,061.58	4,038.97	22.61	179.656	
7,400.00	6,934.98	3,253.00	2,925.31	29.70	24.19	0.64	1,275.65	-1,288.18	4,054.30	4,031.80	22.50	180.229	
7,433.91	6,935.83	3,253.00	2,925.31	29.81	24.19	0.79	1,275.65	-1,288.18	4,047.55	4,025.12	22.43	180.462	
7,500.00	6,935.76	3,253.00	2,925.31	30.07	24.19	0.79	1,275.65	-1,288.18	4,033.49	4,011.17	22.32	180.739	
7,600.00	6,935.66	3,253.00	2,925.31	30.52	24.19	0.79	1,275.65	-1,288.18	4,014.20	3,991.98	22.22	180.693	
7,700.00	6,935.55	3,253.00	2,925.31	31.06	24.19	0.79	1,275.65	-1,288.18	3,997.32	3,975.12	22.20	180.042	
7,800.00	6,935.45	3,253.00	2,925.31	31.68	24.19	0.79	1,275.65	-1,288.18	3,982.88	3,960.60	22.28	178.790	
7,900.00	6,935.34	3,253.00	2,925.31	32.37	24.19	0.79	1,275.65	-1,288.18	3,970.90	3,948.46	22.44	176.967	
8,000.00	6,935.24	3,253.00	2,925.31	33.12	24.19	0.79	1,275.65	-1,288.18	3,961.42	3,938.73	22.69	174.623	
8,100.00	6,935.13	3,253.00	2,925.31	33.93	24.19	0.79	1,275.65	-1,288.18	3,954.44	3,931.42	23.01	171.824	
8,200.00	6,935.03	3,253.00	2,925.31	34.80	24.19	0.79	1,275.65	-1,288.18	3,949.98	3,926.56	23.42	168.644	
8,300.00	6,934.92	3,253.00	2,925.31	35.71	24.19	0.79	1,275.65	-1,288.18	3,948.05	3,924.14	23.90	165.164	
8,326.24	6,934.89	3,253.00	2,925.31	35.96	24.19	0.79	1,275.65	-1,288.18	3,947.96	3,923.92	24.04	164.201	
8,400.00	6,934.82	3,253.00	2,925.31	36.67	24.19	0.79	1,275.65	-1,288.18	3,948.65	3,924.19	24.46	161.464	
8,500.00	6,934.71	3,253.00	2,925.31	37.68	24.19	0.79	1,275.65	-1,288.18	3,951.78	3,926.71	25.07	157.620	
8,600.00	6,934.61	3,253.00	2,925.31	38.72	24.19	0.79	1,275.65	-1,288.18	3,957.44	3,931.69	25.75	153.704	
8,700.00	6,934.50	3,253.00	2,925.31	39.80	24.19	0.79	1,275.65	-1,288.18	3,965.61	3,939.14	26.48	149.780	
8,800.00	6,934.40	3,253.00	2,925.31	40.92	24.19	0.79	1,275.65	-1,288.18	3,976.28	3,949.03	27.25	145.903	
8,900.00	6,934.29	3,253.00	2,925.31	42.06	24.19	0.79	1,275.65	-1,288.18	3,989.43	3,961.36	28.07	142.119	
9,000.00	6,934.19	3,253.00	2,925.31	43.23	24.19	0.79	1,275.65	-1,288.18	4,005.04	3,976.11	28.92	138.465	

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 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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	6,934.08	3,253.00	2,925.31	44.43	24.19	0.79	1,275.65	-1,288.18	4,023.07	3,993.26	29.81	134.973	
9,200.00	6,933.98	3,253.00	2,925.31	45.66	24.19	0.79	1,275.65	-1,288.18	4,043.49	4,012.78	30.71	131.661	
9,300.00	6,933.88	3,253.00	2,925.31	46.90	24.19	0.79	1,275.65	-1,288.18	4,066.28	4,034.64	31.63	128.546	
9,400.00	6,933.77	3,253.00	2,925.31	48.17	24.19	0.79	1,275.65	-1,288.18	4,091.37	4,058.81	32.57	125.635	
9,500.00	6,933.67	3,253.00	2,925.31	49.46	24.19	0.79	1,275.65	-1,288.18	4,118.75	4,085.25	33.50	122.933	
9,600.00	6,933.56	3,253.00	2,925.31	50.76	24.19	0.79	1,275.65	-1,288.18	4,148.36	4,113.91	34.44	120.437	
9,700.00	6,933.46	3,253.00	2,925.31	52.08	24.19	0.79	1,275.65	-1,288.18	4,180.14	4,144.76	35.38	118.146	
9,800.00	6,933.35	3,253.00	2,925.31	53.41	24.19	0.79	1,275.65	-1,288.18	4,214.07	4,177.75	36.31	116.053	
9,900.00	6,933.25	3,253.00	2,925.31	54.76	24.19	0.79	1,275.65	-1,288.18	4,250.07	4,212.84	37.23	114.150	
10,000.00	6,933.14	3,253.00	2,925.31	56.12	24.19	0.79	1,275.65	-1,288.18	4,288.11	4,249.97	38.14	112.431	
10,100.00	6,933.04	3,253.00	2,925.31	57.50	24.19	0.79	1,275.65	-1,288.18	4,328.12	4,289.09	39.03	110.884	
10,200.00	6,932.93	3,253.00	2,925.31	58.88	24.19	0.79	1,275.65	-1,288.18	4,370.05	4,330.14	39.91	109.502	
10,300.00	6,932.83	3,253.00	2,925.31	60.28	24.19	0.79	1,275.65	-1,288.18	4,413.86	4,373.09	40.77	108.275	
10,400.00	6,932.72	3,253.00	2,925.31	61.69	24.19	0.79	1,275.65	-1,288.18	4,459.47	4,417.87	41.60	107.193	
10,500.00	6,932.62	3,253.00	2,925.31	63.10	24.19	0.79	1,275.65	-1,288.18	4,506.84	4,464.42	42.42	106.249	
10,600.00	6,932.51	3,253.00	2,925.31	64.52	24.19	0.79	1,275.65	-1,288.18	4,555.92	4,512.70	43.21	105.432	
10,700.00	6,932.41	3,253.00	2,925.31	65.96	24.19	0.79	1,275.65	-1,288.18	4,606.64	4,562.66	43.98	104.736	
10,800.00	6,932.30	3,253.00	2,925.31	67.39	24.19	0.79	1,275.65	-1,288.18	4,658.96	4,614.22	44.73	104.153	
10,900.00	6,932.20	3,253.00	2,925.31	68.84	24.19	0.79	1,275.65	-1,288.18	4,712.82	4,667.36	45.46	103.674	
11,000.00	6,932.10	3,253.00	2,925.31	70.29	24.19	0.79	1,275.65	-1,288.18	4,768.16	4,722.00	46.16	103.295	
11,100.00	6,931.99	3,253.00	2,925.31	71.75	24.19	0.79	1,275.65	-1,288.18	4,824.95	4,778.11	46.84	103.007	
11,200.00	6,931.89	3,253.00	2,925.31	73.22	24.19	0.79	1,275.65	-1,288.18	4,883.12	4,835.62	47.50	102.806	
11,300.00	6,931.78	3,253.00	2,925.31	74.69	24.19	0.79	1,275.65	-1,288.18	4,942.63	4,894.50	48.13	102.686	
11,400.00	6,931.68	3,253.00	2,925.31	76.16	24.19	0.79	1,275.65	-1,288.18	5,003.44	4,954.69	48.75	102.641	
11,500.00	6,931.57	3,253.00	2,925.31	77.64	24.19	0.79	1,275.65	-1,288.18	5,065.49	5,016.15	49.34	102.667	
11,600.00	6,931.47	3,253.00	2,925.31	79.13	24.19	0.79	1,275.65	-1,288.18	5,128.73	5,078.82	49.91	102.760	
11,700.00	6,931.36	3,253.00	2,925.31	80.62	24.19	0.79	1,275.65	-1,288.18	5,193.13	5,142.67	50.46	102.915	
11,800.00	6,931.26	3,253.00	2,925.31	82.11	24.19	0.79	1,275.65	-1,288.18	5,258.65	5,207.66	50.99	103.129	
11,900.00	6,931.15	3,253.00	2,925.31	83.61	24.19	0.79	1,275.65	-1,288.18	5,325.24	5,273.73	51.50	103.397	
12,000.00	6,931.05	3,253.00	2,925.31	85.11	24.19	0.79	1,275.65	-1,288.18	5,392.86	5,340.86	52.00	103.717	
12,100.00	6,930.94	3,253.00	2,925.31	86.62	24.19	0.79	1,275.65	-1,288.18	5,461.47	5,409.00	52.47	104.086	
12,200.00	6,930.84	3,253.00	2,925.31	88.13	24.19	0.79	1,275.65	-1,288.18	5,531.04	5,478.11	52.93	104.501	
12,300.00	6,930.73	3,253.00	2,925.31	89.64	24.19	0.79	1,275.65	-1,288.18	5,601.53	5,548.16	53.37	104.958	
12,400.00	6,930.63	3,253.00	2,925.31	91.15	24.19	0.79	1,275.65	-1,288.18	5,672.91	5,619.12	53.79	105.456	
12,500.00	6,930.52	3,253.00	2,925.31	92.67	24.19	0.79	1,275.65	-1,288.18	5,745.14	5,690.94	54.20	105.992	
12,600.00	6,930.42	3,253.00	2,925.31	94.19	24.19	0.79	1,275.65	-1,288.18	5,818.20	5,763.60	54.60	106.564	
12,700.00	6,930.31	3,253.00	2,925.31	95.71	24.19	0.79	1,275.65	-1,288.18	5,892.04	5,837.06	54.98	107.170	
12,800.00	6,930.21	3,253.00	2,925.31	97.24	24.19	0.79	1,275.65	-1,288.18	5,966.65	5,911.31	55.35	107.808	
12,900.00	6,930.11	3,253.00	2,925.31	98.77	24.19	0.79	1,275.65	-1,288.18	6,041.99	5,986.29	55.70	108.476	
13,008.91	6,929.99	3,253.00	2,925.31	100.43	24.19	0.79	1,275.65	-1,288.18	6,124.85	6,068.78	56.07	109.237	
13,100.00	6,929.90	3,253.00	2,925.31	101.83	24.19	2.97	1,275.65	-1,288.18	6,194.75	6,138.39	56.36	109.910	
13,139.82	6,929.86	3,253.00	2,925.31	102.44	24.19	3.93	1,275.65	-1,288.18	6,225.45	6,168.97	56.48	110.218	
13,200.00	6,929.80	3,253.00	2,925.31	103.37	24.19	3.93	1,275.65	-1,288.18	6,272.03	6,215.37	56.66	110.695	
13,300.00	6,929.70	3,253.00	2,925.31	104.92	24.19	3.93	1,275.65	-1,288.18	6,349.94	6,292.99	56.95	111.505	
13,400.00	6,929.61	3,253.00	2,925.31	106.47	24.19	3.93	1,275.65	-1,288.18	6,428.45	6,371.23	57.22	112.338	
13,500.00	6,929.51	3,253.00	2,925.31	108.02	24.19	3.93	1,275.65	-1,288.18	6,507.56	6,450.07	57.49	113.192	
13,600.00	6,929.41	3,253.00	2,925.31	109.57	24.19	3.93	1,275.65	-1,288.18	6,587.24	6,529.49	57.75	114.065	
13,700.00	6,929.32	3,253.00	2,925.31	111.12	24.19	3.93	1,275.65	-1,288.18	6,667.46	6,609.46	58.00	114.958	
13,800.00	6,929.22	3,253.00	2,925.31	112.68	24.19	3.93	1,275.65	-1,288.18	6,748.21	6,689.97	58.24	115.868	
13,900.00	6,929.12	3,253.00	2,925.31	114.23	24.19	3.93	1,275.65	-1,288.18	6,829.47	6,771.00	58.47	116.795	
14,000.00	6,929.03	3,253.00	2,925.31	115.79	24.19	3.93	1,275.65	-1,288.18	6,911.22	6,852.52	58.70	117.738	
14,100.00	6,928.93	3,253.00	2,925.31	117.35	24.19	3.93	1,275.65	-1,288.18	6,993.45	6,934.53	58.92	118.697	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**Offset TVD Reference:**	Offset Datum

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

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

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,200.00	6,928.83	3,253.00	2,925.31	118.91	24.19	3.93	1,275.65	-1,288.18	7,076.13	7,017.00	59.13	119.670	
14,300.00	6,928.74	3,253.00	2,925.31	120.47	24.19	3.93	1,275.65	-1,288.18	7,159.26	7,099.92	59.34	120.657	
14,400.00	6,928.64	3,253.00	2,925.31	122.03	24.19	3.93	1,275.65	-1,288.18	7,242.81	7,183.28	59.53	121.657	
14,500.00	6,928.54	3,253.00	2,925.31	123.60	24.19	3.93	1,275.65	-1,288.18	7,326.78	7,267.05	59.73	122.669	
14,600.00	6,928.45	3,253.00	2,925.31	125.16	24.19	3.93	1,275.65	-1,288.18	7,411.14	7,351.22	59.92	123.693	
14,700.00	6,928.35	3,253.00	2,925.31	126.72	24.19	3.93	1,275.65	-1,288.18	7,495.89	7,435.79	60.10	124.728	
14,800.00	6,928.25	3,253.00	2,925.31	128.29	24.19	3.93	1,275.65	-1,288.18	7,581.01	7,520.73	60.27	125.774	
14,900.00	6,928.16	3,253.00	2,925.31	129.86	24.19	3.93	1,275.65	-1,288.18	7,666.48	7,606.04	60.45	126.830	
15,000.00	6,928.06	3,253.00	2,925.31	131.42	24.19	3.93	1,275.65	-1,288.18	7,752.31	7,691.70	60.61	127.895	
15,100.00	6,927.96	3,253.00	2,925.31	132.99	24.19	3.93	1,275.65	-1,288.18	7,838.47	7,777.69	60.78	128.970	
15,200.00	6,927.87	3,253.00	2,925.31	134.56	24.19	3.93	1,275.65	-1,288.18	7,924.96	7,864.02	60.94	130.053	
15,300.00	6,927.77	3,253.00	2,925.31	136.13	24.19	3.93	1,275.65	-1,288.18	8,011.76	7,950.67	61.09	131.144	
15,400.00	6,927.67	3,253.00	2,925.31	137.70	24.19	3.93	1,275.65	-1,288.18	8,098.87	8,037.62	61.24	132.243	
15,500.00	6,927.57	3,253.00	2,925.31	139.28	24.19	3.93	1,275.65	-1,288.18	8,186.27	8,124.88	61.39	133.349	
15,600.00	6,927.48	3,253.00	2,925.31	140.85	24.19	3.93	1,275.65	-1,288.18	8,273.95	8,212.42	61.53	134.463	
15,700.00	6,927.38	3,253.00	2,925.31	142.42	24.19	3.93	1,275.65	-1,288.18	8,361.91	8,300.24	61.67	135.582	
15,800.00	6,927.28	3,253.00	2,925.31	144.00	24.19	3.93	1,275.65	-1,288.18	8,450.14	8,388.33	61.81	136.708	
15,900.00	6,927.19	3,253.00	2,925.31	145.57	24.19	3.93	1,275.65	-1,288.18	8,538.63	8,476.69	61.95	137.840	
16,000.00	6,927.09	3,253.00	2,925.31	147.15	24.19	3.93	1,275.65	-1,288.18	8,627.38	8,565.30	62.08	138.978	
16,100.00	6,926.99	3,253.00	2,925.31	148.72	24.19	3.93	1,275.65	-1,288.18	8,716.36	8,654.15	62.21	140.120	
16,200.00	6,926.90	3,253.00	2,925.31	150.30	24.19	3.93	1,275.65	-1,288.18	8,805.58	8,743.25	62.33	141.268	
16,300.00	6,926.80	3,253.00	2,925.31	151.87	24.19	3.93	1,275.65	-1,288.18	8,895.03	8,832.58	62.46	142.420	
16,400.00	6,926.70	3,253.00	2,925.31	153.45	24.19	3.93	1,275.65	-1,288.18	8,984.70	8,922.13	62.58	143.577	
16,500.00	6,926.61	3,253.00	2,925.31	155.03	24.19	3.93	1,275.65	-1,288.18	9,074.59	9,011.90	62.70	144.737	
16,600.00	6,926.51	3,253.00	2,925.31	156.61	24.19	3.93	1,275.65	-1,288.18	9,164.69	9,101.88	62.81	145.902	
16,700.00	6,926.41	3,253.00	2,925.31	158.19	24.19	3.93	1,275.65	-1,288.18	9,254.99	9,192.06	62.93	147.070	
16,800.00	6,926.32	3,253.00	2,925.31	159.77	24.19	3.93	1,275.65	-1,288.18	9,345.49	9,282.45	63.04	148.242	
16,900.00	6,926.22	3,253.00	2,925.31	161.35	24.19	3.93	1,275.65	-1,288.18	9,436.18	9,373.03	63.15	149.416	
17,000.00	6,926.12	3,253.00	2,925.31	162.93	24.19	3.93	1,275.65	-1,288.18	9,527.06	9,463.80	63.26	150.594	
17,100.00	6,926.03	3,253.00	2,925.31	164.51	24.19	3.93	1,275.65	-1,288.18	9,618.12	9,554.75	63.37	151.775	
17,200.00	6,925.93	3,253.00	2,925.31	166.09	24.19	3.93	1,275.65	-1,288.18	9,709.35	9,645.88	63.48	152.958	
17,300.00	6,925.83	3,253.00	2,925.31	167.67	24.19	3.93	1,275.65	-1,288.18	9,800.76	9,737.18	63.58	154.143	
17,400.00	6,925.74	3,253.00	2,925.31	169.26	24.19	3.93	1,275.65	-1,288.18	9,892.33	9,828.65	63.69	155.330	
17,500.00	6,925.64	3,253.00	2,925.31	170.84	24.19	3.93	1,275.65	-1,288.18	9,984.06	9,920.28	63.79	156.520	
17,600.00	6,925.54	3,253.00	2,925.31	172.42	24.19	3.93	1,275.65	-1,288.18	10,075.96	10,012.07	63.89	157.711	
17,700.00	6,925.45	3,253.00	2,925.31	174.00	24.19	3.93	1,275.65	-1,288.18	10,168.00	10,104.01	63.99	158.904	
17,800.00	6,925.35	3,253.00	2,925.31	175.59	24.19	3.93	1,275.65	-1,288.18	10,260.19	10,196.11	64.09	160.099	
17,900.00	6,925.25	3,253.00	2,925.31	177.17	24.19	3.93	1,275.65	-1,288.18	10,352.53	10,288.35	64.18	161.294	
18,000.00	6,925.16	3,253.00	2,925.31	178.76	24.19	3.93	1,275.65	-1,288.18	10,445.01	10,380.73	64.28	162.491	
18,100.00	6,925.06	3,253.00	2,925.31	180.34	24.19	3.93	1,275.65	-1,288.18	10,537.62	10,473.25	64.38	163.690	
18,160.21	6,925.00	3,253.00	2,925.31	181.30	24.19	3.93	1,275.65	-1,288.18	10,593.46	10,529.02	64.43	164.411	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 0-MWD+HRGM+MS

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	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	CC, ES
600.00	599.98	599.98	599.98	2.04	2.04	135.69	-20.39	14.32	26.14	22.05	4.09	6.396	
700.00	699.84	699.84	699.84	2.41	2.40	142.62	-20.39	14.32	30.11	25.30	4.80	6.266	
800.00	799.45	799.45	799.45	2.77	2.76	150.67	-20.39	14.32	37.41	31.89	5.53	6.771	
900.00	898.70	898.70	898.70	3.13	3.11	157.66	-20.39	14.32	48.42	42.17	6.25	7.751	
1,000.00	997.47	997.47	997.47	3.50	3.47	162.97	-20.39	14.32	63.18	56.21	6.97	9.069	
1,100.00	1,095.62	1,093.02	1,093.00	3.89	3.79	166.97	-21.86	13.98	83.14	75.48	7.66	10.854	
1,200.00	1,193.44	1,188.76	1,188.66	4.29	4.11	169.98	-25.85	13.05	107.61	99.28	8.33	12.911	
1,300.00	1,291.25	1,285.54	1,285.34	4.70	4.43	171.91	-30.11	12.06	132.50	123.48	9.02	14.697	
1,400.00	1,389.07	1,382.32	1,382.01	5.11	4.76	173.23	-34.37	11.07	157.48	147.78	9.70	16.232	
1,500.00	1,486.88	1,479.09	1,478.69	5.53	5.09	174.19	-38.63	10.08	182.52	172.13	10.39	17.562	
1,600.00	1,584.70	1,575.87	1,575.37	5.95	5.42	174.92	-42.89	9.08	207.60	196.51	11.09	18.722	
1,700.00	1,682.51	1,672.64	1,672.04	6.37	5.75	175.49	-47.15	8.09	232.70	220.91	11.79	19.741	
1,800.00	1,780.33	1,769.42	1,768.72	6.80	6.09	175.95	-51.41	7.10	257.82	245.33	12.49	20.642	
1,900.00	1,878.14	1,866.19	1,865.39	7.22	6.43	176.33	-55.67	6.11	282.95	269.75	13.19	21.445	
2,000.00	1,975.96	1,962.97	1,962.07	7.65	6.77	176.64	-59.93	5.11	308.09	294.19	13.90	22.163	
2,100.00	2,073.77	2,059.74	2,058.75	8.08	7.11	176.91	-64.19	4.12	333.24	318.63	14.61	22.810	
2,200.00	2,171.59	2,156.52	2,155.42	8.51	7.45	177.14	-68.45	3.13	358.39	343.07	15.32	23.395	
2,300.00	2,269.40	2,253.29	2,252.10	8.95	7.80	177.34	-72.71	2.14	383.55	367.52	16.03	23.926	
2,400.00	2,367.22	2,350.07	2,348.78	9.38	8.14	177.52	-76.97	1.14	408.71	391.97	16.74	24.411	
2,500.00	2,465.03	2,446.84	2,445.45	9.81	8.49	177.67	-81.23	0.15	433.88	416.42	17.46	24.855	
2,600.00	2,562.84	2,543.62	2,542.13	10.25	8.83	177.81	-85.49	-0.84	459.05	440.88	18.17	25.263	
2,700.00	2,660.66	2,640.39	2,638.80	10.68	9.18	177.94	-89.75	-1.83	484.22	465.33	18.89	25.639	
2,800.00	2,758.47	2,737.17	2,735.48	11.12	9.52	178.05	-94.01	-2.82	509.39	489.79	19.60	25.987	
2,900.00	2,856.29	2,833.94	2,832.16	11.55	9.87	178.15	-98.27	-3.82	534.57	514.25	20.32	26.309	
3,000.00	2,954.10	2,930.72	2,928.83	11.99	10.22	178.24	-102.53	-4.81	559.74	538.71	21.04	26.609	
3,100.00	3,051.92	3,027.49	3,025.51	12.42	10.57	178.33	-106.79	-5.80	584.92	563.17	21.75	26.888	
3,200.00	3,149.73	3,124.27	3,122.19	12.86	10.92	178.40	-111.05	-6.79	610.10	587.63	22.47	27.149	
3,300.00	3,247.55	3,221.04	3,218.86	13.30	11.26	178.48	-115.31	-7.79	635.28	612.09	23.19	27.393	
3,400.00	3,345.36	3,317.82	3,315.54	13.73	11.61	178.54	-119.57	-8.78	660.46	636.55	23.91	27.623	
3,500.00	3,443.18	3,414.59	3,412.21	14.17	11.96	178.60	-123.83	-9.77	685.64	661.01	24.63	27.838	
3,600.00	3,540.99	3,511.37	3,508.89	14.61	12.31	178.66	-128.09	-10.76	710.82	685.47	25.35	28.041	
3,700.00	3,638.81	3,608.14	3,605.57	15.05	12.66	178.71	-132.35	-11.76	736.00	709.93	26.07	28.232	
3,800.00	3,736.62	3,704.92	3,702.24	15.48	13.01	178.76	-136.61	-12.75	761.19	734.40	26.79	28.413	
3,900.00	3,834.44	3,801.69	3,798.92	15.92	13.36	178.81	-140.87	-13.74	786.37	758.86	27.51	28.583	
4,000.00	3,932.25	3,898.47	3,895.60	16.36	13.71	178.85	-145.14	-14.73	811.55	783.32	28.23	28.745	
4,100.00	4,030.07	3,995.25	3,992.27	16.80	14.06	178.89	-149.40	-15.73	836.74	807.78	28.95	28.899	
4,200.00	4,127.88	4,092.02	4,088.95	17.24	14.41	178.93	-153.66	-16.72	861.92	832.25	29.68	29.045	
4,300.00	4,225.70	4,188.80	4,185.62	17.68	14.76	178.96	-157.92	-17.71	887.11	856.71	30.40	29.184	
4,400.00	4,323.51	4,285.57	4,282.30	18.11	15.11	179.00	-162.18	-18.70	912.29	881.17	31.12	29.316	
4,500.00	4,421.33	4,382.35	4,378.98	18.55	15.46	179.03	-166.44	-19.69	937.48	905.64	31.84	29.442	
4,600.00	4,519.14	4,479.12	4,475.65	18.99	15.81	179.06	-170.70	-20.69	962.66	930.10	32.56	29.562	
4,700.00	4,616.95	4,575.90	4,572.33	19.43	16.16	179.09	-174.96	-21.68	987.85	954.56	33.29	29.677	
4,800.00	4,714.77	4,672.67	4,669.01	19.87	16.51	179.12	-179.22	-22.67	1,013.04	979.03	34.01	29.786	
4,900.00	4,812.58	4,769.45	4,765.68	20.31	16.87	179.14	-183.48	-23.66	1,038.22	1,003.49	34.73	29.891	
5,000.00	4,910.40	4,866.22	4,862.36	20.75	17.22	179.17	-187.74	-24.66	1,063.41	1,027.95	35.46	29.992	
5,100.00	5,008.21	4,963.00	4,959.03	21.19	17.57	179.19	-192.00	-25.65	1,088.60	1,052.42	36.18	30.089	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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)	Rule Assigned: Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,200.00	5,106.03	5,059.77	5,055.71	21.63	17.92	179.22	-196.26	-26.64	1,113.78	1,076.88	36.90	30.181	
5,300.00	5,203.84	5,156.55	5,152.39	22.06	18.27	179.24	-200.52	-27.63	1,138.97	1,101.34	37.63	30.270	
5,400.00	5,301.66	5,253.32	5,249.06	22.50	18.62	179.26	-204.78	-28.63	1,164.16	1,125.81	38.35	30.356	
5,500.00	5,399.47	5,350.10	5,345.74	22.94	18.97	179.28	-209.04	-29.62	1,189.35	1,150.27	39.07	30.438	
5,600.00	5,497.29	5,446.87	5,442.42	23.38	19.33	179.30	-213.30	-30.61	1,214.53	1,174.73	39.80	30.517	
5,700.00	5,595.10	5,543.65	5,539.09	23.82	19.68	179.32	-217.56	-31.60	1,239.72	1,199.20	40.52	30.593	
5,800.00	5,692.92	5,640.42	5,635.77	24.26	20.03	179.33	-221.82	-32.60	1,264.91	1,223.66	41.25	30.666	
5,900.00	5,790.73	5,737.20	5,732.44	24.70	20.38	179.35	-226.08	-33.59	1,290.10	1,248.12	41.97	30.737	
6,000.00	5,888.55	5,833.97	5,829.12	25.14	20.73	179.37	-230.34	-34.58	1,315.29	1,272.59	42.70	30.805	
6,100.00	5,986.36	5,930.75	5,925.80	25.58	21.08	179.38	-234.60	-35.57	1,340.47	1,297.05	43.42	30.871	
6,200.00	6,084.18	6,027.52	6,022.47	26.02	21.44	179.40	-238.86	-36.57	1,365.66	1,321.51	44.15	30.935	
6,300.00	6,181.99	6,124.30	6,119.15	26.46	21.79	179.41	-243.12	-37.56	1,390.85	1,345.98	44.87	30.996	
6,401.22	6,281.00	6,222.26	6,217.01	26.90	22.14	179.43	-247.43	-38.56	1,416.35	1,370.74	45.61	31.056	
6,450.00	6,328.76	6,269.53	6,264.23	27.12	22.32	-158.60	-249.52	-39.05	1,428.21	1,382.25	45.96	31.076	
6,500.00	6,377.61	6,314.74	6,309.40	27.32	22.48	-138.16	-251.51	-39.51	1,439.47	1,393.17	46.29	31.094	
6,550.00	6,426.06	6,350.00	6,344.59	27.52	22.61	-122.87	-253.05	-40.85	1,450.04	1,403.48	46.56	31.146	
6,600.00	6,473.81	6,384.96	6,379.36	27.71	22.73	-112.26	-254.57	-44.10	1,460.10	1,413.29	46.81	31.193	
6,650.00	6,520.56	6,419.25	6,413.24	27.89	22.86	-104.87	-256.04	-49.14	1,469.60	1,422.55	47.05	31.235	
6,700.00	6,566.03	6,450.00	6,443.36	28.05	22.97	-99.55	-257.34	-55.20	1,478.51	1,431.25	47.26	31.285	
6,750.00	6,609.93	6,488.63	6,480.72	28.20	23.10	-95.69	-258.95	-64.87	1,486.77	1,439.24	47.53	31.283	
6,800.00	6,652.00	6,523.81	6,514.18	28.34	23.23	-92.76	-260.38	-75.64	1,494.38	1,446.61	47.77	31.285	
6,850.00	6,691.98	6,559.38	6,547.35	28.47	23.35	-90.53	-261.78	-88.38	1,501.31	1,453.29	48.01	31.270	
6,900.00	6,729.61	6,600.00	6,584.29	28.59	23.49	-88.89	-263.34	-105.18	1,507.53	1,459.23	48.30	31.213	
6,950.00	6,764.67	6,631.88	6,612.49	28.69	23.60	-87.55	-264.52	-120.00	1,513.02	1,464.50	48.52	31.182	
7,000.00	6,796.95	6,668.93	6,644.28	28.79	23.72	-86.61	-265.83	-138.96	1,517.78	1,468.99	48.79	31.105	
7,050.00	6,826.23	6,706.58	6,675.41	28.89	23.85	-85.95	-267.11	-160.10	1,521.80	1,472.72	49.08	31.005	
7,100.00	6,852.35	6,744.91	6,705.76	28.98	23.98	-85.54	-268.35	-183.47	1,525.08	1,475.69	49.39	30.879	
7,150.00	6,875.14	6,783.99	6,735.20	29.08	24.11	-85.35	-269.53	-209.14	1,527.61	1,477.89	49.72	30.727	
7,200.00	6,894.45	6,823.89	6,763.57	29.18	24.25	-85.37	-270.66	-237.16	1,529.40	1,479.34	50.07	30.548	
7,250.00	6,910.18	6,864.71	6,790.73	29.28	24.40	-85.57	-271.72	-267.60	1,530.47	1,480.03	50.44	30.342	
7,300.00	6,922.23	6,906.52	6,816.47	29.40	24.56	-85.95	-272.71	-300.53	1,530.81	1,479.97	50.84	30.110	
7,350.00	6,930.51	6,950.00	6,840.88	29.54	24.74	-86.51	-273.62	-336.49	1,530.45	1,479.18	51.27	29.850	
7,400.00	6,934.98	6,993.60	6,862.84	29.70	24.93	-87.21	-274.42	-374.13	1,529.39	1,477.67	51.72	29.570	
7,433.91	6,935.83	7,024.29	6,876.74	29.81	25.07	-87.78	-274.92	-401.49	1,528.30	1,476.25	52.05	29.364	
7,500.00	6,935.76	7,087.42	6,901.09	30.07	25.37	-88.70	-275.73	-459.70	1,526.06	1,473.34	52.73	28.943	
7,600.00	6,935.66	7,191.82	6,928.38	30.52	25.92	-89.73	-276.48	-560.34	1,522.95	1,469.05	53.89	28.258	
7,700.00	6,935.55	7,302.86	6,938.98	31.06	26.56	-90.13	-276.46	-670.74	1,519.43	1,464.23	55.20	27.526	
7,800.00	6,935.45	7,403.52	6,938.82	31.68	27.21	-90.13	-276.00	-771.40	1,515.48	1,458.95	56.53	26.808	
7,900.00	6,935.34	7,503.45	6,938.63	32.37	27.93	-90.13	-275.55	-871.32	1,511.54	1,453.53	58.00	26.059	
8,000.00	6,935.24	7,603.37	6,938.44	33.12	28.73	-90.12	-275.09	-971.24	1,507.59	1,447.98	59.61	25.290	
8,100.00	6,935.13	7,703.29	6,938.25	33.93	29.58	-90.12	-274.64	-1,071.16	1,503.65	1,442.30	61.35	24.511	
8,200.00	6,935.03	7,803.21	6,938.06	34.80	30.50	-90.12	-274.18	-1,171.08	1,499.70	1,436.51	63.19	23.731	
8,300.00	6,934.92	7,903.13	6,937.86	35.71	31.47	-90.12	-273.73	-1,271.00	1,495.76	1,430.61	65.15	22.959	
8,400.00	6,934.82	8,003.06	6,937.67	36.67	32.49	-90.11	-273.27	-1,370.93	1,491.81	1,424.61	67.20	22.200	
8,500.00	6,934.71	8,102.98	6,937.48	37.68	33.56	-90.11	-272.82	-1,470.85	1,487.87	1,418.53	69.34	21.459	
8,600.00	6,934.61	8,202.90	6,937.29	38.72	34.67	-90.11	-272.36	-1,570.77	1,483.92	1,412.37	71.55	20.739	
8,700.00	6,934.50	8,302.82	6,937.10	39.80	35.82	-90.10	-271.91	-1,670.69	1,479.98	1,406.13	73.84	20.042	
8,800.00	6,934.40	8,402.74	6,936.91	40.92	37.00	-90.10	-271.45	-1,770.61	1,476.03	1,399.83	76.20	19.371	
8,900.00	6,934.29	8,502.67	6,936.72	42.06	38.21	-90.10	-271.00	-1,870.53	1,472.09	1,393.47	78.61	18.726	
9,000.00	6,934.19	8,602.59	6,936.53	43.23	39.45	-90.09	-270.54	-1,970.45	1,468.14	1,387.06	81.08	18.107	
9,100.00	6,934.08	8,702.51	6,936.33	44.43	40.71	-90.09	-270.09	-2,070.37	1,464.20	1,380.59	83.60	17.514	
9,200.00	6,933.98	8,802.43	6,936.14	45.66	42.00	-90.09	-269.63	-2,170.29	1,460.25	1,374.08	86.17	16.947	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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
9,300.00	6,933.88	8,902.35	6,935.95	46.90	43.31	-90.08	-269.18	-2,270.21	1,456.31	1,367.53	88.77	16.405	
9,400.00	6,933.77	9,002.28	6,935.76	48.17	44.63	-90.08	-268.72	-2,370.13	1,452.36	1,360.94	91.42	15.888	
9,500.00	6,933.67	9,102.20	6,935.57	49.46	45.98	-90.08	-268.27	-2,470.06	1,448.41	1,354.32	94.09	15.393	
9,600.00	6,933.56	9,202.12	6,935.38	50.76	47.34	-90.07	-267.81	-2,569.98	1,444.47	1,347.67	96.80	14.922	
9,700.00	6,933.46	9,302.04	6,935.19	52.08	48.71	-90.07	-267.36	-2,669.90	1,440.52	1,340.98	99.54	14.471	
9,800.00	6,933.35	9,401.97	6,935.00	53.41	50.10	-90.07	-266.90	-2,769.82	1,436.58	1,334.27	102.31	14.041	
9,900.00	6,933.25	9,501.89	6,934.80	54.76	51.51	-90.06	-266.45	-2,869.74	1,432.63	1,327.53	105.10	13.631	
10,000.00	6,933.14	9,601.81	6,934.61	56.12	52.92	-90.06	-265.99	-2,969.66	1,428.69	1,320.77	107.91	13.239	
10,100.00	6,933.04	9,701.73	6,934.42	57.50	54.34	-90.06	-265.54	-3,069.58	1,424.74	1,313.99	110.75	12.865	
10,200.00	6,932.93	9,801.65	6,934.23	58.88	55.78	-90.05	-265.08	-3,169.50	1,420.80	1,307.20	113.60	12.507	
10,300.00	6,932.83	9,901.58	6,934.04	60.28	57.22	-90.05	-264.63	-3,269.42	1,416.85	1,300.38	116.48	12.164	
10,400.00	6,932.72	10,001.50	6,933.85	61.69	58.67	-90.05	-264.17	-3,369.34	1,412.91	1,293.54	119.37	11.837	
10,500.00	6,932.62	10,101.42	6,933.66	63.10	60.13	-90.04	-263.72	-3,469.26	1,408.96	1,286.69	122.27	11.523	
10,600.00	6,932.51	10,201.34	6,933.47	64.52	61.59	-90.04	-263.26	-3,569.19	1,405.02	1,279.83	125.19	11.223	
10,700.00	6,932.41	10,301.26	6,933.27	65.96	63.06	-90.04	-262.81	-3,669.11	1,401.07	1,272.95	128.12	10.935	
10,800.00	6,932.30	10,401.19	6,933.08	67.39	64.54	-90.03	-262.35	-3,769.03	1,397.13	1,266.06	131.07	10.660	
10,900.00	6,932.20	10,501.11	6,932.89	68.84	66.03	-90.03	-261.90	-3,868.95	1,393.18	1,259.16	134.02	10.395	
11,000.00	6,932.10	10,601.03	6,932.70	70.29	67.51	-90.03	-261.44	-3,968.87	1,389.24	1,252.25	136.99	10.141	
11,100.00	6,931.99	10,700.95	6,932.51	71.75	69.01	-90.02	-260.99	-4,068.79	1,385.29	1,245.32	139.97	9.897	
11,200.00	6,931.89	10,800.88	6,932.32	73.22	70.51	-90.02	-260.53	-4,168.71	1,381.35	1,238.39	142.96	9.663	
11,300.00	6,931.78	10,900.80	6,932.13	74.69	72.01	-90.02	-260.08	-4,268.63	1,377.40	1,231.45	145.96	9.437	
11,400.00	6,931.68	11,000.72	6,931.94	76.16	73.52	-90.01	-259.62	-4,368.55	1,373.46	1,224.50	148.96	9.220	
11,500.00	6,931.57	11,100.64	6,931.74	77.64	75.03	-90.01	-259.17	-4,468.47	1,369.51	1,217.54	151.98	9.011	
11,600.00	6,931.47	11,200.56	6,931.55	79.13	76.55	-90.01	-258.71	-4,568.39	1,365.57	1,210.57	155.00	8.810	
11,700.00	6,931.36	11,300.49	6,931.36	80.62	78.07	-90.00	-258.26	-4,668.31	1,361.62	1,203.60	158.02	8.617	
11,800.00	6,931.26	11,400.41	6,931.17	82.11	79.59	-90.00	-257.80	-4,768.24	1,357.68	1,196.62	161.06	8.430	
11,900.00	6,931.15	11,500.33	6,930.98	83.61	81.11	-90.00	-257.35	-4,868.16	1,353.73	1,189.63	164.10	8.249	
12,000.00	6,931.05	11,600.25	6,930.79	85.11	82.64	-89.99	-256.89	-4,968.08	1,349.79	1,182.64	167.15	8.075	
12,100.00	6,930.94	11,700.17	6,930.60	86.62	84.17	-89.99	-256.44	-5,068.00	1,345.84	1,175.64	170.20	7.907	
12,200.00	6,930.84	11,800.10	6,930.41	88.13	85.71	-89.98	-255.98	-5,167.92	1,341.90	1,168.64	173.26	7.745	
12,300.00	6,930.73	11,900.02	6,930.21	89.64	87.24	-89.98	-255.53	-5,267.84	1,337.95	1,161.63	176.32	7.588	
12,400.00	6,930.63	11,999.94	6,930.02	91.15	88.78	-89.98	-255.07	-5,367.76	1,334.01	1,154.62	179.39	7.436	
12,500.00	6,930.52	12,099.86	6,929.83	92.67	90.32	-89.97	-254.62	-5,467.68	1,330.06	1,147.60	182.46	7.290	
12,600.00	6,930.42	12,199.78	6,929.64	94.19	91.86	-89.97	-254.16	-5,567.60	1,326.12	1,140.58	185.54	7.147	
12,700.00	6,930.31	12,299.71	6,929.45	95.71	93.41	-89.96	-253.71	-5,667.52	1,322.17	1,133.55	188.62	7.010	
12,800.00	6,930.21	12,399.63	6,929.26	97.24	94.96	-89.96	-253.25	-5,767.44	1,318.23	1,126.52	191.71	6.876	
12,900.00	6,930.11	12,499.55	6,929.07	98.77	96.50	-89.96	-252.80	-5,867.37	1,314.28	1,119.49	194.79	6.747	
13,008.91	6,929.99	12,608.37	6,928.86	100.43	98.19	-89.95	-252.30	-5,976.19	1,309.99	1,111.82	198.16	6.611	
13,100.00	6,929.90	12,699.44	6,928.68	101.83	99.61	-89.95	-251.89	-6,067.25	1,307.84	1,106.86	200.99	6.507	
13,121.95	6,929.88	12,721.39	6,928.64	102.17	99.95	-89.95	-251.79	-6,089.20	1,307.76	1,106.09	201.67	6.485	
13,139.82	6,929.86	12,739.26	6,928.61	102.44	100.23	-89.94	-251.70	-6,107.07	1,307.81	1,105.59	202.22	6.467	
13,200.00	6,929.80	12,799.44	6,928.49	103.37	101.16	-89.94	-251.43	-6,167.25	1,308.19	1,104.10	204.09	6.410	
13,300.00	6,929.70	12,899.43	6,928.30	104.92	102.72	-89.94	-250.97	-6,267.24	1,308.81	1,101.62	207.20	6.317	
13,400.00	6,929.61	12,999.43	6,928.11	106.47	104.28	-89.93	-250.52	-6,367.24	1,309.44	1,099.13	210.31	6.226	
13,500.00	6,929.51	13,099.43	6,927.92	108.02	105.83	-89.93	-250.06	-6,467.24	1,310.06	1,096.64	213.42	6.138	
13,600.00	6,929.41	13,199.43	6,927.73	109.57	107.39	-89.93	-249.61	-6,567.23	1,310.68	1,094.15	216.54	6.053	
13,700.00	6,929.32	13,299.43	6,927.54	111.12	108.96	-89.92	-249.15	-6,667.23	1,311.31	1,091.65	219.66	5.970	
13,800.00	6,929.22	13,399.42	6,927.35	112.68	110.52	-89.92	-248.70	-6,767.23	1,311.93	1,089.15	222.78	5.889	
13,900.00	6,929.12	13,499.42	6,927.15	114.23	112.08	-89.91	-248.24	-6,867.22	1,312.55	1,086.65	225.90	5.810	
14,000.00	6,929.03	13,599.42	6,926.96	115.79	113.65	-89.91	-247.79	-6,967.22	1,313.18	1,084.15	229.03	5.734	
14,100.00	6,928.93	13,699.42	6,926.77	117.35	115.21	-89.91	-247.33	-7,067.22	1,313.80	1,081.65	232.16	5.659	
14,200.00	6,928.83	13,799.42	6,926.58	118.91	116.78	-89.90	-246.88	-7,167.21	1,314.43	1,079.14	235.29	5.586	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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
14,300.00	6,928.74	13,899.41	6,926.39	120.47	118.35	-89.90	-246.42	-7,267.21	1,315.05	1,076.63	238.42	5.516	
14,400.00	6,928.64	13,999.41	6,926.20	122.03	119.92	-89.89	-245.97	-7,367.21	1,315.67	1,074.12	241.55	5.447	
14,500.00	6,928.54	14,099.41	6,926.01	123.60	121.49	-89.89	-245.51	-7,467.20	1,316.30	1,071.61	244.69	5.379	
14,600.00	6,928.45	14,199.41	6,925.81	125.16	123.06	-89.89	-245.05	-7,567.20	1,316.92	1,069.09	247.83	5.314	
14,700.00	6,928.35	14,299.41	6,925.62	126.72	124.63	-89.88	-244.60	-7,667.20	1,317.54	1,066.58	250.97	5.250	
14,800.00	6,928.25	14,399.40	6,925.43	128.29	126.20	-89.88	-244.14	-7,767.20	1,318.17	1,064.06	254.11	5.187	
14,900.00	6,928.16	14,499.40	6,925.24	129.86	127.78	-89.87	-243.69	-7,867.19	1,318.79	1,061.54	257.25	5.126	
15,000.00	6,928.06	14,599.40	6,925.05	131.42	129.35	-89.87	-243.23	-7,967.19	1,319.42	1,059.02	260.40	5.067	
15,100.00	6,927.96	14,699.40	6,924.86	132.99	130.92	-89.86	-242.78	-8,067.19	1,320.04	1,056.49	263.55	5.009	
15,200.00	6,927.87	14,799.40	6,924.67	134.56	132.50	-89.86	-242.32	-8,167.18	1,320.66	1,053.97	266.69	4.952	
15,300.00	6,927.77	14,899.39	6,924.47	136.13	134.08	-89.86	-241.87	-8,267.18	1,321.29	1,051.45	269.84	4.897	
15,400.00	6,927.67	14,999.39	6,924.28	137.70	135.65	-89.85	-241.41	-8,367.18	1,321.91	1,048.92	272.99	4.842	
15,500.00	6,927.57	15,099.39	6,924.09	139.28	137.23	-89.85	-240.96	-8,467.17	1,322.54	1,046.39	276.15	4.789	
15,600.00	6,927.48	15,199.39	6,923.90	140.85	138.81	-89.84	-240.50	-8,567.17	1,323.16	1,043.86	279.30	4.737	
15,700.00	6,927.38	15,299.39	6,923.71	142.42	140.39	-89.84	-240.05	-8,667.17	1,323.78	1,041.33	282.45	4.687	
15,800.00	6,927.28	15,399.38	6,923.52	144.00	141.97	-89.84	-239.59	-8,767.16	1,324.41	1,038.80	285.61	4.637	
15,900.00	6,927.19	15,499.38	6,923.33	145.57	143.54	-89.83	-239.14	-8,867.16	1,325.03	1,036.27	288.76	4.589	
16,000.00	6,927.09	15,599.38	6,923.13	147.15	145.12	-89.83	-238.68	-8,967.16	1,325.65	1,033.73	291.92	4.541	
16,100.00	6,926.99	15,699.38	6,922.94	148.72	146.71	-89.82	-238.22	-9,067.15	1,326.28	1,031.20	295.08	4.495	
16,200.00	6,926.90	15,799.38	6,922.75	150.30	148.29	-89.82	-237.77	-9,167.15	1,326.90	1,028.66	298.24	4.449	
16,300.00	6,926.80	15,899.37	6,922.56	151.87	149.87	-89.82	-237.31	-9,267.15	1,327.53	1,026.12	301.40	4.405	
16,400.00	6,926.70	15,999.37	6,922.37	153.45	151.45	-89.81	-236.86	-9,367.14	1,328.15	1,023.59	304.56	4.361	
16,500.00	6,926.61	16,099.37	6,922.18	155.03	153.03	-89.81	-236.40	-9,467.14	1,328.77	1,021.05	307.73	4.318	
16,600.00	6,926.51	16,199.37	6,921.99	156.61	154.62	-89.80	-235.95	-9,567.14	1,329.40	1,018.51	310.89	4.276	
16,700.00	6,926.41	16,299.37	6,921.80	158.19	156.20	-89.80	-235.49	-9,667.13	1,330.02	1,015.97	314.05	4.235	
16,800.00	6,926.32	16,399.36	6,921.60	159.77	157.78	-89.80	-235.04	-9,767.13	1,330.65	1,013.43	317.22	4.195	
16,900.00	6,926.22	16,499.36	6,921.41	161.35	159.37	-89.79	-234.58	-9,867.13	1,331.27	1,010.88	320.39	4.155	
17,000.00	6,926.12	16,599.36	6,921.22	162.93	160.95	-89.79	-234.13	-9,967.12	1,331.89	1,008.34	323.55	4.116	
17,100.00	6,926.03	16,699.36	6,921.03	164.51	162.54	-89.78	-233.67	-10,067.12	1,332.52	1,005.80	326.72	4.078	
17,200.00	6,925.93	16,799.36	6,920.84	166.09	164.12	-89.78	-233.22	-10,167.12	1,333.14	1,003.25	329.89	4.041	
17,300.00	6,925.83	16,899.35	6,920.65	167.67	165.71	-89.78	-232.76	-10,267.12	1,333.77	1,000.71	333.06	4.005	
17,400.00	6,925.74	16,999.35	6,920.46	169.26	167.29	-89.77	-232.31	-10,367.11	1,334.39	998.16	336.23	3.969	
17,500.00	6,925.64	17,099.35	6,920.26	170.84	168.88	-89.77	-231.85	-10,467.11	1,335.01	995.61	339.40	3.933	
17,600.00	6,925.54	17,199.35	6,920.07	172.42	170.47	-89.77	-231.39	-10,567.11	1,335.64	993.07	342.57	3.899	
17,700.00	6,925.45	17,299.35	6,919.88	174.00	172.05	-89.76	-230.94	-10,667.10	1,336.26	990.52	345.74	3.865	
17,800.00	6,925.35	17,399.34	6,919.69	175.59	173.64	-89.76	-230.48	-10,767.10	1,336.89	987.97	348.91	3.832	
17,900.00	6,925.25	17,499.34	6,919.50	177.17	175.23	-89.75	-230.03	-10,867.10	1,337.51	985.42	352.09	3.799	
18,000.00	6,925.16	17,599.34	6,919.31	178.76	176.82	-89.75	-229.57	-10,967.09	1,338.13	982.87	355.26	3.767	
18,100.00	6,925.06	17,699.34	6,919.12	180.34	178.40	-89.75	-229.12	-11,067.09	1,338.76	980.32	358.44	3.735	
18,160.21	6,925.00	17,759.55	6,919.00	181.30	179.36	-89.74	-228.84	-11,127.30	1,339.13	978.79	360.35	3.716 SF	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 0-MWD+HRGM+MS

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	144.63	-40.78	28.94	50.00				
100.00	100.00	100.00	100.00	0.25	0.25	144.63	-40.78	28.94	50.00	49.50	0.50	99.635	
200.00	200.00	200.00	200.00	0.61	0.61	144.63	-40.78	28.94	50.00	48.78	1.22	41.026	
300.00	300.00	300.00	300.00	0.97	0.97	144.63	-40.78	28.94	50.00	48.07	1.94	25.831	
400.00	400.00	400.00	400.00	1.33	1.33	144.63	-40.78	28.94	50.00	47.35	2.65	18.850	
500.00	500.00	500.00	500.00	1.68	1.68	144.63	-40.78	28.94	50.00	46.63	3.37	14.839	CC, ES
600.00	599.98	598.48	598.46	2.04	2.02	135.04	-42.47	28.94	52.64	48.57	4.07	12.948	
700.00	699.84	696.26	696.11	2.41	2.35	140.93	-47.50	28.95	61.00	56.25	4.75	12.836	
800.00	799.45	792.67	792.16	2.77	2.68	147.67	-55.71	28.95	75.92	70.47	5.44	13.954	
900.00	898.70	887.08	885.90	3.13	3.01	153.48	-66.89	28.96	97.81	91.68	6.12	15.977	
1,000.00	997.47	978.89	976.66	3.50	3.35	157.89	-80.71	28.97	126.60	119.81	6.79	18.648	
1,100.00	1,095.62	1,067.60	1,063.89	3.89	3.69	161.07	-96.82	28.99	162.00	154.56	7.44	21.780	
1,200.00	1,193.44	1,153.46	1,147.81	4.29	4.04	163.48	-114.98	29.00	202.12	194.05	8.07	25.060	
1,300.00	1,291.25	1,239.50	1,231.36	4.70	4.39	165.14	-135.52	29.02	244.98	236.30	8.68	28.223	
1,400.00	1,389.07	1,329.38	1,318.50	5.11	4.78	166.38	-157.50	29.03	288.53	279.18	9.35	30.859	
1,500.00	1,486.88	1,419.25	1,405.65	5.53	5.18	167.29	-179.48	29.05	332.16	322.13	10.02	33.138	
1,600.00	1,584.70	1,509.12	1,492.79	5.95	5.58	167.99	-201.46	29.07	375.84	365.13	10.70	35.119	
1,700.00	1,682.51	1,598.99	1,579.93	6.37	5.98	168.55	-223.44	29.08	419.55	408.17	11.38	36.854	
1,800.00	1,780.33	1,688.86	1,667.07	6.80	6.39	169.00	-245.42	29.10	463.30	451.23	12.07	38.384	
1,900.00	1,878.14	1,778.73	1,754.21	7.22	6.80	169.37	-267.40	29.12	507.06	494.30	12.76	39.742	
2,000.00	1,975.96	1,868.60	1,841.36	7.65	7.22	169.69	-289.38	29.13	550.84	537.39	13.45	40.954	
2,100.00	2,073.77	1,958.47	1,928.50	8.08	7.64	169.95	-311.37	29.15	594.62	580.48	14.14	42.043	
2,200.00	2,171.59	2,048.34	2,015.64	8.51	8.06	170.18	-333.35	29.17	638.42	623.58	14.84	43.025	
2,300.00	2,269.40	2,138.22	2,102.78	8.95	8.48	170.39	-355.33	29.19	682.23	666.69	15.54	43.915	
2,400.00	2,367.22	2,228.09	2,189.92	9.38	8.90	170.56	-377.31	29.20	726.04	709.80	16.23	44.725	
2,500.00	2,465.03	2,317.96	2,277.06	9.81	9.32	170.72	-399.29	29.22	769.85	752.92	16.93	45.465	
2,600.00	2,562.84	2,407.83	2,364.21	10.25	9.75	170.86	-421.27	29.24	813.67	796.04	17.63	46.144	
2,700.00	2,660.66	2,497.70	2,451.35	10.68	10.17	170.99	-443.25	29.25	857.49	839.16	18.34	46.768	
2,800.00	2,758.47	2,587.57	2,538.49	11.12	10.60	171.10	-465.23	29.27	901.32	882.28	19.04	47.344	
2,900.00	2,856.29	2,677.44	2,625.63	11.55	11.02	171.20	-487.21	29.29	945.15	925.41	19.74	47.878	
3,000.00	2,954.10	2,767.31	2,712.77	11.99	11.45	171.30	-509.19	29.31	988.98	968.54	20.44	48.373	
3,100.00	3,051.92	2,857.19	2,799.91	12.42	11.88	171.38	-531.17	29.32	1,032.81	1,011.66	21.15	48.833	
3,200.00	3,149.73	2,947.06	2,887.06	12.86	12.31	171.46	-553.15	29.34	1,076.65	1,054.79	21.86	49.263	
3,300.00	3,247.55	3,036.93	2,974.20	13.30	12.74	171.53	-575.13	29.36	1,120.48	1,097.92	22.56	49.664	
3,400.00	3,345.36	3,126.80	3,061.34	13.73	13.16	171.60	-597.11	29.37	1,164.32	1,141.05	23.27	50.040	
3,500.00	3,443.18	3,216.67	3,148.48	14.17	13.59	171.66	-619.09	29.39	1,208.16	1,184.19	23.97	50.393	
3,600.00	3,540.99	3,306.54	3,235.62	14.61	14.02	171.72	-641.07	29.41	1,252.00	1,227.32	24.68	50.724	
3,700.00	3,638.81	3,396.41	3,322.77	15.05	14.45	171.77	-663.05	29.42	1,295.84	1,270.45	25.39	51.037	
3,800.00	3,736.62	3,486.28	3,409.91	15.48	14.88	171.82	-685.03	29.44	1,339.68	1,313.58	26.10	51.331	
3,900.00	3,834.44	3,576.15	3,497.05	15.92	15.31	171.87	-707.01	29.46	1,383.53	1,356.72	26.81	51.609	
4,000.00	3,932.25	3,666.03	3,584.19	16.36	15.75	171.92	-728.99	29.48	1,427.37	1,399.85	27.52	51.872	
4,100.00	4,030.07	3,755.90	3,671.33	16.80	16.18	171.96	-750.97	29.49	1,471.21	1,442.99	28.23	52.121	
4,200.00	4,127.88	3,845.77	3,758.47	17.24	16.61	172.00	-772.95	29.51	1,515.06	1,486.12	28.94	52.357	
4,300.00	4,225.70	3,935.64	3,845.62	17.68	17.04	172.03	-794.93	29.53	1,558.90	1,529.25	29.65	52.581	
4,400.00	4,323.51	4,025.51	3,932.76	18.11	17.47	172.07	-816.91	29.54	1,602.75	1,572.39	30.36	52.795	
4,500.00	4,421.33	4,115.38	4,019.90	18.55	17.90	172.10	-838.89	29.56	1,646.59	1,615.52	31.07	52.997	
4,600.00	4,519.14	4,205.25	4,107.04	18.99	18.33	172.13	-860.87	29.58	1,690.44	1,658.66	31.78	53.191	
4,700.00	4,616.95	4,295.12	4,194.18	19.43	18.77	172.16	-882.85	29.60	1,734.29	1,701.79	32.49	53.375	
4,800.00	4,714.77	4,384.99	4,281.33	19.87	19.20	172.19	-904.83	29.61	1,778.13	1,744.93	33.20	53.551	
4,900.00	4,812.58	4,474.87	4,368.47	20.31	19.63	172.22	-926.81	29.63	1,821.98	1,788.06	33.92	53.719	
5,000.00	4,910.40	4,564.74	4,455.61	20.75	20.06	172.25	-948.79	29.65	1,865.83	1,831.20	34.63	53.879	
5,100.00	5,008.21	4,654.61	4,542.75	21.19	20.50	172.27	-970.77	29.66	1,909.68	1,874.33	35.34	54.033	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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	4,744.48	4,629.89	21.63	20.93	172.29	-992.75	29.68	1,953.52	1,917.47	36.06	54.180	
5,300.00	5,203.84	4,834.35	4,717.03	22.06	21.36	172.32	-1,014.73	29.70	1,997.37	1,960.60	36.77	54.321	
5,400.00	5,301.66	4,924.22	4,804.18	22.50	21.79	172.34	-1,036.71	29.71	2,041.22	2,003.74	37.48	54.456	
5,500.00	5,399.47	5,014.09	4,891.32	22.94	22.23	172.36	-1,058.69	29.73	2,085.07	2,046.87	38.20	54.586	
5,600.00	5,497.29	5,103.96	4,978.46	23.38	22.66	172.38	-1,080.67	29.75	2,128.92	2,090.01	38.91	54.711	
5,700.00	5,595.10	5,193.83	5,065.60	23.82	23.09	172.40	-1,102.65	29.77	2,172.77	2,133.14	39.63	54.830	
5,800.00	5,692.92	5,283.71	5,152.74	24.26	23.53	172.42	-1,124.63	29.78	2,216.62	2,176.28	40.34	54.945	
5,900.00	5,790.73	5,373.58	5,239.89	24.70	23.96	172.43	-1,146.61	29.80	2,260.47	2,219.41	41.06	55.056	
6,000.00	5,888.55	5,463.45	5,327.03	25.14	24.39	172.45	-1,168.59	29.82	2,304.32	2,262.55	41.77	55.162	
6,100.00	5,986.36	5,553.32	5,414.17	25.58	24.82	172.47	-1,190.57	29.83	2,348.17	2,305.68	42.49	55.265	
6,200.00	6,084.18	5,643.19	5,501.31	26.02	25.26	172.48	-1,212.55	29.85	2,392.02	2,348.81	43.21	55.364	
6,300.00	6,181.99	5,733.06	5,588.45	26.46	25.69	172.50	-1,234.53	29.87	2,435.87	2,391.95	43.92	55.459	
6,401.22	6,281.00	5,824.03	5,676.66	26.90	26.13	172.51	-1,256.78	29.89	2,480.26	2,435.61	44.65	55.552	
6,450.00	6,328.76	5,867.93	5,719.22	27.12	26.34	-164.46	-1,267.52	29.89	2,501.44	2,456.45	44.99	55.594	
6,500.00	6,377.61	5,912.86	5,762.79	27.32	26.56	-142.88	-1,278.51	29.90	2,522.66	2,477.32	45.35	55.632	
6,550.00	6,426.06	5,957.45	5,806.03	27.52	26.77	-126.53	-1,289.41	29.91	2,543.28	2,497.59	45.69	55.667	
6,600.00	6,473.81	6,001.43	5,848.67	27.71	26.99	-114.95	-1,300.17	29.92	2,563.19	2,517.17	46.02	55.697	
6,650.00	6,520.56	6,044.53	5,890.46	27.89	27.19	-106.68	-1,310.71	29.93	2,582.35	2,536.00	46.34	55.723	
6,700.00	6,566.03	6,086.48	5,931.14	28.05	27.40	-100.58	-1,320.97	29.94	2,600.69	2,554.03	46.65	55.745	
6,750.00	6,609.93	6,127.02	5,970.45	28.20	27.59	-95.94	-1,330.89	29.94	2,618.18	2,571.23	46.95	55.764	
6,800.00	6,652.00	6,165.90	6,008.15	28.34	27.78	-92.30	-1,340.39	29.95	2,634.81	2,587.58	47.24	55.780	
6,850.00	6,691.98	6,202.89	6,044.01	28.47	27.96	-89.39	-1,349.44	29.96	2,650.57	2,603.07	47.51	55.793	
6,900.00	6,729.61	6,237.75	6,077.81	28.59	28.13	-87.02	-1,357.97	29.96	2,665.46	2,617.70	47.77	55.803	
6,950.00	6,764.67	6,270.27	6,109.34	28.69	28.28	-85.07	-1,365.92	29.97	2,679.49	2,631.48	48.01	55.811	
7,000.00	6,796.95	6,300.25	6,138.41	28.79	28.43	-83.43	-1,373.25	29.98	2,692.68	2,644.44	48.24	55.815	
7,050.00	6,826.23	6,327.50	6,164.84	28.89	28.56	-82.04	-1,379.92	29.98	2,705.05	2,656.58	48.46	55.816	
7,100.00	6,852.35	6,351.86	6,188.45	28.98	28.68	-80.86	-1,385.87	29.99	2,716.61	2,667.93	48.67	55.814	
7,150.00	6,875.14	6,373.17	6,209.12	29.08	28.78	-79.83	-1,391.09	29.99	2,727.38	2,678.51	48.87	55.810	
7,200.00	6,894.45	6,391.31	6,226.71	29.18	28.87	-78.93	-1,395.52	29.99	2,737.38	2,688.33	49.06	55.802	
7,250.00	6,910.18	6,406.16	6,241.11	29.28	28.94	-78.14	-1,399.15	30.00	2,746.63	2,697.40	49.23	55.791	
7,300.00	6,922.23	6,417.63	6,252.23	29.40	28.99	-77.44	-1,401.96	30.00	2,755.12	2,705.73	49.39	55.779	
7,350.00	6,930.51	6,425.65	6,260.01	29.54	29.03	-76.81	-1,403.92	30.00	2,762.85	2,713.31	49.55	55.764	
7,400.00	6,934.98	6,430.18	6,264.40	29.70	29.05	-76.25	-1,405.03	30.00	2,769.82	2,720.14	49.68	55.749	
7,433.91	6,935.83	6,431.24	6,265.43	29.81	29.06	-75.90	-1,405.29	30.00	2,774.10	2,724.33	49.77	55.739	
7,500.00	6,935.76	6,431.72	6,265.90	30.07	29.06	-75.91	-1,405.41	30.00	2,782.85	2,732.90	49.94	55.719	
7,600.00	6,935.66	6,432.45	6,266.61	30.52	29.07	-75.93	-1,405.59	30.00	2,799.01	2,748.75	50.26	55.694	
7,700.00	6,935.55	7,567.77	6,946.78	31.06	33.47	-90.23	-1,574.51	-677.41	2,817.51	2,760.12	57.39	49.097	
7,800.00	6,935.45	7,667.69	6,946.46	31.68	33.93	-90.23	-1,574.05	-777.33	2,813.57	2,754.88	58.69	47.942	
7,900.00	6,935.34	7,767.61	6,946.13	32.37	34.47	-90.22	-1,573.60	-877.25	2,809.62	2,749.49	60.13	46.725	
8,000.00	6,935.24	7,867.54	6,945.81	33.12	35.08	-90.22	-1,573.14	-977.17	2,805.67	2,743.97	61.71	45.469	
8,100.00	6,935.13	7,967.46	6,945.49	33.93	35.75	-90.21	-1,572.69	-1,077.09	2,801.73	2,738.32	63.40	44.188	
8,200.00	6,935.03	8,067.38	6,945.17	34.80	36.49	-90.21	-1,572.23	-1,177.01	2,797.78	2,732.57	65.22	42.901	
8,300.00	6,934.92	8,167.30	6,944.84	35.71	37.29	-90.21	-1,571.78	-1,276.93	2,793.84	2,726.71	67.13	41.618	
8,400.00	6,934.82	8,267.22	6,944.52	36.67	38.14	-90.20	-1,571.32	-1,376.85	2,789.89	2,720.75	69.14	40.351	
8,500.00	6,934.71	8,367.15	6,944.20	37.68	39.04	-90.20	-1,570.87	-1,476.77	2,785.95	2,714.71	71.24	39.107	
8,600.00	6,934.61	8,467.07	6,943.87	38.72	39.99	-90.19	-1,570.41	-1,576.69	2,782.00	2,708.59	73.42	37.893	
8,700.00	6,934.50	8,566.99	6,943.55	39.80	40.98	-90.19	-1,569.96	-1,676.61	2,778.06	2,702.39	75.67	36.714	
8,800.00	6,934.40	8,666.91	6,943.23	40.92	42.02	-90.18	-1,569.51	-1,776.53	2,774.11	2,696.13	77.98	35.573	
8,900.00	6,934.29	8,766.83	6,942.91	42.06	43.09	-90.18	-1,569.05	-1,876.45	2,770.17	2,689.80	80.36	34.471	
9,000.00	6,934.19	8,866.76	6,942.58	43.23	44.19	-90.18	-1,568.60	-1,976.38	2,766.22	2,683.43	82.80	33.410	
9,100.00	6,934.08	8,966.68	6,942.26	44.43	45.33	-90.17	-1,568.14	-2,076.30	2,762.27	2,677.00	85.28	32.391	
9,200.00	6,933.98	9,066.60	6,941.94	45.66	46.49	-90.17	-1,567.69	-2,176.22	2,758.33	2,670.52	87.81	31.412	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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
9,300.00	6,933.88	9,166.52	6,941.62	46.90	47.68	-90.16	-1,567.23	-2,276.14	2,754.38	2,664.00	90.38	30.474	
9,400.00	6,933.77	9,266.44	6,941.29	48.17	48.90	-90.16	-1,566.78	-2,376.06	2,750.44	2,657.44	93.00	29.576	
9,500.00	6,933.67	9,366.37	6,940.97	49.46	50.14	-90.15	-1,566.32	-2,475.98	2,746.49	2,650.85	95.64	28.716	
9,600.00	6,933.56	9,466.29	6,940.65	50.76	51.40	-90.15	-1,565.87	-2,575.90	2,742.55	2,644.22	98.33	27.893	
9,700.00	6,933.46	9,566.21	6,940.32	52.08	52.67	-90.15	-1,565.41	-2,675.82	2,738.60	2,637.57	101.04	27.105	
9,800.00	6,933.35	9,666.13	6,940.00	53.41	53.97	-90.14	-1,564.96	-2,775.74	2,734.66	2,630.88	103.78	26.351	
9,900.00	6,933.25	9,766.05	6,939.68	54.76	55.28	-90.14	-1,564.50	-2,875.66	2,730.71	2,624.17	106.54	25.630	
10,000.00	6,933.14	9,865.98	6,939.36	56.12	56.61	-90.13	-1,564.05	-2,975.58	2,726.77	2,617.44	109.33	24.940	
10,100.00	6,933.04	9,965.90	6,939.03	57.50	57.95	-90.13	-1,563.59	-3,075.50	2,722.82	2,610.68	112.14	24.280	
10,200.00	6,932.93	10,065.82	6,938.71	58.88	59.31	-90.12	-1,563.14	-3,175.42	2,718.88	2,603.90	114.97	23.648	
10,300.00	6,932.83	10,165.74	6,938.39	60.28	60.68	-90.12	-1,562.68	-3,275.34	2,714.93	2,597.11	117.83	23.042	
10,400.00	6,932.72	10,265.66	6,938.06	61.69	62.05	-90.12	-1,562.23	-3,375.26	2,710.99	2,590.29	120.69	22.462	
10,500.00	6,932.62	10,365.59	6,937.74	63.10	63.44	-90.11	-1,561.78	-3,475.18	2,707.04	2,583.46	123.58	21.906	
10,600.00	6,932.51	10,465.51	6,937.42	64.52	64.84	-90.11	-1,561.32	-3,575.10	2,703.10	2,576.62	126.48	21.372	
10,700.00	6,932.41	10,565.43	6,937.10	65.96	66.25	-90.10	-1,560.87	-3,675.02	2,699.15	2,569.76	129.39	20.860	
10,800.00	6,932.30	10,665.35	6,936.77	67.39	67.67	-90.10	-1,560.41	-3,774.94	2,695.21	2,562.89	132.32	20.369	
10,900.00	6,932.20	10,765.27	6,936.45	68.84	69.10	-90.09	-1,559.96	-3,874.86	2,691.26	2,556.00	135.26	19.897	
11,000.00	6,932.10	10,865.19	6,936.13	70.29	70.53	-90.09	-1,559.50	-3,974.78	2,687.32	2,549.11	138.21	19.444	
11,100.00	6,931.99	10,965.12	6,935.80	71.75	71.97	-90.08	-1,559.05	-4,074.70	2,683.37	2,542.20	141.17	19.008	
11,200.00	6,931.89	11,065.04	6,935.48	73.22	73.42	-90.08	-1,558.59	-4,174.62	2,679.43	2,535.28	144.15	18.588	
11,300.00	6,931.78	11,164.96	6,935.16	74.69	74.87	-90.07	-1,558.14	-4,274.54	2,675.48	2,528.35	147.13	18.185	
11,400.00	6,931.68	11,264.88	6,934.84	76.16	76.33	-90.07	-1,557.68	-4,374.46	2,671.54	2,521.42	150.12	17.796	
11,500.00	6,931.57	11,364.80	6,934.51	77.64	77.80	-90.07	-1,557.23	-4,474.38	2,667.59	2,514.47	153.12	17.421	
11,600.00	6,931.47	11,464.73	6,934.19	79.13	79.27	-90.06	-1,556.77	-4,574.31	2,663.65	2,507.52	156.13	17.061	
11,700.00	6,931.36	11,564.65	6,933.87	80.62	80.74	-90.06	-1,556.32	-4,674.23	2,659.70	2,500.56	159.14	16.713	
11,800.00	6,931.26	11,664.57	6,933.54	82.11	82.22	-90.05	-1,555.86	-4,774.15	2,655.76	2,493.59	162.17	16.377	
11,900.00	6,931.15	11,764.49	6,933.22	83.61	83.71	-90.05	-1,555.41	-4,874.07	2,651.81	2,486.62	165.20	16.052	
12,000.00	6,931.05	11,864.41	6,932.90	85.11	85.20	-90.04	-1,554.96	-4,973.99	2,647.87	2,479.64	168.23	15.739	
12,100.00	6,930.94	11,964.34	6,932.58	86.62	86.69	-90.04	-1,554.50	-5,073.91	2,643.92	2,472.65	171.27	15.437	
12,200.00	6,930.84	12,064.26	6,932.25	88.13	88.19	-90.03	-1,554.05	-5,173.83	2,639.98	2,465.66	174.32	15.144	
12,300.00	6,930.73	12,164.18	6,931.93	89.64	89.69	-90.03	-1,553.59	-5,273.75	2,636.03	2,458.66	177.37	14.861	
12,400.00	6,930.63	12,264.10	6,931.61	91.15	91.19	-90.02	-1,553.14	-5,373.67	2,632.09	2,451.66	180.43	14.588	
12,500.00	6,930.52	12,364.02	6,931.28	92.67	92.70	-90.02	-1,552.68	-5,473.59	2,628.14	2,444.65	183.50	14.323	
12,600.00	6,930.42	12,463.95	6,930.96	94.19	94.21	-90.01	-1,552.23	-5,573.51	2,624.20	2,437.64	186.56	14.066	
12,700.00	6,930.31	12,563.87	6,930.64	95.71	95.73	-90.01	-1,551.77	-5,673.43	2,620.25	2,430.62	189.64	13.817	
12,800.00	6,930.21	12,663.79	6,930.32	97.24	97.24	-90.00	-1,551.32	-5,773.35	2,616.31	2,423.60	192.71	13.576	
12,900.00	6,930.11	12,763.71	6,929.99	98.77	98.76	-90.00	-1,550.86	-5,873.27	2,612.37	2,416.57	195.79	13.342	
13,008.91	6,929.99	12,872.54	6,929.64	100.43	100.42	-89.99	-1,550.37	-5,982.09	2,608.07	2,408.92	199.15	13.096	
13,100.00	6,929.90	12,963.60	6,929.35	101.83	101.81	-89.99	-1,549.95	-6,073.15	2,605.92	2,403.96	201.97	12.903	
13,121.94	6,929.88	12,985.54	6,929.28	102.17	102.15	-89.99	-1,549.85	-6,095.10	2,605.84	2,403.19	202.65	12.859	
13,139.82	6,929.86	13,003.41	6,929.22	102.44	102.42	-89.99	-1,549.77	-6,112.97	2,605.90	2,402.70	203.20	12.824	
13,200.00	6,929.80	13,063.60	6,929.02	103.37	103.34	-89.98	-1,549.50	-6,173.15	2,606.27	2,401.21	205.06	12.710	
13,300.00	6,929.70	13,163.59	6,928.70	104.92	104.87	-89.98	-1,549.04	-6,273.15	2,606.89	2,398.73	208.16	12.523	
13,400.00	6,929.61	13,263.59	6,928.38	106.47	106.40	-89.97	-1,548.59	-6,373.14	2,607.52	2,396.25	211.27	12.342	
13,500.00	6,929.51	13,363.59	6,928.06	108.02	107.94	-89.97	-1,548.13	-6,473.14	2,608.14	2,393.77	214.37	12.166	
13,600.00	6,929.41	13,463.59	6,927.73	109.57	109.47	-89.96	-1,547.68	-6,573.13	2,608.77	2,391.28	217.48	11.995	
13,700.00	6,929.32	13,563.58	6,927.41	111.12	111.01	-89.96	-1,547.22	-6,673.13	2,609.39	2,388.79	220.60	11.829	
13,800.00	6,929.22	13,663.58	6,927.09	112.68	112.55	-89.95	-1,546.77	-6,773.13	2,610.01	2,386.30	223.71	11.667	
13,900.00	6,929.12	13,763.58	6,926.76	114.23	114.09	-89.95	-1,546.31	-6,873.12	2,610.64	2,383.81	226.83	11.509	
14,000.00	6,929.03	13,863.58	6,926.44	115.79	115.64	-89.94	-1,545.86	-6,973.12	2,611.26	2,381.31	229.95	11.356	
14,100.00	6,928.93	13,963.58	6,926.12	117.35	117.18	-89.94	-1,545.40	-7,073.12	2,611.89	2,378.82	233.07	11.206	
14,200.00	6,928.83	14,063.57	6,925.79	118.91	118.73	-89.93	-1,544.95	-7,173.11	2,612.51	2,376.31	236.20	11.061	

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 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 0-MWD+HRGM+MS

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,300.00	6,928.74	14,163.57	6,925.47	120.47	120.28	-89.93	-1,544.49	-7,273.11	2,613.14	2,373.81	239.32	10.919	
14,400.00	6,928.64	14,263.57	6,925.15	122.03	121.83	-89.92	-1,544.04	-7,373.10	2,613.76	2,371.31	242.45	10.780	
14,500.00	6,928.54	14,363.57	6,924.83	123.60	123.38	-89.92	-1,543.58	-7,473.10	2,614.38	2,368.80	245.58	10.646	
14,600.00	6,928.45	14,463.56	6,924.50	125.16	124.93	-89.91	-1,543.13	-7,573.10	2,615.01	2,366.29	248.72	10.514	
14,700.00	6,928.35	14,563.56	6,924.18	126.72	126.48	-89.91	-1,542.67	-7,673.09	2,615.63	2,363.78	251.85	10.386	
14,800.00	6,928.25	14,663.56	6,923.86	128.29	128.04	-89.90	-1,542.22	-7,773.09	2,616.26	2,361.27	254.99	10.260	
14,900.00	6,928.16	14,763.56	6,923.53	129.86	129.60	-89.90	-1,541.76	-7,873.09	2,616.88	2,358.75	258.13	10.138	
15,000.00	6,928.06	14,863.56	6,923.21	131.42	131.15	-89.89	-1,541.31	-7,973.08	2,617.51	2,356.24	261.27	10.019	
15,100.00	6,927.96	14,963.55	6,922.89	132.99	132.71	-89.89	-1,540.85	-8,073.08	2,618.13	2,353.72	264.41	9.902	
15,200.00	6,927.87	15,063.55	6,922.56	134.56	134.27	-89.88	-1,540.40	-8,173.07	2,618.75	2,351.20	267.55	9.788	
15,300.00	6,927.77	15,163.55	6,922.24	136.13	135.83	-89.88	-1,539.94	-8,273.07	2,619.38	2,348.68	270.70	9.676	
15,400.00	6,927.67	15,263.55	6,921.92	137.70	137.39	-89.87	-1,539.49	-8,373.07	2,620.00	2,346.16	273.84	9.568	
15,500.00	6,927.57	15,363.54	6,921.59	139.28	138.96	-89.87	-1,539.03	-8,473.06	2,620.63	2,343.64	276.99	9.461	
15,600.00	6,927.48	15,463.54	6,921.27	140.85	140.52	-89.86	-1,538.58	-8,573.06	2,621.25	2,341.11	280.14	9.357	
15,700.00	6,927.38	15,563.54	6,920.95	142.42	142.08	-89.86	-1,538.12	-8,673.06	2,621.88	2,338.59	283.29	9.255	
15,800.00	6,927.28	15,663.54	6,920.63	144.00	143.65	-89.85	-1,537.67	-8,773.05	2,622.50	2,336.06	286.44	9.155	
15,900.00	6,927.19	15,763.54	6,920.30	145.57	145.21	-89.85	-1,537.21	-8,873.05	2,623.12	2,333.53	289.59	9.058	
16,000.00	6,927.09	15,863.53	6,919.98	147.15	146.78	-89.84	-1,536.76	-8,973.04	2,623.75	2,331.00	292.75	8.962	
16,100.00	6,926.99	15,963.53	6,919.66	148.72	148.35	-89.84	-1,536.30	-9,073.04	2,624.37	2,328.47	295.90	8.869	
16,200.00	6,926.90	16,063.53	6,919.33	150.30	149.92	-89.83	-1,535.85	-9,173.04	2,625.00	2,325.94	299.06	8.777	
16,300.00	6,926.80	16,163.53	6,919.01	151.87	151.49	-89.83	-1,535.39	-9,273.03	2,625.62	2,323.41	302.22	8.688	
16,400.00	6,926.70	16,263.52	6,918.69	153.45	153.06	-89.82	-1,534.94	-9,373.03	2,626.25	2,320.87	305.38	8.600	
16,500.00	6,926.61	16,363.52	6,918.36	155.03	154.63	-89.82	-1,534.48	-9,473.03	2,626.87	2,318.34	308.54	8.514	
16,600.00	6,926.51	16,463.52	6,918.04	156.61	156.20	-89.81	-1,534.03	-9,573.02	2,627.50	2,315.80	311.70	8.430	
16,700.00	6,926.41	16,563.52	6,917.72	158.19	157.77	-89.81	-1,533.57	-9,673.02	2,628.12	2,313.26	314.86	8.347	
16,800.00	6,926.32	16,663.52	6,917.39	159.77	159.34	-89.81	-1,533.12	-9,773.01	2,628.75	2,310.73	318.02	8.266	
16,900.00	6,926.22	16,763.51	6,917.07	161.35	160.92	-89.80	-1,532.66	-9,873.01	2,629.37	2,308.19	321.18	8.187	
17,000.00	6,926.12	16,863.51	6,916.75	162.93	162.49	-89.80	-1,532.21	-9,973.01	2,630.00	2,305.65	324.35	8.109	
17,100.00	6,926.03	16,963.51	6,916.43	164.51	164.06	-89.79	-1,531.75	-10,073.00	2,630.62	2,303.11	327.51	8.032	
17,200.00	6,925.93	17,063.51	6,916.10	166.09	165.64	-89.79	-1,531.30	-10,173.00	2,631.25	2,300.57	330.68	7.957	
17,300.00	6,925.83	17,163.51	6,915.78	167.67	167.21	-89.78	-1,530.84	-10,273.00	2,631.87	2,298.03	333.84	7.884	
17,400.00	6,925.74	17,263.50	6,915.46	169.26	168.79	-89.78	-1,530.39	-10,372.99	2,632.49	2,295.48	337.01	7.811	
17,500.00	6,925.64	17,363.50	6,915.13	170.84	170.37	-89.77	-1,529.93	-10,472.99	2,633.12	2,292.94	340.18	7.740	
17,600.00	6,925.54	17,463.50	6,914.81	172.42	171.94	-89.77	-1,529.48	-10,572.98	2,633.74	2,290.40	343.35	7.671	
17,700.00	6,925.45	17,563.50	6,914.49	174.00	173.52	-89.76	-1,529.02	-10,672.98	2,634.37	2,287.85	346.52	7.602	
17,800.00	6,925.35	17,663.49	6,914.16	175.59	175.10	-89.76	-1,528.57	-10,772.98	2,634.99	2,285.31	349.69	7.535	
17,900.00	6,925.25	17,763.49	6,913.84	177.17	176.68	-89.75	-1,528.11	-10,872.97	2,635.62	2,282.76	352.86	7.469	
18,000.00	6,925.16	17,863.49	6,913.52	178.76	178.26	-89.75	-1,527.66	-10,972.97	2,636.24	2,280.22	356.03	7.405	
18,100.00	6,925.06	17,963.49	6,913.19	180.34	179.84	-89.74	-1,527.20	-11,072.97	2,636.87	2,277.67	359.20	7.341	
18,160.21	6,925.00	18,023.70	6,913.00	181.30	180.79	-89.74	-1,526.93	-11,133.18	2,637.24	2,276.13	361.11	7.303	SF

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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
0.00	0.00	0.00	0.00	0.00	0.00	144.88	-61.53	43.27	75.22				
100.00	100.00	100.00	100.00	0.25	0.25	144.88	-61.53	43.27	75.22	74.72	0.50	149.877	
200.00	200.00	200.00	200.00	0.61	0.61	144.88	-61.53	43.27	75.22	74.00	1.22	61.714	
300.00	300.00	300.00	300.00	0.97	0.97	144.88	-61.53	43.27	75.22	73.28	1.94	38.857	
400.00	400.00	400.00	400.00	1.33	1.33	144.88	-61.53	43.27	75.22	72.56	2.65	28.355	
500.00	500.00	500.00	500.00	1.68	1.68	144.88	-61.53	43.27	75.22	71.85	3.37	22.322	CC
600.00	599.98	601.49	601.47	2.04	2.05	132.74	-59.85	43.90	75.41	71.32	4.09	18.435	
700.00	699.84	702.98	702.81	2.41	2.42	132.30	-54.81	45.81	75.99	71.18	4.81	15.797	ES
800.00	799.45	804.46	803.89	2.77	2.78	131.59	-46.41	48.99	76.98	71.44	5.53	13.911	
900.00	898.70	905.03	903.77	3.13	3.15	131.01	-35.37	53.17	78.70	72.44	6.26	12.566	
1,000.00	997.47	1,004.94	1,002.95	3.50	3.51	132.11	-24.14	57.42	82.59	75.58	7.00	11.794	
1,100.00	1,095.62	1,104.65	1,101.94	3.89	3.89	134.71	-12.93	61.67	88.92	81.17	7.75	11.476	
1,200.00	1,193.44	1,204.23	1,200.79	4.29	4.26	137.74	-1.73	65.91	96.71	88.21	8.50	11.380	
1,300.00	1,291.25	1,303.81	1,299.64	4.70	4.64	140.32	9.47	70.15	104.72	95.47	9.25	11.322	
1,400.00	1,389.07	1,403.38	1,398.50	5.11	5.01	142.53	20.66	74.39	112.92	102.92	10.00	11.289	
1,500.00	1,486.88	1,502.96	1,497.35	5.53	5.39	144.43	31.86	78.62	121.26	110.50	10.76	11.274	
1,600.00	1,584.70	1,602.53	1,596.20	5.95	5.77	146.09	43.05	82.86	129.72	118.21	11.51	11.269	SF
1,700.00	1,682.51	1,702.11	1,695.06	6.37	6.15	147.55	54.25	87.10	138.27	126.00	12.27	11.273	
1,800.00	1,780.33	1,801.69	1,793.91	6.80	6.53	148.83	65.45	91.34	146.90	133.88	13.02	11.282	
1,900.00	1,878.14	1,901.26	1,892.77	7.22	6.91	149.98	76.64	95.58	155.59	141.82	13.78	11.295	
2,000.00	1,975.96	2,000.84	1,991.62	7.65	7.29	151.00	87.84	99.82	164.34	149.81	14.53	11.310	
2,100.00	2,073.77	2,100.41	2,090.47	8.08	7.67	151.91	99.04	104.06	173.14	157.85	15.29	11.326	
2,200.00	2,171.59	2,199.99	2,189.33	8.51	8.06	152.74	110.23	108.30	181.98	165.93	16.04	11.344	
2,300.00	2,269.40	2,299.56	2,288.18	8.95	8.44	153.50	121.43	112.54	190.85	174.05	16.80	11.362	
2,400.00	2,367.22	2,399.14	2,387.03	9.38	8.82	154.18	132.63	116.78	199.75	182.19	17.55	11.379	
2,500.00	2,465.03	2,498.72	2,485.89	9.81	9.20	154.81	143.82	121.02	208.67	190.37	18.31	11.397	
2,600.00	2,562.84	2,598.29	2,584.74	10.25	9.59	155.38	155.02	125.26	217.62	198.56	19.07	11.415	
2,700.00	2,660.66	2,697.87	2,683.59	10.68	9.97	155.91	166.22	129.50	226.59	206.77	19.82	11.432	
2,800.00	2,758.47	2,797.44	2,782.45	11.12	10.35	156.40	177.41	133.73	235.58	215.00	20.58	11.448	
2,900.00	2,856.29	2,897.02	2,881.30	11.55	10.73	156.85	188.61	137.97	244.58	223.25	21.33	11.464	
3,000.00	2,954.10	2,996.60	2,980.16	11.99	11.12	157.28	199.81	142.21	253.60	231.51	22.09	11.480	
3,100.00	3,051.92	3,096.17	3,079.01	12.42	11.50	157.67	211.00	146.45	262.63	239.78	22.85	11.495	
3,200.00	3,149.73	3,195.75	3,177.86	12.86	11.88	158.03	222.20	150.69	271.67	248.07	23.60	11.510	
3,300.00	3,247.55	3,295.32	3,276.72	13.30	12.27	158.38	233.39	154.93	280.72	256.36	24.36	11.524	
3,400.00	3,345.36	3,394.90	3,375.57	13.73	12.65	158.70	244.59	159.17	289.78	264.67	25.12	11.538	
3,500.00	3,443.18	3,494.48	3,474.42	14.17	13.04	159.00	255.79	163.41	298.85	272.98	25.87	11.551	
3,600.00	3,540.99	3,594.05	3,573.28	14.61	13.42	159.28	266.98	167.65	307.93	281.30	26.63	11.563	
3,700.00	3,638.81	3,693.63	3,672.13	15.05	13.80	159.55	278.18	171.89	317.01	289.63	27.39	11.576	
3,800.00	3,736.62	3,793.20	3,770.98	15.48	14.19	159.80	289.38	176.13	326.10	297.96	28.14	11.587	
3,900.00	3,834.44	3,892.78	3,869.84	15.92	14.57	160.04	300.57	180.37	335.20	306.30	28.90	11.599	
4,000.00	3,932.25	3,992.36	3,968.69	16.36	14.95	160.27	311.77	184.61	344.30	314.65	29.66	11.610	
4,100.00	4,030.07	4,091.93	4,067.54	16.80	15.34	160.48	322.97	188.84	353.41	323.00	30.41	11.620	
4,200.00	4,127.88	4,191.51	4,166.40	17.24	15.72	160.69	334.16	193.08	362.52	331.35	31.17	11.630	
4,300.00	4,225.70	4,291.08	4,265.25	17.68	16.11	160.88	345.36	197.32	371.64	339.71	31.93	11.640	
4,400.00	4,323.51	4,390.66	4,364.11	18.11	16.49	161.07	356.56	201.56	380.76	348.07	32.68	11.649	
4,500.00	4,421.33	4,490.24	4,462.96	18.55	16.87	161.24	367.75	205.80	389.88	356.44	33.44	11.658	
4,600.00	4,519.14	4,589.81	4,561.81	18.99	17.26	161.41	378.95	210.04	399.01	364.81	34.20	11.667	
4,700.00	4,616.95	4,689.39	4,660.67	19.43	17.64	161.57	390.15	214.28	408.14	373.18	34.96	11.676	
4,800.00	4,714.77	4,788.96	4,759.52	19.87	18.03	161.72	401.34	218.52	417.27	381.56	35.71	11.684	
4,900.00	4,812.58	4,888.54	4,858.37	20.31	18.41	161.87	412.54	222.76	426.41	389.94	36.47	11.692	
5,000.00	4,910.40	4,988.12	4,957.23	20.75	18.79	162.01	423.73	227.00	435.55	398.32	37.23	11.699	
5,100.00	5,008.21	5,087.69	5,056.08	21.19	19.18	162.15	434.93	231.24	444.69	406.70	37.99	11.707	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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
5,200.00	5,106.03	5,187.27	5,154.93	21.63	19.56	162.28	446.13	235.48	453.83	415.09	38.74	11.714	
5,300.00	5,203.84	5,286.84	5,253.79	22.06	19.95	162.40	457.32	239.72	462.98	423.48	39.50	11.721	
5,400.00	5,301.66	5,386.42	5,352.64	22.50	20.33	162.52	468.52	243.95	472.13	431.87	40.26	11.728	
5,500.00	5,399.47	5,485.99	5,451.50	22.94	20.71	162.64	479.72	248.19	481.28	440.26	41.01	11.734	
5,600.00	5,497.29	5,585.57	5,550.35	23.38	21.10	162.75	490.91	252.43	490.43	448.66	41.77	11.741	
5,700.00	5,595.10	5,685.15	5,649.20	23.82	21.48	162.85	502.11	256.67	499.58	457.05	42.53	11.747	
5,800.00	5,692.92	5,784.72	5,748.06	24.26	21.87	162.96	513.31	260.91	508.74	465.45	43.29	11.753	
5,900.00	5,790.73	5,884.30	5,846.91	24.70	22.25	163.06	524.50	265.15	517.89	473.85	44.04	11.758	
6,000.00	5,888.55	5,983.87	5,945.76	25.14	22.64	163.15	535.70	269.39	527.05	482.25	44.80	11.764	
6,100.00	5,986.36	6,083.45	6,044.62	25.58	23.02	163.24	546.90	273.63	536.21	490.65	45.56	11.769	
6,200.00	6,084.18	6,183.03	6,143.47	26.02	23.40	163.33	558.09	277.87	545.37	499.06	46.32	11.775	
6,300.00	6,181.99	6,282.60	6,242.32	26.46	23.79	163.42	569.29	282.11	554.54	507.46	47.07	11.780	
6,401.22	6,281.00	6,382.89	6,341.88	26.90	24.18	163.50	580.56	286.41	563.82	515.98	47.84	11.786	
6,450.00	6,328.76	6,427.84	6,386.36	27.12	24.35	-175.45	585.59	290.40	568.57	520.37	48.20	11.795	
6,500.00	6,377.61	6,472.35	6,430.02	27.32	24.53	-156.31	590.51	297.44	574.06	525.47	48.59	11.815	
6,550.00	6,426.06	6,513.96	6,470.31	27.52	24.70	-142.64	595.04	306.79	580.49	531.52	48.97	11.854	
6,600.00	6,473.81	6,550.00	6,504.65	27.71	24.85	-133.66	598.89	317.01	588.35	539.04	49.31	11.931	
6,650.00	6,520.56	6,584.95	6,537.35	27.89	24.99	-127.95	602.55	328.77	598.17	548.51	49.65	12.047	
6,700.00	6,566.03	6,613.49	6,563.55	28.05	25.11	-123.90	605.47	339.71	610.44	560.53	49.91	12.231	
6,750.00	6,609.93	6,637.33	6,585.04	28.20	25.21	-120.74	607.86	349.74	625.52	575.43	50.09	12.489	
6,800.00	6,652.00	6,650.00	6,596.31	28.34	25.26	-117.36	609.12	355.40	643.68	593.64	50.05	12.862	
6,850.00	6,691.98	6,671.93	6,615.54	28.47	25.36	-115.09	611.25	365.72	664.82	614.65	50.17	13.250	
6,900.00	6,729.61	6,683.41	6,625.46	28.59	25.41	-112.05	612.35	371.39	688.99	638.89	50.10	13.752	
6,950.00	6,764.67	6,700.00	6,639.62	28.69	25.48	-109.46	613.92	379.90	715.98	665.82	50.16	14.274	
7,000.00	6,796.95	6,700.00	6,639.62	28.79	25.48	-105.20	613.92	379.90	745.26	695.39	49.88	14.942	
7,050.00	6,826.23	6,700.00	6,639.62	28.89	25.48	-100.75	613.92	379.90	776.68	727.05	49.63	15.648	
7,100.00	6,852.35	6,700.00	6,639.62	28.98	25.48	-96.14	613.92	379.90	809.80	760.36	49.44	16.378	
7,150.00	6,875.14	6,700.00	6,639.62	29.08	25.48	-91.40	613.92	379.90	844.23	794.92	49.31	17.119	
7,200.00	6,894.45	6,700.00	6,639.62	29.18	25.48	-86.60	613.92	379.90	879.62	830.37	49.25	17.860	
7,250.00	6,910.18	6,700.00	6,639.62	29.28	25.48	-81.84	613.92	379.90	915.66	866.41	49.25	18.592	
7,300.00	6,922.23	6,681.90	6,624.16	29.40	25.40	-75.78	612.21	370.64	951.67	902.78	48.89	19.464	
7,350.00	6,930.51	6,674.06	6,617.39	29.54	25.37	-70.92	611.46	366.76	987.78	938.94	48.84	20.224	
7,400.00	6,934.98	6,665.15	6,609.63	29.70	25.33	-66.38	610.60	362.46	1,023.56	974.74	48.82	20.965	
7,433.91	6,935.83	6,650.00	6,596.31	29.81	25.26	-63.04	609.12	355.40	1,047.58	998.94	48.64	21.536	
7,500.00	6,935.76	6,650.00	6,596.31	30.07	25.26	-63.04	609.12	355.40	1,094.71	1,045.76	48.95	22.364	
7,600.00	6,935.66	6,628.25	6,576.90	30.52	25.17	-61.80	606.96	345.82	1,168.99	1,120.04	48.96	23.879	
7,700.00	6,935.55	6,600.00	6,551.23	31.06	25.06	-60.22	604.10	334.39	1,246.49	1,197.64	48.85	25.517	
7,800.00	6,935.45	6,600.00	6,551.23	31.68	25.06	-60.22	604.10	334.39	1,326.22	1,277.01	49.21	26.949	
7,900.00	6,935.34	6,600.00	6,551.23	32.37	25.06	-60.22	604.10	334.39	1,408.54	1,359.02	49.52	28.444	
8,000.00	6,935.24	6,573.92	6,527.11	33.12	24.95	-58.78	601.40	324.87	1,492.30	1,442.87	49.43	30.189	
8,100.00	6,935.13	6,550.00	6,504.65	33.93	24.85	-57.50	598.89	317.01	1,578.09	1,528.71	49.38	31.958	
8,200.00	6,935.03	6,550.00	6,504.65	34.80	24.85	-57.50	598.89	317.01	1,664.93	1,615.31	49.62	33.554	
8,300.00	6,934.92	6,550.00	6,504.65	35.71	24.85	-57.50	598.89	317.01	1,753.17	1,703.34	49.83	35.185	
8,400.00	6,934.82	6,550.00	6,504.65	36.67	24.85	-57.50	598.89	317.01	1,842.61	1,792.60	50.01	36.846	
8,500.00	6,934.71	6,529.03	6,484.74	37.68	24.76	-56.40	596.66	310.82	1,932.64	1,882.67	49.97	38.680	
8,600.00	6,934.61	6,522.04	6,478.06	38.72	24.73	-56.03	595.91	308.91	2,023.67	1,973.62	50.05	40.430	
8,700.00	6,934.50	6,500.00	6,456.87	39.80	24.64	-54.91	593.53	303.36	2,115.67	2,065.67	50.00	42.312	
8,800.00	6,934.40	6,500.00	6,456.87	40.92	24.64	-54.91	593.53	303.36	2,207.91	2,157.77	50.14	44.037	
8,900.00	6,934.29	6,500.00	6,456.87	42.06	24.64	-54.91	593.53	303.36	2,300.81	2,250.55	50.26	45.779	
9,000.00	6,934.19	6,500.00	6,456.87	43.23	24.64	-54.91	593.53	303.36	2,394.27	2,343.90	50.37	47.533	
9,100.00	6,934.08	6,500.00	6,456.87	44.43	24.64	-54.91	593.53	303.36	2,488.25	2,437.77	50.47	49.300	
9,200.00	6,933.98	6,500.00	6,456.87	45.66	24.64	-54.91	593.53	303.36	2,582.67	2,532.11	50.56	51.076	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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
9,300.00	6,933.88	6,500.00	6,456.87	46.90	24.64	-54.91	593.53	303.36	2,677.50	2,626.85	50.65	52.862	
9,400.00	6,933.77	6,500.00	6,456.87	48.17	24.64	-54.91	593.53	303.36	2,772.70	2,721.97	50.73	54.655	
9,500.00	6,933.67	6,476.72	6,434.29	49.46	24.55	-53.76	590.99	298.30	2,867.71	2,817.04	50.67	56.601	
9,600.00	6,933.56	6,473.06	6,430.72	50.76	24.53	-53.58	590.59	297.58	2,963.35	2,912.63	50.72	58.426	
9,700.00	6,933.46	6,450.00	6,408.16	52.08	24.44	-52.47	588.05	293.52	3,059.62	3,008.96	50.66	60.394	
9,800.00	6,933.35	6,450.00	6,408.16	53.41	24.44	-52.47	588.05	293.52	3,155.64	3,104.91	50.73	62.200	
9,900.00	6,933.25	6,450.00	6,408.16	54.76	24.44	-52.47	588.05	293.52	3,251.91	3,201.10	50.80	64.010	
10,000.00	6,933.14	6,450.00	6,408.16	56.12	24.44	-52.47	588.05	293.52	3,348.39	3,297.52	50.87	65.823	
10,100.00	6,933.04	6,450.00	6,408.16	57.50	24.44	-52.47	588.05	293.52	3,445.07	3,394.14	50.93	67.639	
10,200.00	6,932.93	6,450.00	6,408.16	58.88	24.44	-52.47	588.05	293.52	3,541.94	3,490.95	50.99	69.457	
10,300.00	6,932.83	6,450.00	6,408.16	60.28	24.44	-52.47	588.05	293.52	3,638.98	3,587.92	51.05	71.276	
10,400.00	6,932.72	6,450.00	6,408.16	61.69	24.44	-52.47	588.05	293.52	3,736.17	3,685.06	51.11	73.097	
10,500.00	6,932.62	6,450.00	6,408.16	63.10	24.44	-52.47	588.05	293.52	3,833.51	3,782.34	51.17	74.918	
10,600.00	6,932.51	6,450.00	6,408.16	64.52	24.44	-52.47	588.05	293.52	3,930.98	3,879.76	51.22	76.740	
10,700.00	6,932.41	6,450.00	6,408.16	65.96	24.44	-52.47	588.05	293.52	4,028.58	3,977.30	51.28	78.562	
10,800.00	6,932.30	6,450.00	6,408.16	67.39	24.44	-52.47	588.05	293.52	4,126.29	4,074.95	51.33	80.383	
10,900.00	6,932.20	6,450.00	6,408.16	68.84	24.44	-52.47	588.05	293.52	4,224.10	4,172.72	51.39	82.204	
11,000.00	6,932.10	6,450.00	6,408.16	70.29	24.44	-52.47	588.05	293.52	4,322.02	4,270.58	51.44	84.024	
11,100.00	6,931.99	6,450.00	6,408.16	71.75	24.44	-52.47	588.05	293.52	4,420.03	4,368.54	51.49	85.842	
11,200.00	6,931.89	6,450.00	6,408.16	73.22	24.44	-52.47	588.05	293.52	4,518.13	4,466.59	51.54	87.659	
11,300.00	6,931.78	6,450.00	6,408.16	74.69	24.44	-52.47	588.05	293.52	4,616.31	4,564.72	51.59	89.475	
11,400.00	6,931.68	6,450.00	6,408.16	76.16	24.44	-52.47	588.05	293.52	4,714.57	4,662.92	51.64	91.288	
11,500.00	6,931.57	6,450.00	6,408.16	77.64	24.44	-52.47	588.05	293.52	4,812.89	4,761.20	51.70	93.100	
11,600.00	6,931.47	6,427.30	6,385.83	79.13	24.35	-51.42	585.53	290.33	4,910.83	4,859.17	51.66	95.056	
11,700.00	6,931.36	6,425.85	6,384.40	80.62	24.35	-51.35	585.37	290.15	5,009.23	4,957.52	51.71	96.873	
11,800.00	6,931.26	6,424.46	6,383.03	82.11	24.34	-51.29	585.22	289.99	5,107.69	5,055.94	51.76	98.686	
11,900.00	6,931.15	6,423.11	6,381.70	83.61	24.33	-51.23	585.07	289.83	5,206.21	5,154.40	51.80	100.497	
12,000.00	6,931.05	6,400.00	6,358.85	85.11	24.24	-50.20	582.48	287.56	5,305.19	5,253.42	51.78	102.465	
12,100.00	6,930.94	6,400.00	6,358.85	86.62	24.24	-50.20	582.48	287.56	5,403.76	5,351.93	51.83	104.260	
12,200.00	6,930.84	6,400.00	6,358.85	88.13	24.24	-50.20	582.48	287.56	5,502.38	5,450.50	51.88	106.052	
12,300.00	6,930.73	6,400.00	6,358.85	89.64	24.24	-50.20	582.48	287.56	5,601.05	5,549.11	51.94	107.841	
12,400.00	6,930.63	6,400.00	6,358.85	91.15	24.24	-50.20	582.48	287.56	5,699.77	5,647.78	51.99	109.626	
12,500.00	6,930.52	6,400.00	6,358.85	92.67	24.24	-50.20	582.48	287.56	5,798.53	5,746.48	52.05	111.408	
12,600.00	6,930.42	6,400.00	6,358.85	94.19	24.24	-50.20	582.48	287.56	5,897.33	5,845.23	52.10	113.186	
12,700.00	6,930.31	6,400.00	6,358.85	95.71	24.24	-50.20	582.48	287.56	5,996.17	5,944.01	52.16	114.960	
12,800.00	6,930.21	6,400.00	6,358.85	97.24	24.24	-50.20	582.48	287.56	6,095.05	6,042.84	52.21	116.731	
12,900.00	6,930.11	6,400.00	6,358.85	98.77	24.24	-50.20	582.48	287.56	6,193.97	6,141.70	52.27	118.498	
13,008.91	6,929.99	6,400.00	6,358.85	100.43	24.24	-50.20	582.48	287.56	6,301.73	6,249.40	52.33	120.417	
13,100.00	6,929.90	6,400.00	6,358.85	101.83	24.24	-40.51	582.48	287.56	6,392.04	6,339.66	52.39	122.020	
13,139.82	6,929.86	6,400.00	6,358.85	102.44	24.24	-35.03	582.48	287.56	6,431.60	6,379.19	52.41	122.721	
13,200.00	6,929.80	6,400.00	6,358.85	103.37	24.24	-35.03	582.48	287.56	6,491.42	6,438.98	52.44	123.780	
13,300.00	6,929.70	6,400.00	6,358.85	104.92	24.24	-35.03	582.48	287.56	6,590.84	6,538.34	52.50	125.537	
13,400.00	6,929.61	6,400.00	6,358.85	106.47	24.24	-35.03	582.48	287.56	6,690.28	6,637.72	52.56	127.289	
13,500.00	6,929.51	6,400.00	6,358.85	108.02	24.24	-35.03	582.48	287.56	6,789.73	6,737.11	52.62	129.036	
13,600.00	6,929.41	6,400.00	6,358.85	109.57	24.24	-35.03	582.48	287.56	6,889.19	6,836.52	52.68	130.778	
13,700.00	6,929.32	6,400.00	6,358.85	111.12	24.24	-35.03	582.48	287.56	6,988.68	6,935.94	52.74	132.515	
13,800.00	6,929.22	6,400.00	6,358.85	112.68	24.24	-35.03	582.48	287.56	7,088.17	7,035.37	52.80	134.247	
13,900.00	6,929.12	6,400.00	6,358.85	114.23	24.24	-35.03	582.48	287.56	7,187.69	7,134.82	52.86	135.975	
14,000.00	6,929.03	6,400.00	6,358.85	115.79	24.24	-35.03	582.48	287.56	7,287.21	7,234.29	52.92	137.697	
14,100.00	6,928.93	6,400.00	6,358.85	117.35	24.24	-35.03	582.48	287.56	7,386.75	7,333.76	52.98	139.414	
14,200.00	6,928.83	6,400.00	6,358.85	118.91	24.24	-35.03	582.48	287.56	7,486.30	7,433.25	53.05	141.125	
14,300.00	6,928.74	6,400.00	6,358.85	120.47	24.24	-35.03	582.48	287.56	7,585.86	7,532.75	53.11	142.832	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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	6,928.64	6,400.00	6,358.85	122.03	24.24	-35.03	582.48	287.56	7,685.43	7,632.26	53.17	144.533	
14,500.00	6,928.54	6,400.00	6,358.85	123.60	24.24	-35.03	582.48	287.56	7,785.02	7,731.78	53.24	146.228	
14,600.00	6,928.45	6,400.00	6,358.85	125.16	24.24	-35.03	582.48	287.56	7,884.61	7,831.31	53.30	147.918	
14,700.00	6,928.35	6,400.00	6,358.85	126.72	24.24	-35.03	582.48	287.56	7,984.21	7,930.84	53.37	149.603	
14,800.00	6,928.25	6,400.00	6,358.85	128.29	24.24	-35.03	582.48	287.56	8,083.83	8,030.39	53.44	151.282	
14,900.00	6,928.16	6,400.00	6,358.85	129.86	24.24	-35.03	582.48	287.56	8,183.45	8,129.95	53.50	152.956	
15,000.00	6,928.06	6,400.00	6,358.85	131.42	24.24	-35.03	582.48	287.56	8,283.09	8,229.52	53.57	154.624	
15,100.00	6,927.96	6,400.00	6,358.85	132.99	24.24	-35.03	582.48	287.56	8,382.73	8,329.09	53.64	156.286	
15,200.00	6,927.87	6,400.00	6,358.85	134.56	24.24	-35.03	582.48	287.56	8,482.38	8,428.67	53.71	157.943	
15,300.00	6,927.77	6,400.00	6,358.85	136.13	24.24	-35.03	582.48	287.56	8,582.03	8,528.26	53.77	159.594	
15,400.00	6,927.67	6,400.00	6,358.85	137.70	24.24	-35.03	582.48	287.56	8,681.70	8,627.86	53.84	161.239	
15,500.00	6,927.57	6,400.00	6,358.85	139.28	24.24	-35.03	582.48	287.56	8,781.37	8,727.46	53.91	162.879	
15,600.00	6,927.48	6,400.00	6,358.85	140.85	24.24	-35.03	582.48	287.56	8,881.06	8,827.07	53.98	164.512	
15,700.00	6,927.38	6,400.00	6,358.85	142.42	24.24	-35.03	582.48	287.56	8,980.74	8,926.69	54.06	166.140	
15,800.00	6,927.28	6,400.00	6,358.85	144.00	24.24	-35.03	582.48	287.56	9,080.44	9,026.31	54.13	167.762	
15,900.00	6,927.19	6,400.00	6,358.85	145.57	24.24	-35.03	582.48	287.56	9,180.14	9,125.94	54.20	169.378	
16,000.00	6,927.09	6,400.00	6,358.85	147.15	24.24	-35.03	582.48	287.56	9,279.85	9,225.58	54.27	170.988	
16,100.00	6,926.99	6,400.00	6,358.85	148.72	24.24	-35.03	582.48	287.56	9,379.56	9,325.22	54.35	172.592	
16,200.00	6,926.90	6,400.00	6,358.85	150.30	24.24	-35.03	582.48	287.56	9,479.28	9,424.86	54.42	174.190	
16,300.00	6,926.80	6,400.00	6,358.85	151.87	24.24	-35.03	582.48	287.56	9,579.01	9,524.51	54.49	175.782	
16,400.00	6,926.70	6,400.00	6,358.85	153.45	24.24	-35.03	582.48	287.56	9,678.74	9,624.17	54.57	177.369	
16,500.00	6,926.61	6,400.00	6,358.85	155.03	24.24	-35.03	582.48	287.56	9,778.48	9,723.83	54.64	178.949	
16,600.00	6,926.51	6,400.00	6,358.85	156.61	24.24	-35.03	582.48	287.56	9,878.22	9,823.50	54.72	180.523	
16,700.00	6,926.41	6,400.00	6,358.85	158.19	24.24	-35.03	582.48	287.56	9,977.97	9,923.17	54.80	182.091	
16,800.00	6,926.32	6,400.00	6,358.85	159.77	24.24	-35.03	582.48	287.56	10,077.72	10,022.85	54.87	183.653	
16,900.00	6,926.22	6,388.55	6,347.50	161.35	24.20	-34.60	581.20	286.74	10,177.37	10,122.45	54.92	185.316	
17,000.00	6,926.12	6,388.19	6,347.14	162.93	24.20	-34.58	581.16	286.72	10,277.12	10,222.13	55.00	186.870	
17,100.00	6,926.03	6,387.83	6,346.79	164.51	24.20	-34.57	581.12	286.70	10,376.88	10,321.81	55.07	188.417	
17,200.00	6,925.93	6,387.48	6,346.44	166.09	24.19	-34.56	581.08	286.68	10,476.65	10,421.49	55.15	189.959	
17,300.00	6,925.83	6,376.00	6,335.04	167.67	24.15	-34.13	579.79	286.08	10,576.52	10,521.32	55.20	191.605	
17,400.00	6,925.74	6,376.00	6,335.04	169.26	24.15	-34.13	579.79	286.08	10,676.28	10,621.00	55.28	193.131	
17,500.00	6,925.64	6,376.00	6,335.04	170.84	24.15	-34.13	579.79	286.08	10,776.06	10,720.69	55.36	194.651	
17,600.00	6,925.54	6,376.00	6,335.04	172.42	24.15	-34.13	579.79	286.08	10,875.83	10,820.39	55.44	196.165	
17,700.00	6,925.45	6,376.00	6,335.04	174.00	24.15	-34.13	579.79	286.08	10,975.61	10,920.08	55.52	197.673	
17,800.00	6,925.35	6,376.00	6,335.04	175.59	24.15	-34.13	579.79	286.08	11,075.39	11,019.79	55.61	199.174	
17,900.00	6,925.25	6,376.00	6,335.04	177.17	24.15	-34.13	579.79	286.08	11,175.18	11,119.49	55.69	200.670	
18,000.00	6,925.16	6,376.00	6,335.04	178.76	24.15	-34.13	579.79	286.08	11,274.97	11,219.20	55.77	202.159	
18,100.00	6,925.06	6,376.00	6,335.04	180.34	24.15	-34.13	579.79	286.08	11,374.76	11,318.91	55.86	203.642	
18,160.21	6,925.00	6,376.00	6,335.04	181.30	24.15	-34.13	579.79	286.08	11,434.86	11,378.95	55.91	204.532	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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)	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	144.78	-102.30	72.21	125.22				
100.00	100.00	100.00	100.00	0.25	0.25	144.78	-102.30	72.21	125.22	124.72	0.50	249.512	
200.00	200.00	200.00	200.00	0.61	0.61	144.78	-102.30	72.21	125.22	124.00	1.22	102.740	
300.00	300.00	300.00	300.00	0.97	0.97	144.78	-102.30	72.21	125.22	123.28	1.94	64.688	
400.00	400.00	400.00	400.00	1.33	1.33	144.78	-102.30	72.21	125.22	122.57	2.65	47.205	
500.00	500.00	500.00	500.00	1.68	1.68	144.78	-102.30	72.21	125.22	121.85	3.37	37.161	CC, ES
600.00	599.98	595.72	595.70	2.04	2.01	133.33	-103.66	73.06	128.08	124.02	4.06	31.569	
700.00	699.84	690.88	690.74	2.41	2.34	134.81	-107.68	75.60	136.72	131.98	4.74	28.864	
800.00	799.45	784.91	784.44	2.77	2.66	136.88	-114.27	79.77	151.26	145.85	5.42	27.930	
900.00	898.70	882.19	881.21	3.13	3.00	139.32	-122.72	85.10	170.56	164.45	6.12	27.891	SF
1,000.00	997.47	979.28	977.78	3.50	3.35	141.84	-131.16	90.43	192.86	186.04	6.82	28.277	
1,100.00	1,095.62	1,075.51	1,073.50	3.89	3.70	144.30	-139.53	95.71	218.25	210.72	7.53	28.987	
1,200.00	1,193.44	1,171.28	1,168.76	4.29	4.06	146.73	-147.86	100.97	245.44	237.21	8.24	29.804	
1,300.00	1,291.25	1,267.04	1,264.02	4.70	4.41	148.67	-156.19	106.23	272.96	264.02	8.94	30.526	
1,400.00	1,389.07	1,362.81	1,359.28	5.11	4.77	150.26	-164.52	111.49	300.72	291.07	9.65	31.157	
1,500.00	1,486.88	1,458.57	1,454.53	5.53	5.13	151.58	-172.84	116.75	328.65	318.29	10.36	31.711	
1,600.00	1,584.70	1,554.34	1,549.79	5.95	5.49	152.70	-181.17	122.01	356.72	345.65	11.08	32.200	
1,700.00	1,682.51	1,650.10	1,645.05	6.37	5.85	153.65	-189.50	127.26	384.90	373.11	11.79	32.634	
1,800.00	1,780.33	1,745.87	1,740.30	6.80	6.21	154.47	-197.83	132.52	413.17	400.65	12.51	33.020	
1,900.00	1,878.14	1,841.63	1,835.56	7.22	6.58	155.19	-206.16	137.78	441.50	428.27	13.23	33.367	
2,000.00	1,975.96	1,937.40	1,930.82	7.65	6.94	155.82	-214.49	143.04	469.89	455.94	13.95	33.679	
2,100.00	2,073.77	2,033.16	2,026.07	8.08	7.30	156.38	-222.81	148.30	498.32	483.65	14.67	33.962	
2,200.00	2,171.59	2,128.93	2,121.33	8.51	7.67	156.88	-231.14	153.56	526.80	511.40	15.40	34.218	
2,300.00	2,269.40	2,224.69	2,216.59	8.95	8.03	157.33	-239.47	158.82	555.30	539.19	16.12	34.452	
2,400.00	2,367.22	2,320.46	2,311.84	9.38	8.40	157.73	-247.80	164.07	583.84	567.00	16.84	34.667	
2,500.00	2,465.03	2,416.22	2,407.10	9.81	8.76	158.10	-256.13	169.33	612.40	594.83	17.57	34.864	
2,600.00	2,562.84	2,511.98	2,502.36	10.25	9.13	158.44	-264.46	174.59	640.98	622.69	18.29	35.045	
2,700.00	2,660.66	2,607.75	2,597.61	10.68	9.50	158.74	-272.79	179.85	669.58	650.56	19.02	35.213	
2,800.00	2,758.47	2,703.51	2,692.87	11.12	9.86	159.02	-281.11	185.11	698.19	678.45	19.74	35.368	
2,900.00	2,856.29	2,799.28	2,788.13	11.55	10.23	159.28	-289.44	190.37	726.82	706.35	20.47	35.512	
3,000.00	2,954.10	2,895.04	2,883.39	11.99	10.60	159.52	-297.77	195.63	755.46	734.27	21.19	35.647	
3,100.00	3,051.92	2,990.81	2,978.64	12.42	10.96	159.74	-306.10	200.88	784.12	762.20	21.92	35.772	
3,200.00	3,149.73	3,086.57	3,073.90	12.86	11.33	159.95	-314.43	206.14	812.78	790.13	22.65	35.890	
3,300.00	3,247.55	3,182.34	3,169.16	13.30	11.70	160.14	-322.76	211.40	841.45	818.08	23.37	36.000	
3,400.00	3,345.36	3,278.10	3,264.41	13.73	12.06	160.32	-331.08	216.66	870.13	846.03	24.10	36.103	
3,500.00	3,443.18	3,373.87	3,359.67	14.17	12.43	160.48	-339.41	221.92	898.82	873.99	24.83	36.200	
3,600.00	3,540.99	3,469.63	3,454.93	14.61	12.80	160.64	-347.74	227.18	927.51	901.95	25.56	36.292	
3,700.00	3,638.81	3,565.40	3,550.18	15.05	13.16	160.79	-356.07	232.43	956.21	929.93	26.29	36.379	
3,800.00	3,736.62	3,661.16	3,645.44	15.48	13.53	160.93	-364.40	237.69	984.92	957.90	27.01	36.460	
3,900.00	3,834.44	3,756.93	3,740.70	15.92	13.90	161.06	-372.73	242.95	1,013.63	985.89	27.74	36.538	
4,000.00	3,932.25	3,852.69	3,835.95	16.36	14.27	161.18	-381.05	248.21	1,042.34	1,013.87	28.47	36.611	
4,100.00	4,030.07	3,948.46	3,931.21	16.80	14.63	161.30	-389.38	253.47	1,071.06	1,041.86	29.20	36.681	
4,200.00	4,127.88	4,044.22	4,026.47	17.24	15.00	161.41	-397.71	258.73	1,099.79	1,069.86	29.93	36.747	
4,300.00	4,225.70	4,139.99	4,121.73	17.68	15.37	161.52	-406.04	263.99	1,128.51	1,097.85	30.66	36.810	
4,400.00	4,323.51	4,235.75	4,216.98	18.11	15.74	161.62	-414.37	269.24	1,157.24	1,125.85	31.39	36.869	
4,500.00	4,421.33	4,331.52	4,312.24	18.55	16.10	161.72	-422.70	274.50	1,185.98	1,153.86	32.12	36.926	
4,600.00	4,519.14	4,427.28	4,407.50	18.99	16.47	161.81	-431.02	279.76	1,214.71	1,181.86	32.85	36.981	
4,700.00	4,616.95	4,523.04	4,502.75	19.43	16.84	161.89	-439.35	285.02	1,243.45	1,209.87	33.58	37.033	
4,800.00	4,714.77	4,618.81	4,598.01	19.87	17.21	161.98	-447.68	290.28	1,272.19	1,237.89	34.31	37.083	
4,900.00	4,812.58	4,714.57	4,693.27	20.31	17.58	162.06	-456.01	295.54	1,300.94	1,265.90	35.04	37.130	
5,000.00	4,910.40	4,810.34	4,788.52	20.75	17.94	162.13	-464.34	300.79	1,329.68	1,293.91	35.77	37.176	
5,100.00	5,008.21	4,906.10	4,883.78	21.19	18.31	162.20	-472.67	306.05	1,358.43	1,321.93	36.50	37.219	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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
5,200.00	5,106.03	5,001.87	4,979.04	21.63	18.68	162.27	-480.99	311.31	1,387.18	1,349.95	37.23	37.261	
5,300.00	5,203.84	5,097.63	5,074.29	22.06	19.05	162.34	-489.32	316.57	1,415.93	1,377.97	37.96	37.301	
5,400.00	5,301.66	5,193.40	5,169.55	22.50	19.42	162.41	-497.65	321.83	1,444.69	1,405.99	38.69	37.340	
5,500.00	5,399.47	5,289.16	5,264.81	22.94	19.78	162.47	-505.98	327.09	1,473.44	1,434.02	39.42	37.377	
5,600.00	5,497.29	5,384.93	5,360.06	23.38	20.15	162.53	-514.31	332.35	1,502.20	1,462.04	40.15	37.412	
5,700.00	5,595.10	5,480.69	5,455.32	23.82	20.52	162.58	-522.64	337.60	1,530.95	1,490.07	40.88	37.447	
5,800.00	5,692.92	5,576.46	5,550.58	24.26	20.89	162.64	-530.97	342.86	1,559.71	1,518.10	41.61	37.480	
5,900.00	5,790.73	5,672.22	5,645.84	24.70	21.26	162.69	-539.29	348.12	1,588.47	1,546.13	42.35	37.511	
6,000.00	5,888.55	5,767.99	5,741.09	25.14	21.62	162.74	-547.62	353.38	1,617.24	1,574.16	43.08	37.542	
6,100.00	5,986.36	5,863.75	5,836.35	25.58	21.99	162.79	-555.95	358.64	1,646.00	1,602.19	43.81	37.571	
6,200.00	6,084.18	5,959.52	5,931.61	26.02	22.36	162.84	-564.28	363.90	1,674.76	1,630.22	44.54	37.600	
6,300.00	6,181.99	6,055.28	6,026.86	26.46	22.73	162.89	-572.61	369.16	1,703.53	1,658.25	45.27	37.627	
6,401.22	6,281.00	6,152.21	6,123.28	26.90	23.10	162.93	-581.04	374.48	1,732.65	1,686.63	46.01	37.654	
6,450.00	6,328.76	6,198.87	6,169.70	27.12	23.28	-174.81	-585.10	377.04	1,746.77	1,700.40	46.37	37.671	
6,500.00	6,377.61	6,246.40	6,216.97	27.32	23.46	-153.98	-589.23	379.65	1,761.39	1,714.67	46.72	37.698	
6,550.00	6,426.06	6,293.33	6,263.65	27.52	23.64	-138.31	-593.31	382.23	1,776.10	1,729.03	47.07	37.736	
6,600.00	6,473.81	6,339.38	6,309.46	27.71	23.82	-127.36	-597.31	384.76	1,790.86	1,743.46	47.40	37.783	
6,650.00	6,520.56	6,382.35	6,352.20	27.89	23.99	-119.61	-601.05	387.15	1,805.67	1,757.97	47.70	37.852	
6,700.00	6,566.03	6,414.77	6,384.36	28.05	24.11	-113.86	-603.87	390.08	1,820.70	1,772.77	47.93	37.985	
6,750.00	6,609.93	6,450.00	6,419.09	28.20	24.25	-109.55	-606.92	395.12	1,836.10	1,787.92	48.18	38.110	
6,800.00	6,652.00	6,469.46	6,438.14	28.34	24.33	-105.85	-608.59	398.73	1,851.88	1,803.57	48.31	38.337	
6,850.00	6,691.98	6,491.35	6,459.42	28.47	24.42	-102.81	-610.46	403.48	1,868.13	1,819.69	48.44	38.562	
6,900.00	6,729.61	6,509.62	6,477.05	28.59	24.50	-100.11	-612.02	408.01	1,884.87	1,836.32	48.55	38.821	
6,950.00	6,764.67	6,524.45	6,491.26	28.69	24.56	-97.63	-613.27	412.06	1,902.11	1,853.48	48.63	39.113	
7,000.00	6,796.95	6,536.06	6,502.31	28.79	24.61	-95.28	-614.25	415.46	1,919.82	1,871.14	48.68	39.435	
7,050.00	6,826.23	6,550.00	6,515.51	28.89	24.67	-93.16	-615.42	419.81	1,937.98	1,889.23	48.75	39.749	
7,100.00	6,852.35	6,550.00	6,515.51	28.98	24.67	-90.75	-615.42	419.81	1,956.48	1,907.77	48.71	40.164	
7,150.00	6,875.14	6,550.00	6,515.51	29.08	24.67	-88.45	-615.42	419.81	1,975.28	1,926.61	48.67	40.582	
7,200.00	6,894.45	6,550.00	6,515.51	29.18	24.67	-86.26	-615.42	419.81	1,994.27	1,945.62	48.64	40.999	
7,250.00	6,910.18	6,550.00	6,515.51	29.28	24.67	-84.17	-615.42	419.81	2,013.31	1,964.69	48.62	41.409	
7,300.00	6,922.23	6,550.00	6,515.51	29.40	24.67	-82.19	-615.42	419.81	2,032.29	1,983.68	48.61	41.809	
7,350.00	6,930.51	6,550.00	6,515.51	29.54	24.67	-80.32	-615.42	419.81	2,051.10	2,002.49	48.61	42.194	
7,400.00	6,934.98	6,550.00	6,515.51	29.70	24.67	-78.58	-615.42	419.81	2,069.63	2,021.01	48.63	42.563	
7,433.91	6,935.83	6,550.00	6,515.51	29.81	24.67	-77.47	-615.42	419.81	2,081.98	2,033.34	48.64	42.802	
7,500.00	6,935.76	6,531.82	6,498.29	30.07	24.59	-76.97	-613.90	414.20	2,106.57	2,058.04	48.53	43.406	
7,600.00	6,935.66	6,520.57	6,487.55	30.52	24.54	-76.65	-612.95	410.97	2,147.07	2,098.52	48.54	44.232	
7,700.00	6,935.55	6,500.00	6,467.78	31.06	24.46	-76.07	-611.20	405.56	2,191.31	2,142.81	48.50	45.183	
7,800.00	6,935.45	6,500.00	6,467.78	31.68	24.46	-76.07	-611.20	405.56	2,238.91	2,190.24	48.66	46.010	
7,900.00	6,935.34	6,500.00	6,467.78	32.37	24.46	-76.07	-611.20	405.56	2,289.88	2,241.04	48.84	46.883	
8,000.00	6,935.24	6,500.00	6,467.78	33.12	24.46	-76.07	-611.20	405.56	2,344.02	2,294.98	49.03	47.803	
8,100.00	6,935.13	6,479.53	6,447.95	33.93	24.37	-75.49	-609.45	400.82	2,400.80	2,351.73	49.07	48.923	
8,200.00	6,935.03	6,473.46	6,442.04	34.80	24.35	-75.32	-608.93	399.54	2,460.41	2,411.18	49.24	49.970	
8,300.00	6,934.92	6,450.00	6,419.09	35.71	24.25	-74.65	-606.92	395.12	2,522.77	2,473.50	49.27	51.200	
8,400.00	6,934.82	6,450.00	6,419.09	36.67	24.25	-74.65	-606.92	395.12	2,587.11	2,537.62	49.50	52.270	
8,500.00	6,934.71	6,450.00	6,419.09	37.68	24.25	-74.65	-606.92	395.12	2,653.66	2,603.95	49.72	53.376	
8,600.00	6,934.61	6,450.00	6,419.09	38.72	24.25	-74.65	-606.92	395.12	2,722.26	2,672.33	49.93	54.517	
8,700.00	6,934.50	6,450.00	6,419.09	39.80	24.25	-74.65	-606.92	395.12	2,792.76	2,742.61	50.15	55.691	
8,800.00	6,934.40	6,450.00	6,419.09	40.92	24.25	-74.65	-606.92	395.12	2,865.01	2,814.65	50.36	56.895	
8,900.00	6,934.29	6,450.00	6,419.09	42.06	24.25	-74.65	-606.92	395.12	2,938.89	2,888.33	50.56	58.128	
9,000.00	6,934.19	6,450.00	6,419.09	43.23	24.25	-74.65	-606.92	395.12	3,014.27	2,963.52	50.76	59.388	
9,100.00	6,934.08	6,450.00	6,419.09	44.43	24.25	-74.65	-606.92	395.12	3,091.06	3,040.11	50.95	60.673	
9,200.00	6,933.98	6,450.00	6,419.09	45.66	24.25	-74.65	-606.92	395.12	3,169.14	3,118.01	51.13	61.981	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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
9,300.00	6,933.88	6,450.00	6,419.09	46.90	24.25	-74.65	-606.92	395.12	3,248.42	3,197.11	51.31	63.311	
9,400.00	6,933.77	6,427.80	6,397.23	48.17	24.17	-74.02	-605.00	391.72	3,328.41	3,277.07	51.35	64.820	
9,500.00	6,933.67	6,425.38	6,394.84	49.46	24.16	-73.95	-604.79	391.39	3,409.75	3,358.25	51.50	66.205	
9,600.00	6,933.56	6,423.09	6,392.58	50.76	24.15	-73.89	-604.59	391.09	3,492.05	3,440.40	51.65	67.607	
9,700.00	6,933.46	6,420.93	6,390.44	52.08	24.14	-73.83	-604.40	390.82	3,575.25	3,523.45	51.80	69.023	
9,800.00	6,933.35	6,400.00	6,369.72	53.41	24.05	-73.23	-602.59	388.54	3,659.57	3,607.74	51.83	70.604	
9,900.00	6,933.25	6,400.00	6,369.72	54.76	24.05	-73.23	-602.59	388.54	3,744.32	3,692.34	51.98	72.032	
10,000.00	6,933.14	6,400.00	6,369.72	56.12	24.05	-73.23	-602.59	388.54	3,829.81	3,777.68	52.12	73.474	
10,100.00	6,933.04	6,400.00	6,369.72	57.50	24.05	-73.23	-602.59	388.54	3,915.98	3,863.72	52.26	74.928	
10,200.00	6,932.93	6,400.00	6,369.72	58.88	24.05	-73.23	-602.59	388.54	4,002.80	3,950.40	52.40	76.393	
10,300.00	6,932.83	6,400.00	6,369.72	60.28	24.05	-73.23	-602.59	388.54	4,090.22	4,037.69	52.53	77.869	
10,400.00	6,932.72	6,400.00	6,369.72	61.69	24.05	-73.23	-602.59	388.54	4,178.20	4,125.55	52.65	79.354	
10,500.00	6,932.62	6,400.00	6,369.72	63.10	24.05	-73.23	-602.59	388.54	4,266.72	4,213.94	52.77	80.848	
10,600.00	6,932.51	6,400.00	6,369.72	64.52	24.05	-73.23	-602.59	388.54	4,355.73	4,302.84	52.89	82.350	
10,700.00	6,932.41	6,400.00	6,369.72	65.96	24.05	-73.23	-602.59	388.54	4,445.21	4,392.20	53.01	83.860	
10,800.00	6,932.30	6,400.00	6,369.72	67.39	24.05	-73.23	-602.59	388.54	4,535.12	4,482.01	53.12	85.377	
10,900.00	6,932.20	6,400.00	6,369.72	68.84	24.05	-73.23	-602.59	388.54	4,625.46	4,572.23	53.23	86.899	
11,000.00	6,932.10	6,400.00	6,369.72	70.29	24.05	-73.23	-602.59	388.54	4,716.18	4,662.84	53.33	88.428	
11,100.00	6,931.99	6,400.00	6,369.72	71.75	24.05	-73.23	-602.59	388.54	4,807.27	4,753.83	53.44	89.962	
11,200.00	6,931.89	6,400.00	6,369.72	73.22	24.05	-73.23	-602.59	388.54	4,898.70	4,845.17	53.54	91.500	
11,300.00	6,931.78	6,400.00	6,369.72	74.69	24.05	-73.23	-602.59	388.54	4,990.47	4,936.83	53.64	93.043	
11,400.00	6,931.68	6,400.00	6,369.72	76.16	24.05	-73.23	-602.59	388.54	5,082.55	5,028.81	53.73	94.589	
11,500.00	6,931.57	6,400.00	6,369.72	77.64	24.05	-73.23	-602.59	388.54	5,174.92	5,121.09	53.83	96.139	
11,600.00	6,931.47	6,400.00	6,369.72	79.13	24.05	-73.23	-602.59	388.54	5,267.57	5,213.65	53.92	97.692	
11,700.00	6,931.36	6,400.00	6,369.72	80.62	24.05	-73.23	-602.59	388.54	5,360.48	5,306.47	54.01	99.247	
11,800.00	6,931.26	6,400.00	6,369.72	82.11	24.05	-73.23	-602.59	388.54	5,453.65	5,399.54	54.10	100.805	
11,900.00	6,931.15	6,400.00	6,369.72	83.61	24.05	-73.23	-602.59	388.54	5,547.05	5,492.86	54.19	102.364	
12,000.00	6,931.05	6,400.00	6,369.72	85.11	24.05	-73.23	-602.59	388.54	5,640.68	5,586.40	54.28	103.926	
12,100.00	6,930.94	6,400.00	6,369.72	86.62	24.05	-73.23	-602.59	388.54	5,734.52	5,680.16	54.36	105.488	
12,200.00	6,930.84	6,400.00	6,369.72	88.13	24.05	-73.23	-602.59	388.54	5,828.57	5,774.12	54.45	107.052	
12,300.00	6,930.73	6,388.58	6,358.39	89.64	24.01	-72.91	-601.59	387.58	5,922.70	5,868.22	54.48	108.710	
12,400.00	6,930.63	6,387.86	6,357.67	91.15	24.01	-72.89	-601.53	387.53	6,017.12	5,962.56	54.56	110.281	
12,500.00	6,930.52	6,387.16	6,356.98	92.67	24.00	-72.87	-601.47	387.48	6,111.71	6,057.07	54.64	111.853	
12,600.00	6,930.42	6,375.94	6,345.82	94.19	23.96	-72.55	-600.49	386.76	6,206.56	6,151.89	54.68	113.517	
12,700.00	6,930.31	6,375.94	6,345.82	95.71	23.96	-72.55	-600.49	386.76	6,301.47	6,246.72	54.76	115.083	
12,800.00	6,930.21	6,375.94	6,345.82	97.24	23.96	-72.55	-600.49	386.76	6,396.54	6,341.70	54.84	116.649	
12,900.00	6,930.11	6,375.94	6,345.82	98.77	23.96	-72.55	-600.49	386.76	6,491.75	6,436.84	54.92	118.214	
13,008.91	6,929.99	6,375.94	6,345.82	100.43	23.96	-72.55	-600.49	386.76	6,595.61	6,540.61	55.00	119.918	
13,100.00	6,929.90	6,375.94	6,345.82	101.83	23.96	-70.60	-600.49	386.76	6,682.99	6,627.92	55.07	121.351	
13,139.82	6,929.86	6,375.94	6,345.82	102.44	23.96	-69.59	-600.49	386.76	6,721.45	6,666.35	55.10	121.981	
13,200.00	6,929.80	6,375.94	6,345.82	103.37	23.96	-69.59	-600.49	386.76	6,779.71	6,724.57	55.15	122.938	
13,300.00	6,929.70	6,375.94	6,345.82	104.92	23.96	-69.59	-600.49	386.76	6,876.59	6,821.37	55.22	124.528	
13,400.00	6,929.61	6,375.94	6,345.82	106.47	23.96	-69.59	-600.49	386.76	6,973.56	6,918.26	55.30	126.115	
13,500.00	6,929.51	6,375.94	6,345.82	108.02	23.96	-69.59	-600.49	386.76	7,070.61	7,015.24	55.37	127.700	
13,600.00	6,929.41	6,375.94	6,345.82	109.57	23.96	-69.59	-600.49	386.76	7,167.74	7,112.30	55.44	129.283	
13,700.00	6,929.32	6,375.94	6,345.82	111.12	23.96	-69.59	-600.49	386.76	7,264.95	7,209.43	55.52	130.863	
13,800.00	6,929.22	6,375.94	6,345.82	112.68	23.96	-69.59	-600.49	386.76	7,362.23	7,306.64	55.59	132.441	
13,900.00	6,929.12	6,375.94	6,345.82	114.23	23.96	-69.59	-600.49	386.76	7,459.59	7,403.93	55.66	134.017	
14,000.00	6,929.03	6,375.94	6,345.82	115.79	23.96	-69.59	-600.49	386.76	7,557.02	7,501.28	55.73	135.589	
14,100.00	6,928.93	6,375.94	6,345.82	117.35	23.96	-69.59	-600.49	386.76	7,654.51	7,598.70	55.81	137.159	
14,200.00	6,928.83	6,375.94	6,345.82	118.91	23.96	-69.59	-600.49	386.76	7,752.06	7,696.18	55.88	138.726	
14,300.00	6,928.74	6,375.94	6,345.82	120.47	23.96	-69.59	-600.49	386.76	7,849.68	7,793.73	55.95	140.290	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,400.00	6,928.64	6,375.94	6,345.82	122.03	23.96	-69.59	-600.49	386.76	7,947.36	7,891.33	56.03	141.850	
14,500.00	6,928.54	6,375.94	6,345.82	123.60	23.96	-69.59	-600.49	386.76	8,045.09	7,988.99	56.10	143.408	
14,600.00	6,928.45	6,373.61	6,343.50	125.16	23.95	-69.51	-600.29	386.63	8,142.88	8,086.71	56.16	144.985	
14,700.00	6,928.35	6,367.93	6,337.85	126.72	23.93	-69.33	-599.80	386.32	8,240.72	8,184.50	56.22	146.591	
14,800.00	6,928.25	6,362.25	6,332.20	128.29	23.91	-69.14	-599.30	386.01	8,338.60	8,282.33	56.27	148.195	
14,900.00	6,928.16	6,356.57	6,326.55	129.86	23.89	-68.96	-598.81	385.70	8,436.53	8,380.21	56.32	149.796	
15,000.00	6,928.06	6,350.88	6,320.90	131.42	23.86	-68.78	-598.31	385.39	8,534.51	8,478.13	56.37	151.394	
15,100.00	6,927.96	6,345.20	6,315.25	132.99	23.84	-68.59	-597.82	385.08	8,632.53	8,576.10	56.43	152.988	
15,200.00	6,927.87	6,339.52	6,309.60	134.56	23.82	-68.41	-597.33	384.76	8,730.59	8,674.11	56.48	154.580	
15,300.00	6,927.77	6,333.84	6,303.95	136.13	23.80	-68.23	-596.83	384.45	8,828.68	8,772.15	56.53	156.168	
15,400.00	6,927.67	6,328.16	6,298.30	137.70	23.78	-68.05	-596.34	384.14	8,926.82	8,870.24	56.59	157.754	
15,500.00	6,927.57	6,322.48	6,292.65	139.28	23.76	-67.86	-595.84	383.83	9,025.00	8,968.36	56.64	159.336	
15,600.00	6,927.48	6,316.80	6,286.99	140.85	23.73	-67.68	-595.35	383.52	9,123.21	9,066.51	56.70	160.914	
15,700.00	6,927.38	6,311.12	6,281.34	142.42	23.71	-67.50	-594.86	383.20	9,221.45	9,164.70	56.75	162.489	
15,800.00	6,927.28	6,305.44	6,275.69	144.00	23.69	-67.32	-594.36	382.89	9,319.73	9,262.93	56.81	164.061	
15,900.00	6,927.19	6,299.76	6,270.04	145.57	23.67	-67.14	-593.87	382.58	9,418.05	9,361.19	56.86	165.629	
16,000.00	6,927.09	6,294.08	6,264.39	147.15	23.65	-66.96	-593.37	382.27	9,516.39	9,459.47	56.92	167.193	
16,100.00	6,926.99	6,288.40	6,258.74	148.72	23.62	-66.78	-592.88	381.96	9,614.77	9,557.79	56.98	168.754	
16,200.00	6,926.90	6,282.71	6,253.09	150.30	23.60	-66.60	-592.39	381.64	9,713.17	9,656.14	57.03	170.311	
16,300.00	6,926.80	6,277.03	6,247.44	151.87	23.58	-66.42	-591.89	381.33	9,811.61	9,754.52	57.09	171.865	
16,400.00	6,926.70	6,271.35	6,241.79	153.45	23.56	-66.24	-591.40	381.02	9,910.07	9,852.92	57.15	173.414	
16,500.00	6,926.61	6,265.67	6,236.14	155.03	23.54	-66.06	-590.90	380.71	10,008.56	9,951.35	57.20	174.960	
16,600.00	6,926.51	6,259.99	6,230.49	156.61	23.52	-65.89	-590.41	380.40	10,107.07	10,049.81	57.26	176.502	
16,700.00	6,926.41	6,254.31	6,224.84	158.19	23.49	-65.71	-589.92	380.08	10,205.62	10,148.29	57.32	178.040	
16,800.00	6,926.32	6,248.63	6,219.19	159.77	23.47	-65.53	-589.42	379.77	10,304.18	10,246.80	57.38	179.574	
16,900.00	6,926.22	6,242.95	6,213.54	161.35	23.45	-65.35	-588.93	379.46	10,402.77	10,345.33	57.44	181.104	
17,000.00	6,926.12	6,237.27	6,207.88	162.93	23.43	-65.18	-588.43	379.15	10,501.39	10,443.89	57.50	182.631	
17,100.00	6,926.03	6,231.59	6,202.23	164.51	23.41	-65.00	-587.94	378.84	10,600.03	10,542.47	57.56	184.153	
17,200.00	6,925.93	6,225.91	6,196.58	166.09	23.38	-64.83	-587.45	378.52	10,698.69	10,641.06	57.62	185.671	
17,300.00	6,925.83	6,220.23	6,190.93	167.67	23.36	-64.65	-586.95	378.21	10,797.37	10,739.68	57.68	187.184	
17,400.00	6,925.74	6,214.54	6,185.28	169.26	23.34	-64.48	-586.46	377.90	10,896.07	10,838.33	57.74	188.694	
17,500.00	6,925.64	6,208.86	6,179.63	170.84	23.32	-64.30	-585.96	377.59	10,994.79	10,936.99	57.81	190.200	
17,600.00	6,925.54	6,203.18	6,173.98	172.42	23.30	-64.13	-585.47	377.28	11,093.54	11,035.67	57.87	191.701	
17,700.00	6,925.45	6,197.50	6,168.33	174.00	23.28	-63.95	-584.98	376.96	11,192.30	11,134.37	57.93	193.198	
17,800.00	6,925.35	6,191.82	6,162.68	175.59	23.25	-63.78	-584.48	376.65	11,291.08	11,233.08	57.99	194.691	
17,900.00	6,925.25	6,186.14	6,157.03	177.17	23.23	-63.61	-583.99	376.34	11,389.88	11,331.82	58.06	196.179	
18,000.00	6,925.16	6,180.46	6,151.38	178.76	23.21	-63.44	-583.49	376.03	11,488.70	11,430.57	58.12	197.663	
18,100.00	6,925.06	6,174.78	6,145.73	180.34	23.19	-63.26	-583.00	375.72	11,587.53	11,529.34	58.19	199.143	
18,160.21	6,925.00	6,171.36	6,142.32	181.30	23.17	-63.16	-582.70	375.53	11,647.05	11,588.83	58.23	200.032	

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - Rosa Unit 706H - OH - Prelim #5

Offset Site Error: 0.00 usft

Survey Program: 0-MWD+HRGM+MS

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	144.75	-81.92	57.88	100.30				
100.00	100.00	100.00	100.00	0.25	0.25	144.75	-81.92	57.88	100.30	99.80	0.50	199.863	
200.00	200.00	200.00	200.00	0.61	0.61	144.75	-81.92	57.88	100.30	99.08	1.22	82.296	
300.00	300.00	300.00	300.00	0.97	0.97	144.75	-81.92	57.88	100.30	98.37	1.94	51.816	
400.00	400.00	400.00	400.00	1.33	1.33	144.75	-81.92	57.88	100.30	97.65	2.65	37.812	
500.00	500.00	500.00	500.00	1.68	1.68	144.75	-81.92	57.88	100.30	96.93	3.37	29.767	CC, ES
600.00	599.98	596.71	596.69	2.04	2.02	133.72	-83.49	58.31	103.09	99.03	4.06	25.395	
700.00	699.84	692.78	692.64	2.41	2.34	136.30	-88.18	59.56	111.60	106.86	4.74	23.542	
800.00	799.45	787.59	787.11	2.77	2.66	139.77	-95.85	61.62	126.18	120.76	5.42	23.273	SF
900.00	898.70	880.55	879.43	3.13	2.99	143.41	-106.29	64.42	147.13	141.03	6.10	24.126	
1,000.00	997.47	971.12	969.00	3.50	3.32	146.71	-119.25	67.89	174.52	167.76	6.76	25.805	
1,100.00	1,095.62	1,058.81	1,055.28	3.89	3.66	149.48	-134.39	71.95	208.26	200.84	7.41	28.094	
1,200.00	1,193.44	1,147.65	1,142.23	4.29	4.01	152.03	-151.95	76.65	246.32	238.25	8.07	30.512	
1,300.00	1,291.25	1,239.47	1,232.05	4.70	4.39	153.98	-170.40	81.59	285.04	276.29	8.74	32.595	
1,400.00	1,389.07	1,331.30	1,321.87	5.11	4.77	155.46	-188.84	86.53	323.97	314.53	9.43	34.352	
1,500.00	1,486.88	1,423.12	1,411.69	5.53	5.16	156.62	-207.28	91.47	363.04	352.92	10.12	35.873	
1,600.00	1,584.70	1,514.95	1,501.51	5.95	5.55	157.56	-225.72	96.42	402.22	391.40	10.81	37.196	
1,700.00	1,682.51	1,606.78	1,591.32	6.37	5.94	158.33	-244.16	101.36	441.47	429.96	11.51	38.356	
1,800.00	1,780.33	1,698.60	1,681.14	6.80	6.34	158.98	-262.60	106.30	480.78	468.57	12.21	39.379	
1,900.00	1,878.14	1,790.43	1,770.96	7.22	6.74	159.53	-281.04	111.24	520.13	507.22	12.91	40.286	
2,000.00	1,975.96	1,882.25	1,860.78	7.65	7.14	160.00	-299.48	116.18	559.52	545.90	13.61	41.097	
2,100.00	2,073.77	1,974.08	1,950.60	8.08	7.54	160.41	-317.92	121.12	598.93	584.61	14.32	41.825	
2,200.00	2,171.59	2,065.90	2,040.42	8.51	7.95	160.77	-336.36	126.06	638.37	623.34	15.03	42.481	
2,300.00	2,269.40	2,157.73	2,130.24	8.95	8.35	161.08	-354.81	131.01	677.82	662.09	15.74	43.077	
2,400.00	2,367.22	2,249.56	2,220.06	9.38	8.76	161.37	-373.25	135.95	717.30	700.85	16.44	43.618	
2,500.00	2,465.03	2,341.38	2,309.88	9.81	9.17	161.62	-391.69	140.89	756.78	739.63	17.16	44.113	
2,600.00	2,562.84	2,433.21	2,399.70	10.25	9.58	161.85	-410.13	145.83	796.28	778.41	17.87	44.567	
2,700.00	2,660.66	2,525.03	2,489.52	10.68	9.99	162.05	-428.57	150.77	835.78	817.21	18.58	44.984	
2,800.00	2,758.47	2,616.86	2,579.33	11.12	10.39	162.24	-447.01	155.71	875.30	856.01	19.29	45.370	
2,900.00	2,856.29	2,708.68	2,669.15	11.55	10.80	162.41	-465.45	160.65	914.82	894.81	20.01	45.726	
3,000.00	2,954.10	2,800.51	2,758.97	11.99	11.22	162.57	-483.89	165.59	954.35	933.63	20.72	46.057	
3,100.00	3,051.92	2,892.34	2,848.79	12.42	11.63	162.71	-502.33	170.54	993.88	972.45	21.44	46.365	
3,200.00	3,149.73	2,984.16	2,938.61	12.86	12.04	162.85	-520.78	175.48	1,033.42	1,011.27	22.15	46.652	
3,300.00	3,247.55	3,075.99	3,028.43	13.30	12.45	162.97	-539.22	180.42	1,072.97	1,050.10	22.87	46.920	
3,400.00	3,345.36	3,167.81	3,118.25	13.73	12.86	163.09	-557.66	185.36	1,112.51	1,088.93	23.58	47.171	
3,500.00	3,443.18	3,259.64	3,208.07	14.17	13.27	163.19	-576.10	190.30	1,152.06	1,127.76	24.30	47.407	
3,600.00	3,540.99	3,351.46	3,297.89	14.61	13.69	163.30	-594.54	195.24	1,191.62	1,166.60	25.02	47.629	
3,700.00	3,638.81	3,443.29	3,387.71	15.05	14.10	163.39	-612.98	200.18	1,231.17	1,205.44	25.74	47.837	
3,800.00	3,736.62	3,535.12	3,477.53	15.48	14.51	163.48	-631.42	205.12	1,270.73	1,244.28	26.45	48.034	
3,900.00	3,834.44	3,626.94	3,567.34	15.92	14.92	163.56	-649.86	210.07	1,310.29	1,283.12	27.17	48.219	
4,000.00	3,932.25	3,718.77	3,657.16	16.36	15.34	163.64	-668.30	215.01	1,349.86	1,321.97	27.89	48.395	
4,100.00	4,030.07	3,810.59	3,746.98	16.80	15.75	163.71	-686.75	219.95	1,389.42	1,360.81	28.61	48.561	
4,200.00	4,127.88	3,902.42	3,836.80	17.24	16.16	163.78	-705.19	224.89	1,428.99	1,399.66	29.33	48.719	
4,300.00	4,225.70	3,994.24	3,926.62	17.68	16.58	163.84	-723.63	229.83	1,468.56	1,438.51	30.05	48.869	
4,400.00	4,323.51	4,086.07	4,016.44	18.11	16.99	163.91	-742.07	234.77	1,508.13	1,477.36	30.77	49.011	
4,500.00	4,421.33	4,177.90	4,106.26	18.55	17.40	163.97	-760.51	239.71	1,547.70	1,516.21	31.49	49.147	
4,600.00	4,519.14	4,269.72	4,196.08	18.99	17.82	164.02	-778.95	244.66	1,587.28	1,555.07	32.21	49.276	
4,700.00	4,616.95	4,361.55	4,285.90	19.43	18.23	164.08	-797.39	249.60	1,626.85	1,593.92	32.93	49.398	
4,800.00	4,714.77	4,453.37	4,375.72	19.87	18.65	164.13	-815.83	254.54	1,666.43	1,632.77	33.65	49.516	
4,900.00	4,812.58	4,545.20	4,465.54	20.31	19.06	164.17	-834.27	259.48	1,706.01	1,671.63	34.38	49.628	
5,000.00	4,910.40	4,637.02	4,555.35	20.75	19.48	164.22	-852.72	264.42	1,745.58	1,710.49	35.10	49.735	
5,100.00	5,008.21	4,728.85	4,645.17	21.19	19.89	164.26	-871.16	269.36	1,785.16	1,749.34	35.82	49.837	

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 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - Rosa Unit 706H - OH - Prelim #5

Offset Site Error: 0.00 usft

Survey Program: 0-MWD+HRGM+MS

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,200.00	5,106.03	4,820.68	4,734.99	21.63	20.30	164.31	-889.60	274.30	1,824.74	1,788.20	36.54	49.936	
5,300.00	5,203.84	4,912.50	4,824.81	22.06	20.72	164.35	-908.04	279.24	1,864.32	1,827.06	37.26	50.030	
5,400.00	5,301.66	5,004.33	4,914.63	22.50	21.13	164.39	-926.48	284.19	1,903.90	1,865.92	37.99	50.120	
5,500.00	5,399.47	5,096.15	5,004.45	22.94	21.55	164.42	-944.92	289.13	1,943.49	1,904.78	38.71	50.206	
5,600.00	5,497.29	5,187.98	5,094.27	23.38	21.96	164.46	-963.36	294.07	1,983.07	1,943.63	39.43	50.289	
5,700.00	5,595.10	5,279.80	5,184.09	23.82	22.38	164.49	-981.80	299.01	2,022.65	1,982.49	40.16	50.369	
5,800.00	5,692.92	5,371.63	5,273.91	24.26	22.79	164.53	-1,000.24	303.95	2,062.23	2,021.35	40.88	50.446	
5,900.00	5,790.73	5,463.45	5,363.73	24.70	23.21	164.56	-1,018.69	308.89	2,101.82	2,060.21	41.60	50.519	
6,000.00	5,888.55	5,555.28	5,453.55	25.14	23.62	164.59	-1,037.13	313.83	2,141.40	2,099.08	42.33	50.590	
6,100.00	5,986.36	5,647.11	5,543.36	25.58	24.04	164.62	-1,055.57	318.78	2,180.99	2,137.94	43.05	50.659	
6,200.00	6,084.18	5,738.93	5,633.18	26.02	24.45	164.65	-1,074.01	323.72	2,220.58	2,176.80	43.78	50.724	
6,300.00	6,181.99	5,830.76	5,723.00	26.46	24.87	164.67	-1,092.45	328.66	2,260.16	2,215.66	44.50	50.788	
6,401.22	6,281.00	5,923.70	5,813.92	26.90	25.29	164.70	-1,111.12	333.66	2,300.23	2,255.00	45.24	50.850	
6,450.00	6,328.76	5,968.45	5,857.69	27.12	25.49	-172.47	-1,120.10	336.07	2,319.57	2,273.99	45.59	50.883	
6,500.00	6,377.61	6,014.04	5,902.28	27.32	25.70	-151.03	-1,129.26	338.52	2,339.38	2,293.45	45.94	50.928	
6,550.00	6,426.06	6,059.07	5,946.33	27.52	25.90	-134.77	-1,138.30	340.94	2,359.09	2,312.82	46.27	50.982	
6,600.00	6,473.81	6,103.26	5,989.55	27.71	26.10	-123.21	-1,147.18	343.32	2,378.62	2,332.02	46.60	51.045	
6,650.00	6,520.56	6,146.35	6,031.69	27.89	26.29	-114.90	-1,155.83	345.64	2,397.90	2,350.99	46.91	51.119	
6,700.00	6,566.03	6,188.05	6,072.49	28.05	26.48	-108.72	-1,164.20	347.88	2,416.89	2,369.69	47.20	51.202	
6,750.00	6,609.93	6,228.13	6,111.69	28.20	26.66	-103.93	-1,172.25	350.04	2,435.56	2,388.08	47.48	51.295	
6,800.00	6,652.00	6,266.32	6,149.05	28.34	26.84	-100.10	-1,179.92	352.10	2,453.89	2,406.14	47.74	51.397	
6,850.00	6,691.98	6,302.40	6,184.34	28.47	27.00	-96.94	-1,187.17	354.04	2,471.86	2,423.87	47.99	51.510	
6,900.00	6,729.61	6,336.15	6,217.35	28.59	27.15	-94.28	-1,193.95	355.85	2,489.48	2,441.26	48.22	51.633	
6,950.00	6,764.67	6,367.35	6,247.86	28.69	27.29	-91.98	-1,200.21	357.53	2,506.73	2,458.31	48.42	51.765	
7,000.00	6,796.95	6,395.81	6,275.70	28.79	27.42	-89.96	-1,205.93	359.06	2,523.63	2,475.01	48.62	51.907	
7,050.00	6,826.23	6,421.35	6,300.69	28.89	27.54	-88.14	-1,211.06	360.44	2,540.16	2,491.36	48.79	52.058	
7,100.00	6,852.35	6,443.83	6,322.68	28.98	27.64	-86.48	-1,215.57	361.65	2,556.32	2,507.37	48.95	52.218	
7,150.00	6,875.14	6,463.09	6,341.52	29.08	27.73	-84.94	-1,219.44	362.69	2,572.11	2,523.01	49.10	52.386	
7,200.00	6,894.45	6,479.03	6,357.11	29.18	27.80	-83.50	-1,222.64	363.54	2,587.51	2,538.28	49.23	52.561	
7,250.00	6,910.18	6,491.55	6,369.35	29.28	27.85	-82.12	-1,225.15	364.22	2,602.49	2,553.15	49.34	52.744	
7,300.00	6,922.23	6,500.55	6,378.16	29.40	27.90	-80.82	-1,226.96	364.70	2,617.02	2,567.58	49.44	52.933	
7,350.00	6,930.51	6,506.00	6,383.49	29.54	27.92	-79.56	-1,228.06	364.99	2,631.05	2,581.52	49.52	53.128	
7,400.00	6,934.98	6,507.86	6,385.31	29.70	27.93	-78.36	-1,228.43	365.09	2,644.52	2,594.93	49.59	53.328	
7,433.91	6,935.83	6,507.07	6,384.53	29.81	27.92	-77.58	-1,228.27	365.05	2,653.31	2,603.69	49.62	53.467	
7,500.00	6,935.76	6,503.91	6,381.44	30.07	27.91	-77.51	-1,227.64	364.88	2,670.91	2,621.21	49.70	53.740	
7,600.00	6,935.66	6,499.13	6,376.77	30.52	27.89	-77.40	-1,226.68	364.62	2,700.40	2,650.54	49.86	54.163	
7,700.00	6,935.55	6,494.35	6,372.09	31.06	27.87	-77.29	-1,225.72	364.37	2,733.22	2,683.16	50.06	54.604	
7,800.00	6,935.45	6,489.57	6,367.42	31.68	27.85	-77.19	-1,224.76	364.11	2,769.26	2,718.97	50.29	55.065	
7,900.00	6,935.34	6,484.79	6,362.74	32.37	27.82	-77.08	-1,223.80	363.85	2,808.38	2,757.83	50.56	55.549	
8,000.00	6,935.24	6,480.01	6,358.07	33.12	27.80	-76.97	-1,222.84	363.60	2,850.48	2,799.63	50.85	56.058	
8,100.00	6,935.13	6,475.23	6,353.39	33.93	27.78	-76.87	-1,221.88	363.34	2,895.40	2,844.24	51.16	56.593	
8,200.00	6,935.03	6,470.45	6,348.72	34.80	27.76	-76.76	-1,220.92	363.08	2,943.04	2,891.55	51.49	57.156	
8,300.00	6,934.92	6,465.67	6,344.04	35.71	27.74	-76.65	-1,219.96	362.82	2,993.25	2,941.42	51.83	57.750	
8,400.00	6,934.82	6,460.89	6,339.37	36.67	27.72	-76.55	-1,219.00	362.57	3,045.91	2,993.73	52.18	58.373	
8,500.00	6,934.71	6,456.11	6,334.69	37.68	27.69	-76.44	-1,218.04	362.31	3,100.89	3,048.36	52.53	59.028	
8,600.00	6,934.61	6,451.33	6,330.02	38.72	27.67	-76.33	-1,217.08	362.05	3,158.07	3,105.19	52.89	59.714	
8,700.00	6,934.50	6,446.56	6,325.34	39.80	27.65	-76.23	-1,216.12	361.80	3,217.34	3,164.10	53.24	60.432	
8,800.00	6,934.40	6,441.78	6,320.67	40.92	27.63	-76.12	-1,215.16	361.54	3,278.59	3,225.00	53.59	61.181	
8,900.00	6,934.29	6,437.00	6,315.99	42.06	27.61	-76.01	-1,214.20	361.28	3,341.69	3,287.76	53.93	61.961	
9,000.00	6,934.19	6,432.22	6,311.32	43.23	27.59	-75.91	-1,213.24	361.02	3,406.56	3,352.29	54.27	62.770	
9,100.00	6,934.08	6,427.44	6,306.64	44.43	27.56	-75.80	-1,212.28	360.77	3,473.09	3,418.49	54.60	63.609	
9,200.00	6,933.98	6,422.66	6,301.97	45.66	27.54	-75.69	-1,211.32	360.51	3,541.19	3,486.26	54.92	64.476	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - Rosa Unit 706H - OH - Prelim #5

Offset Site Error: 0.00 usft

Survey Program: 0-MWD+HRGM+MS

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,300.00	6,933.88	6,417.88	6,297.29	46.90	27.52	-75.59	-1,210.36	360.25	3,610.76	3,555.53	55.24	65.371	
9,400.00	6,933.77	6,413.10	6,292.62	48.17	27.50	-75.48	-1,209.40	359.99	3,681.73	3,626.19	55.54	66.291	
9,500.00	6,933.67	6,408.32	6,287.94	49.46	27.48	-75.38	-1,208.44	359.74	3,754.02	3,698.19	55.83	67.237	
9,600.00	6,933.56	6,403.54	6,283.27	50.76	27.46	-75.27	-1,207.48	359.48	3,827.55	3,771.43	56.12	68.207	
9,700.00	6,933.46	6,398.76	6,278.59	52.08	27.43	-75.16	-1,206.52	359.22	3,902.25	3,845.86	56.39	69.200	
9,800.00	6,933.35	6,393.98	6,273.92	53.41	27.41	-75.06	-1,205.56	358.97	3,978.05	3,921.40	56.66	70.215	
9,900.00	6,933.25	6,389.20	6,269.24	54.76	27.39	-74.95	-1,204.60	358.71	4,054.90	3,997.99	56.91	71.251	
10,000.00	6,933.14	6,384.42	6,264.57	56.12	27.37	-74.84	-1,203.64	358.45	4,132.74	4,075.58	57.16	72.307	
10,100.00	6,933.04	6,379.64	6,259.89	57.50	27.35	-74.74	-1,202.68	358.19	4,211.50	4,154.11	57.39	73.382	
10,200.00	6,932.93	6,374.86	6,255.22	58.88	27.33	-74.63	-1,201.72	357.94	4,291.15	4,233.53	57.62	74.474	
10,300.00	6,932.83	6,370.08	6,250.54	60.28	27.31	-74.53	-1,200.76	357.68	4,371.62	4,313.79	57.84	75.584	
10,400.00	6,932.72	6,365.30	6,245.87	61.69	27.28	-74.42	-1,199.80	357.42	4,452.89	4,394.84	58.05	76.710	
10,500.00	6,932.62	6,360.53	6,241.19	63.10	27.26	-74.31	-1,198.84	357.17	4,534.89	4,476.64	58.25	77.851	
10,600.00	6,932.51	6,355.75	6,236.52	64.52	27.24	-74.21	-1,197.88	356.91	4,617.60	4,559.16	58.45	79.006	
10,700.00	6,932.41	6,350.97	6,231.84	65.96	27.22	-74.10	-1,196.92	356.65	4,700.98	4,642.35	58.63	80.175	
10,800.00	6,932.30	6,346.19	6,227.17	67.39	27.20	-74.00	-1,195.96	356.39	4,784.99	4,726.18	58.81	81.357	
10,900.00	6,932.20	6,341.41	6,222.49	68.84	27.18	-73.89	-1,195.00	356.14	4,869.60	4,810.61	58.99	82.552	
11,000.00	6,932.10	6,336.63	6,217.82	70.29	27.15	-73.78	-1,194.04	355.88	4,954.78	4,895.62	59.16	83.758	
11,100.00	6,931.99	6,331.85	6,213.14	71.75	27.13	-73.68	-1,193.08	355.62	5,040.50	4,981.18	59.32	84.974	
11,200.00	6,931.89	6,327.07	6,208.47	73.22	27.11	-73.57	-1,192.12	355.37	5,126.73	5,067.25	59.47	86.201	
11,300.00	6,931.78	6,322.29	6,203.79	74.69	27.09	-73.47	-1,191.16	355.11	5,213.45	5,153.82	59.62	87.438	
11,400.00	6,931.68	6,317.51	6,199.12	76.16	27.07	-73.36	-1,190.20	354.85	5,300.63	5,240.86	59.77	88.684	
11,500.00	6,931.57	6,312.73	6,194.44	77.64	27.05	-73.25	-1,189.24	354.59	5,388.25	5,328.34	59.91	89.939	
11,600.00	6,931.47	6,307.95	6,189.77	79.13	27.02	-73.15	-1,188.28	354.34	5,476.30	5,416.25	60.05	91.202	
11,700.00	6,931.36	6,303.17	6,185.09	80.62	27.00	-73.04	-1,187.32	354.08	5,564.74	5,504.56	60.18	92.473	
11,800.00	6,931.26	6,298.39	6,180.42	82.11	26.98	-72.94	-1,186.36	353.82	5,653.56	5,593.26	60.30	93.751	
11,900.00	6,931.15	6,293.61	6,175.74	83.61	26.96	-72.83	-1,185.40	353.56	5,742.75	5,682.32	60.43	95.036	
12,000.00	6,931.05	6,288.83	6,171.07	85.11	26.94	-72.73	-1,184.44	353.31	5,832.29	5,771.74	60.55	96.327	
12,100.00	6,930.94	6,284.05	6,166.39	86.62	26.92	-72.62	-1,183.48	353.05	5,922.15	5,861.49	60.66	97.624	
12,200.00	6,930.84	6,279.27	6,161.72	88.13	26.89	-72.51	-1,182.52	352.79	6,012.33	5,951.56	60.78	98.928	
12,300.00	6,930.73	6,274.49	6,157.04	89.64	26.87	-72.41	-1,181.56	352.54	6,102.82	6,041.93	60.88	100.236	
12,400.00	6,930.63	6,269.72	6,152.37	91.15	26.85	-72.30	-1,180.60	352.28	6,193.59	6,132.60	60.99	101.550	
12,500.00	6,930.52	6,264.94	6,147.69	92.67	26.83	-72.20	-1,179.64	352.02	6,284.64	6,223.55	61.09	102.868	
12,600.00	6,930.42	6,260.16	6,143.02	94.19	26.81	-72.09	-1,178.68	351.76	6,375.96	6,314.76	61.19	104.191	
12,700.00	6,930.31	6,255.38	6,138.34	95.71	26.79	-71.99	-1,177.72	351.51	6,467.52	6,406.23	61.29	105.518	
12,800.00	6,930.21	6,250.60	6,133.67	97.24	26.76	-71.88	-1,176.76	351.25	6,559.33	6,497.95	61.39	106.849	
12,900.00	6,930.11	6,245.82	6,128.99	98.77	26.74	-71.78	-1,175.81	350.99	6,651.38	6,589.89	61.48	108.183	
13,008.91	6,929.99	6,240.61	6,123.90	100.43	26.72	-71.66	-1,174.76	350.71	6,751.87	6,690.29	61.58	109.640	
13,100.00	6,929.90	6,235.97	6,119.36	101.83	26.70	-70.04	-1,173.83	350.46	6,836.63	6,774.97	61.66	110.876	
13,139.82	6,929.86	6,233.76	6,117.20	102.44	26.69	-69.23	-1,173.38	350.34	6,874.03	6,812.34	61.69	111.425	
13,200.00	6,929.80	6,230.33	6,113.84	103.37	26.67	-69.15	-1,172.70	350.16	6,930.74	6,869.00	61.74	112.261	
13,300.00	6,929.70	6,224.64	6,108.28	104.92	26.65	-69.01	-1,171.55	349.85	7,025.10	6,963.29	61.81	113.653	
13,400.00	6,929.61	6,218.95	6,102.71	106.47	26.62	-68.87	-1,170.41	349.55	7,119.61	7,057.72	61.88	115.046	
13,500.00	6,929.51	6,213.25	6,097.14	108.02	26.60	-68.73	-1,169.27	349.24	7,214.26	7,152.30	61.96	116.441	
13,600.00	6,929.41	6,207.56	6,091.57	109.57	26.57	-68.60	-1,168.12	348.93	7,309.05	7,247.02	62.03	117.838	
13,700.00	6,929.32	6,201.87	6,086.01	111.12	26.54	-68.46	-1,166.98	348.63	7,403.97	7,341.87	62.10	119.235	
13,800.00	6,929.22	6,196.18	6,080.44	112.68	26.52	-68.32	-1,165.84	348.32	7,499.02	7,436.85	62.16	120.634	
13,900.00	6,929.12	6,190.49	6,074.87	114.23	26.49	-68.18	-1,164.69	348.02	7,594.19	7,531.96	62.23	122.034	
14,000.00	6,929.03	6,184.79	6,069.30	115.79	26.47	-68.04	-1,163.55	347.71	7,689.48	7,627.18	62.30	123.435	
14,100.00	6,928.93	6,179.10	6,063.73	117.35	26.44	-67.90	-1,162.41	347.40	7,784.88	7,722.52	62.36	124.836	
14,200.00	6,928.83	6,173.41	6,058.17	118.91	26.42	-67.77	-1,161.26	347.10	7,880.39	7,817.97	62.43	126.238	
14,300.00	6,928.74	6,167.72	6,052.60	120.47	26.39	-67.63	-1,160.12	346.79	7,976.01	7,913.53	62.49	127.640	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**Offset TVD Reference:**	Offset Datum

Offset Design: Rosa Unit 24 - Rosa Unit 706H - OH - Prelim #5

Offset Site Error: 0.00 usft

Survey Program: 0-MWD+HRGM+MS

Rule Assigned:

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,400.00	6,928.64	6,162.02	6,047.03	122.03	26.36	-67.49	-1,158.98	346.48	8,071.74	8,009.19	62.55	129.042	
14,500.00	6,928.54	6,156.33	6,041.46	123.60	26.34	-67.35	-1,157.83	346.18	8,167.56	8,104.94	62.61	130.445	
14,600.00	6,928.45	6,150.64	6,035.89	125.16	26.31	-67.21	-1,156.69	345.87	8,263.47	8,200.80	62.67	131.848	
14,700.00	6,928.35	6,144.95	6,030.33	126.72	26.29	-67.08	-1,155.55	345.56	8,359.48	8,296.75	62.73	133.251	
14,800.00	6,928.25	6,139.26	6,024.76	128.29	26.26	-66.94	-1,154.40	345.26	8,455.58	8,392.78	62.80	134.654	
14,900.00	6,928.16	6,133.56	6,019.19	129.86	26.24	-66.80	-1,153.26	344.95	8,551.76	8,488.90	62.85	136.056	
15,000.00	6,928.06	6,127.87	6,013.62	131.42	26.21	-66.67	-1,152.12	344.65	8,648.02	8,585.11	62.91	137.458	
15,100.00	6,927.96	6,122.18	6,008.06	132.99	26.18	-66.53	-1,150.98	344.34	8,744.37	8,681.40	62.97	138.860	
15,200.00	6,927.87	6,116.49	6,002.49	134.56	26.16	-66.39	-1,149.83	344.03	8,840.79	8,777.76	63.03	140.261	
15,300.00	6,927.77	6,110.79	5,996.92	136.13	26.13	-66.26	-1,148.69	343.73	8,937.29	8,874.20	63.09	141.662	
15,400.00	6,927.67	6,105.10	5,991.35	137.70	26.11	-66.12	-1,147.55	343.42	9,033.86	8,970.71	63.15	143.062	
15,500.00	6,927.57	6,099.41	5,985.78	139.28	26.08	-65.98	-1,146.40	343.11	9,130.50	9,067.29	63.20	144.461	
15,600.00	6,927.48	6,093.72	5,980.22	140.85	26.06	-65.85	-1,145.26	342.81	9,227.21	9,163.95	63.26	145.859	
15,700.00	6,927.38	6,088.03	5,974.65	142.42	26.03	-65.71	-1,144.12	342.50	9,323.98	9,260.66	63.32	147.256	
15,800.00	6,927.28	6,082.33	5,969.08	144.00	26.00	-65.58	-1,142.97	342.20	9,420.82	9,357.44	63.37	148.653	
15,900.00	6,927.19	6,076.64	5,963.51	145.57	25.98	-65.44	-1,141.83	341.89	9,517.72	9,454.29	63.43	150.048	
16,000.00	6,927.09	6,070.95	5,957.95	147.15	25.95	-65.30	-1,140.69	341.58	9,614.68	9,551.19	63.49	151.442	
16,100.00	6,926.99	6,065.26	5,952.38	148.72	25.93	-65.17	-1,139.54	341.28	9,711.70	9,648.15	63.54	152.835	
16,200.00	6,926.90	6,059.56	5,946.81	150.30	25.90	-65.03	-1,138.40	340.97	9,808.77	9,745.17	63.60	154.227	
16,300.00	6,926.80	6,053.87	5,941.24	151.87	25.88	-64.90	-1,137.26	340.66	9,905.90	9,842.25	63.66	155.617	
16,400.00	6,926.70	6,048.18	5,935.67	153.45	25.85	-64.76	-1,136.11	340.36	10,003.09	9,939.38	63.71	157.006	
16,500.00	6,926.61	6,042.49	5,930.11	155.03	25.82	-64.63	-1,134.97	340.05	10,100.32	10,036.56	63.77	158.394	
16,600.00	6,926.51	6,036.80	5,924.54	156.61	25.80	-64.49	-1,133.83	339.75	10,197.61	10,133.78	63.82	159.779	
16,700.00	6,926.41	6,031.10	5,918.97	158.19	25.77	-64.36	-1,132.68	339.44	10,294.94	10,231.06	63.88	161.164	
16,800.00	6,926.32	6,025.41	5,913.40	159.77	25.75	-64.23	-1,131.54	339.13	10,392.32	10,328.39	63.93	162.546	
16,900.00	6,926.22	6,019.72	5,907.83	161.35	25.72	-64.09	-1,130.40	338.83	10,489.75	10,425.76	63.99	163.927	
17,000.00	6,926.12	6,014.03	5,902.27	162.93	25.70	-63.96	-1,129.26	338.52	10,587.23	10,523.18	64.05	165.306	
17,100.00	6,926.03	6,008.33	5,896.70	164.51	25.67	-63.82	-1,128.11	338.21	10,684.74	10,620.64	64.10	166.684	
17,200.00	6,925.93	6,002.64	5,891.13	166.09	25.64	-63.69	-1,126.97	337.91	10,782.30	10,718.14	64.16	168.059	
17,300.00	6,925.83	5,996.95	5,885.56	167.67	25.62	-63.56	-1,125.83	337.60	10,879.90	10,815.69	64.21	169.433	
17,400.00	6,925.74	5,991.26	5,880.00	169.26	25.59	-63.42	-1,124.68	337.29	10,977.54	10,913.27	64.27	170.804	
17,500.00	6,925.64	5,985.57	5,874.43	170.84	25.57	-63.29	-1,123.54	336.99	11,075.22	11,010.90	64.33	172.174	
17,600.00	6,925.54	5,979.87	5,868.86	172.42	25.54	-63.16	-1,122.40	336.68	11,172.94	11,108.56	64.38	173.541	
17,700.00	6,925.45	5,974.18	5,863.29	174.00	25.52	-63.02	-1,121.25	336.38	11,270.70	11,206.26	64.44	174.907	
17,800.00	6,925.35	5,968.49	5,857.72	175.59	25.49	-62.89	-1,120.11	336.07	11,368.49	11,303.99	64.49	176.270	
17,900.00	6,925.25	5,962.80	5,852.16	177.17	25.46	-62.76	-1,118.97	335.76	11,466.31	11,401.76	64.55	177.631	
18,000.00	6,925.16	5,957.10	5,846.59	178.76	25.44	-62.63	-1,117.82	335.46	11,564.18	11,499.57	64.61	178.990	
18,100.00	6,925.06	5,951.41	5,841.02	180.34	25.41	-62.50	-1,116.68	335.15	11,662.07	11,597.41	64.66	180.347	
18,160.21	6,925.00	5,947.98	5,837.67	181.30	25.40	-62.42	-1,115.99	334.97	11,721.03	11,656.33	64.70	181.162	

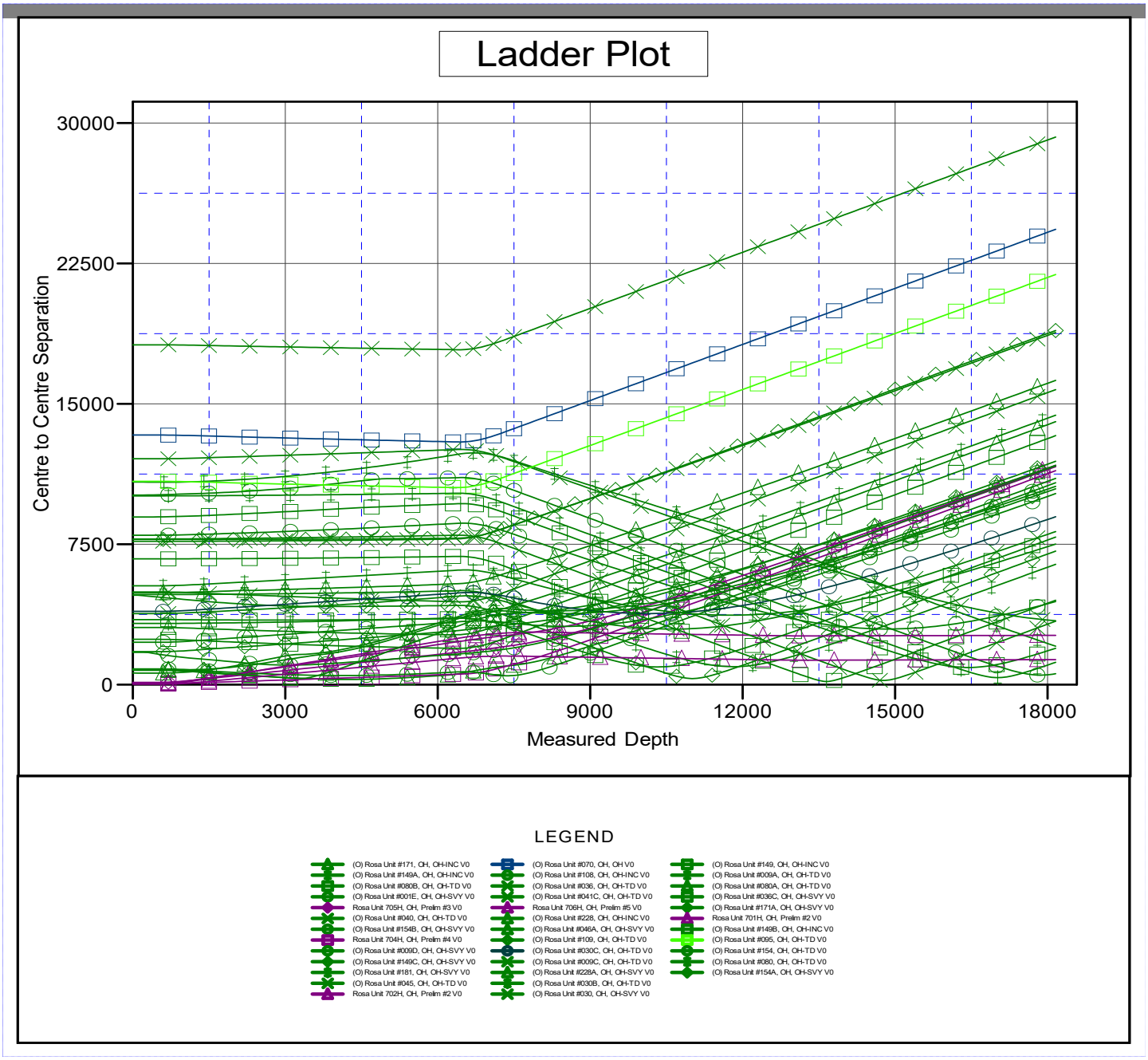
SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**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 700H
Coordinate System is US State Plane 1983, New Mexico Western Zone
Grid Convergence at Surface is: 0.26°



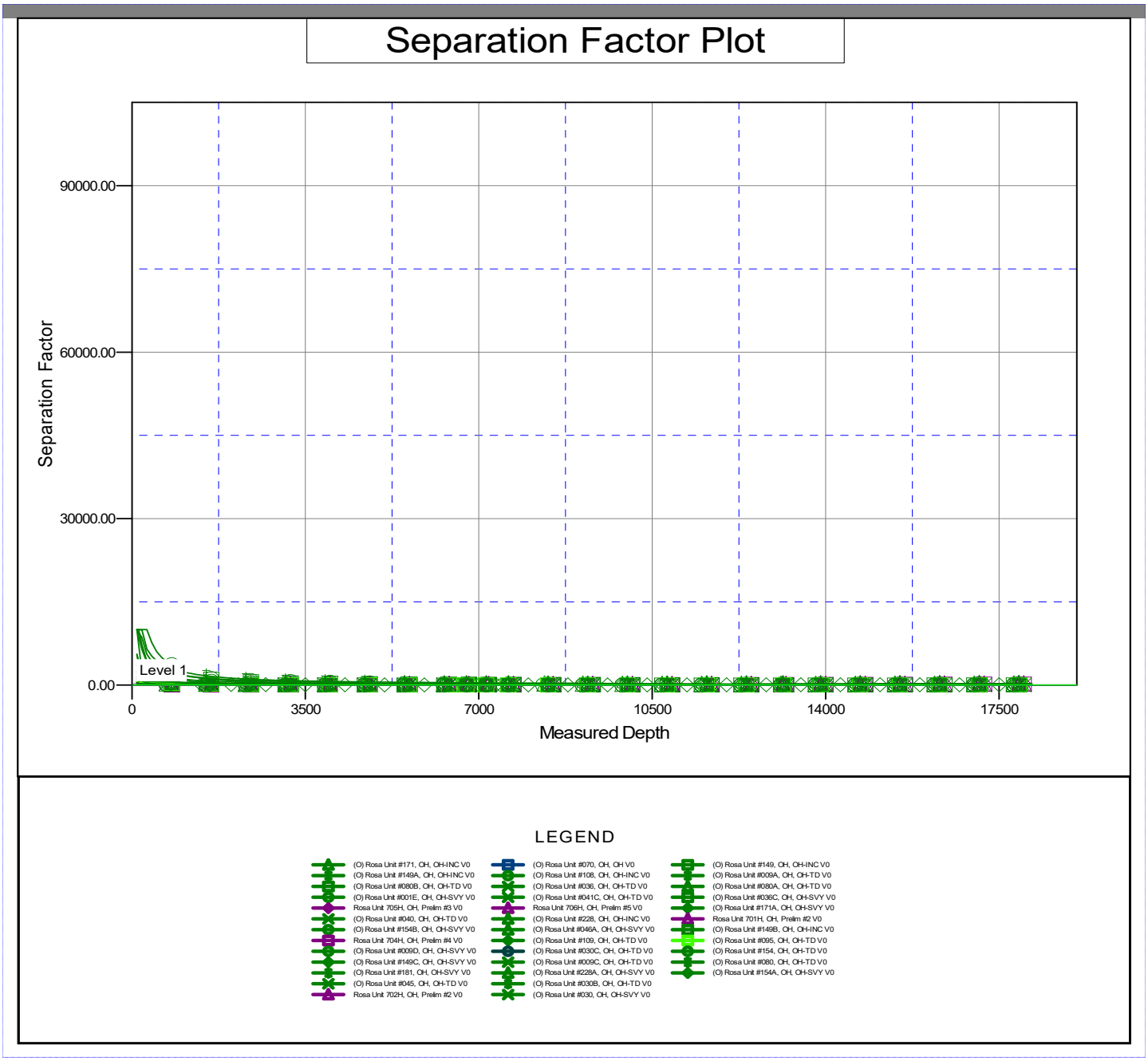
CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

SDT

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 700H
Project:	Rio Arriba, NM (NAD83)	**TVD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Reference Site:	Rosa Unit 24	**MD Reference:**	6295+30 @ 6325.00usft (H&P 530)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 700H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000 Multi User Db
Reference Design:	Prelim 7	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to 6295+30 @ 6325.00usft (H&P 530)	Coordinates are relative to: Rosa Unit 700H
Offset Depths are relative to Offset Datum	Coordinate System is US State Plane 1983, New Mexico Western Zone
Central Meridian is -107.833334	Grid Convergence at Surface is: 0.26°



District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
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

Operator: LOGOS OPERATING, LLC 2010 Afton Place Farmington, NM 87401	OGRID: 289408
	Action Number: 322802
	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