AFMSS

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

# Sundry Print Report

05/03/2024



**Well Name:** ROSA UNIT

**Well Location:** T31N / R5W / SEC 33 / NWSW / 36.856086 / -107.373408

**County or Parish/State:** RIO ARRIBA / NM

**Well Number:** 750H

**Type of Well:** CONVENTIONAL GAS WELL

**Allottee or Tribe Name:**

**Lease Number:** NMSF078773

**Unit or CA Name:**

**Unit or CA Number:** NMNM078407E

**US Well Number:** 3003931461

**Operator:** LOGOS OPERATING LLC

## Notice of Intent

**Sundry ID:** 2787434

**Type of Submission:** Notice of Intent

**Type of Action:** Other

**Date Sundry Submitted:** 04/29/2024

**Time Sundry Submitted:** 02:38

**Date proposed operation will begin:** 04/29/2024

**Procedure Description:** LOGOS Operating request a change in plans for the following (based on KB elevation): Original surface-hole location from 2627' FSL & 951' FWL to new surface-hole location 2586' FNL & 949' FWL Original bottom-hole location from 2243' FSL & 158' FWL to new bottom-hole location 2303' FSL & 158' FWL Original TD @ 16,592' (MD) 7,069' (TVD) to new TD @ 16,632' (MD) 7,072' (TVD). Geology tops have been updated per changes. Original KOP @ 6,560' MD 6,544' TVD to new KOP @ 6,494' MD 6,480' TVD Original Landing point @ 7,445' MD 7,099' TVD to new Landing point @ 7,485' MD 7,104' TVD Original 13.375" Surface casing @ 320' MD to new 20" Surface casing @ 350' MD Original 9,625" casing Intermediate @ 6,305' MD to new 9.625" Intermediate casing @ 6,378' MD Original 5.5" casing Production casing @ 16,592' MD to new 5.5" Production casing @ 16,632' MD All cementing bbls and sacks have been updated per casing depth changes. Attached: New C102, Operation and Directional Drill plans.

## Surface Disturbance

**Is any additional surface disturbance proposed?:** No

## NOI Attachments

**Procedure Description**

3160_005_Rosa_Unit_750H_Change_in_Plan_6__20240429_20240429143726.pdf

CONFIDENTIAL

Well Name: ROSA UNIT

**Well Location:** T31N / R5W / SEC 33 / NWSW / 36.856086 / -107.373408

**County or Parish/State:** RIO ARRIBA / NM

**Well Number:** 750H

**Type of Well:** CONVENTIONAL GAS WELL

**Allottee or Tribe Name:**

**Lease Number:** NMSF078773

**Unit or CA Name:**

**Unit or CA Number:** NMNM078407E

**US Well Number:** 3003931461

**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:** APR 29, 2024 02:38 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:** DAVE J MANKIEWICZ

**BLM POC Title:** AFM-Minerals

**BLM POC Phone:** 5055647761

**BLM POC Email Address:** DMANKIEW@BLM.GOV

**Disposition:** Approved

**Disposition Date:** 05/02/2024

**Signature:** Dave J Mankiewicz

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.: NMSF078773

6. If Indian, Allottee or Tribe Name:

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

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

8. Well Name and No.: ROSA UNIT 750H

2. Name of Operator: LOGOS OPERATING, LLC

9. API Well No.: 30-039-31461

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

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

10. Field and Pool or Exploratory Area: BASIN MANCOS

4. Location of Well *(Footage, Sec., T.,R.,M., or Survey Description)*: UNIT E SEC 33 T31N 5W 2586' FNL 949' FWL

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

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

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

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

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

Original surface-hole location from 2627' FSL & 951' FWL to **new surface-hole location 2586' FNL & 949' FWL**
Original bottom-hole location from 2243' FSL & 158' FWL to **new bottom-hole location 2303' FSL & 158' FWL**
Original TD @ 16,592' (MD) 7,069' (TVD) to **new TD @ 16,632' (MD) 7,072' (TVD)**.

Geology tops have been updated per changes.
Original KOP @ 6,560' MD 6,544' TVD to **new KOP @ 6,494' MD 6,480' TVD**
Original Landing point @ 7,445' MD 7,099' TVD to **new Landing point @ 7,485' MD 7,104' TVD**

Original 13.375" Surface casing @ 320' MD to **new 20" Surface casing @ 350' MD**
Original 9,625" casing Intermediate @ 6,305' MD to **new 9.625" Intermediate casing @ 6,378' MD**
Original 5.5" casing Production casing @ 16,592' MD to **new 5.5" Production casing @ 16,632' MD**

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

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

Title: Regulatory Specialist

Signature: Etta Trujillo

Date: 4/29/2024

**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: 5/3/2024 9:43:29 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 |
|---|---|---|
| 30-039-31461 | 97232 | BASIN MANCOS |

| [4] Property Code | [5] Property Name | [6] Well Number |
|---|---|---|
| 320608 | ROSA UNIT | 750H |

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

### [10] Surface Location

| UL or lot no. | Section | Township | Range | Lot Idn | Feet from the | North/South line | Feet from the | East/West line | County |
|---|---|---|---|---|---|---|---|---|---|
| E | 33 | 31N | 5W | | 2586 | NORTH | 949 | WEST | RIO ARRIBA |

### [11] Bottom Hole Location If Different From Surface

| UL or lot no. | Section | Township | Range | Lot Idn | Feet from the | North/South line | Feet from the | East/West line | County |
|---|---|---|---|---|---|---|---|---|---|
| K | 31 | 31N | 5W | 3 | 2303 | SOUTH | 158 | WEST | RIO ARRIBA |

| [12] Dedicated Acres | | [13] Joint or Infill | [14] Consolidation Code | [15] Order No. |
|---|---|---|---|---|
| 872.99 | S/2 - Sections 31, 32, 33 | | | 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 — 4/29/2024
Signature — Date

Etta Trujillo
Printed Name

etrujillo@logosresourcesllc.com
E-mail Address

### [18] SURVEYOR CERTIFICATION

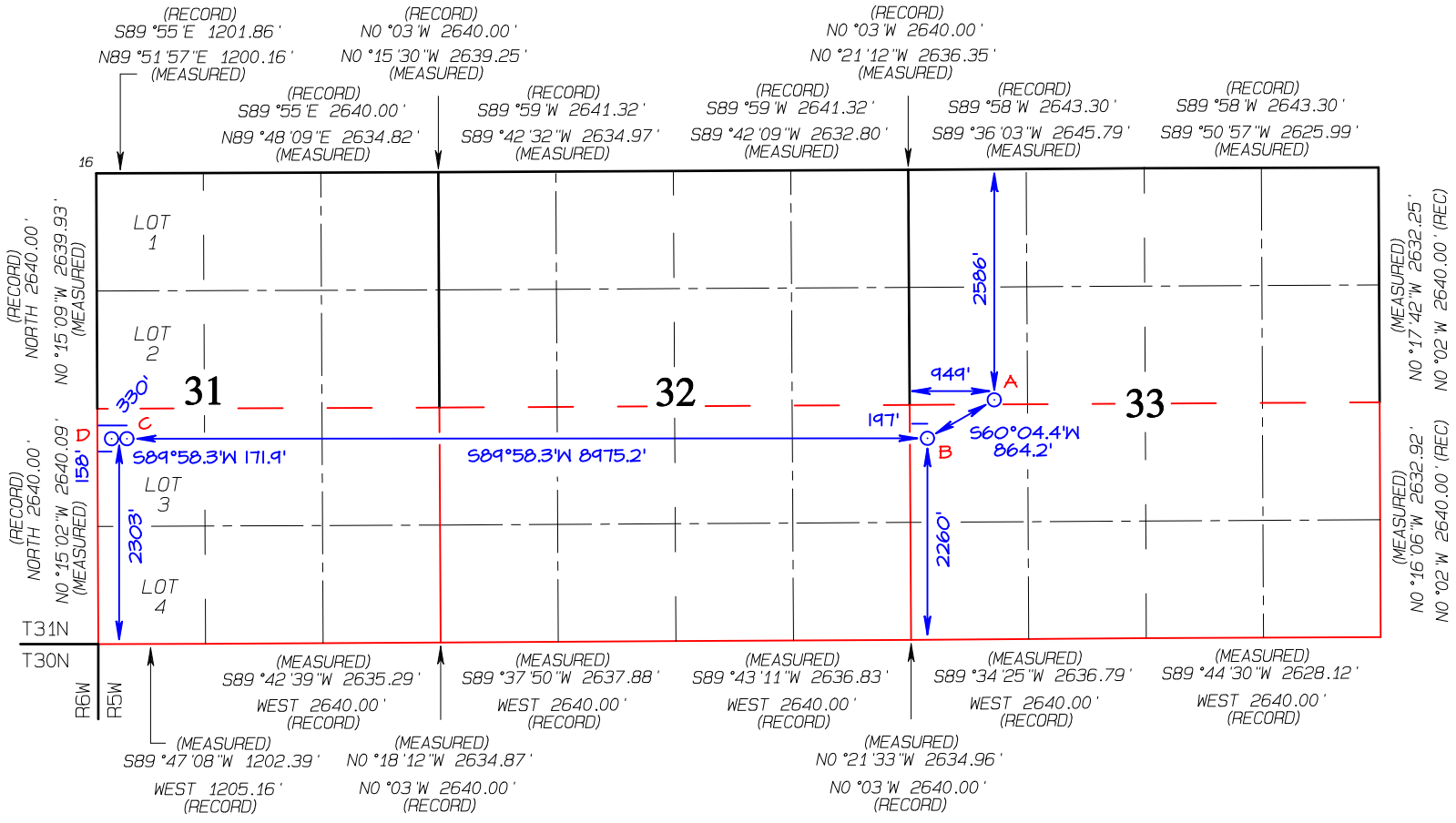
I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

Date Revised: APRIL 29, 2024
Date of Survey: JUNE 28, 2022

Signature and Seal of Professional Surveyor

JASON C. EDWARDS NEW MEXICO 15269 REGISTERED PROFESSIONAL SURVEYOR

JASON C. EDWARDS
Certificate Number 15269




LAST TAKE POINT (D)
2303' FSL 158' FWL
SECTION 31, T31N, R5W
LAT 36.855174 °N
LONG -107.406645 °W
DATUM: NAD1927

LAT 36.855180 °N
LONG -107.407248 °W
DATUM: NAD1983

FIRST PERFORATION (C)
2303' FSL 330' FWL
SECTION 31, T31N, R5W
LAT 36.855172 °N
LONG -107.406057 °W
DATUM: NAD1927

LAT 36.855178 °N
LONG -107.406660 °W
DATUM: NAD1983

FIRST TAKE POINT (B)
2260' FSL 197' FWL
SECTION 33, T31N, R5W
LAT 36.855070 °N
LONG -107.375381 °W
DATUM: NAD1927

LAT 36.855077 °N
LONG -107.375983 °W
DATUM: NAD1983

SURFACE LOCATION (A)
2586' FNL 949' FWL
SECTION 33, T31N, R5W
LAT 36.856245 °N
LONG -107.372814 °W
DATUM: NAD1927

LAT 36.856251 °N
LONG -107.373416 °W
DATUM: NAD1983

Released to Imaging: 5/21/2024 2:23:14 PM

# Logos Operating LLC

**Rio Arriba, NM (NAD83)**
**Rosa Unit 32**
**Rosa Unit 750H**

**OH**
**Plan #6**

# Anticollision Report

**29 April, 2024**

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

| | | | |
|---|---|---|---|
| **Reference** | Plan #6 | | |
| **Filter type:** | NO GLOBAL FILTER: Using user defined selection & filtering criteria | | |
| **Interpolation Method:** | Stations | **Error Model:** | ISCWSA |
| **Depth Range:** | Unlimited | **Scan Method:** | Closest Approach 3D |
| **Results Limited by:** | Max. Cent. Dist. of 100,000,000,000,000,000usft or Max. SF of 99 | **Error Surface:** | Pedal Curve |
| **Warning Levels Evaluated at:** | 2.00 **Sigma** | **Casing Method:** | Not applied |

**Survey Tool Program** **Date** 4/29/2024

| From (usft) | To (usft) | Survey (Wellbore) | Tool Name | Description |
|---|---|---|---|---|
| 0.00 | 16,631.92 | Plan #6 (OH) | MWD+HRGM+MS | MWD + HRGM + Multi-Station Correction |

**Summary**

| Site Name<br>Offset Well - Wellbore - Design | Reference Measured Depth (usft) | Offset Measured Depth (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|
| Rosa Unit 32 | | | | | | |
| (O) RU #024 - OH - OH | 11,963.61 | 5,952.00 | 1,699.68 | 1,547.90 | 11.199 | CC |
| (O) RU #024 - OH - OH | 12,000.00 | 5,952.00 | 1,700.07 | 1,547.76 | 11.162 | ES |
| (O) RU #024 - OH - OH | 12,200.00 | 5,952.00 | 1,716.04 | 1,560.88 | 11.060 | SF |
| (O) RU #024B - OH - OH-INC | 10,956.93 | 7,046.35 | 1,438.19 | 1,218.53 | 6.547 | CC |
| (O) RU #024B - OH - OH-INC | 11,000.00 | 7,046.20 | 1,438.83 | 1,218.44 | 6.528 | ES |
| (O) RU #024B - OH - OH-INC | 11,100.00 | 7,045.86 | 1,445.29 | 1,223.38 | 6.513 | SF |
| (O) RU #026A - OH - OH-SVY | 9,167.67 | 7,021.08 | 1,446.16 | 1,394.12 | 27.790 | CC |
| (O) RU #026A - OH - OH-SVY | 9,200.00 | 7,021.23 | 1,446.52 | 1,393.99 | 27.539 | ES |
| (O) RU #026A - OH - OH-SVY | 9,500.00 | 7,022.67 | 1,483.85 | 1,427.55 | 26.358 | SF |
| (O) RU #026C - OH - OH-SVY | 7,823.50 | 7,117.47 | 277.39 | 238.97 | 7.221 | CC, ES, SF |
| (O) RU #055 - OH - OH-SVY | 0.00 | 24.68 | 8,505.31 | | | |
| (O) RU #055 - OH - OH-SVY | 500.00 | 519.77 | 8,505.47 | 8,498.45 | 1,212.520 | ES |
| (O) RU #055 - OH - OH-SVY | 7,000.00 | 6,950.00 | 8,771.90 | 8,739.44 | 270.224 | SF |
| (O) RU #077 - OH - OH-SVY | 6,815.70 | 6,759.81 | 562.07 | 529.11 | 17.052 | CC, ES |
| (O) RU #077 - OH - OH-SVY | 6,900.00 | 6,831.37 | 564.49 | 531.17 | 16.945 | SF |
| (O) RU #077A - OH - OH-INC | 3,710.40 | 3,640.74 | 3,363.16 | 3,277.38 | 39.208 | CC |
| (O) RU #077A - OH - OH-INC | 6,500.00 | 6,425.78 | 3,367.42 | 3,215.94 | 22.230 | ES |
| (O) RU #077A - OH - OH-INC | 6,800.00 | 6,712.21 | 3,439.06 | 3,280.45 | 21.682 | SF |
| (O) RU #077B - OH - OH | 6,357.33 | 6,219.00 | 2,203.10 | 2,057.42 | 15.123 | CC, ES |
| (O) RU #077B - OH - OH | 6,400.00 | 6,219.00 | 2,203.52 | 2,057.78 | 15.119 | SF |
| (O) RU #077C - OH - OH-SVY | 6,497.69 | 6,625.00 | 4,219.21 | 4,189.62 | 142.579 | CC |
| (O) RU #077C - OH - OH-SVY | 6,500.00 | 6,627.27 | 4,219.21 | 4,189.61 | 142.532 | ES |
| (O) RU #077C - OH - OH-SVY | 6,900.00 | 7,003.64 | 4,332.83 | 4,301.57 | 138.576 | SF |
| (O) RU #097 - OH - OH-INC | 16,034.00 | 7,056.22 | 432.41 | 131.75 | 1.438 | Level 3, CC, ES, SF |
| (O) RU #137 - OH - OH | 15,975.45 | 6,170.00 | 1,324.39 | 1,087.17 | 5.583 | CC |
| (O) RU #137 - OH - OH | 16,000.00 | 6,170.00 | 1,324.62 | 1,087.02 | 5.575 | ES |
| (O) RU #137 - OH - OH | 16,100.00 | 6,170.00 | 1,330.23 | 1,091.15 | 5.564 | SF |
| (O) RU #137A - OH - OH | 13,959.41 | 6,210.00 | 928.24 | 783.85 | 6.428 | CC, ES |
| (O) RU #137A - OH - OH | 14,200.00 | 6,210.00 | 958.92 | 807.29 | 6.324 | SF |
| (O) RU #137B - OH - OH | 13,215.74 | 6,165.00 | 1,821.18 | 1,611.38 | 8.681 | CC, ES |
| (O) RU #137B - OH - OH | 13,400.00 | 6,165.00 | 1,830.47 | 1,617.96 | 8.614 | SF |
| (O) RU #137C - OH - OH | 15,184.49 | 6,967.61 | 1,686.33 | 1,541.53 | 11.646 | CC |
| (O) RU #137C - OH - OH | 15,200.00 | 6,967.68 | 1,686.40 | 1,541.34 | 11.625 | ES |
| (O) RU #137C - OH - OH | 15,400.00 | 6,968.50 | 1,700.05 | 1,552.67 | 11.535 | SF |
| (O) RU #184 - OH - OH | 500.00 | 515.00 | 8,444.74 | 8,434.24 | 804.310 | CC |
| (O) RU #184 - OH - OH | 6,300.00 | 6,302.52 | 8,508.82 | 8,356.53 | 55.871 | ES |
| (O) RU #184 - OH - OH | 6,600.00 | 6,308.00 | 8,526.20 | 8,372.79 | 55.578 | 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 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

**Summary**

| Site Name<br>Offset Well - Wellbore - Design | Reference Measured Depth (usft) | Offset Measured Depth (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|
| Rosa Unit 32 | | | | | | |
| (O) RU #184B - OH - OH | 500.00 | 505.02 | 9,581.68 | 9,571.09 | 905.571 | CC |
| (O) RU #184B - OH - OH | 6,300.00 | 6,298.00 | 9,615.89 | 9,364.22 | 38.209 | ES |
| (O) RU #184B - OH - OH | 6,550.00 | 6,298.00 | 9,623.27 | 9,370.77 | 38.112 | SF |
| (O) RU #188 - OH - OH | 362.57 | 532.57 | 6,097.06 | 6,086.02 | 552.147 | CC |
| (O) RU #188 - OH - OH | 6,300.00 | 6,457.23 | 6,176.33 | 6,024.12 | 40.578 | ES |
| (O) RU #188 - OH - OH | 6,550.00 | 6,476.00 | 6,186.88 | 6,033.48 | 40.332 | SF |
| (O) RU #188C - OH - OH-SVY | 0.00 | 162.12 | 7,006.58 | | | |
| (O) RU #188C - OH - OH-SVY | 7,000.00 | 7,097.87 | 7,313.86 | 7,281.40 | 225.347 | SF |
| (O) RU #231 - OH - OH | 16,076.67 | 3,337.00 | 3,855.28 | 3,754.71 | 38.337 | CC |
| (O) RU #231 - OH - OH | 16,100.00 | 3,337.00 | 3,855.35 | 3,754.57 | 38.258 | ES |
| (O) RU #231 - OH - OH | 16,631.96 | 3,337.00 | 3,895.06 | 3,788.54 | 36.565 | SF |
| (O) RU #231A - OH - OH | 13,130.44 | 3,384.00 | 3,859.48 | 3,772.77 | 44.513 | CC |
| (O) RU #231A - OH - OH | 13,200.00 | 3,384.00 | 3,860.10 | 3,772.72 | 44.175 | ES |
| (O) RU #231A - OH - OH | 15,000.00 | 3,384.00 | 4,288.45 | 4,179.25 | 39.271 | SF |
| (O) RU #259 - OH - OH-INC | 3,500.00 | 3,392.00 | 1,194.98 | 1,076.93 | 10.122 | SF |
| (O) RU #259 - OH - OH-INC | 3,516.89 | 3,392.00 | 1,194.86 | 1,076.84 | 10.124 | CC, ES |
| (O) RU #259A - OH - OH | 2,965.01 | 2,904.55 | 3,391.96 | 3,324.15 | 50.018 | CC |
| (O) RU #259A - OH - OH | 3,500.00 | 3,414.00 | 3,392.39 | 3,312.79 | 42.619 | ES |
| (O) RU #259A - OH - OH | 3,700.00 | 3,414.00 | 3,399.85 | 3,319.70 | 42.419 | SF |
| (O) RU #269A - OH - OH | 424.97 | 441.00 | 8,423.47 | 8,418.58 | 1,720.637 | CC |
| (O) RU #269A - OH - OH | 500.00 | 472.00 | 8,423.64 | 8,418.54 | 1,650.594 | ES |
| (O) RU #269A - OH - OH | 6,750.00 | 3,512.00 | 9,469.81 | 9,435.78 | 278.281 | SF |
| (O) RU #270 - OH - OH | 340.31 | 502.88 | 5,978.33 | 5,967.10 | 532.224 | CC |
| (O) RU #270 - OH - OH | 3,400.00 | 3,556.76 | 6,017.75 | 5,936.54 | 74.102 | ES |
| (O) RU #270 - OH - OH | 4,200.00 | 3,597.00 | 6,075.96 | 5,991.67 | 72.086 | SF |
| (O) RU #271A - OH - OH | 550.14 | 807.14 | 13,897.35 | 13,891.21 | 2,260.374 | CC, ES |
| (O) RU #271A - OH - OH | 6,950.00 | 3,527.00 | 14,643.91 | 14,608.76 | 416.602 | SF |
| (O) RU #272 - OH - OH | 340.98 | 494.95 | 10,404.07 | 10,393.63 | 996.404 | CC |
| (O) RU #272 - OH - OH | 3,400.00 | 3,547.70 | 10,458.47 | 10,379.39 | 132.250 | ES |
| (O) RU #272 - OH - OH | 5,800.00 | 3,569.00 | 10,767.89 | 10,681.79 | 125.062 | SF |
| (O) RU #334A - OH - OH | 3,552.72 | 3,468.00 | 2,809.05 | 2,723.76 | 32.934 | CC, ES |
| (O) RU #334A - OH - OH | 3,700.00 | 3,468.00 | 2,812.91 | 2,727.27 | 32.845 | SF |
| (O) RU #337 - OH - OH | 11,517.21 | 3,351.00 | 3,708.05 | 3,658.74 | 75.200 | CC, ES |
| (O) RU #337 - OH - OH | 14,100.00 | 3,351.00 | 4,518.90 | 4,429.68 | 50.650 | SF |
| Rosa Unit 752H - OH - Plan #5 | 500.00 | 500.00 | 25.14 | 17.77 | 3.409 | CC |
| Rosa Unit 752H - OH - Plan #5 | 600.00 | 599.13 | 25.40 | 17.69 | 3.296 | ES |
| Rosa Unit 752H - OH - Plan #5 | 697.00 | 695.24 | 26.28 | 18.23 | 3.264 | SF |
| Rosa Unit 754H - OH - Plan #5 | 500.00 | 500.00 | 49.92 | 42.55 | 6.769 | CC |
| Rosa Unit 754H - OH - Plan #5 | 600.00 | 598.45 | 50.00 | 42.29 | 6.488 | ES |
| Rosa Unit 754H - OH - Plan #5 | 700.00 | 696.73 | 50.58 | 42.52 | 6.273 | SF |
| Rosa Unit 756H - OH - Plan #6 | 500.00 | 500.00 | 75.07 | 67.69 | 10.179 | CC |
| Rosa Unit 756H - OH - Plan #6 | 600.00 | 597.44 | 75.30 | 67.60 | 9.775 | ES |
| Rosa Unit 756H - OH - Plan #6 | 800.00 | 792.08 | 79.06 | 70.61 | 9.360 | SF |

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

**Offset Site Error:** 0.00 usft

**Survey Program:** 5952-A027Ua_INC-ONLY

**Offset Well Error:** 3.28 usft

**Rule Assigned:**

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 3.28 | 3.28 | -108.04 | -1,703.67 | -5,231.48 | 5,502.01 | | | | |

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

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

**Survey Program:** 5952-A027Ua_INC-ONLY

**Rule Assigned:**

**Offset Well Error:** 3.28 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 100.00 | 100.00 | 64.00 | 64.00 | 3.29 | 3.46 | -108.04 | -1,703.67 | -5,231.48 | 5,501.89 | 5,495.14 | 6.75 | 814.617 | |
| 200.00 | 200.00 | 164.00 | 164.00 | 3.34 | 4.35 | -108.04 | -1,703.67 | -5,231.48 | 5,501.89 | 5,494.21 | 7.69 | 715.806 | |
| 300.00 | 300.00 | 264.00 | 264.00 | 3.42 | 5.65 | -108.04 | -1,703.67 | -5,231.48 | 5,501.89 | 5,492.83 | 9.07 | 606.644 | |
| 400.00 | 400.00 | 364.00 | 364.00 | 3.54 | 7.14 | -108.04 | -1,703.67 | -5,231.48 | 5,501.89 | 5,491.22 | 10.68 | 515.241 | |
| 500.00 | 500.00 | 464.00 | 464.00 | 3.69 | 8.72 | -108.04 | -1,703.67 | -5,231.48 | 5,501.89 | 5,489.48 | 12.41 | 443.267 | |
| 600.00 | 599.98 | 563.98 | 563.98 | 3.86 | 10.36 | 41.99 | -1,703.67 | -5,231.48 | 5,500.60 | 5,486.38 | 14.22 | 386.937 | |
| 697.00 | 696.84 | 660.84 | 660.84 | 4.04 | 11.97 | 42.08 | -1,703.67 | -5,231.48 | 5,496.86 | 5,480.85 | 16.01 | 343.356 | |
| 700.00 | 699.84 | 663.84 | 663.84 | 4.05 | 12.02 | 42.08 | -1,703.67 | -5,231.48 | 5,496.71 | 5,480.64 | 16.07 | 342.130 | |
| 800.00 | 799.60 | 763.60 | 763.60 | 4.25 | 13.70 | 42.13 | -1,703.67 | -5,231.48 | 5,491.60 | 5,473.65 | 17.96 | 305.853 | |
| 897.00 | 896.37 | 860.37 | 860.37 | 4.48 | 15.35 | 42.17 | -1,703.67 | -5,231.48 | 5,486.66 | 5,466.84 | 19.82 | 276.838 | |
| 900.00 | 899.37 | 863.37 | 863.37 | 4.48 | 15.40 | 43.04 | -1,703.67 | -5,231.48 | 5,486.51 | 5,466.63 | 19.88 | 276.022 | |
| 947.40 | 946.65 | 910.65 | 910.65 | 4.60 | 16.20 | 56.90 | -1,703.67 | -5,231.48 | 5,484.43 | 5,463.63 | 20.80 | 263.711 | |
| 1,000.00 | 999.13 | 963.13 | 963.13 | 4.73 | 17.10 | 56.93 | -1,703.67 | -5,231.48 | 5,482.45 | 5,460.62 | 21.82 | 251.206 | |
| 1,100.00 | 1,098.89 | 1,062.89 | 1,062.89 | 4.99 | 18.81 | 56.99 | -1,703.67 | -5,231.48 | 5,478.70 | 5,454.90 | 23.79 | 230.252 | |
| 1,200.00 | 1,198.66 | 1,162.66 | 1,162.66 | 5.27 | 20.52 | 57.05 | -1,703.67 | -5,231.48 | 5,474.95 | 5,449.17 | 25.78 | 212.355 | |
| 1,300.00 | 1,298.42 | 1,262.42 | 1,262.42 | 5.56 | 22.24 | 57.11 | -1,703.67 | -5,231.48 | 5,471.21 | 5,443.42 | 27.78 | 196.916 | |
| 1,400.00 | 1,398.18 | 1,362.18 | 1,362.18 | 5.85 | 23.96 | 57.17 | -1,703.67 | -5,231.48 | 5,467.47 | 5,437.67 | 29.80 | 183.476 | |
| 1,500.00 | 1,497.95 | 1,461.95 | 1,461.95 | 6.16 | 25.68 | 57.23 | -1,703.67 | -5,231.48 | 5,463.74 | 5,431.92 | 31.82 | 171.683 | |
| 1,600.00 | 1,597.71 | 1,561.71 | 1,561.71 | 6.47 | 27.41 | 57.29 | -1,703.67 | -5,231.48 | 5,460.02 | 5,426.16 | 33.86 | 161.259 | |
| 1,700.00 | 1,697.47 | 1,661.47 | 1,661.47 | 6.79 | 29.13 | 57.36 | -1,703.67 | -5,231.48 | 5,456.30 | 5,420.40 | 35.90 | 151.984 | |
| 1,800.00 | 1,797.24 | 1,761.24 | 1,761.24 | 7.11 | 30.86 | 57.42 | -1,703.67 | -5,231.48 | 5,452.59 | 5,414.64 | 37.95 | 143.683 | |
| 1,900.00 | 1,897.00 | 1,861.00 | 1,861.00 | 7.44 | 32.59 | 57.48 | -1,703.67 | -5,231.48 | 5,448.89 | 5,408.88 | 40.00 | 136.213 | |
| 2,000.00 | 1,996.76 | 1,960.76 | 1,960.76 | 7.77 | 34.32 | 57.54 | -1,703.67 | -5,231.48 | 5,445.19 | 5,403.13 | 42.06 | 129.458 | |
| 2,100.00 | 2,096.53 | 2,060.53 | 2,060.53 | 8.11 | 36.05 | 57.60 | -1,703.67 | -5,231.48 | 5,441.50 | 5,397.37 | 44.12 | 123.322 | |
| 2,200.00 | 2,196.29 | 2,160.29 | 2,160.29 | 8.44 | 37.78 | 57.66 | -1,703.67 | -5,231.48 | 5,437.81 | 5,391.62 | 46.19 | 117.724 | |
| 2,300.00 | 2,296.06 | 2,260.06 | 2,260.06 | 8.79 | 39.52 | 57.72 | -1,703.67 | -5,231.48 | 5,434.13 | 5,385.87 | 48.26 | 112.598 | |
| 2,400.00 | 2,395.82 | 2,359.82 | 2,359.82 | 9.13 | 41.25 | 57.78 | -1,703.67 | -5,231.48 | 5,430.46 | 5,380.12 | 50.33 | 107.888 | |
| 2,500.00 | 2,495.58 | 2,459.58 | 2,459.58 | 9.47 | 42.98 | 57.84 | -1,703.67 | -5,231.48 | 5,426.79 | 5,374.38 | 52.41 | 103.545 | |
| 2,600.00 | 2,595.35 | 2,559.35 | 2,559.35 | 9.82 | 44.71 | 57.90 | -1,703.67 | -5,231.48 | 5,423.13 | 5,368.64 | 54.49 | 99.529 | |
| 2,700.00 | 2,695.11 | 2,659.11 | 2,659.11 | 10.17 | 46.45 | 57.97 | -1,703.67 | -5,231.48 | 5,419.47 | 5,362.90 | 56.57 | 95.805 | |
| 2,800.00 | 2,794.87 | 2,758.87 | 2,758.87 | 10.52 | 48.18 | 58.03 | -1,703.67 | -5,231.48 | 5,415.82 | 5,357.17 | 58.65 | 92.341 | |
| 2,900.00 | 2,894.64 | 2,858.64 | 2,858.64 | 10.87 | 49.92 | 58.09 | -1,703.67 | -5,231.48 | 5,412.18 | 5,351.45 | 60.73 | 89.113 | |
| 3,000.00 | 2,994.40 | 2,958.40 | 2,958.40 | 11.23 | 51.65 | 58.15 | -1,703.67 | -5,231.48 | 5,408.54 | 5,345.72 | 62.82 | 86.097 | |
| 3,100.00 | 3,094.16 | 3,058.16 | 3,058.16 | 11.58 | 53.39 | 58.21 | -1,703.67 | -5,231.48 | 5,404.91 | 5,340.01 | 64.91 | 83.273 | |
| 3,200.00 | 3,193.93 | 3,157.93 | 3,157.93 | 11.94 | 55.12 | 58.27 | -1,703.67 | -5,231.48 | 5,401.29 | 5,334.30 | 66.99 | 80.624 | |
| 3,300.00 | 3,293.69 | 3,257.69 | 3,257.69 | 12.29 | 56.86 | 58.34 | -1,703.67 | -5,231.48 | 5,397.67 | 5,328.59 | 69.08 | 78.134 | |
| 3,400.00 | 3,393.45 | 3,357.45 | 3,357.45 | 12.65 | 58.59 | 58.40 | -1,703.67 | -5,231.48 | 5,394.06 | 5,322.89 | 71.17 | 75.788 | |
| 3,500.00 | 3,493.22 | 3,457.22 | 3,457.22 | 13.01 | 60.33 | 58.46 | -1,703.67 | -5,231.48 | 5,390.46 | 5,317.19 | 73.26 | 73.576 | |
| 3,600.00 | 3,592.98 | 3,556.98 | 3,556.98 | 13.37 | 62.06 | 58.52 | -1,703.67 | -5,231.48 | 5,386.86 | 5,311.50 | 75.36 | 71.485 | |
| 3,700.00 | 3,692.74 | 3,656.74 | 3,656.74 | 13.73 | 63.80 | 58.59 | -1,703.67 | -5,231.48 | 5,383.27 | 5,305.82 | 77.45 | 69.507 | |
| 3,800.00 | 3,792.51 | 3,756.51 | 3,756.51 | 14.09 | 65.54 | 58.65 | -1,703.67 | -5,231.48 | 5,379.68 | 5,300.14 | 79.54 | 67.633 | |
| 3,900.00 | 3,892.27 | 3,856.27 | 3,856.27 | 14.45 | 67.27 | 58.71 | -1,703.67 | -5,231.48 | 5,376.10 | 5,294.46 | 81.64 | 65.854 | |
| 4,000.00 | 3,992.04 | 3,956.04 | 3,956.04 | 14.81 | 69.01 | 58.77 | -1,703.67 | -5,231.48 | 5,372.53 | 5,288.80 | 83.73 | 64.163 | |
| 4,100.00 | 4,091.80 | 4,055.80 | 4,055.80 | 15.17 | 70.74 | 58.83 | -1,703.67 | -5,231.48 | 5,368.96 | 5,283.13 | 85.83 | 62.555 | |
| 4,200.00 | 4,191.56 | 4,155.56 | 4,155.56 | 15.53 | 72.48 | 58.90 | -1,703.67 | -5,231.48 | 5,365.40 | 5,277.48 | 87.92 | 61.023 | |
| 4,300.00 | 4,291.33 | 4,255.33 | 4,255.33 | 15.89 | 74.22 | 58.96 | -1,703.67 | -5,231.48 | 5,361.85 | 5,271.83 | 90.02 | 59.562 | |
| 4,400.00 | 4,391.09 | 4,355.09 | 4,355.09 | 16.26 | 75.95 | 59.02 | -1,703.67 | -5,231.48 | 5,358.30 | 5,266.18 | 92.12 | 58.168 | |
| 4,500.00 | 4,490.85 | 4,454.85 | 4,454.85 | 16.62 | 77.69 | 59.09 | -1,703.67 | -5,231.48 | 5,354.76 | 5,260.54 | 94.22 | 56.835 | |
| 4,600.00 | 4,590.62 | 4,554.62 | 4,554.62 | 16.99 | 79.43 | 59.15 | -1,703.67 | -5,231.48 | 5,351.23 | 5,254.91 | 96.31 | 55.560 | |
| 4,700.00 | 4,690.38 | 4,654.38 | 4,654.38 | 17.35 | 81.16 | 59.21 | -1,703.67 | -5,231.48 | 5,347.70 | 5,249.29 | 98.41 | 54.339 | |
| 4,800.00 | 4,790.14 | 4,754.14 | 4,754.14 | 17.71 | 82.90 | 59.28 | -1,703.67 | -5,231.48 | 5,344.18 | 5,243.67 | 100.51 | 53.170 | |
| 4,900.00 | 4,889.91 | 4,853.91 | 4,853.91 | 18.08 | 84.64 | 59.34 | -1,703.67 | -5,231.48 | 5,340.66 | 5,238.05 | 102.61 | 52.047 | |

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

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

**Survey Program:** 5952-A027Ua_INC-ONLY

**Rule Assigned:**

**Offset Well Error:** 3.28 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5,000.00 | 4,989.67 | 4,953.67 | 4,953.67 | 18.44 | 86.37 | 59.40 | -1,703.67 | -5,231.48 | 5,337.16 | 5,232.44 | 104.71 | 50.970 | |
| 5,100.00 | 5,089.43 | 5,053.43 | 5,053.43 | 18.81 | 88.11 | 59.47 | -1,703.67 | -5,231.48 | 5,333.65 | 5,226.84 | 106.81 | 49.935 | |
| 5,200.00 | 5,189.20 | 5,153.20 | 5,153.20 | 19.17 | 89.85 | 59.53 | -1,703.67 | -5,231.48 | 5,330.16 | 5,221.25 | 108.91 | 48.940 | |
| 5,300.00 | 5,288.96 | 5,252.96 | 5,252.96 | 19.54 | 91.59 | 59.59 | -1,703.67 | -5,231.48 | 5,326.67 | 5,215.66 | 111.01 | 47.983 | |
| 5,400.00 | 5,388.72 | 5,352.72 | 5,352.72 | 19.91 | 93.32 | 59.66 | -1,703.67 | -5,231.48 | 5,323.19 | 5,210.08 | 113.11 | 47.061 | |
| 5,500.00 | 5,488.49 | 5,452.49 | 5,452.49 | 20.27 | 95.06 | 59.72 | -1,703.67 | -5,231.48 | 5,319.71 | 5,204.50 | 115.21 | 46.172 | |
| 5,600.00 | 5,588.25 | 5,552.25 | 5,552.25 | 20.64 | 96.80 | 59.78 | -1,703.67 | -5,231.48 | 5,316.25 | 5,198.93 | 117.32 | 45.315 | |
| 5,700.00 | 5,688.01 | 5,652.01 | 5,652.01 | 21.00 | 98.54 | 59.85 | -1,703.67 | -5,231.48 | 5,312.78 | 5,193.37 | 119.42 | 44.489 | |
| 5,800.00 | 5,787.78 | 5,751.78 | 5,751.78 | 21.37 | 100.27 | 59.91 | -1,703.67 | -5,231.48 | 5,309.33 | 5,187.81 | 121.52 | 43.691 | |
| 5,900.00 | 5,887.54 | 5,851.54 | 5,851.54 | 21.74 | 102.01 | 59.98 | -1,703.67 | -5,231.48 | 5,305.88 | 5,182.26 | 123.62 | 42.920 | |
| 6,000.00 | 5,987.31 | 5,951.31 | 5,951.31 | 22.11 | 103.75 | 60.04 | -1,703.67 | -5,231.48 | 5,302.44 | 5,176.71 | 125.72 | 42.175 | |
| 6,100.00 | 6,087.07 | 5,952.00 | 5,952.00 | 22.47 | 103.76 | 60.04 | -1,703.67 | -5,231.48 | 5,299.93 | 5,173.84 | 126.09 | 42.032 | |
| 6,183.02 | 6,169.90 | 5,952.00 | 5,952.00 | 22.78 | 103.76 | 60.04 | -1,703.67 | -5,231.48 | 5,299.28 | 5,172.92 | 126.35 | 41.940 | |
| 6,200.00 | 6,186.83 | 5,952.00 | 5,952.00 | 22.84 | 103.76 | 60.04 | -1,703.67 | -5,231.48 | 5,299.31 | 5,172.90 | 126.40 | 41.923 | |
| 6,300.00 | 6,286.60 | 5,952.00 | 5,952.00 | 23.21 | 103.76 | 60.04 | -1,703.67 | -5,231.48 | 5,300.57 | 5,173.89 | 126.68 | 41.844 | |
| 6,400.00 | 6,386.36 | 5,952.00 | 5,952.00 | 23.58 | 103.76 | 60.04 | -1,703.67 | -5,231.48 | 5,303.72 | 5,176.81 | 126.90 | 41.793 | |
| 6,494.00 | 6,480.13 | 5,952.00 | 5,952.00 | 23.92 | 103.76 | 60.04 | -1,703.67 | -5,231.48 | 5,308.39 | 5,181.31 | 127.08 | 41.772 | |
| 6,500.00 | 6,486.12 | 5,952.00 | 5,952.00 | 23.94 | 103.76 | 52.77 | -1,703.67 | -5,231.48 | 5,308.72 | 5,181.63 | 127.09 | 41.771 | |
| 6,550.00 | 6,535.89 | 5,952.00 | 5,952.00 | 24.13 | 103.76 | 17.30 | -1,703.67 | -5,231.48 | 5,309.59 | 5,182.43 | 127.17 | 41.753 | |
| 6,600.00 | 6,585.24 | 5,952.00 | 5,952.00 | 24.31 | 103.76 | 4.98 | -1,703.67 | -5,231.48 | 5,307.14 | 5,179.91 | 127.23 | 41.714 | |
| 6,650.00 | 6,633.88 | 5,952.00 | 5,952.00 | 24.50 | 103.76 | -0.74 | -1,703.67 | -5,231.48 | 5,301.37 | 5,174.10 | 127.27 | 41.654 | |
| 6,700.00 | 6,681.49 | 5,952.00 | 5,952.00 | 24.68 | 103.76 | -4.08 | -1,703.67 | -5,231.48 | 5,292.32 | 5,165.02 | 127.31 | 41.572 | |
| 6,750.00 | 6,727.80 | 5,952.00 | 5,952.00 | 24.86 | 103.76 | -6.35 | -1,703.67 | -5,231.48 | 5,280.02 | 5,152.70 | 127.32 | 41.469 | |
| 6,800.00 | 6,772.51 | 5,952.00 | 5,952.00 | 25.04 | 103.76 | -8.10 | -1,703.67 | -5,231.48 | 5,264.53 | 5,137.20 | 127.33 | 41.347 | |
| 6,850.00 | 6,815.34 | 5,952.00 | 5,952.00 | 25.21 | 103.76 | -9.57 | -1,703.67 | -5,231.48 | 5,245.90 | 5,118.59 | 127.32 | 41.204 | |
| 6,900.00 | 6,856.04 | 5,952.00 | 5,952.00 | 25.39 | 103.76 | -10.93 | -1,703.67 | -5,231.48 | 5,224.24 | 5,096.95 | 127.29 | 41.041 | |
| 6,950.00 | 6,894.35 | 5,952.00 | 5,952.00 | 25.57 | 103.76 | -12.25 | -1,703.67 | -5,231.48 | 5,199.62 | 5,072.37 | 127.26 | 40.860 | |
| 7,000.00 | 6,930.04 | 5,952.00 | 5,952.00 | 25.75 | 103.76 | -13.62 | -1,703.67 | -5,231.48 | 5,172.17 | 5,044.96 | 127.21 | 40.659 | |
| 7,050.00 | 6,962.89 | 5,952.00 | 5,952.00 | 25.93 | 103.76 | -15.10 | -1,703.67 | -5,231.48 | 5,142.00 | 5,014.85 | 127.15 | 40.441 | |
| 7,100.00 | 6,992.69 | 5,952.00 | 5,952.00 | 26.13 | 103.76 | -16.75 | -1,703.67 | -5,231.48 | 5,109.27 | 4,982.18 | 127.08 | 40.204 | |
| 7,150.00 | 7,019.25 | 5,952.00 | 5,952.00 | 26.33 | 103.76 | -18.66 | -1,703.67 | -5,231.48 | 5,074.11 | 4,947.10 | 127.01 | 39.951 | |
| 7,200.00 | 7,042.43 | 5,952.00 | 5,952.00 | 26.55 | 103.76 | -20.91 | -1,703.67 | -5,231.48 | 5,036.70 | 4,909.77 | 126.93 | 39.681 | |
| 7,250.00 | 7,062.07 | 5,952.00 | 5,952.00 | 26.79 | 103.76 | -23.62 | -1,703.67 | -5,231.48 | 4,997.23 | 4,870.38 | 126.85 | 39.396 | |
| 7,300.00 | 7,078.05 | 5,952.00 | 5,952.00 | 27.04 | 103.76 | -26.97 | -1,703.67 | -5,231.48 | 4,955.88 | 4,829.12 | 126.77 | 39.095 | |
| 7,350.00 | 7,090.27 | 5,952.00 | 5,952.00 | 27.30 | 103.76 | -31.18 | -1,703.67 | -5,231.48 | 4,912.88 | 4,786.20 | 126.69 | 38.780 | |
| 7,400.00 | 7,098.66 | 5,952.00 | 5,952.00 | 27.58 | 103.76 | -36.58 | -1,703.67 | -5,231.48 | 4,868.44 | 4,741.83 | 126.61 | 38.452 | |
| 7,450.00 | 7,103.17 | 5,952.00 | 5,952.00 | 27.87 | 103.76 | -43.57 | -1,703.67 | -5,231.48 | 4,822.81 | 4,696.27 | 126.54 | 38.113 | |
| 7,484.86 | 7,104.00 | 5,952.00 | 5,952.00 | 28.08 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 4,790.42 | 4,663.92 | 126.50 | 37.869 | |
| 7,500.00 | 7,103.95 | 5,952.00 | 5,952.00 | 28.17 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 4,776.26 | 4,649.78 | 126.48 | 37.762 | |
| 7,600.00 | 7,103.60 | 5,952.00 | 5,952.00 | 28.83 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 4,682.95 | 4,556.58 | 126.37 | 37.058 | |
| 7,700.00 | 7,103.25 | 5,952.00 | 5,952.00 | 29.56 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 4,589.91 | 4,463.65 | 126.26 | 36.354 | |
| 7,800.00 | 7,102.90 | 5,952.00 | 5,952.00 | 30.35 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 4,497.17 | 4,371.02 | 126.15 | 35.648 | |
| 7,900.00 | 7,102.55 | 5,952.00 | 5,952.00 | 31.21 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 4,404.75 | 4,278.69 | 126.06 | 34.942 | |
| 8,000.00 | 7,102.20 | 5,952.00 | 5,952.00 | 32.13 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 4,312.67 | 4,186.69 | 125.97 | 34.234 | |
| 8,100.00 | 7,101.85 | 5,952.00 | 5,952.00 | 33.10 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 4,220.94 | 4,095.04 | 125.90 | 33.526 | |
| 8,200.00 | 7,101.50 | 5,952.00 | 5,952.00 | 34.11 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 4,129.61 | 4,003.77 | 125.84 | 32.817 | |
| 8,300.00 | 7,101.15 | 5,952.00 | 5,952.00 | 35.17 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 4,038.68 | 3,912.89 | 125.79 | 32.106 | |
| 8,400.00 | 7,100.80 | 5,952.00 | 5,952.00 | 36.27 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 3,948.19 | 3,822.43 | 125.76 | 31.395 | |
| 8,500.00 | 7,100.45 | 5,952.00 | 5,952.00 | 37.41 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 3,858.17 | 3,732.43 | 125.74 | 30.683 | |
| 8,600.00 | 7,100.10 | 5,952.00 | 5,952.00 | 38.58 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 3,768.65 | 3,642.91 | 125.75 | 29.970 | |
| 8,700.00 | 7,099.75 | 5,952.00 | 5,952.00 | 39.78 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 3,679.68 | 3,553.90 | 125.78 | 29.256 | |
| 8,800.00 | 7,099.40 | 5,952.00 | 5,952.00 | 41.00 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 3,591.28 | 3,465.45 | 125.83 | 28.541 | |

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

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

**Survey Program:** 5952-A027Ua_INC-ONLY

**Offset Well Error:** 3.28 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8,900.00 | 7,099.05 | 5,952.00 | 5,952.00 | 42.25 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 3,503.51 | 3,377.60 | 125.91 | 27.826 | |
| 9,000.00 | 7,098.70 | 5,952.00 | 5,952.00 | 43.53 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 3,416.41 | 3,290.40 | 126.01 | 27.111 | |
| 9,100.00 | 7,098.35 | 5,952.00 | 5,952.00 | 44.82 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 3,330.04 | 3,203.88 | 126.16 | 26.396 | |
| 9,200.00 | 7,098.00 | 5,952.00 | 5,952.00 | 46.14 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 3,244.45 | 3,118.12 | 126.33 | 25.682 | |
| 9,300.00 | 7,097.65 | 5,952.00 | 5,952.00 | 47.47 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 3,159.70 | 3,033.16 | 126.54 | 24.969 | |
| 9,400.00 | 7,097.30 | 5,952.00 | 5,952.00 | 48.82 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 3,075.87 | 2,949.07 | 126.80 | 24.258 | |
| 9,500.00 | 7,096.95 | 5,952.00 | 5,952.00 | 50.18 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 2,993.04 | 2,865.94 | 127.10 | 23.549 | |
| 9,600.00 | 7,096.60 | 5,952.00 | 5,952.00 | 51.56 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 2,911.28 | 2,783.83 | 127.45 | 22.843 | |
| 9,700.00 | 7,096.25 | 5,952.00 | 5,952.00 | 52.95 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 2,830.69 | 2,702.85 | 127.84 | 22.142 | |
| 9,800.00 | 7,095.90 | 5,952.00 | 5,952.00 | 54.35 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 2,751.38 | 2,623.09 | 128.29 | 21.447 | |
| 9,900.00 | 7,095.55 | 5,952.00 | 5,952.00 | 55.76 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 2,673.46 | 2,544.66 | 128.79 | 20.758 | |
| 10,000.00 | 7,095.20 | 5,952.00 | 5,952.00 | 57.18 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 2,597.05 | 2,467.69 | 129.36 | 20.077 | |
| 10,100.00 | 7,094.85 | 5,952.00 | 5,952.00 | 58.61 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 2,522.29 | 2,392.31 | 129.98 | 19.405 | |
| 10,200.00 | 7,094.50 | 5,952.00 | 5,952.00 | 60.05 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 2,449.33 | 2,318.67 | 130.66 | 18.746 | |
| 10,300.00 | 7,094.15 | 5,952.00 | 5,952.00 | 61.50 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 2,378.34 | 2,246.93 | 131.41 | 18.099 | |
| 10,400.00 | 7,093.80 | 5,952.00 | 5,952.00 | 62.96 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 2,309.50 | 2,177.28 | 132.22 | 17.468 | |
| 10,500.00 | 7,093.45 | 5,952.00 | 5,952.00 | 64.42 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 2,243.00 | 2,109.91 | 133.09 | 16.853 | |
| 10,600.00 | 7,093.10 | 5,952.00 | 5,952.00 | 65.89 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 2,179.07 | 2,045.04 | 134.02 | 16.259 | |
| 10,700.00 | 7,092.75 | 5,952.00 | 5,952.00 | 67.36 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 2,117.93 | 1,982.90 | 135.02 | 15.686 | |
| 10,800.00 | 7,092.40 | 5,952.00 | 5,952.00 | 68.84 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 2,059.83 | 1,923.75 | 136.08 | 15.137 | |
| 10,900.00 | 7,092.05 | 5,952.00 | 5,952.00 | 70.33 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 2,005.04 | 1,867.84 | 137.20 | 14.614 | |
| 11,000.00 | 7,091.70 | 5,952.00 | 5,952.00 | 71.82 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 1,953.83 | 1,815.46 | 138.37 | 14.120 | |
| 11,100.00 | 7,091.35 | 5,952.00 | 5,952.00 | 73.31 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 1,906.50 | 1,766.90 | 139.60 | 13.657 | |
| 11,200.00 | 7,091.00 | 5,952.00 | 5,952.00 | 74.81 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 1,863.33 | 1,722.46 | 140.88 | 13.227 | |
| 11,300.00 | 7,090.65 | 5,952.00 | 5,952.00 | 76.32 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 1,824.63 | 1,682.43 | 142.20 | 12.831 | |
| 11,400.00 | 7,090.30 | 5,952.00 | 5,952.00 | 77.82 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 1,790.69 | 1,647.12 | 143.57 | 12.473 | |
| 11,500.00 | 7,089.95 | 5,952.00 | 5,952.00 | 79.34 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 1,761.77 | 1,616.80 | 144.97 | 12.153 | |
| 11,600.00 | 7,089.60 | 5,952.00 | 5,952.00 | 80.85 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 1,738.14 | 1,591.73 | 146.41 | 11.872 | |
| 11,700.00 | 7,089.25 | 5,952.00 | 5,952.00 | 82.37 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 1,720.00 | 1,572.13 | 147.87 | 11.632 | |
| 11,800.00 | 7,088.90 | 5,952.00 | 5,952.00 | 83.89 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 1,707.53 | 1,558.18 | 149.35 | 11.433 | |
| 11,900.00 | 7,088.55 | 5,952.00 | 5,952.00 | 85.41 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 1,700.87 | 1,550.03 | 150.84 | 11.276 | |
| 11,963.61 | 7,088.33 | 5,952.00 | 5,952.00 | 86.38 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 1,699.68 | 1,547.90 | 151.78 | 11.199 CC | |
| 12,000.00 | 7,088.20 | 5,952.00 | 5,952.00 | 86.94 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 1,700.07 | 1,547.76 | 152.31 | 11.162 ES | |
| 12,100.00 | 7,087.85 | 5,952.00 | 5,952.00 | 88.47 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 1,705.14 | 1,551.39 | 153.76 | 11.090 | |
| 12,200.00 | 7,087.50 | 5,952.00 | 5,952.00 | 90.00 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 1,716.04 | 1,560.88 | 155.15 | 11.060 SF | |
| 12,300.00 | 7,087.15 | 5,952.00 | 5,952.00 | 91.54 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 1,732.65 | 1,576.16 | 156.49 | 11.072 | |
| 12,400.00 | 7,086.81 | 5,952.00 | 5,952.00 | 93.07 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 1,754.81 | 1,597.07 | 157.74 | 11.125 | |
| 12,500.00 | 7,086.46 | 5,952.00 | 5,952.00 | 94.61 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 1,782.31 | 1,623.42 | 158.89 | 11.217 | |
| 12,600.00 | 7,086.11 | 5,952.00 | 5,952.00 | 96.15 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 1,814.91 | 1,654.98 | 159.93 | 11.348 | |
| 12,700.00 | 7,085.76 | 5,952.00 | 5,952.00 | 97.69 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 1,852.34 | 1,691.50 | 160.84 | 11.516 | |
| 12,800.00 | 7,085.41 | 5,952.00 | 5,952.00 | 99.24 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 1,894.32 | 1,732.68 | 161.64 | 11.719 | |
| 12,900.00 | 7,085.06 | 5,952.00 | 5,952.00 | 100.78 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 1,940.55 | 1,778.24 | 162.31 | 11.956 | |
| 13,000.00 | 7,084.71 | 5,952.00 | 5,952.00 | 102.33 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 1,990.73 | 1,827.87 | 162.86 | 12.224 | |
| 13,100.00 | 7,084.36 | 5,952.00 | 5,952.00 | 103.88 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 2,044.58 | 1,881.28 | 163.29 | 12.521 | |
| 13,200.00 | 7,084.01 | 5,952.00 | 5,952.00 | 105.43 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 2,101.80 | 1,938.18 | 163.62 | 12.845 | |
| 13,300.00 | 7,083.66 | 5,952.00 | 5,952.00 | 106.99 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 2,162.14 | 1,998.28 | 163.86 | 13.195 | |
| 13,400.00 | 7,083.31 | 5,952.00 | 5,952.00 | 108.54 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 2,225.34 | 2,061.33 | 164.01 | 13.568 | |
| 13,500.00 | 7,082.96 | 5,952.00 | 5,952.00 | 110.09 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 2,291.16 | 2,127.08 | 164.08 | 13.964 | |
| 13,600.00 | 7,082.61 | 5,952.00 | 5,952.00 | 111.65 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 2,359.38 | 2,195.29 | 164.09 | 14.379 | |
| 13,700.00 | 7,082.26 | 5,952.00 | 5,952.00 | 113.21 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 2,429.81 | 2,265.77 | 164.04 | 14.812 | |
| 13,800.00 | 7,081.91 | 5,952.00 | 5,952.00 | 114.77 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 2,502.25 | 2,338.31 | 163.94 | 15.263 | |
| 13,900.00 | 7,081.56 | 5,952.00 | 5,952.00 | 116.33 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 2,576.53 | 2,412.73 | 163.81 | 15.729 | |

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 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

**Survey Program:** 5952-A027Ua_INC-ONLY

**Rule Assigned:**

**Offset Well Error:** 3.28 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 14,000.00 | 7,081.21 | 5,952.00 | 5,952.00 | 117.89 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 2,652.51 | 2,488.87 | 163.64 | 16.210 | |
| 14,100.00 | 7,080.86 | 5,952.00 | 5,952.00 | 119.45 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 2,730.03 | 2,566.60 | 163.44 | 16.704 | |
| 14,200.00 | 7,080.51 | 5,952.00 | 5,952.00 | 121.02 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 2,808.98 | 2,645.76 | 163.22 | 17.210 | |
| 14,300.00 | 7,080.16 | 5,952.00 | 5,952.00 | 122.58 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 2,889.23 | 2,726.25 | 162.98 | 17.727 | |
| 14,400.00 | 7,079.81 | 5,952.00 | 5,952.00 | 124.15 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 2,970.68 | 2,807.94 | 162.73 | 18.255 | |
| 14,500.00 | 7,079.46 | 5,952.00 | 5,952.00 | 125.71 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 3,053.23 | 2,890.75 | 162.47 | 18.792 | |
| 14,600.00 | 7,079.11 | 5,952.00 | 5,952.00 | 127.28 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 3,136.79 | 2,974.58 | 162.21 | 19.338 | |
| 14,700.00 | 7,078.76 | 5,952.00 | 5,952.00 | 128.85 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 3,221.30 | 3,059.36 | 161.94 | 19.892 | |
| 14,800.00 | 7,078.41 | 5,952.00 | 5,952.00 | 130.42 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 3,306.66 | 3,145.00 | 161.67 | 20.453 | |
| 14,900.00 | 7,078.06 | 5,952.00 | 5,952.00 | 131.98 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 3,392.83 | 3,231.44 | 161.40 | 21.022 | |
| 15,000.00 | 7,077.71 | 5,952.00 | 5,952.00 | 133.55 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 3,479.74 | 3,318.61 | 161.13 | 21.596 | |
| 15,100.00 | 7,077.36 | 5,952.00 | 5,952.00 | 135.13 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 3,567.33 | 3,406.48 | 160.86 | 22.177 | |
| 15,200.00 | 7,077.01 | 5,952.00 | 5,952.00 | 136.70 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 3,655.56 | 3,494.97 | 160.59 | 22.763 | |
| 15,300.00 | 7,076.66 | 5,952.00 | 5,952.00 | 138.27 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 3,744.39 | 3,584.05 | 160.33 | 23.354 | |
| 15,400.00 | 7,076.31 | 5,952.00 | 5,952.00 | 139.84 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 3,833.76 | 3,673.68 | 160.08 | 23.950 | |
| 15,500.00 | 7,075.96 | 5,952.00 | 5,952.00 | 141.42 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 3,923.64 | 3,763.82 | 159.83 | 24.550 | |
| 15,600.00 | 7,075.61 | 5,952.00 | 5,952.00 | 142.99 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 4,014.01 | 3,854.43 | 159.58 | 25.154 | |
| 15,700.00 | 7,075.26 | 5,952.00 | 5,952.00 | 144.57 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 4,104.82 | 3,945.48 | 159.34 | 25.761 | |
| 15,800.00 | 7,074.91 | 5,952.00 | 5,952.00 | 146.14 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 4,196.05 | 4,036.94 | 159.11 | 26.372 | |
| 15,900.00 | 7,074.56 | 5,952.00 | 5,952.00 | 147.72 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 4,287.67 | 4,128.78 | 158.88 | 26.986 | |
| 16,000.00 | 7,074.21 | 5,952.00 | 5,952.00 | 149.29 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 4,379.65 | 4,220.99 | 158.66 | 27.603 | |
| 16,100.00 | 7,073.86 | 5,952.00 | 5,952.00 | 150.87 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 4,471.99 | 4,313.53 | 158.45 | 28.223 | |
| 16,200.00 | 7,073.51 | 5,952.00 | 5,952.00 | 152.45 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 4,564.64 | 4,406.40 | 158.24 | 28.846 | |
| 16,300.00 | 7,073.16 | 5,952.00 | 5,952.00 | 154.03 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 4,657.60 | 4,499.55 | 158.04 | 29.470 | |
| 16,400.00 | 7,072.81 | 5,952.00 | 5,952.00 | 155.60 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 4,750.84 | 4,592.99 | 157.85 | 30.097 | |
| 16,500.00 | 7,072.46 | 5,952.00 | 5,952.00 | 157.18 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 4,844.35 | 4,686.69 | 157.66 | 30.726 | |
| 16,600.00 | 7,072.11 | 5,952.00 | 5,952.00 | 158.76 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 4,938.12 | 4,780.64 | 157.48 | 31.357 | |
| 16,631.96 | 7,072.00 | 5,952.00 | 5,952.00 | 159.27 | 103.76 | -49.66 | -1,703.67 | -5,231.48 | 4,968.14 | 4,810.72 | 157.43 | 31.558 | |

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Survey Program:** 136-A027Ua_INC-ONLY — **Rule Assigned:** — **Offset Well Error:** 3.28 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 3.28 | 3.28 | -113.64 | -1,850.96 | -4,229.28 | 4,616.81 | | | | |
| 100.00 | 100.00 | 54.00 | 54.00 | 3.29 | 3.45 | -113.64 | -1,850.96 | -4,229.28 | 4,616.58 | 4,609.85 | 6.74 | 685.176 | |
| 200.00 | 200.00 | 154.00 | 154.00 | 3.34 | 4.45 | -113.64 | -1,850.96 | -4,229.28 | 4,616.58 | 4,608.80 | 7.79 | 592.784 | |
| 250.44 | 250.44 | 203.82 | 203.82 | 3.37 | 5.12 | -113.63 | -1,850.75 | -4,229.28 | 4,616.50 | 4,608.01 | 8.49 | 543.789 | |
| 300.00 | 300.00 | 245.55 | 245.54 | 3.42 | 5.73 | -113.64 | -1,850.85 | -4,229.28 | 4,616.55 | 4,607.40 | 9.15 | 504.810 | |
| 400.00 | 400.00 | 354.01 | 354.00 | 3.54 | 7.45 | -113.64 | -1,850.96 | -4,229.28 | 4,616.58 | 4,605.59 | 10.99 | 419.986 | |
| 500.00 | 500.00 | 454.01 | 454.00 | 3.69 | 9.15 | -113.64 | -1,850.96 | -4,229.28 | 4,616.58 | 4,603.75 | 12.84 | 359.661 | |
| 600.00 | 599.98 | 553.29 | 553.28 | 3.86 | 10.88 | 36.40 | -1,850.70 | -4,229.28 | 4,615.08 | 4,600.34 | 14.74 | 313.189 | |
| 697.00 | 696.84 | 648.59 | 648.58 | 4.04 | 12.57 | 36.48 | -1,850.78 | -4,229.28 | 4,611.06 | 4,594.46 | 16.61 | 277.680 | |
| 700.00 | 699.84 | 651.54 | 651.53 | 4.05 | 12.62 | 36.48 | -1,850.78 | -4,229.28 | 4,610.90 | 4,594.23 | 16.67 | 276.681 | |
| 800.00 | 799.60 | 749.70 | 749.69 | 4.25 | 14.38 | 36.53 | -1,850.95 | -4,229.28 | 4,605.44 | 4,586.81 | 18.63 | 247.188 | |
| 897.00 | 896.37 | 850.40 | 850.37 | 4.48 | 16.30 | 36.58 | -1,850.96 | -4,229.28 | 4,600.08 | 4,579.31 | 20.77 | 221.425 | |
| 900.00 | 899.37 | 853.39 | 853.37 | 4.48 | 16.36 | 37.45 | -1,850.96 | -4,229.28 | 4,599.92 | 4,579.08 | 20.84 | 220.730 | |
| 947.40 | 946.65 | 900.68 | 900.65 | 4.60 | 17.27 | 51.32 | -1,850.96 | -4,229.28 | 4,597.61 | 4,575.74 | 21.86 | 210.290 | |
| 1,000.00 | 999.13 | 953.16 | 953.13 | 4.73 | 18.28 | 51.35 | -1,850.96 | -4,229.28 | 4,595.34 | 4,572.34 | 23.01 | 199.748 | |
| 1,100.00 | 1,098.89 | 1,050.63 | 1,050.59 | 4.99 | 20.17 | 51.43 | -1,850.18 | -4,229.28 | 4,590.74 | 4,565.59 | 25.15 | 182.535 | |
| 1,200.00 | 1,198.66 | 1,145.84 | 1,145.80 | 5.27 | 22.01 | 51.49 | -1,850.42 | -4,229.28 | 4,586.55 | 4,559.28 | 27.27 | 168.202 | |
| 1,300.00 | 1,298.42 | 1,252.49 | 1,252.42 | 5.56 | 24.08 | 51.55 | -1,850.96 | -4,229.28 | 4,582.48 | 4,552.85 | 29.62 | 154.684 | |
| 1,400.00 | 1,398.18 | 1,352.26 | 1,352.18 | 5.85 | 26.09 | 51.62 | -1,850.96 | -4,229.28 | 4,578.20 | 4,546.27 | 31.93 | 143.393 | |
| 1,500.00 | 1,497.95 | 1,452.02 | 1,451.95 | 6.16 | 28.10 | 51.69 | -1,850.96 | -4,229.28 | 4,573.93 | 4,539.69 | 34.24 | 133.581 | |
| 1,600.00 | 1,597.71 | 1,549.06 | 1,548.98 | 6.47 | 30.06 | 51.76 | -1,850.21 | -4,229.28 | 4,569.37 | 4,532.86 | 36.51 | 125.160 | |
| 1,700.00 | 1,697.47 | 1,644.27 | 1,644.19 | 6.79 | 31.99 | 51.82 | -1,850.48 | -4,229.28 | 4,565.22 | 4,526.48 | 38.75 | 117.824 | |
| 1,800.00 | 1,797.24 | 1,751.37 | 1,751.24 | 7.11 | 34.15 | 51.89 | -1,850.96 | -4,229.28 | 4,561.15 | 4,519.92 | 41.23 | 110.623 | |
| 1,900.00 | 1,897.00 | 1,851.13 | 1,851.00 | 7.44 | 36.18 | 51.96 | -1,850.96 | -4,229.28 | 4,556.91 | 4,513.33 | 43.58 | 104.565 | |
| 2,000.00 | 1,996.76 | 1,950.89 | 1,950.76 | 7.77 | 38.20 | 52.03 | -1,850.96 | -4,229.28 | 4,552.67 | 4,506.74 | 45.93 | 99.117 | |
| 2,100.00 | 2,096.53 | 2,046.59 | 2,046.45 | 8.11 | 40.14 | 52.10 | -1,849.96 | -4,229.28 | 4,548.06 | 4,499.85 | 48.21 | 94.344 | |
| 2,200.00 | 2,196.29 | 2,140.56 | 2,140.42 | 8.44 | 42.05 | 52.16 | -1,850.34 | -4,229.28 | 4,543.99 | 4,493.53 | 50.45 | 90.068 | |
| 2,300.00 | 2,296.06 | 2,250.24 | 2,250.06 | 8.79 | 44.27 | 52.23 | -1,850.96 | -4,229.28 | 4,539.99 | 4,486.99 | 53.00 | 85.660 | |
| 2,400.00 | 2,395.82 | 2,350.01 | 2,349.82 | 9.13 | 46.23 | 52.30 | -1,850.96 | -4,229.28 | 4,535.78 | 4,480.48 | 55.30 | 82.021 | |
| 2,500.00 | 2,495.58 | 2,449.77 | 2,449.58 | 9.47 | 48.19 | 52.37 | -1,850.96 | -4,229.28 | 4,531.58 | 4,473.97 | 57.60 | 78.670 | |
| 2,600.00 | 2,595.35 | 2,546.07 | 2,545.88 | 9.82 | 50.08 | 52.44 | -1,850.24 | -4,229.28 | 4,527.10 | 4,467.26 | 59.84 | 75.655 | |
| 2,700.00 | 2,695.11 | 2,641.48 | 2,641.28 | 10.17 | 51.95 | 52.51 | -1,850.55 | -4,229.28 | 4,523.03 | 4,460.97 | 62.06 | 72.881 | |
| 2,800.00 | 2,794.87 | 2,749.10 | 2,748.87 | 10.52 | 54.20 | 52.58 | -1,850.96 | -4,229.28 | 4,519.00 | 4,454.35 | 64.65 | 69.901 | |
| 2,900.00 | 2,894.64 | 2,848.86 | 2,848.64 | 10.87 | 56.52 | 52.64 | -1,850.96 | -4,229.28 | 4,514.82 | 4,447.49 | 67.32 | 67.060 | |
| 3,000.00 | 2,994.40 | 2,948.63 | 2,948.40 | 11.23 | 58.85 | 52.71 | -1,850.96 | -4,229.28 | 4,510.64 | 4,440.64 | 70.00 | 64.435 | |
| 3,100.00 | 3,094.16 | 3,046.21 | 3,045.97 | 11.58 | 61.13 | 52.79 | -1,850.09 | -4,229.28 | 4,506.15 | 4,433.52 | 72.63 | 62.040 | |
| 3,200.00 | 3,193.93 | 3,142.17 | 3,141.93 | 11.94 | 63.37 | 52.86 | -1,850.32 | -4,229.28 | 4,502.08 | 4,426.86 | 75.23 | 59.848 | |
| 3,300.00 | 3,293.69 | 3,238.17 | 3,237.93 | 12.29 | 65.61 | 52.92 | -1,850.78 | -4,229.28 | 4,498.10 | 4,420.28 | 77.82 | 57.801 | |
| 3,400.00 | 3,393.45 | 3,347.85 | 3,347.45 | 12.65 | 68.26 | 52.99 | -1,850.96 | -4,229.28 | 4,494.02 | 4,413.19 | 80.82 | 55.604 | |
| 3,500.00 | 3,493.22 | 3,447.62 | 3,447.22 | 13.01 | 70.70 | 53.06 | -1,850.96 | -4,229.28 | 4,489.88 | 4,406.26 | 83.62 | 53.697 | |
| 3,600.00 | 3,592.98 | 3,546.32 | 3,545.88 | 13.37 | 73.11 | 53.16 | -1,848.62 | -4,229.28 | 4,484.88 | 4,398.50 | 86.38 | 51.918 | |
| 3,700.00 | 3,692.74 | 3,636.50 | 3,636.04 | 13.73 | 75.32 | 53.22 | -1,848.94 | -4,229.28 | 4,480.89 | 4,391.94 | 88.95 | 50.378 | |
| 3,800.00 | 3,792.51 | 3,726.77 | 3,726.29 | 14.09 | 77.53 | 53.27 | -1,849.80 | -4,229.28 | 4,477.11 | 4,385.60 | 91.51 | 48.925 | |
| 3,900.00 | 3,892.27 | 3,846.86 | 3,846.27 | 14.45 | 80.33 | 53.34 | -1,850.96 | -4,229.28 | 4,473.38 | 4,378.71 | 94.67 | 47.253 | |
| 4,000.00 | 3,992.04 | 3,946.62 | 3,946.04 | 14.81 | 82.45 | 53.41 | -1,850.96 | -4,229.28 | 4,469.28 | 4,372.13 | 97.15 | 46.005 | |
| 4,100.00 | 4,091.80 | 4,046.39 | 4,045.80 | 15.17 | 84.57 | 53.48 | -1,850.96 | -4,229.28 | 4,465.18 | 4,365.55 | 99.63 | 44.819 | |
| 4,200.00 | 4,191.56 | 4,141.30 | 4,140.70 | 15.53 | 86.59 | 53.56 | -1,850.00 | -4,229.28 | 4,460.74 | 4,358.73 | 102.00 | 43.731 | |
| 4,300.00 | 4,291.33 | 4,235.80 | 4,235.20 | 15.89 | 88.60 | 53.63 | -1,850.44 | -4,229.28 | 4,456.82 | 4,352.45 | 104.37 | 42.701 | |
| 4,400.00 | 4,391.09 | 4,345.75 | 4,345.09 | 16.26 | 90.94 | 53.70 | -1,850.96 | -4,229.28 | 4,452.92 | 4,345.85 | 107.07 | 41.589 | |
| 4,500.00 | 4,490.85 | 4,445.52 | 4,444.85 | 16.62 | 93.06 | 53.77 | -1,850.96 | -4,229.28 | 4,448.85 | 4,339.29 | 109.55 | 40.609 | |
| 4,600.00 | 4,590.62 | 4,545.28 | 4,544.62 | 16.99 | 95.18 | 53.84 | -1,850.96 | -4,229.28 | 4,444.78 | 4,332.75 | 112.03 | 39.673 | |
| 4,700.00 | 4,690.38 | 4,640.35 | 4,639.67 | 17.35 | 97.20 | 53.92 | -1,850.00 | -4,229.28 | 4,440.38 | 4,325.96 | 114.42 | 38.809 | |

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

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

**Survey Program:** 136-A027Ua_INC-ONLY

**Offset Well Error:** 3.28 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Rule Assigned: Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4,800.00 | 4,790.14 | 4,734.95 | 4,734.27 | 17.71 | 99.21 | 53.98 | -1,850.44 | -4,229.28 | 4,436.50 | 4,319.70 | 116.79 | 37.987 | |
| 4,900.00 | 4,889.91 | 4,844.65 | 4,843.91 | 18.08 | 101.54 | 54.06 | -1,850.96 | -4,229.28 | 4,432.63 | 4,313.14 | 119.48 | 37.098 | |
| 5,000.00 | 4,989.67 | 4,944.41 | 4,943.67 | 18.44 | 103.67 | 54.13 | -1,850.96 | -4,229.28 | 4,428.59 | 4,306.62 | 121.97 | 36.309 | |
| 5,100.00 | 5,089.43 | 5,044.18 | 5,043.43 | 18.81 | 105.79 | 54.20 | -1,850.96 | -4,229.28 | 4,424.56 | 4,300.11 | 124.45 | 35.552 | |
| 5,200.00 | 5,189.20 | 5,139.39 | 5,138.64 | 19.17 | 107.81 | 54.28 | -1,849.99 | -4,229.28 | 4,420.20 | 4,293.36 | 126.84 | 34.849 | |
| 5,300.00 | 5,288.96 | 5,234.10 | 5,233.34 | 19.54 | 109.83 | 54.34 | -1,850.43 | -4,229.28 | 4,416.34 | 4,287.13 | 129.22 | 34.178 | |
| 5,400.00 | 5,388.72 | 5,343.54 | 5,342.72 | 19.91 | 112.25 | 54.42 | -1,850.96 | -4,229.28 | 4,412.51 | 4,280.50 | 132.01 | 33.426 | |
| 5,500.00 | 5,488.49 | 5,443.31 | 5,442.49 | 20.27 | 114.63 | 54.49 | -1,850.96 | -4,229.28 | 4,408.51 | 4,273.76 | 134.75 | 32.717 | |
| 5,600.00 | 5,588.25 | 5,543.07 | 5,542.25 | 20.64 | 117.01 | 54.56 | -1,850.96 | -4,229.28 | 4,404.51 | 4,267.02 | 137.49 | 32.035 | |
| 5,700.00 | 5,688.01 | 5,638.43 | 5,637.60 | 21.00 | 119.28 | 54.64 | -1,849.99 | -4,229.28 | 4,400.19 | 4,260.06 | 140.13 | 31.401 | |
| 5,800.00 | 5,787.78 | 5,733.24 | 5,732.41 | 21.37 | 121.54 | 54.71 | -1,850.42 | -4,229.28 | 4,396.37 | 4,253.62 | 142.75 | 30.797 | |
| 5,900.00 | 5,887.54 | 5,842.51 | 5,841.54 | 21.74 | 124.15 | 54.78 | -1,850.96 | -4,229.28 | 4,392.57 | 4,246.85 | 145.72 | 30.143 | |
| 6,000.00 | 5,987.31 | 5,942.27 | 5,941.31 | 22.11 | 126.53 | 54.85 | -1,850.96 | -4,229.28 | 4,388.60 | 4,240.13 | 148.47 | 29.559 | |
| 6,100.00 | 6,087.07 | 6,042.03 | 6,041.07 | 22.47 | 128.92 | 54.93 | -1,850.96 | -4,229.28 | 4,384.64 | 4,233.42 | 151.22 | 28.995 | |
| 6,200.00 | 6,186.83 | 6,134.63 | 6,133.62 | 22.84 | 131.13 | 55.02 | -1,849.25 | -4,229.28 | 4,380.12 | 4,226.32 | 153.80 | 28.480 | |
| 6,300.00 | 6,286.60 | 6,226.24 | 6,225.22 | 23.21 | 133.32 | 55.07 | -1,849.95 | -4,229.28 | 4,376.43 | 4,220.08 | 156.35 | 27.991 | |
| 6,400.00 | 6,386.36 | 6,341.47 | 6,340.36 | 23.58 | 135.88 | 55.15 | -1,850.96 | -4,229.28 | 4,372.81 | 4,213.53 | 159.28 | 27.454 | |
| 6,494.00 | 6,480.13 | 6,435.25 | 6,434.13 | 23.92 | 137.63 | 55.22 | -1,850.96 | -4,229.28 | 4,369.11 | 4,207.74 | 161.37 | 27.075 | |
| 6,500.00 | 6,486.12 | 6,441.23 | 6,440.12 | 23.94 | 137.75 | 47.94 | -1,850.96 | -4,229.28 | 4,368.85 | 4,207.34 | 161.51 | 27.051 | |
| 6,550.00 | 6,535.89 | 6,491.00 | 6,489.89 | 24.13 | 138.67 | 12.34 | -1,850.96 | -4,229.28 | 4,364.60 | 4,201.99 | 162.61 | 26.840 | |
| 6,600.00 | 6,585.24 | 6,540.35 | 6,539.24 | 24.31 | 139.59 | -0.16 | -1,850.96 | -4,229.28 | 4,356.69 | 4,192.98 | 163.71 | 26.612 | |
| 6,650.00 | 6,633.88 | 6,587.35 | 6,586.23 | 24.50 | 140.47 | -6.11 | -1,849.89 | -4,229.28 | 4,344.80 | 4,180.05 | 164.76 | 26.371 | |
| 6,700.00 | 6,681.49 | 6,632.69 | 6,631.56 | 24.68 | 141.32 | -9.76 | -1,849.98 | -4,229.28 | 4,329.76 | 4,164.00 | 165.77 | 26.120 | |
| 6,750.00 | 6,727.80 | 6,676.79 | 6,675.66 | 24.86 | 142.14 | -12.43 | -1,850.13 | -4,229.28 | 4,311.30 | 4,144.55 | 166.74 | 25.856 | |
| 6,800.00 | 6,772.51 | 6,719.37 | 6,718.24 | 25.04 | 142.93 | -14.67 | -1,850.34 | -4,229.28 | 4,289.52 | 4,121.84 | 167.68 | 25.581 | |
| 6,850.00 | 6,815.34 | 6,760.18 | 6,759.05 | 25.21 | 143.69 | -16.75 | -1,850.60 | -4,229.28 | 4,264.57 | 4,095.99 | 168.58 | 25.297 | |
| 6,900.00 | 6,856.04 | 6,811.19 | 6,810.04 | 25.39 | 144.64 | -18.89 | -1,850.96 | -4,229.28 | 4,236.60 | 4,066.96 | 169.64 | 24.974 | |
| 6,950.00 | 6,894.35 | 6,849.50 | 6,848.35 | 25.57 | 145.29 | -21.14 | -1,850.96 | -4,229.28 | 4,205.67 | 4,035.27 | 170.41 | 24.680 | |
| 7,000.00 | 6,930.04 | 6,885.19 | 6,884.04 | 25.75 | 145.89 | -23.66 | -1,850.96 | -4,229.28 | 4,172.09 | 4,000.98 | 171.11 | 24.382 | |
| 7,050.00 | 6,962.89 | 6,918.03 | 6,916.89 | 25.93 | 146.45 | -26.56 | -1,850.96 | -4,229.28 | 4,136.07 | 3,964.31 | 171.75 | 24.081 | |
| 7,100.00 | 6,992.69 | 6,947.83 | 6,946.69 | 26.13 | 146.96 | -30.00 | -1,850.96 | -4,229.28 | 4,097.84 | 3,925.51 | 172.33 | 23.778 | |
| 7,150.00 | 7,019.25 | 6,974.40 | 6,973.25 | 26.33 | 147.41 | -34.12 | -1,850.96 | -4,229.28 | 4,057.65 | 3,884.81 | 172.85 | 23.476 | |
| 7,200.00 | 7,042.43 | 6,997.57 | 6,996.43 | 26.55 | 147.80 | -39.14 | -1,850.96 | -4,229.28 | 4,015.76 | 3,842.47 | 173.29 | 23.174 | |
| 7,250.00 | 7,062.07 | 7,017.03 | 7,015.88 | 26.79 | 148.13 | -45.28 | -1,850.74 | -4,229.28 | 3,972.36 | 3,798.70 | 173.66 | 22.875 | |
| 7,300.00 | 7,078.05 | 7,032.76 | 7,031.61 | 27.04 | 148.40 | -52.74 | -1,850.75 | -4,229.28 | 3,927.87 | 3,753.92 | 173.95 | 22.581 | |
| 7,350.00 | 7,090.27 | 7,044.80 | 7,043.65 | 27.30 | 148.60 | -61.64 | -1,850.75 | -4,229.28 | 3,882.52 | 3,708.35 | 174.17 | 22.291 | |
| 7,400.00 | 7,098.66 | 7,053.06 | 7,051.91 | 27.58 | 148.75 | -71.83 | -1,850.75 | -4,229.28 | 3,836.59 | 3,662.27 | 174.32 | 22.009 | |
| 7,450.00 | 7,103.17 | 7,057.50 | 7,056.35 | 27.87 | 148.82 | -82.79 | -1,850.76 | -4,229.28 | 3,790.37 | 3,615.96 | 174.40 | 21.733 | |
| 7,484.86 | 7,104.00 | 7,058.32 | 7,057.17 | 28.08 | 148.83 | -90.45 | -1,850.76 | -4,229.28 | 3,758.13 | 3,583.71 | 174.42 | 21.547 | |
| 7,500.00 | 7,103.95 | 7,058.27 | 7,057.12 | 28.17 | 148.83 | -90.45 | -1,850.76 | -4,229.28 | 3,744.14 | 3,569.73 | 174.42 | 21.467 | |
| 7,600.00 | 7,103.60 | 7,057.92 | 7,056.77 | 28.83 | 148.83 | -90.44 | -1,850.76 | -4,229.28 | 3,652.02 | 3,477.59 | 174.43 | 20.937 | |
| 7,700.00 | 7,103.25 | 7,057.58 | 7,056.43 | 29.56 | 148.82 | -90.42 | -1,850.76 | -4,229.28 | 3,560.32 | 3,385.86 | 174.46 | 20.408 | |
| 7,800.00 | 7,102.90 | 7,057.23 | 7,056.09 | 30.35 | 148.82 | -90.41 | -1,850.76 | -4,229.28 | 3,469.07 | 3,294.55 | 174.52 | 19.877 | |
| 7,900.00 | 7,102.55 | 7,056.89 | 7,055.74 | 31.21 | 148.81 | -90.39 | -1,850.76 | -4,229.28 | 3,378.33 | 3,203.71 | 174.62 | 19.347 | |
| 8,000.00 | 7,102.20 | 7,056.54 | 7,055.40 | 32.13 | 148.80 | -90.38 | -1,850.76 | -4,229.28 | 3,288.12 | 3,113.36 | 174.75 | 18.816 | |
| 8,100.00 | 7,101.85 | 7,056.20 | 7,055.05 | 33.10 | 148.80 | -90.37 | -1,850.76 | -4,229.28 | 3,198.49 | 3,023.56 | 174.93 | 18.284 | |
| 8,200.00 | 7,101.50 | 7,055.85 | 7,054.71 | 34.11 | 148.79 | -90.35 | -1,850.76 | -4,229.28 | 3,109.50 | 2,934.34 | 175.16 | 17.753 | |
| 8,300.00 | 7,101.15 | 7,055.51 | 7,054.36 | 35.17 | 148.79 | -90.34 | -1,850.76 | -4,229.28 | 3,021.19 | 2,845.75 | 175.44 | 17.221 | |
| 8,400.00 | 7,100.80 | 7,055.16 | 7,054.02 | 36.27 | 148.78 | -90.33 | -1,850.76 | -4,229.28 | 2,933.63 | 2,757.86 | 175.78 | 16.690 | |
| 8,500.00 | 7,100.45 | 7,054.82 | 7,053.67 | 37.41 | 148.78 | -90.31 | -1,850.76 | -4,229.28 | 2,846.90 | 2,670.71 | 176.19 | 16.159 | |
| 8,600.00 | 7,100.10 | 7,054.47 | 7,053.33 | 38.58 | 148.77 | -90.30 | -1,850.76 | -4,229.28 | 2,761.06 | 2,584.39 | 176.67 | 15.628 | |
| 8,700.00 | 7,099.75 | 7,054.13 | 7,052.98 | 39.78 | 148.76 | -90.28 | -1,850.76 | -4,229.28 | 2,676.20 | 2,498.96 | 177.24 | 15.099 | |

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

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

**Survey Program:** 136-A027Ua_INC-ONLY

**Offset Well Error:** 3.28 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8,800.00 | 7,099.40 | 7,053.79 | 7,052.64 | 41.00 | 148.76 | -90.27 | -1,850.76 | -4,229.28 | 2,592.43 | 2,414.52 | 177.91 | 14.572 | |
| 8,900.00 | 7,099.05 | 7,053.44 | 7,052.29 | 42.25 | 148.75 | -90.26 | -1,850.76 | -4,229.28 | 2,509.84 | 2,331.17 | 178.67 | 14.047 | |
| 9,000.00 | 7,098.70 | 7,053.10 | 7,051.95 | 43.53 | 148.75 | -90.24 | -1,850.75 | -4,229.28 | 2,428.56 | 2,249.01 | 179.55 | 13.526 | |
| 9,100.00 | 7,098.35 | 7,052.75 | 7,051.60 | 44.82 | 148.74 | -90.23 | -1,850.75 | -4,229.28 | 2,348.73 | 2,168.18 | 180.55 | 13.009 | |
| 9,200.00 | 7,098.00 | 7,052.41 | 7,051.26 | 46.14 | 148.73 | -90.22 | -1,850.75 | -4,229.28 | 2,270.50 | 2,088.82 | 181.68 | 12.497 | |
| 9,300.00 | 7,097.65 | 7,052.06 | 7,050.92 | 47.47 | 148.73 | -90.20 | -1,850.75 | -4,229.28 | 2,194.03 | 2,011.08 | 182.95 | 11.993 | |
| 9,400.00 | 7,097.30 | 7,051.72 | 7,050.57 | 48.82 | 148.72 | -90.19 | -1,850.75 | -4,229.28 | 2,119.53 | 1,935.17 | 184.36 | 11.497 | |
| 9,500.00 | 7,096.95 | 7,051.37 | 7,050.23 | 50.18 | 148.72 | -90.17 | -1,850.75 | -4,229.28 | 2,047.20 | 1,861.27 | 185.93 | 11.011 | |
| 9,600.00 | 7,096.60 | 7,051.03 | 7,049.88 | 51.56 | 148.71 | -90.16 | -1,850.75 | -4,229.28 | 1,977.28 | 1,789.63 | 187.65 | 10.537 | |
| 9,700.00 | 7,096.25 | 7,050.68 | 7,049.54 | 52.95 | 148.70 | -90.15 | -1,850.75 | -4,229.28 | 1,910.04 | 1,720.50 | 189.53 | 10.078 | |
| 9,800.00 | 7,095.90 | 7,050.34 | 7,049.19 | 54.35 | 148.70 | -90.13 | -1,850.75 | -4,229.28 | 1,845.77 | 1,654.19 | 191.58 | 9.635 | |
| 9,900.00 | 7,095.55 | 7,049.99 | 7,048.85 | 55.76 | 148.69 | -90.12 | -1,850.75 | -4,229.28 | 1,784.79 | 1,591.02 | 193.77 | 9.211 | |
| 10,000.00 | 7,095.20 | 7,049.65 | 7,048.50 | 57.18 | 148.69 | -90.11 | -1,850.75 | -4,229.28 | 1,727.45 | 1,531.34 | 196.11 | 8.809 | |
| 10,100.00 | 7,094.85 | 7,049.30 | 7,048.16 | 58.61 | 148.68 | -90.09 | -1,850.75 | -4,229.28 | 1,674.13 | 1,475.55 | 198.58 | 8.431 | |
| 10,200.00 | 7,094.50 | 7,048.96 | 7,047.81 | 60.05 | 148.68 | -90.08 | -1,850.75 | -4,229.28 | 1,625.21 | 1,424.07 | 201.15 | 8.080 | |
| 10,300.00 | 7,094.15 | 7,048.62 | 7,047.47 | 61.50 | 148.67 | -90.06 | -1,850.75 | -4,229.28 | 1,581.12 | 1,377.33 | 203.79 | 7.759 | |
| 10,400.00 | 7,093.80 | 7,048.27 | 7,047.12 | 62.96 | 148.66 | -90.05 | -1,850.75 | -4,229.28 | 1,542.26 | 1,335.79 | 206.47 | 7.470 | |
| 10,500.00 | 7,093.45 | 7,047.93 | 7,046.78 | 64.42 | 148.66 | -90.04 | -1,850.75 | -4,229.28 | 1,509.03 | 1,299.90 | 209.13 | 7.216 | |
| 10,600.00 | 7,093.10 | 7,047.58 | 7,046.43 | 65.89 | 148.65 | -90.02 | -1,850.75 | -4,229.28 | 1,481.82 | 1,270.09 | 211.73 | 6.999 | |
| 10,700.00 | 7,092.75 | 7,047.24 | 7,046.09 | 67.36 | 148.65 | -90.01 | -1,850.75 | -4,229.28 | 1,460.96 | 1,246.75 | 214.21 | 6.820 | |
| 10,800.00 | 7,092.40 | 7,046.89 | 7,045.75 | 68.84 | 148.64 | -90.00 | -1,850.75 | -4,229.28 | 1,446.73 | 1,230.21 | 216.51 | 6.682 | |
| 10,900.00 | 7,092.05 | 7,046.55 | 7,045.40 | 70.33 | 148.63 | -89.98 | -1,850.75 | -4,229.28 | 1,439.31 | 1,220.72 | 218.59 | 6.585 | |
| 10,956.93 | 7,091.85 | 7,046.35 | 7,045.20 | 71.18 | 148.63 | -89.97 | -1,850.75 | -4,229.28 | 1,438.19 | 1,218.53 | 219.66 | 6.547 | CC |
| 11,000.00 | 7,091.70 | 7,046.20 | 7,045.06 | 71.82 | 148.63 | -89.97 | -1,850.75 | -4,229.28 | 1,438.83 | 1,218.44 | 220.40 | 6.528 | ES |
| 11,100.00 | 7,091.35 | 7,045.86 | 7,044.71 | 73.31 | 148.62 | -89.95 | -1,850.75 | -4,229.28 | 1,445.29 | 1,223.38 | 221.91 | 6.513 | SF |
| 11,200.00 | 7,091.00 | 7,045.51 | 7,044.37 | 74.81 | 148.62 | -89.94 | -1,850.75 | -4,229.28 | 1,458.58 | 1,235.49 | 223.10 | 6.538 | |
| 11,300.00 | 7,090.65 | 7,045.17 | 7,044.02 | 76.32 | 148.61 | -89.93 | -1,850.75 | -4,229.28 | 1,478.54 | 1,254.57 | 223.97 | 6.601 | |
| 11,400.00 | 7,090.30 | 7,044.82 | 7,043.68 | 77.82 | 148.61 | -89.91 | -1,850.75 | -4,229.28 | 1,504.89 | 1,280.35 | 224.54 | 6.702 | |
| 11,500.00 | 7,089.95 | 7,044.48 | 7,043.33 | 79.34 | 148.60 | -89.90 | -1,850.75 | -4,229.28 | 1,537.31 | 1,312.48 | 224.83 | 6.838 | |
| 11,600.00 | 7,089.60 | 7,044.14 | 7,042.99 | 80.85 | 148.59 | -89.89 | -1,850.75 | -4,229.28 | 1,575.41 | 1,350.55 | 224.86 | 7.006 | |
| 11,700.00 | 7,089.25 | 7,043.79 | 7,042.64 | 82.37 | 148.59 | -89.87 | -1,850.75 | -4,229.28 | 1,618.81 | 1,394.13 | 224.67 | 7.205 | |
| 11,800.00 | 7,088.90 | 7,043.45 | 7,042.30 | 83.89 | 148.58 | -89.86 | -1,850.75 | -4,229.28 | 1,667.08 | 1,442.78 | 224.30 | 7.432 | |
| 11,900.00 | 7,088.55 | 7,043.10 | 7,041.95 | 85.41 | 148.58 | -89.84 | -1,850.75 | -4,229.28 | 1,719.81 | 1,496.03 | 223.78 | 7.685 | |
| 12,000.00 | 7,088.20 | 7,042.76 | 7,041.61 | 86.94 | 148.57 | -89.83 | -1,850.75 | -4,229.28 | 1,776.62 | 1,553.47 | 223.14 | 7.962 | |
| 12,100.00 | 7,087.85 | 7,042.41 | 7,041.27 | 88.47 | 148.56 | -89.82 | -1,850.75 | -4,229.28 | 1,837.11 | 1,614.69 | 222.42 | 8.260 | |
| 12,200.00 | 7,087.50 | 7,042.07 | 7,040.92 | 90.00 | 148.56 | -89.80 | -1,850.75 | -4,229.28 | 1,900.94 | 1,679.31 | 221.63 | 8.577 | |
| 12,300.00 | 7,087.15 | 7,041.72 | 7,040.58 | 91.54 | 148.55 | -89.79 | -1,850.75 | -4,229.28 | 1,967.79 | 1,746.98 | 220.81 | 8.912 | |
| 12,400.00 | 7,086.81 | 7,041.38 | 7,040.23 | 93.07 | 148.55 | -89.78 | -1,850.75 | -4,229.28 | 2,037.35 | 1,817.40 | 219.95 | 9.263 | |
| 12,500.00 | 7,086.46 | 7,041.03 | 7,039.89 | 94.61 | 148.54 | -89.76 | -1,850.75 | -4,229.28 | 2,109.36 | 1,890.27 | 219.09 | 9.628 | |
| 12,600.00 | 7,086.11 | 7,040.69 | 7,039.54 | 96.15 | 148.53 | -89.75 | -1,850.75 | -4,229.28 | 2,183.58 | 1,965.35 | 218.23 | 10.006 | |
| 12,700.00 | 7,085.76 | 7,040.34 | 7,039.20 | 97.69 | 148.53 | -89.73 | -1,850.75 | -4,229.28 | 2,259.79 | 2,042.41 | 217.38 | 10.396 | |
| 12,800.00 | 7,085.41 | 7,040.00 | 7,038.85 | 99.24 | 148.52 | -89.72 | -1,850.75 | -4,229.28 | 2,337.79 | 2,121.25 | 216.54 | 10.796 | |
| 12,900.00 | 7,085.06 | 7,039.66 | 7,038.51 | 100.78 | 148.52 | -89.71 | -1,850.75 | -4,229.28 | 2,417.41 | 2,201.68 | 215.72 | 11.206 | |
| 13,000.00 | 7,084.71 | 7,039.31 | 7,038.16 | 102.33 | 148.51 | -89.69 | -1,850.75 | -4,229.28 | 2,498.49 | 2,283.56 | 214.93 | 11.625 | |
| 13,100.00 | 7,084.36 | 7,038.97 | 7,037.82 | 103.88 | 148.51 | -89.68 | -1,850.75 | -4,229.28 | 2,580.91 | 2,366.74 | 214.16 | 12.051 | |
| 13,200.00 | 7,084.01 | 7,038.62 | 7,037.48 | 105.43 | 148.50 | -89.67 | -1,850.75 | -4,229.28 | 2,664.52 | 2,451.10 | 213.42 | 12.485 | |
| 13,300.00 | 7,083.66 | 7,038.28 | 7,037.13 | 106.99 | 148.49 | -89.65 | -1,850.75 | -4,229.28 | 2,749.24 | 2,536.53 | 212.71 | 12.925 | |
| 13,400.00 | 7,083.31 | 7,037.93 | 7,036.79 | 108.54 | 148.49 | -89.64 | -1,850.75 | -4,229.28 | 2,834.94 | 2,622.92 | 212.02 | 13.371 | |
| 13,500.00 | 7,082.96 | 7,037.59 | 7,036.44 | 110.09 | 148.48 | -89.63 | -1,850.75 | -4,229.28 | 2,921.56 | 2,710.19 | 211.37 | 13.822 | |
| 13,600.00 | 7,082.61 | 7,037.24 | 7,036.10 | 111.65 | 148.48 | -89.61 | -1,850.75 | -4,229.28 | 3,009.01 | 2,798.27 | 210.74 | 14.278 | |
| 13,700.00 | 7,082.26 | 7,036.90 | 7,035.75 | 113.21 | 148.47 | -89.60 | -1,850.75 | -4,229.28 | 3,097.21 | 2,887.07 | 210.14 | 14.739 | |
| 13,800.00 | 7,081.91 | 7,036.55 | 7,035.41 | 114.77 | 148.46 | -89.58 | -1,850.75 | -4,229.28 | 3,186.12 | 2,976.55 | 209.56 | 15.204 | |

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

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

**Survey Program:** 136-A027Ua_INC-ONLY

**Rule Assigned:**

**Offset Well Error:** 3.28 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13,900.00 | 7,081.56 | 7,036.21 | 7,035.06 | 116.33 | 148.46 | -89.57 | -1,850.75 | -4,229.28 | 3,275.66 | 3,066.65 | 209.01 | 15.672 | |
| 14,000.00 | 7,081.21 | 7,035.87 | 7,034.72 | 117.89 | 148.45 | -89.56 | -1,850.75 | -4,229.28 | 3,365.79 | 3,157.30 | 208.49 | 16.144 | |
| 14,100.00 | 7,080.86 | 7,035.52 | 7,034.37 | 119.45 | 148.45 | -89.54 | -1,850.75 | -4,229.28 | 3,456.47 | 3,248.48 | 207.99 | 16.619 | |
| 14,200.00 | 7,080.51 | 7,035.18 | 7,034.03 | 121.02 | 148.44 | -89.53 | -1,850.75 | -4,229.28 | 3,547.64 | 3,340.13 | 207.51 | 17.097 | |
| 14,300.00 | 7,080.16 | 7,034.83 | 7,033.69 | 122.58 | 148.44 | -89.52 | -1,850.75 | -4,229.28 | 3,639.28 | 3,432.23 | 207.05 | 17.577 | |
| 14,400.00 | 7,079.81 | 7,034.49 | 7,033.34 | 124.15 | 148.43 | -89.50 | -1,850.75 | -4,229.28 | 3,731.35 | 3,524.74 | 206.61 | 18.060 | |
| 14,500.00 | 7,079.46 | 7,034.14 | 7,033.00 | 125.71 | 148.42 | -89.49 | -1,850.75 | -4,229.28 | 3,823.82 | 3,617.62 | 206.19 | 18.545 | |
| 14,600.00 | 7,079.11 | 7,033.80 | 7,032.65 | 127.28 | 148.42 | -89.47 | -1,850.75 | -4,229.28 | 3,916.65 | 3,710.86 | 205.80 | 19.032 | |
| 14,700.00 | 7,078.76 | 7,033.45 | 7,032.31 | 128.85 | 148.41 | -89.46 | -1,850.75 | -4,229.28 | 4,009.84 | 3,804.42 | 205.41 | 19.521 | |
| 14,800.00 | 7,078.41 | 7,033.11 | 7,031.96 | 130.42 | 148.41 | -89.45 | -1,850.75 | -4,229.28 | 4,103.34 | 3,898.29 | 205.05 | 20.011 | |
| 14,900.00 | 7,078.06 | 7,032.76 | 7,031.62 | 131.98 | 148.40 | -89.43 | -1,850.75 | -4,229.28 | 4,197.14 | 3,992.44 | 204.70 | 20.504 | |
| 15,000.00 | 7,077.71 | 7,032.42 | 7,031.27 | 133.55 | 148.39 | -89.42 | -1,850.75 | -4,229.28 | 4,291.22 | 4,086.85 | 204.37 | 20.997 | |
| 15,100.00 | 7,077.36 | 7,032.08 | 7,030.93 | 135.13 | 148.39 | -89.41 | -1,850.75 | -4,229.28 | 4,385.57 | 4,181.51 | 204.05 | 21.492 | |
| 15,200.00 | 7,077.01 | 7,031.73 | 7,030.58 | 136.70 | 148.38 | -89.39 | -1,850.75 | -4,229.28 | 4,480.16 | 4,276.41 | 203.75 | 21.988 | |
| 15,300.00 | 7,076.66 | 7,031.39 | 7,030.24 | 138.27 | 148.38 | -89.38 | -1,850.75 | -4,229.28 | 4,574.98 | 4,371.52 | 203.46 | 22.486 | |
| 15,400.00 | 7,076.31 | 7,031.04 | 7,029.90 | 139.84 | 148.37 | -89.36 | -1,850.75 | -4,229.28 | 4,670.01 | 4,466.83 | 203.18 | 22.984 | |
| 15,500.00 | 7,075.96 | 7,030.70 | 7,029.55 | 141.42 | 148.37 | -89.35 | -1,850.75 | -4,229.28 | 4,765.25 | 4,562.33 | 202.92 | 23.484 | |
| 15,600.00 | 7,075.61 | 7,030.35 | 7,029.21 | 142.99 | 148.36 | -89.34 | -1,850.75 | -4,229.28 | 4,860.68 | 4,658.02 | 202.67 | 23.984 | |
| 15,700.00 | 7,075.26 | 7,030.01 | 7,028.86 | 144.57 | 148.35 | -89.32 | -1,850.75 | -4,229.28 | 4,956.29 | 4,753.87 | 202.42 | 24.485 | |
| 15,800.00 | 7,074.91 | 7,029.66 | 7,028.52 | 146.14 | 148.35 | -89.31 | -1,850.75 | -4,229.28 | 5,052.07 | 4,849.88 | 202.19 | 24.987 | |
| 15,900.00 | 7,074.56 | 7,029.32 | 7,028.17 | 147.72 | 148.34 | -89.30 | -1,850.75 | -4,229.28 | 5,148.01 | 4,946.04 | 201.97 | 25.489 | |
| 16,000.00 | 7,074.21 | 7,028.98 | 7,027.83 | 149.29 | 148.34 | -89.28 | -1,850.75 | -4,229.28 | 5,244.10 | 5,042.35 | 201.76 | 25.992 | |
| 16,100.00 | 7,073.86 | 7,028.63 | 7,027.48 | 150.87 | 148.33 | -89.27 | -1,850.75 | -4,229.28 | 5,340.34 | 5,138.79 | 201.55 | 26.496 | |
| 16,200.00 | 7,073.51 | 7,028.29 | 7,027.14 | 152.45 | 148.32 | -89.25 | -1,850.75 | -4,229.28 | 5,436.71 | 5,235.35 | 201.36 | 27.000 | |
| 16,300.00 | 7,073.16 | 7,027.94 | 7,026.80 | 154.03 | 148.32 | -89.24 | -1,850.75 | -4,229.28 | 5,533.21 | 5,332.04 | 201.17 | 27.505 | |
| 16,400.00 | 7,072.81 | 7,027.60 | 7,026.45 | 155.60 | 148.31 | -89.23 | -1,850.75 | -4,229.28 | 5,629.83 | 5,428.84 | 201.00 | 28.010 | |
| 16,500.00 | 7,072.46 | 7,027.25 | 7,026.11 | 157.18 | 148.31 | -89.21 | -1,850.74 | -4,229.28 | 5,726.57 | 5,525.75 | 200.83 | 28.515 | |
| 16,600.00 | 7,072.11 | 7,026.91 | 7,025.76 | 158.76 | 148.30 | -89.20 | -1,850.74 | -4,229.28 | 5,823.42 | 5,622.76 | 200.66 | 29.021 | |
| 16,631.96 | 7,072.00 | 7,026.80 | 7,025.65 | 159.27 | 148.30 | -89.20 | -1,850.74 | -4,229.28 | 5,854.40 | 5,653.79 | 200.61 | 29.183 | |

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

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

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Rule Assigned: Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 3.28 | 3.28 | -127.19 | -1,825.69 | -2,406.20 | 3,021.21 | | | | |
| 100.00 | 100.00 | 27.99 | 27.99 | 3.29 | 3.28 | -127.19 | -1,825.69 | -2,406.22 | 3,020.44 | 3,013.87 | 6.57 | 459.758 | |
| 200.00 | 200.00 | 123.01 | 123.01 | 3.34 | 3.28 | -127.18 | -1,825.66 | -2,406.53 | 3,020.68 | 3,014.06 | 6.62 | 456.508 | |
| 300.00 | 300.00 | 231.65 | 231.65 | 3.42 | 3.29 | -127.18 | -1,825.43 | -2,406.81 | 3,020.75 | 3,014.04 | 6.70 | 450.641 | |
| 333.20 | 333.20 | 264.20 | 264.20 | 3.46 | 3.29 | -127.18 | -1,825.34 | -2,406.87 | 3,020.74 | 3,014.00 | 6.74 | 448.200 | |
| 400.00 | 400.00 | 326.46 | 326.46 | 3.54 | 3.30 | -127.17 | -1,825.20 | -2,407.01 | 3,020.77 | 3,013.95 | 6.82 | 442.608 | |
| 500.00 | 500.00 | 415.88 | 415.88 | 3.69 | 3.31 | -127.17 | -1,825.35 | -2,407.30 | 3,021.13 | 3,014.15 | 6.98 | 432.767 | |
| 600.00 | 599.98 | 516.24 | 516.24 | 3.86 | 3.32 | 22.85 | -1,825.78 | -2,407.59 | 3,020.01 | 3,012.85 | 7.16 | 421.626 | |
| 697.00 | 696.84 | 613.15 | 613.15 | 4.04 | 3.33 | 22.91 | -1,826.34 | -2,407.76 | 3,015.85 | 3,008.49 | 7.36 | 409.872 | |
| 700.00 | 699.84 | 616.10 | 616.09 | 4.05 | 3.33 | 22.91 | -1,826.36 | -2,407.76 | 3,015.68 | 3,008.31 | 7.37 | 409.427 | |
| 800.00 | 799.60 | 713.60 | 713.59 | 4.25 | 3.34 | 22.95 | -1,826.98 | -2,407.92 | 3,009.86 | 3,002.27 | 7.59 | 396.453 | |
| 897.00 | 896.37 | 804.10 | 804.09 | 4.48 | 3.36 | 22.99 | -1,827.68 | -2,408.15 | 3,004.37 | 2,996.54 | 7.83 | 383.542 | |
| 900.00 | 899.37 | 807.07 | 807.06 | 4.48 | 3.36 | 23.86 | -1,827.71 | -2,408.16 | 3,004.21 | 2,996.37 | 7.84 | 383.139 | |
| 947.40 | 946.65 | 854.02 | 854.01 | 4.60 | 3.37 | 37.74 | -1,828.13 | -2,408.31 | 3,001.80 | 2,993.84 | 7.97 | 376.795 | |
| 1,000.00 | 999.13 | 906.02 | 906.00 | 4.73 | 3.39 | 37.77 | -1,828.62 | -2,408.46 | 2,999.36 | 2,991.25 | 8.11 | 369.777 | |
| 1,100.00 | 1,098.89 | 1,003.17 | 1,003.15 | 4.99 | 3.42 | 37.84 | -1,829.51 | -2,408.82 | 2,994.77 | 2,986.37 | 8.40 | 356.506 | |
| 1,200.00 | 1,198.66 | 1,100.00 | 1,099.97 | 5.27 | 3.46 | 37.91 | -1,830.35 | -2,409.32 | 2,990.28 | 2,981.57 | 8.71 | 343.423 | |
| 1,300.00 | 1,298.42 | 1,198.40 | 1,198.37 | 5.56 | 3.50 | 37.99 | -1,831.11 | -2,409.99 | 2,985.86 | 2,976.83 | 9.03 | 330.628 | |
| 1,400.00 | 1,398.18 | 1,302.05 | 1,302.02 | 5.85 | 3.54 | 38.07 | -1,831.62 | -2,410.88 | 2,981.42 | 2,972.05 | 9.37 | 318.188 | |
| 1,500.00 | 1,497.95 | 1,400.00 | 1,399.96 | 6.16 | 3.59 | 38.16 | -1,831.86 | -2,411.78 | 2,976.89 | 2,967.17 | 9.72 | 306.354 | |
| 1,600.00 | 1,597.71 | 1,494.35 | 1,494.30 | 6.47 | 3.64 | 38.24 | -1,832.16 | -2,412.73 | 2,972.49 | 2,962.42 | 10.07 | 295.089 | |
| 1,700.00 | 1,697.47 | 1,591.61 | 1,591.56 | 6.79 | 3.69 | 38.33 | -1,832.56 | -2,413.90 | 2,968.30 | 2,957.86 | 10.44 | 284.310 | |
| 1,800.00 | 1,797.24 | 1,691.65 | 1,691.58 | 7.11 | 3.75 | 38.42 | -1,832.93 | -2,415.17 | 2,964.15 | 2,953.33 | 10.82 | 274.027 | |
| 1,900.00 | 1,897.00 | 1,791.81 | 1,791.74 | 7.44 | 3.82 | 38.52 | -1,833.27 | -2,416.45 | 2,959.99 | 2,948.79 | 11.20 | 264.256 | |
| 2,000.00 | 1,996.76 | 1,901.32 | 1,901.24 | 7.77 | 3.89 | 38.62 | -1,833.47 | -2,417.75 | 2,955.69 | 2,944.09 | 11.60 | 254.901 | |
| 2,100.00 | 2,096.53 | 2,000.00 | 1,999.91 | 8.11 | 3.95 | 38.71 | -1,833.40 | -2,418.90 | 2,951.21 | 2,939.22 | 11.98 | 246.258 | |
| 2,200.00 | 2,196.29 | 2,094.04 | 2,093.94 | 8.44 | 4.01 | 38.81 | -1,833.44 | -2,420.03 | 2,946.85 | 2,934.47 | 12.38 | 238.072 | |
| 2,300.00 | 2,296.06 | 2,192.49 | 2,192.39 | 8.79 | 4.09 | 38.90 | -1,833.84 | -2,421.16 | 2,942.65 | 2,929.87 | 12.79 | 230.153 | |
| 2,400.00 | 2,395.82 | 2,299.85 | 2,299.74 | 9.13 | 4.17 | 38.98 | -1,834.55 | -2,422.04 | 2,938.36 | 2,925.16 | 13.21 | 222.498 | |
| 2,500.00 | 2,495.58 | 2,406.60 | 2,406.49 | 9.47 | 4.25 | 39.07 | -1,835.34 | -2,422.55 | 2,933.83 | 2,920.20 | 13.63 | 215.281 | |
| 2,600.00 | 2,595.35 | 2,523.48 | 2,523.37 | 9.82 | 4.32 | 39.16 | -1,835.87 | -2,422.74 | 2,928.89 | 2,914.84 | 14.04 | 208.576 | |
| 2,700.00 | 2,695.11 | 2,640.49 | 2,640.38 | 10.17 | 4.33 | 39.25 | -1,836.00 | -2,422.36 | 2,923.36 | 2,908.96 | 14.40 | 203.028 | |
| 2,800.00 | 2,794.87 | 2,753.44 | 2,753.33 | 10.52 | 4.31 | 39.34 | -1,835.90 | -2,421.40 | 2,917.29 | 2,902.57 | 14.72 | 198.141 | |
| 2,900.00 | 2,894.64 | 2,854.28 | 2,854.16 | 10.87 | 4.30 | 39.42 | -1,835.62 | -2,420.34 | 2,910.95 | 2,895.90 | 15.05 | 193.398 | |
| 3,000.00 | 2,994.40 | 2,955.96 | 2,955.83 | 11.23 | 4.28 | 39.50 | -1,835.24 | -2,419.41 | 2,904.68 | 2,889.30 | 15.38 | 188.830 | |
| 3,100.00 | 3,094.16 | 3,062.11 | 3,061.98 | 11.58 | 4.27 | 39.59 | -1,834.58 | -2,418.36 | 2,898.21 | 2,882.49 | 15.72 | 184.408 | |
| 3,200.00 | 3,193.93 | 3,158.78 | 3,158.64 | 11.94 | 4.26 | 39.68 | -1,833.76 | -2,417.43 | 2,891.64 | 2,875.58 | 16.06 | 180.076 | |
| 3,300.00 | 3,293.69 | 3,248.59 | 3,248.45 | 12.29 | 4.26 | 39.76 | -1,833.10 | -2,416.78 | 2,885.34 | 2,868.93 | 16.41 | 175.870 | |
| 3,400.00 | 3,393.45 | 3,342.41 | 3,342.26 | 12.65 | 4.26 | 39.85 | -1,832.58 | -2,416.39 | 2,879.39 | 2,862.63 | 16.76 | 171.804 | |
| 3,500.00 | 3,493.22 | 3,443.37 | 3,443.21 | 13.01 | 4.27 | 39.95 | -1,831.77 | -2,416.16 | 2,873.46 | 2,856.34 | 17.12 | 167.833 | |
| 3,600.00 | 3,592.98 | 3,544.31 | 3,544.15 | 13.37 | 4.28 | 40.05 | -1,830.88 | -2,415.95 | 2,867.52 | 2,850.04 | 17.49 | 163.979 | |
| 3,700.00 | 3,692.74 | 3,645.45 | 3,645.29 | 13.73 | 4.29 | 40.15 | -1,830.17 | -2,415.53 | 2,861.52 | 2,843.67 | 17.85 | 160.279 | |
| 3,800.00 | 3,792.51 | 3,739.98 | 3,739.82 | 14.09 | 4.31 | 40.23 | -1,829.70 | -2,415.04 | 2,855.56 | 2,837.33 | 18.22 | 156.712 | |
| 3,900.00 | 3,892.27 | 3,831.51 | 3,831.34 | 14.45 | 4.32 | 40.32 | -1,829.42 | -2,414.80 | 2,849.91 | 2,831.32 | 18.59 | 153.266 | |
| 4,000.00 | 3,992.04 | 3,929.71 | 3,929.54 | 14.81 | 4.35 | 40.40 | -1,829.36 | -2,414.54 | 2,844.42 | 2,825.45 | 18.97 | 149.912 | |
| 4,100.00 | 4,091.80 | 4,030.67 | 4,030.50 | 15.17 | 4.38 | 40.49 | -1,829.52 | -2,414.15 | 2,838.95 | 2,819.59 | 19.36 | 146.634 | |
| 4,200.00 | 4,191.56 | 4,133.31 | 4,133.14 | 15.53 | 4.41 | 40.57 | -1,829.84 | -2,413.51 | 2,833.38 | 2,813.63 | 19.75 | 143.442 | |
| 4,300.00 | 4,291.33 | 4,232.12 | 4,231.94 | 15.89 | 4.45 | 40.64 | -1,830.25 | -2,412.80 | 2,827.79 | 2,807.65 | 20.15 | 140.357 | |
| 4,400.00 | 4,391.09 | 4,327.73 | 4,327.56 | 16.26 | 4.50 | 40.71 | -1,830.77 | -2,412.11 | 2,822.29 | 2,801.74 | 20.54 | 137.374 | |
| 4,500.00 | 4,490.85 | 4,420.41 | 4,420.23 | 16.62 | 4.54 | 40.78 | -1,831.45 | -2,411.59 | 2,817.02 | 2,796.07 | 20.95 | 134.489 | |
| 4,600.00 | 4,590.62 | 4,515.36 | 4,515.17 | 16.99 | 4.60 | 40.85 | -1,832.24 | -2,411.21 | 2,811.95 | 2,790.60 | 21.35 | 131.691 | |
| 4,700.00 | 4,690.38 | 4,608.65 | 4,608.47 | 17.35 | 4.66 | 40.92 | -1,833.11 | -2,411.02 | 2,807.10 | 2,785.33 | 21.76 | 128.986 | |

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

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

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

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Rule Assigned: Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4,800.00 | 4,790.14 | 4,705.25 | 4,705.06 | 17.71 | 4.73 | 40.99 | -1,834.06 | -2,410.99 | 2,802.42 | 2,780.24 | 22.18 | 126.360 | |
| 4,900.00 | 4,889.91 | 4,802.86 | 4,802.66 | 18.08 | 4.80 | 41.06 | -1,835.07 | -2,411.04 | 2,797.84 | 2,775.24 | 22.60 | 123.818 | |
| 5,000.00 | 4,989.67 | 4,900.00 | 4,899.80 | 18.44 | 4.87 | 41.14 | -1,836.15 | -2,411.13 | 2,793.35 | 2,770.34 | 23.02 | 121.363 | |
| 5,100.00 | 5,089.43 | 4,994.56 | 4,994.35 | 18.81 | 4.95 | 41.21 | -1,837.25 | -2,411.35 | 2,789.01 | 2,765.58 | 23.44 | 118.992 | |
| 5,200.00 | 5,189.20 | 5,085.92 | 5,085.70 | 19.17 | 5.02 | 41.28 | -1,838.38 | -2,411.79 | 2,784.92 | 2,761.06 | 23.86 | 116.705 | |
| 5,300.00 | 5,288.96 | 5,179.62 | 5,179.39 | 19.54 | 5.10 | 41.35 | -1,839.70 | -2,412.44 | 2,781.11 | 2,756.82 | 24.29 | 114.490 | |
| 5,400.00 | 5,388.72 | 5,278.66 | 5,278.41 | 19.91 | 5.18 | 41.43 | -1,841.21 | -2,413.22 | 2,777.44 | 2,752.72 | 24.72 | 112.336 | |
| 5,500.00 | 5,488.49 | 5,378.61 | 5,378.35 | 20.27 | 5.26 | 41.50 | -1,842.74 | -2,413.99 | 2,773.77 | 2,748.61 | 25.16 | 110.246 | |
| 5,600.00 | 5,588.25 | 5,479.11 | 5,478.83 | 20.64 | 5.35 | 41.58 | -1,844.22 | -2,414.79 | 2,770.09 | 2,744.50 | 25.60 | 108.216 | |
| 5,700.00 | 5,688.01 | 5,575.84 | 5,575.55 | 21.00 | 5.43 | 41.66 | -1,845.59 | -2,415.63 | 2,766.45 | 2,740.41 | 26.04 | 106.254 | |
| 5,800.00 | 5,787.78 | 5,670.71 | 5,670.41 | 21.37 | 5.52 | 41.74 | -1,846.92 | -2,416.64 | 2,762.97 | 2,736.49 | 26.48 | 104.358 | |
| 5,900.00 | 5,887.54 | 5,765.03 | 5,764.71 | 21.74 | 5.60 | 41.81 | -1,848.33 | -2,417.80 | 2,759.69 | 2,732.77 | 26.92 | 102.524 | |
| 6,000.00 | 5,987.31 | 5,858.79 | 5,858.45 | 22.11 | 5.69 | 41.89 | -1,849.83 | -2,419.13 | 2,756.62 | 2,729.26 | 27.36 | 100.751 | |
| 6,100.00 | 6,087.07 | 5,950.91 | 5,950.54 | 22.47 | 5.77 | 41.97 | -1,851.35 | -2,420.67 | 2,753.80 | 2,726.00 | 27.80 | 99.041 | |
| 6,200.00 | 6,186.83 | 6,043.79 | 6,043.40 | 22.84 | 5.85 | 42.05 | -1,853.03 | -2,422.46 | 2,751.29 | 2,723.04 | 28.25 | 97.389 | |
| 6,300.00 | 6,286.60 | 6,139.48 | 6,139.05 | 23.21 | 5.94 | 42.13 | -1,854.84 | -2,424.47 | 2,748.97 | 2,720.27 | 28.70 | 95.783 | |
| 6,400.00 | 6,386.36 | 6,235.76 | 6,235.28 | 23.58 | 6.03 | 42.22 | -1,856.70 | -2,426.61 | 2,746.79 | 2,717.64 | 29.15 | 94.225 | |
| 6,494.00 | 6,480.13 | 6,328.38 | 6,327.86 | 23.92 | 6.12 | 42.30 | -1,858.49 | -2,428.82 | 2,744.87 | 2,715.29 | 29.58 | 92.798 | |
| 6,500.00 | 6,486.12 | 6,334.72 | 6,334.19 | 23.94 | 6.12 | 35.02 | -1,858.60 | -2,428.98 | 2,744.72 | 2,715.12 | 29.61 | 92.707 | |
| 6,550.00 | 6,535.89 | 6,387.41 | 6,386.86 | 24.13 | 6.17 | -0.60 | -1,859.53 | -2,430.24 | 2,741.62 | 2,711.79 | 29.83 | 91.895 | |
| 6,600.00 | 6,585.24 | 6,441.16 | 6,440.59 | 24.31 | 6.22 | -13.21 | -1,860.40 | -2,431.50 | 2,735.17 | 2,705.11 | 30.06 | 90.995 | |
| 6,650.00 | 6,633.88 | 6,494.63 | 6,494.04 | 24.50 | 6.27 | -19.37 | -1,861.20 | -2,432.69 | 2,725.40 | 2,695.12 | 30.28 | 90.017 | |
| 6,700.00 | 6,681.49 | 6,547.57 | 6,546.96 | 24.68 | 6.32 | -23.30 | -1,861.94 | -2,433.80 | 2,712.37 | 2,681.89 | 30.49 | 88.967 | |
| 6,750.00 | 6,727.80 | 6,599.13 | 6,598.51 | 24.86 | 6.37 | -26.34 | -1,862.61 | -2,434.79 | 2,696.19 | 2,665.50 | 30.69 | 87.855 | |
| 6,800.00 | 6,772.51 | 6,648.45 | 6,647.82 | 25.04 | 6.42 | -29.03 | -1,863.22 | -2,435.67 | 2,676.96 | 2,646.08 | 30.88 | 86.688 | |
| 6,850.00 | 6,815.34 | 6,695.70 | 6,695.06 | 25.21 | 6.47 | -31.65 | -1,863.77 | -2,436.44 | 2,654.86 | 2,623.80 | 31.06 | 85.474 | |
| 6,900.00 | 6,856.04 | 6,741.64 | 6,740.99 | 25.39 | 6.51 | -34.38 | -1,864.26 | -2,437.13 | 2,630.04 | 2,598.82 | 31.23 | 84.217 | |
| 6,950.00 | 6,894.35 | 6,784.96 | 6,784.31 | 25.57 | 6.56 | -37.33 | -1,864.69 | -2,437.71 | 2,602.70 | 2,571.31 | 31.39 | 82.926 | |
| 7,000.00 | 6,930.04 | 6,825.04 | 6,824.38 | 25.75 | 6.60 | -40.57 | -1,865.05 | -2,438.19 | 2,573.04 | 2,541.51 | 31.53 | 81.606 | |
| 7,050.00 | 6,962.89 | 6,861.75 | 6,861.09 | 25.93 | 6.63 | -44.18 | -1,865.35 | -2,438.59 | 2,541.31 | 2,509.65 | 31.66 | 80.264 | |
| 7,100.00 | 6,992.69 | 6,895.04 | 6,894.37 | 26.13 | 6.67 | -48.21 | -1,865.60 | -2,438.92 | 2,507.76 | 2,475.98 | 31.78 | 78.903 | |
| 7,150.00 | 7,019.25 | 6,922.75 | 6,922.08 | 26.33 | 6.69 | -52.64 | -1,865.79 | -2,439.17 | 2,472.67 | 2,440.77 | 31.89 | 77.531 | |
| 7,200.00 | 7,042.43 | 6,946.64 | 6,945.97 | 26.55 | 6.72 | -57.51 | -1,865.95 | -2,439.39 | 2,436.31 | 2,404.32 | 31.99 | 76.148 | |
| 7,250.00 | 7,062.07 | 6,966.96 | 6,966.29 | 26.79 | 6.74 | -62.78 | -1,866.08 | -2,439.57 | 2,398.97 | 2,366.88 | 32.09 | 74.759 | |
| 7,300.00 | 7,078.05 | 6,983.59 | 6,982.92 | 27.04 | 6.76 | -68.36 | -1,866.19 | -2,439.72 | 2,360.92 | 2,328.74 | 32.18 | 73.365 | |
| 7,350.00 | 7,090.27 | 6,996.42 | 6,995.75 | 27.30 | 6.77 | -74.13 | -1,866.27 | -2,439.84 | 2,322.45 | 2,290.18 | 32.27 | 71.970 | |
| 7,400.00 | 7,098.66 | 7,005.77 | 7,005.09 | 27.58 | 6.78 | -79.92 | -1,866.33 | -2,439.92 | 2,283.85 | 2,251.49 | 32.36 | 70.577 | |
| 7,450.00 | 7,103.17 | 7,011.13 | 7,010.46 | 27.87 | 6.78 | -85.56 | -1,866.36 | -2,439.97 | 2,245.39 | 2,212.94 | 32.45 | 69.189 | |
| 7,484.86 | 7,104.00 | 7,012.36 | 7,011.69 | 28.08 | 6.79 | -89.31 | -1,866.37 | -2,439.98 | 2,218.82 | 2,186.30 | 32.52 | 68.227 | |
| 7,500.00 | 7,103.95 | 7,012.44 | 7,011.77 | 28.17 | 6.79 | -89.31 | -1,866.37 | -2,439.98 | 2,207.36 | 2,174.81 | 32.55 | 67.810 | |
| 7,600.00 | 7,103.60 | 7,012.99 | 7,012.32 | 28.83 | 6.79 | -89.33 | -1,866.37 | -2,439.99 | 2,132.82 | 2,100.01 | 32.81 | 65.001 | |
| 7,700.00 | 7,103.25 | 7,013.54 | 7,012.87 | 29.56 | 6.79 | -89.36 | -1,866.38 | -2,439.99 | 2,060.43 | 2,027.26 | 33.17 | 62.117 | |
| 7,800.00 | 7,102.90 | 7,014.08 | 7,013.41 | 30.35 | 6.79 | -89.38 | -1,866.38 | -2,440.00 | 1,990.44 | 1,956.80 | 33.64 | 59.167 | |
| 7,900.00 | 7,102.55 | 7,014.62 | 7,013.94 | 31.21 | 6.79 | -89.40 | -1,866.38 | -2,440.00 | 1,923.10 | 1,888.87 | 34.24 | 56.171 | |
| 8,000.00 | 7,102.20 | 7,015.15 | 7,014.48 | 32.13 | 6.79 | -89.42 | -1,866.39 | -2,440.01 | 1,858.71 | 1,823.74 | 34.97 | 53.152 | |
| 8,100.00 | 7,101.85 | 7,015.68 | 7,015.01 | 33.10 | 6.79 | -89.44 | -1,866.39 | -2,440.01 | 1,797.57 | 1,761.73 | 35.85 | 50.143 | |
| 8,200.00 | 7,101.50 | 7,016.20 | 7,015.53 | 34.11 | 6.79 | -89.46 | -1,866.39 | -2,440.01 | 1,740.04 | 1,703.16 | 36.88 | 47.181 | |
| 8,300.00 | 7,101.15 | 7,016.72 | 7,016.05 | 35.17 | 6.79 | -89.48 | -1,866.40 | -2,440.02 | 1,686.48 | 1,648.42 | 38.06 | 44.306 | |
| 8,400.00 | 7,100.80 | 7,017.24 | 7,016.57 | 36.27 | 6.79 | -89.50 | -1,866.40 | -2,440.02 | 1,637.28 | 1,597.88 | 39.40 | 41.560 | |
| 8,500.00 | 7,100.45 | 7,017.75 | 7,017.08 | 37.41 | 6.79 | -89.52 | -1,866.40 | -2,440.03 | 1,592.84 | 1,551.98 | 40.86 | 38.980 | |
| 8,600.00 | 7,100.10 | 7,018.26 | 7,017.59 | 38.58 | 6.79 | -89.54 | -1,866.41 | -2,440.03 | 1,553.58 | 1,511.14 | 42.45 | 36.601 | |
| 8,700.00 | 7,099.75 | 7,018.77 | 7,018.09 | 39.78 | 6.79 | -89.56 | -1,866.41 | -2,440.04 | 1,519.90 | 1,475.78 | 44.12 | 34.450 | |

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 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

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

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Rule Assigned: Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8,800.00 | 7,099.40 | 7,019.27 | 7,018.59 | 41.00 | 6.79 | -89.58 | -1,866.41 | -2,440.04 | 1,492.16 | 1,446.32 | 45.85 | 32.547 | |
| 8,900.00 | 7,099.05 | 7,019.76 | 7,019.09 | 42.25 | 6.79 | -89.60 | -1,866.41 | -2,440.04 | 1,470.72 | 1,423.13 | 47.59 | 30.902 | |
| 9,000.00 | 7,098.70 | 7,020.26 | 7,019.58 | 43.53 | 6.79 | -89.62 | -1,866.42 | -2,440.05 | 1,455.85 | 1,406.53 | 49.31 | 29.522 | |
| 9,100.00 | 7,098.35 | 7,020.75 | 7,020.07 | 44.82 | 6.79 | -89.64 | -1,866.42 | -2,440.05 | 1,447.74 | 1,396.77 | 50.97 | 28.403 | |
| 9,167.67 | 7,098.11 | 7,021.08 | 7,020.40 | 45.71 | 6.79 | -89.65 | -1,866.42 | -2,440.06 | 1,446.16 | 1,394.12 | 52.04 | 27.790 | CC |
| 9,200.00 | 7,098.00 | 7,021.23 | 7,020.56 | 46.14 | 6.79 | -89.66 | -1,866.42 | -2,440.06 | 1,446.52 | 1,393.99 | 52.53 | 27.539 | ES |
| 9,300.00 | 7,097.65 | 7,021.72 | 7,021.04 | 47.47 | 6.79 | -89.68 | -1,866.43 | -2,440.06 | 1,452.20 | 1,398.25 | 53.95 | 26.919 | |
| 9,400.00 | 7,097.30 | 7,022.20 | 7,021.52 | 48.82 | 6.80 | -89.70 | -1,866.43 | -2,440.06 | 1,464.70 | 1,409.49 | 55.21 | 26.531 | |
| 9,500.00 | 7,096.95 | 7,022.67 | 7,022.00 | 50.18 | 6.80 | -89.72 | -1,866.43 | -2,440.07 | 1,483.85 | 1,427.55 | 56.30 | 26.358 | SF |
| 9,600.00 | 7,096.60 | 7,023.14 | 7,022.47 | 51.56 | 6.80 | -89.74 | -1,866.43 | -2,440.07 | 1,509.40 | 1,452.19 | 57.20 | 26.386 | |
| 9,700.00 | 7,096.25 | 7,023.61 | 7,022.94 | 52.95 | 6.80 | -89.76 | -1,866.44 | -2,440.08 | 1,541.02 | 1,483.08 | 57.94 | 26.598 | |
| 9,800.00 | 7,095.90 | 7,024.08 | 7,023.40 | 54.35 | 6.80 | -89.77 | -1,866.44 | -2,440.08 | 1,578.35 | 1,519.85 | 58.50 | 26.979 | |
| 9,900.00 | 7,095.55 | 7,024.54 | 7,023.87 | 55.76 | 6.80 | -89.79 | -1,866.44 | -2,440.08 | 1,621.01 | 1,562.09 | 58.92 | 27.514 | |
| 10,000.00 | 7,095.20 | 7,025.00 | 7,024.32 | 57.18 | 6.80 | -89.81 | -1,866.45 | -2,440.09 | 1,668.57 | 1,609.38 | 59.19 | 28.189 | |
| 10,100.00 | 7,094.85 | 7,025.45 | 7,024.78 | 58.61 | 6.80 | -89.83 | -1,866.45 | -2,440.09 | 1,720.64 | 1,661.28 | 59.35 | 28.990 | |
| 10,200.00 | 7,094.50 | 7,025.90 | 7,025.23 | 60.05 | 6.80 | -89.85 | -1,866.45 | -2,440.10 | 1,776.81 | 1,717.39 | 59.41 | 29.906 | |
| 10,300.00 | 7,094.15 | 7,026.35 | 7,025.68 | 61.50 | 6.80 | -89.86 | -1,866.45 | -2,440.10 | 1,836.71 | 1,777.32 | 59.39 | 30.925 | |
| 10,400.00 | 7,093.80 | 7,026.80 | 7,026.12 | 62.96 | 6.80 | -89.88 | -1,866.46 | -2,440.10 | 1,899.99 | 1,840.69 | 59.30 | 32.038 | |
| 10,500.00 | 7,093.45 | 7,027.24 | 7,026.57 | 64.42 | 6.80 | -89.90 | -1,866.46 | -2,440.11 | 1,966.32 | 1,907.16 | 59.16 | 33.236 | |
| 10,600.00 | 7,093.10 | 7,027.68 | 7,027.01 | 65.89 | 6.80 | -89.92 | -1,866.46 | -2,440.11 | 2,035.41 | 1,976.43 | 58.98 | 34.510 | |
| 10,700.00 | 7,092.75 | 7,028.12 | 7,027.44 | 67.36 | 6.80 | -89.93 | -1,866.46 | -2,440.11 | 2,106.98 | 2,048.21 | 58.77 | 35.852 | |
| 10,800.00 | 7,092.40 | 7,028.55 | 7,027.88 | 68.84 | 6.80 | -89.95 | -1,866.47 | -2,440.12 | 2,180.78 | 2,122.25 | 58.53 | 37.258 | |
| 10,900.00 | 7,092.05 | 7,028.98 | 7,028.31 | 70.33 | 6.80 | -89.97 | -1,866.47 | -2,440.12 | 2,256.60 | 2,198.32 | 58.28 | 38.719 | |
| 11,000.00 | 7,091.70 | 7,029.41 | 7,028.73 | 71.82 | 6.80 | -89.98 | -1,866.47 | -2,440.12 | 2,334.25 | 2,276.23 | 58.02 | 40.232 | |
| 11,100.00 | 7,091.35 | 7,029.83 | 7,029.16 | 73.31 | 6.80 | -90.00 | -1,866.47 | -2,440.13 | 2,413.54 | 2,355.79 | 57.75 | 41.790 | |
| 11,200.00 | 7,091.00 | 7,030.25 | 7,029.58 | 74.81 | 6.80 | -90.02 | -1,866.48 | -2,440.13 | 2,494.32 | 2,436.84 | 57.48 | 43.391 | |
| 11,300.00 | 7,090.65 | 7,030.67 | 7,030.00 | 76.32 | 6.80 | -90.03 | -1,866.48 | -2,440.13 | 2,576.45 | 2,519.23 | 57.22 | 45.030 | |
| 11,400.00 | 7,090.30 | 7,031.08 | 7,030.41 | 77.82 | 6.80 | -90.05 | -1,866.48 | -2,440.14 | 2,659.80 | 2,602.85 | 56.95 | 46.703 | |
| 11,500.00 | 7,089.95 | 7,031.50 | 7,030.82 | 79.34 | 6.80 | -90.07 | -1,866.48 | -2,440.14 | 2,744.27 | 2,687.58 | 56.69 | 48.407 | |
| 11,600.00 | 7,089.60 | 7,031.91 | 7,031.23 | 80.85 | 6.81 | -90.08 | -1,866.49 | -2,440.14 | 2,829.75 | 2,773.31 | 56.44 | 50.140 | |
| 11,700.00 | 7,089.25 | 7,032.31 | 7,031.64 | 82.37 | 6.81 | -90.10 | -1,866.49 | -2,440.15 | 2,916.15 | 2,859.96 | 56.19 | 51.899 | |
| 11,800.00 | 7,088.90 | 7,032.72 | 7,032.04 | 83.89 | 6.81 | -90.12 | -1,866.49 | -2,440.15 | 3,003.39 | 2,947.44 | 55.95 | 53.682 | |
| 11,900.00 | 7,088.55 | 7,033.12 | 7,032.44 | 85.41 | 6.81 | -90.13 | -1,866.49 | -2,440.15 | 3,091.41 | 3,035.70 | 55.72 | 55.486 | |
| 12,000.00 | 7,088.20 | 7,033.52 | 7,032.84 | 86.94 | 6.81 | -90.15 | -1,866.50 | -2,440.16 | 3,180.14 | 3,124.65 | 55.49 | 57.309 | |
| 12,100.00 | 7,087.85 | 7,033.91 | 7,033.24 | 88.47 | 6.81 | -90.16 | -1,866.50 | -2,440.16 | 3,269.52 | 3,214.24 | 55.28 | 59.150 | |
| 12,200.00 | 7,087.50 | 7,034.31 | 7,033.63 | 90.00 | 6.81 | -90.18 | -1,866.50 | -2,440.16 | 3,359.49 | 3,304.42 | 55.07 | 61.007 | |
| 12,300.00 | 7,087.15 | 7,034.70 | 7,034.02 | 91.54 | 6.81 | -90.19 | -1,866.50 | -2,440.17 | 3,450.02 | 3,395.15 | 54.87 | 62.878 | |
| 12,400.00 | 7,086.81 | 7,035.09 | 7,034.41 | 93.07 | 6.81 | -90.21 | -1,866.50 | -2,440.17 | 3,541.06 | 3,486.38 | 54.68 | 64.763 | |
| 12,500.00 | 7,086.46 | 7,035.47 | 7,034.80 | 94.61 | 6.81 | -90.23 | -1,866.51 | -2,440.17 | 3,632.57 | 3,578.07 | 54.49 | 66.660 | |
| 12,600.00 | 7,086.11 | 7,035.85 | 7,035.18 | 96.15 | 6.81 | -90.24 | -1,866.51 | -2,440.17 | 3,724.51 | 3,670.19 | 54.32 | 68.568 | |
| 12,700.00 | 7,085.76 | 7,036.23 | 7,035.56 | 97.69 | 6.81 | -90.26 | -1,866.51 | -2,440.18 | 3,816.86 | 3,762.71 | 54.15 | 70.485 | |
| 12,800.00 | 7,085.41 | 7,036.61 | 7,035.94 | 99.24 | 6.81 | -90.27 | -1,866.51 | -2,440.18 | 3,909.59 | 3,855.60 | 53.99 | 72.411 | |
| 12,900.00 | 7,085.06 | 7,036.99 | 7,036.31 | 100.78 | 6.81 | -90.29 | -1,866.52 | -2,440.18 | 4,002.67 | 3,948.83 | 53.84 | 74.346 | |
| 13,000.00 | 7,084.71 | 7,037.36 | 7,036.69 | 102.33 | 6.81 | -90.30 | -1,866.52 | -2,440.19 | 4,096.07 | 4,042.38 | 53.69 | 76.287 | |
| 13,100.00 | 7,084.36 | 7,037.73 | 7,037.06 | 103.88 | 6.81 | -90.31 | -1,866.52 | -2,440.19 | 4,189.78 | 4,136.23 | 53.55 | 78.235 | |
| 13,200.00 | 7,084.01 | 7,038.10 | 7,037.43 | 105.43 | 6.81 | -90.33 | -1,866.52 | -2,440.19 | 4,283.77 | 4,230.35 | 53.42 | 80.188 | |
| 13,300.00 | 7,083.66 | 7,038.47 | 7,037.79 | 106.99 | 6.81 | -90.34 | -1,866.52 | -2,440.19 | 4,378.03 | 4,324.73 | 53.30 | 82.146 | |
| 13,400.00 | 7,083.31 | 7,038.83 | 7,038.15 | 108.54 | 6.81 | -90.36 | -1,866.53 | -2,440.20 | 4,472.54 | 4,419.36 | 53.18 | 84.109 | |
| 13,500.00 | 7,082.96 | 7,039.19 | 7,038.52 | 110.09 | 6.81 | -90.37 | -1,866.53 | -2,440.20 | 4,567.28 | 4,514.22 | 53.06 | 86.075 | |
| 13,600.00 | 7,082.61 | 7,039.55 | 7,038.87 | 111.65 | 6.81 | -90.39 | -1,866.53 | -2,440.20 | 4,662.24 | 4,609.29 | 52.95 | 88.045 | |
| 13,700.00 | 7,082.26 | 7,039.91 | 7,039.23 | 113.21 | 6.81 | -90.40 | -1,866.53 | -2,440.21 | 4,757.41 | 4,704.56 | 52.85 | 90.017 | |
| 13,800.00 | 7,081.91 | 7,040.26 | 7,039.59 | 114.77 | 6.81 | -90.41 | -1,866.54 | -2,440.21 | 4,852.77 | 4,800.02 | 52.75 | 91.992 | |

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

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

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

**Rule Assigned:** Distance

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Between Centres (usft) | Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13,900.00 | 7,081.56 | 7,040.61 | 7,039.94 | 116.33 | 6.81 | -90.43 | -1,866.54 | -2,440.21 | 4,948.32 | 4,895.66 | 52.66 | 93.968 | |
| 14,000.00 | 7,081.21 | 7,040.96 | 7,040.29 | 117.89 | 6.81 | -90.44 | -1,866.54 | -2,440.21 | 5,044.04 | 4,991.46 | 52.57 | 95.945 | |
| 14,100.00 | 7,080.86 | 7,041.31 | 7,040.63 | 119.45 | 6.81 | -90.46 | -1,866.54 | -2,440.22 | 5,139.92 | 5,087.43 | 52.49 | 97.924 | |
| 14,200.00 | 7,080.51 | 7,041.65 | 7,040.98 | 121.02 | 6.82 | -90.47 | -1,866.54 | -2,440.22 | 5,235.95 | 5,183.54 | 52.41 | 99.903 | |
| 14,300.00 | 7,080.16 | 7,042.00 | 7,041.32 | 122.58 | 6.82 | -90.48 | -1,866.55 | -2,440.22 | 5,332.13 | 5,279.80 | 52.34 | 101.883 | |
| 14,400.00 | 7,079.81 | 7,042.34 | 7,041.66 | 124.15 | 6.82 | -90.50 | -1,866.55 | -2,440.22 | 5,428.45 | 5,376.19 | 52.27 | 103.862 | |
| 14,500.00 | 7,079.46 | 7,042.68 | 7,042.00 | 125.71 | 6.82 | -90.51 | -1,866.55 | -2,440.23 | 5,524.90 | 5,472.70 | 52.20 | 105.842 | |
| 14,600.00 | 7,079.11 | 7,043.01 | 7,042.34 | 127.28 | 6.82 | -90.52 | -1,866.55 | -2,440.23 | 5,621.47 | 5,569.34 | 52.14 | 107.820 | |
| 14,700.00 | 7,078.76 | 7,043.35 | 7,042.68 | 128.85 | 6.82 | -90.54 | -1,866.55 | -2,440.23 | 5,718.17 | 5,666.09 | 52.08 | 109.797 | |
| 14,800.00 | 7,078.41 | 7,043.68 | 7,043.01 | 130.42 | 6.82 | -90.55 | -1,866.55 | -2,440.23 | 5,814.97 | 5,762.94 | 52.02 | 111.774 | |
| 14,900.00 | 7,078.06 | 7,044.01 | 7,043.34 | 131.98 | 6.82 | -90.56 | -1,866.56 | -2,440.24 | 5,911.88 | 5,859.91 | 51.97 | 113.749 | |
| 15,000.00 | 7,077.71 | 7,044.34 | 7,043.67 | 133.55 | 6.82 | -90.58 | -1,866.56 | -2,440.24 | 6,008.89 | 5,956.96 | 51.93 | 115.722 | |
| 15,100.00 | 7,077.36 | 7,044.67 | 7,043.99 | 135.13 | 6.82 | -90.59 | -1,866.56 | -2,440.24 | 6,106.00 | 6,054.12 | 51.88 | 117.693 | |
| 15,200.00 | 7,077.01 | 7,044.99 | 7,044.32 | 136.70 | 6.82 | -90.60 | -1,866.56 | -2,440.24 | 6,203.20 | 6,151.36 | 51.84 | 119.662 | |
| 15,300.00 | 7,076.66 | 7,045.32 | 7,044.64 | 138.27 | 6.82 | -90.62 | -1,866.56 | -2,440.25 | 6,300.48 | 6,248.68 | 51.80 | 121.629 | |
| 15,400.00 | 7,076.31 | 7,045.64 | 7,044.96 | 139.84 | 6.82 | -90.63 | -1,866.57 | -2,440.25 | 6,397.85 | 6,346.09 | 51.77 | 123.593 | |
| 15,500.00 | 7,075.96 | 7,045.96 | 7,045.28 | 141.42 | 6.82 | -90.64 | -1,866.57 | -2,440.25 | 6,495.30 | 6,443.57 | 51.73 | 125.554 | |
| 15,600.00 | 7,075.61 | 7,046.27 | 7,045.60 | 142.99 | 6.82 | -90.65 | -1,866.57 | -2,440.25 | 6,592.83 | 6,541.13 | 51.70 | 127.513 | |
| 15,700.00 | 7,075.26 | 7,046.59 | 7,045.91 | 144.57 | 6.82 | -90.67 | -1,866.57 | -2,440.26 | 6,690.43 | 6,638.75 | 51.68 | 129.468 | |
| 15,800.00 | 7,074.91 | 7,046.90 | 7,046.23 | 146.14 | 6.82 | -90.68 | -1,866.57 | -2,440.26 | 6,788.10 | 6,736.45 | 51.65 | 131.421 | |
| 15,900.00 | 7,074.56 | 7,047.21 | 7,046.54 | 147.72 | 6.82 | -90.69 | -1,866.58 | -2,440.26 | 6,885.84 | 6,834.21 | 51.63 | 133.370 | |
| 16,000.00 | 7,074.21 | 7,047.52 | 7,046.85 | 149.29 | 6.82 | -90.70 | -1,866.58 | -2,440.26 | 6,983.64 | 6,932.03 | 51.61 | 135.315 | |
| 16,100.00 | 7,073.86 | 7,047.83 | 7,047.15 | 150.87 | 6.82 | -90.71 | -1,866.58 | -2,440.26 | 7,081.50 | 7,029.91 | 51.59 | 137.257 | |
| 16,200.00 | 7,073.51 | 7,048.13 | 7,047.46 | 152.45 | 6.82 | -90.73 | -1,866.58 | -2,440.27 | 7,179.42 | 7,127.84 | 51.58 | 139.194 | |
| 16,300.00 | 7,073.16 | 7,048.44 | 7,047.76 | 154.03 | 6.82 | -90.74 | -1,866.58 | -2,440.27 | 7,277.40 | 7,225.83 | 51.57 | 141.128 | |
| 16,400.00 | 7,072.81 | 7,048.74 | 7,048.07 | 155.60 | 6.82 | -90.75 | -1,866.58 | -2,440.27 | 7,375.43 | 7,323.87 | 51.56 | 143.058 | |
| 16,500.00 | 7,072.46 | 7,049.04 | 7,048.37 | 157.18 | 6.82 | -90.76 | -1,866.59 | -2,440.27 | 7,473.51 | 7,421.97 | 51.55 | 144.984 | |
| 16,600.00 | 7,072.11 | 7,049.34 | 7,048.67 | 158.76 | 6.82 | -90.77 | -1,866.59 | -2,440.28 | 7,571.65 | 7,520.11 | 51.54 | 146.905 | |
| 16,631.96 | 7,072.00 | 7,049.44 | 7,048.76 | 159.27 | 6.82 | -90.78 | -1,866.59 | -2,440.28 | 7,603.02 | 7,551.48 | 51.54 | 147.518 | |

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

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

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 7.03 | 7.03 | 3.28 | 3.28 | -94.33 | -80.44 | -1,062.30 | 1,065.34 | | | | |
| 100.00 | 100.00 | 107.41 | 107.41 | 3.29 | 3.28 | -94.34 | -80.62 | -1,062.27 | 1,065.32 | 1,058.75 | 6.57 | 162.153 | |
| 200.00 | 200.00 | 207.18 | 207.18 | 3.34 | 3.29 | -94.36 | -81.08 | -1,062.20 | 1,065.29 | 1,058.68 | 6.62 | 160.969 | |
| 300.00 | 300.00 | 307.67 | 307.67 | 3.42 | 3.30 | -94.41 | -81.88 | -1,062.10 | 1,065.25 | 1,058.55 | 6.70 | 158.879 | |
| 400.00 | 400.00 | 408.08 | 408.07 | 3.54 | 3.31 | -94.46 | -82.88 | -1,061.95 | 1,065.18 | 1,058.35 | 6.83 | 156.008 | |
| 500.00 | 500.00 | 508.67 | 508.65 | 3.69 | 3.33 | -94.52 | -83.91 | -1,061.72 | 1,065.03 | 1,058.05 | 6.98 | 152.511 | |
| 600.00 | 599.98 | 605.66 | 605.64 | 3.86 | 3.36 | 55.53 | -84.71 | -1,061.65 | 1,064.04 | 1,056.88 | 7.16 | 148.628 | |
| 697.00 | 696.84 | 702.04 | 702.02 | 4.04 | 3.39 | 55.76 | -85.30 | -1,061.75 | 1,061.34 | 1,053.99 | 7.35 | 144.446 | |
| 700.00 | 699.84 | 705.03 | 705.00 | 4.05 | 3.39 | 55.77 | -85.32 | -1,061.75 | 1,061.23 | 1,053.88 | 7.35 | 144.300 | |
| 800.00 | 799.60 | 804.48 | 804.46 | 4.25 | 3.42 | 56.06 | -85.78 | -1,061.91 | 1,057.56 | 1,049.99 | 7.57 | 139.635 | |
| 897.00 | 896.37 | 902.87 | 902.85 | 4.48 | 3.46 | 56.35 | -85.99 | -1,062.02 | 1,053.97 | 1,046.16 | 7.81 | 134.973 | |
| 900.00 | 899.37 | 905.90 | 905.88 | 4.48 | 3.46 | 57.23 | -85.99 | -1,062.02 | 1,053.86 | 1,046.05 | 7.82 | 134.829 | |
| 947.40 | 946.65 | 953.88 | 953.86 | 4.60 | 3.47 | 71.20 | -86.02 | -1,062.02 | 1,052.46 | 1,044.52 | 7.94 | 132.601 | |
| 1,000.00 | 999.13 | 1,007.05 | 1,007.02 | 4.73 | 3.49 | 71.39 | -86.06 | -1,061.99 | 1,051.27 | 1,043.19 | 8.08 | 130.174 | |
| 1,100.00 | 1,098.89 | 1,107.18 | 1,107.16 | 4.99 | 3.52 | 71.74 | -86.12 | -1,061.89 | 1,048.99 | 1,040.64 | 8.35 | 125.591 | |
| 1,200.00 | 1,198.66 | 1,208.70 | 1,208.68 | 5.27 | 3.55 | 72.10 | -86.15 | -1,061.70 | 1,046.67 | 1,038.03 | 8.65 | 121.044 | |
| 1,300.00 | 1,298.42 | 1,315.97 | 1,315.94 | 5.56 | 3.58 | 72.49 | -86.06 | -1,060.99 | 1,043.91 | 1,034.95 | 8.96 | 116.514 | |
| 1,400.00 | 1,398.18 | 1,419.66 | 1,419.63 | 5.85 | 3.60 | 72.86 | -86.05 | -1,059.72 | 1,040.63 | 1,031.34 | 9.29 | 112.059 | |
| 1,500.00 | 1,497.95 | 1,519.95 | 1,519.90 | 6.16 | 3.64 | 73.22 | -86.15 | -1,058.29 | 1,037.20 | 1,027.57 | 9.63 | 107.750 | |
| 1,600.00 | 1,597.71 | 1,619.94 | 1,619.88 | 6.47 | 3.68 | 73.57 | -86.31 | -1,056.84 | 1,033.78 | 1,023.80 | 9.98 | 103.615 | |
| 1,700.00 | 1,697.47 | 1,720.43 | 1,720.37 | 6.79 | 3.74 | 73.91 | -86.87 | -1,055.31 | 1,030.33 | 1,020.00 | 10.34 | 99.666 | |
| 1,800.00 | 1,797.24 | 1,819.88 | 1,819.79 | 7.11 | 3.79 | 74.23 | -87.72 | -1,053.76 | 1,026.89 | 1,016.18 | 10.71 | 95.916 | |
| 1,900.00 | 1,897.00 | 1,916.88 | 1,916.79 | 7.44 | 3.86 | 74.53 | -88.75 | -1,052.40 | 1,023.64 | 1,012.56 | 11.08 | 92.392 | |
| 2,000.00 | 1,996.76 | 2,013.07 | 2,012.95 | 7.77 | 3.92 | 74.81 | -90.12 | -1,051.37 | 1,020.75 | 1,009.30 | 11.45 | 89.116 | |
| 2,100.00 | 2,096.53 | 2,110.56 | 2,110.44 | 8.11 | 3.99 | 75.09 | -91.58 | -1,050.62 | 1,018.18 | 1,006.35 | 11.83 | 86.062 | |
| 2,200.00 | 2,196.29 | 2,210.00 | 2,209.86 | 8.44 | 4.07 | 75.39 | -92.96 | -1,049.98 | 1,015.77 | 1,003.56 | 12.21 | 83.178 | |
| 2,300.00 | 2,296.06 | 2,310.58 | 2,310.43 | 8.79 | 4.15 | 75.69 | -94.23 | -1,049.30 | 1,013.36 | 1,000.76 | 12.60 | 80.428 | |
| 2,400.00 | 2,395.82 | 2,410.67 | 2,410.51 | 9.13 | 4.23 | 76.01 | -95.32 | -1,048.57 | 1,010.92 | 997.92 | 12.99 | 77.795 | |
| 2,500.00 | 2,495.58 | 2,508.53 | 2,508.36 | 9.47 | 4.31 | 76.33 | -96.20 | -1,047.92 | 1,008.58 | 995.19 | 13.39 | 75.302 | |
| 2,600.00 | 2,595.35 | 2,600.00 | 2,599.83 | 9.82 | 4.38 | 76.64 | -96.87 | -1,047.68 | 1,006.70 | 992.92 | 13.78 | 73.033 | |
| 2,700.00 | 2,695.11 | 2,697.39 | 2,697.22 | 10.17 | 4.44 | 76.98 | -97.42 | -1,047.94 | 1,005.38 | 991.23 | 14.15 | 71.027 | |
| 2,800.00 | 2,794.87 | 2,796.60 | 2,796.43 | 10.52 | 4.47 | 77.33 | -97.87 | -1,048.47 | 1,004.37 | 989.85 | 14.52 | 69.190 | |
| 2,900.00 | 2,894.64 | 2,896.42 | 2,896.24 | 10.87 | 4.51 | 77.69 | -98.23 | -1,049.03 | 1,003.42 | 988.54 | 14.88 | 67.442 | |
| 3,000.00 | 2,994.40 | 2,996.81 | 2,996.63 | 11.23 | 4.54 | 78.07 | -98.44 | -1,049.55 | 1,002.48 | 987.24 | 15.24 | 65.772 | |
| 3,100.00 | 3,094.16 | 3,097.04 | 3,096.87 | 11.58 | 4.56 | 78.44 | -98.60 | -1,050.01 | 1,001.53 | 985.92 | 15.61 | 64.163 | |
| 3,200.00 | 3,193.93 | 3,196.53 | 3,196.35 | 11.94 | 4.60 | 78.81 | -98.77 | -1,050.47 | 1,000.62 | 984.64 | 15.98 | 62.612 | |
| 3,300.00 | 3,293.69 | 3,296.38 | 3,296.21 | 12.29 | 4.64 | 79.19 | -98.96 | -1,050.94 | 999.76 | 983.40 | 16.36 | 61.118 | |
| 3,400.00 | 3,393.45 | 3,397.43 | 3,397.25 | 12.65 | 4.69 | 79.56 | -99.24 | -1,051.35 | 998.88 | 982.14 | 16.74 | 59.667 | |
| 3,500.00 | 3,493.22 | 3,498.82 | 3,498.64 | 13.01 | 4.76 | 79.93 | -99.65 | -1,051.63 | 997.89 | 980.76 | 17.13 | 58.245 | |
| 3,600.00 | 3,592.98 | 3,598.99 | 3,598.81 | 13.37 | 4.85 | 80.29 | -100.11 | -1,051.81 | 996.84 | 979.31 | 17.53 | 56.865 | |
| 3,700.00 | 3,692.74 | 3,699.44 | 3,699.26 | 13.73 | 4.94 | 80.65 | -100.68 | -1,051.95 | 995.79 | 977.86 | 17.93 | 55.532 | |
| 3,800.00 | 3,792.51 | 3,799.20 | 3,799.01 | 14.09 | 5.03 | 81.00 | -101.40 | -1,052.08 | 994.74 | 976.40 | 18.34 | 54.250 | |
| 3,900.00 | 3,892.27 | 3,898.56 | 3,898.37 | 14.45 | 5.13 | 81.34 | -102.20 | -1,052.24 | 993.75 | 975.01 | 18.74 | 53.025 | |
| 4,000.00 | 3,992.04 | 3,995.80 | 3,995.60 | 14.81 | 5.22 | 81.66 | -103.27 | -1,052.58 | 992.95 | 973.80 | 19.15 | 51.863 | |
| 4,100.00 | 4,091.80 | 4,091.65 | 4,091.44 | 15.17 | 5.30 | 81.94 | -104.73 | -1,053.29 | 992.51 | 972.96 | 19.55 | 50.774 | |
| 4,200.00 | 4,191.56 | 4,191.34 | 4,191.11 | 15.53 | 5.39 | 82.24 | -106.38 | -1,054.27 | 992.33 | 972.38 | 19.95 | 49.738 | |
| 4,300.00 | 4,291.33 | 4,291.50 | 4,291.25 | 15.89 | 5.49 | 82.52 | -108.15 | -1,055.25 | 992.15 | 971.79 | 20.36 | 48.739 | |
| 4,400.00 | 4,391.09 | 4,391.20 | 4,390.92 | 16.26 | 5.58 | 82.78 | -110.28 | -1,056.27 | 991.98 | 971.22 | 20.76 | 47.775 | |
| 4,500.00 | 4,490.85 | 4,491.48 | 4,491.17 | 16.62 | 5.68 | 83.04 | -112.63 | -1,057.32 | 991.84 | 970.66 | 21.17 | 46.845 | |
| 4,600.00 | 4,590.62 | 4,593.99 | 4,593.65 | 16.99 | 5.78 | 83.32 | -114.64 | -1,058.18 | 991.57 | 969.98 | 21.58 | 45.940 | |
| 4,700.00 | 4,690.38 | 4,694.32 | 4,693.97 | 17.35 | 5.88 | 83.62 | -116.23 | -1,058.79 | 991.15 | 969.15 | 22.00 | 45.060 | |
| 4,800.00 | 4,790.14 | 4,794.03 | 4,793.67 | 17.71 | 5.99 | 83.92 | -117.75 | -1,059.39 | 990.75 | 968.34 | 22.41 | 44.211 | |

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

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

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

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Rule Assigned: Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4,900.00 | 4,889.91 | 4,892.62 | 4,892.25 | 18.08 | 6.09 | 84.22 | -119.27 | -1,060.04 | 990.44 | 967.62 | 22.82 | 43.397 | |
| 5,000.00 | 4,989.67 | 4,991.84 | 4,991.45 | 18.44 | 6.19 | 84.51 | -120.85 | -1,060.82 | 990.27 | 967.03 | 23.24 | 42.617 | |
| 5,100.00 | 5,089.43 | 5,091.14 | 5,090.73 | 18.81 | 6.29 | 84.81 | -122.44 | -1,061.65 | 990.18 | 966.53 | 23.65 | 41.867 | |
| 5,200.00 | 5,189.20 | 5,192.09 | 5,191.67 | 19.17 | 6.40 | 85.11 | -124.02 | -1,062.48 | 990.10 | 966.03 | 24.07 | 41.140 | |
| 5,300.00 | 5,288.96 | 5,292.28 | 5,291.84 | 19.54 | 6.50 | 85.41 | -125.58 | -1,063.21 | 989.96 | 965.48 | 24.48 | 40.434 | |
| 5,400.00 | 5,388.72 | 5,392.84 | 5,392.39 | 19.91 | 6.61 | 85.71 | -127.15 | -1,063.90 | 989.81 | 964.91 | 24.90 | 39.749 | |
| 5,500.00 | 5,488.49 | 5,494.00 | 5,493.53 | 20.27 | 6.72 | 86.01 | -128.79 | -1,064.50 | 989.58 | 964.26 | 25.32 | 39.080 | |
| 5,600.00 | 5,588.25 | 5,599.03 | 5,598.55 | 20.64 | 6.84 | 86.33 | -130.50 | -1,064.78 | 989.07 | 963.32 | 25.75 | 38.416 | |
| 5,700.00 | 5,688.01 | 5,698.89 | 5,698.39 | 21.00 | 6.95 | 86.63 | -132.24 | -1,064.80 | 988.30 | 962.13 | 26.17 | 37.762 | |
| 5,800.00 | 5,787.78 | 5,792.09 | 5,791.58 | 21.37 | 7.06 | 86.89 | -134.10 | -1,065.18 | 987.90 | 961.31 | 26.59 | 37.150 | |
| 5,808.38 | 5,796.14 | 5,800.00 | 5,799.48 | 21.40 | 7.07 | 86.91 | -134.26 | -1,065.25 | 987.90 | 961.27 | 26.63 | 37.101 | |
| 5,900.00 | 5,887.54 | 5,888.71 | 5,888.17 | 21.74 | 7.16 | 87.15 | -136.00 | -1,066.09 | 988.04 | 961.03 | 27.01 | 36.579 | |
| 6,000.00 | 5,987.31 | 5,987.57 | 5,987.01 | 22.11 | 7.27 | 87.44 | -137.63 | -1,067.17 | 988.42 | 960.99 | 27.43 | 36.033 | |
| 6,100.00 | 6,087.07 | 6,087.87 | 6,087.29 | 22.47 | 7.37 | 87.75 | -139.07 | -1,068.24 | 988.85 | 961.00 | 27.85 | 35.505 | |
| 6,200.00 | 6,186.83 | 6,188.28 | 6,187.69 | 22.84 | 7.48 | 88.05 | -140.51 | -1,069.25 | 989.26 | 960.98 | 28.27 | 34.991 | |
| 6,300.00 | 6,286.60 | 6,289.46 | 6,288.85 | 23.21 | 7.59 | 88.36 | -142.02 | -1,070.19 | 989.60 | 960.90 | 28.69 | 34.487 | |
| 6,400.00 | 6,386.36 | 6,383.23 | 6,382.60 | 23.58 | 7.69 | 88.64 | -143.31 | -1,071.22 | 990.16 | 961.05 | 29.11 | 34.011 | |
| 6,494.00 | 6,480.13 | 6,457.44 | 6,456.80 | 23.92 | 7.75 | 88.88 | -143.96 | -1,072.85 | 991.85 | 962.36 | 29.49 | 33.629 | |
| 6,500.00 | 6,486.12 | 6,461.98 | 6,461.33 | 23.94 | 7.75 | 81.62 | -143.97 | -1,073.00 | 992.01 | 962.49 | 29.52 | 33.607 | |
| 6,550.00 | 6,535.89 | 6,500.00 | 6,499.32 | 24.13 | 7.78 | 46.29 | -143.98 | -1,074.50 | 991.49 | 961.78 | 29.72 | 33.363 | |
| 6,600.00 | 6,585.24 | 6,550.39 | 6,549.67 | 24.31 | 7.80 | 34.39 | -143.78 | -1,076.72 | 987.47 | 957.55 | 29.93 | 32.994 | |
| 6,650.00 | 6,633.88 | 6,600.57 | 6,599.80 | 24.50 | 7.82 | 29.33 | -143.41 | -1,078.83 | 979.65 | 949.51 | 30.14 | 32.505 | |
| 6,700.00 | 6,681.49 | 6,655.71 | 6,654.90 | 24.68 | 7.85 | 26.96 | -143.04 | -1,080.92 | 967.95 | 937.60 | 30.35 | 31.890 | |
| 6,750.00 | 6,727.80 | 6,709.13 | 6,708.29 | 24.86 | 7.87 | 25.94 | -142.93 | -1,082.62 | 952.33 | 921.77 | 30.56 | 31.160 | |
| 6,800.00 | 6,772.51 | 6,759.81 | 6,758.95 | 25.04 | 7.91 | 25.77 | -143.08 | -1,083.98 | 932.97 | 902.20 | 30.77 | 30.323 | |
| 6,850.00 | 6,815.34 | 6,808.05 | 6,807.18 | 25.21 | 7.95 | 26.26 | -143.47 | -1,085.07 | 910.06 | 879.10 | 30.97 | 29.388 | |
| 6,900.00 | 6,856.04 | 6,852.67 | 6,851.78 | 25.39 | 7.99 | 27.31 | -144.00 | -1,085.93 | 883.85 | 852.69 | 31.16 | 28.363 | |
| 6,950.00 | 6,894.35 | 6,894.58 | 6,893.69 | 25.57 | 8.03 | 28.95 | -144.60 | -1,086.60 | 854.59 | 823.24 | 31.35 | 27.258 | |
| 7,000.00 | 6,930.04 | 6,932.95 | 6,932.05 | 25.75 | 8.07 | 31.21 | -145.22 | -1,087.12 | 822.54 | 791.00 | 31.54 | 26.080 | |
| 7,050.00 | 6,962.89 | 6,968.08 | 6,967.17 | 25.93 | 8.11 | 34.21 | -145.81 | -1,087.51 | 787.99 | 756.27 | 31.72 | 24.840 | |
| 7,100.00 | 6,992.69 | 6,999.85 | 6,998.94 | 26.13 | 8.15 | 38.06 | -146.37 | -1,087.80 | 751.26 | 719.35 | 31.91 | 23.545 | |
| 7,150.00 | 7,019.25 | 7,027.93 | 7,027.01 | 26.33 | 8.18 | 42.88 | -146.88 | -1,088.01 | 712.67 | 680.57 | 32.10 | 22.203 | |
| 7,200.00 | 7,042.43 | 7,052.38 | 7,051.46 | 26.55 | 8.21 | 48.79 | -147.37 | -1,088.16 | 672.59 | 640.29 | 32.30 | 20.826 | |
| 7,250.00 | 7,062.07 | 7,073.08 | 7,072.15 | 26.79 | 8.24 | 55.79 | -147.80 | -1,088.28 | 631.41 | 598.90 | 32.51 | 19.423 | |
| 7,300.00 | 7,078.05 | 7,089.91 | 7,088.98 | 27.04 | 8.26 | 63.68 | -148.17 | -1,088.36 | 589.57 | 556.82 | 32.75 | 18.004 | |
| 7,350.00 | 7,090.27 | 7,102.76 | 7,101.82 | 27.30 | 8.27 | 71.98 | -148.46 | -1,088.41 | 547.55 | 514.53 | 33.02 | 16.582 | |
| 7,400.00 | 7,098.66 | 7,111.55 | 7,110.61 | 27.58 | 8.28 | 80.02 | -148.66 | -1,088.44 | 505.87 | 472.53 | 33.34 | 15.172 | |
| 7,450.00 | 7,103.17 | 7,116.36 | 7,115.42 | 27.87 | 8.29 | 87.17 | -148.78 | -1,088.46 | 465.16 | 431.43 | 33.73 | 13.791 | |
| 7,484.86 | 7,104.00 | 7,117.35 | 7,116.41 | 28.08 | 8.29 | 91.36 | -148.80 | -1,088.47 | 437.71 | 403.66 | 34.05 | 12.856 | |
| 7,500.00 | 7,103.95 | 7,117.35 | 7,116.41 | 28.17 | 8.29 | 91.36 | -148.80 | -1,088.47 | 426.10 | 391.91 | 34.20 | 12.460 | |
| 7,600.00 | 7,103.60 | 7,117.39 | 7,116.45 | 28.83 | 8.29 | 91.37 | -148.80 | -1,088.47 | 356.19 | 320.74 | 35.46 | 10.046 | |
| 7,700.00 | 7,103.25 | 7,117.42 | 7,116.48 | 29.56 | 8.29 | 91.38 | -148.80 | -1,088.47 | 303.62 | 266.56 | 37.06 | 8.193 | |
| 7,800.00 | 7,102.90 | 7,117.46 | 7,116.52 | 30.35 | 8.29 | 91.38 | -148.81 | -1,088.47 | 278.38 | 240.08 | 38.30 | 7.269 | |
| 7,823.50 | 7,102.82 | 7,117.47 | 7,116.52 | 30.56 | 8.29 | 91.39 | -148.81 | -1,088.47 | 277.39 | 238.97 | 38.41 | 7.221 | CC, ES, SF |
| 7,900.00 | 7,102.55 | 7,117.49 | 7,116.55 | 31.21 | 8.29 | 91.39 | -148.81 | -1,088.47 | 287.75 | 249.56 | 38.19 | 7.535 | |
| 8,000.00 | 7,102.20 | 7,117.53 | 7,116.58 | 32.13 | 8.29 | 91.40 | -148.81 | -1,088.47 | 328.80 | 291.79 | 37.01 | 8.884 | |
| 8,100.00 | 7,101.85 | 7,117.56 | 7,116.62 | 33.10 | 8.29 | 91.41 | -148.81 | -1,088.47 | 391.69 | 355.98 | 35.71 | 10.967 | |
| 8,200.00 | 7,101.50 | 7,117.60 | 7,116.65 | 34.11 | 8.29 | 91.41 | -148.81 | -1,088.47 | 467.69 | 432.97 | 34.71 | 13.472 | |
| 8,300.00 | 7,101.15 | 7,117.63 | 7,116.69 | 35.17 | 8.29 | 91.42 | -148.81 | -1,088.47 | 551.40 | 517.38 | 34.02 | 16.209 | |
| 8,400.00 | 7,100.80 | 7,117.67 | 7,116.72 | 36.27 | 8.29 | 91.43 | -148.81 | -1,088.47 | 639.80 | 606.26 | 33.54 | 19.075 | |
| 8,500.00 | 7,100.45 | 7,117.70 | 7,116.76 | 37.41 | 8.29 | 91.43 | -148.81 | -1,088.47 | 731.20 | 697.99 | 33.21 | 22.018 | |
| 8,600.00 | 7,100.10 | 7,117.74 | 7,116.79 | 38.58 | 8.29 | 91.44 | -148.81 | -1,088.47 | 824.60 | 791.63 | 32.98 | 25.006 | |

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

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

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

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Rule Assigned: Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8,700.00 | 7,099.75 | 7,117.77 | 7,116.83 | 39.78 | 8.29 | 91.45 | -148.81 | -1,088.47 | 919.39 | 886.58 | 32.81 | 28.024 | |
| 8,800.00 | 7,099.40 | 7,117.81 | 7,116.86 | 41.00 | 8.29 | 91.46 | -148.81 | -1,088.47 | 1,015.18 | 982.49 | 32.68 | 31.060 | |
| 8,900.00 | 7,099.05 | 7,117.84 | 7,116.90 | 42.25 | 8.29 | 91.46 | -148.81 | -1,088.47 | 1,111.71 | 1,079.11 | 32.59 | 34.108 | |
| 9,000.00 | 7,098.70 | 7,117.87 | 7,116.93 | 43.53 | 8.29 | 91.47 | -148.82 | -1,088.47 | 1,208.80 | 1,176.28 | 32.53 | 37.163 | |
| 9,100.00 | 7,098.35 | 7,117.91 | 7,116.97 | 44.82 | 8.29 | 91.48 | -148.82 | -1,088.47 | 1,306.34 | 1,273.86 | 32.48 | 40.222 | |
| 9,200.00 | 7,098.00 | 7,117.94 | 7,117.00 | 46.14 | 8.29 | 91.48 | -148.82 | -1,088.47 | 1,404.22 | 1,371.77 | 32.44 | 43.282 | |
| 9,300.00 | 7,097.65 | 7,117.98 | 7,117.04 | 47.47 | 8.29 | 91.49 | -148.82 | -1,088.47 | 1,502.38 | 1,469.96 | 32.42 | 46.343 | |
| 9,400.00 | 7,097.30 | 7,118.01 | 7,117.07 | 48.82 | 8.29 | 91.50 | -148.82 | -1,088.47 | 1,600.76 | 1,568.36 | 32.40 | 49.401 | |
| 9,500.00 | 7,096.95 | 7,118.05 | 7,117.10 | 50.18 | 8.29 | 91.51 | -148.82 | -1,088.47 | 1,699.34 | 1,666.94 | 32.39 | 52.457 | |
| 9,600.00 | 7,096.60 | 7,118.08 | 7,117.14 | 51.56 | 8.29 | 91.51 | -148.82 | -1,088.47 | 1,798.07 | 1,765.68 | 32.39 | 55.510 | |
| 9,700.00 | 7,096.25 | 7,118.12 | 7,117.17 | 52.95 | 8.29 | 91.52 | -148.82 | -1,088.47 | 1,896.94 | 1,864.54 | 32.39 | 58.558 | |
| 9,800.00 | 7,095.90 | 7,118.15 | 7,117.21 | 54.35 | 8.29 | 91.53 | -148.82 | -1,088.47 | 1,995.92 | 1,963.52 | 32.40 | 61.601 | |
| 9,900.00 | 7,095.55 | 7,118.18 | 7,117.24 | 55.76 | 8.29 | 91.53 | -148.82 | -1,088.47 | 2,094.99 | 2,062.58 | 32.41 | 64.639 | |
| 10,000.00 | 7,095.20 | 7,118.22 | 7,117.28 | 57.18 | 8.29 | 91.54 | -148.82 | -1,088.47 | 2,194.15 | 2,161.73 | 32.42 | 67.671 | |
| 10,100.00 | 7,094.85 | 7,118.25 | 7,117.31 | 58.61 | 8.29 | 91.55 | -148.82 | -1,088.47 | 2,293.38 | 2,260.94 | 32.44 | 70.696 | |
| 10,200.00 | 7,094.50 | 7,118.29 | 7,117.34 | 60.05 | 8.29 | 91.56 | -148.83 | -1,088.47 | 2,392.68 | 2,360.22 | 32.46 | 73.715 | |
| 10,300.00 | 7,094.15 | 7,118.32 | 7,117.38 | 61.50 | 8.29 | 91.56 | -148.83 | -1,088.47 | 2,492.03 | 2,459.55 | 32.48 | 76.726 | |
| 10,400.00 | 7,093.80 | 7,118.36 | 7,117.41 | 62.96 | 8.29 | 91.57 | -148.83 | -1,088.47 | 2,591.44 | 2,558.93 | 32.50 | 79.730 | |
| 10,500.00 | 7,093.45 | 7,118.39 | 7,117.45 | 64.42 | 8.29 | 91.58 | -148.83 | -1,088.47 | 2,690.88 | 2,658.35 | 32.53 | 82.726 | |
| 10,600.00 | 7,093.10 | 7,118.42 | 7,117.48 | 65.89 | 8.29 | 91.58 | -148.83 | -1,088.47 | 2,790.37 | 2,757.81 | 32.55 | 85.715 | |
| 10,700.00 | 7,092.75 | 7,118.46 | 7,117.52 | 67.36 | 8.29 | 91.59 | -148.83 | -1,088.47 | 2,889.89 | 2,857.31 | 32.58 | 88.694 | |
| 10,800.00 | 7,092.40 | 7,118.49 | 7,117.55 | 68.84 | 8.29 | 91.60 | -148.83 | -1,088.47 | 2,989.44 | 2,956.83 | 32.61 | 91.665 | |
| 10,900.00 | 7,092.05 | 7,118.53 | 7,117.58 | 70.33 | 8.29 | 91.60 | -148.83 | -1,088.47 | 3,089.03 | 3,056.38 | 32.64 | 94.627 | |
| 11,000.00 | 7,091.70 | 7,118.56 | 7,117.62 | 71.82 | 8.29 | 91.61 | -148.83 | -1,088.47 | 3,188.63 | 3,155.96 | 32.68 | 97.580 | |
| 11,100.00 | 7,091.35 | 7,118.59 | 7,117.65 | 73.31 | 8.29 | 91.62 | -148.83 | -1,088.47 | 3,288.27 | 3,255.56 | 32.71 | 100.524 | |
| 11,200.00 | 7,091.00 | 7,118.63 | 7,117.69 | 74.81 | 8.29 | 91.63 | -148.83 | -1,088.47 | 3,387.92 | 3,355.17 | 32.75 | 103.458 | |
| 11,300.00 | 7,090.65 | 7,118.66 | 7,117.72 | 76.32 | 8.29 | 91.63 | -148.83 | -1,088.47 | 3,487.60 | 3,454.81 | 32.78 | 106.382 | |
| 11,400.00 | 7,090.30 | 7,118.70 | 7,117.75 | 77.82 | 8.29 | 91.64 | -148.84 | -1,088.47 | 3,587.29 | 3,554.47 | 32.82 | 109.296 | |
| 11,500.00 | 7,089.95 | 7,118.73 | 7,117.79 | 79.34 | 8.29 | 91.65 | -148.84 | -1,088.47 | 3,687.00 | 3,654.13 | 32.86 | 112.200 | |
| 11,600.00 | 7,089.60 | 7,118.76 | 7,117.82 | 80.85 | 8.29 | 91.65 | -148.84 | -1,088.47 | 3,786.72 | 3,753.82 | 32.90 | 115.094 | |
| 11,700.00 | 7,089.25 | 7,118.80 | 7,117.86 | 82.37 | 8.29 | 91.66 | -148.84 | -1,088.47 | 3,886.46 | 3,853.52 | 32.94 | 117.977 | |
| 11,800.00 | 7,088.90 | 7,118.83 | 7,117.89 | 83.89 | 8.29 | 91.67 | -148.84 | -1,088.47 | 3,986.21 | 3,953.22 | 32.99 | 120.849 | |
| 11,900.00 | 7,088.55 | 7,118.87 | 7,117.92 | 85.41 | 8.29 | 91.67 | -148.84 | -1,088.47 | 4,085.97 | 4,052.94 | 33.03 | 123.710 | |
| 12,000.00 | 7,088.20 | 7,118.90 | 7,117.96 | 86.94 | 8.29 | 91.68 | -148.84 | -1,088.47 | 4,185.75 | 4,152.67 | 33.07 | 126.561 | |
| 12,100.00 | 7,087.85 | 7,118.93 | 7,117.99 | 88.47 | 8.29 | 91.69 | -148.84 | -1,088.47 | 4,285.53 | 4,252.41 | 33.12 | 129.400 | |
| 12,200.00 | 7,087.50 | 7,118.97 | 7,118.02 | 90.00 | 8.29 | 91.70 | -148.84 | -1,088.47 | 4,385.33 | 4,352.16 | 33.17 | 132.227 | |
| 12,300.00 | 7,087.15 | 7,119.00 | 7,118.06 | 91.54 | 8.29 | 91.70 | -148.84 | -1,088.47 | 4,485.13 | 4,451.92 | 33.21 | 135.043 | |
| 12,400.00 | 7,086.81 | 7,119.04 | 7,118.09 | 93.07 | 8.29 | 91.71 | -148.84 | -1,088.47 | 4,584.95 | 4,551.68 | 33.26 | 137.848 | |
| 12,500.00 | 7,086.46 | 7,119.07 | 7,118.13 | 94.61 | 8.29 | 91.72 | -148.84 | -1,088.47 | 4,684.77 | 4,651.46 | 33.31 | 140.640 | |
| 12,600.00 | 7,086.11 | 7,119.10 | 7,118.16 | 96.15 | 8.29 | 91.72 | -148.85 | -1,088.47 | 4,784.59 | 4,751.23 | 33.36 | 143.421 | |
| 12,700.00 | 7,085.76 | 7,119.14 | 7,118.19 | 97.69 | 8.29 | 91.73 | -148.85 | -1,088.47 | 4,884.43 | 4,851.02 | 33.41 | 146.189 | |
| 12,800.00 | 7,085.41 | 7,119.17 | 7,118.23 | 99.24 | 8.29 | 91.74 | -148.85 | -1,088.47 | 4,984.27 | 4,950.81 | 33.46 | 148.946 | |
| 12,900.00 | 7,085.06 | 7,119.20 | 7,118.26 | 100.78 | 8.29 | 91.74 | -148.85 | -1,088.47 | 5,084.12 | 5,050.60 | 33.52 | 151.690 | |
| 13,000.00 | 7,084.71 | 7,119.24 | 7,118.29 | 102.33 | 8.29 | 91.75 | -148.85 | -1,088.47 | 5,183.97 | 5,150.40 | 33.57 | 154.421 | |
| 13,100.00 | 7,084.36 | 7,119.27 | 7,118.33 | 103.88 | 8.29 | 91.76 | -148.85 | -1,088.47 | 5,283.83 | 5,250.21 | 33.62 | 157.140 | |
| 13,200.00 | 7,084.01 | 7,119.30 | 7,118.36 | 105.43 | 8.29 | 91.77 | -148.85 | -1,088.47 | 5,383.70 | 5,350.02 | 33.68 | 159.847 | |
| 13,300.00 | 7,083.66 | 7,119.34 | 7,118.39 | 106.99 | 8.29 | 91.77 | -148.85 | -1,088.47 | 5,483.57 | 5,449.83 | 33.74 | 162.540 | |
| 13,400.00 | 7,083.31 | 7,119.37 | 7,118.43 | 108.54 | 8.29 | 91.78 | -148.85 | -1,088.47 | 5,583.44 | 5,549.65 | 33.79 | 165.221 | |
| 13,500.00 | 7,082.96 | 7,119.40 | 7,118.46 | 110.09 | 8.29 | 91.79 | -148.85 | -1,088.47 | 5,683.32 | 5,649.47 | 33.85 | 167.889 | |
| 13,600.00 | 7,082.61 | 7,119.44 | 7,118.49 | 111.65 | 8.29 | 91.79 | -148.85 | -1,088.47 | 5,783.20 | 5,749.29 | 33.91 | 170.544 | |
| 13,700.00 | 7,082.26 | 7,119.47 | 7,118.53 | 113.21 | 8.29 | 91.80 | -148.85 | -1,088.48 | 5,883.09 | 5,849.12 | 33.97 | 173.186 | |
| 13,800.00 | 7,081.91 | 7,119.50 | 7,118.56 | 114.77 | 8.29 | 91.81 | -148.85 | -1,088.48 | 5,982.98 | 5,948.95 | 34.03 | 175.814 | |

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

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

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

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13,900.00 | 7,081.56 | 7,119.54 | 7,118.59 | 116.33 | 8.29 | 91.81 | -148.86 | -1,088.48 | 6,082.87 | 6,048.78 | 34.09 | 178.430 | |
| 14,000.00 | 7,081.21 | 7,119.57 | 7,118.63 | 117.89 | 8.29 | 91.82 | -148.86 | -1,088.48 | 6,182.77 | 6,148.62 | 34.15 | 181.032 | |
| 14,100.00 | 7,080.86 | 7,119.60 | 7,118.66 | 119.45 | 8.29 | 91.83 | -148.86 | -1,088.48 | 6,282.67 | 6,248.46 | 34.22 | 183.621 | |
| 14,200.00 | 7,080.51 | 7,119.64 | 7,118.69 | 121.02 | 8.29 | 91.83 | -148.86 | -1,088.48 | 6,382.58 | 6,348.30 | 34.28 | 186.196 | |
| 14,300.00 | 7,080.16 | 7,119.67 | 7,118.73 | 122.58 | 8.29 | 91.84 | -148.86 | -1,088.48 | 6,482.48 | 6,448.14 | 34.34 | 188.758 | |
| 14,400.00 | 7,079.81 | 7,119.70 | 7,118.76 | 124.15 | 8.29 | 91.85 | -148.86 | -1,088.48 | 6,582.39 | 6,547.99 | 34.41 | 191.306 | |
| 14,500.00 | 7,079.46 | 7,119.74 | 7,118.79 | 125.71 | 8.29 | 91.85 | -148.86 | -1,088.48 | 6,682.31 | 6,647.83 | 34.47 | 193.840 | |
| 14,600.00 | 7,079.11 | 7,119.77 | 7,118.83 | 127.28 | 8.29 | 91.86 | -148.86 | -1,088.48 | 6,782.22 | 6,747.68 | 34.54 | 196.361 | |
| 14,700.00 | 7,078.76 | 7,119.80 | 7,118.86 | 128.85 | 8.29 | 91.87 | -148.86 | -1,088.48 | 6,882.14 | 6,847.53 | 34.61 | 198.868 | |
| 14,800.00 | 7,078.41 | 7,119.84 | 7,118.89 | 130.42 | 8.29 | 91.88 | -148.86 | -1,088.48 | 6,982.06 | 6,947.38 | 34.67 | 201.362 | |
| 14,900.00 | 7,078.06 | 7,119.87 | 7,118.93 | 131.98 | 8.29 | 91.88 | -148.86 | -1,088.48 | 7,081.98 | 7,047.24 | 34.74 | 203.841 | |
| 15,000.00 | 7,077.71 | 7,119.90 | 7,118.96 | 133.55 | 8.29 | 91.89 | -148.86 | -1,088.48 | 7,181.91 | 7,147.09 | 34.81 | 206.307 | |
| 15,100.00 | 7,077.36 | 7,119.94 | 7,118.99 | 135.13 | 8.29 | 91.90 | -148.87 | -1,088.48 | 7,281.83 | 7,246.95 | 34.88 | 208.759 | |
| 15,200.00 | 7,077.01 | 7,119.97 | 7,119.03 | 136.70 | 8.29 | 91.90 | -148.87 | -1,088.48 | 7,381.76 | 7,346.81 | 34.95 | 211.198 | |
| 15,300.00 | 7,076.66 | 7,120.00 | 7,119.06 | 138.27 | 8.29 | 91.91 | -148.87 | -1,088.48 | 7,481.69 | 7,446.67 | 35.02 | 213.622 | |
| 15,400.00 | 7,076.31 | 7,120.03 | 7,119.09 | 139.84 | 8.29 | 91.92 | -148.87 | -1,088.48 | 7,581.62 | 7,546.53 | 35.09 | 216.032 | |
| 15,500.00 | 7,075.96 | 7,120.07 | 7,119.12 | 141.42 | 8.29 | 91.92 | -148.87 | -1,088.48 | 7,681.56 | 7,646.39 | 35.17 | 218.429 | |
| 15,600.00 | 7,075.61 | 7,120.10 | 7,119.16 | 142.99 | 8.29 | 91.93 | -148.87 | -1,088.48 | 7,781.49 | 7,746.25 | 35.24 | 220.811 | |
| 15,700.00 | 7,075.26 | 7,120.13 | 7,119.19 | 144.57 | 8.29 | 91.94 | -148.87 | -1,088.48 | 7,881.43 | 7,846.12 | 35.31 | 223.180 | |
| 15,800.00 | 7,074.91 | 7,120.17 | 7,119.22 | 146.14 | 8.29 | 91.94 | -148.87 | -1,088.48 | 7,981.37 | 7,945.98 | 35.39 | 225.534 | |
| 15,900.00 | 7,074.56 | 7,120.20 | 7,119.26 | 147.72 | 8.29 | 91.95 | -148.87 | -1,088.48 | 8,081.31 | 8,045.84 | 35.46 | 227.875 | |
| 16,000.00 | 7,074.21 | 7,120.23 | 7,119.29 | 149.29 | 8.29 | 91.96 | -148.87 | -1,088.48 | 8,181.25 | 8,145.71 | 35.54 | 230.202 | |
| 16,100.00 | 7,073.86 | 7,120.26 | 7,119.32 | 150.87 | 8.29 | 91.96 | -148.87 | -1,088.48 | 8,281.19 | 8,245.58 | 35.62 | 232.514 | |
| 16,200.00 | 7,073.51 | 7,120.30 | 7,119.35 | 152.45 | 8.29 | 91.97 | -148.87 | -1,088.48 | 8,381.14 | 8,345.45 | 35.69 | 234.813 | |
| 16,300.00 | 7,073.16 | 7,120.33 | 7,119.39 | 154.03 | 8.29 | 91.98 | -148.87 | -1,088.48 | 8,481.08 | 8,445.31 | 35.77 | 237.098 | |
| 16,400.00 | 7,072.81 | 7,120.36 | 7,119.42 | 155.60 | 8.29 | 91.98 | -148.88 | -1,088.48 | 8,581.03 | 8,545.18 | 35.85 | 239.369 | |
| 16,500.00 | 7,072.46 | 7,120.40 | 7,119.45 | 157.18 | 8.29 | 91.99 | -148.88 | -1,088.48 | 8,680.98 | 8,645.05 | 35.93 | 241.625 | |
| 16,600.00 | 7,072.11 | 7,120.43 | 7,119.48 | 158.76 | 8.29 | 92.00 | -148.88 | -1,088.48 | 8,780.93 | 8,744.92 | 36.01 | 243.868 | |
| 16,631.96 | 7,072.00 | 7,120.44 | 7,119.49 | 159.27 | 8.29 | 92.00 | -148.88 | -1,088.48 | 8,812.88 | 8,776.84 | 36.03 | 244.582 | |

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

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

**Rule Assigned:**

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 24.68 | 24.68 | 3.28 | 3.28 | 98.01 | -1,184.87 | 8,422.38 | 8,505.31 | | | | |
| 100.00 | 100.00 | 123.69 | 123.69 | 3.29 | 3.28 | 98.01 | -1,184.87 | 8,422.39 | 8,505.32 | 8,498.75 | 6.57 | 1,294.454 | |
| 200.00 | 200.00 | 222.52 | 222.52 | 3.34 | 3.29 | 98.01 | -1,184.86 | 8,422.41 | 8,505.34 | 8,498.72 | 6.62 | 1,284.359 | |
| 300.00 | 300.00 | 322.39 | 322.39 | 3.42 | 3.30 | 98.01 | -1,184.85 | 8,422.44 | 8,505.37 | 8,498.66 | 6.72 | 1,266.533 | |
| 400.00 | 400.00 | 421.08 | 421.08 | 3.54 | 3.32 | 98.01 | -1,184.83 | 8,422.48 | 8,505.41 | 8,498.57 | 6.85 | 1,242.140 | |
| 500.00 | 500.00 | 519.77 | 519.77 | 3.69 | 3.34 | 98.01 | -1,184.81 | 8,422.54 | 8,505.47 | 8,498.45 | 7.01 | 1,212.520 ES | |
| 600.00 | 599.98 | 618.77 | 618.77 | 3.86 | 3.36 | -111.99 | -1,184.78 | 8,422.61 | 8,506.19 | 8,498.98 | 7.21 | 1,180.545 | |
| 697.00 | 696.84 | 715.31 | 715.31 | 4.04 | 3.39 | -111.99 | -1,184.75 | 8,422.69 | 8,508.14 | 8,500.73 | 7.41 | 1,148.056 | |
| 700.00 | 699.84 | 718.30 | 718.30 | 4.05 | 3.39 | -111.99 | -1,184.75 | 8,422.69 | 8,508.22 | 8,500.81 | 7.42 | 1,146.984 | |
| 800.00 | 799.60 | 816.75 | 816.75 | 4.25 | 3.43 | -112.03 | -1,184.72 | 8,422.78 | 8,510.89 | 8,503.24 | 7.66 | 1,111.422 | |
| 897.00 | 896.37 | 912.21 | 912.21 | 4.48 | 3.47 | -112.07 | -1,184.68 | 8,422.88 | 8,513.50 | 8,505.58 | 7.91 | 1,075.774 | |
| 900.00 | 899.37 | 915.20 | 915.20 | 4.48 | 3.47 | -111.21 | -1,184.68 | 8,422.89 | 8,513.58 | 8,505.66 | 7.92 | 1,074.663 | |
| 947.40 | 946.65 | 962.48 | 962.48 | 4.60 | 3.49 | -97.42 | -1,184.66 | 8,422.94 | 8,514.43 | 8,506.37 | 8.05 | 1,057.041 | |
| 1,000.00 | 999.13 | 1,014.22 | 1,014.21 | 4.73 | 3.51 | -97.44 | -1,184.64 | 8,423.00 | 8,514.95 | 8,506.75 | 8.21 | 1,037.470 | |
| 1,100.00 | 1,098.89 | 1,113.41 | 1,113.41 | 4.99 | 3.56 | -97.49 | -1,184.59 | 8,423.13 | 8,515.97 | 8,507.46 | 8.51 | 1,000.456 | |
| 1,200.00 | 1,198.66 | 1,211.85 | 1,211.85 | 5.27 | 3.62 | -97.53 | -1,184.54 | 8,423.27 | 8,517.01 | 8,508.17 | 8.83 | 964.218 | |
| 1,300.00 | 1,298.42 | 1,310.30 | 1,310.30 | 5.56 | 3.67 | -97.58 | -1,184.48 | 8,423.42 | 8,518.06 | 8,508.89 | 9.17 | 929.048 | |
| 1,400.00 | 1,398.18 | 1,409.55 | 1,409.55 | 5.85 | 3.73 | -97.62 | -1,184.42 | 8,423.58 | 8,519.12 | 8,509.60 | 9.52 | 895.118 | |
| 1,500.00 | 1,497.95 | 1,508.50 | 1,508.50 | 6.16 | 3.80 | -97.67 | -1,184.36 | 8,423.76 | 8,520.21 | 8,510.33 | 9.88 | 862.615 | |
| 1,600.00 | 1,597.71 | 1,606.94 | 1,606.94 | 6.47 | 3.86 | -97.72 | -1,184.29 | 8,423.95 | 8,521.31 | 8,511.06 | 10.25 | 831.609 | |
| 1,700.00 | 1,697.47 | 1,705.38 | 1,705.38 | 6.79 | 3.93 | -97.76 | -1,184.21 | 8,424.15 | 8,522.43 | 8,511.80 | 10.63 | 802.092 | |
| 1,800.00 | 1,797.24 | 1,804.88 | 1,804.88 | 7.11 | 4.01 | -97.81 | -1,184.13 | 8,424.36 | 8,523.56 | 8,512.55 | 11.01 | 773.998 | |
| 1,900.00 | 1,897.00 | 1,903.57 | 1,903.57 | 7.44 | 4.08 | -97.85 | -1,184.05 | 8,424.58 | 8,524.72 | 8,513.31 | 11.41 | 747.378 | |
| 2,000.00 | 1,996.76 | 2,002.01 | 2,002.00 | 7.77 | 4.16 | -97.90 | -1,183.97 | 8,424.81 | 8,525.88 | 8,514.08 | 11.81 | 722.151 | |
| 2,100.00 | 2,096.53 | 2,100.44 | 2,100.44 | 8.11 | 4.24 | -97.94 | -1,183.88 | 8,425.06 | 8,527.07 | 8,514.85 | 12.21 | 698.244 | |
| 2,200.00 | 2,196.29 | 2,200.00 | 2,200.00 | 8.44 | 4.33 | -97.99 | -1,183.78 | 8,425.32 | 8,528.27 | 8,515.64 | 12.62 | 675.547 | |
| 2,300.00 | 2,296.06 | 2,298.63 | 2,298.62 | 8.79 | 4.41 | -98.04 | -1,183.68 | 8,425.59 | 8,529.49 | 8,516.45 | 13.04 | 654.077 | |
| 2,400.00 | 2,395.82 | 2,397.06 | 2,397.05 | 9.13 | 4.50 | -98.08 | -1,183.57 | 8,425.87 | 8,530.73 | 8,517.27 | 13.46 | 633.734 | |
| 2,500.00 | 2,495.58 | 2,495.71 | 2,495.71 | 9.47 | 4.59 | -98.13 | -1,183.47 | 8,426.16 | 8,531.98 | 8,518.09 | 13.89 | 614.436 | |
| 2,600.00 | 2,595.35 | 2,595.24 | 2,595.23 | 9.82 | 4.68 | -98.18 | -1,183.35 | 8,426.47 | 8,533.25 | 8,518.93 | 14.32 | 596.098 | |
| 2,700.00 | 2,695.11 | 2,693.66 | 2,693.66 | 10.17 | 4.78 | -98.22 | -1,183.23 | 8,426.79 | 8,534.54 | 8,519.79 | 14.75 | 578.729 | |
| 2,800.00 | 2,794.87 | 2,792.09 | 2,792.08 | 10.52 | 4.87 | -98.27 | -1,183.11 | 8,427.12 | 8,535.84 | 8,520.66 | 15.18 | 562.231 | |
| 2,900.00 | 2,894.64 | 2,890.99 | 2,890.98 | 10.87 | 4.97 | -98.31 | -1,182.98 | 8,427.46 | 8,537.16 | 8,521.54 | 15.62 | 546.534 | |
| 3,000.00 | 2,994.40 | 2,990.26 | 2,990.25 | 11.23 | 5.07 | -98.36 | -1,182.85 | 8,427.82 | 8,538.51 | 8,522.44 | 16.06 | 531.593 | |
| 3,100.00 | 3,094.16 | 3,088.68 | 3,088.67 | 11.58 | 5.17 | -98.41 | -1,182.72 | 8,428.18 | 8,539.86 | 8,523.35 | 16.51 | 517.395 | |
| 3,200.00 | 3,193.93 | 3,187.10 | 3,187.09 | 11.94 | 5.27 | -98.45 | -1,182.58 | 8,428.55 | 8,541.23 | 8,524.28 | 16.95 | 503.871 | |
| 3,300.00 | 3,293.69 | 3,286.25 | 3,286.24 | 12.29 | 5.37 | -98.50 | -1,182.43 | 8,428.94 | 8,542.62 | 8,525.22 | 17.40 | 490.958 | |
| 3,400.00 | 3,393.45 | 3,385.27 | 3,385.25 | 12.65 | 5.48 | -98.55 | -1,182.28 | 8,429.35 | 8,544.03 | 8,526.18 | 17.85 | 478.642 | |
| 3,500.00 | 3,493.22 | 3,483.68 | 3,483.67 | 13.01 | 5.58 | -98.59 | -1,182.13 | 8,429.76 | 8,545.45 | 8,527.15 | 18.30 | 466.899 | |
| 3,600.00 | 3,592.98 | 3,582.10 | 3,582.08 | 13.37 | 5.68 | -98.64 | -1,181.98 | 8,430.18 | 8,546.89 | 8,528.14 | 18.76 | 455.677 | |
| 3,700.00 | 3,692.74 | 3,681.49 | 3,681.48 | 13.73 | 5.79 | -98.68 | -1,181.81 | 8,430.62 | 8,548.35 | 8,529.14 | 19.21 | 444.925 | |
| 3,800.00 | 3,792.51 | 3,780.25 | 3,780.24 | 14.09 | 5.90 | -98.73 | -1,181.65 | 8,431.07 | 8,549.83 | 8,530.16 | 19.67 | 434.651 | |
| 3,900.00 | 3,892.27 | 3,878.66 | 3,878.65 | 14.45 | 6.01 | -98.78 | -1,181.48 | 8,431.53 | 8,551.32 | 8,531.19 | 20.13 | 424.820 | |
| 4,000.00 | 3,992.04 | 3,977.07 | 3,977.06 | 14.81 | 6.12 | -98.82 | -1,181.30 | 8,432.00 | 8,552.83 | 8,532.24 | 20.59 | 415.398 | |
| 4,100.00 | 4,091.80 | 4,067.81 | 4,067.79 | 15.17 | 6.22 | -98.87 | -1,181.15 | 8,432.48 | 8,554.41 | 8,533.36 | 21.04 | 406.496 | |
| 4,200.00 | 4,191.56 | 4,172.64 | 4,172.61 | 15.53 | 6.33 | -98.92 | -1,180.88 | 8,433.05 | 8,555.98 | 8,534.47 | 21.51 | 397.763 | |
| 4,300.00 | 4,291.33 | 4,275.00 | 4,274.98 | 15.89 | 6.45 | -98.96 | -1,180.74 | 8,433.43 | 8,557.41 | 8,535.43 | 21.98 | 389.411 | |
| 4,400.00 | 4,391.09 | 4,396.89 | 4,396.87 | 16.26 | 6.58 | -99.02 | -1,180.67 | 8,433.76 | 8,558.73 | 8,536.26 | 22.47 | 380.978 | |
| 4,500.00 | 4,490.85 | 4,514.51 | 4,514.49 | 16.62 | 6.69 | -99.07 | -1,180.73 | 8,434.04 | 8,560.08 | 8,537.12 | 22.95 | 372.918 | |
| 4,600.00 | 4,590.62 | 4,597.84 | 4,597.81 | 16.99 | 6.72 | -99.11 | -1,180.94 | 8,434.13 | 8,561.29 | 8,537.92 | 23.38 | 366.234 | |
| 4,700.00 | 4,690.38 | 4,714.59 | 4,714.57 | 17.35 | 6.74 | -99.16 | -1,181.24 | 8,434.16 | 8,562.43 | 8,538.63 | 23.80 | 359.825 | |
| 4,800.00 | 4,790.14 | 4,807.76 | 4,807.74 | 17.71 | 6.75 | -99.20 | -1,181.53 | 8,434.17 | 8,563.57 | 8,539.37 | 24.20 | 353.799 | |

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

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

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

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Rule Assigned: Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4,900.00 | 4,889.91 | 4,920.41 | 4,920.39 | 18.08 | 6.76 | -99.25 | -1,181.91 | 8,434.14 | 8,564.68 | 8,540.07 | 24.61 | 347.958 | |
| 5,000.00 | 4,989.67 | 5,028.06 | 5,028.04 | 18.44 | 6.76 | -99.30 | -1,182.34 | 8,434.00 | 8,565.70 | 8,540.70 | 25.00 | 342.586 | |
| 5,100.00 | 5,089.43 | 5,117.62 | 5,117.59 | 18.81 | 6.75 | -99.33 | -1,182.76 | 8,433.85 | 8,566.70 | 8,541.32 | 25.39 | 337.466 | |
| 5,200.00 | 5,189.20 | 5,235.28 | 5,235.25 | 19.17 | 6.75 | -99.38 | -1,183.30 | 8,433.66 | 8,567.72 | 8,541.95 | 25.78 | 332.380 | |
| 5,300.00 | 5,288.96 | 5,345.15 | 5,345.12 | 19.54 | 6.73 | -99.43 | -1,183.91 | 8,433.26 | 8,568.54 | 8,542.39 | 26.15 | 327.701 | |
| 5,400.00 | 5,388.72 | 5,438.46 | 5,438.43 | 19.91 | 6.72 | -99.47 | -1,184.45 | 8,432.92 | 8,569.36 | 8,542.84 | 26.52 | 323.121 | |
| 5,500.00 | 5,488.49 | 5,549.90 | 5,549.86 | 20.27 | 6.71 | -99.51 | -1,185.06 | 8,432.46 | 8,570.14 | 8,543.25 | 26.89 | 318.714 | |
| 5,600.00 | 5,588.25 | 5,647.89 | 5,647.85 | 20.64 | 6.69 | -99.55 | -1,185.56 | 8,431.98 | 8,570.85 | 8,543.60 | 27.25 | 314.497 | |
| 5,700.00 | 5,688.01 | 5,745.27 | 5,745.22 | 21.00 | 6.68 | -99.59 | -1,186.07 | 8,431.53 | 8,571.59 | 8,543.97 | 27.62 | 310.357 | |
| 5,800.00 | 5,787.78 | 5,872.85 | 5,872.80 | 21.37 | 6.67 | -99.65 | -1,186.91 | 8,430.76 | 8,572.20 | 8,544.21 | 27.99 | 306.292 | |
| 5,900.00 | 5,887.54 | 5,956.22 | 5,956.17 | 21.74 | 6.66 | -99.68 | -1,187.49 | 8,430.13 | 8,572.68 | 8,544.33 | 28.35 | 302.369 | |
| 6,000.00 | 5,987.31 | 6,095.00 | 6,094.95 | 22.11 | 6.65 | -99.74 | -1,188.49 | 8,429.19 | 8,573.29 | 8,544.57 | 28.72 | 298.470 | |
| 6,100.00 | 6,087.07 | 6,191.42 | 6,191.36 | 22.47 | 6.66 | -99.77 | -1,189.23 | 8,428.49 | 8,573.80 | 8,544.70 | 29.10 | 294.616 | |
| 6,200.00 | 6,186.83 | 6,265.82 | 6,265.75 | 22.84 | 6.67 | -99.80 | -1,189.78 | 8,428.08 | 8,574.42 | 8,544.94 | 29.48 | 290.856 | |
| 6,300.00 | 6,286.60 | 6,341.29 | 6,341.21 | 23.21 | 6.68 | -99.83 | -1,190.57 | 8,427.64 | 8,575.10 | 8,545.24 | 29.86 | 287.156 | |
| 6,400.00 | 6,386.36 | 6,444.82 | 6,444.74 | 23.58 | 6.70 | -99.87 | -1,191.72 | 8,427.13 | 8,575.90 | 8,545.64 | 30.26 | 283.438 | |
| 6,494.00 | 6,480.13 | 6,533.32 | 6,533.23 | 23.92 | 6.73 | -99.90 | -1,192.94 | 8,426.72 | 8,576.70 | 8,546.07 | 30.63 | 280.001 | |
| 6,500.00 | 6,486.12 | 6,536.39 | 6,536.30 | 23.94 | 6.73 | -107.18 | -1,193.00 | 8,426.71 | 8,576.78 | 8,546.13 | 30.65 | 279.792 | |
| 6,550.00 | 6,535.89 | 6,584.09 | 6,584.00 | 24.13 | 6.75 | -142.67 | -1,193.70 | 8,426.55 | 8,579.70 | 8,548.84 | 30.86 | 278.064 | |
| 6,600.00 | 6,585.24 | 6,625.00 | 6,624.90 | 24.31 | 6.76 | -154.89 | -1,194.21 | 8,426.39 | 8,586.47 | 8,555.42 | 31.05 | 276.525 | |
| 6,650.00 | 6,633.88 | 6,663.75 | 6,663.64 | 24.50 | 6.78 | -160.41 | -1,194.84 | 8,426.31 | 8,597.19 | 8,565.95 | 31.25 | 275.126 | |
| 6,700.00 | 6,681.49 | 6,709.72 | 6,709.61 | 24.68 | 6.80 | -163.43 | -1,195.46 | 8,426.21 | 8,611.69 | 8,580.24 | 31.44 | 273.873 | |
| 6,750.00 | 6,727.80 | 6,765.34 | 6,765.23 | 24.86 | 6.82 | -165.27 | -1,196.23 | 8,426.09 | 8,629.88 | 8,598.24 | 31.64 | 272.759 | |
| 6,800.00 | 6,772.51 | 6,786.46 | 6,786.34 | 25.04 | 6.83 | -166.42 | -1,196.45 | 8,426.07 | 8,651.69 | 8,619.88 | 31.81 | 271.961 | |
| 6,850.00 | 6,815.34 | 6,839.31 | 6,839.19 | 25.21 | 6.86 | -167.16 | -1,197.21 | 8,426.08 | 8,677.03 | 8,645.03 | 32.00 | 271.185 | |
| 6,900.00 | 6,856.04 | 6,869.04 | 6,868.92 | 25.39 | 6.88 | -167.58 | -1,197.61 | 8,426.06 | 8,705.60 | 8,673.45 | 32.16 | 270.714 | |
| 6,950.00 | 6,894.35 | 6,921.89 | 6,921.76 | 25.57 | 6.91 | -167.78 | -1,198.44 | 8,426.02 | 8,737.30 | 8,704.98 | 32.32 | 270.318 | |
| 7,000.00 | 6,930.04 | 6,950.00 | 6,949.87 | 25.75 | 6.92 | -167.74 | -1,198.81 | 8,425.99 | 8,771.90 | 8,739.44 | 32.46 | 270.224 | SF |
| 7,050.00 | 6,962.89 | 6,966.84 | 6,966.71 | 25.93 | 6.94 | -167.47 | -1,199.05 | 8,425.99 | 8,809.25 | 8,776.66 | 32.58 | 270.349 | |
| 7,100.00 | 6,992.69 | 7,025.00 | 7,024.86 | 26.13 | 6.97 | -167.02 | -1,199.92 | 8,425.91 | 8,848.99 | 8,816.28 | 32.72 | 270.464 | |
| 7,150.00 | 7,019.25 | 7,039.45 | 7,039.30 | 26.33 | 6.98 | -166.20 | -1,200.14 | 8,425.88 | 8,890.99 | 8,858.18 | 32.81 | 270.945 | |
| 7,200.00 | 7,042.43 | 7,090.13 | 7,089.98 | 26.55 | 7.00 | -165.06 | -1,200.77 | 8,425.82 | 8,935.00 | 8,902.08 | 32.92 | 271.418 | |
| 7,250.00 | 7,062.07 | 7,100.00 | 7,099.85 | 26.79 | 7.01 | -163.19 | -1,200.89 | 8,425.79 | 8,980.64 | 8,947.65 | 32.99 | 272.233 | |
| 7,300.00 | 7,078.05 | 7,111.17 | 7,111.02 | 27.04 | 7.01 | -160.24 | -1,201.02 | 8,425.75 | 9,027.72 | 8,994.67 | 33.05 | 273.168 | |
| 7,350.00 | 7,090.27 | 7,115.41 | 7,115.26 | 27.30 | 7.02 | -155.14 | -1,201.07 | 8,425.75 | 9,075.95 | 9,042.85 | 33.09 | 274.255 | |
| 7,400.00 | 7,098.66 | 7,125.00 | 7,124.85 | 27.58 | 7.02 | -145.24 | -1,201.18 | 8,425.75 | 9,125.02 | 9,091.89 | 33.13 | 275.418 | |
| 7,450.00 | 7,103.17 | 7,125.00 | 7,124.85 | 27.87 | 7.02 | -121.16 | -1,201.18 | 8,425.75 | 9,174.62 | 9,141.46 | 33.16 | 276.709 | |
| 7,484.86 | 7,104.00 | 7,125.00 | 7,124.85 | 28.08 | 7.02 | -87.17 | -1,201.18 | 8,425.75 | 9,209.35 | 9,176.18 | 33.17 | 277.645 | |
| 7,500.00 | 7,103.95 | 7,125.00 | 7,124.85 | 28.17 | 7.02 | -87.17 | -1,201.18 | 8,425.75 | 9,224.44 | 9,191.27 | 33.17 | 278.058 | |
| 7,600.00 | 7,103.60 | 7,125.00 | 7,124.85 | 28.83 | 7.02 | -87.17 | -1,201.18 | 8,425.75 | 9,324.13 | 9,290.92 | 33.21 | 280.783 | |
| 7,700.00 | 7,103.25 | 7,125.00 | 7,124.85 | 29.56 | 7.02 | -87.17 | -1,201.18 | 8,425.75 | 9,423.82 | 9,390.58 | 33.24 | 283.496 | |
| 7,800.00 | 7,102.90 | 7,125.00 | 7,124.85 | 30.35 | 7.02 | -87.17 | -1,201.18 | 8,425.75 | 9,523.52 | 9,490.24 | 33.28 | 286.196 | |
| 7,900.00 | 7,102.55 | 7,125.00 | 7,124.85 | 31.21 | 7.02 | -87.17 | -1,201.18 | 8,425.75 | 9,623.22 | 9,589.91 | 33.31 | 288.884 | |
| 8,000.00 | 7,102.20 | 7,125.00 | 7,124.85 | 32.13 | 7.02 | -87.17 | -1,201.18 | 8,425.75 | 9,722.93 | 9,689.59 | 33.35 | 291.559 | |
| 8,100.00 | 7,101.85 | 7,125.00 | 7,124.85 | 33.10 | 7.02 | -87.17 | -1,201.18 | 8,425.75 | 9,822.65 | 9,789.27 | 33.39 | 294.222 | |
| 8,200.00 | 7,101.50 | 7,125.00 | 7,124.85 | 34.11 | 7.02 | -87.17 | -1,201.18 | 8,425.75 | 9,922.37 | 9,888.95 | 33.42 | 296.871 | |
| 8,300.00 | 7,101.15 | 7,125.00 | 7,124.85 | 35.17 | 7.02 | -87.17 | -1,201.18 | 8,425.75 | 10,022.10 | 9,988.64 | 33.46 | 299.508 | |
| 8,400.00 | 7,100.80 | 7,125.00 | 7,124.85 | 36.27 | 7.02 | -87.17 | -1,201.18 | 8,425.75 | 10,121.84 | 10,088.33 | 33.50 | 302.133 | |
| 8,500.00 | 7,100.45 | 7,125.00 | 7,124.85 | 37.41 | 7.02 | -87.17 | -1,201.18 | 8,425.75 | 10,221.57 | 10,188.03 | 33.54 | 304.744 | |
| 8,600.00 | 7,100.10 | 7,125.00 | 7,124.85 | 38.58 | 7.02 | -87.17 | -1,201.18 | 8,425.75 | 10,321.32 | 10,287.74 | 33.58 | 307.343 | |
| 8,700.00 | 7,099.75 | 7,125.00 | 7,124.85 | 39.78 | 7.02 | -87.17 | -1,201.18 | 8,425.75 | 10,421.07 | 10,387.44 | 33.62 | 309.929 | |
| 8,800.00 | 7,099.40 | 7,125.00 | 7,124.85 | 41.00 | 7.02 | -87.17 | -1,201.18 | 8,425.75 | 10,520.82 | 10,487.15 | 33.67 | 312.501 | |

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

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

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

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Rule Assigned: Distance Between Centres (usft) | Rule Assigned: Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8,900.00 | 7,099.05 | 7,125.00 | 7,124.85 | 42.25 | 7.02 | -87.17 | -1,201.18 | 8,425.75 | 10,620.58 | 10,586.87 | 33.71 | 315.062 | |
| 9,000.00 | 7,098.70 | 7,125.00 | 7,124.85 | 43.53 | 7.02 | -87.17 | -1,201.18 | 8,425.75 | 10,720.34 | 10,686.59 | 33.75 | 317.609 | |
| 9,100.00 | 7,098.35 | 7,125.00 | 7,124.85 | 44.82 | 7.02 | -87.17 | -1,201.18 | 8,425.75 | 10,820.11 | 10,786.31 | 33.80 | 320.143 | |
| 9,200.00 | 7,098.00 | 7,125.00 | 7,124.85 | 46.14 | 7.02 | -87.17 | -1,201.18 | 8,425.75 | 10,919.88 | 10,886.04 | 33.84 | 322.664 | |
| 9,300.00 | 7,097.65 | 7,125.00 | 7,124.85 | 47.47 | 7.02 | -87.17 | -1,201.18 | 8,425.75 | 11,019.65 | 10,985.77 | 33.89 | 325.172 | |
| 9,400.00 | 7,097.30 | 7,125.00 | 7,124.85 | 48.82 | 7.02 | -87.17 | -1,201.18 | 8,425.75 | 11,119.43 | 11,085.50 | 33.94 | 327.666 | |
| 9,500.00 | 7,096.95 | 7,125.00 | 7,124.85 | 50.18 | 7.02 | -87.17 | -1,201.18 | 8,425.75 | 11,219.22 | 11,185.23 | 33.98 | 330.148 | |
| 9,600.00 | 7,096.60 | 7,125.00 | 7,124.85 | 51.56 | 7.02 | -87.17 | -1,201.18 | 8,425.75 | 11,319.00 | 11,284.97 | 34.03 | 332.617 | |
| 9,700.00 | 7,096.25 | 7,125.00 | 7,124.85 | 52.95 | 7.02 | -87.17 | -1,201.18 | 8,425.75 | 11,418.79 | 11,384.72 | 34.08 | 335.072 | |
| 9,800.00 | 7,095.90 | 7,125.00 | 7,124.85 | 54.35 | 7.02 | -87.17 | -1,201.18 | 8,425.75 | 11,518.59 | 11,484.46 | 34.13 | 337.514 | |
| 9,900.00 | 7,095.55 | 7,125.00 | 7,124.85 | 55.76 | 7.02 | -87.17 | -1,201.18 | 8,425.75 | 11,618.39 | 11,584.21 | 34.18 | 339.943 | |
| 10,000.00 | 7,095.20 | 7,125.00 | 7,124.85 | 57.18 | 7.02 | -87.17 | -1,201.18 | 8,425.75 | 11,718.19 | 11,683.96 | 34.23 | 342.358 | |
| 10,100.00 | 7,094.85 | 7,125.00 | 7,124.85 | 58.61 | 7.02 | -87.17 | -1,201.18 | 8,425.75 | 11,817.99 | 11,783.71 | 34.28 | 344.761 | |
| 10,200.00 | 7,094.50 | 7,125.00 | 7,124.85 | 60.05 | 7.02 | -87.17 | -1,201.18 | 8,425.75 | 11,917.80 | 11,883.47 | 34.33 | 347.149 | |
| 10,300.00 | 7,094.15 | 7,125.00 | 7,124.85 | 61.50 | 7.02 | -87.17 | -1,201.18 | 8,425.75 | 12,017.61 | 11,983.23 | 34.38 | 349.525 | |
| 10,400.00 | 7,093.80 | 7,125.00 | 7,124.85 | 62.96 | 7.02 | -87.17 | -1,201.18 | 8,425.75 | 12,117.43 | 12,082.99 | 34.44 | 351.887 | |
| 10,500.00 | 7,093.45 | 7,125.00 | 7,124.85 | 64.42 | 7.02 | -87.17 | -1,201.18 | 8,425.75 | 12,217.24 | 12,182.76 | 34.49 | 354.235 | |
| 10,600.00 | 7,093.10 | 7,125.00 | 7,124.85 | 65.89 | 7.02 | -87.17 | -1,201.18 | 8,425.75 | 12,317.07 | 12,282.52 | 34.54 | 356.570 | |
| 10,700.00 | 7,092.75 | 7,125.00 | 7,124.85 | 67.36 | 7.02 | -87.17 | -1,201.18 | 8,425.75 | 12,416.89 | 12,382.29 | 34.60 | 358.892 | |
| 10,800.00 | 7,092.40 | 7,125.00 | 7,124.85 | 68.84 | 7.02 | -87.17 | -1,201.18 | 8,425.75 | 12,516.71 | 12,482.06 | 34.65 | 361.200 | |
| 10,900.00 | 7,092.05 | 7,125.00 | 7,124.85 | 70.33 | 7.02 | -87.17 | -1,201.18 | 8,425.75 | 12,616.54 | 12,581.83 | 34.71 | 363.494 | |
| 11,000.00 | 7,091.70 | 7,125.00 | 7,124.85 | 71.82 | 7.02 | -87.17 | -1,201.18 | 8,425.75 | 12,716.37 | 12,681.61 | 34.77 | 365.775 | |
| 11,100.00 | 7,091.35 | 7,125.00 | 7,124.85 | 73.31 | 7.02 | -87.17 | -1,201.18 | 8,425.75 | 12,816.21 | 12,781.39 | 34.82 | 368.042 | |
| 11,200.00 | 7,091.00 | 7,125.00 | 7,124.85 | 74.81 | 7.02 | -87.17 | -1,201.18 | 8,425.75 | 12,916.05 | 12,881.17 | 34.88 | 370.296 | |
| 11,300.00 | 7,090.65 | 7,125.00 | 7,124.85 | 76.32 | 7.02 | -87.17 | -1,201.18 | 8,425.75 | 13,015.89 | 12,980.95 | 34.94 | 372.536 | |
| 11,400.00 | 7,090.30 | 7,125.00 | 7,124.85 | 77.82 | 7.02 | -87.17 | -1,201.18 | 8,425.75 | 13,115.73 | 13,080.73 | 35.00 | 374.762 | |
| 11,500.00 | 7,089.95 | 7,125.00 | 7,124.85 | 79.34 | 7.02 | -87.17 | -1,201.18 | 8,425.75 | 13,215.57 | 13,180.51 | 35.06 | 376.975 | |
| 11,600.00 | 7,089.60 | 7,125.00 | 7,124.85 | 80.85 | 7.02 | -87.17 | -1,201.18 | 8,425.75 | 13,315.42 | 13,280.30 | 35.12 | 379.174 | |
| 11,700.00 | 7,089.25 | 7,125.00 | 7,124.85 | 82.37 | 7.02 | -87.17 | -1,201.18 | 8,425.75 | 13,415.27 | 13,380.09 | 35.18 | 381.360 | |
| 11,800.00 | 7,088.90 | 7,125.00 | 7,124.85 | 83.89 | 7.02 | -87.17 | -1,201.18 | 8,425.75 | 13,515.12 | 13,479.88 | 35.24 | 383.532 | |
| 11,900.00 | 7,088.55 | 7,125.00 | 7,124.85 | 85.41 | 7.02 | -87.17 | -1,201.18 | 8,425.75 | 13,614.97 | 13,579.67 | 35.30 | 385.690 | |
| 12,000.00 | 7,088.20 | 7,125.00 | 7,124.85 | 86.94 | 7.02 | -87.17 | -1,201.18 | 8,425.75 | 13,714.83 | 13,679.46 | 35.36 | 387.834 | |
| 12,100.00 | 7,087.85 | 7,125.00 | 7,124.85 | 88.47 | 7.02 | -87.17 | -1,201.18 | 8,425.75 | 13,814.68 | 13,779.26 | 35.43 | 389.965 | |
| 12,200.00 | 7,087.50 | 7,125.00 | 7,124.85 | 90.00 | 7.02 | -87.17 | -1,201.18 | 8,425.75 | 13,914.54 | 13,879.05 | 35.49 | 392.083 | |
| 12,300.00 | 7,087.15 | 7,125.00 | 7,124.85 | 91.54 | 7.02 | -87.17 | -1,201.18 | 8,425.75 | 14,014.40 | 13,978.85 | 35.55 | 394.186 | |
| 12,400.00 | 7,086.81 | 7,125.00 | 7,124.85 | 93.07 | 7.02 | -87.17 | -1,201.18 | 8,425.75 | 14,114.27 | 14,078.65 | 35.62 | 396.276 | |
| 12,500.00 | 7,086.46 | 7,125.00 | 7,124.85 | 94.61 | 7.02 | -87.17 | -1,201.18 | 8,425.75 | 14,214.13 | 14,178.45 | 35.68 | 398.352 | |
| 12,600.00 | 7,086.11 | 7,115.57 | 7,115.42 | 96.15 | 7.02 | -86.44 | -1,201.07 | 8,425.75 | 14,313.99 | 14,278.25 | 35.74 | 400.484 | |
| 12,700.00 | 7,085.76 | 7,115.51 | 7,115.36 | 97.69 | 7.02 | -86.43 | -1,201.07 | 8,425.75 | 14,413.86 | 14,378.05 | 35.81 | 402.533 | |
| 12,800.00 | 7,085.41 | 7,115.44 | 7,115.30 | 99.24 | 7.02 | -86.43 | -1,201.07 | 8,425.75 | 14,513.73 | 14,477.85 | 35.87 | 404.569 | |
| 12,900.00 | 7,085.06 | 7,115.38 | 7,115.23 | 100.78 | 7.02 | -86.42 | -1,201.07 | 8,425.75 | 14,613.60 | 14,577.66 | 35.94 | 406.592 | |
| 13,000.00 | 7,084.71 | 7,115.32 | 7,115.17 | 102.33 | 7.02 | -86.42 | -1,201.07 | 8,425.75 | 14,713.47 | 14,677.46 | 36.01 | 408.601 | |
| 13,100.00 | 7,084.36 | 7,115.26 | 7,115.11 | 103.88 | 7.02 | -86.41 | -1,201.07 | 8,425.75 | 14,813.35 | 14,777.27 | 36.08 | 410.596 | |
| 13,200.00 | 7,084.01 | 7,115.20 | 7,115.05 | 105.43 | 7.02 | -86.41 | -1,201.07 | 8,425.75 | 14,913.23 | 14,877.08 | 36.15 | 412.578 | |
| 13,300.00 | 7,083.66 | 7,115.13 | 7,114.99 | 106.99 | 7.02 | -86.40 | -1,201.07 | 8,425.75 | 15,013.11 | 14,976.89 | 36.22 | 414.546 | |
| 13,400.00 | 7,083.31 | 7,115.07 | 7,114.93 | 108.54 | 7.02 | -86.40 | -1,201.07 | 8,425.75 | 15,112.99 | 15,076.70 | 36.29 | 416.500 | |
| 13,500.00 | 7,082.96 | 7,115.02 | 7,114.87 | 110.09 | 7.02 | -86.39 | -1,201.06 | 8,425.75 | 15,212.87 | 15,176.51 | 36.36 | 418.442 | |
| 13,600.00 | 7,082.61 | 7,114.96 | 7,114.81 | 111.65 | 7.02 | -86.39 | -1,201.06 | 8,425.75 | 15,312.75 | 15,276.33 | 36.43 | 420.369 | |
| 13,700.00 | 7,082.26 | 7,114.90 | 7,114.75 | 113.21 | 7.02 | -86.38 | -1,201.06 | 8,425.75 | 15,412.64 | 15,376.14 | 36.50 | 422.284 | |
| 13,800.00 | 7,081.91 | 7,114.84 | 7,114.69 | 114.77 | 7.02 | -86.38 | -1,201.06 | 8,425.75 | 15,512.53 | 15,475.96 | 36.57 | 424.184 | |
| 13,900.00 | 7,081.56 | 7,114.78 | 7,114.63 | 116.33 | 7.02 | -86.38 | -1,201.06 | 8,425.75 | 15,612.41 | 15,575.77 | 36.64 | 426.072 | |
| 14,000.00 | 7,081.21 | 7,114.73 | 7,114.58 | 117.89 | 7.02 | -86.37 | -1,201.06 | 8,425.75 | 15,712.30 | 15,675.59 | 36.72 | 427.946 | |

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

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

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

**Rule Assigned:**

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 14,100.00 | 7,080.86 | 7,114.67 | 7,114.52 | 119.45 | 7.02 | -86.37 | -1,201.06 | 8,425.75 | 15,812.19 | 15,775.41 | 36.79 | 429.806 | |
| 14,200.00 | 7,080.51 | 7,114.61 | 7,114.47 | 121.02 | 7.02 | -86.36 | -1,201.06 | 8,425.75 | 15,912.09 | 15,875.22 | 36.86 | 431.654 | |
| 14,300.00 | 7,080.16 | 7,114.56 | 7,114.41 | 122.58 | 7.02 | -86.36 | -1,201.06 | 8,425.75 | 16,011.98 | 15,975.04 | 36.94 | 433.488 | |
| 14,400.00 | 7,079.81 | 7,114.51 | 7,114.36 | 124.15 | 7.02 | -86.35 | -1,201.06 | 8,425.75 | 16,111.88 | 16,074.86 | 37.01 | 435.309 | |
| 14,500.00 | 7,079.46 | 7,114.45 | 7,114.30 | 125.71 | 7.02 | -86.35 | -1,201.06 | 8,425.75 | 16,211.77 | 16,174.68 | 37.09 | 437.117 | |
| 14,600.00 | 7,079.11 | 7,114.40 | 7,114.25 | 127.28 | 7.02 | -86.35 | -1,201.06 | 8,425.75 | 16,311.67 | 16,274.51 | 37.16 | 438.911 | |
| 14,700.00 | 7,078.76 | 7,114.35 | 7,114.20 | 128.85 | 7.02 | -86.34 | -1,201.06 | 8,425.75 | 16,411.57 | 16,374.33 | 37.24 | 440.693 | |
| 14,800.00 | 7,078.41 | 7,114.29 | 7,114.14 | 130.42 | 7.02 | -86.34 | -1,201.06 | 8,425.75 | 16,511.47 | 16,474.15 | 37.32 | 442.461 | |
| 14,900.00 | 7,078.06 | 7,114.24 | 7,114.09 | 131.98 | 7.02 | -86.33 | -1,201.06 | 8,425.75 | 16,611.37 | 16,573.98 | 37.39 | 444.217 | |
| 15,000.00 | 7,077.71 | 7,114.19 | 7,114.04 | 133.55 | 7.02 | -86.33 | -1,201.06 | 8,425.75 | 16,711.27 | 16,673.80 | 37.47 | 445.959 | |
| 15,100.00 | 7,077.36 | 7,114.14 | 7,113.99 | 135.13 | 7.02 | -86.33 | -1,201.05 | 8,425.75 | 16,811.18 | 16,773.63 | 37.55 | 447.689 | |
| 15,200.00 | 7,077.01 | 7,114.09 | 7,113.94 | 136.70 | 7.02 | -86.32 | -1,201.05 | 8,425.75 | 16,911.08 | 16,873.45 | 37.63 | 449.405 | |
| 15,300.00 | 7,076.66 | 7,114.04 | 7,113.89 | 138.27 | 7.02 | -86.32 | -1,201.05 | 8,425.75 | 17,010.99 | 16,973.28 | 37.71 | 451.109 | |
| 15,400.00 | 7,076.31 | 7,113.99 | 7,113.84 | 139.84 | 7.02 | -86.31 | -1,201.05 | 8,425.75 | 17,110.89 | 17,073.11 | 37.79 | 452.800 | |
| 15,500.00 | 7,075.96 | 7,113.94 | 7,113.79 | 141.42 | 7.02 | -86.31 | -1,201.05 | 8,425.75 | 17,210.80 | 17,172.93 | 37.87 | 454.478 | |
| 15,600.00 | 7,075.61 | 7,113.89 | 7,113.74 | 142.99 | 7.02 | -86.31 | -1,201.05 | 8,425.75 | 17,310.71 | 17,272.76 | 37.95 | 456.144 | |
| 15,700.00 | 7,075.26 | 7,113.84 | 7,113.69 | 144.57 | 7.02 | -86.30 | -1,201.05 | 8,425.75 | 17,410.62 | 17,372.59 | 38.03 | 457.797 | |
| 15,800.00 | 7,074.91 | 7,113.80 | 7,113.65 | 146.14 | 7.02 | -86.30 | -1,201.05 | 8,425.75 | 17,510.53 | 17,472.42 | 38.11 | 459.437 | |
| 15,900.00 | 7,074.56 | 7,113.75 | 7,113.60 | 147.72 | 7.02 | -86.30 | -1,201.05 | 8,425.75 | 17,610.45 | 17,572.25 | 38.20 | 461.065 | |
| 16,000.00 | 7,074.21 | 7,113.70 | 7,113.55 | 149.29 | 7.02 | -86.29 | -1,201.05 | 8,425.75 | 17,710.36 | 17,672.08 | 38.28 | 462.680 | |
| 16,100.00 | 7,073.86 | 7,113.66 | 7,113.51 | 150.87 | 7.02 | -86.29 | -1,201.05 | 8,425.75 | 17,810.27 | 17,771.91 | 38.36 | 464.283 | |
| 16,200.00 | 7,073.51 | 7,113.61 | 7,113.46 | 152.45 | 7.02 | -86.28 | -1,201.05 | 8,425.75 | 17,910.19 | 17,871.74 | 38.44 | 465.873 | |
| 16,300.00 | 7,073.16 | 7,113.56 | 7,113.41 | 154.03 | 7.02 | -86.28 | -1,201.05 | 8,425.75 | 18,010.10 | 17,971.58 | 38.53 | 467.452 | |
| 16,400.00 | 7,072.81 | 7,113.52 | 7,113.37 | 155.60 | 7.02 | -86.28 | -1,201.05 | 8,425.75 | 18,110.02 | 18,071.41 | 38.61 | 469.018 | |
| 16,500.00 | 7,072.46 | 7,113.47 | 7,113.32 | 157.18 | 7.02 | -86.27 | -1,201.05 | 8,425.75 | 18,209.94 | 18,171.24 | 38.70 | 470.571 | |
| 16,600.00 | 7,072.11 | 7,113.43 | 7,113.28 | 158.76 | 7.02 | -86.27 | -1,201.05 | 8,425.75 | 18,309.86 | 18,271.08 | 38.78 | 472.113 | |
| 16,631.96 | 7,072.00 | 7,113.41 | 7,113.27 | 159.27 | 7.02 | -86.27 | -1,201.05 | 8,425.75 | 18,341.80 | 18,302.98 | 38.81 | 472.603 | |

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

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

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Rule Assigned: Distance Between Centres (usft) | Rule Assigned: Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 3.28 | 3.28 | -170.93 | -863.57 | -137.80 | 874.68 | | | | |
| 100.00 | 100.00 | 80.83 | 80.83 | 3.29 | 3.28 | -170.93 | -863.63 | -137.80 | 874.55 | 867.98 | 6.57 | 133.115 | |
| 200.00 | 200.00 | 179.45 | 179.45 | 3.34 | 3.28 | -170.94 | -863.84 | -137.76 | 874.76 | 868.14 | 6.62 | 132.144 | |
| 300.00 | 300.00 | 278.04 | 278.04 | 3.42 | 3.29 | -170.95 | -864.23 | -137.70 | 875.14 | 868.43 | 6.71 | 130.389 | |
| 400.00 | 400.00 | 376.60 | 376.59 | 3.54 | 3.31 | -170.96 | -864.77 | -137.62 | 875.67 | 868.83 | 6.84 | 127.967 | |
| 500.00 | 500.00 | 475.00 | 474.99 | 3.69 | 3.33 | -170.97 | -865.48 | -137.51 | 876.37 | 869.36 | 7.01 | 125.018 | |
| 600.00 | 599.98 | 572.90 | 572.89 | 3.86 | 3.35 | -21.04 | -866.46 | -137.26 | 875.68 | 868.48 | 7.20 | 121.622 | |
| 697.00 | 696.84 | 668.57 | 668.55 | 4.04 | 3.38 | -21.23 | -867.60 | -136.78 | 872.07 | 864.66 | 7.40 | 117.768 | |
| 700.00 | 699.84 | 671.51 | 671.49 | 4.05 | 3.38 | -21.24 | -867.64 | -136.77 | 871.91 | 864.50 | 7.41 | 117.624 | |
| 800.00 | 799.60 | 771.87 | 771.84 | 4.25 | 3.41 | -21.46 | -868.98 | -136.08 | 866.72 | 859.07 | 7.65 | 113.313 | |
| 897.00 | 896.37 | 868.33 | 868.29 | 4.48 | 3.45 | -21.69 | -870.23 | -135.23 | 861.64 | 853.74 | 7.90 | 109.094 | |
| 900.00 | 899.37 | 871.36 | 871.32 | 4.48 | 3.45 | -20.83 | -870.27 | -135.20 | 861.48 | 853.58 | 7.91 | 108.963 | |
| 947.40 | 946.65 | 919.03 | 918.98 | 4.60 | 3.47 | -7.06 | -870.90 | -134.76 | 858.90 | 850.86 | 8.04 | 106.894 | |
| 1,000.00 | 999.13 | 971.80 | 971.74 | 4.73 | 3.49 | -7.13 | -871.56 | -134.29 | 855.89 | 847.71 | 8.18 | 104.601 | |
| 1,100.00 | 1,098.89 | 1,074.65 | 1,074.58 | 4.99 | 3.53 | -7.26 | -872.71 | -133.36 | 850.05 | 841.58 | 8.47 | 100.302 | |
| 1,200.00 | 1,198.66 | 1,173.68 | 1,173.61 | 5.27 | 3.58 | -7.40 | -873.61 | -132.20 | 843.98 | 835.20 | 8.78 | 96.176 | |
| 1,300.00 | 1,298.42 | 1,271.23 | 1,271.14 | 5.56 | 3.63 | -7.56 | -874.76 | -130.88 | 838.14 | 829.05 | 9.09 | 92.212 | |
| 1,400.00 | 1,398.18 | 1,373.94 | 1,373.84 | 5.85 | 3.69 | -7.70 | -875.86 | -129.92 | 832.26 | 822.84 | 9.42 | 88.348 | |
| 1,500.00 | 1,497.95 | 1,470.44 | 1,470.33 | 6.16 | 3.74 | -7.83 | -876.86 | -129.13 | 826.37 | 816.61 | 9.76 | 84.668 | |
| 1,600.00 | 1,597.71 | 1,571.16 | 1,571.04 | 6.47 | 3.81 | -7.93 | -878.08 | -128.75 | 820.71 | 810.59 | 10.12 | 81.102 | |
| 1,700.00 | 1,697.47 | 1,670.24 | 1,670.11 | 6.79 | 3.87 | -8.02 | -879.24 | -128.57 | 815.04 | 804.55 | 10.49 | 77.705 | |
| 1,800.00 | 1,797.24 | 1,774.56 | 1,774.43 | 7.11 | 3.94 | -8.09 | -880.10 | -128.75 | 809.07 | 798.20 | 10.87 | 74.425 | |
| 1,900.00 | 1,897.00 | 1,875.70 | 1,875.57 | 7.44 | 4.01 | -8.16 | -880.66 | -128.72 | 802.82 | 791.56 | 11.26 | 71.307 | |
| 2,000.00 | 1,996.76 | 1,972.86 | 1,972.72 | 7.77 | 4.08 | -8.25 | -881.21 | -128.58 | 796.56 | 784.91 | 11.65 | 68.380 | |
| 2,100.00 | 2,096.53 | 2,073.38 | 2,073.24 | 8.11 | 4.15 | -8.35 | -881.91 | -128.31 | 790.41 | 778.36 | 12.04 | 65.627 | |
| 2,200.00 | 2,196.29 | 2,175.44 | 2,175.30 | 8.44 | 4.23 | -8.42 | -882.36 | -128.40 | 784.05 | 771.60 | 12.45 | 62.971 | |
| 2,300.00 | 2,296.06 | 2,276.81 | 2,276.67 | 8.79 | 4.27 | -8.47 | -882.56 | -128.74 | 777.48 | 764.64 | 12.84 | 60.551 | |
| 2,400.00 | 2,395.82 | 2,376.76 | 2,376.61 | 9.13 | 4.28 | -8.50 | -882.62 | -129.41 | 770.82 | 757.61 | 13.21 | 58.344 | |
| 2,500.00 | 2,495.58 | 2,476.15 | 2,476.01 | 9.47 | 4.30 | -8.50 | -882.75 | -130.33 | 764.27 | 750.68 | 13.59 | 56.244 | |
| 2,600.00 | 2,595.35 | 2,578.34 | 2,578.19 | 9.82 | 4.32 | -8.50 | -882.72 | -131.39 | 757.56 | 743.60 | 13.96 | 54.272 | |
| 2,700.00 | 2,695.11 | 2,678.36 | 2,678.21 | 10.17 | 4.33 | -8.51 | -882.49 | -132.25 | 750.64 | 736.32 | 14.32 | 52.424 | |
| 2,800.00 | 2,794.87 | 2,776.84 | 2,776.68 | 10.52 | 4.35 | -8.56 | -882.40 | -132.68 | 743.80 | 729.11 | 14.69 | 50.642 | |
| 2,900.00 | 2,894.64 | 2,876.67 | 2,876.51 | 10.87 | 4.39 | -8.61 | -882.45 | -133.02 | 737.09 | 722.02 | 15.07 | 48.897 | |
| 3,000.00 | 2,994.40 | 2,975.20 | 2,975.04 | 11.23 | 4.42 | -8.67 | -882.44 | -133.33 | 730.33 | 714.88 | 15.46 | 47.252 | |
| 3,100.00 | 3,094.16 | 3,072.95 | 3,072.79 | 11.58 | 4.49 | -8.73 | -882.74 | -133.61 | 723.87 | 707.99 | 15.88 | 45.598 | |
| 3,200.00 | 3,193.93 | 3,172.61 | 3,172.45 | 11.94 | 4.58 | -8.80 | -883.17 | -133.81 | 717.52 | 701.22 | 16.31 | 44.003 | |
| 3,300.00 | 3,293.69 | 3,269.05 | 3,268.89 | 12.29 | 4.66 | -8.88 | -883.97 | -133.88 | 711.56 | 694.82 | 16.74 | 42.506 | |
| 3,400.00 | 3,393.45 | 3,368.04 | 3,367.87 | 12.65 | 4.75 | -8.98 | -884.86 | -133.77 | 705.65 | 688.47 | 17.18 | 41.079 | |
| 3,500.00 | 3,493.22 | 3,468.37 | 3,468.19 | 13.01 | 4.85 | -9.09 | -885.93 | -133.69 | 699.91 | 682.29 | 17.62 | 39.724 | |
| 3,600.00 | 3,592.98 | 3,568.26 | 3,568.08 | 13.37 | 4.94 | -9.19 | -887.02 | -133.69 | 694.21 | 676.14 | 18.06 | 38.432 | |
| 3,700.00 | 3,692.74 | 3,667.34 | 3,667.16 | 13.73 | 5.04 | -9.29 | -888.16 | -133.68 | 688.57 | 670.06 | 18.51 | 37.200 | |
| 3,800.00 | 3,792.51 | 3,766.26 | 3,766.07 | 14.09 | 5.13 | -9.39 | -889.20 | -133.72 | 682.83 | 663.88 | 18.96 | 36.018 | |
| 3,900.00 | 3,892.27 | 3,867.96 | 3,867.76 | 14.45 | 5.24 | -9.50 | -890.35 | -133.65 | 677.17 | 657.76 | 19.41 | 34.890 | |
| 4,000.00 | 3,992.04 | 3,967.58 | 3,967.37 | 14.81 | 5.34 | -9.60 | -891.47 | -133.72 | 671.51 | 651.65 | 19.86 | 33.810 | |
| 4,100.00 | 4,091.80 | 4,067.02 | 4,066.80 | 15.17 | 5.44 | -9.70 | -892.49 | -133.79 | 665.76 | 645.44 | 20.32 | 32.770 | |
| 4,200.00 | 4,191.56 | 4,164.24 | 4,164.02 | 15.53 | 5.54 | -9.80 | -893.61 | -133.89 | 660.15 | 639.38 | 20.77 | 31.781 | |
| 4,300.00 | 4,291.33 | 4,261.64 | 4,261.41 | 15.89 | 5.64 | -9.90 | -895.16 | -134.06 | 654.97 | 633.74 | 21.23 | 30.853 | |
| 4,400.00 | 4,391.09 | 4,358.93 | 4,358.68 | 16.26 | 5.75 | -9.99 | -897.09 | -134.37 | 650.20 | 628.51 | 21.69 | 29.981 | |
| 4,500.00 | 4,490.85 | 4,456.24 | 4,455.96 | 16.62 | 5.85 | -10.06 | -899.45 | -134.93 | 645.90 | 623.75 | 22.15 | 29.166 | |
| 4,600.00 | 4,590.62 | 4,555.22 | 4,554.90 | 16.99 | 5.95 | -10.14 | -902.13 | -135.48 | 641.87 | 619.26 | 22.61 | 28.393 | |
| 4,700.00 | 4,690.38 | 4,655.17 | 4,654.81 | 17.35 | 6.06 | -10.22 | -904.92 | -136.03 | 637.93 | 614.86 | 23.07 | 27.653 | |
| 4,800.00 | 4,790.14 | 4,754.58 | 4,754.18 | 17.71 | 6.17 | -10.31 | -907.68 | -136.57 | 633.98 | 610.45 | 23.53 | 26.941 | |

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 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

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

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4,900.00 | 4,889.91 | 4,853.92 | 4,853.48 | 18.08 | 6.28 | -10.38 | -910.47 | -137.19 | 630.06 | 606.07 | 24.00 | 26.257 | |
| 5,000.00 | 4,989.67 | 4,953.96 | 4,953.48 | 18.44 | 6.39 | -10.46 | -913.29 | -137.84 | 626.16 | 601.70 | 24.46 | 25.597 | |
| 5,100.00 | 5,089.43 | 5,053.59 | 5,053.07 | 18.81 | 6.50 | -10.53 | -916.18 | -138.52 | 622.35 | 597.42 | 24.93 | 24.966 | |
| 5,200.00 | 5,189.20 | 5,154.09 | 5,153.52 | 19.17 | 6.61 | -10.61 | -919.10 | -139.23 | 618.54 | 593.15 | 25.39 | 24.357 | |
| 5,300.00 | 5,288.96 | 5,253.33 | 5,252.71 | 19.54 | 6.72 | -10.68 | -922.06 | -139.95 | 614.81 | 588.95 | 25.86 | 23.772 | |
| 5,400.00 | 5,388.72 | 5,351.96 | 5,351.29 | 19.91 | 6.83 | -10.75 | -925.11 | -140.70 | 611.20 | 584.87 | 26.33 | 23.213 | |
| 5,500.00 | 5,488.49 | 5,451.31 | 5,450.59 | 20.27 | 6.95 | -10.82 | -928.23 | -141.46 | 607.63 | 580.83 | 26.80 | 22.673 | |
| 5,600.00 | 5,588.25 | 5,550.53 | 5,549.76 | 20.64 | 7.06 | -10.90 | -931.41 | -142.21 | 604.13 | 576.86 | 27.27 | 22.154 | |
| 5,700.00 | 5,688.01 | 5,650.21 | 5,649.38 | 21.00 | 7.17 | -10.97 | -934.65 | -142.99 | 600.68 | 572.94 | 27.74 | 21.654 | |
| 5,800.00 | 5,787.78 | 5,749.59 | 5,748.70 | 21.37 | 7.29 | -11.04 | -937.99 | -143.81 | 597.34 | 569.13 | 28.21 | 21.174 | |
| 5,900.00 | 5,887.54 | 5,850.14 | 5,849.19 | 21.74 | 7.40 | -11.12 | -941.47 | -144.60 | 594.10 | 565.42 | 28.68 | 20.713 | |
| 6,000.00 | 5,987.31 | 5,950.75 | 5,949.74 | 22.11 | 7.52 | -11.18 | -944.76 | -145.49 | 590.68 | 561.52 | 29.16 | 20.260 | |
| 6,100.00 | 6,087.07 | 6,050.78 | 6,049.72 | 22.47 | 7.64 | -11.25 | -947.99 | -146.34 | 587.22 | 557.59 | 29.63 | 19.820 | |
| 6,200.00 | 6,186.83 | 6,150.23 | 6,149.11 | 22.84 | 7.75 | -11.31 | -951.30 | -147.30 | 583.86 | 553.76 | 30.10 | 19.397 | |
| 6,300.00 | 6,286.60 | 6,250.17 | 6,248.98 | 23.21 | 7.87 | -11.37 | -954.65 | -148.30 | 580.53 | 549.96 | 30.57 | 18.987 | |
| 6,400.00 | 6,386.36 | 6,350.25 | 6,349.00 | 23.58 | 7.99 | -11.42 | -958.01 | -149.39 | 577.21 | 546.16 | 31.05 | 18.591 | |
| 6,494.00 | 6,480.13 | 6,445.29 | 6,443.98 | 23.92 | 8.10 | -11.47 | -961.08 | -150.42 | 573.97 | 542.48 | 31.49 | 18.225 | |
| 6,500.00 | 6,486.12 | 6,451.27 | 6,449.96 | 23.94 | 8.10 | -18.77 | -961.27 | -150.48 | 573.76 | 542.23 | 31.52 | 18.202 | |
| 6,550.00 | 6,535.89 | 6,503.24 | 6,501.91 | 24.13 | 8.16 | -54.74 | -962.80 | -150.90 | 571.75 | 539.99 | 31.76 | 18.003 | |
| 6,600.00 | 6,585.24 | 6,553.49 | 6,552.13 | 24.31 | 8.22 | -67.89 | -964.18 | -151.21 | 569.47 | 537.47 | 31.99 | 17.799 | |
| 6,650.00 | 6,633.88 | 6,602.51 | 6,601.14 | 24.50 | 8.28 | -74.76 | -965.44 | -151.46 | 567.09 | 534.87 | 32.23 | 17.598 | |
| 6,700.00 | 6,681.49 | 6,652.01 | 6,650.63 | 24.68 | 8.34 | -79.56 | -966.63 | -151.62 | 564.86 | 532.41 | 32.45 | 17.405 | |
| 6,750.00 | 6,727.80 | 6,699.30 | 6,697.91 | 24.86 | 8.40 | -83.46 | -967.69 | -151.81 | 563.11 | 530.43 | 32.68 | 17.233 | |
| 6,800.00 | 6,772.51 | 6,745.88 | 6,744.48 | 25.04 | 8.45 | -86.99 | -968.60 | -151.96 | 562.14 | 529.25 | 32.90 | 17.089 | |
| 6,815.70 | 6,786.17 | 6,759.81 | 6,758.41 | 25.09 | 8.47 | -88.02 | -968.85 | -152.01 | 562.07 | 529.11 | 32.96 | 17.052 | CC, ES |
| 6,850.00 | 6,815.34 | 6,789.35 | 6,787.94 | 25.21 | 8.51 | -90.19 | -969.37 | -152.14 | 562.44 | 529.33 | 33.11 | 16.989 | |
| 6,900.00 | 6,856.04 | 6,831.37 | 6,829.95 | 25.39 | 8.56 | -93.19 | -970.05 | -152.25 | 564.49 | 531.17 | 33.31 | 16.945 | SF |
| 6,950.00 | 6,894.35 | 6,869.20 | 6,867.78 | 25.57 | 8.60 | -95.81 | -970.63 | -152.40 | 568.75 | 535.24 | 33.51 | 16.973 | |
| 7,000.00 | 6,930.04 | 6,904.70 | 6,903.28 | 25.75 | 8.65 | -98.10 | -971.22 | -152.53 | 575.76 | 542.06 | 33.70 | 17.086 | |
| 7,050.00 | 6,962.89 | 6,938.33 | 6,936.89 | 25.93 | 8.69 | -100.05 | -971.76 | -152.64 | 585.78 | 551.91 | 33.87 | 17.294 | |
| 7,100.00 | 6,992.69 | 6,968.49 | 6,967.06 | 26.13 | 8.72 | -101.50 | -972.24 | -152.76 | 599.10 | 565.07 | 34.03 | 17.604 | |
| 7,150.00 | 7,019.25 | 6,994.20 | 6,992.76 | 26.33 | 8.75 | -102.30 | -972.66 | -152.88 | 615.91 | 581.74 | 34.18 | 18.022 | |
| 7,200.00 | 7,042.43 | 7,017.15 | 7,015.71 | 26.55 | 8.78 | -102.53 | -973.06 | -152.94 | 636.28 | 601.98 | 34.30 | 18.550 | |
| 7,250.00 | 7,062.07 | 7,037.20 | 7,035.75 | 26.79 | 8.81 | -102.13 | -973.40 | -152.98 | 660.08 | 625.67 | 34.41 | 19.185 | |
| 7,300.00 | 7,078.05 | 7,053.74 | 7,052.29 | 27.04 | 8.83 | -100.99 | -973.66 | -153.01 | 687.12 | 652.63 | 34.49 | 19.921 | |
| 7,350.00 | 7,090.27 | 7,066.58 | 7,065.13 | 27.30 | 8.84 | -99.04 | -973.86 | -153.03 | 717.14 | 682.58 | 34.56 | 20.752 | |
| 7,400.00 | 7,098.66 | 7,075.46 | 7,074.01 | 27.58 | 8.85 | -96.18 | -973.99 | -153.06 | 749.78 | 715.18 | 34.60 | 21.668 | |
| 7,450.00 | 7,103.17 | 7,080.17 | 7,078.72 | 27.87 | 8.86 | -92.35 | -974.06 | -153.07 | 784.68 | 750.05 | 34.63 | 22.657 | |
| 7,484.86 | 7,104.00 | 7,081.11 | 7,079.66 | 28.08 | 8.86 | -89.11 | -974.07 | -153.07 | 810.11 | 775.47 | 34.65 | 23.383 | |
| 7,500.00 | 7,103.95 | 7,081.10 | 7,079.65 | 28.17 | 8.86 | -89.11 | -974.07 | -153.07 | 821.40 | 786.75 | 34.65 | 23.706 | |
| 7,600.00 | 7,103.60 | 7,081.02 | 7,079.57 | 28.83 | 8.86 | -89.10 | -974.07 | -153.07 | 898.77 | 864.10 | 34.67 | 25.923 | |
| 7,700.00 | 7,103.25 | 7,080.93 | 7,079.48 | 29.56 | 8.86 | -89.09 | -974.07 | -153.07 | 980.24 | 945.55 | 34.69 | 28.258 | |
| 7,800.00 | 7,102.90 | 7,080.85 | 7,079.40 | 30.35 | 8.86 | -89.08 | -974.07 | -153.07 | 1,064.88 | 1,030.17 | 34.70 | 30.684 | |
| 7,900.00 | 7,102.55 | 7,080.77 | 7,079.31 | 31.21 | 8.86 | -89.07 | -974.07 | -153.07 | 1,151.98 | 1,117.26 | 34.72 | 33.179 | |
| 8,000.00 | 7,102.20 | 7,080.68 | 7,079.23 | 32.13 | 8.86 | -89.07 | -974.07 | -153.07 | 1,241.03 | 1,206.29 | 34.74 | 35.728 | |
| 8,100.00 | 7,101.85 | 7,080.60 | 7,079.15 | 33.10 | 8.86 | -89.06 | -974.07 | -153.07 | 1,331.63 | 1,296.88 | 34.75 | 38.319 | |
| 8,200.00 | 7,101.50 | 7,080.51 | 7,079.06 | 34.11 | 8.86 | -89.05 | -974.06 | -153.07 | 1,423.49 | 1,388.72 | 34.77 | 40.943 | |
| 8,300.00 | 7,101.15 | 7,080.42 | 7,078.97 | 35.17 | 8.86 | -89.04 | -974.06 | -153.07 | 1,516.38 | 1,481.60 | 34.79 | 43.592 | |
| 8,400.00 | 7,100.80 | 7,080.34 | 7,078.89 | 36.27 | 8.86 | -89.03 | -974.06 | -153.07 | 1,610.13 | 1,575.32 | 34.80 | 46.263 | |
| 8,500.00 | 7,100.45 | 7,080.25 | 7,078.80 | 37.41 | 8.86 | -89.02 | -974.06 | -153.07 | 1,704.58 | 1,669.76 | 34.82 | 48.950 | |
| 8,600.00 | 7,100.10 | 7,080.16 | 7,078.71 | 38.58 | 8.86 | -89.01 | -974.06 | -153.07 | 1,799.64 | 1,764.79 | 34.84 | 51.651 | |
| 8,700.00 | 7,099.75 | 7,080.07 | 7,078.62 | 39.78 | 8.86 | -89.00 | -974.06 | -153.07 | 1,895.20 | 1,860.34 | 34.86 | 54.362 | |

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

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

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

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8,800.00 | 7,099.40 | 7,079.98 | 7,078.53 | 41.00 | 8.86 | -88.99 | -974.06 | -153.07 | 1,991.20 | 1,956.31 | 34.88 | 57.081 | |
| 8,900.00 | 7,099.05 | 7,079.89 | 7,078.44 | 42.25 | 8.86 | -88.98 | -974.05 | -153.07 | 2,087.57 | 2,052.67 | 34.91 | 59.806 | |
| 9,000.00 | 7,098.70 | 7,079.80 | 7,078.35 | 43.53 | 8.86 | -88.97 | -974.05 | -153.07 | 2,184.27 | 2,149.34 | 34.93 | 62.536 | |
| 9,100.00 | 7,098.35 | 7,079.71 | 7,078.26 | 44.82 | 8.86 | -88.96 | -974.05 | -153.07 | 2,281.26 | 2,246.31 | 34.95 | 65.269 | |
| 9,200.00 | 7,098.00 | 7,079.62 | 7,078.17 | 46.14 | 8.86 | -88.95 | -974.05 | -153.07 | 2,378.49 | 2,343.52 | 34.98 | 68.005 | |
| 9,300.00 | 7,097.65 | 7,079.53 | 7,078.08 | 47.47 | 8.86 | -88.94 | -974.05 | -153.07 | 2,475.95 | 2,440.95 | 35.00 | 70.742 | |
| 9,400.00 | 7,097.30 | 7,079.44 | 7,077.98 | 48.82 | 8.86 | -88.93 | -974.05 | -153.07 | 2,573.60 | 2,538.57 | 35.03 | 73.479 | |
| 9,500.00 | 7,096.95 | 7,079.34 | 7,077.89 | 50.18 | 8.86 | -88.92 | -974.05 | -153.07 | 2,671.42 | 2,636.37 | 35.05 | 76.215 | |
| 9,600.00 | 7,096.60 | 7,079.25 | 7,077.80 | 51.56 | 8.86 | -88.91 | -974.05 | -153.07 | 2,769.40 | 2,734.32 | 35.08 | 78.950 | |
| 9,700.00 | 7,096.25 | 7,079.15 | 7,077.70 | 52.95 | 8.86 | -88.90 | -974.04 | -153.07 | 2,867.52 | 2,832.42 | 35.11 | 81.684 | |
| 9,800.00 | 7,095.90 | 7,079.06 | 7,077.61 | 54.35 | 8.86 | -88.89 | -974.04 | -153.07 | 2,965.77 | 2,930.63 | 35.13 | 84.415 | |
| 9,900.00 | 7,095.55 | 7,078.96 | 7,077.51 | 55.76 | 8.86 | -88.88 | -974.04 | -153.06 | 3,064.12 | 3,028.96 | 35.16 | 87.144 | |
| 10,000.00 | 7,095.20 | 7,078.86 | 7,077.41 | 57.18 | 8.86 | -88.87 | -974.04 | -153.06 | 3,162.59 | 3,127.39 | 35.19 | 89.869 | |
| 10,100.00 | 7,094.85 | 7,078.77 | 7,077.32 | 58.61 | 8.86 | -88.86 | -974.04 | -153.06 | 3,261.14 | 3,225.92 | 35.22 | 92.590 | |
| 10,200.00 | 7,094.50 | 7,078.67 | 7,077.22 | 60.05 | 8.86 | -88.85 | -974.04 | -153.06 | 3,359.78 | 3,324.53 | 35.25 | 95.307 | |
| 10,300.00 | 7,094.15 | 7,078.57 | 7,077.12 | 61.50 | 8.86 | -88.84 | -974.04 | -153.06 | 3,458.50 | 3,423.22 | 35.28 | 98.020 | |
| 10,400.00 | 7,093.80 | 7,078.47 | 7,077.02 | 62.96 | 8.86 | -88.83 | -974.03 | -153.06 | 3,557.29 | 3,521.97 | 35.32 | 100.727 | |
| 10,500.00 | 7,093.45 | 7,078.37 | 7,076.92 | 64.42 | 8.86 | -88.82 | -974.03 | -153.06 | 3,656.14 | 3,620.80 | 35.35 | 103.430 | |
| 10,600.00 | 7,093.10 | 7,078.27 | 7,076.82 | 65.89 | 8.86 | -88.81 | -974.03 | -153.06 | 3,755.06 | 3,719.68 | 35.38 | 106.127 | |
| 10,700.00 | 7,092.75 | 7,078.17 | 7,076.71 | 67.36 | 8.86 | -88.80 | -974.03 | -153.06 | 3,854.03 | 3,818.62 | 35.42 | 108.819 | |
| 10,800.00 | 7,092.40 | 7,078.06 | 7,076.61 | 68.84 | 8.86 | -88.79 | -974.03 | -153.06 | 3,953.06 | 3,917.61 | 35.45 | 111.504 | |
| 10,900.00 | 7,092.05 | 7,077.96 | 7,076.51 | 70.33 | 8.86 | -88.78 | -974.03 | -153.06 | 4,052.13 | 4,016.64 | 35.49 | 114.183 | |
| 11,000.00 | 7,091.70 | 7,077.86 | 7,076.40 | 71.82 | 8.85 | -88.77 | -974.02 | -153.06 | 4,151.25 | 4,115.72 | 35.52 | 116.856 | |
| 11,100.00 | 7,091.35 | 7,077.94 | 7,076.49 | 73.31 | 8.85 | -88.78 | -974.03 | -153.06 | 4,250.40 | 4,214.84 | 35.56 | 119.521 | |
| 11,200.00 | 7,091.00 | 7,077.83 | 7,076.38 | 74.81 | 8.85 | -88.77 | -974.02 | -153.06 | 4,349.60 | 4,314.00 | 35.60 | 122.180 | |
| 11,300.00 | 7,090.65 | 7,077.72 | 7,076.27 | 76.32 | 8.85 | -88.75 | -974.02 | -153.06 | 4,448.83 | 4,413.19 | 35.64 | 124.832 | |
| 11,400.00 | 7,090.30 | 7,077.61 | 7,076.16 | 77.82 | 8.85 | -88.74 | -974.02 | -153.06 | 4,548.10 | 4,512.42 | 35.68 | 127.476 | |
| 11,500.00 | 7,089.95 | 7,077.50 | 7,076.04 | 79.34 | 8.85 | -88.73 | -974.02 | -153.06 | 4,647.40 | 4,611.68 | 35.72 | 130.113 | |
| 11,600.00 | 7,089.60 | 7,077.38 | 7,075.93 | 80.85 | 8.85 | -88.72 | -974.02 | -153.06 | 4,746.72 | 4,710.96 | 35.76 | 132.742 | |
| 11,700.00 | 7,089.25 | 7,077.27 | 7,075.82 | 82.37 | 8.85 | -88.71 | -974.02 | -153.06 | 4,846.08 | 4,810.28 | 35.80 | 135.363 | |
| 11,800.00 | 7,088.90 | 7,077.15 | 7,075.70 | 83.89 | 8.85 | -88.69 | -974.01 | -153.06 | 4,945.46 | 4,909.62 | 35.84 | 137.976 | |
| 11,900.00 | 7,088.55 | 7,077.03 | 7,075.58 | 85.41 | 8.85 | -88.68 | -974.01 | -153.06 | 5,044.86 | 5,008.98 | 35.89 | 140.581 | |
| 12,000.00 | 7,088.20 | 7,076.91 | 7,075.46 | 86.94 | 8.85 | -88.67 | -974.01 | -153.06 | 5,144.29 | 5,108.36 | 35.93 | 143.177 | |
| 12,100.00 | 7,087.85 | 7,076.79 | 7,075.34 | 88.47 | 8.85 | -88.66 | -974.01 | -153.06 | 5,243.74 | 5,207.77 | 35.97 | 145.765 | |
| 12,200.00 | 7,087.50 | 7,076.67 | 7,075.22 | 90.00 | 8.85 | -88.64 | -974.01 | -153.06 | 5,343.21 | 5,307.19 | 36.02 | 148.345 | |
| 12,300.00 | 7,087.15 | 7,076.55 | 7,075.10 | 91.54 | 8.85 | -88.63 | -974.01 | -153.06 | 5,442.70 | 5,406.64 | 36.06 | 150.915 | |
| 12,400.00 | 7,086.81 | 7,076.43 | 7,074.97 | 93.07 | 8.85 | -88.62 | -974.00 | -153.06 | 5,542.21 | 5,506.10 | 36.11 | 153.476 | |
| 12,500.00 | 7,086.46 | 7,076.30 | 7,074.85 | 94.61 | 8.85 | -88.60 | -974.00 | -153.06 | 5,641.74 | 5,605.58 | 36.16 | 156.028 | |
| 12,600.00 | 7,086.11 | 7,076.17 | 7,074.72 | 96.15 | 8.85 | -88.59 | -974.00 | -153.06 | 5,741.28 | 5,705.07 | 36.21 | 158.571 | |
| 12,700.00 | 7,085.76 | 7,076.05 | 7,074.60 | 97.69 | 8.85 | -88.58 | -974.00 | -153.06 | 5,840.84 | 5,804.58 | 36.25 | 161.105 | |
| 12,800.00 | 7,085.41 | 7,075.92 | 7,074.47 | 99.24 | 8.85 | -88.56 | -974.00 | -153.06 | 5,940.41 | 5,904.10 | 36.30 | 163.629 | |
| 12,900.00 | 7,085.06 | 7,075.79 | 7,074.34 | 100.78 | 8.85 | -88.55 | -973.99 | -153.06 | 6,040.00 | 6,003.64 | 36.35 | 166.144 | |
| 13,000.00 | 7,084.71 | 7,075.65 | 7,074.20 | 102.33 | 8.85 | -88.54 | -973.99 | -153.06 | 6,139.60 | 6,103.19 | 36.40 | 168.649 | |
| 13,100.00 | 7,084.36 | 7,075.52 | 7,074.07 | 103.88 | 8.85 | -88.52 | -973.99 | -153.06 | 6,239.21 | 6,202.75 | 36.46 | 171.144 | |
| 13,200.00 | 7,084.01 | 7,075.39 | 7,073.93 | 105.43 | 8.85 | -88.51 | -973.99 | -153.06 | 6,338.83 | 6,302.33 | 36.51 | 173.629 | |
| 13,300.00 | 7,083.66 | 7,075.25 | 7,073.80 | 106.99 | 8.85 | -88.49 | -973.99 | -153.06 | 6,438.47 | 6,401.91 | 36.56 | 176.104 | |
| 13,400.00 | 7,083.31 | 7,075.11 | 7,073.66 | 108.54 | 8.85 | -88.48 | -973.98 | -153.05 | 6,538.12 | 6,501.50 | 36.61 | 178.569 | |
| 13,500.00 | 7,082.96 | 7,074.97 | 7,073.52 | 110.09 | 8.85 | -88.46 | -973.98 | -153.05 | 6,637.78 | 6,601.11 | 36.67 | 181.024 | |
| 13,600.00 | 7,082.61 | 7,074.83 | 7,073.38 | 111.65 | 8.85 | -88.45 | -973.98 | -153.05 | 6,737.45 | 6,700.72 | 36.72 | 183.468 | |
| 13,700.00 | 7,082.26 | 7,074.69 | 7,073.24 | 113.21 | 8.85 | -88.43 | -973.98 | -153.05 | 6,837.12 | 6,800.35 | 36.78 | 185.903 | |
| 13,800.00 | 7,081.91 | 7,074.54 | 7,073.09 | 114.77 | 8.85 | -88.42 | -973.98 | -153.05 | 6,936.81 | 6,899.98 | 36.83 | 188.326 | |
| 13,900.00 | 7,081.56 | 7,074.40 | 7,072.95 | 116.33 | 8.85 | -88.40 | -973.97 | -153.05 | 7,036.51 | 6,999.62 | 36.89 | 190.740 | |

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

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

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

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 14,000.00 | 7,081.21 | 7,074.25 | 7,072.80 | 117.89 | 8.85 | -88.39 | -973.97 | -153.05 | 7,136.21 | 7,099.26 | 36.95 | 193.142 | |
| 14,100.00 | 7,080.86 | 7,074.10 | 7,072.65 | 119.45 | 8.85 | -88.37 | -973.97 | -153.05 | 7,235.93 | 7,198.92 | 37.01 | 195.534 | |
| 14,200.00 | 7,080.51 | 7,073.95 | 7,072.50 | 121.02 | 8.85 | -88.36 | -973.97 | -153.05 | 7,335.65 | 7,298.58 | 37.06 | 197.915 | |
| 14,300.00 | 7,080.16 | 7,073.80 | 7,072.35 | 122.58 | 8.85 | -88.34 | -973.97 | -153.05 | 7,435.37 | 7,398.25 | 37.12 | 200.286 | |
| 14,400.00 | 7,079.81 | 7,073.64 | 7,072.19 | 124.15 | 8.85 | -88.32 | -973.96 | -153.05 | 7,535.11 | 7,497.93 | 37.18 | 202.645 | |
| 14,500.00 | 7,079.46 | 7,073.48 | 7,072.03 | 125.71 | 8.85 | -88.31 | -973.96 | -153.05 | 7,634.85 | 7,597.61 | 37.24 | 204.994 | |
| 14,600.00 | 7,079.11 | 7,073.33 | 7,071.88 | 127.28 | 8.85 | -88.29 | -973.96 | -153.05 | 7,734.60 | 7,697.30 | 37.31 | 207.332 | |
| 14,700.00 | 7,078.76 | 7,073.17 | 7,071.71 | 128.85 | 8.85 | -88.27 | -973.96 | -153.05 | 7,834.36 | 7,796.99 | 37.37 | 209.658 | |
| 14,800.00 | 7,078.41 | 7,073.00 | 7,071.55 | 130.42 | 8.85 | -88.26 | -973.95 | -153.05 | 7,934.12 | 7,896.69 | 37.43 | 211.974 | |
| 14,900.00 | 7,078.06 | 7,072.84 | 7,071.39 | 131.98 | 8.85 | -88.24 | -973.95 | -153.05 | 8,033.89 | 7,996.39 | 37.49 | 214.278 | |
| 15,000.00 | 7,077.71 | 7,072.67 | 7,071.22 | 133.55 | 8.85 | -88.22 | -973.95 | -153.05 | 8,133.66 | 8,096.10 | 37.56 | 216.572 | |
| 15,100.00 | 7,077.36 | 7,072.50 | 7,071.05 | 135.13 | 8.85 | -88.20 | -973.95 | -153.05 | 8,233.44 | 8,195.82 | 37.62 | 218.854 | |
| 15,200.00 | 7,077.01 | 7,072.33 | 7,070.88 | 136.70 | 8.85 | -88.19 | -973.94 | -153.05 | 8,333.22 | 8,295.54 | 37.69 | 221.125 | |
| 15,300.00 | 7,076.66 | 7,072.16 | 7,070.71 | 138.27 | 8.85 | -88.17 | -973.94 | -153.05 | 8,433.01 | 8,395.26 | 37.75 | 223.384 | |
| 15,400.00 | 7,076.31 | 7,071.99 | 7,070.54 | 139.84 | 8.85 | -88.15 | -973.94 | -153.05 | 8,532.81 | 8,494.99 | 37.82 | 225.632 | |
| 15,500.00 | 7,075.96 | 7,071.81 | 7,070.36 | 141.42 | 8.85 | -88.13 | -973.94 | -153.05 | 8,632.60 | 8,594.72 | 37.88 | 227.869 | |
| 15,600.00 | 7,075.61 | 7,071.63 | 7,070.18 | 142.99 | 8.85 | -88.11 | -973.93 | -153.05 | 8,732.41 | 8,694.46 | 37.95 | 230.095 | |
| 15,700.00 | 7,075.26 | 7,071.45 | 7,070.00 | 144.57 | 8.85 | -88.09 | -973.93 | -153.05 | 8,832.22 | 8,794.20 | 38.02 | 232.309 | |
| 15,800.00 | 7,074.91 | 7,071.27 | 7,069.81 | 146.14 | 8.85 | -88.07 | -973.93 | -153.05 | 8,932.03 | 8,893.94 | 38.09 | 234.512 | |
| 15,900.00 | 7,074.56 | 7,071.08 | 7,069.63 | 147.72 | 8.85 | -88.05 | -973.93 | -153.04 | 9,031.84 | 8,993.69 | 38.16 | 236.703 | |
| 16,000.00 | 7,074.21 | 7,070.89 | 7,069.44 | 149.29 | 8.85 | -88.03 | -973.92 | -153.04 | 9,131.66 | 9,093.44 | 38.23 | 238.883 | |
| 16,100.00 | 7,073.86 | 7,070.70 | 7,069.25 | 150.87 | 8.85 | -88.01 | -973.92 | -153.04 | 9,231.49 | 9,193.19 | 38.30 | 241.051 | |
| 16,200.00 | 7,073.51 | 7,070.51 | 7,069.06 | 152.45 | 8.85 | -87.99 | -973.92 | -153.04 | 9,331.32 | 9,292.95 | 38.37 | 243.208 | |
| 16,300.00 | 7,073.16 | 7,070.31 | 7,068.86 | 154.03 | 8.85 | -87.97 | -973.91 | -153.04 | 9,431.15 | 9,392.71 | 38.44 | 245.353 | |
| 16,400.00 | 7,072.81 | 7,070.11 | 7,068.66 | 155.60 | 8.85 | -87.95 | -973.91 | -153.04 | 9,530.98 | 9,492.47 | 38.51 | 247.487 | |
| 16,500.00 | 7,072.46 | 7,069.91 | 7,068.46 | 157.18 | 8.85 | -87.93 | -973.91 | -153.04 | 9,630.82 | 9,592.24 | 38.58 | 249.609 | |
| 16,600.00 | 7,072.11 | 7,069.71 | 7,068.25 | 158.76 | 8.84 | -87.91 | -973.91 | -153.04 | 9,730.66 | 9,692.01 | 38.66 | 251.720 | |
| 16,631.96 | 7,072.00 | 7,069.64 | 7,068.19 | 159.27 | 8.84 | -87.90 | -973.90 | -153.04 | 9,762.58 | 9,723.90 | 38.68 | 252.392 | |

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

**Survey Program:** 120-A027Ua_INC-ONLY

**Offset Well Error:** 3.28 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 3.28 | 3.28 | 109.35 | -1,115.33 | 3,175.90 | 3,366.60 | | | | |
| 100.00 | 100.00 | 39.00 | 39.00 | 3.29 | 3.37 | 109.35 | -1,115.33 | 3,175.90 | 3,366.05 | 3,359.39 | 6.66 | 505.534 | |
| 200.00 | 200.00 | 139.00 | 139.00 | 3.34 | 4.27 | 109.35 | -1,115.33 | 3,175.90 | 3,366.05 | 3,358.44 | 7.61 | 442.382 | |
| 277.13 | 277.13 | 215.98 | 215.98 | 3.40 | 5.37 | 109.35 | -1,115.02 | 3,175.90 | 3,365.94 | 3,357.17 | 8.77 | 383.811 | |
| 300.00 | 300.00 | 237.20 | 237.20 | 3.42 | 5.71 | 109.35 | -1,115.04 | 3,175.90 | 3,365.95 | 3,356.82 | 9.13 | 368.715 | |
| 400.00 | 400.00 | 339.02 | 339.00 | 3.54 | 7.42 | 109.35 | -1,115.33 | 3,175.90 | 3,366.05 | 3,355.09 | 10.96 | 307.136 | |
| 492.18 | 492.18 | 431.02 | 431.00 | 3.67 | 9.02 | 109.34 | -1,114.93 | 3,175.90 | 3,365.92 | 3,353.22 | 12.70 | 265.065 | |
| 500.00 | 500.00 | 438.39 | 438.37 | 3.69 | 9.15 | 109.34 | -1,114.94 | 3,175.90 | 3,365.92 | 3,353.08 | 12.84 | 262.105 | |
| 600.00 | 599.98 | 532.65 | 532.63 | 3.86 | 10.85 | -100.67 | -1,115.23 | 3,175.90 | 3,366.34 | 3,351.64 | 14.70 | 228.961 | |
| 697.00 | 696.84 | 635.88 | 635.84 | 4.04 | 12.73 | -100.74 | -1,115.33 | 3,175.90 | 3,367.30 | 3,350.54 | 16.77 | 200.806 | |
| 700.00 | 699.84 | 638.87 | 638.84 | 4.05 | 12.79 | -100.74 | -1,115.33 | 3,175.90 | 3,367.34 | 3,350.51 | 16.83 | 200.080 | |
| 800.00 | 799.60 | 738.64 | 738.60 | 4.25 | 14.63 | -100.86 | -1,115.33 | 3,175.90 | 3,368.63 | 3,349.75 | 18.88 | 178.391 | |
| 897.00 | 896.37 | 834.61 | 834.57 | 4.48 | 16.42 | -100.97 | -1,114.81 | 3,175.90 | 3,369.73 | 3,348.84 | 20.89 | 161.290 | |
| 900.00 | 899.37 | 837.54 | 837.50 | 4.48 | 16.47 | -100.11 | -1,114.81 | 3,175.90 | 3,369.77 | 3,348.81 | 20.95 | 160.815 | |
| 947.40 | 946.65 | 883.93 | 883.89 | 4.60 | 17.34 | -86.36 | -1,114.86 | 3,175.90 | 3,369.97 | 3,348.03 | 21.94 | 153.628 | |
| 1,000.00 | 999.13 | 935.42 | 935.38 | 4.73 | 18.30 | -86.42 | -1,114.97 | 3,175.90 | 3,369.77 | 3,346.74 | 23.03 | 146.311 | |
| 1,100.00 | 1,098.89 | 1,033.32 | 1,033.28 | 4.99 | 20.14 | -86.53 | -1,115.30 | 3,175.90 | 3,369.46 | 3,344.33 | 25.13 | 134.078 | |
| 1,200.00 | 1,198.66 | 1,137.72 | 1,137.66 | 5.27 | 22.23 | -86.65 | -1,115.33 | 3,175.90 | 3,369.05 | 3,341.56 | 27.50 | 122.514 | |
| 1,300.00 | 1,298.42 | 1,237.48 | 1,237.42 | 5.56 | 24.24 | -86.76 | -1,115.33 | 3,175.90 | 3,368.66 | 3,338.86 | 29.80 | 113.052 | |
| 1,400.00 | 1,398.18 | 1,335.86 | 1,335.79 | 5.85 | 26.23 | -86.89 | -1,114.55 | 3,175.90 | 3,368.03 | 3,335.95 | 32.08 | 104.988 | |
| 1,500.00 | 1,497.95 | 1,432.93 | 1,432.86 | 6.16 | 28.19 | -87.00 | -1,114.80 | 3,175.90 | 3,367.75 | 3,333.40 | 34.35 | 98.051 | |
| 1,600.00 | 1,597.71 | 1,536.83 | 1,536.71 | 6.47 | 30.29 | -87.11 | -1,115.33 | 3,175.90 | 3,367.55 | 3,330.79 | 36.76 | 91.606 | |
| 1,700.00 | 1,697.47 | 1,636.60 | 1,636.47 | 6.79 | 32.31 | -87.23 | -1,115.33 | 3,175.90 | 3,367.21 | 3,328.11 | 39.10 | 86.110 | |
| 1,800.00 | 1,797.24 | 1,736.36 | 1,736.24 | 7.11 | 34.34 | -87.35 | -1,115.33 | 3,175.90 | 3,366.89 | 3,325.44 | 41.45 | 81.223 | |
| 1,900.00 | 1,897.00 | 1,834.52 | 1,834.39 | 7.44 | 36.33 | -87.48 | -1,114.25 | 3,175.90 | 3,366.25 | 3,322.47 | 43.77 | 76.899 | |
| 2,000.00 | 1,996.76 | 1,930.94 | 1,930.80 | 7.77 | 38.29 | -87.59 | -1,114.56 | 3,175.90 | 3,366.05 | 3,319.98 | 46.07 | 73.070 | |
| 2,100.00 | 2,096.53 | 2,027.40 | 2,027.25 | 8.11 | 40.26 | -87.69 | -1,115.19 | 3,175.90 | 3,365.96 | 3,317.60 | 48.36 | 69.599 | |
| 2,200.00 | 2,196.29 | 2,135.47 | 2,135.29 | 8.44 | 42.33 | -87.81 | -1,115.33 | 3,175.90 | 3,365.72 | 3,314.95 | 50.77 | 66.293 | |
| 2,300.00 | 2,296.06 | 2,235.24 | 2,235.06 | 8.79 | 44.21 | -87.93 | -1,115.33 | 3,175.90 | 3,365.47 | 3,312.47 | 53.00 | 63.499 | |
| 2,400.00 | 2,395.82 | 2,333.73 | 2,333.54 | 9.13 | 46.08 | -88.06 | -1,114.56 | 3,175.90 | 3,365.00 | 3,309.79 | 55.21 | 60.950 | |
| 2,500.00 | 2,495.58 | 2,430.92 | 2,430.72 | 9.47 | 47.92 | -88.17 | -1,114.81 | 3,175.90 | 3,364.85 | 3,307.45 | 57.40 | 58.626 | |
| 2,600.00 | 2,595.35 | 2,534.56 | 2,534.35 | 9.82 | 49.89 | -88.28 | -1,115.33 | 3,175.90 | 3,364.78 | 3,305.08 | 59.71 | 56.355 | |
| 2,700.00 | 2,695.11 | 2,634.32 | 2,634.11 | 10.17 | 51.78 | -88.40 | -1,115.33 | 3,175.90 | 3,364.58 | 3,302.64 | 61.95 | 54.313 | |
| 2,800.00 | 2,794.87 | 2,734.08 | 2,733.87 | 10.52 | 53.67 | -88.51 | -1,115.33 | 3,175.90 | 3,364.40 | 3,300.21 | 64.19 | 52.412 | |
| 2,900.00 | 2,894.64 | 2,833.01 | 2,832.80 | 10.87 | 55.55 | -88.64 | -1,114.79 | 3,175.90 | 3,364.07 | 3,297.65 | 66.42 | 50.648 | |
| 3,000.00 | 2,994.40 | 2,931.17 | 2,930.95 | 11.23 | 57.41 | -88.75 | -1,114.96 | 3,175.90 | 3,363.97 | 3,295.33 | 68.64 | 49.012 | |
| 3,100.00 | 3,094.16 | 3,029.34 | 3,029.13 | 11.58 | 59.27 | -88.86 | -1,115.30 | 3,175.90 | 3,363.92 | 3,293.07 | 70.85 | 47.477 | |
| 3,200.00 | 3,193.93 | 3,133.17 | 3,132.93 | 11.94 | 61.38 | -88.98 | -1,115.33 | 3,175.90 | 3,363.80 | 3,290.48 | 73.31 | 45.882 | |
| 3,300.00 | 3,293.69 | 3,232.93 | 3,232.69 | 12.29 | 63.41 | -89.10 | -1,115.33 | 3,175.90 | 3,363.68 | 3,287.98 | 75.70 | 44.434 | |
| 3,400.00 | 3,393.45 | 3,329.76 | 3,329.51 | 12.65 | 65.38 | -89.22 | -1,114.83 | 3,175.90 | 3,363.44 | 3,285.41 | 78.03 | 43.104 | |
| 3,406.10 | 3,399.54 | 3,335.66 | 3,335.41 | 12.67 | 65.50 | -89.22 | -1,114.85 | 3,175.90 | 3,363.44 | 3,285.27 | 78.17 | 43.026 | |
| 3,500.00 | 3,493.22 | 3,432.51 | 3,432.22 | 13.01 | 67.47 | -89.33 | -1,115.33 | 3,175.90 | 3,363.49 | 3,283.01 | 80.48 | 41.792 | |
| 3,600.00 | 3,592.98 | 3,532.27 | 3,531.98 | 13.37 | 69.65 | -89.45 | -1,115.33 | 3,175.90 | 3,363.42 | 3,280.40 | 83.02 | 40.515 | |
| 3,700.00 | 3,692.74 | 3,630.82 | 3,630.53 | 13.73 | 71.80 | -89.57 | -1,114.59 | 3,175.90 | 3,363.16 | 3,277.63 | 85.52 | 39.324 | |
| 3,710.40 | 3,703.12 | 3,640.74 | 3,640.45 | 13.76 | 72.01 | -89.59 | -1,114.61 | 3,175.90 | 3,363.16 | 3,277.38 | 85.78 | 39.208 CC | |
| 3,800.00 | 3,792.51 | 3,726.24 | 3,725.94 | 14.09 | 73.88 | -89.68 | -1,114.95 | 3,175.90 | 3,363.21 | 3,275.25 | 87.97 | 38.233 | |
| 3,900.00 | 3,892.27 | 3,831.63 | 3,831.27 | 14.45 | 76.14 | -89.80 | -1,115.33 | 3,175.90 | 3,363.28 | 3,272.69 | 90.59 | 37.127 | |
| 4,000.00 | 3,992.04 | 3,931.41 | 3,931.04 | 14.81 | 78.18 | -89.91 | -1,115.33 | 3,175.90 | 3,363.26 | 3,270.28 | 92.99 | 36.169 | |
| 4,070.20 | 4,062.07 | 4,001.42 | 4,001.04 | 15.06 | 79.45 | -90.00 | -1,115.02 | 3,175.90 | 3,363.18 | 3,268.66 | 94.52 | 35.583 | |
| 4,100.00 | 4,091.80 | 4,029.42 | 4,029.05 | 15.17 | 79.97 | -90.03 | -1,115.05 | 3,175.90 | 3,363.19 | 3,268.05 | 95.14 | 35.352 | |
| 4,200.00 | 4,191.56 | 4,130.94 | 4,130.56 | 15.53 | 81.77 | -90.15 | -1,115.33 | 3,175.90 | 3,363.27 | 3,265.97 | 97.30 | 34.566 | |
| 4,300.00 | 4,291.33 | 4,230.71 | 4,230.33 | 15.89 | 83.45 | -90.26 | -1,115.33 | 3,175.90 | 3,363.30 | 3,263.95 | 99.34 | 33.855 | |

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

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

**Survey Program:** 120-A027Ua_INC-ONLY

**Offset Well Error:** 3.28 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4,400.00 | 4,391.09 | 4,329.21 | 4,328.83 | 16.26 | 85.11 | -90.38 | -1,115.24 | 3,175.90 | 3,363.31 | 3,261.95 | 101.37 | 33.180 | |
| 4,500.00 | 4,490.85 | 4,430.24 | 4,429.85 | 16.62 | 86.82 | -90.50 | -1,115.33 | 3,175.90 | 3,363.39 | 3,259.95 | 103.44 | 32.516 | |
| 4,600.00 | 4,590.62 | 4,529.58 | 4,529.19 | 16.99 | 88.50 | -90.62 | -1,115.20 | 3,175.90 | 3,363.42 | 3,257.94 | 105.49 | 31.885 | |
| 4,700.00 | 4,690.38 | 4,629.77 | 4,629.38 | 17.35 | 90.20 | -90.73 | -1,115.33 | 3,175.90 | 3,363.53 | 3,255.98 | 107.55 | 31.274 | |
| 4,800.00 | 4,790.14 | 4,729.53 | 4,729.14 | 17.71 | 91.96 | -90.85 | -1,115.33 | 3,175.90 | 3,363.63 | 3,253.95 | 109.68 | 30.668 | |
| 4,900.00 | 4,889.91 | 4,828.31 | 4,827.92 | 18.08 | 93.71 | -90.97 | -1,115.23 | 3,175.90 | 3,363.71 | 3,251.93 | 111.79 | 30.090 | |
| 5,000.00 | 4,989.67 | 4,929.06 | 4,928.67 | 18.44 | 95.55 | -91.08 | -1,115.33 | 3,175.90 | 3,363.86 | 3,249.87 | 113.99 | 29.510 | |
| 5,100.00 | 5,089.43 | 5,028.39 | 5,027.99 | 18.81 | 97.44 | -91.20 | -1,115.06 | 3,175.90 | 3,363.93 | 3,247.69 | 116.24 | 28.939 | |
| 5,200.00 | 5,189.20 | 5,125.41 | 5,125.01 | 19.17 | 99.28 | -91.31 | -1,115.27 | 3,175.90 | 3,364.14 | 3,245.68 | 118.45 | 28.400 | |
| 5,300.00 | 5,288.96 | 5,228.37 | 5,227.96 | 19.54 | 101.30 | -91.43 | -1,115.33 | 3,175.90 | 3,364.32 | 3,243.48 | 120.84 | 27.842 | |
| 5,400.00 | 5,388.72 | 5,325.43 | 5,325.02 | 19.91 | 103.21 | -91.55 | -1,115.03 | 3,175.90 | 3,364.43 | 3,241.31 | 123.11 | 27.328 | |
| 5,500.00 | 5,488.49 | 5,427.92 | 5,427.49 | 20.27 | 105.28 | -91.67 | -1,115.33 | 3,175.90 | 3,364.69 | 3,239.13 | 125.55 | 26.799 | |
| 5,600.00 | 5,588.25 | 5,527.00 | 5,526.57 | 20.64 | 107.36 | -91.79 | -1,114.92 | 3,175.90 | 3,364.80 | 3,236.80 | 128.00 | 26.287 | |
| 5,700.00 | 5,688.01 | 5,622.89 | 5,622.45 | 21.00 | 109.38 | -91.89 | -1,115.24 | 3,175.90 | 3,365.10 | 3,234.72 | 130.38 | 25.809 | |
| 5,800.00 | 5,787.78 | 5,727.25 | 5,726.78 | 21.37 | 111.70 | -92.02 | -1,115.33 | 3,175.90 | 3,365.35 | 3,232.28 | 133.07 | 25.290 | |
| 5,900.00 | 5,887.54 | 5,822.55 | 5,822.07 | 21.74 | 113.83 | -92.13 | -1,114.85 | 3,175.90 | 3,365.50 | 3,229.92 | 135.57 | 24.824 | |
| 6,000.00 | 5,987.31 | 5,926.83 | 5,926.31 | 22.11 | 116.21 | -92.25 | -1,115.33 | 3,175.90 | 3,365.86 | 3,227.55 | 138.31 | 24.335 | |
| 6,100.00 | 6,087.07 | 6,025.28 | 6,024.74 | 22.47 | 118.49 | -92.38 | -1,114.66 | 3,175.90 | 3,365.99 | 3,225.03 | 140.96 | 23.879 | |
| 6,200.00 | 6,186.83 | 6,119.03 | 6,118.49 | 22.84 | 120.66 | -92.48 | -1,115.20 | 3,175.90 | 3,366.41 | 3,222.91 | 143.50 | 23.459 | |
| 6,300.00 | 6,286.60 | 6,226.19 | 6,225.60 | 23.21 | 123.09 | -92.60 | -1,115.33 | 3,175.90 | 3,366.74 | 3,220.44 | 146.30 | 23.013 | |
| 6,400.00 | 6,386.36 | 6,321.42 | 6,320.80 | 23.58 | 125.24 | -92.72 | -1,114.67 | 3,175.90 | 3,366.92 | 3,218.11 | 148.81 | 22.626 | |
| 6,494.00 | 6,480.13 | 6,419.79 | 6,419.13 | 23.92 | 127.41 | -92.82 | -1,115.33 | 3,175.90 | 3,367.37 | 3,216.04 | 151.33 | 22.252 | |
| 6,500.00 | 6,486.12 | 6,425.78 | 6,425.12 | 23.94 | 127.54 | -100.11 | -1,115.33 | 3,175.90 | 3,367.42 | 3,215.94 | 151.48 | 22.230 ES | |
| 6,550.00 | 6,535.89 | 6,475.55 | 6,474.89 | 24.13 | 128.59 | -135.62 | -1,115.33 | 3,175.90 | 3,369.97 | 3,217.25 | 152.72 | 22.067 | |
| 6,600.00 | 6,585.24 | 6,524.46 | 6,523.79 | 24.31 | 129.62 | -147.84 | -1,114.78 | 3,175.90 | 3,376.23 | 3,222.30 | 153.93 | 21.933 | |
| 6,650.00 | 6,633.88 | 6,570.81 | 6,570.14 | 24.50 | 130.60 | -153.32 | -1,114.88 | 3,175.90 | 3,386.42 | 3,231.33 | 155.10 | 21.834 | |
| 6,700.00 | 6,681.49 | 6,616.22 | 6,615.55 | 24.68 | 131.56 | -156.26 | -1,115.12 | 3,175.90 | 3,400.38 | 3,244.14 | 156.24 | 21.764 | |
| 6,750.00 | 6,727.80 | 6,667.50 | 6,666.80 | 24.86 | 132.65 | -157.99 | -1,115.33 | 3,175.90 | 3,417.97 | 3,260.47 | 157.50 | 21.702 | |
| 6,800.00 | 6,772.51 | 6,712.21 | 6,711.51 | 25.04 | 133.60 | -159.00 | -1,115.33 | 3,175.90 | 3,439.06 | 3,280.45 | 158.61 | 21.682 SF | |
| 6,850.00 | 6,815.34 | 6,755.04 | 6,754.34 | 25.21 | 134.50 | -159.54 | -1,115.33 | 3,175.90 | 3,463.57 | 3,303.90 | 159.68 | 21.691 | |
| 6,900.00 | 6,856.04 | 6,794.46 | 6,793.75 | 25.39 | 135.34 | -159.71 | -1,114.80 | 3,175.90 | 3,491.25 | 3,330.59 | 160.67 | 21.730 | |
| 6,950.00 | 6,894.35 | 6,831.01 | 6,830.30 | 25.57 | 136.11 | -159.55 | -1,114.91 | 3,175.90 | 3,522.17 | 3,360.58 | 161.59 | 21.797 | |
| 7,000.00 | 6,930.04 | 6,865.07 | 6,864.36 | 25.75 | 136.83 | -159.08 | -1,115.10 | 3,175.90 | 3,556.01 | 3,393.56 | 162.44 | 21.891 | |
| 7,050.00 | 6,962.89 | 6,902.63 | 6,901.89 | 25.93 | 137.63 | -158.32 | -1,115.33 | 3,175.90 | 3,592.56 | 3,429.19 | 163.37 | 21.990 | |
| 7,100.00 | 6,992.69 | 6,932.42 | 6,931.69 | 26.13 | 138.28 | -157.14 | -1,115.33 | 3,175.90 | 3,631.55 | 3,467.42 | 164.14 | 22.125 | |
| 7,150.00 | 7,019.25 | 6,958.99 | 6,958.25 | 26.33 | 138.86 | -155.44 | -1,115.33 | 3,175.90 | 3,672.79 | 3,507.97 | 164.82 | 22.283 | |
| 7,200.00 | 7,042.43 | 6,982.17 | 6,981.43 | 26.55 | 139.37 | -153.06 | -1,115.33 | 3,175.90 | 3,716.03 | 3,550.60 | 165.42 | 22.464 | |
| 7,250.00 | 7,062.07 | 7,001.80 | 7,001.07 | 26.79 | 139.80 | -149.66 | -1,115.33 | 3,175.90 | 3,760.99 | 3,595.05 | 165.93 | 22.666 | |
| 7,300.00 | 7,078.05 | 7,017.78 | 7,017.05 | 27.04 | 140.15 | -144.69 | -1,115.33 | 3,175.90 | 3,807.39 | 3,641.04 | 166.35 | 22.887 | |
| 7,350.00 | 7,090.27 | 7,029.45 | 7,028.71 | 27.30 | 140.41 | -137.11 | -1,114.79 | 3,175.90 | 3,854.86 | 3,688.20 | 166.67 | 23.129 | |
| 7,400.00 | 7,098.66 | 7,037.46 | 7,036.72 | 27.58 | 140.58 | -125.07 | -1,114.80 | 3,175.90 | 3,903.30 | 3,736.41 | 166.89 | 23.388 | |
| 7,450.00 | 7,103.17 | 7,041.76 | 7,041.02 | 27.87 | 140.68 | -106.12 | -1,114.80 | 3,175.90 | 3,952.30 | 3,785.27 | 167.03 | 23.663 | |
| 7,484.86 | 7,104.00 | 7,042.55 | 7,041.81 | 28.08 | 140.69 | -88.72 | -1,114.81 | 3,175.90 | 3,986.63 | 3,819.56 | 167.07 | 23.862 | |
| 7,500.00 | 7,103.95 | 7,042.50 | 7,041.76 | 28.17 | 140.69 | -88.72 | -1,114.81 | 3,175.90 | 4,001.56 | 3,834.48 | 167.08 | 23.951 | |
| 7,600.00 | 7,103.60 | 7,042.17 | 7,041.42 | 28.83 | 140.69 | -88.69 | -1,114.81 | 3,175.90 | 4,100.18 | 3,933.05 | 167.13 | 24.533 | |
| 7,700.00 | 7,103.25 | 7,041.83 | 7,041.09 | 29.56 | 140.68 | -88.66 | -1,114.80 | 3,175.90 | 4,198.86 | 4,031.68 | 167.19 | 25.115 | |
| 7,800.00 | 7,102.90 | 7,041.50 | 7,040.75 | 30.35 | 140.67 | -88.63 | -1,114.80 | 3,175.90 | 4,297.61 | 4,130.37 | 167.24 | 25.697 | |
| 7,900.00 | 7,102.55 | 7,041.16 | 7,040.42 | 31.21 | 140.66 | -88.60 | -1,114.80 | 3,175.90 | 4,396.41 | 4,229.12 | 167.30 | 26.279 | |
| 8,000.00 | 7,102.20 | 7,040.83 | 7,040.09 | 32.13 | 140.66 | -88.58 | -1,114.80 | 3,175.90 | 4,495.27 | 4,327.92 | 167.35 | 26.861 | |
| 8,100.00 | 7,101.85 | 7,040.50 | 7,039.75 | 33.10 | 140.65 | -88.55 | -1,114.80 | 3,175.90 | 4,594.17 | 4,426.77 | 167.41 | 27.443 | |
| 8,200.00 | 7,101.50 | 7,040.16 | 7,039.42 | 34.11 | 140.64 | -88.52 | -1,114.80 | 3,175.90 | 4,693.13 | 4,525.67 | 167.46 | 28.025 | |
| 8,300.00 | 7,101.15 | 7,039.83 | 7,039.08 | 35.17 | 140.64 | -88.49 | -1,114.80 | 3,175.90 | 4,792.12 | 4,624.61 | 167.51 | 28.607 | |

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

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

**Survey Program:** 120-A027Ua_INC-ONLY

**Offset Well Error:** 3.28 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Rule Assigned: Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8,400.00 | 7,100.80 | 7,039.49 | 7,038.75 | 36.27 | 140.63 | -88.46 | -1,114.80 | 3,175.90 | 4,891.16 | 4,723.59 | 167.57 | 29.189 | |
| 8,500.00 | 7,100.45 | 7,039.16 | 7,038.41 | 37.41 | 140.62 | -88.43 | -1,114.80 | 3,175.90 | 4,990.23 | 4,822.61 | 167.62 | 29.771 | |
| 8,600.00 | 7,100.10 | 7,038.82 | 7,038.08 | 38.58 | 140.61 | -88.40 | -1,114.80 | 3,175.90 | 5,089.34 | 4,921.67 | 167.67 | 30.353 | |
| 8,700.00 | 7,099.75 | 7,038.49 | 7,037.75 | 39.78 | 140.61 | -88.38 | -1,114.80 | 3,175.90 | 5,188.49 | 5,020.76 | 167.73 | 30.934 | |
| 8,800.00 | 7,099.40 | 7,038.16 | 7,037.41 | 41.00 | 140.60 | -88.35 | -1,114.80 | 3,175.90 | 5,287.67 | 5,119.89 | 167.78 | 31.516 | |
| 8,900.00 | 7,099.05 | 7,037.82 | 7,037.08 | 42.25 | 140.59 | -88.32 | -1,114.80 | 3,175.90 | 5,386.87 | 5,219.04 | 167.83 | 32.097 | |
| 9,000.00 | 7,098.70 | 7,037.49 | 7,036.74 | 43.53 | 140.58 | -88.29 | -1,114.80 | 3,175.90 | 5,486.11 | 5,318.23 | 167.88 | 32.678 | |
| 9,100.00 | 7,098.35 | 7,037.15 | 7,036.41 | 44.82 | 140.58 | -88.26 | -1,114.80 | 3,175.90 | 5,585.37 | 5,417.44 | 167.94 | 33.259 | |
| 9,200.00 | 7,098.00 | 7,036.82 | 7,036.07 | 46.14 | 140.57 | -88.23 | -1,114.80 | 3,175.90 | 5,684.66 | 5,516.67 | 167.99 | 33.840 | |
| 9,300.00 | 7,097.65 | 7,036.48 | 7,035.74 | 47.47 | 140.56 | -88.20 | -1,114.80 | 3,175.90 | 5,783.98 | 5,615.94 | 168.04 | 34.420 | |
| 9,400.00 | 7,097.30 | 7,036.15 | 7,035.41 | 48.82 | 140.55 | -88.18 | -1,114.80 | 3,175.90 | 5,883.31 | 5,715.22 | 168.09 | 35.000 | |
| 9,500.00 | 7,096.95 | 7,035.82 | 7,035.07 | 50.18 | 140.55 | -88.15 | -1,114.80 | 3,175.90 | 5,982.67 | 5,814.53 | 168.14 | 35.581 | |
| 9,600.00 | 7,096.60 | 7,035.48 | 7,034.74 | 51.56 | 140.54 | -88.12 | -1,114.80 | 3,175.90 | 6,082.05 | 5,913.86 | 168.20 | 36.160 | |
| 9,700.00 | 7,096.25 | 7,035.15 | 7,034.40 | 52.95 | 140.53 | -88.09 | -1,114.80 | 3,175.90 | 6,181.45 | 6,013.20 | 168.25 | 36.740 | |
| 9,800.00 | 7,095.90 | 7,034.81 | 7,034.07 | 54.35 | 140.53 | -88.06 | -1,114.79 | 3,175.90 | 6,280.87 | 6,112.57 | 168.30 | 37.319 | |
| 9,900.00 | 7,095.55 | 7,034.48 | 7,033.74 | 55.76 | 140.52 | -88.03 | -1,114.79 | 3,175.90 | 6,380.31 | 6,211.96 | 168.35 | 37.899 | |
| 10,000.00 | 7,095.20 | 7,034.15 | 7,033.40 | 57.18 | 140.51 | -88.01 | -1,114.79 | 3,175.90 | 6,479.76 | 6,311.36 | 168.40 | 38.478 | |
| 10,100.00 | 7,094.85 | 7,033.81 | 7,033.07 | 58.61 | 140.50 | -87.98 | -1,114.79 | 3,175.90 | 6,579.24 | 6,410.78 | 168.46 | 39.056 | |
| 10,200.00 | 7,094.50 | 7,033.48 | 7,032.73 | 60.05 | 140.50 | -87.95 | -1,114.79 | 3,175.90 | 6,678.72 | 6,510.21 | 168.51 | 39.634 | |
| 10,300.00 | 7,094.15 | 7,033.14 | 7,032.40 | 61.50 | 140.49 | -87.92 | -1,114.79 | 3,175.90 | 6,778.22 | 6,609.66 | 168.56 | 40.212 | |
| 10,400.00 | 7,093.80 | 7,032.81 | 7,032.07 | 62.96 | 140.48 | -87.89 | -1,114.79 | 3,175.90 | 6,877.74 | 6,709.13 | 168.61 | 40.790 | |
| 10,500.00 | 7,093.45 | 7,032.48 | 7,031.73 | 64.42 | 140.47 | -87.86 | -1,114.79 | 3,175.90 | 6,977.27 | 6,808.61 | 168.66 | 41.368 | |
| 10,600.00 | 7,093.10 | 7,032.14 | 7,031.40 | 65.89 | 140.47 | -87.83 | -1,114.79 | 3,175.90 | 7,076.81 | 6,908.10 | 168.72 | 41.945 | |
| 10,700.00 | 7,092.75 | 7,031.81 | 7,031.07 | 67.36 | 140.46 | -87.81 | -1,114.79 | 3,175.90 | 7,176.37 | 7,007.60 | 168.77 | 42.522 | |
| 10,800.00 | 7,092.40 | 7,031.48 | 7,030.73 | 68.84 | 140.45 | -87.78 | -1,114.79 | 3,175.90 | 7,275.94 | 7,107.11 | 168.82 | 43.098 | |
| 10,900.00 | 7,092.05 | 7,031.14 | 7,030.40 | 70.33 | 140.44 | -87.75 | -1,114.79 | 3,175.90 | 7,375.52 | 7,206.64 | 168.88 | 43.674 | |
| 11,000.00 | 7,091.70 | 7,030.81 | 7,030.06 | 71.82 | 140.44 | -87.72 | -1,114.79 | 3,175.90 | 7,475.11 | 7,306.18 | 168.93 | 44.250 | |
| 11,100.00 | 7,091.35 | 7,030.47 | 7,029.73 | 73.31 | 140.43 | -87.69 | -1,114.79 | 3,175.90 | 7,574.71 | 7,405.73 | 168.98 | 44.825 | |
| 11,200.00 | 7,091.00 | 7,030.14 | 7,029.40 | 74.81 | 140.42 | -87.66 | -1,114.79 | 3,175.90 | 7,674.32 | 7,505.29 | 169.04 | 45.400 | |
| 11,300.00 | 7,090.65 | 7,029.81 | 7,029.06 | 76.32 | 140.42 | -87.63 | -1,114.79 | 3,175.90 | 7,773.95 | 7,604.85 | 169.09 | 45.975 | |
| 11,400.00 | 7,090.30 | 7,029.47 | 7,028.73 | 77.82 | 140.41 | -87.61 | -1,114.79 | 3,175.90 | 7,873.58 | 7,704.43 | 169.15 | 46.549 | |
| 11,500.00 | 7,089.95 | 7,029.14 | 7,028.40 | 79.34 | 140.40 | -87.58 | -1,114.79 | 3,175.90 | 7,973.22 | 7,804.02 | 169.20 | 47.123 | |
| 11,600.00 | 7,089.60 | 7,028.81 | 7,028.06 | 80.85 | 140.39 | -87.55 | -1,114.79 | 3,175.90 | 8,072.87 | 7,903.61 | 169.25 | 47.697 | |
| 11,700.00 | 7,089.25 | 7,028.47 | 7,027.73 | 82.37 | 140.39 | -87.52 | -1,114.79 | 3,175.90 | 8,172.53 | 8,003.22 | 169.31 | 48.270 | |
| 11,800.00 | 7,088.90 | 7,028.14 | 7,027.39 | 83.89 | 140.38 | -87.49 | -1,114.79 | 3,175.90 | 8,272.19 | 8,102.83 | 169.37 | 48.842 | |
| 11,900.00 | 7,088.55 | 7,027.80 | 7,027.06 | 85.41 | 140.37 | -87.46 | -1,114.79 | 3,175.90 | 8,371.87 | 8,202.45 | 169.42 | 49.415 | |
| 12,000.00 | 7,088.20 | 7,027.47 | 7,026.73 | 86.94 | 140.36 | -87.44 | -1,114.79 | 3,175.90 | 8,471.55 | 8,302.07 | 169.48 | 49.986 | |
| 12,100.00 | 7,087.85 | 7,027.14 | 7,026.39 | 88.47 | 140.36 | -87.41 | -1,114.79 | 3,175.90 | 8,571.24 | 8,401.71 | 169.53 | 50.558 | |
| 12,200.00 | 7,087.50 | 7,026.80 | 7,026.06 | 90.00 | 140.35 | -87.38 | -1,114.79 | 3,175.90 | 8,670.94 | 8,501.35 | 169.59 | 51.129 | |
| 12,300.00 | 7,087.15 | 7,026.47 | 7,025.73 | 91.54 | 140.34 | -87.35 | -1,114.79 | 3,175.90 | 8,770.64 | 8,600.99 | 169.65 | 51.699 | |
| 12,400.00 | 7,086.81 | 7,026.14 | 7,025.39 | 93.07 | 140.34 | -87.32 | -1,114.79 | 3,175.90 | 8,870.35 | 8,700.65 | 169.70 | 52.269 | |
| 12,500.00 | 7,086.46 | 7,025.80 | 7,025.06 | 94.61 | 140.33 | -87.29 | -1,114.79 | 3,175.90 | 8,970.07 | 8,800.30 | 169.76 | 52.839 | |
| 12,600.00 | 7,086.11 | 7,025.47 | 7,024.73 | 96.15 | 140.32 | -87.26 | -1,114.79 | 3,175.90 | 9,069.79 | 8,899.97 | 169.82 | 53.408 | |
| 12,700.00 | 7,085.76 | 7,025.14 | 7,024.39 | 97.69 | 140.31 | -87.24 | -1,114.79 | 3,175.90 | 9,169.52 | 8,999.64 | 169.88 | 53.977 | |
| 12,800.00 | 7,085.41 | 7,024.80 | 7,024.06 | 99.24 | 140.31 | -87.21 | -1,114.79 | 3,175.90 | 9,269.25 | 9,099.32 | 169.94 | 54.545 | |
| 12,900.00 | 7,085.06 | 7,024.47 | 7,023.73 | 100.78 | 140.30 | -87.18 | -1,114.79 | 3,175.90 | 9,368.99 | 9,199.00 | 170.00 | 55.113 | |
| 13,000.00 | 7,084.71 | 7,024.14 | 7,023.39 | 102.33 | 140.29 | -87.15 | -1,114.79 | 3,175.90 | 9,468.74 | 9,298.68 | 170.06 | 55.680 | |
| 13,100.00 | 7,084.36 | 7,023.80 | 7,023.06 | 103.88 | 140.28 | -87.12 | -1,114.79 | 3,175.90 | 9,568.49 | 9,398.37 | 170.12 | 56.247 | |
| 13,200.00 | 7,084.01 | 7,023.47 | 7,022.73 | 105.43 | 140.28 | -87.09 | -1,114.79 | 3,175.90 | 9,668.25 | 9,498.07 | 170.18 | 56.813 | |
| 13,300.00 | 7,083.66 | 7,023.14 | 7,022.39 | 106.99 | 140.27 | -87.07 | -1,114.79 | 3,175.90 | 9,768.01 | 9,597.77 | 170.24 | 57.379 | |
| 13,400.00 | 7,083.31 | 7,022.80 | 7,022.06 | 108.54 | 140.26 | -87.04 | -1,114.79 | 3,175.90 | 9,867.77 | 9,697.48 | 170.30 | 57.944 | |
| 13,500.00 | 7,082.96 | 7,022.47 | 7,021.73 | 110.09 | 140.25 | -87.01 | -1,114.79 | 3,175.90 | 9,967.54 | 9,797.19 | 170.36 | 58.509 | |

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

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

**Survey Program:** 120-A027Ua_INC-ONLY

**Rule Assigned:**

**Offset Well Error:** 3.28 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13,600.00 | 7,082.61 | 7,022.14 | 7,021.39 | 111.65 | 140.25 | -86.98 | -1,114.79 | 3,175.90 | 10,067.32 | 9,896.90 | 170.42 | 59.073 | |
| 13,700.00 | 7,082.26 | 7,021.80 | 7,021.06 | 113.21 | 140.24 | -86.95 | -1,114.79 | 3,175.90 | 10,167.10 | 9,996.62 | 170.48 | 59.637 | |
| 13,800.00 | 7,081.91 | 7,021.47 | 7,020.73 | 114.77 | 140.23 | -86.92 | -1,114.79 | 3,175.90 | 10,266.88 | 10,096.34 | 170.55 | 60.200 | |
| 13,900.00 | 7,081.56 | 7,021.14 | 7,020.39 | 116.33 | 140.23 | -86.90 | -1,114.79 | 3,175.90 | 10,366.67 | 10,196.06 | 170.61 | 60.763 | |
| 14,000.00 | 7,081.21 | 7,020.80 | 7,020.06 | 117.89 | 140.22 | -86.87 | -1,114.79 | 3,175.90 | 10,466.46 | 10,295.79 | 170.67 | 61.325 | |
| 14,100.00 | 7,080.86 | 7,020.47 | 7,019.73 | 119.45 | 140.21 | -86.84 | -1,114.79 | 3,175.90 | 10,566.26 | 10,395.52 | 170.74 | 61.886 | |
| 14,200.00 | 7,080.51 | 7,020.14 | 7,019.39 | 121.02 | 140.20 | -86.81 | -1,114.79 | 3,175.90 | 10,666.06 | 10,495.26 | 170.80 | 62.447 | |
| 14,300.00 | 7,080.16 | 7,019.80 | 7,019.06 | 122.58 | 140.20 | -86.78 | -1,114.79 | 3,175.90 | 10,765.86 | 10,595.00 | 170.87 | 63.008 | |
| 14,400.00 | 7,079.81 | 7,019.47 | 7,018.73 | 124.15 | 140.19 | -86.75 | -1,114.78 | 3,175.90 | 10,865.67 | 10,694.74 | 170.93 | 63.568 | |
| 14,500.00 | 7,079.46 | 7,019.14 | 7,018.40 | 125.71 | 140.18 | -86.72 | -1,114.78 | 3,175.90 | 10,965.48 | 10,794.48 | 171.00 | 64.127 | |
| 14,600.00 | 7,079.11 | 7,018.81 | 7,018.06 | 127.28 | 140.17 | -86.70 | -1,114.78 | 3,175.90 | 11,065.30 | 10,894.23 | 171.06 | 64.686 | |
| 14,700.00 | 7,078.76 | 7,018.47 | 7,017.73 | 128.85 | 140.17 | -86.67 | -1,114.78 | 3,175.90 | 11,165.11 | 10,993.98 | 171.13 | 65.244 | |
| 14,800.00 | 7,078.41 | 7,018.14 | 7,017.40 | 130.42 | 140.16 | -86.64 | -1,114.78 | 3,175.90 | 11,264.93 | 11,093.74 | 171.20 | 65.802 | |
| 14,900.00 | 7,078.06 | 7,017.80 | 7,017.06 | 131.98 | 140.15 | -86.61 | -1,115.33 | 3,175.90 | 11,364.79 | 11,193.53 | 171.26 | 66.358 | |
| 15,000.00 | 7,077.71 | 7,017.45 | 7,016.71 | 133.55 | 140.14 | -86.58 | -1,115.33 | 3,175.90 | 11,464.62 | 11,293.29 | 171.33 | 66.915 | |
| 15,100.00 | 7,077.36 | 7,017.10 | 7,016.36 | 135.13 | 140.14 | -86.55 | -1,115.33 | 3,175.90 | 11,564.45 | 11,393.05 | 171.40 | 67.471 | |
| 15,200.00 | 7,077.01 | 7,016.75 | 7,016.01 | 136.70 | 140.13 | -86.52 | -1,115.33 | 3,175.90 | 11,664.28 | 11,492.81 | 171.47 | 68.026 | |
| 15,300.00 | 7,076.66 | 7,016.40 | 7,015.66 | 138.27 | 140.12 | -86.49 | -1,115.33 | 3,175.90 | 11,764.12 | 11,592.58 | 171.54 | 68.581 | |
| 15,400.00 | 7,076.31 | 7,016.05 | 7,015.31 | 139.84 | 140.11 | -86.47 | -1,115.33 | 3,175.90 | 11,863.95 | 11,692.35 | 171.61 | 69.135 | |
| 15,500.00 | 7,075.96 | 7,015.70 | 7,014.96 | 141.42 | 140.11 | -86.44 | -1,115.33 | 3,175.90 | 11,963.79 | 11,792.12 | 171.67 | 69.689 | |
| 15,600.00 | 7,075.61 | 7,015.35 | 7,014.61 | 142.99 | 140.10 | -86.41 | -1,115.33 | 3,175.90 | 12,063.64 | 11,891.89 | 171.74 | 70.242 | |
| 15,700.00 | 7,075.26 | 7,015.00 | 7,014.26 | 144.57 | 140.09 | -86.38 | -1,115.33 | 3,175.90 | 12,163.48 | 11,991.67 | 171.81 | 70.794 | |
| 15,800.00 | 7,074.91 | 7,014.65 | 7,013.91 | 146.14 | 140.08 | -86.35 | -1,115.33 | 3,175.90 | 12,263.33 | 12,091.45 | 171.89 | 71.346 | |
| 15,900.00 | 7,074.56 | 7,014.30 | 7,013.56 | 147.72 | 140.08 | -86.32 | -1,115.33 | 3,175.90 | 12,363.18 | 12,191.23 | 171.96 | 71.897 | |
| 16,000.00 | 7,074.21 | 7,013.95 | 7,013.21 | 149.29 | 140.07 | -86.29 | -1,115.33 | 3,175.90 | 12,463.04 | 12,291.01 | 172.03 | 72.448 | |
| 16,100.00 | 7,073.86 | 7,013.60 | 7,012.86 | 150.87 | 140.06 | -86.26 | -1,115.33 | 3,175.90 | 12,562.89 | 12,390.79 | 172.10 | 72.998 | |
| 16,200.00 | 7,073.51 | 7,013.25 | 7,012.51 | 152.45 | 140.05 | -86.23 | -1,115.33 | 3,175.90 | 12,662.75 | 12,490.58 | 172.17 | 73.547 | |
| 16,300.00 | 7,073.16 | 7,012.90 | 7,012.16 | 154.03 | 140.05 | -86.20 | -1,115.33 | 3,175.90 | 12,762.61 | 12,590.36 | 172.25 | 74.096 | |
| 16,400.00 | 7,072.81 | 7,012.55 | 7,011.81 | 155.60 | 140.04 | -86.17 | -1,115.33 | 3,175.90 | 12,862.47 | 12,690.15 | 172.32 | 74.644 | |
| 16,500.00 | 7,072.46 | 7,012.20 | 7,011.46 | 157.18 | 140.03 | -86.14 | -1,115.33 | 3,175.90 | 12,962.34 | 12,789.94 | 172.39 | 75.191 | |
| 16,600.00 | 7,072.11 | 7,011.85 | 7,011.11 | 158.76 | 140.02 | -86.11 | -1,115.33 | 3,175.90 | 13,062.20 | 12,889.74 | 172.47 | 75.738 | |
| 16,631.96 | 7,072.00 | 7,011.74 | 7,011.00 | 159.27 | 140.02 | -86.10 | -1,115.33 | 3,175.90 | 13,094.12 | 12,921.63 | 172.49 | 75.912 | |

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

**Survey Program:** 295-A027Ua_INC-ONLY

**Offset Well Error:** 0.00 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 3.28 | 0.00 | 138.71 | -1,795.76 | 1,576.81 | 2,390.59 | | | | |
| 100.00 | 100.00 | 38.00 | 38.00 | 3.29 | 0.34 | 138.71 | -1,795.76 | 1,576.81 | 2,389.78 | 2,386.16 | 3.63 | 659.000 | |
| 200.00 | 200.00 | 138.00 | 138.00 | 3.34 | 1.22 | 138.71 | -1,795.76 | 1,576.81 | 2,389.78 | 2,385.23 | 4.56 | 524.224 | |
| 300.00 | 300.00 | 238.00 | 238.00 | 3.42 | 2.11 | 138.71 | -1,795.76 | 1,576.81 | 2,389.78 | 2,384.26 | 5.53 | 432.291 | |
| 400.00 | 400.00 | 338.00 | 338.00 | 3.54 | 3.41 | 138.71 | -1,795.76 | 1,576.81 | 2,389.78 | 2,382.84 | 6.94 | 344.159 | |
| 500.00 | 500.00 | 438.00 | 438.00 | 3.69 | 5.25 | 138.71 | -1,795.76 | 1,576.81 | 2,389.78 | 2,380.85 | 8.94 | 267.423 | |
| 600.00 | 599.98 | 537.98 | 537.98 | 3.86 | 7.09 | -71.34 | -1,795.76 | 1,576.81 | 2,389.22 | 2,378.28 | 10.95 | 218.241 | |
| 697.00 | 696.84 | 633.46 | 633.46 | 4.04 | 8.85 | -71.48 | -1,795.52 | 1,576.81 | 2,387.44 | 2,374.55 | 12.89 | 185.247 | |
| 700.00 | 699.84 | 636.41 | 636.41 | 4.05 | 8.91 | -71.49 | -1,795.52 | 1,576.81 | 2,387.38 | 2,374.43 | 12.95 | 184.378 | |
| 800.00 | 799.60 | 734.65 | 734.65 | 4.25 | 10.72 | -71.64 | -1,795.64 | 1,576.81 | 2,385.29 | 2,370.32 | 14.97 | 159.348 | |
| 897.00 | 896.37 | 834.39 | 834.37 | 4.48 | 12.58 | -71.79 | -1,795.76 | 1,576.81 | 2,383.28 | 2,366.23 | 17.05 | 139.761 | |
| 900.00 | 899.37 | 837.39 | 837.37 | 4.48 | 12.63 | -70.93 | -1,795.76 | 1,576.81 | 2,383.22 | 2,366.10 | 17.12 | 139.235 | |
| 947.40 | 946.65 | 884.67 | 884.65 | 4.60 | 13.53 | -57.18 | -1,795.76 | 1,576.81 | 2,381.80 | 2,363.67 | 18.13 | 131.378 | |
| 1,000.00 | 999.13 | 937.15 | 937.13 | 4.73 | 14.53 | -57.26 | -1,795.76 | 1,576.81 | 2,379.84 | 2,360.58 | 19.26 | 123.581 | |
| 1,100.00 | 1,098.89 | 1,036.91 | 1,036.89 | 4.99 | 16.42 | -57.39 | -1,795.76 | 1,576.81 | 2,376.12 | 2,354.71 | 21.41 | 110.971 | |
| 1,200.00 | 1,198.66 | 1,132.26 | 1,132.23 | 5.27 | 18.23 | -57.54 | -1,795.08 | 1,576.81 | 2,371.92 | 2,348.42 | 23.50 | 100.951 | |
| 1,300.00 | 1,298.42 | 1,227.57 | 1,227.53 | 5.56 | 20.04 | -57.67 | -1,795.44 | 1,576.81 | 2,368.51 | 2,342.92 | 25.59 | 92.557 | |
| 1,400.00 | 1,398.18 | 1,336.23 | 1,336.18 | 5.85 | 22.10 | -57.81 | -1,795.76 | 1,576.81 | 2,365.06 | 2,337.11 | 27.95 | 84.621 | |
| 1,500.00 | 1,497.95 | 1,436.00 | 1,435.95 | 6.16 | 24.00 | -57.96 | -1,795.76 | 1,576.81 | 2,361.39 | 2,331.25 | 30.15 | 78.325 | |
| 1,600.00 | 1,597.71 | 1,535.64 | 1,535.58 | 6.47 | 25.89 | -58.11 | -1,795.21 | 1,576.81 | 2,357.35 | 2,325.00 | 32.35 | 72.863 | |
| 1,700.00 | 1,697.47 | 1,632.48 | 1,632.43 | 6.79 | 27.73 | -58.24 | -1,795.30 | 1,576.81 | 2,353.79 | 2,319.28 | 34.51 | 68.205 | |
| 1,800.00 | 1,797.24 | 1,729.35 | 1,729.30 | 7.11 | 29.58 | -58.38 | -1,795.56 | 1,576.81 | 2,350.36 | 2,313.69 | 36.67 | 64.089 | |
| 1,900.00 | 1,897.00 | 1,835.08 | 1,835.00 | 7.44 | 31.62 | -58.52 | -1,795.76 | 1,576.81 | 2,346.90 | 2,307.86 | 39.04 | 60.114 | |
| 2,000.00 | 1,996.76 | 1,934.85 | 1,934.76 | 7.77 | 33.57 | -58.67 | -1,795.76 | 1,576.81 | 2,343.31 | 2,301.98 | 41.33 | 56.704 | |
| 2,100.00 | 2,096.53 | 2,034.46 | 2,034.37 | 8.11 | 35.53 | -58.82 | -1,794.94 | 1,576.81 | 2,339.14 | 2,295.53 | 43.61 | 53.637 | |
| 2,200.00 | 2,196.29 | 2,130.00 | 2,129.91 | 8.44 | 37.40 | -58.96 | -1,795.07 | 1,576.81 | 2,335.68 | 2,289.86 | 45.82 | 50.976 | |
| 2,300.00 | 2,296.06 | 2,225.58 | 2,225.48 | 8.79 | 39.27 | -59.09 | -1,795.43 | 1,576.81 | 2,332.42 | 2,284.39 | 48.03 | 48.560 | |
| 2,400.00 | 2,395.82 | 2,333.94 | 2,333.82 | 9.13 | 41.40 | -59.24 | -1,795.76 | 1,576.81 | 2,329.11 | 2,278.61 | 50.50 | 46.122 | |
| 2,500.00 | 2,495.58 | 2,433.71 | 2,433.58 | 9.47 | 43.36 | -59.39 | -1,795.76 | 1,576.81 | 2,325.59 | 2,272.79 | 52.80 | 44.044 | |
| 2,600.00 | 2,595.35 | 2,533.34 | 2,533.22 | 9.82 | 45.32 | -59.55 | -1,794.94 | 1,576.81 | 2,321.51 | 2,266.41 | 55.10 | 42.130 | |
| 2,700.00 | 2,695.11 | 2,628.96 | 2,628.83 | 10.17 | 47.19 | -59.69 | -1,795.07 | 1,576.81 | 2,318.12 | 2,260.79 | 57.33 | 40.436 | |
| 2,800.00 | 2,794.87 | 2,724.61 | 2,724.47 | 10.52 | 49.07 | -59.82 | -1,795.44 | 1,576.81 | 2,314.93 | 2,255.37 | 59.56 | 38.870 | |
| 2,900.00 | 2,894.64 | 2,832.80 | 2,832.64 | 10.87 | 51.23 | -59.97 | -1,795.76 | 1,576.81 | 2,311.69 | 2,249.63 | 62.06 | 37.247 | |
| 3,000.00 | 2,994.40 | 2,932.57 | 2,932.40 | 11.23 | 53.26 | -60.12 | -1,795.76 | 1,576.81 | 2,308.25 | 2,243.81 | 64.44 | 35.820 | |
| 3,100.00 | 3,094.16 | 3,032.23 | 3,032.06 | 11.58 | 55.28 | -60.28 | -1,794.94 | 1,576.81 | 2,304.25 | 2,237.44 | 66.81 | 34.487 | |
| 3,200.00 | 3,193.93 | 3,127.94 | 3,127.76 | 11.94 | 57.22 | -60.42 | -1,795.06 | 1,576.81 | 2,300.94 | 2,231.83 | 69.11 | 33.294 | |
| 3,300.00 | 3,293.69 | 3,223.67 | 3,223.49 | 12.29 | 59.16 | -60.56 | -1,795.43 | 1,576.81 | 2,297.82 | 2,226.41 | 71.41 | 32.179 | |
| 3,400.00 | 3,393.45 | 3,331.68 | 3,331.45 | 12.65 | 61.40 | -60.72 | -1,795.76 | 1,576.81 | 2,294.65 | 2,220.66 | 74.00 | 31.011 | |
| 3,500.00 | 3,493.22 | 3,431.44 | 3,431.22 | 13.01 | 63.50 | -60.87 | -1,795.76 | 1,576.81 | 2,291.29 | 2,214.84 | 76.45 | 29.969 | |
| 3,600.00 | 3,592.98 | 3,531.21 | 3,530.98 | 13.37 | 65.60 | -61.02 | -1,795.76 | 1,576.81 | 2,287.95 | 2,209.04 | 78.92 | 28.993 | |
| 3,700.00 | 3,692.74 | 3,630.97 | 3,630.74 | 13.73 | 67.71 | -61.17 | -1,795.76 | 1,576.81 | 2,284.62 | 2,203.25 | 81.38 | 28.075 | |
| 3,800.00 | 3,792.51 | 3,730.73 | 3,730.51 | 14.09 | 69.81 | -61.32 | -1,795.76 | 1,576.81 | 2,281.31 | 2,197.47 | 83.84 | 27.211 | |
| 3,900.00 | 3,892.27 | 3,830.50 | 3,830.27 | 14.45 | 71.92 | -61.47 | -1,795.76 | 1,576.81 | 2,278.01 | 2,191.71 | 86.30 | 26.396 | |
| 4,000.00 | 3,992.04 | 3,930.26 | 3,930.04 | 14.81 | 74.02 | -61.62 | -1,795.76 | 1,576.81 | 2,274.73 | 2,185.97 | 88.76 | 25.627 | |
| 4,100.00 | 4,091.80 | 4,030.02 | 4,029.80 | 15.17 | 76.12 | -61.77 | -1,795.76 | 1,576.81 | 2,271.47 | 2,180.24 | 91.23 | 24.899 | |
| 4,200.00 | 4,191.56 | 4,129.79 | 4,129.56 | 15.53 | 78.23 | -61.93 | -1,795.76 | 1,576.81 | 2,268.22 | 2,174.53 | 93.69 | 24.210 | |
| 4,300.00 | 4,291.33 | 4,228.35 | 4,228.09 | 15.89 | 80.30 | -62.15 | -1,791.99 | 1,576.81 | 2,262.40 | 2,166.27 | 96.13 | 23.535 | |
| 4,400.00 | 4,391.09 | 4,326.61 | 4,326.35 | 16.26 | 82.38 | -62.29 | -1,792.12 | 1,576.81 | 2,259.28 | 2,160.72 | 98.56 | 22.922 | |
| 4,500.00 | 4,490.85 | 4,424.89 | 4,424.62 | 16.62 | 84.45 | -62.44 | -1,792.34 | 1,576.81 | 2,256.24 | 2,155.24 | 101.00 | 22.340 | |
| 4,600.00 | 4,590.62 | 4,523.19 | 4,522.91 | 16.99 | 86.52 | -62.59 | -1,792.66 | 1,576.81 | 2,253.28 | 2,149.85 | 103.43 | 21.785 | |
| 4,700.00 | 4,690.38 | 4,621.50 | 4,621.22 | 17.35 | 88.59 | -62.73 | -1,793.07 | 1,576.81 | 2,250.41 | 2,144.54 | 105.87 | 21.257 | |
| 4,800.00 | 4,790.14 | 4,719.82 | 4,719.53 | 17.71 | 90.67 | -62.88 | -1,793.58 | 1,576.81 | 2,247.62 | 2,139.31 | 108.30 | 20.753 | |

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

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

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

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4,900.00 | 4,889.91 | 4,818.16 | 4,817.87 | 18.08 | 92.74 | -63.02 | -1,794.19 | 1,576.81 | 2,244.90 | 2,134.16 | 110.74 | 20.272 | |
| 5,000.00 | 4,989.67 | 4,916.51 | 4,916.21 | 18.44 | 94.81 | -63.16 | -1,794.90 | 1,576.81 | 2,242.27 | 2,129.09 | 113.18 | 19.812 | |
| 5,100.00 | 5,089.43 | 5,027.92 | 5,027.43 | 18.81 | 97.16 | -63.32 | -1,795.76 | 1,576.81 | 2,239.71 | 2,123.82 | 115.89 | 19.326 | |
| 5,200.00 | 5,189.20 | 5,127.69 | 5,127.20 | 19.17 | 99.28 | -63.48 | -1,795.76 | 1,576.81 | 2,236.63 | 2,118.26 | 118.37 | 18.895 | |
| 5,300.00 | 5,288.96 | 5,227.45 | 5,226.96 | 19.54 | 101.39 | -63.63 | -1,795.76 | 1,576.81 | 2,233.56 | 2,112.72 | 120.85 | 18.483 | |
| 5,400.00 | 5,388.72 | 5,327.21 | 5,326.72 | 19.91 | 103.50 | -63.79 | -1,795.76 | 1,576.81 | 2,230.51 | 2,107.19 | 123.33 | 18.086 | |
| 5,500.00 | 5,488.49 | 5,426.98 | 5,426.49 | 20.27 | 105.62 | -63.95 | -1,795.76 | 1,576.81 | 2,227.48 | 2,101.68 | 125.80 | 17.706 | |
| 5,600.00 | 5,588.25 | 5,526.74 | 5,526.25 | 20.64 | 107.73 | -64.11 | -1,795.76 | 1,576.81 | 2,224.47 | 2,096.18 | 128.28 | 17.340 | |
| 5,700.00 | 5,688.01 | 5,626.51 | 5,626.01 | 21.00 | 109.84 | -64.27 | -1,795.76 | 1,576.81 | 2,221.47 | 2,090.71 | 130.76 | 16.989 | |
| 5,800.00 | 5,787.78 | 5,726.27 | 5,725.78 | 21.37 | 111.96 | -64.43 | -1,795.76 | 1,576.81 | 2,218.49 | 2,085.24 | 133.24 | 16.650 | |
| 5,900.00 | 5,887.54 | 5,826.03 | 5,825.54 | 21.74 | 114.07 | -64.59 | -1,795.76 | 1,576.81 | 2,215.52 | 2,079.80 | 135.72 | 16.324 | |
| 6,000.00 | 5,987.31 | 5,925.80 | 5,925.31 | 22.11 | 116.19 | -64.75 | -1,795.76 | 1,576.81 | 2,212.57 | 2,074.37 | 138.20 | 16.010 | |
| 6,100.00 | 6,087.07 | 6,025.56 | 6,025.07 | 22.47 | 118.30 | -64.91 | -1,795.76 | 1,576.81 | 2,209.65 | 2,068.97 | 140.68 | 15.707 | |
| 6,200.00 | 6,186.83 | 6,125.32 | 6,124.83 | 22.84 | 120.41 | -65.07 | -1,795.76 | 1,576.81 | 2,206.73 | 2,063.57 | 143.16 | 15.414 | |
| 6,300.00 | 6,286.60 | 6,219.00 | 6,218.33 | 23.21 | 122.40 | -65.22 | -1,795.76 | 1,576.81 | 2,203.85 | 2,058.34 | 145.51 | 15.145 | |
| 6,357.33 | 6,343.79 | 6,219.00 | 6,218.33 | 23.42 | 122.40 | -65.22 | -1,795.76 | 1,576.81 | 2,203.10 | 2,057.42 | 145.68 | 15.123 | CC, ES |
| 6,400.00 | 6,386.36 | 6,219.00 | 6,218.33 | 23.58 | 122.40 | -65.22 | -1,795.76 | 1,576.81 | 2,203.52 | 2,057.78 | 145.74 | 15.119 | SF |
| 6,494.00 | 6,480.13 | 6,219.00 | 6,218.33 | 23.92 | 122.40 | -65.22 | -1,795.76 | 1,576.81 | 2,207.34 | 2,061.64 | 145.70 | 15.150 | |
| 6,500.00 | 6,486.12 | 6,219.00 | 6,218.33 | 23.94 | 122.40 | -72.47 | -1,795.76 | 1,576.81 | 2,207.74 | 2,062.05 | 145.69 | 15.154 | |
| 6,550.00 | 6,535.89 | 6,219.00 | 6,218.33 | 24.13 | 122.40 | -107.64 | -1,795.76 | 1,576.81 | 2,213.39 | 2,067.83 | 145.56 | 15.206 | |
| 6,600.00 | 6,585.24 | 6,219.00 | 6,218.33 | 24.31 | 122.40 | -119.32 | -1,795.76 | 1,576.81 | 2,223.11 | 2,077.73 | 145.37 | 15.292 | |
| 6,650.00 | 6,633.88 | 6,219.00 | 6,218.33 | 24.50 | 122.40 | -124.06 | -1,795.76 | 1,576.81 | 2,236.77 | 2,091.63 | 145.14 | 15.411 | |
| 6,700.00 | 6,681.49 | 6,219.00 | 6,218.33 | 24.68 | 122.40 | -126.06 | -1,795.76 | 1,576.81 | 2,254.24 | 2,109.37 | 144.86 | 15.561 | |
| 6,750.00 | 6,727.80 | 6,219.00 | 6,218.33 | 24.86 | 122.40 | -126.59 | -1,795.76 | 1,576.81 | 2,275.30 | 2,130.74 | 144.56 | 15.740 | |
| 6,800.00 | 6,772.51 | 6,219.00 | 6,218.33 | 25.04 | 122.40 | -126.15 | -1,795.76 | 1,576.81 | 2,299.75 | 2,155.50 | 144.24 | 15.944 | |
| 6,850.00 | 6,815.34 | 6,219.00 | 6,218.33 | 25.21 | 122.40 | -124.94 | -1,795.76 | 1,576.81 | 2,327.31 | 2,183.39 | 143.92 | 16.170 | |
| 6,900.00 | 6,856.04 | 6,219.00 | 6,218.33 | 25.39 | 122.40 | -123.05 | -1,795.76 | 1,576.81 | 2,357.72 | 2,214.11 | 143.62 | 16.417 | |
| 6,950.00 | 6,894.35 | 6,219.00 | 6,218.33 | 25.57 | 122.40 | -120.48 | -1,795.76 | 1,576.81 | 2,390.69 | 2,247.35 | 143.33 | 16.679 | |
| 7,000.00 | 6,930.04 | 6,219.00 | 6,218.33 | 25.75 | 122.40 | -117.23 | -1,795.76 | 1,576.81 | 2,425.90 | 2,282.82 | 143.08 | 16.955 | |
| 7,050.00 | 6,962.89 | 6,219.00 | 6,218.33 | 25.93 | 122.40 | -113.26 | -1,795.76 | 1,576.81 | 2,463.06 | 2,320.18 | 142.87 | 17.239 | |
| 7,100.00 | 6,992.69 | 6,219.00 | 6,218.33 | 26.13 | 122.40 | -108.55 | -1,795.76 | 1,576.81 | 2,501.84 | 2,359.13 | 142.72 | 17.530 | |
| 7,150.00 | 7,019.25 | 6,219.00 | 6,218.33 | 26.33 | 122.40 | -103.10 | -1,795.76 | 1,576.81 | 2,541.95 | 2,399.34 | 142.61 | 17.824 | |
| 7,200.00 | 7,042.43 | 6,219.00 | 6,218.33 | 26.55 | 122.40 | -96.97 | -1,795.76 | 1,576.81 | 2,583.08 | 2,440.51 | 142.57 | 18.118 | |
| 7,250.00 | 7,062.07 | 6,219.00 | 6,218.33 | 26.79 | 122.40 | -90.29 | -1,795.76 | 1,576.81 | 2,624.94 | 2,482.35 | 142.58 | 18.410 | |
| 7,300.00 | 7,078.05 | 6,219.00 | 6,218.33 | 27.04 | 122.40 | -83.26 | -1,795.76 | 1,576.81 | 2,667.23 | 2,524.57 | 142.66 | 18.697 | |
| 7,350.00 | 7,090.27 | 6,219.00 | 6,218.33 | 27.30 | 122.40 | -76.16 | -1,795.76 | 1,576.81 | 2,709.68 | 2,566.89 | 142.79 | 18.977 | |
| 7,400.00 | 7,098.66 | 6,219.00 | 6,218.33 | 27.58 | 122.40 | -69.24 | -1,795.76 | 1,576.81 | 2,752.04 | 2,609.06 | 142.98 | 19.248 | |
| 7,450.00 | 7,103.17 | 6,219.00 | 6,218.33 | 27.87 | 122.40 | -62.73 | -1,795.76 | 1,576.81 | 2,794.04 | 2,650.83 | 143.22 | 19.509 | |
| 7,484.86 | 7,104.00 | 6,219.00 | 6,218.33 | 28.08 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 2,823.00 | 2,679.58 | 143.42 | 19.684 | |
| 7,500.00 | 7,103.95 | 6,219.00 | 6,218.33 | 28.17 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 2,835.51 | 2,692.00 | 143.51 | 19.759 | |
| 7,600.00 | 7,103.60 | 6,219.00 | 6,218.33 | 28.83 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 2,918.79 | 2,774.69 | 144.10 | 20.256 | |
| 7,700.00 | 7,103.25 | 6,219.00 | 6,218.33 | 29.56 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 3,003.08 | 2,858.43 | 144.66 | 20.760 | |
| 7,800.00 | 7,102.90 | 6,219.00 | 6,218.33 | 30.35 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 3,088.32 | 2,943.13 | 145.19 | 21.270 | |
| 7,900.00 | 7,102.55 | 6,219.00 | 6,218.33 | 31.21 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 3,174.42 | 3,028.71 | 145.70 | 21.787 | |
| 8,000.00 | 7,102.20 | 6,219.00 | 6,218.33 | 32.13 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 3,261.30 | 3,115.12 | 146.19 | 22.309 | |
| 8,100.00 | 7,101.85 | 6,219.00 | 6,218.33 | 33.10 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 3,348.93 | 3,202.28 | 146.65 | 22.836 | |
| 8,200.00 | 7,101.50 | 6,219.00 | 6,218.33 | 34.11 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 3,437.22 | 3,290.13 | 147.09 | 23.368 | |
| 8,300.00 | 7,101.15 | 6,219.00 | 6,218.33 | 35.17 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 3,526.15 | 3,378.64 | 147.51 | 23.905 | |
| 8,400.00 | 7,100.80 | 6,219.00 | 6,218.33 | 36.27 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 3,615.65 | 3,467.74 | 147.91 | 24.445 | |
| 8,500.00 | 7,100.45 | 6,219.00 | 6,218.33 | 37.41 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 3,705.68 | 3,557.40 | 148.29 | 24.990 | |
| 8,600.00 | 7,100.10 | 6,219.00 | 6,218.33 | 38.58 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 3,796.22 | 3,647.57 | 148.65 | 25.538 | |
| 8,700.00 | 7,099.75 | 6,219.00 | 6,218.33 | 39.78 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 3,887.22 | 3,738.23 | 149.00 | 26.089 | |

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 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

**Survey Program:** 295-A027Ua_INC-ONLY

**Offset Well Error:** 0.00 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Rule Assigned: Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8,800.00 | 7,099.40 | 6,219.00 | 6,218.33 | 41.00 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 3,978.66 | 3,829.33 | 149.33 | 26.644 | |
| 8,900.00 | 7,099.05 | 6,219.00 | 6,218.33 | 42.25 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 4,070.49 | 3,920.85 | 149.64 | 27.201 | |
| 9,000.00 | 7,098.70 | 6,219.00 | 6,218.33 | 43.53 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 4,162.70 | 4,012.76 | 149.94 | 27.762 | |
| 9,100.00 | 7,098.35 | 6,219.00 | 6,218.33 | 44.82 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 4,255.27 | 4,105.03 | 150.23 | 28.324 | |
| 9,200.00 | 7,098.00 | 6,219.00 | 6,218.33 | 46.14 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 4,348.16 | 4,197.65 | 150.51 | 28.889 | |
| 9,300.00 | 7,097.65 | 6,219.00 | 6,218.33 | 47.47 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 4,441.36 | 4,290.58 | 150.78 | 29.457 | |
| 9,400.00 | 7,097.30 | 6,219.00 | 6,218.33 | 48.82 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 4,534.85 | 4,383.82 | 151.03 | 30.026 | |
| 9,500.00 | 7,096.95 | 6,219.00 | 6,218.33 | 50.18 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 4,628.62 | 4,477.34 | 151.28 | 30.597 | |
| 9,600.00 | 7,096.60 | 6,219.00 | 6,218.33 | 51.56 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 4,722.64 | 4,571.12 | 151.51 | 31.170 | |
| 9,700.00 | 7,096.25 | 6,219.00 | 6,218.33 | 52.95 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 4,816.90 | 4,665.16 | 151.74 | 31.744 | |
| 9,800.00 | 7,095.90 | 6,219.00 | 6,218.33 | 54.35 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 4,911.38 | 4,759.42 | 151.96 | 32.320 | |
| 9,900.00 | 7,095.55 | 6,219.00 | 6,218.33 | 55.76 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 5,006.08 | 4,853.91 | 152.17 | 32.898 | |
| 10,000.00 | 7,095.20 | 6,219.00 | 6,218.33 | 57.18 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 5,100.99 | 4,948.61 | 152.37 | 33.477 | |
| 10,100.00 | 7,094.85 | 6,219.00 | 6,218.33 | 58.61 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 5,196.08 | 5,043.51 | 152.57 | 34.057 | |
| 10,200.00 | 7,094.50 | 6,219.00 | 6,218.33 | 60.05 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 5,291.36 | 5,138.60 | 152.76 | 34.638 | |
| 10,300.00 | 7,094.15 | 6,219.00 | 6,218.33 | 61.50 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 5,386.81 | 5,233.86 | 152.95 | 35.220 | |
| 10,400.00 | 7,093.80 | 6,219.00 | 6,218.33 | 62.96 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 5,482.41 | 5,329.29 | 153.12 | 35.804 | |
| 10,500.00 | 7,093.45 | 6,219.00 | 6,218.33 | 64.42 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 5,578.18 | 5,424.88 | 153.30 | 36.388 | |
| 10,600.00 | 7,093.10 | 6,219.00 | 6,218.33 | 65.89 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 5,674.09 | 5,520.62 | 153.47 | 36.973 | |
| 10,700.00 | 7,092.75 | 6,219.00 | 6,218.33 | 67.36 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 5,770.14 | 5,616.50 | 153.63 | 37.558 | |
| 10,800.00 | 7,092.40 | 6,219.00 | 6,218.33 | 68.84 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 5,866.32 | 5,712.53 | 153.79 | 38.145 | |
| 10,900.00 | 7,092.05 | 6,219.00 | 6,218.33 | 70.33 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 5,962.62 | 5,808.68 | 153.95 | 38.732 | |
| 11,000.00 | 7,091.70 | 6,219.00 | 6,218.33 | 71.82 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 6,059.05 | 5,904.95 | 154.10 | 39.320 | |
| 11,100.00 | 7,091.35 | 6,219.00 | 6,218.33 | 73.31 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 6,155.59 | 6,001.34 | 154.24 | 39.908 | |
| 11,200.00 | 7,091.00 | 6,219.00 | 6,218.33 | 74.81 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 6,252.24 | 6,097.85 | 154.39 | 40.497 | |
| 11,300.00 | 7,090.65 | 6,219.00 | 6,218.33 | 76.32 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 6,348.99 | 6,194.46 | 154.53 | 41.086 | |
| 11,400.00 | 7,090.30 | 6,219.00 | 6,218.33 | 77.82 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 6,445.84 | 6,291.17 | 154.67 | 41.676 | |
| 11,500.00 | 7,089.95 | 6,219.00 | 6,218.33 | 79.34 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 6,542.79 | 6,387.99 | 154.80 | 42.266 | |
| 11,600.00 | 7,089.60 | 6,219.00 | 6,218.33 | 80.85 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 6,639.82 | 6,484.89 | 154.93 | 42.856 | |
| 11,700.00 | 7,089.25 | 6,219.00 | 6,218.33 | 82.37 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 6,736.95 | 6,581.88 | 155.06 | 43.447 | |
| 11,800.00 | 7,088.90 | 6,219.00 | 6,218.33 | 83.89 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 6,834.15 | 6,678.96 | 155.19 | 44.038 | |
| 11,900.00 | 7,088.55 | 6,219.00 | 6,218.33 | 85.41 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 6,931.44 | 6,776.13 | 155.31 | 44.629 | |
| 12,000.00 | 7,088.20 | 6,219.00 | 6,218.33 | 86.94 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 7,028.80 | 6,873.37 | 155.44 | 45.220 | |
| 12,100.00 | 7,087.85 | 6,219.00 | 6,218.33 | 88.47 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 7,126.24 | 6,970.68 | 155.56 | 45.812 | |
| 12,200.00 | 7,087.50 | 6,219.00 | 6,218.33 | 90.00 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 7,223.74 | 7,068.07 | 155.67 | 46.403 | |
| 12,300.00 | 7,087.15 | 6,219.00 | 6,218.33 | 91.54 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 7,321.31 | 7,165.52 | 155.79 | 46.995 | |
| 12,400.00 | 7,086.81 | 6,219.00 | 6,218.33 | 93.07 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 7,418.95 | 7,263.05 | 155.90 | 47.587 | |
| 12,500.00 | 7,086.46 | 6,219.00 | 6,218.33 | 94.61 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 7,516.65 | 7,360.63 | 156.02 | 48.179 | |
| 12,600.00 | 7,086.11 | 6,219.00 | 6,218.33 | 96.15 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 7,614.41 | 7,458.28 | 156.13 | 48.770 | |
| 12,700.00 | 7,085.76 | 6,219.00 | 6,218.33 | 97.69 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 7,712.23 | 7,555.99 | 156.24 | 49.362 | |
| 12,800.00 | 7,085.41 | 6,219.00 | 6,218.33 | 99.24 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 7,810.10 | 7,653.75 | 156.35 | 49.954 | |
| 12,900.00 | 7,085.06 | 6,219.00 | 6,218.33 | 100.78 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 7,908.02 | 7,751.57 | 156.45 | 50.546 | |
| 13,000.00 | 7,084.71 | 6,219.00 | 6,218.33 | 102.33 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 8,006.00 | 7,849.44 | 156.56 | 51.138 | |
| 13,100.00 | 7,084.36 | 6,219.00 | 6,218.33 | 103.88 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 8,104.03 | 7,947.36 | 156.66 | 51.729 | |
| 13,200.00 | 7,084.01 | 6,219.00 | 6,218.33 | 105.43 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 8,202.10 | 8,045.33 | 156.77 | 52.321 | |
| 13,300.00 | 7,083.66 | 6,219.00 | 6,218.33 | 106.99 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 8,300.22 | 8,143.35 | 156.87 | 52.912 | |
| 13,400.00 | 7,083.31 | 6,219.00 | 6,218.33 | 108.54 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 8,398.38 | 8,241.41 | 156.97 | 53.503 | |
| 13,500.00 | 7,082.96 | 6,219.00 | 6,218.33 | 110.09 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 8,496.59 | 8,339.52 | 157.07 | 54.094 | |
| 13,600.00 | 7,082.61 | 6,219.00 | 6,218.33 | 111.65 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 8,594.84 | 8,437.67 | 157.17 | 54.685 | |
| 13,700.00 | 7,082.26 | 6,219.00 | 6,218.33 | 113.21 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 8,693.12 | 8,535.86 | 157.27 | 55.276 | |
| 13,800.00 | 7,081.91 | 6,219.00 | 6,218.33 | 114.77 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 8,791.45 | 8,634.09 | 157.37 | 55.866 | |
| 13,900.00 | 7,081.56 | 6,219.00 | 6,218.33 | 116.33 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 8,889.82 | 8,732.35 | 157.46 | 56.456 | |

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

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

**Survey Program:** 295-A027Ua_INC-ONLY

**Rule Assigned:**

**Offset Well Error:** 0.00 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 14,000.00 | 7,081.21 | 6,219.00 | 6,218.33 | 117.89 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 8,988.22 | 8,830.66 | 157.56 | 57.046 | |
| 14,100.00 | 7,080.86 | 6,219.00 | 6,218.33 | 119.45 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 9,086.65 | 8,928.99 | 157.66 | 57.636 | |
| 14,200.00 | 7,080.51 | 6,219.00 | 6,218.33 | 121.02 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 9,185.12 | 9,027.37 | 157.75 | 58.226 | |
| 14,300.00 | 7,080.16 | 6,219.00 | 6,218.33 | 122.58 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 9,283.62 | 9,125.78 | 157.85 | 58.815 | |
| 14,400.00 | 7,079.81 | 6,219.00 | 6,218.33 | 124.15 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 9,382.15 | 9,224.21 | 157.94 | 59.404 | |
| 14,500.00 | 7,079.46 | 6,219.00 | 6,218.33 | 125.71 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 9,480.72 | 9,322.68 | 158.03 | 59.992 | |
| 14,600.00 | 7,079.11 | 6,219.00 | 6,218.33 | 127.28 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 9,579.31 | 9,421.19 | 158.13 | 60.580 | |
| 14,700.00 | 7,078.76 | 6,219.00 | 6,218.33 | 128.85 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 9,677.93 | 9,519.72 | 158.22 | 61.168 | |
| 14,800.00 | 7,078.41 | 6,219.00 | 6,218.33 | 130.42 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 9,776.58 | 9,618.27 | 158.31 | 61.756 | |
| 14,900.00 | 7,078.06 | 6,219.00 | 6,218.33 | 131.98 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 9,875.26 | 9,716.86 | 158.40 | 62.343 | |
| 15,000.00 | 7,077.71 | 6,219.00 | 6,218.33 | 133.55 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 9,973.97 | 9,815.47 | 158.49 | 62.929 | |
| 15,100.00 | 7,077.36 | 6,219.00 | 6,218.33 | 135.13 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 10,072.70 | 9,914.11 | 158.59 | 63.516 | |
| 15,200.00 | 7,077.01 | 6,219.00 | 6,218.33 | 136.70 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 10,171.45 | 10,012.77 | 158.68 | 64.102 | |
| 15,300.00 | 7,076.66 | 6,219.00 | 6,218.33 | 138.27 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 10,270.23 | 10,111.46 | 158.77 | 64.687 | |
| 15,400.00 | 7,076.31 | 6,219.00 | 6,218.33 | 139.84 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 10,369.03 | 10,210.17 | 158.86 | 65.272 | |
| 15,500.00 | 7,075.96 | 6,219.00 | 6,218.33 | 141.42 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 10,467.86 | 10,308.91 | 158.95 | 65.857 | |
| 15,600.00 | 7,075.61 | 6,219.00 | 6,218.33 | 142.99 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 10,566.70 | 10,407.66 | 159.04 | 66.441 | |
| 15,700.00 | 7,075.26 | 6,219.00 | 6,218.33 | 144.57 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 10,665.57 | 10,506.44 | 159.13 | 67.025 | |
| 15,800.00 | 7,074.91 | 6,219.00 | 6,218.33 | 146.14 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 10,764.46 | 10,605.24 | 159.22 | 67.609 | |
| 15,900.00 | 7,074.56 | 6,219.00 | 6,218.33 | 147.72 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 10,863.37 | 10,704.06 | 159.31 | 68.192 | |
| 16,000.00 | 7,074.21 | 6,219.00 | 6,218.33 | 149.29 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 10,962.30 | 10,802.90 | 159.40 | 68.774 | |
| 16,100.00 | 7,073.86 | 6,219.00 | 6,218.33 | 150.87 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 11,061.25 | 10,901.76 | 159.49 | 69.356 | |
| 16,200.00 | 7,073.51 | 6,219.00 | 6,218.33 | 152.45 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 11,160.21 | 11,000.64 | 159.57 | 69.937 | |
| 16,300.00 | 7,073.16 | 6,219.00 | 6,218.33 | 154.03 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 11,259.20 | 11,099.54 | 159.66 | 70.518 | |
| 16,400.00 | 7,072.81 | 6,219.00 | 6,218.33 | 155.60 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 11,358.20 | 11,198.45 | 159.75 | 71.099 | |
| 16,500.00 | 7,072.46 | 6,219.00 | 6,218.33 | 157.18 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 11,457.22 | 11,297.38 | 159.84 | 71.679 | |
| 16,600.00 | 7,072.11 | 6,219.00 | 6,218.33 | 158.76 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 11,556.26 | 11,396.33 | 159.93 | 72.258 | |
| 16,631.96 | 7,072.00 | 6,219.00 | 6,218.33 | 159.27 | 122.40 | -58.51 | -1,795.76 | 1,576.81 | 11,587.92 | 11,427.96 | 159.96 | 72.443 | |

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

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

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Rule Assigned: Distance Between Centres (usft) | Rule Assigned: Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 148.29 | 148.29 | 3.28 | 3.28 | 118.16 | -2,022.37 | 3,778.42 | 4,285.61 | | | | |
| 100.00 | 100.00 | 244.89 | 244.89 | 3.29 | 3.29 | 118.16 | -2,022.77 | 3,778.40 | 4,285.79 | 4,279.21 | 6.57 | 651.987 | |
| 200.00 | 200.00 | 341.18 | 341.18 | 3.34 | 3.30 | 118.17 | -2,023.34 | 3,778.37 | 4,286.04 | 4,279.42 | 6.62 | 646.958 | |
| 300.00 | 300.00 | 437.47 | 437.46 | 3.42 | 3.32 | 118.18 | -2,024.11 | 3,778.34 | 4,286.39 | 4,279.67 | 6.72 | 638.277 | |
| 400.00 | 400.00 | 540.39 | 540.38 | 3.54 | 3.34 | 118.19 | -2,024.80 | 3,778.40 | 4,286.77 | 4,279.92 | 6.84 | 626.319 | |
| 500.00 | 500.00 | 645.20 | 645.19 | 3.69 | 3.34 | 118.18 | -2,024.46 | 3,778.90 | 4,287.03 | 4,280.02 | 7.01 | 611.828 | |
| 600.00 | 599.98 | 788.37 | 788.35 | 3.86 | 3.34 | -91.88 | -2,022.70 | 3,779.23 | 4,286.67 | 4,279.48 | 7.19 | 596.555 | |
| 697.00 | 696.84 | 894.69 | 894.65 | 4.04 | 3.34 | -91.99 | -2,020.56 | 3,779.19 | 4,285.89 | 4,278.51 | 7.37 | 581.237 | |
| 700.00 | 699.84 | 897.75 | 897.71 | 4.05 | 3.34 | -92.00 | -2,020.50 | 3,779.19 | 4,285.86 | 4,278.48 | 7.38 | 580.746 | |
| 800.00 | 799.60 | 987.63 | 987.57 | 4.25 | 3.35 | -92.10 | -2,018.75 | 3,779.20 | 4,285.20 | 4,277.60 | 7.60 | 563.890 | |
| 897.00 | 896.37 | 1,085.90 | 1,085.82 | 4.48 | 3.36 | -92.22 | -2,016.77 | 3,779.41 | 4,284.72 | 4,276.89 | 7.84 | 546.823 | |
| 900.00 | 899.37 | 1,089.13 | 1,089.04 | 4.48 | 3.36 | -91.35 | -2,016.70 | 3,779.42 | 4,284.70 | 4,276.86 | 7.84 | 546.287 | |
| 947.40 | 946.65 | 1,143.68 | 1,143.58 | 4.60 | 3.37 | -77.61 | -2,015.46 | 3,779.51 | 4,283.96 | 4,275.99 | 7.97 | 537.741 | |
| 1,000.00 | 999.13 | 1,192.34 | 1,192.23 | 4.73 | 3.38 | -77.67 | -2,014.46 | 3,779.49 | 4,282.67 | 4,274.56 | 8.11 | 528.306 | |
| 1,100.00 | 1,098.89 | 1,290.28 | 1,290.16 | 4.99 | 3.40 | -77.78 | -2,012.49 | 3,779.64 | 4,280.40 | 4,272.02 | 8.39 | 510.449 | |
| 1,200.00 | 1,198.66 | 1,389.05 | 1,388.90 | 5.27 | 3.43 | -77.89 | -2,010.47 | 3,779.64 | 4,278.00 | 4,269.32 | 8.68 | 492.870 | |
| 1,300.00 | 1,298.42 | 1,499.14 | 1,498.98 | 5.56 | 3.47 | -78.02 | -2,008.34 | 3,779.61 | 4,275.65 | 4,266.66 | 8.99 | 475.632 | |
| 1,400.00 | 1,398.18 | 1,590.61 | 1,590.42 | 5.85 | 3.50 | -78.12 | -2,006.71 | 3,779.46 | 4,273.26 | 4,263.96 | 9.31 | 459.143 | |
| 1,500.00 | 1,497.95 | 1,696.75 | 1,696.54 | 6.16 | 3.55 | -78.24 | -2,004.66 | 3,779.22 | 4,270.76 | 4,261.12 | 9.64 | 443.097 | |
| 1,600.00 | 1,597.71 | 1,804.34 | 1,804.12 | 6.47 | 3.60 | -78.36 | -2,002.51 | 3,779.06 | 4,268.32 | 4,258.34 | 9.98 | 427.719 | |
| 1,700.00 | 1,697.47 | 1,894.33 | 1,894.08 | 6.79 | 3.64 | -78.46 | -2,000.66 | 3,778.90 | 4,265.84 | 4,255.52 | 10.32 | 413.216 | |
| 1,800.00 | 1,797.24 | 2,003.31 | 2,003.04 | 7.11 | 3.70 | -78.59 | -1,998.32 | 3,778.59 | 4,263.24 | 4,252.56 | 10.68 | 399.149 | |
| 1,900.00 | 1,897.00 | 2,118.44 | 2,118.14 | 7.44 | 3.76 | -78.71 | -1,995.91 | 3,777.92 | 4,260.40 | 4,249.36 | 11.05 | 385.603 | |
| 2,000.00 | 1,996.76 | 2,210.35 | 2,210.03 | 7.77 | 3.82 | -78.82 | -1,994.02 | 3,777.31 | 4,257.55 | 4,246.13 | 11.42 | 372.959 | |
| 2,100.00 | 2,096.53 | 2,279.87 | 2,279.54 | 8.11 | 3.86 | -78.90 | -1,992.62 | 3,777.28 | 4,255.25 | 4,243.47 | 11.78 | 361.337 | |
| 2,200.00 | 2,196.29 | 2,375.00 | 2,374.65 | 8.44 | 3.93 | -79.01 | -1,990.78 | 3,777.45 | 4,253.22 | 4,241.07 | 12.15 | 350.101 | |
| 2,300.00 | 2,296.06 | 2,476.39 | 2,476.03 | 8.79 | 4.00 | -79.12 | -1,989.00 | 3,777.55 | 4,251.23 | 4,238.70 | 12.53 | 339.356 | |
| 2,400.00 | 2,395.82 | 2,591.24 | 2,590.86 | 9.13 | 4.08 | -79.25 | -1,987.11 | 3,777.42 | 4,249.11 | 4,236.19 | 12.92 | 328.940 | |
| 2,500.00 | 2,495.58 | 2,690.64 | 2,690.24 | 9.47 | 4.16 | -79.36 | -1,985.40 | 3,777.23 | 4,246.89 | 4,233.59 | 13.31 | 319.168 | |
| 2,600.00 | 2,595.35 | 2,775.00 | 2,774.59 | 9.82 | 4.23 | -79.45 | -1,983.75 | 3,777.37 | 4,244.91 | 4,231.22 | 13.69 | 310.110 | |
| 2,700.00 | 2,695.11 | 2,867.43 | 2,866.99 | 10.17 | 4.30 | -79.56 | -1,981.90 | 3,777.74 | 4,243.14 | 4,229.07 | 14.07 | 301.490 | |
| 2,800.00 | 2,794.87 | 2,961.30 | 2,960.85 | 10.52 | 4.38 | -79.67 | -1,980.12 | 3,778.20 | 4,241.52 | 4,227.06 | 14.46 | 293.303 | |
| 2,900.00 | 2,894.64 | 3,060.07 | 3,059.60 | 10.87 | 4.46 | -79.79 | -1,978.43 | 3,778.64 | 4,239.95 | 4,225.10 | 14.85 | 285.472 | |
| 3,000.00 | 2,994.40 | 3,160.27 | 3,159.79 | 11.23 | 4.55 | -79.90 | -1,976.82 | 3,779.06 | 4,238.42 | 4,223.17 | 15.25 | 277.994 | |
| 3,100.00 | 3,094.16 | 3,256.38 | 3,255.89 | 11.58 | 4.63 | -80.01 | -1,975.46 | 3,779.47 | 4,237.00 | 4,221.36 | 15.64 | 270.912 | |
| 3,200.00 | 3,193.93 | 3,353.96 | 3,353.46 | 11.94 | 4.72 | -80.12 | -1,974.15 | 3,779.90 | 4,235.64 | 4,219.61 | 16.03 | 264.152 | |
| 3,300.00 | 3,293.69 | 3,450.00 | 3,449.49 | 12.29 | 4.81 | -80.22 | -1,973.06 | 3,780.26 | 4,234.32 | 4,217.89 | 16.43 | 257.697 | |
| 3,400.00 | 3,393.45 | 3,554.24 | 3,553.73 | 12.65 | 4.91 | -80.33 | -1,971.74 | 3,780.69 | 4,232.99 | 4,216.16 | 16.83 | 251.477 | |
| 3,500.00 | 3,493.22 | 3,646.97 | 3,646.44 | 13.01 | 5.00 | -80.43 | -1,970.74 | 3,781.04 | 4,231.73 | 4,214.50 | 17.23 | 245.604 | |
| 3,600.00 | 3,592.98 | 3,740.62 | 3,740.09 | 13.37 | 5.08 | -80.53 | -1,969.86 | 3,781.51 | 4,230.66 | 4,213.03 | 17.63 | 240.029 | |
| 3,700.00 | 3,692.74 | 3,842.10 | 3,841.57 | 13.73 | 5.18 | -80.64 | -1,968.95 | 3,782.00 | 4,229.59 | 4,211.56 | 18.03 | 234.645 | |
| 3,800.00 | 3,792.51 | 3,922.99 | 3,922.45 | 14.09 | 5.23 | -80.72 | -1,968.75 | 3,782.45 | 4,228.87 | 4,210.46 | 18.41 | 229.725 | |
| 3,885.44 | 3,877.74 | 3,985.76 | 3,985.22 | 14.39 | 5.23 | -80.77 | -1,969.17 | 3,782.89 | 4,228.68 | 4,209.95 | 18.73 | 225.754 | |
| 3,900.00 | 3,892.27 | 3,997.86 | 3,997.32 | 14.45 | 5.23 | -80.78 | -1,969.29 | 3,782.98 | 4,228.69 | 4,209.90 | 18.79 | 225.085 | |
| 4,000.00 | 3,992.04 | 4,069.14 | 4,068.59 | 14.81 | 5.23 | -80.84 | -1,970.44 | 3,783.75 | 4,229.20 | 4,210.03 | 19.17 | 220.640 | |
| 4,100.00 | 4,091.80 | 4,163.46 | 4,162.88 | 15.17 | 5.22 | -80.91 | -1,972.24 | 3,784.90 | 4,230.01 | 4,210.45 | 19.56 | 216.270 | |
| 4,200.00 | 4,191.56 | 4,259.14 | 4,258.54 | 15.53 | 5.22 | -80.98 | -1,974.11 | 3,786.11 | 4,230.88 | 4,210.93 | 19.95 | 212.035 | |
| 4,300.00 | 4,291.33 | 4,400.35 | 4,399.72 | 15.89 | 5.22 | -81.09 | -1,976.56 | 3,787.63 | 4,231.56 | 4,211.19 | 20.37 | 207.730 | |
| 4,400.00 | 4,391.09 | 4,523.18 | 4,522.53 | 16.26 | 5.21 | -81.19 | -1,977.90 | 3,788.08 | 4,231.27 | 4,210.49 | 20.79 | 203.569 | |
| 4,500.00 | 4,490.85 | 4,635.97 | 4,635.32 | 16.62 | 5.20 | -81.28 | -1,978.99 | 3,788.04 | 4,230.59 | 4,209.39 | 21.20 | 199.551 | |
| 4,600.00 | 4,590.62 | 4,736.20 | 4,735.55 | 16.99 | 5.20 | -81.36 | -1,979.76 | 3,787.93 | 4,229.76 | 4,208.14 | 21.61 | 195.715 | |
| 4,700.00 | 4,690.38 | 4,838.77 | 4,838.12 | 17.35 | 5.19 | -81.44 | -1,980.58 | 3,787.77 | 4,228.91 | 4,206.89 | 22.03 | 192.001 | |

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

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

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

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Rule Assigned: Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4,800.00 | 4,790.14 | 4,933.99 | 4,933.33 | 17.71 | 5.19 | -81.52 | -1,981.42 | 3,787.67 | 4,228.15 | 4,205.71 | 22.44 | 188.450 | |
| 4,900.00 | 4,889.91 | 5,031.31 | 5,030.65 | 18.08 | 5.19 | -81.60 | -1,982.38 | 3,787.55 | 4,227.42 | 4,204.57 | 22.85 | 185.011 | |
| 5,000.00 | 4,989.67 | 5,126.91 | 5,126.24 | 18.44 | 5.20 | -81.67 | -1,983.40 | 3,787.43 | 4,226.74 | 4,203.48 | 23.26 | 181.695 | |
| 5,100.00 | 5,089.43 | 5,225.00 | 5,224.33 | 18.81 | 5.21 | -81.75 | -1,984.45 | 3,787.37 | 4,226.12 | 4,202.44 | 23.68 | 178.481 | |
| 5,200.00 | 5,189.20 | 5,320.55 | 5,319.87 | 19.17 | 5.22 | -81.83 | -1,985.46 | 3,787.37 | 4,225.56 | 4,201.47 | 24.09 | 175.382 | |
| 5,300.00 | 5,288.96 | 5,414.14 | 5,413.45 | 19.54 | 5.24 | -81.90 | -1,986.46 | 3,787.60 | 4,225.24 | 4,200.73 | 24.51 | 172.395 | |
| 5,400.00 | 5,388.72 | 5,508.84 | 5,508.15 | 19.91 | 5.27 | -81.98 | -1,987.51 | 3,787.97 | 4,225.06 | 4,200.14 | 24.93 | 169.498 | |
| 5,500.00 | 5,488.49 | 5,607.52 | 5,606.82 | 20.27 | 5.30 | -82.06 | -1,988.64 | 3,788.41 | 4,224.97 | 4,199.62 | 25.35 | 166.673 | |
| 5,600.00 | 5,588.25 | 5,704.22 | 5,703.50 | 20.64 | 5.33 | -82.13 | -1,990.00 | 3,788.79 | 4,224.94 | 4,199.17 | 25.77 | 163.944 | |
| 5,700.00 | 5,688.01 | 5,827.83 | 5,827.10 | 21.00 | 5.37 | -82.22 | -1,991.95 | 3,788.77 | 4,224.60 | 4,198.40 | 26.21 | 161.202 | |
| 5,800.00 | 5,787.78 | 5,935.38 | 5,934.64 | 21.37 | 5.40 | -82.30 | -1,993.45 | 3,788.39 | 4,223.89 | 4,197.26 | 26.63 | 158.595 | |
| 5,900.00 | 5,887.54 | 6,040.21 | 6,039.47 | 21.74 | 5.43 | -82.38 | -1,994.47 | 3,788.06 | 4,223.06 | 4,196.00 | 27.06 | 156.075 | |
| 6,000.00 | 5,987.31 | 6,141.75 | 6,141.00 | 22.11 | 5.47 | -82.46 | -1,995.41 | 3,787.69 | 4,222.18 | 4,194.70 | 27.48 | 153.641 | |
| 6,100.00 | 6,087.07 | 6,236.58 | 6,235.83 | 22.47 | 5.50 | -82.54 | -1,996.38 | 3,787.33 | 4,221.33 | 4,193.43 | 27.90 | 151.297 | |
| 6,200.00 | 6,186.83 | 6,328.47 | 6,327.71 | 22.84 | 5.54 | -82.61 | -1,997.45 | 3,787.10 | 4,220.66 | 4,192.34 | 28.32 | 149.029 | |
| 6,300.00 | 6,286.60 | 6,425.84 | 6,425.08 | 23.21 | 5.58 | -82.68 | -1,998.56 | 3,786.99 | 4,220.11 | 4,191.36 | 28.75 | 146.809 | |
| 6,400.00 | 6,386.36 | 6,527.15 | 6,526.37 | 23.58 | 5.63 | -82.76 | -1,999.73 | 3,786.98 | 4,219.68 | 4,190.50 | 29.17 | 144.639 | |
| 6,494.00 | 6,480.13 | 6,621.38 | 6,620.60 | 23.92 | 5.68 | -82.84 | -2,000.69 | 3,786.97 | 4,219.22 | 4,189.64 | 29.58 | 142.655 | |
| 6,497.69 | 6,483.81 | 6,625.00 | 6,624.22 | 23.93 | 5.68 | -87.39 | -2,000.72 | 3,786.97 | 4,219.21 | 4,189.62 | 29.59 | 142.579 CC | |
| 6,500.00 | 6,486.12 | 6,627.27 | 6,626.49 | 23.94 | 5.68 | -90.12 | -2,000.74 | 3,786.97 | 4,219.21 | 4,189.61 | 29.60 | 142.532 ES | |
| 6,550.00 | 6,535.89 | 6,684.92 | 6,684.14 | 24.13 | 5.71 | -125.61 | -2,001.24 | 3,786.89 | 4,221.14 | 4,191.32 | 29.82 | 141.550 | |
| 6,600.00 | 6,585.24 | 6,737.65 | 6,736.87 | 24.31 | 5.74 | -137.75 | -2,001.71 | 3,786.76 | 4,226.65 | 4,196.61 | 30.04 | 140.713 | |
| 6,650.00 | 6,633.88 | 6,782.74 | 6,781.96 | 24.50 | 5.76 | -143.11 | -2,002.06 | 3,786.67 | 4,235.77 | 4,205.52 | 30.25 | 140.026 | |
| 6,700.00 | 6,681.49 | 6,832.01 | 6,831.22 | 24.68 | 5.79 | -145.89 | -2,002.46 | 3,786.54 | 4,248.41 | 4,217.95 | 30.46 | 139.462 | |
| 6,750.00 | 6,727.80 | 6,880.76 | 6,879.98 | 24.86 | 5.82 | -147.39 | -2,002.91 | 3,786.40 | 4,264.54 | 4,233.87 | 30.67 | 139.030 | |
| 6,800.00 | 6,772.51 | 6,925.00 | 6,924.21 | 25.04 | 5.84 | -148.12 | -2,003.30 | 3,786.26 | 4,284.05 | 4,253.17 | 30.88 | 138.742 | |
| 6,850.00 | 6,815.34 | 6,964.73 | 6,963.94 | 25.21 | 5.86 | -148.29 | -2,003.68 | 3,786.16 | 4,306.86 | 4,275.79 | 31.08 | 138.594 | |
| 6,900.00 | 6,856.04 | 7,003.64 | 7,002.84 | 25.39 | 5.89 | -148.03 | -2,004.03 | 3,786.07 | 4,332.83 | 4,301.57 | 31.27 | 138.576 SF | |
| 6,950.00 | 6,894.35 | 7,040.43 | 7,039.64 | 25.57 | 5.91 | -147.36 | -2,004.35 | 3,786.02 | 4,361.82 | 4,330.37 | 31.45 | 138.685 | |
| 7,000.00 | 6,930.04 | 7,074.01 | 7,073.21 | 25.75 | 5.93 | -146.29 | -2,004.64 | 3,785.99 | 4,393.64 | 4,362.01 | 31.63 | 138.922 | |
| 7,050.00 | 6,962.89 | 7,107.17 | 7,106.37 | 25.93 | 5.95 | -144.78 | -2,004.91 | 3,785.96 | 4,428.10 | 4,396.30 | 31.79 | 139.274 | |
| 7,100.00 | 6,992.69 | 7,135.36 | 7,134.56 | 26.13 | 5.97 | -142.73 | -2,005.14 | 3,785.95 | 4,464.99 | 4,433.04 | 31.95 | 139.747 | |
| 7,150.00 | 7,019.25 | 7,159.48 | 7,158.68 | 26.33 | 5.98 | -140.04 | -2,005.35 | 3,785.95 | 4,504.09 | 4,471.99 | 32.10 | 140.333 | |
| 7,200.00 | 7,042.43 | 7,179.27 | 7,178.47 | 26.55 | 6.00 | -136.53 | -2,005.52 | 3,785.96 | 4,545.18 | 4,512.95 | 32.23 | 141.026 | |
| 7,250.00 | 7,062.07 | 7,201.04 | 7,200.24 | 26.79 | 6.01 | -132.07 | -2,005.72 | 3,785.98 | 4,587.97 | 4,555.62 | 32.36 | 141.798 | |
| 7,300.00 | 7,078.05 | 7,213.63 | 7,212.83 | 27.04 | 6.02 | -126.17 | -2,005.84 | 3,785.98 | 4,632.23 | 4,599.76 | 32.47 | 142.676 | |
| 7,350.00 | 7,090.27 | 7,225.00 | 7,224.20 | 27.30 | 6.03 | -118.63 | -2,005.94 | 3,786.00 | 4,677.66 | 4,645.10 | 32.57 | 143.625 | |
| 7,400.00 | 7,098.66 | 7,230.64 | 7,229.84 | 27.58 | 6.03 | -109.03 | -2,005.99 | 3,786.01 | 4,724.00 | 4,691.34 | 32.66 | 144.648 | |
| 7,450.00 | 7,103.17 | 7,234.56 | 7,233.76 | 27.87 | 6.03 | -97.48 | -2,006.03 | 3,786.02 | 4,770.94 | 4,738.20 | 32.74 | 145.721 | |
| 7,484.86 | 7,104.00 | 7,235.24 | 7,234.44 | 28.08 | 6.03 | -88.55 | -2,006.03 | 3,786.02 | 4,803.87 | 4,771.07 | 32.79 | 146.494 | |
| 7,500.00 | 7,103.95 | 7,235.16 | 7,234.36 | 28.17 | 6.03 | -88.55 | -2,006.03 | 3,786.02 | 4,818.19 | 4,785.38 | 32.81 | 146.834 | |
| 7,600.00 | 7,103.60 | 7,234.67 | 7,233.86 | 28.83 | 6.03 | -88.53 | -2,006.03 | 3,786.02 | 4,912.92 | 4,879.96 | 32.96 | 149.069 | |
| 7,700.00 | 7,103.25 | 7,234.17 | 7,233.37 | 29.56 | 6.03 | -88.51 | -2,006.02 | 3,786.02 | 5,007.84 | 4,974.74 | 33.10 | 151.282 | |
| 7,800.00 | 7,102.90 | 7,233.67 | 7,232.87 | 30.35 | 6.03 | -88.49 | -2,006.02 | 3,786.02 | 5,102.97 | 5,069.72 | 33.25 | 153.475 | |
| 7,900.00 | 7,102.55 | 7,233.18 | 7,232.37 | 31.21 | 6.03 | -88.47 | -2,006.01 | 3,786.02 | 5,198.27 | 5,164.88 | 33.40 | 155.651 | |
| 8,000.00 | 7,102.20 | 7,232.68 | 7,231.88 | 32.13 | 6.03 | -88.46 | -2,006.01 | 3,786.02 | 5,293.75 | 5,260.21 | 33.55 | 157.809 | |
| 8,100.00 | 7,101.85 | 7,232.19 | 7,231.39 | 33.10 | 6.03 | -88.44 | -2,006.00 | 3,786.02 | 5,389.40 | 5,355.70 | 33.69 | 159.953 | |
| 8,200.00 | 7,101.50 | 7,231.70 | 7,230.89 | 34.11 | 6.03 | -88.42 | -2,006.00 | 3,786.01 | 5,485.20 | 5,451.35 | 33.84 | 162.083 | |
| 8,300.00 | 7,101.15 | 7,231.21 | 7,230.40 | 35.17 | 6.03 | -88.40 | -2,006.00 | 3,786.01 | 5,581.14 | 5,547.15 | 33.99 | 164.201 | |
| 8,400.00 | 7,100.80 | 7,230.71 | 7,229.91 | 36.27 | 6.03 | -88.38 | -2,005.99 | 3,786.01 | 5,677.23 | 5,643.09 | 34.14 | 166.306 | |
| 8,500.00 | 7,100.45 | 7,230.22 | 7,229.42 | 37.41 | 6.03 | -88.37 | -2,005.99 | 3,786.01 | 5,773.45 | 5,739.16 | 34.28 | 168.401 | |
| 8,600.00 | 7,100.10 | 7,229.74 | 7,228.93 | 38.58 | 6.03 | -88.35 | -2,005.98 | 3,786.01 | 5,869.79 | 5,835.36 | 34.43 | 170.487 | |

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 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

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

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Rule Assigned: Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8,700.00 | 7,099.75 | 7,229.25 | 7,228.45 | 39.78 | 6.03 | -88.33 | -2,005.98 | 3,786.01 | 5,966.26 | 5,931.68 | 34.57 | 172.562 | |
| 8,800.00 | 7,099.40 | 7,228.76 | 7,227.96 | 41.00 | 6.03 | -88.31 | -2,005.97 | 3,786.01 | 6,062.84 | 6,028.12 | 34.72 | 174.629 | |
| 8,900.00 | 7,099.05 | 7,228.28 | 7,227.47 | 42.25 | 6.03 | -88.29 | -2,005.97 | 3,786.01 | 6,159.53 | 6,124.67 | 34.86 | 176.688 | |
| 9,000.00 | 7,098.70 | 7,227.79 | 7,226.99 | 43.53 | 6.03 | -88.28 | -2,005.97 | 3,786.01 | 6,256.32 | 6,221.32 | 35.00 | 178.740 | |
| 9,100.00 | 7,098.35 | 7,227.31 | 7,226.50 | 44.82 | 6.03 | -88.26 | -2,005.96 | 3,786.01 | 6,353.21 | 6,318.07 | 35.14 | 180.783 | |
| 9,200.00 | 7,098.00 | 7,226.82 | 7,226.02 | 46.14 | 6.03 | -88.24 | -2,005.96 | 3,786.00 | 6,450.20 | 6,414.92 | 35.28 | 182.820 | |
| 9,300.00 | 7,097.65 | 7,225.00 | 7,224.20 | 47.47 | 6.03 | -88.17 | -2,005.94 | 3,786.00 | 6,547.28 | 6,511.86 | 35.42 | 184.856 | |
| 9,400.00 | 7,097.30 | 7,225.00 | 7,224.20 | 48.82 | 6.03 | -88.17 | -2,005.94 | 3,786.00 | 6,644.44 | 6,608.89 | 35.55 | 186.878 | |
| 9,500.00 | 7,096.95 | 7,225.00 | 7,224.20 | 50.18 | 6.03 | -88.17 | -2,005.94 | 3,786.00 | 6,741.69 | 6,706.00 | 35.69 | 188.894 | |
| 9,600.00 | 7,096.60 | 7,225.00 | 7,224.20 | 51.56 | 6.03 | -88.17 | -2,005.94 | 3,786.00 | 6,839.02 | 6,803.19 | 35.82 | 190.904 | |
| 9,700.00 | 7,096.25 | 7,225.00 | 7,224.20 | 52.95 | 6.03 | -88.17 | -2,005.94 | 3,786.00 | 6,936.42 | 6,900.46 | 35.96 | 192.908 | |
| 9,800.00 | 7,095.90 | 7,225.00 | 7,224.20 | 54.35 | 6.03 | -88.17 | -2,005.94 | 3,786.00 | 7,033.89 | 6,997.80 | 36.09 | 194.906 | |
| 9,900.00 | 7,095.55 | 7,225.00 | 7,224.20 | 55.76 | 6.03 | -88.17 | -2,005.94 | 3,786.00 | 7,131.44 | 7,095.22 | 36.22 | 196.899 | |
| 10,000.00 | 7,095.20 | 7,225.00 | 7,224.20 | 57.18 | 6.03 | -88.17 | -2,005.94 | 3,786.00 | 7,229.05 | 7,192.70 | 36.35 | 198.886 | |
| 10,100.00 | 7,094.85 | 7,225.00 | 7,224.20 | 58.61 | 6.03 | -88.17 | -2,005.94 | 3,786.00 | 7,326.73 | 7,290.25 | 36.48 | 200.868 | |
| 10,200.00 | 7,094.50 | 7,225.00 | 7,224.20 | 60.05 | 6.03 | -88.17 | -2,005.94 | 3,786.00 | 7,424.47 | 7,387.87 | 36.60 | 202.844 | |
| 10,300.00 | 7,094.15 | 7,225.00 | 7,224.20 | 61.50 | 6.03 | -88.17 | -2,005.94 | 3,786.00 | 7,522.27 | 7,485.54 | 36.73 | 204.816 | |
| 10,400.00 | 7,093.80 | 7,225.00 | 7,224.20 | 62.96 | 6.03 | -88.17 | -2,005.94 | 3,786.00 | 7,620.12 | 7,583.27 | 36.85 | 206.782 | |
| 10,500.00 | 7,093.45 | 7,225.00 | 7,224.20 | 64.42 | 6.03 | -88.17 | -2,005.94 | 3,786.00 | 7,718.03 | 7,681.06 | 36.97 | 208.743 | |
| 10,600.00 | 7,093.10 | 7,225.00 | 7,224.20 | 65.89 | 6.03 | -88.17 | -2,005.94 | 3,786.00 | 7,815.99 | 7,778.90 | 37.10 | 210.698 | |
| 10,700.00 | 7,092.75 | 7,220.87 | 7,220.07 | 67.36 | 6.03 | -88.02 | -2,005.91 | 3,785.99 | 7,914.01 | 7,876.79 | 37.21 | 212.668 | |
| 10,800.00 | 7,092.40 | 7,220.52 | 7,219.72 | 68.84 | 6.02 | -88.01 | -2,005.90 | 3,785.99 | 8,012.07 | 7,974.74 | 37.33 | 214.615 | |
| 10,900.00 | 7,092.05 | 7,220.18 | 7,219.38 | 70.33 | 6.02 | -88.00 | -2,005.90 | 3,785.99 | 8,110.18 | 8,072.73 | 37.45 | 216.557 | |
| 11,000.00 | 7,091.70 | 7,219.84 | 7,219.04 | 71.82 | 6.02 | -87.98 | -2,005.90 | 3,785.99 | 8,208.34 | 8,170.77 | 37.57 | 218.494 | |
| 11,100.00 | 7,091.35 | 7,219.50 | 7,218.70 | 73.31 | 6.02 | -87.97 | -2,005.89 | 3,785.99 | 8,306.54 | 8,268.85 | 37.68 | 220.426 | |
| 11,200.00 | 7,091.00 | 7,219.17 | 7,218.37 | 74.81 | 6.02 | -87.96 | -2,005.89 | 3,785.99 | 8,404.78 | 8,366.98 | 37.80 | 222.352 | |
| 11,300.00 | 7,090.65 | 7,218.84 | 7,218.04 | 76.32 | 6.02 | -87.95 | -2,005.89 | 3,785.99 | 8,503.06 | 8,465.15 | 37.91 | 224.273 | |
| 11,400.00 | 7,090.30 | 7,218.52 | 7,217.71 | 77.82 | 6.02 | -87.94 | -2,005.89 | 3,785.99 | 8,601.39 | 8,563.36 | 38.03 | 226.189 | |
| 11,500.00 | 7,089.95 | 7,218.19 | 7,217.39 | 79.34 | 6.02 | -87.92 | -2,005.88 | 3,785.99 | 8,699.75 | 8,661.61 | 38.14 | 228.100 | |
| 11,600.00 | 7,089.60 | 7,217.87 | 7,217.07 | 80.85 | 6.02 | -87.91 | -2,005.88 | 3,785.99 | 8,798.14 | 8,759.89 | 38.25 | 230.005 | |
| 11,700.00 | 7,089.25 | 7,217.55 | 7,216.75 | 82.37 | 6.02 | -87.90 | -2,005.88 | 3,785.99 | 8,896.58 | 8,858.21 | 38.36 | 231.905 | |
| 11,800.00 | 7,088.90 | 7,217.24 | 7,216.44 | 83.89 | 6.02 | -87.89 | -2,005.87 | 3,785.99 | 8,995.05 | 8,956.57 | 38.47 | 233.800 | |
| 11,900.00 | 7,088.55 | 7,216.93 | 7,216.12 | 85.41 | 6.02 | -87.88 | -2,005.87 | 3,785.99 | 9,093.55 | 9,054.96 | 38.58 | 235.689 | |
| 12,000.00 | 7,088.20 | 7,216.62 | 7,215.82 | 86.94 | 6.02 | -87.87 | -2,005.87 | 3,785.99 | 9,192.08 | 9,153.39 | 38.69 | 237.573 | |
| 12,100.00 | 7,087.85 | 7,216.31 | 7,215.51 | 88.47 | 6.02 | -87.85 | -2,005.87 | 3,785.99 | 9,290.65 | 9,251.85 | 38.80 | 239.451 | |
| 12,200.00 | 7,087.50 | 7,216.01 | 7,215.21 | 90.00 | 6.02 | -87.84 | -2,005.86 | 3,785.99 | 9,389.24 | 9,350.34 | 38.91 | 241.324 | |
| 12,300.00 | 7,087.15 | 7,215.71 | 7,214.91 | 91.54 | 6.02 | -87.83 | -2,005.86 | 3,785.99 | 9,487.87 | 9,448.85 | 39.01 | 243.191 | |
| 12,400.00 | 7,086.81 | 7,215.41 | 7,214.61 | 93.07 | 6.02 | -87.82 | -2,005.86 | 3,785.99 | 9,586.52 | 9,547.40 | 39.12 | 245.052 | |
| 12,500.00 | 7,086.46 | 7,215.12 | 7,214.31 | 94.61 | 6.02 | -87.81 | -2,005.86 | 3,785.99 | 9,685.20 | 9,645.98 | 39.23 | 246.908 | |
| 12,600.00 | 7,086.11 | 7,214.82 | 7,214.02 | 96.15 | 6.02 | -87.80 | -2,005.85 | 3,785.99 | 9,783.91 | 9,744.58 | 39.33 | 248.758 | |
| 12,700.00 | 7,085.76 | 7,214.53 | 7,213.73 | 97.69 | 6.02 | -87.79 | -2,005.85 | 3,785.98 | 9,882.64 | 9,843.21 | 39.44 | 250.602 | |
| 12,800.00 | 7,085.41 | 7,214.25 | 7,213.44 | 99.24 | 6.02 | -87.78 | -2,005.85 | 3,785.98 | 9,981.40 | 9,941.86 | 39.54 | 252.441 | |
| 12,900.00 | 7,085.06 | 7,213.96 | 7,213.16 | 100.78 | 6.02 | -87.77 | -2,005.84 | 3,785.98 | 10,080.19 | 10,040.54 | 39.64 | 254.274 | |
| 13,000.00 | 7,084.71 | 7,213.68 | 7,212.88 | 102.33 | 6.02 | -87.76 | -2,005.84 | 3,785.98 | 10,178.99 | 10,139.25 | 39.75 | 256.101 | |
| 13,100.00 | 7,084.36 | 7,213.40 | 7,212.60 | 103.88 | 6.02 | -87.75 | -2,005.84 | 3,785.98 | 10,277.82 | 10,237.98 | 39.85 | 257.921 | |
| 13,200.00 | 7,084.01 | 7,213.12 | 7,212.32 | 105.43 | 6.02 | -87.74 | -2,005.84 | 3,785.98 | 10,376.68 | 10,336.73 | 39.95 | 259.736 | |
| 13,300.00 | 7,083.66 | 7,212.85 | 7,212.05 | 106.99 | 6.02 | -87.73 | -2,005.83 | 3,785.98 | 10,475.55 | 10,435.50 | 40.05 | 261.545 | |
| 13,400.00 | 7,083.31 | 7,212.58 | 7,211.77 | 108.54 | 6.02 | -87.72 | -2,005.83 | 3,785.98 | 10,574.45 | 10,534.29 | 40.15 | 263.348 | |
| 13,500.00 | 7,082.96 | 7,212.31 | 7,211.50 | 110.09 | 6.02 | -87.71 | -2,005.83 | 3,785.98 | 10,673.36 | 10,633.11 | 40.25 | 265.145 | |
| 13,600.00 | 7,082.61 | 7,212.04 | 7,211.24 | 111.65 | 6.02 | -87.70 | -2,005.83 | 3,785.98 | 10,772.30 | 10,731.94 | 40.36 | 266.936 | |
| 13,700.00 | 7,082.26 | 7,211.77 | 7,210.97 | 113.21 | 6.02 | -87.69 | -2,005.82 | 3,785.98 | 10,871.25 | 10,830.80 | 40.46 | 268.720 | |
| 13,800.00 | 7,081.91 | 7,211.51 | 7,210.71 | 114.77 | 6.02 | -87.68 | -2,005.82 | 3,785.98 | 10,970.23 | 10,929.67 | 40.56 | 270.499 | |

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

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

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

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Rule Assigned: Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13,900.00 | 7,081.56 | 7,211.25 | 7,210.45 | 116.33 | 6.02 | -87.67 | -2,005.82 | 3,785.98 | 11,069.22 | 11,028.57 | 40.66 | 272.271 | |
| 14,000.00 | 7,081.21 | 7,210.99 | 7,210.19 | 117.89 | 6.02 | -87.66 | -2,005.82 | 3,785.98 | 11,168.23 | 11,127.48 | 40.75 | 274.037 | |
| 14,100.00 | 7,080.86 | 7,210.74 | 7,209.93 | 119.45 | 6.02 | -87.65 | -2,005.82 | 3,785.98 | 11,267.26 | 11,226.41 | 40.85 | 275.797 | |
| 14,200.00 | 7,080.51 | 7,210.48 | 7,209.68 | 121.02 | 6.02 | -87.64 | -2,005.81 | 3,785.98 | 11,366.31 | 11,325.35 | 40.95 | 277.550 | |
| 14,300.00 | 7,080.16 | 7,210.23 | 7,209.43 | 122.58 | 6.02 | -87.63 | -2,005.81 | 3,785.98 | 11,465.37 | 11,424.32 | 41.05 | 279.297 | |
| 14,400.00 | 7,079.81 | 7,209.98 | 7,209.18 | 124.15 | 6.02 | -87.62 | -2,005.81 | 3,785.98 | 11,564.45 | 11,523.30 | 41.15 | 281.037 | |
| 14,500.00 | 7,079.46 | 7,209.73 | 7,208.93 | 125.71 | 6.02 | -87.61 | -2,005.81 | 3,785.98 | 11,663.54 | 11,622.29 | 41.25 | 282.772 | |
| 14,600.00 | 7,079.11 | 7,209.49 | 7,208.68 | 127.28 | 6.02 | -87.60 | -2,005.80 | 3,785.98 | 11,762.65 | 11,721.30 | 41.35 | 284.499 | |
| 14,700.00 | 7,078.76 | 7,209.24 | 7,208.44 | 128.85 | 6.02 | -87.60 | -2,005.80 | 3,785.98 | 11,861.77 | 11,820.33 | 41.44 | 286.221 | |
| 14,800.00 | 7,078.41 | 7,209.00 | 7,208.20 | 130.42 | 6.02 | -87.59 | -2,005.80 | 3,785.98 | 11,960.91 | 11,919.37 | 41.54 | 287.935 | |
| 14,900.00 | 7,078.06 | 7,208.76 | 7,207.96 | 131.98 | 6.02 | -87.58 | -2,005.80 | 3,785.98 | 12,060.07 | 12,018.43 | 41.64 | 289.644 | |
| 15,000.00 | 7,077.71 | 7,208.52 | 7,207.72 | 133.55 | 6.02 | -87.57 | -2,005.79 | 3,785.98 | 12,159.23 | 12,117.50 | 41.73 | 291.345 | |
| 15,100.00 | 7,077.36 | 7,208.29 | 7,207.48 | 135.13 | 6.02 | -87.56 | -2,005.79 | 3,785.98 | 12,258.41 | 12,216.58 | 41.83 | 293.040 | |
| 15,200.00 | 7,077.01 | 7,208.05 | 7,207.25 | 136.70 | 6.02 | -87.55 | -2,005.79 | 3,785.98 | 12,357.61 | 12,315.68 | 41.93 | 294.729 | |
| 15,300.00 | 7,076.66 | 7,207.82 | 7,207.02 | 138.27 | 6.02 | -87.54 | -2,005.79 | 3,785.98 | 12,456.81 | 12,414.79 | 42.03 | 296.411 | |
| 15,400.00 | 7,076.31 | 7,207.59 | 7,206.79 | 139.84 | 6.02 | -87.53 | -2,005.79 | 3,785.98 | 12,556.03 | 12,513.91 | 42.12 | 298.086 | |
| 15,500.00 | 7,075.96 | 7,207.36 | 7,206.56 | 141.42 | 6.02 | -87.53 | -2,005.78 | 3,785.98 | 12,655.26 | 12,613.04 | 42.22 | 299.754 | |
| 15,600.00 | 7,075.61 | 7,207.13 | 7,206.33 | 142.99 | 6.02 | -87.52 | -2,005.78 | 3,785.98 | 12,754.51 | 12,712.19 | 42.32 | 301.416 | |
| 15,700.00 | 7,075.26 | 7,206.91 | 7,206.11 | 144.57 | 6.02 | -87.51 | -2,005.78 | 3,785.98 | 12,853.76 | 12,811.35 | 42.41 | 303.071 | |
| 15,800.00 | 7,074.91 | 7,206.69 | 7,205.88 | 146.14 | 6.02 | -87.50 | -2,005.78 | 3,785.98 | 12,953.03 | 12,910.52 | 42.51 | 304.720 | |
| 15,900.00 | 7,074.56 | 7,206.46 | 7,205.66 | 147.72 | 6.02 | -87.49 | -2,005.78 | 3,785.98 | 13,052.30 | 13,009.70 | 42.60 | 306.362 | |
| 16,000.00 | 7,074.21 | 7,206.25 | 7,205.44 | 149.29 | 6.02 | -87.49 | -2,005.77 | 3,785.98 | 13,151.59 | 13,108.89 | 42.70 | 307.997 | |
| 16,100.00 | 7,073.86 | 7,206.03 | 7,205.23 | 150.87 | 6.02 | -87.48 | -2,005.77 | 3,785.98 | 13,250.89 | 13,208.10 | 42.80 | 309.625 | |
| 16,200.00 | 7,073.51 | 7,200.00 | 7,199.20 | 152.45 | 6.01 | -87.26 | -2,005.71 | 3,785.98 | 13,350.20 | 13,307.32 | 42.89 | 311.281 | |
| 16,300.00 | 7,073.16 | 7,200.00 | 7,199.20 | 154.03 | 6.01 | -87.26 | -2,005.71 | 3,785.98 | 13,449.52 | 13,406.54 | 42.98 | 312.894 | |
| 16,400.00 | 7,072.81 | 7,200.00 | 7,199.20 | 155.60 | 6.01 | -87.26 | -2,005.71 | 3,785.98 | 13,548.85 | 13,505.77 | 43.08 | 314.501 | |
| 16,500.00 | 7,072.46 | 7,200.00 | 7,199.20 | 157.18 | 6.01 | -87.26 | -2,005.71 | 3,785.98 | 13,648.19 | 13,605.02 | 43.18 | 316.101 | |
| 16,600.00 | 7,072.11 | 7,200.00 | 7,199.20 | 158.76 | 6.01 | -87.26 | -2,005.71 | 3,785.98 | 13,747.54 | 13,704.27 | 43.27 | 317.694 | |
| 16,631.96 | 7,072.00 | 7,200.00 | 7,199.20 | 159.27 | 6.01 | -87.26 | -2,005.71 | 3,785.98 | 13,779.30 | 13,735.99 | 43.30 | 318.202 | |

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

**Survey Program:** 97-A027Ua_INC-ONLY

**Rule Assigned:**

**Offset Well Error:** 3.28 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 3.28 | 3.28 | -95.06 | -823.06 | -9,302.30 | 9,338.66 | | | | |
| 100.00 | 100.00 | 81.00 | 81.00 | 3.29 | 3.58 | -95.06 | -823.06 | -9,302.30 | 9,338.64 | 9,331.77 | 6.87 | 1,359.377 | |
| 200.00 | 200.00 | 181.00 | 181.00 | 3.34 | 4.60 | -95.06 | -823.06 | -9,302.30 | 9,338.64 | 9,330.70 | 7.94 | 1,175.991 | |
| 212.34 | 212.34 | 193.27 | 193.27 | 3.34 | 4.76 | -95.06 | -822.96 | -9,302.30 | 9,338.64 | 9,330.53 | 8.11 | 1,151.884 | |
| 300.00 | 300.00 | 279.25 | 279.25 | 3.42 | 5.98 | -95.06 | -823.05 | -9,302.30 | 9,338.64 | 9,329.24 | 9.40 | 993.270 | |
| 400.00 | 400.00 | 381.01 | 381.00 | 3.54 | 7.66 | -95.06 | -823.06 | -9,302.30 | 9,338.64 | 9,327.45 | 11.20 | 834.054 | |
| 500.00 | 500.00 | 481.01 | 481.00 | 3.69 | 9.52 | -95.06 | -823.06 | -9,302.30 | 9,338.64 | 9,325.44 | 13.21 | 707.174 | |
| 600.00 | 599.98 | 580.99 | 580.98 | 3.86 | 11.43 | 54.97 | -823.06 | -9,302.30 | 9,337.64 | 9,322.36 | 15.29 | 610.869 | |
| 697.00 | 696.84 | 676.69 | 676.68 | 4.04 | 13.29 | 55.05 | -822.29 | -9,302.30 | 9,334.69 | 9,317.37 | 17.32 | 538.818 | |
| 700.00 | 699.84 | 679.62 | 679.61 | 4.05 | 13.35 | 55.05 | -822.30 | -9,302.30 | 9,334.57 | 9,317.18 | 17.39 | 536.840 | |
| 800.00 | 799.60 | 777.30 | 777.28 | 4.25 | 15.26 | 55.08 | -822.57 | -9,302.30 | 9,330.66 | 9,311.14 | 19.51 | 478.201 | |
| 897.00 | 896.37 | 877.44 | 877.37 | 4.48 | 17.25 | 55.11 | -823.06 | -9,302.30 | 9,326.88 | 9,305.15 | 21.73 | 429.259 | |
| 900.00 | 899.37 | 880.43 | 880.37 | 4.48 | 17.32 | 55.98 | -823.06 | -9,302.30 | 9,326.76 | 9,304.96 | 21.80 | 427.806 | |
| 947.40 | 946.65 | 927.72 | 927.65 | 4.60 | 18.37 | 69.82 | -823.06 | -9,302.30 | 9,325.29 | 9,302.32 | 22.97 | 406.047 | |
| 1,000.00 | 999.13 | 980.20 | 980.13 | 4.73 | 19.54 | 69.84 | -823.06 | -9,302.30 | 9,324.04 | 9,299.77 | 24.27 | 384.255 | |
| 1,100.00 | 1,098.89 | 1,079.91 | 1,079.84 | 4.99 | 21.76 | 69.88 | -822.15 | -9,302.30 | 9,321.59 | 9,294.84 | 26.75 | 348.455 | |
| 1,200.00 | 1,198.66 | 1,176.51 | 1,176.43 | 5.27 | 23.92 | 69.92 | -822.35 | -9,302.30 | 9,319.24 | 9,290.05 | 29.19 | 319.308 | |
| 1,300.00 | 1,298.42 | 1,273.16 | 1,273.08 | 5.56 | 26.09 | 69.95 | -822.94 | -9,302.30 | 9,316.93 | 9,285.29 | 31.64 | 294.499 | |
| 1,400.00 | 1,398.18 | 1,379.35 | 1,379.18 | 5.85 | 28.42 | 70.00 | -823.06 | -9,302.30 | 9,314.58 | 9,280.31 | 34.27 | 271.839 | |
| 1,500.00 | 1,497.95 | 1,479.12 | 1,478.95 | 6.16 | 30.61 | 70.03 | -823.06 | -9,302.30 | 9,312.22 | 9,275.47 | 36.76 | 253.352 | |
| 1,600.00 | 1,597.71 | 1,575.41 | 1,575.22 | 6.47 | 32.72 | 70.08 | -821.84 | -9,302.30 | 9,309.77 | 9,270.59 | 39.18 | 237.616 | |
| 1,700.00 | 1,697.47 | 1,670.84 | 1,670.64 | 6.79 | 34.81 | 70.11 | -822.55 | -9,302.30 | 9,307.49 | 9,265.90 | 41.59 | 223.780 | |
| 1,800.00 | 1,797.24 | 1,778.49 | 1,778.24 | 7.11 | 37.02 | 70.15 | -823.06 | -9,302.30 | 9,305.19 | 9,261.06 | 44.12 | 210.887 | |
| 1,900.00 | 1,897.00 | 1,878.26 | 1,878.00 | 7.44 | 38.98 | 70.19 | -823.06 | -9,302.30 | 9,302.85 | 9,256.45 | 46.40 | 200.478 | |
| 2,000.00 | 1,996.76 | 1,978.02 | 1,977.76 | 7.77 | 40.93 | 70.23 | -823.06 | -9,302.30 | 9,300.52 | 9,251.83 | 48.69 | 191.026 | |
| 2,100.00 | 2,096.53 | 2,077.78 | 2,077.53 | 8.11 | 42.88 | 70.27 | -823.06 | -9,302.30 | 9,298.19 | 9,247.22 | 50.98 | 182.406 | |
| 2,200.00 | 2,196.29 | 2,177.55 | 2,177.29 | 8.44 | 44.84 | 70.31 | -823.06 | -9,302.30 | 9,295.87 | 9,242.60 | 53.27 | 174.515 | |
| 2,300.00 | 2,296.06 | 2,276.90 | 2,276.63 | 8.79 | 46.79 | 70.36 | -821.38 | -9,302.30 | 9,293.42 | 9,237.87 | 55.55 | 167.287 | |
| 2,400.00 | 2,395.82 | 2,375.79 | 2,375.52 | 9.13 | 48.72 | 70.40 | -821.50 | -9,302.30 | 9,291.12 | 9,233.28 | 57.83 | 160.651 | |
| 2,500.00 | 2,495.58 | 2,474.70 | 2,474.43 | 9.47 | 50.66 | 70.44 | -821.75 | -9,302.30 | 9,288.83 | 9,228.71 | 60.12 | 154.511 | |
| 2,600.00 | 2,595.35 | 2,573.63 | 2,573.35 | 9.82 | 52.60 | 70.48 | -822.11 | -9,302.30 | 9,286.55 | 9,224.15 | 62.40 | 148.814 | |
| 2,700.00 | 2,695.11 | 2,672.57 | 2,672.29 | 10.17 | 54.54 | 70.51 | -822.60 | -9,302.30 | 9,284.29 | 9,219.60 | 64.69 | 143.515 | |
| 2,800.00 | 2,794.87 | 2,776.22 | 2,775.87 | 10.52 | 56.60 | 70.55 | -823.06 | -9,302.30 | 9,282.03 | 9,214.93 | 67.10 | 138.337 | |
| 2,900.00 | 2,894.64 | 2,875.98 | 2,875.64 | 10.87 | 58.64 | 70.59 | -823.06 | -9,302.30 | 9,279.74 | 9,210.25 | 69.48 | 133.551 | |
| 3,000.00 | 2,994.40 | 2,975.74 | 2,975.40 | 11.23 | 60.67 | 70.63 | -823.06 | -9,302.30 | 9,277.45 | 9,205.58 | 71.87 | 129.079 | |
| 3,100.00 | 3,094.16 | 3,075.51 | 3,075.16 | 11.58 | 62.71 | 70.67 | -823.06 | -9,302.30 | 9,275.17 | 9,200.90 | 74.26 | 124.893 | |
| 3,200.00 | 3,193.93 | 3,175.27 | 3,174.93 | 11.94 | 64.75 | 70.71 | -823.06 | -9,302.30 | 9,272.89 | 9,196.23 | 76.66 | 120.967 | |
| 3,300.00 | 3,293.69 | 3,275.03 | 3,274.69 | 12.29 | 66.78 | 70.75 | -823.06 | -9,302.30 | 9,270.62 | 9,191.57 | 79.05 | 117.276 | |
| 3,400.00 | 3,393.45 | 3,374.80 | 3,374.45 | 12.65 | 68.82 | 70.79 | -823.06 | -9,302.30 | 9,268.35 | 9,186.91 | 81.44 | 113.801 | |
| 3,500.00 | 3,493.22 | 3,474.56 | 3,474.22 | 13.01 | 70.86 | 70.83 | -823.06 | -9,302.30 | 9,266.09 | 9,182.25 | 83.84 | 110.523 | |
| 3,600.00 | 3,592.98 | 3,573.90 | 3,573.54 | 13.37 | 72.89 | 70.89 | -820.64 | -9,302.30 | 9,263.66 | 9,177.44 | 86.23 | 107.435 | |
| 3,700.00 | 3,692.74 | 3,673.13 | 3,672.77 | 13.73 | 74.92 | 70.93 | -820.76 | -9,302.30 | 9,261.42 | 9,172.81 | 88.61 | 104.517 | |
| 3,800.00 | 3,792.51 | 3,772.38 | 3,772.02 | 14.09 | 76.94 | 70.96 | -820.95 | -9,302.30 | 9,259.18 | 9,168.18 | 91.00 | 101.751 | |
| 3,900.00 | 3,892.27 | 3,871.65 | 3,871.28 | 14.45 | 78.97 | 71.00 | -821.24 | -9,302.30 | 9,256.96 | 9,163.57 | 93.39 | 99.125 | |
| 4,000.00 | 3,992.04 | 3,970.92 | 3,970.55 | 14.81 | 81.00 | 71.04 | -821.61 | -9,302.30 | 9,254.74 | 9,158.97 | 95.78 | 96.630 | |
| 4,100.00 | 4,091.80 | 4,070.21 | 4,069.84 | 15.17 | 83.03 | 71.08 | -822.07 | -9,302.30 | 9,252.53 | 9,154.37 | 98.17 | 94.255 | |
| 4,200.00 | 4,191.56 | 4,169.51 | 4,169.13 | 15.53 | 85.06 | 71.11 | -822.61 | -9,302.30 | 9,250.34 | 9,149.78 | 100.56 | 91.992 | |
| 4,300.00 | 4,291.33 | 4,272.84 | 4,272.33 | 15.89 | 87.17 | 71.15 | -823.06 | -9,302.30 | 9,248.14 | 9,145.11 | 103.03 | 89.763 | |
| 4,400.00 | 4,391.09 | 4,372.61 | 4,372.09 | 16.26 | 89.21 | 71.19 | -823.06 | -9,302.30 | 9,245.92 | 9,140.49 | 105.43 | 87.697 | |
| 4,500.00 | 4,490.85 | 4,469.78 | 4,469.26 | 16.62 | 91.20 | 71.24 | -822.59 | -9,302.30 | 9,243.67 | 9,135.89 | 107.78 | 85.766 | |
| 4,600.00 | 4,590.62 | 4,572.17 | 4,571.62 | 16.99 | 93.36 | 71.27 | -823.06 | -9,302.30 | 9,241.48 | 9,131.18 | 110.31 | 83.779 | |
| 4,700.00 | 4,690.38 | 4,671.93 | 4,671.38 | 17.35 | 95.64 | 71.31 | -823.06 | -9,302.30 | 9,239.28 | 9,126.33 | 112.95 | 81.800 | |

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

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

**Survey Program:** 97-A027Ua_INC-ONLY

**Offset Well Error:** 3.28 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4,800.00 | 4,790.14 | 4,771.58 | 4,771.02 | 17.71 | 97.92 | 71.36 | -822.33 | -9,302.30 | 9,237.03 | 9,121.44 | 115.59 | 79.913 | |
| 4,900.00 | 4,889.91 | 4,869.80 | 4,869.24 | 18.08 | 100.16 | 71.40 | -822.49 | -9,302.30 | 9,234.84 | 9,116.64 | 118.19 | 78.133 | |
| 5,000.00 | 4,989.67 | 4,968.05 | 4,967.49 | 18.44 | 102.40 | 71.43 | -822.94 | -9,302.30 | 9,232.67 | 9,111.87 | 120.80 | 76.428 | |
| 5,100.00 | 5,089.43 | 5,071.10 | 5,070.43 | 18.81 | 104.83 | 71.48 | -823.06 | -9,302.30 | 9,230.49 | 9,106.89 | 123.59 | 74.686 | |
| 5,200.00 | 5,189.20 | 5,165.46 | 5,164.77 | 19.17 | 107.06 | 71.52 | -822.63 | -9,302.30 | 9,228.28 | 9,102.08 | 126.19 | 73.129 | |
| 5,300.00 | 5,288.96 | 5,270.69 | 5,269.96 | 19.54 | 109.44 | 71.56 | -823.06 | -9,302.30 | 9,226.12 | 9,097.18 | 128.94 | 71.556 | |
| 5,400.00 | 5,388.72 | 5,370.45 | 5,369.72 | 19.91 | 111.65 | 71.60 | -823.06 | -9,302.30 | 9,223.94 | 9,092.43 | 131.51 | 70.141 | |
| 5,500.00 | 5,488.49 | 5,470.21 | 5,469.49 | 20.27 | 113.85 | 71.64 | -823.06 | -9,302.30 | 9,221.77 | 9,087.69 | 134.08 | 68.780 | |
| 5,600.00 | 5,588.25 | 5,569.98 | 5,569.25 | 20.64 | 116.06 | 71.68 | -823.06 | -9,302.30 | 9,219.60 | 9,082.95 | 136.65 | 67.471 | |
| 5,700.00 | 5,688.01 | 5,669.74 | 5,669.01 | 21.00 | 118.26 | 71.72 | -823.06 | -9,302.30 | 9,217.44 | 9,078.22 | 139.22 | 66.209 | |
| 5,800.00 | 5,787.78 | 5,769.51 | 5,768.78 | 21.37 | 120.46 | 71.76 | -823.06 | -9,302.30 | 9,215.28 | 9,073.49 | 141.79 | 64.994 | |
| 5,900.00 | 5,887.54 | 5,868.64 | 5,867.88 | 21.74 | 122.66 | 71.81 | -820.59 | -9,302.30 | 9,213.00 | 9,068.65 | 144.34 | 63.826 | |
| 6,000.00 | 5,987.31 | 5,967.73 | 5,966.97 | 22.11 | 124.85 | 71.85 | -820.80 | -9,302.30 | 9,210.86 | 9,063.96 | 146.90 | 62.701 | |
| 6,100.00 | 6,087.07 | 6,066.84 | 6,066.08 | 22.47 | 127.04 | 71.89 | -821.16 | -9,302.30 | 9,208.74 | 9,059.28 | 149.46 | 61.614 | |
| 6,200.00 | 6,186.83 | 6,165.98 | 6,165.21 | 22.84 | 129.23 | 71.93 | -821.66 | -9,302.30 | 9,206.62 | 9,054.61 | 152.02 | 60.564 | |
| 6,300.00 | 6,286.60 | 6,265.14 | 6,264.36 | 23.21 | 131.42 | 71.96 | -822.32 | -9,302.30 | 9,204.52 | 9,049.95 | 154.57 | 59.548 | |
| 6,400.00 | 6,386.36 | 6,368.31 | 6,367.36 | 23.58 | 133.73 | 72.00 | -823.06 | -9,302.30 | 9,202.43 | 9,045.18 | 157.25 | 58.522 | |
| 6,494.00 | 6,480.13 | 6,462.08 | 6,461.13 | 23.92 | 136.04 | 72.04 | -823.06 | -9,302.30 | 9,200.43 | 9,040.52 | 159.91 | 57.535 | |
| 6,500.00 | 6,486.12 | 6,468.07 | 6,467.12 | 23.94 | 136.19 | 64.77 | -823.06 | -9,302.30 | 9,200.27 | 9,040.19 | 160.08 | 57.473 | |
| 6,550.00 | 6,535.89 | 6,517.84 | 6,516.89 | 24.13 | 137.42 | 29.27 | -823.06 | -9,302.30 | 9,196.78 | 9,035.29 | 161.49 | 56.949 | |
| 6,600.00 | 6,585.24 | 6,567.19 | 6,566.24 | 24.31 | 138.64 | 17.00 | -823.06 | -9,302.30 | 9,189.40 | 9,026.51 | 162.89 | 56.414 | |
| 6,650.00 | 6,633.88 | 6,615.70 | 6,614.74 | 24.50 | 139.84 | 11.39 | -821.69 | -9,302.30 | 9,178.10 | 9,013.83 | 164.27 | 55.873 | |
| 6,700.00 | 6,681.49 | 6,662.47 | 6,661.50 | 24.68 | 140.99 | 8.21 | -821.75 | -9,302.30 | 9,163.08 | 8,997.49 | 165.59 | 55.335 | |
| 6,750.00 | 6,727.80 | 6,707.97 | 6,706.99 | 24.86 | 142.12 | 6.15 | -821.91 | -9,302.30 | 9,144.39 | 8,977.50 | 166.88 | 54.796 | |
| 6,800.00 | 6,772.51 | 6,751.91 | 6,750.93 | 25.04 | 143.20 | 4.69 | -822.14 | -9,302.30 | 9,122.12 | 8,953.99 | 168.12 | 54.258 | |
| 6,850.00 | 6,815.34 | 6,794.02 | 6,793.04 | 25.21 | 144.24 | 3.58 | -822.44 | -9,302.30 | 9,096.42 | 8,927.10 | 169.31 | 53.725 | |
| 6,900.00 | 6,856.04 | 6,834.04 | 6,833.05 | 25.39 | 145.23 | 2.67 | -822.79 | -9,302.30 | 9,067.44 | 8,897.00 | 170.44 | 53.200 | |
| 6,950.00 | 6,894.35 | 6,876.48 | 6,875.35 | 25.57 | 146.30 | 1.87 | -823.06 | -9,302.30 | 9,035.36 | 8,863.73 | 171.63 | 52.644 | |
| 7,000.00 | 6,930.04 | 6,912.17 | 6,911.04 | 25.75 | 147.21 | 1.14 | -823.06 | -9,302.30 | 9,000.36 | 8,827.70 | 172.66 | 52.127 | |
| 7,050.00 | 6,962.89 | 6,945.01 | 6,943.89 | 25.93 | 148.06 | 0.41 | -823.06 | -9,302.30 | 8,962.68 | 8,789.07 | 173.61 | 51.626 | |
| 7,100.00 | 6,992.69 | 6,974.81 | 6,973.69 | 26.13 | 148.82 | -0.37 | -823.06 | -9,302.30 | 8,922.55 | 8,748.08 | 174.46 | 51.143 | |
| 7,150.00 | 7,019.25 | 7,001.38 | 7,000.25 | 26.33 | 149.50 | -1.26 | -823.06 | -9,302.30 | 8,880.21 | 8,704.98 | 175.22 | 50.680 | |
| 7,200.00 | 7,042.43 | 7,024.55 | 7,023.43 | 26.55 | 150.10 | -2.36 | -823.06 | -9,302.30 | 8,835.92 | 8,660.04 | 175.88 | 50.238 | |
| 7,250.00 | 7,062.07 | 7,044.19 | 7,043.07 | 26.79 | 150.60 | -3.84 | -823.06 | -9,302.30 | 8,789.96 | 8,613.53 | 176.44 | 49.820 | |
| 7,300.00 | 7,078.05 | 7,060.17 | 7,059.05 | 27.04 | 151.01 | -6.04 | -823.06 | -9,302.30 | 8,742.62 | 8,565.73 | 176.88 | 49.426 | |
| 7,350.00 | 7,090.27 | 7,072.39 | 7,071.27 | 27.30 | 151.33 | -9.79 | -823.06 | -9,302.30 | 8,694.17 | 8,516.95 | 177.22 | 49.058 | |
| 7,400.00 | 7,098.66 | 7,080.79 | 7,079.66 | 27.58 | 151.54 | -17.70 | -823.06 | -9,302.30 | 8,644.93 | 8,467.48 | 177.45 | 48.716 | |
| 7,450.00 | 7,103.17 | 7,085.30 | 7,084.17 | 27.87 | 151.66 | -42.44 | -823.06 | -9,302.30 | 8,595.20 | 8,417.62 | 177.58 | 48.403 | |
| 7,484.86 | 7,104.00 | 7,086.13 | 7,085.00 | 28.08 | 151.68 | -93.96 | -823.06 | -9,302.30 | 8,560.39 | 8,382.80 | 177.60 | 48.201 | |
| 7,500.00 | 7,103.95 | 7,086.07 | 7,084.95 | 28.17 | 151.68 | -93.95 | -823.06 | -9,302.30 | 8,545.27 | 8,367.68 | 177.60 | 48.116 | |
| 7,600.00 | 7,103.60 | 7,085.72 | 7,084.60 | 28.83 | 151.67 | -93.90 | -823.06 | -9,302.30 | 8,445.40 | 8,267.82 | 177.58 | 47.558 | |
| 7,700.00 | 7,103.25 | 7,085.37 | 7,084.25 | 29.56 | 151.66 | -93.86 | -823.06 | -9,302.30 | 8,345.53 | 8,167.97 | 177.57 | 46.999 | |
| 7,800.00 | 7,102.90 | 7,085.02 | 7,083.90 | 30.35 | 151.65 | -93.81 | -823.06 | -9,302.30 | 8,245.67 | 8,068.12 | 177.56 | 46.440 | |
| 7,900.00 | 7,102.55 | 7,084.67 | 7,083.55 | 31.21 | 151.64 | -93.77 | -823.06 | -9,302.30 | 8,145.81 | 7,968.27 | 177.54 | 45.881 | |
| 8,000.00 | 7,102.20 | 7,084.32 | 7,083.20 | 32.13 | 151.63 | -93.72 | -823.06 | -9,302.30 | 8,045.95 | 7,868.42 | 177.53 | 45.321 | |
| 8,100.00 | 7,101.85 | 7,083.97 | 7,082.85 | 33.10 | 151.63 | -93.67 | -823.06 | -9,302.30 | 7,946.10 | 7,768.58 | 177.52 | 44.761 | |
| 8,200.00 | 7,101.50 | 7,083.62 | 7,082.50 | 34.11 | 151.62 | -93.63 | -823.06 | -9,302.30 | 7,846.25 | 7,668.74 | 177.52 | 44.200 | |
| 8,300.00 | 7,101.15 | 7,083.27 | 7,082.15 | 35.17 | 151.61 | -93.58 | -823.06 | -9,302.30 | 7,746.41 | 7,568.90 | 177.51 | 43.640 | |
| 8,400.00 | 7,100.80 | 7,082.92 | 7,081.80 | 36.27 | 151.60 | -93.53 | -823.06 | -9,302.30 | 7,646.56 | 7,469.06 | 177.50 | 43.079 | |
| 8,500.00 | 7,100.45 | 7,082.57 | 7,081.45 | 37.41 | 151.59 | -93.49 | -823.06 | -9,302.30 | 7,546.73 | 7,369.23 | 177.50 | 42.518 | |
| 8,600.00 | 7,100.10 | 7,082.22 | 7,081.10 | 38.58 | 151.58 | -93.44 | -823.06 | -9,302.30 | 7,446.89 | 7,269.40 | 177.49 | 41.956 | |
| 8,700.00 | 7,099.75 | 7,081.87 | 7,080.75 | 39.78 | 151.57 | -93.40 | -823.06 | -9,302.30 | 7,347.07 | 7,169.58 | 177.49 | 41.395 | |

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 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

**Survey Program:** 97-A027Ua_INC-ONLY

**Offset Well Error:** 3.28 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8,800.00 | 7,099.40 | 7,081.52 | 7,080.40 | 41.00 | 151.56 | -93.35 | -823.06 | -9,302.30 | 7,247.24 | 7,069.76 | 177.49 | 40.833 | |
| 8,900.00 | 7,099.05 | 7,081.17 | 7,080.05 | 42.25 | 151.55 | -93.30 | -823.06 | -9,302.30 | 7,147.42 | 6,969.94 | 177.48 | 40.271 | |
| 9,000.00 | 7,098.70 | 7,080.82 | 7,079.70 | 43.53 | 151.54 | -93.26 | -823.06 | -9,302.30 | 7,047.61 | 6,870.13 | 177.48 | 39.708 | |
| 9,100.00 | 7,098.35 | 7,080.48 | 7,079.35 | 44.82 | 151.54 | -93.21 | -823.06 | -9,302.30 | 6,947.80 | 6,770.32 | 177.49 | 39.146 | |
| 9,200.00 | 7,098.00 | 7,080.13 | 7,079.00 | 46.14 | 151.53 | -93.16 | -823.06 | -9,302.30 | 6,848.00 | 6,670.51 | 177.49 | 38.583 | |
| 9,300.00 | 7,097.65 | 7,079.78 | 7,078.65 | 47.47 | 151.52 | -93.12 | -823.06 | -9,302.30 | 6,748.20 | 6,570.71 | 177.49 | 38.020 | |
| 9,400.00 | 7,097.30 | 7,079.43 | 7,078.30 | 48.82 | 151.51 | -93.07 | -823.06 | -9,302.30 | 6,648.41 | 6,470.91 | 177.50 | 37.456 | |
| 9,500.00 | 7,096.95 | 7,079.08 | 7,077.95 | 50.18 | 151.50 | -93.03 | -823.06 | -9,302.30 | 6,548.63 | 6,371.12 | 177.50 | 36.893 | |
| 9,600.00 | 7,096.60 | 7,078.73 | 7,077.60 | 51.56 | 151.49 | -92.98 | -823.06 | -9,302.30 | 6,448.85 | 6,271.34 | 177.51 | 36.329 | |
| 9,700.00 | 7,096.25 | 7,078.38 | 7,077.25 | 52.95 | 151.48 | -92.93 | -823.06 | -9,302.30 | 6,349.08 | 6,171.56 | 177.52 | 35.765 | |
| 9,800.00 | 7,095.90 | 7,078.03 | 7,076.90 | 54.35 | 151.47 | -92.89 | -823.06 | -9,302.30 | 6,249.32 | 6,071.78 | 177.53 | 35.201 | |
| 9,900.00 | 7,095.55 | 7,077.68 | 7,076.55 | 55.76 | 151.46 | -92.84 | -823.06 | -9,302.30 | 6,149.56 | 5,972.01 | 177.54 | 34.637 | |
| 10,000.00 | 7,095.20 | 7,077.33 | 7,076.20 | 57.18 | 151.45 | -92.79 | -823.06 | -9,302.30 | 6,049.81 | 5,872.25 | 177.56 | 34.072 | |
| 10,100.00 | 7,094.85 | 7,076.98 | 7,075.85 | 58.61 | 151.45 | -92.75 | -823.06 | -9,302.30 | 5,950.07 | 5,772.50 | 177.58 | 33.507 | |
| 10,200.00 | 7,094.50 | 7,076.63 | 7,075.50 | 60.05 | 151.44 | -92.70 | -823.06 | -9,302.30 | 5,850.34 | 5,672.75 | 177.59 | 32.942 | |
| 10,300.00 | 7,094.15 | 7,076.28 | 7,075.15 | 61.50 | 151.43 | -92.66 | -823.06 | -9,302.30 | 5,750.62 | 5,573.01 | 177.61 | 32.377 | |
| 10,400.00 | 7,093.80 | 7,075.93 | 7,074.80 | 62.96 | 151.42 | -92.61 | -823.06 | -9,302.30 | 5,650.91 | 5,473.27 | 177.64 | 31.812 | |
| 10,500.00 | 7,093.45 | 7,075.58 | 7,074.45 | 64.42 | 151.41 | -92.56 | -823.06 | -9,302.30 | 5,551.21 | 5,373.55 | 177.66 | 31.246 | |
| 10,600.00 | 7,093.10 | 7,075.23 | 7,074.10 | 65.89 | 151.40 | -92.52 | -823.06 | -9,302.30 | 5,451.52 | 5,273.83 | 177.69 | 30.680 | |
| 10,700.00 | 7,092.75 | 7,074.88 | 7,073.75 | 67.36 | 151.39 | -92.47 | -823.06 | -9,302.30 | 5,351.84 | 5,174.12 | 177.72 | 30.114 | |
| 10,800.00 | 7,092.40 | 7,074.53 | 7,073.40 | 68.84 | 151.38 | -92.42 | -823.06 | -9,302.30 | 5,252.17 | 5,074.42 | 177.75 | 29.548 | |
| 10,900.00 | 7,092.05 | 7,074.18 | 7,073.05 | 70.33 | 151.37 | -92.38 | -823.06 | -9,302.30 | 5,152.52 | 4,974.73 | 177.79 | 28.981 | |
| 11,000.00 | 7,091.70 | 7,073.83 | 7,072.70 | 71.82 | 151.36 | -92.33 | -823.06 | -9,302.30 | 5,052.88 | 4,875.06 | 177.83 | 28.415 | |
| 11,100.00 | 7,091.35 | 7,073.48 | 7,072.35 | 73.31 | 151.36 | -92.29 | -823.06 | -9,302.30 | 4,953.26 | 4,775.39 | 177.87 | 27.848 | |
| 11,200.00 | 7,091.00 | 7,073.13 | 7,072.00 | 74.81 | 151.35 | -92.24 | -823.06 | -9,302.30 | 4,853.65 | 4,675.73 | 177.92 | 27.281 | |
| 11,300.00 | 7,090.65 | 7,072.78 | 7,071.65 | 76.32 | 151.34 | -92.19 | -823.06 | -9,302.30 | 4,754.05 | 4,576.09 | 177.97 | 26.713 | |
| 11,400.00 | 7,090.30 | 7,072.43 | 7,071.30 | 77.82 | 151.33 | -92.15 | -823.06 | -9,302.30 | 4,654.48 | 4,476.46 | 178.02 | 26.146 | |
| 11,500.00 | 7,089.95 | 7,072.08 | 7,070.95 | 79.34 | 151.32 | -92.10 | -823.06 | -9,302.30 | 4,554.92 | 4,376.84 | 178.08 | 25.578 | |
| 11,600.00 | 7,089.60 | 7,071.73 | 7,070.60 | 80.85 | 151.31 | -92.05 | -823.06 | -9,302.30 | 4,455.38 | 4,277.23 | 178.15 | 25.010 | |
| 11,700.00 | 7,089.25 | 7,071.38 | 7,070.25 | 82.37 | 151.30 | -92.01 | -823.06 | -9,302.30 | 4,355.87 | 4,177.65 | 178.22 | 24.441 | |
| 11,800.00 | 7,088.90 | 7,071.03 | 7,069.90 | 83.89 | 151.29 | -91.96 | -823.06 | -9,302.30 | 4,256.37 | 4,078.07 | 178.30 | 23.872 | |
| 11,900.00 | 7,088.55 | 7,070.68 | 7,069.55 | 85.41 | 151.28 | -91.92 | -823.06 | -9,302.30 | 4,156.90 | 3,978.52 | 178.38 | 23.303 | |
| 12,000.00 | 7,088.20 | 7,070.33 | 7,069.20 | 86.94 | 151.27 | -91.87 | -823.06 | -9,302.30 | 4,057.46 | 3,878.98 | 178.48 | 22.734 | |
| 12,100.00 | 7,087.85 | 7,069.98 | 7,068.85 | 88.47 | 151.27 | -91.82 | -823.06 | -9,302.30 | 3,958.04 | 3,779.46 | 178.58 | 22.164 | |
| 12,200.00 | 7,087.50 | 7,069.63 | 7,068.50 | 90.00 | 151.26 | -91.78 | -823.06 | -9,302.30 | 3,858.66 | 3,679.97 | 178.69 | 21.594 | |
| 12,300.00 | 7,087.15 | 7,069.28 | 7,068.15 | 91.54 | 151.25 | -91.73 | -823.06 | -9,302.30 | 3,759.30 | 3,580.49 | 178.81 | 21.024 | |
| 12,400.00 | 7,086.81 | 7,068.93 | 7,067.81 | 93.07 | 151.24 | -91.68 | -823.06 | -9,302.30 | 3,659.99 | 3,481.04 | 178.95 | 20.453 | |
| 12,500.00 | 7,086.46 | 7,068.58 | 7,067.46 | 94.61 | 151.23 | -91.64 | -823.06 | -9,302.30 | 3,560.71 | 3,381.61 | 179.10 | 19.881 | |
| 12,600.00 | 7,086.11 | 7,068.23 | 7,067.11 | 96.15 | 151.22 | -91.59 | -823.06 | -9,302.30 | 3,461.47 | 3,282.21 | 179.26 | 19.309 | |
| 12,700.00 | 7,085.76 | 7,067.88 | 7,066.76 | 97.69 | 151.21 | -91.55 | -823.06 | -9,302.30 | 3,362.28 | 3,182.83 | 179.44 | 18.737 | |
| 12,800.00 | 7,085.41 | 7,067.53 | 7,066.41 | 99.24 | 151.20 | -91.50 | -823.06 | -9,302.30 | 3,263.13 | 3,083.49 | 179.65 | 18.164 | |
| 12,900.00 | 7,085.06 | 7,067.18 | 7,066.06 | 100.78 | 151.19 | -91.45 | -823.06 | -9,302.30 | 3,164.04 | 2,984.17 | 179.87 | 17.591 | |
| 13,000.00 | 7,084.71 | 7,066.83 | 7,065.71 | 102.33 | 151.19 | -91.41 | -823.06 | -9,302.30 | 3,065.01 | 2,884.90 | 180.12 | 17.017 | |
| 13,100.00 | 7,084.36 | 7,066.48 | 7,065.36 | 103.88 | 151.18 | -91.36 | -823.06 | -9,302.30 | 2,966.05 | 2,785.66 | 180.39 | 16.442 | |
| 13,200.00 | 7,084.01 | 7,066.13 | 7,065.01 | 105.43 | 151.17 | -91.31 | -823.06 | -9,302.30 | 2,867.15 | 2,686.45 | 180.70 | 15.867 | |
| 13,300.00 | 7,083.66 | 7,065.78 | 7,064.66 | 106.99 | 151.16 | -91.27 | -823.06 | -9,302.30 | 2,768.34 | 2,587.29 | 181.04 | 15.291 | |
| 13,400.00 | 7,083.31 | 7,065.43 | 7,064.31 | 108.54 | 151.15 | -91.22 | -823.06 | -9,302.30 | 2,669.61 | 2,488.18 | 181.43 | 14.714 | |
| 13,500.00 | 7,082.96 | 7,065.08 | 7,063.96 | 110.09 | 151.14 | -91.17 | -823.06 | -9,302.30 | 2,570.98 | 2,389.12 | 181.86 | 14.137 | |
| 13,600.00 | 7,082.61 | 7,064.73 | 7,063.61 | 111.65 | 151.13 | -91.13 | -823.06 | -9,302.30 | 2,472.47 | 2,290.11 | 182.35 | 13.559 | |
| 13,700.00 | 7,082.26 | 7,064.38 | 7,063.26 | 113.21 | 151.12 | -91.08 | -823.06 | -9,302.30 | 2,374.07 | 2,191.17 | 182.91 | 12.980 | |
| 13,800.00 | 7,081.91 | 7,064.03 | 7,062.91 | 114.77 | 151.11 | -91.04 | -823.06 | -9,302.30 | 2,275.82 | 2,092.28 | 183.54 | 12.400 | |
| 13,900.00 | 7,081.56 | 7,063.68 | 7,062.56 | 116.33 | 151.10 | -90.99 | -823.06 | -9,302.30 | 2,177.72 | 1,993.48 | 184.25 | 11.819 | |

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

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

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

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 14,000.00 | 7,081.21 | 7,063.33 | 7,062.21 | 117.89 | 151.10 | -90.94 | -823.06 | -9,302.30 | 2,079.81 | 1,894.75 | 185.06 | 11.238 | |
| 14,100.00 | 7,080.86 | 7,062.98 | 7,061.86 | 119.45 | 151.09 | -90.90 | -823.06 | -9,302.30 | 1,982.11 | 1,796.11 | 185.99 | 10.657 | |
| 14,200.00 | 7,080.51 | 7,062.63 | 7,061.51 | 121.02 | 151.08 | -90.85 | -823.06 | -9,302.30 | 1,884.64 | 1,697.58 | 187.07 | 10.075 | |
| 14,300.00 | 7,080.16 | 7,062.28 | 7,061.16 | 122.58 | 151.07 | -90.80 | -823.06 | -9,302.30 | 1,787.46 | 1,599.16 | 188.30 | 9.493 | |
| 14,400.00 | 7,079.81 | 7,061.93 | 7,060.81 | 124.15 | 151.06 | -90.76 | -823.06 | -9,302.30 | 1,690.60 | 1,500.88 | 189.73 | 8.911 | |
| 14,500.00 | 7,079.46 | 7,061.58 | 7,060.46 | 125.71 | 151.05 | -90.71 | -823.06 | -9,302.30 | 1,594.13 | 1,402.75 | 191.38 | 8.330 | |
| 14,600.00 | 7,079.11 | 7,061.23 | 7,060.11 | 127.28 | 151.04 | -90.66 | -823.06 | -9,302.30 | 1,498.13 | 1,304.81 | 193.32 | 7.750 | |
| 14,700.00 | 7,078.76 | 7,060.88 | 7,059.76 | 128.85 | 151.03 | -90.62 | -823.06 | -9,302.30 | 1,402.68 | 1,207.10 | 195.59 | 7.172 | |
| 14,800.00 | 7,078.41 | 7,060.53 | 7,059.41 | 130.42 | 151.02 | -90.57 | -823.06 | -9,302.30 | 1,307.92 | 1,109.66 | 198.26 | 6.597 | |
| 14,900.00 | 7,078.06 | 7,060.18 | 7,059.06 | 131.98 | 151.01 | -90.53 | -823.06 | -9,302.30 | 1,213.99 | 1,012.57 | 201.42 | 6.027 | |
| 15,000.00 | 7,077.71 | 7,059.83 | 7,058.71 | 133.55 | 151.01 | -90.48 | -823.06 | -9,302.30 | 1,121.12 | 915.93 | 205.19 | 5.464 | |
| 15,100.00 | 7,077.36 | 7,059.48 | 7,058.36 | 135.13 | 151.00 | -90.43 | -823.06 | -9,302.30 | 1,029.58 | 819.87 | 209.70 | 4.910 | |
| 15,200.00 | 7,077.01 | 7,059.14 | 7,058.01 | 136.70 | 150.99 | -90.39 | -823.06 | -9,302.30 | 939.76 | 724.63 | 215.13 | 4.368 | |
| 15,300.00 | 7,076.66 | 7,058.79 | 7,057.66 | 138.27 | 150.98 | -90.34 | -823.06 | -9,302.30 | 852.22 | 630.52 | 221.70 | 3.844 | |
| 15,400.00 | 7,076.31 | 7,058.44 | 7,057.31 | 139.84 | 150.97 | -90.29 | -823.06 | -9,302.30 | 767.73 | 538.08 | 229.65 | 3.343 | |
| 15,500.00 | 7,075.96 | 7,058.09 | 7,056.96 | 141.42 | 150.96 | -90.25 | -823.06 | -9,302.30 | 687.41 | 448.15 | 239.26 | 2.873 | |
| 15,600.00 | 7,075.61 | 7,057.74 | 7,056.61 | 142.99 | 150.95 | -90.20 | -823.06 | -9,302.30 | 612.91 | 362.21 | 250.70 | 2.445 | |
| 15,700.00 | 7,075.26 | 7,057.39 | 7,056.26 | 144.57 | 150.94 | -90.15 | -823.06 | -9,302.30 | 546.61 | 282.74 | 263.87 | 2.071 | |
| 15,800.00 | 7,074.91 | 7,057.04 | 7,055.91 | 146.14 | 150.93 | -90.11 | -823.06 | -9,302.30 | 491.85 | 213.90 | 277.94 | 1.770 | |
| 15,900.00 | 7,074.56 | 7,056.69 | 7,055.56 | 147.72 | 150.92 | -90.06 | -823.06 | -9,302.30 | 452.81 | 161.98 | 290.83 | 1.557 | |
| 16,000.00 | 7,074.21 | 7,056.34 | 7,055.21 | 149.29 | 150.92 | -90.02 | -823.06 | -9,302.30 | 433.78 | 134.46 | 299.32 | 1.449 | Level 3 |
| 16,034.00 | 7,074.09 | 7,056.22 | 7,055.09 | 149.83 | 150.91 | -90.00 | -823.06 | -9,302.30 | 432.41 | 131.75 | 300.67 | 1.438 | Level 3, CC, ES, SF |
| 16,100.00 | 7,073.86 | 7,055.99 | 7,054.86 | 150.87 | 150.91 | -89.97 | -823.06 | -9,302.30 | 437.37 | 136.62 | 300.75 | 1.454 | Level 3 |
| 16,200.00 | 7,073.51 | 7,055.64 | 7,054.51 | 152.45 | 150.90 | -89.92 | -823.06 | -9,302.30 | 463.05 | 167.83 | 295.22 | 1.569 | |
| 16,300.00 | 7,073.16 | 7,055.29 | 7,054.16 | 154.03 | 150.89 | -89.88 | -823.06 | -9,302.30 | 507.48 | 222.12 | 285.36 | 1.778 | |
| 16,400.00 | 7,072.81 | 7,054.94 | 7,053.81 | 155.60 | 150.88 | -89.83 | -823.06 | -9,302.30 | 566.27 | 292.17 | 274.10 | 2.066 | |
| 16,500.00 | 7,072.46 | 7,054.59 | 7,053.46 | 157.18 | 150.87 | -89.78 | -823.06 | -9,302.30 | 635.44 | 372.16 | 263.28 | 2.414 | |
| 16,600.00 | 7,072.11 | 7,054.24 | 7,053.11 | 158.76 | 150.86 | -89.74 | -823.06 | -9,302.30 | 711.98 | 458.32 | 253.66 | 2.807 | |
| 16,631.96 | 7,072.00 | 7,054.13 | 7,053.00 | 159.27 | 150.86 | -89.72 | -823.06 | -9,302.30 | 737.62 | 486.75 | 250.87 | 2.940 | |

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

**Survey Program:** 122-A027Ua_INC-ONLY

**Offset Well Error:** 0.00 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Rule Assigned: Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 3.28 | 0.00 | -98.44 | -1,370.71 | -9,242.63 | 9,343.73 | | | | |
| 100.00 | 100.00 | 84.00 | 84.00 | 3.29 | 0.89 | -98.44 | -1,370.71 | -9,242.63 | 9,343.71 | 9,339.53 | 4.18 | 2,233.443 | |
| 197.58 | 197.58 | 181.57 | 181.56 | 3.33 | 2.47 | -98.43 | -1,370.45 | -9,242.63 | 9,343.67 | 9,337.87 | 5.80 | 1,610.154 | |
| 200.00 | 200.00 | 183.59 | 183.58 | 3.34 | 2.51 | -98.43 | -1,370.45 | -9,242.63 | 9,343.67 | 9,337.83 | 5.84 | 1,598.819 | |
| 300.00 | 300.00 | 284.02 | 284.00 | 3.42 | 4.55 | -98.44 | -1,370.71 | -9,242.63 | 9,343.71 | 9,335.74 | 7.97 | 1,172.385 | |
| 381.47 | 381.47 | 365.48 | 365.47 | 3.51 | 6.28 | -98.43 | -1,370.44 | -9,242.63 | 9,343.67 | 9,333.88 | 9.80 | 953.913 | |
| 400.00 | 400.00 | 383.17 | 383.15 | 3.54 | 6.66 | -98.43 | -1,370.44 | -9,242.63 | 9,343.67 | 9,333.48 | 10.20 | 916.470 | |
| 500.00 | 500.00 | 478.58 | 478.56 | 3.69 | 8.69 | -98.44 | -1,370.66 | -9,242.63 | 9,343.71 | 9,331.33 | 12.37 | 755.199 | |
| 600.00 | 599.98 | 584.04 | 583.98 | 3.86 | 11.01 | 51.59 | -1,370.71 | -9,242.63 | 9,342.63 | 9,327.76 | 14.87 | 628.481 | |
| 697.00 | 696.84 | 674.29 | 674.22 | 4.04 | 13.01 | 51.67 | -1,369.95 | -9,242.63 | 9,339.40 | 9,322.35 | 17.04 | 547.971 | |
| 700.00 | 699.84 | 676.94 | 676.86 | 4.05 | 13.07 | 51.67 | -1,369.96 | -9,242.63 | 9,339.27 | 9,322.16 | 17.11 | 545.882 | |
| 800.00 | 799.60 | 783.71 | 783.60 | 4.25 | 15.43 | 51.70 | -1,370.71 | -9,242.63 | 9,335.11 | 9,315.43 | 19.68 | 474.299 | |
| 897.00 | 896.37 | 880.48 | 880.37 | 4.48 | 17.58 | 51.73 | -1,370.71 | -9,242.63 | 9,330.97 | 9,308.93 | 22.05 | 423.181 | |
| 900.00 | 899.37 | 883.48 | 883.37 | 4.48 | 17.64 | 52.60 | -1,370.71 | -9,242.63 | 9,330.85 | 9,308.73 | 22.12 | 421.769 | |
| 947.40 | 946.65 | 930.76 | 930.65 | 4.60 | 18.69 | 66.44 | -1,370.71 | -9,242.63 | 9,329.21 | 9,305.92 | 23.29 | 400.636 | |
| 1,000.00 | 999.13 | 983.24 | 983.13 | 4.73 | 19.85 | 66.46 | -1,370.71 | -9,242.63 | 9,327.76 | 9,303.18 | 24.58 | 379.470 | |
| 1,100.00 | 1,098.89 | 1,080.48 | 1,080.36 | 4.99 | 22.01 | 66.50 | -1,369.96 | -9,242.63 | 9,324.90 | 9,297.90 | 27.00 | 345.386 | |
| 1,200.00 | 1,198.66 | 1,176.89 | 1,176.76 | 5.27 | 24.15 | 66.54 | -1,370.27 | -9,242.63 | 9,322.20 | 9,292.79 | 29.41 | 316.965 | |
| 1,300.00 | 1,298.42 | 1,282.63 | 1,282.42 | 5.56 | 26.56 | 66.57 | -1,370.71 | -9,242.63 | 9,319.53 | 9,287.42 | 32.11 | 290.230 | |
| 1,400.00 | 1,398.18 | 1,382.40 | 1,382.18 | 5.85 | 29.06 | 66.61 | -1,370.71 | -9,242.63 | 9,316.79 | 9,281.89 | 34.90 | 266.958 | |
| 1,500.00 | 1,497.95 | 1,481.00 | 1,480.77 | 6.16 | 31.52 | 66.66 | -1,369.35 | -9,242.62 | 9,313.87 | 9,276.20 | 37.67 | 247.261 | |
| 1,600.00 | 1,597.71 | 1,573.25 | 1,573.01 | 6.47 | 33.83 | 66.69 | -1,369.70 | -9,242.62 | 9,311.19 | 9,270.91 | 40.28 | 231.136 | |
| 1,700.00 | 1,697.47 | 1,681.83 | 1,681.47 | 6.79 | 36.54 | 66.73 | -1,370.71 | -9,242.63 | 9,308.61 | 9,265.29 | 43.32 | 214.902 | |
| 1,800.00 | 1,797.24 | 1,781.59 | 1,781.24 | 7.11 | 39.05 | 66.77 | -1,370.71 | -9,242.63 | 9,305.89 | 9,259.75 | 46.14 | 201.680 | |
| 1,900.00 | 1,897.00 | 1,875.36 | 1,874.99 | 7.44 | 41.40 | 66.81 | -1,369.87 | -9,242.63 | 9,303.06 | 9,254.24 | 48.82 | 190.549 | |
| 2,000.00 | 1,996.76 | 1,981.22 | 1,980.76 | 7.77 | 44.02 | 66.84 | -1,370.71 | -9,242.63 | 9,300.46 | 9,248.69 | 51.78 | 179.624 | |
| 2,100.00 | 2,096.53 | 2,080.98 | 2,080.53 | 8.11 | 46.24 | 66.88 | -1,370.71 | -9,242.63 | 9,297.76 | 9,243.43 | 54.32 | 171.157 | |
| 2,200.00 | 2,196.29 | 2,180.75 | 2,180.29 | 8.44 | 48.45 | 66.92 | -1,370.71 | -9,242.63 | 9,295.06 | 9,238.18 | 56.87 | 163.438 | |
| 2,300.00 | 2,296.06 | 2,278.09 | 2,277.60 | 8.79 | 50.61 | 66.97 | -1,368.99 | -9,242.62 | 9,292.13 | 9,232.76 | 59.37 | 156.512 | |
| 2,400.00 | 2,395.82 | 2,372.15 | 2,371.66 | 9.13 | 52.69 | 67.01 | -1,369.39 | -9,242.62 | 9,289.49 | 9,227.69 | 61.80 | 150.321 | |
| 2,500.00 | 2,495.58 | 2,466.28 | 2,465.77 | 9.47 | 54.78 | 67.04 | -1,370.22 | -9,242.63 | 9,286.92 | 9,222.69 | 64.23 | 144.591 | |
| 2,600.00 | 2,595.35 | 2,579.91 | 2,579.35 | 9.82 | 57.09 | 67.08 | -1,370.71 | -9,242.63 | 9,284.29 | 9,217.41 | 66.89 | 138.808 | |
| 2,700.00 | 2,695.11 | 2,679.67 | 2,679.11 | 10.17 | 59.02 | 67.12 | -1,370.71 | -9,242.63 | 9,281.61 | 9,212.45 | 69.16 | 134.205 | |
| 2,800.00 | 2,794.87 | 2,778.56 | 2,778.00 | 10.52 | 60.93 | 67.16 | -1,369.92 | -9,242.63 | 9,278.83 | 9,207.41 | 71.42 | 129.921 | |
| 2,900.00 | 2,894.64 | 2,875.19 | 2,874.62 | 10.87 | 62.79 | 67.20 | -1,370.11 | -9,242.63 | 9,276.19 | 9,202.55 | 73.64 | 125.974 | |
| 3,000.00 | 2,994.40 | 2,971.85 | 2,971.27 | 11.23 | 64.66 | 67.23 | -1,370.55 | -9,242.63 | 9,273.58 | 9,197.73 | 75.85 | 122.255 | |
| 3,100.00 | 3,094.16 | 3,078.77 | 3,078.16 | 11.58 | 66.81 | 67.27 | -1,370.71 | -9,242.63 | 9,270.93 | 9,192.58 | 78.36 | 118.320 | |
| 3,200.00 | 3,193.93 | 3,178.53 | 3,177.93 | 11.94 | 68.84 | 67.31 | -1,370.71 | -9,242.63 | 9,268.28 | 9,187.54 | 80.74 | 114.796 | |
| 3,300.00 | 3,293.69 | 3,277.55 | 3,276.93 | 12.29 | 70.85 | 67.36 | -1,369.88 | -9,242.63 | 9,265.51 | 9,182.41 | 83.11 | 111.492 | |
| 3,400.00 | 3,393.45 | 3,374.38 | 3,373.76 | 12.65 | 72.82 | 67.39 | -1,370.06 | -9,242.63 | 9,262.89 | 9,177.46 | 85.43 | 108.427 | |
| 3,500.00 | 3,493.22 | 3,471.25 | 3,470.63 | 13.01 | 74.79 | 67.43 | -1,370.48 | -9,242.63 | 9,260.30 | 9,172.54 | 87.76 | 105.524 | |
| 3,600.00 | 3,592.98 | 3,577.65 | 3,576.98 | 13.37 | 76.89 | 67.47 | -1,370.71 | -9,242.63 | 9,257.68 | 9,167.47 | 90.21 | 102.618 | |
| 3,700.00 | 3,692.74 | 3,675.15 | 3,674.48 | 13.73 | 78.79 | 67.51 | -1,370.15 | -9,242.63 | 9,254.98 | 9,162.51 | 92.47 | 100.087 | |
| 3,800.00 | 3,792.51 | 3,768.02 | 3,767.34 | 14.09 | 80.59 | 67.55 | -1,370.60 | -9,242.63 | 9,252.41 | 9,157.77 | 94.63 | 97.771 | |
| 3,900.00 | 3,892.27 | 3,876.96 | 3,876.27 | 14.45 | 82.63 | 67.59 | -1,370.71 | -9,242.63 | 9,249.79 | 9,152.76 | 97.03 | 95.331 | |
| 4,000.00 | 3,992.04 | 3,974.72 | 3,974.03 | 14.81 | 84.44 | 67.63 | -1,370.46 | -9,242.63 | 9,247.13 | 9,147.93 | 99.20 | 93.212 | |
| 4,100.00 | 4,091.80 | 4,076.50 | 4,075.80 | 15.17 | 86.50 | 67.67 | -1,370.71 | -9,242.63 | 9,244.54 | 9,142.92 | 101.62 | 90.967 | |
| 4,200.00 | 4,191.56 | 4,176.27 | 4,175.56 | 15.53 | 89.26 | 67.71 | -1,370.71 | -9,242.63 | 9,241.93 | 9,137.18 | 104.75 | 88.231 | |
| 4,300.00 | 4,291.33 | 4,276.03 | 4,275.33 | 15.89 | 92.03 | 67.74 | -1,370.71 | -9,242.63 | 9,239.32 | 9,131.45 | 107.87 | 85.653 | |
| 4,400.00 | 4,391.09 | 4,373.89 | 4,373.18 | 16.26 | 94.73 | 67.79 | -1,369.94 | -9,242.63 | 9,236.62 | 9,125.68 | 110.94 | 83.258 | |
| 4,500.00 | 4,490.85 | 4,470.86 | 4,470.14 | 16.62 | 97.42 | 67.82 | -1,370.23 | -9,242.63 | 9,234.05 | 9,120.07 | 113.99 | 81.010 | |
| 4,600.00 | 4,590.62 | 4,575.62 | 4,574.62 | 16.99 | 100.45 | 67.86 | -1,370.71 | -9,242.63 | 9,231.51 | 9,114.13 | 117.38 | 78.643 | |

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

**Survey Program:** 122-A027Ua_INC-ONLY

**Offset Well Error:** 0.00 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4,700.00 | 4,690.38 | 4,664.62 | 4,663.52 | 17.35 | 103.62 | 67.90 | -1,370.36 | -9,242.63 | 9,228.88 | 9,107.97 | 120.91 | 76.327 | |
| 4,800.00 | 4,790.14 | 4,767.32 | 4,766.14 | 17.71 | 107.19 | 67.94 | -1,370.10 | -9,242.63 | 9,226.26 | 9,101.41 | 124.85 | 73.899 | |
| 4,900.00 | 4,889.91 | 4,867.46 | 4,866.14 | 18.08 | 110.69 | 67.98 | -1,370.15 | -9,242.63 | 9,223.68 | 9,094.97 | 128.71 | 71.660 | |
| 5,000.00 | 4,989.67 | 4,971.73 | 4,970.30 | 18.44 | 114.29 | 68.02 | -1,370.05 | -9,242.63 | 9,221.09 | 9,088.42 | 132.67 | 69.502 | |
| 5,100.00 | 5,089.43 | 5,074.98 | 5,073.43 | 18.81 | 117.88 | 68.06 | -1,370.71 | -9,242.63 | 9,218.59 | 9,081.96 | 136.63 | 67.472 | |
| 5,200.00 | 5,189.20 | 5,174.88 | 5,173.20 | 19.17 | 121.39 | 68.10 | -1,370.71 | -9,242.63 | 9,216.02 | 9,075.52 | 140.50 | 65.594 | |
| 5,300.00 | 5,288.96 | 5,263.32 | 5,261.61 | 19.54 | 124.45 | 68.14 | -1,369.90 | -9,242.63 | 9,213.37 | 9,069.44 | 143.92 | 64.016 | |
| 5,400.00 | 5,388.72 | 5,374.58 | 5,372.72 | 19.91 | 128.23 | 68.18 | -1,370.71 | -9,242.63 | 9,210.89 | 9,062.82 | 148.07 | 62.205 | |
| 5,500.00 | 5,488.49 | 5,474.48 | 5,472.49 | 20.27 | 131.62 | 68.22 | -1,370.71 | -9,242.63 | 9,208.33 | 9,056.51 | 151.83 | 60.650 | |
| 5,600.00 | 5,588.25 | 5,566.73 | 5,564.71 | 20.64 | 134.83 | 68.26 | -1,369.87 | -9,242.63 | 9,205.69 | 9,050.28 | 155.41 | 59.236 | |
| 5,700.00 | 5,688.01 | 5,674.19 | 5,672.01 | 21.00 | 138.64 | 68.30 | -1,370.71 | -9,242.63 | 9,203.23 | 9,043.66 | 159.57 | 57.674 | |
| 5,800.00 | 5,787.78 | 5,757.12 | 5,754.90 | 21.37 | 141.63 | 68.33 | -1,370.21 | -9,242.63 | 9,200.65 | 9,037.72 | 162.93 | 56.470 | |
| 5,900.00 | 5,887.54 | 5,873.89 | 5,871.54 | 21.74 | 145.75 | 68.38 | -1,370.71 | -9,242.63 | 9,198.15 | 9,030.73 | 167.42 | 54.941 | |
| 6,000.00 | 5,987.31 | 5,973.86 | 5,971.31 | 22.11 | 149.26 | 68.42 | -1,370.71 | -9,242.63 | 9,195.61 | 9,024.32 | 171.29 | 53.684 | |
| 6,100.00 | 6,087.07 | 6,069.28 | 6,066.71 | 22.47 | 152.62 | 68.46 | -1,369.84 | -9,242.63 | 9,192.98 | 9,017.97 | 175.02 | 52.526 | |
| 6,200.00 | 6,186.83 | 6,170.00 | 6,167.24 | 22.84 | 156.20 | 68.50 | -1,370.71 | -9,242.63 | 9,190.55 | 9,011.58 | 178.97 | 51.353 | |
| 6,300.00 | 6,286.60 | 6,170.00 | 6,167.24 | 23.21 | 156.20 | 68.50 | -1,370.71 | -9,242.63 | 9,188.61 | 9,009.28 | 179.33 | 51.239 | |
| 6,400.00 | 6,386.36 | 6,170.00 | 6,167.24 | 23.58 | 156.20 | 68.50 | -1,370.71 | -9,242.63 | 9,187.76 | 9,008.09 | 179.67 | 51.137 | |
| 6,428.48 | 6,414.77 | 6,170.00 | 6,167.24 | 23.68 | 156.20 | 68.50 | -1,370.71 | -9,242.63 | 9,187.71 | 9,007.95 | 179.76 | 51.110 | |
| 6,494.00 | 6,480.13 | 6,170.00 | 6,167.24 | 23.92 | 156.20 | 68.50 | -1,370.71 | -9,242.63 | 9,187.95 | 9,007.98 | 179.97 | 51.052 | |
| 6,500.00 | 6,486.12 | 6,170.00 | 6,167.24 | 23.94 | 156.20 | 61.22 | -1,370.71 | -9,242.63 | 9,187.96 | 9,007.97 | 179.99 | 51.047 | |
| 6,550.00 | 6,535.89 | 6,170.00 | 6,167.24 | 24.13 | 156.20 | 25.71 | -1,370.71 | -9,242.63 | 9,186.07 | 9,005.93 | 180.14 | 50.994 | |
| 6,600.00 | 6,585.24 | 6,170.00 | 6,167.24 | 24.31 | 156.20 | 13.39 | -1,370.71 | -9,242.63 | 9,180.56 | 9,000.27 | 180.28 | 50.923 | |
| 6,650.00 | 6,633.88 | 6,170.00 | 6,167.24 | 24.50 | 156.20 | 7.71 | -1,370.71 | -9,242.63 | 9,171.45 | 8,991.04 | 180.42 | 50.834 | |
| 6,700.00 | 6,681.49 | 6,170.00 | 6,167.24 | 24.68 | 156.20 | 4.45 | -1,370.71 | -9,242.63 | 9,158.81 | 8,978.26 | 180.54 | 50.729 | |
| 6,750.00 | 6,727.80 | 6,170.00 | 6,167.24 | 24.86 | 156.20 | 2.29 | -1,370.71 | -9,242.63 | 9,142.67 | 8,962.01 | 180.66 | 50.607 | |
| 6,800.00 | 6,772.51 | 6,170.00 | 6,167.24 | 25.04 | 156.20 | 0.71 | -1,370.71 | -9,242.63 | 9,123.14 | 8,942.38 | 180.77 | 50.470 | |
| 6,850.00 | 6,815.34 | 6,170.00 | 6,167.24 | 25.21 | 156.20 | -0.55 | -1,370.71 | -9,242.63 | 9,100.31 | 8,919.45 | 180.86 | 50.317 | |
| 6,900.00 | 6,856.04 | 6,170.00 | 6,167.24 | 25.39 | 156.20 | -1.64 | -1,370.71 | -9,242.63 | 9,074.29 | 8,893.34 | 180.94 | 50.150 | |
| 6,950.00 | 6,894.35 | 6,170.00 | 6,167.24 | 25.57 | 156.20 | -2.65 | -1,370.71 | -9,242.63 | 9,045.21 | 8,864.20 | 181.01 | 49.970 | |
| 7,000.00 | 6,930.04 | 6,170.00 | 6,167.24 | 25.75 | 156.20 | -3.65 | -1,370.71 | -9,242.63 | 9,013.24 | 8,832.16 | 181.07 | 49.777 | |
| 7,050.00 | 6,962.89 | 6,170.00 | 6,167.24 | 25.93 | 156.20 | -4.69 | -1,370.71 | -9,242.63 | 8,978.53 | 8,797.41 | 181.12 | 49.571 | |
| 7,100.00 | 6,992.69 | 6,170.00 | 6,167.24 | 26.13 | 156.20 | -5.85 | -1,370.71 | -9,242.63 | 8,941.27 | 8,760.11 | 181.16 | 49.355 | |
| 7,150.00 | 7,019.25 | 6,170.00 | 6,167.24 | 26.33 | 156.20 | -7.19 | -1,370.71 | -9,242.63 | 8,901.66 | 8,720.47 | 181.19 | 49.129 | |
| 7,200.00 | 7,042.43 | 6,170.00 | 6,167.24 | 26.55 | 156.20 | -8.82 | -1,370.71 | -9,242.63 | 8,859.91 | 8,678.71 | 181.21 | 48.894 | |
| 7,250.00 | 7,062.07 | 6,170.00 | 6,167.24 | 26.79 | 156.20 | -10.91 | -1,370.71 | -9,242.63 | 8,816.26 | 8,635.04 | 181.22 | 48.651 | |
| 7,300.00 | 7,078.05 | 6,170.00 | 6,167.24 | 27.04 | 156.20 | -13.74 | -1,370.71 | -9,242.63 | 8,770.94 | 8,589.72 | 181.22 | 48.400 | |
| 7,350.00 | 7,090.27 | 6,170.00 | 6,167.24 | 27.30 | 156.20 | -17.81 | -1,370.71 | -9,242.63 | 8,724.21 | 8,542.99 | 181.21 | 48.143 | |
| 7,400.00 | 7,098.66 | 6,170.00 | 6,167.24 | 27.58 | 156.20 | -24.15 | -1,370.71 | -9,242.63 | 8,676.33 | 8,495.13 | 181.20 | 47.882 | |
| 7,450.00 | 7,103.17 | 6,170.00 | 6,167.24 | 27.87 | 156.20 | -35.01 | -1,370.71 | -9,242.63 | 8,627.60 | 8,446.40 | 181.19 | 47.616 | |
| 7,484.86 | 7,104.00 | 6,170.00 | 6,167.24 | 28.08 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 8,593.26 | 8,412.08 | 181.18 | 47.429 | |
| 7,500.00 | 7,103.95 | 6,170.00 | 6,167.24 | 28.17 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 8,578.30 | 8,397.12 | 181.18 | 47.347 | |
| 7,600.00 | 7,103.60 | 6,170.00 | 6,167.24 | 28.83 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 8,479.51 | 8,298.37 | 181.15 | 46.810 | |
| 7,700.00 | 7,103.25 | 6,170.00 | 6,167.24 | 29.56 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 8,380.76 | 8,199.64 | 181.12 | 46.272 | |
| 7,800.00 | 7,102.90 | 6,170.00 | 6,167.24 | 30.35 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 8,282.03 | 8,100.94 | 181.09 | 45.734 | |
| 7,900.00 | 7,102.55 | 6,170.00 | 6,167.24 | 31.21 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 8,183.33 | 8,002.26 | 181.07 | 45.195 | |
| 8,000.00 | 7,102.20 | 6,170.00 | 6,167.24 | 32.13 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 8,084.66 | 7,903.62 | 181.04 | 44.656 | |
| 8,100.00 | 7,101.85 | 6,170.00 | 6,167.24 | 33.10 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 7,986.03 | 7,805.01 | 181.02 | 44.116 | |
| 8,200.00 | 7,101.50 | 6,170.00 | 6,167.24 | 34.11 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 7,887.43 | 7,706.43 | 181.00 | 43.576 | |
| 8,300.00 | 7,101.15 | 6,170.00 | 6,167.24 | 35.17 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 7,788.87 | 7,607.89 | 180.99 | 43.036 | |
| 8,400.00 | 7,100.80 | 6,170.00 | 6,167.24 | 36.27 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 7,690.35 | 7,509.38 | 180.97 | 42.495 | |
| 8,500.00 | 7,100.45 | 6,170.00 | 6,167.24 | 37.41 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 7,591.86 | 7,410.90 | 180.96 | 41.953 | |

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

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

**Survey Program:** 122-A027Ua_INC-ONLY

**Offset Well Error:** 0.00 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8,600.00 | 7,100.10 | 6,170.00 | 6,167.24 | 38.58 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 7,493.41 | 7,312.46 | 180.95 | 41.411 | |
| 8,700.00 | 7,099.75 | 6,170.00 | 6,167.24 | 39.78 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 7,395.01 | 7,214.07 | 180.94 | 40.869 | |
| 8,800.00 | 7,099.40 | 6,170.00 | 6,167.24 | 41.00 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 7,296.65 | 7,115.71 | 180.94 | 40.326 | |
| 8,900.00 | 7,099.05 | 6,170.00 | 6,167.24 | 42.25 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 7,198.33 | 7,017.39 | 180.94 | 39.783 | |
| 9,000.00 | 7,098.70 | 6,170.00 | 6,167.24 | 43.53 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 7,100.06 | 6,919.12 | 180.94 | 39.239 | |
| 9,100.00 | 7,098.35 | 6,170.00 | 6,167.24 | 44.82 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 7,001.84 | 6,820.89 | 180.95 | 38.695 | |
| 9,200.00 | 7,098.00 | 6,170.00 | 6,167.24 | 46.14 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 6,903.67 | 6,722.71 | 180.96 | 38.150 | |
| 9,300.00 | 7,097.65 | 6,170.00 | 6,167.24 | 47.47 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 6,805.56 | 6,624.58 | 180.98 | 37.604 | |
| 9,400.00 | 7,097.30 | 6,170.00 | 6,167.24 | 48.82 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 6,707.50 | 6,526.50 | 181.00 | 37.058 | |
| 9,500.00 | 7,096.95 | 6,170.00 | 6,167.24 | 50.18 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 6,609.50 | 6,428.47 | 181.02 | 36.512 | |
| 9,600.00 | 7,096.60 | 6,170.00 | 6,167.24 | 51.56 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 6,511.56 | 6,330.50 | 181.05 | 35.965 | |
| 9,700.00 | 7,096.25 | 6,170.00 | 6,167.24 | 52.95 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 6,413.68 | 6,232.59 | 181.09 | 35.418 | |
| 9,800.00 | 7,095.90 | 6,170.00 | 6,167.24 | 54.35 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 6,315.87 | 6,134.74 | 181.13 | 34.870 | |
| 9,900.00 | 7,095.55 | 6,170.00 | 6,167.24 | 55.76 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 6,218.13 | 6,036.95 | 181.18 | 34.321 | |
| 10,000.00 | 7,095.20 | 6,170.00 | 6,167.24 | 57.18 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 6,120.46 | 5,939.23 | 181.23 | 33.772 | |
| 10,100.00 | 7,094.85 | 6,170.00 | 6,167.24 | 58.61 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 6,022.87 | 5,841.58 | 181.29 | 33.222 | |
| 10,200.00 | 7,094.50 | 6,170.00 | 6,167.24 | 60.05 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 5,925.35 | 5,744.00 | 181.36 | 32.672 | |
| 10,300.00 | 7,094.15 | 6,170.00 | 6,167.24 | 61.50 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 5,827.93 | 5,646.49 | 181.44 | 32.121 | |
| 10,400.00 | 7,093.80 | 6,170.00 | 6,167.24 | 62.96 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 5,730.59 | 5,549.07 | 181.52 | 31.570 | |
| 10,500.00 | 7,093.45 | 6,170.00 | 6,167.24 | 64.42 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 5,633.34 | 5,451.73 | 181.61 | 31.018 | |
| 10,600.00 | 7,093.10 | 6,170.00 | 6,167.24 | 65.89 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 5,536.20 | 5,354.48 | 181.72 | 30.466 | |
| 10,700.00 | 7,092.75 | 6,170.00 | 6,167.24 | 67.36 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 5,439.15 | 5,257.32 | 181.83 | 29.913 | |
| 10,800.00 | 7,092.40 | 6,170.00 | 6,167.24 | 68.84 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 5,342.22 | 5,160.26 | 181.96 | 29.359 | |
| 10,900.00 | 7,092.05 | 6,170.00 | 6,167.24 | 70.33 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 5,245.40 | 5,063.30 | 182.10 | 28.805 | |
| 11,000.00 | 7,091.70 | 6,170.00 | 6,167.24 | 71.82 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 5,148.70 | 4,966.45 | 182.25 | 28.251 | |
| 11,100.00 | 7,091.35 | 6,170.00 | 6,167.24 | 73.31 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 5,052.13 | 4,869.71 | 182.42 | 27.696 | |
| 11,200.00 | 7,091.00 | 6,170.00 | 6,167.24 | 74.81 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 4,955.70 | 4,773.10 | 182.60 | 27.140 | |
| 11,300.00 | 7,090.65 | 6,170.00 | 6,167.24 | 76.32 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 4,859.41 | 4,676.61 | 182.79 | 26.584 | |
| 11,400.00 | 7,090.30 | 6,170.00 | 6,167.24 | 77.82 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 4,763.27 | 4,580.26 | 183.01 | 26.028 | |
| 11,500.00 | 7,089.95 | 6,170.00 | 6,167.24 | 79.34 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 4,667.30 | 4,484.06 | 183.24 | 25.471 | |
| 11,600.00 | 7,089.60 | 6,170.00 | 6,167.24 | 80.85 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 4,571.49 | 4,388.01 | 183.49 | 24.914 | |
| 11,700.00 | 7,089.25 | 6,170.00 | 6,167.24 | 82.37 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 4,475.88 | 4,292.12 | 183.76 | 24.357 | |
| 11,800.00 | 7,088.90 | 6,170.00 | 6,167.24 | 83.89 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 4,380.45 | 4,196.40 | 184.05 | 23.800 | |
| 11,900.00 | 7,088.55 | 6,170.00 | 6,167.24 | 85.41 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 4,285.24 | 4,100.87 | 184.37 | 23.242 | |
| 12,000.00 | 7,088.20 | 6,170.00 | 6,167.24 | 86.94 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 4,190.25 | 4,005.53 | 184.72 | 22.685 | |
| 12,100.00 | 7,087.85 | 6,170.00 | 6,167.24 | 88.47 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 4,095.50 | 3,910.41 | 185.09 | 22.127 | |
| 12,200.00 | 7,087.50 | 6,170.00 | 6,167.24 | 90.00 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 4,001.00 | 3,815.51 | 185.49 | 21.570 | |
| 12,300.00 | 7,087.15 | 6,170.00 | 6,167.24 | 91.54 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 3,906.78 | 3,720.86 | 185.92 | 21.013 | |
| 12,400.00 | 7,086.81 | 6,170.00 | 6,167.24 | 93.07 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 3,812.85 | 3,626.47 | 186.38 | 20.457 | |
| 12,500.00 | 7,086.46 | 6,170.00 | 6,167.24 | 94.61 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 3,719.24 | 3,532.36 | 186.88 | 19.901 | |
| 12,600.00 | 7,086.11 | 6,170.00 | 6,167.24 | 96.15 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 3,625.97 | 3,438.55 | 187.42 | 19.347 | |
| 12,700.00 | 7,085.76 | 6,170.00 | 6,167.24 | 97.69 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 3,533.07 | 3,345.07 | 188.00 | 18.793 | |
| 12,800.00 | 7,085.41 | 6,170.00 | 6,167.24 | 99.24 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 3,440.56 | 3,251.94 | 188.62 | 18.241 | |
| 12,900.00 | 7,085.06 | 6,170.00 | 6,167.24 | 100.78 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 3,348.49 | 3,159.20 | 189.29 | 17.690 | |
| 13,000.00 | 7,084.71 | 6,170.00 | 6,167.24 | 102.33 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 3,256.89 | 3,066.88 | 190.00 | 17.141 | |
| 13,100.00 | 7,084.36 | 6,170.00 | 6,167.24 | 103.88 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 3,165.79 | 2,975.02 | 190.77 | 16.595 | |
| 13,200.00 | 7,084.01 | 6,170.00 | 6,167.24 | 105.43 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 3,075.24 | 2,883.65 | 191.59 | 16.051 | |
| 13,300.00 | 7,083.66 | 6,170.00 | 6,167.24 | 106.99 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 2,985.30 | 2,792.83 | 192.47 | 15.510 | |
| 13,400.00 | 7,083.31 | 6,170.00 | 6,167.24 | 108.54 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 2,896.02 | 2,702.61 | 193.41 | 14.973 | |
| 13,500.00 | 7,082.96 | 6,170.00 | 6,167.24 | 110.09 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 2,807.46 | 2,613.05 | 194.42 | 14.440 | |
| 13,600.00 | 7,082.61 | 6,170.00 | 6,167.24 | 111.65 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 2,719.70 | 2,524.21 | 195.49 | 13.912 | |
| 13,700.00 | 7,082.26 | 6,170.00 | 6,167.24 | 113.21 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 2,632.81 | 2,436.17 | 196.63 | 13.389 | |

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

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

**Survey Program:** 122-A027Ua_INC-ONLY

**Rule Assigned:**

**Offset Well Error:** 0.00 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13,800.00 | 7,081.91 | 6,170.00 | 6,167.24 | 114.77 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 2,546.88 | 2,349.03 | 197.85 | 12.873 | |
| 13,900.00 | 7,081.56 | 6,170.00 | 6,167.24 | 116.33 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 2,462.01 | 2,262.86 | 199.15 | 12.363 | |
| 14,000.00 | 7,081.21 | 6,170.00 | 6,167.24 | 117.89 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 2,378.32 | 2,177.80 | 200.52 | 11.861 | |
| 14,100.00 | 7,080.86 | 6,170.00 | 6,167.24 | 119.45 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 2,295.93 | 2,093.95 | 201.98 | 11.367 | |
| 14,200.00 | 7,080.51 | 6,170.00 | 6,167.24 | 121.02 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 2,215.00 | 2,011.48 | 203.52 | 10.883 | |
| 14,300.00 | 7,080.16 | 6,170.00 | 6,167.24 | 122.58 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 2,135.68 | 1,930.54 | 205.14 | 10.411 | |
| 14,400.00 | 7,079.81 | 6,170.00 | 6,167.24 | 124.15 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 2,058.17 | 1,851.31 | 206.85 | 9.950 | |
| 14,500.00 | 7,079.46 | 6,170.00 | 6,167.24 | 125.71 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 1,982.66 | 1,774.03 | 208.64 | 9.503 | |
| 14,600.00 | 7,079.11 | 6,170.00 | 6,167.24 | 127.28 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 1,909.42 | 1,698.92 | 210.50 | 9.071 | |
| 14,700.00 | 7,078.76 | 6,170.00 | 6,167.24 | 128.85 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 1,838.69 | 1,626.26 | 212.43 | 8.656 | |
| 14,800.00 | 7,078.41 | 6,170.00 | 6,167.24 | 130.42 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 1,770.79 | 1,556.37 | 214.42 | 8.259 | |
| 14,900.00 | 7,078.06 | 6,170.00 | 6,167.24 | 131.98 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 1,706.05 | 1,489.59 | 216.46 | 7.882 | |
| 15,000.00 | 7,077.71 | 6,170.00 | 6,167.24 | 133.55 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 1,644.84 | 1,426.32 | 218.53 | 7.527 | |
| 15,100.00 | 7,077.36 | 6,170.00 | 6,167.24 | 135.13 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 1,587.58 | 1,366.97 | 220.61 | 7.196 | |
| 15,200.00 | 7,077.01 | 6,170.00 | 6,167.24 | 136.70 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 1,534.71 | 1,312.01 | 222.70 | 6.891 | |
| 15,300.00 | 7,076.66 | 6,170.00 | 6,167.24 | 138.27 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 1,486.69 | 1,261.93 | 224.76 | 6.615 | |
| 15,400.00 | 7,076.31 | 6,170.00 | 6,167.24 | 139.84 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 1,444.00 | 1,217.22 | 226.78 | 6.367 | |
| 15,500.00 | 7,075.96 | 6,170.00 | 6,167.24 | 141.42 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 1,407.15 | 1,178.39 | 228.76 | 6.151 | |
| 15,600.00 | 7,075.61 | 6,170.00 | 6,167.24 | 142.99 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 1,376.58 | 1,145.90 | 230.68 | 5.968 | |
| 15,700.00 | 7,075.26 | 6,170.00 | 6,167.24 | 144.57 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 1,352.73 | 1,120.21 | 232.52 | 5.818 | |
| 15,800.00 | 7,074.91 | 6,170.00 | 6,167.24 | 146.14 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 1,335.96 | 1,101.66 | 234.30 | 5.702 | |
| 15,900.00 | 7,074.56 | 6,170.00 | 6,167.24 | 147.72 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 1,326.54 | 1,090.54 | 236.00 | 5.621 | |
| 15,975.45 | 7,074.30 | 6,170.00 | 6,167.24 | 148.91 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 1,324.39 | 1,087.17 | 237.22 | 5.583 | CC |
| 16,000.00 | 7,074.21 | 6,170.00 | 6,167.24 | 149.29 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 1,324.62 | 1,087.02 | 237.60 | 5.575 | ES |
| 16,100.00 | 7,073.86 | 6,170.00 | 6,167.24 | 150.87 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 1,330.23 | 1,091.15 | 239.08 | 5.564 | SF |
| 16,200.00 | 7,073.51 | 6,170.00 | 6,167.24 | 152.45 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 1,343.29 | 1,102.89 | 240.40 | 5.588 | |
| 16,300.00 | 7,073.16 | 6,170.00 | 6,167.24 | 154.03 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 1,363.58 | 1,122.05 | 241.52 | 5.646 | |
| 16,400.00 | 7,072.81 | 6,170.00 | 6,167.24 | 155.60 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 1,390.77 | 1,148.35 | 242.42 | 5.737 | |
| 16,500.00 | 7,072.46 | 6,170.00 | 6,167.24 | 157.18 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 1,424.49 | 1,181.42 | 243.06 | 5.861 | |
| 16,600.00 | 7,072.11 | 6,170.00 | 6,167.24 | 158.76 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 1,464.26 | 1,220.83 | 243.44 | 6.015 | |
| 16,631.96 | 7,072.00 | 6,170.00 | 6,167.24 | 159.27 | 156.20 | -47.72 | -1,370.71 | -9,242.63 | 1,478.18 | 1,234.68 | 243.50 | 6.070 | |

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

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

**Survey Program:** 293-A027Ua_INC-ONLY

**Rule Assigned:**

**Offset Well Error:** 0.00 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 3.28 | 0.00 | -96.69 | -847.70 | -7,224.59 | 7,274.40 | | | | |
| 100.00 | 100.00 | 40.00 | 40.00 | 3.29 | 0.37 | -96.69 | -847.70 | -7,224.59 | 7,274.15 | 7,270.49 | 3.66 | 1,987.764 | |
| 200.00 | 200.00 | 140.00 | 140.00 | 3.34 | 1.29 | -96.69 | -847.70 | -7,224.59 | 7,274.15 | 7,269.52 | 4.63 | 1,571.019 | |
| 300.00 | 300.00 | 240.00 | 240.00 | 3.42 | 2.22 | -96.69 | -847.70 | -7,224.59 | 7,274.15 | 7,268.51 | 5.64 | 1,290.176 | |
| 400.00 | 400.00 | 340.00 | 340.00 | 3.54 | 3.60 | -96.69 | -847.70 | -7,224.59 | 7,274.15 | 7,267.01 | 7.14 | 1,018.707 | |
| 500.00 | 500.00 | 440.00 | 440.00 | 3.69 | 5.51 | -96.69 | -847.70 | -7,224.59 | 7,274.15 | 7,264.96 | 9.19 | 791.281 | |
| 600.00 | 599.98 | 539.98 | 539.98 | 3.86 | 7.41 | 53.34 | -847.70 | -7,224.59 | 7,273.11 | 7,261.85 | 11.26 | 645.699 | |
| 697.00 | 696.84 | 635.44 | 635.43 | 4.04 | 9.22 | 53.42 | -847.24 | -7,224.59 | 7,270.06 | 7,256.79 | 13.26 | 548.240 | |
| 700.00 | 699.84 | 638.39 | 638.38 | 4.05 | 9.28 | 53.42 | -847.25 | -7,224.59 | 7,269.93 | 7,256.61 | 13.32 | 545.656 | |
| 800.00 | 799.60 | 736.72 | 736.71 | 4.25 | 11.15 | 53.46 | -847.50 | -7,224.59 | 7,265.86 | 7,250.46 | 15.40 | 471.707 | |
| 897.00 | 896.37 | 836.41 | 836.37 | 4.48 | 13.11 | 53.50 | -847.70 | -7,224.59 | 7,261.91 | 7,244.33 | 17.59 | 412.960 | |
| 900.00 | 899.37 | 839.40 | 839.37 | 4.48 | 13.17 | 54.37 | -847.70 | -7,224.59 | 7,261.79 | 7,244.14 | 17.65 | 411.364 | |
| 947.40 | 946.65 | 886.68 | 886.65 | 4.60 | 14.13 | 68.21 | -847.70 | -7,224.59 | 7,260.24 | 7,241.51 | 18.73 | 387.661 | |
| 1,000.00 | 999.13 | 939.16 | 939.13 | 4.73 | 15.20 | 68.24 | -847.70 | -7,224.59 | 7,258.89 | 7,238.97 | 19.93 | 364.289 | |
| 1,100.00 | 1,098.89 | 1,038.83 | 1,038.79 | 4.99 | 17.22 | 68.30 | -846.90 | -7,224.59 | 7,256.25 | 7,234.04 | 22.21 | 326.664 | |
| 1,200.00 | 1,198.66 | 1,136.50 | 1,136.46 | 5.27 | 19.21 | 68.35 | -847.04 | -7,224.59 | 7,253.72 | 7,229.25 | 24.47 | 296.401 | |
| 1,300.00 | 1,298.42 | 1,234.21 | 1,234.16 | 5.56 | 21.19 | 68.39 | -847.43 | -7,224.59 | 7,251.23 | 7,224.49 | 26.74 | 271.135 | |
| 1,400.00 | 1,398.18 | 1,338.28 | 1,338.18 | 5.85 | 23.35 | 68.44 | -847.70 | -7,224.59 | 7,248.73 | 7,219.53 | 29.20 | 248.239 | |
| 1,500.00 | 1,497.95 | 1,438.04 | 1,437.95 | 6.16 | 25.46 | 68.49 | -847.70 | -7,224.59 | 7,246.20 | 7,214.59 | 31.61 | 229.220 | |
| 1,600.00 | 1,597.71 | 1,537.62 | 1,537.52 | 6.47 | 27.57 | 68.55 | -846.61 | -7,224.59 | 7,243.56 | 7,209.53 | 34.03 | 212.874 | |
| 1,700.00 | 1,697.47 | 1,634.76 | 1,634.66 | 6.79 | 29.62 | 68.60 | -846.80 | -7,224.59 | 7,241.06 | 7,204.67 | 36.40 | 198.947 | |
| 1,800.00 | 1,797.24 | 1,731.96 | 1,731.85 | 7.11 | 31.67 | 68.64 | -847.32 | -7,224.59 | 7,238.61 | 7,199.84 | 38.77 | 186.693 | |
| 1,900.00 | 1,897.00 | 1,837.17 | 1,837.00 | 7.44 | 33.90 | 68.69 | -847.70 | -7,224.59 | 7,236.14 | 7,194.82 | 41.33 | 175.096 | |
| 2,000.00 | 1,996.76 | 1,936.93 | 1,936.76 | 7.77 | 36.02 | 68.75 | -847.70 | -7,224.59 | 7,233.64 | 7,189.87 | 43.77 | 165.255 | |
| 2,100.00 | 2,096.53 | 2,036.70 | 2,036.53 | 8.11 | 38.13 | 68.80 | -847.70 | -7,224.59 | 7,231.15 | 7,184.93 | 46.22 | 156.443 | |
| 2,200.00 | 2,196.29 | 2,134.10 | 2,133.91 | 8.44 | 40.20 | 68.85 | -846.73 | -7,224.59 | 7,228.56 | 7,179.94 | 48.62 | 148.660 | |
| 2,300.00 | 2,296.06 | 2,231.48 | 2,231.29 | 8.79 | 42.26 | 68.90 | -847.20 | -7,224.59 | 7,226.13 | 7,175.10 | 51.03 | 141.607 | |
| 2,400.00 | 2,395.82 | 2,336.07 | 2,335.82 | 9.13 | 44.48 | 68.95 | -847.70 | -7,224.59 | 7,223.70 | 7,170.11 | 53.59 | 134.794 | |
| 2,500.00 | 2,495.58 | 2,435.83 | 2,435.58 | 9.47 | 46.60 | 69.00 | -847.70 | -7,224.59 | 7,221.23 | 7,165.18 | 56.05 | 128.828 | |
| 2,600.00 | 2,595.35 | 2,535.59 | 2,535.35 | 9.82 | 48.72 | 69.05 | -847.70 | -7,224.59 | 7,218.76 | 7,160.25 | 58.52 | 123.359 | |
| 2,700.00 | 2,695.11 | 2,633.28 | 2,633.02 | 10.17 | 50.79 | 69.11 | -846.73 | -7,224.59 | 7,216.21 | 7,155.27 | 60.94 | 118.413 | |
| 2,800.00 | 2,794.87 | 2,730.70 | 2,730.44 | 10.52 | 52.86 | 69.15 | -847.18 | -7,224.59 | 7,213.80 | 7,150.44 | 63.36 | 113.856 | |
| 2,900.00 | 2,894.64 | 2,834.96 | 2,834.64 | 10.87 | 55.11 | 69.20 | -847.70 | -7,224.59 | 7,211.40 | 7,145.45 | 65.95 | 109.341 | |
| 3,000.00 | 2,994.40 | 2,934.72 | 2,934.40 | 11.23 | 57.31 | 69.25 | -847.70 | -7,224.59 | 7,208.96 | 7,140.45 | 68.51 | 105.230 | |
| 3,100.00 | 3,094.16 | 3,034.49 | 3,034.16 | 11.58 | 59.51 | 69.30 | -847.70 | -7,224.59 | 7,206.52 | 7,135.46 | 71.06 | 101.413 | |
| 3,200.00 | 3,193.93 | 3,132.19 | 3,131.85 | 11.94 | 61.67 | 69.36 | -846.76 | -7,224.59 | 7,204.00 | 7,130.43 | 73.57 | 97.918 | |
| 3,300.00 | 3,293.69 | 3,229.67 | 3,229.33 | 12.29 | 63.82 | 69.41 | -847.23 | -7,224.59 | 7,201.62 | 7,125.54 | 76.08 | 94.661 | |
| 3,400.00 | 3,393.45 | 3,333.87 | 3,333.45 | 12.65 | 66.12 | 69.46 | -847.70 | -7,224.59 | 7,199.25 | 7,120.51 | 78.74 | 91.436 | |
| 3,500.00 | 3,493.22 | 3,433.64 | 3,433.22 | 13.01 | 68.32 | 69.51 | -847.70 | -7,224.59 | 7,196.83 | 7,115.54 | 81.30 | 88.525 | |
| 3,600.00 | 3,592.98 | 3,533.40 | 3,532.98 | 13.37 | 70.53 | 69.56 | -847.70 | -7,224.59 | 7,194.42 | 7,110.56 | 83.86 | 85.791 | |
| 3,700.00 | 3,692.74 | 3,630.74 | 3,630.30 | 13.73 | 72.68 | 69.62 | -846.50 | -7,224.59 | 7,191.91 | 7,105.54 | 86.37 | 83.269 | |
| 3,800.00 | 3,792.51 | 3,727.88 | 3,727.43 | 14.09 | 74.83 | 69.66 | -847.07 | -7,224.59 | 7,189.57 | 7,100.69 | 88.88 | 80.894 | |
| 3,900.00 | 3,892.27 | 3,832.79 | 3,832.27 | 14.45 | 77.05 | 69.71 | -847.70 | -7,224.59 | 7,187.23 | 7,095.77 | 91.46 | 78.583 | |
| 4,000.00 | 3,992.04 | 3,932.55 | 3,932.04 | 14.81 | 79.01 | 69.77 | -847.70 | -7,224.59 | 7,184.85 | 7,091.07 | 93.78 | 76.617 | |
| 4,100.00 | 4,091.80 | 4,032.31 | 4,031.80 | 15.17 | 80.96 | 69.82 | -847.70 | -7,224.59 | 7,182.47 | 7,086.38 | 96.09 | 74.744 | |
| 4,200.00 | 4,191.56 | 4,130.20 | 4,129.67 | 15.53 | 82.88 | 69.87 | -846.76 | -7,224.59 | 7,180.02 | 7,081.64 | 98.37 | 72.987 | |
| 4,300.00 | 4,291.33 | 4,227.92 | 4,227.38 | 15.89 | 84.80 | 69.92 | -847.23 | -7,224.59 | 7,177.69 | 7,077.04 | 100.65 | 71.312 | |
| 4,400.00 | 4,391.09 | 4,331.65 | 4,331.09 | 16.26 | 86.90 | 69.97 | -847.70 | -7,224.59 | 7,175.37 | 7,072.25 | 103.12 | 69.584 | |
| 4,500.00 | 4,490.85 | 4,431.41 | 4,430.85 | 16.62 | 89.02 | 70.02 | -847.70 | -7,224.59 | 7,173.01 | 7,067.41 | 105.60 | 67.925 | |
| 4,600.00 | 4,590.62 | 4,531.18 | 4,530.62 | 16.99 | 91.15 | 70.07 | -847.70 | -7,224.59 | 7,170.66 | 7,062.57 | 108.09 | 66.342 | |
| 4,700.00 | 4,690.38 | 4,630.28 | 4,629.72 | 17.35 | 93.25 | 70.13 | -847.16 | -7,224.59 | 7,168.27 | 7,057.71 | 110.56 | 64.837 | |
| 4,800.00 | 4,790.14 | 4,729.14 | 4,728.58 | 17.71 | 95.36 | 70.18 | -847.35 | -7,224.59 | 7,165.95 | 7,052.92 | 113.02 | 63.402 | |

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 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

**Offset Design:** Rosa Unit 32 - (O) RU #137A - OH - OH — **Offset Site Error:** 0.00 usft

**Survey Program:** 293-A027Ua_INC-ONLY — **Offset Well Error:** 0.00 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4,900.00 | 4,889.91 | 4,830.55 | 4,829.91 | 18.08 | 97.52 | 70.23 | -847.70 | -7,224.59 | 7,163.64 | 7,048.10 | 115.55 | 61.997 | |
| 5,000.00 | 4,989.67 | 4,930.32 | 4,929.67 | 18.44 | 100.06 | 70.28 | -847.70 | -7,224.59 | 7,161.32 | 7,042.86 | 118.46 | 60.454 | |
| 5,100.00 | 5,089.43 | 5,030.08 | 5,029.43 | 18.81 | 102.61 | 70.33 | -847.70 | -7,224.59 | 7,159.00 | 7,037.63 | 121.37 | 58.985 | |
| 5,200.00 | 5,189.20 | 5,128.10 | 5,127.42 | 19.17 | 105.11 | 70.39 | -846.24 | -7,224.59 | 7,156.57 | 7,032.33 | 124.24 | 57.604 | |
| 5,300.00 | 5,288.96 | 5,225.07 | 5,224.38 | 19.54 | 107.59 | 70.44 | -846.81 | -7,224.59 | 7,154.30 | 7,027.23 | 127.08 | 56.299 | |
| 5,400.00 | 5,388.72 | 5,329.57 | 5,328.72 | 19.91 | 110.34 | 70.49 | -847.70 | -7,224.59 | 7,152.07 | 7,021.87 | 130.19 | 54.935 | |
| 5,500.00 | 5,488.49 | 5,429.33 | 5,428.49 | 20.27 | 113.27 | 70.54 | -847.70 | -7,224.59 | 7,149.77 | 7,016.28 | 133.49 | 53.562 | |
| 5,600.00 | 5,588.25 | 5,529.09 | 5,528.25 | 20.64 | 116.19 | 70.59 | -847.70 | -7,224.59 | 7,147.48 | 7,010.70 | 136.78 | 52.256 | |
| 5,700.00 | 5,688.01 | 5,626.56 | 5,625.68 | 21.00 | 119.05 | 70.65 | -846.00 | -7,224.59 | 7,145.07 | 7,005.06 | 140.01 | 51.034 | |
| 5,800.00 | 5,787.78 | 5,723.38 | 5,722.48 | 21.37 | 121.90 | 70.70 | -846.73 | -7,224.59 | 7,142.84 | 6,999.63 | 143.21 | 49.876 | |
| 5,900.00 | 5,887.54 | 5,828.72 | 5,827.54 | 21.74 | 125.09 | 70.75 | -847.70 | -7,224.59 | 7,140.64 | 6,993.87 | 146.77 | 48.652 | |
| 6,000.00 | 5,987.31 | 5,928.49 | 5,927.31 | 22.11 | 128.34 | 70.80 | -847.70 | -7,224.59 | 7,138.37 | 6,987.98 | 150.39 | 47.466 | |
| 6,100.00 | 6,087.07 | 6,028.25 | 6,027.07 | 22.47 | 131.59 | 70.85 | -847.70 | -7,224.59 | 7,136.11 | 6,982.10 | 154.01 | 46.336 | |
| 6,200.00 | 6,186.83 | 6,128.01 | 6,126.83 | 22.84 | 134.85 | 70.90 | -847.70 | -7,224.59 | 7,133.85 | 6,976.22 | 157.63 | 45.257 | |
| 6,300.00 | 6,286.60 | 6,210.00 | 6,208.43 | 23.21 | 137.52 | 70.94 | -847.70 | -7,224.59 | 7,131.62 | 6,970.95 | 160.67 | 44.386 | |
| 6,400.00 | 6,386.36 | 6,210.00 | 6,208.43 | 23.58 | 137.52 | 70.94 | -847.70 | -7,224.59 | 7,130.33 | 6,969.31 | 161.02 | 44.281 | |
| 6,442.30 | 6,428.56 | 6,210.00 | 6,208.43 | 23.73 | 137.52 | 70.94 | -847.70 | -7,224.59 | 7,130.20 | 6,969.04 | 161.16 | 44.242 | |
| 6,494.00 | 6,480.13 | 6,210.00 | 6,208.43 | 23.92 | 137.52 | 70.94 | -847.70 | -7,224.59 | 7,130.39 | 6,969.07 | 161.33 | 44.198 | |
| 6,500.00 | 6,486.12 | 6,210.00 | 6,208.43 | 23.94 | 137.52 | 63.67 | -847.70 | -7,224.59 | 7,130.41 | 6,969.07 | 161.35 | 44.193 | |
| 6,550.00 | 6,535.89 | 6,210.00 | 6,208.43 | 24.13 | 137.52 | 28.16 | -847.70 | -7,224.59 | 7,128.56 | 6,967.07 | 161.49 | 44.141 | |
| 6,600.00 | 6,585.24 | 6,210.00 | 6,208.43 | 24.31 | 137.52 | 15.87 | -847.70 | -7,224.59 | 7,123.16 | 6,961.53 | 161.63 | 44.070 | |
| 6,650.00 | 6,633.88 | 6,210.00 | 6,208.43 | 24.50 | 137.52 | 10.22 | -847.70 | -7,224.59 | 7,114.22 | 6,952.46 | 161.76 | 43.980 | |
| 6,700.00 | 6,681.49 | 6,210.00 | 6,208.43 | 24.68 | 137.52 | 7.02 | -847.70 | -7,224.59 | 7,101.80 | 6,939.92 | 161.88 | 43.871 | |
| 6,750.00 | 6,727.80 | 6,210.00 | 6,208.43 | 24.86 | 137.52 | 4.94 | -847.70 | -7,224.59 | 7,085.94 | 6,923.96 | 161.98 | 43.745 | |
| 6,800.00 | 6,772.51 | 6,210.00 | 6,208.43 | 25.04 | 137.52 | 3.45 | -847.70 | -7,224.59 | 7,066.73 | 6,904.65 | 162.08 | 43.601 | |
| 6,850.00 | 6,815.34 | 6,210.00 | 6,208.43 | 25.21 | 137.52 | 2.30 | -847.70 | -7,224.59 | 7,044.25 | 6,882.10 | 162.16 | 43.441 | |
| 6,900.00 | 6,856.04 | 6,210.00 | 6,208.43 | 25.39 | 137.52 | 1.35 | -847.70 | -7,224.59 | 7,018.62 | 6,856.39 | 162.23 | 43.264 | |
| 6,950.00 | 6,894.35 | 6,210.00 | 6,208.43 | 25.57 | 137.52 | 0.52 | -847.70 | -7,224.59 | 6,989.96 | 6,827.67 | 162.28 | 43.072 | |
| 7,000.00 | 6,930.04 | 6,210.00 | 6,208.43 | 25.75 | 137.52 | -0.26 | -847.70 | -7,224.59 | 6,958.40 | 6,796.07 | 162.33 | 42.866 | |
| 7,050.00 | 6,962.89 | 6,210.00 | 6,208.43 | 25.93 | 137.52 | -1.03 | -847.70 | -7,224.59 | 6,924.11 | 6,761.74 | 162.36 | 42.646 | |
| 7,100.00 | 6,992.69 | 6,210.00 | 6,208.43 | 26.13 | 137.52 | -1.83 | -847.70 | -7,224.59 | 6,887.25 | 6,724.87 | 162.38 | 42.413 | |
| 7,150.00 | 7,019.25 | 6,210.00 | 6,208.43 | 26.33 | 137.52 | -2.73 | -847.70 | -7,224.59 | 6,848.02 | 6,685.62 | 162.40 | 42.168 | |
| 7,200.00 | 7,042.43 | 6,210.00 | 6,208.43 | 26.55 | 137.52 | -3.78 | -847.70 | -7,224.59 | 6,806.62 | 6,644.21 | 162.40 | 41.912 | |
| 7,250.00 | 7,062.07 | 6,210.00 | 6,208.43 | 26.79 | 137.52 | -5.09 | -847.70 | -7,224.59 | 6,763.26 | 6,600.86 | 162.40 | 41.646 | |
| 7,300.00 | 7,078.05 | 6,210.00 | 6,208.43 | 27.04 | 137.52 | -6.82 | -847.70 | -7,224.59 | 6,718.18 | 6,555.79 | 162.39 | 41.371 | |
| 7,350.00 | 7,090.27 | 6,210.00 | 6,208.43 | 27.30 | 137.52 | -9.29 | -847.70 | -7,224.59 | 6,671.62 | 6,509.25 | 162.38 | 41.088 | |
| 7,400.00 | 7,098.66 | 6,210.00 | 6,208.43 | 27.58 | 137.52 | -13.15 | -847.70 | -7,224.59 | 6,623.85 | 6,461.49 | 162.36 | 40.798 | |
| 7,450.00 | 7,103.17 | 6,210.00 | 6,208.43 | 27.87 | 137.52 | -20.00 | -847.70 | -7,224.59 | 6,575.12 | 6,412.78 | 162.34 | 40.502 | |
| 7,484.86 | 7,104.00 | 6,210.00 | 6,208.43 | 28.08 | 137.52 | -28.86 | -847.70 | -7,224.59 | 6,540.75 | 6,378.42 | 162.33 | 40.293 | |
| 7,500.00 | 7,103.95 | 6,210.00 | 6,208.43 | 28.17 | 137.52 | -28.86 | -847.70 | -7,224.59 | 6,525.76 | 6,363.44 | 162.32 | 40.202 | |
| 7,600.00 | 7,103.60 | 6,210.00 | 6,208.43 | 28.83 | 137.52 | -28.86 | -847.70 | -7,224.59 | 6,426.79 | 6,264.50 | 162.29 | 39.601 | |
| 7,700.00 | 7,103.25 | 6,210.00 | 6,208.43 | 29.56 | 137.52 | -28.86 | -847.70 | -7,224.59 | 6,327.86 | 6,165.61 | 162.25 | 39.001 | |
| 7,800.00 | 7,102.90 | 6,210.00 | 6,208.43 | 30.35 | 137.52 | -28.86 | -847.70 | -7,224.59 | 6,228.96 | 6,066.74 | 162.21 | 38.400 | |
| 7,900.00 | 7,102.55 | 6,210.00 | 6,208.43 | 31.21 | 137.52 | -28.86 | -847.70 | -7,224.59 | 6,130.09 | 5,967.92 | 162.18 | 37.799 | |
| 8,000.00 | 7,102.20 | 6,210.00 | 6,208.43 | 32.13 | 137.52 | -28.86 | -847.70 | -7,224.59 | 6,031.26 | 5,869.13 | 162.14 | 37.198 | |
| 8,100.00 | 7,101.85 | 6,210.00 | 6,208.43 | 33.10 | 137.52 | -28.86 | -847.70 | -7,224.59 | 5,932.47 | 5,770.37 | 162.10 | 36.598 | |
| 8,200.00 | 7,101.50 | 6,210.00 | 6,208.43 | 34.11 | 137.52 | -28.86 | -847.70 | -7,224.59 | 5,833.73 | 5,671.66 | 162.06 | 35.997 | |
| 8,300.00 | 7,101.15 | 6,210.00 | 6,208.43 | 35.17 | 137.52 | -28.86 | -847.70 | -7,224.59 | 5,735.02 | 5,573.00 | 162.02 | 35.396 | |
| 8,400.00 | 7,100.80 | 6,210.00 | 6,208.43 | 36.27 | 137.52 | -28.86 | -847.70 | -7,224.59 | 5,636.36 | 5,474.38 | 161.99 | 34.795 | |
| 8,500.00 | 7,100.45 | 6,210.00 | 6,208.43 | 37.41 | 137.52 | -28.86 | -847.70 | -7,224.59 | 5,537.75 | 5,375.81 | 161.95 | 34.194 | |
| 8,600.00 | 7,100.10 | 6,210.00 | 6,208.43 | 38.58 | 137.52 | -28.86 | -847.70 | -7,224.59 | 5,439.20 | 5,277.28 | 161.91 | 33.594 | |
| 8,700.00 | 7,099.75 | 6,210.00 | 6,208.43 | 39.78 | 137.52 | -28.86 | -847.70 | -7,224.59 | 5,340.69 | 5,178.82 | 161.87 | 32.993 | |

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

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

**Survey Program:** 293-A027Ua_INC-ONLY

**Offset Well Error:** 0.00 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8,800.00 | 7,099.40 | 6,210.00 | 6,208.43 | 41.00 | 137.52 | -28.86 | -847.70 | -7,224.59 | 5,242.24 | 5,080.41 | 161.83 | 32.393 | |
| 8,900.00 | 7,099.05 | 6,210.00 | 6,208.43 | 42.25 | 137.52 | -28.86 | -847.70 | -7,224.59 | 5,143.85 | 4,982.06 | 161.79 | 31.792 | |
| 9,000.00 | 7,098.70 | 6,210.00 | 6,208.43 | 43.53 | 137.52 | -28.86 | -847.70 | -7,224.59 | 5,045.53 | 4,883.77 | 161.76 | 31.192 | |
| 9,100.00 | 7,098.35 | 6,210.00 | 6,208.43 | 44.82 | 137.52 | -28.86 | -847.70 | -7,224.59 | 4,947.27 | 4,785.55 | 161.72 | 30.592 | |
| 9,200.00 | 7,098.00 | 6,210.00 | 6,208.43 | 46.14 | 137.52 | -28.86 | -847.70 | -7,224.59 | 4,849.08 | 4,687.40 | 161.68 | 29.992 | |
| 9,300.00 | 7,097.65 | 6,210.00 | 6,208.43 | 47.47 | 137.52 | -28.86 | -847.70 | -7,224.59 | 4,750.97 | 4,589.33 | 161.64 | 29.393 | |
| 9,400.00 | 7,097.30 | 6,210.00 | 6,208.43 | 48.82 | 137.52 | -28.86 | -847.70 | -7,224.59 | 4,652.93 | 4,491.34 | 161.60 | 28.794 | |
| 9,500.00 | 7,096.95 | 6,210.00 | 6,208.43 | 50.18 | 137.52 | -28.86 | -847.70 | -7,224.59 | 4,554.99 | 4,393.43 | 161.56 | 28.194 | |
| 9,600.00 | 7,096.60 | 6,210.00 | 6,208.43 | 51.56 | 137.52 | -28.86 | -847.70 | -7,224.59 | 4,457.13 | 4,295.62 | 161.52 | 27.596 | |
| 9,700.00 | 7,096.25 | 6,210.00 | 6,208.43 | 52.95 | 137.52 | -28.86 | -847.70 | -7,224.59 | 4,359.38 | 4,197.90 | 161.48 | 26.997 | |
| 9,800.00 | 7,095.90 | 6,210.00 | 6,208.43 | 54.35 | 137.52 | -28.86 | -847.70 | -7,224.59 | 4,261.72 | 4,100.29 | 161.43 | 26.399 | |
| 9,900.00 | 7,095.55 | 6,210.00 | 6,208.43 | 55.76 | 137.52 | -28.86 | -847.70 | -7,224.59 | 4,164.18 | 4,002.79 | 161.39 | 25.801 | |
| 10,000.00 | 7,095.20 | 6,210.00 | 6,208.43 | 57.18 | 137.52 | -28.86 | -847.70 | -7,224.59 | 4,066.76 | 3,905.40 | 161.35 | 25.204 | |
| 10,100.00 | 7,094.85 | 6,210.00 | 6,208.43 | 58.61 | 137.52 | -28.86 | -847.70 | -7,224.59 | 3,969.46 | 3,808.15 | 161.31 | 24.607 | |
| 10,200.00 | 7,094.50 | 6,210.00 | 6,208.43 | 60.05 | 137.52 | -28.86 | -847.70 | -7,224.59 | 3,872.31 | 3,711.03 | 161.27 | 24.011 | |
| 10,300.00 | 7,094.15 | 6,210.00 | 6,208.43 | 61.50 | 137.52 | -28.86 | -847.70 | -7,224.59 | 3,775.30 | 3,614.07 | 161.23 | 23.416 | |
| 10,400.00 | 7,093.80 | 6,210.00 | 6,208.43 | 62.96 | 137.52 | -28.86 | -847.70 | -7,224.59 | 3,678.45 | 3,517.26 | 161.19 | 22.821 | |
| 10,500.00 | 7,093.45 | 6,210.00 | 6,208.43 | 64.42 | 137.52 | -28.86 | -847.70 | -7,224.59 | 3,581.77 | 3,420.62 | 161.15 | 22.226 | |
| 10,600.00 | 7,093.10 | 6,210.00 | 6,208.43 | 65.89 | 137.52 | -28.86 | -847.70 | -7,224.59 | 3,485.29 | 3,324.18 | 161.11 | 21.633 | |
| 10,700.00 | 7,092.75 | 6,210.00 | 6,208.43 | 67.36 | 137.52 | -28.86 | -847.70 | -7,224.59 | 3,389.00 | 3,227.93 | 161.07 | 21.040 | |
| 10,800.00 | 7,092.40 | 6,210.00 | 6,208.43 | 68.84 | 137.52 | -28.86 | -847.70 | -7,224.59 | 3,292.94 | 3,131.91 | 161.04 | 20.449 | |
| 10,900.00 | 7,092.05 | 6,210.00 | 6,208.43 | 70.33 | 137.52 | -28.86 | -847.70 | -7,224.59 | 3,197.12 | 3,036.12 | 161.00 | 19.858 | |
| 11,000.00 | 7,091.70 | 6,210.00 | 6,208.43 | 71.82 | 137.52 | -28.86 | -847.70 | -7,224.59 | 3,101.57 | 2,940.60 | 160.96 | 19.269 | |
| 11,100.00 | 7,091.35 | 6,210.00 | 6,208.43 | 73.31 | 137.52 | -28.86 | -847.70 | -7,224.59 | 3,006.30 | 2,845.37 | 160.93 | 18.681 | |
| 11,200.00 | 7,091.00 | 6,210.00 | 6,208.43 | 74.81 | 137.52 | -28.86 | -847.70 | -7,224.59 | 2,911.35 | 2,750.45 | 160.90 | 18.094 | |
| 11,300.00 | 7,090.65 | 6,210.00 | 6,208.43 | 76.32 | 137.52 | -28.86 | -847.70 | -7,224.59 | 2,816.75 | 2,655.88 | 160.87 | 17.510 | |
| 11,400.00 | 7,090.30 | 6,210.00 | 6,208.43 | 77.82 | 137.52 | -28.86 | -847.70 | -7,224.59 | 2,722.53 | 2,561.69 | 160.84 | 16.927 | |
| 11,500.00 | 7,089.95 | 6,210.00 | 6,208.43 | 79.34 | 137.52 | -28.86 | -847.70 | -7,224.59 | 2,628.75 | 2,467.94 | 160.81 | 16.347 | |
| 11,600.00 | 7,089.60 | 6,210.00 | 6,208.43 | 80.85 | 137.52 | -28.86 | -847.70 | -7,224.59 | 2,535.43 | 2,374.65 | 160.78 | 15.769 | |
| 11,700.00 | 7,089.25 | 6,210.00 | 6,208.43 | 82.37 | 137.52 | -28.86 | -847.70 | -7,224.59 | 2,442.65 | 2,281.89 | 160.76 | 15.195 | |
| 11,800.00 | 7,088.90 | 6,210.00 | 6,208.43 | 83.89 | 137.52 | -28.86 | -847.70 | -7,224.59 | 2,350.46 | 2,189.73 | 160.73 | 14.624 | |
| 11,900.00 | 7,088.55 | 6,210.00 | 6,208.43 | 85.41 | 137.52 | -28.86 | -847.70 | -7,224.59 | 2,258.93 | 2,098.23 | 160.70 | 14.057 | |
| 12,000.00 | 7,088.20 | 6,210.00 | 6,208.43 | 86.94 | 137.52 | -28.86 | -847.70 | -7,224.59 | 2,168.16 | 2,007.49 | 160.67 | 13.495 | |
| 12,100.00 | 7,087.85 | 6,210.00 | 6,208.43 | 88.47 | 137.52 | -28.86 | -847.70 | -7,224.59 | 2,078.22 | 1,917.60 | 160.63 | 12.938 | |
| 12,200.00 | 7,087.50 | 6,210.00 | 6,208.43 | 90.00 | 137.52 | -28.86 | -847.70 | -7,224.59 | 1,989.26 | 1,828.68 | 160.57 | 12.388 | |
| 12,300.00 | 7,087.15 | 6,210.00 | 6,208.43 | 91.54 | 137.52 | -28.86 | -847.70 | -7,224.59 | 1,901.38 | 1,740.88 | 160.50 | 11.846 | |
| 12,400.00 | 7,086.81 | 6,210.00 | 6,208.43 | 93.07 | 137.52 | -28.86 | -847.70 | -7,224.59 | 1,814.77 | 1,654.36 | 160.40 | 11.314 | |
| 12,500.00 | 7,086.46 | 6,210.00 | 6,208.43 | 94.61 | 137.52 | -28.86 | -847.70 | -7,224.59 | 1,729.59 | 1,569.33 | 160.26 | 10.792 | |
| 12,600.00 | 7,086.11 | 6,210.00 | 6,208.43 | 96.15 | 137.52 | -28.86 | -847.70 | -7,224.59 | 1,646.09 | 1,486.02 | 160.07 | 10.284 | |
| 12,700.00 | 7,085.76 | 6,210.00 | 6,208.43 | 97.69 | 137.52 | -28.86 | -847.70 | -7,224.59 | 1,564.52 | 1,404.73 | 159.80 | 9.791 | |
| 12,800.00 | 7,085.41 | 6,210.00 | 6,208.43 | 99.24 | 137.52 | -28.86 | -847.70 | -7,224.59 | 1,485.21 | 1,325.79 | 159.42 | 9.317 | |
| 12,900.00 | 7,085.06 | 6,210.00 | 6,208.43 | 100.78 | 137.52 | -28.86 | -847.70 | -7,224.59 | 1,408.53 | 1,249.64 | 158.90 | 8.864 | |
| 13,000.00 | 7,084.71 | 6,210.00 | 6,208.43 | 102.33 | 137.52 | -28.86 | -847.70 | -7,224.59 | 1,334.95 | 1,176.76 | 158.19 | 8.439 | |
| 13,100.00 | 7,084.36 | 6,210.00 | 6,208.43 | 103.88 | 137.52 | -28.86 | -847.70 | -7,224.59 | 1,264.99 | 1,107.74 | 157.25 | 8.044 | |
| 13,200.00 | 7,084.01 | 6,210.00 | 6,208.43 | 105.43 | 137.52 | -28.86 | -847.70 | -7,224.59 | 1,199.30 | 1,043.27 | 156.03 | 7.686 | |
| 13,300.00 | 7,083.66 | 6,210.00 | 6,208.43 | 106.99 | 137.52 | -28.86 | -847.70 | -7,224.59 | 1,138.62 | 984.14 | 154.48 | 7.371 | |
| 13,400.00 | 7,083.31 | 6,210.00 | 6,208.43 | 108.54 | 137.52 | -28.86 | -847.70 | -7,224.59 | 1,083.77 | 931.20 | 152.58 | 7.103 | |
| 13,500.00 | 7,082.96 | 6,210.00 | 6,208.43 | 110.09 | 137.52 | -28.86 | -847.70 | -7,224.59 | 1,035.71 | 885.33 | 150.37 | 6.888 | |
| 13,600.00 | 7,082.61 | 6,210.00 | 6,208.43 | 111.65 | 137.52 | -28.86 | -847.70 | -7,224.59 | 995.39 | 847.37 | 148.02 | 6.725 | |
| 13,700.00 | 7,082.26 | 6,210.00 | 6,208.43 | 113.21 | 137.52 | -28.86 | -847.70 | -7,224.59 | 963.81 | 817.98 | 145.83 | 6.609 | |
| 13,800.00 | 7,081.91 | 6,210.00 | 6,208.43 | 114.77 | 137.52 | -28.86 | -847.70 | -7,224.59 | 941.83 | 797.56 | 144.27 | 6.528 | |
| 13,900.00 | 7,081.56 | 6,210.00 | 6,208.43 | 116.33 | 137.52 | -28.86 | -847.70 | -7,224.59 | 930.14 | 786.25 | 143.89 | 6.464 | |

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

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

**Offset Design:** Rosa Unit 32 - (O) RU #137A - OH - OH — **Offset Site Error:** 0.00 usft

**Survey Program:** 293-A027Ua_INC-ONLY — **Rule Assigned:** — **Offset Well Error:** 0.00 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13,959.41 | 7,081.35 | 6,210.00 | 6,208.43 | 117.26 | 137.52 | -28.86 | -847.70 | -7,224.59 | 928.24 | 783.85 | 144.40 | 6.428 | CC, ES |
| 14,000.00 | 7,081.21 | 6,210.00 | 6,208.43 | 117.89 | 137.52 | -28.86 | -847.70 | -7,224.59 | 929.13 | 784.06 | 145.07 | 6.405 | |
| 14,100.00 | 7,080.86 | 6,210.00 | 6,208.43 | 119.45 | 137.52 | -28.86 | -847.70 | -7,224.59 | 938.83 | 791.03 | 147.79 | 6.352 | |
| 14,200.00 | 7,080.51 | 6,210.00 | 6,208.43 | 121.02 | 137.52 | -28.86 | -847.70 | -7,224.59 | 958.92 | 807.29 | 151.63 | 6.324 | SF |
| 14,300.00 | 7,080.16 | 6,210.00 | 6,208.43 | 122.58 | 137.52 | -28.86 | -847.70 | -7,224.59 | 988.76 | 832.79 | 155.96 | 6.340 | |
| 14,400.00 | 7,079.81 | 6,210.00 | 6,208.43 | 124.15 | 137.52 | -28.86 | -847.70 | -7,224.59 | 1,027.50 | 867.24 | 160.26 | 6.411 | |
| 14,500.00 | 7,079.46 | 6,210.00 | 6,208.43 | 125.71 | 137.52 | -28.86 | -847.70 | -7,224.59 | 1,074.19 | 910.02 | 164.17 | 6.543 | |
| 14,600.00 | 7,079.11 | 6,210.00 | 6,208.43 | 127.28 | 137.52 | -28.86 | -847.70 | -7,224.59 | 1,127.83 | 960.30 | 167.53 | 6.732 | |
| 14,700.00 | 7,078.76 | 6,210.00 | 6,208.43 | 128.85 | 137.52 | -28.86 | -847.70 | -7,224.59 | 1,187.48 | 1,017.19 | 170.29 | 6.973 | |
| 14,800.00 | 7,078.41 | 6,210.00 | 6,208.43 | 130.42 | 137.52 | -28.86 | -847.70 | -7,224.59 | 1,252.29 | 1,079.79 | 172.50 | 7.260 | |
| 14,900.00 | 7,078.06 | 6,210.00 | 6,208.43 | 131.98 | 137.52 | -28.86 | -847.70 | -7,224.59 | 1,321.50 | 1,147.27 | 174.23 | 7.585 | |
| 15,000.00 | 7,077.71 | 6,210.00 | 6,208.43 | 133.55 | 137.52 | -28.86 | -847.70 | -7,224.59 | 1,394.44 | 1,218.90 | 175.54 | 7.944 | |
| 15,100.00 | 7,077.36 | 6,210.00 | 6,208.43 | 135.13 | 137.52 | -28.86 | -847.70 | -7,224.59 | 1,470.58 | 1,294.05 | 176.53 | 8.330 | |
| 15,200.00 | 7,077.01 | 6,210.00 | 6,208.43 | 136.70 | 137.52 | -28.86 | -847.70 | -7,224.59 | 1,549.42 | 1,372.17 | 177.25 | 8.741 | |
| 15,300.00 | 7,076.66 | 6,210.00 | 6,208.43 | 138.27 | 137.52 | -28.86 | -847.70 | -7,224.59 | 1,630.59 | 1,452.82 | 177.77 | 9.172 | |
| 15,400.00 | 7,076.31 | 6,210.00 | 6,208.43 | 139.84 | 137.52 | -28.86 | -847.70 | -7,224.59 | 1,713.75 | 1,535.62 | 178.13 | 9.621 | |
| 15,500.00 | 7,075.96 | 6,210.00 | 6,208.43 | 141.42 | 137.52 | -28.86 | -847.70 | -7,224.59 | 1,798.63 | 1,620.26 | 178.37 | 10.084 | |
| 15,600.00 | 7,075.61 | 6,210.00 | 6,208.43 | 142.99 | 137.52 | -28.86 | -847.70 | -7,224.59 | 1,884.99 | 1,706.48 | 178.51 | 10.560 | |
| 15,700.00 | 7,075.26 | 6,210.00 | 6,208.43 | 144.57 | 137.52 | -28.86 | -847.70 | -7,224.59 | 1,972.64 | 1,794.07 | 178.57 | 11.047 | |
| 15,800.00 | 7,074.91 | 6,210.00 | 6,208.43 | 146.14 | 137.52 | -28.86 | -847.70 | -7,224.59 | 2,061.41 | 1,882.83 | 178.59 | 11.543 | |
| 15,900.00 | 7,074.56 | 6,210.00 | 6,208.43 | 147.72 | 137.52 | -28.86 | -847.70 | -7,224.59 | 2,151.17 | 1,972.61 | 178.56 | 12.047 | |
| 16,000.00 | 7,074.21 | 6,210.00 | 6,208.43 | 149.29 | 137.52 | -28.86 | -847.70 | -7,224.59 | 2,241.80 | 2,063.30 | 178.50 | 12.559 | |
| 16,100.00 | 7,073.86 | 6,210.00 | 6,208.43 | 150.87 | 137.52 | -28.86 | -847.70 | -7,224.59 | 2,333.19 | 2,154.76 | 178.43 | 13.076 | |
| 16,200.00 | 7,073.51 | 6,210.00 | 6,208.43 | 152.45 | 137.52 | -28.86 | -847.70 | -7,224.59 | 2,425.26 | 2,246.93 | 178.33 | 13.600 | |
| 16,300.00 | 7,073.16 | 6,210.00 | 6,208.43 | 154.03 | 137.52 | -28.86 | -847.70 | -7,224.59 | 2,517.94 | 2,339.71 | 178.23 | 14.127 | |
| 16,400.00 | 7,072.81 | 6,210.00 | 6,208.43 | 155.60 | 137.52 | -28.86 | -847.70 | -7,224.59 | 2,611.16 | 2,433.03 | 178.12 | 14.659 | |
| 16,500.00 | 7,072.46 | 6,210.00 | 6,208.43 | 157.18 | 137.52 | -28.86 | -847.70 | -7,224.59 | 2,704.86 | 2,526.84 | 178.01 | 15.195 | |
| 16,600.00 | 7,072.11 | 6,210.00 | 6,208.43 | 158.76 | 137.52 | -28.86 | -847.70 | -7,224.59 | 2,799.00 | 2,621.09 | 177.90 | 15.733 | |
| 16,631.96 | 7,072.00 | 6,210.00 | 6,208.43 | 159.27 | 137.52 | -28.86 | -847.70 | -7,224.59 | 2,829.17 | 2,651.30 | 177.87 | 15.906 | |

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

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

**Survey Program:** 300-A027Ua_INC-ONLY

**Rule Assigned:**

**Offset Well Error:** 0.00 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 3.28 | 0.00 | -107.40 | -2,032.56 | -6,486.03 | 6,797.90 | | | | |
| 100.00 | 100.00 | 0.00 | 0.00 | 3.29 | 0.00 | -107.40 | -2,032.56 | -6,486.03 | 6,797.06 | 6,793.77 | 3.29 | 2,066.111 | |
| 135.84 | 135.84 | 28.84 | 28.84 | 3.30 | 0.27 | -107.40 | -2,032.56 | -6,486.03 | 6,797.05 | 6,793.49 | 3.57 | 1,904.666 | |
| 200.00 | 200.00 | 93.00 | 93.00 | 3.34 | 0.86 | -107.40 | -2,032.56 | -6,486.03 | 6,797.05 | 6,792.86 | 4.20 | 1,619.950 | |
| 300.00 | 300.00 | 193.00 | 193.00 | 3.42 | 1.78 | -107.40 | -2,032.56 | -6,486.03 | 6,797.05 | 6,791.85 | 5.20 | 1,306.187 | |
| 400.00 | 400.00 | 293.00 | 293.00 | 3.54 | 2.71 | -107.40 | -2,032.56 | -6,486.03 | 6,797.05 | 6,790.81 | 6.25 | 1,088.201 | |
| 500.00 | 500.00 | 393.00 | 393.00 | 3.69 | 4.49 | -107.40 | -2,032.56 | -6,486.03 | 6,797.05 | 6,788.87 | 8.18 | 830.993 | |
| 600.00 | 599.98 | 492.98 | 492.98 | 3.86 | 6.34 | 42.63 | -2,032.56 | -6,486.03 | 6,795.77 | 6,785.57 | 10.20 | 666.500 | |
| 697.00 | 696.84 | 587.35 | 587.34 | 4.04 | 8.08 | 42.71 | -2,032.11 | -6,486.03 | 6,791.94 | 6,779.82 | 12.12 | 560.338 | |
| 700.00 | 699.84 | 590.23 | 590.22 | 4.05 | 8.14 | 42.71 | -2,032.11 | -6,486.03 | 6,791.79 | 6,779.61 | 12.18 | 557.568 | |
| 800.00 | 799.60 | 686.22 | 686.22 | 4.25 | 9.91 | 42.75 | -2,032.33 | -6,486.03 | 6,786.80 | 6,772.64 | 14.16 | 479.158 | |
| 897.00 | 896.37 | 789.39 | 789.37 | 4.48 | 11.84 | 42.79 | -2,032.56 | -6,486.03 | 6,781.97 | 6,765.65 | 16.31 | 415.701 | |
| 900.00 | 899.37 | 792.39 | 792.37 | 4.48 | 11.90 | 43.65 | -2,032.56 | -6,486.03 | 6,781.82 | 6,765.44 | 16.38 | 414.068 | |
| 947.40 | 946.65 | 839.67 | 839.65 | 4.60 | 12.80 | 57.51 | -2,032.56 | -6,486.03 | 6,779.76 | 6,762.37 | 17.39 | 389.829 | |
| 1,000.00 | 999.13 | 892.15 | 892.13 | 4.73 | 13.79 | 57.53 | -2,032.56 | -6,486.03 | 6,777.82 | 6,759.30 | 18.52 | 365.965 | |
| 1,100.00 | 1,098.89 | 991.91 | 991.89 | 4.99 | 15.69 | 57.58 | -2,032.56 | -6,486.03 | 6,774.13 | 6,753.45 | 20.68 | 327.600 | |
| 1,200.00 | 1,198.66 | 1,088.34 | 1,088.32 | 5.27 | 17.52 | 57.63 | -2,032.10 | -6,486.03 | 6,770.30 | 6,747.52 | 22.79 | 297.137 | |
| 1,300.00 | 1,298.42 | 1,184.72 | 1,184.69 | 5.56 | 19.36 | 57.68 | -2,032.35 | -6,486.03 | 6,766.69 | 6,741.79 | 24.90 | 271.729 | |
| 1,400.00 | 1,398.18 | 1,291.23 | 1,291.18 | 5.85 | 21.41 | 57.73 | -2,032.56 | -6,486.03 | 6,763.08 | 6,735.82 | 27.25 | 248.162 | |
| 1,500.00 | 1,497.95 | 1,391.00 | 1,390.95 | 6.16 | 23.37 | 57.78 | -2,032.56 | -6,486.03 | 6,759.40 | 6,729.89 | 29.51 | 229.039 | |
| 1,600.00 | 1,597.71 | 1,490.76 | 1,490.71 | 6.47 | 25.33 | 57.83 | -2,032.56 | -6,486.03 | 6,755.73 | 6,723.96 | 31.78 | 212.589 | |
| 1,700.00 | 1,697.47 | 1,585.92 | 1,585.86 | 6.79 | 27.19 | 57.88 | -2,031.83 | -6,486.03 | 6,751.86 | 6,717.90 | 33.96 | 198.816 | |
| 1,800.00 | 1,797.24 | 1,680.93 | 1,680.87 | 7.11 | 29.06 | 57.93 | -2,032.17 | -6,486.03 | 6,748.31 | 6,712.16 | 36.14 | 186.702 | |
| 1,900.00 | 1,897.00 | 1,790.10 | 1,790.00 | 7.44 | 31.20 | 57.98 | -2,032.56 | -6,486.03 | 6,744.76 | 6,706.15 | 38.61 | 174.677 | |
| 2,000.00 | 1,996.76 | 1,889.86 | 1,889.76 | 7.77 | 33.16 | 58.03 | -2,032.56 | -6,486.03 | 6,741.11 | 6,700.21 | 40.90 | 164.808 | |
| 2,100.00 | 2,096.53 | 1,989.62 | 1,989.53 | 8.11 | 35.12 | 58.08 | -2,032.56 | -6,486.03 | 6,737.47 | 6,694.27 | 43.20 | 155.973 | |
| 2,200.00 | 2,196.29 | 2,085.05 | 2,084.94 | 8.44 | 37.00 | 58.13 | -2,031.84 | -6,486.03 | 6,733.62 | 6,688.21 | 45.41 | 148.293 | |
| 2,300.00 | 2,296.06 | 2,180.05 | 2,179.95 | 8.79 | 38.87 | 58.17 | -2,032.17 | -6,486.03 | 6,730.09 | 6,682.48 | 47.61 | 141.348 | |
| 2,400.00 | 2,395.82 | 2,288.96 | 2,288.82 | 9.13 | 41.03 | 58.22 | -2,032.56 | -6,486.03 | 6,726.57 | 6,676.44 | 50.12 | 134.205 | |
| 2,500.00 | 2,495.58 | 2,388.72 | 2,388.58 | 9.47 | 43.06 | 58.27 | -2,032.56 | -6,486.03 | 6,722.94 | 6,670.45 | 52.49 | 128.075 | |
| 2,600.00 | 2,595.35 | 2,488.48 | 2,488.35 | 9.82 | 45.09 | 58.32 | -2,032.56 | -6,486.03 | 6,719.32 | 6,664.46 | 54.86 | 122.470 | |
| 2,700.00 | 2,695.11 | 2,584.99 | 2,584.84 | 10.17 | 47.05 | 58.38 | -2,031.75 | -6,486.03 | 6,715.48 | 6,658.31 | 57.17 | 117.458 | |
| 2,800.00 | 2,794.87 | 2,680.34 | 2,680.19 | 10.52 | 48.99 | 58.42 | -2,032.03 | -6,486.03 | 6,711.96 | 6,652.50 | 59.46 | 112.882 | |
| 2,900.00 | 2,894.64 | 2,787.84 | 2,787.64 | 10.87 | 51.19 | 58.47 | -2,032.56 | -6,486.03 | 6,708.50 | 6,646.49 | 62.01 | 108.186 | |
| 3,000.00 | 2,994.40 | 2,887.60 | 2,887.40 | 11.23 | 53.43 | 58.52 | -2,032.56 | -6,486.03 | 6,704.90 | 6,640.30 | 64.60 | 103.786 | |
| 3,100.00 | 3,094.16 | 2,987.36 | 2,987.16 | 11.58 | 55.68 | 58.57 | -2,032.56 | -6,486.03 | 6,701.31 | 6,634.11 | 67.20 | 99.724 | |
| 3,200.00 | 3,193.93 | 3,082.65 | 3,082.44 | 11.94 | 57.82 | 58.63 | -2,031.61 | -6,486.03 | 6,697.46 | 6,627.76 | 69.69 | 96.097 | |
| 3,300.00 | 3,293.69 | 3,176.06 | 3,175.84 | 12.29 | 59.92 | 58.67 | -2,031.99 | -6,486.03 | 6,693.99 | 6,621.84 | 72.15 | 92.780 | |
| 3,400.00 | 3,393.45 | 3,286.77 | 3,286.45 | 12.65 | 62.39 | 58.72 | -2,032.56 | -6,486.03 | 6,690.56 | 6,615.59 | 74.97 | 89.238 | |
| 3,500.00 | 3,493.22 | 3,386.53 | 3,386.22 | 13.01 | 64.58 | 58.77 | -2,032.56 | -6,486.03 | 6,686.99 | 6,609.47 | 77.52 | 86.264 | |
| 3,600.00 | 3,592.98 | 3,486.29 | 3,485.98 | 13.37 | 66.77 | 58.82 | -2,032.56 | -6,486.03 | 6,683.42 | 6,603.36 | 80.06 | 83.479 | |
| 3,700.00 | 3,692.74 | 3,577.11 | 3,576.77 | 13.73 | 68.76 | 58.88 | -2,031.24 | -6,486.03 | 6,679.51 | 6,597.10 | 82.41 | 81.053 | |
| 3,800.00 | 3,792.51 | 3,667.75 | 3,667.40 | 14.09 | 70.75 | 58.92 | -2,031.91 | -6,486.03 | 6,676.15 | 6,591.40 | 84.75 | 78.770 | |
| 3,900.00 | 3,892.27 | 3,785.68 | 3,785.27 | 14.45 | 73.29 | 58.98 | -2,032.56 | -6,486.03 | 6,672.76 | 6,585.10 | 87.65 | 76.126 | |
| 4,000.00 | 3,992.04 | 3,885.44 | 3,885.04 | 14.81 | 75.41 | 59.03 | -2,032.56 | -6,486.03 | 6,669.21 | 6,579.08 | 90.13 | 73.995 | |
| 4,100.00 | 4,091.80 | 3,985.21 | 3,984.80 | 15.17 | 77.52 | 59.08 | -2,032.56 | -6,486.03 | 6,665.67 | 6,573.06 | 92.61 | 71.978 | |
| 4,200.00 | 4,191.56 | 4,084.97 | 4,084.56 | 15.53 | 79.64 | 59.13 | -2,032.56 | -6,486.03 | 6,662.13 | 6,567.05 | 95.08 | 70.066 | |
| 4,300.00 | 4,291.33 | 4,184.73 | 4,184.33 | 15.89 | 81.76 | 59.18 | -2,032.56 | -6,486.03 | 6,658.60 | 6,561.04 | 97.56 | 68.250 | |
| 4,400.00 | 4,391.09 | 4,284.50 | 4,284.09 | 16.26 | 83.87 | 59.23 | -2,032.56 | -6,486.03 | 6,655.08 | 6,555.04 | 100.04 | 66.524 | |
| 4,500.00 | 4,490.85 | 4,382.82 | 4,382.40 | 16.62 | 85.96 | 59.29 | -2,030.67 | -6,486.03 | 6,651.05 | 6,548.56 | 102.49 | 64.896 | |
| 4,600.00 | 4,590.62 | 4,480.66 | 4,480.24 | 16.99 | 88.04 | 59.34 | -2,030.80 | -6,486.03 | 6,647.58 | 6,542.65 | 104.93 | 63.355 | |
| 4,700.00 | 4,690.38 | 4,578.52 | 4,578.10 | 17.35 | 90.11 | 59.39 | -2,031.04 | -6,486.03 | 6,644.13 | 6,536.77 | 107.36 | 61.884 | |

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

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

**Offset Design:** Rosa Unit 32 - (O) RU #137B - OH - OH — **Offset Site Error:** 0.00 usft

**Survey Program:** 300-A027Ua_INC-ONLY — **Offset Well Error:** 0.00 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Rule Assigned: Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4,800.00 | 4,790.14 | 4,676.40 | 4,675.97 | 17.71 | 92.19 | 59.44 | -2,031.39 | -6,486.03 | 6,640.72 | 6,530.92 | 109.80 | 60.478 | |
| 4,900.00 | 4,889.91 | 4,774.29 | 4,773.86 | 18.08 | 94.27 | 59.48 | -2,031.85 | -6,486.03 | 6,637.35 | 6,525.10 | 112.24 | 59.133 | |
| 5,000.00 | 4,989.67 | 4,872.20 | 4,871.76 | 18.44 | 96.35 | 59.53 | -2,032.41 | -6,486.03 | 6,634.00 | 6,519.32 | 114.69 | 57.845 | |
| 5,100.00 | 5,089.43 | 4,983.02 | 4,982.43 | 18.81 | 98.77 | 59.58 | -2,032.56 | -6,486.03 | 6,630.55 | 6,513.07 | 117.47 | 56.443 | |
| 5,200.00 | 5,189.20 | 5,082.79 | 5,082.20 | 19.17 | 100.97 | 59.64 | -2,032.56 | -6,486.03 | 6,627.06 | 6,507.03 | 120.04 | 55.208 | |
| 5,300.00 | 5,288.96 | 5,182.55 | 5,181.96 | 19.54 | 103.18 | 59.69 | -2,032.56 | -6,486.03 | 6,623.58 | 6,500.98 | 122.60 | 54.025 | |
| 5,400.00 | 5,388.72 | 5,282.31 | 5,281.72 | 19.91 | 105.38 | 59.74 | -2,032.56 | -6,486.03 | 6,620.11 | 6,494.95 | 125.17 | 52.890 | |
| 5,500.00 | 5,488.49 | 5,382.08 | 5,381.49 | 20.27 | 107.58 | 59.79 | -2,032.56 | -6,486.03 | 6,616.65 | 6,488.91 | 127.73 | 51.801 | |
| 5,600.00 | 5,588.25 | 5,481.84 | 5,481.25 | 20.64 | 109.78 | 59.84 | -2,032.56 | -6,486.03 | 6,613.18 | 6,482.89 | 130.30 | 50.755 | |
| 5,700.00 | 5,688.01 | 5,581.60 | 5,581.01 | 21.00 | 111.98 | 59.89 | -2,032.56 | -6,486.03 | 6,609.73 | 6,476.86 | 132.86 | 49.748 | |
| 5,800.00 | 5,787.78 | 5,681.37 | 5,680.78 | 21.37 | 114.18 | 59.94 | -2,032.56 | -6,486.03 | 6,606.28 | 6,470.85 | 135.43 | 48.780 | |
| 5,900.00 | 5,887.54 | 5,781.13 | 5,780.54 | 21.74 | 116.38 | 60.00 | -2,032.56 | -6,486.03 | 6,602.83 | 6,464.83 | 137.99 | 47.848 | |
| 6,000.00 | 5,987.31 | 5,880.89 | 5,880.31 | 22.11 | 118.58 | 60.05 | -2,032.56 | -6,486.03 | 6,599.39 | 6,458.83 | 140.56 | 46.950 | |
| 6,100.00 | 6,087.07 | 5,980.66 | 5,980.07 | 22.47 | 120.78 | 60.10 | -2,032.56 | -6,486.03 | 6,595.95 | 6,452.83 | 143.13 | 46.085 | |
| 6,200.00 | 6,186.83 | 6,080.42 | 6,079.83 | 22.84 | 122.99 | 60.15 | -2,032.56 | -6,486.03 | 6,592.52 | 6,446.83 | 145.69 | 45.249 | |
| 6,300.00 | 6,286.60 | 6,165.00 | 6,164.16 | 23.21 | 124.85 | 60.19 | -2,032.56 | -6,486.03 | 6,589.12 | 6,441.19 | 147.93 | 44.543 | |
| 6,400.00 | 6,386.36 | 6,165.00 | 6,164.16 | 23.58 | 124.85 | 60.19 | -2,032.56 | -6,486.03 | 6,586.69 | 6,438.41 | 148.28 | 44.421 | |
| 6,494.00 | 6,480.13 | 6,165.00 | 6,164.16 | 23.92 | 124.85 | 60.19 | -2,032.56 | -6,486.03 | 6,585.79 | 6,437.21 | 148.58 | 44.324 | |
| 6,500.00 | 6,486.12 | 6,165.00 | 6,164.16 | 23.94 | 124.85 | 52.92 | -2,032.56 | -6,486.03 | 6,585.75 | 6,437.15 | 148.60 | 44.318 | |
| 6,550.00 | 6,535.89 | 6,165.00 | 6,164.16 | 24.13 | 124.85 | 17.37 | -2,032.56 | -6,486.03 | 6,583.51 | 6,434.76 | 148.75 | 44.260 | |
| 6,600.00 | 6,585.24 | 6,165.00 | 6,164.16 | 24.31 | 124.85 | 4.98 | -2,032.56 | -6,486.03 | 6,577.86 | 6,428.98 | 148.88 | 44.182 | |
| 6,650.00 | 6,633.88 | 6,165.00 | 6,164.16 | 24.50 | 124.85 | -0.82 | -2,032.56 | -6,486.03 | 6,568.84 | 6,419.83 | 149.00 | 44.085 | |
| 6,700.00 | 6,681.49 | 6,165.00 | 6,164.16 | 24.68 | 124.85 | -4.25 | -2,032.56 | -6,486.03 | 6,556.47 | 6,407.36 | 149.11 | 43.969 | |
| 6,750.00 | 6,727.80 | 6,165.00 | 6,164.16 | 24.86 | 124.85 | -6.62 | -2,032.56 | -6,486.03 | 6,540.83 | 6,391.62 | 149.21 | 43.836 | |
| 6,800.00 | 6,772.51 | 6,165.00 | 6,164.16 | 25.04 | 124.85 | -8.47 | -2,032.56 | -6,486.03 | 6,521.98 | 6,372.69 | 149.29 | 43.685 | |
| 6,850.00 | 6,815.34 | 6,165.00 | 6,164.16 | 25.21 | 124.85 | -10.07 | -2,032.56 | -6,486.03 | 6,500.01 | 6,350.65 | 149.36 | 43.518 | |
| 6,900.00 | 6,856.04 | 6,165.00 | 6,164.16 | 25.39 | 124.85 | -11.58 | -2,032.56 | -6,486.03 | 6,475.03 | 6,325.61 | 149.42 | 43.335 | |
| 6,950.00 | 6,894.35 | 6,165.00 | 6,164.16 | 25.57 | 124.85 | -13.08 | -2,032.56 | -6,486.03 | 6,447.16 | 6,297.70 | 149.46 | 43.136 | |
| 7,000.00 | 6,930.04 | 6,165.00 | 6,164.16 | 25.75 | 124.85 | -14.67 | -2,032.56 | -6,486.03 | 6,416.52 | 6,267.03 | 149.49 | 42.922 | |
| 7,050.00 | 6,962.89 | 6,165.00 | 6,164.16 | 25.93 | 124.85 | -16.43 | -2,032.56 | -6,486.03 | 6,383.28 | 6,233.77 | 149.51 | 42.695 | |
| 7,100.00 | 6,992.69 | 6,165.00 | 6,164.16 | 26.13 | 124.85 | -18.44 | -2,032.56 | -6,486.03 | 6,347.60 | 6,198.08 | 149.52 | 42.454 | |
| 7,150.00 | 7,019.25 | 6,165.00 | 6,164.16 | 26.33 | 124.85 | -20.80 | -2,032.56 | -6,486.03 | 6,309.66 | 6,160.14 | 149.51 | 42.201 | |
| 7,200.00 | 7,042.43 | 6,165.00 | 6,164.16 | 26.55 | 124.85 | -23.67 | -2,032.56 | -6,486.03 | 6,269.64 | 6,120.14 | 149.50 | 41.936 | |
| 7,250.00 | 7,062.07 | 6,165.00 | 6,164.16 | 26.79 | 124.85 | -27.21 | -2,032.56 | -6,486.03 | 6,227.78 | 6,078.29 | 149.49 | 41.661 | |
| 7,300.00 | 7,078.05 | 6,165.00 | 6,164.16 | 27.04 | 124.85 | -31.70 | -2,032.56 | -6,486.03 | 6,184.27 | 6,034.81 | 149.46 | 41.376 | |
| 7,350.00 | 7,090.27 | 6,165.00 | 6,164.16 | 27.30 | 124.85 | -37.50 | -2,032.56 | -6,486.03 | 6,139.38 | 5,989.94 | 149.44 | 41.083 | |
| 7,400.00 | 7,098.66 | 6,165.00 | 6,164.16 | 27.58 | 124.85 | -45.10 | -2,032.56 | -6,486.03 | 6,093.33 | 5,943.91 | 149.41 | 40.782 | |
| 7,450.00 | 7,103.17 | 6,165.00 | 6,164.16 | 27.87 | 124.85 | -55.02 | -2,032.56 | -6,486.03 | 6,046.39 | 5,897.00 | 149.39 | 40.475 | |
| 7,484.86 | 7,104.00 | 6,165.00 | 6,164.16 | 28.08 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 6,013.29 | 5,863.92 | 149.37 | 40.258 | |
| 7,500.00 | 7,103.95 | 6,165.00 | 6,164.16 | 28.17 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 5,998.86 | 5,849.50 | 149.36 | 40.163 | |
| 7,600.00 | 7,103.60 | 6,165.00 | 6,164.16 | 28.83 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 5,903.66 | 5,754.34 | 149.32 | 39.537 | |
| 7,700.00 | 7,103.25 | 6,165.00 | 6,164.16 | 29.56 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 5,808.62 | 5,659.33 | 149.29 | 38.909 | |
| 7,800.00 | 7,102.90 | 6,165.00 | 6,164.16 | 30.35 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 5,713.74 | 5,564.48 | 149.26 | 38.279 | |
| 7,900.00 | 7,102.55 | 6,165.00 | 6,164.16 | 31.21 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 5,619.05 | 5,469.80 | 149.25 | 37.648 | |
| 8,000.00 | 7,102.20 | 6,165.00 | 6,164.16 | 32.13 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 5,524.54 | 5,375.29 | 149.25 | 37.015 | |
| 8,100.00 | 7,101.85 | 6,165.00 | 6,164.16 | 33.10 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 5,430.23 | 5,280.97 | 149.26 | 36.380 | |
| 8,200.00 | 7,101.50 | 6,165.00 | 6,164.16 | 34.11 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 5,336.13 | 5,186.84 | 149.29 | 35.743 | |
| 8,300.00 | 7,101.15 | 6,165.00 | 6,164.16 | 35.17 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 5,242.25 | 5,092.91 | 149.34 | 35.104 | |
| 8,400.00 | 7,100.80 | 6,165.00 | 6,164.16 | 36.27 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 5,148.59 | 4,999.19 | 149.40 | 34.462 | |
| 8,500.00 | 7,100.45 | 6,165.00 | 6,164.16 | 37.41 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 5,055.18 | 4,905.70 | 149.48 | 33.819 | |
| 8,600.00 | 7,100.10 | 6,165.00 | 6,164.16 | 38.58 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 4,962.03 | 4,812.45 | 149.58 | 33.174 | |
| 8,700.00 | 7,099.75 | 6,165.00 | 6,164.16 | 39.78 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 4,869.14 | 4,719.44 | 149.70 | 32.526 | |

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

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

**Offset Design:** Rosa Unit 32 - (O) RU #137B - OH - OH — **Offset Site Error:** 0.00 usft

**Survey Program:** 300-A027Ua_INC-ONLY — **Rule Assigned:** — **Offset Well Error:** 0.00 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8,800.00 | 7,099.40 | 6,165.00 | 6,164.16 | 41.00 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 4,776.55 | 4,626.70 | 149.85 | 31.876 | |
| 8,900.00 | 7,099.05 | 6,165.00 | 6,164.16 | 42.25 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 4,684.26 | 4,534.24 | 150.02 | 31.224 | |
| 9,000.00 | 7,098.70 | 6,165.00 | 6,164.16 | 43.53 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 4,592.29 | 4,442.07 | 150.22 | 30.570 | |
| 9,100.00 | 7,098.35 | 6,165.00 | 6,164.16 | 44.82 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 4,500.66 | 4,350.21 | 150.45 | 29.914 | |
| 9,200.00 | 7,098.00 | 6,165.00 | 6,164.16 | 46.14 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 4,409.40 | 4,258.68 | 150.72 | 29.256 | |
| 9,300.00 | 7,097.65 | 6,165.00 | 6,164.16 | 47.47 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 4,318.53 | 4,167.51 | 151.02 | 28.596 | |
| 9,400.00 | 7,097.30 | 6,165.00 | 6,164.16 | 48.82 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 4,228.06 | 4,076.71 | 151.35 | 27.935 | |
| 9,500.00 | 7,096.95 | 6,165.00 | 6,164.16 | 50.18 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 4,138.04 | 3,986.31 | 151.73 | 27.272 | |
| 9,600.00 | 7,096.60 | 6,165.00 | 6,164.16 | 51.56 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 4,048.48 | 3,896.33 | 152.15 | 26.609 | |
| 9,700.00 | 7,096.25 | 6,165.00 | 6,164.16 | 52.95 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 3,959.43 | 3,806.81 | 152.62 | 25.944 | |
| 9,800.00 | 7,095.90 | 6,165.00 | 6,164.16 | 54.35 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 3,870.91 | 3,717.78 | 153.13 | 25.279 | |
| 9,900.00 | 7,095.55 | 6,165.00 | 6,164.16 | 55.76 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 3,782.96 | 3,629.27 | 153.69 | 24.614 | |
| 10,000.00 | 7,095.20 | 6,165.00 | 6,164.16 | 57.18 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 3,695.62 | 3,541.31 | 154.31 | 23.949 | |
| 10,100.00 | 7,094.85 | 6,165.00 | 6,164.16 | 58.61 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 3,608.95 | 3,453.95 | 154.99 | 23.285 | |
| 10,200.00 | 7,094.50 | 6,165.00 | 6,164.16 | 60.05 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 3,522.97 | 3,367.24 | 155.73 | 22.622 | |
| 10,300.00 | 7,094.15 | 6,165.00 | 6,164.16 | 61.50 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 3,437.76 | 3,281.23 | 156.53 | 21.962 | |
| 10,400.00 | 7,093.80 | 6,165.00 | 6,164.16 | 62.96 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 3,353.36 | 3,195.96 | 157.40 | 21.305 | |
| 10,500.00 | 7,093.45 | 6,165.00 | 6,164.16 | 64.42 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 3,269.85 | 3,111.51 | 158.34 | 20.651 | |
| 10,600.00 | 7,093.10 | 6,165.00 | 6,164.16 | 65.89 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 3,187.28 | 3,027.93 | 159.35 | 20.001 | |
| 10,700.00 | 7,092.75 | 6,165.00 | 6,164.16 | 67.36 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 3,105.74 | 2,945.29 | 160.45 | 19.357 | |
| 10,800.00 | 7,092.40 | 6,165.00 | 6,164.16 | 68.84 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 3,025.30 | 2,863.69 | 161.62 | 18.719 | |
| 10,900.00 | 7,092.05 | 6,165.00 | 6,164.16 | 70.33 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 2,946.07 | 2,783.20 | 162.87 | 18.089 | |
| 11,000.00 | 7,091.70 | 6,165.00 | 6,164.16 | 71.82 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 2,868.13 | 2,703.92 | 164.21 | 17.466 | |
| 11,100.00 | 7,091.35 | 6,165.00 | 6,164.16 | 73.31 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 2,791.60 | 2,625.96 | 165.64 | 16.854 | |
| 11,200.00 | 7,091.00 | 6,165.00 | 6,164.16 | 74.81 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 2,716.59 | 2,549.44 | 167.15 | 16.252 | |
| 11,300.00 | 7,090.65 | 6,165.00 | 6,164.16 | 76.32 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 2,643.24 | 2,474.48 | 168.77 | 15.662 | |
| 11,400.00 | 7,090.30 | 6,165.00 | 6,164.16 | 77.82 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 2,571.69 | 2,401.22 | 170.47 | 15.086 | |
| 11,500.00 | 7,089.95 | 6,165.00 | 6,164.16 | 79.34 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 2,502.08 | 2,329.82 | 172.27 | 14.524 | |
| 11,600.00 | 7,089.60 | 6,165.00 | 6,164.16 | 80.85 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 2,434.60 | 2,260.44 | 174.16 | 13.979 | |
| 11,700.00 | 7,089.25 | 6,165.00 | 6,164.16 | 82.37 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 2,369.42 | 2,193.28 | 176.14 | 13.452 | |
| 11,800.00 | 7,088.90 | 6,165.00 | 6,164.16 | 83.89 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 2,306.73 | 2,128.52 | 178.21 | 12.944 | |
| 11,900.00 | 7,088.55 | 6,165.00 | 6,164.16 | 85.41 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 2,246.74 | 2,066.38 | 180.36 | 12.457 | |
| 12,000.00 | 7,088.20 | 6,165.00 | 6,164.16 | 86.94 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 2,189.68 | 2,007.09 | 182.59 | 11.992 | |
| 12,100.00 | 7,087.85 | 6,165.00 | 6,164.16 | 88.47 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 2,135.78 | 1,950.89 | 184.89 | 11.552 | |
| 12,200.00 | 7,087.50 | 6,165.00 | 6,164.16 | 90.00 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 2,085.28 | 1,898.04 | 187.24 | 11.137 | |
| 12,300.00 | 7,087.15 | 6,165.00 | 6,164.16 | 91.54 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 2,038.44 | 1,848.81 | 189.63 | 10.749 | |
| 12,400.00 | 7,086.81 | 6,165.00 | 6,164.16 | 93.07 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 1,995.52 | 1,803.47 | 192.05 | 10.391 | |
| 12,500.00 | 7,086.46 | 6,165.00 | 6,164.16 | 94.61 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 1,956.77 | 1,762.30 | 194.47 | 10.062 | |
| 12,600.00 | 7,086.11 | 6,165.00 | 6,164.16 | 96.15 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 1,922.45 | 1,725.57 | 196.87 | 9.765 | |
| 12,700.00 | 7,085.76 | 6,165.00 | 6,164.16 | 97.69 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 1,892.79 | 1,693.56 | 199.24 | 9.500 | |
| 12,800.00 | 7,085.41 | 6,165.00 | 6,164.16 | 99.24 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 1,868.02 | 1,666.49 | 201.53 | 9.269 | |
| 12,900.00 | 7,085.06 | 6,165.00 | 6,164.16 | 100.78 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 1,848.34 | 1,644.61 | 203.73 | 9.072 | |
| 13,000.00 | 7,084.71 | 6,165.00 | 6,164.16 | 102.33 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 1,833.91 | 1,628.09 | 205.82 | 8.910 | |
| 13,100.00 | 7,084.36 | 6,165.00 | 6,164.16 | 103.88 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 1,824.85 | 1,617.09 | 207.76 | 8.784 | |
| 13,200.00 | 7,084.01 | 6,165.00 | 6,164.16 | 105.43 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 1,821.24 | 1,611.71 | 209.53 | 8.692 | |
| 13,215.74 | 7,083.95 | 6,165.00 | 6,164.16 | 105.68 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 1,821.18 | 1,611.38 | 209.79 | 8.681 | CC, ES |
| 13,300.00 | 7,083.66 | 6,165.00 | 6,164.16 | 106.99 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 1,823.12 | 1,612.00 | 211.12 | 8.635 | |
| 13,400.00 | 7,083.31 | 6,165.00 | 6,164.16 | 108.54 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 1,830.47 | 1,617.96 | 212.51 | 8.614 | SF |
| 13,500.00 | 7,082.96 | 6,165.00 | 6,164.16 | 110.09 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 1,843.23 | 1,629.54 | 213.69 | 8.626 | |
| 13,600.00 | 7,082.61 | 6,165.00 | 6,164.16 | 111.65 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 1,861.27 | 1,646.62 | 214.66 | 8.671 | |
| 13,700.00 | 7,082.26 | 6,165.00 | 6,164.16 | 113.21 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 1,884.46 | 1,669.05 | 215.41 | 8.748 | |
| 13,800.00 | 7,081.91 | 6,165.00 | 6,164.16 | 114.77 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 1,912.60 | 1,696.64 | 215.96 | 8.856 | |

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

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

**Survey Program:** 300-A027Ua_INC-ONLY

**Offset Well Error:** 0.00 usft

**Rule Assigned:**

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13,900.00 | 7,081.56 | 6,165.00 | 6,164.16 | 116.33 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 1,945.48 | 1,729.17 | 216.32 | 8.994 | |
| 14,000.00 | 7,081.21 | 6,165.00 | 6,164.16 | 117.89 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 1,982.86 | 1,766.38 | 216.48 | 9.159 | |
| 14,100.00 | 7,080.86 | 6,165.00 | 6,164.16 | 119.45 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 2,024.50 | 1,808.02 | 216.48 | 9.352 | |
| 14,200.00 | 7,080.51 | 6,165.00 | 6,164.16 | 121.02 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 2,070.13 | 1,853.80 | 216.33 | 9.569 | |
| 14,300.00 | 7,080.16 | 6,165.00 | 6,164.16 | 122.58 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 2,119.51 | 1,903.46 | 216.05 | 9.810 | |
| 14,400.00 | 7,079.81 | 6,165.00 | 6,164.16 | 124.15 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 2,172.36 | 1,956.71 | 215.65 | 10.074 | |
| 14,500.00 | 7,079.46 | 6,165.00 | 6,164.16 | 125.71 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 2,228.46 | 2,013.30 | 215.15 | 10.358 | |
| 14,600.00 | 7,079.11 | 6,165.00 | 6,164.16 | 127.28 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 2,287.55 | 2,072.97 | 214.57 | 10.661 | |
| 14,700.00 | 7,078.76 | 6,165.00 | 6,164.16 | 128.85 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 2,349.41 | 2,135.48 | 213.93 | 10.982 | |
| 14,800.00 | 7,078.41 | 6,165.00 | 6,164.16 | 130.42 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 2,413.83 | 2,200.60 | 213.23 | 11.320 | |
| 14,900.00 | 7,078.06 | 6,165.00 | 6,164.16 | 131.98 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 2,480.61 | 2,268.12 | 212.49 | 11.674 | |
| 15,000.00 | 7,077.71 | 6,165.00 | 6,164.16 | 133.55 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 2,549.57 | 2,337.84 | 211.72 | 12.042 | |
| 15,100.00 | 7,077.36 | 6,165.00 | 6,164.16 | 135.13 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 2,620.52 | 2,409.59 | 210.93 | 12.424 | |
| 15,200.00 | 7,077.01 | 6,165.00 | 6,164.16 | 136.70 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 2,693.32 | 2,483.19 | 210.13 | 12.817 | |
| 15,300.00 | 7,076.66 | 6,165.00 | 6,164.16 | 138.27 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 2,767.82 | 2,558.50 | 209.32 | 13.223 | |
| 15,400.00 | 7,076.31 | 6,165.00 | 6,164.16 | 139.84 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 2,843.89 | 2,635.38 | 208.51 | 13.639 | |
| 15,500.00 | 7,075.96 | 6,165.00 | 6,164.16 | 141.42 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 2,921.39 | 2,713.69 | 207.70 | 14.065 | |
| 15,600.00 | 7,075.61 | 6,165.00 | 6,164.16 | 142.99 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 3,000.23 | 2,793.33 | 206.91 | 14.500 | |
| 15,700.00 | 7,075.26 | 6,165.00 | 6,164.16 | 144.57 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 3,080.30 | 2,874.18 | 206.12 | 14.944 | |
| 15,800.00 | 7,074.91 | 6,165.00 | 6,164.16 | 146.14 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 3,161.50 | 2,956.16 | 205.35 | 15.396 | |
| 15,900.00 | 7,074.56 | 6,165.00 | 6,164.16 | 147.72 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 3,243.76 | 3,039.17 | 204.59 | 15.855 | |
| 16,000.00 | 7,074.21 | 6,165.00 | 6,164.16 | 149.29 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 3,326.98 | 3,123.13 | 203.85 | 16.321 | |
| 16,100.00 | 7,073.86 | 6,165.00 | 6,164.16 | 150.87 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 3,411.11 | 3,207.98 | 203.13 | 16.793 | |
| 16,200.00 | 7,073.51 | 6,165.00 | 6,164.16 | 152.45 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 3,496.07 | 3,293.65 | 202.42 | 17.271 | |
| 16,300.00 | 7,073.16 | 6,165.00 | 6,164.16 | 154.03 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 3,581.81 | 3,380.07 | 201.74 | 17.755 | |
| 16,400.00 | 7,072.81 | 6,165.00 | 6,164.16 | 155.60 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 3,668.27 | 3,467.20 | 201.07 | 18.243 | |
| 16,500.00 | 7,072.46 | 6,165.00 | 6,164.16 | 157.18 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 3,755.41 | 3,554.98 | 200.43 | 18.737 | |
| 16,600.00 | 7,072.11 | 6,165.00 | 6,164.16 | 158.76 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 3,843.17 | 3,643.36 | 199.80 | 19.235 | |
| 16,631.96 | 7,072.00 | 6,165.00 | 6,164.16 | 159.27 | 124.85 | -63.49 | -2,032.56 | -6,486.03 | 3,871.34 | 3,671.73 | 199.61 | 19.395 | |

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

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

**Rule Assigned:** Distance

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Between Centres (usft) | Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 3.28 | 3.28 | -103.17 | -1,965.42 | -8,396.85 | 8,624.41 | | | | |
| 100.00 | 100.00 | 0.00 | 0.00 | 3.29 | 3.28 | -103.17 | -1,965.42 | -8,396.85 | 8,623.80 | 8,617.23 | 6.57 | 1,312.686 | |
| 200.00 | 200.00 | 118.46 | 118.46 | 3.34 | 3.28 | -103.17 | -1,965.55 | -8,396.67 | 8,623.68 | 8,617.07 | 6.62 | 1,303.321 | |
| 300.00 | 300.00 | 200.00 | 200.00 | 3.42 | 3.29 | -103.18 | -1,965.80 | -8,396.40 | 8,623.45 | 8,616.75 | 6.70 | 1,286.565 | |
| 304.45 | 304.45 | 200.00 | 200.00 | 3.42 | 3.29 | -103.18 | -1,965.80 | -8,396.40 | 8,623.45 | 8,616.74 | 6.71 | 1,285.692 | |
| 400.00 | 400.00 | 225.00 | 225.00 | 3.54 | 3.29 | -103.18 | -1,965.91 | -8,396.49 | 8,623.87 | 8,617.05 | 6.82 | 1,264.326 | |
| 500.00 | 500.00 | 293.81 | 293.81 | 3.69 | 3.29 | -103.18 | -1,966.18 | -8,397.05 | 8,624.80 | 8,617.83 | 6.97 | 1,237.201 | |
| 600.00 | 599.98 | 350.00 | 349.99 | 3.86 | 3.29 | 46.82 | -1,966.49 | -8,397.81 | 8,625.06 | 8,617.91 | 7.14 | 1,207.698 | |
| 697.00 | 696.84 | 428.77 | 428.74 | 4.04 | 3.30 | 46.86 | -1,967.33 | -8,399.19 | 8,623.49 | 8,616.16 | 7.33 | 1,176.825 | |
| 700.00 | 699.84 | 431.22 | 431.19 | 4.05 | 3.30 | 46.86 | -1,967.35 | -8,399.24 | 8,623.40 | 8,616.07 | 7.33 | 1,175.760 | |
| 800.00 | 799.60 | 534.52 | 534.47 | 4.25 | 3.31 | 46.89 | -1,968.52 | -8,400.99 | 8,620.61 | 8,613.05 | 7.56 | 1,140.902 | |
| 897.00 | 896.37 | 620.95 | 620.88 | 4.48 | 3.33 | 46.92 | -1,969.65 | -8,402.49 | 8,617.97 | 8,610.18 | 7.79 | 1,105.985 | |
| 900.00 | 899.37 | 623.72 | 623.65 | 4.48 | 3.33 | 47.78 | -1,969.69 | -8,402.53 | 8,617.90 | 8,610.10 | 7.80 | 1,104.893 | |
| 947.40 | 946.65 | 658.41 | 658.33 | 4.60 | 3.34 | 61.61 | -1,970.20 | -8,403.16 | 8,617.02 | 8,609.09 | 7.92 | 1,087.898 | |
| 1,000.00 | 999.13 | 700.00 | 699.91 | 4.73 | 3.35 | 61.63 | -1,970.80 | -8,403.97 | 8,616.47 | 8,608.41 | 8.06 | 1,068.930 | |
| 1,100.00 | 1,098.89 | 775.00 | 774.88 | 4.99 | 3.37 | 61.65 | -1,971.95 | -8,405.53 | 8,615.59 | 8,607.25 | 8.34 | 1,033.096 | |
| 1,200.00 | 1,198.66 | 864.82 | 864.66 | 5.27 | 3.40 | 61.68 | -1,973.72 | -8,407.59 | 8,615.00 | 8,606.36 | 8.64 | 997.377 | |
| 1,300.00 | 1,298.42 | 968.93 | 968.72 | 5.56 | 3.44 | 61.71 | -1,975.91 | -8,409.89 | 8,614.37 | 8,605.41 | 8.95 | 962.036 | |
| 1,400.00 | 1,398.18 | 1,060.37 | 1,060.12 | 5.85 | 3.48 | 61.74 | -1,977.94 | -8,411.99 | 8,613.84 | 8,604.56 | 9.28 | 928.255 | |
| 1,500.00 | 1,497.95 | 1,150.00 | 1,149.70 | 6.16 | 3.52 | 61.76 | -1,979.98 | -8,414.00 | 8,613.28 | 8,603.67 | 9.62 | 895.815 | |
| 1,600.00 | 1,597.71 | 1,246.13 | 1,245.78 | 6.47 | 3.56 | 61.79 | -1,982.22 | -8,416.33 | 8,612.92 | 8,602.95 | 9.96 | 864.468 | |
| 1,700.00 | 1,697.47 | 1,362.20 | 1,361.79 | 6.79 | 3.62 | 61.82 | -1,984.86 | -8,418.98 | 8,612.39 | 8,602.06 | 10.33 | 833.752 | |
| 1,800.00 | 1,797.24 | 1,450.00 | 1,449.54 | 7.11 | 3.67 | 61.85 | -1,986.84 | -8,421.00 | 8,611.89 | 8,601.20 | 10.69 | 805.486 | |
| 1,900.00 | 1,897.00 | 1,606.60 | 1,606.06 | 7.44 | 3.77 | 61.89 | -1,990.41 | -8,424.22 | 8,611.15 | 8,600.06 | 11.09 | 776.160 | |
| 2,000.00 | 1,996.76 | 1,700.00 | 1,699.43 | 7.77 | 3.83 | 61.92 | -1,992.33 | -8,425.99 | 8,610.22 | 8,598.75 | 11.47 | 750.449 | |
| 2,100.00 | 2,096.53 | 1,763.56 | 1,762.96 | 8.11 | 3.87 | 61.94 | -1,993.68 | -8,427.39 | 8,609.54 | 8,597.70 | 11.84 | 727.053 | |
| 2,200.00 | 2,196.29 | 1,881.38 | 1,880.72 | 8.44 | 3.96 | 61.98 | -1,996.11 | -8,430.05 | 8,608.98 | 8,596.74 | 12.25 | 702.888 | |
| 2,300.00 | 2,296.06 | 2,029.91 | 2,029.20 | 8.79 | 4.07 | 62.02 | -1,998.62 | -8,432.92 | 8,608.04 | 8,595.35 | 12.68 | 678.803 | |
| 2,400.00 | 2,395.82 | 2,134.82 | 2,134.09 | 9.13 | 4.15 | 62.06 | -2,000.34 | -8,434.50 | 8,606.64 | 8,593.55 | 13.09 | 657.522 | |
| 2,500.00 | 2,495.58 | 2,228.79 | 2,228.03 | 9.47 | 4.23 | 62.09 | -2,001.89 | -8,436.02 | 8,605.35 | 8,591.85 | 13.50 | 637.642 | |
| 2,600.00 | 2,595.35 | 2,330.90 | 2,330.11 | 9.82 | 4.31 | 62.12 | -2,003.55 | -8,437.65 | 8,604.05 | 8,590.14 | 13.91 | 618.491 | |
| 2,700.00 | 2,695.11 | 2,425.00 | 2,424.19 | 10.17 | 4.39 | 62.15 | -2,004.93 | -8,439.17 | 8,602.73 | 8,588.40 | 14.33 | 600.471 | |
| 2,800.00 | 2,794.87 | 2,519.85 | 2,519.02 | 10.52 | 4.48 | 62.18 | -2,006.29 | -8,440.80 | 8,601.50 | 8,586.76 | 14.75 | 583.279 | |
| 2,900.00 | 2,894.64 | 2,637.61 | 2,636.76 | 10.87 | 4.58 | 62.23 | -2,007.67 | -8,442.79 | 8,600.20 | 8,585.01 | 15.19 | 566.149 | |
| 3,000.00 | 2,994.40 | 2,789.14 | 2,788.27 | 11.23 | 4.72 | 62.28 | -2,009.28 | -8,444.68 | 8,598.41 | 8,582.74 | 15.66 | 548.973 | |
| 3,100.00 | 3,094.16 | 2,895.33 | 2,894.44 | 11.58 | 4.82 | 62.32 | -2,010.25 | -8,445.74 | 8,596.38 | 8,580.28 | 16.10 | 533.895 | |
| 3,200.00 | 3,193.93 | 2,993.54 | 2,992.64 | 11.94 | 4.92 | 62.35 | -2,011.14 | -8,446.65 | 8,594.29 | 8,577.75 | 16.53 | 519.766 | |
| 3,300.00 | 3,293.69 | 3,095.46 | 3,094.56 | 12.29 | 5.02 | 62.39 | -2,012.18 | -8,447.61 | 8,592.23 | 8,575.26 | 16.97 | 506.255 | |
| 3,400.00 | 3,393.45 | 3,168.88 | 3,167.97 | 12.65 | 5.09 | 62.41 | -2,013.13 | -8,448.35 | 8,590.31 | 8,572.93 | 17.39 | 494.102 | |
| 3,500.00 | 3,493.22 | 3,250.00 | 3,249.07 | 13.01 | 5.17 | 62.44 | -2,014.29 | -8,449.39 | 8,588.68 | 8,570.88 | 17.81 | 482.264 | |
| 3,600.00 | 3,592.98 | 3,339.91 | 3,338.96 | 13.37 | 5.26 | 62.47 | -2,015.64 | -8,450.69 | 8,587.23 | 8,568.99 | 18.24 | 470.731 | |
| 3,700.00 | 3,692.74 | 3,459.26 | 3,458.29 | 13.73 | 5.39 | 62.51 | -2,017.60 | -8,452.37 | 8,585.79 | 8,567.09 | 18.70 | 459.130 | |
| 3,800.00 | 3,792.51 | 3,558.58 | 3,557.59 | 14.09 | 5.49 | 62.54 | -2,018.94 | -8,453.53 | 8,584.04 | 8,564.90 | 19.14 | 448.416 | |
| 3,900.00 | 3,892.27 | 3,681.80 | 3,680.79 | 14.45 | 5.62 | 62.58 | -2,020.59 | -8,454.94 | 8,582.27 | 8,562.66 | 19.61 | 437.702 | |
| 4,000.00 | 3,992.04 | 3,879.79 | 3,878.75 | 14.81 | 5.81 | 62.65 | -2,023.23 | -8,455.97 | 8,579.97 | 8,559.87 | 20.10 | 426.818 | |
| 4,100.00 | 4,091.80 | 3,995.45 | 3,994.40 | 15.17 | 5.91 | 62.68 | -2,025.24 | -8,455.64 | 8,576.90 | 8,556.40 | 20.51 | 418.266 | |
| 4,200.00 | 4,191.56 | 4,106.60 | 4,105.52 | 15.53 | 5.99 | 62.71 | -2,027.86 | -8,455.03 | 8,573.71 | 8,552.81 | 20.90 | 410.150 | |
| 4,300.00 | 4,291.33 | 4,196.77 | 4,195.65 | 15.89 | 6.06 | 62.73 | -2,030.16 | -8,454.49 | 8,570.49 | 8,549.19 | 21.30 | 402.450 | |
| 4,400.00 | 4,391.09 | 4,291.20 | 4,290.06 | 16.26 | 6.14 | 62.75 | -2,032.57 | -8,453.95 | 8,567.31 | 8,545.62 | 21.69 | 394.971 | |
| 4,500.00 | 4,490.85 | 4,374.68 | 4,373.52 | 16.62 | 6.21 | 62.77 | -2,034.39 | -8,453.68 | 8,564.28 | 8,542.20 | 22.09 | 387.745 | |
| 4,600.00 | 4,590.62 | 4,466.61 | 4,465.43 | 16.99 | 6.30 | 62.80 | -2,036.21 | -8,453.58 | 8,561.43 | 8,538.94 | 22.49 | 380.618 | |
| 4,700.00 | 4,690.38 | 4,560.61 | 4,559.40 | 17.35 | 6.39 | 62.83 | -2,038.08 | -8,453.51 | 8,558.62 | 8,535.72 | 22.90 | 373.708 | |

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

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

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

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4,800.00 | 4,790.14 | 4,647.30 | 4,646.08 | 17.71 | 6.47 | 62.85 | -2,039.78 | -8,453.56 | 8,555.94 | 8,532.62 | 23.31 | 367.030 | |
| 4,900.00 | 4,889.91 | 4,757.11 | 4,755.87 | 18.08 | 6.58 | 62.88 | -2,041.88 | -8,453.64 | 8,553.27 | 8,529.53 | 23.73 | 360.379 | |
| 5,000.00 | 4,989.67 | 4,846.60 | 4,845.34 | 18.44 | 6.67 | 62.91 | -2,043.61 | -8,453.71 | 8,550.60 | 8,526.45 | 24.15 | 354.111 | |
| 5,100.00 | 5,089.43 | 4,959.32 | 4,958.05 | 18.81 | 6.79 | 62.94 | -2,045.84 | -8,453.77 | 8,547.93 | 8,523.35 | 24.57 | 347.881 | |
| 5,200.00 | 5,189.20 | 5,058.88 | 5,057.58 | 19.17 | 6.89 | 62.97 | -2,047.84 | -8,453.70 | 8,545.14 | 8,520.15 | 24.99 | 341.995 | |
| 5,300.00 | 5,288.96 | 5,150.00 | 5,148.68 | 19.54 | 6.98 | 62.99 | -2,049.63 | -8,453.74 | 8,542.44 | 8,517.04 | 25.40 | 336.314 | |
| 5,400.00 | 5,388.72 | 5,278.89 | 5,277.55 | 19.91 | 7.11 | 63.03 | -2,052.14 | -8,453.63 | 8,539.65 | 8,513.82 | 25.83 | 330.613 | |
| 5,500.00 | 5,488.49 | 5,375.00 | 5,373.64 | 20.27 | 7.21 | 63.06 | -2,053.96 | -8,453.42 | 8,536.69 | 8,510.45 | 26.24 | 325.339 | |
| 5,600.00 | 5,588.25 | 5,475.00 | 5,473.62 | 20.64 | 7.31 | 63.08 | -2,055.95 | -8,453.14 | 8,533.70 | 8,507.05 | 26.65 | 320.215 | |
| 5,700.00 | 5,688.01 | 5,597.44 | 5,596.02 | 21.00 | 7.43 | 63.11 | -2,058.74 | -8,452.61 | 8,530.63 | 8,503.56 | 27.07 | 315.163 | |
| 5,800.00 | 5,787.78 | 5,694.50 | 5,693.05 | 21.37 | 7.53 | 63.14 | -2,061.45 | -8,452.00 | 8,527.46 | 8,499.99 | 27.47 | 310.391 | |
| 5,900.00 | 5,887.54 | 5,775.29 | 5,773.81 | 21.74 | 7.61 | 63.15 | -2,063.73 | -8,451.53 | 8,524.36 | 8,496.48 | 27.87 | 305.813 | |
| 6,000.00 | 5,987.31 | 5,850.00 | 5,848.49 | 22.11 | 7.68 | 63.17 | -2,065.57 | -8,451.31 | 8,521.48 | 8,493.20 | 28.28 | 301.354 | |
| 6,100.00 | 6,087.07 | 5,937.64 | 5,936.10 | 22.47 | 7.78 | 63.20 | -2,067.58 | -8,451.43 | 8,518.95 | 8,490.26 | 28.70 | 296.871 | |
| 6,200.00 | 6,186.83 | 6,020.50 | 6,018.95 | 22.84 | 7.88 | 63.22 | -2,069.28 | -8,451.64 | 8,516.51 | 8,487.39 | 29.11 | 292.515 | |
| 6,300.00 | 6,286.60 | 6,114.02 | 6,112.45 | 23.21 | 7.98 | 63.24 | -2,071.21 | -8,451.98 | 8,514.18 | 8,484.64 | 29.54 | 288.192 | |
| 6,400.00 | 6,386.36 | 6,208.48 | 6,206.88 | 23.58 | 8.09 | 63.27 | -2,073.22 | -8,452.38 | 8,511.92 | 8,481.95 | 29.97 | 283.974 | |
| 6,494.00 | 6,480.13 | 6,300.00 | 6,298.39 | 23.92 | 8.20 | 63.30 | -2,074.93 | -8,452.94 | 8,509.93 | 8,479.54 | 30.39 | 280.050 | |
| 6,500.00 | 6,486.12 | 6,303.81 | 6,302.20 | 23.94 | 8.21 | 56.02 | -2,074.99 | -8,452.97 | 8,509.77 | 8,479.36 | 30.41 | 279.815 | |
| 6,550.00 | 6,535.89 | 6,362.85 | 6,361.23 | 24.13 | 8.28 | 20.48 | -2,075.90 | -8,453.26 | 8,506.23 | 8,475.59 | 30.64 | 277.637 | |
| 6,600.00 | 6,585.24 | 6,432.89 | 6,431.27 | 24.31 | 8.36 | 8.09 | -2,076.84 | -8,453.64 | 8,498.90 | 8,468.03 | 30.87 | 275.312 | |
| 6,650.00 | 6,633.88 | 6,463.00 | 6,461.37 | 24.50 | 8.40 | 2.29 | -2,077.19 | -8,453.79 | 8,487.73 | 8,456.66 | 31.07 | 273.196 | |
| 6,700.00 | 6,681.49 | 6,513.24 | 6,511.61 | 24.68 | 8.46 | -1.13 | -2,077.77 | -8,454.11 | 8,472.93 | 8,441.65 | 31.28 | 270.881 | |
| 6,750.00 | 6,727.80 | 6,550.00 | 6,548.36 | 24.86 | 8.50 | -3.49 | -2,078.09 | -8,454.37 | 8,454.52 | 8,423.04 | 31.47 | 268.618 | |
| 6,800.00 | 6,772.51 | 6,591.57 | 6,589.93 | 25.04 | 8.55 | -5.34 | -2,078.40 | -8,454.70 | 8,432.63 | 8,400.96 | 31.67 | 266.284 | |
| 6,850.00 | 6,815.34 | 6,635.64 | 6,634.00 | 25.21 | 8.60 | -6.95 | -2,078.68 | -8,455.07 | 8,407.39 | 8,375.53 | 31.86 | 263.925 | |
| 6,900.00 | 6,856.04 | 6,671.93 | 6,670.29 | 25.39 | 8.64 | -8.47 | -2,078.92 | -8,455.39 | 8,378.94 | 8,346.92 | 32.02 | 261.641 | |
| 6,950.00 | 6,894.35 | 6,706.50 | 6,704.86 | 25.57 | 8.68 | -10.01 | -2,079.12 | -8,455.71 | 8,347.48 | 8,315.30 | 32.18 | 259.391 | |
| 7,000.00 | 6,930.04 | 6,755.74 | 6,754.09 | 25.75 | 8.73 | -11.71 | -2,079.42 | -8,456.13 | 8,313.15 | 8,280.81 | 32.34 | 257.062 | |
| 7,050.00 | 6,962.89 | 6,775.00 | 6,773.35 | 25.93 | 8.75 | -13.59 | -2,079.54 | -8,456.30 | 8,276.20 | 8,243.75 | 32.46 | 255.004 | |
| 7,100.00 | 6,992.69 | 6,816.73 | 6,815.08 | 26.13 | 8.80 | -15.88 | -2,079.79 | -8,456.66 | 8,236.85 | 8,204.27 | 32.58 | 252.824 | |
| 7,150.00 | 7,019.25 | 6,841.34 | 6,839.69 | 26.33 | 8.83 | -18.67 | -2,079.92 | -8,456.87 | 8,195.34 | 8,162.66 | 32.67 | 250.822 | |
| 7,200.00 | 7,042.43 | 6,867.55 | 6,865.89 | 26.55 | 8.85 | -22.27 | -2,080.07 | -8,457.09 | 8,151.93 | 8,119.17 | 32.76 | 248.866 | |
| 7,250.00 | 7,062.07 | 6,896.43 | 6,894.77 | 26.79 | 8.89 | -27.10 | -2,080.23 | -8,457.31 | 8,106.88 | 8,074.05 | 32.83 | 246.954 | |
| 7,300.00 | 7,078.05 | 6,918.15 | 6,916.49 | 27.04 | 8.91 | -33.76 | -2,080.35 | -8,457.46 | 8,060.47 | 8,027.59 | 32.88 | 245.155 | |
| 7,350.00 | 7,090.27 | 6,929.90 | 6,928.25 | 27.30 | 8.93 | -43.15 | -2,080.42 | -8,457.53 | 8,013.01 | 7,980.10 | 32.91 | 243.482 | |
| 7,400.00 | 7,098.66 | 6,935.80 | 6,934.15 | 27.58 | 8.93 | -56.53 | -2,080.45 | -8,457.57 | 7,964.79 | 7,931.87 | 32.93 | 241.904 | |
| 7,450.00 | 7,103.17 | 6,939.10 | 6,937.44 | 27.87 | 8.94 | -74.52 | -2,080.47 | -8,457.59 | 7,916.12 | 7,883.19 | 32.93 | 240.397 | |
| 7,484.86 | 7,104.00 | 6,939.83 | 6,938.17 | 28.08 | 8.94 | -88.75 | -2,080.47 | -8,457.60 | 7,882.07 | 7,849.14 | 32.93 | 239.384 | |
| 7,500.00 | 7,103.95 | 6,939.86 | 6,938.21 | 28.17 | 8.94 | -88.75 | -2,080.47 | -8,457.60 | 7,867.28 | 7,834.35 | 32.92 | 238.952 | |
| 7,600.00 | 7,103.60 | 6,940.11 | 6,938.46 | 28.83 | 8.94 | -88.76 | -2,080.47 | -8,457.60 | 7,769.63 | 7,736.72 | 32.91 | 236.072 | |
| 7,700.00 | 7,103.25 | 6,940.36 | 6,938.71 | 29.56 | 8.94 | -88.76 | -2,080.47 | -8,457.60 | 7,672.05 | 7,639.14 | 32.91 | 233.148 | |
| 7,800.00 | 7,102.90 | 6,940.61 | 6,938.96 | 30.35 | 8.94 | -88.77 | -2,080.48 | -8,457.60 | 7,574.53 | 7,541.62 | 32.91 | 230.179 | |
| 7,900.00 | 7,102.55 | 6,940.87 | 6,939.21 | 31.21 | 8.94 | -88.78 | -2,080.48 | -8,457.61 | 7,477.07 | 7,444.15 | 32.91 | 227.163 | |
| 8,000.00 | 7,102.20 | 6,941.13 | 6,939.47 | 32.13 | 8.94 | -88.79 | -2,080.48 | -8,457.61 | 7,379.68 | 7,346.75 | 32.93 | 224.099 | |
| 8,100.00 | 7,101.85 | 6,941.39 | 6,939.73 | 33.10 | 8.94 | -88.80 | -2,080.48 | -8,457.61 | 7,282.36 | 7,249.41 | 32.95 | 220.986 | |
| 8,200.00 | 7,101.50 | 6,941.65 | 6,939.99 | 34.11 | 8.94 | -88.81 | -2,080.48 | -8,457.61 | 7,185.12 | 7,152.13 | 32.99 | 217.822 | |
| 8,300.00 | 7,101.15 | 6,941.91 | 6,940.26 | 35.17 | 8.94 | -88.82 | -2,080.48 | -8,457.61 | 7,087.95 | 7,054.92 | 33.03 | 214.606 | |
| 8,400.00 | 7,100.80 | 6,942.18 | 6,940.53 | 36.27 | 8.94 | -88.83 | -2,080.48 | -8,457.61 | 6,990.87 | 6,957.79 | 33.08 | 211.338 | |
| 8,500.00 | 7,100.45 | 6,942.45 | 6,940.80 | 37.41 | 8.94 | -88.84 | -2,080.49 | -8,457.62 | 6,893.86 | 6,860.72 | 33.14 | 208.015 | |
| 8,600.00 | 7,100.10 | 6,942.72 | 6,941.07 | 38.58 | 8.94 | -88.84 | -2,080.49 | -8,457.62 | 6,796.94 | 6,763.73 | 33.21 | 204.637 | |
| 8,700.00 | 7,099.75 | 6,943.00 | 6,941.34 | 39.78 | 8.94 | -88.85 | -2,080.49 | -8,457.62 | 6,700.12 | 6,666.82 | 33.30 | 201.204 | |

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

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

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

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8,800.00 | 7,099.40 | 6,943.28 | 6,941.62 | 41.00 | 8.94 | -88.86 | -2,080.49 | -8,457.62 | 6,603.38 | 6,569.99 | 33.40 | 197.714 | |
| 8,900.00 | 7,099.05 | 6,943.56 | 6,941.91 | 42.25 | 8.94 | -88.87 | -2,080.49 | -8,457.62 | 6,506.75 | 6,473.24 | 33.51 | 194.167 | |
| 9,000.00 | 7,098.70 | 6,943.85 | 6,942.19 | 43.53 | 8.94 | -88.88 | -2,080.49 | -8,457.63 | 6,410.22 | 6,376.58 | 33.64 | 190.564 | |
| 9,100.00 | 7,098.35 | 6,944.13 | 6,942.48 | 44.82 | 8.94 | -88.89 | -2,080.49 | -8,457.63 | 6,313.80 | 6,280.02 | 33.78 | 186.904 | |
| 9,200.00 | 7,098.00 | 6,944.42 | 6,942.77 | 46.14 | 8.94 | -88.90 | -2,080.50 | -8,457.63 | 6,217.49 | 6,183.55 | 33.94 | 183.187 | |
| 9,300.00 | 7,097.65 | 6,944.72 | 6,943.06 | 47.47 | 8.94 | -88.91 | -2,080.50 | -8,457.63 | 6,121.30 | 6,087.18 | 34.12 | 179.415 | |
| 9,400.00 | 7,097.30 | 6,945.01 | 6,943.36 | 48.82 | 8.94 | -88.92 | -2,080.50 | -8,457.64 | 6,025.23 | 5,990.92 | 34.31 | 175.588 | |
| 9,500.00 | 7,096.95 | 6,945.31 | 6,943.66 | 50.18 | 8.94 | -88.93 | -2,080.50 | -8,457.64 | 5,929.30 | 5,894.76 | 34.53 | 171.707 | |
| 9,600.00 | 7,096.60 | 6,945.62 | 6,943.96 | 51.56 | 8.94 | -88.94 | -2,080.50 | -8,457.64 | 5,833.50 | 5,798.73 | 34.77 | 167.774 | |
| 9,700.00 | 7,096.25 | 6,945.92 | 6,944.27 | 52.95 | 8.94 | -88.95 | -2,080.50 | -8,457.64 | 5,737.84 | 5,702.81 | 35.03 | 163.792 | |
| 9,800.00 | 7,095.90 | 6,946.23 | 6,944.58 | 54.35 | 8.94 | -88.96 | -2,080.50 | -8,457.64 | 5,642.33 | 5,607.02 | 35.32 | 159.763 | |
| 9,900.00 | 7,095.55 | 6,946.55 | 6,944.89 | 55.76 | 8.94 | -88.97 | -2,080.51 | -8,457.65 | 5,546.98 | 5,511.36 | 35.63 | 155.690 | |
| 10,000.00 | 7,095.20 | 6,946.86 | 6,945.21 | 57.18 | 8.94 | -88.99 | -2,080.51 | -8,457.65 | 5,451.80 | 5,415.84 | 35.97 | 151.576 | |
| 10,100.00 | 7,094.85 | 6,947.18 | 6,945.53 | 58.61 | 8.95 | -89.00 | -2,080.51 | -8,457.65 | 5,356.80 | 5,320.46 | 36.34 | 147.426 | |
| 10,200.00 | 7,094.50 | 6,950.00 | 6,948.34 | 60.05 | 8.95 | -89.09 | -2,080.52 | -8,457.67 | 5,261.98 | 5,225.24 | 36.74 | 143.238 | |
| 10,300.00 | 7,094.15 | 6,950.00 | 6,948.34 | 61.50 | 8.95 | -89.09 | -2,080.52 | -8,457.67 | 5,167.35 | 5,130.18 | 37.17 | 139.029 | |
| 10,400.00 | 7,093.80 | 6,950.00 | 6,948.34 | 62.96 | 8.95 | -89.09 | -2,080.52 | -8,457.67 | 5,072.93 | 5,035.30 | 37.63 | 134.798 | |
| 10,500.00 | 7,093.45 | 6,950.00 | 6,948.34 | 64.42 | 8.95 | -89.09 | -2,080.52 | -8,457.67 | 4,978.73 | 4,940.59 | 38.14 | 130.551 | |
| 10,600.00 | 7,093.10 | 6,950.00 | 6,948.34 | 65.89 | 8.95 | -89.09 | -2,080.52 | -8,457.67 | 4,884.76 | 4,846.08 | 38.68 | 126.293 | |
| 10,700.00 | 7,092.75 | 6,950.00 | 6,948.34 | 67.36 | 8.95 | -89.09 | -2,080.52 | -8,457.67 | 4,791.03 | 4,751.77 | 39.26 | 122.032 | |
| 10,800.00 | 7,092.40 | 6,950.00 | 6,948.34 | 68.84 | 8.95 | -89.09 | -2,080.52 | -8,457.67 | 4,697.56 | 4,657.68 | 39.89 | 117.773 | |
| 10,900.00 | 7,092.05 | 6,950.00 | 6,948.34 | 70.33 | 8.95 | -89.09 | -2,080.52 | -8,457.67 | 4,604.37 | 4,563.81 | 40.56 | 113.525 | |
| 11,000.00 | 7,091.70 | 6,950.00 | 6,948.34 | 71.82 | 8.95 | -89.09 | -2,080.52 | -8,457.67 | 4,511.47 | 4,470.19 | 41.28 | 109.293 | |
| 11,100.00 | 7,091.35 | 6,950.69 | 6,949.03 | 73.31 | 8.95 | -89.12 | -2,080.53 | -8,457.68 | 4,418.88 | 4,376.83 | 42.05 | 105.086 | |
| 11,200.00 | 7,091.00 | 6,951.11 | 6,949.45 | 74.81 | 8.95 | -89.13 | -2,080.53 | -8,457.68 | 4,326.61 | 4,283.74 | 42.88 | 100.911 | |
| 11,300.00 | 7,090.65 | 6,951.52 | 6,949.87 | 76.32 | 8.95 | -89.14 | -2,080.53 | -8,457.69 | 4,234.70 | 4,190.94 | 43.76 | 96.775 | |
| 11,400.00 | 7,090.30 | 6,951.94 | 6,950.28 | 77.82 | 8.95 | -89.16 | -2,080.53 | -8,457.69 | 4,143.16 | 4,098.46 | 44.70 | 92.687 | |
| 11,500.00 | 7,089.95 | 6,952.36 | 6,950.70 | 79.34 | 8.95 | -89.17 | -2,080.54 | -8,457.69 | 4,052.03 | 4,006.32 | 45.71 | 88.652 | |
| 11,600.00 | 7,089.60 | 6,952.77 | 6,951.12 | 80.85 | 8.95 | -89.19 | -2,080.54 | -8,457.70 | 3,961.32 | 3,914.54 | 46.78 | 84.680 | |
| 11,700.00 | 7,089.25 | 6,953.19 | 6,951.53 | 82.37 | 8.95 | -89.20 | -2,080.54 | -8,457.70 | 3,871.07 | 3,823.14 | 47.92 | 80.775 | |
| 11,800.00 | 7,088.90 | 6,953.61 | 6,951.95 | 83.89 | 8.95 | -89.21 | -2,080.54 | -8,457.70 | 3,781.31 | 3,732.16 | 49.14 | 76.946 | |
| 11,900.00 | 7,088.55 | 6,954.02 | 6,952.36 | 85.41 | 8.95 | -89.23 | -2,080.54 | -8,457.71 | 3,692.07 | 3,641.63 | 50.44 | 73.198 | |
| 12,000.00 | 7,088.20 | 6,954.44 | 6,952.78 | 86.94 | 8.95 | -89.24 | -2,080.55 | -8,457.71 | 3,603.40 | 3,551.58 | 51.82 | 69.538 | |
| 12,100.00 | 7,087.85 | 6,954.85 | 6,953.20 | 88.47 | 8.95 | -89.26 | -2,080.55 | -8,457.71 | 3,515.34 | 3,462.05 | 53.29 | 65.970 | |
| 12,200.00 | 7,087.50 | 6,955.27 | 6,953.61 | 90.00 | 8.95 | -89.27 | -2,080.55 | -8,457.72 | 3,427.93 | 3,373.09 | 54.85 | 62.500 | |
| 12,300.00 | 7,087.15 | 6,955.68 | 6,954.03 | 91.54 | 8.95 | -89.29 | -2,080.55 | -8,457.72 | 3,341.23 | 3,284.73 | 56.50 | 59.133 | |
| 12,400.00 | 7,086.81 | 6,956.10 | 6,954.44 | 93.07 | 8.95 | -89.30 | -2,080.55 | -8,457.72 | 3,255.30 | 3,197.03 | 58.26 | 55.872 | |
| 12,500.00 | 7,086.46 | 6,956.51 | 6,954.86 | 94.61 | 8.96 | -89.31 | -2,080.56 | -8,457.73 | 3,170.18 | 3,110.05 | 60.13 | 52.721 | |
| 12,600.00 | 7,086.11 | 6,956.93 | 6,955.27 | 96.15 | 8.96 | -89.33 | -2,080.56 | -8,457.73 | 3,085.96 | 3,023.85 | 62.11 | 49.684 | |
| 12,700.00 | 7,085.76 | 6,957.34 | 6,955.69 | 97.69 | 8.96 | -89.34 | -2,080.56 | -8,457.73 | 3,002.71 | 2,938.50 | 64.21 | 46.764 | |
| 12,800.00 | 7,085.41 | 6,957.76 | 6,956.10 | 99.24 | 8.96 | -89.36 | -2,080.56 | -8,457.73 | 2,920.51 | 2,854.08 | 66.43 | 43.961 | |
| 12,900.00 | 7,085.06 | 6,958.17 | 6,956.52 | 100.78 | 8.96 | -89.37 | -2,080.56 | -8,457.74 | 2,839.46 | 2,770.67 | 68.79 | 41.279 | |
| 13,000.00 | 7,084.71 | 6,958.59 | 6,956.93 | 102.33 | 8.96 | -89.38 | -2,080.57 | -8,457.74 | 2,759.64 | 2,688.37 | 71.28 | 38.718 | |
| 13,100.00 | 7,084.36 | 6,959.00 | 6,957.35 | 103.88 | 8.96 | -89.40 | -2,080.57 | -8,457.74 | 2,681.18 | 2,607.28 | 73.90 | 36.280 | |
| 13,200.00 | 7,084.01 | 6,959.42 | 6,957.76 | 105.43 | 8.96 | -89.41 | -2,080.57 | -8,457.75 | 2,604.20 | 2,527.52 | 76.68 | 33.964 | |
| 13,300.00 | 7,083.66 | 6,959.83 | 6,958.17 | 106.99 | 8.96 | -89.43 | -2,080.57 | -8,457.75 | 2,528.82 | 2,449.23 | 79.60 | 31.771 | |
| 13,400.00 | 7,083.31 | 6,960.25 | 6,958.59 | 108.54 | 8.96 | -89.44 | -2,080.57 | -8,457.75 | 2,455.21 | 2,372.54 | 82.67 | 29.700 | |
| 13,500.00 | 7,082.96 | 6,960.66 | 6,959.00 | 110.09 | 8.96 | -89.45 | -2,080.58 | -8,457.76 | 2,383.52 | 2,297.63 | 85.89 | 27.752 | |
| 13,600.00 | 7,082.61 | 6,961.07 | 6,959.42 | 111.65 | 8.96 | -89.47 | -2,080.58 | -8,457.76 | 2,313.93 | 2,224.67 | 89.26 | 25.924 | |
| 13,700.00 | 7,082.26 | 6,961.49 | 6,959.83 | 113.21 | 8.96 | -89.48 | -2,080.58 | -8,457.76 | 2,246.64 | 2,153.87 | 92.77 | 24.217 | |
| 13,800.00 | 7,081.91 | 6,961.90 | 6,960.24 | 114.77 | 8.96 | -89.50 | -2,080.58 | -8,457.77 | 2,181.85 | 2,085.43 | 96.42 | 22.628 | |
| 13,900.00 | 7,081.56 | 6,962.31 | 6,960.66 | 116.33 | 8.96 | -89.51 | -2,080.59 | -8,457.77 | 2,119.81 | 2,019.61 | 100.20 | 21.155 | |

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

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

**Survey Program:** 100-Standard Keeper 104

**Offset Well Error:** 3.28 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Rule Assigned: Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 14,000.00 | 7,081.21 | 6,962.73 | 6,961.07 | 117.89 | 8.96 | -89.52 | -2,080.59 | -8,457.77 | 2,060.75 | 1,956.66 | 104.09 | 19.798 | |
| 14,100.00 | 7,080.86 | 6,963.14 | 6,961.48 | 119.45 | 8.96 | -89.54 | -2,080.59 | -8,457.78 | 2,004.95 | 1,896.88 | 108.06 | 18.553 | |
| 14,200.00 | 7,080.51 | 6,963.55 | 6,961.90 | 121.02 | 8.96 | -89.55 | -2,080.59 | -8,457.78 | 1,952.67 | 1,840.57 | 112.09 | 17.420 | |
| 14,300.00 | 7,080.16 | 6,963.97 | 6,962.31 | 122.58 | 8.96 | -89.57 | -2,080.59 | -8,457.78 | 1,904.21 | 1,788.06 | 116.15 | 16.395 | |
| 14,400.00 | 7,079.81 | 6,964.38 | 6,962.72 | 124.15 | 8.96 | -89.58 | -2,080.60 | -8,457.79 | 1,859.87 | 1,739.69 | 120.18 | 15.475 | |
| 14,500.00 | 7,079.46 | 6,964.79 | 6,963.13 | 125.71 | 8.96 | -89.59 | -2,080.60 | -8,457.79 | 1,819.95 | 1,695.81 | 124.15 | 14.660 | |
| 14,600.00 | 7,079.11 | 6,965.20 | 6,963.55 | 127.28 | 8.97 | -89.61 | -2,080.60 | -8,457.79 | 1,784.75 | 1,656.77 | 127.98 | 13.945 | |
| 14,700.00 | 7,078.76 | 6,965.62 | 6,963.96 | 128.85 | 8.97 | -89.62 | -2,080.60 | -8,457.80 | 1,754.55 | 1,622.91 | 131.64 | 13.329 | |
| 14,800.00 | 7,078.41 | 6,966.03 | 6,964.37 | 130.42 | 8.97 | -89.64 | -2,080.61 | -8,457.80 | 1,729.61 | 1,594.57 | 135.04 | 12.808 | |
| 14,900.00 | 7,078.06 | 6,966.44 | 6,964.78 | 131.98 | 8.97 | -89.65 | -2,080.61 | -8,457.80 | 1,710.16 | 1,572.02 | 138.14 | 12.380 | |
| 15,000.00 | 7,077.71 | 6,966.85 | 6,965.20 | 133.55 | 8.97 | -89.66 | -2,080.61 | -8,457.81 | 1,696.39 | 1,555.52 | 140.87 | 12.042 | |
| 15,100.00 | 7,077.36 | 6,967.26 | 6,965.61 | 135.13 | 8.97 | -89.68 | -2,080.61 | -8,457.81 | 1,688.45 | 1,545.26 | 143.19 | 11.792 | |
| 15,184.49 | 7,077.06 | 6,967.61 | 6,965.96 | 136.45 | 8.97 | -89.69 | -2,080.61 | -8,457.81 | 1,686.33 | 1,541.53 | 144.80 | 11.646 | CC |
| 15,200.00 | 7,077.01 | 6,967.68 | 6,966.02 | 136.70 | 8.97 | -89.69 | -2,080.61 | -8,457.81 | 1,686.40 | 1,541.34 | 145.06 | 11.625 | ES |
| 15,300.00 | 7,076.66 | 6,968.09 | 6,966.43 | 138.27 | 8.97 | -89.71 | -2,080.62 | -8,457.82 | 1,690.28 | 1,543.82 | 146.46 | 11.541 | |
| 15,400.00 | 7,076.31 | 6,968.50 | 6,966.84 | 139.84 | 8.97 | -89.72 | -2,080.62 | -8,457.82 | 1,700.05 | 1,552.67 | 147.38 | 11.535 | SF |
| 15,500.00 | 7,075.96 | 6,968.91 | 6,967.25 | 141.42 | 8.97 | -89.73 | -2,080.62 | -8,457.82 | 1,715.60 | 1,567.77 | 147.83 | 11.605 | |
| 15,600.00 | 7,075.61 | 6,969.32 | 6,967.66 | 142.99 | 8.97 | -89.75 | -2,080.62 | -8,457.83 | 1,736.77 | 1,588.95 | 147.82 | 11.749 | |
| 15,700.00 | 7,075.26 | 6,969.73 | 6,968.08 | 144.57 | 8.97 | -89.76 | -2,080.63 | -8,457.83 | 1,763.37 | 1,615.97 | 147.40 | 11.963 | |
| 15,800.00 | 7,074.91 | 6,970.14 | 6,968.49 | 146.14 | 8.97 | -89.78 | -2,080.63 | -8,457.83 | 1,795.15 | 1,648.55 | 146.61 | 12.245 | |
| 15,900.00 | 7,074.56 | 6,970.55 | 6,968.90 | 147.72 | 8.97 | -89.79 | -2,080.63 | -8,457.84 | 1,831.85 | 1,686.37 | 145.48 | 12.592 | |
| 16,000.00 | 7,074.21 | 6,970.97 | 6,969.31 | 149.29 | 8.97 | -89.80 | -2,080.63 | -8,457.84 | 1,873.17 | 1,729.09 | 144.08 | 13.001 | |
| 16,100.00 | 7,073.86 | 6,971.38 | 6,969.72 | 150.87 | 8.97 | -89.82 | -2,080.63 | -8,457.84 | 1,918.82 | 1,776.37 | 142.45 | 13.470 | |
| 16,200.00 | 7,073.51 | 6,971.79 | 6,970.13 | 152.45 | 8.97 | -89.83 | -2,080.64 | -8,457.84 | 1,968.49 | 1,827.86 | 140.64 | 13.997 | |
| 16,300.00 | 7,073.16 | 6,972.20 | 6,970.54 | 154.03 | 8.97 | -89.85 | -2,080.64 | -8,457.85 | 2,021.90 | 1,883.21 | 138.69 | 14.579 | |
| 16,400.00 | 7,072.81 | 6,972.61 | 6,970.95 | 155.60 | 8.97 | -89.86 | -2,080.64 | -8,457.85 | 2,078.74 | 1,942.10 | 136.64 | 15.213 | |
| 16,500.00 | 7,072.46 | 6,973.02 | 6,971.36 | 157.18 | 8.97 | -89.87 | -2,080.64 | -8,457.85 | 2,138.75 | 2,004.22 | 134.53 | 15.898 | |
| 16,600.00 | 7,072.11 | 6,973.43 | 6,971.77 | 158.76 | 8.97 | -89.89 | -2,080.65 | -8,457.86 | 2,201.67 | 2,069.28 | 132.39 | 16.630 | |
| 16,631.96 | 7,072.00 | 6,973.56 | 6,971.90 | 159.27 | 8.97 | -89.89 | -2,080.65 | -8,457.86 | 2,222.36 | 2,090.65 | 131.70 | 16.874 | |

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 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

**Survey Program:** 293-A027Ua_INC-ONLY

**Rule Assigned:**

**Offset Well Error:** 0.00 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 15.00 | 15.00 | 3.28 | 0.14 | 98.00 | -1,175.17 | 8,362.57 | 8,444.74 | | | | |
| 100.00 | 100.00 | 115.00 | 115.00 | 3.29 | 1.06 | 98.00 | -1,175.17 | 8,362.57 | 8,444.74 | 8,440.39 | 4.35 | 1,940.152 | |
| 200.00 | 200.00 | 215.00 | 215.00 | 3.34 | 1.99 | 98.00 | -1,175.17 | 8,362.57 | 8,444.74 | 8,439.41 | 5.32 | 1,586.353 | |
| 300.00 | 300.00 | 315.00 | 315.00 | 3.42 | 3.11 | 98.00 | -1,175.17 | 8,362.57 | 8,444.74 | 8,438.20 | 6.53 | 1,292.295 | |
| 400.00 | 400.00 | 415.00 | 415.00 | 3.54 | 4.96 | 98.00 | -1,175.17 | 8,362.57 | 8,444.74 | 8,436.24 | 8.50 | 993.333 | |
| 500.00 | 500.00 | 515.00 | 515.00 | 3.69 | 6.81 | 98.00 | -1,175.17 | 8,362.57 | 8,444.74 | 8,434.24 | 10.50 | 804.310 CC | |
| 600.00 | 599.98 | 613.54 | 613.53 | 3.86 | 8.63 | -112.00 | -1,174.67 | 8,362.57 | 8,445.32 | 8,432.83 | 12.49 | 676.207 | |
| 697.00 | 696.84 | 708.47 | 708.47 | 4.04 | 10.39 | -112.00 | -1,174.86 | 8,362.57 | 8,447.23 | 8,432.81 | 14.42 | 585.629 | |
| 700.00 | 699.84 | 711.41 | 711.40 | 4.05 | 10.44 | -112.00 | -1,174.87 | 8,362.57 | 8,447.31 | 8,432.83 | 14.48 | 583.193 | |
| 800.00 | 799.60 | 814.62 | 814.60 | 4.25 | 12.37 | -112.04 | -1,175.17 | 8,362.57 | 8,449.94 | 8,433.31 | 16.63 | 508.237 | |
| 897.00 | 896.37 | 911.39 | 911.37 | 4.48 | 14.27 | -112.08 | -1,175.17 | 8,362.57 | 8,452.44 | 8,433.70 | 18.74 | 450.930 | |
| 900.00 | 899.37 | 914.39 | 914.37 | 4.48 | 14.33 | -111.22 | -1,175.17 | 8,362.57 | 8,452.52 | 8,433.71 | 18.81 | 449.357 | |
| 947.40 | 946.65 | 961.67 | 961.65 | 4.60 | 15.25 | -97.43 | -1,175.17 | 8,362.57 | 8,453.32 | 8,433.47 | 19.85 | 425.827 | |
| 1,000.00 | 999.13 | 1,014.15 | 1,014.13 | 4.73 | 16.28 | -97.45 | -1,175.17 | 8,362.57 | 8,453.79 | 8,432.78 | 21.01 | 402.341 | |
| 1,100.00 | 1,098.89 | 1,112.67 | 1,112.65 | 4.99 | 18.21 | -97.50 | -1,174.64 | 8,362.57 | 8,454.62 | 8,431.41 | 23.20 | 364.362 | |
| 1,200.00 | 1,198.66 | 1,210.55 | 1,210.52 | 5.27 | 20.13 | -97.55 | -1,174.83 | 8,362.57 | 8,455.54 | 8,430.15 | 25.40 | 332.938 | |
| 1,300.00 | 1,298.42 | 1,313.49 | 1,313.42 | 5.56 | 22.16 | -97.59 | -1,175.17 | 8,362.57 | 8,456.50 | 8,428.78 | 27.72 | 305.091 | |
| 1,400.00 | 1,398.18 | 1,413.25 | 1,413.18 | 5.85 | 24.33 | -97.64 | -1,175.17 | 8,362.57 | 8,457.41 | 8,427.23 | 30.18 | 280.233 | |
| 1,500.00 | 1,497.95 | 1,513.02 | 1,512.95 | 6.16 | 26.49 | -97.68 | -1,175.17 | 8,362.57 | 8,458.33 | 8,425.68 | 32.65 | 259.060 | |
| 1,600.00 | 1,597.71 | 1,612.15 | 1,612.07 | 6.47 | 28.65 | -97.74 | -1,173.91 | 8,362.57 | 8,459.09 | 8,423.97 | 35.11 | 240.906 | |
| 1,700.00 | 1,697.47 | 1,708.71 | 1,708.62 | 6.79 | 30.74 | -97.78 | -1,174.11 | 8,362.57 | 8,460.04 | 8,422.52 | 37.53 | 225.438 | |
| 1,800.00 | 1,797.24 | 1,805.30 | 1,805.21 | 7.11 | 32.84 | -97.82 | -1,174.59 | 8,362.57 | 8,461.04 | 8,421.10 | 39.95 | 211.808 | |
| 1,900.00 | 1,897.00 | 1,912.18 | 1,912.00 | 7.44 | 35.12 | -97.87 | -1,175.17 | 8,362.57 | 8,462.05 | 8,419.50 | 42.56 | 198.847 | |
| 2,000.00 | 1,996.76 | 2,011.94 | 2,011.76 | 7.77 | 37.16 | -97.91 | -1,175.17 | 8,362.57 | 8,463.00 | 8,418.08 | 44.93 | 188.379 | |
| 2,100.00 | 2,096.53 | 2,111.71 | 2,111.53 | 8.11 | 39.20 | -97.96 | -1,175.17 | 8,362.57 | 8,463.95 | 8,416.65 | 47.30 | 178.948 | |
| 2,200.00 | 2,196.29 | 2,207.58 | 2,207.38 | 8.44 | 41.15 | -98.01 | -1,173.99 | 8,362.57 | 8,464.76 | 8,415.16 | 49.59 | 170.678 | |
| 2,300.00 | 2,296.06 | 2,302.86 | 2,302.65 | 8.79 | 43.10 | -98.05 | -1,174.54 | 8,362.57 | 8,465.79 | 8,413.91 | 51.88 | 163.173 | |
| 2,400.00 | 2,395.82 | 2,411.06 | 2,410.82 | 9.13 | 45.34 | -98.10 | -1,175.17 | 8,362.57 | 8,466.84 | 8,412.37 | 54.47 | 155.447 | |
| 2,500.00 | 2,495.58 | 2,510.82 | 2,510.58 | 9.47 | 47.46 | -98.14 | -1,175.17 | 8,362.57 | 8,467.81 | 8,410.88 | 56.93 | 148.744 | |
| 2,600.00 | 2,595.35 | 2,610.59 | 2,610.35 | 9.82 | 49.57 | -98.19 | -1,175.17 | 8,362.57 | 8,468.79 | 8,409.40 | 59.39 | 142.593 | |
| 2,700.00 | 2,695.11 | 2,710.35 | 2,710.11 | 10.17 | 51.69 | -98.23 | -1,175.17 | 8,362.57 | 8,469.77 | 8,407.92 | 61.86 | 136.928 | |
| 2,800.00 | 2,794.87 | 2,809.53 | 2,809.28 | 10.52 | 53.79 | -98.29 | -1,174.33 | 8,362.57 | 8,470.66 | 8,406.35 | 64.31 | 131.718 | |
| 2,900.00 | 2,894.64 | 2,908.16 | 2,907.92 | 10.87 | 55.89 | -98.33 | -1,174.44 | 8,362.57 | 8,471.67 | 8,404.92 | 66.75 | 126.911 | |
| 3,000.00 | 2,994.40 | 3,006.82 | 3,006.57 | 11.23 | 57.98 | -98.37 | -1,174.66 | 8,362.57 | 8,472.70 | 8,403.50 | 69.20 | 122.442 | |
| 3,100.00 | 3,094.16 | 3,105.48 | 3,105.23 | 11.58 | 60.07 | -98.42 | -1,174.99 | 8,362.57 | 8,473.74 | 8,402.10 | 71.64 | 118.275 | |
| 3,200.00 | 3,193.93 | 3,209.30 | 3,208.93 | 11.94 | 62.47 | -98.46 | -1,175.17 | 8,362.57 | 8,474.78 | 8,400.37 | 74.40 | 113.904 | |
| 3,300.00 | 3,293.69 | 3,309.06 | 3,308.69 | 12.29 | 64.92 | -98.51 | -1,175.17 | 8,362.57 | 8,475.79 | 8,398.59 | 77.20 | 109.786 | |
| 3,400.00 | 3,393.45 | 3,408.08 | 3,407.69 | 12.65 | 67.34 | -98.57 | -1,173.56 | 8,362.57 | 8,476.63 | 8,396.64 | 79.99 | 105.977 | |
| 3,500.00 | 3,493.22 | 3,502.91 | 3,502.51 | 13.01 | 69.67 | -98.61 | -1,173.87 | 8,362.57 | 8,477.69 | 8,395.03 | 82.67 | 102.553 | |
| 3,600.00 | 3,592.98 | 3,597.82 | 3,597.40 | 13.37 | 71.99 | -98.65 | -1,174.66 | 8,362.57 | 8,478.82 | 8,393.47 | 85.35 | 99.342 | |
| 3,700.00 | 3,692.74 | 3,708.28 | 3,707.74 | 13.73 | 74.59 | -98.69 | -1,175.17 | 8,362.57 | 8,479.91 | 8,391.60 | 88.31 | 96.024 | |
| 3,800.00 | 3,792.51 | 3,804.57 | 3,804.01 | 14.09 | 76.80 | -98.74 | -1,174.39 | 8,362.57 | 8,480.87 | 8,389.99 | 90.88 | 93.318 | |
| 3,900.00 | 3,892.27 | 3,907.87 | 3,907.27 | 14.45 | 79.16 | -98.78 | -1,175.17 | 8,362.57 | 8,482.01 | 8,388.41 | 93.60 | 90.622 | |
| 4,000.00 | 3,992.04 | 4,007.63 | 4,007.04 | 14.81 | 81.28 | -98.83 | -1,175.17 | 8,362.57 | 8,483.06 | 8,386.98 | 96.08 | 88.290 | |
| 4,100.00 | 4,091.80 | 4,107.40 | 4,106.80 | 15.17 | 83.41 | -98.88 | -1,175.17 | 8,362.57 | 8,484.12 | 8,385.56 | 98.57 | 86.075 | |
| 4,200.00 | 4,191.56 | 4,207.16 | 4,206.56 | 15.53 | 85.53 | -98.92 | -1,175.17 | 8,362.57 | 8,485.19 | 8,384.14 | 101.05 | 83.969 | |
| 4,300.00 | 4,291.33 | 4,306.93 | 4,306.33 | 15.89 | 87.65 | -98.97 | -1,175.17 | 8,362.57 | 8,486.26 | 8,382.72 | 103.54 | 81.964 | |
| 4,400.00 | 4,391.09 | 4,406.69 | 4,406.09 | 16.26 | 89.77 | -99.01 | -1,175.17 | 8,362.57 | 8,487.34 | 8,381.31 | 106.02 | 80.052 | |
| 4,500.00 | 4,490.85 | 4,506.43 | 4,505.80 | 16.62 | 91.90 | -99.08 | -1,172.52 | 8,362.57 | 8,488.13 | 8,379.62 | 108.51 | 78.226 | |
| 4,600.00 | 4,590.62 | 4,604.91 | 4,604.28 | 16.99 | 93.99 | -99.12 | -1,172.59 | 8,362.57 | 8,489.23 | 8,378.26 | 110.97 | 76.502 | |
| 4,700.00 | 4,690.38 | 4,703.42 | 4,702.79 | 17.35 | 96.09 | -99.17 | -1,172.81 | 8,362.57 | 8,490.35 | 8,376.92 | 113.43 | 74.852 | |
| 4,800.00 | 4,790.14 | 4,801.95 | 4,801.31 | 17.71 | 98.19 | -99.21 | -1,173.16 | 8,362.57 | 8,491.48 | 8,375.60 | 115.89 | 73.273 | |

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

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

**Survey Program:** 293-A027Ua_INC-ONLY

**Offset Well Error:** 0.00 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Rule Assigned: Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4,900.00 | 4,889.91 | 4,900.50 | 4,899.85 | 18.08 | 100.28 | -99.25 | -1,173.65 | 8,362.57 | 8,492.64 | 8,374.29 | 118.35 | 71.758 | |
| 5,000.00 | 4,989.67 | 4,999.07 | 4,998.42 | 18.44 | 102.38 | -99.29 | -1,174.28 | 8,362.57 | 8,493.82 | 8,373.01 | 120.81 | 70.306 | |
| 5,100.00 | 5,089.43 | 5,097.66 | 5,097.00 | 18.81 | 104.48 | -99.33 | -1,175.05 | 8,362.57 | 8,495.02 | 8,371.74 | 123.28 | 68.911 | |
| 5,200.00 | 5,189.20 | 5,204.98 | 5,204.20 | 19.17 | 106.68 | -99.38 | -1,175.17 | 8,362.57 | 8,496.14 | 8,370.30 | 125.85 | 67.513 | |
| 5,300.00 | 5,288.96 | 5,304.74 | 5,303.96 | 19.54 | 108.72 | -99.42 | -1,175.17 | 8,362.57 | 8,497.27 | 8,369.02 | 128.25 | 66.256 | |
| 5,400.00 | 5,388.72 | 5,404.51 | 5,403.72 | 19.91 | 110.76 | -99.47 | -1,175.17 | 8,362.57 | 8,498.40 | 8,367.75 | 130.65 | 65.046 | |
| 5,500.00 | 5,488.49 | 5,504.27 | 5,503.49 | 20.27 | 112.80 | -99.52 | -1,175.17 | 8,362.57 | 8,499.54 | 8,366.48 | 133.06 | 63.879 | |
| 5,600.00 | 5,588.25 | 5,604.04 | 5,603.25 | 20.64 | 114.84 | -99.56 | -1,175.17 | 8,362.57 | 8,500.68 | 8,365.22 | 135.46 | 62.754 | |
| 5,700.00 | 5,688.01 | 5,703.80 | 5,703.01 | 21.00 | 116.87 | -99.61 | -1,175.17 | 8,362.57 | 8,501.83 | 8,363.96 | 137.87 | 61.668 | |
| 5,800.00 | 5,787.78 | 5,802.39 | 5,801.58 | 21.37 | 118.89 | -99.67 | -1,172.64 | 8,362.57 | 8,502.73 | 8,362.48 | 140.25 | 60.627 | |
| 5,900.00 | 5,887.54 | 5,900.99 | 5,900.17 | 21.74 | 120.90 | -99.71 | -1,172.85 | 8,362.57 | 8,503.91 | 8,361.28 | 142.63 | 59.624 | |
| 6,000.00 | 5,987.31 | 5,999.60 | 5,998.78 | 22.11 | 122.92 | -99.76 | -1,173.21 | 8,362.57 | 8,505.11 | 8,360.10 | 145.01 | 58.653 | |
| 6,100.00 | 6,087.07 | 6,098.24 | 6,097.41 | 22.47 | 124.93 | -99.80 | -1,173.71 | 8,362.57 | 8,506.33 | 8,358.94 | 147.39 | 57.713 | |
| 6,200.00 | 6,186.83 | 6,196.90 | 6,196.07 | 22.84 | 126.95 | -99.84 | -1,174.35 | 8,362.57 | 8,507.57 | 8,357.79 | 149.77 | 56.803 | |
| 6,300.00 | 6,286.60 | 6,302.52 | 6,301.60 | 23.21 | 129.10 | -99.88 | -1,175.17 | 8,362.57 | 8,508.82 | 8,356.53 | 152.30 | 55.871 ES | |
| 6,400.00 | 6,386.36 | 6,308.00 | 6,307.08 | 23.58 | 129.21 | -99.88 | -1,175.17 | 8,362.57 | 8,510.53 | 8,357.77 | 152.76 | 55.712 | |
| 6,494.00 | 6,480.13 | 6,308.00 | 6,307.08 | 23.92 | 129.21 | -99.88 | -1,175.17 | 8,362.57 | 8,513.20 | 8,360.13 | 153.07 | 55.615 | |
| 6,500.00 | 6,486.12 | 6,308.00 | 6,307.08 | 23.94 | 129.21 | -107.16 | -1,175.17 | 8,362.57 | 8,513.44 | 8,360.34 | 153.09 | 55.609 | |
| 6,550.00 | 6,535.89 | 6,308.00 | 6,307.08 | 24.13 | 129.21 | -142.62 | -1,175.17 | 8,362.57 | 8,517.73 | 8,364.48 | 153.25 | 55.579 | |
| 6,600.00 | 6,585.24 | 6,308.00 | 6,307.08 | 24.31 | 129.21 | -154.80 | -1,175.17 | 8,362.57 | 8,526.20 | 8,372.79 | 153.41 | 55.578 SF | |
| 6,650.00 | 6,633.88 | 6,308.00 | 6,307.08 | 24.50 | 129.21 | -160.28 | -1,175.17 | 8,362.57 | 8,538.76 | 8,385.21 | 153.56 | 55.607 | |
| 6,700.00 | 6,681.49 | 6,308.00 | 6,307.08 | 24.68 | 129.21 | -163.25 | -1,175.17 | 8,362.57 | 8,555.33 | 8,401.64 | 153.69 | 55.664 | |
| 6,750.00 | 6,727.80 | 6,308.00 | 6,307.08 | 24.86 | 129.21 | -165.03 | -1,175.17 | 8,362.57 | 8,575.78 | 8,421.96 | 153.82 | 55.750 | |
| 6,800.00 | 6,772.51 | 6,308.00 | 6,307.08 | 25.04 | 129.21 | -166.12 | -1,175.17 | 8,362.57 | 8,599.96 | 8,446.01 | 153.94 | 55.864 | |
| 6,850.00 | 6,815.34 | 6,308.00 | 6,307.08 | 25.21 | 129.21 | -166.77 | -1,175.17 | 8,362.57 | 8,627.68 | 8,473.63 | 154.05 | 56.004 | |
| 6,900.00 | 6,856.04 | 6,308.00 | 6,307.08 | 25.39 | 129.21 | -167.09 | -1,175.17 | 8,362.57 | 8,658.75 | 8,504.59 | 154.15 | 56.169 | |
| 6,950.00 | 6,894.35 | 6,308.00 | 6,307.08 | 25.57 | 129.21 | -167.14 | -1,175.17 | 8,362.57 | 8,692.93 | 8,538.69 | 154.24 | 56.358 | |
| 7,000.00 | 6,930.04 | 6,308.00 | 6,307.08 | 25.75 | 129.21 | -166.92 | -1,175.17 | 8,362.57 | 8,729.98 | 8,575.66 | 154.32 | 56.570 | |
| 7,050.00 | 6,962.89 | 6,308.00 | 6,307.08 | 25.93 | 129.21 | -166.43 | -1,175.17 | 8,362.57 | 8,769.65 | 8,615.25 | 154.39 | 56.801 | |
| 7,100.00 | 6,992.69 | 6,308.00 | 6,307.08 | 26.13 | 129.21 | -165.58 | -1,175.17 | 8,362.57 | 8,811.64 | 8,657.19 | 154.45 | 57.051 | |
| 7,150.00 | 7,019.25 | 6,308.00 | 6,307.08 | 26.33 | 129.21 | -164.27 | -1,175.17 | 8,362.57 | 8,855.67 | 8,701.17 | 154.50 | 57.318 | |
| 7,200.00 | 7,042.43 | 6,308.00 | 6,307.08 | 26.55 | 129.21 | -162.23 | -1,175.17 | 8,362.57 | 8,901.44 | 8,746.89 | 154.54 | 57.598 | |
| 7,250.00 | 7,062.07 | 6,308.00 | 6,307.08 | 26.79 | 129.21 | -158.97 | -1,175.17 | 8,362.57 | 8,948.64 | 8,794.06 | 154.58 | 57.890 | |
| 7,300.00 | 7,078.05 | 6,308.00 | 6,307.08 | 27.04 | 129.21 | -153.31 | -1,175.17 | 8,362.57 | 8,996.97 | 8,842.36 | 154.61 | 58.192 | |
| 7,350.00 | 7,090.27 | 6,308.00 | 6,307.08 | 27.30 | 129.21 | -141.97 | -1,175.17 | 8,362.57 | 9,046.10 | 8,891.46 | 154.63 | 58.500 | |
| 7,400.00 | 7,098.66 | 6,308.00 | 6,307.08 | 27.58 | 129.21 | -114.87 | -1,175.17 | 8,362.57 | 9,095.73 | 8,941.07 | 154.66 | 58.812 | |
| 7,450.00 | 7,103.17 | 6,308.00 | 6,307.08 | 27.87 | 129.21 | -64.98 | -1,175.17 | 8,362.57 | 9,145.54 | 8,990.86 | 154.68 | 59.126 | |
| 7,484.86 | 7,104.00 | 6,308.00 | 6,307.08 | 28.08 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 9,180.21 | 9,025.52 | 154.69 | 59.345 | |
| 7,500.00 | 7,103.95 | 6,308.00 | 6,307.08 | 28.17 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 9,195.24 | 9,040.54 | 154.70 | 59.439 | |
| 7,600.00 | 7,103.60 | 6,308.00 | 6,307.08 | 28.83 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 9,294.53 | 9,139.78 | 154.74 | 60.064 | |
| 7,700.00 | 7,103.25 | 6,308.00 | 6,307.08 | 29.56 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 9,393.83 | 9,239.04 | 154.79 | 60.688 | |
| 7,800.00 | 7,102.90 | 6,308.00 | 6,307.08 | 30.35 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 9,493.15 | 9,338.31 | 154.84 | 61.311 | |
| 7,900.00 | 7,102.55 | 6,308.00 | 6,307.08 | 31.21 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 9,592.48 | 9,437.60 | 154.88 | 61.934 | |
| 8,000.00 | 7,102.20 | 6,308.00 | 6,307.08 | 32.13 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 9,691.82 | 9,536.90 | 154.93 | 62.557 | |
| 8,100.00 | 7,101.85 | 6,308.00 | 6,307.08 | 33.10 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 9,791.18 | 9,636.21 | 154.98 | 63.179 | |
| 8,200.00 | 7,101.50 | 6,308.00 | 6,307.08 | 34.11 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 9,890.55 | 9,735.53 | 155.02 | 63.800 | |
| 8,300.00 | 7,101.15 | 6,308.00 | 6,307.08 | 35.17 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 9,989.94 | 9,834.86 | 155.07 | 64.421 | |
| 8,400.00 | 7,100.80 | 6,308.00 | 6,307.08 | 36.27 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 10,089.33 | 9,934.21 | 155.12 | 65.041 | |
| 8,500.00 | 7,100.45 | 6,308.00 | 6,307.08 | 37.41 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 10,188.74 | 10,033.57 | 155.17 | 65.661 | |
| 8,600.00 | 7,100.10 | 6,308.00 | 6,307.08 | 38.58 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 10,288.16 | 10,132.94 | 155.22 | 66.280 | |
| 8,700.00 | 7,099.75 | 6,308.00 | 6,307.08 | 39.78 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 10,387.59 | 10,232.32 | 155.27 | 66.898 | |
| 8,800.00 | 7,099.40 | 6,308.00 | 6,307.08 | 41.00 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 10,487.03 | 10,331.71 | 155.33 | 67.516 | |

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

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

**Survey Program:** 293-A027Ua_INC-ONLY

**Offset Well Error:** 0.00 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8,900.00 | 7,099.05 | 6,308.00 | 6,307.08 | 42.25 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 10,586.49 | 10,431.11 | 155.38 | 68.134 | |
| 9,000.00 | 7,098.70 | 6,308.00 | 6,307.08 | 43.53 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 10,685.95 | 10,530.52 | 155.43 | 68.751 | |
| 9,100.00 | 7,098.35 | 6,308.00 | 6,307.08 | 44.82 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 10,785.42 | 10,629.94 | 155.48 | 69.367 | |
| 9,200.00 | 7,098.00 | 6,308.00 | 6,307.08 | 46.14 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 10,884.90 | 10,729.37 | 155.54 | 69.983 | |
| 9,300.00 | 7,097.65 | 6,308.00 | 6,307.08 | 47.47 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 10,984.39 | 10,828.80 | 155.59 | 70.598 | |
| 9,400.00 | 7,097.30 | 6,308.00 | 6,307.08 | 48.82 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 11,083.89 | 10,928.25 | 155.65 | 71.213 | |
| 9,500.00 | 7,096.95 | 6,308.00 | 6,307.08 | 50.18 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 11,183.40 | 11,027.70 | 155.70 | 71.826 | |
| 9,600.00 | 7,096.60 | 6,308.00 | 6,307.08 | 51.56 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 11,282.92 | 11,127.16 | 155.76 | 72.440 | |
| 9,700.00 | 7,096.25 | 6,308.00 | 6,307.08 | 52.95 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 11,382.45 | 11,226.63 | 155.81 | 73.052 | |
| 9,800.00 | 7,095.90 | 6,308.00 | 6,307.08 | 54.35 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 11,481.98 | 11,326.11 | 155.87 | 73.664 | |
| 9,900.00 | 7,095.55 | 6,308.00 | 6,307.08 | 55.76 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 11,581.52 | 11,425.60 | 155.93 | 74.276 | |
| 10,000.00 | 7,095.20 | 6,308.00 | 6,307.08 | 57.18 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 11,681.07 | 11,525.09 | 155.98 | 74.887 | |
| 10,100.00 | 7,094.85 | 6,308.00 | 6,307.08 | 58.61 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 11,780.63 | 11,624.59 | 156.04 | 75.497 | |
| 10,200.00 | 7,094.50 | 6,308.00 | 6,307.08 | 60.05 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 11,880.20 | 11,724.10 | 156.10 | 76.106 | |
| 10,300.00 | 7,094.15 | 6,308.00 | 6,307.08 | 61.50 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 11,979.77 | 11,823.61 | 156.16 | 76.715 | |
| 10,400.00 | 7,093.80 | 6,308.00 | 6,307.08 | 62.96 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 12,079.35 | 11,923.13 | 156.22 | 77.323 | |
| 10,500.00 | 7,093.45 | 6,308.00 | 6,307.08 | 64.42 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 12,178.94 | 12,022.66 | 156.28 | 77.931 | |
| 10,600.00 | 7,093.10 | 6,308.00 | 6,307.08 | 65.89 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 12,278.53 | 12,122.19 | 156.34 | 78.538 | |
| 10,700.00 | 7,092.75 | 6,308.00 | 6,307.08 | 67.36 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 12,378.13 | 12,221.73 | 156.40 | 79.144 | |
| 10,800.00 | 7,092.40 | 6,308.00 | 6,307.08 | 68.84 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 12,477.74 | 12,321.27 | 156.46 | 79.749 | |
| 10,900.00 | 7,092.05 | 6,308.00 | 6,307.08 | 70.33 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 12,577.35 | 12,420.83 | 156.52 | 80.354 | |
| 11,000.00 | 7,091.70 | 6,308.00 | 6,307.08 | 71.82 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 12,676.97 | 12,520.38 | 156.59 | 80.958 | |
| 11,100.00 | 7,091.35 | 6,308.00 | 6,307.08 | 73.31 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 12,776.59 | 12,619.94 | 156.65 | 81.561 | |
| 11,200.00 | 7,091.00 | 6,308.00 | 6,307.08 | 74.81 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 12,876.22 | 12,719.51 | 156.71 | 82.164 | |
| 11,300.00 | 7,090.65 | 6,308.00 | 6,307.08 | 76.32 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 12,975.86 | 12,819.08 | 156.78 | 82.766 | |
| 11,400.00 | 7,090.30 | 6,308.00 | 6,307.08 | 77.82 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 13,075.50 | 12,918.66 | 156.84 | 83.367 | |
| 11,500.00 | 7,089.95 | 6,308.00 | 6,307.08 | 79.34 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 13,175.15 | 13,018.24 | 156.91 | 83.968 | |
| 11,600.00 | 7,089.60 | 6,308.00 | 6,307.08 | 80.85 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 13,274.80 | 13,117.83 | 156.97 | 84.568 | |
| 11,700.00 | 7,089.25 | 6,308.00 | 6,307.08 | 82.37 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 13,374.46 | 13,217.42 | 157.04 | 85.167 | |
| 11,800.00 | 7,088.90 | 6,308.00 | 6,307.08 | 83.89 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 13,474.12 | 13,317.02 | 157.10 | 85.765 | |
| 11,900.00 | 7,088.55 | 6,308.00 | 6,307.08 | 85.41 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 13,573.79 | 13,416.62 | 157.17 | 86.363 | |
| 12,000.00 | 7,088.20 | 6,308.00 | 6,307.08 | 86.94 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 13,673.46 | 13,516.22 | 157.24 | 86.960 | |
| 12,100.00 | 7,087.85 | 6,308.00 | 6,307.08 | 88.47 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 13,773.14 | 13,615.83 | 157.31 | 87.556 | |
| 12,200.00 | 7,087.50 | 6,308.00 | 6,307.08 | 90.00 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 13,872.82 | 13,715.45 | 157.38 | 88.151 | |
| 12,300.00 | 7,087.15 | 6,308.00 | 6,307.08 | 91.54 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 13,972.51 | 13,815.06 | 157.44 | 88.746 | |
| 12,400.00 | 7,086.81 | 6,308.00 | 6,307.08 | 93.07 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 14,072.20 | 13,914.68 | 157.51 | 89.340 | |
| 12,500.00 | 7,086.46 | 6,308.00 | 6,307.08 | 94.61 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 14,171.89 | 14,014.31 | 157.58 | 89.933 | |
| 12,600.00 | 7,086.11 | 6,308.00 | 6,307.08 | 96.15 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 14,271.59 | 14,113.94 | 157.65 | 90.525 | |
| 12,700.00 | 7,085.76 | 6,308.00 | 6,307.08 | 97.69 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 14,371.30 | 14,213.57 | 157.72 | 91.117 | |
| 12,800.00 | 7,085.41 | 6,308.00 | 6,307.08 | 99.24 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 14,471.00 | 14,313.21 | 157.80 | 91.707 | |
| 12,900.00 | 7,085.06 | 6,308.00 | 6,307.08 | 100.78 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 14,570.72 | 14,412.85 | 157.87 | 92.297 | |
| 13,000.00 | 7,084.71 | 6,308.00 | 6,307.08 | 102.33 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 14,670.43 | 14,512.49 | 157.94 | 92.886 | |
| 13,100.00 | 7,084.36 | 6,308.00 | 6,307.08 | 103.88 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 14,770.15 | 14,612.14 | 158.01 | 93.475 | |
| 13,200.00 | 7,084.01 | 6,308.00 | 6,307.08 | 105.43 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 14,869.87 | 14,711.79 | 158.09 | 94.062 | |
| 13,300.00 | 7,083.66 | 6,308.00 | 6,307.08 | 106.99 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 14,969.60 | 14,811.44 | 158.16 | 94.649 | |
| 13,400.00 | 7,083.31 | 6,308.00 | 6,307.08 | 108.54 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 15,069.33 | 14,911.10 | 158.23 | 95.235 | |
| 13,500.00 | 7,082.96 | 6,308.00 | 6,307.08 | 110.09 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 15,169.07 | 15,010.76 | 158.31 | 95.820 | |
| 13,600.00 | 7,082.61 | 6,308.00 | 6,307.08 | 111.65 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 15,268.80 | 15,110.42 | 158.38 | 96.405 | |
| 13,700.00 | 7,082.26 | 6,308.00 | 6,307.08 | 113.21 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 15,368.55 | 15,210.09 | 158.46 | 96.988 | |
| 13,800.00 | 7,081.91 | 6,308.00 | 6,307.08 | 114.77 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 15,468.29 | 15,309.76 | 158.53 | 97.571 | |
| 13,900.00 | 7,081.56 | 6,308.00 | 6,307.08 | 116.33 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 15,568.04 | 15,409.43 | 158.61 | 98.153 | |
| 14,000.00 | 7,081.21 | 6,308.00 | 6,307.08 | 117.89 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 15,667.79 | 15,509.10 | 158.69 | 98.734 | |

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

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

**Survey Program:** 293-A027Ua_INC-ONLY

**Rule Assigned:**

**Offset Well Error:** 0.00 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 14,100.00 | 7,080.86 | 6,308.00 | 6,307.08 | 119.45 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 15,767.54 | 15,608.78 | 158.76 | 99.315 | |
| 14,200.00 | 7,080.51 | 6,308.00 | 6,307.08 | 121.02 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 15,867.30 | 15,708.46 | 158.84 | 99.894 | |
| 14,300.00 | 7,080.16 | 6,308.00 | 6,307.08 | 122.58 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 15,967.06 | 15,808.14 | 158.92 | 100.473 | |
| 14,400.00 | 7,079.81 | 6,308.00 | 6,307.08 | 124.15 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 16,066.82 | 15,907.83 | 159.00 | 101.050 | |
| 14,500.00 | 7,079.46 | 6,308.00 | 6,307.08 | 125.71 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 16,166.59 | 16,007.51 | 159.08 | 101.627 | |
| 14,600.00 | 7,079.11 | 6,308.00 | 6,307.08 | 127.28 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 16,266.36 | 16,107.20 | 159.16 | 102.204 | |
| 14,700.00 | 7,078.76 | 6,308.00 | 6,307.08 | 128.85 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 16,366.13 | 16,206.89 | 159.24 | 102.779 | |
| 14,800.00 | 7,078.41 | 6,308.00 | 6,307.08 | 130.42 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 16,465.90 | 16,306.59 | 159.32 | 103.353 | |
| 14,900.00 | 7,078.06 | 6,308.00 | 6,307.08 | 131.98 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 16,565.68 | 16,406.28 | 159.40 | 103.927 | |
| 15,000.00 | 7,077.71 | 6,308.00 | 6,307.08 | 133.55 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 16,665.46 | 16,505.98 | 159.48 | 104.500 | |
| 15,100.00 | 7,077.36 | 6,308.00 | 6,307.08 | 135.13 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 16,765.24 | 16,605.68 | 159.56 | 105.072 | |
| 15,200.00 | 7,077.01 | 6,308.00 | 6,307.08 | 136.70 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 16,865.03 | 16,705.39 | 159.64 | 105.643 | |
| 15,300.00 | 7,076.66 | 6,308.00 | 6,307.08 | 138.27 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 16,964.82 | 16,805.09 | 159.72 | 106.213 | |
| 15,400.00 | 7,076.31 | 6,308.00 | 6,307.08 | 139.84 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 17,064.61 | 16,904.80 | 159.81 | 106.782 | |
| 15,500.00 | 7,075.96 | 6,308.00 | 6,307.08 | 141.42 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 17,164.40 | 17,004.51 | 159.89 | 107.351 | |
| 15,600.00 | 7,075.61 | 6,308.00 | 6,307.08 | 142.99 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 17,264.20 | 17,104.22 | 159.97 | 107.918 | |
| 15,700.00 | 7,075.26 | 6,308.00 | 6,307.08 | 144.57 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 17,363.99 | 17,203.93 | 160.06 | 108.485 | |
| 15,800.00 | 7,074.91 | 6,308.00 | 6,307.08 | 146.14 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 17,463.79 | 17,303.65 | 160.14 | 109.051 | |
| 15,900.00 | 7,074.56 | 6,308.00 | 6,307.08 | 147.72 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 17,563.59 | 17,403.37 | 160.23 | 109.616 | |
| 16,000.00 | 7,074.21 | 6,308.00 | 6,307.08 | 149.29 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 17,663.40 | 17,503.08 | 160.31 | 110.180 | |
| 16,100.00 | 7,073.86 | 6,308.00 | 6,307.08 | 150.87 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 17,763.20 | 17,602.80 | 160.40 | 110.743 | |
| 16,200.00 | 7,073.51 | 6,308.00 | 6,307.08 | 152.45 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 17,863.01 | 17,702.53 | 160.49 | 111.305 | |
| 16,300.00 | 7,073.16 | 6,308.00 | 6,307.08 | 154.03 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 17,962.82 | 17,802.25 | 160.57 | 111.867 | |
| 16,400.00 | 7,072.81 | 6,308.00 | 6,307.08 | 155.60 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 18,062.64 | 17,901.98 | 160.66 | 112.428 | |
| 16,500.00 | 7,072.46 | 6,308.00 | 6,307.08 | 157.18 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 18,162.45 | 18,001.70 | 160.75 | 112.987 | |
| 16,600.00 | 7,072.11 | 6,308.00 | 6,307.08 | 158.76 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 18,262.27 | 18,101.43 | 160.84 | 113.546 | |
| 16,631.96 | 7,072.00 | 6,308.00 | 6,307.08 | 159.27 | 129.21 | -40.01 | -1,175.17 | 8,362.57 | 18,294.17 | 18,133.31 | 160.86 | 113.725 | |

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

**Survey Program:** 350-A027Ua_INC-ONLY

**Rule Assigned:**

**Offset Well Error:** 0.00 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 5.00 | 5.00 | 3.28 | 0.05 | 102.27 | -2,035.91 | 9,362.88 | 9,581.68 | | | | |
| 100.00 | 100.00 | 105.00 | 105.00 | 3.29 | 1.12 | 102.27 | -2,035.91 | 9,362.88 | 9,581.68 | 9,577.27 | 4.41 | 2,174.147 | |
| 200.00 | 200.00 | 205.00 | 205.00 | 3.34 | 2.18 | 102.27 | -2,035.91 | 9,362.88 | 9,581.68 | 9,576.16 | 5.52 | 1,736.519 | |
| 300.00 | 300.00 | 305.00 | 305.00 | 3.42 | 3.25 | 102.27 | -2,035.91 | 9,362.88 | 9,581.68 | 9,575.01 | 6.67 | 1,437.493 | |
| 400.00 | 400.00 | 405.02 | 405.00 | 3.54 | 4.85 | 102.27 | -2,035.91 | 9,362.88 | 9,581.68 | 9,573.29 | 8.39 | 1,142.410 | |
| 500.00 | 500.00 | 505.02 | 505.00 | 3.69 | 6.89 | 102.27 | -2,035.91 | 9,362.88 | 9,581.68 | 9,571.09 | 10.58 | 905.571 CC | |
| 600.00 | 599.98 | 605.00 | 604.98 | 3.86 | 8.94 | -107.73 | -2,035.91 | 9,362.88 | 9,582.21 | 9,569.41 | 12.79 | 749.019 | |
| 697.00 | 696.84 | 700.47 | 700.44 | 4.04 | 10.89 | -107.74 | -2,034.50 | 9,362.88 | 9,583.44 | 9,568.52 | 14.92 | 642.119 | |
| 700.00 | 699.84 | 703.31 | 703.28 | 4.05 | 10.95 | -107.74 | -2,034.50 | 9,362.88 | 9,583.50 | 9,568.52 | 14.99 | 639.377 | |
| 800.00 | 799.60 | 797.95 | 797.91 | 4.25 | 12.88 | -107.78 | -2,034.69 | 9,362.88 | 9,585.65 | 9,568.51 | 17.13 | 559.480 | |
| 897.00 | 896.37 | 889.78 | 889.74 | 4.48 | 14.76 | -107.81 | -2,035.11 | 9,362.88 | 9,587.78 | 9,568.55 | 19.23 | 498.486 | |
| 900.00 | 899.37 | 892.62 | 892.58 | 4.48 | 14.82 | -106.94 | -2,035.13 | 9,362.88 | 9,587.85 | 9,568.55 | 19.30 | 496.804 | |
| 947.40 | 946.65 | 937.50 | 937.46 | 4.60 | 15.73 | -93.15 | -2,035.42 | 9,362.88 | 9,588.48 | 9,568.14 | 20.33 | 471.598 | |
| 1,000.00 | 999.13 | 1,004.22 | 1,004.13 | 4.73 | 17.14 | -93.18 | -2,035.91 | 9,362.88 | 9,588.77 | 9,566.90 | 21.87 | 438.493 | |
| 1,100.00 | 1,098.89 | 1,103.99 | 1,103.89 | 4.99 | 20.11 | -93.22 | -2,035.91 | 9,362.88 | 9,589.15 | 9,564.05 | 25.10 | 381.982 | |
| 1,200.00 | 1,198.66 | 1,203.75 | 1,203.66 | 5.27 | 23.08 | -93.26 | -2,035.91 | 9,362.88 | 9,589.54 | 9,561.19 | 28.35 | 338.222 | |
| 1,300.00 | 1,298.42 | 1,300.85 | 1,300.75 | 5.56 | 25.98 | -93.30 | -2,035.13 | 9,362.88 | 9,589.77 | 9,558.24 | 31.53 | 304.111 | |
| 1,400.00 | 1,398.18 | 1,395.70 | 1,395.59 | 5.85 | 28.80 | -93.34 | -2,035.37 | 9,362.88 | 9,590.23 | 9,555.57 | 34.66 | 276.718 | |
| 1,500.00 | 1,497.95 | 1,503.43 | 1,502.95 | 6.16 | 32.10 | -93.38 | -2,035.91 | 9,362.88 | 9,590.74 | 9,552.49 | 38.25 | 250.714 | |
| 1,600.00 | 1,597.71 | 1,603.48 | 1,602.71 | 6.47 | 37.92 | -93.42 | -2,035.91 | 9,362.88 | 9,591.15 | 9,546.75 | 44.39 | 216.047 | |
| 1,700.00 | 1,697.47 | 1,703.24 | 1,702.47 | 6.79 | 45.31 | -93.46 | -2,035.91 | 9,362.88 | 9,591.56 | 9,539.47 | 52.09 | 184.123 | |
| 1,724.68 | 1,722.10 | 1,723.50 | 1,722.54 | 6.87 | 46.81 | -93.49 | -2,032.32 | 9,362.88 | 9,590.93 | 9,537.26 | 53.67 | 178.696 | |
| 1,800.00 | 1,797.24 | 1,766.80 | 1,765.77 | 7.11 | 50.01 | -93.51 | -2,032.77 | 9,362.88 | 9,591.41 | 9,534.29 | 57.12 | 167.920 | |
| 1,900.00 | 1,897.00 | 1,904.55 | 1,902.00 | 7.44 | 60.67 | -93.54 | -2,035.91 | 9,362.88 | 9,592.40 | 9,524.29 | 68.11 | 140.836 | |
| 2,000.00 | 1,996.76 | 2,004.32 | 2,001.76 | 7.77 | 69.04 | -93.59 | -2,035.91 | 9,362.88 | 9,592.83 | 9,516.02 | 76.81 | 124.886 | |
| 2,092.91 | 2,089.46 | 2,096.91 | 2,093.91 | 8.08 | 76.81 | -93.67 | -2,028.60 | 9,362.88 | 9,591.76 | 9,506.87 | 84.89 | 112.986 | |
| 2,100.00 | 2,096.53 | 2,101.67 | 2,098.66 | 8.11 | 77.21 | -93.67 | -2,028.60 | 9,362.88 | 9,591.79 | 9,506.47 | 85.32 | 112.426 | |
| 2,200.00 | 2,196.29 | 2,169.05 | 2,165.90 | 8.44 | 82.87 | -93.69 | -2,029.26 | 9,362.88 | 9,592.43 | 9,501.12 | 91.31 | 105.057 | |
| 2,300.00 | 2,296.06 | 2,236.77 | 2,233.43 | 8.79 | 88.55 | -93.71 | -2,031.08 | 9,362.88 | 9,593.42 | 9,496.09 | 97.33 | 98.567 | |
| 2,400.00 | 2,395.82 | 2,406.97 | 2,400.82 | 9.13 | 101.42 | -93.75 | -2,035.91 | 9,362.88 | 9,594.60 | 9,484.05 | 110.55 | 86.790 | |
| 2,500.00 | 2,495.58 | 2,506.73 | 2,500.58 | 9.47 | 107.70 | -93.79 | -2,035.91 | 9,362.88 | 9,595.05 | 9,477.88 | 117.17 | 81.889 | |
| 2,600.00 | 2,595.35 | 2,606.50 | 2,600.35 | 9.82 | 113.98 | -93.83 | -2,035.91 | 9,362.88 | 9,595.51 | 9,471.71 | 123.79 | 77.511 | |
| 2,637.31 | 2,632.57 | 2,638.63 | 2,631.92 | 9.95 | 116.00 | -93.89 | -2,027.21 | 9,362.88 | 9,593.96 | 9,468.01 | 125.95 | 76.175 | |
| 2,700.00 | 2,695.11 | 2,683.47 | 2,676.67 | 10.17 | 118.82 | -93.91 | -2,027.54 | 9,362.88 | 9,594.34 | 9,465.36 | 128.99 | 74.383 | |
| 2,800.00 | 2,794.87 | 2,755.26 | 2,748.28 | 10.52 | 123.34 | -93.93 | -2,028.97 | 9,362.88 | 9,595.21 | 9,461.36 | 133.85 | 71.686 | |
| 2,900.00 | 2,894.64 | 2,827.36 | 2,820.15 | 10.87 | 127.87 | -93.95 | -2,031.49 | 9,362.88 | 9,596.37 | 9,457.63 | 138.74 | 69.170 | |
| 3,000.00 | 2,994.40 | 3,007.85 | 2,999.40 | 11.23 | 136.85 | -93.99 | -2,035.91 | 9,362.88 | 9,597.39 | 9,449.32 | 148.07 | 64.817 | |
| 3,100.00 | 3,094.16 | 3,107.62 | 3,099.16 | 11.58 | 140.59 | -94.04 | -2,035.91 | 9,362.88 | 9,597.87 | 9,445.70 | 152.17 | 63.074 | |
| 3,170.75 | 3,164.75 | 3,178.20 | 3,169.66 | 11.83 | 143.24 | -94.08 | -2,032.45 | 9,362.88 | 9,597.54 | 9,442.47 | 155.07 | 61.891 | |
| 3,200.00 | 3,193.93 | 3,202.85 | 3,194.30 | 11.94 | 144.17 | -94.09 | -2,032.48 | 9,362.88 | 9,597.69 | 9,441.59 | 156.10 | 61.484 | |
| 3,300.00 | 3,293.69 | 3,287.24 | 3,278.65 | 12.29 | 147.34 | -94.13 | -2,033.04 | 9,362.88 | 9,598.31 | 9,438.69 | 159.62 | 60.131 | |
| 3,400.00 | 3,393.45 | 3,371.77 | 3,363.13 | 12.65 | 150.51 | -94.15 | -2,034.30 | 9,362.88 | 9,599.10 | 9,435.95 | 163.15 | 58.834 | |
| 3,500.00 | 3,493.22 | 3,507.28 | 3,498.22 | 13.01 | 155.24 | -94.20 | -2,035.91 | 9,362.88 | 9,599.85 | 9,431.60 | 168.24 | 57.059 | |
| 3,600.00 | 3,592.98 | 3,607.04 | 3,597.98 | 13.37 | 158.43 | -94.24 | -2,035.91 | 9,362.88 | 9,600.35 | 9,428.56 | 171.79 | 55.883 | |
| 3,682.68 | 3,675.47 | 3,689.43 | 3,680.31 | 13.66 | 161.06 | -94.29 | -2,033.23 | 9,362.88 | 9,600.27 | 9,425.54 | 174.72 | 54.945 | |
| 3,700.00 | 3,692.74 | 3,704.30 | 3,695.18 | 13.73 | 161.54 | -94.29 | -2,033.24 | 9,362.88 | 9,600.36 | 9,425.10 | 175.26 | 54.777 | |
| 3,800.00 | 3,792.51 | 3,790.25 | 3,781.10 | 14.09 | 164.29 | -94.33 | -2,033.68 | 9,362.88 | 9,600.97 | 9,422.60 | 178.37 | 53.826 | |
| 3,900.00 | 3,892.27 | 3,876.31 | 3,867.13 | 14.45 | 167.04 | -94.36 | -2,034.79 | 9,362.88 | 9,601.74 | 9,420.26 | 181.48 | 52.907 | |
| 4,000.00 | 3,992.04 | 4,006.48 | 3,997.04 | 14.81 | 171.01 | -94.40 | -2,035.91 | 9,362.88 | 9,602.43 | 9,416.61 | 185.82 | 51.677 | |
| 4,100.00 | 4,091.80 | 4,106.24 | 4,096.80 | 15.17 | 173.94 | -94.44 | -2,035.91 | 9,362.88 | 9,602.96 | 9,413.86 | 189.10 | 50.781 | |
| 4,200.00 | 4,191.56 | 4,206.01 | 4,196.56 | 15.53 | 176.86 | -94.48 | -2,035.91 | 9,362.88 | 9,603.50 | 9,411.11 | 192.39 | 49.917 | |
| 4,300.00 | 4,291.33 | 4,305.77 | 4,296.33 | 15.89 | 179.79 | -94.52 | -2,035.91 | 9,362.88 | 9,604.04 | 9,408.36 | 195.68 | 49.081 | |

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

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Survey Program:** 350-A027Ua_INC-ONLY — **Rule Assigned:** — **Offset Well Error:** 0.00 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4,387.94 | 4,379.06 | 4,393.48 | 4,383.97 | 16.21 | 182.36 | -94.58 | -2,031.91 | 9,362.88 | 9,603.78 | 9,405.21 | 198.57 | 48.365 | |
| 4,400.00 | 4,391.09 | 4,404.75 | 4,395.24 | 16.26 | 182.69 | -94.59 | -2,031.91 | 9,362.88 | 9,603.84 | 9,404.90 | 198.94 | 48.274 | |
| 4,500.00 | 4,490.85 | 4,498.24 | 4,488.71 | 16.62 | 185.43 | -94.63 | -2,032.12 | 9,362.88 | 9,604.44 | 9,402.39 | 202.05 | 47.535 | |
| 4,600.00 | 4,590.62 | 4,591.80 | 4,582.25 | 16.99 | 188.18 | -94.66 | -2,032.66 | 9,362.88 | 9,605.10 | 9,399.95 | 205.16 | 46.819 | |
| 4,700.00 | 4,690.38 | 4,685.40 | 4,675.83 | 17.35 | 190.92 | -94.69 | -2,033.54 | 9,362.88 | 9,605.84 | 9,397.57 | 208.26 | 46.123 | |
| 4,800.00 | 4,790.14 | 4,779.07 | 4,769.47 | 17.71 | 193.67 | -94.73 | -2,034.74 | 9,362.88 | 9,606.64 | 9,395.26 | 211.38 | 45.448 | |
| 4,900.00 | 4,889.91 | 4,904.91 | 4,894.91 | 18.08 | 197.01 | -94.77 | -2,035.91 | 9,362.88 | 9,607.39 | 9,392.31 | 215.08 | 44.668 | |
| 5,000.00 | 4,989.67 | 5,004.67 | 4,994.67 | 18.44 | 199.28 | -94.81 | -2,035.91 | 9,362.88 | 9,607.96 | 9,390.25 | 217.72 | 44.131 | |
| 5,100.00 | 5,089.43 | 5,104.44 | 5,094.43 | 18.81 | 201.55 | -94.85 | -2,035.91 | 9,362.88 | 9,608.54 | 9,388.20 | 220.35 | 43.606 | |
| 5,200.00 | 5,189.20 | 5,204.20 | 5,194.20 | 19.17 | 203.81 | -94.89 | -2,035.91 | 9,362.88 | 9,609.13 | 9,386.15 | 222.98 | 43.094 | |
| 5,300.00 | 5,288.96 | 5,303.96 | 5,293.96 | 19.54 | 206.08 | -94.93 | -2,035.91 | 9,362.88 | 9,609.72 | 9,384.10 | 225.62 | 42.593 | |
| 5,400.00 | 5,388.72 | 5,403.73 | 5,393.72 | 19.91 | 208.35 | -94.97 | -2,035.91 | 9,362.88 | 9,610.31 | 9,382.06 | 228.25 | 42.104 | |
| 5,500.00 | 5,488.49 | 5,503.49 | 5,493.49 | 20.27 | 210.62 | -95.01 | -2,035.91 | 9,362.88 | 9,610.91 | 9,380.03 | 230.88 | 41.626 | |
| 5,554.93 | 5,543.29 | 5,558.29 | 5,548.18 | 20.47 | 211.86 | -95.07 | -2,029.75 | 9,362.88 | 9,610.15 | 9,377.82 | 232.33 | 41.364 | |
| 5,600.00 | 5,588.25 | 5,601.46 | 5,591.34 | 20.64 | 212.85 | -95.09 | -2,029.77 | 9,362.88 | 9,610.43 | 9,376.95 | 233.48 | 41.162 | |
| 5,700.00 | 5,688.01 | 5,697.27 | 5,687.14 | 21.00 | 215.02 | -95.13 | -2,029.98 | 9,362.88 | 9,611.08 | 9,375.06 | 236.02 | 40.721 | |
| 5,800.00 | 5,787.78 | 5,793.12 | 5,782.97 | 21.37 | 217.20 | -95.16 | -2,030.43 | 9,362.88 | 9,611.78 | 9,373.21 | 238.57 | 40.289 | |
| 5,900.00 | 5,887.54 | 5,889.01 | 5,878.84 | 21.74 | 219.38 | -95.20 | -2,031.10 | 9,362.88 | 9,612.53 | 9,371.41 | 241.12 | 39.867 | |
| 6,000.00 | 5,987.31 | 5,984.95 | 5,974.75 | 22.11 | 221.57 | -95.23 | -2,031.99 | 9,362.88 | 9,613.32 | 9,369.65 | 243.66 | 39.453 | |
| 6,100.00 | 6,087.07 | 6,080.92 | 6,070.69 | 22.47 | 223.75 | -95.27 | -2,033.12 | 9,362.88 | 9,614.15 | 9,367.94 | 246.21 | 39.048 | |
| 6,200.00 | 6,186.83 | 6,176.93 | 6,166.67 | 22.84 | 225.93 | -95.30 | -2,034.47 | 9,362.88 | 9,615.03 | 9,366.27 | 248.76 | 38.651 | |
| 6,300.00 | 6,286.60 | 6,298.00 | 6,287.56 | 23.21 | 228.47 | -95.34 | -2,035.91 | 9,362.88 | 9,615.89 | 9,364.22 | 251.67 | 38.209 ES | |
| 6,400.00 | 6,386.36 | 6,298.00 | 6,287.56 | 23.58 | 228.47 | -95.34 | -2,035.91 | 9,362.88 | 9,617.09 | 9,365.07 | 252.02 | 38.160 | |
| 6,494.00 | 6,480.13 | 6,298.00 | 6,287.56 | 23.92 | 228.47 | -95.34 | -2,035.91 | 9,362.88 | 9,619.17 | 9,366.84 | 252.33 | 38.122 | |
| 6,500.00 | 6,486.12 | 6,298.00 | 6,287.56 | 23.94 | 228.47 | -102.61 | -2,035.91 | 9,362.88 | 9,619.36 | 9,367.02 | 252.35 | 38.120 | |
| 6,550.00 | 6,535.89 | 6,298.00 | 6,287.56 | 24.13 | 228.47 | -138.05 | -2,035.91 | 9,362.88 | 9,623.27 | 9,370.77 | 252.50 | 38.112 SF | |
| 6,600.00 | 6,585.24 | 6,298.00 | 6,287.56 | 24.31 | 228.47 | -150.18 | -2,035.91 | 9,362.88 | 9,631.27 | 9,378.62 | 252.65 | 38.122 | |
| 6,650.00 | 6,633.88 | 6,298.00 | 6,287.56 | 24.50 | 228.47 | -155.57 | -2,035.91 | 9,362.88 | 9,643.31 | 9,390.52 | 252.78 | 38.148 | |
| 6,700.00 | 6,681.49 | 6,298.00 | 6,287.56 | 24.68 | 228.47 | -158.43 | -2,035.91 | 9,362.88 | 9,659.29 | 9,406.38 | 252.91 | 38.192 | |
| 6,750.00 | 6,727.80 | 6,298.00 | 6,287.56 | 24.86 | 228.47 | -160.04 | -2,035.91 | 9,362.88 | 9,679.11 | 9,426.08 | 253.03 | 38.252 | |
| 6,800.00 | 6,772.51 | 6,298.00 | 6,287.56 | 25.04 | 228.47 | -160.93 | -2,035.91 | 9,362.88 | 9,702.61 | 9,449.47 | 253.15 | 38.328 | |
| 6,850.00 | 6,815.34 | 6,298.00 | 6,287.56 | 25.21 | 228.47 | -161.33 | -2,035.91 | 9,362.88 | 9,729.63 | 9,476.38 | 253.25 | 38.420 | |
| 6,900.00 | 6,856.04 | 6,298.00 | 6,287.56 | 25.39 | 228.47 | -161.33 | -2,035.91 | 9,362.88 | 9,759.96 | 9,506.62 | 253.34 | 38.525 | |
| 6,950.00 | 6,894.35 | 6,298.00 | 6,287.56 | 25.57 | 228.47 | -160.99 | -2,035.91 | 9,362.88 | 9,793.39 | 9,539.97 | 253.42 | 38.645 | |
| 7,000.00 | 6,930.04 | 6,298.00 | 6,287.56 | 25.75 | 228.47 | -160.28 | -2,035.91 | 9,362.88 | 9,829.69 | 9,576.20 | 253.49 | 38.777 | |
| 7,050.00 | 6,962.89 | 6,298.00 | 6,287.56 | 25.93 | 228.47 | -159.16 | -2,035.91 | 9,362.88 | 9,868.60 | 9,615.04 | 253.56 | 38.920 | |
| 7,100.00 | 6,992.69 | 6,298.00 | 6,287.56 | 26.13 | 228.47 | -157.52 | -2,035.91 | 9,362.88 | 9,909.86 | 9,656.24 | 253.62 | 39.074 | |
| 7,150.00 | 7,019.25 | 6,298.00 | 6,287.56 | 26.33 | 228.47 | -155.18 | -2,035.91 | 9,362.88 | 9,953.17 | 9,699.50 | 253.67 | 39.237 | |
| 7,200.00 | 7,042.43 | 6,298.00 | 6,287.56 | 26.55 | 228.47 | -151.81 | -2,035.91 | 9,362.88 | 9,998.25 | 9,744.53 | 253.71 | 39.408 | |
| 7,250.00 | 7,062.07 | 6,298.00 | 6,287.56 | 26.79 | 228.47 | -146.81 | -2,035.91 | 9,362.88 | 10,044.80 | 9,791.04 | 253.75 | 39.585 | |
| 7,300.00 | 7,078.05 | 6,298.00 | 6,287.56 | 27.04 | 228.47 | -139.07 | -2,035.91 | 9,362.88 | 10,092.51 | 9,838.72 | 253.79 | 39.767 | |
| 7,350.00 | 7,090.27 | 6,298.00 | 6,287.56 | 27.30 | 228.47 | -126.54 | -2,035.91 | 9,362.88 | 10,141.07 | 9,887.25 | 253.83 | 39.953 | |
| 7,400.00 | 7,098.66 | 6,298.00 | 6,287.56 | 27.58 | 228.47 | -106.34 | -2,035.91 | 9,362.88 | 10,190.18 | 9,936.32 | 253.86 | 40.141 | |
| 7,450.00 | 7,103.17 | 6,298.00 | 6,287.56 | 27.87 | 228.47 | -79.24 | -2,035.91 | 9,362.88 | 10,239.53 | 9,985.63 | 253.90 | 40.330 | |
| 7,484.86 | 7,104.00 | 6,298.00 | 6,287.56 | 28.08 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 10,273.91 | 10,019.99 | 253.92 | 40.461 | |
| 7,500.00 | 7,103.95 | 6,298.00 | 6,287.56 | 28.17 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 10,288.82 | 10,034.89 | 253.93 | 40.518 | |
| 7,600.00 | 7,103.60 | 6,298.00 | 6,287.56 | 28.83 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 10,387.32 | 10,133.31 | 254.01 | 40.893 | |
| 7,700.00 | 7,103.25 | 6,298.00 | 6,287.56 | 29.56 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 10,485.85 | 10,231.76 | 254.09 | 41.268 | |
| 7,800.00 | 7,102.90 | 6,298.00 | 6,287.56 | 30.35 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 10,584.40 | 10,330.23 | 254.17 | 41.643 | |
| 7,900.00 | 7,102.55 | 6,298.00 | 6,287.56 | 31.21 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 10,682.99 | 10,428.73 | 254.25 | 42.017 | |
| 8,000.00 | 7,102.20 | 6,298.00 | 6,287.56 | 32.13 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 10,781.60 | 10,527.26 | 254.34 | 42.391 | |
| 8,100.00 | 7,101.85 | 6,298.00 | 6,287.56 | 33.10 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 10,880.23 | 10,625.81 | 254.42 | 42.764 | |

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

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

**Survey Program:** 350-A027Ua_INC-ONLY

**Offset Well Error:** 0.00 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Rule Assigned: Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8,200.00 | 7,101.50 | 6,298.00 | 6,287.56 | 34.11 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 10,978.89 | 10,724.38 | 254.51 | 43.138 | |
| 8,300.00 | 7,101.15 | 6,298.00 | 6,287.56 | 35.17 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 11,077.57 | 10,822.98 | 254.59 | 43.511 | |
| 8,400.00 | 7,100.80 | 6,298.00 | 6,287.56 | 36.27 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 11,176.28 | 10,921.60 | 254.68 | 43.884 | |
| 8,500.00 | 7,100.45 | 6,298.00 | 6,287.56 | 37.41 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 11,275.01 | 11,020.24 | 254.77 | 44.256 | |
| 8,600.00 | 7,100.10 | 6,298.00 | 6,287.56 | 38.58 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 11,373.76 | 11,118.90 | 254.86 | 44.628 | |
| 8,700.00 | 7,099.75 | 6,298.00 | 6,287.56 | 39.78 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 11,472.53 | 11,217.59 | 254.94 | 45.000 | |
| 8,800.00 | 7,099.40 | 6,298.00 | 6,287.56 | 41.00 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 11,571.33 | 11,316.29 | 255.03 | 45.372 | |
| 8,900.00 | 7,099.05 | 6,298.00 | 6,287.56 | 42.25 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 11,670.14 | 11,415.02 | 255.12 | 45.743 | |
| 9,000.00 | 7,098.70 | 6,298.00 | 6,287.56 | 43.53 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 11,768.98 | 11,513.76 | 255.22 | 46.114 | |
| 9,100.00 | 7,098.35 | 6,298.00 | 6,287.56 | 44.82 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 11,867.83 | 11,612.52 | 255.31 | 46.485 | |
| 9,200.00 | 7,098.00 | 6,298.00 | 6,287.56 | 46.14 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 11,966.70 | 11,711.31 | 255.40 | 46.855 | |
| 9,300.00 | 7,097.65 | 6,298.00 | 6,287.56 | 47.47 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 12,065.60 | 11,810.10 | 255.49 | 47.225 | |
| 9,400.00 | 7,097.30 | 6,298.00 | 6,287.56 | 48.82 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 12,164.51 | 11,908.92 | 255.58 | 47.595 | |
| 9,500.00 | 7,096.95 | 6,298.00 | 6,287.56 | 50.18 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 12,263.43 | 12,007.76 | 255.68 | 47.965 | |
| 9,600.00 | 7,096.60 | 6,298.00 | 6,287.56 | 51.56 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 12,362.38 | 12,106.61 | 255.77 | 48.334 | |
| 9,700.00 | 7,096.25 | 6,298.00 | 6,287.56 | 52.95 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 12,461.34 | 12,205.48 | 255.86 | 48.703 | |
| 9,800.00 | 7,095.90 | 6,298.00 | 6,287.56 | 54.35 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 12,560.32 | 12,304.36 | 255.96 | 49.072 | |
| 9,900.00 | 7,095.55 | 6,298.00 | 6,287.56 | 55.76 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 12,659.31 | 12,403.26 | 256.05 | 49.440 | |
| 10,000.00 | 7,095.20 | 6,298.00 | 6,287.56 | 57.18 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 12,758.32 | 12,502.17 | 256.15 | 49.808 | |
| 10,100.00 | 7,094.85 | 6,298.00 | 6,287.56 | 58.61 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 12,857.35 | 12,601.10 | 256.24 | 50.176 | |
| 10,200.00 | 7,094.50 | 6,298.00 | 6,287.56 | 60.05 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 12,956.39 | 12,700.05 | 256.34 | 50.544 | |
| 10,300.00 | 7,094.15 | 6,298.00 | 6,287.56 | 61.50 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 13,055.44 | 12,799.01 | 256.43 | 50.911 | |
| 10,400.00 | 7,093.80 | 6,298.00 | 6,287.56 | 62.96 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 13,154.51 | 12,897.98 | 256.53 | 51.278 | |
| 10,500.00 | 7,093.45 | 6,298.00 | 6,287.56 | 64.42 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 13,253.59 | 12,996.97 | 256.63 | 51.645 | |
| 10,600.00 | 7,093.10 | 6,298.00 | 6,287.56 | 65.89 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 13,352.69 | 13,095.97 | 256.72 | 52.012 | |
| 10,700.00 | 7,092.75 | 6,298.00 | 6,287.56 | 67.36 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 13,451.80 | 13,194.98 | 256.82 | 52.378 | |
| 10,800.00 | 7,092.40 | 6,298.00 | 6,287.56 | 68.84 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 13,550.93 | 13,294.01 | 256.92 | 52.744 | |
| 10,900.00 | 7,092.05 | 6,298.00 | 6,287.56 | 70.33 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 13,650.06 | 13,393.05 | 257.02 | 53.110 | |
| 11,000.00 | 7,091.70 | 6,298.00 | 6,287.56 | 71.82 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 13,749.21 | 13,492.10 | 257.11 | 53.475 | |
| 11,100.00 | 7,091.35 | 6,298.00 | 6,287.56 | 73.31 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 13,848.37 | 13,591.16 | 257.21 | 53.841 | |
| 11,200.00 | 7,091.00 | 6,298.00 | 6,287.56 | 74.81 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 13,947.54 | 13,690.24 | 257.31 | 54.206 | |
| 11,300.00 | 7,090.65 | 6,298.00 | 6,287.56 | 76.32 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 14,046.73 | 13,789.32 | 257.41 | 54.570 | |
| 11,400.00 | 7,090.30 | 6,298.00 | 6,287.56 | 77.82 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 14,145.92 | 13,888.42 | 257.50 | 54.935 | |
| 11,500.00 | 7,089.95 | 6,298.00 | 6,287.56 | 79.34 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 14,245.13 | 13,987.53 | 257.60 | 55.299 | |
| 11,600.00 | 7,089.60 | 6,298.00 | 6,287.56 | 80.85 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 14,344.35 | 14,086.65 | 257.70 | 55.663 | |
| 11,700.00 | 7,089.25 | 6,298.00 | 6,287.56 | 82.37 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 14,443.58 | 14,185.78 | 257.80 | 56.026 | |
| 11,800.00 | 7,088.90 | 6,298.00 | 6,287.56 | 83.89 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 14,542.82 | 14,284.92 | 257.90 | 56.390 | |
| 11,900.00 | 7,088.55 | 6,298.00 | 6,287.56 | 85.41 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 14,642.07 | 14,384.07 | 258.00 | 56.753 | |
| 12,000.00 | 7,088.20 | 6,298.00 | 6,287.56 | 86.94 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 14,741.33 | 14,483.23 | 258.10 | 57.116 | |
| 12,100.00 | 7,087.85 | 6,298.00 | 6,287.56 | 88.47 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 14,840.60 | 14,582.40 | 258.20 | 57.478 | |
| 12,200.00 | 7,087.50 | 6,298.00 | 6,287.56 | 90.00 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 14,939.88 | 14,681.58 | 258.30 | 57.840 | |
| 12,300.00 | 7,087.15 | 6,298.00 | 6,287.56 | 91.54 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 15,039.17 | 14,780.77 | 258.39 | 58.202 | |
| 12,400.00 | 7,086.81 | 6,298.00 | 6,287.56 | 93.07 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 15,138.47 | 14,879.97 | 258.49 | 58.564 | |
| 12,500.00 | 7,086.46 | 6,298.00 | 6,287.56 | 94.61 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 15,237.77 | 14,979.18 | 258.59 | 58.925 | |
| 12,600.00 | 7,086.11 | 6,298.00 | 6,287.56 | 96.15 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 15,337.09 | 15,078.40 | 258.69 | 59.287 | |
| 12,700.00 | 7,085.76 | 6,298.00 | 6,287.56 | 97.69 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 15,436.42 | 15,177.62 | 258.79 | 59.647 | |
| 12,800.00 | 7,085.41 | 6,298.00 | 6,287.56 | 99.24 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 15,535.75 | 15,276.86 | 258.89 | 60.008 | |
| 12,900.00 | 7,085.06 | 6,298.00 | 6,287.56 | 100.78 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 15,635.09 | 15,376.10 | 258.99 | 60.368 | |
| 13,000.00 | 7,084.71 | 6,298.00 | 6,287.56 | 102.33 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 15,734.44 | 15,475.35 | 259.10 | 60.728 | |
| 13,100.00 | 7,084.36 | 6,298.00 | 6,287.56 | 103.88 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 15,833.80 | 15,574.61 | 259.20 | 61.088 | |
| 13,200.00 | 7,084.01 | 6,298.00 | 6,287.56 | 105.43 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 15,933.17 | 15,673.87 | 259.30 | 61.448 | |
| 13,300.00 | 7,083.66 | 6,298.00 | 6,287.56 | 106.99 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 16,032.55 | 15,773.15 | 259.40 | 61.807 | |

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

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

**Survey Program:** 350-A027Ua_INC-ONLY

**Offset Well Error:** 0.00 usft

**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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13,400.00 | 7,083.31 | 6,298.00 | 6,287.56 | 108.54 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 16,131.93 | 15,872.43 | 259.50 | 62.166 | |
| 13,500.00 | 7,082.96 | 6,298.00 | 6,287.56 | 110.09 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 16,231.32 | 15,971.72 | 259.60 | 62.525 | |
| 13,600.00 | 7,082.61 | 6,298.00 | 6,287.56 | 111.65 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 16,330.72 | 16,071.02 | 259.70 | 62.883 | |
| 13,700.00 | 7,082.26 | 6,298.00 | 6,287.56 | 113.21 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 16,430.12 | 16,170.32 | 259.80 | 63.241 | |
| 13,800.00 | 7,081.91 | 6,298.00 | 6,287.56 | 114.77 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 16,529.53 | 16,269.63 | 259.90 | 63.599 | |
| 13,900.00 | 7,081.56 | 6,298.00 | 6,287.56 | 116.33 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 16,628.95 | 16,368.95 | 260.00 | 63.956 | |
| 14,000.00 | 7,081.21 | 6,298.00 | 6,287.56 | 117.89 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 16,728.38 | 16,468.27 | 260.11 | 64.314 | |
| 14,100.00 | 7,080.86 | 6,298.00 | 6,287.56 | 119.45 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 16,827.81 | 16,567.61 | 260.21 | 64.671 | |
| 14,200.00 | 7,080.51 | 6,298.00 | 6,287.56 | 121.02 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 16,927.25 | 16,666.94 | 260.31 | 65.027 | |
| 14,300.00 | 7,080.16 | 6,298.00 | 6,287.56 | 122.58 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 17,026.70 | 16,766.29 | 260.41 | 65.384 | |
| 14,400.00 | 7,079.81 | 6,298.00 | 6,287.56 | 124.15 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 17,126.15 | 16,865.64 | 260.51 | 65.740 | |
| 14,500.00 | 7,079.46 | 6,298.00 | 6,287.56 | 125.71 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 17,225.61 | 16,965.00 | 260.62 | 66.096 | |
| 14,600.00 | 7,079.11 | 6,298.00 | 6,287.56 | 127.28 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 17,325.08 | 17,064.36 | 260.72 | 66.451 | |
| 14,700.00 | 7,078.76 | 6,298.00 | 6,287.56 | 128.85 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 17,424.55 | 17,163.73 | 260.82 | 66.807 | |
| 14,800.00 | 7,078.41 | 6,298.00 | 6,287.56 | 130.42 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 17,524.03 | 17,263.10 | 260.92 | 67.162 | |
| 14,900.00 | 7,078.06 | 6,298.00 | 6,287.56 | 131.98 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 17,623.51 | 17,362.48 | 261.03 | 67.516 | |
| 15,000.00 | 7,077.71 | 6,298.00 | 6,287.56 | 133.55 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 17,723.00 | 17,461.87 | 261.13 | 67.871 | |
| 15,100.00 | 7,077.36 | 6,298.00 | 6,287.56 | 135.13 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 17,822.49 | 17,561.26 | 261.23 | 68.225 | |
| 15,200.00 | 7,077.01 | 6,298.00 | 6,287.56 | 136.70 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 17,921.99 | 17,660.66 | 261.33 | 68.579 | |
| 15,300.00 | 7,076.66 | 6,298.00 | 6,287.56 | 138.27 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 18,021.50 | 17,760.06 | 261.44 | 68.932 | |
| 15,400.00 | 7,076.31 | 6,298.00 | 6,287.56 | 139.84 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 18,121.01 | 17,859.47 | 261.54 | 69.285 | |
| 15,500.00 | 7,075.96 | 6,298.00 | 6,287.56 | 141.42 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 18,220.53 | 17,958.88 | 261.64 | 69.638 | |
| 15,600.00 | 7,075.61 | 6,298.00 | 6,287.56 | 142.99 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 18,320.05 | 18,058.30 | 261.75 | 69.991 | |
| 15,700.00 | 7,075.26 | 6,298.00 | 6,287.56 | 144.57 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 18,419.58 | 18,157.73 | 261.85 | 70.343 | |
| 15,800.00 | 7,074.91 | 6,298.00 | 6,287.56 | 146.14 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 18,519.11 | 18,257.16 | 261.96 | 70.696 | |
| 15,900.00 | 7,074.56 | 6,298.00 | 6,287.56 | 147.72 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 18,618.65 | 18,356.59 | 262.06 | 71.047 | |
| 16,000.00 | 7,074.21 | 6,298.00 | 6,287.56 | 149.29 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 18,718.19 | 18,456.03 | 262.16 | 71.399 | |
| 16,100.00 | 7,073.86 | 6,298.00 | 6,287.56 | 150.87 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 18,817.74 | 18,555.47 | 262.27 | 71.750 | |
| 16,200.00 | 7,073.51 | 6,298.00 | 6,287.56 | 152.45 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 18,917.29 | 18,654.92 | 262.37 | 72.101 | |
| 16,300.00 | 7,073.16 | 6,298.00 | 6,287.56 | 154.03 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 19,016.85 | 18,754.37 | 262.48 | 72.452 | |
| 16,400.00 | 7,072.81 | 6,298.00 | 6,287.56 | 155.60 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 19,116.41 | 18,853.83 | 262.58 | 72.802 | |
| 16,500.00 | 7,072.46 | 6,298.00 | 6,287.56 | 157.18 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 19,215.97 | 18,953.29 | 262.69 | 73.152 | |
| 16,600.00 | 7,072.11 | 6,298.00 | 6,287.56 | 158.76 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 19,315.54 | 19,052.75 | 262.79 | 73.502 | |
| 16,631.96 | 7,072.00 | 6,298.00 | 6,287.56 | 159.27 | 228.47 | -61.29 | -2,035.91 | 9,362.88 | 19,347.37 | 19,084.55 | 262.82 | 73.613 | |

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Survey Program:** 280-A027Ua_INC-ONLY — **Rule Assigned:** — **Offset Well Error:** 0.00 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 170.00 | 170.00 | 3.28 | 1.57 | 96.23 | -661.88 | 6,061.09 | 6,097.12 | | | | |
| 100.00 | 100.00 | 270.00 | 270.00 | 3.29 | 2.50 | 96.23 | -661.88 | 6,061.09 | 6,097.12 | 6,091.33 | 5.79 | 1,053.931 | |
| 200.00 | 200.00 | 370.00 | 370.00 | 3.34 | 4.36 | 96.23 | -661.88 | 6,061.09 | 6,097.12 | 6,089.42 | 7.69 | 792.536 | |
| 300.00 | 300.00 | 470.00 | 470.00 | 3.42 | 6.32 | 96.23 | -661.88 | 6,061.09 | 6,097.12 | 6,087.38 | 9.74 | 625.830 | |
| 362.57 | 362.57 | 532.57 | 532.57 | 3.49 | 7.55 | 96.23 | -661.33 | 6,061.09 | 6,097.06 | 6,086.02 | 11.04 | 552.147 CC | |
| 400.00 | 400.00 | 569.58 | 569.57 | 3.54 | 8.28 | 96.23 | -661.34 | 6,061.09 | 6,097.06 | 6,085.24 | 11.82 | 515.918 | |
| 500.00 | 500.00 | 668.45 | 668.44 | 3.69 | 10.22 | 96.23 | -661.49 | 6,061.09 | 6,097.08 | 6,083.16 | 13.91 | 438.301 | |
| 600.00 | 599.98 | 767.31 | 767.30 | 3.86 | 12.17 | -113.77 | -661.80 | 6,061.09 | 6,097.81 | 6,081.79 | 16.02 | 380.582 | |
| 697.00 | 696.84 | 866.89 | 866.84 | 4.04 | 14.13 | -113.78 | -661.88 | 6,061.09 | 6,099.85 | 6,081.69 | 18.16 | 335.841 | |
| 700.00 | 699.84 | 869.89 | 869.84 | 4.05 | 14.19 | -113.78 | -661.88 | 6,061.09 | 6,099.93 | 6,081.70 | 18.23 | 334.646 | |
| 800.00 | 799.60 | 969.65 | 969.60 | 4.25 | 16.15 | -113.84 | -661.88 | 6,061.09 | 6,102.71 | 6,082.31 | 20.40 | 299.118 | |
| 897.00 | 896.37 | 1,065.77 | 1,065.71 | 4.48 | 18.04 | -113.90 | -660.80 | 6,061.09 | 6,105.30 | 6,082.78 | 22.52 | 271.124 | |
| 900.00 | 899.37 | 1,068.70 | 1,068.64 | 4.48 | 18.10 | -113.04 | -660.80 | 6,061.09 | 6,105.38 | 6,082.80 | 22.58 | 270.349 | |
| 947.40 | 946.65 | 1,114.96 | 1,114.90 | 4.60 | 19.01 | -99.26 | -660.89 | 6,061.09 | 6,106.29 | 6,082.68 | 23.61 | 258.635 | |
| 1,000.00 | 999.13 | 1,166.33 | 1,166.26 | 4.73 | 20.02 | -99.29 | -661.07 | 6,061.09 | 6,106.90 | 6,082.14 | 24.75 | 246.710 | |
| 1,100.00 | 1,098.89 | 1,264.01 | 1,263.94 | 4.99 | 21.95 | -99.34 | -661.68 | 6,061.09 | 6,108.08 | 6,081.14 | 26.94 | 226.730 | |
| 1,200.00 | 1,198.66 | 1,368.75 | 1,368.66 | 5.27 | 24.01 | -99.41 | -661.88 | 6,061.09 | 6,109.22 | 6,079.94 | 29.28 | 208.656 | |
| 1,300.00 | 1,298.42 | 1,468.51 | 1,468.42 | 5.56 | 25.98 | -99.47 | -661.88 | 6,061.09 | 6,110.35 | 6,078.82 | 31.53 | 193.789 | |
| 1,400.00 | 1,398.18 | 1,567.96 | 1,567.87 | 5.85 | 27.94 | -99.54 | -661.34 | 6,061.09 | 6,111.43 | 6,077.64 | 33.79 | 180.885 | |
| 1,500.00 | 1,497.95 | 1,666.69 | 1,666.60 | 6.16 | 29.88 | -99.60 | -661.47 | 6,061.09 | 6,112.59 | 6,076.55 | 36.04 | 169.626 | |
| 1,600.00 | 1,597.71 | 1,765.45 | 1,765.35 | 6.47 | 31.83 | -99.66 | -661.78 | 6,061.09 | 6,113.77 | 6,075.48 | 38.29 | 159.660 | |
| 1,700.00 | 1,697.47 | 1,867.61 | 1,867.47 | 6.79 | 33.89 | -99.72 | -661.88 | 6,061.09 | 6,114.94 | 6,074.26 | 40.68 | 150.326 | |
| 1,800.00 | 1,797.24 | 1,967.38 | 1,967.24 | 7.11 | 35.93 | -99.79 | -661.88 | 6,061.09 | 6,116.11 | 6,073.07 | 43.04 | 142.115 | |
| 1,900.00 | 1,897.00 | 2,066.61 | 2,066.46 | 7.44 | 37.95 | -99.86 | -660.79 | 6,061.09 | 6,117.18 | 6,071.79 | 45.39 | 134.775 | |
| 2,000.00 | 1,996.76 | 2,164.45 | 2,164.30 | 7.77 | 39.95 | -99.92 | -661.05 | 6,061.09 | 6,118.39 | 6,070.67 | 47.72 | 128.226 | |
| 2,100.00 | 2,096.53 | 2,262.35 | 2,262.19 | 8.11 | 41.95 | -99.98 | -661.64 | 6,061.09 | 6,119.63 | 6,069.59 | 50.05 | 122.275 | |
| 2,200.00 | 2,196.29 | 2,366.49 | 2,366.29 | 8.44 | 44.07 | -100.04 | -661.88 | 6,061.09 | 6,120.85 | 6,068.34 | 52.51 | 116.561 | |
| 2,300.00 | 2,296.06 | 2,466.25 | 2,466.06 | 8.79 | 46.11 | -100.10 | -661.88 | 6,061.09 | 6,122.06 | 6,067.17 | 54.89 | 111.534 | |
| 2,400.00 | 2,395.82 | 2,565.56 | 2,565.36 | 9.13 | 48.14 | -100.17 | -661.09 | 6,061.09 | 6,123.20 | 6,065.94 | 57.26 | 106.935 | |
| 2,500.00 | 2,495.58 | 2,663.92 | 2,663.71 | 9.47 | 50.15 | -100.23 | -661.31 | 6,061.09 | 6,124.44 | 6,064.83 | 59.61 | 102.734 | |
| 2,600.00 | 2,595.35 | 2,762.31 | 2,762.10 | 9.82 | 52.16 | -100.29 | -661.78 | 6,061.09 | 6,125.71 | 6,063.74 | 61.97 | 98.849 | |
| 2,700.00 | 2,695.11 | 2,865.36 | 2,865.11 | 10.17 | 54.33 | -100.36 | -661.88 | 6,061.09 | 6,126.95 | 6,062.46 | 64.49 | 95.007 | |
| 2,800.00 | 2,794.87 | 2,965.13 | 2,964.87 | 10.52 | 56.44 | -100.42 | -661.88 | 6,061.09 | 6,128.19 | 6,061.24 | 66.95 | 91.530 | |
| 2,900.00 | 2,894.64 | 3,064.00 | 3,063.73 | 10.87 | 58.53 | -100.49 | -660.88 | 6,061.09 | 6,129.36 | 6,059.96 | 69.40 | 88.322 | |
| 3,000.00 | 2,994.40 | 3,161.98 | 3,161.71 | 11.23 | 60.61 | -100.55 | -661.23 | 6,061.09 | 6,130.65 | 6,058.82 | 71.83 | 85.354 | |
| 3,100.00 | 3,094.16 | 3,264.49 | 3,264.16 | 11.58 | 62.76 | -100.61 | -661.88 | 6,061.09 | 6,131.96 | 6,057.64 | 74.33 | 82.499 | |
| 3,200.00 | 3,193.93 | 3,364.25 | 3,363.93 | 11.94 | 64.65 | -100.67 | -661.88 | 6,061.09 | 6,133.24 | 6,056.66 | 76.57 | 80.097 | |
| 3,300.00 | 3,293.69 | 3,464.02 | 3,463.69 | 12.29 | 66.54 | -100.73 | -661.88 | 6,061.09 | 6,134.52 | 6,055.70 | 78.82 | 77.831 | |
| 3,400.00 | 3,393.45 | 3,562.78 | 3,562.44 | 12.65 | 68.41 | -100.81 | -660.86 | 6,061.09 | 6,135.72 | 6,054.68 | 81.05 | 75.706 | |
| 3,500.00 | 3,493.22 | 3,660.95 | 3,660.60 | 13.01 | 70.27 | -100.86 | -661.23 | 6,061.09 | 6,137.05 | 6,053.78 | 83.26 | 73.706 | |
| 3,600.00 | 3,592.98 | 3,763.34 | 3,762.98 | 13.37 | 72.23 | -100.92 | -661.88 | 6,061.09 | 6,138.40 | 6,052.82 | 85.58 | 71.726 | |
| 3,700.00 | 3,692.74 | 3,863.10 | 3,862.74 | 13.73 | 74.26 | -100.99 | -661.88 | 6,061.09 | 6,139.71 | 6,051.73 | 87.98 | 69.786 | |
| 3,800.00 | 3,792.51 | 3,962.69 | 3,962.33 | 14.09 | 76.30 | -101.05 | -661.69 | 6,061.09 | 6,141.01 | 6,050.64 | 90.37 | 67.952 | |
| 3,900.00 | 3,892.27 | 4,061.92 | 4,061.56 | 14.45 | 78.33 | -101.11 | -661.79 | 6,061.09 | 6,142.34 | 6,049.58 | 92.76 | 66.217 | |
| 4,000.00 | 3,992.04 | 4,162.44 | 4,162.04 | 14.81 | 80.46 | -101.17 | -661.88 | 6,061.09 | 6,143.68 | 6,048.43 | 95.25 | 64.497 | |
| 4,100.00 | 4,091.80 | 4,262.21 | 4,261.80 | 15.17 | 82.65 | -101.24 | -661.88 | 6,061.09 | 6,145.02 | 6,047.21 | 97.81 | 62.827 | |
| 4,200.00 | 4,191.56 | 4,361.97 | 4,361.56 | 15.53 | 84.84 | -101.30 | -661.88 | 6,061.09 | 6,146.37 | 6,046.00 | 100.36 | 61.241 | |
| 4,300.00 | 4,291.33 | 4,461.73 | 4,461.33 | 15.89 | 87.04 | -101.36 | -661.88 | 6,061.09 | 6,147.72 | 6,044.80 | 102.92 | 59.734 | |
| 4,400.00 | 4,391.09 | 4,561.50 | 4,561.09 | 16.26 | 89.23 | -101.43 | -661.88 | 6,061.09 | 6,149.08 | 6,043.61 | 105.47 | 58.300 | |
| 4,500.00 | 4,490.85 | 4,661.26 | 4,660.85 | 16.62 | 91.42 | -101.49 | -661.88 | 6,061.09 | 6,150.45 | 6,042.42 | 108.03 | 56.933 | |
| 4,600.00 | 4,590.62 | 4,760.24 | 4,759.78 | 16.99 | 93.60 | -101.58 | -658.29 | 6,061.09 | 6,151.59 | 6,041.02 | 110.57 | 55.636 | |
| 4,700.00 | 4,690.38 | 4,859.16 | 4,858.69 | 17.35 | 95.77 | -101.64 | -658.60 | 6,061.09 | 6,153.00 | 6,039.89 | 113.11 | 54.400 | |

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

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

**Survey Program:** 280-A027Ua_INC-ONLY

**Offset Well Error:** 0.00 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4,800.00 | 4,790.14 | 4,958.12 | 4,957.63 | 17.71 | 97.95 | -101.70 | -659.15 | 6,061.09 | 6,154.43 | 6,038.78 | 115.64 | 53.218 | |
| 4,900.00 | 4,889.91 | 5,057.11 | 5,056.61 | 18.08 | 100.12 | -101.75 | -659.92 | 6,061.09 | 6,155.88 | 6,037.69 | 118.18 | 52.087 | |
| 5,000.00 | 4,989.67 | 5,156.14 | 5,155.62 | 18.44 | 102.30 | -101.81 | -660.92 | 6,061.09 | 6,157.34 | 6,036.62 | 120.73 | 51.003 | |
| 5,100.00 | 5,089.43 | 5,260.07 | 5,259.43 | 18.81 | 104.55 | -101.86 | -661.88 | 6,061.09 | 6,158.81 | 6,035.48 | 123.34 | 49.935 | |
| 5,200.00 | 5,189.20 | 5,359.83 | 5,359.20 | 19.17 | 106.59 | -101.93 | -661.88 | 6,061.09 | 6,160.23 | 6,034.49 | 125.74 | 48.991 | |
| 5,300.00 | 5,288.96 | 5,459.59 | 5,458.96 | 19.54 | 108.63 | -101.99 | -661.88 | 6,061.09 | 6,161.66 | 6,033.51 | 128.15 | 48.083 | |
| 5,400.00 | 5,388.72 | 5,559.36 | 5,558.72 | 19.91 | 110.67 | -102.05 | -661.88 | 6,061.09 | 6,163.09 | 6,032.54 | 130.55 | 47.208 | |
| 5,500.00 | 5,488.49 | 5,659.12 | 5,658.49 | 20.27 | 112.71 | -102.11 | -661.88 | 6,061.09 | 6,164.54 | 6,031.58 | 132.96 | 46.365 | |
| 5,600.00 | 5,588.25 | 5,758.88 | 5,758.25 | 20.64 | 114.75 | -102.17 | -661.88 | 6,061.09 | 6,165.99 | 6,030.62 | 135.36 | 45.551 | |
| 5,700.00 | 5,688.01 | 5,858.65 | 5,858.01 | 21.00 | 116.79 | -102.24 | -661.88 | 6,061.09 | 6,167.44 | 6,029.67 | 137.77 | 44.766 | |
| 5,800.00 | 5,787.78 | 5,958.41 | 5,957.78 | 21.37 | 118.83 | -102.30 | -661.88 | 6,061.09 | 6,168.91 | 6,028.73 | 140.18 | 44.008 | |
| 5,900.00 | 5,887.54 | 6,058.17 | 6,057.54 | 21.74 | 120.87 | -102.36 | -661.88 | 6,061.09 | 6,170.38 | 6,027.79 | 142.58 | 43.276 | |
| 6,000.00 | 5,987.31 | 6,157.94 | 6,157.31 | 22.11 | 122.91 | -102.42 | -661.88 | 6,061.09 | 6,171.85 | 6,026.87 | 144.99 | 42.568 | |
| 6,100.00 | 6,087.07 | 6,257.70 | 6,257.07 | 22.47 | 124.95 | -102.49 | -661.88 | 6,061.09 | 6,173.34 | 6,025.94 | 147.40 | 41.883 | |
| 6,200.00 | 6,186.83 | 6,357.47 | 6,356.83 | 22.84 | 126.99 | -102.55 | -661.88 | 6,061.09 | 6,174.83 | 6,025.03 | 149.80 | 41.220 | |
| 6,300.00 | 6,286.60 | 6,457.23 | 6,456.60 | 23.21 | 129.03 | -102.61 | -661.88 | 6,061.09 | 6,176.33 | 6,024.12 | 152.21 | 40.578 ES | |
| 6,400.00 | 6,386.36 | 6,476.00 | 6,475.22 | 23.58 | 129.41 | -102.62 | -661.88 | 6,061.09 | 6,178.37 | 6,025.43 | 152.94 | 40.396 | |
| 6,494.00 | 6,480.13 | 6,476.00 | 6,475.22 | 23.92 | 129.41 | -102.62 | -661.88 | 6,061.09 | 6,181.74 | 6,028.50 | 153.24 | 40.340 | |
| 6,500.00 | 6,486.12 | 6,476.00 | 6,475.22 | 23.94 | 129.41 | -109.90 | -661.88 | 6,061.09 | 6,182.03 | 6,028.77 | 153.26 | 40.338 | |
| 6,550.00 | 6,535.89 | 6,476.00 | 6,475.22 | 24.13 | 129.41 | -145.37 | -661.88 | 6,061.09 | 6,186.88 | 6,033.48 | 153.40 | 40.332 SF | |
| 6,600.00 | 6,585.24 | 6,476.00 | 6,475.22 | 24.31 | 129.41 | -157.59 | -661.88 | 6,061.09 | 6,196.00 | 6,042.47 | 153.53 | 40.357 | |
| 6,650.00 | 6,633.88 | 6,476.00 | 6,475.22 | 24.50 | 129.41 | -163.13 | -661.88 | 6,061.09 | 6,209.33 | 6,055.68 | 153.65 | 40.412 | |
| 6,700.00 | 6,681.49 | 6,476.00 | 6,475.22 | 24.68 | 129.41 | -166.17 | -661.88 | 6,061.09 | 6,226.75 | 6,072.99 | 153.76 | 40.497 | |
| 6,750.00 | 6,727.80 | 6,476.00 | 6,475.22 | 24.86 | 129.41 | -168.05 | -661.88 | 6,061.09 | 6,248.12 | 6,094.27 | 153.85 | 40.611 | |
| 6,800.00 | 6,772.51 | 6,476.00 | 6,475.22 | 25.04 | 129.41 | -169.27 | -661.88 | 6,061.09 | 6,273.27 | 6,119.34 | 153.94 | 40.752 | |
| 6,850.00 | 6,815.34 | 6,476.00 | 6,475.22 | 25.21 | 129.41 | -170.08 | -661.88 | 6,061.09 | 6,302.01 | 6,148.00 | 154.01 | 40.920 | |
| 6,900.00 | 6,856.04 | 6,476.00 | 6,475.22 | 25.39 | 129.41 | -170.60 | -661.88 | 6,061.09 | 6,334.11 | 6,180.04 | 154.07 | 41.112 | |
| 6,950.00 | 6,894.35 | 6,476.00 | 6,475.22 | 25.57 | 129.41 | -170.90 | -661.88 | 6,061.09 | 6,369.31 | 6,215.19 | 154.12 | 41.327 | |
| 7,000.00 | 6,930.04 | 6,476.00 | 6,475.22 | 25.75 | 129.41 | -171.00 | -661.88 | 6,061.09 | 6,407.37 | 6,253.20 | 154.16 | 41.563 | |
| 7,050.00 | 6,962.89 | 6,476.00 | 6,475.22 | 25.93 | 129.41 | -170.91 | -661.88 | 6,061.09 | 6,447.98 | 6,293.78 | 154.19 | 41.817 | |
| 7,100.00 | 6,992.69 | 6,476.00 | 6,475.22 | 26.13 | 129.41 | -170.60 | -661.88 | 6,061.09 | 6,490.86 | 6,336.64 | 154.22 | 42.089 | |
| 7,150.00 | 7,019.25 | 6,476.00 | 6,475.22 | 26.33 | 129.41 | -170.00 | -661.88 | 6,061.09 | 6,535.69 | 6,381.46 | 154.24 | 42.374 | |
| 7,200.00 | 7,042.43 | 6,476.00 | 6,475.22 | 26.55 | 129.41 | -168.94 | -661.88 | 6,061.09 | 6,582.18 | 6,427.92 | 154.25 | 42.671 | |
| 7,250.00 | 7,062.07 | 6,476.00 | 6,475.22 | 26.79 | 129.41 | -167.06 | -661.88 | 6,061.09 | 6,629.99 | 6,475.72 | 154.27 | 42.978 | |
| 7,300.00 | 7,078.05 | 6,476.00 | 6,475.22 | 27.04 | 129.41 | -163.34 | -661.88 | 6,061.09 | 6,678.81 | 6,524.53 | 154.28 | 43.291 | |
| 7,350.00 | 7,090.27 | 6,476.00 | 6,475.22 | 27.30 | 129.41 | -153.71 | -661.88 | 6,061.09 | 6,728.31 | 6,574.03 | 154.29 | 43.609 | |
| 7,400.00 | 7,098.66 | 6,476.00 | 6,475.22 | 27.58 | 129.41 | -107.16 | -661.88 | 6,061.09 | 6,778.19 | 6,623.89 | 154.30 | 43.929 | |
| 7,450.00 | 7,103.17 | 6,476.00 | 6,475.22 | 27.87 | 129.41 | -27.01 | -661.88 | 6,061.09 | 6,828.12 | 6,673.81 | 154.31 | 44.248 | |
| 7,484.86 | 7,104.00 | 6,476.00 | 6,475.22 | 28.08 | 129.41 | -13.99 | -661.88 | 6,061.09 | 6,862.81 | 6,708.48 | 154.33 | 44.469 | |
| 7,500.00 | 7,103.95 | 6,476.00 | 6,475.22 | 28.17 | 129.41 | -13.99 | -661.88 | 6,061.09 | 6,877.84 | 6,723.50 | 154.33 | 44.565 | |
| 7,600.00 | 7,103.60 | 6,476.00 | 6,475.22 | 28.83 | 129.41 | -13.99 | -661.88 | 6,061.09 | 6,977.08 | 6,822.70 | 154.38 | 45.194 | |
| 7,700.00 | 7,103.25 | 6,476.00 | 6,475.22 | 29.56 | 129.41 | -13.99 | -661.88 | 6,061.09 | 7,076.35 | 6,921.93 | 154.43 | 45.824 | |
| 7,800.00 | 7,102.90 | 6,476.00 | 6,475.22 | 30.35 | 129.41 | -13.99 | -661.88 | 6,061.09 | 7,175.64 | 7,021.17 | 154.47 | 46.453 | |
| 7,900.00 | 7,102.55 | 6,476.00 | 6,475.22 | 31.21 | 129.41 | -13.99 | -661.88 | 6,061.09 | 7,274.95 | 7,120.44 | 154.52 | 47.082 | |
| 8,000.00 | 7,102.20 | 6,476.00 | 6,475.22 | 32.13 | 129.41 | -13.99 | -661.88 | 6,061.09 | 7,374.28 | 7,219.72 | 154.56 | 47.711 | |
| 8,100.00 | 7,101.85 | 6,476.00 | 6,475.22 | 33.10 | 129.41 | -13.99 | -661.88 | 6,061.09 | 7,473.63 | 7,319.02 | 154.61 | 48.340 | |
| 8,200.00 | 7,101.50 | 6,476.00 | 6,475.22 | 34.11 | 129.41 | -13.99 | -661.88 | 6,061.09 | 7,572.99 | 7,418.34 | 154.65 | 48.968 | |
| 8,300.00 | 7,101.15 | 6,476.00 | 6,475.22 | 35.17 | 129.41 | -13.99 | -661.88 | 6,061.09 | 7,672.37 | 7,517.67 | 154.70 | 49.596 | |
| 8,400.00 | 7,100.80 | 6,476.00 | 6,475.22 | 36.27 | 129.41 | -13.99 | -661.88 | 6,061.09 | 7,771.77 | 7,617.02 | 154.74 | 50.224 | |
| 8,500.00 | 7,100.45 | 6,476.00 | 6,475.22 | 37.41 | 129.41 | -13.99 | -661.88 | 6,061.09 | 7,871.18 | 7,716.39 | 154.79 | 50.851 | |
| 8,600.00 | 7,100.10 | 6,476.00 | 6,475.22 | 38.58 | 129.41 | -13.99 | -661.88 | 6,061.09 | 7,970.60 | 7,815.77 | 154.83 | 51.478 | |
| 8,700.00 | 7,099.75 | 6,476.00 | 6,475.22 | 39.78 | 129.41 | -13.99 | -661.88 | 6,061.09 | 8,070.04 | 7,915.16 | 154.88 | 52.105 | |

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

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

**Survey Program:** 280-A027Ua_INC-ONLY

**Offset Well Error:** 0.00 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8,800.00 | 7,099.40 | 6,476.00 | 6,475.22 | 41.00 | 129.41 | -13.99 | -661.88 | 6,061.09 | 8,169.50 | 8,014.57 | 154.93 | 52.732 | |
| 8,900.00 | 7,099.05 | 6,476.00 | 6,475.22 | 42.25 | 129.41 | -13.99 | -661.88 | 6,061.09 | 8,268.96 | 8,113.99 | 154.97 | 53.358 | |
| 9,000.00 | 7,098.70 | 6,476.00 | 6,475.22 | 43.53 | 129.41 | -13.99 | -661.88 | 6,061.09 | 8,368.44 | 8,213.42 | 155.02 | 53.984 | |
| 9,100.00 | 7,098.35 | 6,476.00 | 6,475.22 | 44.82 | 129.41 | -13.99 | -661.88 | 6,061.09 | 8,467.93 | 8,312.87 | 155.06 | 54.609 | |
| 9,200.00 | 7,098.00 | 6,476.00 | 6,475.22 | 46.14 | 129.41 | -13.99 | -661.88 | 6,061.09 | 8,567.44 | 8,412.32 | 155.11 | 55.234 | |
| 9,300.00 | 7,097.65 | 6,476.00 | 6,475.22 | 47.47 | 129.41 | -13.99 | -661.88 | 6,061.09 | 8,666.95 | 8,511.79 | 155.16 | 55.859 | |
| 9,400.00 | 7,097.30 | 6,476.00 | 6,475.22 | 48.82 | 129.41 | -13.99 | -661.88 | 6,061.09 | 8,766.48 | 8,611.27 | 155.21 | 56.483 | |
| 9,500.00 | 7,096.95 | 6,476.00 | 6,475.22 | 50.18 | 129.41 | -13.99 | -661.88 | 6,061.09 | 8,866.01 | 8,710.76 | 155.25 | 57.107 | |
| 9,600.00 | 7,096.60 | 6,476.00 | 6,475.22 | 51.56 | 129.41 | -13.99 | -661.88 | 6,061.09 | 8,965.56 | 8,810.26 | 155.30 | 57.730 | |
| 9,700.00 | 7,096.25 | 6,476.00 | 6,475.22 | 52.95 | 129.41 | -13.99 | -661.88 | 6,061.09 | 9,065.12 | 8,909.77 | 155.35 | 58.353 | |
| 9,800.00 | 7,095.90 | 6,476.00 | 6,475.22 | 54.35 | 129.41 | -13.99 | -661.88 | 6,061.09 | 9,164.68 | 9,009.28 | 155.40 | 58.975 | |
| 9,900.00 | 7,095.55 | 6,476.00 | 6,475.22 | 55.76 | 129.41 | -13.99 | -661.88 | 6,061.09 | 9,264.26 | 9,108.81 | 155.45 | 59.597 | |
| 10,000.00 | 7,095.20 | 6,476.00 | 6,475.22 | 57.18 | 129.41 | -13.99 | -661.88 | 6,061.09 | 9,363.84 | 9,208.35 | 155.50 | 60.218 | |
| 10,100.00 | 7,094.85 | 6,476.00 | 6,475.22 | 58.61 | 129.41 | -13.99 | -661.88 | 6,061.09 | 9,463.44 | 9,307.89 | 155.55 | 60.839 | |
| 10,200.00 | 7,094.50 | 6,476.00 | 6,475.22 | 60.05 | 129.41 | -13.99 | -661.88 | 6,061.09 | 9,563.04 | 9,407.44 | 155.60 | 61.460 | |
| 10,300.00 | 7,094.15 | 6,476.00 | 6,475.22 | 61.50 | 129.41 | -13.99 | -661.88 | 6,061.09 | 9,662.65 | 9,507.00 | 155.65 | 62.080 | |
| 10,400.00 | 7,093.80 | 6,476.00 | 6,475.22 | 62.96 | 129.41 | -13.99 | -661.88 | 6,061.09 | 9,762.27 | 9,606.57 | 155.70 | 62.699 | |
| 10,500.00 | 7,093.45 | 6,476.00 | 6,475.22 | 64.42 | 129.41 | -13.99 | -661.88 | 6,061.09 | 9,861.90 | 9,706.14 | 155.75 | 63.318 | |
| 10,600.00 | 7,093.10 | 6,476.00 | 6,475.22 | 65.89 | 129.41 | -13.99 | -661.88 | 6,061.09 | 9,961.53 | 9,805.72 | 155.80 | 63.936 | |
| 10,700.00 | 7,092.75 | 6,476.00 | 6,475.22 | 67.36 | 129.41 | -13.99 | -661.88 | 6,061.09 | 10,061.17 | 9,905.31 | 155.86 | 64.554 | |
| 10,800.00 | 7,092.40 | 6,476.00 | 6,475.22 | 68.84 | 129.41 | -13.99 | -661.88 | 6,061.09 | 10,160.82 | 10,004.91 | 155.91 | 65.171 | |
| 10,900.00 | 7,092.05 | 6,476.00 | 6,475.22 | 70.33 | 129.41 | -13.99 | -661.88 | 6,061.09 | 10,260.47 | 10,104.51 | 155.96 | 65.787 | |
| 11,000.00 | 7,091.70 | 6,476.00 | 6,475.22 | 71.82 | 129.41 | -13.99 | -661.88 | 6,061.09 | 10,360.13 | 10,204.12 | 156.02 | 66.403 | |
| 11,100.00 | 7,091.35 | 6,476.00 | 6,475.22 | 73.31 | 129.41 | -13.99 | -661.88 | 6,061.09 | 10,459.80 | 10,303.73 | 156.07 | 67.019 | |
| 11,200.00 | 7,091.00 | 6,476.00 | 6,475.22 | 74.81 | 129.41 | -13.99 | -661.88 | 6,061.09 | 10,559.48 | 10,403.35 | 156.13 | 67.633 | |
| 11,300.00 | 7,090.65 | 6,476.00 | 6,475.22 | 76.32 | 129.41 | -13.99 | -661.88 | 6,061.09 | 10,659.16 | 10,502.97 | 156.18 | 68.248 | |
| 11,400.00 | 7,090.30 | 6,476.00 | 6,475.22 | 77.82 | 129.41 | -13.99 | -661.88 | 6,061.09 | 10,758.84 | 10,602.60 | 156.24 | 68.861 | |
| 11,500.00 | 7,089.95 | 6,476.00 | 6,475.22 | 79.34 | 129.41 | -13.99 | -661.88 | 6,061.09 | 10,858.53 | 10,702.24 | 156.30 | 69.474 | |
| 11,600.00 | 7,089.60 | 6,476.00 | 6,475.22 | 80.85 | 129.41 | -13.99 | -661.88 | 6,061.09 | 10,958.23 | 10,801.88 | 156.35 | 70.086 | |
| 11,700.00 | 7,089.25 | 6,476.00 | 6,475.22 | 82.37 | 129.41 | -13.99 | -661.88 | 6,061.09 | 11,057.93 | 10,901.52 | 156.41 | 70.698 | |
| 11,800.00 | 7,088.90 | 6,476.00 | 6,475.22 | 83.89 | 129.41 | -13.99 | -661.88 | 6,061.09 | 11,157.64 | 11,001.17 | 156.47 | 71.309 | |
| 11,900.00 | 7,088.55 | 6,476.00 | 6,475.22 | 85.41 | 129.41 | -13.99 | -661.88 | 6,061.09 | 11,257.36 | 11,100.83 | 156.53 | 71.919 | |
| 12,000.00 | 7,088.20 | 6,476.00 | 6,475.22 | 86.94 | 129.41 | -13.99 | -661.88 | 6,061.09 | 11,357.08 | 11,200.49 | 156.59 | 72.528 | |
| 12,100.00 | 7,087.85 | 6,476.00 | 6,475.22 | 88.47 | 129.41 | -13.99 | -661.88 | 6,061.09 | 11,456.80 | 11,300.15 | 156.65 | 73.137 | |
| 12,200.00 | 7,087.50 | 6,476.00 | 6,475.22 | 90.00 | 129.41 | -13.99 | -661.88 | 6,061.09 | 11,556.53 | 11,399.82 | 156.71 | 73.746 | |
| 12,300.00 | 7,087.15 | 6,476.00 | 6,475.22 | 91.54 | 129.41 | -13.99 | -661.88 | 6,061.09 | 11,656.26 | 11,499.49 | 156.77 | 74.353 | |
| 12,400.00 | 7,086.81 | 6,476.00 | 6,475.22 | 93.07 | 129.41 | -13.99 | -661.88 | 6,061.09 | 11,756.00 | 11,599.17 | 156.83 | 74.960 | |
| 12,500.00 | 7,086.46 | 6,476.00 | 6,475.22 | 94.61 | 129.41 | -13.99 | -661.88 | 6,061.09 | 11,855.74 | 11,698.85 | 156.89 | 75.566 | |
| 12,600.00 | 7,086.11 | 6,476.00 | 6,475.22 | 96.15 | 129.41 | -13.99 | -661.88 | 6,061.09 | 11,955.49 | 11,798.53 | 156.95 | 76.171 | |
| 12,700.00 | 7,085.76 | 6,476.00 | 6,475.22 | 97.69 | 129.41 | -13.99 | -661.88 | 6,061.09 | 12,055.24 | 11,898.22 | 157.02 | 76.776 | |
| 12,800.00 | 7,085.41 | 6,476.00 | 6,475.22 | 99.24 | 129.41 | -13.99 | -661.88 | 6,061.09 | 12,154.99 | 11,997.91 | 157.08 | 77.380 | |
| 12,900.00 | 7,085.06 | 6,476.00 | 6,475.22 | 100.78 | 129.41 | -13.99 | -661.88 | 6,061.09 | 12,254.75 | 12,097.60 | 157.15 | 77.983 | |
| 13,000.00 | 7,084.71 | 6,476.00 | 6,475.22 | 102.33 | 129.41 | -13.99 | -661.88 | 6,061.09 | 12,354.51 | 12,197.30 | 157.21 | 78.586 | |
| 13,100.00 | 7,084.36 | 6,476.00 | 6,475.22 | 103.88 | 129.41 | -13.99 | -661.88 | 6,061.09 | 12,454.28 | 12,297.00 | 157.28 | 79.187 | |
| 13,200.00 | 7,084.01 | 6,476.00 | 6,475.22 | 105.43 | 129.41 | -13.99 | -661.88 | 6,061.09 | 12,554.05 | 12,396.71 | 157.34 | 79.788 | |
| 13,300.00 | 7,083.66 | 6,476.00 | 6,475.22 | 106.99 | 129.41 | -13.99 | -661.88 | 6,061.09 | 12,653.82 | 12,496.41 | 157.41 | 80.389 | |
| 13,400.00 | 7,083.31 | 6,476.00 | 6,475.22 | 108.54 | 129.41 | -13.99 | -661.88 | 6,061.09 | 12,753.60 | 12,596.12 | 157.47 | 80.988 | |
| 13,500.00 | 7,082.96 | 6,476.00 | 6,475.22 | 110.09 | 129.41 | -13.99 | -661.88 | 6,061.09 | 12,853.38 | 12,695.84 | 157.54 | 81.587 | |
| 13,600.00 | 7,082.61 | 6,476.00 | 6,475.22 | 111.65 | 129.41 | -13.99 | -661.88 | 6,061.09 | 12,953.16 | 12,795.55 | 157.61 | 82.185 | |
| 13,700.00 | 7,082.26 | 6,476.00 | 6,475.22 | 113.21 | 129.41 | -13.99 | -661.88 | 6,061.09 | 13,052.95 | 12,895.27 | 157.68 | 82.782 | |
| 13,800.00 | 7,081.91 | 6,476.00 | 6,475.22 | 114.77 | 129.41 | -13.99 | -661.88 | 6,061.09 | 13,152.74 | 12,994.99 | 157.75 | 83.378 | |
| 13,900.00 | 7,081.56 | 6,476.00 | 6,475.22 | 116.33 | 129.41 | -13.99 | -661.88 | 6,061.09 | 13,252.53 | 13,094.72 | 157.82 | 83.974 | |

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 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

**Survey Program:** 280-A027Ua_INC-ONLY

**Offset Well Error:** 0.00 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Rule Assigned: Distance Between Centres (usft) | Rule Assigned: Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 14,000.00 | 7,081.21 | 6,476.00 | 6,475.22 | 117.89 | 129.41 | -13.99 | -661.88 | 6,061.09 | 13,352.33 | 13,194.44 | 157.89 | 84.568 | |
| 14,100.00 | 7,080.86 | 6,476.00 | 6,475.22 | 119.45 | 129.41 | -13.99 | -661.88 | 6,061.09 | 13,452.13 | 13,294.17 | 157.96 | 85.162 | |
| 14,200.00 | 7,080.51 | 6,476.00 | 6,475.22 | 121.02 | 129.41 | -13.99 | -661.88 | 6,061.09 | 13,551.93 | 13,393.90 | 158.03 | 85.756 | |
| 14,300.00 | 7,080.16 | 6,476.00 | 6,475.22 | 122.58 | 129.41 | -13.99 | -661.88 | 6,061.09 | 13,651.74 | 13,493.64 | 158.10 | 86.348 | |
| 14,400.00 | 7,079.81 | 6,476.00 | 6,475.22 | 124.15 | 129.41 | -13.99 | -661.88 | 6,061.09 | 13,751.55 | 13,593.37 | 158.17 | 86.939 | |
| 14,500.00 | 7,079.46 | 6,476.00 | 6,475.22 | 125.71 | 129.41 | -13.99 | -661.88 | 6,061.09 | 13,851.36 | 13,693.11 | 158.25 | 87.530 | |
| 14,600.00 | 7,079.11 | 6,476.00 | 6,475.22 | 127.28 | 129.41 | -13.99 | -661.88 | 6,061.09 | 13,951.17 | 13,792.85 | 158.32 | 88.120 | |
| 14,700.00 | 7,078.76 | 6,476.00 | 6,475.22 | 128.85 | 129.41 | -13.99 | -661.88 | 6,061.09 | 14,050.99 | 13,892.59 | 158.39 | 88.709 | |
| 14,800.00 | 7,078.41 | 6,476.00 | 6,475.22 | 130.42 | 129.41 | -13.99 | -661.88 | 6,061.09 | 14,150.81 | 13,992.34 | 158.47 | 89.297 | |
| 14,900.00 | 7,078.06 | 6,476.00 | 6,475.22 | 131.98 | 129.41 | -13.99 | -661.88 | 6,061.09 | 14,250.63 | 14,092.09 | 158.54 | 89.885 | |
| 15,000.00 | 7,077.71 | 6,476.00 | 6,475.22 | 133.55 | 129.41 | -13.99 | -661.88 | 6,061.09 | 14,350.45 | 14,191.83 | 158.62 | 90.471 | |
| 15,100.00 | 7,077.36 | 6,476.00 | 6,475.22 | 135.13 | 129.41 | -13.99 | -661.88 | 6,061.09 | 14,450.28 | 14,291.58 | 158.70 | 91.057 | |
| 15,200.00 | 7,077.01 | 6,476.00 | 6,475.22 | 136.70 | 129.41 | -13.99 | -661.88 | 6,061.09 | 14,550.11 | 14,391.34 | 158.77 | 91.642 | |
| 15,300.00 | 7,076.66 | 6,476.00 | 6,475.22 | 138.27 | 129.41 | -13.99 | -661.88 | 6,061.09 | 14,649.94 | 14,491.09 | 158.85 | 92.226 | |
| 15,400.00 | 7,076.31 | 6,476.00 | 6,475.22 | 139.84 | 129.41 | -13.99 | -661.88 | 6,061.09 | 14,749.77 | 14,590.85 | 158.93 | 92.809 | |
| 15,500.00 | 7,075.96 | 6,476.00 | 6,475.22 | 141.42 | 129.41 | -13.99 | -661.88 | 6,061.09 | 14,849.61 | 14,690.60 | 159.00 | 93.391 | |
| 15,600.00 | 7,075.61 | 6,476.00 | 6,475.22 | 142.99 | 129.41 | -13.99 | -661.88 | 6,061.09 | 14,949.45 | 14,790.36 | 159.08 | 93.973 | |
| 15,700.00 | 7,075.26 | 6,476.00 | 6,475.22 | 144.57 | 129.41 | -13.99 | -661.88 | 6,061.09 | 15,049.29 | 14,890.13 | 159.16 | 94.553 | |
| 15,800.00 | 7,074.91 | 6,476.00 | 6,475.22 | 146.14 | 129.41 | -13.99 | -661.88 | 6,061.09 | 15,149.13 | 14,989.89 | 159.24 | 95.133 | |
| 15,900.00 | 7,074.56 | 6,476.00 | 6,475.22 | 147.72 | 129.41 | -13.99 | -661.88 | 6,061.09 | 15,248.97 | 15,089.65 | 159.32 | 95.712 | |
| 16,000.00 | 7,074.21 | 6,476.00 | 6,475.22 | 149.29 | 129.41 | -13.99 | -661.88 | 6,061.09 | 15,348.82 | 15,189.42 | 159.40 | 96.290 | |
| 16,100.00 | 7,073.86 | 6,476.00 | 6,475.22 | 150.87 | 129.41 | -13.99 | -661.88 | 6,061.09 | 15,448.67 | 15,289.18 | 159.48 | 96.867 | |
| 16,200.00 | 7,073.51 | 6,476.00 | 6,475.22 | 152.45 | 129.41 | -13.99 | -661.88 | 6,061.09 | 15,548.52 | 15,388.95 | 159.57 | 97.443 | |
| 16,300.00 | 7,073.16 | 6,476.00 | 6,475.22 | 154.03 | 129.41 | -13.99 | -661.88 | 6,061.09 | 15,648.37 | 15,488.72 | 159.65 | 98.018 | |
| 16,400.00 | 7,072.81 | 6,476.00 | 6,475.22 | 155.60 | 129.41 | -13.99 | -661.88 | 6,061.09 | 15,748.23 | 15,588.50 | 159.73 | 98.593 | |
| 16,500.00 | 7,072.46 | 6,476.00 | 6,475.22 | 157.18 | 129.41 | -13.99 | -661.88 | 6,061.09 | 15,848.08 | 15,688.27 | 159.81 | 99.166 | |
| 16,600.00 | 7,072.11 | 6,476.00 | 6,475.22 | 158.76 | 129.41 | -13.99 | -661.88 | 6,061.09 | 15,947.94 | 15,788.04 | 159.90 | 99.739 | |
| 16,631.96 | 7,072.00 | 6,476.00 | 6,475.22 | 159.27 | 129.41 | -13.99 | -661.88 | 6,061.09 | 15,979.86 | 15,819.93 | 159.92 | 99.922 | |

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

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

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 162.12 | 162.12 | 3.28 | 3.28 | 104.83 | -1,793.62 | 6,773.11 | 7,006.58 | | | | |
| 100.00 | 100.00 | 243.02 | 243.02 | 3.29 | 3.29 | 104.83 | -1,793.07 | 6,773.34 | 7,006.69 | 7,000.12 | 6.57 | 1,066.118 | |
| 200.00 | 200.00 | 344.00 | 343.99 | 3.34 | 3.30 | 104.82 | -1,792.29 | 6,773.81 | 7,006.95 | 7,000.32 | 6.62 | 1,058.045 | |
| 300.00 | 300.00 | 440.32 | 440.30 | 3.42 | 3.32 | 104.81 | -1,791.46 | 6,774.35 | 7,007.26 | 7,000.55 | 6.71 | 1,044.046 | |
| 400.00 | 400.00 | 538.58 | 538.56 | 3.54 | 3.34 | 104.81 | -1,790.70 | 6,774.93 | 7,007.63 | 7,000.79 | 6.84 | 1,024.899 | |
| 500.00 | 500.00 | 635.73 | 635.70 | 3.69 | 3.37 | 104.80 | -1,789.97 | 6,775.50 | 7,008.01 | 7,001.01 | 7.00 | 1,001.684 | |
| 600.00 | 599.98 | 732.58 | 732.56 | 3.86 | 3.40 | -105.21 | -1,789.19 | 6,776.15 | 7,008.91 | 7,001.73 | 7.18 | 976.685 | |
| 697.00 | 696.84 | 817.76 | 817.72 | 4.04 | 3.43 | -105.21 | -1,788.40 | 6,776.83 | 7,010.75 | 7,003.38 | 7.37 | 951.501 | |
| 700.00 | 699.84 | 820.61 | 820.58 | 4.05 | 3.43 | -105.21 | -1,788.38 | 6,776.85 | 7,010.82 | 7,003.44 | 7.37 | 950.671 | |
| 800.00 | 799.60 | 906.32 | 906.28 | 4.25 | 3.46 | -105.27 | -1,787.52 | 6,777.69 | 7,013.33 | 7,005.73 | 7.60 | 922.990 | |
| 897.00 | 896.37 | 997.47 | 997.42 | 4.48 | 3.50 | -105.33 | -1,786.64 | 6,778.78 | 7,015.97 | 7,008.13 | 7.84 | 894.908 | |
| 900.00 | 899.37 | 1,000.61 | 1,000.55 | 4.48 | 3.50 | -104.46 | -1,786.61 | 6,778.81 | 7,016.05 | 7,008.20 | 7.85 | 894.024 | |
| 947.40 | 946.65 | 1,049.52 | 1,049.46 | 4.60 | 3.52 | -90.69 | -1,786.18 | 6,779.39 | 7,016.91 | 7,008.94 | 7.97 | 879.996 | |
| 1,000.00 | 999.13 | 1,101.96 | 1,101.90 | 4.73 | 3.55 | -90.72 | -1,785.74 | 6,779.96 | 7,017.41 | 7,009.29 | 8.12 | 864.403 | |
| 1,100.00 | 1,098.89 | 1,203.43 | 1,203.36 | 4.99 | 3.60 | -90.79 | -1,784.69 | 6,781.17 | 7,018.39 | 7,009.98 | 8.41 | 834.902 | |
| 1,200.00 | 1,198.66 | 1,325.00 | 1,324.91 | 5.27 | 3.67 | -90.87 | -1,783.02 | 6,782.33 | 7,019.05 | 7,010.34 | 8.71 | 805.777 | |
| 1,300.00 | 1,298.42 | 1,423.72 | 1,423.62 | 5.56 | 3.73 | -90.94 | -1,781.57 | 6,783.24 | 7,019.69 | 7,010.67 | 9.02 | 778.038 | |
| 1,400.00 | 1,398.18 | 1,500.00 | 1,499.88 | 5.85 | 3.78 | -90.99 | -1,780.42 | 6,784.09 | 7,020.52 | 7,011.18 | 9.34 | 751.688 | |
| 1,500.00 | 1,497.95 | 1,600.00 | 1,599.86 | 6.16 | 3.84 | -91.06 | -1,779.18 | 6,785.32 | 7,021.53 | 7,011.86 | 9.68 | 725.651 | |
| 1,600.00 | 1,597.71 | 1,663.00 | 1,662.85 | 6.47 | 3.89 | -91.11 | -1,778.28 | 6,786.28 | 7,022.80 | 7,012.79 | 10.01 | 701.649 | |
| 1,700.00 | 1,697.47 | 1,761.57 | 1,761.39 | 6.79 | 3.95 | -91.18 | -1,776.95 | 6,788.02 | 7,024.33 | 7,013.97 | 10.36 | 677.768 | |
| 1,800.00 | 1,797.24 | 1,839.62 | 1,839.42 | 7.11 | 4.01 | -91.23 | -1,775.83 | 6,789.66 | 7,026.14 | 7,015.42 | 10.72 | 655.522 | |
| 1,900.00 | 1,897.00 | 1,939.83 | 1,939.60 | 7.44 | 4.08 | -91.30 | -1,774.47 | 6,791.66 | 7,027.91 | 7,016.82 | 11.09 | 633.761 | |
| 2,000.00 | 1,996.76 | 2,020.98 | 2,020.72 | 7.77 | 4.15 | -91.36 | -1,773.17 | 6,793.52 | 7,029.92 | 7,018.46 | 11.46 | 613.598 | |
| 2,100.00 | 2,096.53 | 2,090.15 | 2,089.85 | 8.11 | 4.20 | -91.41 | -1,772.21 | 6,795.38 | 7,032.34 | 7,020.52 | 11.83 | 594.683 | |
| 2,200.00 | 2,196.29 | 2,204.68 | 2,204.34 | 8.44 | 4.29 | -91.49 | -1,770.97 | 6,798.33 | 7,034.76 | 7,022.54 | 12.23 | 575.430 | |
| 2,300.00 | 2,296.06 | 2,282.04 | 2,281.67 | 8.79 | 4.35 | -91.55 | -1,770.01 | 6,800.46 | 7,037.33 | 7,024.72 | 12.61 | 558.147 | |
| 2,400.00 | 2,395.82 | 2,391.28 | 2,390.85 | 9.13 | 4.44 | -91.62 | -1,768.78 | 6,803.56 | 7,040.02 | 7,027.00 | 13.02 | 540.860 | |
| 2,500.00 | 2,495.58 | 2,466.40 | 2,465.93 | 9.47 | 4.50 | -91.68 | -1,767.87 | 6,805.84 | 7,042.87 | 7,029.46 | 13.41 | 525.313 | |
| 2,600.00 | 2,595.35 | 2,550.00 | 2,549.49 | 9.82 | 4.57 | -91.74 | -1,766.84 | 6,808.39 | 7,045.79 | 7,031.98 | 13.81 | 510.326 | |
| 2,700.00 | 2,695.11 | 2,634.09 | 2,633.53 | 10.17 | 4.65 | -91.80 | -1,765.79 | 6,811.27 | 7,049.06 | 7,034.85 | 14.21 | 496.054 | |
| 2,800.00 | 2,794.87 | 2,711.04 | 2,710.41 | 10.52 | 4.71 | -91.85 | -1,764.86 | 6,814.23 | 7,052.73 | 7,038.12 | 14.61 | 482.649 | |
| 2,900.00 | 2,894.64 | 2,784.70 | 2,784.01 | 10.87 | 4.78 | -91.91 | -1,763.79 | 6,817.26 | 7,056.65 | 7,041.64 | 15.01 | 469.989 | |
| 3,000.00 | 2,994.40 | 2,874.81 | 2,874.01 | 11.23 | 4.86 | -91.98 | -1,762.46 | 6,821.32 | 7,060.93 | 7,045.50 | 15.43 | 457.551 | |
| 3,100.00 | 3,094.16 | 3,000.00 | 2,999.07 | 11.58 | 4.97 | -92.07 | -1,760.51 | 6,826.61 | 7,064.93 | 7,049.05 | 15.88 | 444.903 | |
| 3,200.00 | 3,193.93 | 3,075.00 | 3,073.99 | 11.94 | 5.05 | -92.13 | -1,759.25 | 6,829.85 | 7,069.02 | 7,052.73 | 16.29 | 433.952 | |
| 3,300.00 | 3,293.69 | 3,168.87 | 3,167.75 | 12.29 | 5.14 | -92.20 | -1,757.51 | 6,834.09 | 7,073.28 | 7,056.56 | 16.72 | 423.113 | |
| 3,400.00 | 3,393.45 | 3,234.52 | 3,233.31 | 12.65 | 5.20 | -92.26 | -1,756.30 | 6,837.32 | 7,077.93 | 7,060.80 | 17.12 | 413.348 | |
| 3,500.00 | 3,493.22 | 3,321.76 | 3,320.41 | 13.01 | 5.28 | -92.32 | -1,754.67 | 6,841.91 | 7,082.93 | 7,065.38 | 17.55 | 403.578 | |
| 3,600.00 | 3,592.98 | 3,406.31 | 3,404.82 | 13.37 | 5.37 | -92.39 | -1,753.05 | 6,846.49 | 7,088.09 | 7,070.11 | 17.98 | 394.291 | |
| 3,700.00 | 3,692.74 | 3,513.32 | 3,511.66 | 13.73 | 5.47 | -92.48 | -1,751.09 | 6,852.39 | 7,093.38 | 7,074.95 | 18.43 | 384.958 | |
| 3,800.00 | 3,792.51 | 3,684.75 | 3,682.90 | 14.09 | 5.64 | -92.60 | -1,749.22 | 6,859.99 | 7,097.59 | 7,078.65 | 18.94 | 374.687 | |
| 3,900.00 | 3,892.27 | 3,807.42 | 3,805.48 | 14.45 | 5.76 | -92.69 | -1,748.22 | 6,864.78 | 7,101.54 | 7,082.12 | 19.42 | 365.745 | |
| 4,000.00 | 3,992.04 | 3,912.68 | 3,910.65 | 14.81 | 5.87 | -92.76 | -1,747.39 | 6,868.75 | 7,105.39 | 7,085.51 | 19.88 | 357.486 | |
| 4,100.00 | 4,091.80 | 4,066.09 | 4,063.98 | 15.17 | 6.03 | -92.86 | -1,746.58 | 6,873.89 | 7,108.94 | 7,088.56 | 20.39 | 348.689 | |
| 4,200.00 | 4,191.56 | 4,272.17 | 4,270.02 | 15.53 | 6.21 | -92.97 | -1,747.00 | 6,877.57 | 7,110.91 | 7,089.95 | 20.96 | 339.232 | |
| 4,300.00 | 4,291.33 | 4,437.98 | 4,435.82 | 15.89 | 6.28 | -93.06 | -1,748.33 | 6,878.74 | 7,112.22 | 7,090.74 | 21.47 | 331.252 | |
| 4,400.00 | 4,391.09 | 4,575.00 | 4,572.84 | 16.26 | 6.27 | -93.13 | -1,748.52 | 6,878.56 | 7,112.44 | 7,090.60 | 21.85 | 325.582 | |
| 4,500.00 | 4,490.85 | 4,664.12 | 4,661.96 | 16.62 | 6.26 | -93.18 | -1,748.78 | 6,878.31 | 7,112.61 | 7,090.39 | 22.22 | 320.155 | |
| 4,600.00 | 4,590.62 | 4,750.46 | 4,748.29 | 16.99 | 6.25 | -93.22 | -1,749.55 | 6,878.14 | 7,112.99 | 7,090.37 | 22.61 | 314.526 | |
| 4,700.00 | 4,690.38 | 4,854.86 | 4,852.69 | 17.35 | 6.24 | -93.27 | -1,750.56 | 6,877.97 | 7,113.42 | 7,090.40 | 23.03 | 308.941 | |
| 4,800.00 | 4,790.14 | 4,947.39 | 4,945.21 | 17.71 | 6.24 | -93.31 | -1,751.53 | 6,877.86 | 7,113.92 | 7,090.49 | 23.43 | 303.566 | |

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 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

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

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Rule Assigned: Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4,900.00 | 4,889.91 | 5,059.54 | 5,057.36 | 18.08 | 6.23 | -93.37 | -1,752.57 | 6,877.61 | 7,114.29 | 7,090.44 | 23.85 | 298.341 | |
| 5,000.00 | 4,989.67 | 5,150.42 | 5,148.23 | 18.44 | 6.24 | -93.41 | -1,753.48 | 6,877.53 | 7,114.80 | 7,090.55 | 24.26 | 293.307 | |
| 5,100.00 | 5,089.43 | 5,247.59 | 5,245.39 | 18.81 | 6.24 | -93.45 | -1,754.55 | 6,877.37 | 7,115.28 | 7,090.62 | 24.67 | 288.434 | |
| 5,200.00 | 5,189.20 | 5,354.79 | 5,352.59 | 19.17 | 6.25 | -93.50 | -1,755.75 | 6,877.22 | 7,115.80 | 7,090.71 | 25.09 | 283.646 | |
| 5,300.00 | 5,288.96 | 5,460.91 | 5,458.70 | 19.54 | 6.26 | -93.55 | -1,756.99 | 6,877.04 | 7,116.29 | 7,090.79 | 25.50 | 279.029 | |
| 5,400.00 | 5,388.72 | 5,550.00 | 5,547.79 | 19.91 | 6.27 | -93.59 | -1,758.06 | 6,876.90 | 7,116.80 | 7,090.89 | 25.91 | 274.629 | |
| 5,500.00 | 5,488.49 | 5,643.13 | 5,640.91 | 20.27 | 6.30 | -93.64 | -1,759.06 | 6,876.93 | 7,117.48 | 7,091.15 | 26.34 | 270.256 | |
| 5,600.00 | 5,588.25 | 5,728.58 | 5,726.35 | 20.64 | 6.32 | -93.68 | -1,759.89 | 6,876.94 | 7,118.13 | 7,091.38 | 26.75 | 266.082 | |
| 5,700.00 | 5,688.01 | 5,815.93 | 5,813.70 | 21.00 | 6.36 | -93.72 | -1,760.63 | 6,877.14 | 7,118.98 | 7,091.80 | 27.18 | 261.902 | |
| 5,800.00 | 5,787.78 | 5,923.76 | 5,921.51 | 21.37 | 6.41 | -93.76 | -1,762.60 | 6,877.41 | 7,120.06 | 7,092.43 | 27.62 | 257.772 | |
| 5,900.00 | 5,887.54 | 6,031.65 | 6,029.37 | 21.74 | 6.44 | -93.80 | -1,765.21 | 6,877.36 | 7,120.95 | 7,092.90 | 28.05 | 253.865 | |
| 6,000.00 | 5,987.31 | 6,161.01 | 6,158.71 | 22.11 | 6.48 | -93.85 | -1,767.90 | 6,877.07 | 7,121.64 | 7,093.15 | 28.49 | 250.012 | |
| 6,100.00 | 6,087.07 | 6,254.48 | 6,252.16 | 22.47 | 6.51 | -93.89 | -1,769.41 | 6,876.75 | 7,122.08 | 7,093.18 | 28.90 | 246.479 | |
| 6,200.00 | 6,186.83 | 6,355.30 | 6,352.97 | 22.84 | 6.54 | -93.94 | -1,770.96 | 6,876.39 | 7,122.50 | 7,093.19 | 29.31 | 243.016 | |
| 6,300.00 | 6,286.60 | 6,462.79 | 6,460.45 | 23.21 | 6.57 | -93.98 | -1,772.57 | 6,876.03 | 7,122.94 | 7,093.22 | 29.73 | 239.617 | |
| 6,400.00 | 6,386.36 | 6,550.00 | 6,547.64 | 23.58 | 6.60 | -94.02 | -1,773.95 | 6,875.71 | 7,123.38 | 7,093.24 | 30.13 | 236.388 | |
| 6,494.00 | 6,480.13 | 6,649.00 | 6,646.63 | 23.92 | 6.64 | -94.06 | -1,775.51 | 6,875.38 | 7,123.81 | 7,093.28 | 30.53 | 233.358 | |
| 6,500.00 | 6,486.12 | 6,657.44 | 6,655.07 | 23.94 | 6.64 | -101.34 | -1,775.63 | 6,875.34 | 7,123.86 | 7,093.31 | 30.55 | 233.161 | |
| 6,550.00 | 6,535.89 | 6,693.12 | 6,690.75 | 24.13 | 6.65 | -136.81 | -1,776.13 | 6,875.26 | 7,126.51 | 7,095.75 | 30.75 | 231.719 | |
| 6,600.00 | 6,585.24 | 6,750.00 | 6,747.62 | 24.31 | 6.68 | -148.99 | -1,776.84 | 6,875.14 | 7,133.00 | 7,102.03 | 30.97 | 230.336 | |
| 6,650.00 | 6,633.88 | 6,789.71 | 6,787.32 | 24.50 | 6.70 | -154.42 | -1,777.35 | 6,875.11 | 7,143.35 | 7,112.17 | 31.17 | 229.162 | |
| 6,700.00 | 6,681.49 | 6,839.67 | 6,837.29 | 24.68 | 6.72 | -157.33 | -1,777.90 | 6,875.03 | 7,157.39 | 7,126.01 | 31.38 | 228.107 | |
| 6,750.00 | 6,727.80 | 6,875.00 | 6,872.61 | 24.86 | 6.74 | -159.00 | -1,778.28 | 6,875.04 | 7,175.15 | 7,143.58 | 31.57 | 227.259 | |
| 6,800.00 | 6,772.51 | 6,933.68 | 6,931.28 | 25.04 | 6.77 | -159.98 | -1,779.01 | 6,875.00 | 7,196.44 | 7,164.67 | 31.78 | 226.477 | |
| 6,850.00 | 6,815.34 | 6,981.49 | 6,979.10 | 25.21 | 6.79 | -160.48 | -1,779.47 | 6,874.92 | 7,221.07 | 7,189.11 | 31.96 | 225.926 | |
| 6,900.00 | 6,856.04 | 7,023.19 | 7,020.79 | 25.39 | 6.81 | -160.60 | -1,779.82 | 6,874.85 | 7,248.97 | 7,216.83 | 32.14 | 225.563 | |
| 6,950.00 | 6,894.35 | 7,060.62 | 7,058.23 | 25.57 | 6.83 | -160.40 | -1,780.15 | 6,874.78 | 7,279.95 | 7,247.65 | 32.30 | 225.378 | |
| 7,000.00 | 6,930.04 | 7,097.87 | 7,095.47 | 25.75 | 6.85 | -159.89 | -1,780.44 | 6,874.73 | 7,313.86 | 7,281.40 | 32.46 | 225.347 SF | |
| 7,050.00 | 6,962.89 | 7,134.30 | 7,131.90 | 25.93 | 6.86 | -159.06 | -1,780.72 | 6,874.66 | 7,350.43 | 7,317.84 | 32.60 | 225.483 | |
| 7,100.00 | 6,992.69 | 7,160.40 | 7,158.00 | 26.13 | 6.88 | -157.80 | -1,780.94 | 6,874.60 | 7,389.49 | 7,356.77 | 32.73 | 225.802 | |
| 7,150.00 | 7,019.25 | 7,181.54 | 7,179.14 | 26.33 | 6.89 | -156.01 | -1,781.14 | 6,874.57 | 7,430.80 | 7,397.96 | 32.84 | 226.276 | |
| 7,200.00 | 7,042.43 | 7,200.00 | 7,197.60 | 26.55 | 6.90 | -153.50 | -1,781.32 | 6,874.56 | 7,474.11 | 7,441.16 | 32.94 | 226.888 | |
| 7,250.00 | 7,062.07 | 7,211.84 | 7,209.43 | 26.79 | 6.91 | -149.90 | -1,781.43 | 6,874.56 | 7,519.14 | 7,486.11 | 33.03 | 227.648 | |
| 7,300.00 | 7,078.05 | 7,228.61 | 7,226.21 | 27.04 | 6.92 | -144.75 | -1,781.57 | 6,874.58 | 7,565.60 | 7,532.49 | 33.11 | 228.492 | |
| 7,350.00 | 7,090.27 | 7,255.69 | 7,253.29 | 27.30 | 6.93 | -137.18 | -1,781.75 | 6,874.57 | 7,613.19 | 7,580.00 | 33.19 | 229.388 | |
| 7,400.00 | 7,098.66 | 7,266.69 | 7,264.28 | 27.58 | 6.94 | -125.06 | -1,781.83 | 6,874.56 | 7,661.62 | 7,628.38 | 33.25 | 230.451 | |
| 7,450.00 | 7,103.17 | 7,272.67 | 7,270.27 | 27.87 | 6.94 | -106.17 | -1,781.87 | 6,874.55 | 7,710.61 | 7,677.32 | 33.29 | 231.603 | |
| 7,484.86 | 7,104.00 | 7,273.84 | 7,271.43 | 28.08 | 6.94 | -88.99 | -1,781.88 | 6,874.55 | 7,744.93 | 7,711.61 | 33.32 | 232.448 | |
| 7,500.00 | 7,103.95 | 7,273.81 | 7,271.40 | 28.17 | 6.94 | -88.99 | -1,781.88 | 6,874.55 | 7,759.85 | 7,726.52 | 33.33 | 232.822 | |
| 7,600.00 | 7,103.60 | 7,273.58 | 7,271.18 | 28.83 | 6.94 | -88.98 | -1,781.88 | 6,874.55 | 7,858.41 | 7,825.01 | 33.40 | 235.290 | |
| 7,700.00 | 7,103.25 | 7,273.36 | 7,270.96 | 29.56 | 6.94 | -88.97 | -1,781.88 | 6,874.55 | 7,957.00 | 7,923.53 | 33.47 | 237.738 | |
| 7,800.00 | 7,102.90 | 7,273.13 | 7,270.73 | 30.35 | 6.94 | -88.96 | -1,781.87 | 6,874.55 | 8,055.63 | 8,022.09 | 33.54 | 240.168 | |
| 7,900.00 | 7,102.55 | 7,272.90 | 7,270.50 | 31.21 | 6.94 | -88.95 | -1,781.87 | 6,874.55 | 8,154.29 | 8,120.67 | 33.61 | 242.580 | |
| 8,000.00 | 7,102.20 | 7,272.67 | 7,270.27 | 32.13 | 6.94 | -88.94 | -1,781.87 | 6,874.55 | 8,252.98 | 8,219.29 | 33.69 | 244.975 | |
| 8,100.00 | 7,101.85 | 7,272.44 | 7,270.03 | 33.10 | 6.94 | -88.93 | -1,781.87 | 6,874.55 | 8,351.71 | 8,317.94 | 33.76 | 247.352 | |
| 8,200.00 | 7,101.50 | 7,272.20 | 7,269.79 | 34.11 | 6.94 | -88.92 | -1,781.87 | 6,874.55 | 8,450.46 | 8,416.62 | 33.84 | 249.714 | |
| 8,300.00 | 7,101.15 | 7,271.96 | 7,269.55 | 35.17 | 6.94 | -88.91 | -1,781.87 | 6,874.55 | 8,549.25 | 8,515.33 | 33.92 | 252.059 | |
| 8,400.00 | 7,100.80 | 7,271.71 | 7,269.31 | 36.27 | 6.94 | -88.90 | -1,781.86 | 6,874.55 | 8,648.06 | 8,614.06 | 34.00 | 254.388 | |
| 8,500.00 | 7,100.45 | 7,271.47 | 7,269.06 | 37.41 | 6.94 | -88.89 | -1,781.86 | 6,874.55 | 8,746.90 | 8,712.82 | 34.07 | 256.703 | |
| 8,600.00 | 7,100.10 | 7,271.22 | 7,268.81 | 38.58 | 6.94 | -88.88 | -1,781.86 | 6,874.55 | 8,845.76 | 8,811.61 | 34.15 | 259.002 | |
| 8,700.00 | 7,099.75 | 7,270.96 | 7,268.56 | 39.78 | 6.94 | -88.87 | -1,781.86 | 6,874.55 | 8,944.65 | 8,910.42 | 34.23 | 261.287 | |
| 8,800.00 | 7,099.40 | 7,270.71 | 7,268.30 | 41.00 | 6.94 | -88.86 | -1,781.86 | 6,874.55 | 9,043.57 | 9,009.25 | 34.31 | 263.558 | |

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

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

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

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8,900.00 | 7,099.05 | 7,270.45 | 7,268.04 | 42.25 | 6.94 | -88.84 | -1,781.85 | 6,874.55 | 9,142.50 | 9,108.11 | 34.39 | 265.815 | |
| 9,000.00 | 7,098.70 | 7,270.19 | 7,267.78 | 43.53 | 6.94 | -88.83 | -1,781.85 | 6,874.55 | 9,241.47 | 9,206.99 | 34.48 | 268.059 | |
| 9,100.00 | 7,098.35 | 7,269.92 | 7,267.52 | 44.82 | 6.94 | -88.82 | -1,781.85 | 6,874.55 | 9,340.45 | 9,305.89 | 34.56 | 270.289 | |
| 9,200.00 | 7,098.00 | 7,269.65 | 7,267.25 | 46.14 | 6.94 | -88.81 | -1,781.85 | 6,874.55 | 9,439.45 | 9,404.81 | 34.64 | 272.506 | |
| 9,300.00 | 7,097.65 | 7,269.38 | 7,266.97 | 47.47 | 6.94 | -88.80 | -1,781.85 | 6,874.55 | 9,538.48 | 9,503.76 | 34.72 | 274.710 | |
| 9,400.00 | 7,097.30 | 7,269.10 | 7,266.70 | 48.82 | 6.94 | -88.79 | -1,781.84 | 6,874.55 | 9,637.52 | 9,602.72 | 34.80 | 276.901 | |
| 9,500.00 | 7,096.95 | 7,268.82 | 7,266.42 | 50.18 | 6.94 | -88.77 | -1,781.84 | 6,874.56 | 9,736.59 | 9,701.70 | 34.89 | 279.081 | |
| 9,600.00 | 7,096.60 | 7,268.54 | 7,266.13 | 51.56 | 6.94 | -88.76 | -1,781.84 | 6,874.56 | 9,835.67 | 9,800.70 | 34.97 | 281.247 | |
| 9,700.00 | 7,096.25 | 7,268.25 | 7,265.85 | 52.95 | 6.94 | -88.75 | -1,781.84 | 6,874.56 | 9,934.77 | 9,899.72 | 35.06 | 283.402 | |
| 9,800.00 | 7,095.90 | 7,267.96 | 7,265.56 | 54.35 | 6.94 | -88.74 | -1,781.83 | 6,874.56 | 10,033.89 | 9,998.76 | 35.14 | 285.545 | |
| 9,900.00 | 7,095.55 | 7,267.67 | 7,265.26 | 55.76 | 6.94 | -88.72 | -1,781.83 | 6,874.56 | 10,133.03 | 10,097.81 | 35.22 | 287.676 | |
| 10,000.00 | 7,095.20 | 7,267.37 | 7,264.96 | 57.18 | 6.94 | -88.71 | -1,781.83 | 6,874.56 | 10,232.19 | 10,196.88 | 35.31 | 289.796 | |
| 10,100.00 | 7,094.85 | 7,267.06 | 7,264.66 | 58.61 | 6.94 | -88.70 | -1,781.83 | 6,874.56 | 10,331.36 | 10,295.96 | 35.39 | 291.904 | |
| 10,200.00 | 7,094.50 | 7,266.76 | 7,264.35 | 60.05 | 6.94 | -88.68 | -1,781.83 | 6,874.56 | 10,430.54 | 10,395.06 | 35.48 | 294.001 | |
| 10,300.00 | 7,094.15 | 7,266.44 | 7,264.04 | 61.50 | 6.94 | -88.67 | -1,781.82 | 6,874.56 | 10,529.74 | 10,494.18 | 35.56 | 296.087 | |
| 10,400.00 | 7,093.80 | 7,266.13 | 7,263.72 | 62.96 | 6.94 | -88.66 | -1,781.82 | 6,874.56 | 10,628.96 | 10,593.31 | 35.65 | 298.161 | |
| 10,500.00 | 7,093.45 | 7,265.81 | 7,263.40 | 64.42 | 6.94 | -88.64 | -1,781.82 | 6,874.56 | 10,728.19 | 10,692.46 | 35.73 | 300.225 | |
| 10,600.00 | 7,093.10 | 7,265.48 | 7,263.08 | 65.89 | 6.94 | -88.63 | -1,781.82 | 6,874.56 | 10,827.44 | 10,791.62 | 35.82 | 302.278 | |
| 10,700.00 | 7,092.75 | 7,265.15 | 7,262.75 | 67.36 | 6.94 | -88.61 | -1,781.81 | 6,874.56 | 10,926.70 | 10,890.79 | 35.91 | 304.320 | |
| 10,800.00 | 7,092.40 | 7,264.82 | 7,262.41 | 68.84 | 6.94 | -88.60 | -1,781.81 | 6,874.56 | 11,025.97 | 10,989.98 | 35.99 | 306.351 | |
| 10,900.00 | 7,092.05 | 7,264.48 | 7,262.08 | 70.33 | 6.94 | -88.59 | -1,781.81 | 6,874.56 | 11,125.25 | 11,089.18 | 36.08 | 308.372 | |
| 11,000.00 | 7,091.70 | 7,264.14 | 7,261.73 | 71.82 | 6.94 | -88.57 | -1,781.81 | 6,874.56 | 11,224.55 | 11,188.39 | 36.16 | 310.382 | |
| 11,100.00 | 7,091.35 | 7,263.79 | 7,261.38 | 73.31 | 6.94 | -88.56 | -1,781.80 | 6,874.56 | 11,323.86 | 11,287.61 | 36.25 | 312.381 | |
| 11,200.00 | 7,091.00 | 7,263.43 | 7,261.03 | 74.81 | 6.94 | -88.54 | -1,781.80 | 6,874.56 | 11,423.18 | 11,386.85 | 36.34 | 314.371 | |
| 11,300.00 | 7,090.65 | 7,263.07 | 7,260.67 | 76.32 | 6.94 | -88.52 | -1,781.80 | 6,874.56 | 11,522.52 | 11,486.10 | 36.42 | 316.349 | |
| 11,400.00 | 7,090.30 | 7,262.71 | 7,260.30 | 77.82 | 6.94 | -88.51 | -1,781.80 | 6,874.56 | 11,621.86 | 11,585.35 | 36.51 | 318.318 | |
| 11,500.00 | 7,089.95 | 7,262.34 | 7,259.93 | 79.34 | 6.94 | -88.49 | -1,781.79 | 6,874.56 | 11,721.22 | 11,684.62 | 36.60 | 320.276 | |
| 11,600.00 | 7,089.60 | 7,261.96 | 7,259.56 | 80.85 | 6.94 | -88.48 | -1,781.79 | 6,874.57 | 11,820.59 | 11,783.90 | 36.68 | 322.225 | |
| 11,700.00 | 7,089.25 | 7,261.58 | 7,259.18 | 82.37 | 6.94 | -88.46 | -1,781.79 | 6,874.57 | 11,919.97 | 11,883.20 | 36.77 | 324.163 | |
| 11,800.00 | 7,088.90 | 7,261.19 | 7,258.79 | 83.89 | 6.94 | -88.44 | -1,781.79 | 6,874.57 | 12,019.36 | 11,982.50 | 36.86 | 326.091 | |
| 11,900.00 | 7,088.55 | 7,260.80 | 7,258.40 | 85.41 | 6.94 | -88.43 | -1,781.78 | 6,874.57 | 12,118.75 | 12,081.81 | 36.95 | 328.009 | |
| 12,000.00 | 7,088.20 | 7,260.40 | 7,258.00 | 86.94 | 6.94 | -88.41 | -1,781.78 | 6,874.57 | 12,218.16 | 12,181.13 | 37.03 | 329.917 | |
| 12,100.00 | 7,087.85 | 7,259.99 | 7,257.59 | 88.47 | 6.94 | -88.39 | -1,781.78 | 6,874.57 | 12,317.58 | 12,280.46 | 37.12 | 331.815 | |
| 12,200.00 | 7,087.50 | 7,259.58 | 7,257.18 | 90.00 | 6.93 | -88.37 | -1,781.78 | 6,874.57 | 12,417.01 | 12,379.80 | 37.21 | 333.703 | |
| 12,300.00 | 7,087.15 | 7,259.16 | 7,256.76 | 91.54 | 6.93 | -88.36 | -1,781.77 | 6,874.57 | 12,516.44 | 12,479.15 | 37.30 | 335.582 | |
| 12,400.00 | 7,086.81 | 7,258.74 | 7,256.33 | 93.07 | 6.93 | -88.34 | -1,781.77 | 6,874.57 | 12,615.89 | 12,578.50 | 37.39 | 337.450 | |
| 12,500.00 | 7,086.46 | 7,258.30 | 7,255.90 | 94.61 | 6.93 | -88.32 | -1,781.77 | 6,874.57 | 12,715.34 | 12,677.87 | 37.47 | 339.309 | |
| 12,600.00 | 7,086.11 | 7,241.45 | 7,239.05 | 96.15 | 6.92 | -87.59 | -1,781.66 | 6,874.58 | 12,814.80 | 12,777.25 | 37.55 | 341.264 | |
| 12,700.00 | 7,085.76 | 7,241.09 | 7,238.68 | 97.69 | 6.92 | -87.57 | -1,781.65 | 6,874.58 | 12,914.27 | 12,876.63 | 37.64 | 343.104 | |
| 12,800.00 | 7,085.41 | 7,240.72 | 7,238.32 | 99.24 | 6.92 | -87.56 | -1,781.65 | 6,874.58 | 13,013.75 | 12,976.02 | 37.73 | 344.933 | |
| 12,900.00 | 7,085.06 | 7,240.35 | 7,237.95 | 100.78 | 6.92 | -87.54 | -1,781.65 | 6,874.58 | 13,113.24 | 13,075.42 | 37.82 | 346.753 | |
| 13,000.00 | 7,084.71 | 7,239.99 | 7,237.58 | 102.33 | 6.92 | -87.52 | -1,781.65 | 6,874.58 | 13,212.73 | 13,174.83 | 37.91 | 348.564 | |
| 13,100.00 | 7,084.36 | 7,239.62 | 7,237.22 | 103.88 | 6.92 | -87.51 | -1,781.64 | 6,874.58 | 13,312.23 | 13,274.24 | 38.00 | 350.364 | |
| 13,200.00 | 7,084.01 | 7,239.26 | 7,236.85 | 105.43 | 6.92 | -87.49 | -1,781.64 | 6,874.58 | 13,411.74 | 13,373.66 | 38.08 | 352.156 | |
| 13,300.00 | 7,083.66 | 7,238.89 | 7,236.49 | 106.99 | 6.92 | -87.48 | -1,781.64 | 6,874.58 | 13,511.26 | 13,473.09 | 38.17 | 353.937 | |
| 13,400.00 | 7,083.31 | 7,238.53 | 7,236.12 | 108.54 | 6.92 | -87.46 | -1,781.64 | 6,874.58 | 13,610.78 | 13,572.52 | 38.26 | 355.709 | |
| 13,500.00 | 7,082.96 | 7,238.16 | 7,235.76 | 110.09 | 6.92 | -87.45 | -1,781.63 | 6,874.58 | 13,710.31 | 13,671.96 | 38.35 | 357.472 | |
| 13,600.00 | 7,082.61 | 7,237.79 | 7,235.39 | 111.65 | 6.92 | -87.43 | -1,781.63 | 6,874.58 | 13,809.85 | 13,771.41 | 38.44 | 359.224 | |
| 13,700.00 | 7,082.26 | 7,237.43 | 7,235.02 | 113.21 | 6.92 | -87.41 | -1,781.63 | 6,874.58 | 13,909.39 | 13,870.86 | 38.53 | 360.968 | |
| 13,800.00 | 7,081.91 | 7,237.06 | 7,234.66 | 114.77 | 6.92 | -87.40 | -1,781.63 | 6,874.58 | 14,008.94 | 13,970.32 | 38.62 | 362.702 | |
| 13,900.00 | 7,081.56 | 7,236.70 | 7,234.29 | 116.33 | 6.92 | -87.38 | -1,781.62 | 6,874.58 | 14,108.50 | 14,069.79 | 38.71 | 364.426 | |
| 14,000.00 | 7,081.21 | 7,236.33 | 7,233.93 | 117.89 | 6.92 | -87.37 | -1,781.62 | 6,874.58 | 14,208.06 | 14,169.26 | 38.80 | 366.142 | |

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

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

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

**Rule Assigned:** Distance

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Between Centres (usft) | Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 14,100.00 | 7,080.86 | 7,235.97 | 7,233.56 | 119.45 | 6.92 | -87.35 | -1,781.62 | 6,874.58 | 14,307.63 | 14,268.74 | 38.90 | 367.847 | |
| 14,200.00 | 7,080.51 | 7,225.00 | 7,222.60 | 121.02 | 6.91 | -86.88 | -1,781.54 | 6,874.57 | 14,407.21 | 14,368.23 | 38.98 | 369.619 | |
| 14,300.00 | 7,080.16 | 7,225.00 | 7,222.60 | 122.58 | 6.91 | -86.88 | -1,781.54 | 6,874.57 | 14,506.79 | 14,467.72 | 39.07 | 371.304 | |
| 14,400.00 | 7,079.81 | 7,221.57 | 7,219.17 | 124.15 | 6.91 | -86.73 | -1,781.52 | 6,874.57 | 14,606.38 | 14,567.22 | 39.16 | 373.005 | |
| 14,500.00 | 7,079.46 | 7,221.24 | 7,218.84 | 125.71 | 6.91 | -86.71 | -1,781.51 | 6,874.57 | 14,705.97 | 14,666.72 | 39.25 | 374.674 | |
| 14,600.00 | 7,079.11 | 7,220.91 | 7,218.50 | 127.28 | 6.91 | -86.70 | -1,781.51 | 6,874.57 | 14,805.57 | 14,766.22 | 39.34 | 376.333 | |
| 14,700.00 | 7,078.76 | 7,220.58 | 7,218.17 | 128.85 | 6.91 | -86.68 | -1,781.51 | 6,874.57 | 14,905.17 | 14,865.74 | 39.43 | 377.983 | |
| 14,800.00 | 7,078.41 | 7,220.25 | 7,217.84 | 130.42 | 6.91 | -86.67 | -1,781.51 | 6,874.57 | 15,004.78 | 14,965.25 | 39.53 | 379.624 | |
| 14,900.00 | 7,078.06 | 7,219.92 | 7,217.52 | 131.98 | 6.91 | -86.66 | -1,781.50 | 6,874.57 | 15,104.39 | 15,064.77 | 39.62 | 381.255 | |
| 15,000.00 | 7,077.71 | 7,219.59 | 7,217.19 | 133.55 | 6.91 | -86.64 | -1,781.50 | 6,874.57 | 15,204.01 | 15,164.30 | 39.71 | 382.877 | |
| 15,100.00 | 7,077.36 | 7,219.27 | 7,216.86 | 135.13 | 6.91 | -86.63 | -1,781.50 | 6,874.57 | 15,303.63 | 15,263.83 | 39.80 | 384.491 | |
| 15,200.00 | 7,077.01 | 7,218.94 | 7,216.54 | 136.70 | 6.91 | -86.61 | -1,781.50 | 6,874.57 | 15,403.26 | 15,363.36 | 39.90 | 386.095 | |
| 15,300.00 | 7,076.66 | 7,218.62 | 7,216.22 | 138.27 | 6.91 | -86.60 | -1,781.49 | 6,874.57 | 15,502.89 | 15,462.90 | 39.99 | 387.690 | |
| 15,400.00 | 7,076.31 | 7,218.30 | 7,215.90 | 139.84 | 6.91 | -86.59 | -1,781.49 | 6,874.57 | 15,602.53 | 15,562.45 | 40.08 | 389.275 | |
| 15,500.00 | 7,075.96 | 7,217.98 | 7,215.58 | 141.42 | 6.91 | -86.57 | -1,781.49 | 6,874.57 | 15,702.17 | 15,662.00 | 40.17 | 390.852 | |
| 15,600.00 | 7,075.61 | 7,217.67 | 7,215.26 | 142.99 | 6.91 | -86.56 | -1,781.48 | 6,874.57 | 15,801.82 | 15,761.55 | 40.27 | 392.420 | |
| 15,700.00 | 7,075.26 | 7,217.35 | 7,214.95 | 144.57 | 6.91 | -86.55 | -1,781.48 | 6,874.57 | 15,901.47 | 15,861.11 | 40.36 | 393.979 | |
| 15,800.00 | 7,074.91 | 7,217.03 | 7,214.63 | 146.14 | 6.91 | -86.53 | -1,781.48 | 6,874.57 | 16,001.12 | 15,960.67 | 40.46 | 395.528 | |
| 15,900.00 | 7,074.56 | 7,216.72 | 7,214.32 | 147.72 | 6.91 | -86.52 | -1,781.48 | 6,874.57 | 16,100.78 | 16,060.23 | 40.55 | 397.069 | |
| 16,000.00 | 7,074.21 | 7,216.41 | 7,214.01 | 149.29 | 6.91 | -86.50 | -1,781.47 | 6,874.57 | 16,200.45 | 16,159.80 | 40.64 | 398.601 | |
| 16,100.00 | 7,073.86 | 7,216.10 | 7,213.70 | 150.87 | 6.91 | -86.49 | -1,781.47 | 6,874.57 | 16,300.11 | 16,259.38 | 40.74 | 400.124 | |
| 16,200.00 | 7,073.51 | 7,215.79 | 7,213.39 | 152.45 | 6.91 | -86.48 | -1,781.47 | 6,874.57 | 16,399.79 | 16,358.95 | 40.83 | 401.638 | |
| 16,300.00 | 7,073.16 | 7,215.48 | 7,213.08 | 154.03 | 6.91 | -86.46 | -1,781.47 | 6,874.57 | 16,499.46 | 16,458.53 | 40.93 | 403.144 | |
| 16,400.00 | 7,072.81 | 7,215.18 | 7,212.77 | 155.60 | 6.91 | -86.45 | -1,781.46 | 6,874.57 | 16,599.14 | 16,558.12 | 41.02 | 404.640 | |
| 16,500.00 | 7,072.46 | 7,214.87 | 7,212.47 | 157.18 | 6.91 | -86.44 | -1,781.46 | 6,874.57 | 16,698.83 | 16,657.71 | 41.12 | 406.128 | |
| 16,600.00 | 7,072.11 | 7,214.57 | 7,212.17 | 158.76 | 6.91 | -86.42 | -1,781.46 | 6,874.57 | 16,798.51 | 16,757.30 | 41.21 | 407.607 | |
| 16,631.96 | 7,072.00 | 7,214.47 | 7,212.07 | 159.27 | 6.91 | -86.42 | -1,781.46 | 6,874.57 | 16,830.38 | 16,789.13 | 41.24 | 408.077 | |

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

**Survey Program:** 230-A027Ua_INC-ONLY

**Offset Well Error:** 0.00 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | 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 | 3.28 | 0.00 | -98.63 | -1,416.48 | -9,334.16 | 9,441.05 | | | | |
| 100.00 | 100.00 | 79.00 | 79.00 | 3.29 | 0.70 | -98.63 | -1,416.48 | -9,334.16 | 9,441.02 | 9,437.03 | 3.99 | 2,366.446 | |
| 200.00 | 200.00 | 179.00 | 179.00 | 3.34 | 1.59 | -98.63 | -1,416.48 | -9,334.16 | 9,441.02 | 9,436.10 | 4.92 | 1,918.188 | |
| 300.00 | 300.00 | 279.00 | 279.00 | 3.42 | 2.92 | -98.63 | -1,416.48 | -9,334.16 | 9,441.02 | 9,434.68 | 6.34 | 1,488.931 | |
| 400.00 | 400.00 | 379.00 | 379.00 | 3.54 | 4.72 | -98.63 | -1,416.48 | -9,334.16 | 9,441.02 | 9,432.76 | 8.26 | 1,142.689 | |
| 500.00 | 500.00 | 479.00 | 479.00 | 3.69 | 6.53 | -98.63 | -1,416.48 | -9,334.16 | 9,441.02 | 9,430.81 | 10.21 | 924.267 | |
| 600.00 | 599.98 | 578.43 | 578.43 | 3.86 | 8.32 | 51.40 | -1,416.17 | -9,334.16 | 9,439.89 | 9,427.71 | 12.18 | 775.293 | |
| 697.00 | 696.84 | 674.29 | 674.29 | 4.04 | 10.05 | 51.47 | -1,416.24 | -9,334.16 | 9,436.76 | 9,422.68 | 14.08 | 669.994 | |
| 700.00 | 699.84 | 677.26 | 677.25 | 4.05 | 10.10 | 51.47 | -1,416.24 | -9,334.16 | 9,436.63 | 9,422.49 | 14.14 | 667.147 | |
| 800.00 | 799.60 | 776.00 | 776.00 | 4.25 | 11.88 | 51.50 | -1,416.39 | -9,334.16 | 9,432.37 | 9,416.24 | 16.13 | 584.624 | |
| 897.00 | 896.37 | 875.39 | 875.37 | 4.48 | 13.70 | 51.53 | -1,416.48 | -9,334.16 | 9,428.23 | 9,410.06 | 18.17 | 518.884 | |
| 900.00 | 899.37 | 878.38 | 878.37 | 4.48 | 13.75 | 52.40 | -1,416.48 | -9,334.16 | 9,428.10 | 9,409.87 | 18.23 | 517.104 | |
| 947.40 | 946.65 | 925.66 | 925.65 | 4.60 | 14.62 | 66.24 | -1,416.48 | -9,334.16 | 9,426.45 | 9,407.23 | 19.22 | 490.483 | |
| 1,000.00 | 999.13 | 978.14 | 978.13 | 4.73 | 15.59 | 66.26 | -1,416.48 | -9,334.16 | 9,424.99 | 9,404.68 | 20.32 | 463.882 | |
| 1,100.00 | 1,098.89 | 1,076.14 | 1,076.13 | 4.99 | 17.40 | 66.30 | -1,416.08 | -9,334.16 | 9,422.17 | 9,399.78 | 22.39 | 420.896 | |
| 1,200.00 | 1,198.66 | 1,172.96 | 1,172.95 | 5.27 | 19.18 | 66.34 | -1,416.31 | -9,334.16 | 9,419.44 | 9,394.99 | 24.45 | 385.322 | |
| 1,300.00 | 1,298.42 | 1,277.45 | 1,277.42 | 5.56 | 21.14 | 66.38 | -1,416.48 | -9,334.16 | 9,416.70 | 9,390.01 | 26.69 | 352.848 | |
| 1,400.00 | 1,398.18 | 1,377.21 | 1,377.18 | 5.85 | 23.03 | 66.42 | -1,416.48 | -9,334.16 | 9,413.94 | 9,385.07 | 28.87 | 326.069 | |
| 1,500.00 | 1,497.95 | 1,476.65 | 1,476.62 | 6.16 | 24.91 | 66.46 | -1,415.94 | -9,334.16 | 9,411.11 | 9,380.05 | 31.06 | 303.036 | |
| 1,600.00 | 1,597.71 | 1,574.09 | 1,574.05 | 6.47 | 26.75 | 66.49 | -1,416.05 | -9,334.16 | 9,408.38 | 9,375.16 | 33.21 | 283.296 | |
| 1,700.00 | 1,697.47 | 1,671.55 | 1,671.51 | 6.79 | 28.60 | 66.53 | -1,416.32 | -9,334.16 | 9,405.67 | 9,370.30 | 35.37 | 265.913 | |
| 1,800.00 | 1,797.24 | 1,776.30 | 1,776.24 | 7.11 | 30.65 | 66.57 | -1,416.48 | -9,334.16 | 9,402.95 | 9,365.20 | 37.75 | 249.085 | |
| 1,900.00 | 1,897.00 | 1,876.06 | 1,876.00 | 7.44 | 32.65 | 66.61 | -1,416.48 | -9,334.16 | 9,400.21 | 9,360.14 | 40.08 | 234.555 | |
| 2,000.00 | 1,996.76 | 1,975.29 | 1,975.23 | 7.77 | 34.64 | 66.65 | -1,415.66 | -9,334.16 | 9,397.37 | 9,354.97 | 42.40 | 221.651 | |
| 2,100.00 | 2,096.53 | 2,071.73 | 2,071.66 | 8.11 | 36.58 | 66.69 | -1,415.82 | -9,334.16 | 9,394.66 | 9,350.00 | 44.66 | 210.337 | |
| 2,200.00 | 2,196.29 | 2,168.21 | 2,168.14 | 8.44 | 38.51 | 66.72 | -1,416.23 | -9,334.16 | 9,392.00 | 9,345.06 | 46.94 | 200.101 | |
| 2,300.00 | 2,296.06 | 2,275.17 | 2,275.06 | 8.79 | 40.71 | 66.76 | -1,416.48 | -9,334.16 | 9,389.31 | 9,339.84 | 49.47 | 189.792 | |
| 2,400.00 | 2,395.82 | 2,374.94 | 2,374.82 | 9.13 | 42.79 | 66.80 | -1,416.48 | -9,334.16 | 9,386.60 | 9,334.70 | 51.89 | 180.887 | |
| 2,500.00 | 2,495.58 | 2,473.93 | 2,473.80 | 9.47 | 44.85 | 66.84 | -1,415.41 | -9,334.16 | 9,383.74 | 9,329.44 | 54.30 | 172.817 | |
| 2,600.00 | 2,595.35 | 2,569.37 | 2,569.23 | 9.82 | 46.84 | 66.88 | -1,415.62 | -9,334.16 | 9,381.06 | 9,324.43 | 56.63 | 165.646 | |
| 2,700.00 | 2,695.11 | 2,664.86 | 2,664.72 | 10.17 | 48.83 | 66.91 | -1,416.16 | -9,334.16 | 9,378.44 | 9,319.47 | 58.97 | 159.036 | |
| 2,800.00 | 2,794.87 | 2,774.07 | 2,773.87 | 10.52 | 51.12 | 66.95 | -1,416.48 | -9,334.16 | 9,375.78 | 9,314.17 | 61.61 | 152.187 | |
| 2,900.00 | 2,894.64 | 2,873.83 | 2,873.64 | 10.87 | 53.21 | 66.99 | -1,416.48 | -9,334.16 | 9,373.08 | 9,309.03 | 64.05 | 146.334 | |
| 3,000.00 | 2,994.40 | 2,973.59 | 2,973.40 | 11.23 | 55.31 | 67.03 | -1,416.48 | -9,334.16 | 9,370.39 | 9,303.89 | 66.50 | 140.908 | |
| 3,100.00 | 3,094.16 | 3,071.22 | 3,071.01 | 11.58 | 57.36 | 67.08 | -1,415.19 | -9,334.16 | 9,367.54 | 9,298.63 | 68.90 | 135.952 | |
| 3,200.00 | 3,193.93 | 3,167.59 | 3,167.38 | 11.94 | 59.38 | 67.11 | -1,415.49 | -9,334.16 | 9,364.90 | 9,293.61 | 71.28 | 131.379 | |
| 3,300.00 | 3,293.69 | 3,264.01 | 3,263.79 | 12.29 | 61.41 | 67.15 | -1,416.05 | -9,334.16 | 9,362.30 | 9,288.63 | 73.66 | 127.098 | |
| 3,400.00 | 3,393.45 | 3,337.00 | 3,336.71 | 12.65 | 62.94 | 67.17 | -1,416.48 | -9,334.16 | 9,359.74 | 9,284.19 | 75.55 | 123.884 | |
| 3,500.00 | 3,493.22 | 3,337.00 | 3,336.71 | 13.01 | 62.94 | 67.17 | -1,416.48 | -9,334.16 | 9,357.99 | 9,282.08 | 75.90 | 123.286 | |
| 3,600.00 | 3,592.98 | 3,337.00 | 3,336.71 | 13.37 | 62.94 | 67.17 | -1,416.48 | -9,334.16 | 9,357.30 | 9,281.05 | 76.25 | 122.720 | |
| 3,614.00 | 3,606.95 | 3,337.00 | 3,336.71 | 13.42 | 62.94 | 67.17 | -1,416.48 | -9,334.16 | 9,357.29 | 9,280.99 | 76.30 | 122.643 | |
| 3,700.00 | 3,692.74 | 3,337.00 | 3,336.71 | 13.73 | 62.94 | 67.17 | -1,416.48 | -9,334.16 | 9,357.68 | 9,281.10 | 76.59 | 122.184 | |
| 3,800.00 | 3,792.51 | 3,337.00 | 3,336.71 | 14.09 | 62.94 | 67.17 | -1,416.48 | -9,334.16 | 9,359.13 | 9,282.22 | 76.92 | 121.680 | |
| 3,900.00 | 3,892.27 | 3,337.00 | 3,336.71 | 14.45 | 62.94 | 67.17 | -1,416.48 | -9,334.16 | 9,361.65 | 9,284.41 | 77.24 | 121.205 | |
| 4,000.00 | 3,992.04 | 3,337.00 | 3,336.71 | 14.81 | 62.94 | 67.17 | -1,416.48 | -9,334.16 | 9,365.24 | 9,287.69 | 77.55 | 120.761 | |
| 4,100.00 | 4,091.80 | 3,337.00 | 3,336.71 | 15.17 | 62.94 | 67.17 | -1,416.48 | -9,334.16 | 9,369.89 | 9,292.03 | 77.86 | 120.347 | |
| 4,200.00 | 4,191.56 | 3,337.00 | 3,336.71 | 15.53 | 62.94 | 67.17 | -1,416.48 | -9,334.16 | 9,375.60 | 9,297.45 | 78.15 | 119.962 | |
| 4,300.00 | 4,291.33 | 3,337.00 | 3,336.71 | 15.89 | 62.94 | 67.17 | -1,416.48 | -9,334.16 | 9,382.38 | 9,303.94 | 78.44 | 119.606 | |
| 4,400.00 | 4,391.09 | 3,337.00 | 3,336.71 | 16.26 | 62.94 | 67.17 | -1,416.48 | -9,334.16 | 9,390.22 | 9,311.49 | 78.73 | 119.278 | |
| 4,500.00 | 4,490.85 | 3,337.00 | 3,336.71 | 16.62 | 62.94 | 67.17 | -1,416.48 | -9,334.16 | 9,399.12 | 9,320.12 | 79.00 | 118.979 | |
| 4,600.00 | 4,590.62 | 3,337.00 | 3,336.71 | 16.99 | 62.94 | 67.17 | -1,416.48 | -9,334.16 | 9,409.07 | 9,329.80 | 79.26 | 118.708 | |
| 4,700.00 | 4,690.38 | 3,337.00 | 3,336.71 | 17.35 | 62.94 | 67.17 | -1,416.48 | -9,334.16 | 9,420.07 | 9,340.55 | 79.52 | 118.465 | |

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 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

**Survey Program:** 230-A027Ua_INC-ONLY

**Offset Well Error:** 0.00 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4,800.00 | 4,790.14 | 3,337.00 | 3,336.71 | 17.71 | 62.94 | 67.17 | -1,416.48 | -9,334.16 | 9,432.12 | 9,352.35 | 79.77 | 118.248 | |
| 4,900.00 | 4,889.91 | 3,337.00 | 3,336.71 | 18.08 | 62.94 | 67.17 | -1,416.48 | -9,334.16 | 9,445.21 | 9,365.20 | 80.00 | 118.059 | |
| 5,000.00 | 4,989.67 | 3,337.00 | 3,336.71 | 18.44 | 62.94 | 67.17 | -1,416.48 | -9,334.16 | 9,459.34 | 9,379.10 | 80.23 | 117.896 | |
| 5,100.00 | 5,089.43 | 3,337.00 | 3,336.71 | 18.81 | 62.94 | 67.17 | -1,416.48 | -9,334.16 | 9,474.50 | 9,394.05 | 80.46 | 117.759 | |
| 5,200.00 | 5,189.20 | 3,337.00 | 3,336.71 | 19.17 | 62.94 | 67.17 | -1,416.48 | -9,334.16 | 9,490.70 | 9,410.03 | 80.67 | 117.648 | |
| 5,300.00 | 5,288.96 | 3,337.00 | 3,336.71 | 19.54 | 62.94 | 67.17 | -1,416.48 | -9,334.16 | 9,507.92 | 9,427.04 | 80.88 | 117.562 | |
| 5,400.00 | 5,388.72 | 3,337.00 | 3,336.71 | 19.91 | 62.94 | 67.17 | -1,416.48 | -9,334.16 | 9,526.16 | 9,445.08 | 81.07 | 117.501 | |
| 5,500.00 | 5,488.49 | 3,337.00 | 3,336.71 | 20.27 | 62.94 | 67.17 | -1,416.48 | -9,334.16 | 9,545.41 | 9,464.14 | 81.26 | 117.465 | |
| 5,600.00 | 5,588.25 | 3,337.00 | 3,336.71 | 20.64 | 62.94 | 67.17 | -1,416.48 | -9,334.16 | 9,565.66 | 9,484.22 | 81.44 | 117.453 | |
| 5,700.00 | 5,688.01 | 3,337.00 | 3,336.71 | 21.00 | 62.94 | 67.17 | -1,416.48 | -9,334.16 | 9,586.92 | 9,505.31 | 81.62 | 117.465 | |
| 5,800.00 | 5,787.78 | 3,337.00 | 3,336.71 | 21.37 | 62.94 | 67.17 | -1,416.48 | -9,334.16 | 9,609.17 | 9,527.39 | 81.78 | 117.501 | |
| 5,900.00 | 5,887.54 | 3,337.00 | 3,336.71 | 21.74 | 62.94 | 67.17 | -1,416.48 | -9,334.16 | 9,632.41 | 9,550.48 | 81.94 | 117.559 | |
| 6,000.00 | 5,987.31 | 3,337.00 | 3,336.71 | 22.11 | 62.94 | 67.17 | -1,416.48 | -9,334.16 | 9,656.63 | 9,574.54 | 82.09 | 117.641 | |
| 6,100.00 | 6,087.07 | 3,337.00 | 3,336.71 | 22.47 | 62.94 | 67.17 | -1,416.48 | -9,334.16 | 9,681.82 | 9,599.59 | 82.23 | 117.745 | |
| 6,200.00 | 6,186.83 | 3,337.00 | 3,336.71 | 22.84 | 62.94 | 67.17 | -1,416.48 | -9,334.16 | 9,707.97 | 9,625.61 | 82.36 | 117.871 | |
| 6,300.00 | 6,286.60 | 3,337.00 | 3,336.71 | 23.21 | 62.94 | 67.17 | -1,416.48 | -9,334.16 | 9,735.09 | 9,652.60 | 82.49 | 118.019 | |
| 6,400.00 | 6,386.36 | 3,337.00 | 3,336.71 | 23.58 | 62.94 | 67.17 | -1,416.48 | -9,334.16 | 9,763.15 | 9,680.54 | 82.61 | 118.189 | |
| 6,494.00 | 6,480.13 | 3,337.00 | 3,336.71 | 23.92 | 62.94 | 67.17 | -1,416.48 | -9,334.16 | 9,790.38 | 9,707.67 | 82.71 | 118.367 | |
| 6,500.00 | 6,486.12 | 3,337.00 | 3,336.71 | 23.94 | 62.94 | 59.92 | -1,416.48 | -9,334.16 | 9,792.12 | 9,709.41 | 82.72 | 118.379 | |
| 6,550.00 | 6,535.89 | 3,337.00 | 3,336.71 | 24.13 | 62.94 | 24.58 | -1,416.48 | -9,334.16 | 9,804.65 | 9,721.89 | 82.77 | 118.460 | |
| 6,600.00 | 6,585.24 | 3,337.00 | 3,336.71 | 24.31 | 62.94 | 12.43 | -1,416.48 | -9,334.16 | 9,813.63 | 9,730.81 | 82.81 | 118.506 | |
| 6,650.00 | 6,633.88 | 3,337.00 | 3,336.71 | 24.50 | 62.94 | 6.91 | -1,416.48 | -9,334.16 | 9,819.00 | 9,736.15 | 82.85 | 118.515 | |
| 6,700.00 | 6,681.49 | 3,337.00 | 3,336.71 | 24.68 | 62.94 | 3.80 | -1,416.48 | -9,334.16 | 9,820.74 | 9,737.85 | 82.88 | 118.487 | |
| 6,750.00 | 6,727.80 | 3,337.00 | 3,336.71 | 24.86 | 62.94 | 1.81 | -1,416.48 | -9,334.16 | 9,818.84 | 9,735.93 | 82.91 | 118.422 | |
| 6,800.00 | 6,772.51 | 3,337.00 | 3,336.71 | 25.04 | 62.94 | 0.40 | -1,416.48 | -9,334.16 | 9,813.32 | 9,730.38 | 82.94 | 118.322 | |
| 6,850.00 | 6,815.34 | 3,337.00 | 3,336.71 | 25.21 | 62.94 | -0.68 | -1,416.48 | -9,334.16 | 9,804.19 | 9,721.24 | 82.95 | 118.188 | |
| 6,900.00 | 6,856.04 | 3,337.00 | 3,336.71 | 25.39 | 62.94 | -1.56 | -1,416.48 | -9,334.16 | 9,791.51 | 9,708.55 | 82.96 | 118.020 | |
| 6,950.00 | 6,894.35 | 3,337.00 | 3,336.71 | 25.57 | 62.94 | -2.33 | -1,416.48 | -9,334.16 | 9,775.35 | 9,692.38 | 82.97 | 117.819 | |
| 7,000.00 | 6,930.04 | 3,337.00 | 3,336.71 | 25.75 | 62.94 | -3.04 | -1,416.48 | -9,334.16 | 9,755.77 | 9,672.81 | 82.97 | 117.587 | |
| 7,050.00 | 6,962.89 | 3,337.00 | 3,336.71 | 25.93 | 62.94 | -3.72 | -1,416.48 | -9,334.16 | 9,732.89 | 9,649.93 | 82.96 | 117.324 | |
| 7,100.00 | 6,992.69 | 3,337.00 | 3,336.71 | 26.13 | 62.94 | -4.42 | -1,416.48 | -9,334.16 | 9,706.82 | 9,623.88 | 82.94 | 117.032 | |
| 7,150.00 | 7,019.25 | 3,337.00 | 3,336.71 | 26.33 | 62.94 | -5.16 | -1,416.48 | -9,334.16 | 9,677.70 | 9,594.78 | 82.92 | 116.712 | |
| 7,200.00 | 7,042.43 | 3,337.00 | 3,336.71 | 26.55 | 62.94 | -5.98 | -1,416.48 | -9,334.16 | 9,645.68 | 9,562.78 | 82.89 | 116.364 | |
| 7,250.00 | 7,062.07 | 3,337.00 | 3,336.71 | 26.79 | 62.94 | -6.92 | -1,416.48 | -9,334.16 | 9,610.92 | 9,528.07 | 82.86 | 115.991 | |
| 7,300.00 | 7,078.05 | 3,337.00 | 3,336.71 | 27.04 | 62.94 | -8.04 | -1,416.48 | -9,334.16 | 9,573.63 | 9,490.81 | 82.82 | 115.593 | |
| 7,350.00 | 7,090.27 | 3,337.00 | 3,336.71 | 27.30 | 62.94 | -9.40 | -1,416.48 | -9,334.16 | 9,533.99 | 9,451.21 | 82.78 | 115.172 | |
| 7,400.00 | 7,098.66 | 3,337.00 | 3,336.71 | 27.58 | 62.94 | -11.12 | -1,416.48 | -9,334.16 | 9,492.22 | 9,409.49 | 82.74 | 114.728 | |
| 7,450.00 | 7,103.17 | 3,337.00 | 3,336.71 | 27.87 | 62.94 | -13.38 | -1,416.48 | -9,334.16 | 9,448.56 | 9,365.87 | 82.69 | 114.264 | |
| 7,484.86 | 7,104.00 | 3,337.00 | 3,336.71 | 28.08 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 9,417.13 | 9,334.47 | 82.66 | 113.927 | |
| 7,500.00 | 7,103.95 | 3,337.00 | 3,336.71 | 28.17 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 9,403.32 | 9,320.67 | 82.65 | 113.779 | |
| 7,600.00 | 7,103.60 | 3,337.00 | 3,336.71 | 28.83 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 9,312.20 | 9,229.66 | 82.54 | 112.816 | |
| 7,700.00 | 7,103.25 | 3,337.00 | 3,336.71 | 29.56 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 9,221.26 | 9,138.82 | 82.44 | 111.849 | |
| 7,800.00 | 7,102.90 | 3,337.00 | 3,336.71 | 30.35 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 9,130.52 | 9,048.17 | 82.35 | 110.878 | |
| 7,900.00 | 7,102.55 | 3,337.00 | 3,336.71 | 31.21 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 9,039.97 | 8,957.71 | 82.26 | 109.901 | |
| 8,000.00 | 7,102.20 | 3,337.00 | 3,336.71 | 32.13 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 8,949.62 | 8,867.45 | 82.17 | 108.919 | |
| 8,100.00 | 7,101.85 | 3,337.00 | 3,336.71 | 33.10 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 8,859.48 | 8,777.40 | 82.08 | 107.932 | |
| 8,200.00 | 7,101.50 | 3,337.00 | 3,336.71 | 34.11 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 8,769.55 | 8,687.55 | 82.00 | 106.940 | |
| 8,300.00 | 7,101.15 | 3,337.00 | 3,336.71 | 35.17 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 8,679.85 | 8,597.92 | 81.93 | 105.942 | |
| 8,400.00 | 7,100.80 | 3,337.00 | 3,336.71 | 36.27 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 8,590.37 | 8,508.51 | 81.86 | 104.939 | |
| 8,500.00 | 7,100.45 | 3,337.00 | 3,336.71 | 37.41 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 8,501.12 | 8,419.32 | 81.80 | 103.930 | |
| 8,600.00 | 7,100.10 | 3,337.00 | 3,336.71 | 38.58 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 8,412.12 | 8,330.38 | 81.74 | 102.915 | |
| 8,700.00 | 7,099.75 | 3,337.00 | 3,336.71 | 39.78 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 8,323.36 | 8,241.68 | 81.69 | 101.895 | |

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

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

**Survey Program:** 230-A027Ua_INC-ONLY

**Rule Assigned:**

**Offset Well Error:** 0.00 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8,800.00 | 7,099.40 | 3,337.00 | 3,336.71 | 41.00 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 8,234.87 | 8,153.23 | 81.64 | 100.870 | |
| 8,900.00 | 7,099.05 | 3,337.00 | 3,336.71 | 42.25 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 8,146.64 | 8,065.04 | 81.60 | 99.838 | |
| 9,000.00 | 7,098.70 | 3,337.00 | 3,336.71 | 43.53 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 8,058.68 | 7,977.12 | 81.56 | 98.801 | |
| 9,100.00 | 7,098.35 | 3,337.00 | 3,336.71 | 44.82 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 7,971.01 | 7,889.47 | 81.54 | 97.758 | |
| 9,200.00 | 7,098.00 | 3,337.00 | 3,336.71 | 46.14 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 7,883.64 | 7,802.12 | 81.52 | 96.709 | |
| 9,300.00 | 7,097.65 | 3,337.00 | 3,336.71 | 47.47 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 7,796.56 | 7,715.06 | 81.51 | 95.655 | |
| 9,400.00 | 7,097.30 | 3,337.00 | 3,336.71 | 48.82 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 7,709.80 | 7,628.30 | 81.50 | 94.595 | |
| 9,500.00 | 7,096.95 | 3,337.00 | 3,336.71 | 50.18 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 7,623.37 | 7,541.86 | 81.51 | 93.530 | |
| 9,600.00 | 7,096.60 | 3,337.00 | 3,336.71 | 51.56 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 7,537.27 | 7,455.75 | 81.52 | 92.460 | |
| 9,700.00 | 7,096.25 | 3,337.00 | 3,336.71 | 52.95 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 7,451.51 | 7,369.97 | 81.54 | 91.384 | |
| 9,800.00 | 7,095.90 | 3,337.00 | 3,336.71 | 54.35 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 7,366.12 | 7,284.55 | 81.57 | 90.304 | |
| 9,900.00 | 7,095.55 | 3,337.00 | 3,336.71 | 55.76 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 7,281.10 | 7,199.49 | 81.61 | 89.219 | |
| 10,000.00 | 7,095.20 | 3,337.00 | 3,336.71 | 57.18 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 7,196.46 | 7,114.80 | 81.66 | 88.129 | |
| 10,100.00 | 7,094.85 | 3,337.00 | 3,336.71 | 58.61 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 7,112.22 | 7,030.51 | 81.72 | 87.036 | |
| 10,200.00 | 7,094.50 | 3,337.00 | 3,336.71 | 60.05 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 7,028.40 | 6,946.61 | 81.78 | 85.938 | |
| 10,300.00 | 7,094.15 | 3,337.00 | 3,336.71 | 61.50 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 6,945.00 | 6,863.14 | 81.86 | 84.837 | |
| 10,400.00 | 7,093.80 | 3,337.00 | 3,336.71 | 62.96 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 6,862.05 | 6,780.10 | 81.95 | 83.734 | |
| 10,500.00 | 7,093.45 | 3,337.00 | 3,336.71 | 64.42 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 6,779.56 | 6,697.51 | 82.05 | 82.627 | |
| 10,600.00 | 7,093.10 | 3,337.00 | 3,336.71 | 65.89 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 6,697.54 | 6,615.38 | 82.16 | 81.519 | |
| 10,700.00 | 7,092.75 | 3,337.00 | 3,336.71 | 67.36 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 6,616.02 | 6,533.74 | 82.28 | 80.409 | |
| 10,800.00 | 7,092.40 | 3,337.00 | 3,336.71 | 68.84 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 6,535.01 | 6,452.60 | 82.41 | 79.298 | |
| 10,900.00 | 7,092.05 | 3,337.00 | 3,336.71 | 70.33 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 6,454.54 | 6,371.98 | 82.55 | 78.186 | |
| 11,000.00 | 7,091.70 | 3,337.00 | 3,336.71 | 71.82 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 6,374.61 | 6,291.91 | 82.71 | 77.075 | |
| 11,100.00 | 7,091.35 | 3,337.00 | 3,336.71 | 73.31 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 6,295.27 | 6,212.40 | 82.87 | 75.965 | |
| 11,200.00 | 7,091.00 | 3,337.00 | 3,336.71 | 74.81 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 6,216.51 | 6,133.47 | 83.05 | 74.856 | |
| 11,300.00 | 7,090.65 | 3,337.00 | 3,336.71 | 76.32 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 6,138.38 | 6,055.15 | 83.23 | 73.749 | |
| 11,400.00 | 7,090.30 | 3,337.00 | 3,336.71 | 77.82 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 6,060.89 | 5,977.46 | 83.43 | 72.646 | |
| 11,500.00 | 7,089.95 | 3,337.00 | 3,336.71 | 79.34 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 5,984.07 | 5,900.43 | 83.64 | 71.546 | |
| 11,600.00 | 7,089.60 | 3,337.00 | 3,336.71 | 80.85 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 5,907.94 | 5,824.08 | 83.86 | 70.451 | |
| 11,700.00 | 7,089.25 | 3,337.00 | 3,336.71 | 82.37 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 5,832.53 | 5,748.44 | 84.09 | 69.361 | |
| 11,800.00 | 7,088.90 | 3,337.00 | 3,336.71 | 83.89 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 5,757.87 | 5,673.54 | 84.33 | 68.278 | |
| 11,900.00 | 7,088.55 | 3,337.00 | 3,336.71 | 85.41 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 5,683.99 | 5,599.41 | 84.58 | 67.202 | |
| 12,000.00 | 7,088.20 | 3,337.00 | 3,336.71 | 86.94 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 5,610.92 | 5,526.07 | 84.84 | 66.134 | |
| 12,100.00 | 7,087.85 | 3,337.00 | 3,336.71 | 88.47 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 5,538.69 | 5,453.57 | 85.11 | 65.075 | |
| 12,200.00 | 7,087.50 | 3,337.00 | 3,336.71 | 90.00 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 5,467.33 | 5,381.94 | 85.39 | 64.026 | |
| 12,300.00 | 7,087.15 | 3,337.00 | 3,336.71 | 91.54 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 5,396.89 | 5,311.20 | 85.68 | 62.987 | |
| 12,400.00 | 7,086.81 | 3,337.00 | 3,336.71 | 93.07 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 5,327.39 | 5,241.41 | 85.98 | 61.961 | |
| 12,500.00 | 7,086.46 | 3,337.00 | 3,336.71 | 94.61 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 5,258.87 | 5,172.58 | 86.28 | 60.948 | |
| 12,600.00 | 7,086.11 | 3,337.00 | 3,336.71 | 96.15 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 5,191.37 | 5,104.78 | 86.60 | 59.948 | |
| 12,700.00 | 7,085.76 | 3,337.00 | 3,336.71 | 97.69 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 5,124.94 | 5,038.03 | 86.92 | 58.963 | |
| 12,800.00 | 7,085.41 | 3,337.00 | 3,336.71 | 99.24 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 5,059.61 | 4,972.37 | 87.24 | 57.994 | |
| 12,900.00 | 7,085.06 | 3,337.00 | 3,336.71 | 100.78 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 4,995.43 | 4,907.86 | 87.57 | 57.042 | |
| 13,000.00 | 7,084.71 | 3,337.00 | 3,336.71 | 102.33 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 4,932.45 | 4,844.54 | 87.91 | 56.108 | |
| 13,100.00 | 7,084.36 | 3,337.00 | 3,336.71 | 103.88 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 4,870.70 | 4,782.45 | 88.25 | 55.192 | |
| 13,200.00 | 7,084.01 | 3,337.00 | 3,336.71 | 105.43 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 4,810.24 | 4,721.64 | 88.59 | 54.295 | |
| 13,300.00 | 7,083.66 | 3,337.00 | 3,336.71 | 106.99 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 4,751.11 | 4,662.17 | 88.94 | 53.420 | |
| 13,400.00 | 7,083.31 | 3,337.00 | 3,336.71 | 108.54 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 4,693.37 | 4,604.08 | 89.29 | 52.566 | |
| 13,500.00 | 7,082.96 | 3,337.00 | 3,336.71 | 110.09 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 4,637.06 | 4,547.43 | 89.63 | 51.734 | |
| 13,600.00 | 7,082.61 | 3,337.00 | 3,336.71 | 111.65 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 4,582.25 | 4,492.27 | 89.98 | 50.925 | |
| 13,700.00 | 7,082.26 | 3,337.00 | 3,336.71 | 113.21 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 4,528.98 | 4,438.66 | 90.33 | 50.140 | |
| 13,800.00 | 7,081.91 | 3,337.00 | 3,336.71 | 114.77 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 4,477.32 | 4,386.65 | 90.67 | 49.380 | |
| 13,900.00 | 7,081.56 | 3,337.00 | 3,336.71 | 116.33 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 4,427.31 | 4,336.29 | 91.01 | 48.645 | |

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

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

**Survey Program:** 230-A027Ua_INC-ONLY

**Rule Assigned:**

**Offset Well Error:** 0.00 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 14,000.00 | 7,081.21 | 3,337.00 | 3,336.71 | 117.89 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 4,379.01 | 4,287.66 | 91.35 | 47.936 | |
| 14,100.00 | 7,080.86 | 3,337.00 | 3,336.71 | 119.45 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 4,332.48 | 4,240.79 | 91.69 | 47.254 | |
| 14,200.00 | 7,080.51 | 3,337.00 | 3,336.71 | 121.02 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 4,287.78 | 4,195.76 | 92.02 | 46.598 | |
| 14,300.00 | 7,080.16 | 3,337.00 | 3,336.71 | 122.58 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 4,244.96 | 4,152.62 | 92.34 | 45.969 | |
| 14,400.00 | 7,079.81 | 3,337.00 | 3,336.71 | 124.15 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 4,204.09 | 4,111.42 | 92.67 | 45.367 | |
| 14,500.00 | 7,079.46 | 3,337.00 | 3,336.71 | 125.71 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 4,165.22 | 4,072.23 | 92.99 | 44.793 | |
| 14,600.00 | 7,079.11 | 3,337.00 | 3,336.71 | 127.28 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 4,128.40 | 4,035.09 | 93.31 | 44.245 | |
| 14,700.00 | 7,078.76 | 3,337.00 | 3,336.71 | 128.85 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 4,093.70 | 4,000.07 | 93.63 | 43.723 | |
| 14,800.00 | 7,078.41 | 3,337.00 | 3,336.71 | 130.42 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 4,061.16 | 3,967.21 | 93.95 | 43.227 | |
| 14,900.00 | 7,078.06 | 3,337.00 | 3,336.71 | 131.98 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 4,030.84 | 3,936.57 | 94.28 | 42.755 | |
| 15,000.00 | 7,077.71 | 3,337.00 | 3,336.71 | 133.55 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 4,002.79 | 3,908.18 | 94.61 | 42.307 | |
| 15,100.00 | 7,077.36 | 3,337.00 | 3,336.71 | 135.13 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 3,977.06 | 3,882.10 | 94.97 | 41.879 | |
| 15,200.00 | 7,077.01 | 3,337.00 | 3,336.71 | 136.70 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 3,953.69 | 3,858.36 | 95.34 | 41.471 | |
| 15,300.00 | 7,076.66 | 3,337.00 | 3,336.71 | 138.27 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 3,932.73 | 3,837.00 | 95.73 | 41.080 | |
| 15,400.00 | 7,076.31 | 3,337.00 | 3,336.71 | 139.84 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 3,914.21 | 3,818.04 | 96.16 | 40.703 | |
| 15,500.00 | 7,075.96 | 3,337.00 | 3,336.71 | 141.42 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 3,898.17 | 3,801.53 | 96.64 | 40.338 | |
| 15,600.00 | 7,075.61 | 3,337.00 | 3,336.71 | 142.99 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 3,884.63 | 3,787.47 | 97.16 | 39.982 | |
| 15,700.00 | 7,075.26 | 3,337.00 | 3,336.71 | 144.57 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 3,873.63 | 3,775.89 | 97.74 | 39.632 | |
| 15,800.00 | 7,074.91 | 3,337.00 | 3,336.71 | 146.14 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 3,865.19 | 3,766.80 | 98.39 | 39.285 | |
| 15,900.00 | 7,074.56 | 3,337.00 | 3,336.71 | 147.72 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 3,859.32 | 3,760.21 | 99.11 | 38.941 | |
| 16,000.00 | 7,074.21 | 3,337.00 | 3,336.71 | 149.29 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 3,856.04 | 3,756.14 | 99.90 | 38.599 | |
| 16,076.67 | 7,073.94 | 3,337.00 | 3,336.71 | 150.50 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 3,855.28 | 3,754.71 | 100.56 | 38.337 | CC |
| 16,100.00 | 7,073.86 | 3,337.00 | 3,336.71 | 150.87 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 3,855.35 | 3,754.57 | 100.77 | 38.258 | ES |
| 16,200.00 | 7,073.51 | 3,337.00 | 3,336.71 | 152.45 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 3,857.25 | 3,755.53 | 101.72 | 37.921 | |
| 16,300.00 | 7,073.16 | 3,337.00 | 3,336.71 | 154.03 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 3,861.74 | 3,759.00 | 102.74 | 37.588 | |
| 16,400.00 | 7,072.81 | 3,337.00 | 3,336.71 | 155.60 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 3,868.81 | 3,764.99 | 103.82 | 37.265 | |
| 16,500.00 | 7,072.46 | 3,337.00 | 3,336.71 | 157.18 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 3,878.45 | 3,773.49 | 104.96 | 36.953 | |
| 16,600.00 | 7,072.11 | 3,337.00 | 3,336.71 | 158.76 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 3,890.63 | 3,784.49 | 106.14 | 36.656 | |
| 16,631.96 | 7,072.00 | 3,337.00 | 3,336.71 | 159.27 | 62.94 | -15.43 | -1,416.48 | -9,334.16 | 3,895.06 | 3,788.54 | 106.52 | 36.565 | 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 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Survey Program:** 322-A027Ua_INC-ONLY — **Offset Well Error:** 0.00 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 3.28 | 0.00 | -105.71 | -1,797.87 | -6,389.98 | 6,638.87 | | | | |
| 100.00 | 100.00 | 0.00 | 0.00 | 3.29 | 0.00 | -105.71 | -1,797.87 | -6,389.98 | 6,638.09 | 6,634.80 | 3.29 | 2,017.788 | |
| 134.01 | 134.01 | 32.01 | 32.01 | 3.30 | 0.34 | -105.71 | -1,797.87 | -6,389.98 | 6,638.09 | 6,634.45 | 3.64 | 1,822.658 | |
| 200.00 | 200.00 | 98.00 | 98.00 | 3.34 | 1.04 | -105.71 | -1,797.87 | -6,389.98 | 6,638.09 | 6,633.71 | 4.38 | 1,515.839 | |
| 300.00 | 300.00 | 198.00 | 198.00 | 3.42 | 2.11 | -105.71 | -1,797.87 | -6,389.98 | 6,638.09 | 6,632.56 | 5.53 | 1,201.042 | |
| 400.00 | 400.00 | 298.00 | 298.00 | 3.54 | 3.17 | -105.71 | -1,797.87 | -6,389.98 | 6,638.09 | 6,631.38 | 6.71 | 989.394 | |
| 500.00 | 500.00 | 398.02 | 398.00 | 3.69 | 4.98 | -105.71 | -1,797.87 | -6,389.98 | 6,638.09 | 6,629.42 | 8.67 | 765.835 | |
| 600.00 | 599.98 | 498.00 | 497.98 | 3.86 | 7.02 | 44.31 | -1,797.87 | -6,389.98 | 6,636.84 | 6,625.96 | 10.88 | 610.008 | |
| 697.00 | 696.84 | 591.87 | 591.84 | 4.04 | 8.94 | 44.40 | -1,796.92 | -6,389.98 | 6,632.99 | 6,620.01 | 12.98 | 511.047 | |
| 700.00 | 699.84 | 594.67 | 594.64 | 4.05 | 9.00 | 44.40 | -1,796.92 | -6,389.98 | 6,632.84 | 6,619.80 | 13.04 | 508.532 | |
| 800.00 | 799.60 | 688.04 | 688.01 | 4.25 | 10.91 | 44.44 | -1,797.25 | -6,389.98 | 6,628.02 | 6,612.86 | 15.16 | 437.206 | |
| 897.00 | 896.37 | 794.44 | 794.37 | 4.48 | 13.08 | 44.48 | -1,797.87 | -6,389.98 | 6,623.42 | 6,605.86 | 17.56 | 377.257 | |
| 900.00 | 899.37 | 797.43 | 797.37 | 4.48 | 13.14 | 45.35 | -1,797.87 | -6,389.98 | 6,623.27 | 6,605.65 | 17.63 | 375.787 | |
| 947.40 | 946.65 | 844.72 | 844.65 | 4.60 | 14.11 | 59.20 | -1,797.87 | -6,389.98 | 6,621.29 | 6,602.59 | 18.71 | 353.962 | |
| 1,000.00 | 999.13 | 897.20 | 897.13 | 4.73 | 15.18 | 59.23 | -1,797.87 | -6,389.98 | 6,619.44 | 6,599.53 | 19.91 | 332.460 | |
| 1,100.00 | 1,098.89 | 996.96 | 996.89 | 4.99 | 17.22 | 59.28 | -1,797.87 | -6,389.98 | 6,615.92 | 6,593.71 | 22.21 | 297.859 | |
| 1,200.00 | 1,198.66 | 1,095.12 | 1,095.05 | 5.27 | 19.23 | 59.33 | -1,796.97 | -6,389.98 | 6,612.16 | 6,587.67 | 24.49 | 269.963 | |
| 1,300.00 | 1,298.42 | 1,190.99 | 1,190.91 | 5.56 | 21.19 | 59.38 | -1,797.16 | -6,389.98 | 6,608.71 | 6,581.97 | 26.74 | 247.163 | |
| 1,400.00 | 1,398.18 | 1,286.88 | 1,286.80 | 5.85 | 23.15 | 59.43 | -1,797.57 | -6,389.98 | 6,605.32 | 6,576.32 | 28.99 | 227.819 | |
| 1,500.00 | 1,497.95 | 1,396.08 | 1,395.95 | 6.16 | 25.43 | 59.48 | -1,797.87 | -6,389.98 | 6,601.89 | 6,570.31 | 31.58 | 209.071 | |
| 1,600.00 | 1,597.71 | 1,495.85 | 1,495.71 | 6.47 | 27.56 | 59.53 | -1,797.87 | -6,389.98 | 6,598.40 | 6,564.39 | 34.01 | 194.025 | |
| 1,700.00 | 1,697.47 | 1,593.02 | 1,592.88 | 6.79 | 29.62 | 59.59 | -1,796.94 | -6,389.98 | 6,594.67 | 6,558.28 | 36.39 | 181.223 | |
| 1,800.00 | 1,797.24 | 1,686.40 | 1,686.25 | 7.11 | 31.61 | 59.64 | -1,797.26 | -6,389.98 | 6,591.27 | 6,552.58 | 38.70 | 170.335 | |
| 1,900.00 | 1,897.00 | 1,795.20 | 1,795.00 | 7.44 | 33.92 | 59.69 | -1,797.87 | -6,389.98 | 6,587.95 | 6,546.61 | 41.33 | 159.381 | |
| 2,000.00 | 1,996.76 | 1,894.97 | 1,894.76 | 7.77 | 36.04 | 59.74 | -1,797.87 | -6,389.98 | 6,584.48 | 6,540.69 | 43.79 | 150.379 | |
| 2,100.00 | 2,096.53 | 1,994.73 | 1,994.53 | 8.11 | 38.16 | 59.79 | -1,797.87 | -6,389.98 | 6,581.01 | 6,534.77 | 46.24 | 142.321 | |
| 2,200.00 | 2,196.29 | 2,090.53 | 2,090.31 | 8.44 | 40.20 | 59.85 | -1,796.86 | -6,389.98 | 6,577.29 | 6,528.67 | 48.61 | 135.295 | |
| 2,300.00 | 2,296.06 | 2,184.77 | 2,184.55 | 8.79 | 42.21 | 59.89 | -1,797.23 | -6,389.98 | 6,573.93 | 6,522.98 | 50.96 | 129.009 | |
| 2,400.00 | 2,395.82 | 2,294.10 | 2,293.82 | 9.13 | 44.53 | 59.95 | -1,797.87 | -6,389.98 | 6,570.64 | 6,517.01 | 53.62 | 122.532 | |
| 2,500.00 | 2,495.58 | 2,393.86 | 2,393.58 | 9.47 | 46.66 | 60.00 | -1,797.87 | -6,389.98 | 6,567.19 | 6,511.10 | 56.09 | 117.085 | |
| 2,600.00 | 2,595.35 | 2,493.62 | 2,493.35 | 9.82 | 48.78 | 60.05 | -1,797.87 | -6,389.98 | 6,563.75 | 6,505.20 | 58.56 | 112.092 | |
| 2,700.00 | 2,695.11 | 2,589.43 | 2,589.14 | 10.17 | 50.82 | 60.11 | -1,796.86 | -6,389.98 | 6,560.06 | 6,499.12 | 60.94 | 107.644 | |
| 2,800.00 | 2,794.87 | 2,683.75 | 2,683.46 | 10.52 | 52.82 | 60.15 | -1,797.25 | -6,389.98 | 6,556.74 | 6,493.44 | 63.30 | 103.587 | |
| 2,900.00 | 2,894.64 | 2,792.99 | 2,792.64 | 10.87 | 55.13 | 60.21 | -1,797.87 | -6,389.98 | 6,553.46 | 6,487.51 | 65.95 | 99.368 | |
| 3,000.00 | 2,994.40 | 2,892.75 | 2,892.40 | 11.23 | 57.17 | 60.26 | -1,797.87 | -6,389.98 | 6,550.04 | 6,481.70 | 68.34 | 95.843 | |
| 3,100.00 | 3,094.16 | 2,988.46 | 2,988.09 | 11.58 | 59.12 | 60.31 | -1,797.19 | -6,389.98 | 6,546.46 | 6,475.81 | 70.65 | 92.662 | |
| 3,200.00 | 3,193.93 | 3,080.56 | 3,080.19 | 11.94 | 61.01 | 60.36 | -1,797.63 | -6,389.98 | 6,543.18 | 6,470.29 | 72.88 | 89.774 | |
| 3,300.00 | 3,293.69 | 3,192.08 | 3,191.69 | 12.29 | 63.22 | 60.41 | -1,797.87 | -6,389.98 | 6,539.82 | 6,464.37 | 75.45 | 86.678 | |
| 3,400.00 | 3,393.45 | 3,291.85 | 3,291.45 | 12.65 | 65.17 | 60.47 | -1,797.87 | -6,389.98 | 6,536.42 | 6,458.66 | 77.76 | 84.058 | |
| 3,500.00 | 3,493.22 | 3,384.00 | 3,383.58 | 13.01 | 66.98 | 60.51 | -1,797.87 | -6,389.98 | 6,533.04 | 6,453.11 | 79.92 | 81.740 | |
| 3,600.00 | 3,592.98 | 3,384.00 | 3,383.58 | 13.37 | 66.98 | 60.51 | -1,797.87 | -6,389.98 | 6,530.53 | 6,450.25 | 80.28 | 81.351 | |
| 3,700.00 | 3,692.74 | 3,384.00 | 3,383.58 | 13.73 | 66.98 | 60.51 | -1,797.87 | -6,389.98 | 6,529.55 | 6,448.94 | 80.61 | 81.002 | |
| 3,713.95 | 3,706.66 | 3,384.00 | 3,383.58 | 13.78 | 66.98 | 60.51 | -1,797.87 | -6,389.98 | 6,529.54 | 6,448.88 | 80.65 | 80.957 | |
| 3,800.00 | 3,792.51 | 3,384.00 | 3,383.58 | 14.09 | 66.98 | 60.51 | -1,797.87 | -6,389.98 | 6,530.11 | 6,449.18 | 80.93 | 80.692 | |
| 3,900.00 | 3,892.27 | 3,384.00 | 3,383.58 | 14.45 | 66.98 | 60.51 | -1,797.87 | -6,389.98 | 6,532.19 | 6,450.97 | 81.23 | 80.421 | |
| 4,000.00 | 3,992.04 | 3,384.00 | 3,383.58 | 14.81 | 66.98 | 60.51 | -1,797.87 | -6,389.98 | 6,535.81 | 6,454.30 | 81.51 | 80.187 | |
| 4,100.00 | 4,091.80 | 3,384.00 | 3,383.58 | 15.17 | 66.98 | 60.51 | -1,797.87 | -6,389.98 | 6,540.95 | 6,459.18 | 81.77 | 79.992 | |
| 4,200.00 | 4,191.56 | 3,384.00 | 3,383.58 | 15.53 | 66.98 | 60.51 | -1,797.87 | -6,389.98 | 6,547.62 | 6,465.60 | 82.02 | 79.834 | |
| 4,300.00 | 4,291.33 | 3,384.00 | 3,383.58 | 15.89 | 66.98 | 60.51 | -1,797.87 | -6,389.98 | 6,555.80 | 6,473.56 | 82.24 | 79.712 | |
| 4,400.00 | 4,391.09 | 3,384.00 | 3,383.58 | 16.26 | 66.98 | 60.51 | -1,797.87 | -6,389.98 | 6,565.50 | 6,483.05 | 82.45 | 79.627 | |
| 4,500.00 | 4,490.85 | 3,384.00 | 3,383.58 | 16.62 | 66.98 | 60.51 | -1,797.87 | -6,389.98 | 6,576.70 | 6,494.06 | 82.64 | 79.578 | |
| 4,600.00 | 4,590.62 | 3,384.00 | 3,383.58 | 16.99 | 66.98 | 60.51 | -1,797.87 | -6,389.98 | 6,589.41 | 6,506.59 | 82.82 | 79.565 | |

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

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Survey Program:** 322-A027Ua_INC-ONLY — **Rule Assigned:** — **Offset Well Error:** 0.00 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4,700.00 | 4,690.38 | 3,384.00 | 3,383.58 | 17.35 | 66.98 | 60.51 | -1,797.87 | -6,389.98 | 6,603.60 | 6,520.62 | 82.97 | 79.586 | |
| 4,800.00 | 4,790.14 | 3,384.00 | 3,383.58 | 17.71 | 66.98 | 60.51 | -1,797.87 | -6,389.98 | 6,619.27 | 6,536.16 | 83.11 | 79.642 | |
| 4,900.00 | 4,889.91 | 3,384.00 | 3,383.58 | 18.08 | 66.98 | 60.51 | -1,797.87 | -6,389.98 | 6,636.42 | 6,553.18 | 83.23 | 79.732 | |
| 5,000.00 | 4,989.67 | 3,384.00 | 3,383.58 | 18.44 | 66.98 | 60.51 | -1,797.87 | -6,389.98 | 6,655.02 | 6,571.68 | 83.34 | 79.856 | |
| 5,100.00 | 5,089.43 | 3,384.00 | 3,383.58 | 18.81 | 66.98 | 60.51 | -1,797.87 | -6,389.98 | 6,675.07 | 6,591.64 | 83.43 | 80.013 | |
| 5,200.00 | 5,189.20 | 3,384.00 | 3,383.58 | 19.17 | 66.98 | 60.51 | -1,797.87 | -6,389.98 | 6,696.55 | 6,613.05 | 83.50 | 80.202 | |
| 5,300.00 | 5,288.96 | 3,384.00 | 3,383.58 | 19.54 | 66.98 | 60.51 | -1,797.87 | -6,389.98 | 6,719.45 | 6,635.90 | 83.55 | 80.424 | |
| 5,400.00 | 5,388.72 | 3,384.00 | 3,383.58 | 19.91 | 66.98 | 60.51 | -1,797.87 | -6,389.98 | 6,743.76 | 6,660.17 | 83.59 | 80.678 | |
| 5,500.00 | 5,488.49 | 3,384.00 | 3,383.58 | 20.27 | 66.98 | 60.51 | -1,797.87 | -6,389.98 | 6,769.45 | 6,685.84 | 83.61 | 80.962 | |
| 5,600.00 | 5,588.25 | 3,384.00 | 3,383.58 | 20.64 | 66.98 | 60.51 | -1,797.87 | -6,389.98 | 6,796.52 | 6,712.90 | 83.62 | 81.278 | |
| 5,700.00 | 5,688.01 | 3,384.00 | 3,383.58 | 21.00 | 66.98 | 60.51 | -1,797.87 | -6,389.98 | 6,824.95 | 6,741.34 | 83.61 | 81.624 | |
| 5,800.00 | 5,787.78 | 3,384.00 | 3,383.58 | 21.37 | 66.98 | 60.51 | -1,797.87 | -6,389.98 | 6,854.72 | 6,771.13 | 83.59 | 82.000 | |
| 5,900.00 | 5,887.54 | 3,384.00 | 3,383.58 | 21.74 | 66.98 | 60.51 | -1,797.87 | -6,389.98 | 6,885.82 | 6,802.26 | 83.56 | 82.405 | |
| 6,000.00 | 5,987.31 | 3,384.00 | 3,383.58 | 22.11 | 66.98 | 60.51 | -1,797.87 | -6,389.98 | 6,918.22 | 6,834.70 | 83.51 | 82.840 | |
| 6,100.00 | 6,087.07 | 3,384.00 | 3,383.58 | 22.47 | 66.98 | 60.51 | -1,797.87 | -6,389.98 | 6,951.90 | 6,868.45 | 83.45 | 83.302 | |
| 6,200.00 | 6,186.83 | 3,384.00 | 3,383.58 | 22.84 | 66.98 | 60.51 | -1,797.87 | -6,389.98 | 6,986.86 | 6,903.48 | 83.38 | 83.793 | |
| 6,300.00 | 6,286.60 | 3,384.00 | 3,383.58 | 23.21 | 66.98 | 60.51 | -1,797.87 | -6,389.98 | 7,023.07 | 6,939.77 | 83.30 | 84.311 | |
| 6,400.00 | 6,386.36 | 3,384.00 | 3,383.58 | 23.58 | 66.98 | 60.51 | -1,797.87 | -6,389.98 | 7,060.50 | 6,977.30 | 83.21 | 84.856 | |
| 6,494.00 | 6,480.13 | 3,384.00 | 3,383.58 | 23.92 | 66.98 | 60.51 | -1,797.87 | -6,389.98 | 7,096.80 | 7,013.69 | 83.11 | 85.392 | |
| 6,500.00 | 6,486.12 | 3,384.00 | 3,383.58 | 23.94 | 66.98 | 53.30 | -1,797.87 | -6,389.98 | 7,099.13 | 7,016.02 | 83.10 | 85.428 | |
| 6,550.00 | 6,535.89 | 3,384.00 | 3,383.58 | 24.13 | 66.98 | 18.22 | -1,797.87 | -6,389.98 | 7,116.71 | 7,033.67 | 83.04 | 85.705 | |
| 6,600.00 | 6,585.24 | 3,384.00 | 3,383.58 | 24.31 | 66.98 | 6.28 | -1,797.87 | -6,389.98 | 7,131.00 | 7,048.03 | 82.96 | 85.954 | |
| 6,650.00 | 6,633.88 | 3,384.00 | 3,383.58 | 24.50 | 66.98 | 0.93 | -1,797.87 | -6,389.98 | 7,141.92 | 7,059.04 | 82.88 | 86.172 | |
| 6,700.00 | 6,681.49 | 3,384.00 | 3,383.58 | 24.68 | 66.98 | -2.04 | -1,797.87 | -6,389.98 | 7,149.43 | 7,066.64 | 82.79 | 86.357 | |
| 6,750.00 | 6,727.80 | 3,384.00 | 3,383.58 | 24.86 | 66.98 | -3.92 | -1,797.87 | -6,389.98 | 7,153.49 | 7,070.80 | 82.69 | 86.510 | |
| 6,800.00 | 6,772.51 | 3,384.00 | 3,383.58 | 25.04 | 66.98 | -5.26 | -1,797.87 | -6,389.98 | 7,154.08 | 7,071.50 | 82.58 | 86.630 | |
| 6,850.00 | 6,815.34 | 3,384.00 | 3,383.58 | 25.21 | 66.98 | -6.28 | -1,797.87 | -6,389.98 | 7,151.20 | 7,068.74 | 82.47 | 86.716 | |
| 6,900.00 | 6,856.04 | 3,384.00 | 3,383.58 | 25.39 | 66.98 | -7.14 | -1,797.87 | -6,389.98 | 7,144.86 | 7,062.52 | 82.34 | 86.768 | |
| 6,950.00 | 6,894.35 | 3,384.00 | 3,383.58 | 25.57 | 66.98 | -7.91 | -1,797.87 | -6,389.98 | 7,135.10 | 7,052.88 | 82.21 | 86.786 | |
| 7,000.00 | 6,930.04 | 3,384.00 | 3,383.58 | 25.75 | 66.98 | -8.63 | -1,797.87 | -6,389.98 | 7,121.95 | 7,039.87 | 82.08 | 86.769 | |
| 7,050.00 | 6,962.89 | 3,384.00 | 3,383.58 | 25.93 | 66.98 | -9.36 | -1,797.87 | -6,389.98 | 7,105.48 | 7,023.54 | 81.94 | 86.717 | |
| 7,100.00 | 6,992.69 | 3,384.00 | 3,383.58 | 26.13 | 66.98 | -10.12 | -1,797.87 | -6,389.98 | 7,085.77 | 7,003.97 | 81.79 | 86.630 | |
| 7,150.00 | 7,019.25 | 3,384.00 | 3,383.58 | 26.33 | 66.98 | -10.94 | -1,797.87 | -6,389.98 | 7,062.91 | 6,981.27 | 81.65 | 86.508 | |
| 7,200.00 | 7,042.43 | 3,384.00 | 3,383.58 | 26.55 | 66.98 | -11.86 | -1,797.87 | -6,389.98 | 7,037.02 | 6,955.53 | 81.50 | 86.349 | |
| 7,250.00 | 7,062.07 | 3,384.00 | 3,383.58 | 26.79 | 66.98 | -12.90 | -1,797.87 | -6,389.98 | 7,008.22 | 6,926.88 | 81.34 | 86.155 | |
| 7,300.00 | 7,078.05 | 3,384.00 | 3,383.58 | 27.04 | 66.98 | -14.11 | -1,797.87 | -6,389.98 | 6,976.66 | 6,895.46 | 81.19 | 85.925 | |
| 7,350.00 | 7,090.27 | 3,384.00 | 3,383.58 | 27.30 | 66.98 | -15.54 | -1,797.87 | -6,389.98 | 6,942.49 | 6,861.44 | 81.05 | 85.660 | |
| 7,400.00 | 7,098.66 | 3,384.00 | 3,383.58 | 27.58 | 66.98 | -17.27 | -1,797.87 | -6,389.98 | 6,905.88 | 6,824.98 | 80.90 | 85.359 | |
| 7,450.00 | 7,103.17 | 3,384.00 | 3,383.58 | 27.87 | 66.98 | -19.40 | -1,797.87 | -6,389.98 | 6,867.03 | 6,786.27 | 80.77 | 85.024 | |
| 7,484.86 | 7,104.00 | 3,384.00 | 3,383.58 | 28.08 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 6,838.73 | 6,758.05 | 80.67 | 84.769 | |
| 7,500.00 | 7,103.95 | 3,384.00 | 3,383.58 | 28.17 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 6,826.23 | 6,745.60 | 80.64 | 84.655 | |
| 7,600.00 | 7,103.60 | 3,384.00 | 3,383.58 | 28.83 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 6,743.99 | 6,663.62 | 80.37 | 83.916 | |
| 7,700.00 | 7,103.25 | 3,384.00 | 3,383.58 | 29.56 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 6,662.23 | 6,582.13 | 80.10 | 83.173 | |
| 7,800.00 | 7,102.90 | 3,384.00 | 3,383.58 | 30.35 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 6,580.97 | 6,501.13 | 79.84 | 82.425 | |
| 7,900.00 | 7,102.55 | 3,384.00 | 3,383.58 | 31.21 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 6,500.24 | 6,420.65 | 79.59 | 81.672 | |
| 8,000.00 | 7,102.20 | 3,384.00 | 3,383.58 | 32.13 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 6,420.05 | 6,340.70 | 79.34 | 80.913 | |
| 8,100.00 | 7,101.85 | 3,384.00 | 3,383.58 | 33.10 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 6,340.42 | 6,261.31 | 79.11 | 80.150 | |
| 8,200.00 | 7,101.50 | 3,384.00 | 3,383.58 | 34.11 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 6,261.38 | 6,182.50 | 78.88 | 79.380 | |
| 8,300.00 | 7,101.15 | 3,384.00 | 3,383.58 | 35.17 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 6,182.94 | 6,104.28 | 78.66 | 78.605 | |
| 8,400.00 | 7,100.80 | 3,384.00 | 3,383.58 | 36.27 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 6,105.14 | 6,026.69 | 78.45 | 77.823 | |
| 8,500.00 | 7,100.45 | 3,384.00 | 3,383.58 | 37.41 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 6,027.98 | 5,949.73 | 78.25 | 77.035 | |
| 8,600.00 | 7,100.10 | 3,384.00 | 3,383.58 | 38.58 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 5,951.51 | 5,873.45 | 78.06 | 76.241 | |

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

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

**Survey Program:** 322-A027Ua_INC-ONLY

**Offset Well Error:** 0.00 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8,700.00 | 7,099.75 | 3,384.00 | 3,383.58 | 39.78 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 5,875.75 | 5,797.86 | 77.89 | 75.441 | |
| 8,800.00 | 7,099.40 | 3,384.00 | 3,383.58 | 41.00 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 5,800.72 | 5,723.00 | 77.72 | 74.635 | |
| 8,900.00 | 7,099.05 | 3,384.00 | 3,383.58 | 42.25 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 5,726.45 | 5,648.88 | 77.57 | 73.823 | |
| 9,000.00 | 7,098.70 | 3,384.00 | 3,383.58 | 43.53 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 5,652.98 | 5,575.54 | 77.43 | 73.005 | |
| 9,100.00 | 7,098.35 | 3,384.00 | 3,383.58 | 44.82 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 5,580.33 | 5,503.02 | 77.31 | 72.183 | |
| 9,200.00 | 7,098.00 | 3,384.00 | 3,383.58 | 46.14 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 5,508.54 | 5,431.34 | 77.20 | 71.355 | |
| 9,300.00 | 7,097.65 | 3,384.00 | 3,383.58 | 47.47 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 5,437.64 | 5,360.53 | 77.10 | 70.524 | |
| 9,400.00 | 7,097.30 | 3,384.00 | 3,383.58 | 48.82 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 5,367.66 | 5,290.64 | 77.02 | 69.690 | |
| 9,500.00 | 7,096.95 | 3,384.00 | 3,383.58 | 50.18 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 5,298.65 | 5,221.69 | 76.96 | 68.853 | |
| 9,600.00 | 7,096.60 | 3,384.00 | 3,383.58 | 51.56 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 5,230.64 | 5,153.74 | 76.90 | 68.015 | |
| 9,700.00 | 7,096.25 | 3,384.00 | 3,383.58 | 52.95 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 5,163.67 | 5,086.81 | 76.87 | 67.176 | |
| 9,800.00 | 7,095.90 | 3,384.00 | 3,383.58 | 54.35 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 5,097.79 | 5,020.94 | 76.85 | 66.338 | |
| 9,900.00 | 7,095.55 | 3,384.00 | 3,383.58 | 55.76 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 5,033.03 | 4,956.19 | 76.84 | 65.501 | |
| 10,000.00 | 7,095.20 | 3,384.00 | 3,383.58 | 57.18 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 4,969.43 | 4,892.59 | 76.85 | 64.668 | |
| 10,100.00 | 7,094.85 | 3,384.00 | 3,383.58 | 58.61 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 4,907.05 | 4,830.19 | 76.87 | 63.838 | |
| 10,200.00 | 7,094.50 | 3,384.00 | 3,383.58 | 60.05 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 4,845.93 | 4,769.03 | 76.90 | 63.014 | |
| 10,300.00 | 7,094.15 | 3,384.00 | 3,383.58 | 61.50 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 4,786.12 | 4,709.17 | 76.95 | 62.196 | |
| 10,400.00 | 7,093.80 | 3,384.00 | 3,383.58 | 62.96 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 4,727.67 | 4,650.66 | 77.01 | 61.387 | |
| 10,500.00 | 7,093.45 | 3,384.00 | 3,383.58 | 64.42 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 4,670.63 | 4,593.54 | 77.09 | 60.586 | |
| 10,600.00 | 7,093.10 | 3,384.00 | 3,383.58 | 65.89 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 4,615.05 | 4,537.87 | 77.18 | 59.797 | |
| 10,700.00 | 7,092.75 | 3,384.00 | 3,383.58 | 67.36 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 4,560.99 | 4,483.71 | 77.28 | 59.019 | |
| 10,800.00 | 7,092.40 | 3,384.00 | 3,383.58 | 68.84 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 4,508.50 | 4,431.10 | 77.39 | 58.254 | |
| 10,900.00 | 7,092.05 | 3,384.00 | 3,383.58 | 70.33 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 4,457.63 | 4,380.11 | 77.52 | 57.503 | |
| 11,000.00 | 7,091.70 | 3,384.00 | 3,383.58 | 71.82 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 4,408.44 | 4,330.78 | 77.66 | 56.767 | |
| 11,100.00 | 7,091.35 | 3,384.00 | 3,383.58 | 73.31 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 4,360.99 | 4,283.19 | 77.81 | 56.047 | |
| 11,200.00 | 7,091.00 | 3,384.00 | 3,383.58 | 74.81 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 4,315.34 | 4,237.37 | 77.97 | 55.343 | |
| 11,300.00 | 7,090.65 | 3,384.00 | 3,383.58 | 76.32 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 4,271.55 | 4,193.39 | 78.15 | 54.657 | |
| 11,400.00 | 7,090.30 | 3,384.00 | 3,383.58 | 77.82 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 4,229.66 | 4,151.31 | 78.34 | 53.989 | |
| 11,500.00 | 7,089.95 | 3,384.00 | 3,383.58 | 79.34 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 4,189.74 | 4,111.19 | 78.55 | 53.338 | |
| 11,600.00 | 7,089.60 | 3,384.00 | 3,383.58 | 80.85 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 4,151.85 | 4,073.07 | 78.78 | 52.704 | |
| 11,700.00 | 7,089.25 | 3,384.00 | 3,383.58 | 82.37 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 4,116.03 | 4,037.01 | 79.02 | 52.089 | |
| 11,800.00 | 7,088.90 | 3,384.00 | 3,383.58 | 83.89 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 4,082.36 | 4,003.07 | 79.29 | 51.490 | |
| 11,900.00 | 7,088.55 | 3,384.00 | 3,383.58 | 85.41 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 4,050.87 | 3,971.30 | 79.57 | 50.907 | |
| 12,000.00 | 7,088.20 | 3,384.00 | 3,383.58 | 86.94 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 4,021.63 | 3,941.73 | 79.89 | 50.339 | |
| 12,100.00 | 7,087.85 | 3,384.00 | 3,383.58 | 88.47 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 3,994.67 | 3,914.43 | 80.24 | 49.784 | |
| 12,200.00 | 7,087.50 | 3,384.00 | 3,383.58 | 90.00 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 3,970.05 | 3,889.43 | 80.62 | 49.242 | |
| 12,300.00 | 7,087.15 | 3,384.00 | 3,383.58 | 91.54 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 3,947.81 | 3,866.76 | 81.05 | 48.711 | |
| 12,400.00 | 7,086.81 | 3,384.00 | 3,383.58 | 93.07 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 3,927.99 | 3,846.48 | 81.51 | 48.188 | |
| 12,500.00 | 7,086.46 | 3,384.00 | 3,383.58 | 94.61 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 3,910.63 | 3,828.60 | 82.03 | 47.672 | |
| 12,600.00 | 7,086.11 | 3,384.00 | 3,383.58 | 96.15 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 3,895.76 | 3,813.16 | 82.60 | 47.162 | |
| 12,700.00 | 7,085.76 | 3,384.00 | 3,383.58 | 97.69 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 3,883.41 | 3,800.17 | 83.24 | 46.655 | |
| 12,800.00 | 7,085.41 | 3,384.00 | 3,383.58 | 99.24 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 3,873.60 | 3,789.67 | 83.93 | 46.153 | |
| 12,900.00 | 7,085.06 | 3,384.00 | 3,383.58 | 100.78 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 3,866.35 | 3,781.66 | 84.69 | 45.652 | |
| 13,000.00 | 7,084.71 | 3,384.00 | 3,383.58 | 102.33 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 3,861.68 | 3,776.16 | 85.52 | 45.155 | |
| 13,100.00 | 7,084.36 | 3,384.00 | 3,383.58 | 103.88 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 3,859.60 | 3,773.18 | 86.42 | 44.663 | |
| 13,130.44 | 7,084.25 | 3,384.00 | 3,383.58 | 104.35 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 3,859.48 | 3,772.77 | 86.70 | 44.513 CC | |
| 13,200.00 | 7,084.01 | 3,384.00 | 3,383.58 | 105.43 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 3,860.10 | 3,772.72 | 87.38 | 44.175 ES | |
| 13,300.00 | 7,083.66 | 3,384.00 | 3,383.58 | 106.99 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 3,863.20 | 3,774.79 | 88.41 | 43.696 | |
| 13,400.00 | 7,083.31 | 3,384.00 | 3,383.58 | 108.54 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 3,868.88 | 3,779.38 | 89.50 | 43.228 | |
| 13,500.00 | 7,082.96 | 3,384.00 | 3,383.58 | 110.09 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 3,877.13 | 3,786.49 | 90.64 | 42.773 | |
| 13,600.00 | 7,082.61 | 3,384.00 | 3,383.58 | 111.65 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 3,887.94 | 3,796.10 | 91.83 | 42.336 | |
| 13,700.00 | 7,082.26 | 3,384.00 | 3,383.58 | 113.21 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 3,901.28 | 3,808.21 | 93.07 | 41.920 | |

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

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

**Survey Program:** 322-A027Ua_INC-ONLY

**Rule Assigned:**

**Offset Well Error:** 0.00 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13,800.00 | 7,081.91 | 3,384.00 | 3,383.58 | 114.77 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 3,917.13 | 3,822.80 | 94.33 | 41.527 | |
| 13,900.00 | 7,081.56 | 3,384.00 | 3,383.58 | 116.33 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 3,935.45 | 3,839.84 | 95.61 | 41.160 | |
| 14,000.00 | 7,081.21 | 3,384.00 | 3,383.58 | 117.89 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 3,956.22 | 3,859.31 | 96.91 | 40.823 | |
| 14,100.00 | 7,080.86 | 3,384.00 | 3,383.58 | 119.45 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 3,979.40 | 3,881.18 | 98.22 | 40.516 | |
| 14,200.00 | 7,080.51 | 3,384.00 | 3,383.58 | 121.02 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 4,004.94 | 3,905.41 | 99.52 | 40.242 | |
| 14,300.00 | 7,080.16 | 3,384.00 | 3,383.58 | 122.58 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 4,032.79 | 3,931.98 | 100.82 | 40.001 | |
| 14,400.00 | 7,079.81 | 3,384.00 | 3,383.58 | 124.15 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 4,062.92 | 3,960.83 | 102.10 | 39.795 | |
| 14,500.00 | 7,079.46 | 3,384.00 | 3,383.58 | 125.71 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 4,095.27 | 3,991.91 | 103.36 | 39.623 | |
| 14,600.00 | 7,079.11 | 3,384.00 | 3,383.58 | 127.28 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 4,129.79 | 4,025.20 | 104.59 | 39.485 | |
| 14,700.00 | 7,078.76 | 3,384.00 | 3,383.58 | 128.85 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 4,166.42 | 4,060.63 | 105.80 | 39.382 | |
| 14,800.00 | 7,078.41 | 3,384.00 | 3,383.58 | 130.42 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 4,205.11 | 4,098.15 | 106.97 | 39.312 | |
| 14,900.00 | 7,078.06 | 3,384.00 | 3,383.58 | 131.98 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 4,245.81 | 4,137.71 | 108.10 | 39.275 | |
| 15,000.00 | 7,077.71 | 3,384.00 | 3,383.58 | 133.55 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 4,288.45 | 4,179.25 | 109.20 | 39.271 | SF |
| 15,100.00 | 7,077.36 | 3,384.00 | 3,383.58 | 135.13 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 4,332.98 | 4,222.72 | 110.26 | 39.298 | |
| 15,200.00 | 7,077.01 | 3,384.00 | 3,383.58 | 136.70 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 4,379.34 | 4,268.06 | 111.28 | 39.355 | |
| 15,300.00 | 7,076.66 | 3,384.00 | 3,383.58 | 138.27 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 4,427.48 | 4,315.22 | 112.26 | 39.441 | |
| 15,400.00 | 7,076.31 | 3,384.00 | 3,383.58 | 139.84 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 4,477.33 | 4,364.13 | 113.19 | 39.555 | |
| 15,500.00 | 7,075.96 | 3,384.00 | 3,383.58 | 141.42 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 4,528.84 | 4,414.75 | 114.09 | 39.696 | |
| 15,600.00 | 7,075.61 | 3,384.00 | 3,383.58 | 142.99 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 4,581.95 | 4,467.01 | 114.94 | 39.864 | |
| 15,700.00 | 7,075.26 | 3,384.00 | 3,383.58 | 144.57 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 4,636.61 | 4,520.86 | 115.75 | 40.056 | |
| 15,800.00 | 7,074.91 | 3,384.00 | 3,383.58 | 146.14 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 4,692.77 | 4,576.24 | 116.53 | 40.272 | |
| 15,900.00 | 7,074.56 | 3,384.00 | 3,383.58 | 147.72 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 4,750.37 | 4,633.11 | 117.26 | 40.511 | |
| 16,000.00 | 7,074.21 | 3,384.00 | 3,383.58 | 149.29 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 4,809.36 | 4,691.40 | 117.96 | 40.772 | |
| 16,100.00 | 7,073.86 | 3,384.00 | 3,383.58 | 150.87 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 4,869.68 | 4,751.07 | 118.62 | 41.053 | |
| 16,200.00 | 7,073.51 | 3,384.00 | 3,383.58 | 152.45 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 4,931.30 | 4,812.06 | 119.24 | 41.354 | |
| 16,300.00 | 7,073.16 | 3,384.00 | 3,383.58 | 154.03 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 4,994.16 | 4,874.33 | 119.84 | 41.675 | |
| 16,400.00 | 7,072.81 | 3,384.00 | 3,383.58 | 155.60 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 5,058.22 | 4,937.82 | 120.40 | 42.013 | |
| 16,500.00 | 7,072.46 | 3,384.00 | 3,383.58 | 157.18 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 5,123.42 | 5,002.50 | 120.92 | 42.369 | |
| 16,600.00 | 7,072.11 | 3,384.00 | 3,383.58 | 158.76 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 5,189.74 | 5,068.32 | 121.42 | 42.742 | |
| 16,631.96 | 7,072.00 | 3,384.00 | 3,383.58 | 159.27 | 66.98 | -21.18 | -1,797.87 | -6,389.98 | 5,211.16 | 5,089.59 | 121.57 | 42.864 | |

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

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

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Rule Assigned: Distance Between Centres (usft) | Rule Assigned: Distance Between Ellipses (usft) | Rule Assigned: Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 3.28 | 3.28 | -178.18 | -1,383.46 | -43.89 | 1,384.85 | | | | |
| 100.00 | 100.00 | 56.00 | 56.00 | 3.29 | 3.44 | -178.18 | -1,383.46 | -43.89 | 1,384.15 | 1,377.42 | 6.73 | 205.696 | |
| 200.00 | 200.00 | 156.00 | 156.00 | 3.34 | 4.37 | -178.18 | -1,383.46 | -43.89 | 1,384.15 | 1,376.45 | 7.70 | 179.677 | |
| 300.00 | 300.00 | 256.00 | 256.00 | 3.42 | 5.76 | -178.18 | -1,383.46 | -43.89 | 1,384.15 | 1,374.98 | 9.18 | 150.817 | |
| 400.00 | 400.00 | 356.00 | 356.00 | 3.54 | 7.35 | -178.18 | -1,383.46 | -43.89 | 1,384.15 | 1,373.26 | 10.89 | 127.092 | |
| 500.00 | 500.00 | 456.00 | 456.00 | 3.69 | 9.05 | -178.18 | -1,383.46 | -43.89 | 1,384.15 | 1,371.42 | 12.73 | 108.711 | |
| 600.00 | 599.98 | 554.82 | 554.81 | 3.86 | 10.77 | -28.23 | -1,382.89 | -43.89 | 1,382.05 | 1,367.43 | 14.62 | 94.505 | |
| 697.00 | 696.84 | 649.57 | 649.56 | 4.04 | 12.45 | -28.37 | -1,383.05 | -43.89 | 1,377.78 | 1,361.30 | 16.49 | 83.578 | |
| 700.00 | 699.84 | 652.50 | 652.49 | 4.05 | 12.50 | -28.37 | -1,383.05 | -43.89 | 1,377.61 | 1,361.07 | 16.54 | 83.268 | |
| 800.00 | 799.60 | 750.10 | 750.09 | 4.25 | 14.25 | -28.51 | -1,383.37 | -43.89 | 1,371.89 | 1,353.39 | 18.50 | 74.150 | |
| 897.00 | 896.37 | 852.40 | 852.37 | 4.48 | 16.14 | -28.65 | -1,383.46 | -43.89 | 1,366.11 | 1,345.50 | 20.61 | 66.282 | |
| 900.00 | 899.37 | 855.39 | 855.37 | 4.48 | 16.19 | -27.78 | -1,383.46 | -43.89 | 1,365.93 | 1,345.25 | 20.67 | 66.072 | |
| 947.40 | 946.65 | 902.67 | 902.65 | 4.60 | 17.07 | -13.97 | -1,383.46 | -43.89 | 1,362.91 | 1,341.24 | 21.67 | 62.898 | |
| 1,000.00 | 999.13 | 955.15 | 955.13 | 4.73 | 18.05 | -14.00 | -1,383.46 | -43.89 | 1,359.40 | 1,336.62 | 22.78 | 59.678 | |
| 1,100.00 | 1,098.89 | 1,054.79 | 1,054.77 | 4.99 | 19.92 | -14.07 | -1,382.85 | -43.89 | 1,352.12 | 1,327.22 | 24.90 | 54.298 | |
| 1,200.00 | 1,198.66 | 1,152.50 | 1,152.47 | 5.27 | 21.75 | -14.14 | -1,382.94 | -43.89 | 1,345.54 | 1,318.53 | 27.01 | 49.824 | |
| 1,300.00 | 1,298.42 | 1,250.23 | 1,250.20 | 5.56 | 23.59 | -14.21 | -1,383.17 | -43.89 | 1,339.11 | 1,309.99 | 29.12 | 45.979 | |
| 1,400.00 | 1,398.18 | 1,354.24 | 1,354.18 | 5.85 | 25.58 | -14.29 | -1,383.46 | -43.89 | 1,332.73 | 1,301.33 | 31.41 | 42.436 | |
| 1,500.00 | 1,497.95 | 1,454.00 | 1,453.95 | 6.16 | 27.58 | -14.36 | -1,383.46 | -43.89 | 1,326.07 | 1,292.37 | 33.70 | 39.345 | |
| 1,600.00 | 1,597.71 | 1,553.77 | 1,553.71 | 6.47 | 29.59 | -14.44 | -1,383.46 | -43.89 | 1,319.41 | 1,283.40 | 36.01 | 36.639 | |
| 1,700.00 | 1,697.47 | 1,650.80 | 1,650.73 | 6.79 | 31.54 | -14.51 | -1,382.74 | -43.89 | 1,312.04 | 1,273.77 | 38.27 | 34.283 | |
| 1,800.00 | 1,797.24 | 1,747.23 | 1,747.17 | 7.11 | 33.48 | -14.58 | -1,383.06 | -43.89 | 1,305.72 | 1,265.20 | 40.52 | 32.221 | |
| 1,900.00 | 1,897.00 | 1,853.12 | 1,853.00 | 7.44 | 35.64 | -14.66 | -1,383.46 | -43.89 | 1,299.45 | 1,256.45 | 43.00 | 30.219 | |
| 2,000.00 | 1,996.76 | 1,952.88 | 1,952.76 | 7.77 | 37.72 | -14.74 | -1,383.46 | -43.89 | 1,292.80 | 1,247.39 | 45.41 | 28.470 | |
| 2,100.00 | 2,096.53 | 2,052.64 | 2,052.53 | 8.11 | 39.81 | -14.82 | -1,383.46 | -43.89 | 1,286.16 | 1,238.33 | 47.82 | 26.895 | |
| 2,200.00 | 2,196.29 | 2,148.64 | 2,148.51 | 8.44 | 41.82 | -14.89 | -1,382.50 | -43.89 | 1,278.56 | 1,228.40 | 50.16 | 25.490 | |
| 2,300.00 | 2,296.06 | 2,244.15 | 2,244.02 | 8.79 | 43.81 | -14.97 | -1,382.95 | -43.89 | 1,272.38 | 1,219.89 | 52.49 | 24.241 | |
| 2,400.00 | 2,395.82 | 2,352.01 | 2,351.82 | 9.13 | 46.58 | -15.06 | -1,383.46 | -43.89 | 1,266.23 | 1,210.64 | 55.59 | 22.780 | |
| 2,500.00 | 2,495.58 | 2,451.77 | 2,451.58 | 9.47 | 49.93 | -15.14 | -1,383.46 | -43.89 | 1,259.59 | 1,200.32 | 59.27 | 21.252 | |
| 2,600.00 | 2,595.35 | 2,545.86 | 2,545.66 | 9.82 | 53.08 | -15.22 | -1,382.97 | -43.89 | 1,252.48 | 1,189.71 | 62.77 | 19.954 | |
| 2,700.00 | 2,695.11 | 2,651.90 | 2,651.11 | 10.17 | 57.15 | -15.30 | -1,383.46 | -43.89 | 1,246.33 | 1,179.16 | 67.17 | 18.555 | |
| 2,800.00 | 2,794.87 | 2,752.12 | 2,750.87 | 10.52 | 62.87 | -15.39 | -1,383.46 | -43.89 | 1,239.70 | 1,166.47 | 73.23 | 16.929 | |
| 2,900.00 | 2,894.64 | 2,852.49 | 2,850.64 | 10.87 | 69.49 | -15.47 | -1,383.46 | -43.89 | 1,233.07 | 1,152.88 | 80.19 | 15.376 | |
| 3,000.00 | 2,994.40 | 2,947.80 | 2,945.16 | 11.23 | 76.64 | -15.55 | -1,383.01 | -43.89 | 1,226.00 | 1,138.32 | 87.69 | 13.981 | |
| 3,100.00 | 3,094.16 | 3,046.05 | 3,042.91 | 11.58 | 83.73 | -15.64 | -1,382.05 | -43.89 | 1,218.44 | 1,123.32 | 95.12 | 12.809 | |
| 3,200.00 | 3,193.93 | 3,153.57 | 3,149.93 | 11.94 | 90.89 | -15.73 | -1,383.46 | -43.89 | 1,213.21 | 1,110.57 | 102.63 | 11.821 | |
| 3,300.00 | 3,293.69 | 3,253.93 | 3,249.69 | 12.29 | 97.15 | -15.82 | -1,383.46 | -43.89 | 1,206.59 | 1,097.35 | 109.24 | 11.045 | |
| 3,400.00 | 3,393.45 | 3,353.70 | 3,349.45 | 12.65 | 103.11 | -15.91 | -1,383.46 | -43.89 | 1,199.98 | 1,084.43 | 115.55 | 10.385 | |
| 3,500.00 | 3,493.22 | 3,392.00 | 3,387.10 | 13.01 | 105.40 | -15.94 | -1,383.46 | -43.89 | 1,194.98 | 1,076.93 | 118.06 | 10.122 SF | |
| 3,516.89 | 3,510.07 | 3,392.00 | 3,387.10 | 13.07 | 105.40 | -15.94 | -1,383.46 | -43.89 | 1,194.86 | 1,076.84 | 118.03 | 10.124 CC, ES | |
| 3,600.00 | 3,592.98 | 3,392.00 | 3,387.10 | 13.37 | 105.40 | -15.94 | -1,383.46 | -43.89 | 1,197.75 | 1,080.20 | 117.55 | 10.189 | |
| 3,700.00 | 3,692.74 | 3,392.00 | 3,387.10 | 13.73 | 105.40 | -15.94 | -1,383.46 | -43.89 | 1,208.81 | 1,092.55 | 116.27 | 10.397 | |
| 3,800.00 | 3,792.51 | 3,392.00 | 3,387.10 | 14.09 | 105.40 | -15.94 | -1,383.46 | -43.89 | 1,227.94 | 1,113.67 | 114.27 | 10.746 | |
| 3,900.00 | 3,892.27 | 3,392.00 | 3,387.10 | 14.45 | 105.40 | -15.94 | -1,383.46 | -43.89 | 1,254.78 | 1,143.10 | 111.67 | 11.236 | |
| 4,000.00 | 3,992.04 | 3,392.00 | 3,387.10 | 14.81 | 105.40 | -15.94 | -1,383.46 | -43.89 | 1,288.83 | 1,180.24 | 108.60 | 11.868 | |
| 4,100.00 | 4,091.80 | 3,392.00 | 3,387.10 | 15.17 | 105.40 | -15.94 | -1,383.46 | -43.89 | 1,329.55 | 1,224.38 | 105.17 | 12.641 | |
| 4,200.00 | 4,191.56 | 3,392.00 | 3,387.10 | 15.53 | 105.40 | -15.94 | -1,383.46 | -43.89 | 1,376.35 | 1,274.82 | 101.53 | 13.556 | |
| 4,300.00 | 4,291.33 | 3,392.00 | 3,387.10 | 15.89 | 105.40 | -15.94 | -1,383.46 | -43.89 | 1,428.62 | 1,330.84 | 97.78 | 14.611 | |
| 4,400.00 | 4,391.09 | 3,392.00 | 3,387.10 | 16.26 | 105.40 | -15.94 | -1,383.46 | -43.89 | 1,485.79 | 1,391.79 | 94.00 | 15.806 | |
| 4,500.00 | 4,490.85 | 3,392.00 | 3,387.10 | 16.62 | 105.40 | -15.94 | -1,383.46 | -43.89 | 1,547.32 | 1,457.04 | 90.27 | 17.140 | |
| 4,600.00 | 4,590.62 | 3,392.00 | 3,387.10 | 16.99 | 105.40 | -15.94 | -1,383.46 | -43.89 | 1,612.70 | 1,526.05 | 86.65 | 18.611 | |
| 4,700.00 | 4,690.38 | 3,392.00 | 3,387.10 | 17.35 | 105.40 | -15.94 | -1,383.46 | -43.89 | 1,681.50 | 1,598.33 | 83.17 | 20.218 | |

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 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

**Survey Program:** 235-A027Ua_INC-ONLY

**Offset Well Error:** 3.28 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Rule Assigned: Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4,800.00 | 4,790.14 | 3,392.00 | 3,387.10 | 17.71 | 105.40 | -15.94 | -1,383.46 | -43.89 | 1,753.30 | 1,673.45 | 79.84 | 21.959 | |
| 4,900.00 | 4,889.91 | 3,392.00 | 3,387.10 | 18.08 | 105.40 | -15.94 | -1,383.46 | -43.89 | 1,827.75 | 1,751.06 | 76.70 | 23.831 | |
| 5,000.00 | 4,989.67 | 3,392.00 | 3,387.10 | 18.44 | 105.40 | -15.94 | -1,383.46 | -43.89 | 1,904.55 | 1,830.82 | 73.73 | 25.832 | |
| 5,100.00 | 5,089.43 | 3,392.00 | 3,387.10 | 18.81 | 105.40 | -15.94 | -1,383.46 | -43.89 | 1,983.41 | 1,912.47 | 70.94 | 27.958 | |
| 5,200.00 | 5,189.20 | 3,392.00 | 3,387.10 | 19.17 | 105.40 | -15.94 | -1,383.46 | -43.89 | 2,064.11 | 1,995.78 | 68.33 | 30.207 | |
| 5,300.00 | 5,288.96 | 3,392.00 | 3,387.10 | 19.54 | 105.40 | -15.94 | -1,383.46 | -43.89 | 2,146.43 | 2,080.54 | 65.89 | 32.576 | |
| 5,400.00 | 5,388.72 | 3,392.00 | 3,387.10 | 19.91 | 105.40 | -15.94 | -1,383.46 | -43.89 | 2,230.20 | 2,166.59 | 63.61 | 35.059 | |
| 5,500.00 | 5,488.49 | 3,392.00 | 3,387.10 | 20.27 | 105.40 | -15.94 | -1,383.46 | -43.89 | 2,315.26 | 2,253.77 | 61.49 | 37.653 | |
| 5,600.00 | 5,588.25 | 3,392.00 | 3,387.10 | 20.64 | 105.40 | -15.94 | -1,383.46 | -43.89 | 2,401.46 | 2,341.95 | 59.51 | 40.354 | |
| 5,700.00 | 5,688.01 | 3,392.00 | 3,387.10 | 21.00 | 105.40 | -15.94 | -1,383.46 | -43.89 | 2,488.70 | 2,431.04 | 57.67 | 43.157 | |
| 5,800.00 | 5,787.78 | 3,392.00 | 3,387.10 | 21.37 | 105.40 | -15.94 | -1,383.46 | -43.89 | 2,576.87 | 2,520.92 | 55.95 | 46.057 | |
| 5,900.00 | 5,887.54 | 3,392.00 | 3,387.10 | 21.74 | 105.40 | -15.94 | -1,383.46 | -43.89 | 2,665.88 | 2,611.52 | 54.35 | 49.049 | |
| 6,000.00 | 5,987.31 | 3,392.00 | 3,387.10 | 22.11 | 105.40 | -15.94 | -1,383.46 | -43.89 | 2,755.63 | 2,702.77 | 52.86 | 52.127 | |
| 6,100.00 | 6,087.07 | 3,392.00 | 3,387.10 | 22.47 | 105.40 | -15.94 | -1,383.46 | -43.89 | 2,846.07 | 2,794.59 | 51.48 | 55.286 | |
| 6,200.00 | 6,186.83 | 3,392.00 | 3,387.10 | 22.84 | 105.40 | -15.94 | -1,383.46 | -43.89 | 2,937.13 | 2,886.94 | 50.19 | 58.520 | |
| 6,300.00 | 6,286.60 | 3,392.00 | 3,387.10 | 23.21 | 105.40 | -15.94 | -1,383.46 | -43.89 | 3,028.76 | 2,979.77 | 48.99 | 61.823 | |
| 6,400.00 | 6,386.36 | 3,392.00 | 3,387.10 | 23.58 | 105.40 | -15.94 | -1,383.46 | -43.89 | 3,120.90 | 3,073.02 | 47.87 | 65.189 | |
| 6,494.00 | 6,480.13 | 3,392.00 | 3,387.10 | 23.92 | 105.40 | -15.94 | -1,383.46 | -43.89 | 3,207.93 | 3,161.04 | 46.90 | 68.406 | |
| 6,500.00 | 6,486.12 | 3,392.00 | 3,387.10 | 23.94 | 105.40 | -21.87 | -1,383.46 | -43.89 | 3,213.51 | 3,166.67 | 46.84 | 68.612 | |
| 6,550.00 | 6,535.89 | 3,392.00 | 3,387.10 | 24.13 | 105.40 | -46.21 | -1,383.46 | -43.89 | 3,259.92 | 3,213.57 | 46.35 | 70.333 | |
| 6,600.00 | 6,585.24 | 3,392.00 | 3,387.10 | 24.31 | 105.40 | -48.03 | -1,383.46 | -43.89 | 3,306.15 | 3,260.26 | 45.89 | 72.040 | |
| 6,650.00 | 6,633.88 | 3,392.00 | 3,387.10 | 24.50 | 105.40 | -44.47 | -1,383.46 | -43.89 | 3,351.92 | 3,306.45 | 45.47 | 73.716 | |
| 6,700.00 | 6,681.49 | 3,392.00 | 3,387.10 | 24.68 | 105.40 | -39.93 | -1,383.46 | -43.89 | 3,396.98 | 3,351.89 | 45.09 | 75.343 | |
| 6,750.00 | 6,727.80 | 3,392.00 | 3,387.10 | 24.86 | 105.40 | -35.65 | -1,383.46 | -43.89 | 3,441.07 | 3,396.33 | 44.75 | 76.899 | |
| 6,800.00 | 6,772.51 | 3,392.00 | 3,387.10 | 25.04 | 105.40 | -31.92 | -1,383.46 | -43.89 | 3,483.98 | 3,439.52 | 44.46 | 78.363 | |
| 6,850.00 | 6,815.34 | 3,392.00 | 3,387.10 | 25.21 | 105.40 | -28.79 | -1,383.46 | -43.89 | 3,525.48 | 3,481.25 | 44.23 | 79.710 | |
| 6,900.00 | 6,856.04 | 3,392.00 | 3,387.10 | 25.39 | 105.40 | -26.18 | -1,383.46 | -43.89 | 3,565.36 | 3,521.30 | 44.06 | 80.916 | |
| 6,950.00 | 6,894.35 | 3,392.00 | 3,387.10 | 25.57 | 105.40 | -24.00 | -1,383.46 | -43.89 | 3,603.45 | 3,559.49 | 43.97 | 81.958 | |
| 7,000.00 | 6,930.04 | 3,392.00 | 3,387.10 | 25.75 | 105.40 | -22.19 | -1,383.46 | -43.89 | 3,639.57 | 3,595.62 | 43.95 | 82.813 | |
| 7,050.00 | 6,962.89 | 3,392.00 | 3,387.10 | 25.93 | 105.40 | -20.68 | -1,383.46 | -43.89 | 3,673.55 | 3,629.54 | 44.01 | 83.462 | |
| 7,100.00 | 6,992.69 | 3,392.00 | 3,387.10 | 26.13 | 105.40 | -19.41 | -1,383.46 | -43.89 | 3,705.25 | 3,661.09 | 44.17 | 83.888 | |
| 7,150.00 | 7,019.25 | 3,392.00 | 3,387.10 | 26.33 | 105.40 | -18.34 | -1,383.46 | -43.89 | 3,734.54 | 3,690.12 | 44.42 | 84.080 | |
| 7,200.00 | 7,042.43 | 3,392.00 | 3,387.10 | 26.55 | 105.40 | -17.44 | -1,383.46 | -43.89 | 3,761.28 | 3,716.52 | 44.76 | 84.034 | |
| 7,250.00 | 7,062.07 | 3,392.00 | 3,387.10 | 26.79 | 105.40 | -16.68 | -1,383.46 | -43.89 | 3,785.38 | 3,740.18 | 45.20 | 83.749 | |
| 7,300.00 | 7,078.05 | 3,392.00 | 3,387.10 | 27.04 | 105.40 | -16.05 | -1,383.46 | -43.89 | 3,806.73 | 3,760.99 | 45.74 | 83.232 | |
| 7,350.00 | 7,090.27 | 3,392.00 | 3,387.10 | 27.30 | 105.40 | -15.52 | -1,383.46 | -43.89 | 3,825.25 | 3,778.88 | 46.37 | 82.494 | |
| 7,400.00 | 7,098.66 | 3,392.00 | 3,387.10 | 27.58 | 105.40 | -15.08 | -1,383.46 | -43.89 | 3,840.87 | 3,793.77 | 47.10 | 81.553 | |
| 7,450.00 | 7,103.17 | 3,392.00 | 3,387.10 | 27.87 | 105.40 | -14.73 | -1,383.46 | -43.89 | 3,853.52 | 3,805.61 | 47.91 | 80.428 | |
| 7,484.86 | 7,104.00 | 3,392.00 | 3,387.10 | 28.08 | 105.40 | -14.53 | -1,383.46 | -43.89 | 3,860.57 | 3,812.04 | 48.53 | 79.550 | |
| 7,500.00 | 7,103.95 | 3,392.00 | 3,387.10 | 28.17 | 105.40 | -14.53 | -1,383.46 | -43.89 | 3,863.33 | 3,814.53 | 48.81 | 79.152 | |
| 7,600.00 | 7,103.60 | 3,392.00 | 3,387.10 | 28.83 | 105.40 | -14.53 | -1,383.46 | -43.89 | 3,883.05 | 3,832.30 | 50.75 | 76.514 | |
| 7,700.00 | 7,103.25 | 3,392.00 | 3,387.10 | 29.56 | 105.40 | -14.53 | -1,383.46 | -43.89 | 3,905.22 | 3,852.41 | 52.82 | 73.937 | |
| 7,800.00 | 7,102.90 | 3,392.00 | 3,387.10 | 30.35 | 105.40 | -14.53 | -1,383.46 | -43.89 | 3,929.82 | 3,874.83 | 54.99 | 71.467 | |
| 7,900.00 | 7,102.55 | 3,392.00 | 3,387.10 | 31.21 | 105.40 | -14.53 | -1,383.46 | -43.89 | 3,956.79 | 3,899.56 | 57.23 | 69.135 | |
| 8,000.00 | 7,102.20 | 3,392.00 | 3,387.10 | 32.13 | 105.40 | -14.53 | -1,383.46 | -43.89 | 3,986.09 | 3,926.56 | 59.53 | 66.959 | |
| 8,100.00 | 7,101.85 | 3,392.00 | 3,387.10 | 33.10 | 105.40 | -14.53 | -1,383.46 | -43.89 | 4,017.67 | 3,955.80 | 61.86 | 64.946 | |
| 8,200.00 | 7,101.50 | 3,392.00 | 3,387.10 | 34.11 | 105.40 | -14.53 | -1,383.46 | -43.89 | 4,051.46 | 3,987.25 | 64.21 | 63.098 | |
| 8,300.00 | 7,101.15 | 3,392.00 | 3,387.10 | 35.17 | 105.40 | -14.53 | -1,383.46 | -43.89 | 4,087.43 | 4,020.87 | 66.56 | 61.411 | |
| 8,400.00 | 7,100.80 | 3,392.00 | 3,387.10 | 36.27 | 105.40 | -14.53 | -1,383.46 | -43.89 | 4,125.50 | 4,056.60 | 68.90 | 59.878 | |
| 8,500.00 | 7,100.45 | 3,392.00 | 3,387.10 | 37.41 | 105.40 | -14.53 | -1,383.46 | -43.89 | 4,165.63 | 4,094.41 | 71.22 | 58.491 | |
| 8,600.00 | 7,100.10 | 3,392.00 | 3,387.10 | 38.58 | 105.40 | -14.53 | -1,383.46 | -43.89 | 4,207.76 | 4,134.25 | 73.51 | 57.241 | |
| 8,700.00 | 7,099.75 | 3,392.00 | 3,387.10 | 39.78 | 105.40 | -14.53 | -1,383.46 | -43.89 | 4,251.81 | 4,176.05 | 75.76 | 56.119 | |

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

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

**Survey Program:** 235-A027Ua_INC-ONLY

**Rule Assigned:**

**Offset Well Error:** 3.28 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8,800.00 | 7,099.40 | 3,392.00 | 3,387.10 | 41.00 | 105.40 | -14.53 | -1,383.46 | -43.89 | 4,297.75 | 4,219.77 | 77.98 | 55.114 | |
| 8,900.00 | 7,099.05 | 3,392.00 | 3,387.10 | 42.25 | 105.40 | -14.53 | -1,383.46 | -43.89 | 4,345.50 | 4,265.35 | 80.15 | 54.219 | |
| 9,000.00 | 7,098.70 | 3,392.00 | 3,387.10 | 43.53 | 105.40 | -14.53 | -1,383.46 | -43.89 | 4,395.00 | 4,312.74 | 82.27 | 53.425 | |
| 9,100.00 | 7,098.35 | 3,392.00 | 3,387.10 | 44.82 | 105.40 | -14.53 | -1,383.46 | -43.89 | 4,446.21 | 4,361.88 | 84.33 | 52.723 | |
| 9,200.00 | 7,098.00 | 3,392.00 | 3,387.10 | 46.14 | 105.40 | -14.53 | -1,383.46 | -43.89 | 4,499.05 | 4,412.71 | 86.34 | 52.107 | |
| 9,300.00 | 7,097.65 | 3,392.00 | 3,387.10 | 47.47 | 105.40 | -14.53 | -1,383.46 | -43.89 | 4,553.48 | 4,465.19 | 88.30 | 51.570 | |
| 9,400.00 | 7,097.30 | 3,392.00 | 3,387.10 | 48.82 | 105.40 | -14.53 | -1,383.46 | -43.89 | 4,609.44 | 4,519.24 | 90.20 | 51.105 | |
| 9,500.00 | 7,096.95 | 3,392.00 | 3,387.10 | 50.18 | 105.40 | -14.53 | -1,383.46 | -43.89 | 4,666.87 | 4,574.83 | 92.04 | 50.706 | |
| 9,600.00 | 7,096.60 | 3,392.00 | 3,387.10 | 51.56 | 105.40 | -14.53 | -1,383.46 | -43.89 | 4,725.71 | 4,631.89 | 93.82 | 50.369 | |
| 9,700.00 | 7,096.25 | 3,392.00 | 3,387.10 | 52.95 | 105.40 | -14.53 | -1,383.46 | -43.89 | 4,785.92 | 4,690.38 | 95.55 | 50.089 | |
| 9,800.00 | 7,095.90 | 3,392.00 | 3,387.10 | 54.35 | 105.40 | -14.53 | -1,383.46 | -43.89 | 4,847.45 | 4,750.23 | 97.22 | 49.861 | |
| 9,900.00 | 7,095.55 | 3,392.00 | 3,387.10 | 55.76 | 105.40 | -14.53 | -1,383.46 | -43.89 | 4,910.24 | 4,811.41 | 98.83 | 49.682 | |
| 10,000.00 | 7,095.20 | 3,392.00 | 3,387.10 | 57.18 | 105.40 | -14.53 | -1,383.46 | -43.89 | 4,974.25 | 4,873.86 | 100.39 | 49.547 | |
| 10,100.00 | 7,094.85 | 3,392.00 | 3,387.10 | 58.61 | 105.40 | -14.53 | -1,383.46 | -43.89 | 5,039.44 | 4,937.53 | 101.90 | 49.454 | |
| 10,200.00 | 7,094.50 | 3,392.00 | 3,387.10 | 60.05 | 105.40 | -14.53 | -1,383.46 | -43.89 | 5,105.75 | 5,002.39 | 103.36 | 49.399 | |
| 10,300.00 | 7,094.15 | 3,392.00 | 3,387.10 | 61.50 | 105.40 | -14.53 | -1,383.46 | -43.89 | 5,173.14 | 5,068.38 | 104.76 | 49.381 | |
| 10,400.00 | 7,093.80 | 3,392.00 | 3,387.10 | 62.96 | 105.40 | -14.53 | -1,383.46 | -43.89 | 5,241.57 | 5,135.46 | 106.11 | 49.395 | |
| 10,500.00 | 7,093.45 | 3,392.00 | 3,387.10 | 64.42 | 105.40 | -14.53 | -1,383.46 | -43.89 | 5,311.01 | 5,203.58 | 107.42 | 49.441 | |
| 10,600.00 | 7,093.10 | 3,392.00 | 3,387.10 | 65.89 | 105.40 | -14.53 | -1,383.46 | -43.89 | 5,381.40 | 5,272.72 | 108.68 | 49.515 | |
| 10,700.00 | 7,092.75 | 3,392.00 | 3,387.10 | 67.36 | 105.40 | -14.53 | -1,383.46 | -43.89 | 5,452.72 | 5,342.83 | 109.90 | 49.617 | |
| 10,800.00 | 7,092.40 | 3,392.00 | 3,387.10 | 68.84 | 105.40 | -14.53 | -1,383.46 | -43.89 | 5,524.94 | 5,413.87 | 111.07 | 49.743 | |
| 10,900.00 | 7,092.05 | 3,392.00 | 3,387.10 | 70.33 | 105.40 | -14.53 | -1,383.46 | -43.89 | 5,598.00 | 5,485.80 | 112.20 | 49.894 | |
| 11,000.00 | 7,091.70 | 3,392.00 | 3,387.10 | 71.82 | 105.40 | -14.53 | -1,383.46 | -43.89 | 5,671.89 | 5,558.60 | 113.29 | 50.066 | |
| 11,100.00 | 7,091.35 | 3,392.00 | 3,387.10 | 73.31 | 105.40 | -14.53 | -1,383.46 | -43.89 | 5,746.57 | 5,632.23 | 114.34 | 50.259 | |
| 11,200.00 | 7,091.00 | 3,392.00 | 3,387.10 | 74.81 | 105.40 | -14.53 | -1,383.46 | -43.89 | 5,822.01 | 5,706.66 | 115.35 | 50.472 | |
| 11,300.00 | 7,090.65 | 3,392.00 | 3,387.10 | 76.32 | 105.40 | -14.53 | -1,383.46 | -43.89 | 5,898.18 | 5,781.85 | 116.33 | 50.702 | |
| 11,400.00 | 7,090.30 | 3,392.00 | 3,387.10 | 77.82 | 105.40 | -14.53 | -1,383.46 | -43.89 | 5,975.05 | 5,857.78 | 117.27 | 50.950 | |
| 11,500.00 | 7,089.95 | 3,392.00 | 3,387.10 | 79.34 | 105.40 | -14.53 | -1,383.46 | -43.89 | 6,052.60 | 5,934.41 | 118.18 | 51.214 | |
| 11,600.00 | 7,089.60 | 3,392.00 | 3,387.10 | 80.85 | 105.40 | -14.53 | -1,383.46 | -43.89 | 6,130.79 | 6,011.73 | 119.06 | 51.494 | |
| 11,700.00 | 7,089.25 | 3,392.00 | 3,387.10 | 82.37 | 105.40 | -14.53 | -1,383.46 | -43.89 | 6,209.62 | 6,089.71 | 119.91 | 51.787 | |
| 11,800.00 | 7,088.90 | 3,392.00 | 3,387.10 | 83.89 | 105.40 | -14.53 | -1,383.46 | -43.89 | 6,289.04 | 6,168.32 | 120.72 | 52.094 | |
| 11,900.00 | 7,088.55 | 3,392.00 | 3,387.10 | 85.41 | 105.40 | -14.53 | -1,383.46 | -43.89 | 6,369.05 | 6,247.53 | 121.51 | 52.414 | |
| 12,000.00 | 7,088.20 | 3,392.00 | 3,387.10 | 86.94 | 105.40 | -14.53 | -1,383.46 | -43.89 | 6,449.61 | 6,327.33 | 122.28 | 52.746 | |
| 12,100.00 | 7,087.85 | 3,392.00 | 3,387.10 | 88.47 | 105.40 | -14.53 | -1,383.46 | -43.89 | 6,530.71 | 6,407.70 | 123.01 | 53.089 | |
| 12,200.00 | 7,087.50 | 3,392.00 | 3,387.10 | 90.00 | 105.40 | -14.53 | -1,383.46 | -43.89 | 6,612.33 | 6,488.61 | 123.73 | 53.443 | |
| 12,300.00 | 7,087.15 | 3,392.00 | 3,387.10 | 91.54 | 105.40 | -14.53 | -1,383.46 | -43.89 | 6,694.45 | 6,570.03 | 124.41 | 53.808 | |
| 12,400.00 | 7,086.81 | 3,392.00 | 3,387.10 | 93.07 | 105.40 | -14.53 | -1,383.46 | -43.89 | 6,777.05 | 6,651.97 | 125.08 | 54.182 | |
| 12,500.00 | 7,086.46 | 3,392.00 | 3,387.10 | 94.61 | 105.40 | -14.53 | -1,383.46 | -43.89 | 6,860.11 | 6,734.38 | 125.72 | 54.565 | |
| 12,600.00 | 7,086.11 | 3,392.00 | 3,387.10 | 96.15 | 105.40 | -14.53 | -1,383.46 | -43.89 | 6,943.61 | 6,817.27 | 126.35 | 54.957 | |
| 12,700.00 | 7,085.76 | 3,392.00 | 3,387.10 | 97.69 | 105.40 | -14.53 | -1,383.46 | -43.89 | 7,027.55 | 6,900.60 | 126.95 | 55.357 | |
| 12,800.00 | 7,085.41 | 3,392.00 | 3,387.10 | 99.24 | 105.40 | -14.53 | -1,383.46 | -43.89 | 7,111.91 | 6,984.37 | 127.53 | 55.765 | |
| 12,900.00 | 7,085.06 | 3,392.00 | 3,387.10 | 100.78 | 105.40 | -14.53 | -1,383.46 | -43.89 | 7,196.66 | 7,068.56 | 128.10 | 56.181 | |
| 13,000.00 | 7,084.71 | 3,392.00 | 3,387.10 | 102.33 | 105.40 | -14.53 | -1,383.46 | -43.89 | 7,281.80 | 7,153.16 | 128.65 | 56.604 | |
| 13,100.00 | 7,084.36 | 3,392.00 | 3,387.10 | 103.88 | 105.40 | -14.53 | -1,383.46 | -43.89 | 7,367.32 | 7,238.14 | 129.18 | 57.033 | |
| 13,200.00 | 7,084.01 | 3,392.00 | 3,387.10 | 105.43 | 105.40 | -14.53 | -1,383.46 | -43.89 | 7,453.19 | 7,323.50 | 129.69 | 57.469 | |
| 13,300.00 | 7,083.66 | 3,392.00 | 3,387.10 | 106.99 | 105.40 | -14.53 | -1,383.46 | -43.89 | 7,539.41 | 7,409.23 | 130.19 | 57.911 | |
| 13,400.00 | 7,083.31 | 3,392.00 | 3,387.10 | 108.54 | 105.40 | -14.53 | -1,383.46 | -43.89 | 7,625.97 | 7,495.30 | 130.67 | 58.359 | |
| 13,500.00 | 7,082.96 | 3,392.00 | 3,387.10 | 110.09 | 105.40 | -14.53 | -1,383.46 | -43.89 | 7,712.86 | 7,581.72 | 131.14 | 58.812 | |
| 13,600.00 | 7,082.61 | 3,392.00 | 3,387.10 | 111.65 | 105.40 | -14.53 | -1,383.46 | -43.89 | 7,800.06 | 7,668.46 | 131.60 | 59.271 | |
| 13,700.00 | 7,082.26 | 3,392.00 | 3,387.10 | 113.21 | 105.40 | -14.53 | -1,383.46 | -43.89 | 7,887.56 | 7,755.52 | 132.04 | 59.735 | |
| 13,800.00 | 7,081.91 | 3,392.00 | 3,387.10 | 114.77 | 105.40 | -14.53 | -1,383.46 | -43.89 | 7,975.36 | 7,842.88 | 132.47 | 60.203 | |
| 13,900.00 | 7,081.56 | 3,392.00 | 3,387.10 | 116.33 | 105.40 | -14.53 | -1,383.46 | -43.89 | 8,063.44 | 7,930.55 | 132.89 | 60.676 | |

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

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

**Survey Program:** 235-A027Ua_INC-ONLY

**Rule Assigned:**

**Offset Well Error:** 3.28 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 14,000.00 | 7,081.21 | 3,392.00 | 3,387.10 | 117.89 | 105.40 | -14.53 | -1,383.46 | -43.89 | 8,151.80 | 8,018.50 | 133.30 | 61.154 | |
| 14,100.00 | 7,080.86 | 3,392.00 | 3,387.10 | 119.45 | 105.40 | -14.53 | -1,383.46 | -43.89 | 8,240.42 | 8,106.72 | 133.70 | 61.636 | |
| 14,200.00 | 7,080.51 | 3,392.00 | 3,387.10 | 121.02 | 105.40 | -14.53 | -1,383.46 | -43.89 | 8,329.30 | 8,195.22 | 134.08 | 62.121 | |
| 14,300.00 | 7,080.16 | 3,392.00 | 3,387.10 | 122.58 | 105.40 | -14.53 | -1,383.46 | -43.89 | 8,418.43 | 8,283.97 | 134.46 | 62.611 | |
| 14,400.00 | 7,079.81 | 3,392.00 | 3,387.10 | 124.15 | 105.40 | -14.53 | -1,383.46 | -43.89 | 8,507.80 | 8,372.98 | 134.82 | 63.104 | |
| 14,500.00 | 7,079.46 | 3,392.00 | 3,387.10 | 125.71 | 105.40 | -14.53 | -1,383.46 | -43.89 | 8,597.40 | 8,462.23 | 135.18 | 63.601 | |
| 14,600.00 | 7,079.11 | 3,392.00 | 3,387.10 | 127.28 | 105.40 | -14.53 | -1,383.46 | -43.89 | 8,687.24 | 8,551.71 | 135.52 | 64.101 | |
| 14,700.00 | 7,078.76 | 3,392.00 | 3,387.10 | 128.85 | 105.40 | -14.53 | -1,383.46 | -43.89 | 8,777.29 | 8,641.43 | 135.86 | 64.604 | |
| 14,800.00 | 7,078.41 | 3,392.00 | 3,387.10 | 130.42 | 105.40 | -14.53 | -1,383.46 | -43.89 | 8,867.55 | 8,731.36 | 136.19 | 65.110 | |
| 14,900.00 | 7,078.06 | 3,392.00 | 3,387.10 | 131.98 | 105.40 | -14.53 | -1,383.46 | -43.89 | 8,958.02 | 8,821.51 | 136.51 | 65.620 | |
| 15,000.00 | 7,077.71 | 3,392.00 | 3,387.10 | 133.55 | 105.40 | -14.53 | -1,383.46 | -43.89 | 9,048.70 | 8,911.87 | 136.83 | 66.132 | |
| 15,100.00 | 7,077.36 | 3,392.00 | 3,387.10 | 135.13 | 105.40 | -14.53 | -1,383.46 | -43.89 | 9,139.56 | 9,002.43 | 137.14 | 66.646 | |
| 15,200.00 | 7,077.01 | 3,392.00 | 3,387.10 | 136.70 | 105.40 | -14.53 | -1,383.46 | -43.89 | 9,230.62 | 9,093.19 | 137.44 | 67.164 | |
| 15,300.00 | 7,076.66 | 3,392.00 | 3,387.10 | 138.27 | 105.40 | -14.53 | -1,383.46 | -43.89 | 9,321.86 | 9,184.13 | 137.73 | 67.683 | |
| 15,400.00 | 7,076.31 | 3,392.00 | 3,387.10 | 139.84 | 105.40 | -14.53 | -1,383.46 | -43.89 | 9,413.28 | 9,275.26 | 138.01 | 68.205 | |
| 15,500.00 | 7,075.96 | 3,392.00 | 3,387.10 | 141.42 | 105.40 | -14.53 | -1,383.46 | -43.89 | 9,504.87 | 9,366.57 | 138.29 | 68.729 | |
| 15,600.00 | 7,075.61 | 3,392.00 | 3,387.10 | 142.99 | 105.40 | -14.53 | -1,383.46 | -43.89 | 9,596.62 | 9,458.06 | 138.57 | 69.256 | |
| 15,700.00 | 7,075.26 | 3,392.00 | 3,387.10 | 144.57 | 105.40 | -14.53 | -1,383.46 | -43.89 | 9,688.55 | 9,549.71 | 138.84 | 69.784 | |
| 15,800.00 | 7,074.91 | 3,392.00 | 3,387.10 | 146.14 | 105.40 | -14.53 | -1,383.46 | -43.89 | 9,780.63 | 9,641.53 | 139.10 | 70.314 | |
| 15,900.00 | 7,074.56 | 3,392.00 | 3,387.10 | 147.72 | 105.40 | -14.53 | -1,383.46 | -43.89 | 9,872.86 | 9,733.50 | 139.36 | 70.846 | |
| 16,000.00 | 7,074.21 | 3,392.00 | 3,387.10 | 149.29 | 105.40 | -14.53 | -1,383.46 | -43.89 | 9,965.24 | 9,825.64 | 139.61 | 71.380 | |
| 16,100.00 | 7,073.86 | 3,392.00 | 3,387.10 | 150.87 | 105.40 | -14.53 | -1,383.46 | -43.89 | 10,057.77 | 9,917.92 | 139.85 | 71.916 | |
| 16,200.00 | 7,073.51 | 3,392.00 | 3,387.10 | 152.45 | 105.40 | -14.53 | -1,383.46 | -43.89 | 10,150.44 | 10,010.35 | 140.10 | 72.453 | |
| 16,300.00 | 7,073.16 | 3,392.00 | 3,387.10 | 154.03 | 105.40 | -14.53 | -1,383.46 | -43.89 | 10,243.25 | 10,102.92 | 140.33 | 72.992 | |
| 16,400.00 | 7,072.81 | 3,392.00 | 3,387.10 | 155.60 | 105.40 | -14.53 | -1,383.46 | -43.89 | 10,336.19 | 10,195.63 | 140.57 | 73.532 | |
| 16,500.00 | 7,072.46 | 3,392.00 | 3,387.10 | 157.18 | 105.40 | -14.53 | -1,383.46 | -43.89 | 10,429.27 | 10,288.47 | 140.80 | 74.074 | |
| 16,600.00 | 7,072.11 | 3,392.00 | 3,387.10 | 158.76 | 105.40 | -14.53 | -1,383.46 | -43.89 | 10,522.47 | 10,381.45 | 141.02 | 74.617 | |
| 16,631.96 | 7,072.00 | 3,392.00 | 3,387.10 | 159.27 | 105.40 | -14.53 | -1,383.46 | -43.89 | 10,552.28 | 10,411.19 | 141.09 | 74.791 | |

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

**Survey Program:** 101-A027Ua_INC-ONLY

**Offset Well Error:** 0.00 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 3.28 | 0.00 | 108.60 | -1,081.79 | 3,215.16 | 3,392.68 | | | | |
| 100.00 | 100.00 | 47.00 | 47.00 | 3.29 | 0.43 | 108.60 | -1,081.79 | 3,215.16 | 3,392.27 | 3,388.55 | 3.72 | 910.896 | |
| 200.00 | 200.00 | 147.00 | 147.00 | 3.34 | 1.81 | 108.60 | -1,081.79 | 3,215.16 | 3,392.27 | 3,387.13 | 5.14 | 659.337 | |
| 230.65 | 230.65 | 177.64 | 177.64 | 3.36 | 2.39 | 108.59 | -1,081.62 | 3,215.16 | 3,392.22 | 3,386.47 | 5.75 | 589.976 | |
| 300.00 | 300.00 | 242.96 | 242.96 | 3.42 | 3.63 | 108.60 | -1,081.75 | 3,215.16 | 3,392.26 | 3,385.20 | 7.05 | 480.853 | |
| 400.00 | 400.00 | 347.01 | 347.00 | 3.54 | 5.56 | 108.60 | -1,081.79 | 3,215.16 | 3,392.27 | 3,383.17 | 9.10 | 372.745 | |
| 423.07 | 423.07 | 369.52 | 369.51 | 3.57 | 5.98 | 108.59 | -1,081.44 | 3,215.16 | 3,392.16 | 3,382.61 | 9.55 | 355.260 | |
| 500.00 | 500.00 | 441.68 | 441.67 | 3.69 | 7.31 | 108.59 | -1,081.64 | 3,215.16 | 3,392.23 | 3,381.23 | 11.00 | 308.419 | |
| 600.00 | 599.98 | 547.00 | 546.98 | 3.86 | 9.26 | -101.43 | -1,081.79 | 3,215.16 | 3,392.62 | 3,379.50 | 13.11 | 258.714 | |
| 697.00 | 696.84 | 643.86 | 643.84 | 4.04 | 11.05 | -101.49 | -1,081.79 | 3,215.16 | 3,393.62 | 3,378.53 | 15.08 | 224.987 | |
| 700.00 | 699.84 | 646.86 | 646.84 | 4.05 | 11.10 | -101.49 | -1,081.79 | 3,215.16 | 3,393.66 | 3,378.51 | 15.14 | 224.079 | |
| 800.00 | 799.60 | 746.47 | 746.45 | 4.25 | 12.94 | -101.61 | -1,081.51 | 3,215.16 | 3,394.95 | 3,377.75 | 17.20 | 197.426 | |
| 897.00 | 896.37 | 842.40 | 842.38 | 4.48 | 14.72 | -101.72 | -1,081.56 | 3,215.16 | 3,396.31 | 3,377.12 | 19.19 | 176.960 | |
| 900.00 | 899.37 | 845.36 | 845.34 | 4.48 | 14.77 | -100.86 | -1,081.56 | 3,215.16 | 3,396.35 | 3,377.10 | 19.25 | 176.392 | |
| 947.40 | 946.65 | 892.24 | 892.22 | 4.60 | 15.64 | -87.10 | -1,081.61 | 3,215.16 | 3,396.60 | 3,376.36 | 20.24 | 167.846 | |
| 1,000.00 | 999.13 | 944.27 | 944.24 | 4.73 | 16.60 | -87.16 | -1,081.70 | 3,215.16 | 3,396.44 | 3,375.11 | 21.33 | 159.230 | |
| 1,100.00 | 1,098.89 | 1,045.93 | 1,045.89 | 4.99 | 18.57 | -87.28 | -1,081.79 | 3,215.16 | 3,396.13 | 3,372.57 | 23.56 | 144.119 | |
| 1,200.00 | 1,198.66 | 1,145.70 | 1,145.66 | 5.27 | 20.59 | -87.39 | -1,081.79 | 3,215.16 | 3,395.81 | 3,369.96 | 25.86 | 131.338 | |
| 1,300.00 | 1,298.42 | 1,245.33 | 1,245.28 | 5.56 | 22.60 | -87.52 | -1,080.98 | 3,215.16 | 3,395.26 | 3,367.11 | 28.15 | 120.594 | |
| 1,400.00 | 1,398.18 | 1,342.47 | 1,342.42 | 5.85 | 24.56 | -87.63 | -1,081.11 | 3,215.16 | 3,395.01 | 3,364.60 | 30.41 | 111.631 | |
| 1,500.00 | 1,497.95 | 1,439.64 | 1,439.59 | 6.16 | 26.52 | -87.74 | -1,081.50 | 3,215.16 | 3,394.85 | 3,362.17 | 32.68 | 103.882 | |
| 1,600.00 | 1,597.71 | 1,544.81 | 1,544.71 | 6.47 | 28.65 | -87.86 | -1,081.79 | 3,215.16 | 3,394.67 | 3,359.55 | 35.12 | 96.651 | |
| 1,700.00 | 1,697.47 | 1,644.57 | 1,644.47 | 6.79 | 30.68 | -87.97 | -1,081.79 | 3,215.16 | 3,394.42 | 3,356.95 | 37.47 | 90.592 | |
| 1,800.00 | 1,797.24 | 1,744.14 | 1,744.03 | 7.11 | 32.70 | -88.10 | -1,080.70 | 3,215.16 | 3,393.86 | 3,354.05 | 39.82 | 85.237 | |
| 1,900.00 | 1,897.00 | 1,840.56 | 1,840.44 | 7.44 | 34.66 | -88.21 | -1,080.88 | 3,215.16 | 3,393.70 | 3,351.59 | 42.10 | 80.602 | |
| 1,999.22 | 1,995.99 | 1,936.27 | 1,936.15 | 7.77 | 36.61 | -88.32 | -1,081.39 | 3,215.16 | 3,393.64 | 3,349.26 | 44.38 | 76.469 | |
| 2,000.00 | 1,996.76 | 1,937.03 | 1,936.91 | 7.77 | 36.63 | -88.32 | -1,081.39 | 3,215.16 | 3,393.64 | 3,349.25 | 44.40 | 76.438 | |
| 2,100.00 | 2,096.53 | 2,043.69 | 2,043.53 | 8.11 | 38.84 | -88.43 | -1,081.79 | 3,215.16 | 3,393.56 | 3,346.61 | 46.94 | 72.291 | |
| 2,200.00 | 2,196.29 | 2,143.45 | 2,143.29 | 8.44 | 40.94 | -88.55 | -1,081.79 | 3,215.16 | 3,393.38 | 3,343.99 | 49.39 | 68.713 | |
| 2,300.00 | 2,296.06 | 2,243.06 | 2,242.89 | 8.79 | 43.04 | -88.68 | -1,080.98 | 3,215.16 | 3,392.98 | 3,341.15 | 51.83 | 65.468 | |
| 2,400.00 | 2,395.82 | 2,340.37 | 2,340.20 | 9.13 | 45.09 | -88.79 | -1,081.12 | 3,215.16 | 3,392.86 | 3,338.64 | 54.22 | 62.574 | |
| 2,480.32 | 2,475.95 | 2,418.55 | 2,418.38 | 9.41 | 46.74 | -88.88 | -1,081.41 | 3,215.16 | 3,392.84 | 3,336.69 | 56.15 | 60.427 | |
| 2,500.00 | 2,495.58 | 2,437.71 | 2,437.54 | 9.47 | 47.15 | -88.90 | -1,081.51 | 3,215.16 | 3,392.84 | 3,336.22 | 56.62 | 59.923 | |
| 2,600.00 | 2,595.35 | 2,542.58 | 2,542.35 | 9.82 | 49.32 | -89.01 | -1,081.79 | 3,215.16 | 3,392.79 | 3,333.65 | 59.14 | 57.368 | |
| 2,700.00 | 2,695.11 | 2,642.34 | 2,642.11 | 10.17 | 51.36 | -89.13 | -1,081.79 | 3,215.16 | 3,392.68 | 3,331.15 | 61.53 | 55.141 | |
| 2,800.00 | 2,794.87 | 2,742.11 | 2,741.87 | 10.52 | 53.39 | -89.24 | -1,081.79 | 3,215.16 | 3,392.58 | 3,328.66 | 63.92 | 53.079 | |
| 2,900.00 | 2,894.64 | 2,841.53 | 2,841.28 | 10.87 | 55.42 | -89.39 | -1,079.92 | 3,215.16 | 3,391.98 | 3,325.68 | 66.30 | 51.163 | |
| 2,965.01 | 2,959.49 | 2,904.55 | 2,904.29 | 11.10 | 56.71 | -89.46 | -1,080.00 | 3,215.16 | 3,391.96 | 3,324.15 | 67.81 | 50.018 CC | |
| 3,000.00 | 2,994.40 | 2,938.48 | 2,938.22 | 11.23 | 57.40 | -89.50 | -1,080.10 | 3,215.16 | 3,391.97 | 3,323.34 | 68.63 | 49.423 | |
| 3,100.00 | 3,094.16 | 3,035.48 | 3,035.21 | 11.58 | 59.39 | -89.60 | -1,080.58 | 3,215.16 | 3,392.05 | 3,321.08 | 70.97 | 47.798 | |
| 3,200.00 | 3,193.93 | 3,132.53 | 3,132.25 | 11.94 | 61.37 | -89.70 | -1,081.37 | 3,215.16 | 3,392.22 | 3,318.92 | 73.30 | 46.276 | |
| 3,300.00 | 3,293.69 | 3,241.01 | 3,240.69 | 12.29 | 63.44 | -89.82 | -1,081.79 | 3,215.16 | 3,392.30 | 3,316.57 | 75.73 | 44.795 | |
| 3,400.00 | 3,393.45 | 3,340.77 | 3,340.45 | 12.65 | 65.26 | -89.94 | -1,081.79 | 3,215.16 | 3,392.29 | 3,314.38 | 77.91 | 43.543 | |
| 3,452.53 | 3,445.86 | 3,393.18 | 3,392.86 | 12.84 | 66.21 | -90.00 | -1,081.79 | 3,215.16 | 3,392.28 | 3,313.23 | 79.05 | 42.912 | |
| 3,500.00 | 3,493.22 | 3,414.00 | 3,413.67 | 13.01 | 66.59 | -90.02 | -1,081.79 | 3,215.16 | 3,392.39 | 3,312.79 | 79.60 | 42.619 ES | |
| 3,600.00 | 3,592.98 | 3,414.00 | 3,413.67 | 13.37 | 66.59 | -90.02 | -1,081.79 | 3,215.16 | 3,394.65 | 3,314.74 | 79.91 | 42.483 | |
| 3,700.00 | 3,692.74 | 3,414.00 | 3,413.67 | 13.73 | 66.59 | -90.02 | -1,081.79 | 3,215.16 | 3,399.85 | 3,319.70 | 80.15 | 42.419 SF | |
| 3,800.00 | 3,792.51 | 3,414.00 | 3,413.67 | 14.09 | 66.59 | -90.02 | -1,081.79 | 3,215.16 | 3,407.98 | 3,327.65 | 80.33 | 42.427 | |
| 3,900.00 | 3,892.27 | 3,414.00 | 3,413.67 | 14.45 | 66.59 | -90.02 | -1,081.79 | 3,215.16 | 3,419.02 | 3,338.58 | 80.44 | 42.505 | |
| 4,000.00 | 3,992.04 | 3,414.00 | 3,413.67 | 14.81 | 66.59 | -90.02 | -1,081.79 | 3,215.16 | 3,432.93 | 3,352.45 | 80.48 | 42.653 | |
| 4,100.00 | 4,091.80 | 3,414.00 | 3,413.67 | 15.17 | 66.59 | -90.02 | -1,081.79 | 3,215.16 | 3,449.69 | 3,369.22 | 80.47 | 42.869 | |
| 4,200.00 | 4,191.56 | 3,414.00 | 3,413.67 | 15.53 | 66.59 | -90.02 | -1,081.79 | 3,215.16 | 3,469.25 | 3,388.85 | 80.40 | 43.152 | |

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

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

**Survey Program:** 101-A027Ua_INC-ONLY

**Offset Well Error:** 0.00 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Rule Assigned: Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4,300.00 | 4,291.33 | 3,414.00 | 3,413.67 | 15.89 | 66.59 | -90.02 | -1,081.79 | 3,215.16 | 3,491.57 | 3,411.30 | 80.26 | 43.501 | |
| 4,400.00 | 4,391.09 | 3,414.00 | 3,413.67 | 16.26 | 66.59 | -90.02 | -1,081.79 | 3,215.16 | 3,516.59 | 3,436.51 | 80.08 | 43.916 | |
| 4,500.00 | 4,490.85 | 3,414.00 | 3,413.67 | 16.62 | 66.59 | -90.02 | -1,081.79 | 3,215.16 | 3,544.25 | 3,464.41 | 79.84 | 44.394 | |
| 4,600.00 | 4,590.62 | 3,414.00 | 3,413.67 | 16.99 | 66.59 | -90.02 | -1,081.79 | 3,215.16 | 3,574.50 | 3,494.95 | 79.55 | 44.935 | |
| 4,700.00 | 4,690.38 | 3,414.00 | 3,413.67 | 17.35 | 66.59 | -90.02 | -1,081.79 | 3,215.16 | 3,607.27 | 3,528.06 | 79.22 | 45.538 | |
| 4,800.00 | 4,790.14 | 3,414.00 | 3,413.67 | 17.71 | 66.59 | -90.02 | -1,081.79 | 3,215.16 | 3,642.49 | 3,563.65 | 78.84 | 46.201 | |
| 4,900.00 | 4,889.91 | 3,414.00 | 3,413.67 | 18.08 | 66.59 | -90.02 | -1,081.79 | 3,215.16 | 3,680.09 | 3,601.67 | 78.43 | 46.924 | |
| 5,000.00 | 4,989.67 | 3,414.00 | 3,413.67 | 18.44 | 66.59 | -90.02 | -1,081.79 | 3,215.16 | 3,720.00 | 3,642.02 | 77.98 | 47.705 | |
| 5,100.00 | 5,089.43 | 3,414.00 | 3,413.67 | 18.81 | 66.59 | -90.02 | -1,081.79 | 3,215.16 | 3,762.15 | 3,684.65 | 77.50 | 48.543 | |
| 5,200.00 | 5,189.20 | 3,414.00 | 3,413.67 | 19.17 | 66.59 | -90.02 | -1,081.79 | 3,215.16 | 3,806.46 | 3,729.46 | 77.00 | 49.437 | |
| 5,300.00 | 5,288.96 | 3,414.00 | 3,413.67 | 19.54 | 66.59 | -90.02 | -1,081.79 | 3,215.16 | 3,852.85 | 3,776.38 | 76.47 | 50.386 | |
| 5,400.00 | 5,388.72 | 3,414.00 | 3,413.67 | 19.91 | 66.59 | -90.02 | -1,081.79 | 3,215.16 | 3,901.26 | 3,825.34 | 75.92 | 51.388 | |
| 5,500.00 | 5,488.49 | 3,414.00 | 3,413.67 | 20.27 | 66.59 | -90.02 | -1,081.79 | 3,215.16 | 3,951.60 | 3,876.25 | 75.35 | 52.443 | |
| 5,600.00 | 5,588.25 | 3,414.00 | 3,413.67 | 20.64 | 66.59 | -90.02 | -1,081.79 | 3,215.16 | 4,003.81 | 3,929.04 | 74.77 | 53.548 | |
| 5,700.00 | 5,688.01 | 3,414.00 | 3,413.67 | 21.00 | 66.59 | -90.02 | -1,081.79 | 3,215.16 | 4,057.81 | 3,983.63 | 74.18 | 54.703 | |
| 5,800.00 | 5,787.78 | 3,414.00 | 3,413.67 | 21.37 | 66.59 | -90.02 | -1,081.79 | 3,215.16 | 4,113.53 | 4,039.95 | 73.58 | 55.906 | |
| 5,900.00 | 5,887.54 | 3,414.00 | 3,413.67 | 21.74 | 66.59 | -90.02 | -1,081.79 | 3,215.16 | 4,170.91 | 4,097.94 | 72.97 | 57.157 | |
| 6,000.00 | 5,987.31 | 3,414.00 | 3,413.67 | 22.11 | 66.59 | -90.02 | -1,081.79 | 3,215.16 | 4,229.88 | 4,157.51 | 72.36 | 58.453 | |
| 6,100.00 | 6,087.07 | 3,414.00 | 3,413.67 | 22.47 | 66.59 | -90.02 | -1,081.79 | 3,215.16 | 4,290.36 | 4,218.61 | 71.75 | 59.793 | |
| 6,200.00 | 6,186.83 | 3,414.00 | 3,413.67 | 22.84 | 66.59 | -90.02 | -1,081.79 | 3,215.16 | 4,352.30 | 4,281.16 | 71.14 | 61.176 | |
| 6,300.00 | 6,286.60 | 3,414.00 | 3,413.67 | 23.21 | 66.59 | -90.02 | -1,081.79 | 3,215.16 | 4,415.64 | 4,345.10 | 70.54 | 62.601 | |
| 6,400.00 | 6,386.36 | 3,414.00 | 3,413.67 | 23.58 | 66.59 | -90.02 | -1,081.79 | 3,215.16 | 4,480.31 | 4,410.38 | 69.93 | 64.066 | |
| 6,494.00 | 6,480.13 | 3,414.00 | 3,413.67 | 23.92 | 66.59 | -90.02 | -1,081.79 | 3,215.16 | 4,542.27 | 4,472.90 | 69.37 | 65.478 | |
| 6,500.00 | 6,486.12 | 3,414.00 | 3,413.67 | 23.94 | 66.59 | -97.17 | -1,081.79 | 3,215.16 | 4,546.29 | 4,476.95 | 69.34 | 65.569 | |
| 6,550.00 | 6,535.89 | 3,414.00 | 3,413.67 | 24.13 | 66.59 | -131.46 | -1,081.79 | 3,215.16 | 4,581.42 | 4,512.36 | 69.06 | 66.338 | |
| 6,600.00 | 6,585.24 | 3,414.00 | 3,413.67 | 24.31 | 66.59 | -142.17 | -1,081.79 | 3,215.16 | 4,619.37 | 4,550.55 | 68.82 | 67.121 | |
| 6,650.00 | 6,633.88 | 3,414.00 | 3,413.67 | 24.50 | 66.59 | -145.75 | -1,081.79 | 3,215.16 | 4,659.85 | 4,591.23 | 68.61 | 67.914 | |
| 6,700.00 | 6,681.49 | 3,414.00 | 3,413.67 | 24.68 | 66.59 | -146.20 | -1,081.79 | 3,215.16 | 4,702.53 | 4,634.09 | 68.44 | 68.711 | |
| 6,750.00 | 6,727.80 | 3,414.00 | 3,413.67 | 24.86 | 66.59 | -144.51 | -1,081.79 | 3,215.16 | 4,747.10 | 4,678.80 | 68.30 | 69.504 | |
| 6,800.00 | 6,772.51 | 3,414.00 | 3,413.67 | 25.04 | 66.59 | -140.64 | -1,081.79 | 3,215.16 | 4,793.24 | 4,725.05 | 68.19 | 70.287 | |
| 6,850.00 | 6,815.34 | 3,414.00 | 3,413.67 | 25.21 | 66.59 | -133.88 | -1,081.79 | 3,215.16 | 4,840.62 | 4,772.50 | 68.13 | 71.054 | |
| 6,900.00 | 6,856.04 | 3,414.00 | 3,413.67 | 25.39 | 66.59 | -122.69 | -1,081.79 | 3,215.16 | 4,888.92 | 4,820.83 | 68.09 | 71.797 | |
| 6,950.00 | 6,894.35 | 3,414.00 | 3,413.67 | 25.57 | 66.59 | -105.02 | -1,081.79 | 3,215.16 | 4,937.82 | 4,869.72 | 68.10 | 72.510 | |
| 7,000.00 | 6,930.04 | 3,414.00 | 3,413.67 | 25.75 | 66.59 | -81.39 | -1,081.79 | 3,215.16 | 4,986.99 | 4,918.86 | 68.14 | 73.189 | |
| 7,050.00 | 6,962.89 | 3,414.00 | 3,413.67 | 25.93 | 66.59 | -58.56 | -1,081.79 | 3,215.16 | 5,036.15 | 4,967.93 | 68.21 | 73.829 | |
| 7,100.00 | 6,992.69 | 3,414.00 | 3,413.67 | 26.13 | 66.59 | -42.11 | -1,081.79 | 3,215.16 | 5,084.98 | 5,016.65 | 68.33 | 74.423 | |
| 7,150.00 | 7,019.25 | 3,414.00 | 3,413.67 | 26.33 | 66.59 | -31.49 | -1,081.79 | 3,215.16 | 5,133.20 | 5,064.73 | 68.47 | 74.968 | |
| 7,200.00 | 7,042.43 | 3,414.00 | 3,413.67 | 26.55 | 66.59 | -24.59 | -1,081.79 | 3,215.16 | 5,180.53 | 5,111.88 | 68.65 | 75.459 | |
| 7,250.00 | 7,062.07 | 3,414.00 | 3,413.67 | 26.79 | 66.59 | -19.90 | -1,081.79 | 3,215.16 | 5,226.72 | 5,157.85 | 68.87 | 75.893 | |
| 7,300.00 | 7,078.05 | 3,414.00 | 3,413.67 | 27.04 | 66.59 | -16.57 | -1,081.79 | 3,215.16 | 5,271.50 | 5,202.38 | 69.12 | 76.267 | |
| 7,350.00 | 7,090.27 | 3,414.00 | 3,413.67 | 27.30 | 66.59 | -14.11 | -1,081.79 | 3,215.16 | 5,314.65 | 5,245.25 | 69.40 | 76.577 | |
| 7,400.00 | 7,098.66 | 3,414.00 | 3,413.67 | 27.58 | 66.59 | -12.23 | -1,081.79 | 3,215.16 | 5,355.94 | 5,286.22 | 69.72 | 76.822 | |
| 7,450.00 | 7,103.17 | 3,414.00 | 3,413.67 | 27.87 | 66.59 | -10.75 | -1,081.79 | 3,215.16 | 5,395.15 | 5,325.08 | 70.07 | 76.999 | |
| 7,484.86 | 7,104.00 | 3,414.00 | 3,413.67 | 28.08 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 5,421.16 | 5,350.83 | 70.33 | 77.084 | |
| 7,500.00 | 7,103.95 | 3,414.00 | 3,413.67 | 28.17 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 5,432.22 | 5,361.78 | 70.44 | 77.114 | |
| 7,600.00 | 7,103.60 | 3,414.00 | 3,413.67 | 28.83 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 5,505.75 | 5,434.53 | 71.22 | 77.302 | |
| 7,700.00 | 7,103.25 | 3,414.00 | 3,413.67 | 29.56 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 5,580.10 | 5,508.12 | 71.99 | 77.517 | |
| 7,800.00 | 7,102.90 | 3,414.00 | 3,413.67 | 30.35 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 5,655.25 | 5,582.52 | 72.73 | 77.756 | |
| 7,900.00 | 7,102.55 | 3,414.00 | 3,413.67 | 31.21 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 5,731.15 | 5,657.70 | 73.46 | 78.020 | |
| 8,000.00 | 7,102.20 | 3,414.00 | 3,413.67 | 32.13 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 5,807.79 | 5,733.62 | 74.17 | 78.306 | |
| 8,100.00 | 7,101.85 | 3,414.00 | 3,413.67 | 33.10 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 5,885.12 | 5,810.26 | 74.86 | 78.615 | |
| 8,200.00 | 7,101.50 | 3,414.00 | 3,413.67 | 34.11 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 5,963.13 | 5,887.60 | 75.54 | 78.945 | |

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

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

**Survey Program:** 101-A027Ua_INC-ONLY

**Offset Well Error:** 0.00 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Rule Assigned: Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8,300.00 | 7,101.15 | 3,414.00 | 3,413.67 | 35.17 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 6,041.79 | 5,965.60 | 76.19 | 79.296 | |
| 8,400.00 | 7,100.80 | 3,414.00 | 3,413.67 | 36.27 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 6,121.07 | 6,044.24 | 76.83 | 79.666 | |
| 8,500.00 | 7,100.45 | 3,414.00 | 3,413.67 | 37.41 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 6,200.95 | 6,123.49 | 77.46 | 80.054 | |
| 8,600.00 | 7,100.10 | 3,414.00 | 3,413.67 | 38.58 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 6,281.41 | 6,203.34 | 78.07 | 80.461 | |
| 8,700.00 | 7,099.75 | 3,414.00 | 3,413.67 | 39.78 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 6,362.42 | 6,283.76 | 78.66 | 80.884 | |
| 8,800.00 | 7,099.40 | 3,414.00 | 3,413.67 | 41.00 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 6,443.96 | 6,364.72 | 79.24 | 81.323 | |
| 8,900.00 | 7,099.05 | 3,414.00 | 3,413.67 | 42.25 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 6,526.02 | 6,446.22 | 79.80 | 81.778 | |
| 9,000.00 | 7,098.70 | 3,414.00 | 3,413.67 | 43.53 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 6,608.57 | 6,528.22 | 80.35 | 82.248 | |
| 9,100.00 | 7,098.35 | 3,414.00 | 3,413.67 | 44.82 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 6,691.60 | 6,610.71 | 80.88 | 82.732 | |
| 9,200.00 | 7,098.00 | 3,414.00 | 3,413.67 | 46.14 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 6,775.08 | 6,693.68 | 81.40 | 83.229 | |
| 9,300.00 | 7,097.65 | 3,414.00 | 3,413.67 | 47.47 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 6,859.01 | 6,777.10 | 81.91 | 83.739 | |
| 9,400.00 | 7,097.30 | 3,414.00 | 3,413.67 | 48.82 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 6,943.36 | 6,860.96 | 82.40 | 84.261 | |
| 9,500.00 | 7,096.95 | 3,414.00 | 3,413.67 | 50.18 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 7,028.13 | 6,945.24 | 82.88 | 84.795 | |
| 9,600.00 | 7,096.60 | 3,414.00 | 3,413.67 | 51.56 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 7,113.29 | 7,029.93 | 83.35 | 85.340 | |
| 9,700.00 | 7,096.25 | 3,414.00 | 3,413.67 | 52.95 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 7,198.83 | 7,115.02 | 83.81 | 85.895 | |
| 9,800.00 | 7,095.90 | 3,414.00 | 3,413.67 | 54.35 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 7,284.74 | 7,200.48 | 84.25 | 86.461 | |
| 9,900.00 | 7,095.55 | 3,414.00 | 3,413.67 | 55.76 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 7,371.00 | 7,286.31 | 84.69 | 87.036 | |
| 10,000.00 | 7,095.20 | 3,414.00 | 3,413.67 | 57.18 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 7,457.61 | 7,372.50 | 85.11 | 87.621 | |
| 10,100.00 | 7,094.85 | 3,414.00 | 3,413.67 | 58.61 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 7,544.55 | 7,459.02 | 85.53 | 88.214 | |
| 10,200.00 | 7,094.50 | 3,414.00 | 3,413.67 | 60.05 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 7,631.81 | 7,545.88 | 85.93 | 88.815 | |
| 10,300.00 | 7,094.15 | 3,414.00 | 3,413.67 | 61.50 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 7,719.38 | 7,633.06 | 86.32 | 89.425 | |
| 10,400.00 | 7,093.80 | 3,414.00 | 3,413.67 | 62.96 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 7,807.24 | 7,720.54 | 86.71 | 90.042 | |
| 10,500.00 | 7,093.45 | 3,414.00 | 3,413.67 | 64.42 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 7,895.40 | 7,808.32 | 87.08 | 90.667 | |
| 10,600.00 | 7,093.10 | 3,414.00 | 3,413.67 | 65.89 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 7,983.84 | 7,896.39 | 87.45 | 91.298 | |
| 10,700.00 | 7,092.75 | 3,414.00 | 3,413.67 | 67.36 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 8,072.54 | 7,984.73 | 87.81 | 91.936 | |
| 10,800.00 | 7,092.40 | 3,414.00 | 3,413.67 | 68.84 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 8,161.51 | 8,073.35 | 88.16 | 92.580 | |
| 10,900.00 | 7,092.05 | 3,414.00 | 3,413.67 | 70.33 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 8,250.72 | 8,162.23 | 88.50 | 93.231 | |
| 11,000.00 | 7,091.70 | 3,414.00 | 3,413.67 | 71.82 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 8,340.19 | 8,251.36 | 88.83 | 93.887 | |
| 11,100.00 | 7,091.35 | 3,414.00 | 3,413.67 | 73.31 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 8,429.89 | 8,340.73 | 89.16 | 94.549 | |
| 11,200.00 | 7,091.00 | 3,414.00 | 3,413.67 | 74.81 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 8,519.82 | 8,430.34 | 89.48 | 95.215 | |
| 11,300.00 | 7,090.65 | 3,414.00 | 3,413.67 | 76.32 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 8,609.97 | 8,520.18 | 89.79 | 95.887 | |
| 11,400.00 | 7,090.30 | 3,414.00 | 3,413.67 | 77.82 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 8,700.34 | 8,610.24 | 90.10 | 96.564 | |
| 11,500.00 | 7,089.95 | 3,414.00 | 3,413.67 | 79.34 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 8,790.91 | 8,700.51 | 90.40 | 97.245 | |
| 11,600.00 | 7,089.60 | 3,414.00 | 3,413.67 | 80.85 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 8,881.69 | 8,791.00 | 90.69 | 97.931 | |
| 11,700.00 | 7,089.25 | 3,414.00 | 3,413.67 | 82.37 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 8,972.66 | 8,881.68 | 90.98 | 98.621 | |
| 11,800.00 | 7,088.90 | 3,414.00 | 3,413.67 | 83.89 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 9,063.83 | 8,972.56 | 91.26 | 99.314 | |
| 11,900.00 | 7,088.55 | 3,414.00 | 3,413.67 | 85.41 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 9,155.18 | 9,063.63 | 91.54 | 100.012 | |
| 12,000.00 | 7,088.20 | 3,414.00 | 3,413.67 | 86.94 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 9,246.70 | 9,154.89 | 91.81 | 100.713 | |
| 12,100.00 | 7,087.85 | 3,414.00 | 3,413.67 | 88.47 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 9,338.40 | 9,246.32 | 92.08 | 101.417 | |
| 12,200.00 | 7,087.50 | 3,414.00 | 3,413.67 | 90.00 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 9,430.27 | 9,337.93 | 92.34 | 102.125 | |
| 12,300.00 | 7,087.15 | 3,414.00 | 3,413.67 | 91.54 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 9,522.31 | 9,429.71 | 92.60 | 102.836 | |
| 12,400.00 | 7,086.81 | 3,414.00 | 3,413.67 | 93.07 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 9,614.50 | 9,521.65 | 92.85 | 103.550 | |
| 12,500.00 | 7,086.46 | 3,414.00 | 3,413.67 | 94.61 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 9,706.85 | 9,613.75 | 93.10 | 104.266 | |
| 12,600.00 | 7,086.11 | 3,414.00 | 3,413.67 | 96.15 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 9,799.35 | 9,706.01 | 93.34 | 104.985 | |
| 12,700.00 | 7,085.76 | 3,414.00 | 3,413.67 | 97.69 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 9,891.99 | 9,798.41 | 93.58 | 105.707 | |
| 12,800.00 | 7,085.41 | 3,414.00 | 3,413.67 | 99.24 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 9,984.78 | 9,890.96 | 93.81 | 106.431 | |
| 12,900.00 | 7,085.06 | 3,414.00 | 3,413.67 | 100.78 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 10,077.70 | 9,983.65 | 94.05 | 107.158 | |
| 13,000.00 | 7,084.71 | 3,414.00 | 3,413.67 | 102.33 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 10,170.76 | 10,076.48 | 94.27 | 107.887 | |
| 13,100.00 | 7,084.36 | 3,414.00 | 3,413.67 | 103.88 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 10,263.94 | 10,169.45 | 94.50 | 108.617 | |
| 13,200.00 | 7,084.01 | 3,414.00 | 3,413.67 | 105.43 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 10,357.26 | 10,262.54 | 94.72 | 109.350 | |
| 13,300.00 | 7,083.66 | 3,414.00 | 3,413.67 | 106.99 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 10,450.70 | 10,355.77 | 94.93 | 110.085 | |
| 13,400.00 | 7,083.31 | 3,414.00 | 3,413.67 | 108.54 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 10,544.26 | 10,449.11 | 95.15 | 110.821 | |

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 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

**Survey Program:** 101-A027Ua_INC-ONLY

**Rule Assigned:**

**Offset Well Error:** 0.00 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13,500.00 | 7,082.96 | 3,414.00 | 3,413.67 | 110.09 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 10,637.94 | 10,542.58 | 95.36 | 111.559 | |
| 13,600.00 | 7,082.61 | 3,414.00 | 3,413.67 | 111.65 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 10,731.73 | 10,636.16 | 95.56 | 112.299 | |
| 13,700.00 | 7,082.26 | 3,414.00 | 3,413.67 | 113.21 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 10,825.63 | 10,729.86 | 95.77 | 113.040 | |
| 13,800.00 | 7,081.91 | 3,414.00 | 3,413.67 | 114.77 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 10,919.64 | 10,823.67 | 95.97 | 113.782 | |
| 13,900.00 | 7,081.56 | 3,414.00 | 3,413.67 | 116.33 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 11,013.75 | 10,917.59 | 96.17 | 114.526 | |
| 14,000.00 | 7,081.21 | 3,414.00 | 3,413.67 | 117.89 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 11,107.97 | 11,011.61 | 96.36 | 115.271 | |
| 14,100.00 | 7,080.86 | 3,414.00 | 3,413.67 | 119.45 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 11,202.29 | 11,105.73 | 96.56 | 116.017 | |
| 14,200.00 | 7,080.51 | 3,414.00 | 3,413.67 | 121.02 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 11,296.71 | 11,199.96 | 96.75 | 116.764 | |
| 14,300.00 | 7,080.16 | 3,414.00 | 3,413.67 | 122.58 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 11,391.22 | 11,294.28 | 96.94 | 117.512 | |
| 14,400.00 | 7,079.81 | 3,414.00 | 3,413.67 | 124.15 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 11,485.83 | 11,388.70 | 97.12 | 118.261 | |
| 14,500.00 | 7,079.46 | 3,414.00 | 3,413.67 | 125.71 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 11,580.52 | 11,483.21 | 97.31 | 119.011 | |
| 14,600.00 | 7,079.11 | 3,414.00 | 3,413.67 | 127.28 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 11,675.30 | 11,577.82 | 97.49 | 119.761 | |
| 14,700.00 | 7,078.76 | 3,414.00 | 3,413.67 | 128.85 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 11,770.17 | 11,672.51 | 97.67 | 120.513 | |
| 14,800.00 | 7,078.41 | 3,414.00 | 3,413.67 | 130.42 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 11,865.13 | 11,767.28 | 97.84 | 121.265 | |
| 14,900.00 | 7,078.06 | 3,414.00 | 3,413.67 | 131.98 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 11,960.17 | 11,862.15 | 98.02 | 122.017 | |
| 15,000.00 | 7,077.71 | 3,414.00 | 3,413.67 | 133.55 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 12,055.28 | 11,957.09 | 98.19 | 122.771 | |
| 15,100.00 | 7,077.36 | 3,414.00 | 3,413.67 | 135.13 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 12,150.48 | 12,052.11 | 98.37 | 123.524 | |
| 15,200.00 | 7,077.01 | 3,414.00 | 3,413.67 | 136.70 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 12,245.75 | 12,147.22 | 98.53 | 124.278 | |
| 15,300.00 | 7,076.66 | 3,414.00 | 3,413.67 | 138.27 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 12,341.10 | 12,242.39 | 98.70 | 125.033 | |
| 15,400.00 | 7,076.31 | 3,414.00 | 3,413.67 | 139.84 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 12,436.52 | 12,337.65 | 98.87 | 125.787 | |
| 15,500.00 | 7,075.96 | 3,414.00 | 3,413.67 | 141.42 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 12,532.01 | 12,432.97 | 99.03 | 126.543 | |
| 15,600.00 | 7,075.61 | 3,414.00 | 3,413.67 | 142.99 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 12,627.57 | 12,528.37 | 99.20 | 127.298 | |
| 15,700.00 | 7,075.26 | 3,414.00 | 3,413.67 | 144.57 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 12,723.20 | 12,623.84 | 99.36 | 128.053 | |
| 15,800.00 | 7,074.91 | 3,414.00 | 3,413.67 | 146.14 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 12,818.89 | 12,719.38 | 99.52 | 128.809 | |
| 15,900.00 | 7,074.56 | 3,414.00 | 3,413.67 | 147.72 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 12,914.66 | 12,814.98 | 99.68 | 129.565 | |
| 16,000.00 | 7,074.21 | 3,414.00 | 3,413.67 | 149.29 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 13,010.48 | 12,910.65 | 99.83 | 130.320 | |
| 16,100.00 | 7,073.86 | 3,414.00 | 3,413.67 | 150.87 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 13,106.37 | 13,006.38 | 99.99 | 131.076 | |
| 16,200.00 | 7,073.51 | 3,414.00 | 3,413.67 | 152.45 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 13,202.32 | 13,102.17 | 100.15 | 131.832 | |
| 16,300.00 | 7,073.16 | 3,414.00 | 3,413.67 | 154.03 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 13,298.33 | 13,198.03 | 100.30 | 132.587 | |
| 16,400.00 | 7,072.81 | 3,414.00 | 3,413.67 | 155.60 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 13,394.39 | 13,293.94 | 100.45 | 133.343 | |
| 16,500.00 | 7,072.46 | 3,414.00 | 3,413.67 | 157.18 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 13,490.52 | 13,389.91 | 100.60 | 134.098 | |
| 16,600.00 | 7,072.11 | 3,414.00 | 3,413.67 | 158.76 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 13,586.70 | 13,485.94 | 100.75 | 134.853 | |
| 16,631.96 | 7,072.00 | 3,414.00 | 3,413.67 | 159.27 | 66.59 | -9.90 | -1,081.79 | 3,215.16 | 13,617.45 | 13,516.65 | 100.80 | 135.095 | |

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Survey Program:** 71-MWD-SDI — **Rule Assigned:** — **Offset Well Error:** 0.00 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 47.36 | 47.36 | 3.28 | 0.14 | 98.33 | -1,220.73 | 8,337.90 | 8,426.85 | | | | |
| 100.00 | 100.00 | 211.06 | 211.05 | 3.29 | 0.63 | 98.32 | -1,219.29 | 8,336.70 | 8,425.92 | 8,422.00 | 3.92 | 2,148.016 | |
| 200.00 | 200.00 | 300.17 | 300.15 | 3.34 | 0.90 | 98.32 | -1,218.85 | 8,335.71 | 8,424.77 | 8,420.53 | 4.24 | 1,988.596 | |
| 300.00 | 300.00 | 373.34 | 373.32 | 3.42 | 1.12 | 98.32 | -1,218.88 | 8,335.09 | 8,423.94 | 8,419.40 | 4.54 | 1,855.575 | |
| 400.00 | 400.00 | 428.50 | 428.47 | 3.54 | 1.29 | 98.32 | -1,219.48 | 8,334.74 | 8,423.49 | 8,418.66 | 4.82 | 1,746.333 | |
| 424.97 | 424.97 | 441.00 | 440.97 | 3.57 | 1.32 | 98.33 | -1,219.73 | 8,334.69 | 8,423.47 | 8,418.58 | 4.90 | 1,720.637 | CC |
| 500.00 | 500.00 | 472.00 | 471.96 | 3.69 | 1.42 | 98.33 | -1,220.56 | 8,334.63 | 8,423.64 | 8,418.54 | 5.10 | 1,650.594 | ES |
| 600.00 | 599.98 | 502.00 | 501.94 | 3.86 | 1.51 | -111.64 | -1,221.59 | 8,334.68 | 8,425.15 | 8,419.78 | 5.36 | 1,571.336 | |
| 697.00 | 696.84 | 545.02 | 544.91 | 4.04 | 1.64 | -111.57 | -1,223.47 | 8,335.07 | 8,428.56 | 8,422.89 | 5.67 | 1,486.295 | |
| 700.00 | 699.84 | 546.06 | 545.96 | 4.05 | 1.64 | -111.57 | -1,223.52 | 8,335.09 | 8,428.70 | 8,423.02 | 5.68 | 1,483.852 | |
| 800.00 | 799.60 | 581.07 | 580.91 | 4.25 | 1.74 | -111.58 | -1,225.48 | 8,335.65 | 8,433.63 | 8,427.64 | 5.99 | 1,406.924 | |
| 897.00 | 896.37 | 620.00 | 619.74 | 4.48 | 1.86 | -111.58 | -1,228.03 | 8,336.52 | 8,439.13 | 8,432.80 | 6.33 | 1,332.446 | |
| 900.00 | 899.37 | 620.00 | 619.74 | 4.48 | 1.86 | -110.71 | -1,228.03 | 8,336.52 | 8,439.31 | 8,432.97 | 6.34 | 1,330.982 | |
| 947.40 | 946.65 | 635.22 | 634.92 | 4.60 | 1.91 | -96.89 | -1,229.10 | 8,336.92 | 8,441.84 | 8,435.34 | 6.50 | 1,298.634 | |
| 1,000.00 | 999.13 | 651.00 | 650.65 | 4.73 | 1.95 | -96.89 | -1,230.27 | 8,337.41 | 8,444.43 | 8,437.75 | 6.68 | 1,264.349 | |
| 1,100.00 | 1,098.89 | 681.00 | 680.53 | 4.99 | 2.04 | -96.89 | -1,232.71 | 8,338.44 | 8,449.95 | 8,442.92 | 7.03 | 1,202.016 | |
| 1,200.00 | 1,198.66 | 713.00 | 712.38 | 5.27 | 2.14 | -96.89 | -1,235.57 | 8,339.76 | 8,456.27 | 8,448.87 | 7.40 | 1,142.843 | |
| 1,300.00 | 1,298.42 | 744.00 | 743.18 | 5.56 | 2.23 | -96.88 | -1,238.63 | 8,341.34 | 8,463.49 | 8,455.72 | 7.78 | 1,088.364 | |
| 1,400.00 | 1,398.18 | 775.00 | 773.96 | 5.85 | 2.33 | -96.88 | -1,241.94 | 8,343.12 | 8,471.51 | 8,463.35 | 8.16 | 1,037.895 | |
| 1,500.00 | 1,497.95 | 806.00 | 804.70 | 6.16 | 2.42 | -96.87 | -1,245.43 | 8,345.06 | 8,480.27 | 8,471.72 | 8.56 | 991.212 | |
| 1,600.00 | 1,597.71 | 836.00 | 834.39 | 6.47 | 2.51 | -96.86 | -1,249.12 | 8,347.22 | 8,489.92 | 8,480.97 | 8.95 | 948.403 | |
| 1,700.00 | 1,697.47 | 855.05 | 853.21 | 6.79 | 2.57 | -96.85 | -1,251.62 | 8,348.74 | 8,500.45 | 8,491.13 | 9.32 | 912.092 | |
| 1,800.00 | 1,797.24 | 898.00 | 895.60 | 7.11 | 2.69 | -96.84 | -1,257.50 | 8,352.46 | 8,511.79 | 8,502.02 | 9.77 | 871.635 | |
| 1,900.00 | 1,897.00 | 930.00 | 927.12 | 7.44 | 2.79 | -96.82 | -1,262.17 | 8,355.41 | 8,523.82 | 8,513.64 | 10.18 | 837.240 | |
| 2,000.00 | 1,996.76 | 961.00 | 957.59 | 7.77 | 2.88 | -96.81 | -1,266.98 | 8,358.41 | 8,536.59 | 8,526.00 | 10.60 | 805.620 | |
| 2,100.00 | 2,096.53 | 1,003.70 | 999.46 | 8.11 | 3.01 | -96.78 | -1,274.13 | 8,362.80 | 8,550.11 | 8,539.06 | 11.05 | 773.732 | |
| 2,200.00 | 2,196.29 | 1,056.00 | 1,050.57 | 8.44 | 3.17 | -96.75 | -1,283.71 | 8,368.35 | 8,564.21 | 8,552.67 | 11.54 | 742.337 | |
| 2,300.00 | 2,296.06 | 1,085.64 | 1,079.46 | 8.79 | 3.26 | -96.73 | -1,289.45 | 8,371.69 | 8,579.04 | 8,567.08 | 11.95 | 717.657 | |
| 2,400.00 | 2,395.82 | 1,118.00 | 1,110.92 | 9.13 | 3.35 | -96.70 | -1,296.03 | 8,375.49 | 8,594.60 | 8,582.22 | 12.38 | 694.156 | |
| 2,500.00 | 2,495.58 | 1,153.83 | 1,145.68 | 9.47 | 3.46 | -96.67 | -1,303.49 | 8,379.93 | 8,610.91 | 8,598.09 | 12.82 | 671.658 | |
| 2,600.00 | 2,595.35 | 1,199.03 | 1,189.48 | 9.82 | 3.60 | -96.64 | -1,312.91 | 8,385.91 | 8,627.96 | 8,614.67 | 13.29 | 649.216 | |
| 2,700.00 | 2,695.11 | 1,261.89 | 1,250.31 | 10.17 | 3.79 | -96.58 | -1,326.27 | 8,394.37 | 8,645.41 | 8,631.59 | 13.82 | 625.748 | |
| 2,800.00 | 2,794.87 | 1,305.42 | 1,292.36 | 10.52 | 3.92 | -96.55 | -1,335.75 | 8,400.46 | 8,663.45 | 8,649.16 | 14.28 | 606.609 | |
| 2,900.00 | 2,894.64 | 1,384.42 | 1,368.59 | 10.87 | 4.15 | -96.48 | -1,353.17 | 8,411.73 | 8,681.84 | 8,666.97 | 14.86 | 584.189 | |
| 3,000.00 | 2,994.40 | 1,434.45 | 1,416.74 | 11.23 | 4.31 | -96.43 | -1,364.63 | 8,419.03 | 8,700.69 | 8,685.34 | 15.35 | 566.862 | |
| 3,100.00 | 3,094.16 | 1,528.21 | 1,506.77 | 11.58 | 4.59 | -96.34 | -1,386.87 | 8,432.85 | 8,719.87 | 8,703.90 | 15.98 | 545.760 | |
| 3,200.00 | 3,193.93 | 1,677.00 | 1,649.62 | 11.94 | 5.03 | -96.19 | -1,422.71 | 8,453.97 | 8,738.52 | 8,721.73 | 16.78 | 520.637 | |
| 3,300.00 | 3,293.69 | 2,050.00 | 2,009.88 | 12.29 | 6.15 | -95.85 | -1,507.18 | 8,500.60 | 8,754.67 | 8,736.36 | 18.31 | 478.125 | |
| 3,400.00 | 3,393.45 | 2,096.00 | 2,054.47 | 12.65 | 6.29 | -95.81 | -1,517.11 | 8,506.02 | 8,770.59 | 8,751.80 | 18.79 | 466.736 | |
| 3,500.00 | 3,493.22 | 2,165.84 | 2,122.28 | 13.01 | 6.50 | -95.76 | -1,531.43 | 8,514.66 | 8,786.95 | 8,767.61 | 19.35 | 454.138 | |
| 3,600.00 | 3,592.98 | 2,363.23 | 2,313.63 | 13.37 | 7.09 | -95.60 | -1,573.72 | 8,538.25 | 8,803.30 | 8,782.98 | 20.32 | 433.326 | |
| 3,700.00 | 3,692.74 | 3,512.00 | 3,448.77 | 13.73 | 10.54 | -95.39 | -1,698.17 | 8,615.94 | 8,809.06 | 8,784.81 | 24.25 | 363.242 | |
| 3,800.00 | 3,792.51 | 3,512.00 | 3,448.77 | 14.09 | 10.54 | -95.39 | -1,698.17 | 8,615.94 | 8,813.23 | 8,788.63 | 24.61 | 358.184 | |
| 3,900.00 | 3,892.27 | 3,512.00 | 3,448.77 | 14.45 | 10.54 | -95.39 | -1,698.17 | 8,615.94 | 8,818.53 | 8,793.58 | 24.96 | 353.333 | |
| 4,000.00 | 3,992.04 | 3,512.00 | 3,448.77 | 14.81 | 10.54 | -95.39 | -1,698.17 | 8,615.94 | 8,824.97 | 8,799.66 | 25.31 | 348.682 | |
| 4,100.00 | 4,091.80 | 3,512.00 | 3,448.77 | 15.17 | 10.54 | -95.39 | -1,698.17 | 8,615.94 | 8,832.53 | 8,806.87 | 25.66 | 344.223 | |
| 4,200.00 | 4,191.56 | 3,512.00 | 3,448.77 | 15.53 | 10.54 | -95.39 | -1,698.17 | 8,615.94 | 8,841.22 | 8,815.21 | 26.01 | 339.950 | |
| 4,300.00 | 4,291.33 | 3,512.00 | 3,448.77 | 15.89 | 10.54 | -95.39 | -1,698.17 | 8,615.94 | 8,851.02 | 8,824.67 | 26.35 | 335.855 | |
| 4,400.00 | 4,391.09 | 3,512.00 | 3,448.77 | 16.26 | 10.54 | -95.39 | -1,698.17 | 8,615.94 | 8,861.95 | 8,835.25 | 26.70 | 331.934 | |
| 4,500.00 | 4,490.85 | 3,512.00 | 3,448.77 | 16.62 | 10.54 | -95.39 | -1,698.17 | 8,615.94 | 8,873.99 | 8,846.95 | 27.04 | 328.178 | |
| 4,600.00 | 4,590.62 | 3,512.00 | 3,448.77 | 16.99 | 10.54 | -95.39 | -1,698.17 | 8,615.94 | 8,887.13 | 8,859.75 | 27.38 | 324.582 | |
| 4,700.00 | 4,690.38 | 3,512.00 | 3,448.77 | 17.35 | 10.54 | -95.39 | -1,698.17 | 8,615.94 | 8,901.39 | 8,873.67 | 27.72 | 321.140 | |

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 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

**Survey Program:** 71-MWD-SDI

**Offset Well Error:** 0.00 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4,800.00 | 4,790.14 | 3,512.00 | 3,448.77 | 17.71 | 10.54 | -95.39 | -1,698.17 | 8,615.94 | 8,916.74 | 8,888.68 | 28.05 | 317.848 | |
| 4,900.00 | 4,889.91 | 3,512.00 | 3,448.77 | 18.08 | 10.54 | -95.39 | -1,698.17 | 8,615.94 | 8,933.18 | 8,904.79 | 28.39 | 314.698 | |
| 5,000.00 | 4,989.67 | 3,512.00 | 3,448.77 | 18.44 | 10.54 | -95.39 | -1,698.17 | 8,615.94 | 8,950.71 | 8,921.99 | 28.72 | 311.687 | |
| 5,100.00 | 5,089.43 | 3,512.00 | 3,448.77 | 18.81 | 10.54 | -95.39 | -1,698.17 | 8,615.94 | 8,969.32 | 8,940.28 | 29.04 | 308.809 | |
| 5,200.00 | 5,189.20 | 3,512.00 | 3,448.77 | 19.17 | 10.54 | -95.39 | -1,698.17 | 8,615.94 | 8,989.01 | 8,959.64 | 29.37 | 306.059 | |
| 5,300.00 | 5,288.96 | 3,512.00 | 3,448.77 | 19.54 | 10.54 | -95.39 | -1,698.17 | 8,615.94 | 9,009.76 | 8,980.07 | 29.69 | 303.433 | |
| 5,400.00 | 5,388.72 | 3,512.00 | 3,448.77 | 19.91 | 10.54 | -95.39 | -1,698.17 | 8,615.94 | 9,031.57 | 9,001.56 | 30.01 | 300.925 | |
| 5,500.00 | 5,488.49 | 3,512.00 | 3,448.77 | 20.27 | 10.54 | -95.39 | -1,698.17 | 8,615.94 | 9,054.44 | 9,024.11 | 30.33 | 298.533 | |
| 5,600.00 | 5,588.25 | 3,512.00 | 3,448.77 | 20.64 | 10.54 | -95.39 | -1,698.17 | 8,615.94 | 9,078.34 | 9,047.70 | 30.64 | 296.252 | |
| 5,700.00 | 5,688.01 | 3,512.00 | 3,448.77 | 21.00 | 10.54 | -95.39 | -1,698.17 | 8,615.94 | 9,103.29 | 9,072.33 | 30.96 | 294.077 | |
| 5,800.00 | 5,787.78 | 3,512.00 | 3,448.77 | 21.37 | 10.54 | -95.39 | -1,698.17 | 8,615.94 | 9,129.26 | 9,097.99 | 31.26 | 292.005 | |
| 5,900.00 | 5,887.54 | 3,512.00 | 3,448.77 | 21.74 | 10.54 | -95.39 | -1,698.17 | 8,615.94 | 9,156.25 | 9,124.68 | 31.57 | 290.033 | |
| 6,000.00 | 5,987.31 | 3,512.00 | 3,448.77 | 22.11 | 10.54 | -95.39 | -1,698.17 | 8,615.94 | 9,184.25 | 9,152.37 | 31.87 | 288.156 | |
| 6,100.00 | 6,087.07 | 3,512.00 | 3,448.77 | 22.47 | 10.54 | -95.39 | -1,698.17 | 8,615.94 | 9,213.25 | 9,181.07 | 32.17 | 286.371 | |
| 6,200.00 | 6,186.83 | 3,512.00 | 3,448.77 | 22.84 | 10.54 | -95.39 | -1,698.17 | 8,615.94 | 9,243.24 | 9,210.77 | 32.47 | 284.674 | |
| 6,300.00 | 6,286.60 | 3,512.00 | 3,448.77 | 23.21 | 10.54 | -95.39 | -1,698.17 | 8,615.94 | 9,274.21 | 9,241.44 | 32.76 | 283.063 | |
| 6,400.00 | 6,386.36 | 3,512.00 | 3,448.77 | 23.58 | 10.54 | -95.39 | -1,698.17 | 8,615.94 | 9,306.15 | 9,273.10 | 33.06 | 281.535 | |
| 6,494.00 | 6,480.13 | 3,512.00 | 3,448.77 | 23.92 | 10.54 | -95.39 | -1,698.17 | 8,615.94 | 9,337.05 | 9,303.73 | 33.33 | 280.170 | |
| 6,500.00 | 6,486.12 | 3,512.00 | 3,448.77 | 23.94 | 10.54 | -102.63 | -1,698.17 | 8,615.94 | 9,339.08 | 9,305.74 | 33.34 | 280.084 | |
| 6,550.00 | 6,535.89 | 3,512.00 | 3,448.77 | 24.13 | 10.54 | -137.81 | -1,698.17 | 8,615.94 | 9,358.12 | 9,324.64 | 33.49 | 279.442 | |
| 6,600.00 | 6,585.24 | 3,512.00 | 3,448.77 | 24.31 | 10.54 | -149.66 | -1,698.17 | 8,615.94 | 9,380.90 | 9,347.27 | 33.63 | 278.927 | |
| 6,650.00 | 6,633.88 | 3,512.00 | 3,448.77 | 24.50 | 10.54 | -154.73 | -1,698.17 | 8,615.94 | 9,407.23 | 9,373.46 | 33.77 | 278.562 | |
| 6,700.00 | 6,681.49 | 3,512.00 | 3,448.77 | 24.68 | 10.54 | -157.21 | -1,698.17 | 8,615.94 | 9,436.94 | 9,403.04 | 33.90 | 278.347 | |
| 6,750.00 | 6,727.80 | 3,512.00 | 3,448.77 | 24.86 | 10.54 | -158.36 | -1,698.17 | 8,615.94 | 9,469.81 | 9,435.78 | 34.03 | 278.281 SF | |
| 6,800.00 | 6,772.51 | 3,512.00 | 3,448.77 | 25.04 | 10.54 | -158.68 | -1,698.17 | 8,615.94 | 9,505.60 | 9,471.45 | 34.15 | 278.363 | |
| 6,850.00 | 6,815.34 | 3,512.00 | 3,448.77 | 25.21 | 10.54 | -158.33 | -1,698.17 | 8,615.94 | 9,544.06 | 9,509.80 | 34.26 | 278.589 | |
| 6,900.00 | 6,856.04 | 3,512.00 | 3,448.77 | 25.39 | 10.54 | -157.34 | -1,698.17 | 8,615.94 | 9,584.93 | 9,550.57 | 34.36 | 278.954 | |
| 6,950.00 | 6,894.35 | 3,512.00 | 3,448.77 | 25.57 | 10.54 | -155.60 | -1,698.17 | 8,615.94 | 9,627.92 | 9,593.46 | 34.45 | 279.452 | |
| 7,000.00 | 6,930.04 | 3,512.00 | 3,448.77 | 25.75 | 10.54 | -152.88 | -1,698.17 | 8,615.94 | 9,672.74 | 9,638.20 | 34.54 | 280.073 | |
| 7,050.00 | 6,962.89 | 3,512.00 | 3,448.77 | 25.93 | 10.54 | -148.66 | -1,698.17 | 8,615.94 | 9,719.09 | 9,684.48 | 34.61 | 280.809 | |
| 7,100.00 | 6,992.69 | 3,512.00 | 3,448.77 | 26.13 | 10.54 | -141.98 | -1,698.17 | 8,615.94 | 9,766.66 | 9,731.99 | 34.68 | 281.647 | |
| 7,150.00 | 7,019.25 | 3,512.00 | 3,448.77 | 26.33 | 10.54 | -130.88 | -1,698.17 | 8,615.94 | 9,815.16 | 9,780.42 | 34.74 | 282.572 | |
| 7,200.00 | 7,042.43 | 3,512.00 | 3,448.77 | 26.55 | 10.54 | -112.10 | -1,698.17 | 8,615.94 | 9,864.26 | 9,829.47 | 34.79 | 283.571 | |
| 7,250.00 | 7,062.07 | 3,512.00 | 3,448.77 | 26.79 | 10.54 | -84.42 | -1,698.17 | 8,615.94 | 9,913.66 | 9,878.83 | 34.83 | 284.624 | |
| 7,300.00 | 7,078.05 | 3,512.00 | 3,448.77 | 27.04 | 10.54 | -57.24 | -1,698.17 | 8,615.94 | 9,963.05 | 9,928.17 | 34.87 | 285.713 | |
| 7,350.00 | 7,090.27 | 3,512.00 | 3,448.77 | 27.30 | 10.54 | -39.11 | -1,698.17 | 8,615.94 | 10,012.12 | 9,977.22 | 34.91 | 286.817 | |
| 7,400.00 | 7,098.66 | 3,512.00 | 3,448.77 | 27.58 | 10.54 | -28.31 | -1,698.17 | 8,615.94 | 10,060.59 | 10,025.65 | 34.94 | 287.913 | |
| 7,450.00 | 7,103.17 | 3,512.00 | 3,448.77 | 27.87 | 10.54 | -21.63 | -1,698.17 | 8,615.94 | 10,108.17 | 10,073.19 | 34.98 | 288.977 | |
| 7,484.86 | 7,104.00 | 3,512.00 | 3,448.77 | 28.08 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 10,140.66 | 10,105.65 | 35.00 | 289.695 | |
| 7,500.00 | 7,103.95 | 3,512.00 | 3,448.77 | 28.17 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 10,154.63 | 10,119.62 | 35.02 | 290.000 | |
| 7,600.00 | 7,103.60 | 3,512.00 | 3,448.77 | 28.83 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 10,247.02 | 10,211.92 | 35.10 | 291.897 | |
| 7,700.00 | 7,103.25 | 3,512.00 | 3,448.77 | 29.56 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 10,339.56 | 10,304.36 | 35.20 | 293.762 | |
| 7,800.00 | 7,102.90 | 3,512.00 | 3,448.77 | 30.35 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 10,432.23 | 10,396.94 | 35.29 | 295.598 | |
| 7,900.00 | 7,102.55 | 3,512.00 | 3,448.77 | 31.21 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 10,525.03 | 10,489.64 | 35.39 | 297.406 | |
| 8,000.00 | 7,102.20 | 3,512.00 | 3,448.77 | 32.13 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 10,617.97 | 10,582.48 | 35.49 | 299.187 | |
| 8,100.00 | 7,101.85 | 3,512.00 | 3,448.77 | 33.10 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 10,711.03 | 10,675.44 | 35.59 | 300.942 | |
| 8,200.00 | 7,101.50 | 3,512.00 | 3,448.77 | 34.11 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 10,804.22 | 10,768.52 | 35.70 | 302.673 | |
| 8,300.00 | 7,101.15 | 3,512.00 | 3,448.77 | 35.17 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 10,897.52 | 10,861.72 | 35.80 | 304.379 | |
| 8,400.00 | 7,100.80 | 3,512.00 | 3,448.77 | 36.27 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 10,990.95 | 10,955.04 | 35.91 | 306.064 | |
| 8,500.00 | 7,100.45 | 3,512.00 | 3,448.77 | 37.41 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 11,084.49 | 11,048.47 | 36.02 | 307.727 | |
| 8,600.00 | 7,100.10 | 3,512.00 | 3,448.77 | 38.58 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 11,178.14 | 11,142.01 | 36.13 | 309.369 | |
| 8,700.00 | 7,099.75 | 3,512.00 | 3,448.77 | 39.78 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 11,271.90 | 11,235.65 | 36.24 | 310.992 | |

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

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

**Survey Program:** 71-MWD-SDI

**Offset Well Error:** 0.00 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8,800.00 | 7,099.40 | 3,512.00 | 3,448.77 | 41.00 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 11,365.77 | 11,329.41 | 36.36 | 312.597 | |
| 8,900.00 | 7,099.05 | 3,512.00 | 3,448.77 | 42.25 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 11,459.74 | 11,423.26 | 36.47 | 314.183 | |
| 9,000.00 | 7,098.70 | 3,512.00 | 3,448.77 | 43.53 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 11,553.81 | 11,517.22 | 36.59 | 315.752 | |
| 9,100.00 | 7,098.35 | 3,512.00 | 3,448.77 | 44.82 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 11,647.98 | 11,611.27 | 36.71 | 317.305 | |
| 9,200.00 | 7,098.00 | 3,512.00 | 3,448.77 | 46.14 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 11,742.25 | 11,705.42 | 36.83 | 318.842 | |
| 9,300.00 | 7,097.65 | 3,512.00 | 3,448.77 | 47.47 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 11,836.61 | 11,799.66 | 36.95 | 320.364 | |
| 9,400.00 | 7,097.30 | 3,512.00 | 3,448.77 | 48.82 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 11,931.06 | 11,893.99 | 37.07 | 321.872 | |
| 9,500.00 | 7,096.95 | 3,512.00 | 3,448.77 | 50.18 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 12,025.60 | 11,988.41 | 37.19 | 323.366 | |
| 9,600.00 | 7,096.60 | 3,512.00 | 3,448.77 | 51.56 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 12,120.23 | 12,082.92 | 37.31 | 324.847 | |
| 9,700.00 | 7,096.25 | 3,512.00 | 3,448.77 | 52.95 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 12,214.95 | 12,177.52 | 37.43 | 326.316 | |
| 9,800.00 | 7,095.90 | 3,512.00 | 3,448.77 | 54.35 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 12,309.75 | 12,272.19 | 37.56 | 327.772 | |
| 9,900.00 | 7,095.55 | 3,512.00 | 3,448.77 | 55.76 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 12,404.63 | 12,366.95 | 37.68 | 329.216 | |
| 10,000.00 | 7,095.20 | 3,512.00 | 3,448.77 | 57.18 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 12,499.59 | 12,461.79 | 37.80 | 330.649 | |
| 10,100.00 | 7,094.85 | 3,512.00 | 3,448.77 | 58.61 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 12,594.63 | 12,556.70 | 37.93 | 332.072 | |
| 10,200.00 | 7,094.50 | 3,512.00 | 3,448.77 | 60.05 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 12,689.74 | 12,651.69 | 38.05 | 333.484 | |
| 10,300.00 | 7,094.15 | 3,512.00 | 3,448.77 | 61.50 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 12,784.93 | 12,746.76 | 38.18 | 334.886 | |
| 10,400.00 | 7,093.80 | 3,512.00 | 3,448.77 | 62.96 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 12,880.20 | 12,841.89 | 38.30 | 336.278 | |
| 10,500.00 | 7,093.45 | 3,512.00 | 3,448.77 | 64.42 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 12,975.53 | 12,937.10 | 38.43 | 337.661 | |
| 10,600.00 | 7,093.10 | 3,512.00 | 3,448.77 | 65.89 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 13,070.93 | 13,032.38 | 38.55 | 339.035 | |
| 10,700.00 | 7,092.75 | 3,512.00 | 3,448.77 | 67.36 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 13,166.41 | 13,127.73 | 38.68 | 340.400 | |
| 10,800.00 | 7,092.40 | 3,512.00 | 3,448.77 | 68.84 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 13,261.94 | 13,223.14 | 38.81 | 341.757 | |
| 10,900.00 | 7,092.05 | 3,512.00 | 3,448.77 | 70.33 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 13,357.55 | 13,318.62 | 38.93 | 343.106 | |
| 11,000.00 | 7,091.70 | 3,512.00 | 3,448.77 | 71.82 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 13,453.22 | 13,414.16 | 39.06 | 344.446 | |
| 11,100.00 | 7,091.35 | 3,512.00 | 3,448.77 | 73.31 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 13,548.95 | 13,509.76 | 39.18 | 345.779 | |
| 11,200.00 | 7,091.00 | 3,512.00 | 3,448.77 | 74.81 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 13,644.74 | 13,605.43 | 39.31 | 347.105 | |
| 11,300.00 | 7,090.65 | 3,512.00 | 3,448.77 | 76.32 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 13,740.59 | 13,701.15 | 39.44 | 348.423 | |
| 11,400.00 | 7,090.30 | 3,512.00 | 3,448.77 | 77.82 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 13,836.50 | 13,796.94 | 39.56 | 349.734 | |
| 11,500.00 | 7,089.95 | 3,512.00 | 3,448.77 | 79.34 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 13,932.47 | 13,892.78 | 39.69 | 351.038 | |
| 11,600.00 | 7,089.60 | 3,512.00 | 3,448.77 | 80.85 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 14,028.49 | 13,988.68 | 39.82 | 352.336 | |
| 11,700.00 | 7,089.25 | 3,512.00 | 3,448.77 | 82.37 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 14,124.57 | 14,084.63 | 39.94 | 353.626 | |
| 11,800.00 | 7,088.90 | 3,512.00 | 3,448.77 | 83.89 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 14,220.70 | 14,180.64 | 40.07 | 354.911 | |
| 11,900.00 | 7,088.55 | 3,512.00 | 3,448.77 | 85.41 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 14,316.89 | 14,276.70 | 40.19 | 356.189 | |
| 12,000.00 | 7,088.20 | 3,512.00 | 3,448.77 | 86.94 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 14,413.13 | 14,372.81 | 40.32 | 357.461 | |
| 12,100.00 | 7,087.85 | 3,512.00 | 3,448.77 | 88.47 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 14,509.42 | 14,468.97 | 40.45 | 358.727 | |
| 12,200.00 | 7,087.50 | 3,512.00 | 3,448.77 | 90.00 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 14,605.76 | 14,565.18 | 40.57 | 359.987 | |
| 12,300.00 | 7,087.15 | 3,512.00 | 3,448.77 | 91.54 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 14,702.15 | 14,661.45 | 40.70 | 361.241 | |
| 12,400.00 | 7,086.81 | 3,512.00 | 3,448.77 | 93.07 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 14,798.58 | 14,757.76 | 40.82 | 362.490 | |
| 12,500.00 | 7,086.46 | 3,512.00 | 3,448.77 | 94.61 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 14,895.06 | 14,854.11 | 40.95 | 363.733 | |
| 12,600.00 | 7,086.11 | 3,512.00 | 3,448.77 | 96.15 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 14,991.59 | 14,950.52 | 41.08 | 364.970 | |
| 12,700.00 | 7,085.76 | 3,512.00 | 3,448.77 | 97.69 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 15,088.17 | 15,046.97 | 41.20 | 366.202 | |
| 12,800.00 | 7,085.41 | 3,512.00 | 3,448.77 | 99.24 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 15,184.79 | 15,143.46 | 41.33 | 367.428 | |
| 12,900.00 | 7,085.06 | 3,512.00 | 3,448.77 | 100.78 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 15,281.45 | 15,240.00 | 41.45 | 368.650 | |
| 13,000.00 | 7,084.71 | 3,512.00 | 3,448.77 | 102.33 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 15,378.15 | 15,336.57 | 41.58 | 369.866 | |
| 13,100.00 | 7,084.36 | 3,512.00 | 3,448.77 | 103.88 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 15,474.90 | 15,433.20 | 41.70 | 371.077 | |
| 13,200.00 | 7,084.01 | 3,512.00 | 3,448.77 | 105.43 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 15,571.69 | 15,529.86 | 41.83 | 372.283 | |
| 13,300.00 | 7,083.66 | 3,512.00 | 3,448.77 | 106.99 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 15,668.51 | 15,626.56 | 41.95 | 373.484 | |
| 13,400.00 | 7,083.31 | 3,512.00 | 3,448.77 | 108.54 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 15,765.38 | 15,723.31 | 42.08 | 374.679 | |
| 13,500.00 | 7,082.96 | 3,512.00 | 3,448.77 | 110.09 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 15,862.29 | 15,820.09 | 42.20 | 375.870 | |
| 13,600.00 | 7,082.61 | 3,512.00 | 3,448.77 | 111.65 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 15,959.23 | 15,916.91 | 42.33 | 377.056 | |
| 13,700.00 | 7,082.26 | 3,512.00 | 3,448.77 | 113.21 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 16,056.22 | 16,013.77 | 42.45 | 378.238 | |
| 13,800.00 | 7,081.91 | 3,512.00 | 3,448.77 | 114.77 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 16,153.23 | 16,110.66 | 42.57 | 379.414 | |
| 13,900.00 | 7,081.56 | 3,512.00 | 3,448.77 | 116.33 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 16,250.29 | 16,207.59 | 42.70 | 380.586 | |

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 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

**Survey Program:** 71-MWD-SDI

**Offset Well Error:** 0.00 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 14,000.00 | 7,081.21 | 3,512.00 | 3,448.77 | 117.89 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 16,347.38 | 16,304.56 | 42.82 | 381.753 | |
| 14,100.00 | 7,080.86 | 3,512.00 | 3,448.77 | 119.45 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 16,444.51 | 16,401.56 | 42.95 | 382.915 | |
| 14,200.00 | 7,080.51 | 3,512.00 | 3,448.77 | 121.02 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 16,541.67 | 16,498.60 | 43.07 | 384.073 | |
| 14,300.00 | 7,080.16 | 3,512.00 | 3,448.77 | 122.58 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 16,638.86 | 16,595.67 | 43.19 | 385.226 | |
| 14,400.00 | 7,079.81 | 3,512.00 | 3,448.77 | 124.15 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 16,736.09 | 16,692.77 | 43.32 | 386.374 | |
| 14,500.00 | 7,079.46 | 3,512.00 | 3,448.77 | 125.71 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 16,833.34 | 16,789.91 | 43.44 | 387.518 | |
| 14,600.00 | 7,079.11 | 3,512.00 | 3,448.77 | 127.28 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 16,930.63 | 16,887.07 | 43.56 | 388.657 | |
| 14,700.00 | 7,078.76 | 3,512.00 | 3,448.77 | 128.85 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 17,027.96 | 16,984.27 | 43.68 | 389.792 | |
| 14,800.00 | 7,078.41 | 3,512.00 | 3,448.77 | 130.42 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 17,125.31 | 17,081.50 | 43.81 | 390.922 | |
| 14,900.00 | 7,078.06 | 3,512.00 | 3,448.77 | 131.98 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 17,222.69 | 17,178.76 | 43.93 | 392.048 | |
| 15,000.00 | 7,077.71 | 3,512.00 | 3,448.77 | 133.55 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 17,320.11 | 17,276.05 | 44.05 | 393.169 | |
| 15,100.00 | 7,077.36 | 3,512.00 | 3,448.77 | 135.13 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 17,417.55 | 17,373.37 | 44.17 | 394.286 | |
| 15,200.00 | 7,077.01 | 3,512.00 | 3,448.77 | 136.70 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 17,515.02 | 17,470.72 | 44.30 | 395.399 | |
| 15,300.00 | 7,076.66 | 3,512.00 | 3,448.77 | 138.27 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 17,612.52 | 17,568.10 | 44.42 | 396.507 | |
| 15,400.00 | 7,076.31 | 3,512.00 | 3,448.77 | 139.84 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 17,710.05 | 17,665.51 | 44.54 | 397.611 | |
| 15,500.00 | 7,075.96 | 3,512.00 | 3,448.77 | 141.42 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 17,807.60 | 17,762.94 | 44.66 | 398.710 | |
| 15,600.00 | 7,075.61 | 3,512.00 | 3,448.77 | 142.99 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 17,905.19 | 17,860.40 | 44.78 | 399.805 | |
| 15,700.00 | 7,075.26 | 3,512.00 | 3,448.77 | 144.57 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 18,002.79 | 17,957.89 | 44.91 | 400.895 | |
| 15,800.00 | 7,074.91 | 3,512.00 | 3,448.77 | 146.14 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 18,100.43 | 18,055.40 | 45.03 | 401.982 | |
| 15,900.00 | 7,074.56 | 3,512.00 | 3,448.77 | 147.72 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 18,198.09 | 18,152.94 | 45.15 | 403.063 | |
| 16,000.00 | 7,074.21 | 3,512.00 | 3,448.77 | 149.29 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 18,295.77 | 18,250.50 | 45.27 | 404.141 | |
| 16,100.00 | 7,073.86 | 3,512.00 | 3,448.77 | 150.87 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 18,393.49 | 18,348.09 | 45.39 | 405.214 | |
| 16,200.00 | 7,073.51 | 3,512.00 | 3,448.77 | 152.45 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 18,491.22 | 18,445.71 | 45.51 | 406.283 | |
| 16,300.00 | 7,073.16 | 3,512.00 | 3,448.77 | 154.03 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 18,588.98 | 18,543.35 | 45.63 | 407.348 | |
| 16,400.00 | 7,072.81 | 3,512.00 | 3,448.77 | 155.60 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 18,686.76 | 18,641.01 | 45.76 | 408.408 | |
| 16,500.00 | 7,072.46 | 3,512.00 | 3,448.77 | 157.18 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 18,784.57 | 18,738.69 | 45.88 | 409.465 | |
| 16,600.00 | 7,072.11 | 3,512.00 | 3,448.77 | 158.76 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 18,882.40 | 18,836.40 | 46.00 | 410.516 | |
| 16,631.96 | 7,072.00 | 3,512.00 | 3,448.77 | 159.27 | 10.54 | -18.37 | -1,698.17 | 8,615.94 | 18,913.67 | 18,867.64 | 46.04 | 410.852 | |

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

**Survey Program:** 235-A027Ua_INC-ONLY

**Rule Assigned:**

**Offset Well Error:** 0.00 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 163.00 | 163.00 | 3.28 | 1.73 | 96.06 | -631.36 | 5,945.02 | 5,978.45 | | | | |
| 100.00 | 100.00 | 263.01 | 263.00 | 3.29 | 3.05 | 96.06 | -631.36 | 5,945.02 | 5,978.45 | 5,972.11 | 6.34 | 942.783 | |
| 200.00 | 200.00 | 363.01 | 363.00 | 3.34 | 5.02 | 96.06 | -631.36 | 5,945.02 | 5,978.45 | 5,970.09 | 8.35 | 715.595 | |
| 300.00 | 300.00 | 463.01 | 463.00 | 3.42 | 6.99 | 96.06 | -631.36 | 5,945.02 | 5,978.45 | 5,968.04 | 10.40 | 574.580 | |
| 340.31 | 340.31 | 502.88 | 502.86 | 3.46 | 7.77 | 96.05 | -630.28 | 5,945.02 | 5,978.33 | 5,967.10 | 11.23 | 532.224 | CC |
| 400.00 | 400.00 | 561.28 | 561.26 | 3.54 | 8.92 | 96.05 | -630.38 | 5,945.02 | 5,978.34 | 5,965.89 | 12.46 | 479.964 | |
| 500.00 | 500.00 | 659.13 | 659.10 | 3.69 | 10.84 | 96.06 | -630.82 | 5,945.02 | 5,978.39 | 5,963.86 | 14.53 | 411.464 | |
| 600.00 | 599.98 | 763.04 | 762.98 | 3.86 | 12.86 | -113.94 | -631.36 | 5,945.02 | 5,979.16 | 5,962.44 | 16.72 | 357.608 | |
| 697.00 | 696.84 | 859.90 | 859.84 | 4.04 | 14.70 | -113.95 | -631.36 | 5,945.02 | 5,981.20 | 5,962.46 | 18.74 | 319.176 | |
| 700.00 | 699.84 | 862.89 | 862.84 | 4.05 | 14.76 | -113.95 | -631.36 | 5,945.02 | 5,981.28 | 5,962.48 | 18.80 | 318.111 | |
| 800.00 | 799.60 | 962.66 | 962.60 | 4.25 | 16.66 | -114.01 | -631.36 | 5,945.02 | 5,984.08 | 5,963.17 | 20.91 | 286.229 | |
| 897.00 | 896.37 | 1,058.58 | 1,058.52 | 4.48 | 18.48 | -114.07 | -630.87 | 5,945.02 | 5,986.75 | 5,963.80 | 22.95 | 260.844 | |
| 900.00 | 899.37 | 1,061.54 | 1,061.48 | 4.48 | 18.53 | -113.21 | -630.87 | 5,945.02 | 5,986.83 | 5,963.82 | 23.01 | 260.129 | |
| 947.40 | 946.65 | 1,108.33 | 1,108.27 | 4.60 | 19.42 | -99.42 | -630.96 | 5,945.02 | 5,987.75 | 5,963.73 | 24.02 | 249.297 | |
| 1,000.00 | 999.13 | 1,160.27 | 1,160.20 | 4.73 | 20.41 | -99.46 | -631.10 | 5,945.02 | 5,988.36 | 5,963.22 | 25.14 | 238.229 | |
| 1,100.00 | 1,098.89 | 1,261.98 | 1,261.89 | 4.99 | 22.36 | -99.52 | -631.36 | 5,945.02 | 5,989.52 | 5,962.17 | 27.36 | 218.952 | |
| 1,200.00 | 1,198.66 | 1,361.74 | 1,361.66 | 5.27 | 24.33 | -99.58 | -631.36 | 5,945.02 | 5,990.66 | 5,961.07 | 29.60 | 202.412 | |
| 1,300.00 | 1,298.42 | 1,461.51 | 1,461.42 | 5.56 | 26.29 | -99.65 | -631.36 | 5,945.02 | 5,991.82 | 5,959.97 | 31.85 | 188.135 | |
| 1,400.00 | 1,398.18 | 1,560.29 | 1,560.20 | 5.85 | 28.24 | -99.72 | -630.55 | 5,945.02 | 5,992.90 | 5,958.80 | 34.09 | 175.792 | |
| 1,500.00 | 1,497.95 | 1,658.68 | 1,658.58 | 6.16 | 30.18 | -99.78 | -630.84 | 5,945.02 | 5,994.09 | 5,957.76 | 36.33 | 164.974 | |
| 1,600.00 | 1,597.71 | 1,760.84 | 1,760.71 | 6.47 | 32.19 | -99.84 | -631.36 | 5,945.02 | 5,995.31 | 5,956.66 | 38.66 | 155.088 | |
| 1,700.00 | 1,697.47 | 1,860.61 | 1,860.47 | 6.79 | 34.16 | -99.91 | -631.36 | 5,945.02 | 5,996.50 | 5,955.56 | 40.94 | 146.469 | |
| 1,800.00 | 1,797.24 | 1,960.37 | 1,960.24 | 7.11 | 36.12 | -99.97 | -631.36 | 5,945.02 | 5,997.68 | 5,954.46 | 43.23 | 138.744 | |
| 1,900.00 | 1,897.00 | 2,059.35 | 2,059.21 | 7.44 | 38.07 | -100.04 | -630.58 | 5,945.02 | 5,998.81 | 5,953.31 | 45.51 | 131.827 | |
| 2,000.00 | 1,996.76 | 2,157.73 | 2,157.59 | 7.77 | 40.01 | -100.10 | -630.85 | 5,945.02 | 6,000.04 | 5,952.27 | 47.77 | 125.591 | |
| 2,100.00 | 2,096.53 | 2,259.70 | 2,259.53 | 8.11 | 42.02 | -100.16 | -631.36 | 5,945.02 | 6,001.30 | 5,951.18 | 50.12 | 119.743 | |
| 2,200.00 | 2,196.29 | 2,359.47 | 2,359.29 | 8.44 | 43.98 | -100.23 | -631.36 | 5,945.02 | 6,002.52 | 5,950.10 | 52.42 | 114.506 | |
| 2,300.00 | 2,296.06 | 2,459.16 | 2,458.98 | 8.79 | 45.95 | -100.30 | -630.70 | 5,945.02 | 6,003.69 | 5,948.96 | 54.73 | 109.706 | |
| 2,400.00 | 2,395.82 | 2,557.30 | 2,557.12 | 9.13 | 47.88 | -100.36 | -630.87 | 5,945.02 | 6,004.94 | 5,947.94 | 57.00 | 105.347 | |
| 2,500.00 | 2,495.58 | 2,658.79 | 2,658.58 | 9.47 | 49.88 | -100.42 | -631.36 | 5,945.02 | 6,006.22 | 5,946.87 | 59.35 | 101.205 | |
| 2,600.00 | 2,595.35 | 2,758.55 | 2,758.35 | 9.82 | 51.92 | -100.49 | -631.36 | 5,945.02 | 6,007.47 | 5,945.74 | 61.73 | 97.319 | |
| 2,700.00 | 2,695.11 | 2,858.32 | 2,858.11 | 10.17 | 53.95 | -100.55 | -631.36 | 5,945.02 | 6,008.73 | 5,944.62 | 64.11 | 93.720 | |
| 2,800.00 | 2,794.87 | 2,956.55 | 2,956.33 | 10.52 | 55.96 | -100.62 | -630.85 | 5,945.02 | 6,009.95 | 5,943.49 | 66.47 | 90.419 | |
| 2,900.00 | 2,894.64 | 3,054.81 | 3,054.59 | 10.87 | 57.96 | -100.68 | -631.32 | 5,945.02 | 6,011.27 | 5,942.44 | 68.82 | 87.342 | |
| 3,000.00 | 2,994.40 | 3,157.66 | 3,157.40 | 11.23 | 60.13 | -100.74 | -631.36 | 5,945.02 | 6,012.55 | 5,941.20 | 71.35 | 84.272 | |
| 3,100.00 | 3,094.16 | 3,256.97 | 3,256.71 | 11.58 | 62.23 | -100.82 | -630.60 | 5,945.02 | 6,013.78 | 5,939.98 | 73.80 | 81.487 | |
| 3,200.00 | 3,193.93 | 3,354.53 | 3,354.26 | 11.94 | 64.29 | -100.87 | -630.93 | 5,945.02 | 6,015.10 | 5,938.88 | 76.22 | 78.920 | |
| 3,300.00 | 3,293.69 | 3,457.00 | 3,456.69 | 12.29 | 66.46 | -100.94 | -631.36 | 5,945.02 | 6,016.44 | 5,937.69 | 78.74 | 76.408 | |
| 3,400.00 | 3,393.45 | 3,556.76 | 3,556.45 | 12.65 | 68.57 | -101.00 | -631.36 | 5,945.02 | 6,017.75 | 5,936.54 | 81.21 | 74.102 | ES |
| 3,500.00 | 3,493.22 | 3,597.00 | 3,596.66 | 13.01 | 69.42 | -101.03 | -631.36 | 5,945.02 | 6,019.36 | 5,936.95 | 82.41 | 73.039 | |
| 3,600.00 | 3,592.98 | 3,597.00 | 3,596.66 | 13.37 | 69.42 | -101.03 | -631.36 | 5,945.02 | 6,022.50 | 5,939.75 | 82.74 | 72.784 | |
| 3,700.00 | 3,692.74 | 3,597.00 | 3,596.66 | 13.73 | 69.42 | -101.03 | -631.36 | 5,945.02 | 6,027.29 | 5,944.24 | 83.06 | 72.569 | |
| 3,800.00 | 3,792.51 | 3,597.00 | 3,596.66 | 14.09 | 69.42 | -101.03 | -631.36 | 5,945.02 | 6,033.74 | 5,950.40 | 83.35 | 72.394 | |
| 3,900.00 | 3,892.27 | 3,597.00 | 3,596.66 | 14.45 | 69.42 | -101.03 | -631.36 | 5,945.02 | 6,041.84 | 5,958.23 | 83.61 | 72.259 | |
| 4,000.00 | 3,992.04 | 3,597.00 | 3,596.66 | 14.81 | 69.42 | -101.03 | -631.36 | 5,945.02 | 6,051.58 | 5,967.73 | 83.86 | 72.163 | |
| 4,100.00 | 4,091.80 | 3,597.00 | 3,596.66 | 15.17 | 69.42 | -101.03 | -631.36 | 5,945.02 | 6,062.96 | 5,978.88 | 84.08 | 72.106 | |
| 4,200.00 | 4,191.56 | 3,597.00 | 3,596.66 | 15.53 | 69.42 | -101.03 | -631.36 | 5,945.02 | 6,075.96 | 5,991.67 | 84.29 | 72.086 | SF |
| 4,300.00 | 4,291.33 | 3,597.00 | 3,596.66 | 15.89 | 69.42 | -101.03 | -631.36 | 5,945.02 | 6,090.57 | 6,006.10 | 84.47 | 72.104 | |
| 4,400.00 | 4,391.09 | 3,597.00 | 3,596.66 | 16.26 | 69.42 | -101.03 | -631.36 | 5,945.02 | 6,106.79 | 6,022.16 | 84.63 | 72.159 | |
| 4,500.00 | 4,490.85 | 3,597.00 | 3,596.66 | 16.62 | 69.42 | -101.03 | -631.36 | 5,945.02 | 6,124.60 | 6,039.83 | 84.77 | 72.250 | |
| 4,600.00 | 4,590.62 | 3,597.00 | 3,596.66 | 16.99 | 69.42 | -101.03 | -631.36 | 5,945.02 | 6,143.98 | 6,059.09 | 84.89 | 72.377 | |
| 4,700.00 | 4,690.38 | 3,597.00 | 3,596.66 | 17.35 | 69.42 | -101.03 | -631.36 | 5,945.02 | 6,164.92 | 6,079.94 | 84.99 | 72.539 | |

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

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

**Survey Program:** 235-A027Ua_INC-ONLY

**Offset Well Error:** 0.00 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4,800.00 | 4,790.14 | 3,597.00 | 3,596.66 | 17.71 | 69.42 | -101.03 | -631.36 | 5,945.02 | 6,187.41 | 6,102.35 | 85.07 | 72.736 | |
| 4,900.00 | 4,889.91 | 3,597.00 | 3,596.66 | 18.08 | 69.42 | -101.03 | -631.36 | 5,945.02 | 6,211.43 | 6,126.30 | 85.13 | 72.968 | |
| 5,000.00 | 4,989.67 | 3,597.00 | 3,596.66 | 18.44 | 69.42 | -101.03 | -631.36 | 5,945.02 | 6,236.96 | 6,151.79 | 85.17 | 73.233 | |
| 5,100.00 | 5,089.43 | 3,597.00 | 3,596.66 | 18.81 | 69.42 | -101.03 | -631.36 | 5,945.02 | 6,263.98 | 6,178.79 | 85.19 | 73.531 | |
| 5,200.00 | 5,189.20 | 3,597.00 | 3,596.66 | 19.17 | 69.42 | -101.03 | -631.36 | 5,945.02 | 6,292.48 | 6,207.28 | 85.19 | 73.861 | |
| 5,300.00 | 5,288.96 | 3,597.00 | 3,596.66 | 19.54 | 69.42 | -101.03 | -631.36 | 5,945.02 | 6,322.43 | 6,237.24 | 85.18 | 74.224 | |
| 5,400.00 | 5,388.72 | 3,597.00 | 3,596.66 | 19.91 | 69.42 | -101.03 | -631.36 | 5,945.02 | 6,353.81 | 6,268.66 | 85.15 | 74.618 | |
| 5,500.00 | 5,488.49 | 3,597.00 | 3,596.66 | 20.27 | 69.42 | -101.03 | -631.36 | 5,945.02 | 6,386.60 | 6,301.49 | 85.11 | 75.043 | |
| 5,600.00 | 5,588.25 | 3,597.00 | 3,596.66 | 20.64 | 69.42 | -101.03 | -631.36 | 5,945.02 | 6,420.78 | 6,335.74 | 85.05 | 75.499 | |
| 5,700.00 | 5,688.01 | 3,597.00 | 3,596.66 | 21.00 | 69.42 | -101.03 | -631.36 | 5,945.02 | 6,456.33 | 6,371.36 | 84.97 | 75.984 | |
| 5,800.00 | 5,787.78 | 3,597.00 | 3,596.66 | 21.37 | 69.42 | -101.03 | -631.36 | 5,945.02 | 6,493.23 | 6,408.35 | 84.88 | 76.499 | |
| 5,900.00 | 5,887.54 | 3,597.00 | 3,596.66 | 21.74 | 69.42 | -101.03 | -631.36 | 5,945.02 | 6,531.45 | 6,446.67 | 84.78 | 77.042 | |
| 6,000.00 | 5,987.31 | 3,597.00 | 3,596.66 | 22.11 | 69.42 | -101.03 | -631.36 | 5,945.02 | 6,570.97 | 6,486.31 | 84.66 | 77.614 | |
| 6,100.00 | 6,087.07 | 3,597.00 | 3,596.66 | 22.47 | 69.42 | -101.03 | -631.36 | 5,945.02 | 6,611.77 | 6,527.23 | 84.53 | 78.214 | |
| 6,200.00 | 6,186.83 | 3,597.00 | 3,596.66 | 22.84 | 69.42 | -101.03 | -631.36 | 5,945.02 | 6,653.81 | 6,569.42 | 84.40 | 78.840 | |
| 6,300.00 | 6,286.60 | 3,597.00 | 3,596.66 | 23.21 | 69.42 | -101.03 | -631.36 | 5,945.02 | 6,697.09 | 6,612.85 | 84.25 | 79.494 | |
| 6,400.00 | 6,386.36 | 3,597.00 | 3,596.66 | 23.58 | 69.42 | -101.03 | -631.36 | 5,945.02 | 6,741.58 | 6,657.49 | 84.09 | 80.173 | |
| 6,494.00 | 6,480.13 | 3,597.00 | 3,596.66 | 23.92 | 69.42 | -101.03 | -631.36 | 5,945.02 | 6,784.47 | 6,700.54 | 83.93 | 80.835 | |
| 6,500.00 | 6,486.12 | 3,597.00 | 3,596.66 | 23.94 | 69.42 | -108.28 | -631.36 | 5,945.02 | 6,787.27 | 6,703.35 | 83.92 | 80.878 | |
| 6,550.00 | 6,535.89 | 3,597.00 | 3,596.66 | 24.13 | 69.42 | -143.59 | -631.36 | 5,945.02 | 6,812.65 | 6,728.81 | 83.84 | 81.257 | |
| 6,600.00 | 6,585.24 | 3,597.00 | 3,596.66 | 24.31 | 69.42 | -155.60 | -631.36 | 5,945.02 | 6,841.57 | 6,757.80 | 83.77 | 81.672 | |
| 6,650.00 | 6,633.88 | 3,597.00 | 3,596.66 | 24.50 | 69.42 | -160.89 | -631.36 | 5,945.02 | 6,873.81 | 6,790.11 | 83.70 | 82.122 | |
| 6,700.00 | 6,681.49 | 3,597.00 | 3,596.66 | 24.68 | 69.42 | -163.62 | -631.36 | 5,945.02 | 6,909.14 | 6,825.49 | 83.64 | 82.603 | |
| 6,750.00 | 6,727.80 | 3,597.00 | 3,596.66 | 24.86 | 69.42 | -165.09 | -631.36 | 5,945.02 | 6,947.27 | 6,863.68 | 83.59 | 83.112 | |
| 6,800.00 | 6,772.51 | 3,597.00 | 3,596.66 | 25.04 | 69.42 | -165.78 | -631.36 | 5,945.02 | 6,987.94 | 6,904.40 | 83.54 | 83.644 | |
| 6,850.00 | 6,815.34 | 3,597.00 | 3,596.66 | 25.21 | 69.42 | -165.86 | -631.36 | 5,945.02 | 7,030.86 | 6,947.35 | 83.51 | 84.195 | |
| 6,900.00 | 6,856.04 | 3,597.00 | 3,596.66 | 25.39 | 69.42 | -165.34 | -631.36 | 5,945.02 | 7,075.72 | 6,992.24 | 83.48 | 84.762 | |
| 6,950.00 | 6,894.35 | 3,597.00 | 3,596.66 | 25.57 | 69.42 | -164.05 | -631.36 | 5,945.02 | 7,122.20 | 7,038.74 | 83.46 | 85.338 | |
| 7,000.00 | 6,930.04 | 3,597.00 | 3,596.66 | 25.75 | 69.42 | -161.48 | -631.36 | 5,945.02 | 7,170.00 | 7,086.55 | 83.45 | 85.920 | |
| 7,050.00 | 6,962.89 | 3,597.00 | 3,596.66 | 25.93 | 69.42 | -156.22 | -631.36 | 5,945.02 | 7,218.79 | 7,135.34 | 83.45 | 86.504 | |
| 7,100.00 | 6,992.69 | 3,597.00 | 3,596.66 | 26.13 | 69.42 | -143.07 | -631.36 | 5,945.02 | 7,268.27 | 7,184.80 | 83.46 | 87.083 | |
| 7,150.00 | 7,019.25 | 3,597.00 | 3,596.66 | 26.33 | 69.42 | -98.03 | -631.36 | 5,945.02 | 7,318.11 | 7,234.62 | 83.49 | 87.653 | |
| 7,200.00 | 7,042.43 | 3,597.00 | 3,596.66 | 26.55 | 69.42 | -36.78 | -631.36 | 5,945.02 | 7,367.99 | 7,284.47 | 83.53 | 88.210 | |
| 7,250.00 | 7,062.07 | 3,597.00 | 3,596.66 | 26.79 | 69.42 | -17.54 | -631.36 | 5,945.02 | 7,417.63 | 7,334.05 | 83.58 | 88.748 | |
| 7,300.00 | 7,078.05 | 3,597.00 | 3,596.66 | 27.04 | 69.42 | -10.44 | -631.36 | 5,945.02 | 7,466.71 | 7,383.06 | 83.65 | 89.262 | |
| 7,350.00 | 7,090.27 | 3,597.00 | 3,596.66 | 27.30 | 69.42 | -6.91 | -631.36 | 5,945.02 | 7,514.95 | 7,431.22 | 83.73 | 89.748 | |
| 7,400.00 | 7,098.66 | 3,597.00 | 3,596.66 | 27.58 | 69.42 | -4.81 | -631.36 | 5,945.02 | 7,562.07 | 7,478.23 | 83.84 | 90.201 | |
| 7,450.00 | 7,103.17 | 3,597.00 | 3,596.66 | 27.87 | 69.42 | -3.43 | -631.36 | 5,945.02 | 7,607.80 | 7,523.85 | 83.96 | 90.616 | |
| 7,484.86 | 7,104.00 | 3,597.00 | 3,596.66 | 28.08 | 69.42 | -2.71 | -631.36 | 5,945.02 | 7,638.73 | 7,554.68 | 84.05 | 90.882 | |
| 7,500.00 | 7,103.95 | 3,597.00 | 3,596.66 | 28.17 | 69.42 | -2.71 | -631.36 | 5,945.02 | 7,651.99 | 7,567.89 | 84.09 | 90.993 | |
| 7,600.00 | 7,103.60 | 3,597.00 | 3,596.66 | 28.83 | 69.42 | -2.71 | -631.36 | 5,945.02 | 7,739.68 | 7,655.29 | 84.39 | 91.709 | |
| 7,700.00 | 7,103.25 | 3,597.00 | 3,596.66 | 29.56 | 69.42 | -2.71 | -631.36 | 5,945.02 | 7,827.68 | 7,742.99 | 84.69 | 92.428 | |
| 7,800.00 | 7,102.90 | 3,597.00 | 3,596.66 | 30.35 | 69.42 | -2.71 | -631.36 | 5,945.02 | 7,915.96 | 7,830.97 | 84.98 | 93.149 | |
| 7,900.00 | 7,102.55 | 3,597.00 | 3,596.66 | 31.21 | 69.42 | -2.71 | -631.36 | 5,945.02 | 8,004.51 | 7,919.24 | 85.27 | 93.872 | |
| 8,000.00 | 7,102.20 | 3,597.00 | 3,596.66 | 32.13 | 69.42 | -2.71 | -631.36 | 5,945.02 | 8,093.33 | 8,007.78 | 85.56 | 94.597 | |
| 8,100.00 | 7,101.85 | 3,597.00 | 3,596.66 | 33.10 | 69.42 | -2.71 | -631.36 | 5,945.02 | 8,182.41 | 8,096.57 | 85.84 | 95.324 | |
| 8,200.00 | 7,101.50 | 3,597.00 | 3,596.66 | 34.11 | 69.42 | -2.71 | -631.36 | 5,945.02 | 8,271.74 | 8,185.62 | 86.12 | 96.054 | |
| 8,300.00 | 7,101.15 | 3,597.00 | 3,596.66 | 35.17 | 69.42 | -2.71 | -631.36 | 5,945.02 | 8,361.31 | 8,274.92 | 86.39 | 96.786 | |
| 8,400.00 | 7,100.80 | 3,597.00 | 3,596.66 | 36.27 | 69.42 | -2.71 | -631.36 | 5,945.02 | 8,451.11 | 8,364.45 | 86.66 | 97.519 | |
| 8,500.00 | 7,100.45 | 3,597.00 | 3,596.66 | 37.41 | 69.42 | -2.71 | -631.36 | 5,945.02 | 8,541.15 | 8,454.22 | 86.93 | 98.255 | |
| 8,600.00 | 7,100.10 | 3,597.00 | 3,596.66 | 38.58 | 69.42 | -2.71 | -631.36 | 5,945.02 | 8,631.40 | 8,544.20 | 87.19 | 98.993 | |
| 8,700.00 | 7,099.75 | 3,597.00 | 3,596.66 | 39.78 | 69.42 | -2.71 | -631.36 | 5,945.02 | 8,721.86 | 8,634.41 | 87.45 | 99.732 | |

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

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

**Survey Program:** 235-A027Ua_INC-ONLY

**Offset Well Error:** 0.00 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8,800.00 | 7,099.40 | 3,597.00 | 3,596.66 | 41.00 | 69.42 | -2.71 | -631.36 | 5,945.02 | 8,812.53 | 8,724.82 | 87.71 | 100.474 | |
| 8,900.00 | 7,099.05 | 3,597.00 | 3,596.66 | 42.25 | 69.42 | -2.71 | -631.36 | 5,945.02 | 8,903.40 | 8,815.43 | 87.96 | 101.217 | |
| 9,000.00 | 7,098.70 | 3,597.00 | 3,596.66 | 43.53 | 69.42 | -2.71 | -631.36 | 5,945.02 | 8,994.46 | 8,906.25 | 88.21 | 101.962 | |
| 9,100.00 | 7,098.35 | 3,597.00 | 3,596.66 | 44.82 | 69.42 | -2.71 | -631.36 | 5,945.02 | 9,085.71 | 8,997.25 | 88.46 | 102.709 | |
| 9,200.00 | 7,098.00 | 3,597.00 | 3,596.66 | 46.14 | 69.42 | -2.71 | -631.36 | 5,945.02 | 9,177.14 | 9,088.44 | 88.70 | 103.457 | |
| 9,300.00 | 7,097.65 | 3,597.00 | 3,596.66 | 47.47 | 69.42 | -2.71 | -631.36 | 5,945.02 | 9,268.75 | 9,179.81 | 88.95 | 104.207 | |
| 9,400.00 | 7,097.30 | 3,597.00 | 3,596.66 | 48.82 | 69.42 | -2.71 | -631.36 | 5,945.02 | 9,360.54 | 9,271.35 | 89.18 | 104.958 | |
| 9,500.00 | 7,096.95 | 3,597.00 | 3,596.66 | 50.18 | 69.42 | -2.71 | -631.36 | 5,945.02 | 9,452.48 | 9,363.07 | 89.42 | 105.711 | |
| 9,600.00 | 7,096.60 | 3,597.00 | 3,596.66 | 51.56 | 69.42 | -2.71 | -631.36 | 5,945.02 | 9,544.60 | 9,454.95 | 89.65 | 106.465 | |
| 9,700.00 | 7,096.25 | 3,597.00 | 3,596.66 | 52.95 | 69.42 | -2.71 | -631.36 | 5,945.02 | 9,636.86 | 9,546.98 | 89.88 | 107.221 | |
| 9,800.00 | 7,095.90 | 3,597.00 | 3,596.66 | 54.35 | 69.42 | -2.71 | -631.36 | 5,945.02 | 9,729.28 | 9,639.18 | 90.10 | 107.978 | |
| 9,900.00 | 7,095.55 | 3,597.00 | 3,596.66 | 55.76 | 69.42 | -2.71 | -631.36 | 5,945.02 | 9,821.85 | 9,731.52 | 90.33 | 108.736 | |
| 10,000.00 | 7,095.20 | 3,597.00 | 3,596.66 | 57.18 | 69.42 | -2.71 | -631.36 | 5,945.02 | 9,914.57 | 9,824.02 | 90.55 | 109.495 | |
| 10,100.00 | 7,094.85 | 3,597.00 | 3,596.66 | 58.61 | 69.42 | -2.71 | -631.36 | 5,945.02 | 10,007.42 | 9,916.65 | 90.77 | 110.256 | |
| 10,200.00 | 7,094.50 | 3,597.00 | 3,596.66 | 60.05 | 69.42 | -2.71 | -631.36 | 5,945.02 | 10,100.41 | 10,009.43 | 90.98 | 111.017 | |
| 10,300.00 | 7,094.15 | 3,597.00 | 3,596.66 | 61.50 | 69.42 | -2.71 | -631.36 | 5,945.02 | 10,193.53 | 10,102.34 | 91.19 | 111.780 | |
| 10,400.00 | 7,093.80 | 3,597.00 | 3,596.66 | 62.96 | 69.42 | -2.71 | -631.36 | 5,945.02 | 10,286.78 | 10,195.38 | 91.40 | 112.543 | |
| 10,500.00 | 7,093.45 | 3,597.00 | 3,596.66 | 64.42 | 69.42 | -2.71 | -631.36 | 5,945.02 | 10,380.16 | 10,288.55 | 91.61 | 113.308 | |
| 10,600.00 | 7,093.10 | 3,597.00 | 3,596.66 | 65.89 | 69.42 | -2.71 | -631.36 | 5,945.02 | 10,473.66 | 10,381.85 | 91.82 | 114.073 | |
| 10,700.00 | 7,092.75 | 3,597.00 | 3,596.66 | 67.36 | 69.42 | -2.71 | -631.36 | 5,945.02 | 10,567.28 | 10,475.26 | 92.02 | 114.839 | |
| 10,800.00 | 7,092.40 | 3,597.00 | 3,596.66 | 68.84 | 69.42 | -2.71 | -631.36 | 5,945.02 | 10,661.02 | 10,568.80 | 92.22 | 115.606 | |
| 10,900.00 | 7,092.05 | 3,597.00 | 3,596.66 | 70.33 | 69.42 | -2.71 | -631.36 | 5,945.02 | 10,754.86 | 10,662.45 | 92.42 | 116.373 | |
| 11,000.00 | 7,091.70 | 3,597.00 | 3,596.66 | 71.82 | 69.42 | -2.71 | -631.36 | 5,945.02 | 10,848.82 | 10,756.21 | 92.61 | 117.141 | |
| 11,100.00 | 7,091.35 | 3,597.00 | 3,596.66 | 73.31 | 69.42 | -2.71 | -631.36 | 5,945.02 | 10,942.89 | 10,850.08 | 92.81 | 117.910 | |
| 11,200.00 | 7,091.00 | 3,597.00 | 3,596.66 | 74.81 | 69.42 | -2.71 | -631.36 | 5,945.02 | 11,037.05 | 10,944.06 | 93.00 | 118.679 | |
| 11,300.00 | 7,090.65 | 3,597.00 | 3,596.66 | 76.32 | 69.42 | -2.71 | -631.36 | 5,945.02 | 11,131.32 | 11,038.14 | 93.19 | 119.449 | |
| 11,400.00 | 7,090.30 | 3,597.00 | 3,596.66 | 77.82 | 69.42 | -2.71 | -631.36 | 5,945.02 | 11,225.69 | 11,132.32 | 93.38 | 120.219 | |
| 11,500.00 | 7,089.95 | 3,597.00 | 3,596.66 | 79.34 | 69.42 | -2.71 | -631.36 | 5,945.02 | 11,320.16 | 11,226.60 | 93.56 | 120.990 | |
| 11,600.00 | 7,089.60 | 3,597.00 | 3,596.66 | 80.85 | 69.42 | -2.71 | -631.36 | 5,945.02 | 11,414.72 | 11,320.98 | 93.75 | 121.761 | |
| 11,700.00 | 7,089.25 | 3,597.00 | 3,596.66 | 82.37 | 69.42 | -2.71 | -631.36 | 5,945.02 | 11,509.37 | 11,415.45 | 93.93 | 122.532 | |
| 11,800.00 | 7,088.90 | 3,597.00 | 3,596.66 | 83.89 | 69.42 | -2.71 | -631.36 | 5,945.02 | 11,604.12 | 11,510.01 | 94.11 | 123.304 | |
| 11,900.00 | 7,088.55 | 3,597.00 | 3,596.66 | 85.41 | 69.42 | -2.71 | -631.36 | 5,945.02 | 11,698.95 | 11,604.66 | 94.29 | 124.076 | |
| 12,000.00 | 7,088.20 | 3,597.00 | 3,596.66 | 86.94 | 69.42 | -2.71 | -631.36 | 5,945.02 | 11,793.86 | 11,699.40 | 94.47 | 124.848 | |
| 12,100.00 | 7,087.85 | 3,597.00 | 3,596.66 | 88.47 | 69.42 | -2.71 | -631.36 | 5,945.02 | 11,888.86 | 11,794.22 | 94.64 | 125.620 | |
| 12,200.00 | 7,087.50 | 3,597.00 | 3,596.66 | 90.00 | 69.42 | -2.71 | -631.36 | 5,945.02 | 11,983.94 | 11,889.13 | 94.82 | 126.392 | |
| 12,300.00 | 7,087.15 | 3,597.00 | 3,596.66 | 91.54 | 69.42 | -2.71 | -631.36 | 5,945.02 | 12,079.10 | 11,984.11 | 94.99 | 127.165 | |
| 12,400.00 | 7,086.81 | 3,597.00 | 3,596.66 | 93.07 | 69.42 | -2.71 | -631.36 | 5,945.02 | 12,174.34 | 12,079.18 | 95.16 | 127.937 | |
| 12,500.00 | 7,086.46 | 3,597.00 | 3,596.66 | 94.61 | 69.42 | -2.71 | -631.36 | 5,945.02 | 12,269.65 | 12,174.32 | 95.33 | 128.710 | |
| 12,600.00 | 7,086.11 | 3,597.00 | 3,596.66 | 96.15 | 69.42 | -2.71 | -631.36 | 5,945.02 | 12,365.04 | 12,269.54 | 95.50 | 129.482 | |
| 12,700.00 | 7,085.76 | 3,597.00 | 3,596.66 | 97.69 | 69.42 | -2.71 | -631.36 | 5,945.02 | 12,460.50 | 12,364.84 | 95.66 | 130.255 | |
| 12,800.00 | 7,085.41 | 3,597.00 | 3,596.66 | 99.24 | 69.42 | -2.71 | -631.36 | 5,945.02 | 12,556.03 | 12,460.20 | 95.83 | 131.027 | |
| 12,900.00 | 7,085.06 | 3,597.00 | 3,596.66 | 100.78 | 69.42 | -2.71 | -631.36 | 5,945.02 | 12,651.63 | 12,555.64 | 95.99 | 131.799 | |
| 13,000.00 | 7,084.71 | 3,597.00 | 3,596.66 | 102.33 | 69.42 | -2.71 | -631.36 | 5,945.02 | 12,747.29 | 12,651.14 | 96.15 | 132.571 | |
| 13,100.00 | 7,084.36 | 3,597.00 | 3,596.66 | 103.88 | 69.42 | -2.71 | -631.36 | 5,945.02 | 12,843.03 | 12,746.71 | 96.32 | 133.343 | |
| 13,200.00 | 7,084.01 | 3,597.00 | 3,596.66 | 105.43 | 69.42 | -2.71 | -631.36 | 5,945.02 | 12,938.82 | 12,842.35 | 96.48 | 134.115 | |
| 13,300.00 | 7,083.66 | 3,597.00 | 3,596.66 | 106.99 | 69.42 | -2.71 | -631.36 | 5,945.02 | 13,034.68 | 12,938.05 | 96.63 | 134.886 | |
| 13,400.00 | 7,083.31 | 3,597.00 | 3,596.66 | 108.54 | 69.42 | -2.71 | -631.36 | 5,945.02 | 13,130.61 | 13,033.81 | 96.79 | 135.657 | |
| 13,500.00 | 7,082.96 | 3,597.00 | 3,596.66 | 110.09 | 69.42 | -2.71 | -631.36 | 5,945.02 | 13,226.59 | 13,129.64 | 96.95 | 136.428 | |
| 13,600.00 | 7,082.61 | 3,597.00 | 3,596.66 | 111.65 | 69.42 | -2.71 | -631.36 | 5,945.02 | 13,322.63 | 13,225.53 | 97.10 | 137.199 | |
| 13,700.00 | 7,082.26 | 3,597.00 | 3,596.66 | 113.21 | 69.42 | -2.71 | -631.36 | 5,945.02 | 13,418.73 | 13,321.47 | 97.26 | 137.969 | |
| 13,800.00 | 7,081.91 | 3,597.00 | 3,596.66 | 114.77 | 69.42 | -2.71 | -631.36 | 5,945.02 | 13,514.89 | 13,417.47 | 97.41 | 138.738 | |
| 13,900.00 | 7,081.56 | 3,597.00 | 3,596.66 | 116.33 | 69.42 | -2.71 | -631.36 | 5,945.02 | 13,611.10 | 13,513.53 | 97.57 | 139.508 | |

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

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

**Survey Program:** 235-A027Ua_INC-ONLY

**Offset Well Error:** 0.00 usft

**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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 14,000.00 | 7,081.21 | 3,597.00 | 3,596.66 | 117.89 | 69.42 | -2.71 | -631.36 | 5,945.02 | 13,707.36 | 13,609.65 | 97.72 | 140.276 | |
| 14,100.00 | 7,080.86 | 3,597.00 | 3,596.66 | 119.45 | 69.42 | -2.71 | -631.36 | 5,945.02 | 13,803.68 | 13,705.81 | 97.87 | 141.045 | |
| 14,200.00 | 7,080.51 | 3,597.00 | 3,596.66 | 121.02 | 69.42 | -2.71 | -631.36 | 5,945.02 | 13,900.05 | 13,802.03 | 98.02 | 141.812 | |
| 14,300.00 | 7,080.16 | 3,597.00 | 3,596.66 | 122.58 | 69.42 | -2.71 | -631.36 | 5,945.02 | 13,996.47 | 13,898.31 | 98.17 | 142.580 | |
| 14,400.00 | 7,079.81 | 3,597.00 | 3,596.66 | 124.15 | 69.42 | -2.71 | -631.36 | 5,945.02 | 14,092.95 | 13,994.63 | 98.31 | 143.346 | |
| 14,500.00 | 7,079.46 | 3,597.00 | 3,596.66 | 125.71 | 69.42 | -2.71 | -631.36 | 5,945.02 | 14,189.47 | 14,091.00 | 98.46 | 144.113 | |
| 14,600.00 | 7,079.11 | 3,597.00 | 3,596.66 | 127.28 | 69.42 | -2.71 | -631.36 | 5,945.02 | 14,286.03 | 14,187.43 | 98.61 | 144.878 | |
| 14,700.00 | 7,078.76 | 3,597.00 | 3,596.66 | 128.85 | 69.42 | -2.71 | -631.36 | 5,945.02 | 14,382.65 | 14,283.90 | 98.75 | 145.643 | |
| 14,800.00 | 7,078.41 | 3,597.00 | 3,596.66 | 130.42 | 69.42 | -2.71 | -631.36 | 5,945.02 | 14,479.31 | 14,380.41 | 98.90 | 146.407 | |
| 14,900.00 | 7,078.06 | 3,597.00 | 3,596.66 | 131.98 | 69.42 | -2.71 | -631.36 | 5,945.02 | 14,576.02 | 14,476.97 | 99.04 | 147.171 | |
| 15,000.00 | 7,077.71 | 3,597.00 | 3,596.66 | 133.55 | 69.42 | -2.71 | -631.36 | 5,945.02 | 14,672.77 | 14,573.58 | 99.18 | 147.934 | |
| 15,100.00 | 7,077.36 | 3,597.00 | 3,596.66 | 135.13 | 69.42 | -2.71 | -631.36 | 5,945.02 | 14,769.56 | 14,670.23 | 99.33 | 148.696 | |
| 15,200.00 | 7,077.01 | 3,597.00 | 3,596.66 | 136.70 | 69.42 | -2.71 | -631.36 | 5,945.02 | 14,866.40 | 14,766.93 | 99.47 | 149.457 | |
| 15,300.00 | 7,076.66 | 3,597.00 | 3,596.66 | 138.27 | 69.42 | -2.71 | -631.36 | 5,945.02 | 14,963.27 | 14,863.66 | 99.61 | 150.218 | |
| 15,400.00 | 7,076.31 | 3,597.00 | 3,596.66 | 139.84 | 69.42 | -2.71 | -631.36 | 5,945.02 | 15,060.19 | 14,960.44 | 99.75 | 150.978 | |
| 15,500.00 | 7,075.96 | 3,597.00 | 3,596.66 | 141.42 | 69.42 | -2.71 | -631.36 | 5,945.02 | 15,157.15 | 15,057.26 | 99.89 | 151.737 | |
| 15,600.00 | 7,075.61 | 3,597.00 | 3,596.66 | 142.99 | 69.42 | -2.71 | -631.36 | 5,945.02 | 15,254.15 | 15,154.12 | 100.03 | 152.495 | |
| 15,700.00 | 7,075.26 | 3,597.00 | 3,596.66 | 144.57 | 69.42 | -2.71 | -631.36 | 5,945.02 | 15,351.19 | 15,251.02 | 100.17 | 153.253 | |
| 15,800.00 | 7,074.91 | 3,597.00 | 3,596.66 | 146.14 | 69.42 | -2.71 | -631.36 | 5,945.02 | 15,448.26 | 15,347.95 | 100.31 | 154.010 | |
| 15,900.00 | 7,074.56 | 3,597.00 | 3,596.66 | 147.72 | 69.42 | -2.71 | -631.36 | 5,945.02 | 15,545.37 | 15,444.93 | 100.44 | 154.766 | |
| 16,000.00 | 7,074.21 | 3,597.00 | 3,596.66 | 149.29 | 69.42 | -2.71 | -631.36 | 5,945.02 | 15,642.52 | 15,541.94 | 100.58 | 155.520 | |
| 16,100.00 | 7,073.86 | 3,597.00 | 3,596.66 | 150.87 | 69.42 | -2.71 | -631.36 | 5,945.02 | 15,739.70 | 15,638.98 | 100.72 | 156.275 | |
| 16,200.00 | 7,073.51 | 3,597.00 | 3,596.66 | 152.45 | 69.42 | -2.71 | -631.36 | 5,945.02 | 15,836.92 | 15,736.07 | 100.85 | 157.028 | |
| 16,300.00 | 7,073.16 | 3,597.00 | 3,596.66 | 154.03 | 69.42 | -2.71 | -631.36 | 5,945.02 | 15,934.17 | 15,833.18 | 100.99 | 157.780 | |
| 16,400.00 | 7,072.81 | 3,597.00 | 3,596.66 | 155.60 | 69.42 | -2.71 | -631.36 | 5,945.02 | 16,031.46 | 15,930.33 | 101.12 | 158.531 | |
| 16,500.00 | 7,072.46 | 3,597.00 | 3,596.66 | 157.18 | 69.42 | -2.71 | -631.36 | 5,945.02 | 16,128.78 | 16,027.52 | 101.26 | 159.282 | |
| 16,600.00 | 7,072.11 | 3,597.00 | 3,596.66 | 158.76 | 69.42 | -2.71 | -631.36 | 5,945.02 | 16,226.13 | 16,124.74 | 101.39 | 160.031 | |
| 16,631.96 | 7,072.00 | 3,597.00 | 3,596.66 | 159.27 | 69.42 | -2.71 | -631.36 | 5,945.02 | 16,257.25 | 16,155.82 | 101.44 | 160.270 | |

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

**Survey Program:** 330-MWD-SDI

**Rule Assigned:**

**Offset Well Error:** 0.00 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 609.18 | 608.54 | 3.28 | 1.79 | 91.08 | -260.80 | 13,898.83 | 13,909.27 | | | | |
| 100.00 | 100.00 | 665.08 | 664.04 | 3.29 | 1.95 | 91.10 | -267.16 | 13,896.88 | 13,906.00 | 13,900.76 | 5.24 | 2,652.808 | |
| 200.00 | 200.00 | 706.00 | 704.59 | 3.34 | 2.08 | 91.12 | -272.59 | 13,895.63 | 13,903.16 | 13,897.75 | 5.41 | 2,569.184 | |
| 300.00 | 300.00 | 730.84 | 729.15 | 3.42 | 2.15 | 91.14 | -276.21 | 13,894.98 | 13,900.80 | 13,895.23 | 5.57 | 2,495.686 | |
| 400.00 | 400.00 | 767.00 | 764.85 | 3.54 | 2.26 | 91.16 | -281.92 | 13,894.24 | 13,898.97 | 13,893.17 | 5.80 | 2,397.715 | |
| 500.00 | 500.00 | 790.57 | 788.07 | 3.69 | 2.33 | 91.18 | -285.92 | 13,893.86 | 13,897.63 | 13,891.61 | 6.02 | 2,309.730 | |
| 550.14 | 550.14 | 807.14 | 804.38 | 3.77 | 2.38 | -118.81 | -288.87 | 13,893.64 | 13,897.35 | 13,891.21 | 6.15 | 2,260.374 | CC, ES |
| 600.00 | 599.98 | 828.00 | 824.88 | 3.86 | 2.44 | -118.80 | -292.74 | 13,893.42 | 13,897.62 | 13,891.33 | 6.30 | 2,206.751 | |
| 697.00 | 696.84 | 889.00 | 884.52 | 4.04 | 2.63 | -118.72 | -305.48 | 13,892.83 | 13,899.54 | 13,892.88 | 6.66 | 2,086.732 | |
| 700.00 | 699.84 | 889.00 | 884.52 | 4.05 | 2.63 | -118.72 | -305.48 | 13,892.83 | 13,899.63 | 13,892.96 | 6.67 | 2,084.791 | |
| 800.00 | 799.60 | 958.27 | 951.61 | 4.25 | 2.84 | -118.67 | -322.71 | 13,892.24 | 13,902.64 | 13,895.56 | 7.08 | 1,962.435 | |
| 897.00 | 896.37 | 1,009.00 | 1,000.24 | 4.48 | 2.99 | -118.62 | -337.15 | 13,891.94 | 13,905.90 | 13,898.44 | 7.46 | 1,864.184 | |
| 900.00 | 899.37 | 1,009.00 | 1,000.24 | 4.48 | 2.99 | -117.75 | -337.15 | 13,891.94 | 13,906.00 | 13,898.54 | 7.47 | 1,862.413 | |
| 947.40 | 946.65 | 1,031.09 | 1,021.28 | 4.60 | 3.05 | -103.91 | -343.84 | 13,891.85 | 13,907.32 | 13,899.67 | 7.65 | 1,818.468 | |
| 1,000.00 | 999.13 | 1,068.00 | 1,056.35 | 4.73 | 3.17 | -103.88 | -355.38 | 13,891.81 | 13,908.51 | 13,900.62 | 7.89 | 1,762.716 | |
| 1,100.00 | 1,098.89 | 1,093.88 | 1,080.87 | 4.99 | 3.24 | -103.85 | -363.66 | 13,891.85 | 13,911.04 | 13,902.80 | 8.23 | 1,690.231 | |
| 1,200.00 | 1,198.66 | 1,138.80 | 1,123.35 | 5.27 | 3.38 | -103.80 | -378.25 | 13,892.07 | 13,914.02 | 13,905.38 | 8.64 | 1,610.376 | |
| 1,300.00 | 1,298.42 | 1,337.42 | 1,310.78 | 5.56 | 3.98 | -103.58 | -443.97 | 13,892.84 | 13,917.11 | 13,907.59 | 9.52 | 1,461.370 | |
| 1,400.00 | 1,398.18 | 1,376.00 | 1,347.16 | 5.85 | 4.09 | -103.54 | -456.82 | 13,892.93 | 13,919.90 | 13,909.97 | 9.93 | 1,401.115 | |
| 1,500.00 | 1,497.95 | 1,418.23 | 1,386.98 | 6.16 | 4.22 | -103.49 | -470.86 | 13,893.19 | 13,923.14 | 13,912.77 | 10.37 | 1,343.241 | |
| 1,600.00 | 1,597.71 | 1,467.97 | 1,433.92 | 6.47 | 4.37 | -103.44 | -487.34 | 13,893.61 | 13,926.70 | 13,915.87 | 10.83 | 1,286.504 | |
| 1,700.00 | 1,697.47 | 1,514.52 | 1,477.72 | 6.79 | 4.51 | -103.39 | -503.08 | 13,894.17 | 13,930.67 | 13,919.39 | 11.28 | 1,234.844 | |
| 1,800.00 | 1,797.24 | 1,619.22 | 1,575.96 | 7.11 | 4.82 | -103.26 | -539.26 | 13,895.64 | 13,934.94 | 13,923.02 | 11.92 | 1,169.250 | |
| 1,900.00 | 1,897.00 | 1,672.99 | 1,626.50 | 7.44 | 4.98 | -103.20 | -557.61 | 13,896.39 | 13,939.24 | 13,926.84 | 12.41 | 1,123.658 | |
| 2,000.00 | 1,996.76 | 1,816.36 | 1,760.98 | 7.77 | 5.42 | -103.04 | -607.24 | 13,898.38 | 13,943.60 | 13,930.43 | 13.17 | 1,058.985 | |
| 2,100.00 | 2,096.53 | 1,953.22 | 1,889.62 | 8.11 | 5.83 | -102.88 | -653.91 | 13,899.96 | 13,947.79 | 13,933.87 | 13.91 | 1,002.534 | |
| 2,200.00 | 2,196.29 | 2,032.60 | 1,964.52 | 8.44 | 6.06 | -102.79 | -680.20 | 13,900.79 | 13,951.86 | 13,937.38 | 14.49 | 963.012 | |
| 2,300.00 | 2,296.06 | 2,115.77 | 2,042.99 | 8.79 | 6.31 | -102.70 | -707.72 | 13,901.82 | 13,956.15 | 13,941.08 | 15.08 | 925.659 | |
| 2,400.00 | 2,395.82 | 2,546.09 | 2,449.37 | 9.13 | 7.61 | -102.24 | -849.22 | 13,901.18 | 13,958.55 | 13,941.83 | 16.72 | 835.041 | |
| 2,500.00 | 2,495.58 | 2,643.00 | 2,541.47 | 9.47 | 7.90 | -102.14 | -879.36 | 13,900.06 | 13,960.54 | 13,943.19 | 17.35 | 804.563 | |
| 2,600.00 | 2,595.35 | 2,677.96 | 2,574.69 | 9.82 | 8.00 | -102.10 | -890.25 | 13,899.70 | 13,962.82 | 13,945.02 | 17.80 | 784.312 | |
| 2,700.00 | 2,695.11 | 2,895.00 | 2,781.99 | 10.17 | 8.65 | -101.90 | -954.41 | 13,897.73 | 13,965.11 | 13,946.30 | 18.80 | 742.672 | |
| 2,800.00 | 2,794.87 | 2,895.00 | 2,781.99 | 10.52 | 8.65 | -101.90 | -954.41 | 13,897.73 | 13,967.25 | 13,948.09 | 19.15 | 729.255 | |
| 2,900.00 | 2,894.64 | 2,928.78 | 2,814.70 | 10.87 | 8.75 | -101.87 | -962.83 | 13,897.55 | 13,969.87 | 13,950.26 | 19.60 | 712.584 | |
| 3,000.00 | 2,994.40 | 2,958.00 | 2,843.12 | 11.23 | 8.84 | -101.85 | -969.60 | 13,897.75 | 13,973.17 | 13,953.12 | 20.04 | 697.146 | |
| 3,100.00 | 3,094.16 | 3,260.00 | 3,140.97 | 11.58 | 9.74 | -101.74 | -1,017.78 | 13,899.86 | 13,976.88 | 13,955.57 | 21.31 | 655.973 | |
| 3,200.00 | 3,193.93 | 3,527.00 | 3,407.78 | 11.94 | 10.54 | -101.78 | -1,026.18 | 13,899.23 | 13,978.09 | 13,955.62 | 22.46 | 622.226 | |
| 3,300.00 | 3,293.69 | 3,527.00 | 3,407.78 | 12.29 | 10.54 | -101.78 | -1,026.18 | 13,899.23 | 13,979.30 | 13,956.48 | 22.82 | 612.594 | |
| 3,400.00 | 3,393.45 | 3,527.00 | 3,407.78 | 12.65 | 10.54 | -101.78 | -1,026.18 | 13,899.23 | 13,981.23 | 13,958.05 | 23.18 | 603.281 | |
| 3,500.00 | 3,493.22 | 3,527.00 | 3,407.78 | 13.01 | 10.54 | -101.78 | -1,026.18 | 13,899.23 | 13,983.87 | 13,960.34 | 23.53 | 594.275 | |
| 3,600.00 | 3,592.98 | 3,527.00 | 3,407.78 | 13.37 | 10.54 | -101.78 | -1,026.18 | 13,899.23 | 13,987.23 | 13,963.34 | 23.89 | 585.568 | |
| 3,700.00 | 3,692.74 | 3,527.00 | 3,407.78 | 13.73 | 10.54 | -101.78 | -1,026.18 | 13,899.23 | 13,991.30 | 13,967.06 | 24.24 | 577.146 | |
| 3,800.00 | 3,792.51 | 3,527.00 | 3,407.78 | 14.09 | 10.54 | -101.78 | -1,026.18 | 13,899.23 | 13,996.08 | 13,971.48 | 24.60 | 569.001 | |
| 3,900.00 | 3,892.27 | 3,527.00 | 3,407.78 | 14.45 | 10.54 | -101.78 | -1,026.18 | 13,899.23 | 14,001.58 | 13,976.63 | 24.95 | 561.122 | |
| 4,000.00 | 3,992.04 | 3,527.00 | 3,407.78 | 14.81 | 10.54 | -101.78 | -1,026.18 | 13,899.23 | 14,007.79 | 13,982.48 | 25.31 | 553.500 | |
| 4,100.00 | 4,091.80 | 3,527.00 | 3,407.78 | 15.17 | 10.54 | -101.78 | -1,026.18 | 13,899.23 | 14,014.71 | 13,989.05 | 25.66 | 546.126 | |
| 4,200.00 | 4,191.56 | 3,527.00 | 3,407.78 | 15.53 | 10.54 | -101.78 | -1,026.18 | 13,899.23 | 14,022.34 | 13,996.32 | 26.02 | 538.989 | |
| 4,300.00 | 4,291.33 | 3,527.00 | 3,407.78 | 15.89 | 10.54 | -101.78 | -1,026.18 | 13,899.23 | 14,030.67 | 14,004.31 | 26.37 | 532.083 | |
| 4,400.00 | 4,391.09 | 3,527.00 | 3,407.78 | 16.26 | 10.54 | -101.78 | -1,026.18 | 13,899.23 | 14,039.72 | 14,013.00 | 26.72 | 525.398 | |
| 4,500.00 | 4,490.85 | 3,527.00 | 3,407.78 | 16.62 | 10.54 | -101.78 | -1,026.18 | 13,899.23 | 14,049.47 | 14,022.40 | 27.07 | 518.927 | |
| 4,600.00 | 4,590.62 | 3,527.00 | 3,407.78 | 16.99 | 10.54 | -101.78 | -1,026.18 | 13,899.23 | 14,059.93 | 14,032.50 | 27.43 | 512.662 | |
| 4,700.00 | 4,690.38 | 3,527.00 | 3,407.78 | 17.35 | 10.54 | -101.78 | -1,026.18 | 13,899.23 | 14,071.09 | 14,043.31 | 27.78 | 506.595 | |

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

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

**Survey Program:** 330-MWD-SDI

**Offset Well Error:** 0.00 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4,800.00 | 4,790.14 | 3,527.00 | 3,407.78 | 17.71 | 10.54 | -101.78 | -1,026.18 | 13,899.23 | 14,082.95 | 14,054.82 | 28.13 | 500.720 | |
| 4,900.00 | 4,889.91 | 3,527.00 | 3,407.78 | 18.08 | 10.54 | -101.78 | -1,026.18 | 13,899.23 | 14,095.51 | 14,067.03 | 28.47 | 495.030 | |
| 5,000.00 | 4,989.67 | 3,527.00 | 3,407.78 | 18.44 | 10.54 | -101.78 | -1,026.18 | 13,899.23 | 14,108.76 | 14,079.94 | 28.82 | 489.518 | |
| 5,100.00 | 5,089.43 | 3,527.00 | 3,407.78 | 18.81 | 10.54 | -101.78 | -1,026.18 | 13,899.23 | 14,122.72 | 14,093.55 | 29.17 | 484.178 | |
| 5,200.00 | 5,189.20 | 3,527.00 | 3,407.78 | 19.17 | 10.54 | -101.78 | -1,026.18 | 13,899.23 | 14,137.36 | 14,107.85 | 29.51 | 479.004 | |
| 5,300.00 | 5,288.96 | 3,527.00 | 3,407.78 | 19.54 | 10.54 | -101.78 | -1,026.18 | 13,899.23 | 14,152.70 | 14,122.84 | 29.86 | 473.990 | |
| 5,400.00 | 5,388.72 | 3,527.00 | 3,407.78 | 19.91 | 10.54 | -101.78 | -1,026.18 | 13,899.23 | 14,168.73 | 14,138.52 | 30.20 | 469.131 | |
| 5,500.00 | 5,488.49 | 3,527.00 | 3,407.78 | 20.27 | 10.54 | -101.78 | -1,026.18 | 13,899.23 | 14,185.44 | 14,154.90 | 30.54 | 464.421 | |
| 5,600.00 | 5,588.25 | 3,527.00 | 3,407.78 | 20.64 | 10.54 | -101.78 | -1,026.18 | 13,899.23 | 14,202.84 | 14,171.95 | 30.89 | 459.855 | |
| 5,700.00 | 5,688.01 | 3,527.00 | 3,407.78 | 21.00 | 10.54 | -101.78 | -1,026.18 | 13,899.23 | 14,220.92 | 14,189.69 | 31.23 | 455.429 | |
| 5,800.00 | 5,787.78 | 3,527.00 | 3,407.78 | 21.37 | 10.54 | -101.78 | -1,026.18 | 13,899.23 | 14,239.68 | 14,208.11 | 31.56 | 451.138 | |
| 5,900.00 | 5,887.54 | 3,527.00 | 3,407.78 | 21.74 | 10.54 | -101.78 | -1,026.18 | 13,899.23 | 14,259.11 | 14,227.21 | 31.90 | 446.977 | |
| 6,000.00 | 5,987.31 | 3,527.00 | 3,407.78 | 22.11 | 10.54 | -101.78 | -1,026.18 | 13,899.23 | 14,279.22 | 14,246.99 | 32.24 | 442.941 | |
| 6,100.00 | 6,087.07 | 3,527.00 | 3,407.78 | 22.47 | 10.54 | -101.78 | -1,026.18 | 13,899.23 | 14,300.00 | 14,267.43 | 32.57 | 439.028 | |
| 6,200.00 | 6,186.83 | 3,527.00 | 3,407.78 | 22.84 | 10.54 | -101.78 | -1,026.18 | 13,899.23 | 14,321.45 | 14,288.55 | 32.91 | 435.231 | |
| 6,300.00 | 6,286.60 | 3,527.00 | 3,407.78 | 23.21 | 10.54 | -101.78 | -1,026.18 | 13,899.23 | 14,343.57 | 14,310.33 | 33.24 | 431.549 | |
| 6,400.00 | 6,386.36 | 3,527.00 | 3,407.78 | 23.58 | 10.54 | -101.78 | -1,026.18 | 13,899.23 | 14,366.34 | 14,332.78 | 33.57 | 427.976 | |
| 6,494.00 | 6,480.13 | 3,527.00 | 3,407.78 | 23.92 | 10.54 | -101.78 | -1,026.18 | 13,899.23 | 14,388.35 | 14,354.48 | 33.88 | 424.715 | |
| 6,500.00 | 6,486.12 | 3,527.00 | 3,407.78 | 23.94 | 10.54 | -109.04 | -1,026.18 | 13,899.23 | 14,389.81 | 14,355.91 | 33.90 | 424.508 | |
| 6,550.00 | 6,535.89 | 3,527.00 | 3,407.78 | 24.13 | 10.54 | -144.46 | -1,026.18 | 13,899.23 | 14,404.11 | 14,370.05 | 34.06 | 422.879 | |
| 6,600.00 | 6,585.24 | 3,527.00 | 3,407.78 | 24.31 | 10.54 | -156.62 | -1,026.18 | 13,899.23 | 14,422.28 | 14,388.05 | 34.22 | 421.404 | |
| 6,650.00 | 6,633.88 | 3,527.00 | 3,407.78 | 24.50 | 10.54 | -162.07 | -1,026.18 | 13,899.23 | 14,444.17 | 14,409.79 | 34.38 | 420.117 | |
| 6,700.00 | 6,681.49 | 3,527.00 | 3,407.78 | 24.68 | 10.54 | -165.02 | -1,026.18 | 13,899.23 | 14,469.66 | 14,435.12 | 34.53 | 419.022 | |
| 6,750.00 | 6,727.80 | 3,527.00 | 3,407.78 | 24.86 | 10.54 | -166.78 | -1,026.18 | 13,899.23 | 14,498.54 | 14,463.87 | 34.67 | 418.127 | |
| 6,800.00 | 6,772.51 | 3,527.00 | 3,407.78 | 25.04 | 10.54 | -167.85 | -1,026.18 | 13,899.23 | 14,530.64 | 14,495.83 | 34.81 | 417.436 | |
| 6,850.00 | 6,815.34 | 3,527.00 | 3,407.78 | 25.21 | 10.54 | -168.48 | -1,026.18 | 13,899.23 | 14,565.73 | 14,530.80 | 34.93 | 416.952 | |
| 6,900.00 | 6,856.04 | 3,527.00 | 3,407.78 | 25.39 | 10.54 | -168.77 | -1,026.18 | 13,899.23 | 14,603.57 | 14,568.52 | 35.05 | 416.675 | |
| 6,950.00 | 6,894.35 | 3,527.00 | 3,407.78 | 25.57 | 10.54 | -168.76 | -1,026.18 | 13,899.23 | 14,643.91 | 14,608.76 | 35.15 | 416.602 SF | |
| 7,000.00 | 6,930.04 | 3,527.00 | 3,407.78 | 25.75 | 10.54 | -168.44 | -1,026.18 | 13,899.23 | 14,686.49 | 14,651.24 | 35.24 | 416.728 | |
| 7,050.00 | 6,962.89 | 3,527.00 | 3,407.78 | 25.93 | 10.54 | -167.74 | -1,026.18 | 13,899.23 | 14,731.01 | 14,695.69 | 35.32 | 417.046 | |
| 7,100.00 | 6,992.69 | 3,527.00 | 3,407.78 | 26.13 | 10.54 | -166.47 | -1,026.18 | 13,899.23 | 14,777.20 | 14,741.81 | 35.39 | 417.545 | |
| 7,150.00 | 7,019.25 | 3,527.00 | 3,407.78 | 26.33 | 10.54 | -164.25 | -1,026.18 | 13,899.23 | 14,824.74 | 14,789.29 | 35.45 | 418.213 | |
| 7,200.00 | 7,042.43 | 3,527.00 | 3,407.78 | 26.55 | 10.54 | -160.04 | -1,026.18 | 13,899.23 | 14,873.34 | 14,837.85 | 35.49 | 419.033 | |
| 7,250.00 | 7,062.07 | 3,527.00 | 3,407.78 | 26.79 | 10.54 | -150.34 | -1,026.18 | 13,899.23 | 14,922.69 | 14,887.16 | 35.53 | 419.986 | |
| 7,300.00 | 7,078.05 | 3,527.00 | 3,407.78 | 27.04 | 10.54 | -117.52 | -1,026.18 | 13,899.23 | 14,972.48 | 14,936.92 | 35.56 | 421.050 | |
| 7,350.00 | 7,090.27 | 3,527.00 | 3,407.78 | 27.30 | 10.54 | -45.02 | -1,026.18 | 13,899.23 | 15,022.40 | 14,986.82 | 35.58 | 422.199 | |
| 7,400.00 | 7,098.66 | 3,527.00 | 3,407.78 | 27.58 | 10.54 | -19.16 | -1,026.18 | 13,899.23 | 15,072.14 | 15,036.54 | 35.60 | 423.404 | |
| 7,450.00 | 7,103.17 | 3,527.00 | 3,407.78 | 27.87 | 10.54 | -10.82 | -1,026.18 | 13,899.23 | 15,121.39 | 15,085.78 | 35.61 | 424.635 | |
| 7,484.86 | 7,104.00 | 3,527.00 | 3,407.78 | 28.08 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 15,155.28 | 15,119.67 | 35.62 | 425.498 | |
| 7,500.00 | 7,103.95 | 3,527.00 | 3,407.78 | 28.17 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 15,169.91 | 15,134.29 | 35.62 | 425.871 | |
| 7,600.00 | 7,103.60 | 3,527.00 | 3,407.78 | 28.83 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 15,266.53 | 15,230.88 | 35.65 | 428.219 | |
| 7,700.00 | 7,103.25 | 3,527.00 | 3,407.78 | 29.56 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 15,363.20 | 15,327.52 | 35.68 | 430.538 | |
| 7,800.00 | 7,102.90 | 3,527.00 | 3,407.78 | 30.35 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 15,459.91 | 15,424.19 | 35.72 | 432.830 | |
| 7,900.00 | 7,102.55 | 3,527.00 | 3,407.78 | 31.21 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 15,556.66 | 15,520.91 | 35.75 | 435.095 | |
| 8,000.00 | 7,102.20 | 3,527.00 | 3,407.78 | 32.13 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 15,653.45 | 15,617.66 | 35.79 | 437.332 | |
| 8,100.00 | 7,101.85 | 3,527.00 | 3,407.78 | 33.10 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 15,750.28 | 15,714.45 | 35.83 | 439.543 | |
| 8,200.00 | 7,101.50 | 3,527.00 | 3,407.78 | 34.11 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 15,847.15 | 15,811.28 | 35.88 | 441.728 | |
| 8,300.00 | 7,101.15 | 3,527.00 | 3,407.78 | 35.17 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 15,944.06 | 15,908.14 | 35.92 | 443.886 | |
| 8,400.00 | 7,100.80 | 3,527.00 | 3,407.78 | 36.27 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 16,041.01 | 16,005.05 | 35.96 | 446.019 | |
| 8,500.00 | 7,100.45 | 3,527.00 | 3,407.78 | 37.41 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 16,138.00 | 16,101.98 | 36.01 | 448.127 | |
| 8,600.00 | 7,100.10 | 3,527.00 | 3,407.78 | 38.58 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 16,235.02 | 16,198.96 | 36.06 | 450.210 | |
| 8,700.00 | 7,099.75 | 3,527.00 | 3,407.78 | 39.78 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 16,332.07 | 16,295.96 | 36.11 | 452.268 | |

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

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

**Offset Design:** Rosa Unit 32 - (O) RU #271A - OH - OH — **Offset Site Error:** 0.00 usft

**Survey Program:** 330-MWD-SDI — **Offset Well Error:** 0.00 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8,800.00 | 7,099.40 | 3,527.00 | 3,407.78 | 41.00 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 16,429.17 | 16,393.00 | 36.16 | 454.302 | |
| 8,900.00 | 7,099.05 | 3,527.00 | 3,407.78 | 42.25 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 16,526.29 | 16,490.08 | 36.22 | 456.312 | |
| 9,000.00 | 7,098.70 | 3,527.00 | 3,407.78 | 43.53 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 16,623.46 | 16,587.18 | 36.27 | 458.298 | |
| 9,100.00 | 7,098.35 | 3,527.00 | 3,407.78 | 44.82 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 16,720.65 | 16,684.32 | 36.33 | 460.262 | |
| 9,200.00 | 7,098.00 | 3,527.00 | 3,407.78 | 46.14 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 16,817.88 | 16,781.49 | 36.39 | 462.202 | |
| 9,300.00 | 7,097.65 | 3,527.00 | 3,407.78 | 47.47 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 16,915.14 | 16,878.69 | 36.45 | 464.120 | |
| 9,400.00 | 7,097.30 | 3,527.00 | 3,407.78 | 48.82 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 17,012.43 | 16,975.92 | 36.51 | 466.016 | |
| 9,500.00 | 7,096.95 | 3,527.00 | 3,407.78 | 50.18 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 17,109.75 | 17,073.19 | 36.57 | 467.890 | |
| 9,600.00 | 7,096.60 | 3,527.00 | 3,407.78 | 51.56 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 17,207.11 | 17,170.48 | 36.63 | 469.742 | |
| 9,700.00 | 7,096.25 | 3,527.00 | 3,407.78 | 52.95 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 17,304.49 | 17,267.80 | 36.70 | 471.573 | |
| 9,800.00 | 7,095.90 | 3,527.00 | 3,407.78 | 54.35 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 17,401.90 | 17,365.14 | 36.76 | 473.384 | |
| 9,900.00 | 7,095.55 | 3,527.00 | 3,407.78 | 55.76 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 17,499.35 | 17,462.52 | 36.83 | 475.173 | |
| 10,000.00 | 7,095.20 | 3,527.00 | 3,407.78 | 57.18 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 17,596.82 | 17,559.92 | 36.90 | 476.943 | |
| 10,100.00 | 7,094.85 | 3,527.00 | 3,407.78 | 58.61 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 17,694.32 | 17,657.35 | 36.96 | 478.692 | |
| 10,200.00 | 7,094.50 | 3,527.00 | 3,407.78 | 60.05 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 17,791.85 | 17,754.81 | 37.03 | 480.422 | |
| 10,300.00 | 7,094.15 | 3,527.00 | 3,407.78 | 61.50 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 17,889.40 | 17,852.30 | 37.10 | 482.132 | |
| 10,400.00 | 7,093.80 | 3,527.00 | 3,407.78 | 62.96 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 17,986.98 | 17,949.81 | 37.18 | 483.823 | |
| 10,500.00 | 7,093.45 | 3,527.00 | 3,407.78 | 64.42 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 18,084.59 | 18,047.34 | 37.25 | 485.496 | |
| 10,600.00 | 7,093.10 | 3,527.00 | 3,407.78 | 65.89 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 18,182.22 | 18,144.90 | 37.32 | 487.150 | |
| 10,700.00 | 7,092.75 | 3,527.00 | 3,407.78 | 67.36 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 18,279.88 | 18,242.49 | 37.40 | 488.785 | |
| 10,800.00 | 7,092.40 | 3,527.00 | 3,407.78 | 68.84 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 18,377.57 | 18,340.09 | 37.47 | 490.403 | |
| 10,900.00 | 7,092.05 | 3,527.00 | 3,407.78 | 70.33 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 18,475.28 | 18,437.73 | 37.55 | 492.003 | |
| 11,000.00 | 7,091.70 | 3,527.00 | 3,407.78 | 71.82 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 18,573.01 | 18,535.38 | 37.63 | 493.586 | |
| 11,100.00 | 7,091.35 | 3,527.00 | 3,407.78 | 73.31 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 18,670.77 | 18,633.06 | 37.71 | 495.151 | |
| 11,200.00 | 7,091.00 | 3,527.00 | 3,407.78 | 74.81 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 18,768.55 | 18,730.76 | 37.79 | 496.700 | |
| 11,300.00 | 7,090.65 | 3,527.00 | 3,407.78 | 76.32 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 18,866.36 | 18,828.49 | 37.87 | 498.231 | |
| 11,400.00 | 7,090.30 | 3,527.00 | 3,407.78 | 77.82 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 18,964.18 | 18,926.24 | 37.95 | 499.747 | |
| 11,500.00 | 7,089.95 | 3,527.00 | 3,407.78 | 79.34 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 19,062.03 | 19,024.00 | 38.03 | 501.246 | |
| 11,600.00 | 7,089.60 | 3,527.00 | 3,407.78 | 80.85 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 19,159.91 | 19,121.79 | 38.11 | 502.730 | |
| 11,700.00 | 7,089.25 | 3,527.00 | 3,407.78 | 82.37 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 19,257.80 | 19,219.61 | 38.19 | 504.197 | |
| 11,800.00 | 7,088.90 | 3,527.00 | 3,407.78 | 83.89 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 19,355.72 | 19,317.44 | 38.28 | 505.650 | |
| 11,900.00 | 7,088.55 | 3,527.00 | 3,407.78 | 85.41 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 19,453.65 | 19,415.29 | 38.36 | 507.086 | |
| 12,000.00 | 7,088.20 | 3,527.00 | 3,407.78 | 86.94 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 19,551.61 | 19,513.16 | 38.45 | 508.508 | |
| 12,100.00 | 7,087.85 | 3,527.00 | 3,407.78 | 88.47 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 19,649.59 | 19,611.06 | 38.53 | 509.916 | |
| 12,200.00 | 7,087.50 | 3,527.00 | 3,407.78 | 90.00 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 19,747.59 | 19,708.97 | 38.62 | 511.308 | |
| 12,300.00 | 7,087.15 | 3,527.00 | 3,407.78 | 91.54 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 19,845.61 | 19,806.90 | 38.71 | 512.686 | |
| 12,400.00 | 7,086.81 | 3,527.00 | 3,407.78 | 93.07 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 19,943.65 | 19,904.85 | 38.80 | 514.050 | |
| 12,500.00 | 7,086.46 | 3,527.00 | 3,407.78 | 94.61 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 20,041.70 | 20,002.82 | 38.89 | 515.400 | |
| 12,600.00 | 7,086.11 | 3,527.00 | 3,407.78 | 96.15 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 20,139.78 | 20,100.81 | 38.97 | 516.737 | |
| 12,700.00 | 7,085.76 | 3,527.00 | 3,407.78 | 97.69 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 20,237.88 | 20,198.81 | 39.06 | 518.060 | |
| 12,800.00 | 7,085.41 | 3,527.00 | 3,407.78 | 99.24 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 20,335.99 | 20,296.84 | 39.16 | 519.369 | |
| 12,900.00 | 7,085.06 | 3,527.00 | 3,407.78 | 100.78 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 20,434.12 | 20,394.88 | 39.25 | 520.665 | |
| 13,000.00 | 7,084.71 | 3,527.00 | 3,407.78 | 102.33 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 20,532.27 | 20,492.94 | 39.34 | 521.948 | |
| 13,100.00 | 7,084.36 | 3,527.00 | 3,407.78 | 103.88 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 20,630.44 | 20,591.01 | 39.43 | 523.218 | |
| 13,200.00 | 7,084.01 | 3,527.00 | 3,407.78 | 105.43 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 20,728.63 | 20,689.11 | 39.52 | 524.476 | |
| 13,300.00 | 7,083.66 | 3,527.00 | 3,407.78 | 106.99 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 20,826.83 | 20,787.21 | 39.62 | 525.721 | |
| 13,400.00 | 7,083.31 | 3,527.00 | 3,407.78 | 108.54 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 20,925.05 | 20,885.34 | 39.71 | 526.954 | |
| 13,500.00 | 7,082.96 | 3,527.00 | 3,407.78 | 110.09 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 21,023.29 | 20,983.48 | 39.80 | 528.175 | |
| 13,600.00 | 7,082.61 | 3,527.00 | 3,407.78 | 111.65 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 21,121.54 | 21,081.64 | 39.90 | 529.384 | |
| 13,700.00 | 7,082.26 | 3,527.00 | 3,407.78 | 113.21 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 21,219.81 | 21,179.82 | 39.99 | 530.580 | |
| 13,800.00 | 7,081.91 | 3,527.00 | 3,407.78 | 114.77 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 21,318.10 | 21,278.01 | 40.09 | 531.766 | |
| 13,900.00 | 7,081.56 | 3,527.00 | 3,407.78 | 116.33 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 21,416.40 | 21,376.21 | 40.19 | 532.939 | |

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

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

**Survey Program:** 330-MWD-SDI

**Rule Assigned:**

**Offset Well Error:** 0.00 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 14,000.00 | 7,081.21 | 3,527.00 | 3,407.78 | 117.89 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 21,514.72 | 21,474.43 | 40.28 | 534.102 | |
| 14,100.00 | 7,080.86 | 3,527.00 | 3,407.78 | 119.45 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 21,613.05 | 21,572.67 | 40.38 | 535.253 | |
| 14,200.00 | 7,080.51 | 3,527.00 | 3,407.78 | 121.02 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 21,711.40 | 21,670.92 | 40.48 | 536.393 | |
| 14,300.00 | 7,080.16 | 3,527.00 | 3,407.78 | 122.58 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 21,809.76 | 21,769.19 | 40.57 | 537.522 | |
| 14,400.00 | 7,079.81 | 3,527.00 | 3,407.78 | 124.15 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 21,908.14 | 21,867.46 | 40.67 | 538.641 | |
| 14,500.00 | 7,079.46 | 3,527.00 | 3,407.78 | 125.71 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 22,006.53 | 21,965.76 | 40.77 | 539.749 | |
| 14,600.00 | 7,079.11 | 3,527.00 | 3,407.78 | 127.28 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 22,104.94 | 22,064.07 | 40.87 | 540.846 | |
| 14,700.00 | 7,078.76 | 3,527.00 | 3,407.78 | 128.85 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 22,203.36 | 22,162.39 | 40.97 | 541.933 | |
| 14,800.00 | 7,078.41 | 3,527.00 | 3,407.78 | 130.42 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 22,301.79 | 22,260.72 | 41.07 | 543.009 | |
| 14,900.00 | 7,078.06 | 3,527.00 | 3,407.78 | 131.98 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 22,400.24 | 22,359.07 | 41.17 | 544.076 | |
| 15,000.00 | 7,077.71 | 3,527.00 | 3,407.78 | 133.55 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 22,498.71 | 22,457.43 | 41.27 | 545.133 | |
| 15,100.00 | 7,077.36 | 3,527.00 | 3,407.78 | 135.13 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 22,597.18 | 22,555.81 | 41.37 | 546.179 | |
| 15,200.00 | 7,077.01 | 3,527.00 | 3,407.78 | 136.70 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 22,695.67 | 22,654.20 | 41.47 | 547.216 | |
| 15,300.00 | 7,076.66 | 3,527.00 | 3,407.78 | 138.27 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 22,794.17 | 22,752.60 | 41.58 | 548.244 | |
| 15,400.00 | 7,076.31 | 3,527.00 | 3,407.78 | 139.84 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 22,892.69 | 22,851.01 | 41.68 | 549.262 | |
| 15,500.00 | 7,075.96 | 3,527.00 | 3,407.78 | 141.42 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 22,991.22 | 22,949.44 | 41.78 | 550.270 | |
| 15,600.00 | 7,075.61 | 3,527.00 | 3,407.78 | 142.99 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 23,089.76 | 23,047.87 | 41.88 | 551.270 | |
| 15,700.00 | 7,075.26 | 3,527.00 | 3,407.78 | 144.57 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 23,188.31 | 23,146.32 | 41.99 | 552.260 | |
| 15,800.00 | 7,074.91 | 3,527.00 | 3,407.78 | 146.14 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 23,286.88 | 23,244.79 | 42.09 | 553.241 | |
| 15,900.00 | 7,074.56 | 3,527.00 | 3,407.78 | 147.72 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 23,385.46 | 23,343.26 | 42.20 | 554.213 | |
| 16,000.00 | 7,074.21 | 3,527.00 | 3,407.78 | 149.29 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 23,484.05 | 23,441.75 | 42.30 | 555.176 | |
| 16,100.00 | 7,073.86 | 3,527.00 | 3,407.78 | 150.87 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 23,582.65 | 23,540.24 | 42.40 | 556.131 | |
| 16,200.00 | 7,073.51 | 3,527.00 | 3,407.78 | 152.45 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 23,681.26 | 23,638.75 | 42.51 | 557.077 | |
| 16,300.00 | 7,073.16 | 3,527.00 | 3,407.78 | 154.03 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 23,779.89 | 23,737.27 | 42.62 | 558.014 | |
| 16,400.00 | 7,072.81 | 3,527.00 | 3,407.78 | 155.60 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 23,878.53 | 23,835.80 | 42.72 | 558.943 | |
| 16,500.00 | 7,072.46 | 3,527.00 | 3,407.78 | 157.18 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 23,977.17 | 23,934.35 | 42.83 | 559.864 | |
| 16,600.00 | 7,072.11 | 3,527.00 | 3,407.78 | 158.76 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 24,075.83 | 24,032.90 | 42.93 | 560.776 | |
| 16,631.96 | 7,072.00 | 3,527.00 | 3,407.78 | 159.27 | 10.54 | -7.85 | -1,026.18 | 13,899.23 | 24,107.37 | 24,064.40 | 42.97 | 561.066 | |

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

**Survey Program:** 235-A027Ua_INC-ONLY

**Rule Assigned:**

**Offset Well Error:** 0.00 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 154.00 | 154.00 | 3.28 | 1.42 | 91.02 | -185.64 | 10,402.42 | 10,404.08 | | | | |
| 100.00 | 100.00 | 254.00 | 254.00 | 3.29 | 2.52 | 91.02 | -185.64 | 10,402.42 | 10,404.08 | 10,398.27 | 5.81 | 1,789.827 | |
| 200.00 | 200.00 | 354.00 | 354.00 | 3.34 | 4.37 | 91.02 | -185.64 | 10,402.42 | 10,404.08 | 10,396.37 | 7.71 | 1,349.780 | |
| 300.00 | 300.00 | 454.00 | 454.00 | 3.42 | 6.22 | 91.02 | -185.64 | 10,402.42 | 10,404.08 | 10,394.44 | 9.64 | 1,079.237 | |
| 340.98 | 340.98 | 494.95 | 494.95 | 3.46 | 6.98 | 91.02 | -185.09 | 10,402.42 | 10,404.07 | 10,393.63 | 10.44 | 996.404 CC | |
| 400.00 | 400.00 | 553.78 | 553.78 | 3.54 | 8.06 | 91.02 | -185.13 | 10,402.42 | 10,404.07 | 10,392.47 | 11.60 | 896.680 | |
| 500.00 | 500.00 | 653.46 | 653.45 | 3.69 | 9.91 | 91.02 | -185.33 | 10,402.42 | 10,404.07 | 10,390.48 | 13.59 | 765.295 | |
| 600.00 | 599.98 | 754.00 | 753.98 | 3.86 | 11.77 | -118.97 | -185.64 | 10,402.42 | 10,404.93 | 10,389.29 | 15.63 | 665.670 | |
| 697.00 | 696.84 | 850.87 | 850.84 | 4.04 | 13.62 | -118.95 | -185.64 | 10,402.42 | 10,407.36 | 10,389.71 | 17.65 | 589.583 | |
| 700.00 | 699.84 | 853.86 | 853.84 | 4.05 | 13.67 | -118.95 | -185.64 | 10,402.42 | 10,407.46 | 10,389.75 | 17.72 | 587.486 | |
| 800.00 | 799.60 | 953.50 | 953.47 | 4.25 | 15.57 | -118.99 | -185.24 | 10,402.42 | 10,410.79 | 10,390.97 | 19.82 | 525.309 | |
| 897.00 | 896.37 | 1,049.89 | 1,049.86 | 4.48 | 17.40 | -119.02 | -185.42 | 10,402.42 | 10,414.03 | 10,392.16 | 21.87 | 476.104 | |
| 900.00 | 899.37 | 1,052.87 | 1,052.84 | 4.48 | 17.46 | -118.15 | -185.43 | 10,402.42 | 10,414.13 | 10,392.19 | 21.94 | 474.723 | |
| 947.40 | 946.65 | 1,099.98 | 1,099.95 | 4.60 | 18.35 | -104.35 | -185.60 | 10,402.42 | 10,415.30 | 10,392.36 | 22.95 | 453.872 | |
| 1,000.00 | 999.13 | 1,153.17 | 1,153.13 | 4.73 | 19.36 | -104.37 | -185.64 | 10,402.42 | 10,416.20 | 10,392.11 | 24.09 | 432.359 | |
| 1,100.00 | 1,098.89 | 1,252.94 | 1,252.89 | 4.99 | 21.26 | -104.41 | -185.64 | 10,402.42 | 10,417.92 | 10,391.66 | 26.25 | 396.838 | |
| 1,200.00 | 1,198.66 | 1,352.70 | 1,352.66 | 5.27 | 23.16 | -104.45 | -185.64 | 10,402.42 | 10,419.63 | 10,391.21 | 28.43 | 366.551 | |
| 1,300.00 | 1,298.42 | 1,452.09 | 1,452.04 | 5.56 | 25.05 | -104.49 | -184.97 | 10,402.42 | 10,421.34 | 10,390.74 | 30.60 | 340.523 | |
| 1,400.00 | 1,398.18 | 1,551.52 | 1,551.46 | 5.85 | 26.94 | -104.52 | -185.36 | 10,402.42 | 10,423.08 | 10,390.28 | 32.79 | 317.854 | |
| 1,500.00 | 1,497.95 | 1,652.02 | 1,651.95 | 6.16 | 28.86 | -104.56 | -185.64 | 10,402.42 | 10,424.81 | 10,389.80 | 35.01 | 297.775 | |
| 1,600.00 | 1,597.71 | 1,751.78 | 1,751.71 | 6.47 | 30.75 | -104.59 | -185.64 | 10,402.42 | 10,426.54 | 10,389.32 | 37.22 | 280.139 | |
| 1,700.00 | 1,697.47 | 1,851.50 | 1,851.42 | 6.79 | 32.65 | -104.63 | -185.14 | 10,402.42 | 10,428.27 | 10,388.84 | 39.43 | 264.446 | |
| 1,800.00 | 1,797.24 | 1,951.06 | 1,950.98 | 7.11 | 34.55 | -104.67 | -185.27 | 10,402.42 | 10,430.02 | 10,388.37 | 41.65 | 250.409 | |
| 1,900.00 | 1,897.00 | 2,050.65 | 2,050.57 | 7.44 | 36.44 | -104.70 | -185.59 | 10,402.42 | 10,431.77 | 10,387.89 | 43.87 | 237.763 | |
| 2,000.00 | 1,996.76 | 2,150.87 | 2,150.76 | 7.77 | 38.40 | -104.74 | -185.64 | 10,402.42 | 10,433.52 | 10,387.35 | 46.17 | 225.997 | |
| 2,100.00 | 2,096.53 | 2,250.63 | 2,250.53 | 8.11 | 40.36 | -104.78 | -185.64 | 10,402.42 | 10,435.27 | 10,386.81 | 48.46 | 215.341 | |
| 2,200.00 | 2,196.29 | 2,350.26 | 2,350.15 | 8.44 | 42.32 | -104.82 | -184.92 | 10,402.42 | 10,437.03 | 10,386.27 | 50.75 | 205.646 | |
| 2,300.00 | 2,296.06 | 2,449.83 | 2,449.72 | 8.79 | 44.27 | -104.85 | -185.22 | 10,402.42 | 10,438.79 | 10,385.74 | 53.05 | 196.784 | |
| 2,400.00 | 2,395.82 | 2,549.96 | 2,549.82 | 9.13 | 46.25 | -104.88 | -185.64 | 10,402.42 | 10,440.56 | 10,385.19 | 55.37 | 188.556 | |
| 2,500.00 | 2,495.58 | 2,649.72 | 2,649.58 | 9.47 | 48.28 | -104.92 | -185.64 | 10,402.42 | 10,442.33 | 10,384.60 | 57.74 | 180.855 | |
| 2,600.00 | 2,595.35 | 2,749.44 | 2,749.30 | 9.82 | 50.30 | -104.96 | -184.99 | 10,402.42 | 10,444.11 | 10,384.00 | 60.11 | 173.758 | |
| 2,700.00 | 2,695.11 | 2,849.06 | 2,848.91 | 10.17 | 52.32 | -105.00 | -185.23 | 10,402.42 | 10,445.89 | 10,383.41 | 62.48 | 167.200 | |
| 2,800.00 | 2,794.87 | 2,949.06 | 2,948.87 | 10.52 | 54.35 | -105.03 | -185.64 | 10,402.42 | 10,447.67 | 10,382.82 | 64.85 | 161.095 | |
| 2,900.00 | 2,894.64 | 3,048.83 | 3,048.64 | 10.87 | 56.38 | -105.07 | -185.64 | 10,402.42 | 10,449.46 | 10,382.23 | 67.23 | 155.421 | |
| 3,000.00 | 2,994.40 | 3,148.59 | 3,148.40 | 11.23 | 58.40 | -105.10 | -185.64 | 10,402.42 | 10,451.26 | 10,381.64 | 69.61 | 150.133 | |
| 3,100.00 | 3,094.16 | 3,248.31 | 3,248.11 | 11.58 | 60.43 | -105.14 | -184.57 | 10,402.42 | 10,453.05 | 10,381.06 | 71.99 | 145.193 | |
| 3,200.00 | 3,193.93 | 3,348.05 | 3,347.84 | 11.94 | 62.46 | -105.18 | -184.95 | 10,402.42 | 10,454.85 | 10,380.48 | 74.38 | 140.567 | |
| 3,300.00 | 3,293.69 | 3,447.94 | 3,447.69 | 12.29 | 64.49 | -105.21 | -185.64 | 10,402.42 | 10,456.66 | 10,379.90 | 76.76 | 136.225 | |
| 3,400.00 | 3,393.45 | 3,547.70 | 3,547.45 | 12.65 | 66.45 | -105.25 | -185.64 | 10,402.42 | 10,458.47 | 10,379.39 | 79.08 | 132.250 ES | |
| 3,500.00 | 3,493.22 | 3,569.00 | 3,568.74 | 13.01 | 66.87 | -105.26 | -185.64 | 10,402.42 | 10,460.58 | 10,380.72 | 79.85 | 130.996 | |
| 3,600.00 | 3,592.98 | 3,569.00 | 3,568.74 | 13.37 | 66.87 | -105.26 | -185.64 | 10,402.42 | 10,463.62 | 10,383.42 | 80.20 | 130.466 | |
| 3,700.00 | 3,692.74 | 3,569.00 | 3,568.74 | 13.73 | 66.87 | -105.26 | -185.64 | 10,402.42 | 10,467.61 | 10,387.07 | 80.54 | 129.964 | |
| 3,800.00 | 3,792.51 | 3,569.00 | 3,568.74 | 14.09 | 66.87 | -105.26 | -185.64 | 10,402.42 | 10,472.56 | 10,391.69 | 80.88 | 129.487 | |
| 3,900.00 | 3,892.27 | 3,569.00 | 3,568.74 | 14.45 | 66.87 | -105.26 | -185.64 | 10,402.42 | 10,478.47 | 10,397.26 | 81.20 | 129.038 | |
| 4,000.00 | 3,992.04 | 3,569.00 | 3,568.74 | 14.81 | 66.87 | -105.26 | -185.64 | 10,402.42 | 10,485.32 | 10,403.79 | 81.53 | 128.614 | |
| 4,100.00 | 4,091.80 | 3,569.00 | 3,568.74 | 15.17 | 66.87 | -105.26 | -185.64 | 10,402.42 | 10,493.12 | 10,411.28 | 81.84 | 128.216 | |
| 4,200.00 | 4,191.56 | 3,569.00 | 3,568.74 | 15.53 | 66.87 | -105.26 | -185.64 | 10,402.42 | 10,501.87 | 10,419.72 | 82.15 | 127.843 | |
| 4,300.00 | 4,291.33 | 3,569.00 | 3,568.74 | 15.89 | 66.87 | -105.26 | -185.64 | 10,402.42 | 10,511.56 | 10,429.11 | 82.45 | 127.495 | |
| 4,400.00 | 4,391.09 | 3,569.00 | 3,568.74 | 16.26 | 66.87 | -105.26 | -185.64 | 10,402.42 | 10,522.19 | 10,439.45 | 82.74 | 127.172 | |
| 4,500.00 | 4,490.85 | 3,569.00 | 3,568.74 | 16.62 | 66.87 | -105.26 | -185.64 | 10,402.42 | 10,533.76 | 10,450.73 | 83.03 | 126.873 | |
| 4,600.00 | 4,590.62 | 3,569.00 | 3,568.74 | 16.99 | 66.87 | -105.26 | -185.64 | 10,402.42 | 10,546.27 | 10,462.96 | 83.30 | 126.598 | |
| 4,700.00 | 4,690.38 | 3,569.00 | 3,568.74 | 17.35 | 66.87 | -105.26 | -185.64 | 10,402.42 | 10,559.71 | 10,476.13 | 83.58 | 126.347 | |

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

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

**Survey Program:** 235-A027Ua_INC-ONLY

**Offset Well Error:** 0.00 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4,800.00 | 4,790.14 | 3,569.00 | 3,568.74 | 17.71 | 66.87 | -105.26 | -185.64 | 10,402.42 | 10,574.07 | 10,490.23 | 83.84 | 126.120 | |
| 4,900.00 | 4,889.91 | 3,569.00 | 3,568.74 | 18.08 | 66.87 | -105.26 | -185.64 | 10,402.42 | 10,589.37 | 10,505.27 | 84.10 | 125.915 | |
| 5,000.00 | 4,989.67 | 3,569.00 | 3,568.74 | 18.44 | 66.87 | -105.26 | -185.64 | 10,402.42 | 10,605.58 | 10,521.23 | 84.35 | 125.734 | |
| 5,100.00 | 5,089.43 | 3,569.00 | 3,568.74 | 18.81 | 66.87 | -105.26 | -185.64 | 10,402.42 | 10,622.71 | 10,538.12 | 84.59 | 125.575 | |
| 5,200.00 | 5,189.20 | 3,569.00 | 3,568.74 | 19.17 | 66.87 | -105.26 | -185.64 | 10,402.42 | 10,640.75 | 10,555.92 | 84.83 | 125.438 | |
| 5,300.00 | 5,288.96 | 3,569.00 | 3,568.74 | 19.54 | 66.87 | -105.26 | -185.64 | 10,402.42 | 10,659.70 | 10,574.65 | 85.06 | 125.322 | |
| 5,400.00 | 5,388.72 | 3,569.00 | 3,568.74 | 19.91 | 66.87 | -105.26 | -185.64 | 10,402.42 | 10,679.56 | 10,594.28 | 85.28 | 125.229 | |
| 5,500.00 | 5,488.49 | 3,569.00 | 3,568.74 | 20.27 | 66.87 | -105.26 | -185.64 | 10,402.42 | 10,700.31 | 10,614.81 | 85.50 | 125.156 | |
| 5,600.00 | 5,588.25 | 3,569.00 | 3,568.74 | 20.64 | 66.87 | -105.26 | -185.64 | 10,402.42 | 10,721.95 | 10,636.25 | 85.70 | 125.104 | |
| 5,700.00 | 5,688.01 | 3,569.00 | 3,568.74 | 21.00 | 66.87 | -105.26 | -185.64 | 10,402.42 | 10,744.48 | 10,658.58 | 85.91 | 125.073 | |
| 5,800.00 | 5,787.78 | 3,569.00 | 3,568.74 | 21.37 | 66.87 | -105.26 | -185.64 | 10,402.42 | 10,767.89 | 10,681.79 | 86.10 | 125.062 | SF |
| 5,900.00 | 5,887.54 | 3,569.00 | 3,568.74 | 21.74 | 66.87 | -105.26 | -185.64 | 10,402.42 | 10,792.18 | 10,705.89 | 86.29 | 125.071 | |
| 6,000.00 | 5,987.31 | 3,569.00 | 3,568.74 | 22.11 | 66.87 | -105.26 | -185.64 | 10,402.42 | 10,817.34 | 10,730.87 | 86.47 | 125.100 | |
| 6,100.00 | 6,087.07 | 3,569.00 | 3,568.74 | 22.47 | 66.87 | -105.26 | -185.64 | 10,402.42 | 10,843.36 | 10,756.72 | 86.64 | 125.148 | |
| 6,200.00 | 6,186.83 | 3,569.00 | 3,568.74 | 22.84 | 66.87 | -105.26 | -185.64 | 10,402.42 | 10,870.24 | 10,783.43 | 86.81 | 125.215 | |
| 6,300.00 | 6,286.60 | 3,569.00 | 3,568.74 | 23.21 | 66.87 | -105.26 | -185.64 | 10,402.42 | 10,897.97 | 10,811.00 | 86.97 | 125.300 | |
| 6,400.00 | 6,386.36 | 3,569.00 | 3,568.74 | 23.58 | 66.87 | -105.26 | -185.64 | 10,402.42 | 10,926.55 | 10,839.42 | 87.13 | 125.404 | |
| 6,494.00 | 6,480.13 | 3,569.00 | 3,568.74 | 23.92 | 66.87 | -105.26 | -185.64 | 10,402.42 | 10,954.17 | 10,866.90 | 87.27 | 125.518 | |
| 6,500.00 | 6,486.12 | 3,569.00 | 3,568.74 | 23.94 | 66.87 | -112.53 | -185.64 | 10,402.42 | 10,955.99 | 10,868.71 | 87.28 | 125.526 | |
| 6,550.00 | 6,535.89 | 3,569.00 | 3,568.74 | 24.13 | 66.87 | -148.03 | -185.64 | 10,402.42 | 10,973.30 | 10,885.95 | 87.35 | 125.618 | |
| 6,600.00 | 6,585.24 | 3,569.00 | 3,568.74 | 24.31 | 66.87 | -160.30 | -185.64 | 10,402.42 | 10,994.44 | 10,907.01 | 87.43 | 125.754 | |
| 6,650.00 | 6,633.88 | 3,569.00 | 3,568.74 | 24.50 | 66.87 | -165.90 | -185.64 | 10,402.42 | 11,019.23 | 10,931.74 | 87.50 | 125.937 | |
| 6,700.00 | 6,681.49 | 3,569.00 | 3,568.74 | 24.68 | 66.87 | -169.03 | -185.64 | 10,402.42 | 11,047.52 | 10,959.95 | 87.56 | 126.166 | |
| 6,750.00 | 6,727.80 | 3,569.00 | 3,568.74 | 24.86 | 66.87 | -171.02 | -185.64 | 10,402.42 | 11,079.09 | 10,991.47 | 87.62 | 126.438 | |
| 6,800.00 | 6,772.51 | 3,569.00 | 3,568.74 | 25.04 | 66.87 | -172.39 | -185.64 | 10,402.42 | 11,113.73 | 11,026.05 | 87.68 | 126.753 | |
| 6,850.00 | 6,815.34 | 3,569.00 | 3,568.74 | 25.21 | 66.87 | -173.39 | -185.64 | 10,402.42 | 11,151.19 | 11,063.46 | 87.73 | 127.107 | |
| 6,900.00 | 6,856.04 | 3,569.00 | 3,568.74 | 25.39 | 66.87 | -174.15 | -185.64 | 10,402.42 | 11,191.21 | 11,103.44 | 87.78 | 127.498 | |
| 6,950.00 | 6,894.35 | 3,569.00 | 3,568.74 | 25.57 | 66.87 | -174.76 | -185.64 | 10,402.42 | 11,233.53 | 11,145.72 | 87.82 | 127.922 | |
| 7,000.00 | 6,930.04 | 3,569.00 | 3,568.74 | 25.75 | 66.87 | -175.27 | -185.64 | 10,402.42 | 11,277.86 | 11,190.01 | 87.85 | 128.377 | |
| 7,050.00 | 6,962.89 | 3,569.00 | 3,568.74 | 25.93 | 66.87 | -175.71 | -185.64 | 10,402.42 | 11,323.90 | 11,236.02 | 87.88 | 128.858 | |
| 7,100.00 | 6,992.69 | 3,569.00 | 3,568.74 | 26.13 | 66.87 | -176.15 | -185.64 | 10,402.42 | 11,371.35 | 11,283.45 | 87.90 | 129.361 | |
| 7,150.00 | 7,019.25 | 3,569.00 | 3,568.74 | 26.33 | 66.87 | -176.67 | -185.64 | 10,402.42 | 11,419.91 | 11,331.98 | 87.93 | 129.882 | |
| 7,200.00 | 7,042.43 | 3,569.00 | 3,568.74 | 26.55 | 66.87 | -177.52 | -185.64 | 10,402.42 | 11,469.25 | 11,381.30 | 87.94 | 130.416 | |
| 7,250.00 | 7,062.07 | 3,569.00 | 3,568.74 | 26.79 | 66.87 | 179.14 | -185.64 | 10,402.42 | 11,519.07 | 11,431.11 | 87.96 | 130.957 | |
| 7,300.00 | 7,078.05 | 3,569.00 | 3,568.74 | 27.04 | 66.87 | 9.67 | -185.64 | 10,402.42 | 11,569.06 | 11,481.08 | 87.98 | 131.500 | |
| 7,350.00 | 7,090.27 | 3,569.00 | 3,568.74 | 27.30 | 66.87 | 5.70 | -185.64 | 10,402.42 | 11,618.90 | 11,530.90 | 88.00 | 132.039 | |
| 7,400.00 | 7,098.66 | 3,569.00 | 3,568.74 | 27.58 | 66.87 | 4.92 | -185.64 | 10,402.42 | 11,668.30 | 11,580.28 | 88.02 | 132.568 | |
| 7,450.00 | 7,103.17 | 3,569.00 | 3,568.74 | 27.87 | 66.87 | 4.58 | -185.64 | 10,402.42 | 11,716.96 | 11,628.91 | 88.04 | 133.081 | |
| 7,484.86 | 7,104.00 | 3,569.00 | 3,568.74 | 28.08 | 66.87 | 4.45 | -185.64 | 10,402.42 | 11,750.28 | 11,662.22 | 88.07 | 133.426 | |
| 7,500.00 | 7,103.95 | 3,569.00 | 3,568.74 | 28.17 | 66.87 | 4.45 | -185.64 | 10,402.42 | 11,764.64 | 11,676.56 | 88.08 | 133.574 | |
| 7,600.00 | 7,103.60 | 3,569.00 | 3,568.74 | 28.83 | 66.87 | 4.45 | -185.64 | 10,402.42 | 11,859.50 | 11,771.34 | 88.15 | 134.530 | |
| 7,700.00 | 7,103.25 | 3,569.00 | 3,568.74 | 29.56 | 66.87 | 4.45 | -185.64 | 10,402.42 | 11,954.44 | 11,866.20 | 88.24 | 135.483 | |
| 7,800.00 | 7,102.90 | 3,569.00 | 3,568.74 | 30.35 | 66.87 | 4.45 | -185.64 | 10,402.42 | 12,049.46 | 11,961.14 | 88.32 | 136.433 | |
| 7,900.00 | 7,102.55 | 3,569.00 | 3,568.74 | 31.21 | 66.87 | 4.45 | -185.64 | 10,402.42 | 12,144.56 | 12,056.16 | 88.40 | 137.380 | |
| 8,000.00 | 7,102.20 | 3,569.00 | 3,568.74 | 32.13 | 66.87 | 4.45 | -185.64 | 10,402.42 | 12,239.74 | 12,151.25 | 88.49 | 138.325 | |
| 8,100.00 | 7,101.85 | 3,569.00 | 3,568.74 | 33.10 | 66.87 | 4.45 | -185.64 | 10,402.42 | 12,335.00 | 12,246.43 | 88.57 | 139.266 | |
| 8,200.00 | 7,101.50 | 3,569.00 | 3,568.74 | 34.11 | 66.87 | 4.45 | -185.64 | 10,402.42 | 12,430.33 | 12,341.67 | 88.66 | 140.204 | |
| 8,300.00 | 7,101.15 | 3,569.00 | 3,568.74 | 35.17 | 66.87 | 4.45 | -185.64 | 10,402.42 | 12,525.73 | 12,436.98 | 88.75 | 141.140 | |
| 8,400.00 | 7,100.80 | 3,569.00 | 3,568.74 | 36.27 | 66.87 | 4.45 | -185.64 | 10,402.42 | 12,621.21 | 12,532.37 | 88.84 | 142.072 | |
| 8,500.00 | 7,100.45 | 3,569.00 | 3,568.74 | 37.41 | 66.87 | 4.45 | -185.64 | 10,402.42 | 12,716.75 | 12,627.82 | 88.93 | 143.002 | |
| 8,600.00 | 7,100.10 | 3,569.00 | 3,568.74 | 38.58 | 66.87 | 4.45 | -185.64 | 10,402.42 | 12,812.36 | 12,723.34 | 89.02 | 143.930 | |
| 8,700.00 | 7,099.75 | 3,569.00 | 3,568.74 | 39.78 | 66.87 | 4.45 | -185.64 | 10,402.42 | 12,908.04 | 12,818.93 | 89.11 | 144.854 | |

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

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

**Survey Program:** 235-A027Ua_INC-ONLY

**Rule Assigned:**

**Offset Well Error:** 0.00 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8,800.00 | 7,099.40 | 3,569.00 | 3,568.74 | 41.00 | 66.87 | 4.45 | -185.64 | 10,402.42 | 13,003.79 | 12,914.58 | 89.20 | 145.776 | |
| 8,900.00 | 7,099.05 | 3,569.00 | 3,568.74 | 42.25 | 66.87 | 4.45 | -185.64 | 10,402.42 | 13,099.59 | 13,010.29 | 89.30 | 146.695 | |
| 9,000.00 | 7,098.70 | 3,569.00 | 3,568.74 | 43.53 | 66.87 | 4.45 | -185.64 | 10,402.42 | 13,195.46 | 13,106.07 | 89.39 | 147.612 | |
| 9,100.00 | 7,098.35 | 3,569.00 | 3,568.74 | 44.82 | 66.87 | 4.45 | -185.64 | 10,402.42 | 13,291.39 | 13,201.90 | 89.49 | 148.526 | |
| 9,200.00 | 7,098.00 | 3,569.00 | 3,568.74 | 46.14 | 66.87 | 4.45 | -185.64 | 10,402.42 | 13,387.38 | 13,297.80 | 89.59 | 149.437 | |
| 9,300.00 | 7,097.65 | 3,569.00 | 3,568.74 | 47.47 | 66.87 | 4.45 | -185.64 | 10,402.42 | 13,483.43 | 13,393.75 | 89.68 | 150.346 | |
| 9,400.00 | 7,097.30 | 3,569.00 | 3,568.74 | 48.82 | 66.87 | 4.45 | -185.64 | 10,402.42 | 13,579.54 | 13,489.76 | 89.78 | 151.252 | |
| 9,500.00 | 7,096.95 | 3,569.00 | 3,568.74 | 50.18 | 66.87 | 4.45 | -185.64 | 10,402.42 | 13,675.70 | 13,585.82 | 89.88 | 152.155 | |
| 9,600.00 | 7,096.60 | 3,569.00 | 3,568.74 | 51.56 | 66.87 | 4.45 | -185.64 | 10,402.42 | 13,771.91 | 13,681.94 | 89.98 | 153.057 | |
| 9,700.00 | 7,096.25 | 3,569.00 | 3,568.74 | 52.95 | 66.87 | 4.45 | -185.64 | 10,402.42 | 13,868.18 | 13,778.10 | 90.08 | 153.955 | |
| 9,800.00 | 7,095.90 | 3,569.00 | 3,568.74 | 54.35 | 66.87 | 4.45 | -185.64 | 10,402.42 | 13,964.51 | 13,874.33 | 90.18 | 154.852 | |
| 9,900.00 | 7,095.55 | 3,569.00 | 3,568.74 | 55.76 | 66.87 | 4.45 | -185.64 | 10,402.42 | 14,060.88 | 13,970.60 | 90.28 | 155.746 | |
| 10,000.00 | 7,095.20 | 3,569.00 | 3,568.74 | 57.18 | 66.87 | 4.45 | -185.64 | 10,402.42 | 14,157.30 | 14,066.92 | 90.38 | 156.637 | |
| 10,100.00 | 7,094.85 | 3,569.00 | 3,568.74 | 58.61 | 66.87 | 4.45 | -185.64 | 10,402.42 | 14,253.78 | 14,163.29 | 90.49 | 157.526 | |
| 10,200.00 | 7,094.50 | 3,569.00 | 3,568.74 | 60.05 | 66.87 | 4.45 | -185.64 | 10,402.42 | 14,350.30 | 14,259.71 | 90.59 | 158.413 | |
| 10,300.00 | 7,094.15 | 3,569.00 | 3,568.74 | 61.50 | 66.87 | 4.45 | -185.64 | 10,402.42 | 14,446.87 | 14,356.17 | 90.69 | 159.297 | |
| 10,400.00 | 7,093.80 | 3,569.00 | 3,568.74 | 62.96 | 66.87 | 4.45 | -185.64 | 10,402.42 | 14,543.48 | 14,452.69 | 90.79 | 160.179 | |
| 10,500.00 | 7,093.45 | 3,569.00 | 3,568.74 | 64.42 | 66.87 | 4.45 | -185.64 | 10,402.42 | 14,640.14 | 14,549.24 | 90.90 | 161.059 | |
| 10,600.00 | 7,093.10 | 3,569.00 | 3,568.74 | 65.89 | 66.87 | 4.45 | -185.64 | 10,402.42 | 14,736.85 | 14,645.84 | 91.00 | 161.937 | |
| 10,700.00 | 7,092.75 | 3,569.00 | 3,568.74 | 67.36 | 66.87 | 4.45 | -185.64 | 10,402.42 | 14,833.59 | 14,742.49 | 91.11 | 162.812 | |
| 10,800.00 | 7,092.40 | 3,569.00 | 3,568.74 | 68.84 | 66.87 | 4.45 | -185.64 | 10,402.42 | 14,930.39 | 14,839.17 | 91.21 | 163.685 | |
| 10,900.00 | 7,092.05 | 3,569.00 | 3,568.74 | 70.33 | 66.87 | 4.45 | -185.64 | 10,402.42 | 15,027.22 | 14,935.90 | 91.32 | 164.555 | |
| 11,000.00 | 7,091.70 | 3,569.00 | 3,568.74 | 71.82 | 66.87 | 4.45 | -185.64 | 10,402.42 | 15,124.09 | 15,032.67 | 91.43 | 165.424 | |
| 11,100.00 | 7,091.35 | 3,569.00 | 3,568.74 | 73.31 | 66.87 | 4.45 | -185.64 | 10,402.42 | 15,221.01 | 15,129.48 | 91.53 | 166.290 | |
| 11,200.00 | 7,091.00 | 3,569.00 | 3,568.74 | 74.81 | 66.87 | 4.45 | -185.64 | 10,402.42 | 15,317.96 | 15,226.32 | 91.64 | 167.154 | |
| 11,300.00 | 7,090.65 | 3,569.00 | 3,568.74 | 76.32 | 66.87 | 4.45 | -185.64 | 10,402.42 | 15,414.96 | 15,323.21 | 91.75 | 168.016 | |
| 11,400.00 | 7,090.30 | 3,569.00 | 3,568.74 | 77.82 | 66.87 | 4.45 | -185.64 | 10,402.42 | 15,511.99 | 15,420.13 | 91.85 | 168.875 | |
| 11,500.00 | 7,089.95 | 3,569.00 | 3,568.74 | 79.34 | 66.87 | 4.45 | -185.64 | 10,402.42 | 15,609.06 | 15,517.10 | 91.96 | 169.733 | |
| 11,600.00 | 7,089.60 | 3,569.00 | 3,568.74 | 80.85 | 66.87 | 4.45 | -185.64 | 10,402.42 | 15,706.16 | 15,614.09 | 92.07 | 170.588 | |
| 11,700.00 | 7,089.25 | 3,569.00 | 3,568.74 | 82.37 | 66.87 | 4.45 | -185.64 | 10,402.42 | 15,803.31 | 15,711.13 | 92.18 | 171.441 | |
| 11,800.00 | 7,088.90 | 3,569.00 | 3,568.74 | 83.89 | 66.87 | 4.45 | -185.64 | 10,402.42 | 15,900.48 | 15,808.20 | 92.29 | 172.292 | |
| 11,900.00 | 7,088.55 | 3,569.00 | 3,568.74 | 85.41 | 66.87 | 4.45 | -185.64 | 10,402.42 | 15,997.70 | 15,905.30 | 92.40 | 173.141 | |
| 12,000.00 | 7,088.20 | 3,569.00 | 3,568.74 | 86.94 | 66.87 | 4.45 | -185.64 | 10,402.42 | 16,094.94 | 16,002.44 | 92.51 | 173.988 | |
| 12,100.00 | 7,087.85 | 3,569.00 | 3,568.74 | 88.47 | 66.87 | 4.45 | -185.64 | 10,402.42 | 16,192.22 | 16,099.61 | 92.62 | 174.832 | |
| 12,200.00 | 7,087.50 | 3,569.00 | 3,568.74 | 90.00 | 66.87 | 4.45 | -185.64 | 10,402.42 | 16,289.54 | 16,196.81 | 92.73 | 175.675 | |
| 12,300.00 | 7,087.15 | 3,569.00 | 3,568.74 | 91.54 | 66.87 | 4.45 | -185.64 | 10,402.42 | 16,386.88 | 16,294.05 | 92.84 | 176.515 | |
| 12,400.00 | 7,086.81 | 3,569.00 | 3,568.74 | 93.07 | 66.87 | 4.45 | -185.64 | 10,402.42 | 16,484.26 | 16,391.31 | 92.95 | 177.354 | |
| 12,500.00 | 7,086.46 | 3,569.00 | 3,568.74 | 94.61 | 66.87 | 4.45 | -185.64 | 10,402.42 | 16,581.67 | 16,488.61 | 93.06 | 178.190 | |
| 12,600.00 | 7,086.11 | 3,569.00 | 3,568.74 | 96.15 | 66.87 | 4.45 | -185.64 | 10,402.42 | 16,679.11 | 16,585.94 | 93.17 | 179.024 | |
| 12,700.00 | 7,085.76 | 3,569.00 | 3,568.74 | 97.69 | 66.87 | 4.45 | -185.64 | 10,402.42 | 16,776.58 | 16,683.30 | 93.28 | 179.856 | |
| 12,800.00 | 7,085.41 | 3,569.00 | 3,568.74 | 99.24 | 66.87 | 4.45 | -185.64 | 10,402.42 | 16,874.07 | 16,780.69 | 93.39 | 180.686 | |
| 12,900.00 | 7,085.06 | 3,569.00 | 3,568.74 | 100.78 | 66.87 | 4.45 | -185.64 | 10,402.42 | 16,971.60 | 16,878.10 | 93.50 | 181.514 | |
| 13,000.00 | 7,084.71 | 3,569.00 | 3,568.74 | 102.33 | 66.87 | 4.45 | -185.64 | 10,402.42 | 17,069.16 | 16,975.55 | 93.61 | 182.340 | |
| 13,100.00 | 7,084.36 | 3,569.00 | 3,568.74 | 103.88 | 66.87 | 4.45 | -185.64 | 10,402.42 | 17,166.74 | 17,073.02 | 93.72 | 183.164 | |
| 13,200.00 | 7,084.01 | 3,569.00 | 3,568.74 | 105.43 | 66.87 | 4.45 | -185.64 | 10,402.42 | 17,264.36 | 17,170.52 | 93.84 | 183.986 | |
| 13,300.00 | 7,083.66 | 3,569.00 | 3,568.74 | 106.99 | 66.87 | 4.45 | -185.64 | 10,402.42 | 17,362.00 | 17,268.05 | 93.95 | 184.806 | |
| 13,400.00 | 7,083.31 | 3,569.00 | 3,568.74 | 108.54 | 66.87 | 4.45 | -185.64 | 10,402.42 | 17,459.66 | 17,365.60 | 94.06 | 185.624 | |
| 13,500.00 | 7,082.96 | 3,569.00 | 3,568.74 | 110.09 | 66.87 | 4.45 | -185.64 | 10,402.42 | 17,557.35 | 17,463.18 | 94.17 | 186.440 | |
| 13,600.00 | 7,082.61 | 3,569.00 | 3,568.74 | 111.65 | 66.87 | 4.45 | -185.64 | 10,402.42 | 17,655.07 | 17,560.79 | 94.28 | 187.254 | |
| 13,700.00 | 7,082.26 | 3,569.00 | 3,568.74 | 113.21 | 66.87 | 4.45 | -185.64 | 10,402.42 | 17,752.82 | 17,658.42 | 94.40 | 188.066 | |
| 13,800.00 | 7,081.91 | 3,569.00 | 3,568.74 | 114.77 | 66.87 | 4.45 | -185.64 | 10,402.42 | 17,850.58 | 17,756.08 | 94.51 | 188.876 | |
| 13,900.00 | 7,081.56 | 3,569.00 | 3,568.74 | 116.33 | 66.87 | 4.45 | -185.64 | 10,402.42 | 17,948.38 | 17,853.76 | 94.62 | 189.684 | |

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

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

**Survey Program:** 235-A027Ua_INC-ONLY

**Offset Well Error:** 0.00 usft

**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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 14,000.00 | 7,081.21 | 3,569.00 | 3,568.74 | 117.89 | 66.87 | 4.45 | -185.64 | 10,402.42 | 18,046.20 | 17,951.46 | 94.74 | 190.490 | |
| 14,100.00 | 7,080.86 | 3,569.00 | 3,568.74 | 119.45 | 66.87 | 4.45 | -185.64 | 10,402.42 | 18,144.04 | 18,049.19 | 94.85 | 191.294 | |
| 14,200.00 | 7,080.51 | 3,569.00 | 3,568.74 | 121.02 | 66.87 | 4.45 | -185.64 | 10,402.42 | 18,241.90 | 18,146.94 | 94.96 | 192.096 | |
| 14,300.00 | 7,080.16 | 3,569.00 | 3,568.74 | 122.58 | 66.87 | 4.45 | -185.64 | 10,402.42 | 18,339.79 | 18,244.71 | 95.08 | 192.896 | |
| 14,400.00 | 7,079.81 | 3,569.00 | 3,568.74 | 124.15 | 66.87 | 4.45 | -185.64 | 10,402.42 | 18,437.70 | 18,342.51 | 95.19 | 193.694 | |
| 14,500.00 | 7,079.46 | 3,569.00 | 3,568.74 | 125.71 | 66.87 | 4.45 | -185.64 | 10,402.42 | 18,535.63 | 18,440.33 | 95.30 | 194.490 | |
| 14,600.00 | 7,079.11 | 3,569.00 | 3,568.74 | 127.28 | 66.87 | 4.45 | -185.64 | 10,402.42 | 18,633.59 | 18,538.17 | 95.42 | 195.284 | |
| 14,700.00 | 7,078.76 | 3,569.00 | 3,568.74 | 128.85 | 66.87 | 4.45 | -185.64 | 10,402.42 | 18,731.56 | 18,636.03 | 95.53 | 196.076 | |
| 14,800.00 | 7,078.41 | 3,569.00 | 3,568.74 | 130.42 | 66.87 | 4.45 | -185.64 | 10,402.42 | 18,829.56 | 18,733.91 | 95.65 | 196.866 | |
| 14,900.00 | 7,078.06 | 3,569.00 | 3,568.74 | 131.98 | 66.87 | 4.45 | -185.64 | 10,402.42 | 18,927.58 | 18,831.82 | 95.76 | 197.655 | |
| 15,000.00 | 7,077.71 | 3,569.00 | 3,568.74 | 133.55 | 66.87 | 4.45 | -185.64 | 10,402.42 | 19,025.62 | 18,929.74 | 95.88 | 198.441 | |
| 15,100.00 | 7,077.36 | 3,569.00 | 3,568.74 | 135.13 | 66.87 | 4.45 | -185.64 | 10,402.42 | 19,123.68 | 19,027.69 | 95.99 | 199.225 | |
| 15,200.00 | 7,077.01 | 3,569.00 | 3,568.74 | 136.70 | 66.87 | 4.45 | -185.64 | 10,402.42 | 19,221.76 | 19,125.65 | 96.11 | 200.008 | |
| 15,300.00 | 7,076.66 | 3,569.00 | 3,568.74 | 138.27 | 66.87 | 4.45 | -185.64 | 10,402.42 | 19,319.86 | 19,223.64 | 96.22 | 200.788 | |
| 15,400.00 | 7,076.31 | 3,569.00 | 3,568.74 | 139.84 | 66.87 | 4.45 | -185.64 | 10,402.42 | 19,417.98 | 19,321.64 | 96.34 | 201.567 | |
| 15,500.00 | 7,075.96 | 3,569.00 | 3,568.74 | 141.42 | 66.87 | 4.45 | -185.64 | 10,402.42 | 19,516.11 | 19,419.66 | 96.45 | 202.344 | |
| 15,600.00 | 7,075.61 | 3,569.00 | 3,568.74 | 142.99 | 66.87 | 4.45 | -185.64 | 10,402.42 | 19,614.27 | 19,517.70 | 96.57 | 203.119 | |
| 15,700.00 | 7,075.26 | 3,569.00 | 3,568.74 | 144.57 | 66.87 | 4.45 | -185.64 | 10,402.42 | 19,712.44 | 19,615.76 | 96.68 | 203.891 | |
| 15,800.00 | 7,074.91 | 3,569.00 | 3,568.74 | 146.14 | 66.87 | 4.45 | -185.64 | 10,402.42 | 19,810.64 | 19,713.84 | 96.80 | 204.662 | |
| 15,900.00 | 7,074.56 | 3,569.00 | 3,568.74 | 147.72 | 66.87 | 4.45 | -185.64 | 10,402.42 | 19,908.85 | 19,811.94 | 96.91 | 205.431 | |
| 16,000.00 | 7,074.21 | 3,569.00 | 3,568.74 | 149.29 | 66.87 | 4.45 | -185.64 | 10,402.42 | 20,007.08 | 19,910.05 | 97.03 | 206.199 | |
| 16,100.00 | 7,073.86 | 3,569.00 | 3,568.74 | 150.87 | 66.87 | 4.45 | -185.64 | 10,402.42 | 20,105.32 | 20,008.18 | 97.14 | 206.964 | |
| 16,200.00 | 7,073.51 | 3,569.00 | 3,568.74 | 152.45 | 66.87 | 4.45 | -185.64 | 10,402.42 | 20,203.59 | 20,106.33 | 97.26 | 207.727 | |
| 16,300.00 | 7,073.16 | 3,569.00 | 3,568.74 | 154.03 | 66.87 | 4.45 | -185.64 | 10,402.42 | 20,301.87 | 20,204.49 | 97.38 | 208.489 | |
| 16,400.00 | 7,072.81 | 3,569.00 | 3,568.74 | 155.60 | 66.87 | 4.45 | -185.64 | 10,402.42 | 20,400.17 | 20,302.67 | 97.49 | 209.248 | |
| 16,500.00 | 7,072.46 | 3,569.00 | 3,568.74 | 157.18 | 66.87 | 4.45 | -185.64 | 10,402.42 | 20,498.48 | 20,400.87 | 97.61 | 210.006 | |
| 16,600.00 | 7,072.11 | 3,569.00 | 3,568.74 | 158.76 | 66.87 | 4.45 | -185.64 | 10,402.42 | 20,596.81 | 20,499.08 | 97.73 | 210.762 | |
| 16,631.96 | 7,072.00 | 3,569.00 | 3,568.74 | 159.27 | 66.87 | 4.45 | -185.64 | 10,402.42 | 20,628.24 | 20,530.48 | 97.76 | 211.003 | |

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

**Offset Design:** Rosa Unit 32 - (O) RU #334A - OH - OH — **Offset Site Error:** 0.00 usft

**Survey Program:** 334-A027Ua_INC-ONLY — **Rule Assigned:** — **Offset Well Error:** 0.00 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 3.28 | 0.00 | -93.68 | -184.65 | -2,867.40 | 2,873.48 | | | | |
| 100.00 | 100.00 | 72.00 | 72.00 | 3.29 | 0.71 | -93.68 | -184.65 | -2,867.40 | 2,873.34 | 2,869.34 | 4.00 | 718.528 | |
| 200.00 | 200.00 | 172.00 | 172.00 | 3.34 | 1.69 | -93.68 | -184.65 | -2,867.40 | 2,873.34 | 2,868.31 | 5.03 | 571.196 | |
| 300.00 | 300.00 | 272.00 | 272.00 | 3.42 | 2.68 | -93.68 | -184.65 | -2,867.40 | 2,873.34 | 2,867.24 | 6.10 | 471.117 | |
| 400.00 | 400.00 | 372.01 | 372.00 | 3.54 | 4.07 | -93.68 | -184.65 | -2,867.40 | 2,873.34 | 2,865.74 | 7.60 | 377.837 | |
| 500.00 | 500.00 | 472.01 | 472.00 | 3.69 | 6.11 | -93.68 | -184.65 | -2,867.40 | 2,873.34 | 2,863.54 | 9.80 | 293.259 | |
| 600.00 | 599.98 | 571.95 | 571.94 | 3.86 | 8.15 | 56.38 | -183.90 | -2,867.40 | 2,872.32 | 2,860.32 | 12.01 | 239.178 | |
| 697.00 | 696.84 | 668.34 | 668.32 | 4.04 | 10.12 | 56.50 | -184.05 | -2,867.40 | 2,869.55 | 2,855.39 | 14.16 | 202.660 | |
| 700.00 | 699.84 | 671.32 | 671.30 | 4.05 | 10.18 | 56.50 | -184.06 | -2,867.40 | 2,869.44 | 2,855.21 | 14.23 | 201.694 | |
| 800.00 | 799.60 | 770.63 | 770.61 | 4.25 | 12.21 | 56.61 | -184.50 | -2,867.40 | 2,865.67 | 2,849.21 | 16.47 | 174.041 | |
| 897.00 | 896.37 | 868.44 | 868.37 | 4.48 | 14.27 | 56.72 | -184.65 | -2,867.40 | 2,862.01 | 2,843.27 | 18.75 | 152.675 | |
| 900.00 | 899.37 | 871.43 | 871.37 | 4.48 | 14.34 | 57.59 | -184.65 | -2,867.40 | 2,861.90 | 2,843.09 | 18.82 | 152.096 | |
| 947.40 | 946.65 | 918.71 | 918.65 | 4.60 | 15.34 | 71.47 | -184.65 | -2,867.40 | 2,860.51 | 2,840.57 | 19.94 | 143.485 | |
| 1,000.00 | 999.13 | 971.19 | 971.13 | 4.73 | 16.46 | 71.53 | -184.65 | -2,867.40 | 2,859.36 | 2,838.18 | 21.18 | 134.985 | |
| 1,100.00 | 1,098.89 | 1,070.82 | 1,070.75 | 4.99 | 18.57 | 71.69 | -183.58 | -2,867.40 | 2,857.13 | 2,833.57 | 23.56 | 121.260 | |
| 1,200.00 | 1,198.66 | 1,170.10 | 1,170.03 | 5.27 | 20.68 | 71.81 | -183.84 | -2,867.40 | 2,854.99 | 2,829.04 | 25.95 | 110.033 | |
| 1,300.00 | 1,298.42 | 1,269.44 | 1,269.35 | 5.56 | 22.79 | 71.93 | -184.44 | -2,867.40 | 2,852.87 | 2,824.53 | 28.34 | 100.652 | |
| 1,400.00 | 1,398.18 | 1,370.32 | 1,370.18 | 5.85 | 25.00 | 72.06 | -184.65 | -2,867.40 | 2,850.75 | 2,819.90 | 30.85 | 92.411 | |
| 1,500.00 | 1,497.95 | 1,470.09 | 1,469.95 | 6.16 | 27.21 | 72.19 | -184.65 | -2,867.40 | 2,848.64 | 2,815.28 | 33.36 | 85.393 | |
| 1,600.00 | 1,597.71 | 1,569.74 | 1,569.59 | 6.47 | 29.41 | 72.34 | -183.58 | -2,867.40 | 2,846.49 | 2,810.62 | 35.87 | 79.346 | |
| 1,700.00 | 1,697.47 | 1,669.14 | 1,668.98 | 6.79 | 31.61 | 72.47 | -183.85 | -2,867.40 | 2,844.42 | 2,806.03 | 38.39 | 74.094 | |
| 1,800.00 | 1,797.24 | 1,768.58 | 1,768.42 | 7.11 | 33.81 | 72.59 | -184.46 | -2,867.40 | 2,842.38 | 2,801.47 | 40.91 | 69.477 | |
| 1,900.00 | 1,897.00 | 1,869.24 | 1,869.00 | 7.44 | 36.11 | 72.72 | -184.65 | -2,867.40 | 2,840.33 | 2,796.80 | 43.54 | 65.242 | |
| 2,000.00 | 1,996.76 | 1,969.00 | 1,968.76 | 7.77 | 38.40 | 72.85 | -184.65 | -2,867.40 | 2,838.29 | 2,792.13 | 46.16 | 61.482 | |
| 2,100.00 | 2,096.53 | 2,068.68 | 2,068.43 | 8.11 | 40.70 | 73.01 | -183.28 | -2,867.40 | 2,836.23 | 2,787.43 | 48.80 | 58.125 | |
| 2,200.00 | 2,196.29 | 2,168.14 | 2,167.88 | 8.44 | 42.99 | 73.13 | -183.59 | -2,867.40 | 2,834.23 | 2,782.81 | 51.42 | 55.114 | |
| 2,300.00 | 2,296.06 | 2,267.67 | 2,267.40 | 8.79 | 45.29 | 73.25 | -184.32 | -2,867.40 | 2,832.26 | 2,778.20 | 54.06 | 52.393 | |
| 2,400.00 | 2,395.82 | 2,368.18 | 2,367.82 | 9.13 | 47.48 | 73.38 | -184.65 | -2,867.40 | 2,830.29 | 2,773.69 | 56.60 | 50.009 | |
| 2,500.00 | 2,495.58 | 2,467.94 | 2,467.58 | 9.47 | 49.60 | 73.51 | -184.65 | -2,867.40 | 2,828.33 | 2,769.26 | 59.06 | 47.886 | |
| 2,600.00 | 2,595.35 | 2,567.65 | 2,567.28 | 9.82 | 51.73 | 73.67 | -183.34 | -2,867.40 | 2,826.35 | 2,764.82 | 61.53 | 45.933 | |
| 2,700.00 | 2,695.11 | 2,667.24 | 2,666.86 | 10.17 | 53.85 | 73.80 | -183.67 | -2,867.40 | 2,824.43 | 2,760.43 | 64.00 | 44.132 | |
| 2,800.00 | 2,794.87 | 2,766.90 | 2,766.51 | 10.52 | 55.97 | 73.92 | -184.44 | -2,867.40 | 2,822.53 | 2,756.06 | 66.47 | 42.463 | |
| 2,900.00 | 2,894.64 | 2,867.07 | 2,866.64 | 10.87 | 58.17 | 74.05 | -184.65 | -2,867.40 | 2,820.63 | 2,751.60 | 69.03 | 40.864 | |
| 3,000.00 | 2,994.40 | 2,966.83 | 2,966.40 | 11.23 | 60.38 | 74.18 | -184.65 | -2,867.40 | 2,818.74 | 2,747.15 | 71.59 | 39.373 | |
| 3,100.00 | 3,094.16 | 3,066.57 | 3,066.13 | 11.58 | 62.59 | 74.33 | -183.96 | -2,867.40 | 2,816.87 | 2,742.71 | 74.16 | 37.986 | |
| 3,200.00 | 3,193.93 | 3,166.31 | 3,165.87 | 11.94 | 64.80 | 74.46 | -184.27 | -2,867.40 | 2,815.02 | 2,738.30 | 76.72 | 36.691 | |
| 3,300.00 | 3,293.69 | 3,266.21 | 3,265.69 | 12.29 | 67.10 | 74.58 | -184.65 | -2,867.40 | 2,813.18 | 2,733.80 | 79.38 | 35.441 | |
| 3,400.00 | 3,393.45 | 3,365.98 | 3,365.45 | 12.65 | 69.59 | 74.72 | -184.65 | -2,867.40 | 2,811.36 | 2,729.14 | 82.22 | 34.194 | |
| 3,500.00 | 3,493.22 | 3,465.74 | 3,465.22 | 13.01 | 72.07 | 74.85 | -184.65 | -2,867.40 | 2,809.55 | 2,724.49 | 85.06 | 33.030 | |
| 3,552.72 | 3,545.81 | 3,468.00 | 3,467.40 | 13.20 | 72.13 | 74.86 | -184.65 | -2,867.40 | 2,809.05 | 2,723.76 | 85.29 | 32.934 | CC, ES |
| 3,600.00 | 3,592.98 | 3,468.00 | 3,467.40 | 13.37 | 72.13 | 74.86 | -184.65 | -2,867.40 | 2,809.45 | 2,724.02 | 85.43 | 32.886 | |
| 3,700.00 | 3,692.74 | 3,468.00 | 3,467.40 | 13.73 | 72.13 | 74.86 | -184.65 | -2,867.40 | 2,812.91 | 2,727.27 | 85.64 | 32.845 | SF |
| 3,800.00 | 3,792.51 | 3,468.00 | 3,467.40 | 14.09 | 72.13 | 74.86 | -184.65 | -2,867.40 | 2,819.92 | 2,734.16 | 85.75 | 32.884 | |
| 3,900.00 | 3,892.27 | 3,468.00 | 3,467.40 | 14.45 | 72.13 | 74.86 | -184.65 | -2,867.40 | 2,830.44 | 2,744.68 | 85.76 | 33.004 | |
| 4,000.00 | 3,992.04 | 3,468.00 | 3,467.40 | 14.81 | 72.13 | 74.86 | -184.65 | -2,867.40 | 2,844.44 | 2,758.77 | 85.67 | 33.202 | |
| 4,100.00 | 4,091.80 | 3,468.00 | 3,467.40 | 15.17 | 72.13 | 74.86 | -184.65 | -2,867.40 | 2,861.87 | 2,776.38 | 85.48 | 33.478 | |
| 4,200.00 | 4,191.56 | 3,468.00 | 3,467.40 | 15.53 | 72.13 | 74.86 | -184.65 | -2,867.40 | 2,882.66 | 2,797.45 | 85.21 | 33.831 | |
| 4,300.00 | 4,291.33 | 3,468.00 | 3,467.40 | 15.89 | 72.13 | 74.86 | -184.65 | -2,867.40 | 2,906.75 | 2,821.90 | 84.84 | 34.260 | |
| 4,400.00 | 4,391.09 | 3,468.00 | 3,467.40 | 16.26 | 72.13 | 74.86 | -184.65 | -2,867.40 | 2,934.05 | 2,849.64 | 84.40 | 34.763 | |
| 4,500.00 | 4,490.85 | 3,468.00 | 3,467.40 | 16.62 | 72.13 | 74.86 | -184.65 | -2,867.40 | 2,964.47 | 2,880.58 | 83.89 | 35.339 | |
| 4,600.00 | 4,590.62 | 3,468.00 | 3,467.40 | 16.99 | 72.13 | 74.86 | -184.65 | -2,867.40 | 2,997.92 | 2,914.62 | 83.30 | 35.988 | |
| 4,700.00 | 4,690.38 | 3,468.00 | 3,467.40 | 17.35 | 72.13 | 74.86 | -184.65 | -2,867.40 | 3,034.30 | 2,951.64 | 82.66 | 36.708 | |

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

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

**Survey Program:** 334-A027Ua_INC-ONLY

**Rule Assigned:**

**Offset Well Error:** 0.00 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4,800.00 | 4,790.14 | 3,468.00 | 3,467.40 | 17.71 | 72.13 | 74.86 | -184.65 | -2,867.40 | 3,073.51 | 2,991.54 | 81.97 | 37.497 | |
| 4,900.00 | 4,889.91 | 3,468.00 | 3,467.40 | 18.08 | 72.13 | 74.86 | -184.65 | -2,867.40 | 3,115.43 | 3,034.20 | 81.22 | 38.356 | |
| 5,000.00 | 4,989.67 | 3,468.00 | 3,467.40 | 18.44 | 72.13 | 74.86 | -184.65 | -2,867.40 | 3,159.96 | 3,079.51 | 80.44 | 39.281 | |
| 5,100.00 | 5,089.43 | 3,468.00 | 3,467.40 | 18.81 | 72.13 | 74.86 | -184.65 | -2,867.40 | 3,206.99 | 3,127.36 | 79.63 | 40.272 | |
| 5,200.00 | 5,189.20 | 3,468.00 | 3,467.40 | 19.17 | 72.13 | 74.86 | -184.65 | -2,867.40 | 3,256.41 | 3,177.62 | 78.79 | 41.329 | |
| 5,300.00 | 5,288.96 | 3,468.00 | 3,467.40 | 19.54 | 72.13 | 74.86 | -184.65 | -2,867.40 | 3,308.12 | 3,230.19 | 77.93 | 42.448 | |
| 5,400.00 | 5,388.72 | 3,468.00 | 3,467.40 | 19.91 | 72.13 | 74.86 | -184.65 | -2,867.40 | 3,362.01 | 3,284.95 | 77.06 | 43.629 | |
| 5,500.00 | 5,488.49 | 3,468.00 | 3,467.40 | 20.27 | 72.13 | 74.86 | -184.65 | -2,867.40 | 3,417.98 | 3,341.81 | 76.17 | 44.870 | |
| 5,600.00 | 5,588.25 | 3,468.00 | 3,467.40 | 20.64 | 72.13 | 74.86 | -184.65 | -2,867.40 | 3,475.92 | 3,400.64 | 75.28 | 46.170 | |
| 5,700.00 | 5,688.01 | 3,468.00 | 3,467.40 | 21.00 | 72.13 | 74.86 | -184.65 | -2,867.40 | 3,535.74 | 3,461.35 | 74.39 | 47.528 | |
| 5,800.00 | 5,787.78 | 3,468.00 | 3,467.40 | 21.37 | 72.13 | 74.86 | -184.65 | -2,867.40 | 3,597.35 | 3,523.85 | 73.50 | 48.941 | |
| 5,900.00 | 5,887.54 | 3,468.00 | 3,467.40 | 21.74 | 72.13 | 74.86 | -184.65 | -2,867.40 | 3,660.65 | 3,588.03 | 72.62 | 50.408 | |
| 6,000.00 | 5,987.31 | 3,468.00 | 3,467.40 | 22.11 | 72.13 | 74.86 | -184.65 | -2,867.40 | 3,725.57 | 3,653.82 | 71.75 | 51.927 | |
| 6,100.00 | 6,087.07 | 3,468.00 | 3,467.40 | 22.47 | 72.13 | 74.86 | -184.65 | -2,867.40 | 3,792.00 | 3,721.12 | 70.88 | 53.498 | |
| 6,200.00 | 6,186.83 | 3,468.00 | 3,467.40 | 22.84 | 72.13 | 74.86 | -184.65 | -2,867.40 | 3,859.89 | 3,789.86 | 70.03 | 55.117 | |
| 6,300.00 | 6,286.60 | 3,468.00 | 3,467.40 | 23.21 | 72.13 | 74.86 | -184.65 | -2,867.40 | 3,929.15 | 3,859.95 | 69.20 | 56.783 | |
| 6,400.00 | 6,386.36 | 3,468.00 | 3,467.40 | 23.58 | 72.13 | 74.86 | -184.65 | -2,867.40 | 3,999.71 | 3,931.33 | 68.38 | 58.495 | |
| 6,494.00 | 6,480.13 | 3,468.00 | 3,467.40 | 23.92 | 72.13 | 74.86 | -184.65 | -2,867.40 | 4,067.15 | 3,999.53 | 67.62 | 60.144 | |
| 6,500.00 | 6,486.12 | 3,468.00 | 3,467.40 | 23.94 | 72.13 | 67.58 | -184.65 | -2,867.40 | 4,071.48 | 4,003.90 | 67.57 | 60.251 | |
| 6,550.00 | 6,535.89 | 3,468.00 | 3,467.40 | 24.13 | 72.13 | 32.10 | -184.65 | -2,867.40 | 4,106.10 | 4,038.95 | 67.15 | 61.147 | |
| 6,600.00 | 6,585.24 | 3,468.00 | 3,467.40 | 24.31 | 72.13 | 19.84 | -184.65 | -2,867.40 | 4,138.14 | 4,071.45 | 66.69 | 62.049 | |
| 6,650.00 | 6,633.88 | 3,468.00 | 3,467.40 | 24.50 | 72.13 | 14.26 | -184.65 | -2,867.40 | 4,167.45 | 4,101.25 | 66.20 | 62.951 | |
| 6,700.00 | 6,681.49 | 3,468.00 | 3,467.40 | 24.68 | 72.13 | 11.15 | -184.65 | -2,867.40 | 4,193.92 | 4,128.24 | 65.68 | 63.852 | |
| 6,750.00 | 6,727.80 | 3,468.00 | 3,467.40 | 24.86 | 72.13 | 9.18 | -184.65 | -2,867.40 | 4,217.44 | 4,152.30 | 65.14 | 64.749 | |
| 6,800.00 | 6,772.51 | 3,468.00 | 3,467.40 | 25.04 | 72.13 | 7.84 | -184.65 | -2,867.40 | 4,237.91 | 4,173.34 | 64.56 | 65.640 | |
| 6,850.00 | 6,815.34 | 3,468.00 | 3,467.40 | 25.21 | 72.13 | 6.87 | -184.65 | -2,867.40 | 4,255.25 | 4,191.28 | 63.97 | 66.522 | |
| 6,900.00 | 6,856.04 | 3,468.00 | 3,467.40 | 25.39 | 72.13 | 6.15 | -184.65 | -2,867.40 | 4,269.39 | 4,206.04 | 63.35 | 67.393 | |
| 6,950.00 | 6,894.35 | 3,468.00 | 3,467.40 | 25.57 | 72.13 | 5.59 | -184.65 | -2,867.40 | 4,280.29 | 4,217.57 | 62.71 | 68.250 | |
| 7,000.00 | 6,930.04 | 3,468.00 | 3,467.40 | 25.75 | 72.13 | 5.16 | -184.65 | -2,867.40 | 4,287.89 | 4,225.82 | 62.06 | 69.091 | |
| 7,050.00 | 6,962.89 | 3,468.00 | 3,467.40 | 25.93 | 72.13 | 4.81 | -184.65 | -2,867.40 | 4,292.16 | 4,230.77 | 61.39 | 69.911 | |
| 7,100.00 | 6,992.69 | 3,468.00 | 3,467.40 | 26.13 | 72.13 | 4.53 | -184.65 | -2,867.40 | 4,293.10 | 4,232.38 | 60.72 | 70.707 | |
| 7,150.00 | 7,019.25 | 3,468.00 | 3,467.40 | 26.33 | 72.13 | 4.31 | -184.65 | -2,867.40 | 4,290.69 | 4,230.66 | 60.03 | 71.475 | |
| 7,200.00 | 7,042.43 | 3,468.00 | 3,467.40 | 26.55 | 72.13 | 4.14 | -184.65 | -2,867.40 | 4,284.95 | 4,225.61 | 59.34 | 72.210 | |
| 7,250.00 | 7,062.07 | 3,468.00 | 3,467.40 | 26.79 | 72.13 | 3.99 | -184.65 | -2,867.40 | 4,275.90 | 4,217.25 | 58.65 | 72.909 | |
| 7,300.00 | 7,078.05 | 3,468.00 | 3,467.40 | 27.04 | 72.13 | 3.89 | -184.65 | -2,867.40 | 4,263.57 | 4,205.61 | 57.95 | 73.567 | |
| 7,350.00 | 7,090.27 | 3,468.00 | 3,467.40 | 27.30 | 72.13 | 3.81 | -184.65 | -2,867.40 | 4,248.01 | 4,190.74 | 57.27 | 74.178 | |
| 7,400.00 | 7,098.66 | 3,468.00 | 3,467.40 | 27.58 | 72.13 | 3.75 | -184.65 | -2,867.40 | 4,229.28 | 4,172.69 | 56.59 | 74.738 | |
| 7,450.00 | 7,103.17 | 3,468.00 | 3,467.40 | 27.87 | 72.13 | 3.72 | -184.65 | -2,867.40 | 4,207.46 | 4,151.54 | 55.92 | 75.242 | |
| 7,484.86 | 7,104.00 | 3,468.00 | 3,467.40 | 28.08 | 72.13 | 3.71 | -184.65 | -2,867.40 | 4,190.46 | 4,135.00 | 55.46 | 75.554 | |
| 7,500.00 | 7,103.95 | 3,468.00 | 3,467.40 | 28.17 | 72.13 | 3.71 | -184.65 | -2,867.40 | 4,182.78 | 4,127.52 | 55.27 | 75.684 | |
| 7,600.00 | 7,103.60 | 3,468.00 | 3,467.40 | 28.83 | 72.13 | 3.71 | -184.65 | -2,867.40 | 4,133.12 | 4,079.19 | 53.94 | 76.629 | |
| 7,700.00 | 7,103.25 | 3,468.00 | 3,467.40 | 29.56 | 72.13 | 3.71 | -184.65 | -2,867.40 | 4,085.31 | 4,032.71 | 52.60 | 77.669 | |
| 7,800.00 | 7,102.90 | 3,468.00 | 3,467.40 | 30.35 | 72.13 | 3.71 | -184.65 | -2,867.40 | 4,039.40 | 3,988.14 | 51.26 | 78.806 | |
| 7,900.00 | 7,102.55 | 3,468.00 | 3,467.40 | 31.21 | 72.13 | 3.71 | -184.65 | -2,867.40 | 3,995.47 | 3,945.56 | 49.92 | 80.044 | |
| 8,000.00 | 7,102.20 | 3,468.00 | 3,467.40 | 32.13 | 72.13 | 3.71 | -184.65 | -2,867.40 | 3,953.58 | 3,905.01 | 48.58 | 81.385 | |
| 8,100.00 | 7,101.85 | 3,468.00 | 3,467.40 | 33.10 | 72.13 | 3.71 | -184.65 | -2,867.40 | 3,913.80 | 3,866.55 | 47.25 | 82.831 | |
| 8,200.00 | 7,101.50 | 3,468.00 | 3,467.40 | 34.11 | 72.13 | 3.71 | -184.65 | -2,867.40 | 3,876.20 | 3,830.26 | 45.94 | 84.384 | |
| 8,300.00 | 7,101.15 | 3,468.00 | 3,467.40 | 35.17 | 72.13 | 3.71 | -184.65 | -2,867.40 | 3,840.82 | 3,796.18 | 44.64 | 86.040 | |
| 8,400.00 | 7,100.80 | 3,468.00 | 3,467.40 | 36.27 | 72.13 | 3.71 | -184.65 | -2,867.40 | 3,807.75 | 3,764.38 | 43.37 | 87.799 | |
| 8,500.00 | 7,100.45 | 3,468.00 | 3,467.40 | 37.41 | 72.13 | 3.71 | -184.65 | -2,867.40 | 3,777.03 | 3,734.90 | 42.13 | 89.652 | |
| 8,600.00 | 7,100.10 | 3,468.00 | 3,467.40 | 38.58 | 72.13 | 3.71 | -184.65 | -2,867.40 | 3,748.73 | 3,707.80 | 40.93 | 91.587 | |
| 8,700.00 | 7,099.75 | 3,468.00 | 3,467.40 | 39.78 | 72.13 | 3.71 | -184.65 | -2,867.40 | 3,722.91 | 3,683.13 | 39.78 | 93.586 | |

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 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

**Survey Program:** 334-A027Ua_INC-ONLY

**Rule Assigned:**

**Offset Well Error:** 0.00 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8,800.00 | 7,099.40 | 3,468.00 | 3,467.40 | 41.00 | 72.13 | 3.71 | -184.65 | -2,867.40 | 3,699.60 | 3,660.91 | 38.69 | 95.615 | |
| 8,900.00 | 7,099.05 | 3,468.00 | 3,467.40 | 42.25 | 72.13 | 3.71 | -184.65 | -2,867.40 | 3,678.87 | 3,641.19 | 37.68 | 97.630 | |
| 9,000.00 | 7,098.70 | 3,468.00 | 3,467.40 | 43.53 | 72.13 | 3.71 | -184.65 | -2,867.40 | 3,660.76 | 3,623.99 | 36.77 | 99.563 | |
| 9,100.00 | 7,098.35 | 3,468.00 | 3,467.40 | 44.82 | 72.13 | 3.71 | -184.65 | -2,867.40 | 3,645.29 | 3,609.31 | 35.98 | 101.317 | |
| 9,200.00 | 7,098.00 | 3,468.00 | 3,467.40 | 46.14 | 72.13 | 3.71 | -184.65 | -2,867.40 | 3,632.52 | 3,597.17 | 35.35 | 102.765 | |
| 9,300.00 | 7,097.65 | 3,468.00 | 3,467.40 | 47.47 | 72.13 | 3.71 | -184.65 | -2,867.40 | 3,622.46 | 3,587.54 | 34.92 | 103.747 | |
| 9,400.00 | 7,097.30 | 3,468.00 | 3,467.40 | 48.82 | 72.13 | 3.71 | -184.65 | -2,867.40 | 3,615.14 | 3,580.41 | 34.73 | 104.087 | |
| 9,500.00 | 7,096.95 | 3,468.00 | 3,467.40 | 50.18 | 72.13 | 3.71 | -184.65 | -2,867.40 | 3,610.58 | 3,575.74 | 34.84 | 103.630 | |
| 9,600.00 | 7,096.60 | 3,468.00 | 3,467.40 | 51.56 | 72.13 | 3.71 | -184.65 | -2,867.40 | 3,608.78 | 3,573.50 | 35.28 | 102.292 | |
| 9,614.00 | 7,096.55 | 3,468.00 | 3,467.40 | 51.75 | 72.13 | 3.71 | -184.65 | -2,867.40 | 3,608.75 | 3,573.38 | 35.37 | 102.034 | |
| 9,700.00 | 7,096.25 | 3,468.00 | 3,467.40 | 52.95 | 72.13 | 3.71 | -184.65 | -2,867.40 | 3,609.76 | 3,573.70 | 36.06 | 100.110 | |
| 9,800.00 | 7,095.90 | 3,468.00 | 3,467.40 | 54.35 | 72.13 | 3.71 | -184.65 | -2,867.40 | 3,613.50 | 3,576.34 | 37.16 | 97.242 | |
| 9,900.00 | 7,095.55 | 3,468.00 | 3,467.40 | 55.76 | 72.13 | 3.71 | -184.65 | -2,867.40 | 3,620.00 | 3,581.46 | 38.54 | 93.918 | |
| 10,000.00 | 7,095.20 | 3,468.00 | 3,467.40 | 57.18 | 72.13 | 3.71 | -184.65 | -2,867.40 | 3,629.25 | 3,589.09 | 40.16 | 90.376 | |
| 10,100.00 | 7,094.85 | 3,468.00 | 3,467.40 | 58.61 | 72.13 | 3.71 | -184.65 | -2,867.40 | 3,641.22 | 3,599.27 | 41.94 | 86.810 | |
| 10,200.00 | 7,094.50 | 3,468.00 | 3,467.40 | 60.05 | 72.13 | 3.71 | -184.65 | -2,867.40 | 3,655.89 | 3,612.03 | 43.86 | 83.356 | |
| 10,300.00 | 7,094.15 | 3,468.00 | 3,467.40 | 61.50 | 72.13 | 3.71 | -184.65 | -2,867.40 | 3,673.22 | 3,627.36 | 45.86 | 80.098 | |
| 10,400.00 | 7,093.80 | 3,468.00 | 3,467.40 | 62.96 | 72.13 | 3.71 | -184.65 | -2,867.40 | 3,693.18 | 3,645.26 | 47.91 | 77.081 | |
| 10,500.00 | 7,093.45 | 3,468.00 | 3,467.40 | 64.42 | 72.13 | 3.71 | -184.65 | -2,867.40 | 3,715.72 | 3,665.73 | 50.00 | 74.321 | |
| 10,600.00 | 7,093.10 | 3,468.00 | 3,467.40 | 65.89 | 72.13 | 3.71 | -184.65 | -2,867.40 | 3,740.80 | 3,688.72 | 52.09 | 71.819 | |
| 10,700.00 | 7,092.75 | 3,468.00 | 3,467.40 | 67.36 | 72.13 | 3.71 | -184.65 | -2,867.40 | 3,768.37 | 3,714.20 | 54.17 | 69.564 | |
| 10,800.00 | 7,092.40 | 3,468.00 | 3,467.40 | 68.84 | 72.13 | 3.71 | -184.65 | -2,867.40 | 3,798.38 | 3,742.14 | 56.24 | 67.544 | |
| 10,900.00 | 7,092.05 | 3,468.00 | 3,467.40 | 70.33 | 72.13 | 3.71 | -184.65 | -2,867.40 | 3,830.76 | 3,772.49 | 58.27 | 65.740 | |
| 11,000.00 | 7,091.70 | 3,468.00 | 3,467.40 | 71.82 | 72.13 | 3.71 | -184.65 | -2,867.40 | 3,865.45 | 3,805.18 | 60.27 | 64.135 | |
| 11,100.00 | 7,091.35 | 3,468.00 | 3,467.40 | 73.31 | 72.13 | 3.71 | -184.65 | -2,867.40 | 3,902.41 | 3,840.18 | 62.23 | 62.713 | |
| 11,200.00 | 7,091.00 | 3,468.00 | 3,467.40 | 74.81 | 72.13 | 3.71 | -184.65 | -2,867.40 | 3,941.55 | 3,877.41 | 64.14 | 61.457 | |
| 11,300.00 | 7,090.65 | 3,468.00 | 3,467.40 | 76.32 | 72.13 | 3.71 | -184.65 | -2,867.40 | 3,982.82 | 3,916.82 | 65.99 | 60.352 | |
| 11,400.00 | 7,090.30 | 3,468.00 | 3,467.40 | 77.82 | 72.13 | 3.71 | -184.65 | -2,867.40 | 4,026.15 | 3,958.35 | 67.80 | 59.385 | |
| 11,500.00 | 7,089.95 | 3,468.00 | 3,467.40 | 79.34 | 72.13 | 3.71 | -184.65 | -2,867.40 | 4,071.47 | 4,001.93 | 69.55 | 58.544 | |
| 11,600.00 | 7,089.60 | 3,468.00 | 3,467.40 | 80.85 | 72.13 | 3.71 | -184.65 | -2,867.40 | 4,118.73 | 4,047.49 | 71.24 | 57.817 | |
| 11,700.00 | 7,089.25 | 3,468.00 | 3,467.40 | 82.37 | 72.13 | 3.71 | -184.65 | -2,867.40 | 4,167.85 | 4,094.98 | 72.87 | 57.195 | |
| 11,800.00 | 7,088.90 | 3,468.00 | 3,467.40 | 83.89 | 72.13 | 3.71 | -184.65 | -2,867.40 | 4,218.77 | 4,144.32 | 74.45 | 56.667 | |
| 11,900.00 | 7,088.55 | 3,468.00 | 3,467.40 | 85.41 | 72.13 | 3.71 | -184.65 | -2,867.40 | 4,271.42 | 4,195.45 | 75.97 | 56.227 | |
| 12,000.00 | 7,088.20 | 3,468.00 | 3,467.40 | 86.94 | 72.13 | 3.71 | -184.65 | -2,867.40 | 4,325.74 | 4,248.31 | 77.43 | 55.866 | |
| 12,100.00 | 7,087.85 | 3,468.00 | 3,467.40 | 88.47 | 72.13 | 3.71 | -184.65 | -2,867.40 | 4,381.67 | 4,302.84 | 78.84 | 55.578 | |
| 12,200.00 | 7,087.50 | 3,468.00 | 3,467.40 | 90.00 | 72.13 | 3.71 | -184.65 | -2,867.40 | 4,439.16 | 4,358.97 | 80.19 | 55.358 | |
| 12,300.00 | 7,087.15 | 3,468.00 | 3,467.40 | 91.54 | 72.13 | 3.71 | -184.65 | -2,867.40 | 4,498.13 | 4,416.64 | 81.49 | 55.199 | |
| 12,400.00 | 7,086.81 | 3,468.00 | 3,467.40 | 93.07 | 72.13 | 3.71 | -184.65 | -2,867.40 | 4,558.53 | 4,475.79 | 82.74 | 55.097 | |
| 12,500.00 | 7,086.46 | 3,468.00 | 3,467.40 | 94.61 | 72.13 | 3.71 | -184.65 | -2,867.40 | 4,620.30 | 4,536.37 | 83.93 | 55.048 | |
| 12,600.00 | 7,086.11 | 3,468.00 | 3,467.40 | 96.15 | 72.13 | 3.71 | -184.65 | -2,867.40 | 4,683.40 | 4,598.32 | 85.08 | 55.048 | |
| 12,700.00 | 7,085.76 | 3,468.00 | 3,467.40 | 97.69 | 72.13 | 3.71 | -184.65 | -2,867.40 | 4,747.76 | 4,661.58 | 86.18 | 55.092 | |
| 12,800.00 | 7,085.41 | 3,468.00 | 3,467.40 | 99.24 | 72.13 | 3.71 | -184.65 | -2,867.40 | 4,813.34 | 4,726.11 | 87.23 | 55.178 | |
| 12,900.00 | 7,085.06 | 3,468.00 | 3,467.40 | 100.78 | 72.13 | 3.71 | -184.65 | -2,867.40 | 4,880.09 | 4,791.85 | 88.24 | 55.303 | |
| 13,000.00 | 7,084.71 | 3,468.00 | 3,467.40 | 102.33 | 72.13 | 3.71 | -184.65 | -2,867.40 | 4,947.96 | 4,858.75 | 89.21 | 55.464 | |
| 13,100.00 | 7,084.36 | 3,468.00 | 3,467.40 | 103.88 | 72.13 | 3.71 | -184.65 | -2,867.40 | 5,016.91 | 4,926.77 | 90.14 | 55.658 | |
| 13,200.00 | 7,084.01 | 3,468.00 | 3,467.40 | 105.43 | 72.13 | 3.71 | -184.65 | -2,867.40 | 5,086.89 | 4,995.86 | 91.03 | 55.883 | |
| 13,300.00 | 7,083.66 | 3,468.00 | 3,467.40 | 106.99 | 72.13 | 3.71 | -184.65 | -2,867.40 | 5,157.85 | 5,065.97 | 91.88 | 56.138 | |
| 13,400.00 | 7,083.31 | 3,468.00 | 3,467.40 | 108.54 | 72.13 | 3.71 | -184.65 | -2,867.40 | 5,229.77 | 5,137.07 | 92.69 | 56.420 | |
| 13,500.00 | 7,082.96 | 3,468.00 | 3,467.40 | 110.09 | 72.13 | 3.71 | -184.65 | -2,867.40 | 5,302.59 | 5,209.12 | 93.48 | 56.727 | |
| 13,600.00 | 7,082.61 | 3,468.00 | 3,467.40 | 111.65 | 72.13 | 3.71 | -184.65 | -2,867.40 | 5,376.29 | 5,282.07 | 94.22 | 57.058 | |
| 13,700.00 | 7,082.26 | 3,468.00 | 3,467.40 | 113.21 | 72.13 | 3.71 | -184.65 | -2,867.40 | 5,450.83 | 5,355.89 | 94.94 | 57.412 | |
| 13,800.00 | 7,081.91 | 3,468.00 | 3,467.40 | 114.77 | 72.13 | 3.71 | -184.65 | -2,867.40 | 5,526.17 | 5,430.54 | 95.63 | 57.786 | |

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

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

**Survey Program:** 334-A027Ua_INC-ONLY

**Rule Assigned:**

**Offset Well Error:** 0.00 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13,900.00 | 7,081.56 | 3,468.00 | 3,467.40 | 116.33 | 72.13 | 3.71 | -184.65 | -2,867.40 | 5,602.29 | 5,506.00 | 96.29 | 58.180 | |
| 14,000.00 | 7,081.21 | 3,468.00 | 3,467.40 | 117.89 | 72.13 | 3.71 | -184.65 | -2,867.40 | 5,679.14 | 5,582.22 | 96.93 | 58.593 | |
| 14,100.00 | 7,080.86 | 3,468.00 | 3,467.40 | 119.45 | 72.13 | 3.71 | -184.65 | -2,867.40 | 5,756.71 | 5,659.17 | 97.53 | 59.023 | |
| 14,200.00 | 7,080.51 | 3,468.00 | 3,467.40 | 121.02 | 72.13 | 3.71 | -184.65 | -2,867.40 | 5,834.96 | 5,736.84 | 98.12 | 59.469 | |
| 14,300.00 | 7,080.16 | 3,468.00 | 3,467.40 | 122.58 | 72.13 | 3.71 | -184.65 | -2,867.40 | 5,913.86 | 5,815.18 | 98.68 | 59.931 | |
| 14,400.00 | 7,079.81 | 3,468.00 | 3,467.40 | 124.15 | 72.13 | 3.71 | -184.65 | -2,867.40 | 5,993.39 | 5,894.18 | 99.22 | 60.408 | |
| 14,500.00 | 7,079.46 | 3,468.00 | 3,467.40 | 125.71 | 72.13 | 3.71 | -184.65 | -2,867.40 | 6,073.53 | 5,973.80 | 99.73 | 60.898 | |
| 14,600.00 | 7,079.11 | 3,468.00 | 3,467.40 | 127.28 | 72.13 | 3.71 | -184.65 | -2,867.40 | 6,154.25 | 6,054.02 | 100.23 | 61.401 | |
| 14,700.00 | 7,078.76 | 3,468.00 | 3,467.40 | 128.85 | 72.13 | 3.71 | -184.65 | -2,867.40 | 6,235.53 | 6,134.82 | 100.71 | 61.916 | |
| 14,800.00 | 7,078.41 | 3,468.00 | 3,467.40 | 130.42 | 72.13 | 3.71 | -184.65 | -2,867.40 | 6,317.35 | 6,216.18 | 101.17 | 62.443 | |
| 14,900.00 | 7,078.06 | 3,468.00 | 3,467.40 | 131.98 | 72.13 | 3.71 | -184.65 | -2,867.40 | 6,399.68 | 6,298.07 | 101.61 | 62.981 | |
| 15,000.00 | 7,077.71 | 3,468.00 | 3,467.40 | 133.55 | 72.13 | 3.71 | -184.65 | -2,867.40 | 6,482.51 | 6,380.47 | 102.04 | 63.529 | |
| 15,100.00 | 7,077.36 | 3,468.00 | 3,467.40 | 135.13 | 72.13 | 3.71 | -184.65 | -2,867.40 | 6,565.82 | 6,463.37 | 102.45 | 64.087 | |
| 15,200.00 | 7,077.01 | 3,468.00 | 3,467.40 | 136.70 | 72.13 | 3.71 | -184.65 | -2,867.40 | 6,649.59 | 6,546.74 | 102.85 | 64.655 | |
| 15,300.00 | 7,076.66 | 3,468.00 | 3,467.40 | 138.27 | 72.13 | 3.71 | -184.65 | -2,867.40 | 6,733.80 | 6,630.57 | 103.23 | 65.231 | |
| 15,400.00 | 7,076.31 | 3,468.00 | 3,467.40 | 139.84 | 72.13 | 3.71 | -184.65 | -2,867.40 | 6,818.44 | 6,714.84 | 103.60 | 65.815 | |
| 15,500.00 | 7,075.96 | 3,468.00 | 3,467.40 | 141.42 | 72.13 | 3.71 | -184.65 | -2,867.40 | 6,903.49 | 6,799.53 | 103.96 | 66.407 | |
| 15,600.00 | 7,075.61 | 3,468.00 | 3,467.40 | 142.99 | 72.13 | 3.71 | -184.65 | -2,867.40 | 6,988.93 | 6,884.63 | 104.30 | 67.007 | |
| 15,700.00 | 7,075.26 | 3,468.00 | 3,467.40 | 144.57 | 72.13 | 3.71 | -184.65 | -2,867.40 | 7,074.76 | 6,970.12 | 104.63 | 67.614 | |
| 15,800.00 | 7,074.91 | 3,468.00 | 3,467.40 | 146.14 | 72.13 | 3.71 | -184.65 | -2,867.40 | 7,160.95 | 7,055.99 | 104.96 | 68.228 | |
| 15,900.00 | 7,074.56 | 3,468.00 | 3,467.40 | 147.72 | 72.13 | 3.71 | -184.65 | -2,867.40 | 7,247.50 | 7,142.23 | 105.27 | 68.848 | |
| 16,000.00 | 7,074.21 | 3,468.00 | 3,467.40 | 149.29 | 72.13 | 3.71 | -184.65 | -2,867.40 | 7,334.39 | 7,228.82 | 105.57 | 69.474 | |
| 16,100.00 | 7,073.86 | 3,468.00 | 3,467.40 | 150.87 | 72.13 | 3.71 | -184.65 | -2,867.40 | 7,421.61 | 7,315.75 | 105.86 | 70.106 | |
| 16,200.00 | 7,073.51 | 3,468.00 | 3,467.40 | 152.45 | 72.13 | 3.71 | -184.65 | -2,867.40 | 7,509.15 | 7,403.00 | 106.15 | 70.744 | |
| 16,300.00 | 7,073.16 | 3,468.00 | 3,467.40 | 154.03 | 72.13 | 3.71 | -184.65 | -2,867.40 | 7,597.00 | 7,490.58 | 106.42 | 71.386 | |
| 16,400.00 | 7,072.81 | 3,468.00 | 3,467.40 | 155.60 | 72.13 | 3.71 | -184.65 | -2,867.40 | 7,685.14 | 7,578.45 | 106.69 | 72.034 | |
| 16,500.00 | 7,072.46 | 3,468.00 | 3,467.40 | 157.18 | 72.13 | 3.71 | -184.65 | -2,867.40 | 7,773.57 | 7,666.62 | 106.95 | 72.686 | |
| 16,600.00 | 7,072.11 | 3,468.00 | 3,467.40 | 158.76 | 72.13 | 3.71 | -184.65 | -2,867.40 | 7,862.28 | 7,755.08 | 107.20 | 73.343 | |
| 16,631.96 | 7,072.00 | 3,468.00 | 3,467.40 | 159.27 | 72.13 | 3.71 | -184.65 | -2,867.40 | 7,890.69 | 7,783.41 | 107.28 | 73.554 | |

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

**Offset Design:** Rosa Unit 32 - (O) RU #337 - OH - OH — **Offset Site Error:** 0.00 usft

**Survey Program:** 158-A027Ua_INC-ONLY — **Rule Assigned:** — **Offset Well Error:** 0.00 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 3.28 | 0.00 | -97.75 | -649.63 | -4,771.43 | 4,815.61 | | | | |
| 100.00 | 100.00 | 61.00 | 61.00 | 3.29 | 0.60 | -97.75 | -649.63 | -4,771.43 | 4,815.45 | 4,811.56 | 3.89 | 1,237.732 | |
| 200.00 | 200.00 | 161.00 | 161.00 | 3.34 | 1.62 | -97.75 | -649.63 | -4,771.43 | 4,815.45 | 4,810.50 | 4.95 | 972.070 | |
| 300.00 | 300.00 | 261.00 | 261.00 | 3.42 | 3.66 | -97.75 | -649.63 | -4,771.43 | 4,815.45 | 4,808.37 | 7.08 | 679.997 | |
| 341.18 | 341.18 | 302.17 | 302.17 | 3.46 | 4.50 | -97.75 | -649.16 | -4,771.43 | 4,815.39 | 4,807.42 | 7.97 | 604.357 | |
| 400.00 | 400.00 | 359.32 | 359.31 | 3.54 | 5.67 | -97.75 | -649.24 | -4,771.43 | 4,815.40 | 4,806.19 | 9.21 | 522.882 | |
| 500.00 | 500.00 | 461.04 | 461.00 | 3.69 | 7.75 | -97.75 | -649.63 | -4,771.43 | 4,815.45 | 4,804.01 | 11.44 | 420.999 | |
| 600.00 | 599.98 | 561.02 | 560.98 | 3.86 | 9.80 | 52.28 | -649.63 | -4,771.43 | 4,814.38 | 4,800.73 | 13.65 | 352.671 | |
| 697.00 | 696.84 | 657.88 | 657.84 | 4.04 | 11.78 | 52.38 | -649.63 | -4,771.43 | 4,811.31 | 4,795.50 | 15.81 | 304.275 | |
| 700.00 | 699.84 | 660.88 | 660.84 | 4.05 | 11.84 | 52.38 | -649.63 | -4,771.43 | 4,811.18 | 4,795.30 | 15.88 | 302.970 | |
| 800.00 | 799.60 | 760.64 | 760.60 | 4.25 | 13.88 | 52.44 | -649.63 | -4,771.43 | 4,806.99 | 4,788.86 | 18.13 | 265.154 | |
| 897.00 | 896.37 | 857.41 | 857.37 | 4.48 | 15.86 | 52.51 | -649.63 | -4,771.43 | 4,802.92 | 4,782.59 | 20.33 | 236.245 | |
| 900.00 | 899.37 | 860.40 | 860.37 | 4.48 | 15.92 | 53.37 | -649.63 | -4,771.43 | 4,802.80 | 4,782.40 | 20.40 | 235.447 | |
| 947.40 | 946.65 | 907.69 | 907.65 | 4.60 | 16.88 | 67.23 | -649.63 | -4,771.43 | 4,801.19 | 4,779.71 | 21.48 | 223.518 | |
| 1,000.00 | 999.13 | 959.65 | 959.59 | 4.73 | 17.95 | 67.29 | -647.61 | -4,771.43 | 4,799.53 | 4,776.85 | 22.67 | 211.673 | |
| 1,100.00 | 1,098.89 | 1,058.30 | 1,058.24 | 4.99 | 19.96 | 67.37 | -647.78 | -4,771.43 | 4,796.90 | 4,771.94 | 24.95 | 192.234 | |
| 1,200.00 | 1,198.66 | 1,156.98 | 1,156.91 | 5.27 | 21.98 | 67.44 | -648.14 | -4,771.43 | 4,794.30 | 4,767.05 | 27.25 | 175.961 | |
| 1,300.00 | 1,298.42 | 1,255.69 | 1,255.61 | 5.56 | 24.00 | 67.51 | -648.67 | -4,771.43 | 4,791.73 | 4,762.18 | 29.55 | 162.152 | |
| 1,400.00 | 1,398.18 | 1,354.42 | 1,354.34 | 5.85 | 26.02 | 67.57 | -649.39 | -4,771.43 | 4,789.19 | 4,757.32 | 31.87 | 150.294 | |
| 1,500.00 | 1,497.95 | 1,459.10 | 1,458.95 | 6.16 | 28.16 | 67.65 | -649.63 | -4,771.43 | 4,786.59 | 4,752.28 | 34.31 | 139.512 | |
| 1,600.00 | 1,597.71 | 1,558.86 | 1,558.71 | 6.47 | 30.20 | 67.72 | -649.63 | -4,771.43 | 4,783.98 | 4,747.32 | 36.66 | 130.495 | |
| 1,700.00 | 1,697.47 | 1,657.91 | 1,657.75 | 6.79 | 32.23 | 67.81 | -648.91 | -4,771.43 | 4,781.28 | 4,742.28 | 39.00 | 122.589 | |
| 1,800.00 | 1,797.24 | 1,756.10 | 1,755.94 | 7.11 | 34.23 | 67.88 | -649.16 | -4,771.43 | 4,778.72 | 4,737.38 | 41.33 | 115.617 | |
| 1,900.00 | 1,897.00 | 1,858.20 | 1,858.00 | 7.44 | 36.32 | 67.95 | -649.63 | -4,771.43 | 4,776.18 | 4,732.44 | 43.75 | 109.178 | |
| 2,000.00 | 1,996.76 | 1,957.97 | 1,957.76 | 7.77 | 38.36 | 68.03 | -649.63 | -4,771.43 | 4,773.60 | 4,727.49 | 46.12 | 103.510 | |
| 2,100.00 | 2,096.53 | 2,057.73 | 2,057.53 | 8.11 | 40.40 | 68.11 | -649.63 | -4,771.43 | 4,771.03 | 4,722.54 | 48.49 | 98.390 | |
| 2,200.00 | 2,196.29 | 2,156.31 | 2,156.10 | 8.44 | 42.42 | 68.19 | -648.62 | -4,771.43 | 4,768.35 | 4,717.51 | 50.84 | 93.784 | |
| 2,300.00 | 2,296.06 | 2,254.26 | 2,254.04 | 8.79 | 44.42 | 68.26 | -649.00 | -4,771.43 | 4,765.84 | 4,712.65 | 53.19 | 89.606 | |
| 2,400.00 | 2,395.82 | 2,357.08 | 2,356.82 | 9.13 | 46.52 | 68.34 | -649.63 | -4,771.43 | 4,763.36 | 4,707.73 | 55.63 | 85.624 | |
| 2,500.00 | 2,495.58 | 2,456.84 | 2,456.58 | 9.47 | 48.56 | 68.41 | -649.63 | -4,771.43 | 4,760.83 | 4,702.81 | 58.02 | 82.061 | |
| 2,600.00 | 2,595.35 | 2,556.61 | 2,556.35 | 9.82 | 50.60 | 68.49 | -649.63 | -4,771.43 | 4,758.30 | 4,697.89 | 60.40 | 78.777 | |
| 2,700.00 | 2,695.11 | 2,655.78 | 2,655.52 | 10.17 | 52.63 | 68.58 | -648.79 | -4,771.43 | 4,755.68 | 4,692.91 | 62.78 | 75.754 | |
| 2,800.00 | 2,794.87 | 2,754.34 | 2,754.07 | 10.52 | 54.65 | 68.65 | -649.02 | -4,771.43 | 4,753.20 | 4,688.05 | 65.14 | 72.966 | |
| 2,900.00 | 2,894.64 | 2,852.93 | 2,852.65 | 10.87 | 56.66 | 68.72 | -649.50 | -4,771.43 | 4,750.74 | 4,683.23 | 67.51 | 70.371 | |
| 3,000.00 | 2,994.40 | 2,955.72 | 2,955.40 | 11.23 | 58.83 | 68.80 | -649.63 | -4,771.43 | 4,748.26 | 4,678.23 | 70.03 | 67.805 | |
| 3,100.00 | 3,094.16 | 3,055.28 | 3,054.95 | 11.58 | 60.95 | 68.88 | -648.89 | -4,771.43 | 4,745.70 | 4,673.20 | 72.50 | 65.461 | |
| 3,200.00 | 3,193.93 | 3,152.70 | 3,152.36 | 11.94 | 63.02 | 68.96 | -649.17 | -4,771.43 | 4,743.25 | 4,668.33 | 74.92 | 63.310 | |
| 3,300.00 | 3,293.69 | 3,255.07 | 3,254.69 | 12.29 | 65.19 | 69.03 | -649.63 | -4,771.43 | 4,740.83 | 4,663.38 | 77.45 | 61.211 | |
| 3,400.00 | 3,393.45 | 3,351.00 | 3,350.60 | 12.65 | 67.23 | 69.10 | -649.63 | -4,771.43 | 4,738.37 | 4,658.52 | 79.85 | 59.344 | |
| 3,500.00 | 3,493.22 | 3,351.00 | 3,350.60 | 13.01 | 67.23 | 69.10 | -649.63 | -4,771.43 | 4,737.05 | 4,656.86 | 80.19 | 59.073 | |
| 3,512.50 | 3,505.69 | 3,351.00 | 3,350.60 | 13.05 | 67.23 | 69.10 | -649.63 | -4,771.43 | 4,737.03 | 4,656.80 | 80.23 | 59.043 | |
| 3,600.00 | 3,592.98 | 3,351.00 | 3,350.60 | 13.37 | 67.23 | 69.10 | -649.63 | -4,771.43 | 4,737.84 | 4,657.34 | 80.50 | 58.855 | |
| 3,700.00 | 3,692.74 | 3,351.00 | 3,350.60 | 13.73 | 67.23 | 69.10 | -649.63 | -4,771.43 | 4,740.74 | 4,659.96 | 80.78 | 58.690 | |
| 3,800.00 | 3,792.51 | 3,351.00 | 3,350.60 | 14.09 | 67.23 | 69.10 | -649.63 | -4,771.43 | 4,745.75 | 4,664.73 | 81.02 | 58.576 | |
| 3,900.00 | 3,892.27 | 3,351.00 | 3,350.60 | 14.45 | 67.23 | 69.10 | -649.63 | -4,771.43 | 4,752.85 | 4,671.62 | 81.23 | 58.513 | |
| 4,000.00 | 3,992.04 | 3,351.00 | 3,350.60 | 14.81 | 67.23 | 69.10 | -649.63 | -4,771.43 | 4,762.05 | 4,680.64 | 81.40 | 58.500 | |
| 4,100.00 | 4,091.80 | 3,351.00 | 3,350.60 | 15.17 | 67.23 | 69.10 | -649.63 | -4,771.43 | 4,773.32 | 4,691.77 | 81.54 | 58.537 | |
| 4,200.00 | 4,191.56 | 3,351.00 | 3,350.60 | 15.53 | 67.23 | 69.10 | -649.63 | -4,771.43 | 4,786.65 | 4,705.00 | 81.65 | 58.623 | |
| 4,300.00 | 4,291.33 | 3,351.00 | 3,350.60 | 15.89 | 67.23 | 69.10 | -649.63 | -4,771.43 | 4,802.04 | 4,720.31 | 81.73 | 58.757 | |
| 4,400.00 | 4,391.09 | 3,351.00 | 3,350.60 | 16.26 | 67.23 | 69.10 | -649.63 | -4,771.43 | 4,819.44 | 4,737.67 | 81.77 | 58.939 | |
| 4,500.00 | 4,490.85 | 3,351.00 | 3,350.60 | 16.62 | 67.23 | 69.10 | -649.63 | -4,771.43 | 4,838.86 | 4,757.07 | 81.78 | 59.168 | |
| 4,600.00 | 4,590.62 | 3,351.00 | 3,350.60 | 16.99 | 67.23 | 69.10 | -649.63 | -4,771.43 | 4,860.25 | 4,778.49 | 81.76 | 59.443 | |

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

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

**Survey Program:** 158-A027Ua_INC-ONLY

**Offset Well Error:** 0.00 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4,700.00 | 4,690.38 | 3,351.00 | 3,350.60 | 17.35 | 67.23 | 69.10 | -649.63 | -4,771.43 | 4,883.60 | 4,801.88 | 81.71 | 59.764 | |
| 4,800.00 | 4,790.14 | 3,351.00 | 3,350.60 | 17.71 | 67.23 | 69.10 | -649.63 | -4,771.43 | 4,908.87 | 4,827.23 | 81.64 | 60.130 | |
| 4,900.00 | 4,889.91 | 3,351.00 | 3,350.60 | 18.08 | 67.23 | 69.10 | -649.63 | -4,771.43 | 4,936.04 | 4,854.51 | 81.53 | 60.541 | |
| 5,000.00 | 4,989.67 | 3,351.00 | 3,350.60 | 18.44 | 67.23 | 69.10 | -649.63 | -4,771.43 | 4,965.08 | 4,883.67 | 81.40 | 60.995 | |
| 5,100.00 | 5,089.43 | 3,351.00 | 3,350.60 | 18.81 | 67.23 | 69.10 | -649.63 | -4,771.43 | 4,995.95 | 4,914.70 | 81.25 | 61.492 | |
| 5,200.00 | 5,189.20 | 3,351.00 | 3,350.60 | 19.17 | 67.23 | 69.10 | -649.63 | -4,771.43 | 5,028.61 | 4,947.55 | 81.07 | 62.031 | |
| 5,300.00 | 5,288.96 | 3,351.00 | 3,350.60 | 19.54 | 67.23 | 69.10 | -649.63 | -4,771.43 | 5,063.05 | 4,982.18 | 80.86 | 62.612 | |
| 5,400.00 | 5,388.72 | 3,351.00 | 3,350.60 | 19.91 | 67.23 | 69.10 | -649.63 | -4,771.43 | 5,099.21 | 5,018.57 | 80.64 | 63.234 | |
| 5,500.00 | 5,488.49 | 3,351.00 | 3,350.60 | 20.27 | 67.23 | 69.10 | -649.63 | -4,771.43 | 5,137.06 | 5,056.67 | 80.40 | 63.896 | |
| 5,600.00 | 5,588.25 | 3,351.00 | 3,350.60 | 20.64 | 67.23 | 69.10 | -649.63 | -4,771.43 | 5,176.57 | 5,096.44 | 80.14 | 64.597 | |
| 5,700.00 | 5,688.01 | 3,351.00 | 3,350.60 | 21.00 | 67.23 | 69.10 | -649.63 | -4,771.43 | 5,217.70 | 5,137.84 | 79.86 | 65.337 | |
| 5,800.00 | 5,787.78 | 3,351.00 | 3,350.60 | 21.37 | 67.23 | 69.10 | -649.63 | -4,771.43 | 5,260.41 | 5,180.84 | 79.57 | 66.115 | |
| 5,900.00 | 5,887.54 | 3,351.00 | 3,350.60 | 21.74 | 67.23 | 69.10 | -649.63 | -4,771.43 | 5,304.66 | 5,225.40 | 79.26 | 66.930 | |
| 6,000.00 | 5,987.31 | 3,351.00 | 3,350.60 | 22.11 | 67.23 | 69.10 | -649.63 | -4,771.43 | 5,350.41 | 5,271.47 | 78.94 | 67.781 | |
| 6,100.00 | 6,087.07 | 3,351.00 | 3,350.60 | 22.47 | 67.23 | 69.10 | -649.63 | -4,771.43 | 5,397.63 | 5,319.02 | 78.60 | 68.668 | |
| 6,200.00 | 6,186.83 | 3,351.00 | 3,350.60 | 22.84 | 67.23 | 69.10 | -649.63 | -4,771.43 | 5,446.27 | 5,368.01 | 78.26 | 69.590 | |
| 6,300.00 | 6,286.60 | 3,351.00 | 3,350.60 | 23.21 | 67.23 | 69.10 | -649.63 | -4,771.43 | 5,496.30 | 5,418.39 | 77.91 | 70.546 | |
| 6,400.00 | 6,386.36 | 3,351.00 | 3,350.60 | 23.58 | 67.23 | 69.10 | -649.63 | -4,771.43 | 5,547.69 | 5,470.14 | 77.55 | 71.536 | |
| 6,494.00 | 6,480.13 | 3,351.00 | 3,350.60 | 23.92 | 67.23 | 69.10 | -649.63 | -4,771.43 | 5,597.19 | 5,519.98 | 77.21 | 72.495 | |
| 6,500.00 | 6,486.12 | 3,351.00 | 3,350.60 | 23.94 | 67.23 | 61.86 | -649.63 | -4,771.43 | 5,600.36 | 5,523.18 | 77.19 | 72.558 | |
| 6,550.00 | 6,535.89 | 3,351.00 | 3,350.60 | 24.13 | 67.23 | 26.62 | -649.63 | -4,771.43 | 5,625.12 | 5,548.13 | 76.99 | 73.066 | |
| 6,600.00 | 6,585.24 | 3,351.00 | 3,350.60 | 24.31 | 67.23 | 14.57 | -649.63 | -4,771.43 | 5,646.76 | 5,569.99 | 76.77 | 73.554 | |
| 6,650.00 | 6,633.88 | 3,351.00 | 3,350.60 | 24.50 | 67.23 | 9.15 | -649.63 | -4,771.43 | 5,665.19 | 5,588.65 | 76.54 | 74.016 | |
| 6,700.00 | 6,681.49 | 3,351.00 | 3,350.60 | 24.68 | 67.23 | 6.16 | -649.63 | -4,771.43 | 5,680.34 | 5,604.04 | 76.30 | 74.450 | |
| 6,750.00 | 6,727.80 | 3,351.00 | 3,350.60 | 24.86 | 67.23 | 4.28 | -649.63 | -4,771.43 | 5,692.12 | 5,616.08 | 76.04 | 74.856 | |
| 6,800.00 | 6,772.51 | 3,351.00 | 3,350.60 | 25.04 | 67.23 | 3.00 | -649.63 | -4,771.43 | 5,700.50 | 5,624.73 | 75.77 | 75.232 | |
| 6,850.00 | 6,815.34 | 3,351.00 | 3,350.60 | 25.21 | 67.23 | 2.07 | -649.63 | -4,771.43 | 5,705.43 | 5,629.94 | 75.49 | 75.576 | |
| 6,900.00 | 6,856.04 | 3,351.00 | 3,350.60 | 25.39 | 67.23 | 1.36 | -649.63 | -4,771.43 | 5,706.90 | 5,631.69 | 75.20 | 75.887 | |
| 6,950.00 | 6,894.35 | 3,351.00 | 3,350.60 | 25.57 | 67.23 | 0.79 | -649.63 | -4,771.43 | 5,704.89 | 5,629.98 | 74.90 | 76.164 | |
| 7,000.00 | 6,930.04 | 3,351.00 | 3,350.60 | 25.75 | 67.23 | 0.31 | -649.63 | -4,771.43 | 5,699.41 | 5,624.82 | 74.59 | 76.405 | |
| 7,050.00 | 6,962.89 | 3,351.00 | 3,350.60 | 25.93 | 67.23 | -0.11 | -649.63 | -4,771.43 | 5,690.50 | 5,616.22 | 74.28 | 76.609 | |
| 7,100.00 | 6,992.69 | 3,351.00 | 3,350.60 | 26.13 | 67.23 | -0.49 | -649.63 | -4,771.43 | 5,678.18 | 5,604.22 | 73.96 | 76.774 | |
| 7,150.00 | 7,019.25 | 3,351.00 | 3,350.60 | 26.33 | 67.23 | -0.84 | -649.63 | -4,771.43 | 5,662.52 | 5,588.88 | 73.64 | 76.898 | |
| 7,200.00 | 7,042.43 | 3,351.00 | 3,350.60 | 26.55 | 67.23 | -1.19 | -649.63 | -4,771.43 | 5,643.57 | 5,570.26 | 73.31 | 76.981 | |
| 7,250.00 | 7,062.07 | 3,351.00 | 3,350.60 | 26.79 | 67.23 | -1.54 | -649.63 | -4,771.43 | 5,621.43 | 5,548.45 | 72.99 | 77.020 | |
| 7,300.00 | 7,078.05 | 3,351.00 | 3,350.60 | 27.04 | 67.23 | -1.91 | -649.63 | -4,771.43 | 5,596.20 | 5,523.54 | 72.66 | 77.015 | |
| 7,350.00 | 7,090.27 | 3,351.00 | 3,350.60 | 27.30 | 67.23 | -2.32 | -649.63 | -4,771.43 | 5,567.99 | 5,495.64 | 72.35 | 76.964 | |
| 7,400.00 | 7,098.66 | 3,351.00 | 3,350.60 | 27.58 | 67.23 | -2.77 | -649.63 | -4,771.43 | 5,536.92 | 5,464.89 | 72.03 | 76.867 | |
| 7,450.00 | 7,103.17 | 3,351.00 | 3,350.60 | 27.87 | 67.23 | -3.28 | -649.63 | -4,771.43 | 5,503.15 | 5,431.42 | 71.73 | 76.721 | |
| 7,484.86 | 7,104.00 | 3,351.00 | 3,350.60 | 28.08 | 67.23 | -3.70 | -649.63 | -4,771.43 | 5,478.09 | 5,406.57 | 71.53 | 76.590 | |
| 7,500.00 | 7,103.95 | 3,351.00 | 3,350.60 | 28.17 | 67.23 | -3.70 | -649.63 | -4,771.43 | 5,466.96 | 5,395.52 | 71.44 | 76.528 | |
| 7,600.00 | 7,103.60 | 3,351.00 | 3,350.60 | 28.83 | 67.23 | -3.70 | -649.63 | -4,771.43 | 5,393.90 | 5,323.07 | 70.83 | 76.150 | |
| 7,700.00 | 7,103.25 | 3,351.00 | 3,350.60 | 29.56 | 67.23 | -3.70 | -649.63 | -4,771.43 | 5,321.72 | 5,251.51 | 70.22 | 75.788 | |
| 7,800.00 | 7,102.90 | 3,351.00 | 3,350.60 | 30.35 | 67.23 | -3.70 | -649.63 | -4,771.43 | 5,250.46 | 5,180.86 | 69.60 | 75.441 | |
| 7,900.00 | 7,102.55 | 3,351.00 | 3,350.60 | 31.21 | 67.23 | -3.70 | -649.63 | -4,771.43 | 5,180.14 | 5,111.17 | 68.97 | 75.111 | |
| 8,000.00 | 7,102.20 | 3,351.00 | 3,350.60 | 32.13 | 67.23 | -3.70 | -649.63 | -4,771.43 | 5,110.81 | 5,042.48 | 68.33 | 74.796 | |
| 8,100.00 | 7,101.85 | 3,351.00 | 3,350.60 | 33.10 | 67.23 | -3.70 | -649.63 | -4,771.43 | 5,042.52 | 4,974.83 | 67.69 | 74.498 | |
| 8,200.00 | 7,101.50 | 3,351.00 | 3,350.60 | 34.11 | 67.23 | -3.70 | -649.63 | -4,771.43 | 4,975.29 | 4,908.25 | 67.04 | 74.217 | |
| 8,300.00 | 7,101.15 | 3,351.00 | 3,350.60 | 35.17 | 67.23 | -3.70 | -649.63 | -4,771.43 | 4,909.18 | 4,842.80 | 66.38 | 73.954 | |
| 8,400.00 | 7,100.80 | 3,351.00 | 3,350.60 | 36.27 | 67.23 | -3.70 | -649.63 | -4,771.43 | 4,844.24 | 4,778.52 | 65.72 | 73.710 | |
| 8,500.00 | 7,100.45 | 3,351.00 | 3,350.60 | 37.41 | 67.23 | -3.70 | -649.63 | -4,771.43 | 4,780.50 | 4,715.45 | 65.05 | 73.485 | |
| 8,600.00 | 7,100.10 | 3,351.00 | 3,350.60 | 38.58 | 67.23 | -3.70 | -649.63 | -4,771.43 | 4,718.02 | 4,653.64 | 64.38 | 73.280 | |

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

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

**Survey Program:** 158-A027Ua_INC-ONLY

**Offset Well Error:** 0.00 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8,700.00 | 7,099.75 | 3,351.00 | 3,350.60 | 39.78 | 67.23 | -3.70 | -649.63 | -4,771.43 | 4,656.86 | 4,593.15 | 63.71 | 73.096 | |
| 8,800.00 | 7,099.40 | 3,351.00 | 3,350.60 | 41.00 | 67.23 | -3.70 | -649.63 | -4,771.43 | 4,597.05 | 4,534.02 | 63.03 | 72.934 | |
| 8,900.00 | 7,099.05 | 3,351.00 | 3,350.60 | 42.25 | 67.23 | -3.70 | -649.63 | -4,771.43 | 4,538.66 | 4,476.31 | 62.35 | 72.795 | |
| 9,000.00 | 7,098.70 | 3,351.00 | 3,350.60 | 43.53 | 67.23 | -3.70 | -649.63 | -4,771.43 | 4,481.74 | 4,420.08 | 61.66 | 72.681 | |
| 9,100.00 | 7,098.35 | 3,351.00 | 3,350.60 | 44.82 | 67.23 | -3.70 | -649.63 | -4,771.43 | 4,426.35 | 4,365.37 | 60.97 | 72.593 | |
| 9,200.00 | 7,098.00 | 3,351.00 | 3,350.60 | 46.14 | 67.23 | -3.70 | -649.63 | -4,771.43 | 4,372.54 | 4,312.26 | 60.28 | 72.533 | |
| 9,300.00 | 7,097.65 | 3,351.00 | 3,350.60 | 47.47 | 67.23 | -3.70 | -649.63 | -4,771.43 | 4,320.38 | 4,260.79 | 59.59 | 72.502 | |
| 9,400.00 | 7,097.30 | 3,351.00 | 3,350.60 | 48.82 | 67.23 | -3.70 | -649.63 | -4,771.43 | 4,269.92 | 4,211.03 | 58.89 | 72.503 | |
| 9,500.00 | 7,096.95 | 3,351.00 | 3,350.60 | 50.18 | 67.23 | -3.70 | -649.63 | -4,771.43 | 4,221.23 | 4,163.04 | 58.19 | 72.537 | |
| 9,600.00 | 7,096.60 | 3,351.00 | 3,350.60 | 51.56 | 67.23 | -3.70 | -649.63 | -4,771.43 | 4,174.37 | 4,116.87 | 57.49 | 72.606 | |
| 9,700.00 | 7,096.25 | 3,351.00 | 3,350.60 | 52.95 | 67.23 | -3.70 | -649.63 | -4,771.43 | 4,129.39 | 4,072.60 | 56.79 | 72.713 | |
| 9,800.00 | 7,095.90 | 3,351.00 | 3,350.60 | 54.35 | 67.23 | -3.70 | -649.63 | -4,771.43 | 4,086.37 | 4,030.29 | 56.09 | 72.859 | |
| 9,900.00 | 7,095.55 | 3,351.00 | 3,350.60 | 55.76 | 67.23 | -3.70 | -649.63 | -4,771.43 | 4,045.37 | 3,989.99 | 55.38 | 73.045 | |
| 10,000.00 | 7,095.20 | 3,351.00 | 3,350.60 | 57.18 | 67.23 | -3.70 | -649.63 | -4,771.43 | 4,006.44 | 3,951.76 | 54.68 | 73.273 | |
| 10,100.00 | 7,094.85 | 3,351.00 | 3,350.60 | 58.61 | 67.23 | -3.70 | -649.63 | -4,771.43 | 3,969.65 | 3,915.67 | 53.98 | 73.543 | |
| 10,200.00 | 7,094.50 | 3,351.00 | 3,350.60 | 60.05 | 67.23 | -3.70 | -649.63 | -4,771.43 | 3,935.06 | 3,881.78 | 53.28 | 73.856 | |
| 10,300.00 | 7,094.15 | 3,351.00 | 3,350.60 | 61.50 | 67.23 | -3.70 | -649.63 | -4,771.43 | 3,902.72 | 3,850.13 | 52.59 | 74.208 | |
| 10,400.00 | 7,093.80 | 3,351.00 | 3,350.60 | 62.96 | 67.23 | -3.70 | -649.63 | -4,771.43 | 3,872.70 | 3,820.78 | 51.91 | 74.597 | |
| 10,500.00 | 7,093.45 | 3,351.00 | 3,350.60 | 64.42 | 67.23 | -3.70 | -649.63 | -4,771.43 | 3,845.04 | 3,793.79 | 51.26 | 75.017 | |
| 10,600.00 | 7,093.10 | 3,351.00 | 3,350.60 | 65.89 | 67.23 | -3.70 | -649.63 | -4,771.43 | 3,819.81 | 3,769.18 | 50.62 | 75.457 | |
| 10,700.00 | 7,092.75 | 3,351.00 | 3,350.60 | 67.36 | 67.23 | -3.70 | -649.63 | -4,771.43 | 3,797.03 | 3,747.01 | 50.02 | 75.903 | |
| 10,800.00 | 7,092.40 | 3,351.00 | 3,350.60 | 68.84 | 67.23 | -3.70 | -649.63 | -4,771.43 | 3,776.77 | 3,727.30 | 49.48 | 76.334 | |
| 10,900.00 | 7,092.05 | 3,351.00 | 3,350.60 | 70.33 | 67.23 | -3.70 | -649.63 | -4,771.43 | 3,759.07 | 3,710.07 | 49.00 | 76.722 | |
| 11,000.00 | 7,091.70 | 3,351.00 | 3,350.60 | 71.82 | 67.23 | -3.70 | -649.63 | -4,771.43 | 3,743.95 | 3,695.34 | 48.61 | 77.026 | |
| 11,100.00 | 7,091.35 | 3,351.00 | 3,350.60 | 73.31 | 67.23 | -3.70 | -649.63 | -4,771.43 | 3,731.45 | 3,683.11 | 48.34 | 77.198 | |
| 11,200.00 | 7,091.00 | 3,351.00 | 3,350.60 | 74.81 | 67.23 | -3.70 | -649.63 | -4,771.43 | 3,721.59 | 3,673.37 | 48.22 | 77.177 | |
| 11,300.00 | 7,090.65 | 3,351.00 | 3,350.60 | 76.32 | 67.23 | -3.70 | -649.63 | -4,771.43 | 3,714.41 | 3,666.11 | 48.30 | 76.901 | |
| 11,400.00 | 7,090.30 | 3,351.00 | 3,350.60 | 77.82 | 67.23 | -3.70 | -649.63 | -4,771.43 | 3,709.90 | 3,661.29 | 48.61 | 76.316 | |
| 11,500.00 | 7,089.95 | 3,351.00 | 3,350.60 | 79.34 | 67.23 | -3.70 | -649.63 | -4,771.43 | 3,708.09 | 3,658.91 | 49.18 | 75.393 | |
| 11,517.21 | 7,089.89 | 3,351.00 | 3,350.60 | 79.60 | 67.23 | -3.70 | -649.63 | -4,771.43 | 3,708.05 | 3,658.74 | 49.31 | 75.200 CC, ES | |
| 11,600.00 | 7,089.60 | 3,351.00 | 3,350.60 | 80.85 | 67.23 | -3.70 | -649.63 | -4,771.43 | 3,708.97 | 3,658.95 | 50.02 | 74.144 | |
| 11,700.00 | 7,089.25 | 3,351.00 | 3,350.60 | 82.37 | 67.23 | -3.70 | -649.63 | -4,771.43 | 3,712.55 | 3,661.43 | 51.12 | 72.622 | |
| 11,800.00 | 7,088.90 | 3,351.00 | 3,350.60 | 83.89 | 67.23 | -3.70 | -649.63 | -4,771.43 | 3,718.82 | 3,666.37 | 52.45 | 70.908 | |
| 11,900.00 | 7,088.55 | 3,351.00 | 3,350.60 | 85.41 | 67.23 | -3.70 | -649.63 | -4,771.43 | 3,727.76 | 3,673.80 | 53.95 | 69.091 | |
| 12,000.00 | 7,088.20 | 3,351.00 | 3,350.60 | 86.94 | 67.23 | -3.70 | -649.63 | -4,771.43 | 3,739.35 | 3,683.74 | 55.60 | 67.251 | |
| 12,100.00 | 7,087.85 | 3,351.00 | 3,350.60 | 88.47 | 67.23 | -3.70 | -649.63 | -4,771.43 | 3,753.57 | 3,696.22 | 57.35 | 65.447 | |
| 12,200.00 | 7,087.50 | 3,351.00 | 3,350.60 | 90.00 | 67.23 | -3.70 | -649.63 | -4,771.43 | 3,770.39 | 3,711.22 | 59.17 | 63.721 | |
| 12,300.00 | 7,087.15 | 3,351.00 | 3,350.60 | 91.54 | 67.23 | -3.70 | -649.63 | -4,771.43 | 3,789.77 | 3,728.75 | 61.03 | 62.101 | |
| 12,400.00 | 7,086.81 | 3,351.00 | 3,350.60 | 93.07 | 67.23 | -3.70 | -649.63 | -4,771.43 | 3,811.69 | 3,748.79 | 62.90 | 60.600 | |
| 12,500.00 | 7,086.46 | 3,351.00 | 3,350.60 | 94.61 | 67.23 | -3.70 | -649.63 | -4,771.43 | 3,836.08 | 3,771.31 | 64.77 | 59.223 | |
| 12,600.00 | 7,086.11 | 3,351.00 | 3,350.60 | 96.15 | 67.23 | -3.70 | -649.63 | -4,771.43 | 3,862.91 | 3,796.28 | 66.63 | 57.973 | |
| 12,700.00 | 7,085.76 | 3,351.00 | 3,350.60 | 97.69 | 67.23 | -3.70 | -649.63 | -4,771.43 | 3,892.12 | 3,823.65 | 68.47 | 56.846 | |
| 12,800.00 | 7,085.41 | 3,351.00 | 3,350.60 | 99.24 | 67.23 | -3.70 | -649.63 | -4,771.43 | 3,923.67 | 3,853.40 | 70.27 | 55.837 | |
| 12,900.00 | 7,085.06 | 3,351.00 | 3,350.60 | 100.78 | 67.23 | -3.70 | -649.63 | -4,771.43 | 3,957.49 | 3,885.46 | 72.03 | 54.939 | |
| 13,000.00 | 7,084.71 | 3,351.00 | 3,350.60 | 102.33 | 67.23 | -3.70 | -649.63 | -4,771.43 | 3,993.53 | 3,919.78 | 73.75 | 54.147 | |
| 13,100.00 | 7,084.36 | 3,351.00 | 3,350.60 | 103.88 | 67.23 | -3.70 | -649.63 | -4,771.43 | 4,031.73 | 3,956.31 | 75.42 | 53.454 | |
| 13,200.00 | 7,084.01 | 3,351.00 | 3,350.60 | 105.43 | 67.23 | -3.70 | -649.63 | -4,771.43 | 4,072.03 | 3,994.98 | 77.05 | 52.852 | |
| 13,300.00 | 7,083.66 | 3,351.00 | 3,350.60 | 106.99 | 67.23 | -3.70 | -649.63 | -4,771.43 | 4,114.36 | 4,035.75 | 78.61 | 52.337 | |
| 13,400.00 | 7,083.31 | 3,351.00 | 3,350.60 | 108.54 | 67.23 | -3.70 | -649.63 | -4,771.43 | 4,158.67 | 4,078.54 | 80.13 | 51.900 | |
| 13,500.00 | 7,082.96 | 3,351.00 | 3,350.60 | 110.09 | 67.23 | -3.70 | -649.63 | -4,771.43 | 4,204.89 | 4,123.30 | 81.59 | 51.538 | |
| 13,600.00 | 7,082.61 | 3,351.00 | 3,350.60 | 111.65 | 67.23 | -3.70 | -649.63 | -4,771.43 | 4,252.96 | 4,169.96 | 82.99 | 51.245 | |
| 13,700.00 | 7,082.26 | 3,351.00 | 3,350.60 | 113.21 | 67.23 | -3.70 | -649.63 | -4,771.43 | 4,302.81 | 4,218.47 | 84.34 | 51.015 | |

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 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

**Survey Program:** 158-A027Ua_INC-ONLY

**Offset Well Error:** 0.00 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13,800.00 | 7,081.91 | 3,351.00 | 3,350.60 | 114.77 | 67.23 | -3.70 | -649.63 | -4,771.43 | 4,354.39 | 4,268.75 | 85.64 | 50.845 | |
| 13,900.00 | 7,081.56 | 3,351.00 | 3,350.60 | 116.33 | 67.23 | -3.70 | -649.63 | -4,771.43 | 4,407.64 | 4,320.76 | 86.88 | 50.730 | |
| 14,000.00 | 7,081.21 | 3,351.00 | 3,350.60 | 117.89 | 67.23 | -3.70 | -649.63 | -4,771.43 | 4,462.50 | 4,374.42 | 88.08 | 50.666 | |
| 14,100.00 | 7,080.86 | 3,351.00 | 3,350.60 | 119.45 | 67.23 | -3.70 | -649.63 | -4,771.43 | 4,518.90 | 4,429.68 | 89.22 | 50.650 SF | |
| 14,200.00 | 7,080.51 | 3,351.00 | 3,350.60 | 121.02 | 67.23 | -3.70 | -649.63 | -4,771.43 | 4,576.79 | 4,486.48 | 90.31 | 50.679 | |
| 14,300.00 | 7,080.16 | 3,351.00 | 3,350.60 | 122.58 | 67.23 | -3.70 | -649.63 | -4,771.43 | 4,636.11 | 4,544.76 | 91.35 | 50.749 | |
| 14,400.00 | 7,079.81 | 3,351.00 | 3,350.60 | 124.15 | 67.23 | -3.70 | -649.63 | -4,771.43 | 4,696.82 | 4,604.47 | 92.35 | 50.858 | |
| 14,500.00 | 7,079.46 | 3,351.00 | 3,350.60 | 125.71 | 67.23 | -3.70 | -649.63 | -4,771.43 | 4,758.85 | 4,665.55 | 93.30 | 51.003 | |
| 14,600.00 | 7,079.11 | 3,351.00 | 3,350.60 | 127.28 | 67.23 | -3.70 | -649.63 | -4,771.43 | 4,822.16 | 4,727.94 | 94.21 | 51.183 | |
| 14,700.00 | 7,078.76 | 3,351.00 | 3,350.60 | 128.85 | 67.23 | -3.70 | -649.63 | -4,771.43 | 4,886.69 | 4,791.61 | 95.08 | 51.394 | |
| 14,800.00 | 7,078.41 | 3,351.00 | 3,350.60 | 130.42 | 67.23 | -3.70 | -649.63 | -4,771.43 | 4,952.41 | 4,856.49 | 95.91 | 51.635 | |
| 14,900.00 | 7,078.06 | 3,351.00 | 3,350.60 | 131.98 | 67.23 | -3.70 | -649.63 | -4,771.43 | 5,019.25 | 4,922.55 | 96.70 | 51.904 | |
| 15,000.00 | 7,077.71 | 3,351.00 | 3,350.60 | 133.55 | 67.23 | -3.70 | -649.63 | -4,771.43 | 5,087.18 | 4,989.73 | 97.46 | 52.199 | |
| 15,100.00 | 7,077.36 | 3,351.00 | 3,350.60 | 135.13 | 67.23 | -3.70 | -649.63 | -4,771.43 | 5,156.16 | 5,057.98 | 98.18 | 52.518 | |
| 15,200.00 | 7,077.01 | 3,351.00 | 3,350.60 | 136.70 | 67.23 | -3.70 | -649.63 | -4,771.43 | 5,226.14 | 5,127.28 | 98.87 | 52.861 | |
| 15,300.00 | 7,076.66 | 3,351.00 | 3,350.60 | 138.27 | 67.23 | -3.70 | -649.63 | -4,771.43 | 5,297.09 | 5,197.57 | 99.52 | 53.226 | |
| 15,400.00 | 7,076.31 | 3,351.00 | 3,350.60 | 139.84 | 67.23 | -3.70 | -649.63 | -4,771.43 | 5,368.95 | 5,268.81 | 100.15 | 53.611 | |
| 15,500.00 | 7,075.96 | 3,351.00 | 3,350.60 | 141.42 | 67.23 | -3.70 | -649.63 | -4,771.43 | 5,441.71 | 5,340.97 | 100.74 | 54.016 | |
| 15,600.00 | 7,075.61 | 3,351.00 | 3,350.60 | 142.99 | 67.23 | -3.70 | -649.63 | -4,771.43 | 5,515.32 | 5,414.01 | 101.31 | 54.439 | |
| 15,700.00 | 7,075.26 | 3,351.00 | 3,350.60 | 144.57 | 67.23 | -3.70 | -649.63 | -4,771.43 | 5,589.75 | 5,487.90 | 101.86 | 54.879 | |
| 15,800.00 | 7,074.91 | 3,351.00 | 3,350.60 | 146.14 | 67.23 | -3.70 | -649.63 | -4,771.43 | 5,664.97 | 5,562.60 | 102.38 | 55.335 | |
| 15,900.00 | 7,074.56 | 3,351.00 | 3,350.60 | 147.72 | 67.23 | -3.70 | -649.63 | -4,771.43 | 5,740.95 | 5,638.07 | 102.87 | 55.807 | |
| 16,000.00 | 7,074.21 | 3,351.00 | 3,350.60 | 149.29 | 67.23 | -3.70 | -649.63 | -4,771.43 | 5,817.65 | 5,714.30 | 103.35 | 56.293 | |
| 16,100.00 | 7,073.86 | 3,351.00 | 3,350.60 | 150.87 | 67.23 | -3.70 | -649.63 | -4,771.43 | 5,895.05 | 5,791.25 | 103.80 | 56.793 | |
| 16,200.00 | 7,073.51 | 3,351.00 | 3,350.60 | 152.45 | 67.23 | -3.70 | -649.63 | -4,771.43 | 5,973.12 | 5,868.89 | 104.23 | 57.306 | |
| 16,300.00 | 7,073.16 | 3,351.00 | 3,350.60 | 154.03 | 67.23 | -3.70 | -649.63 | -4,771.43 | 6,051.83 | 5,947.19 | 104.65 | 57.831 | |
| 16,400.00 | 7,072.81 | 3,351.00 | 3,350.60 | 155.60 | 67.23 | -3.70 | -649.63 | -4,771.43 | 6,131.17 | 6,026.13 | 105.04 | 58.368 | |
| 16,500.00 | 7,072.46 | 3,351.00 | 3,350.60 | 157.18 | 67.23 | -3.70 | -649.63 | -4,771.43 | 6,211.10 | 6,105.68 | 105.42 | 58.917 | |
| 16,600.00 | 7,072.11 | 3,351.00 | 3,350.60 | 158.76 | 67.23 | -3.70 | -649.63 | -4,771.43 | 6,291.61 | 6,185.83 | 105.79 | 59.475 | |
| 16,631.96 | 7,072.00 | 3,351.00 | 3,350.60 | 159.27 | 67.23 | -3.70 | -649.63 | -4,771.43 | 6,317.46 | 6,211.56 | 105.90 | 59.656 | |

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

**Survey Program:** 0-MWD+HRGM+MS

**Offset Well Error:** 3.28 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Rule Assigned: Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 3.28 | 3.28 | 178.00 | -25.12 | 0.88 | 25.14 | | | | |
| 100.00 | 100.00 | 100.00 | 100.00 | 3.29 | 3.29 | 178.00 | -25.12 | 0.88 | 25.14 | 18.56 | 6.58 | 3.821 | |
| 200.00 | 200.00 | 200.00 | 200.00 | 3.34 | 3.34 | 178.00 | -25.12 | 0.88 | 25.14 | 18.47 | 6.67 | 3.768 | |
| 300.00 | 300.00 | 300.00 | 300.00 | 3.42 | 3.42 | 178.00 | -25.12 | 0.88 | 25.14 | 18.30 | 6.84 | 3.676 | |
| 400.00 | 400.00 | 400.00 | 400.00 | 3.54 | 3.54 | 178.00 | -25.12 | 0.88 | 25.14 | 18.06 | 7.08 | 3.553 | |
| 500.00 | 500.00 | 500.00 | 500.00 | 3.69 | 3.69 | 178.00 | -25.12 | 0.88 | 25.14 | 17.77 | 7.37 | 3.409 | CC |
| 600.00 | 599.98 | 599.13 | 599.11 | 3.86 | 3.85 | -33.80 | -26.84 | 0.82 | 25.40 | 17.69 | 7.71 | 3.296 | ES |
| 697.00 | 696.84 | 695.24 | 695.09 | 4.04 | 4.03 | -38.77 | -31.77 | 0.66 | 26.28 | 18.23 | 8.05 | 3.264 | SF |
| 700.00 | 699.84 | 698.21 | 698.05 | 4.05 | 4.04 | -38.96 | -31.97 | 0.65 | 26.32 | 18.26 | 8.06 | 3.264 | |
| 800.00 | 799.60 | 797.19 | 796.66 | 4.25 | 4.25 | -44.12 | -40.52 | 0.36 | 29.59 | 21.13 | 8.46 | 3.498 | |
| 897.00 | 896.37 | 892.93 | 891.70 | 4.48 | 4.47 | -46.33 | -52.01 | -0.02 | 36.05 | 27.17 | 8.88 | 4.062 | |
| 900.00 | 899.37 | 895.88 | 894.62 | 4.48 | 4.47 | -45.50 | -52.42 | -0.04 | 36.30 | 27.41 | 8.89 | 4.084 | |
| 947.40 | 946.65 | 942.51 | 940.75 | 4.60 | 4.59 | -31.51 | -59.21 | -0.27 | 40.35 | 31.25 | 9.10 | 4.434 | |
| 1,000.00 | 999.13 | 994.13 | 991.68 | 4.73 | 4.73 | -30.53 | -67.61 | -0.55 | 45.43 | 36.09 | 9.34 | 4.865 | |
| 1,100.00 | 1,098.89 | 1,091.68 | 1,087.48 | 4.99 | 5.01 | -28.47 | -85.98 | -1.17 | 57.62 | 47.81 | 9.81 | 5.874 | |
| 1,200.00 | 1,198.66 | 1,188.31 | 1,181.71 | 5.27 | 5.31 | -26.50 | -107.37 | -1.88 | 73.13 | 62.83 | 10.29 | 7.105 | |
| 1,300.00 | 1,298.42 | 1,284.30 | 1,274.55 | 5.56 | 5.64 | -24.81 | -131.71 | -2.70 | 91.88 | 81.08 | 10.80 | 8.510 | |
| 1,400.00 | 1,398.18 | 1,382.27 | 1,369.02 | 5.85 | 6.00 | -23.55 | -157.66 | -3.57 | 111.81 | 100.43 | 11.38 | 9.824 | |
| 1,500.00 | 1,497.95 | 1,480.24 | 1,463.49 | 6.16 | 6.38 | -22.68 | -183.61 | -4.45 | 131.78 | 119.80 | 11.99 | 10.993 | |
| 1,600.00 | 1,597.71 | 1,578.21 | 1,557.95 | 6.47 | 6.77 | -22.03 | -209.56 | -5.32 | 151.77 | 139.17 | 12.61 | 12.037 | |
| 1,700.00 | 1,697.47 | 1,676.18 | 1,652.42 | 6.79 | 7.17 | -21.54 | -235.50 | -6.19 | 171.78 | 158.54 | 13.25 | 12.969 | |
| 1,800.00 | 1,797.24 | 1,774.15 | 1,746.89 | 7.11 | 7.59 | -21.15 | -261.45 | -7.06 | 191.80 | 177.90 | 13.89 | 13.806 | |
| 1,900.00 | 1,897.00 | 1,872.12 | 1,841.35 | 7.44 | 8.01 | -20.83 | -287.40 | -7.93 | 211.82 | 197.27 | 14.55 | 14.557 | |
| 2,000.00 | 1,996.76 | 1,970.09 | 1,935.82 | 7.77 | 8.44 | -20.57 | -313.35 | -8.81 | 231.85 | 216.63 | 15.22 | 15.236 | |
| 2,100.00 | 2,096.53 | 2,068.05 | 2,030.28 | 8.11 | 8.88 | -20.35 | -339.29 | -9.68 | 251.88 | 235.99 | 15.89 | 15.849 | |
| 2,200.00 | 2,196.29 | 2,166.02 | 2,124.75 | 8.44 | 9.32 | -20.16 | -365.24 | -10.55 | 271.91 | 255.34 | 16.57 | 16.406 | |
| 2,300.00 | 2,296.06 | 2,263.99 | 2,219.22 | 8.79 | 9.77 | -20.00 | -391.19 | -11.42 | 291.95 | 274.69 | 17.26 | 16.914 | |
| 2,400.00 | 2,395.82 | 2,361.96 | 2,313.68 | 9.13 | 10.22 | -19.85 | -417.14 | -12.29 | 311.99 | 294.04 | 17.95 | 17.377 | |
| 2,500.00 | 2,495.58 | 2,459.93 | 2,408.15 | 9.47 | 10.67 | -19.73 | -443.08 | -13.17 | 332.03 | 313.38 | 18.65 | 17.802 | |
| 2,600.00 | 2,595.35 | 2,557.90 | 2,502.61 | 9.82 | 11.13 | -19.62 | -469.03 | -14.04 | 352.07 | 332.72 | 19.35 | 18.192 | |
| 2,700.00 | 2,695.11 | 2,655.87 | 2,597.08 | 10.17 | 11.59 | -19.52 | -494.98 | -14.91 | 372.12 | 352.06 | 20.06 | 18.551 | |
| 2,800.00 | 2,794.87 | 2,753.84 | 2,691.55 | 10.52 | 12.05 | -19.43 | -520.93 | -15.78 | 392.16 | 371.39 | 20.77 | 18.883 | |
| 2,900.00 | 2,894.64 | 2,851.80 | 2,786.01 | 10.87 | 12.52 | -19.35 | -546.87 | -16.65 | 412.21 | 390.73 | 21.48 | 19.190 | |
| 3,000.00 | 2,994.40 | 2,949.77 | 2,880.48 | 11.23 | 12.99 | -19.28 | -572.82 | -17.52 | 432.25 | 410.06 | 22.20 | 19.475 | |
| 3,100.00 | 3,094.16 | 3,047.74 | 2,974.95 | 11.58 | 13.45 | -19.21 | -598.77 | -18.40 | 452.30 | 429.39 | 22.91 | 19.740 | |
| 3,200.00 | 3,193.93 | 3,145.71 | 3,069.41 | 11.94 | 13.92 | -19.15 | -624.72 | -19.27 | 472.35 | 448.71 | 23.63 | 19.987 | |
| 3,300.00 | 3,293.69 | 3,243.68 | 3,163.88 | 12.29 | 14.40 | -19.10 | -650.66 | -20.14 | 492.40 | 468.04 | 24.35 | 20.218 | |
| 3,400.00 | 3,393.45 | 3,341.65 | 3,258.34 | 12.65 | 14.87 | -19.05 | -676.61 | -21.01 | 512.44 | 487.36 | 25.08 | 20.434 | |
| 3,500.00 | 3,493.22 | 3,439.62 | 3,352.81 | 13.01 | 15.34 | -19.00 | -702.56 | -21.88 | 532.49 | 506.69 | 25.80 | 20.636 | |
| 3,600.00 | 3,592.98 | 3,537.59 | 3,447.28 | 13.37 | 15.82 | -18.96 | -728.51 | -22.76 | 552.54 | 526.01 | 26.53 | 20.827 | |
| 3,700.00 | 3,692.74 | 3,635.56 | 3,541.74 | 13.73 | 16.30 | -18.92 | -754.45 | -23.63 | 572.59 | 545.33 | 27.26 | 21.005 | |
| 3,800.00 | 3,792.51 | 3,733.52 | 3,636.21 | 14.09 | 16.77 | -18.88 | -780.40 | -24.50 | 592.64 | 564.65 | 27.99 | 21.174 | |
| 3,900.00 | 3,892.27 | 3,831.49 | 3,730.67 | 14.45 | 17.25 | -18.84 | -806.35 | -25.37 | 612.69 | 583.97 | 28.72 | 21.333 | |
| 4,000.00 | 3,992.04 | 3,929.46 | 3,825.14 | 14.81 | 17.73 | -18.81 | -832.29 | -26.24 | 632.74 | 603.28 | 29.45 | 21.483 | |
| 4,100.00 | 4,091.80 | 4,027.43 | 3,919.61 | 15.17 | 18.21 | -18.78 | -858.24 | -27.12 | 652.79 | 622.60 | 30.19 | 21.625 | |
| 4,200.00 | 4,191.56 | 4,125.40 | 4,014.07 | 15.53 | 18.69 | -18.75 | -884.19 | -27.99 | 672.84 | 641.92 | 30.92 | 21.760 | |
| 4,300.00 | 4,291.33 | 4,223.37 | 4,108.54 | 15.89 | 19.17 | -18.72 | -910.14 | -28.86 | 692.89 | 661.23 | 31.66 | 21.888 | |
| 4,400.00 | 4,391.09 | 4,321.34 | 4,203.01 | 16.26 | 19.65 | -18.69 | -936.08 | -29.73 | 712.94 | 680.54 | 32.39 | 22.009 | |
| 4,500.00 | 4,490.85 | 4,419.31 | 4,297.47 | 16.62 | 20.13 | -18.67 | -962.03 | -30.60 | 732.99 | 699.86 | 33.13 | 22.125 | |
| 4,600.00 | 4,590.62 | 4,517.27 | 4,391.94 | 16.99 | 20.61 | -18.65 | -987.98 | -31.48 | 753.04 | 719.17 | 33.87 | 22.235 | |
| 4,700.00 | 4,690.38 | 4,615.24 | 4,486.40 | 17.35 | 21.10 | -18.62 | -1,013.93 | -32.35 | 773.09 | 738.48 | 34.61 | 22.340 | |
| 4,800.00 | 4,790.14 | 4,713.21 | 4,580.87 | 17.71 | 21.58 | -18.60 | -1,039.87 | -33.22 | 793.14 | 757.79 | 35.35 | 22.440 | |

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 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

**Survey Program:** 0-MWD+HRGM+MS

**Offset Well Error:** 3.28 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Rule Assigned: Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4,900.00 | 4,889.91 | 4,811.18 | 4,675.34 | 18.08 | 22.06 | -18.58 | -1,065.82 | -34.09 | 813.19 | 777.10 | 36.09 | 22.535 | |
| 5,000.00 | 4,989.67 | 4,909.15 | 4,769.80 | 18.44 | 22.55 | -18.56 | -1,091.77 | -34.96 | 833.24 | 796.42 | 36.83 | 22.626 | |
| 5,100.00 | 5,089.43 | 5,007.12 | 4,864.27 | 18.81 | 23.03 | -18.55 | -1,117.72 | -35.83 | 853.29 | 815.72 | 37.57 | 22.714 | |
| 5,200.00 | 5,189.20 | 5,105.09 | 4,958.74 | 19.17 | 23.51 | -18.53 | -1,143.66 | -36.71 | 873.34 | 835.03 | 38.31 | 22.797 | |
| 5,300.00 | 5,288.96 | 5,203.06 | 5,053.20 | 19.54 | 24.00 | -18.51 | -1,169.61 | -37.58 | 893.39 | 854.34 | 39.05 | 22.877 | |
| 5,400.00 | 5,388.72 | 5,301.02 | 5,147.67 | 19.91 | 24.48 | -18.50 | -1,195.56 | -38.45 | 913.45 | 873.65 | 39.79 | 22.954 | |
| 5,500.00 | 5,488.49 | 5,398.99 | 5,242.13 | 20.27 | 24.97 | -18.48 | -1,221.51 | -39.32 | 933.50 | 892.96 | 40.54 | 23.028 | |
| 5,600.00 | 5,588.25 | 5,496.96 | 5,336.60 | 20.64 | 25.45 | -18.47 | -1,247.45 | -40.19 | 953.55 | 912.27 | 41.28 | 23.099 | |
| 5,700.00 | 5,688.01 | 5,594.93 | 5,431.07 | 21.00 | 25.94 | -18.45 | -1,273.40 | -41.07 | 973.60 | 931.57 | 42.03 | 23.167 | |
| 5,800.00 | 5,787.78 | 5,692.90 | 5,525.53 | 21.37 | 26.43 | -18.44 | -1,299.35 | -41.94 | 993.65 | 950.88 | 42.77 | 23.233 | |
| 5,900.00 | 5,887.54 | 5,790.87 | 5,620.00 | 21.74 | 26.91 | -18.43 | -1,325.30 | -42.81 | 1,013.70 | 970.19 | 43.51 | 23.296 | |
| 6,000.00 | 5,987.31 | 5,888.84 | 5,714.46 | 22.11 | 27.40 | -18.41 | -1,351.24 | -43.68 | 1,033.75 | 989.49 | 44.26 | 23.356 | |
| 6,100.00 | 6,087.07 | 5,986.81 | 5,808.93 | 22.47 | 27.88 | -18.40 | -1,377.19 | -44.55 | 1,053.81 | 1,008.80 | 45.01 | 23.415 | |
| 6,200.00 | 6,186.83 | 6,084.78 | 5,903.40 | 22.84 | 28.37 | -18.39 | -1,403.14 | -45.43 | 1,073.86 | 1,028.11 | 45.75 | 23.471 | |
| 6,300.00 | 6,286.60 | 6,182.74 | 5,997.86 | 23.21 | 28.86 | -18.38 | -1,429.09 | -46.30 | 1,093.91 | 1,047.41 | 46.50 | 23.526 | |
| 6,400.00 | 6,386.36 | 6,280.71 | 6,092.33 | 23.58 | 29.34 | -18.37 | -1,455.03 | -47.17 | 1,113.96 | 1,066.72 | 47.24 | 23.578 | |
| 6,494.00 | 6,480.13 | 6,372.80 | 6,181.12 | 23.92 | 29.80 | -18.36 | -1,479.42 | -47.99 | 1,132.81 | 1,084.86 | 47.95 | 23.626 | |
| 6,500.00 | 6,486.12 | 6,378.68 | 6,186.80 | 23.94 | 29.83 | -25.53 | -1,480.98 | -48.04 | 1,134.01 | 1,086.02 | 47.99 | 23.629 | |
| 6,550.00 | 6,535.89 | 6,427.57 | 6,233.94 | 24.13 | 30.07 | -60.21 | -1,493.93 | -48.48 | 1,144.17 | 1,095.80 | 48.37 | 23.655 | |
| 6,600.00 | 6,585.24 | 6,476.09 | 6,280.72 | 24.31 | 30.32 | -71.83 | -1,506.78 | -48.91 | 1,154.50 | 1,105.75 | 48.75 | 23.682 | |
| 6,650.00 | 6,633.88 | 6,523.93 | 6,326.85 | 24.50 | 30.55 | -76.94 | -1,519.45 | -49.33 | 1,165.01 | 1,115.88 | 49.13 | 23.711 | |
| 6,700.00 | 6,681.49 | 6,570.80 | 6,372.04 | 24.68 | 30.79 | -79.73 | -1,531.86 | -49.75 | 1,175.73 | 1,126.21 | 49.52 | 23.743 | |
| 6,750.00 | 6,727.80 | 6,616.41 | 6,416.02 | 24.86 | 31.01 | -81.49 | -1,543.94 | -50.16 | 1,186.73 | 1,136.82 | 49.91 | 23.776 | |
| 6,800.00 | 6,772.51 | 6,660.48 | 6,458.52 | 25.04 | 31.23 | -82.71 | -1,555.62 | -50.55 | 1,198.08 | 1,147.77 | 50.31 | 23.814 | |
| 6,850.00 | 6,815.34 | 6,711.70 | 6,507.88 | 25.21 | 31.49 | -83.80 | -1,569.17 | -51.91 | 1,209.79 | 1,159.01 | 50.78 | 23.822 | |
| 6,900.00 | 6,856.04 | 6,771.46 | 6,565.15 | 25.39 | 31.78 | -84.81 | -1,584.88 | -58.42 | 1,221.50 | 1,170.17 | 51.34 | 23.794 | |
| 6,950.00 | 6,894.35 | 6,835.29 | 6,625.39 | 25.57 | 32.09 | -85.69 | -1,601.38 | -71.48 | 1,233.04 | 1,181.13 | 51.91 | 23.752 | |
| 7,000.00 | 6,930.04 | 6,903.76 | 6,688.25 | 25.75 | 32.41 | -86.48 | -1,618.57 | -92.37 | 1,244.25 | 1,191.75 | 52.50 | 23.698 | |
| 7,050.00 | 6,962.89 | 6,977.41 | 6,753.04 | 25.93 | 32.74 | -87.22 | -1,636.26 | -122.50 | 1,254.96 | 1,201.87 | 53.09 | 23.637 | |
| 7,100.00 | 6,992.69 | 7,056.74 | 6,818.57 | 26.13 | 33.08 | -87.90 | -1,654.12 | -163.39 | 1,264.95 | 1,211.29 | 53.66 | 23.572 | |
| 7,150.00 | 7,019.25 | 7,142.03 | 6,882.97 | 26.33 | 33.42 | -88.51 | -1,671.62 | -216.39 | 1,274.02 | 1,219.82 | 54.20 | 23.505 | |
| 7,200.00 | 7,042.43 | 7,233.24 | 6,943.63 | 26.55 | 33.76 | -89.03 | -1,688.04 | -282.38 | 1,281.91 | 1,227.21 | 54.70 | 23.434 | |
| 7,250.00 | 7,062.07 | 7,329.84 | 6,997.29 | 26.79 | 34.10 | -89.41 | -1,702.49 | -361.29 | 1,288.40 | 1,233.22 | 55.17 | 23.353 | |
| 7,300.00 | 7,078.05 | 7,430.70 | 7,040.36 | 27.04 | 34.45 | -89.61 | -1,714.00 | -451.65 | 1,293.27 | 1,237.64 | 55.63 | 23.248 | |
| 7,350.00 | 7,090.27 | 7,534.11 | 7,069.69 | 27.30 | 34.80 | -89.60 | -1,721.70 | -550.39 | 1,296.38 | 1,240.27 | 56.11 | 23.106 | |
| 7,400.00 | 7,098.66 | 7,637.93 | 7,083.27 | 27.58 | 35.18 | -89.37 | -1,725.06 | -653.14 | 1,297.66 | 1,241.02 | 56.63 | 22.914 | |
| 7,450.00 | 7,103.17 | 7,706.52 | 7,084.10 | 27.87 | 35.44 | -89.15 | -1,725.04 | -721.72 | 1,297.53 | 1,240.32 | 57.21 | 22.678 | |
| 7,484.66 | 7,104.00 | 7,741.17 | 7,084.02 | 28.08 | 35.58 | -89.12 | -1,724.89 | -756.37 | 1,297.48 | 1,239.85 | 57.64 | 22.512 | |
| 7,484.86 | 7,104.00 | 7,741.36 | 7,084.02 | 28.08 | 35.58 | -89.12 | -1,724.89 | -756.56 | 1,297.48 | 1,239.85 | 57.64 | 22.511 | |
| 7,500.00 | 7,103.95 | 7,756.51 | 7,083.98 | 28.17 | 35.65 | -89.12 | -1,724.82 | -771.71 | 1,297.48 | 1,239.66 | 57.82 | 22.439 | |
| 7,600.00 | 7,103.60 | 7,856.51 | 7,083.74 | 28.83 | 36.11 | -89.12 | -1,724.40 | -871.70 | 1,297.49 | 1,238.36 | 59.12 | 21.945 | |
| 7,700.00 | 7,103.25 | 7,956.51 | 7,083.50 | 29.56 | 36.65 | -89.13 | -1,723.97 | -971.70 | 1,297.49 | 1,236.92 | 60.57 | 21.422 | |
| 7,800.00 | 7,102.90 | 8,056.51 | 7,083.26 | 30.35 | 37.24 | -89.13 | -1,723.54 | -1,071.70 | 1,297.49 | 1,235.35 | 62.14 | 20.879 | |
| 7,900.00 | 7,102.55 | 8,156.51 | 7,083.02 | 31.21 | 37.90 | -89.14 | -1,723.11 | -1,171.70 | 1,297.49 | 1,233.65 | 63.84 | 20.324 | |
| 8,000.00 | 7,102.20 | 8,256.51 | 7,082.78 | 32.13 | 38.62 | -89.14 | -1,722.68 | -1,271.70 | 1,297.49 | 1,231.84 | 65.65 | 19.764 | |
| 8,100.00 | 7,101.85 | 8,356.51 | 7,082.54 | 33.10 | 39.39 | -89.15 | -1,722.25 | -1,371.70 | 1,297.49 | 1,229.93 | 67.56 | 19.204 | |
| 8,200.00 | 7,101.50 | 8,456.51 | 7,082.30 | 34.11 | 40.22 | -89.15 | -1,721.82 | -1,471.70 | 1,297.50 | 1,227.93 | 69.57 | 18.650 | |
| 8,300.00 | 7,101.15 | 8,556.51 | 7,082.05 | 35.17 | 41.09 | -89.16 | -1,721.39 | -1,571.70 | 1,297.50 | 1,225.83 | 71.66 | 18.105 | |
| 8,400.00 | 7,100.80 | 8,656.51 | 7,081.81 | 36.27 | 42.02 | -89.16 | -1,720.97 | -1,671.69 | 1,297.50 | 1,223.66 | 73.84 | 17.572 | |
| 8,500.00 | 7,100.45 | 8,756.51 | 7,081.57 | 37.41 | 42.98 | -89.17 | -1,720.54 | -1,771.69 | 1,297.50 | 1,221.42 | 76.08 | 17.054 | |
| 8,600.00 | 7,100.10 | 8,856.50 | 7,081.33 | 38.58 | 43.99 | -89.17 | -1,720.11 | -1,871.69 | 1,297.50 | 1,219.11 | 78.40 | 16.551 | |
| 8,700.00 | 7,099.75 | 8,956.50 | 7,081.09 | 39.78 | 45.03 | -89.18 | -1,719.68 | -1,971.69 | 1,297.50 | 1,216.73 | 80.77 | 16.064 | |

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 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

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

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Rule Assigned: Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8,800.00 | 7,099.40 | 9,056.50 | 7,080.85 | 41.00 | 46.11 | -89.18 | -1,719.25 | -2,071.69 | 1,297.51 | 1,214.31 | 83.20 | 15.595 | |
| 8,900.00 | 7,099.05 | 9,156.50 | 7,080.61 | 42.25 | 47.21 | -89.19 | -1,718.82 | -2,171.69 | 1,297.51 | 1,211.83 | 85.68 | 15.144 | |
| 9,000.00 | 7,098.70 | 9,256.50 | 7,080.37 | 43.53 | 48.35 | -89.19 | -1,718.39 | -2,271.69 | 1,297.51 | 1,209.31 | 88.20 | 14.710 | |
| 9,100.00 | 7,098.35 | 9,356.50 | 7,080.13 | 44.82 | 49.51 | -89.20 | -1,717.97 | -2,371.69 | 1,297.51 | 1,206.74 | 90.77 | 14.294 | |
| 9,200.00 | 7,098.00 | 9,456.50 | 7,079.88 | 46.14 | 50.70 | -89.20 | -1,717.54 | -2,471.68 | 1,297.51 | 1,204.13 | 93.38 | 13.895 | |
| 9,300.00 | 7,097.65 | 9,556.50 | 7,079.64 | 47.47 | 51.92 | -89.20 | -1,717.11 | -2,571.68 | 1,297.51 | 1,201.49 | 96.02 | 13.513 | |
| 9,400.00 | 7,097.30 | 9,656.50 | 7,079.40 | 48.82 | 53.15 | -89.21 | -1,716.68 | -2,671.68 | 1,297.52 | 1,198.82 | 98.70 | 13.146 | |
| 9,500.00 | 7,096.95 | 9,756.50 | 7,079.16 | 50.18 | 54.40 | -89.21 | -1,716.25 | -2,771.68 | 1,297.52 | 1,196.11 | 101.41 | 12.795 | |
| 9,600.00 | 7,096.60 | 9,856.50 | 7,078.92 | 51.56 | 55.68 | -89.22 | -1,715.82 | -2,871.68 | 1,297.52 | 1,193.38 | 104.14 | 12.459 | |
| 9,700.00 | 7,096.25 | 9,956.50 | 7,078.68 | 52.95 | 56.96 | -89.22 | -1,715.39 | -2,971.68 | 1,297.52 | 1,190.62 | 106.90 | 12.138 | |
| 9,800.00 | 7,095.90 | 10,056.50 | 7,078.44 | 54.35 | 58.27 | -89.23 | -1,714.97 | -3,071.68 | 1,297.52 | 1,187.84 | 109.69 | 11.829 | |
| 9,900.00 | 7,095.55 | 10,156.50 | 7,078.20 | 55.76 | 59.59 | -89.23 | -1,714.54 | -3,171.67 | 1,297.52 | 1,185.03 | 112.49 | 11.534 | |
| 10,000.00 | 7,095.20 | 10,256.50 | 7,077.96 | 57.18 | 60.92 | -89.24 | -1,714.11 | -3,271.67 | 1,297.53 | 1,182.21 | 115.32 | 11.251 | |
| 10,100.00 | 7,094.85 | 10,356.50 | 7,077.71 | 58.61 | 62.27 | -89.24 | -1,713.68 | -3,371.67 | 1,297.53 | 1,179.36 | 118.17 | 10.980 | |
| 10,200.00 | 7,094.50 | 10,456.50 | 7,077.47 | 60.05 | 63.63 | -89.25 | -1,713.25 | -3,471.67 | 1,297.53 | 1,176.50 | 121.03 | 10.721 | |
| 10,300.00 | 7,094.15 | 10,556.50 | 7,077.23 | 61.50 | 65.00 | -89.25 | -1,712.82 | -3,571.67 | 1,297.53 | 1,173.62 | 123.91 | 10.471 | |
| 10,400.00 | 7,093.80 | 10,656.50 | 7,076.99 | 62.96 | 66.38 | -89.26 | -1,712.39 | -3,671.67 | 1,297.53 | 1,170.73 | 126.81 | 10.232 | |
| 10,500.00 | 7,093.45 | 10,756.50 | 7,076.75 | 64.42 | 67.77 | -89.26 | -1,711.97 | -3,771.67 | 1,297.54 | 1,167.82 | 129.72 | 10.003 | |
| 10,600.00 | 7,093.10 | 10,856.50 | 7,076.51 | 65.89 | 69.17 | -89.27 | -1,711.54 | -3,871.67 | 1,297.54 | 1,164.89 | 132.64 | 9.782 | |
| 10,700.00 | 7,092.75 | 10,956.50 | 7,076.27 | 67.36 | 70.58 | -89.27 | -1,711.11 | -3,971.66 | 1,297.54 | 1,161.96 | 135.58 | 9.570 | |
| 10,800.00 | 7,092.40 | 11,056.50 | 7,076.03 | 68.84 | 72.00 | -89.28 | -1,710.68 | -4,071.66 | 1,297.54 | 1,159.01 | 138.53 | 9.367 | |
| 10,900.00 | 7,092.05 | 11,156.50 | 7,075.79 | 70.33 | 73.42 | -89.28 | -1,710.25 | -4,171.66 | 1,297.54 | 1,156.06 | 141.49 | 9.171 | |
| 11,000.00 | 7,091.70 | 11,256.50 | 7,075.54 | 71.82 | 74.85 | -89.29 | -1,709.82 | -4,271.66 | 1,297.54 | 1,153.09 | 144.46 | 8.982 | |
| 11,100.00 | 7,091.35 | 11,356.50 | 7,075.30 | 73.31 | 76.29 | -89.29 | -1,709.39 | -4,371.66 | 1,297.55 | 1,150.11 | 147.43 | 8.801 | |
| 11,200.00 | 7,091.00 | 11,456.50 | 7,075.06 | 74.81 | 77.74 | -89.30 | -1,708.97 | -4,471.66 | 1,297.55 | 1,147.12 | 150.42 | 8.626 | |
| 11,300.00 | 7,090.65 | 11,556.50 | 7,074.82 | 76.32 | 79.19 | -89.30 | -1,708.54 | -4,571.66 | 1,297.55 | 1,144.13 | 153.42 | 8.457 | |
| 11,400.00 | 7,090.30 | 11,656.50 | 7,074.58 | 77.82 | 80.65 | -89.31 | -1,708.11 | -4,671.66 | 1,297.55 | 1,141.13 | 156.43 | 8.295 | |
| 11,500.00 | 7,089.95 | 11,756.50 | 7,074.34 | 79.34 | 82.11 | -89.31 | -1,707.68 | -4,771.65 | 1,297.55 | 1,138.12 | 159.44 | 8.138 | |
| 11,600.00 | 7,089.60 | 11,856.50 | 7,074.10 | 80.85 | 83.58 | -89.32 | -1,707.25 | -4,871.65 | 1,297.56 | 1,135.10 | 162.46 | 7.987 | |
| 11,700.00 | 7,089.25 | 11,956.50 | 7,073.86 | 82.37 | 85.05 | -89.32 | -1,706.82 | -4,971.65 | 1,297.56 | 1,132.07 | 165.48 | 7.841 | |
| 11,800.00 | 7,088.90 | 12,056.50 | 7,073.62 | 83.89 | 86.53 | -89.32 | -1,706.39 | -5,071.65 | 1,297.56 | 1,129.04 | 168.52 | 7.700 | |
| 11,900.00 | 7,088.55 | 12,156.50 | 7,073.37 | 85.41 | 88.01 | -89.33 | -1,705.97 | -5,171.65 | 1,297.56 | 1,126.00 | 171.56 | 7.563 | |
| 12,000.00 | 7,088.20 | 12,256.50 | 7,073.13 | 86.94 | 89.49 | -89.33 | -1,705.54 | -5,271.65 | 1,297.56 | 1,122.96 | 174.60 | 7.432 | |
| 12,100.00 | 7,087.85 | 12,356.50 | 7,072.89 | 88.47 | 90.98 | -89.34 | -1,705.11 | -5,371.65 | 1,297.57 | 1,119.91 | 177.65 | 7.304 | |
| 12,200.00 | 7,087.50 | 12,456.50 | 7,072.65 | 90.00 | 92.48 | -89.34 | -1,704.68 | -5,471.65 | 1,297.57 | 1,116.86 | 180.71 | 7.180 | |
| 12,300.00 | 7,087.15 | 12,556.50 | 7,072.41 | 91.54 | 93.97 | -89.35 | -1,704.25 | -5,571.64 | 1,297.57 | 1,113.80 | 183.77 | 7.061 | |
| 12,400.00 | 7,086.81 | 12,656.50 | 7,072.17 | 93.07 | 95.47 | -89.35 | -1,703.82 | -5,671.64 | 1,297.57 | 1,110.74 | 186.83 | 6.945 | |
| 12,500.00 | 7,086.46 | 12,756.50 | 7,071.93 | 94.61 | 96.98 | -89.36 | -1,703.39 | -5,771.64 | 1,297.57 | 1,107.67 | 189.90 | 6.833 | |
| 12,600.00 | 7,086.11 | 12,856.50 | 7,071.69 | 96.15 | 98.48 | -89.36 | -1,702.97 | -5,871.64 | 1,297.58 | 1,104.60 | 192.98 | 6.724 | |
| 12,700.00 | 7,085.76 | 12,956.50 | 7,071.45 | 97.69 | 99.99 | -89.37 | -1,702.54 | -5,971.64 | 1,297.58 | 1,101.52 | 196.06 | 6.618 | |
| 12,800.00 | 7,085.41 | 13,056.50 | 7,071.21 | 99.24 | 101.50 | -89.37 | -1,702.11 | -6,071.64 | 1,297.58 | 1,098.44 | 199.14 | 6.516 | |
| 12,900.00 | 7,085.06 | 13,156.50 | 7,070.96 | 100.78 | 103.02 | -89.38 | -1,701.68 | -6,171.64 | 1,297.58 | 1,095.36 | 202.23 | 6.417 | |
| 13,000.00 | 7,084.71 | 13,256.50 | 7,070.72 | 102.33 | 104.54 | -89.38 | -1,701.25 | -6,271.64 | 1,297.58 | 1,092.27 | 205.31 | 6.320 | |
| 13,100.00 | 7,084.36 | 13,356.50 | 7,070.48 | 103.88 | 106.06 | -89.39 | -1,700.82 | -6,371.63 | 1,297.59 | 1,089.18 | 208.41 | 6.226 | |
| 13,200.00 | 7,084.01 | 13,456.50 | 7,070.24 | 105.43 | 107.58 | -89.39 | -1,700.39 | -6,471.63 | 1,297.59 | 1,086.08 | 211.50 | 6.135 | |
| 13,300.00 | 7,083.66 | 13,556.50 | 7,070.00 | 106.99 | 109.11 | -89.40 | -1,699.96 | -6,571.63 | 1,297.59 | 1,082.99 | 214.60 | 6.046 | |
| 13,400.00 | 7,083.31 | 13,656.50 | 7,069.76 | 108.54 | 110.63 | -89.40 | -1,699.54 | -6,671.63 | 1,297.59 | 1,079.89 | 217.71 | 5.960 | |
| 13,500.00 | 7,082.96 | 13,756.50 | 7,069.52 | 110.09 | 112.16 | -89.41 | -1,699.11 | -6,771.63 | 1,297.59 | 1,076.78 | 220.81 | 5.877 | |
| 13,600.00 | 7,082.61 | 13,856.50 | 7,069.28 | 111.65 | 113.69 | -89.41 | -1,698.68 | -6,871.63 | 1,297.60 | 1,073.68 | 223.92 | 5.795 | |
| 13,700.00 | 7,082.26 | 13,956.50 | 7,069.04 | 113.21 | 115.23 | -89.42 | -1,698.25 | -6,971.63 | 1,297.60 | 1,070.57 | 227.03 | 5.716 | |
| 13,800.00 | 7,081.91 | 14,056.50 | 7,068.79 | 114.77 | 116.76 | -89.42 | -1,697.82 | -7,071.63 | 1,297.60 | 1,067.46 | 230.14 | 5.638 | |
| 13,900.00 | 7,081.56 | 14,156.50 | 7,068.55 | 116.33 | 118.30 | -89.43 | -1,697.39 | -7,171.62 | 1,297.60 | 1,064.35 | 233.26 | 5.563 | |

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

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

**Offset Site Error:** 0.00 usft

**Survey Program:** 0-MWD+HRGM+MS

**Offset Well Error:** 3.28 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 14,000.00 | 7,081.21 | 14,256.50 | 7,068.31 | 117.89 | 119.84 | -89.43 | -1,696.96 | -7,271.62 | 1,297.60 | 1,061.23 | 236.37 | 5.490 | |
| 14,100.00 | 7,080.86 | 14,356.50 | 7,068.07 | 119.45 | 121.37 | -89.44 | -1,696.54 | -7,371.62 | 1,297.61 | 1,058.11 | 239.49 | 5.418 | |
| 14,200.00 | 7,080.51 | 14,456.50 | 7,067.83 | 121.02 | 122.92 | -89.44 | -1,696.11 | -7,471.62 | 1,297.61 | 1,054.99 | 242.62 | 5.348 | |
| 14,300.00 | 7,080.16 | 14,556.50 | 7,067.59 | 122.58 | 124.46 | -89.44 | -1,695.68 | -7,571.62 | 1,297.61 | 1,051.87 | 245.74 | 5.280 | |
| 14,400.00 | 7,079.81 | 14,656.50 | 7,067.35 | 124.15 | 126.00 | -89.45 | -1,695.25 | -7,671.62 | 1,297.61 | 1,048.75 | 248.87 | 5.214 | |
| 14,500.00 | 7,079.46 | 14,756.50 | 7,067.11 | 125.71 | 127.55 | -89.45 | -1,694.82 | -7,771.62 | 1,297.62 | 1,045.62 | 251.99 | 5.149 | |
| 14,600.00 | 7,079.11 | 14,856.50 | 7,066.87 | 127.28 | 129.10 | -89.46 | -1,694.39 | -7,871.62 | 1,297.62 | 1,042.49 | 255.12 | 5.086 | |
| 14,700.00 | 7,078.76 | 14,956.50 | 7,066.62 | 128.85 | 130.65 | -89.46 | -1,693.96 | -7,971.61 | 1,297.62 | 1,039.37 | 258.25 | 5.025 | |
| 14,800.00 | 7,078.41 | 15,056.50 | 7,066.38 | 130.42 | 132.20 | -89.47 | -1,693.54 | -8,071.61 | 1,297.62 | 1,036.23 | 261.39 | 4.964 | |
| 14,900.00 | 7,078.06 | 15,156.50 | 7,066.14 | 131.98 | 133.75 | -89.47 | -1,693.11 | -8,171.61 | 1,297.62 | 1,033.10 | 264.52 | 4.906 | |
| 15,000.00 | 7,077.71 | 15,256.50 | 7,065.90 | 133.55 | 135.30 | -89.48 | -1,692.68 | -8,271.61 | 1,297.63 | 1,029.97 | 267.66 | 4.848 | |
| 15,100.00 | 7,077.36 | 15,356.50 | 7,065.66 | 135.13 | 136.85 | -89.48 | -1,692.25 | -8,371.61 | 1,297.63 | 1,026.83 | 270.80 | 4.792 | |
| 15,200.00 | 7,077.01 | 15,456.50 | 7,065.42 | 136.70 | 138.41 | -89.49 | -1,691.82 | -8,471.61 | 1,297.63 | 1,023.70 | 273.94 | 4.737 | |
| 15,300.00 | 7,076.66 | 15,556.50 | 7,065.18 | 138.27 | 139.96 | -89.49 | -1,691.39 | -8,571.61 | 1,297.63 | 1,020.56 | 277.08 | 4.683 | |
| 15,400.00 | 7,076.31 | 15,656.50 | 7,064.94 | 139.84 | 141.52 | -89.50 | -1,690.96 | -8,671.61 | 1,297.64 | 1,017.42 | 280.22 | 4.631 | |
| 15,500.00 | 7,075.96 | 15,756.50 | 7,064.70 | 141.42 | 143.08 | -89.50 | -1,690.54 | -8,771.60 | 1,297.64 | 1,014.28 | 283.36 | 4.579 | |
| 15,600.00 | 7,075.61 | 15,856.50 | 7,064.45 | 142.99 | 144.63 | -89.51 | -1,690.11 | -8,871.60 | 1,297.64 | 1,011.13 | 286.51 | 4.529 | |
| 15,700.00 | 7,075.26 | 15,956.50 | 7,064.21 | 144.57 | 146.19 | -89.51 | -1,689.68 | -8,971.60 | 1,297.64 | 1,007.99 | 289.65 | 4.480 | |
| 15,800.00 | 7,074.91 | 16,056.50 | 7,063.97 | 146.14 | 147.75 | -89.52 | -1,689.25 | -9,071.60 | 1,297.65 | 1,004.84 | 292.80 | 4.432 | |
| 15,900.00 | 7,074.56 | 16,156.50 | 7,063.73 | 147.72 | 149.31 | -89.52 | -1,688.82 | -9,171.60 | 1,297.65 | 1,001.70 | 295.95 | 4.385 | |
| 16,000.00 | 7,074.21 | 16,256.50 | 7,063.49 | 149.29 | 150.88 | -89.53 | -1,688.39 | -9,271.60 | 1,297.65 | 998.55 | 299.10 | 4.339 | |
| 16,100.00 | 7,073.86 | 16,356.50 | 7,063.25 | 150.87 | 152.44 | -89.53 | -1,687.96 | -9,371.60 | 1,297.65 | 995.40 | 302.25 | 4.293 | |
| 16,200.00 | 7,073.51 | 16,456.50 | 7,063.01 | 152.45 | 154.00 | -89.54 | -1,687.54 | -9,471.60 | 1,297.65 | 992.25 | 305.40 | 4.249 | |
| 16,300.00 | 7,073.16 | 16,556.50 | 7,062.77 | 154.03 | 155.57 | -89.54 | -1,687.11 | -9,571.59 | 1,297.66 | 989.10 | 308.55 | 4.206 | |
| 16,400.00 | 7,072.81 | 16,656.50 | 7,062.53 | 155.60 | 157.13 | -89.55 | -1,686.68 | -9,671.59 | 1,297.66 | 985.95 | 311.71 | 4.163 | |
| 16,500.00 | 7,072.46 | 16,756.50 | 7,062.28 | 157.18 | 158.70 | -89.55 | -1,686.25 | -9,771.59 | 1,297.66 | 982.80 | 314.86 | 4.121 | |
| 16,600.00 | 7,072.11 | 16,856.50 | 7,062.04 | 158.76 | 160.26 | -89.56 | -1,685.82 | -9,871.59 | 1,297.66 | 979.65 | 318.02 | 4.080 | |
| 16,601.44 | 7,072.11 | 16,857.94 | 7,062.04 | 158.78 | 160.29 | -89.56 | -1,685.81 | -9,873.03 | 1,297.66 | 979.60 | 318.06 | 4.080 | |
| 16,631.96 | 7,072.00 | 16,874.30 | 7,062.00 | 159.27 | 160.54 | -89.56 | -1,685.74 | -9,889.39 | 1,297.74 | 978.72 | 319.02 | 4.068 | |

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

**Offset Design:** Rosa Unit 32 - Rosa Unit 754H - OH - Plan #5

**Offset Site Error:** 0.00 usft

**Survey Program:** 0-MWD+HRGM+MS

**Offset Well Error:** 3.28 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Rule Assigned: Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 3.28 | 3.28 | 177.65 | -49.88 | 2.05 | 49.92 | | | | |
| 100.00 | 100.00 | 100.00 | 100.00 | 3.29 | 3.29 | 177.65 | -49.88 | 2.05 | 49.92 | 43.34 | 6.58 | 7.588 | |
| 200.00 | 200.00 | 200.00 | 200.00 | 3.34 | 3.34 | 177.65 | -49.88 | 2.05 | 49.92 | 43.25 | 6.67 | 7.482 | |
| 300.00 | 300.00 | 300.00 | 300.00 | 3.42 | 3.42 | 177.65 | -49.88 | 2.05 | 49.92 | 43.08 | 6.84 | 7.299 | |
| 400.00 | 400.00 | 400.00 | 400.00 | 3.54 | 3.54 | 177.65 | -49.88 | 2.05 | 49.92 | 42.85 | 7.08 | 7.055 | |
| 500.00 | 500.00 | 500.00 | 500.00 | 3.69 | 3.69 | 177.65 | -49.88 | 2.05 | 49.92 | 42.55 | 7.37 | 6.769 | CC |
| 600.00 | 599.98 | 598.45 | 598.43 | 3.86 | 3.85 | -34.31 | -51.35 | 2.90 | 50.00 | 42.29 | 7.71 | 6.488 | ES |
| 697.00 | 696.84 | 693.78 | 693.63 | 4.04 | 4.03 | -39.85 | -55.55 | 5.33 | 50.55 | 42.50 | 8.05 | 6.277 | |
| 700.00 | 699.84 | 696.73 | 696.57 | 4.05 | 4.04 | -40.07 | -55.73 | 5.43 | 50.58 | 42.52 | 8.06 | 6.273 | SF |
| 800.00 | 799.60 | 794.71 | 794.19 | 4.25 | 4.24 | -47.75 | -63.00 | 9.62 | 53.89 | 45.44 | 8.46 | 6.373 | |
| 897.00 | 896.37 | 890.23 | 889.07 | 4.48 | 4.47 | -54.28 | -72.71 | 14.90 | 60.87 | 51.99 | 8.88 | 6.854 | |
| 900.00 | 899.37 | 893.22 | 892.04 | 4.48 | 4.47 | -53.56 | -73.04 | 15.04 | 61.11 | 52.22 | 8.90 | 6.870 | |
| 947.40 | 946.65 | 940.56 | 939.03 | 4.60 | 4.59 | -41.39 | -78.41 | 16.88 | 64.58 | 55.46 | 9.13 | 7.077 | |
| 1,000.00 | 999.13 | 993.14 | 991.22 | 4.73 | 4.73 | -42.02 | -84.66 | 18.11 | 68.05 | 58.66 | 9.39 | 7.249 | |
| 1,100.00 | 1,098.89 | 1,092.92 | 1,090.26 | 4.99 | 5.00 | -42.76 | -96.65 | 20.11 | 74.60 | 64.69 | 9.91 | 7.529 | |
| 1,200.00 | 1,198.66 | 1,192.70 | 1,189.30 | 5.27 | 5.28 | -43.39 | -108.63 | 22.11 | 81.15 | 70.70 | 10.45 | 7.764 | |
| 1,300.00 | 1,298.42 | 1,292.48 | 1,288.34 | 5.56 | 5.58 | -43.92 | -120.62 | 24.11 | 87.72 | 76.70 | 11.02 | 7.959 | |
| 1,400.00 | 1,398.18 | 1,392.26 | 1,387.37 | 5.85 | 5.89 | -44.38 | -132.61 | 26.10 | 94.30 | 82.69 | 11.61 | 8.122 | |
| 1,500.00 | 1,497.95 | 1,492.04 | 1,486.41 | 6.16 | 6.21 | -44.77 | -144.59 | 28.10 | 100.88 | 88.66 | 12.21 | 8.259 | |
| 1,600.00 | 1,597.71 | 1,591.82 | 1,585.45 | 6.47 | 6.54 | -45.12 | -156.58 | 30.10 | 107.46 | 94.63 | 12.83 | 8.374 | |
| 1,700.00 | 1,697.47 | 1,691.60 | 1,684.49 | 6.79 | 6.88 | -45.43 | -168.57 | 32.10 | 114.05 | 100.58 | 13.46 | 8.471 | |
| 1,800.00 | 1,797.24 | 1,791.38 | 1,783.53 | 7.11 | 7.22 | -45.71 | -180.55 | 34.10 | 120.64 | 106.53 | 14.10 | 8.553 | |
| 1,900.00 | 1,897.00 | 1,891.17 | 1,882.57 | 7.44 | 7.56 | -45.95 | -192.54 | 36.10 | 127.23 | 112.47 | 14.76 | 8.622 | |
| 2,000.00 | 1,996.76 | 1,990.95 | 1,981.60 | 7.77 | 7.92 | -46.18 | -204.53 | 38.09 | 133.82 | 118.41 | 15.41 | 8.682 | |
| 2,100.00 | 2,096.53 | 2,090.73 | 2,080.64 | 8.11 | 8.27 | -46.38 | -216.51 | 40.09 | 140.42 | 124.34 | 16.08 | 8.733 | |
| 2,200.00 | 2,196.29 | 2,190.51 | 2,179.68 | 8.44 | 8.63 | -46.56 | -228.50 | 42.09 | 147.02 | 130.27 | 16.75 | 8.776 | |
| 2,300.00 | 2,296.06 | 2,290.29 | 2,278.72 | 8.79 | 8.99 | -46.73 | -240.49 | 44.09 | 153.62 | 136.19 | 17.43 | 8.814 | |
| 2,400.00 | 2,395.82 | 2,390.07 | 2,377.76 | 9.13 | 9.35 | -46.88 | -252.47 | 46.09 | 160.22 | 142.11 | 18.11 | 8.846 | |
| 2,500.00 | 2,495.58 | 2,489.85 | 2,476.80 | 9.47 | 9.72 | -47.02 | -264.46 | 48.09 | 166.82 | 148.02 | 18.80 | 8.874 | |
| 2,600.00 | 2,595.35 | 2,589.63 | 2,575.83 | 9.82 | 10.09 | -47.15 | -276.45 | 50.08 | 173.42 | 153.93 | 19.49 | 8.898 | |
| 2,700.00 | 2,695.11 | 2,689.41 | 2,674.87 | 10.17 | 10.46 | -47.28 | -288.43 | 52.08 | 180.03 | 159.84 | 20.18 | 8.919 | |
| 2,800.00 | 2,794.87 | 2,789.20 | 2,773.91 | 10.52 | 10.83 | -47.39 | -300.42 | 54.08 | 186.63 | 165.75 | 20.88 | 8.938 | |
| 2,900.00 | 2,894.64 | 2,888.98 | 2,872.95 | 10.87 | 11.20 | -47.49 | -312.41 | 56.08 | 193.23 | 171.65 | 21.58 | 8.954 | |
| 3,000.00 | 2,994.40 | 2,988.76 | 2,971.99 | 11.23 | 11.58 | -47.59 | -324.39 | 58.08 | 199.84 | 177.56 | 22.28 | 8.968 | |
| 3,100.00 | 3,094.16 | 3,088.54 | 3,071.03 | 11.58 | 11.95 | -47.68 | -336.38 | 60.07 | 206.45 | 183.46 | 22.99 | 8.980 | |
| 3,200.00 | 3,193.93 | 3,188.32 | 3,170.06 | 11.94 | 12.33 | -47.77 | -348.37 | 62.07 | 213.05 | 189.36 | 23.70 | 8.991 | |
| 3,300.00 | 3,293.69 | 3,288.10 | 3,269.10 | 12.29 | 12.71 | -47.85 | -360.35 | 64.07 | 219.66 | 195.25 | 24.41 | 9.000 | |
| 3,400.00 | 3,393.45 | 3,387.88 | 3,368.14 | 12.65 | 13.09 | -47.93 | -372.34 | 66.07 | 226.27 | 201.15 | 25.12 | 9.009 | |
| 3,500.00 | 3,493.22 | 3,487.66 | 3,467.18 | 13.01 | 13.47 | -48.00 | -384.32 | 68.07 | 232.87 | 207.04 | 25.83 | 9.016 | |
| 3,600.00 | 3,592.98 | 3,587.44 | 3,566.22 | 13.37 | 13.85 | -48.07 | -396.31 | 70.07 | 239.48 | 212.94 | 26.54 | 9.022 | |
| 3,700.00 | 3,692.74 | 3,687.22 | 3,665.26 | 13.73 | 14.23 | -48.13 | -408.30 | 72.06 | 246.09 | 218.83 | 27.26 | 9.028 | |
| 3,800.00 | 3,792.51 | 3,787.01 | 3,764.29 | 14.09 | 14.61 | -48.19 | -420.28 | 74.06 | 252.70 | 224.72 | 27.98 | 9.033 | |
| 3,900.00 | 3,892.27 | 3,886.79 | 3,863.33 | 14.45 | 15.00 | -48.25 | -432.27 | 76.06 | 259.31 | 230.61 | 28.69 | 9.037 | |
| 4,000.00 | 3,992.04 | 3,986.57 | 3,962.37 | 14.81 | 15.38 | -48.30 | -444.26 | 78.06 | 265.92 | 236.50 | 29.41 | 9.041 | |
| 4,100.00 | 4,091.80 | 4,086.35 | 4,061.41 | 15.17 | 15.76 | -48.36 | -456.24 | 80.06 | 272.53 | 242.39 | 30.13 | 9.044 | |
| 4,200.00 | 4,191.56 | 4,186.13 | 4,160.45 | 15.53 | 16.15 | -48.41 | -468.23 | 82.06 | 279.14 | 248.28 | 30.86 | 9.047 | |
| 4,300.00 | 4,291.33 | 4,285.91 | 4,259.49 | 15.89 | 16.53 | -48.45 | -480.22 | 84.05 | 285.75 | 254.17 | 31.58 | 9.049 | |
| 4,400.00 | 4,391.09 | 4,385.69 | 4,358.52 | 16.26 | 16.92 | -48.50 | -492.20 | 86.05 | 292.36 | 260.06 | 32.30 | 9.051 | |
| 4,500.00 | 4,490.85 | 4,485.47 | 4,457.56 | 16.62 | 17.30 | -48.54 | -504.19 | 88.05 | 298.97 | 265.94 | 33.02 | 9.053 | |
| 4,600.00 | 4,590.62 | 4,585.25 | 4,556.60 | 16.99 | 17.69 | -48.58 | -516.18 | 90.05 | 305.58 | 271.83 | 33.75 | 9.055 | |
| 4,700.00 | 4,690.38 | 4,685.03 | 4,655.64 | 17.35 | 18.08 | -48.62 | -528.16 | 92.05 | 312.19 | 277.71 | 34.47 | 9.056 | |
| 4,800.00 | 4,790.14 | 4,784.82 | 4,754.68 | 17.71 | 18.46 | -48.66 | -540.15 | 94.05 | 318.80 | 283.60 | 35.20 | 9.057 | |

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

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

**Offset Design:** Rosa Unit 32 - Rosa Unit 754H - OH - Plan #5

**Offset Site Error:** 0.00 usft

**Survey Program:** 0-MWD+HRGM+MS

**Offset Well Error:** 3.28 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Rule Assigned: Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4,900.00 | 4,889.91 | 4,884.60 | 4,853.71 | 18.08 | 18.85 | -48.70 | -552.14 | 96.04 | 325.41 | 289.48 | 35.93 | 9.058 | |
| 5,000.00 | 4,989.67 | 4,984.38 | 4,952.75 | 18.44 | 19.24 | -48.73 | -564.12 | 98.04 | 332.02 | 295.37 | 36.65 | 9.059 | |
| 5,100.00 | 5,089.43 | 5,084.16 | 5,051.79 | 18.81 | 19.62 | -48.77 | -576.11 | 100.04 | 338.63 | 301.25 | 37.38 | 9.059 | |
| 5,200.00 | 5,189.20 | 5,183.94 | 5,150.83 | 19.17 | 20.01 | -48.80 | -588.10 | 102.04 | 345.24 | 307.13 | 38.11 | 9.060 | |
| 5,300.00 | 5,288.96 | 5,283.72 | 5,249.87 | 19.54 | 20.40 | -48.83 | -600.08 | 104.04 | 351.85 | 313.02 | 38.84 | 9.060 | |
| 5,400.00 | 5,388.72 | 5,383.50 | 5,348.91 | 19.91 | 20.79 | -48.86 | -612.07 | 106.03 | 358.46 | 318.90 | 39.57 | 9.060 | |
| 5,500.00 | 5,488.49 | 5,483.28 | 5,447.94 | 20.27 | 21.18 | -48.89 | -624.06 | 108.03 | 365.07 | 324.78 | 40.29 | 9.060 | |
| 5,600.00 | 5,588.25 | 5,583.06 | 5,546.98 | 20.64 | 21.57 | -48.92 | -636.04 | 110.03 | 371.69 | 330.66 | 41.02 | 9.060 | |
| 5,700.00 | 5,688.01 | 5,682.85 | 5,646.02 | 21.00 | 21.96 | -48.94 | -648.03 | 112.03 | 378.30 | 336.54 | 41.75 | 9.060 | |
| 5,800.00 | 5,787.78 | 5,782.63 | 5,745.06 | 21.37 | 22.34 | -48.97 | -660.02 | 114.03 | 384.91 | 342.42 | 42.49 | 9.060 | |
| 5,900.00 | 5,887.54 | 5,882.41 | 5,844.10 | 21.74 | 22.73 | -48.99 | -672.00 | 116.03 | 391.52 | 348.31 | 43.22 | 9.060 | |
| 6,000.00 | 5,987.31 | 5,982.19 | 5,943.14 | 22.11 | 23.12 | -49.02 | -683.99 | 118.02 | 398.13 | 354.19 | 43.95 | 9.059 | |
| 6,100.00 | 6,087.07 | 6,081.97 | 6,042.17 | 22.47 | 23.51 | -49.04 | -695.97 | 120.02 | 404.75 | 360.07 | 44.68 | 9.059 | |
| 6,200.00 | 6,186.83 | 6,181.75 | 6,141.21 | 22.84 | 23.90 | -49.07 | -707.96 | 122.02 | 411.36 | 365.95 | 45.41 | 9.059 | |
| 6,300.00 | 6,286.60 | 6,281.53 | 6,240.25 | 23.21 | 24.29 | -49.09 | -719.95 | 124.02 | 417.97 | 371.83 | 46.14 | 9.058 | |
| 6,400.00 | 6,386.36 | 6,381.31 | 6,339.29 | 23.58 | 24.68 | -49.11 | -731.93 | 126.02 | 424.58 | 377.71 | 46.87 | 9.058 | |
| 6,494.00 | 6,480.13 | 6,475.10 | 6,432.38 | 23.92 | 25.05 | -49.13 | -743.20 | 127.90 | 430.80 | 383.23 | 47.56 | 9.057 | |
| 6,500.00 | 6,486.12 | 6,481.09 | 6,438.33 | 23.94 | 25.07 | -56.38 | -743.92 | 128.02 | 431.21 | 383.60 | 47.61 | 9.058 | |
| 6,550.00 | 6,535.89 | 6,528.17 | 6,485.05 | 24.13 | 25.26 | -91.77 | -749.58 | 128.96 | 435.88 | 387.92 | 47.96 | 9.088 | |
| 6,600.00 | 6,585.24 | 6,565.18 | 6,521.74 | 24.31 | 25.40 | -104.07 | -754.02 | 130.77 | 443.63 | 395.39 | 48.24 | 9.196 | |
| 6,650.00 | 6,633.88 | 6,600.00 | 6,556.11 | 24.50 | 25.54 | -109.86 | -758.20 | 134.44 | 455.24 | 406.75 | 48.49 | 9.389 | |
| 6,700.00 | 6,681.49 | 6,629.54 | 6,585.08 | 24.68 | 25.66 | -113.06 | -761.73 | 139.03 | 470.77 | 422.12 | 48.65 | 9.676 | |
| 6,750.00 | 6,727.80 | 6,650.00 | 6,605.00 | 24.86 | 25.74 | -114.53 | -764.16 | 143.00 | 490.40 | 441.75 | 48.65 | 10.081 | |
| 6,800.00 | 6,772.51 | 6,682.49 | 6,636.35 | 25.04 | 25.86 | -115.97 | -767.99 | 150.63 | 513.83 | 464.96 | 48.87 | 10.514 | |
| 6,850.00 | 6,815.34 | 6,700.00 | 6,653.07 | 25.21 | 25.93 | -115.77 | -770.04 | 155.40 | 541.22 | 492.39 | 48.82 | 11.085 | |
| 6,900.00 | 6,856.04 | 6,722.21 | 6,674.08 | 25.39 | 26.02 | -115.36 | -772.61 | 162.12 | 572.16 | 523.24 | 48.91 | 11.697 | |
| 6,950.00 | 6,894.35 | 6,737.18 | 6,688.10 | 25.57 | 26.07 | -113.69 | -774.34 | 167.06 | 606.37 | 557.48 | 48.90 | 12.401 | |
| 7,000.00 | 6,930.04 | 6,750.00 | 6,700.02 | 25.75 | 26.12 | -111.09 | -775.80 | 171.56 | 643.44 | 594.55 | 48.89 | 13.161 | |
| 7,050.00 | 6,962.89 | 6,750.00 | 6,700.02 | 25.93 | 26.12 | -106.10 | -775.80 | 171.56 | 683.00 | 634.35 | 48.65 | 14.040 | |
| 7,100.00 | 6,992.69 | 6,764.66 | 6,713.53 | 26.13 | 26.18 | -101.95 | -777.46 | 177.00 | 724.33 | 675.50 | 48.83 | 14.833 | |
| 7,150.00 | 7,019.25 | 6,768.78 | 6,717.30 | 26.33 | 26.20 | -95.41 | -777.93 | 178.58 | 767.26 | 718.43 | 48.84 | 15.710 | |
| 7,200.00 | 7,042.43 | 6,770.76 | 6,719.11 | 26.55 | 26.20 | -87.56 | -778.15 | 179.35 | 811.29 | 762.42 | 48.87 | 16.601 | |
| 7,250.00 | 7,062.07 | 6,770.81 | 6,719.17 | 26.79 | 26.20 | -78.72 | -778.16 | 179.37 | 856.02 | 807.10 | 48.93 | 17.495 | |
| 7,300.00 | 7,078.05 | 6,769.15 | 6,717.64 | 27.04 | 26.20 | -69.42 | -777.97 | 178.73 | 901.10 | 852.09 | 49.01 | 18.385 | |
| 7,350.00 | 7,090.27 | 6,765.94 | 6,714.70 | 27.30 | 26.18 | -60.32 | -777.61 | 177.49 | 946.19 | 897.07 | 49.12 | 19.262 | |
| 7,400.00 | 7,098.66 | 6,750.00 | 6,700.02 | 27.58 | 26.12 | -50.79 | -775.80 | 171.56 | 991.17 | 942.13 | 49.03 | 20.214 | |
| 7,450.00 | 7,103.17 | 6,750.00 | 6,700.02 | 27.87 | 26.12 | -44.21 | -775.80 | 171.56 | 1,035.31 | 986.01 | 49.31 | 20.998 | |
| 7,484.86 | 7,104.00 | 6,750.00 | 6,700.02 | 28.08 | 26.12 | -40.21 | -775.80 | 171.56 | 1,065.68 | 1,016.17 | 49.51 | 21.524 | |
| 7,500.00 | 7,103.95 | 6,750.00 | 6,700.02 | 28.17 | 26.12 | -40.21 | -775.80 | 171.56 | 1,078.82 | 1,029.22 | 49.60 | 21.750 | |
| 7,600.00 | 7,103.60 | 6,750.00 | 6,700.02 | 28.83 | 26.12 | -40.21 | -775.80 | 171.56 | 1,166.80 | 1,116.66 | 50.14 | 23.270 | |
| 7,700.00 | 7,103.25 | 6,723.48 | 6,675.27 | 29.56 | 26.02 | -38.31 | -772.76 | 162.53 | 1,255.77 | 1,205.57 | 50.20 | 25.013 | |
| 7,800.00 | 7,102.90 | 6,700.00 | 6,653.07 | 30.35 | 25.93 | -36.71 | -770.04 | 155.40 | 1,346.42 | 1,296.13 | 50.29 | 26.773 | |
| 7,900.00 | 7,102.55 | 6,700.00 | 6,653.07 | 31.21 | 25.93 | -36.71 | -770.04 | 155.40 | 1,437.76 | 1,387.10 | 50.66 | 28.382 | |
| 8,000.00 | 7,102.20 | 6,700.00 | 6,653.07 | 32.13 | 25.93 | -36.71 | -770.04 | 155.40 | 1,530.18 | 1,479.21 | 50.97 | 30.023 | |
| 8,100.00 | 7,101.85 | 6,700.00 | 6,653.07 | 33.10 | 25.93 | -36.71 | -770.04 | 155.40 | 1,623.49 | 1,572.26 | 51.23 | 31.690 | |
| 8,200.00 | 7,101.50 | 6,678.67 | 6,632.68 | 34.11 | 25.85 | -35.31 | -767.54 | 149.65 | 1,717.09 | 1,665.84 | 51.24 | 33.509 | |
| 8,300.00 | 7,101.15 | 6,671.86 | 6,626.13 | 35.17 | 25.82 | -34.88 | -766.74 | 147.95 | 1,811.45 | 1,760.06 | 51.39 | 35.250 | |
| 8,400.00 | 7,100.80 | 6,650.00 | 6,605.00 | 36.27 | 25.74 | -33.53 | -764.16 | 143.00 | 1,906.55 | 1,855.17 | 51.37 | 37.110 | |
| 8,500.00 | 7,100.45 | 6,650.00 | 6,605.00 | 37.41 | 25.74 | -33.53 | -764.16 | 143.00 | 2,001.67 | 1,950.12 | 51.55 | 38.826 | |
| 8,600.00 | 7,100.10 | 6,650.00 | 6,605.00 | 38.58 | 25.74 | -33.53 | -764.16 | 143.00 | 2,097.25 | 2,045.54 | 51.71 | 40.554 | |
| 8,700.00 | 7,099.75 | 6,650.00 | 6,605.00 | 39.78 | 25.74 | -33.53 | -764.16 | 143.00 | 2,193.23 | 2,141.37 | 51.86 | 42.292 | |
| 8,800.00 | 7,099.40 | 6,650.00 | 6,605.00 | 41.00 | 25.74 | -33.53 | -764.16 | 143.00 | 2,289.55 | 2,237.56 | 51.99 | 44.039 | |

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

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

**Offset Design:** Rosa Unit 32 - Rosa Unit 754H - OH - Plan #5 — **Offset Site Error:** 0.00 usft

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

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8,900.00 | 7,099.05 | 6,650.00 | 6,605.00 | 42.25 | 25.74 | -33.53 | -764.16 | 143.00 | 2,386.17 | 2,334.06 | 52.11 | 45.793 | |
| 9,000.00 | 7,098.70 | 6,650.00 | 6,605.00 | 43.53 | 25.74 | -33.53 | -764.16 | 143.00 | 2,483.06 | 2,430.84 | 52.22 | 47.553 | |
| 9,100.00 | 7,098.35 | 6,650.00 | 6,605.00 | 44.82 | 25.74 | -33.53 | -764.16 | 143.00 | 2,580.19 | 2,527.87 | 52.32 | 49.318 | |
| 9,200.00 | 7,098.00 | 6,628.73 | 6,584.29 | 46.14 | 25.65 | -32.28 | -761.63 | 138.89 | 2,677.09 | 2,624.82 | 52.27 | 51.220 | |
| 9,300.00 | 7,097.65 | 6,625.33 | 6,580.96 | 47.47 | 25.64 | -32.08 | -761.22 | 138.29 | 2,774.47 | 2,722.13 | 52.34 | 53.013 | |
| 9,400.00 | 7,097.30 | 6,622.11 | 6,577.82 | 48.82 | 25.63 | -31.90 | -760.84 | 137.75 | 2,872.01 | 2,819.61 | 52.40 | 54.807 | |
| 9,500.00 | 7,096.95 | 6,600.00 | 6,556.11 | 50.18 | 25.54 | -30.67 | -758.20 | 134.44 | 2,970.04 | 2,917.70 | 52.34 | 56.741 | |
| 9,600.00 | 7,096.60 | 6,600.00 | 6,556.11 | 51.56 | 25.54 | -30.67 | -758.20 | 134.44 | 3,067.76 | 3,015.34 | 52.43 | 58.516 | |
| 9,700.00 | 7,096.25 | 6,600.00 | 6,556.11 | 52.95 | 25.54 | -30.67 | -758.20 | 134.44 | 3,165.63 | 3,113.12 | 52.50 | 60.293 | |
| 9,800.00 | 7,095.90 | 6,600.00 | 6,556.11 | 54.35 | 25.54 | -30.67 | -758.20 | 134.44 | 3,263.62 | 3,211.04 | 52.58 | 62.071 | |
| 9,900.00 | 7,095.55 | 6,600.00 | 6,556.11 | 55.76 | 25.54 | -30.67 | -758.20 | 134.44 | 3,361.73 | 3,309.08 | 52.65 | 63.850 | |
| 10,000.00 | 7,095.20 | 6,600.00 | 6,556.11 | 57.18 | 25.54 | -30.67 | -758.20 | 134.44 | 3,459.95 | 3,407.23 | 52.72 | 65.630 | |
| 10,100.00 | 7,094.85 | 6,600.00 | 6,556.11 | 58.61 | 25.54 | -30.67 | -758.20 | 134.44 | 3,558.27 | 3,505.49 | 52.79 | 67.410 | |
| 10,200.00 | 7,094.50 | 6,600.00 | 6,556.11 | 60.05 | 25.54 | -30.67 | -758.20 | 134.44 | 3,656.68 | 3,603.83 | 52.85 | 69.189 | |
| 10,300.00 | 7,094.15 | 6,600.00 | 6,556.11 | 61.50 | 25.54 | -30.67 | -758.20 | 134.44 | 3,755.18 | 3,702.26 | 52.91 | 70.968 | |
| 10,400.00 | 7,093.80 | 6,600.00 | 6,556.11 | 62.96 | 25.54 | -30.67 | -758.20 | 134.44 | 3,853.75 | 3,800.77 | 52.98 | 72.746 | |
| 10,500.00 | 7,093.45 | 6,600.00 | 6,556.11 | 64.42 | 25.54 | -30.67 | -758.20 | 134.44 | 3,952.39 | 3,899.36 | 53.04 | 74.523 | |
| 10,600.00 | 7,093.10 | 6,600.00 | 6,556.11 | 65.89 | 25.54 | -30.67 | -758.20 | 134.44 | 4,051.10 | 3,998.01 | 53.10 | 76.298 | |
| 10,700.00 | 7,092.75 | 6,600.00 | 6,556.11 | 67.36 | 25.54 | -30.67 | -758.20 | 134.44 | 4,149.87 | 4,096.72 | 53.15 | 78.072 | |
| 10,800.00 | 7,092.40 | 6,600.00 | 6,556.11 | 68.84 | 25.54 | -30.67 | -758.20 | 134.44 | 4,248.70 | 4,195.49 | 53.21 | 79.845 | |
| 10,900.00 | 7,092.05 | 6,600.00 | 6,556.11 | 70.33 | 25.54 | -30.67 | -758.20 | 134.44 | 4,347.59 | 4,294.32 | 53.27 | 81.615 | |
| 11,000.00 | 7,091.70 | 6,600.00 | 6,556.11 | 71.82 | 25.54 | -30.67 | -758.20 | 134.44 | 4,446.52 | 4,393.19 | 53.33 | 83.383 | |
| 11,100.00 | 7,091.35 | 6,600.00 | 6,556.11 | 73.31 | 25.54 | -30.67 | -758.20 | 134.44 | 4,545.50 | 4,492.12 | 53.38 | 85.149 | |
| 11,200.00 | 7,091.00 | 6,600.00 | 6,556.11 | 74.81 | 25.54 | -30.67 | -758.20 | 134.44 | 4,644.52 | 4,591.08 | 53.44 | 86.913 | |
| 11,300.00 | 7,090.65 | 6,600.00 | 6,556.11 | 76.32 | 25.54 | -30.67 | -758.20 | 134.44 | 4,743.59 | 4,690.09 | 53.49 | 88.674 | |
| 11,400.00 | 7,090.30 | 6,600.00 | 6,556.11 | 77.82 | 25.54 | -30.67 | -758.20 | 134.44 | 4,842.69 | 4,789.14 | 53.55 | 90.432 | |
| 11,500.00 | 7,089.95 | 6,600.00 | 6,556.11 | 79.34 | 25.54 | -30.67 | -758.20 | 134.44 | 4,941.83 | 4,888.22 | 53.61 | 92.187 | |
| 11,600.00 | 7,089.60 | 6,600.00 | 6,556.11 | 80.85 | 25.54 | -30.67 | -758.20 | 134.44 | 5,041.00 | 4,987.34 | 53.66 | 93.939 | |
| 11,700.00 | 7,089.25 | 6,600.00 | 6,556.11 | 82.37 | 25.54 | -30.67 | -758.20 | 134.44 | 5,140.21 | 5,086.49 | 53.72 | 95.689 | |
| 11,800.00 | 7,088.90 | 6,577.57 | 6,534.00 | 83.89 | 25.45 | -29.49 | -755.51 | 131.86 | 5,239.00 | 5,185.33 | 53.67 | 97.616 | |
| 11,900.00 | 7,088.55 | 6,576.49 | 6,532.93 | 85.41 | 25.45 | -29.44 | -755.38 | 131.76 | 5,338.22 | 5,284.50 | 53.72 | 99.369 | |
| 12,000.00 | 7,088.20 | 6,575.44 | 6,531.89 | 86.94 | 25.44 | -29.38 | -755.25 | 131.66 | 5,437.47 | 5,383.69 | 53.77 | 101.118 | |
| 12,100.00 | 7,087.85 | 6,574.43 | 6,530.89 | 88.47 | 25.44 | -29.33 | -755.13 | 131.56 | 5,536.74 | 5,482.92 | 53.83 | 102.864 | |
| 12,200.00 | 7,087.50 | 6,573.44 | 6,529.92 | 90.00 | 25.43 | -29.28 | -755.01 | 131.47 | 5,636.04 | 5,582.16 | 53.88 | 104.605 | |
| 12,300.00 | 7,087.15 | 6,550.00 | 6,506.71 | 91.54 | 25.34 | -28.12 | -752.20 | 129.77 | 5,735.80 | 5,681.97 | 53.83 | 106.552 | |
| 12,400.00 | 7,086.81 | 6,550.00 | 6,506.71 | 93.07 | 25.34 | -28.12 | -752.20 | 129.77 | 5,835.10 | 5,781.21 | 53.89 | 108.279 | |
| 12,500.00 | 7,086.46 | 6,550.00 | 6,506.71 | 94.61 | 25.34 | -28.12 | -752.20 | 129.77 | 5,934.43 | 5,880.48 | 53.95 | 110.002 | |
| 12,600.00 | 7,086.11 | 6,550.00 | 6,506.71 | 96.15 | 25.34 | -28.12 | -752.20 | 129.77 | 6,033.78 | 5,979.78 | 54.01 | 111.721 | |
| 12,700.00 | 7,085.76 | 6,550.00 | 6,506.71 | 97.69 | 25.34 | -28.12 | -752.20 | 129.77 | 6,133.15 | 6,079.09 | 54.07 | 113.436 | |
| 12,800.00 | 7,085.41 | 6,550.00 | 6,506.71 | 99.24 | 25.34 | -28.12 | -752.20 | 129.77 | 6,232.55 | 6,178.42 | 54.13 | 115.147 | |
| 12,900.00 | 7,085.06 | 6,550.00 | 6,506.71 | 100.78 | 25.34 | -28.12 | -752.20 | 129.77 | 6,331.96 | 6,277.77 | 54.19 | 116.854 | |
| 13,000.00 | 7,084.71 | 6,550.00 | 6,506.71 | 102.33 | 25.34 | -28.12 | -752.20 | 129.77 | 6,431.39 | 6,377.14 | 54.25 | 118.557 | |
| 13,100.00 | 7,084.36 | 6,550.00 | 6,506.71 | 103.88 | 25.34 | -28.12 | -752.20 | 129.77 | 6,530.83 | 6,476.53 | 54.31 | 120.255 | |
| 13,200.00 | 7,084.01 | 6,550.00 | 6,506.71 | 105.43 | 25.34 | -28.12 | -752.20 | 129.77 | 6,630.30 | 6,575.93 | 54.37 | 121.949 | |
| 13,300.00 | 7,083.66 | 6,550.00 | 6,506.71 | 106.99 | 25.34 | -28.12 | -752.20 | 129.77 | 6,729.78 | 6,675.35 | 54.43 | 123.639 | |
| 13,400.00 | 7,083.31 | 6,550.00 | 6,506.71 | 108.54 | 25.34 | -28.12 | -752.20 | 129.77 | 6,829.27 | 6,774.78 | 54.49 | 125.324 | |
| 13,500.00 | 7,082.96 | 6,550.00 | 6,506.71 | 110.09 | 25.34 | -28.12 | -752.20 | 129.77 | 6,928.78 | 6,874.23 | 54.56 | 127.004 | |
| 13,600.00 | 7,082.61 | 6,550.00 | 6,506.71 | 111.65 | 25.34 | -28.12 | -752.20 | 129.77 | 7,028.30 | 6,973.69 | 54.62 | 128.680 | |
| 13,700.00 | 7,082.26 | 6,550.00 | 6,506.71 | 113.21 | 25.34 | -28.12 | -752.20 | 129.77 | 7,127.84 | 7,073.16 | 54.68 | 130.351 | |
| 13,800.00 | 7,081.91 | 6,550.00 | 6,506.71 | 114.77 | 25.34 | -28.12 | -752.20 | 129.77 | 7,227.39 | 7,172.64 | 54.75 | 132.017 | |
| 13,900.00 | 7,081.56 | 6,550.00 | 6,506.71 | 116.33 | 25.34 | -28.12 | -752.20 | 129.77 | 7,326.95 | 7,272.14 | 54.81 | 133.678 | |
| 14,000.00 | 7,081.21 | 6,550.00 | 6,506.71 | 117.89 | 25.34 | -28.12 | -752.20 | 129.77 | 7,426.52 | 7,371.65 | 54.88 | 135.335 | |

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

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

**Offset Design:** Rosa Unit 32 - Rosa Unit 754H - OH - Plan #5

**Offset Site Error:** 0.00 usft

**Survey Program:** 0-MWD+HRGM+MS

**Offset Well Error:** 3.28 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 14,100.00 | 7,080.86 | 6,550.00 | 6,506.71 | 119.45 | 25.34 | -28.12 | -752.20 | 129.77 | 7,526.11 | 7,471.17 | 54.94 | 136.987 | |
| 14,200.00 | 7,080.51 | 6,550.00 | 6,506.71 | 121.02 | 25.34 | -28.12 | -752.20 | 129.77 | 7,625.70 | 7,570.70 | 55.01 | 138.633 | |
| 14,300.00 | 7,080.16 | 6,550.00 | 6,506.71 | 122.58 | 25.34 | -28.12 | -752.20 | 129.77 | 7,725.31 | 7,670.24 | 55.07 | 140.275 | |
| 14,400.00 | 7,079.81 | 6,550.00 | 6,506.71 | 124.15 | 25.34 | -28.12 | -752.20 | 129.77 | 7,824.93 | 7,769.79 | 55.14 | 141.911 | |
| 14,500.00 | 7,079.46 | 6,550.00 | 6,506.71 | 125.71 | 25.34 | -28.12 | -752.20 | 129.77 | 7,924.55 | 7,869.35 | 55.21 | 143.543 | |
| 14,600.00 | 7,079.11 | 6,550.00 | 6,506.71 | 127.28 | 25.34 | -28.12 | -752.20 | 129.77 | 8,024.19 | 7,968.91 | 55.27 | 145.169 | |
| 14,700.00 | 7,078.76 | 6,550.00 | 6,506.71 | 128.85 | 25.34 | -28.12 | -752.20 | 129.77 | 8,123.83 | 8,068.49 | 55.34 | 146.790 | |
| 14,800.00 | 7,078.41 | 6,550.00 | 6,506.71 | 130.42 | 25.34 | -28.12 | -752.20 | 129.77 | 8,223.48 | 8,168.07 | 55.41 | 148.406 | |
| 14,900.00 | 7,078.06 | 6,550.00 | 6,506.71 | 131.98 | 25.34 | -28.12 | -752.20 | 129.77 | 8,323.14 | 8,267.66 | 55.48 | 150.017 | |
| 15,000.00 | 7,077.71 | 6,550.00 | 6,506.71 | 133.55 | 25.34 | -28.12 | -752.20 | 129.77 | 8,422.81 | 8,367.26 | 55.55 | 151.622 | |
| 15,100.00 | 7,077.36 | 6,550.00 | 6,506.71 | 135.13 | 25.34 | -28.12 | -752.20 | 129.77 | 8,522.49 | 8,466.87 | 55.62 | 153.222 | |
| 15,200.00 | 7,077.01 | 6,550.00 | 6,506.71 | 136.70 | 25.34 | -28.12 | -752.20 | 129.77 | 8,622.17 | 8,566.48 | 55.69 | 154.817 | |
| 15,300.00 | 7,076.66 | 6,550.00 | 6,506.71 | 138.27 | 25.34 | -28.12 | -752.20 | 129.77 | 8,721.87 | 8,666.10 | 55.76 | 156.406 | |
| 15,400.00 | 7,076.31 | 6,550.00 | 6,506.71 | 139.84 | 25.34 | -28.12 | -752.20 | 129.77 | 8,821.56 | 8,765.73 | 55.84 | 157.990 | |
| 15,500.00 | 7,075.96 | 6,550.00 | 6,506.71 | 141.42 | 25.34 | -28.12 | -752.20 | 129.77 | 8,921.27 | 8,865.36 | 55.91 | 159.569 | |
| 15,600.00 | 7,075.61 | 6,550.00 | 6,506.71 | 142.99 | 25.34 | -28.12 | -752.20 | 129.77 | 9,020.98 | 8,965.00 | 55.98 | 161.142 | |
| 15,700.00 | 7,075.26 | 6,550.00 | 6,506.71 | 144.57 | 25.34 | -28.12 | -752.20 | 129.77 | 9,120.70 | 9,064.64 | 56.06 | 162.709 | |
| 15,800.00 | 7,074.91 | 6,550.00 | 6,506.71 | 146.14 | 25.34 | -28.12 | -752.20 | 129.77 | 9,220.42 | 9,164.29 | 56.13 | 164.271 | |
| 15,900.00 | 7,074.56 | 6,550.00 | 6,506.71 | 147.72 | 25.34 | -28.12 | -752.20 | 129.77 | 9,320.15 | 9,263.95 | 56.20 | 165.828 | |
| 16,000.00 | 7,074.21 | 6,550.00 | 6,506.71 | 149.29 | 25.34 | -28.12 | -752.20 | 129.77 | 9,419.89 | 9,363.61 | 56.28 | 167.379 | |
| 16,100.00 | 7,073.86 | 6,550.00 | 6,506.71 | 150.87 | 25.34 | -28.12 | -752.20 | 129.77 | 9,519.63 | 9,463.28 | 56.35 | 168.924 | |
| 16,200.00 | 7,073.51 | 6,550.00 | 6,506.71 | 152.45 | 25.34 | -28.12 | -752.20 | 129.77 | 9,619.38 | 9,562.95 | 56.43 | 170.463 | |
| 16,300.00 | 7,073.16 | 6,550.00 | 6,506.71 | 154.03 | 25.34 | -28.12 | -752.20 | 129.77 | 9,719.13 | 9,662.62 | 56.51 | 171.998 | |
| 16,400.00 | 7,072.81 | 6,550.00 | 6,506.71 | 155.60 | 25.34 | -28.12 | -752.20 | 129.77 | 9,818.89 | 9,762.30 | 56.58 | 173.526 | |
| 16,500.00 | 7,072.46 | 6,550.00 | 6,506.71 | 157.18 | 25.34 | -28.12 | -752.20 | 129.77 | 9,918.65 | 9,861.99 | 56.66 | 175.049 | |
| 16,600.00 | 7,072.11 | 6,550.00 | 6,506.71 | 158.76 | 25.34 | -28.12 | -752.20 | 129.77 | 10,018.41 | 9,961.67 | 56.74 | 176.566 | |
| 16,631.96 | 7,072.00 | 6,550.00 | 6,506.71 | 159.27 | 25.34 | -28.12 | -752.20 | 129.77 | 10,050.30 | 9,993.54 | 56.77 | 177.050 | |

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

**Offset Design:** Rosa Unit 32 - Rosa Unit 756H - OH - Plan #6

**Offset Site Error:** 0.00 usft

**Survey Program:** 0-MWD+HRGM+MS

**Offset Well Error:** 3.28 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 3.28 | 3.28 | 177.54 | -75.00 | 3.22 | 75.07 | | | | |
| 100.00 | 100.00 | 100.00 | 100.00 | 3.29 | 3.29 | 177.54 | -75.00 | 3.22 | 75.07 | 68.49 | 6.58 | 11.410 | |
| 200.00 | 200.00 | 200.00 | 200.00 | 3.34 | 3.34 | 177.54 | -75.00 | 3.22 | 75.07 | 68.39 | 6.67 | 11.250 | |
| 300.00 | 300.00 | 300.00 | 300.00 | 3.42 | 3.42 | 177.54 | -75.00 | 3.22 | 75.07 | 68.23 | 6.84 | 10.975 | |
| 400.00 | 400.00 | 400.00 | 400.00 | 3.54 | 3.54 | 177.54 | -75.00 | 3.22 | 75.07 | 67.99 | 7.08 | 10.608 | |
| 500.00 | 500.00 | 500.00 | 500.00 | 3.69 | 3.69 | 177.54 | -75.00 | 3.22 | 75.07 | 67.69 | 7.37 | 10.179 CC | |
| 600.00 | 599.98 | 597.44 | 597.42 | 3.86 | 3.85 | -33.19 | -76.65 | 3.35 | 75.30 | 67.60 | 7.70 | 9.775 ES | |
| 697.00 | 696.84 | 691.90 | 691.76 | 4.04 | 4.03 | -35.29 | -81.40 | 3.72 | 76.04 | 68.00 | 8.05 | 9.451 | |
| 700.00 | 699.84 | 694.82 | 694.67 | 4.05 | 4.03 | -35.37 | -81.60 | 3.74 | 76.08 | 68.02 | 8.06 | 9.443 | |
| 800.00 | 799.60 | 792.08 | 791.57 | 4.25 | 4.23 | -38.09 | -89.83 | 4.39 | 79.06 | 70.61 | 8.45 | 9.360 SF | |
| 897.00 | 896.37 | 886.14 | 884.97 | 4.48 | 4.45 | -40.29 | -100.90 | 5.26 | 85.34 | 76.48 | 8.85 | 9.637 | |
| 900.00 | 899.37 | 889.04 | 887.84 | 4.48 | 4.46 | -39.49 | -101.29 | 5.29 | 85.58 | 76.71 | 8.87 | 9.651 | |
| 947.40 | 946.65 | 934.86 | 933.19 | 4.60 | 4.57 | -26.39 | -107.84 | 5.80 | 89.64 | 80.56 | 9.08 | 9.876 | |
| 1,000.00 | 999.13 | 985.59 | 983.26 | 4.73 | 4.71 | -26.76 | -115.93 | 6.44 | 94.79 | 85.47 | 9.31 | 10.179 | |
| 1,100.00 | 1,098.89 | 1,081.47 | 1,077.49 | 4.99 | 4.98 | -27.18 | -133.62 | 7.83 | 107.10 | 97.33 | 9.78 | 10.955 | |
| 1,200.00 | 1,198.66 | 1,176.48 | 1,170.21 | 5.27 | 5.27 | -27.31 | -154.25 | 9.46 | 122.69 | 112.44 | 10.26 | 11.962 | |
| 1,300.00 | 1,298.42 | 1,270.41 | 1,261.15 | 5.56 | 5.59 | -27.24 | -177.65 | 11.30 | 141.50 | 130.76 | 10.74 | 13.173 | |
| 1,400.00 | 1,398.18 | 1,363.82 | 1,350.80 | 5.85 | 5.94 | -27.04 | -203.81 | 13.36 | 163.44 | 152.19 | 11.26 | 14.522 | |
| 1,500.00 | 1,497.95 | 1,461.11 | 1,443.84 | 6.16 | 6.32 | -26.83 | -232.17 | 15.59 | 186.54 | 174.68 | 11.86 | 15.730 | |
| 1,600.00 | 1,597.71 | 1,558.41 | 1,536.88 | 6.47 | 6.72 | -26.67 | -260.53 | 17.82 | 209.63 | 197.15 | 12.48 | 16.797 | |
| 1,700.00 | 1,697.47 | 1,655.70 | 1,629.93 | 6.79 | 7.13 | -26.54 | -288.89 | 20.05 | 232.73 | 219.61 | 13.12 | 17.743 | |
| 1,800.00 | 1,797.24 | 1,753.00 | 1,722.97 | 7.11 | 7.56 | -26.44 | -317.25 | 22.28 | 255.82 | 242.06 | 13.76 | 18.585 | |
| 1,900.00 | 1,897.00 | 1,850.29 | 1,816.01 | 7.44 | 7.99 | -26.35 | -345.61 | 24.52 | 278.92 | 264.50 | 14.42 | 19.337 | |
| 2,000.00 | 1,996.76 | 1,947.59 | 1,909.06 | 7.77 | 8.44 | -26.28 | -373.97 | 26.75 | 302.02 | 286.93 | 15.09 | 20.010 | |
| 2,100.00 | 2,096.53 | 2,044.88 | 2,002.10 | 8.11 | 8.89 | -26.21 | -402.33 | 28.98 | 325.12 | 309.35 | 15.77 | 20.615 | |
| 2,200.00 | 2,196.29 | 2,142.18 | 2,095.15 | 8.44 | 9.35 | -26.16 | -430.68 | 31.21 | 348.22 | 331.76 | 16.46 | 21.162 | |
| 2,300.00 | 2,296.06 | 2,239.47 | 2,188.19 | 8.79 | 9.82 | -26.11 | -459.04 | 33.44 | 371.32 | 354.17 | 17.15 | 21.656 | |
| 2,400.00 | 2,395.82 | 2,336.77 | 2,281.23 | 9.13 | 10.28 | -26.07 | -487.40 | 35.68 | 394.41 | 376.57 | 17.84 | 22.106 | |
| 2,500.00 | 2,495.58 | 2,434.06 | 2,374.28 | 9.47 | 10.76 | -26.03 | -515.76 | 37.91 | 417.51 | 398.97 | 18.54 | 22.515 | |
| 2,600.00 | 2,595.35 | 2,531.36 | 2,467.32 | 9.82 | 11.23 | -25.99 | -544.12 | 40.14 | 440.61 | 421.36 | 19.25 | 22.889 | |
| 2,700.00 | 2,695.11 | 2,628.65 | 2,560.37 | 10.17 | 11.71 | -25.96 | -572.48 | 42.37 | 463.71 | 443.75 | 19.96 | 23.233 | |
| 2,800.00 | 2,794.87 | 2,725.95 | 2,653.41 | 10.52 | 12.19 | -25.94 | -600.84 | 44.60 | 486.81 | 466.14 | 20.67 | 23.548 | |
| 2,900.00 | 2,894.64 | 2,823.24 | 2,746.45 | 10.87 | 12.68 | -25.91 | -629.19 | 46.84 | 509.91 | 488.52 | 21.39 | 23.839 | |
| 3,000.00 | 2,994.40 | 2,920.54 | 2,839.50 | 11.23 | 13.17 | -25.89 | -657.55 | 49.07 | 533.01 | 510.90 | 22.11 | 24.108 | |
| 3,100.00 | 3,094.16 | 3,017.83 | 2,932.54 | 11.58 | 13.65 | -25.87 | -685.91 | 51.30 | 556.11 | 533.28 | 22.83 | 24.357 | |
| 3,200.00 | 3,193.93 | 3,115.13 | 3,025.58 | 11.94 | 14.14 | -25.85 | -714.27 | 53.53 | 579.21 | 555.66 | 23.56 | 24.589 | |
| 3,300.00 | 3,293.69 | 3,212.42 | 3,118.63 | 12.29 | 14.64 | -25.83 | -742.63 | 55.76 | 602.31 | 578.03 | 24.28 | 24.804 | |
| 3,400.00 | 3,393.45 | 3,309.72 | 3,211.67 | 12.65 | 15.13 | -25.81 | -770.99 | 57.99 | 625.41 | 600.40 | 25.01 | 25.005 | |
| 3,500.00 | 3,493.22 | 3,407.01 | 3,304.72 | 13.01 | 15.62 | -25.80 | -799.35 | 60.23 | 648.51 | 622.77 | 25.74 | 25.193 | |
| 3,600.00 | 3,592.98 | 3,504.31 | 3,397.76 | 13.37 | 16.12 | -25.78 | -827.71 | 62.46 | 671.61 | 645.14 | 26.47 | 25.368 | |
| 3,700.00 | 3,692.74 | 3,601.60 | 3,490.80 | 13.73 | 16.62 | -25.77 | -856.06 | 64.69 | 694.71 | 667.51 | 27.21 | 25.533 | |
| 3,800.00 | 3,792.51 | 3,698.90 | 3,583.85 | 14.09 | 17.11 | -25.76 | -884.42 | 66.92 | 717.82 | 689.87 | 27.94 | 25.688 | |
| 3,900.00 | 3,892.27 | 3,796.19 | 3,676.89 | 14.45 | 17.61 | -25.74 | -912.78 | 69.15 | 740.92 | 712.24 | 28.68 | 25.834 | |
| 4,000.00 | 3,992.04 | 3,893.49 | 3,769.93 | 14.81 | 18.11 | -25.73 | -941.14 | 71.39 | 764.02 | 734.60 | 29.42 | 25.971 | |
| 4,100.00 | 4,091.80 | 3,990.79 | 3,862.98 | 15.17 | 18.61 | -25.72 | -969.50 | 73.62 | 787.12 | 756.96 | 30.16 | 26.101 | |
| 4,200.00 | 4,191.56 | 4,088.08 | 3,956.02 | 15.53 | 19.11 | -25.71 | -997.86 | 75.85 | 810.22 | 779.32 | 30.90 | 26.223 | |
| 4,300.00 | 4,291.33 | 4,185.38 | 4,049.07 | 15.89 | 19.61 | -25.70 | -1,026.22 | 78.08 | 833.32 | 801.68 | 31.64 | 26.339 | |
| 4,400.00 | 4,391.09 | 4,282.67 | 4,142.11 | 16.26 | 20.12 | -25.69 | -1,054.57 | 80.31 | 856.42 | 824.04 | 32.38 | 26.449 | |
| 4,500.00 | 4,490.85 | 4,379.97 | 4,235.15 | 16.62 | 20.62 | -25.69 | -1,082.93 | 82.55 | 879.52 | 846.40 | 33.12 | 26.553 | |
| 4,600.00 | 4,590.62 | 4,477.26 | 4,328.20 | 16.99 | 21.12 | -25.68 | -1,111.29 | 84.78 | 902.62 | 868.75 | 33.87 | 26.653 | |
| 4,700.00 | 4,690.38 | 4,574.56 | 4,421.24 | 17.35 | 21.62 | -25.67 | -1,139.65 | 87.01 | 925.72 | 891.11 | 34.61 | 26.747 | |
| 4,800.00 | 4,790.14 | 4,671.85 | 4,514.29 | 17.71 | 22.13 | -25.66 | -1,168.01 | 89.24 | 948.82 | 913.46 | 35.36 | 26.836 | |

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

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

**Offset Design:** Rosa Unit 32 - Rosa Unit 756H - OH - Plan #6

**Offset Site Error:** 0.00 usft

**Survey Program:** 0-MWD+HRGM+MS

**Offset Well Error:** 3.28 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Rule Assigned: Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4,900.00 | 4,889.91 | 4,769.15 | 4,607.33 | 18.08 | 22.63 | -25.66 | -1,196.37 | 91.47 | 971.92 | 935.82 | 36.10 | 26.922 | |
| 5,000.00 | 4,989.67 | 4,866.44 | 4,700.37 | 18.44 | 23.14 | -25.65 | -1,224.73 | 93.70 | 995.02 | 958.17 | 36.85 | 27.003 | |
| 5,100.00 | 5,089.43 | 4,963.74 | 4,793.42 | 18.81 | 23.64 | -25.64 | -1,253.09 | 95.94 | 1,018.12 | 980.53 | 37.59 | 27.081 | |
| 5,200.00 | 5,189.20 | 5,061.03 | 4,886.46 | 19.17 | 24.15 | -25.64 | -1,281.44 | 98.17 | 1,041.22 | 1,002.88 | 38.34 | 27.156 | |
| 5,300.00 | 5,288.96 | 5,158.33 | 4,979.50 | 19.54 | 24.65 | -25.63 | -1,309.80 | 100.40 | 1,064.32 | 1,025.23 | 39.09 | 27.227 | |
| 5,400.00 | 5,388.72 | 5,255.62 | 5,072.55 | 19.91 | 25.16 | -25.63 | -1,338.16 | 102.63 | 1,087.42 | 1,047.58 | 39.84 | 27.295 | |
| 5,500.00 | 5,488.49 | 5,352.92 | 5,165.59 | 20.27 | 25.66 | -25.62 | -1,366.52 | 104.86 | 1,110.52 | 1,069.94 | 40.59 | 27.360 | |
| 5,600.00 | 5,588.25 | 5,450.21 | 5,258.64 | 20.64 | 26.17 | -25.62 | -1,394.88 | 107.10 | 1,133.63 | 1,092.29 | 41.34 | 27.423 | |
| 5,700.00 | 5,688.01 | 5,547.51 | 5,351.68 | 21.00 | 26.68 | -25.61 | -1,423.24 | 109.33 | 1,156.73 | 1,114.64 | 42.09 | 27.483 | |
| 5,800.00 | 5,787.78 | 5,644.80 | 5,444.72 | 21.37 | 27.18 | -25.61 | -1,451.60 | 111.56 | 1,179.83 | 1,136.99 | 42.84 | 27.541 | |
| 5,900.00 | 5,887.54 | 5,742.10 | 5,537.77 | 21.74 | 27.69 | -25.60 | -1,479.95 | 113.79 | 1,202.93 | 1,159.34 | 43.59 | 27.596 | |
| 6,000.00 | 5,987.31 | 5,839.39 | 5,630.81 | 22.11 | 28.20 | -25.60 | -1,508.31 | 116.02 | 1,226.03 | 1,181.69 | 44.34 | 27.650 | |
| 6,100.00 | 6,087.07 | 5,936.69 | 5,723.86 | 22.47 | 28.71 | -25.59 | -1,536.67 | 118.26 | 1,249.13 | 1,204.04 | 45.09 | 27.701 | |
| 6,200.00 | 6,186.83 | 6,033.98 | 5,816.90 | 22.84 | 29.21 | -25.59 | -1,565.03 | 120.49 | 1,272.23 | 1,226.38 | 45.85 | 27.751 | |
| 6,300.00 | 6,286.60 | 6,131.28 | 5,909.94 | 23.21 | 29.72 | -25.59 | -1,593.39 | 122.72 | 1,295.33 | 1,248.73 | 46.60 | 27.798 | |
| 6,400.00 | 6,386.36 | 6,228.57 | 6,002.99 | 23.58 | 30.23 | -25.58 | -1,621.75 | 124.95 | 1,318.43 | 1,271.08 | 47.35 | 27.844 | |
| 6,494.00 | 6,480.13 | 6,320.03 | 6,090.44 | 23.92 | 30.71 | -25.58 | -1,648.40 | 127.05 | 1,340.14 | 1,292.09 | 48.06 | 27.886 | |
| 6,500.00 | 6,486.12 | 6,325.87 | 6,096.03 | 23.94 | 30.74 | -32.73 | -1,650.11 | 127.18 | 1,341.54 | 1,293.43 | 48.10 | 27.888 | |
| 6,550.00 | 6,535.89 | 6,374.34 | 6,142.39 | 24.13 | 30.99 | -67.23 | -1,664.24 | 128.29 | 1,353.51 | 1,305.02 | 48.48 | 27.916 | |
| 6,600.00 | 6,585.24 | 6,422.32 | 6,188.27 | 24.31 | 31.24 | -78.60 | -1,678.22 | 129.40 | 1,366.12 | 1,317.25 | 48.87 | 27.954 | |
| 6,650.00 | 6,633.88 | 6,469.51 | 6,233.39 | 24.50 | 31.49 | -83.38 | -1,691.97 | 130.48 | 1,379.34 | 1,330.08 | 49.26 | 28.002 | |
| 6,700.00 | 6,681.49 | 6,515.61 | 6,277.48 | 24.68 | 31.73 | -85.78 | -1,705.41 | 131.54 | 1,393.17 | 1,343.52 | 49.65 | 28.060 | |
| 6,750.00 | 6,727.80 | 6,560.34 | 6,320.26 | 24.86 | 31.96 | -87.07 | -1,718.45 | 132.56 | 1,407.63 | 1,357.59 | 50.05 | 28.127 | |
| 6,800.00 | 6,772.51 | 6,603.43 | 6,361.46 | 25.04 | 32.19 | -87.78 | -1,731.01 | 133.55 | 1,422.76 | 1,372.31 | 50.45 | 28.203 | |
| 6,850.00 | 6,815.34 | 6,644.60 | 6,400.84 | 25.21 | 32.40 | -88.11 | -1,743.01 | 134.49 | 1,438.59 | 1,387.74 | 50.85 | 28.290 | |
| 6,900.00 | 6,856.04 | 6,683.62 | 6,438.15 | 25.39 | 32.61 | -88.18 | -1,754.38 | 135.39 | 1,455.19 | 1,403.93 | 51.26 | 28.387 | |
| 6,950.00 | 6,894.35 | 6,720.23 | 6,473.16 | 25.57 | 32.80 | -88.02 | -1,765.05 | 136.23 | 1,472.61 | 1,420.93 | 51.68 | 28.494 | |
| 7,000.00 | 6,930.04 | 6,754.20 | 6,505.65 | 25.75 | 32.98 | -87.66 | -1,774.95 | 137.01 | 1,490.89 | 1,438.79 | 52.11 | 28.612 | |
| 7,050.00 | 6,962.89 | 6,785.34 | 6,535.43 | 25.93 | 33.14 | -87.08 | -1,784.03 | 137.72 | 1,510.09 | 1,457.55 | 52.54 | 28.741 | |
| 7,100.00 | 6,992.69 | 6,800.00 | 6,549.44 | 26.13 | 33.22 | -85.84 | -1,788.32 | 138.13 | 1,530.34 | 1,477.46 | 52.87 | 28.944 | |
| 7,150.00 | 7,019.25 | 6,800.00 | 6,549.44 | 26.33 | 33.22 | -83.92 | -1,788.32 | 138.13 | 1,551.84 | 1,498.73 | 53.11 | 29.220 | |
| 7,200.00 | 7,042.43 | 6,817.06 | 6,565.69 | 26.55 | 33.31 | -82.45 | -1,793.43 | 138.99 | 1,574.30 | 1,520.78 | 53.52 | 29.415 | |
| 7,250.00 | 7,062.07 | 6,823.10 | 6,571.43 | 26.79 | 33.34 | -80.43 | -1,795.26 | 139.41 | 1,597.79 | 1,543.93 | 53.87 | 29.663 | |
| 7,300.00 | 7,078.05 | 6,827.48 | 6,575.59 | 27.04 | 33.37 | -78.22 | -1,796.61 | 139.74 | 1,622.12 | 1,567.89 | 54.22 | 29.915 | |
| 7,350.00 | 7,090.27 | 6,830.31 | 6,578.27 | 27.30 | 33.38 | -75.84 | -1,797.48 | 139.97 | 1,647.12 | 1,592.53 | 54.59 | 30.171 | |
| 7,400.00 | 7,098.66 | 6,831.68 | 6,579.57 | 27.58 | 33.39 | -73.33 | -1,797.90 | 140.08 | 1,672.64 | 1,617.67 | 54.97 | 30.427 | |
| 7,450.00 | 7,103.17 | 6,831.70 | 6,579.59 | 27.87 | 33.39 | -70.72 | -1,797.90 | 140.08 | 1,698.51 | 1,643.16 | 55.36 | 30.682 | |
| 7,484.86 | 7,104.00 | 6,830.97 | 6,578.89 | 28.08 | 33.38 | -68.86 | -1,797.68 | 140.02 | 1,716.67 | 1,661.04 | 55.63 | 30.859 | |
| 7,500.00 | 7,103.95 | 6,830.53 | 6,578.47 | 28.17 | 33.38 | -68.84 | -1,797.54 | 139.98 | 1,724.61 | 1,668.86 | 55.75 | 30.935 | |
| 7,600.00 | 7,103.60 | 6,827.76 | 6,575.85 | 28.83 | 33.37 | -68.74 | -1,796.69 | 139.76 | 1,779.41 | 1,722.87 | 56.54 | 31.473 | |
| 7,700.00 | 7,103.25 | 6,825.25 | 6,573.47 | 29.56 | 33.35 | -68.64 | -1,795.92 | 139.56 | 1,838.01 | 1,780.70 | 57.31 | 32.070 | |
| 7,800.00 | 7,102.90 | 6,822.95 | 6,571.29 | 30.35 | 33.34 | -68.55 | -1,795.22 | 139.39 | 1,900.06 | 1,841.99 | 58.06 | 32.723 | |
| 7,900.00 | 7,102.55 | 6,820.84 | 6,569.28 | 31.21 | 33.33 | -68.47 | -1,794.57 | 139.25 | 1,965.23 | 1,906.45 | 58.78 | 33.432 | |
| 8,000.00 | 7,102.20 | 6,818.89 | 6,567.43 | 32.13 | 33.32 | -68.39 | -1,793.98 | 139.11 | 2,033.23 | 1,973.76 | 59.46 | 34.193 | |
| 8,100.00 | 7,101.85 | 6,800.00 | 6,549.44 | 33.10 | 33.22 | -67.66 | -1,788.32 | 138.13 | 2,104.05 | 2,044.09 | 59.95 | 35.095 | |
| 8,200.00 | 7,101.50 | 6,800.00 | 6,549.44 | 34.11 | 33.22 | -67.66 | -1,788.32 | 138.13 | 2,176.85 | 2,116.28 | 60.57 | 35.940 | |
| 8,300.00 | 7,101.15 | 6,800.00 | 6,549.44 | 35.17 | 33.22 | -67.66 | -1,788.32 | 138.13 | 2,251.73 | 2,190.59 | 61.14 | 36.828 | |
| 8,400.00 | 7,100.80 | 6,800.00 | 6,549.44 | 36.27 | 33.22 | -67.66 | -1,788.32 | 138.13 | 2,328.51 | 2,266.83 | 61.68 | 37.753 | |
| 8,500.00 | 7,100.45 | 6,800.00 | 6,549.44 | 37.41 | 33.22 | -67.66 | -1,788.32 | 138.13 | 2,406.99 | 2,344.82 | 62.17 | 38.714 | |
| 8,600.00 | 7,100.10 | 6,800.00 | 6,549.44 | 38.58 | 33.22 | -67.66 | -1,788.32 | 138.13 | 2,487.02 | 2,424.38 | 62.64 | 39.706 | |
| 8,700.00 | 7,099.75 | 6,800.00 | 6,549.44 | 39.78 | 33.22 | -67.66 | -1,788.32 | 138.13 | 2,568.44 | 2,505.38 | 63.06 | 40.728 | |
| 8,800.00 | 7,099.40 | 6,800.00 | 6,549.44 | 41.00 | 33.22 | -67.66 | -1,788.32 | 138.13 | 2,651.14 | 2,587.68 | 63.46 | 41.776 | |

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



Released to Imaging: 5/21/2024 2:23:14 PM

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

**Offset Design:** Rosa Unit 32 - Rosa Unit 756H - OH - Plan #6

**Offset Site Error:** 0.00 usft

**Survey Program:** 0-MWD+HRGM+MS

**Offset Well Error:** 3.28 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8,900.00 | 7,099.05 | 6,800.00 | 6,549.44 | 42.25 | 33.22 | -67.66 | -1,788.32 | 138.13 | 2,735.00 | 2,671.17 | 63.83 | 42.847 | |
| 9,000.00 | 7,098.70 | 6,800.00 | 6,549.44 | 43.53 | 33.22 | -67.66 | -1,788.32 | 138.13 | 2,819.90 | 2,755.73 | 64.17 | 43.941 | |
| 9,100.00 | 7,098.35 | 6,800.00 | 6,549.44 | 44.82 | 33.22 | -67.66 | -1,788.32 | 138.13 | 2,905.77 | 2,841.28 | 64.50 | 45.054 | |
| 9,200.00 | 7,098.00 | 6,800.00 | 6,549.44 | 46.14 | 33.22 | -67.66 | -1,788.32 | 138.13 | 2,992.52 | 2,927.72 | 64.79 | 46.185 | |
| 9,300.00 | 7,097.65 | 6,800.00 | 6,549.44 | 47.47 | 33.22 | -67.66 | -1,788.32 | 138.13 | 3,080.07 | 3,014.99 | 65.07 | 47.332 | |
| 9,400.00 | 7,097.30 | 6,800.00 | 6,549.44 | 48.82 | 33.22 | -67.66 | -1,788.32 | 138.13 | 3,168.35 | 3,103.02 | 65.33 | 48.495 | |
| 9,500.00 | 7,096.95 | 6,800.00 | 6,549.44 | 50.18 | 33.22 | -67.66 | -1,788.32 | 138.13 | 3,257.32 | 3,191.74 | 65.58 | 49.670 | |
| 9,600.00 | 7,096.60 | 6,800.00 | 6,549.44 | 51.56 | 33.22 | -67.66 | -1,788.32 | 138.13 | 3,346.90 | 3,281.09 | 65.81 | 50.858 | |
| 9,700.00 | 7,096.25 | 6,800.00 | 6,549.44 | 52.95 | 33.22 | -67.66 | -1,788.32 | 138.13 | 3,437.06 | 3,371.04 | 66.02 | 52.057 | |
| 9,800.00 | 7,095.90 | 6,800.00 | 6,549.44 | 54.35 | 33.22 | -67.66 | -1,788.32 | 138.13 | 3,527.75 | 3,461.53 | 66.23 | 53.267 | |
| 9,900.00 | 7,095.55 | 6,800.00 | 6,549.44 | 55.76 | 33.22 | -67.66 | -1,788.32 | 138.13 | 3,618.94 | 3,552.52 | 66.42 | 54.485 | |
| 10,000.00 | 7,095.20 | 6,800.00 | 6,549.44 | 57.18 | 33.22 | -67.66 | -1,788.32 | 138.13 | 3,710.57 | 3,643.97 | 66.60 | 55.712 | |
| 10,100.00 | 7,094.85 | 6,800.00 | 6,549.44 | 58.61 | 33.22 | -67.66 | -1,788.32 | 138.13 | 3,802.63 | 3,735.86 | 66.77 | 56.947 | |
| 10,200.00 | 7,094.50 | 6,800.00 | 6,549.44 | 60.05 | 33.22 | -67.66 | -1,788.32 | 138.13 | 3,895.08 | 3,828.14 | 66.94 | 58.189 | |
| 10,300.00 | 7,094.15 | 6,800.00 | 6,549.44 | 61.50 | 33.22 | -67.66 | -1,788.32 | 138.13 | 3,987.89 | 3,920.80 | 67.09 | 59.438 | |
| 10,400.00 | 7,093.80 | 6,800.00 | 6,549.44 | 62.96 | 33.22 | -67.66 | -1,788.32 | 138.13 | 4,081.05 | 4,013.81 | 67.24 | 60.692 | |
| 10,500.00 | 7,093.45 | 6,795.45 | 6,545.09 | 64.42 | 33.19 | -67.48 | -1,786.98 | 137.98 | 4,174.50 | 4,107.15 | 67.35 | 61.984 | |
| 10,600.00 | 7,093.10 | 6,794.98 | 6,544.65 | 65.89 | 33.19 | -67.46 | -1,786.84 | 137.96 | 4,268.26 | 4,200.78 | 67.48 | 63.253 | |
| 10,700.00 | 7,092.75 | 6,794.54 | 6,544.22 | 67.36 | 33.19 | -67.44 | -1,786.71 | 137.95 | 4,362.30 | 4,294.69 | 67.61 | 64.525 | |
| 10,800.00 | 7,092.40 | 6,790.12 | 6,540.00 | 68.84 | 33.17 | -67.27 | -1,785.42 | 137.83 | 4,456.61 | 4,388.92 | 67.70 | 65.833 | |
| 10,900.00 | 7,092.05 | 6,790.12 | 6,540.00 | 70.33 | 33.17 | -67.27 | -1,785.42 | 137.83 | 4,551.15 | 4,483.34 | 67.82 | 67.111 | |
| 11,000.00 | 7,091.70 | 6,790.12 | 6,540.00 | 71.82 | 33.17 | -67.27 | -1,785.42 | 137.83 | 4,645.92 | 4,577.99 | 67.93 | 68.391 | |
| 11,100.00 | 7,091.35 | 6,790.12 | 6,540.00 | 73.31 | 33.17 | -67.27 | -1,785.42 | 137.83 | 4,740.90 | 4,672.86 | 68.04 | 69.675 | |
| 11,200.00 | 7,091.00 | 6,790.12 | 6,540.00 | 74.81 | 33.17 | -67.27 | -1,785.42 | 137.83 | 4,836.09 | 4,767.93 | 68.15 | 70.961 | |
| 11,300.00 | 7,090.65 | 6,790.12 | 6,540.00 | 76.32 | 33.17 | -67.27 | -1,785.42 | 137.83 | 4,931.46 | 4,863.20 | 68.26 | 72.250 | |
| 11,400.00 | 7,090.30 | 6,790.12 | 6,540.00 | 77.82 | 33.17 | -67.27 | -1,785.42 | 137.83 | 5,027.02 | 4,958.66 | 68.36 | 73.540 | |
| 11,500.00 | 7,089.95 | 6,790.12 | 6,540.00 | 79.34 | 33.17 | -67.27 | -1,785.42 | 137.83 | 5,122.74 | 5,054.28 | 68.46 | 74.833 | |
| 11,600.00 | 7,089.60 | 6,790.12 | 6,540.00 | 80.85 | 33.17 | -67.27 | -1,785.42 | 137.83 | 5,218.62 | 5,150.07 | 68.55 | 76.127 | |
| 11,700.00 | 7,089.25 | 6,790.12 | 6,540.00 | 82.37 | 33.17 | -67.27 | -1,785.42 | 137.83 | 5,314.66 | 5,246.02 | 68.65 | 77.422 | |
| 11,800.00 | 7,088.90 | 6,790.12 | 6,540.00 | 83.89 | 33.17 | -67.27 | -1,785.42 | 137.83 | 5,410.84 | 5,342.11 | 68.74 | 78.719 | |
| 11,900.00 | 7,088.55 | 6,790.12 | 6,540.00 | 85.41 | 33.17 | -67.27 | -1,785.42 | 137.83 | 5,507.16 | 5,438.33 | 68.83 | 80.016 | |
| 12,000.00 | 7,088.20 | 6,788.96 | 6,538.88 | 86.94 | 33.16 | -67.23 | -1,785.08 | 137.81 | 5,603.60 | 5,534.70 | 68.90 | 81.326 | |
| 12,100.00 | 7,087.85 | 6,786.20 | 6,536.25 | 88.47 | 33.14 | -67.12 | -1,784.28 | 137.74 | 5,700.17 | 5,631.20 | 68.97 | 82.650 | |
| 12,200.00 | 7,087.50 | 6,783.45 | 6,533.61 | 90.00 | 33.13 | -67.01 | -1,783.48 | 137.68 | 5,796.85 | 5,727.82 | 69.03 | 83.976 | |
| 12,300.00 | 7,087.15 | 6,780.69 | 6,530.98 | 91.54 | 33.12 | -66.91 | -1,782.67 | 137.62 | 5,893.64 | 5,824.55 | 69.09 | 85.303 | |
| 12,400.00 | 7,086.81 | 6,777.94 | 6,528.35 | 93.07 | 33.10 | -66.80 | -1,781.87 | 137.55 | 5,990.54 | 5,921.39 | 69.15 | 86.631 | |
| 12,500.00 | 7,086.46 | 6,775.18 | 6,525.71 | 94.61 | 33.09 | -66.69 | -1,781.07 | 137.49 | 6,087.53 | 6,018.32 | 69.21 | 87.960 | |
| 12,600.00 | 7,086.11 | 6,772.43 | 6,523.08 | 96.15 | 33.07 | -66.59 | -1,780.27 | 137.43 | 6,184.62 | 6,115.36 | 69.27 | 89.289 | |
| 12,700.00 | 7,085.76 | 6,769.67 | 6,520.44 | 97.69 | 33.06 | -66.48 | -1,779.46 | 137.36 | 6,281.80 | 6,212.48 | 69.32 | 90.618 | |
| 12,800.00 | 7,085.41 | 6,766.92 | 6,517.81 | 99.24 | 33.04 | -66.37 | -1,778.66 | 137.30 | 6,379.07 | 6,309.69 | 69.38 | 91.948 | |
| 12,900.00 | 7,085.06 | 6,764.17 | 6,515.18 | 100.78 | 33.03 | -66.27 | -1,777.86 | 137.24 | 6,476.41 | 6,406.98 | 69.43 | 93.279 | |
| 13,000.00 | 7,084.71 | 6,761.41 | 6,512.54 | 102.33 | 33.02 | -66.16 | -1,777.05 | 137.17 | 6,573.84 | 6,504.35 | 69.48 | 94.609 | |
| 13,100.00 | 7,084.36 | 6,758.66 | 6,509.91 | 103.88 | 33.00 | -66.05 | -1,776.25 | 137.11 | 6,671.34 | 6,601.80 | 69.54 | 95.939 | |
| 13,200.00 | 7,084.01 | 6,755.90 | 6,507.27 | 105.43 | 32.99 | -65.95 | -1,775.45 | 137.05 | 6,768.91 | 6,699.32 | 69.59 | 97.269 | |
| 13,300.00 | 7,083.66 | 6,753.15 | 6,504.64 | 106.99 | 32.97 | -65.84 | -1,774.65 | 136.98 | 6,866.55 | 6,796.91 | 69.64 | 98.599 | |
| 13,400.00 | 7,083.31 | 6,750.39 | 6,502.01 | 108.54 | 32.96 | -65.74 | -1,773.84 | 136.92 | 6,964.26 | 6,894.57 | 69.69 | 99.929 | |
| 13,500.00 | 7,082.96 | 6,747.64 | 6,499.37 | 110.09 | 32.94 | -65.63 | -1,773.04 | 136.86 | 7,062.03 | 6,992.29 | 69.74 | 101.258 | |
| 13,600.00 | 7,082.61 | 6,744.89 | 6,496.74 | 111.65 | 32.93 | -65.52 | -1,772.24 | 136.79 | 7,159.86 | 7,090.07 | 69.79 | 102.587 | |
| 13,700.00 | 7,082.26 | 6,742.13 | 6,494.10 | 113.21 | 32.91 | -65.42 | -1,771.44 | 136.73 | 7,257.75 | 7,187.91 | 69.84 | 103.916 | |
| 13,800.00 | 7,081.91 | 6,739.38 | 6,491.47 | 114.77 | 32.90 | -65.31 | -1,770.63 | 136.67 | 7,355.69 | 7,285.80 | 69.89 | 105.243 | |
| 13,900.00 | 7,081.56 | 6,736.62 | 6,488.84 | 116.33 | 32.89 | -65.21 | -1,769.83 | 136.61 | 7,453.69 | 7,383.75 | 69.94 | 106.571 | |
| 14,000.00 | 7,081.21 | 6,733.87 | 6,486.20 | 117.89 | 32.87 | -65.10 | -1,769.03 | 136.54 | 7,551.74 | 7,481.75 | 69.99 | 107.897 | |

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

# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

**Offset Design:** Rosa Unit 32 - Rosa Unit 756H - OH - Plan #6

**Offset Site Error:** 0.00 usft

**Survey Program:** 0-MWD+HRGM+MS

**Offset Well Error:** 3.28 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 14,100.00 | 7,080.86 | 6,731.11 | 6,483.57 | 119.45 | 32.86 | -64.99 | -1,768.22 | 136.48 | 7,649.84 | 7,579.80 | 70.04 | 109.222 | |
| 14,200.00 | 7,080.51 | 6,728.36 | 6,480.93 | 121.02 | 32.84 | -64.89 | -1,767.42 | 136.42 | 7,747.99 | 7,677.90 | 70.09 | 110.547 | |
| 14,300.00 | 7,080.16 | 6,725.61 | 6,478.30 | 122.58 | 32.83 | -64.78 | -1,766.62 | 136.35 | 7,846.18 | 7,776.04 | 70.14 | 111.871 | |
| 14,400.00 | 7,079.81 | 6,722.85 | 6,475.67 | 124.15 | 32.81 | -64.68 | -1,765.82 | 136.29 | 7,944.42 | 7,874.23 | 70.18 | 113.193 | |
| 14,500.00 | 7,079.46 | 6,720.10 | 6,473.03 | 125.71 | 32.80 | -64.57 | -1,765.01 | 136.23 | 8,042.70 | 7,972.46 | 70.23 | 114.515 | |
| 14,600.00 | 7,079.11 | 6,717.34 | 6,470.40 | 127.28 | 32.78 | -64.46 | -1,764.21 | 136.16 | 8,141.02 | 8,070.74 | 70.28 | 115.835 | |
| 14,700.00 | 7,078.76 | 6,714.59 | 6,467.77 | 128.85 | 32.77 | -64.36 | -1,763.41 | 136.10 | 8,239.38 | 8,169.05 | 70.33 | 117.154 | |
| 14,800.00 | 7,078.41 | 6,711.83 | 6,465.13 | 130.42 | 32.76 | -64.25 | -1,762.60 | 136.04 | 8,337.78 | 8,267.40 | 70.38 | 118.472 | |
| 14,900.00 | 7,078.06 | 6,709.08 | 6,462.50 | 131.98 | 32.74 | -64.15 | -1,761.80 | 135.97 | 8,436.21 | 8,365.78 | 70.43 | 119.789 | |
| 15,000.00 | 7,077.71 | 6,706.33 | 6,459.86 | 133.55 | 32.73 | -64.04 | -1,761.00 | 135.91 | 8,534.68 | 8,464.21 | 70.47 | 121.104 | |
| 15,100.00 | 7,077.36 | 6,703.57 | 6,457.23 | 135.13 | 32.71 | -63.94 | -1,760.20 | 135.85 | 8,633.18 | 8,562.66 | 70.52 | 122.418 | |
| 15,200.00 | 7,077.01 | 6,700.82 | 6,454.60 | 136.70 | 32.70 | -63.83 | -1,759.39 | 135.78 | 8,731.72 | 8,661.15 | 70.57 | 123.730 | |
| 15,300.00 | 7,076.66 | 6,698.06 | 6,451.96 | 138.27 | 32.68 | -63.73 | -1,758.59 | 135.72 | 8,830.29 | 8,759.67 | 70.62 | 125.041 | |
| 15,400.00 | 7,076.31 | 6,695.31 | 6,449.33 | 139.84 | 32.67 | -63.62 | -1,757.79 | 135.66 | 8,928.89 | 8,858.22 | 70.67 | 126.350 | |
| 15,500.00 | 7,075.96 | 6,692.55 | 6,446.69 | 141.42 | 32.66 | -63.52 | -1,756.98 | 135.59 | 9,027.52 | 8,956.81 | 70.72 | 127.657 | |
| 15,600.00 | 7,075.61 | 6,689.80 | 6,444.06 | 142.99 | 32.64 | -63.41 | -1,756.18 | 135.53 | 9,126.18 | 9,055.42 | 70.77 | 128.963 | |
| 15,700.00 | 7,075.26 | 6,687.05 | 6,441.43 | 144.57 | 32.63 | -63.31 | -1,755.38 | 135.47 | 9,224.87 | 9,154.06 | 70.81 | 130.268 | |
| 15,800.00 | 7,074.91 | 6,684.29 | 6,438.79 | 146.14 | 32.61 | -63.20 | -1,754.58 | 135.40 | 9,323.58 | 9,252.72 | 70.86 | 131.570 | |
| 15,900.00 | 7,074.56 | 6,681.54 | 6,436.16 | 147.72 | 32.60 | -63.10 | -1,753.77 | 135.34 | 9,422.33 | 9,351.41 | 70.91 | 132.871 | |
| 16,000.00 | 7,074.21 | 6,678.78 | 6,433.52 | 149.29 | 32.58 | -62.99 | -1,752.97 | 135.28 | 9,521.09 | 9,450.13 | 70.96 | 134.170 | |
| 16,100.00 | 7,073.86 | 6,676.03 | 6,430.89 | 150.87 | 32.57 | -62.89 | -1,752.17 | 135.22 | 9,619.88 | 9,548.87 | 71.01 | 135.467 | |
| 16,200.00 | 7,073.51 | 6,673.27 | 6,428.26 | 152.45 | 32.55 | -62.78 | -1,751.37 | 135.15 | 9,718.70 | 9,647.64 | 71.06 | 136.762 | |
| 16,300.00 | 7,073.16 | 6,670.52 | 6,425.62 | 154.03 | 32.54 | -62.68 | -1,750.56 | 135.09 | 9,817.54 | 9,746.42 | 71.11 | 138.055 | |
| 16,400.00 | 7,072.81 | 6,667.77 | 6,422.99 | 155.60 | 32.53 | -62.57 | -1,749.76 | 135.03 | 9,916.40 | 9,845.23 | 71.16 | 139.346 | |
| 16,500.00 | 7,072.46 | 6,665.01 | 6,420.35 | 157.18 | 32.51 | -62.47 | -1,748.96 | 134.96 | 10,015.28 | 9,944.07 | 71.21 | 140.635 | |
| 16,600.00 | 7,072.11 | 6,662.26 | 6,417.72 | 158.76 | 32.50 | -62.37 | -1,748.15 | 134.90 | 10,114.18 | 10,042.92 | 71.27 | 141.922 | |
| 16,631.96 | 7,072.00 | 6,661.38 | 6,416.88 | 159.27 | 32.49 | -62.33 | -1,747.90 | 134.88 | 10,145.80 | 10,074.52 | 71.28 | 142.333 | |

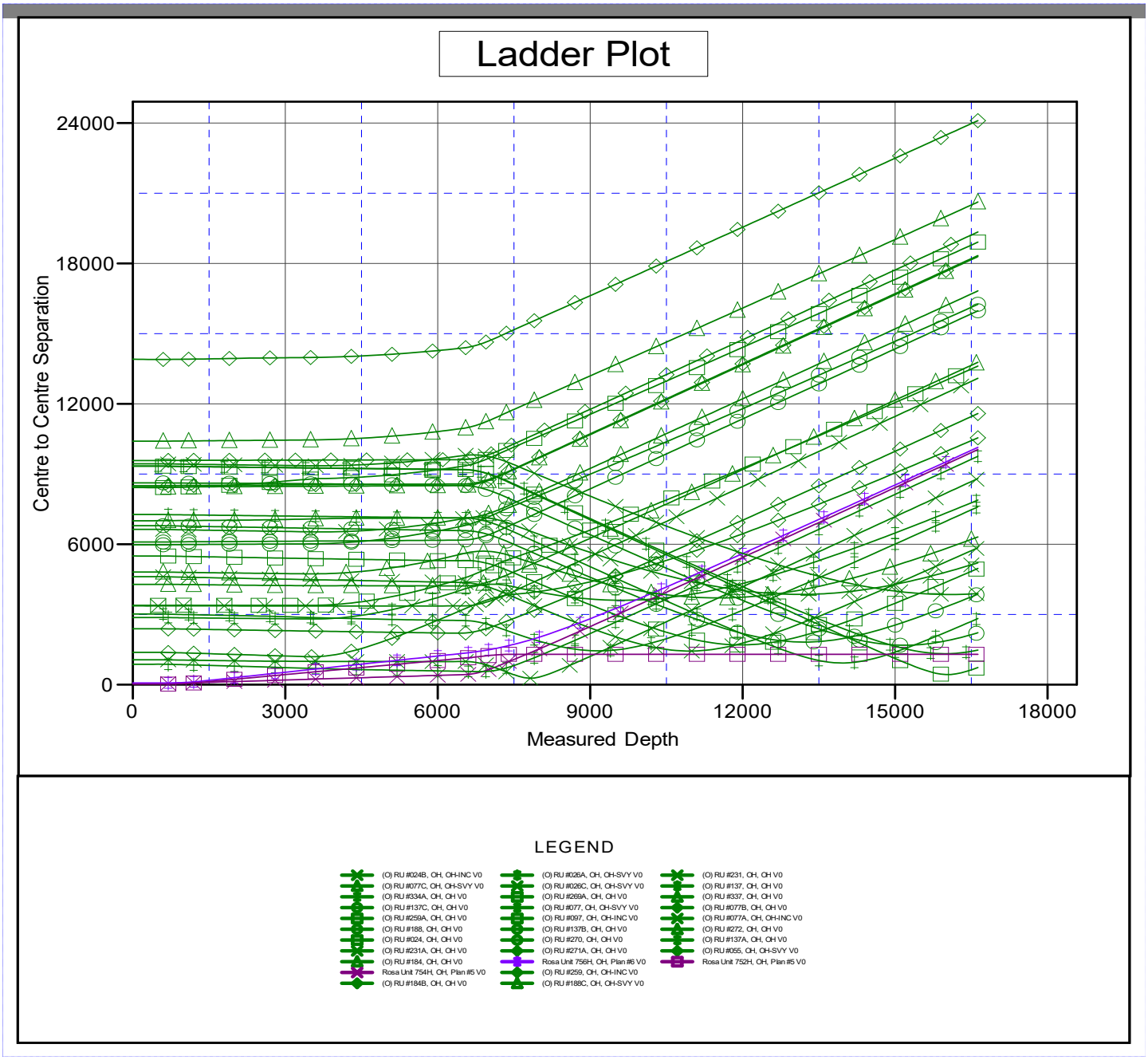
# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

Coordinates are relative to: Rosa Unit 750H
Coordinate System is US State Plane 1983, New Mexico Western Zone
Grid Convergence at Surface is: 0.28°




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

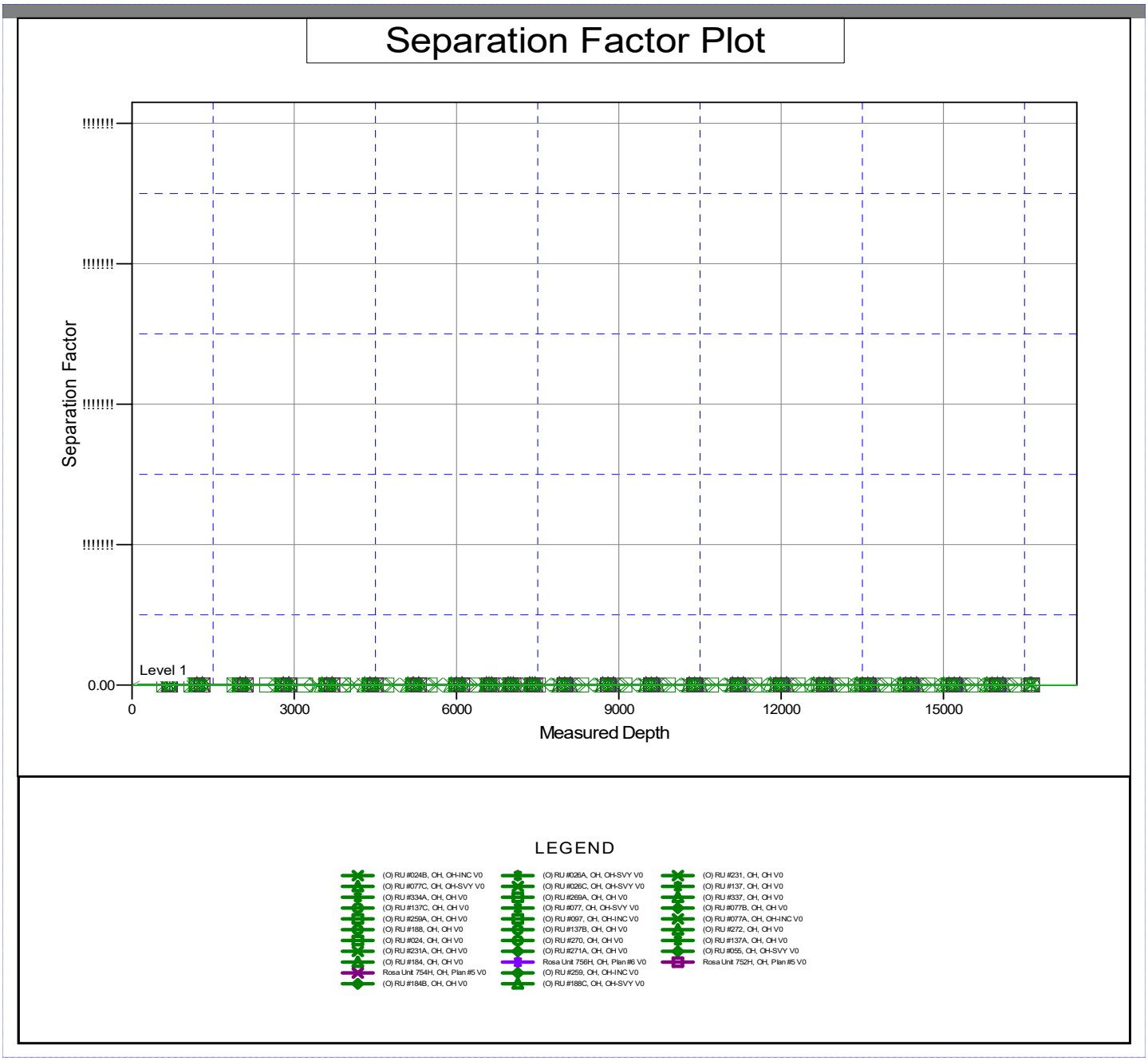
# SDT

## Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Logos Operating LLC | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Project:** | Rio Arriba, NM (NAD83) | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Reference Site:** | Rosa Unit 32 | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site Error:** | 0.00 usft | **North Reference:** | True |
| **Reference Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 3.28 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | EDM 5000 Multi User Db |
| **Reference Design:** | Plan #6 | **Offset TVD Reference:** | Offset Datum |

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

Coordinates are relative to: Rosa Unit 750H
Coordinate System is US State Plane 1983, New Mexico Western Zone
Grid Convergence at Surface is: 0.28°



# Logos Operating LLC

**Rio Arriba, NM (NAD83)**
**Rosa Unit 32**
**Rosa Unit 750H**

**OH**

**Plan: Plan #6**

# Standard Planning Report

**29 April, 2024**

# SDT
## Planning Report

| | | | |
|---|---|---|---|
| **Database:** | EDM 5000 Multi User Db | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Company:** | Logos Operating LLC | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Project:** | Rio Arriba, NM (NAD83) | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site:** | Rosa Unit 32 | **North Reference:** | True |
| **Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | OH | | |
| **Design:** | Plan #6 | | |

**Project** Rio Arriba, NM (NAD83)

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

**Site** Rosa Unit 32

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

**Well** Rosa Unit 750H

| | | | | | | |
|---|---|---|---|---|---|---|
| **Well Position** | **+N/-S** | 0.00 usft | **Northing:** | 2,131,322.90 usft | **Latitude:** | 36.856251 |
| | **+E/-W** | 0.00 usft | **Easting:** | 2,857,644.07 usft | **Longitude:** | -107.373416 |
| **Position Uncertainty** | | 3.28 usft | **Wellhead Elevation:** | usft | **Ground Level:** | 6,534.00 usft |
| **Grid Convergence:** | | 0.28 ° | | | | |

**Wellbore** OH

| Magnetics | Model Name | Sample Date | Declination (°) | Dip Angle (°) | Field Strength (nT) |
|---|---|---|---|---|---|
| | IGRF2015 | 11/21/2022 | 8.56 | 63.43 | 49,565.73905395 |

**Design** Plan #6

**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 | 270.25 |

**Plan Survey Tool Program** **Date** 4/29/2024

| | Depth From (usft) | Depth To (usft) | Survey (Wellbore) | Tool Name | Remarks |
|---|---|---|---|---|---|
| 1 | 0.00 | 16,631.92 | Plan #6 (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 | |
| 697.00 | 3.94 | 210.00 | 696.84 | -5.86 | -3.39 | 2.00 | 2.00 | 0.00 | 210.00 | |
| 897.00 | 3.94 | 210.00 | 896.37 | -17.76 | -10.26 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 947.40 | 3.94 | 195.29 | 946.65 | -20.94 | -11.58 | 2.00 | 0.00 | -29.18 | -97.26 | |
| 6,494.00 | 3.94 | 195.29 | 6,480.13 | -388.67 | -112.14 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 7,484.86 | 90.20 | 270.25 | 7,104.00 | -427.57 | -751.05 | 9.00 | 8.71 | 7.56 | 74.97 | RU 750H POE |
| 16,631.96 | 90.20 | 270.25 | 7,072.00 | -388.07 | -9,898.01 | 0.00 | 0.00 | 0.00 | 0.00 | RU 750H PBHL |

# SDT

## Planning Report

| | | | |
|---|---|---|---|
| **Database:** | EDM 5000 Multi User Db | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Company:** | Logos Operating LLC | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Project:** | Rio Arriba, NM (NAD83) | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site:** | Rosa Unit 32 | **North Reference:** | True |
| **Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | OH | | |
| **Design:** | Plan #6 | | |

**Planned Survey**

| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 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 | 210.00 | 599.98 | -1.51 | -0.87 | 0.87 | 2.00 | 2.00 | 0.00 |
| 697.00 | 3.94 | 210.00 | 696.84 | -5.86 | -3.39 | 3.36 | 2.00 | 2.00 | 0.00 |
| **Start 200.00 hold at 697.00 MD** | | | | | | | | | |
| 700.00 | 3.94 | 210.00 | 699.84 | -6.04 | -3.49 | 3.46 | 0.00 | 0.00 | 0.00 |
| 800.00 | 3.94 | 210.00 | 799.60 | -11.99 | -6.92 | 6.87 | 0.00 | 0.00 | 0.00 |
| 897.00 | 3.94 | 210.00 | 896.37 | -17.76 | -10.26 | 10.18 | 0.00 | 0.00 | 0.00 |
| **Start DLS 2.00 TFO -97.26** | | | | | | | | | |
| 900.00 | 3.93 | 209.13 | 899.37 | -17.94 | -10.36 | 10.28 | 2.00 | -0.24 | -28.93 |
| 947.40 | 3.94 | 195.29 | 946.65 | -20.94 | -11.58 | 11.49 | 2.00 | 0.02 | -29.20 |
| **Start 5546.60 hold at 947.40 MD** | | | | | | | | | |
| 1,000.00 | 3.94 | 195.29 | 999.13 | -24.42 | -12.53 | 12.43 | 0.00 | 0.00 | 0.00 |
| 1,100.00 | 3.94 | 195.29 | 1,098.89 | -31.05 | -14.35 | 14.21 | 0.00 | 0.00 | 0.00 |
| 1,200.00 | 3.94 | 195.29 | 1,198.66 | -37.68 | -16.16 | 15.99 | 0.00 | 0.00 | 0.00 |
| 1,300.00 | 3.94 | 195.29 | 1,298.42 | -44.31 | -17.97 | 17.78 | 0.00 | 0.00 | 0.00 |
| 1,400.00 | 3.94 | 195.29 | 1,398.18 | -50.94 | -19.78 | 19.56 | 0.00 | 0.00 | 0.00 |
| 1,500.00 | 3.94 | 195.29 | 1,497.95 | -57.57 | -21.60 | 21.35 | 0.00 | 0.00 | 0.00 |
| 1,600.00 | 3.94 | 195.29 | 1,597.71 | -64.20 | -23.41 | 23.13 | 0.00 | 0.00 | 0.00 |
| 1,700.00 | 3.94 | 195.29 | 1,697.47 | -70.83 | -25.22 | 24.91 | 0.00 | 0.00 | 0.00 |
| 1,800.00 | 3.94 | 195.29 | 1,797.24 | -77.46 | -27.04 | 26.70 | 0.00 | 0.00 | 0.00 |
| 1,900.00 | 3.94 | 195.29 | 1,897.00 | -84.09 | -28.85 | 28.48 | 0.00 | 0.00 | 0.00 |
| 2,000.00 | 3.94 | 195.29 | 1,996.76 | -90.72 | -30.66 | 30.27 | 0.00 | 0.00 | 0.00 |
| 2,100.00 | 3.94 | 195.29 | 2,096.53 | -97.35 | -32.48 | 32.05 | 0.00 | 0.00 | 0.00 |
| 2,200.00 | 3.94 | 195.29 | 2,196.29 | -103.98 | -34.29 | 33.83 | 0.00 | 0.00 | 0.00 |
| 2,300.00 | 3.94 | 195.29 | 2,296.06 | -110.61 | -36.10 | 35.62 | 0.00 | 0.00 | 0.00 |
| 2,400.00 | 3.94 | 195.29 | 2,395.82 | -117.24 | -37.91 | 37.40 | 0.00 | 0.00 | 0.00 |
| 2,500.00 | 3.94 | 195.29 | 2,495.58 | -123.87 | -39.73 | 39.19 | 0.00 | 0.00 | 0.00 |
| 2,600.00 | 3.94 | 195.29 | 2,595.35 | -130.50 | -41.54 | 40.97 | 0.00 | 0.00 | 0.00 |
| 2,700.00 | 3.94 | 195.29 | 2,695.11 | -137.13 | -43.35 | 42.75 | 0.00 | 0.00 | 0.00 |
| 2,706.91 | 3.94 | 195.29 | 2,702.00 | -137.59 | -43.48 | 42.88 | 0.00 | 0.00 | 0.00 |
| **Ojo Alamo** | | | | | | | | | |
| 2,800.00 | 3.94 | 195.29 | 2,794.87 | -143.76 | -45.17 | 44.54 | 0.00 | 0.00 | 0.00 |
| 2,852.25 | 3.94 | 195.29 | 2,847.00 | -147.23 | -46.11 | 45.47 | 0.00 | 0.00 | 0.00 |
| **Kirtland** | | | | | | | | | |
| 2,900.00 | 3.94 | 195.29 | 2,894.64 | -150.39 | -46.98 | 46.32 | 0.00 | 0.00 | 0.00 |
| 3,000.00 | 3.94 | 195.29 | 2,994.40 | -157.02 | -48.79 | 48.11 | 0.00 | 0.00 | 0.00 |
| 3,100.00 | 3.94 | 195.29 | 3,094.16 | -163.65 | -50.60 | 49.89 | 0.00 | 0.00 | 0.00 |
| 3,200.00 | 3.94 | 195.29 | 3,193.93 | -170.28 | -52.42 | 51.67 | 0.00 | 0.00 | 0.00 |
| 3,213.10 | 3.94 | 195.29 | 3,207.00 | -171.15 | -52.66 | 51.91 | 0.00 | 0.00 | 0.00 |
| **Fruitland** | | | | | | | | | |
| 3,283.27 | 3.94 | 195.29 | 3,277.00 | -175.80 | -53.93 | 53.16 | 0.00 | 0.00 | 0.00 |
| **T/Coals** | | | | | | | | | |
| 3,300.00 | 3.94 | 195.29 | 3,293.69 | -176.91 | -54.23 | 53.46 | 0.00 | 0.00 | 0.00 |
| 3,400.00 | 3.94 | 195.29 | 3,393.45 | -183.54 | -56.04 | 55.24 | 0.00 | 0.00 | 0.00 |
| 3,414.58 | 3.94 | 195.29 | 3,408.00 | -184.51 | -56.31 | 55.50 | 0.00 | 0.00 | 0.00 |
| **B/Coals** | | | | | | | | | |
| 3,500.00 | 3.94 | 195.29 | 3,493.22 | -190.17 | -57.86 | 57.03 | 0.00 | 0.00 | 0.00 |

# SDT

## Planning Report

| | | | |
|---|---|---|---|
| **Database:** | EDM 5000 Multi User Db | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Company:** | Logos Operating LLC | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Project:** | Rio Arriba, NM (NAD83) | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site:** | Rosa Unit 32 | **North Reference:** | True |
| **Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | OH | | |
| **Design:** | Plan #6 | | |

**Planned Survey**

| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
|---|---|---|---|---|---|---|---|---|---|
| 3,575.96 | 3.94 | 195.29 | 3,569.00 | -195.21 | -59.23 | 58.38 | 0.00 | 0.00 | 0.00 |
| **Pictured Cliffs** | | | | | | | | | |
| 3,600.00 | 3.94 | 195.29 | 3,592.98 | -196.80 | -59.67 | 58.81 | 0.00 | 0.00 | 0.00 |
| 3,685.22 | 3.94 | 195.29 | 3,678.00 | -202.45 | -61.21 | 60.33 | 0.00 | 0.00 | 0.00 |
| **Lewis** | | | | | | | | | |
| 3,700.00 | 3.94 | 195.29 | 3,692.74 | -203.43 | -61.48 | 60.59 | 0.00 | 0.00 | 0.00 |
| 3,800.00 | 3.94 | 195.29 | 3,792.51 | -210.06 | -63.30 | 62.38 | 0.00 | 0.00 | 0.00 |
| 3,900.00 | 3.94 | 195.29 | 3,892.27 | -216.69 | -65.11 | 64.16 | 0.00 | 0.00 | 0.00 |
| 4,000.00 | 3.94 | 195.29 | 3,992.04 | -223.32 | -66.92 | 65.95 | 0.00 | 0.00 | 0.00 |
| 4,100.00 | 3.94 | 195.29 | 4,091.80 | -229.95 | -68.73 | 67.73 | 0.00 | 0.00 | 0.00 |
| 4,200.00 | 3.94 | 195.29 | 4,191.56 | -236.58 | -70.55 | 69.51 | 0.00 | 0.00 | 0.00 |
| 4,300.00 | 3.94 | 195.29 | 4,291.33 | -243.21 | -72.36 | 71.30 | 0.00 | 0.00 | 0.00 |
| 4,400.00 | 3.94 | 195.29 | 4,391.09 | -249.84 | -74.17 | 73.08 | 0.00 | 0.00 | 0.00 |
| 4,500.00 | 3.94 | 195.29 | 4,490.85 | -256.47 | -75.99 | 74.87 | 0.00 | 0.00 | 0.00 |
| 4,600.00 | 3.94 | 195.29 | 4,590.62 | -263.10 | -77.80 | 76.65 | 0.00 | 0.00 | 0.00 |
| 4,700.00 | 3.94 | 195.29 | 4,690.38 | -269.73 | -79.61 | 78.43 | 0.00 | 0.00 | 0.00 |
| 4,755.75 | 3.94 | 195.29 | 4,746.00 | -273.43 | -80.62 | 79.43 | 0.00 | 0.00 | 0.00 |
| **Chacra** | | | | | | | | | |
| 4,800.00 | 3.94 | 195.29 | 4,790.14 | -276.36 | -81.43 | 80.22 | 0.00 | 0.00 | 0.00 |
| 4,900.00 | 3.94 | 195.29 | 4,889.91 | -282.99 | -83.24 | 82.00 | 0.00 | 0.00 | 0.00 |
| 5,000.00 | 3.94 | 195.29 | 4,989.67 | -289.62 | -85.05 | 83.79 | 0.00 | 0.00 | 0.00 |
| 5,100.00 | 3.94 | 195.29 | 5,089.43 | -296.25 | -86.86 | 85.57 | 0.00 | 0.00 | 0.00 |
| 5,200.00 | 3.94 | 195.29 | 5,189.20 | -302.88 | -88.68 | 87.35 | 0.00 | 0.00 | 0.00 |
| 5,261.95 | 3.94 | 195.29 | 5,251.00 | -306.99 | -89.80 | 88.46 | 0.00 | 0.00 | 0.00 |
| **U/Cliff House** | | | | | | | | | |
| 5,300.00 | 3.94 | 195.29 | 5,288.96 | -309.51 | -90.49 | 89.14 | 0.00 | 0.00 | 0.00 |
| 5,400.00 | 3.94 | 195.29 | 5,388.72 | -316.14 | -92.30 | 90.92 | 0.00 | 0.00 | 0.00 |
| 5,500.00 | 3.94 | 195.29 | 5,488.49 | -322.77 | -94.12 | 92.71 | 0.00 | 0.00 | 0.00 |
| 5,589.72 | 3.94 | 195.29 | 5,578.00 | -328.72 | -95.74 | 94.31 | 0.00 | 0.00 | 0.00 |
| **Cliff House** | | | | | | | | | |
| 5,600.00 | 3.94 | 195.29 | 5,588.25 | -329.40 | -95.93 | 94.49 | 0.00 | 0.00 | 0.00 |
| 5,617.79 | 3.94 | 195.29 | 5,606.00 | -330.58 | -96.25 | 94.81 | 0.00 | 0.00 | 0.00 |
| **Menefee** | | | | | | | | | |
| 5,700.00 | 3.94 | 195.29 | 5,688.01 | -336.03 | -97.74 | 96.27 | 0.00 | 0.00 | 0.00 |
| 5,800.00 | 3.94 | 195.29 | 5,787.78 | -342.66 | -99.55 | 98.06 | 0.00 | 0.00 | 0.00 |
| 5,831.30 | 3.94 | 195.29 | 5,819.00 | -344.74 | -100.12 | 98.62 | 0.00 | 0.00 | 0.00 |
| **Point Lookout** | | | | | | | | | |
| 5,900.00 | 3.94 | 195.29 | 5,887.54 | -349.29 | -101.37 | 99.84 | 0.00 | 0.00 | 0.00 |
| 6,000.00 | 3.94 | 195.29 | 5,987.31 | -355.92 | -103.18 | 101.63 | 0.00 | 0.00 | 0.00 |
| 6,100.00 | 3.94 | 195.29 | 6,087.07 | -362.55 | -104.99 | 103.41 | 0.00 | 0.00 | 0.00 |
| 6,200.00 | 3.94 | 195.29 | 6,186.83 | -369.18 | -106.81 | 105.19 | 0.00 | 0.00 | 0.00 |
| 6,300.00 | 3.94 | 195.29 | 6,286.60 | -375.81 | -108.62 | 106.98 | 0.00 | 0.00 | 0.00 |
| 6,303.41 | 3.94 | 195.29 | 6,290.00 | -376.04 | -108.68 | 107.04 | 0.00 | 0.00 | 0.00 |
| **Mancos** | | | | | | | | | |
| 6,400.00 | 3.94 | 195.29 | 6,386.36 | -382.44 | -110.43 | 108.76 | 0.00 | 0.00 | 0.00 |
| 6,494.00 | 3.94 | 195.29 | 6,480.13 | -388.67 | -112.14 | 110.44 | 0.00 | 0.00 | 0.00 |
| **Start DLS 9.00 TFO 74.97** | | | | | | | | | |
| 6,500.00 | 4.11 | 202.59 | 6,486.12 | -389.07 | -112.27 | 110.58 | 9.00 | 2.89 | 121.47 |
| 6,550.00 | 7.16 | 238.23 | 6,535.89 | -392.37 | -115.61 | 113.90 | 9.00 | 6.08 | 71.29 |
| 6,600.00 | 11.22 | 250.64 | 6,585.24 | -395.62 | -122.85 | 121.13 | 9.00 | 8.13 | 24.82 |
| 6,650.00 | 15.53 | 256.38 | 6,633.88 | -398.81 | -133.95 | 132.21 | 9.00 | 8.61 | 11.48 |
| 6,700.00 | 19.92 | 259.65 | 6,681.49 | -401.92 | -148.84 | 147.09 | 9.00 | 8.78 | 6.55 |
| 6,750.00 | 24.35 | 261.78 | 6,727.80 | -404.93 | -167.43 | 165.66 | 9.00 | 8.86 | 4.25 |



Released to Imaging: 5/21/2024 2:23:14 PM

# SDT

## Planning Report

| | | | |
|---|---|---|---|
| **Database:** | EDM 5000 Multi User Db | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Company:** | Logos Operating LLC | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Project:** | Rio Arriba, NM (NAD83) | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site:** | Rosa Unit 32 | **North Reference:** | True |
| **Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | OH | | |
| **Design:** | Plan #6 | | |

**Planned Survey**

| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
|---|---|---|---|---|---|---|---|---|---|
| 6,800.00 | 28.79 | 263.28 | 6,772.51 | -407.81 | -189.60 | 187.82 | 9.00 | 8.90 | 3.01 |
| 6,850.00 | 33.26 | 264.41 | 6,815.34 | -410.55 | -215.22 | 213.42 | 9.00 | 8.92 | 2.26 |
| 6,900.00 | 37.73 | 265.30 | 6,856.04 | -413.14 | -244.12 | 242.32 | 9.00 | 8.94 | 1.78 |
| 6,950.00 | 42.20 | 266.03 | 6,894.35 | -415.56 | -276.14 | 274.32 | 9.00 | 8.95 | 1.45 |
| 6,998.48 | 46.55 | 266.62 | 6,929.00 | -417.73 | -309.97 | 308.14 | 9.00 | 8.96 | 1.22 |
| **Black Top** | | | | | | | | | |
| 7,000.00 | 46.68 | 266.64 | 6,930.04 | -417.79 | -311.07 | 309.24 | 9.00 | 8.96 | 1.13 |
| 7,050.00 | 51.17 | 267.16 | 6,962.89 | -419.83 | -348.70 | 346.86 | 9.00 | 8.96 | 1.05 |
| 7,100.00 | 55.65 | 267.63 | 6,992.69 | -421.64 | -388.79 | 386.95 | 9.00 | 8.97 | 0.93 |
| 7,150.00 | 60.14 | 268.04 | 7,019.25 | -423.24 | -431.10 | 429.25 | 9.00 | 8.97 | 0.83 |
| 7,200.00 | 64.62 | 268.43 | 7,042.43 | -424.60 | -475.37 | 473.51 | 9.00 | 8.97 | 0.76 |
| 7,250.00 | 69.11 | 268.78 | 7,062.07 | -425.72 | -521.33 | 519.46 | 9.00 | 8.98 | 0.71 |
| 7,300.00 | 73.60 | 269.11 | 7,078.05 | -426.59 | -568.68 | 566.82 | 9.00 | 8.98 | 0.67 |
| 7,350.00 | 78.09 | 269.43 | 7,090.27 | -427.20 | -617.15 | 615.28 | 9.00 | 8.98 | 0.64 |
| 7,400.00 | 82.58 | 269.74 | 7,098.66 | -427.56 | -666.42 | 664.55 | 9.00 | 8.98 | 0.62 |
| 7,450.00 | 87.07 | 270.04 | 7,103.17 | -427.66 | -716.21 | 714.33 | 9.00 | 8.98 | 0.60 |
| 7,484.86 | 90.20 | 270.25 | 7,104.00 | -427.57 | -751.05 | 749.18 | 9.00 | 8.98 | 0.60 |
| **Start 9147.10 hold at 7484.86 MD** | | | | | | | | | |
| 7,500.00 | 90.20 | 270.25 | 7,103.95 | -427.50 | -766.19 | 764.32 | 0.00 | 0.00 | 0.00 |
| 7,600.00 | 90.20 | 270.25 | 7,103.60 | -427.07 | -866.19 | 864.32 | 0.00 | 0.00 | 0.00 |
| 7,700.00 | 90.20 | 270.25 | 7,103.25 | -426.64 | -966.19 | 964.32 | 0.00 | 0.00 | 0.00 |
| 7,800.00 | 90.20 | 270.25 | 7,102.90 | -426.21 | -1,066.19 | 1,064.32 | 0.00 | 0.00 | 0.00 |
| 7,900.00 | 90.20 | 270.25 | 7,102.55 | -425.78 | -1,166.19 | 1,164.32 | 0.00 | 0.00 | 0.00 |
| 8,000.00 | 90.20 | 270.25 | 7,102.20 | -425.35 | -1,266.19 | 1,264.32 | 0.00 | 0.00 | 0.00 |
| 8,100.00 | 90.20 | 270.25 | 7,101.85 | -424.91 | -1,366.18 | 1,364.32 | 0.00 | 0.00 | 0.00 |
| 8,200.00 | 90.20 | 270.25 | 7,101.50 | -424.48 | -1,466.18 | 1,464.32 | 0.00 | 0.00 | 0.00 |
| 8,300.00 | 90.20 | 270.25 | 7,101.15 | -424.05 | -1,566.18 | 1,564.32 | 0.00 | 0.00 | 0.00 |
| 8,400.00 | 90.20 | 270.25 | 7,100.80 | -423.62 | -1,666.18 | 1,664.31 | 0.00 | 0.00 | 0.00 |
| 8,500.00 | 90.20 | 270.25 | 7,100.45 | -423.19 | -1,766.18 | 1,764.31 | 0.00 | 0.00 | 0.00 |
| 8,600.00 | 90.20 | 270.25 | 7,100.10 | -422.75 | -1,866.18 | 1,864.31 | 0.00 | 0.00 | 0.00 |
| 8,700.00 | 90.20 | 270.25 | 7,099.75 | -422.32 | -1,966.17 | 1,964.31 | 0.00 | 0.00 | 0.00 |
| 8,800.00 | 90.20 | 270.25 | 7,099.40 | -421.89 | -2,066.17 | 2,064.31 | 0.00 | 0.00 | 0.00 |
| 8,900.00 | 90.20 | 270.25 | 7,099.05 | -421.46 | -2,166.17 | 2,164.31 | 0.00 | 0.00 | 0.00 |
| 9,000.00 | 90.20 | 270.25 | 7,098.70 | -421.03 | -2,266.17 | 2,264.31 | 0.00 | 0.00 | 0.00 |
| 9,100.00 | 90.20 | 270.25 | 7,098.35 | -420.60 | -2,366.17 | 2,364.31 | 0.00 | 0.00 | 0.00 |
| 9,200.00 | 90.20 | 270.25 | 7,098.00 | -420.16 | -2,466.17 | 2,464.31 | 0.00 | 0.00 | 0.00 |
| 9,300.00 | 90.20 | 270.25 | 7,097.65 | -419.73 | -2,566.17 | 2,564.31 | 0.00 | 0.00 | 0.00 |
| 9,400.00 | 90.20 | 270.25 | 7,097.30 | -419.30 | -2,666.16 | 2,664.31 | 0.00 | 0.00 | 0.00 |
| 9,500.00 | 90.20 | 270.25 | 7,096.95 | -418.87 | -2,766.16 | 2,764.31 | 0.00 | 0.00 | 0.00 |
| 9,600.00 | 90.20 | 270.25 | 7,096.60 | -418.44 | -2,866.16 | 2,864.31 | 0.00 | 0.00 | 0.00 |
| 9,700.00 | 90.20 | 270.25 | 7,096.25 | -418.00 | -2,966.16 | 2,964.31 | 0.00 | 0.00 | 0.00 |
| 9,800.00 | 90.20 | 270.25 | 7,095.90 | -417.57 | -3,066.16 | 3,064.31 | 0.00 | 0.00 | 0.00 |
| 9,900.00 | 90.20 | 270.25 | 7,095.55 | -417.14 | -3,166.16 | 3,164.31 | 0.00 | 0.00 | 0.00 |
| 10,000.00 | 90.20 | 270.25 | 7,095.20 | -416.71 | -3,266.15 | 3,264.31 | 0.00 | 0.00 | 0.00 |
| 10,100.00 | 90.20 | 270.25 | 7,094.85 | -416.28 | -3,366.15 | 3,364.30 | 0.00 | 0.00 | 0.00 |
| 10,200.00 | 90.20 | 270.25 | 7,094.50 | -415.85 | -3,466.15 | 3,464.30 | 0.00 | 0.00 | 0.00 |
| 10,300.00 | 90.20 | 270.25 | 7,094.15 | -415.41 | -3,566.15 | 3,564.30 | 0.00 | 0.00 | 0.00 |
| 10,400.00 | 90.20 | 270.25 | 7,093.80 | -414.98 | -3,666.15 | 3,664.30 | 0.00 | 0.00 | 0.00 |
| 10,500.00 | 90.20 | 270.25 | 7,093.45 | -414.55 | -3,766.15 | 3,764.30 | 0.00 | 0.00 | 0.00 |
| 10,600.00 | 90.20 | 270.25 | 7,093.10 | -414.12 | -3,866.15 | 3,864.30 | 0.00 | 0.00 | 0.00 |
| 10,700.00 | 90.20 | 270.25 | 7,092.75 | -413.69 | -3,966.14 | 3,964.30 | 0.00 | 0.00 | 0.00 |
| 10,800.00 | 90.20 | 270.25 | 7,092.40 | -413.25 | -4,066.14 | 4,064.30 | 0.00 | 0.00 | 0.00 |
| 10,900.00 | 90.20 | 270.25 | 7,092.05 | -412.82 | -4,166.14 | 4,164.30 | 0.00 | 0.00 | 0.00 |
| 11,000.00 | 90.20 | 270.25 | 7,091.70 | -412.39 | -4,266.14 | 4,264.30 | 0.00 | 0.00 | 0.00 |

# SDT
## Planning Report

| | | | |
|---|---|---|---|
| **Database:** | EDM 5000 Multi User Db | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Company:** | Logos Operating LLC | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Project:** | Rio Arriba, NM (NAD83) | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site:** | Rosa Unit 32 | **North Reference:** | True |
| **Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | OH | | |
| **Design:** | Plan #6 | | |

**Planned Survey**

| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
|---|---|---|---|---|---|---|---|---|---|
| 11,100.00 | 90.20 | 270.25 | 7,091.35 | -411.96 | -4,366.14 | 4,364.30 | 0.00 | 0.00 | 0.00 |
| 11,200.00 | 90.20 | 270.25 | 7,091.00 | -411.53 | -4,466.14 | 4,464.30 | 0.00 | 0.00 | 0.00 |
| 11,300.00 | 90.20 | 270.25 | 7,090.65 | -411.10 | -4,566.13 | 4,564.30 | 0.00 | 0.00 | 0.00 |
| 11,400.00 | 90.20 | 270.25 | 7,090.30 | -410.66 | -4,666.13 | 4,664.30 | 0.00 | 0.00 | 0.00 |
| 11,500.00 | 90.20 | 270.25 | 7,089.95 | -410.23 | -4,766.13 | 4,764.30 | 0.00 | 0.00 | 0.00 |
| 11,600.00 | 90.20 | 270.25 | 7,089.60 | -409.80 | -4,866.13 | 4,864.30 | 0.00 | 0.00 | 0.00 |
| 11,700.00 | 90.20 | 270.25 | 7,089.25 | -409.37 | -4,966.13 | 4,964.29 | 0.00 | 0.00 | 0.00 |
| 11,800.00 | 90.20 | 270.25 | 7,088.90 | -408.94 | -5,066.13 | 5,064.29 | 0.00 | 0.00 | 0.00 |
| 11,900.00 | 90.20 | 270.25 | 7,088.55 | -408.50 | -5,166.13 | 5,164.29 | 0.00 | 0.00 | 0.00 |
| 12,000.00 | 90.20 | 270.25 | 7,088.20 | -408.07 | -5,266.12 | 5,264.29 | 0.00 | 0.00 | 0.00 |
| 12,100.00 | 90.20 | 270.25 | 7,087.85 | -407.64 | -5,366.12 | 5,364.29 | 0.00 | 0.00 | 0.00 |
| 12,200.00 | 90.20 | 270.25 | 7,087.50 | -407.21 | -5,466.12 | 5,464.29 | 0.00 | 0.00 | 0.00 |
| 12,300.00 | 90.20 | 270.25 | 7,087.15 | -406.78 | -5,566.12 | 5,564.29 | 0.00 | 0.00 | 0.00 |
| 12,400.00 | 90.20 | 270.25 | 7,086.81 | -406.34 | -5,666.12 | 5,664.29 | 0.00 | 0.00 | 0.00 |
| 12,500.00 | 90.20 | 270.25 | 7,086.46 | -405.91 | -5,766.12 | 5,764.29 | 0.00 | 0.00 | 0.00 |
| 12,600.00 | 90.20 | 270.25 | 7,086.11 | -405.48 | -5,866.11 | 5,864.29 | 0.00 | 0.00 | 0.00 |
| 12,700.00 | 90.20 | 270.25 | 7,085.76 | -405.05 | -5,966.11 | 5,964.29 | 0.00 | 0.00 | 0.00 |
| 12,800.00 | 90.20 | 270.25 | 7,085.41 | -404.62 | -6,066.11 | 6,064.29 | 0.00 | 0.00 | 0.00 |
| 12,900.00 | 90.20 | 270.25 | 7,085.06 | -404.19 | -6,166.11 | 6,164.29 | 0.00 | 0.00 | 0.00 |
| 13,000.00 | 90.20 | 270.25 | 7,084.71 | -403.75 | -6,266.11 | 6,264.29 | 0.00 | 0.00 | 0.00 |
| 13,100.00 | 90.20 | 270.25 | 7,084.36 | -403.32 | -6,366.11 | 6,364.29 | 0.00 | 0.00 | 0.00 |
| 13,200.00 | 90.20 | 270.25 | 7,084.01 | -402.89 | -6,466.11 | 6,464.29 | 0.00 | 0.00 | 0.00 |
| 13,300.00 | 90.20 | 270.25 | 7,083.66 | -402.46 | -6,566.10 | 6,564.29 | 0.00 | 0.00 | 0.00 |
| 13,400.00 | 90.20 | 270.25 | 7,083.31 | -402.03 | -6,666.10 | 6,664.28 | 0.00 | 0.00 | 0.00 |
| 13,500.00 | 90.20 | 270.25 | 7,082.96 | -401.59 | -6,766.10 | 6,764.28 | 0.00 | 0.00 | 0.00 |
| 13,600.00 | 90.20 | 270.25 | 7,082.61 | -401.16 | -6,866.10 | 6,864.28 | 0.00 | 0.00 | 0.00 |
| 13,700.00 | 90.20 | 270.25 | 7,082.26 | -400.73 | -6,966.10 | 6,964.28 | 0.00 | 0.00 | 0.00 |
| 13,800.00 | 90.20 | 270.25 | 7,081.91 | -400.30 | -7,066.10 | 7,064.28 | 0.00 | 0.00 | 0.00 |
| 13,900.00 | 90.20 | 270.25 | 7,081.56 | -399.87 | -7,166.09 | 7,164.28 | 0.00 | 0.00 | 0.00 |
| 14,000.00 | 90.20 | 270.25 | 7,081.21 | -399.44 | -7,266.09 | 7,264.28 | 0.00 | 0.00 | 0.00 |
| 14,100.00 | 90.20 | 270.25 | 7,080.86 | -399.00 | -7,366.09 | 7,364.28 | 0.00 | 0.00 | 0.00 |
| 14,200.00 | 90.20 | 270.25 | 7,080.51 | -398.57 | -7,466.09 | 7,464.28 | 0.00 | 0.00 | 0.00 |
| 14,300.00 | 90.20 | 270.25 | 7,080.16 | -398.14 | -7,566.09 | 7,564.28 | 0.00 | 0.00 | 0.00 |
| 14,400.00 | 90.20 | 270.25 | 7,079.81 | -397.71 | -7,666.09 | 7,664.28 | 0.00 | 0.00 | 0.00 |
| 14,500.00 | 90.20 | 270.25 | 7,079.46 | -397.28 | -7,766.09 | 7,764.28 | 0.00 | 0.00 | 0.00 |
| 14,600.00 | 90.20 | 270.25 | 7,079.11 | -396.84 | -7,866.08 | 7,864.28 | 0.00 | 0.00 | 0.00 |
| 14,700.00 | 90.20 | 270.25 | 7,078.76 | -396.41 | -7,966.08 | 7,964.28 | 0.00 | 0.00 | 0.00 |
| 14,800.00 | 90.20 | 270.25 | 7,078.41 | -395.98 | -8,066.08 | 8,064.28 | 0.00 | 0.00 | 0.00 |
| 14,900.00 | 90.20 | 270.25 | 7,078.06 | -395.55 | -8,166.08 | 8,164.28 | 0.00 | 0.00 | 0.00 |
| 15,000.00 | 90.20 | 270.25 | 7,077.71 | -395.12 | -8,266.08 | 8,264.27 | 0.00 | 0.00 | 0.00 |
| 15,100.00 | 90.20 | 270.25 | 7,077.36 | -394.69 | -8,366.08 | 8,364.27 | 0.00 | 0.00 | 0.00 |
| 15,200.00 | 90.20 | 270.25 | 7,077.01 | -394.25 | -8,466.07 | 8,464.27 | 0.00 | 0.00 | 0.00 |
| 15,300.00 | 90.20 | 270.25 | 7,076.66 | -393.82 | -8,566.07 | 8,564.27 | 0.00 | 0.00 | 0.00 |
| 15,400.00 | 90.20 | 270.25 | 7,076.31 | -393.39 | -8,666.07 | 8,664.27 | 0.00 | 0.00 | 0.00 |
| 15,500.00 | 90.20 | 270.25 | 7,075.96 | -392.96 | -8,766.07 | 8,764.27 | 0.00 | 0.00 | 0.00 |
| 15,600.00 | 90.20 | 270.25 | 7,075.61 | -392.53 | -8,866.07 | 8,864.27 | 0.00 | 0.00 | 0.00 |
| 15,700.00 | 90.20 | 270.25 | 7,075.26 | -392.09 | -8,966.07 | 8,964.27 | 0.00 | 0.00 | 0.00 |
| 15,800.00 | 90.20 | 270.25 | 7,074.91 | -391.66 | -9,066.07 | 9,064.27 | 0.00 | 0.00 | 0.00 |
| 15,900.00 | 90.20 | 270.25 | 7,074.56 | -391.23 | -9,166.06 | 9,164.27 | 0.00 | 0.00 | 0.00 |
| 16,000.00 | 90.20 | 270.25 | 7,074.21 | -390.80 | -9,266.06 | 9,264.27 | 0.00 | 0.00 | 0.00 |
| 16,100.00 | 90.20 | 270.25 | 7,073.86 | -390.37 | -9,366.06 | 9,364.27 | 0.00 | 0.00 | 0.00 |
| 16,200.00 | 90.20 | 270.25 | 7,073.51 | -389.94 | -9,466.06 | 9,464.27 | 0.00 | 0.00 | 0.00 |
| 16,300.00 | 90.20 | 270.25 | 7,073.16 | -389.50 | -9,566.06 | 9,564.27 | 0.00 | 0.00 | 0.00 |
| 16,400.00 | 90.20 | 270.25 | 7,072.81 | -389.07 | -9,666.06 | 9,664.27 | 0.00 | 0.00 | 0.00 |

# SDT
Planning Report

| | | | |
|---|---|---|---|
| **Database:** | EDM 5000 Multi User Db | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Company:** | Logos Operating LLC | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Project:** | Rio Arriba, NM (NAD83) | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site:** | Rosa Unit 32 | **North Reference:** | True |
| **Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | OH | | |
| **Design:** | Plan #6 | | |

**Planned Survey**

| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
|---|---|---|---|---|---|---|---|---|---|
| 16,500.00 | 90.20 | 270.25 | 7,072.46 | -388.64 | -9,766.05 | 9,764.27 | 0.00 | 0.00 | 0.00 |
| 16,600.00 | 90.20 | 270.25 | 7,072.11 | -388.21 | -9,866.05 | 9,864.26 | 0.00 | 0.00 | 0.00 |
| 16,631.96 | 90.20 | 270.25 | 7,072.00 | -388.07 | -9,898.01 | 9,896.23 | 0.00 | 0.00 | 0.00 |
| **TD at 16631.96** | | | | | | | | | |

**Design Targets**

| Target Name - hit/miss target - Shape | Dip Angle (°) | Dip Dir. (°) | TVD (usft) | +N/-S (usft) | +E/-W (usft) | Northing (usft) | Easting (usft) | Latitude | Longitude |
|---|---|---|---|---|---|---|---|---|---|
| RU 750H SHL<br>- plan hits target center<br>- Point | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2,131,322.90 | 2,857,644.07 | 36.856251 | -107.373416 |
| RU 750H PBHL<br>- plan hits target center<br>- Point | 0.00 | 0.00 | 7,072.00 | -388.07 | -9,898.01 | 2,130,887.17 | 2,847,748.04 | 36.855180 | -107.407248 |
| RU 750H FPP<br>- plan misses target center by 2.48usft at 16460.04usft MD (7072.60 TVD, -388.81 N, -9726.10 E)<br>- Point | 0.00 | 0.00 | 7,075.07 | -388.95 | -9,726.11 | 2,130,887.12 | 2,847,919.95 | 36.855178 | -107.406660 |
| RU 750H POE<br>- plan hits target center<br>- Point | 0.00 | 0.00 | 7,104.00 | -427.57 | -751.05 | 2,130,891.72 | 2,856,895.09 | 36.855077 | -107.375983 |

**Formations**

| Measured Depth (usft) | Vertical Depth (usft) | Name | Lithology | Dip (°) | Dip Direction (°) |
|---|---|---|---|---|---|
| 2,706.91 | 2,702.00 | Ojo Alamo | | 0.00 | |
| 2,852.25 | 2,847.00 | Kirtland | | 0.00 | |
| 3,213.10 | 3,207.00 | Fruitland | | 0.00 | |
| 3,283.27 | 3,277.00 | T/Coals | | 0.00 | |
| 3,414.58 | 3,408.00 | B/Coals | | 0.00 | |
| 3,575.96 | 3,569.00 | Pictured Cliffs | | 0.00 | |
| 3,685.22 | 3,678.00 | Lewis | | 0.00 | |
| 4,755.75 | 4,746.00 | Chacra | | 0.00 | |
| 5,261.95 | 5,251.00 | U/Cliff House | | 0.00 | |
| 5,589.72 | 5,578.00 | Cliff House | | 0.00 | |
| 5,617.79 | 5,606.00 | Menefee | | | |
| 5,831.30 | 5,819.00 | Point Lookout | | | |
| 6,303.41 | 6,290.00 | Mancos | | | |
| 6,998.48 | 6,929.00 | Black Top | | | |



Released to Imaging: 5/21/2024 2:23:14 PM

# SDT

## Planning Report

| | | | |
|---|---|---|---|
| **Database:** | EDM 5000 Multi User Db | **Local Co-ordinate Reference:** | Well Rosa Unit 750H |
| **Company:** | Logos Operating LLC | **TVD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Project:** | Rio Arriba, NM (NAD83) | **MD Reference:** | 6534+30 @ 6564.00usft (H&P 530) |
| **Site:** | Rosa Unit 32 | **North Reference:** | True |
| **Well:** | Rosa Unit 750H | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | OH | | |
| **Design:** | Plan #6 | | |

**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 |
| 697.00 | 696.84 | -5.86 | -3.39 | Start 200.00 hold at 697.00 MD |
| 897.00 | 896.37 | -17.76 | -10.26 | Start DLS 2.00 TFO -97.26 |
| 947.40 | 946.65 | -20.94 | -11.58 | Start 5546.60 hold at 947.40 MD |
| 6,494.00 | 6,480.13 | -388.67 | -112.14 | Start DLS 9.00 TFO 74.97 |
| 7,484.86 | 7,104.00 | -427.57 | -751.05 | Start 9147.10 hold at 7484.86 MD |
| 16,631.96 | 7,072.00 | -388.07 | -9,898.01 | TD at 16631.96 |

# LOGOS Operating, LLC
# Operations Plan

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

| | | | |
|---|---|---|---|
| Date: | April 29, 2024 | Pool: | Basin Mancos |
| **Well Name:** | **Rosa Unit 750H** | GL Elevation: | 6,534’ |
| Surface Location: | Sec 33, T31N, R5W 2586’ FNL, 949’ FWL (36.856251º N, -170.373416º W – NAD83) | KB: | 30’ |
| Bottom Hole Location: | Sec 31, T31N, R5W 2303’ FSL, 158’ FWL (36.855180º N, -107.407248º W – NAD83) | Measured Depth: | 16,632’ (KB) |
| **Lease Serial CA Serial** | **# NMSF78773 # 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 | 2707’ | 2702’ | *POINT LOOKOUT | 5831’ | 5819’ |
| KIRTLAND | 2852’ | 2847’ | *MANCOS | 6303’ | 6290’ |
| *FRUITLAND | 3213’ | 3207’ | KICKOFF POINT | 6494’ | 6480’ |
| *PICTURED CLIFFS | 3576’ | 3569’ | LANDING POINT | 7485’ | 7104’ |
| LEWIS | 3685’ | 3678’ | TD | 16632’ | 7072’ |
| CHACRA | 4756’ | 4746’ | | | |
| *CLIFF HOUSE | 5590’ | 5578’ | | | |
| MENEFEE | 5618’ | 5606’ | | | |

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

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

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

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

## II. DRILLING

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

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

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

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

D. **Maximum Anticipated Pressure:** 7,104' TVD x 0.43 = 3,055 psi

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

## III. MATERIALS

### A. CASING EQUIPMENT:

| CASING TYPE | OH SIZE (IN) | DEPTH (MD) | CSG SIZE | WEIGHT | GRADE | CONN |
|---|---|---|---|---|---|---|
| SURFACE | 26" or 24" | 350' or greater | 20" | 94 LBS | J-55 or equiv | LTC/BTC |
| INTERMEDIATE | 12.25" | 6,378' | 9.625" | 43.5 LBS | N-80 or equiv | LTC/BTC |
| PRODUCTION | 8.5" | 16,632' | 5.5" | 20 LBS | P-110 or equiv | LTC/BTC |

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

### B. FLOAT EQUIPMENT:

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

### C. CEMENTING:

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

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

| Surface - 20" csg | Top | Footage | Cement (ft3/ft) Annular Capacity | Cement (bbl/ft) Annular Capacity | Excess (30%) | Total (ft3) | Total (bbl) | Slurry Yield (ft3/sk) | Sacks Cement | Density (PPG) |
|---|---|---|---|---|---|---|---|---|---|---|
| Type G | - | 350 | 0.9599 | 0.171 | 1.3 | 487 | 87 | 1.15 | 423 | 15.8 |
| or Type III | | 350 | 0.9599 | 0.171 | 1.3 | 487 | 87 | 1.39 | 350 | 14.6 |
| | | | 24" hole | | | | | | | |
| Set Depth, ft RKB | 350 | | | | | | | | | |

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

| Intermediate - 9-5/8" csg | Top | Footage | Cement (ft3/ft) Annular Capacity | | Excess (30%) | Total (ft3) | Total (bbl) | Slurry Yield (ft3/sk) | Sacks Cement | Density (PPG) |
|---|---|---|---|---|---|---|---|---|---|---|
| Stage 1 Tail | 5,878 | 500 | 0.3132 | | 1.3 | 221 | 39 | 1.10 | 201 | 15.8 |
| Stage 1 Lead | 4,831 | 1,047 | 0.3132 | | 1.3 | 426 | 76 | 1.90 | 224 | 12.4 |
| | | | | | | **647** | **115** | | **425** | |
| Stage 2 Tail | 4,231 | 600 | 0.3132 | | 1.3 | 244 | 44 | 1.58 | 155 | 13.2 |
| Stage 2 Lead | 3,263 | 968 | 0.3132 | | 1.3 | 394 | 70 | 1.90 | 207 | 12.4 |
| | | | | | | **638** | **114** | | **362** | |
| Stage 3 Tail | 2,613 | 650 | 0.3132 | | 1.3 | 265 | 47 | 1.58 | 168 | 13.2 |
| Stage 3 Lead | 350 | 2,263 | 0.3132 | | 1.3 | 921 | 164 | 1.58 | 583 | 12.4 |
| Stage 3 Lead | - | 350 | 1.4895 | 0.2653 | 1 | 521 | 93 | 1.90 | 274 | 12.4 |
| | | | | | | **1,707** | **304** | | **1025** | |
| | | | | | | **2,993** | **533** | | **1,813** | |
| Set Depth, ft RKB | 6378 | | | | | | | | | |

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

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

| Production - 5-1/2" | Top | ft | Cement (ft3/ft) Annular Capacity | Excess (15%) | Total (ft3) | Total (bbl) | Slurry Yield (ft3/sk) | Sacks Cement | Density (PPG) |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |
| **Cased hole Tail** | **6,278** | **100** | **0.2531** | **1** | **25** | **5** | 1.59 | **16** | 13.2 |
| **Open Hole Tail** | **6,378** | **10,254** | **0.2291** | **1.15** | **2,712** | **483** | 1.59 | **1,706** | 13.2 |
| | | | | | **2,737** | **488** | | **1,722** | |
| Set Depth, ft RKB | 16632 | | | | | | | | |

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

*Cement calculations are used for volume estimation. Well conditions will dictate final cement job design.* Actual volumes will be calculated and determined by conditions onsite. All cement slurries will meet or exceed minimum

BLM and New Mexico Oil Conservation Division requirements. Slurries used will be the slurries listed above or equivalent slurries depending on service provider selected. Cement yields may change depending on slurries selected. All waiting on cement times shall be a minimum of 8 hours or adequate to achieve a minimum of 500 psi compressive strength at the casing shoe prior to drilling out.

## IV. COMPLETION

### A. CBL

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

### B. PRESSURE TEST

C. Pressure test 5-1/2" casing to 0.22 psi/ft * 7,104' TVD = 1563 psi for 30 minutes. Increase pressure to Open RSI sleeves.

### D. STIMULATION

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

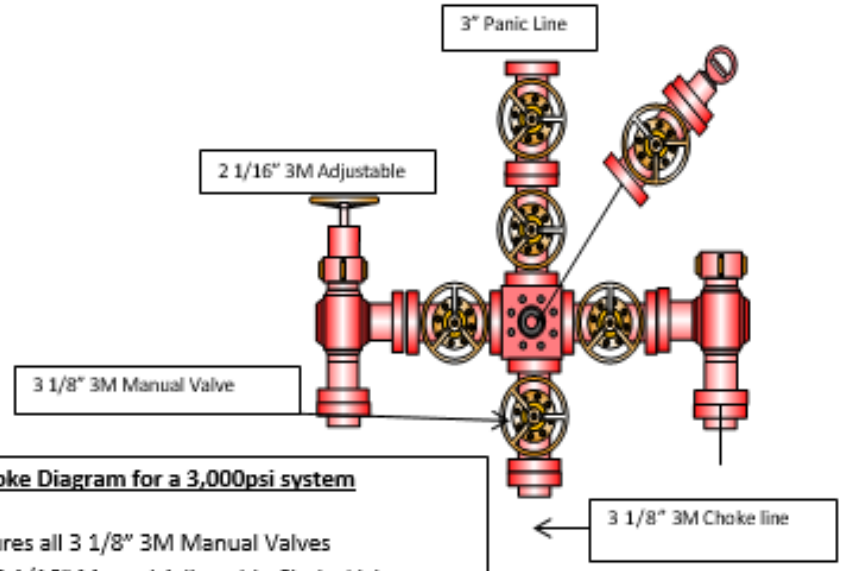
### E. PRODUCTION TUBING

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

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

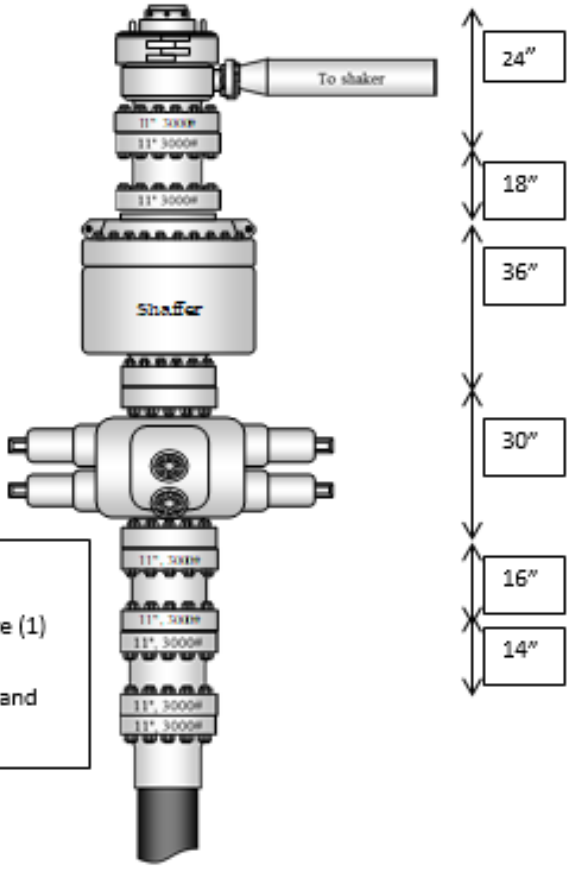
LOGOS OPERATING

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




**Choke Diagram for a 3,000psi system**

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




**11" 3,000psi BOP**

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

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

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

CONDITIONS

Action 340642

## CONDITIONS

| | |
|---|---|
| Operator:<br>LOGOS OPERATING, LLC<br>2010 Afton Place<br>Farmington, NM 87401 | OGRID:<br>289408 |
| | Action Number:<br>340642 |
| | Action Type:<br>[C-103] NOI Change of Plans (C-103A) |

**CONDITIONS**

| Created By | Condition | Condition Date |
|---|---|---|
| ward.rikala | All original COA's still apply. Additionally, if cement is not circulated to surface during drilling operations, then a CBL is required. | 5/21/2024 |